Lucent Technologies
Bell Labs Innovations

Attached Processor System
4ESS™ Switch Application
4AP<19> Generic
Maintenance Reference Handbook

Volume 1

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Issue 4
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Overview

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Overview

Purpose

This document is a reference manual for experienced personnel when using the **Attached Processor System (APS)**. The information in this issue has been prepared to the APS 4AP<19> Generic.

Scope

The front matter in this volume contains a title page, an originating organization page, a feedback sheet, and an overall table of contents. The feedback form allows the user of this document to return comments to the originating organization.

Volume 1 is divided into the following chapters:

1. **Overview:** Provides a brief description of the content of this document. Also included are the reasons for reissue and a listing of ***4ESS*** APS support documentation.
2. **APS Input Messages:** The APS Input Messages are not included in this handbook. Current APS Input Messages are found in the 4ESS/APS Switch Input Message Manual (IM4A001-01).

3. **Attached Processor System (APS) Diagnostics:** Provides the following:
   - Hierarchy for the control unit, the disk file controller, and the input/output processor.
   - Return status code for the messages and an explanation of the code.
   - Trouble Locating Procedure (TLP) for each unit and associated notes that identify the TLP.
   - Audit error codes are defined for the following:
     - — Diagnostic Monitor Program (DIAMON)
     - — Control Unit (CU)
     - — NON-CU
     - — Processor Control Process Message Delivery (PCPMD) Error Codes
     - — The phases for each unit with a description of the phase.
4. **Diagnostic Phases:** Contains application information concerning 3B computer, Attached Processor Interface (API), and Common Network Interface (CNI) ring diagnostics.
5. **System Recovery Procedures:** Contains displays for the emergency action page and the common processor page. This chapter also contains navigation commands, backup tape write procedures, the Applications Data Base (APPDB) backup and recovery, and the 3B computer retrofit procedures.
6. **APS Audit Codes:** Contains abort and error codes with associated descriptions.
7. **Status Register Layouts:** Provides bit layout and descriptions of the available registers.
8. **Attached Processor Interface (API):** Provides D-Level, INJ, and BLM reports. A dump layout is also provided for MC5A003 and MC5A012 Microcode with information that defines the related code. A word layout

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is included for the Attached Processor Interface Status (APISTATS). Information is also provided for the APS link commands and includes the upper and lower 16 bits for the Bus Interface Controller (BIC) commands. The symbols, codes, and descriptions are included for each area. The Bus Interface Controller (BIC) information provides the status flags and data flags symbols codes, and descriptions are identified for the user.

9. **Conditional All Test Passed (CATP):** Provides layouts for the conditional all test passed (CATP) for the API, the Control Units (CU), Disk File Controller (DFC), and Input/Output Processor (IOP).
10. **Panic Codes:** Provides utility identification codes and panic codes. Tables in this chapter also contain the process name and a description of the panic code.
11. **Ring Node:** Provides tables for the physical identification of the Interprocess Message Switch (IMS) user nodes with the ring node group and the physical address of the IMS user group to the ring node group.
12. **Error Interrupt Handler Faults:** Provides the interrupt type number, the fault, and a description of the fault.
13. **1ASTAT File Layout:** Provides the code for the 1ASTAT file layout.
14. **UNIX Real-Time Reliable (RTR):** Contains UNIX RTR processes and UNIX RTR levels of initialization. A table with the AU address range, the K-Code assignments that encompass the AU address BU bits, and the auxiliary unit assignments is also provided.
15. **Miscellaneous:** Contains the extender board tool pinouts that are graphic illustrations of the layouts for the 907A extender board tool pinout and the 918A extender board pinout; the number conversions for octal to binary, octal to binary values, hexidecimal to binary number conversions, hexidecimal to binary values, and binary to decimal number conversions are also included.
16. **Ports and Utility Identifications (UIDs):** In the PORT tables, port names, the number of the ports, the process codes, utility IDs, and

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descriptions are provided. In the UID tables, the UIDs, types, levels , and the 3B paths are provided for the following:

- IMS
- 4AP
- CNI
- RTR
- AIM

17. **Attached Processor System (APS) Reference Material:** Included are the practices and schematics that are necessary for ***4ESS*** maintenance.

Volume 2 chapters are as follows:

- **Introduction**
- **Processor Recovery Message (PRM)** format interpretation
- **PRM Analysis Procedure**
- **Processor Recovery Messages (PRMs)** for the UNIX® Real Time Reliable (RTR) Operating System and the detailed information about each PRM. The information includes the identification of the major step, interpretation of the failure information, and suggestions for corrective action.

Volume 3 contains the following chapters.

- **Introduction**
- **PRM Analysis Procedure**
- **Processor Recovery Messages** for the Application Integrity Monitor (AIM) and the Common Network Interface (CNI) Systems.
- **Abbreviations and Acronyms**

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Intended Audience

The use of this manual is recommended only for those familiar with the maintenance and operation of the Attached Processor System (APS). This manual is not intended to replace or supersede the use of information contained in Task Oriented Practices (TOPs) or Practices. When in doubt, use the appropriate system documentation.

Reason for Reissue

This handbook is being reissued to:

- Update information pertaining to the 3B20D/3B21D Computer. This includes APS diagnostics, APS audit codes, register layouts, panic codes, EIH faults, ports and utility identification.
- Update Processor Recovery Messages (PRMs) for 3B20D/3B21D Computer in Volume 2.
- Support UNIX® RTR Operating Systems (APS 4AP <19> generic).

This document does not contain any safety labels.

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Attached Processor System (APS) Input Messages

1

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Attached Processor System (APS) Input Messages

1

General Information

APS Input Messages are not included in this handbook. Current APS Input Messages are found in the 4ESS/APS Switch Input Message Manual (IM4A001-01). The Input Message Manual is updated 4 times per year. APS Input Messages are also found in the 234-010-131-*4ESS™/APS Switch Input Message Guide*. The Input Message Guide is issued in November.

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Attached Processor System (APS) Diagnostics

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Attached Processor System (APS) Diagnostics

2

Diagnostic Hierarchy

Control Unit

CC	—	Central Control (Includes the Store Address Translator (SAT) and cache diagnostics
MASC	—	Main Store Controller (Includes memory arrays)
DMAC	—	Direct Memory Access Controller
DMCH	—	Direct Memory Access Channel
UC	—	Utility Circuit

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Disk File Controller

DFC	—	Disk File Controller
SBUS	Small Computer System Interface (SCSI) Bus [(present for SCSI DFCs only) Restorable unit but does not have a diagnostic.]	
MHD	—	Moving Head Disk

Input/Output Processor

IOP	—	Input/Output Processor
MTTYC	—	Maintenance TTY Controller
TTYC	—	TTY Controller

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MTC	—	Magnetic Tape Controller
HSDC	—	High Speed Data Link Controller
SDLC	—	Synchronous Data Link Controller
SCSDC	—	Scan Point And Signal Distributor Controller
DUIC	—	Direct User Interface Controller

Return Status

Status		Explanation
ATP		All tests passed
CATP		*Conditional all tests passed.* Not all tests were run, but those that were run passed. The two 8-digit hexadecimal numbers that appear should be interpreted as a 64-bit binary number. Bit positions that are a "1" show a reason why tests were not run. The currently assigned bit positions for designated units are:
	CU 0	Not used
	1	Unit under test is forced on-line
	2	Sanity timers are disabled
	3	EAI forces are active
	4	Peripheral unit controller Out of Service (OOS)
	5	Invalid helper unit specified
	6	Helper unit unavailable
	7	Unit under test is forced off-line
	8	EAI initialization parameter buffer data reading; EAI must be cleared
	9	Helper unit not connected to subunit under test
	DFC 0	Helper unit not specified or invalid
	IOP 1	Helper unit cannot be reserved
	MTC 2	Helper unit is not OOS
	MT 3	Helper unit is not ATP
	4	Helper unit not connected to controller being diagnosed.
	10	Data link equipage bits not properly set in ECD

Return Status (Contd)

Status		Explanation
DFC	11	The UN582 Multipurpose Peripheral Controller (MPC) diagnostic pumpcode does not currently support this phase
IOP MTC MT (Contd)	17	Helper IOP Magnetic Tape (MT) transport is not mounted and/or transport door open.
	18	Helper IOP MT transport is not in "on-line" mode.
	19	Helper IOP MT reel has no Write Enable Ring (WER).
	20	Helper IOP MT is too long for diagnostic test tape.
	21	Helper IOP MT has no header block at Beginning of Tape (BOT) or header block indicates not diagnostic test tape.
	23	Phase cannot diagnose pack in growth unit.
	24	Helper unit is invalid (use the other CU as the helper unit).
DFC (SCSI Only) DFC2 & DFC3	32	First MHD on first Small Computer System Interface Bus (SBUS) of DFC did not respond correctly.
	33	Second MHD on first SBUS of DFC did not respond correctly.
	34	Third MHD on first SBUS of DFC did not respond correctly.

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Return Status (Contd)

Status			Explanation
	DFC (SCSI Only) DFC2 & DFC3 (Contd)	35	Fourth MHD on first SBUS of DFC did not respond correctly.
		36	Reserved for fifth MHD on first SBUS of DFC.
		37	Reserved for sixth MHD on first SBUS of DFC.
		38	Reserved for seventh MHD on first SBUS of DFC.
		40	First MHD on second SBUS of DFC did not respond correctly.
		41	Second MHD on second SBUS of DFC did not respond correctly.
		42	Third MHD on second SBUS of DFC did not respond correctly.
		43	Fourth MHD on second SBUS of DFC did not respond correctly.
		44	Reserved for fifth MHD on second SBUS of DFC.
		45	Reserved for sixth MHD on second SBUS of DFC.
		46	Reserved for seventh MHD on second SBUS of DFC.
NTR			No tests run
STF			Some tests failed. The number of failed tests is listed followed by two 8-digit reason numbers. These results also list the failing test numbers and their mismatched patterns. Only the first five failures are output unless the RAW option was specified on the input message.

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Trouble Locating Procedure (TLP) Notes

Unit	Note	Explanation
ACHI	01	Suspect any channel or DMA
CC	01	Do not remove equipment from active CU
	02	Cable to the maintenance channel of the CU
	03	CU could be held stopped by Micro Level Test Set (MLTS) or Bus Display Unit (BDU).
	04	If a "forced switch" of the CU is required, special prcautions are required to ensure the appropriate initialization level of the out-of-service (OOS) CU being forced to the active state. An RTR level 4 boot is always required if the side to be forced active has been previously powered down. Seek technical assistance (3B Customer Technical Support) for diagnostic failureanalysis and appropriate procedures for the force and boot of an out-of-service CU.
	05	MLTS, TN16, or UN16, if equipped
	06	CU could be powered down

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Trouble Locating Procedure (TLP) Notes (Contd)

Unit	Note	Explanation
CC (Contd)	07	Power switch board or one of the power converters may be bad. If the alarm is lighted on power switch board, power cycle the CU. If the OFF light stays illuminated in one of the power converters, that converter may be bad. If the OFF lights go out on all converters and the CU fails to power up, then the power switch board may be bad. (3B20D Model 1 computer CU power switch circuitry includes EAI board, TN11.)
	10	Board is in IOP0
	11	Board is in IOP1
	50	Channel board in the channel 0 position
	51	Channel board in the channel 1 position
	52	Channel board in the channel 2 position
	53	Channel board in the channel 3 position
	54	Channel board in the channel 4 position
	55	Channel board in the channel 5 position
	56	Channel board in the channel 6 position
	57	Board is the DMAO position (Model 1 - UN36)
	58	Board in the DMA1 position (Model 1 - UN36)
	59	A channel address lead is being held active by CU, Channel (CH), or DMA.

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Trouble Locating Procedure (TLP) Notes (Contd)

Unit	Note	Explanation
CC (Contd)	60	A channel or DMA may be responding and/or acknowledging falsely.
	61	A channel or DMA is holding channel error (ER bit 16) active low.
CH	01	Suspect any CH or DMA.
	02	Unterminated or defective cable on port under test.
	03	Suspect Helper Unit circuit packs. IOP and DFC cicuit packs may be at fault. For the SCSI DFC, these circuit packs include the Host Adapter (HA) and the DFC.
	04	The CH under test is connected, via the DSCH cable, to another circuit pack. Suspect the DDSBS logic in that circuit pack or the DSCH cable.
CSU	01	If a UN45C board is installed in the failing CU, verify that the strapping option corresponds to the Hardware Version (HV) field of the CSU Unit Control Block (UCB). A 1 in bit 0 of this field means a strap should exist from backplane pin 149 to 047 which enables the kernel stack to be put in interrupt stack cache memory. A 0 in bit 0 of this field means the strap should not exist. A discrepancy between the HV value and the strap should be corrected and the diagnostic retried.

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Trouble Locating Procedure (TLP) Notes (Contd)

Unit	Note	Explanation
CSU Contd	04	If a "forced switch" of the CU is required, special precautions are required to ensure the appropriate initialization level of the out-of-service (OOS) CU being forced to the active state. An RTR level 4 boot is always required if the side to be forced active has been previously powered down. Seek technica assistance (3B Customer Technical Support) for diagnostic failure analysis and appropriate procedures for the force and boot of an out-of-service CU.
DCI	01	The DCI could be powered down. This board is located in the attached processor.
	02	The attached processor or its software may be the cause of this phase failing.
DFC	01	The DFC could be powered down.
	02	Do not remove power or equipment from an active or in-service unit.
DMA	01	Suspect any channel or DMA.

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Trouble Locating Procedure (TLP) Notes (Contd)

Unit	Note	Explanation
DMA Contd	04	If a "forced switch" of the CU is required, special precautions are required to ensure the appropriate initialization level of the out-of-service (OOS) CU being forced to the active state. An RTR level 4 boot is always required if the side to be forced active has been previously powered down. Seek technical assistance (3B Customer Technical Support) for diagnostic failure analysis and appropriate procedures for the force and boot of an out-of-service CU.
DUIC	01	Part of the IOP controller. The IOP must be removed from service and powered down before this equipment can be replaced.
	02	Replacement equipment must have same microcode (MC) number.
IOP	01	The IOP could be powered down.
	02	Do not remove power or equipment from an active or in-service unit.
MASC	01	Do not remove power or equipment from an active or in-service unit.
	04	If a "forced switch" of the CU is required, special precautions are required to ensure the appropriate initialization level of the out-of-service (OOS) CU being forced to the active state. An RTR level 4 boot is always required if the side to be forced active has been previously powered down.

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Trouble Locating Procedure (TLP) Notes (Contd)

Unit	Note	Explanation
MASC (Contd)		Seek technica assistance (3B Customer Technical Support) for diagnostic failure analysis and appropriate procedures for the force and boot of an out-of-service CU.
	09	If memory failure, array is identified in **MEMORY FAILURE RESULTS** output message from failing phase.
	10	Suspect other units on the store bus: CC, other MASC in CU under test (in CUs with 2 MASCs), DMA(s), CSU (if equipped), and SAT.
	12	Suspect any array in this MASC.
	13	Suspect other MASC in this CU (in CUs with 2 UN39-UN40 MASCs) or any of its arrays
MHD	01	The implicated pack is part of the DFC controller; the DFC must be removed from service before this pack can be replaced.
	02	MHD_2GB means that the under-test disk drive must be replaced with another drive that has a capacity of greater than or equal to 2 GB (gigabytes).
	09	Refer to the maintenance instruction manual for KS-22072, L2, memory.

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Trouble Locating Procedure (TLP) Notes (Contd)

Unit	Note	Explanation
MHD (Contd)	10	These circuit cards are located in the logic card cage of the KS-22072, L2, memory unit. Refer to Note 09.
	11	The power amplifier, VP58, is located behind the logic card cage. Refer to Note 09.
	12	Codes for all circuit cards in the KS-22072, L1 memory are a 4-character string of alphanumeric or alpha characters. The first character in the string determines the revision level, and the last three characters determine the circuit card code. Therefore, identification of the circuit card is based on the last three characters.
	13	Read Note 12, then proceed. These circuit cards are located in the logic chassis. Refer to the Maintenance Instruction Manual for KS-22707,L1 memory.
	14	Read Note 12, then proceed. These circuit cards are located on the deck plate of the memory unit. Refer to the Maintenance Instruction Manual for KS-22707,L1 memory.
	16	MHD could be spun down
	17	MHD could be powered down
	18	Incorrect ID setting could be the cause of this failure.

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Trouble Locating Procedure (TLP) Notes (Contd)

Unit	Note	Explanation
MTC	01	Part of the IOP controller.The IOP must be removed from service and powered down before this pack can be replaced.
	02	The indicated faulty equipment is in the transport.
MTTYC	01	Part of the IOP controller. The IOP must be removed from service and powered down before this equipment can be replaced.
SCSDC	01	Part of the IOP controller. The IOP must be removed from service and powered down before this equipment can be replaced.
SDLC	01	Part of the IOP controller. The IOP must be removed from service and powered down before this can be replaced.
TTYC	01	Part of the IOP controller. The IOP must be removed from service and powered down before this can be replaced.
UC	01	Field Test Set (FTS) may have control of the Utility Circuit (UC).

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Audit Error Codes

Diagnostic Monitor Error Codes

Code	Explanation
41	Manual request to abort the Diagnostic Monitor (DIAMON) process
42	Cannot send event to diagnostic control (DIAGC)
43	Cannot find the TLP process path name in the utility file
44	Cannot spawn the TLP process
45	Cannot receive secondary message
46	Cannot make segment
47	Unable to enable message receive function
48	Message receive function failed
49	TTY name passed from Maintenance Input Request Administrator (MIRA) invalid
4A	Invalid spooler tag; check file.fmat
4B	Kill of DIAGC failed
4C	Invalid request received from MIRA
4D	Unable to find the remove process in the utility file
4E	Unable to find the restore process in the utility file

Diagnostic Monitor Error Codes (Contd)

Code	Explanation
4F	Attempted to spawn the remove process but failed
50	Attempted to spawn the restore process but failed
51	Invalid return tag from the remove process
52	Invalid return tag from the restore process
53	Cannot send remove process a message
54	Cannot send restore process a message
55	Invalid request received from user
56	An attempt to restore a unit that is not a restorable unit
57	Cannot open utility file
58	Cannot release UCB from ECD manager
59	Cannot send the result of the diagnostic to MIRA
5A	Cannot find a match on the tag in the utility file
62	Improper use of repeat counter and RPT option
63	Unrecognized child process

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Diagnostic Monitor Error Codes (Contd)

Code	Explanation
64	DIAGC was running on death of child signal
65	No process running on death of child signal
66	Illegal format on tag in the utility file
67	Could not remove specified unit/subunit
68	Could not restore specified unit/subunit
69	No TLP for the unit requested
6A	No diagnostic for the unit requested
6B	ECD manager failed to perform the UWUTIL function
6C	ECD failed to release special device file
6D	DIAMON unable to open message format file
6E	DIAMON unable to open diagnostic phase table
6F	DIAMON unable to open the ECD manager
70	Invalid equipment identification on input request
71	Unable to get next UCB from ECD manager
72	Unable to read the diagnostic phase table
73	DIAMON unable to spawn DIAGC (lcall failed)

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Diagnostic Monitor Error Codes (Contd)

Code	Explanation
74	Illegal phase specified on input request
75	UCB is reserved by another maintenance client
76	ECD had trouble with the special device file
77	Invalid secondary message received from MIRA or DIAGC
78	Invalid primary message received from MIRA
79	Return code from DIAGC invalid (dcg–>rd_prslt)
7A	Return code from a unit diagnostic invalid
7B	ECDMAN failed to perform the UWWHYRM function.
7C	User attempt to run diagnostics on an IOP tape unit
7D	User attempt to diagnose an invalid 3B21D computer CU subunit.

Control Unit Error Codes

Code	Explanation
41	Test count specified in phase does not match tests executed
42	Off-line microcode execution timed out
43	Off-line main store execution setarg error
44	Excofl time-out
45	Microcode pump failed
46	Illegal object file for (off-line) main store code execution
47	Cannot load off-line main store
48	Cannot set (off-line) register
49	Cannot set up stack for (off-line) main store code
4A	Off-line main store code execution problem
4B	Execute on-line failure
4C	Cannot open ECD manager derecd or devdgnecd
4D	Illegal or unspecified helper unit requested
4E	UCB data is invalid
4F	Psetup failed to pass topucb ptr to pcpmd driver
50	Incorrect input parameters in interactive mode
51	Getucb cannot get UCB named
52	Getucb cannot reserve helper unit UCB

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Control Unit Error Codes (Contd)

Code	Explanation
53	Getucb cannot release helper unit UCB
54	Cannot switch to helper unit UCB.
56	Signal from operating system - illegal instruction (SIGILL)
57	Signal from operating system - bus error (SIGBUS)
58	Signal from operating system - segment violation (SEGVIOL)
59	Signal from operating system - error on system call (SIGSYS)
5A	ECD Manager cannot get special device file pathname
5B	Failed to open special device file, read mode
5C	Failed to release special device file
5D	Failed to close special device file, read mode
61	Diagnostic control process failed to open diagnostic driver
62	Write to maintenance driver failed
63	Normal completion of a phase
64	Cannot open data table file

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Control Unit Error Codes (Contd)

Code	Explanation
65	Cannot share the DCB from DIAMON (connseg failed)
66	Error in data table
67	Invalid number of parameters from DIAMON
68	Open function failed open TTY device
69	Cannot open dgn format file
6A	Invalid command received while in interactive mode
6B	Cannot read (off-line) registers
6C	Cannot open TLP file — TLP option is denied
6D	Off-line CU has reset (maintenance restart function)
6E	Hardware platform/instruction mismatch

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Non-Control Unit Error Codes

Code	Explanation
41	Open special device file failed
42	SETIO failed
43	Make seg failed
44	Msgport failed, d = reason
45	Read peripheral controller pump file failed
46	Driver operation failed
47	Open peripheral controller pump file failed
48	Msgenab failure
49	Msgdisab failure
4A	Open PCPMD failed
4B	Write to PCPMD failed
4C	Excofl timed out
4D	Open ect manager failed
4E	Function ugucbn failed
4F	Peripheral interface controller microstore size not in UCB
50	Receive wait failed
51	Lexec function failed
52	E-host of UCB not initialized

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Non-Control Unit Error Codes (Contd)

Code	Explanation
53	Lseek function failure
54	MHD drive size not 5 or 19 tracks
55	Makeseg failed for disk write/read buffer
56	Disk write/read segment too small
57	Function ugetucb failed
58	DFC not active
59	IOP not active
61	SCSI bus not active
62	Incorrect flash ram file count
63	Feature not supported
64	Cannot open data table file
65	Cannot share DCG from DIAMON
66	Error in data table
67	Invalid number of parameters from DIAMON
68	Open spooler failed
69	Invalid equipage field value
6A	Invalid interface mode command
6C	Open tlpfile failed
6D	Signal: illegal instruction
6E	Signal: bus error

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Non-Control Unit Error Codes (Contd)

Code	Explanation
6F	Signal: segment violation
70	Signal: software termination
71	Function ugnxtucb failed
72	Illegal device type for DFC
73	Function ucbrsrv failed
74	Function ugsdf failed
75	Function diskinfo failed
77	Specified file is not accessible
78	Could not create output file
79	Flash RAM data file wrong size
7A	Could not write output file.

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Processor Control Process Message Delivery (PCPMD) Error Codes

Code	Explanation
0	Not a system error
60	Invalid emt value for this driver
61	Iomap error
62	Hardware not OOS or reserved
63	Not pseudo unit
64	Pointer not valid
65	No mate unit
66	Not a legitimate start UCB
67	Bad equipment identification entry
68	Bad search level entry
69	Could not find eqid unit
70	Unit not OOS
71	Unit already reserved
72	No idle minor device chain table entry
73	Backup not available
74	UCB type incorrect
75	Not a CU UCB
76	Invalid MCh order

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Processor Control Process Message Delivery (PCPMD) Error Codes (Contd)

Code	Explanation
77	PCPMD driver busy — try again later
78	Microassist code in off-line/slave failed
79	Pointer not pointing to a UCB
80	Invalid PCPMD driver command
81	Cannot fault the driver
82	Configuration control fail return
83	Processor not duplexed
84	Mate processor not active
85	Invalid argument
86	Maintenance Channel (MCH) hardware error
87	Execmch function did not process expected number of bytes
88	Ptimer kernel function returned fail
89	Time-out on reading off-line
90	Parity in on-line processor
91	Parity failure in off-line processor
92	Data is not same in both processors

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Processor Control Process Message Delivery (PCPMD) Error Codes (Contd)

Code	Explanation
93	The on-line master processor was specified
94	Stop DMA routine failed
95	Start DMA routine failed
96	Unequipped UCB specified or accessed
97	Not a top UCB
98	No match found
99	Bad tag value
100	Off-line CU MRFed
120	lla_nsqrid error
121	lla_rdget error
122	lla_uprid error
123	lla_opnsq error
124	lla_attrid error
125	lla_delete error
126	lla_sinfo error
127	lla_get error
128	lla_gtrid error
129	Update bit not set

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Processor Control Process Message Delivery (PCPMD) Error Codes (Contd)

Code	Explanation
130	The on-line CU rid in error
131	No DMA ucl(s) under the CU
132	My store parity error detected routine failed
133	Other store time-out error

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Phases (3B20D Computer)

Unit	Phase	Phase Description
APPLICATION CHANNEL INTERFACE	achi01	Application Channel Interface (ACHI) — Central Control Input/Output (CCIO) bus interface
	achi02	Data register loop-around tests
	achi03	Miscellaneous function tests
CENTRAL CONTROL	cc01	On-line Maintenance Channel (MCH) master tests
	cc02	MCH slave communication tests
	cc03	MCH slave command tests
	cc04	MCH microstore address and data register tests
	cc05	Microcontrol (MC) clock circuit tests, Microinstruction Register (MIR) and MC parity tests
	cc06	MC immediate data path, MCH access to test multiplexer, buffered Bidirectional Gating Register (BGR) parity bits and path to central control Error Register (ER)
	cc07	MC address sequencer: verifies basic address path for unconditional branch and no branch

Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
CENTRAL CONTROL (Contd)	cc08	MC address sequencer: conditional jump logic, opcode jam path, MC address stack, INT command to MCH, set Interrupt Set (IS) and Interrupt Mask (IM) registers
	cc09	Address and memory verification of UN28 (ROM) in control unit (CU) frame slot 0. Requires equipage bits in equipment configuration data base (ECD)
	cc10	Microstore Address Bus (MSA) parity tests
	cc11	Status registers — Hardware Status Register (HSR), Program Status Word (PSW), System Status Register (SSR)
	cc12	Pulse Point Register (PPR)
	cc13	Gate through Data Manipulation Unit (DMU) and byte rotate
	cc14	DMU bit rotate
	cc15	Arithmetic Logic Unit (ALU) matcher
	cc16	DMU Q-register
	cc17	DMU XOR, Z-flag, and ONES
	cc18	DMU general registers
	cc19	ALU and gating paths

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
CENTRAL CONTROL (Contd)	cc20	24-bit mode
	cc21	DMU loop-around
	cc22	Temporary registers
	cc26	MC privileged ROM (PROM) tests
	cc27	MC privileged PROM tests
	cc28	MC privileged PROM tests
	cc30	Writable Microstore (WMS): BGD, MSD, and MSA bus access. Tests UN48 (4K WMS) or UN248 (16K WMS) in CU frame slot 1. (Requires equipage bits in ECD)
	cc31	WMS control logic. Tests UN48 (4K WMS) or UN248 (16K WMS) in CU frame slot 1. (Requires equipage bits in ECD)
	cc32	Routine Exercise (REX) phase. Address and memory test of UN48 (4K WMS) or UN248 (16K WMS) in CU frame slot 1. (Requires equipage bits in ECD)

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
CENTRAL CONTROL (Contd)	cc33	Writable Microstore (WMS): BGD, MSD, and MSA bus access. Tests UN48 (4K WMS) or UN248 (16K WMS) in CU frame slot 2. (Requires equipage bits in ECD)
	cc34	WMS control logic. Tests UN48 (4K WMS) or UN248 (16K WMS) in CU frame slot 2. (Requires equipage bits in ECD)
	cc35	Routine Exercise (REX) phase. Address and memory test of UN48 (4K WMS) or UN248 (16K WMS) in CU frame slot 2. (Requires equipage bits in ECD)
	cc36	Writable Microstore (WMS): BGD, MSD, and MSA bus access. Tests UN48 (4K WMS) or UN248 (16K WMS) in CU frame slot 3. (Requires equipage bits in ECD)
	cc37	WMS control logic. Tests UN48 (4K WMS) or UN248 (16K WMS) in CU frame slot 3. (Requires equipage bits in ECD)

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
CENTRAL CONTROL (Contd)	cc38	Routine Exercise (REX) phase. Address and memory test of UN48 (4K WMS) or UN248 (16K WMS) in CU frame slot 3. (Requires equipage bits in ECD)
	cc39	DMU parity
	cc40	Store Control Register (SCR)/store control field of MIR to SCR
	cc41	Store Data Register (SDR), Store Instruction Register (SIR), Instruction Buffer (IB)
	cc42	Store Address Register (SAR) and Program Address Register (PAR)
	cc43	Instruction buffer parity circuit
	cc44	Address increment and parity predict
	cc45	Address increment (SAR only)
	cc46	SIR path to half-word multiplexer to IB
	cc47	SIR path to half-word multiplexer to IB
	cc48	SIR word to half-word multiplexer to IB
	cc49	SIR word to half-word multiplexer to IB
	cc52	A and B select and rotate amount multiplexer
	cc53	Mast ROM

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
CENTRAL CONTROL (Contd)	cc54	Find low zero (FLZ)
	cc55	Interrupt registers and logic
	cc56	Timers (includes CL_PT MCH command check)
	cc57	Channel data register
	cc58	CCIO bus sanity
	cc59	Other unit interrupts (CC Note 1)
	cc60	Error response logic
	cc61	EIA
	cc62	Off-line MCH Master Side Tests
	cc70	Address and memory verification of UN28 (ROM) in CU frame slot 2. (Requires equipage bits in ECD)
	cc71	Address and memory verification of UN28 (ROM) in CU frame slot 3. (Requires equipage bits in ECD)
	cc93	(CC Note 3)

CC Notes:

1. Indicates demand only phase
2. Indicates routine exercise phase
3. Indicates demand exercise phase

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
CACHE STORE UNIT	csu01	Access to cache memories and kernel/interrupt stack enable tests
	csu02	Cache memory match tests
	csu03	Hit/miss matchers (ATBA to tags A and B)
	csu04	Hit/miss matchers (ATBB to tags A and B)
	csu05	Hit/miss matchers (ATBA to tags C and D)
	csu06	Hit/miss matchers (ATBB to tags C and D)
	csu07	Select enable logic
	csu08	Write tag control logic (tags A and B)
	csu09	Write tag control logic (tags C and D)
	csu10	SAT interface (ATBA to tags A and C)
	csu11	SAT interface (ATBB to tags A and C)

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
CACHE STORE UNIT (Contd)	csu12	Tag parity generators
	csu13	Tag parity checkers
	csu14	Hit and miss counters
	csu15	Cache store write control logic
	csu16	Cache store write control logic
	csu17	Error check circuits on cache memory board
	csu18 (CSU Note 1)	Cache exercise (40 seconds)
	csu90 (CSU Note 2)	Cache exercise (40 minutes)

CSU Notes:

1. Indicates routine exercise phase
2. Indicates demand only phase

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Phases (3B20D Computer) (Contd)

Unit	Phase	VLMM Phase	Phase Description
ENLARGED CACHE STORAGE UNIT	csue01	csux01	Access to cache memories and interrupt stack enable tests.
	csue02	csux02	Cache tag and cache store memory match tests.
	csue03	csux03	Hit/miss matchers (ATBA to tags A and B).
	csue04	csux04	Hit/miss matchers (ATBB to tags A and B).
	csue05	csux05	Hit/miss matchers (ATBA to tags C and D).
	csue06	csux06	Hit/miss matchers (ATBB to tags C and D).
	csue07	csux07	Hit/miss matchers (ATBA to tags E and F).
	csue08	csux08	Hit/miss matchers (ATBA to tags E and F).
	csue09	csux09	Hit/miss matchers (ATBA to tags G and H).
	csue10	csux10	Hit/miss matchers (ATBA to tags G and H).

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Phases (3B20D Computer) (Contd)

Unit	Phase	VLMM Phase	Phase Description
ENLARGED CACHE STORAGE (Contd)	csue11	csux11	Select enable logic.
	csue12	csux12	Cache tag memory write control logic (tags A and B).
	csue13	csux13	Cache tag memory write control logic (tags C and D).
	csue14	csux14	Cache tag memory write control logic (tags E and F).
	csue15	csux15	Cache tag memory write control logic (tags G and H).
	csue16	csux16	ATBA relocation address to tag memory mod A and E.
	csue17	csux17	ATBA relocation address to tag memory mod B and F.
	csue18	csux18	ATBA relocation address to tag memory mod C and G.
	csue19	csux19	ATBA relocation address to tag memory mod D and H.
	csue20	csux20	Address and data parity generators.

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Phases (3B20D Computer) (Contd)

Unit	Phase	VLMM Phase	Phase Description
ENLARGED CACHE STORAGE (Contd)	csue21	csux21	Address and data parity checkers (tags A, B, C, and D).
	csue22	csux22	Address and data parity checkers (tags E, F, G, and H).
	csue23	csux23	Cache store write control logic – stack write and write update operations (all tags; A, B, C, D, E, F, G, and H).
	csue24	csux24	Cache store write control logic - normal read stack read and test cache mods updated at store complete time (all tags; A, B, C, D, E, F, G, and H).
	csue25	csux25	Error check circuits on cache memory board.
	csue26	csux26	REX phase. Cache exercise (40 seconds).
	csue90	csux90	Demand-only phase. Cache exercise (40 minutes).

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
DISK FILE CONTROLLER	dfc01	DSCH — Duplex Dual Serial Bus Selector (DDSBS) interface
	dfc02	DDSBS — Bus Interface Controller (BIC) interface and BIC circuitry excluding peripheral interface controller (PIC) interface
	dfc03	BIC — PIC interface using PIC resident firmware
	dfc04	BIC — PIC communication
	dfc05	PIC microstore data validity and microstore parity checker
	dfc06	PIC microsequencer
	dfc07	PIC Register and Arithmetic Logic Unit (RALU)
	dfc08	PIC source/destination decoders
	dfc09	PIC internal registers
	dfc10	PIC interrupt circuitry
	dfc11	PIC RAM memory and sequencer
	dfc12	Parallel/serial data interface and MHD control source and destination decoders

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
DISK FILE CONTROLLER (Contd)	dfc13	MHD control register
	dfc15 (DFC Note)	Interface with off-line CU

DFC Note:

Indicates demand only phase. The off-line CU must be specified as a helper unit, and it must be OOS and ATP. (For systems with SCSI disk drives, refer to SCSI Disk File Controller.)

DIRECT MEMORY ACCESS	dma01	Direct Memory Access (DMA) — CCIO bus interface
	dma02	Status tests
	dma03	RAM/register tests
	dma04	Sequencer tests
	dma05	Request priority circuit
	dma06	Store address tests
	dma07	Store data tests
	dma08	DMA error tests
	dma09	DMA/cache interface tests (Model 1)
	dma09c	DMA/cache interface tests (CAC0) (Models 2&3)

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
DIRECT MEMORY ACCESS (Contd)	dmav09	DMA/cache interface tests (CAC0) (VLMM)
	dma10	Main Store Update (MASU) priority and arbitration function tests (Model 1)
	dma10c	DMA/cache interface tests (CAC1) (Models 2&3)
	dmav10	DMA/cache interface tests (CAC1) (VLMM)
	dma11c	Main Store Update (MASU) priority and arbitration function tests (Models 2&3)
	dmav11	Main Store Update (MASU) priority and arbitration function tests (VLMM)
DIRECT MEMORY ACCESS CHANNEL	dmch01	Dual Serial channel (DSCH) — DIO bus interface
	dmch02	Data register (FIFO) tests
	dmch03	DSCH error tests
	dmch08	Port 0 selection, interrupts, and service requests

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
DIRECT MEMORY ACCESS CHANNEL (Contd)	dmch09	Port 1 selection, interrupts, and service requests
	dmch10	Port 2 selection, interrupts, and service requests
	dmch11	Port 3 selection, interrupts, and service requests
	dmch12	Port 4 selection, interrupts, and service requests
	dmch13	Port 5 selection, interrupts, and service requests
	dmch14	Port 6 selection, interrupts, and service requests
	dmch15	Port 7 selection, interrupts, and service requests
	dmch16	Port 8 selection, interrupts, and service requests
	dmch17	Port 9 selection, interrupts, and service requests
	dmch18	Port 10 selection, interrupts, and service requests
	dmch19	Port 11 selection, interrupts, and service requests

Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
DIRECT MEMORY ACCESS CHANNEL (Contd)	dmch20	Port 12 selection, interrupts, and service requests
	dmch21	Port 13 selection, interrupts, and service requests
	dmch22	Port 14 selection, interrupts, and service requests
	dmch23	Port 15 selection, interrupts, and service requests
	dmch24	Port 0 DSCH — Duplex Bus selector (DBS) communications tests
	dmch25	Port 1 DSCH — DBS communications tests
	dmch26	Port 2 DSCH — DBS communications tests
	dmch27	Port 3 DSCH — DBS communications tests
	dmch28	Port 4 DSCH — DBS communications tests
	dmch29	Port 5 DSCH — DBS communications tests

Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
DIRECT MEMORY ACCESS CHANNEL	dmch30	Port 6 DSCH — DBS communications tests
(Contd)	dmch31	Port 7 DSCH — DBS communications tests
	dmch32	Port 8 DSCH — DBS communications tests
	dmch33	Port 9 DSCH — DBS communications tests
	dmch34	Port 10 DSCH — DBS communications tests
	dmch35	Port 11 DSCH — DBS communications tests
	dmch36	Port 12 DSCH — DBS communications tests
	dmch37	Port 13 DSCH — DBS communications tests
	dmch38	Port 14 DSCH — DBS communications tests

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
DIRECT MEMORY ACCESS CHANNEL	dmch39	Port 15 DSCH — DBS communications tests
(Contd)	dmch40 (DMCH Note 2)	BIC — main store data transfer tests (use default parameters during demand exercises)
	dmch44	(DMCH Note 2)

DMCH Notes:

1. Indicates routine exercise phase
2. Indicates demand only phase

DUAL SERIAL CHANNEL	dsch01	DSCH — CCIO bus interface
	dsch02	Data register (FIFO) tests
	dsch03	DSCH error tests
	dsch08	Port 0 selection, interrupts, and service requests
	dsch09	Port 1 selection, interrupts, and service requests
	dsch10	Port 2 selection, interrupts, and service requests

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
DUAL SERIAL CHANNEL (Contd)	dsch11	Port 3 selection, interrupts, and service requests
	dsch12	Port 4 selection, interrupts, and service requests
	dsch13	Port 5 selection, interrupts, and service requests
	dsch14	Port 6 selection, interrupts, and service requests
	dsch15	Port 7 selection, interrupts, and service requests
	dsch16	Port 8 selection, interrupts, and service requests
	dsch17	Port 9 selection, interrupts, and service requests
	dsch18	Port 10 selection, interrupts, and service requests
	dsch19	Port 11 selection, interrupts, and service requests
	dsch20	Port 12 selection, interrupts, and service requests
	dsch21	Port 13 selection, interrupts, and service requests

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
DUAL SERIAL CHANNEL (Contd)	dsch22	Port 14 selection, interrupts, and service requests
	dsch23	Port 15 selection, interrupts, and service requests
DIRECT USER INTERFACE CONTROLLER	duic01	Request isolate, control signal, and control signal acknowledge from the PIC
	duic02	Read/write access of Dual Access Memory (DAM)
	duic03	DAM parity checker
	duic04	Microdiagnostic
	duic05 (DUIC Note)	Loopback mode
	duic06 (DUIC Note)	Send-frame modes

DUIC Note:

Indicates demand-only phase. These phases put the DUIC into special maintenance test modes.

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
INPUT/OUTPUT PROCESSOR	iop01	DSCH — DDSBS interface
	iop02	DDSBS — BIC interface and BIC circuitry excluding PIC interface
	iop03	BIC — PIC interface using PIC resident firmware
	iop04	BIC — PIC communication
	iop05	PIC microstore data validity and microstore parity checker
	iop06	PIC microsequencer
	iop07	PIC RALU
	iop08	PIC source/destination decoders
	iop09	PIC internal registers
	iop10	PIC interrupt circuitry
	iop11	PIC RAM memory and sequencer
	iop12	IO Microprocessor Interface (IOMI) hardware
	iop13	IOMI power control circuitry PC community power converter/monitor

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
INPUT/OUTPUT PROCESSOR (Contd)	iop15	Interface with off-line CU
	(IOP Note)	

IOP Note:

Indicates demand-only phase. The off-line CU must be specified as a helper unit—must be OOS and ATP.

MAIN STORE CONTROLLER	masc01	Test the inactive state of errors B/C and basic MAS controller (MASC) response
	masc02	Address loop-around
	masc04	Data communication test
	masc05	Parity circuit (data, address, control) tests and half word and byte decoding
	masc06	Maintenance commands, may store time-out microinterrupt, and store go error tests
	masc07	MASC memory array response tests
	masc08	Refresh rate tests
	masc09	MASC timing chain tests

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
MAIN STORE CONTROLLER (Contd)	masc10	Special memory operations and array parity tests (MASA 0)
	masc11	Destination and source wait states
	masc12	Single-bit hamming correction tests
	masc13	Double-bit error (hamming) tests
	masc14 - 28	Same as phase 10 for memory arrays 1 - 15
	masc29	Address loop-around through MAS update (MASU), duplex mode
	masc30	Data communication tests through MASU (duplex mode)
	masc31	Control lead parity and other store error tests through MASU (duplex mode)
	masc32	My store error B/C tests
	masc33 (MASC Note 2)	Memory data pattern tests — data = all zeros
	masc34 (MASC Note 2)	Memory data pattern tests — data = all zeros
	masc35	Memory data pattern tests — data = address and address complement

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
MAIN STORE CONTROLLER (Contd)	masc36 (MASC Note 2)	Memory data pattern tests — data = memory match pattern
	masc37	Test the ability to trap a failing address on errors A, B, C, and D
	masc38	Ensure the CC and MASC can fetch and execute instructions
	masc39 (MASC Note 1)	Update mode and refresh data parity check functional tests
	masc40 (MASC Note 2)	Memory data pattern tests — data = half word read and clear match pattern
	masc41	Update mode and refresh data parity check tests — entire memory
	masc42	MASU priority circuit and bus arbitration tests
	masc93 (MASC Note 1)	Test the main and duplicate refresh address registers

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
MAIN STORE CONTROLLER (Contd)	masc95 (MASC Note 3)	Memory data pattern tests with optional manual input parameters
	masc96 (MASC Note 3)	Update mode and refresh data parity check tests with optional manual input parameters

MASC Notes:

1. Indicates routine exercise phase
2. Indicates demand exercise phase
3. Indicates demand-only phase with special procedures

MOVING HEAD DISK (MHD)	mhds01 (MHD Note 2)	Diagnoses the SCSI device identified in the command — runs device self-tests — verifies integrity of SCSI device controller buffer — verifies reads/writes to MHD maintenance area

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
MOVING HEAD DISK (MHD) (Contd)	mhd01	Parallel/serial data interface and moving head disk control source and destination decoders
	mhd02	Moving head disk control register
	mhd03	Parallel/serial data interface
	mhd04	Moving head disk control, disk select, and drive enable
	mhd05 (MHD Note 2)	Moving head disk clock
	mhd06 (MHD Note 2)	Read/write circuitry and error correction circuitry
	mhd07 (MHD Note 2)	Seek, seek error detection, servo offset, and fault detection circuitry of the drive

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
MOVING HEAD DISK (MHD) (Contd)	mhd08 (MHD Notes 1 & 2)	Data transfer between CU and the drive

MHD Notes:

1. Indicates demand-only phase
2. Indicates a fully formatted disk pack must be mounted and spinning on the drive under test

MAGNETIC TAPE CONTROLLER	mtc01	Request isolate, control signal, and control signal acknowledge from the PIC
	mtc02	Read/write access of Dual Access Memory (DAM)
	mtc03	DAM parity checker
	mtc04	Microdiagnostic
	mtc05 (MTC Note)	Tape transport

MTC Note:

Indicates demand-only phase. A formatted diagnostic test tape must be mounted on the tape transport under test.

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
MAINTENANCE TTY CONTROLLER	mttyc01	Request isolate, control signal, and control signal acknowledge from the PIC
	mttyc02	Read/write access of DAM
	mttyc03	DAM parity checker
	mttyc04	Microdiagnostic
STORE ADDRESS TRANSLATOR	sat01	Store control register control flip-flops
	sat02	Address Translator Buffer (ATB) access and parity
	sat03	ATB memory
	sat04	Counter and invalidate circuit
	sat05	Address multiplexer
	sat06	Write control circuit
	sat07	Compare and bit circuit

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
STORE ADDRESS TRANSLATOR (Contd)	sat08	Protection circuit
	sat09	Matchers
	sat10	Main store interface
SERIAL CHANNEL	sch01	Serial Channel (SCH) — CCIO bus interface
	sch02	Data register write and read tests
	sch03	Functional, maintenance, and error tests
	sch04	Device port selection tests
SCAN POINT AND SIGNAL DISTRIBUTOR CONTROLLER	scsdc01	Request isolate, control signal, and control signal acknowledge from the PIC
	scsdc02	Read/write access of DAM
	scsdc03	DAM parity checker
	scsdc04	Microdiagnostic

Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
SMALL COMPUTER SYSTEM INTERFACE (SCSI) DISK FILE CONTROLLER	dfcs01	Dual serial channel (DSCH) — duplex dual serial bus selector (DDSBS) interface
	dfcs02	Duplex dual serial bus selector — bus interface controller (BIC) interface and BIC circuitry excluding Host Adapter Control Interface. No BIC first-in-first-out (FIFO) buffer memory testing.
	dfcs03	Bus interface controller — Host Adapter Control interface using Host Adapter resident firmware.
	dfcs04	WE32100 CPU test
	dfcs05	Test ROM by verifying its content
	dfcs06	Test 1 MB SRAM
	dfcs07	Host adapter (HA) register tests
	dfcs08	WE32104 DMAC test
	dfcs09	DUART test

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
SMALL COMPUTER SYSTEM INTERFACE (SCSI) (Contd)	dfcs10	Disk File Controller. System timing controller (STC) test
	dfcs11	SCSI protocol controllers (SPCs) test. Tests both SCSI busses
	dfcs12	Test (validate) only differential type devices attached to busses
	dfcs13	Test ability of SCSI devices to recognize and acknowledge bus reset
	dfcs14	DEX phase. Bit-wise independence test for HA FIFO buffer memory
	dfcs15	Demand-only phase. Tests the interface with the nonactive CU. The nonactive CU must be specified as the helper unit, and must be OOS and ATP
	dfcs90	Demand-only phase. SCSI bus loop test (requires craft interface and cable manipulation)

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
SYNCHRONOUS DATA LINK CONTROLLER	sdlc01	Request isolate, control signal, and control signal acknowledge from PIC
	sdlc02	Read/write access of DAM
	sdlc03	DAM parity checker
	sdlc04	Microdiagnostic
TTY CONTROLLER	ttyc01	Request isolate, control signal, and control signal acknowledge from PIC
	ttyc02	Read/write access of DAM
	ttyc03	DAM parity checker
	ttyc04	Microdiagnostic
UTILITY CIRCUIT	uc01	BGB access and enable
	uc02	Access matcher, address leads, read/write test
	uc03	Block address matcher, address leads, read/write test
	uc04	Address matcher, address leads, read/write test
	uc05	UID matcher, address leads, read/write test

Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
UTILITY CIRCUIT (Contd)	uc06	Data matcher, address leads, read/write test
	uc07	Event and transfer trace counters, read/write test
	uc08	Transfer trace access path Unit Identification (UID) buffers test
	uc09	Trace memory, read/write test
	uc10	Trigger functions in freeze mode tests
	uc11	Block address matcher adder tests
	uc12	Trigger functions in run mode without match conditions
	uc13	Access matcher, run mode tests
	uc14	Data matcher, run mode tests
	uc15	Address matcher, virtual address leads (SAR), run mode tests
	uc16	Address matcher, physical address leads, cache address A bus (CAA), run mode tests

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Phases (3B20D Computer) (Contd)

Unit	Phase	Phase Description
UTILITY CIRCUIT (Contd)	uc17	Address matcher, physical address leads, cache address B bus (CAB), run mode tests
	uc18	UID matcher, and transfer trace, run mode tests
	uc19	Trigger functions in run mode with match conditions
	uc20	Transfer trace, run mode tests
	uc90 (UC Note)	External input, external output trigger function 0
	uc91 (UC Note)	External input, external output trigger function 1
	uc92 (UC Note)	External input, external output trigger function 2
	uc93 (UC Note)	External input, external output trigger function 3

UC Note:
Indicates demand-only phase with special procedure

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Phases (3B21D Computer)

Table 2-A. Central Control

Phase	Description
cc01	On-line Maintenance Channel (MCH) Master Side Tests.
cc02	MCH Slave Communication.
cc03	MCH Slave command Tests.
cc04	Microstore Address (MSA) and Microstore Data (MSD) registers in off-line MCH.
cc05	BIST and boundary scan test on CC pack.
cc06	Individual Application Specific Integrated Circuit (ASIC) BISTs on CC pack.
cc07	Microcontrol (MC) clock circuit tests, MIR tests, MC parity tests
cc08	MC immediate data path, MCH access to test multiplexer, buffered Bidirectional Gating Register (BGR) parity bits, and path to the central control error.
cc09	MC address sequencer.
cc10	MC address sequencer.
cc11	Read-Only Memory (ROM) in microstore.
cc12	Microstore address bus parity.
cc13	Status register.
cc14	Pulse point register.
cc17	Gate through Data Manipulation Unit (DMU) and barrel shifter to rotate bit function.

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Phases (3B21D Computer) (Contd)

Table 2-A. Central Control (Contd)

Phase	Description
cc19	Arithmetic Logic Unit (ALU) matcher.
cc20	DMU Q register.
cc21	DMU X or Z flag and ONES.
cc22	DMU general registers.
cc23	ALU and gating paths.
cc24	24-bit mode.
cc25	DMU looparound.
cc26	Temporary and firmware registers.
cc29	MC privileged bits.
cc31	MC privileged bits.
cc32	Bidirectional Gating Bus (BGB), microstore data bus, microstore address bus access, and writable microstore.
cc33	BGB, microstore data bus, microstore address bus access, and writable microstore.
cc34	Routine Exercise (REX) phase. BGB, microstore data bus, microstore address bus access, and writable microstore (demand only).
cc35	DMU parity check.
cc38	Store control register.

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Phases (3B21D Computer) (Contd)

Table 2-A. Central Control (Contd)

Phase	Description
cc39	Store Data Register (SDR), Store Instruction Register (SIR), Instruction Buffer (IB).
cc40	Store Address Register (SAR), program address register.
cc41	IB parity circuit.
cc42	Address increment and parity.
cc44	SIR path to half-word multiplexer to IB.
cc45	SIR path to IB half-word multiplexer.
cc46	SIR path to path to half-word multiplexer to IB.
cc47	SIR path to half-word multiplexer to IB.
cc50	A and B select and rotate amount multiplexer.
cc51	Linecard register for masking out errors noted by the ERROR register (MASK).
cc52	Find-Low-Zero (FLZ) of DMU.
cc53	Interrupt registers and logic.
cc54	Timers.
cc55	Channel data register.
cc58	Central Control Input/Outout (CCIO) bus sanity.
cc59	Off-line MCH master side tests.

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Phases (3B21D Computer) (Contd)

Table 2-A. Central Control (Contd)

Phase	Description
cc60	Other unit interrupt (demand only).
cc61	Error response logic.
cc64	Emergency Action Interface.
cc65	EAI commands and display tests (demand only).
cc68	Store Control Register (SCR) Store Address Translator (SAT) control bits.
cc69	Address Translation Buffer (ATB) access and parity.
cc70	ATB memory.
cc71	Counter and invalidate circuit.
cc72	SAT address multiplier.
cc73	ATB write control logic.
cc74	ATB hit and miss logic.
cc75	ATB protection logic.
cc76	ATB matching of duplicate circuits.
cc77	Main store Interface.
cc80	Access to cache memories.
cc81	Cache tag and cache memory match.
cc82	Hit/miss matcher.
cc83	Write enable logic.
cc84	ATB relocation address tag memory.

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Phases (3B21D Computer) (Contd)

Table 2-A. Central Control (Contd)

Phase	Description
cc85	Address and data parity generator.
cc86	Address and data parity checker.
cc87	Cache store write control logic.
cc88	Cache error check circuitry.
cc89	Cache exercise (REX).
cc90	Phase cache exercise (demand only).

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Phases (3B21D Computer) (Contd)

Table 2-B. Direct Memory Access

Phase	Description
dma01	BIST/boundary scan tests.
dma02	DMA/CCIO bus interface.
dma03	Status tests.
dma04	Random Access Memory (RAM) register tests.
dma05	Sequencer tests.
dma06	Request priority circuit.
dma07	Store address tests.
dma08	Store data tests.
dma09	DMA error tests.
dma10	DMA/CCIO bus interface (demand only).
dma11	DMA/Cache interface tests.
dma13	Main-Store Update (MASU) priority and arbitration tests.

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Phases (3B21D Computer) (Contd)

Table 2-C. Direct Memory Access Channel

Phase	Description
dmch01	Direct IO bus interface.
dmch02	Data register FIFO tests.
dmch03	Error tests.
dmch10	Port 0 selection, interrupt, service requests.
dmch11	Port 1 selection, interrupt, service requests.
dmch12	Port 2 selection, interrupt, service requests.
dmch13	Port 3 selection, interrupt, service requests.
dmch20	Port 0 Dual Serial Channel (DSCH)/Duplex Dual Serial Bus Selector (DDSBS) communication tests.
dmch21	Port 1 DSCH/DDSBS communication tests.
dmch22	Port 2 DSCH/DDSBS communication tests.
dmch23	Port 3 DSCH/DDSBS communication tests.
dmch30	Demand Only - Port 0 DSCH/DDSBS communication tests.
dmch31	Demand Only - Port 1 DSCH/DDSBS communication tests.
dmch32	Demand Only - Port 2 DSCH/DDSBS communication tests.
dmch33	Demand Only - Port 3 DSCH/DDSBS communication tests.

Phases (3B21D Computer) (Contd)

Table 2-D. Disk File Controller 2

Phase	Description
dfcs02	DDSBS interface, DDSBS/BIC interface.
dfcs03	BIC – Peripheral Interface Controller (PIC) interface.
dfcs04	Central Processing Unit (CPU) Test 1.
dfcs05	Verify ROM contents.
dfcs06	Test 1-MB Static Random Access Memory (SRAM).
dfcs07	Host adapter register test.
dfcs08	WE32104 Direct Memory Access Controller (DMAC) test.
dfcs09	Dual Universal Asynchronous Receiver/Transmitter (DUART) test.
dfcs10	System Timing Controller (STC).
dfcs11	Small Computer System Interface (SCSI) protocol controllers test both SCSI buses.
dfcs12	Test that there are NO single-ended SCSI type devices attached to bus.
dfcs13	Test bus reset capability.
dfcs14	Demand Exercise (DEX) bit wise independent test for Host Adapter (HA) FIFO.
dfcs15	Test the interface to nonactive CU (demand only).
dfcs90	Demand only phase—bus loop test.

Phases (3B21D Computer) (Contd)

Table 2-E. Disk File Controller 3

Phase	Description
dfcs02	DDSBS interface, DDSBS/BIC interface.
dfcs03	BIC – Host Adapter Control (HA) interface
dfcs04	Central Processing Unit (CPU) Test.
dfcs05	Verify 1–byte ROM and FLASH memory contents.
dfcs06	Test the Static Random Access Memory (SRAM).
dfcs07	Host Adapter register test.
dfcs08	Direct Memory Access Controller (DMAC) test.
dfcs10	Test System Timers
dfcs11	Small Computer System Interface (SCSI) protocol controllers test both SCSI buses.
dfcs12	Test that there are NO single-ended SCSI type devices attached to bus.
dfcs13	Test bus reset capability.
dfcs15	Test the interface to nonactive CU (demand only).

Table 2-F. Dual Serial Channel Computer Interconnect

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Phase	Description
dci01	DSCH — duplex dual serial bus selector interface.
dci02	DDSBS — BIC interface.
dci03	BIC — PIC interface.

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Phases (3B21D Computer) (Contd)

Table 2-G. Input/Output Processor 2

Phase	Description
iop02	DSCH — duplex dual serial bus selector interface.
iop03	DDSBS — BIC interface and BIC circuitry excluding PIC interface.
iop04	BIC — PIC interface using PIC resident firmware.
iop05	BIC — PIC communication.
iop06	PIC microstore data validity and microstore parity checker.
iop07	PIC microsequencer.
iop08	PIC register and ALU.
iop09	PIC source/destination decoders.
iop10	PIC internal registers.
iop11	PIC interrupt circuitry.

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Phases (3B21D Computer) (Contd)

Table 2-G. Input/Output Processor 2 (Contd)

Phase	Description
iop12	PIC RAM and sequencer.
iop13	Input/output microprocessor interface hardware.
iop15	Input/Output Microprocessor Interface (IOMI) power control circuitry peripheral controller community power converter/monitor.
iop16	Demand-only phase. Test the interface with the nonactive CU. The nonactive CU must be specified as the helper unit, and must be OOS and ATP.

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Phases (3B21D Computer) (Contd)

Table 2-H. Main Store Controller

Phase	Description
masc01	Execute the Memory Controller (MCERT) "power-on" initial test.
masc02	Boundary scan test.
masc03	Test basic response from MM circuit.
masc04	Address looparound test.
masc05	Data path test.
masc06	Test store error A.
masc07	Maintenance command test.
masc08	My store B and C tests.
masc12	Single-bit hamming tests.
masc13	Double-bit error (hamming) tests.
masc14	Test address trap logic.
masc15	Arbiter RAM testing.
masc20	Short march test to Bank 0.
masc21	Short march test to Bank 1.
masc22	Short march test to Bank 2.

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Phases (3B21D Computer) (Contd)

Table 2-H. Main Store Controller (Contd)

Phase	Description
masc23	Short march test to Bank 3.
masc24	Short march test to Bank 4.
masc25	Short march test to Bank 5.
masc26	Short march test to Bank 6.
masc27	Short march test to Bank 7.
masc30	Memory operations and parity tests to Bank 0.
masc31	Memory operations and parity tests to Bank 1.
masc32	Memory operations and parity tests to Bank 2.
masc33	Memory operations and parity tests to Bank 3.
masc34	Memory operations and parity tests to Bank 4.
masc35	Memory operations and parity tests to Bank 5.
masc36	Memory operations and parity tests to Bank 6.
masc37	Memory operations and parity tests to Bank 7.
masc38	Address looparound through main store update (duplex mode).
masc39	Data looparound through main store update (duplex mode).
masc40	Main store update control and error tests.
masc41	Memory data pattern tests.
masc42	Test of fetch/execute instruction from main store.
masc43	Function testing of update mode and refresh data parity checks (some memory locations).

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Phases (3B21D Computer) (Contd)

Table 2-H. Main Store Controller (Contd)

Phase	Description
masc45	Routine Exercise (REX) phase, Memory data—March pattern tests.
masc46	Routine Exercise (REX) phase, Memory data—March pattern tests.
masc48	Routine Exercise (REX) phase, Memory data pattern tests using byte, half, read-modify-write commands.
masc50	Memory data—March pattern tests (demand only).
masc51	Memory data—March pattern tests (demand only).
masc52	Memory data—March pattern tests (demand only).
masc53	Memory data—March pattern tests (demand only).
masc95	Run User-Specified—March pattern tests (demand only).
masc96	Function testing of update mode and refresh data parity checks (all memory locations). User may specify test parameters.

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Phases (3B21D Computer) (Contd)

Table 2-I. SCSI Magnetic Tape

Phase	Description
mts01	Diagnose the SCSI device identified in the command: ▪ Reset and verify reset condition. ▪ Execute the built-in self-test of the tape unit.
mts90	Verify read/write of blocked data to tape. (Writable tape must be installed.)
mts91	Verify write protection mechanism of the tape unit. (Write protected tape must be installed.) Phase mts90 must be successfully executed before this phase.

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Phases (3B21D Computer) (Contd)

Table 2-J. Utility Circuit

Phase	Description
uc01	Bidirectional gating bus access and enable.
uc02	Access matcher, address leads, read/write test.
uc03	Block address matchers, address leads, read/write test.
uc04	Address matcher, address leads, read/write test.
uc05	Unit identification matcher, address leads, read/write test.
uc06	Data matcher, address leads, read/write test.
uc07	Event and trace memory addresses counters, read/write test.
uc08	Transfer trace memory access path unit identification buffers test.
uc09	Trace memory, read/write test.
uc10	Trigger functions in freeze mode tests.
uc11	Trigger functions in run mode without match conditions.
uc12	Access matcher, run mode tests.
uc13	Data matcher, run mode tests.
uc14	Address matcher, virtual address bus (store address register), run mode tests.
uc15	Address matcher, physical address bus, run mode tests.
uc16	Unit identification matcher, run mode tests.
uc17	Trigger functions in run mode with match conditions.

Phases (3B21D Computer) (Contd)

Table 2-J. Utility Circuit (Contd)

Phase	Description
uc18	Transfer trace, run mode tests.
uc19	Trace memory read/write indicator bit test.
uc90 (UC Note)	External input, external output trigger function 0.
uc91 (UC Note)	External input, external output trigger function 1.
uc92 (UC Note)	External input, external output trigger function 2.
uc93 (UC Note)	External input, external output trigger function 3.

UC Note:

Indicates demand-only phase with special procedure

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Diagnostic Phases

3

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Diagnostic Phases

3

Overview

The diagnostics aids in the following parts apply to the Attached Processor System (APS) and the Common Network Interface (CNI) ring. The CNI diagnostics are broken down into phases for the ring peripheral controller nodes (RPCN), link nodes (LNs), and direct link nodes (DLNs)

The procedures and information for doing UNIX® RTR operating system diagnostics are provided in the UNIX RTR System Maintenance Manual for 3B20D Computer and 3B21D Computer, 254-303-106.

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Attached Processor Interface

To diagnose the attached processor interface (API), the API unit must be out of service. The API may only be removed or restored from the processor. If the processor is currently diagnosing the API unit, the 3B computer requested APT diagnostics are blocked until the processor completes the diagnosis of the API unit.

The format of the 4ESS diagnostic is as follows:

DGN:API a **[;RPT**b**] [,RAW] [,UCL]]**
[:CU c**[,TLP] [,PH** d**]]!**

The variables are described in the IM-4A001-01 — **4ESS***/APS Input Manual*. The following information describes the suspected problem areas in the circuitry tested for each APS diagnostic phase.

Phase	Description	Suspect Hardware
1	Verifies that the API is powered up and the assigned scan and SD points are working properly. The API SD points are operated and the effects of their operation are tested via scan point reads. If the API is powered down, this phase terminates early.	133A PWR CONV TN17 PWR Switch UN42
2	Verifies that the following is inhibited when the trouble flip-flop is set: ■ AU Reply Bus Drivers ■ AU Store Address Bus Drivers ■ Enable and Verify Bus Drivers ■ Maintenance Interject Bus Drivers.	UN41 UN42 TN15

Attached Processor Interface (Contd)

Phase	Description	Suspect Hardware
3	A request to run the resident API diagnostics is sent to the 3B computer. After the diagnostics have run, the 3B computer sends a 1-word result to the 1B processor. Each bit in the result word corresponds to a 3B computer diagnostic phase run on the API. The following table is for translating the result word into the failing 3B computer diagnostic phase and suspect hardware.	

Result Word	Failing 3BPhase	3B PR Name	Suspect Hardware (See Note)
00000002	1	api01	TN69 TN70 TN61 TN62 TN15
00000004	2	api02	TN70 TN69 TN62
00000010	3	api03	TN61 TN70 TN62 TN69
00000020	4	api05	TN61 TN70 TN62 TN69
00000040	5	api06	TN61 TN62 TN70 TN69
00000100	6	api06	TN61 TN62 TN70 TN69
00000200	7	api07	TN61 TN62 TN70 TN69
00000400	8	api08	TN61 TN62 TN70 TN69
00001000	9	api09	TN61 TN62 TN70 TN69
00002000	10	api10	TN61 TN62 TN70 TN69
00004000	11	api11	TN61 TN62 TN70 TN69
00010000	12	api12	UN41 UN42 TN15 TN61 TN62 TN70 TN69

Note: If the API has expanded memory, CP TN61 may be replaced with TN30 and TN62 may be replaced with TN35.

Attached Processor Interface (Contd)

Phase	Description	Suspect Hardware
4	This phase performs the following tests: ■ Initialization ■ Auxiliary Unit Address Bus and Input Address Register ■ Auxiliary Unit Write Bus and Input Data Register ■ Input Address Parity Checker ■ Input Data Parity Checker	UN42 UN41 TN15
5	This phase performs the following tests: ■ Initialization ■ K-Code Circuitry ■ Mode Decoder ■ Illegal Address Detector ■ Maintenance Interject ■ Address Decoder ■ 1B Accessible Register ■ Store Access Sequencer Control	UN42 UN41 TN15

Attached Processor Interface (Contd)

Phase	Description	Suspect Hardware
5 (Contd)	■ Store Access Sequencer ■ Auto-increment of Output Address Register ■ All-Seems-Well and All-Seems-Well Failure	
6	This phase performs the following tests: ■ Initialization ■ Auxiliary Unit Reply Bus ■ Auxiliary Unit Store Address Bus ■ Store Address Parity	UN41 TN15 UN42
7	The phase performs the following tests: ■ Initialization ■ Command Register Interrupt ■ Reset from 1B Indicator Flip-Flop ■ 3B Computer Request 1B Processor Maintenance Interject	TN15 TN61 TN62 TN17 UN42 UN41 TN70

Attached Processor Interface (Contd)

Phase	Description	Suspect Hardware
7 (Contd)	■ Command Parity Failure on Write Indicator ■ Out-of-Range Store Address Inhibiting DMA Sequencer ■ Busy and Write Flip-Flop ■ CMR Enable Bit in AUSTAT Register ■ Sequencer Disable Bit in AUSTAT Register ■ Byte Parity Generation on 1B Access of CMR and DMR ■ Command Register Parity	
8	This phase performs the following tests: ■ Initialization ■ All-Seems-Well and Store Data Parity Error	UN42 TN15 UN41

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Attached Processor Interface (Contd)

Phase	Description	Suspect Hardware
8 (Contd)	■ All-Seems-Well Inhibited by Error Sources ■ Maintenance Flip-Flop	
9	This phase transfers a 512-word block of data from the PIC of the 1B to provide quick end-to-end operational test of the API. This phase runs only if all previous phases are ATP.	TN15 TN61 TN62 TN17 UN42 UN41 TN70

Direct Link Node (DLN)

Phase	Phase Description	Suspect Hardware
30	Tests interface between the Dual Serial Channel (DSCH) and the Duplex Dual Serial Bus Selector (DDSBS)	TN69B UN09
31	Tests interface between the DDSBS and the 3BI	TN914 TN69B
32	Tests ability of Node Processor (NP) to go ''insane'' and set the ''Interrupt Request Flag'' when the 3BI has an error	TN914 TN922 UN122 UN123
33	Tests the interface between the 3B Computer Interface and the NP	TN922 TN914
34*	Off-line CU to DDSBS tests	TN69B UN09
35	Cooperates with the 3B Computer driver to test the DMA capability via the 3B Computer Interface.	TN922 TN914

* Demand phase only. Off-line CU must be specified as a helper unit.

Link Node (LN)

Phase	Phase Description	Suspect Hardware
01	Tests that each node in the isolated segment is able to set and clear its data selector via hardware commands at RAC0. Phase 1 also tests that a message can be relayed from the BISO node to the EISO node via the isolated segment over ring 0, and that any interframe buffers in the isolated segment are equipped in accordance with ECD data and exhibits the proper data storage capacity.	UN122 UN123 TN915 TN918 RING BUS CABLE
02	Tests that each node in the isolated segment is able to set and clear its data selector via hardware commands at RAC1. Phase 2 also tests that a message can be relayed from the EISO node to the BISO node via the isolated segment over ring 1, and that any interframe buffers in the isolated segment are equipped in accordance with ECD data and exhibits the proper data storage capacity.	UN122 UN123 UN915 TN918 RING BUS CABLE
10	Tests part of both RAC circuit packs, and the RAC to the NP interface. This phase also partially tests the interface between both RACs and the ring bus.	TN913/TN922 UN122 UN123

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Link Node (LN) (Contd)

Phase	Phase Description	Suspect Hardware
11	Makes additional tests of the interface between both RACs and the ring bus. Checks the capacity of the interframe buffers associated with node under test	UN122 TN913/TN922 UN123
12	This phase verifies that RAC0 can detect bad parity in a ring message.	UN122
13	This phase verifies that RAC1 can detect bad parity in a ring message.	UN123
20	Tests the NP RAM memory	TN913/TN922
23	This phase tests the NP parity checker and generator circuitry.	TN913/TN922
24	This phase tests the NP programmable master and slave interrupt controllers and associated circuitry.	TN913/TN922
26	This phase tests the NP programmable Direct Memory Access Controllers and associated circuitry.	TN913/TN922
27	This phase tests the NP programmable interval timer circuitry.	TN913/TN922
40	Tests hardware in the LI board or the LI-NP interface	TN913/TN922 TN916 TN917

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Link Node (LN) (Contd)

Phase	Phase Description	Suspect Hardware
41	This phase tests the sanity of the microprocessor and the ROM.	TN913/TN922 TN916 TN917
47	Tests the 2.4, 4.8, and 56 Kbps data service units, along with their respective VFLA or DSA units	TN913/TN922 TN916 TN917 TN919
48	This phase insures that the firmware and the hardware on the LI board functions as a whole.	TN913/TN922 TN916 TN917 TN919

Ring Peripheral Controller (RPC) Node

Phase	Phase Description	Suspect Hardware
01	Tests that each node in the isolated segment is able to set and clear its data selector via hardware commands at RAC0. Phase 1 also tests that a message can be relayed from the BISO node to the EISO node via the isolated segment over ring 0, and that any interframe buffers in the isolated segment are equipped in accordance with ECD data and exhibits the proper data storage capacity.	UN122 UN123 TN915 TN918 RING BUS CABLE
02	Tests that each node in the isolated segment is able to set and clear its data selector via hardware commands at RAC1. Phase 2 also tests that a message can be relayed from the EISO node to the BISO node via the isolated segment over ring 1, and that any interframe buffers in the isolated segment are equipped in accordance with ECD data and exhibits the proper data storage capacity.	UN122 UN123 UN915 TN918 RING BUS CABLE
10	Tests interface between the DSCH and the DDSBS	TN69B UN9
11	Tests interface between the DDSBS and the 3BI	TN914 TN69B

Ring Peripheral Controller (RPC) Node (Contd)

Phase	Phase Description	Suspect Hardware
12	Tests ability of NP to go ''insane'' and set the ''Interrupt Request Flag'' when the 3BI has an error	TN914 TN922 UN122 UN123
13	Tests the interface between the 3BI and the NP	TN922 TN914
14*	Off-line CU to DDSBS test	TN69B UN09
20	Tests the NP RAM memory	TN922
23	This phase tests the NP parity checker and generator circuitry.	TN922
24	This phase tests the NP programmable master and slave interrupt controllers and associated circuitry.	TN922
26	This phase tests the NP programmable Direct Memory Access Controller and associated circuitry.	TN922
27	This phase tests the NP programmable interval timer circuitry.	TN922
30	Tests part of both RAC circuits and the RAC to the NP interface. Partially tests interface between both RACs and the ring bus.	TN922 UN122 UN123

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Ring Peripheral Controller (RPC) Node (Contd)

Phase	Phase Description	Suspect Hardware
31	Makes additional tests of interface between both RACs and the ring bus. Checks the capacity of the interframe buffers associated with the node under test.	UN122 TN922 UN123
32	This phase verifies that RAC0 can detect bad parity in a ring message.	UN122
33	This phase verifies that RAC1 can detect bad parity in a ring message.	UN123

* Demand phase only. Off-line CU must be specified as a helper unit.

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Integrated Ring Node 2 Small Computer System Interface, Interface Node (SIN)

Diagnostic Phases

Phase	Phase Description
01	Tests that each node in the isolated segment is able to set and clear its data selector via hardware commands at Ring Access Circuit 0 (RAC0). Phase 1 also tests that a message can be relayed from the Beginning Isolation (BISO) Node to the Ending Isolation (EISO) Node via the isolated segment over ring 0, and that any interframe buffers in the isolated segment are equipped in accordance with ECD data and exhibits the proper data storage capacity.
02	Tests that each node in the isolated segment is able to set and clear its data selector via hardware commands at Ring Access Circuit 1 (RAC1). Phase 2 also tests that a message can be relayed from EISO node to the BISO node via the isolated segment over ring 1, and that any interframe buffers in the isolated segment are equipped in accordance with ECD data and exhibits the proper data storage capacity.
10	Tests part of both Ring Access Circuits (RACs), the RAC to the NP interface, and the interface between both RACs and the ring bus. Checks the capacity of the interframe buffers associated with node under test.
12	This phase verifies that RAC0 can detect bad parity in a ring message.

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Diagnostic Phases (Contd)

Phase	Phase Description
13	This phase verifies that RAC1 can detect bad parity in a ring message.
20	Tests the NP RAM memory, NP parity checker, and generator circuitry.
30	Tests interface between the Dual Serial Channel (DSCH) and the DDSBS.
31	Tests interface between the DDSBS and the 3BI.
32	Tests ability of NP to go "insane" and set the "Interrupt Request Flag" when the 3BI has an error.
33	Tests the interface between the 3BI and the NP.
34	Off-line Control Unit (CU) to DDSBS tests (demand phase only).
35	Cooperates with the 3B driver to test the DMA capability via the 3BI.
40	Tests the SCSI interface hardware.

Small Computer System Interface Node (SIN) Trouble Location Circuit Pack List

"Small Computer System Interface Node Trouble Location Circuit Pack List"

Diagnostic Phase		Probable/Suspected Faulty Pack	Unit Name
Phase	Table		
01	iun01.l	UN304 TN915/TN918 TN1506/TN1508/TN1509 Ring Bus Cable	IRN2 IFB IFB RNC/C
02	iun02.l		
10	iun10.l	UN304	IRN2
12	iun12.l	UN304 TN915/TN918 TN1506/TN1508/TN1509	IRN2 IFB IFB
13	iun13.l		
20	iun20.l	UN304	IRN2
30	iun30.l	TN69B	DDSBS
		UN09 (on 3B)	DSCH
31	iun31.l	TN914	3BI
		TN69B	DDSBS
32	iun32.l	TN914	3BI
		UN304	IRN2
33	iun33.l	TN914	3BI
		UN304	IRN2

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Small Computer System Interface-Interface Node Trouble Location Circuit Pack List (Contd)

Diagnostic Phase		Probable/Suspected Faulty Pack	Unit Name
Phase	Table		
34	iun34.l	TN69B	DDSBS (Demand only phase)
		UN09 (on 3B)	Off-line DSCH
35	iun35.l	TN914	3BI
		UN304	IRN2 33
40	sin.40.l	TN1804	SCSI
		UN305	IRN2

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D-Channel Node Diagnostics

Small Scale Integration (SSI) D-Channel Node Diagnostic Phases

Phase	Phase Description
01	Tests that each node in he isolated segment is able to set and clear its data selector via hardware commands at RAC0. Phase 1 also tests that a message can be relayed from the BISO node to the EISO node via the isolated segment over ring 0, and that any interframe buffers in the isolated segment are equipped in accordance with ECD data and exhibits the proper data storage capacity.
02	Tests that each node in the isolated segment is able to set and clear its data selector via hardware commands at RAC1. Phase 2 also tests that a message can be relayed from the EISO node to the BISO node via the isolated segment over ring 1, and that any interframe buffers in the isolated segment are equipped in accordance with ECD data and exhibits the proper data storage capacity.
10	Tests part of both RAC circuit packs, and the RAC to the NP interface. It also partially tests the interface between both RACs and the ring bus.
11	Makes additional tests of the interface between both RACs and the ring bus. Checks the capacity of the interframe buffers associated with the node under test.
12	This phase verifies that RAC0 can detect bad parity in a ring message.
13	This phase verifies that RAC1 can detect bad parity in a ring message.

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Small Scale Integration (SSI) D-Channel Node Diagnostic Phases (Contd)

Phase	Phase Description
20	Tests the NP RAM memory.
23	This phase tests the NP parity checker and generator circuitry.
24	This phase tests the NP programmable master and slave interrupt controllers and associated circuitry.
26	This phase tests the NP programmable Direct Memory Access Controllers and associated circuitry.
27	This phase tests the NP programmable interval timer circuitry.
29	This phase tests the T1FA 8032 processor and its internal RAM, the T1FA/NP dual port RAM, the T1FA maintenance buffer, the T1FA - T1 chip set (framer, transmitter/formatter, receiver/ synchronizer), and verifies EPROM based code by running "check-sum" test. This phase also verifies the remaining DPRAM and insures the T1FA is not insane.
39	This phase verifies the ability of the node to read, write and propagate a maximum length long message. (Demand only phase for transition load)
50	This phase tests the LI4 0 local RAM and the Dual Port RAM from the Node Processor. The LI4 is held reset.
51	This phase tests the NP-LI4 0 interface and DPRAM from the NP view, while the microprocessor on the Link Interface board is running. This phase is downloaded to the LI4 0 via the NP.
52	This phase tests the 8086 microprocessor on the LI4 0 board. A subset of the instruction set of the 8086 is exercised to verify that the microprocessor operates properly. This phase is downloaded to the LI4 0 via the NP.

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Small Scale Integration (SSI) D-Channel Node Diagnostic Phases (Contd)

Phase	Phase Description
53	This phase tests the DPRAM and the parity check circuit and is downloaded to the LI4 0 RAM via the NP.
54	This phase tests the Programmable Interrupt Controllers and the Programmable Interval Timers. This phase is downloaded to the LI4 0 RAM via the NP.
55	This phase tests the DMA, Serial Communications Chip (SCC), part of the Programmable Interrupt Controller, timers, and the formatting chips of LI4 0 when the LI4D is tested (TN1315).
56	This phase tests the 12 A Applique and the 2048 data set. This phase is downloaded to the LI4 0 via the NP. This only applies to the LI4S.
60	This phase tests the LI4 1 local RAM and the Dual Port RAM from the Node Processor.
61	This phase tests the NP-LI4 1 interface and DPRAM from the NP view, while the microprocessor on the Link Interface board is running. This phase is downloaded to the LI4 1 via the NP.
62	This phase tests the 8086 microprocessor on the LI4 1 board and is downloaded to the LI4 1 via the NP. A subset of the instruction set of the 8086 is exercised to verify that the microprocessor operates properly.
63	This phase tests the DPRAM and the parity check circuit and is downloaded to the LI4 1 RAM via the NP.
64	This phase tests the Programmable Interrupt Controllers and the Programmable Interval Timers. This phase is downloaded to the LI4 1 RAM via the NP.

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Small Scale Integration (SSI) D-Channel Node Diagnostic Phases (Contd)

Phase	Phase Description
65	This phase tests the DMA, Serial Communications Chip (SCC), part of the Programmable Interrupt Controller, timers, and the formatting chips of LI4 1 when the LI4D is tested (TN1315).
66	This phase tests the 12 A Applique and the 2048 data set. This phase is downloaded to the LI4 1 RAM via the NP. This only applies to the LI-4S.

SHEET 23 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-03 : SPEC-luc043a : GM VER. 2.5a

Small Scale Integration D-Channel Trouble Location Circuit Pack List

Diagnostic Phase		Probable/Suspected Faulty Pack	Unit Name
Phase	Table		
01	iun01.l	UN122( ) UN123( ) TN915/TN918 TN1506/TN1508/TN1509 Ring Bus Cable	RIO RI1 IBF IFB RNF/C
02	iun02.l		
10	iun10.l	UN122( )	RlO
		UN123( )	Rl1
		TN922	NP
11	iun11.l	UN122( )	RlO
		UN123( )	Rl1
		TN922	NP
12	iun12.l	UN303( )	IRN
		TN915/TN918	IFB
		TN1506/TN1508/TN1509	IFB
13	iun13.l	UN122( )	RIO
		UN123( )	RIO
		TN915/TN918	IFB
		TN1506/TN1508/TN1509	

Small Scale Integration D-Channel Trouble Location Circuit Pack List (Contd)

Diagnostic Phase		Probable/Suspected Faulty Pack	Unit Name
Phase	Table		
20	iun20.l	TN922	NP
23	iun23.l	TN922	NP
24	iun24.l	TN922	NP
26	iun26.l	TN922	NP
27	iun27.l	TN922	NP
29	iun29.l	UN291	T1FA
39	iun39.l	UN122( )	Rl1
		UN123( )	Rl1
50	LI4ph0.50.l	TN922 TN1315 TN1316	NP LI4D O LI4S O
51	LI4ph0.51.l		
52	LI4ph2.52.l	TN1315 TN1316	LI4D O LI4S O
53	LI4ph3.53.l		
54	LI4ph4.54.l		
55	LI4ph5.55.l		

SHEET 25 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-03 : SPEC-luc043a : GM VER. 2.5a

Small Scale Integration D-Channel Trouble Location Circuit Pack List (Contd)

Diagnostic Phase		Probable/Suspected Faulty Pack	Unit Name
Phase	Table		
56	LI4ph6.56.l	TN1315	LI4D O
		TN1316	LI4S O
		Applique 12A	Facility Interface
60	LI4ph0.60.l	TN922 TN1315 TN1316	NP LI4D O LI4S O
61	LI4ph0.61.l		
62	LI4ph2.62.l	TN1315 TN1316	LI4D O LI4S O
63	LI4ph3.63.l		
64	LI4ph4.64.l		
65	LI4ph5.65.l		
66	LI4ph6.66.l	TN1316	LI4S 1
		2048-A	Data Sets
		Applique 12A	Facility Interface

SHEET 26 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-03 : SPEC-luc043a : GM VER. 2.5a

Integrated Ring Node D-Channel Node Diagnostic Phases

Phase	Phase Description
01	Tests that each node in the isolated segment is able to set and clear its data selector via hardware commands at RAC0. Phase 1 also tests that a message can be relayed from the BISO node to the EISO node via the isolated segment over ring 0, and that any interframe buffers in the isolated segment are equipped in accordance with ECD data and exhibits the proper data storage capacity.
02	Tests that each node in the isolated segment is able to set and clear its data selector via hardware commands at RAC1. Phase 2 also tests that a message can be relayed from the EISO node to the BISO node via the isolated segment over ring 1, and that any interframe buffers in the isolated segment are equipped in accordance with ECD data and exhibits the proper data storage capacity.
10	Tests part of both RACs, the RAC to the NP interface, and the interface between both RACs and the ring bus. Checks the capacity of the interframe buffers associated with the node under test.
12	This phase verifies that RAC0 can detect a bad parity in a ring message.
13	This phase verifies that RAC1 can detect bad parity in a ring message.
20	Tests the NP RAM memory, NP parity checker and the generator circuitry.
21	Tests the NP programmable master and slave interrupt controllers and associated circuitry. This phase also tests the NP programmable interval timer circuitry.

Integrated Ring Node D-Channel Node Diagnostic Phases (Contd)

Phase	Phase Description
29	This phase tests the T1FA 8032 processor and the internal RAM of the T1FA 8032 processor, the T1FA/NP dual port RAM, the T1FA maintenance buffer, the T1FA - T1 chip set (framer, transmitter/formatter, receiver/synchronizer), and verifies EPROM based code by running "check-sum" test. This phase also verifies the remaining DPRAM and insures the T1FA is not insane.
39	This phase verifies the ability of the node to read, write and propagate a maximum length long message. (Demand only phase for transition load)
50	This phase tests the LI4 0 local RAM and the Dual Port RAM from the Node Processor. The LI4 is held reset.
51	This phase tests the NP-LI4 0 interface and DPRAM from the NP view, while the microprocessor on the Link Interface board is running. This phase is downloaded to the LI4 0 via the NP.
52	This phase tests the 8086 microprocessor on the LI4 0 board. A subset of the instruction set of the 8086 is exercised to verify that the microprocessor operates properly. This phase is downloaded to the LI4 0 via the NP.
53	This phase tests the DPRAM and the parity check circuit. This phase is downloaded to the LI4 0 RAM via the NP.
54	This phase tests the Programmable Interrupt Controllers and the Programmable Interval Timers. This phase is downloaded to the LI4 0 RAM via the NP.
55	This phase tests the DMA, Serial Communications Chip (SCC), part of the Programmable Interrupt Controller, timers, and the formatting chips of LI4 0 when the LI4D is tested (TN1315).

SHEET 28 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-03 : SPEC-luc043a : GM VER. 2.5a

Integrated Ring Node D-Channel Node Diagnostic Phases (Contd)

Phase	Phase Description
56	This phase tests the 12 A Applique and the 2048 data set. This phase is downloaded to the LI4 0 via the NP. This only applies to the LI-4S.
60	This phase tests the LI4 1 local RAM and the Dual Port RAM from the Node Processor.
61	This phase tests the NP-LI4 1 interface and DPRAM from the NP view, while the microprocessor on the Link Interface board is running. This phase is downloaded to the LI4 1 via the NP.
62	This phase tests the 8086 microprocessor on the LI4 1 board. A subset of the instruction set of the 8086 is exercised to verify that the microprocessor operates properly. This phase is downloaded to the LI4 1 via the NP.
63	This phase tests the DPRAM and the parity check circuit. This phase is downloaded to the LI4 1 RAM via the NP.
64	This phase tests the programmable interrupt controllers and the programmable interval timers. This phase is downloaded to the LI4 1 RAM via the NP.
65	This phase tests the DMA, Serial Communications Chip (SCC), part of the programmable interrupt controller, timers, and the formatting chips of LI4 1 when the LI4D is tested (TN1315).
66	This phase tests the 12-A Applique and the 2048 data set. This phase is downloaded to the LI4 1 via the NP. This only applies to the LI-4S.

SHEET 29 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-03 : SPEC-luc043a : GM VER. 2.5a

Integrated Ring Node D-Channel Trouble location CP List

Diagnostic Phase		Probable/Suspected Faulty Pack	Unit Name
Phase	Table		
01	iun01.l	UN303( ) TN915/TN918 TN1506/TN1508/TN1509 Ring Bus Cable	IRN IFB IFB RNF/C
02	iun02.l		
10	iun10.l	UN303( )	IRN
12	iun12.l	UN303( ) TN915/TN918 TN1506/TN1508/TN1509	IRN IFB IFB
13	iun13.l		
20	iun20.l	UN303( )	IRN
21	iun21.l		
29	iun29.l	UN291( )	T1FA
39	iun39.l	UN303( )	IRN
50	LI4ph0.50.l	UN303( )	IRN
		TN1315	LI4D O
		TN1316	LI4S O

Integrated Ring Node D-Channel Trouble location CP List (Contd)

Diagnostic Phase		Probable/Suspected Faulty Pack	Unit Name
Phase	Table		
51	LI4ph1.51.l	UN303( )	IRN
		TN1315	LI4D O
		TN1316	LI4S O
52	LI4ph2.52.l	TN1315 TN1316	LI4D O LI4S O
53	LI4ph3.53.l		
54	LI4ph4.54.l		
55	LI4ph5.55.l		
56	LI4ph6.56.l	TN1316	LI4S O
		2048-A	Data Sets
		Applique 12A	Facility Interface
60	LI4ph0.60.l	UN303( ) TN1315 TN1316	IRN LI4D 1 LI4S 1
61	LI4ph0.61.l		
62	LI4ph2.62.l	TN1315	LI4D 1
		TN1316	LI4S 1

SHEET 31 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-03 : SPEC-luc043a : GM VER. 2.5a

Integrated Ring Node D-Channel Trouble location CP List (Contd)

Diagnostic Phase		Probable/Suspected Faulty Pack	Unit Name
Phase	Table		
63	LI4ph3.63.l	TN1315 TN1316	LI4D 1 LI4S 1
64	LI4ph4.64.l		
65	LI4ph5.65.l		
66	LI4ph6.66.l	TN1316	LI4S O
		2048-A	Data Sets
		Applique 12A	Facility Interface

SHEET 32 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-04 : SPEC-toc0dmo043a : GM VER. 2.5a

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Emergency Action Page

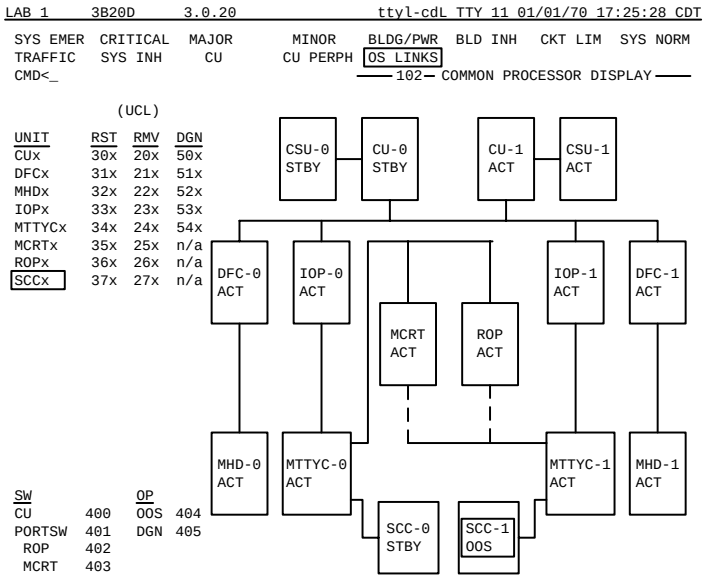
```
LAB 2     CUO/HDUP  3.0.20                  ttya-cdA MTTY00 01/03/70 12:18:46 CDT
 SYS EMER  CRITICAL   MAJOR       MINOR    BLDG/PWR  BLD INH   CKT LIM  [SYS NORM]
 TRAFFIC   SYS INH      CU       CU PERPH  OS LINKS
                                                 ______EMERGENCY ACTION PAGE______
                                  MCRT 3
 CU 0[ACT][RUN][FONL]             EAI 0 [ASW]    PRM 0 E841 0002 891C 0004 79 EA 04
 CU 1                             EAI 1 [OOS]    PRM 1 0000 0000 0000 0000 00 00 00
 SCCS
                SET CLR        CU 0 CU 1   SET CLR

 10 Fonl 0       20 21 Pri Disk [SET]        30 [31] Backup Root        50 Appl
 11 Fonl 1       22 23 Sec Disk              32 [33] Min Config  [SET]  51 Init
 12 Fonl Act     24 25 Inh Timer[INH]        34 [35] Inh Hdw Chk        52 Boot
 13 Clr Fonl     26 27 PRM Trap              36 [37] Inh Sft Chk        53 Boot+ECD
                                             38 [39] Inh Err Int        54 Boot+Mem
 14 Clr EAI                                  40 [41] Inh Cache          55 Ldtape 0
 15 CFT Init           Last Appl Param       42 [43] Appl Param         56 Ldtape 1

 - EAI Application Parameters (42-<param>-50):                              ---

   A - Allow audits    B - Disable audits  C - Set NOSTART   D   Clr NOSTART
   E - Set NOKILL      F - Clr NOKILL      J - INIT RING 4   K   INIT RING 3
   G - Restart Procs   H - Clr all flags   I - Stop Procs    M   Set NORESTART
   N - Clr NORESTART   O - This listing    P - Panic dump    R   Read aimfile
```

Common Processor Display Page



SHEET 2 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-04 : SPEC-luc043a : GM VER. 2.5a

Digital Multiplex System Form Navigation Commands

Command	Description
<CR>	The carriage return entered into any field leaves only that field unchanged and positions the cursor at the next field which can be changed.
<BS>	Entering the backspace or a series of backspaces in any field erases the last "n" characters from the input if entered before the carriage return. Digital Multiplex System (DMS) does not see these characters, so any characters entered past the end of the field and erased in this way, remain on the display but do not affect the input to the field.
%	The ‘‘%’’ entered into any field clears the screen and redraws the page.
^	This signals to DMS to conclude that phase of input and to continue to the next phase.
=	Causes an order to abort. Removes new orders and clears new input from old orders.
>	Means that all fields from the current field to the end of the display are to remain as they are.
<	Means to back up to the previous changeable field.

SHEET 3 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-04 : SPEC-luc043a : GM VER. 2.5a

Digital Multiplex System Form Navigation Commands (Contd)

Command	Description
;	Causes a default value to be entered into the field if one exists.
:	Causes a default value to be entered into all fields on the display up to the first field which does not have a default.
&	Copies the entry of the field immediately before the current field into the current field.
?	Causes a help message for that field to be generated.

Real Time Reliable (RTR) Recent Change Form Navigation Commands

Command	Description
data CR	Enter data value supplied into this field.
CR	On a form data field, keep current value of this item and go forward to next field. In response to a prompt, it means the same as <.
^	Go back to previous data item or processing level.
<	Go back to previous tab stop or to form selection prompt.
>	Go forward to next tab stop.
!	Abort this form instance and start over.
[	Go back to previous row.
]	Go forward to next row.
:	Set row to default values (C).
;	Set item to default value (C).
’	Set item to null value (C).
‘	Set row to null value (C).
=	Copy last row (C).

SHEET 5 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-04 : SPEC-luc043a : GM VER. 2.5a

Real Time Reliable (RTR) Recent Change Form Navigation Commands (Contd)

Command	Description
#	Go to end of list.
}	Insert a new row (C).
{	Delete this row (C).
q	Exit edit mode.
%	Turn on/off help messages (C).
*	Do intended action (for example, insert). (See Note)
.	Display current processing mode (C).
~	Escape to shell (not available on MCRT) (C).
?	Display form navigation command help page. (See Note)

Note:

Because the command (that is, the input character) is read without receiving the CR, certain interfaces (for example, SCC link and craft terminal) between RC/V and the user impact the response from the noted navigation commands. To get the expected response, pressing the <CR> key should be avoided.

Backup Tape Write Procedure-1600 BPI-3B20D

1. At 3B20D APS MCRT, enter message:
   OP:STATUS:FILESYS!

   RESPONSE:

   /ON/DEV/ROOT READ/WRITE ON (DATE)
   or
   /ON/DEV/BROOT READ/WRITE ON (DATE)

2. If System is running on ROOT, at 3B20D APS MCRT, enter message:
   EXC:QCOPY:TOBROOT!

3. If System is running on BROOT, at 3B20D APS MCRT, enter message:
   EXC:QCOPY:TOROOT!

4. Mount tape, with write enable ring installed, on available tape drive.

5. At 3B20D APS MCRT, enter message:
   DUMP:FILE:ALL, Fn ''/etc/pdtspec''!

   RESPONSE:
   DUMP FILE ALL COMPLETED

   /dev/vtoc
   /dev/lboot
   /dev/lboot21 (4AP16)
   /dev/boot
   /dev/bboot
   /dev/root
   /dev/etc
   /dev/db
   /dev/amafiles
   /dev/amabfiles

6. At 3B20D APS MCRT, enter the respective message.

   For 4AP15 and earlier, enter:

   COPY:BKDISK;START:SRC ''/dev/vtoc'', TD ''/dev/mt*x*8'', TPSIZE 2200!

   For 4AP16 and later, enter:

   COPY:BKDISK;START:SRC"/dev/vtoc",TD"/dev/mt*x*8",TPSIZE 2200,COM!

   x = tape drive

   RESPONSE:

   COPY BKDISK DISMOUNT GENERIC TAPE, LABEL AND MOUNT NEXT TAPE

7. Dismount tape and label.
8. Mount another tape, with write enable ring installed, on same tape drive.
9. At 3B20D APS MCRT, enter message:
   COPY:BKDISK;ACK;TPSIZE 2200!

   RESPONSE:

   COPY BKDISK DISMOUNT GENERIC TAPE, LABEL AND MOUNT NEXT TAPE

10. Dismount tape and label.
11. Mount another tape, with write enable ring installed, on same tape drive.

SHEET 8 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-04 : SPEC-luc043a : GM VER. 2.5a

12. At 3B20D APS MCRT, enter message:
    COPY:BKDISK;ACK;TPSIZE 2200!

    RESPONSE:

    COPY:BKDISK COMPLETED, DISMOUNT DATABASE TAPE AND LABEL

13. Dismount tape and label.

Verify 3B20D APS Backup Tapes

1. Mount backup tape on available tape drive.
2. At 3B20D APS MCRT, enter message:

   VFY:TAPE,TD"/dev/mt*X*8"!

   X = tape drive

   RESPONSE:

   VFY TAPE STARTED
   VFY TAPE COMPLETED RETRIES 0 HEADER MISMATCHES 0
   DATA MISMATCHES 0
3. Dismount backup tape from tape drive.
4. Mount next backup tape and repeat from step 1.

Backup Tape Write Procedure-4 MM DAT-3B21D

1. At 3B21D APS MCRT, type:

   OP:STATUS:FILESYS!

   RESPONSE:

   /ON/DEV/ROOT READ/WRITE ON (DATE)

   or

   /ON/DEV/BROOT READ/WRITE ON (DATE)

2. If System is running on ROOT, at maintenance TTY, type:

   EXC:QCOPY:TOBROOT!

3. If System is running on BROOT, at maintenance TTY, type:

   EXC:QCOPY:TOROOT!

4. Insert blank or erasable 4-mm tape with write-protect tab in the up (unlocked) position into available 3B21D APS DAT unit.

5. At 3B21D APS MCRT, type:

   DUMP:FILE:ALL,FN"/etc/pdtspec"!

   RESPONSE:

   DUMP FILE ALL COMPLETED

   /dev/vtoc
   /dev/lboot
   /dev/lboot21 (4AP16)
   /dev/boot

SHEET 11 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-04 : SPEC-luc043a : GM VER. 2.5a

/dev/bboot
/dev/root
/dev/etc
/dev/db
/dev/amafiles
/dev/amabfiles

6. At 3B21D APS MCRT, type:

   COPY:BKDISK;START:SRC"/dev/vtoc",TD"/dev/mt*x*0",
   TPSIZE 90,COM!

   x = DAT unit number with backup tape inserted

   RESPONSE:

   COPY BKDISK DISMOUNT GENERIC TAPE LABEL AND MOUNT NEXT TAPE

7. Remove tape from DAT unit, label the tape **rt0 1**, and place write-protect tab in the down (locked) position.
8. Insert blank or erasable 4-mm tape with write-protect tab in the up (unlocked) position into same 3B21D APS DAT unit that **rt0 1** tape was removed from.
9. At 3B21D APS MCRT, enter message

   COPY:BKDISK;ACK:TPSIZE 90!

   RESPONSE:

   COPY BKDISK COMPLETED, DISMOUNT DATABASE TAPE AND LABEL

10. Remove tape from DAT unit, label the tape **db**, and put write-protect tab in the down (locked) position.

Verify 3B21D APS Backup Tapes

1. Insert one 3B21D APS backup tape in available DAT unit.
2. At 3B21D APS MCRT, enter message:

   VFY:TAPE,TD"/dev/mt*X*0"!

   X = DAT unit number with backup tape inserted

   RESPONSE:

   VFY TAPE STARTED
   VFY TAPE COMPLETED RETRIES 0 HEADER MISMATCHES 0
   DATA MISMATCHES 0
3. Remove backup tape from DAT unit.
4. Insert next backup tape in available DAT unit and repeat from step 1.

SHEET 13 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-04 : SPEC-luc043a : GM VER. 2.5a

Application Data Base Backup (APPDB)

System Integrity

To recover from corruption any of the active GTT databases, the following procedures are recommended:

- Frequent backup from the primary disk partition (active database) to a secondary disk partition (shadow database)
- Weekly backups to tape.

Frequent Backup Procedure

Backups to a secondary disk partition (shadow database) are done when any recent changes are made to a GTT database. A backup to a secondary disk partition may be done by entering the commands in the steps of the following procedure.

1 Inhibit Direct Link Node (DLN) audits of the database to be backed up, enter the following command:

INH:DLNAUD,APP *aaa***!;AUD ALL!**

Where *aaa* = Database to be backed up
(IBGTT, PCPGTT, or ALL)

2 Stop recent change activity on the database.

INH:RCV:APPDB,APP *aaa*!

Where *aaa* = IBGTT, PCPGTT, or ALL

3 Ensure that a **RCV INHIBIT ACTIVE** output message is received and that recent changes are inhibited before proceeding.

4 Copy the database from the primary disk partition (appdb0) to the secondary disk partition (appdb1):

COPY:APPDB,APP *aaa***;FROM ACT,TO SHADOW!**

Where *aaa* = IBGTT or PCPGTT

To copy the entire database—all customer units—omit the keyword **APP**.

5 Re-establish audits on the database.

ALW:DLNAUD,APP *aaa***;AUD ALL!**

Where *aaa* = IBGTT, PCPGTT, or ALL

6 Re-establish recent changes to the database.

ALW:RCV:APPDB,APP*aaa*!

Where *aaa* = IBGTT, PCPGTT, or ALL

Weekly Backup Procedure

Once a week, all the application databases (APPDBs) should be copied to tape. To support these weekly backups, a pool of four tapes are used. Whenever an APPDB backup is done, use the oldest tape in the pool. After the backup is completed, mark the tape with the time and date when it was written.

An APPDB tape log should be created that describes when a backup tape was created and the contents of each tape. Keeping a log makes it easier to select a tape if a database has to be restored.

Use the following procedure to do a weekly backup:

1 Select the oldest tape from the APPDB backup tape pool.

2 Get data for labeling the tape by entering the following command:

VER:MEMORY,SHADOW:APPDB!

3 Mount the tape with a write ring included on a 3B20D computer tape drive, or insert a 4-mm tape with the write-protect tab in the up (unlocked) position into an available 3B21D APS DAT.

4 Copy the shadow database to tape by entering the following command

COPY:APPDB;FROM SHADOW, TO "/dev/mt*xx*"!

Where *xx* = Magnetic tape device name
(For example, 08, 14, or 18 for 3B20D; 00 or 10 for 3B21D.)

SHEET 16 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-04 : SPEC-luc043a : GM VER. 2.5a

5 Remove the tape from the drive and label it with the information obtained from the VER:MEMORY command in Step 2.

6 Enter the date and the contents of the backup tape into the APPDB log.

Fault Recovery

If data corruption occurs in the primary APPDB partition (/dev/appdb0), the database can be restored from a secondary partition, a backup tape, or from a dead start. The restore procedure copies a good database into the primary APPDB partition, and then the good database is pumped into all DLNs.

It is not always necessary to restore the entire GTT database. If the corruption is in only one or two applications, that is, 800/900 services (IBGTT), SDN (OBGTT) or Positive Call Processing (PCPGTT); then only the applicable database(s) needs to be restored. If at least one application database is free of corruption, you should make every effort to preserve that database.

The following fault recovery scenarios are covered:

a. A backup is available, and one or more GTT applications need to be restored.

b. No backup is available, and one or more GTT applications need to be restored.

c. No backup is available, extreme corruption exists, and the entire database needs to be restored.

Restore One or More GTT Applications (Backup Available)

CAUTION:
Contact the Technical Control Center (TCC) before starting this procedure. A loss of service may result if this procedure is not executed properly.

Since all backups are left in a locked state, recent change activity is inhibited during the restore. Recent change must be stopped just before starting the restore.

This procedure should be used when a backup is available and one or more applications need to be restored. Repeat this procedure for EACH application being restored.

NOTE:
Do NOT inhibit recent changes and audits for applications that are not being restored. For instance, if the inbound GTT application is being restored, only inhibit recent changes and audits on the IBGTT database.

1 Inhibit DLN audits of the database.

INH:DLNAUD,APP *aaa***;AUD ALL!**

Where *aaa* = IBGTT, PCPGTT, or ALL

2 Inhibit recent change activity on the database.

INH:RCV:APPDB,APP *aaa*!

Where *aaa* = IBGTT, PCPGTT, or ALL

3 Wait for a message that indicates recent changes are inhibited before proceeding. The message could be OK, RCV INHIBIT ACTIVE, or INHIBIT ALREADY ACTIVE.

4 Ensure that recent changes are inhibited; then enter the following command to store a copy of the database for later analysis.

COPY:APPDB, APP *aaa***; FROM ACT,TO SCRATCH!**

Where *aaa* = IBGTT or PCPGTT

To copy the entire database—all customer units—omit the keyword **APP**.

5 Skip to Step 7 if you are doing the restoral from the shadow database; If you are doing the restoral from tape, mount the tape to be used for the restoral.

6 Mount the tape; then copy the database from tape to a shadow disk partition by entering the following command.

COPY:APPDB,APP *aaa***; FROM "/dev/mt***xx***",TO SHADOW!**

Where *aaa* = IBGTT or PCPGTT

xx = magnetic tape device name
(For example, 08, 14, or 18 for 3B20D; 00 or 10 for 3B21D.)

To copy the entire database—all customer units— omit the keyword **APP**.

7 Copy the database from the shadow disk partition to the active disk partition.

COPY:APPDB,SID *i***, APP** *aaa***; FROM SHADOW,TO ACT!**

Where *i* = Password

aaa = IBGTT or PCPGTT

To copy the entire database—all customer units— omit the keyword **APP**.

8 Enter the following command to repump the DLNs.

INIT:DLNCM:PUMP,ALL,GEN!

9 Re-establish audits on the database.

ALW:DLNAUD,APP *aaa***; AUD ALL!**

Where *aaa* = IBGTT, PCPGTT, or ALL

10 Re-establish recent changes to the database.

ALW:RCV:APPDB,APP *aaa*!

Where *aaa* = IBGTT, PCPGTT, or ALL

11 Notify Operations Support System (OSS) personnel that the database is restored and may need updating.

12 Enter the date and a description of this activity into the APPDB log.

Restore One or More GTT Applications (No Backup Available)

CAUTION:
Contact the TCC before starting this procedure. A loss of service may result if this procedure is not executed properly.

This procedure should be used when corruption is isolated to a particular application and no backup exists.

NOTE:
Do NOT inhibit recent changes and audits for applications that are not being restored. For instance, if the inbound GTT application is being restored, only inhibit recent changes and audits on the IBGTT database.

1 Inhibit DLN audits of the database to be restored.

INH:DLNAUD, APP *aaa***; AUD ALL!**

Where *aaa* = Application to be restored
(IBGTT, PCPGTT, or ALL)

2 Inhibit recent change activity on the database.

INH:RCV:APPDB,APP *aaa*!

Where *aaa* = IBGTT or PCPGTT

3 Wait for a message that indicates recent changes are inhibited before proceeding. The message could be OK, RCV INHIBIT ACTIVE, or INHIBIT ALREADY ACTIVE.

4 Ensure that recent changes are inhibited; then initialize a new database in the scratch partition by entering the following command

INIT:APPDB;SCRATCH!

5 Copy the scratch database to the shadow database.

COPY:APPDB,SID *i***, APP** *aaa***; FROM SCRATCH,TO SHADOW!**

Where *i* = Password

aaa = IBGTT or PCPGTT

To copy the entire database—all customer units—omit the keyword **APP**.

6 Identify the standby DLNs and the active inbound DLN (DLN that supports inbound signaling) and active outbound DLN (DLN that supports outbound signaling) from the 1107 display page.

7 Repump the standby DLNs from the shadow database.

INIT:DLNCM,PUMP,STBY,APPDB!

8 Switch the outbound DLN with one of the standby DLNs.

SW:DLN,LN*a b***, LN***a b***!**

Where *a* = DLN group number

b = DLN member number

9 Switch the inbound DLN with the other standby DLN.

SW:DLN,LN*a b***, LN***a b***!**

10 Pump the DLNs that are now in standby from the shadow database.

INIT:DLNCM,PUMP,STBY,APPDB!

11 Copy the shadow database to the active database.

COPY:APPDB,SID *i***, APP** *aaa***; FROM SHADOW,TO ACT!**

Where *i* = Password

aaa = IBGTT or PCPGTT.

To copy the entire database—all customer units—omit the keyword **APP**.

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12 Re-establish audits on the database.

ALW:DLNAUD, APP *aaa***; AUD ALL!**

Where *aaa* = IBGTT, PCPGTT, or ALL

13 Re-establish recent changes on the database.

ALW:RCV:APPDB,APP *aaa*!

Where *aaa* = IBGTT or PCPGTT

Restore Entire GTT Databases (No Backup Available)

CAUTION:
Contact the TCC before starting this procedure. A loss of service may result if this procedure is not executed properly.

This procedure should only be used for first time database applications or when there is extreme corruption and no database backup exists. This procedure sets the GTT database back to an initial condition. The end result of this command is an empty database. No call processing information is retained.

Restore all GTT databases.

1 Inhibit DLN audits.

INH:DLNAUD, APP ALL; AUD ALL!

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2 Inhibit recent change activity.

INH:RCV:APPDB, APP ALL!

3 Wait for a message that indicates recent changes are inhibited before proceeding. The message could be OK, RCV INHIBIT ACTIVE, or INHIBIT ALREADY ACTIVE.

4 Initialize a new database in the shadow partition.

INIT:APPDB; SHADOW!

5 Identify the standby DLNs, the active inbound DLN (DLN that supports inbound signaling), and the active outbound DLN (DLN that supports outbound signaling) from the 1107 display page.

6 Repump the standby DLNs from the shadow database.

INIT:DLNCM,PUMP,STBY,APPDB!

7 Switch the outbound DLN with one of the standby DLNs.

SW:DLN,LN*a b***, LN***a b***!**

Where *a* = DLN group number

b = DLN member number

8 Switch the inbound DLN with the other standby DLN.

SW:DLN,LN*a b***, LN***a b***!**

9 Pump the DLNs that are now in standby from the shadow database.

INIT:DLNCM,PUMP,STBY,APPDB!

10 Copy the shadow database to the active database.

COPY:APPDB,SID *a***; FROM SHADOW,TO ACT!**

Where *a* = password

11 Re-establish DLN audits.

ALW:DLNAUD,APP ALL;AUD ALL!

12 Re-establish recent changes.

ALW:RCV:APPDB,APP ALL!

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Input/Output Manual Pages

Numerous input and output messages have been created or modified to support the GTT Provisioning feature. Tables 4-A and 4-B identify the new and modified input messages; Tables 4-C and 4-D identify the new and modified output messages.

Table 4-A. New Input Messages

Message	Type	Purpose
ALW:DLNAUD	Input	Allows application database audits
COPY:APPDB	Input	Copies the GTT databases for one location (or medium) to another
INH:DLNAUD	Input	Inhibits audits of the application databases
OP:DLNAUD	Input	Provides the status of GTT database audits
START:CRCUPD	Input	Updates the Cyclic Redundancy Check (CRC) data for the rehash audit of an application database

Table 4-B. Modified Input Messages

Message	Type	Purpose
ALW:RCV:APPDB	Input	Allows recent change activity on the GTT database
INH:RCV:APPDB	Input	Inhibits recent changes on the GTT databases
INIT:APPDB	Input	Initializes the application database
INIT:DLNCM	Input	Initializes and starts message transport for the API-DLN stream
OP:INH:APPDB	Input	Provides status of recent change inhibits
RC:MISC;FHT	Input	Starts a session to add, delete, or change data in GTT database in DLN
VER:GTT	Input	Performs various verifies of the GTT database
VER:MEMORY	Input	Analyzes space utilization of the GTT database

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Table 4-C. New Output Messages

Message	Type	Reason for Output
ALW DLNAUD	Output	Prints the results of an allow of application database audits
COPY APPDB	Output	Prints the results of copying an application database
INH DLNAUD	Output	Prints the results of an inhibit of application database audits
INIT APPDB	Output	Indicates the progress of an initialization, the termination of an initialization, or error conditions that occurred when an initialization was attempted
OP DLNAUD	Output	Prints application database audits status
REPT APPDB DA	Output	Prints error information for the database administration activity associated with application databases
REPT APPDB FR	Output	Prints error information for the fault recovery activity associated with application databases
REPT APPDB IR	Output	Prints error information for the base 3B computer process associated with application databases
START CRCUPD	Output	Indicates that the CRC update has started or completed. There are also messages that indicate why the CRC update cannot be started.

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Table 4-D. Modified Output Messages

Message	Type	Reason for Output
ALW RCV APPDB	Output	Prints the results of an allow of 10-digit GTT recent changes
INH RCV APPDB	Output	Prints the results of an inhibit of 10-digit GTT recent changes
OP INH APPDB	Output	Indicates whether the "DLN Inhibit" feature is active or not active
RC MISC-FHT-FTA	Output	Prints the results of APPDB database update
REPT DLNCM DBTYPE	Output	Reports DLN APPDB pump errors
REPT DLNCM PAPPCU	Output	Reports DLN APPDB pump errors
REPT DLNCM PAPPDB	Output	Reports DLN APPDB pump errors
REPT DLNCM PMPAPD	Output	Reports DLN APPDB pump errors
REPT DLNCM PMPAPP	Output	Reports DLN APPDB pump errors
REPT DLNCM PMPGTT	Output	To report DLN APPDB pump errors if the database is in the old format
VER GTT	Output	Provides information pertaining to 10-digit GTT data structures
VER MEMORY	Output	Provides space utilization of GTT database

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Attached Processor System Audit Codes

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Attached Processor System Audit Codes

5

Abort Codes

Code	Description
3	Audit was aborted without completing its work
4	Audit was faulted while correcting errors
5	System Integrity Monitor (SIM) could not start or dispatch audit.
6	An error was encountered in the audit control/audit library interface.
7	Audit exceeded its time-out or segment limit
8	SIM aborted an executing routine audit because of a blocking request.
9	Transient process that was running the audit terminated
10	Segmented audit exceeded an error threshold
11	An audit was blocking a needed demand audit
12	An audit rejected the request to run from SIM.
13	SIM aborted an executing audit because the audit system is being reinitialized.

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Error Codes

SIMCHK — System Integrity Monitor Check

*1	System initialization failure
2	System initialization status message received with an unknown process number
*12	Unexpected fault received by SIM
101	Audit-control subsystem initialization failure
102	Audit-record initialization error
103	The SIOF program is not running Some output messages were lost
104	Routine audit scheduling was not allowed
121	Failure to get an audit record from the ECD using its Record Identification (RID)
122	Failure to update an audit record in the ECD
123	Failure to open a keyed sequence of audit records in the ECD
124	Failure to get a record in a sequence of audit records
125	Failure to get an audit record using the audit name and member number
126	Failure to read the SIM control record
127	Failure to update the SIM control record
128	Failure to open a sequence of audit-instance records in the ECD
129	Failure to get a record in a sequence of audit-instance records

* Indicates conditions that may result in a system initialization phase unless software checks are inhibited.

SHEET 2 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

SIMCHK — System Integrity Monitor Check (Contd)

130 Failure to get an audit-instance record using its RID

131 Failure to update an audit-instance record in the ECD

132 Failure to get an audit-instance record using its instance name and the RID of the associated audit record

141 Audit marked active in its ECD record when it is not running

142 Invalid message received from the process manager or the utility manager regarding an audit process

143 Audit reply received from an inactive audit

144 Timeout occurred for an inactive audit

145 Invalid reply received from an active audit

146 SIOF output buffer overflow; some audit output messages were lost

147 Failure to find one and only one audit process for the specified Utility Identification (UID)

148 Audit error report received from an inactive audit

149 Invalid request to inform an audit process when the audit's ECD record is modified

150 Invalid request to run or stop an audit

151 Audit blocking condition cleared because it was invalid

152 Failure to create a transient audit process

153 Unable to take recovery action for an audit failure

154 Audit inhibited by SIM because it could not be run, timed out, died, or was faulted while correcting errors

SHEET 3 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

SIMCHK — System Integrity Monitor Check (Contd)

155 Routine audit scheduling malfunctioned and is being reinitialized. All routine audits are temporarily inhibited.

156 Failure to reinitialize routine audit scheduling after a malfunction

157 Routine audit scheduling has been temporarily inhibited because SIOF is not running

158 Failure to reinitialize routine audit scheduling after SIOF stopped running

159 An audit-error report specified on invalid error category

161 Audit system reinitializing because of error found in kernel-level-audit scheduling

162 Audit system reinitializing because of error found for a kernel-level-audit timeout

163 Audit system reinitializing because of error found for a routine supervisor-level-audit timeout

164 Audit system reinitializing because of error found for a requested supervisor-level-audit timeout

165 Audit system reinitializing because SIM received a reply from an inactive audit

166 Audit system reinitializing because SIM received a timeout for a nonrunning audit

167 Audit system reinitializing because SIM received a raw-data report from an inactive audit

168 Audit system reinitializing because SIM received an unexpected fault.

SHEET 4 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

SIMCHK — System Integrity Monitor Check (Contd)

169 Audit system reinitializing because SIM found eligible audits not dispatched

181 Failure to access an audit record in the plant measurements database

182 Failure to create an audit record in the plant measurements database

183 Failure to open the plan measurements database

190 Audit has taken too much time to execute

*200 Failure of the AIM process to reset the application sanity timer within the time-out interval

201 Failure to activate or deactivate the application sanity timer

202 The AIM was not connected to port PT_AIM when a PHASE 0 was requested.

206 The AIM was not connected to port PT_AIM for reception of overload faults.

207 The AIM was not connected to port PT_AIM for soft-switch request.

208 The AIM was not connected to port PT_AIM for notification of Control Unit (CU) switch completion.

209 Faulty AIM port during craft initialization.

210 Faulty Input/Output Processor (IOP) port during craft initialization.

211 The AIM was not connected to port PT_AIM for notification of completion of diverge request.

* Indicates conditions that may result in a system initialization phase unless software checks are inhibited.

SHEET 5 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

SIMCHK — System Integrity Monitor Check (Contd)

212 The AIM was not connected to port PT_AIM for converge request.

213 The AIM was not connected to port PT_AIM for notification of completion of converge request.

300 Unrecognized acknowledgment message received by SIM

301 Unrecognized USRACK message received by SIM

306 Message with invalid type received by SIM

307 Unrecognized MSFAULT message received by SIM

310 Unrecognized Operating System Trap (OST) entry received by SIM

401 Failure to respond to a request from another process for information about the most recent system initialization

602 Overload status change

605 Kernel-level-overload monitor process failed to initialize

606 Supervisor-level-overload monitor process failed to initialize.

APDRV1 — Attached Processor Driver 1

1 Addressing error

2 Buffer missing from linked list; lost buffer inserted

3 Buffer missing from linked list; lost buffer not inserted

4 Excessive buffers duplicated on linked lists; APDRV recovery to reinitialize buffers and notify 1B by removing the Attached Processor Interface (API) units

5 Excessive buffers duplicated on linked lists; linked list not reconstructed

6 Buffer with invalid job status; recovery taken

7 Buffer with invalid job status; recovery not taken

8 Links found bad on list; links corrected

9 Links found bad on list; links not corrected

APDRV2 — Attached Processor Driver 2

1 Inconsistency in disk buffer allocation bits

SHEET 7 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

APDRV3 — Attached Processor Driver 3

1 Inconsistency in 1A file status flags (corrected)

2 Inconsistency in 1A file status flags (non-corrected)

3 For DMERT, the logical device ID is found to be bad in the file administration table—corrected. For RTR, the device ID partition number is found to be bad in the file administration table—corrected.

4 For DMERT, the logical device ID is found to be bad in the file administration table—non-corrected. For RTR, the device ID partition number is found to be bad in the file administration table—non-corrected.

5 The key number is found to be bad in the file administration table—corrected.

6 The key number is found to be bad in the file administration table—noncorrected.

7 The device ID MDCT points are found to be bad in the file administration table—corrected.

8 The device ID MDCT points are found to be bad in the file administration table—noncorrected.

APDRV4 — Attached Processor Driver 4

APDRV4 — Attached Processor Driver 4

For disk cache control block (CCB) audit:

1 CCB header cache_size incorrect, corrected from 1A status file (/dev/1astat)

2 CCB header cache_size incorrect, not corrected

3 CCB header max_req_size incorrect, corrected from 1A status file

4 CCB header max_req_size incorrect, not corrected

5 CCB header max_cache_num incorrect, corrected from 1A status file

6 CCB header max_cache_num incorrect, not corrected

7 CCB header cache_sz_bytes incorrect, corrected from 1A status file

8 CCB header cache_sz_bytes incorrect, not corrected

9 CCB header cache_probe incorrect, initialized to one

10 CCB header cache_probe incorrect, not corrected

11 FREE CCB data incorrect, data fields initialized

12 FREE CCB data incorrect, data fields not corrected

13 AVAILABLE CCB data incorrect, data fields initialized

14 AVAILABLE CCB data incorrect, data fields not corrected

15 BUSY CCB data incorrect, data fields initialized

16 BUSY CCB data incorrect, data fields not corrected

17 CCB found in invalid state, CCB initialized

18 CCB found in invalid state, CCB not corrected

APDRV4 — Attached Processor Driver 4 (Contd)

For disk cache blocked address list (BAL) audit:

1 BAL link bad on free linked list, link corrected

2 BAL link bad on free linked list, link not corrected

3 Free BAL data incorrect, data corrected

4 Free BAL data incorrect, data not corrected

5 BAL link bad on active linked list, link corrected

6 BAL link bad on active linked list, link not corrected

7 Active BAL data incorrect, data corrected

8 Active BAL data incorrect, data not corrected

9 BAL lost from linked lists, lost buffer inserted

10 BAL lost from linked lists, lost buffer not inserted

11 Duplicate BALs found on linked lists, APDRV recovery initiated to reinitialize buffers and notify 1B by removing APIs

12 Duplicate BALs found on linked lists, linked lists not reconstructed

SHEET 10 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

CUMEM — Control Unit Memory

2 Bad data in the ECD for a CU or subunit

4 Could not access the ECD; possibly a bad RID

6 Maintenance channel failed

8 Could not read the off-line mainstore

10 Call to the kconfig library failed

12 Erroneous major state for CU unit or subunit

24 Plant measurements library call failed

28 Internal Processor Control Process Audit (PCPAUD) failure.

30 Off-line store access failed

32 Internal error during memory compare

34 Memory mismatch mainstore error

36 Memory mismatch cache error

38 CUMEM tried to run; Control Unit Status (CUS) not in active standby

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CUSTAT — Control Unit Status

2 Bad data in the ECD for a CU or subunit

4 Could not access the ECD; possibly a bad PID

6 Maintenance channel failed

8 Could not read the off-line mainstore

10 Call to the kconfig library failed

12 Erroneous major state for CU unit or subunit

14 Bad on-line SSR value

16 Bad off-line SSR value

18 Bad on-line HSR value

20 Bad off-line HSR value

22 Cache hit/miss ratio is unacceptable

24 Plant measurements library call failed

26 Audit control library call failed

28 Internal PCPAUD failure

30 Off-line store access failed

32 Internal error during memory compare

34 Memory mismatch mainstore error

36 Memory mismatch cache error

42 EAI buffers mismatch

ECD — Equipment Configuration Database

100 Incore data base sanity ID is overwritten with 0x%1x
101 Offset to sdp SPACE structure being reset from 0x%1x to 0x%x
102 Offset to user data selection being reset from 0x%1x to 0x%1x
103 Either use rootid in STARTUP (=0x%1x) or DMLHEAD (=0x%1x) is bad, use browse to patch error
104 Startup data base size is being reset from 0x%1x to 0x%1x
105 Space maxpage is being reset from 0x%1x to 0x%1x
106 Number of SDP space allocation stacks being reset from 0x%1x to 0x%1x
107 Pointer to SDP stacks being reset from 0x%1x to 0x%1x
108 SDP space pointer to environ being reset from 0x%1x to 0x%1x
109 ENVIRON manager pointer being reset from 0x%1x to 0x%1x
110 SDP manager frame pointer being reset from 0x%1x to 0x%1x
111 SDP manager page ID being reset from 0x%1x to 0x0
112 SDP manager use count being reset from 0x%1x to 0x1
113 SDP manager next index being reset from 0x%1x to 0x1
114 SDP manager previous index being reset from 0x%1x to 0x1
115 SDP manager page ID being reset from 0x%1x to IDNULL
116 SDP manager use count being reset from 0x%1x to 0x0
117 SDP manager next index being reset from 0x%1x to 0x0
118 SDP manager previous index being reset from 0x%1x to 0x0
200 Stack entry 0x%1x next id overwritten with 0x%1x
201 Stack entry 0x%1x on %d list size %1d out of range
202 Resetting depth of %id control stack from %1d to %1d
203 Resetting next id of %id control stack from 0x%1x to 0x%1x
204 Stack entry 0x%1x next id being reset from 0x%1x to 0x%1x

SHEET 13 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

ECD — Equipment Configuration Database (Contd)

205 Resetting next id of %d control stack from 0x%1x to 0x%1x
206 Four-byte stack entry 0x%1x top found to have incorrect value 0x%1x.
207 Resetting top itemid of 4-byte stack from 0x%1x to 0x%1x.
208 Resetting depth of 4-byte stack from %1d to %1d.
209 Resetting top of 4-byte stack from 0x%1x to 0x%1x.
210 Four-byte stack entry 0x%1x next ID being reset from 0x%1x to 0x%1x.
300 Unable to load DMLHEAD structure with SDP
301 DML sanity id at itemid = 0 was overwritten with 0x%1x
302 DML page size overwritten with %d; should be %d
303 Number of rids in ridblk per page overwritten with %d; should be %d
304 Start of set header list overwritten with 0x%1x
305 Set start points to bad set header at 0x%1x
306 End of set header list overwritten with 0x%1x
307 Set end points to bad set header at 0x%1x
308 Set start itemid being reset to 0x%1x from 0x%1x
309 Set end of itemid being reset to 0x%1x from 0x%1x
310 Start of rid block list overwritten with 0x%1x
311 Rid block start points to bad rid block header at 0x%1x
312 End of rid block list overwritten with 0x
313 Rid block end points to bad rid block at 0x
314 Rid block start itemid being reset to 0x
315 Rid block end itemid being reset to 0x%1x from 0x%1x
316 SPACE page size overwritten with %0d; should be %0d
317 SPACE curleft being reset from 0x%1x to 0x%1x.

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ECD — Equipment Configuration Database (Contd)

400	Set header sanity id at 0x%1x overwritten with 0x%1x
401	Previous link field in set header at 0x%1x being reset from 0x%1x to 0x%1x
402	Next link field in set header at 0x%1x being reset from 0x%1x to 0x%1x
500	Rid block sanity id at 0x%1x overwritten with 0x%1x
501	Previous link field in rid block at 0x%1x being reset from 0x%1x to 0x%1x
502	Next link field in rid block at 0x%1x being reset from 0x%1x to 0x%1x
600	Record sanity id at 0x%1x overwritten with 0x%1x
601	Record at 0x%1x back link being reset from 0x%1x to 0x%1x
602	Rid block slot at 0x%1x being reset from 0x%1x
603	Rid block slot 0x%1x bad, being reset from 0x%1x to 0x%1x
700	Resetting ridblk slot at 0x%1x to 0x%1x from 0x%1x
800	Rid block 0x%1x being put on free rid block list at head
801	Rid block 0x%1x on free list has no free slots
900	Rid block 0x%1x next free link overwritten with 0x%1x
901	DMLHEAD link to start of rid block free list overwritten with 0x%1x
1000	RID block 0x%1x next free link being reset from 0x%1x to 0x%1x
1001	Resetting free RID block ID in DMLHEAD from 0x%1x to 0x%1x
1200	Set 0x%1x ordinal in both header and accessid bad
1201	Set 0x%1x ordinal being reset from 0x%x to 0x%x
1202	Set 0x%1x number of access methods being reset from %d to %d
1203	Set 0x%1x cluster flag being reset from 0x%x to 0x%x

SHEET 15 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

ECD — Equipment Configuration Database (Contd)

1204	Set 0x%1x, access method %d, accessid being reset 0x%1x to 0x%1x
1205	Set 0x%1x, access method %d, pagesize being reset from 0x%x to 0x%x
1206	Set 0x%1x, access method %d, keylength being reset from %d to %1d
1300	Start and end RID block links being reset from 0x%1x, 0x%1x to 0x%1x, 0x%1x
1301	Start and end set header links being reset from 0x%1x, 0x%1x to 0x%1x, 0x%1x
3000	Cannot open incore ECD
3001	´malloc’ failure
3002	´read’ failure
3003	Audit ECD has more records than incore ECD
3004	Incore ECD has more records than audit ECD
3005	´lla_rdget’ failure for incore ECD to check RCV semaphore
3006	Recent change in progress
3007	´lla_ainit’ failure for structural audit
3008	´illa_irel’ failure for incore ECD
3009	´illa_dbrel’ failure
3010	Cannot open disk ECD
3011	´lla_nsqrid’ failure
3012	´getport’ failure
3013	´getset’ failure
3014	´lla_iatt’ failure for incore ECD
3015	´lla_opensq’ failure for incore ECD

SHEET 16 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

ECD — Equipment Configuration Database (Contd)

3016	Audit copy corrupted
3017	´fopen' failure
3018	´fread' failure
3019	´rewind' failure
3020	´fwrite' failure
3021	Disk ECD time stamp does not match incore ECD
3022	Driver PID Notification Table entries out of space
3023	Makeseg failure - cannot create new segment
3024	Audits blocked during off-line boot - try later
4000	´lla_rinfro' failure
4001	Incore RID does not match audit
4002	´lla_rdget' failure
4003	Record size of incore ECD does not match record size audit ECD
4004	Record type of incore does not match audit ECD
4005	´lla_uprid' failure
4006	Unable to notify driver of local copy record changes
4007	Possible disk ECD inconsistency (structure corrected)
4008	Structural audit cannot continue without previous corrections
5000	Record corrected
5001	Record needs correction

SHEET 17 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

ECDOWN — Equipment Configuration Database Owner

100	Unable to release special device file
101	Unable to release UCB
102	Improper reserved entity — not SDF or UCB
200	Special device file released
201	UCB released
202	Special device file should be released.
203	UCB should be released

FMGR1 — File Manager 1 (Task Queue Audit)

2	Invalid taskid field
3	Invalid sleep address
4	Invalid task stack pointer
5	Invalid message pointer
6	Task too old
7	Invalid task time stamp

SHEET 18 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

FMGR2 — File Manager 2 (Inode Audit)

12	Invalid reference count
13	Invalid write count
14	Invalid taskid
15	Invalid time stamp
16	Inode time stamp too old
17	Invalid file table pointer
19	Invalid mount table pointer
25	Incorrect in-use count
26	Invalid inode table size
27	Invalid degrowth page marker
28	Incorrect mount table pointer
92	Invalid open count for driver

FRMG3 — File Manager 3
FRMG3 (Inode Hash Table Audit)

21	Invalid hash table entry
22	Invalid forward or backward ilist pointer
24	Invalid chain pointer

SHEET 19 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

FMGR4 — File Manager 4 (File Table Audit)

31 Invalid flag field
32 Invalid pointer to associated incore inode table entry
33 Invalid pointer to associated internal capability table entry
34 Invalid pointer to the next file table entry on the chain
35 Invalid taskid
36 Use count of open files does not match the number of associated capabilities
39 Incorrect count of file table entries in use
40 Invalid free list
90 Invalid file table size
91 Invalid degrowth page marker

FMGR5 — File Manager 5 (Capability Table Audit)

41 Nonexistent process
42 Invalid file table pointer
43 Invalid pointer to the next capability table entry on the chain
44 Invalid capability pointer in file table entry
45 Invalid capability chain
46 Incorrect count of capability table entries currently in use
47 Invalid free list
48 Incorrect capability table size
49 Incorrect degrowth page marker

SHEET 20 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

FMGR6 — File Manager 6 (Buffer Audit)

51 Free list chain is broken
52 Device chain is broken
54 Invalid free list chain pointer
55 Invalid device chain pointer
56 Invalid buffer pointer
57 Invalid mount table pointer
58 Invalid taskid
59 Buffer is too old
60 Invalid time stamp
61 Invalid taskid/ilock combination
62 Invalid taskid/flock combination
64 Invalid total number of free inodes

FMGR7 — File Manager 7 (Mount Table Audit)

72 Buf error
74 Inode error
75 Invalid inode
77 Invalid taskid

FMGR8 — File Manager 8 (Delayed Queue Audit)

82 The number of delayed open requests is bad
83 The number of delayed mount requests is bad.

SHEET 21 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

FMGR9 — File Manager 9 (Message Queue Audit)

81 There are too many messages (message blocks) on the file manager's queue.

FSBLK — File System Block

1 Bad superblock label
2 Bad file mode
3 Bad file size
4 Bad block (block out of file system block range)
5 Duplicate block number
6 Bad address blocks
8 Audit initialization failed
9 Unable to open device file
10 Unable to start device file
11 Device file not block type
12 Unable to allocate message
13 Unable to queue message
14 Unable to add segments
16 Unable to access block (or get buffer to read block)
17 Unable to access free block
18 Unable to access inode
19 Unable to remove a segment
20 No free entry in mount table, cannot mount device
21 Unable to get bitmap segment id
22 Bitmap I/O failed
26 The device file is open for writing
35 The file manager segment list is full.

SHEET 22 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

FSLINK — File System Link

1	Bad superblock label
2	Trashed inode in inode table
3	Bad directory entry
4	Bad block (block out of file system block range)
5	Bad link count
6	Unreferenced inode
7	Link count of the director inode is less than 2
8	Audit initialization failed
9	Cannot open device file
10	Cannot get status of device file
11	Device file not block type
12	Cannot allocate message
13	Cannot queue message
14	Cannot add segments
16	Cannot get block (cannot get buffer to read block)
18	Cannot get inode
19	Cannot lock segment for I/O
20	No free entry in the mount table, so cannot mount device
26	Device file open for writing
27	Cannot reference current directory from parent
28	Current directory inode does not have a parent directory inode
29	Current directory has a bad inode
30	Current directory references a free inode
31	Current directory references multiple parent directories
32	Current directory not reachable from file-system root
33	Active, but an unreferenced file was detected in the file system when the audit was invoked with PARM=BACKUP.
35	File manager segment list is full.

SHEET 23 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

FSCMPT — File System Compaction

1 Bad superblock label
2 Not an error; contains information
3 Not an error; contains information
4 Bad block (block out of file system block range)
5 Duplicate block number
6 Bad address block
8 Audit library initialization failed
9 Cannot open device file
10 Cannot start device file
11 Device file not a block device
12 Cannot allocate message
13 Cannot queue message
14 Cannot add segments
16 Cannot access block (cannot get buffer to read block)
17 Cannot get a free block
18 Cannot access inode
19 Cannot remove a segment
20 Cannot mount device
21 Cannot get bit map segment ID
22 Bit map I/O failed
23 No available structure for mapping allocated blocks for the compaction
24 Concurrent file-system activity is interfering with the compaction effort
25 IO attempt failed
26 Device file open for writing
35 The file manager segment list is full

SHEET 24 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

MMGR — Memory Manager

10 One or more of the following globals contain incorrect values:

- Pointer to first segment descriptor
- Pointer to last segment descriptor
- Number of segment descriptors

20 One or more of the following globals contain incorrect values:

- Pointer to first page table
- Pointer to last page table
- Number of page tables

30 One or more of the following globals contain incorrect values:

- Pointer to first page descriptor
- Pointer to last page descriptor

101 The SDE free list contains an invalid link
102 An SDE free list member is allocated
103 The global count of free SDEs contains an incorrect value
104 The SDE free list is circular
105 The on-free-list bit is not set in an SDE that is on the free list

SHEET 25 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

MMGR — Memory Manager (Contd)

106 An SDE with zero status and not linked to any page table is not on the free list

107 An SDE with nonzero status or valid page table pointer is not marked allocated

108 An SDE is linked to an empty page table

109 A page table linked to an SDE is not marked allocated

110 An SDE contains an invalid page table pointer

112 The PDE for a page linked to an SDE does not contain the correct segment index

113 The PDE for a page linked to an SDE does not contain the correct page index

114 The in-memory page count in an SDE is incorrect

115 The PDE for a page linked to an SDE is not marked allocated

116 The page table for a segment contains an invalid page address

118 A segment contains the same physical page of memory at two different virtual addresses

120 Two or more in-memory segments contain the same physical page of memory

122 Two or more in-memory segments have the same page table, and, therefore, contain the same pages of memory

201 The list of free page tables contains an invalid link

202 A page table on the free list is allocated

203 The global count of free page tables contains an incorrect value

204 The linked list of free page tables is circular

205 The on-free-list bit is not set in a page table that is on the free list

SHEET 26 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

206	A page table is neither linked to an SDE nor is it on the free list
301	The list of free pages contains an invalid link index
302	The PDE for a page on the free list is allocated
303	The global count of free pages contains an incorrect value
304	The free page list is circular
305	The on-free-list bit is not set in the PDE for a page that is on the free list
306	A page is not linked to an SDE nor is it on the free list
401	The breakdown (release) of a segment did not complete
501	A segment has been IO locked for 30 minutes or more
1	The MMGR 9 audit has completed the compaction of swap space -- not a real error
2	The MMGR 9 audit was invoked in the noncorrecting mode which prevents the audit from doing anything
3	The MMGR 9 audit was unable to move a segment and unable to complete the swap space compaction

SHEET 27 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

MSGBUF — Message Buffer

110 Bad message queue head pointer
111 Bad message queue link pointer
112 Allocation bit not set in message extender of queued message
113 Bad on-queue indicator in message extender of queued message
114 Allocation bit not set in message header of queued message
115 Bad message to field in message and bad message owner field in message extender
116 Bad message owner in message extender
117 Bad message to field in message
118 Message queue out-of-order
119 Old audit fault message queued to a non-killable process
120 Old audit fault messagequeued to a killable process
121 Old queued message (except an old queued audit fault message).
122 Process has a circular message queue
123 Bad message queue tail pointer
124 Bad Message queue block count
125 Old acknowledgment message queued to a non-killable supervisor process
126 Old acknowledgment message queued to a killable supervisor process
200 Allocated message with an invalid owner field
201 Old allocated message
214 Allocated bit not set in message header of allocated message
216 Queued message with an invalid owner
219 Old audit fault message queued to a non-killable process
220 Old audit fault message queued to a killable process
221 Old queued message (except an old queued audit fault message).
270 Dequeued message with an invalid owner field
271 Old dequeued audit fault message owned by a non-killable process

SHEET 28 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

MSGBUF—Message Buffer (Contd)

272 Old dequeued audit fault message owned by a killable process
273 Old dequeued message(except an audit fault message)
274 Over nine non-queued messages (excluding audit fault messages) owned by a killable process.
290 Audit fault message response has an invalid message status.
291 Invalid status for a message pointer in an audit fault message response

NOTE:
Refer to OM-4A001-01 for additional information.

SHEET 29 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

PMS — Plant Measurement Systems

0	lcall failure
1	Fatal, cannot create new data base
2	Fatal, cannot copy new disk data base to incore
3	New data base created; reboot the system
1000	setid_rec mutilated
1001	Requesting demand audit to recover
2000	setid_rec mutilated
2001	Fatal, incore and disk data bases mutilated, new data bases are created
3000	Invalid return value from lla_audit
3001	Invalid dispatched message
3002	Cannot release the incore data base
3003	Cannot release the disk data base
3004	Cannot unlock incore data base
3005	setid_rec corrected
3006	lla_gtrid failure
3007	Invalid set type
3008	Cannot lock the incore data base
3009	Disk date base written to incore
4000	Noncorrectable internal structure
5001	Cannot attach to incore data base
5002	lla_ainit failure
5004	Cannot unlink/etc/pmdb.aud
5005	Invalid execution mode
5006	Invalid audit member number
5007	Cannot attach to disk data base
5008	lla_opensq failure
5009	Cannot get setid_rec
5011	lla_rdget failure

PMS — Plant Measurement Systems (Contd)

5012	lla_uprid failure
5013	lla_opnset failure
5014	lla_seqset failure
5016	Cannot open/etc/pmdb
5017	Cannot open/etc/pmdb.aud
5018	Invalid disk name
5019	Invalid audit type
5020	Fail to write incore data base to disk
5021	fstat failure
5022	Fail to write disk data base to incore
5023	plib failure
5024	makeseg failure
5025	msgenab failure
5026	Cannot recieve the message from SIM
5027	Internal structure corrected, refer to /etc/log/pmsaud
5028	Cannot attach to secondary disk database - /etc/pmdb.aud
5029	Cannot falloc disk database
5030	Restored incore database from disk
5031	Primary disk database is bad
5032	Secondary disk database is bad
5033	Restored primary disk database
5034	Restored secondary disk database

SHEET 31 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

SCHED — Scheduler

1 d_link field points outside DCT table
2 d_link points to an invalid DCT starting address
3 d_flag is zero
4 d_flag = DF_REMOV and DCT is on an execution chain
5 d_flag = kernel and special or swap
6 Kernel process and execution level not between 3 and 15
7 d_flag neither kernel, special or swap
8 Special process and execution level not equal to 2
9 d_ucnt is zero
10 DCT found on two execution chains
11 DCT is active and not found on an execution chain
12 Computed slist pointer points outside the slist table
13 DCT not found in a slist chain
14 DCT slist entry has an invalid forward or backward pointer.
15 DCT slist pointer, d_slptr, does not match the DCT pointer found in the DCT slist (dctp).
16 DCT execution level does not match for execution chain it is on
17 The number of DCTs found on both the active execution chains plus those determined to be free does not add up to the number allocated (dctnum).
18 Link between DCT and the extender block does not coincide.
30 slist R/NR: queue pointer points outside the slist table
31 slist R/NR: an entry's forward pointer points outside the slist table.
32 slist R/NR: an entry's backward pointer does not agree with the previous entry's forward pointer.

SHEET 32 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

SCHED — Scheduler (Contd)

33 slist R/NR: an entry's backward pointer points outside slist table
34 slist R/NR: an entry's DCT pointer does not agree with the accused dct
35 slist free queue: head pointer points outside the slist tab
36 slist free queue: forward pointer points outside the slist tab
37 Number of entries found on the three slist queues does not add up to the number allocated as specified in S_MAXLE

TDAS — Traffic Data Administration System

CORRUPT STRUCTURE	Internal TDAS format no good
AGED	Data file over 7 days old is removed
BAD PATHNAME	Illegal file in TDAS system
BAD MAGIC NUMBER	Bad magic number in file
WAS NON-EXISTENT	Required file non-existent

SHEET 33 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-05 : SPEC-luc043a : GM VER. 2.5a

PROAD — Process Administration Audit

100 DCT-use count is decremented (scheduler)
110 Term-DCT is called (scheduler)
120 GRASP/DART is informed (scheduler)
130 Entry is unlinked from the dispatch chain (scheduler)
140 ATBs are flushed (scheduler)
150 Acknowledgment message is allocated and copied (scheduler)
160 DCTE is unlinked from the ready/not ready list (scheduler)
170 Incarnation count is bumped (scheduler)
180 Message sent to the capability manager (scheduler)
190 Message sent to the process manager (scheduler)
200 Capabilities are being removed (CMGR)
210 Supervisor segments are being removed (CMGR)
220 Kernel process segments are being removed (CMGR)
300 Core dump started (PMGR)
310 Message sent to the capability manager (PMGR)
500 kpstart-pcreate kernel process (PMGR)
510 Kernel process DCTE linked to proper chain (PMGR)
520 Initialization event sent to kernel process (PMGR)
600 pstart-pcreate supervisor process (PMGR)
610 Scheduler awaken (SP) (PMGR)
620 pstart completed (SP) (PMGR)
630 Execute started (SP) (PMGR)
700 Fork started-pfork1 (LibC)
710 dupcaps message sent to FMGR (LibC)
720 pfork2 started (LibC)
730 Sending wakeup event (LibC)
800 Process has been suspended

SHEET 60 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-06 : SPEC-toc0dmo043a : GM VER. 2.5a

3B20D/3B21D Register Layouts

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3B20D/3B21D Register Layouts

6

General Information

Throughout this chapter, all bits are active high unless noted.

SHEET 1 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-06 : SPEC-luc043a : GM VER. 2.5a

Control Unit Registers

MCH Master Status Register

Bit 0 = MCH idle
1 = Slave received bad start code
2 = Slave received invalid command
3 = Slave error
4 = Master received bad return code
5 = Master given invalid command
6 = Master error
7 = Panel interrupt

MCH Slave Status Register

Bit 0 = Received bad start code
1 = Received invalid command
2 = Received bad command parity
3 = CC on-line and not disabled
4 = CC not stopped
5 = Did receive start code after LOAD microstore data
us (MSD)
6 = Slave error
7 = Received MCHL interrupt (stop and switch)

HSR—Hardware Status Register

Bit 0 = Carry temporary flag
1 = Negative temporary flag
2 = Overflow temporary flag
3 = Zero temporary flag
4-7 = I/O Result Flags. Normal state is all zeros.
4 = Channel all seems well. Clocked by PPR28 (Read only).
5 = Channel Maintenance Response. Zero is ok. 1 means maintenance response. Clocked by PPR28.
6 = No error in check sum. When 1 indicates error in check sum. Clocked by PPR28. (Read only)
7 = Channel Ready. When 1 channel is busy. Clocked by PPR18. (Read only)
8-9 = These two bits are backup maintenance channel bits. Power up state for these bits must be zero. Bit 8 is set by PPR14 from other CC. (PDISA) Bit 9 is set by PPR15 from other CC. (PDISB) These are just the status bits.
10-15 = 3-out-of-6 code main channel address for central control I/O (CCIO) bus address leads. These bits are clocked when the destination field is CAR. Bit 10-15 are loaded in to 10-15. These bits are write-only through CAR but read by HSR as source.
16-23 = These bits are clocked when the destination field is HSRBGR. Bit 16-23 of destination bus is used as input data. Read by HSR in the source field.
16 = Read/write direction for BGB when 1 read BGB in to BGR.
17-19 = These control muxes within the selected device. All devices do not contain muxes.

SHEET 3 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-06 : SPEC-luc043a : GM VER. 2.5a

Bit 20-22 = These bits control selection of one of the devices on the BGB bus as source or destination depending upon direction bit
- 000 - WMS
- 001 - MLTS
- 010 - MCH
- 011 - UC
- 100 - SID

23 = BGB Enable - when set it enables the BGB bus bits 20-22.

24-25 = Not used. Read/write.

26-31 = Encoded maintenance states. (See HSR—Maintenance States for values.) Powers up state for these bits is zero.

HSR—3-Out-of-6 Codes

3/6 Code	Channel	3/6 Code	Channel
07	0	31	16
0B	1	32	17
0D	2	34	18
0E	3	38	19
13	4		
15	5		
16	6		
19	7		
1A	8		
1C	9		
23	10		
25	11		
26	12		
29	13		
2A	14		
2C	15		

HSR—Maintenance States

HSR Bits					
30	**29**	**28**	**27**	**26**	**Function**
0	X	X	X	X	No maintenance state active
1	0	0	0	X	RTC timing chain
1	0	0	1	X	3-out-of-6 CCIO response check
1	0	1	0	X	Force bad parity: store control signals
1	0	1	1	X	Force bad parity: DST32-35
1	1	0	0	X	Block parity: ALU clock
1	1	0	1	X	Force ATB check circuitry mismatch
1	1	1	0	X	Update circuit clock disable
1	1	1	1	X	EAI maintenance state
X	X	0	0	1	Not used
X	X	0	1	1	ATB memory byte 0 read (Release 6 or later)
X	X	1	0	1	Clear bit rotate error latch
X	X	1	1	1	Clear SRC parity error latch

X = Don’t Care

IS—Interrupt Source

Bit 0 = On-line hardware error interrupt
1 = Other CC error interrupt
2 = Software error interrupt
3 = Not connected for 3B20D (reserved for expansion slot 3B21D)
4 = 5 Millisecond timer
5 = 10 Millisecond timer for 3B20D (reserved for expansion slot 3B21D)
6 = 1B Processor simulation for 3B20D (reserved for expansion slot 3B21D)
7 = Flash interrupt (Not connected for 3B20D, Release 6.4 and later) (reserved for expansion slot 3B21D)
8 = Utility circuit interrupt
9 = Stop the world interrupt
10 = DMA channel interrupts
11 = DMA channel interrupts
12-15 = Not connected for 3B20D (reserved for future use 3B21D)
16 = Not connected for 3B20D (EAI Interrupt for 3B21D)
17 = Programmed interrupt request (PIR) 15
18 = PIR 14
19 = PIR 13
20 = PIR 12
21 = PIR 11
22 = PIR 10
23 = PIR 9
24 = PIR 8
25 = PIR 7
26 = PIR 6
27 = PIR 5
28 = PIR 4
29 = PIR 3
30 = PIR 2
31 = PIR 1

Main Store Controller Error Register 1 (3B20D Computer)

Bit 0 = Address loop around flip-flop is stuck. This indicates probable fault in the MASC, MASU, SAC, SAT, CAC, or DMAC (ALOOP).

1 = A write data parity error indicates bad parity over input data to be written to MAS. A fault could exist in MASC or memory array indicated by the Trapped Address Register (TAR) WDPER).

2 = A mismatch in the refresh address counters has occurred. The two refresh address counters are matched to see if they are in step (RACMM).

3 = Latch normal address parity error indicates bad parity on the MAS address leads during a write or read operation. A fault could exist in the MASC, MASU, SAC, or the update cables (LNAPER).

4 = Indicates that the busy flip-flop was not cleared. During a store operation the busy flip-flop gets set and is cleared out at the end of a store cycle. This is usually caused by a hardware fault in the MASC (BUSYCL).

5 = Indicates parity check over the command leads (SMAINT0, CLR0, SHALF0, SBYTE0, and WRT0) failed. The parity lead is called SCOMP0. This error can be caused by the MASC, MASU, or DMAC (PFCOMD).

6 = The generated array parity failed. The parity is checked on the array select, row and column. This error could indicate a fault in the MASC. Another possibility is the MAS array indicated by the TAR (GAPER2).

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Bit 7-11 = These bits indicate various RAM select errors. These select errors indicate a fault in the MASC or the MAS array indicated by the TAR.

7 = Select row column error (SLRCNER).

8 = Multiple column response (SELCM).

9 = Multiple row response (SELRM).

10 = Select response on maintenance operation. For this error the problem could also be in the MASU, SAT, or the CSU (SELMAER).

11 = No row response on refresh cycle (RSELN).

12 = Maintenance order. Disable clock to sequencer (NOSHF)

13 = Maintenance state. Stop refresh (NOREF)

14 = Maintenance state. Block error D (BLKERD)

15 = Maintenance state. Check array select responses (CHECK)

16 = Maintenance order. Request refresh (REQREF)

17 = Maintenance order. Step refresh counter (STRAC)

18 = Maintenance order. Single step sequencer (STSF)

19 = Maintenance order. Step refresh timer (STREFC)

20 = Maintenance order. Set busy F/F (SETBSY)

21 = Maintenance order. End address looparound (EALOOP)

22 = Block store go error. BKSG0 flip-flop gets set at TM01 time if SGOIO is active (0) and should remain set until store complete is received for that cycle. If SGOI0 is cleared before store complete is received, this error will occur. This could indicate a hardware fault in the MASC, MASU, or SAC (BKSGER).

23 = Maintenance order. Clear error A (CLERA)

24 = Maintenance order. Clear error D (CLERD)

25 = Maintenance order. Zero refresh address counters (IREF)

26 = Maintenance order. Load refresh rate (RCNTLD)

27 = Maintenance order. Latch state of data bus (LATCH)

28 = Decoded byte 3 select (active 0) is not an error indicator.

29 = Decoded byte 2 select (active 0) is not an error indicator.

30 = Decoded byte 1 select (active 0) is not an error indicator.

31 = Decoded byte 0 select (active 0) is not an error indicator.

Main Store Controller Error Register 2 (3B20D Computer)

Bit 0 = Parity failure byte 3. For a single bit error (CPF or TAR00), this indicates an error in bits 1-7 or hamming bit I3. (PFB3)
1 = Parity failure byte 2. For a single bit error (CPF or TAR00), this indicates an error in bits 9-15 or hamming bit I2 (PFB2)
2 = Parity failure byte 1. For a single bit error (CPF or TAR00), this indicates an error in bits 17-23 or hamming bit I1 (PFB1)
3 = Parity failure byte 0. For a single bit error (CPF or TAR00), this indicates an error in bits 25-31 or hamming bit I0 (PFB0)
4-6 = Parity failure hamming bits Z, Y, and X. These bits are used with bits 0-3 and bit 28 (PFBA) to indicates single bit errors (PFP[Z,Y,X])
7 = Maintenance order: Gate main refresh address into TAR (GMREFAD)
8 = Maintenance state: Block uncorrectable data parity errors (BLKERC)
9 = Maintenance state: Block refresh data parity check (BLKRFD)
10 = Maintenance state: Inhibit hamming hit write (INHWH)
11 = Maintenance state: Inhibit hamming correction (INHANC)
12-19 = Inverted duplicate refresh address bits 2 through 9 (DRA[02-09])
20 = Maintenance order: Block store complete (BLKSCM)
21 = Trapped Address parity bit 0 (TAP0). Valid for UN59C or UN618 MASC in EMM or VLMM.
22 = Set to 1 for EMM. Valid for UN59C or UN618 MASC in EMM or VLMM.(FEATURE)
23 = Trapped Address bit 25 for VLMM feature (TA25). Valid for UN618 MASC in VLMM.
24 = Maintenance state: Refresh rate (TIMS02)
25 = Maintenance state: Refresh rate (TIMS04)

26 = Maintenance state: Refresh rate (TIMS08)
27 = Maintenance state: Refresh rate (TIMS32)
28 = Parity failure PA (PFPA). Valid for UN59 and UN618 MASC.
29 = TN56 arrays (1). Valid for UN59 and UN618 MASC
30 = Need refresh signal (NREF)
31 = Force refresh signal (FREF)

PSW—Processor Status Word Register

Bit 0 = Carry flag
1 = Negative flag
2 = Overflow flag
3 = Zero flag
4 = Kernel stack on
5 = Unused
6 = Interrupt stack on
7 = Memory management on
8 = Source: SSBR mode = 1, PSBR mode = 0
9 = Destination: SSBR mode = 1, PSBR mode = 0
10 = Primary segmentation base register index
11 = Primary segmentation base register index
12 = Primary segmentation base register index
13 = Secondary segmentation base register index
14 = Secondary segmentation base register index
15 = Secondary segmentation base register index
16 = Emulation control: OPCODE decoding (Spare for 3B21D computer)
17 = Emulation control: OPCODE decoding (Spare for 3B21D computer)
18 = Emulation control: Program counter Increment: Half-word = 0, Full-word = 1 (Spare for 3B21D computer)
Bit 19 = Emulation control: Interrupt control—control interrupt recognition when instruction halfword is available (Spare for 3B21D computer)

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20 = Set execution level privilege
21 = Normal IO privilege (3B20D computer) Maintenance privilege (3B21D computer)
22 = System IO privilege
23 = Write PSW privilege
24-27 = Execution level (Level 0-15) (See PSW—Execution Levels)
28 = Spare
29 = Spare
30 = Processor mode
31 = Processor mode:
- 00 - Kernel mode
- 01 - Kernel process
- 10 - Supervisor process
- 11 - User mode process

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PSW—Execution Levels Bits 24-27

Level	UID	Process Name	Level	UID	Process Name
2	0x1	mmgr	6	0x50d	bdr
2	0x2	capmgr	6	0x763	msdc
2	0x25	kdapdrvr	7	0x4	fmgr
2	0x3	utlymgr	7	0x6f5	atpcm
2	0x6	kernaud	8	0x6f3	dlncm
2	0x9	sched	8	0x7cd	SLMK
3	0x117	pldmon	9	0x6ab	RInginit
3	0x186	klmon	10	0x47c	cdp
3	0x42c	CMMSADM	10	0x500	bdq
3	0x602	apsmeas	10	0x75c	imsdrv
3	0x625	AMformat	10	0xc0	iop
3	0x648	NMdmdar	10	0xc1	dfc
3	0x64a	NM5minar	10	xef	dci
3	0x85	pcpaud	11	0x17	fifo
4	0x608	AMdwriteroc	11	0x416	CNIINIT
4	0x64d	AMdwriteric	11	0x769	cdz
4	0x66a	INdwriter	12	0x6f1	RTkernel
4	0x86	inhadm	13	0x187	sim
4	0xc2	scsd	13	0x511	aim
4	0xf	memory	14	0x6a8	recovdata
5	0x41	ecdman	15	0x83	eih

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UER—Microinterrupt Error Register

The UER is an active low register. During booting, the ER is saved in the UER. Refer to ER to analyze these bits.

Bit	Error
0	Unused
1	Unused
2	Unused
3	Unused
4	ATB error
5	Unused
6	Unused
7	My store time-out
8	MYSERC
9	Unused
10	Unused
11	Unused
12	Unused
13	Unused
14	Unused
15	Other store time-out
16	Unused
17	Unused
18	Unused
19	Unused
20	Unused
21	Protection violation
22	VORA
23	MYSERB
24	Unused

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UER—Microinterrupt Error Register (Contd)

Bit	Error
25	Privileged instruction violation
26	Unused
27	Unused
28	Unused
29	Unused
30	Unused
31	Unused

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UER1—Microinterrupt Error Register 1

Value	Error
00000001	Segment index too large
00000008	Page invalid
FFFFFFFF	I/O parity divert error if found on Hardware Interrupt with ER bit 19 active
7FFFFFFF	Illegal switch from private to kernel stack
3FFFFFFF	Illegal instruction
1FFFFFFF	Illegal instruction or operand subdecode
0FFFFFFF	No interrupt source during external interrupt entry
07FFFFFF	Unused microstore location was executed
03FFFFFF	No error showing during error microinterrupt entry
01FFFFFF	Unable to flush contents of ATB in purge ATB instruction
0001FFFF	Virtual out of range error. Tried to read memory out of virtual address space - beyond 64 megabytes.
12345678	MRF caused by the microcode or software
12345679	Processor going through level 2 (SAS) MRF
1234567A	Stop-and-switch due to error microinterrupt that proved fatal

ER—Error Register

The Error Register (ER) is an active low register. The ER is saved during boot in UER. In this field, interrupt errors fall into the following four categories:

1. Less serious hardware errors (I/O errors, MAS refresh parity error),
2. Errors related to the other central control (CC) in a duplex configuration
3. Software related errors (privileged instruction error, ATB protection violation, accessing unequipped memory)
4. Memory management related errors (ATB page fault).

Bit 0 = Source Bus Parity Error (ER00) indicates the microcontrol unit, store control unit, and the cache can cause SRC Bus Parity error. Malfunction of the byte or bit shifter parity generator/checker of DMU0 can cause SRC Bus Parity Error. SRC Bus Parity Error is detected and generated in DMU0. SRC Bus Parity Error generated in the DMU0 is sent to UN3 (comes from different sources) ORED together in UN3 and is then sent to UN2 as ER bit 0.

1 = Micro Control Parity Error is a parity error over the MAR or MIR (MCU) (UCPARE). Micro Control Parity is parity over the Microinstruction Register. MCU, DMU, WMS and ROMS can cause Micro Control Parity error. This error can sometimes be caused by a JAM onto the MIR by the MCH. The MCH jams during a level 1 often set this bit so check for a real UCPER by looking at the Instruction Buffer (IB) when no other sources are present. The same instructions that share micro-sequences indicate that the UCPER could be real.

2s = Clock Match Error is generated when the primary and auxiliary clocks in the Micro Control Unit do not match (CKMTHE). The error comes up whenever the 3B Processor is stopped, such as during a level 1. This error is important when no other sources are present. It can be caused by a faulty MCU, SREG0, SREG1, WMS, ROMS, or SAC.

Bit 3 = Instruction Buffer (IB) Parity Error is generated whenever parity over the IB in the SDC is bad (IBPEI). The IB is loaded from DST BUS or HM (via SIR). Some SAC - UC interact to cause this error. If the IB contains 0000000X, try the CAM first. The SIR is loaded from store (CAM or MASU), DST BUS, or SDR.

4 = ATB Parity Error (SATER) can be caused by one of the following failures:

- a - Parity failure over PSW33, and PSW08-15 bits in SAT. PSWs come from UN2 and UN3.
- b - Parity failure over SAR33, and SAR08-15 bits in SAT. SAR comes from the SAC.
- c - Parity failure over SAR34, and SAR16-23 bits in SAT.
- d - ATBA and ATBB get HIT at the same time.
- e - One or more of the Translation Buffers in SAT has bad parity.
- f - Internal duplicated circuits mismatch inside the SAT.

5 = Cache Parity Error (CACHE) can be generated by one of the following errors:

- a - Address parity error in CAC
- b - Data parity error in CAC
- c - Multiple hits
- d - Multiple selects
- e - Hit without select
- f - Cache write error (write to address tag and cache data at the same time). It can be caused by a faulty CAC (either one), SAC, SAT, or CAM.

6 = My Store Error A can be caused by one of the many errors in the MASC (ER06). If this error is present, investigate the MASER1.

7 = My Store Time Out is generated whenever the MAS does not respond with a *store complete* within 12 micro-seconds to a *store go* (SAC) (MYSTOI). It can be caused by a faulty SAC, MASU, MASC, UN2 or UN3.

8 = MAS Noncorrectable Data Parity Error (MYSTERC) is generated by MASC. The MASC sends the error to MASU, SAC and UN2.

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Bit 9 = DMU Error occurs whenever data generated by the two DMUs do not match. The detection circuit is in the DMU0 (ALUCKIP). The bad data is often provided by a faulty SDC.

10 = SAC Error is generated whenever there is store operation error (SACER) (for example store write and read active at the same time.) The detecting circuit is in SAC.

11 = Invalid MCH Order is caused when the MCH, in the processor that is online and is not disabled, is asked to do a command that would interfere with online operations (MCHER)

12 = Indicates Other Store Error A (ER12)

13 = Indicates Other Store Error D (ER13)

14 = Indicates Other Store Error C.

15 = Indicates Other Store Time Out. This error is generated by the online MASU when the Store-Complete, from the other CU's MASC, does not occur. This signal must travel from the other CU's MASC via the MASC update cables (MASU to MASU) to the online MASU.

16 = Channel Error can be caused by any unit which is on the CCIO Bus, such as DMAC, CH11, etc (ER16).

17 = I/O Response Error is generated if there is maintenance, *all-seems-well,* or *ready* signal present when the I/O response clock is activated.

18 = I/O Addressing/Pulse Point Error occurs when there is 3 out of 6 code or I/O command error.

19 = Parity Divert Error indicates a source bus parity error has occurred (same as bit zero); however, the microinstruction *store* field was set to *pardiv* which causes the error to be diverted from ERR00 (MRF class error) to ERR19 (PRER19). Diagnostics also uses this bit to indicate parity errors while reading CAS or MAS (PRER19)

20 = My Store Error D indicates refresh parity error generated by either MASC 0 or MASC 1 (MYSERD)

21 = Indicates ATB Protection Violation (SATVIL)

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Bit 22 = ATB Page Fault in G2 is detected by the SAT. In RTR 1, ATB Page Fault indicates Cache Halfword or Byte Write Microinterrupt (CHBFLT). In RTR 6, it indicates *Virtual Out of Range Error* detected by the ATB. SAR bits 26-31 should be zero during store access (MYV).

23 = My Store Error B is generated when software tries to access unequipped main store array board (MYSERB).

24 = Other Store Error B (other CC software error interrupt) is generated by the attached processor's (CU 1) MASC and is sent to the ER over the MAS update cables (MASU to MASU). When seen with Sanity Timer interrupt, suspect the MCU.

25 = Privileged Instruction Error decoder tests the incoming privilege bits which come from the UN3 (PSW20 to PSW23) against the contents of the privilege ROM (PRVIST). A privilege error occurs if an instruction needs a particular privilege but does not have that privilege. The checking circuit is in the MCU.

26 = Store Addressing Violation (SAVIL) is generated if SAR bit 0 = 1, there is no byte addressing; or SAR bit 1 = 1, there is no byte addressing, half addressing, or fetch. If this error repeats on the same CU, suspect either the checking circuit or the PA incrementor in the SAC. Otherwise, a process is using a corrupted address.

27 = This bit is not used but reserved for the EXP slot.

28-31 = Source bus parity bits.

PPR—Pulse Point Register

The Pulse Point Register (PPR) is located on the UN2 and the UN3 circuit packs. The PPR is loaded, normally with zero, from the Destination Bus under Microprogram Control. Activating a pulse point requires immediate type micro-instruction to set the particular pulse-point bit position needed, then a second immediate micro-instruction to reset the register to zero. The width of the pulse is the execution time of the two micro-instructions.

Bit 0 = Return addressed channel's data register to the CCIO bus. CAR (HSR Bits 10-15) contains the channel address [CIORD (ppr_rd)]

1 = Return addressed channel's status register to the CCIO bus and return address acknowledge (ACK), ASW and RDY. CAR contains the channel address [CIORST (ppr_rst)]

2 = The addressed channel gates its interrupt state onto the bus and returns ACK, ASW and RDY [CIORIN (ppr_rin)]

3 = The addressed channel gates its service request register onto the bus and returns ACK, ASW and RDY [CIORSR (ppr_rsr)]

4 = I/O interrupt acknowledge. The interrupt leads from the DMA's 0 and 1 and their associated DSCH's are gated to an assigned bit of the data bus that corresponds with the channel address numbers (for example, DMA0 = bit 10, DMA0 DSCH0 bit 11, etc). The ASW, RDY and ACK are sent in response [CIOIAK (ppr_iak)]

5 = All error states of the channels, DMA and DSCH, are gated to a unique bit position of the bus with the same bit assignment as that of the ppr_iak command [CIOEAK (ppr_eak)]

6 = Service request acknowledge [CIOSAK (ppr_sak)]. (Unused for 3B21D)

7 = The addressed channel is initialized by forcing the sequencer of the DSCH to the idle state and clearing the busy bit of the DMAC Status Register [CIOIDL (ppr_idl)]

8 = The channel is cleared of error states; the channel sequencer is initialized, and ACK, RDY, and ASW is returned [CIOCLE (ppr_cle)]

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Bit 9 = The data register of the addressed channel is loaded. ACK and ASW is returned on a successful load. Data may not be changed until WCA is complete. The busy bit is idled at the completion of the WCA [CIOWD (ppr_wd)]
10 = Write channel control/address register [CIOWCA (ppr_wca)]
11 = EAI (Unused for 3B20D computer)
12-13 = Not used
14-15 = PPR bits 14 and 15 are used in a duplex system to *disable* and "MRF" a mate processor. A mate processor can be MRFed by firing PPR bit 14 when a mate has been *disabled* A mate can be *disabled* by firing PPR14 followed by PPR15. PPR bits 14 and 15 also set HSR bits 8 and 9 in the other CC [DISABLE A (ppr_mchb1)]/[DISABLE B (ppr_mchb2)]
16 = BGB pulse point LATCH. Latch address on BGB to WMS [LATCH (ppr_bpp0)]
17 = BGB pulse point LOWD. Write low 32 bits of WMS from BGB [LOWD (ppr_bpp1)]
18 = BGB pulse point HIGHD. Write high 32 bits of WMS from BGB [HIGHD (ppr_bpp2)]
19 = BGB pulse point [ppr_bpp3]
20 = BGB pulse point (092-106) [ppr_bpp4]
21 = Test sync for 3B20D computer. BGB pulse point (092-107) [ppr_bpp5] for 3B21D computer.
22 = EAI interface, increment pre-timer [ppr_ipt]
23 = EAI interface, nibble clock [None]
24 = Clear timing prescalers and interrupt timer [None]
25 = Increment timer [ppr_incr]

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Bit 26 = Test sync. 3B20C interrupt processor [ppr_ts]. (Unused for 3B20D computer)
27 = I/O read clock. Gates data from CCIO bus to the Channel Data Register (CDR) [ppr_rdclk]
28 = Will clock the state of the CCIO response leads into the HSR bits 4 through 7 during an I/O operation [ppr_rsclk]
29 = Error register clear [ppr_erclr]
30 = Enable A [ppr_ena]
31 = Enable B [ppr_enb]

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SCR—Store Control Register

NOTE:
Store Control Register (SCR) are active low unless noted.

Bit 0-2 = Invalidation counter bits muxed with SAR11-SAR13 [scr_cntr]
3-7 = Invalidation counter bits muxed with SAR17-SAR21 [scr_cntr]
8-9 = ATB invalidation counter (3B20D computer) ATB block 1,2, and 3 select. Each muxed with corresponding PSBR and SSBR bit [scr_cntr] (3B21D computer)
10 = ATB flush counter enable [scr_encntr] (3B20D computer) ATB block 1,2, and 3 select. Each muxed with corresponding PSBR and SSBR bit [scr_cntr] (3B21D computer)
11 = Halfword available [scr_hwa]
12-15 = Program Address shadow [scr_pashdw]
16 = Access (store go) [scr_acc]
17 = Fetch (read) [scr_f]
18 = Write [scr_w]
19 = Clear [scr_c] (3B20D) Read-Modify-Write (3B21D)
20 = Bypass ATB [scr_byatb]
21 = Byte [scr_byte]
22 = Halfword (requires SAR00 to be 0) [scr_half]
23 = Stack [scr_stk]
24 = SAR auto [scr_sarauto]
25 = Memory arbiter reset (Not used in 3B20D computer)
26 = Not used in SMM or EMM. Enable counter in VLMM (3B20D computer). ATB flush counter enable (3B21D computer)
27 = ATB select [scr_atbsl]:
0 = Select ATBB
1 = Select ATBA
28 = Select counter, when active SCR is used to access the ATB [scr_slcntr]
29 = Invalid ATB, active during ATB invalidation [scr_invatb]
30 = Other Store Go [scr_os]
31 = Maintenance Mode [scr_mtce]

SSR—System Status Register

NOTE:
System Status Register (SSR) is active low unless noted.

Bit 0-3 = Write EAI nibble [write (lo4 ssrs)]
- 0 = CU 1 when CU identification equals 0. Ground CU 1 UN2 pin 336 to 335 [read (ssr_ccid)]
- 1 = RTR 1 indicates using UN616,UN617 CSU (otherwise in RTR 1 you are using small CSU). In RTR 6 indicates MASC can access 64 M-bytes of MAS (otherwise in RTR 6 MASC only access 32 M-bytes) [read (ssr_msts1)] (3B20D computer) LDFT tape drive indicator: 1 for SCSI tape drive; 0 for IOP tape drive (3B21D computer)
- 2 = Duplex when equals 0 [read (ssr_simdup)] (Unused for 3B21D computer)
- 3 = When equals 0, indicates the request out-of-service key on the power switch is being depressed [read (ssr_rosk)]

4-5 = Initial sequence control bits-are equal to count of times boot sequence has been entered with unsuccessful results (CC ucode controlled) but can also be set via software to disable PINIT [rd/wrt (ssr_isc0/1)]

6 = Force use of primary boot device SW/FWW controlled but may be overridden by EAI [rd/wrt (ssr_fbdp)]

7 = Force use of secondary boot device sw/fw controlled but may be overridden by EAI [rd/wrt (ssr_fbds)]

8 = Panel interrupt, = 1 for interrupt present. Must be read to differentiate from an IS register int [read (ssr_pint)]

9 = Force processor off-line and set I/O inhibit (read only) [read (ssr_fofl)]

10 = Force processor on-line and convert stop and switch to a MRF [read (ssr_fonl)]

11 = Disable sanity timer [read (ssr_timd)]

12 = Enables panel interrupt, sw/fw controlled [rd/wrt (ssr_oos)] (unused in 3B20D computer)

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Bit 13 = CACHE (including interrupt stack) bypass [rd/wrt (ssr_cbyp)]
14 = External initialization has been forced by Emergency Action Interface [rd/wrt (ssr_eai)]
15 = Power clear is signaled by the Power Control Circuit (during power-up) when = 1 [rd/wrt (ssr_pclr)]
16 = This CC considers itself on-line [rd/wrt (ssr_cc)]
17 = Halt microcode loop mode [rd/wrt (ssr_hlt)]
18 = Block IS register originated interrupts [rd/wrt (ssr_bin)]
19 = In MAS update mode (for example; performs writes to both the on-line and off-line MAS [rd/wrt (ssr_upd)]
20 = Isolate DMA of MAS bus [rd/wrt (ssr_isod)]
21 = Isolate other CC off MAS bus [rd/wrt (ssr_isou)]
22 = Double store read takes place on MYSTERC [rd/wrt (ssr_dsr)] (Unused in 3B20D computer)
23 = Blocks response from stop-and-switch ER bits Errors are still logged in the ER [rd/wrt (ssr_bhc)]
24 = Block parity checks. Used to read bit 0 of EAI nibble. [rd/wrt (ssr_bpc)]
25 = Stand-alone boot performed. Used to read bit 1 of EAI nibble [read (ssr_stab)]
26 = System boot performed. Used to read bit 2 of EAI nibble [read (ssr_sysb)]
27 = Use backup root file system in boot. Used to read bit 3 of EAI nibble [read (ssr_rfsb)]
28 = Stop processing [rd/wrt (ssr_stp)]
29 = Stop program timer and interrupt timer. Automatically reset by backup timer after 30 microseconds [rd/wrt (ssr_btc)]
30 = I/O disable [rd/wrt (ssr_disab)]
31 = State of power switch [read (ssr_pwrk)]

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TAR—Trapped Address Register (3B20D Computer)

Bit 0 = Correctable parity fail indicator Active state 1 (CPF)
1 = Double parity fail indicator Active state 1 (DPF)
2-22 = Trapped address. Active state don't care (TA[02-22])
23 = Refresh address trapped. Active state 0 (REF)
23 = System access address trapped. Active state 1 (SYS)
24 = Trapped address parity bit 3. Active state don't care (TAP3)
25 = Trapped address parity bit 2. Active state don't care (TAP2)
26 = Trapped address parity bit 1. Active state don't care (TAP1)
27 = Indicates trapped address. Active state 1 (TRAP)
28 = Refresh parity error (ER20). Active state 1 (ERRD)
29 = Noncorrectable data error (ER08). Active state 1 (ERRC)
30 = Trapped address bit 23. Active state don't care (TA23) Valid for UN59 or UN618 MASC.
31 = Trapped address bit 24. Active state don't care (TA24) Valid fo UN59 or UN618 MASC with EMM or VLMM.

NOTE:
Bits 21, 22, 30, and 31 MASA implicated for TN56s. Active state don't care.

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Peripheral Unit Registers

BIC—Bus Interface Controller Status Register (TN70)

Bit 0-3 = Device address
4 = DMA access setup overwrite error
5 = Parity failure over information bus byte 0
6 = Parity failure over information bus byte 1
7 = Parity failure over information bus byte 2
8 = Parity failure over information bus byte 3
9 = End of Data Error is set if end of data expected flag is set and DMAC requests a read or write data operation or if the end of data expected flag is not set and End of Transfer (EOT) signal is received.
10 = PIC Fatal Error Summary is set under program control of the PIC to report an unrecoverable error. Also, sanity failures will automatically set this flag.
11 = PIC sanity error
12-13 = PIC Data Bus Parity Error is set if the parity check enable flag is set and even parity is detected during a PIC read or write of the command register or the data FIFO. Separate flags are provided to record errors over the high (bit 13) and low (bit 12) bytes. Write operations are inhibited when this flag is set.
14 = PIC Data FIFO Overflow is set if the PIC attempts to access the Data FIFO while the data flag is pointing toward the DMAC. This bit is also set if the PIC reads the FIFO and is empty or tries to write the FIFO and is full. The FIFO is neither loaded nor unloaded when this error occurs.

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BIC—Bus Interface Controller Status Register (TN70) (Contd)

Bit 15 = PIC Command Register Overflow is set if the PIC reads the command register and the command flag is cleared (register empty) or attempts to write the command register and the command flag is set (tries to overwrite a DMAC command). The write operation is inhibited in this instance.

16-20 = Data FIFO word count indicates the number of words stored in the FIFO (0 through 16).

21 = Interrupt Flag can be set by the PIC to request interrupt service from the 3B computer's CC. An interrupt mask is included in the Dual Serial Channel (DSCH) to allow the CC to block interrupt requests.

22 = DMA Transfer request

23 = DMA setup request

24 = End of data expected

25 = End of data received

26 = Data transfer mode (0 = word, 1 = block)

27 = Enable PIC data bus parity checks

28 = PIC interface enabled

29 = Data flag

30 = Command in progress

31 = Command flag

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MHD—Moving Head Disk Register

Moving Head Disk Register (MHD)

Bit 0 = M bit of drive 0
1 = M bit of drive 1
2 = M bit of drive 2
3 = M bit of drive 3
4 = M bit of drive 4
5 = M bit of drive 5
6 = M bit of drive 6
7 = M bit of drive 7
8 = M bit of drive 8
9 = M bit of drive 9
10 = M bit of drive 10
11 = M bit of drive 11
12 = M bit of drive 12
13 = M bit of drive 13
14 = M bit of drive 14
15 = M bit of drive 15
16-19 = Device ID

If SMD-DFC:
20 = MHSR — Unused
21 = MHSR — On cylinder
22 = MHSR — Unit ready
23 = MHSR — High TEMP
24 = MHSR — Seek error
25 = MHSR — Fault
26 = MHSR — Sector mark
27 = MHSR — Index mark

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MHD—Moving Head Disk Register (Contd)

If bits 24-27 are 0111B, bits 20-23 contain the Sense Key of the Extended Sense Data described in *DFC Appendix J—4ESS/APS OM-4A001-01*.

Otherwise, bits 20-27 contain the Additional Sense Code of the Extended Sense Data described in *DFC Appendix J—4ESS/APS OM-4A001-01*.

28 = Multiple disks selected
29 = Incorrect disk selected
30 = M Bit of DFC
31 = M Bit of device ID

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D2SBS Status Register

Bit 0 = Device reported error
1 = Overflow error
2 = Sequencer error
3 = Illegal D2SBS command
4 = Maintenance flip-flop
5 = Device interrupt request
6 = Device setup request
7 = device transfer request

API PICSTAT—Peripheral Interface Controller Status Register

Bit 0 = Open
1 = Interrupt generated by 1B Processor alert
2 = Interrupt generated by 3B computer alert
3 = Interrupt generated by 3B computer system Initialization (SINT) (Interrupt to initiate high priority interprocessor maintenance message protocol)
4 = 1B Processor Alert function disabled
5 = 3B Computer alert function disabled
6 = 1B Processor Computer error checking disabled
7 = 3B Computer error checking disabled
8 = 1B Processor Computer side API in loop around mode
9 = 3B Computer side API in loop around mode
10 = DMA suspended by 1B Processor
11 = DMA suspended by 3B computer
12 = Interrupt generated by peripheral interface controller (PIC) error
13 = Interrupt generated by 1B Processor configuration
14 = Interrupt generated by 1B Processor System initialization (SINT)
15 = Interrupt generated by diagnostics

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API PICERR—Peripheral Interface Controller Error Status Register

Bit 0 = Bus interface controller (BIC) time-out
1 = Actual read in offset or size error
2 = 1B Processor Command Register inhibited
3 = Auxiliary unit (AU) bus sequencer inhibited
4 = AU address range error
5 = Parity failure on AP bus
6 = Parity failure on PIC bus
7 = Pointer check failure
8 = Command check error
9 = Maintenance buffer address not loaded
10 = Illegal PIC RAM address specified
11 = PIC error
12 = BIC error
13 = DMA word count error
14 = Illegal circular buffer command
15 = Illegal instruction

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DMA and Channel Register Layouts

REPT ERSLOT Message Layout

Error Types—Six possible error types:

BAD PARITY ON DIO BUS: The direct memory access controller (DMAC) received bad parity from named CHANNEL ADDRESS device on data destined for the main memory during a direct memory access (DMA) transfer.

DIO - READY FAILURE: The channel did not return a *ready* signal to the DMAC.

DMA - ASW error usually means that during the communication between a device and the DMA, the DMA expected but did not get the All-Seems-Well (ASW) return code. The return code is recorded in the least significant 6 bits of the Channel Status Register.

DIO - ACKNOWLEDGE FAILURE: More than one or no channel responded to the DMAC.

DMA - ADDRESS ERROR: During the virtual to physical address translations, the DMAC found that the requested I/O access was not permitted to physical memory, or during the data transfer, the data would have been written beyond the end of a segment.

DMA - CHANNEL REQUEST ERROR: A device made a request with an invalid DMA RAM entry.

Sequence Number: The report sequence number in hexadecimal.

CU Member Number: The report member number.

Unit Name: The faulty unit name.

Unit Member Number: The faulty unit member number.

Time of Error: The date in the form of month/day/year and the time in the form of hours/minutes/seconds.

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DMA ADDRESS contains the channel address (in hexadecimal) of the DMAC that encountered the fault. (See *Channel Address and DMA Addeess*.)

DMA STATUS REGISTER indicates the contents (in hexadecimal) of the DMA status register. [See *DMA Status Register (3B20 Model 1 or Model 2 and 3*.]

CHANNEL STATUS REGISTER indicates the contents (in hexadecimal) of the channel's status register. (See *Channel Status Register*.)

DMA RAM contains word entries for the device that failed (in hexadecimal)

DMA STORE ADDRESS REGISTER contains the physical address when the DMAC reads or writes the 3B20D mainstore

DMA STORE DATA REGISTER contains the internal DMAC register contents (in hexadecimal). This data represents the last data word either written or read from main store.

DMA INCREMENTOR contains the internal DMAC register contents (in hexadecimal). This data represents the value of the DMA incrementor which is a counter used by the DMAC to increment the physical address, map address, and the transfer count during the store operation.

DMA DIO DATA REGISTER is a buffer for data being transferred between the DMAC and the Channels.

DMA BUFFER REGISTER contains the internal DMAC register contents (in hexadecimal). This register is used as a scratch register by microcode during the virtual to physical translation in a DMA access.

DMA MASK REGISTER contains two 16 bits fields used to record the channel's Service Request Register (most significant bits) and the channel's Interrupt Request Register.

REAL TIME CLOCK contains the value of the real time clock, in milliseconds and hexadecimal, at the time of the error interrupt.

DMA Channel Status Register (3B20 Model 1)

NOTE:
This register is active as indicated.

Bit 0-5 = Last addresses device 3-out-of-6 code.

6 = Error summary bit indicates if any DSCH related errors are set (bits 7, 10, 11, 12, 13, and 14).

7 = Channel access error indicates if the channel tried to access a portion of Main Store for which it does not have the appropriate permission bit set. For example, to read memory requires read permission. This is usually caused by a software failure but could be caused by a hardware fault on the DMA (probably the UN37). Active state is high.

8-9 = Last command issued indicates the last command issued to the channel. The two bit codes are as follows:

- 00 = Setup
- 01 = Write
- 10 = PIO
- 11 = Read

10 = DIO Acknowledge Error indicates that the DMA did not receive the ACKNOWLEDGE signal from the channel. This usually indicates a hardware failure in the channel or that the channel that was addressed is not equipped. This bit is also set if the DMA detects multiple pulse points on the DIO bus when only one should have been active or when it detects one or more pulse points when none should have been active. This can be a DIO bus failure and implicates either the backplane or one of the circuit packs on the DIO bus (one of the channel packs or the UN36). Active state is low.

11 = DIO Ready Error indicates that the DMA did not receive the *ready* signal from the channel. This is probably caused by a hardware failure in the channel but it could be in the device. Active state is high.

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Bit 12 = DIO ASW Error indicates that the DMA did not receive the ALL SEEMS WELL signal from the channel. This usually indicates a failure in the device. Determine the BIC status to see why the ASW was not returned. Examine the DMA RAM word 1 for the device address. Also bad BTRs or power/grounding problems could be present. Active state is low.

13 = Channel request error indicates that either a device on this channel requested service, but an interrupt was not in the channel; or a device on this channel submitted a job that attempted to access memory without the valid bit (bit 31) being set in that device's RAM word 3. This is usually a software error. Another possibility is that the Map Pointer Valid bit (bit 31) was not set during the address translation. Active state is high.

14 = DIO Data Parity Error indicates that the DMA received bad data over the DIO bus. This can indicate a hardware failure in the Channel (that is, UN49, UN9, etc.), the PIC, the BIC, or the DMA (probably one of the UN35s). Active state is high.

15 = Busy indicator indicates that the channel is busy doing some operation (that is, getting or sending data to the BIC). This is a status indicator. Active state is low.

16-31 = Not used

DMA Status Register (3B20 Model 1)

NOTE:
This register is active low unless noted.

Bit 0 = My Store Error A indicates that some type of hardware error occurred in MAS before or during a DMA operation to the MAS.

1 = My Store Error B (unequipped memory). This error usually indicates a software failure (the DMA job was set up incorrectly) or the MAS Array is missing, or a hardware failure in MAS.

2 = My Store Error C (uncorrectable data) indicates MAS has returned bad data to the DMA on a read operation.

5 = DIO Data Parity Error indicates that the DMA received bad data over the DIO bus. This can indicate a hardware failure in the Channel (that is, UN49, UN9, etc.), the DDSBS, the BIC or the DMA (probably one of the UN35s).

6 = DMAC Data Parity Error indicates that the DMA detected a parity error over its internal (DMAC) bus. This can indicate a hardware failure on one of the DMA packs (UN35, UN36 or UN37) or a problem in the backplane connecting the four DMA packs. The problem could be on the Store Data Bus, implicating the MAS Controller, the MAS Update Circuit or the Cache Circuit. Look at other failure data for more clues. When 1, active state is high.

7 = DMA RAM Parity Error indicates that there is a parity error over the output of the DMA's RAM address register when a RAM access is occurring. This error usually indicates a hardware failure on the UN37 but could also be effected by the other CPs on the DMAC bus.

8 = ROM Sequencer Check indicates that the DMA has completed an internal check of the ROM Sequencer interaction. This can be caused by a software error or a hardware failure on the UN37 circuit pack.

9 = DIO Ready Error indicates that the DMA did not receive the *ready* signal from the channel. This is probably caused by a hardware failure in the channel.

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Bit 10 = DIO ASW Error indicates that the DMA did not receive the all-seems-well signal from the channel. This usually indicates a failure in the device. Determine the BIC status to see why the ASW was not returned; Noise along the DIO bus can cause this error (check any implicated BTRs). Grounding problems can also cause an ASW error. When 1 active state is high.

11 = DIO Acknowledge Error indicates that the DMA did not receive the acknowledge signal from the channel. This usually indicates a hardware failure in the channel or that the channel that was addressed is not equipped. This bit is also set if the DMA detects multiple pulse points on the DIO bus when only one or none should have been active. This can be a DIO bus failure and implicates either the backplane or one of the circuit packs on the DIO bus (one of the channel packs or the UN36). Active state is high.

12 = CCIO Data Parity Error indicates that there was a parity failure over the data received on the CCIO bus. This usually indicates a hardware fault on the CCIO bus (that is, in the backplane), on the UN2 or UN3, or on one of the UN35s. This error can also indicate a software error.

13 = CCIO Command Error indicates that the CC tried to access the DMA while the DMA was in the process of executing a Programmed I/O (PIO) operation. This error occurs when the DMA receives a WCA or a WD pulse point before it has returned *ready* to the CC (CCIO Interface Busy is still set). This usually indicates that the software did not properly follow the CCIO bus protocol or indicates that the last PIO operation that the DMA executed timed out. PIO time-outs are usually due to device failures.

14 = ROM Sequencer Parity Error indicates a parity failure over the DMA's internal pipeline register. This usually indicates a hardware problem on the UN37.

15 = Force Error Flip-Flop is set by the diagnostics to force the DMA to create a DMAC Data Parity Error and a DIO Acknowledge error on the DIO bus operation. If this error occurs, there is probably either a software error or a hardware error in the DMA. Active state is high.

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Bit 16-19 = Not used

20 = DMA Fatal Error Summary is set to indicate that one of the DMA's fatal errors is set. The DMA's fatal errors are bits 0-2, 6, 7, 8, 12, 13 and 14. If this bit is not active, examine the DMAC Channel Status Register to determine the error.

21 = Maintenance Mode indicates that the DMA is in its maintenance mode. Usualy, this bit is set only during diagnostics. If this bit is set during an operational failure, it usually indicates either a software failure or a hardware failure in the DMA (probably the UN37)

22 = CCIO Interface Busy indicates that the DMA is currently processing a PIO operation (that is, the DMA has not returned *ready* to the CC for the last WCA it was sent). This bit does not indicate an error but rather that the DMA is busy processing a PIO operation. This bit would be set if a PIO operation timed out.

23 = Select internal RAM address or select internal register address last accessed in the DMA bits 24-31.

24-25 = RAM Address when bit 23 = 1

26-27 = Device Number when bit 23 = 1

28-29 = Device Number when bit 23 = 1

30-31 = Channel Number when bit 23 = 1

Channel Address and DMA Address

Channel	DMA Internal Address Code	HSR 10-15 3-out-of-6
DMA0		23
11	502	25
12	542	26
13	582	29
14	5c2	2a

Channel Data Register

Code	Error Condition
01	***Invalid WCA Command*** indicates that the DMA received an illegal WCA command from the CC. Specifically, it is sent when the DMAC detects a channel PIO request without the RINT0, RSR0, IDLE0, CLRER0 or WCA0 pulses active and when the DMAC receives a DMAC PIO pulse request but none of the pulse bits in the DMAC WCA word are set. This can be caused by a software error or a faulty DMAC.
02	***Illegal Store Access Request*** indicates that a device on one of the DMA's channels attempted to access memory without the valid bit (bit 31) being set in that device's RAM word 3. This is usually a software error.
03	***End of Segment Error*** indicates that there was a carry out of the most significant bit of the virtual high address for a device during a data transfer (DMA operation). This is usually a software error.
04	***Page Access Failure code*** indicates one of the channels attempted to access a portion of MAS for which it does not have the appropriate permission bit set. This usually is a software error but could be caused by a faulty DMAC.
05	***DIO Channel Failure*** code is sent when a channel error is detected during a DMA transfer. See DMA Status Register (bits 26-29).

Legend:

DIO = Direct Memory Access Input/Output
DMA = Direct Memory Access
DMAC = Direct Memory Access Controller
MAS = Main Store
PIO = Programmed Input/Output
WCA = Write Channel Control/Address Register

DSCH Channel Status Register

Bit 0-2 = These bits are the high three bits of the low nibble of the last return code received from a device. See Channel Device Return Codes for the meaning of bits. Active state is don't care.

3-5 = These bits are the high three bits of the high nibble of the last return code received from a device. See Channel Device Return Codes for the meaning of bits. Active state is don't care.

6 = Channel Busy Flip-Flop indicates that the channel is processing an operation. Active state is high.

7 = I/O Inhibit Override Flip-Flop indicates that the I/O Inhibit Override flip-flop is set. This bit should only be set during diagnostics. If it is set during an operational failure, there is, probably, a software error or a fault on the channel circuit pack. Active state is high.

8 = Sequencer Error indicates that the channel encountered a problem while executing its microcode. This is usually a hardware error on the channel circuit pack. Active state is high.

9 = Illegal 3-out-of-6 device code indicates that the channel received a device code that was not one of the channel's 16 device codes. This usually indicates a software error or a hardware error on the channel circuit pack or the DMAC. Active state is high.

10 = Command Error indicates that the channel received a WCA WD while its busy bit was set. This indicates the channel was sent two commands in a row without being sent an IDLE command. This usually indicates a software error or possibly a hardware error on the channel circuit pack or the DMAC. Active state is high.

11 = Channel Error indicates that the Channel detected a fatal error. If this bit is set, bit 8, 9 or 10 is also set indicating the specific error encountered. Active state is high.

12 = Maintenance Flip-Flop indicates that the channel is in its maintenance mode. This bit should only be set during diagnostics. If this bit is found to be set during an operational failure, it probably indicates either a software failure or a hardware failure on the channel circuit pack. Active state is high.

13-31 = Unused

Channel Device Return Codes

Bits 5-4	Bits 3-0	Meaning
0	9	All-seems-well (ASW)
0	A	Device reported error
1	1	Illegal command
1	2	Illegal start code

3B20—3 of 6 Code Device Address

Port	Address for WCA (CDR bits 5-0)	Channel 11 Device Name	Channel 12 Device Name
0	07	DFC 0	API 0
1	0b	DFC 1	API 1
2	0d	IOP 0	RPCN00 0
3	0e	IOP 1	RPCN32 0
4	15	Unequipped	Probably RPCD00 5
5	16	Unequipped	Probably RPCD32 5
6	19	Unequipped	Probably RPCD00 10
7	1a	Unequipped	Probably RPCD32 10
8	25	Unequipped	Probably RPCD08 3
9	26	Unequipped	Probably RPCD40 3

DMA Status Register (3B20 Model 2 and 3)

NOTE:
This register is active as noted.

Bit 0 = My Store Error A indicates that some type of hardware error occurred in MAS before or during a DMA operation to the MAS. Active state is low.

1 = My Store Error B (unequipped memory) usually indicates a software failure (the DMA job was set up incorrectly), or the a MAS Array is missing, or a hardware failure in MAS. Active state is low.

2 = My Store Error C (uncorrectable data) indicates MAS has returned bad data to the DMA on a read operation. Active state is low.

3 = ROM Sequencer Check indicates that the DMA has completed an internal check of the ROM Sequencer interaction. This can be caused by a software error or a hardware failure on the DMAC circuit pack. Active state is low.

4 = CCIO Command Error indicates that the CC tried to access the DMA while it was in the process of executing a Programmed I/O (PIO) operation. This error occurs when the DMA receives a WCA or a WD pulse point before it has returned "ready" to the CC (CCIO Interface Busy is still set). This usually indicates that the software did not properly follow the CCIO bus protocol or indicates that the last PIO operation that the DMA executed timed out. PIO time-outs are usually due to device failures. Active state is high.

5 = ROM Sequencer Parity Error indicates a parity failure over the DMA's internal pipeline register. This usually indicates a hardware problem on the DMAC. Active state is low.

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Bit 6 = DMAC Data Parity Error (byte 0) indicates that the DMA detected a parity error over its internal (DMAC) bus. This can indicate a hardware failure on the DMA packs (DMAC) or a problem in the backplane. The problem could be on the Store Data Bus, implicating the MASC, the MASU or the CSU. Look at other failure data for more clues. Active state is low.

7 = CCIO Data Parity Error (byte 0) indicates that there was a parity failure over the data received on the CCIO bus. This usually indicates a hardware fault on the CCIO bus (for example; in the backplane), on the UN2 or UN3, or on the DMAC. This error can also indicate a software error. Active state is low.

8 = CCIO Interface Busy indicates that the DMA is currently processing a PIO operation (for example; the DMA has not returned *ready* to the CC for the last WCA it was sent). This bit does not indicate an error but rather that the DMA is busy processing a PIO operation. This bit would be set if a PIO operation timed out. Active state is high.

9 = Relative Channel 0 Busy indicates that channel 11 on DMA 0 or channel 16 on DMA 1 is busy doing some operation. This is a status indicator not an error. Active state is low.

10 = Relative Channel 1 Busy indicates that channel 12 on DMA 0 or channel 17 on DMA 1 is busy doing some operation. This is a status indicator not an error. Active state is low.

11 = DIO Data Parity Error indicates that the DMA received bad data over the DIO bus. This can indicate a hardware failure in the DSCH, the DDSBS, the BIC or the DMA. Active state is low.

12-13 = RAM Address when bit 21 = 0. Active state is don't care.

14 = DMA Data Parity Error Byte 1. Active state is low.

15 = CCIO Data Parity Error Byte 1. Active state is low.

16-19 = Device Number when bit 21 = 0. Active state is don't care.

20 = Channel Number when bit 21 = 0. Active state is don't care.

21 = Select internal RAM Address (if = 0) or register Address (if = 1). This bit indicates the meaning of bits 12, 13 and 16 through 20. These bits indicate the last location accessed in the DMA. Active state is low.

Bit 22 = DMA Data Parity Error Byte 2. Active state is low.
23 = CCIO Data Parity Error Byte 2. Active state is low.
24-25 = Channel Opcode bits indicate the two bit code for the last command issued to a channel. The two bit opcodes are as follows:
00 = Read
01 = Write
10 = PIO
11 = Setup
26 = DIO ASW Error indicates that the DMA did not receive the *all-seems-well* signal from the channel. This usually indicates a failure in the device. Determine the BIC status to see why the ASW was not returned. Active state is low.
27 = DIO Ready Error indicates that the DMA did not receive the *ready* signal from the channel. This is probably caused by a hardware failure in the channel. Active state is low.
28 = DIO Receive Error indicates that the DMA detects multiple pulse points on the DIO bus when only one should have been active or when it detects one or more pulse points when none should have been active. This can be a DIO bus failure and implicates either the backplane or one of the circuit packs on the DIO bus (one of the channel packs or the DMAC). This bit is only valid if there is a "5" in the CCIO Data Register. Active state is low.
29 = DIO Transmit Error indicates that the DMA detects multiple pulse points on the DIO bus when none should have been active. This can be a DIO bus failure and implicates either the backplane or one of the circuit packs on the DIO bus (one of the channel packs or the DMAC). This bit is only valid if there is a "5" in the CCIO Data Register. Active state is low.
30 = DMA Data Parity Error Byte 3. Active state is low.
31 = CCIO Data Parity Error Byte 3. Active state is low.

DMA Status Register (3B21D Computer)

Bit 0 = My Store Error A. Active state is high.
1 = My Store Error B. Active state is high.
2 = My Store Error C. Active state is high.
3 = ROM Sequencer Check complete. Active state is high.
4 = CCIO command error. Active state is high.
5 = Pipeline register parity error. Active state is high.
Bit 6 = Channel data parity error. Active state is high.
7 = Quad word inhibit. Active state is high.
8 = CCIO parity error byte 3. Active state is high.
9 = CCIO parity error byte 2. Active state is high.
10 = CCIO parity error byte 1. Active state is high.
11 = CCIO parity error byte 0. Active state is high.
12 = DMAC data bus parity error byte 3. Active state is high.
13 = DMAC data bus parity error byte 2. Active state is high.
14 = DMAC data bus parity error byte 1. Active state is high.
15 = DMAC data bus parity error byte 0. Active state is high.
16 = Relative channel 0 busy. Active state is high.
17 = Relative channel 1 busy. Active state is high.
18 = Relative channel 2 busy. Active state is high.
19 = Relative channel 3 busy. Active state is high.
20 = RAM/register address bit 0. Active state is don't care.
21 = RAM/register address bit 1. Active state is don't care.
22 = RAM/register address bit 2. Active state is don't care.
23 = RAM/register address bit 3. Active state is don't care.
24 = RAM/register address bit 4. Active state is don't care.
25 = RAM/register address bit 5. Active state is don't care.
26 = Select internal RAM Address (if = 1) or REG Address (if = 0). (Note 1)
27 = Channel all seems well error (Note 2). Active state is high.
28 = Channel ready error (Note 2). Active state is high.
29 = Channel status opcode bit 1 (Note 3). Active state is don't care.
30 = Channel status opcode bit 1 (Note 3). Active state is don't care.
31 = CCIO busy Active state is high.

NOTE 1:
Bit 26 = 1:

- Bits 20-23 designates 4 word block of RAM for the device
- Bits 24-25 designates one of 4 channels of the DMA.

Bit 26 = 0:

0	DMAC Buffer	
1	DMAC DIO data	
2	DMAC Store Address	
5	DMAC Mask	
	Channel Data Register	
	XXXXXX01	Clear Channel 0 Mask
	XXXXXX10	Set Channel 0 Mask
	XXXX01XX	Clear Channel 1 Mask
	XXXX10XX	Set Channel 1 Mask
	XX01XXXX	Clear Channel 2 Mask
	XX10XXXX	Set Channel 2 Mask
	01XXXXXX	Clear Channel 3 Mask
	10XXXXXX	Set Channel 3 Mask
6	DMAC Store Data	
7	DMAC Store Incrementer	

Channel Data Register	
Bits 0-2	**Error Condition**
1	Invalid PIO command error
2	Illegal store access request
3	End of segment error
4	Page access error
5	Channel error
6	Channel transmit error
7	Channel receive error

NOTE 2:
If the Channel Data Register has a value of 5 (101), look in the DMAC status register for the DIO errors (bits 27 and 28).

NOTE 3:

Bits 29-30	Location
0	DMA read from the device
1	PIO to the channel was issued
2	DMA write to the device
3	Setup data was requested from the device

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Cache Registers (3B21D Computer)

Cache Error Register A (0x0030000) (3B21D Computer)

Bit 0 = Cache Read SM Active
1 = Cache Write SM Active
2 = Subroutine Stack Read SM Active
3 = Subroutine Stack Write SM Active
4 = Interrupt Stack Read SM Active
5 = Interrupt Stack Write SM Active
6 = Hit Invalidate SM Active
7 = DMA Invalidate SM Active
8 = NOP SM Active
9 = Maintenance Read SM Active
10 = Maintenance Write SM Active
11 = CA Parity Error
12 = SA Parity Error
13 = Tag with respect to CA error
14 = Tag with respect to SA error
15 = Quad word alignment error
16 = Command Bus error
17 = Unused

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Cache Error Register B (0x0030004) (3B21D Computer)

Bit 0 = Access request from CC
1 = Access request from Store Interface
2 = Write cycle
3 = Read-Modify-Write cycle
4 = Cache bypass
5 = Subroutine stack mode
6 = Maintenance access
7 = Interrupt stack access
8 = Address valid - Translation hit
9 = Byte access
10 = Halfword access
11 = Processor to other store
12-17 = Unused

Cache Error Register C (0x0030008) (3B21D Computer)

Bit 0-1 = Cache address - byte select
2-15 = Cache address - entry select
16 = Cache address parity 3
17 = Cache address parity 2

Cache Error Register D (0x003000C) (3B21D Computer)

Bit 0-15 = Cache address - tag compare
16 = Cache address parity 1
17 = Cache address parity 0

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Cache Error Register E (0x0030010) (3B21D Computer)

Bit 0 = X-Y matchers in ATB matching logic do not match
1 = A zero indicates a multiple hit in SAT
2 = Parity error over PSW byte 2 received by the ATB (PSW08:15)
3 = Parity error over one of the three SAR bytes received by the SAT
4 = Translation buffer A parity error over the translated address of ATB A
5 = Translation buffer B parity error over the translated address of ATB B
6-17 = Unused

Cache Tag Trap Register (0x003001C) (3B21D Computer)

Bit 0-11 = Match Cache address
12 = Negative valid bit
13 = Positive valid bit
14 = Cache tag address parity 3
15 = Cache tag address parity 2
16 = Cache tag address parity 1
17 = Cache tag address parity 0

Cache Error Register G (Hit Flip-Flop)(0x0030014) (3B21D Computer)

Bit 0 = The last read cycle resulted in a cache hit
1-17 = Unused

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Main Store Registers (3B21D Computer)

Memory Control Command Register (3B21D Computer)

Bit 0 = Run March test (0=Off;1=On)
1-8 = Banks [7:0] March test enable (0=Off;1=On)
9 = Qualify March test (0;1=Stop on error)
10 = Page mode memory column address Complement/Increment (0=Complement;1=Increment)
11 = Reserved
12-13 = Page mode operation numberof accesses (# of Column Address Strobes [CASs])(00=2;01=4;10=8;11=16)
14-15 = Address queue depth (00=1;01=2;10=3;11=4)
16-17 = Refresh interval selection (00=376 clocks;01=504 clocks;1X=Reserved)
18 = Memory error scrubbing mode normal read operation (0=On;1=Off)
19-26 = Bank [7:0] status (0=In Service;1=Out of Service)
27 = Reserved
28 = Automatic internal refresh generation mode (0=On;1=Off)
29 = Odd/Even address parity (0=Even;1=Odd)
30 = Address parity checking (0=Off;1=On)
31 = Reserved

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Main Memory Register (3B21D Computer)

Bit 0 = Trapped address parity bit 3 (Address bits 7:0) (EVEN)
1 = Trapped address parity bit 2 (Address bits 15:8) (EVEN)
2 = Trapped address parity bit 1 (Address bits 23:16) (EVEN)
3 = Trapped address parity bit 0 (Address bits 27:24) (EVEN)
4 = Command bit parity error (Error A)
5 = Byte Select 3
6 = Byte Select 2
7 = Byte Select 1
8 = Byte Select 0
9 = Block Error C (Decoded Maint Op)
10 = Block Error D (Decoded Maint Op)
11 = Latch maintenance operation off data (Decoded Maint OP)
12 = Block store complete (Decoded Maint OP)
13 = Block store go error (Error A)
14 = Clear Error A (Decoded Maint Op)
15 = Clear Error D (Decoded Maint Op)
16 = Set address loop-around (Error A) (Decoded Maint Op)
17 = End address loop-around (Decoded Maint Op)
18 = Memory control soft reset (RESET10)
19 = Address parity error (Error A)
20 = Data parity error (Error A)
21 = MC general error (Error B)
22 = March test complete
23 = Inhibit Error A (Latched Maint Op D1)
24 = March test stop (Latched Maint Op D2)
25 = Memory control hard reset (RESET20)

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Memory Control Status Register (3B21D Computer)

Bits 0-3 = Type field
4-11 = Banks [7:0] status (0=Present;1=Absent)
12-13 = Bank 0 size
- 00 = 256K X 1 or 256K X 4 DRAM
- 01 = 1M X 1 or 1M X 4 DRAM
- 10 = 4M X 1 or 4M X 4 DRAM
- 11 = 16M X 1 or 16M X 4 DRAM

14-15 = Bank 1 size (Same as Bank 0 size)
16-17 = Bank 2 size (Same as Bank 0 size)
18-19 = Bank 3 size (Same as Bank 0 size)
20-21 = Bank 4 size (Same as Bank 0 size)
22-23 = Bank 5 size (Same as Bank 0 size)
24-25 = Bank 6 size (Same as Bank 0 size)
26-27 = Bank 7 size (Same as Bank 0 size)
28 = Chip version
29-31 = March test fault
- 000 = Bank 0
- 001 = Bank 1
- 010 = Bank 2
- 011 = Bank 3
- 100 = Bank 4
- 101 = Bank 5
- 110 = Bank 6
- 111 = Bank 7

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Memory Control Error Register (3B21D Computer)

Bit 0 = March test error
1 = Refresh abort error
2 = Bank error
3 = State machine error
4-31 = Reserved

Memory Control Error Address Register (3B21D Computer)

Bits 0-1 = Reserved
2-31 = Latched error address

Memory Control Bank Address Boundary Register (3B21D Computer)

Bits 0-11 = Bank lower address boundary value
12-23 = Bank upper address boundary value
24-31 = Reserved

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Memory Control Strobe Shape Register (3B21D Computer)

Bits 0-2 = Row address strobe (RAS) precharge time
3 = Row address setup time
4 = Row address hold time
5-7 = RAS pulse width
8-9 = Write data setup time
10-12 = CAS pulse width. First read access page mode operation
13-15 = CAS pulse width. Additional accesses page mode operation
16-17 = CAS precharge time
18-19 = RAS hold time
20 = Data setup time. Write back partial and scrubbing operations.
21-23 = CAS pulse width. First write access page mode operation
24-31 = Reserved

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Data Path Command Register (3B21D Computer)

Bits 0-1 = Write data queue depth
- 00 = 1 deep
- 01 = 2 deep
- 10 = 3 deep
- 11 = 4 deep

2-3 = Read data queue depth
- 00 = 1 deep
- 01 = 2 deep
- 10 = 3 deep
- 11 = 4 deep

4 = Write data parity selection (0=Even;1=Odd)
5 = Write data parity check (0=Off;1=On)
6 = Force bad parity system bus (0=Off;1=On)
7 = Inhibit error checking (0=Check;1=Inhibit)
8-14 = Force check bit field on memory (Bit 15=1)
15 = Force check bits (0=Generate;1=Force)
16 = Error check type (0=SEC & DED;1=Parity)
17 = Correct single bit error (0=Correct;1=No Correct)
18-19 = Force bad parity on system data bus (Bit 6=1)
- 00 = SD07:SD00
- 01 = SD15:SD08
- 10 = SD23:SD16
- 11 = SD31:SD24

20 = Parity type with Bit 16=1 (0=Even;1=Odd)
21 = March test data pair selection (0=0’s/1’s;1=5’s/A’s)
22-31 = Reserved

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Data Path Status Register (3B21D Computer)

Bit 0 = Write data parity error
1 = Single bit error
2 = Multiple bit error
3 = March test error
4-7 = Reserved
8-14 = Syndrome / March test data error bits
15-23 = Reserved
24-30 = Check bits last read access
31 = Reserved

Data Path Error Data Register (3B21D Computer)

Bits 0-31 = Write data (parity error) bits / March test data error bits (latched at time of error)

Attached Processor Interface (API)

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Data Unique — D-Level, INJ, and BLM Reports

	EIW ST-0	EIW ST-1	EIW ST-2	0_0	0__0	0_0
	RIW ST-0	RIW ST-1	RIW ST-2	0_0	0__0	0_0
	TL RSLT ST-0	TL RSLT ST-1	TL RLST ST-2	0_0	0__0	0_0
CMD SYS RESPONSE MODE	RM STATUS	RM ERROR	RM SEQ VIOL	RM TIME-OUT	RM CMD REG	0_0
	PIC STATUS	PIC ERROR	PIC STATE	TL OUT-PUT	TIMING WORD	SWITCH FAIL-URE
	CONFIG FAIL-URE	MISC RECOV-ERY	BLM ERROR	CNI BLM	TBERSTAT	CNI EWD
CMD SYS INIT MODE CONFIG FAIL	IM CMD/ DATA	IM STATUS	IM ERROR	IM SEQ VIOL	IM 3B COMPUTER ERROR	IM TIME-OUT
CMD SYS INIT MODE SWITCH FAIL	IM CMD/ DATA	IM STATUS	IM ERROR	IM SEQ VIOL	IM 3B COMPUTER ERROR	IM TIME-OUT

EIW — Error Information Word (State 0, 1, 2)

Bit 0-5 = PIC error type or base level client PIC

Error Types:

1	—	CIR BUF ADR and size do not agree with PIC
2	—	Pointer check failure
3	—	Illegal CIR_BUF command
4	—	1B CMD REG inhibited
5	—	AU bus SEQR inhibited
6	—	AU ADR range error
7	—	AP bus parity failure
10	—	PIC bus parity failure
11	—	CMD check error
12	—	MTC BUF address not loaded
13	—	Illegal PIC RAM ADR specified
14	—	PIC error
15	—	Illegal instruction
20	=	TB Load/end pointer fault
21	=	TB unload pointer fault
22	=	TB self pointer fault
23	=	TB address CALC fault
24	=	TB invalid header pointer

EIW — Error Information Word (State 0, 1, 2) (Contd)

Base Level Client:

10 — LIM
20 — SADK
30 — APS MSG handler
40 — Function sub message handler
50 — Common network interface (CNI)

6-7 = API Command parity failure
1 — Failed on write operation
2 — Failed on read operation

8 = Interrupt from on-board DGN

9-11 = 3B Computer error type
1 — 3B Computer buffers initialized
2 — 3B Computer has masked an API OOS
3 — 3B Computer system has initialized
4 — API sent 3B Computer a PIC interrupt
7 — CMD system response mode failure

12 = 3B Computer interrupt
13 = Dump RAM from active API
14 = Interrupt from active API
15 = Interrupt from standby API
16 = Multiple PIC errors
17 = PIC error detected
18 = No active API for this APS
19 = Unknown CMD received from 3B Computer
20 = Error threshold exceeded
21 = Buffer initialization required
22 = No error found
23 = Base level recovery INFO

RIW = Recovery Information Word (State 0, 1, 2)

Bit 0-2	=	Next recovery state 0 — Reconfigure active API 1 — Switch APIs 2 — Initialize COM buffers
3	=	APS link test OK
4	=	3B Computer buffers were initialized
5	=	APS link test failed
6	=	Standby APS was removed
7	=	Buffer INIT failed
8	=	Buffer INIT OK — threshold exceeded
9	=	API configuration failed
10	=	API switch failed
11	=	No configuration was found
12	=	API configuration successful
13	=	API switch successful
14	=	Buffer INIT successful
15	=	APDRV was initialized
16	=	3B Computer has been booted
17	=	CNI stream INIT successful
23	=	Pre-duplex fail analysis flag

TL Results = Test Link Results (State 0, 1, 2)

BIT 0	=	API cannot be accessed
1	=	3B Computer cannot be accessed
2	=	3B Computer initialized COM_BUF
3	=	1B Processor to 3B Computer link OK

SHEET 5 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-07 : SPEC-luc043a : GM VER. 2.5a

RM Status = Response Mode Status

Bit 0-2	=	Response mode states 0 — Idle state 1 — SYNC ACK sent state 2 — CMD received state
3	=	CMD to API error
4	=	CMD sequence violation
5	=	CMD response time-out
6-14	=	CMD response state codes (See APFR error codes)

RM Error = Response Mode Error

Bit 0-5	=	Failing command (See API commands)
9-20	=	Command error code (See APFR error codes)

RM SEQ VIOL = Response Mode Sequence Violation

Bit 0-23	=	(See command register layout)

RM Timeout = Response Mode Time-Out

Bit 0-23	=	(See command register layout)

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RM CMD REG = Response Mode Command Register

Bit 0-7 = Interprocessor command
8-15 = 3B Computer error type
- 1 — 3B Computer buffers initialized
- 2 — 3B Computer has marked an API OOS
- 3 — 3B Computer system has initialized
- 4 — APS sent 3B Computer a PIC interrupt
- 7 — CMD system response mode failure

PIC Status = PIC Status Word

Bit 0 = PC emulation mode
1 = Interrupt generated by 1B Alert
2 = Interrupt generated by 3B Computer alert
3 = Interrupt generated by 3B Computer SINT
4 = 1B Alert function disabled
5 = 3B Computer alert function disabled
6 = 1B Error checking disabled
7 = 3B Computer error checking disabled
8 = 1B side in loop-around mode
9 = 3B Computer side in loop-around mode
10 = DMA suspended by 1B
11 = DMA suspended by 3B Computer
12 = Interrupt generated by PIC error
13 = Interrupt generated by PC
14 = Interrupt generated by 1B SINT
15 = Interrupt generated by on-board DGN

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PIC Error = PIC Error Word

Bit 0	=	BIC time-out
1	=	CIR_BUF offset or size error
2	=	1B CMD REG inhibited
3	=	AU BUS sequencer inhibited
4	=	AU ADR range error
5	=	Parity failure on AP bus
6	=	Parity failure on PIC bus
7	=	Pointer check failure
8	=	Command check error
9	=	MTC BUF address not loaded
10	=	Illegal PIC RAM address specified
11	=	PIC error
12	=	BIC error
13	=	DMA word count error
14	=	Illegal CIR_BUF command
15	=	Illegal instruction

PIC State = PIC State Word

Bit 0-2 = PIC state code
- 0 — No status
- 1 — Active
- 2 — Standby
- 3 — OOS
- 4 — INIT State

TL Output = Test Link Output

BIT 0 = API cannot be accessed
1 = 3B Computer cannot be accessed
2 = 3B Computer initialized COM_BUF
3 = 1B Processor to 3B Computer link OK

Timing Word = APFR Timing Word

"APFR Timing Word (Timing Word)"

BIT 0-11 = Counter for half hour timing
12-21 = Counter for state sequence timing
22 = Half hour timing enable
23 = State sequence timing enable

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Switch Failure = API Switch Failure Code

BIT 0-11 = See APFR error codes

CONFIG Failure = API Configuration Failure Code

Bit 0-11 = See APFR error codes

MISC Recovery = Recovery Miscellaneous Word

Bit 0-5 = Not used
6-8 = APS number
9-14 = Count of successful buffer initializations
15-17 = State upon entry into fault recovery
18 = APDRV initialization
19 = 3B Computer boot
20 = Pre-duplex fail analysis in process
21-23 = Level of phase requested on 3B Computer

BLM Error = Base Level Maintenance Error Word

Client = APS message handler
- Octal 3 — No active api for this APS

Client = SADK
- Octal 2 — No disk request completions
- Octal 5 — Circular buffer invalid
- Octal 30 — Bad currency pointers
- Octal 34 — No completions FMI non-1A file jobs
- Octal 35 — No completions non-FMI jobs

Client = Function subs message
- Octal 36 — No message completions

Client = LIM
- Bit 0 = LIM command to API error
- 1 = LIM no access to CMD REG
- 2 = LIM command time-out
- 3 = API is active
- 4 = API is standby
- 5 = 3B Computer CONFIG Request detected
- 6 = 3B Computer DMA is suspended
- 7 = 3B Computer is not responding
- 8 = Error during API status word read
- 9-12 = Specific API Kcode

BLM Error = Base Level Maintenance Error Word (Contd)

Bit 13	=	Bad status status — no active API
14	=	Bad status — active/active APIs
15-21	=	LIM time count
22	=	LIM time-out
23	=	LIM timing in progress

CNI Error Status Word (TBERSTAT)

Bit 0 = Self pointer fault (TB)

1 = Unload pointer fault (TB)

2 = Load/end pointer fault (TB)

3 = Side of fault (Set = 1B side; Reset = 3B side)

4 = Stream direction (Set = from 1B; Reset = TO 1B)

5 = Current buffer in use (Set = TB; Reset = CB)

6 = Invalid CNI buffer header pointer

7 = Invalid pointer address

8-11 = Buffer forced out-of-service (diagnostics only)

12-15 = TB scanning activated

- 12 = Send TB for 1B active — outgoing stream
- 13 = Receive TB for 1B active — incoming stream
- 14 = Receive TB for APS active — outgoing stream
- 15 = Send TB for APS active — incoming stream

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CNI Base Level Error Word (CNI BLM)

Bit 0-2 = Type of error

3 = Side in error (Set = 1B side; Reset = 3B side)

4-5 = Message direction at time of error
- 4 = Direction was incoming to the 1B
- 5 = Direction was outgoing from the 1B

6 = CNI buffer initialization requested

CNI Error Word (CNI EWD)

BIT 0-2 = CNI fault type

3 = Processor side in error (Set = 1B)

4-5 = Message direction at time of error
- 4 = Direction was incoming to the 1B
- 5 = Direction was outgoing from the 1B

6 = CNI buffer initialization request

7 = Request that stream be stopped

IM CMD/Data = Initiate Mode CMD and Data

Bit 0-7	=	Interprocessor command
8-15	=	Data to be sent to 3B Computer (Except for CONFIG API command)
8-11	=	MEMN to be configured (CONF_API CMD only)
12-15	=	Configuration state for MEMN (CONF_API CMD only) 0 — Nonoperational 1 — Active in-Service API 2 — Standby in-service API 3 — OOS API 4 — API INIT state

IM Status = Initiate Mode Status Word

Bit 0-2	=	Present CMD system state 0 — Idle 1 — SYNC CMD sent 2 — SYNC ACK received 3 — CMD sent 4 — CMD ACK received 5 — Null CMD sent
6	=	Command to API error
7	=	Sequence violation — SYNC from 3B Computer
8	=	Time-out error
9	=	3B Computer had error while processing CMD
12-14	=	Command to API error count
15-17	=	Command ACK time-out
18-22	=	SYNC ACK time-out
23	=	Final time-out

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IM Error = Initiate Mode Error Word

Bit 0-5 = Failing command
(See API commands)

9-20 = Command error code
(See APFR error codes)

21-23 = Command system state
0 — Idle
1 — SYNC CMD sent
2 — SYNC ACK received
3 — CMD sent
4 — CMD ACK received
5 — Null CMD sent

IM SEQ VIOL = Initiate Mode Sequence Violation Word

Bit 0-23 = See command register layout

IM Error = 3B Computer Initiate Mode Error Word

Bit 0-23 = See command register layout

IM Timeout = Initiate Mode Time-Out Word

Bit 0-23 = See command register layout

API Commands — Octal

0 — Invalid command
1 — MTC_SUB size (Send and receive)
2 — Lower 16 bits of 1B send MTC_BUF
3 — Upper 6 bits of 1B send MTC_BUF
4 — Lower 16 bits of 1B receive MTC_BUF
5 — Upper 6 bits of 1B receive MTC_BUF
6 — Load RAM at 16-bit ADR from my send MTC_BUF
7 — Dump RAM at 16-bit ADR TO MY RECEIVE MTC_BUF
10 — Copy my send MTC_BUF to other receive MTC_BUF
11 — Copy my receive MTC_BUF unload PTR to other send MTC_BUF unload PTR
12 — Send interrupt to other side
13 — Disable on-board DGN
14 — Suspend DMA except for MTC_BUF commands
15 — Resume DMA from point of suspension
16 — Read 8-bit DMA job number
17 — Abort DMA job in progress (if any)
20 — Disable PIC loop-around mode
21 — Enable PIC loop-around mode
22 — Disable all error checks
23 — Enable all error checks
24 — Read 16-bit API status word
25 — Clear through mask 16-bit API status word
26 — Read 16-bit API error word
27 — Clear through mask 16-bit error word
30 — Read 16-bit API state word
31 — Write 16-bit API state word
32 — Initiate AU DGN helper
33 — Enable on-board DGN
34 — Disable alert function

SHEET 16 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-07 : SPEC-luc043a : GM VER. 2.5a

API Commands — Octal (Contd)

35 — Enable alert function
36 — Send 16-bit data to other processor
37 — Receive 16-bit data from other processor
40 — Disable PC emulation
41 — Enable PC emulation
42 — Send interprocessor data to other side
43 — Read status/error word (TBERSTAT)
44 — Update status/error word

SHEET 17 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-07 : SPEC-luc043a : GM VER. 2.5a

APFR Error Codes — Octal

100 — Failed to get BUF INFO from MSG handler
101 — API command failure
102 — Failed to restore common hardware
103 — Failed, forced by ROS key
104 — Failed, unit active main
105 — Failed, bus OOS
106 — Failed, unit not in operational state
107 — UTYP to Kcode conversion failed
110 — Immediate fail return from MSG handler on sending MSG
111 — MCC forced API OOS
112 — Time-out, no MSG ACK on COM_BUF RST MSG to 3B Computer
113 — API command time-out
114 — API command never started processing
115 — Loop-around MSG not in REC BUF
116 — Mate status fail, MEMN does not exist
117 — Cannot access CMD REG in the API
120 — Incorrect final status detected
121 — The test MSG has failed
122 — The CMD system has failed
123 — An attempt was made to restore active-active
124 — MSG handler failed to INIT COM_BUF
125 — No active API found for this APS
126 — Active MEMN for this APS is not operational
127 — MSG handler failed to send MSG
130 — Time-out waiting for MSG ACK
131 — ACK MSG from 3B Computer was no good
132 — No active in-service API
133 — Status shows active-active state

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APFR Error Codes — Octal (Contd)

134 — MSG handler failed to INIT XCOM_BUF
135 — Initial CMD response failed
136 — CMD not SYNC, SEQ violation occurred
137 — Sack CMD to IP_Word failed
140 — 3B Computer CMD was not found
141 — CMD response time-out in wait routine
142 — CACK CMD to IP_Word failed
143 — Received protocol CMD, expected CMD command
201 — APS MEMN out of range
202 — Fail to restore OOS mate API before switching
203 — MEMN to base address conversion failed
204 — Switch failed due to the OOS mate API
205 — API is powered down
206 — API is already OOS

Command Register Layout

Bit 0-5 = Command OPCODE (See API commands)
6-7 = Command disposition code
0 — completed
1 — failed
2 — in progress
3 — CMD loaded in CMD REG
8-23 = Data field

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Interprocessor Commands — Octal

0 = Null CMD
1 = Unassigned
2 = SYNC CMD
3 = SYNC ACK CMD
4 = IP_CMD command ACK
5 = Reinitialize all COM_BUF resources (Including in-service APIs)
6 = Initialize in-service APIs to COM_BUF
7 = Reinitialize all XCOM_BUF resources (Including in-service APIs)
10 = CONFIG API as specified
11 = APS error detected (3B Computer only)
12 = PS 0 Pump request
Option1 — Pump the first quarter of PS 0
Option2 — Pump the second quarter of PS 0
Option3 — Pump the third quarter of PS 0
Option4 — Pump the fourth quarter of PS 0
13 = Select logical 1A-file for normal request as specified
Option1 — Logical normal file
Option2 — Logical normal file
14 = Load PCRVPUMP into 3B Computer main memory
Option1 — PCRVPUMP into 3B Computer main memory
15 = Request 3B Computer to check for buffer initialization
16 = Request to initialize APDRV
17 = Request to boot the 3B Computer

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API GCP Reply

Bit 0	=	Maintenance interject request
1	=	Maintenance F/F set side
2	=	Maintenance F/F reset side
3	=	Clock activity error
4-5	=	Not used
6	=	CC Input address parity error
7	=	CC input data parity error
8	=	Not used
9	=	CC out-of-range address error
10	=	CC mode error
11	=	Kcode bit 11
12	=	Kcode bit 12
13	=	Kcode bit 13
14	=	Kcode bit 14
15	=	Kcode bit 15
16	=	CC interface sequencer error
17	=	Kcode match detected
18	=	Control read mode detected
19	=	Control write mode detected
20	=	All ones address and PKA detected
21	=	All zeros address and PKA detected
22	=	All ones data and P1, P2 detected
23	=	All zeros data and P1, P2 detected

Dump Layout

MC5A003 and MC5A012 Microcode (NON CCS7)

REPT: API a DUMP

b.....b	**c.....c**	**d.....d**	**e.....e**	**f.....f**	**α.....α**	**β.....β**	**g.....g**
[h....h	**i....i**	**j....j**	**k....k**	**l....l**	**m....m**	**n....n**	**o....o**
p....p	**q....q**	**r....r**	**s....s**	**t....t**	**u....u**	**v....v**	**w....w**
x....x	**y....y**	**z....z**	**A....A**	**B....B**	**C....C**	**D....D**	**E....E**
F....F	**G....G**	**H....H**	**I....I**	**J....J**	**K....K**	**L....L**	**M....M**
N....N	**O....O**	**P....P**	**Q....Q**	**R....R**	**S....S**	**T....T**	**U....U**
V....V	**W....W**	**X....X**	**Y....Y**	**Z....Z**	**a1..a1**	**b1..b1**	**c1..c1**
d1..d1	**e1..e1**	**f1..f1**	**g1..g1**	**h1..h1**	**i1..i1**	**j1..j1**	**k1..k1**
l1..l1	**m1..m1**	**n1..n1**	**o1..o1**	**p1..p1**	**q1..q1**	**r1..r1**	**s1..s1**
t1..t1	**u1..u1**	**v1..v1**	**w1..w1**	**x1..x1**	**y1..y1**	**z1..z1**	**A1..A1**
B1..B1	**C1..C1**	**D1..D1**	**E1..E1**	**F1..F1**	**G1..G1**	**H1..H1**	**I1..I1**
J1..J1	**K1..K1**	**L1..L1**	**M1..M1**	**N1..N1**	**O1..O1**	**P1..P1**	**Q1..Q1**
R1..R1	**S1..S1**	**T1..T1**	**U1..U1**	**V1..V1**	**W1..W1**	**X1..X1**	**Y1..Y1**
Z1..Z1	**a2..a2**	**b2..b2**	**c2..c2**	**d2..d2**	**e2..e2**	**f2..f2**	**g2..g2**
h2..h2	**i2..i2**	**j2..j2**	**k2..k2**	**l2..l2**	**m2..m2**	**n2..n2**	**o2..o2**
p2..p2	**q2..q2**	**r2..r2**	**s2..s2**	**t2..t2**	**u2..u2**	**v2..v2**	**w2..w2**
x2..x2	**y2..y2**	**z2..z2**	**z2..z2**	**z2..z2**	**z2..z2**	**z2..z2**	**z2..z2]**

[API RAM DUMP UNAVAILABLE]

MC5A003 and MC5A012 Microcode [(NON CCS7) Contd]

a = Member number of API that detected error

NOTE:
Variables ‘‘b’’ through ‘‘g’’ are selected hardware-related data from the Attached Processor Driver (APDRV)

b = BICCMD — Command to Bus Interface Controller (BIC) (See APS link commands)

c = BICDATA — Data returned from BIC (See BIC data flags)

d = BICSTAT — BIC status (See BIC data flags)

e = CHSTATUS — Dual Serial Channel (DSCH) status

f. = APISTATS — API 0 and API 1 status (See APISTATS word layout)

α = FLAGS — PCINT option

β = API FLAGS — Current APS/APDRV stat flags

g = Spare

NOTE:
Variables "h" through "o2" are the contents of a dump of Peripheral Interface Controller (PIC) RAM from the API that detected the error.

h = Send COM/XCOM address offset

i = Send COM/XCOM size

j = Send COM/XCOM load pointer

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MC5A003 and MC5A012 Microcode [(NON CCS7) Contd]

k = Send COM/XCOM unload pointer

l = Receive COM/XCOM virtual offset

m = Receive COM/XCOM size

n = Receive COM/XCOM load pointer

o = Receive COM/XCOM unload pointer

p = Send job buffer state vector and number of words

q = Send job buffer DMA address

r = Send job buffer client information

s = Send job buffer from, time and number

t = Send auditing timing information

u = Spare

v = Spare

w = Send job buffer checksum

x = Receive job buffer state vector and number of words

y = Receive job buffer DMA address

z = Receive job buffer client information

A = Receive job buffer from, time, and number

B = Receive auditing timing information

C = Spare

D = Spare

E = Receive job buffer checksum

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MC5A003 and MC5A012 Microcode [(NON CCS7) Contd]

F = PIC status register

G = Error Status register

H = Send MTCE Buffer virtual address for 3B

I = Receive MTCE Buffer virtual address for 3B

J = Send MTCE Buffer address for 1B

K = Receive MTCE buffer address for 1B

L = Send COM/XCOM buffer virtual address for 3B

M = Receive COM/XCOM Buffer virtual address for 3B

N = Send COM/XCOM Buffer address for 1B

O = Receive COM/XCOM Buffer address for 1B

P = Size of MTCE Buffer in 3B

Q = Size of MTCE Buffer in 1B

R = Size of COM/XCOM Buffer in 3B

S = Size of COM/XCOM Buffer in 1B

T = MTCE Job Buffer offset in 3B

U = MTCE Job Buffer address in 1B

V = COM/XCOM Job Buffer offset in 3B

W = COM/XCOM Job Buffer offset in 1B

X = Size of MTCE Job Buffer in 3B

Y = Size of COM/XCOM Job Buffer in 3B

Z = Size of MTCE Job Buffer in 1B

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MC5A003 and MC5A012 Microcode [(NON CCS7) Contd]

a[1] = Size of COM/XCOM Job Buffer in 1B

b[1] = Number of MTCE Job Buffers in 3B

c[1] = Number of COM/XCOM Job Buffers in 3B

d[1] = Number of MTCE Job Buffers in 3B

e[1] = Number of COM/XCOM Job Buffers in 1B

f[1] = Interprocessor Word sent by 3B

g[1] = Interprocess Word sent by 1B

h[1] = PIC Detailed Error Information

i[1] = API State word

j[1] = Expanded DMA job number for Send MTCE Buffer

k[1] = DMA Requested during CNI

l[1] = DMA In

m[>1] = DMA Out

n[>1] = Direction of Interrupted DMA job

o[1] = Common/CNI Buffer polling rate

p[1] = Firmware version date

q[1] = Current 1B DMA job number

r[1] = Current 3B DMA job number

s[1] = Memory integrity check word

t[1] = Sent TB Headers address in 1B

u[1] = Send TB Headers address in 1B

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MC5A003 and MC5A012 Microcode [(NON CCS7) Contd]

v^1 = Send TB Buffer end address in 1B

w^1 = Send TB load pointer

x^1 = Send TB unload pointer

y^1 = Receive TB Headers address in 1B

z^1 = Receive TB buffer address in 1B

A^1 = Receive TB Buffer end address in 1B

B^1 = Receive TB load pointer

C^1 = Receive TB unload pointer

D^1 = Pointer state during TB pointer update

E^1 = Spare

F^1 = Spare

G^1 = Spare

H^1 = Spare

I^1 = Spare

J^1 = PI scanning status in 3B

K^1 = DLN scanning status in 3B

L^1 = Incoming TB start virtual address in 3B

M^1 = Incoming TB end virtual address in 3B

N^1 = Outgoing TB start virtual address in 3B

O^1 = Outgoing TB end virtual address in 3B

P^1 = Outgoing TB load pointer in 3B

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MC5A003 and MC5A012 Microcode [(NON CCS7) Contd]

Q^1 = Outgoing TN end pointer in 3B

R^1 = Incoming TB unload pointer in 3B

S^1 = Incoming TB load pointer in 3B

T^1 = Incoming TB end pointer in 3B

U^1 = Outgoing TB unload pointer in 3B

V^1 = Spare

W^1 = Spare

X^1 = Spare

Y^1 = Spare

Z^1 = Send TB Virtual address in 1B

a^2 = Receive TB Virtual Address in 1B

b^2 = Spare

c^2 = Send and Receive TB Virtual Address in 3B

d^2 = TB error threshold and TB DMA transfer size for 1B

e^2 = TB DMA transfer size for 3B

f^2 = TB Send Load and Receive Unload Error Count

g^2 = TB Incoming Load and Outgoing Unload Error Count

h^2 = Interprocessor Data Word going to 3B from 1B

i^2 = Interprocessor Data Word going to 1B from 3B

j^2 = TB Error and Status Word

k^2 = TB DMA segment index

MC5A003 and MC5A012 Microcode [(NON CCS7) Contd]

NOTE:
Variables ‘‘p^2" through ‘‘z^2" are the contents of the last message processed by the API.

l^2 = Spare

m^2 = Spare

n^2 = Spare

o^2 = Spare

p^2 = First word of APS message. (From, Size, To)

q^2 = Message AP Type and Sequence number

r^2 = Message Client Identification

s^2 = Spare

t^2 = Message Checksum

u^2 = Message Options Field

v^2 = Message Time and number of words

w^2 = Message Address

x^2 = Message ETIME field

y^2 = Spare

z^2 = Message DATA

MC5A014 Microcode (CCS7)

76543210 76543210 76543210 76543210 h------h i------i
j------j k------k l------l m------m n------n o------o
p------p q------q r------r s------s t------t u------u
v------v w------w x------x y------y z------z A------A
B------B C------C D------D E------E F------F G------G
H------H I------I J------J K------K L------L M------M
N------N O------O P------P Q------Q R------R S------S
T------T U------U V------V W------W X------X Y------Y
Z------Z a1----a1 b1----b1 c1----c1 d1----d1 e1----e1
f1----f1 g1----g1 h1----h1 i1----i1 j1----j1 k1----k1
l1----l1 m1----m1 n1----n1 o1----o1 p1----p1 q1----q1
r1----r1 s1----s1 t1----t1 u1----u1 v1----v1 w1----w1
x1----x1 y1----y1 z1----z1 A1----A1 B1----B1 C1----C1
D1----D1 E1----E1 F1----F1 G1----G1 H1----H1 I1----I1
J1----J1 K1----K1 L1----L1 M1----M1 N1----N1 O1----O1
P1----P1 Q1----Q1 R1----R1 S1----S1 T1----T1 U1----U1
V1----V1 W1----W1 X1----X1 Y1----Y1 Z1----Z1 a2----a2
b2----b2 c2----c2 d2----d2 e2----e2 f2----f2 g2----g2
h2----h2 i2----i2 j2----j2 k2----k2 l2----l2 m2----m2
n2----n2 o2----o2 p2----p2 q2----q2 r2----f2 s2----s2
t2----t2 u2----u2 v2----v2 w2----w2 x2----x2 y2----y2
z2----z2 z2----z2 z2----z2 z2----z2 z2----z2 z2----z2

MC5A014 Microcode [(CCS7) Contd]

NOTE:
Fields h through z2 are explained in DUMP RAM field definitions that follow.

DUMP RAM Field Definitions

The following is the dump of the PIC RAM from the API that detected the error:

h = Send COM/XCOM address offset

i = Send COM/XCOM size

j = Send COM/XCOM load pointer

k = Send COM/XCOM unload pointer

l = Receive COM/XCOM virtual offset

m = Receive COM/XCOM size

n = Receive COM/XCOM load pointer

o = Receive COM/XCOM unload pointer

p = Send job buffer state vector and number of words

q = Send job buffer DMA address

r = Send job buffer client information

s = Send job buffer from, time, and number

t = Send auditing timing information

u = Spare

v = Spare

w = Send job buffer checksum

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MC5A014 Microcode [(CCS7) Contd]

x = Receive job buffer state vector and number of words

y = Receive job buffer DMA address

z = Receive job buffer client information

A = Receive job buffer from, time, and number

B = Receive auditing timing information

C = Spare

D = Spare

E = Receive job buffer checksum

F = PIC status register

G = Error Status register

H = Send MTCE Buffer virtual address for 3B

I = Receive MTCE Buffer virtual address for 3B

J = Send MTCE Buffer address for 1B

K = Receive MTCE Buffer address for 1B

L = Send COM/XCOM Buffer virtual address for 3B

M = Receive COM/XCOM Buffer virtual address for 3B

N = Send COM/XCOM Buffer address for 1B

O = Receive COM/XCOM Buffer address for 1B

P = Size of MTCE Buffer in 3B

Q = Size of MTCE Buffer in 1B

R = Size of COM/XCOM Buffer in 3B

S = Size of COM/XCOM Buffer in 1B

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MC5A014 Microcode [(CCS7) Contd]

T = MTCE Job Buffer offset in 3B

U = MTCE Job Buffer address in 1B

V = COM/XCOM Job Buffer offset in 3B

W = COM/XCOM Job Buffer offest in 1B

X = Size of MTCE Job Buffer in 3B

Y = Size of COM/XCOM Job Buffer in 3B

Z = Size of MTCE Job Buffer in 1B

a^1 = Size of COM/XCOM Job Buffer in 1B

b^1 = Number of MTCE Job Buffers in 3B

c^1 = Number of COM/XCOM Job Buffers in 3B

d^1 = Number of MTCE Job Buffers in 1B

e^1 = Number of COM/XCOM Job Buffers in 1B

f^1 = Interprocessor Word sent by 3B

g^1 = Interprocessor Word sent by 1B

h^1 = PIC Detailed Error Information

i^1 = API State word

j^1 = Expanded DMA job number for Send MTCE Buffer

k^1 = DMA Requested during CNI

l^1 = DMA In

m^1 = DMA Out

n^1 = Direction of Interrupted DMA job

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MC5A014 Microcode [(CCS7) Contd]

o^1 = Common/CNI Buffer polling rate

p^1 = Firmware version date

q^1 = Current 1B DMA job number

r^1 = Current 3B DMA job number

s^1 = Memory integrity check word

t^1 = Send TB Headers address in 1B

u^1 = Send TB Buffer address in 1B

v^1 = Send TB Buffer end address in 1B

w^1 = Send TB load pointer

x^1 = Send TB unload pointer

y^1 = Receive TB Headers address in 1B

z^1 = Receive TB Buffer address in 1B

A^1 = Receive TB Buffer end address in 1B

B^1 = Receive TB load pointer

C^1 = Receive TB unload pointer

D^1 = Pointer state during TB pointer update

E^1 = Spare

F^1 = Spare

G^1 = Spare

H^1 = Spare

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MC5A014 Microcode [(CCS7) Contd]

I[1] = Spare

J[1] = API scanning status in 3B

K[1] = DLN scanning status in 3B

L[1] = Incoming TB start virtual address in 3B

M[1] = Incoming TB end virtual address in 3B

N[1] = Outgoing TB start virtual address in 3B

O[1] = Outgoing TB end virtual address in 3B

P[1] = Outgoing TB load pointer in 3B

Q[1] = Outgoing TB end pointer in 3B

R[1] = Incoming TB unload pointer in 3B

S[1] = Incoming TB load pointer in 3B

T[1] = Incoming TB end pointer in 3B

U[1] = Outgoing TB unload pointer in 3B

V[1] = Spare

W[1] = Spare

X[1] = Spare

Y[1] = Spare

Z[1] = Send TB Virtual address in 1B

a[2] = Receive TB Virtual Address in 1B

b[2] = Spare

c[2] = Send and Receive TB Virtual Address in 3B

d[2] = TB error threshold and TB DMA transfer size for 1B

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MC5A014 Microcode [(CCS7) Contd]

e^2 = TB DMA transfer size for 3B

f^2 = TB Send Load and Receive Unload Error Count

g^2 = TB Incoming Load and Outgoing Unload Error Count

h^2 = Interprocessor Data Word going to 3B from 1B

i^2 = Interprocessor Data Word going to 1B from 3B

j^2 = TB Error and Status Word

k^2 = TB DMA segment index

l^2 = Spare

m^2 = Spare

n^2 = Spare

o^2 = Spare

NOTE:
Variables ‘‘p^2’’ through ‘‘z^2’’ are the contents of the last message processed by the API.

p^2 = First word of APS message. (From, size, To)

q^2 = Message AP Type and Sequence number

r^2 = Message Client Identification

s^2 = Spare

t^2 = Message Checksum

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MC5A014 Microcode [(CCS7) Contd]

u^2 = Message Options Field

v^2 = Message Time and number of words

w^2 = Message Address

x^2 = Message ETIME field

y^2 = Spare

z^2 = Message DATA

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Attached Processor Interface Status (APISTATS)

Word Layout

APISTATS: aaaabbbb

a = Status of API 0

b = Status of API 1

Code	Status
0x00	S_ACT
0x01	S_STBY
0x02	S_UNAV
0x03	S_OFL
0x04	S_OOS
0x05	X_UNEQIP
0x06	S_INIT

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Attached Processor System Link Commands

Bus Interface Controller Commands

Upper 16 Bits

Symbol	Code	Description
NULLCMD	0x00	Null command
IACK	0x01	Invalid command received
SYNC	0x02	Synchronization command
SACK	0x03	Sync acknowledgment command
CACK	0x04	Command acknowledgment
INIT_COM	0x05	Initialize to common buffer (com_buf) resources
ACT_COM	0x06	Initialize API to com_buf
INIT_XCOM	0x07	Initialize to xcom_buf resources
CONF_API	0x08	Configure API pair as specified

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Bus Interface Controller Commands (Contd)

Upper 16-Bits (Contd)

Symbol	Code	Description
ERR_RPT	0x09	APS error has been detected
PS0_REQ	0x0a	PSO pump request as specified
UPD_REQ	0x0b	Select logical 1A file for normal requests
SR_REQ	0x0c	Load 1K words of PCRVPUMP to 3B computer main memory
BUF_STATE	0x0d	Tell if com_buf are initialized
INIT_APDRV	0x0e	Request to initialize APDRV with FPI
PHASE_REQ	0x0f	Request to initialize 3B Computer
VRFYLINK	0xd34d	Verify APS link is operational
REQCONF	0xd555	Request API configuration from 1B
DPLXFAIL	0xdb6d	Request to duplex fail 1A file access

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Bus Interface Controller Commands (Contd)

Lower 16 Bits

Symbol	Code	Description
INVALID	0x0006	API invalid opcode
MBSIZE	0x0106	API mtc_buf size opcode
SMBADD	0x0206	API send mtc_buf address opcode
DRVSEG	0x0306	Expanded DMA index for APDRV segment
RMBADD	0x0406	API receive mtc_buf address opcode
LRAM	0x0606	API load ram from mtc_buf opcode
DRAM	0x0706	API dump ram to mtc_buf opcode
SMB	0x0806	API send mtc_buf to 1B opcode
SMUP	0x0906	API send mtc unload pointer to 1B opcode
SINT	0x0a06	API send MI to 1B opcode
SHPINT	0x0b06	API send high priority interrupt opcode
SDMA	0x0c06	API suspend DMA opcode

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Bus Interface Controller Commands (Contd)

Lower 16-Bits (Contd)

Symbol	Code	Description
RDMA	0x0d06	API resume DMA opcode
RJOBNUM	0x0e06	API read DMA job numbers opcode
ABTDMA	0x0f06	API abort DMA job in progress opcode
DLOOP	0x1006	API disable PIC loop-around mode opcode
ELOOP	0x1106	API enable PIC loop-around mode opcode
DERRCHK	0x1206	API disable error checks opcode
EERRCHK	0x1306	API enable error checks opcode
GETPICS	0x1406	API get PIC status word opcode

SHEET 42 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-07 : SPEC-luc043a : GM VER. 2.5a

Bus Interface Controller Commands (Contd)

Lower 16-Bits (Contd)

Symbol	Code	Description
CLRPICS	0x1506	API clear PIC status word opcode
GETPICE	0x1606	API get PIC error word opcode
CLRPICE	0x1706	API clear PIC error word opcode
RSTATE	0x1806	API read API state
WSTATE	0x1906	API write API state
DALERT	0x1c06	API disable alert function for ‘‘my’’ side
EALERT	0x1d06	API enable alert function for ‘‘my’’ side
WDATA	0x1e06	API write data opcode
RDATA	0x1f06	API read data opcode
IPD_1APR	0x2206	API write interprocessor data word
IPD_RDERRST	0x2306	API read interproc data word error status
IPD_WTBST	0x2406	API update transfer buffer status
PIC_RESET	0x00004000L	Reset the PIC
BIC_CLR	0x00002000L	Clear the BIC
BIC_CFIFO	0x00001000L	Clear BIC FIFO
BIC_IFEN	0x00000800L	BIC-PIC interface enable
BIC_SBKMD	0x00000400L	Set block transfer mode

SHEET 43 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-07 : SPEC-luc043a : GM VER. 2.5a

Bus Interface Controller Commands (Contd)

Lower 16-Bits (Contd)

Symbol	Code	Description
BIC_SWDMD	0x00000200L	Set word transfer mode
BIC_RSINT	0x00000100L	Reset BIC interrupt
BIC_STINT	0x00000080L	Set BIC interrupt
BIC_CCIP	0x00000040L	Clear CIP
BIC_SEODEXP	0x00000020L	Set EOD expected
BIC_SDMASRQ	0x00000010L	Set DMA setup expected
BIC_SDMAXRQ	0x00000008L	Set DMA transfer request
BIC_PICINIT	0x00007200L	Initialize PIC
DBS_CLR	0x00000001L	Clear DDSBS
DBS_NORM	0x0000000bL	Set DDSBS to normal mode

SHEET 44 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-07 : SPEC-luc043a : GM VER. 2.5a

Bus Interface Controller (BIC)

Status Flags

Symbol	Code	Description
BIC_CF	0x80000000L	BIC command present flag
BIC_CIP	0x40000000L	BIC Command In Progress flag
BIC_DF	0x20000000L	BIC Data flag
BIC_PICIE	0x10000000L	BIC PIC Interface Enabled
BIC_FIFOWC	0x001F0000L	BIC FIFO Word Count
BIC_PIC_ER	0x0000fff0L	BIC-PIC error mask
BIC_CMDROV	0x00008000L	BIC Command Register Overflow
BIC_FIFOOV	0x00004000L	BIC Data FIFO Overflow
BIC_PE_H	0x00002000L	BIC PIC Data Bus Parity Error - High Byte
BIC_PE_L	0x00001000L	BIC PIC Data Bus Parity Error - Low Byte
BIC_PICSE	0x00000800L	BIC PIC Sanity Error
BIC_PICFES	0x00000400L	BIC PIC Fatal Error Summary
BIC_EODERR	0x00000200L	BIC End of Data Error
BIC_INFPF3	0x00000100L	BIC INF Parity Failure Over Byte 3 (least significant)

Bus Interface Controller [(BIC) Contd]

Status Flags (Contd)

Symbol	Code	Description
BIC_INFPF2	0x00000080L	BIC INF Parity Failure Over Byte 2
BIC_INFPF1	0x00000040L	BIC INF Parity Failure Over Byte 1
BIC_TM	0x04000000L	BIC data transfer mode (word mode vs. block mode)
BIC_EODRCV	0x02000000L	BIC End of Data Received
BIC_EODEXP	0x01000000L	BIC End of Data Expected
BIC_DMASRQ	0x00800000L	BIC DMA Setup Request
BIC_DMAXRQ	0x00400000L	BIC DMA Xfer Request
BIC_INTP	0x00200000L	BIC Interrupt Pending
BIC_INFPF0	0x00000020L	BIC INF Parity Failure Over Byte 0 (most significant)
BIC_INFPF0	0x00000020L	BIC INF Parity Failure Over Byte 0 (most significant)
BIC_DMASOE	0x00000010L	BIC DMA Setup Overwrite Error
BIC_DEVADDR	0x0000000fL	BIC Device Address
BIC_DAD	(BIC_DF |Cd BIC_CIP)	BIC data FIFO access denied
D_FLAGS	(BIC_CIP |Cd BIC_CF)	BIC command active flags

Bus Interface Controller [(BIC) Contd]

Data Flags

Upper 16 Bits

Symbol	Code	Description
ILINST	0x8000	Illegal instruction
INOPCO	0x4000	Illegal buffer command
DMAWCE	0x2000	DMA word count error
BICEROR	0x1000	BIC error
PICEROR	0x0800	PIC error
RAMOFVL	0x0400	Illegal PIC RAM address specified
ADDRMTC	0x0200	MTC Buffer address not loaded
CHECKER	0x0100	Command check error
PTRERR	0x0080	Pointer check failure
PCBPARF	0x0040	Parity failure on the PIC bus
APBPARF	0x0020	Parity failure on the AU bus
RANGERR	0x0010	AU address range error
AUINHBT	0x0008	AU bus sequencer inhibited
CMDINBT	0x0004	1B command register inhibited
ACTERR	0x0002	Actual read in offset or size error
BTIMEOUT	0x0001	BIC timer time-out
PICBUF_ERR	(INOPCO |Cd CHECKER |Cd PTRERR |Cd ACTERR)	Buffer error

Bus Interface Controller [(BIC) Contd]

Data Flags (Contd)

Lower 16 Bits

Symbol	Code	Description
DIAGINT	0x8000	Interrupt generated by diagnostics
SINT1A	0x4000	Interrupt generated by a SINT pio cmd
PCINT	0x2000	Interrupt generated by a PC from 1B
PICINT	0x1000	Interrupt generated by a PIC error
SUSDMA3	0x0800	DMA suspended by 3B
SUSDMA1	0x0400	DMA suspended by 1B
LOOPMD3	0x0200	3B side API in loop around mode
LOOPMD1	0x0100	1B side API in loop around mode
DISECK3	0x0080	3B error checking disabled
DISECK1	0x0040	1B error checking disabled
DALERT3	0x0020	3B alert function disabled
DALERT1	0x0010	1B alert function disabled
SINT3B	0x0008	Interrupt generated by a SINT from 3B (testing only)
ALRTIN3	0x0004	3B interrupt generated by alert
ALRTIN1	0x0002	1B interrupt generated by alert
EMULPC	0x0001	PC emulation mode

SHEET 48 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-07 : SPEC-luc043a : GM VER. 2.5a

NOTE

Conditional All Test Passed (CATP)

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- Control Unit CATP Layout 8-2
- Disk File Controller (DFC) and Input/Output (IOP) CATP Layout 8-2

Conditional All Test Passed (CATP)

8

Layouts

API—Attached Processor Interface - CATP Layout

Reason for Tests Skipped:

Bit 5 = Kill request message (MSG) to 3B Computer not accepted
7 = Command sent to the API was not acknowledged
8 = Diagnostic (DGN) request MSG to 3B Computer not accepted
9 = APDMI process at 3B Computer not started
10 = DGN request MSG to 3B Computer timed out
11 = Diagnostics inhibited at 3B Computer
12 = Second start dial (SSD) out-of-service
33 = GCP reply was all zeros
43 = Power monitor (PWRMON) test timed out — try again
44 = Two PWRMON jobs already active — try again
45 = Work table full — try again
46 = Frame request active — try again
47 = Unit not in normal state

SHEET 1 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-08 : SPEC-luc043a : GM VER. 2.5a

Control Unit CATP Layout

Reasons for Tests Skipped

BIT 0	=	NOT USED
1	=	Unit under test is forced active
2	=	Sanity times are disabled
3	=	EAI forces are active
4	=	Peripheral unit controller out-of-service
5	=	Helper unit not specified or invalid
6	=	Helper unit unavailable
7	=	Unit under test is forced out of service
8	=	EAI initialization parameter buffer data pending, EAI must be cleared
9	=	Helper unit not connected to subunit under test

Disk File Controller (DFC) and Input/Output (IOP) CATP Layout

Reasons for Tests Skipped

BIT 0	=	Helper unit not specified or invalid
1	=	Helper unit cannot be reserved
2	=	Helper unit is not out-of-service
3	=	Helper unit is not all tests pass (ATP)
4	=	Helper unit not connected to controller being diagnosed

Panic Codes

9

Contents

Panic Codes 9-1

Panic Codes

9

Panic Codes

Utility ID	Process Name	Panic Code	Description
X'0	KBOOT	X'1	Kboot cannot create a system process
		X'2	Bad kernel process Dispatcher Control Table (DCT) pointer
		X'3	Bad kernel Process Control Block (PCB) segment
		X'4	Bad segment case
		X'5	Bad supervisor process DCT pointer
		X'6	Bad supervisor process PCB segment
		X'7	Cannot send message to process manager
		X'8	Cannot send message to file manager
		X'9	Cannot send pcreate message

SHEET 1 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-09 : SPEC-luc043a : GM VER. 2.5a

Utility ID	Process Name	Panic Code	Description
X'0 (Contd)	KBOOT	X'A	Bad boot segment ID
		X'B	Bad kernel message segment ID
		X'C	Bad kernel DCT segment ID
		X'D	Bad kernel interrupt stack segment ID
		X'E	Bad port table segment ID
		X'F	Bad process ID
		X'10	Cannot create Protected Application Segment (PAS)
		X'11	Cannot fill in segment table entry
		X'12	PAS is too large
		X'13	Cannot create a PUB LIB work segment
		X'14	Boot process segment list full
		X'15	Boot process segment list overlay
		X'16	Invalid root directory block
		X'17	No boot shared library
		X'18	Invalid boot shared library inode
		X'19	Cannot allocate boot shared library segment
		X'1A	Disk read time-out
		X'1B	DMA SYSGEN failure
		X'1C	Disk read failure
		X'1D	Cannot apply segment name

Utility ID	Process Name	Panic Code	Description
X'0 (Contd)	KBOOT	X'1E	Boot time data base is missing
		X'1F	Could not allocate a whole descriptor block segment
		X'20	Not enough swappable memory
		X'21	Could not allocate a PAS segment for a boot process because there are no PAS segments
		X'22	KPCB of a boot process does not have enough entries to accommodate either PAS or ECD segments
X'1	MEMORY MANAGER	X'6E	Function to make space on disk failed
		X'6F	Invalid return code from function to load segments
		X'70	Failed reclaiming swap spare
		X'71	Unable to retry I/O
		X'72	Message drained out of sequence
		X'73	Ran out of swap space by boot process
		X'74	Ran out of entries describing free swap space on the swap device (HDBs)
		X'75	Unexpected fault
		X'7F	Swap space damaged

Utility ID	Process Name	Panic Code	Description
X'2	CAPABILITY MANAGER	X'80	Capability manager unexpected fault
X'3	UTILITY MANAGER	X'50	Utility manager unexpected fault
X'4	FILE MANAGER	X'1	No buffer segment
		X'2	Could not read root superblock
		X'4	Could not read root inode
		X'5	Cannot allocate initialization message to SIM
		X'6	Could not connect to ECD
		X'7	Stack switch failure
		X'8	Bad mount table
		X'9	Illegal block device
		X'C	Mount point not found in mount table
		X'D	Bad inode disk address
		X'10	Too many nontask faults
		X'11	Too many task faults
		X'12	Too many kfault faults

Utility ID	Process Name	Panic Code	Description
X'9	SCHEDULER	X'37	I/O error loading essential/no-term process
		X'38	Scheduler unexpected fault
		X'3A	Scheduler received a second software fault within a monitored interval.
X'A	KERNEL	X'1	Excess number of illegal interrupts
		X'2	Bad segment descriptor entry pointer
		X'3	Faulting kernel
		X'4	Unexpected interrupt
		X'5	Unattached process during interrupt
		X'6	Dispatching to a nonkernel process
		X'7	Bad segment descriptor entry pointer
		X'8	Faulting kernel
		X'9	Null DCT pointer
		X'10	Invalid branch to zero
		X'11	Nonidentifiable kernel fault
		X'12	Special process fault
		X'13	Fault while handling supervisor OST
		X'14	Fault while handling channel OST
		X'15	Fault while handling kernel process OST
		X'16	Fault in kernel audit
		X'1D	Null DC pointer

SHEET 5 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-09 : SPEC-luc043a : GM VER. 2.5a

Utility ID	Process Name	Panic Code	Description
X'25	KDAPDRVR	X'40	KDAP driver special process unexpected fault
X'26	KLLA	X'01	Too many kfault faults
		X'02	Too many task faults
		X'03	Too many nontask faults
		X'04	Stack switch failure
X'8C	LBOOT	X'01	Bus Interface Controller (BIC) for the boot Disk File Controller (DFC) initialization failed
		X'04	Peripheral Interface Controller (PIC) for the boot DFC initialization failed
		X'05	Failed to find the big boot file entry in the disk file Volume Table Of Contents (VTOC)
		X'07	Failed to initialize the Direct Memory Access Controller (DMAC) Random Access Memory (RAM)
		X'0A	Failed to find an entry in the disk VTOC
		X'0B	Disk job timed out
		X'10	Disk job failed
		X'20	Page table initialization routine called with an invalid parameter
		X'21	Channel error during programmed I/O System Generation (SYSGEN) command to disk
		X'22	Disk job failed

Utility ID	Process Name	Panic Code	Description
X'8D	PINIT	X'02	Enabled hardware checks with an error source present
		X'8	A UNIX RTR level 3 phase will be called because the up-to-date off-line memory is not accessible after a CU stop-and-switch
		X'9	Memory copy failed after an SAS
X'8E	BBOOT	X'01	Failed to initialize the BIC for the boot DFC
		X'02	Failed to initialize the PIC for the boot DFC
		X'03	Failed to initialize the PIC for the boot DFC
		X'04	Failed to find the disk VTOC entry for the file being loaded
		X'05	Failed to find the boot file or a Boot Time Database (BTDB)
		X'06	Failed to find the boot file or a BTDB
		X'07	Memory copy failed after an SAS
		X'09	Disk data is no good
		X'A	Failed to access BTPARM record from incore ECD
		X'10	Disk data is no good
		X'20	Page table initialization routine called with an invalid parameter

SHEET 7 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-09 : SPEC-luc043a : GM VER. 2.5a

Utility ID	Process Name	Panic Code	Description
X'8E (Contd)	BBOOT	X'21	Channel error during a programmed I/O SYSGEN command to disk
		X'22	Disk job failed X' 31 Bad Equipment Configuration Data (ECD)
		X'31	Bad ECD
		X'32	Bad ECD
		X'33	Bad ECD
		X'53	Boot image format invalid for release
		X'63	Disk job timed-out
X'C0	IODRV	X'1	Encountered a fault while handling a fault
		X'2	Excessive software faults
		X'3	Excessive unrecoverable errors while processing a fault
		X'4	Excessive unrecoverable errors while processing a fault where IOPs were affected but not implicated
		X'A	User requested, via the EAI page on MTTY, a UNIX RTR operating system Level 0 application level 0 initialization.
X'C1	DKDRV	X'1	CONFIG failed a ***rptrerr call — deljob.c***
		X'2	CONFIG failed a ***rptrerr*** call — jobrsp.c
		X'3	Message buffer allocation failed — ***kevent.c***
		X'4	Disk drive software fault detected — ***kfault.c***

SHEET 8 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-09 : SPEC-luc043a : GM VER. 2.5a

Utility ID	Process Name	Panic Code	Description
X'C1 (Contd)	DKDRV	X'5	CONFIG failed a ***rptrerr*** call — ***kfault.c***
		X'6	Limp mode initialization failed — ***jobrsp.c***
		X'7	Limp mode initialization failed — ***deljob.c***
		X'8	Limp mode initialization failed — ***kfault.c***
		X'9	CONFIG failed a ***rptrerr*** call — ***kfault.c***
		X'A	Limp mode initialization failed — ***kfault.c***
		X'B	Limp mode enable interrupt failed — ***kfault.c***
		X'C	CONFIG failed a ***rptrerr*** call — ***kfault.c***
		X'D	Limp mode initialization failed — ***kfault.c***
		X'E	Nested faults have been detected — ***kfault.c***
		X'F	Fault rate is excessive — ***kfault.c***
X'83	PCPEIH	X'2	EIH failed to attach to the ECD
		X'10	Channel error
		X'20	DMA detected fatal hardware fault in on-line main store
		X'21	DMA detected out-of-range memory reference

Utility ID	Process Name	Panic Code	Description
X'83			
	PCPEIH	X'22	DMA detected noncorrectable parity failure in main store
(Contd)		X'26	DMA error: bad parity on read
		X'27	DMA error: DMA Random Access Memory (RAM) parity failure
		X'28	DMA error: DMA incrementer parity failure
		X'2C	DMA error: Central Control IO (CCIO) data parity failure
		X'2D	DMA error: CCIO command failure
		X'2E	DMA error: DMA ROM sequencer parity failure
		X'4D	Boot disk off-line or unavailable
		X'51	ECD audit failure
		X'55	Hard switch called with CU forced off-line
		X'7E	ECD audit found errors in UCB of device type DMA, DSCH, or SCH
		X'C4	Fault FLT_CMA remove request
		X'C5	Fault FLT_CMB remove request
		X'C6	Fault FLT_CMC remove request
		X'C7	Fault FLT_CMD remove request
		X'C8	Fault FLT_CMAN manual remove request
		X'C9	Fault FLT_UCLRMV unconditional remove
		X'CB	Fault FLT_SOFTSW softswitch request
		X'E1	ECD access failure

Utility ID	Process Name	Panic Code	Description
X'83 (Contd)	PCPEIH	X'E2	Zero transfer vector encountered
		X'E4	ECD audit found errors in ucb data for which EIH is responsible
		X'E5	A hard switch was called due to a reconfiguration request from CONFIG
		X'E6	A hard switch was called due to a disk limp mode request from CONFIG
		X'EA	On-line fault during OFLBOOT caused soft-switch
		X'EF	Boot out of off-line boot request
X'85	PCPAUD	X'1	Caused a fault while executing the event entry too many times. A phase is called to protect against a kernel stack overflow
		X'2	Caused a fault while executing the fault entry too many times. A phase is called to protect against a kernel stack overflow
X'187	SIM	X'1	Initialization failure
		X'4	Audit recovery
		X'9	100% message buffer overflow
		X'B	Critical message buffer overflow
		X'C	Unrecognized faults
		X'15	EIH requested a phase during initialization interval. See Note 2.
		X'16	Disk Driver (DKDRV) requested a phase during initialization interval. See Note 2.

SHEET 11 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-09 : SPEC-luc043a : GM VER. 2.5a

Utility ID	Process Name	Panic Code	Description
X'187 (Contd)		X'17	IOP driver requested a phase during initialization interval. See Note 2.
		X'18	FMGR requested a phase during initialization interval. See Note 2.
		X'19	Kernel requested a phase during initialization interval. The kernel consists of the kernel service routines, memory manager, scheduler, kernel display application driver, utility manager, and capability manager. See Note 2.
		X'1A	Process manager requested a phase during initialization interval. See Note 2.
		X'1E	AIM requested a phase during initialization interval. See Note 2.
		X'C8	Application sanity time failure
		X'F5	EIH requested a phase after initialization interval. See Note 2.
		X'F6	Disk Driver (DKDRV) requested a phase after initialization interval. See Note 2.
		X'F7	IOP driver requested a phase after initialization interval. See Note 2.
		X'F8	FMGR requested a phase after initialization interval. See Note 2.
		X'F9	Kernel requested a phase after initialization interval. The kernel consists of the kernel service routines, memory manager, scheduler, kernel display application driver, utility manager, and capability manager. See Note 2.

SHEET 12 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-09 : SPEC-luc043a : GM VER. 2.5a

Utility ID	Process Name	Panic Code	Description
X'187 (Contd)		X'FA	Process manager requested a phase after initialization interval. See Note 2.
		X'FE	AIM requested a phase after initialization interval. See Note 2.
X'511	AIM	X'10	Test procedure requested a phase.
		X'11	AIM internal faults requested a phase.
		X'12	No repetitive timer.
		X'13	No PT AIM; AIM cannot connect to its port.
		X'14	No AIM PAS.
		X'15	Cannot get SYSimsg reached.
		X'16	Timed out waiting for SYSimsg.
		X'17	Cannot get SANmsg.
		X'18	Timed out waiting for SANmsg.
		X'19	AIM could not schedule task.
		X'1a	IMreqinit() failed for kernal.
		X'20	APDRV could not be created, failed its initialization, or died (without AIM request).
		X'21	No message buffers are available.
		X'22	No SDEs are available to create kernel process.
		X'23	There are less than 50 free SDEs.

Utility ID	Process Name	Panic Code	Description
X'511 (Contd)	AIM	X'24	No DCTs are available for process creation.
		X'25	SIM has not received heatbeat from level 3 monitor for 20 seconds.
		X'26	A child process requested a RTR 51.
		X'27	A child process requested a RTR 52.
		X'28	A child process requested a RTR 53.
		X'29	Real-time monitoring of a process failed.
		X'2a	Not enough main memory to create non-swappable kernel process.
		X'2b	AIM booted after failing to mount /database after tries.
		X'2c	AIM switched CU and booted after failing to mount database in 3 tries.

NOTE 1:
The following Utility Identifications (UIDs) tables are available in Chapter 15 for additional information.

- Table 15-F. Interprocess Message Switch (IMS)
- Table 15-G. 4AP
- Table 15-H. Common Network Interface (CNI)
- Table 15-I. Real Time Reliable

NOTE 2:
There should be a failing PRM whose step number matches the second digit of the panic code with information associated with the system phase.

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Ring Node

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Ring Node

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NOTES

SHEET 2 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-10 : SPEC-luc043a : GM VER. 2.5a

Physical Identification

RPC node de	IMS User Nodes															
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255
256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271
272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287
288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303
304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319
320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335
336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351

SHEET 3 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-10 : SPEC-luc043a : GM VER. 2.5a

Physical Identification (Contd)

Node Address	RPC	IMS User Nodes														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367
	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383
	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399
	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415
	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431
	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447
	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463
	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479
	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495
	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511
	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527
	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543
	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559
	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575
	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591
	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607
	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623
	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639
	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655
	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671
	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687
	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703

SHEET 4 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-10 : SPEC-luc043a : GM VER. 2.5a

Physical Identification (Contd)

RPC node de	IMS User Nodes															
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	
720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	
736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	
752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	
768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	
784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	
800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	
816	817	818	819	320	821	822	823	824	825	826	827	828	829	830	831	
832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	
848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	
864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	
880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	
896	897	898	899	900	901	902	903	904	905	906	907	908	809	910	911	
912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	
928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	
944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	
960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	
976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	
992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	
1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	

SHEET 5 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-10 : SPEC-luc043a : GM VER. 2.5a

NOTES

Physical Addresses

		IMS User Nodes														
	RPC															
de	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	3072	3073	3074	3075	3076	3077	3078	3079	3080	3081	3082	3083	3084	3085	3086	3087
	3088	3089	3090	3091	3092	3093	3094	3095	3096	3097	3098	3099	3100	3101	3102	3103
	3104	3105	3106	3107	3108	3109	3110	3111	3112	3113	3114	3115	3116	3117	3118	3119
	3120	3121	3122	3123	3124	3125	3126	3127	3128	3129	3130	3131	3132	3133	3134	3135
	3136	3137	3138	3139	3140	3141	3142	3143	3144	3145	3146	3147	3148	3149	3150	3151
	3152	3153	3154	3155	3156	3157	3158	3159	3160	3161	3162	3163	3164	3165	3166	3167
	3168	3169	3170	3171	3172	3173	3174	3175	3176	3177	3178	3179	3180	3181	3182	3183
	3184	3185	3186	3187	3188	3189	3190	3191	3192	3193	3194	3195	3196	3197	3198	3199
	3200	3201	3202	3203	3204	3205	3206	3207	3208	3209	3210	3211	3212	3213	3214	3215
	3216	3217	3218	3219	3220	3221	3222	3223	3224	3225	3226	3227	3228	3229	3230	3231
	3232	3233	3234	3235	3236	3237	3238	3239	3240	3241	3242	3243	3244	3245	3246	3247
	3248	3249	3250	3251	3252	3253	3254	3255	3256	3257	3258	3259	3260	3261	3262	3263
	3264	3265	3266	3267	3268	3269	3270	3271	3272	3273	3274	3275	3276	3277	3278	3279
	3280	3281	3282	3283	3284	3285	3286	3287	3288	3289	3290	3291	3292	3293	3294	3295
	3296	3297	3298	3299	3300	3301	3302	3303	3304	3305	3306	3307	3308	3309	3310	3311
	3312	3313	3314	3315	3316	3317	3318	3319	3320	3321	3322	3323	3324	3325	3326	3327
	3328	3329	3330	3331	3332	3333	3334	3335	3336	3337	3338	3339	3340	3341	3342	3343
	3344	3345	3346	3347	3348	3349	3350	3351	3352	3353	3354	3355	3356	3357	3358	3359
	3360	3361	3362	3363	3364	3365	3366	3367	3368	3369	3370	3371	3372	3373	3374	3375
	3376	3377	3378	3379	3380	3381	3382	3383	3384	3385	3386	3387	3388	3389	3390	3391
	3392	3393	3394	3395	3396	3397	3398	3399	3400	3401	3402	3403	3404	3405	3406	3407
	3408	3409	3410	3411	3412	3413	3414	3415	3416	3417	3418	3419	3420	3421	3422	3423

Physical Addresses (Contd)

de	RPC	IMS User Nodes														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	3424	3425	3426	3427	3428	3429	3430	3431	3432	3433	3434	3435	3436	3437	3438	3439
	3440	3441	3442	3443	3444	3445	3446	3447	3448	3449	3450	3451	3452	3453	3454	3455
	3456	3457	3458	3459	3460	3461	3462	3463	3464	3465	3466	3467	3468	3469	3470	3471
	3472	3473	3474	3475	3476	3477	3478	3479	3480	3481	3482	3483	3484	3485	3486	3487
	3488	3489	3490	3491	3492	3493	3494	3495	3496	3497	3498	3499	3500	3501	3502	3503
	3504	3505	3506	3507	3508	3509	3510	3511	3512	3513	3514	3515	3516	3517	3518	3519
	3520	3521	3522	3523	3524	3525	3526	3527	3528	3529	3530	3531	3532	3533	3534	3535
	3536	3537	3538	3539	3540	3541	3542	3543	3544	3545	3546	3547	3548	3549	3550	3551
	3552	3553	3554	3555	3556	3557	3558	3559	3560	3561	3562	3563	3564	3565	3566	3567
	3568	3569	3570	3571	3572	3573	3574	3575	3576	3577	3578	3579	3580	3581	3582	3583
	3584	3585	3586	3587	3588	3589	3590	3591	3592	3593	3594	3595	3596	3597	3598	3599
	3600	3601	3602	3603	3604	3605	3606	3607	3608	3609	3610	3611	3612	3613	3614	3615
	3616	3617	3618	3619	3620	3621	3622	3623	3624	3625	3626	3627	3628	3629	3630	3631
	3632	3633	3634	3635	3636	3637	3638	3639	3640	3641	3642	3643	3644	3645	3646	3647
	3648	3649	3650	3651	3652	3653	3654	3655	3656	3657	3658	3659	3660	3661	3662	3663
	3664	3665	3666	3667	3668	3669	3670	3671	3672	3673	3674	3675	3676	3677	3678	3679
	3680	3681	3682	3683	3684	3685	3686	3687	3688	3689	3690	3691	3692	3693	3694	3695
	3696	3697	3698	3699	3700	3701	3702	3703	3704	3705	3706	3707	3708	3709	3710	3711
	3712	3713	3714	3715	3716	3717	3718	3719	3720	3721	3722	3723	3724	3725	3726	3727
	3728	3729	3730	3731	3732	3733	3734	3735	3736	3737	3738	3739	3740	3741	3742	3743
	3744	3745	3746	3747	3748	3749	3750	3751	3752	3753	3754	3755	3756	3757	3758	3759
	3760	3761	3762	3763	3764	3765	3766	3767	3768	3769	3770	3771	3772	3773	3774	3775

SHEET 8 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-10 : SPEC-luc043a : GM VER. 2.5a

Physical Addresses (Contd)

RPC node de	IMS User Nodes															
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	3776	3777	3778	3779	3780	3781	3782	3783	3784	3785	3786	3787	3788	3789	3790	3791
	3792	3793	3794	3795	3796	3797	3798	3799	3800	3801	3802	3803	3804	3805	3806	3807
	3808	3809	3810	3811	3812	3813	3814	3815	3816	3817	3818	3819	3820	3821	3822	3823
	3824	3825	3826	3827	3828	3829	3830	3831	3832	3833	3834	3835	3836	3837	3838	3839
	3840	3841	3842	3843	3844	3845	3846	3847	3848	3849	3850	3851	3852	3853	3854	3855
	3856	3857	3858	3859	3860	3861	3862	3863	3864	3865	3866	3867	3868	3869	3870	3871
	3872	3873	3874	3875	3876	3877	3878	3879	3880	3881	3882	3883	3884	3885	3886	3887
	3888	3889	3890	3891	3892	3893	3894	3895	3896	3897	3898	3899	3900	3901	3902	3903
	3904	3905	3906	3907	3908	3909	3910	3911	3912	3913	3914	3915	3916	3917	3918	3919
	3920	3921	3922	3923	3924	3925	3926	3927	3928	3929	3930	3931	3932	3933	3934	3935
	3936	3937	3938	3939	3940	3941	3942	3943	3944	3945	3946	3947	3948	3949	3950	3951
	3952	3953	3954	3955	3956	3957	3958	3959	3960	3961	3962	3963	3964	3965	3966	3967
	3968	3969	3970	3971	3972	3973	3974	3975	3976	3977	3978	3979	3980	3981	3982	3983
	3984	3985	3986	3987	3988	3989	3990	3991	3992	3993	3994	3995	3996	3997	3998	3999
	4000	4001	4002	4003	4004	4005	4006	4007	4008	4009	4010	4011	4012	4013	4014	4015
	4016	4017	4018	4019	4020	4021	4022	4023	4024	4025	4026	4027	4028	4029	4030	4031
	4032	4033	4034	4035	4036	4037	4038	4039	4040	4041	4042	4043	4044	4045	4046	4047
	4048	4049	4050	4051	4052	4053	4054	4055	4056	4057	4058	4059	4060	4061	4062	4063
	4064	4065	4066	4067	4068	4069	4070	4071	4072	4073	4074	4075	4076	4077	4078	4079
	4080	4081	4082	4083	4084	4085	4086	4087	4088	4089	4090	4091	4092	4093	4094	4095

Error Interrupt Handler Faults

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Handler Faults and Descriptions 11-1

Error Interrupt Handler Faults

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Handler Faults and Descriptions

Interrupt Type No.	Fault	Description
X'2 (3B21D ONLY)	EAI RESET TYPE ERROR THRESHOLD EXCEEDED	Excessive number of errors has occurred on the EAI hardware on the CC board. A reset of the EAI hardware will be attempted
X'3 (3B21D ONLY)	EAI SWITCH TYPE ERROR THRESHOLD EXCEEDED	Excessive number of errors has occurred on the EAI hardware on the CC board. A previous reset of the EAI hardware was not sufficient to clear the error. A soft switch will be attempted.
X'8	A MY STORE ERROR C [MEMLOG]	A noncorrectable parity error occurred on the currently running CU.

SHEET 1 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-11 : SPEC-luc043a : GM VER. 2.5a

Handler Faults and Descriptions (Contd)

Interrupt Type No.	Fault	Description
X'B	INVALID MAINTENANCE CHANNEL ORDER	Maintenance channel is faulty or maintenance channel protocol has been violated.
X'C	RESTORE HARDWARE ERROR [MEMLOG]	Memory controller of the off-line processor encountered a store error A condition.
X'D	OTHER STORE CORRECTABLE MEMORY FAILURE	A correctable parity error (other store D) occurred in the mate processor. This type of error can only occur if the mate processor is in the standby state.
X'E	OTHER STORE NONCORRECTABLE MEMORY FAILURE	Noncorrectable memory error (other store C) occurred in the mate processor. This type of error can only occur if the mate processor is in the standby state.
X'F	OTHER STORE TIME-OUT ERROR	The other side did not respond.
X'10	IO CHANNEL ERROR	The faulty unit encountered a fatal error condition. The channel status and channel address are included.
X'11	3/6 MAIN CHANNEL IO RESPONSE ERROR	More than one channel responded to an Input/Output (I/O) address.

SHEET 2 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-11 : SPEC-luc043a : GM VER. 2.5a

Handler Faults and Descriptions (Contd)

Interrupt Type No.	Fault	Description
X'12	3/6 MAIN CHANNEL SEQUENCING ERROR	More than one IO pulse point was active in the command to the channel.
X'13	PARITY DIVERT ERROR	A named unit returned a word with bad parity.
X'14	ON-LINE CORRECTABLE MEMORY FAILURE	A correctable (refresh) memory failure occurred in the on-line processor (my store D).
X'15	PROTECTION VIOLATION	The program tried to execute from a segment that did not have execute permission or tried to write into a segment that did not have write permission.
X'16	VIRTUAL ADDRESS OUT OF RANGE (VORA) [ERLOG]	The program attempted to access memory with virtual address values exceeding 64 megabytes.
X'17	OUT-OF-RANGE MEMORY REFERENCE	The program tried to access unequipped memory.

Handler Faults and Descriptions (Contd)

Interrupt Type No.	Fault	Description
X'18	OUT-OF-RANGE MEMORY REFERENCE (OTHER STORE)	The off-line main store considered the address to be out of range; while the on-line store did not. This usually indicates a problem with the off-line main store.
X'19	PRIVILEGED INSTRUCTION VIOLATION	The program tried to execute one of the special instructions without a corresponding privilege bit set in the PSW.
X'1A	BAD ALIGNMENT ON MEMORY REFERENCE	The program executed an instruction and used the wrong type of address. (For example: The execution of a full-word instruction with a half-word address).
X'1B	ILLEGAL OPERAND	One of the operands specified in an instruction is invalid for the particular op code.
X'1C	ILLEGAL INSTRUCTION	The data in the instruction buffer did not correspond to a valid instruction.
X'1D	ILLEGAL STACK SWITCH	The program attempted to switch to a private stack or attempted to switch to the kernel stack when it was already running on the kernel stack.

SHEET 4 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-11 : SPEC-luc043a : GM VER. 2.5a

Handler Faults and Descriptions (Contd)

Interrupt Type No.	Fault	Description
X'1E	SPURIOUS INTERRUPT	The EIH was entered and did not find an error set.
X'20	MY STORE A DURING DMA	The DMAC encountered a fatal main store problem during a DMA transfer.
X'21	MY STORE B DURING DMA	The DMAC used an out-of-range address.
X'22	DMA DETECTED FATAL MAIN STORE FAULT	A main store hardware error (my store A) occurred in the on-line processor during DMA.
X'25	BAD PARITY ON DIO BUS	The DMA input/output (DIO) bus is between the DMA and the channels.
X'26	BAD PARITY ON DMA READ	Bad parity on DMA read
X'27	DMA RAM PARITY FAILURE	Bad parity in the DMAC internal memory

SHEET 5 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-11 : SPEC-luc043a : GM VER. 2.5a

Handler Faults and Descriptions (Contd)

Interrupt Type No.	Fault	Description
X'29	DIO READY FAILURE	The named channel did not return READY signal to the DMAC.
X'2A	DMA-ASW FAILURE	An All-Seems-Well (ASW) failure occurred during a DMA operation.
X'2B	DIO-ACKNOWLEDGE FAILURE	Either more than one or no channel responded to the DMAC.
X'2C	CCIO-DATA PARITY FAILURE	Data sent from the DMAC to the processor had bad parity.
X'2D	CCIO-COMMAND ERROR	A second programmed IO order was sent to the DMAC before the first one was completed.
X'2E	DMA-ROM PARITY FAILURE	Bad parity on DMAC Read Only Memory (ROM)
X'2F	DMA-ADDRESS ERROR	The job sent to the DMAC did not have valid bit set or the memory pages used did not have proper authorization to perform operation.

SHEET 6 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-11 : SPEC-luc043a : GM VER. 2.5a

Handler Faults and Descriptions (Contd)

Interrupt Type No.	Fault	Description
X'30	DMA-CHANNEL REQUEST ERROR	One of the DMAC channels requested service and an interrupt was not in the channel.
X'32	SPURIOUS INTERRUPT	EIH was dispatched to handle an error but no error bit in the error register was set.
X'33	BAD OPERATING SYSTEM [ERLOG]	A bad operating system trap was detected by the kernel.

SHEET 7 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-11 : SPEC-luc043a : GM VER. 2.5a

NOTE

1ASTAT File Layout

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1ASTAT File Layout

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1ASTAT File Layout

M 08 DUMP:FILE:DATA, FN/dev/lastat, X! **PF**
M 08 DUMP FILE DATA STARTED

00000000000	AAAA	AAAA	BBCC	DD6d	EEEE	EEEE	EEEE	0000
00000000020	FFFF	FFFF	FFFF	0000	0005	9760	0014	0000
00000000040	0005	96f0	0014	0000	0004	83a8	0015	0000
00000000060	0004	8358	0015	0000	edb6	db6d	edb6	db6d
00000000100	edb6	db6d	edb6	db6d	edb6	db6d	edb6	db6d
*								
00000000340	edb6	db6d	edb6	db6d	GGGG	GG6d	EEEE	EEEE
00000000360	EEEE	0000	FFFF	FFFF	FFFF	0000	0005	9760
00000000400	0014	0000	0005	96f0	0014	0000	0004	83a8
00000000420	0015	0000	0004	8358	0015	0000	edb6	db6d
00000000440	edb6	db6d	edb6	db6d	edb6	db6d	edb6	db6d
*								
00000000700	edb6	db6d	edb6	db6d	HHHH	HH6d	EEEE	EEEE
00000000720	EEEE	0000	FFFF	FFFF	FFFF	0000	0005	9760
00000000740	0014	0000	0005	96f0	0014	0000	0004	83a8
00000000760	0015	0000	0004	8358	0015	0000	edb6	db6d
00000001000								

SHEET 1 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-12 : SPEC-luc043a : GM VER. 2.5a

1ASTAT File Layout (Contd)

AAAA AAAA = f0ff 0fff — initialization word

BB = Normal 1a file
- 00 — 1a file 0
- 01 — 1a file 1

CC = State of update file
- 00 — Unlocked
- 01 — Locked

DD = Active file
- 01 — Normal file
- 02 — Update file

EEEE EEEE EEEE = Device ID for 1a file 0

FFFF FFFF FFFF = Device ID for 1a file 1

G = BBCCDD * 0x0d

H = BBCCDD + 0x1d

UNIX Real-Time-Reliable (RTR)

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UNIX Real-Time-Reliable (RTR) 13

UNIX Real-Time-Reliable (RTR) Processes

Refer to Chapter 15, Table 15-I for the Utility IDs and associated ***UNIX*** RTR processes.

UNIX RTR Levels of Initialization

Level	Description
50	Application only (with application parameters following)
51	Minimal processor and switch initialization
52	BOOTSTRAP: SAVE ECD AND PAS
53	BOOTSTRAP: RELOAD ECD; SAVE PAS
54	BOOTSTRAP: RELOAD ECD; CLEAR PAS

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Application Parameter for RTR Level 50 Initialization

EAI Application Parameters (42–<parm>–50)

A - Set InhStart Flag
B - Set InhKill Flag
C - Set InhRestart Flag
D - Clear Flags
E - Reread AIMFILE
F - Toggle PRM Status
G - Update Features
H - Reread ECD bits
I - Init APS PAS
J - Init Ring 4
K - Init Ring 3
L - Allow 3B-4-1A
M - Disallow 3B-4-1A
N - AMA Formatter Status
P - Cause panic dump
Q - Allow blocked audits
R - Send AMA Events to Call Detail Recording Platform (CDRP)

PARM:Description

1 : Triggers event eailv11 which terminates and restarts the AMA processes

2 : Triggers event eailv12 which terminates and restarts the network
:management programs.

3 : Triggers event eailv13 which terminates and restarts the NSC
: programs.

4 : Triggers event eailv14 which initiates APDRV initializations:
i: apdrv data unit, apdrv api init, and apdrv full init.

5 : Triggers event eailv15 which terminates all user level processes.

Miscellaneous

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Miscellaneous

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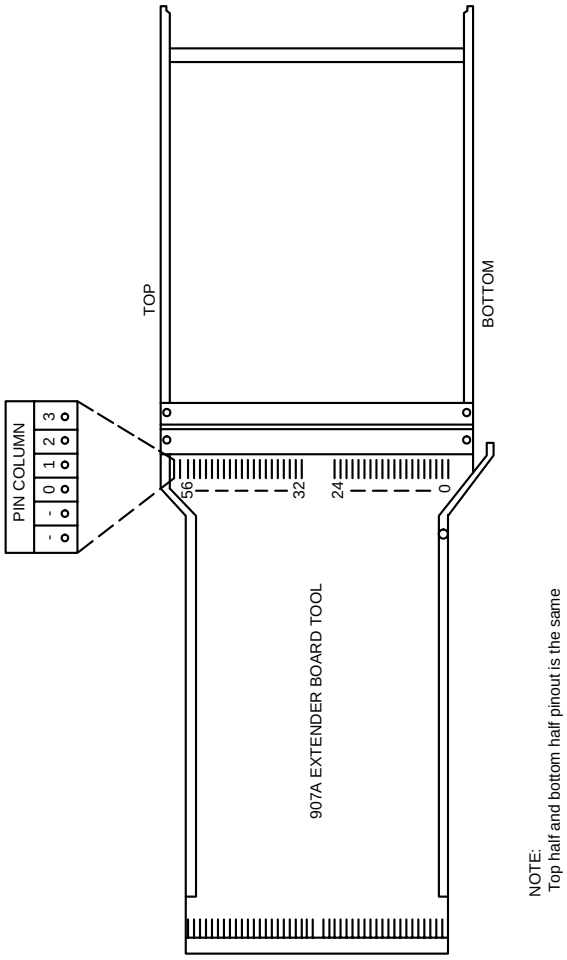
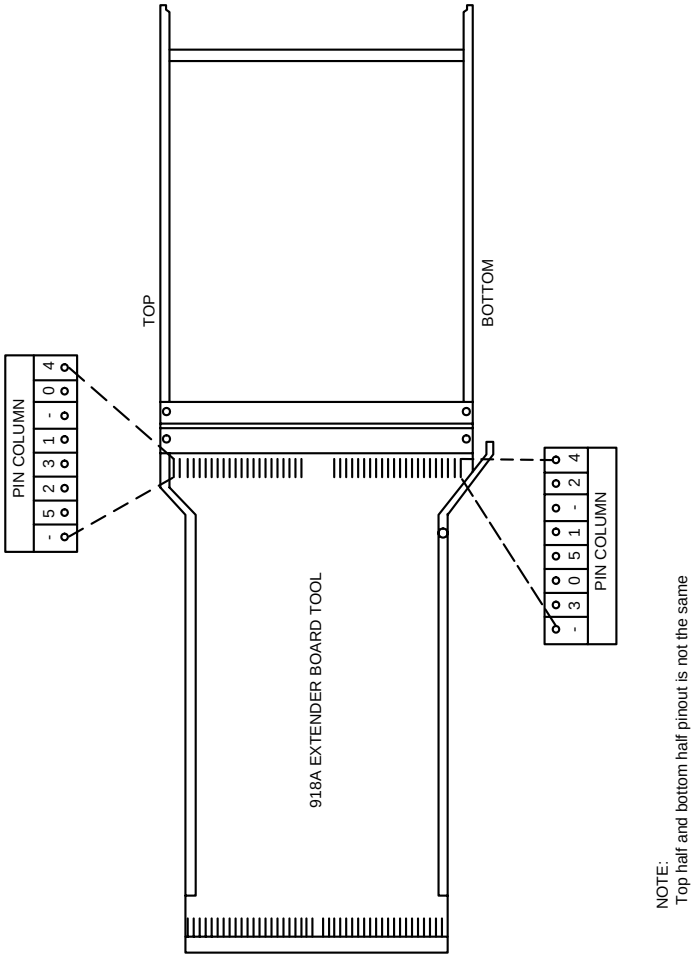
Extender Board Tool Pinouts

NOTES

907A Extender Board Tool Pinout (TN CPs)

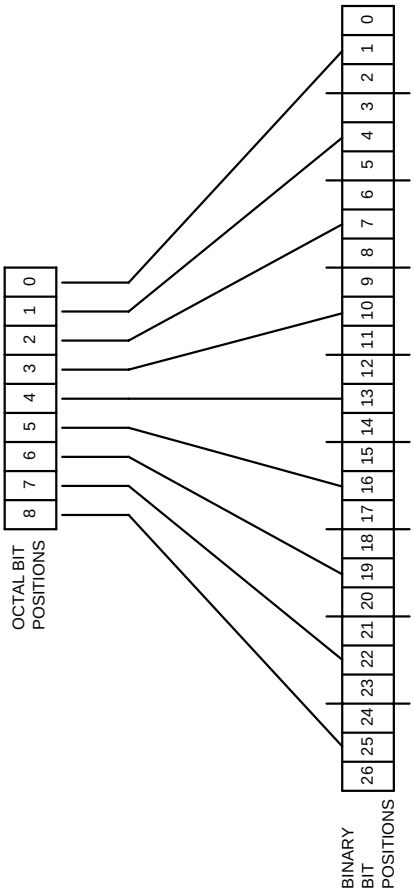


918A Extender Board Tool Pinout (UN CPS)



Number Conversions

Octal to Binary Number Conversion

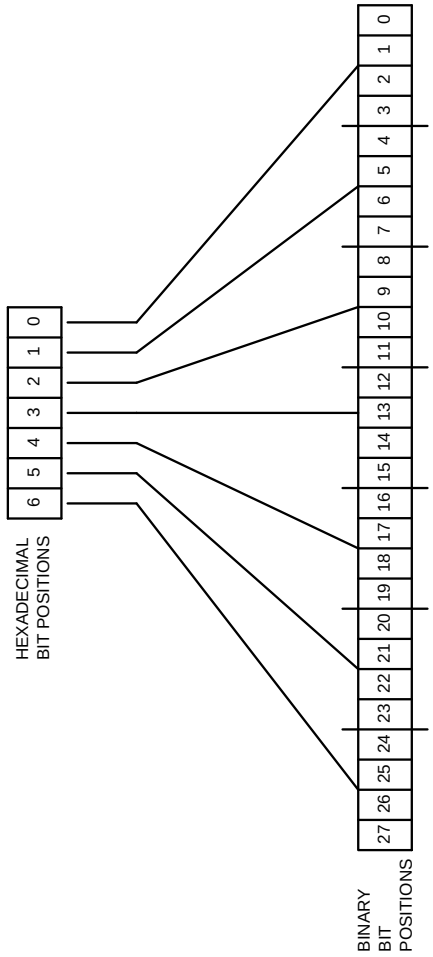


SHEET 5 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-14 : SPEC-luc043a : GM VER. 2.5a

Octal to Binary Values

Octal	Binary
0	000
1	001
2	010
3	011
4	100
5	101
6	110
7	111

Hexadecimal to Binary Number Conversion



Hexadecimal to Binary Values

Hexadecimal	Binary
0	0000
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
A	1010
B	1011
C	1100
D	1101
E	1110
F	1111

Binary to Decimal Number Conversion

BINARY BIT POSITION	DECIMAL VALUE
0	1
1	2
2	4
3	8
4	16
5	32
6	64
7	128
8	256
9	512
10	1024
11	2048
12	4096
13	8192
14	16384
15	32768
16	65536
17	131072
18	262144
19	524288
20	1048576
21	2097152
22	4194304
23	8388608
24	16777216
25	33554432
26	67108864

SHEET 9 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-14 : SPEC-luc043a : GM VER. 2.5a

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Ports and Utility Identifications (UIDs)

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Ports and Utility Identifications (UIDs)

15

Ports

Table 15-A. Real Time Reliable (RTR)

Port Name	No.	Process	UID	Description
PT_ERRLOG	0	fifo	0x17	DMERT error logger (s)
PT_TOS	1	csop	0x209	tty output spooler (s)
PT_MIRA	2	mira	0x42	mtce input request Admin. (s)
PT_CCIOBS	3			CCIO bus simulator (s)
PT_IOP	4	iop	0xc0	I/O processor (h)
PT_TUS	5			Test utility system (s)
PT_DISK	6	dkdrv	0xc1	SCSI peripheral controller (h)
PT_SUHLTHCK	7			SU health check monitor
PT_ADP	8	adp.af	0x87	Automatic diagnostic process (s)
PT_DAP	9	dap	0x202	Display Admin. program (s)
PT_SCSDA	10	scsd	0xc2	SCSD administrator (s)
PT_PSM	11	psm	0x303	Power switch monitor (s)

SHEET 1 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-15 : SPEC-luc043a : GM VER. 2.5a

Table 15-A. Real Time Reliable [(RTR) Contd]

Port Name	No.	Process	UID	Description
PT_SIM	12	sim	0x187	System integrity monitor (s)
PT_UDP	13	udp		User diagnostic process (s)
PT_RMF	14	rmf	0x84	Recovery message formatter (s)
PT_AIM	15	aim		Appl. integrity monitor (s)
PT_INH	16	inhadm	0x86	Inhibit administrator (s)
PT_RTS	17	rts	0x206	Real time status reports (s)
PT_NONE	18			
PT_PCPEIH	19	eih	0x83	Proc cntrl proc error intrpt handler (h)
PT_GOS	20			Generic update output spooler (s)
PT_RMT	21		0x125	SCANS-2 interface (s)
PT_XCIA	22			Critical indicator process
PT_FLDUPD	23	upd	0x102	Field update (s)
PT_DSCH	24			TUS dual serial channel (h)
PT_APRTS	25			Craft interface (s)
PT_APACP	26			Craft interface (s)
PT_PMCR	27	pmcrman	0x2c6	Plant measurements (s)
PT_DGNNM	28	dgnnm	0x1b	For dgnnm & udgnnm commands (s)
PT_SCHED	29			Scheduler process
PT_APSUPD	30			Application S_update
PT_DSKUTL	31	dskutil	0xca	Disk compare/correct utility (s)
PT_SUAMGR	32			SU auto-manager port
PT_SUAEXPND	33			SU expand port (s)
PT_APDAP	34			Application DAP port (s)
PT_BWM	35			SU's display page manager port (s)
PT_BLDBOOT	36			Prevent multiple occurrences of bldboot (s)

Table 15-A. Real Time Reliable [(RTR) Contd]

Port Name	No.	Process	UID	Description
PT_MOP	37			Prevent multiple occurrences of mop(s)
PT_DCI	38			DSCH computer interconnect Driver
PT_EMUDL	39			Emulation Data Link Driver for AWS
PT_SUGNPCC	40			SU genpcc port
PT_SUCTL	41			SU page controller port
PT_SUPUPCI	42			SU page update
PT_RTR43	43			
PT_RTR44	44			
PT_RTR45	45			
PT_RTR46	46			
PT_RTR47	47			
PT_RETRO	48			Retrofit port(s)
PT_GRASP	49			Grasp(s)

Table 15-B. Ports - Application

Port Name	No.	Process	UID	Description
PT_KLMON	51			
PT_APLUPD	55	aplupd	0x50e	Attached processor system lamp updated
PT_FIP	74			Foundation interface processor (h)
PT_API	75	bdq	0x500	Attach processor (h)
PT_MSGS	76			#5 Msgsw.port (h)
PT_RNG	77	imsdrv	0x75c	STP-Ring Driver (h)
PT_MEA	80			APS port
PT_OVLD	81			APS port

SHEET 4 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-15 : SPEC-luc043a : GM VER. 2.5a

Table 15-C. Ports - 4APS

Port Name	No.	Process	UID	Description
PT_INDIR	82	indir	0x604	4APS COAMS INDIR Process Port
AMMONOC	83	ammonoc	0x609	4APS AMA monitor for OC stream
AMDROC	84			4APS AMA disk reader for OC stream
AMDWOC	85	amdwoc	0x608	4APS AMA disk writer for OC stream
AMTAPEOC	86			4APS AMA tape writer for OC stream
AMAPPORT	87	amformat	0x625	4APS AMA Port
PT_HUSTAT	88	hustat	0x632	4APS COAMS hardware unit status process
PT_TIMECHECK	89			4APS COAMS frame time check process
AMMONIC	90	ammonic	0x64e	4APS AMA monitor for IC stream
AMTAPEIC	91			4APS AMA tape writer for IC stream
AMDWIC	92	amdwic	0x64d	4APS AMA disk writer for IC stream
AMDRIC	93			4APS AMA disk reader for IC stream
PT_OSM	94			4APS TOSS message port
NMDDARPT	95			4APS NEMOS feature port
NMFVARPT	96			4APS NEMOS feature port
AMDWIN	97	INdwriter	0x66a	4APS ICDR disk writer process

Table 15-C. Ports - 4APS (Contd)

Port Name	No.	Process	UID	Description
PT_CAU	98			4APS COAMS CAU software message port
AMDRIN	99			4APS ICDR disk reader process
AMMONIN	100	INmon		4APS ICDR monitor process
A2HPPORT	101			4APS APPLHOOK inter-process comm port
PT_MEAS1A	102	apsmeas	0x602	4APS meas destine for the 1B Processor
RCOVPORT	103	recovdata	0x6a8	4APS panic dump software process recovdata
PT_DLNCM	104	dlncm	0x6f3	DLN Configuration Manager
PT_RTM	105	rtkern	0x6f1	Real-time Monitor
PT_ttyj	106			PSDIO named pipe
PT_ttyk	107			PSDIO named pipe
PT_rcd0	108			psdio1a APID
PT_rcd1	109			psdio1a APID
PT_rcd2	110			psdio1a APID
PT_rcd3	111			psdio1a APID
PT_rcd4	112			psdio1a APID
PT_rcd5	113			psdio1a APID
PT_rcd6	114			psdio1a APID
PT_rcd7	115			psdio1a APID
PT_TOPAS	116			psdio3b named pipe for TOPAS
PT_4evrtdas	117			Port for process 4evrtdas

Table 15-C. Ports - 4APS (Contd)

Port Name	No.	Process	UID	Description
PT_BOOTAUD	118			BOOTAUD audit of critical files
PT_LYNX	119	SLYNX	0x735	56KB dialup file transfer
PT_RSCAN	120			rscan3b.pel - pinet file transfer
AMRECGEN	121			3B AMA record generator
AMRCVP	122	AMARERR	06x624	AMA receiver
PT_IR	123			IR(UUD) software port
PT_ir0	124			IR pipe 0
PT_ir1	125			IR pipe 1
PT_ir2	126			IR pipe 2
PT_ir3	127			IR pipe 3
PT_ir4	128			IR pipe 4
PT_ir5	129			IR pipe 5
PT_ir6	130			IR pipe 6
PT_ir7	131			IR pipe 7
PT-XOUTBND	132			Outbound BU EXEC port
PT-XINBND	133			Inbound BU exec port
PT-XPCP	134			CCS BU exec port
PT-LKAPPDB0	135			APPDB port lock 0
PT-LKAPPDB1	136			APPDB port lock 1
PT-LKAPPDB2	137			APPDB port lock 2
PT-LKAPPDB3	138			APPDB port lock 3
PT-LKAPPDB4	139			APPDB port lock 4
PT-PSDIO1ASA	140			PSDIO 1B stand-alone port
PT-ATPCM	141			ATP configuration manager port
PT_SPG3B	142			SPG monitor port

Table 15-D. Common Network Interface (CNI)

Port Name	No.	Process	UID	Description
PT_CMMSDP	200	CMMSDP	0x7ca	CNI Meas Data Processing
PT_CEHDLR	201	CEHDLR	0x7b3	CNI critical event handler
PT_DBA	202	DNIDBA	0x7a8	Recent change port
CPT_USEr	203	ringinit	0x6ab	User processes
PT_SLMK	204	SLMK	0x7cd	SLMK's port
PT_CNIER	205	CNIER	0x810	CNI Event Handler
PT_MON_TRAP	206	MONTRAP	0x808	MON_TRAP
PT_OMAP	207	OMAP	0x811	OMAP process
PT_RGPK	208	cdp	0x47c	RGRASP kernel
PT_RGPU	209	RGP_PRT	0x47e	RGRASP print process

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Table 15-E. Real Time Reliable (RTR)

Port Name	No.	Process	UID	Description
PT_TPORT	210	cdz	0x769	Port for trace messages
PT_NPPORT	211	npp.p		Port for pumper
PT_UIMS	212	CNIINIT	0x7b2	Port for user of IMS
PT_TDCP	213	tdcp.p		Trace init process tdcp port
PT_MSDC	214	msdc.p	0x763	The meas pdc process
PT_IMSRTS	215	imsrts.p	0x762	The real time stat proc
PT_TIMS	216			IMS pseudo user test port
PT_STIMS	217			App1 monitor test port
PT_U1MSADM	218	CMMSADM	0x7c8	The measurement user 1
PT_U2MSADM	219	arts	0x629	The measurement user 2
PT_KDMA	220			Port for ‘‘psd_kdma’’
PT_OPRTM	221			Port for op_rtm.p(optional procs)

Utility Identifications

Table 15-F. Interprocess Message Switch (IMS)

UID	Type	Level	3B_PATH
X'07cd	K	008	/cmp/cni/proc/SLMK
X'0796	S	055	/cmp/ims/diag/dgnc/imstlp
X'078d	S	185	/cmp/ims/cft/cmd/INIT
X'078c	S	185	/cmp/ims/cft/cmd/FRMV
X'078b	S	185	/cmp/ims/proc/prt_genid.p
X'0789	S	000	/lab/bin/rpcckinh
X'0787	S	000	/lab/bin/tokaudinh
X'0786	S	000	/lab/bin/pioinh
X'0785	S	000	/lab/bin/naudinh
X'0784	S	185	/cmp/ims/cft/cmd/OP/NPMEM
X'0782	S	000	/lab/bin/nrinh
X'0770	S	000	/cmp/ims/proc/im_lpmpr.p
X'076c	S	185	/cmp/ims/cft/cmd/RST
X'0769	K	011	/prc/cdz
X'0768	S	185	/cmp/ims/proc/tdcp.p
X'0767	S	185	/cmp/ims/cft/cmd/INH/TRACE
X'0766	S	185	/cmp/ims/cft/cmd/OP/TRACE
X'0765	S	185	/cmp/ims/cft/cmd/SET/TRACE
X'0764	S	185	/cmp/ims/cft/cmd/ALW/TRACE
X'0763	K	006	/cmp/ims/proc/msdc.p
X'0762	S	185	/cmp/ims/proc/imsrts.p
X'0761	S	185	/cmp/ims/cft/cmd/OP/RING
X'0760	S	185	/cmp/ims/cft/cmd/CFR/RING
X'075f	S	055	/cmp/ims/diag/dgnc/imsdiag
X'075e	S	055	/cmp/ims/diag/dgnc/imsrmvrst
X'075d	S	185	/cmp/ims/pump/npp.p
X'075c	K	010	/cmp/ims/proc/imsdrv.p

Table 15-G. 4AP

UID	Type	Level	3B_PATH
X'0735	S	196	/tools/lynx/mlynx
X'0735	S	159	/cft/shl/cmds/IN/SLYNX
X'0734	S	000	/tools/lynx/l_compress
X'0733	S	144	/tools/lynx/dial
X'072f	S	064	/prc/tdasmct
X'072e	S	064	/prc/tdasrtnr
X'072d	S	064	/prc/4evrtdas
X'072b	S	191	/cft/shl/cmds/IN/FSBUF
X'0726	S	144	/bin/cau
X'0725	S	144	/ring/dmsload/retrvload/gttran_r
X'0724	S	144	/ring/dmsload/checkload/gttran_c
X'0723	S	144	/ring/dmsload/assemload/gttran_a
X'0721	K	004	/prc/cdy
X'071b	S	064	/prc/supr/cftpurge
X'071a	S	064	/prc/supr/atpretro
X'0719	S	064	/prc/supr/dlnretro
X'0716	S	064	/prc/supr/newretro
X'0715	S	144	/cft/shl/cmds/OP/AIM
X'0714	S	191	/aps/prc/aimstub
X'0713	S	064	/aps/prc/aim.pp
X'0711	S	064	/cft/shl/cmds/OP/SDC
X'0710	S	000	/cft/shl/cmds/TEST/BUFFER
X'0710	S	144	/ring/NODE
X'070f	K	003	/tools/kcopy
X'070e	S	144	/cft/shl/cmds/IN/PBUF
X'070b	S	144	/bin/psdio3b
X'0709	K	009	/aps/prc/TESTLOOP

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Table 15-G. 4AP (Contd)

UID	Type	Level	3B_PATH
X'0707	S	144	/cft/shl/cmds/LOAD/EMERSTAT
X'0706	S	144	/cft/shl/cmds/OP/VTOP
X'0704	S	160	/prc/supr/applhook
X'0701	S	144	/cft/shl/cmds/COPY/LSNC
X'06f9	S	144	/cft/shl/cmds/SW/DLN
X'06f9	S	144	/cft/shl/cmds/CLR/DLNESC
X'06f9	S	144	/cft/shl/cmds/STOP/DLNCM
X'06f9	S	144	/cft/shl/cmds/INH/DLNAUD
X'06f9	S	144	/cft/shl/cmds/OP/DLNCM
X'06f9	S	144	/cft/shl/cmds/OP/DLNAUD
X'06f9	S	144	/cft/shl/cmds/ALW/DLNAUD
X'06f9	S	144	/cft/shl/cmds/INIT/DLNCM
X'06f9	S	144	/cft/shl/cmds1/AUD/DLNAUD
X'06f9	S	144	/cft/shl/cmds/STOP/DLNAUD
X'06f9	S	144	/cft/shl/cmds/START/CRCUPD
X'06f9	S	144	/cft/shl/cmds/START/DLNCM
X'06f6	S	144	/database/tools/perm_chk
X'06f6	S	144	/database/tools/adb_chk
X'06f6	S	144	/database/tools/aud_chk
X'06f6	S	144	/cft/shl/cmds/OP/ADB
X'06f5	K	007	ring/atpcm
X'06f3	K	008	/ring/dlncm
X'06f1	K	012	/tools/RTkernel
X'06ef	S	191	/ama/AMinit

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Table 15-G. 4AP (Contd)

UID	Type	Level	3B_PATH
X'06ed	S	144	/ring/dmsload/retrvload/pmthre_r
X'06ec	S	144	/ring/dmsload/checkload/pmthre_c
X'06eb	S	144	/ring/dmsload/assemload/pmthre_a
X'06ea	S	144	/ring/dmsload/retrvload/vuname_r
X'06e9	S	144	/ring/dmsload/checkload/vuname_c
X'06e8	S	144	/ring/dmsload/assemload/vuname_a
X'06e7	S	144	/ring/dmsload/checkload/updvue_c
X'06e6	S	144	/ring/dmsload/assemload/updvue_a
X'06e4	S	144	/ring/dmsload/retrvload/setrna_r
X'06e3	S	144	/ring/dmsload/retrvload/schedl_r
X'06e2	S	144	/ring/dmsload/checkload/schedl_c
X'06e1	S	144	/ring/dmsload/assemload/schedl_a
X'06d8	S	144	/ring/dmsload/retrvload/ofdata_r
X'06d7	S	144	/ring/dmsload/checkload/ofdata_c
X'06d6	S	144	/ring/dmsload/assemload/ofdata_a
X'06d4	S	144	/ring/dmsload/retrvload/lkinfo_r
X'06d3	S	144	/ring/dmsload/checkload/lkinfo_c
X'06d2	S	144	/ring/dmsload/assemload/lkinfo_a
X'06d1	S	144	/ring/dmsload/retrvload/lkdata_r
X'06d1	S	144	/ring/dmsload/retrvload/lkadmn_r
X'06d1	S	144	/ring/dmsload/checkload/lkadmn_c
X'06d0	S	144	/ring/dmsload/checkload/lkdata_c
X'06cf	S	144	/ring/dmsload/assemload/lkadmn_a
X'06cf	S	144	/ring/dmsload/assemload/lkdata_a
X'06cd	S	144	/ring/dmsload/retrvload/histfd_r
X'06cc	S	144	/ring/dmsload/checkload/histfd_c
X'06cb	S	144	/ring/dmsload/assemload/histfd_a
X'06ca	S	144	/ring/dmsload/retrvload/except_r

Table 15-G. 4AP (Contd)

UID	Type	Level	3B_PATH
X'06c9	S	144	/ring/dmsload/checkload/except_c
X'06c8	S	144	/ring/dmsload/assemload/except_a
X'06c7	S	144	/ring/dmsload/retrvload/clsrout_r
X'06c6	S	144	/ring/dmsload/checkload/clsrout_c
X'06c5	S	144	/ring/dmsload/assemload/clsrout_a
X'06c4	S	144	/ring/dmsload/retrvload/lsrout_r
X'06c3	S	144	/ring/dmsload/checkload/lsrout_c
X'06c2	S	144	/ring/dmsload/assemload/lsrout_a
X'06c1	S	144	/ring/dmsload/retrvload/cevent_r
X'06c0	S	144	/ring/dmsload/checkload/cevent_c
X'06bf	S	144	/ring/dmsload/assemload/cevent_a
X'06bd	S	144	/ring/dmsload/systemload/user_int
X'06bc	S	144	/ring/dmsload/systemload/monitor
X'06ba	S	144	/ring/dmsload/systemload/activation
X'06b9	S	144	/ring/dmsload/adminload/users
X'06b8	S	144	/ring/dmsload/adminload/update
X'06b7	S	144	/ring/dmsload/adminload/status
X'06b6	S	144	/ring/dmsload/adminload/stat_init
X'06b5	S	144	/ring/dmsload/adminload/scrub
X'06b4	S	144	/ring/dmsload/adminload/neworder
X'06b3	S	144	/ring/dmsload/adminload/error
X'06b2	S	144	/ring/dmsload/adminload/delete
X'06ad	S	144	/bin/psdio1asa
X'06ad	S	144	/bin/psdio1a
X'06ad	S	144	/bin/psdio1ash
X'06ab	K	009	/ring/RInginit
X'06aa	S	191	/bin/sndcmd

Table 15-G. 4AP (Contd)

UID	Type	Level	3B_PATH
X'06a9	S	144	/bin/pandump
X'06a8	K	014	/aps/prc/recovdata
X'06a6	S	064	/prc/supr/swapsnap
X'06a3	S	160	/prc/supr/appl2hook
X"0690	S	144	/tools/ding
X'0690	S	064	/usr/bin/nmconfig
X'0686	S	104	/cft/shl/cmds/COPY/AMARECOVER
X'0686	S	104	/cft/shl/cmds/UPD/AMA
X'0686	S	104	/cft/shl/cmds/UPD/ICDR
X'0686	S	104	/ama/AMvertapeoc
X'0683	S	104	/bin/stantdas
X'067f	S	144	/cft/shl/cmds/VER/DGA
X'067a	S	144	/ring/dmsload/retrvload/memrte_r
X'0679	S	144	/ring/dmsload/checkload/memrte_c
X'0678	S	144	/ring/dmsload/assemload/memrte_a
X'0677	S	144	/ring/dmsload/retrvload/route_r
X'0676	S	144	/ring/dmsload/checkload/route_c
X'0675	S	144	/ring/dmsload/assemload/route_a
X'0674	S	191	/ama/INmon
X'0672	S	104	/ama/INftp
X'0670	S	144	/ring/dmsload/systemload/apsopp
X'066f	S	000	/etc/ucron
X'066e	S	144	/cft/shl/cmds/DUMP/SCP
X'066a	K	004	/ama/INdwriter
X'0669	S	144	/tools/demsdata
X'0668	S	000	/bin/getopt

Table 15-G. 4AP (Contd)

UID	Type	Level	3B_PATH
X'0666	S	144	/bin/cut
X'0666	S	016	/tools/atpgu
X'0665	S	144	/usr/bin/res
X'0664	S	104	/cft/shl/cmds/VER/APPFILE
X'0663	S	144	/cft/shl/cmds/OP/AMA/RECSRCH
X'0663	S	144	/cft/shl/cmds/OP/AMA/SRCH
X'0663	S	144	/cft/shl/cmds/SET/DGNAME
X'0663	S	144	/cft/shl/cmds/UPD/BWMNIO
X'0663	S	144	/cft/shl/cmds/COPY/BWM
X'0663	S	144	/tools/dmpbwm
X'0663	S	144	/cft/shl/cmds/IN/RSCAN
X'0663	S	144	/cft/shl/cmds/CLR/TMPFILES
X'0663	S	104	/cft/shl/cmds/EXC/QCOPY
X'0661	S	064	/tools/bootaud
X'0660	S	128	/tools/hextobin
X'065e	S	104	/nm/NMecho
X'065d	S	160	/tools/RTdumpit
X'065c	S	144	/tools/ndd
X'065b	S	104	/tools/3brtm
X'065a	S	000	/tools/redlts
X'065a	S	000	/tools/dmplts
X'065a	S	144	/bin/sysname
X'0659	S	064	/prc/tdasftsg
X'0658	S	064	/prc/tdasvtsg

Table 15-G. 4AP (Contd)

UID	Type	Level	3B_PATH
X'0657	S	191	/ama/AMnullcf
X'0651	S	160	/coams/lnkmon
X'0650	S	160	/coams/nsc_to_osm
X'064f	S	160	/ama/AMftpic
X'064e	S	191	/ama/AMmonic
X'064d	K	004	/ama/AMdwriteric
X'064c	S	104	/ama/AMvertapeic
X'064b	S	104	/ama/AMtapeic
X'064a	K	003	/nm/NM5min_ar
X'0649	S	104	/nm/NM5min
X'0648	K	003	/nm/NMdmd_ar
X'0647	S	144	/nm/NMdmd
X'0646	S	144	/nm/NMcntl
X'0645	S	104	/nm/NM30sec
X'0644	S	191	/bin/fsinit
X'0634	S	144	/cft/shl/apscmds/OP/STATUS/NSC
X'0633	S	064	/coams/timecheck
X'0632	S	144	/coams/hustat
X'0631	S	000	/bin/optcmp
X'0631	S	144	/coams/inscreen
X'0630	S	144	/bin/outdir
X'0629	S	144	/aps/cft/arts
X'0628	S	064	/prc/tdassirh
X'0627	S	000	/bin/spoolit
X'0626	S	064	/ama/AMreminder
X'0625	K	003	/ama/AMformat

Table 15-G. 4AP (Contd)

UID	Type	Level	3B_PATH
X'0624	K	006	/ama/AMarcvr
X'0623	K	003	/tools/3brcas
X'0622	S	064	/prc/tdasmc1
X'0621	S	064	/prc/tdasmc0
X'0620	S	144	/cft/shl/apscmds/VER/ATP
X'061f	S	104	/bin/tdasBX25
X'061e	S	104	/bin/tdas1200
X'061d	S	064	/audprc/tdas
X'061c	S	104	/prc/tdasdump1A
X'061b	S	064	/prc/tdas3brec
X'061a	S	144	/cft/shl/apscmds/VER/SD
X'061a	S	000	/cft/shl/apscmds/START/FTA
X'061a	S	000	/cft/shl/apscmds/START/RCBUFGET
X'061a	S	000	/cft/shl/cmds/VER/PCP
X'061a	S	000	/cft/shl/cmds/VER/LVFILE
X'061a	S	000	/cft/shl/apscmds/VER/GTT
X'061a	S	000	/cft/shl/apscmds/DEACTV/DCC
X'061a	S	000	/cft/shl/apscmds/START/DCC
X'061a	S	000	/cft/shl/apscmds/OP/FTF
X'061a	S	000	/cft/shl/apscmds/VER/DCC
X'061a	S	000	/cft/shl/apscmds/INH/FTA
X'061a	S	000	/cft/shl/apscmds/INH/DCC
X'061a	S	000	/cft/shl/apscmds/STOP/DCC
X'061a	S	144	/cft/shl/cmds/VER/GT6TRAN
X'061a	S	000	/cft/shl/apscmds/ACTV/DCC
X'0619	S	144	/cft/shl/cmds/COPY/UPDATE
X'0619	S	144	/cft/shl/cmds/COPY/APPFILE
X'0619	S	144	/cft/shl/cmds/COPY/FSADR
X'0619	S	144	/cft/shl/cmds/VER/UPDATE
X'0619	S	144	/cft/shl/cmds/LOAD/UPDATE

Table 15-G. 4AP (Contd)

UID	Type	Level	3B_PATH
X'0619	S	144	/cft/shl/cmds/LOAD/GULP
X'0619	S	144	/cft/shl/cmds/OP/ATPCM
X'0619	S	144	/cft/shl/cmds/CMPR/ODA
X'0619	S	144	/cft/shl/cmds/OP/DNHRMEAS
X'0619	S	144	/cft/shl/cmds/IN/OSOW
X'0619	S	144	/cft/shl/cmds/IN/TDAS
X'0619	S	144	/cft/shl/cmds/INH/RCV
X'0619	S	144	/cft/shl/cmds/OP/APPLOAD
X'0619	S	144	/cft/shl/cmds/CONFIG/SDL
X'0619	S	144	/cft/shl/cmds/OP/DMSORDERS
X'0619	S	144	/cft/shl/cmds/PUMP/ATP
X'0619	S	144	/cft/shl/cmds/OP/C7NET
X'0619	S	144	/cft/shl/cmds/RC/GTT
X'0619	S	144	/cft/shl/cmds/OP/NODES
X'0619	S	144	/cft/shl/cmds/INIT/GTT
X'0619	S	160	/cft/shl/cmds/UPD/APPL
X'0619	S	144	/cft/shl/cmds/CLR/TDAS
X'0619	S	144	/cft/shl/cmds/STOP/ATPCM
X'0619	S	144	/cft/shl/cmds/STOP/ATPAUD
X'0619	S	144	/cft/shl/cmds/OP/RTM
X'0619	S	144	/cft/shl/cmds/SW/ATP
X'0619	S	144	/cft/shl/cmds/OP/SRBASE
X'0619	S	144	/cft/shl/cmds/DUMP/TAPE
X'0619	S	144	/cft/shl/cmds/DUMP/RNA
X'0619	S	144	/cft/shl/cmds/DUMP/FSADR
X'0619	S	144	/cft/shl/cmds/INIT/RTM
X'0619	S	144	/cft/shl/cmds/DUMP/FSA
X'0619	S	144	/cft/shl/cmds/INIT/RING
X'0619	S	144	/cft/shl/cmds/DUMP/MMA
X'0619	S	144	/ring/dmsload/cft/STREAM

Table 15-G. 4AP (Contd)

UID	Type	Level	3B_PATH
X'0619	S	144	/cft/shl/cmds/RCV/DMS
X'0619	S	144	/cft/shl/cmds/INIT/DMS
X'0619	S	144	/cft/shl/cmds/COPY/IPCC
X'0619	S	144	/cft/shl/cmds/OP/AMA/RC
X'0619	S	144	/cft/shl/cmds/INIT/ATPCM
X'0619	S	144	/cft/shl/cmds/SET/AMA/RC
X'0619	S	144	/aps/cft/astnomap
X'0619	S	144	/cft/shl/cmds/OP/RCAS
X'0619	S	144	/cft/shl/cmds/UPD/XTSI
X'0619	S	144	/cft/shl/cmds/IN/ACTOW
X'0619	S	144	/cft/shl/cmds/VER/APPTAPE
X'0619	S	144	/cft/shl/cmds/START/PING
X'0617	S	104	/cft/shl/cmds/DUMP/TDAS
X'0616	S	191	/tools/odad/sdl24mon
X'0615	S	159	/tools/odad/sodad
X'0615	S	196	/tools/odad/modad
X'0614	S	144	/cft/shl/apscmds/STOP/DCNAUD
X'0614	S	144	/cft/shl/apscmds/INH/DCNAUD
X'0614	S	144	/cft/shl/apscmds/OP/DCNAUDERR
X'0614	S	144	/cft/shl/apscmds/OP/DCNAUD
X'0614	S	144	/cft/shl/apscmds/AUD/DCNAUD
X'0614	S	144	/cft/shl/apscmds/ALW/DCNAUD
X'0613	S	144	/ring/DCNAP
X'0612	S	104	/ring/spg.mon
X'0611	S	144	/database/tools/fileact
X'0610	S	144	/tools/irutil
X'060f	S	144	/ring/ir
X'060e	S	144	/ring/dmsload/retrvload/timers_r
X'060d	S	144	/ring/dmsload/assemload/timers_a
X'060c	S	144	/ring/dmsload/checkload/timers_c
X'060a	S	144	/cft/shl/cmds/SET/TSC

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Table 15-G. 4AP (Contd)

UID	Type	Level	3B_PATH
X'0609	S	191	/ama/AMmonoc
X'0608	K	004	/ama/AMdwriteroc
X'0607	S	144	/cft/shl/cmds/OP/AMA/SESSION
X'0607	S	144	/cft/shl/cmds/SET/AMA/CONFIG
X'0607	S	144	/cft/shl/cmds/SET/AMA/STREAM
X'0607	S	144	/cft/shl/cmds/SET/AMA/CONTROL
X'0607	S	144	/cft/shl/cmds/OP/AMA/PTRS
X'0607	S	144	/cft/shl/cmds/OP/AMA/MAPS
X'0607	S	144	/cft/shl/cmds/OP/AMA/CONFIG
X'0607	S	144	/cft/shl/cmds/OP/AMA/STREAM
X'0607	S	144	/cft/shl/cmds/OP/AMA/TELEPROCESSING
X'0607	S	144	/cft/shl/cmds/OP/ICDR/CONFIG
X'0607	S	144	/cft/shl/cmds/OP/AMA/DISK
X'0607	S	144	/cft/shl/cmds/STOP/EVENTSESS
X'0607	S	144	/cft/shl/cmds/OP/ICDR/MAPS
X'0607	S	144	/cft/shl/cmds/SET/ICDR/RECORDING
X'0607	S	144	/cft/shl/cmds/SET/ICDR/CONTROL
X'0607	S	144	/cft/shl/cmds/SET/ICDR/CONFIG
X'0607	S	144	/cft/shl/cmds/OP/ICDR/RECORDING
X'0607	S	144	/cft/shl/cmds/OP/ICDR/SESSION
X'0607	S	144	/cft/shl/cmds/OP/ICDR/TELEPROCESSING
X'0607	S	144	/cft/shl/cmds/SET/AMA/RECMODE
X'0607	S	144	/cft/shl/cmds/ALW/AMA/SESSION
X'0607	S	144	/cft/shl/cmds/CLR/AMA/DISK
X'0607	S	144	/cft/shl/cmds/FLUSH/NVTREC
X'0607	S	144	/cft/shl/cmds/OP/ICDR/DISK

SHEET 21 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-15 : SPEC-luc043a : GM VER. 2.5a

Table 15-G. 4AP (Contd)

UID	Type	Level	3B_PATH
X'0607	S	144	/cft/shl/cmds/OP/ICDR/CONTROLFILE
X'0607	S	144	/cft/shl/cmds/INH/ICDR/SESSION
X'0607	S	144	/cft/shl/cmds/OP/AMA/STATUS
X'0607	S	144	/cft/shl/cmds/OP/AMA/DFDELAY
X'0607	S	144	/cft/shl/cmds/OP/AMA/SUMMARY
X'0607	S	144	/cft/shl/cmds/INH/AMA/SESSION
X'0607	S	144	/cft/shl/cmds/OP/AMA/CONTROLFILE
X'0607	S	144	/cft/shl/cmds/VER/AMATAPE
X'0607	S	144	/cft/shl/cmds/ALW/ICDR/SESSION
X'0607	S	144	/cft/shl/cmds/ALW/AMA/AUTOST
X'0607	S	144	/cft/shl/cmds/STOP/NVTSESS
X'0607	S	144	/cft/shl/cmds/START/nvtfmt
X'0607	S	144	/cft/shl/cmds/START/EVENTSESS
X'0607	S	144	/cft/shl/cmds/STOP/AMATAPE
X'0607	S	144	/cft/shl/cmds/COPY/AMATAPE
X'0607	S	144	/cft/shl/cmds/INH/AMA/AUTOST
X'0607	S	144	/cft/shl/cmds/START/NVTSESS
X'0607	S	144	/cft/shl/cmds/ABORT/AMATAPE
X'0606	S	104	/ama/AMtapeoc
X'0605	S	160	/ama/AMftpoc
X'0604	S	160	/coams/indir
X'0602	K	003	/prc/apsmeas
X'0600	S	144	/ama/AMgrowcf
X'0516	S	000	/diag/dgnc/tlpap
X'0515	S	000	/aps/prc/ksdump
X'0512	S	000	/cft/shl/cmds/INIT/APDRV
X'0512	S	144	/cft/shl/cmds/LOAD/TLP
X'0511	K	013	/aps/prc/aim

SHEET 22 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-15 : SPEC-luc043a : GM VER. 2.5a

Table 15-G. 4AP (Contd)

UID	Type	Level	3B_PATH
X'050e	S	064	/aps/prc/aplupd
X'050d	K	006	/prc/bdr
X'050c	S	000	/aps/prc/aptup
X'050a	S	000	/aps/cft/apsdup
X'0507	S	000	/aps/cft/ed1a
X'0506	S	000	/aps/prc/dmi
X'0503	S	000	/diag/dgnc/apdmi
X'0502	S	000	/diag/dgnc/aprmv
X'0501	S	000	/diag/dgnc/apdiag
X'0500	K	010	/prc/bdq

SHEET 23 : 8-28-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume1/t1-15 : SPEC-luc043a : GM VER. 2.5a

Table 15-H. Common Network Interface (CNI)

UID	Type	Level	3B_PATH
X'0486	S	024	/cmp/cni/proc/DS1SRG
X'0485	S	184	/cmp/cni/cft/cmd/EXC/LID0
X'0484	S	184	/cmp/cni/cft/cmd/SET/LFS
X'0483	S	184	/cmp/cni/cft/cmd/ABORT/LFS
X'0482	S	184	/cmp/cni/cft/cmd/STOP/LFS
X'0481	S	184	/cmp/cni/cft/cmd/OP/LFS
X'0480	S	184	/cmp/cni/cft/cmd/EXC/LFS
X'047f	S	184	/cmp/cni/cft/cmd/OP/LNSTAT
X'047e	S	184	/cmp/cni/proc/RGP_PRT
X'047d	S	184	/cmp/cni/cft/cmd/RDBG/RGP_CFT
X'047c	K	010	/prc/cdp
X'047b	S	000	/cmp/cni/proc/setcntls
X'047a	S	000	/cmp/cni/proc/dmpinstr
X'0479	S	000	/cmp/cni/proc/dmpcsrtb
X'0478	S	000	/cmp/cni/proc/dmpcntls
X'0477	S	184	/cmp/cni/cft/cmd/CHG/MRVT
X'0476	S	184	/cmp/cni/cft/cmd/EXC/MRVT
X'0475	S	176	/cmp/cni/proc/OMAP
X'0474	S	144	/cmp/cni/proc/CNIER
X'0473	S	150	/cmp/cni/cft/cmd/OP/NODE
X'0472	S	150	/cmp/cni/proc/EBD
X'0471	S	184	/cmp/cni/cft/cmd/OP/TRAP
X'0470	S	184	/cmp/cni/cft/cmd/STOP/TRAP
X'046f	S	184	/cmp/cni/cft/cmd/INH/TRAP
X'046e	S	184	/cmp/cni/cft/cmd/ALW/TRAP
X'046d	S	184	/cmp/cni/cft/cmd/SET/TRAP
X'046c	S	151	/cmp/cni/proc/MON_TRAP
X'046b	S	184	/cmp/cni/cft/cmd/AUD/REMACS
X'046a	S	184	/cmp/cni/cft/cmd/OP/TSC
X'0469	S	000	/cmp/cni/proc/STPC_T_CREAT

Table 15-H. Common Network Interface [(CNI) Contd]

UID	Type	Level	3B_PATH
X'0469	S	000	/cmp/cni/proc/STPC_F_CREAT
X'0468	S	000	/cmp/cni/proc/GTXTABRC
X'0467	S	000	/cmp/cni/proc/GTXTABVER
X'0466	S	000	/cmp/cni/proc/GTXTABCREAT
X'0462	S	184	/cmp/cni/proc/RDBG
X'0461	S	000	/cmp/cni/proc/CNI11RETRO
X'0460	S	000	/cmp/cni/proc/IPC_RC
X'045f	S	000	/cmp/cni/proc/CNIDBOCS
X'045e	S	184	/cmp/cni/cft/cmd/OP/TPC
X'045d	S	184	/cmp/cni/cft/cmd/EXC/SRVT
X'045c	S	184	/cmp/cni/cft/cmd/CHG/SRVT
X'045b	S	184	/cmp/cni/cft/cmd/OP/C7NET
X'045b	S	184	/cmp/cni/cft/cmd/INH/PSLT
X'045a	S	000	/cmp/cni/proc/IPCVER
X'0456	S	000	/cmp/cni/proc/PTPNSDCREAT
X'0456	S	000	/cmp/cni/proc/PTPLECCREAT
X'0454	S	000	/cmp/cni/proc/BRDCSVER
X'0453	S	000	/cmp/cni/proc/BRDCSRC
X'0451	S	184	/cmp/cni/cft/cmd/CHG/GEN
X'0450	S	000	/cmp/cni/proc/SCCPDEMO
X'044f	S	000	/cmp/cni/proc/BRCSTCREAT
X'044d	S	024	/cmp/cni/proc/MEASLFT
X'044c	S	184	/cmp/cni/cft/cmd/LKC/SLK
X'044b	S	184	/cmp/cni/cft/cmd/INH/IMSMEAS
X'044a	S	000	/cmp/cni/proc/CNI_VERSION
X'0447	S	184	/cmp/cni/cft/cmd/OP/SCHD
X'0444	S	000	/cmp/cni/proc/sltchk

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Table 15-H. Common Network Interface [(CNI) Contd]

UID	Type	Level	3B_PATH
X'0443	S	000	/cmp/cni/proc/PRELRC
X'0442	S	000	/cmp/cni/proc/PRELVER
X'0441	S	000	/cmp/cni/proc/PRELCREAT
X'0440	S	184	/cmp/cni/cft/cmd/DUMP/SMEAS
X'043f	S	000	/cmp/cni/proc/SSDISKVER
X'043d	S	024	/cmp/cni/cft/cmd/INH/REPORT
X'043b	S	000	/cmp/cni/proc/SSTBLRC
X'043a	S	000	/cmp/cni/proc/SSTBLVER
X'0439	S	000	/cmp/cni/proc/SSTBLCREAT
X'0437	S	040	/audprc/nidata
X'0436	S	000	/cmp/cni/proc/C7CREAT
X'0434	S	000	/cmp/cni/proc/C7DEMO
X'042e	S	152	/cmp/cni/proc/CMMSDP
X'042d	S	000	/cmp/cni/proc/CMPRLPM
X'042c	K	003	/cmp/cni/proc/CMMSADM
X'042b	S	024	/cmp/cni/proc/CMRINGEX
X'042a	S	024	/cmp/cni/proc/CMNFLPMEX
X'0429	S	024	/cmp/cni/proc/CMNFLPM
X'0428	S	024	/cmp/cni/proc/CMNFDISKEX
X'0427	S	024	/cmp/cni/proc/CMNFDISK
X'0426	S	024	/cmp/cni/proc/AMSNPR2
X'0425	S	024	/cmp/cni/proc/AMSNPR1
X'0424	S	024	/cmp/cni/proc/AMSEPR
X'0423	S	024	/cmp/cni/proc/AMMPR
X'0422	S	024	/cmp/cni/proc/AM30MPR

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Table 15-H. Common Network Interface [(CNI) Contd]

UID	TYPE	LEVEL	3B_PATH
X'0422	S	024	/cmp/cni/proc/ZMMPR
X'0422	S	024	/cmp/cni/proc/ZNMPR
X'0421	S	000	/cmp/cni/proc/CMPRHST
X'041f	S	184	/cmp/cni/cft/cmd/SW/CLOCK
X'041e	S	184	/cmp/cni/cft/cmd/EXC/T1M
X'041d	S	184	/cmp/cni/cft/cmd/INH/RMV
X'041c	K	004	/cmp/cni/proc/CMRCVK
X'041b	S	184	/cmp/cni/proc/CMRCV
X'0416	K	011	/cmp/cni/proc/CNIINIT
X'0414	S	000	/cmp/cni/proc/PRDEMO
X'0414	S	000	/cmp/cni/proc/MEASVER
X'0413	S	000	/cmp/cni/proc/MEASRC
X'0412	S	000	/cmp/cni/proc/SLKVER
X'0411	S	000	/cmp/cni/proc/SLKASGN
X'0410	S	000	/cmp/cni/proc/PXLCREAT
X'040f	S	040	/cmp/cni/cft/cmd/CLR/SRST
X'040e	S	184	/cmp/cni/proc/CNISNM
X'040d	K	011	/cmp/cni/proc/CNIDBAK
X'040c	S	184	/cmp/cni/proc/CNIDBA
X'040b	S	184	/cmp/cni/cft/cmd/OP/SMR
X'040a	S	184	/cmp/cni/cft/cmd/REPT/SLK
X'0409	S	184	/cmp/cni/cft/cmd/INH/SLK
X'0408	S	184	/cmp/cni/cft/cmd/CHG/SLK
X'0407	S	184	/cmp/cni/cft/cmd/OP/SLK
X'0406	S	184	/cmp/cni/cft/cmd/REKEY
X'0405	S	184	/cmp/cni/cft/cmd/MON
X'0404	S	184	/cmp/cni/cft/cmd/OP/SNAT
X'0403	S	040	/audprc/pdkey
X'0402	S	000	/cmp/cni/proc/SLMLFT
X'0401	S	000	/cmp/cni/proc/NMMSG

Table 15-I. Real Time Reliable (RTR)

UID	TYPE	LEVEL	3B_PATH
X'0379	S	191	/bin/rmtgetty
X'0367	S	000	/usr/bin/fdfdump
X'0366	S	000	/usr/bin/ttycadd.p
X'0366	S	000	/usr/bin/ttycdel.p
X'0366	S	000	/usr/bin/sdlcdel.p
X'0366	S	000	/usr/bin/iopadd.p
X'0366	S	000	/usr/bin/iopdel.p
X'0366	S	000	/usr/bin/sdladd.p
X'0366	S	000	/usr/bin/sdldel.p
X'0366	S	000	/usr/bin/slots.p
X'0366	S	000	/usr/bin/ttyadd.p
X'0366	S	000	/usr/bin/ttydel.p
X'0366	S	000	/usr/bin/dcidel.p
X'0366	S	000	/usr/bin/dciadd.p
X'0366	S	000	/usr/bin/vfydflt.p
X'0366	S	000	/usr/bin/links.p
X'0366	S	000	/usr/bin/sdlcadd.p
X'0365	S	000	/usr/bin/vfydflt
X'0364	S	000	/cft/shl/cmds/RCV/DMTSG
X'0363	S	000	/usr/bin/rcvsgmcrt
X'0362	S	000	/usr/bin/rcvecdmcrt
X'0361	S	000	/usr/bin/rcvsg
X'0360	S	000	/usr/bin/createsg
X'0334	S	048	/cft/shl/cmds/VFY/FILE
X'032e	S	000	/cft/shl/cmds/INIT/ULARP
X'032d	S	000	/cft/shl/cmds/OP/AUDERR
X'032c	S	000	/etc/op_stat
X'032b	S	000	/cft/shl/cmds/OP/EMERSTAT
X'032a	S	000	/cft/shl/cmds/CLR/EMERDMP

Table 15-I. Real Time Reliable [(RTR) Contd]

UID	TYPE	LEVEL	3B_PATH
X'0327	S	000	/cft/shl/cmds/OP/AUD
X'0326	S	000	/cft/shl/cmds/INH/AUD
X'0325	S	000	/etc/siof
X'0324	S	000	/cft/shl/cmds/AUD
X'0323	S	000	/cft/shl/cmds/ALW/AUD
X'0322	S	000	/cft/shl/cmds/STOP/AUD
X'0320	S	000	/cft/shl/cmds/OP/ULARP
X'031f	S	000	/usr/bin/createecd
X'031e	S	000	/cft/shl/cmds/RCV/DMTECD
X'031d	S	000	/usr/bin/sg_aux
X'031c	S	000	/usr/bin/ecd_aux
X'0316	S	000	/usr/bin/printfrm
X'0315	S	000	/usr/bin/printdb
X'0314	S	000	/usr/bin/newdb
X'0313	S	000	/usr/bin/keys
X'0312	S	000	/usr/bin/keycomm
X'0311	S	000	/usr/bin/keycmp
X'0310	S	000	/usr/bin/fdiff
X'030f	S	000	/usr/bin/comparedb
X'030b	S	000	/bin/ducb
X'030a	S	000	/usr/bin/rcvecd
X'0309	S	000	/cft/shl/cmds/COPY/APPDB
X'0309	S	000	/cft/shl/cmds/INIT/APPDB
X'0309	S	000	/database/tools/initatp
X'0309	S	000	/database/tools/mkappdb
X'0309	S	000	/cft/shl/apscmds/RC/MISC
X'0309	S	000	/cft/shl/apscmds/VER/MEMORY
X'0309	S	000	/cft/shl/apscmds/INH/RCV
X'0308	S	000	/usr/bin/evol
X'0307	S	000	/cft/shl/cmds/RCV/MENU
X'0306	S	000	/usr/bin/treebld

Table 15-I. Real Time Reliable [(RTR) Contd]

UID	TYPE	LEVEL	3B_PATH
X'0305	S	000	/usr/bin/transgen
X'0304	S	000	/bin/sdfrel
X'0303	S	191	/prc/psm
X'0302	S	000	/bin/sdfinfo
X'0301	S	000	/usr/bin/loadf3b
X'02f0	S	000	/cft/shl/cmds/UPD/GEN/APPLPROC
X'02ef	S	000	/prc/supr/applproc
X'02ee	S	000	/prc/supr/suprint
X'02ed	S	000	/bin/prtcp
X'02ec	S	000	/prc/supr/proceed
X'02eb	S	000	/prc/supr/enter
X'02ea	S	000	/prc/supr/backout
X'02e9	S	000	/etc/mkstart
X'02e9	S	000	/prc/supr/restore
X'02e8	S	000	/prc/supr/commit
X'02e7	S	000	/prc/supr/stop
X'02e6	S	000	/cft/shl/cmds/STOP/GEN
X'02e5	S	000	/cft/shl/cmds/UPD/GEN/RESTORE
X'02e4	S	000	/cft/shl/cmds/OP/GEN/READLOG
X'02e3	S	000	/cft/shl/cmds/UPD/GEN/PROCEED
X'02e2	S	000	/cft/shl/cmds/UPD/GEN/ENTER
X'02e1	S	000	/cft/shl/cmds/UPD/GEN/COMMIT
X'02e0	S	000	/cft/shl/cmds/UPD/GEN/BACKOUT
X'02df	S	000	/cft/shl/cmds/UPD/GEN/CONTINUE
X'02de	S	000	/prc/supr/readlog
X'02da	S	000	/prc/tpack
X'02d9	S	000	/cft/shl/cmds/COPY/BKDISK/START

Table 15-I. Real Time Reliable [(RTR) Contd]

UID	TYPE	LEVEL	3B_PATH
X'02d8	S	000	/cft/shl/cmds/STOP/BKDISK
X'02d7	S	000	/cft/shl/cmds/COPY/BKDISK/ACK
X'02d6	S	000	/prc/3btpwrt
X'02d5	S	000	/bin/uruTAPE
X'02d1	S	000	/cft/shl/cmds/COPY/BKTAPE
X'02d0	S	000	/usr/bin/chk_pmdb
X'02cf	S	000	/prc/clearptn
X'02ce	S	000	/cft/shl/cmds/CLR/PTN
X'02cd	S	000	/cft/shl/cmds/COPY/OOSDISK
X'02cc	S	000	/cft/shl/cmds/COPY/SPDISK
X'02cb	S	000	/prc/cpoosf
X'02ca	S	000	/prc/cpspdisk
X'02c9	S	000	/prc/pmcrman
X'02c8	S	000	/prc/pmcrrep
X'02c7	S	000	/prc/pmcrcol
X'02c6	S	000	/cft/shl/cmds/OP/PMCR
X'02c5	S	000	/prc/pmdbcopy
X'02c4	S	000	/cft/shl/cmds/ALW/FILESYS
X'02c3	S	000	/usr/bin/PDSed
X'02c2	S	000	/prc/supr/continue
X'02c1	S	000	/prc/mntfs
X'02c0	S	000	/cft/shl/cmds/COPY/ACTDISK
X'0295	S	191	/bin/dsmcon
X'0294	S	100	/prc/rcvryoff
X'0293	S	000	/usr/bin/asa
X'0292	S	000	/bin/sed
X'0291	S	000	/bin/write
X'0290	S	000	/bin/who
X'028f	S	000	/bin/wc
X'028e	S	000	/bin/uname
X'028d	S	000	/bin/tty
X'028c	S	000	/bin/touch

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Table 15-I. Real Time Reliable [(RTR) Contd]

UID	TYPE	LEVEL	3B_PATH
X'028b	S	000	/bin/time
X'028a	S	000	/bin/tee
X'0289	S	000	/bin/tail
X'0288	S	000	/bin/sync
X'0286	S	000	/bin/sum
X'0285	S	000	/bin/su
X'0284	S	000	/bin/stty
X'0283	S	000	/bin/stat
X'0282	S	000	/bin/split
X'0281	S	000	/bin/sort
X'0280	S	000	/bin/sleep
X'027f	S	000	/bin/sdiff
X'027e	S	000	/bin/run
X'027c	S	000	/bin/rmdir
X'027b	S	000	/bin/rm
X'027a	S	000	/bin/pwd
X'0274	S	000	/bin/pr
X'0273	S	000	/bin/pio
X'0272	S	000	/bin/passwd
X'0271	S	000	/bin/od
X'0270	S	000	/bin/nohup
X'026f	S	000	/bin/nice
X'026e	S	000	/bin/news
X'026d	S	000	/bin/newgrp
X'026c	S	000	/usr/bin/mop
X'026b	S	000	/bin/mkdir
X'026a	S	000	/bin/mesg
X'0269	S	000	/usr/lib/makekey
X'0268	S	000	/bin/mail

Table 15-I. Real Time Reliable [(RTR) Contd]

UID	Type	Level	3B_PATH
X'0267	S	000	/bin/ln
X'0267	S	000	/bin/mv
X'0267	S	000	/bin/cp
X'0266	S	000	/bin/ls
X'0265	S	000	/bin/logdir
X'0263	S	000	/bin/line
X'0260	S	000	/bin/killp
X'025f	S	000	/bin/kill
X'025e	S	000	/bin/id
X'025c	S	000	/bin/grep
X'025b	S	000	/bin/fsize
X'025a	S	000	/bin/fmove
X'0259	S	000	/bin/find
X'0258	S	000	/bin/fgrep
X'0257	S	000	/bin/falloc
X'0256	S	000	/bin/expr
X'0255	S	000	/bin/env
X'0254	S	000	/bin/ed
X'0253	S	000	/bin/echo
X'0252	S	000	/bin/du
X'0251	S	000	/bin/dlsum
X'0250	S	000	/bin/diff
X'024f	S	000	/bin/dd
X'024e	S	000	/bin/date
X'024e	S	000	/IPCC/iPCC
X'024d	S	000	/bin/crypt
X'024c	S	000	/bin/cx
X'024b	S	000	/bin/cpio
X'024a	S	000	/bin/tr
X'0249	S	000	/bin/cmp
X'0248	S	000	/bin/chown
X'0247	S	000	/bin/chmod

Table 15-I. Real Time Reliable [(RTR) Contd]

UID	Type	Level	3B_PATH
X'0246	S	000	/bin/chgrp
X'0245	S	000	/bin/cat
X'0244	S	000	/bin/openwd
X'0243	S	000	/bin/pkillp
X'0242	S	000	/bin/pkill
X'0241	S	000	/bin/banner
X'0240	S	000	/bin/closewd
X'0228	S	000	/cft/shl/cmds/CLR/ACKDB
X'0227	S	000	/cft/shl/cmds/UPD/OMDB
X'0226	S	000	/cft/shl/cmds/CLK
X'0223	S	000	/cft/bin/Adlgshl
X'0222	S	000	/cft/shl/cmds/VFYAUTH
X'0221	S	000	/cft/shl/cmds/DLGAUTH
X'0220	S	192	/bin/dlggetty
X'021e	S	000	/cft/shl/cmds/CLR/IMCAT
X'021d	S	191	/cft/misc/rpttime
X'021b	S	191	/bin/ciagetty
X'0219	S	000	/cft/dap/fmctrl
X'0218	S	192	/prc/bdg
X'0216	S	000	/cft/dap/starter
X'0214	S	000	/cft/shl/cmds/OP/LOG
X'0212	S	000	/etc/ccdate
X'0211	S	000	/cft/dap/msgh
X'0210	S	000	/cft/dap/inph
X'020f	S	000	/bin/splgetty
X'020d	S	191	/bin/cdgetty
X'020b	S	176	/cft/spl/sop
X'0209	S	176	/cft/spl/csop

Table 15-I. Real Time Reliable [(RTR) Contd]

UID	Type	Level	3B_PATH
X'0208	S	000	/cft/bin/cftshl
X'0207	S	191	/bin/shlgetty
X'0206	S	191	/cft/rts
X'0204	S	192	/cft/dap/poker
X'0203	S	191	/cft/dap/dap
X'0202	S	191	/cft/dap/cia
X'0201	S	000	/cft/bin/csdip
X'0200	S	000	/bin/errport
X'01dd	S	000	/prc/SUedcud
X'01dc	S	191	/prc/SUexpand
X'01db	S	000	/bin/SUcompress
X'01da	S	000	/prc/SUdisplay
X'01d2	S	148	/cft/shl/cmds/UPD/VERSION
X'01dl	S	191	/prc/SUoild
X'01d0	S	191	/prc/SUpswinit
X'01cf	S	191	/prc/SUpgmgr
X'01ce	S	191	/prc/SUpctl
X'01cd	S	191	/prc/SUopedit
X'01cc	S	191	/prc/SUhlthchk
X'01cb	S	191	/bin/sugetty
X'01ca	S	191	/prc/SUgenpcc
X'01c9	S	191	/prc/SUfilercv
X'01c8	S	191	/prc/SUautomgr
X'01c7	S	000	/prc/SUucm

Table 15-I. Real Time Reliable [(RTR) Contd]

UID	Type	Level	3B_PATH
X'01c6	S	000	/prc/SUftrc
X'01c5	S	170	/bin/cmpr
X'01c4	K	003	/prc/cdq
X'01a2	S	050	/audprc/ecdaud
X'0192	K	003	/prc/fsaudit
X'0191	S	000	/etc/sdlrtn
X'0190	S	000	/etc/sdlrtc
X'0188	S	030	/prc/suovprc
X'0187	K	013	/bootfiles/simprc
X'0186	K	003	/prc/klmon
X'0185	S	000	/cft/shl/cmds/OP/FNAME
X'0163	S	000	/audprc/pmsaud
X'0162	S	000	/cft/shl/cmds/VFY/TAPE
X'0134	S	000	/usr/bin/lla_audits
X'0133	S	000	/usr/bin/ibrowse
X'0132	S	000	/usr/bin/pl_aux
X'0131	S	191	/prc/SUrscans
X'012f	S	000	/prc/SUverify
X'012e	S	191	/cft/shl/cmds/IN/XFER
X'012d	S	148	/prc/filerecv
X'012b	S	000	/prc/SUpupci
X'0125	S	148	/cft/shl/cmds/IN/REMOTE
X'0124	K	014	/prc/SUkopf
X'0121	S	000	/usr/bin/sdpcopy
X'011f	S	000	/usr/bin/browse
X'011e	S	000	/bin/isgen
X'011d	S	000	/etc/mkdsk
X'0117	K	003	/prc/pldmon

Table 15-I. Real Time Reliable [(RTR) Contd]

UID	Type	Level	3B_PATH
X'0114	S	000	/prc/gspop
X'0113	S	000	/cft/shl/cmds/OP/UTIL
X'0112	K	003	/prc/gspac
X'0111	K	003	/prc/gspovmon
X'010b	S	100	/prc/cdcmpr
X'0109	S	000	/prc/SUbldboot
X'0107	S	191	/prc/SUogen
X'0106	S	148	/usr/bin/idump
X'0105	K	003	/prc/SUkop
X'0104	S	100	/prc/SUdufr
X'0103	S	100	/prc/SUprchk
X'0102	S	000	/cft/shl/cmds1/UPD
X'00ef	K	010	/prc/bdj
X'00ed	S	000	/cft/shl/cmds/CLR/MHD
X'00ed	S	000	/cmp/cni/proc/chglim
X'00de	S	191	/cft/dap/dcidip
X'00dd	S	000	/cft/shl/cmds/UPD/FLASH/DFCFLASH
X'00dc	S	000	/cft/shl/cmds/STOP/DCI
X'00db	S	000	/cft/shl/cmds/UPD/FLASH/PCFLASH
X'00da	S	191	/cft/dap/dkdip
X'00d9	S	000	/cft/shl/cmds/DUMP/MHD/BLOCK
X'00d8	S	000	/cft/shl/cmds/DUMP/MHD/DEFECT
X'00d7	S	000	/cft/shl/cmds/DUMP/MHD/VTOC
X'00d6	S	000	/cft/shl/cmds/ORD/SCSD
X'00d5	S	000	/cft/shl/cmds/OP/SCSD
X'00d4	S	000	/cft/shl/cmds/INH/SCSD

Table 15-I. Real Time Reliable [(RTR) Contd]

UID	Type	Level	3B_PATH
X'00d3	S	000	/cft/shl/cmds/ALW/SCSD
X'00d2	S	000	/cft/shl/cmds/SW/PORTSW
X'00d1	S	000	/cft/shl/cmds/OP/IODRV
X'00d0	S	000	/cft/shl/cmds/SET/IODRV
X'00d0	S	000	/cft/shl/cmds/CLR/IODRV
X'00cf	S	000	/cft/shl/cmds/OP/DFCELOG
X'00ce	S	000	/cft/shl/cmds/INIT/MHD
X'00ce	S	000	/cft/shl/cmds/VFY/MHD
X'00cd	S	000	/cft/shl/cmds/OP/MHD/INFO
X'00ca	S	125	/prc/s_dskutil
X'00c9	S	000	/cft/shl/cmds/CMPR/MHD
X'00c7	S	000	/cft/shl/cmds/LOAD/MHD/DEFECT
X'00c6	S	000	/cft/shl/cmds/LOAD/DFC/PUMP
X'00c5	S	000	/cft/shl/cmds/CLR/FANALM
X'00c4	S	125	/prc/s_update
X'00c3	S	000	/cft/shl/cmds/LOAD/MHD/FIRMWARE
X'00c2	K	004	/prc/scsd
X'00c1	K	010	/prc/bde
X'00c1	K	010	/bootfiles/dkdrv
X'00c0	K	010	/prc/bdf
X'0099	S	000	/cft/shl/cmds/OP/MEMERRS

Table 15-I. Real Time Reliable [(RTR) Contd]

UID	Type	Level	3B_PATH
X'0098	S	000	/cft/shl/cmds/DUMP/CACHE
X'0097	S	000	/unixutil/cu/curstrmv
X'0096	S	000	/cft/shl/cmds/SW/CU
X'0095	S	000	/cft/shl/cmds/INH/CONFLOG
X'0094	S	000	/cft/shl/cmds/OP/ERRCHK
X'0093	S	000	/cft/shl/cmds/ALW/CONFLOG
X'0092	S	000	/cft/shl/cmds/OP/REXINH
X'0091	S	000	/cft/shl/cmds/INH/REX
X'0090	S	000	/cft/shl/cmds/ALW/REX
X'008f	S	000	/etc/adp.ab
X'008d	S	000	/etc/rex
X'008b	S	191	/prc/ularp
X'008a	S	000	/etc/fsmon
X'0088	S	000	/cft/shl/cmds/OP/CFGSTAT
X'0087	S	000	/etc/adp.af
X'0086	K	004	/bootfiles/inhadm
X'0085	K	003	/bootfiles/pcpaud
X'0084	S	000	/cft/misc/rmf
X'0083	K	015	/bootfiles/eih
X'0082	K	003	/prc/cdm
X'006c	S	000	/diag/dgnc/dgntimer
X'0067	S	000	/diag/dgnc/cudiagc
X'0066	S	000	/diag/dgnc/dfrmv
X'0065	S	000	/diag/dgnc/iormv
X'0064	S	000	/diag/dgnc/iodiag
X'0063	S	000	/diag/dgnc/dfdiag
X'0062	S	000	/diag/dgnc/tlp

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Table 15-I. Real Time Reliable [(RTR) Contd]

UID	Type	Level	3B_PATH
X'0060	S	000	/diag/dgnc/ppdiamon
X'005f	S	000	/diag/dgnc/inhtimer
X'0059	S	000	/bin/ports
X'004f	S	000	/cft/shl/cmds/EX/STOP
X'004e	S	000	/cft/shl/cmds/EX/STEP
X'004d	S	000	/cft/shl/cmds/OP/DMQ
X'004c	S	000	/cft/shl/cmds/RST
X'004b	S	000	/cft/shl/cmds/RMV
X'004a	S	000	/cft/shl/cmds/EX/PAUSE
X'0049	S	000	/cft/shl/cmds/EX/LOOP
X'0048	S	000	/cft/shl/cmds/EX/LDPARM
X'0047	S	000	/cft/shl/cmds/INH/DMQ
X'0046	S	000	/cft/shl/cmds1/EX
X'0045	S	000	/cft/shl/cmds/DGN
X'0044	S	000	/cft/shl/cmds/ALW/DMQ
X'0043	S	000	/cft/shl/cmds/STOP/DMQ
X'0042	S	000	/diag/dgnc/mira
X'0041	K	005	/prc/cdn
X'0024	S	000	/etc/vcp
X'0023	S	000	/bin/umount
X'0023	S	000	/etc/umount
X'0022	S	000	/etc/udgnnm
X'0021	S	000	/bin/ps
X'0020	S	000	/etc/mount
X'0020	S	000	/bin/mount
X'001f	S	000	/etc/mknod

Table 15-I. Real Time Reliable [(RTR) Contd]

UID	Type	Level	3B_PATH
X'001d	S	000	/etc/ichk
X'001c	S	000	/etc/fsdb
X'001b	S	000	/etc/dgnnm
X'001a	S	000	/bin/df
X'0019	S	000	/etc/clri
X'0018	S	000	/etc/clrfs
X'0017	K	011	/prc/fda
X'0016	S	100	/prc/pkillp
X'0015	S	000	/etc/cron
X'0013	S	000	/bin/sh
X'0012	S	000	/etc/login
X'0011	S	191	/prc/unix
X'0010	S	000	/bin/getty
X'000f	K	004	/prc/cdi
X'000c	K	000	/bootfiles/3bsgen.kern
X'000b	S	100	/prc/pkill
X'0008	S	100	/bootfiles/3bnub
X'0005	S	240	/bootfiles/3bpmgr
X'0004	K	007	/bootfiles/fmprc

Table 15-J. Application Integrity Monitor (AIM) Events

ID	Event	Alarm	Description
00	null	minor	Null event. No action.
01	badidx	major	AIM detected an internal bad index being used.
02	monfai	critical	Real-time monitoring of a process failed
03	schdfl	major	AIM cannot schedule an internal task to run
04	towait	major	AIM task timed out while waiting for an event
05	badafle	major	AIM detected a corrupted AIMFILE.
06	badevnt	major	AIM task received an unexpected event.
07	tskfail	major	A generic task(action) failed.
08	badstat	major	A bad state is encountered.
09	msgout	critical	No message buffers are available.
0a	msgcrit	major	Only 10% of message buffers are free.
0b	msglow	minor	Less than 30% of message buffers are free.
0c	memkpfl	critical	Not enough main memory is available to create a non-swappable kernel process.
0d	memlow	minor	Plock reduced swappable memory below minimum(1/4 Meg).
0e	swaplow	minor	Swap space fell below 20% (defined in ECD).

Table 15-J. Application Integrity Monitor (AIM) Events (Contd)

ID	Event	Alarm	Description
0f	sdeprfl	minor	No Segment Descriptor Entries (SDEs) available to create a kernel process.
10	sdelow	minor	Number of free SDEs fell below 50.
11	dctcrit	critical	No DCTs are available for process creation.
12	dctovld	minor	Only less than 30% DCTs are available.
13	mem1full	major	No memory left in EMM for request
14	mem1low	minor	Only less than 20% of MOD 1 pages available.
15	klock	critical	SIM has not received heartbeat from level 3
16	teovld	minor	Real time shortage than 5.5 seconds 3 times in a row.
17	suovld	major	SIM did not receive a heartbeat from level 1 over a 5 minute interval.
18	fmovld	minor	FMGR discovered that it has more than 320 message blocks on queue.
19	dfcovld	minor	Either the total time to process all jobs exceeded 7000ms or jobs outstanding 64 or DFC que full indicator is set.
1a	iopboot	minor	IODRV detected overload in IOPn and restarted.
1b	dlopovld	minor	No X.25 output buffers are available for request.
1c	dlinovld	minor	No X.25 input buffers are available for request.

Table 15-J. Application Integrity Monitor (AIM) Events (Contd)

ID	Event	Alarm	Description
1d	eailvl1	major	Restore AMA processes (EAI 42-1-50).
1e	eailvl2	major	Restore nemos processes (EAI 42-2-50).
1f	eailvl3	major	Restore NSC processes (EAI 42-3-50).
20	eailvl4	major	lnitialize APDRV (EAI 42-4-50).
21	eailvl5	major	Terminate all UNIX processes (EAI 42-5-50).
22	reqrtr0	minor	A child process requested UNIX RTR Phase 50.
23	reqrtr1	major	A child process requested UNIX RTR Phase 51.
24	reqrtr2	critical	A child process requested UNIX RTR Phase 52.
25	reqrtr3	critical	A child process requested UNIX RTR Phase 53.
26	amarbuf	major	The AMA receive buffer load or SIN load or unload pointers have not moved for 16 minutes.
27	amadbuf	major	The AMA disk-mode receive buffer load unload or, processed pointers have not moved for 16 minutes.
28	amasbuf	major	The AMA SDS buffer pointers_have not moved for 16 minutes.

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Table 15-J. Application Integrity Monitor (AIM) Events (Contd)

ID	Event	Alarm	Description
29	no1acom	major	APDRV detected loss of Ia communication path.
2a	nostream	major	Neither the API nor the DLN are scanning the CNIBUF pointers.
2b	noidle	minor	Idle time is zero for an entire 32 second interval.
2c	fmgrrt	minor	FMGR prc time greater than 50% over an entire 32 second interval.
2d	ioprt	minor	IODRV prc time greater than 50% over an entire 32 second interval.
2e	nodrv	critical	APDRV in trouble (unexpected death or init).
2f	killspg	Major	Terminates and restarts spg.mon

Table 15-K. Application Integrity Monitor (AIM) Action

ID	Action	Alarm	Description
10	null		Does nothing. Just to identify NULL.
11	init0		Run the "boot" task to start everyone else. Also sent FLT_PHASE0 to APDRV.
12	init1		Delay a while and dump the kernel stack stored in PAS (ksdump) and save any panic dump info that was created (pdsave). Run the "boot" task to start everyone else.
13	init2		Run minboot, bt2tl1a, runama, runcft, runnm, runnsc, and runaim. Entered when RTR Phase 52 performed.
14	init3		Run minboot, bt3tl1a, runama, runcft, runnm, runnsc, and runaim. Entered when RTR Phase 53 performed.
15	init4		Run minboot, bt4tl1a, runama, runcft, runnm, runnsc, and runaim. Entered when RTR Phase 54 performed.
16	minboot		Let APDRV init itself Mount database read/write. Start dlncm and RInginit Start aimstub and let it init
17	phase0	minor	Cause a UNIX RTR Phase level 50. If an appl. parameter is present it is processed, if not, FLT_PHASE0 to each DAP.

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Table 15-K. Application Integrity Monitor (AIM) Action (Contd)

ID	Action	Alarm	Description
18	phase1	major	Cause a UNIX RTR Phase level 51. Involves a Maintenance Reset Function (MRF) and a possible CU switch. AIM will relink all task buffers to the active task queue. All DAPs are sent the FLT SINIT by AIM.
19	phase2	critical	Cause a UNIX RTR Phase level 52. Involves a 3B computer bootstrap without reloading the ECD or clearing the PAS. AIM will be killed and recreated.
1a	phase3	critical	Cause a UNIX RTR Phase level 53. Involves a 3B computer bootstrap including reloading the ECD. The PAS is not cleared. AIM will be killed and recreated.
1b	initp		Run the "boot" task to start everyone else.
30	cftinit	minor	Simulate an EAI craft-init (15) operation.
31	rstaim	minor	Stopaim followed by runaim. Restart the AIM tools.
32	stopaim		Stop the AIM processes.
33	stopspg		Stop the SPG processes.
34	stopnsc		Stop the NSC processes.
35	stopnm		Stop the network management programs nmdmd, nm30sec, and nm5min.

Table 15-K. Application Integrity Monitor (AIM) Action (Contd)

ID	Action	Alarm	Description
36	rstcft	major	Stopcft followed by runcft Restart the craft processes.
37	stopcft		Stop the craft processes
38	zampas	critical	Zero all AMA PAS segments.
39	zapama	critical	Stop all AMA processes, zero all AMA PAS segments,and restart all AMA processes. (Manual-only).
3a	stopama		Stop all the AMA processes amdwoc, amdwin, ammonic, ammonoc, and ammonm.
3b	bt4tl1a		No disk request from 1B for 5 min during RTR 54.
3c	bt3tl1a		No disk request from 1B for 5 min during RTR 53.
3d	runaim		Start the AIM processes
3e	runnsc		Start the NSC processes
3f	runnm		Start the network management programs nmdmd, nm30sec, and nm5min.
40	runcft		Run the craft processes
41	runama		Start up the AMA amdwic, amadwoc, and amdwoc. After sleeping for 2 min. if booting, start ammonic, ammonoc, and ammonin.
42	runspg		Run SPG processes

Table 15-K. Application Integrity Monitor (AIM) Action (Contd)

ID	Action	Alarm	Description
43	bt2tl1a		No disk request from 1B for 1.5 min during RTR 52.
44	boot		High level application init. Run minboot before executing runama, runcft, runnm, runnsc, and runaim in the background.
45	noreq1a		No audit disk request from 1B for 5 min.
46	noaction		Does nothing. Normally used for time delay.
47	rstmsg	major	Find the processes that are causing message buffer overload and kill it
48	rstspg		Stops and restarts SPG processes
49	stopunix	minor	Cause all user level processes to restart (or die).
4a	iapfi	major	APDRV full init. The event 0x8000 is sent to APDRV.
4b	iapai	major	APDRV api init. The event 0x4000 is sent to APDRV.
4c	iapdi	major	APDRV data init. The event 0x2000 is sent to APDRV.
4d	rstnsc	major	Stopnsc followed by runnsc. Restart the NSC processes.

Table 15-L. Application Integrity Monitor (AIM) Processes

ID	Process	Utilid	Type/Pr	Function
4e	rstnm	major		Stopnm followed by runnm. Restart the nemos processes.
4f	rstama	major		Stopama followed by runama. Restart the AMA processes.
50	null			Just to identify NULL.
51	aimstub	x'714	U-176	Performs user level tasks for AIM
52	apdrv	x'500	K-10	Attached processor driver
53	indir	x'604	U-160	4ESS COAMS input director
54	hustat	x'632	U-144	4ESS COAMS hardware unit status report
55	nscosm	x'650	U-160	Provides one way communication
56	Inkmon	x'561	U-160	Establishes a working Bx.25 datalink connected to an OSM
77	rtkern	x'6f1	K-12	Contains the functions that constitute the core of the RTM process
78	recovda	x'6a8	K-14	Panic dump coordination process
57	spgtt	x'612	U-104	archives and monitors for DLNs

Table 15-L. Application Integrity Monitor (AIM) Processes (Contd)

ID	Process	Utilid	Type/Pr	Function
7a	nm5min	x'649	K-3	Nemos 5minute AR process
7b	nm30sec	x'645	U-104	UNIX 3sec process; attaches to the AP message handler and the BX
7c	nmdmd	x'647	K-3	Demand data SI process
7d	nmecho	x'65e	U-104	Mainline for the echo process in UNIX
7e	nmcntl	x'646	U-144	Mainline for the NMcntl process that passes data between the 1B and nemos
7f	apsmeas	x'602	K-3	Receives a message from 1B every 15 minutes then calculates the 15-minute APS counts
80	aplupd	x'50e	U-0	Open to APDRV and receives messages; 1B processor APS status update
81	apsdup	x'50a	U-16	APS Common Display Update page
82	arts	x'629	U-144	4ESS Application Real Time Status

Table 15-L. Application Integrity Monitor (AIM) Processes (Contd)

ID	Process	Utilid	Type/Pr	Function
83	ammonin	x'674	U-176	The AMA processes that supervises the teleprocessing and tapewrite verify process
84	ammonoc	x'609		
85	ammonic	x'64e		
86	amdwin	x'66a	K-4	AMA diskwriter for ICDR IN
87	amdwoc	x'608	K-4	AMA diskwriter for OC
88	amdwic	x'64d	K-4	AMA diskwriter for IC stream
89	amforma	x'625	K-3	Controls the formatting of AMA new format records
8a	aminit	x'6ef	U-191	Monitor initialization process
8c	ringini	x'6ab	K-9	Initializing and monitoring CNIINIT
8d	atpcm	x'6f5		AT&T trigger platform configuration manager
8e	dlncm	x'6f3	K-8	Fault recovery for the DLNs
8f	ksdump	x'515	U-0	Dumps the kernel stack trace which was loaded into the PAS segment0

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Attached Processor System (APS) Schematic Drawings

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Schematic Drawings 3B20D Computer (Model 1)

Schematic Drawings	Description
SD-4C050-01	3B20D Computer (Model 1) Control Frame
SD-4C050-01	DMA Unit
SD-4C050-01	CC Unit
SD-4C050-01	MASM 0
SD-4C050-01	MASM 1
SD-4C050-01	Power Unit
SD-4C050-01	Cooling Unit
SD-4C050-01	Filter Unit
SD-4C059-02	3B20D Computer (Model 1) Peripheral Control Frame
SD-4C052-01	IOP Basic
SD-4C049-01	IOP Growth
SD-4C051-01	DFC Unit
SD-4C056-01	Disk Inverter Frame
SD-4C058-01	Tape Transport Frame
SD-4C057-01	Inverter Unit
SD-4C070-02	Inverter Control Unit
SD-4C054-01	Duct and Cabling
SD-4C053-01	Power Distributing
SD-4C053-01	AC Requirements
SD-4C069-01	Micro Level Test Set
SD-4C065-01	Port Switch
SD-5A056-01	API Frame
SD-5A055-01	API Unit

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Schematic Drawings 3B20D Computer (Models 2 and 3)

Schematic Drawings	Description
SD-4C122-01	3B20D Computer (Models 2 and 3) Control Frame
SD-4C099-01	DMA Unit
SD-4C050-01	CC Unit
SD-4C050-01	MASM 0
SD-4C050-01	MASM 1
SD-4C050-01	Power Unit
SD-4C050-01	Cooling Unit
SD-4C050-01	Filter Unit
SD-4C059-02	3B20D Computer (Models 2 and 3) Peripheral Control Frame
SD-4C052-01	IOP Basic
SD-4C099-01	IOP Growth
SD-4C099-01	DFC Unit
SD-4C056-01	Disk Inverter Frame
SD-4C058-01	Tape Transport Frame
SD-4C057-01	Inverter Unit
SD-4C070-02	Inverter Control Unit
SD-4C054-01	Duct and Cabling
SD-4C053-01	Power Distributing
SD-4C053-01	AC Requirements
SD-4C069-01	Micro Level Test Set
SD-4C065-01	Port Switch
SD-5A056-01	API Frame
SD-5A055-01	API Unit

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Schematic Drawings 3B21D Computer

Schematic Drawings	Description
SD-3T015-01	3B21D Computer Control Frame
SD-3T011-01	DMA Unit
SD-3T011-01	CC Unit
SD-4C050-01	MASM 0
SD-4C050-01	MASM 1
SD-3T011-01	Power Unit
SD-5D168-01	Cooling Unit
SD-5D190-01	Filter Unit
SD-3T011-01	3B21D Computer Peripheral Control Frame
SD-3T011-01	IOP Basic
SD-3T012-01	IOP Growth
SD-3T011-01	DFC Unit
SD-3T015-01	Tape Transport Frame
SD-4A008-02	Power Distributing
SD-3T011-01	Port Switch
SD-5A056-01	API Frame
SD-5A056-01	API Unit

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Bell Labs Innovations

Attached Processor System
4ESS™ Switch Application
4AP<19> Generic
Maintenance Reference Handbook

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Overview

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Introduction 1

Reason for Reissue 1

Overview

Introduction

Document 234-200-400, Volumes 2 and 3 are supplements to 234-200-400, Issue 3, Volume 1. This volume contains the Processor Recovery Messages (PRMs) for UNIX® RTR operating system. Volume 3 contains the Application Integrity Monitor (AIM) PRMs for major Step D, and the Common Network Interface (CNI) PRMS generated in major Step E. Refer to the ***UNIX***® *RTR Operating System Processor Recovery Guide* (254-303-103) for more information.

Reason for Reissue

Volume 2 of this handbook is being updated to include additional Process Recovery Messages for the UNIX® RTR Operating System. This update includes new PRMs generated by the 3B20D/3B21D computers.

Processor Recovery Message Interpretation

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Processor Recovery Message (PRM) Interpretation 1-1

Processor Recovery Message Interpretation

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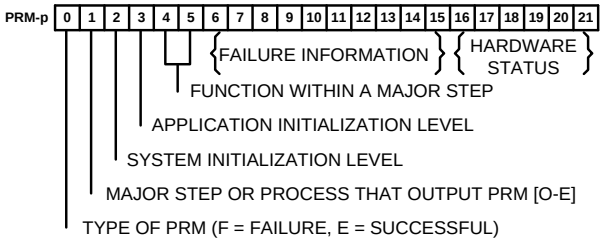
Processor Recovery Message (PRM) Interpretation



Digit p = Control Unit (CU) Identification

0 = CU 0
1 = CU 1

Digit 0 = PRM Type

F = Failure
E = Success

A failure PRM (F) occurs when an error is considered fatal; a phase is called. For Release 6.3 and later releases, a failure PRM (F) indicates that a serious problem has occurred. The action taken, when such problems occur, depends on the recover strategy for the specific problem; in most cases, a phase is called. Please refer to the page of the specific PRM for information on recovery action.

A *successful PRM(E)* is an information message which describes a function or a possible error and any corrective action that should be taken.

Digit 1 = Major step or process that output PRM. Identifiers 0 through C are associated with UNIX® RTR Operating Systems. Identifier D is associated with the Application Integrity Monitor (AIM) processes, and Identifier E is associated with the Common Network Interface (CNI) processes. The Identifier codes are described as follows:

- **Identifier 0 — Processor Initialization Microcode PRMs**

A system initialization (INIT) can be started automatically from a number of sources, but each INIT starts with a Maintenance Reset Function (MRF). When an MRF occurs, a microcoded sequence is started to initialize internal hardware registers of the processor. If the MRF occurred as part of a Load-Disk-From-Tape (LDFT), control is then given to LDFT microcode. If the INIT includes a bootstrap, instead of the LDFT microcode, microboot microcode is entered. The LDFT microcode reads writable microcode and LDFT software from the input/output processor (IOP) tape. The writable microcode is pumped to the writable microstore, and control is given to the LDFT software. The microboot microcode reads the Volume Table of Contents (VTOC), a writable microstore file, and the little boot software from disk; then passes control to the little boot software. The 0 identifier in field B indicates that microcode is the source of the PRM. Some of the 0 step PRMs indicate the progress in the INIT and the type of INIT in progress (a stop-and-switch, a microboot, an LDFT, and so on). Others report the failure of a microboot or LDFT microcode operation.

- **Identifier 1 — Little Boot and Load Disk from Tape (LDFT) PRMs**

  After microcode has been executed, little boot or LDFT software is entered. Both steps share the same PRM major step identifier of 1. The LDFT software reads generic text and the application module (AM) data base from tape and writes them to disk. Little boot software loads the main bootstrap program (bit boot) into main memory. Some of the PRMs with an identifier of 1 report failures to be read from tape. Others are printed when a boot from a disk fails. Little boot software passes control to the Processor Initialization (PINIT) step. In contrast, when the LDFT software step is completed, a manual initialization request from the Maintenance Control Center (MCC) is required to continue recovery of the system.

- **Identifier 2 — Processor Initialization (PINIT) PRMs**

  PINIT software is entered from the little boot software, or when there is no bootstrap, by the maintenance reset function (MRF) microcode. Included in the initialization actions are deciding which processor should go on-line and, if necessary, copying the off-line memory of the processor. One of the PRMs printed by this step reports a failure to copy the memory of the processor. Another PRM prints when a Level-2 INIT is bumped to a Level-3, so that the Equipment Configuration Database (ECD) is loaded. When PINIT is complete and there is no bootstrap, control is passed to a point in the kernel to initialize the operating system. If there is a bootstrap, big boot is entered.

- **Identifier 3 — Big Boot PRMs**

  The PRMs of the big boot software are identified by a 3. These messages report the failure of the software to carry out the function of loading boot file segments from disk to the control unit (CU) of the main memory. Failure to load ECD segments also is reported. After loading each segment, the page table entries for the segment are loaded with the physical address. The types of failures that are reported during this step include the following:

a. Failure to initialize hardware

b. Failure of a disk job

c. Invalid page table parameters

d. Invalid ECD data.

The bit boot passes control to the kernel boot to initialize the operating system.

- **Identifier 4 — Kernel Boot (KBOOT) PRMs**

The extent of the operating system initialization depends on whether the system was booted. If a boot occurred as a part of recovery (UNIX RTR operating system Level-2 INIT or higher), KBOOT software is entered. If there was no boot, the code to initialize the operating system is entered by PINIT to take the following actions:

1. Every kernel process and the supervisor process that was running at the time of the INIT is faulted.
2. Error Interrupt Handler (EIH), the highest priority process, is dispatched.
3. System Integrity Monitor (SIM) sends a message, when requested, to an application dedicated port. The process attached to the port controls the application initialization procedure.

If KBOOT is entered, the following operating system initialization actions occur:

— Interrupts are enabled

— The highest priority process in the boot image is started, followed by the lower priority processes.

— Separate address spaces are constructed for the kernel and each boot process.

— Kernel, supervisor, and special processes are created.

— Initialization messages are sent to the processes and file manager.

— Public libraries are loaded from disk.

The identifier-4 PRMs report failures to create processes, to find public libraries on disk, to allocate an INIT message for a process, to create a segment for the interrupt stack, a public library, or a kernel segment table, among others.

- **Identifier 5 — Error Interrupt Handler (EIH)**

The EIH process is the highest priority kernel process that is started by initialization of the operating system. It is entered to respond to hardware interrupts, to failure returns from kernel calls, and to failure returns from Operating System Traps (OST). The EIH issues PRMs that report failures detected by system primitives, report timeouts of an I/O operation, or report the failure of an attempt to "soft" switch a control unit (CU).

- **Identifier 6 — Disk Drive (DKDRV) PRMs**

The *DKDRV* is a kernel process that manages all disk file controller (DFC) related activities. The DKDRV provides all the interface functions to control the transfer of data between system memory and a moving head disk (MHD). During INIT, DKDRV builds internal tables, reads records from the ECD for all DFCs, SBUSs (if SCSI), and MHDs. The DKDRV also restores to service all DFCs, SUBSs and one of every logical disk. A failure during any one of these steps results in a DKDRV PRM. Only if the failure involves an essential function is the PRM fatal.

- **Identifier 7 — Input/Output Processor Driver (IODRV) PRMs**

  Input/output processor driver (IODRV) is a kernel process that manages all IOP related input/output (I/O), which includes normal activities, fault recognition, recovery, and manually requested activities. The peripheral devices controlled by IODRV are Teletypewriter (TTYs) attached to the Teletypewriter Controller (TTYC), and the Maintenance Teletypewriter Controller (MTTYC), BX.25 data links, magnetic tape drives, and scanners and signal distributors. Device handlers in the IODRV, which are collections of C-language functions, interface between supervisor or kernel processes and peripheral devices. The PRMs output by the IODRV include reports of failure to restore data links to service, failure of software initialization of IODRV, and failure of IODRV's memory facility to grow or add a memory segment.

- **Identifier 8 — File Manager PRMs**

  The functions performed by the file manager include locating files and devices, opening files and special device files, checking the access permission of a user, verifying that I/O device handlers are enabled, and translating I/O requests for logical files. The PRMs report failures during the file manager initialization, task switch failures, unmounted file system during inode and buffer management, or too many task or nontask faults.

- **Identifier 9 — Kernel Service Routines PRMs**

  The memory manager, scheduler, kernel display application driver, utility manager, memory manager, and capability manager which are special system processes, share the identifier 9 with the kernel service routines. These processes, unlike other kernel processes, are bound into the kernel address space to allow them easy access to the system data structures. In carrying out its function of scheduling all supervisor and user processes, the *scheduler* selects the next process to be executed or loaded and handles terminations. The primary function of the *memory manager* is to respond to a message request from the

scheduler to load into memory the swappable segments of a supervisor process. The memory manager also responds to a message from the process manager to process lock a segment. The same message is used at boot time to create the segments for a kernel process. The implementation of OST calls is done by other memory manager C functions.

The kernel's service routines implement system primitives and include a process dispatcher and a trap handler. Some examples of the functions provided by primitives include sending and receiving messages and events and waking processes, setting and getting the time of day, attaching to and detaching from interrupts, and setting a timer to cause a timeout event.

The capability manager handles capability requests from the file manager and frees system resources during process termination. The utility manager provides services for Generic Access Package (GRASP). The Kernel Display Application Driver monitors system resource usage. The only PRMs associated with system resources, report software or unexplained faults received by the special process.

PRMs with an identifier of 9 report failures such as finding a bad Segment Descriptor Entry (SDE) pointer after a bad OST, identifying an unattached interrupt firing more than five times in the last second, finding an invalid process mode in the program status word, faulting of the kernel while handling an OST, and running out of hold descriptor blocks.

- **Identifier A — Processor Manager PRMs**

  The process manager is a supervisor process that responds to a p_creat message from another process that is already running. It responds by building the memory images of the segments required by the new process. If a segment already exists and can be shared, the segment is used by the new process. If a segment does not exist, it is created.

SHEET 7 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-1 : SPEC-luc043a : GM VER. 2.5a

Process manager PRMs report a failure to open a kernel buffer segment, failure to open an ECD text segment, and failure of the file manager to open the root file system.

- **Identifier B & C — System Integrity Monitor (SIM) PRMs**

  The *system integrity monitor* (SIM) maintains and monitors the integrity of the UNIX RTR operating system. The SIM, which is a kernel boot process, is initiated by the kernel after Process Control Process Error Interrupt Handler (PCPEIH) detects an error during a system bootstrap. One of SIM's main functions during a system bootstrap is to verify that all essential boot processes are initialized correctly. The SIM must receive an initialization status message from each boot process within a specified time interval. If a message is not received from every process, SIM reboots the system. Another function of SIM is to provide a sanity timer that is used by the Application Interface Monitor (AIM) to ensure that application processes are sane and are being scheduled by the operating system. Other functions of SIM include administering hardware sanity timers in both the on-line and off-line CUs, creating and monitoring the User Level Automatic Restart Process (ULARP), monitoring overload conditions, administering AUDITS, and providing an interface between UNIX RTR operating system and AIM. The PRMs from the SIM report a failure to get an INIT message from an essential process, a failure to INIT the overload control system, and a failure to execute ULARP.

- **Identifier D & E — Application PRMs (Not used by UNIX RTR Operating System)**

  These digits may be output by an application process. See appropriate application documentation.

  The SIM, on receipt of a software initialization status (SINITSTAT) message, generates an All-Seems-Well (ASW) PRM on behalf of the sending process. If an application process, attached to the AIM port, sends the SIM a SINITSTAT message, an ASW PRM is produced for the application process as well. The application process ASW PRM is

documented in this guide in the PRM_EEda DDtw PRM page.

NOTE 1:
The SIM only generates an ASW PRM for the first SINITSTAT message sent by a process, unless a subsequent message contains only a message header. An ASW PRM is generated upon receipt of a message containing only a message header.

NOTE 2:
Also, in order for an ASW PRM to be generated, the SINITSTAT message must be received within the first 30 seconds of the boot interval.

NOTE 3:
Refer to Volume 3 for the PRMs applicable to Identifiers D & E.

Digit 2 = System level of most recent RTR initialization:

0 = No initialization or DO initialization
1 = D1 initialization
2 = D2 initialization
3 = D3 initialization
4 = D4 initialization.

These initializations are explained in 254-303-106, **UNIX** RTR Operating System, System Maintenance Manual.

Digit 3 = Application initialization level within the RTR initialization specified in field "d".

Digits 4 & 5 = Two-digit function code within major step; also known as the PRM number.

Digits 6-15 = Ten digits of failure data or other information. The layout of these digits depends on the function. (See the "Processor Recovery Messages" section of this volume.)

Digits 16 through 21 represent the hardware status of the PRM. The layout of these digits is as follows:

Digit 16 = Emergency Action Interface (EAI) status digit. The bits are numbered from right to left as follows.

BIT	3	2	1	0
	Power Up	**Central Control (CC) Unit Run**	**CC Active**	**EAI-ALL Seems Well (ASW)**

BIT 3:RST Indicates that the EAI has gone through a power-up restart. This bit remains set until it is read by the MTTYC.

BIT 2:RUN Indicates that the associated 3B Computer is executing main store instructions. This bit is defined as the logical AND of NOT stopped System Status Register (SSR) bit 28 and NOT halted (SSR bit 17).

BIT 1:ACTIVE Indicates that the associated 3B Computer is online (SSR bit 16).

BIT 0:ASW Indicates that the EAI thinks that all-seems-well (ASW)—that is, no internal faults or EA output errors have been detected by EAI audit or self-test firmware.

Digit 17 = EAI status digit. The bits are numbered from right to left as follows.

BIT	3	2	1	0
	NEW PRM	**MRF START**	**Pulse Point Register BIT 23**	**Pulse Point Register BIT 22**

BIT 3:PRM — Indicates that a processor recovery message has been received from the 3B Computer. This bit remains set until it is read by the MTTY controller.

BIT 2:SPR — Indicates that a processor recovery Maintenance Reset Function (MRF) has started. This bit remains set until it is read by the MTTY controller.

BIT 1:PP23 — Gives the last active state of pulse point 23 from the 3B Computer, which indicates that the input data is to be used as the new input parameter buffer Array Pointer (AP).

BIT 0:PP22 — Gives the active state of pulse point 22 from the 3B Computer, which indicates that the input data is to be stored at the location indicated by the AP. The AP is then incremented.

NOTE 4:
Both BIT 0 and BIT 1 (PP22 and PP23) being asserted indicates the start of a 3B Computer initialization.

Digit 18 = EAI status digit. The bits are numbered from right to left as follows.

BIT	3	2	1	0
	IPB Received	**EAI Enable**	**Primary Disk**	**Secondary Disk**

BIT 3:IPB Indicates that the EAI initialization parameter buffer (IPB) contains non-zero data.

BIT 2:EAEN Indicates a force function to the 3B Computer is active or the IPB is non-zero.

BIT 1:FBDP Indicates that a subsequent system bootstrap is forced from the primary boot device.

BIT 1:FBDS Indicates that a subsequent system bootstrap is forced from the secondary boot device.

Digit 19 = EAI status digit. The bits are numbered from right to left as follows.

BIT	3	2	1	0
	CC Forced On-Line	**CC Forced Off-Line**	**Timer Disabled**	**CC MRF**

BIT 3: FONL — Indicates the 3B20D/3B21D Computer Central Control (3BCC), associated with the EAI, is to remain the online CC. The mate CC is concurrently forced offline (FOFL).

BIT 2:FOFL — Indicates the 3BCC, associated with the EAI, is to remain the offline CC. The mate CC is concurrently forced online (FONL).

BIT 1:DTM — Indicates the associated 3BCC sanity kit disabled.

BIT 0:MFR — Indicates that a processor recovery maintenance reset function (MRF) has started. This bit is similar to the MRF START bit, except bit 0:MFR is tied to the hardware signal; this bit does not need to be read to be cleared.

Digit 20 = Current of inhibits. The bits are numbered from right to left as follows.

BIT	3	2	1	0
	Hardware Checks Inhibited	**UNIX System Error Interrupts Inhibited**	**Cache Bypassed (Not Used)**	**SIM Inhibited**

BIT 3: Indicates automatic hardware checks of the 3B Computer have been inhibited. The specific checks inhibited are parity checking (on the Address Translation Bus, Instruction Bus, source Bus, Micro-Controller, Cache), clock checking errors, My Store Error A, Main store timeout error, Data Manipulation Unit error, and store Address Controller error.

BIT 2: Indicates that reporting of nonfatal errors has been inhibited for all units

BIT 1: The high speed cache unit of the 3B20D/3B21D Computer is not being used.

BIT 0: Indicates the SIM process has been prevented from initiating any recovery action from a fault.

Digit 21 = Configuration control options. The bits are numbered from right to left as follows.

BIT	3	2	1	0
	Backup Root File System Being Used	**Minimum Configuration Being Used**	**Unused**	**Unused**

BIT 3: Indicates that 3B Computer has been booted using the backup root file system.

BIT 2: Indicates the 3B Computer has been booted in the minimum configuration mode. Application software and hardware has been disabled.

BIT 1: UNUSED (Also undefined - may be 0 or 1).

BIT 0: UNUSED (Also undefined - may be 0 or 1).

Processor Recovery Message Analysis Procedure

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PRM Analysis Procedure 2-1

PRM Analysis Procedure 2-3

Processor Recovery Message Analysis Procedure

2

PRM Analysis Procedure

The procedure on the following page is to be used to analyze a PRM.

Notes

PRM Analysis Procedure

Step	Procedure
1	Examine the PRM Z field to determine which processor produced the PRM (If Z equals 0, CU 0 produced the PRM; if Z equals 1, CU 1 produced the PRM).
2	Examine digit 0 to determine if the PRM is a success (E) or failure (F) PRM.
3	Locate the PRM (see the Processor Recovery Messages part of this section) with the same number in digit positions 1, 4, and 5 as the PRM on the MCRT screen, ROP, or SCC. ***Note***: The PRMs are arranged alphanumerically.
4	Read comments under the RECOVERY STEP heading to identify the major step or process that output the PRM.
5	Read comments under FUNCTION heading to determine which function within the recovery step was being performed.
6	Read comments under PRM EXPANSION heading to interpret any failure information provided in the PRM.
7	Read comments under EXPLANATION heading for additional information.
8	Follow actions suggested under CORRECTIVE ACTION heading to correct any failures.
9	Examine PRM digits 16 through 21 to determine the state of the 3B Computer when the PRM was generated. ***Note***: Set (=1) bit indicates the specified function is active.
10	Contact your Technical Assistance Organization if additional information is required.

Processor Recovery Messages - UNIX® RTR Operating System

3

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Processor Recovery Messages 3-1

Processor Recovery Messages - UNIX® RTR Operating System

3

Processor Recovery Messages (PRM)

Behind the tabs following this section are the Processor Recovery Messages for the **UNIX**® RTR Operating System. The PRMs include the 3B20D/3B21D Computer Diagnostic Phase and those that are listed in the following table.

Major Recovery Step or Value of Digit 1	Application
0	Identifier 0 — Processor Initialization Microcode PRMs
1	Identifier 1 — Little Boot and LDFT PRMs
2	Identifier 2 — Processor Initialization (PINIT) PRMs
3	Identifier 3 — Big Boot PRMs
4	Identifier 4 — Kernel Boot (KBOOT) PRMs
5	Identifier 5 — Error Interrupt Handler (EIH) PRMs

**Continued on next page*.

SHEET 1 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3 : SPEC-luc043a : GM VER. 2.5a

Major Recovery Step or Value of Digit 1	Application
6	Identifier 6 — Disk Driver (DKDRV) PRMs
7	Identifier 7 — Input.Output Processor (IODRV) PRMs
8	Identifier 8 — File Manager PRMs
9	Identifier 9 — Kernel Service Routines PRMs
A	Identifier A — Processor Manager PRMs
B and C	Identifiers B and C — System Integrity Monitor (SIM) PRMs
D and E	Identifiers D and E — Application PRMs

3B20D/3B21D Computer Diagnostic Phase PRMs

3A

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3B20D/3B21D Computer Diagnostic 3A-1

3B20D/3B21D Computer Diagnostic Phase PRMs

3A

3B20D/3B21D Computer DiagnosticPhase PRMs

The 3B20D Computer Control Unit (CU) under diagnostic tests produces processor recovery messages (PRMs) during automatic central control (CC) diagnostic Phase 61 and demand CC diagnostic Phase 93.

The 3B21D computer CU under diagnostic test produces PRMs during automatic CC diagnostic Phase 64 and demand CC diagnostic Phase 65.

PRM_Z 0123 4567 89AB CDEF xx xx xx

PRM SOURCE

3B20D Central Control (CC) Diagnostic Phases 61 and 93, or 3B21D Central Control (CC) Diagnostic Phases 64 and 65

FUNCTION

Diagnostic Test

PRM EXPANSION

x Any hexadecimal number

EXPLANATION

The off-line processor produces PRMs during the CC diagnostics. This PRM is one in a sequence of PRMs output during the CC diagnostic. Refer to 254-303-106, *3B20D and 3B21D Computers **UNIX** RTR Operating System, System Maintenance Manual*.

CORRECTIVE ACTION

None. This is not a problem condition. Disregard this PRM or any of the sequence described in the preceding reference.

PRM_Z 0000 0000 0000 0000 xx xx xx

PRM SOURCE

3B20D Central Control (CC) Diagnostic Phases 61 and 93, or 3B21D Central Control (CC) Diagnostic Phases 64 and 65

FUNCTION

Diagnostic Test

PRM EXPANSION

x Any hexadecimal number

EXPLANATION

The off-line processor produces PRMs during the CC diagnostics. This PRM is one in a sequence of PRMs output during the CC diagnostic. Refer to 254-303-106, *3B20D and 3B21D Computers **UNIX** RTR Operating System, System Maintenance Manual*.

CORRECTIVE ACTION

None. This is not a problem condition. Disregard this PRM or any of the sequence described in the preceding reference.

PRM_Z FFFF FFFF FFFF FFFF xx xx xx

PRM SOURCE

3B20D Central Control (CC) Diagnostic Phases 61 and 93, or 3B21D Central Control (CC) Diagnostic Phases 64 and 65

FUNCTION

Diagnostic Test

PRM EXPANSION

x Any hexadecimal number

EXPLANATION

The off-line processor produces PRMs during the CC diagnostics. This PRM is one in a sequence of PRMs output during the CC diagnostic. Refer to 254-303-106, *3B20D and 3B21D Computers **UNIX** RTR Operating System, System Maintenance Manual*.

CORRECTIVE ACTION

None. This is not a problem condition. Disregard this PRM or any of the sequence described in the preceding reference.

PRM_Z AAAA AAAA AAAA AAAA xx xx xx

PRM SOURCE

3B20D Central Control (CC) Diagnostic Phases 93, or 3B21D Central Control (CC) Diagnostic Phases 65

FUNCTION

Diagnostic Test

PRM EXPANSION

x Any hexadecimal number

EXPLANATION

The off-line processor produces PRMs during the CC diagnostics. This PRM is one in a sequence of PRMs output during the CC diagnostic. Refer to 254-303-106, *3B20D and 3B21D Computers **UNIX** RTR Operating System, System Maintenance Manual*.

CORRECTIVE ACTION

None. This is not a problem condition. Disregard this PRM or any of the sequence described in the preceding reference.

PRM_Z 5555 5555 5555 5555 xx xx xx

PRM SOURCE

3B20D Central Control (CC) Diagnostic Phases 93, or 3B21D Central Control (CC) Diagnostic Phases 65

FUNCTION

Diagnostic Test

PRM EXPANSION

x Any hexadecimal number

EXPLANATION

The off-line processor produces PRMs during the CC diagnostics. This PRM is one in a sequence of PRMs output during the CC diagnostic. Refer to 254-303-106, *3B20D and 3B21D Computers **UNIX** RTR Operating System, System Maintenance Manual*.

CORRECTIVE ACTION

None. This is not a problem condition. Disregard this PRM or any of the sequence described in the preceding reference.

PRM_Z EEEE EEEE EEEE EEEE xx xx xx

PRM SOURCE

3B20D Central Control (CC) Diagnostic Phases 93, or 3B21D Central Control (CC) Diagnostic Phases 65

FUNCTION

Diagnostic Test

PRM EXPANSION

x Any hexadecimal number

EXPLANATION

The off-line processor produces PRMs during the CC diagnostics. This PRM is one in a sequence of PRMs output during the CC diagnostic. Refer to 254-303-106, *3B20D and 3B21D Computers **UNIX** RTR Operating System, System Maintenance Manual*.

CORRECTIVE ACTION

None. This is not a problem condition. Disregard this PRM or any of the sequence described in the preceding reference.

PRM_Z 1111 1111 1111 1111 xx xx xx

PRM SOURCE

3B20D Central Control (CC) Diagnostic Phases 93, or 3B21D Central Control (CC) Diagnostic Phases 65

FUNCTION

Diagnostic Test

PRM EXPANSION

x Any hexadecimal number

EXPLANATION

The off-line processor produces PRMs during the CC diagnostics. This PRM is one in a sequence of PRMs output during the CC diagnostic. Refer to 254-303-106, *3B20D and 3B21D Computers **UNIX** RTR Operating System, System Maintenance Manual*.

CORRECTIVE ACTION

None. This is not a problem condition. Disregard this PRM or any of the sequence described in the preceding reference.

Identifier 0 - Processor Initialization Microcode PRMs

3B

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Processor Initialization Microcode PRMs 3B-1

Identifier 0 - Processor Initialization Microcode PRMs

3B

Processor Initialization Microcode PRMs

The Identifier 0 in field B indicates that microcode is the source of the processor recovery message (PRM). Some of the 0 step PRMs indicate the progress of the init, and also indicate the type of init in progress (a stop-and-switch, a microboot, an LDFT, etc.). Others report the failure of a microboot or LDFT microcode operation.

E0da 0100 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Maintenance reset function (MRF) microcode initialized the processor and exited to processor initialization (PINIT) software.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This recovery action is taken if the initialization sequence control (ISC) bits in the system status register (SSR) indicate that this is the first automatic recovery initialization to occur recently. This recovery action can also be initiated manually by entering a 51 on the maintenance teletypewriter (MTTY).

This recovery action assumes the PINIT software in main store is valid and will be able to recover the control unit (CU). The starting address of PINIT is read from physical location 0xC in main store.

This recovery action can take place if the initialization sequence control bits are set for a stop and switch (SAS) and the CU is forced on-line.

SHEET 2 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

None

E0da 0200 0000 0000 hh hh hh1

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Maintenance reset function (MRF) microcode initialized the processor and executed a microcode stop and switch (SAS).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

There are two situations in which the central control (CC) microcode will initiate a stop and switch action. The first is due to the state of the initialization sequence control (ISC) bits in the system status register (SSR). The other situation arises when certain error microinterrupts cause errors in the control unit (CU).

The ISC bits indicate if this recovery action is the second MRF to occur recently or if the software decides that a stop and switch is the best recovery action at this point in time.

Before a stop and switch is attempted, the force on-line bit in the SSR is examined. If the CU is forced on-line, the processor initialization (PINIT) is executed and the microcode PRM indicating this action is printed.

SHEET 4 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

None

E0da 030z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Maintenance reset function (MRF) microcode initialized the processor and successfully executed microboot using disk file controller 0 (DFC 0).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This indicates the small computer system interface (SCSI) bus device or storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of the chapter for definitions of the digits.

EXPLANATION

The MRF microcode has initialized the processor and has given control to the microboot microcode. Microcode has three tasks to complete without error. It must read from disk the volume table of contents (VTOC), a writable microstore file, and the little boot software. This PRM is printed when all three tasks are completed, and then control is given to the little boot software. This PRM is printed only when DFC 0 has been used.

Microboot will leave the 3-out-of-6 codes of the dual serial channel (DSCH), the direct memory access controller (DMAC), and the DFC along with the moving head disk (MHD) number in general register 5 to be used by the software.

SHEET 6 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

None

SHEET 7 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

E0da 0400 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

The maintenance reset function (MRF) microcode executed a power-up initialization of the processor.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The MRF microcode has detected that the power clear bit in the system status register (SSR) was active. The power-up initialization microcode clears all of main store in addition to the normal initialization of the processor. A special keyword is written to main store indicating to the software running on the other control unit (CU) that this CU has just powered up.

CORRECTIVE ACTION

None

E0da 0500 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

The maintenance reset function (MRF) microcode was prevented from escalating to a full bootstrap by the no disk limp mode (NDLM) indicator and exited to processor initialization (PINIT) software instead.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This recovery action is taken if the initialization sequence control (ISC) bits in the system status register (SSR) indicate that this should be a full bootstrap automatic initialization but the NDLM indicator is preventing the bootstrap.

The NDLM feature can be overridden by any manual initialization from the maintenance teletypewriter (MTTY).

This recovery action assumes the PINIT software in main store is valid and will be able to recover the control unit (CU). The starting address of PINIT is read from physical location 0xC in main store.

The ISC bits are left at level 1 initialization.

SHEET 9 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

None

E0da 0600 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

The maintenance reset function (MRF) microcode initialized the processor and then successfully executed the microcode portion of the load disk from tape (LDFT) feature.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The task of the LDFT microcode is to read the writable central control (CC) microcode and the LDFT software from the top-only program (TOP) tape. The writable microcode is read from the tape and pumped to the writable microstore. Then the LDFT software is read from the tape and control is given to this software. This PRM is printed only when all steps complete correctly.

The 3-out-of-6 codes for the dual serial channel (DSCH), direct memory access controller (DMAC), and disk file controller (DFC) are put into general register 5 for the LDFT software to use.

CORRECTIVE ACTION

None

E0da 070z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

The maintenance reset function (MRF) microcode initialized the processor and successfully executed microboot using disk file controller 1 (DFC 1).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This indicates the small computer system interface (SCSI) bus device or storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The MRF microcode has initialized the processor and has given control to the microboot microcode. Microcode has three tasks to complete without error. It must read from disk the volume table of contents (VTOC), a writable microstore file, and the little boot software. This PRM is printed when all three tasks are completed, and then control is given to the little boot software. This PRM is printed only when DFC 1 has been used.

Microboot will leave 3-out-of-6 codes of the dual serial channel (DSCH), direct memory access controller (DMAC), and DFC along with the moving head disk (MHD) number in general register 5 to be used by the software.

SHEET 12 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

None

SHEET 13 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

F0da 080z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - volume table of contents (VTOC) job - unable to initialize the path to disk file controller 0 (DFC 0) in a bootstrap.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Initialization sequence number. This number corresponds to the step numbers under "EXPLANATION." However, if x = 0, then the sequence number is not reported (older microcode does not report the initialization sequence number).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Microboot failed to initialize the path of communication to DFC 0. Several steps under this PRM are executed to initialize the path.

Step 0	The sequence number has not been provided. The failure occurred during one of the following steps.
Step 1	Initialize the direct memory access input/output bus (DIO) for a bootstrap: First, a clear error pulse is sent to direct memory access controller 0 (DMAC 0). Then, a DMAC initialization command is sent to DMAC 0. If that works, a clear error pulse is sent to all dual serial channels (DSCHs 11

through 14). Next, the same procedure is followed for DMAC 1 and DSCHs 16 through 19. Sending the pulse to all channels can be done by loading the channel address register (CAR) with ones (1s). However, addressing multiple channels causes an input/output addressing error in the central control (CC) error register (ER). This error is immediately cleared.

Step 2 — This step will write an intialization code to clear the channel "busy" indicator in the DMAC. Next, a "DSCH initialization" command is sent to the primary DSCH (the DSCH for the selected boot device). The command will contain a mask value to allow service requests to enter the DSCH from the primary boot device. The final action in this step is to write the mask register in the primary DMAC to allow interrupts from the primary channel.

The DMAC was stopped by the previous steps. Now the microcode will wait 300 milliseconds before initializing the DFC. This waiting period gives the DFC enough time to complete all its pending jobs. This delay prevents the DFC from being stopped while writing to the disk.

Step 3 — Two commands are sent to the Duplex Dual Serial Bus Selector (DDSBS) to clear it and make it operational.

If any of these steps fail, this PRM is printed with the step number in the variable "x" position.

SHEET 15 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

Suspect the hardware described under "EXPLANATION:

1. Failures during Steps 1 and 2 primarily implicate this control unit (CU). Force the other CU to boot.
2. If the other CU does not recover, power cycle this CU and then clear the emergency action interface (EAI) forces.
3. The DDSBS (failure during Step 3) is located in the disk file controller (DFC). Use the EAI options to force DFC 1 to boot.
4. If DFC 1 does not recover, power cycle this DFC and then clear the EAI forces.
5. If this PRM continues, the faulty equipment must be replaced.

F0da 0900 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - volume table of contents (VTOC) job - direct memory access controller (DMAC) setup failed using disk file controller 0 (DFC 0).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Microboot failed to set up the random access memory (RAM) words in the DMAC.

The first word written is DMAC RAM word 1 which contains the number of 16-word blocks to be transferred with this job. The value actually written is the 2s complement of the number of 16-word blocks previously described.

The second word written is DMAC RAM word 3. Word 3 is the main store transfer address for this disk job.

The third and last word written to the DMAC RAM memory is RAM word 2 which is the pointer to the page tables. The page table entries were created by microboot and map all virtual addresses used for this disk transfer to the same physical main store address.

SHEET 17 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

This PRM is printed when the input/output (I/O) flags in the hardware status register (HSR) show that this VTOC job had an error.

CORRECTIVE ACTION

Suspect the hardware described under "EXPLANATION:

Failures to set up the DMAC for DMA jobs primarily implicate this control unit (CU).

1. Force the other CU to boot.
2. If the other CU does not recover, replace the DMAC in this CU and then clear the emergency action interface (EAI) forces.

F0da 0A0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - volume table of contents (VTOC) job - initialization of the bus interface controller (BIC) in disk file controller 0 (DFC 0) failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This indicates the small computer system interface (SCSI) bus device or storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The dual serial channel (DSCH) 3-out-of-6 code is loaded into the channel address register (CAR) and an initialize BIC command is loaded into the channel data register (CDR). This command is sent to DFC 0.

This PRM is printed when the I/O flags in the hardware status register (HSR) show an error occurred in the previously mentioned job.

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 1 to boot.

SHEET 19 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

2. If DFC 1 fails to recover, power cycle DFC 0 and clear the EAI forces.
3. If this failure continues, replace the peripheral interface controller (PIC).
4. If this failure continues, replace the BIC.
5. If this failure continues, replace the duplex dual serial bus selector (DDSBS).

The PIC, BIC, and DDSBS are different circuit packs in the SMD DFC. The BIC and the PIC are circuits within the host adapter (HA) circuit pack in the SCSI-DFC.

F0da 0B0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - volume table of contents (VTOC) job - initialization of the peripheral interface controller (PIC) in disk file controller 0 (DFC 0) failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This indicates the small computer system interface (SCSI) bus device or storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The dual serial channel (DSCH) 3-out-of-6 code is loaded into the channel address register (CAR), and an initialize PIC command is loaded into the channel data register (CDR). The command is sent to DFC 0.

This PRM is printed when the I/O flags in the hardware status register show that an error occurred in the previously mentioned job. This command is sent to the bus interface controller (BIC).

CORRECTIVE ACTION

The problem could be in PIC, BIC, or the duplex dual serial bus selector (DDSBS).

1. Use the emergency action interface (EAI) options to force DFC 1 to boot.
2. If DFC 1 fails to recover, power cycle DFC 0 and clear the EAI forces.
3. If this failure continues, replace the PIC.
4. If this failure continues, replace the BIC.
5. If this failure still continues, replace the DDSBS.

The PIC, BIC, and DDSBS are different circuit packs in the storage module device (SMD) DFC. The BIC and PIC are circuits within the host adapter (HA) circuit pack in the SCSI DFC.

F0da 0C0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - volume table of contents (VTOC) job - disk file controller (DFC) "boot" command failed using DFC 0.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This indicates the small computer system interface (SCSI) bus device or storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The dual serial channel (DSCH) 3-out-of-6 code is loaded into the channel address register (CAR) and the DFC "boot" command is loaded into the channel data register (CDR). The command is sent to the DFC after successful initialization of the path to the DFC. This command starts the transfer of the VTOC from disk to main store.

This PRM is printed when the I/O flags in the hardware status register (HSR) show that an error has occurred in the previous job. This indicates problems with the disk or the data on the disk.

SHEET 23 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 1 to boot.
2. Make sure the disk is powered up, and any recent maintenance activity was performed properly (cables not loose, correct ID plugs used, etc.).
3. If these steps fail to resolve the problem, try a different disk.

SHEET 24 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

F0da 0D0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - volume table of contents (VTOC) job - read VTOC disk job timed out using disk file controller 0 (DFC 0).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This indicates the small computer system interface (SCSI) bus device or storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The central control (CC) microcode has waited 2 seconds for an interrupt from the DFC indicating job completion. The CC microcode waited for bit 10 in the interrupt source (IS) register to become active as the indication of an interrupt from the DFC.

SHEET 25 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 1 to boot.
2. Make sure the disk is powered up. If recent maintenance activity was performed, ensure that it was done properly (cables not loose, correct ID plugs used, etc).
3. If the other DFC fails to recover, clear the EAI forces.
4. If these steps fail to resolve the problem try a different system disk.
5. If this failure continues, replace the peripheral interface controller (PIC).

The PIC is a circuit pack in the storage module device (SMD) DFC. The PIC is a circuit within the host adapter (HA) circuit pack in the SCSI DFC.

F0da 0E0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - volume table of contents (VTOC) job - read VTOC disk job errors using disk file controller 0 (DFC 0).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This indicates the small computer system interface (SCSI) bus device or storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The central control (CC) microcode has received the interrupt from the DFC and must determine if the job completed successfully.

The CC microcode attempts to clear the job completion interrupt in the bus interface controller (BIC) of the DFC. Once this is completed, the interrupt is cleared in the control unit (CU).

Status words are read from both the BIC and DFC. If either status word indicates an error or the I/O flags in the hardware status register (HSR) show that an error occurred in this VTOC job, then this PRM is printed and the CU executes a maintenance reset function (MRF).

SHEET 27 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

This PRM can also be printed when the I/O flags in the HSR show that an error occurred in this VTOC job.

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) to force different DFC and CU combinations.
2. If this PRM is reported from both CUs (PRM 0 F000 0E... and PRM 1 F000 0E...), the problem could be caused by a hardware fault in the DFC.

   If the same PRM is reported from one CU and both DFCs (that is, PRM 1 F000 0E... and PRM 1 F000 4E...), the problem could be caused by a hardware fault in the direct memory access controller (DMAC) or dual serial channel (DSCH).

   If the same PRM is reported from both CU and both DFCs (that is, PRM x F000 0E... and PRM x F000 4E...), the problem could be caused by stray (invalid) interrupts from other devices connected to this DMAC. Stray interrupts are often caused by broken circuit packs or software problems.
3. Try replacing the various implicated circuit packs. In the case of possible stray interrupts, use the EAI to force a boot configuration and power down unneeded units that are connected to the DMAC [for example, one input/output processor (IOP) and the other DFC].

F0da 0F0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - volume table of contents (VTOC) job - read VTOC disk job successful using disk file controller 0 (DFC 0), but it does not have a little boot partition.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Boot device identification information. This indicates the small computer system interface (SCSI) bus device or storage module device (SMD) "ID plug" selected for the boot.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This PRM will only be seen on a 3B21D computer.

The central control (CC) microcode examines the VTOC entries and searches for the primary little boot partition. Since the VTOC was read successfully, the failure to find the little boot partition probably indicates this disk is not a system disk or the disk has been damaged.

SHEET 29 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 1 to boot.
2. If these steps fail to resolve the problem, try using a different system disk [for example, use a warm or cold spare, or use load disk from tape (LDFT) to build a system disk].

F0da 100z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - writable central control (CC) microcode job - extract information from volume table of contents (VTOC) for disk file controller (DFC 0).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This indicates the small computer system interface (SCSI) bus device or storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Microboot has read the VTOC and found the little boot (lboot) partition entry. Microboot now extracts the following information in the little boot entry (which is now in main memory):

- Size of the lboot file (v_lsize)
- Size of the lboot partition (v_nblks)
- Size of writable microcode portion of the partition (v_nblks - v_lsize)

- Starting disk block of the lboot file (v_startblk)
- The starting disk block of the writable microcode (v_startblk + v_lsize)
- Main memory (MM) physical address to load the little boot (v_load).

If any of this information is incorrect, this PRM is printed.

CORRECTIVE ACTION

The information has already been loaded into memory and no disk jobs were performed; therefore, the implicated hardware is this control unit (CU).

1. Use the emergency action interface (EAI) options to force the other CU to boot.
2. If the other CU does not recover, power cycle this CU and clear the EAI forces.
3. If this CU still is reporting this PRM and the DFC 1 version of this PRM (PRM p 5000...), replace the MM (on the 3B21D computer only) followed by the CC (on the 3B21D computer only).

   On the 3B20D computer, replace only the main store controller (MASC), data manipulation unit (DMU), store address controller (SAC), module control unit (MCU), and main store update (MASU).

F0da 110z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - writable central control (CC) microcode job - direct memory access controller (DMAC) setup failed using disk file controller 0 (DFC 0).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Small computer system interface (SCSI) device identification information. This indicates the SCSI bus device or storage module device (SMD) "ID Plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Microboot failed to set up the random access memory (RAM) words in the DMAC.

The first word written is DMAC RAM word 1 which contains the number of 16-word blocks to be transferred with this job. The value actually written is the 2s complement of the number of 16-word blocks described previously.

The second word written is DMAC RAM word 3. Word 3 is the main store transfer address for this disk job.

SHEET 33 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

The third and last word written to the DMAC RAM is RAM word 2 which is the pointer to the page tables. The page table entries were created by microboot and maps all virtual addresses used for this disk transfer to the same physical main store address.

This PRM is printed when the I/O flags in the hardware status register (HSR) show that this CC microcode job had an error.

CORRECTIVE ACTION

Failures to set up the direct memory access controller (DMAC) for DMA jobs primarily implicate this CU.

1. Force the other CU to boot.
2. If the other CU does not recover, replace the DMAC in this CU and then clear the emergency action interface (EAI) forces.

F0da 140z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - writable central control (CC) microcode job - disk file controller (DFC) "boot" command failed using DFC 0.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This indicates the small computer system interface (SCSI) bus device or storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The dual serial channel (DSCH) 3-out-of-6 code is loaded into the channel address register (CAR), and the DFC "boot" command is loaded into the channel data register (CDR). The disk address of a microcode block is contained in the command. The command is sent to the DFC. This command starts the transfer of writable microcode from disk to main store.

This PRM is printed when the I/O flags in the hardware status register (HSR) show that an error occurred in this CC microcode job.

SHEET 35 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 1 to boot.
2. If DFC 1 fails to recover, power cycle DFC 0 and clear the EAI forces.
3. If this failure continues, replace the peripheral interface controller (PIC).
4. If this failure continues, replace the bus interface controller (BIC).
5. If this failure continues, replace the duplex dual serial bus selector (DDSBS).

The PIC, BIC, and DDSBS are different circuit packs in the SMD DFC. The BIC and PIC are circuits within the host adapter (HA) circuit pack in the SCSI DFC.

F0da 150z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - writable central control (CC) microcode job - read microcode disk job timed out using disk file controller 0 (DFC 0).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The CC microcode has waited 2 seconds for an interrupt from the DFC indicating job completion. The CC microcode was waiting for bit 10 in the interrupt source (IS) register to become active as the indication of an interrupt from the DFC.

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 1 to boot.
2. If DFC 1 fails to recover, power cycle DFC 0 and clear the EAI forces.

SHEET 37 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

3. If this failure continues, replace the peripheral interface controller (PIC).
4. If this failure continues, replace the bus interface controller (BIC).
5. If this failure still continues, replace the duplex dual serial bus selector (DDSBS).

The PIC, BIC, and DDSBS are different circuit packs in the SMD DFC. The BIC and PIC are circuits within the host adapter (HA) circuit pack in the SCSI DFC.

F0da 160z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - writable central control (CC) microcode job - read microcode disk job errors using disk file controller 0 (DFC 0).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The CC microcode has received the interrupt from the DFC and must determine if the job completed successfully.

The CC microcode attempts to clear the job completion interrupt in the bus interface controller (BIC) of the DFC. Then the interrupt is cleared in the control unit (CU).

Status words are read from both the BIC and DFC. If either status word indicates an error or the I/O flags in the hardware status register (HSR) show that an error occurred in the previously mentioned job, this PRM is printed and the CU executes a maintenance reset function (MRF).

SHEET 39 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force the other CU to bootstrap.
2. If the same failure occurs, the implicated hardware [the peripheral interface controller (PIC) and the BIC] is in DFC 0. Therefore, use the EAI option to select DFC 1.
3. Otherwise, if the CU prints this PRM and the DFC 1 version of the PRM is (PRM p 560z...), suspect the direct memory access controller/dual serial channel (DMAC/DSCH) hardware. In this case, try to boot from the other CU.

F0da 170z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - writable central control (CC) microcode job - bad CC microcode file from disk file controller 0 (DFC 0).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The writable CC microcode file has been read from disk. The first 32 bits of the microcode file contain a key word used to ensure that the file is a valid writable microcode file.

The file is not a valid writable microcode file.

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 1 to boot.

SHEET 41 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

2. Ensure the disk is powered up. If recent maintenance activity was performed, ensure that it was done properly (cables not loose, correct ID plugs used, etc.).
3. If the previous steps fail to resolve the problem, try a different disk [a warm or cold spare or build a disk using load disk from tape (LDFT)].

F0da 180z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode **FUNCTION**

Microboot - little boot job - error while preparing to read little boot file from disk file controller 0 (DFC 0).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

After reading the writable microcode from the Little Boot partition, the microboot program will read the little boot program into main store (MAS). The PRM indicates a problem at the beginning of that procedure prior to the direct memory access (DMA) setup.

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to select the other control unit (CU) to boot.
2. If the problem continues, try to use a different disk [a warm or cold spare, or build a disk using load disk from tape (LDFT)].

F0da 190z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - little boot job - direct memory access controller (DMAC) setup failed using disk file controller 0 (DFC 0).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Microboot failed to set up the random access memory (RAM) words in the DMAC.

The first word written is DMAC RAM word 1 which contains the number of 16-word blocks to be transferred with the job. The value actually written is the 2s complement of the number of 16-word blocks described previously.

The second word written is DMAC RAM word 3. Word 3 is the main store transfer address for this disk job.

SHEET 44 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

The third and last word written to the DMAC RAM is RAM word 2 which is the pointer to the page tables. The page table entries were created by microboot and map all virtual addresses used for this disk transfer to the same physical main store address.

This PRM is printed when the I/O flags in the hardware status register (HSR) show that an error occurred in this little boot job.

CORRECTIVE ACTION

Failures to set up the DMAC for direct memory access (DMA) jobs primarily implicate this control unit (CU).

1. Force the other CU to boot.
2. If the other CU does not recover, replace the DMAC in this CU and clear the emergency action interface (EAI) forces.

F0da 1C0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - little boot job - disk file controller (DFC) "boot" command failed using DFC 0.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The dual serial channel (DSCH) 3-out-of-6 code is loaded into the channel address register (CAR), and the DFC "boot" command is loaded into the channel data register (CDR). The starting disk address of little boot is contained in the command. The command is sent to the DFC. This command starts the transfer of little boot from disk to main store.

This PRM is printed when the I/O flags in the hardware status register (HSR) show that an error occurred in this little boot job.

SHEET 46 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 1 to boot.
2. If DFC 1 fails to recover, power cycle DFC 0 and clear the EAI forces.
3. If this failure continues, replace the peripheral interface controller (PIC).

   The PIC is a circuit pack in the SMD DFC. The PIC is a circuit within the host adapter (HA) circuit pack in the SCSI DFC.
4. If this failure still continues, try a different disk [warm or cold spare or build a disk using load disk from tape (LDFT)].

F0da 1D0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - little boot job - read little boot disk job timed out using disk file controller 0 (DFC 0).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The central control (CC) microcode has waited 2 seconds for an interrupt from the DFC indicating job completion. The CC microcode was waiting for bit 10 in the interrupt source (IS) register to become active as the indication of an interrupt from the DFC.

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 1 to boot.
2. If DFC 1 fails to recover, power cycle DFC 0 and clear the EAI forces.

SHEET 48 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

3. If this failure continues, replace the peripheral interface controller (PIC).
4. If this failure continues, replace the bus interface controller (BIC).
5. If this failure still continues, replace the duplex dual serial bus selector (DDSBS).

The PIC, BIC, and DDSBS are different circuit packs in the SMD DFC. The BIC and PIC are circuits within the host adapter (HA) circuit pack in the SCSI DFC.

F0da 1E0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - little boot job - read little boot disk job errors using disk file controller 0 (DFC 0).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The central control (CC) microcode has received the interrupt from the DFC and now must determine if the job completed successfully.

The CC microcode first attempts to clear the job completion interrupt in the bus interface controller (BIC) of the DFC. Then the interrupt is cleared in the control unit (CU).

Status words are read from both the BIC and DFC. If either status word indicates an error or the I/O flags in the hardware status register (HSR) show that an error occurred in this little boot job, then this PRM is printed and the CU executes a maintenance reset function (MRF).

SHEET 50 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 1 to boot.
2. If DFC 1 fails to recover, power cycle DFC 0 and clear the EAI forces.
3. If this failure continues try a different disk. Use a warm or cold spare or build a disk using load disk from tape (LDFT).

F0da 2000 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - disk not forced.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The LDFT microcode requires that a disk be forced on the maintenance teletypewriter (MTTY). The microcode continues to print this PRM until a disk is forced.

CORRECTIVE ACTION

Force a disk from the MTTY.

SHEET 52 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

F0da 210z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - unable to initialize the path to the selected disk file controller (DFC).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Initialization sequence number. This number corresponds to the step numbers under "EXPLANATION." However, if z = 0, then the sequence number is not reported (older microcode does not report the initialization sequence number).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The LDFT request results in a disk being loaded with information that was stored on the tape. The combination of the disk and the DFC is called the selected boot device. The combination of the tape and the input/output processor (IOP), or the tape and DFC is called the selected tape device. LDFT microcode failed to initialize the dual serial channel (DSCH) used by the direct memory access controller (DMAC) for accessing the selected boot device, or it failed to initialize the DMAC itself.

The following steps are executed to initialize the DMAC and the DSCH:

Step 01 The direct memory access input/output bus (DIO) is initialized for an LDFT:

a. A clear error pulse is sent to DMAC 0.

b. A DMAC initialization command is sent to DMAC 0.

c. If that works, a clear error pulse is sent to all channels (DSCHs 11 through 14).

d. The same procedure is followed for DMAC 1 and DSCHs 16 through 19.

Sending the pulse to all channels can be done by loading the channel address register (CAR) with ones (1s). However, addressing multiple channels causes an I/O addressing error in the central control (CC) error register (ER). This error is immediately cleared.

Step 02 An initialization code is written to clear the channel "busy" indicator in the DMAC.

a. A "DSCH initialization" command is sent to the primary DSCH (the DSCH for the selected boot device). The command will contain a mask value to allow service requests to enter the DSCH from the primary boot device.

b. The final action in this step is to write the mask register in the primary DMA to allow interrupts from the primary channel.

c. The DMAC was stopped by the previously mentioned steps. Now the microcode will wait 300 milliseconds before initializing the DFC. This waiting period gives the DFC enough time to complete all its pending jobs. In addition, the delay prevents the DFC from being stopped while writing to the disk.

Step 03 Two commands are sent to the duplex dual serial bus selector (DDSBS) to clear it and make it operational.

Step 04 Two buffer interface controller (BIC) commands [a **clear** BIC and a **reset** peripheral interface controller (PIC)] are loaded into the channel data register (CDR). This command is sent to the BIC.

This PRM is printed when the I/O flags in the hardware status register (HSR) show that an error occurred during the previously described sequence.

CORRECTIVE ACTION

Suspect the hardware described under "EXPLANATION:

Failures during Steps 01 and 02 primarily implicate this control unit (CU).

1. Force the other CU to boot.
2. Power cycle this CU and clear the EAI forces.

The DDSBS (failure during Step 03) PIC, and BIC (Step 04) are located in the DFC.

1. Force the other DFC to boot.
2. Power cycle this DFC and clear the EAI forces.

If this PRM continues, the faulty equipment must be replaced. Try replacing some of the hardware previously described.

F0da 220z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - unable to initialize the path to the selected disk file controller (DFC) or selected tape unit [DFC or input/output processor (IOP)]. This is a continuation of the initialization process. The previous steps have completed successfully. See PRM "F0da 210x" for their explanations.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Initialization sequence number. This number corresponds to the following step numbers in the "EXPLANATION section. However, if z = 0, then the sequence number is not reported (older microcode does not report the initialization sequence number).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The LDFT request will result in a disk being loaded with information that was stored on the tape. The combination of the disk and the DFC is called the selected boot device. The combination of the tape and the IOP, or the tape and the DFC is called the selected tape device. LDFT microcode failed to initialize the dual serial channel (DSCH) used by the direct memory access controller (DMAC) for accessing the selected boot device, or it failed to initialize the DMAC itself.

The following steps are executed to initialize the DMAC and the DSCH:

Step 01 A buffer interface controller (BIC) command to enable the peripheral interface controller (PIC) interface is loaded into the channel data register (CDR).

a. This command is sent to the PIC that is part of the selected boot device via the BIC.

b. All bits of the interrupt source (IS) register are cleared of interrupts (written to a 1). This is the last step in the sequence to initialize the path to the selected boot device.

Step 02 An initialization code is written to clear the channel "busy" indicator in the DMA.

a. A "DSCH initialization" command is sent to the primary DSCH (the DSCH for the selected tape device). The command contains a mask value to allow service requests to enter the DSCH from the selected tape device.

b. The final action in this step is to write the mask register in the primary DMA to allow interrupts from the tape channel.

Step 03 Two commands are sent to the duplex dual serial bus selector (DDSBS) to clear it and make it operational.

Step 04 Two BIC commands (a **clear** BIC and a **reset** PIC) are loaded into the channel data register (CDR). This command is sent to the BIC.

This PRM is printed when the I/O flags in the hardware status register (HSR) show that an error occurred during the previously mentioned sequence.

SHEET 57 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

Suspect the hardware described under "EXPLANATION:

Failures during Steps 01 and 02 primarily implicate this control unit (CU).

1. Force the other CU to boot.
2. Power cycle this CU and clear the EAI forces.

The DDSBS, BIC, and PIC (failure during Steps 03 and 04) are located in the selected tape device. The selected tape device will either be an input/output processor (IOP) or a DFC on the 3B21D computer only.

1. If possible, try another tape device.
2. Power cycle the selected unit and try again.

If this PRM continues, the faulty equipment must be replaced.

NOTE:
This PRM does not implicate the tape media.

SHEET 58 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

F0da 230z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

A. Load disk from tape (LDFT) - unable to initialize the path to the selected tape unit [disk file controller (DFC) or input/output processor (IOP)].

B. LDFT - direct memory access controller (DMAC) setup for tape failed. This is a continuation of the initialization process. The previous steps have completed successfully. See PRM "F0da 210z" and "F0da 220z" for their explanations.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Initialization sequence number. This number corresponds to the step numbers under "EXPLANATION." However, if z = 0, the sequence number is not reported (older microcode does not report the initialization sequence number).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The LDFT microcode will first enable the peripheral interface controller (PIC) interface (z = 7) and initialize the DMAC memory.

Step 07	A buffer interface controller (BIC) command to enable the PIC is loaded into the channel data register (CDR).

a. This command is sent to the PIC that is part of the selected tape device the via BIC.

b. All bits of the interrupt source (IS) register are cleared of interrupts (written to a 1). This is the last step in the sequence to initialize the path to the selected tape device.

Step 08 A small page table is created in the control unit (CU) main store.

a. The direct memory access (DMA) random access memory (RAM) for the selected tape device is written with information for a job.

b. DMAC RAM word 0 is written first with a pointer to an expanded page table.

c. Then DMAC RAM word 3 is written with the main store transfer address for this disk job.

This PRM is printed when the I/O flags in the hardware status register (HSR) show that an error occurred in the previously mentioned job.

CORRECTIVE ACTION

Suspect the hardware described under "EXPLANATION:

Failures during Step 08 primarily implicate this CU [either the DMAC or the main memory (MM)].

1. Force the other CU to boot.
2. Power cycle this CU and clear the emergency action interface (EAI) forces.

The selected tape device (failure during Step 07) is located in the input/output processor (IOP) or the DFC on the 3B21D computer only.

1. Select a different tape device.
2. Power cycle the implicated DFC/IOP and try again.

If this PRM continues, the faulty equipment must be replaced.

NOTE:
This PRM does not implicate the tape media.

SHEET 61 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

F0da 2400 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - quick system generation (SYSGEN) of input/output (I/O) processor failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

A special command is provided to the central control (CC) microcode to initialize the I/O processor for an LDFT. The command is sent to the I/O processor (IOP), and the CC microcode will wait 2 seconds for a job completion interrupt. Once the interrupt is received, the high-priority response register is read from main store. This data is put into main store by the IOP and indicates whether the job completed successfully. The CC microcode compares the high-priority response data with the correct response expected.

Therefore, there are two things that could cause this PRM: (1) the job timed out or (2) the response data was bad.

CORRECTIVE ACTION

Try using the other tape drive or fix the IOP.

F0da 2500 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - bad status from tape controller.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

Before issuing the rewind command, the central control (CC) microcode reads a status word from the tape controller. The status word indicates if the tape drive is powered up and if it is on-line.

The timeout for receiving the status is 2 seconds. This PRM indicates that the tape drive controller is bad, the tape drive is not powered up, or the tape drive may not be on-line.

CORRECTIVE ACTION

Check the tape drive first. If it appears OK, then examine the tape drive controller.

SHEET 63 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

F0da 2600 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - tape rewind failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

Something has stopped the tape from rewinding. The tape drive could have been powered down or taken off-line. If it is neither of these, then it is probably some hardware problem in the tape drive itself that is preventing the tape from rewinding. The microcode will wait up to 11 minutes for the tape to rewind.

CORRECTIVE ACTION

Try the other tape drive.

F0da 2700 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - tape read from LDFT header failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The central control (CC) microcode sent command to read the very first block from either a tape-only program (TOP) tape or a generic tape. The completion of the job failed either because of a bad completion code or due to a timeout. The microcode will wait 2 seconds before timing out.

CORRECTIVE ACTION

Try the other tape drive or try a different tape.

F0da 2800 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - bad LDFT header information.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The first block read in from the tape must be a LDFT header. The second word in this header must be a special key word used in all LDFT headers. If this key word is not there, then this is not an LDFT tape.

If the tape sequence number indicated in the header is zero, then this is a tape-only program (TOP) tape and the LDFT microcode will proceed with reading the rest of the data from the tape.

If the tape sequence number is not zero, then this is a generic tape or a data base tape and the microcode will exit to the LDFT software.

CORRECTIVE ACTION

Try to make another LDFT tape.

F0da 2900 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - tape read from microcode file failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The central control (CC) microcode, determined from the LDFT header read earlier that this is a tape-only program (TOP) tape and that a writable microcode file must be read. A read of a block of this writable CC microcode file from tape failed. The LDFT microcode will read 512 byte-blocks at a time until all microcode blocks have been read. Possible reasons for the failure are:

1. The microcode on the TOP tape is not compatible with the hardware [that is, loading very large main memory (VLMM) microcode on non-VLMM hardware] or the TOP tape is corrupted.
2. Tape drive hardware failure.

SHEET 67 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

1. Make a new TOP tape that is compatible with the hardware; that is, use a non-VLMM TOP tape with non-VLMM hardware.
2. Check the tape drive hardware.

F0da 2A00 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - invalid microcode file.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The data just read from the tape-only program (TOP) tape must be the writable microcode file to be pumped to the writable microstore. The microcode file has its own key word at the beginning plus the microstore starting address and the number of microcode words. This PRM indicates that the file is not a central control (CC) microcode file or that the file is not swabbed correctly.

CORRECTIVE ACTION

Make sure the TOP tape was built correctly.

F0da 2B00 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - tape read from LDFT header failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The central control (CC) microcode sent a command to read a block from the generic tape. The completion of the job failed either due to a bad completion code or due to a timeout. The microcode will wait 2 seconds before timing out.

CORRECTIVE ACTION

Try the other tape drive or try a different tape.

F0da 2C00 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - bad LDFT header information.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The next block read in from the tape must be a LDFT header. The second word in this header must be a special key word used in all LDFT headers. If this key word is not there, then this is not an LDFT tape.

CORRECTIVE ACTION

Try to make another LDFT tape.

F0da 2D00 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - tape read from LDFT software failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A read of a block of the LDFT software from tape failed. The LDFT microcode will read 512 byte-blocks at a time until all LDFT software blocks have been read. There is a possible bad tape or a tape drive problem.

CORRECTIVE ACTION

Try to make another LDFT tape.

F0da 2E00 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - bus interface controller (BIC) initialization or duplex dual serial bus selector (DDSBS) initialization for disk failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The DDSBS is initialized and then put into an operational mode. Then a BIC initialization command is sent to the BIC. This PRM is printed when the I/O flags in the hardware status register (HSR) show that either of the previously mentioned jobs had an error.

CORRECTIVE ACTION

Try a different BIC. Try a different DDSBS.

The DDSBS and BIC are part of the disk file controller (DFC).

F0da 2F00 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - peripheral interface controller (PIC) initialization for disk failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A PIC initialization command is sent to the PIC. This PRM is printed when the I/O flags in the hardware status register (HSR) show that an error occurred in the previously mentioned job.

CORRECTIVE ACTION

Try a different PIC.

The PIC is contained on the circuit boards comprising the disk file controller (DFC).

F0da 3000 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - no tape-only program (TOP) tape has been read.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This PRM is printed when the TOP tape must be read in again. If the TOP tape had been read in earlier and this PRM is printed, it means some sort of initialization other than an LDFT has been tried. To ensure that the LDFT software is correct in main store, the central control (CC) microcode forces the TOP tape to be read again.

CORRECTIVE ACTION

Mount the TOP tape and start an LDFT again.

SHEET 75 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

F0da 3100 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - control unit (CU) not forced.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The LDFT microcode requires that a CU be forced on the maintenance teletypewriter (MTTY). The microcode will continue to print this PRM until a CU is forced.

CORRECTIVE ACTION

Force a CU from the MTTY.

F0da 480z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - volume table of contents (VTOC) job - unable to initialize the path to disk file controller 1 (DFC 1) in a bootstrap.

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

z Initialization sequence number. This number corresponds to the step numbers under "EXPLANATION." However, if z = 0, the sequence number is not reported (older microcode does not report the initialization sequence number).

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Microboot failed to initialize the path of communication to DFC 1. Several steps under this PRM are executed to initialize the path:

Step 00 The sequence number has not been provided. The failure occurred during one of the following steps.

Step 01 Initialize the direct memory access input/output bus (DIO) for a bootstrap:

a. A clear error pulse is sent to direct memory access controller 0 (DMAC 0).

b. A DMAC initialization command is sent to DMAC 0.

c. If that works, a clear error pulse is sent to all dual serial channels (DSCHs) 11 through 14.

d. The same procedure is followed for DMAC 1 and DSCHs 16 through 19.

Sending the pulse to all channels can be done by loading the channel address register (CAR) with ones (1s). However, addressing multiple channels causes an I/O addressing error in the CC error register (ER). This error is immediately cleared.

Step 02 An initialization code is written to clear the channel "busy" indicator in the direct memory access (DMA).

a. A "DSCH initialization" command is sent to the primary DSCH (the DSCH for the selected boot device). The command will contain a mask value to allow service requests to enter the DSCH from the primary boot device.

b. The final action in this step is to write the mask register in the primary DMA to allow interrupts from the primary channel.

The DMAC was stopped by the previous steps. The microcode will now wait 300 milliseconds before initializing the DFC. This waiting period gives the DFC enough time to complete all its pending jobs. The delay also prevents the DFC from being stopped while writing to the disk.

Step 03 Two commands are sent to the duplex dual serial bus selector (DDSBS) to clear it and make it operational.

If any of these steps fail, this PRM is printed with the step number in variable "z".

CORRECTIVE ACTION

Suspect the hardware described under the "EXPLANATION section:

Failures during Steps 01 and 02 primarily implicate this control unit (CU).

1. Force the other CU to boot.
2. If the other CU does not recover, power cycle this CU and then clear the emergency action interface (EAI) forces.

The DDSBS (failure during Step 03) is located in the DFC.

1. Use the EAI options to force DFC 0 to boot.
2. If DFC 0 does not recover, power cycle DFC 1 and clear the EAI forces.

If this PRM continues, the faulty equipment must be replaced.

SHEET 79 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

F0da 4900 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - volume table of contents (VTOC) job - direct memory access controller (DMAC) setup failed using disk file controller 1 (DFC 1).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Microboot failed to set up the random access memory (RAM) words in the DMAC.

The first word written is DMAC RAM word 1 which contains the number of 16-word blocks to be transferred with this job. The value actually written is the 2s complement of the number of 16-word blocks previously described.

The second word written is DMAC RAM word 3. Word 3 is the main store transfer address for this disk job.

The third and last word written to the DMAC RAM is RAM word 2 which is the pointer to the page tables. The page table entries are created by microboot and map all virtual addresses used for this disk transfer to the same physical main store address.

SHEET 80 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

This PRM is printed when the I/O flags in the hardware status register (HSR) show that an error occurred in the previously mentioned job.

CORRECTIVE ACTION

Suspect the hardware described under "EXPLANATION."

Failures to set up the DMAC for DMA jobs primarily implicate this control unit (CU).

1. Force the other CU to boot.
2. If the other CU does not recover, replace the DMAC in this CU and clear the emergency action interface (EAI) forces.

SHEET 81 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

F0da 4A0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - volume table of contents (VTOC) job - initialization of the bus interface controller (BIC) in disk file controller 1 (DFC 1) failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The dual serial channel (DSCH) 3-out-of-6 code is loaded into the channel address register (CAR) and an initialize BIC command is loaded into the channel data register (CDR). This command is sent to DFC 1.

This PRM is printed when the I/O flags in the hardware status register (HSR) show an error occurred in this VTOC job.

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 0 to boot.

SHEET 82 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

2. If DFC 0 fails to recover, power cycle DFC 1 and clear the EAI forces.
3. If this failure continues, replace the peripheral interface controller (PIC).
4. If this failure continues, replace the BIC.
5. If this failure still continues, replace the duplex dual serial bus selector (DDSBS).

The PIC, BIC, and DDSBS are different circuit packs in the SMD DFC. The BIC and PIC are circuits within the host adapter (HA) circuit pack in the SCSI DFC.

F0da 4B0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode **FUNCTION**

Microboot - volume table of contents (VTOC) job - initialization of the peripheral interface controller (PIC) in disk file controller 1 (DFC 1) failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The dual serial channel (DSCH) 3-out-of-6 code is loaded into the channel address register (CAR), and an initialize PIC command is loaded into the channel data register (CDR). The command is sent to DFC 1.

This PRM is printed when the I/O flags in the hardware status register show that an error occurred in this VTOC job. This command is sent to the bus interface controller (BIC).

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 0 to boot.
2. If DFC 0 fails to recover, power cycle DFC 1 and clear the EAI forces.

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3. If this failure continues, replace the PIC.
4. If this failure continues, replace the BIC.
5. If this failure still continues, replace the duplex dual serial bus selector (DDSBS).

The PIC, BIC, and DDSBS are different circuit packs in the SMD DFC. The BIC and PIC are circuits within the host adapter (HA) circuit pack in the SCSI DFC.

F0da 4C0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - volume table of contents (VTOC) job - disk file controller (DFC) "boot" command failed using DFC 1.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The dual serial channel (DSCH) 3-out-of-6 code is loaded into the channel address register (CAR) and the DFC "boot" command is loaded into the channel data register (CDR). The command is sent to the DFC after successful initialization of the path to the DFC. This command starts the transfer of the VTOC from disk to main store.

This PRM is printed when the I/O flags in the hardware status register (HSR) show that an error has occurred in this VTOC job. This indicates problems with the disk or the data on the disk.

SHEET 86 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 0 to boot.
2. Make sure the disk is powered up, and if recent maintenance activity was performed, that it was done properly (cables not loose, correct ID plugs used, etc).
3. If these steps fail to resolve the problem, try a different disk.

SHEET 87 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

F0da 4D0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - volume table of contents (VTOC) job - read VTOC disk job timed out using disk file controller 1 (DFC 1).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The central control (CC) microcode has waited 2 seconds for an interrupt from the DFC indicating job completion. The CC microcode was waiting for bit 10 in the interrupt source (IS) register to become active as the indication of an interrupt from the DFC.

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 0 to boot.
2. Make sure the disk is powered up, and if recent maintenance activity was performed, that it was done properly (cables not loose, correct ID plugs used, etc.).

SHEET 88 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

3. If DFC 0 fails to recover, clear the EAI forces.
4. If these steps fail to resolve the problem, try a different system disk.
5. If this failure continues, replace the peripheral interface controller (PIC).

The PIC is a circuit pack in the SMD DFC. The PIC is a circuit within the host adapter (HA) circuit pack in the SCSI DFC.

F0da 4E0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode **FUNCTION**

Microboot - volume table of contents (VTOC) job - read VTOC disk job errors using disk file controller 1 (DFC 1).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The central control (CC) microcode has received the interrupt from the DFC and must determine if the job completed successfully.

The CC microcode attempts to clear the job completion interrupt in the bus interface controller (BIC) of the DFC. Once this is completed, the interrupt is cleared in the control unit (CU).

Status words are read from both the BIC and DFC. If either status word indicates an error or the I/O flags in the hardware status register (HSR) show that an error occurred in this VTOC job, then this PRM is printed and the CU executes a maintenance reset function (MRF).

This PRM can also be printed when the I/O flags in the HSR show that an error occurred in this VTOC job.

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CORRECTIVE ACTION

1. Use the emergency action interface (EAI) to force different DFC and CU combinations.
2. If this PRM is reported from both CUs (PRM 0 F000 4E... and PRM 1 F000 4E...), the problem could be caused by a hardware fault in the DFC.
3. If the same PRM is reported from one CU and both DFC 0 and 1 (that is, PRM 1 F000 4E... and PRM 1 F000 0E...), the problem could be caused by a hardware fault in the direct memory access controller (DMAC) or the dual serial channel (DSCH).
4. If the same PRM is reported from both CU and both DFCs (that is, PRM x F000 4E... and PRM x F000 0E...), the problem could be caused by stray interrupts from other devices connected to this DSCH. Stray interrupts are often caused by broken circuit packs or software problems.
5. Try replacing the various implicated circuit packs. In the case of possible stray interrupts, use the EAI to force a boot configuration and power down unneeded units that are connected to the DSCH (for example, one IOP and the other DFC).

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F0da 4F0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - volume table of contents (VTOC) job - read VTOC disk job successfully using disk file controller 1 (DFC 1), but it does not have a little boot partition.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Boot device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected for the boot.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

This PRM appears only on the 3B21D computer.

The central control (CC) microcode examines the VTOC entries and searches for the primary little boot partition. Since the VTOC was read successfully, the failure to find the little boot partition probably indicates this disk is not a system disk, or the disk has been damaged.

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 0 to boot.
2. If these steps fail to resolve the problem, try a different system disk [a warm or cold spare or use load disk from tape (LDFT) to build a system disk].

F0da 500z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode **FUNCTION**

Microboot - writable central control (CC) microcode job - extract information from volume table of contents (VTOC) for disk file controller (DFC) 1.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

Microboot has read the VTOC and found the lboot partition entry. Now it will extract the following information in the little boot entry (which is now in main memory):

- The size of the lboot file (v_lsize)
- The size of the lboot partition (v_nblks)
- Determine the size of writable microcode portion of the partition (v_nblks - v_lsize)
- The starting disk block of the lboot file (v_startblk)

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- The starting disk block of the writable microcode (v_startblk + v_lsize)
- The main memory physical address to load the little boot (v_load).

If any of the previous steps fail, then this PRM is printed.

CORRECTIVE ACTION

The information has already been loaded into memory and no disk jobs are performed. Therefore, the implicated hardware is this control unit (CU).

1. Use the emergency action interface (EAI) options to force the other CU to boot.
2. If the other CU does not recover, power cycle this CU and then clear the EAI forces.
3. If this CU still is reporting this PRM and the DFC 0 version of this PRM (PRM p 1000...), replace the main memory (MM) on the 3B21D computer only, followed by the CC on the 3B21D computer only.
4. On the 3B20D computer only, replace the main store controller (MASC), data manipulation unit (DMU), store address control (SAC), the module control unit (MCU), and main store update (MASU).

F0da 510z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - writable central control (CC) microcode job - direct memory access controller (DMAC) setup failed using disk file controller 1 (DFC 1).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	SCSI device identification information. This digit indicates the small computer system interface (SCSI) bus device [or the storage module device (SMD) "ID Plug"] selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

Microboot failed to set up the random access memory (RAM) words in the DMAC.

The first word written is DMAC RAM word 1 which contains the number of 16-word blocks to be transferred with this job. The value actually written is the 2s complement of the number of 16-word blocks described previously.

The second word written is DMAC RAM word 3. Word 3 is the main store transfer address for this disk job.

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The third and last word written to the DMAC RAM is RAM word 2 which is the pointer to the page tables. The page table entries were created by microboot and maps all virtual addresses used for this disk transfer to the same physical main store address.

This PRM is printed when the I/O flags in the hardware status register (HSR) show that this CC microcode job had an error.

CORRECTIVE ACTION

Failures to set up the DMAC for DMA jobs primarily implicate this CU.

1. Force the other CU to boot.
2. If the other CU does not recover, replace the DMAC in this CU and then clear the emergency action interface (EAI) forces.

F0da 540z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - writable central control (CC) microcode job - disk file controller (DFC) "boot" command failed using DFC 1.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The dual serial channel (DSCH) 3-out-of-6 code is loaded into the channel address register (CAR), and the DFC "boot" command is loaded into the channel data register (CDR). The disk address of a microcode block is contained in the command. The command is sent to the DFC. This command starts the transfer of writable microcode from disk to main store.

This PRM is printed when the I/O flags in the hardware status register (HSR) show that an error occurred in this CC microcode job.

SHEET 98 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 1 to boot.
2. If DFC 1 fails to recover, power cycle DFC 0 and clear the EAI forces.
3. If this failure continues, replace the peripheral interface controller (PIC).
4. If this failure continues, replace the bus interface controller (BIC).
5. If this failure still continues, replace the duplex dual serial bus selector (DDSBS).

The PIC, BIC, and DDSBS are different circuit packs in the SMD DFC. The BIC and PIC are circuits within the host adapter (HA) circuit pack in the SCSI DFC.

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F0da 550z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - writable central control (CC) microcode job - read microcode disk job timed out using disk file controller 1 (DFC 1).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This device indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The central control (CC) microcode has waited 2 seconds for an interrupt from the DFC indicating job completion. The CC microcode was waiting for bit 10 in the interrupt source (IS) register to become active as the indication of an interrupt from the DFC.

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 0 to boot.
2. If DFC 0 fails to recover, power cycle DFC 1 and clear the EAI forces.

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3. If this failure continues, replace the peripheral interface controller (PIC).
4. If this failure continues, replace the bus interface controller (BIC).
5. If this failure still continues, replace the duplex dual serial bus selector (DDSBS).

The PIC, BIC, and DDSBS are different circuit packs in the SMD DFC. The BIC and PIC are circuits within the host adapter (HA) circuit pack in the SCSI DFC.

SHEET 101 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

F0da 560z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - writable central control (CC) microcode job - read microcode disk job errors using disk file controller 1 (DFC 1).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The central control (CC) microcode has received the interrupt from the DFC and must determine if the job completed successfully.

The CC microcode attempts to clear the job completion interrupt in the bus interface controller (BIC) of the DFC. Then the interrupt is cleared in the control unit (CU).

Status words are read from both the BIC and DFC. If either status word indicates an error or the I/O flags in the hardware status register (HSR) show that an error occurred in the CC microcode job, then this PRM is printed and the CU executes a maintenance reset function (MRF).

SHEET 102 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force the other CU to bootstrap.
2. If the same failure occurs, the implicated hardware [the peripheral interface controller (PIC) and the BIC] is in DFC 1. Therefore, use the EAI option to select DFC 0.
3. Otherwise, if this CU prints this PRM and the DFC 0 version (PRM p 160z...), suspect the direct memory access controller/dual serial channel (DMAC/DSCH) hardware.
4. In this case, try to boot from the other CU.

F0da 570z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - writable central control (CC) microcode job - bad CC microcode file from disk file controller 1 (DFC 1).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The writable CC microcode file has been read from disk. The first 32 bits of the microcode file contain a key word used to ensure that the file is a valid writable microcode file.

The file is not a valid writable microcode file.

SHEET 104 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 0 to boot.
2. Make sure the disk is powered up, and if recent maintenance activity was performed, that it was done properly (cables not loose, correct ID plugs used, and so forth.).
3. If these steps fail to resolve the problem, try a different disk [a warm or cold spare or build a disk using load disk from tape (LDFT)].

F0da 580z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - little boot job - error while preparing to read little boot file from disk file controller 1 (DFC 1).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

After reading the writable microcode from the little boot partition, the microboot program reads the little boot program into main store. The PRM indicates a problem at the beginning of that procedure prior to the DMA setup.

CORRECTIVE ACTION

1. If the PRM continues to be output, use the emergency action interface (EAI) options to force DFC 0 to boot.
2. If the problem continues, try a different disk [a warm or cold spare or build a disk using load disk from tape (LDFT)].

F0da 590z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - little boot job - direct memory access controller (DMAC) setup failed using disk file controller 1 (DFC 1).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

Microboot failed to set up the random access memory (RAM) words in the DMAC.

The first word written is DMAC RAM word 1 which contains the number of 16-word blocks to be transferred with the job. The value actually written is the 2s complement of the number of 16-word blocks previously described.

The second word written is DMAC RAM word 3. Word 3 is the main store transfer address for this disk job.

SHEET 107 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

The third and last word written to the DMAC RAM is RAM word 2 which is the pointer to the page tables. The page table entries were created by microboot and map all virtual addresses used for this disk transfer to the same physical main store address.

This PRM is printed when the I/O flags in the hardware status register (HSR) show that an error occurred in the little boot job.

CORRECTIVE ACTION

Failures to set up the DMAC for DMA jobs primarily implicate this control unit (CU).

1. Force the other CU to boot.
2. If the other CU does not recover, replace the DMAC in this CU and then clear the emergency action interface (EAI) forces.

F0da 5C0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - little boot job - disk file controller (DFC) "boot" command failed using DFC 1.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The dual serial channel (DSCH) 3-out-of-6 code is loaded into the channel address register (CAR), and the DFC "boot" command is loaded into the channel data register (CDR). The starting disk address of little boot is contained in the command. The command is sent to the DFC. This command starts the transfer of little boot from disk to main store.

This PRM is printed when the I/O flags in the hardware status register (HSR) show that an error occurred in the read little boot job.

SHEET 109 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 0 to boot.
2. If DFC 0 fails to recover, power cycle DFC 1 and clear the EAI forces.
3. If this failure continues, replace the peripheral interface controller (PIC). The PIC is a circuit pack in the SMD DFC. The PIC is a circuit within the host adapter (HA) circuit pack in the SCSI DFC.
4. If this failure continues try a different disk [warm or cold spare or build a disk using load disk from tape (LDFT)].

F0da 5D0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - little boot job - read little boot disk job timed out using disk file controller 1 (DFC 1).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The central control (CC) microcode has waited 2 seconds for an interrupt from the DFC indicating job completion. The CC microcode was waiting for bit 10 in the interrupt source (IS) register to become active as the indication of an interrupt from the DFC.

SHEET 111 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 0 to boot.
2. If DFC 0 fails to recover, power cycle DFC 1 and clear the EAI forces.
3. If this failure continues, replace the peripheral interface controller (PIC).
4. If this failure continues, replace the bus interface controller (BIC).
5. If this failure continues, replace the duplex dual serial bus selector (DDSBS).

The PIC, BIC, and DDSBS are different circuit packs in the SMD DFC. The BIC and PIC are circuits within the host adapter (HA) circuit pack in the SCSI DFC.

F0da 5E0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - little boot job - read little boot disk job errors using disk file controller 1 (DFC 1).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The central control (CC) microcode has received the interrupt from the DFC and now must determine if the job completed successfully.

The CC microcode first attempts to clear the job completion interrupt in the bus interface controller (BIC) of the DFC. Then the interrupt is cleared in the control unit (CU).

Status words are read from both the BIC and DFC. If either status word indicates an error or the I/O flags in the hardware status register (HSR) show that an error occurred in the read little boot disk job, then this PRM is printed and the CU executes a maintenance reset function (MRF).

SHEET 113 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 0 to boot.
2. If DFC 0 fails to recover, power cycle DFC 1 and clear the EAI forces.
3. If this failure continues, try a different disk [warm or cold spare or build a disk using load disk from tape (LDFT)].

F0da 5F0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Writable microstore loaded from disk and programmable read-only memory (PROM) version of microcode are incompatible.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
z	Device identification information. This digit indicates the small computer system interface (SCSI) bus device or the storage module device (SMD) "ID plug" selected to be the boot device (system disk).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The microcode read and loaded into writable microstore is incompatible with the PROM microcode. For example, the PROM version is for non-very large main memory (NVLMM) hardware and the writable version is for VLMM hardware.

SHEET 115 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

The correct microcode pump file matching the PROM board must be resident in writable microstore. The writable microcode pump file loaded must be replaced with the correct version, or the correct PROM board must be installed. If the process running is load disk from tape (LDFT), the wrong tape-only program (TOP) tape is probably being used. If this PRM is seen during a boot, the correct version of little boot must be placed in the little boot partition before the processor will boot.

SHEET 116 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

F0da 6000 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

The microcode read and loaded into writable microstore is incompatible with the programmable read-only memory (PROM) microcode.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The microcode read and loaded into writable microstore is incompatible with the PROM microcode. The PROM version is for very large main memory (VLMM) hardware and the writable version is for non-VLMM hardware.

CORRECTIVE ACTION

The correct microcode pump file matching the PROM board must be resident in writable microstore. The writable microcode pump file loaded must be replaced with the correct version, or the correct PROM board must be installed. If the process running is load disk from tape (LDFT), the wrong tape-only program (TOP) tape is probably being used. If this PRM is seen during a boot, the correct version of little boot must be placed in the little boot partition before the processor will boot.

SHEET 117 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

F0da 6100 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

The Kernel Stack in Cache feature is enabled preventing the boot sequence from completing.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

During the boot process, microcode has checked and determined hardware straps have the Kernel Stack in Cache feature enabled.

CORRECTIVE ACTION

The backplane straps making the Kernel Stack in Cache feature active must be removed before the processor will boot. Straps that must be removed are 110-149 and 110-047 where 110 designates the un45 or un612 pack.

SHEET 118 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

F0da 61yz 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - initial load command of the tape failed or timed out.

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

y LDFT selection information. It indicates the disk file controller (DFC) selected to access the small computer system interface (SCSI) tape device:

0 => DFC 0, 1 => DFC 1.

z Tape device identification information. This indicates the SCSI bus device selected to be the SCSI tape unit.

hh hh hh Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

This PRM appears only on a 3B21D computer.

The central control (CC) microcode sent a command to load the SCSI tape. First, the "load tape job" command is sent to the device indicated by "z". Either the command did not finish with the I/O normal flag set in the hardware status register (HSR), or the completion of the job failed due to a time-out. The microcode waits 10 minutes before timing out.

SHEET 119 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

Make sure the tape drive is powered up and on-line. Otherwise, the problem could be (in order): tape drive controller, the tape drive, the power supply unit for the Disk File Controller (DFC) the tape drive is connected to, or the DFC circuit packs.

SHEET 120 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

F0da 62yz 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - initial tape load of tape job failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y	LDFT selection information. It indicates the disk file controller (DFC) selected to access the small computer system interface (SCSI) tape device: 0 => DFC 0, 1 => DFC 1.
z	Tape device identification information. This indicates the SCSI bus device selected to be the SCSI tape unit.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

This PRM appears only on a 3B21D computer.

The central control (CC) microcode sent a command to load the SCSI tape. The job completed but failed because of a bad completion code.

CORRECTIVE ACTION

Make sure the tape drive is powered up and on-line. Otherwise, the problem could be (in order): tape drive controller, the tape drive, the power supply unit for the Disk File Controller (DFC) the tape drive is connected to, or the DFC circuit packs.

SHEET 121 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

F0da 63yz 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - initial rewind command of the tape failed or timed out.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y	LDFT selection information. It indicates the disk file controller (DFC) selected to access the small computer system interface (SCSI) tape device: 0 => DFC 0, 1 => DFC 1.
z	Tape device identification information. This indicates the SCSI bus device selected to be the SCSI tape unit.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

This PRM appears only on a 3B21D computer.

The central control (CC) microcode sent command to rewind the SCSI tape—either a tape-only program (TOP) tape or a generic tape (software release). First, the "rewind tape job" command is sent to the device indicated by "z". Either the command did not finish with the I/O normal flag set in the hardware status register (HSR), or the completion of the job failed due to a time-out. The microcode waits 10 minutes before timing out.

SHEET 122 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

Make sure the tape drive is powered up and on-line, or try the other tape drive.

F0da 64yz 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - initial tape rewind of tape job failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y	LDFT selection information. It indicates the disk file controller (DFC) selected to access the small computer system interface (SCSI) tape device: 0 => DFC 0, 1 => DFC 1.
z	Tape device identification information. This indicates the SCSI bus device selected to be the SCSI tape unit.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

This PRM only appears on a 3B21D computer.

The central control (CC) microcode sent command to rewind the SCSI tape either a tape-only program (TOP) tape or a generic tape (software release). The job completed but failed because of a bad completion code.

SHEET 124 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

Make sure the tape drive is powered up and on-line or try the other tape drive or a different tape.

F0da 65yz 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - tape read from file header record failed or timed out.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y	LDFT selection information. It indicates the disk file controller (DFC) selected to access the small computer system interface (SCSI) tape device: 0 => DFC 0, 1 => DFC 1.
z	Tape device identification information. This indicates the SCSI bus device selected to be the SCSI tape unit.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

This PRM only appears on a 3B21D computer.

The central control (CC) microcode sent the device "z" a "read block job" command. This command will read the very first block (tape header information) from either a tape-only program (TOP) tape or a generic tape. Either the command did not complete normally or the job did not complete due to a time-out. The microcode waits 10 minutes before timing out.

SHEET 126 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

1. Make sure the tape drive is powered up and on-line. This microcode sequence is the first to use the main memory; therefore, use the emergency action interface (EAI) options to force the other CU to boot.
2. If the same failure occurs, try the other tape drive.
3. If the same failure continues, try a different tape.

F0da 66yz 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - tape read from file header record failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y	LDFT selection information. It indicates the disk file controller (DFC) selected to access the small computer system interface (SCSI) tape device: 0 => DFC 0, 1 => DFC 1.
z	Tape device identification information. This indicates the SCSI bus device selected to be the SCSI tape unit.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The central control (CC) microcode sent a command to read the very first block from either a tape-only program (TOP) tape or a generic tape (software release). The job completed but failed because of a bad completion code.

CORRECTIVE ACTION

Try the other tape drive or a different tape.

F0da 67yz 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - bad file header record information.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y	LDFT selection information. It indicates the disk file controller (DFC) selected to access the small computer system interface (SCSI) tape device: 0 => DFC 0, 1 => DFC 1.
z	Tape device identification information. This indicates the SCSI bus device selected to be the SCSI tape unit.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The first block read in from the tape must be an LDFT header. The second word in this header must be a special key word used in all LDFT headers. If this key word is not there, then this is not an LDFT tape, and the LDFT attempt must fail and this PRM is printed. This header check also identifies a zero length writable microcode file which also results in this failing PRM (however, this is not likely to occur).

SHEET 129 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

If the tape sequence number indicated in the header is zero, then this is a tape-only program (TOP) tape and the LDFT microcode will proceed with reading the rest of the data from the tape.

If the tape sequence number is not zero, then this is a generic tape or a database tape and the microcode will exit to the LDFT software.

CORRECTIVE ACTION

If the failure implicates the tape or the data on the tape, use a different LDFT tape.

F0da 68yz 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - command to skip to end-of-file (EOF) marker on a LDFT tape failed or timed out.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y	LDFT selection information. It indicates the disk file controller (DFC) selected to access the SCSI tape device: 0 => DFC 0, 1 => DFC 1.
z	Tape device identification information. This indicates the SCSI bus device selected to be the SCSI tape unit.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The central control (CC) microcode determined from the file header record read earlier that this is a tape-only program (TOP) tape with 3B20D computer information. However, the tape may contain 3B21D computer information after the EOF marker for the 3B20D computer information. Therefore, the LDFT microcode sent the command "seek EOF job" to the device (z). Either the command did not finish with the I/O normal flag set in the hardware status register (HSR) or the job timed out.

SHEET 131 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

Try a different tape or tape drive device.

F0da 69yz 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - job to skip to end-of-file (EOF) marker job failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y	LDFT selection information. It indicates the disk file controller (DFC) selected to access the small computer system interface (SCSI) tape device: 0 => DFC 0, 1 => DFC 1.
z	Tape device identification information. This indicates the SCSI bus device selected to be the SCSI tape unit.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The central control (CC) microcode, determined from the file header record read earlier that this is a tape-only program (TOP) tape with 3B20D computer information. However, the tape may contain 3B21D computer information after the EOF marker for the 3B20D computer information. Therefore, the LDFT microcode sent the command "seek EOF job" to the device (z). The job completed but failed because of a bad completion code.

SHEET 133 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

Try a different tape or tape drive device.

SHEET 134 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

F0da 6Ayz 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - tape read from microcode file command failed or timed out.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y	LDFT selection information. It indicates the disk file controller (DFC) selected to access the small computer system interface (SCSI) tape device: 0 => DFC 0, 1 => DFC 1.
z	Tape device identification information. This indicates the SCSI bus device selected to be the SCSI tape unit.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The central control (CC) microcode determined from the LDFT header read earlier that this is a tape-only program (TOP) tape and that a writable microcode file must be read. A command for "read a block job" was sent to the SCSI device (z) to read a block of this writable CC microcode file. Either the command failed or timed out. The LDFT microcode will read 512 byte-blocks at a time until all microcode blocks have been read.

SHEET 135 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force the other CU to boot.
2. Try a different tape or a different tape device.

SHEET 136 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

F0da 6Byz 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - tape read from microcode job file failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y	LDFT selection information. It indicates the disk file controller (DFC) selected to access the small computer system interface (SCSI) tape device: 0 => DFC 0, 1 => DFC 1.
z	Tape device identification information. This indicates the SCSI bus device selected to be the SCSI tape unit.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The central control (CC) microcode, determined from the LDFT header read earlier that this is a tape-only program (TOP) tape and that a writable microcode file must be read. A command for "read a block job" was sent to the SCSI device (z) to read a block of this writable CC microcode file. The job completed but failed with a bad completion code. The LDFT microcode reads 512 byte-blocks at a time until all microcode blocks have been read.

SHEET 137 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force the other control unit (CU) to boot.
2. Try a different tape or a different tape device.

SHEET 138 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

F0da 6Cyz 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - invalid microcode file.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y	Tape device selection information. It indicates the disk file controller (DFC) selected: 0 => DFC 0, 1=> DFC 0.
z	Tape device identification information. This indicates the small computer system interface (SCSI) bus device identification number selected for the tape device.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The data just read from the tape-only program (TOP) tape must be the writable microcode file to be pumped to the writable microstore. The microcode file has its own key word at the beginning plus the microstore starting address and the number of microcode words. This PRM indicates that (a) the file is not a 3B21D computer central control (CC) microcode file, or (b) the file has been damaged.

CORRECTIVE ACTION

Try a different TOP tape.

F0da 6Dyz 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - tape read from LDFT software file header command failed or timed out.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y	LDFT selection information. It indicates the disk file controller (DFC) selected to access the small computer system interface (SCSI) tape device: 0 => DFC 0, 1 => DFC 1.
z	Tape device identification information. This indicates the SCSI bus device selected to be the SCSI tape unit.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The central control (CC) microcode sent a command to read the block containing the LDFT software file header from the tape-only program (TOP) tape. The command did not complete with the I/O normal or failed due to a time-out. The microcode will wait 10 minutes before timing out.

CORRECTIVE ACTION

Try the other tape drive or a different tape.

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - tape read from LDFT software file header job failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y	LDFT selection information. It indicates the disk file controller (DFC) selected to access the small computer system interface (SCSI) tape device: 0 => DFC 0, 1 => DFC 1.
z	Tape device identification information. This indicates the SCSI bus device selected to be the SCSI tape unit.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The central control (CC) microcode sent a command to read the block containing the LDFT software file header from the tape-only program (TOP) tape. The read job completed but failed because of a bad completion code.

CORRECTIVE ACTION

Try the other tape drive or a different tape.

SHEET 141 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

F0da 6Fyz 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - bad LDFT software header information.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y	LDFT selection information. It indicates the disk file controller (DFC) selected to access the small computer system interface (SCSI) tape device: 0 => DFC 0, 1 => DFC 1.
z	Tape device identification information. This indicates the SCSI bus device selected to be the SCSI tape unit.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The tape-only program (TOP) tape contains the writable microstore and LDFT software (the program used to read in the LDFT tapes). The next block read in from the tape must be an LDFT software header. The second word in this header must be a special key word used in all LDFT headers. If this key word is not there, then this is not an LDFT tape.

CORRECTIVE ACTION

Try another TOP tape.

SHEET 142 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

F0da 70yz 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode (test)

FUNCTION

Load disk from tape (LDFT) - tape read from LDFT software command failed or timed out.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y	LDFT selection information. It indicates the disk file controller (DFC) selected to access the small computer system interface (SCSI) tape device: 0 => DFC 0, 1 => DFC 1.
z	Tape device identification information. This indicates the SCSI bus device selected to be the SCSI tape unit.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The central control (CC) microcode, determined from the LDFT header read earlier that this is a tape-only program (TOP) tape and that a writable microcode and LDFT software files must be read. The microcode files have been read in and copied to writable microstore. Now the LDFT software must be read. A command for "read a block job" was sent to the SCSI device (z) to read a block of this LDFT software file. The command did not complete with the I/O normal or failed due to a

SHEET 143 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

time-out. The microcode waits 10 minutes before timing out. The LDFT microcode will read 512 byte-blocks at a time until all LDFT software blocks have been read.

CORRECTIVE ACTION

Try the other tape drive or a different tape.

F0da 71yz 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - tape read from LDFT software failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y	LDFT selection information. It indicates the disk file controller (DFC) selected to access the small computer system interface (SCSI) tape device: 0 => DFC 0, 1 => DFC 1.
z	Tape device identification information. This indicates the SCSI bus device selected to be the SCSI tape unit.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The central control (CC) microcode determined from the LDFT header read earlier that this is a tape-only program (TOP) tape and that a writable microcode and LDFT software files must be read. The microcode files has been read in and copied to writable microstore. Now the LDFT software must be read. A command for "read a block job" was sent to the SCSI device (z) to read a block of this LDFT software file. The job completed but failed because of a bad completion code. The LDFT microcode reads 512 byte-blocks at a time until all LDFT software blocks have been read.

SHEET 145 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

Try the other tape drive or a different tape.

F0da FF04 xx00 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

EAI Firmware - emergency action interface (EAI) error detected.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Contents of EAI error register.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

One of the functions of the 3B21D computer EAI is that its firmware generates a failing PRM when an error is detected by the EAI, either in its own operation or on its hardware outputs. The PRMs are encoded as failing "Processor Initialization Microcode" type of messages, although they are generated by the EAI firmware.

The PRM is intended to record the occurrence of errors from the EAI circuit both on power up and during run-time, thus alerting the craft. Although an EAI error in an active control unit (CU) is not severe enough to warrant the system to immediately switch processors, the fault could escalate to a point where the craft may be prevented by the faulty EAI from taking normal system control action or taking manual recovery actions due to some other system emergency.

SHEET 147 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

To help prevent this situation from occurring, the CU is interrupted when an error is detected. The EIH (fault recovery software process - error interrupt handler) will clear the error, and then it may take fault recovery

actions based on whether the error threshold for that EAI's has been exceeded. Recovery actions that the EIH could undertake include: resetting the EAI, disabling the EAI, and isolating it from the CU.

The following table defines the contents of the "xx" field for each type of EAI error condition that is checked. Note that when multiple error conditions are present in the EAI error register, a single PRM may be generated by the EAIs firmware that is composed of the bit-wise "OR" of two or more register encodings from the table.

EAI Error Bits	Error Condition	Register Encoding (xx)
0	EAI random access memory (RAM) parity error detected	H'01
1	Sanity time-out error detected	H'02
2	Microprocessor exception trap or a disallowed interrupt detected	H'04
3	RAM diagnostic self-test failure detected	H'08
4	Programmable read-only memory (PROM) checksum self-test failure detected	H'10
5	Serial communication controller initialization error detected	H'20
6	Serial communication controller data loopback self-test failure	H'40
7	EAI internal/output hardware error detected	H'80

SHEET 149 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

When this PRM is generated from the standby or off-line CU (for example, when it is powered up), run diagnostics and replace the central control (CC) board (KLW31 or equivalent), if necessary.

When this PRM is generated from the on-line CU, no action is required unless:

- The EAI page on the maintenance teletypewriter (MTTY) displays out of service (OOS) or error status for that EAI.
- When EAI PRMs have been printed frequently and/or numerously.

If one of the previously mentioned conditions applies to the on-line EAI, then the CC board (KLW31 or equivalent) should be replaced as soon as possible following normal maintenance procedures.

When the MTTY displays OOS or error status for the EAI, also check and/or reseat the cables between the faulty EAI and the maintenance teletypewriter controllers (MTTYCs) (TN983 or equivalent), and see if this clears the problem.

Identifier 1 - LBOOT and LDFT PRMs

3C

Contents

LBOOT and LDFT PRMs 3C-1

Identifier 1 - LBOOT and LDFT PRMs

3C

LBOOT and LDFT PRMs

The Identifier 1 is shared by little boot (LBOOT) and load disk from tape (LDFT).

LBOOT and LDFT produce processor recovery messages reporting failures to read from tape; others are printed when a boot from a disk fails.

F1da 0100 0000 xyyy hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Initializing the bus interface controller (BIC) of the boot disk file controller (DFC).

Dual serial channel (DSCH) status consists of 13 bits which are the least significant bits of digit 12 (x) along with all bits of digits 13-15 (yyy).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The BIC associated with the boot device is being initialized. This device connects to DSCH 11 of the direct memory access controller (DMAC) 0. The channel reported a failure.

CORRECTIVE ACTION

Start replacing the associated DMAC dual serial channel circuit pack, the duplex dual serial bus selector pack of the DFC, and the BIC of the DFC, in the order listed, until the repair is made and the system boots. In the SCSI DFC, the BIC is part of the host adapter (HA) circuit packs of the DFC.

F1da 0400 0000 xxxx hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Initializing the peripheral interface controller (PIC) of the boot disk file controller (DFC).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx	Bus interface controller (BIC) status consists of 16 bits which are specified in digits 12-15 (xxxx).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The PIC associated with the boot device is being initialized.

CORRECTIVE ACTION

Start replacing the associated direct memory access controller (DMAC) duplex dual serial channel (DDSCH) circuit pack, the duplex dual serial bus selector (DDSBS) pack of the DFC, the BIC and the PIC of the DFC, in the order listed, until the repair is made and the system boots. In the SCSI DFC, the BIC and PIC are part of the host adapter (HA) circuit boards of the DFC.

F1da 0500 0000 0000 hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Failed to find the Big Boot file entry in the disk volume table of contents (VTOC).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

Block 0 on each disk is the VTOC for that disk. The VTOC is searched to locate the entry for the big boot file associated with the generic that is being used to boot (either the current generic or the backup generic). The VTOC search was not successful.

CORRECTIVE ACTION

If the machine will not boot using either boot disk file controller, try booting from the generic not currently being used. If this is not successful and this failing PRM is obtained and if disk packs are used as the backup medium rather than tape, load a backup disk pack and try to boot using it. If tape is the backup medium, load the boot disk using the LDFT feature.

F1da 0700 0000 yyyy hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Initializing the direct memory access controller (DMAC) random access memory (RAM).

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active. Dual serial channel (DSCH) status (yyyy).

hh hh hh Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The RAM in DMAC 0 associated with the boot device connected is being initialized.

CORRECTIVE ACTION

Replace the circuit packs associated with DMAC 0 in the control unit (CU) that produced the PRM.

F1da 0A00 00xx 0000 hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Failed to find an entry in the disk volume table of contents (VTOC).

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

The VTOC entry whose flag is specified in digits 10 and 11 (xx) was not located. Flag definitions are the following:

H'09	VTOC itself
H'02	Big boot partition for current or backup generic
H'03	Root partition file for current or backup generic
H'05	Panic dump partition
H'06	Equipment configuration database (ECD) and system generated (SG) database for current or backup generic
H'07	System update log and plant measurements database (ETC partition)

hh hh hh Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

Block 0 on each disk is the VTOC for that disk. The VTOC is searched to locate certain entries that are to be saved. The VTOC search was not successful.

CORRECTIVE ACTION

If the machine will not boot using either boot disk file controller, try booting from the generic not currently being used (if a backup generic is provided). If this is not successful and this failing PRM is obtained and if disk packs are used as the backup medium rather than tape, load a backup disk pack and try to boot using it. If tape is the backup medium, load the boot disk using the LDFT feature.

SHEET 7 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

F1da 0B00 0000 0000 hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Disk job timed out.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The disk file controller (DFC) did not complete a disk job

CORRECTIVE ACTION

Replace circuit boards associated with the DFC. If this does not correct the problem, replace direct memory access controller (DMAC) boards in the control unit (CU) that produced this PRM.

F1da 10ww xxxx y00z hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Disk job failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
ww	Disk completion code consists of digits 6 and 7 (ww).
xxxx	Bits 16-31 of the moving head disk (MHD) status word are digits 8-11 (xxxx).
y	Disk job 0 failure data autonomous response code, when not 0, is digit 12 (y).
z	Digit 15 (z) is the disk file controller (DFC) being used.

Errors associated with w, x, and y are defined in multiple tables in the *3B20D and 3B21D Computers **UNIX** RTR Operating System Output Messages Manual Supplementary Information* ; document 254-303-111, *PDS Output Messages Manual*; or document 254-303-113, *MML Output Messages Manual*.

EXPLANATION

The programmed I/O boot command was sent to the DFC. The disk job was not done successfully.

CORRECTIVE ACTION

The following disk completion codes indicate a DFC failure. Therefore, the DFC circuit packs should be replaced one at a time, until the repair is complete:

81	9F	A1	9D	B3	BF
99	9B	B1	AF	A3	

The following disk completion codes indicate an MHD failure, and the repair procedures for MHDs should be followed:

83	85	89	8B	8D	8F	91	93	95	97
A7	A9	AB	AD	B5	BB	BD	C1	C3	C5
C7	C9	CB	CD	CF	D1	D3			

The following disk completion codes indicate either a DFC failure or an MHD failure:

8B	A7	A9	AB	AD	AF	BB			
C1	C3	C5	C7	C9	CB	CD	CF	D1	D3

When this failure occurs, replace the circuit packs in the DFC that are associated with disk data error checking. If the failure is not corrected, follow the repair procedures for an MHD failure.

Disk completion code B7 indicates a failure in the direct memory access controller (DMAC) circuitry or the associated channel circuitry; and these circuits should be replaced, one at a time, until the repair is made.

F1da 2000 xxxx xxxx hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Page table initialization routine called with invalid parameter.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx xxxx	Digits 8-15 (xxxx xxxx) specify the number of page table entries which called the routine.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

There can be from 1 to 64 entries in a page table. The initialization routine was called to initialize an illegal number of entries. The number of entries was determined from the inode corresponding to the

CORRECTIVE ACTION

If the system will not boot from either boot device, try booting on the other root system (backup if current was being used or vice versa) or the other configuration (minimum if normal was being used or vice versa).

SHEET 11 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

F1da 2100 0000 yyyy hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Channel error during programmed I/O system generation (SYSGEN) command to disk.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
yyyy	Dual serial channel (DSCH) status (yyyy).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The disk file controller (DFC) SYSGEN programmed I/O command was being sent to the boot device when a channel error was detected.

CORRECTIVE ACTION

The peripheral interface controller (PIC) or the bus interface controller (BIC) of the boot DFC is faulty. Replace these circuit packs, in the order given, until a repair is made and the system is able to boot. In the storage module device (SMD) DFC, these functions are provided on separate circuit packs. In the small computer system interface (SCSI) DFC, these functions are provided on the host adapter (HA) circuit boards of the DFC.

SHEET 12 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

F1da 22tt wwww xyzz hh hh hh

PRM SOURCE

Load Disk from Tape (LDFT)

FUNCTION

Disk job failed.

PRM EXPANSION

Errors associated with t, w, and x are defined in multiple tables in the *3B20D and 3B21D Computers **UNIX** RTR Operating System Output Messages Manual Supplementary Information* ; document 254-303-111, *PDS Output Messages Manual*; or document 254-303-113, *MML Output Messages Manual*.

NOTE:
When trying to locate an appendix like DFC Appendix B, be aware that there are multiple Appendices B. There is an Appendix B for AUD, DCI, DFC, IOP, etc.

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

tt — Disk completion code.

Refer to Table 1, "DFC Error Codes" and Table 2, "Conditional Success Codes", in DFC Appendix B (ID: APP-DFC-APPB). These tables describe probable causes and corrective actions for DFC errors.

If this value is 0xee, the PRM originated from an LDFT running on the 3B21 Emulator (3B21E). The DFC appendices do not apply in this case.

wwww	Moving head disk (MHD) status. Refer to the "MHD Status Layout" table in DFC Appendix C (ID: APP-DFC-APPC) where bits 16-31 define digits 8-11 (wwww). To use the information found in (wwww). First, break down each hexadecimal digit represented by a single 'w' in the PRM format into its bit pattern; then match the individual bit with its counterpart in bits 16-31 in the MHD Status Layout table. If running on a 3B21E, this is the status returned by the 3bdfc process. See "CORRECTIVE ACTION" for additional information.
xy	Autonomous Response Code Refer to Table 3, "Autonomous Response Special Completion Codes" in DFC Appendix B (ID: APP-DFC-APPB) for a definition of digit 12 (x). If *y* = 1, look for an explanation of the autonomous response code (xy) in the table. If *y* does not = 1, disregard (xy) and do not look for an explanation. If running on a 3B21E, this is the device id of the device which failed.
zz	If digit 14 is 0, digit 15 indicates the Disk File Controller (DFC) being used. When running on a 3B21E, digits 14-15 contain a value that indicates where in the source code the error occurred. This value provides additional information for technical support when an error occurs.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

None.

CORRECTIVE ACTION

Corrective actions are largely based on the Disk Completion Code (tt). Besides the information in the following table, refer to the appendices listed in the "PRM EXPANSION" section.

Completion Code	Corrective Action
81, 9F, A1, 9D, B3, BF 99, 9B, B1, AF, A3	DFC failure is indicated. It is suggested that the DFC circuit packs be replaced, oneat a time, until the repair is made.
83, 85, 89, 8B, 8D, 8F, 91, 93, 95, 97, A7, A9, AB, AD, B5, BB, BD, C1, C3, C5, C7, C9, CB, CD, CF, D1, D3	MHD failure is indicated. The repair procedures for MHDs should be followed
8B, A7, A9, AB, AD, AF, BB, C1, C3, C5, C7, C9, CB, CD, CF, D1, D3	Either a DFC failure or an MHD failure is possible. When this failure occurs, replace the circuit packs in the DFC that are associated with disk data error checking. If the failure is not corrected, follow the repair procedures for an MHD failure.

Completion Code	Corrective Action
B7	A failure in the Direct Memory Access Controller (DMAC) circuitry or the associated channel circuitry is indicated. These circuits should be replaced, one at a time, until the repair is made.
EE	This is a 3B21E PRM. An error occurred when trying to read a tape, write to an MHD, or send a command to the 3bdfc process. Contact technical support to determine the root cause of this error.

E1da 3000 0000 00vv hh hh hh *

PRM SOURCE *

Load Disk From Tape (LDFT) *

FUNCTION *

Multi-volume tape is mounted. *

PRM EXPANSION *

p	Active CU: 0 => CU 0, 1 => CU 1.	*
vv	Multi-volume tape feature version number.	*
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.	* *

EXPLANATION *

A multi-volume tape is mounted. *

CORRECTIVE ACTION *

None. *

SHEET 17 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

E1da 32xx 0000 00yy hh hh hh *

PRM SOURCE *

Load Disk From Tape (LDFT) *

FUNCTION *

An invalid multi-volume tape application parameter was entered. *

PRM EXPANSION *

p Active CU: 0 => CU 0, 1 => CU 1. *

xx Application parameter (the ASCII character entered, in hexadecimal). * *

yy *

X'01 The 'V' application parameter was entered before the session number was entered. * *

X'02 A session or volume number was entered before the 'S' or 'V' application parameter was entered. * *

X'03 An unsupported application parameter was entered. *

hh hh hh Hardware status digits. Refer to the figure at the beginging of PRM Interpretation" for definitions of the digits. * *

EXPLANATION *

PRM-32xx verifies that application parameters entered are supported and in the correct sequence. * *

CORRECTIVE ACTION *

Enter a valid application parameter or enter application parameters in the correct sequence. * *

E1da 33xx iijj kkll hh hh hh *

PRM SOURCE *

Load Disk From Tape (LDFT) *

FUNCTION *

LDFT is ready to process the next multi-volume tape application parameter. * *

PRM EXPANSION *

p Active CU: 0 => CU 0, 1 => CU 1. *

xx Displays the hexadecimal value of the last application parameter. * *

ii Session application parameter field. *

If this field contains X'ee, the 'S' application parameter has not been entered. * *

If this field contains X'ff, the 'S' application parameter has been entered. * *

jj Session number. *

If this field contains X'ee, the session number has not been entered. * *

If this field contains X'ff, the session number has not been entered; otherwise, the hexadecimal value of the session number is displayed * * *

kk Volume application parameter field. *

If this field contains X'ee, the 'V' application parameter has not been entered. *

If this field contains X'ff, the 'V' application parameter has been entered. *

ll Volume number. *

If this field contains X'ee, the volume number has not been entered; otherwise, the hexadecimal value of the volume number is displayed *

hh hh hh Hardware status digits. Refer to the figure at the beginging of PRM Interpretation" for definitions of the digits. *

EXPLANATION *

This PRM acknowledges that the LDFT program is ready to accept application parameters for multi-volume tape processing. The "iijj kkll" part of this PRM displays the build-up of the parameters required to select a particular volume. *

The "Loading Disk from Tape" section of the System Maintenance Manual provides a detailed description of the application parameters that can be entered and the sequence in which they must be entered. Refer to 254-303-106, *3B20D and 3B21D Computers **UNIX** RTR Operating System, System Maintenance Manual*. *

CORRECTIVE ACTION *

None. *

E1da 35yy mmdd ssvv hh hh hh *

PRM SOURCE *

Load Disk From Tape (LDFT) *

FUNCTION *

Multi-volume tape volume information. *

PRM EXPANSION *

p	Active CU: 0 => CU 0, 1 => CU 1.	*
yy	The hexadecimal value of the last 2 digits of the year in which the volume was written to the multi-volume tape.	* *
mm	The hexadecimal value of the month in which the volume was written to the multi-volume tape.	* *
dd	The hexadecimal value of the Day in which the volume was written to the multi-volume tape.	* *
ss	The hexadecimal value of the Session number for which the date information is being displayed.	* *
vv	The hexadecimal value of the Volume number for which the date information is being displayed.	* *
hh hh hh	Hardware status digits. Refer to the figure at the beginging of PRM Interpretation" for definitions of the digits.	* *

SHEET 21 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

EXPLANATION *

Volume information is displayed for each logical volume on the multi-volume tape. *

CORRECTIVE ACTION *

None. *

E1da 36xx 00ss 00vv hh hh hh *

PRM SOURCE *

Load Disk From Tape (LDFT) *

FUNCTION *

Status of volume search results on multi-volume tapes. *

PRM EXPANSION *

p	Active CU: 0 => CU 0, 1 => CU 1.	*
xx	Volume search results.	*
	X'00 Volume was found.	*
	X'ff Volume was not found.	*
ss	Session number entered.	*
vv	Volume number entered.	*
hh hh hh	Hardware status digits. Refer to the figure at the beginging of PRM Interpretation" for definitions of the digits.	* *

EXPLANATION *

This PRM is printed after the search for a volume completes. If the volume was found, loading of the volume to the disk will occur immediately after this PRM. * * *

CORRECTIVE ACTION *

If the volume was not found on the multi-volume tape, display the volume information from the tape, then re-enter a volume that exists. * *

SHEET 23 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

E1da 51xx xxxx yyyy hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Mount first tape that has disk data on it.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx xxxx	Data type is specified in digits 6-11 (xx xxxx).
yyyy	Tape sequence number is specified in digits 12-15 (yyyy).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

Mount the first tape that has disk data on it.

F1da 5200 xxxx yyyy hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Wrong tape mounted.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx	Digits 8-11 (xxxx) specify the type of data to be loaded.
yyyy	Digits 12-15 (yyyy) specify the tape sequence number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The LDFT program loads data of the type specified in digits 8-11. The tape that was mounted was not of the correct type.

CORRECTIVE ACTION

Load the correct tape type.

SHEET 25 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

F1da 5300 0000 xxxx hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Sequence number of tape not correct.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx	Digits 12-15 (xxxx) specify the tape sequence number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An out-of-sequence tape was mounted. The sequence numbers of the tapes must be consecutive and in ascending order.

CORRECTIVE ACTION

Mount the tape whose sequence number is specified in the PRM.

SHEET 26 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

E1da 54xx yyyy yyyy hh hh hh

PRM SOURCE

Little Boot and Load Disk from Tape (LDFT)

FUNCTION

Tape version information.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
yyyy yyyy	Digits 8-15 (yyyy yyyy) specify the tape identifier.
xx	Digits 6-7 (xx) specify the data type associated with tape sequence. The different data types and their associated bit positions in xx are (1) GENERIC = 0x40, (2) DATABASE = 0x80, (3) MERGE = 0xc0, (4) VTOC = 0x20, (5) ESSENTIAL = 0x04, and (6) NONESSENTIAL = 0x08. One example of possible xx values would be HEX "64" to mean this is the volume table of contents (VTOC) partition of an ESSENTIAL GENERIC tape. For additional information about data types, seek technical assistance.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

Each tape has an identifier. If multiple tapes are involved, each tape in the sequence must have the same identifier.

SHEET 27 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

None

SHEET 28 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

F1da 55xx xxxx xxyy hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Wrong tape.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx xxxx xx	Digits 6-13 (xx xxxx xx) specify the tape identifier.
yy	Digits 14-15 (yy) specify the tape sequence number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

When multiple tapes must be loaded, each tape must have the same identifier (version). The mounted tape is not in the group of tapes to be loaded.

CORRECTIVE ACTION

Mount a tape whose identifier and sequence number are specified in the PRM.

SHEET 29 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

F1da 56xx xxxx xxyy hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Tape header is invalid.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx xxxx xx	Digits 6-13 (xx xxxx xx) specify the tape identifier.
yy	Digits 14-15 (yy) specify the tape sequence number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A bad tape header was encountered.

CORRECTIVE ACTION

Mount a tape whose identifier and sequence number are specified in the PRM.

E1da 5700 000x xxxx hh hh hh

PRM SOURCE

Little Boot and Load Disk from Tape (LDFT)

FUNCTION

To periodically output (in hexadecimal) the total number of tape blocks read so far from the currently-mounted tape.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
x xxxx	Digits 11-15 (x xxxx) specify the total number (in hexadecimal) of blocks read, from the currently mounted tape.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

In order to provide a progress indication, the total number of tape blocks read, from the currently mounted tape, is periodically output. The last PRM 5700 that is output for a given tape will contain the total number of blocks (in hexadecimal) read from that tape.

CORRECTIVE ACTION

None

SHEET 31 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

E1da 58xx xxxx xxyy hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Mount next tape.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx xxxx xx	Digits 6-13 (xx xxxx xx) specify the tape identifier.
yy	Digits 14-15 (yy) specify the tape sequence number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Multiple tapes are involved. Mount the next tape in this sequence.

CORRECTIVE ACTION

Mount a tape whose identifier and sequence number are specified in the PRM.

E1da 59xx x000 00zz hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

All of the generic or database data has been loaded.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx x	Digits 6-8 (xx x) indicate end of data.
zz	Digits 14-15 (zz) indicate primary/backup selection for bootstrap.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The disk data to be loaded by the LDFT feature has been loaded.

CORRECTIVE ACTION

If this load sequence involves both generic and database tapes, the computer should not be bootstrapped after loading the generic tapes. Instead, the first database tape is mounted and LDFT is initiated again.

If this is a generic-only LDFT, the computer should now be bootstrapped.

If the load sequence involves merged tapes, the computer should now be bootstrapped.

SHEET 33 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

After the database tapes have been loaded in either a generic followed by database or a database-only LDFT, the computer should be bootstrapped.

If digits 14 and 15 equal 0, boot the system using the primary disk; otherwise, boot using the backup disk.

F1da 6000 xxxx xxxx hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Bad tape.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx xxxx	Digits 8-15 (xxxx xxxx) specify the tape sequence number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Each header contains a field loaded with a unique pattern that is used to check that the tape is formatted correctly. This header does not contain the correct sync word.

CORRECTIVE ACTION

Load the tape whose sequence number is specified in the PRM.

SHEET 35 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

F1da 6100 xxxx xxxx hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

High-priority tape job failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx xxxx	The contents of the tape job high-priority response register is specified in digits 8-15 (xxxx xxxx).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

One of the jobs submitted to the tape unit using programmed I/O failed.

CORRECTIVE ACTION

If there is another tape unit in the office, try using it. Otherwise, replace boards in the input/output processor (IOP) frame associated with the tape unit. If this does not correct the problem, tape heads may need to be cleaned or aligned, or the tape itself may be bad. For the latter case, try loading an earlier sequence of tapes.

F1da 6200 0000 xxxx hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Bus interface controller (BIC) is locked up.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx	BIC status is specified in digits 12-15 (xxxx).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Commands are sent to the tape unit using programmed I/O. After each command is sent, the BIC must reset the command flag within 20 microseconds. The command flag was not reset.

CORRECTIVE ACTION

Replace the BIC and associated tape unit circuit boards in the input/output processor (IOP) unit being used.

F1da 6300 00xx 0000 hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Tape job timed out or disk job timed out.

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx Digits 10-11(xx) indicate the type of job which timed out as follows:

H'11	Read control information from tape.
H'12	Read system data from tape.
H'18	Sense status of tape peripheral controller.
H'21	Write system data to disk or disk format.
H'28	Setup (sysgen) for disk write.

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

SHEET 38 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

EXPLANATION

The tape unit did not complete a tape job or a disk job did not complete, or a disk format did not complete within 20 minutes.

CORRECTIVE ACTION

If it is a tape problem, try the other tape unit. If it is a disk problem, try to LDFT to the mate disk. If the problem persists, use the other control unit (CU). As a last resource, call the next level of technical assistance.

SHEET 39 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

F1da 6300 00xx 0000 hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Tape job timed out or disk job timed out.

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx Digits 10-11(xx) indicate the type of job which timed out as follows:

H'11	Tape rewind.
H'11	Read control information from tape.
H'12	Read system data from tape.
H'18	Sense status of tape peripheral controller.
H'21	Write system data to disk.
H'28	Setup (sysgen) for disk write.
H'29	Disk format.
H'30	Space forward over filemark.
H'31	Space reverse over filemark.

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

SHEET 40 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

EXPLANATION

The tape unit did not complete a tape job or a disk job did not complete, or a disk format did not complete within 20 minutes.

CORRECTIVE ACTION

If it is a tape problem, try the other tape unit. If it is a disk problem, try to LDFT to the mate disk. If the problem persists, use the other control unit (CU). As a last resource, call the next level of technical assistance.

SHEET 41 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

F1da 6400 0000 xxxx hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Direct memory access controller (DMAC) initialization failure.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx	Dual serial channel (DSCH) status is specified in digits 12-15 (xxxx).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The direct memory access controller (DMAC) is being initialized and a failure was detected.

CORRECTIVE ACTION

Replace the DMAC boards.

F1da 6500 xxxx xxxx hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Microcode passed a bad parameter.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx xxxx	The device identification is specified in digits 8-15 (xxxx xxxx).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Microcode passes to this program the device identification of the disk and tape units. One of the identifications received is unrecognizable.

CORRECTIVE ACTION

Try the other control unit, disk file controller, tape unit if available, or moving head disk.

SHEET 43 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

F1da 6600 xxxx 0000 hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Bad block size in tape header.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx	The record (tape block) size is specified in digits 8-11 (xxxx).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Currently, the only block sizes that are supported are 512 and 2048 bytes.

CORRECTIVE ACTION

Mount a tape which was made using the correct block sizes.

F1da 6700 0000 00xx hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

The database was not loaded on disk in the same system (backup or primary) as the generic data.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	The system that was requested by the database tapes to boot from is specified in digits 14-15 (xx).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The last header on the generic tape and the database tapes indicates which system (backup or primary) was loaded and consequently which must be used to boot from. There must be consistency between the two. This PRM indicates an inconsistency.

CORRECTIVE ACTION

Use a set of generic tapes and database tapes which load the same system (backup or primary).

F1da 6800 xxxx xxxx hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Wrong tape was loaded.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx xxxx	The tape number to be mounted is specified in digits 8-15 (xxxx xxxx).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An attempt was made to load a database tape before the generic tapes without selecting the "database only" option.

CORRECTIVE ACTION

Load the generic tapes. If a "database only" option was specified, then input a 42 on the emergency action interface (EAI) followed by a D for the parameter. This is done after the tape-only program (TOP) tape has been loaded and prior to loading the first database tape. Then input a 55/56 to restart the LDFT feature.

F1da 6900 0000 0000 hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Wrong tape mounted.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Database tapes not made with the system generation (SG) database were used when making the generic tapes.

CORRECTIVE ACTION

Use generic and database tapes made using the same SG database.

SHEET 47 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

F1da 7000 000x 0000 hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Wrong tape.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
x	Digit 11 (x) contains the character position in the generic version number which did not match that of the previous tape.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This database tape generic version number did not match the generic version number on a the previous database tape or the generic version number on the generic tape(s).

CORRECTIVE ACTION

Use generic and database tapes made from the same generic version.

E1da 7100 x00y yyyy hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Bad hash-sum on tape.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
x	Digit 8 (x) contains a 1 if a tape header hash check failed and a 0 if a data hash check failed.
y yyyy	The hex number of blocks read so far is specified in digits 11-15 (y yyyy).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A hash-sum on the header or the data following the header does not match the hash-sum in the tape header. This PRM is only be printed a maximum of five times. This error does not cause any maintenance reset functions (MRFs). The tape continues to be read.

CORRECTIVE ACTION

Mount another tape.

SHEET 49 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

F1da 7200 0000 0000 hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Disk job failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

No defect table was found for the disk. This applies only to storage module device-moving head disk (SMD-MHD).

CORRECTIVE ACTION

Use the alternate MHD.

E1da 7400 xxyy 0000 hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

LDFT program version information.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8-9 (xx) contain the LDFT program version number.
yy	Digits 10-11 (yy) contain the queue size for tape read commands. This size is normally H'01 for circuit packs UN134 and UN52 peripheral controllers (PCs) and H'07 for the circuit pack UN145 PC.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The LDFT program version number will be changed whenever the LDFT program is modified. The tape queue size is set according to the type of tape with which the PC is equipped.

CORRECTIVE ACTION

None

E1da 78xx xxxx xxyy hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Mount next tape after consulting your technical support center.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx xxxx xx	Digits 6-13 (xx xxxx xx) specify the tape identifier.
yy	Digits 14-15 (yy) specify the tape sequence number.
hh hh hh	Hardware status digits. Refer to Section 1 "PRM Interpretation" figure for definitions of the digits.

EXPLANATION

Multiple tapes are involved. Mount the next tape in this sequence after consulting your technical support center. In at least one data block on the tape, the computed hash-sum and the expected hash-sum did not agree. Continuing from this point may allow the system to boot. However, corrupt data may have been written to the disk.

CORRECTIVE ACTION

Prior to mounting a tape whose identifier and sequence number are specified in the PRM, **CONSULT** your technical support center.

PRM_p E1da 79xx x000 00zz hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

All of the generic or database data has been loaded with hash-sum mismatches detected.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx x	Digits 6-8 (xx x) indicate end of data.
zz	Digits 14-15 (zz) indicate primary/backup selection for bootstrap.
hh hh hh	Hardware status digits. Refer to Section 1 "PRM Interpretation" figure for definitions of the digits.

EXPLANATION

The disk data to be loaded by the LDFT feature has been loaded with hash-sum mismatches detected. In at least one data block on the tape, the computed hash-sum and the expected hash-sum did not agree. Continuing from this point may allow the system to boot. However, corrupt data may have been written to the disk.

CORRECTIVE ACTION

CONSULT your technical support center before proceeding to the next step.

SHEET 53 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

If this load sequence involves both generic and database tapes, the computer should not be bootstrapped after loading the generic tapes. Instead, the first database tape is mounted and LDFT is initiated again.

If this is a generic-only LDFT, the computer should now be bootstrapped.

If the load sequence involves merged tapes, the computer should now be bootstrapped.

After the database tapes have been loaded in either a generic followed by database or a database-only LDFT, the computer should be bootstrapped.

If digits 14 and 15 equal 0, boot the system using the primary disk; otherwise, boot using the backup disk.

E1da 8800 xxxx 000y hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Disk format is in progress.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx	For a storage module device (SMD): Digits 8-11 (xxxx) indicate the number of 1024 tracks (nonfixed media) or 512 tracks (fixed media) that have been formatted so far.
y	Digit 15 (y) contains a 0 for a fixed media disk or a 1 for a nonfixed media disk. For a small computer system interface (SCSI) disk: Digit 15 (y) will contain a 2 to indicate a SCSI disk file controller (DFC).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Because formatting a disk takes a significant amount of time, this PRM is produced to indicate that the machine is still working.

CORRECTIVE ACTION

None

SHEET 55 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

E1da 8900 0000 000x hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Wrong disk format parameter set for small computer system interface (SCSI) moving head disk (MHD).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
x	Digit 15 (x) contains a 2 to indicate that this is a SCSI disk file controller (DFC).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An "N" or "n" has been input with application parameter 42. This is illegal for SCSI. The "N" parameter will therefore be defaulted to "I" or "i", and the disk FORMAT command will be initiated.

CORRECTIVE ACTION

None

E1da 983B 10AD 10AD hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

PRM after hash-sum mismatches have been detected.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to Section 1 "PRM Interpretation" figure for definitions of the digits.

EXPLANATION

The machine is in a wait loop until the next tape is mounted after consultation with your technical support center. In at least one data block on the tape, the computed hash-sum and the expected hash-sum did not agree. Continuing from this point may allow the system to boot. However, corrupt data may have been written to the disk. This PRM is output so that the emergency action interface (EAI) screen flashes with alternate PRMs. The data output - 0X3B10AD10AD - is the closest pattern to 3BLOADLOAD.

CORRECTIVE ACTION

CONSULT your technical support center **NOW**.

SHEET 57 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

E1da 993B 10AD 10AD hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Dummy PRM.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The machine is in a wait loop until the next tape is mounted. This dummy PRM is output so that the emergency action interface (EAI) screen will flash with alternate PRMs. The data output - 0X3B10AD10AD - is the closest pattern to 3BLOADLOAD.

CORRECTIVE ACTION

None

SHEET 58 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

E1da DDtw xxyy yzzz hh hh hh

PRM SOURCE

Little Boot and Load Disk From Tape (LDFT)

FUNCTION

Disk data (previously known as all-seems-well function).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
t	Digit 6 (t) — 1 indicates a maintenance interrupt; 0 indicates a phase.
w	Digit 7 (w) indicates 0 for manually initiated maintenance reset functions (MRF) and H'A otherwise. For LDFT, this field is not used.
xx	Digits 8-9 (xx) indicate last two hexadecimal digits of sequence number that is part of postmortem dump.
yyy	Digits 10-12 (yyy) indicate H'BD **n** when boot MHD **n** is active and 000 otherwise. **n** is an odd-numbered MHD in the range of H'1 through H'F.
zzz	Digits 13-15 (zzz) indicate H'BD0 when boot MHD **n** is active and 000 otherwise. **n** is an even-numbered MHD in the range of H'0 through H'E.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This PRM is generated when this process (step) has successfully completed execution.

SHEET 59 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3c : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

None

SHEET 24 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3d : SPEC-toc0dmo043a : GM VER. 2.5a

Identifier 2 - Processor Initialization PRMs

3D

Contents

Processor Initialization PRMs 3D-1

Identifier 2 - Processor Initialization PRMs

3D

Processor Initialization PRMs

The Identifier 2 — Processor Initialization (PINIT) produces a processor recovery message when a failure to copy a processor's memory occurs or when a level 2 init is bumped to a level 3, so that the equipment configuration database (ECD is loaded.

SHEET 1 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3d : SPEC-luc043a : GM VER. 2.5a

E2da 010x 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization (PINIT)

FUNCTION

Control unit (CU) is going off-line.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
x	Reason CU went off-line is in digit 7 (x). If the value is 1, this CU is going off-line because its system status register (SSR) said it was forced off-line. If the value is 2, this CU is going off-line because the other CU should go on-line. If the value is 3, then this CU is going off-line because of excessive level 1 manual initializations.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

In the case where digit 7 (x) is a 3 and there have not been any manually entered level 1 initializations, then the TN10 on this CU should be replaced.

F2da 02xx 0000 yyyy hh hh hh

PRM SOURCE

Processor Initialization (PINIT)

FUNCTION

Enabling hardware checks with an error source present.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) indicate which bit of the error register is active and that hardware checks are to be enabled.
yyyy	Digits 12 through 15 (yyyy) are not used for this PRM; disregard any nonzero value that may appear in these positions.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Replace the circuit packs associated with the error source.

SHEET 3 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3d : SPEC-luc043a : GM VER. 2.5a

E2da 03xx 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization (PINIT)

FUNCTION

Full memory copy from off-line to on-line.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) specify the last two hex digits of the postmortem dump sequence number associated with this recovery.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This is a success PRM that indicates a full memory copy has occurred on a Level 1 initialization accompanied by a stop and switch. The application level in this PRM may not be the correct level for this initialization because this level is administered after this PRM has been printed.

CORRECTIVE ACTION

None

E2da 0400 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization (PINIT)

FUNCTION

Indication that a manually requested Level 2 system initialization [52 on emergency action interface (EAI)] was incremented to a Level 3 system initialization.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The configuration was changed on the EAI terminal (that is, min to app/dmert or app/dmert to min mode) which was followed by a manually requested Level 2 system initialization. On a Level 2 system initialization, the equipment configuration database (ECD) is not loaded, so the UNIX system level was incremented to a Level 3 system initialization.

A new ECD is then loaded and thus the system has the correct ECD for the mode selected on the EAI.

CORRECTIVE ACTION

None

E2da 0500 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization (PINIT)

FUNCTION

Status indicator which is output approximately every 5 seconds during a memory copy.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

During a memory copy, the system is very quiet. This PRM is used as an indicator that the processor is still working.

CORRECTIVE ACTION

None

E2da 0600 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization (PINIT)

FUNCTION

Manual system initialization used the primary partition for booting.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A manual system initialization was requested through the emergency action interface (EAI) using the backup partition. A check of the volume table of contents (VTOC) showed that no backup partitions exist. The default was to boot on the requested system initialization level but to use the primary partition.

CORRECTIVE ACTION

None

E2da 0700 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization (PINIT)

FUNCTION

A PINIT was unable to pump microcode to the off-line microstore.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

PINIT pumps microcode to the off-line control unit (CU) if it detects a violation of low physical memory contents in the off-line CU. This is done to ensure that if diagnostics were in progress or the off-line microstore had incorrect data for any other reason, the system has a chance to attempt recovery without bootstrap. This PRM indicates that a failure was detected during the process of copying the contents of on-line microstore to the off-line CU.

CORRECTIVE ACTION

This PRM is simply an indication of a problem with the off-line CU — the message does not indicate a problem with the on-line CU. In such a situation (given that the system is able to recover), the off-line CU should be diagnosed for a hardware problem.

F2da 0800 0000 xxxx hh hh hh

PRM SOURCE

Processor Initialization (PINIT)

FUNCTION

A PINIT was unable to copy memory from the off-line processor to the on-line.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx	Digits 12 through 15 (xxxx) are not used for this PRM; disregard any nonzero value that may appear in these positions.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This PRM is only output if the system switches to an out-of-service control unit (CU) and finds that the memory of the processor switched from is not accessible. The reason for the inaccessibility may be: a powered down off-line CU, a faulty path to the off-line memory, or faulty off-line memory hardware. Since the newly on-line processor memory is not up to date, PINIT initiates a Level 3 bootstrap to get fresh copies of all programs and the equipment configuration database (ECD).

CORRECTIVE ACTION

None

F2da 09xx yyyy yyyy hh hh hh

PRM SOURCE

Processor Initialization (PINIT)

FUNCTION

PINIT encountered noncorrectable memory error while copying memory from the off-line control unit (CU) to the on-line CU after a stop and switch.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx — Digits 6 and 7 (xx) indicate the type of memory errors as follows:

Digits 6,7	Error
00	other store C
01	other store time-out

yyyy yyyy — Digits 8-15 (yyyy yyyy) indicate the physical block start address where the error occurred.

hh hh hh — Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Microcode detected other store C (2-bit parity failure) or other store time-out error while copying a block of memory starting with the address indicated by digits 8 through 15; it completed copying the requested memory block and then notified PINIT of the error. PINIT then prints the failing PRM and initiates a Level 3 boot on the switched to CU (panic code 9).

SHEET 10 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3d : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

Diagnose the off-line CU, and replace the faulty memory board(s).

SHEET 11 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3d : SPEC-luc043a : GM VER. 2.5a

E2da 0A0x xxxx xxyy hh hh hh

PRM SOURCE

Processor Initialization (PINIT)

FUNCTION

PINIT during boot detected errors in the error register or the micro error register.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
x xxxx xx	Digits 7 through 13 (x xxxx xx) indicate the Error Register bits 27-0 (left to right). Refer to 254-303-106, *3B20D and 3B21D Computers **UNIX** RTR Operating System, System Maintenance Manual*, for the definition of the Error Register bits.
yy	Digits 14 and 15 (yy) indicate the faulty control unit (CU) where the error occurred.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This is an informational PRM. The information contained in this PRM appears in the postmortem dump; unless, the system fails to recover.

CORRECTIVE ACTION

Diagnose the faulty CU, and replace the faulty hardware boards.

E2da 0B00 xxyy 0000 hh hh hh

PRM SOURCE

Processor Initialization (PINIT)

FUNCTION

PINIT collected postmortem data and found sanity timer time-outs.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8 and 9 (xx) indicate the on-line control unit (CU) sanity timer value.
yy	Digits 10 and 11 (yy) indicate the off-line CU sanity timer value.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

This is an informational PRM. The sanity timer values appears in the postmortem dump; unless, the system fails to recover.

CORRECTIVE ACTION

None

SHEET 13 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3d : SPEC-luc043a : GM VER. 2.5a

E2da 0C00 zzzz zzzz hh hh hh

PRM SOURCE

Processor Initialization (PINIT)

FUNCTION

PINIT collected postmortem data and found there were more off-line cache registers to read.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
zzzz zzzz	Digits 8-15 (zzzz zzzz) sequence number of the cache register that was not read.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The routine that reads the off-line cache registers during the postmortem data collection does not have the necessary code to read the indicated cache register.

CORRECTIVE ACTION

Collect the receive-only printer output containing this PRM and contact the next level of technical assistance.

SHEET 14 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3d : SPEC-luc043a : GM VER. 2.5a

E2da 0Dxy z000 0000 hh hh hh

PRM SOURCE

Processor Initialization (PINIT - Panic Dump)

FUNCTION

Panic dump status information.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
x	Digit 6 is 1 if the panic dump to the disk was successful.
y	Digit 7 is the panic dump disk ID (H'0 or H'F).
z	Digit 8 is 5 if there was a failure to access the equipment configuration database (ECD) to get the status of the units.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

This is an informational PRM.

CORRECTIVE ACTION

None

F2da 2100 0000 yzzz hh hh hh

PRM SOURCE

Processor Initialization (PINIT)

FUNCTION

Channel error during programmed I/O system generation (SYSGEN) command to disk.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
yzzz	Digits 12 through 15 (yzzz) indicate the channel status. The channel status consists of 13 bits which are the least significant bit of digit 12 (y) along with the remaining bits in digits 13 through 15 (zzz).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The *SYSGEN* programmed I/O command was being sent to the boot device(s) during execution of the *PINIT* when a channel failure was detected. The peripheral interface controller (PIC) or the bus interface controller (BIC) of the disk file controller (DFC) was found to be faulty. The *PINIT* process was attempting to write the *PANICDUMP* data to the boot device(s) when the error occurred.

CORRECTIVE ACTION

Run diagnostics on the control unit (CU) and the appropriate DFC and replace the faulty hardware as indicated by diagnostics.

SHEET 16 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3d : SPEC-luc043a : GM VER. 2.5a

E2da ABD0 0000 wxyz hh hh hh

PRM SOURCE

Processor Initialization (PINIT)

FUNCTION

Report that the boot level was escalated from Level 52 to Level 53.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
w	Bus Device ID of the previous active boot device under DFC 0 or H'f if the boot device was not active.
x	Bus Device ID of the previous active boot device under DFC 1 or H'f if the boot device was not active.
y	Bus Device ID of the current active boot device under DFC 0 or H'f if the boot device was not active.
z	Bus Device ID of the current active boot device under DFC 1 or H'f if the boot device was not active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The boot level is escalated when LBOOT determines that the ECD on the boot disk may be different than the ECD in main memory. If the Bus Device ID (BDID) in PRM fields **yz** is different from either of the previous BDIDs in PRM fields **wx**, then escalation occurs. For example, a **wxyz** value of H'50F5 shows that MHD 10 and MHD 1 were the previous active disks and that the current active disk is MHD 11.

SHEET 17 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3d : SPEC-luc043a : GM VER. 2.5a

The following table shows the mapping of the values in the PRM to MHD numbers.

	PRM Fields	
BDID	**w and y**	**x and z**
H'0	MHD 0	MHD 1
H'1	MHD 2	MHD 3
H'2	MHD 4	MHD 5
H'3	MHD 6	MHD 7
H'4	MHD 8	MHD 9
H'5	MHD 10	MHD 11
H'6	MHD 14	MHD 15
H'7	MHD 12	MHD 13
H'f	Not Active	Not Active

CORRECTIVE ACTION

None. This PRM is for informational purposes only.

SHEET 18 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3d : SPEC-luc043a : GM VER. 2.5a

E2da DDtw xxyy yzzz hh hh hh

PRM SOURCE

Processor Initialization (PINIT)

FUNCTION

Disk data (previously known as all-seems-well function).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
t	Digit 6 (t) — 1 identifies a maintenance interrupt; 0 identifies a phase.
w	Digit 7 (w) specifies H'A for nonmanually initiated maintenance reset functions (MRFs) and 0 for manually initiated MRF.
xx	Digits 8-9 (xx) specifies that last two hexadecimal digits of the sequence number that is part of postmortem dump.
yyy	Digits 10-12 (yyy) specifies H'BD**n** when boot MHD **n** is active and 000 otherwise. **n** is an odd-numbered MHD in the range of H'1 through H'F
zzz	Digits 13-15 (yyy) specifies H'BD**n** when boot MHD **n** is active and 000 otherwise. **n** is an even-numbered MHD in the range of H'0 through H'E
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This PRM is generated when this process (step) has successfully completed execution.

SHEET 19 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3d : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

None

SHEET 20 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3d : SPEC-luc043a : GM VER. 2.5a

v2da 0Fxx 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization (PINIT)

FUNCTION

PINIT detected the failure during OFLBOOT.

PRM EXPANSION

p	Active CU: 0=> CU 0, 1 => CU 1.
xx	Reason for output.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

If *xx* is 01, it indicates that during OFLBOOT the on-line side is having some problem, and therefore, it is no longer administrating the off-line side sanity timer. As a consequence the off-line side exceeds the maximum number of maintenance reset functions (MRFs) allowed. The OFLBOOT is aborted, and the system recovers on the off-line side with at least RTR initialization Level 3.

If *xx* is 02, it indicates that during OFLBOOT the off-line side detected a reinitialization. The off-line side is halted because either the RETROFIT option has been set, or the number of initializations has not reached the maximum allowed for taking a recovery action.

If *xx* is 03, it indicates that during OFLBOOT the off-line side detected an unexpected phase 1 initialization. As a result, the off-line side is halted.

SHEET 21 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3d : SPEC-luc043a : GM VER. 2.5a

If *xx* is 04, it indicates that the on-line side detected a boot strap initialization. As a result, OFLBOOT is aborted, and the system recovers on the on-line side.

CORRECTIVE ACTION

None

Identifier 3 - BBOOT PRMs

3E

Contents

BBOOT PRMs 3E-1

Identifier 3 - BBOOT PRMs

3E

BBOOT PRMs

The processor recovery messages (PRMs) of the big boot (BBOOT) software are identified by a 3. These PRMs report the failure of the software to load boot file segments from disk to the control unit (CU) main memory or failure to load equipment configuration database (ECD) segments.

F3da 0100 0000 xyyy hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Initializing the bus interface controller (BIC) of the boot disk file controller (DFC).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xyyy	Dual serial channel (DSCH) status consists of 13 bits which are the least significant bit of digit 12 (x) along with all bits of digits 13-15 (yyy). See Table 3-J for DSCH status layout.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The BIC associated with the boot device is being initialized. This device connects to DSCH 11 of direct memory access controller (DMAC) 0. The channel reported a failure.

CORRECTIVE ACTION

Start replacing the associated DMAC and DSCH circuit pack, the duplex dual serial bus selector pack of the DFC, and the BIC of the DFC, in the order listed, until the repair is made and the system boots. In the small computer system interface - disk file computer (SCSI DFC), the BIC is part of the host adapter (HA) circuit packs of the DFC.

F3da 0200 0000 xyyy hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Initializing the peripheral interface controller (PIC) of the boot disk file controller (DFC).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xyyy	Dual serial channel (DSCH) status consists of 13 bits which are the least significant bit of digit 12 (x) along with all bits of digits 13-15 (yyy).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The PIC associated with the boot device is being initialized. This device connects to DSCH 11 of direct memory access controller (DMAC) 0. The channel reported a failure.

CORRECTIVE ACTION

Start replacing the associated DMAC DSCH circuit pack, the duplex dual serial bus selector (DDSBS) pack of the DFC, the BIC and PIC of the DFC, in the order listed, until the repair is made and the system boots. In the small computer system interface - disk file controller (SCSI DFC), the BIC and PIC are part of the host adapter (HA) circuit boards of the DFC.

F3da 0300 0000 xxxx hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Initializing the peripheral interface controller (PIC) for the boot disk file controller (DFC).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx	Digits 12-15 (xxxx). See Table 3-K for bus interface controller (BIC) status.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The PIC associated with the boot device is being initialized.

CORRECTIVE ACTION

The PIC or BIC of the boot DFC is faulty. Replace these circuit packs, in the order given, until a repair is made and the system is able to boot. In the small computer system interface - disk file controller (SCSI DFC), the BIC and PIC are part of the host adapter (HA) circuit boards of the DFC.

F3da 0400 0000 0xyy hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Failed to find the disk volume table of contents (VTOC) entry for the partition that contains the file being loaded.

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

x If this is the boot time database file, digit 13 (x) contains the structure element number of the file. If this is the root file, disregard digit 13 (x).

yy Digits 14 and 15 (yy) identify the disk partition and are assigned as follows.

Digits 14-15	Partition
03	ROOT
06	ECD
07	ETC

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Block 0 on each disk is the VTOC for that disk. The VTOC is searched to locate the entry for the partition that contains the file that is now to be loaded. One of these files is the root file and is associated with the generic that is being used to boot either the current generic or the backup generic. The VTOC search was not successful because of a bad entry or entries.

SHEET 5 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3e : SPEC-luc043a : GM VER. 2.5a

Examples of boot time databases are the data portions of the equipment configuration database (ECD) and the plant measurements library. The boot time structure element number is defined as "0" for BTDB_ECD and "1" for BTDB_PLM.

CORRECTIVE ACTION

If there is a backup system on the disk, try booting from the generic not currently being used. If this is successful, the VTOC can be restored using the procedure for restoring mutilated disk files. If this is not successful or if there is no backup system on the disk, use the office procedure for restoring mutilated disks.

F3da 0500 0000 0xyy hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Boot root file or boot time database file not located.

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

x Digit 13 (x) contains the structure element number for a boot time database file.

yy Digits 14 and 15 (yy) identify the disk partition and are assigned as follows:

Digits 14-15	Partition
03	ROOT
06	ECD
07	ETC

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The directory for the ROOT system being used to boot is searched for the boot image file or a boot time database file. The directory can consist of many blocks, and the addresses to locate these blocks are contained in the inodes for the ROOT system. Some of the addresses point directly to directory blocks while others point to directory blocks indirectly. The boot file and the boot time database files must be located using direct

SHEET 7 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3e : SPEC-luc043a : GM VER. 2.5a

addresses. This failure indicates that the root or a boot time database file was not located using direct addresses. The directory for the ROOT system is faulty.

Examples of boot time databases are the data portions of the equipment configuration database (ECD) and the plant measurements library.

CORRECTIVE ACTION

Try booting the system on the other ROOT system (backup if current was being used or vice versa) if it is equipped, or use the other mode (minimum configuration, if normal, was being used or vice versa).

F3da 0600 0000 0xyy hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Boot root file or boot time database file not located.

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

x Digit 13 (x) contains the structure element number for a boot time database file.

yy Digits 14 and 15 (yy) identify the disk partition and are assigned as follows:

Digits 14-15	Partition
03	ROOT
06	ECD
07	ETC

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The directory for the ROOT system being used to boot is searched for the boot image file or a boot time database file. If any one of these files is not located, this failing condition occurs. The names of the boot file and the equipment configuration database (ECD) are /appdmert and /appecd or /dmert and /ecd for a normal system boot and a minimum configuration

system boot, respectively. The name of the file in ETC is specified in the header that is part of the boot image. The directory for the ROOT system is faulty.

Examples of boot time databases are the data portions of the ECD and the plant measurements library.

CORRECTIVE ACTION

Try booting the system on the other ROOT system (backup if current was being used or vice versa) if it is equipped, or use the other mode (minimum configuration if normal was being used or vice versa).

F3da 07xx yyyy yyyy hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Big boot encountered noncorrectable memory error while copying memory from the off-line control unit (CU) to the on-line CU after a stop and switch.

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx Digits 6 and 7 (xx) indicate the type of memory errors as follows:

Digits 6,7	Error
00	other store C
01	other store time-out

yyyy yyyy Digits 8-15 (yyyy yyyy) indicate the physical block start address where the error occurred.

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Microcode detected other store C (2-bit parity failure) or other store time-out error while copying a block of memory starting with the address indicated by digits 8 through 15; after completing the copy of the requested memory block, microcode then notifies big boot of the error. Big boot then prints the failing PRM and initiates a Level 3 system initialization on the switched to CU panic code 7.

SHEET 11 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3e : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

After the system recovers, diagnose the off-line CU and replace the faulty memory board(s).

F3da 09xx yzzz zzzz hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Disk data is faulty.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx — Digits 6 and 7 (xx) identify the disk partition and are assigned as follows:

Digits 6-7	Partition
03	ROOT
06	ECD
07	ETC

y — Digit 8 (y) is the boot time database structure element number.

zzz zzzz — Digits 9-15 (zzz zzzz) contain the size of the file in bytes as specified in the inode for that file.

hh hh hh — Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The size of the boot file as specified in the inode is compared with the size of the boot file as specified in the boot header. The size of a boot

SHEET 13 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3e : SPEC-luc043a : GM VER. 2.5a

time database file, as specified in the inode, is compared with the size specified in the file itself. This failing condition occurs when these two numbers disagree.

Examples of boot time databases are the data portions of the equipment configuration database (ECD) and the plant measurements library.

CORRECTIVE ACTION

If the system does not boot from either boot device, try booting on the other ROOT system. If that fails, recover from backup tapes using LDFT.

F3da 1000 xxxx xxxx hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Disk data faulty.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx xxxx	The computed equipment configuration database (ECD) load address is specified in digits 8-15 (xxxx xxxx).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The computed ECD load address is compared to the ECD load address specified in the boot header. The two addresses do not agree.

CORRECTIVE ACTION

If the system will not boot from either boot device, try booting on the other ROOT system (backup if current was being used or vice versa), if equipped, or the other configuration (minimum if normal was being used or vice versa).

F3da 2000 xxxx xxxx hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Page table initialization routine called with invalid parameter.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx xxxx	The number of page table entries the routine was called with is specified in digits 8-15 (xxxx xxxx).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

There can be from 1 to 64 entries in a page table. The initialization routine was called to initialize an illegal number of entries. The number of entries was determined from the inode corresponding to the file that is to be loaded.

CORRECTIVE ACTION

The file being loaded must be contiguous. If the system does not boot from either boot device, try booting on the other ROOT system. If the minimum configuration does not recover the office, recover from backup tape using LDFT.

F3da 21ww x000 yzzz hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Channel error during programmed I/O system generation (SYSGEN) command to disk.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

ww — Digits 6 and 7 (ww) identify the disk partition and are assigned as follows:

Digits 6-7	Partition
03	ROOT
06	ECD
07	ETC

x — Digit 8 (x) is the structure element number for a boot time database.

yzzz — Channel status consists of 13 bits which are the least significant bits of digit 12 (y) along with all bits of digits 13-15 (zzz).

hh hh hh — Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

SHEET 17 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3e : SPEC-luc043a : GM VER. 2.5a

EXPLANATION

The SYSGEN programmed I/O command was being sent to the boot device when a channel error was detected. The peripheral interface controller (PIC) or the bus interface controller (BIC) of the boot disk file controller (DFC) is faulty. Examples of boot time databases are the data portions of the equipment configuration database (ECD) and the plant measurements library.

CORRECTIVE ACTION

Replace the PIC or the BIC, in the order given, until a repair is made and the system is able to boot. In the small computer system interface - disk file controller (SCSI DFC), the BIC and PIC are part of the host adapter (HA) circuit boards of the DFC.

F3da 22tt wwww xy0z hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Disk job failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
tt	Disk completion code consists of digits 6 and 7 (tt).
wwww	Bits 16-31 of the moving head disk (MHD) status word are digits 8-11 (wwww).
xy	If digit 13 (y) = 1, job ID 0 failure data is digit 12 (x). If digit 13 (y) not equal to 1, disregard digit 12.
z	Digit 15 (z) identifies the disk file controller (DFC) being used. Additional information can be found in the *3B20D and 3B21D Computers **UNIX** RTR Operating System Output Messages Manual Supplementary Information*, document 254-303-111 *PDS* or document 254-303-113 *MML*, Appendices B an C in document 254-303-111 and document 254-303-113;
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The programmed I/O boot command was sent to the DFC. The disk job was not done successfully.

CORRECTIVE ACTION

The following disk completion codes indicate a DFC failure so the DFC circuit packs should be replaced, one at a time, until the repair is made:

81	9F	A1	9D	B3	BF
99	9B	B1	AF	A3	

The following disk completion codes indicate an MHD failure, and the repair procedures for MHDs should be followed:

83	85	89	8B	8D	8F	91	93	95	97
A7	A9	AB	AD	B5	BB	BD	C1	C3	C5
C7	C9	CB	CD	CF	D1	D3			

The following disk completion codes indicate either a DFC failure or an MHD failure:

8B	A7	A9	AB	AD	AF	BB			
C1	C3	C5	C7	C9	CB	CD	CF	D1	D3

When this failure occurs, replace the circuit packs in the DFC that are associated with disk data error checking. If the failure is not corrected, follow the repair procedures for an MHD failure.

Disk completion code B7 indicates a failure in the direct memory access controller (DMAC) circuitry, or the associated channel circuitry and these circuits should be replaced, one at a time, until the repair is made.

F3da 3100 0000 0000 hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Faulty equipment configuration database (ECD).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The ECD does not contain a unit control block (UCB) for main store controller (MASC) 0.

CORRECTIVE ACTION

Boot the machine using the other generic (backup if the current one is being used or vice versa), if equipped, or the other mode (minimum configuration if normal is being used or vice versa). Once the system is running, the faulty ECD file can be replaced.

SHEET 21 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3e : SPEC-luc043a : GM VER. 2.5a

F3da 3200 0000 0000 hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Faulty equipment configuration database (ECD).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The unit control block (UCB) for main store controller (MASC) 0 contains a memory array version that is not legitimate. This information is in the member version (**mv**) field of the UCB.

CORRECTIVE ACTION

Boot the machine using the other generic (backup if the current one is being used or vice versa), if equipped, or the other mode (minimum configuration if normal is being used or vice versa). Once the system is running, the faulty ECD file can be replaced.

SHEET 22 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3e : SPEC-luc043a : GM VER. 2.5a

F3da 3300 0000 0000 hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Faulty equipment configuration database (ECD).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The unit control block (UCB) for main store controller (MASC) 1 contains a memory array version that is not legitimate. This information is in the member version (**mv**) field of the UCB.

CORRECTIVE ACTION

Boot the machine using the other generic (backup if the current one is being used or vice versa), if equipped, or the other mode (minimum configuration if normal is being used or vice versa). Once the system is running, the faulty ECD file can be replaced.

F3da 340x yyyy yyyy hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Failure occurred during the read operation of the maintenance registers in the on-line memory controller. This is being done to determine the amount of memory available.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

x — Sequence number (1, 2, or 3) in accessing the main memory registers.

1. Error in accessing the main memory status register.
2. The data in the status register indicated that none of the eight banks of memory is present.
3. Error in accessing the bank boundary register.

yyyy yyyy — Contents of main memory register if x = 1.
Contents of main memory status register if x = 2.
Contents of main memory status register if x = 3.

A value of 0xffffffff indicates that an error occurred while reading the main memory register.

hh hh hh — Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

SHEET 24 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3e : SPEC-luc043a : GM VER. 2.5a

EXPLANATION

This PRM will only appear on a 3B21D computer. During big boot, the amount of available memory must be determined. This PRM indicates a problem occurred while reading hardware registers located in the memory controller on the main memory circuit pack (KLW32). The appropriate bits in the PRM will indicate the error that occurred.

CORRECTIVE ACTION

This PRM indicates a severe problem in the main memory hardware. Replace the main memory circuit pack (KLW32).

If this PRM continues to be output after the memory pack has been replaced, replace the central control circuit pack (KLW31). If this does not solve the problem, seek technical assistance.

Refer to 254-303-105, *3B21D Computer Hardware Reference Manual*, for the locations and descriptions of the KLW31 and KLW32 circuit packs.

F3da 3500 zzzz zzzz hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Insufficient main memory in the off-line control unit (CU).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
zzzz zzzz	Digits 8 - 15 (zzzz zzzz) indicate the address of the last available byte of memory as computed by reading the various maintenance registers located in the main memory circuit pack.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

This PRM only appears on a 3B21D computer. During big boot, the amount of available memory must be determined. This PRM is printed when the memory bank registers located in the memory controller logic on the main memory circuit pack (KLW32) indicate insufficient memory (less than 8 megabytes) is available to load the operating system.

SHEET 26 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3e : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

This PRM indicates a severe problem in the main memory circuit. Replace the main memory circuit pack (KLW32).

If this does not solve the problem, seek technical assistance.

Refer to 254-303-105, *3B21D Computer Hardware Reference Manual*, for the location and description of the KLW32 circuit pack.

E3da 360x yyyy yyyy hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Failure occurred during the read operation of the maintenance registers in the off-line memory controller. This is being done to determine the amount of memory available.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

x — Sequence number (1, 2, or 3) in accessing the main memory registers.

- 1 Error in accessing the main memory status register.
- 2 The data in the status register indicated that none of the eight banks of memory is present.
- 3 Error in accessing the bank boundary register.

yyyy yyyy — Contents of main memory register if x=1.
Contents of main memory status register if x=2.
Contents of main memory status register if x=3.

A value of 0xffffffff indicates an error occurred while reading the main memory register.

hh hh hh — Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

SHEET 28 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3e : SPEC-luc043a : GM VER. 2.5a

EXPLANATION

This PRM only appears on a 3B21D computer. During big boot, the amount of available memory must be determined. This PRM indicates a problem occurred while reading hardware registers located in the Memory Controller on the main memory circuit pack (KLW32). The appropriate bits in the PRM indicates the error that occurred.

CORRECTIVE ACTION

This PRM indicates that the memory controller on the off-line CU (KLW32) was inaccessible. Once the machine comes up, diagnose the other CU and take appropriate action if any of the diagnostic phases fail.

Refer to 254-303-105, *3B21D Computer Hardware Reference Manual*, for the locations and descriptions of the KLW31 and KLW32 circuit packs.

E3da 3700 0000 0000 hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Failure in accessing the main store controller - unit control block (MASC UCB) for the off-line control unit (CU).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This PRM only appears on a 3B21D computer. During big boot, the amount of available memory must be determined. This is the minimum of the memory on CU 0 and CU 1 side. If the off-line CU is not accessible, the unit control block (UCB) is queried to compute the memory size. This PRM is printed if there is a failure in accessing the required UCB form.

CORRECTIVE ACTION

Once the machine comes up, check the database for correctness. In particular, check the ECDORG and UCB for the MASC.

Refer to 254-303-105, *3B21D Computer Hardware Reference Manual*, for the location and description of the KLW32 circuit pack.

E3da 3800 zzzz zzzz hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Insufficient main memory in the off-line control unit (CU).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
zzzz zzzz	Digits 8-15 (zzzz zzzz) indicate the address of the last available byte of memory as computed by reading the various maintenance registers located in the main memory circuit pack.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

This PRM only appears on a 3B21D computer. During big boot, the amount of available memory must be determined. This PRM is printed when the memory bank registers located in the memory controller logic on the main memory circuit pack (KLW32), on the off-line CU indicate insufficient memory (less than 8 megabytes) is available to load the operating system. The machine continues the boot sequence with the available memory on the on-line CU.

CORRECTIVE ACTION

This PRM indicates a severe problem in the main memory circuit of the off-line CU. Replace the main memory circuit pack (KLW32) in the off-line CU.

SHEET 31 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3e : SPEC-luc043a : GM VER. 2.5a

If this does not solve the problem, seek technical assistance.

Refer to 254-303-105, *3B21D Computer Hardware Reference Manual*, for the location and description of the KLW32 circuit pack.

SHEET 32 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3e : SPEC-luc043a : GM VER. 2.5a

F3da 5300 0000 0000 hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Big boot is attempting to read the boot image from disk.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

It has been determined that the boot image being read by big boot was created with a version of **sgen** that is not compatible with the version of big boot currently being used.

CORRECTIVE ACTION

To recover from this problem, boot on the backup root from the emergency action interface (EAI) page.

If this does not correct the situation, seek further technical assistance.

F3da 63x0 yy00 0000 hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Disk job timed out.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
x	Digit 5 (x) identifies the disk file controller (DFC) being used, with x being 0 if DFC 0 is being used and 1 if DFC 1 is being used.
yy	Digits 8 and 9 (yy) are used to give additional information about the problem that caused this PRM to print.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The DFC did not complete a disk job within 4 seconds.

CORRECTIVE ACTION

Replace circuit boards associated with the DFC. If this does not correct the problem, replace direct memory access controller (DMAC) boards.

E3da DDtw xxyy yzzz hh hh hh

PRM SOURCE

Big Boot

FUNCTION

Disk data (previously known as all-seems-well function).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
t	Digit 6 (t) — 1 indicates a maintenance interrupt; 0 indicates a phase.
w	Digit 7 (w) 0xA for nonmanually initiated maintenance reset functions (MRFs) and 0 otherwise.
xx	Digits 8-9 (xx) are the last two hexadecimal digits of sequence number that is part of postmortem dump.
yyy	Digits 10-12 (yyy) — H'BD**n** indicates boot MHD **n** is active and H'000 indicates not active. **n** is an odd-numbered MHD in the range of H'1 through H'F.
zzz	Digits 13-15 (zzz) — H'BD**n** indicates boot MHD **n** is active and H'000 indicates not active. **n** is an even-numbered MHD in the range of H'0 through H'E.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This PRM is generated when this process (step) has successfully completed execution.

SHEET 35 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3e : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

None

SHEET 40 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3f : SPEC-toc0dmo043a : GM VER. 2.5a

Identifier 4 - KBOOT PRMs

3F

Contents

KBOOT PRMs 3F-1

Identifier 4 - KBOOT PRMs

3F

KBOOT PRMs

The identifier 4 processor recovery messages (PRMs) report failures to create processes or to find public libraries on disk, a failure to allocate an init message for a process, a failure to create a segment for the interrupt stack (a public library), or a kernel segment table, among others.

SHEET 1 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3f : SPEC-luc043a : GM VER. 2.5a

F4da 0100 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

System process not created.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 14-15 (xx) indicate the process number of the special process which could not be created.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A special process could not be created because the required dispatcher control table entry was missing.

CORRECTIVE ACTION

Check the database parameter that specifies the number of dispatcher control table slots. Reboot the system with a different load.

F4da 0200 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot kernel process not created.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 14 and 15 (xx) indicate the process number of the kernel process which could not be created.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A kernel process could not be created because the kpcb segment could not be added to the kernel address space. This was due to a poor selection of one of the memory management control table parameters supplied to system generation (SYSGEN).

CORRECTIVE ACTION

Check the database parameters which specify the number of pages, segments, and page tables. Reboot the system with a different load.

SHEET 3 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3f : SPEC-luc043a : GM VER. 2.5a

F4da 0300 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot kernel process not created.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 14 and 15 (xx) indicate the process number of the kernel process which could not be created.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A kernel process could not be created because the kpcb segment supplied by system generation (SYSGEN) for the process did not have the first segment list entry flagged as a kpcb segment. This was due to a malfunction in SYSGEN.

CORRECTIVE ACTION

Investigate recent modifications to the SYSGEN program. Reboot the system with a different load.

F4da 0400 xx00 00yy hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot kernel process not created.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8 and 9 (xx) indicate the segment number.
yy	Digits 14 and 15 (yy) indicate the process number of the kernel process which could not be created.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A kernel process could not be created because the kpcb segment supplied by system generation (SYSGEN) for the process contained a segment list entry for an existing segment which is not in the boot image, not a database segment, and not a protected application segment (PAS). This was due to a malfunction in SYSGEN.

CORRECTIVE ACTION

Investigate recent modifications to the SYSGEN program. Reboot the system with a different load.

F4da 0500 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot supervisor process not created.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 14 and 15 (xx) indicate the process number of the supervisor process which could not be created.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A supervisor process could not be created because the pcb segment could not be added to the kernel address space. This was due to a poor selection of one of the memory management control table parameters supplied to system generation (SYSGEN).

CORRECTIVE ACTION

Check the database parameters which specify the number of pages, segments, and page tables. Reboot the system with a different load.

F4da 0600 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot supervisor process not created.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 14 and 15 (xx) indicate the process number of the supervisor process which could not be created.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A supervisor process could not be created because the pcb segment supplied by system generation (SYSGEN) for the process did not have the first segment list entry flagged as a pcb segment. This was due to a malfunction in SYSGEN.

CORRECTIVE ACTION

Investigate recent modifications to the SYSGEN program. Reboot the system with a different load.

F4da 0700 0000 0000 hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot time message allocation.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The initialization message to be sent to the process manager could not be allocated. This was due to a poor selection of the number of message blocks parameter supplied to system generation (SYSGEN).

CORRECTIVE ACTION

Check the database parameter which specifies message blocks. Reboot the system with a different load.

F4da 0800 0000 0000 hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot time message allocation.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The initialization message to be sent to the file manager could not be allocated. This was due to a poor selection of the number of message blocks parameter supplied to system generation (SYSGEN).

CORRECTIVE ACTION

Check the database parameter which specifies message blocks. Reboot the system with a different load.

SHEET 9 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3f : SPEC-luc043a : GM VER. 2.5a

F4da 0900 0000 0000 hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot time message allocation.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

One of the boot pcreate messages sent to the process manager could not be allocated. This was due to a poor selection of the number of message blocks parameter supplied to system generation (SYSGEN).

CORRECTIVE ACTION

Check the database parameter which specifies message blocks. Reboot the system with a different load.

F4da 0A00 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot segment not created.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 14 and 15 (xx) indicate the index into the bootab.bt_seg[ ] array for the segment which was not created.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

One of the system generation (SYSGEN) specified boot segments could not be created due either to a SYSGEN error or a poor selection of memory management control block parameters passed to SYSGEN.

CORRECTIVE ACTION

Investigate recent modifications to the SYSGEN program and examine the SYSGEN results file. Check the database parameters which specify pages, segments, and page tables. Reboot the system with a different load.

SHEET 11 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3f : SPEC-luc043a : GM VER. 2.5a

F4da 0B00 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Message segment not created.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 14 and 15 (xx) specify a flag that indicates which message segment was not created: "00" is the KMSG segment, "01" is the MSGEXT segment.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

One of the message handling segments was not created. This was due to a poor selection of memory management control block parameters passed to system generation (SYSGEN).

CORRECTIVE ACTION

Check the database parameters which specify pages, segments, and page tables. Reboot the system with a different load.

F4da 0C00 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Dispatcher control segment not created.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 14 and 15 (xx) specify a flag that indicates which dispatcher control segment was not created: "00" is the DCT segment, "01" is the DCTEXT segment.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

One of the dispatcher control segments was not created. This was due to a poor selection of memory management control block parameters passed to system generation (SYSGEN).

CORRECTIVE ACTION

Check the database parameters which specify pages, segments, and page tables. Reboot the system with a different load.

F4da 0D00 0000 0000 hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Interrupt stack segment not created.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The interrupt stack segment was not created. This was due to a poor selection of memory management control block parameters passed to system generation (SYSGEN).

CORRECTIVE ACTION

Check the database parameters which specify pages, segments, and page tables. Reboot the system with a different load.

F4da 0E00 0000 0000 hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

System port segment not created.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The system port segment was not created. This was due to a poor selection of memory management control block parameters passed to system generation (SYSGEN).

CORRECTIVE ACTION

Check the database parameters which specify pages, segments, and page tables. Reboot the system with a different load.

F4da 0F00 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot process not created.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 14 and 15 (xx) indicate the process number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

One of the boot processes could not be created correctly.

CORRECTIVE ACTION

Examine the system generation (SYSGEN) results file for inconsistencies. Reboot the system with a different load.

SHEET 16 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3f : SPEC-luc043a : GM VER. 2.5a

F4da 1000 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Protected application segment (PAS) not created.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 14 and 15 (xx) indicate the number of segments successfully created for the PAS before the failure.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

One of the segments required for the PAS was not created. This was due to a poor selection of memory management control block parameters passed to system generation (SYSGEN).

CORRECTIVE ACTION

Check the database parameters which specify pages, segments, and page tables. Reboot the system with a different load.

SHEET 17 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3f : SPEC-luc043a : GM VER. 2.5a

F4da 1100 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Kernel segment table not created.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 14 and 15 (xx) indicate the number of kernel segments successfully put into the table and are also an index into the bootab.bt_nseg[ ] array.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The kernel segment table could not be completely created due to some access permission problem.

CORRECTIVE ACTION

Check the system generation (SYSGEN) results file to see the definitions of the kernel segments. Reboot the system with a different load.

F4da 1200 xx00 00yy hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Protected application segment (PAS) too big.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8 and 9(xx) indicate which PAS section: 00 = low PAS 01 = high PAS.
yy	Digits 14 and 15 (yy) indicate the number of segments requested for PAS.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The number of segments required to fulfill the requested size for the PAS exceeds its maximum engineered size due to a poor selection of PAS size parameters in the equipment configuration database (ECD).

CORRECTIVE ACTION

Check the database parameters which specify the PAS size. Reboot the system with a different load.

SHEET 19 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3f : SPEC-luc043a : GM VER. 2.5a

F4da 1300 0000 0000 hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Kboot work segment not allocated.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The work segment KBOOT used to read in boot time public libraries could not be created. This was due to a poor selection of memory management control block parameters passed to system generation (SYSGEN).

CORRECTIVE ACTION

Check the database parameters which specify pages, segments, and page tables. Reboot the system with a different load.

F4da 1400 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Unable to complete a boot process.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 14 and 15 (xx) indicate the process number of the boot process which could not be completed.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

While trying to add a public library to the address space of a boot process, it was determined that there were no available segment list entries. This was due to a version mismatch between the process and one or more of its required public libraries.

CORRECTIVE ACTION

Examine pfile header listings for the indicated process and all of its required libraries to see if more than the provided for number of segments (R1:128, R6:default=50, maximum=511) have been requested. Reboot the system with a different load.

F4da 1500 xx00 00yy hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Unable to complete a boot process.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8 and 9 (xx) indicate the segment index in dispute.
yy	Digits 14 and 15 (yy) indicate the process number of the boot process which could not be completed.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

While trying to add a public library to the address space of a boot process, it was determined that there was more than one request for the same segment index. This was due to a version mismatch between the process and one or more of its required public libraries.

CORRECTIVE ACTION

Examine pfile header listings for the indicated process and all of its required libraries to see if more than one request has been made for the same segment. Reboot the system with a different load.

F4da 1600 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Unable to read public library.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 14 and 15 (xx) indicate the number of public libraries found.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

One or more of the boot time public libraries were not found in direct address directory blocks.

CORRECTIVE ACTION

Reboot the system with a different load, and examine the root directory to ensure that all boot public libraries are contained within direct block addresses.

F4da 1700 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Unable to read public library.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 14 and 15 (xx) indicate the number of public libraries found.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

One or more of the boot time public libraries were not found in the root directory.

CORRECTIVE ACTION

Reboot the system with a different load, and examine the root directory to ensure that all boot public libraries are present.

SHEET 24 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3f : SPEC-luc043a : GM VER. 2.5a

F4da 1800 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Unable to read public library.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 14 and 15 (xx) indicate the number of public libraries found.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

One or more of the boot time public libraries had invalid inodes in the root directory.

CORRECTIVE ACTION

Reboot the system with a different file system.

SHEET 25 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3f : SPEC-luc043a : GM VER. 2.5a

F4da 1900 xx00 00yy hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Unable to allocate public library segment.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8 and 9 (xx) indicate the index into the library header l_seg array.
yy	Digits 14 and 15 (yy) indicate the index into the boot table bt_libpath array.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A segment for a public library could not be allocated either because the library header was invalid or because of a poor selection of the memory management control block parameters passed to system generation (SYSGEN).

CORRECTIVE ACTION

Examine the public library to see if the indicated segment is specified correctly. If so, check the database parameters for the number of pages, segments, and page tables. Reboot the system with a different load.

SHEET 26 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3f : SPEC-luc043a : GM VER. 2.5a

F4da 1A00 0000 0000 hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Disk read time-out.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

More than 4 seconds elapsed waiting for a disk read to complete.

CORRECTIVE ACTION

If repeated attempts to boot fail, try switching to an alternate disk drive. Reboot the system.

F4da 1B00 0000 0000 hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Disk read failure.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A disk read SYSGEN command failed.

CORRECTIVE ACTION

If repeated attempts to boot fail, try switching to an alternate disk drive. Reboot the system.

F4da 1C00 0000 0000 hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Disk read failure.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A disk read completed but returned a failure condition.

CORRECTIVE ACTION

If repeated attempts to boot fail, try switching to an alternate disk drive. Reboot the system.

SHEET 29 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3f : SPEC-luc043a : GM VER. 2.5a

F4da 1D00 xx00 00yy hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Unable to name a public library segment.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8 and 9 (xx) indicate the index into the boot table bt_libpath array.
yy	Digits 14 and 15 (yy) indicate segment index.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Unable to name a public library segment because the library header was invalid.

CORRECTIVE ACTION

Examine the public library to see if the indicated segment is specified correctly. Reboot the system with a different load.

F4da 1E00 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot time database is missing.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 14 and 15 (xx) indicate the index into the boot header bh_btdb array.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Unable to create a boot time database segment because it was not found at the expected KBOOT virtual address. This was due to a malfunction in system generation (SYSGEN) or BBOOT.

CORRECTIVE ACTION

Investigate recent modifications to the SYSGEN or BBOOT programs. Reboot the system with a different load.

SHEET 31 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3f : SPEC-luc043a : GM VER. 2.5a

F4da 1F00 0000 0000 hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Unable to create segment for memory management data.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

During system creation, the data segment used to contain the memory manager hole descriptor table could not be created.

Routine: KBOOT-crkdym

CORRECTIVE ACTION

Reboot the system.

F4da 2000 xxxx xxxx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Swapsize is less than minswsz.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx xxxx	The amount that minswsz exceeds swapsize.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Before KBOOT completes, a check is made to see if the amount of swappable memory is less than the minimum required. If so, this PRM is issued.

CORRECTIVE ACTION

Check the database parameters which might alter the amount of swappable memory and change them as required. Protected application segment (PAS) may be too large, or more pages may be required. More physical memory may be required. Reboot the system with a different load.

F4da 2100 xx00 00yy hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot kernel process not created.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8 and 9 (xx) indicate the segment number.
yy	Digits 14 and 15 (yy) indicate the process number of the kernel process which could not be created.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A kernel process requiring PAS could not be created because no protected application segment (PAS) was available. This was due to a poor selection of PAS size parameters in the equipment configuration database (ECD).

CORRECTIVE ACTION

Check the database parameters which specify PAS size. Reboot the system with a different load.

F4da 2200 xx00 00yy hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Unable to name a public library segment.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8 and 9 (xx) indicate the type of segment which could not be added to the kernel process: "80" for and equipment configuration database (ECD) segment, "91" for a protected application segment (PAS).
yy	Digits 14 and 15 (yy) indicate the process number of the kernel process which could not be created.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A kernel process could not be created because the *kpcb* segment supplied by system generation (SYSGEN) for the process did not contain enough free list entries to allow for the required ECD and/or PAS segment. This was due to a mismatch between the number of segment list entries engineered for the process and the number required when taking ECD and/or PAS into account.

SHEET 35 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3f : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

Examine the *pfile* header listing for the indicated process and the databases' parameters specifying the size of the ECD and/or PAS to see if more than the number of segments provided for by the process have been requested. The "sg1sz" keyword in the process' specification file can be used to adjust the size of the process' segment list. Reboot the system with a different load.

E4da DDtw xxyy yzzz hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Disk data (previously known as all-seems-well function).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
t	Digit 6 (t) — 1 indicates a maintenance interrupt; 0 indicates a phase.
w	Digit 7 (w) indicates H'A for nonmanually initiated maintenance reset functions (MRFs) and 0 otherwise.
xx	Digits 8-9 (xx) are the last two hexadecimal digits of sequence number that are part of postmortem dump.
yyy	Digits 10-12 (yyy) indicate H'BD**n** indicates boot MHD **n** is active and H'000 indicates not active. **n** is an odd-numbered MHD in the range of H'1 through H'F.
zzz	Digits 13-15 (zzz) indicate H'BD**n** indicates boot MHD **n** is active and H'000 indicates not active. **n** is an even-numbered MHD in the range of H'0 through H'E.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This PRM is generated when this process (step) has successfully completed execution.

SHEET 37 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3f : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

None

Identifier 5 - Error Interrupt Handler PRMs

3G

Contents

Error Interrupt Handler PRMs 3G-1

Identifier 5 - Error Interrupt Handler PRMs

3G

Error Interrupt Handler PRMs

Identifier 5 Error Interrupt Handler produces processor recovery messages (PRMs) that report failures detected by system primitives, report time-outs of an input/output (I/O) operation, or report the failure of an attempt to "soft" switch a control unit (CU).

E5da 01xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

"lla_rdget" returned an error condition.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function number given by digits 6 and 7 (xx). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
yyy	"lla_rdget" returned an error at the line given by digits 8-11 (yyyy).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An error was returned when searching the equipment configuration database (ECD) via the "lla_rdget" command. This indicated that no data was found for the specified record identifier and thus the record identifier and the data requested were garbage. Hence, this error implicates the sanity of the database. The machine may function properly for some time and normal operations (such as switching CUs) may remove the problem. It may also indicate imminent failure.

CORRECTIVE ACTION

NOTE:
Do not run ECD audit 1 while diagnostics are running, a recent change is being applied, or during an off-line boot to prevent possible mutilation of database records.

If the system is in off-line boot mode, stop the system using the **STOP:OFLBOOT/f1 command. Then run the ECD audit for the "incore memory" database using the AUD:ECD 1** command. Refer to 254-303-110, *PDS Input Messages Manual* or 254-303-112, *MML Input Messages Manual*, for more information on input commands.

F5da 01xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Access to equipment configuration database (ECD) by library function "lla_rdget" returned an error to the hard switch function.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where function "lla_rdget" returned an error.
zzzz	Reason code for the hard switch as follows: **Hex 55** Indicates the hard switch was caused by manually forcing the active CU off-line. **Hex c4, c5, c8, and c9** Indicates the CONFIG process fault code defined in Table 3-F. **Hex e6** Indicates hard switch due to entering disk independent operation (DIOP).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of these digits.

EXPLANATION

This processor recovery message (PRM) message indicates that no data was found for the specified record identifier in the equipment configuration database (ECD). Hence, this error implies that the ECD could be corrupted.

CORRECTIVE ACTION

NOTE:
Do not run ECD audit 1 while diagnostics are running, a recent change is being applied, or during an off-line boot to prevent possible mutilation of database records.

If the system is in off-line boot mode, stop the off-line boot procedure using the **STOP:OFLBOOT** command. Then run the ECD audit for the "incore memory" database using the **AUD:ECD 1** command. Refer to 254-303-110, *PDS Input Messages Manual, or 254-303-112, MML Input Messages Manual*, for more information on input commands.

F5da 02xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Failure to attach to the equipment configuration database (ECD).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function number given by digits 6 and 7 (xx).
yyyy	The EIH failed to attach to the ECD at the line number given by digits 8-11 (yyyy). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Failure to attach to the ECD indicates that EIH cannot get information about the configuration of the machine. Without this information, EIH does not function, and the machine probably does not come up. Failure to attach to the ECD also indicates that the ECD has been mutilated.

The bootstrap level is automatically escalated via the phase call.

CORRECTIVE ACTION

None

V5da 03xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

"lla_uprid" returned an error condition.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
V	Digit 0 (V) specifies if the PRM is a failure (F) or a conditional success (E). If F is specified, the error is fatal and requires a system phase. If E is specified, some error was encountered but the system should continue to function.
xx	In the function number given by digits 6 and 7 (xx). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
yyyy	"lla_uprid" returned an error at the line given by digits 8-11 (yyyy).
(zzzz)	Digits 12-15 (zzzz) may contain information that is helpful to technical support in diagnosing the problem.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An error was returned when searching the equipment configuration database (ECD) via the "lla_uprid" command. This indicated that a previously obtained record could not be updated in the ECD. Hence, this error implicates the sanity of the database. The machine may function properly for some time, and normal operations (such as switching CUs) may remove the problem. It may also indicate imminent failure.

SHEET 7 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

NOTE:
Do not run ECD audit 1 while diagnostics are running, a recent change is being applied, or during an off-line boot to prevent possible mutilation of database records.

If the system is in off-line boot mode, stop the off-line boot procedure using the **STOP:OFLBOOT** command.

If digit 0 (v) of this PRM is E, run the ECD audit for the "incore memory" database using the **AUD:ECD 1** command.

If digit 0 (v) of the PRM is F, run the ECD audit on the backup root partition. Refer to 254-303-110, *PDS Input Messages Manual, or 254-303-112, MML Input Messages Manual*, for more information on input commands.

E5da 04xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

lla_opensq returned an error condition.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function number given by digits 6 and 7 (xx). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
yyyy	"lla_opensq" returned an error at the line given by digits 8-11 (yyyy).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An error was returned when searching the equipment configuration database (ECD) via the "lla_opensq" command. This indicated a premature end of a database search and the possible use of garbage data in the operating system. The machine may function properly for some time, and normal operations (such as switching CUs) may remove the problem. It may also indicate imminent failure.

SHEET 9 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

NOTE:
Do not run ECD audit 1 while diagnostics are running, a recent change is being applied, or during an off-line boot to prevent possible mutilation of database records.

If the system is in off-line boot mode, stop the off-line boot procedure using the **STOP:OFLBOOT** command. Then run the ECD audit for the "incore memory" database using the **AUD:ECD 1** command. Refer to 254-303-110, *PDS Input Messages Manual, or 254-303-112, MML Input Messages Manual*, for more information on input commands.

E5da 05xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Unable to attach to interrupts.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function number given by digits 6 and 7 (xx).
yyyy zzzz	"atchintr" was unable to attach to interrupts at the line given by digits 8-11 (yyyy) for interrupt source digits 12-15 (zzzz). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The indicated function was unable to attach to interrupts. This indicates that the process which was being attached to the interrupt source (vector) did not exist or that the interrupt vector was invalid. In any event, EIH did not attach to an interrupt source and any errors will not be handled properly. The possible interrupt sources are:

0 My CC hardware
1 Other CC hardware
2 My CC software.

CORRECTIVE ACTION

None

E5da 06xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Unable to enable interrupts.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function number given by digits 6 and 7 (xx).
yyyy	"enabintr" was unable to enable interrupts at the line given by digits 8-11 (yyyy).
zzzz	For the interrupt source digits 12-15 (zzzz). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The indicated function was unable to enable interrupts. This indicates that the interrupt vector is invalid, the process does not exist, or the process is not attached to the interrupt vector. This indicates that EIH could not enable an interrupt source and that errors will not be handled properly. The possible interrupt sources are:

0 My CC hardware
1 Other CC hardware
2 My CC software

SHEET 12 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

None

E5da 07xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Unable to disable interrupts.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function number given by digits 6 and 7 (xx).
yyyy	"disabintr" was unable to disable interrupts at the line given by digits 8-11 (yyyy).
zzzz	For interrupt source digits 12-15 (zzzz). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The indicated function was unable to disable interrupts. This indicates that the interrupt vector is invalid, the process does not exist, or the process is not attached to the interrupt vector. This indicates that EIH could not disable an interrupt source and that errors will not be handled properly. The possible interrupt sources are:

0 My central control (CC) hardware
1 Other CC hardware
2 My CC software.

SHEET 14 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

None

E5da 08xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

"atchchan" returned an error condition. Unable to construct an attach point for an interrupt.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function number given by digits 6 and 7 (xx).
yyyy	"atchchan" kernel call returned a failure at the line given by digits 8-11 (yyyy).
zzzz	For interrupt source digits 12-15 (zzzz). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This indicates that "atchchan" was given an invalid interrupt source, the channel number was greater than a maximum, or no more attach buffers are available. Since the channel data is derived from the equipment configuration database (ECD), most likely this indicates a problem with the database, although it may also indicate a problem in the kernel.

SHEET 16 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

None

E5da 09xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

"gnxt" returned an error condition.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function number given by digits 6 and 7 (xx). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
yyyy	"gnxt" returned an error at the line given by digits 8-11 (yyyy).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An error was returned when searching equipment configuration database (ECD) via the "gnxt" command. This indicates a premature end of a database search and the possible use of garbage data in the operating system. The machine may function properly for some time, and normal operations [such as switching control units (CUs)] may remove the problem. It may also indicate imminent failure.

SHEET 18 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

NOTE:
Do not run ECD audit 1 while diagnostics are running, a recent change is being applied, or during an off-line boot to prevent possible mutilation of database records.

If the system is in off-line boot mode, stop the off-line boot procedure using the **STOP:OFLBOOT** command. Then run the ECD audit for the "incore memory" database using the **AUD:ECD 1** command. Refer to 254-303-110, *PDS Input Messages Manual, or 254-303-112, MML Input Messages Manual*, for more information on input commands.

E5da 0Axx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

"topucb" returned an error condition.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function number given by digits 6 and 7 (xx). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
yyyy	"topucb" returned an error at the line given by digits 8-11 (yyyy).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An error was returned when searching the equipment configuration database (ECD) via the "topucb" command. This indicates that the tape-only program (TOP) of a community could not be found and thus implicates the sanity of the ECD. The machine may function properly for some time, and normal operations [such as switching controls units (CUs)] may remove the problem. It may also indicate imminent failure.

SHEET 20 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

NOTE:
Do not run ECD audit 1 while diagnostics are running, a recent change is being applied, or during an off-line boot to prevent possible mutilation of database records.

If the system is in off-line boot mode, stop the off-line boot procedure using the **STOP:OFLBOOT** command. Then run the ECD audit for the "incore memory" database using the **AUD:ECD 1** command. Refer to 254-303-110, *PDS Input Messages Manual, or 254-303-112, MML Input Messages Manual*, for more information on input commands.

SHEET 21 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

E5da 0Bxx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

A bad record identifier (RID) was passed to a function.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	The function number given by digits 6 and 7 (xx). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
yyyy	Received an invalid equipment configuration database (ECD) RID as a parameter at the line given by digits 8-11 (yyyy).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An invalid RID was passed to a function within EIH. This indicates that a previously retrieved ECD entry was invalid and implicates the sanity of the database. The machine may function properly for some time, and normal operations may remove the problem. The error may, however, indicate imminent failure.

CORRECTIVE ACTION

NOTE:
Do not run ECD audit 1 while diagnostics are running, a recent change is being applied, or during an off-line boot to prevent possible mutilation of database records.

SHEET 22 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

If the system is in off-line boot mode, stop the off-line boot procedure using the **STOP:OFLBOOT** command. Then run the ECD audit for the "incore memory" database using the **AUD:ECD 1** command. Refer to 254-303-110, *PDS Input Messages Manual, or 254-303-112, MML Input Messages Manual*, for more information on input commands.

E5da 0Cxx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

"chucb" returned an error condition.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function number given by digits 6 and 7 (xx). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
yyyy	"chucb" returned an error at the line given by digits 8-11 (yyyy).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An error was returned when searching the database via the "chucb" command. This indicates a premature end of a database search and the possible use of garbage data in the operating system. The machine may function properly for some time, and normal operations [such as switching control units (CUs)] may remove the problem. It may also indicate imminent failure.

SHEET 24 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

NOTE:
Do not run ECD audit 1 while diagnostics are running, a recent change is being applied, or during an off-line boot to prevent possible mutilation of database records.

If the system is in off-line boot mode, stop the off-line boot procedure using the **STOP:OFLBOOT** command. Then run the ECD audit for the "incore memory" database using the **AUD:ECD 1** command. Refer to 254-303-110, *PDS Input Messages Manual, or 254-303-112, MML Input Messages Manual*, for more information on input commands.

SHEET 25 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

E5da 0Dxx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

"lla_nextseq" returned an error condition.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function number given by digits 6 and 7 (xx). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
yyyy	"lla_nextseq" returned an error at the line given by digits 8-11 (yyyy).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An error was returned when searching the equipment configuration database (ECD) via the "lla_nextseq" command. This indicates a premature end of a database search and the possible use of garbage data in the operating system. The machine may function properly for some time, and normal operations [such as switching control units (CUs)] may remove the problem. It may also indicate imminent failure.

CORRECTIVE ACTION

NOTE:
Do not run ECD audit 1 while diagnostics are running, a recent change is being applied, or during an off-line boot to prevent possible mutilation of database records.

If the system is in off-line boot mode, stop the off-line boot procedure using the **STOP:OFLBOOT** command. Then run the ECD audit for the "incore memory" database using the **AUD:ECD 1** command. Refer to 254-303-110, *PDS Input Messages Manual, or 254-303-112, MML Input Messages Manual*, for more information on input commands.

SHEET 27 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

E5da 0Exx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

"rptrerr" returned an error condition.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function number given by digits 6 and 7 (xx).
yyyy	"rptrerr" returned a failure at the line number given by digits 8-11 (yyyy). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

In reporting an error which might cause the control unit (CU) to be removed, a failure was returned. This means that a faulty CU may remain in service.

CORRECTIVE ACTION

None; however, the configuration control library (config) may have printed an error message providing further information on the error.

E5da 0Fxx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

"sendmch" returned a failure.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function number given by digits 6 and 7 (xx). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
yyyy	"sendmch" returned a failure at the line number given by digits 8-11 (yyyy).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A failure was encountered in attempting to send a maintenance channel command to the off-line processor.

CORRECTIVE ACTION

Diagnose the faulty processor, and check the maintenance channel cables.

F5da 0Fxx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

"sendmch" returned a failure.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function number given by digits 6 and 7 (xx). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
yyyy	"sendmch" returned a failure at the line number given by digits 8-11 (yyyy).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A failure was encountered in attempting to send a maintenance channel command to the off-line processor.

CORRECTIVE ACTION

Diagnose the faulty processor, and check the maintenance channel cables.

F5da 10xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Improper boot device.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx).
yyyy	The boot device moving head disk (MHD) whose number is given in digits 8-11 (yyyy) was found to have a nonbootable equipment configuration database (ECD) state. (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers in digits 6 and 7.)
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The device used to bootstrap the system, as indicated in the PRM, was marked unavailable or off-line in the ECD and hence should not be used as a boot device. A phase 1 was issued to force escalation and selection of another boot device.

CORRECTIVE ACTION

If this PRM persists, force the opposite boot device MHD.

SHEET 31 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

E5da 11xx 0000 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

A request to remove a unit using the configuration control library (config) "fault driver" function returned a failure.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx), EIH called the config function (fltdrv) and received a failure return. (See Tables 3-A,3-B, or 3-C for the function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A request has been made by EIH to remove the off-line processor using the config library (fltdrv) function. The fltdrv routine returned a failure.

CORRECTIVE ACTION

None; however, the configuration control library may have printed an error message providing further information on the error.

E5da 12xx 0000 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

"lla_get" function failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx), "lla_get" returned a failure. (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

In searching the equipment configuration database (ECD) via the "lla_get" command, an error was returned. This indicates that no data was found for the specified record identifier and thus the record identifier and the data requested are garbage. Hence, this error implicates the sanity of the database. The machine may function properly for some time, and normal operations [such as switching control units (CUs)] may remove the problem. It may also indicate imminent failure.

SHEET 33 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

NOTE:
Do not run ECD audit 1 while diagnostics are running, a recent change is being applied, or during an off-line boot to prevent possible mutilation of database records.

If the system is in off-line boot mode, stop the off-line boot procedure using the **STOP:OFLBOOT** command. Then run the ECD audit for the "incore memory" database using the **AUD:ECD 1** command. Refer to 254-303-110, *PDS Input Messages Manual, or 254-303-112, MML Input Messages Manual*, for more information on input commands.

F5da 12xx 0000 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

"lla_get" function failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx), "lla_get" returned a failure. (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

In searching the equipment configuration database (ECD) via the "lla_get" command, an error was returned. This indicates that no data was found for the specified record identifier and thus the record identifier and the data requested are garbage. Hence, this error implicates the sanity of the database. The machine may function properly for some time, and normal operations [such as switching control units (CUs)] may remove the problem. It may also indicate imminent failure.

SHEET 35 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

Run the ECD audit for the "incore memory" database using the command: AUD:ECD 1.

If the system is in off-line boot mode, stop it, and then run the ECD audit.

E5da 13xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Direct memory access controller (DMAC) channel initialization returned a failure.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx).
yyyy	The error interrupt handler DMAC initialization routine returned a failure at the line number given by digits 8-11 (yyyy). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A failure was returned from the DMAC random access memory (RAM) initialization routine. The DMAC RAM initialization routine attempts to set the contents of the DMAC RAM to all 0s. A failure return indicates that an I/O time-out or I/O error occurred.

CORRECTIVE ACTION

Diagnose the DMAC in the faulty control unit (CU).

F5da 13xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Direct memory access controller (DMAC) channel initialization returned a failure.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx).
yyyy	The error interrupt handler DMAC initialization routine returned a failure at the line number given by digits 8-11 (yyyy). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A failure was returned from the DMAC random access memory (RAM) initialization routine. The DMAC RAM initialization routine attempts to set the contents of the DMAC RAM to all 0s. A failure return indicates that an I/O time-out or I/O error occurred.

CORRECTIVE ACTION

Diagnose the DMAC in the faulty control unit (CU).

F5da 14xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

A phase is called due to a fatal direct memory access controller (DMAC) error.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx).
yyyy	The EIH called the phase operating system trap (OST) at the line number given by digits 8-11 (yyyy). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The instruction immediately following the instruction which requested this PRM is a phase OST call. The phase is being requested due to a fatal DMAC error.

CORRECTIVE ACTION

Diagnose the DMAC in the faulty control unit (CU).

SHEET 39 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

E5da 15xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Bad operating system trap (OST) code passed to KOST.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function number given by digits 6 and 7 (xx).
yyyy	The error interrupt handler detected an illegal OST code at the line number given by digits 8-11 (yyyy). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

A bad OST code was detected in the EIH KOST entry. The KOST entry in EIH is used strictly for PIO error handling. The expected OST codes, PIO error "PIOERR", and PIO time-out "PIOTMO" were not matched.

CORRECTIVE ACTION

None

E5da 16xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Mismatch of dual serial channel (DSCH) masks.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx), the DSCH interrupt mask and service request mask returned by an inhibitdv operating system trap (OST) were found to be dissimilar.
yyyy	The interrupt mask is given in digits 8-11 (yyyy).
zzzz	While the service request mask is given in digits 12-15 (zzzz).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The channel masks for a direct memory access controller (DMAC) channel should be identical. The interrupt mask was used to inhibit devices during a channel error recovery. The error points to (1) inconsistency in kernel data tables and (2) possible loss of I/O from a device (disk file controller or I/O processor).

SHEET 41 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

If the PRM persists, a manual phase 1 should clear the situation.

SHEET 42 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

E5da 17xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Failure return from "inhibitdv" operating system trap (OST).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function indicated by bits 6 and 7 (xx) (refer to Tables 3-A,3-B, or 3-C).
yyyy	A call to the inhibitdv OST at the line number in digits 8-11 (yyyy) returned a failure.
zzzz	The channel number is given in digits 12-15 (zzzz).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The call failed due to an invalid channel number. If the channel number does not correspond to an equipped channel, then a number of problems may be present such as faulty direct memory access controller (DMAC), faulty dual serial channel (DSCH), or corrupted equipment configuration database (ECD) or process. If the channel number is valid, kernel data corruption is indicated.

SHEET 43 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

If possible, switch processors or phase twice to force the system to the off-line. If the problem persists through a phase 1 on a different control unit (CU), a bootstrap is required. A Level 3 bootstrap will maximize success.

E5da 18xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Failure to write the dual serial channel (DSCH) mask.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function indicated by digits 6 and 7 (xx) (refer to Tables 3-A,3-B, or 3-C), a call to write the DSCH mask failed.
yyyy	The channel number is given by digits 8-11 (yyyy).
zzzz	The device for which the write mask failed is given by digits 12-15 (zzzz).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The write mask was performed to inhibit a device for channel error recovery. Repeated failures for a valid channel and device indicate a "hung channel."

CORRECTIVE ACTION

The failing device should be powered down. If this cannot be done or does not work, switch or force processing to the other processor.

E5da 19xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Failure to initialize the network system center (NSC) interface.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx).
zzzz	EIH failed to initialize the NSC interface in the channel position given by digits 12-15 (zzzz).
yyyy	Digits 8-11 (yyyy) identify the line number where the EIH failed to initialize.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The NSC interface channel, given by digits 12-15, could not be initialized. An I/O error was detected on the initialization attempt; therefore, this channel may not be usable.

CORRECTIVE ACTION

Ensure that the equipment configuration database (ECD) channel equipage matches what is physically present. If all channels are physically present, consider switching processors.

F5da 1Axx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

"stopdma" returned a failure.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx).
yyyy	The location in the code where the failure occurred. (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
zzzz	Cause of error: 0xffff - Maintenance channel error 0xfffe - Maintenance channel order timeout 0xfffd - Maintenance channel response error.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

"stopdma" was unable to stop the DMAC.

CORRECTIVE ACTION

Diagnose the DMAC in the faulty control unit and the maintenance channel. Check the maintenance channel cables.

SHEET 47 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

F5da 1Bxx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

"clrdschm" returned a failure.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx).
yyyy	The location in the code where the failure occurred. (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
zzzz	The channel number where the failure occurred.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

"clrdschm" was unable to clear the channel mask in the DSCH that indicates whether the channel is or is not stopped.

CORRECTIVE ACTION

Diagnose the faulty processor and channel.

F5da 1Cxx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Unable to read the status of a channel.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function number given by digits 6 and 7 (xx).
yyyy	The location in the code where the failure occurred. (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
zzzz	The channel number where the failure occurred.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Error Interrupt Handler could not read the interrupt status (yyyy = 0x026e) or service request status (yyyy = 0x0272) of channel zzzz.

CORRECTIVE ACTION

Diagnose the faulty processor and channel.

SHEET 49 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

F5da 1Dxx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Unable to restore interrupts to a channel.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function number given by digits 6 and 7 (xx).
yyyy	The location in the code where the failure occurred. (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
zzzz	The channel number where the failure occurred.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Error Interrupt Handler is unable to restore interrupts for a channel specified by zzzz. These interrupts were pending on the original active CU when the CUs switched. The failure occurred on the "new" active CU.

CORRECTIVE ACTION

Diagnose the faulty processor and channel.

F5da 1Exx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Unable to read the DMAC RAM.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function number given by digits 6 and 7 (xx).
yyyy	The location in the code where the failure occurred. (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Error Interrupt Handler is unable to read the DMAC RAM.

CORRECTIVE ACTION

Diagnose the DMAC in the faulty processor.

SHEET 51 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

F5da 1Fxx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Unable to write the DMAC RAM.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function number given by digits 6 and 7 (xx).
yyyy	The location in the code where the failure occurred. (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Error Interrupt Handler is unable to write the DMAC RAM.

CORRECTIVE ACTION

Diagnose the DMAC in the faulty processor.

E5da 20xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Postmort sequence number mismatch.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
yyyy	Postmort sequence number from the iparm area in low core.
zzzz	Postmort sequence number from the post mort area in low core.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

This processor recovery message (PRM) is written to alert the craft to the possibility of invalid postmort data. EIH was entered at its fault entry to handle a "Phase 1" or "maintenance interrupt". In the process of deciding whether to call a Phase or maintenance interrupt, the postmort sequence number stored in the iparm area of low core did not match the postmort sequence number in the postmort area of low core. The consequence of this error is a Phase 1 by default; and the postmortem dump may not be for the most recent recovery.

SHEET 53 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

None

E5da 21xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Failure to initialize a serial channel (SCH).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx).
yyyy	At the line given by digits 8-11 (yyyy).
zzzz	The EIH failed to initialize the channel given by digits 12-15 (zzzz).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The serial channel given by digits 12-15 could not be initialized. An I/O error was detected on the initialization attempt; therefore, this channel may not be usable.

CORRECTIVE ACTION

Ensure that the equipment configuration database (ECD) channel equipage matches what is physically present. If all channels are physically present, consider switching processors.

SHEET 55 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

E5da 22xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Failure to initialize a dual serial channel (DSCH).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx).
yyyy	At the line given by digits 8-11 (yyyy).
zzzz	The EIH failed to initialize the channel given by digits 12-15 (zzzz).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The DSCH given by digits 12-15 could not be initialized. An I/O error was detected on the initialization attempt; therefore, this channel may not be usable.

CORRECTIVE ACTION

Ensure that the equipment configuration database (ECD) channel equipage matches what is physically present. If all channels are physically present, consider switching processors.

E5da 23xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Failure to enable the direct memory access controller (DMAC).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx).
yyyy	The EIH failed to enable the DMAC. The line number is given by the digits 8-11 (yyyy).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

After initializing the DMAC, the attempt to enable DMAC failed.

CORRECTIVE ACTION

Diagnose the DMAC in the faulty control unit (CU).

SHEET 57 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

F5da 23xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Failure to enable the direct memory access controller (DMAC).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx).
yyyy	The EIH failed to enable the DMAC. The line number is given by the digits 8-11 (yyyy).
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

After initializing the DMAC, the attempt to enable DMAC failed.

CORRECTIVE ACTION

Diagnose the DMAC in the faulty control unit (CU).

E5da 24xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

The "dtchchan" operating system trap (OST) returned an error: unable to detach an attach point for an interrupt.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx).
yyyy	The "dtchchan" kernel call returned a failure at the line given by digits 8-11 (yyyy).
zzzz	For interrupt source digits 12-15 (zzzz). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

This indicates that ‘‘dtchchan’’ was given an invalid interrupt source, the channel number was greater than the maximum, or the attach buffer does not exist. Since the channel data is derived from the equipment configuration database (ECD), most likely this indicates a problem with the database, although it may also indicate a problem in the kernel or growth/degrowth procedures.

SHEET 59 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

None

E5da 25xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

The dschmask operating system trap (OST) failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx), "dschmask" returned a failure indication.
yyyy	See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers. Digits 8-11 (yyyy) indicate the line numbers.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The kernel could not write the dual serial channel mask. If this error occurs during soft switch (see function numbers in Tables 3-A,3-B, or 3-C), then the problem exists in the processor being switched to. The error may be with the channel hardware, or it may be a problem in the kernel.

CORRECTIVE ACTION

If error occurred on soft switch, then diagnose the faulty processor. If the error occurred on the active control unit (CU), I/O may have been impaired. In this case, consider switching processors (if automatic recovery has not done so already), and diagnose the faulty CU.

SHEET 61 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

F5da 25xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

The dschmask operating system trap (OST) failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx), "dschmask" returned a failure indication.
yyyy	See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers. Digits 8-11 (yyyy) indicate the line numbers.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The kernel could not write the dual serial channel mask. If this error occurs during soft switch (see function numbers in Tables 3-A,3-B, or 3-C), then the processor being switched to is where the problem exists. The error may be with the channel hardware, or there may be a problem in the kernel.

CORRECTIVE ACTION

If error occurred on soft switch, then diagnose the faulty processor. If the error occurred on the active control unit (CU), I/O may have been impaired. In this case, consider switching processors (if automatic recovery has not done so already), and diagnose the faulty CU.

SHEET 62 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

E5da 26xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Soft switch failure due to bad cache.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx), the soft switch attempt failed due to a cache problem.
yyyy	The failure was at the line given by digits 8-11 (yyyy). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This error can occur during softswitch if the cache in the standby processor is faulty.

CORRECTIVE ACTION

Diagnose the faulty control unit (CU).

SHEET 63 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

F5da 26xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Soft switch failure due to bad cache.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx), the soft switch attempt failed due to a cache problem.
yyyy	The failure was at the line given by digits 8-11 (yyyy). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This error can occur during softswitch if the cache in the standby processor is faulty.

CORRECTIVE ACTION

Diagnose the faulty control unit (CU).

SHEET 64 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

E5da 27xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Soft switch failure due to time-out.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx), the soft switch attempt failed due to a lack of response from the standby processor. (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
yyy	Digits 8-11 (yyyy) represent the line numbers.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The processor being switched to did not respond in the required time-out interval. The on-line processor will abort the soft switch.

CORRECTIVE ACTION

Diagnose the faulty processor.

F5da 27xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Soft switch failure due to time-out.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx), the soft switch attempt failed due to a lack of response from the standby processor. (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
yyy	Digits 8-11 (yyyy) represent the line numbers.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The processor being switched to did not respond in the required time-out interval. The on-line processor will abort the soft switch.

CORRECTIVE ACTION

Diagnose the faulty processor.

E5da 28xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Soft switch failure - control unit was not in update mode.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx), the soft switch attempt failed because the control units were not in the updates. (See Tables 3-A,3-B, or 3-C for the function names corresponding to the function numbers.)
yyyy	Digits 8-11 (yyyy) represent the line numbers.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The update bit in the system status register (SSR) (bit 19) was not asserted when the switch request was received. This bit must be asserted at the time of the switch request since the unasserted state indicates the main store of the standby processor is not in sync with the main store of the active processor.

CORRECTIVE ACTION

Diagnose the faulty processor.

F5da 28xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Soft switch failure - control unit was not in the update mode.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx), the soft switch attempt failed because the control units were not in the update mode. (See Tables 3-A,3-B, or 3-C for the function names corresponding to the function numbers.)
yyyy	Digits 8-11 (yyyy) represent the line numbers.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The update bit in the system status register (SSR) (bit 19) was not asserted when the switch request was received. This bit must be asserted at the time of the switch request since the unasserted state indicates the main store of the standby processor is not in sync with the main store of the active processor.

CORRECTIVE ACTION

Diagnose the faulty processor.

E5da 29xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

An error interrupt has been received, while the control unit (CU) is in the INIT state.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	The function number. Refer to Tables 3-B or 3-C.
yyyy	The line number within the function that process the error interrupt.
zzzz	The error type. Refer to the following table.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

When processing an error interrupt, current state of CU is checked. If in INIT state, the information about cause of error interrupt is printed by this PRM.

Error	**Type Definitions**
0001	Segment index too large
0002	Segment index invalid
0004	Page index too large
0008	Page index invalid

Error	Type Definitions
000B	Invalid maintenance channel order
000C	Other store error A
000D	Other store error D
000E	Other store error C
000F	Other store time-out
0010	I/O channel error
0011	3/6 main channel I/O response error
0012	3/6 main channel address sequencing error
0013	Parity divert error (usually I/O bad parity)
0014	My store refresh parity error
0015	ATB protection violation
0016	ATB page fault
0017	My store out of range address
0018	Other store out of range address
0019	Instruction privilege violation
001A	Addressing violation, byte or halfword
001B	Illegal operand - there is no corresponding bit in error register
001C	Illegal opcode - there is no corresponding bit in error register
001D	Illegal stack switch - there is no corresponding bit in error register
001E	No interrupt source present when microcode interrupt handler entered
001F	CC_IOADR, CC_PDVT, CC_IORSP; used to clear multiple I/O errors
0032	error interrupt with no error register bit set

CORRECTIVE ACTION

None

E5da 30xx yyyy zzww hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Unable to turn the busy bit for the specified channel.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 5 and 7 (xx), the soft switch attempt failed because the control units were not in update. (See Tables 3-A,3-B, or 3-C for the function names corresponding to the function numbers.)
yyyy	Digits 8-11 (yyyy) represent the line numbers.
zz	Digits 12 and 13 (zz) indicates the DMA number.
ww	Digits 14 and 15 (ww) indicates the relative channel number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

On a DMA error EIH attempts to set the busy bits of the channels that are not implicated. This PRM indicates that this attempt failed.

CORRECTIVE ACTION

None

SHEET 71 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

SHEET 72 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

None. This failure results in a complete recovery by resetting the DMAC.

SHEET 73 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

E5da DDtw xxyy yzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Disk data (previously known as all-seems-well function).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
t	Digit 6 (t) — 1 indicates a maintenance interrupt; 0 indicates a phase.
w	Digit 7 (w) indicates H'A for nonmanually initiated maintenance reset functions (MRFs) and 0 otherwise.
xx	Digits 8-9 (xx) are the last two hexadecimal digits of sequence number that is part of postmortem dump.
yyy	Digits 10-12 (yyy)— H'BD**n** indicates boot MHD **n** is active and H'000 indicates not active. **n** is an odd-numbered MHD in the range of H'1 through H'F.
zzz	Digits 13-15 (zzz)— H'BD**n** indicates boot MHD **n** is active and H'000 indicates not active. **n** is an even-numbered MHD in the range of H'0 through H'E.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This PRM is generated when this process (step) has successfully completed execution.

SHEET 74 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

None

SHEET 75 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

E5da E0xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

‘‘alocmsg‘‘ failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx), "alocmsg" returned a failure. (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
yyyy	Digits 8-11 (yyyy) represent the line numbers.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The ‘‘alocmsg’’ operating system trap (OST) returned a fail indicating that no message buffers were available. This will probably result in a phase 1.

CORRECTIVE ACTION

None

E5da E1xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Queuing a message failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx), "queuemn" returned a failure. (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
yyyy	Digits 8-11 (yyyy) represent the line numbers within the function where the error occurred.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The "queuemn" operating system trap (OST) returned a failure. This indicates that no more messages can be sent to a given process.

CORRECTIVE ACTION

None

F5da E2xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Function call using a zero transfer vector.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx), the EIH detected a zero transfer vector.
yyyy	The program address from which the call was made is specified in digits 8-11 (yyyy). The failure resulted in a system initialization. (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An EIH function was called whose transfer vector was zero.

CORRECTIVE ACTION

None

SHEET 78 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

E5da E3xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Failure of the microstore pump to the off-line control unit (CU).

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx — In the function number given by digits 6 and 7 (xx).

yyyy — The EIH off-line microstore pump failed at the line number given by digits 8-11 (yyyy). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)

zzzz — The reason code for the hard switch given by the digits 12-15 (zzzz) is as follows:

55
Indicates that the hard switch was caused by manually forcing the active CU off-line.

Hex C4, C5, C8, C8, and C9
Indicate the CONFIG process fault code which is defined in Table 3-F.

Hex E6
Indicates the hardswitch is due to entering disk independent operation (DIOP).

hh hh hh — Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

SHEET 79 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

EXPLANATION

An error occurred in trying to pump off-line microstore.

CORRECTIVE ACTION

Check that the maintenance channel cables are properly connected and the CUs are powered up. If this output persist seek technical assistance.

F5da E3xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Failure of the microstore pump to the off-line control unit (CU).

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx — In the function number given by digits 6 and 7 (xx).

yyyy — The EIH off-line microstore pump failed at the line number given by digits 8-11 (yyyy). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)

zzzz — The reason code for the hard switch given by the digits 12-15 (zzzz) is as follows:

55
Indicates that the hard switch was caused by manually forcing the active CU off-line.

Hex C4, C5, C8, C8, and C9
Indicate the CONFIG process fault code which is defined in Table 3-F.

Hex E6
Indicates the hardswitch is due to entering disk independent operation (DIOP).

hh hh hh — Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

SHEET 81 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

EXPLANATION

An error occurred in trying to pump off-line microstore.

CORRECTIVE ACTION

Check that the maintenance channel cables are properly connected and the CUs are powered up. If this output persist seek technical assistance.

F5da E4xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

A phase is called due to the equipment configuration database (ECD) audit finding incorrect ucb data for direct memory access (DMA) or channel hardware.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	In the function given by digits 6 and 7 (xx).
yyyy	The EIH was notified of incorrect data at the line number given by digits 8-11 (yyyy). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The ECD audit detected incorrect data in ucb fields for hardware for which the EIH is responsible. Since the faulty data was for either a DMA or one of the channels, a phase will be called. The phase will most likely not correct the inconsistency in the ECD. The faulty data may cause phase escalation until new ECD data is read from disk.

CORRECTIVE ACTION

The processor may continue functioning even though the data in the ECD contains errors. Some consideration should be given to bootstrapping the processor (Level 3) as this will bring in a new database from disk.

F5da E5xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

A phase will be called to initiate a hard switch.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number. (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
yyyy	Line number (within function) at which EIH will call a phase.
zzzz	Reason code for the hard switch as follows: A reason code of hex 55 indicates that the hard switch was caused by manually forcing the active control unit (CU) off-line. Hex c4, c5, c8, and c9 are CONFIG process fault codes defined in Table 3-F. Hex e6 indicates hard switch due to disk limp mode.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A decision has been made to hard switch to the off-line processor. The initialization sequence control (ISC) bits have been set for stop and switch, and the phase operating system trap (OST) call following this message will complete the hard switch.

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CORRECTIVE ACTION

Diagnose the faulty CU.

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E5da E7ww xxxx yyzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

"descalate" operating system trap (OST) successfully completed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
ww	In the function given by digits 6 and 7 (ww), which should always be hex function number 27 (descalate). (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
xxxx	At the line number given by digits 8-11 (xxxx) within function "descalate".
yy	***UNIX**** Real-Time Reliable (RTR) operating system/Duplex Multi-environment Real-Time operating system (DMERT) level counter was de-escalated to the level specified by digits 12 and 13 (yy).
zz	The application initialization level to which the application initialization level counter was de-escalated is specified in digits 14 and 15 (zz).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

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EXPLANATION

The application integrity monitor (AIM) can request EIH to de-escalate the *UNIX* RTR/DMERT and application initialization level counters in order to control the next initialization level, should one occur between the time the OST is called and the end of the initialization interval. This PRM is output so field support personnel can identify the occurrence or the de-escalation event and identify the level that was requested. The existence of this PRM will help in the analysis of the events happening in an installation that is experiencing initialization level escalations.

CORRECTIVE ACTION

None. This is an informative PRM only.

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E5da E8xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Failure of identifying the active maintenance teletypewriter (MTTY) or the active receive-only printer in the ucb records.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx yyyy	While administrating off-line boot, the error interrupt handler (EIH) encountered an error in the function given by digits 6 and 7 (xx) at the line given by digits 8-11 (yyyy).
xx	Function number. (See Table 3-C for function names corresponding to the function numbers.)
yyyy	Line number (within function) at which EIH will call a phase.
zzzz	Digits 12-15 identifies the device.
0000	Device is DEV_MTTY.
0001	Device is DEV_ROP.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

After sequencing through the ucb records, looking for either MTTY or ROP in the active state (S_ACT), none was found. If an off-line boot is in progress, this results in an automatic rollback or termination of the off-line boot.

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CORRECTIVE ACTION

The processor may continue functioning even though the data in the ECD contains errors.

If the system was in off-line boot mode, restore the MTTY or the ROP and start off-line boot again.

F5da EAxx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Any EIH function executing on the on-line side during the off-line boot.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx yyyy	While administrating off-line boot, the error interrupt handler (EIH) in the on-line control unit (CU) encountered an error in the function given by digits 6 and 7 (xx) at the line given by digits 8-11 (yyyy).
xx	Function number. (See Table 3-C for function names corresponding to the function numbers.)
yyyy	Line number (within function) at which EIH will call a phase.
zzzz	Digits 12-15 are unused.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

If digits 6 and 7 (xx) identifies *kfault()*, then EIH received a fault and a phase will follow.

If digits 6 and 7 (xx) identifies *send_mch_int()*, an automatic termination of the off-line boot procedure will follow.

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Otherwise, the values of digits 6 and 7 (xx) identify problems with growing a unit, moving it out of service, or restoring a unit. Possible units are maintenance teletypewriter (MTTY), receive-only printer, switching control center (SCC), and scanner and signal distributor controller (SCSDC).

CORRECTIVE ACTION

If the problem identified a particular unit and the user wants to recover (that is, restore) it, then issue the STOP:OFLBOOT command before restoring the unit. See Select Code 303-080, *3B20D and 3B21D Computers UNIX RTR Operating System PDS Input Messages Manual* or Select Code 303-082, *3B20D and 3B21D Computers UNIX RTR Operating System MML Input Messages Manual*, for more information.

E5da ECxx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

add_rm_log() failed to:

- Send a message to coordinator of spooler output processes (CSOP) to inform it about class record change
- Insert the OLBLOG device record into the class record.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx yyyy	While administrating off-line boot, the error interrupt handler (EIH) encountered an error in the function given by digits 6 and 7 (xx) at the line given by digits 8-11 (yyyy).
xx	Function number. (See Table 3-C for function names corresponding to the function numbers.)
yyyy	Line number (within function) at which EIH will call a phase.
zzzz	Digits 12-15 give the reason of the failure.
0000	After inserting OLBLOG, the message cannot be sent to CSOP.
0001	After removing OFBLOG, the message cannot be sent to CSOP.
0002	There is no space available to insert the OLBLOG device record.

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hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The following are possible reasons for this problem:

- Failure to obtain CSOP's process ID (pid)
- Failure to allocate message buffer
- Failure to queue the message.

Off-line boot will proceed without a log file on the off-line side.

CORRECTIVE ACTION

None

F5da EDxx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Any EIH function executing on the off-line side during the off-line boot.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx yyyy	While administrating off-line boot, the error interrupt handler (EIH) encountered an error in the function given by digits 6 and 7 (xx) at the line given by digits 8-11 (yyyy).
xx	Function number. (See Table 3-C for function names corresponding to the function numbers.)
yyyy	Line number (within function) at which EIH will call a phase.
zzzz	Digits 12-15 indicate the reason the offline side stopped. See Table 3-I for the code and the corresponding reason.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

If the problem occurs during an off-line boot, it results in a halt on the off-line side. When the maximum number of halts is exceeded, a Level 3 phase will occur on the off-line side. If the problem happens when side switching, in which case no automatic action is taken; however the problem may result in both processors port switching the receive-only printer and maintenance teletypewriter (MTTY) devices.

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CORRECTIVE ACTION

If during side switching, the user wants to stop the continuing port switches of the ROP and the MTTY, the user can stop the off-line boot procedure via the STOP:OFLBOOT command. See the Select Code 303-080, *3B20D and 3B21D Computers UNIX RTR Operating System PDS Input Messages Manual* or Select Code 303-082, *3B20D and 3B21D Computers UNIX RTR Operating System MML Input Messages Manual*, for more information.

SHEET 95 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

E5da EExx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

The send_tty() failed to send a message to coordinator of spooler output processes (CSOP) to inform it about device record change.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx yyyy	While administrating off-line boot, the error interrupt handler (EIH) encountered an error in the function given by digits 6 and 7 (xx) at the line given by digits 8-11 (yyyy).
xx	Function number. (See Table 3-C for function names corresponding to the function numbers.)
yyyy	Line number (within function) at which EIH will call a phase.
zzzz	Digits 12-15 indicate when the problem occurred:
0000	After changing the device record to send the output to a designated TTY, EIH cannot inform the CSOP about the device record change.
0001	After changing the device record to send the output back to the ROP, EIH cannot inform the CSOP about the device record change.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

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EXPLANATION

Possible reasons for this problem are:

- Failure to obtain CSOP's process id (pid)
- Failure to allocate message buffer
- Failure to queue the message.

CORRECTIVE ACTION

None

F5da EFww xxxx yyzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Offline boot is being terminated with an RTR level 3 initialization performed on the offline side if the RETROFIT option was not used or a RTR level 4 initialization if the RETROFIT option was used. This covers stopping the offline side, preparing the offline side for the initialization, initializing the offline side, and stopping the online side.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

ww xxxx — While administrating off-line boot, the error interrupt handler (EIH) encountered an error in the function given by digits 6 and 7 (ww) at the line given by digits 8-11 (xxxx). See Table 3-C for function names corresponding to the function number (ww).

yy — Digits 12-13 if non-zero indicate the problem occurred because of an RTR condition in the offline side during side-switch prechecks when the RETROFIT option was specified. The error codes are defined in Table 3-I.

zz — Digits 14-15, if non-zero, indicate the problem occurred because of an application condition in the offline side during side switch prechecks when the RETROFIT option was specified. RTR can only give a high-level description of these:

01 offline side software error (no override)

02 offline side software error (may override, but no override is present)

04 offline side hardware error (may override, but no override is present)

hh hh hh Hardware status digits. Refer to Section 1 "PRM Interpretation" figure for definitions of the digits.

EXPLANATION

Depending on the function number (ww):

3A Very shortly after a side switch or during the side switch, the new online side entered disk independent operation (DIOP). Because of the following reasons, the system was automatically reconfigured through a boot back to the previous side.

- Recovering from DIOP will eventually require CRAFT operators to boot
- The offline boot procedure is intended for low traffic hours
- CRAFT considerations may take a long time (analyzing offline boot termination and entering DIOP can take a while)

3B At the end of the side switch process, a discovery was that the new on-line side had entered DIOP. Because the RETROFIT option was not specified, the system was automatically reconfigured through a boot back to the previous side.

56 During a side switch, when trying to turn call processing off or trying to switch to the other CU, one of the following conditions was found:

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- Could not read the offline SSR to ensure the offline CU was running
- The offline CU was found stopped
- There were no disk hardware forces in the EAI
- The disk hardware forces in the EAI had been changed.

Because the RETROFIT option was specified, the system was automatically reconfigured through a boot forward to the intended new side.

68 After the application printed the results of the side switch prechecks, it was discovered that the prechecks indicated a severe condition that prevented the side switch from being completed. Because the RETROFIT option was specified, the system was automatically reconfigured through a boot forward to the intended new side.

6A After the side switch prechecks results were received, EIH failed to copy the application pre-check memory area to the online side or EIH failed to send a message to the application to interpret the memory contents and print its precheck results. In either case, a severe condition was found in the offline side; for more information on this, interpret digits 12-15 (yy and zz). Because the RETROFIT option was specified, the system was automatically reconfigured through a boot forward to the intended new side.

6D After the application timed out while printing the results of the side switch prechecks, it was discovered that the prechecks indicated a severe condition that prevented the side switch from being completed. Because the RETROFIT option was specified, the system was automatically reconfigured through a boot forward to the intended new side.

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6F During the side switch prechecks, a non-manual termination or abort of offline boot was initiated. Because the RETROFIT option was specified, the system was automatically reconfigured through a boot forward to the intended new side.

CORRECTIVE ACTION

In all cases, the system should recover automatically. When the function (ww) is 3A or 3B, the system should recover after a boot back to the old side. The other function numbers can only occur for this PRM when the RETROFIT option was specified. In those cases, the system tries to recover by booting forward to the new side.

In any case, for all functions, if the recovery fails, troubleshoot the new failing PRMs or failure symptoms.

To determine the problem encountered by Offline Boot, analyze the ROP and OLBLOG files from both sides. This can take some time; so, the user is advised to save these materials.

E5da F0xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Failed to send a message to the real-time status (RTS) process to inform RTS about a change of state to UNEQUIP for an MTTY, ROP, SCC or SCSD device.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx yyyy — While administrating off-line boot, the error interrupt handler (EIH) encountered an error in the function given by digits 6 and 7 (xx) at the line given by digits 8-11 (yyyy). See Table 3-C for function names corresponding to the function number (xx).

zzzz — Digits 12-15 indicate why the problem occurred:

- 0000 — RTS is not attached to its port.
- FFFF — Cannot allocate memory for message.
- 2000 — RTS cannot queue more messages.

hh hh hh — Hardware status digits. Refer to Section 1 "PRM Interpretation" figure for definitions of the digits.

EXPLANATION

Cannot tell RTS to update display for MTTY, ROP, SCC, or SCSD.

SHEET 102 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3g : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

Restart RTS if not in disk independent operation (DIOP).

E5da F1xx xxxx xxxx hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Failure to send a PRM message to the system integrity monitor (SIM) due to lack of message buffers.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx xxxx xxxx	Digits 6-15 (xx xxxx xxxx) contain digits 4-13 of the PRM which could not be sent to SIM.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Some PRMs are sent to SIM via a message. If no message buffers are available, this PRM is directly output indicating that another PRM was to be output via SIM but no message buffers were available.

CORRECTIVE ACTION

System has ran out of message buffers. Changes to system resource allocation may be necessary if the problem persists.

To analyze the intended PRM, ignore digits 4 and 5, and use digits 6-15 as if they were digits 4-13 of an error interrupt handler (E5) PRM.

E5da F2xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Reports the fields in the unit control block (UCB) of an alternate boot disk (ABD) that contain unexpected values.

This processor recovery message (PRM) is only generated when the recovery from the ABD feature is configured.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number. (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
yyyy	An identifier in function number **xx** where the PRM originated.
zzzz	Additional information for determining the nature of the problem.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An error was returned when validating UCB data for the ABD.

yyyy	**Reason**
ad00	The moving head disk (MHD) selected as the ABD is not configured under DFC 0 or DFC 1. Field **zzzz** contains the unit number.

ad01 In traversing the UCB records for the ABD, EIH found an incorrect UCB data type. The UCB **type** field contains an invalid entry that should be changed to a DFC. Field **zzzz** contains the u_dtype.

ad02 EIH found an incorrect UCB data type while searching the UCB records for the ABD. The UCB **type** field contains an invalid entry that should be changed to a SBUS. Field **zzzz** contains the u_dtype.

ad04 The SBUS Bus Device ID for the ABD in the UCB does not have the expected value. Field **zzzz** contains the Bus device ID.

ad05 The MHD Bus Device ID for the ABD in the UCB does not have the expected value. Field **zzzz** contains the Bus device ID.

This error affects the sanity of the data base. The machine may function properly for some time and normal operations (such as CUs) may correct the problem. This error may also indicate imminent failure.

CORRECTIVE ACTION

Error	**Correction**
ad00	The ABD must be configured under DFC 0 or DFC 1, or another boot disk selection must be made. If the ABD is configured under DFC 0 or DFC 1, check the sanity of the database for all DFC subdevices.
ad01	Check the sanity of the database for all DFC subdevices.
ad02	Check the sanity of the database for all DFC subdevices.
ad04	Check the sanity of the database for all DFC subdevices.
ad05	Check the sanity of the database for all DFC subdevices.

Run the ECD audit for the incore memory database using the **AUD:ECD 1** command.

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F5da F2xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Reports the fields in the unit control block (UCB) of an alternate boot disk (ABD) that contain unexpected values.

This processor recovery message (PRM) is only generated when the recovery from the ABD feature is configured.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number. (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
yyyy	An identifier in function number **xx** where the PRM originated.
zzzz	Additional information for determining the nature of the problem.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An error was returned when validating UCB data for the ABD.

yyyy	**Reason**
ad00	The moving head disk (MHD) selected as the ABD is not configured under DFC 0 or DFC 1. Field **zzzz** contains the unit number.

ad01 In traversing the UCB records for the ABD, EIH found an incorrect UCB data type. The UCB **type** field contains an invalid entry that should be changed to a DFC. Field **zzzz** contains the u_dtype.

ad02 EIH found an incorrect UCB data type while searching the UCB records for the ABD. The UCB **type** field contains an invalid entry that should be changed to a SBUS. Field **zzzz** contains the u_dtype.

ad04 The SBUS Bus Device ID for the ABD in the UCB does not have the expected value. Field **zzzz** contains the Bus device ID.

ad05 The MHD Bus Device ID for the ABD in the UCB does not have the expected value. Field **zzzz** contains the Bus device ID.

This error affects the sanity of the data base. The machine may function properly for some time and normal operations (such as CUs) may correct the problem. This error may also indicate imminent failure.

CORRECTIVE ACTION

Error	**Correction**
ad00	The ABD must be configured under DFC 0 or DFC 1, or another boot disk selection must be made. If the ABD is configured under DFC 0 or DFC 1, check the sanity of the database for all DFC subdevices.
ad01	Check the sanity of the database for all DFC subdevices.
ad02	Check the sanity of the database for all DFC subdevices.
ad04	Check the sanity of the database for all DFC subdevices.
ad05	Check the sanity of the database for all DFC subdevices.

Run the ECD audit for the incore memory database using the **AUD:ECD 1 command.**

F5da F3xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

The microstore pump failed to the off-line control unit (CU)

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number. (See Tables 3-A,3-B, or 3-C for function names corresponding to the function numbers.)
yyyy	Line number (within function) where EIH off-line microstore pump failed.
zzzz	Reason code for the hard switch follows: Hex 55 indicates the hard switch was caused by manually forcing the active CU off-line. Hex c4, c5, c8, and c9 are CONFIG process fault codes defined in Table 3-F. Hex e6 indicates hard switch due to entering disk independent operation (DIOP).
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An error occurred in trying to pump off-line microstore while hardswitching to the off-line processor.

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CORRECTIVE ACTION

None

Identifier 6 - Disk Driver PRMs

3H

Contents

Disk Driver PRMs 3H-1

Identifier 6 - Disk Driver PRMs

3H

Disk Driver PRMs

Identifier 6 Disk Driver (DKDRV) processor recovery messages are the result of a failure during any function of the disk driver, building internal tables; reading records from the equipment configuration database (ECD) for all disk file controllers (DFCs), small computer system Interface (SCSI) busses (SBUs) (if SCSI), and moving head disk (MHD).

SHEET 1 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

v6da 100x xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Disk driver memory and data initialization.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
v	F - Failure, E - Conditional success. If F is specified, the error is fatal and a system phase was required. If E is specified, a nonfatal error was encountered which should not affect system operation.
x xx	First error encountered. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-113, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages Manual*.
yy y	Second error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.
zzz	Third error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

SHEET 2 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

EXPLANATION

The disk driver was gathering information to build internal tables, initialize variables, attach to system resources, etc. One of the functions returned a failure. The failure may be the result of bad data or faulty hardware. Certain driver actions are based on data received from the equipment configuration database (ECD) and that data may be incorrect.

The first error is the actual failure; the second and third errors provide more information that help to identify which driver operation was being attempted. The last error code specifically applies to this PRM. The other error code(s) may apply to previous error conditions.

CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the 3B computer recovers from the problem reported in the PRM, then manual recovery is not required.

To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different ECD and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

To correct the problem, if hardware is implicated, replace the faulty hardware using standard maintenance procedures. If software data malfunction is implicated, the problem could be in ECD access, ECD data

SHEET 3 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

[CH, disk file controller (DFC), small computer system interface bus (SBUS), and moving head disk (MHD) unit control block (UCB) records], incompatible software, not enough driver memory or lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

v6da 20wx xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Restore sequence of a disk file controller (DFC).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
v	F - Failure, E - Conditional success. If F is specified, the error is fatal and a system phase was required. If E is specified, a nonfatal error was encountered which should not affect system operation.
w	Internal device identifier for the DFC being restored. This value is found in the internal_device field in the DFC's UCB record.
x xx	First error encountered. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-313, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages Manual*.
yy y	Second error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.
zzz	Third error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

hh hh hh Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

EXPLANATION

The disk driver unit restore sequence involving the indicated DFC has failed. Moving head disk (MHD) hardware is not involved. Direct memory access controller (DMAC) or dual serial channel (DSCH) initialization may have failed. If this DFC is selected as part of the BOOT device complex, then the cause may be equipment configuration database (ECD) data. This is because the disk driver is the first software in the boot sequence to use ECD in accessing units. Before the disk driver, hard-coded addresses were to access the DMAC and the DFC.

The first error is the actual failure; the second and third errors provide more information that help to identify which driver operation was being attempted. The last error code specifically applies to this PRM. The other error code(s) may apply to previous error conditions.

CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the computer recovers from the problem reported in the PRM, then manual recovery is not required.

To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different ECD and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

To correct the problem, if hardware is implicated, replace the faulty hardware using standard maintenance procedures. The hardware most likely at fault is the DMAC, DSCH, DSCH cable, and/or the circuit boards comprising the DFC. If software/data malfunction is implicated, the

SHEET 6 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

problem could be in the ECD data [channel (CH), disk file controller (DFC), small computer system interface bus (SBUS), and moving head disk (MHD) unit control block (UCB) records], incompatible software, or lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

v6da 30wx xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Restore sequence of a moving head disk (MHD) under disk file controller 0 (DFC 0).

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

v — F - Failure, E - Conditional success.

If F is specified, the error is fatal and a system phase was required. If E is specified, a nonfatal error was encountered which should not affect system operation.

w — Internal device identifier for the MHD being restored. For storage module device (SMD) MHDs, this value is found in the internal_device field in the MHD's unit control block (UCB) record. For small computer system interface (SCSI) MHDs, this value is the combination of the internal_device field values for the MHD and its associated small computer system interface bus (SBUS). "w" is a 4-bit value of the form aaab:

aaa = MHD internal_device value
b = SBUS internal_device value.

x xx — First error encountered. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-113, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages*

Manual.

yy y — Second error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

zzz — Third error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

hh hh hh — Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

EXPLANATION

A disk driver unit restore sequence for the indicated MHD under DFC 0 has failed. The disk file controller (DFC), and the MHD's SBUS (if SCSI), has been successfully restored prior to this MHD restore attempt. The first error is the actual failure; the second and third errors provide more information that help to identify which driver operation was being attempted. The last error code specifically applies to this PRM. The other error code(s) may apply to previous error conditions.

CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the computer recovers from the problem reported in the PRM, then manual recovery is not required.

To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different equipment configuration database (ECD) and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

To correct the problem, if hardware is implicated, replace the faulty hardware using standard maintenance procedures. The hardware most likely at fault is the MHD, MHD cables, and SBUS (if SCSI). The DFC and its SBUS (if SCSI) restored successfully, but may be faulty in data transfer capability. If software/data malfunction is implicated, the problem could be in the ECD data [CH, disk file controller (DFC), small computer system interface bus (SBUS), and moving head disk (MHD) unit control block (UCB) records], incompatible software, or some lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

v6da 31wx xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Restore sequence of a moving head disk (MHD) under disk file controller 1 (DFC 1).

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

v — F - Failure, E - Conditional success.

If F is specified, the error is fatal and a system phase was required. If E is specified, a nonfatal error was encountered which should not affect system operation.

w — Internal device identifier for the MHD being restored. For storage module device (SMD) MHDs, this value is found in the internal_device field in the MHD's UCB record. For SCSI MHDs, this value is the combination of the internal_device field values for the MHD and its associated SBUS. "w" is a 4-bit value of the form aaab:

aaa = MHD internal_device value
b = SBUS internal_device value.

x xx — First error encountered. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-113, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages Manual*.

yy y — Second error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

zzz — Third error encountered. Refer to document 254-303-111, Output Messages Manual, or document 254-303-113, Messages Manual.

hh hh hh — Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

EXPLANATION

A disk driver unit restore sequence for the indicated MHD under DFC 0 has failed. The DFC, and the MHD's SBUS (if SCSI), has been successfully restored prior to this MHD restore attempt. The first error is the actual failure; the second and third errors provide more information that help to identify which driver operation was being attempted. The last error code specifically applies to this PRM. The other error code(s) may apply to previous error conditions.

CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the computer recovers from the problem reported in the PRM, then manual recovery is not required.

To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different equipment configuration database (ECD) and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

To correct the problem, if hardware is implicated, replace the faulty hardware using standard maintenance procedures. The hardware most likely at fault is the MHD, MHD cables, and SBUS (if SCSI). The DFC

SHEET 12 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

and its SBUS (if SCSI) restored successfully, but may be faulty in data transfer capability. If software/data malfunction is implicated, the problem could be in the ECD data [CH, disk file controller (DFC), small computer system interface bus (SBUS), and moving head disk (MHD) unit control block (UCB) records], incompatible software, or lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

SHEET 13 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

v6da 32wx xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Restore sequence of a moving head disk (MHD) under disk file controller 2 (DFC 2).

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

v — F - Failure, E - Conditional success.

If F is specified, the error is fatal and a system phase was required. If E is specified, a nonfatal error was encountered which should not affect system operation.

w — Internal device identifier for the MHD being restored. For storage module device (SMD) MHDs, this value is found in the internal_device field in the MHD's unit control block (UCB) record. For small computer system interface (SCSI) MHDs, this value is the combination of the internal_device field values for the MHD and its associated small computer system interface bus (SBUS). "w" is a 4-bit value of the form aaab:

aaa = MHD internal_device value
b = SBUS internal_device value.

x xx — First error encountered. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-113, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages Manual*.

yy y — Second error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

zzz — Third error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

hh hh hh — Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

EXPLANATION

A disk driver unit restore sequence for the indicated MHD under DFC 0 has failed. The DFC, and the MHD's SBUS (if SCSI), has been successfully restored prior to this MHD restore attempt. The first error is the actual failure; the second and third errors provide more information that help to identify which driver operation was being attempted. The last error code specifically applies to this PRM. The other error code(s) may apply to previous error conditions.

CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the computer recovers from the problem reported in the PRM, then manual recovery is not required.

To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different equipment configuration database (ECD) and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

To correct the problem, if hardware is implicated, replace the faulty hardware using standard maintenance procedures. The hardware most likely at fault is the MHD, MHD cables, and SBUS (if SCSI). The DFC

SHEET 15 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

and its SBUS (if SCSI) restored successfully, but may be faulty in data transfer capability. If software/data malfunction is implicated, the problem could be in the ECD data [CH, disk file controller (DFC), small computer system interface bus (SBUS), and moving head disk (MHD) unit control block (UCB) records], incompatible software, or lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

v6da 33wx xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Restore sequence of a moving head disk (MHD) under disk file controller 3 (DFC 3).

PRM EXPANSION

p — Active (CU): 0 => CU 0, 1 => CU 1.

v — F - Failure, E - Conditional success.

If F is specified, the error is fatal and a system phase was required. If E is specified, a nonfatal error was encountered which should not affect system operation.

w — Internal device identifier for the MHD being restored. For storage module device (SMD) MHDs, this value is found in the internal_device field in the MHD's unit control block (UCB) record. For small computer system interface (SCSI) MHDs, this value is the combination of the internal_device field values for the MHD and its associated small computer system interface bus (SBUS). "w" is a 4-bit value of the form aaab:

aaa = MHD internal_device value
b = SBUS internal_device value.

x xx — First error encountered. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-113, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages Manual*.

SHEET 17 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

yy y — Second error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

zzz — Third error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

hh hh hh — Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

EXPLANATION

A disk driver unit restore sequence for the indicated MHD under DFC 0 has failed. The DFC, and the MHDs SBUS (if SCSI), has been successfully restored prior to this MHD restore attempt. The first error is the actual failure; the second and third errors provide more information that help to identify which driver operation was being attempted. The last error code specifically applies to this PRM. The other error code(s) may apply to previous error conditions.

CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the computer recovers from the problem reported in the PRM, then manual recovery is not required.

To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different equipment configuration database (ECD) and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

SHEET 18 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

To correct the problem, if hardware is implicated, replace the faulty hardware using standard maintenance procedures. The hardware most likely at fault is the MHD, MHD cables, and SBUS (if SCSI). The DFC and its SBUS (if SCSI) restored successfully, but may be faulty in data transfer capability. If software/data malfunction is implicated, the problem could be in the ECD data (CH, DFC, SBUS, and MHD UCB records), incompatible software, or lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

v6da 34wx xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Restore sequence of a moving head disk (MHD) under disk file controller 4 (DFC 4).

PRM EXPANSION

p — Active (CU): 0 => CU 0, 1 => CU 1.

v — F - Failure, E - Conditional success.

If F is specified, the error is fatal and a system phase was required. If E is specified, a nonfatal error was encountered which should not affect system operation.

w — Internal device identifier for the MHD being restored. For storage module device (SMD) MHDs, this value is found in the internal_device field in the MHD's unit control block (UCB) record. For small computer system interface (SCSI) MHDs, this value is the combination of the internal_device field values for the MHD and its associated small computer system interface bus (SBUS). "w" is a 4-bit value of the form aaab:

aaa = MHD internal_device value
b = SBUS internal_device value.

x xx — First error encountered. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-113, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages Manual*.

yy y — Second error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

zzz — Third error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

hh hh hh — Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

EXPLANATION

A disk driver unit restore sequence for the indicated MHD under DFC 0 has failed. The DFC, and the MHD's SBUS (if SCSI), has been successfully restored prior to this MHD restore attempt. The first error is the actual failure; the second and third errors provide more information that help to identify which driver operation was being attempted. The last error code specifically applies to this PRM. The other error code(s) may apply to previous error conditions.

CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the computer recovers from the problem reported in the PRM, then manual recovery is not required.

To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different equipment configuration database (ECD) and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

SHEET 21 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

To correct the problem, if hardware is implicated, replace the faulty hardware using standard maintenance procedures. The hardware most likely at fault is the MHD, MHD cables, and SBUS (if SCSI). The DFC and its SBUS (if SCSI) restored successfully, but may be faulty in data transfer capability. If software/data malfunction is implicated, the problem could be in the ECD data (CH, DFC, SBUS, and MHD UCB records), incompatible software, or lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

v6da 35wx xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Restore sequence of a moving head disk (MHD) under disk file controller 5 (DFC 5).

PRM EXPANSION

p — Active (CU): 0 => CU 0, 1 => CU 1.

v — F - Failure, E - Conditional success.

If F is specified, the error is fatal and a system phase was required. If E is specified, a nonfatal error was encountered which should not affect system operation.

w — Internal device identifier for the MHD being restored. For storage module device (SMD) MHDs, this value is found in the internal_device field in the MHD's unit control block (UCB) record. For small computer system interface (SCSI) MHDs, this value is the combination of the internal_device field values for the MHD and its associated small computer system interface bus (SBUS). "w" is a 4-bit value of the form aaab:

aaa = MHD internal_device value
b = SBUS internal_device value.

x xx — First error encountered. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-113, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages Manual*.

yy y — Second error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

zzz — Third error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

hh hh hh — Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

EXPLANATION

A disk driver unit restore sequence for the indicated MHD under DFC 0 has failed. The DFC, and the MHD's SBUS (if SCSI), has been successfully restored prior to this MHD restore attempt. The first error is the actual failure; the second and third errors provide more information that help to identify which driver operation was being attempted. The last error code specifically applies to this PRM. The other error code(s) may apply to previous error conditions.

CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the computer recovers from the problem reported in the PRM, then manual recovery is not required.

To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different equipment configuration database (ECD) and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

To correct the problem, if hardware is implicated, replace the faulty hardware using standard maintenance procedures. The hardware most likely at fault is the MHD, MHD cables, and SBUS (if SCSI). The DFC

SHEET 24 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

and its SBUS (if SCSI) restored successfully, but may be faulty in data transfer capability. If software/data malfunction is implicated, the problem could be in the ECD data (CH, DFC, SBUS, and MHD UCB records), incompatible software, or lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

SHEET 25 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

v6da 36wx xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Restore sequence of a moving head disk (MHD) under disk file controller 6 (DFC 6).

PRM EXPANSION

p Active (CU): 0 => CU 0, 1 => CU 1.

v F - Failure, E - Conditional success.

If F is specified, the error is fatal and a system phase was required. If E is specified, a nonfatal error was encountered which should not affect system operation.

w Internal device identifier for the MHD being restored. For storage module device (SMD) MHDs, this value is found in the internal_device field in the MHD's unit control block (UCB) record. For small computer system interface (SCSI) MHDs, this value is the combination of the internal_device field values for the MHD and its associated small computer system interface bus (SBUS). "w" is a 4-bit value of the form aaab:

aaa = MHD internal_device value
b = SBUS internal_device value.

x xx First error encountered. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-113, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages Manual*.

yy y — Second error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

zzz — Third error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

hh hh hh — Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

EXPLANATION

A disk driver unit restore sequence for the indicated MHD under DFC 0 has failed. The DFC, and the MHD's SBUS (if SCSI), has been successfully restored prior to this MHD restore attempt. The first error is the actual failure; the second and third errors provide more information that help to identify which driver operation was being attempted. The last error code specifically applies to this PRM. The other error code(s) may apply to previous error conditions.

CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the computer recovers from the problem reported in the PRM, then manual recovery is not required.

To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different equipment configuration database (ECD) and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

SHEET 27 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

To correct the problem, if hardware is implicated, replace the faulty hardware using standard maintenance procedures. The hardware most likely at fault is the MHD, MHD cables, and SBUS (if SCSI). The DFC and its SBUS (if SCSI) restored successfully, but may be faulty in data transfer capability. If software/data malfunction is implicated, the problem could be in the ECD data (CH, DFC, SBUS, and MHD UCB records), incompatible software, or lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

v6da 37wx xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Restore sequence of a moving head disk (MHD) under disk file controller 7 (DFC 7).

PRM EXPANSION

p — Active (CU): 0 => CU 0, 1 => CU 1.

v — F - Failure, E - Conditional success.

If F is specified, the error is fatal and a system phase was required. If E is specified, a nonfatal error was encountered which should not affect system operation.

w — Internal device identifier for the MHD being restored. For storage module device (SMD) MHDs, this value is found in the internal_device field in the MHD's unit control block (UCB) record. For small computer system interface (SCSI) MHDs, this value is the combination of the internal_device field values for the MHD and its associated small computer system interface bus (SBUS). "w" is a 4-bit value of the form aaab:

aaa = MHD internal_device value
b = SBUS internal_device value.

x xx — First error encountered. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-113, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages Manual*.

yy y — Second error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

zzz — Third error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

hh hh hh — Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

EXPLANATION

A disk driver unit restore sequence for the indicated MHD under DFC 0 has failed. The DFC, and the MHD's SBUS (if SCSI), has been successfully restored prior to this MHD restore attempt. The first error is the actual failure; the second and third errors provide more information that help to identify which driver operation was being attempted. The last error code specifically applies to this PRM. The other error code(s) may apply to previous error conditions.

CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the computer recovers from the problem reported in the PRM, then manual recovery is not required.

To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different equipment configuration database (ECD) and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

To correct the problem, if hardware is implicated, replace the faulty hardware using standard maintenance procedures. The hardware most likely at fault is the MHD, MHD cables, and SBUS (if SCSI). The DFC

SHEET 30 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

and its SBUS (if SCSI) restored successfully, but may be faulty in data transfer capability. If software/data malfunction is implicated, the problem could be in the ECD data (CH, DFC, SBUS, and MHD UCB records), incompatible software, or lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

SHEET 31 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

v6da 40xx xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Disk driver memory initialization based on equipment configuration database (ECD) information.

PRM EXPANSION

p — Active (CU): 0 => CU 0, 1 => CU 1.

v — F - Failure, E - Conditional success.

If F is specified, the error is fatal and a system phase was required. If E is specified, a nonfatal error was encountered which should not affect system operation.

xx xx — The 16 least significant bits of the ECD record identifier (RID) the disk driver was processing.

NOTE:
The RID is in hexadecimal notation.

yy y — First error encountered. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-113, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages Manual*.

zzz — Second error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

hh hh hh Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

EXPLANATION

The disk driver was processing the specified RID which it obtained from the ECD. This RID is used to obtain a database record and the information in that record is used to extract other database records. The cntrl_0 (l_up0) field in the unit control block (UCB) record is used to traverse these records. Information in any of these records may have faulty data, but only the RID of the initial UCB record is output in the PRM.

If the specified RID is for a moving head disk (MHD), then the progression is from MHD, to small computer system interface bus (SBUS) (if small computer system interface (SCSI), to disk file controller (DFC). If the specified RID is for an SBUS, then the progression is from SBUS to DFC. If the specified RID is for a DFC, the progression is from DFC to channel (CH).

The first error is the actual failure; the second and third errors provide more information that help to identify which driver operation was being attempted. The last error code specifically applies to this PRM. The other error code(s) may apply to previous error conditions.

CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the computer recovers from the problem reported in the PRM, then manual recovery is not required. To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different ECD and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

SHEET 33 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

To correct the problem, if hardware is implicated, replace the faulty hardware using standard maintenance procedures. If software data malfunction is implicated, the problem could be in ECD access, ECD data (CH, DFC, SBUS, and MHD UCB records), incompatible software, not enough driver memory or lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

v6da 60w0 xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Restore sequence of disk file controller (DFC).

PRM EXPANSION

p	Active (CU): 0 => CU 0, 1 => CU 1.
v	F - Failure, E - Conditional success. If F is specified, the error is fatal and a system phase was required. If E is specified, a nonfatal error was encountered which should not affect system operation.
w	Internal device identifier for the DFC being restored. This value is found in the internal_device field in the DFC's unit control block (UCB) record.
xx	First error encountered. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-113, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages Manual*.
yy y	Second error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.
zzz	Third error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

SHEET 35 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

hh hh hh Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

EXPLANATION

A disk driver job submitted to the DFC has been returned with a failing completion code. The first error code encountered describes the function being attempted by the submitted job. The second error describes what overall function was being attempted in the driver.

CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the computer recovers from the problem reported in the PRM, then manual recovery is not required.

To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different equipment configuration database (ECD) and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

To correct the problem, if hardware is implicated, replace the faulty hardware using standard maintenance procedures. The hardware most likely at fault is the direct memory access controller (DMAC), dual serial channel (DSCH), DSCH cable, and/or the circuit boards comprising the DFC. If software/data malfunction is implicated, the problem could be in the ECD data [CH, DFC, small computer system interface bus (SBUS), and moving head disk (MHD) UCB records], incompatible software, or lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

v6da 70w0 xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Restore sequence of a moving head disk (MHD) under disk file controller 0 (DFC 0).

PRM EXPANSION

p — Active (CU): 0 => CU 0, 1 => CU 1.

v — F - Failure => E - Conditional success.

If F is specified, the error is fatal and a system phase was required. If E is specified, a nonfatal error was encountered which should not affect system operation.

w — Internal device identifier for the MHD being restored. For storage module device (SMD) MHDs, this value is found in the internal_device field in the MHD's unit control block (UCB) record. For small computer system interface (SCSI) MHDs, this value is the combination of the internal_device field values for the MHD and its associated small computer system interface bus (SBUS). "w" is a 4-bit value of the form aaab:

aaa = MHD internal_device value
b = SBUS internal_device value.

x xx — Job completion code encountered. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-113, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages Manual*.

SHEET 37 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

yy y — First error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

zzz — Second error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

hh hh hh — Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

EXPLANATION

The disk driver unit restore sequence for the indicated MHD under DFC 0 has failed. The DFC, and the MHD's SBUS (if SCSI), has been successfully restored prior to this MHD restore attempt. The first error encountered describes the function being attempted by the submitted job. The second error describes what overall functions were being attempted in the driver.

CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the computer recovers from the problem reported in the PRM, then manual recovery is not required.

To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different equipment configuration database (ECD) and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

SHEET 38 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

To correct the problem, if hardware is implicated, replace the faulty hardware using standard maintenance procedures. The hardware most likely at fault is the MHD, MHD cables, and SBUS (if SCSI). The DFC and its SBUS (if SCSI) restored successfully, but may be faulty in data transfer capability. If software/data malfunction is implicated, the problem could be in the equipment configuration database (ECD) data (CH, DFC, SBUS, and MHD UCB records), incompatible software, or lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

SHEET 39 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

v6da 71w0 xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Restore sequence of a moving head disk (MHD) under disk file controller 1 (DFC 1).

PRM EXPANSION

p Active (CU): 0 => CU 0, 1 => CU 1.

v F - Failure, E - Conditional success.

If F is specified, the error is fatal and a system phase was required. If E is specified, a nonfatal error was encountered which should not affect system operation.

w Internal device identifier for the MHD being restored. For storage module device (SMD) MHDs, this value is found in the internal_device field in the MHD's unit control block (UCB) record. For small computer system interface (SCSI) MHDs, this value is the combination of the internal_device field values for the MHD and its associated small computer system interface bus (SBUS). "w" is a 4-bit value of the form aaab:

aaa = MHD internal_device value
b = SBUS internal_device value.

xx Job completion code encountered. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-113, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages Manual*.

yy y — First error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

zzz — Second error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

hh hh hh — Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

EXPLANATION

The disk driver unit restore sequence for the indicated MHD under DFC 0 has failed. The DFC, and the MHD's SBUS (if SCSI), has been successfully restored prior to this MHD restore attempt. The first error encountered describes the function being attempted by the submitted job. The second error describes what overall functions were being attempted in the driver.

CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the computer recovers from the problem reported in the PRM, then manual recovery is not required.

To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different equipment configuration database (ECD) and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

To correct the problem, if hardware is implicated, replace the faulty hardware using standard maintenance procedures. The hardware most likely at fault is the MHD, MHD cables, and SBUS (if SCSI). The DFC and its SBUS (if SCSI) restored successfully, but may be faulty in data

SHEET 41 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

transfer capability. If software/data malfunction is implicated, the problem could be in the ECD data (CH, DFC, SBUS, and MHD UCB records), incompatible software, or lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

v6da 72w0 xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Restore sequence of a moving head disk (MHD) under disk file controller 2 (DFC 2).

PRM EXPANSION

p Active (CU): 0 => CU 0, 1 => CU 1.

v F - Failure, E - Conditional success.

If F is specified, the error is fatal and a system phase was required. If E is specified, a nonfatal error was encountered which should not affect system operation.

w Internal device identifier for the MHD being restored. For storage module device (SMD) MHDs, this value is found in the internal_device field in the MHD's unit control block (UCB) record. For small computer system interface (SCSI) MHDs, this value is the combination of the internal_device field values for the MHD and its associated small computer system interface bus (SBUS). "w" is a 4-bit value of the form aaab:

aaa = MHD internal_device value
b = SBUS internal_device value.

xx Job completion code encountered. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-113, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages Manual*.

SHEET 43 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

yy y — First error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

zzz — Second error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

hh hh hh — Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

EXPLANATION

The disk driver unit restore sequence for the indicated MHD under DFC 0 has failed. The DFC, and the MHD's SBUS (if SCSI), has been successfully restored prior to this MHD restore attempt. The first error encountered describes the function being attempted by the submitted job. The second error describes what overall functions were being attempted in the driver.

CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the computer recovers from the problem reported in the PRM, then manual recovery is not required.

To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different equipment configuration database (ECD) and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

To correct the problem, if hardware is implicated, replace the faulty hardware using standard maintenance procedures. The hardware most likely at fault is the MHD, MHD cables, and SBUS (if SCSI). The DFC and its SBUS (if SCSI) restored successfully, but may be faulty in data

SHEET 44 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

transfer capability. If software/data malfunction is implicated, the problem could be in the ECD data (CH, DFC, SBUS, and MHD UCB records), incompatible software, or lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

SHEET 45 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

v6da 73w0 xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Restore sequence of a moving head disk (MHD) under disk file controller 3 (DFC 3).

PRM EXPANSION

p Active (CU): 0 => CU 0, 1 => CU 1.

v F - Failure, E - Conditional success.

If F is specified, the error is fatal and a system phase was required. If E is specified, a nonfatal error was encountered which should not affect system operation.

w Internal device identifier for the MHD being restored. For storage module device (SMD) MHDs, this value is found in the internal_device field in the MHD's unit contorl block (UCB) record. For small computer system interface (SCSI) MHDs, this value is the combination of the internal_device field values for the MHD and its associated small computer system interface bus (SBUS). "w" is a 4-bit value of the form aaab:

aaa = MHD internal_device value
b = SBUS internal_device value.

xx Job completion code encountered. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-113, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages Manual*.

yy y — First error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

zzz — Second error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

hh hh hh — Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

EXPLANATION

The disk driver unit restore sequence for the indicated MHD under DFC 0 has failed. The DFC, and the MHD's SBUS (if SCSI), has been successfully restored prior to this MHD restore attempt. The first error encountered describes the function being attempted by the submitted job. The second error describes what overall functions were being attempted in the driver.

CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the computer recovers from the problem reported in the PRM, then manual recovery is not required.

To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different equipment configuration database (ECD) and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

SHEET 47 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

To correct the problem, if hardware is implicated, replace the faulty hardware using standard maintenance procedures. The hardware most likely at fault is the MHD, MHD cables, and SBUS (if SCSI). The DFC and its SBUS (if SCSI), restored successfully, but may be faulty in data transfer capability. If software/data malfunction is implicated, the problem could be in the ECD data (CH, DFC, SBUS, and MHD UCB records), incompatible software, or lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

v6da 74w0 xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Restore sequence of a moving head disk (MHD) under disk file controller 4 (DFC 4).

PRM EXPANSION

p Active (CU): 0 => CU 0, 1 => CU 1.

v F - Failure, E - Conditional success.

If F is specified, the error is fatal and a system phase was required. If E is specified, a nonfatal error was encountered which should not affect system operation.

w Internal device identifier for the MHD being restored. For storage module device (SMD) MHDs, this value is found in the internal_device field in the MHD's unit control block (UCB) record. For small computer system interface (SCSI) MHDs, this value is the combination of the internal_device field values for the MHD and its associated small computer system interface bus (SBUS). 'w' is a 4-bit value of the form aaab:

aaa = MHD internal_device value
b = SBUS internal_device value

xx Job completion code encountered. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-113, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages Manual*.

yy y — First error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

zzz — Second error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

hh hh hh — Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

EXPLANATION

The disk driver unit restore sequence for the indicated MHD under DFC 0 has failed. The DFC, and the MHDs SBUS (if SCSI), has been successfully restored prior to this MHD restore attempt. The first error encountered describes the function being attempted by the submitted job. The second error describes what overall functions were being attempted in the driver.

CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the computer recovers from the problem reported in the PRM, then manual recovery is not required.

To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different equipment configuration database (ECD) and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

To correct the problem, if hardware is implicated, replace the faulty hardware using standard maintenance procedures. The hardware most likely at fault is the MHD, MHD cables, and SBUS (if SCSI). The DFC and its SBUS (if SCSI) restored successfully, but may be faulty in data

SHEET 50 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

transfer capability. If software/data malfunction is implicated, the problem could be in the ECD data (CH, DFC, SBUS, and MHD UCB records), incompatible software, or lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

SHEET 51 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

v6da 75w0 xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Restore sequence of a moving head disk (MHD) under disk file controller 5 (DFC 5).

PRM EXPANSION

p Active (CU): 0 => CU 0, 1 => CU 1.

v F - Failure, E - Conditional success.

If F is specified, the error is fatal and a system phase was required. If E is specified, a nonfatal error was encountered which should not affect system operation.

w Internal device identifier for the MHD being restored. For storage module device (SMD) MHDs, this value is found in the internal_device field in the MHD's unit control block (UCB) record. For small computer system interface (SCSI) MHDs, this value is the combination of the internal_device field values for the MHD and its associated small computer system interface (SBUS). "w" is a 4-bit value of the form aaab:

aaa = MHD internal_device value
b = SBUS internal_device value.

xx Job completion code encountered. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-113, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages Manual*.

yy y — First error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

zzz — Second error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

hh hh hh — Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

EXPLANATION

The disk driver unit restore sequence for the indicated MHD under DFC 0 has failed. The DFC, and the MHDs SBUS (if SCSI), has been successfully restored prior to this MHD restore attempt. The first error encountered describes the function being attempted by the submitted job. The second error describes what overall functions were being attempted in the driver.

CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the computer recovers from the problem reported in the PRM, then manual recovery is not required.

To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different equipment configuration database (ECD) and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

To correct the problem, if hardware is implicated, replace the faulty hardware using standard maintenance procedures. The hardware most likely at fault is the MHD, MHD cables, and SBUS (if SCSI). The DFC and its SBUS (if SCSI) restored successfully, but may be faulty in data

SHEET 53 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

transfer capability. If software/data malfunction is implicated, the problem could be in the ECD data (CH, DFC, SBUS, and MHD UCB records), incompatible software, or lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

v6da 76w0 xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Restore sequence of a moving head disk (MHD) under disk file controller 6 (DFC 6).

PRM EXPANSION

p Active (CU): 0 => CU 0, 1 => CU 1.

v F - Failure, E - Conditional success.

If F is specified, the error is fatal and a system phase was required. If E is specified, a nonfatal error was encountered which should not affect system operation.

w Internal device identifier for the MHD being restored. For storage module device (SMD) MHDs, this value is found in the internal_device field in the MHD's unit control block (UCB) record. For small computer system interface (SCSI) MHDs, this value is the combination of the internal_device field values for the MHD and its associated small computer system interface bus (SBUS). "w" is a 4-bit value of the form aaab:

aaa = MHD internal_device value
b = SBUS internal_device value.

xx Job completion code encountered. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-113, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages Manual*.

yy y — First error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

zzz — Second error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

hh hh hh — Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

EXPLANATION

The disk driver unit restore sequence for the indicated MHD under DFC 0 has failed. The DFC, and the MHDs SBUS (if SCSI), has been successfully restored prior to this MHD restore attempt. The first error encountered describes the function being attempted by the submitted job. The second error describes what overall functions were being attempted in the driver.

CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the computer recovers from the problem reported in the PRM, then manual recovery is not required.

To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different equipment configuration database (ECD) and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

To correct the problem, if hardware is implicated, replace the faulty hardware using standard maintenance procedures. The hardware most likely at fault is the MHD, MHD cables, and SBUS (if SCSI). The DFC and its SBUS (if SCSI) restored successfully, but may be faulty in data

SHEET 56 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

transfer capability. If software/data malfunction is implicated, the problem could be in the ECD data (CH, DFC, SBUS, and MHD UCB records), incompatible software, or lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

SHEET 57 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3h : SPEC-luc043a : GM VER. 2.5a

v6da 77w0 xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Restore sequence of a moving head disk (MHD) under disk file controller 7 (DFC 7).

PRM EXPANSION

p Active (CU): 0 => CU 0, 1 => CU 1.

v F - Failure, E - Conditional success.

If F is specified, the error is fatal and a system phase was required. If E is specified, a nonfatal error was encountered which should not affect system operation.

w Internal device identifier for the MHD being restored. For storage module device (SMD) MHDs, this value is found in the internal_device field in the MHD's unit control block (UCB) record. For small computer system interface (SCSI) MHDs, this value is the combination of the internal_device field values for the MHD and its associated small computer system interface bus (SBUS). "w" is a 4-bit value of the form aaab:

aaa = MHD internal_device value
b = SBUS internal_device value.

xx Job completion code encountered. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-113, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages Manual*.

yy y — First error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

zzz — Second error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.

hh hh hh — Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

EXPLANATION

The disk driver unit restore sequence for the indicated MHD under DFC 0 has failed. The DFC, and the MHD's SBUS (if SCSI), has been successfully restored prior to this MHD restore attempt. The first error encountered describes the function being attempted by the submitted job. The second error describes what overall functions were being attempted in the driver.

CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the computer recovers from the problem reported in the PRM, then manual recovery is not required.

To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different equipment configuration database (ECD) and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

To correct the problem, if hardware is implicated, replace the faulty hardware using standard maintenance procedures. The hardware most likely at fault is the MHD, MHD cables, and SBUS (if SCSI). The DFC and its SBUS (if SCSI) restored successfully, but may be faulty in data

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transfer capability. If software/data malfunction is implicated, the problem could be in the ECD data (CH, DFC, SBUS, and MHD UCB records), incompatible software, or lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

F6da 80ww zzzz zzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Disk driver fault code processing.

PRM EXPANSION

p	Active (CU): 0 => CU 0, 1 => CU 1.
ww	Fault code. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-113, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages Manual*.
zzzz zzzz	Virtual program address where the fault was detected.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

EXPLANATION

The *UNIX* RTR operating system detected an execution exception while the disk driver was executing. The error interrupt handler (EIH) faulted the disk driver with a fault code (describing the exception) and a pointer to the saved state of the computer (saving the state of the computer when the exception occurred). The driver reports the fault code and the virtual program address (from the saved state) in this PRM. The driver then requests a level 1 DMERT initialization.

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CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the computer recovers from the problem reported in the PRM, then manual recovery is not required.

To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different equipment configuration database (ECD) and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

There is no immediate corrective action. Save as much pertinent data as possible concerning the activity of the 3B computer, maintenance requests, receive-only printer printouts, logfiles, etc., and contact your technical assistance organization.

E6da DDtw xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Disk driver all-seems-well.

PRM EXPANSION

p	Active (CU): 0 => CU 0, 1 => CU 1.
t	Source of initialization 1 - Maintenance interrupt. 0 - Phase.
w	How the maintenance reset method was initiated. A - Automatic. 0 - Manual.
xx	Last two hexadecimal digits of sequence number that are part of postmortem dump.
yy y	Identifies if boot device 1 is active. BD**n** - boot MHD **n** is active. 000 - boot MHD **n** is not active. **n** = odd numbered MHD H'1 through H'F.
zzz	Identifies if boot device 0 is active. BD**n** - boot MHD **n** is active. 000 - boot MHD **n** is not active. **n** = even numbered MHD H'0 through H'E.

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hh hh hh Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

EXPLANATION

This PRM results when the disk driver reports to system integrity monitor (SIM) that the driver has completed its initialization step with no fatal errors.

CORRECTIVE ACTION

None

F6da F0wx xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Disk driver is in the process of phasing the 3B computer.

PRM EXPANSION

p	Active (CU): 0 => CU 0, 1 => CU 1.
w	Reason for the phase. See disk driver panic codes in document 254-303-106, *3B20D and 3B21D Computers **UNIX**® RTR System Maintenance Manual*.
x xx	First error encountered by the disk driver prior to requesting the phase. Refer to document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*, or document 254-303-113, *3B20D and 3B21D Computers **UNIX** RTR Operating System MML Output Messages Manual*.
yy y	Second error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.
zzz	Third error encountered. Refer to document 254-303-111, *PDS Output Messages Manual*, or document 254-303-113, *MML Output Messages Manual*.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for the definitions of the digits.

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EXPLANATION

The disk driver has encountered a problem(s) which requires it to phase the computer.

- Excessive errors on an essential unit which cannot be recovered and disk independent operation is not enabled.
- An operating system detected execution exception.
- Configuration management failure.
- Phase is requested in order to initiate a new (changed) operating configuration.

The first error is the actual failure; the second and third errors provide more information that help to identify which driver operation was being attempted. The last error code specifically applies to this PRM. The other error code(s) may apply to previous error conditions.

CORRECTIVE ACTION

Use the error codes to help determine the area causing the failure: hardware or software data.

If the computer recovers from the problem reported in the PRM, then manual recovery is not required.

To recover manually, if hardware is implicated, select a different boot device and/or a different control unit. If data is implicated, select a different equipment configuration database (ECD) and/or a different boot partition (primary/backup). If the recovery procedures are unsuccessful, contact your technical assistance organization.

There is no immediate correction action. Save as much pertinent data as possible concerning the activity of the computer, maintenance requests, receive-only printer printouts, logfiles, etc., and contact your technical assistance organization.

Identifier 7 - Input/Output Processor Driver PRMs

3I

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Identifier 7 - Input/Output Processor Driver PRMs

3I

Input/Output Processor Driver PRMs

Identifier 7 Input/output Processor Driver (IODRV) processor recovery messages include reports of failure to restore data links to service, failure of software initialization of IODRV, and failure of the IODRV memory facility to grow or add a memory segment.

E7da 010x xxyy zzzz hh hh hh

PRM SOURCE

Input/Output Processor (IODRV) Driver

FUNCTION

The IODRV driver has been faulted.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

x xx — Device type fields, digits 7-9 (x xx). (See Table 3-D for device types.) In all other cases, the unit number and the device type are zeroes.

yy — Digits 10 and 11 (yy) indicate the unit number of the faulty unit. For processor recovery messages (PRMs) where zzzz = H'00C5, H'00C6, or H'00C7, the faulty unit is identified by the unit number

zzzz — The faults reported are identified by digits 12-15 (zzzz). The possible faults are the following:

- H'00C5 — A fault has been logged against a unit that has an out of service (OOS), but usable mate. The IODRV driver attempts to restore the faulty unit.
- H'00C6 — A fault has been logged against a unit that has an OOS, but unusable mate. The IODRV driver attempts to restart the faulty unit.
- H'00C7 — A fault has been logged against a unit which has no mate. The IODRV driver attempts to restart the faulty unit.
- H'00CB — A routine soft-switch fault has been received. The IODRV driver should never receive this fault; doing so implies a structural failure.

H'00E2 A critical system initialization fault has been received. This usually occurs in response to a phase 1.

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

For PRMs with values H'00C5, H'00C6, or H'00C7, the mate unit should be restored to service after which the faulty unit should be diagnosed and restored to service. For the other PRMs, no recovery action is indicated.

E7da 02wx xxyy zzzz hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

An attempt to pump microcode from the disk to a peripheral controller (PC) has failed.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

x xx — Digits 7-9 (x xx) indicate the IODRV device type of the faulty unit. The PC in question is identified by the device type.

yy — Digits 10 and 11 (yy) indicate the ubit number of the faulty unit. (See Table 3-D for device types.)

zzzz — Digits 12-15 (zzzz) provide the failure reason and have the following meanings:

- H'07F6 — Common file reader (CFR) internal state invalid.
- H'07F7 — Time-out threshold exceeded. Message sent by CFR to file manager (FMGR) not acknowledged.
- H'07F8 — CFR unable to get segment number of segment containing buffer allocated for pump code.
- H'07F9 — CFR unable to set timer.
- H'07FA — CFR unable to get message buffer to send message to FMGR.

H'07FB CFR unable to read pump file because the maximum number of files that can concurrently be brought into main store has been reached.

H'07FC CFR temporarily unable to handle a request to read a pump file because the maximum number of concurrent requesters that can be queued for pump files has been reached.

H'07FD CFR unable to read the disk.

H'07FE CFR unable to open appropriate disk microcode file.

H'07FF CFR unable to allocate buffer for pump code.

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

The most common error is H'07FE which usually indicates a missing microcode file or a file with insufficient access permissions. Ensure that all microcode files are properly named and have read access. Other error types usually indicate transitory problems; retry the appropriate restore (RST) command.

E7da 030x xxyy zzzz hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

An attempt to grow a segment of the main store at boot time has failed.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

x xx — Digits 7-9 (x xx) indicate the IODRV device type, (see Table 3-D).

yy — Digits 10-11 (yy) indicate the unit number of the faulty unit.

zzzz — Digits 12-15 (zzzz) indicate the reason for failure. The PRM information field contains one of the following values.

- H’0001 — Repeated requests for the main memory required for IODRV support data structures have failed.
- H’0002 — After a single failure to obtain main memory for an IODRV support data structure, the necessary information to repeat the request was not found.

hh hh hh — Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

SHEET 6 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3i : SPEC-luc043a : GM VER. 2.5a

EXPLANATION

PRM information field H'0001 indicates insufficient main memory to initialize all required IODRVs.

PRM information field H'0002 indicates an IODRV driver software problem.

CORRECTIVE ACTION

Supply more main memory to initialize all required IOPs.

E7da 040x xxyy zzzz hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

The IODRV driver encountered severe problems during the boot sequence.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

x xx — Digits 7-9 (x xx) indicate the IOP device types of the faulty unit.
See Table 3-D.

yy — Digits 10 and 11 (yy) indicate the unit number of the faulty unit.

zzzz — Digits 12-15 (zzzz) indicate the reason for failure. It is possible that no IOP or associated device could be restored and the reason for the failure is as follows:

- H'0105 — Cannot obtain list of IOPs from equipment configuration database (ECD). Verify that all proper forms exist for each IOP.
- H'0106 — Cannot attach to ECD. Verify correct initialization of ECD segments.
- H'0107 — Cannot attach to correct port. See H'0109.
- H'0108 — Cannot obtain internal peripheral controller (PC) audit timer. Software problem.

H'0109 Cannot attach to any port. Verify no other application process uses the IOP driver port as specified in the unit control block (UCB) in the ECD for each IODRV. If this checks out, a software problem is indicated.

H'010A Cannot obtain internal peripheral interface controller (PIC) babble timer. Software problem.

H'0401 Cannot initialize direct memory access controller (DMAC) random access memory (RAM) for a particular IODRV identified by the unit number and device type fields. Verify that the IODRV UCB in the ECD contains the correct address for the DMAC. If this checks out, a hardware problem is indicated.

H'0402 The pointer to the extended map pointer table has a bad virtual address. There is a software problem.

H'0403 The extended map pointer table has a bad virtual address. There is a software problem.

H'0505 Cannot get list of IODRVs in initdb( ) function.

H'0506 Cannot attach to ECD.

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

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CORRECTIVE ACTION

Seek technical assistance. Except for H'0108 and H'010A, all errors preclude a successful boot.

E7da 050x xxyy zzzz hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

An attempt to restore an IODRV to service has failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
x xx	Digits 7-9 (x xx) indicate the IODRV device type of the faulty unit. (See Table 3-D.)
yy	See Table 3-D and its device number (yy).
zzzz	Code (zzzz) provides the reason for failure as follows:

H'1300	Unable to reset peripheral interface circuit (PIC).
H'1303	Unable to set PIC interface enable.
H'1306	Unable to send PIOINIT to PIC.
H'1307	Unable to enable PIC interrupts.
H'1308	Unable to clear D2SBS.

hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Code H'1308 is most often received in response to loss of power at the IODRV. All others indicate a hardware or software problem.

CORRECTIVE ACTION

Replace the PIC and attempt to diagnose and restore. If this fails, the problem may reside in the channel or the IODRV; seek technical assistance.

E7da 0600 0000 xxxx hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

The IODRV has been faulted and is performing a complete software reinitialization.

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xxxx The faults reported are identified by digits 12-15 (xxxx). The possible faults are as follows:

- H’00C0 The IODRV faulted because a level 3 craft initialization occurred. .LI "H’00D1" The IODRV faulted because a page index was invalid or was not in memory.
- H’00D2 The IODRV faulted because a page index was too large.
- H’00D3 The IODRV faulted because a segment index was invalid.
- H’00D4 The IODRV faulted because a segment index was too large.
- H’00D5 The IODRV faulted because a bad operating system trap (OST) was issued to the kernel.
- H’00D6 The IODRV faulted because an attempt was made to write to a protected segment.
- H’00D7 The IODRV faulted because a byte or half word addressing violation occurred.

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H'00D8 The IODRV faulted because a privileged instruction was attempted.

H'00D9 The IODRV faulted because the data in the instruction buffer did not correspond to a valid instruction.

H'00E1 The IODRV faulted because a system initialization occurred. This fault code will usually appear only if a phase 1 occurred while the IODRV was executing.

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The complete reinitialization takes time, so several minutes should be allowed for the process to complete.

CORRECTIVE ACTION

None

E7da 0800 0000 zzzz hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

The IODRV cannot grow a unit during boot or a software reinitialization.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
zzzz	The problem encountered is identified by the digits 12-15 (zzzz). (See Table 3-E for an explanation of the code.)
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

None

F7da 0B0x xxyy zzzz hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

This PRM code is printed out as a warning when the boot restore for the maintenance TTY controller (MTTYC) failed during or after pumping the pump code stage; the IODRV tries using the alternate pump code filename to restore the MTTYC.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
x xx	Digits 7-9 (x xx) indicate the IODRV device type of the faulty unit. (See Table 3-D).
yy	Digits 10 and 11 (yy) indicate the unit number of the faulty unit.
zzzz	Digits 12-15 (zzzz) indicate the reason for failure as follows:
H'0009	The pump code filename on the unit control block (UCB) record of the MTTYC may not be correct.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definition of the digits.

EXPLANATION

None

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CORRECTIVE ACTION

Check the pump code filename on the UCB record in the equipment configuration database (ECD) for the MTTYCs and make sure that the information in fields 62, 63, and 64 matches the configuration of the machine. Field 62 should match the corresponding MTTYC hardware. If the MTTYC hardware is equipped with the TN983, the field must be populated as t983. If the hardware is equipped with tn83, the field must be populated as t083. If the hardware is equipped with the un583, the field must be populated as u583. The pump code filename is determined by concatenating fields 62 (pack code), 64 (version), and 63 (issue). The pump code file should exist in */iop/pccode* directory.

If the pump code filename is correct, make sure the correct pump code is installed on the machine.

This PRM may also be the result of a faulty MTTYC.

F7da 0C0x xxyy zzzz hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

This PRM code is printed out as a warning when the restore for the IODRV failed during or after pumping the pump code stage; the IODRV tries using an alternate, hard-coded pump code filename to restore the IODRV. If the IODRV restore still fails after the first attempt, the IODRV tries a second hard coded filename. This PRM only appears on a 3B21D computer.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
x xx	Digits 7-9 (x xx) indicates the IOP device type of the faulty unit. (See Table 3-D.)
yy	Digits 10 and 11 (yy) indicate the unit number of the faulty unit.
zzzz	Digits 12-15 (zzzz) indicate the failure reason as follows:
H'0009	The pump code filename on the unit control block (UCB) record of the IOP may not be correct.
H'000a	The hard coded primary pump code file is incorrect or corrupted.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Check the information in the fields 62, 63, and 64 of the UCB record for the IOP device in the incore database. The pump code filename is determined by concatenating fields 62 (pack code), 64 (version), and 63 (issue).

- Field 62 (pack code) must always be **k010**.
- Field 64 (version) must always be **0**.
- Field 63 (issue) must always be **1**.

NOTE:
When these 3 fields are left blank, the software interprets them as 0's. Also, 0's are prepended to the value when the field is not completely filled. Field 62 is a 4 position field; fields 63 and 64 are 2 position fields. For example, these 3 fields populated with the above are interpreted by the software as k010, 00, and 01 and when concatenated becomes k0100001.

Two copies of the pump code files are stored on the disk in */iop/pccode* directory. The primary pump code file is **k0100001** and the backup version of the pump code file is **k0100000**.

During the restore of the IOP, the input/output driver (IODRV) constructs the pump code filename from the database and pumps the IOP. If the restore fails, the IODRV prints the PRM with failure reason H'0009. Verify that the fields 62, 63, and 64 in the UCB record in the incore database are correctly populated.

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If the restore fails, the IODRV uses the hard coded filename **k0100001** and pumps the IOP. If the restore fails again, the IODRV prints the PRM with failure reason H'000a and uses the backup copy of the pump code file **k0100000** and pumps the IOP. If all three attempts to restore the IOP fail, run diagnostics on the IOP, as it is likely that it is faulty.

If the problem is still not corrected, contact the next level of technical support.

F7da 0D0x xxyy zzzz hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

This PRM code is printed out as a warning when the boot restore for the maintence TTY controller (MTTYC) failed during or after pumping the pump code stage. The IOP driver will try using the equipment configuration database (ECD) pump code filename to restore the MTTYC. This PRM is valid only for UN583 MTTYCs.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
x xx	Digits 7-9 indicates the IOP device type of the faulty unit. (See Table 3-D.)
yy	Digits 10 and 11 (yy) indicate the unit number of the faulty unit.
zzzz	Digits 12-15 (zzzz) indicate the reason for failure as follows:
H'0009	The pump code filename obtained from the MTTYC may not exist.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

SHEET 21 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3i : SPEC-luc043a : GM VER. 2.5a

EXPLANATION

None

CORRECTIVE ACTION

During the restore of the MTTYC (UN583), the input/output driver (IODRV) queries the MTTYC for the version of the pump code file to construct the pump code filename. The MTTYC will respond with a 4-byte version number. If a non-zero version number is returned, the IODRV will construct the pump code filename by concatenating field 62 (pack code) of the UCB record for the MTTYC in the incore database and the version number. If the version number is zero, the IODRV will construct the pump code filename by concatenating fields 62 (pack code), 64 (version), and 63 (issue) of the UCB record for the MTTYC in the incore database.

Check to make sure that all UN583 pump code files exist in the */iop/pccode* directory and contact next level of technical support.

This PRM may also be the result of a faulty MTTYC.

E7da 0F0x xxyy zzzz hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

The IODRV has tried repeatedly to restart a faulty duplexed essential unit whose mate is out of service (OOS), but all such attempts have failed. The IODRV waits 30 seconds before attempting to restart the faulty unit.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

x xx — Digits 7-9 (x xx) indicate the IOP device type of the faulty unit. (See Table 3-D.)

yy — Digits 10 and 11 (yy) indicate the unit numbe of the faulty unitr.

zzzz — Digits 12-15 (zzzz) indicate the reason for failure listed as follows:

- H’00C5 Mate unit was marked OOS and usable.
- H’00C6 Mate unit was marked OOS and unusable.
- H’00C7 Mate unit not available.

hh hh hh — Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

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CORRECTIVE ACTION

Diagnose indicated unit and its mate, if possible. Repair unit and restore to service. The read only printer (ROP) output and input/output log files can be helpful in determining the problem. Input/output log files are */etc/log/IODRVLOG0* and */etc/log/IODRVLOG1*. Forward the printout of the log files and the ROP to the software administrator.

E7da 200y yyzz tttt hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

This PRM code is printed out when a switchable subdevice cannot connect to any peripheral controller (PC).

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

y yy — Digits 7-9 (y yy) indicate the IOP device type of the faulty unit (See Table 3-D.)

zz — Digits 10 and 11 (zz) indicate the unit number of the faulty unit.

ttt — Digits 12-15 (tttt) indicate the reason for failure. The PRM information field will contain one of the following values.

- H'0000 — Port switch attempts exceed threshold.
- H'0001 — Port switch fails because of DTR time-out.
- H'0002 — Port switch fails because of hardware switching time-out.
- H'0003 — Cannot obtain port switch subdevices for PC report in craft initialization.
- H'0005 — Port switch fails because the device to which a port switch is being done is in the wrong state.
- H'0007 — Port switch fails because could not get a unit mate for the switchable device.

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H'0009 Port switch fails because could not get the vcb of the switchable device.

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Manually restore the PCs if they are out of service (OOS). If the subdevice does not connect to one of the controllers at this time, the physical device is off-line or has operationally failed. Check all physical devices configured to the port switch to make sure they are on-line. If a subdevice is on-line but does not appear operational, take appropriate action to have the subdevice examined.

F7da 200y yyzz tttt hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

This PRM code is printed out when a switchable subdevice cannot connect to any peripheral controller (PC).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y yy	Digits 7-9 (y yy) indicate the IOP device type of the faulty unit (See Table 3-D.)
zz	Digits 10 and 11 (zz) indicate the unit number of the faulty unit (See Table 3-D.)
tttt	Digits 12-15 (tttt) indicate the reason for failure. The PRM information field will contain the following value. H'0004 Maximum trail for port switch failed.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

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CORRECTIVE ACTION

Manually restore the PCs if they are out of service (OOS). If the subdevice does not connect to one of the controllers at this time, the physical device is off-line or has operationally failed. Check all physical devices configured to the port switch to make sure they are on-line. If a subdevice is on-line but does not appear operational, take appropriate action to have the subdevice examined.

E7da 2100 0000 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

This PRM code is printed out when craft init is requested with the system in full disk independent operation (DIOP).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Craft init is not allowed in full DIOP.

E7da 500y yyzz 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

The data link cannot establish communication at protocol level 2.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y yy	Digits 7-9 (y yy) indicate the IOP device type of the faulty unit. (See Table 3-D.)
zz	Digits 10 and 11 (zz) indicate the unit number of the faulty unit.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Verify that the dcedte value in the data link communication protocol option block in the equipment configuration database (ECD) and the line address value at the remote station are correct.

E7da 510y yyzz 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

Cannot establish communication at protocol level 2 in any one of the data links in a duplex pair.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y yy	Digits 7-9 (y yy) indicate the IOP device type of the faulty unit. (See Table 3-D.)
zz	Digits 10 and 11 (zz) indicate the unit number of the faulty unit.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Verify remote station is operational or data link telecommunications equipment at local and remote stations is operational. If not able to recover, contact a data link telecommunications expert.

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E7da 520y yyzz tttt hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

Insufficient memory to allocate buffers for the number of virtual channels requested for a data link.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

y yy — Digits 7-9 (y yy) indicate the IOP device type of the faulty unit.
(See Table 3-D.)

zz — Digits 10 and 11 (zz) indicate the unit number of the faulty unit.

tttt — Digits 12-15 (tttt) should indicate the reason of failure.

- H'0001 — Failed to obtain the option block record to calculate the required memory.
- H'0002 — Switching module control SMC failed to obtain this requested memory.

hh hh hh — Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

SHEET 32 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3i : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

Decrease the number of virtual channels requested or the protocol level 3 window size in the data link communication protocol option block in the equipment configuration database (ECD).

E7da 530y yyzz 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

Data link cannot establish communication at protocol level 3.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y yy	Digits 7-9 (y yy) indicate the IOP device type of the faulty unit. (See Table 3-D.)
zz	Digits 10 and 11 (zz) indicate the unit number of the faulty unit.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Verify remote station is operational. If not able to recover, contact a data link telecommunications expert.

E7da 540y yyzz 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

No segment available for the common segment. Therefore, no data links are restored.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y yy	Digits 7-9 (y yy) indicate the IOP device type of the faulty unit. (See Table 3-D.)
zz	Digits 10 and 11 (zz) indicate the unit number of the faulty unit.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

None

E7da 550y yyzz 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

No cells available in the common segment. The current restore will fail; however, an attempt is made to correct the situation.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y yy	Digits 7-9 (y yy) indicate the IOP device type. (See Table 3-D.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Attempt the aborted restoral again.

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E7da 560y yyzz 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

An inconsistency has occurred between the information in the common segment and the information passed by the input/output driver (IODRV) memory facility. The current restoral operation will fail.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y yy	Digits 7-9 (y yy) indicate the IOP device type. (See Table 3-D.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Perform a reboot to clean up the memory control table.

E7da 570y yyzz 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

The data link cannot establish communication at protocol level 2 due to a conflict in line address.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y yy	Digits 7-9 (y yy) indicate the IOP device type. (See Table 3-D.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Verify that the dcedte value in the data link option block in the equipment configuration database (ECD) and the line address value at the remote station are correct.

E7da 580y yyzz 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

Failure to get the peripheral controller subdevice (PCSD) option block record from the equipment configuration database (ECD) during a grow PCSD for a data link.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y yy	Digits 7-9 (y yy) indicate the IOP device type. (See Table 3-D.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Memory for scratch space and buffers is required when a unit is grown. Memory requirements information is contained in the PCSD option block record.

CORRECTIVE ACTION

Degrow the unit. Verify that the ucb option name field contains the correct option block name and that the option block is correct. Grow the unit, put it into the out-of-service state, and restore it.

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E7da 590y yyzz 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

Failure to obtain the segment ID and page table address for the data link buffer memory.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y yy	Digits 7-9 (y yy) indicate the IOP device type. (See Table 3-D.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The buffer memory can be used for data exchange.

CORRECTIVE ACTION

Degrow the unit and attempt to grow the unit again.

E7da 5A0y yyzz 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

Failure to acquire scratch space and buffer memory for a data link.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y yy	Digits 7-9 (y yy) indicate the IOP device type. (See Table 3-D.
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Decrease the number of virtual channels requested or the protocol level 3 window size in the data link option block in the equipment configuration database (ECD).

E7da 5B0y yyzz 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

Failure to obtain a timer element from the IOP driver timing chain for a data link.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y yy	Digits 7-9 (y yy) indicate the IOP device type. (See Table 3-D.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The timer element is used for packet layer (protocol level 3) timers. Absence of the timer element will cause unstable packet layer performance.

CORRECTIVE ACTION

Attempt a manual remove and restore of the unit.

E7da 700y yyzz 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

The input/output driver (IODRV) memory facility is unable to dynamically add a segment. This indicates either there is no available room in the memory control table or the memory control table information is inconsistent with the message acknowledgment received.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y yy	Digits 7-9 (y yy) indicate the IOP device type. (See Table 3-D.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Perform a reboot to clean up the memory control table.

E7da 710y yyzz 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

The IODRV memory facility is unable to dynamically grow a segment. This indicates either there is no available room in the memory control table, or the memory control table information is inconsistent with the message acknowledgment received.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y yy	Digits 7-9 (y yy) indicate the IOP device type. (See Table 3-D.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Perform a reboot to clean up the memory control table.

E7da 720y yyzz 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

During operations on a segment, either the input/output driver (IODRV) memory facility requested a settle-down timer to allow the system to idle down before attempting a retry. A timer was set to ensure that the message or its acknowledgment was not lost, on firing one of the timers, the memory control table entry for the segment in question is found to be inconsistent. The retry attempt is aborted.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y yy	Digits 7-9 (y yy) indicate the IOP device type. (See Table 3-D.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Perform a reboot to clean up the memory control table.

E7da 730y yyzz 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

Unable to dynamically add a segment due to lack of system resources.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y yy	Digits 7-9 (y yy) indicate the IOP device type. (See Table 3-D.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Retry the operation which resulted in this PRM. However, additional resources may be needed. Seek technical assistance if this PRM persists.

NOTE:
If this PRM resulted from stop or switch of the off-line boot command, then, the lack of system resources may result in devices being left in the unequipped state. Seek technical assistance.

E7da 740y yyzz 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

Unable to dynamically grow a segment due to lack of system resources.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y yy	Digits 7-9 (y yy) indicate the IOP device type. (See Table 3-D.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Retry the operation which resulted in this PRM. However, additional resources may be needed.

E7da 750y yyzz 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

There is no available entry in the backup memory control table of the input/output driver (IODRV) memory facility. However, an entry in the memory control table was found. This is inconsistent since each table has the same number of entries. An entry is needed in each table for each dynamically added segment.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
y yy	Digits 7-9 (y yy) indicate the IOP device type. (See Table 3-D.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Attempt a reboot to clean up the memory control table.

E7da 80xx yyyy yyyy hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

Fail to clear bus interface circuit (BIC) during a restore of an IOP.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) indicate the logical unit number (IOP).
yyyy yyyy	Digits 8-15 (yyyy yyyy) represent the dual serial channel (DSCH) status. Refer to Table 3-J for definition of status bits.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A failure return code was obtained when trying to clear the BIC and to reset the peripheral interface controller (PIC) of the indicated unit.

CORRECTIVE ACTION

Run diagnostics against the indicated IOP. If the diagnostics cannot identify the faulty circuitry or if running the diagnostics is not possible, the following components are suspect. The most suspect is given first.

- BIC
- Duplex dual serial bus selector (DDSBS)
- PIC.

E7da 83xx yyyy yyyy hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

Fail to enable bus interface circuit - peripheral interface circuit (BIC-PIC) interface during a restore of an IOP.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) indicate the logical unit number (IOP).
yyyy yyyy	Digits 8-15 (yyyy yyyy) represent the dual serial channel (DSCH) status. Refer to Table 3-J for definition of status bits.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A failure return code was obtained when trying to clear the BIC-PIC interface.

CORRECTIVE ACTION

Run diagnostics against the indicated IOP. If the diagnostics cannot identify the faulty circuitry or if running the diagnostics is not possible, the BIC-PIC are suspect components causing the problem. The former is more suspected.

E7da 86xx yyyy yyyy hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

Failed to send PIOINIT to IOP.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) indicate the logical unit number (IOP).
yyyy yyyy	Digits 8-15 (yyyy yyyy) represent the dual serial channel (DSCH) status. Refer to Table 3-J for definition of status bits.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A failure return code was obtained when trying to send a PIOINIT to the IOP.

CORRECTIVE ACTION

Run diagnostics against the indicated IOP. If the diagnostics cannot identify the faulty circuitry or if running the diagnostics is not possible, the following components are suspected. The most suspect is given first.

- Peripheral interface circuit (PIC)
- Bus interface circuit (BIC)
- Duplex dual serial bus selector (DDSBS)

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- Channel address and/or device address which are in the u_addr field of the unit control block (UCB) record for the implicated IOP. They are CHANNELNUM field and DEVICENUM field in the UCB form, respectively.

E7da 87xx yyyy yyyy hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

Fail to enable interrupt during a restore of an IOP.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) indicate the logical unit number (IOP).
yyyy yyyy	Digits 8-15 (yyyy yyyy) represent the dual serial channel (DSCH) status. Refer to Table 3-J for definition of status bits.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A failure return code was obtained when trying to enable interrupt of the implicated IOP.

CORRECTIVE ACTION

Verify the interrupt vector information (ivec) for the indicated IOP which includes:

- Interrupt source which is in the u_intrpt field of the unit control block (UCB) record of the channel to which the IOP is attached (INTERRUPTNUM field in the UCB form).
- Channel ID which is in the u_did field of the UCB record of the channel to which the IOP is attached (INTERNALDEVICE field in the UCB form).

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- Device address which is in the device_addr field of the UCB record of the implicated IOP (DEVICENUM field in the UCB form).

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E7da 88xx yyyy yyyy hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

Fail to clear duplex dual serial bus selector (DDSBS) during a restore of an IOP.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) indicate the logical unit number (IOP).
yyyy yyyy	Digits 8-15 (yyyy yyyy) represent the dual serial channel (DSCH) status. Refer to Table 3-J for definition of status bits.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A failure return code was obtained when trying to clear duplex dual serial bus selector (DDSBS). This PRM code is most often received in response to loss of power at the IOP.

CORRECTIVE ACTION

If a failure is due to loss of power at the IOP, determine if it has a blown fuse that needs to be replaced or if its power switch needs to be repaired.

Run diagnostics against the indicated IOP. If the diagnostics cannot identify the faulty circuitry or if running the diagnostics is not possible, the following components are suspected causing the problem with the most suspected given first.

- Dual serial channel (DSCH) cable and/or connections
- DDSBS
- DSCH
- If possible, the device and/or the channel address specified in the equipment configuration database (ECD) for the implicated IOP is not correct.

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E7da 90D5 xxxx xxxx hh hh hh

PRM SOURCE

None

FUNCTION

The input/output processor (IOP) driver has made a bad_ost fault.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx xxxx	Digits 8-15 (xxxx xxxx) indicate the program address where the bad_ost fault occurred.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A software problem occurred within the IOP driver.

CORRECTIVE ACTION

After this PRM is sent to the receive-only printer, the IOP driver takes the necessary recovery action to eliminate the bad_ost. Then forwards the PRM to the software administrator for further fault prevention.

E7da 91yy zzzz zzzz hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

The IOP has been faulted and is performing a complete software reinitialization.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

zzzz zzzz — Digits 8-15 (zzzz zzzz) contain the program address where the fault occurred in the input/output driver (IODRV).

yy — The fault reported is identified by digits 6 and 7 (yy). The possible faults are:

- H'D1 — The IOP driver faulted because a page index was invalid or was not in memory.
- H'D2 — The IOP driver faulted because a page index was too large.
- H'D3 — The IOP driver faulted because a segment index was invalid.
- H'D4 — The IOP driver faulted because a segment was too large.
- H'D6 — The IOP driver faulted because an attempt was made to write to a protected segment.
- H'D7 — The IOP driver faulted because a byte or half-word addressing violation occurred.

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H'D8 The IOP driver faulted because a privileged instruction was attempted.

H'D9 The IOP driver faulted because the data in the instruction buffer did not correspond to a valid instruction.

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The complete reinitialization takes time, so several minutes should be allowed for the process to complete.

CORRECTIVE ACTION

The read-only printer (ROP) output and input/output log files can be helpful in determining the problem. Input/output log files are */etc/log/IODRVLOG0* and */etc/log/IODRVLOG1*. Forward the printout of the log files and the ROP to the software administrator.

E7da DDtw xxyy yzzz hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

The IOP driver all-seems-well.

PRM EXPANSION

p	Active control unit CU: 0 => CU 0, 1 => CU 1.
t	Source of initialization 1 - Maintenance interrupt. 0 - Phase.
w	How the maintenance reset method was initiated. A - Automatic. 0 - Manual.
xx	Last two hexadecimal digits of sequence number that are part of postmortem dump.
yy y	Identifies if boot MHD **n** is active. BD1 - boot MHD **n** is active. 000 - boot MHD **n** is not active. **n** = odd numbered MHD H'1 through H'F
zzz	Identifies if boot MHD **n** is active. BD0 - boot MHD **n** is active. 000 - boot MHD **n** is not active. **n** = even numbered MHD H'0 through H'E

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This PRM result when the IOP driver reports to system integrity monitor (SIM) that the driver has completed its initialization step with no fatal errors.

CORRECTIVE ACTION

None

F7da F000 zzzz yyyy hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

The IOP driver has called phase.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

zzzz — Digits 8-11 (zzzz) display the previous and current fault codes received by the driver. (See Table 3-F for fault code definitions.)

yyyy — Digits 12-15 (yyyy) indicate the reason the IOP driver called phase as follows:

- H'0001 — Encountered a fault while handling a fault.
- H'0002 — Encountered excessive software faults in a given time period.
- H'0003 — Excessive database access errors while handling a fault.
- H'0004 — Excessive database access errors while handling a fault where the IOP was affected but not implicated.

hh hh hh — Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

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EXPLANATION

The most likely reason is a software problem.

CORRECTIVE ACTION

The read-only printer (ROP) output and input/output log files can be helpful in determining the problem. Input/output log files are */etc/log/IODRVLOG0* and */etc/log/IODRVLOG1*. Forward the printout of the log files and the ROP to the software administrator.

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File Manager PRMs 3J-1

Identifier 8 - File Manager PRMs

3J

File Manager PRMs

Identifier 8 File Manager processor recovery messages (PRMs) report failures during the file manager initialization, task switch failures, unmounted file system during inode and buffer management, or too many task or nontask faults.

SHEET 1 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3j : SPEC-luc043a : GM VER. 2.5a

E8da 00ww xxxx yyzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

The file system mount audit has completed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
yy	Digits 12 and 13 (yy) indicate the general status of the audit: 00 = success.
ww xxxx	In which case digits 6-11 (ww xxxx) are the low order three bytes of the mdct-rid value.
ww	FF = failure. In which case digits 6 and 7 (ww) are an error code which has the following meanings: 01 = super block errors, 02 = I/O errors during the audit, 03 = blocks out of range, 04 = duplicate blocks, and 05 = inode errors.
xxxx	Digits 8-11 (xxxx) indicate the number of errors of this type.
zz	Digits 14 and 15 (zz) are the disk partition.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The file system mount audit checks the structural integrity of a file system during the mount process. While a number of conditions will impact the structural integrity, only a super block error will prevent the mount from completing. This PRM applies to release 1 only.

CORRECTIVE ACTION

If a failure condition has been reported, request the file system block (AUD:FSBLK) and link (AUD:FSLINK) audits. See the Select Code 303-080, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Input Messages Manual*.

SHEET 3 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3j : SPEC-luc043a : GM VER. 2.5a

E8da 00ww xxxx yyzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

The file system mount audit has completed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 12 and 13 (yy) indicate the general status of the audit: 00 = success.
ww xxxx	In which case digits 6 through 11 (ww xxxx) are the low order three bytes of the mdct-rid value.
zz	Digits 14 and 15 (zz) are the disk partition.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The file system mount audit checks the structural integrity of a file system during the mount process. While a number of conditions will impact the structural integrity, only a super block error will prevent the mount from completing. This PRM applies to release 6.2 through 6.35.

CORRECTIVE ACTION

None

E8da 00xx yyzz zzzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

The file system mount/unmount completed successfully.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) indicate: mount completed unmounted completed.
yy	Digits 8 and 9 (yy) are the partition number.
zz zzzz	Digits 10-15 (zz zzzz) are the mdct-rid of the partition.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The file manager mount/unmount completed successfully. This PRM applies to release 6 and later.

CORRECTIVE ACTION

None

E8da 00xx yyzz zzzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

The file system mount/unmount completed successfully.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) indicate: 01 mount completed 02 unmounted completed.
yy	Digits 8 and 9 (yy) are the partition number.
zz zzzz	Digits 10 - 15 (zz zzzz) are the mdct-rid of the partition.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

The file manager mount/unmount completed successfully. This PRM applies to release 6.4 and later.

CORRECTIVE ACTION

None

F8da 01xx yyyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

Initialization error.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) are the partition.
yyyy yyyy	Digits 8-15 (yyyy yyyy) are the mdct-rid value of the root device.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

During boot time initialization, the segment index for the buffer segment could not be located in the kpcb.

CORRECTIVE ACTION

Reboot the system using a different boot file.

F8da 02xx yyyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

Initialization error.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) are the partition.
yyyy yyyy	Digits 8-15 (yyyy yyyy) are the mdct-rid value of the root device.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

During boot time initialization, the super block of the root file system either could not be physically read or if read successfully did not contain the defined structure of a super block.

CORRECTIVE ACTION

Check the disk file controller and moving head disk. Then reboot the system. If this does not work, reboot from backup.

F8da 04xx yyyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

Initialization error.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) are the partition.
yyyy yyyy	Digits 8-15 (yyyy yyyy) are the mdct-rid value of the root device.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

During boot time initialization, the root file system did not contain a valid root inode.

CORRECTIVE ACTION

Reboot from backup, repair the root file system, and then reboot.

SHEET 9 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3j : SPEC-luc043a : GM VER. 2.5a

F8da 06xx yyyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

Initialization error.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) are the partition.
yyyy yyyy	Digits 8-15 (yyyy yyyy) are the mdct-rid value of the root device.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

During boot time initialization, the attachment to the equipment configuration database (ECD) failed.

CORRECTIVE ACTION

Reboot the system using a different boot file.

F8da 0700 0000 0000 hh hh hh

PRM SOURCE

File Manager

FUNCTION

Task switch failure has occurred.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

When switching from a private stack to the normal kernel stack, the branch point was taken from the wrong (private) stack.

CORRECTIVE ACTION

Report the problem to *UNIX* RTR operating system support.

SHEET 11 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3j : SPEC-luc043a : GM VER. 2.5a

F8da 08xx yyyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

Inode management.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) are the partition.
yyyy yyyy	Digits 8-15 (yyyy yyyy) are the mdct-rid value of the file system associated with the inode.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A file system associated with a valid inode could not be found in the mount table (that is, it was not mounted).

CORRECTIVE ACTION

Report the problem to *UNIX* RTR operating system support.

SHEET 12 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3j : SPEC-luc043a : GM VER. 2.5a

F8da 0900 0000 xxxx hh hh hh

PRM SOURCE

File Manager

FUNCTION

Buffer management.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx	Digits 12-15 (xxxx) are the major device numbers.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

During the assignment of a buffer, the major device number to be associated with the buffer was found to exceed the maximum allowable for a block device.

CORRECTIVE ACTION

Report the error to *UNIX* RTR operating system support.

SHEET 13 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3j : SPEC-luc043a : GM VER. 2.5a

F8da 0Cxx yyyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

Directory management.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) are the partition.
yyyy yyyy	Digits 8-15 (yyyy yyyy) are the mdct-rid value of the inode at the mount point.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

After searching a directory tree and determining that the parent directory is a different file system (a mount point), the file system corresponding to the parent directory could not be found in the mount table (that is, it was not mounted).

CORRECTIVE ACTION

Report the error to *UNIX* RTR operating system support.

F8da 0D00 0000 0000 hh hh hh

PRM SOURCE

File Manager

FUNCTION

Inode management.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

When translating an encore inode block address table into the disk inode format, the file manager found an address which exceeded six hexadecimal digits in length.

CORRECTIVE ACTION

Report the error to *UNIX* RTR operating system support.

SHEET 15 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3j : SPEC-luc043a : GM VER. 2.5a

E8da 0Exx yyyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

File system management.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) are the partition,
yyyy yyyy	Digits 8-15 (yyyy yyyy) are the mdct-rid value of the file system which was mounted.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

During the mount of a file system, a table is updated which is used to report what file systems are mounted. The table contained no vacant entries in which to place the current mounted pathname.

CORRECTIVE ACTION

None

E8da 0Fxx yyyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

File system management.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) are the partition.
yyyy yyyy	Digits 8-15 (yyyy yyyy) are the mdct-rid value of the file system which was unmounted.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

During the unmount of a file system, a table is updated which is used to report what file systems are mounted. The table contained no entry which corresponded to the file system being unmounted.

F8da 1000 xxyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

Too many nontask faults have occurred.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8 and 9 (xx) are the last fault code.
yy yyyy	Digits 10-15 (yy yyyy) are the program address of the last fault.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The number of faults occurring in nontasking functions of the file manager exceeded the limit which may occur within 1 minute.

CORRECTIVE ACTION

None

SHEET 18 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3j : SPEC-luc043a : GM VER. 2.5a

F8da 1100 xxyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

Too many task faults have occurred.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8 and 9 (xx) are the last fault code.
yy yyyy	Digits 10-15 (yy yyyy) are the program address of the last fault.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The number of faults occurring in tasking functions of the file manager exceeded the limit which may occur within 1 minute.

CORRECTIVE ACTION

None

SHEET 19 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3j : SPEC-luc043a : GM VER. 2.5a

F8da 1200 xxyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

Initialization error.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8 and 9 (xx) are the last fault code.
yy yyyy	Digits 10-15 (yy yyyy) are the program address of the last fault.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The number of faults occurring in the "kfault" function of the file manager exceeded the limit which may occur within 1 minute.

CORRECTIVE ACTION

None

F8da 13xx yyzz zzzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

The file system mount has failed during mount initialization.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx — Digits 6 and 7 (xx) indicate why the mount has failed:

- 01 The special device file for the device cannot be found.
- 02 The mount point directory cannot be found.
- 03 The mount point is not a directory.

yyzz zzzz — If digits 6 and 7 (xx) = 01, then digits 8-15 (yyzz zzzz) are unused (they contain random hexadecimal numbers).

yy — If digits 6 and 7 (xx) = 02 or 03, then digits 8 and 9 (yy) are the partition number.

zz zzzz — Digits 10-15 (zz zzzz) are the mdct-rid of the partition.

hh hh hh — Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The mount has failed due to the listed reasons. This PRM does not cause the machine to phase. This PRM applies for release 1 only.

SHEET 21 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3j : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

Take a corrective action as indicated by digits 6 and 7 (xx), and try to mount again.

F8da 13xx yyzz zzzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

The file system mount has failed during mount initialization.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx — Digits 6 and 7 (xx) indicate why the mount has failed:

- 01 The special device file for the device cannot be found.
- 02 The mount point directory cannot be found.
- 03 The mount point is not a directory.

yyzz zzzz — If digits 6 and 7 (xx) = 01, then digits 8-15 (yyzz zzzz) are 0.

yy — If digits 6 and 7 (xx) = 02 or 03, then digits 8 and 9 (yy) are the partition number.

zz zzzz — Digits 10-15 (zz zzzz) are the mdct-rid of the partition.

hh hh hh — Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The mount has failed due to the listed reasons. This PRM does not cause the machine to phase. This PRM applies to release 6 and later.

SHEET 23 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3j : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

Take a corrective action as indicated by digits 6 and 7 (xx), and try to mount again.

F8da 14xx xxxx yyzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

The file system mount audit failed due to a fault. The file manager may have failed to mount a file system.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx xxxx	Digits 6-11 (xx xxxx) are the low-order 3 bytes of the mdct-rid value.
yy	Digits 12 and 13 (yy) are the fault code.
zz	Digits 14 and 15 (zz) are the disk partition number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The file system mount audit checks the structural integrity of a file system during the mount process. This PRM indicates that the audit process exited due to a fault. This fault may or may not be caused by the audit, and this PRM does not provide any indication about the structural integrity of the file system.

NOTE:
This PRM does not cause the machine to phase.

CORRECTIVE ACTION

If a failure condition has also been reported (that is, there is an accompanying PRM: "F8da 15xx xxxx yyzz hhhh hh"), request the file system block audit AUD:FSBLK, and link audit AUD:FSLINK.

SHEET 25 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3j : SPEC-luc043a : GM VER. 2.5a

Try to mount the file system again. If the audit continues to fault, please report the problem to technical support. For more information on input commands, see the Select Code 303-080, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Input Messages Manual*.

F8da 15xx yyyy zzzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

The file system mount audit failed due to structural problems in the file system. The file manager may have failed to mount a file system.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx — Digits 6 and 7 (xx) are the error codes which have the following meaning:

- 01 super block error
- 02 I/O error
- 03 block range error
- 04 dup blocks
- 05 inode error
- 06 cannot get memory needed for audit.

yyyy — Digits 8-11 (yyyy) indicate the number of errors of this type.

zz — Digits 12 and 13 (zz = 00) are unused.

zz — Digits 14 and 15 (zz) are the disk partition numbers.

hh hh hh — Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

SHEET 27 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3j : SPEC-luc043a : GM VER. 2.5a

EXPLANATION

The file system mount audit checks the structural integrity of a file system during the mount process. While a number of conditions impact the structural integrity, only a super block error prevents the mount from completing.

NOTE:
This PRM does not cause the machine to phase.

CORRECTIVE ACTION

Request the file system block (AUD:FSBLK) and link (AUD:FSLINK) audits. For more information on input commands, see the *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Input Message Manual*, Select Code 303-080.

F8da 16xx yyzz zzzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

The file system remount has failed.

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx Digits 6 and 7 (xx) indicate why the remount has failed:

- 01 The remount has been tried on a different mount point.
- 02 The file system mount audit has failed.
- 03 Failure during the super block read.
- 04 Failure during the file system sync.
- 05 The remount could not be done since the file system was busy.

yy Digits 8 and 9 (yy) are the partition number.

zz zzzz Digits 10-15 (zz zzzz) are the mdct-rid of the partition.

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The remount has failed due to the listed reasons. This PRM does not cause the machine to phase.

SHEET 29 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3j : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

Take a corrective action as indicated by digits 6 and 7 (xx), and try to mount again. In the case of error code 5, the processes accessing the file system can be identified by trying to unmount the file system by doing a "umount". The "umount" command lists processes which have opens to files in the file system.

F8da 17xx yyzz zzzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

The file system mount has failed.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx — Digits 6 and 7 (xx) indicate why the mount has failed:

- 01 No empty slot in the mount table.
- 02 The mount point is busy, and digits 8-15 (yyzz zzzz) indicate the utility identifications (UIDs) of the violating processes. Multiple occurrences this PRM can appear for one mount.
- 03 The mount point is busy.
- 04 Failure in device driver creation.
- 05 The mount file system audits has failed.
- 06 Failure during the super block read from disk.
- 07 Failure during the root inode read from disk.
- 08 Attempt to set file system protection.

yy — Digits 8 and 9 (yy) are the partition number.

zz zzzz — Digits 10-15 (zz zzzz) are the mdct-rid of the partition, except for the error 2 case.

hh hh hh — Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

SHEET 31 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3j : SPEC-luc043a : GM VER. 2.5a

EXPLANATION

The mount has failed due to the listed reasons. This PRM does not cause the machine to phase.

CORRECTIVE ACTION

For error code 1, a less important file system must be unmounted.

For error codes 2 and 3, the process identified by the UID should be investigated and stopped if appropriate.

For error code 4, run AUD:FMGR 2 and retry the mount. If the problem persists, report it to the next level of technical support.

For error code 5, verify that the partition has been initialized as a file system, or restore from the backup file system.

In all other cases, contact the next level of technical support.

F8da 18xx yyzz zzzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

The file system unmount has failed.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx — Digits 6 and 7 (xx) indicate why the unmount has failed:

- 01 The special device file for the partition cannot be found.
- 02 The partition has NOT been mounted.
- 03 Failure during the file system sync.
- 04 The file system is busy, and failure has occurred during the file system sync.
- 05 The file system is busy.

yy — Digits 8 and 9 (yy) are the partition number.

zz zzzz — Digits 10-15 (zz zzzz) are the mdct-rid of the partition, except for the error 1 case previously described.

hh hh hh — Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The unmount has failed due to the previously listed reasons. This PRM does not cause the machine to phase. This PRM applies to release 1 only.

SHEET 33 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3j : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

For error code 1, check the name of the partition being unmounted and/or check the information for the partition in the *logdev* record.

For error codes 3 and 4, try again later.

For error code 5, the processes accessing the file system will be identified by the file manager messages which are printed on the maintenance class devices (typically including the ROP). After the processes have released the files, try "unmount" again.

In all other cases, and if the error persists, contact the next level of technical support.

F8da 18xx yyzz zzzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

The file system unmount has failed.

PRM EXPANSION

p Active CU: 0=> CU 0, 1 => CU 1.

xx Digits 6-7 (xx) indicate why the unmount has failed:

- 01 The special device file for the partition cannot be found; digits 8-15 (yyzz zzzz) are 0.
- 02 The partition has NOT been mounted.
- 03 Failure during the file system sync.
- 04 The file system is busy, and failure during the file system sync.
- 05 The file system is busy.

yy Digits 8-9 (yy) are the partition number.

zz zzzz Digits 10-15 (zz zzzz) are the mdct-rid of the partition, except for the previous error case 1.

hh hh hh Hardware status digits. Refer to Figure 2-1 for definition of the digits.

EXPLANATION

The unmount has failed due to the listed reasons. This PRM does not cause the machine to phase. This PRM applies to release 6 and later.

SHEET 35 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3j : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

For error code 1, check the name of the partition being unmounted and/or check the information for the partition in the *logdev* record.

For error codes 3 and 4, try again later.

For error code 5, the processes accessing the file system will be identified by the file manager messages printed on the maintenance class devices, which typically includes the ROP. After the processes have released the files, try "unmount" again.

In all other cases, and if the error persists, contact the next level of technical support.

F8da 19xx yyyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

A file manager task has been torn down.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx — Digits 6 and 7 (xx) show why the task has been torn down:

- 01 Phase 1 occurred while this task is running.
- 02 The task caused a software fault.
- 03 The task has timed out.
- 04 The file manager task audit (AUD:FMGR 1) detected faults in the task table.
- 05 I/O has been tried to the maximum number (5) of retries.
- 06 The task had a lock for a file that was unconditionally unmounted.

yyyy yyyy — Digits 8-15 (yyyy yyyy) are the UID of the process that originated the file manager message.

hh hh hh — Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

SHEET 37 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3j : SPEC-luc043a : GM VER. 2.5a

EXPLANATION

A file manager task has been torn down due to various reasons previously listed. This PRM does not cause the machine to phase.

CORRECTIVE ACTION

This is an information PRM. No action is necessary.

F8da 1Axx yyyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

A file manager task has been torn down.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) are the file manager message type.
yyyy yyyy	Digits 8-15 (yyyy yyyy) are the sleep/fault address of the task.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A file manager task has been torn down due to the various reasons previously listed. This PRM does not cause the machine to phase.

CORRECTIVE ACTION

This is an informational PRM. No action is necessary.

E8da DDtw xxyy yzzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

Disk data (previously known as all-seems-well function).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
t	Digit 6 (t) 1 indicates a maintenance interrupt; 0 indicates a phase.
w	Digit 7 (w) H'A for nonmanually initiated MRFs and 0 otherwise.
xx	Digits 8 and 9 (xx) are the last two hexadecimal digits of sequence number that is part of postmortem dump.
yy y	Digits 10-12 (yy y) H'BD**n** when boot MHD **n** is active and 000 otherwise. **n** = odd numbered MHD H'1 through H'F.
zzz	Digits 13-15 (zzz) H'BD**n** when boot MHD **n** is active and 000 otherwise. **n** = even numbered MHD H'0 through H'E.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This PRM is generated when this process (step) has successfully completed execution.

SHEET 40 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3j : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

None

Identifier 9 - Kernel Service Routines PRMs

3K

Contents

Kernel Service Routines PRMs 3K-1

Identifier 9 - Kernel Service Routines PRMs

3K

Kernel Service Routines PRMs

Identifier 9 Kernel Service Routines processor recovery messages (PRMs) report failures such as finding a bad segment descriptor entry (SDE) pointer after a bad OST, identifying an unattached interrupt firing more than five times in the last second, finding an invalid process mode in the program status word, faulting of the kernel while handling an OST, and running out of hold descriptor blocks.

SHEET 1 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

F9da 0100 0000 0000 hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Excessive number of illegal interrupts.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An excessive number of illegal interrupts have occurred within a 10 msec interval. [routine - kernel - 3bstub.c]

Level 1 phase has been requested.

CORRECTIVE ACTION

Look for extraneous interrupts on unequipped interrupt source points.

F9da 0200 00xx xxxx hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Bad segment descriptor entry (SDE) pointer.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx xxxx	Digits 10-15 (xx xxxx) indicate hexadecimal return address from which badost( ) was called.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An invalid operating system trap (OST) has occurred. In order to determine what process to fault, the kernel must look at the primary segment base register of the caller to determine the process number. The primary segment base register is either in error or one of the special processes caused the bad OST. [routine - kernel - badost( )]

Level 1 phase has been requested.

CORRECTIVE ACTION

None

F9da 0300 0000 0000 hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Segment descriptor entry (SDE) pointer does not belong to a process control block (PCB).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An invalid operating system trap (OST) has occurred. In order to determine what process to fault, the kernel must look at the primary segment base register of the caller to determine the process number. [routine - kernel - badost( )]

The SDE provided by the primary segment base register does not belong to a PCB.

Level 1 phase has been requested.

CORRECTIVE ACTION

None

F9da 0400 0000 00xx hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Unexpected interrupt.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 14 and 15 (xx) indicate the interrupt source. Refer to 254-303-106, *3B20D and 3B21D Computers **UNIX** RTR Operating System, System Maintenance Manual*, for definition of the digits.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A spurious interrupt fired more than five times in the last second. [routine - kernel - unexpint( )]

Level 1 phase has been requested.

CORRECTIVE ACTION

None

F9da 05xx 00yy 00zz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Unattached interrupt.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) indicate the interrupt source (refer to 254-303-106, *3B20D and 3B21D Computers **UNIX** RTR Operating System, System Maintenance Manual*, for definition of the digits).
yy	Digits 10 and 11 (yy) indicate the channel number.
zz	Digits 14 and 15 (zz) indicate the device number.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An unattached interrupt fired more than five times in the last second. [routine - kernel - unatchint ( )]

Level 1 phase has been requested.

CORRECTIVE ACTION

None

F9da 060x 00yy yyyy hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Invalid kernel process dispatch.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
x	Digit 7 (x) contains the execution level of the active dispatching queue.
yy yyyy	Digits 10-15 (yy yyyy) indicate the hexadecimal address of the dispatching control table element which is in error.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A nonkernel process level process was found on a dispatching queue reserved for kernel processes. [routine - kernel - disp2_F( )]

Level 1 phase has been requested.

CORRECTIVE ACTION

None

F9da 070x 00yy yyyy hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Bad segment descriptor entry (SDE) pointer.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
x	Digit 7 (x) is the execution level at the time of the fault.
yyyy	Digits 10-15 (yyyy) indicate the hexadecimal text address at which the fault occurred.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

When trying to fault a process, the kernel must determine the process number from the primary segment base register in an interrupt stack element. The segment base register value used was either damaged or the kernel or a special process caused the fault. [routine - kernel - rtiflt( )]

Level 1 phase has been requested.

CORRECTIVE ACTION

None

F9da 0800 wwxx yyzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

An unknown or illegal process is trying to return from a software fault.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
wwxx yyzz	These values are always 0 except for Release 1. In which case they contain the program address (PA) value for a supervisor process illegally using the kernel stack in cache feature.
ww	Leftmost byte in psw.
zz	Lowest byte in psw.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitionss of digits.

EXPLANATION

A process encountered a software fault and the kernel cannot determine the process type.

A level 1 phase has been requested.

CORRECTIVE ACTION

Report the error to *UNIX* RTR operating system support.

SHEET 9 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

F9da 0900 0000 0000 hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Null dispatcher control table entry (DCTE) pointer.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

While trying to fault a process, the operating system detected a null DCTE pointer. [routine - kernel - nkint.c]

Level 1 phase has been requested.

CORRECTIVE ACTION

None

E9da 0A00 xx00 yyyy hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Abnormal status was returned from *iorint*

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8 and 9 (xx) indicate the channel number being read.
yyyy	Digits 12-15 (yyyy) indicate the channel status [if this value is zero, a direct memory access (DMA) time-out occurred]. For an interpretation of the bits in the digits 12-15 (yyyy), refer to the information on the dual serial channel "channel status register", in document 254-303-106, "*3B20D and 3B21D Computers, System Maintenance Manual*.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An abnormal status was returned from reading the dual serial channel using the I/O instruction "iorint". This stopped the operating system from determining the interrupting channel.

Kernel Function: intsw( )

SHEET 11 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

If the problem continues, switch CUs. If the problem is isolated to one CU, replace the direct memory access (DMA) circuit pack.

If the problem continues switch CUs. If the problem is isolated to one CU, replace the direct memory access (DMA) circuit pack. If the problem continues on either CU, suspect a faulty peripheral interface controller (API, DFC, IOP, MSGs, etc.) equipped on this channel. Use the channel number to determine the suspect units. If this does not solve the problem, it may be a software error. Report the problem to the next level of technical support.

E9da 0B00 xx00 yyyy hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Abnormal return from iorsr.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8 and 9 (xx) indicate the channel number being read.
yyyy	Digits 12-15 (yyyy) indicate the channel status [if this value is zero, a direct memory access (DMA) time-out occurred]. For an interpretation of the bits in digits 12-15 (yyyy), refer to the information on the dual serial channel "channel status register", in document 254-303-106, *3B20D and 3B21D Computers, System Maintenance Manual*.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Reading the dual serial channel using the I/O instruction "iorsr", an abnormal status was returned.

Kernel Function: rdschsr( )

SHEET 13 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

If the problem continues, switch CUs. If the problem is isolated to one CU, replace the direct memory access (DMA) circuit pack.

If the problem continues on either CU, suspect a faulty peripheral interface controller (API, DFC, IOP, MSGs, etc.) equipped on this channel. Use the channel number to determine the suspect units. If this does not solve the problem, it may be a software error. Report the problem to the next level of technical support.

E9da 0C0w xxyy zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Abnormal return from wtmsk.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
w	Digit 7 (w) indicates the action type: 0 = enable, 1 = disable.
xx	Digits 8 and 9 (xx) indicate the channel number being written.
yy	Digits 10 and 11 (yy) indicate the device being masked.
zzzz	Digits 12-15 (zzzz) indicate the dual serial channel status [if this value is zero, a direct memory access (DMA) time-out occurred]. For an interpretation of the bits in digits 12-15 (yyyy), refer to the information on the dual serial channel "channel status register", in document 254-303-106, *3B20D and 3B21D Computers, System Maintenance Manual*.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An error occurred when writing the dual serial interrupt mask using the "wtmsk".

Kernel Function: cdschim( ) or scsdchim( ).

SHEET 15 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

If the problem continues, switch CUs. If the problem is isolated to one CU, replace the direct memory access (DMA) circuit pack.

If the problem continues on either CU, suspect a faulty peripheral interface controller (API, DFC, IOP, MSGs, etc.) equipped on this channel. Use the channel number and device number to determine the suspect units. If this does not solve the problem, it may be a software error. Report the problem to the next level of technical support.

E9da 0D0w xxyy zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Failure on wtmsk.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

w — Digit 7 indicates the action type:

- 0 Enable the service request mask.
- 1 Disable the service request mask.
- 2 Disable both the service request and interrupt masks.
- 3 Enable both the service request and interrupt masks.

xx — Digits 8 and 9 indicate the channel number being written.

yy — Digits 10 and 11 indicate the device being masked.

zzzz — Digits 12-15 indicate the channel status [if this value is zero, a direct memory access (DMA) time-out occurred].

For an interpretation of the bits in digits 12-15 (zzzz), refer to the information on the dual serial channel channel status register, in 254-303-106, *3B20D and 3B21D Computers, System Maintenance Manual*.

hh hh hh — Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

SHEET 17 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

EXPLANATION

This PRM applies only to a 3B20D computer.

An error or time-out occurred when trying to write the dual serial channel (DSCH) service request or interrupt mask registers using the "wtmsk" instruction.

The following routines may cause this PRM.

Kernel Functions: cdschsrm( ) or sdschsrm( ), set-both( ), or clr-both( ). setboth21( ) or cirboth21( ).

CORRECTIVE ACTION

If the problem continues, switch CUs. If the problem is isolated to one CU, replace the direct memory access (DMA) circuit pack.

If the problem continues on either CU, suspect a faulty peripheral interface controller (API, DFC, IOP, MSGs, etc.) equipped on this channel. Use the channel number and device number to determine the suspect units. If this does not solve the problem, it may be a software error. Report the problem to the next level of technical support.

SHEET 18 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

F9da 0D0w xxyy zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Failure on wtmsk.

PRM EXPANSION

This PRM is output when an error occurs on "wtmsk."

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

w — Digit 7 indicates the action type:

- 02 Disable both the service request and interrupt masks.
- 03 Enable both the service request and interrupt masks.
- 04 Update the interrupt mask register.
- 05 Update the service request mask register.

xx — Digits 8 and 9 indicate the channel number being written.

yy — Digits 10 and 11 indicate the device being masked.

If the action type is either 4 or 5, the device number (yy) is always 0.

zzzz — Digits 12-15 (zzzz) indicate the channel status [if this value is zero, a direct memory access (DMA) time-out occurred].

For an interpretation of the bits in digits 12-15 (zzzz), refer to the information on the dual serial channel channel status register, in 254-303-106, *3B20D and 3B21D Computers, System Maintenance Manual*.

SHEET 19 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

For action types 2 and 3, this PRM is followed by a *retry* of the "wtmsk" instruction. If the retry fails, FAIL is returned. In the case of 3 (enable) an attempt is made to write old masks to the channel.

For action types 4 and 5, this PRM is not followed by a retry or a phase. FAIL is then returned.

EXPLANATION

This PRM applies only to the 3B21D computer.

Using the "wtmsk" instruction, an error occurred during the reading of the dual serial interrupt and/or the service request mask registers.

Kernel Functions: setboth21( ), cirboth21( ), wt_intmsk21( ), or wtsrmsk21( ).

CORRECTIVE ACTION

If the problem continues, switch CUs. If the problem is isolated to one CU, replace the direct memory access (DMA) circuit pack.

If the problem continues on either CU, suspect a faulty peripheral interface controller (API, DFC, IOP, MSGs, etc.) equipped on this channel. Use the channel number and device number to determine the suspect unit. If this does not solve the problem, it may be a software error. Report the problem to the next level of technical support.

E9da 0E00 xxyy zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Abnormal return from wtmski.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8 and 9 (xx) indicate the channel number being written.
yy	Digits 10-11 (yy) indicate the device being cleared.
zzzz	Digits 12-15 (zzzz) indicate the channel status (if this value is zero, a direct memory access [DMA] time-out occurred). For an interpretation of the bits in digits 12-15 (zzzz), refer to the information on the dual serial channel "channel status register", in document 254-303-106, *3B20D and 3B21D Computers, System Maintenance Manual*.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An error occurred when clearing the dual serial interrupt mask using "wtmski."

Kernel Function: cldschi( )

SHEET 21 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

If the problem continues, switch CUs. If the problem is isolated to one CU, replace the direct memory access (DMA) circuit pack.

If the problem continues on either CU, suspect a faulty peripheral interface controller (API, DFC, IOP, MSGs, etc.) equipped on this channel. Use the channel number and the device number to determine the suspect unit. If this does not solve the problem, it may be a software error. Report the problem to the next level of technical support.

F9da 0D0w xxyy zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Failure on wtmsk.

PRM EXPANSION

This PRM is output when an error occurs on "wtmsk".

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

w — Digit 7 indicates the action type:

- 2 Disable the service request mask and interrupt mask
- 3 Enable the service request mask and interrupt mask
- 4 Update the interrupt mask
- 5 Update the service request mask.

xx — Digits 8 and 9 indicate the channel number being written.

yy — Digits 10 and 11 indicate the device being masked.

If the action type is either 4 or 5, the device number (yy) is always 0.

zzzz — Digits 12-15 indicate the channel status [if this value is zero, a direct memory access (DMA) time-out occurred].

For an interpretation of the bits in digits 12-15 (zzzz), refer to the information on the dual serial channel channel status register, in 254-303-106, *3B20D and 3B21D Computers System Maintenance Manual*.

SHEET 23 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

For action types 2 and 3, this PRM is followed by a *retry* of the "wtmsk" instruction. If the retry fails, FAIL is returned. In the case of 3 (enable) an attempt is made to write old mask to the channel.

For action types 4 and 5, this PRM is not followed by a retry or a phase. FAIL is then returned.

EXPLANATION

This PRM applies only to the 3B21D computer.

An error occurred when trying to write to the dual serial service request or interrupt mask registers using the "wtmsk" instruction.

Kernel Function: setboth21( ), clrboth21( ), wt_intmsk21( ), or wtsrmsk21( ).

CORRECTIVE ACTION

If the problem continues, switch CUs. If the problem is isolated to one CU, replace the direct memory access (DMA) circuit pack.

If the problem continues on either CU, suspect a faulty peripheral interface controller (API, DFC, IOP, MSGS, etc.) equipped on this channel. Use the channel number and device number to determine the suspect units. If this does not solve the problem, it may be a software error. Report the problem to the next level of technical support.

E9da 0E00 xxyy zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Abnormal return from wtmski.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8 and 9 (xx) indicate the channel number being written.
yy	Digits 10 and 11 (yy) indicate the device being cleared.
zzzz	Digits 12-15 indicate the channel status [if this value is zero, a direct memory access (DMA) time-out occurred]. For an interpretation of the bits in digits 12-15 (zzzz), refer to the information on the dual serial channel channel status register, in 254-303-106, *3B20D and 3B21D Computers System Maintenance Manual*.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An error occurred when clearing the dual serial interrupt mask using "wtmski". Kernel Function: cldschi( )]

SHEET 25 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

If the problem continues, switch CUs. If the problem is isolated to one CU, replace the direct memory access (DMA) circuit pack.

If the problem continues on either CU, suspect a faulty peripheral interface controller (API, DFC, IOP, MSGS, etc.) equipped on this channel. Use the channel number and device number to determine the suspect units. If this does not solve the problem, it may be a software error. Report the problem to the next level of technical support.

E9da 0F00 xxyy zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Abnormal return from wtmskr.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8 and 9 (xx) indicate the channel number being written.
yy	Digits 10 and 11 (yy) indicate the device being cleared.
zzzz	Digits 12-15 indicate the channel status [if this value is zero, a direct memory access (DMA) time-out occurred]. For an interpretation of the bits in digits 12-15 (zzzz), refer to the information on the dual serial channel channel status register, in 254-303-106, *3B20D and 3B21D Computers System Maintenance Manual*.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An error occurred when clearing the dual serial service request mask using "wtmskr". Kernel Function: cldschsr( )]

SHEET 27 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

If the problem continues, switch CUs. If the problem is isolated to one CU, replace the direct memory access (DMA) circuit pack.

If the problem continues on either CU, suspect a faulty peripheral interface controller (API, DFC, IOP, MSGS, etc.) equipped on this channel. Use the channel number and device number to determine the suspect units. If this does not solve the problem, it may be a software error. Report the problem to the next level of technical support.

E9da 1F00 xxxx xxxx hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

A software check for hardware errors in the real-time clock has failed.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx xxxx	The difference between the current and previous real-time clock values.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

To guard against faulty hardware that could result in inaccurate values from the real-time clock, the kernel checks the real-time clock about every 10 msec. The kernel compares the value of the real time clock with the value saved from the last check. If the difference is greater than 10000 msec, then it is possible that there is a faulty hardware board.

This PRM applies to releases R21.7, R21.17, R21.21 and later.

CORRECTIVE ACTION

If this PRM comes out repeatedly, then switch CUs and run diagnostics on the failing CU.

F9da 1000 0000 0000 hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

An invalid branch occurred.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An invalid branch was made to the text located at offset zero. This will occur if either field update improperly modified a transfer vector or some kernel process which shares the stack with the kernel has improperly modified a portion of the stack currently in use as a C call save state. [routine - kernel - zeppelin( )]

Level 1 phase has been requested.

CORRECTIVE ACTION

None

F9da 11xx yyzz zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Kernel incurred software fault.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Execution level of kernel at time of fault.
yy	Fault code.
zz zzzz	Address where fault occurred.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Kernel incurred software fault and was unable to recover.

Level 1 phase has been requested.

CORRECTIVE ACTION

None

SHEET 31 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

F9da 12xx yyzz zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Kernel faulted while in a special system process.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Execution level of kernel at time of fault.
yy	Fault code.
zz zzzz	Address where fault occurred.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The kernel faulted while handling a supervisor operating system trap (OST) from a system special process. A recovery will be tried.

CORRECTIVE ACTION

None

SHEET 32 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

F9da 13xx yyzz zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Kernel faulted while handling a supervisor operating system trap (OST).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Execution level of kernel at time of fault.
yy	Fault code.
zz zzzz	Address where fault occurred.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The kernel faulted while handling a supervisor OST, but recovery was impossible.

Level 1 phase has been requested.

CORRECTIVE ACTION

None

SHEET 33 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

F9da 14xx yyzz zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Kernel faulted while handling a channel operating system trap (OST).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Execution level of kernel at time of fault.
yy	Fault code.
zz zzzz	Address where fault occurred.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The kernel faulted while handling a channel OST, but recovery was impossible.

Level 1 phase has been requested.

CORRECTIVE ACTION

None

F9da 15xx yyzz zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Kernel faulted while handling a kernel process operating system trap (OST).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Execution level of kernel at time of fault.
yy	Fault code.
zz zzzz	Address where fault occurred.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The kernel faulted while handling a kernel process OST, but recovery was impossible.

Level 1 phase has been requested.

CORRECTIVE ACTION

None

SHEET 35 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

F9da 16xx yyzz zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Kernel faulted while in the kernel audit.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Execution level of kernel at time of fault.
yy	Fault code.
zz zzzz	Address where fault occurred.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The kernel faulted while in the kernel audit, but recovery was impossible.

Level 1 phase has been requested.

CORRECTIVE ACTION

None

SHEET 36 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

F9da 17xx yyzz zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Kernel faulted while in a special process.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Execution level of kernel at time of fault.
yy	Fault code.
zz zzzz	Address where fault occurred.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The kernel faulted while in a special process, but recovery was impossible.

Level 1 phase has been requested.

CORRECTIVE ACTION

None

SHEET 37 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

E9da 1700 0000 0000 hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Incomplete "dsksimplex" operating system trap (OST) process.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The system was in the midst of establishing simplex operation of the *UNIX* real time reliable (RTR) operating system disks when the SYSDLM OST was issued. Not all the swappable disk limp mode essential processes may have been swapped in and made nonswappable.

CORRECTIVE ACTION

None. Not all disk independent operation (DIOP) services may be available.

SHEET 38 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

E9da 1800 0000 0000 hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Extended main memory backplane wiring enabled, but system has nonextended memory.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Extended main memory backplane wiring is enabled, but the equipment configuration database (ECD) has not been updated to reflect the extended memory. The kernel will disable the logical extended main memory enabled flag and will allow the system to boot without extended main memory.

CORRECTIVE ACTION

If extended main memory (memory larger than 16 megabytes) is not desired, then the backplane wiring should be disabled. If the main memory is desired, the ECD must be updated to reflect the extended memory. Also see growth procedures-extended main memory retrofit. See the following documents; 254-301-816, *3B20D Model 1 Computer System Growth and Retrofit*, and 254-302-816 and 254-302-837, *3B20D Model 2 and 3 Computers Common System Growth and Retrofit*, 254-303-100, Issue 2, *3B21D Computers Growth/Retrofit Tasks*.

SHEET 39 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

E9da 1900 xxxx xxxx hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

The requested time-out interval exceeded the maximum.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx xxxx	Digits 8-15 (xxxx xxxx) are the pcode portion of the utility ID of the requesting process.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The time-out interval requested by *ptimer()* exceeded the maximum value set by *maxintvl()*.

CORRECTIVE ACTION

None

E9da 1A0w xxyy yzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

A message buffer overload condition has been detected. A request has been made to try and eliminate the overload condition by flushing message buffers belonging to a specific process. The PRM is the direct result of a process issuing the ol_mbflsh(4) kernel call.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
w	Indicate the action to be taken for the requested message buffer type. When: 01 Only the requested message buffer(s) of the specified type are flushed. 02 All but the specified type of message buffers are flushed. 03 All messages buffers are flushed.
xx	Indicates the message type.
yy y	Indicates the number of message blocks freed.
zzz	Indicates the utility ID of the process who owns the message buffers being flushed.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of digits.

SHEET 41 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

None

SHEET 42 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

F9da 1B0w xxyy zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Failure on rdmsk.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

w — Digit 7 indicates the action type:

- 02 Disable both the service request and interrupt masks.
- 03 Enable both the service request and interrupt masks.
- 04 Update the interrupt mask register.
- 05 Update the service request mask register.

xx — Digits 8 and 9 indicate the channel number being read.

yy — Digits 10 and 11 indicate the device being masked.

zzzz — Digits 12-15 (zzzz) indicate the channel status [if this value is zero, a direct memory access (DMA) time-out occurred].

For an interpretation of the bits in digits 12-15 (zzzz), refer to the information on the dual serial channel channel status register, in 254-303-106, *3B20D and 3B21D Computers, System Maintenance Manual*.

hh hh hh — Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

SHEET 43 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

EXPLANATION

This PRM applies only to the 3B21D computer.

Using the "rdmsk" instruction, an error occurred during the reading of the dual serial interrupt and/or the service request mask registers.

Kernel Functions: setboth21( ), cirboth21( ), wt_intmsk21( ), or wtsrmsk21( ).

For action type 3 (enable), an attempt is made to disable the interrupt by writing the previous mask to the channel.

CORRECTIVE ACTION

If the problem continues, switch CUs. If the problem is isolated to one CU, replace the direct memory access (DMA) circuit pack.

If the problem continues on either CU, suspect a faulty peripheral interface controller (API, DFC, IOP, MSGs, etc.) equipped on this channel. Use the channel number and device number to determine the suspect unit. If this does not solve the problem, it may be a software error. Report the problem to the next level of technical support.

F9da 1B0w xxyy zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Failure on rdmsk.

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

w Digit 7 indicates the action type:

- 02 Disable both the service request and interrupt masks.
- 03 Enable both the service request and interrupt masks.
- 04 Update interrupt mask register.
- 05 Update service request mask register.

xx Digits 8 and 9 indicate the channel number being read.

- 01 Channel 1
- 02 Channel 2
- 03 Channel 3
- 04 Channel 4

yy Digits 10 and 11 are always 0.

zzzz Digits 12-15 indicate the channel status [if this value is zero, a direct memory access (DMA) time-out occurred].

For an interpretation of the bits in digits 12-15 (zzzz), refer to the information on the dual serial channel channel status register, in 254-303-106, *3B20D and 3B21D Computers System Maintenance Manual*. Digits 12-15 indicate the channel status.

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This PRM applies only to the 3B21D computer.

An error occurred when reading the dual serial interrupt and/or the service request mask registers using the "rdmsk".

The following routines may cause this PRM.

Kernel Function: setboth21( ), clrboth21( ), wt_intmsk21( ), wtsrmsk21( )

For action type 3 (enable) an attempt well e made to disable the interrupt by writing the previous mask to the channel.

CORRECTIVE ACTION

If the problem continues, switch CUs. If the problem is isolated to one CU, replace the direct memory access (DMA) circuit pack.

If the problem continues on either CU, suspect a faulty peripheral interface controller (API, DFC, IOP, MSGS, etc.) equipped on this channel. Use the channel number and device number to determine the suspect units. If this does not solve the problem, it may be a software error. Report the problem to the next level of technical support.

E9da 1Cxx yyyy yyyy hh hh hh

PRM SOURCE

Memory Manager

FUNCTION

Memory manager detected out-of-range page index within the free page list.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Memory Module where the error occurred.
yyyy yyyy	The value of the out-of range page descriptor entry (PDE) index.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The page descriptor table (PDT) is an array of page descriptor entries, each of which contains information about a single physical page in the system. (See head/pde.n.) Pdefree is the index into PDT of the first free PDE. The occurrence of this PRM indicates that Pdefree contains an incorrect value.

This PRM applies to release 1 only.

CORRECTIVE ACTION

No manual action is needed. The memory manager has rebuilt the list of free pages and called for an audit of the PDEs.

SHEET 47 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

E9da 1Cxx yyyy yyyy hh hh hh

PRM SOURCE

Memory Manager

FUNCTION

Memory manager detected out-of-range page index within the free page list.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Memory Module where the error occurred.
yyyy yyyy	The value of the out-of range page descriptor entry (PDE) index.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The page descriptor table (PDT) is an array of page descriptor entries, each of which contains information about a single physical page in the system. (See head/pde.n.) Pdefree is the index into PDT of the first free PDE. The occurrence of this PRM indicates that Pdefree contains an incorrect value.

This PRM applies to release 6.4 and later.

CORRECTIVE ACTION

No manual action is needed. The memory manager has rebuilt the list of free pages and called for an audit of the PDEs.

E9da 1Exx yyzz 0000 hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

All processes attaching to the same interrupt source bit must specify the same execution level. This PRM is printed if a driver is attempting to attach to an interrupt source bit which has another driver with a different execution level already attached to the asme bit.

PRM EXPANSION

p	Active CU: 0=> CU 0, 1 => CU 1.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".
xx	Indicates the execution level of the driver that is already attached to the interrupt source hit.
yy	Indicates the execution level of the driver that is attempting to attach to the interrupt source hit.
zz	Indicates the interrupt source bit number to which the driver is trying to attach.

CORRECTIVE ACTION

If more than one driver with different execution levels attach to the same interrupt source bit, modify either the execution level of driver(s) or the interrupt source bit number with associated hardware changes.

F9da 200w xxyy zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Read mask does not match expected value.

PRM EXPANSION

p — Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

w — Digit 7 indicates the action type:

- 02 Disable both the service request and interrupt masks.
- 03 Enable both the service request and interrupt masks.
- 04 Update the interrupt mask register.
- 05 Update the service request mask register.

xx — Digits 8 and 9 indicate the channel number being read.

yy — Digits 10 and 11 indicate the device being masked.

zzzz — Digits 12-15 (zzzz) indicate the channel status [if this value is zero, a direct memory access (DMA) time-out occurred].

For an interpretation of the bits in digits 12-15 (zzzz), refer to the information on the dual serial channel channel status register, in 254-303-106, *3B20D and 3B21D Computers, System Maintenance Manual*.

hh hh hh — Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

SHEET 50 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

EXPLANATION

This processor recovery message (PRM) applies only to the 3B21D computer.

After a write ("wtmsk") of the interrupt and/or service request mask, the mask is read back using "rdmsk" and the results are compared with the value just written. This PRM indicates a mismatch.

Kernel Functions: setboth21( ), cirboth21( ), wt_intmsk21( ), or wtsrmsk21( ).

For action type 3 (enable) an attempt is made to disable the interrupt by writing the previous mask to the channel.

CORRECTIVE ACTION

If the problem continues, switch CUs. If the problem is isolated to one CU, replace the direct memory access (DMA) circuit pack.

If the problem continues on either CU, suspect a faulty peripheral interface controller (API, DFC, IOP, MSGs, etc.) equipped on this channel. Use the channel number and device number to determine the suspect unit. If this does not solve the problem, it may be a software error. Report the problem to the next level of technical support.

SHEET 51 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

F9da 3400 0000 0000 hh hh hh

PRM SOURCE

Scheduler

FUNCTION

There are no available scheduler slist entries.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

During process creation, new user processes must be linked to a priority level on the Rlist or NRlist. The process creation failed because there are no slist entries available.

CORRECTIVE ACTION

Kill less important user processes to free some slist entries. If the process was being created from the *UNIX* system shell, press the break key to stop the shell from retrying the command.

E9da 36xx xyyy zzzz hh hh hh

PRM SOURCE

Scheduler

FUNCTION

The scheduler encountered a process with an invalid process control block (PCB) segment pointer or segment type.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx x	(Digits 6-8). These digits contain the validation failure type and the dispatcher control table (DCT) index. The most significant bit is 0 if MMSEGCHK indicated an invalid pcbid or 1 if the segment type did not refer to a supervisor PCB.
yyy	(Digits 9-11). The process utility ID.
zzzz	(Digits 12-15). The DCT extender process state.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

SHEET 53 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

EXPLANATION

While attempting to dispatch a supervisor process, the scheduler determined that the PCB segment pointer was invalid or that the referenced segment was not a supervisor PCB.

The scheduler attempts to dispatch the process periodically for up to 2 minutes. If the process still fails validation after that time, the process is marked as not runnable (the process continues to consume resources but does not get scheduled for execution). Any attempt to terminate the process most likely phases the system. This PRM is generated by scheduler routine displ.

CORRECTIVE ACTION

Seek technical assistance.

F9da 3700 0000 0000 hh hh hh

PRM SOURCE

Scheduler

FUNCTION

I/O error during process load.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An I/O error was received while loading segments of a process. Further, the dispatcher control table (DCT) indicated that the process was of class "essential" or was a "NOTERM" process.

CORRECTIVE ACTION

None

SHEET 55 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

F9da 3802 xx00 0000 hh hh hh

PRM SOURCE

Scheduler

FUNCTION

The scheduler encountered an unexplained fault.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Contains the fault code.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An unexplained fault was encountered by the scheduler.

Level 1 phase has been requested.

CORRECTIVE ACTION

Report the error to *UNIX* real-time reliable (RTR) operating system support.

F9da 3902 xx00 0000 hh hh hh

PRM SOURCE

Scheduler

FUNCTION

The scheduler encountered a software fault within the last 10 scheduler ticks.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Contains the fault code.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The scheduler encountered the first software fault within the last 10 scheduler ticks. The scheduler's key data structures were rebuilt.

CORRECTIVE ACTION

Report the error to the *UNIX* real-time reliable (RTR) operating system support.

SHEET 57 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

F9da 3A02 xx00 0000 hh hh hh

PRM SOURCE

Scheduler

FUNCTION

The scheduler encountered the second software fault within the last 10 scheduler ticks.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Contains the fault code.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The scheduler encountered the second software fault within the last 10 scheduler ticks.

Level 1 phase has been requested.

CORRECTIVE ACTION

Report the error to the *UNIX* real-time reliable (RTR) operating system support.

F9da 4002 xx00 0000 hh hh hh

PRM SOURCE

Kernel Display Application Driver

FUNCTION

Kdapdrvr encountered a software fault.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Contains the fault code.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Some type of software or unexplained fault was encountered by the driver.

Level 1 phase has been requested.

CORRECTIVE ACTION

Report the error to *UNIX* real-time reliable (RTR) operating system support.

SHEET 59 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

F9da 5002 xx00 0000 hh hh hh

PRM SOURCE

Utility Manager (UMGR)

FUNCTION

UMGR encountered a software fault.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Contains the fault code.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Some type of software or unexplained fault was encountered by the utility manager.

Level 1 phase has been requested.

CORRECTIVE ACTION

Report the error to *UNIX* real-time reliable (RTR) operating system support.

F9da 6E00 0000 0000 hh hh hh

PRM SOURCE

Memory Manager (MMGR)

FUNCTION

Bad return code received from function call.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

MMGR routine that tries to make space on the disk returned a bad return code.

routine - memory manager - mmprc.c

Level 1 phase has been requested.

CORRECTIVE ACTION

None

SHEET 61 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

F9da 6F00 0000 0000 hh hh hh

PRM SOURCE

Memory Manager (MMGR)

FUNCTION

Bad return code received from function call.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

MMGR routine that loads segments into memory returned an invalid return code.

routine - memory manager - mmprc.c

Level 1 phase has been requested.

CORRECTIVE ACTION

None

F9da 7000 0000 0000 hh hh hh

PRM SOURCE

Memory Manager (MMGR)

FUNCTION

MMGR synchronization fault.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The MMGR has just given up the swap space for a segment that it is trying to grow and failed to acquire swap space for the new (larger) size. It then tried to reclaim the old space and failed. This is an impossible situation.

Level 1 phase has been requested.

CORRECTIVE ACTION

None

F9da 7100 0000 0000 hh hh hh

PRM SOURCE

Memory Manager (MMGR)

FUNCTION

MMGR swapping logic error.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

MMGR is about to retry the swap of a segment. The swap attempt failed earlier because of a message buffer shortage. Unfortunately, the MMGR has lost track of whether the segment is to be swapped in or out. This is an impossible situation.

Level 1 phase has been requested.

CORRECTIVE ACTION

None

F9da 7200 0000 0000 hh hh hh

PRM SOURCE

Memory Manager (MMGR)

FUNCTION

MMGR internal table built in wrong sequence.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The MMGR has an internal table containing the types of all messages handled by MMGR. This table must be in ascending numerical order but is not. This is the result of a bad code modification.

Level 1 phase has been requested.

CORRECTIVE ACTION

None

SHEET 65 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

E9da 7300 0000 0000 hh hh hh

PRM SOURCE

Memory Manager (MMGR)

FUNCTION

Swap memory below minimum swap after boot.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Kernel processes in the boot image can add segments during the boot interval. During this interval, the minimum swap space threshold is not enforced. This PRM indicates that a boot process(es) has created enough segments to bring the system below the minimum swap threshold. Other essential processes may not be able to run.

It must be determined whether the segments were created in error. If not, the main memory may be too small to support this configuration.

CORRECTIVE ACTION

None

SHEET 66 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

F9da 7400 0000 0000 hh hh hh

PRM SOURCE

Memory Manager (MMGR)

FUNCTION

The MMGR ran out of hold descriptor blocks during rebuild.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The MMGR controls available space in the swap partition by means of control structures called hole descriptor blocks (HDBs). During an emergency rebuilding of the swap disk control information, the MMGR ran out of HDBs.

Level 1 phase has been requested.

CORRECTIVE ACTION

None

F9da 7502 xx00 0000 hh hh hh

PRM SOURCE

Memory Manager (MMGR)

FUNCTION

MMGR encountered a software fault.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
2	Digit 7 (2) execution level at the time of the fault.
xx	Digits 8-9 (xx) are the fault codes. (See fault.h.)
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The MMGR was entered with a software or unexplained fault.

Level 1 phase has been requested.

CORRECTIVE ACTION

None

E9da 7600 0000 0000 hh hh hh

PRM SOURCE

Memory Manager (MMGR)

FUNCTION

Beginning internal audit of the MMGR's segment I/O activity.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

If the MMGR takes over a specified time to complete a service request, it may indicate that the MMGR has somehow lost track of the number of segments being read or written. This PRM indicates that the MMGR has started an internal audit to ensure that its internal counters agree with the actual I/O activity in progress. A flag is set to trigger an escalated response in the event that the service request does not complete within a specified interval following this action. (See PRM "**E9da 7700 0000 0000 hh hh hh**".)

CORRECTIVE ACTION

None

E9da 7700 0000 0000 hh hh hh

PRM SOURCE

Memory Manager (MMGR)

FUNCTION

A segment I/O request is stuck, the MMGR is taking drastic action to clean up.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This PRM indicates that the memory manager cannot complete a service request due to an inability to complete a segment I/O request. (See PRM "**E9da 7600 0000 0000 hh hh hh**".) The assumption is that a swap message has been lost, or a swap disk error is preventing the completion of the I/O request. Drastic action is required to clear the problem. I/O status bits will be cleared for all swappable segments. If a segment was being read in, it will be released and unlocked, and the segment status will be set to indicate a swap disk error. This will cause the scheduler to terminate the owner process. If the segment is shared, this bit will not be cleared until all processes sharing the segment are terminated.

CORRECTIVE ACTION

If the problem was caused by a disk error, disk diagnostics may provide more information.

SHEET 70 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

E9da 78xx yyyy yyyy hh hh hh

PRM SOURCE

Memory Manager (MMGR)

FUNCTION

MMGR detected out-of-range page index within the free page list.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Memory Module where the position occurred.
yyyy yyyy	The value of the out-of-range page descriptor entry (PDE) index.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Pdefree is the index into page description table (PDT) of the first free page descriptor entry. The occurrence of this PRM indicates that pdefree contains an incorrect value.

This PRM applies to release 1 and later.

CORRECTIVE ACTION

No manual action is needed. The MMGR has rebuilt the list of free pages and called for an audit of the PDEs.

SHEET 71 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

F9da 7Fxx 0000 0000 hh hh hh

PRM SOURCE

Memory Manager (MMGR)

FUNCTION

Inconsistent data in swap device extent control information.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Location code identifying where in the code the problem was encountered.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The MMGR has discovered inconsistent data in the control information used to keep track of the free extents on the swap device. Level 1 phase has been requested. As part of the recovery after the phase, an attempt will be made to clean up the invalid data.

CORRECTIVE ACTION

None

SHEET 73 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

F9da 8002 xx00 0000 hh hh hh

PRM SOURCE

Capability Manager (CMGR)

FUNCTION

CMGR encountered a software fault.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Contains the fault code.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Some type of software or unexplained fault was encountered by the capability manager.

Level 1 phase has been requested.

CORRECTIVE ACTION

Report the error to *UNIX* RTR operating system support.

E9da DDtw xxyy yzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Disk data (previously known as all-seems-well function).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
t	Digit 6 (t) — 1 indicates a maintenance interrupt; 0 indicates a phase.
w	Digit 7 (w) H'A for nonmanually initiated maintenance reset functions (MRFs) and 0 otherwise.
xx	Digits 8 and 9 (xx) are the last two hexadecimal digits of sequence number that is part of postmortem dump.
yy y	Digits 10-12 (yy y) H'BD**n** when boot MHD **n** is active and 000 otherwise. **n** = odd numbered MHD H'1 through H'F.
zzz	Digits 13-15 (zzz) H'BD**n** when boot MHD **n** is active and 000 otherwise. **n** = even numbered MHD H'0 through H'E.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This PRM is generated when this process (step) has successfully completed execution.

SHEET 75 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3k : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

None

Identifier A - Processor Manager PRMs

3L

Contents

Processor Manager PRMs 3L-1

Identifier A - Processor Manager PRMs

3L

Processor Manager PRMs

Identifier A Processor Manager processor recovery messages (PRMs) report a failure to open a kernel buffer segment, failure to open an equipment configuration database (ECD) text segment, and failure of the file manager to open the root file system.

SHEET 1 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3l : SPEC-luc043a : GM VER. 2.5a

FAda 0100 0000 0000 hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Second initialization request.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The process manager can only be initialized once. The system integrity monitor (SIM) is informed, and the message is disallowed.

CORRECTIVE ACTION

None

FAda 0200 0000 0000 hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Failed to open kernel stack segment.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Kernel stack segment ID is bad, the segment index is bad, or the segment does not exist in the system. When *openseg* operating system trap (OST) is called, memory manager (MMGR) reports failure condition. The process manager reports to system integrity monitor (SIM) for reinitialization.

CORRECTIVE ACTION

None

FAda 0300 0000 0000 hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Failed to open kernel message buffer segment.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Kernel message buffer segment ID is bad, the segment index is bad, or the segment does not exist in the system. When *openseg* operating system trap (OST) is called, memory manager (MMGR) reports failure condition. The process manager reports to system integrity monitor (SIM) for reinitialization.

CORRECTIVE ACTION

None

FAda 0800 0000 0000 hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Fail to open root file system.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

File manager could not open root file system. The process manager reports to system integrity monitor (SIM) for reinitialization.

CORRECTIVE ACTION

None

SHEET 5 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3l : SPEC-luc043a : GM VER. 2.5a

FAda 0900 0000 0000 hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Failed to add nub.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Process manager keeps the nub segments in its address space. Through Release 6.3, this PRM indicates the process manager failed to add the nub segments into its segment list. Subsequently, it indicates failure to add those segments into its address space. The process manager reports to system integrity monitor (SIM) for reinitialization.

CORRECTIVE ACTION

None

SHEET 6 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3l : SPEC-luc043a : GM VER. 2.5a

FAda 0C00 0000 0000 hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Failed to open protected application segment.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Protected application segment ID is bad, the segment index is bad, or the segment does not exist in the system. The process manager reports to system integrity monitor (SIM) for reinitialization.

CORRECTIVE ACTION

None

FAda 0D00 0000 0000 hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Failed to open equipment configuration database (ECD) text segment.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

ECD text segment ID is bad, the segment index is bad, or the segment does not exist in the system. The process manager reports to system integrity monitor (SIM) for reinitialization.

CORRECTIVE ACTION

None

FAda 0E00 0000 0000 hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Failed to open equipment configuration database (ECD) segment.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

ECD data segment ID is bad, the segment index is bad, or the segment does not exist in the system. The process manager reports to system integrity monitor (SIM) for reinitialization.

CORRECTIVE ACTION

None

FAda 0F00 0000 0000 hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Failed to open equipment configuration database (ECD) patch segment.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

ECD patch segment ID is bad, the segment index is bad, or the segment does not exist in the system. The process manager reports to system integrity monitor (SIM) for reinitialization.

CORRECTIVE ACTION

None

SHEET 10 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3l : SPEC-luc043a : GM VER. 2.5a

FAda 1100 0000 0000 hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Failed to open plant measurement library (PML) text segment.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

PML text segment ID is bad, the segment index is bad, or the segment does not exist in the system. The process manager reports to the system integrity monitor (SIM) for reinitialization.

CORRECTIVE ACTION

None

SHEET 11 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3l : SPEC-luc043a : GM VER. 2.5a

FAda 1200 0000 0000 hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Failed to open plant measurement library (PML) data segment.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

PML data segment ID is bad, the segment index is bad, or the segment does not exist in the system. The process manager reports to the system integrity monitor (SIM) for reinitialization.

CORRECTIVE ACTION

None

SHEET 12 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3l : SPEC-luc043a : GM VER. 2.5a

FAda 1300 0000 0000 hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Failed to open plant measurement library (PML) patch segment.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

PML patch segment ID is bad, the segment index is bad, or the segment does not exist in the system. The process manager reports to the system integrity monitor (SIM) for initialization.

CORRECTIVE ACTION

None

SHEET 13 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3l : SPEC-luc043a : GM VER. 2.5a

FAda 1500 xxyy yyyy hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Process manager fault count threshold exceeded.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8 and 9 (xx) indicate the fault code.
yy	Digits 10-15 (yy yyyy) indicate the address at which the fault occurred.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The process manager faulted repeatedly, and attempts to recover from the faults failed. When the number of faults exceeds a threshold value, the system integrity monitor (SIM) is informed for reinitialization.

CORRECTIVE ACTION

None

SHEET 14 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3l : SPEC-luc043a : GM VER. 2.5a

EAda 6400 0000 0000 hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Successful initialization.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The process manager has successfully initialized after a boot or fault.

CORRECTIVE ACTION

None

EAda 6500 xx00 00yy hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Boot time pcreated process not created.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8 and 9 (xx) indicate the process manager error code. (in hexadecimal) corresponding to the REPT PMGR ERROR output message (in decimal) found in document 254-303-111, *3B20D and 3B21D Computers **UNIX** RTR Operating System PDS Output Messages Manual*.
yy	Digits 14 and 15 (yy) indicate the number of boot time pcreated processes successfully created up to this point.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

At boot time, there are a number of processes which get created prior to the process required for output messages to be displayed on the printer. If the creation of any of these processes fail, then this PRM is generated in order to provide minimum diagnostic support.

The process manager error code will tell why the request failed, and the number of successful creations will to some extent tell which pfile is invalid.

SHEET 16 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3l : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

Examine the SGEN results listing. Depending upon which process was *not* created, a reboot with a different load may be required.

EAda DDtw xxyy yzzz hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Disk data (previously known as all-seems-well function).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
t	Digit 6 (t) — 1 indicates a maintenance interrupt; 0 indicates a phase.
w	Digit 7 (w) H'A for nonmanually initiated maintenance reset functions (MRFs) and 0 otherwise.
xx	Digits 8 and 9 (xx) are the last two hexadecimal digits of sequence number that is part of postmortem dump.
yy y	Digits 10-12 (yy y) H'BD**n** when boot dMHD **n** is active and 000 otherwise. **n** = odd numbered MHD H'1 through H'F.
zzz	Digits 13-15 (zzz) H'BD**n** when boot dMHD **n** is active and 000 otherwise. **n** = even numbered MHD H'0 through H'E.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This PRM is generated when this process (step) has successfully completed execution.

SHEET 18 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3l : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

None

Identifiers B and C - System Integrity Monitor PRMs

3M

Contents

System Integrity Monitor PRMs 3M-1

SHEET 0 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3m : SPEC-luc043a : GM VER. 2.5a

Identifiers B and C - System Integrity Monitor PRMs

3M

System Integrity Monitor PRMs

Identifiers B and C System Integrity Monitor processor recovery messages (PRMs) report a failure to get an init message from an essential process, a failure to init the overload control system, or a failure to execute ULARP.

FBda 0000 xxxx xxxx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

System initialization failure. SIM did not receive a successful initialization status report from one or more of the essential boot processes.

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xxxx Digits 8-15 (xxxx) indicate which boot processes did not report. If a process reported, its digit is equal to 1; otherwise, it equals 0.

Digit 8 - file manager

Digit 9 - disk driver

Digit 10 - process manager

Digit 11 - error interrupt handler

Digit 12 - capability manager

Digit 13 - scheduler

Digit 14 - utility manager

Digit 15 - memory manager.

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Thirty seconds after the start of system bootstrap (phase 2, 3, or 4), SIM could not verify a successful *UNIX* system level initialization because it failed to receive a successful status report from at least one essential boot process. SIM will request another system initialization unless software checks are inhibited.

CORRECTIVE ACTION

Selecting "INH-SFT-CHK" on the emergency action interface (EAI) page of the maintenance TTY (MTTY) will prevent SIM from requesting another phase every 30 seconds. However, the system may not recover. In that event, attempt to bootstrap on backup root. Follow normal procedures for restoring the primary root file system.

EBda 0700 0000 0000 hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

Audit control subsystem initialization failure.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

SIM was unable to initialize the audit control subsystem due to one of the following failures:

- Failure to attach to the equipment configuration database (ECD).
- Failure to read the ECDORG record.
- Failure to read the SIM control record.
- Failure to update the SIM control record.
- Failure to access the audit records in the ECD.

CORRECTIVE ACTION

Verify and if necessary repair the SIM control and audit records in the ECD. Then enter the command **ALW:AUD:ALL** to cause another audit control subsystem initialization attempt.

EBda 0800 0000 0000 hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM was unable to attach to the plant measurements database.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Verify and if necessary repair the plant measurements database. Then enter the command **ALW:AUD:ALL** to cause SIM to try again to attach to it.

FBda 0Bxx yyyy yyyy hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM requested a phase 1 because it was looping in its fault entry.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) give the fault code received by SIM the last time it was faulted.
yyyy yyyy	Digits 8-15 (yyyy yyyy) give the virtual address within SIM at which the last fault occurred.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

If the system is rolling in bootstraps, reboot on backup root and follow normal procedures for restoring the primary root system. Otherwise, no action is required.

FBda 0Cyy xxxx xxxx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM requested a phase 1 after having been faulted five times.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
yy	Digits 6 and 7 (yy) give the fault code of the last fault that occurred.
xxxx xxxx	Digits 8-15 (xxxx xxxx) give the virtual address within SIM at which the last fault occurred.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

If the system is rolling in bootstraps, reboot on backup root and follow normal procedures for restoring the primary root file system. Otherwise, no action is required.

EBda 1000 0000 0000 hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

Failure to initialize the SIM overload control system.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

SIM was unable to initialize the "spy" package that gives it access to information about resource utilization within the *UNIX* RTR operating system kernel. This problem could be symptomatic of serious trouble in the operating system.

CORRECTIVE ACTION

None

EBda 1100 0000 00xx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM terminated all *UNIX* system programs in an effort to recover from an overload condition.

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx Digits 14 and 15 (xx) specify the overload fault code

- AF Message buffer overflow
- AE Critical message buffer overload.

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Expect that craft interface will be reinitialized. Wait a few minutes, then reissue any commands that were in progress when the incident occurred.

EBda 1200 0000 00xx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM terminated all craft interface processes in an effort to recover from an overload condition.

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx Digits 14 and 15 (xx) specify the overload fault code.

AE Critical message buffer overload.

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Expect that craft interface will be reinitialized. Wait a few minutes, then reissue any commands that were in progress when the incident occurred.

EBda 1300 0000 00xx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM terminated all *UNIX* system programs with long message queues in an effort to recover from an overload condition.

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx Digits 14 and 15 (xx) specify the overload fault code.

AE Critical message buffer overload.

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Observe whether or not craft interface is reinitialized. If it is, wait a few minutes then reissue any commands that were in progress when the incident occurred.

SHEET 11 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3m : SPEC-luc043a : GM VER. 2.5a

EBda 1400 0000 00xx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM terminated craft spooler process (CSOP), the real-time status (RTS) process, and all craft terminal processes in an effort to recover from an overload condition.

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx Digits 14 and 15 (xx) specify the overload fault code.

AE Critical message buffer overload.

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Expect that the craft interface terminals will be reinitialized. Wait a few minutes and then reissue any commands that were in progress when the incident occurred.

EBda 1500 0000 00xx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM terminated the real-time status (RTS) process and all craft terminal processes in an effort to recover from an overload condition.

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx Digits 14 and 15 (xx) specify the overload fault code.

AE Critical message buffer overload.

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Expect the craft interface terminals to be reinitialized. Wait a few minutes; then reissue any commands that were in progress when the incident occurred.

SHEET 13 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3m : SPEC-luc043a : GM VER. 2.5a

EBda 1600 0000 00xx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM terminated all craft terminal processes in an effort to recover from an overload condition.

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx Digits 14 and 15 (xx) specify the overload fault code.

- AE Critical message buffer overload.

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

Expect the craft interface terminals to be reinitialized. Wait a few minutes; then reissue any commands that were in progress when the incident occurred.

FBda 2000 0000 00xx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM is requesting a phase 1 in an effort to recover from message buffer overflow.

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx Digits 14 and 15 (xx) specify the accompanying overload condition.

H'00 None

H'9A Kernel-level lockout

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

None

FBda 2100 0000 00xx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM is requesting a phase 1 in an effort to recover from critical message buffer overload.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 14 and 15 (xx) specify the accompanying overload condition. H'9A Kernel-level lockout
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

None

SHEET 16 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3m : SPEC-luc043a : GM VER. 2.5a

FBda 4000 xxxx xxxx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

The SIM requested a phase 0 as a recovery action for an audit failure.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx xxxx	For *UNIX* RTR operating system audits, this word of data is the equipment configuration database (ECD) record ID (RID) of the audit instance for which the recovery action was initiated. Applications have the option of specifying within an audit record that a different data word be used in this PRM.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An audit, identified by the data field of the PRM, reported one or more errors in an error category for which one of the recovery actions specified in the audit ECD record is a phase 0.

CORRECTIVE ACTION

Use the **OP:AUD:ALL** command to identify the audit instance whose RID matches the data field of the PRM. If no match is found, the data field should be documented in an application publication. Once the audit has been identified, refer to 254-303-106, *3B20D and 3B21D Computers **UNIX** RTR Operating System, System Maintenance Manual*, or a similar application publication for instructions on responding to the audit failure.

FBda 4100 xxxx xxxx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

The SIM requested a phase 1 as a recovery action for an audit failure.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx xxxx	For *UNIX* RTR operating system audits, this word of data is the equipment configuration database (ECD) record ID (RID) of the audit instance for which the recovery action was initiated. Applications have the option of specifying within an audit record that a different data word be used in this PRM.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An audit, identified by the data field of the PRM, reported one or more errors in an error category for which one of the recovery actions specified in the audit ECD record is a phase 1.

CORRECTIVE ACTION

Use the **OP:AUD:ALL** command to identify the audit instance whose RID matches the data field of the PRM. If no match is found, the data field should be documented in an application publication. Once the audit has been identified, refer to 254-303-106, *3B20D and 3B21D Computers **UNIX** RTR Operating System, System Maintenance Manual* or a similar application publication for instructions on responding to the audit failure.

SHEET 18 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3m : SPEC-luc043a : GM VER. 2.5a

FBda 4200 xxxx xxxx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

The SIM requested a phase 2 as a recovery action for an audit failure.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx xxxx	For *UNIX* RTR operating system audits, this word of data is the equipment configuration database (ECD) record ID (RID) of the audit instance for which the recovery action was initiated. Applications have the option of specifying within an audit record that a different data word be used in this PRM.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An audit, identified by the data field of the PRM, reported one or more errors in an error category for which one of the recovery actions specified in the audit ECD record is a phase 2.

CORRECTIVE ACTION

Use the **OP:AUD:ALL** command to identify the audit instance whose RID matches the data field of the PRM. If no match is found, the data field should be documented in an application publication. Once the audit has been identified, refer to 254-303-106, *3B20D and 3B21D Computers **UNIX** RTR Operating System, System Maintenance Manual* or a similar application publication for instructions on responding to the audit failure.

SHEET 19 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3m : SPEC-luc043a : GM VER. 2.5a

FBda 4300 xxxx xxxx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

The SIM requested a phase 3 as a recovery action for an audit failure.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx xxxx	For *UNIX* RTR operating system audits, this word of data is the equipment configuration database (ECD) record ID (RID) of the audit instance for which the recovery action was initiated. Applications have the option of specifying within an audit record that a different data word be used in this PRM.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

An audit, identified by the data field of the PRM, reported one or more errors in an error category for which one of the recovery actions specified in the audit ECD record is a phase 3.

CORRECTIVE ACTION

Use the **OP:AUD:ALL** command to identify the audit instance whose RID matches the data field of the PRM. If no match is found, the data field should be documented in an application publication. Once the audit has been identified, refer to 254-303-106, *3B20D and 3B21D Computers **UNIX** RTR Operating System, System Maintenance Manual* or a similar application publication for instructions on responding to the audit failure.

SHEET 20 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3m : SPEC-luc043a : GM VER. 2.5a

EBda 5000 0000 xxxx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM has received a sanity message or event from the application integrity monitor (AIM).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx	Digits 12-15 (xxxx) indicate the number of seconds after the start of the bootstrap when SIM verified that the message or event had been received.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

If the SIM control record specifies a time limit for AIM to report to SIM after a bootstrap, then AIM must send SIM either an application sanity timer message or an application sanity event in order to prove that it is sane.

CORRECTIVE ACTION

None

SHEET 21 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3m : SPEC-luc043a : GM VER. 2.5a

EBda 5100 0000 xxxx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM failed to receive a sanity message or event from the application integrity monitor (AIM) within the number of seconds specified in the SIM control record in the ECD. The "**PRM_p EBda 5100 0000 xxxx hh hh hh**" PRM message will appear when shift-chks are inhibited and is information only. The "**PRM_p FBda 5100 0000 xxxx hh hh hh**" PRM message will appear in all other cases and is a fatal error which will result in SIM requesting a phase.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx	Digits 12-15 (xxxx) indicate the number of seconds after the start of the bootstrap when SIM requested the phase.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

If the SIM control record specifies a time limit for AIM to report to SIM after a bootstrap, then AIM must send SIM either an application sanity timer message or an application sanity event in order to prove that it is sane. If SIM does not receive a sanity message or event within the time limit, then it will request another phase (unless software checks are inhibited).

SHEET 22 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3m : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION

Reboot with software checks inhibited and determine what is wrong with the AIM.

SHEET 23 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3m : SPEC-luc043a : GM VER. 2.5a

FBda 5200 0000 0000 hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM failed to receive a sanity event from the application integrity monitor (AIM) to reset the application sanity timer.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

AIM starts the application sanity timer by sending a message to SIM that specifies the timing interval and recovery action to be taken if the timer is not reset. If AIM does not reset the timer by sending SIM a sanity event at least once during every timing interval, then SIM will request a system initialization phase as specified in the request message.

CORRECTIVE ACTION

If the system does not recover automatically, then reboot with software checks inhibited and determine what is wrong with the AIM.

EBda 60xx yyyy yyyy hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

Boot progress PRMs from the *UNIX* system user-level automatic restart process (ULARP).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	The "boot_prm" field from the equipment configuration database (ECD) record of the process or command.
yyyy yyyy	The utility ID of the process or the ECD record ID of the run command.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A boot progress PRM is issued by ULARP at bootstrap time for any ULARP child process or run command which has a nonzero value in the "boot_prm" field of its ECD record. They may be used by the maintenance personnel to tell which processes and commands have been executed by ULARP. This PRM is also issued if the spooler is not running and ULARP is attempting to restart a process.

CORRECTIVE ACTION

None

EBda 6100 0000 0000 hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM failure to pcreate the *UNIX* system initialization process.

PRM EXPANSION

p	Active CU: 0=> CU 0, 1 => CU 1.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

SIM was not able to pcreate the *UNIX* system initialization process (/*prc*/*unix*) due to a misnamed or missing file.

CORRECTIVE ACTION

If craft interface is working, check for the existence of the file /*prc*/*unix*. If the file exists, it should have 644 permissions. If the file does not exist, copy in a correct version.

If craft interface is not working, bootstrap on backup root and follow normal procedures for restoring the primary root file system.

EBda 62xx 0000 0000 hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

UNIX system initialization process (/prc/unix) failure message.

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx Digits 6 and 7 (xx) indicate the failure condition.

- 11 - The initialization process could not add the equipment configuration database (ECD) segments to its address space.
- 12 - The initialization process could not attach to the ECD.
- 13 - The initialization process could not read the ECD org record.
- 21 - The initialization process could not read the unit control block (UCB) record for the maintenance TTY.
- 22 - The initialization process could not read the ciopt record for the emergency action interface (EAI).
- 23 - The initialization process could not read the eaopt record for the EAI.
- 52 - The initialization process failed to execute the *UNIX* system level automatic restart process user-level automatic restart process (ULARP).

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

SHEET 27 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3m : SPEC-luc043a : GM VER. 2.5a

EXPLANATION

For all failure conditions except 52, the time zone environment variable will not be initialized. For failure condition 52, ULARP and all of the processes it monitors will not be created.

CORRECTIVE ACTION

For all failure conditions except 52, verify integrity of the ECD.

For failure condition 52, if the craft interface is working, check for the existence of the file /etc/ularp. If /etc/ularp exists, it should have 744 permissions. If the file does not exist, copy in a correct version.

If the craft interface is not working, bootstrap on backup root and follow normal procedures for restoring the primary root file system.

EBda 6300 0000 0000 hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

Failure to execute the *UNIX* system user level automatic restart process (ULARP).

PRM EXPANSION

p	Active CU: 0=> CU 0, 1 => CU 1.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

The SIM *UNIX* system initialization sequence has failed to execute */etc/ularp*. This could be caused by a problem within the initialization process or by a misnamed or missing */etc/ularp* file.

CORRECTIVE ACTION

If a PRM with Step B and function code 62 was also printed, use the information provided by that PRM to analyze the problem. If this occurs following a field update of the */etc/ularp* process, back out the field update.

Otherwise, if craft interface is working, check for the existence of the file */etc/ularp*. If /etc/ularp exists, it should have 744 permissions. If the file does not exist, copy in a correct version. Then enter the **INIT:ULARP** command to execute ULARP.

SHEET 29 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3m : SPEC-luc043a : GM VER. 2.5a

If craft interface is not working, bootstrap on backup root and follow normal procedures for restoring the primary root file system.

EBda 6400 0000 0000 hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

UNIX system user-level automatic restart process (ULARP) failure to attach to the equipment configuration database (ECD).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

ULARP was not able to attach to the ECD.

CORRECTIVE ACTION

If this occurs following a field update of the /etc/ularp process, back out the field update. Otherwise, if craft interface is working, verify that the ECD is accessible and contains the correct ULARP records. After repairing the ECD, enter the **INIT:ULARP** command. This will cause ULARP to try again to access the ECD.

If craft interface is not working, bootstrap in minimum configuration (*UNIX* RTR operating system only) and repair the full configuration ECD. If that is not successful, then bootstrap on backup root and follow normal procedures for restoring the primary root file system.

SHEET 31 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3m : SPEC-luc043a : GM VER. 2.5a

EBda 65xx yyyy yyyy hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

A run command failed to be executed by the *UNIX* system shell.

PRM EXPANSION

p	Active CU: 0=> CU 0, 1 => CU 1.
xx	The boot_prm field from the equipment configuration data base (ECD) record of the run command.
yyyy yyyy	The record ID of the run command.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

Either the *UNIX* system shell did not execute the run command or a nonzero exit code was returned.

CORRECTIVE ACTION

Use the printout from the **OP:ULARP:EXECSEQ** command to get the ECD record name which matches the record ID in the PRM. Using the record name from the OP:ULARP output message, get the ECD record with recent change and verify. First make sure the record contains correct information. Then check that a file exists with the pathname that is in the record and that it is executable. If the file does not exist, copy in a correct version.

SHEET 32 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3m : SPEC-luc043a : GM VER. 2.5a

If a large number of PRMs with this step number and function code are printed, the *UNIX* system shell may not be working. Check for the existence of the file /bin/sh. If it exists, it should have 755 permissions. If the file does not exist, copy in a correct version.

If the reason for the command failure is not apparent, contact your technical assistance organization.

Once the cause of the problem has been solved, enter the **INIT:ULARP** command. This will cause user-level automatic restart process (ULARP) to re-execute the run command(s) that failed.

SHEET 33 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3m : SPEC-luc043a : GM VER. 2.5a

EBda 66xx yyyy yyyy hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

Failure of the *UNIX* system user-level automatic restart process (ULARP) to execute this child process.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	The boot_prm field from the equipment configuration database (ECD) record of the child process.
yyyy yyyy	Utility ID of the child process.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

ULARP was not able to execute this child process because of a problem with the pfile of the process or because its ECD record contained invalid information which was not immediately detected by ULARP.

CORRECTIVE ACTION

Use the printout from the **OP:ULARP:EXECSEQ** command to get the ECD record name which matches the utility ID in the PRM. Using the record name from the OP:ULARP output message, get the ECD record with recent change and verify. First, make sure that the record contains correct information. Then, check that a file exists with the pathname that is in the record and that it is executable. If the file does not exist, copy in a correct version.

SHEET 34 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3m : SPEC-luc043a : GM VER. 2.5a

Once the cause of the problem has been solved, enter the **INIT:ULARP** command. This will cause ULARP to re-execute the process(es) that failed.

EBda 67xx yyyy yyyy hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

A process monitored by the *UNIX* system user-level automatic restart process (ULARP) terminated due to a fatal error.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	The boot_prm field from the equipment configuration database (ECD) record of the process.
yyyy yyyy	The utility ID of the process.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

A process monitored by ULARP terminated itself due to a fatal error.

CORRECTIVE ACTION

Use the printout from the **OP:ULARP:EXECSEQ** command to get the ECD record name which matches the utility ID in the PRM. Using the record name from the OP:ULARP output message, get the ECD record with recent change and verify. Make sure that the record contains correct information because there could be something wrong with the parameters passed to the process.

SHEET 36 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3m : SPEC-luc043a : GM VER. 2.5a

If the reason for the process failure is not apparent, contact your technical assistance organization.

After the problem has been resolved, enter the **INIT:ULARP** command to re-execute the process.

EBda 68xx yyyy yyyy hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

Invalid equipment configuration database (ECD) record for a user-level automatic restart process (ULARP) child process.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	The boot_prm field from the ECD record of the child process.
yyyy yyyy	The record ID of the child process.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

If ULARP detects that the database record for a child process contains invalid information, it will not attempt to execute that process.

CORRECTIVE ACTION

Use the printout from the **OP:ULARP:EXECSEQ** command to get the ECD record name which matches the record ID in the PRM. Using the record name from the OP:ULARP output message, get the ECD record with recent change and verify. First, make sure that the record contains the correct information. Then, check that a file exists with the pathname that is in the record and that it is executable. If the file does not exist, copy in a correct version.

After the information in the database record has been corrected, the process may be started by entering the **INIT:ULARP** command.

SHEET 38 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3m : SPEC-luc043a : GM VER. 2.5a

EBda 6900 0000 0000 hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

All processes monitored by the *UNIX* system user level automatic restart process (ULARP) failed to execute.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

All processes monitored by ULARP failed to execute.

CORRECTIVE ACTION

If possible, bootstrap in minimum configuration (*UNIX* RTR operating system only). Use recent change and verify to examine the ULARP records in the full configuration equipment configuration database (ECD). For each ULARP child process, check that a file exists and that it is executable. After replacing the erroneous file or repairing the ECD records, reboot in full configuration.

If that procedure is not successful, bootstrap on backup root and follow normal procedures for restoring the primary root file system.

SHEET 39 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3m : SPEC-luc043a : GM VER. 2.5a

EBda 7200 0000 0000 hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

A craft suspend has occurred because of a kernel-level lockout condition.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This PRM is issued whenever a Craft Initialization (CFT INIT) request is received by the SIM during a kernel-level lockout condition. Its purpose is to explain why the craft interface system is not recovering.

Entering CFT-INIT on the emergency action interface page will not correct this condition.

CORRECTIVE ACTION

If the system does not recover automatically, it will be necessary to request a manual phase 1.

SHEET 40 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3m : SPEC-luc043a : GM VER. 2.5a

EBda 7300 0000 0000 hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

A Craft Initialization (CFT-INIT) procedure cannot be performed when the system is in disk limp mode.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This PRM is issued whenever a CFT INIT request is received by the SIM during disk limp mode. Its purpose is to explain why the craft interface system is not being reinitialized.

Entering CFT-INIT on the emergency action interface page will have no effect while the system is in disk limp mode.

CORRECTIVE ACTION

Follow the instructions for recovering from disk independent operation (DIOP).

EBda 7400 xxyy zzzz hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

Craft Initialization (CFT INIT) in progress

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx Digits 8 and 9 (xx) indicate the CFT INIT levels (see the following tables for details).

User / Supervisor / Kernel Process Type Restarted	Initialization Level (xx)		
	1	**2**	**3**
Craft Processes	y	y	y
Nonessential killable *UNIX* System/Supv.	n	y	y
Essential killable *UNIX* System/Supv.	n	n	y
Nonkillable *UNIX* System/Supv.	n	n	n
Kernel	n	n	n

I/O Driver Handler Reinitialized	Initialization Level (xx)		
	1	2	3
BXSLH - BX Session Layer Handler	n	n	y
CCITT-Handlers	n	n	y
CIH - Craft-Interface Handler	n	y	y
CPH - Communication Protocol Handler	n	n	y
DUIH - Direct User-Interface Handler	n	n	y
MTH - Magnetic Tape Handler	n	n	y
NPH - Network Protocol Handler	n	n	y
SCSDH - Scan and Signal Dist. Handler	n	n	y
SDLH - Sync. Datalink Handler	n	n	y

Digits 10 and 11 (yy) indicate the current CFT INIT phase. There are four phases in a CFT INIT. During the normal CFT INIT sequence, all four phases will be seen.

Phase (yy)	Explanation
01	Sure Kill Phase. Processes are terminated based on the initialization level (xx).
02	I/O Driver Phase. The I/O Driver reinitializes its handlers. SIM begins running audits.
03	User-level Automatic Restart Process (ULARP) Phase. ULARP process is restarted.
04	Process Creation Phase. ULARP restarts or adopts its processes.

Digits 12-15 (zzzz) indicate the current status of the CFT INIT.

Status (zzzz)	Explanation
0000	Current phase is proceeding normally.
0001	The indicated phase timed out. This may or may not be a serious problem, so wait to see if the CFT INIT succeeds or fails.
0002	SIM cannot find out the process ID of the I/O Driver. CFT INIT is aborted.
0003	CFT INIT failed. Look for other PRMs to locate the exact cause of the problem. Trying the next higher level of CFT INIT may solve the problem.
0004	CFT INIT completed successfully.

hh hh hh Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

SHEET 45 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-3m : SPEC-luc043a : GM VER. 2.5a

EXPLANATION

These PRMs are generated while a CFT INIT is in progress. They are used to convey status information about the CFT INIT. Since a port switch of the receive-only printer and maintenance teletypewriter (MTTY) may occur during a CFT INIT, some erroneous PRMs may be output. (See Chapter 1 for an explanation of this phenomenon.) Therefore, decode all failure PRMs completely before escalating the recovery level and ignore any single success PRMs that seem out of sequence. Specifically, if a failure PRM is output for a level 1 CFT INIT, while a level 2 initialization is in progress, the failure PRM for level 1 is being printed on the ROP for a second time because of the port switch, and it should be ignored. The CFT INIT level is in digits 8 and 9 of the PRM.

CORRECTIVE ACTION

Corrective actions for all PRMs are described as follows:

EBda 7400 xxyy 0000 hh hh hh	CFT INIT status PRM. No corrective action is required.
EBda 7400 xx01 0001 hh hh hh	The scheduler timed out during the sure kill phase of the CFT INIT. The scheduler will automatically clean up after 9 minutes. No corrective action is required.
EBda 7400 xx02 0001 hh hh hh	The I/O driver timed out during the I/O driver phase of the CFT INIT. No corrective action.
EBda 7400 0103 0001 hh hh hh	SIM timed out waiting for the process manager to create ULARP during the ULARP phase of the CFT INIT. The CFT-INIT is expected to fail. As a corrective action, try a level 2 CFT INIT.

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EBda 7400 0203 0001 hh hh hh	SIM timed out waiting for the process manager to create ULARP during the ULARP Phase of the CFT INIT. The CFT INIT is expected to fail. As a corrective action, try a Level 3 CFT INIT.
EBda 7400 0303 0001 hh hh hh	SIM timed out waiting for the process manager to create ULARP during the ULARP Phase of the CFT INIT. The CFT INIT is expected to fail. If after 15 minutes the terminals are unresponsive, as a corrective action, reboot the machine (52).
EBda 7400 xx04 0001 hh hh hh	SIM timed out waiting for the ULARP to create its children during the process creation phase of the CFT INIT. The CFT INIT is expected to fail. If after 15 minutes, the terminals are unresponsive, as a corrective action, reboot the machine (52).
FBda 7400 xx01 0002 hh hh hh	SIM cannot determine the process ID of the I/O driver. This is a serious problem. If after 15 minutes the terminals are unresponsive, reboot the machine (52).
FBda 7400 xx02 0002 hh hh hh	SIM cannot determine the process ID of the I/O Driver. This is a serious problem. SIM will automatically initiate a phase 1

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	(51) in an attempt to force the I/O Driver into restore. As a corrective action, try a Level 3 CFT INIT. If after 15 minutes the terminals are unresponsive, reboot the machine (52).
FBda 7400 xxyy 0003 hh hh hh	The CFT INIT failed. Take corrective action based on the other CFT INIT PRM. This PRM is also seen if a Phase 1 (51) occurs while a CFT INIT is in progress. If this is the case, retry the same level CFT INIT.
EBda 7400 xxyy 0004 hh hh hh	ULARP was able to successfully create its child processes. CFT INIT completed successfully. Normally, no corrective action is required; however, if terminals are unresponsive, try a Level 3 CFT INIT. If after 15 minutes, the terminals are still unresponsive, reboot the machine (52).

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EBda 7500 0000 0000 hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

A Craft Initialization (CFT INIT) cannot be performed, because a CFT INIT is already in progress.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This PRM is generated whenever a CFT INIT request is received by the SIM while a CFT INIT is already in progress. Entering CFT INIT on the emergency action interface page will have no effect while the system is performing a CFT INIT.

This PRM applies to release 1 and later.

CORRECTIVE ACTION

Wait until the CFT INIT has completed.

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EBda 7500 0000 0001 hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

A craft initialization (CFT INIT) cannot be performed, because field update is already in progress.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure at the beginning of "PRM Interpretation" for definitions of the digits.

EXPLANATION

This PRM is generated whenever a Level 2 or 3 CFT INIT request is received by the SIM while a field update is already in progress. Entering a level 2 or 3 CFT INIT on the emergency action interface page will have no effect while the system is performing a field update.

This PRM applies to release 6.5 and later.

CORRECTIVE ACTION

Wait until the field update has completed.

EBda DDtw xxyy yzzz hh hh hh

PRM SOURCE

UNIX System Level Automatic Restart Process

FUNCTION

Disk data (previously known as all-seems-well function).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
t	Digit 6 (t) - 1 indicates a maintenance interrupt; 0 indicates a phase.
w	Digit 7 (w) H'A for nonmanually initiated maintenance reset functions (MRFs), and 0 otherwise.
xx	Digits 8 and 9 (xx) are the last two hexidecimal digits of sequence number that is part of postmortem dump.
yy y	Digits 10-12 (yy y) H'BD**n** when boot MHD **n** is active, and 000 otherwise. **n** = odd numbered MHD H'1 through H'F.
zzz	Digits 13-15 (zzz) H'BD**n** when boot MHD **n** is active, and 000 otherwise. **n** = even numbered MHD H'0 through H'E.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

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EXPLANATION

None

CORRECTIVE ACTION

None

ECda 0F00 0000 0000 hh hh hh

PRM SOURCE

Control unit (CU) Hardware Audit

FUNCTION

This PRM indicates that the off-line processor maintenance reset function (MRF) occurred. When it is received by the maintenance teletypewriter controller (MTTYC) firmware, the firmware extinguishes the flashing recovery indication on the MTTY.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

None

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ECda 0F00 1234 5678 hh hh hh

PRM SOURCE

CRAFT Command

FUNCTION

This PRM indicates that the **rcvryoff** command has been executed to extinguish the flashing control unit (CU) recovery indicator on the emergency action interface (EAI) page.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

None

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ECda 0FDD 1234 5678 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

During the OFLBOOT, the EIH PRM is used to extinguish the control unit (CU) recovery indicator on the emergency action interface (EAI) page.

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

CORRECTIVE ACTION

None

ECda DDtw xxyy yzzz hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

Disk data (previously known as all-seems-well function).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
t	Identifies the source of initialization, H'1 for a maintenance interrupt and H'0 for a phase.
w	Identifies how the maintenance reset function (MRF) was initiated, H'0 for manually initiated and H'A for nonmanual.
xx	Identifies the last two hexadecimal digits of the sequence number that are part of postmortem dump.
yy y	A value of H'BD*n* indicates boot MHD *n* is active and H'000 indicates not active. Variable '*n*' is an odd-numbered MHD in the range of H'1 through H'F.
zzz	A value of H'BD*n* indicates boot MHD *n* is active and H'000 indicates not active. Variable '*n*' is an even-numbered MHD in the range of H'1 through H'E.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

None

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CORRECTIVE ACTION

None

Identifiers D and E - Application PRMs

3N

Contents

Application PRMs 3N-1

Identifiers D and E - Application PRMs

3N

Application PRMs

The system integrity monitor (SIM) on receipt of a software initialization status (SINITSTAT) message generates an an all-seems-well (ASW) processor recovery message for the sending process. When an application process, attached to the AIM port sends the system integrity monitor (SIM) a SINITSTAT message, an all-seems-well (ASW) PRM is produced for it as well. Only the application process ASW processor recovery message is included in this section. See Volume 3 of this document for other Application PRMs.

EEda DDtw xxyy yzzz hh hh hh

PRM SOURCE

Application integrity monitor (AIM) or any other application process attached to the AIM port.

FUNCTION

Disk data (previously known as all-seems-well function).

PRM EXPANSION

p	Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
t	Identifies the source of initialization, H'1 for a maintenance interrupt and H'0 for a phase.
w	Identifies how the maintenance reset function (MRF) was initiated, H'0 for manually initiated and H'A for nonmanual.
xx	Identifies the last two hexadecimal digits of the sequence number that are part of postmortem dump.
yy y	A value of H'BD*n* indicates boot MHD *n* is active and H'000 indicates not active. Variable '*n*' is an odd-numbered MHD in the range of H'1 through H'F.
zzz	A value of H'BD*n* indicates boot MHD *n* is active and H'000 indicates not active. Variable '*n*' is an even-numbered MHD in the range of H'1 through H'E.
hh hh hh	Hardware status digits. Refer to the figure located at the beginning of "PRM Interpretation".

EXPLANATION

This PRM is generated when this process (step) has successfully completed execution. If is generated by SIM on behalf of the process (step) upon receipt of a SUCCESS SINITSTAT message.

NOTE 1:
SINITSTAT is boot process initialization response message type. Processes making up the boot image must send a message of this type to SIM upon completion of the initialization. This message contains the status of the initialization, either SUCCESS, FAIL or FPONLY. SIM, upon receipt of a SINITSTAT message, will generate an all-seems-well (ASW) PRM on behalf of the sending process. If an application process, attached to the Application integrity monitor (AIM) port, sends SIM a SINITSTAT message, an ASW PRM will be produced for it as well.

NOTE 2:
SIM only generates an ASW PRM for the first SINITSTAT message sent by a process, unless a subsequent message contains only a message header. An ASW PRM will be generated upon receipt of a message containing only a message header. In order for an ASW PRM to be generated, the SINITSTAT message must be received within the first 30 seconds of the boot interval.

CORRECTIVE ACTION

None

Tables A - K

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Contents

Reference Tables 3-1

Tables A - K

3

Reference Tables

The following pages contain tables which are referenced throughout "Processor Recovery Messages".

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Notes

Table 3-A. EIH Function Numbers

Function Number	Function Name
1	attach
2	chanerr
3	cr_dmaer
4	disable
5	dmadata
6	dmafatal
7	dmanfatal
8	eih.fun
9	enable
A	errlog
B	event
C	fault
D	finducb
E	grchan
F	growth
10	inhibit
11	in_ect
12	in_imem
13	inchan
14	maint

Table 3-A. (Contd)

Function Number	Function Name
15	memerr
16	mkactive
17	myccerr
18	myccsoft
19	ost
1A	othccerr
1B	pioerr
1C	pioto
1D	remofl
1E	search
1F	sel_cu
20	send_prm
21	sim.fun
22	sndmira
23	switch
24	faltsw
25	dlmsw

Table 3-A. EIH Function Numbers (Contd)

Function Number	Function Name
27	descalate
38	get_iop_number
39	verify_incore
50	add_rm_log
51	send_tty
52	modify_ecd
53	uneqip_dfcs
54	uneqip_iops
55	uneqip_mtty
56	olbcontrol
57	degrow_scsd
58	chg_mtty
59	grow_mtty
60	olbfault
62	uneqip_pc
63	send_mch_int
64	grow_scsd
65	chg_scsd
66	rmv_units
67	degrow_units
68	olb_msg_handler
69	tim_postsw

Table 3-B. EIH Function Numbers for Release 1.5 Through Release 6.6

EIH Function Number	EIH Source File
X'01	attach
X'02	chanerr
X'03	cr_dmaer
X'04	disable
X'05	dmadata
X'06	dmafatal
X'07	dmanfatal
X'08	eih.fun
X'09	enable
X'0A	errlog
X'0B	event
X'0C	fault
X'0D	finducb
X'0E	grchan
X'0F	growth
X'10	inhibit
X'11	in_ect
X'12	in_imem
X'13	inchan
X'14	maint
X'15	memerr
X'16	mkactive
X'17	myccerr
X'18	myccsoft
X'19	ost
X'1A	othccerr
X'1B	pioerr
X'1C	pioto

Table 3-B. EIH Function Numbers for Release 1.5 Through Release 6.6 (Contd)

EIH Function Number	EIH Source File
X'1D	remofl
X'1E	search
X'1F	sel_cu
X'20	send_prm
X'21	sim.fun
X'22	sndmira
X'23	switch
X'24	faltsw
X'25	dlmsw
X'26	nsc_err.c
X'27	descalate
X'38	olbmisc.c
X'39	olbmisc.c
X'50	olbmisc.c
X'51	olbmisc.c
X'52	olbmodecd.c
X'53	olbmodecd.c
X'54	olbmodecd.c
X'55	olbmodecd.c
X'56	olbcontrol.c
X'57	olbmodecd.c
X'58	olbmodecd.c
X'59	olbmodecd.c

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Table 3-B. EIH Function Numbers for Release 1.5 Through Release 6.6 (Contd)

EIH Function Number	EIH Source File
X'60	fault.c
X'62	olbmodecd.c
X'63	olbmch.c
X'64	olbmodecd.c
X'65	olbmodecd.c
X'66	olbmodecd.c
X'67	olbmodecd.c
X'68	olbmsghdlr.c
X'69	olbtimers.c

Table 3-C. EIH Function Numbers for Release 6.7 and Later

EIH Function Number	EIH Function Name	EIH Source File
X'01	attach	attach.c
X'02	chanerr	chanerr.c
X'03	cr_dmaer	cr_dmaer.c
X'04	disable	disable.c
X'05	dmadata	dmadata.c
X'06	dmafatal	dmafatal.c
X'07	dmanfatal	dmanfatal.c
X'08	eih.fun	eih.fun.c
X'09	enable	enable.c
X'0A	errlog	errlog.c
X'0B	event	event.c
X'0C	fault	fault.c
X'0D	finducb	eih.fun.c
X'0E	grchan	growchan.c
X'0F	growth	growth.c
X'10	inhibit	inhibit.c
X'11	in_ect	init_ect.c
X'12	in_imem	init_imem.c
X'13	inchan	initchan.c
X'14	maint	mainint.c
X'15	memerr	memerr.c
X'16	mkactive	mkactive.c
X'17	myccerr	myccerr.c
X'18	myccsoft	myccsoft.c
X'19	ost	ost.c
X'1A	othccerr	othccerr.c
X'1B	pioerr	pioerr.c

Table 3-C. EIH Function Numbers for Release 6.7 and Later (Contd)

EIH Function Number	EIH Function Name	EIH Source File
X'1C	pioto	piotmo.c
X'1D	remofl	remof1.c
X'1E	search	eih.fun.c
X'1F	sel_cu	sel.cu.c
X'20	send_prm	send.prm.c
X'21	not used	not used
X'22	sndmira	send_mira.c
X'23	switch	switch.c
X'24	faltsw	fault_sw.c
X'25	dlmsw	dlm_sw.c
X'26	nscerr	nsc_err.c
X'27	descalate	descalate.c
X'28	zeppelin	attach.c
X'29	clr_eai_new	clreainew.c
X'2A	cr_dmadata	cr_dmaer.c
X'2B	write_msk	dmanfatal.c
X'2C	oflmswt	eih.fun.c
X'2D	eihdata	eih.data.c
X'2E	prminconf	event.c
X'2F	flt_all	fault.c
X'30	othmemer	memerr.c
X'31	othstra	memerr.c
X'32	mkoos	mkactive.c
X'33	cleandma	pioerr.c
X'34	ch_hung	piotmo.c
X'35	hardsw	remofl.c
X'36	remonl	remofl.c
X'37	stupchan	switch.c

Table 3-C. EIH Function Numbers for Release 6.7 and Later (Contd)

EIH Function Number	EIH Function Name	EIH Source File
X'38	get_iop_number	olbmisc.c
X'39	verify_incore	olbmisc.c
X'40	memerr_21	memerr.c
X'41	othmem21er	memerr.c
X'42	dma21_err	dma21_err.c
X'43	eaierr	eaierr.c
X'50	add_rm_log	olbmisc.c
X'51	send_tty	olbmisc.c
X'52	modify_ecd	olbmodecd.c
X'53	uneqip_dfcs	olbmodecd.c
X'54	uneqip_iops	olbmodecd.c
X'55	uneqip_mtty	olbmodecd.c
X'56	olbcontrol	olbcontrol.c
X'57	degrow_scsd	olbmodecd.c
X'58	chg_mtty	olbmodecd.c
X'59	grow_mtty	olbmodecd.c
X'60	olbfault	fault.c
X'62	uneqip_pc	olbmodecd.c
X'63	send_mch_int	olbmch.c
X'64	grow_scsd	olbmodecd.c
X'65	chg_scsd	olbmodecd.c
X'66	rmv_units	olbmodecd.c
X'67	degrow_units	olbmodecd.c
X'68	olb_msg_handler	olbmsghdlr.c
X'69	tim_postsw	olbtimers.c

Table 3-D. Device Type Information

Device Type Digits	Device Type
X'000	No unit
X'001	Peripheral Interface Controller (PIC)
X'002	Teletypewriter Controller (TTYC)
X'003	Teletypewriter unit (TTY)
X'004	Magnetic Type Controller (MTC)
X'005	Magnetic Type unit (MT)
X'006	Scanner Signal Distributor Controller (SCSDC)
X'007	Synchronous Data Link Controller (SDLC)
X'008	Synchronous Data Link unit (SDL)
X'009	Maintenance TTY Controller (MTTYC)
X'00A	Maintenance TTY (MCRT)
X'00B	Read Only Printer (ROP)
X'00C	Switching Control Center interface (SCC)
X'00D	Emergency Action Interface (EAI)
X'00E	Foundation Peripheral Controller (FPC)
X'00F	Foundation Peripheral unit (FP)
X,010	Unused
X,011	Unused
X'012	Direct User Interface Controller (DUIC)
X'013	Direct User Interface unit (DUI)
X'015	High Speed Data Link Controller (HSDC)
X'016	High Speed Data Link Unit (HSD)

Table 3-E. IODRV Error Codes (Growth and Degrowth)

HEX Code	Error Description
1	Cannot get PCSD scratch size for boot time growth
2	Cannot get PCSD UCB for boot time growth
3	Cannot get PC scratch size for boot time growth
4	The downucb( ) failed to get PCSDs for boot time growth
5	Cannot get PC UCB for boot time growth
6	The downucb( ) failed to get PCs for boot time growth
7	Cannot get PIC UCB for boot time growth
8	ISC failed to allocate memory for boot time growth of PIC
9	Bad unit level for boot time growth
a	Cannot restore the PIC during boot time growth
b	The ioplevl( ) failed to get level of unit
c	Cannot get PC or PCSD UCB for boot time growth
d	ISC failed to allocate memory for boot time growth of PC or PCSD
e	Failed to restore a PIC which has no subunits
f	Cannot initialize PC scratch area during boot time growth
10	Cannot initialize PCSD scratch area during boot time growth
11	Cannot link to handler for boot time growth of PC
12	Cannot link to handler for boot time growth of PCSD
13	The UCB is unequipped during boot time due to the sharing of slot number (or pc id) with one PC already equipped.
14	The UCB is unequipped during boot time due to the sharing of subdevice id (or pcsd id) with other subdevice currently equipped.

Table 3-E. IODRV Error Codes (Growth and Degrowth) (Contd)

HEX Code	Error Description
1f	The UCB is unequipped during dynamic growth due to the sharing of slot number (or pc id) with one PC already equipped.
20	Bad unit level for dynamic growth
21	Cannot dynamically grow a unit; controlling unit is unequipped
22	Cannot get UCB of the controlling unit for dynamic growth
23	Unit has wrong major state for dynamic growth
24	Failed to initialize PIC during dynamic growth
25	Failed to initialize PC during dynamic growth
26	Failed to link to handler for dynamic growth of a PC
27	Failed to initialize PCSD during dynamic growth
28	Failed to link to handler for dynamic growth of a PCSD
29	Cannot get level of unit for dynamic growth
2a	Cannot get UCB of unit for dynamic growth
2b	ISC failed to allocate memory for dynamic growth of a unit
2c	Cannot get size of unit for dynamic growth
2d	Bad unit level during dynamic growth completion
2e	The grow( ) encountered bad unit level
2f	The UCB is unequipped during dynamic growth due to the sharing of sub-device id (or pcsd id) with other sub-device currently equipped.

Table 3-E. IODRV Error Codes (Growth and Degrowth) (Contd)

HEX Code	Error Description
30	ISC failed to deallocate memory for dynamic degrowth of a PIC
31	ISC failed to deallocate memory for dynamic degrowth of a PC
32	ISC failed to deallocate memory for dynamic degrowth of a PCSD
33	Invalid unit level during dynamic growth
34	Cannot dynamically degrow a unit; Below it there are equipped units
35	Unit has wrong major state for dynamic degrowth
36	Cannot link to handler for PC dynamic degrowth
37	Cannot link to handler for PCSD dynamic growth
38	The degrow( ) encountered unit level out of range
39	The degrow( ) encountered NULL pointer to IOP data area
40	The dyngrow( ) got bad op code for growth/degrowth
41	The dyngrow( ) failed to get UCB of unit

Table 3-F. Process Fault Code Definitions

HEX Code	Description
0	No fault (normal)
b0	Direct Memory Access (DMA) input/output (I/O) bus state is full disk limp mode
b1	Device reported error for programmed input/output
b2	Peripheral Interface Controller (PIC) fault for programmed (I/O) (Kernel process only)
b3	Processor fault for programmed input/output (Kernel Process only)
b4	Device reported error for DMA input/output
b5	DMA addressing fault for DMA input/output (Kernel Process only)
b6	PIC faulted for DMA input/output (Kernel Process only)
b7	Processor fault for DMA input/output (Kernel Process only)
b8	Device reported error – Peripheral input/output (PIO). No message
b9	PIC implicated – PIO in progress. No message sent with fault
ba	Addressing error – PIO in progress. No message associated with fault
bb	Data being used by the process has non-correctible parity error
bc	Message Buffer Audit fault for queued error messages
bd	Message Buffer Audit fault for nonqueued error messages
be	Direct Memory Access input/output (DIO) bus state is DUPLEX.
bf	DIO state is SIMPLEX.
c0	Craft initialization fault
c1	Recovery switch of processors is complete – sent from processor control process error interrupt handler to system integrity monitor and application integrity monitor
c2	Soft switch is complete – sent from processor control process error interrupt handler to system integrity monitor
c3	Configuration manager initialize request (Kernel Process only)

Table 3-F. Process Fault Code Definitions (Contd)

HEX Code	Description
c4	Configuration manager remove request
c5	Configuration manager remove request (kernel process only)
c6	Configuration manager limp mode (kernel process only)
c7	Configuration manager limp mode (kernel process only)
c8	Configuration manager manual/automatic diagnostic process (ADP) or routine remove (kernel process only)
c9	Unconditional remove (kernel process only)
ca	Request that a soft switch be done – sent from pcpmd to system integrity monitor (SIM)
cb	Routine soft switch – process control process error interrupt handler only – sent from system integrity monitor to processor control process error interrupt handler
cc	Configurationmanager remove under fault conditions (kernel process only)
cd	Nonsegmented kernel-level audit has been timed out by SIM.
d1	Memory management — page invalid or not in memory
d2	Memory management — page index too large
d3	Memory management — segment invalid
d4	Memory management — segment index too large
d5	Illegal operating system trap (OST)
d6	Protection violation
d7	Byte or halfword addressing violation
d8	Instruction privilege violation
d9	Illegal op code
da	Illegal switch between kernel and private stack
e0	Phase level 0 initialization
e1	System initialization
e2	System initialization – critical

Table 3-G. Process Manager Error Returns Table

Label	Value in X	Description of Returns
MSTYPERR	33	Message type not recognized.
MSNOLFILE	35	Library file does not exist.
MSNOSLOT	36	All process slots in use (pstart fail).
MSNOMEM	37	Insufficient memory for kernel process.
MSNOSWAP	38	Either all sides allocated or no swap space left.
MSREADERR	39	Unable to read a pfile or a library file.
MSTOOBIG	3A	Segment is too big for address space.
MSNOSHARE	3B	Cannot add shared segment to process.
MSTOOMANY	3C	Incarnation count is too big for one process.
MSNOPCB	3E	Cannot acquire PCB of terminating process.
MSFAULTED	3F	PMGR faulted, entered fault routine.
MSNUBFAULT	40	NUB faulted, entered fault routine.
MSCOPYERR	43	Bad ACK resulting from copyseg OST.
MSNOPFILE	44	The pfile (LDP output) does not exist.
MSNODFILE	46	Cannot open dump file.
MSWRTERR	47	Unable to write out a dump segment.
MSNOCAP	48	Cannot get capability of working directory.
MSCLSERR	49	Unable to close a file.
MSFROMERR	4C	Message from unauthorized process.
MSCNFSEG	4D	Created process has segment index overlay.
MSLIBERR	4E	Unable to lock shared library in memory.
MSALREADY	4F	Shared library already locked in memory.

Table 3-G. Process Manager Error Returns Table (Contd)

Label	Value in X	Description of Returns
MSTERMDLY	50	The term has already taken place (by proad).
MSNOPAS	51	The pfile calls for PAS, no PAS in system.
MSNOFORK	52	The fork request failed pcreate - super.
MSEDLM	53	Cannot create because in disk limp mode.
MSMODULE	54	A segment identification (segid) and index do not specify the same module.
MSPCBNDX	55	Bad pcb index - when EMM index must be less than partition boundary.
MSNOKPCB	56	The pfile does not specify pcb segment.
MSLOST	57	An ack message was lost or delayed.
MSSOOR	58	The pfile specifies an out-of-range segment index.

Table 3-H. Table of Panic Codes for AIM Phases

Task	Panic Code	Description
	10	Task/Proc requested a phase
	11	AIM internal faults caused phase
	12	No repetitive timer
	13	No PT_AIM; AIM cannot connect to the required port
	14	No PAS
	15	Cannot get SYSimsg
	16	Timed out waiting for SYSimsg
	17	Cannot get SANmsg
	18	Timed out waiting for SANmsg
	19	AIM could not schedule task
	1a	IMreqinit( ) failed for kernel
nodrv	20	APDRV could not be created, failed the initialization, or died (without AIM request).
msgout	21	No message buffers are available
sdeprf1	22	No sde's are available to create kernel process

Table 3-H. Table of Panic Codes for AIM Phases (Contd)

Task	Panic Code	Description
sdelow	23	There is less than 50 free sde's
dctcrit	24	No DCTs are available for process creation
klock	25	SIM has not received heartbeat from level 3 monitor for 20 seconds
reqrtr1	26	A child process requested a RTR level 51
reqrtr2	27	A child process requested a RTR level 52
reqrtr3	28	A child process requested a RTR level 53
monfai	29	Real-time monitoring of a process failed
memkpf1	2a	Not enough main memory to create non-swappable kernel process

Table 3-I. Error Codes Generated by Off-Line Boot - All Reasons Happened on the Off-Line Side

Code (Hex)	Description
00	Received disk independent operation start operating system trap (OST)
01	Received OLBCONFIG event outside a side switch
02	Received OLBABORT event outside a side switch
03	Received fault CMC or CMB
04	Received fault CMAN, CMA, or UCLRMV
05	Cannot re-enter EXC_OFLECD state when initialization level 2 (INITLVL 2) is specified
06	Cannot build original state tables for control unit 0 (CU 0)
07	Cannot build original state tables for CU 1
08	Cannot build original state tables for dual serial channel (DSCHs)
09	Cannot build original state tables for disk file controller (DFCs)
10	Cannot build original state tables for input/output controllers (IOPs)
11	Cannot unequip units in the off-line equipment configuration database (ECD)
12	Received OLBCONFIG event during side switch
13	Entered disk independent operation (DIOP) during side switch
14	Cannot access unit control block (UCB) record of unit being removed during a side switch
15	Cannot mark maintenance teletypewriter (MTTY) UCB record as nonessential for removal

SHEET 20 : 8-23-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume2/t2-4 : SPEC-luc043a : GM VER. 2.5a

Table 3-I. Error Codes Generated by Off-Line Boot - All Reasons Happened on the Off-Line Side (Contd)

Code (Hex)	Description
16	Cannot mark switching control center (SCC), read only printer (ROP), or scanner and signal distributor controller (SCSDC) UCB record as nonessential for removal
17	Attempted to remove a unit that was not an MTTY, ROP, SCC, or SCSDC during a side switch
18	Cannot send message to input/output driver (IODRV) to remove a unit during a side switch
19	Cannot access UCB record of unit being degrown during a side switch
20	Attempted to degrow a unit that was not an MTTY, ROP, SCC, or SCSDC during a side switch
21	Cannot update UCB record to UNEQUIP during a side switch
22	Cannot send message to IODRV to degrow a unit during a side switch
23	Cannot send an maintenance channel (MCH) interrupt from the off-line to the on-line
24	Cannot unequip CU community during an off-line boot
25	Cannot unequip DFC communities during an off-line boot
26	Cannot unequip IOP communities during an off-line boot
27	Cannot unequip MTTYC subunits during an off-line boot
28	Called modify_ecd(SPLIT) from the wrong off-line boot state
29	Called modify_ecd() with an invalid argument
30	Disk forces were not set
31	Corrupted internal tables
32	Cannot access UCB record
33	Corrupted internal tables or corrupted UCB record device type

Table 3-I. Error Codes Generated by Off-Line Boot - All Reasons Happened on the Off-Line Side (Contd)

Code (Hex)	Description
34	Cannot update a community's UCB records as UNEQIP during an off-line boot
35	Cannot determine which IOPs to unequip during an off-line boot
36	Cannot unequip an IOP peripheral controller's subunits during an off-line boot
37	Failed to restore TTY to original state after unequipping all peripheral control (PC) units
38	Cannot update to UNEQIP a UCB record during an off-line boot
39	Failed to restore PC to original state after unequipping it
40	Corrupted ECD; exceeded number of PCs per IOP
41	Cannot determine which MTTYC subunits need to be unequipped
42	Corrupted IOP mask
43	Called unequip_mtty() from the wrong off-line boot state
44	Cannot remove an MTTYC sub-unit during a side switch
45	Cannot unequip MTTYC subunits after becoming off-line (SW_POST)
46	Cannot unequip SCSDC units after becoming off-line (SW_POST)
47	The off-line side was halted after a hard switch
48	Exceeded error threshold of the other CU

Table 3-J. DSCH Status Layout

Bit	Description
00	Low return code
01	Low return code high three bits
02	Low return code
03	High return code
04	High return code high three bits
05	High return code
06	Channel busy f-f
07	I/O inhibit override f-f
08	Sequencer error
09	Illegal 3-out-of-6 device address
10	Command error
11	Channel error (or of previous command)
12	Maintenance f-f

Table 3-K. BIC Status Layout

Bit	Description
00	Device address
01	Device address
02	Device address
03	Device address
04	Direct memory access (DMA) setup overwrite
05	Peripheral bus interface (PBI) parity error - byte 0
06	PBI parity error - byte 1
07	PBI parity error - byte 2
08	PBI parity error - byte 3
09	End of Data (EOD) error
10	Peripheral interface controller (PIC) fatal error summary
11	PIC sanity error
12	PIC data bus parity error - low byte
13	PIC data bus parity error - high byte
14	Data first-in first-out (FIFO) overflow/underflow
15	Command register overflow
16	FIFO word count
17	FIFO word count

Table 3-K. BIC Status Layout (Contd)

Bit	Description
18	FIFO word count
19	FIFO word count
20	FIFO word count
21	Interrupt
22	Transfer
23	Setup
24	EOD expected
25	EOD received
26	Transfer mode (0=word, 1=block)
27	Enable PIC data bus parity check
28	Interface enabled
29	Data flag (0=3B, 1=PIC)
30	Command in progress
31	Command present flag

Lucent Technologies
Bell Labs Innovations

Attached Processor System
4ESS™ Switch Application
4AP<19> Generic
Maintenance Reference Handbook

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Overview

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Reason for Reissue 1

SHEET 0 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-0 : SPEC-luc043a : GM VER. 2.5a

Overview

Introduction

Document 234-200-400, Volumes 2 and 3 are supplements to Document 234-200-400, Issue 1, Volume 1. Volume 2 contains the Processor Recovery Messages (PRMs) for UNIX RTR operating system. This volume, Volume 3, contains the AIM Processor Recovery Messages (PRMs) for major Step D, and the Common Network Interface (CNI) PRMs generated in major Step E. Refer to the UNIX® RTR Operating System Processor Recovery Guide (303-007) for more information.

Reason for Reissue

This document is reissued to include all all additional information to the UNIX® RTR Operating System (APS 4AP<19> generic) and the Processor Recovery Messages.

Processor Recovery Message Interpretation

1

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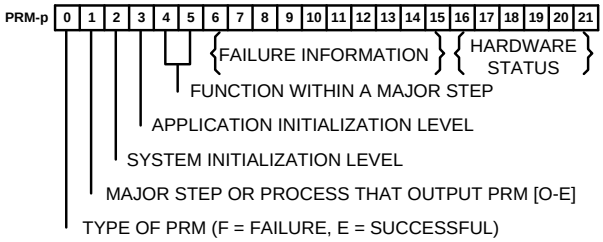
Processor Recovery Messages (PRM) 1-1

Processor Recovery Message Interpretation

1

Processor Recovery Messages (PRM)Interpretation



Digit p = Control Unit (CU) Identification

0 = CU 0
1 = CU 1

Digit 0 = PRM Type

F = Failure
E = Success

A failure PRM (F) occurs when an error is considered fatal; a phase is called. For Release 6.3 and later releases, a failure PRM (F) indicates that a serious problem has occurred. The action taken when such problems occur depends on the recover strategy for the specific problem; in most cases, a phase is called. Please refer to the page of the specific PRM for information on recovery action.

A *successful PRM(E)* is an information message which describes a function or a possible error and any corrective action that should be taken.

Digit 1 = Major step or process that output PRM. Identifiers 0 through C are associated with UNIX® RTR Operating Systems (refer to Volume 2). Identifier D is associated with the Application Integrity Monitor (AIM) processes, and Identifier E is associated with the Common Network Interface (CNI) processes. The Identifier codes for AIM and CNI are described as follows:

- **Identifiers D & E**

  These digits may be output by an application process. See appropriate application documentation.

  The System Integrity Monitor (SIM), on receipt of a SINITSTAT message, generates an All-Seems-Well (ASW) PRM on behalf of the sending process. If an application process, attached to the AIM port, sends the SIM a SINITSTAT message, an ASW PRM is produced for it as well. The application process ASW PRM is documented in this guide in the EEda-DD PRM page.

  NOTE:
  The SIM only generates an ASW PRM for the first SINITSTAT message sent by a process, unless a subsequent message contains only a message header. An ASW PRM is generated on receipt of a message containing only a message header.

NOTE:
Also, in order for an ASW PRM to be generated, the SINITSTAT message must be received within the first 30 seconds of the boot interval.

Digit 2 = System level of most recent RTR initialization:

0 = No initialization or DO initialization
1 = D1 initialization
2 = D2 initialization
3 = D3 initialization
4 = D4 initialization.

These initializations are explained in the Select Code 254-303-106, 3B20D and 3B21D Computers, **UNIX** RTR Operating System, System Maintenance Manual.

Digit 3 = Application initialization level within the RTR initialization specified in field "d".

Digits 4 & 5 = Two-digit function code within major step; also known as the PRM number.

Digits 6-15 = Ten digits of failure data or other information. The layout of these digits depends on the function. (See "Processor Recovery Messages".)

Digits 16 through 21 represent the hardware status of the PRM. The layout of these digits is as follows:

Digit 16 = Emergency Action Interface (EAI) status digit. The bits are numbered from right to left as follows.

BIT	3	2	1	0
	Power Up	**Central Control (CC) Unit Run**	**EAI-ALL CC Active**	**Seems Well (ASW)**

BIT 3:RST Indicates that the EAI has gone through a power-up restart. This bit remains set until it is read by the MTTYC.

BIT 2:RUN Indicates that the associated 3B Computer is executing main store instructions. This bit is defined as the logical AND of NOT stopped System Status Register (SSR) bit 28 and NOT halted (SSR bit 17).

BIT 1:ACTIVE Indicates that the associated 3B Computer is online (SSR bit 16).

BIT 0:ASW Indicates that the EAI thinks that all seems well—that is, no internal faults or EA output errors have been detected by EAI audit or self-test firmware.

Digit 17 = EAI status digit. The bits are numbered from right to left as follows.

BIT	3	2	1	0
	NEW PRM	**MRF START**	**Pulse Point Register BIT 23**	**Pulse Point Register BIT 22**

BIT 3:PRM — Indicates that a processor recovery message has been received from the 3B Computer. This bit remains set until it is read by the MTTY controller.

BIT 2:SPR — Indicates that a processor recovery Maintenance Reset Function (MRF) has started. This bit remains set until it is read by the MTTY controller.

BIT 1:PP23 — Gives the last active state of pulse point 23 from the 3B Computer, which indicates that the input data is to be used as the new input parameter buffer Array Pointer (AP).

BIT 0:PP22 — Gives the active state of pulse point 22 from the 3B Computer, which indicates that the input data is to be stored at the location indicated by the AP. The AP is then incremented.

NOTE:
Both BIT 0 and BIT 1 (PP22 and PP23) being asserted indicates the start of a 3B Computer initialization.

Digit 18 = EAI status digit. The bits are numbered from right to left as follows.

BIT	3	2	1	0
	IPB Received	**EAI Enable**	**Primary Disk**	**Secondary Disk**

BIT 3:IPB Indicates that the EAI initialization parameter buffer (IPB) contains non-zero data.

BIT 2:EAEN Indicates a force function to the 3B Computer is active or the IPB is non-zero. BIT 1:FBDP — Indicates that a subsequent system bootstrap will be forced from the primary boot device.

BIT 1:FBDS Indicates that a subsequent system bootstrap will be forced from the secondary boot device.

Digit 19 = EAI status digit. The bits are numbered from right to left as follows.

BIT	3	2	1	0
	CC Forced On-Line	**CC Forced Off-Line**	**Timer Disabled**	**CC MRF**

BIT 3: FONL — Indicates the 3B Computer Central Control (3BCC), associated with the EAI, is to remain the online CC. The mate CC is concurrently forced offline (FOFL).

BIT 2:FOFL — Indicates the 3BCC, associated with the EAI, is to remain the offline CC. The mate CC is concurrently forced online (FONL).

BIT 1:DTIM — Indicates the associated 3BCC sanity kit disabled.

BIT 0:MFR — Indicates that a processor recovery (MRF) has started. This bit is similar to the MRF START bit, except it is tied to the hardware signal; it does not need to be read to be cleared.

Digit 20 = Current of inhibits. The bits are numbered from right to left as follows.

BIT	3	2	1	0
	Hardware Checks Inhibited	**UNIX System Error Interrupts Inhibited**	**Cache Bypassed (Not Used)**	**SIM Inhibited**

BIT 3: Indicates automatic hardware checks of the 3B Computer have been inhibited. The specific checks inhibited are parity checking (on the Address Translation Bus, Instruction Bus, source Bus, Micro-Controller, Cache), clock checking errors, My Store Error A, Main store timeout error, Data Manipulation Unit error, and store Address Controller error.

BIT 2: Indicates that reporting of nonfatal errors has been inhibited for all units

BIT 1: The high speed cache unit of the 3B Computer is not being used.

BIT 0: Indicates the SIM process has been prevented from initiating any recovery action from a fault.

Digit 21 = Configuration control options. The bits are numbered from right to left as follows.

BIT	3	2	1	0
	Backup Root File System Being Used	**Minimum Configuration Being Used**	**Unused**	**Unused**

BIT 3: Indicates that 3B Computer has been booted using the backup root file system.

BIT 2: Indicates the 3B Computer has been booted in the minimum configuration mode. Application software and hardware has been disabled.

BIT 1: Unused (Also undefined - may be 0 or 1).

BIT 0: Unused (Also undefined - may be 0 or 1).

SHEET 4 : 9-1-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-2 : SPEC-toc0dmo043a : GM VER. 2.5a

Processor Recovery Message Analysis Procedure

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PRM Analysis Procedure 2-1

SHEET 0 : 9-1-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-2 : SPEC-luc043a : GM VER. 2.5a

Processor Recovery Message Analysis Procedure

2

PRM Analysis Procedure

To analyze a PRM, use the procedure on the following page.

SHEET 1 : 9-1-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-2 : SPEC-luc043a : GM VER. 2.5a

Notes

Step	Procedure
1	Examine the PRM Z field to determine which processor produced the PRM (CU0 = 0, CU1 - 1).
2	Examine digit 0 to determine if the PRM is a success (E) or failure (F) PRM.
3	Locate the PRM with the same number in digit positions 1, 4, and 5 as the PRM on the MCRT screen, ROP, or SCC. ***Note***: The PRMs are arranged numerically.
4	Read comments under the RECOVERY STEP heading to identify the major step or process that output the PRM.
5	Read comments under FUNCTION heading to determine which function within the recovery step was being performed.
6	Read comments under PRM EXPANSION heading to interpret any failure information provided in the PRM.
7	Read comments under EXPLANATION heading for additional information.
8	Follow actions suggested under CORRECTIVE ACTION heading to correct any failures.
9	Examine PRM digits 16 through 21 to determine the state of the 3B Computer when the PRM was generated. ***Note***: Set (=1) bit indicates the specified function is active.
10	Contact your Technical Assistance Organization if additional information is required.

Processor Recovery Messages

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Processor Recovery Messages 3-1

Processor Recovery Messages

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Processor Recovery Messages (PRM)

Behind the tabs following this section are the processor recovery messages (PRMs) for the Application Integrity Monitor (AIM) for Major Step D and the Common Network Interface (CNI) for Major Step E.

Refer to the 254-303-103 — *UNIX® RTR Operating System Processor Recovery Guide* if information, other than the information provided in volumes 1, 2, and 3 of this document, is needed.

SHEET 1 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3 : SPEC-luc043a : GM VER. 2.5a

Notes

Application Integrity Monitor PRMs

3A

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Application Integrity Monitor PRMs 3A-1

Application Integrity Monitor PRMs

3A

Application Integrity Monitor PRMs

The system integrity monitor (SIM) on receipt of a software initialization status (SINITSTAT) message generates an an all-seems-well (ASW) processor recovery message for the sending process. When an application process, attached to the AIM port sends the system integrity monitor (SIM) a SINITSTAT message, an all-seems-well (ASW) PRM is produced for it as well. The application process ASW processor recovery message is included in Volume 2. The Application Integrity Monitor (AIM) processor recovery messages are included in this section.

SHEET 1 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3a : SPEC-luc043a : GM VER. 2.5a

pDde a1b0 xxyy zzww hh hh hh

RECOVERY STEP:

Application Integrity Monitor (AIM)

FUNCTION:

Internal AIM event triggered, cleared, or escalated.

PRM EXPANSION:

P = E for normal PRMs
F for phase PRMs

D = Application Integrity Monitor

d = RTR Initialization level

e = Application

a = E for SUCCESS
F for FAILURE

b = Event subcategory:

0: For event being set
1: For event being cleared
2: For event escalating

xx = Internal AIM event code

yy = Internal AIM task code for task that initiated event.

zzww = Timestamp (elapsed time since boot)

hh hh hh = Hardware status digits

SHEET 2 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3a : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

This PRM is printed whenever an internal AIM event changes state.

CORRECTIVE ACTION:

No action necessary for SUCCESS PRMs. Seek technical assistance for FAILURE PRMs.

pDde a20c xxyy zzww hh hh hh

RECOVERY STEP:

Application Integrity Monitor (AIM)

FUNCTION;

AIM task executed an internal AIM recovery action.

PRM EXPANSION:

p = E for normal PRMs
F for phase PRMs

D = Application Integrity Monitor

d = RTR Initialization level

e = Application

a = E for SUCCESS
F for FAILURE

c = Recovery action code

0: Task executed UNIX RTR phase
xx = Calling internal task id
yy = Panic code identifying reason for phase
(See [mphase] at the end of this section).
zzww = Timestamp

1: Task executed panic dump primitives.
xxyyzzww = Event word sent to recovdata

2: Task zeroed AMA PAS segments.
ww = Segment number for base of zeroing.

3: Task printed a progress PRM.
xx = User defined arg from AIMFILE.
yy = Task id of action
zzww = Timestamp

4: Panic dump partition is full and less than half a day old, don't overwrite.
xxyyzzww = Define mode flags for recovdata.

5: AIM database file system mount PRM
xxyy = 0DB0 - To indicate the database mount
ww = The status of the mount request message send to FMGR
zz = The number of times AIM read the database mount

6: AIM initialization complete after RTR phase > = 52.
xxyyzzww = real time clock at the time AIM completes initialization

7: A bogus request for RTR level 4 (can not do 54 via software). Doing a 53 instead.
xx = requested level (likely to be 04).
yy = panic code identifying the request.
zzww = BAD4
(Just to say that it was a bad request for 54).

hh hh hh = Hardware status digits.

EXPLANATION:

This PRM is printed whenever an internal AIM task executes one of the above internal AIM functions.

CORRECTIVE ACTION:

None

pDde a21c xxyy zzww hh hh hh

RECOVERY STEP:

Application Integrity Monitor (AIM)

FUNCTION:

AIM kernel lockout detection recovery is started.

PRM EXPANSION:

p = E for normal PRMs
F for phase PRMs

D = Application Integrity Monitor

d = RTR Initialization level

e = Application Integrity Monitor

a = E for SUCCESS
F for FAILURE

c = Kernel lockout recovery step codes

0: The lkout_data function returned SUCCESS when called with a flag work ofLK_SNAP1. The function retrieves timing information for all processes at and between the specified execution levels.

xxyy zzww = Time when SNAP1 is taken.

1: The lkout_data function returned FAIL when called with a flag word of LK_SNAP1. The function will not retrieve timing information for all processes at and between the specified execution levels.

xxyy zzww = Return value from lkout_data (SNAP1) function call.

2: The lkout_data function returned FAIL when called with a flag word of LK_SNAP2. The data from the first call (LK_SNAP1) is passed back in and used as a reference to compute elapsed timing percentages.

xxyy zzww = Return value from lkout_data (SNAP2) function call.

3: Kernel process faulted while on interrupt stack.

xxyy = 0
zzww = UID of the faulted kernel process.

4: Kernel process faulted but not on interrupt stack.

xxyy = 0
zzww = UID of the faulted but not on interrupt stack kernel process.

5: Invalid PID of the faulted process.

xxyy = 0
zzww = UID of the faulted kernel process.

6: The faulted process is not a kernel level process.

xxyy = 0
zzww = UID of the process.

7: The faulted process is on the interrupt stack. But data buffer is not word aligned.

xxyy = 0
zzww = UID of the kernel process

8: The faulted process is on the interrupt stack. But data buffer not all in the caller address space.

xxyy = 0
zzww = UID of the kernel process

SHEET 7 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3a : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

This PRM is printed whenever AIM detects kernel lockout. In order to determine which kernel process is consuming the CPU time. AIM takes a CPU snap shot over a specified interval.

CORRECTIVE ACTION:

None.

pDde a30c xxyy zzww hh hh hh

RECOVERY STEP:

Application Integrity Monitor (AIM)

FUNCTION:

AIM process trace PRMs.

PRM EXPANSION:

p = E for normal PRMs.

D = Application Integrity Monitor.

d = RTR Initialization level.

e = Application

a = E for SUCCESS
F for FAILURE

c = Value that indicates which state process is in

0: Cannot send P_Creat Message to PMGR

1: Good MSACK was received from PMGR

2: Failure MSACK was received from PMGR

3: Timed Out waiting fro MSACK from PMGR

4: Process Initialization Complete

5: Process Initialization Failure

6: Process Initialization Timeout

7: Process Death (expected)

SHEET 9 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3a : SPEC-luc043a : GM VER. 2.5a

8: Process Death (unexpected)

9: Timed out waiting for process death ack

A: Process audit failure

B: Killed a process for using too many message buffers(>25%)

xxyy = Utility ID of process

zzww = Timestamp (seconds since boot or wraparound)
For 30B prm, number of message buffers freed

hh hh hh = Hardware status digits

EXPLANATION:

This PRM is printed when a process changes state.

CORRECTIVE ACTION:

None

pDde a31c xxyy zzww hh hh hh

RECOVERY STEP:

Application Integrity Monitor (AIM)

FUNCTION:

AIM child process PRMs.

PRM EXPANSION:

p = E for normal PRMs
F for phase PRMs

D = Application Integrity Monitor

d = RTR Initialization level

e = Application

a = E for SUCCESS
F for FAILURE

c = Request from AIM child process

0: Child Process requested contract of another process

1: Process monitoring status

2: Process monitoring failed

3: Process dct index out of range

xxyy = Utility ID of requesting process

SHEET 11 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3a : SPEC-luc043a : GM VER. 2.5a

zzww = User Defined Data

For "c" = 1: This field contains the repetitive timer value set by the child.

For "c" = 0: This field contains the UID of the initialized process.

hh hh hh = Hardware status digits.

EXPLANATION:

This PRM is printed whenever AIM child processes request services from AIM.

CORRECTIVE ACTION:

None

pDde a40c xxyy zzww hh hh hh

RECOVERY STEP:

Application Integrity Monitor (AIM)

FUNCTION:

AIM EAI options status

PRM EXPANSION:

p = E for normal PRMs
F for phase PRMs

D = Application Integrity Monitor

d = RTR Initialization level

e = Application

a = E for SUCCESS
F for FAILURE

c = The following values are defined:

0: = Application Parameter Acknowledgement.
ww = Application parameter value

1: = INH-SFT-CHKS status
ww = Boolean status of INH-SFT-CHKS flag
(1 means TRUE).

hh hh hh = Hardware status digits.

SHEET 13 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3a : SPEC-luc043a : GM VER. 2.5a

EXPLANATION

This PRM is printed whenever AIM re-reads the EAI parameters or receives a message from the Inhibit Administrator (INH-SFT-CHKS).

CORRECTIVE ACTION:

None

pDde a41b cccc cccc hh hh hh

RECOVERY STEP:

Application Integrity Monitor (AIM)

FUNCTION

AIM application "all-seems-well" status

PRM EXPANSION:

p = E for normal PRMs
F for phase PRMs

D = Application Integrity Monitor

d = RTR Initialization level

e = Application

a = E for SUCCESS. No critical event(s) set.
F for FAILURE. Some critical or 'important' event(s) may be set.

b = 0 gives status of first 32 events (0-31) in the event table (Volume 1, Table 15-J)
1 gives status of the remaining events (32-64) in the same table

cccc cccc = A bit field. Any bit set to one means that the corresponding AIM event is set. When a bit is zero it means that the corresponding AIM event is not set. Refer to the table of AIM events given in the file 3bsico/AIM/doc/PRM/app.D.

hh hh hh = Hardware status digits.

SHEET 15 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3a : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

These PRMs are printed every thirty-two seconds, if enabled by entering the EAI_STAT_TOGGLE application parameter ('F') or if the system is in critical alarm level. Disabling the PRM is also done by entering the EAI_STAT_TOGGLE application parameter. The 410 and 411 PRMs are two parts of the AIM All-Seems-Well PRM.

CORRECTIVE ACTION:

A failure ASW PRM (F410 and or F411) indicates that a critical function has failed. This can be caused either by any of the most 'important' events- (amarbuf, amafbuf, no l acom, and nostream) being set (gives E410 and F411) or by any other event with a critical alarm level- (monfai, msgout, dctcrit, klock, reqrtr2, reqrtr3, and nodrv) being set (gives F410 and F411). If automatic recovery is not evident, manual recovery actions may be necessary. Additional indicators on the 1A processor or 3B computer may help direct this action.

pDde a42c xxyy zzww hh hh hh

RECOVERY STEP:

Application Integrity Monitor (AIM)

FUNCTION:

AIM has been loading PAS regions with data.

PRM EXPANSION:

p = E for normal PRMs
F for phase PRMs

D = Application Integrity Monitor

d = RTR Initialization level

e = Application

a = E for SUCCESS
F for FAILURE

c = PAS operation subcategory:

0: = UNIX RTR Interrupt Stack was dumped to PAS for later analysis.

1: = AIMFILE was read from disk into PAS.
ww = return code from operation

1: Busy, retry later

2: Completed with no errors

3: Total failure

4: Busy, retry later.

hh hh hh = Hardware status digits.

SHEET 17 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3a : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

This PRM is printed whenever AIM loads an area of PAS.

CORRECTIVE ACTION:

None

pDde a44c xxyy zzww hh hh hh

RECOVERY STEP:

Application Integrity Monitor (AIM)

FUNCTION:

AIM internal errors

PRM EXPANSION:

p = E for normal PRMs
F for phase PRMs

D = Application Integrity Monitor

d = RTR Initialization level

e = Application

a = E for SUCCESS
F for FAILURE

c = Internal error subcategory:

0: = AIM was faulted with an unexpected fault code.
ww = Fault code

1: = AIM could not attach to PAS (mod 0, seg 0)

2: = AIM 500ms. prtimer request failed

3: = AIM could not read the ECD to get feature bits

4: = AIM could not attach to the system port PT_AIM
xxyyzzww = Return code from kportid call

5: = AIM could not send a system initialization message request to SIM.

6: = AIM timed out waiting for system initialization message from SIM.

7: = AIM could not send a sanity timer request to SIM or sanity timer acknowledgement is invalid.

8: = AIM timed out waiting for sanity timer acknowledgment from SIM.

9: = AIM could not schedule an internal task to run.

a Bad index (reference to an unknown task) was set.

b Notify (via ost) Dlncm of node status.

c Not supported now

d Request (send an event) to klmon to run.

e 3B just came of the boot.

hh hh hh = Hardware status digits.

EXPLANATION:

This PRM is printed any time AIM detects a serious internal error.

CORRECTIVE ACTION:

None.

pDde a5rr xxyy zzww hh hh hh

RECOVERY STEP:

Application Integrity Monitor (AIM)

FUNCTION:

AIM child process requested the PRM

PRM EXPANSION:

p = E for normal PRMs
F for phase PRMs

D = Application Integrity Monitor

d = RTR Initialization level

e = Application

a = E for SUCCESS
F for FAILURE

rr = Reason for the PRM.

When field xxyy is 06ab, rr is:

bb: Start of ring initialization
bf: End of ring initialization

When field xxyy is 06ab and ring initialization has begun (bb), but not finished (bf), rr is one of the following states that RInginit is in:

00: Initializing self
01: Get init level for CNI
02: Send abort event to CNIINIT
03: Getting rid of CNI/IMS processes
04: Start handshake with DLNCM
05: Waiting for DLNCM acknowledgement
06: p_creat message to PM
07: Receive CI_BEGIN

08: Request CNI boot
09: CNI done boot
0a: Request CNI Level 1 initialization
0b: CNI done with Level 1 initialization
0c: Opening CNI channel
0d: Waiting for DLNCM to acknowledge RICNI_DONE
0e: Sending cL_APPLIN to CNI
0f: Waiting for cL_DATAIN from CNI
10: Sending cL_STARTCOM to CNI
11: Receiving messages from CNI but RPTSDN
12: Sending RIREADY message to DLNCM
13: Sending cL_SOCITOME to CNI
14: Sending RITRAF_STRT to DLNCM
15: Waiting for acknowledgement from DLNCM
17: Normal state after start traffic seq is over
18: Reading messages in monitoring mode
19: Quiet mode, unable to function normally
1a: Waiting to kill CNI/IMS processes
1b: Send CI_FPIEV to CNIINIT
1c: Last state

xxyy = Uid of the AIM child process which wants to print the PRM

zzww = Additional data process wants to print.

When field rr is 00 - bb and field xxyy is 06ab:

zz: Ring initialization escalation level range 00 - 08

ww: Ring initialization level being executed

When field rr is bf and field xxyy is 06ab:

zzww: Ring initialization time (hex)

hh hh hh = Hardware status digits.

SHEET 22 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3a : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

This PRM is printed whenever an AIM child process wants to get the service of AIM to print a PRM.

CORRECTIVE ACTION:

None

pDde a6rr xxyy zzww hh hh hh

RECOVERY STEP:

Application Integrity Monitor (AIM)

FUNCTION:

AIM child process requested initialization

PRM EXPANSION:

p = E for normal PRMs
F for phase PRMs

D = Application Integrity Monitor

d = RTR Initialization level

e = Application

a = E for SUCCESS
F for FAILURE

rr = Reason for initialization

xxyy = UID of the AIM child process which wants initialization

zz = The source of the ring initialization request

0 - RTR BOOT
1 - CRAFT request
2 - DLNCM process
3 - CNI system

ww = Requested ring initialization level

hh hh hh = Hardware status digits.

EXPLANATION:

This PRM is printed whenever an AIM child process requests a RTR initialization through AIM.

SHEET 24 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3a : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION:

None

pDde a7rr xxyy zzww hh hh hh

RECOVERY STEP:

Application Integrity Monitor (AIM)

FUNCTION:

AIM child process requested phase

PRM EXPANSION:

p = E for normal PRMs
F for phase PRMs

D = Application Integrity Monitor

d = RTR Initialization level

e = Application

a = E for SUCCESS
F for FAILURE

rr = Level of initialization

xxyy = UID of the AIM child process which wants phase

zz = The source of the ring initialization request

0 - RTR BOOT
1 - CRAFT request
2 - DLNCM process
3 - CNI system

ww = Requested ring initialization level

hh hh hh = Hardware status digits.

EXPLANATION:

This PRM is printed whenever an AIM child process requests a RTR phase through AIM. Please also refer to a6rr prm which comes out before this prm.

SHEET 26 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3a : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION:

None

SHEET 27 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3a : SPEC-luc043a : GM VER. 2.5a

pDde a8rr xxyy zzww hh hh hh

RECOVERY STEP:

Application Integrity Monitor (AIM)

FUNCTION:

AIM child process requested purge

PRM EXPANSION:

p = E for normal PRMs
F for phase PRMs

D = Application Integrity Monitor

d = RTR Initialization level

e = Application

a = E for SUCCESS
F for FAILURE

rr = Reason for the purge request

When field xxyy is 06ab rr is 02.

xxyy = UID of the AIM child process which wants purge

zzww = Additional data process wants to print

hh hh hh = Hardware status digits.

EXPLANATION:

This PRM is printed whenever an AIM child process request a purge through AIM.

CORRECTIVE ACTION:

None

Common Network Interface PRMs

3B

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Common Network Interface PRMs 3B-1

Common Network Interface PRMs

3B

Common Network Interface PRMs

The system integrity monitor (SIM) on receipt of a software initialization status (SINITSTAT) message generates an an all-seems-well (ASW) processor recovery message for the sending process. When an application process, attached to the AIM port sends the system integrity monitor (SIM) a SINITSTAT message, an all-seems-well (ASW) PRM is produced for it as well. The application process ASW processor recovery message is included in Volume 2. The Common Network Interface (CNI) processor recovery messages are included in this section.

FExy 7F01 eess oo00 hh hh hh

RECOVERY STEP:

Common Network Interface (CNI) Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = Error numbers within the function are:

01 - The attempt to connect to port PT_UIMS failed.
03 - An attempt to send the USER the "BEGIN BOOT" message failed.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in when the PRM was issued.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIInit is beginning its initialization and a critical failure occurred.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F02 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table, points to the process that was being created.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT cannot create a critical process; "bootchild( )" returned FAIL.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F04 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table, points to the imsdrv.p process.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT cannot send a "REQUEST LEVEL x" message to the imsdrv.p process; "s_imsmsg( )" returned FAIL.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F06 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table, points to the imsdrv.p process.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT cannot a "BEGIN NON-CRITICAL" message to the imsdrv.p process; "s_imsmsg( )" returned FAIL.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F07 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = Error number within the function where:

- 01 - CNIINIT failed an attempt to send the "COMPLETE NON-CRITICAL" message to the USER, "s_usrmsg( )" returned FAIL.
- 02 - CNIINIT failed an attempt to send the USER the "COMPLETE LEVEL" message (indicates the entire boot is complete).
- 03 - CNIINIT failed an attempt to send the START_PROC signal, "sendstart ( )' RETURNED fail.
- 04 - The process was not in the correct state to receive the START_PROC signal - internal CNIINIT error.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = For errors 01 and 02: null data 0. For errors 03 and 04 'dd' is a pointer into the process table.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT has created the non-critical processes and is sending the children the START_PROC signal.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

SHEET 7 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

FExy 7F08 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table; points to the process that was expecting the START_ACK event from.

hh hh hh = Hardware status digits.

EXPLANATION:

A child of CNIINIT sent a START_ACK event, but the process table shows that the process currently being worked on was not in the correct state to have sent it.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F09 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = Error number within the state where:

- 05 - The message received from the process manager was an error. A printout of the message body also appears on the printout.
- 06 - The process created was imsdrv.p; but an attempt to send the "REQUEST LEVEL" message to IMS failed; "s_imsmsg( )" returned FAIL.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

If "ee" = 05: the "dd" contains the error return code (ms_stat) as received from the process manager. See Table 3-G.

If "dd" = 06: then "dd" contains the process table index of imsdrv.p.

hh hh hh = Hardware status digits.

SHEET 9 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

CNIINIT was processing an acknowledgement message from the process manager and an error occurred.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F0A 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's child process creation table.

hh hh hh = Hardware status digits.

EXPLANATION:

The attempt by CNIINIT to send a message to the process manager requesting this non-critical process be created failed, "bootchild( )" returned FAIL.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F0B 05ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Contains the error return code (ms_stat) as received from the process manager.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was processing an acknowledgement message from the process manager and an error was received.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F10 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = Error number within the function where:

- 01 - CNIINIT failed an attempt to send the "COMPLETE LEVEL" message to the USER; "s_usrmsg( )" returned FAIL.
- 02 - CNIINIT failed to allocate a timer resource.
- 03 - CNIINIT failed an attempt to send the "BEGIN NON-CRITICAL" message to IMS; "s_imsmsg( )" returned FAIL.
- 04 - Unable to send a "START_PROC" event to a critical process; "sendstart( )" returned FAIL.
- 05 - The process state of the process to receive the "START_PROC" signal is not "READY"; CNIINIT internal error.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

SHEET 13 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

dd = Index into the CNIINIT process table.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT has created all the critical processes and is attempting to send the "START_PROC" signal or event.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F11 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table.

hh hh hh = Hardware status digits.

EXPLANATION:

The timer "GARDTIM" has timed out. CNIINIT was waiting for the user to send the "BEGIN NON-CRITICAL" message. This error occurs when CNIINIT attempts to send IMS a "BEGIN NON-CRITICAL" message; "s_imsmsg( )" returned FAIL.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F1B eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = Error number within the function is:

01 - Received a "STOP_ACK" event. The process currently being worked with was not in the "RUNNING" state. This is considered an error.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table.

hh hh hh = Hardware status digits.

EXPLANATION:

During the start-up of a level 1 INIT, CNIINIT is executing "STOP_PROC" on processes. An error was detected.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F1C 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table.

hh hh hh = Hardware status digits.

EXPLANATION:

During a level 1 INIT, CNIINIT attempted to create a child process. The function "bootchild( )" returned FAIL; "dd" indicates to the child process that CNIINIT was attempting to create.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F1D eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = Error number within the state where:

- 05 - The message received from the process manager was an error. A printout of the message body also appears on the printout.
- 06 - The process created was imsdrv.p; but an attempt to send the "REQUEST LEVEL" message to the IMS failed; "s_imsmsg( )" returned FAIL.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

If "dd" = 05, then "dd" contains the error return code (ms_stat) as received from the process manager. See Table 3-G.

If "dd" = 06, then "dd" contains the process table index of imsdrv.p.

hh hh hh = Hardware status digits.

SHEET 18 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

CNIINIT was processing an acknowledgement message from the process manager and an error occurred.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F1E eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = Error number within the state where:

- 05 - Unable to restart a process because an INIT is in progress.
- 06 - Bad data in the process table; internal CNIINIT error.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table.

hh hh hh = Hardware status digits.

EXPLANATION:

A process terminated during an init. The process is identified by the "dd" field above.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F21 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - Timeout while waiting for Interprocess Message Switch (IMS) to complete an init.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was waiting for IMS to complete the critical portion of its boot. CNIINIT's timer fired.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F23 eess oo00 hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = Error number within the function where:

- 01 - An attempt to send the "ABORT" event to IMS has failed; "sendevent( )" returned FAIL.
- 02 - Cannot abort class "CPCLASSC"; "termclass( )" returned FAIL.
- 03 - CNIINIT cannot allocate a timer resource.
- 04 - Cannot reset SLMTIME's class to normal, "setclass( )" returned FAIL

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

hh hh hh = Hardware status digits.

SHEET 22 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

This state is entered when CNIINIT is attempting to ABORT the CNI.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

SHEET 23 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

FExy 7F24 01ss oo00 hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table, points to the process that was being created.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT timed out waiting for IMS to complete a level 1B initialization. At this point, CNIINIT has completed its level 1 initialization.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F25 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table.

hh hh hh = Hardware status digits.

EXPLANATION:

A time-out has occurred while CNIINIT was waiting for a child to acknowledge the receipt of a "START_PROC" or "STOP_PROC" signal during a level 1 init.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F26 01ss oo00 hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table, points to the process that was being created.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT sent the USER the "BEGIN LEVEL 1" message. The USER failed to return the message to begin the level 1 initialization; CNIINIT timed out.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F27 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT timed out waiting for the process manager or the child process to acknowledge the creation of the child process indicated by "dd" above.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

SHEET 27 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

FExy 7F2E 04ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table, points to the process that was being created.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT has received a message indicating that a child process has terminated during a LEVEL 0 init. CNIINIT has discovered an invalid value for "rc_type" in its process table (pointed to be "dd").

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F2F 04ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT has received a message indicating that a child process has terminated during a LEVEL 0 init. CNIINIT has discovered an invalid value for "rc_type" in its process table (pointed to by "dd").

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F33 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = Error number within the function where:

01 - CNIINIT is in DIOP and discovered a dead critical process.

02,03 - Unable to allocate a timer resource.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table.

hh hh hh = Hardware status digits.

EXPLANATION:

This function is entered when the "PRCK_TO" time-out is received. The time-out is so CNIINIT can run a check through the process table to find any dead processes that need to be created. An error was detected.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F36 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table.

hh hh hh = Hardware status digits.

EXPLANATION:

A CNIINIT child process has sent the "START_ACK" event, but the process table flag for this process indicates it is not in the "READY" state. This is part of the LEVEL 1 initialization sequence.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F38 02ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT timed out waiting on IMS to complete a non-critical init. CNIINIT attempted to resend the request and could not send the message; "s_imsmsg( )" returned FAIL.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F39 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

03, 07, 09 - A dead critical process was discovered during DIOP mode.

04 - Unable to allocate a timer resource.

0B - A level 1 is required to restart the dead process, a level 1 cannot be started.

0C - Invalid "rc_type" in the process table.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = "ms_indent" as received from UNIX System RTR.

hh hh hh = Hardware status digits.

SHEET 33 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

A process terminated, CNIINIT was busy re-creating another process. An error occurred.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F3A eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was busy re-creating a child process, an error was detected.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

FExy 7F3B eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - While in DIOP, CNIINIT discovered a dead critical process.

01 - Unable to allocate a timer resource.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was busy re-creating a child process, an error was detected.

CORRECTIVE ACTION:

CNIINIT causes a CNI ABORT.

SHEET 36 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

FExy 7F3C eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

02 - While in DIOP, CNIINIT discovered a dead critical process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was busy re-creating a child process; an error was detected.

CORRECTIVE ACTION:

CNIINIT will ABORT.

SHEET 37 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

FExy 7F47 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was busy re-creating a process; "sendstart( )" returned FAIL.

CORRECTIVE ACTION:

CNIINIT will ABORT.

FExy 7F49 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - While in DIOP,CNIINIT discovered a dead critical process

05 - Unable to allocate a timer resource.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT cannot create a critical process; "bootchild( )" returned FAIL.

CORRECTIVE ACTION:

CNIINIT will ABORT.

SHEET 39 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

FExy 7F4D eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 03, 07 - A dead critical process was discovered during DIOP mode.
- 05 - Unable to allocate a timer resource
- 09 - Invalid "rc_type" in the process table.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table (also "ms_ident").

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was in state 50 (world-is-fine state) and has received a message indicating that a child process has terminated. See above for more details.

CORRECTIVE ACTION:

CNIINIT ABORTS.

FExy 7F4E 01ss oo00 hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table, points to the process that was being created.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT timed out waiting for IMS to respond to the "ABORT" event it was sent. This is following a time-out waiting for IMS to respond to a USER request for a LEVEL 1 initialization..

CORRECTIVE ACTION:

CNIINIT causes an ABORT.

FExy 7F54 01ss oo00 hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

hh hh hh = Hardware status digits.

EXPLANATION:

A FLT_SINIT occurred while CNIINIT was executing critical code.

CORRECTIVE ACTION:

CNIINIT causes an ABORT.

FExy 7F59 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = Error number within the function where:

01 - "sendevent( )" function call returned FAIL; unable to send the "ABORT" event to IMS.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Insignificant

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was waiting for IMS to respond for a request for a LEVEL 1B and it time out. See the preceding information for more details.

CORRECTIVE ACTION:

CNIINIT causes an ABORT.

FExy 7F5A eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - "s_imsmsg( )" returned FAIL; unable to send a "BEGIN NON-CRITICAL" message to IMS.

02 - Unable to allocate a timer resource.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Insignificant

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT has completed LEVEL 1 INIT and tried to send IMS the message to "BEGIN NON-CRITICAL" initialization. An error was encountered.

CORRECTIVE ACTION:

CNIINIT causes an ABORT.

FExy 7F5B 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Insignificant

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was attempting to create "imsdrv.p" for "MINMODE" and the function "bootchild( )" returned a FAIL.

CORRECTIVE ACTION:

CNIINIT causes an ABORT.

FExy 7F5D 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table, points to the process that was being created.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT requested the process manager to create IMS for MINMODE; it returned an error message.

CORRECTIVE ACTION:

CNIINIT causes an ABORT.

FExy 7F5E 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Insignificant

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT has created IMS for MINMODE and the attempt to send it the "REQ LEVEL 4" message has failed.

CORRECTIVE ACTION:

CNIINIT causes an ABORT.

FExy 7F5F 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Insignificant

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT requested the process manager to create IMS for MINMODE; it returned an error message.

CORRECTIVE ACTION:

CNIINIT causes an ABORT.

FExy 7F60 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = Error number within the function where:

- 01 - The attempt to send the USER the "COMPLETE LEVEL" message failed; "s_usrmsg( )" returned FAIL.
- 02 - Unable to allocate a timer resource.
- 03 - An attempt to send the "BEGIN NON-CRITICAL" message to IMS failed; "s_imsmsg( )" returned FAIL.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table.

hh hh hh = Hardware status digits.

SHEET 49 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

CNIINIT has completed the CRITICAL portion of a MINMODE initialization. An error was encountered.

CORRECTIVE ACTION:

CNIINIT causes an ABORT.

FExy 7F61 02ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = "ms_ident" as received from UNIX System RTR.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT has received a message that the imsdrv.p process has died during MINMODE.

CORRECTIVE ACTION:

CNIINIT causes an ABORT.

FExy 7F62 eess oo00 hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - Timeout waiting for IMS to complete a level 4 MINMODE init.

02 - Unable to allocate a timer resource.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was waiting for IMS to complete in MINMODE; it time out.

CORRECTIVE ACTION:

CNIINIT causes an ABORT.

FExy 7F64 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = The error number within the function where:

01 - Unable to send "BEGIN NON-CRITICAL" message to IMS; "s_imsmsg( )" returned FAIL.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Insignificant

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was attempting to send IMS the "BEGIN NON-CRITICAL" message during a MINMODE initialization; the message failed.

CORRECTIVE ACTION:

CNIINIT causes an ABORT.

FExy 7F65 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Insignificant

hh hh hh = Hardware status digits.

EXPLANATION:

The user has failed to respond with the "BEGIN NON-CRITICAL" message during MINMODE and CNIINIT time out. CNIINIT began the "NON-CRITICAL" anyway and was attempting to send IMS the "BEGIN NON-CRITICAL" message; "s_imsmsg( )" returned FAIL.

CORRECTIVE ACTION:

CNIINIT causes an ABORT.

FExy 7F66 eess oo00 hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = Error number within the function where:

01 - An attempt to send the USER the "COMPLETE LEVEL" message failed; "s_usrmsg( )" returned FAIL.

02 - An attempt to send the USER the "COMPLETE NON-CRITICAL" message failed; "s_usrmsg( ) returned FAIL.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

hh hh hh = Hardware status digits.

SHEET 55 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

CNIINIT has received the "COMPLETE NON-CRITICAL" message from IMS. An error was encountered.

CORRECTIVE ACTION:

CNIINIT causes an ABORT.

FExy 7F82 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = Error number within the function where:

03, 04 - A child process terminated during the boot portion of an init.

05 - Invalid "rc_type" in the process table.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT has received a message from the process manager that a child process has terminated. A boot INIT was in progress.

CORRECTIVE ACTION:

CNIINIT causes an ABORT.

FExy 7F87 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01, 03 - Unable to allocate a timer resource.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Insignificant

hh hh hh = Hardware status digits.

EXPLANATION:

A timer fired while waiting on IMS to complete a MINMODE "NON-CRITICAL" init. An error was encountered

CORRECTIVE ACTION:

CNIINIT causes an ABORT.

FExy 7F88 01ss oo00 hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT has timed out waiting for IMS to complete its boot.

CORRECTIVE ACTION:

CNIINIT causes an ABORT.

FExy 7F89 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table.

hh hh hh = Hardware status digits.

EXPLANATION:

During a boot, CNIINIT has timed out waiting for a child process to acknowledge receipt of the "START_PROC" signal.

CORRECTIVE ACTION:

CNIINIT causes an ABORT.

FExy 7F8A 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Insignificant

hh hh hh = Hardware status digits.

EXPLANATION:

During a boot, CNIINIT has timed out waiting for IMS to complete its "NON-CRITICAL" INIT. The error occurs when an attempt to send IMS another "BEGIN NON-CRITICAL" INIT message failed; "s_imsmsg( )" returned FAIL.

CORRECTIVE ACTION:

CNIINIT causes an ABORT.

FExy 7F8B eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - Timeout while waiting for child process to acknowledge creation.
- 02 - Unable to send "REQUEST LEVEL" message to IMS; "s_imsmsg( )" returned FAIL.
- 03 - Timeout while waiting for the IMS "BEGIN BOOT" message.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table.

hh hh hh = Hardware status digits.

SHEET 62 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

CNIINIT was in a boot, a time-out occurred while waiting on a child process.

CORRECTIVE ACTION:

CNIINIT causes an ABORT.

FExy 7F96 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = Error number within the function where:

01 - The event received by the ch_state function is out of range; it is greater than the maximum permitted.

02 - A request for a state change is being processed by ch_state. However, a state change is not possible because this is an illegal state change attempt.

03 - During a state transition attempt, the global value of "state" was found to be out of range.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Contains the value of the event that was being processed at the time the error was discovered.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT is a table driven finite state machine. The table is currently sized at 120 states (rows) X 35 events (columns) (both the number of states and events vary with the generic and features present). The function ch_state administrates the table. During the processing of a state change attempt, an error was discovered. See the preceding information for more details.

CORRECTIVE ACTION:

If ee = 01 or 02:	CNIINIT does not make the state change. The state remains as it was. This may lead to a time-out and a reinitialization of some flavor; or it may be completely benign. In any case, allow the machine to determine the response.
If ee = 03:	CNIINIT is internally corrupt. Only a full process initialization (FPI) or boot initialization can correct the error. If traffic is up and running, wait for a quiet period, and initiate a FPI or boot initialization.

FExy 7F9E eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization Level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = Error number within the function where:

01 - The kevent function received an invalid value for the level (CI_BOOT/CI_LVL2) in a USER REQUEST message.

dd - Contains the value of init_lvl.

02 - The kevent function received an invalid status (CI_COMPLETE) in a USER message.

dd - Null.

03 - The kevent function received an invalid value for the level in a USER BEGIN message.

dd - Contains the value of init_lvl.

04 - The kevent function receive an invalid value (IT_REQ) for the status in an IMS message.

dd - Contains the value of init_st.

05 - The kevent function received an invalid value for the level in an IMS COMPLETE message.

dd - Contains the value of init_lvl.

06 - The kevent function received an invalid value for the level in an IMS BEGIN message.

dd - Contains the value of init_lvl.

07 - The kevent function received the UNIX System RTR E_ABORT event.

08 - The kevent function received the UNIX System RTR E_USR5 event. This event is normally used by test processes only and should not appear in the field.

0C - An invalid "init_lvl" value was received in a USER "REQUEST" message.

0D - An invalid "init_lvl" value was received in a USER "BEGIN" message.

0E - An invalid "init_st" value was received in a USER message.

0F - An invalid "init_st" value was received in a IMS message.

dd - Null.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

hh hh hh = Hardware status digits.

EXPLANATION:

This PRM is issued from the function "kevent ( )". "kevent( )" initially handles received events for CNIINIT. Some parameter checking is done to these events. Error conditions have been found. See preceding information for more details.

CORRECTION ACTION:

If ee = 01, 07, or 08: CNIINIT causes a CNI abort.

If ee = 02-06, 0C-0F: The message is ignored.

SHEET 68 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

FExy 7F9F eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = Error number within the function where:

02 - The kfault function received a fault (general in nature).

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Contains the value of fault.

hh hh hh = Hardware status digits.

EXPLANATION:

The kfault( ) function processes received faults for CNIINIT. This PRM originates when a significant fault is received. See above for more details. Also, additional information is printed on the ROP that should be saved.

CORRECTIVE ACTION:

If ee = 02: CNIINIT always causes a CNI ABORT.

FExy 7FA0 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = Error number within the function where:

01 - A process could not be created because the "p" file did not exit (UNIX System RTR error "MSNOPFILE").

02 - A process could not be created because the system is in DIOP.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Contains the value of child_num. The variable child_num is an index into CNIINIT's child process creation table. To determine which process child_num points to.

hh hh hh = Hardware status digits.

EXPLANATION:

The acknow function is used to handle return codes following process creation attempts.

CORRECTIVE ACTION:

If ee = 01: Decode "dd" and insure the process file exists.

If ee = 02: The system is in DIOP; the disk hardware must be repaired before CNIINIT can recreate this process.

FExy 7FA3 eess oo00 hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = Error number within the function where:

- 01 - CNIINIT was unable to allocate a UNIX System RTR message buffer.
- 02 - CNIINIT was unable to "queuemn" a UNIX system RTR message buffer to the system scheduler.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was attempting to "kill" itself at the end of a CNI/IMS abort when a failure occurred. See the preceding information for more details.

CORRECTIVE ACTION:

A zombie "CNIINIT" remains in a congested system; if CCS is critical to your application, phase UNIX System RTR at level 2.

FExy 7FA8 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = Error number within the function where:

01 - The "cIfail( )" OST has been received. Generally, only the SLMK process sends this OST.

02 - The "cIfpfi( )" OST has been received. Generally, only the SLMK process sends this OST.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Error code from SLMK.

hh hh hh = Hardware status digits.

SHEET 73 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

Some communication from CNIINIT's child processes is accomplished via OSTs. CNIINIT has received an OST (most likely from SLMK) indicating general failure or requesting a FPI initialization. CNIINIT takes action based on its current state.

CORRECTIVE ACTION:

CNIINIT action is automatic; either a FPI or a CNI initialization failure results, which would likely lead to a boot.

FExy 7FAB eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

02 - FAIL return encountered while using the UNIX system RTR "sendevent( )" function.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Variable "child_num", pointer to child process.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT (via the CNI "sendabort( )" function) was sending a kernel child process (identified by 'dd') the ABORT event. A failure was encountered. See the preceding information.

CORRECTIVE ACTION:

None, this is self-correcting. CNIINIT may Abort.

FExy 7FB0 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - kportid( ) returns "BADPORT" when attempting to ID "PT_UIMS".
- 02 - kconport( ) returns "FAIL" when attempting to attach to "PT_UIMS".
- 03 - Another process (not CNIINIT) is attached to "PT_UIMS".

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

SHEET 76 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

This PRM is generated from the "com_init( )" function. "com_init" is responsible for zeroing and (re)claiming resources at the beginning of boot and FPI initializations. Trouble was encountered when attempting to (re)claim "PT_UIMS", a critical CNIINIT resource.

CORRECTIVE ACTION:

The initialization fails; the USER software probably causes an automatic CNI boot initialization.

FExy 7FDD eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

02 - A critical process died unexpectantly.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table that points to the process that terminated.

hh hh hh = Hardware status digits.

EXPLANATION:

A process terminated that is considered critical to the operation of CNI, terminated.

CORRECTIVE ACTION:

Recovery action is automatic. A FPI or boot initialization probably results.

FExy 8F04 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 02 - A boot initialization is in progress and a critical process was discovered "alive". This is an error since all critical processes should have been killed during the previous abort sequence. Critical processes are only permitted to "live" across FPI initializations.
- 03 - The function "sendchild( )" returned "FAIL" when it was called to send the "STOP_PROC" event to a critical child process.
- 04 - A boot initialization is in progress, and the "imsdrv.p" process was discovered "alive". This is an error since all critical processes should have been killed during the previous abort sequence. Critical processes are only permitted to "live" across FPI initializations.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

If ee = 02 or 03: 'dd' is an index into CNIINIT's process table that points to the child process.

If ee = 04: 'dd' is not used.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT is in the early stages of a FPI or boot initialization and has run into a problem. In general, CNIINIT is attempting to "STOP_PROC" or suspend the non-critical processes. Further, CNIINIT is creating or resynchronizing the critical processes.

CORRECTIVE ACTION:

This initialization is failed, and an automatic boot initialization stimulated by the USER software likely results.

SHEET 80 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

FExy 8F06 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - Timeout on a critical process following a "STOP_PROC" request by CNIINIT.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table that points to the child process.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT has sent a critical process a "STOP_PROC" request at the beginning of a FPI initialization. The process failed to respond in time (time-out occurred).

CORRECTIVE ACTION:

This initialization is failed, and an automatic boot initialization, stimulated by the USER software, likely results.

FExy 8F07 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

03 - CNIINIT was unable to allocate a timer.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT is in the early stages of a FPI or boot initialization. The USER was not attached to the CNI port; so CNIINIT could try to communicate with the USER later, CNIINIT attempted to allocate a timer; no timers were available—unusual at this stage of the initialization.

SHEET 82 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION:

CNIINIT ABORTS this initialization. The USER software may not notice that CNI has died, since it is not attached to its port. If no form of automatic recovery appears to be taking place, a manual boot initialization is initiated.

FExy 8F08 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 03 - The USER software has requested a level 3 FPI initialization. FPI is valid only as a level 2 initialization.
- 05 - The USER software has requested a level 4 FPI initialization. FPI is valid only as a level 2 initialization.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was parsing the message received from the USER software at the beginning of a FPI or boot initialization. The USER software requested a form of initialization that is not available.

SHEET 84 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION:

This initialization is failed, and an automatic boot initialization, stimulated by the USER software, is a likely result.

FExy 8F09 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - CNIINIT was attempting to "pcreat" a critical process and the "bootchild( )" function returned FAIL. Generally, bootchild( ) returns FAIL if it is unable to allocate a critical resource needed to send "pcreate" message to the process manager.
- 02 - The function "sendevent( )" returned FAIL when CNIINIT attempted to send the FPI request event to "imsdrv.p".
- 03 - The function "setimr( )" returned FAIL when CNIINIT attempted to set a timer to wait for a response from "imsdrv.p" following a request for a IMS FPI initialization.
- 04 - The function "sendchild( )" returned FAIL when CNIINIT attempted to send the FPI request event to a critical child process.

SHEET 86 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table that points to the child process.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT is in the create or FPI phase of the initialization. While working with only the critical processes, an error occurred. See preceding information for details.

CORRECTIVE ACTION:

This initialization is failed, and an automatic boot initialization, stimulated by the USER software, is a likely result.

FExy 8F0A eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

04 - The process manager returned an error on a critical process creation.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = The return code (ms_stat) as received from the process manager.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT has received an acknowledgement from the process manager indicating that it could not create a critical process. See the preceding information for more details.

CORRECTIVE ACTION:

This initialization is failed, and an automatic boot initialization, stimulated by the USER software, is a likely result.

FExy 8F0D eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 02 - The child acknowledged CNIINIT of its creation, then quietly died. The operating system did not notify CNIINIT of the creation or the death. of the child process.
- 03 - The child process did not acknowledge creation. Further, it is attached to its port (apparently alive and well!).
- 04 - "imsdrv.p" (CNIINIT child) did not acknowledge creation. Also, it is NOT attached to its port.
- 05 - "imsdr.p" did not acknowledge creation, the "acknowledgement message" does not show up in the IMS shared library, it IS attached to its port.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table that points to the child process that timed out

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT has either created or sent the FPI event to all of its critical processes. CNIINIT has been waiting for an acknowledgement from each of the processes. A time-out has occurred while waiting on a particular process. See the preceding information for more details

CORRECTIVE ACTION:

This initialization is failed, and an automatic boot initialization, stimulated by the USER software is a likely result.

FExy 8F0F eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - "imsdrv.p" failed to complete its critical initialization in the allotted time (time-out occurred).

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table that points to "imsdrv.p".

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT had completed the early portion of its FPI or boot initialization. "imsdrv.p" had been notified to begin the "imsdrv.p" critical portion of the initialization; apparently, "imsdrv.p" did not finish. A time-out occurred.

CORRECTIVE ACTION:

This initialization is failed, and an automatic boot initialization, stimulated by the USER software, is a likely result.

FExy 8F10 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - The function "sendchild( )" returned a FAIL when attempting to send the "START_PROC" event to a CNIINIT CRITICAL child process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table that points to the child process to which "sendchild( )" was to send the event.

hh hh hh = Hardware status digits.

SHEET 92 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

CNIINIT was in the later portion of the FPI or boot initialization, notifying the critical child processes that IMS channels were available. The function that performs the notification returned FAIL.

CORRECTIVE ACTION:

This initialization is failed, and an automatic boot initialization, stimulated by the USER software, is a likely result.

FExy 8F13 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - Timeout occurred while waiting for a critical child process to respond to the "START_PROC" event.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table that points to the child process.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was in the later portion of the FPI or boot initialization, notifying the critical child processes that IMS channels were available. A time-out occurred while CNIINIT was waiting for a response from the child process.

CORRECTIVE ACTION:

This initialization is failed, and an automatic boot initialization, stimulated by the USER software, is a likely result.

FExy 8F14 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

02 - Unable to allocate a timer.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was attempting to allocate a timer to guard the "cItraf( )" OST from SLMK. No timers were available - setimr( ) returned FAIL.

CORRECTIVE ACTION:

CNIINIT requests a FPI initialization.

FExy 8F20 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - IMS failed to respond to a request for a level 1B init. A time-out occurred.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was in the beginning stages of a level 1 initialization. CNIINIT sent a message to IMS asking for a level 1B initialization. The guard timer failed.

CORRECTIVE ACTION:

This initialization is failed, and a FPI initialization is initiated.

SHEET 96 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

FExy 8F22 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIIINIT process.

ee = The error within the function where:

01 - A critical process failure was detected by CNIIINIT.

ss = The state CNIIINIT was in when the PRM was issued.

oo = The state CNIIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIIINIT was in the beginning stages of a level 1 initialization. CNIIINIT ran a check to see if all critical processes were alive and well. A failed critical process was detected.

CORRECTIVE ACTION:

This initialization is failed, and a FPI initialization is initiated.

FExy 8F23 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - Timeout while waiting for a USER response to the "BEGIN" LEVEL 1" message.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was in the beginning stages of a level 1 initialization. CNIINIT sent the CNI USER the "BEGIN LEVEL 1" message. A guard timer fired.

CORRECTIVE ACTION:

This initialization is failed, and a FPI initialization is initiated.

SHEET 98 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

FExy 8F25 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - CNIINIT's function "sendchild( )" returned FAIL when attempting to send the "STOP PROC" event to a critical process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the process table of CNIINIT that points to the child process.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was in the startup stage of a level 1 initialization attempting to send the "STOP PROC" event to a critical process (see 'dd'). The "sendchild( )" function that is responsible for actually sending the message, returned FAIL.

CORRECTIVE ACTION:

This initialization is failed, and a FPI initialization is initiated.

FExy 8F27 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - A critical process timed out following a "STOP PROC" event from CNIINIT.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table that points to the child process.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was in the startup stage of a level 1 initialization. CNIINIT sent a "STOP PROC" event to a critical child process. The "cIstop( )" OST was expected in return. Instead, a time-out occurred.

CORRECTIVE ACTION:

This initialization is failed, and a FPI initialization is initiated.

FExy 8F29 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

02 - IMS did not complete a level 1B initialization - a guard timer fired.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was in the middle of a level 1 initialization; while waiting for IMS to complete a level 1B initialization, a guard timer fired.

CORRECTIVE ACTION:

This initialization is failed, and a FPI initialization is initiated.

FExy 8F2B eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - A critical process is not in the "READY" state, and therefore, is not ready to receive the "START_PROC" event.
- 03 - The function "sendchild( )" returned "FAIL" when called to send the "START_PROC" event to a critical child process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table that points to the child process that CNIINIT was attempting to start.

hh hh hh = Hardware status digits.

SHEET 102 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

CNIINIT was near the end of a level 1 initialization; while "restarting" each CNIINIT child process, an error was detected. See the preceding information for details.

CORRECTIVE ACTION:

This initialization is failed, and a FPI initialization initiated.

FExy 8F2E eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

02 - Unable to allocate a timer to guard the completion of the IMS non-critical initialization.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was at the tail end of a level 1 initialization; CNIINIT cleared all CNIINIT timers and attempted to reset a timer to guard the IMS non-critical sequence. No timers were available although all timers were just cleared.

SHEET 104 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION:

CNIINIT enters the "BRAINDEAD" state. A FPI initialization is **manually** initiated at some point in the future to clear this problem.

FExy 8F38 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - The function "sendevent( )" returned FAIL while attempting to send the "ABORT" event to IMS.

03 - Unable to allocate a CNIINIT timer to guard the IMS abort sequence.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT is in the early stages of a CNI/IMS system-wide abort; when attempting to cause the IMS to abort, an error occurred. See the preceding information for specific details.

SHEET 106 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION:

If ee = 01: A manual UNIX System RTR boot initialization should be initiated to guard against the IMS remaining hung in the machine.

If ee = 03: Allow the machine to complete the abort. An automatic recovery should occur that restores the CNI/IMS system.

FExy 8F39 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - The function "sendevent( )" returned FAIL when CNIINIT attempted to send the "CI_FPIEV" event to itself.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was attempting to be an automatic FPI initialization by sending the "CI_FPIEV" event to the CNI process. The UNIX System RTR function "sendevent( )" returned FAIL. This is unusual.

SHEET 108 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION:

This initialization is failed, and the CNI USER software stimulates a CNI/IMS abort followed by a CNI/IMS boot level initialization.

FExy 8F3A eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - The UNIX System RTR function "kportid( )" returned "BADPORT" or "NULLPRC" when CNIINIT attempted to get the CNI USER's process identification (pid).

02 - The UNIX System RTR function "sendevent( )" returned "FAIL" when CNIINIT attempted to send the "CI_FAILD" event to the CNI USER.

03 - CNIINIT was successful in sending the "CI_FAILD" event to the CNI USER

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

SHEET 110 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

CNIINIT has "FAILED" an initialization and is attempting to notify the CNI USER by sending the "CI_FAILD" event. An error may have occurred; see the preceding information for details.

CORRECTIVE ACTION:

If ee = 01 or 02:	A serious problem with communication between CNIINIT and the CNI USER software exist. A manual boot initialization is needed.
If ee = 03:	CNIINIT has "FAILED" an initialization (a "craft" notification). CNI USER software is notified. Make sure that the machine appears to be recovering; for example, the usual startup signs of a boot initialization.

FExy 8F44 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - No timers were available for CNIINIT to guard the IMS non-critical sequence.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT is in the middle stage of a non-critical initialization. All CNIINIT non-critical processes have had at least one chance to start. CNIINIT is preparing to notify the interprocess message switch (IMS) to start the non-critical initialization. All CNIINIT timers were cleared. CNIINIT attempted to allocate a new timer to guard the IMS non-critical sequence. No timers were available.

SHEET 112 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION:

CNIINIT enters the "BRAINDEAD" state. A FPI is **manually** initiated at some point in the future to clear this problem.

FExy 8F48 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - A dead critical process was detected.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

EXPLANATION:

During a routine scan of the critical processes, CNIINIT discovered that a critical process was dead or missing.

CORRECTIVE ACTION:

A FPI initialization is automatically be initiated.

FExy 8F54 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - Unable to allocate a timer for the "NCscanner" logic.

02 - Unable to allocate a timer to guard the completion of the IMS non-critical initialization.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was attempting to clear a timer allocation problem by re-initializing the CNIINIT timer array. Upon attempting to allocate a new timer following the re-initialization, another failure occurred. See the preceding information for details.

SHEET 115 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION:

CNIINIT enters the "BRAINDEAD" state. A FPI initialization is **manually** initiated at some point in the future to clear this problem.

FExy 8FAA eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 03 - The USER software has requested a level 3 FPI initialization. FPI is valid only as a level 2 initialization.
- 01 - "tout1" for a child process is out of range (<=0).
- 02 - "tout2" or "tout3" for the child process "imsdrv.p" is out of range (<=0).
- 03 - The SLMK process is not marked to "receive" the START_PROC event from CNIINIT.
- 04 - The utility ID for this child process is out of range (value is greater than the allowed maximum value).
- 05 - The port number for this child process is out of the range permitted for CNI processes.
- 06 - Inconsistent data, the number of processes found in the critical process creation chain does not match the number of processes that are "marked" as critical.

07 - Inconsistent data, the number of processes found in the critical process creation chain does not match the number of processes that are "marked" as non-critical.

08 - Inconsistent data, the number of processes found in the "start/stop" chain does not match the number of processes that are "marked" as "start/stop".

09 - Inconsistent data, the number of processes found in the CNIINIT child process table does not match the number of processes that are "marked" as either critical or non-critical.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

If dd = 01-05: ´dd´ is an index to the entry in the CNIINIT child process table that is currently under examination.

If dd = 06-08: ´dd´ represents the number of processes found in the particular chain.

If dd = 09: ´dd´ represents the number of processes found in the table (determined by the presence of a process name).

hh hh hh = Hardware status digits.

EXPLANATION:

This PRM is generated by the "ptaud( )" function which is responsible for examining the CNIINIT child process table for data errors. An error was discovered in the static (write protected) data in the table.

SHEET 118 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION:

CNIINIT fails the initialization. The USER software causes an automatic boot initialization. If the initialization is successful, no further action is necessary.

If the CNIINIT p-file (copy of CNIINIT on the disk) is corrupt or incorrect, the machine "rolls" initializations with no hope of automatic correction. In this case, the p-file must be replaced with a working copy of CNIINIT before the initialization can work.

EExy 7F04 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = IMS's process state (variable p_state).

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT received the "BEGIN BOOT" message from imsdrv.p; but the process table indicates CNIINIT should not have received the message yet.

CORRECTIVE ACTION:

CNIINIT ignores this message and waits until conditions are right.

EExy 7F09 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the state where:

- 01 - The value of "ms_ident" received from the process manager is out of range.
- 02 - The process table entry for the process identified by "ms_ident" indicates it is a non-critical process.
- 03 - The process table entry for the process identified by the "ms_ident" indicates that a "pid" already exists.
- 04 - The process table entry for the process identified by "ms_ident" indicates that a "pid" already exists.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Contains the value "ms_ident" as received from the process manager.

hh hh hh = Hardware status digits.

SHEET 121 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

During the critical portion of a boot initialization, CNIINIT received a "MSACK" message from the process manager indicating that the process indexed by 'dd' had been created. See the preceding information for more details.

CORRECTIVE ACTION:

CNIINIT ignores this message.

EExy 7F0B eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the state where:

- 01 - The value of "ms_ident" received from the process manager is out of range.
- 02 - The process table entry for the process identified by "ms_ident" indicates it is a critical process.
- 03 - The process table entry for the process identified by "ms_ident" indicates that the process is not in the "PENDING" state.
- 04 - The process table entry for the process identified by "ms_ident" indicates that a "pid" already exists.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Contains the value "ms_ident" as received from the process manager.

hh hh hh = Hardware status digits.

SHEET 123 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

During the non-critical portion of a boot initialization, CNIINIT received a "MSACK" message from the process manager indicating that the process indexed by 'dd' had been created. See the preceding information for more details.

CORRECTIVE ACTION:

CNIINIT ignores this message.

EExy 7F0F 01ss oo00 hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT received a request for level 0 initialization while an initialization was already in progress.

CORRECTIVE ACTION:

CNIINIT ignores this message and allows CNIINIT to complete the initialization in progress.

EExy 7F14 01ss oo00 hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

hh hh hh = Hardware status digits.

EXPLANATION:

The user requested a level 3 "minmode" boot. "Minmode" is not valid at level 3, only at level 4.

CORRECTIVE ACTION:

The "minmode" request is ignored; a normal level 3 boot is started.

SHEET 126 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EExy 7F18 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the state where:

- 01 - "ms_ident" as received from UNIX System RTR is invalid.
- 02 - The process identified by "ms_ident" is not a currently running CNIINIT child process, just a zombie dying off.
- 03 - The process identified by "ms_ident" never reached the "RUNNING" state; therefore, the death of the process was premature.
- 04 - A level 1 is needed to restart the dead process; since CNIINIT is already in a level 1, no problem.
- 05 - The value for "rc_type" in the process table is invalid - for the entry indicate by "ms_ident".

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

SHEET 127 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

dd = Contains the value "ms_ident" as received from UNIX System RTR.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT is in the early stages of a level 1 INIT; a process died; CNIINIT corrects problem.

CORRECTIVE ACTION:

None, allow the level 1 to continue.

EExy 7F1D eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the state where:

- 01 - The value of "ms_ident" received from the process manager is out of range.
- 02 - The process table entry for the process identified by "ms_ident" has an invalid "rc_type".
- 03 - The process table entry for the process identified by "ms_ident" indicates that the process is not in the "PENDING" state.
- 04 - The process table entry for the process identified by "ms_ident" indicates that a "pid" already exists.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Contains the value "ms_ident" as received from the process manager.

hh hh hh = Hardware status digits.

SHEET 129 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

During a level 1 initialization, CNIINIT received a "MSACK" message from the process manager indicating that the process indexed by 'dd' had been created. See the preceding information for more details.

CORRECTIVE ACTION:

CNIINIT ignores this message.

EExy 7F1E eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the state where:

- 01 - "ms_ident" as received from UNIX System RTR is invalid.
- 02 - The process identified by "ms_ident" is not a currently running CNIINIT child process, just a zombie dying off.
- 03 - The process identified by "ms_ident" never reached the "RUNNING" state; therefore, its death was premature.
- 04 - The process will be recreated by retry logic after the INIT is over.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

SHEET 131 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

dd = The value of "ms_ident" - as received from UNIX System RTR.

hh hh hh = Hardware status digits.

EXPLANATION:

A process terminated during an INIT. The process is identified by the 'dd' field.

CORRECTIVE ACTION:

CNIINIT ignores these errors.

SHEET 132 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EExy 7F28 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the state where:

- 01 - A request to run an audit has failed. The audit name index is in "dd".
- 02 - CNIINIT tried to set a timer after initiating the audit indicated by "dd", and the timer failed.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into audit table.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT is in the process of running a LEVEL 0 INIT.

CORRECTIVE ACTION:

CNIINIT aborts the audit sequence and sends a message to the USER that the audits have been completed.

EExy 7F29 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the state where:

- 01 - The audit currently running returned a REPTAUD message acknowledgement that was not ACK_OK. The value "dd" shows that value.
- 02 - An error threshold for audit failures has been exceeded. The audit sequence is aborted; a level 1 initialization is started— indicated by "dd", and the timer failed.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = For error 01 - Contains the status of the REPTAUD message.

For error 02 - Contains the index of which audit was running.

hh hh hh = Hardware status digits.

SHEET 134 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

CNIINIT is in the process of running a LEVEL 0 INIT. Other output messages previous to this one indicate which audit was running.

CORRECTIVE ACTION:

For error 01:	CNIINIT aborts the audit sequence and sends a message to the USER that the audits have been completed.
For error 02:	CNIINIT aborts the audit sequence and starts a LEVEL 1 INIT.

SHEET 135 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EExy 7F2A 01ss oo00 hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT has completed level 0 initialization, but failed in an attempt to send the LEVEL_0 request message to IMS.

CORRECTIVE ACTION:

CNIINIT ignores this message and returns to the steady state.

EExy 7F2C 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = The audit that was running timed out before the completion of the audit table index. out of its completion.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT has timed out while waiting for an audit to complete.

CORRECTIVE ACTION:

CNIINIT sends the USER the COMPLETE LEVEL_0 message, terminates the audit sequence, and goes back into the steady state.

SHEET 137 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EExy 7F2D 01ss oo00 hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT has timed out while waiting for IMS to send the COMPLETE LEVEL 0 INIT. message.

CORRECTIVE ACTION:

CNIINIT sends the USER the COMPLETE LEVEL_0 message, terminates the audit sequence, and goes back into the steady state.

EExy 7F2E eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the state where:

- 01 - "ms_ident" as received from UNIX System RTR is invalid.
- 02 - The process identified by "ms_ident" is not a currently running CNIINIT child process, just a zombie dying off.
- 03 - A level 1 is needed to restart the dead process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = "ms_ident" as received from UNIX System RTR.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT has received a message indicating that a child process has terminated during a LEVEL 0 INIT.

SHEET 139 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION:

For error 01 and 02:	CNIINIT ignores this message and returns to the audit sequence.
For error 03:	CNIINIT aborts the audit sequence (LEVEL 0) and starts a LEVEL 1.

EExy 7F2F eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - "ms_ident" as received from UNIX System RTR is invalid.

02 - The process identified by "ms_ident" is not a currently running CNIINIT child process, just a zombie dying off.

03 - A level 1 is needed to restart the dead process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = "ms_ident" as received from UNIX System RTR.

hh hh hh = Hardware status digits.

SHEET 141 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

CNIINIT has received a message indicating that a child process has terminated during a LEVEL 0 INIT. See the preceding information for more details.

CORRECTIVE ACTION:

If ee = 1, 2:	CNIINIT ignores this message.
If ee = 3:	CNIINIT aborts the audit sequence and starts a LEVEL 1 initialization.

EExy 7F38 01ss oo00 hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was waiting for completion of a IMS non-critical INIT. A timer fired.

CORRECTIVE ACTION:

CNIINIT resends the request for a IMS non-critical INIT.

EExy 7F39 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

01 - "ms_ident" as received from UNIX System RTR is invalid.

02, 05 - The process identified by "ms_ident" is not a currently running CNIINIT child process, just a zombie dying off.

06 - The process identified by "ms_ident" never reached the "RUNNING" state; the death of the process was premature.

08 - Process is recreated later by CNIINIT.

0A - A process died, but CNIINIT is in DIOP mode; the process is not recreated.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = "ms_ident" as received from UNIX System RTR.

hh hh hh = Hardware status digits.

SHEET 144 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

A process terminated; CNIINIT was busy re-creating another process.

CORRECTIVE ACTION:

CNIINIT takes action, if necessary.

EExy 7F3B eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - Received acknowledgement from process, none from process manager.
- 02 - Received acknowledgment from process manager, none from process.
- 03 - No acknowledgement received either from process manager or process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table.

hh hh hh = Hardware status digits.

SHEET 146 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

CNIINIT was busy re-creating processes; a time-out occurred.

CORRECTIVE ACTION:

None, CNIINIT tries to re-create the process later.

EExy 7F3C eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - CNIINIT has just discovered the system is in DIOP.
- 02 - Acknowledgement received from the process manager concerning a process creation. Process manager indicates that the process was not created.
- 03 - Valid process creation acknowledgement received from the process manager; however, the process does not belong to CNIINIT; the process is killed.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = "ms_ident" as received from UNIX System RTR.

hh hh hh = Hardware status digits.

SHEET 148 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

CNIINIT was NOT expecting any process creations; an unexpected process creation message from the process manager was received.

CORRECTIVE ACTION:

None, CNIINIT makes use of the new process if the new process is needed; otherwise, the new process is killed.

EExy 7F3E eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - CNIINIT has just discovered the system is in DIOP.
- 02 - Acknowledgement received from the process manager concerning a process creation. Process manager indicates that the process was not created.
- 03 - Valid process creation acknowledgement received from the process manager; however, CNIINIT does not want the process; the process is killed.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = "ms_ident" as received from UNIX System RTR.

hh hh hh = Hardware status digits.

SHEET 150 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

CNIINIT was NOT expecting any process creations; an unexpected process creation message from the process manager was received.

CORRECTIVE ACTION:

None, CNIINIT kills the unnecessary process.

EExy 7F3F eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - A level 2 INIT request was made by the user; CNIINIT is escalating the request to a level 3 INIT due to a previous incomplete level 3 or 4 INIT.
- 02 - The user request a level 2 INIT in "minmode"; "minmode" is legal only as part of a level 4 INIT. CNIINIT drops the "minmode" request and calls a "normal" level 2 INIT.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Insignificant.

hh hh hh = Hardware status digits.

SHEET 152 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

CNIINIT is processing a user request message for a level 2 INIT.

CORRECTIVE ACTION:

None, self-correcting.

EExy 7F48 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table (received from the child process).

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was waiting for a newly created child to acknowledge that the child had been created. However, the wrong process sent the acknowledgement.

CORRECTIVE ACTION:

Possible CNIINIT error; however, CNIINIT ignores this acknowledgement and continues to wait for the correct process to acknowledge.

EExy 7F49 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - Acknowledgement received from the process manager for a child process; however, CNIINIT was not expecting an acknowledgement for that process. The process is killed.
- 02 - CNIINIT has discovered that the system is in DIOP.
- 03 - Process manager returned FAIL on a creation attempt; will retry later.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table.

hh hh hh = Hardware status digits.

SHEET 155 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

CNIINIT was busy re-creating a process; an unexpected event occurred.

CORRECTIVE ACTION:

None, self-correcting

EExy 7F4D eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - "ms_ident" as received from UNIX System RTR is invalid.
- 02 - The process identified by "ms_ident" is not a currently running CNIINIT child process; just a zombie dying off.
- 04, 08 - CNIINIT has discovered that the system is in DIOP.
- 06 - A process terminated; it is scheduled for recreation later.
- 09 - A process terminated; a level 1 is started so the process can be recreated.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

SHEET 157 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

dd = Index into CNIINIT's process table (also "ms_ident").

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was in state 50 (world is fine state) and has received a message indicating that a child process has terminated. See the preceding information for more details.

CORRECTIVE ACTION:

None, self-correcting.

EExy 7F50 01ss oo00 hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

hh hh hh = Hardware status digits.

EXPLANATION:

A message that IMS has completed a LEVEL 1A INIT is received by CNIINIT. The attempt to send the "LEVEL 1A COMPLETE" event to SLMK has failed; "sendevent( )" returned FAIL.

CORRECTIVE ACTION:

CNIINIT ignores this failure.

EExy 7F55 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - "ms_ident" as received from UNIX System RTR is invalid.
- 02 - The process identified by "ms_ident" is not a currently running CNIINIT child process, just a zombie dying off.
- 03 - The process identified by "ms_ident" never reached the "RUNNING" state; therefore, the death of the process was premature.
- 04 - A process died; the process is recreated later.
- 05 - A process terminated; a level 1 is started so the process can be recreated.
- 06 - The process table entry for the process identified by "ms_ident" has an invalid "rc_type".

ss = The state CNIINIT was in when the PRM was issued.

SHEET 160 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = "ms_ident", as received from UNIX System RTR, serves as an index into the CNIINIT process table.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT has received a message indicating that a child process has terminated while a LEVEL 1B initialization was in progress. See the preceding information for more details.

CORRECTIVE ACTION:

None, this self-correcting.

SHEET 161 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EExy 7F82 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - "ms_ident" as received from UNIX System RTR is invalid.
- 02 - The process identified by "ms_ident" never reached the "RUNNING" state; therefore, the death of the process was premature.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table.

hh hh hh = Hardware status digits.

EXPLANATION:

A process died; a minor error was encountered.

CORRECTIVE ACTION:

None, this is self-correcting.

EExy 7F61 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = "ms_ident" as received from UNIX System RTR.

hh hh hh = Hardware status digits.

EXPLANATION:

During MINMODE operation, CNIINIT received a message that a child process has died; but the index value into the process table was invalid or the index process was other than imsdrv.p. Interprocess Message Switch (IMS) is the only process created during MINMODE.

CORRECTIVE ACTION:

CNIINIT ignores this failure.

EExy 7F83 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - The OST index is out of range.
- 02 - This process is not a CRITICAL process.
- 03 - The process table state flag for this process is not in the "PENDING" state so CNIINIT cannot accept this OST.
- 04 - This process already trapped in with an OST.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = The OST index as received from the process.

hh hh hh = Hardware status digits.

SHEET 164 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

During a critical LEVEL 3 or LEVEL 4 boot, a child process that was just created has trapped into CNIINIT with an OST. See the preceding information for details of the error.

CORRECTIVE ACTION:

None, this is self-correcting.

EExy 7F84 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - The OST index is out of range.
- 02 - This process is not a NON-CRITICAL process.
- 03 - The process table state flag for this process is not in the "PENDING" state so CNIINIT cannot accept this OST.
- 04 - This process is already trapped in with an OST.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = The OST index as received from the process.

hh hh hh = Hardware status digits.

SHEET 166 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

During a non-critical LEVEL 3 or LEVEL 4 boot, a child process that was just created has trapped in to CNIINIT with an OST. See the preceding information for details of the error.

CORRECTIVE ACTION:

None, this is self-correcting.

EExy 7F85 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - The OST index is out of range.
- 02 - The rc_type of this process is incorrect.
- 03 - The process table state flag for this process is not in the "PENDING" state so CNIINIT cannot accept this OST.
- 04 - This process is already trapped in with an OST.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = The OST index as received from the process.

hh hh hh = Hardware status digits.

SHEET 168 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

During a LEVEL 1 INIT, a child process that was just created has trapped into CNIINIT with an OST. See the preceding information for details of the error.

CORRECTIVE ACTION:

None, this is self-correcting.

EExy 7F87 02ss oo01 hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Insignificant.

hh hh hh = Hardware status digits.

EXPLANATION:

During a LEVEL 4 MINMODE initialization, CNIINIT timed out waiting for IMS to complete its "NON-CRITICAL" INIT.

CORRECTIVE ACTION:

CNIINIT ignores this failure, resets a timer, and continues to wait.

EExy 7F8A 01ss oo00 hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

hh hh hh = Hardware status digits.

EXPLANATION:

During a LEVEL 3 or LEVEL 4 non-critical initialization, CNIINIT timed out waiting for IMS to complete its NON-CRITICAL INIT.

CORRECTIVE ACTION:

CNIINIT ignores this failure and sends IMS another BEGIN NON-CRITICAL message to IMS

EExy 7F97 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - The pointer (index) into the process table is invalid.
- 02 - The attempt to send the message to the process manager (via the creatp( ) function) failed.
- 03 - Out of timer resources

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = The index into the process table of the child that is to be created.

hh hh hh = Hardware status digits.

SHEET 172 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

The function bootchild( ) was called to request the creation of a child process.

CORRECTIVE ACTION:

If ee = 01: CNIINIT data is corrupt, CNIINIT should ABORT.

If ee = 02: 3B congestion is the likely problem; this should be self correcting. CNIINIT may call an abort.

If ee = 03: CNIINIT may fail or abort the initialization.

EExy 7F98 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - The process table entry for this child is not marked to receive the START_PROC event.
- 02 - The attempt to send an event to a kernel child process failed because of a FAIL return from the UNIX system RTR function "sendevent( )".
- 03 - CNIINIT could not allocate a timer resource.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = The index into the process table, points to the child that is to be sent START_PROC.

hh hh hh = Hardware status digits.

SHEET 174 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

The function sendstart( ) was called to send the START_PROC event to a child.

CORRECTIVE ACTION:

Usually, CNIINIT ABORTS.

EExy 7F99 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - The process table entry for this child is not marked to receive the STOP_PROC event.
- 02 - The attempt to send an event to a kernel child process failed because of a FAIL return from the UNIX System RTR function, "sendevent( )".
- 03 - CNIINIT could not allocate a timer resource.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = The index into the process table points to the child that is to be sent STOP_PROC.

hh hh hh = Hardware status digits.

SHEET 176 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

The function sendstop( ) was called to send the STOP_PROC event to a child.

CORRECTIVE ACTION:

Usually CNIINIT ABORTS.

EExy 7F9A eess oo00 hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - The function was called with the status "CI_REQUEST".
- 02 - CNIINIT was unable to allocate a timer resource to guard the sequence.
- 03 - CNIINIT was unable to allocate a UNIX system RTR message buffer.
- 04 - The UNIX System RTR function "kportid( )" returned "NULLPRC" when attempting to get the pid of the CNI USER.
- 05 - The CNIINIT function "sendmsg( )" returned FAIL when called to send the UNIX system RTR message to the CNI USER.
- 06 - The UNIX System RTR function "kportid( )" returned "BADPORT" when attempting to get the pid of the CNI USER.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

hh hh hh = Hardware status digits.

EXPLANATION:

The function s_usrmsg( ) was called to send a message to the USER via "PT_USER". An error occurred; see the preceding information for details.

CORRECTIVE ACTION:

None, this is self-correcting. Note that CNIINIT may choose to abort.

EExy 7F9B eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - Internal error, CNIINIT was in "minmode" and attempted to request a IMS level of INIT other than level 4 (4 is the only legal value in minmode).

02 - PID in the process table is zero (or "kportid( )" returned NULLPRC).

03 - Unable to allocate a CNIINIT timer.

04 - Internal error, the function was called with a status of "IT_COMPLETE".

05 - Unable to allocate a UNIX System RTR message buffer.

06 - The CNIINIT function "sendmsg( )" returned FAIL when called to send the message to IMS.

SHEET 180 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

07 - The UNIX System RTR function "kportid( )" returned BADPORT when called to get the pid of the CNI USER process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

hh hh hh = Hardware status digits.

EXPLANATION:

The function s_imsmsg( ) was called to send IMS a message. An error occurred; see the preceding information for details.

CORRECTIVE ACTION:

Self-correcting, unable to send IMS a message, CNIINIT may ABORT.

EExy 7F9C 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = This is the value of the integer passed to this function.

hh hh hh = Hardware status digits.

EXPLANATION:

The function "u_cvtolg( )" is called to convert an integer (representing a level of initialization) to a "logical" level of initialization. The parameter (see 'dd') was out of range.

CORRECTIVE ACTION:

Internal error; CNIINIT probably ABORTS.

EExy 7F9D 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = This is the value of the integer passed to this function.

hh hh hh = Hardware status digits.

EXPLANATION:

The function "i_cvtolg( )" is called to convert an integer (representing a level of initialization) to a "logical" level of initialization. The parameter (see 'dd') was out of range.

CORRECTIVE ACTION:

Internal error, CNIINIT probably ABORTS.

EExy 7F9E eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 09 - CNIINIT has escalated its patch count to the same level as the system patch count (expected during field update).
- 0A - CNIINIT has received a duplicate "E_INIT" event; the event was not acted on other than to output this PRM.
- 0B - For the message type "MSACK", the field "ms_otype" is unknown by CNIINIT.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = If ee = 0B: 'dd' = ms_otype, else 'dd' is not used.

hh hh hh = Hardware status digits.

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EXPLANATION:

This PRM is issued from the function "kevent( )". "kevent( )" initially handles received events for CNIINIT. This PRM can be output when unusual conditions are detected or when information is needed by the craft. See the preceding information for details.

CORRECTIVE ACTION:

If ee = 09:	None; this PRM is just to let the craft know that CNIINIT patchcount is now equal to the system patch count.
If ee = A or 0B:	No action is necessary.

EExy 7FA1 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Contains the value of level.

hh hh hh = Hardware status digits.

EXPLANATION:

The "measb( )" function begins the duration timing of initialization sequences. It expects to receive a parameter indicating the level of initialization to time. The "measb( )" function has received an invalid level parameter. The level must be ≥ 0 and ≤ 4.

CORRECTIVE ACTION:

CNIINIT is unable to measure the initialization sequence in progress.

EExy 7FA2 eess oo00 hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - The setimr function has been called with an invalid msec parameter; that is, the setimr function is less than 0.
- 02 - The setimr function has been called with an invalid event parameter; that is, the setimr function is less than 0.
- 03 - The setimr function is just prior to the state in which the PRM was issued (variable old_state).

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

hh hh hh = Hardware status digits.

SHEET 187 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

The setimr function, which is the function used by CNIINIT to allocate and guard external events, detected an error. See the preceding information for more details.

CORRECTIVE ACTION:

Since setimr is a function used by other functions (service); the result of running out of timers cannot be precisely predicted. However, in most cases, CNIINIT causes a CNI ABORT.

EExy 7FA4 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - The function "update1( )" was called to update the CNIINIT process table following the change in state of a child process. According to information already set in the process table, this event has already occurred.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = The child processes "track_flags".

hh hh hh = Hardware status digits.

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EXPLANATION:

Update1( ) updates the child process table following a change in a child processes status. An error occurred; see the preceding information for more details.

CORRECTIVE ACTION:

None, this is self-correcting.

EExy 7FA7 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - The function "s_usrmsg( )" returned FAIL.

02 - The level 0 initialization completed with errors.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = If ee = 02: 'dd' = level 0 error code; else 'dd' is not used.

hh hh hh = Hardware status digits.

EXPLANATION:

The "update3 ( )" function is called to wrap up business at the end of a level 0 initialization. An error was detected. See above for details.

CORRECTIVE ACTION:

None - this error is self-correcting.

EExy 7FA8 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 03 - CNIINIT was servicing the OST "cItermcls( )". The UNIX System RTR OST "termclass( )" returned "FAIL".
- 04 - CNIINIT was servicing the OST "cItermcls( )". The class specified by the caller is illegal, not class "CMDPCLSA".
- 05 - CNIINIT was called with an undefined "ost code".

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = If ee = 05, then 'dd' contains the value of the undefined "ost code", else 'dd' is not used.

hh hh hh = Hardware status digits.

SHEET 192 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

Some communication from CNIINIT's child processes is accomplished via OSTs. Parameter check of the "received" OST has revealed an error. See above for details.

CORRECTIVE ACTION:

None.

EExy 7FAA eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - This process has the RECSTRT flag set indicating it is to receive the START_PROC signal but it is not in the next_srt chain.

02 - This process has the RECSTRT flag set indicating it is to receive the STOP_PROC signal but it is not in the next_srt chain.

03 - This process has the RECSTRT flag clear indicating it is not to receive the START_PROC signal but it is in the next_SRT chain.

04 - This process has the RECSTRT flag clear indicating it is not to receive the START_PROC signal but it is in the next_stp chain.

05 - This process has the CRITPROC flag set indicating it is to be created s a critical process but it is not in the cr_crit (creat crit) chain.

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PRM EXPANSION (Contd) :

06 - This process has the CRITPROC flag set indicating it is to be created s a critical process but it is not in the cr_crit (creat non-crit) chain.

07 - This process has a restart type code of 2 and it does not have the RECSTRT flag set.

08 - This process has the restart type of 2 and does not have the CRITPROC flag set.

09 - This process does not have the CRITPROC flag set, and it is not in the cr_ncrit (creat non-crit) chain.

0A - This process does not have the CRITPROC flag set, and it is in the cr_crit (creat crit) chain.

0B - This process does not have a timer "tout1" value greater than 0.

0C - The imsdrv.p process does not have greater than 0 values for "tout2" and "tout3".

0D - The create crit (cr_crit) chain does not end with a 0.

0E - The create non-crit (cr_ncrit) chain does not end with a 0.

0F - The START_PROC chain does not end with 0.

10 - The STOP_PROC chain does not end with a 0.

11 - There is no index found for 1 or more of the following processes: SLMK, SLMTIME or imsdrv.p.

SHEET 195 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

PRM EXPANSION (Contd) :

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Points to the entry in the process table that is invalid.

hh hh hh = Hardware status digits.

EXPLANATION:

When CNIINIT is initialized, the function proctabaud( ) is called to run a thorough check on the process table to make sure the table is sane. The above errors detail any problems found with the table.

CORRECTIVE ACTION:

For all cases, CNIINIT ABORTS. Process table is invalid and must be corrected. CNIINIT must be rebuilt.

EExy 7FAB 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = This is the value of the type of argument with which pr_rd_ck( ) is called.

hh hh hh = Hardware status digits.

EXPLANATION:

The function pr_rd_ck(type) was called to check if all processes are in the ready or running state, and the type argument was not 0 or 1.

CORRECTIVE ACTION:

CNIINIT may abort. Chances are good that CNIINIT data is corrupt.

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EExy 7FAD 01ss oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = This is the value of the argument ("type") with which scanp_tab( ) is called.

hh hh hh = Hardware status digits.

EXPLANATION:

The function scanp_tab (type) was called with an argument type not 0 or 1.

CORRECTIVE ACTION:

Internal CNIINIT error, CNIINIT will usually ABORT.

EExy 7FAE eess oo00 hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - CNIINIT was unable to allocate a UNIX System RTR message buffer.

02 - CNIINIT was unable to "queuemn" a UNIX System RTR message buffer to the system scheduler.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

hh hh hh = Hardware status digits.

EXPLANATION:

Function "killproc( )" was called to kill a child process and returned fail. See the preceding information for more details.

SHEET 199 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION:

CNIINIT is unable to kill off a non-critical child process. A zombie CNIINIT child process remaining in the system is probably the result. It may or may not cause a system degradation. Issue the "ps" UNIX System command to find out what processes are running and call for office support.

EExy 7FAF eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIIINIT process.

ee = The error within the function where:

- 01 - Unable to allocate a UNIX System RTR message buffer to send any kind of message.
- 02 - CNIIINIT is in the clear and has just updated its patch count.
- 03 - CNIIINIT is NOT in the clear, tries to update later.

ss = The state CNIIINIT was in when the PRM was issued.

oo = The state CNIIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Always 00

hh hh hh = Hardware status digits.

EXPLANATION:

This PRM is issued from function "initfu_audit( )". This function handles the field update query message. A series of tests are made to determine if CNIIINIT is in a "clear" state. If CNIIINIT is not clear, an attempt to clear is made.

SHEET 201 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

If CNIINIT is in its "clear" state, CNIINIT's internal patch count is updated to be coincident with the system patch count; a message (FU_AUDNO) is returned.

After CNIINIT sends "FU_AUDYES", CNIINIT begins using the new functions, and field update reclaims patch spaces and decision functions.

CORRECTIVE ACTION:

If ee = 01 or 03:	CNIINIT tries again later.
If ee = 03:	CNIINIT has just updated its patch count.

EExy 7FDD eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

7F = The PRM originates from the CNIIINIT process.

ee = The error within the function where:

01 - Issued from the CNIIINIT function "preterm( )": a process died, but the "ms_ident" does not match any processes owned by CNIIINIT. The message is ignored.

03 - Issued from the CNIIINIT function "critterm( )": a process died, but the pid of the terminating process did not match any pid that CNIIINIT currently knew about. The message is ignored.

04 - A message was received from UNIX System RTR indicating a non-critical process terminated. The pid of the terminating process did not match any pid that CNIIINIT currently knew about. The message is ignored.

SHEET 203 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

PRM EXPANSION (Contd) :

05 - A message was received from UNIX System RTR indicating a non-critical process terminated. The pid of the terminating process and its index matched the process that CNIINIT was waiting for an acknowledgement from (for example, "cIstop( )" or "cIstart( )"). Since the process is non-critical, the death is ignored and the process is created later.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table that points to the child process.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT received notification of a process death.

CORRECTIVE ACTION:

None—this is self-correcting.

SHEET 204 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EExy 8F01 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - A time-out occurred while waiting for an acknowledgment to a "surekill by class" request of UNIX System RTR.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT has issued a "surekill" request by class. An acknowledgement from UNIX System RTR was expected. However, a guard timer fired instead.

CORRECTIVE ACTION:

None—this is self-correcting

EExy 8F02 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - ms_stat contained "TM_BADTYPE" - indicating that "t_termtype" was invalid.
- 02 - ms_stat contained "TM_FAIL" - indicates that UNIX system RTR took an error during the processing of the "surekill" and could not complete it.
- 03 - ms_stat contained an unknown value (default case).

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

SHEET 206 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

CNIINIT received an acknowledgement from UNIX System RTR following a "surekill by class" request (ms_stat field of the message). The message indicate that an error occurred. See the preceding information for details.

CORRECTIVE ACTION:

None, this is self-correcting.

EExy 8F04 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - The UNIX System RTR OST "suspuid( )" returned FAIL.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table that points to the child process.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was "stopping" and "suspending" its child processes at the beginning of a FPI initialization. An error occurred. See the preceding information for details.

CORRECTIVE ACTION:

None, this is self-correcting.

EExy 8F05 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - CNIINIT received the "cIstop( )" OST from an unexpected process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table that points to the child process (the process that used the "cIstop( )" OST).

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was waiting for one of its child processes to acknowledge a "STOP PROC" with the "cIstop( )" OST. The wrong process used the OST. See the preceding information for more details.

CORRECTIVE ACTION:

None—this is self-correcting. CNIINIT continues to wait for the correct process to use the OST (a guard timer has been set).

EExy 8F06 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

02 - A time-out occurred while waiting on an acknowledgement to "STOP PROC". The "cIstop( )" OST should have been used. 'dd' points to the process in question.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table that points to the child process.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was waiting for an acknowledgment from a non-critical child process following a "STOP PROC". A guard timer fired instead. See the preceding information for details.

CORRECTIVE ACTION:

None—this is self-correcting.

EExy 8F07 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

02 - The UNIX System RTR function returned "NULLPRC" when CNIINIT was attempting to get the pid of the CNI USER process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was attempting to communicate with the CNI USER process to request the level of initialization required. The CNI USER is not attached to its port so CNIINIT cannot send a message.

CORRECTIVE ACTION:

None—this is self-correcting. CNIINIT tries again in 30 seconds.

EExy 8F08 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - The CNI USER requested a "level 2, min-mode" initialization. Min-Mode is only permitted at level 4. The minmode option is ignored.
- 02 - The CNI did not complete a previous level 3 or 4 initialization. Therefore, this "level 2" initialization is escalated to a "level 3" initialization.
- 04 - The CNI USER requested a "level 3, min-mode" initialization. Min-mode is only permitted at level 4. The min-mode option is ignored.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

SHEET 212 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

CNIINIT has received a message from the CNI USER software indicating the level of initialization required. A problem was detected. See the preceding information for details.

CORRECTIVE ACTION:

None—this is self-correcting.

EExy 8F0A eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIIINIT process.

ee = The error within the function where:

- 01 - The "ms_ident" in the acknowledgement message did not match any CNIIINIT child process (out of range). The message is ignored.
- 02 - The acknowledgement message received applied to a non-critical process. The message is ignored.
- 03 - An acknowledgement message was received for a process that was not in the "PENDING" state. The message is ignored.

ss = The state CNIIINIT was in when the PRM was issued.

oo = The state CNIIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIIINIT's process table that points to the child process.

hh hh hh = Hardware status digits.

SHEET 214 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

CNIINIT received an acknowledgement from the UNIX System RTR process manager following a "pcreate" request of a critical CNIINIT child process. A problem was detected. See the preceding information for details.

CORRECTIVE ACTION:

None—this is self-correcting.

EExy 8F0B eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - The variable "ost_ident" was out of range - it did not match any CNIINIT processes. The OST is ignored.
- 02 - The OST was received from a non-critical process. The OST is ignored.
- 03 - The variable "ost_ident" did not point to a process that was in the "PENDING" state; the OST is ignored.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table that points to the child process (the variable "ost_ident").

hh hh hh = Hardware status digits.

SHEET 216 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

CNIINIT received a "cIalive( )" OST from a child process following a "pcreate" or a FPI request. A problem was detected. See the preceding information for details.

CORRECTIVE ACTION:

None—this is self-correcting.

EExy 8F0D eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - The variable "trid" was out of range and did not point to any CNIINIT child process. The time-out is ignored.
- 06 - The time-out involved IMS; however, a copy of the IMS message was recovered from the IMS shared library. The initialization proceeds normally.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table that points to the child process (in this case - the variable "trid").

hh hh hh = Hardware status digits.

SHEET 218 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

CNIINIT was waiting for a response from the process manager or the child process following a FPI or "pcreate" request of a critical process. A guard timer fired. See the preceding information for details.

CORRECTIVE ACTION:

None, this is self-correcting.

EExy 8F12 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - CNIINIT received a "cIstart( )" OST from the "wrong" process (the index of the process did not match the "expected" index).

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table that points to the child process (contains the variable "ost_ident").

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT received a "cIstart( )" OST from a child process. An error was detected. See the preceding information for details.

CORRECTIVE ACTION:

None, this is self-correcting.

EExy 8F16 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - A guard timer fired while waiting for SLMK to send the "cItraf( )" OST.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Contains the SLMK variable "Cstate".

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was waiting for the "cItraf( )" OST from SLMK. This OST is normally received at the end of the critical initialization and indicates that traffic has been started. A time-out occurred. See the preceding information for more detail.

CORRECTIVE ACTION:

CNIINIT continues with the initialization; however, the machine should be watched to determine if traffic starts. If no traffic starts after a reasonable period of time, the machine should be manually initialized.

EExy 8F17 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIIINIT process.

ee = The error within the function where:

- 01 - Unable to allocate a CNIIINIT timer.
- 05 - The USER software has requested a level 4 FPI initialization. FPI is valid only as a level 2 initialization.

ss = The state CNIIINIT was in when the PRM was issued.

oo = The state CNIIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIIINIT was attempting to allocate a CNIIINIT timer to guard the non-critical initialization startup. No timers were available even though CNIIINIT just cleared the entire timer array.

SHEET 222 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION:

CNIINIT enters the "BRAINDEAD" state. A FPI initialization is **manually** initiated at some point in the future to clear this problem.

EExy 8F17 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIIINIT process.

ee = The error within the function where:

01 - Unable to allocate a CNIINIT timer.

ss = The state CNIIINIT was in when the PRM was issued.

oo = The state CNIIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIIINIT was attempting to allocate a CNIIINIT timer to guard the non-critical initialization startup. No timers were available even though CNIIINIT had just cleared the entire timer array.

CORRECTIVE ACTION:

CNIIINIT enters the "BRAINDEAD" state. A FPI initialization is **manually** initiated at some point in the future to clear this problem.

SHEET 224 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EExy 8F25 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

02 - CNIINIT's function "sendchild( )" returned FAIL when attempting to send the "STOP PROC" event to a non-critical process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table that points to the child process.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was in the startup stage of a level 1 initialization. While attempting to send the "STOP PROC" event to a non-critical process (see 'dd'), the "sendchild( )" function that is responsible for actually sending the message, returned FAIL.

CORRECTIVE ACTION:

None, the level 1 initialization continues.

EExy 8F26 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - The index from the process that sent the OST did not match the index that was expected. The OST is ignored.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table that points to the child process (contains the variable "ost_ident").

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT received the "cIstop( )" OST from a child process. An error was detected. See the preceding information for more detail.

CORRECTIVE ACTION:

None—this OST is ignored. CNIINIT waits for the correct index.

SHEET 226 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EExy 8F27 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

02 - A non-critical process timed out following a "STOP PROC" event from CNIINIT.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table that points to the child process.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was in the startup stage of a level 1 initialization. It sent a "STOP PROC" event to a non-critical child process. The "cIstop( )" OST was expected in return; a time-out occurred instead.

CORRECTIVE ACTION:

None—this process is ignored.

SHEET 227 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EExy 8F29 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - Recovered the IMS message from the IMS shared library.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was in the middle of a level 1 initialization. It was waiting for IMS to complete a level 1B initialization. A guard timer fired.

CORRECTIVE ACTION:

None—the message was recovered; level 1 continues.

EExy 8F2B eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

02 - The function "sendchild( )" returned "FAIL" when it was called to send the "START_PROC" event to a non-critical child process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table that points to the child process.

hh hh hh = Hardware status digits.

SHEET 229 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

CNIINIT was near the end of level 1 initialization. CNIINIT was "restarting" each CNIINIT child process, an error was detected. See the preceding information for details.

CORRECTIVE ACTION:

None, this process is ignored; the level 1 continues.

EExy 8F2C eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - The index (variable "ost_ident") of the process that used the "cIstart( )" OST did not match the index of the process in which CNIINIT expected to report.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table that points to the child process (contains the variable "ost_ident").

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT received a "cIstart( )" OST from a child process. An error was detected. See the preceding information for more detail.

SHEET 231 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION:

None, this process is ignored; CNIINIT waits for the correct process to use the OST.

EExy 8F2E eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - Unable to allocate a timer to request the beginning of a non-critical init.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Contains the CNIINIT variable "NCstate".

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was at the tail end of a level 1 initialization when a problem was detected. See the preceding information for details.

CORRECTIVE ACTION:

CNIINIT enters the "BRAINDEAD" state. A FPI initialization is **manually** initiated at some point in the future to clear this problem.

EExy 8F34 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - The UNIX System RTR function "sendevent( )" returned FAIL. CNIINIT cannot inform the signaling link monitor kernel (SLMK) that IMS completed a 1A initialization.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

EXPLANATION:

A 1A initialization was completed by IMS. CNIINIT attempts to notify SLMK of this event; SLMK requests a mass state update and checks the RPC status. An error occurs. See the preceding information for details.

CORRECTIVE ACTION:

This is self-correcting. This information is eventually derived by SLMK, independently.

SHEET 234 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EExy 8F38 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

02 - The UNIX System RTR OST "surekill( )" returned FAIL when attempting to kill off a CNIINIT child process during a CNI/IMS abort.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into CNIINIT's process table that points to the child process.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT is in the early stages of a CNI/IMS system-wide abort when an error occurs. See the preceding information for specific details.

CORRECTIVE ACTION:

None—the error is self-correcting.

EExy 8F3B eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - CNIINIT has entered the "BRAINDEAD" state.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = "FF"

hh hh hh = Hardware status digits.

EXPLANATION:

During non-critical processing, CNIINIT may encounter a situation that cannot be cleared up short of a FPI initialization. When this type of situation occurs, CNIINIT enters the "BRAINDEAD" state.

A manual FPI initialization is needed to recover CNIINIT from this state. However, it is not necessary to perform the FPI initialization immediately; wait for a moment when traffic is at its lowest.

SHEET 236 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

CORRECTIVE ACTION:

Wait for a time period when traffic is at a low point; then, manually initiate a FPI initialization.

SHEET 237 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EExy 8F3C eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - Not permitted to begin a non-critical initialization.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Contains the CNIINIT variable "NCstate".

hh hh hh = Hardware status digits.

EXPLANATION:

This state is entered when the "BEGIN NC" message is received. CNIINIT was unable to begin a NC INIT at this time.

CORRECTIVE ACTION:

None—CNIINIT begins the non-critical INIT later.

SHEET 238 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EExy 8F3D eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - Unable to begin a non-critical INIT now.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Contains the CNIINIT variable "NCstate".

hh hh hh = Hardware status digits.

EXPLANATION:

A time-out occurred that normally would lead to the startup of a non-critical. CNIINIT cannot begin the non-critical INIT now.

CORRECTIVE ACTION:

None—CNIINIT begins the non-critical INIT later.

EExy 8F3F eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level.

y = Application initialization level.

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - Unable to allocate a CNIINIT timer.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Contains the CNIINIT variable "NCstate".

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT is attempting to reschedule a non-critical initialization for later. CNIINIT clears all timers; then attempts to allocate a new timer; no timers were available.

CORRECTIVE ACTION:

CNIINIT enters the "BRAINDEAD" state. A FPI initialization should be manually initiated at some point in the future to clear this problem.

EExy 8F42 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

7F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

- 01 - CNIINIT's variable "trid" does not match any known process (out of range).
- 02 - The time-out applies to a critical process.
- 03 - The state of the process indicated by "trid" is not in the "SUREKILL" state as expected.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table that points to the child process (the CNIINIT variable "trid").

hh hh hh = Hardware status digits.

SHEET 241 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

A time-out has occurred while waiting on a message from UNIX System RTR. The time-out did not seem to apply to any process to currently be surekilled. See the preceding information for further details.

CORRECTIVE ACTION:

None—this is self-correcting. The time-out is ignored.

EExy 8F46 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

8F = The PRM originates from the CNIINIT process.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was waiting for the completion of the IMS non-critical INIT. A time-out occurred instead.

CORRECTIVE ACTION:

None; the CNIINIT announces the end of the non-critical INIT anyway. The interprocess management switch (IMS) may complete the non-critical INIT at some point in the future.

EExy 8F4B eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

03 - CNIINIT's "bootchild( )" function returned FAIL.

04, 05 - UNIX System RTR's "SUREKILL( )" function returned FAIL.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table that points to the child process.

hh hh hh = Hardware status digits.

SHEET 244 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

This PRM is issued from the "NCscanner" state. The NCscanner is responsible for insuring that all processes are up and running. If a zombie process is found, it is killed and recreated. If a process is dead, it is created. An error occurred. See the preceding information for more details.

CORRECTIVE ACTION:

None—this is self-correcting.

EExy 8F4C eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - The "ms_stat" field in the acknowledgement message was not "MSNOERR" (for example, FAIL, BADTYPE or NOTERM).

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = The "ms_stat" field from the acknowledgement message.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT has received an acknowledgement message from UNIX System RTR following a "SUREKILL" request. An error was detected, see the preceding information for details.

CORRECTIVE ACTION:

None—this is self-correcting.

EExy 8F4E eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - Received the "cIalive( )" OST from the wrong process (variable "ost_ident" did not match the expected index).

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table that points to the child process (variable "ost_ident").

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT received a "cIalive( )" OST from a child process. An error was detected. See the preceding information for more details.

CORRECTIVE ACTION:

None—this is self-correcting.

SHEET 247 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EExy 8F4F eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - Timeout on a "pcreate" attempt of process "dd".

02 - Timeout on a "SUREKILL" attempt of process "dd".

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table that points to the child process.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was waiting for an acknowledgement to a "pcreate" or "surekill" request. A time-out occurred. See the preceding information for more details.

CORRECTIVE ACTION:

None—CNIINIT tries again later.

SHEET 248 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EExy 8F50 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - The function "sendchild( )" returned FAIL.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table that points to the child process.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was attempting to send a "START PROC" to a child process. The function "sendchild( )" returned FAIL.

CORRECTIVE ACTION:

None—CNIINIT "surekills" this process and recreates it later.

EExy 8F51 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - Timeout while waiting for "cIstart( )" from process "dd".

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table that points to the child process.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was waiting for a child process to use the "cIstart( )" OST (to acknowledge the "START PROC"). A time-out occurred.

CORRECTIVE ACTION:

None—CNIINIT "surekills" this process and recreates it later.

SHEET 250 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EExy 8F53 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - Unable to allocate a timer.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Not used.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was attempting to schedule another run of the "NCscanner". CNIINIT was unable to allocate a timer.

CORRECTIVE ACTION:

None—CNIINIT clears all timers and tries again.

SHEET 251 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EExy 8F58 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - Unable to begin a level 0 INIT, a non-critical INIT is in progress.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = CNIINIT variable "NCstate".

hh hh hh = Hardware status digits.

EXPLANATION:

A request for a level 0 INIT was received. A non-critical INIT is in progress. CNIINIT cannot honor the level 0 request while the non-critical INIT is running.

CORRECTIVE ACTION:

None—request is ignored. Wait until the non-critical INIT is complete; then, ask for another level 0 INIT.

EExy 8F5A eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

02 - A critical audit had too many uncorrected errors.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table that points to the child process.

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT is running a level 0 INIT. A message was received from UNIX System RTR indicating the completion of an audit. The audit is critical, and the number of uncorrected errors exceeds the threshold permitted.

CORRECTIVE ACTION:

None—CNIINIT begins a level 1 initialization.

EExy 8F5F eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - Escalating the level 0 to a level 1 INIT.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = CNIINIT variable "errcode".

hh hh hh = Hardware status digits.

EXPLANATION:

CNIINIT was running a level 0 INIT. A request for a level 1 arose.

CORRECTIVE ACTION:

None—CNIINIT shuts down the level 0 and begins a level 1 INIT.

EExy 8F98 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - The UNIX System RTR function "kportid( )" returned "BADPORT" when attempting to get a child processes pid.

02 - The UNIX System RTR function "kportid( )" returned "NULLPRC" when attempting to get a child process pid.

03 - Unable to allocate a CNIINIT timer to guard a child process.

04 - Unable to allocate a UNIX System RTR message buffer to send a child process a signal.

05 - The CNIINIT function "sendmsg( )" returned FAIL when called to send a signal to a child process.

06 - The UNIX System RTR OST "sendevent( )" returned FAIL when called to send a UNIX System RTR event to a child process.

SHEET 255 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

PRM EXPANSION (Contd) :

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIINIT process table that points to the child process.

hh hh hh = Hardware status digits.

EXPLANATION:

This PRM is issued by the "sendchild( )" function. The "sendchild( )" sends events and signals to CNIINIT child processes to inform them of initialization activities. An error occurred; see the preceding information for details.

CORRECTIVE ACTION:

None—this is self-correcting.

EExy 8F99 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

8F = The PRM originates from the CNIIINIT process.

ee = The error within the function where:

- 01 - Unable to allocate a CNIIINIT timer to guard the "surekill" sequence.
- 01 - Unable to allocate a UNIX System RTR message buffer to send the "surekill" request message.
- 03 - The "surekill( )" function has passed an illegal parameter for the field "type".
- 04 - The CNIIINIT function "sendmsg( )" returned FAIL when called to send the "surekill" message.

ss = The state CNIIINIT was in when the PRM was issued.

oo = The state CNIIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Index into the CNIIINIT process table that points to the child process.

hh hh hh = Hardware status digits.

SHEET 257 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

This PRM is issued by the CNIINIT function "surekill( )". This function is used to cleanly and completely kill processes by PID or utility ID. An error occurred; see the preceding information for details.

CORRECTIVE ACTION:

None—this is self-correcting.

SHEET 258 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EExy 8FA0 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

8F = The PRM originates from the CNIINIT process.

ee = Error number within the function where:

01 - A process could not be created because the "p" file did not exist (UNIX System RTR error "msnopfile").

02 - A process could not be created because the system is in DIOP.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = Contains the value of child_num. The variable child_num is an index into CNIINIT child process creation table.

hh hh hh = Hardware status digits.

SHEET 259 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EXPLANATION:

The acknow function is used to handle return codes following process creation attempts.

CORRECTIVE ACTION:

If ee = 01:	Decode "dd" and insure the process file exists.
If ee = 02:	The system is in DIOP. The disk hardware must be repaired before CNIINIT can recreate this process.

EExy 8FA6 eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - The parameter passed to function "cancltimr( )" is out of range.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = The parameter as passed to cancltimr.

hh hh hh = Hardware status digits.

EXPLANATION:

The function "cancltimr( )" is used to cancel internal timers set earlier by CNIINIT. Some function in CNIINIT called "cancltimr( )" with an illegal parameter. See the preceding information for details.

CORRECTIVE ACTION:

None—this is self-correcting.

SHEET 261 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-3b : SPEC-luc043a : GM VER. 2.5a

EExy 8FAD eess oodd hh hh hh

RECOVERY STEP:

CNI Initialization Process

FUNCTION:

CNI Boot Initialization

PRM EXPANSION:

x = Operating system initialization level

y = Application initialization level

8F = The PRM originates from the CNIINIT process.

ee = The error within the function where:

01 - The parameter passed to the "bumpnxtr( )" function is out of range.

ss = The state CNIINIT was in when the PRM was issued.

oo = The state CNIINIT was in just prior to the state in which the PRM was issued (variable old_state).

dd = The parameter as passed to "bumpnxtr( )".

hh hh hh = Hardware status digits.

EXPLANATION:

The "bumpnxtr( )" function is called to compute a new value for the variable "next_try". However, "bumpnxtr( )" was called with a parameter that is out of range.

CORRECTIVE ACTION:

None—this is self-correcting.

Tables A - K

3

Contents

Reference Tables 3-1

Tables A - K

3

Reference Tables

The following pages contain tables which are referenced throughout "Processor Recovery Messages".

SHEET 1 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-4 : SPEC-luc043a : GM VER. 2.5a

Notes

Table 3-A. EIH Function Numbers

Function Number	Function Name
1	attach
2	chanerr
3	cr_dmaer
4	disable
5	dmadata
6	dmafatal
7	dmanfatal
8	eih.fun
9	enable
A	errlog
B	event
C	fault
D	finducb
E	grchan
F	growth
10	inhibit
11	in_ect
12	in_imem
13	inchan
14	maint

Table 3-A. (Contd)

Function Number	Function Name
15	memerr
16	mkactive
17	myccerr
18	myccsoft
19	ost
1A	othccerr
1B	pioerr
1C	pioto
1D	remofl
1E	search
1F	sel_cu
20	send_prm
21	sim.fun
22	sndmira
23	switch
24	faltsw
25	dlmsw

Table 3-A. EIH Function Numbers (Contd)

Function Number	Function Name
27	descalate
38	get_iop_number
39	verify_incore
50	add_rm_log
51	send_tty
52	modify_ecd
53	uneqip_dfcs
54	uneqip_iops
55	uneqip_mtty
56	olbcontrol
57	degrow_scsd
58	chg_mtty
59	grow_mtty
60	olbfault
62	uneqip_pc
63	send_mch_int
64	grow_scsd
65	chg_scsd
66	rmv_units
67	degrow_units
68	olb_msg_handler
69	tim_postsw

Table 3-B. EIH Function Numbers for Release 1.5 Through Release 6.6

EIH Function Number	EIH Source File
X'01	attach
X'02	chanerr
X'03	cr_dmaer
X'04	disable
X'05	dmadata
X'06	dmafatal
X'07	dmanfatal
X'08	eih.fun
X'09	enable
X'0A	errlog
X'0B	event
X'0C	fault
X'0D	finducb
X'0E	grchan
X'0F	growth
X'10	inhibit
X'11	in_ect
X'12	in_imem
X'13	inchan
X'14	maint
X'15	memerr
X'16	mkactive
X'17	myccerr
X'18	myccsoft
X'19	ost
X'1A	othccerr
X'1B	pioerr
X'1C	pioto

Table 3-B. EIH Function Numbers for Release 1.5 Through Release 6.6 (Contd)

EIH Function Number	EIH Source File
X'1D	remofl
X'1E	search
X'1F	sel_cu
X'20	send_prm
X'21	sim.fun
X'22	sndmira
X'23	switch
X'24	faltsw
X'25	dlmsw
X'26	nsc_err.c
X'27	descalate
X'38	olbmisc.c
X'39	olbmisc.c
X'50	olbmisc.c
X'51	olbmisc.c
X'52	olbmodecd.c
X'53	olbmodecd.c
X'54	olbmodecd.c
X'55	olbmodecd.c
X'56	olbcontrol.c
X'57	olbmodecd.c
X'58	olbmodecd.c
X'59	olbmodecd.c

SHEET 5 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-4 : SPEC-luc043a : GM VER. 2.5a

Table 3-B. EIH Function Numbers for Release 1.5 Through Release 6.6 (Contd)

EIH Function Number	EIH Source File
X'60	fault.c
X'62	olbmodecd.c
X'63	olbmch.c
X'64	olbmodecd.c
X'65	olbmodecd.c
X'66	olbmodecd.c
X'67	olbmodecd.c
X'68	olbmsghdlr.c
X'69	olbtimers.c

Table 3-C. EIH Function Numbers for Release 6.7 and Later

EIH Function Number	EIH Function Name	EIH Source File
X'01	attach	attach.c
X'02	chanerr	chanerr.c
X'03	cr_dmaer	cr_dmaer.c
X'04	disable	disable.c
X'05	dmadata	dmadata.c
X'06	dmafatal	dmafatal.c
X'07	dmanfatal	dmanfatal.c
X'08	eih.fun	eih.fun.c
X'09	enable	enable.c
X'0A	errlog	errlog.c
X'0B	event	event.c
X'0C	fault	fault.c
X'0D	finducb	eih.fun.c
X'0E	grchan	growchan.c
X'0F	growth	growth.c
X'10	inhibit	inhibit.c
X'11	in_ect	init_ect.c
X'12	in_imem	init_imem.c
X'13	inchan	initchan.c
X'14	maint	mainint.c
X'15	memerr	memerr.c
X'16	mkactive	mkactive.c
X'17	myccerr	myccerr.c
X'18	myccsoft	myccsoft.c
X'19	ost	ost.c
X'1A	othccerr	othccerr.c
X'1B	pioerr	pioerr.c

Table 3-C. EIH Function Numbers for Release 6.7 and Later (Contd)

EIH Function Number	EIH Function Name	EIH Source File
X'1C	pioto	piotmo.c
X'1D	remofl	remof1.c
X'1E	search	eih.fun.c
X'1F	sel_cu	sel.cu.c
X'20	send_prm	send.prm.c
X'21	not used	not used
X'22	sndmira	send_mira.c
X'23	switch	switch.c
X'24	faltsw	fault_sw.c
X'25	dlmsw	dlm_sw.c
X'26	nscerr	nsc_err.c
X'27	descalate	descalate.c
X'28	zeppelin	attach.c
X'29	clr_eai_new	clreainew.c
X'2A	cr_dmadata	cr_dmaer.c
X'2B	write_msk	dmanfatal.c
X'2C	oflmswt	eih.fun.c
X'2D	eihdata	eih.data.c
X'2E	prminconf	event.c
X'2F	flt_all	fault.c
X'30	othmemer	memerr.c
X'31	othstra	memerr.c
X'32	mkoos	mkactive.c
X'33	cleandma	pioerr.c
X'34	ch_hung	piotmo.c
X'35	hardsw	remofl.c
X'36	remonl	remofl.c
X'37	stupchan	switch.c

Table 3-C. EIH Function Numbers for Release 6.7 and Later (Contd)

EIH Function Number	EIH Function Name	EIH Source File
X'38	get_iop_number	olbmisc.c
X'39	verify_incore	olbmisc.c
X'40	memerr_21	memerr.c
X'41	othmem21er	memerr.c
X'42	dma21_err	dma21_err.c
X'43	eaierr	eaierr.c
X'50	add_rm_log	olbmisc.c
X'51	send_tty	olbmisc.c
X'52	modify_ecd	olbmodecd.c
X'53	uneqip_dfcs	olbmodecd.c
X'54	uneqip_iops	olbmodecd.c
X'55	uneqip_mtty	olbmodecd.c
X'56	olbcontrol	olbcontrol.c
X'57	degrow_scsd	olbmodecd.c
X'58	chg_mtty	olbmodecd.c
X'59	grow_mtty	olbmodecd.c
X'60	olbfault	fault.c
X'62	uneqip_pc	olbmodecd.c
X'63	send_mch_int	olbmch.c
X'64	grow_scsd	olbmodecd.c
X'65	chg_scsd	olbmodecd.c
X'66	rmv_units	olbmodecd.c
X'67	degrow_units	olbmodecd.c
X'68	olb_msg_handler	olbmsghdlr.c
X'69	tim_postsw	olbtimers.c

Table 3-D. Device Type Information

Device Type Digits	Device Type
X'000	No unit
X'001	Peripheral Interface Controller (PIC)
X'002	Teletypewriter Controller (TTYC)
X'003	Teletypewriter unit (TTY)
X'004	Magnetic Type Controller (MTC)
X'005	Magnetic Type unit (MT)
X'006	Scanner Signal Distributor Controller (SCSDC)
X'007	Synchronous Data Link Controller (SDLC)
X'008	Synchronous Data Link unit (SDL)
X'009	Maintenance TTY Controller (MTTYC)
X'00A	Maintenance TTY (MCRT)
X'00B	Read Only Printer (ROP)
X'00C	Switching Control Center interface (SCC)
X'00D	Emergency Action Interface (EAI)
X'00E	Foundation Peripheral Controller (FPC)
X'00F	Foundation Peripheral unit (FP)
X,010	Unused
X,011	Unused
X'012	Direct User Interface Controller (DUIC)
X'013	Direct User Interface unit (DUI)
X'015	High Speed Data Link Controller (HSDC)
X'016	High Speed Data Link Unit (HSD)

Table 3-E. IODRV Error Codes (Growth and Degrowth)

HEX Code	Error Description
1	Cannot get PCSD scratch size for boot time growth
2	Cannot get PCSD UCB for boot time growth
3	Cannot get PC scratch size for boot time growth
4	The downucb( ) failed to get PCSDs for boot time growth
5	Cannot get PC UCB for boot time growth
6	The downucb( ) failed to get PCs for boot time growth
7	Cannot get PIC UCB for boot time growth
8	ISC failed to allocate memory for boot time growth of PIC
9	Bad unit level for boot time growth
a	Cannot restore the PIC during boot time growth
b	The ioplevl( ) failed to get level of unit
c	Cannot get PC or PCSD UCB for boot time growth
d	ISC failed to allocate memory for boot time growth of PC or PCSD
e	Failed to restore a PIC which has no subunits
f	Cannot initialize PC scratch area during boot time growth
10	Cannot initialize PCSD scratch area during boot time growth
11	Cannot link to handler for boot time growth of PC
12	Cannot link to handler for boot time growth of PCSD
13	The UCB is unequipped during boot time due to the sharing of slot number (or pc id) with one PC already equipped.
14	The UCB is unequipped during boot time due to the sharing of subdevice id (or pcsd id) with other subdevice currently equipped.

Table 3-E. IODRV Error Codes (Growth and Degrowth) (Contd)

HEX Code	Error Description
1f	The UCB is unequipped during dynamic growth due to the sharing of slot number (or pc id) with one PC already equipped.
20	Bad unit level for dynamic growth
21	Cannot dynamically grow a unit; controlling unit is unequipped
22	Cannot get UCB of the controlling unit for dynamic growth
23	Unit has wrong major state for dynamic growth
24	Failed to initialize PIC during dynamic growth
25	Failed to initialize PC during dynamic growth
26	Failed to link to handler for dynamic growth of a PC
27	Failed to initialize PCSD during dynamic growth
28	Failed to link to handler for dynamic growth of a PCSD
29	Cannot get level of unit for dynamic growth
2a	Cannot get UCB of unit for dynamic growth
2b	ISC failed to allocate memory for dynamic growth of a unit
2c	Cannot get size of unit for dynamic growth
2d	Bad unit level during dynamic growth completion
2e	The grow( ) encountered bad unit level
2f	The UCB is unequipped during dynamic growth due to the sharing of sub-device id (or pcsd id) with other sub-device currently equipped.

Table 3-E. IODRV Error Codes (Growth and Degrowth) (Contd)

HEX Code	Error Description
30	ISC failed to deallocate memory for dynamic degrowth of a PIC
31	ISC failed to deallocate memory for dynamic degrowth of a PC
32	ISC failed to deallocate memory for dynamic degrowth of a PCSD
33	Invalid unit level during dynamic growth
34	Cannot dynamically degrow a unit; Below it there are equipped units
35	Unit has wrong major state for dynamic degrowth
36	Cannot link to handler for PC dynamic degrowth
37	Cannot link to handler for PCSD dynamic growth
38	The degrow( ) encountered unit level out of range
39	The degrow( ) encountered NULL pointer to IOP data area
40	The dyngrow( ) got bad op code for growth/degrowth
41	The dyngrow( ) failed to get UCB of unit

Table 3-F. Process Fault Code Definitions

HEX Code	Description
0	No fault (normal)
b0	Direct Memory Access (DMA) input/output (I/O) bus state is full disk limp mode
b1	Device reported error for programmed input/output
b2	Peripheral Interface Controller (PIC) fault for programmed (I/O) (Kernel process only)
b3	Processor fault for programmed input/output (Kernel Process only)
b4	Device reported error for DMA input/output
b5	DMA addressing fault for DMA input/output (Kernel Process only)
b6	PIC faulted for DMA input/output (Kernel Process only)
b7	Processor fault for DMA input/output (Kernel Process only)
b8	Device reported error – Peripheral input/output (PIO). No message
b9	PIC implicated – PIO in progress. No message sent with fault
ba	Addressing error – PIO in progress. No message associated with fault
bb	Data being used by the process has non-correctible parity error
bc	Message Buffer Audit fault for queued error messages
bd	Message Buffer Audit fault for nonqueued error messages
be	Direct Memory Access input/output (DIO) bus state is DUPLEX.
bf	DIO state is SIMPLEX.
c0	Craft initialization fault
c1	Recovery switch of processors is complete – sent from processor control process error interrupt handler to system integrity monitor and application integrity monitor
c2	Soft switch is complete – sent from processor control process error interrupt handler to system integrity monitor
c3	Configuration manager initialize request (Kernel Process only)

Table 3-F. Process Fault Code Definitions (Contd)

HEX Code	Description
c4	Configuration manager remove request
c5	Configuration manager remove request (kernel process only)
c6	Configuration manager limp mode (kernel process only)
c7	Configuration manager limp mode (kernel process only)
c8	Configuration manager manual/automatic diagnostic process (ADP) or routine remove (kernel process only)
c9	Unconditional remove (kernel process only)
ca	Request that a soft switch be done – sent from pcpmd to system integrity monitor (SIM)
cb	Routine soft switch – process control process error interrupt handler only – sent from system integrity monitor to processor control process error interrupt handler
cc	Configurationmanager remove under fault conditions (kernel process only)
cd	Nonsegmented kernel-level audit has been timed out by SIM.
d1	Memory management — page invalid or not in memory
d2	Memory management — page index too large
d3	Memory management — segment invalid
d4	Memory management — segment index too large
d5	Illegal operating system trap (OST)
d6	Protection violation
d7	Byte or halfword addressing violation
d8	Instruction privilege violation
d9	Illegal op code
da	Illegal switch between kernel and private stack
e0	Phase level 0 initialization
e1	System initialization
e2	System initialization – critical

Table 3-G. Process Manager Error Returns Table

Label	Value in X	Description of Returns
MSTYPERR	33	Message type not recognized.
MSNOLFILE	35	Library file does not exist.
MSNOSLOT	36	All process slots in use (pstart fail).
MSNOMEM	37	Insufficient memory for kernel process.
MSNOSWAP	38	Either all sides allocated or no swap space left.
MSREADERR	39	Unable to read a pfile or a library file.
MSTOOBIG	3A	Segment is too big for address space.
MSNOSHARE	3B	Cannot add shared segment to process.
MSTOOMANY	3C	Incarnation count is too big for one process.
MSNOPCB	3E	Cannot acquire PCB of terminating process.
MSFAULTED	3F	PMGR faulted, entered fault routine.
MSNUBFAULT	40	NUB faulted, entered fault routine.
MSCOPYERR	43	Bad ACK resulting from copyseg OST.
MSNOPFILE	44	The pfile (LDP output) does not exist.
MSNODFILE	46	Cannot open dump file.
MSWRTERR	47	Unable to write out a dump segment.
MSNOCAP	48	Cannot get capability of working directory.
MSCLSERR	49	Unable to close a file.
MSFROMERR	4C	Message from unauthorized process.
MSCNFSEG	4D	Created process has segment index overlay.
MSLIBERR	4E	Unable to lock shared library in memory.
MSALREADY	4F	Shared library already locked in memory.

Table 3-G. Process Manager Error Returns Table (Contd)

Label	Value in X	Description of Returns
MSTERMDLY	50	The term has already taken place (by proad).
MSNOPAS	51	The pfile calls for PAS, no PAS in system.
MSNOFORK	52	The fork request failed pcreate - super.
MSEDLM	53	Cannot create because in disk limp mode.
MSMODULE	54	A segment identification (segid) and index do not specify the same module.
MSPCBNDX	55	Bad pcb index - when EMM index must be less than partition boundary.
MSNOKPCB	56	The pfile does not specify pcb segment.
MSLOST	57	An ack message was lost or delayed.
MSSOOR	58	The pfile specifies an out-of-range segment index.

Table 3-H. Table of Panic Codes for AIM Phases

Task	Panic Code	Description
	10	Task/Proc requested a phase
	11	AIM internal faults caused phase
	12	No repetitive timer
	13	No PT_AIM; AIM cannot connect to the required port
	14	No PAS
	15	Cannot get SYSimsg
	16	Timed out waiting for SYSimsg
	17	Cannot get SANmsg
	18	Timed out waiting for SANmsg
	19	AIM could not schedule task
	1a	IMreqinit( ) failed for kernel
nodrv	20	APDRV could not be created, failed the initialization, or died (without AIM request).
msgout	21	No message buffers are available
sdeprf1	22	No sde's are available to create kernel process

Table 3-H. Table of Panic Codes for AIM Phases (Contd)

Task	Panic Code	Description
sdelow	23	There is less than 50 free sde's
dctcrit	24	No DCTs are available for process creation
klock	25	SIM has not received heartbeat from level 3 monitor for 20 seconds
reqrtr1	26	A child process requested a RTR level 51
reqrtr2	27	A child process requested a RTR level 52
reqrtr3	28	A child process requested a RTR level 53
monfai	29	Real-time monitoring of a process failed
memkpf1	2a	Not enough main memory to create non-swappable kernel process

Table 3-I. Error Codes Generated by Off-Line Boot - All Reasons Happened on the Off-Line Side

Code (Hex)	Description
00	Received disk independent operation start operating system trap (OST)
01	Received OLBCONFIG event outside a side switch
02	Received OLBABORT event outside a side switch
03	Received fault CMC or CMB
04	Received fault CMAN, CMA, or UCLRMV
05	Cannot re-enter EXC_OFLECD state when initialization level 2 (INITLVL 2) is specified
06	Cannot build original state tables for control unit 0 (CU 0)
07	Cannot build original state tables for CU 1
08	Cannot build original state tables for dual serial channel (DSCHs)
09	Cannot build original state tables for disk file controller (DFCs)
10	Cannot build original state tables for input/output controllers (IOPs)
11	Cannot unequip units in the off-line equipment configuration database (ECD)
12	Received OLBCONFIG event during side switch
13	Entered disk independent operation (DIOP) during side switch
14	Cannot access unit control block (UCB) record of unit being removed during a side switch
15	Cannot mark maintenance teletypewriter (MTTY) UCB record as nonessential for removal

Table 3-I. Error Codes Generated by Off-Line Boot - All Reasons Happened on the Off-Line Side (Contd)

Code (Hex)	Description
16	Cannot mark switching control center (SCC), read only printer (ROP), or scanner and signal distributor controller (SCSDC) UCB record as nonessential for removal
17	Attempted to remove a unit that was not an MTTY, ROP, SCC, or SCSDC during a side switch
18	Cannot send message to input/output driver (IODRV) to remove a unit during a side switch
19	Cannot access UCB record of unit being degrown during a side switch
20	Attempted to degrow a unit that was not an MTTY, ROP, SCC, or SCSDC during a side switch
21	Cannot update UCB record to UNEQUIP during a side switch
22	Cannot send message to IODRV to degrow a unit during a side switch
23	Cannot send an maintenance channel (MCH) interrupt from the off-line to the on-line
24	Cannot unequip CU community during an off-line boot
25	Cannot unequip DFC communities during an off-line boot
26	Cannot unequip IOP communities during an off-line boot
27	Cannot unequip MTTYC subunits during an off-line boot
28	Called modify_ecd(SPLIT) from the wrong off-line boot state
29	Called modify_ecd() with an invalid argument
30	Disk forces were not set
31	Corrupted internal tables
32	Cannot access UCB record
33	Corrupted internal tables or corrupted UCB record device type

Table 3-I. Error Codes Generated by Off-Line Boot - All Reasons Happened on the Off-Line Side (Contd)

Code (Hex)	Description
34	Cannot update a community's UCB records as UNEQIP during an off-line boot
35	Cannot determine which IOPs to unequip during an off-line boot
36	Cannot unequip an IOP peripheral controller's subunits during an off-line boot
37	Failed to restore TTY to original state after unequipping all peripheral control (PC) units
38	Cannot update to UNEQIP a UCB record during an off-line boot
39	Failed to restore PC to original state after unequipping it
40	Corrupted ECD; exceeded number of PCs per IOP
41	Cannot determine which MTTYC subunits need to be unequipped
42	Corrupted IOP mask
43	Called unequip_mtty() from the wrong off-line boot state
44	Cannot remove an MTTYC sub-unit during a side switch
45	Cannot unequip MTTYC subunits after becoming off-line (SW_POST)
46	Cannot unequip SCSDC units after becoming off-line (SW_POST)
47	The off-line side was halted after a hard switch
48	Exceeded error threshold of the other CU

Table 3-J. DSCH Status Layout

Bit	Description
00	Low return code
01	Low return code high three bits
02	Low return code
03	High return code
04	High return code high three bits
05	High return code
06	Channel busy f-f
07	I/O inhibit override f-f
08	Sequencer error
09	Illegal 3-out-of-6 device address
10	Command error
11	Channel error (or of previous command)
12	Maintenance f-f

Table 3-K. BIC Status Layout

Bit	Description
00	Device address
01	Device address
02	Device address
03	Device address
04	Direct memory access (DMA) setup overwrite
05	Peripheral bus interface (PBI) parity error - byte 0
06	PBI parity error - byte 1
07	PBI parity error - byte 2
08	PBI parity error - byte 3
09	End of Data (EOD) error
10	Peripheral interface controller (PIC) fatal error summary
11	PIC sanity error
12	PIC data bus parity error - low byte
13	PIC data bus parity error - high byte
14	Data first-in first-out (FIFO) overflow/underflow
15	Command register overflow
16	FIFO word count
17	FIFO word count

Table 3-K. BIC Status Layout (Contd)

Bit	Description
18	FIFO word count
19	FIFO word count
20	FIFO word count
21	Interrupt
22	Transfer
23	Setup
24	EOD expected
25	EOD received
26	Transfer mode (0=word, 1=block)
27	Enable PIC data bus parity check
28	Interface enabled
29	Data flag (0=3B, 1=PIC)
30	Command in progress
31	Command present flag

Abbreviations

A

AALU
Arithmetic Logic Unit

ACHI
Application Channel Interface

ACI
AT&T Communications Interface

AIM
Application Integrity Monitor

ALU
Arithmetic Logic Unit

AM
Administrative Module

AM
Application Module

AMA
Address Message Accounting

AP
Array Pointer

APDRV
Attached Process Driver

API
Attached Processor Interface

APPDB
Application Data Base

SHEET 1 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-5 : SPEC-luc043a : GM VER. 2.5a

APS
Attached Processor System

ASW
All-Seems-Well

ATB
Address Translator Buffer

ATP
All Tests Passed

B

BAL
Blocked Address List

BDU
Bus Display Unit

BGR
Bidirectional Gating Register

BIC
Bus Interface Controller

BLM
Base Level Maintenance

BOC
Bell Operating Company

BTDB
Boot Time Data Base

BWM
Broadcast Warning Message

SHEET 2 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-5 : SPEC-luc043a : GM VER. 2.5a

C

CAM
Dual Access Memory

CAR
Channel Address Register

CATP
Conditional All Tests Passed

CC
Central Control

CCB
Cache Control Block

CCIO
Central Control Input/Output

CCIS
Common Channel Interoffice Signaling

CDR
Channel Data Register

CDRP
Call Detail Reporting Platform

CFR
Common File Reader

CFT
Craft Initialization

CH
Channel

CHK
Check

SHEET 3 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-5 : SPEC-luc043a : GM VER. 2.5a

CLLI
Common Language Location Identifier

CMGR
Capability Manager

CNI
Common Network Interface

COMGR
Command Groups

CONFIG
Configuration

CPU
Central Processing Unit

CSOP
Coordinator of Spooler Output Processes

CSU
Cache Store Unit

CU
Control Unit

CUD
Current Update Database

CUS
Control Unit Status

SHEET 4 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-5 : SPEC-luc043a : GM VER. 2.5a

D

DADC
Direct Access Data Channel

DBS
Duplex Bus Selector

DCC
Data Consistency Check

DCI
Dual Serial Channel/Computer Interconnect

DCT
Direct Connect Trunks

DCTE
Dispatcher Control Table Entry

DDSBS
Duplex Dual Serial Bus Selector

DFC
Disk File Controller

DIO
DMA Input/Output

DIOP
Disk Independent Operation

DKDRV
Disk Drive

DLN
Direct Link Node

DLNCM
Direct Link Node Configuration Manager

SHEET 5 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-5 : SPEC-luc043a : GM VER. 2.5a

DLNSC
Direct Link Node Service Complex

DMA
Direct Memory Access

DMAC
Direct Memory Access Controller

DMCH
Direct Memory Access Channel

DMERT
Duplex Multi-Environment Real-Time Operating System

DMS
Digital Multiplex System

DMU
Data Manipulation Unit

DSCH
Dual Serial Channel

DSDC
Direct Services Dialing Capability

DUI
Direct User Interface

DUIC
Direct User Interface Controller

SHEET 6 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-5 : SPEC-luc043a : GM VER. 2.5a

E

EAI
Emergency Action Interface

ECD
Equipment Configuration Data Base

ECDMAN
Equipment Configuration Database Manager

EIH
Error Interrupt Handler

EIR
Enhanced Information Report

EIW
Error Information Word

EPAV
Enhanced Preassigned Values

ER
Error Register

F

FMGR
File Manager

FOFL
Forced Off-line

FONL
Forced On-line

SHEET 7 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-5 : SPEC-luc043a : GM VER. 2.5a

FP
Foundation Peripheral

FPC
Foundation Peripheral Control

FPI
Full Process Initialization

FTA
File Transfer and Activation

FTS
Field Test Set

G

GRASP
Generic Access Package

GTT
Global Title Translations

H

HA Host Adapter

HDB
Hole Descriptor Block

HSD
High-Speed Synchronous Data

SHEET 8 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-5 : SPEC-luc043a : GM VER. 2.5a

HSDC
High-Speed Synchronous Data Controller

HSR
Hardware Status Register

I

I/O
Input/Output

IB
Instructor Register

IC
Incoming Call

ICDR
International Call Detail Recording

ICMP
Internet Control Message Protocol

IM
Input Message

IMS
Interprocess Message Switch

INIT
Initialization

IODRV
Input/Output Driver

IOMI
Input/Output Microprocessor Interface

SHEET 9 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-5 : SPEC-luc043a : GM VER. 2.5a

IOP
Input/Ouput Processor

IP
Internet Protocol

IPB
Initialization Parameter Buffer

IS
Interrupt Set

ISC
Initialization Sequence Control

ISUP
Integrated Services User Part

ivec
Interrupt Vector

K

KBOOT
Kernel Boot

L

LDFT
Load Disk From Tape

LN
Link Node

SHEET 10 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-5 : SPEC-luc043a : GM VER. 2.5a

M

MAEC
Media Access Error Counter

MASC
Main Store

MASU
Main Store Update

MC
Measurement Classes

MCC
Maintenance Control Center

MCH
Maintenance Channel

MHD
Moving Head Disk

MIR
Microinstruction Register

MIRA
Maintenance Input Request Administrator

MLTS
Micro Level Test Set

MM
Main Memory

MMGR
Memory Manager

MRF
Maintenance Reset Function

SHEET 11 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-5 : SPEC-luc043a : GM VER. 2.5a

MRVT
MTP Routing Verification Test

MSA
Microstore Address Bus

MSD
Microstore Data Bus

MSGBUF
Message Buffer

MT
Magnetic Tape

MTC
Magnetic Tape Controller

MTTY
Maintenance Teletypewriter

MTTYC
Maintenance Teletypewriter Controller

N

NDLM
No Disk Limp Mode

NSCX
Network Services Complex

NTR
No Tests Run

NVLMM
Non-Very Large Main Memory

SHEET 12 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-5 : SPEC-luc043a : GM VER. 2.5a

O

OC
Outgoing Call

ODA
Office Data Assembler

OMDB
Output Message Data Base

OOS
Out of Service

OST
Operating System Trap

P

PAR
Program Address Register

PAS
Protected Application Segment

PAUTH
Person Authority Relation

PC
Peripheral Controller

PCB
Process Control Block

PCPEIH
Process Control Process Error Interrupt Handler

SHEET 13 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-5 : SPEC-luc043a : GM VER. 2.5a

PCPMD
Process Control Process Message Delivery

PCSD
Peripheral Control Subdevice

PDE
Page Descriptor Entry

PDT
Page Descriptor Table

PIC
Peripheral Interface Controller

PICERR
Peripheral Interface Controller Error Status Register

PID
Process Identification

PINIT
Processor Initialization

PML
Plant Measurement Library

PMS
Picturephone Meeting Service

PPR
Pulse Point Register

PRM
Processor Recovery Message

PROM
Programmable Read-Only Memory

PSW
Program Status Word

SHEET 14 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-5 : SPEC-luc043a : GM VER. 2.5a

R

RALU
Register & Arithmetic Logic Unit

RAM
Random Access Memory

RC/V
Recent Change and Verify

REX
Routine Exercise

RID
Record Identification

ROM
Read Only Memory

ROP
Receive-Only Printer

RPC
Ring Peripheral Controller

RPCN
Ring Peripheral Controller Node

RST
Restore

RTR
Real Time Reliable

RTS
Real Time Status

SHEET 15 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-5 : SPEC-luc043a : GM VER. 2.5a

S

SAC
Store Address Control

SAR
Store Address Register

SAS
Stop and Switch

SAT
Store Address Translator

SBUS
SCSI Bus

SC/SD
Scanner & Signal Distributor

SCC
Switching Control Center

SCCP
Signaling Connections Control Point

SCH
Serial Channel

SCP
Software Change Package

SCR
Store Control Register

SCSDC
Scanner & Signal Distributor Controller

SCSI
Small Computer System Interface

SHEET 16 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-5 : SPEC-luc043a : GM VER. 2.5a

SDE
Segment Descriptor Entry

SDF
Subscriber Digital Facility

SDL
Synchronous Data Link

SDLC
Synchronous Data-Link Controller

SDP
Service Delivery Point

SDP
Software Demand Paging

SDP
Software Development Process

SDR
Store Data Register

SG
System Generation

SIM
System Integrity Monitor

SIR
Store Instruction Register

SLK
Signaling Link

SLMK
Signaling Link Monitor Kernel

SMD
Storage Module Device

SHEET 17 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-5 : SPEC-luc043a : GM VER. 2.5a

SRVT
SCCP Verification Test

SSP
Service Switching Point

SSR
System Status Register

SU
Software Update

SYSGEN
System Generation

T

TAUTH
Terminal Authority Relation

TDAS
Traffic Data Administration System

TL
Test Link

TLP
Trouble Locating Procedure

TOP
Tape Only Program

TOP
Task Oriented Practice

TPC
Translation Point Code

SHEET 18 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-5 : SPEC-luc043a : GM VER. 2.5a

TSC
Temporary Signaling Connection

TTY
Teletypewriter

TTYC
Teletypewriter Controller

U

UC
Utility Circuit

UCB
Unit Control Block

UID
Utility Identification

ULARP
User Level Automatic Restart Process

V

VFL
Voice Frequency Link

VLMM
Very Large Main Memory

VTOC
Volume Table of Contents

SHEET 19 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-5 : SPEC-luc043a : GM VER. 2.5a

W

WMS
Writable Microstore

Notes

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PRM_Z 5555 5555 5555 5555 xx xx xx, 3A-6
PRM_Z AAAA AAAA AAAA AAAA xx xx xx, 3A-5
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Identifier 0 — Processor Initialization Microcode PRMs, 1-2, 3-1
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PRM_p E0da 0200 0000 0000 hh hh hh, 3-4

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Identifier 0 — Processor Initialization
Microcode PRMs (Continued)
PRM_p E0da 030z 0000 0000 hh hh hh, 3-6
PRM_p E0da 0400 0000 0000 hh hh hh, 3-8
PRM_p E0da 0500 0000 0000 hh hh hh, 3-9
PRM_p E0da 0600 0000 0000 hh hh hh, 3-11
PRM_p E0da 070z 0000 0000 hh hh hh, 3-12
PRM_p F0da 080z 0000 0000 hh hh hh, 3-14
PRM_p F0da 0900 0000 0000 hh hh hh, 3-17
PRM_p F0da 0A0z 0000 0000 hh hh hh, 3-19
PRM_p F0da 0B0z 0000 0000 hh hh hh, 3-21
PRM_p F0da 0C0z 0000 0000 hh hh hh, 3-23
PRM_p F0da 0D0z 0000 0000 hh hh hh, 3-25
PRM_p F0da 0E0z 0000 0000 hh hh hh, 3-27
PRM_p F0da 0F0z 0000 0000 hh hh hh, 3-29
PRM_p F0da 100z 0000 0000 hh hh hh, 3-31
PRM_p F0da 110z 0000 0000 hh hh hh, 3-33
PRM_p F0da 140z 0000 0000 hh hh hh, 3-35
PRM_p F0da 150z 0000 0000 hh hh hh, 3-37
PRM_p F0da 160z 0000 0000 hh hh hh, 3-39
PRM_p F0da 170z 0000 0000 hh hh hh, 3-41
Identifier 0 — Processor Initialization
Microcode PRMs (Continued)
PRM_p F0da 180z 0000 0000 hh hh hh, 3-43
PRM_p F0da 190z 0000 0000 hh hh hh, 3-44
PRM_p F0da 1C0z 0000 0000 hh hh hh, 3-46
PRM_p F0da 1D0z 0000 0000 hh hh hh, 3-48
PRM_p F0da 1E0z 0000 0000 hh hh hh, 3-50
PRM_p F0da 2000 0000 0000 hh hh hh, 3-52
PRM_p F0da 210z 0000 0000 hh hh hh, 3-53
PRM_p F0da 220z 0000 0000 hh hh hh, 3-56
PRM_p F0da 230z 0000 0000 hh hh hh, 3-59
PRM_p F0da 2400 0000 0000 hh hh hh, 3-62
PRM_p F0da 2500 0000 0000 hh hh hh, 3-63
PRM_p F0da 2600 0000 0000 hh hh hh, 3-64
PRM_p F0da 2700 0000 0000 hh hh hh, 3-65
PRM_p F0da 2800 0000 0000 hh hh hh, 3-66
PRM_p F0da 2900 0000 0000 hh hh hh, 3-67
PRM_p F0da 2A00 0000 0000 hh hh hh, 3-69
PRM_p F0da 2B00 0000 0000 hh hh hh, 3-70
PRM_p F0da 2C00 0000 0000 hh hh hh, 3-71
PRM_p F0da 2D00 0000 0000 hh hh hh, 3-72

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Identifier 0 — Processor Initialization
Microcode PRMs (Continued)
PRM_p F0da 2E00 0000 0000 hh hh hh, 3-73
PRM_p F0da 2F00 0000 0000 hh hh hh, 3-74
PRM_p F0da 3000 0000 0000 hh hh hh, 3-75
PRM_p F0da 3100 0000 0000 hh hh hh, 3-76
PRM_p F0da 480z 0000 0000 hh hh hh, 3-77
PRM_p F0da 4900 0000 0000 hh hh hh, 3-80
PRM_p F0da 4A0z 0000 0000 hh hh hh, 3-82
PRM_p F0da 4B0z 0000 0000 hh hh hh, 3-84
PRM_p F0da 4C0z 0000 0000 hh hh hh, 3-86
PRM_p F0da 4D0z 0000 0000 hh hh hh, 3-88
PRM_p F0da 4E0z 0000 0000 hh hh hh, 3-90
PRM_p F0da 4F0z 0000 0000 hh hh hh, 3-92
PRM_p F0da 500z 0000 0000 hh hh hh, 3-94
PRM_p F0da 510z 0000 0000 hh hh hh, 3-96
PRM_p F0da 540z 0000 0000 hh hh hh, 3-98
PRM_p F0da 550z 0000 0000 hh hh hh, 3-100
PRM_p F0da 560z 0000 0000 hh hh hh, 3-102
PRM_p F0da 570z 0000 0000 hh hh hh, 3-104
PRM_p F0da 580z 0000 0000 hh hh hh, 3-106
Identifier 0 — Processor Initialization
Microcode PRMs (Continued)
PRM_p F0da 590z 0000 0000 hh hh hh, 3-107
PRM_p F0da 5C0z 0000 0000 hh hh hh, 3-109
PRM_p F0da 5D0z 0000 0000 hh hh hh, 3-111
PRM_p F0da 5E0z 0000 0000 hh hh hh, 3-113
PRM_p F0da 5F0z 0000 0000 hh hh hh, 3-115
PRM_p F0da 6000 0000 0000 hh hh hh, 3-117
PRM_p F0da 6100 0000 0000 hh hh hh, 3-118
PRM_p F0da 61yz 0000 0000 hh hh hh, 3-119
PRM_p F0da 62yz 0000 0000 hh hh hh, 3-121
PRM_p F0da 63yz 0000 0000 hh hh hh, 3-122
PRM_p F0da 64yz 0000 0000 hh hh hh, 3-124
PRM_p F0da 65yz 0000 0000 hh hh hh, 3-126
PRM_p F0da 66yz 0000 0000 hh hh hh, 3-128
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PRM_p F0da 68yz 0000 0000 hh hh hh, 3-131
PRM_p F0da 69yz 0000 0000 hh hh hh, 3-133
PRM_p F0da 6Ayz 0000 0000 hh hh hh, 3-135
PRM_p F0da 6Byz 0000 0000 hh hh hh, 3-137
PRM_p F0da 6Cyz 0000 0000 hh hh hh, 3-139

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Identifier 0 — Processor Initialization
Microcode PRMs (Continued)
PRM_p F0da 6Dyz 0000 0000 hh hh hh, 3-140
PRM_p F0da 6Eyz 0000 0000 hh hh hh, 3-141
PRM_p F0da 6Fyz 0000 0000 hh hh hh, 3-142
PRM_p F0da 70yz 0000 0000 hh hh hh, 3-143
PRM_p F0da 71yz 0000 0000 hh hh hh, 3-145
PRM_p F0da FF04 xx00 0000 hh hh hh, 3-147
Identifier 1 — LBOOT and LDFT
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PRM_p E1da 51xx xxxx yyyy hh hh hh, 3-17
PRM_p E1da 54xx yyyy yyyy hh hh hh, 3-20
PRM_p E1da 5700 000x xxxx hh hh hh, 3-24
PRM_p E1da 58xx xxxx xxyy hh hh hh, 3-25
PRM_p E1da 59xx x000 00zz hh hh hh, 3-26
PRM_p E1da 7100 x00y yyyy hh hh hh, 3-42
PRM_p E1da 7400 xxyy 0000 hh hh hh, 3-44
PRM_p E1da 78xx xxxx xxyy hh hh hh, 3-45
PRM_p E1da 79xx x000 00zz hh hh hh, 3-46
PRM_p E1da 8800 xxxx 000y hh hh hh, 3-48
PRM_p E1da 8900 0000 000x hh hh hh, 3-49
PRM_p E1da 983B 10AD 10AD hh hh hh, 3-50
Identifier 1 — LBOOT and LDFT
PRMs (Continued)
PRM_p E1da 993B 10AD 10AD hh hh hh, 3-51
PRM_p E1da DDtw xxyy yzzz hh hh hh, 3-52
PRM_p F1da 0100 0000 xyyy hh hh hh, 3-2
PRM_p F1da 0400 0000 xxxx hh hh hh, 3-3
PRM_p F1da 0500 0000 0000 hh hh hh, 3-4
PRM_p F1da 0700 0000 yyyy hh hh hh, 3-5
PRM_p F1da 0A00 00xx 0000 hh hh hh, 3-6
PRM_p F1da 0B00 0000 0000 hh hh hh, 3-8
PRM_p F1da 10ww xxxx y00z hh hh hh, 3-9
PRM_p F1da 2000 xxxx xxxx hh hh hh, 3-11
PRM_p F1da 2100 0000 yyyy hh hh hh, 3-12
PRM_p F1da 22tt wwww xyzz hh hh hh, 3-13
PRM_p F1da 5200 xxxx yyyy hh hh hh, 3-18
PRM_p F1da 5300 0000 xxxx hh hh hh, 3-19
PRM_p F1da 55xx xxxx xxyy hh hh hh, 3-22
PRM_p F1da 56xx xxxx xxyy hh hh hh, 3-23
PRM_p F1da 6000 xxxx xxxx hh hh hh, 3-28
PRM_p F1da 6100 xxxx xxxx hh hh hh, 3-29
PRM_p F1da 6200 0000 xxxx hh hh hh, 3-30

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Identifier 1 — LBOOT and LDFT PRMs (Continued)
PRM_p F1da 6300 00xx 0000 hh hh hh, 3-31, 3-33
PRM_p F1da 6400 0000 xxxx hh hh hh, 3-35
PRM_p F1da 6500 xxxx xxxx hh hh hh, 3-36
PRM_p F1da 6600 xxxx 0000 hh hh hh, 3-37
PRM_p F1da 6700 0000 00xx hh hh hh, 3-38
PRM_p F1da 6800 xxxx xxxx hh hh hh, 3-39
PRM_p F1da 6900 0000 0000 hh hh hh, 3-40
PRM_p F1da 7000 000x 0000 hh hh hh, 3-41
PRM_p F1da 7200 0000 0000 hh hh hh, 3-43
Identifier 1 — Little Boot and Load Disk from Tape (LDFT) PRMS, 1-3
Identifier 1 — Little Boot and Load Disk from Tape PRMs, 1-2
Identifier 2 — Processor Initialization (PINIT) PRMs, 1-3
Identifier 2 — Processor Initialization PRMs, 1-2, 3-1
Identifier 3 — BBOOT PRMs, 3-1
PRM_p E3da 360x yyyy yyyy hh hh hh, 3-28
PRM_p E3da 3700 0000 0000 hh hh hh, 3-30
PRM_p E3da 3800 zzzz zzzz hh hh hh, 3-31
PRM_p E3da DDtw xxyy yzzz hh hh hh, 3-35
PRM_p F3da 0100 0000 xyyy hh hh hh, 3-2
Identifier 3 — BBOOT PRMs (Continued)
PRM_p F3da 0200 0000 xyyy hh hh hh, 3-3
PRM_p F3da 0300 0000 xxxx hh hh hh, 3-4
PRM_p F3da 0400 0000 0xyy hh hh hh, 3-5
PRM_p F3da 0500 0000 0xyy hh hh hh, 3-7
PRM_p F3da 0600 0000 0xyy hh hh hh, 3-9
PRM_p F3da 07xx yyyy yyyy hh hh hh, 3-11
PRM_p F3da 09xx yzzz zzzz hh hh hh, 3-13
PRM_p F3da 1000 xxxx xxxx hh hh hh, 3-15
PRM_p F3da 2000 xxxx xxxx hh hh hh, 3-16
PRM_p F3da 21ww x000 yzzz hh hh hh, 3-17
PRM_p F3da 22tt wwww xy0z hh hh hh, 3-19
PRM_p F3da 3100 0000 0000 hh hh hh, 3-21
PRM_p F3da 3200 0000 0000 hh hh hh, 3-22
PRM_p F3da 3300 0000 0000 hh hh hh, 3-23
PRM_p F3da 340x yyyy yyyy hh hh hh, 3-24
PRM_p F3da 3500 zzzz zzzz hh hh hh, 3-26
PRM_p F3da 5300 0000 0000 hh hh hh, 3-33
PRM_p F3da 63x0 yy00 0000 hh hh hh, 3-34
Identifier 3 — Big Boot PRMs, 1-2, 1-3

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Identifier 4 — KBOOT PRMs, 3-1
PRM_p E4da DDtw xxyy yzzz hh hh hh, 3-37
PRM_p F4da 0100 0000 00xx hh hh hh, 3-2
PRM_p F4da 0200 0000 00xx hh hh hh, 3-3
PRM_p F4da 0300 0000 00xx hh hh hh, 3-4
PRM_p F4da 0400 xx00 00yy hh hh hh, 3-5
PRM_p F4da 0500 0000 00xx hh hh hh, 3-6
PRM_p F4da 0600 0000 00xx hh hh hh, 3-7
PRM_p F4da 0700 0000 0000 hh hh hh, 3-8
PRM_p F4da 0800 0000 0000 hh hh hh, 3-9
PRM_p F4da 0900 0000 0000 hh hh hh, 3-10
PRM_p F4da 0A00 0000 00xx hh hh hh, 3-11
PRM_p F4da 0B00 0000 00xx hh hh hh, 3-12
PRM_p F4da 0C00 0000 00xx hh hh hh, 3-13
PRM_p F4da 0D00 0000 0000 hh hh hh, 3-14
PRM_p F4da 0E00 0000 0000 hh hh hh, 3-15
PRM_p F4da 0F00 0000 00xx hh hh hh, 3-16
PRM_p F4da 1000 0000 00xx hh hh hh, 3-17
PRM_p F4da 1100 0000 00xx hh hh hh, 3-18
PRM_p F4da 1200 xx00 00yy hh hh hh, 3-19
Identifier 4 — KBOOT PRMs (Continued)
PRM_p F4da 1300 0000 0000 hh hh hh, 3-20
PRM_p F4da 1400 0000 00xx hh hh hh, 3-21
PRM_p F4da 1500 xx00 00yy hh hh hh, 3-22
PRM_p F4da 1600 0000 00xx hh hh hh, 3-23
PRM_p F4da 1700 0000 00xx hh hh hh, 3-24
PRM_p F4da 1800 0000 00xx hh hh hh, 3-25
PRM_p F4da 1900 xx00 00yy hh hh hh, 3-26
PRM_p F4da 1A00 0000 0000 hh hh hh, 3-27
PRM_p F4da 1B00 0000 0000 hh hh hh, 3-28
PRM_p F4da 1C00 0000 0000 hh hh hh, 3-29
PRM_p F4da 1D00 xx00 00yy hh hh hh, 3-30
PRM_p F4da 1E00 0000 00xx hh hh hh, 3-31
PRM_p F4da 1F00 0000 0000 hh hh hh, 3-32
PRM_p F4da 2000 xxxx xxxx hh hh hh, 3-33
PRM_p F4da 2100 xx00 00yy hh hh hh, 3-34
PRM_p F4da 2200 xx00 00yy hh hh hh, 3-35
Identifier 4 — Kernel Boot (KBOOT) PRMs, 1-4
Identifier 4 — Kernel Boot PRMs, 1-2
Identifier 5 — Error Interrupt Handler, 1-2
PRM_p E5da 01xx yyyy 0000 hh hh hh, 3-2

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Identifier 5 — Error Interrupt Handler (Continued)
PRM_p E5da 04xx yyyy 0000 hh hh hh, 3-9
PRM_p E5da 05xx yyyy zzzz hh hh hh, 3-11
PRM_p E5da 06xx yyyy zzzz hh hh hh, 3-12
PRM_p E5da 07xx yyyy zzzz hh hh hh, 3-14
PRM_p E5da 08xx yyyy zzzz hh hh hh, 3-16
PRM_p E5da 09xx yyyy 0000 hh hh hh, 3-18
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PRM_p E5da 0Exx yyyy 0000 hh hh hh, 3-28
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PRM_p E5da 15xx yyyy 0000 hh hh hh, 3-40
PRM_p E5da 16xx yyyy zzzz hh hh hh, 3-41
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PRM_p E5da 20xx yyyy zzzz hh hh hh, 3-53
PRM_p E5da 21xx yyyy zzzz hh hh hh, 3-55
PRM_p E5da 22xx yyyy zzzz hh hh hh, 3-56
PRM_p E5da 23xx yyyy 0000 hh hh hh, 3-57
PRM_p E5da 24xx yyyy zzzz hh hh hh, 3-59
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PRM_p E5da 28xx yyyy 0000 hh hh hh, 3-67
PRM_p E5da 29xx yyyy zzzz hh hh hh, 3-69
PRM_p E5da 30ww xxxx yyzz hh hh hh, 3-72
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PRM_p E5da DDtw xxyy yzzz hh hh hh, 3-74
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PRM_p E5da F0xx yyyy zzzz hh hh hh, 3-102
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PRM_p F5da 0Fxx yyyy 0000 hh hh hh, 3-30
PRM_p F5da 10xx yyyy 0000 hh hh hh, 3-31
PRM_p F5da 14xx yyyy 0000 hh hh hh, 3-39
PRM_p F5da 1Exx yyyy 0000 hh hh hh, 3-51, 3-52
PRM_p F5da E2xx yyyy 0000 hh hh hh, 3-78
PRM_p F5da E4xx yyyy 0000 hh hh hh, 3-83
PRM_p F5da E5xx yyyy zzzz hh hh hh, 3-84
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PRM_p F5da EDxx yyyy zzzz hh hh hh, 3-94
PRM_p F5da EFww xxxx yyzz hh hh hh, 3-98
PRM_p F5da F3xx yyyy zzzz hh hh hh, 3-109
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PRM_p F6da 80ww zzzz zzzz hh hh hh, 3-61
PRM_p F6da F0wx xxyy yzzz hh hh hh, 3-65
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PRM_p v6da 71w0 xxyy yzzz hh hh hh, 3-40
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PRM_p v6da 75w0 xxyy yzzz hh hh hh, 3-52
PRM_p v6da 76w0 xxyy yzzz hh hh hh, 3-55
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PRM_p E7da 02wx xxyy zzzz hh hh hh, 3-4
PRM_p E7da 030x xxyy zzzz hh hh hh, 3-6
PRM_p E7da 040x xxyy zzzz hh hh hh, 3-8
PRM_p E7da 050x xxyy zzzz hh hh hh, 3-11
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PRM_p E7da 0800 0000 zzzz hh hh hh, 3-15
PRM_p E7da 0F0x xxyy zzzz hh hh hh, 3-23
PRM_p E7da 200y yyzz tttt hh hh hh, 3-25
PRM_p E7da 2100 0000 0000 hh hh hh, 3-29
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PRM_p E7da 510y yyzz 0000 hh hh hh, 3-31
PRM_p E7da 520y yyzz tttt hh hh hh, 3-32
PRM_p E7da 530y yyzz 0000 hh hh hh, 3-34
PRM_p E7da 540y yyzz 0000 hh hh hh, 3-35
PRM_p E7da 550y yyzz 0000 hh hh hh, 3-36
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PRM_p E7da 700y yyzz 0000 hh hh hh, 3-43
PRM_p E7da 710y yyzz 0000 hh hh hh, 3-44
PRM_p E7da 720y yyzz 0000 hh hh hh, 3-45
PRM_p E7da 730y yyzz 0000 hh hh hh, 3-46
PRM_p E7da 740y yyzz 0000 hh hh hh, 3-47
PRM_p E7da 750y yyzz 0000 hh hh hh, 3-48
PRM_p E7da 80xx yyyy yyyy hh hh hh, 3-49

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PRM_p E7da 87xx yyyy yyyy hh hh hh, 3-54
PRM_p E7da 88xx yyyy yyyy hh hh hh, 3-56
PRM_p E7da 90D5 xxxx xxxx hh hh hh, 3-58
PRM_p E7da 91yy zzzz zzzz hh hh hh, 3-59
PRM_p E7da DDtw xxyy yzzz hh hh hh, 3-61
PRM_p F7da 0B0x xxyy zzzz hh hh hh, 3-16
PRM_p F7da 0C0x xxyy zzzz hh hh hh, 3-18
PRM_p F7da 0D0x xxyy zzzz hh hh hh, 3-21
PRM_p F7da 200y yyzz tttt hh hh hh, 3-27
PRM_p F7da F000 zzzz yyyy hh hh hh, 3-63
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PRM_p E8da 00xx yyzz zzzz hh hh hh, 3-5, 3-6
PRM_p E8da 0Exx yyyy yyyy hh hh hh, 3-16
PRM_p E8da 0Fxx yyyy yyyy hh hh hh, 3-17
PRM_p E8da DDtw xxyy yzzz hh hh hh, 3-40
PRM_p F8da 01xx yyyy yyyy hh hh hh, 3-7
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PRM_p F8da 02xx yyyy yyyy hh hh hh, 3-8
PRM_p F8da 04xx yyyy yyyy hh hh hh, 3-9
PRM_p F8da 06xx yyyy yyyy hh hh hh, 3-10
PRM_p F8da 0700 0000 0000 hh hh hh, 3-11
PRM_p F8da 08xx yyyy yyyy hh hh hh, 3-12
PRM_p F8da 0900 0000 xxxx hh hh hh, 3-13
PRM_p F8da 0Cxx yyyy yyyy hh hh hh, 3-14
PRM_p F8da 0D00 0000 0000 hh hh hh, 3-15
PRM_p F8da 1000 xxyy yyyy hh hh hh, 3-18
PRM_p F8da 1100 xxyy yyyy hh hh hh, 3-19
PRM_p F8da 1200 xxyy yyyy hh hh hh, 3-20
PRM_p F8da 13xx yyzz zzzz hh hh hh, 3-21, 3-23
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PRM_p F8da 16xx yyzz zzzz hh hh hh, 3-29
PRM_p F8da 17xx yyzz zzzz hh hh hh, 3-31
PRM_p F8da 18xx yyzz zzzz hh hh hh, 3-33, 3-35
PRM_p F8da 19xx yyyy yyyy hh hh hh, 3-37
PRM_p F8da 1Axx yyyy yyyy hh hh hh, 3-39

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PRM_p E9da 0B00 xx00 yyyy hh hh hh, 3-13
PRM_p E9da 0C0w xxyy zzzz hh hh hh, 3-15
PRM_p E9da 0D0w xxyy zzzz hh hh hh, 3-17
PRM_p E9da 0E00 xxyy zzzz hh hh hh, 3-21, 3-25
PRM_p E9da 0F00 xxyy zzzz hh hh hh, 3-27
PRM_p E9da 1700 0000 0000 hh hh hh, 3-38
PRM_p E9da 1800 0000 0000 hh hh hh, 3-39
PRM_p E9da 1900 xxxx xxxx hh hh hh, 3-40
PRM_p E9da 1A0w xxyy yzzz hh hh hh, 3-41
PRM_p E9da 1Cxx yyyy yyyy hh hh hh, 3-47, 3-48
PRM_p E9da 1Exx yyzz 0000 hh hh hh, 3-49
PRM_p E9da 1F00 xxxx xxxx hh hh hh, 3-29
PRM_p E9da 36xx xyyy zzzz hh hh hh, 3-53
PRM_p E9da 7300 0000 0000 hh hh hh, 3-66
PRM_p E9da 7600 0000 0000 hh hh hh, 3-69
PRM_p E9da 7700 0000 0000 hh hh hh, 3-70
PRM_p E9da 78xx yyyy yyyy hh hh hh, 3-71, 3-72
PRM_p E9da DDtw xxyy yzzz hh hh hh, 3-75

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PRM_p F9da 0200 00xx xxxx hh hh hh, 3-3
PRM_p F9da 0300 0000 0000 hh hh hh, 3-4
PRM_p F9da 0400 0000 00xx hh hh hh, 3-5
PRM_p F9da 05xx 00yy 00zz hh hh hh, 3-6
PRM_p F9da 060x 00yy yyyy hh hh hh, 3-7
PRM_p F9da 070x 00yy yyyy hh hh hh, 3-8
PRM_p F9da 0800 wwxx yyzz hh hh hh, 3-9
PRM_p F9da 0900 0000 0000 hh hh hh, 3-10
PRM_p F9da 0D0w xxyy zzzz hh hh hh, 3-19, 3-23
PRM_p F9da 1000 0000 0000 hh hh hh, 3-30
PRM_p F9da 11xx yyzz zzzz hh hh hh, 3-31
PRM_p F9da 12xx yyzz zzzz hh hh hh, 3-32
PRM_p F9da 13xx yyzz zzzz hh hh hh, 3-33
PRM_p F9da 14xx yyzz zzzz hh hh hh, 3-34
PRM_p F9da 15xx yyzz zzzz hh hh hh, 3-35
PRM_p F9da 16xx yyzz zzzz hh hh hh, 3-36
PRM_p F9da 17xx yyzz zzzz hh hh hh, 3-37
PRM_p F9da 1B0w xxyy zzzz hh hh hh, 3-43, 3-45

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PRM_p F9da 200w xxyy zzzz hh hh hh, 3-50
PRM_p F9da 3400 0000 0000 hh hh hh, 3-52
PRM_p F9da 3700 0000 0000 hh hh hh, 3-55
PRM_p F9da 3802 xx00 0000 hh hh hh, 3-56
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PRM_p F9da 4002 xx00 0000 hh hh hh, 3-59
PRM_p F9da 5002 xx00 0000 hh hh hh, 3-60
PRM_p F9da 6E00 0000 0000 hh hh hh, 3-61
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PRM_p F9da 8002 xx00 0000 hh hh hh, 3-74
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PRM_p EAda DDtw xxyy yzzz hh hh hh, 3-18
PRM_p FAda 0100 0000 0000 hh hh hh, 3-2
PRM_p FAda 0200 0000 0000 hh hh hh, 3-3
PRM_p FAda 0300 0000 0000 hh hh hh, 3-4
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PRM_p FAda 0E00 0000 0000 hh hh hh, 3-9
PRM_p FAda 0F00 0000 0000 hh hh hh, 3-10
PRM_p FAda 1100 0000 0000 hh hh hh, 3-11
PRM_p FAda 1200 0000 0000 hh hh hh, 3-12
PRM_p FAda 1300 0000 0000 hh hh hh, 3-13
PRM_p FAda 1500 xxyy yyyy hh hh hh, 3-14
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PRM_p EBda 1000 0000 0000 hh hh hh, 3-8
PRM_p EBda 1100 0000 00xx hh hh hh, 3-9
PRM_p EBda 1200 0000 00xx hh hh hh, 3-10
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PRM_p EBda 1500 0000 00xx hh hh hh, 3-13
PRM_p EBda 1600 0000 00xx hh hh hh, 3-14
PRM_p EBda 5000 0000 xxxx hh hh hh, 3-21
PRM_p EBda 5100 0000 xxxx hh hh hh, 3-22
PRM_p EBda 60xx yyyy yyyy hh hh hh, 3-27
PRM_p EBda 6100 0000 0000 hh hh hh, 3-28
PRM_p EBda 62xx 0000 0000 hh hh hh, 3-29
PRM_p EBda 6300 0000 0000 hh hh hh, 3-31
PRM_p EBda 6400 0000 0000 hh hh hh, 3-33
PRM_p EBda 65xx yyyy yyyy hh hh hh, 3-34
PRM_p EBda 66xx yyyy yyyy hh hh hh, 3-36
PRM_p EBda 67xx yyyy yyyy hh hh hh, 3-38
PRM_p EBda 68xx yyyy yyyy hh hh hh, 3-40
PRM_p EBda 6900 0000 0000 hh hh hh, 3-41
PRM_p EBda 7200 0000 0000 hh hh hh, 3-42
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PRM_p ECda 0F00 0000 0000 hh hh hh, 3-55
PRM_p ECda 0F00 1234 5678 hh hh hh, 3-56
PRM_p ECda 0FDD 1234 5678 hh hh hh, 3-57
PRM_p ECda DDtw xxyy yzzz hh hh hh, 3-58
PRM_p FBda 0000 xxxx xxxx hh hh hh, 3-2
PRM_p FBda 0Bxx yyyy yyyy hh hh hh, 3-6
PRM_p FBda 0Cyy xxxx xxxx hh hh hh, 3-7
PRM_p FBda 2000 0000 00xx hh hh hh, 3-15
PRM_p FBda 2100 0000 00xx hh hh hh, 3-16
PRM_p FBda 4000 xxxx xxxx hh hh hh, 3-17
PRM_p FBda 4100 xxxx xxxx hh hh hh, 3-18
PRM_p FBda 4200 xxxx xxxx hh hh hh, 3-19
PRM_p FBda 4300 xxxx xxxx hh hh hh, 3-20
PRM_p FBda 5100 0000 xxxx hh hh hh, 3-24
PRM_p FBda 5200 0000 0000 hh hh hh, 3-26
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PRM_p E0da 0400 0000 0000 hh hh hh, 3-8
PRM_p E0da 0500 0000 0000 hh hh hh, 3-9
PRM_p E0da 0600 0000 0000 hh hh hh, 3-11
PRM_p E0da 070z 0000 0000 hh hh hh, 3-12
PRM_p E1da 51xx xxxx yyyy hh hh hh, 3-17
PRM_p E1da 54xx yyyy yyyy hh hh hh, 3-20
PRM_p E1da 5700 000x xxxx hh hh hh, 3-24
PRM_p E1da 58xx xxxx xxyy hh hh hh, 3-25
PRM_p E1da 59xx x000 00zz hh hh hh, 3-26
PRM_p E1da 7100 x00y yyyy hh hh hh, 3-42
PRM_p E1da 7400 xxyy 0000 hh hh hh, 3-44
PRM_p E1da 78xx xxxx xxyy hh hh hh, 3-45
PRM_p E1da 79xx x000 00zz hh hh hh, 3-46
PRM_p E1da 8800 xxxx 000y hh hh hh, 3-48
PRM_p E1da 8900 0000 000x hh hh hh, 3-49
PRM_p E1da 983B 10AD 10AD hh hh hh, 3-50
PRM_p E1da 993B 10AD 10AD hh hh hh, 3-51
PRM_p E1da DDtw xxyy yzzz hh hh hh, 3-52
PRM_p E3da 360x yyyy yyyy hh hh hh, 3-28
PRM_p E3da 3700 0000 0000 hh hh hh, 3-30
PRM_p E3da 3800 zzzz zzzz hh hh hh, 3-31
PRM_p E3da DDtw xxyy yzzz hh hh hh, 3-35
PRM_p E4da DDtw xxyy yzzz hh hh hh, 3-37
PRM_p E5da 01xx yyyy 0000 hh hh hh, 3-2
PRM_p E5da 04xx yyyy 0000 hh hh hh, 3-9
PRM_p E5da 05xx yyyy zzzz hh hh hh, 3-11
PRM_p E5da 06xx yyyy zzzz hh hh hh, 3-12
PRM_p E5da 07xx yyyy zzzz hh hh hh, 3-14
PRM_p E5da 08xx yyyy zzzz hh hh hh, 3-16
PRM_p E5da 09xx yyyy 0000 hh hh hh, 3-18
PRM_p E5da 0Axx yyyy 0000 hh hh hh, 3-20
PRM_p E5da 0Bxx yyyy 0000 hh hh hh, 3-22
PRM_p E5da 0Cxx yyyy zzzz hh hh hh, 3-24

SHEET 30 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-7 : SPEC-luc043a : GM VER. 2.5a

PRM_p E5da 0Dxx yyyy 0000 hh hh hh, 3-26
PRM_p E5da 0Exx yyyy 0000 hh hh hh, 3-28
PRM_p E5da 0Fxx yyyy 0000 hh hh hh, 3-29
PRM_p E5da 11xx 0000 0000 hh hh hh, 3-32
PRM_p E5da 12xx 0000 0000 hh hh hh, 3-33, 3-35
PRM_p E5da 13xx yyyy 0000 hh hh hh, 3-37, 3-38
PRM_p E5da 15xx yyyy 0000 hh hh hh, 3-40
PRM_p E5da 16xx yyyy zzzz hh hh hh, 3-41
PRM_p E5da 17xx yyyy zzzz hh hh hh, 3-43
PRM_p E5da 18xx yyyy zzzz hh hh hh, 3-45
PRM_p E5da 19xx yyyy zzzz hh hh hh, 3-46
PRM_p E5da 20xx yyyy zzzz hh hh hh, 3-53
PRM_p E5da 21xx yyyy zzzz hh hh hh, 3-55
PRM_p E5da 22xx yyyy zzzz hh hh hh, 3-56
PRM_p E5da 23xx yyyy 0000 hh hh hh, 3-57
PRM_p E5da 24xx yyyy zzzz hh hh hh, 3-59
PRM_p E5da 25xx yyyy 0000 hh hh hh, 3-61
PRM_p E5da 26xx yyyy 0000 hh hh hh, 3-63, 3-64
PRM_p E5da 27xx yyyy 0000 hh hh hh, 3-65
PRM_p E5da 28xx yyyy 0000 hh hh hh, 3-67
PRM_p E5da 29xx yyyy zzzz hh hh hh, 3-69
PRM_p E5da 30ww xxxx yyzz hh hh hh, 3-72
PRM_p E5da 30xx yyyy zzww hh hh hh, 3-71
PRM_p E5da DDtw xxyy yzzz hh hh hh, 3-74
PRM_p E5da E0xx yyyy 0000 hh hh hh, 3-76
PRM_p E5da E1xx yyyy 0000 hh hh hh, 3-77
PRM_p E5da E3xx yyyy zzzz hh hh hh, 3-79
PRM_p E5da E7ww xxxx yyzz hh hh hh, 3-86
PRM_p E5da E8xx yyyy zzzz hh hh hh, 3-88
PRM_p E5da ECxx yyyy zzzz hh hh hh, 3-92
PRM_p E5da EExx yyyy zzzz hh hh hh, 3-96
PRM_p E5da F0xx yyyy zzzz hh hh hh, 3-102
PRM_p E5da F1xx xxxx xxxx hh hh hh, 3-104
PRM_p E6da DDtw xxyy yzzz hh hh hh, 3-63
PRM_p E7da 010x xxyy zzzz hh hh hh, 3-2
PRM_p E7da 02wx xxyy zzzz hh hh hh, 3-4
PRM_p E7da 030x xxyy zzzz hh hh hh, 3-6
PRM_p E7da 040x xxyy zzzz hh hh hh, 3-8
PRM_p E7da 050x xxyy zzzz hh hh hh, 3-11
PRM_p E7da 0600 0000 xxxx hh hh hh, 3-13

SHEET 31 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-7 : SPEC-luc043a : GM VER. 2.5a

PRM_p E7da 0800 0000 zzzz hh hh hh, 3-15
PRM_p E7da 0F0x xxyy zzzz hh hh hh, 3-23
PRM_p E7da 200y yyzz tttt hh hh hh, 3-25
PRM_p E7da 2100 0000 0000 hh hh hh, 3-29
PRM_p E7da 500y yyzz 0000 hh hh hh, 3-30
PRM_p E7da 510y yyzz 0000 hh hh hh, 3-31
PRM_p E7da 520y yyzz tttt hh hh hh, 3-32
PRM_p E7da 530y yyzz 0000 hh hh hh, 3-34
PRM_p E7da 540y yyzz 0000 hh hh hh, 3-35
PRM_p E7da 550y yyzz 0000 hh hh hh, 3-36
PRM_p E7da 560y yyzz 0000 hh hh hh, 3-37
PRM_p E7da 570y yyzz 0000 hh hh hh, 3-38
PRM_p E7da 580y yyzz 0000 hh hh hh, 3-39
PRM_p E7da 590y yyzz 0000 hh hh hh, 3-40
PRM_p E7da 5A0y yyzz 0000 hh hh hh, 3-41
PRM_p E7da 5B0y yyzz 0000 hh hh hh, 3-42
PRM_p E7da 700y yyzz 0000 hh hh hh, 3-43
PRM_p E7da 710y yyzz 0000 hh hh hh, 3-44
PRM_p E7da 720y yyzz 0000 hh hh hh, 3-45
PRM_p E7da 730y yyzz 0000 hh hh hh, 3-46
PRM_p E7da 740y yyzz 0000 hh hh hh, 3-47
PRM_p E7da 750y yyzz 0000 hh hh hh, 3-48
PRM_p E7da 80xx yyyy yyyy hh hh hh, 3-49
PRM_p E7da 83xx yyyy yyyy hh hh hh, 3-51
PRM_p E7da 86xx yyyy yyyy hh hh hh, 3-52
PRM_p E7da 87xx yyyy yyyy hh hh hh, 3-54
PRM_p E7da 88xx yyyy yyyy hh hh hh, 3-56
PRM_p E7da 90D5 xxxx xxxx hh hh hh, 3-58
PRM_p E7da 91yy zzzz zzzz hh hh hh, 3-59
PRM_p E7da DDtw xxyy yzzz hh hh hh, 3-61
PRM_p E8da 00ww xxxx yyzz hh hh hh, 3-2, 3-4
PRM_p E8da 00xx yyzz zzzz hh hh hh, 3-5, 3-6
PRM_p E8da 0Exx yyyy yyyy hh hh hh, 3-16
PRM_p E8da 0Fxx yyyy yyyy hh hh hh, 3-17
PRM_p E8da DDtw xxyy yzzz hh hh hh, 3-40
PRM_p E9da 0A00 xx00 yyyy hh hh hh, 3-11
PRM_p E9da 0B00 xx00 yyyy hh hh hh, 3-13
PRM_p E9da 0C0w xxyy zzzz hh hh hh, 3-15
PRM_p E9da 0D0w xxyy zzzz hh hh hh, 3-17
PRM_p E9da 0E00 xxyy zzzz hh hh hh, 3-21, 3-25

SHEET 32 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-7 : SPEC-luc043a : GM VER. 2.5a

PRM_p E9da 0F00 xxyy zzzz hh hh hh, 3-27
PRM_p E9da 1700 0000 0000 hh hh hh, 3-38
PRM_p E9da 1800 0000 0000 hh hh hh, 3-39
PRM_p E9da 1900 xxxx xxxx hh hh hh, 3-40
PRM_p E9da 1A0w xxyy yzzz hh hh hh, 3-41
PRM_p E9da 1Cxx yyyy yyyy hh hh hh, 3-47, 3-48
PRM_p E9da 1Exx yyzz 0000 hh hh hh, 3-49
PRM_p E9da 1F00 xxxx xxxx hh hh hh, 3-29
PRM_p E9da 36xx xyyy zzzz hh hh hh, 3-53
PRM_p E9da 7300 0000 0000 hh hh hh, 3-66
PRM_p E9da 7600 0000 0000 hh hh hh, 3-69
PRM_p E9da 7700 0000 0000 hh hh hh, 3-70
PRM_p E9da 78xx yyyy yyyy hh hh hh, 3-71, 3-72
PRM_p E9da DDtw xxyy yzzz hh hh hh, 3-75
PRM_p EAda 6400 0000 0000 hh hh hh, 3-15
PRM_p EAda 6500 xx00 00yy hh hh hh, 3-16
PRM_p EAda DDtw xxyy yzzz hh hh hh, 3-18
PRM_p EBda 0700 0000 0000 hh hh hh, 3-4
PRM_p EBda 0800 0000 0000 hh hh hh, 3-5
PRM_p EBda 1000 0000 0000 hh hh hh, 3-8
PRM_p EBda 1100 0000 00xx hh hh hh, 3-9
PRM_p EBda 1200 0000 00xx hh hh hh, 3-10
PRM_p EBda 1300 0000 00xx hh hh hh, 3-11
PRM_p EBda 1400 0000 00xx hh hh hh, 3-12
PRM_p EBda 1500 0000 00xx hh hh hh, 3-13
PRM_p EBda 1600 0000 00xx hh hh hh, 3-14
PRM_p EBda 5000 0000 xxxx hh hh hh, 3-21
PRM_p EBda 5100 0000 xxxx hh hh hh, 3-22
PRM_p EBda 60xx yyyy yyyy hh hh hh, 3-27
PRM_p EBda 6100 0000 0000 hh hh hh, 3-28
PRM_p EBda 62xx 0000 0000 hh hh hh, 3-29
PRM_p EBda 6300 0000 0000 hh hh hh, 3-31
PRM_p EBda 6400 0000 0000 hh hh hh, 3-33
PRM_p EBda 65xx yyyy yyyy hh hh hh, 3-34
PRM_p EBda 66xx yyyy yyyy hh hh hh, 3-36
PRM_p EBda 67xx yyyy yyyy hh hh hh, 3-38
PRM_p EBda 68xx yyyy yyyy hh hh hh, 3-40
PRM_p EBda 6900 0000 0000 hh hh hh, 3-41
PRM_p EBda 7200 0000 0000 hh hh hh, 3-42
PRM_p EBda 7300 0000 0000 hh hh hh, 3-43

SHEET 33 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-7 : SPEC-luc043a : GM VER. 2.5a

PRM_p EBda 7400 xxyy zzzz hh hh hh, 3-44
PRM_p EBda 7500 0000 0000 hh hh hh, 3-51
PRM_p EBda 7500 0000 0001 hh hh hh, 3-52
PRM_p EBda DDtw xxyy yzzz hh hh hh, 3-53
PRM_p ECda 0F00 0000 0000 hh hh hh, 3-55
PRM_p ECda 0F00 1234 5678 hh hh hh, 3-56
PRM_p ECda 0FDD 1234 5678 hh hh hh, 3-57
PRM_p ECda DDtw xxyy yzzz hh hh hh, 3-58
PRM_p EEda DDtw xxyy yzzz hh hh hh, 3-2
PRM_p F0da 080z 0000 0000 hh hh hh, 3-14
PRM_p F0da 0900 0000 0000 hh hh hh, 3-17
PRM_p F0da 0A0z 0000 0000 hh hh hh, 3-19
PRM_p F0da 0B0z 0000 0000 hh hh hh, 3-21
PRM_p F0da 0C0z 0000 0000 hh hh hh, 3-23
PRM_p F0da 0D0z 0000 0000 hh hh hh, 3-25
PRM_p F0da 0E0z 0000 0000 hh hh hh, 3-27
PRM_p F0da 0F0z 0000 0000 hh hh hh, 3-29
PRM_p F0da 100z 0000 0000 hh hh hh, 3-31
PRM_p F0da 110z 0000 0000 hh hh hh, 3-33
PRM_p F0da 140z 0000 0000 hh hh hh, 3-35
PRM_p F0da 150z 0000 0000 hh hh hh, 3-37
PRM_p F0da 160z 0000 0000 hh hh hh, 3-39
PRM_p F0da 170z 0000 0000 hh hh hh, 3-41
PRM_p F0da 180z 0000 0000 hh hh hh, 3-43
PRM_p F0da 190z 0000 0000 hh hh hh, 3-44
PRM_p F0da 1C0z 0000 0000 hh hh hh, 3-46
PRM_p F0da 1D0z 0000 0000 hh hh hh, 3-48
PRM_p F0da 1E0z 0000 0000 hh hh hh, 3-50
PRM_p F0da 2000 0000 0000 hh hh hh, 3-52
PRM_p F0da 210z 0000 0000 hh hh hh, 3-53
PRM_p F0da 220z 0000 0000 hh hh hh, 3-56
PRM_p F0da 230z 0000 0000 hh hh hh, 3-59
PRM_p F0da 2400 0000 0000 hh hh hh, 3-62
PRM_p F0da 2500 0000 0000 hh hh hh, 3-63
PRM_p F0da 2600 0000 0000 hh hh hh, 3-64
PRM_p F0da 2700 0000 0000 hh hh hh, 3-65
PRM_p F0da 2800 0000 0000 hh hh hh, 3-66
PRM_p F0da 2900 0000 0000 hh hh hh, 3-67
PRM_p F0da 2A00 0000 0000 hh hh hh, 3-69
PRM_p F0da 2B00 0000 0000 hh hh hh, 3-70

SHEET 34 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-7 : SPEC-luc043a : GM VER. 2.5a

PRM_p F0da 2C00 0000 0000 hh hh hh, 3-71
PRM_p F0da 2D00 0000 0000 hh hh hh, 3-72
PRM_p F0da 2E00 0000 0000 hh hh hh, 3-73
PRM_p F0da 2F00 0000 0000 hh hh hh, 3-74
PRM_p F0da 3000 0000 0000 hh hh hh, 3-75
PRM_p F0da 3100 0000 0000 hh hh hh, 3-76
PRM_p F0da 480z 0000 0000 hh hh hh, 3-77
PRM_p F0da 4900 0000 0000 hh hh hh, 3-80
PRM_p F0da 4A0z 0000 0000 hh hh hh, 3-82
PRM_p F0da 4B0z 0000 0000 hh hh hh, 3-84
PRM_p F0da 4C0z 0000 0000 hh hh hh, 3-86
PRM_p F0da 4D0z 0000 0000 hh hh hh, 3-88
PRM_p F0da 4E0z 0000 0000 hh hh hh, 3-90
PRM_p F0da 4F0z 0000 0000 hh hh hh, 3-92
PRM_p F0da 500z 0000 0000 hh hh hh, 3-94
PRM_p F0da 510z 0000 0000 hh hh hh, 3-96
PRM_p F0da 540z 0000 0000 hh hh hh, 3-98
PRM_p F0da 550z 0000 0000 hh hh hh, 3-100
PRM_p F0da 560z 0000 0000 hh hh hh, 3-102
PRM_p F0da 570z 0000 0000 hh hh hh, 3-104
PRM_p F0da 580z 0000 0000 hh hh hh, 3-106
PRM_p F0da 590z 0000 0000 hh hh hh, 3-107
PRM_p F0da 5C0z 0000 0000 hh hh hh, 3-109
PRM_p F0da 5D0z 0000 0000 hh hh hh, 3-111
PRM_p F0da 5E0z 0000 0000 hh hh hh, 3-113
PRM_p F0da 5F0z 0000 0000 hh hh hh, 3-115
PRM_p F0da 6000 0000 0000 hh hh hh, 3-117
PRM_p F0da 6100 0000 0000 hh hh hh, 3-118
PRM_p F0da 61yz 0000 0000 hh hh hh, 3-119
PRM_p F0da 62yz 0000 0000 hh hh hh, 3-121
PRM_p F0da 63yz 0000 0000 hh hh hh, 3-122
PRM_p F0da 64yz 0000 0000 hh hh hh, 3-124
PRM_p F0da 65yz 0000 0000 hh hh hh, 3-126
PRM_p F0da 66yz 0000 0000 hh hh hh, 3-128
PRM_p F0da 67yz 0000 0000 hh hh hh, 3-129
PRM_p F0da 68yz 0000 0000 hh hh hh, 3-131
PRM_p F0da 69yz 0000 0000 hh hh hh, 3-133
PRM_p F0da 6Ayz 0000 0000 hh hh hh, 3-135
PRM_p F0da 6Byz 0000 0000 hh hh hh, 3-137
PRM_p F0da 6Cyz 0000 0000 hh hh hh, 3-139

SHEET 35 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-7 : SPEC-luc043a : GM VER. 2.5a

PRM_p F0da 6Dyz 0000 0000 hh hh hh, 3-140
PRM_p F0da 6Eyz 0000 0000 hh hh hh, 3-141
PRM_p F0da 6Fyz 0000 0000 hh hh hh, 3-142
PRM_p F0da 70yz 0000 0000 hh hh hh, 3-143
PRM_p F0da 71yz 0000 0000 hh hh hh, 3-145
PRM_p F0da FF04 xx00 0000 hh hh hh, 3-147
PRM_p F1da 0100 0000 xyyy hh hh hh, 3-2
PRM_p F1da 0400 0000 xxxx hh hh hh, 3-3
PRM_p F1da 0500 0000 0000 hh hh hh, 3-4
PRM_p F1da 0700 0000 yyyy hh hh hh, 3-5
PRM_p F1da 0A00 00xx 0000 hh hh hh, 3-6
PRM_p F1da 0B00 0000 0000 hh hh hh, 3-8
PRM_p F1da 10ww xxxx y00z hh hh hh, 3-9
PRM_p F1da 2000 xxxx xxxx hh hh hh, 3-11
PRM_p F1da 2100 0000 yyyy hh hh hh, 3-12
PRM_p F1da 22tt wwww xyzz hh hh hh, 3-13
PRM_p F1da 5200 xxxx yyyy hh hh hh, 3-18
PRM_p F1da 5300 0000 xxxx hh hh hh, 3-19
PRM_p F1da 55xx xxxx xxyy hh hh hh, 3-22
PRM_p F1da 56xx xxxx xxyy hh hh hh, 3-23
PRM_p F1da 6000 xxxx xxxx hh hh hh, 3-28
PRM_p F1da 6100 xxxx xxxx hh hh hh, 3-29
PRM_p F1da 6200 0000 xxxx hh hh hh, 3-30
PRM_p F1da 6300 00xx 0000 hh hh hh, 3-31, 3-33
PRM_p F1da 6400 0000 xxxx hh hh hh, 3-35
PRM_p F1da 6500 xxxx xxxx hh hh hh, 3-36
PRM_p F1da 6600 xxxx 0000 hh hh hh, 3-37
PRM_p F1da 6700 0000 00xx hh hh hh, 3-38
PRM_p F1da 6800 xxxx xxxx hh hh hh, 3-39
PRM_p F1da 6900 0000 0000 hh hh hh, 3-40
PRM_p F1da 7000 000x 0000 hh hh hh, 3-41
PRM_p F1da 7200 0000 0000 hh hh hh, 3-43
PRM_p F3da 0100 0000 xyyy hh hh hh, 3-2
PRM_p F3da 0200 0000 xyyy hh hh hh, 3-3
PRM_p F3da 0300 0000 xxxx hh hh hh, 3-4
PRM_p F3da 0400 0000 0xyy hh hh hh, 3-5
PRM_p F3da 0500 0000 0xyy hh hh hh, 3-7
PRM_p F3da 0600 0000 0xyy hh hh hh, 3-9
PRM_p F3da 07xx yyyy yyyy hh hh hh, 3-11
PRM_p F3da 09xx yzzz zzzz hh hh hh, 3-13

SHEET 36 : 8-24-2000 : FILE-/user1/ihddoa/4ESS/234-200/234-200-400/iss4/volume3/t3-7 : SPEC-luc043a : GM VER. 2.5a

PRM_p F3da 1000 xxxx xxxx hh hh hh, 3-15
PRM_p F3da 2000 xxxx xxxx hh hh hh, 3-16
PRM_p F3da 21ww x000 yzzz hh hh hh, 3-17
PRM_p F3da 22tt wwww xy0z hh hh hh, 3-19
PRM_p F3da 3100 0000 0000 hh hh hh, 3-21
PRM_p F3da 3200 0000 0000 hh hh hh, 3-22
PRM_p F3da 3300 0000 0000 hh hh hh, 3-23
PRM_p F3da 340x yyyy yyyy hh hh hh, 3-24
PRM_p F3da 3500 zzzz zzzz hh hh hh, 3-26
PRM_p F3da 5300 0000 0000 hh hh hh, 3-33
PRM_p F3da 63x0 yy00 0000 hh hh hh, 3-34
PRM_p F4da 0100 0000 00xx hh hh hh, 3-2
PRM_p F4da 0200 0000 00xx hh hh hh, 3-3
PRM_p F4da 0300 0000 00xx hh hh hh, 3-4
PRM_p F4da 0400 xx00 00yy hh hh hh, 3-5
PRM_p F4da 0500 0000 00xx hh hh hh, 3-6
PRM_p F4da 0600 0000 00xx hh hh hh, 3-7
PRM_p F4da 0700 0000 0000 hh hh hh, 3-8
PRM_p F4da 0800 0000 0000 hh hh hh, 3-9
PRM_p F4da 0900 0000 0000 hh hh hh, 3-10
PRM_p F4da 0A00 0000 00xx hh hh hh, 3-11
PRM_p F4da 0B00 0000 00xx hh hh hh, 3-12
PRM_p F4da 0C00 0000 00xx hh hh hh, 3-13
PRM_p F4da 0D00 0000 0000 hh hh hh, 3-14
PRM_p F4da 0E00 0000 0000 hh hh hh, 3-15
PRM_p F4da 0F00 0000 00xx hh hh hh, 3-16
PRM_p F4da 1000 0000 00xx hh hh hh, 3-17
PRM_p F4da 1100 0000 00xx hh hh hh, 3-18
PRM_p F4da 1200 xx00 00yy hh hh hh, 3-19
PRM_p F4da 1300 0000 0000 hh hh hh, 3-20
PRM_p F4da 1400 0000 00xx hh hh hh, 3-21
PRM_p F4da 1500 xx00 00yy hh hh hh, 3-22
PRM_p F4da 1600 0000 00xx hh hh hh, 3-23
PRM_p F4da 1700 0000 00xx hh hh hh, 3-24
PRM_p F4da 1800 0000 00xx hh hh hh, 3-25
PRM_p F4da 1900 xx00 00yy hh hh hh, 3-26
PRM_p F4da 1A00 0000 0000 hh hh hh, 3-27
PRM_p F4da 1B00 0000 0000 hh hh hh, 3-28
PRM_p F4da 1C00 0000 0000 hh hh hh, 3-29
PRM_p F4da 1D00 xx00 00yy hh hh hh, 3-30

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PRM_p F4da 1E00 0000 00xx hh hh hh, 3-31
PRM_p F4da 1F00 0000 0000 hh hh hh, 3-32
PRM_p F4da 2000 xxxx xxxx hh hh hh, 3-33
PRM_p F4da 2100 xx00 00yy hh hh hh, 3-34
PRM_p F4da 2200 xx00 00yy hh hh hh, 3-35
PRM_p F5da 01xx yyyy zzzz hh hh hh, 3-4
PRM_p F5da 02xx yyyy 0000 hh hh hh, 3-6
PRM_p F5da 0Fxx yyyy 0000 hh hh hh, 3-30
PRM_p F5da 10xx yyyy 0000 hh hh hh, 3-31
PRM_p F5da 14xx yyyy 0000 hh hh hh, 3-39
PRM_p F5da 1Exx yyyy 0000 hh hh hh, 3-51, 3-52
PRM_p F5da E2xx yyyy 0000 hh hh hh, 3-78
PRM_p F5da E4xx yyyy 0000 hh hh hh, 3-83
PRM_p F5da E5xx yyyy zzzz hh hh hh, 3-84
PRM_p F5da EAxx yyyy zzzz hh hh hh, 3-90
PRM_p F5da EDxx yyyy zzzz hh hh hh, 3-94
PRM_p F5da EFww xxxx yyzz hh hh hh, 3-98
PRM_p F5da F3xx yyyy zzzz hh hh hh, 3-109
PRM_p F6da 80ww zzzz zzzz hh hh hh, 3-61
PRM_p F6da F0wx xxyy yzzz hh hh hh, 3-65
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PRM_p F7da F000 zzzz yyyy hh hh hh, 3-63
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PRM_p F8da 02xx yyyy yyyy hh hh hh, 3-8
PRM_p F8da 04xx yyyy yyyy hh hh hh, 3-9
PRM_p F8da 06xx yyyy yyyy hh hh hh, 3-10
PRM_p F8da 0700 0000 0000 hh hh hh, 3-11
PRM_p F8da 08xx yyyy yyyy hh hh hh, 3-12
PRM_p F8da 0900 0000 xxxx hh hh hh, 3-13
PRM_p F8da 0Cxx yyyy yyyy hh hh hh, 3-14
PRM_p F8da 0D00 0000 0000 hh hh hh, 3-15
PRM_p F8da 1000 xxyy yyyy hh hh hh, 3-18
PRM_p F8da 1100 xxyy yyyy hh hh hh, 3-19
PRM_p F8da 1200 xxyy yyyy hh hh hh, 3-20
PRM_p F8da 13xx yyzz zzzz hh hh hh, 3-21, 3-23
PRM_p F8da 14xx xxxx yyzz hh hh hh, 3-25
PRM_p F8da 15xx yyyy zzzz hh hh hh, 3-27

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PRM_p F8da 16xx yyzz zzzz hh hh hh, 3-29
PRM_p F8da 17xx yyzz zzzz hh hh hh, 3-31
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PRM_p F8da 19xx yyyy yyyy hh hh hh, 3-37
PRM_p F8da 1Axx yyyy yyyy hh hh hh, 3-39
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PRM_p F9da 0200 00xx xxxx hh hh hh, 3-3
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PRM_p F9da 0400 0000 00xx hh hh hh, 3-5
PRM_p F9da 05xx 00yy 00zz hh hh hh, 3-6
PRM_p F9da 060x 00yy yyyy hh hh hh, 3-7
PRM_p F9da 070x 00yy yyyy hh hh hh, 3-8
PRM_p F9da 0800 wwxx yyzz hh hh hh, 3-9
PRM_p F9da 0900 0000 0000 hh hh hh, 3-10
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PRM_p F9da 1000 0000 0000 hh hh hh, 3-30
PRM_p F9da 11xx yyzz zzzz hh hh hh, 3-31
PRM_p F9da 12xx yyzz zzzz hh hh hh, 3-32
PRM_p F9da 13xx yyzz zzzz hh hh hh, 3-33
PRM_p F9da 14xx yyzz zzzz hh hh hh, 3-34
PRM_p F9da 15xx yyzz zzzz hh hh hh, 3-35
PRM_p F9da 16xx yyzz zzzz hh hh hh, 3-36
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PRM_p F9da 3400 0000 0000 hh hh hh, 3-52
PRM_p F9da 3700 0000 0000 hh hh hh, 3-55
PRM_p F9da 3802 xx00 0000 hh hh hh, 3-56
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PRM_p F9da 7100 0000 0000 hh hh hh, 3-64
PRM_p F9da 7200 0000 0000 hh hh hh, 3-65
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PRM_p F9da 7Fxx 0000 0000 hh hh hh, 3-73

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PRM_p FAda 0200 0000 0000 hh hh hh, 3-3
PRM_p FAda 0300 0000 0000 hh hh hh, 3-4
PRM_p FAda 0800 0000 0000 hh hh hh, 3-5
PRM_p FAda 0900 0000 0000 hh hh hh, 3-6
PRM_p FAda 0C00 0000 0000 hh hh hh, 3-7
PRM_p FAda 0D00 0000 0000 hh hh hh, 3-8
PRM_p FAda 0E00 0000 0000 hh hh hh, 3-9
PRM_p FAda 0F00 0000 0000 hh hh hh, 3-10
PRM_p FAda 1100 0000 0000 hh hh hh, 3-11
PRM_p FAda 1200 0000 0000 hh hh hh, 3-12
PRM_p FAda 1300 0000 0000 hh hh hh, 3-13
PRM_p FAda 1500 xxyy yyyy hh hh hh, 3-14
PRM_p FBda 0000 xxxx xxxx hh hh hh, 3-2
PRM_p FBda 0Bxx yyyy yyyy hh hh hh, 3-6
PRM_p FBda 0Cyy xxxx xxxx hh hh hh, 3-7
PRM_p FBda 2000 0000 00xx hh hh hh, 3-15
PRM_p FBda 2100 0000 00xx hh hh hh, 3-16
PRM_p FBda 4000 xxxx xxxx hh hh hh, 3-17
PRM_p FBda 4100 xxxx xxxx hh hh hh, 3-18
PRM_p FBda 4200 xxxx xxxx hh hh hh, 3-19
PRM_p FBda 4300 xxxx xxxx hh hh hh, 3-20
PRM_p FBda 5100 0000 xxxx hh hh hh, 3-24
PRM_p FBda 5200 0000 0000 hh hh hh, 3-26
PRM_p V5da 03xx yyyy zzzz hh hh hh, 3-7
PRM_p v6da 100x xxyy yzzz hh hh hh, 3-2
PRM_p v6da 20wx xxyy yzzz hh hh hh, 3-5
PRM_p v6da 30wx xxyy yzzz hh hh hh, 3-8
PRM_p v6da 31wx xxyy yzzz hh hh hh, 3-11
PRM_p v6da 32wx xxyy yzzz hh hh hh, 3-14
PRM_p v6da 33wx xxyy yzzz hh hh hh, 3-17
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PRM_p v6da 35wx xxyy yzzz hh hh hh, 3-23
PRM_p v6da 36wx xxyy yzzz hh hh hh, 3-26
PRM_p v6da 37wx xxyy yzzz hh hh hh, 3-29
PRM_p v6da 40xx xxyy yzzz hh hh hh, 3-32
PRM_p v6da 60w0 xxyy yzzz hh hh hh, 3-35
PRM_p v6da 70w0 xxyy yzzz hh hh hh, 3-37
PRM_p v6da 71w0 xxyy yzzz hh hh hh, 3-40

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PRM_p v6da 72w0 xxyy yzzz hh hh hh, 3-43
PRM_p v6da 73w0 xxyy yzzz hh hh hh, 3-46
PRM_p v6da 74w0 xxyy yzzz hh hh hh, 3-49
PRM_p v6da 75w0 xxyy yzzz hh hh hh, 3-52
PRM_p v6da 76w0 xxyy yzzz hh hh hh, 3-55
PRM_p v6da 77w0 xxyy yzzz hh hh hh, 3-58
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PRM_Z 5555 5555 5555 5555 xx xx xx, 3A-6
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pDde a1b0 xxyy zzww hh hh hh, 3A-2
pDde a20c xxyy zzww hh hh hh, 3A-4
pDde a21c xxyy zzww hh hh hh, 3A-6
pDde a30c xxyy zzww hh hh hh, 3A-9
pDde a31c xxyy zzww hh hh hh, 3A-11
pDde a40c xxyy zzww hh hh hh, 3A-13
pDde a41b cccc cccc hh hh hh, 3A-15
pDde a42c xxyy zzww hh hh hh, 3A-17
pDde a44c xxyy zzww hh hh hh, 3A-19
pDde a5rr xxyy zzww hh hh hh, 3A-21
pDde a6rr xxyy zzww hh hh hh, 3A-24
pDde a7rr xxyy zzww hh hh hh, 3A-26
pDde a8rr xxyy zzww hh hh hh, 3A-28

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EExy 7F04 01ss oodd hh hh hh, 3B-120
EExy 7F09 eess oodd hh hh hh, 3B-121
EExy 7F0B eess oodd hh hh hh, 3B-123
EExy 7F0F 01ss oo00 hh hh hh, 3B-125
EExy 7F14 01ss oo00 hh hh hh, 3B-126
EExy 7F18 eess oodd hh hh hh, 3B-127
EExy 7F1D eess oodd hh hh hh, 3B-129
EExy 7F1E eess oodd hh hh hh, 3B-131
EExy 7F28 eess oodd hh hh hh, 3B-133
EExy 7F29 eess oodd hh hh hh, 3B-134
EExy 7F2A 01ss oo00 hh hh hh, 3B-136
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PRMs (Continued)
EExy 7F2E eess oodd hh hh hh, 3B-139
EExy 7F2F eess oodd hh hh hh, 3B-141
EExy 7F38 01ss oo00 hh hh hh, 3B-143
EExy 7F39 eess oodd hh hh hh, 3B-144
EExy 7F3B eess oodd hh hh hh, 3B-146
EExy 7F3C eess oodd hh hh hh, 3B-148
EExy 7F3E eess oodd hh hh hh, 3B-150
EExy 7F3F eess oodd hh hh hh, 3B-152
EExy 7F48 01ss oodd hh hh hh, 3B-154
EExy 7F49 eess oodd hh hh hh, 3B-155
EExy 7F4D eess oodd hh hh hh, 3B-157
EExy 7F50 01ss oo00 hh hh hh, 3B-159
EExy 7F55 eess oodd hh hh hh, 3B-160
EExy 7F61 01ss oodd hh hh hh, 3B-163
EExy 7F82 eess oodd hh hh hh, 3B-162
EExy 7F83 eess oodd hh hh hh, 3B-164
EExy 7F84 eess oodd hh hh hh, 3B-166
EExy 7F85 eess oodd hh hh hh, 3B-168
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EExy 7F8A 01ss oo00 hh hh hh, 3B-171
EExy 7F97 eess oodd hh hh hh, 3B-172
EExy 7F98 eess oodd hh hh hh, 3B-174
EExy 7F99 eess oodd hh hh hh, 3B-176
EExy 7F9A eess oo00 hh hh hh, 3B-178
EExy 7F9B eess oodd hh hh hh, 3B-180
EExy 7F9C 01ss oodd hh hh hh, 3B-182
EExy 7F9D 01ss oodd hh hh hh, 3B-183
EExy 7F9E eess oodd hh hh hh, 3B-184
EExy 7FA1 01ss oodd hh hh hh, 3B-186
EExy 7FA2 eess oo00 hh hh hh, 3B-187
EExy 7FA4 eess oodd hh hh hh, 3B-189
EExy 7FA7 eess oodd hh hh hh, 3B-191
EExy 7FA8 eess oodd hh hh hh, 3B-192
EExy 7FAA eess oodd hh hh hh, 3B-194
EExy 7FAB 01ss oodd hh hh hh, 3B-197
EExy 7FAD 01ss oodd hh hh hh, 3B-198
EExy 7FAE eess oo00 hh hh hh, 3B-199
EExy 7FAF eess oodd hh hh hh, 3B-201

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PRMs (Continued)
EExy 7FDD eess oodd hh hh hh, 3B-203
EExy 8F01 eess oodd hh hh hh, 3B-205
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EExy 8F04 eess oodd hh hh hh, 3B-208
EExy 8F05 eess oodd hh hh hh, 3B-209
EExy 8F06 eess oodd hh hh hh, 3B-210
EExy 8F07 eess oodd hh hh hh, 3B-211
EExy 8F08 eess oodd hh hh hh, 3B-212
EExy 8F0A eess oodd hh hh hh, 3B-214
EExy 8F0B eess oodd hh hh hh, 3B-216
EExy 8F0D eess oodd hh hh hh, 3B-218
EExy 8F12 eess oodd hh hh hh, 3B-220
EExy 8F16 eess oodd hh hh hh, 3B-221
EExy 8F17 eess oodd hh hh hh, 3B-222, 3B-224
EExy 8F25 eess oodd hh hh hh, 3B-225
EExy 8F26 eess oodd hh hh hh, 3B-226
EExy 8F27 eess oodd hh hh hh, 3B-227
EExy 8F29 eess oodd hh hh hh, 3B-228
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PRMs (Continued)
EExy 8F2C eess oodd hh hh hh, 3B-231
EExy 8F2E eess oodd hh hh hh, 3B-233
EExy 8F34 eess oodd hh hh hh, 3B-234
EExy 8F38 eess oodd hh hh hh, 3B-235
EExy 8F3B eess oodd hh hh hh, 3B-236
EExy 8F3C eess oodd hh hh hh, 3B-238
EExy 8F3D eess oodd hh hh hh, 3B-239
EExy 8F3F eess oodd hh hh hh, 3B-240
EExy 8F42 eess oodd hh hh hh, 3B-241
EExy 8F46 eess oodd hh hh hh, 3B-243
EExy 8F4B eess oodd hh hh hh, 3B-244
EExy 8F4C eess oodd hh hh hh, 3B-246
EExy 8F4E eess oodd hh hh hh, 3B-247
EExy 8F4F eess oodd hh hh hh, 3B-248
EExy 8F50 eess oodd hh hh hh, 3B-249
EExy 8F51 eess oodd hh hh hh, 3B-250
EExy 8F53 eess oodd hh hh hh, 3B-251
EExy 8F58 eess oodd hh hh hh, 3B-252
EExy 8F5A eess oodd hh hh hh, 3B-253

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Common Network Interface
PRMs (Continued)
EExy 8F5F eess oodd hh hh hh, 3B-254
EExy 8F98 eess oodd hh hh hh, 3B-255
EExy 8F99 eess oodd hh hh hh, 3B-257
EExy 8FA0 eess oodd hh hh hh, 3B-259
EExy 8FA6 eess oodd hh hh hh, 3B-261
EExy 8FAD eess oodd hh hh hh, 3B-262
FExy 7F01 eess oo00 hh hh hh, 3B-2
FExy 7F02 01ss oodd hh hh hh, 3B-3
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FExy 7F07 eess oodd hh hh hh, 3B-6
FExy 7F08 01ss oodd hh hh hh, 3B-8
FExy 7F09 eess oodd hh hh hh, 3B-9
FExy 7F0A 01ss oodd hh hh hh, 3B-11
FExy 7F0B 05ss oodd hh hh hh, 3B-12
FExy 7F10 eess oodd hh hh hh, 3B-13
FExy 7F11 01ss oodd hh hh hh, 3B-15
FExy 7F1B eess oodd hh hh hh, 3B-16
FExy 7F1C 01ss oodd hh hh hh, 3B-17
FExy 7F1D eess oodd hh hh hh, 3B-18
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FExy 7F21 eess oodd hh hh hh, 3B-21
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FExy 7F23 eess oo00 hh hh hh, 3B-22
FExy 7F24 01ss oo00 hh hh hh, 3B-24
FExy 7F25 01ss oodd hh hh hh, 3B-25
FExy 7F26 01ss oo00 hh hh hh, 3B-26
FExy 7F27 01ss oodd hh hh hh, 3B-27
FExy 7F2E 04ss oodd hh hh hh, 3B-28
FExy 7F2F 04ss oodd hh hh hh, 3B-29
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FExy 7F38 02ss oodd hh hh hh, 3B-32
FExy 7F39 eess oodd hh hh hh, 3B-33
FExy 7F3A eess oodd hh hh hh, 3B-35
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FExy 7F47 01ss oodd hh hh hh, 3B-38
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Common Network Interface
PRMs (Continued)
FExy 7F59 eess oodd hh hh hh, 3B-43
FExy 7F5A eess oodd hh hh hh, 3B-44
FExy 7F5B 01ss oodd hh hh hh, 3B-45
FExy 7F5D 01ss oodd hh hh hh, 3B-46
FExy 7F5E 01ss oodd hh hh hh, 3B-47
FExy 7F5F 01ss oodd hh hh hh, 3B-48
FExy 7F60 eess oodd hh hh hh, 3B-49
FExy 7F61 02ss oodd hh hh hh, 3B-51
FExy 7F62 eess oo00 hh hh hh, 3B-52
FExy 7F64 eess oodd hh hh hh, 3B-53
FExy 7F65 01ss oodd hh hh hh, 3B-54
FExy 7F66 eess oo00 hh hh hh, 3B-55
FExy 7F82 eess oodd hh hh hh, 3B-57
FExy 7F87 eess oodd hh hh hh, 3B-58
FExy 7F88 01ss oo00 hh hh hh, 3B-59
FExy 7F89 01ss oodd hh hh hh, 3B-60
FExy 7F8A 01ss oodd hh hh hh, 3B-61
FExy 7F8B eess oodd hh hh hh, 3B-62
FExy 7F96 eess oodd hh hh hh, 3B-64

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FExy 7F9E eess oodd hh hh hh, 3B-66
FExy 7F9F eess oodd hh hh hh, 3B-69
FExy 7FA0 eess oodd hh hh hh, 3B-70
FExy 7FA3 eess oo00 hh hh hh, 3B-72
FExy 7FA8 eess oodd hh hh hh, 3B-73
FExy 7FAB eess oodd hh hh hh, 3B-75
FExy 7FB0 eess oodd hh hh hh, 3B-76
FExy 7FDD eess oodd hh hh hh, 3B-78
FExy 8F04 eess oodd hh hh hh, 3B-79
FExy 8F06 eess oodd hh hh hh, 3B-81
FExy 8F07 eess oodd hh hh hh, 3B-82
FExy 8F08 eess oodd hh hh hh, 3B-84
FExy 8F09 eess oodd hh hh hh, 3B-86
FExy 8F0A eess oodd hh hh hh, 3B-88
FExy 8F0D eess oodd hh hh hh, 3B-89
FExy 8F0F eess oodd hh hh hh, 3B-91
FExy 8F10 eess oodd hh hh hh, 3B-92
FExy 8F13 eess oodd hh hh hh, 3B-94
FExy 8F14 eess oodd hh hh hh, 3B-95

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FExy 8F20 eess oodd hh hh hh, 3B-96
FExy 8F22 eess oodd hh hh hh, 3B-97
FExy 8F23 eess oodd hh hh hh, 3B-98
FExy 8F25 eess oodd hh hh hh, 3B-99
FExy 8F27 eess oodd hh hh hh, 3B-100
FExy 8F29 eess oodd hh hh hh, 3B-101
FExy 8F2B eess oodd hh hh hh, 3B-102
FExy 8F2E eess oodd hh hh hh, 3B-104
FExy 8F38 eess oodd hh hh hh, 3B-106
FExy 8F39 eess oodd hh hh hh, 3B-108
FExy 8F3A eess oodd hh hh hh, 3B-110
FExy 8F44 eess oodd hh hh hh, 3B-112
FExy 8F48 eess oodd hh hh hh, 3B-114
FExy 8F54 eess oodd hh hh hh, 3B-115
FExy 8FAA eess oodd hh hh hh, 3B-117

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EExy 7F04 01ss oodd hh hh hh, 3B-120
EExy 7F09 eess oodd hh hh hh, 3B-121
EExy 7F0B eess oodd hh hh hh, 3B-123
EExy 7F0F 01ss oo00 hh hh hh, 3B-125
EExy 7F14 01ss oo00 hh hh hh, 3B-126
EExy 7F18 eess oodd hh hh hh, 3B-127
EExy 7F1D eess oodd hh hh hh, 3B-129
EExy 7F1E eess oodd hh hh hh, 3B-131
EExy 7F28 eess oodd hh hh hh, 3B-133
EExy 7F29 eess oodd hh hh hh, 3B-134
EExy 7F2A 01ss oo00 hh hh hh, 3B-136
EExy 7F2C 01ss oodd hh hh hh, 3B-137
EExy 7F2D 01ss oo00 hh hh hh, 3B-138
EExy 7F2E eess oodd hh hh hh, 3B-139
EExy 7F2F eess oodd hh hh hh, 3B-141
EExy 7F38 01ss oo00 hh hh hh, 3B-143
EExy 7F39 eess oodd hh hh hh, 3B-144
EExy 7F3B eess oodd hh hh hh, 3B-146
EExy 7F3C eess oodd hh hh hh, 3B-148
EExy 7F3E eess oodd hh hh hh, 3B-150
EExy 7F3F eess oodd hh hh hh, 3B-152
EExy 7F48 01ss oodd hh hh hh, 3B-154
EExy 7F49 eess oodd hh hh hh, 3B-155
EExy 7F4D eess oodd hh hh hh, 3B-157
EExy 7F50 01ss oo00 hh hh hh, 3B-159
EExy 7F55 eess oodd hh hh hh, 3B-160
EExy 7F61 01ss oodd hh hh hh, 3B-163

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EExy 7F82 eess oodd hh hh hh, 3B-162
EExy 7F83 eess oodd hh hh hh, 3B-164
EExy 7F84 eess oodd hh hh hh, 3B-166
EExy 7F85 eess oodd hh hh hh, 3B-168
EExy 7F87 02ss oo01 hh hh hh, 3B-170
EExy 7F8A 01ss oo00 hh hh hh, 3B-171
EExy 7F97 eess oodd hh hh hh, 3B-172
EExy 7F98 eess oodd hh hh hh, 3B-174
EExy 7F99 eess oodd hh hh hh, 3B-176
EExy 7F9A eess oo00 hh hh hh, 3B-178
EExy 7F9B eess oodd hh hh hh, 3B-180
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EExy 7F9D 01ss oodd hh hh hh, 3B-183
EExy 7F9E eess oodd hh hh hh, 3B-184
EExy 7FA1 01ss oodd hh hh hh, 3B-186
EExy 7FA2 eess oo00 hh hh hh, 3B-187
EExy 7FA4 eess oodd hh hh hh, 3B-189
EExy 7FA7 eess oodd hh hh hh, 3B-191
EExy 7FA8 eess oodd hh hh hh, 3B-192
EExy 7FAA eess oodd hh hh hh, 3B-194
EExy 7FAB 01ss oodd hh hh hh, 3B-197
EExy 7FAD 01ss oodd hh hh hh, 3B-198
EExy 7FAE eess oo00 hh hh hh, 3B-199
EExy 7FAF eess oodd hh hh hh, 3B-201
EExy 7FDD eess oodd hh hh hh, 3B-203
EExy 8F01 eess oodd hh hh hh, 3B-205
EExy 8F02 eess oodd hh hh hh, 3B-206
EExy 8F04 eess oodd hh hh hh, 3B-208
EExy 8F05 eess oodd hh hh hh, 3B-209
EExy 8F06 eess oodd hh hh hh, 3B-210
EExy 8F07 eess oodd hh hh hh, 3B-211
EExy 8F08 eess oodd hh hh hh, 3B-212
EExy 8F0A eess oodd hh hh hh, 3B-214
EExy 8F0B eess oodd hh hh hh, 3B-216
EExy 8F0D eess oodd hh hh hh, 3B-218
EExy 8F12 eess oodd hh hh hh, 3B-220
EExy 8F16 eess oodd hh hh hh, 3B-221
EExy 8F17 eess oodd hh hh hh, 3B-222, 3B-224
EExy 8F25 eess oodd hh hh hh, 3B-225
EExy 8F26 eess oodd hh hh hh, 3B-226
EExy 8F27 eess oodd hh hh hh, 3B-227
EExy 8F29 eess oodd hh hh hh, 3B-228
EExy 8F2B eess oodd hh hh hh, 3B-229
EExy 8F2C eess oodd hh hh hh, 3B-231
EExy 8F2E eess oodd hh hh hh, 3B-233
EExy 8F34 eess oodd hh hh hh, 3B-234
EExy 8F38 eess oodd hh hh hh, 3B-235
EExy 8F3B eess oodd hh hh hh, 3B-236
EExy 8F3C eess oodd hh hh hh, 3B-238
EExy 8F3D eess oodd hh hh hh, 3B-239
EExy 8F3F eess oodd hh hh hh, 3B-240
EExy 8F42 eess oodd hh hh hh, 3B-241
EExy 8F46 eess oodd hh hh hh, 3B-243
EExy 8F4B eess oodd hh hh hh, 3B-244
EExy 8F4C eess oodd hh hh hh, 3B-246
EExy 8F4E eess oodd hh hh hh, 3B-247
EExy 8F4F eess oodd hh hh hh, 3B-248
EExy 8F50 eess oodd hh hh hh, 3B-249
EExy 8F51 eess oodd hh hh hh, 3B-250
EExy 8F53 eess oodd hh hh hh, 3B-251
EExy 8F58 eess oodd hh hh hh, 3B-252
EExy 8F5A eess oodd hh hh hh, 3B-253
EExy 8F5F eess oodd hh hh hh, 3B-254
EExy 8F98 eess oodd hh hh hh, 3B-255
EExy 8F99 eess oodd hh hh hh, 3B-257
EExy 8FA0 eess oodd hh hh hh, 3B-259
EExy 8FA6 eess oodd hh hh hh, 3B-261
EExy 8FAD eess oodd hh hh hh, 3B-262
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FExy 7F01 eess oo00 hh hh hh, 3B-2
FExy 7F02 01ss oodd hh hh hh, 3B-3
FExy 7F04 01ss oodd hh hh hh, 3B-4
FExy 7F06 01ss oodd hh hh hh, 3B-5
FExy 7F07 eess oodd hh hh hh, 3B-6
FExy 7F08 01ss oodd hh hh hh, 3B-8
FExy 7F09 eess oodd hh hh hh, 3B-9
FExy 7F0A 01ss oodd hh hh hh, 3B-11
FExy 7F0B 05ss oodd hh hh hh, 3B-12
FExy 7F10 eess oodd hh hh hh, 3B-13
FExy 7F11 01ss oodd hh hh hh, 3B-15
FExy 7F1B eess oodd hh hh hh, 3B-16
FExy 7F1C 01ss oodd hh hh hh, 3B-17
FExy 7F1D eess oodd hh hh hh, 3B-18
FExy 7F1E eess oodd hh hh hh, 3B-20
FExy 7F21 eess oodd hh hh hh, 3B-21
FExy 7F23 eess oo00 hh hh hh, 3B-22
FExy 7F24 01ss oo00 hh hh hh, 3B-24
FExy 7F25 01ss oodd hh hh hh, 3B-25
FExy 7F26 01ss oo00 hh hh hh, 3B-26
FExy 7F27 01ss oodd hh hh hh, 3B-27
FExy 7F2E 04ss oodd hh hh hh, 3B-28
FExy 7F2F 04ss oodd hh hh hh, 3B-29
FExy 7F33 eess oodd hh hh hh, 3B-30
FExy 7F36 01ss oodd hh hh hh, 3B-31
FExy 7F38 02ss oodd hh hh hh, 3B-32
FExy 7F39 eess oodd hh hh hh, 3B-33
FExy 7F3A eess oodd hh hh hh, 3B-35
FExy 7F3B eess oodd hh hh hh, 3B-36
FExy 7F3C eess oodd hh hh hh, 3B-37
FExy 7F47 01ss oodd hh hh hh, 3B-38
FExy 7F49 eess oodd hh hh hh, 3B-39
FExy 7F4D eess oodd hh hh hh, 3B-40
FExy 7F4E 01ss oo00 hh hh hh, 3B-41
FExy 7F54 01ss oo00 hh hh hh, 3B-42
FExy 7F59 eess oodd hh hh hh, 3B-43
FExy 7F5A eess oodd hh hh hh, 3B-44
FExy 7F5B 01ss oodd hh hh hh, 3B-45
FExy 7F5D 01ss oodd hh hh hh, 3B-46
FExy 7F5E 01ss oodd hh hh hh, 3B-47
FExy 7F5F 01ss oodd hh hh hh, 3B-48
FExy 7F60 eess oodd hh hh hh, 3B-49
FExy 7F61 02ss oodd hh hh hh, 3B-51
FExy 7F62 eess oo00 hh hh hh, 3B-52
FExy 7F64 eess oodd hh hh hh, 3B-53
FExy 7F65 01ss oodd hh hh hh, 3B-54
FExy 7F66 eess oo00 hh hh hh, 3B-55
FExy 7F82 eess oodd hh hh hh, 3B-57
FExy 7F87 eess oodd hh hh hh, 3B-58
FExy 7F88 01ss oo00 hh hh hh, 3B-59
FExy 7F89 01ss oodd hh hh hh, 3B-60
FExy 7F8A 01ss oodd hh hh hh, 3B-61
FExy 7F8B eess oodd hh hh hh, 3B-62
FExy 7F96 eess oodd hh hh hh, 3B-64
FExy 7F9E eess oodd hh hh hh, 3B-66
FExy 7F9F eess oodd hh hh hh, 3B-69
FExy 7FA0 eess oodd hh hh hh, 3B-70
FExy 7FA3 eess oo00 hh hh hh, 3B-72
FExy 7FA8 eess oodd hh hh hh, 3B-73
FExy 7FAB eess oodd hh hh hh, 3B-75
FExy 7FB0 eess oodd hh hh hh, 3B-76
FExy 7FDD eess oodd hh hh hh, 3B-78
FExy 8F04 eess oodd hh hh hh, 3B-79
FExy 8F06 eess oodd hh hh hh, 3B-81
FExy 8F07 eess oodd hh hh hh, 3B-82
FExy 8F08 eess oodd hh hh hh, 3B-84
FExy 8F09 eess oodd hh hh hh, 3B-86
FExy 8F0A eess oodd hh hh hh, 3B-88
FExy 8F0D eess oodd hh hh hh, 3B-89
FExy 8F0F eess oodd hh hh hh, 3B-91
FExy 8F10 eess oodd hh hh hh, 3B-92
FExy 8F13 eess oodd hh hh hh, 3B-94
FExy 8F14 eess oodd hh hh hh, 3B-95

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FExy 8F20 eess oodd hh hh hh, 3B-96
FExy 8F22 eess oodd hh hh hh, 3B-97
FExy 8F23 eess oodd hh hh hh, 3B-98
FExy 8F25 eess oodd hh hh hh, 3B-99
FExy 8F27 eess oodd hh hh hh, 3B-100
FExy 8F29 eess oodd hh hh hh, 3B-101
FExy 8F2B eess oodd hh hh hh, 3B-102
FExy 8F2E eess oodd hh hh hh, 3B-104
FExy 8F38 eess oodd hh hh hh, 3B-106
FExy 8F39 eess oodd hh hh hh, 3B-108
FExy 8F3A eess oodd hh hh hh, 3B-110
FExy 8F44 eess oodd hh hh hh, 3B-112
FExy 8F48 eess oodd hh hh hh, 3B-114
FExy 8F54 eess oodd hh hh hh, 3B-115
FExy 8FAA eess oodd hh hh hh, 3B-117

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pDde a1b0 xxyy zzww hh hh hh, 3A-2
pDde a20c xxyy zzww hh hh hh, 3A-4
pDde a21c xxyy zzww hh hh hh, 3A-6
pDde a30c xxyy zzww hh hh hh, 3A-9
pDde a31c xxyy zzww hh hh hh, 3A-11
pDde a40c xxyy zzww hh hh hh, 3A-13
pDde a41b cccc cccc hh hh hh, 3A-15
pDde a42c xxyy zzww hh hh hh, 3A-17
pDde a44c xxyy zzww hh hh hh, 3A-19
pDde a5rr xxyy zzww hh hh hh, 3A-21
pDde a6rr xxyy zzww hh hh hh, 3A-24
pDde a7rr xxyy zzww hh hh hh, 3A-26
pDde a8rr xxyy zzww hh hh hh, 3A-28
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