

Lucent Technologies
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3B20D and 3B21D Computers ***UNIX*[®] RTR Operating System**

Processor Recovery Messages Guide

254-303-103
Issue 2
October 1999

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Title: 3B20D and 3B21D Computers *UNIX*[®] RTR Operating System Processor Recovery Messages Guide

Identification No.: 254-303-103

Issue 2

Date: October 1999

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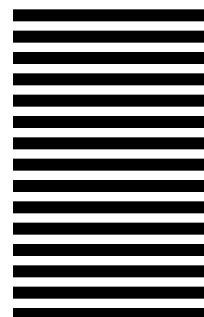
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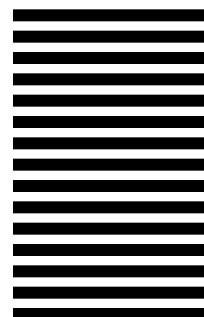
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About This Information Product

Purpose

The Processor Recovery Messages Guide is an information product (IP) that is part of a documentation set used to support the *UNIX** Real-Time Reliable (RTR) operating system running on Lucent Technologies 3B20D and 3B21D computers.

Audience

The audience for this IP is large and diverse. Anyone interested in the *UNIX* RTR operating system and 3B20D and 3B21D computers will find this IP useful. The primary audience for this IP includes the following:

- Software developers
- Hardware developers
- Craft or maintenance personnel
- System administrators
- 3B20D and 3B21D computer documentation users.

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Reason for Reissue

This IP is being reissued to incorporate new information for the 3B20D/3B21D computers. The major changes are as follows:

- In “About This Information Product”
 - Change Cutomer Information Product to Information Product.
 - Update the “Reason for Reissue” section by adding reasons why the IP is being updated.
 - Change the six-digit IP numbers of the Input/Output Message Manuals to nine-digit numbers in Table 1.
- In Chapter 2, “Accessing PRMs”
 - Change the chapter title from “Processor Recovery Messages” to “Accessing PRMs.”
 - Reorganize and divide the processor recovery messages (PRMs) found in the Issue 1 version of Chapter 2 into new Chapters 3 through 16.
 - Create a new Table 2-1, “Locating PRMs by Major Recovery Step or Application.”
 - Update Table 2-2 with the new PRMs.
- In Chapter 5, “Identifier 1 — LBOOT and LDFT PRMs”
 - Revise PRM_p F1da 22tt wwwww xyzz hh hh hh
- In Chapter 9, “Identifier 5 — EIH PRMs”
 - Revise PRM_p E5da 01xx yyyy 0000 hh hh hh
 - Revise PRM_p F5da 01xx yyyy zzzz hh hh hh
 - Revise PRM_p v5da 03xx yyyy zzzz hh hh hh
 - Revise PRM_p E5da 04xx yyyy 0000 hh hh hh
 - Revise PRM_p E5da 09xx yyyy 0000 hh hh hh
 - Revise PRM_p E5da 0Axx yyyy 0000 hh hh hh
 - Revise PRM_p E5da 0Bxx yyyy 0000 hh hh hh
 - Revise PRM_p E5da 0Cxx yyyy zzzz hh hh hh
 - Revise PRM_p E5da 0Dxx yyyy 0000 hh hh hh
 - Revise PRM_p E5da 0Fxx yyyy 0000 hh hh hh
 - Add new PRM_p F5da 0Fxx yyyy 0000 hh hh hh

- Revise PRM_p E5da 12xx 0000 0000 hh hh hh
- Add new PRM_p F5da 12xx 0000 0000 hh hh hh
- Add new PRM_p F5da 13xx yyyy 0000 hh hh hh
- Add new PRM_p F5da 1Axx yyyy zzzz hh hh hh
- Add new PRM_p F5da 1Bxx yyyy zzzz hh hh hh
- Add new PRM_p F5da 1Cxx yyyy zzzz hh hh hh
- Add new PRM_p F5da 1Dxx yyyy zzzz hh hh hh
- Add new PRM_p F5da 1Exx yyyy 0000 hh hh hh
- Add new PRM_p F5da 1Fxx yyyy 0000 hh hh hh
- Revise PMR_p E5da 20xx yyyy zzzz hh hh hh
- Revise PMR_p E5da 23xx yyyy 0000 hh hh hh
- Add new PRM_p F5da 23xx yyyy 0000 hh hh hh
- Add new PRM_p F5da 25xx yyyy 0000 hh hh hh
- Revise PRM_p E5da 26xx yyyy 0000 hh hh hh
- Add new PRM_p F5da 26xx yyyy 0000 hh hh hh
- Add new PRM_p F5da 27xx yyyy 0000 hh hh hh
- Revise PRM_p E5da 28xx yyyy 0000 hh hh hh
- Add new PRM_p F5da 28xx yyyy 0000 hh hh hh
- Revise PRM_p E5da E3xx yyyy zzzz hh hh hh
- Add new PRM_p F5da E3xx yyyy zzzz hh hh hh
- Revise PRM_p E5da E7ww xxxx yyzz hh hh hh
- Revise PRM_p E5da F2xx yyyy zzzz hh hh hh
- Add new PRM_p F5da F2xx yyyy zzzz hh hh hh

■ In Chapter 13, “Identifier 9 — Kernel Service Routines PRMs”

- Revise PRM_p E9da 0A00 xx00 yyyy hh hh hh
- Revise PRM_p E9da 0B00 xx00 yyyy hh hh hh
- Revise PRM_p E9da 0C0w xxyy zzzz hh hh hh
- Revise PRM_p E9da 0D0w xxyy zzzz hh hh hh
- Revise PRM_p F9da 0D0w xxyy zzzz hh hh hh
- Revise PRM_p E9da 0E00 xxyy zzzz hh hh hh

- Revise PRM_p E9da 0F00 xxyy zzzz hh hh hh
 - Revise PRM_p F9da 1B0w xxyy zzzz hh hh hh
 - Add new PRM_p F9da 200w xxyy zzzz hh hh hh
- In Chapter 15, “Identifiers B and C — SIM PRMs”
 - Revise PRM_p ECda DDtw xxyy yzzz hh hh hh
- In Chapter 16, “Identifiers D and E — Application PRMs”
 - Revise PRM_p EEda DDtw xxyy yzzz hh hh hh
- In Chapters 4 through 16, change the six-digit IP numbers of the Input/Output Message Manuals to nine-digit numbers and remove the usage of Select Code as follows:
 - Select Code 303-080 to 254-303-110
 - Select Code 303-081 to 254-303-111
 - Select Code 303-082 to 254-303-112
 - Select Code 303-083 to 254-303-113.
- In Appendix C, “Using LDFT Dead Start Feature,” replace Table C-1 with a reference to the Load Disk from Tape procedure in 254-303-106, *System Maintenance Manual*.
- In Table of Contents, revise contents.
- In Index, revise entries.
- In all chapters, remove the use of diff marks in the final IP.

How to Use This Information Product

This IP is a guide for analyzing PRMs produced during a 3B20D or a 3B21D computer's attempt to return to normal processing. Its purpose is to help the user interpret the messages and correct faults.

The remainder of this IP is organized as follows:

- Chapter 1 - Message Interpretation
Indicates when PRMs are generated, shows their general format, and gives a detailed procedure on how to interpret and analyze the PRMs.
- Chapter 2 - Accessing PRMs
Provides a brief overview of how to find a PRM in Chapters 3 through 16.
- Chapters 3 through 16 - Processor Recovery Messages
Gives detailed information about each PRM, such as identification of the major step or process that outputs the PRM, interpretation of failure information, and suggestions for corrective actions. Excluding the central control (CC) diagnostic phase PRMs, the PRMs are divided into chapters using major steps (0-9, A, B, and C) as Identifiers for locating messages relevant to a process or equipment area as follows:
 - Chapter 3 - 3B20D/3B21D Computer CC Diagnostic Phase PRMs
 - Chapter 4 - Identifier 0 — Processor Initialization Microcode PRMs
 - Chapter 5 - Identifier 1 — LBOOT and LDFT PRMs
 - Chapter 6 - Identifier 2 — PINIT PRMs
 - Chapter 7 - Identifier 3 — BBOOT PRMs
 - Chapter 8 - Identifier 4 — KBOOT PRMs
 - Chapter 9 - Identifier 5 — EIH PRMs
 - Chapter 10 - Identifier 6 — DKDRV PRMs
 - Chapter 11 - Identifier 7 — IODRV PRMs
 - Chapter 12 - Identifier 8 — File Manager PRMs
 - Chapter 13 - Identifier 9 — Kernel Service Routines PRMs
 - Chapter 14 - Identifier A — Processor Manager PRMs

- Chapter 15 - Identifiers B and C — SIM PRMs
- Chapter 16 - Identifiers D and E — Application PRMs.

■ Appendices A through I - Supplementary Information

Provides supplementary information for PRMs. The appendices are organized as follows:

- Appendix A - DSCH Status Layout
- Appendix B - BIC Status Layout
- Appendix C - Using LDFT Dead Start Feature
- Appendix D - Device Type Definitions
- Appendix E - EIH Function Numbers
- Appendix F - Error Codes Generated by IODRV for Growth and Degrowth
- Appendix G - Process Fault Code Definitions
- Appendix H - BBOOT PRM Hex Codes and Descriptions
- Appendix I - Error Codes Generated by Off-Line Boot.

■ Acronyms

Provides a listing of the acronyms and their meaning used in this IP.

■ Glossary

Defines terminology used in this IP.

■ Index

Lists relevant concepts, features, or topics and where they can be found in this IP. When looking for PRMs, please note that the Index is in alphanumeric order and not hexadecimal order.

Conventions Used

Command, Filename, and Display Notations

The input messages contained in this IP are listed in both Program Documentation Standard (PDS) and Man-Machine Language (MML) format. For example, a step instructing the user to enter an input message to the system would include both formats as follows:

- If PDS, enter **VFY:MHD b!**
- If MML, enter **VFY:MHD=b;**

The following notations are used to show commands and filenames in the text and displays.

NOTE:

System filenames and command names are case-sensitive, so you must enter them exactly as they are shown.

- Command names in text appear in **bold** type; for example, the **/usr/bin/ls** command. Command names in headings appear in **bold** type.
- Filenames and form names in text appear in *italic* type; for example, the */usr/lib/uucp/System* file or the *scsdbody* form. Filenames and form names in headings appear in ***bold-italic*** type.
- Text that you enter, such as a command or response to a prompt, appears in **bold** type; for example, the **ls -la** command. The convention of making text that you enter **bold** overrides other conventions; for example, enter **scsdbody** for the form name.
- Variables that appear in a command line or file appear in *italic* type; for example, **grep *username* /etc/passwd**. In this example, *username* is a variable indicating a user's name is required.
- Screen displays and system messages appear in constant width type; for example, Please enter your password. Program code listings and file listings are also shown in constant width type. Input messages are shown in **bold** type.
- Comments and explanations within a display are indented and shown in *italic* type. These are for information only and will not appear on your screen.
- A line in a file or on the computer screen that is too long to be shown as it actually appears in this IP will be shown with a backslash (\) at the end of the first line. This indicates the next line should be read as a continuation of the current line.

- Square brackets around an argument on a command line indicate that the argument is optional; for example, the **lpstat [-t]** command. In this example, the **-t** argument is optional and can be omitted.
- A vertical bar (|) between words in an argument on a command line indicates that one of the arguments is to be selected.
- The key identified on your keyboard as Return, Enter, or a bent arrow (↵) is referred to as the Return key. Occasionally, representations of this Return key will be boxed; for example, Return.
- There is an implied Return at the end of each command and menu response that you enter. Some examples do not explicitly show the Return. Where you may be expected to enter a Return (as in the case where you are accepting a menu default), the symbol <CR> is shown to indicate that you are to press the Return key.
- Key combinations appear in a hyphenated format; for example, Ctrl-d. Press and hold down the first key of a key combination while pressing the second key.
- Ellipses (three dots) on a command line indicate that the previous argument can be repeated; for example, **ls [file ...]**. In this example, multiple files can be listed after the command.
- References to manual pages are followed by their manual page location number in parentheses; for example, **mount(1M)**.

Hexadecimal Notation

Hexadecimal (base 16) numbers are denoted with a **0x** prefix; for example, 0x00A is decimal 10.

Signal Designations

The term “asserted” is used in the descriptions to mean that a signal is driven to its active state. The term “negated” is used in the descriptions to mean that a signal is driven to its inactive state.

Signal names used in the diagrams and descriptions that end in a 0 or 1 indicate the active state of the signal. Names ending in “0” are “active low” signals; names ending in “1” are “active high” signals. For example, CCIOD(31-00)1, describes the Central Control Input/Output Data bits 31 through 00 which are “active high” signals.

Equipment Locations

A coordinate numbering system is used to identify equipment locations (EQLs) in units and cabinets. The origin is the lower left front of the cabinet or unit. Vertical increments are measured in inches. Horizontal increments are measured in eighths of an inch. The coordinate location of a circuit pack is expressed as the horizontal and vertical location of the center lines of the connector into which the circuit pack is inserted. The location of a unit in a cabinet is identified by the placement of the lower left corner of the unit in the cabinet.

For example, a connector at EQL 004-080 is located 4 inches above the origin and 10 inches ($80 \times 0.125 = 10.0$) to the right of the origin.

Safety Labels

Safety labels are reminders used to assure the safety of personnel and to minimize service interruptions, loss of data, and damage to equipment, products, and software.

Three types of safety labels are used in Lucent Technologies documentation. The three types, in descending order of priority, are as follows:

1. **DANGER** indicates the presence of a hazard that **will** cause death or severe personal injury if the hazard is not avoided.
2. **WARNING** indicates the presence of a hazard that **can** cause death or severe personal injury if the hazard is not avoided.
3. **CAUTION** indicates the presence of a hazard that **will** or **can** cause minor personal injury or property damage if the hazard is not avoided.

This IP does not contain safety labels.

Related Information Products

Table 1 lists by IP number and Select Code the Lucent Technologies IPs supporting the 3B21D computer. IPs with Select Codes have been converted to nine-digit IP numbers.

Table 1. Lucent Technologies Documentation

New IP Number	Old Select Code	Title
254-303-100	-	3B21D Computer Growth/Retrofit Tasks
254-303-101	-	3B21D Computer Routine Maintenance Tasks
254-303-102	-	3B21D Computer Trouble Clearing Tasks
254-303-103	303-007	3B20D and 3B21D Computers <i>UNIX</i> RTR Operating System Processor Recovery Messages Guide
254-303-104	303-010	3B20D and 3B21D Computers <i>UNIX</i> RTR Operating System Recent Change and Verify Manual
254-303-105	304-045	3B21D Computer Hardware Reference Manual
254-303-106	304-046	3B20D and 3B21D Computers <i>UNIX</i> RTR Operating System System Maintenance Manual
254-303-107	303-072	3B20D and 3B21D Computers <i>UNIX</i> RTR Operating System Software Troubleshooting Guide
254-303-110	303-080	3B20D and 3B21D Computers <i>UNIX</i> RTR Operating System PDS Input Messages Manual
254-303-111	303-081	3B20D and 3B21D Computers <i>UNIX</i> RTR Operating System PDS Output Messages Manual
254-303-112	303-082	3B20D and 3B21D Computers <i>UNIX</i> RTR Operating System MML Input Messages Manual
254-303-113	303-083	3B20D and 3B21D Computers <i>UNIX</i> RTR Operating System MML Output Messages Manual

IP references will not include full titles; for example, "Refer to 254-303-105, *Hardware Reference Manual*, for more information."

How to Comment on This Information Product

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Message Interpretation

1

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Message Interpretation

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Introduction

During a processor recovery, each common *UNIX** Real-Time Reliable (RTR) operating system process produces a 16-digit hexadecimal success or failure processor recovery message (PRM) after execution. Approximately every 2 seconds, a PRM can be printed out on the maintenance teletypewriter (MTTY) and the receive-only printer (ROP) and sent to the switching control center (SCC).

Success PRMs are considered low priority and are therefore not always output. However, the system will guarantee that the first (oldest) failure PRM will be output to all three devices (that is, ROP, MTTY, and SCC).

Old PRMs generated by a *UNIX* RTR operating system process or by the control unit (CU) diagnostics may be output to a device immediately after it is connected to a maintenance teletypewriter controller (MTTYC). PRMs are sent to the MTTYC and stored in separate output buffers for each device and each CU. For example, for the ROP, there is a buffer for a PRM from CU 0 and a buffer for a PRM from CU 1. The MTTYC that is not connected to the device when the PRM is received from the emergency action interface (EAI) circuit pack will store the PRM in one of these buffers. When the device is connected, it will output the PRM. Therefore, very old PRMs may appear without any current reason. For this reason, a PRM that is output immediately after a device is connected should be ignored. This condition occurs after a port switch of the ROP, MTTY, or SCC.

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If the MTTYC is a TN983 MC4C132B1, Issue 1 or later, then only a failing PRM that is less than 3 minutes old or a success PRM that is less than 12 seconds old will be output when the device is connected to the MTTYC.

By selecting the EAI PRM-TRAP option, the first failing PRM will be trapped and displayed in reverse video (light characters on dark background) on the MTTY. (Refer to 254-303-106, *System Maintenance Manual*.) The EAI PRM-DUMP option is not operational for the TN83 and is not supported for the TN983.

If a failure PRM is output, it identifies the process encountering the failure, the reason for the failure, and in some cases, failure information.

⇒ NOTE:

Undocumented PRMs may appear when an EAI is initialized while it has pending PRM data. The EAI is known to be initialized by diagnostic phases that test the off-line CU EAI, during a CU switch, and during a port switch. Also, diagnostic phases that test the off-line CU EAI produce a known pattern of PRMs if their tests are executed. Disregard these PRMs.

It is very likely that undocumented PRMs will appear during routine exercise (REX) because the REX process runs the CU diagnostic, switches the CUs if the CU passes diagnostics and restores to service, and does a number of port switches to exercise IOPs 0 and 1.

The 3B20D computer control unit (CU) under diagnostic test produces 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. These diagnostic phases initialize the EAI before determining if the diagnostic tests can be executed. The tests in these diagnostic phases are not executed if there are EAI forces active or if there is data in the EAI initialization parameter buffer (IPB). Therefore, PRMs from diagnostic phases initializing the EAI may appear without the PRMs from the diagnostic tests.

Disregard the one or two PRMs which may appear due to these diagnostic phases initializing the EAI, especially if they have a D or F in position 15; for example:

PRM_Z xxxx xxxx xxxx xxxF xx xx xx (See PRM format, Figure 1-1.)

Disregard the PRMs which are produced from the diagnostic tests.

The PRM pattern from tests in a 3B20D computer CU central control Phase 61 and a 3B21D computer CU central control Phase 64 is as follows:

```
PRM_Z 0123 4567 89AB CDEF XX XX XX  
PRM_Z 0000 0000 0000 0000 XX XX XX  
PRM_Z FFFF FFFF FFFF FFFF XX XX XX
```

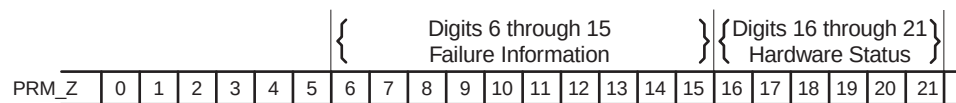
The PRM pattern from tests in a 3B20D computer CU central control Phase 93 and a 3B21D computer CU central control Phase 65 is as follows:

```
PRM_Z 0123 4567 89AB CDEF XX XX XX  
PRM_Z AAAA AAAA AAAA AAAA XX XX XX  
PRM_Z 5555 5555 5555 5555 XX XX XX  
PRM_Z EEEE EEEE EEEE EEEE XX XX XX  
PRM_Z 1111 1111 1111 1111 XX XX XX  
PRM_Z 0000 0000 0000 0000 XX XX XX  
PRM_Z FFFF FFFF FFFF FFFF XX XX XX
```

Refer to 254-303-106, *System Maintenance Manual*.

How to Interpret PRMs

The general format of a PRM is shown in Figure 1-1.



Legend:

- Digit Z = Identifies control unit (CU) printing this processor recovery message (PRM)
0 indicates CU 0 printed the PRM
1 indicates CU 1 printed the PRM
Digit 0 = Type of PRM (F = Failure, E = Successful)
Digit 1 = Major step or process that output PRM [0-E]
Digit 2 = System initialization level
Digit 3 = Application initialization level
Digits 4 & 5 = Two-digit code for function within a major step
Digits 6 - 15 = Ten digits of failure data or other information
Digits 16 - 21 = Six digits that represent the hardware status of the PRM

Figure 1-1. PRM Format

Definition of each digit in the PRM is as follows:

Digit Z = Identification of CU printing this PRM

Digit Z = 0 for CU 0

Digit Z = 1 for CU 1

Digit 0 = Message type, such as

F = Failure

E = Success.

A failure PRM (F) occurs when an error is considered fatal and a phase will be called.* For Release 6.3 and later, a failure PRM (F) indicates that a serious problem has occurred. The action taken when such problems occur depends on the recovery strategy for the specific problem; in most cases, a phase is called. For recovery action information, see the page for the specific PRM. A success PRM (E) is an informational message which describes a function or a possible error and any corrective action that should be taken.

* This does not apply to Release 6.3 and later.

Digit 1 = Major step or process that output the PRM. This can be one of the following codes:

■ **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 initialization 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, and 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 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.

■ **Identifier 1 — LBOOT and LDFT PRMs**

After microcode has been executed, little boot (LBOOT) or load disk from tape (LDFT) software is entered. Both steps share the same PRM major step identifier of 1. LDFT software reads generic text and the application module (AM) database from tape and writes them to disk. Little boot software loads the main bootstrap program (big boot) into main memory. Some of the PRMs with an identifier of 1 report failures to 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 completes, a manual initialization request from the master control center (MCC) is required to continue recovery of the system.

■ Identifier 2 — PINIT PRMs

Processor initialization (PINIT) software is entered from the little boot software or when there is no bootstrap from the MRF microcode. Included in the initialization actions are deciding which processor should go on-line and, if necessary, copying the off-line processor's memory. One of the PRMs printed by this step reports a failure to copy a processor's memory. 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 completes and there was no bootstrap, control is passed to a point in the kernel to initialize the operating system. If there was a bootstrap, big boot is entered.

■ Identifier 3 — BBOOT PRMs

The PRMs of the big boot (BBOOT) software are identified by a 3, and report the failure of the software to carry out its function of loading boot file segments from disk to CU main memory. Also, failure to load ECD segments will be 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 failure to initialize hardware, failure of a disk job, invalid page table parameters, and invalid ECD data. BBOOT passes control to kernel boot (KBOOT) to initialize the operating system.

■ Identifier 4 — KBOOT PRMs

The extent of 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 from PINIT to take the following actions:

- Every kernel process and the supervisor process that was running at the time of the init is faulted.
- Error interrupt handler (EIH), the highest priority process, is dispatched.
- 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 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.

■ Identifier 5 — EIH PRMs

The error interrupt handler (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 (OSTs). EIH issues 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 CU.

■ Identifier 6 — DKDRV PRMs

The disk driver (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 and reads records from MHDs. If the 3B20D/3B21D computer has a small computer system interface (SCSI), then DKDRV reads records from the ECD for all DFCs and SCSI buses (SBUSs). DKDRV also restores to service all DFCs, SBUSs, and one of every logical disk. A failure during any one of these steps will result in a DKDRV PRM. Only if the failure involves an essential function will the PRM be fatal.

■ Identifier 7 — IODRV PRMs

The input/output processor driver (IODRV) is a kernel process that manages all IOP related I/O, which includes normal activities, fault recognition, recovery, and manually requested activities. The peripheral devices controlled by IODRV are teletypewriters (TTYs) attached to the TTYC, MTTYC, BX.25 data links, magnetic tape drives, scanners, and signal distributors. Device handlers in IODRV, which are collections of C-language functions, interface between supervisor or kernel processes and the peripheral devices. The PRMs output by 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 operating system trap (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 time-out 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 it can be shared, it will be used by the new process. If a segment does not exist, it is created. 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.

■ Identifiers B and C — SIM PRMs

The system integrity monitor (SIM) maintains and monitors the integrity of the *UNIX* RTR operating system. 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. 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 will reboot the system. Another function of SIM is to provide a sanity timer that is used by 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. PRMs from SIM report a failure to get an init message from an essential process, a failure to init the overload control system, a failure to execute ULARP.

■ **Identifiers D and E — Application PRMs**

Identifiers D and E are not used by the *UNIX* RTR operating system. These digits may be output by an application process. See the appropriate application documentation.

SIM, on receipt of a software initialization status (SINITSTA) message, will generate an all-seems-well (ASW) PRM on behalf of the sending process. If an application process, attached to the AIM port, sends SIM a SINITSTAT message, an ASW PRM will be produced for it as well. The application process ASW PRM is documented in this guide in the PRM_p EEda DDtw PRM page.



NOTE 1:

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.



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.

Digit 2 = RTR system initialization level:

If Digit 2 = 0, No initialization or D0 initialization.

If Digit 2 = 1, D1 initialization.

If Digit 2 = 2, D2 initialization.

If Digit 2 = 3, D3 initialization.

If Digit 2 = 4, D4 initialization.

These initializations are explained in 254-303-106, *System Maintenance Manual*.

Digit 3 = Application initialization level

Digits 4 & 5 = Two-digit code for function 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 Chapters 2 through 16 for details.)

Digits 16 through 21 represent the hardware status of the PRM. The layout of these digits is as follows:

Digit 16 = 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 will remain set until being read by the MTTYC.

BIT 2: RUN — Indicates that the associated 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 CU printing this PRM is on-line (SSR bit 16).

BIT 0: ASW — Indicates that the EAI thinks 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 PRM has been received from the computer. This bit will remain set until being read by the MTTYC.

BIT 2: SPR — Indicates that a processor recovery MRF has started. This bit will remain set until being read by the MTTYC.

BIT 1: PP23 — Gives the last active state of pulse point 23, from the 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 computer, which indicates that the input data is to be stored at the location indicated by the AP. The AP will then be incremented.

⇒ NOTE:

Both BIT 0 and BIT 1 (PP22 and PP23) being asserted indicates the start of a 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 nonzero data.

BIT 2: EAEN — Indicates a force function to the computer is active or the IPB is nonzero.

BIT 1: FBDP — Indicates that a subsequent system bootstrap will be forced from the primary boot device.

BIT 0: 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 3B20D/3B21D computer central control (3BCC) associated with the EAI is to remain the on-line CC. The mate CC will concurrently be forced off-line (FOFL).

BIT 2: FOFL — Indicates the 3BCC associated with the EAI is to remain the off-line CC. The mate CC will concurrently be forced on-line (FONL).

BIT 1: DTM — Indicates the associated 3BCC sanity is disabled.

BIT 0: MFR — Indicates that a processor recovery MRF has started. This bit is similar to the MRF START bit except that it is tied to the hardware signals. (It does not need to be read to be cleared.)

Digit 20 = Current status 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 the computer automatic hardware checks have been inhibited. The specific checks inhibited are parity checking (on the Address Translation Bus, Instruction Bus, Source Bus, Microcontroller, and Cache), Clock Checking Errors, My Store Error A, Main Store Timeout Error, Data Manipulation Unit Error, and Store Address Controller Error.

BIT 2: — Indicates the reporting of nonfatal errors has been inhibited for all units.

BIT 1: — Indicates the high-speed cache unit is not being used.

BIT 0: — Indicates the SIM process has been prevented from initiating any action recover 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 the computer has been booted using the backup root file system.

BIT 2: — Indicates the 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).

How to Analyze PRMs

To analyze a PRM, use the following procedure:

Step	Procedure
1	Examine the PRM Z field to determine which processor produced the PRM. (See Figure 1-1.) If Z equals 0, CU 0 produced the PRM. If Z equals one, CU 1 produced the PRM.
2	Examine digit 0 to determine if the PRM is a success (E) or failure (F) PRM. (See Figure 1-1.)
3	Locate the PRM with the same number in digit positions 1, 4, and 5 as the PRM on the MTTY screen, ROP, or SCC. (Refer to the Index under the letter "P" to locate the PRM in Chapters 2 through 16.)
⇒ NOTE: The PRMs are arranged in alphanumeric order in the Index.	
4	Read comments under the RECOVERY STEP heading to identify the major step or process that output the PRM.
5	Read comments under the FUNCTION heading to determine which function within the recovery step was being performed.
6	Read comments under the PRM EXPANSION heading to interpret any failure information provided in the PRM.
7	Read comments under the EXPLANATION heading for additional information.
8	Follow actions suggested under the CORRECTIVE ACTION heading to correct any failures.
9	Examine PRM digits 16 through 21 to determine the state of the 3B20D/3B21D computer when the PRM was generated. (See Figure 1-1.)
⇒ NOTE: Set (=1) bit indicates the specified function is active.	
10	Contact your technical assistance organization if additional information is required.

Accessing PRMs

2

Contents

Introduction to Accessing PRMs

[2-1](#)

Introduction to Accessing PRMs

The processor recovery messages (PRMs) inform the user of the result of each step executed during a 3B20D or 3B21D computer system recovery (or processor recovery) attempt.

Chapters 3 through 16 give detailed information about each PRM as follows:

- Identification of the major step or process that outputs the PRM
- Interpretation of failure information
- Suggestions for corrective actions.

Excluding the central control (CC) diagnostic phase PRMs found in Chapter 3, the PRMs are divided into chapters using major steps (0-9, A, B and C, and D and E) as Identifiers for locating messages relevant to a process or equipment area as shown in Table 2-1. The value of digit 1 as shown in Figure 1-1 is used to identify the major recovery step. Digit 1 can have values of hexadecimal 0 through E.

Table 2-1. Locating PRMs by Major Recovery Step or Application

Major Recovery Step or Value of Digit 1	Application	PRM Location
0	Identifier 0 — Processor Initialization Microcode PRMs	Chapter 4
1	Identifier 1 — LBOOT and LDFT PRMs	Chapter 5
2	Identifier 2 — PINIT PRMs	Chapter 6
3	Identifier 3 — BBOOT PRMs	Chapter 7
4	Identifier 4 — KBOOT PRMs	Chapter 8
5	Identifier 5 — EIH PRMs	Chapter 9
6	Identifier 6 — DKDRV PRMs	Chapter 10
7	Identifier 7 — IODRV PRMs	Chapter 11
8	Identifier 8 — File Manager PRMs	Chapter 12
9	Identifier 9 — Kernel Service Routines PRMs	Chapter 13
A	Identifier A — Processor Manager PRMs	Chapter 14
B and C	Identifiers B and C — SIM PRMs	Chapter 15
D and E	Identifiers D and E — Application PRMs	Chapter 16

To locate a PRM, use the following steps:

1. Analyze the PRM by referring to Figure 1-1 in Chapter 1 and determine the value of digit 1 which is the major recovery step.
2. Locate the PRM either by finding the chapter corresponding to the major recovery steps (0 through 9, A, B and C, or D and E) in Table 2-1 or by referring to the letter “I” (for Identifier) or “P” (for PRM) in the Index.

⇒ NOTE:

When Table 2-1 is used to locate a PRM, only a chapter number is provided; therefore, the search is not complete. When the index is used to locate a PRM, a page number is provided.

Table 2-2 contains a list of all the PRMs in this information product (IP). The messages are grouped under the column heading “Application” that correspond with the chapters as previously shown in Table 2-1. The messages are listed in alphanumeric order.

Table 2-2. Processor Recovery Messages

Application	Processor Recovery Messages
3B20D Computer CC Diagnostic Phases 61 and 93 3B21D Computer CC Diagnostic Phases 64 and 65	PRM_Z 0123 4567 89AB CDEF xx xx xx PRM_Z 0000 0000 0000 0000 xx xx xx PRM_Z FFFF FFFF FFFF FFFF xx xx xx
3B20D Computer CC Diagnostic Phase 93 3B21D Computer CC Diagnostic Phase 65	PRM_Z AAAA AAAA AAAA AAAA xx xx xx PRM_Z 5555 5555 5555 5555 xx xx xx PRM_Z EEEE EEEE EEEE EEEE xx xx xx PRM_Z 1111 1111 1111 1111 xx xx xx
Identifier 0 — Processor Initialization Microcode	PRM_p E0da 0100 0000 0000 hh hh hh PRM_p E0da 0200 0000 0000 hh hh hh PRM_p E0da 030z 0000 0000 hh hh hh PRM_p E0da 0400 0000 0000 hh hh hh PRM_p E0da 0500 0000 0000 hh hh hh PRM_p E0da 0600 0000 0000 hh hh hh PRM_p E0da 070z 0000 0000 hh hh hh PRM_p F0da 080z 0000 0000 hh hh hh PRM_p F0da 0900 0000 0000 hh hh hh PRM_p F0da 0A0z 0000 0000 hh hh hh PRM_p F0da 0B0z 0000 0000 hh hh hh PRM_p F0da 0C0z 0000 0000 hh hh hh PRM_p F0da 0D0z 0000 0000 hh hh hh PRM_p F0da 0E0z 0000 0000 hh hh hh PRM_p F0da 0F0z 0000 0000 hh hh hh PRM_p F0da 100z 0000 0000 hh hh hh PRM_p F0da 110z 0000 0000 hh hh hh PRM_p F0da 140z 0000 0000 hh hh hh PRM_p F0da 150z 0000 0000 hh hh hh PRM_p F0da 160z 0000 0000 hh hh hh PRM_p F0da 170z 0000 0000 hh hh hh PRM_p F0da 180z 0000 0000 hh hh hh PRM_p F0da 190z 0000 0000 hh hh hh PRM_p F0da 1C0z 0000 0000 hh hh hh PRM_p F0da 1D0z 0000 0000 hh hh hh PRM_p F0da 1E0z 0000 0000 hh hh hh PRM_p F0da 2000 0000 0000 hh hh hh PRM_p F0da 210z 0000 0000 hh hh hh

Table 2-2. Processor Recovery Messages (Contd)

Application	Processor Recovery Messages
	PRM_p F0da 220z 0000 0000 hh hh hh
	PRM_p F0da 230z 0000 0000 hh hh hh
	PRM_p F0da 2400 0000 0000 hh hh hh
	PRM_p F0da 2500 0000 0000 hh hh hh
	PRM_p F0da 2600 0000 0000 hh hh hh
	PRM_p F0da 2700 0000 0000 hh hh hh
	PRM_p F0da 2800 0000 0000 hh hh hh
	PRM_p F0da 2900 0000 0000 hh hh hh
	PRM_p F0da 2A00 0000 0000 hh hh hh
	PRM_p F0da 2B00 0000 0000 hh hh hh
	PRM_p F0da 2C00 0000 0000 hh hh hh
	PRM_p F0da 2D00 0000 0000 hh hh hh
	PRM_p F0da 2E00 0000 0000 hh hh hh
	PRM_p F0da 2F00 0000 0000 hh hh hh
	PRM_p F0da 3000 0000 0000 hh hh hh
	PRM_p F0da 3100 0000 0000 hh hh hh
	PRM_p F0da 480z 0000 0000 hh hh hh
	PRM_p F0da 4900 0000 0000 hh hh hh
	PRM_p F0da 4A0z 0000 0000 hh hh hh
	PRM_p F0da 4B0z 0000 0000 hh hh hh
	PRM_p F0da 4C0z 0000 0000 hh hh hh
	PRM_p F0da 4D0z 0000 0000 hh hh hh
	PRM_p F0da 4E0z 0000 0000 hh hh hh
	PRM_p F0da 4F0z 0000 0000 hh hh hh
	PRM_p F0da 500z 0000 0000 hh hh hh
	PRM_p F0da 510z 0000 0000 hh hh hh
	PRM_p F0da 540z 0000 0000 hh hh hh
	PRM_p F0da 550z 0000 0000 hh hh hh
	PRM_p F0da 560z 0000 0000 hh hh hh
	PRM_p F0da 570z 0000 0000 hh hh hh
	PRM_p F0da 580z 0000 0000 hh hh hh
	PRM_p F0da 590z 0000 0000 hh hh hh
	PRM_p F0da 5C0z 0000 0000 hh hh hh
	PRM_p F0da 5D0z 0000 0000 hh hh hh
	PRM_p F0da 5E0z 0000 0000 hh hh hh
	PRM_p F0da 5F0z 0000 0000 hh hh hh
	PRM_p F0da 6000 0000 0000 hh hh hh
	PRM_p F0da 6100 0000 0000 hh hh hh
	PRM_p F0da 61yz 0000 0000 hh hh hh
	PRM_p F0da 62yz 0000 0000 hh hh hh

Table 2-2. Processor Recovery Messages (Contd)

Application	Processor Recovery Messages
	PRM_p F0da 63yz 0000 0000 hh hh hh PRM_p F0da 64yz 0000 0000 hh hh hh PRM_p F0da 65yz 0000 0000 hh hh hh PRM_p F0da 66yz 0000 0000 hh hh hh PRM_p F0da 67yz 0000 0000 hh hh hh PRM_p F0da 68yz 0000 0000 hh hh hh PRM_p F0da 69yz 0000 0000 hh hh hh PRM_p F0da 6Ayz 0000 0000 hh hh hh PRM_p F0da 6Byz 0000 0000 hh hh hh PRM_p F0da 6Cyz 0000 0000 hh hh hh PRM_p F0da 6Dyz 0000 0000 hh hh hh PRM_p F0da 6Eyz 0000 0000 hh hh hh PRM_p F0da 6Fyz 0000 0000 hh hh hh PRM_p F0da 70yz 0000 0000 hh hh hh PRM_p F0da 71yz 0000 0000 hh hh hh PRM_p F0da FF04 xx00 0000 hh hh hh
Identifier 1 — LBOOT and LDFT	PRM_p F1da 0100 0000 xyyy hh hh hh PRM_p F1da 0400 0000 xxxx hh hh hh PRM_p F1da 0500 0000 0000 hh hh hh PRM_p F1da 0700 0000 xyyy hh hh hh PRM_p F1da 0A00 00xx 0000 hh hh hh PRM_p F1da 0B00 0000 0000 hh hh hh PRM_p F1da 10ww xxxx y00z hh hh hh PRM_p F1da 2000 xxxx xxxx hh hh hh PRM_p F1da 2100 0000 xyyy hh hh hh PRM_p F1da 22tt wwwwww xy0z hh hh hh PRM_p E1da 51xx xxxx yyyy hh hh hh PRM_p F1da 5200 xxxx yyyy hh hh hh PRM_p F1da 5300 0000 xxxx hh hh hh PRM_p E1da 54xx yyyy yyyy hh hh hh PRM_p F1da 55xx xxxx xxyy hh hh hh PRM_p F1da 56xx xxxx xxyy hh hh hh PRM_p E1da 5700 000x xxxx hh hh hh PRM_p E1da 58xx xxxx xxyy hh hh hh PRM_p E1da 59xx xyyy yzzz hh hh hh PRM_p F1da 6000 xxxx xxxx hh hh hh PRM_p F1da 6100 xxxx xxxx hh hh hh PRM_p F1da 6200 0000 xxxx hh hh hh

Table 2-2. Processor Recovery Messages (Contd)

Application	Processor Recovery Messages
	PRM_p F1da 6300 00xx 0000 hh hh hh PRM_p F1da 6400 0000 xxxx hh hh hh PRM_p F1da 6500 xxxx xxxx hh hh hh PRM_p F1da 6600 xxxx 0000 hh hh hh PRM_p F1da 6700 0000 00xx hh hh hh PRM_p F1da 6800 xxxx xxxx hh hh hh PRM_p F1da 6900 0000 0000 hh hh hh PRM_p F1da 7000 000x 0000 hh hh hh PRM_p E1da 7100 x00y yyyy hh hh hh PRM_p F1da 7200 0000 0000 hh hh hh PRM_p E1da 7400 xxyy 0000 hh hh hh PRM_p E1da 78xx xxxx xxyy hh hh hh PRM_p E1da 79xx xyyy yyzz hh hh hh PRM_p E1da 8800 xxxx 000y hh hh hh PRM_p E1da 8900 0000 000x hh hh hh PRM_p E1da 983B 10AD 10AD hh hh hh PRM_p E1da 993B 10AD 10AD hh hh hh PRM_p E1da DDtw xxyy yyzz hh hh hh
Identifier 2 — PINIT	PRM_p E2da 010x 0000 0000 hh hh hh PRM_p F2da 02xx 0000 0000 hh hh hh PRM_p E2da 03xx 0000 0000 hh hh hh PRM_p E2da 0400 0000 0000 hh hh hh PRM_p E2da 0500 0000 0000 hh hh hh PRM_p E2da 0600 0000 0000 hh hh hh PRM_p E2da 0700 0000 0000 hh hh hh PRM_p F2da 0800 0000 xxxx hh hh hh PRM_p F2da 09xx yyyy yyyy hh hh hh PRM_p E2da 0A0x xxxx xxyy hh hh hh PRM_p E2da 0B00 xxyy 0000 hh hh hh PRM_p E2da 0C00 zzzz zzzz hh hh hh PRM_p E2da 0Dxy z000 0000 hh hh hh PRM_p F2da 2100 0000 yyzz hh hh hh PRM_p E2da ABD0 0000 wxyz hh hh hh PRM_p E2da DDtw xxyy yyzz hh hh hh PRM_p v2da 0Fxx 0000 0000 hh hh hh

Table 2-2. Processor Recovery Messages (Contd)

Application	Processor Recovery Messages
Identifier 3 — BBOOT	PRM_p F3da 0100 0000 xyyy hh hh hh PRM_p F3da 0200 0000 xyyy hh hh hh PRM_p F3da 0300 0000 xxxx hh hh hh PRM_p F3da 0400 0000 0xyy hh hh hh PRM_p F3da 0500 0000 0xyy hh hh hh PRM_p F3da 0600 0000 0xyy hh hh hh PRM_p F3da 07xx yyyy yyyy hh hh hh PRM_p F3da 09xx yzzz zzzz hh hh hh PRM_p F3da 1000 xxxx xxxx hh hh hh PRM_p F3da 2000 xxxx xxxx hh hh hh PRM_p F3da 21ww x000 yzzz hh hh hh PRM_p F3da 22tt wwwwww xy0z hh hh hh PRM_p F3da 3100 0000 0000 hh hh hh PRM_p F3da 3200 0000 0000 hh hh hh PRM_p F3da 3300 0000 0000 hh hh hh PRM_p F3da 340x yyyy yyyy hh hh hh PRM_p F3da 3500 zzzz zzzz hh hh hh PRM_p E3da 360x yyyy yyyy hh hh hh PRM_p E3da 3700 0000 0000 hh hh hh PRM_p E3da 3800 0000 0000 hh hh hh PRM_p F3da 5300 0000 0000 hh hh hh PRM_p F3da 63x0 0000 0000 hh hh hh PRM_p E3da DDtw xxyy yzzz hh hh hh
Identifier 4 — KBOOT	PRM_p F4da 0100 0000 00xx hh hh hh PRM_p F4da 0200 0000 00xx hh hh hh PRM_p F4da 0300 0000 00xx hh hh hh PRM_p F4da 0400 xx00 00yy hh hh hh PRM_p F4da 0500 0000 00xx hh hh hh PRM_p F4da 0600 0000 00xx hh hh hh PRM_p F4da 0700 0000 0000 hh hh hh PRM_p F4da 0800 0000 0000 hh hh hh PRM_p F4da 0900 0000 0000 hh hh hh PRM_p F4da 0A00 0000 00xx hh hh hh

Table 2-2. Processor Recovery Messages (Contd)

Application	Processor Recovery Messages
	PRM_p F4da 0B00 0000 00xx hh hh hh PRM_p F4da 0C00 0000 00xx hh hh hh PRM_p F4da 0D00 0000 0000 hh hh hh PRM_p F4da 0E00 0000 0000 hh hh hh PRM_p F4da 0F00 0000 00xx hh hh hh PRM_p F4da 1000 0000 00xx hh hh hh PRM_p F4da 1100 0000 00xx hh hh hh PRM_p F4da 1200 xx00 00yy hh hh hh PRM_p F4da 1300 0000 0000 hh hh hh PRM_p F4da 1400 0000 00xx hh hh hh PRM_p F4da 1500 xx00 00yy hh hh hh PRM_p F4da 1600 0000 00xx hh hh hh PRM_p F4da 1700 0000 00xx hh hh hh PRM_p F4da 1800 0000 00xx hh hh hh PRM_p F4da 1900 xx00 00yy hh hh hh PRM_p F4da 1A00 0000 0000 hh hh hh PRM_p F4da 1B00 0000 0000 hh hh hh PRM_p F4da 1C00 0000 0000 hh hh hh PRM_p F4da 1D00 xx00 00yy hh hh hh PRM_p F4da 1E00 0000 0000 hh hh hh PRM_p F4da 1F00 0000 0000 hh hh hh PRM_p F4da 2000 xxxx xxxx hh hh hh PRM_p F4da 2100 xx00 00yy hh hh hh PRM-P F4da 2200 xx00 00yy hh hh hh PRM_p E4da DDtw xxyy yzzz hh hh hh
Identifier 5 — EIH	PRM_p E5da 01xx yyyy 0000 hh hh hh PRM_p F5da 01xx yyyy zzzz hh hh hh PRM_p F5da 02xx yyyy 0000 hh hh hh PRM_p v5da 03xx yyyy zzzz hh hh hh PRM_p E5da 04xx yyyy 0000 hh hh hh PRM_p E5da 05xx yyyy zzzz hh hh hh PRM_p E5da 06xx yyyy zzzz hh hh hh PRM_p E5da 07xx yyyy zzzz hh hh hh PRM_p E5da 08xx yyyy zzzz hh hh hh PRM_p E5da 09xx yyyy 0000 hh hh hh PRM_p E5da 0Axx yyyy 0000 hh hh hh PRM_p E5da 0Bxx yyyy 0000 hh hh hh PRM_p E5da 0Cxx yyyy zzzz hh hh hh PRM_p E5da 0Dxx yyyy zzzz hh hh hh PRM_p E5da 0Exx yyyy 0000 hh hh hh PRM_p E5da 0Fxx yyyy 0000 hh hh hh

Table 2-2. Processor Recovery Messages (Contd)

Application	Processor Recovery Messages
	PRM_p F5da 0Fxx yyyy 0000 hh hh hh
	PRM_p F5da 10xx yyyy 0000 hh hh hh
	PRM_p E5da 11xx 0000 0000 hh hh hh
	PRM_p E5da 12xx 0000 0000 hh hh hh
	PRM_p F5da 12xx 0000 0000 hh hh hh
	PRM_p E5da 13xx yyyy 0000 hh hh hh
	PRM_p F5da 13xx yyyy 0000 hh hh hh
	PRM_p F5da 14xx yyyy 0000 hh hh hh
	PRM_p E5da 15xx yyyy 0000 hh hh hh
	PRM_p E5da 16xx yyyy zzzz hh hh hh
	PRM_p E5da 17xx yyyy zzzz hh hh hh
	PRM_p E5da 18xx yyyy zzzz hh hh hh
	PRM_p E5da 19xx yyyy zzzz hh hh hh
	PRM_p F5da 1Axx yyyy zzzz hh hh hh
	PRM_p F5da 1Bxx yyyy zzzz hh hh hh
	PRM_p F5da 1Cxx yyyy zzzz hh hh hh
	PRM_p F5da 1Dxx yyyy zzzz hh hh hh
	PRM_p F5da 1Exx yyyy 0000 hh hh hh
	PRM_p F5da 1Fxx yyyy 0000 hh hh hh
	PRM_p E5da 20xx yyyy zzzz hh hh hh
	PRM_p E5da 21xx yyyy zzzz hh hh hh
	PRM_p E5da 22xx yyyy zzzz hh hh hh
	PRM_p E5da 23xx yyyy 0000 hh hh hh
	PRM_p F5da 23xx yyyy 0000 hh hh hh
	PRM_p E5da 24xx yyyy zzzz hh hh hh
	PRM_p E5da 25xx yyyy 0000 hh hh hh
	PRM_p F5da 25xx yyyy 0000 hh hh hh
	PRM_p E5da 26xx yyyy 0000 hh hh hh
	PRM_p F5da 26xx yyyy 0000 hh hh hh
	PRM_p E5da 27xx yyyy 0000 hh hh hh
	PRM_p F5da 27xx yyyy 0000 hh hh hh
	PRM_p E5da 28xx yyyy 0000 hh hh hh
	PRM_p F5da 28xx yyyy 0000 hh hh hh
	PRM_p E5da 29xx yyyy zzzz hh hh hh
	PRM_p E5da 30xx yyyy zzzz hh hh hh
	PRM_p E5da 30ww xxxx yyzz hh hh hh
	PRM_p E5da DDtw xxyy yzzz hh hh hh
	PRM_p E5da E0xx yyyy 0000 hh hh hh
	PRM_p E5da E1xx yyyy 0000 hh hh hh
	PRM_p F5da E2xx yyyy 0000 hh hh hh
	PRM_p E5da E3xx yyyy zzzz hh hh hh
	PRM_p F5da E3xx yyyy zzzz hh hh hh
	PRM_p F5da E4xx yyyy 0000 hh hh hh
	PRM_p F5da E5xx yyyy zzzz hh hh hh

Table 2-2. Processor Recovery Messages (Contd)

Application	Processor Recovery Messages
	PRM_p E5da E7ww xxxx yyzz hh hh hh PRM_p E5da E8xx yyyy zzzz hh hh hh PRM_p F5da EAx yyyy zzzz hh hh hh PRM_p E5da ECxx yyyy zzzz hh hh hh PRM_p F5da EDxx yyyy zzzz hh hh hh PRM_p E5da EEx yyyy zzzz hh hh hh PRM_p F5da EFww yyyy zzzz hh hh hh PRM_p E5da F0xx yyyy zzzz hh hh hh PRM_p E5da F1xx xxxx xxxx hh hh hh PRM_p E5da F2xx yyyy zzzz hh hh hh PRM_p F5da F2xx yyyy zzzz hh hh hh PRM_p F5da F3xx yyyy zzzz hh hh hh
Identifier 6 — DKDRV	PRM_p v6da 100x xxyy yzzz hh hh hh PRM_p v6da 20wx xxyy yzzz hh hh hh PRM_p v6da 30wx xxyy yzzz hh hh hh PRM_p v6da 31wx xxyy yzzz hh hh hh PRM_p v6da 32wx xxyy yzzz hh hh hh PRM_p v6da 33wx xxyy yzzz hh hh hh PRM_p v6da 34wx xxyy yzzz hh hh hh PRM_p v6da 35wx xxyy yzzz hh hh hh PRM_p v6da 36wx xxyy yzzz hh hh hh PRM_p v6da 37wx xxyy yzzz hh hh hh PRM_p v6da 40xx xxyy yzzz hh hh hh PRM_p v6da 60w0 xxyy yzzz hh hh hh PRM_p v6da 70w0 xxyy yzzz hh hh hh PRM_p v6da 71w0 xxyy yzzz hh hh hh PRM_p v6da 72w0 xxyy yzzz hh hh hh PRM_p v6da 73w0 xxyy yzzz hh hh hh PRM_p v6da 74w0 xxyy yzzz hh hh hh PRM_p v6da 75w0 xxyy yzzz hh hh hh PRM_p v6da 76w0 xxyy yzzz hh hh hh PRM_p v6da 77w0 xxyy yzzz hh hh hh PRM_p F6da 80ww zzzz zzzz hh hh hh PRM_p E6da DDtw xxyy yzzz hh hh hh PRM_p F6da F0wx xxyy yzzz hh hh hh
Identifier 7 — IODRV	PRM_p E7da 010x xxyy zzzz hh hh hh PRM_p E7da 02wx xxyy zzzz hh hh hh PRM_p E7da 030x xxyy zzzz hh hh hh PRM_p E7da 040x xxyy zzzz hh hh hh PRM_p E7da 050x xxyy zzzz hh hh hh PRM_p E7da 0600 0000 xxxx hh hh hh

Table 2-2. Processor Recovery Messages (Contd)

Application	Processor Recovery Messages
	PRM_p E7da 0800 0000 zzzz hh hh hh
	PRM_p F7da 0B0x xxyy zzzz hh hh hh
	PRM_p F7da 0C0x xxyy zzzz hh hh hh
	PRM_p F7da 0D0x xxyy zzzz hh hh hh
	PRM_p E7da 0F0x xxyy zzzz hh hh hh
	PRM_p E7da 200y yyzz tttt hh hh hh
	PRM_p F7da 200y yyzz tttt hh hh hh
	PRM_p E7da 2100 0000 0000 hh hh hh
	PRM_p E7da 500y yyzz 0000 hh hh hh
	PRM_p E7da 510y yyzz 0000 hh hh hh
	PRM_p E7da 520y yyzz tttt hh hh hh
	PRM_p E7da 530y yyzz 0000 hh hh hh
	PRM_p E7da 540y yyzz 0000 hh hh hh
	PRM_p E7da 550y yyzz 0000 hh hh hh
	PRM_p E7da 560y yyzz 0000 hh hh hh
	PRM_p E7da 570y yyzz 0000 hh hh hh
	PRM_p E7da 580y yyzz 0000 hh hh hh
	PRM_p E7da 590y yyzz 0000 hh hh hh
	PRM_p E7da 5A0y yyzz 0000 hh hh hh
	PRM_p E7da 5B0y yyzz 0000 hh hh hh
	PRM_p E7da 700y yyzz 0000 hh hh hh
	PRM_p E7da 710y yyzz 0000 hh hh hh
	PRM_p E7da 720y yyzz 0000 hh hh hh
	PRM_p E7da 730y yyzz 0000 hh hh hh
	PRM_p E7da 740y yyzz 0000 hh hh hh
	PRM_p E7da 750y yyzz 0000 hh hh hh
	PRM_p E7da 80xx yyyy yyyy hh hh hh
	PRM_p E7da 83xx yyyy yyyy hh hh hh
	PRM_p E7da 86xx yyyy yyyy hh hh hh
	PRM_p E7da 87xx yyyy yyyy hh hh hh
	PRM_p E7da 88xx yyyy yyyy hh hh hh
	PRM_p E7da 90D5 xxxx xxxx hh hh hh
	PRM_p E7da 91yy zzzz zzzz hh hh hh
	PRM_p E7da DDtw xxyy yzzz hh hh hh
	PRM_p F7da F000 zzzz yyyy hh hh hh

Table 2-2. Processor Recovery Messages (Contd)

Application	Processor Recovery Messages
Identifier 8 — File Manager	PRM_p E8da 00ww xxxx yyzz hh hh hh PRM_p E8da 00xx yyzz zzzz hh hh hh PRM_p F8da 01xx yyyy yyyy hh hh hh PRM_p F8da 02xx yyyy yyyy hh hh hh PRM_p F8da 04xx yyyy yyyy hh hh hh PRM_p F8da 06xx yyyy yyyy hh hh hh PRM_p F8da 0700 0000 0000 hh hh hh PRM_p F8da 08xx yyyy yyyy hh hh hh PRM_p F8da 0900 0000 xxxx hh hh hh PRM_p F8da 0Cxx yyyy yyyy hh hh hh PRM_p F8da 0D00 0000 0000 hh hh hh PRM_p E8da 0Exx yyyy yyyy hh hh hh PRM_p E8da 0Fxx yyyy yyyy hh hh hh PRM_p F8da 1000 xxyy yyyy hh hh hh PRM_p F8da 1100 xxyy yyyy hh hh hh PRM_p F8da 1200 xxyy yyyy hh hh hh PRM_p F8da 13xx yyzz zzzz hh hh hh PRM_p F8da 14xx xxxx yyzz hh hh hh PRM_p F8da 15xx yyyy zzzz hh hh hh PRM_p F8da 16xx yyzz zzzz hh hh hh PRM_p F8da 17xx yyzz zzzz hh hh hh PRM_p F8da 18xx yyzz zzzz hh hh hh PRM_p F8da 19xx yyyy yyyy hh hh hh PRM_p F8da 1Axx yyyy yyyy hh hh hh PRM_p E8da DDtw xxyy yyzz hh hh hh
Identifier 9 — Kernel Service Routines	PRM_p F9da 0100 0000 0000 hh hh hh PRM_p F9da 0200 00xx xxxx hh hh hh PRM_p F9da 0300 0000 0000 hh hh hh PRM_p F9da 0400 0000 00xx hh hh hh PRM_p F9da 05xx 00yy 00zz hh hh hh PRM_p F9da 060x 00yy yyyy hh hh hh PRM_p F9da 070x 00yy yyyy hh hh hh PRM_p F9da 0800 wwxx yyzz hh hh hh PRM_p F9da 0900 0000 0000 hh hh hh PRM_p E9da 0A00 xx00 yyyy hh hh hh PRM_p E9da 0B00 xx00 yyyy hh hh hh PRM_p E9da 0C0w xxyy zzzz hh hh hh PRM_p E9da 0D0w xxyy zzzz hh hh hh PRM_p F9da 0D0w xxyy zzzz hh hh hh PRM_p E9da 0E00 xxyy zzzz hh hh hh PRM_p E9da 0F00 xxyy zzzz hh hh hh

Table 2-2. Processor Recovery Messages (Contd)

Application	Processor Recovery Messages
	PRM_p E9da 1F00 xxyy zzzz hh hh hh
	PRM_p F9da 1000 0000 0000 hh hh hh
	PRM_p F9da 11xx yyzz zzzz hh hh hh
	PRM_p F9da 12xx yyzz zzzz hh hh hh
	PRM_p F9da 13xx yyzz zzzz hh hh hh
	PRM_p F9da 14xx yyzz zzzz hh hh hh
	PRM_p F9da 15xx yyzz zzzz hh hh hh
	PRM_p F9da 16xx yyzz zzzz hh hh hh
	PRM_p F9da 17xx yyzz zzzz hh hh hh
	PRM_p E9da 1700 0000 0000 hh hh hh
	PRM_p E9da 1800 0000 0000 hh hh hh
	PRM_p E9da 1900 xxxx xxxx hh hh hh
	PRM_p E9da 1A0w xxyy yzzz hh hh hh
	PRM_p F9da 1B0w xxyy zzzz hh hh hh
	PRM_p E9da 1Cxx yyyy yyyy hh hh hh
	PRM_p E9da 1Exx yyzz 0000 hh hh hh
	PRM_p F9da 200w xxyy zzzz hh hh hh
	PRM_p F9da 3400 0000 0000 hh hh hh
	PRM_p E9da 36xx xyyy zzzz hh hh hh
	PRM_p F9da 3700 0000 0000 hh hh hh
	PRM_p F9da 3802 xx00 0000 hh hh hh
	PRM_p F9da 3902 xx00 0000 hh hh hh
	PRM_p F9da 3A02 xx00 0000 hh hh hh
	PRM_p F9da 4002 xx00 0000 hh hh hh
	PRM_p F9da 5002 xx00 0000 hh hh hh
	PRM_p F9da 6E00 0000 0000 hh hh hh
	PRM_p F9da 6F00 0000 0000 hh hh hh
	PRM_p F9da 7000 0000 0000 hh hh hh
	PRM_p F9da 7100 0000 0000 hh hh hh
	PRM_p F9da 7200 0000 0000 hh hh hh
	PRM_p E9da 7300 0000 0000 hh hh hh
	PRM_p F9da 7400 0000 0000 hh hh hh
	PRM_p F9da 7502 xx00 0000 hh hh hh
	PRM_p E9da 7600 0000 0000 hh hh hh
	PRM_p E9da 7700 0000 0000 hh hh hh
	PRM_p E9da 78xx yyyy yyyy hh hh hh
	PRM_p F9da 7Fxx 0000 0000 hh hh hh
	PRM_p F9da 8002 xx00 0000 hh hh hh
	PRM_p E9da DDtw xxyy yzzz hh hh hh

Table 2-2. Processor Recovery Messages (Contd)

Application	Processor Recovery Messages
Identifier A — Process Manager	PRM_p FAdA 0100 0000 0000 hh hh hh PRM_p FAdA 0200 0000 0000 hh hh hh PRM_p FAdA 0300 0000 0000 hh hh hh PRM_p FAdA 0800 0000 0000 hh hh hh PRM_p FAdA 0900 0000 0000 hh hh hh PRM_p FAdA 0C00 0000 0000 hh hh hh PRM_p FAdA 0D00 0000 0000 hh hh hh PRM_p FAdA 0E00 0000 0000 hh hh hh PRM_p FAdA 0F00 0000 0000 hh hh hh PRM_p FAdA 1100 0000 0000 hh hh hh PRM_p FAdA 1200 0000 0000 hh hh hh PRM_p FAdA 1300 0000 0000 hh hh hh PRM_p FAdA 1500 xxyy yyyy hh hh hh PRM_p EAdA 6400 0000 0000 hh hh hh PRM_p EAdA 6500 xx00 00yy hh hh hh PRM_p EAdA DDtw xxyy yzzz hh hh hh
Identifiers B and C — SIM	PRM_p FBda 0000 xxxx xxxx hh hh hh PRM_p EBda 0700 0000 0000 hh hh hh PRM_p EBda 0800 0000 0000 hh hh hh PRM_p FBda 0Bxx yyyy yyyy hh hh hh PRM_p FBda 0Cyy xxxx xxxx hh hh hh PRM_p EBda 1000 0000 0000 hh hh hh PRM_p EBda 1100 0000 00xx hh hh hh PRM_p EBda 1200 0000 00xx hh hh hh PRM_p EBda 1300 0000 00xx hh hh hh PRM_p EBda 1400 0000 00xx hh hh hh PRM_p EBda 1500 0000 00xx hh hh hh PRM_p EBda 1600 0000 00xx hh hh hh PRM_p FBda 2000 0000 00xx hh hh hh PRM_p FBda 2100 0000 00xx hh hh hh PRM_p FBda 4000 xxxx xxxx hh hh hh PRM_p FBda 4100 xxxx xxxx hh hh hh PRM_p FBda 4200 xxxx xxxx hh hh hh PRM_p FBda 4300 xxxx xxxx hh hh hh PRM_p EBda 5000 0000 xxxx hh hh hh PRM_p EBda 5100 0000 xxxx hh hh hh PRM_p FBda 5100 0000 xxxx hh hh hh PRM_p FBda 5200 0000 0000 hh hh hh PRM_p EBda 60xx yyyy yyyy hh hh hh PRM_p EBda 6100 0000 0000 hh hh hh PRM_p EBda 62xx 0000 0000 hh hh hh PRM_p EBda 6300 0000 0000 hh hh hh

Table 2-2. Processor Recovery Messages (Contd)

Application	Processor Recovery Messages
	PRM_p EBda 6400 0000 0000 hh hh hh
	PRM_p EBda 65xx yyyy yyyy hh hh hh
	PRM_p EBda 66xx yyyy yyyy hh hh hh
	PRM_p EBda 67xx yyyy yyyy hh hh hh
	PRM_p EBda 68xx yyyy yyyy hh hh hh
	PRM_p EBda 6900 0000 0000 hh hh hh
	PRM_p EBda 7200 0000 0000 hh hh hh
	PRM_p EBda 7300 0000 0000 hh hh hh
	PRM_p EBda 7400 xxyy zzzz hh hh hh
	PRM_p EBda 7500 0000 0000 hh hh hh
	PRM_p EBda 7500 0000 0001 hh hh hh
	PRM_p EBda DDtw xxyy yzzz hh hh hh
	PRM_p ECda 0F00 0000 0000 hh hh hh
	PRM_p ECda 0F00 1234 5678 hh hh hh
	PRM_p ECda 0FDD 1234 5678 hh hh hh
	PRM_p ECda DDtw xxyy yzzz hh hh hh
Identifiers D and E — Application PRMs	PRM_p EEda DDtw xxyy yzzz hh hh hh

3B20D/3B21D Computer CC Diagnostic Phase PRMs

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■ PRM_Z 0000 0000 0000 0000 xx xx xx	<u>3-4</u>
■ PRM_Z FFFF FFFF FFFF FFFF xx xx xx	<u>3-5</u>
■ PRM_Z AAAA AAAA AAAA AAAA xx xx xx	<u>3-6</u>
■ PRM_Z 5555 5555 5555 5555 xx xx xx	<u>3-7</u>
■ PRM_Z EEEE EEEE EEEE EEEE xx xx xx	<u>3-8</u>
■ PRM_Z 1111 1111 1111 1111 xx xx xx	<u>3-9</u>

3B20D/3B21D Computer CC Diagnostic Phase PRMs

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Introduction to CC Diagnostic Phase PRMs

The 3B20D computer control unit (CU) under diagnostic test 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. These diagnostic phases initialize the emergency action interface (EAI) before determining if the diagnostic tests can be executed. The tests in these diagnostic phases are not executed if there are EAI forces active or if there is data in the EAI initialization parameter buffer (IPB). Therefore, PRMs from diagnostic phases initializing the EAI may appear without the PRMs from the diagnostic tests.

Disregard the one or two PRMs which may appear due to these diagnostic phases initializing the EAI, especially if they have a D or F in position 15; for example:

```
PRM_Z xxxx xxxx xxxD xx xx xx  
PRM_Z xxxx xxxx xxxF xx xx xx  
(See PRM format, Figure 1-1.)
```

Disregard the PRMs which are produced from the diagnostic tests.

The PRM pattern from tests in a 3B20D computer CU central control Phase 61 and a 3B21D computer CU central control Phase 64 is as follows:

```
PRM_Z 0123 4567 89AB CDEF XX XX XX  
PRM_Z 0000 0000 0000 0000 XX XX XX  
PRM_Z FFFF FFFF FFFF FFFF XX XX XX
```

The PRM pattern from tests in a 3B20D computer CU central control Phase 93 and a 3B21D computer CU central control Phase 65 is as follows:

```
PRM_Z 0123 4567 89AB CDEF XX XX XX  
PRM_Z AAAA AAAA AAAA AAAA XX XX XX  
PRM_Z 5555 5555 5555 5555 XX XX XX  
PRM_Z EEEE EEEE EEEE EEEE XX XX XX  
PRM_Z 1111 1111 1111 1111 XX XX XX  
PRM_Z 0000 0000 0000 0000 XX XX XX  
PRM_Z FFFF FFFF FFFF FFFF XX XX XX
```

Refer to 254-303-106, *System Maintenance Manual*.

ID PRM:0123
RELEASE 1 and later

PRM FORMAT

PRM_Z 0123 4567 89AB CDEF xx xx xx

PRM SOURCE

3B20D Computer Central Control (CC) Diagnostic Phases 61 and 93 or 3B21D
Computer CC Diagnostic Phases 64 and 65

FUNCTION

Diagnostic test.

PRM EXPANSION

x Any hexadecimal number.

EXPLANATION

The off-line processor produces processor recovery messages (PRMs) during the CC diagnostics. This PRM is one in a sequence of PRMs output during the CC diagnostic. More detailed information about these PRMs is given in Chapter 1 of this information product (IP). Refer to 254-303-106, *System Maintenance Manual*, for additional information.

CORRECTIVE ACTION

None. This is not a problem condition. Disregard this PRM or any of the sequence described in the reference above.

ID PRM:0000
RELEASE 1 and later

PRM FORMAT

PRM_Z 0000 0000 0000 0000 xx xx xx

PRM SOURCE

3B20D Computer Central Control (CC) Diagnostic Phases 61 and 93 or 3B21D
Computer CC Diagnostic Phases 64 and 65

FUNCTION

Diagnostic test.

PRM EXPANSION

x Any hexadecimal number.

EXPLANATION

The off-line processor produces processor recovery messages (PRMs) during the CC diagnostics. This PRM is one in a sequence of PRMs output during the CC diagnostic. More detailed information about these PRMs is given in Chapter 1 of this information product (IP). Refer to 254-303-106, *System Maintenance Manual*, for additional information.

CORRECTIVE ACTION

None. This is not a problem condition. Disregard this PRM or any of the sequence described in the reference above.

ID PRM:FFFF
RELEASE 1 and later

PRM FORMAT

PRM_Z FFFF FFFF FFFF FFFF xx xx xx

PRM SOURCE

3B20D Computer Central Control (CC) Diagnostic Phases 61 and 93 or 3B21D
Computer CC Diagnostic Phases 64 and 65

FUNCTION

Diagnostic test.

PRM EXPANSION

x Any hexadecimal number.

EXPLANATION

The off-line processor produces processor recovery messages (PRMs) during the CC diagnostics. This PRM is one in a sequence of PRMs output during the CC diagnostic. More detailed information about these PRMs is given in Chapter 1 of this information product (IP). Refer to 254-303-106, *System Maintenance Manual*, for additional information.

CORRECTIVE ACTION

None. This is not a problem condition. Disregard this PRM or any of the sequence described in the reference above.

ID.....PRM:AAAA
RELEASE 1 and later

PRM FORMAT

PRM_Z AAAA AAAA AAAA AAAA xx xx xx

PRM SOURCE

3B20D Computer Central Control (CC) Diagnostic Phase 93 or 3B21D Computer
CC Diagnostic Phase 65

FUNCTION

Diagnostic test.

PRM EXPANSION

x Any hexadecimal number.

EXPLANATION

The off-line processor produces processor recovery messages (PRMs) during the CC diagnostics. This PRM is one in a sequence of PRMs output during the CC diagnostic. More detailed information about these PRMs is given in Chapter 1 of this information product (IP). Refer to 254-303-106, *System Maintenance Manual*, for additional information.

CORRECTIVE ACTION

None. This is not a problem condition. Disregard this PRM or any of the sequence described in the reference above.

ID PRM:5555
RELEASE 1 and later

PRM FORMAT

PRM_Z 5555 5555 5555 5555 xx xx xx

PRM SOURCE

3B20D Computer Central Control (CC) Diagnostic Phase 93 or 3B21D Computer
CC Diagnostic Phase 65

FUNCTION

Diagnostic test.

PRM EXPANSION

x Any hexadecimal number.

EXPLANATION

The off-line processor produces processor recovery messages (PRMs) during the CC diagnostics. This PRM is one in a sequence of PRMs output during the CC diagnostic. More detailed information about these PRMs is given in Chapter 1 of this information product (IP). Refer to 254-303-106, *System Maintenance Manual*, for additional information.

CORRECTIVE ACTION

None. This is not a problem condition. Disregard this PRM or any of the sequence described in the reference above.

ID PRM:EEEE
RELEASE.....1 and later

PRM FORMAT

PRM_Z EEEE EEEE EEEE EEEE xx xx xx

PRM SOURCE

3B20D Computer Central Control (CC) Diagnostic Phase 93 or 3B21D Computer
CC Diagnostic Phase 65

FUNCTION

Diagnostic test.

PRM EXPANSION

x Any hexadecimal number.

EXPLANATION

The off-line processor produces processor recovery messages (PRMs) during the CC diagnostics. This PRM is one in a sequence of PRMs output during the CC diagnostic. More detailed information about these PRMs is given in Chapter 1 of this information product (IP). Refer to 254-303-106, *System Maintenance Manual*, for additional information.

CORRECTIVE ACTION

None. This is not a problem condition. Disregard this PRM or any of the sequence described in the reference above.

ID PRM:1111
RELEASE 1 and later

PRM FORMAT

PRM_Z 1111 1111 1111 1111 xx xx xx

PRM SOURCE

3B20D Computer Central Control (CC) Diagnostic Phase 93 or 3B21D Computer
CC Diagnostic Phase 65

FUNCTION

Diagnostic test.

PRM EXPANSION

x Any hexadecimal number.

EXPLANATION

The off-line processor produces processor recovery messages (PRMs) during the CC diagnostics. This PRM is one in a sequence of PRMs output during the CC diagnostic. More detailed information about these PRMs is given in Chapter 1 of this information product (IP). Refer to 254-303-106, *System Maintenance Manual*, for additional information.

CORRECTIVE ACTION

None. This is not a problem condition. Disregard this PRM or any of the sequence described in the reference above.

Identifier 0 — Processor Initialization Microcode PRMs

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■ PRM_p F0da 2700 0000 0000 hh hh hh	<u>4-56</u>
■ PRM_p F0da 2800 0000 0000 hh hh hh	<u>4-57</u>
■ PRM_p F0da 2900 0000 0000 hh hh hh	<u>4-58</u>
■ PRM_p F0da 2A00 0000 0000 hh hh hh	<u>4-59</u>
■ PRM_p F0da 2B00 0000 0000 hh hh hh	<u>4-60</u>
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■ PRM_p F0da 4900 0000 0000 hh hh hh	<u>4-69</u>
■ PRM_p F0da 4A0z 0000 0000 hh hh hh	<u>4-71</u>
■ PRM_p F0da 4B0z 0000 0000 hh hh hh	<u>4-73</u>
■ PRM_p F0da 4C0z 0000 0000 hh hh hh	<u>4-75</u>
■ PRM_p F0da 4D0z 0000 0000 hh hh hh	<u>4-77</u>
■ PRM_p F0da 4E0z 0000 0000 hh hh hh	<u>4-79</u>
■ PRM_p F0da 4F0z 0000 0000 hh hh hh	<u>4-81</u>
■ PRM_p F0da 500z 0000 0000 hh hh hh	<u>4-82</u>
■ PRM_p F0da 510z 0000 0000 hh hh hh	<u>4-84</u>
■ PRM_p F0da 540z 0000 0000 hh hh hh	<u>4-86</u>
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■ PRM_p F0da 570z 0000 0000 hh hh hh	<u>4-92</u>
■ PRM_p F0da 580z 0000 0000 hh hh hh	<u>4-94</u>
■ PRM_p F0da 590z 0000 0000 hh hh hh	<u>4-95</u>
■ PRM_p F0da 5C0z 0000 0000 hh hh hh	<u>4-97</u>
■ PRM_p F0da 5D0z 0000 0000 hh hh hh	<u>4-99</u>
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■ PRM_p F0da 69yz 0000 0000 hh hh hh	4-115
■ PRM_p F0da 6Ayz 0000 0000 hh hh hh	4-116
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■ PRM_p F0da 6Dyz 0000 0000 hh hh hh	4-119
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Identifier 0 — Processor Initialization Microcode PRMs

4

Introduction to 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 initialization 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, and passes control to the little boot software. The 0 identifier 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.

ID PRM:E0da-01
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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 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.

CORRECTIVE ACTION

None

ID PRM:E0da-02
RELEASE.....1 and later

PRM FORMAT

PRM_p E0da 0200 0000 0000 hh hh hh

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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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 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 an SAS 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 processor recovery message (PRM) indicating this action is printed.

CORRECTIVE ACTION

None

ID PRM:E0da-03
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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 processor recovery message (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.

CORRECTIVE ACTION

None

ID PRM:E0da-04
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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 CU that this CU has just powered up.

CORRECTIVE ACTION

None

ID PRM:E0da-05
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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 CU. The starting address of PINIT is read from physical location 0xC in main store.

The ISC bits are left at level 1 initialization.

CORRECTIVE ACTION

None

ID PRM:E0da-06
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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 processor recovery message (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

ID PRM:E0da-07
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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 processor recovery message (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.

CORRECTIVE ACTION

None

ID PRM:F0da-08
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

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 (DIO) bus 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 initialization 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 "z" position.

CORRECTIVE ACTION

Suspect the hardware described under "EXPLANATION":

1. Failures during Steps 1 and 2 primarily implicate this CU and 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 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.

ID PRM:F0da-09
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 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 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.

This processor recovery message (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 direct memory access (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.

ID PRM:F0da-0A
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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 an initialize BIC command is loaded into the channel data register (CDR). This command is sent to DFC 0.

This processor recovery message (PRM) is printed when the input/output (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.
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.

ID PRM:F0da-0B
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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 an initialize PIC command is loaded into the channel data register (CDR). The command is sent to DFC 0.

This processor recovery message (PRM) is printed when the input/output (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.

ID PRM:F0da-0C
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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 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 processor recovery message (PRM) is printed when the input/output (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.

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 these steps fail to resolve the problem, try a different disk.

ID PRM:F0da-0D
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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 waited 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. 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.

ID PRM:F0da-0E
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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 CU.

Status words are read from both the BIC and DFC. If either status word indicates an error or the input/output (I/O) flags in the hardware status register (HSR) show that an error occurred in this VTOC job, then this processor recovery message (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.

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].

ID PRM:F0da-0F
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (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.

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 (plugged in) or cold (not plugged in) spare system disk, or use load disk from tape (LDFT) to build a new system disk.

ID PRM:F0da-10
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 0 (DFC 0).

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

Microboot has read the VTOC and found the little boot (LBOOT) partition entry. Microboot will now extract 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 processor recovery message (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 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 is still reporting this PRM and the disk file controller 1 (DFC 1) version of this PRM (PRM_p F0da 500z...), replace the hardware depending on the computer as follows:
 - If a 3B21D computer, continue to Step 4.
 - If a 3B20D computer, go to Step 5.
4. On the 3B21D computer, replace the main memory (MM). If this does not correct the problem, replace the CC.
5. On the 3B20D computer, replace the following hardware in this order until the problem is corrected:
 - main store controller (MASC)
 - data manipulation unit (DMU)
 - store address control (SAC)
 - module control unit (MCU)
 - main store update (MASU).

ID PRM:F0da-11
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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.

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 processor recovery message (PRM) is printed when the input/output (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 direct memory access (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.

ID PRM:F0da-14
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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 processor recovery message (PRM) is printed when the input/output (I/O) flags in the hardware status register (HSR) show that an error occurred in this CC microcode job.

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.

ID PRM:F0da-15
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

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.
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.

ID PRM:F0da-16
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

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 CU.

Status words are read from both the BIC and DFC. If either status word indicates an error or the input/output (I/O) flags in the hardware status register (HSR) show that an error occurred in the previously mentioned job, this processor recovery message (PRM) is printed and the CU executes a maintenance reset function (MRF).

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. If the CU prints this PRM and the DFC 1 version of the PRM (PRM_p F0da 560z...), suspect the direct memory access controller/dual serial channel (DMAC/DSCH) hardware. In this case, try to boot from the other CU.

ID PRM:F0da-17
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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.

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 1 to boot.
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 using a different system disk. For example, use a warm (plugged in) or cold (not plugged in) spare system disk, or use load disk from tape (LDFT) to build a new system disk.

ID PRM:F0da-18
RELEASE.....1 and later

PRM FORMAT

PRM_p F0da 180z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - little boot (LBOOT) job - error while preparing to read little boot file from disk file controller 0 (DFC 0).

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

After reading the writable microcode from the LBOOT partition, the microboot program will read the little boot program into main store (MAS). The processor recovery message (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 CU to boot.
2. If the problem continues, try using a different system disk. For example, use a warm (plugged in) or cold (not plugged in) spare system disk, or use load disk from tape (LDFT) to build a new system disk.

ID PRM:F0da-19
RELEASE.....1 and later

PRM FORMAT

PRM_p F0da 190z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - little boot (LBOOT) job - direct memory access controller (DMAC)
setup failed using disk file controller 0 (DFC 0).

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 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 described previously.

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 were created by microboot and map all virtual addresses used for this disk transfer to the same physical main store address.

This processor recovery message (PRM) is printed when the input/output (I/O) flags in the hardware status register (HSR) show that an error occurred in this LBOOT job.

CORRECTIVE ACTION

Failures to set up the DMAC for direct memory access (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 clear the emergency action interface (EAI) forces.

ID PRM:F0da-1C
RELEASE 1 and later

PRM FORMAT

PRM_p F0da 1C0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - little boot (LBOOT) job - disk file controller (DFC) "boot" command failed using DFC 0.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 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 LBOOT is contained in the command. The command is sent to the DFC. This command starts the transfer of LBOOT from disk to main store.

This processor recovery message (PRM) is printed when the input/output (I/O) flags in the hardware status register (HSR) show that an error occurred in this LBOOT job.

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. Use a warm or cold spare disk or build a disk using load disk from tape (LDFT).

ID PRM:F0da-1D
RELEASE 1 and later

PRM FORMAT

PRM_p F0da 1D0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - little boot (LBOOT) job - read LBOOT disk job timed out using disk file controller 0 (DFC 0).

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 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 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.

ID PRM:F0da-1E
RELEASE 1 and later

PRM FORMAT

PRM_p F0da 1E0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - little boot (LBOOT) job - read LBOOT disk job errors using disk file controller 0 (DFC 0).

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 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 CU.

Status words are read from both the BIC and DFC. If either status word indicates an error or the input/output (I/O) flags in the hardware status register (HSR) show that an error occurred in this LBOOT job, then this processor recovery message (PRM) is printed and the CU executes a maintenance reset function (MRF).

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 disk or build a disk using load disk from tape (LDFT).

ID PRM:F0da-20
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The LDFT microcode requires that a disk be forced on the maintenance teletypewriter (MTTY). The microcode will continue to print this processor recovery message (PRM) until a disk is forced.

CORRECTIVE ACTION

Force a disk from the MTTY.

ID PRM:F0da-21
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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 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 (DIO) bus is initialized for an LDFT: - A clear error pulse is sent to DMAC 0. - 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 input/output (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 processor recovery message (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 CU.

1. Force the other CU to boot.
2. Power cycle this CU and clear the emergency action interface (EAI) forces.

A failure during Step 03 of the two commands sent to the DDSBS indicates a problem located in the DFC. Also, a failure during Step 04 to clear BIC and reset PIC indicates a problem 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.

ID PRM:F0da-22
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 as documented in processor recovery message (PRM) "F0da 210z" have completed successfully. See processor recovery message (PRM) "F0da 210z" for their explanations.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 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 input/output (I/O) flags in the hardware status register (HSR) show that an error occurred during the previously mentioned sequence.

CORRECTIVE ACTION

Suspect the hardware described under “EXPLANATION”:

Failures during Steps 01 and 02 primarily implicate this CU.

1. Force the other CU to boot.
2. Power cycle this CU and clear the emergency action interface (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 be either 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.

ID PRM:F0da-23
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 as documented in processor recovery messages (PRMs) "F0da 210z" and "F0da 220z" have completed successfully. See processor recovery messages (PRMs) "F0da 210z" and "F0da 220z" for their explanations.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 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 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 input/output (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.

ID PRM:F0da-24
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 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 processor recovery message (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.

ID PRM:F0da-25
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 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 time-out for receiving the status is 2 seconds. This processor recovery message (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.

ID.....PRM:F0da-26
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 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.

ID PRM:F0da-27
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 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 time-out. The microcode will wait 2 seconds before timing out.

CORRECTIVE ACTION

Try the other tape drive or try a different tape.

ID PRM:F0da-28
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 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.

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.

ID PRM:F0da-29
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 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 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-very large main memory (NVLMM) hardware] or the TOP tape is corrupted.
2. Tape drive hardware failure.

CORRECTIVE ACTION

1. Make a new TOP tape that is compatible with the hardware (that is, use a NVLMM TOP tape with NVLMM hardware).
2. Check the tape drive hardware.

ID PRM:F0da-2A
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 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 processor recovery message (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.

ID PRM:F0da-2B
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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 time-out. The microcode will wait 2 seconds before timing out.

CORRECTIVE ACTION

Try the other tape drive or try a different tape.

ID PRM:F0da-2C
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The next 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.

CORRECTIVE ACTION

Try to make another LDFT tape.

ID PRM:F0da-2D
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F0da-2E
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The DDSBS is initialized and then put into an operational mode. Then a BIC initialization command is sent to the BIC. This processor recovery message (PRM) is printed when the input/output (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).

ID PRM:F0da-2F
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

A PIC initialization command is sent to the PIC. This processor recovery message (PRM) is printed when the input/output (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).

ID.....PRM:F0da-30
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (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.

ID.....PRM:F0da-31
RELEASE.....1 and later

PRM FORMAT

PRM_p 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. See Figure 1-1 for definitions of the digits.

EXPLANATION

The LDFT microcode requires that a CU be forced on the maintenance teletypewriter (MTTY). The microcode will continue to print this processor recovery message (PRM) until a CU is forced.

CORRECTIVE ACTION

Force a CU from the MTTY.

ID PRM:F0da-48
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

Microboot failed to initialize the path of communication to DFC 1. Several steps under this processor recovery message (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 (DIO) bus for a bootstrap: - A clear error pulse is sent to direct memory access controller 0 (DMAC 0). - 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. - 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 (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 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 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.

ID PRM:F0da-49
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 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 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.

This processor recovery message (PRM) is printed when the input/output (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 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.

ID PRM:F0da-4A
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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 an initialize BIC command is loaded into the channel data register (CDR). This command is sent to DFC 1.

This processor recovery message (PRM) is printed when the input/output (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.
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.

ID PRM:F0da-4B
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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 an initialize PIC command is loaded into the channel data register (CDR). The command is sent to DFC 1.

This processor recovery message (PRM) is printed when the input/output (I/O) flags in the hardware status register (HSR) 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.
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.

ID PRM:F0da-4C
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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 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 processor recovery message (PRM) is printed when the input/output (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.

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 0 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 these steps fail to resolve the problem, try a different disk.

ID PRM:F0da-4D
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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. 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 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.

ID PRM:F0da-4E
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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 CU.

Status words are read from both the BIC and DFC. If either status word indicates an error or the input/output (I/O) flags in the hardware status register (HSR) show that an error occurred in this VTOC job, then this processor recovery message (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.

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).

ID PRM:F0da-4F
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p F0da 4F0z 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 1 (DFC 1), but it does not have a little boot partition.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (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 using a different system disk. For example, use a warm (plugged in) or cold (not plugged in) spare system disk, or use load disk from tape (LDFT) to build a new system disk.

ID PRM:F0da-50
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

Microboot has read the VTOC and found the little boot (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)

- 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 processor recovery message (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 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 is still reporting this PRM and the DFC 0 version of this PRM (PRM_p F0da 100z...), replace the hardware depending on the computer as follows:
 - If a 3B21D computer, continue to Step 4.
 - If a 3B20D computer, go to Step 5.
4. On the 3B21D computer, replace the main memory (MM). If this does not correct the problem, replace the CC.
5. On the 3B20D computer, replace the following hardware in this order until the problem is corrected:
 - main store controller (MASC)
 - data manipulation unit (DMU)
 - store address control (SAC)
 - module control unit (MCU)
 - main store update (MASU).

ID PRM:F0da-51
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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.

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 processor recovery message (PRM) is printed when the input/output (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 direct memory access (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.

ID PRM:F0da-54
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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 processor recovery message (PRM) is printed when the input/output (I/O) flags in the hardware status register (HSR) show that an error occurred in this CC microcode job.

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.

ID PRM:F0da-55
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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.
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.

ID PRM:F0da-56
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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 CU.

Status words are read from both the BIC and DFC. If either status word indicates an error or the input/output (I/O) flags in the hardware status register (HSR) show that an error occurred in the CC microcode job, then this processor recovery message (PRM) is printed and the CU executes a maintenance reset function (MRF).

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. If this CU prints this PRM and the DFC 0 version (PRM_p F0da 160z...), suspect the direct memory access controller/dual serial channel (DMAC/DSCH) hardware. In this case, try to boot from the other CU.

ID PRM:F0da-57
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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.

CORRECTIVE ACTION

1. Use the emergency action interface (EAI) options to force DFC 0 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, and so forth).
3. If these steps fail to resolve the problem, try a different disk. Use a warm or cold spare disk or build a disk using load disk from tape (LDFT).

ID PRM:F0da-58
RELEASE.....1 and later

PRM FORMAT

PRM_p F0da 580z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - little boot (LBOOT) job - error while preparing to read LBOOT file from disk file controller 1 (DFC 1).

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

After reading the writable microcode from the LBOOT partition, the microboot program will read the LBOOT program into main store. The processor recovery message (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 using a different system disk. For example, use a warm (plugged in) or cold (not plugged in) spare system disk, or use load disk from tape (LDFT) to build a new system disk.

ID.....PRM:F0da-59
RELEASE.....1 and later

PRM FORMAT

PRM_p F0da 590z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - little boot (LBOOT) job - direct memory access controller (DMAC) setup failed using disk file controller 1 (DFC 1).

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 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 described above.

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 were created by microboot and map all virtual addresses used for this disk transfer to the same physical main store address.

This processor recovery message (PRM) is printed when the input/output (I/O) flags in the hardware status register (HSR) show that an error occurred in the LBOOT job.

CORRECTIVE ACTION

Failures to set up the DMAC for direct memory access (DMA) jobs primarily implicate this CU.

1. Use the emergency action interface (EAI) options to force the other CU to boot.
2. If the other CU does not recover, replace the DMAC in this CU and then clear the EAI forces.

ID PRM:F0da-5C
RELEASE 1 and later

PRM FORMAT

PRM_p F0da 5C0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - little boot (LBOOT) job - disk file controller (DFC) "boot" command failed using DFC 1.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 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 the LBOOT is contained in the command. The command is sent to the DFC. This command starts the transfer of LBOOT from disk to main store.

This processor recovery message (PRM) is printed when the input/output (I/O) flags in the hardware status register (HSR) show that an error occurred in the read LBOOT job.

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 still continues, try a different disk. Use a warm or cold spare disk or build a disk using load disk from tape (LDFT).

ID PRM:F0da-5D
RELEASE 1 and later

PRM FORMAT

PRM_p F0da 5D0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - little boot (LBOOT) job - read LBOOT disk job timed out using disk file controller 1 (DFC 1).

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 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.
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.

ID PRM:F0da-5E
RELEASE 1 and later

PRM FORMAT

PRM_p F0da 5E0z 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Microboot - little boot (LBOOT) job - read LBOOT disk job errors using disk file controller 1 (DFC 1).

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 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 CU.

Status words are read from both the BIC and DFC. If either status word indicates an error or the input/output (I/O) flags in the hardware status register (HSR) show that an error occurred in the read LBOOT disk job, then this processor recovery message (PRM) is printed and the CU executes a maintenance reset function (MRF).

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. Use a warm or cold spare disk or build a disk using load disk from tape (LDFT).

ID PRM:F0da-5F
RELEASE 6.4 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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 very large main memory (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 processor recovery message (PRM) is seen during a boot, the correct version of little boot (LBOOT) must be placed in the LBOOT partition before the processor will boot.

ID.....PRM:F0da-60
RELEASE.....6.4 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 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-very large main memory (NVLMM) 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 (LBOOT) must be placed in the LBOOT partition before the processor will boot.

ID.....PRM:F0da-61
RELEASE 6.4 through 6.8

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh	Hardware status digits. See Figure 1-1 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.

ID PRM:F0da-61
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p 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 control unit (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 indicates DFC 0, 1 indicates 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. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (PRM) only appears 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 input/output (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 will wait 10 minutes before timing out.

CORRECTIVE ACTION

First, make sure the tape drive is powered up and on-line. Otherwise, the problem could be (in order): the 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.

ID PRM:F0da-62
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p 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 control unit (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 indicates DFC 0, 1 indicates 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. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (PRM) only appears 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

First, make sure the tape drive is powered up and on-line. Otherwise, the problem could be (in order): the 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.

ID PRM:F0da-63
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p 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 control unit (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 indicates DFC 0, 1 indicates 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. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (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 input/output (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 will wait 10 minutes before timing out.

CORRECTIVE ACTION

Make sure the tape drive is powered up and on-line or try the other tape drive.

ID PRM:F0da-64
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p 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 control unit (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 indicates DFC 0, 1 indicates 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. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (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.

CORRECTIVE ACTION

Make sure the tape drive is powered up and on-line or try the other tape drive or a different tape.

ID PRM:F0da-65
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p 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 control unit (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 indicates DFC 0, 1 indicates 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. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (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 will wait 10 minutes before timing out.

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.

ID PRM:F0da-66
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p 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 control unit (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 indicates DFC 0, 1 indicates 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. See Figure 1-1 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.

ID PRM:F0da-67
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p 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 control unit (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 indicates DFC 0, 1 indicates 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. See Figure 1-1 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 processor recovery message (PRM) is printed. This header check will also identify a zero length writable microcode file which will also result in this failing PRM (however, this is not likely to occur).

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.

ID PRM:F0da-68
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p 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 an LDFT tape failed or timed out.

PRM EXPANSION

p	Active control unit (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 indicates DFC 0, 1 indicates 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. See Figure 1-1 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 input/output (I/O) normal flag set in the hardware status register (HSR) or the job timed out.

CORRECTIVE ACTION

Try a different tape or tape drive device.

ID PRM:F0da-69
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p 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 control unit (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 indicates DFC 0, 1 indicates 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. See Figure 1-1 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.

CORRECTIVE ACTION

Try a different tape or tape drive device.

ID PRM:F0da-6A
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p 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 control unit (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 indicates DFC 0, 1 indicates 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. See Figure 1-1 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.

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.

ID PRM:F0da-6B
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p 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 control unit (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 indicates DFC 0, 1 indicates 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. See Figure 1-1 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 will read 512-byte blocks at a time until all microcode blocks have been read.

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.

ID PRM:F0da-6C
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p 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 control unit (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 indicates DFC 0, 1 indicates 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. See Figure 1-1 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 processor recovery message (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.

ID PRM:F0da-6D
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p 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 control unit (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 indicates DFC 0, 1 indicates 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. See Figure 1-1 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 input/output (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.

ID PRM:F0da-6E
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p F0da 6Eyz 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization Microcode

FUNCTION

Load disk from tape (LDFT) - tape read from LDFT software file header job failed.

PRM EXPANSION

p	Active control unit (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 indicates DFC 0, 1 indicates 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. See Figure 1-1 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.

ID PRM:F0da-6F
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p 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 control unit (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 indicates DFC 0, 1 indicates 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. See Figure 1-1 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.

ID PRM:F0da-70
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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 indicates DFC 0, 1 indicates 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. See Figure 1-1 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. The LDFT software must now 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 input/output (I/O) normal or failed due to a time-out. The microcode waits 10 minutes before timing out. The LDFT microcode reads 512-byte blocks at a time until all LDFT software blocks are read.

CORRECTIVE ACTION

Try the other tape drive or a different tape.

ID.....PRM:F0da-71
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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 indicates DFC 0, 1 indicates 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. See Figure 1-1 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 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.

ID PRM:F0da-FF
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

One of the functions of the 3B21D computer EAI is that its firmware generates a failing processor recovery message (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 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.

To help prevent this situation from occurring, the CU is interrupted when an error is detected. The fault recovery software process known as the error interrupt handler (EIH) 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 EAI's firmware that is composed of the bit-wise “O”R 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

CORRECTIVE ACTION

1. 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.
2. 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.
3. 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.
4. When the MTTY displays OOS or error status for the EAI, also check and/or reseal 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

5

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■ PRM_p F1da 10ww xxxx y00z hh hh hh	<u>5-9</u>
■ PRM_p F1da 2000 xxxx xxxx hh hh hh	<u>5-11</u>
■ PRM_p F1da 2100 0000 yyyy hh hh hh	<u>5-12</u>
■ PRM_p F1da 22tt wwww xyzz hh hh hh	<u>5-13</u>
■ PRM_p E1da 51xx xxxx yyyy hh hh hh	<u>5-16</u>
■ PRM_p F1da 5200 xxxx yyyy hh hh hh	<u>5-17</u>
■ PRM_p F1da 5300 0000 xxxx hh hh hh	<u>5-18</u>
■ PRM_p E1da 54xx yyyy yyyy hh hh hh	<u>5-19</u>
■ PRM_p F1da 55xx xxxx xxyy hh hh hh	<u>5-21</u>
■ PRM_p F1da 56xx xxxx xxyy hh hh hh	<u>5-22</u>
■ PRM_p E1da 5700 000x xxxx hh hh hh	<u>5-23</u>
■ PRM_p E1da 58xx xxxx xxyy hh hh hh	<u>5-24</u>
■ PRM_p E1da 59xx x000 00zz hh hh hh	<u>5-25</u>
■ PRM_p F1da 6000 xxxx xxxx hh hh hh	<u>5-27</u>
■ PRM_p F1da 6100 xxxx xxxx hh hh hh	<u>5-28</u>
■ PRM_p F1da 6200 0000 xxxx hh hh hh	<u>5-29</u>
■ PRM_p F1da 6300 00xx 0000 hh hh hh	<u>5-30</u>
■ PRM_p F1da 6300 00xx 0000 hh hh hh	<u>5-32</u>
■ PRM_p F1da 6400 0000 xxxx hh hh hh	<u>5-34</u>
■ PRM_p F1da 6500 xxxx xxxx hh hh hh	<u>5-35</u>

Contents

■ PRM_p F1da 6600 xxxx 0000 hh hh hh	5-36
■ PRM_p F1da 6700 0000 00xx hh hh hh	5-37
■ PRM_p F1da 6800 xxxx xxxx hh hh hh	5-38
■ PRM_p F1da 6900 0000 0000 hh hh hh	5-39
■ PRM_p F1da 7000 000x 0000 hh hh hh	5-40
■ PRM_p E1da 7100 x00y yyyy hh hh hh	5-41
■ PRM_p F1da 7200 0000 0000 hh hh hh	5-42
■ PRM_p E1da 7400 xxyy 0000 hh hh hh	5-43
■ PRM_p E1da 78xx xxxx xxyy hh hh hh	5-44
■ PRM_p E1da 79xx x000 00zz hh hh hh	5-45
■ PRM_p E1da 8800 xxxx 000y hh hh hh	5-47
■ PRM_p E1da 8900 0000 000x hh hh hh	5-48
■ PRM_p E1da 983B 10AD 10AD hh hh hh	5-49
■ PRM_p E1da 993B 10AD 10AD hh hh hh	5-50
■ PRM_p E1da DDtw xxyy yzzz hh hh hh	5-51

Identifier 1 — LBOOT and LDFT PRMs

5

Introduction to LBOOT and LDFT PRMs

After microcode has been executed, little boot (LBOOT) or load disk from tape (LDFT) software is entered. Both steps share the same processor recovery message (PRM) major step identifier of 1. LDFT software reads generic text and the application module (AM) database from tape and writes them to disk. LBOOT software loads the main bootstrap program [big boot (BBOOT)] into main memory. Some of the PRMs with an identifier of 1 report failures to read from tape. Others are printed when a boot from a disk fails. LBOOT software passes control to the processor initialization (PINIT) step. In contrast, when the LDFT software step completes, a manual initialization request from the master control center (MCC) is required to continue recovery of the system.

ID PRM:F1da-01
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 0100 0000 xyyy hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Initializing the bus interface controller (BIC) of the boot disk file controller (DFC).

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xyyy	Dual serial channel (DSCH) driver kernel process status. The 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). (See Appendix A for the DSCH status layout.)
hh hh hh	Hardware status digits. See Figure 1-1 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 0 (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 small computer system interface (SCSI) DFC, the BIC is part of the host adapter (HA) circuit packs of the DFC.

ID.....PRM:F1da-04
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 0400 0000 xxxx hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Initializing the peripheral interface controller (PIC) of the boot disk file controller (DFC).

PRM EXPANSION

p	Active control unit (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). (See Appendix B for BIC status.)
hh hh hh	Hardware status digits. See Figure 1-1 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 small computer system interface (SCSI) DFC, the BIC and PIC are part of the host adapter (HA) circuit boards of the DFC.

ID PRM:F1da-05
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 0500 0000 0000 hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Failed to find the big boot (BBOOT) file entry in the disk volume table of contents (VTOC).

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 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 BBOOT 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 processor recovery message (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. (See Appendix C for the tape dead start procedure.)

ID.....PRM:F1da-07
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 0700 0000 yyyy hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Initializing the direct memory access controller (DMAC) random access memory (RAM).

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
yyyy	Dual serial channel (DSCH) status (yyyy). (See Appendix A for the DSCH status layout.)
hh hh hh	Hardware status digits. See Figure 1-1 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 CU that produced the processor recovery message (PRM).

ID PRM:F1da-0A
RELEASE 1 and later

PRM FORMAT

PRM_p F1da 0A00 00xx 0000 hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Failed to find an entry in the disk volume table of contents (VTOC).

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	VTOC entry flag definition. 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. See Figure 1-1 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 processor recovery message (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. (See Appendix C for the tape dead start procedure.)

ID PRM:F1da-0B
RELEASE 1 and later

PRM FORMAT

PRM_p F1da 0B00 0000 0000 hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Disk job timed out.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The disk file controller (DFC) did not complete a disk job (loading BBOOT into memory) 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 in the CU that produced this processor recovery message (PRM).

ID.....PRM:F1da-10
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 10ww xxxx y00z hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Disk job failed.

PRM EXPANSION

p	Active control unit (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	Moving head disk (MHD) status. Bits 16-31 of the MHD status word are digits 8-11 (xxxx).
y	Disk job 0 failure data autonomous response code, when not 0, is digit 12 (y).

Errors associated with w, x, and y are defined in multiple tables in the Supplementary Information (Appendices DFC B and DFC C) of 254-303-111, *PDS Output Messages Manual*, or 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.

Refer to Table 1, “DFC Error Codes,” and Table 2, “Conditional Success Codes,” in ID: APP-DFC-APPB of DFC Appendix B for a definition of digits 6 and 7 (ww). For an explanation of (ww), look in both tables for the disk file controller (DFC) error code or conditional success code.

Refer to the "MHD Status Layout" table in ID: APP-DFC-APPC of DFC Appendix C where bits 16-31 are defined by digits 8-11 (xxxx). To use the information found in (xxxx), first break down each hexadecimal digit represented by a single 'x' in the processor recovery message (PRM) format into its bit pattern. Then, match the individual bit with its counterpart in bits 16-31 in the MHD status layout table.

Refer to Table 3, "Autonomous Response Special Completion Codes," in ID: APP-DFC-APPB of DFC Appendix B for a definition of digit 12 (y).

z Digit 15 (z) is the DFC being used.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The programmed input/output (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.

ID.....PRM:F1da-20
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 2000 xxxx xxxx hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Page table initialization routine called with invalid parameter.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 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 file that is to be loaded. The file being loaded must be contiguous.

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).

ID PRM:F1da-21
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 2100 0000 yyyy hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Channel error during programmed input/output (I/O) system generation (SYSGEN) command to disk.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
yyyy	Dual serial channel (DSCH) status (yyyy). (See Appendix A for the DSCH status layout.)
hh hh hh	Hardware status digits. See Figure 1-1 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.

ID.....PRM:F1da-22
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 Supplementary Information (Appendices DFC B and DFC C) of 254-303-111, *PDS Output Messages Manual*, or 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 control unit (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 processor recovery message (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" below 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). When y is equal to 1, look for an explanation of the autonomous response code (xy) in the table.

If y does not equal 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 and 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. See Figure 1-1 for definitions of the digits.

EXPLANATION

None.

CORRECTIVE ACTION

Corrective actions are largely based on the Disk Completion Code (tt). See the information in the following table and also 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, one at 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.
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.

ID PRM:E1da-51
RELEASE.....1 and later

PRM FORMAT

PRM_p E1da 51xx xxxx yyyy hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Mount first tape that has disk data on it.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

Mount the first tape that has disk data on it.

ID.....PRM:F1da-52
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 5200 xxxx yyyy hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Wrong tape mounted.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F1da-53
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 5300 0000 xxxx hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Sequence number of tape not correct.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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 processor recovery message (PRM).

ID PRM:E1da-54
RELEASE.....1 and later

PRM FORMAT

PRM_p E1da 54xx yyyy yyyy hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Tape version information.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx Digits 6 and 7 (xx) specify the data type associated with tape sequence. The different data types and their associated bit positions in xx are:

HEX 40 = GENERIC

HEX 80 = DATABASE

HEX c0 = MERGE

HEX 20 = VTOC

HEX 04 = ESSENTIAL

HEX 08 = NONESSENTIAL

To obtain the combination of data types, use hexadecimal addition. 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.

The meaning for the HEX value 64 is developed by adding the following:

	HEX 40	(GENERIC)
	HEX 20	(VTOC)
+	<u>HEX 04</u>	(ESSENTIAL)
	HEX 64	(The VTOC partition of an ESSENTIAL GENERIC tape.)

For additional information about data types, contact your technical assistance organization.

yyyy yyyy Digits 8-15 (yyyy yyyy) specify the tape identifier.

hh hh hh Hardware status digits. See Figure 1-1 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.

CORRECTIVE ACTION

None

ID.....PRM:F1da-55
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 55xx xxxx xxyy hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Wrong tape.

PRM EXPANSION

p	Active control unit (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 and 15 (yy) specify the tape sequence number.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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 processor recovery messages (PRM).

ID.....PRM:F1da-56
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 56xx xxxx xxyy hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Tape header is invalid.

PRM EXPANSION

p	Active control unit (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 and 15 (yy) specify the tape sequence number.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

A bad tape header was encountered.

CORRECTIVE ACTION

Mount a tape whose identifier and sequence number are specified in the processor recovery message (PRM).

ID PRM:E1da-57
RELEASE.....1 and later

PRM FORMAT

PRM_p E1da 5700 000x xxxx hh hh hh

PRM SOURCE

Little Boot (LBOOT) 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 control unit (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. See Figure 1-1 for definitions of the digits.

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_p E1da 5700 000x xxxx hh hh hh" that is output for a given tape will contain the total number of blocks (in hexadecimal) read from that tape.

CORRECTIVE ACTION

None

ID PRM:E1da-58
RELEASE.....1 and later

PRM FORMAT

PRM_p E1da 58xx xxxx xxyy hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Mount next tape.

PRM EXPANSION

p Active control unit (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 and 15 (yy) specify the tape sequence number.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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 processor recovery message (PRM).

ID PRM:E1da-59
RELEASE.....1 and later

PRM FORMAT

PRM_p E1da 59xx x000 00zz hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

All of the generic or database data has been loaded.

PRM EXPANSION

p	Active control unit (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 and 15 (zz) indicate primary/backup selection for bootstrap.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

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.

ID.....PRM:F1da-60
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 6000 xxxx xxxx hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Bad tape.

PRM EXPANSION

p Active control unit (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. See Figure 1-1 for definitions of the digits.

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 processor recovery message (PRM).

ID PRM:F1da-61
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 6100 xxxx xxxx hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

High-priority tape job failed.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

One of the jobs submitted to the tape unit using programmed input/output (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.

ID.....PRM:F1da-62
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 6200 0000 xxxx hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Bus interface controller (BIC) is locked up.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx	BIC status is specified in digits 12-15 (xxxx). (See Appendix B for BIC status.)
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

Commands are sent to the tape unit using programmed input/output (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.

ID PRM:F1da-63
RELEASE.....1 through 6.2

PRM FORMAT

PRM_p F1da 6300 00xx 0000 hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Tape job timed out or disk job timed out.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx Digits 10 and 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. See Figure 1-1 for definitions of the digits.

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

Suspect a bad tape or faulty equipment located in the unit where the tape job or disk job timed out. Diagnose the tape unit or disk unit and direct memory access (DMA). Replace faulty circuit boards as appropriate.

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 CU. As a last resource, contact your technical assistance organization.

ID.....PRM:F1da-63
RELEASE.....6.3 and later

PRM FORMAT

PRM_p F1da 6300 00xx 0000 hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Tape job timed out or disk job timed out.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx Digits 10 and 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. See Figure 1-1 for definitions of the digits.

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

Suspect a bad tape or faulty equipment located in the unit where the tape job or disk job timed out. Diagnose the tape unit or disk unit and direct memory access (DMA). Replace faulty circuit boards as appropriate.

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 CU. As a last resource, contact your technical assistance organization.

ID PRM:F1da-64
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 6400 0000 xxxx hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Direct memory access controller (DMAC) initialization failure.

PRM EXPANSION

p	Active control unit (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). (See Appendix A for the DSCH status layout.)
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The direct memory access controller (DMAC) is being initialized and a failure was detected.

CORRECTIVE ACTION

Replace the DMAC boards.

ID.....PRM:F1da-65
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 6500 xxxx xxxx hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Microcode passed a bad parameter.

PRM EXPANSION

p Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID.....PRM:F1da-66
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 6600 xxxx 0000 hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Bad block size in tape header.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID.....PRM:F1da-67
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 6700 0000 00xx hh hh hh

PRM SOURCE

Little Boot (LBOOT) 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 control unit (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 and 15 (xx).
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The last header on the generic tape and the database tapes indicate which system (backup or primary) was loaded and consequently which must be used to boot from. There must be consistency between the two. This processor recovery message (PRM) indicates an inconsistency.

CORRECTIVE ACTION

Use a set of generic tapes and database tapes which load the same system (backup or primary).

ID PRM:F1da-68
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 6800 xxxx xxxx hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Wrong tape was loaded.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID.....PRM:F1da-69
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 6900 0000 0000 hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Wrong tape mounted.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID.....PRM:F1da-70
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 7000 000x 0000 hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Wrong tape.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

This database tape generic version number did not match the generic version number on 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.

ID PRM:E1da-71
RELEASE.....1 and later

PRM FORMAT

PRM_p E1da 7100 x00y yyyy hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Bad hash-sum on tape.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

A hash-sum on the header or the data following the header does not match the hash-sum in the tape header. This processor recovery message (PRM) will only be printed a maximum of five times. This error will not cause any maintenance reset functions (MRFs). The tape will continue to be read.

CORRECTIVE ACTION

Mount another tape.

ID.....PRM:F1da-72
RELEASE.....1 and later

PRM FORMAT

PRM_p F1da 7200 0000 0000 hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Disk job failed.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:E1da-74
RELEASE.....1 and later

PRM FORMAT

PRM_p E1da 7400 xxyy 0000 hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

LDFT program version information.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8 and 9 (xx) contain the LDFT program version number.
yy	Digits 10 and 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. See Figure 1-1 for definitions of the digits.

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

ID PRM:E1da-78
RELEASE.....1 and later

PRM FORMAT

PRM_p E1da 78xx xxxx xxyy hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Mount next tape after consulting your technical support center.

PRM EXPANSION

p	Active control unit (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 and 15 (yy) specify the tape sequence number.
hh hh hh	Hardware status digits. See Figure 1-1 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 processor recovery message (PRM), consult your technical assistance organization.

ID PRM:E1da-79
RELEASE.....1 and later

PRM FORMAT

PRM_p E1da 79xx x000 00zz hh hh hh

PRM SOURCE

Little Boot (LBOOT) 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 control unit (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 and 15 (zz) indicate primary/backup selection for bootstrap.
hh hh hh	Hardware status digits. See Figure 1-1 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 assistance organization before proceeding to the next step.

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.

ID PRM:E1da-88
RELEASE.....1 and later

PRM FORMAT

PRM_p E1da 8800 xxxx 000y hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Disk format is in progress.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

Because formatting a disk takes a significant amount of time, this processor recovery message (PRM) is produced to indicate that the machine is still working.

CORRECTIVE ACTION

None

ID PRM:E1da-89
RELEASE.....1 and later

PRM FORMAT

PRM_p E1da 8900 0000 000x hh hh hh

PRM SOURCE

Little Boot (LBOOT) 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 control unit (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. See Figure 1-1 for definitions of the digits.

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

ID PRM:E1da-98
RELEASE.....1 and later

PRM FORMAT

PRM_p E1da 983B 10AD 10AD hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Processor recovery message (PRM) after hash-sum mismatches have been detected.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 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 processor recovery message (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

Consult your technical assistance organization **NOW**.

ID PRM:E1da-99
RELEASE.....1 and later

PRM FORMAT

PRM_p E1da 993B 10AD 10AD hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Dummy PRM.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The machine is in a wait loop until the next tape is mounted. This dummy processor recovery message (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

ID PRM:E1da-DD
RELEASE 1 and later

PRM FORMAT

PRM_p E1da DDtw xxyy yzzz hh hh hh

PRM SOURCE

Little Boot (LBOOT) and Load Disk From Tape (LDFT)

FUNCTION

Disk data [previously known as all-seems-well (ASW) function].

PRM EXPANSION

p	Active control unit (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. For LDFT, this field is not used.
xx	Identifies the last two hexadecimal digits of the sequence number that are part of postmortem dump.
yy y	A value of H'BD <i>n</i> indicates boot MHD <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an odd-numbered MHD in the range of H'1 through H'F.
zzz	A value of H'BD <i>n</i> indicates boot MHD <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an even-numbered MHD in the range of H'0 through H'E.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (PRM) is generated when this process (step) has successfully completed execution.

CORRECTIVE ACTION

None

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Introduction to PINIT PRMs

Processor initialization (PINIT) software is entered by 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 processor's memory. One of the processor recovery messages (PRMs) printed by this step reports a failure to copy a processor's memory. 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 completes and there was no bootstrap, control is passed to a point in the kernel to initialize the operating system. If there was a bootstrap, big boot is entered.

ID PRM:E2da-01
RELEASE.....1 and later

PRM FORMAT

PRM_p 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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F2da-02
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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 12-15 (yyyy) are not used for this processor recovery message (PRM); disregard any nonzero value that may appear in these positions.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

Replace the circuit packs associated with the error source.

ID PRM:E2da-03
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

This is a success processor recovery message (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

ID PRM:E2da-04
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The configuration was changed on the EAI terminal (that is, min to app/dmrt or app/dmrt 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 will then be loaded and thus the system will have the correct ECD for the mode selected on the EAI.

CORRECTIVE ACTION

None

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ID PRM:E2da-05
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

During a memory copy, the system is very quiet. This processor recovery message (PRM) is used as an indicator that the processor is still working.

CORRECTIVE ACTION

None

ID PRM:E2da-06
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID PRM:E2da-07
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

PINIT pumps microcode to the off-line 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 will have a chance to attempt recovery without bootstrap. This processor recovery message (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 — it 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.

ID PRM:F2da-08
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx	Digits 12-15 (xxxx) are not used for this processor recovery message (PRM); disregard any nonzero value that may appear in these positions.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This PRM is only output if the system switches to an out-of-service 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's memory is not up to date, PINIT will initiate a level 3 bootstrap to get fresh copies of all programs and the equipment configuration database (ECD).

CORRECTIVE ACTION

None

ID PRM:F2da-09
RELEASE.....1 and later

PRM FORMAT

PRM_p 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. See Figure 1-1 for definitions of the digits.

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 processor recovery message (PRM) and initiates a level 3 boot on the switched to CU (panic code 9).

CORRECTIVE ACTION

Diagnose the off-line CU, and replace the faulty memory board(s).

ID.....PRM:E2da-0A
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
x xxxx xx	Digits 7-13 (x xxxx xx) indicate the Error Register bits 27-0 (left to right). Refer to 254-303-106, <i>System Maintenance Manual</i> , for the definition of the Error Register bits.
yy	Digits 14 and 15 (yy) indicate the faulty CU where the error occurred.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This is an informational processor recovery message (PRM). The information contained in this PRM will appear in the postmortem dump unless the system fails to recover.

CORRECTIVE ACTION

Diagnose the faulty CU, and replace the faulty hardware boards.

ID.....PRM:E2da-0B
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8 and 9 (xx) indicate the on-line CU sanity timer value.
yy	Digits 10 and 11 (yy) indicate the off-line CU sanity timer value.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This is an informational processor recovery message (PRM). The sanity timer values will appear in the postmortem dump unless the system fails to recover.

CORRECTIVE ACTION

None

ID.....PRM:E2da-0C
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 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 processor recovery message (PRM) and contact your technical assistance organization.

ID.....PRM:E2da-0D
RELEASE 1 and later

PRM FORMAT

PRM_p E2da 0Dxy z000 0000 hh hh hh

PRM SOURCE

Processor Initialization (PINIT - Panic Dump)

FUNCTION

Panic dump status information.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
x	Digit 6 (x) will be 1 if the panic dump to the disk was successful.
y	Digit 7 (y) is the panic dump disk ID (H'0 through H'F).
z	Digit 8 (z) will be 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. See Figure 1-1 for definitions of the digits.

EXPLANATION

This is an informational processor recovery message (PRM).

CORRECTIVE ACTION

None

ID PRM:F2da-21
RELEASE.....1 and later

PRM FORMAT

PRM_p F2da 2100 0000 yzzz hh hh hh

PRM SOURCE

Processor Initialization (PINIT)

FUNCTION

Channel error during programmed input/output (I/O) system generation (SYSGEN) command to disk.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
yyyy	Digits 12-15 (yyyy) 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 13-15 (zzz).
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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 CU and the appropriate DFC, and replace the faulty hardware as indicated by diagnostics.

ID PRM:E2da-ABD0
RELEASE 21.27 and later

PRM FORMAT

PRM_p 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 control unit (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 is not active.
z	Bus Device ID of the current active boot device under DFC 1 or H'f if the boot device is not active.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The boot level is escalated when little boot (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 processor recovery message (PRM) fields yz is different from either of the previous BDIDs in PRM fields wx, then escalation occurs. For example, an wxyz value of H'50F5 shows that moving head disk 10 (MHD 10) and MHD 1 were the previous active disks and that the current active disk is MHD 11.

The following table presents 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.

ID PRM:E2da-DD
RELEASE 1 and later

PRM FORMAT

PRM_p E2da DDtw xxyy yzzz hh hh hh

PRM SOURCE

Processor Initialization (PINIT)

FUNCTION

Disk data [previously known as all-seems-well (ASW) function].

PRM EXPANSION

p	Active control unit (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 <i>n</i> indicates boot MHD <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an odd-numbered MHD in the range of H'1 through H'F.
zzz	A value of H'BD <i>n</i> indicates boot MHD <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an even-numbered MHD in the range of H'0 through H'E.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (PRM) is generated when this process (step) has successfully completed execution.

CORRECTIVE ACTION

None

ID PRM:v2da-0F
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p v2da 0Fxx 0000 0000 hh hh hh

PRM SOURCE

Processor Initialization (PINIT)

FUNCTION

PINIT detected the failure during OFLBOOT.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Reason for output.
hh hh hh	Hardware status digits. See Figure 1-1 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 will be aborted, and the system will recover on the off-line side with at least Real-Time Reliable (RTR) initialization level 3.

If xx is 02, it indicates that during OFLBOOT the off-line side detected a reinitialization. The off-line side will be 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 will be halted.

If xx is 04, it indicates that the on-line side detected a boot strap initialization. As a result, OFLBOOT will be aborted, and the system will recover on the on-line side.

CORRECTIVE ACTION

None

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Introduction to BBOOT PRMs

The processor recovery messages (PRMs) of the big boot (BBOOT) software are identified by a 3 and report the failure of the software to carry out its function of loading boot file segments from disk to control unit (CU) main memory. Also, failure to load equipment configuration database (ECD) segments will be 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 failure to initialize hardware, failure of a disk job, invalid page table parameters, and invalid ECD data. BBOOT passes control to kernel boot (KBOOT) to initialize the operating system.

ID PRM:F3da-01
RELEASE.....1 and later

PRM FORMAT

PRM_p F3da 0100 0000 xyyy hh hh hh

PRM SOURCE

Big Boot (BBOOT)

FUNCTION

Initializing the bus interface controller (BIC) of the boot disk file controller (DFC).

PRM EXPANSION

p	Active control unit (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 Appendix A for the DSCH status layout.)
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The BIC associated with the boot device is being initialized. This device connects to DSCH 11 of direct memory access controller 0 (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.

ID PRM:F3da-02
RELEASE.....1 and later

PRM FORMAT

PRM_p F3da 0200 0000 xyyy hh hh hh

PRM SOURCE

Big Boot (BBOOT)

FUNCTION

Initializing the peripheral interface controller (PIC) of the boot disk file controller (DFC).

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

The PIC associated with the boot device is being initialized. This device connects to DSCH 11 of direct memory access controller 0 (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.

ID PRM:F3da-03
RELEASE.....1 and later

PRM FORMAT

PRM_p F3da 0300 0000 xxxx hh hh hh

PRM SOURCE

Big Boot (BBOOT)

FUNCTION

Initializing the peripheral interface controller (PIC) for the boot disk file controller (DFC).

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx	Digits 12-15 (xxxx). [See Appendix B for bus interface controller (BIC) status.]
hh hh hh	Hardware status digits. See Figure 1-1 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.

ID PRM:F3da-04
RELEASE.....1 and later

PRM FORMAT

PRM_p F3da 0400 0000 0xyy hh hh hh

PRM SOURCE

Big Boot (BBOOT)

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 control unit (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 and 15	Partition
03	ROOT
06	ECD
07	ETC

hh hh hh Hardware status digits. See Figure 1-1 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 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. 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.

ID.....PRM:F3da-05
RELEASE.....1 and later

PRM FORMAT

PRM_p F3da 0500 0000 0xyy hh hh hh

PRM SOURCE

Big Boot (BBOOT)

FUNCTION

Boot root file or boot time database file not located.

PRM EXPANSION

p	Active control unit (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 and 15	Partition
03	ROOT
06	ECD
07	ETC

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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 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).

ID PRM:F3da-06
RELEASE.....1 and later

PRM FORMAT

PRM_p F3da 0600 0000 0xyy hh hh hh

PRM SOURCE

Big Boot (BBOOT)

FUNCTION

Boot root file or boot time database file not located.

PRM EXPANSION

p Active control unit (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 and 15	Partition
03	ROOT
06	ECD
07	ETC

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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 /appcd 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).

ID PRM:F3da-07
RELEASE.....1 and later

PRM FORMAT

PRM_p F3da 07xx yyyy yyyy hh hh hh

PRM SOURCE

Big Boot (BBOOT)

FUNCTION

Big boot encountered noncorrectable memory error while copying memory from the off-line CU to the on-line CU after a stop and switch.

PRM EXPANSION

p	Active control unit (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: <table><thead><tr><th>Digits 6 and 7</th><th>Error</th></tr></thead><tbody><tr><td>00</td><td>other store C</td></tr><tr><td>01</td><td>other store time-out</td></tr></tbody></table>	Digits 6 and 7	Error	00	other store C	01	other store time-out
Digits 6 and 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. See Figure 1-1 for definitions of the digits.						

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 BBOOT of the error. Big boot then prints the failing processor recovery message (PRM) and initiates a level 3 system initialization on the switched to CU panic code 7.

CORRECTIVE ACTION

After the system recovers, diagnose the off-line CU and replace the faulty memory board(s).

ID PRM:F3da-09
RELEASE.....1 and later

PRM FORMAT

PRM_p F3da 09xx yzzz zzzz hh hh hh

PRM SOURCE

Big Boot (BBOOT)

FUNCTION

Disk data is faulty.

PRM EXPANSION

p	Active control unit (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: <table><tbody><tr><td>Digits 6 and 7</td><td>Partition</td></tr><tr><td>03</td><td>ROOT</td></tr><tr><td>06</td><td>ECD</td></tr><tr><td>07</td><td>ETC</td></tr></tbody></table>	Digits 6 and 7	Partition	03	ROOT	06	ECD	07	ETC
Digits 6 and 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. See Figure 1-1 for definitions of the digits.								

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 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 will not boot from either boot device, try booting on the other ROOT system. If that fails, recover from backup tapes using load disk from tape (LDFT).

ID PRM:F3da-10
RELEASE.....1 and later

PRM FORMAT

PRM_p F3da 1000 xxxx xxxx hh hh hh

PRM SOURCE

Big Boot (BBOOT)

FUNCTION

Disk data faulty.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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).

ID PRM:F3da-20
RELEASE.....1 and later

PRM FORMAT

PRM_p F3da 2000 xxxx xxxx hh hh hh

PRM SOURCE

Big Boot (BBOOT)

FUNCTION

Page table initialization routine called with invalid parameter.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 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 file that is to be loaded.

CORRECTIVE ACTION

The file being loaded must be contiguous. If the system will not boot from either boot device, try booting on the other ROOT system. If the minimum configuration will not recover the office, recover from backup tape using load disk from tape (LDFT).

ID PRM:F3da-21
RELEASE.....1 and later

PRM FORMAT

PRM_p F3da 21ww x000 yzzz hh hh hh

PRM SOURCE

Big Boot (BBOOT)

FUNCTION

Channel error during programmed input/output (I/O) system generation (SYSGEN) command to disk.

PRM EXPANSION

p	Active control unit (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: <table><tbody><tr><td>Digits 6 and 7</td><td>Partition</td></tr><tr><td>03</td><td>ROOT</td></tr><tr><td>06</td><td>ECD</td></tr><tr><td>07</td><td>ETC</td></tr></tbody></table>	Digits 6 and 7	Partition	03	ROOT	06	ECD	07	ETC
Digits 6 and 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. See Figure 1-1 for definitions of the digits.								

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.

ID PRM:F3da-22
RELEASE.....1 and later

PRM FORMAT

PRM_p F3da 22tt wwww xy0z hh hh hh

PRM SOURCE

Big Boot (BBOOT)

FUNCTION

Disk job failed.

PRM EXPANSION

p	Active control unit (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	Moving head disk (MHD) status. Bits 16-31 of the 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.

Errors associated with t, w, and x are defined in multiple tables in the Supplementary Information (Appendices DFC B and DFC C) of 254-303-111, *PDS Output Messages Manual*, or 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.

Refer to Table 1, “DFC Error Codes,” and Table 2, “Conditional Success Codes,” in ID: APP-DFC-APPB of DFC Appendix B for a definition of digits 6 and 7 (tt). For an explanation of (tt), look in both tables for the disk file controller (DFC) error code or conditional success code.

Refer to the "MHD Status Layout" table in ID: APP-DFC-APPC of DFC Appendix C where bits 16-31 defines digits 8-11 (www). To use the information found in (www), first break down each hexadecimal digit represented by a single 'w' in the processor recovery message (PRM) format into its bit pattern. Then, match the individual bit with its counterpart in bits 16-31 in the MHD status layout table.

Refer to Table 3, "Autonomous Response Special Completion Codes," in ID: APP-DFC-APPB of DFC Appendix B for a definition of digit 12 (x). When y=1, look for an explanation of the autonomous response code (xy) in the table. If y does not equal 1, remember to disregard (xy) and do not look for an explanation.

z Digit 15 (z) identifies the DFC being used.
hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The programmed input/output (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.

ID PRM:F3da-31
RELEASE.....1 and later

PRM FORMAT

PRM_p F3da 3100 0000 0000 hh hh hh

PRM SOURCE

Big Boot (BBOOT)

FUNCTION

Faulty equipment configuration database (ECD).

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The ECD does not contain a unit control block (UCB) for main store controller 0 (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.

ID PRM:F3da-32
RELEASE.....1 and later

PRM FORMAT

PRM_p F3da 3200 0000 0000 hh hh hh

PRM SOURCE

Big Boot (BBOOT)

FUNCTION

Faulty equipment configuration database (ECD).

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The unit control block (UCB) for main store controller 0 (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.

ID.....PRM:F3da-33
RELEASE.....1 and later

PRM FORMAT

PRM_p F3da 3300 0000 0000 hh hh hh

PRM SOURCE

Big Boot (BBOOT)

FUNCTION

Faulty equipment configuration database (ECD).

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The unit control block (UCB) for main store controller 1 (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.

ID PRM:F3da-34
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p F3da 340x yyyy yyyy hh hh hh

PRM SOURCE

Big Boot (BBOOT)

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 control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (PRM) will only appear on a 3B21D computer. During BBOOT, 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, contact your technical assistance organization.

Refer to 254-303-105, *Hardware Reference Manual*, for the locations and descriptions of the KLW31 and KLW32 circuit packs.

ID PRM:F3da-35
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p F3da 3500 zzzz zzzz hh hh hh

PRM SOURCE

Big Boot (BBOOT)

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. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (PRM) will only appear on a 3B21D computer. During BBOOT, 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.

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, contact your technical assistance organization.

Refer to 254-303-105, *Hardware Reference Manual*, for the location and description of the KLW32 circuit pack.

ID PRM:E3da-36
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p E3da 360x yyyy yyyy hh hh hh

PRM SOURCE

Big Boot (BBOOT)

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 control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (PRM) will only appear on a 3B21D computer. During BBOOT, 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 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, *Hardware Reference Manual*, for the locations and descriptions of the KLW31 and KLW32 circuit packs.

ID PRM:E3da-37
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p E3da 3700 0000 0000 hh hh hh

PRM SOURCE

Big Boot (BBOOT)

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. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (PRM) will only appear on a 3B21D computer. During BBOOT, 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 equipment configuration database origination record (ECDORG) and UCB for the MASC.

Refer to 254-303-105, *Hardware Reference Manual*, for the location and description of the KLV32 circuit pack.

ID PRM:E3da-38
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p E3da 3800 zzzz zzzz hh hh hh

PRM SOURCE

Big Boot (BBOOT)

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. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (PRM) will only appear on a 3B21D computer. During BBOOT, 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 will continue 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.

If this does not solve the problem, contact your technical assistance organization.

Refer to 254-303-105, *Hardware Reference Manual*, for the location and description of the KLW32 circuit pack.

ID.....PRM:F3da-53
RELEASE.....6.4 and later

PRM FORMAT

PRM_p F3da 5300 0000 0000 hh hh hh

PRM SOURCE

Big Boot (BBOOT)

FUNCTION

Big boot is attempting to read the boot image from disk.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

It has been determined that the boot image being read by BBOOT was created with a version of **sugen** that is not compatible with the version of BBOOT 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, contact your technical assistance organization.

ID PRM:F3da-63
RELEASE.....1 and later

PRM FORMAT

PRM_p F3da 63x0 yy00 0000 hh hh hh

PRM SOURCE

Big Boot (BBOOT)

FUNCTION

Disk job timed out.

PRM EXPANSION

p	Active control unit (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 processor recovery message (PRM) to print. Definitions of these digits may be found in Appendix H.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:E3da-DD
RELEASE 1 and later

PRM FORMAT

PRM_p E3da DDtw xxyy yzzz hh hh hh

PRM SOURCE

Big Boot (BBOOT)

FUNCTION

Disk data [previously known as all-seems-well (ASW) function].

PRM EXPANSION

p	Active control unit (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 <i>n</i> indicates boot MHD <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an odd-numbered MHD in the range of H'1 through H'F.
zzz	A value of H'BD <i>n</i> indicates boot MHD <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an even-numbered MHD in the range of H'0 through H'E.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (PRM) is generated when this process (step) has successfully completed execution.

CORRECTIVE ACTION

None

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Introduction to KBOOT PRMs

The extent of operating system initialization depends on whether the system was booted. If a boot occurred as a part of recovery [*UNIX** Real-Time Reliable (RTR) operating system level 2 init or higher], kernel boot (KBOOT) software is entered. If there was no boot, the code to initialize the operating system is entered by processor initialization (PINIT) to take the following actions:

- Every kernel process and the supervisor process that was running at the time of the init is faulted.
- Error interrupt handler (EIH), the highest priority process, is dispatched.
- 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.

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- 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 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.

ID PRM:F4da-01
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 0100 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

System process not created.

PRM EXPANSION

p	Active control unit (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 special process which could not be created.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-02
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 0200 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot kernel process not created.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-03
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 0300 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot kernel process not created.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-04
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 0400 xx00 00yy hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot kernel process not created.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-05
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 0500 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot supervisor process not created.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-06
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 0600 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot supervisor process not created.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID.....PRM:F4da-07
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 0700 0000 0000 hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot time message allocation.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID.....PRM:F4da-08
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 0800 0000 0000 hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot time message allocation.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID.....PRM:F4da-09
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 0900 0000 0000 hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot time message allocation.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-0A
RELEASE 1 and later

PRM FORMAT

PRM_p F4da 0A00 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot segment not created.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-0B
RELEASE 1 and later

PRM FORMAT

PRM_p F4da 0B00 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Message segment not created.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-0C
RELEASE 1 and later

PRM FORMAT

PRM_p F4da 0C00 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Dispatcher control segment not created.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-0D
RELEASE 1 and later

PRM FORMAT

PRM_p F4da 0D00 0000 0000 hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Interrupt stack segment not created.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-0E
RELEASE 1 and later

PRM FORMAT

PRM_p F4da 0E00 0000 0000 hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

System port segment not created.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-0F
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 0F00 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot process not created.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-10
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 1000 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Protected application segment (PAS) not created.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-11
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 1100 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Kernel segment table not created.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-12
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 1200 xx00 00yy hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Protected application segment (PAS) too big.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-13
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 1300 0000 0000 hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Kboot work segment not allocated.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-14
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 1400 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Unable to complete a boot process.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-15
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 1500 xx00 00yy hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Unable to complete a boot process.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-16
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 1600 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Unable to read public library.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID.....PRM:F4da-17
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 1700 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Unable to read public library.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID.....PRM:F4da-18
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 1800 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Unable to read public library.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-19
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 1900 xx00 00yy hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Unable to allocate public library segment.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-1A
RELEASE 1 and later

PRM FORMAT

PRM_p F4da 1A00 0000 0000 hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Disk read time-out.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-1B
RELEASE 1 and later

PRM FORMAT

PRM_p F4da 1B00 0000 0000 hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Disk read failure.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

A disk read system generation (SYSGEN) command failed.

CORRECTIVE ACTION

If repeated attempts to boot fail, try switching to an alternate disk drive. Reboot the system.

ID PRM:F4da-1C
RELEASE 1 and later

PRM FORMAT

PRM_p F4da 1C00 0000 0000 hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Disk read failure.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-1D
RELEASE 1 and later

PRM FORMAT

PRM_p F4da 1D00 xx00 00yy hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Unable to name a public library segment.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-1E
RELEASE 1 and later

PRM FORMAT

PRM_p F4da 1E00 0000 00xx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot time database is missing.

PRM EXPANSION

p	Active control unit (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_btddb array.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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 big boot (BBOOT).

CORRECTIVE ACTION

Investigate recent modifications to the SYSGEN or BBOOT programs. Reboot the system with a different load.

ID PRM:F4da-1F
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F4da-20
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 2000 xxxx xxxx hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Swapsize is less than minimum swapsize (minswsz) required.

PRM EXPANSION

p Active control unit (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. See Figure 1-1 for definitions of the digits.

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 processor recovery message (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.

ID PRM:F4da-21
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 2100 xx00 00yy hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Boot kernel process not created.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

A kernel process requiring protected application segment (PAS) could not be created because no 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.

ID PRM:F4da-22
RELEASE.....1 and later

PRM FORMAT

PRM_p F4da 2200 xx00 00yy hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Unable to name a public library segment.

PRM EXPANSION

p	Active control unit (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 an equipment configuration database (ECD) segment, and "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. See Figure 1-1 for definitions of the digits.

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.

CORRECTIVE ACTION

Examine the *pfile* header listing for the indicated process and the database 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.

ID PRM:E4da-DD
RELEASE 1 and later

PRM FORMAT

PRM_p E4da DDtw xxyy yzzz hh hh hh

PRM SOURCE

Kernel Boot (KBOOT)

FUNCTION

Disk data [previously known as all-seems-well (ASW) function].

PRM EXPANSION

p	Active control unit (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 <i>n</i> indicates boot MHD <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an odd-numbered MHD in the range of H'1 through H'F.
zzz	A value of H'BD <i>n</i> indicates boot MHD <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an even-numbered MHD in the range of H'0 through H'E.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (PRM) is generated when this process (step) has successfully completed execution.

CORRECTIVE ACTION

None

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Introduction to EIH PRMs

The error interrupt handler (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 (OSTs). EIH issues 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).

ID PRM:E5da-01
RELEASE.....1 and later

PRM FORMAT

PRM_p E5da 01xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

“lla_rdget” returned an error condition.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where “lla_rdget” returned an error.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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 the 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.

ID PRM:F5da-01
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E 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 is as follows: Hex 55 Indicates the hard switch was caused by manually forcing the active CU off-line. Hex c4, c5, c8, and c9 Indicate the CONFIG process fault codes defined in Appendix G. Hex e6 Indicates hard switch due to entering disk independent operation (DIOP).
hh hh hh	Hardware status digits. See Figure 1-1 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 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 the 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.

ID PRM:F5da-02
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the EIH failed to attach to the ECD.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

Failure to attach to the ECD indicates that EIH cannot get information about the configuration of the machine. Without this information, EIH will not function and the machine will probably not come up. It also indicates that the ECD has been mutilated.

The bootstrap level is automatically escalated via the phase call.

CORRECTIVE ACTION

None

ID.....PRM:v5da-03
RELEASE 1 and later

PRM FORMAT

PRM_p v5da 03xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

“lla_uprid” returned an error condition.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
v	Digit 0 (v) specifies if the processor recovery message (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	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where function “lla_uprid” returned an error.
zzzz	Digits 12-15 (zzzz) may contain information that will be helpful to technical support in diagnosing the problem.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

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 the 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 this 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.

ID PRM:E5da-04
RELEASE.....1 and later

PRM FORMAT

PRM_p E5da 04xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

“lla_opensq” returned an error condition.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where function “lla_opensq” returned an error.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

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 the off-line boot mode, wait for the off-line boot to stop. 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.

ID PRM:E5da-05
RELEASE.....1 and later

PRM FORMAT

PRM_p E5da 05xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Unable to attach to interrupts.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where "atchintr" was unable to attach to interrupts.
zzzz	Interrupt source digits 12-15 (zzzz).
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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 central control (CC) hardware
- 1 Other CC hardware
- 2 My CC software.

CORRECTIVE ACTION

None

ID PRM:E5da-06
RELEASE.....1 and later

PRM FORMAT

PRM_p E5da 06xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Unable to enable interrupts.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where “enabintr” was unable to enable interrupts.
zzzz	Interrupt source digits 12-15 (zzzz).
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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 central control (CC) hardware
- 1 Other CC hardware
- 2 My CC software.

CORRECTIVE ACTION

None

ID PRM:E5da-07
RELEASE.....1 and later

PRM FORMAT

PRM_p E5da 07xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Unable to disable interrupts.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where “disabintr” was unable to disable interrupts.
zzzz	Interrupt source digits 12-15 (zzzz).
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

CORRECTIVE ACTION

None

ID PRM:E5da-08
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the “atchchan” kernel call returned a failure.
zzzz	Interrupt source digits 12-15 (zzzz).
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

CORRECTIVE ACTION

None

ID PRM:E5da-09
RELEASE.....1 and later

PRM FORMAT

PRM_p E5da 09xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

“gnxt” returned an error condition.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where “gnxt” returned an error.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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 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 the off-line boot mode, wait for the off-line boot to stop. 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.

ID.....PRM:E5da-0A
RELEASE 1 and later

PRM FORMAT

PRM_p E5da 0Axx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

“topucb” returned an error condition.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where “topucb” returned an error.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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 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 the off-line boot mode, wait for the off-line boot to stop. 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.

ID.....PRM:E5da-0B
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where function received an invalid equipment configuration database (ECD) RID as a parameter.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

If the system is in the off-line boot mode, wait for the off-line boot to stop. 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.

ID.....PRM:E5da-0C
RELEASE 1 and later

PRM FORMAT

PRM_p E5da 0Cxx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

“chucb” returned an error condition.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where “chucb” returned an error.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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 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 the off-line boot mode, wait for the off-line boot to stop. Then, run the equipment configuration database (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.

ID.....PRM:E5da-0D
RELEASE 1 and later

PRM FORMAT

PRM_p E5da 0Dxx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

“lla_nextseq” returned an error condition.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where “lla_nextseq” returned an error.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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 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 the off-line boot mode, wait for the off-line boot to stop. 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.

ID PRM:E5da-0E
RELEASE 1 and later

PRM FORMAT

PRM_p E5da 0Exx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

“rptrerr” returned an error condition.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where “rptrerr” returned a failure.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

In reporting an error which might cause the 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.

ID PRM:E5da-0F
RELEASE 1 and later

PRM FORMAT

PRM_p E5da 0Fxx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

“sendmch” returned a failure.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where “sendmch” returned a failure.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F5da-0F
RELEASE 21.17 and later

PRM FORMAT

PRM_p F5da 0Fxx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

“sendmch” returned a failure.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where “sendmch” returned a failure.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F5da-10
RELEASE 1 and later

PRM FORMAT

PRM_p F5da 10xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Improper boot device.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
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.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The device used to bootstrap the system, as indicated in the processor recovery message (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.

ID PRM:E5da-11
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx) where the EIH called the config function (fltdrv) and received a failure return. (See Appendix E for the function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:E5da-12
RELEASE.....1 and later

PRM FORMAT

PRM_p E5da 12xx 0000 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

“lla_get” function failed.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx) where “lla_get” returned a failure. (See Appendix E for function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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 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 the 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.

ID PRM:F5da-12
RELEASE 21.27 and later

PRM FORMAT

PRM_p F5da 12xx 0000 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

“lla_get” function failed.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx) where “lla_get” returned a failure. (See Appendix E for function names corresponding to the function numbers.)
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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 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 the 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.

ID PRM:E5da-13
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the EIH DMAC initialization routine returned a failure.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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 zeros (0s). A failure return indicates that an input/output (I/O) time-out or I/O error occurred.

CORRECTIVE ACTION

Diagnose the DMAC in the faulty CU.

ID PRM:F5da-13
RELEASE 21.17 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the EIH DMAC initialization routine returned a failure.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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 input/output (I/O) time-out or I/O error occurred.

CORRECTIVE ACTION

Diagnose the DMAC in the faulty CU.

ID.....PRM:F5da-14
RELEASE.....1 and later

PRM FORMAT

PRM_p F5da 14xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

A phase will be called due to a fatal direct memory access controller (DMAC) error.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the EIH called the phase operating system trap (OST).
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The instruction immediately following the instruction which requested this processor recovery message (PRM) will be a phase OST call. The phase is being requested due to a fatal DMAC error.

CORRECTIVE ACTION

Diagnose the DMAC in the faulty CU.

ID PRM:E5da-15
RELEASE.....1 and later

PRM FORMAT

PRM_p E5da 15xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Bad operating system trap (OST) code passed to kernel operating system trap (KOST).

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the EIH detected an illegal OST code.
hh hh hh	Hardware status digits. See Figure 1-1 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 peripheral input/output (PIO) error handling. The expected OST codes, PIO error "PIOERR," and PIO time-out "PIOTMO" were not matched.

CORRECTIVE ACTION

None

ID PRM:E5da-16
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number 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. (See Appendix E for function names corresponding to the function numbers.)
yyyy	Interrupt mask is given in digits 8-11 (yyyy).
zzzz	Service request mask is given in digits 12-15 (zzzz).
hh hh hh	Hardware status digits. See Figure 1-1 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 input/output (I/O) from a device (disk file controller or I/O processor).

CORRECTIVE ACTION

If the processor recovery message (PRM) persists, a manual Phase 1 should clear the situation.

ID PRM:E5da-17
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number indicated by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number in digits 8-11 (yyyy) where a call to the “inhibitdv” OST returned a failure.
zzzz	Channel number is given in digits 12-15 (zzzz).
hh hh hh	Hardware status digits. See Figure 1-1 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.

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 CU, a bootstrap is required. A level 3 bootstrap will maximize success.

ID PRM:E5da-18
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number indicated by digits 6 and 7 (xx) where a call to write the DSCH mask failed. (See Appendix E for function names corresponding to the function numbers.)
yyyy	Channel number is given by digits 8-11 (yyyy).
zzzz	Device for which the write mask failed is given by digits 12-15 (zzzz).
hh hh hh	Hardware status digits. See Figure 1-1 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.

ID PRM:E5da-19
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the EIH failed to initialize.
zzzz	Channel position given by digits 12-15 (zzzz) where the EIH failed to initialize the NSC interface.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The NSC interface channel, given by digits 12-15, could not be initialized. An input/output (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.

ID PRM:F5da-1A
RELEASE 21.17 and later

PRM FORMAT

PRM_p F5da 1Axx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

“stopdma” returned a failure.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.						
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)						
yyyy	Location in the code where the failure occurred.						
zzzz	Cause of error: <table><tbody><tr><td>0xffff</td><td>Maintenance channel error</td></tr><tr><td>0xfffe</td><td>Maintenance channel order time-out</td></tr><tr><td>0xfffd</td><td>Maintenance channel response error.</td></tr></tbody></table>	0xffff	Maintenance channel error	0xfffe	Maintenance channel order time-out	0xfffd	Maintenance channel response error.
0xffff	Maintenance channel error						
0xfffe	Maintenance channel order time-out						
0xfffd	Maintenance channel response error.						
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.						

EXPLANATION

“stopdma” was unable to stop the direct memory access controller (DMAC).

CORRECTIVE ACTION

Diagnose the DMAC in the faulty CU and the maintenance channel. Check the maintenance channel cables.

ID PRM:F5da-1B
RELEASE 21.17 and later

PRM FORMAT

PRM_p F5da 1Bxx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

“clrdschm” returned a failure.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Location in the code where the failure occurred.
zzzz	Channel number where the failure occurred.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

“clrdschm” was unable to clear the channel mask in the dual serial channel (DSCH) that indicates whether the channel is stopped or not.

CORRECTIVE ACTION

Diagnose the faulty processor and channel.

ID PRM:F5da-1C
RELEASE 21.17 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Location in the code where the failure occurred.
zzzz	Channel number where the failure occurred.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

EIH 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.

ID PRM:F5da-1D
RELEASE 21.17 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Location in the code where the failure occurred.
zzzz	Channel number where the failure occurred.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

EIH is unable to restore interrupts for the 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.

ID PRM:F5da-1E
RELEASE 21.17 and later

PRM FORMAT

PRM_p F5da 1Exx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Unable to read the direct memory access controller (DMAC) random access memory (RAM).

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Location in the code where the failure occurred.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

EIH is unable to read the DMAC RAM.

CORRECTIVE ACTION

Diagnose the DMAC in the faulty processor.

ID PRM:F5da-1F
RELEASE 21.17 and later

PRM FORMAT

PRM_p F5da 1Fxx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Unable to write the direct memory access controller (DMAC) random access memory (RAM).

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Location in the code where the failure occurred.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

EIH is unable to write the DMAC RAM.

CORRECTIVE ACTION

Diagnose the DMAC in the faulty processor.

ID PRM:E5da-20
RELEASE.....1 and later

PRM FORMAT

PRM_p E5da 20xx yyyy zzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Postmort sequence number mismatch.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E 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. See Figure 1-1 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 will be a Phase 1 by default; and the postmortem dump may not be for the most recent recovery.

CORRECTIVE ACTION

None

ID PRM:E5da-21
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the EIH failed to initialize the serial channel.
zzzz	Serial channel given by digits 12-15 (zzzz) that the EIH failed to initialize.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The serial channel given by digits 12-15 could not be initialized. An input/output (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.

ID PRM:E5da-22
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the EIH failed to initialize the DSCH.
zzzz	DSCH given by digits 12-15 (zzzz) that failed to initialize.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The DSCH given by digits 12-15 could not be initialized. An input/output (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.

ID PRM:E5da-23
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by the digits 8-11 (yyyy) where the EIH failed to enable the DMAC.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

After initializing the DMAC, the attempt to enable DMAC failed.

CORRECTIVE ACTION

Diagnose the DMAC in the faulty CU.

ID PRM:F5da-23
RELEASE 21.17 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by the digits 8-11 (yyyy) where the EIH failed to enable the DMAC.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

After initializing the DMAC, the attempt to enable DMAC failed.

CORRECTIVE ACTION

Diagnose the DMAC in the faulty CU.

ID PRM:E5da-24
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the “dtchchan” kernel call returned a failure.
zzzz	Interrupt source digits 12-15 (zzzz).
hh hh hh	Hardware status digits. See Figure 1-1 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.

CORRECTIVE ACTION

None

ID PRM:E5da-25
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where “dschmask” returned a failure indication.
hh hh hh	Hardware status digits. See Figure 1-1 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 Appendix E), 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 CU, input/output (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.

ID PRM:F5da-25
RELEASE 21.17 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where “dschmask” returned a failure indication.
hh hh hh	Hardware status digits. See Figure 1-1 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 Appendix E), 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 CU, input/output (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.

ID PRM:E5da-26
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the soft switch attempt failed due to a cache problem.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This error can occur during soft switch if the cache in the standby (STBY) processor is faulty.

CORRECTIVE ACTION

Diagnose the faulty CU.

ID PRM:F5da-26
RELEASE 21.17 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the soft switch attempt failed due to a cache problem.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This error can occur during soft switch if the cache in the standby (STBY) processor is faulty.

CORRECTIVE ACTION

Diagnose the faulty CU.

ID PRM:E5da-27
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the soft switch attempt failed due to a lack of response from the standby (STBY) processor.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F5da-27
RELEASE 21.17 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the soft switch attempt failed due to a lack of response from the standby (STBY) processor.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:E5da-28
RELEASE.....1 and later

PRM FORMAT

PRM_p E5da 28xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Soft switch failure - control unit (CU) was not in update mode.

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 Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the soft switch attempt failed because the CUs were not in update mode.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F5da-28
RELEASE 21.17 and later

PRM FORMAT

PRM_p F5da 28xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Soft switch failure - control unit (CU) was not in update mode.

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 Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the soft switch attempt failed because the CUs were not in update mode.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:E5da-29
RELEASE.....6.3 and later

PRM FORMAT

PRM_p 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	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number within the function that processed the error interrupt.
zzzz	Error type. See the table in "EXPLANATION."
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

When processing an error interrupt, the current state of the CU is checked. If in INIT state, the information about cause of error interrupt is printed by this processor recovery message (PRM).

Error	Type Definitions
0001	segment index too large
0002	segment index invalid
0004	page index too large
0008	page index invalid
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	input/output (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	address translation buffer (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

ID PRM:E5da-30
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the soft switch attempt failed because the CUs were not in update.
zz	Digits 12 and 13 (zz) indicate the direct memory access (DMA) number.
ww	Digits 14 and 15 (ww) indicate the relative channel number.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

On a DMA error, the EIH attempts to set the busy bits of the channels that are not implicated. This processor recovery message (PRM) indicates that this attempt failed.

CORRECTIVE ACTION

None

ID PRM:E5da-30
RELEASE.....2.1 and later

PRM FORMAT

PRM_p E5da 30ww xxxx yyzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Attempt to set the busy bit in the direct memory access (DMA) status register for dual serial channel (DSCH) by EIH failed.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
ww	Function number given by digits 6 and 7 (ww). (See Appendix E for function names corresponding to the function numbers.)
xxxx	Line number given by digits 8-11 (xxxx) where the EIH attempt to set the busy bit in the DMA status register for DSCH failed.
yy	Digits 12 and 13 (yy) indicate the DMA number.
zz	Digits 14 and 15 (zz) indicate the relative channel number.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

EIH was invoked to handle a DMA error. As part of the recovery, EIH attempts to set the busy bit in the DMA status register for DSCH. This attempt failed due to some hardware error. The busy bit is set only for the channel that is not in error and that which was busy prior to this error.

CORRECTIVE ACTION

None. Subsequently, this failure will result in a complete recovery by resetting the direct memory access controller (DMAC).

ID PRM:E5da-DD
RELEASE 1 and later

PRM FORMAT

PRM_p E5da DDtw xxyy yzzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Disk data [previously known as all-seems-well (ASW) function].

PRM EXPANSION

p	Active control unit (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 <i>n</i> indicates boot moving head disk (MHD) <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an odd-numbered MHD in the range of H'1 through H'F.
zzz	A value of H'BD <i>n</i> indicates boot MHD <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an even-numbered MHD in the range of H'0 through H'E.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (PRM) is generated when this process (step) has successfully completed execution.

CORRECTIVE ACTION

None

ID PRM:E5da-E0
RELEASE 1 and later

PRM FORMAT

PRM_p E5da E0xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

“alocmsg” failed.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where “alocmsg” returned a failure.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The “alocmsg” operating system trap (OST) returned a failure indicating that no message buffers were available. This will probably result in a Phase 1.

CORRECTIVE ACTION

None

ID PRM:E5da-E1
RELEASE 1 and later

PRM FORMAT

PRM_p E5da E1xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Queuing a message failed.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where “queuemn” returned a failure.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The “queuemn” operating system trap (OST) returned a failure indicating that no more messages can be sent to a given process.

CORRECTIVE ACTION

None

ID PRM:F5da-E2-A
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the EIH detected a zero transfer vector. The failure resulted in a system initialization.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

An EIH function was called whose transfer vector was zero.

CORRECTIVE ACTION

None

ID PRM:E5da-E3
RELEASE 1 and later

PRM FORMAT

PRM_p 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	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the EIH off-line microstore pump failed.
zzzz	The reason code for the hard switch given by digits 12-15 (zzzz) is as follows: Hex 55 Indicates that the hard switch was caused by manually forcing the active CU off-line. Hex c4, c5, c8, and c9 Indicate the CONFIG process fault code which is defined in Appendix G. Hex e6 Indicates the hard switch is due to entering disk independent operation (DIOP).
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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 persists, contact your technical assistance organization.

ID PRM:F5da-E3
RELEASE 1 and later

PRM FORMAT

PRM_p 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	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the EIH off-line microstore pump failed.
zzzz	The reason code for the hard switch given by digits 12-15 (zzzz) is as follows: Hex 55 Indicates that the hard switch was caused by manually forcing the active CU off-line. Hex c4, c5, c8, and c9 Indicate the CONFIG process fault code which is defined in Appendix G. Hex e6 Indicates the hard switch is due to entering disk independent operation (DIOP).
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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 persists, contact your technical assistance organization.

ID PRM:F5da-E4
RELEASE 1 and later

PRM FORMAT

PRM_p F5da E4xx yyyy 0000 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

A phase will be 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the EIH was notified of incorrect data.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F5da-E5
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E 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 is as follows: Hex 55 Indicates that the hard switch was caused by manually forcing the active CU off-line. Hex c4, c5, c8, and c9 Indicate the CONFIG process fault code which is defined in Appendix G. Hex e6 Indicates hard switch due to disk limp mode.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

CORRECTIVE ACTION

Diagnose the faulty CU.

ID PRM:E5da-E7
RELEASE 1 and later

PRM FORMAT

PRM_p E5da E7ww xxxx yyzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

The “descalate” operating system trap (OST) successfully completed.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
ww	Function number given by digits 6 and 7 (ww). The function number should always be hex function number 27 which corresponds to function name “descalate.” (See Appendix E for function names corresponding to the function numbers.)
xxxx	Line number given by digits 8-11 (xxxx) within function “descalate.”
yy	<i>UNIX</i> * 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	Application initialization level to which the application initialization level counter was de-escalated is given by digits 14 and 15 (zz).
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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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 processor recovery message (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.

ID PRM:E5da-E8
RELEASE 21.1 and later

PRM FORMAT

PRM_p 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 (ROP) in the *ucb* records.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.				
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)				
yyyy	Line number given by digits 8-11 (yyyy) where the EIH encountered an error within function (xx) while administrating an off-line boot. At this program address, the EIH will call a phase.				
zzzz	Digits 12-15 (zzzz) identify the device as follows: <table><tbody><tr><td>0000</td><td>Device is DEV_MTTY.</td></tr><tr><td>0001</td><td>Device is DEV_ROP.</td></tr></tbody></table>	0000	Device is DEV_MTTY.	0001	Device is DEV_ROP.
0000	Device is DEV_MTTY.				
0001	Device is DEV_ROP.				
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.				

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.

CORRECTIVE ACTION

The processor may continue functioning even though the data in the equipment configuration database (ECD) contains errors.

If the system was in off-line boot mode, restore the MTTY or the ROP and start off-line boot again.

ID PRM:F5da-EA
RELEASE.....21.1 and later

PRM FORMAT

PRM_p F5da EAxz yyyz 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyz	Line number given by digits 8-11 (yyyz) where the EIH in the on-line CU encountered an error within function (xx) while administrating an off-line boot. At this program address, the EIH will call a phase.
zzzz	Digits 12-15 (zzzz) are unused.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

If digits 6 and 7 (xx) identify *kfault()*, then EIH received a fault and a phase will follow.

If digits 6 and 7 (xx) identify *send_mch_int()*, an automatic termination of the off-line boot procedure will follow.

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 (ROP), 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. Refer to 254-303-110, *PDS Input Messages Manual*, or 254-303-112, *MML Input Messages Manual*, for more information.

ID PRM:E5da-EC
RELEASE.....21.1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the EIH encountered an error within function (xx) while administrating an off-line boot. At this program address, the EIH will call a phase.
zzzz	Digits 12-15 (zzzz) indicate the reason of 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.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID PRM:F5da-ED
RELEASE.....21.1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the EIH encountered an error within function (xx) while administrating off-line boot. At this program address, the EIH will call a phase.
zzzz	Digits 12-15 (zzzz) indicate the reason the off-line side stopped. The reasons and their codes are in Appendix I.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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 (ROP) and maintenance teletypewriter (MTTY) devices.

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. Refer to 254-303-110, *PDS Input Messages Manual*, or 254-303-112, *MML Input Messages Manual*, for more information.

ID.....PRM:E5da-EE
RELEASE.....21.1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) where the EIH encountered an error within function (xx) while administrating an off-line boot. At this program address, the EIH will call a phase.
zzzz	Digits 12-15 (zzzz) indicate when the problem occurred. 0000 After changing the device record to send the output to a designated teletypewriter (TTY), EIH cannot inform the CSOP about the device record change. 0001 After changing the device record to send the output back to the receive-only printer (ROP), EIH cannot inform the CSOP about the device record change.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

CORRECTIVE ACTION

None

ID PRM:F5da-EF
RELEASE 21.1 and later

PRM FORMAT

PRM_p F5da EFww xxxx yyzz hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Off-line boot is being terminated with an Real-Time Reliable (RTR) level 3 initialization performed on the off-line side if the RETROFIT option was not used or an RTR level 4 initialization if the RETROFIT option was used. This covers stopping the off-line side, preparing the off-line side for the initialization, initializing the off-line side, and stopping the on-line side.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.						
ww xxxx	While administrating off-line boot, the EIH encountered an error in the function number given by digits 6 and 7 (ww) at the line number given by digits 8-11 (xxxx). [See Appendix E for function names corresponding to the function number (ww).]						
yy	Digits 12 and 13 (yy), if non-zero, indicate the problem occurred because of an RTR condition in the off-line side during side switch prechecks when the RETROFIT option was specified. The error codes are defined in Appendix I.						
zz	Digits 14 and 15 (zz), if non-zero, indicate the problem occurred because of an application condition in the off-line side during side switch prechecks when the RETROFIT option was specified. RTR can only give a high level description of these. <table><tr><td>01</td><td>Off-line side software error (no override).</td></tr><tr><td>02</td><td>Off-line side software error (may override, but no override is present).</td></tr><tr><td>04</td><td>Off-line side hardware error (may override, but no override is present).</td></tr></table>	01	Off-line side software error (no override).	02	Off-line side software error (may override, but no override is present).	04	Off-line side hardware error (may override, but no override is present).
01	Off-line side software error (no override).						
02	Off-line side software error (may override, but no override is present).						
04	Off-line side hardware error (may override, but no override is present).						

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

Depending on the function number (ww):

- 3A Very shortly after a side switch or during the side switch itself, the new on-line 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.
 - Off-line boot procedure is intended for low traffic hours.
 - CRAFT considerations may take a long time (analyzing off-line boot termination and entering DIOP can take awhile).
- 3B At the end of the side switch process, it was found 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 when trying to switch to the other CU one of the following conditions was found:
- Could not read the off-line system status register (SSR) to ensure the off-line CU was running.
 - The off-line CU was found stopped.
 - There were no disk hardware forces in the emergency action interface (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 found 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 precheck memory area to the on-line 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 off-line side; for more information, 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 found 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.
- 6F During the side switch prechecks, a non-manual termination or abort of off-line 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 processor recovery message (PRM) when the RETROFIT option was specified. In those cases, the system will try 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 off-line boot, analyze the receive-only printer (ROP) printout and OLBLOG files from both sides. This can take some time so the user is advised to save these materials.

ID PRM:E5da-F0
RELEASE 21.1 and later

PRM FORMAT

PRM_p 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 it about a change of state to unequipped (UNEQIP) for an maintenance teletypewriter (MTTY), receive-only printer (ROP), switching control center (SCC), or scanner and signal distributor (SCSD) device.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.						
xx yyyy	While administrating off-line boot, the EIH encountered an error in the function number given by digits 6 and 7 (xx) at the line number given by digits 8-11 (yyyy). [See Appendix E for function names corresponding to the function number (xx).]						
zzzz	Digits 12-15 (zzzz) indicate why the problem occurred: <table><tbody><tr><td>0000</td><td>RTS is not attached to its port.</td></tr><tr><td>FFFF</td><td>Cannot allocate memory for message.</td></tr><tr><td>2000</td><td>RTS cannot queue more messages.</td></tr></tbody></table>	0000	RTS is not attached to its port.	FFFF	Cannot allocate memory for message.	2000	RTS cannot queue more messages.
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. See Figure 1-1 for definitions of the digits.						

EXPLANATION

Cannot tell RTS to update display for MTTY, ROP, SCC, or SCSD.

CORRECTIVE ACTION

Restart RTS if not in disk independent operation (DIOP).

ID PRM:E5da-F1
RELEASE 1 and later

PRM FORMAT

PRM_p E5da F1xx xxxx xxxx hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

Failure to send a processor recovery message (PRM) to the system integrity monitor (SIM) due to lack of message buffers.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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 run 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 EIH PRM.

ID PRM:E5da-f2
RELEASE 21.27 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E 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. See Figure 1-1 for definitions of the digits.

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 disk file controller 0 (DFC 0) or DFC 1. Field zzzz contains the unit number.
ad01	In traversing the <i>ucb</i> records for the ABD, EIH found an incorrect <i>ucb</i> data type. The <i>ucb</i> type field contains an invalid entry that should be changed to a DFC. Field zzzz contains the <i>u_dtype</i> .

- ad02 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 an small computer system interface (SCSI) bus (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 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

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, in particular, for all DFC subdevices.
ad01	Check the sanity of the database, in particular, for all DFC subdevices.
ad02	Check the sanity of the database, in particular, for all DFC subdevices.
ad04	Check the sanity of the database, in particular, for all DFC subdevices.
ad05	Check the sanity of the database, in particular, for all DFC subdevices.

⇒ 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 the off-line boot mode, wait for the off-line boot to stop. 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.

ID PRM:F5da-f2
RELEASE 21.27 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Function number given by digits 6 and 7 (xx). (See Appendix E 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. See Figure 1-1 for definitions of the digits.

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 disk file controller 0 (DFC 0) or DFC 1. Field zzzz contains the unit number.
ad01	In traversing the <i>ucb</i> records for the ABD, EIH found an incorrect <i>ucb</i> data type. The <i>ucb</i> type field contains an invalid entry that should be changed to a DFC. Field zzzz contains the <i>u_dtype</i> .

- ad02 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 small computer system interface (SCSI) bus (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 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

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, in particular, for all DFC subdevices.
ad01	Check the sanity of the database, in particular, for all DFC subdevices.
ad02	Check the sanity of the database, in particular, for all DFC subdevices.
ad04	Check the sanity of the database, in particular, for all DFC subdevices.
ad05	Check the sanity of the database, in particular, for all DFC subdevices.

⇒ 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 the off-line boot mode, wait for the off-line boot to stop. 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.

ID PRM:F5da-F3
RELEASE.....1 and later

PRM FORMAT

PRM_p F5da F3xx 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	Function number given by digits 6 and 7 (xx). (See Appendix E for function names corresponding to the function numbers.)
yyyy	Line number given by digits 8-11 (yyyy) within the function (xx) where EIH off-line microstore pump failed.
zzzz	Reason code for the hard switch is as follows: Hex 55 Indicates the hard switch was caused by manually forcing the active CU off-line. Hex c4, c5, c8, and c9 Indicate the CONFIG process fault code which is defined in Appendix G. Hex e6 Indicates hard switch due to entering disk independent operation (DIOP).
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

In the process of hardswitching to the off-line processor, an error occurred in trying to pump off-line microstore.

CORRECTIVE ACTION

None

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Introduction to DKDRV PRMs

Disk driver (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 and reads records from the equipment configuration database (ECD) for all DFCs, small computer system interface (SCSI) buses (SBUSs), if SCSI, and MHDs. DKDRV also restores to service all DFCs, SBUSs, and one of every logical disk. A failure during any one of these steps will result in a DKDRV processor recovery message (PRM). Only if the failure involves an essential function will the PRM be fatal.

ID.....PRM:v6da-10
RELEASE 1 and later

PRM FORMAT

PRM_p v6da 100x xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Disk driver memory and data initialization.

PRM EXPANSION

p	Active control unit (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 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
yy y	Second error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
zzz	Third error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
hh hh hh	Hardware status digits. See Figure 1-1 for the definitions of the digits.

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 processor recovery message (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 3B20D 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 [channel (CH), disk file controller (DFC), small computer system interface (SCSI) 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.

ID.....PRM:v6da-20
RELEASE 1 and later

PRM FORMAT

PRM_p v6da 20wx xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Restore sequence of a disk file controller (DFC).

PRM EXPANSION

p	Active control unit (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 unit control block (UCB) record.
x xx	First error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
yy y	Second error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
zzz	Third error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
hh hh hh	Hardware status digits. See Figure 1-1 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 processor recovery message (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 problem could be in the ECD data [channel (CH), DFC, small computer system interface (SCSI) bus (SBUS), and MHD UCB records], incompatible software, or lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

ID.....PRM:v6da-30
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 SCSI 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 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
yy y	Second error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
zzz	Third error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .

hh hh hh Hardware status digits. See Figure 1-1 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 processor recovery message (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 [channel (CH), DFC, SBUS, and MHD UCB records], incompatible software, or some lack of data integrity. Review and correct if possible. If necessary, contact your technical assistance organization.

ID.....PRM:v6da-31
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 SCSI 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 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
yy y	Second error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
zzz	Third error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .

hh hh hh Hardware status digits. See Figure 1-1 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 processor recovery message (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 [channel (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.

ID.....PRM:v6da-32
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 SCSI 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 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
yy y	Second error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
zzz	Third error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .

hh hh hh Hardware status digits. See Figure 1-1 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 processor recovery message (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 [channel (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.

ID.....PRM:v6da-33
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 SCSI 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 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
yy y	Second error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
zzz	Third error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .

hh hh hh Hardware status digits. See Figure 1-1 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 processor recovery message (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 [channel (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.

ID.....PRM:v6da-34
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 SCSI 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 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
yy y	Second error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
zzz	Third error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .

hh hh hh Hardware status digits. See Figure 1-1 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 processor recovery message (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 [channel (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.

ID.....PRM:v6da-35
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 SCSI 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 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
yy y	Second error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
zzz	Third error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .

hh hh hh Hardware status digits. See Figure 1-1 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 processor recovery message (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 [channel (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.

ID.....PRM:v6da-36
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 SCSI 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 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
yy y	Second error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
zzz	Third error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .

hh hh hh Hardware status digits. See Figure 1-1 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 processor recovery message (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 [channel (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.

ID.....PRM:v6da-37
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 SCSI 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 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
yy y	Second error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
zzz	Third error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .

hh hh hh Hardware status digits. See Figure 1-1 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 processor recovery messages (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 [channel (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.

ID.....PRM:v6da-40
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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.
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 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
zzz	Second error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
hh hh hh	Hardware status digits. See Figure 1-1 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 processor recovery message (PRM).

If the specified RID is for a moving head disk (MHD), then the progression is from MHD to small computer system interface (SCSI) bus (SBUS) [if 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.

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.

ID.....PRM:v6da-60
RELEASE 1 and later

PRM FORMAT

PRM_p v6da 60w0 xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Restore sequence of disk file controller (DFC).

PRM EXPANSION

p	Active control unit (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 unit control block (UCB) record.
xx	First error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
yy y	Second error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
zzz	Third error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
hh hh hh	Hardware status digits. See Figure 1-1 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 processor recovery message (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 [channel (CH), DFC, small computer system interface (SCSI) 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.

ID.....PRM:v6da-70
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 SCSI 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 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
yy y	First error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .

zzz Second error encountered. Refer to 254-303-111, *PDS Output Messages Manual*, or 254-303-113, *MML Output Messages Manual*.

hh hh hh Hardware status digits. See Figure 1-1 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 processor recovery message (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 equipment configuration database (ECD) data [channel (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.

ID.....PRM:v6da-71
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 SCSI 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 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
yy y	First error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .

zzz	Second error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
hh hh hh	Hardware status digits. See Figure 1-1 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 processor recovery message (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 [channel (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.

ID.....PRM:v6da-72
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 SCSI 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 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
yy y	First error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .

zzz	Second error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
hh hh hh	Hardware status digits. See Figure 1-1 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 processor recovery message (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 [channel (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.

ID.....PRM:v6da-73
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 SCSI 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 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
yy y	First error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .

zzz Second error encountered. Refer to 254-303-111, *PDS Output Messages Manual*, or 254-303-113, *MML Output Messages Manual*.

hh hh hh Hardware status digits. See Figure 1-1 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 processor recovery message (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 [channel (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.

ID.....PRM:v6da-74
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 SCSI 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 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
yy y	First error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .

zzz Second error encountered. Refer to 254-303-111, *PDS Output Messages Manual*, or 254-303-113, *MML Output Messages Manual*.

hh hh hh Hardware status digits. See Figure 1-1 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 processor recovery message (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 [channel (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.

ID.....PRM:v6da-75
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 SCSI 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 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
yy y	First error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .

zzz	Second error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
hh hh hh	Hardware status digits. See Figure 1-1 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 processor recovery message (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 [channel (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.

ID.....PRM:v6da-76
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 SCSI 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 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
yy y	First error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .

zzz	Second error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
hh hh hh	Hardware status digits. See Figure 1-1 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 processor recovery message (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 [channel (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.

ID.....PRM:v6da-77
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 SCSI 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 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
yy y	First error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .

zzz	Second error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
hh hh hh	Hardware status digits. See Figure 1-1 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 processor recovery message (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 [channel (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.

ID PRM:F6da-80
RELEASE 6.1.18 and later

PRM FORMAT

PRM_p F6da 80ww zzzz zzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Disk driver fault code processing.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
ww	Fault code. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
zzzz zzzz	Virtual program address where the fault was detected.
hh hh hh	Hardware status digits. See Figure 1-1 for the definitions of the digits.

EXPLANATION

The *UNIX** Real-Time Reliable (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 processor recovery message (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 3B20D computer, maintenance requests, receive-only printer (ROP) printouts, logfiles, etc., and contact your technical assistance organization.

ID PRM:E6da-DD
RELEASE 1 and later

PRM FORMAT

PRM_p E6da DDtw xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Disk driver all-seems-well (ASW).

PRM EXPANSION

p	Active control unit (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 <i>n</i> indicates boot MHD <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an odd-numbered MHD in the range of H'1 through H'F.
zzz	A value of H'BD <i>n</i> indicates boot MHD <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an even-numbered MHD in the range of H'0 through H'E.
hh hh hh	Hardware status digits. See Figure 1-1 for the definitions of the digits.

EXPLANATION

This processor recovery message (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

ID PRM:F6da-F0
RELEASE.....1 and later

PRM FORMAT

PRM_p F6da F0wx xxyy yzzz hh hh hh

PRM SOURCE

Disk Driver

FUNCTION

Disk driver is in the process of phasing the 3B20D computer.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
w	Reason for the phase. Refer to the disk driver panic codes in 254-303-106, <i>System Maintenance Manual</i> .
x xx	First error encountered by the disk driver prior to requesting the phase. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
yy y	Second error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
zzz	Third error encountered. Refer to 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
hh hh hh	Hardware status digits. See Figure 1-1 for the definitions of the digits.

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 processor recovery message (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 corrective action. Save as much pertinent data as possible concerning the activity of the computer, maintenance requests, receive-only printer (ROP) printouts, logfiles, etc., and contact your technical assistance organization.

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Introduction to IODRV PRMs

Input/output processor (IOP) 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 teletypewriters (TTYs) attached to the teletypewriter controller (TTYC), and to the maintenance teletypewriter controller (MTTYC), BX.25 data links, magnetic tape drives, scanners, and signal distributors. Device handlers in IODRV, which are collections of C-language functions, interface between supervisor or kernel processes and the peripheral devices. The processor recovery messages (PRMs) output by 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.

ID PRM:E7da-01
RELEASE.....1 and later

PRM FORMAT

PRM_p E7da 010x xxyy zzzz hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

The IODRV has been faulted.

PRM EXPANSION

p	Active control unit (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. (See Appendix D for device types.) In all other cases, the unit number and the device type are zeros.										
yy	Digits 10 and 11 (yy) indicate the unit number. For processor recovery messages (PRMs) where zzzz = H'00C5, H'00C6, or H'00C7, the faulty unit is identified by the unit number.										
zzzz	Digits 12-15 (zzzz) indicate the reason for failure as follows: <table><tr><td>H'00C5</td><td>A fault has been logged against a unit that has an out of service (OOS), but usable mate. The IODRV attempts to restore the faulty unit.</td></tr><tr><td>H'00C6</td><td>A fault has been logged against a unit that has an OOS, but unusable mate. The IODRV attempts to restart the faulty unit.</td></tr><tr><td>H'00C7</td><td>A fault has been logged against a unit which has no mate. The IODRV attempts to restart the faulty unit.</td></tr><tr><td>H'00CB</td><td>A routine soft-switch fault has been received. The IODRV should never receive this fault; doing so implies a structural failure.</td></tr><tr><td>H'00E2</td><td>A critical system initialization fault has been received. This usually occurs in response to a Phase 1.</td></tr></table>	H'00C5	A fault has been logged against a unit that has an out of service (OOS), but usable mate. The IODRV 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 attempts to restart the faulty unit.	H'00C7	A fault has been logged against a unit which has no mate. The IODRV attempts to restart the faulty unit.	H'00CB	A routine soft-switch fault has been received. The IODRV 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.
H'00C5	A fault has been logged against a unit that has an out of service (OOS), but usable mate. The IODRV 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 attempts to restart the faulty unit.										
H'00C7	A fault has been logged against a unit which has no mate. The IODRV attempts to restart the faulty unit.										
H'00CB	A routine soft-switch fault has been received. The IODRV 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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:E7da-02
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.												
w	Digit 6 (w) is not used and is always set to zero.												
x xx	Digits 7-9 (x xx) indicate the IOP device type. The PC in question is identified by the device type.												
yy	Digits 10 and 11 (yy) indicate the unit number. (See Appendix D for device types.)												
zzzz	Digits 12-15 (zzzz) indicate the reason for failure as follows: <table><tr><td>H'07F6</td><td>Common file reader (CFR) internal state invalid.</td></tr><tr><td>H'07F7</td><td>Time-out threshold exceeded. Message sent by CFR to file manager (FMGR) not acknowledged.</td></tr><tr><td>H'07F8</td><td>CFR unable to get segment number of segment containing buffer allocated for pump code.</td></tr><tr><td>H'07F9</td><td>CFR unable to set timer.</td></tr><tr><td>H'07FA</td><td>CFR unable to get message buffer to send message to FMGR.</td></tr><tr><td>H'07FB</td><td>CFR unable to read pump file because the maximum number of files that can concurrently be brought into main store has been reached.</td></tr></table>	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'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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:E7da-03
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. (See Appendix D for device types).				
yy	Digits 10 and 11 (yy) indicate the unit number.				
zzzz	Digits 12-15 (zzzz) indicate the reason for failure. The processor recovery message (PRM) information field zzzz will contain one of the following values: <table><tbody><tr><td>H'0001</td><td>Repeated requests for the main memory required for IOP support data structures have failed.</td></tr><tr><td>H'0002</td><td>After a single failure to obtain main memory for an IOP support data structure, the necessary information to repeat the request was not found.</td></tr></tbody></table>	H'0001	Repeated requests for the main memory required for IOP support data structures have failed.	H'0002	After a single failure to obtain main memory for an IOP support data structure, the necessary information to repeat the request was not found.
H'0001	Repeated requests for the main memory required for IOP support data structures have failed.				
H'0002	After a single failure to obtain main memory for an IOP support data structure, the necessary information to repeat the request was not found.				
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.				

EXPLANATION

PRM information field H'0001 indicates insufficient main memory to initialize all required IOPs.

PRM information field H'0002 indicates an IODRV software problem.

CORRECTIVE ACTION

Supply more main memory to initialize all required IOPs.

ID PRM:E7da-04
RELEASE.....1 and later

PRM FORMAT

PRM_p E7da 040x xxyy zzzz hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

The IODRV encountered severe problems during the boot sequence.

PRM EXPANSION

p	Active control unit (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. (See Appendix D for device types.)												
yy	Digits 10 and 11 (yy) indicate the unit number.												
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: <table><tr><td>H'0105</td><td>Cannot obtain list of IOPs from equipment configuration database (ECD). Verify that all proper forms exist for each IOP.</td></tr><tr><td>H'0106</td><td>Cannot attach to ECD. Verify correct initialization of ECD segments.</td></tr><tr><td>H'0107</td><td>Cannot attach to correct port. See H'0109.</td></tr><tr><td>H'0108</td><td>Cannot obtain internal peripheral controller (PC) audit timer. Software problem.</td></tr><tr><td>H'0109</td><td>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 IOP. If this checks out, a software problem is indicated.</td></tr><tr><td>H'010A</td><td>Cannot obtain internal peripheral interface controller (PIC) babble timer. Software problem.</td></tr></table>	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 IOP. If this checks out, a software problem is indicated.	H'010A	Cannot obtain internal peripheral interface controller (PIC) babble timer. Software problem.
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 IOP. 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 IOP identified by the unit number and device type fields. Verify that the IOP 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 IOPs in initdb() function.
H'0506	Cannot attach to ECD.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

Contact your technical assistance organization. Except for H'0108 and H'010A, all errors will preclude a successful boot.

ID PRM:E7da-05
RELEASE.....1 and later

PRM FORMAT

PRM_p E7da 050x xxyy zzzz hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

An attempt to restore an IOP to service has failed.

PRM EXPANSION

p	Active control unit (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. (See Appendix D for device types.)
yy	Digits 10 and 11 (yy) indicate the unit number.
zzzz	Digits 12-15 (zzzz) indicate 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 peripheral input/output initialization (PIOINIT) to PIC. H'1307 Unable to enable PIC interrupts. H'1308 Unable to clear D2SBS.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

Code H'1308 is most often received in response to loss of power at the IOP. 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; contact your technical assistance organization.

ID PRM:E7da-06
RELEASE.....1 and later

PRM FORMAT

PRM_p E7da 0600 0000 xxxx 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 control unit (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: <table><tr><td>H'00C0</td><td>The IODRV faulted because a level 3 craft initialization occurred.</td></tr><tr><td>H'00D1</td><td>The IODRV faulted because a page index was invalid or was not in memory.</td></tr><tr><td>H'00D2</td><td>The IODRV faulted because a page index was too large.</td></tr><tr><td>H'00D3</td><td>The IODRV faulted because a segment index was invalid.</td></tr><tr><td>H'00D4</td><td>The IODRV faulted because a segment index was too large.</td></tr><tr><td>H'00D5</td><td>The IODRV faulted because a bad operating system trap (OST) was issued to the kernel.</td></tr><tr><td>H'00D6</td><td>The IODRV faulted because an attempt was made to write to a protected segment.</td></tr><tr><td>H'00D7</td><td>The IODRV faulted because a byte or half word addressing violation occurred.</td></tr><tr><td>H'00D8</td><td>The IODRV faulted because a privileged instruction was attempted.</td></tr></table>	H'00C0	The IODRV faulted because a level 3 craft initialization occurred.	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.	H'00D8	The IODRV faulted because a privileged instruction was attempted.
H'00C0	The IODRV faulted because a level 3 craft initialization occurred.																		
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.																		
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 IOP driver was executing.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The complete reinitialization takes time, so several minutes should be allowed for the process to complete.

CORRECTIVE ACTION

None

ID PRM:E7da-08
RELEASE.....1 and later

PRM FORMAT

PRM_p E7da 0800 0000 zzzz hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

The IOP cannot grow a unit during boot or a software reinitialization.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
zzzz	Digits 12-15 (zzzz) indicate the reason for failure. (See Appendix F for an explanation of the code.)
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

None

ID PRM:F7da-0B
RELEASE 6.4 and later

PRM FORMAT

PRM_p F7da 0B0x xxyy zzzz hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

This processor recovery message (PRM) code is printed out as a warning when the boot restore for the maintenance teletypewriter controller (MTTYC) failed during or after pumping the pump code stage; the IODRV will try using alternate pump code filename to restore the MTTYC.

PRM EXPANSION

p	Active control unit (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. (See Appendix D for device types.)
yy	Digits 10 and 11 (yy) indicate the unit number.
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. See Figure 1-1 for definition of the digits.

EXPLANATION

None

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 the tn83, the field must be populated as t083; and 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.

ID PRM:F7da-0C
RELEASE 6.9 and Later
.....3B21D Only

PRM FORMAT

PRM_p F7da 0C0x xxyy zzzz hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

This processor recovery message (PRM) code is printed out as a warning when the restore for the IOP failed during or after pumping the pump code stage; the IODRV will try using an alternate, hard coded pump code filename to restore the IOP. If the IOP restore still fails after the first attempt, the IODRV will try a second hard coded filename. This PRM will only appear on a 3B21D computer.

PRM EXPANSION

p	Active control unit (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. (See Appendix D for device types.)
yy	Digits 10 and 11 (yy) indicate the unit number.
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. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

Check the information in 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 three 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 four-position field while fields 63 and 64 are two-position fields. For example, these three fields populated with the above are interpreted by the software as **k010**, **00**, and **01** and when concatenated become **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 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.

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.

ID PRM:F7da-0D
RELEASE 21.11 and Later

PRM FORMAT

PRM_p F7da 0D0x xxyy zzzz hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

This processor recovery message (PRM) code is printed out as a warning when the boot restore for the maintenance teletypewriter controller (MTTYC) failed during or after pumping the pump code stage; the IODRV 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
x xx	Digits 7-9 indicate the IOP device type. (See Appendix D for device types.)
yy	Digits 10 and 11 (yy) indicate the unit number.
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. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

During the restore of the MTTYC (UN583), the 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 unit control block (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.

ID PRM:E7da-0F
RELEASE 1 and later

PRM FORMAT

PRM_p 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 will wait 30 seconds before attempting to restart the faulty unit.

PRM EXPANSION

p	Active control unit (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. (See Appendix D for device types.)
yy	Digits 10 and 11 (yy) indicate the unit number.
zzzz	Digits 12-15 (zzzz) indicate the reason for failure 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. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

Diagnose indicated unit and its mate, if possible. Repair unit and restore to service. The receive-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.

ID PRM:E7da-20
RELEASE.....1 and later

PRM FORMAT

PRM_p E7da 200y yyzz tttt hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

This processor recovery message (PRM) code is printed out when a switchable subdevice cannot connect to any peripheral controller (PC).

PRM EXPANSION

p	Active control unit (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 Appendix D for device types.)														
zz	Digits 10 and 11 (zz) indicate the unit number.														
tttt	Digits 12-15 (tttt) indicate the reason for failure. The PRM information field will contain one of the following values: <table><tr><td>H'0000</td><td>Port switch attempts exceed threshold.</td></tr><tr><td>H'0001</td><td>Port switch fails because of data terminal ready (DTR) time-out.</td></tr><tr><td>H'0002</td><td>Port switch fails because of hardware switching time-out.</td></tr><tr><td>H'0003</td><td>Cannot obtain port switch subdevices for PC report in craft initialization.</td></tr><tr><td>H'0005</td><td>Port switch fails because the device to which a port switch is being done is in the wrong state.</td></tr><tr><td>H'0007</td><td>Port switch fails because could not get a unit mate for the switchable device.</td></tr><tr><td>H'0009</td><td>Port switch fails because could not get the vcb of the switchable device.</td></tr></table>	H'0000	Port switch attempts exceed threshold.	H'0001	Port switch fails because of data terminal ready (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.	H'0009	Port switch fails because could not get the vcb of the switchable device.
H'0000	Port switch attempts exceed threshold.														
H'0001	Port switch fails because of data terminal ready (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.														
H'0009	Port switch fails because could not get the vcb of the switchable device.														

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F7da-20
RELEASE.....1 and later

PRM FORMAT

PRM_p F7da 200y yyzz tttt hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

This processor recovery message (PRM) code is printed out when a switchable subdevice cannot connect to any peripheral controller (PC).

PRM EXPANSION

p	Active control unit (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 Appendix D for device types.)
zz	Digits 10 and 11 (zz) indicate the unit number.
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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:E7da-21
RELEASE.....1 and later

PRM FORMAT

PRM_p E7da 2100 0000 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

This processor recovery message (PRM) code is printed out when craft init is requested with the system in full disk independent operation (DIOP).

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

Craft init is not allowed in full DIOP.

ID PRM:E7da-50
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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 Appendix D for device types.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

Verify that the dcdte 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.

ID PRM:E7da-51
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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 Appendix D for device types.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:E7da-52
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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 Appendix D for device types.)				
zz	Digits 10 and 11 (zz) indicate the unit number.				
tttt	Digits 12-15 (tttt) indicate the reason of failure as follows: <table><tbody><tr><td>H'0001</td><td>Failed to obtain the option block record to calculate the required memory.</td></tr><tr><td>H'0002</td><td>Switching module control (SMC) failed to obtain this requested memory.</td></tr></tbody></table>	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.
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. See Figure 1-1 for definitions of the digits.				

EXPLANATION

None

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).

ID PRM:E7da-53
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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 Appendix D for device types.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

Verify remote station is operational. If not able to recover, contact a data link telecommunications expert.

ID PRM:E7da-54
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 will be restored.

PRM EXPANSION

p	Active control unit (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 Appendix D for device types.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

None

ID PRM:E7da-55
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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 Appendix D for device types.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

Attempt the aborted restoral again.

ID PRM:E7da-56
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 IODRV memory facility. The current restoral operation will fail.

PRM EXPANSION

p	Active control unit (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 Appendix D for device types.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

Perform a reboot to clean up the memory control table.

ID PRM:E7da-57
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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 Appendix D for device types.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:E7da-58
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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 Appendix D for device types.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:E7da-59
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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 Appendix D for device types.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The buffer memory can be used for data exchange.

CORRECTIVE ACTION

Degrow the unit and attempt to grow the unit again.

ID.....PRM:E7da-5A
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 Appendix D for device types.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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).

ID.....PRM:E7da-5B
RELEASE 1 and later

PRM FORMAT

PRM_p E7da 5B0y yyzz 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

Failure to obtain a timer element from the IODRV timing chain for a data link.

PRM EXPANSION

p	Active control unit (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 Appendix D for device types.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:E7da-70
RELEASE.....1 and later

PRM FORMAT

PRM_p E7da 700y yyzz 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

The 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 control unit (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 Appendix D for device types.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

Perform a reboot to clean up the memory control table.

ID PRM:E7da-71
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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 Appendix D for device types.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

Perform a reboot to clean up the memory control table.

ID PRM:E7da-72
RELEASE.....1 and later

PRM FORMAT

PRM_p E7da 720y yyzz 0000 hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

During operations on a segment, either the 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 control unit (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 Appendix D for device types.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

Perform a reboot to clean up the memory control table.

ID PRM:E7da-73
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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 Appendix D for device types.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

Retry the operation which resulted in this processor recovery message (PRM). However, additional resources may be needed. If this PRM persists, contact your technical assistance organization.

⇒ 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. Contact your technical assistance organization.

ID PRM:E7da-74
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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 Appendix D for device types.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

Retry the operation which resulted in this processor recovery message (PRM). However, additional resources may be needed.

ID PRM:E7da-75
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 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 control unit (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 Appendix D for device types.)
zz	Digits 10 and 11 (zz) indicate the unit number.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

Attempt a reboot to clean up the memory control table.

ID PRM:E7da-80
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) indicate the logical IOP unit number.
yyyy yyyy	Digits 8-15 (yyyy yyyy) represent the dual serial channel (DSCH) status. (See Appendix A for definition of the status bits.)
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:E7da-83
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) indicate the logical IOP unit number.
yyyy yyyy	Digits 8-15 (yyyy yyyy) indicate the dual serial channel (DSCH) status. (See Appendix A for definition of the status bits.)
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:E7da-86
RELEASE.....1 and later

PRM FORMAT

PRM_p E7da 86xx yyyy yyyy hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

Failed to send peripheral input/output initialization (PIOINIT) to IOP.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) indicate the logical IOP unit number.
yyyy yyyy	Digits 8-15 (yyyy yyyy) indicate the dual serial channel (DSCH) status. (See Appendix A for definition of the status bits.)
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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)
- 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.

ID PRM:E7da-87
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) indicate the logical IOP unit number.
yyyy yyyy	Digits 8-15 (yyyy yyyy) represent the dual serial channel (DSCH) status. (See Appendix A for definition of the status bits.)
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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).
- Device address which is in the `device_addr` field of the *ucb* record of the implicated IOP (DEVICENUM field in the *ucb* form).

ID PRM:E7da-88
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) indicate the logical IOP unit number.
yyyy yyyy	Digits 8-15 (yyyy yyyy) represent the dual serial channel (DSCH) status. (See Appendix A for definition of the status bits.)
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

A failure return code was obtained when trying to clear duplex dual serial bus selector (DDSBS). This processor recovery message (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.

ID PRM:E7da-90
RELEASE.....1 and later

PRM FORMAT

PRM_p E7da 90D5 xxxx xxxx hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

The IODRV has made a bad_ost fault.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

A software problem occurred within the IODRV.

CORRECTIVE ACTION

After this processor recovery message (PRM) is sent to the receive-only printer (ROP), the IODRV takes the necessary recovery action to eliminate the bad_ost. Then forwards the PRM to the software administrator for further fault prevention.

ID PRM:E7da-91
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
yy	The fault reported is identified by digits 6 and 7 (yy). The possible faults are as follows:
H'D1	The IODRV faulted because a page index was invalid or was not in memory.
H'D2	The IODRV faulted because a page index was too large.
H'D3	The IODRV faulted because a segment index was invalid.
H'D4	The IODRV faulted because a segment was too large.
H'D6	The IODRV faulted because an attempt was made to write to a protected segment.
H'D7	The IODRV faulted because a byte or half-word addressing violation occurred.
H'D8	The IODRV faulted because a privileged instruction was attempted.
H'D9	The IODRV faulted because the data in the instruction buffer did not correspond to a valid instruction.

zzzz zzzz Digits 8-15 (zzzz zzzz) indicate the program address where the fault occurred in the IODRV.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The complete reinitialization takes time, so several minutes should be allowed for the process to complete.

CORRECTIVE ACTION

The receive-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.

ID PRM:E7da-DD
RELEASE 1 and later

PRM FORMAT

PRM_p E7da DDtw xxyy yzzz hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

The IODRV all-seems-well (ASW).

PRM EXPANSION

p	Active control unit (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 <i>n</i> indicates boot MHD <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an odd-numbered MHD in the range of H'1 through H'F.
zzz	A value of H'BD <i>n</i> indicates boot MHD <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an even-numbered MHD in the range of H'0 through H'E.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (PRM) results when the IODRV reports to system integrity monitor (SIM) that the driver has completed its initialization step with no fatal errors.

CORRECTIVE ACTION

None

ID PRM:F7da-F0
RELEASE.....1 and later

PRM FORMAT

PRM_p F7da F000 zzzz yyyy hh hh hh

PRM SOURCE

Input/Output Processor (IOP) Driver (IODRV)

FUNCTION

The IODRV has called phase.

PRM EXPANSION

p	Active control unit (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 Appendix G for fault code definitions.)								
yyyy	Digits 12-15 (yyyy) indicate the reason the IODRV called phase as follows: <table><tbody><tr><td>H'0001</td><td>Encountered a fault while handling a fault.</td></tr><tr><td>H'0002</td><td>Encountered excessive software faults in a given time period.</td></tr><tr><td>H'0003</td><td>Excessive database access errors while handling a fault.</td></tr><tr><td>H'0004</td><td>Excessive database access errors while handling a fault where the IOP was affected but not implicated.</td></tr></tbody></table>	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.
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. See Figure 1-1 for definitions of the digits.								

EXPLANATION

The most likely reason is a software problem.

CORRECTIVE ACTION

The receive-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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Introduction to 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 input/output (I/O) device handlers are enabled, and translating I/O requests for logical files. The 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.

ID PRM:E8da-00
RELEASE.....1 only

PRM FORMAT

PRM_p E8da 00ww xxxx yyzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

The file system mount audit (**AUD:FMGR=7**) has completed.

PRM EXPANSION

p	Active control unit (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. When yy=00, digits 6-11 (ww xxxx) are the low-order 3 bytes of the minor device chain table-record identification (mdct-rid) number. FF Failure. When yy=FF, digits 6 and 7 (ww) are an error code.
ww	If a failure occurs (yy=FF), digits 6 and 7 (ww) are an error code with the following meanings: 01 Super block errors 02 Input/output (I/O) errors during the audit 03 Blocks out of range 04 Duplicate blocks 05 Inode errors.
xxxx	Digits 8-11 (xxxx) indicate the number of errors of the type specified by ww.
zz	Digits 14 and 15 (zz) are the disk partition.
hh hh hh	Hardware status digits. See Figure 1-1 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.

CORRECTIVE ACTION

If a failure condition has been reported, request the file system block (AUD:FSBLK) and link (AUD:FSLINK) audits. Refer to 254-303-110, *PDS Input Messages Manual*, or 254-303-112, *MML Input Messages Manual*.

ID PRM:E8da-00
RELEASE.....6 and later

PRM FORMAT

PRM_p E8da 00xx yyzz zzzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

The file system mount/unmount completed successfully.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) indicate: 01 mount completed 02 unmount completed.
yy	Digits 8 and 9 (yy) are the partition number.
zz zzzz	Digits 10-15 (zz zzzz) are the minor device chain table-record identification (mdct-rid) number of the partition.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The file manager mount/unmount completed successfully.

CORRECTIVE ACTION

None

ID.....PRM:E8da-00
RELEASE 6.2 through 6.35

PRM FORMAT

PRM_p E8da 00ww xxxx yyzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

The file system mount audit has completed.

PRM EXPANSION

p	Active control unit (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. When yy=00, digits 6-11 (ww xxxx) are the low-order 3 bytes of the minor device chain table-record identification (mdct-rid) number. FF Failure. When yy=FF, digits 6 and 7 (ww) are an error code.
ww	If a failure occurs (yy=FF), digits 6 and 7 are an error code with the following meanings: 01 Super block errors 02 Input/output (I/O) errors during the audit 03 Blocks out of range 04 Duplicate blocks 05 Inode errors.
xxxx	Digits 8-11 (xxxx) indicate the number of errors of the type specified by ww.
zz	Digits 14 and 15 (zz) are the disk partition.
hh hh hh	Hardware status digits. See Figure 1-1 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.

CORRECTIVE ACTION

None

ID PRM:E8da-00
RELEASE 6.4 and later

PRM FORMAT

PRM_p E8da 00xx yyzz zzzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

The file system mount/unmount completed successfully.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 6 and 7 (xx) indicate: 01 mount completed 02 unmount completed.
yy	Digits 8 and 9 (yy) are the partition number.
zz zzzz	Digits 10-15 (zz zzzz) are the minor device chain table-record identification (mdct-rid) number of the partition.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The file manager mount/unmount completed successfully.

CORRECTIVE ACTION

None

ID PRM:F8da-01
RELEASE.....1 and later

PRM FORMAT

PRM_p F8da 01xx yyyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

Initialization error.

PRM EXPANSION

p	Active control unit (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 minor device chain table-record identification (mdct-rid) number of the root device.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F8da-02
RELEASE.....1 and later

PRM FORMAT

PRM_p F8da 02xx yyyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

Initialization error.

PRM EXPANSION

p	Active control unit (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 minor device chain table-record identification (mdct-rid) number of the root device.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F8da-04
RELEASE.....1 and later

PRM FORMAT

PRM_p F8da 04xx yyyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

Initialization error.

PRM EXPANSION

p	Active control unit (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 minor device chain table-record identification (mdct-rid) number of the root device.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID.....PRM:F8da-06
RELEASE.....1 and later

PRM FORMAT

PRM_p F8da 06xx yyyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

Initialization error.

PRM EXPANSION

p	Active control unit (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 minor device chain table-record identification (mdct-rid) number of the root device.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

During boot time initialization, the attachment to the equipment configuration database (ECD) failed.

CORRECTIVE ACTION

Reboot the system using a different boot file.

ID PRM:F8da-07
RELEASE.....1 and later

PRM FORMAT

PRM_p F8da 0700 0000 0000 hh hh hh

PRM SOURCE

File Manager

FUNCTION

Task switch failure has occurred.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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** Real-Time Reliable (RTR) operating system support.

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ID.....PRM:F8da-08
RELEASE.....1 and later

PRM FORMAT

PRM_p F8da 08xx yyyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

Inode management.

PRM EXPANSION

p	Active control unit (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 minor device chain table-record identification (mdct-rid) number of the file system associated with the inode.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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** Real-Time Reliable (RTR) operating system support.

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ID.....PRM:F8da-09
RELEASE.....1 and later

PRM FORMAT

PRM_p F8da 0900 0000 xxxx hh hh hh

PRM SOURCE

File Manager

FUNCTION

Buffer management.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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** Real-Time Reliable (RTR) operating system support.

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ID PRM:F8da-0C
RELEASE 1 and later

PRM FORMAT

PRM_p F8da 0Cxx yyyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

Directory management.

PRM EXPANSION

p	Active control unit (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 minor device chain table-record identification (mdct-rid) number of the inode at the mount point.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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** Real-Time Reliable (RTR) operating system support.

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ID PRM:F8da-0D
RELEASE 1 and later

PRM FORMAT

PRM_p F8da 0D00 0000 0000 hh hh hh

PRM SOURCE

File Manager

FUNCTION

Inode management.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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** Real-Time Reliable (RTR) operating system support.

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ID PRM:E8da-0E
RELEASE 1 and later

PRM FORMAT

PRM_p E8da 0Exx yyyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

File system management.

PRM EXPANSION

p	Active control unit (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 minor device chain table-record identification (mdct-rid) number of the file system which was mounted.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID PRM:E8da-0F
RELEASE 1 and later

PRM FORMAT

PRM_p E8da 0Fxx yyyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

File system management.

PRM EXPANSION

p	Active control unit (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 minor device chain table-record identification (mdct-rid) number of the file system which was unmounted.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F8da-10
RELEASE.....1 and later

PRM FORMAT

PRM_p F8da 1000 xxyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

Too many nontask faults have occurred.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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

ID.....PRM:F8da-11
RELEASE.....1 and later

PRM FORMAT

PRM_p F8da 1100 xxyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

Too many task faults have occurred.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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

ID PRM:F8da-12
RELEASE.....1 and later

PRM FORMAT

PRM_p F8da 1200 xxyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

Initialization error.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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

ID PRM:F8da-13
RELEASE.....1 only

PRM FORMAT

PRM_p 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 control unit (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 minor device chain table-record identification (mdct-rid) number of the partition.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The mount has failed due to the listed reasons. This processor recovery message (PRM) does not cause the machine to phase.

CORRECTIVE ACTION

Take a corrective action as indicated by digits 6 and 7 (xx), and try to mount again.

ID PRM:F8da-13
RELEASE.....6 and later

PRM FORMAT

PRM_p 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 control unit (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 minor device chain table-record identification (mdct-rid) number of the partition.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The mount has failed due to the listed reasons. This processor recovery message (PRM) does not cause the machine to phase.

CORRECTIVE ACTION

Take a corrective action as indicated by digits 6 and 7 (xx), and try to mount again.

ID PRM:F8da-14
RELEASE 6 and later

PRM FORMAT

PRM_p 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 control unit (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 minor device chain table-record identification (mdct-rid) number.
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. See Figure 1-1 for definitions of the digits.

EXPLANATION

The file system mount audit checks the structural integrity of a file system during the mount process. This processor recovery message (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_p F8da 15xx xxxx yyzz hhhh hh”), request the file system block audit AUD:FSBLK and link audit AUD:FSLINK. 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, refer to 254-303-110, *PDS Input Messages Manual*, or 254-303-112, *MML Input Messages Manual*.

ID PRM:F8da-15
RELEASE.....6 and later

PRM FORMAT

PRM_p 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 control unit (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 input/output (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. See Figure 1-1 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.

⇒ NOTE:

This processor recovery message (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, refer to 254-303-110, *PDS Input Messages Manual*, or 254-303-112, *MML Input Messages Manual*.

ID PRM:F8da-16
RELEASE.....1 and later

PRM FORMAT

PRM_p F8da 16xx yyzz zzzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

The file system remount has failed.

PRM EXPANSION

p	Active control unit (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 minor device chain table-record identification (mdct-rid) number of the partition.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The remount has failed due to the listed reasons. This processor recovery message (PRM) does not cause the machine to phase.

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 will list processes which have opens to files in the file system.

ID PRM:F8da-17
RELEASE.....1 and later

PRM FORMAT

PRM_p F8da 17xx yyzz zzzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

The file system mount has failed.

PRM EXPANSION

p	Active control unit (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 of this processor recovery message (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 minor device chain table-record identification (mdct-rid) number of the partition, except for the error 2 case.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F8da-18
RELEASE.....1 only

PRM FORMAT

PRM_p F8da 18xx yyzz zzzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

The file system unmount has failed.

PRM EXPANSION

p	Active control unit (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 minor device chain table-record identification (mdct-rid) number of the partition, except for the error 1 case previously described.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The unmount has failed due to the previously listed reasons. This processor recovery message (PRM) does not cause the machine to phase.

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, which typically includes the receive-only printer (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.

ID PRM:F8da-18
RELEASE.....6 and later

PRM FORMAT

PRM_p F8da 18xx yyzz zzzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

The file system unmount has failed.

PRM EXPANSION

p	Active control unit (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; 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 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 minor device chain table-record identification (mdct-rid) number of the partition, except for the previous error case 1.
hh hh hh	Hardware status digits. See Figure 1-1 for definition of the digits.

EXPLANATION

The unmount has failed due to the listed reasons. This processor recovery message (PRM) does not cause the machine to phase.

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 receive-only printer (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.

ID PRM:F8da-19
RELEASE.....1 and later

PRM FORMAT

PRM_p F8da 19xx yyyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

A file manager task has been torn down.

PRM EXPANSION

p	Active control unit (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: <table><tbody><tr><td>01</td><td>Phase 1 occurred while this task is running.</td></tr><tr><td>02</td><td>The task caused a software fault.</td></tr><tr><td>03</td><td>The task has timed out.</td></tr><tr><td>04</td><td>The file manager task audit (AUD:FMGR 1) detected faults in the task table.</td></tr><tr><td>05</td><td>Input/output (I/O) has been tried to the maximum number (5) of retries.</td></tr><tr><td>06</td><td>The task had a lock for a file that was unconditionally unmounted.</td></tr></tbody></table>	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	Input/output (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.
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	Input/output (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 utility identification (UID) of the process that originated the file manager message.												
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.												

EXPLANATION

A file manager task has been torn down due to various reasons previously listed.
This processor recovery message (PRM) does not cause the machine to phase.

CORRECTIVE ACTION

This is an information PRM. No action is necessary.

ID PRM:F8da-1a
RELEASE.....1 and later

PRM FORMAT

PRM_p F8da 1Axx yyyy yyyy hh hh hh

PRM SOURCE

File Manager

FUNCTION

A file manager task has been torn down.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

A file manager task has been torn down due to the various reasons previously listed. This processor recovery message (PRM) does not cause the machine to phase.

CORRECTIVE ACTION

This is an informational PRM. No action is necessary.

ID PRM:E8da-DD
RELEASE 1 and later

PRM FORMAT

PRM_p E8da DDtw xxyy yzzz hh hh hh

PRM SOURCE

File Manager

FUNCTION

Disk data [previously known as all-seems-well (ASW) function].

PRM EXPANSION

p	Active control unit (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 <i>n</i> indicates boot MHD <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an odd-numbered MHD in the range of H'1 through H'F.
zzz	A value of H'BD <i>n</i> indicates boot MHD <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an even-numbered MHD in the range of H'0 through H'E.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (PRM) is generated when this process (step) has successfully completed execution.

CORRECTIVE ACTION

None

Identifier 9 — Kernel Service Routines PRMs

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■ PRM_p F9da 070x 00yy yyyy hh hh hh	<u>13-9</u>
■ PRM_p F9da 0800 wwxh yyzz hh hh hh	<u>13-10</u>
■ PRM_p F9da 0900 0000 0000 hh hh hh	<u>13-11</u>
■ PRM_p E9da 0A00 xx00 yyyy hh hh hh	<u>13-12</u>
■ PRM_p E9da 0B00 xx00 yyyy hh hh hh	<u>13-14</u>
■ PRM_p E9da 0C0w xxyy zzzz hh hh hh	<u>13-16</u>
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Identifier 9 — Kernel Service Routines PRMs

13

Introduction to 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 operating system trap (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 time-out 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 processor recovery messages (PRMs) associated with these 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.

ID.....PRM:F9da-01
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 0100 0000 0000 hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Excessive number of illegal interrupts.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F9da-02
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 0200 00xx xxxx hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Bad segment descriptor entry (SDE) pointer.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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

ID.....PRM:F9da-03
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID PRM:F9da-04
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 0400 0000 00xx hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Unexpected interrupt.

PRM EXPANSION

p	Active control unit (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, <i>System Maintenance Manual</i> , for definition of the digits.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID.....PRM:F9da-05
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 05xx 00yy 00zz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Unattached interrupt.

PRM EXPANSION

p	Active control unit (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, <i>System Maintenance Manual</i> , 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. See Figure 1-1 for definitions of the digits.

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

ID PRM:F9da-06
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 060x 00yy yyyy hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Invalid kernel process dispatch.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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

ID PRM:F9da-07
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 070x 00yy yyyy hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Bad segment descriptor entry (SDE) pointer.

PRM EXPANSION

p	Active control unit (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.
yy yyyy	Digits 10-15 (yy yyyy) indicate the hexadecimal text address at which the fault occurred.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID PRM:F9da-08
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
wwxx yyzz	These values are always zero (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 program store word (PSW).
zz	Lowest byte in PSW.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of digits.

EXPLANATION

A process encountered a software fault, and the kernel cannot determine the process type.

Level 1 phase has been requested.

CORRECTIVE ACTION

Report the error to *UNIX** Real-Time Reliable (RTR) operating system support.

* UNIX is a registered trademark in the United States and other countries, licensed exclusively through X/Open Company Limited.

ID.....PRM:F9da-09
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 0900 0000 0000 hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Null dispatcher control table entry (DCTE) pointer.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID.....PRM:E9da-0A
RELEASE 1 and later

PRM FORMAT

PRM_p E9da 0A00 xx00 yyyy hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Abnormal status was returned from “iorint.”

PRM EXPANSION

p	Active control unit (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 (DSCH) channel status register in 254-303-106, <i>System Maintenance Manual</i> .
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

An abnormal status was returned from reading the DSCH using the input/output (I/O) instruction “iorint.” This stopped the operating system from determining the interrupting channel.

Kernel Function: intsw()

CORRECTIVE ACTION

If the problem continues, switch CUs. If the problem is isolated to one CU, replace the DMA circuit pack.

If the problem continues on either CU, suspect a faulty peripheral interface controller [attached processor interface (API), disk file controller (DFC), input/output processor (IOP), message switch (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.

ID.....PRM:E9da-0B
RELEASE 1 and later

PRM FORMAT

PRM_p E9da 0B00 xx00 yyyy hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Abnormal return from “iorsr.”

PRM EXPANSION

p	Active control unit (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 (DSCH) channel status register in 254-303-106, <i>System Maintenance Manual</i> .
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

An abnormal status was returned from reading the DSCH using the input/output (I/O) instruction “iorsr.”

Kernel Function: rdschsr()

CORRECTIVE ACTION

If the problem continues, switch CUs. If the problem is isolated to one CU, replace the DMA circuit pack.

If the problem continues on either CU, suspect a faulty peripheral interface controller [attached processor interface (API), disk file controller (DFC), input/output processor (IOP), message switch (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.

ID.....PRM:E9da-0C
RELEASE 1 and later

PRM FORMAT

PRM_p E9da 0C0w xxyy zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Abnormal return from “wtmsk.”

PRM EXPANSION

p	Active control unit (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 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 (DSCH) channel status register in 254-303-106, *System Maintenance Manual*.

hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

An error occurred when writing the dual serial interrupt mask using “wtmsk.”

Kernel Function: cdschim() or scsdchim().

CORRECTIVE ACTION

If the problem continues, switch CUs. If the problem is isolated to one CU, replace the DMA circuit pack.

If the problem continues on either CU, suspect a faulty peripheral interface controller [attached processor (API), disk file controller (DFC), input/output processor (IOP), message switch (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.

ID.....PRM:E9da-0D
RELEASE 1 and later
.....3B20D Only

PRM FORMAT

PRM_p E9da 0D0w xxyy zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Failure on "wtmsk."

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
w	Digit 7 (w) 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 (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 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 (DSCH) channel status register in 254-303-106, <i>System Maintenance Manual</i> .
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (PRM) applies only to a 3B20D computer.

An error or time-out occurred when trying to write the DSCH service request or interrupt mask registers using the “wtmsk” instruction.

The following routines may cause this PRM.

Kernel Functions: cdschsrn() or sdschsrn(), set_both(), or clr_both().
setboth21() or clrboth21().

CORRECTIVE ACTION

If the problem continues, switch CUs. If the problem is isolated to one CU, replace the DMA circuit pack.

If the problem continues on either CU, suspect a faulty peripheral interface controller [attached processor interface (API), disk file controller (DFC), input/output processor (IOP), message switch (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.

ID PRM:F9da-0D
RELEASE 21.1 and later
.....3B21D Only

PRM FORMAT

PRM_p F9da 0D0w xxyy zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Failure on "wtmsk."

PRM EXPANSION

This processor recovery message (PRM) is output when an error occurs on "wtmsk."

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.								
w	Digit 7 (w) indicates the action type: <table border="0"><tr><td>2</td><td>Disable the service request mask and interrupt mask.</td></tr><tr><td>3</td><td>Enable the service request mask and interrupt mask.</td></tr><tr><td>4</td><td>Update the interrupt mask.</td></tr><tr><td>5</td><td>Update the service request mask.</td></tr></table>	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.
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 (xx) indicate the channel number being written.								
yy	Digits 10 and 11 (yy) 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 (DSCH) channel status register in 254-303-106, <i>System Maintenance Manual</i> . Digits 12-15 indicate the channel status.								

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

For action types 2 and 3, this processor recovery message (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 will be 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 Functions: setboth21(), clrboth21(), wt_intmsk21() or wtsrmsk21().

CORRECTIVE ACTION

If the problem continues, switch CUs. If the problem is isolated to one CU, replace the DMA circuit pack.

If the problem continues on either CU, suspect a faulty peripheral interface controller [attached processor interface (API), disk file controller (DFC), input/output processor (IOP), message switch (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.

ID PRM:E9da-0E
RELEASE 1 and later

PRM FORMAT

PRM_p E9da 0E00 xxyy zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Abnormal return from “wtmski.”

PRM EXPANSION

p	Active control unit (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 (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 (DSCH) channel status register in 254-303-106, <i>System Maintenance Manual</i> .
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

An error occurred when clearing the dual serial interrupt mask using “wtmski.”
Kernel Function: cldschi()

CORRECTIVE ACTION

If the problem continues, switch CUs. If the problem is isolated to one CU, replace the DMA circuit pack.

If the problem continues on either CU, suspect a faulty peripheral interface controller [attached processor interface (API), disk file controller (DFC), input/output processor (IOP), message switch (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.

ID PRM:E9da-0F
RELEASE 1 and later

PRM FORMAT

PRM_p E9da 0F00 xxyy zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Abnormal return from “wtmskr.”

PRM EXPANSION

p	Active control unit (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 (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 (DSCH) channel status register in 254-303-106, <i>System Maintenance Manual</i> .
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

An error occurred when clearing the dual serial service request mask using “wtmskr.”

Kernel Function: cldschr()

CORRECTIVE ACTION

If the problem continues, switch CUs. If the problem is isolated to one CU, replace the DMA circuit pack.

If the problem continues on either CU, suspect a faulty peripheral interface controller [attached processor interface (API), disk file controller (DFC), input/output processor (IOP), message switch (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.

ID.....PRM:E9da-1F
RELEASE R21.7, R21.17,
.....R21.21 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of digits.

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.

CORRECTIVE ACTION

If this processor recovery message (PRM) comes out repeatedly, then switch CUs and run diagnostics on the failing CU.

ID.....PRM:F9da-10
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 1000 0000 0000 hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

An invalid branch occurred.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID.....PRM:F9da-11
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 11xx yyzz zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Kernel incurred software fault.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

Kernel incurred software fault and was unable to recover.

Level 1 phase has been requested.

CORRECTIVE ACTION

None

ID.....PRM:F9da-12
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

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

ID PRM:F9da-13
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

The kernel faulted while handling a supervisor OST, but recovery was impossible.

Level 1 phase has been requested.

CORRECTIVE ACTION

None

ID.....PRM:F9da-14
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

The kernel faulted while handling a channel OST, but recovery was impossible.

Level 1 phase has been requested.

CORRECTIVE ACTION

None

ID PRM:F9da-15
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

The kernel faulted while handling a kernel process OST, but recovery was impossible.

Level 1 phase has been requested.

CORRECTIVE ACTION

None

ID.....PRM:F9da-16
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 16xx yyzz zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Kernel faulted while in the kernel audit.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

The kernel faulted while in the kernel audit, but recovery was impossible.

Level 1 phase has been requested.

CORRECTIVE ACTION

None

ID PRM:F9da-17
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 17xx yyzz zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Kernel faulted while in a special process.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

The kernel faulted while in a special process, but recovery was impossible.

Level 1 phase has been requested.

CORRECTIVE ACTION

None

ID PRM:E9da-17
RELEASE.....1 and later

PRM FORMAT

PRM_p E9da 1700 0000 0000 hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Incomplete “dsksimplex” operating system trap (OST) process.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

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ID PRM:E9da-18
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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. Refer to 254-301-816, *3B20D Model 1 Computer Growth and Retrofit*, or 254-302-837, *3B20D Model 2 and 3 Computers Growth and Retrofit*.

ID PRM:E9da-19
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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 identification (UID) of the requesting process.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The time-out interval requested by *ptimer()* exceeded the maximum value set by *maxintvl()*.

CORRECTIVE ACTION

None

ID.....PRM:E9da-1A
RELEASE 1 and later

PRM FORMAT

PRM_p 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 processor recovery message (PRM) is the direct result of a process issuing the ol_mbflsh(4) kernel call.

PRM EXPANSION

p	Active control unit (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 message buffers are flushed.
xx	Indicates the message type.
yy y	Indicates the number of message blocks freed.
zzz	Indicates the utility identification (UID) of the process who owns the message buffers being flushed.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of digits.

CORRECTIVE ACTION

None

ID PRM:F9da-1B
RELEASE 21.1 and later
.....3B21D ONLY

PRM FORMAT

PRM_p F9da 1B0w xxyy zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Failure on “rdmsk.”

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
w	Digit 7 (w) 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 (xx) indicate the channel number being read.
yy	Digits 10 and 11 (yy) 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 (DSCH) channel status register in 254-303-106, <i>System Maintenance Manual</i> .
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (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."

Kernel Functions: setboth21(), clrboth21(), wt_intmsk21(), or wtsrmsk21().

For action type 3 (enable), an attempt will be 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 DMA circuit pack.

If the problem continues on either CU, suspect a faulty peripheral interface controller [attached processor interface (API), disk file controller (DFC), input/output processor (IOP), message switch (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.

ID.....PRM:E9da-1C
RELEASE 1 only

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

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* for more information. Pdefree is the index into PDT of the first free PDE. The occurrence of this processor recovery message (PRM) indicates that Pdefree contains an incorrect value.

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.

ID.....PRM:E9da-1C
RELEASE 6.4 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

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* for more information. Pdefree is the index into PDT of the first free PDE. The occurrence of this processor recovery message (PRM) indicates that Pdefree contains an incorrect value.

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.

ID PRM:E9da-1E
RELEASE 21.3 and later

PRM FORMAT

PRM_p 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 processor recovery message (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 same bit.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Indicates the execution level of the driver that is already attached to the interrupt source bit.
yy	Indicates the execution level of the driver that is attempting to attach to the interrupt source bit.
zz	Indicates the interrupt source bit number to which the driver is trying to attach.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID PRM:F9da-20
RELEASE 21.17 and later
.....3B21D ONLY

PRM FORMAT

PRM_p F9da 200w xxyy zzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Read mask does not match expected value.

PRM EXPANSION

p	Active control unit (CU): 0 => CU 0, 1 => CU 1.
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.
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 (DSCH) channel status register in 254-303-106, <i>System Maintenance Manual</i> .
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (PRM) applies only to the 3B21D computer.

After an 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(), clrboth21(), wt_intmsk21(), or wtsrmsk21().

For action type 3 (enable) an attempt will be 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 [attached processor interface (API), disk file controller (DFC), input/output processor (IOP), message switch (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.

ID PRM:F9da-34
RELEASE 1 through 6.6

PRM FORMAT

PRM_p F9da 3400 0000 0000 hh hh hh

PRM SOURCE

Scheduler

FUNCTION

There are no available scheduler slist entries.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

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ID PRM:E9da-36
RELEASE.....6.2 only

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx x	Digits 6-8 (xx x) 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 (yyy) are the process utility identification (UID).
zzzz	Digits 12-15 (zzzz) are the DCT extender process state.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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 will attempt to dispatch the process periodically for up to 2 minutes. If the process still fails validation after that time, it will be marked as not runnable (it will continue to consume resources but will not get scheduled for execution). Any attempt to terminate the process will most likely phase the system. This processor recovery message (PRM) is generated by scheduler routine displ.

CORRECTIVE ACTION

Contact your technical assistance organization.

ID.....PRM:F9da-37
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 3700 0000 0000 hh hh hh

PRM SOURCE

Scheduler

FUNCTION

Input/output (I/O) error during process load.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID PRM:F9da-38
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 3802 xx00 0000 hh hh hh

PRM SOURCE

Scheduler

FUNCTION

The scheduler encountered an unexplained fault.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx Contains the fault code.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

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ID PRM:F9da-39
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 3902 xx00 0000 hh hh hh

PRM SOURCE

Scheduler

FUNCTION

The scheduler encountered a software fault within the last ten scheduler ticks.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

xx Contains the fault code.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The scheduler encountered the first software fault within the last ten 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.

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ID PRM:F9da-3a
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 3A02 xx00 0000 hh hh hh

PRM SOURCE

Scheduler

FUNCTION

The scheduler encountered the second software fault within the last ten scheduler ticks.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Contains the fault code.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The scheduler encountered the second software fault within the last ten scheduler ticks.

Level 1 phase has been requested.

CORRECTIVE ACTION

Report the error to the *UNIX** Real-Time Reliable (RTR) operating system support.

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ID PRM:F9da-40
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 4002 xx00 0000 hh hh hh

PRM SOURCE

Kernel Display Application Driver

FUNCTION

Kdapdrv encountered a software fault.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Contains the fault code.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

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ID PRM:F9da-50
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 5002 xx00 0000 hh hh hh

PRM SOURCE

Utility Manager (UMGR)

FUNCTION

UMGR encountered a software fault.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Contains the fault code.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

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ID PRM:F9da-6E
RELEASE 1 and later

PRM FORMAT

PRM_p F9da 6E00 0000 0000 hh hh hh

PRM SOURCE

Memory Manager (MMGR)

FUNCTION

Bad return code received from function call.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID PRM:F9da-6F
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 6F00 0000 0000 hh hh hh

PRM SOURCE

Memory Manager (MMGR)

FUNCTION

Bad return code received from function call.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID.....PRM:F9da-70
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 7000 0000 0000 hh hh hh

PRM SOURCE

Memory Manager (MMGR)

FUNCTION

MMGR synchronization fault.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID.....PRM:F9da-71
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 7100 0000 0000 hh hh hh

PRM SOURCE

Memory Manager (MMGR)

FUNCTION

MMGR swapping logic error.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID.....PRM:F9da-72
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 7200 0000 0000 hh hh hh

PRM SOURCE

Memory Manager (MMGR)

FUNCTION

MMGR internal table built in wrong sequence.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID PRM:E9da-73
RELEASE.....1 and later

PRM FORMAT

PRM_p E9da 7300 0000 0000 hh hh hh

PRM SOURCE

Memory Manager (MMGR)

FUNCTION

Swap memory below minimum swap after boot.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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 processor recovery message (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

ID.....PRM:F9da-74
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID PRM:F9da-75
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 7502 xx00 0000 hh hh hh

PRM SOURCE

Memory Manager (MMGR)

FUNCTION

MMGR encountered a software fault.

PRM EXPANSION

p	Active control unit (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 and 9 (xx) are the fault codes. (See fault.h.)
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The MMGR was entered with a software or unexplained fault.

Level 1 phase has been requested.

CORRECTIVE ACTION

None

ID PRM:E9da-76
RELEASE.....1 and later

PRM FORMAT

PRM_p E9da 7600 0000 0000 hh hh hh

PRM SOURCE

Memory Manager (MMGR)

FUNCTION

Beginning internal audit of the MMGR's segment input/output (I/O) activity.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 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 processor recovery message (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_p E9da 7700 0000 0000 hh hh hh".)

CORRECTIVE ACTION

None

ID PRM:E9da-77
RELEASE.....1 and later

PRM FORMAT

PRM_p E9da 7700 0000 0000 hh hh hh

PRM SOURCE

Memory Manager (MMGR)

FUNCTION

A segment input/output (I/O) request is stuck; the MMGR is taking drastic action to clean up.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (PRM) indicates that the MMGR cannot complete a service request due to an inability to complete a segment I/O request. (See “PRM_p 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.

ID PRM:E9da-78
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

Pdefree is the index into page descriptor table (PDT) of the first free PDE. The occurrence of this processor recovery message (PRM) indicates that pdefree contains an incorrect value.

CORRECTIVE ACTION

No manual action is needed. The MMGR has rebuilt the list of free pages and called for an audit of the PDEs.

ID PRM:E9da-78
RELEASE.....6.4 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

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.h* for more information. Pdefree is the index into the PDT of the first free PDE. The occurrence of this processor recovery message (PRM) indicates that pdefree contains an incorrect value.

CORRECTIVE ACTION

No manual action is needed. The MMGR has rebuilt the list of free pages and called for an audit of the PDEs.

ID PRM:F9da-7F
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

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

ID PRM:F9da-80
RELEASE.....1 and later

PRM FORMAT

PRM_p F9da 8002 xx00 0000 hh hh hh

PRM SOURCE

Capability Manager (CMGR)

FUNCTION

CMGR encountered a software fault.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Contains the fault code.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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** Real-Time Reliable (RTR) operating system support.

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ID PRM:E9da-DD
RELEASE 1 and later

PRM FORMAT

PRM_p E9da DDtw xxyy yzzz hh hh hh

PRM SOURCE

Kernel Service Routines

FUNCTION

Disk data [previously known as all-seems-well (ASW) function].

PRM EXPANSION

p	Active control unit (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 moving head disk (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'0 through H'E.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (PRM) is generated when this process (step) has successfully completed execution.

CORRECTIVE ACTION

None

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Introduction to Processor Manager PRMs	<u>14-1</u>
■ PRM_p FAda 0100 0000 0000 hh hh hh	<u>14-2</u>
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■ PRM_p FAda 0300 0000 0000 hh hh hh	<u>14-4</u>
■ PRM_p FAda 0800 0000 0000 hh hh hh	<u>14-5</u>
■ PRM_p FAda 0900 0000 0000 hh hh hh	<u>14-6</u>
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■ PRM_p FAda 1200 0000 0000 hh hh hh	<u>14-12</u>
■ PRM_p FAda 1300 0000 0000 hh hh hh	<u>14-13</u>
■ PRM_p FAda 1500 xxyy yyyy hh hh hh	<u>14-14</u>
■ PRM_p EAda 6400 0000 0000 hh hh hh	<u>14-15</u>
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■ PRM_p EAda DDtw xxyy yzzz hh hh hh	<u>14-17</u>

**Introduction to 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 it can be shared, it will be used by the new process. If a segment does not exist, it is created. Process 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.

ID PRM:FAda-01
RELEASE 1 and later

PRM FORMAT

PRM_p FAda 0100 0000 0000 hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Second initialization request.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The process manager can only be initialized once. The system integrity monitor (SIM) is informed, and the message is disallowed.

CORRECTIVE ACTION

None

ID PRM:FAda-02
RELEASE 1 and later

PRM FORMAT

PRM_p FAda 0200 0000 0000 hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Failed to open kernel stack segment.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID PRM:FAda-03
RELEASE 1 and later

PRM FORMAT

PRM_p FAda 0300 0000 0000 hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Failed to open kernel message buffer segment.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID PRM:FAda-08
RELEASE 1 and later

PRM FORMAT

PRM_p FAda 0800 0000 0000 hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Fail to open root file system.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

File manager could not open root file system. The process manager reports to system integrity monitor (SIM) for reinitialization.

CORRECTIVE ACTION

None

ID PRM:FAda-09
RELEASE 1 and later

PRM FORMAT

PRM_p FAda 0900 0000 0000 hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Failed to add nub.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

Process manager keeps the nub segments in its address space. Through Release 6.3, this processor recovery message (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

ID PRM:FAda-0C
RELEASE.....1 and later

PRM FORMAT

PRM_p FAda 0C00 0000 0000 hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Failed to open protected application segment.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID PRM:FAda-0D
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID.....PRM:FAda-0E
RELEASE.....1 and later

PRM FORMAT

PRM_p FAda 0E00 0000 0000 hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Failed to open equipment configuration database (ECD) segment.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID.....PRM:FAdA-0F
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID PRM:FAda-11
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID PRM:FAda-12
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID PRM:FAda-13
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID PRM:FAda-15
RELEASE 1 and later

PRM FORMAT

PRM_p FAda 1500 xxyy yyyy hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Process manager fault count threshold exceeded.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xx	Digits 8 and 9 (xx) indicate the fault code.
yy yyyy	Digits 10-15 (yy yyyy) indicate the address at which the fault occurred.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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

ID.....PRM:EAdA-64
RELEASE 1 and later

PRM FORMAT

PRM_p EAdA 6400 0000 0000 hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Successful initialization.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

The process manager has successfully initialized after a boot or fault.

CORRECTIVE ACTION

None

ID.....PRM:EAdA-65
RELEASE 1 and later

PRM FORMAT

PRM_p EAdA 6500 xx00 00yy hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Boot time pcreated process not created.

PRM EXPANSION

p	Active control unit (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 254-303-111, <i>PDS Output Messages Manual</i> , or 254-303-113, <i>MML Output Messages Manual</i> .
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. See Figure 1-1 for definitions of the digits.

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 processor recovery message (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.

CORRECTIVE ACTION

Examine the system generation (SYSGEN) results listing. Depending upon which process was *not* created, a reboot with a different load may be required.

ID PRM:EAda-DD
RELEASE 1 and later

PRM FORMAT

PRM_p EAda DDtw xxyy yzzz hh hh hh

PRM SOURCE

Process Manager

FUNCTION

Disk data [previously known as all-seems-well (ASW) function].

PRM EXPANSION

p	Active control unit (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 <i>n</i> indicates boot moving head disk (MHD) <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an odd-numbered MHD in the range of H'1 through H'F.
zzz	A value of H'BD <i>n</i> indicates boot MHD <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an even-numbered MHD in the range of H'0 through H'E.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (PRM) is generated when this process (step) has successfully completed execution.

CORRECTIVE ACTION

None

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■ PRM_p EBda 1200 0000 00xx hh hh hh	<u>15-10</u>
■ PRM_p EBda 1300 0000 00xx hh hh hh	<u>15-11</u>
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■ PRM_p FBda 4000 xxxx xxxx hh hh hh	<u>15-17</u>
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■ PRM_p FBda 4300 xxxx xxxx hh hh hh	<u>15-20</u>
■ PRM_p EBda 5000 0000 xxxx hh hh hh	<u>15-21</u>
■ PRM_p EBda 5100 0000 xxxx hh hh hh	<u>15-22</u>
■ PRM_p FBda 5100 0000 xxxx hh hh hh	<u>15-23</u>
■ PRM_p FBda 5200 0000 0000 hh hh hh	<u>15-24</u>
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Introduction to SIM PRMs

The system integrity monitor (SIM) maintains and monitors the integrity of the *UNIX** Real-Time Reliable (RTR) operating system. 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. 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 will reboot the system. Another function of SIM is to provide a sanity timer that is used by 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 control units (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. Processor recovery messages (PRMs) from SIM report a failure to get an init message from an essential process, a failure to init the overload control system, a failure to execute ULARP.

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ID PRM:FBda-00
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx xxxx	Digits 8-15 (xxxx 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. See Figure 1-1 for definitions of the digits.

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 teletypewriter (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.

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ID.....PRM:EBda-07
RELEASE 1 and later

PRM FORMAT

PRM_p EBda 0700 0000 0000 hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

Audit control subsystem initialization failure.

PRM EXPANSION

p Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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 ECD origination record (ECDORG).
- 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 **ALW:AUD:ALL** command to cause another audit control subsystem initialization attempt.

ID.....PRM:EBda-08
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

Verify and if necessary repair the plant measurements database. Then enter the **ALW:AUD:ALL** command to cause SIM to try again to attach to it.

ID PRM:FBda-0B
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:FBda-0C
RELEASE.....1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID.....PRM:EBda-10
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

SIM was unable to initialize the “spy” package that gives it access to information about resource utilization within the *UNIX** Real-Time Reliable (RTR) operating system kernel. This problem could be symptomatic of serious trouble in the operating system.

CORRECTIVE ACTION

None

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ID.....PRM:EBda-11
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

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.

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ID.....PRM:EBda-12
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID.....PRM:EBda-13
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

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.

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ID.....PRM:EBda-14
RELEASE 1 and later

PRM FORMAT

PRM_p EBda 1400 0000 00xx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM terminated the coordinator of spooler output processes (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 control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID.....PRM:EBda-15
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID.....PRM:EBda-16
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

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.

ID PRM:FBda-20
RELEASE 1 and later

PRM FORMAT

PRM_p FBda 2000 0000 00xx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM requested a Phase 1 in an effort to recover from message buffer overflow.

PRM EXPANSION

p Active control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

None

ID PRM:FBda-21
RELEASE 1 and later

PRM FORMAT

PRM_p FBda 2100 0000 00xx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM requested a Phase 1 in an effort to recover from critical message buffer overload.

PRM EXPANSION

p Active control unit (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

None

ID PRM:FBda-40
RELEASE 1 and later

PRM FORMAT

PRM_p FBda 4000 xxxx xxxx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM requested a Phase 0 as a recovery action for an audit failure.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx xxxx	For <i>UNIX</i> * Real-Time Reliable (RTR) operating system audits, this word of data is the equipment configuration database (ECD) record identifier (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 processor recovery message (PRM).
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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, *System Maintenance Manual*, or a similar application publication for instructions on responding to the audit failure.

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ID PRM:FBda-41
RELEASE 1 and later

PRM FORMAT

PRM_p FBda 4100 xxxx xxxx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM requested a Phase 1 as a recovery action for an audit failure.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx xxxx	For <i>UNIX</i> * Real-Time Reliable (RTR) operating system audits, this word of data is the equipment configuration database (ECD) record identifier (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 processor recovery message (PRM).
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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, *System Maintenance Manual*, or a similar application publication for instructions on responding to the audit failure.

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ID PRM:FBda-42
RELEASE 1 and later

PRM FORMAT

PRM_p FBda 4200 xxxx xxxx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM requested a Phase 2 as a recovery action for an audit failure.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx xxxx	For <i>UNIX</i> * Real-Time Reliable (RTR) operating system audits, this word of data is the equipment configuration database (ECD) record identifier (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 processor recovery message (PRM).
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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, *System Maintenance Manual*, or a similar application publication for instructions on responding to the audit failure.

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ID PRM:FBda-43
RELEASE 1 and later

PRM FORMAT

PRM_p FBda 4300 xxxx xxxx hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

SIM requested a Phase 3 as a recovery action for an audit failure.

PRM EXPANSION

p	Active control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.
xxxx xxxx	For <i>UNIX</i> * Real-Time Reliable (RTR) operating system audits, this word of data is the equipment configuration database (ECD) record identifier (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 processor recovery message (PRM).
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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, *System Maintenance Manual*, or a similar application publication for instructions on responding to the audit failure.

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ID.....PRM:EBda-50
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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. See Figure 1-1 for definitions of the digits.

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

ID.....PRM:EBda-51
RELEASE 1 and later

PRM FORMAT

PRM_p 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 equipment configuration database (ECD). The “PRM_p EBda 5100 0000 xxxx hh hh hh” message will appear when shift-chks are inhibited and is informational only. The “PRM_p FBda 5100 0000 xxxx hh hh hh” message will appear in all other cases and is a fatal error which will result in SIM requesting a phase.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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).

CORRECTIVE ACTION

Reboot with software checks inhibited and determine what is wrong with the AIM.

ID PRM:FBda-51
RELEASE 1 and later

PRM FORMAT

PRM_p FBda 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 equipment configuration database (ECD). The “PRM_p EBda 5100 0000 xxxx hh hh hh” message will appear when shift-chks are inhibited and is informational only. The “PRM_p FBda 5100 0000 xxxx hh hh hh” message will appear in all other cases and is a fatal error which will result in SIM requesting a phase.

PRM EXPANSION

p	Active control unit (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. See Figure 1-1 for definitions of the digits.

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).

CORRECTIVE ACTION

Reboot with software checks inhibited and determine what is wrong with the AIM.

ID PRM:FBda-52
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID.....PRM:EBda-60
RELEASE 1 and later

PRM FORMAT

PRM_p EBda 60xx yyyy yyyy hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

Boot progress processor recovery messages (PRMs) from the *UNIX** system user-level automatic restart process (ULARP).

PRM EXPANSION

p	Active control unit (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 identification (UID) of the process or the equipment configuration database (ECD) record identifier (RID) of the run command.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

A boot progress processor recovery message (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

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ID.....PRM:EBda-61
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

SIM was not able to pcreate the *UNIX* system initialization process (*/prcl/unix*) due to a misnamed or missing file.

CORRECTIVE ACTION

If craft interface is working, check for the existence of the file */prcl/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.

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ID.....PRM:EBda-62
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 <i>org</i> record. 21 - The initialization process could not read the unit control block (<i>ucb</i>) record for the maintenance teletypewriter (MTTY). 22 - The initialization process could not read the craft interface option (<i>ciopt</i>) record for the emergency action interface (EAI). 23 - The initialization process could not read the emergency action interface option (<i>eaiopt</i>) record for the EAI. 52 - The initialization process failed to execute the <i>UNIX</i> system level automatic restart process user-level automatic restart process (ULARP).

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hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

ID.....PRM:EBda-63
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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 processor recovery message (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.

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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.

If craft interface is not working, bootstrap on backup root and follow normal procedures for restoring the primary root file system.

ID.....PRM:EBda-64
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

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ID.....PRM:EBda-65
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 run command.
yyyy yyyy	The record identifier (RID) of the run command.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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 RID in the processor recovery message (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.

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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.

ID.....PRM:EBda-66
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 identification (UID) of the child process.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

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CORRECTIVE ACTION

Use the printout from the **OP:ULARP:EXECSEQ** command to get the ECD record name which matches the UID in the processor recovery message (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.

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.

ID.....PRM:EBda-67
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 identification (UID) of the process.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

A process monitored by ULARP terminated itself due to a fatal error.

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CORRECTIVE ACTION

Use the printout from the **OP:ULARP:EXECSEQ** command to get the ECD record name which matches the UID in the processor recovery message (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.

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.

ID.....PRM:EBda-68
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (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 identifier (RID) of the child process.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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 RID in the processor recovery message (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.

ID.....PRM:EBda-69
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

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.

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ID.....PRM:EBda-72
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (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 (EAI) 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.

ID.....PRM:EBda-73
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (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 (EAI) 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).

ID.....PRM:EBda-74
RELEASE 6.3 and later

PRM FORMAT

PRM_p EBda 7400 xxyy zzzz hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

Craft initialization (CFT INIT) in progress.

PRM EXPANSION

- p Active control unit (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 <i>UNIX</i> * System/Supervisor	n	y	y
Essential killable <i>UNIX</i> System/Supervisor	n	n	y
Nonkillable <i>UNIX</i> System/Supervisor	n	n	n
Kernel	n	n	n
* <i>UNIX</i> is a registered trademark in the United States and other countries, licensed exclusively through X/Open Company Limited.			

Input/Output (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 - Scanner and Signal Distributor Handler	n	n	y
SDLH - Synchronous Data Link Handler	n	n	y

yy 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.

zzzz 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 processor recovery messages (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. See Figure 1-1 for definitions of the digits.

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 (ROP) 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 is required.

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.
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 (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).

ID.....PRM:EBda-75
RELEASE 1 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (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 (EAI) page will have no effect while the system is performing a CFT INIT.

CORRECTIVE ACTION

Wait until the CFT INIT has completed.

ID.....PRM:EBda-75
RELEASE 6.5 and later

PRM FORMAT

PRM_p 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 control unit (CU): 0 indicates CU 0 is active, 1 indicates CU 1 is active.

hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (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 (EAI) page will have no effect while the system is performing a field update.

CORRECTIVE ACTION

Wait until the field update has completed.

ID PRM:EBda-DD
RELEASE 1 and later

PRM FORMAT

PRM_p EBda DDtw xxyy yzzz hh hh hh

PRM SOURCE

*UNIX** System Level Automatic Restart Process

FUNCTION

Disk data [previously known as all-seems-well (ASW) function].

PRM EXPANSION

p	Active control unit (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 <i>n</i> indicates boot moving head disk (MHD) <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an odd-numbered MHD in the range of H'1 through H'F.
zzz	A value of H'BD <i>n</i> indicates boot MHD <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an even-numbered MHD in the range of H'0 through H'E.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

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EXPLANATION

None

CORRECTIVE ACTION

None

ID.....PRM:ECda-0F
RELEASE.....1 and later

PRM FORMAT

PRM_p ECda 0F00 0000 0000 hh hh hh

PRM SOURCE

Control Unit (CU) Hardware Audit

FUNCTION

This processor recovery message (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 maintenance teletypewriter (MTTY).

PRM EXPANSION

p Active CU: 0 indicates CU 0 is active, 1 indicates CU 1 is active.
hh hh hh Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

None

ID.....PRM:ECda-0F
RELEASE.....1 and later

PRM FORMAT

PRM_p ECda 0F00 1234 5678 hh hh hh

PRM SOURCE

CRAFT Command

FUNCTION

This processor recovery message (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

None

ID.....PRM:ECda-0F
RELEASE.....21.1 and later

PRM FORMAT

PRM_p ECda 0FDD 1234 5678 hh hh hh

PRM SOURCE

Error Interrupt Handler (EIH)

FUNCTION

During the OFLBOOT, the EIH processor recovery message (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. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

None

ID PRM:ECda-DD
RELEASE 1 and later

PRM FORMAT

PRM_p ECda DDtw xxyy yzzz hh hh hh

PRM SOURCE

System Integrity Monitor (SIM)

FUNCTION

Disk data [previously known as all-seems-well (ASW) function].

PRM EXPANSION

p	Active control unit (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 <i>n</i> indicates boot moving head disk (MHD) <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an odd-numbered MHD in the range of H'1 through H'F.
zzz	A value of H'BD <i>n</i> indicates boot MHD <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an even-numbered MHD in the range of H'0 through H'E.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

None

CORRECTIVE ACTION

None

**Identifiers D and E —
Application PRMs**

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■ PRM_p EEda DDtw xxyy yzzz hh hh hh	<u>16-2</u>

Introduction to Application PRMs

Identifiers D and E are not used by the *UNIX** Real-Time Reliable (RTR) operating system. These digits may be output by an application process. See the appropriate application documentation.

The system integrity monitor (SIM), on receipt of a software initialization status (SINITSTAT) message, will generate an all-seems-well (ASW) processor recovery message (PRM) on behalf of the sending process. If an application process, attached to the AIM port, sends SIM an SINITSTAT message, an ASW PRM will be produced for it as well. The application process ASW PRM is documented in this information product (IP) in the “PRM_p EEda-DDtw xxyy yzzz hh hh hh” message.

⇒ NOTE 1:

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.

⇒ 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.

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ID.....PRM:EEda-DD
RELEASE 1 and later

PRM FORMAT

PRM_p 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 (ASW) function].

PRM EXPANSION

p	Active control unit (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 <i>n</i> indicates boot moving head disk (MHD) <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an odd-numbered MHD in the range of H'1 through H'F.
zzz	A value of H'BD <i>n</i> indicates boot MHD <i>n</i> is active and H'000 indicates not active. Variable ' <i>n</i> ' is an even-numbered MHD in the range of H'0 through H'E.
hh hh hh	Hardware status digits. See Figure 1-1 for definitions of the digits.

EXPLANATION

This processor recovery message (PRM) is generated when this process (step) has successfully completed execution. It is generated by the system integrity monitor (SIM) on behalf of the process (step) upon receipt of a SUCCESS software initialization status (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 FPOONLY. SIM, upon receipt of an SINITSTAT message, will generate an ASW PRM on behalf of the sending process. If an application process, attached to the AIM port, sends SIM an SINITSTAT message, an ASW PRM will be produced for it as well.



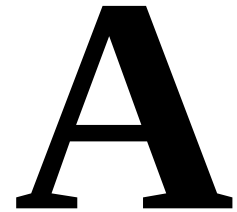
NOTE 2:

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

DSCH Status Layout

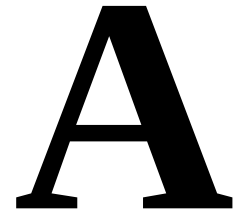


Contents

Introduction to DSCH Status Layout

[A-1](#)

DSCH Status Layout



Introduction to DSCH Status Layout

Table A-1 provides the dual serial channel (DSCH) status layout.

Table A-1. 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	Input/output (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

BIC Status Layout

B

Contents

Introduction to BIC Status Layout

[B-1](#)

BIC Status Layout

B

Introduction to BIC Status Layout

Table B-1 provides the bus interface controller (BIC) status layout.

Table B-1. 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 B-1. 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

Using LDFT Dead Start Feature

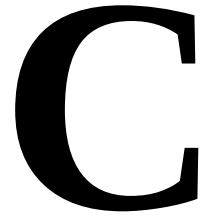
C

Contents

Introduction to LDFT Dead Start Feature

[C-1](#)

Using LDFT Dead Start Feature



Introduction to LDFT Dead Start Feature

The load disk from tape (LDFT) program is used to load software onto a boot disk from tape.

⇒ NOTE:

Please follow application specific recovery procedures if available. The referenced LDFT procedure is **NOT** intended to replace or be used instead of the Lucent Technologies switching product recovery procedures. The application using the 3B20D/3B21D computer may have provided detailed recovery procedures which provide specific guidelines and instructions which may help in the analysis and resolution of the outage and reduce the recovery time.

When no application specific detailed recovery procedure is available, refer to 254-303-106, *System Maintenance Manual*, which provides a procedure in Chapter 3, "Recovery," to dead start the computer by loading the disk from tape.

Device Type Definitions

D

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Introduction to Device Type Definitions

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Device Type Definitions

D

Introduction to Device Type Definitions

Digits 7-9 (y yy) from input/output processor (IOP) driver (IODRV) processor recovery messages (PRMs) such as “PRM_p F7da 200y yyzz tttt hh hh hh” indicate the IOP device type as shown in Table D-1.

Table D-1. Device Type Definitions

Type	Device
X'000	No unit
X'001	Peripheral interface controller (PIC)
X'002	Teletypewriter controller (TTYC)
X'003	Teletypewriter (TTY) unit
X'004	Magnetic tape controller (MTC)
X'005	Magnetic tape (MT) unit
X'006	Scanner and signal distributor controller (SCSDC)
X'007	Synchronous data link controller (SDLC)
X'008	Synchronous data link (SDL) unit
X'009	Maintenance TTY controller (MTTYC)
X'00A	Maintenance TTY (MTTY)
X'00B	Receive-only printer (ROP)
X'00C	Switching control center (SCC) interface
X'00D	Emergency action interface (EAI)
X'00E	Foundation peripheral controller (FPC)
X'00F	Foundation peripheral (FP) unit
X'012	Direct user interface controller (DUIC)
X'013	Direct user interface (DUI) unit
X'015	High-speed data link controller (HSDC)
X'016	High-speed data link (HSD) unit

EIH Function Numbers

E

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Introduction to EIH Function Numbers

[E-1](#)

EIH Function Numbers

E

Introduction to EIH Function Numbers

The error interrupt handler (EIH) function numbers in Table E-1 are for Release 1 and later. The numbers are in hexadecimal as is the processor recovery message (PRM).

Table E-1. EIH Function Numbers for Release 1 and Later

Function Name	Function Number
attach	1
chanerr	2
cr_dmaer	3
disable	4
dmadata	5
dmafatal	6
dmanfatal	7
eih.fun	8
enable	9
errlog	A
event	B
fault	C

Table E-1. EIH Function Numbers for Release 1 and Later (Contd)

Function Name	Function Number
finducb	D
grchan	E
growth	F
inhibit	10
in_ect	11
in_imem	12
inchan	13
maint	14
memerr	15
mkactive	16
myccerr	17
myccsoft	18
ost	19
othccerr	1A
pioerr	1B
pioto	1C
remofl	1D
search	1E
sel_cu	1F
send_prm	20
sim.fun	21
sndmira	22
switch	23
faltsw	24
dlmsw	25
descalate	27
get_iop_number	38
verify_incore	39
add_rm_log	50
send_tty	51
modify_ecd	52
uneqip_dfcs	53
uneqip_iops	54
uneqip_mtty	55
olbcontrol	56
degrow_scsd	57
chg_mtty	58

Table E-1. EIH Function Numbers for Release 1 and Later (Contd)

Function Name	Function Number
grow_mtty	59
olbfault	60
uneqip_pc	62
send_mch_int	63
grow_scsd	64
chg_scsd	65
rmv_units	66
degrow_units	67
olb_msg_handler	68
tim_postsw	69

The EIH function numbers in Table E-2 are for Releases 1.5 through 6.6 only.
The numbers are in hexadecimal as is the PRM.

Table E-2. EIH Function Numbers for Releases 1.5 Through 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
X'1D	remofl
X'1E	search
X'1F	sel_cu

Table E-2. EIH Function Numbers for Releases 1.5 Through 6.6 (Contd)

EIH Function Number	EIH Source File
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
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

The EIH function numbers in Table E-3 are for Release 6.7 and later. The numbers are in hexadecimal as is the PRM.

Table E-3. 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
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

Table E-3. EIH Function Numbers for Release 6.7 and Later (Contd)

EIH Function Number	EIH Function Name	EIH Source File
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	dlnsw	dln_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_dmaer	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
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	eaier	eaier.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

Table E-3. EIH Function Numbers for Release 6.7 and Later (Contd)

EIH Function Number	EIH Function Name	EIH Source File
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

**Error Codes Generated by
IODRV for Growth and
Degrowth**

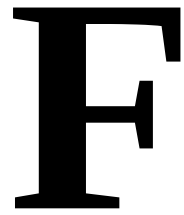
F

Contents

**Introduction to IODRV Growth and Degrowth
Error Codes**

[F-1](#)

Error Codes Generated by IODRV for Growth and Degrowth



Introduction to IODRV Growth and Degrowth Error Codes

The input/output processor (IOP) driver (IODRV) is a kernel process that generates growth and degrowth error codes found in Table F-1.

Table F-1. Error Codes Generated by IODRV for Growth and Degrowth

Code (Hex)	Description
1	Cannot get peripheral controller subdevice (PCSD) scratch size for boot time growth.
2	Cannot get PCSD unit control block (UCB) for boot time growth.
3	Cannot get peripheral controller (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 peripheral interface controller (PIC) UCB for boot time growth.
8	Initialization sequence control (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.

**Table F-1. Error Codes Generated by IODRV for Growth and Degrowth
(Contd)**

Code (Hex)	Description
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 pc sd id) with other subdevice currently equipped.
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.

Table F-1. Error Codes Generated by IODRV for Growth and Degrowth (Contd)

Code (Hex)	Description
2f	The UCB is unequipped during dynamic growth due to the sharing of subdevice id (or pcsd id) with other subdevice currently equipped.
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 degrowth.
34	Cannot dynamically degrow a unit; it has equipped units below it.
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.

Process Fault Code Definitions

G

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Introduction to Process Fault Code Definitions [G-1](#)

Process Fault Code Definitions

G

Introduction to Process Fault Code Definitions

Process fault code definitions are shown in Table G-1.

Table G-1. Process Fault Code Definitions

Code (Hex)	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 I/O (kernel process only).
b2	Peripheral interface controller (PIC) fault for programmed (I/O) (kernel process only).
b3	Processor fault for programmed I/O (kernel process only).
b4	Device reported error for DMA I/O.
b5	DMA addressing fault for DMA I/O (kernel process only).
b6	PIC faulted for DMA I/O (kernel process only).
b7	Processor fault for DMA I/O (kernel process only).
b8	Device reported error - peripheral input/output (PIO). No message.
b9	PIC implicated - PIO in progress. No message sent with fault.

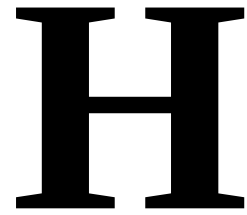
Table G-1. Process Fault Code Definitions (Contd)

Code (Hex)	Description
ba	Addressing error - PIO in progress. No message associated with fault.
bb	Data being used by the process has noncorrectible 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 (CFT INIT) fault.
c1	Recovery switch of processors is complete - sent from processor control process error interrupt handler to system integrity monitor to 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).
c4	Configuration manager remove request (kernel process only).
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 - processor control process error interrupt handler only - sent from SIM to processor control process error interrupt handler.
cc	Configuration manager 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.

Table G-1. Process Fault Code Definitions (Contd)

Code (Hex)	Description
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.

BBOOT PRM Hex Codes and Descriptions

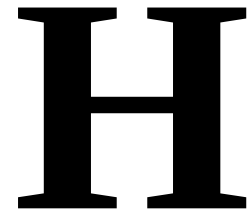


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Introduction to BBOOT PRM Hex Codes and Descriptions

[H-1](#)

BBOOT PRM Hex Codes and Descriptions



Introduction to BBOOT PRM Hex Codes and Descriptions

Table H-1 shows big boot (BBOOT) processor recovery message (PRM) hexadecimal codes and descriptions.

Table H-1. BBOOT PRM Hex Codes and Descriptions

Used in calls to the “fileloc” function to locate the associated files on disk.

0x10:	Patchcount File
0x50:	appdmert or dmert Bootfile
0x90:	Boot Time Equipment Configuration Database (ECD) File
0xD0:	Other Boot Time Database

Used in “fileloc” function to load the first block of i-lists associated with file (for hex codes 0x10, 0x50, 0x90, and 0xD0) into the main store (MAS) locations.

0x20:	Patchcount First Inode
0x60:	Bootfile First Inode
0xA0:	ECD First Inode
0xE0:	Other First Inode

Table H-1. BBOOT PRM Hex Codes and Descriptions (Contd)

Used in "fileloc" to load a block of the directory associated with file into the MAS locations.

0x30: Patchcount Load Directory
0x70: Bootfile Load Directory
0xB0: ECD Load Directory
0xF0: Other Load Directory

Used in "fileloc" to load a block of i-lists associated with file into the MAS locations.

0x40: Patchcount Inode
0x80: Bootfile Inode
0xC0: ECD Inode
0x01: Other Inode
0x02: Read a Block of ECD Origination Record (ECDORG)
First Level of Indirection
0x03: Read a Block of ECDORG Second Level of Indirection
0x04: Read Block of BTPARM First Level of Indirection
0x05: Read Block of BTPARM Second Level of Indirection
0x06: Used by sgen() Call to delay()
0x07: Used by Loaddb() Call to doquejob()
0x08: Used by writedisk() Call to doquejob()
0x00: Default Value

Error Codes Generated by Off-Line Boot



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Introduction to Error Codes Generated by Off-Line Boot

[I-1](#)

Error Codes Generated by Off-Line Boot



Introduction to Error Codes Generated by Off-Line Boot

Table I-1 shows error codes generated by an off-line boot. All reasons shown under table heading "Description" happened on the off-line side.

Table I-1. Error Codes Generated by Off-Line Boot

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 channels (DSCHs).
09	Cannot build original state tables for disk file controllers (DFCs).
10	Cannot build original state tables for input/output processors (IOPs).

Table I-1. Error Codes Generated by Off-Line Boot (Contd)

Code (Hex)	Description
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.
16	Cannot mark switching control center (SCC), receive-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 IOP 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.
34	Cannot update a community's UCB records as UNEQIP during an off-line boot.

Table I-1. Error Codes Generated by Off-Line Boot (Contd)

Code (Hex)	Description
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 controller (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 unequip.
42	Corrupted IOP mask.
43	Called unequip_mtty() from the wrong off-line boot state.
44	Cannot remove an MTTYC subunit 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.

Acronyms

3BCC

3B20D/3B21D Computer Central Control

A

ABD

Alternate Boot Disk

ADP

Automatic Diagnostic Process

AIM

Application Integrity Monitor

ALU

Arithmetic Logic Unit

AM

Application Module

AP

Array Pointer

API

Attached Processor Interface

ASW

All-Seems-Well

ATB

Address Translation Buffer

B

BBOOT

Big Boot

BDID

Bus Device ID

BIC

Bus Interface Controller

BXSLH

BX Session Layer Handler

C

CAR

Channel Address Register

CCITT

Consultative Committee International Telegraph and Telephone

CC

Central Control

CDR

Channel Data Register

CFR

Common File Reader

CFT INIT

Craft Initialization

CH

Channel

CIH

Craft-Interface Handler

ciopt

Craft Interface Option

CMC

Customer Measurement Collection

CMGR

Capability Manager

CPH

Communication Protocol Handler

CRT

Cathode-Ray Tube

CSOP

Coordinator of Spooler Output Processes

CU

Control Unit

D

DCT

Dispatcher Control Table

DCTE

Dispatcher Control Table Entry

DDSBS

Duplex Dual Serial Bus Selector

DFC

Disk File Controller

DIO

Direct Memory Access Input/Output

DIOP

Disk Independent Operation

DKDRV

Disk Driver

DLM

Disk Limp Mode

DMA

Direct Memory Access

DMAC

Direct Memory Access Controller

DMERT

Duplex Multi-Environment Real-Time Operating System

DSCH

Dual Serial Channel

DTR

Data Terminal Ready

DUI

Direct User Interface Unit

DUIC

Direct User Interface Controller

DUIH

Direct User Interface Handler

E

EAI

Emergency Action Interface

eaiopt

Emergency Action Interface Option

ECD

Equipment Configuration Database

ECDORG

Equipment Configuration Database Origination Record

EIH

Error Interrupt Handler

EOD

End of Data

EOF

End of File

ER

Error Register

F

FBDP

Forced Boot Disk Primary

FBDS

Forced Boot Disk Secondary

FIFO

First-In First-Out

FMGR

File Manager

FOFL

Forced Off-Line

FONL

Forced On-Line

FPC

Foundation Peripheral Controller

FP
Foundation Peripheral

G

GRASP
Generic Access Package

H

HDB
Hole Descriptor Block

HSD
High-Speed Data Link

HSDC
High-Speed Data Link Controller

HSR
Hardware Status Register

I

INIT
Initialization

I/O
Input/Output

IODRV
Input/Output Driver

IOI
Input/Output Interface

IOP
Input/Output Processor

IPB
Initialization Parameter Buffer

IS

Interrupt Source

ISC

Initialization Sequence Control

K

KBOOT

Kernel Boot

KOST

Kernel Operating System Trap

L

LBOOT

Little Boot

LDFT

Load Disk From Tape

LDST

Load Dead Start Tape

M

MAS

Main Store

MASC

Main Store Controller

MCC

Master Control Center

MCH

Maintenance Channel

MHD

Moving Head Disk

MMGR

Memory Manager

MML

Man-Machine Language

MRF

Maintenance Reset Function

MSGs

Message Switch

MT

Magnetic Tape

MTC

Magnetic Tape Controller

MTH

Magnetic Tape Handler

MTTY

Maintenance Teletypewriter

MTTYC

Maintenance Teletypewriter Controller

N

NDLM

No Disk Limp Mode

NPH

Network Protocol Handler

NSC

Network System Center

NVLMM

Non-Very Large Main Memory

O

OOS

Out of Service

OST

Operating System Trap

P

PA

Program Address

PAS

Protected Application Segment

PBI

Peripheral Bus Interface

PC

Peripheral Controller

PCB

Process Control Block

PCPEIH

Processor Control Process Error Interrupt Handler

PCSD

Peripheral Controller Subdevice

PDE

Page Descriptor Entry

PDS

Program Documentation Standard

PDT

Page Descriptor Table

PECC

Product Engineering Control Center

PIC

Peripheral Interface Controller

PID

Process Identification

PINIT

Processor Initialization

PIO

Peripheral Input/Output

PIOERR

Peripheral Input/Output Error

PIOINIT

Peripheral Input/Output Initialization

PIOTMO

Peripheral Input/Output Time-Out

PML

Plant Measurement Library

PRM

Processor Recovery Message

PSW

Program Store Word

R

RAM

Random Access Memory

RID

Record Identifier

RMU

Rotate Mask Unit

ROP

Receive-Only Printer

RST

Restore

RTR

Real-Time Reliable

RTS

Real-Time Status

S

SAS

Stop and Switch

SAT

Store Address Translator

SBUS

Small Computer System Interface Bus

SCC

Switching Control Center

SCSD

Scanner and Signal Distributor

SCSDC

Scanner and Signal Distributor Controller

SCSDH

Scanner and Signal Distributor Handler

SCSI

Small Computer System Interface

SDE

Segment Descriptor Entry

SDL

Synchronous Data Link

SDLC

Synchronous Data Link Controller

SDLH

Synchronous Data Link Handler

SG

System Generation database

SIM

System Integrity Monitor

SINITSTAT

Software Initialization Status

SMD

Storage Module Device

SPR

Signaling Problem

SSR

System Status Register

STBY

Standby

SYSGEN

System Generation program

T

TOP

Tape-Only Program

TTY

Teletypewriter

TTYC

Teletypewriter Controller

U

ucb

Unit Control Block

UCB

Unit Control Block

UID

Utility Identification

ULARP

User-Level Automatic Restart Process

UMGR

Utility Manager

UNEQUIP

Unequipped

V

VLMM

Very Large Main Memory

VTOC

Volume Table of Contents

Glossary

A

Active

Means that a unit is currently performing functions.

Audit

Validity checks that are performed to assure the proper operation of diagnostic control structures and the accuracy of messages and data.

C

Capability

A function used by the file manager to control access to files.

Capability Manager

A kernel process used to add a file's capability to the supervisor's process control block.

Cache Store Unit

The optional system unit that provides a high-speed random access memory (RAM) used to reduce the apparent main store (MAS) access and cycle time.

Cathode-Ray Tube Terminal

A terminal that uses a cathode-ray tube (CRT) and a screen with a phosphor coating to display data as opposed to ink and paper.

Central Control

A unit composed of the control circuitry, arithmetic logic unit (ALU), rotate mask unit (RMU), general and special registers, maintenance channel (MCH), store address translator (SAT) circuit, and the optional cache memory unit.

Control Unit

That portion of the computer which is switched in and out of service as a unit.

Craft Interface

The hardware, firmware, and software that allows the user access to the 3B20D/3B21D computers and provides information about the status of the machine.

D

Diagnostics

A set of programs used to detect and analyze hardware faults and to verify that a repair is successful.

Disk Driver

A kernel process that interfaces with the file manager and disk file controller.

Disk File Controller

A unit that interfaces to an input/output (I/O) channel and to a moving head disk (MHD) drive. It controls the operation of a portion of the disk storage facility of the *UNIX** Real-Time Reliable (RTR) operating system.

Disk Image

A software entity stored on disk; for example, a file or a process.

Display Administration Process

A process that controls the graphic displays on the user maintenance teletypewriter (MTTY) terminal. It accepts requests from other processes via messages, changes its internal representation of the displayed page, and then displays it on the terminal.

Direct Memory Access Unit

The unit that provides main store (MAS) access control for I/O devices without requiring direct control from the central control (CC).

Dual Serial Channel

A system component that provides a 16-serial interface to I/O devices.

Dump

To print out the contents of memory and the state of the processor.

E

Emergency Action Interface

An interface between a control unit (CU) and a serial data link for effecting various manual override functions such as "force on-line," "stop and switch," etc. The emergency action interface (EAI) is part of the maintenance interface.

Equipment Configuration Database

The database that contains the attributes and current status of all computers and peripheral hardware.

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Extended Main Memory

Feature consisting of 3B20D/3B21D computer CUs with 32-megabyte memory addressing capability in the main store only, and only 16 megabytes of memory available for virtual addressing, cache, and direct memory access (DMA).

F

Field Update

A method that allows fixes (also called patches or overwrites) to a *UNIX* system without interfering with the running system.

Firmware

Machine instructions that do not change during normal operation.

G

Generic

Releases of hardware and software.

I

Initialization

An action taken to provide the system with a known good and operating configuration.

Initialization Level

The value of the initialization level counter. The severity of the action taken to recover the system integrity is dependent upon the counter value. The higher the value, the more drastic the action taken to recover the system.

Input/Output Processor

Used as a front-end processor permitting the connection of a variety of data terminals utilizing a variety of line protocols. The input/output processor (IOP) contains a peripheral interface controller, an IOP interface, and two microprocessor communities. Each microprocessor community connects to a number of data terminals.

M

Main Store

Unit that provides the storage for program instructions and data. It is composed of solid-state memory devices and will provide up to 4 megabytes of storage.

Main Store Array

The circuit that provides for the storage of words.

Main Store Controller

The circuit that provides the control interface between the main store bus and the memory devices.

Maintenance Channel

The CC component that provides a serial access between CUs.

Memory Manager

A special process that resides in the kernel that controls the contents of real memory by directing the movement of process segments between real memory and secondary storage or swap space.

Microcode

Controls the central processing unit's microengine; interfaces hardware to software.

Microstore

Storage area for microcode.

Moving Head Disk Drive

Unit that provides the motion drive apparatus and electronics, read/write heads, and related disk pack handling apparatus. It is controlled by the disk file controller (DFC).

O

Off-Line

A CU is off-line when it is not in the active state and is not controlling the system.

On-Line

A CU is on-line if it is in the active state in which it can execute code.

P

Process

A basic executable entity in the *UNIX* RTR operating system.

Process Manager

A supervisor process that loads and terminates processes.

Poke

The activation of a virtual key that is a portion of a virtual panel display on an MTTY terminal. A poke is performed via cursor position or menu mode keyboard input.

Q

Queue

A waiting list usually consisting of processes or tasks waiting for processor time to execute.

R

Read-Only Printer

A terminal that is designed for output only.

S

Small Computer System Interface

An *ANSI** standard for attaching intelligent peripherals to computers.

Stop-and-Switch

The signal sent from one CU to the other that causes the standby CU to become the active CU and the active CU to become the standby CU.

System Update

The procedure used to introduce an entire new generic, as opposed to selected fixes, on the 3B20D/3B21D computers.

* Registered trademark of American National Standards Institute, Inc.

T

TTY Controller

The control circuit that interfaces to an input/output processor (IOP) and provides communication to two teletypewriters (TTYs).

U

User Level Automatic Restart Process

A *UNIX* system level process that creates and monitors critical *UNIX* system processes and automatically restarts any process that is terminated or created.

Utility Circuit

The optional system unit that provides address and data matchers and transfer trace capability. This unit is used for software debugging.

Utility Manager

A kernel process that provides services for the Test Utility System and the generic access package (GRASP).

V

Very Large Main Memory

Feature consisting of 3B20D/3B21D computer CUs with a 64-megabyte memory address spectrum.

W

Writable Microstore

The CC component uses readable and writable RAM to store microprograms.

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