

# ***SIM RC SECTION***

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## 1. Reference Code

A six-byte reference code (RC) is provided for a SIM (service information message) to identify an error and error section. The following shows 32 SIM bytes and reference codes.

Byte	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
SIM SSB	00	90	10	00	00	00	8F	E0	44	10	00	04	00	80	04	0C	69	00	00	00	00	02	30	70	05	10	42	C0	FF	00	02	00

Indicates SIM. (Arrow points to byte 6)

RC = 307080 (Arrows point to bytes 22, 23, 11, 12)

SSB13 (Arrow points to byte 13)

SSB22, 23 (Arrows point to bytes 22, 23)

SIM type (Arrow points to byte 28)

- F1: DKC SIM
- F2: CACHE SIM
- FE: DEVICE SIM
- FF: MEDIA SIM

Notice for z/Linux :

If the host is z/OS, SIM-RC is displayed by 32 bytes on the console message, but if the host is z/Linux, SIM-RC is displayed by 4 bytes as follows.

SIM-RC = wwxyyzz

ww : Byte 22 on SIM SSB

xx : Byte 23 on SIM SSB

yy : Byte 11 on SIM SSB

zz : Byte 12 on SIM SSB

E.g.) : The SIM displayed on the console.

SIM-RC = 30700400

30 : Byte 22

70 : Byte 23

04 : Byte 11

00 : Byte 12

Therefore, on the z/Linux configuration, if the SIM-RC is displayed on the console message, refer the first 2 bytes (Byte 22 and Byte 23) and confirm the SIM on SVP, then estimate the error site.

## 2. Reference Codes

SIMs are roughly classified into two types: SIMs detected by the processor and SIMs detected by the SVP.

SIM report specifications are shown below.

- (1) Time in SIM Log is basically “at the time of generating the phenomenon concerned”.
- (2) When satisfying the following conditions, SIM reports to the host.
  - SIM which is defined as “Yes” in the “Host Report” column in Table 2.1 and 2.2
  - SVP is in “View Mode”, and not in the “Complete” status.
  - The condition is basically that one hour elapses after device IMPL and 16K I/O is received after IMPL, but there is a SIM-RC which exceptionally reports regardless of IMPL time and the number of I/O (the target SIM-RC is noted in Table 2.1 and 2.2).
- (3) The access opportunities to perform the host report are as shown below:
  - Device SIM (byte28 = x‘FE’) reports as statistic information basically at the time of accessing the device of the RAID Group concerned.
  - SIM other than the device SIM reports even if it accesses any device of the storage system.
  - However, there is the one such as “DKC system (common) SIM” in the device SIM, and it performs the host report even if it accesses any device of the storage system (the target SIM-RC is noted in Table 2.1 and 2.2).
- (4) You can refer to SIM LOG in the Information window of SVP from immediately after SIM is created. Timing of the automatic report is performed at this time.
- (5) When the automatic report is completed, a SIM to be automatically completed exists (The target SIM-RC is noted in Table 2.1 and 2.2).
- (6) If it does not become Complete status even after passing eight hours from the first host report, a re-host report (repeat host report) is performed. The re-host report is up to three times in total.
- (7) SIM which is shown as “No” in the “Host Report” column is not reported to SNMP and not displayed in Storage Navigator. The following SIMs are exceptions.  
SIM-RC: 47FX, 4821, AC90  
SIM which is shown as “Yes” in the “Host Report” column is reported to SNMP and displayed in Storage Navigator if it is reported to SVP.
- (8) SIM which is reported to SVP is reported to T.S.D.

## 2.1 SIM Reference Codes Detected by the Processor

### SIM Reference Codes Detected by the Processor (1/10)

Error	REF CODE	SIM 28	Level of error	Host report	Remarks	
	22,23,13					
Port error	Chanel port blocking	2120XX	F1	Moderate	Yes	XX: Port# (*10) (*54) (*55)
	AL_PA value conflict	2190XX	F1	Service	No	XX: CHAPCB# + Port# in PCB (*49)
	Link failure1 (*36)	2193XX	F1	Serious	Yes	XX: CHAPCB# + Port# in PCB (*49)
	Link failure2 (*35)	2194XX	F1	Serious	Yes	XX: CHAPCB# + Port# in PCB (*49)
	HTP hard error	21BXYY	F1	Moderate	Yes	X: MPB# (*3) YY: Port Path# (*11)
	HTP blocking	21A3XX	F1	Moderate	Yes	XX: CHAPCB# + Port# in PCB (*49)
	Fibre Cable contact failure	21A4XY	F1	Service	No	X: MPB# (*3) YY: Port# in PCB (*49)
	SFP wrong type	21A8XX	F1	Moderate	No	XX: CHAPCB# + Port# in PCB (*49)
	SFP TxFault	21AAXX	F1	Moderate	No	XX: CHAPCB# + Port# in PCB (*49)
	External storage system connection path blocking (*34)	21D0XX	F1	Moderate	Yes	XX: CHAPCB# + Port# in PCB (*49)
	External storage system connection path restore (*34)	21D1XX	F1	Service	No	XX: CHAPCB# + Port# in PCB (*49)
	Threshold over by external storage system connection path response time-out (*34)	21D2XX	F1	Service	Yes	XX: CHAPCB# + Port# in PCB (*49)
Processor error	CHK1A threshold over	3070XY	F1	Service	No	X: MPB# (*3) Y: MP# (0 ~ 7) in PCB
	CHK1B threshold over	3071XY	F1	Service	No	X: MPB# (*3) Y: MP# (0 ~ 7) in PCB
	CHK3 threshold over	3072XY	F1	Service	No	X: MPB# (*3) Y: MP# (0 ~ 7) in PCB
	Processor blocking (*51)	3073XY	F1	Moderate	Yes	X: MPB# (*3) Y: MP# (0 ~ 7) in PCB

## SIM Reference Codes Detected by the Processor (2/10)

Error	REF CODE	SIM 28	Level of error	Host report	Remarks	
	22,23,13					
Processor error	FM error	3075XY	F1	Moderate	Yes	X: MPB# (*3) Y: MP# (0 ~ 7) in PCB
	Incorrect SUM value of FM	3076XY	F1	Service	No	X: MPB# (*3) Y: MP# (0 ~ 7) in PCB
	Processor memory temporary error	3077XY	F1	Service (*a)	No	X: MPB# (*3) Y: MP# (0 ~ 7) in PCB
	PS OFF impossible	388F00	F1	Moderate	No	
	PS OFF impossible (Device reserved)	389F00	F1	Moderate	No	
	Undefined Package is mounted	3990XY	F1	Moderate	No	X: MPB# (*3) Y: MP# (0 ~ 7) in PCB
	V-R or serial number is inconsistent	3991XY	F1	Moderate	No	X: MPB# (*3) Y: MP# (0 ~ 7) in PCB
	Replace failed	3993XY	F1	Moderate	No	X: MPB# (*3) Y: MP# (0 ~ 7) in PCB
	MP patrol check error	39B0XY	F1	Service	No	X: MPB# (*3) Y: MP# (0 ~ 7) in PCB
	Backup/restore SM Information failed	6100XX	F1	Moderate	No	XX =00: Backup failed (LAN error) 01: Backup failed (Micro factor) 02: Recovery failed (See TRBL03-35-10)
	LDEV Blockade (Effect of microcode error)	3A0XYY	F1	Moderate	Yes	X: CU# (*16) YY: LDEV#

(\*a) This SIM is automatically completed after automatic report completion.

**SIMRC02-40****SIM Reference Codes Detected by the Processor (3/10)**

Error	REF CODE	SIM 28	Level of error	Host report	Remarks	
	22,23,13					
CHA/DKA error	CHA/DKA Type disagreement	3C9500	F1	Moderate	No	See <a href="#">TRBL03-27-10</a>
	CHA PCB exchange	3C96XX	F1	Service	No	XX: CHA PCB# (*4)
	CHA patrol check error	3CC0XX	F1	Service	No	XX: CHA PCB# (*4)
	CHA Memory Correctable error	3CC1XX	F1	Service	No	XX: CHA PCB# (*4)
	DKA patrol check error	3DC0XX	F1	Service	No	XX: DKA PCB# (*5)
	DKA Memory Correctable error	3DC1XX	F1	Service	No	XX: DKA PCB# (*5)
	SAS CTL blocking	CF10XX	F1	Moderate	Yes	XX: SAS CTL# (*12)
	A SAS PORT, one of 2WL, is partial blocked	CF11XX	F1	Service	No	XX: SAS Port# (*12)
	SAS PORT blocked (*53)	CF12XX	F1	Moderate	Yes	XX: SAS Port# (*12)
	Chassis connection error (*61)	EFFEXX	F1	Moderate	Yes	XX: SAS Port# (*12)
	DRR temporary error	CF80XX	F1	Service	No	XX: DRR# (*9)
	DRR blocking	CF82XX	F1	Moderate	Yes	XX: DRR# (*9)
	DMA temporary error	CF81XX	F1	Service	No	XX: DMA# (*8)
	DMA blocking	CF83XX	F1	Moderate	Yes	XX: DMA# (*8)
	LR blocking	CF88XX	F1	Moderate	Yes	XX: LR# (*7)
	All DMA blocking	CF89XX	F1	Moderate	Yes	XX: LR# (*7)
	Logical DMA blocking	CF6XYY	F1	Moderate	Yes	X: MPB# (*3) YY: DMA# (*8)
	MFDMA blocking	CFB0XX	F1	Moderate	Yes	XX: LR# (*7)
Logical DRR blocking	CFDXYY	F1	Moderate	No	X: MPB# (*3) YY: DRR# (*9)	

## SIM Reference Codes Detected by the Processor (4/10)

Error		REF CODE	SIM 28	Level of error	Host report	Remarks
		22,23,13				
HSN error (*30)	LR - CM Logical path blockade	32XXYY	F1	Moderate	No	XX: LR# (*45) YY: CM PCB# (*46) Route CM PCB#
	LR - MP Logical path blockade	33XXYY	F1	Moderate	No	XX: LR# (*45) YY: MPB# (*47) Route CM PCB#
	MP - CM Logical path blockade	34XXYY	F1	Moderate	No	XX: MPB# (*48) YY: CM PCB# (*46) Route CM PCB#
	MP - MP Logical path blockade	35XXYY	F1	Moderate	No	XX: MPB# (*48) YY: MPB# (*47) Route CM PCB#

## SIM Reference Codes Detected by the Processor (5/10)

Error	REF CODE	SIM 28	Level of error	Host report	Remarks	
	22,23,13					
Cache error	Pinned slot	FF4XYY	F2	Moderate	No	X: CU# (*16) YY: LDEV#
	MSW PLD warning	FF9C0X	F2	Moderate	No	X: CM PCB# (*6)
	Cache Module Blockade Processing end	FFC2YX	F2	Service	Yes	X: CM PCB# (*6) Y: CMG# (*14)
	Cache Package Blockade Processing end	FFC30X	F2	Service	Yes	X: CM PCB# (*6)
	CM/CMA patrol check error	FFCC0X	F2	Service	No	X: CM PCB# (*6)
	Area is volatilized	FFCD0X	F2	Service	No	X: Cluster# (*2)
	Package is volatilized	FFCE0X	F2	Service	No	X: CM PCB# (*6)
	Module group is volatilized	FFCFYX	F2	Service	No	X: CM PCB# (*6) Y: CMG# (*14)
	DIMM Correctable error	FFF0YX	F2	Service	No	X: CM PCB# (*6) Y: CMG# (*14)
	Cache temporary error	FFF1YX	F2	Service	Yes	X: CM PCB# (*6) Y: CMG# (*14)
	Module group blocking	FFF2YX	F2	Moderate	Yes	X: CM PCB# (*6) Y: CMG# (*14)
	Package blocking	FFF30X	F2	Moderate	Yes	X: CM PCB# (*6)
	Area blocking	FFF40X	F2	Serious	Yes	X: Cluster# (*2)
	Both area failed	FFF50X	F2	Moderate	No	X: CM PCB# (*6)
	CMA Memory Correctable error	FFF80X	F2	Service	No	X: CM PCB# (*6)
	Replace failed	FFF90X	F2	Serious	No	X: 0 = Side A, 1 = Side B
	Module group error in On-demand area	FFFDYX	F2	Service	No	X: CM PCB# (*6) Y: CMG# (*14)
	Cache battery is being charged	FE0000	F2	Serious	Yes	
	End of Cache Write Through	FE010X	F2	Service	No	X: 0 = Battery charge waiting complete 1 = Battery charge waiting timeout
	Start of Cache Write Through	FE020X	F2	Moderate	Yes	X: 0 = Battery charge waiting complete 1 = Battery charge waiting timeout
Cache SSD mounting capacity shortage	FE030X	F2	Serious	No	X: CM PCB# (*6)	
Definition/Installation mismatch	FFE800	F1	Acute	No	See <a href="#">TRBL03-18-10</a>	

## SIM Reference Codes Detected by the Processor (6/10)

Error	REF CODE	SIM 28	Level of error	Host report	Remarks	
	22,23,13					
Shared memory error	SM area blocking	FFE20X	F1	Serious	Yes	X: Cluster# (*2)
	WDCP loss of duplicated information	FFDEXX	F1	Service	No	XX: Lost information type (*28)
	Replace failed	FFE40X	F1	Serious	No	X: CM PCB# (*6)
	Configuration information compare error (*22)	FFE600	F1	Acute	No	
	Rebooted with volatilization after an instantaneous down	FFE700	F1	Serious	Yes	
	Recovery of area blocked temporarily was completed	FFEA0X	F1	Service	Yes	X: Cluster# (*2)
	Area temporary blocking (*21)	FFEE0X	F1	Service	Yes	X: Cluster# (*2)
	Rebooted without volatilization after an instantaneous down	FFEF00	F1	Service	No	

## SIM Reference Codes Detected by the Processor (7/10)

Error		REF CODE	SIM 28	Level of error	Host report	Remarks
		22,23,13				
Drive error (normal R/W)	Drive port temporary error (Drive path: Boundary 0)	DF6XXX	FE	Service (*20)	No	XXX:CDEV#/RDEV#(*13)
	Drive port temporary error (Drive path: Boundary 1)	DF7XXX	FE	Service (*20)	No	XXX:CDEV#/RDEV#(*13)
	Drive temporary error (*62)	EFAXXX	FE	Service (*20)	No	XXX:CDEV#/RDEV#(*13)
	Drive media error (*62)	434XXX	FF	Service (*20)	No	XXX:CDEV#/RDEV#(*13)
	Drive port blockade (Drive path: Boundary 0)	DF8XXX	FE	Moderate (*20)	Yes	XXX:CDEV#/RDEV#(*13)
	Drive port blockade (Drive path: Boundary 1)	DF9XXX	FE	Moderate (*20)	Yes	XXX:CDEV#/RDEV#(*13)
	LDEV blockade (Drive path: Boundary 0/ Effect of Drive port blockade) (*19)	DFAXXX	FE	Serious	Yes (*b)	XXX:CDEV#/RDEV#(*13)
	LDEV blockade (Drive path: Boundary 1/ Effect of Drive port blockade) (*19)	DFBXXX	FE	Serious	Yes (*b)	XXX:CDEV#/RDEV#(*13)
	Drive Link Rate Abnormality (Drive path: Boundary 0)	DFCXXX	FE	Service	Yes	XXX:CDEV#/RDEV#(*13)
	Drive Link Rate Abnormality (Drive path: Boundary 1)	DFDXXX	FE	Service	Yes	XXX:CDEV#/RDEV#(*13)
	Response late Drive	DFFXXX	FE	Service	No	XXX:CDEV#/RDEV#(*13)
	Drive blockade (drive) (with redundancy)	EF0XXX	FE	Serious	Yes	XXX:CDEV#/RDEV#(*13)
	Drive blockade (drive) (without redundancy)	EF1XXX	FE	Serious	Yes	XXX:CDEV#/RDEV#(*13)
	Drive blockade (Effect of Dynamic sparing normal end)	EF2XXX	FE	Service	Yes (*b)	XXX:CDEV#/RDEV#(*13)
	LDEV blockade (Effect of drive blockade) (*19)	EF9XXX	FE	Serious	Yes (*b)	XXX:CDEV#/RDEV#(*13)
Correction access occurred	EFCXXX	FE	Serious	Yes	XXX:CDEV#/RDEV#(*13)	

(\*b) This device SIM performs the host report at the opportunities to access the DKC system (common) SIM and the optional device.

## SIM Reference Codes Detected by the Processor (8/10)

Error		REF CODE	SIM 28	Level of error	Host report	Remarks
		22,23,13				
Drive error (normal R/W)	Drive blockade (media) (with redundancy)	43BXXX	FF	Serious	Yes	XXX:CDEV#/RDEV#(*13)
	Drive blockade (media) (without redundancy)	43CXXX	FF	Serious	Yes	XXX:CDEV#/RDEV#(*13)
	Correction copy start (*24)	451XXX	FE	Service	Yes (*b)	XXX:CDEV#/RDEV#(*13)
	Correction copy normal end (*24)	452XXX	FE	Service	Yes (*a) (*b)	XXX:CDEV#/RDEV#(*13) (Source side drive)
	Correction copy abnormal end (*24)	453XXX	FE	Serious	Yes (*b)	XXX:CDEV#/RDEV#(*13) (Source side drive)
	Correction copy discontinued (*24)	454XXX	FE	Service	No	XXX:CDEV#/RDEV#(*13) (Source side drive)
	Correction copy warning end (*24) (With blockade LDEV or some error)	455XXX	FE	Service	Yes (*b)	XXX:CDEV#/RDEV#(*13) (Source side drive)
	Dynamic sparing start (*24) (Drive copy)	461XXX	FE	Service	Yes	XXX:CDEV#/RDEV#(*13) (Source side drive)
	Dynamic sparing normal end (Drive copy) (*24)	462XXX	FE	Service	Yes (*a)	XXX:CDEV#/RDEV#(*13) (Source side drive)
	Dynamic sparing abnormal end (Drive copy) (*24)	463XXX	FE	Moderate	Yes	XXX:CDEV#/RDEV#(*13) (Source side drive)
	Dynamic sparing discontinued (Drive copy) (*24)	464XXX	FE	Service	No	XXX:CDEV#/RDEV#(*13) (Source side drive)
	Dynamic sparing warning end (With blockade LDEV or some error) (Drive copy) (*24)	465XXX	FE	Service	Yes	XXX:CDEV#/RDEV#(*13) (Source side drive)
	Pinned slot	EF4XYY	FE	Moderate	No	X: CU# YY: LDEV# (*16)

(\*a) This SIM is automatically completed after automatic report completion.

(\*b) This device SIM performs the host report at the opportunities to access the DKC system (common) SIM and the optional device.

## SIM Reference Codes Detected by the Processor (9/10)

Error		REF CODE	SIM	Level of error	Host report	Remarks
		22,23,13				
Drive error (ORM)	Drive temporary error (*62)	501XXX	FE	Service	No	XXX:CDEV#/RDEV#(*13) (Source side drive)
	Drive media error	502XXX	FF	Service	No	XXX:CDEV#/RDEV#(*13) (Source side drive)
Flash drive replacement recommendation	Flash drive End of life (*59)	50BXXX	FE	Service	Yes	XXX:CDEV#/RDEV#(*13)
Flash module drive replacement recommendation	Flash module drive End of life (*59)	50CXXX	FE	Service	Yes	XXX:CDEV#/RDEV#(*13)
Flash module drive error	Flash module drive battery error (ORM)	505XXX	FE	Service	No	XXX:CDEV#/RDEV#(*13)
	Flash module drive battery error	508XXX	FE	Moderate	No	XXX:CDEV#/RDEV#(*13)
	Flash module drive battery warning (*60)	50DXXX	FE	Service	No	XXX:CDEV#/RDEV#(*13)
	Flash module drive battery capacity shortage(*58)	50EXXX	FE	Moderate	No	XXX:CDEV#/RDEV#(*13)
PDEV Erase	PDEV Erase Start	4C1XXX	FE	Service	No (*a)	XXX:CDEV#/RDEV#(*13)
	PDEV Erase Normal End	4C2XXX	FE	Service	No (*a)	XXX:CDEV#/RDEV#(*13)
	PDEV Erase Abnormal End	4C3XXX	FE	Service	No (*a)	XXX:CDEV#/RDEV#(*13)
External device error	External storage system connection device blockade (*34)	EFD000	FE	Serious	Yes	
	Abnormal end of Write processing in External storage system	EF5XYY	FE	Moderate	No	X: CU# (*16) YY: LDEV#
	Abnormal end of Read processing in External storage system	FF5XYY	FE	Moderate	No	X: CU# (*16) YY: LDEV#
Cache Condition	Cache Write Pending ratio is over 65%	491000	F1	Service	No	(*18)

(\*a) This SIM is automatically completed after automatic report completion.

**SIMRC02-110****SIM Reference Codes Detected by the Processor (10/10)**

Error		REF CODE	SIM 28	Level of error	Host report	Remarks
		22,23,13				
Format	Format complete	4100XX	F1	Service	No (*a)	XX = 00: Normal end (*41) 01: Abnormal end 02: Partial abnormal end
	Quick Format finish	410100	F1	Service	No (*a)	
SVP interface error	Ethernet error for SVP	1400X0	F1	Moderate	Yes (*e)	X: MPB# (*3)
	SIM transfer failure to SVP	1401X0	F1	Serious	Yes (*e)	X: MPB# (*3)
Audit Log	Audit Log lost	180000	F1	Moderate	Yes	
Power error	HDU power off (CL1) (*60)	AC52XX	F1	Moderate	Yes	XX: HDU# (*59)
	HDU power off (CL2) (*60)	AC53XX	F1	Moderate	Yes	XX: HDU# (*59)
	HDU power recovered (CL1) (*52)	AC54XX	F1	Service	Yes	XX: HDU# (*59)
	HDU power recovered (CL2) (*52)	AC55XX	F1	Service	Yes	XX: HDU# (*59)
	DKC was set to power error mode	AC6000	F1	Moderate	No	
	DKC was released from power error mode	AC6100	F1	Service	No	
	When DKC was set to power error mode, Urgent Destaging start succeeded	AC6200	F1	Service	No	
	When DKC was set to power error mode, Urgent Destaging start failed.	AC6300	F1	Moderate	No	
Server error	DB Validation error (*33)	AC9000	F1	Serious	No (*d)	
Expander Micro Exchange	Expander Micro Exchange failed	4A80XX	F1	Moderate	No	XX: HDU# (*59)

(\*a) This SIM is automatically completed after automatic report completion.

(\*d) The Host report of this SIM is “No”, but reported to SNMP and displayed in Storage Navigator.

(\*e) This SIM is not reported to SVP.

### SIM Reference Codes Detected by the Processor for TrueCopy for Mainframe/ TrueCopy (1/2)

Error	REF CODE	SIM	Level of error	Host report	SIM LOG display (SVP) (*b)	Remarks	
	22,23,13	28					
Pair volume status error	TC-MF/TC started the initialcopy or out of sync for this volume	D00XYY	FE	Service	Yes (*29) (*a)	No	X: CU# (*16) YY: LDEV#
	TC-MF/TC completed the initial copy for this volume	D01XYY	FE	Service	Yes (*29) (*a)	No	X: CU# (*16) YY: LDEV#
	TC-MF/TC for this volume was deleted (Operation from an SVP/Web Console or a host processor)	D02XYY	FE	Service	Yes (*29) (*a)	No	X: CU# (*16) YY: LDEV#
	TC-MF completed the Create pair (No copy suspend)	D06XYY	FE	Service	Yes (*29)	No	X: CU# (*16) YY: LDEV#
	Remote Copy pair status change (MCU Command)	D1ZXYY	FE	Service	Yes (*29) (*a)	No	X: CU# (*16) YY: LDEV# Z: (*26)

(\*a) This SIM performs the host report even though it is less than one hour after IMPL or the number of I/O is less than 16,000 I/O.

(\*b) In the case of “Yes”, SIM LOG will be displayed in the SVP.  
In the case of “No”, SIM LOG will not be displayed in the SVP and reported to T.S.D.  
But, when SIM LOG failed in a host report, it will be displayed in the SVP and Storage Navigator, reported to T.S.D. and SNMP.

### SIM Reference Codes Detected by the Processor for TrueCopy for Mainframe/ TrueCopy (2/2)

Error	REF CODE	SIM 28	Level of error	Host report	SIM LOG display (SVP) (*b)	Remarks	
	22,23,13						
Pair volume status error	TC-MF/TC for this volume was suspended (Due to an unrecoverable failure on the remote copy connections)	D40XYY	FE	Serious	Yes (*29) (*a)	Yes	X: CU# (*16) YY: LDEV#
	TC-MF/TC for this volume was suspended (Due to an unrecoverable failure on the P-VOL or the remote copyconnections)	D41XYY	FE	Serious	Yes (*29) (*a)	Yes	X: CU# (*16) YY: LDEV#
	TC-MF/TC for this volume was suspended (Due to an unrecoverable failure on the S-VOL)	D42XYY	FE	Serious	Yes (*29) (*a)	Yes	X: CU# (*16) YY: LDEV#
	TC-MF for this volume was suspended (Caused by DFW to the S-VOL was prohibited)	D43XYY	FE	Serious	Yes (*29) (*a)	Yes	X: CU# (*16) YY: LDEV#
	TC-MF/TC for this volume was suspended (Due to an internal error condition detected by the RCU)	D44XYY	FE	Serious	Yes (*29) (*a)	Yes	X: CU# (*16) YY: LDEV#
	TC-MF/TC for this volume was suspended (Caused by Delete pair operation was issued to the S-VOL)	D45XYY	FE	Serious	Yes (*29) (*a)	Yes	X: CU# (*16) YY: LDEV#
	The S-VOL has suspended (Due to an unrecoverable failure on the remote copy connections)	D46XYY	FE	Serious	Yes (*29) (*a)	Yes	X: CU# (*16) YY: LDEV#
	The S-VOL has suspended (Due to an unrecoverable failure on the S-VOL)	D47XYY	FE	Serious	Yes (*29) (*a)	Yes	X: CU# (*16) YY: LDEV#
	Status of the P-VOL was not consistent with the S-VOL	D4FXYY	FE	Serious	Yes (*29) (*a)	Yes	X: CU# (*16) YY: LDEV#

(\*a) This SIM performs the host report even though it is less than one hour after IMPL or the number of I/O is less than 16,000 I/O.

(\*b) In the case of yes, SIM LOG will be displayed in the SVP.

## SIM Reference Codes Detected by the Processor for Business Continuity Manager

Error		REF CODE	SIM 28	Level of error	Host report	SIM LOG display (SVP) (*b)	Remarks
		22,23,13					
Command device operation	Command device operation execution of command device in state of ONLINE	D57XYY	FE	Service	No	Yes	X: CU# (*16) YY: LDEV#

(\*b) In the case of yes, SIM LOG will be displayed in the SVP.

**SIMRC02-150**

**SIM Reference Codes Detected by the Processor for TrueCopy for Mainframe/  
TrueCopy/UR/global-active device**

Error		REF CODE	SIM	Level of error	Host report	SIM LOG display (SVP)	Remarks
		22,23,13	28			(*b)	
Remote copy path error	Logical path(s) on the remote copy connections was logically blocked (Due to an error conditions) (*32)	2180XX	F1	Moderate	Yes (*39) (*a)	Yes	XX: CHAPCB# + Port# in PCB (*49)
	The logical path has been recovered from blocked condition on the remote copy conditions	2181XX	F1	Service	Yes (*39) (*a)	No	XX: CHAPCB# + Port# in PCB (*49)

(\*a) This SIM performs the host report even though it is less than one hour after IMPL or the number of I/O is less than 16,000 I/O.

(\*b) In the case of yes, SIM LOG will be displayed in the SVP.

**SIM Reference Codes Detected by the Processor for ShadowImage for Mainframe/  
ShadowImage/FlashCopy (R) V2/FlashCopy (R) SE/Volume Migration/XRC/TI (1/1)**

Error		REF CODE	SIM	Level of error	Host report	Remarks
		22,23,13				
SI-MF error/ SI error/ FlashCopy (R) error	SI-MF/SI Copy abnormal end (*43)	47DXYY	FE	Moderate	Yes (*44)	X: CU# (*16) YY: LDEV# (target volume)
	FlashCopy (R) Option abnormal end	4B2XYY	FE	Moderate	Yes	X: CU# (*16) YY: LDEV# (T-VOL)
	FlashCopy (R) Hierarchical Memory Access Error	4B4XYY	FE	Moderate	Yes	X: CU# (*16) YY: LDEV# (VOL which access error occurred)
	All FlashCopy (R) Option abnormal end by SM volatile	47E500	F1	Moderate	Yes	
	Forcible suspend by SM volatile (SI-MF/SI) (*43)	47E700	FE	Moderate	Yes	
Volume Migration error	Volume Migration abnormal end	47FXYY	FE	Moderate	No (*b)	X: CU# (*16) YY: LDEV# (destination volume)
XRC error	Sidefile 'sleep wait' threshold over	490XYY	FE	Service	Yes (*a)	X: CU# (*16) YY: LDEV# SVP MODE 118 ON: Generate SIM
Thin Image error	Forcible suspend by SM volatile	47EC00	F1	Moderate	Yes	
	Thin Image Option abnormal end	4B3XYY	FE	Moderate	Yes	X: CU# (*16) YY: LDEV#
	Warning before depletion of cache management devices	670000	FE	Moderate	Yes	No service report
Pair Failure SIM Reduce	SI-MF/SI (*43)	7FF102	F1	Service	No	No service report
	Thin Image	7FF104	F1	Service	No	No service report
	FlashCopy (R)	7FF105	F1	Service	No	No service report
	Volume Migration	7FF106	F1	Service	No	No service report

(\*a) This SIM is not reported to SVP.

(\*b) The Host report of this SIM is "No", but reported to SNMP and displayed in Storage Navigator.

## SIM Reference Codes Detected by the Processor for Thin Image Pool (1/1)

Error		REF CODE	SIM 28	Level of error	Host report	Corresponding to complete from Web Console	Remarks
		22,23,13					
Thin Image Pool error	Pool utilization threshold excess	601XXX	F1	Moderate	Yes	Yes	XXX: Pool# Due to expectation of user's maintenance operation • No LED light on • No service report (*a)
	Pool blocking	602XXX	F1	Moderate	Yes	Yes	XXX: Pool# XXX: FFE: Pools blocking by SM volatile
	SM Space Warning	603000	F1	Moderate	Yes	Yes	Due to expectation of user's maintenance operation • No LED light on • No service report (*a)
	SM Full	624000	F1	Moderate	Yes	Yes	For Thin Image

(\*a) When System Option Mode 471 is set to turning on, there is service report.

## SIM Reference Code Detected by the Processor for Dynamic Provisioning (1/1)

Error		REF CODE	SIM	Level of error	Host report	Corresponding to complete from Web Console	Remarks
		22,23,13					
Dynamic Provisioning Pool error	The DP POOL Warning Threshold was exceeded	620XXX	F1	Moderate	Yes	Yes	XXX: Pool# Due to expectation of user's maintenance operation • No LED light on • No service report
	The DP POOL FULL	622XXX	F1	Moderate	Yes	Yes	XXX: Pool# Due to expectation of user's maintenance operation • No LED light on • No service report
	The DP POOL error is detected	623XXX	F1	Moderate	Yes	No	XXX: Pool# XXX: FFE: DP Pools blocking by SM volatile
	SM Full	624000	F1	Moderate	Yes	Yes	
	DP pool threshold continues to be exceeded	625000	F1	Moderate	Yes	Yes	Due to expectation of user's maintenance operation • No LED light on • No service report (*a)
	The DP POOL Depletion threshold was exceeded	626XXX	F1	Moderate	Yes	Yes	XXX: Pool# Due to expectation of user's maintenance operation • No LED light on • No service report
	The DP POOL LDEV blockade	627XXX	F1	Moderate	Yes	No	XXX: Pool#
	DP Protect attribute setting of Data Retention Utility	628000	F1	Service	Yes	No	

(\*a) When System Option Mode 741 is set to turning on, there is service report.

## SIM Reference Codes Detected by the Processor for DCR (1/1)

Error		REF CODE	SIM	Level of error	Host report	Remarks
		22,23,13				
DCR Status	PreStaging abnormal end	4821XX	FE	Service	No (*a)	XX: Reason code (*25)

(\*a) The Host report of this SIM is “No”, but reported to SNMP and displayed in Storage Navigator.

SIM Reference Codes Detected by the Processor  
for Mainframe Fibre Data Migration (1/1)

Error		REF CODE	SIM	Level of error	Host report	Remarks
		22,23,13				
Mainframe Fibre Data Migration	Blocking the Data Migration path	21D4XX	F1	Moderate	No	XX: CHAPCB# + Port# in PCB (*49)
	Data Migration Path Recovery (*b)	21D5XX	F1	Service	No	XX: CHAPCB# + Port# in PCB (*49)
	Blocking the Data Migration source device	EFD400	FE	Moderate	No	(*42)

(\*b) The SIM will be output intermittently for more than several minutes when there are a lot of data migration source devices.

## SIM Reference Codes Detected by the Processor for Encryption License Key (1/1)

Error		REF CODE	SIM	Level of error	Host report	Remarks
		22,23,13				
Encryption	No free encryption key	660100	F1	Moderate	Yes	See <a href="#">TRBL17-20</a>
	Remaining free encryption key warning	660200	F1	Service	Yes	See <a href="#">TRBL17-20</a>
	Acquisition failure of the outside encryption key	661000	F1	Moderate	Yes	See <a href="#">TRBL17-10</a>

## List of Reference Codes of SIMs Detected by UR Processor (1/3)

Error	REF CODE	SIM 28	Level of error	Host report	Remarks
	22,23,13				
Pair volume failure	A volume to be used by the UR was defined	D80XYY	FE	Service	Yes (*40) (*a) X: CU# YY: LDEV# (*16)
	The volume being used by the UR began a copying	D81XYY	FE	Service	Yes (*40) (*a) X: CU# YY: LDEV# (*16)
	The volume being used by the UR completed a copying	D82XYY	FE	Service	Yes (*40) (*a) X: CU# YY: LDEV# (*16)
	The volume being used by the UR received a request for suspension	D83XYY	FE	Service	Yes (*40) (*a) X: CU# YY: LDEV# (*16)
	The volume being used by the UR completed a suspension transaction	D84XYY	FE	Service	Yes (*40) (*a) X: CU# YY: LDEV# (*16)
	The volume being used by the UR received a request for deletion	D85XYY	FE	Service	Yes (*40) (*a) X: CU# YY: LDEV# (*16)
	The volume being used by the UR completed the deletion	D86XYY	FE	Service	Yes (*40) (*a) X: CU# YY: LDEV# (*16)
	The volume being used by the UR was defined (placed in the PSUS status immediately)	D87XYY	FE	Service	Yes (*40) (*a) X: CU# YY: LDEV# (*16)
	A Delta volume to be used by the UR was defined	D88XYY	FE	Service	Yes (*40) (*a) X: CU# YY: LDEV# (*16)
	A Delta volume to be used by the UR was redefine	D89XYY	FE	Service	Yes (*40) (*a) X: CU# YY: LDEV# (*16)
	A change to an S-VOL was received from the MCU	D9ZXYY	FE	Service	Yes (*40) (*a) X: CU# YY: LDEV# (*16) Z: (*37)
	A change to an S-VOL was received from the RCU	DAZXYY	FE	Service	No X: CU# YY: LDEV# (*16) Z: (*38)

(\*a) This SIM performs the host report even though it is less than one hour after IMPL or the number of I/O is less than 16,000 I/O.

## List of Reference Codes of SIMs Detected by UR Processor (2/3)

Error		REF CODE	SIM 28	Level of error	Host report	Remarks
		22,23,13				
Pair volume failure	A volume being used by a P-VOL was suspended (Path recovery was impossible)	DC0XYY	FE	Serious	Yes (*40) (*a)	X: CU# (*16) YY: LDEV#
	A volume being used by a P-VOL was suspended (A failure on the MCU side was detected)	DC1XYY	FE	Serious	Yes (*40) (*a)	X: CU# (*16) YY: LDEV#
	A volume being used by a P-VOL was suspended (Suspension of an S-VOL failure was detected)	DC2XYY	FE	Serious	Yes (*40) (*a)	X: CU# (*16) YY: LDEV#
	A volume being used by a P-VOL was suspended (Suspension of an S-VOL was detected)	DC4XYY	FE	Serious	Yes (*40) (*a)	X: CU# (*16) YY: LDEV#
	A volume being used by a P-VOL was suspended (Deletion of an S-VOL pair was detected)	DC5XYY	FE	Serious	Yes (*40) (*a)	X: CU# (*16) YY: LDEV#
	A volume being used by an S-VOL was suspended (Path recovery was impossible)	DC6XYY	FE	Serious	Yes (*40) (*a)	X: CU# (*16) YY: LDEV#
	A volume being used by an S-VOL was suspended (A failure on the RCU side was detected)	DC7XYY	FE	Serious	Yes (*40) (*a)	X: CU# (*16) YY: LDEV#
	A volume being used by an S-VOL was suspended (PS OFF on the MCU side was detected)	DC8XYY	FE	Service	No	X: CU# (*16) YY: LDEV#
	A Delta volume being used by a P-VOL was suspended	DC9XYY	FE	Serious	Yes (*40) (*a)	X: CU# (*16) YY: LDEV#
	Pair suspend (Spread by error of another Affiliate)	DCAXYY	FE	Serious	Yes (*40) (*a)	X: CU# (*16) YY: LDEV#

(\*a) This SIM performs the host report even though it is less than one hour after IMPL or the number of I/O is less than 16,000 I/O.

## List of Reference Codes of SIMs Detected by UR Processor (3/3)

Error		REF CODE	SIM 28	Level of error	Host report	Remarks
		22,23,13				
Pair volume failure	The UR Read JNL was interrupted for one minute (A failure on the MCU side was detected)	DCF0XX	FE	Moderate	No	XX: JNLG#
	The UR Read JNL was interrupted for five minutes (A failure on the MCU side was detected)	DCF1XX	FE	Serious	No	XX: JNLG#
	The UR Read JNL was interrupted for one minute (A failure on the RCU side was detected)	DCF2XX	FE	Moderate	No	XX: JNLG#
	The UR Read JNL was interrupted for five minutes (A failure on the RCU side was detected)	DCF3XX	FE	Serious	No	XX: JNLG#
Journal volume failure	UR M-JNL Meta overflow warning	DCE0XX	FE	Moderate	Yes (*57)	XX: JNLG#
	UR M-JNL Data overflow warning	DCE1XX	FE	Moderate	Yes (*57)	XX: JNLG#
	UR R-JNL Meta overflow warning	DCE2XX	FE	Moderate	Yes (*57)	XX: JNLG#
	UR R-JNL Data overflow warning	DCE3XX	FE	Moderate	Yes (*57)	XX: JNLG#
	UR M-JNL Meta overflow warning in URxUR Multi-target configuration	DCF4XX	FE	Moderate	No	XX: JNLG# (*56)
	UR M-JNL Data overflow warning in URxUR Multi-target configuration	DCF5XX	FE	Moderate	No	XX: JNLG# (*56)

## List of Reference Codes of SIMs Detected by GAD Processor (1/1)

Error		REF CODE	SIM	Level of error	Host report	SIM log display (SVP)	Remarks
		22,23,13					
Pair volume failure	A volume being used by a GAD was suspended (Due to an unrecoverable failure on the remote copy connections)	DD0XYY	FE	Serious	Yes	Yes	X: CU#(*16) YY: LDEV#
	A volume being used by a GAD was suspended (volume failure)	DD1XYY	FE	Serious	Yes	Yes	X: CU#(*16) YY: LDEV#
	A volume being used by a GAD was suspended (Internal error failure)	DD2XYY	FE	Serious	Yes	Yes	X: CU#(*16) YY: LDEV#
	In GAD, the P-VOL status was not consistent with the S-VOL status	DD3XYY	FE	Serious	Yes	Yes	X: CU#(*16) YY: LDEV#

## List of Reference Codes of SIMs Detected by Quorum Processor (1/1)

Error		REF CODE	SIM	Level of error	Host report	SIM log display (SVP)	Remarks
		22,23,13					
Quorum Disk failure	Quorum Disk recovery	DEE0XX	FE	Service	Yes	Yes	XX: Quorum Disk ID
	Quorum Disk blockade	DEF0XX	FE	Serious	Yes	Yes	XX: Quorum Disk ID

## List of Reference Codes of SIMs Detected by Environment monitor (1/1)

Error	REF CODE	SIM 28	Level of error	Host report	Remarks	
	22,23,13					
Environmental error	MPB Temperature abnormality warning	38C1X0	F1	Moderate	No	X: MPB# (*3)
	MP Temperature abnormality warning	3992X0	F1	Moderate	No	X: MPB# (*3)
	MPB Injustice DC voltage control	399DX0	F1	Moderate	No	X: MPB# (*3)
	Injustice CEMODE	399EX0	F1	Moderate	No	X: MPB# (*3)
	Injustice CEDT	399FX0	F1	Moderate	No	X: MPB# (*3)
	CHA Injustice DC voltage control	3CCDX0	F1	Moderate	No	XX: CHA PCB# (*4)
	CHA Temperature abnormality warning	3CCEXX	F1	Moderate	No	XX: CHA PCB# (*4)
	DKA Injustice DC voltage control	3DCDX0	F1	Moderate	No	XX: DKA PCB# (*5)
	DKA Temperature abnormality warning	3DCEXX	F1	Moderate	No	XX: DKA PCB# (*5)
	CM Injustice DC voltage control	FFF60X	F2	Moderate	No	X: CM PCB# (*6)
	Battery warning	FFFA0X	F2	Moderate	No	X: CM PCB# (*6)
	CMBK warning	FFFB0X	F2	Moderate	No	X: CM PCB# (*6) (*50)
	CM Temperature abnormality warning	FFFC0X	F2	Moderate	No	X: CM PCB# (*6)
	Warning for forcible volatile mode	FFFE0X	F2	Moderate	No	X: CM PCB# (*6)
	Battery charge EMPTY	AFD10X	F2	Moderate	No	X: CM PCB# (*6)
	CM Backup mounting warning	AFD40X	F2	Moderate	No	X: CM PCB# (*6)
	DKUPS error	AF50XX	F1	Moderate	No	XX: HDU# (*59)
	DKUPS AC inout error	AF60XX	F1	Moderate	No	XX: HDU# (*59)
SSW error	AF80XX	F1	Moderate	No	XX: HDU# (*59)	
SSW data disagreement	AFF0XX	F1	Moderate	No	XX: HDU# (*59)	

(\*1) Device Module#: See the table below.

Device	Device Module# (HEX)
Basic Module	x'0'
Option Module	x'1'

(\*2) Cluster#: See the table below.

Device	Cluster# (HEX)
Cluster-1	x'0'
Cluster-2	x'1'

(\*3) MPB#: MPB consecutive numbers in the device. See the table below show relations with the PCB Location.

Device Module	Cluster	MPB Location	MPB# (HEX)
Basic Module (Module#0)	Cluster-1	MPB-1MA	x'0'
		MPB-1MB	x'1'
		MPB-1PE	x'2'
		MPB-1PF	x'3'
	Cluster-2	MPB-2MA	x'4'
		MPB-2MB	x'5'
		MPB-2PE	x'6'
		MPB-2PF	x'7'
Option Module (Module#1)	Cluster-1	MPB-1MC	x'8'
		MPB-1MD	x'9'
		MPB-1PL	x'A'
		MPB-1PM	x'B'
	Cluster-2	MPB-2MC	x'C'
		MPB-2MD	x'D'
		MPB-2PL	x'E'
		MPB-2PM	x'F'

- (\*4) CHA PCB#: CHA PCB consecutive numbers in the device. See the table below show relations with the PCB Location.

Device Module	Cluster	CHA PCB Location	CHA PCB# (HEX)
Basic Module (Module#0)	Cluster-1	CHA-1PC	x'00'
		CHA-1PD	x'08'
		CHA-1PE	x'10'
		CHA-1PF	x'18'
		CHA-1PA	x'20'
		CHA-1PB	x'28'
	Cluster-2	CHA-2PC	x'40'
		CHA-2PD	x'48'
		CHA-2PE	x'50'
		CHA-2PF	x'58'
		CHA-2PA	x'60'
		CHA-2PB	x'68'
Option Module (Module#1)	Cluster-1	CHA-1PJ	x'80'
		CHA-1PK	x'88'
		CHA-1PL	x'90'
		CHA-1PM	x'98'
		CHA-1PG	x'A0'
		CHA-1PH	x'A8'
	Cluster-2	CHA-2PJ	x'C0'
		CHA-2PK	x'C8'
		CHA-2PL	x'D0'
		CHA-2PM	x'D8'
		CHA-2PG	x'E0'
		CHA-2PH	x'E8'

- (\*5) DKA PCB#: DKA PCB consecutive numbers in the device. See the table below show relations with the PCB Location.

Device Module	Cluster	DKA PCB Location	DKA PCB# (HEX)
Basic Module (Module#0)	Cluster-1	DKA-1PA	x'00'
		DKA-1PB	x'08'
	Cluster-2	DKA-2PA	x'10'
		DKA-2PB	x'18'
Option Module (Module#1)	Cluster-1	DKA-1PG	x'20'
		DKA-1PH	x'28'
	Cluster-2	DKA-2PG	x'30'
		DKA-2PH	x'38'

- (\*6) CM PCB#: CM PCB consecutive numbers in the device. See the table below show relations with the CACHE Location.

Device Module	Cluster	CACHE Location	CM PCB# (HEX)
Basic Module (Module#0)	Cluster-1	CACHE-1CA	0x00
		CACHE-1CB	0x02
	Cluster-2	CACHE-2CA	0x01
		CACHE-2CB	0x03
Option Module (Module#1)	Cluster-1	CACHE-1CC	0x04
		CACHE-1CD	0x06
	Cluster-2	CACHE-2CC	0x05
		CACHE-2CD	0x07

(\*7) LR#: LR (MHUB) consecutive numbers in the device. One LR is installed for each CHA/DKA. See the table below for the correlation with the PCB Location.

Device Module	Cluster	CHA/DKA Location	LR# (HEX)
Basic Module (Module#0)	Cluster-1	CHA-1PC	x'00'
		CHA-1PD	x'01'
		CHA-1PE	x'02'
		CHA-1PF	x'03'
		CHA-1PA	x'04'
		DKA-1PA	x'04'
		CHA-1PB	x'05'
		DKA-1PB	x'05'
	Cluster-2	CHA-2PC	x'08'
		CHA-2PD	x'09'
		CHA-2PE	x'0A'
		CHA-2PF	x'0B'
		CHA-2PA	x'0C'
		DKA-2PA	x'0C'
		CHA-2PB	x'0D'
		DKA-2PB	x'0D'
Option Module (Module#1)	Cluster-1	CHA-1PJ	x'10'
		CHA-1PK	x'11'
		CHA-1PL	x'12'
		CHA-1PM	x'13'
		CHA-1PG	x'14'
		DKA-1PG	x'14'
		CHA-1PH	x'15'
		DKA-1PH	x'15'
	Cluster-2	CHA-2PJ	x'18'
		CHA-2PK	x'19'
		CHA-2PL	x'1A'
		CHA-2PM	x'1B'
		CHA-2PG	x'1C'
		DKA-2PG	x'1C'
		CHA-2PH	x'1D'
		DKA-2PH	x'1D'

- (\*8) DMA#: DMA consecutive numbers in the device. Four DMA is loaded with CHA PCB, and four DMA is loaded with DKA PCB. See the table below show relations with the PCB Location.

Device Module	Cluster	CHA/DKA Location	DMA# (HEX)
Basic Module (Module#0)	Cluster-1	CHA-1PC	x'00' ~ x'03'
		CHA-1PD	x'04' ~ x'07'
		CHA-1PE	x'08' ~ x'0B'
		CHA-1PF	x'0C' ~ x'0F'
		CHA-1PA	x'10' ~ x'13'
		DKA-1PA	x'10' ~ x'13'
		CHA-1PB	x'14' ~ x'17'
		DKA-1PB	x'14' ~ x'17'
	Cluster-2	CHA-2PC	x'20' ~ x'23'
		CHA-2PD	x'24' ~ x'27'
		CHA-2PE	x'28' ~ x'2B'
		CHA-2PF	x'2C' ~ x'2F'
		CHA-2PA	x'30' ~ x'33'
		DKA-2PA	x'30' ~ x'33'
		CHA-2PB	x'34' ~ x'37'
		DKA-2PB	x'34' ~ x'37'
Option Module (Module#1)	Cluster-1	CHA-1PJ	x'40' ~ x'43'
		CHA-1PK	x'44' ~ x'47'
		CHA-1PL	x'48' ~ x'4B'
		CHA-1PM	x'4C' ~ x'4F'
		CHA-1PG	x'50' ~ x'53'
		DKA-1PG	x'50' ~ x'53'
		CHA-1PH	x'54' ~ x'57'
		DKA-1PH	x'54' ~ x'57'
	Cluster-2	CHA-2PJ	x'60' ~ x'63'
		CHA-2PK	x'64' ~ x'67'
		CHA-2PL	x'68' ~ x'6B'
		CHA-2PM	x'6C' ~ x'6F'
		CHA-2PG	x'70' ~ x'73'
		DKA-2PG	x'70' ~ x'73'
		CHA-2PH	x'74' ~ x'77'
		DKA-2PH	x'74' ~ x'77'

- (\*9) DRR#: DRR consecutive numbers in the device. Two DRR is loaded with CHA PCB, and two DRR is loaded with DKA PCB. See the table below show relations with the PCB Location.

Device Module	Cluster	CHA PCB Location	DRR# (HEX)
Basic Module (Module#0)	Cluster-1	CHA-1PC	x'00' ~ x'01'
		CHA-1PD	x'02' ~ x'03'
		CHA-1PE	x'04' ~ x'05'
		CHA-1PF	x'06' ~ x'07'
		CHA-1PA/DKA-1PA	x'08' ~ x'09'
		CHA-1PB/DKA-1PB	x'0A' ~ x'0B'
	Cluster-2	CHA-2PC	x'10' ~ x'11'
		CHA-2PD	x'12' ~ x'13'
		CHA-2PE	x'14' ~ x'15'
		CHA-2PF	x'16' ~ x'17'
		CHA-2PA/DKA-2PA	x'18' ~ x'19'
		CHA-2PB/DKA-2PB	x'1A' ~ x'1B'
Option Module (Module#1)	Cluster-1	CHA-1PJ	x'20' ~ x'21'
		CHA-1PK	x'22' ~ x'23'
		CHA-1PL	x'24' ~ x'25'
		CHA-1PM	x'26' ~ x'27'
		CHA-1PG/DKA-1PG	x'28' ~ x'29'
		CHA-1PH/DKA-1PH	x'2A' ~ x'2B'
	Cluster-2	CHA-2PJ	x'30' ~ x'31'
		CHA-2PK	x'32' ~ x'33'
		CHA-2PL	x'34' ~ x'35'
		CHA-2PM	x'36' ~ x'37'
		CHA-2PG/DKA-2PG	x'38' ~ x'39'
		CHA-2PH/DKA-2PH	x'3A' ~ x'3B'

(\*10) Port#: Chanel port consecutive numbers in the device. Port of 8 at the maximum is implemented in each CHA PCB. See the table below show relations with the PCB Location.

Device Module	Cluster	CHA PCB Location	Port# (HEX)
Basic Module (Module#0)	Cluster-1	CHA-1PC	x'00' ~ x'07'
		CHA-1PD	x'10' ~ x'17'
		CHA-1PE	x'08' ~ x'0F'
		CHA-1PF	x'18' ~ x'1F'
		CHA-1PA	x'40' ~ x'47'
		CHA-1PB	x'50' ~ x'57'
	Cluster-2	CHA-2PC	x'80' ~ x'87'
		CHA-2PD	x'90' ~ x'97'
		CHA-2PE	x'88' ~ x'8F'
		CHA-2PF	x'98' ~ x'9F'
		CHA-2PA	x'C0' ~ x'C7'
		CHA-2PB	x'D0' ~ x'D7'
Option Module (Module#1)	Cluster-1	CHA-1PJ	x'20' ~ x'27'
		CHA-1PK	x'30' ~ x'37'
		CHA-1PL	x'28' ~ x'2F'
		CHA-1PM	x'38' ~ x'3F'
		CHA-1PG	x'60' ~ x'67'
		CHA-1PH	x'70' ~ x'77'
	Cluster-2	CHA-2PJ	x'A0' ~ x'A7'
		CHA-2PK	x'B0' ~ x'B7'
		CHA-2PL	x'A8' ~ x'AF'
		CHA-2PM	x'B8' ~ x'BF'
		CHA-2PG	x'E0' ~ x'E7'
		CHA-2PH	x'F0' ~ x'F7'

(\*11) Port Path#: Chanel port consecutive numbers in the device. Port of 8 at the maximum is implemented in each CHA PCB. See the table below show relations with the PCB Location.

PCB Location	Port	Port Path#	Port	Port Path#	Port	Port Path#	Port	Port Path#
CHA-1PC	1A/3A	x'00'/x'01'	5A/7A	x'02'/x'03'	1B/3B	x'04'/x'05'	5B/7B	x'06'/x'07'
CHA-1PD	1C/3C	x'10'/x'11'	5C/7C	x'12'/x'13'	1D/3D	x'14'/x'15'	5D/7D	x'16'/x'17'
CHA-1PE	1E/3E	x'08'/x'09'	5E/7E	x'0A'/x'0B'	1F/3F	x'0C'/x'0D'	5F/7F	x'0E'/x'0F'
CHA-1PF	1G/3G	x'18'/x'19'	5G/7G	x'1A'/x'1B'	1H/3H	x'1C'/x'1D'	5H/7H	x'1E'/x'1F'
CHA-1PJ	1J/3J	x'20'/x'21'	5J/7J	x'22'/x'23'	1K/3K	x'24'/x'25'	5K/7K	x'26'/x'27'
CHA-1PK	1L/3L	x'30'/x'31'	5L/7L	x'32'/x'33'	1M/3M	x'34'/x'35'	5M/7M	x'36'/x'37'
CHA-1PL	1N/3N	x'28'/x'29'	5N/7N	x'2A'/x'2B'	1P/3P	x'2C'/x'2D'	5P/7P	x'2E'/x'2F'
CHA-1PM	1Q/3Q	x'38'/x'39'	5Q/7Q	x'3A'/x'3B'	1R/3R	x'3C'/x'3D'	5R/7R	x'3E'/x'3F'
CHA-1PA	9A/BA	x'40'/x'41'	DA/FA	x'42'/x'43'	9B/BB	x'44'/x'45'	DB/FB	x'46'/x'47'
CHA-1PB	9C/BC	x'50'/x'51'	DC/FC	x'52'/x'53'	9D/BD	x'54'/x'55'	DD/FD	x'56'/x'57'
CHA-1PG	9J/BJ	x'60'/x'61'	DJ/FJ	x'62'/x'63'	9K/BK	x'64'/x'65'	DK/FK	x'66'/x'67'
CHA-1PH	9L/BL	x'70'/x'71'	DL/FL	x'72'/x'73'	9M/BM	x'74'/x'75'	DM/FM	x'76'/x'77'
CHA-2PC	2A/4A	x'80'/x'81'	6A/8A	x'82'/x'83'	2B/4B	x'84'/x'85'	6B/8B	x'86'/x'87'
CHA-2PD	2C/4C	x'90'/x'91'	6C/8C	x'92'/x'93'	2D/4D	x'94'/x'95'	6D/8D	x'96'/x'97'
CHA-2PE	2E/4E	x'88'/x'89'	6E/8E	x'8A'/x'8B'	2F/4F	x'8C'/x'8D'	6F/8F	x'8E'/x'8F'
CHA-2PF	2G/4G	x'98'/x'99'	6G/8G	x'9A'/x'9B'	2H/4H	x'9C'/x'9D'	6H/8H	x'9E'/x'9F'
CHA-2PJ	2J/4J	x'A0'/x'A1'	6J/8J	x'A2'/x'A3'	2K/4K	x'A4'/x'A5'	6K/8K	x'A6'/x'A7'
CHA-2PK	2L/4L	x'B0'/x'B1'	6L/8L	x'B2'/x'B3'	2M/4M	x'B4'/x'B5'	6M/8M	x'B6'/x'B7'
CHA-2PL	2N/4N	x'A8'/x'A9'	6N/8N	x'AA'/x'AB'	2P/4P	x'AC'/x'AD'	6P/8P	x'AE'/x'AF'
CHA-2PM	2Q/4Q	x'B8'/x'B9'	6Q/8Q	x'BA'/x'BC'	2R/4R	x'BC'/x'BD'	6R/8R	x'BE'/x'BF'
CHA-2PA	AA/CA	x'C0'/x'C1'	EA/GA	x'C2'/x'C3'	AB/CB	x'C4'/x'C5'	EB/GB	x'C6'/x'C7'
CHA-2PB	AC/CC	x'D0'/x'D1'	EC/GC	x'D2'/x'D3'	AD/CD	x'D4'/x'D5'	ED/GD	x'D6'/x'D7'
CHA-2PG	AJ/CJ	x'E0'/x'E1'	EJ/GJ	x'E2'/x'E3'	AK/CK	x'E4'/x'E5'	EK/GK	x'E6'/x'E7'
CHA-2PH	AL/CL	x'F0'/x'F1'	EL/GL	x'F2'/x'F3'	AM/CM	x'F4'/x'F5'	EM/GM	x'F6'/x'F7'

(\*12) SASCTL#: SAS-CTL consecutive numbers.

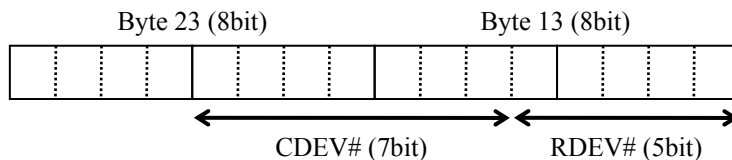
SAS Port#: SAS Port consecutive numbers.

CDEV#: CDEV Port consecutive numbers.

See the table below show relations with the DKA PCB Location.

Device Module	Cluster	DKA PCB Location	SASCTL# (HEX)	SAS Port# (HEX)
Basic Module (Module#0)	Cluster-1	DKA-1PA	0x'00'	0x'00' / 0x'01' / 0x'20' / 0x'21'
			0x'01'	0x'02' / 0x'03' / 0x'22' / 0x'23'
		DKA-1PB	0x'02'	0x'04' / 0x'05' / 0x'24' / 0x'25'
			0x'03'	0x'06' / 0x'07' / 0x'26' / 0x'27'
	Cluster-2	DKA-2PA	0x'04'	0x'08' / 0x'09' / 0x'28' / 0x'29'
			0x'05'	0x'0A' / 0x'0B' / 0x'2A' / 0x'2B'
		DKA-2PB	0x'06'	0x'0C' / 0x'0D' / 0x'2C' / 0x'2D'
			0x'07'	0x'0E' / 0x'0F' / 0x'2E' / 0x'2F'
Option Module (Module#1)	Cluster-1	DKA-1PG	0x'08'	0x'10' / 0x'11' / 0x'30' / 0x'31'
			0x'09'	0x'12' / 0x'13' / 0x'32' / 0x'33'
		DKA-1PH	0x'0A'	0x'14' / 0x'15' / 0x'34' / 0x'35'
			0x'0B'	0x'16' / 0x'17' / 0x'36' / 0x'37'
	Cluster-2	DKA-2PG	0x'0C'	0x'18' / 0x'19' / 0x'38' / 0x'39'
			0x'0D'	0x'1A' / 0x'1B' / 0x'3A' / 0x'3B'
		DKA-2PH	0x'0E'	0x'1C' / 0x'1D' / 0x'3C' / 0x'3D'
			0x'0F'	0x'1E' / 0x'1F' / 0x'3E' / 0x'3F'

(\*13) CDEV#/RDEV# See the table below.



In addition, about “CDEV#/RDEV# (C#/R#)” and “Disk Drive Number”, it is referred to “Physical-Logical Device Matrixes” of 2.5 INCH DRIVE BOX ([THEORY-B-10](#)), 3.5 INCH DRIVE BOX ([THEORY-C-10](#)) and FMD BOX ([THEORY-D-10](#)).

(\*14) CMG#: MG numbers in the CM PCB. One CMMG consists of two pieces of DIMM. See the table below show relations with the DIMM Location.

DIMM Location	CMG# (HEX)
CM0	x'0'
CM1	x'1'
CM2	x'2'
CM3	x'3'
CM4	x'4'
CM5	x'5'
CM6	x'6'
CM7	x'7'

(\*15) (reserved)

(\*16) CU# is detected only lower figure in SIM-RC. (CU#0x0 ~ 0xF)  
Look at the SVP information - Content SIM - Error Location.

(\*17) When SIM to show as follows was reported at the same time, have priority over this SIM.  
If “Maintenance” status return to “normal” after those recovery action, complete this SIM together.

SIM-RC= 3073-XX

SIM-RC= CF88-XX

SIM-RC= FFF3-XX

SIM-RC= FFF4-XX

(\*18) Contact T.S.D. with dump collected by Auto Dump in type “Detail”.

(\*19) Recover LDEVs according to the procedure shown in [TRBL03-20-10](#).

(\*20) In the case that there are no redundancy of drive the level of error is “Serious”.

(\*21) This temporary blocking is to recover the logical table on SM and be automatically recovered.

(\*22) The LDEV is blocked because of an error (inconsistency between data on the A and B sides) of configuration information stored in the SM. Recover the error following the instruction of the Technical Support Division.

(\*23) (reserved)

(\*24) Recover the error according to the procedure shown in [TRBL03-41-10](#).

## (\*25) Reason Code

- x'E1', x'10': No DCR P.P.
- x'E2', x'20': Storage system busy
- x'E4', x'40': Staging time over
- x'E5', x'50': Cache or SM blockade
- x'E6', x'60': LDEV Warning
- x'E7', x'70': Staging failure
- x'E8', x'80': PS OFF
- x'E9', x'90': PreStaging canceled
- x'EA', x'a0': Cache over loaded
- x'EB', x'b0': Some MP's blockade

## (\*26) Numbers of pair status changes

- x'0': From Simplex to Duplex Pending
- x'1': From Simplex to Duplex
- x'2': From Duplex Pending to Duplex
- x'3': From Duplex Pending to Suspend
- x'4': From Duplex to Suspend
- x'5': From Duplex to Simplex
- x'6': From Duplex Pending to Simplex
- x'7': From Suspend to Simplex
- x'8': From Suspend to Duplex Pending
- x'9': From Duplex Pending to Suspend(continue)
- x'A': From Duplex Pending to Suspend(complete)
- x'B': From Suspend (continue) to Suspend

## (\*27) Numbers of pair status changes

- x'0': A request for suspension was received.
- x'1': An instruction to delete a pair was received in the Suspend status.
- x'2': An instruction to delete a pair was received in the Duplex status.
- x'3': An instruction to delete a pair was received in the Duplex Pending status.
- x'4': A suspension transaction was completed.
- x'5': A pair deletion was completed.

## (\*28) Type of the lost information is reported according to the bit position. (There may be the case that two or more bits are set.)

(\*29) You can suppress reporting the TrueCopy for Mainframe Service SIM to the HOST by RCU Option operation (PPRC support by HOST and Service SIM of TC-MF).

• Service level SIM

PPRC support by HOST	Service SIM or TC-MF	Level of error	TC-MF
Yes	Report	DKC_SIM	Host Report
		DEV_SIM	Not Host Report
	Not Report	DKC_SIM	Not Host Report
		DEV_SIM	Not Host Report
No	Report	DKC_SIM	Host Report
		DEV_SIM	Host Report
	Not Report	DKC_SIM	Not Host Report
		DEV_SIM	Not Host Report

• Moderate or Serious level SIM

PPRC support by HOST	Level of error	TC-MF
Yes	DKC_SIM	Host Report
	DEV_SIM	Not Host Report
No	DKC_SIM	Host Report
	DEV_SIM	Host Report

(\*30) When SIM-RC = 3073XX, CF88XX, FFF3XX were reported at the same time, give priority to ACC of these SIM.

(\*31) In case of TrueCopy for Mainframe, SIMs reported from RCU are reported to the host by MCU.

Severity Level	RC of reported SIM for TC-MF
Acute or Serious	No modification
Moderate	No modification
Service (Not TC-MF SIM)	No modification
Service (TC-MF SIM)	Not reported

(\*32) In the fibre channel connection of the TrueCopy, this SIM may be issued on the MCU side when the microprogram of the RCU is replaced.

(\*33) The following information of SIM = AC90 is valid.

	0	1	2	3	4	5	6	7
byte40	Port number							
byte41	(Eg. CL1-A=0, CL3-A=1)							
byte42	HDEV number							
byte 43								
byte 44								
byte 45								
byte 46	LDEV number of executing command processing							
byte 47								
byte 48								
byte 49								
byte 50	Starting LBA address in CDB							
byte 51								
byte 52								
byte 53								
byte 54								
byte 55								
byte 56								
byte 57								
byte 58	Transfer Length in CDB							
byte 59								
byte 60								
byte 61								
byte 62	World Wide Name (WWN) of the host which issued the write request							
byte 63								
byte 64								
byte 65								
byte 66								
byte 67								
byte 68								
byte 69								
byte 70	Detected error item(s). Bit-OR of the left items. Check kind: 0x01: Check-F1 0x02: Check-L 0x04: Check-F2 0x08: Check-F3							
byte 71								
~								
byte 7F	Not used							

(\*34) The following information of SIM = 21D0, 21D1, 21D2, EFD0 is valid.

	0	1	2	3	4	5	6	7
byte 0x40 byte 0x41	Port number (ex. CL1-A=0, CL1-B=1)							
byte 0x42 byte 0x43	LDEV number(lower 2 bytes)							
byte 0x44 ~ byte 0x47	VDEV number							
byte 0x48 ~ byte 0x4F	Forehand WWN of External Storage connection							
byte 0x50 ~ byte 0x59	Product Number of External Storage							
byte 0x5A ~ byte 0x61	Vendor Name							
byte 0x62 ~ byte 0x71	Model name of External Storage							
byte 0x72 byte 0x73	External LUN#							
byte 0x74	Bit determining whether info identifying Binary/ Bit determining whether info identifying	Info identifying Binary/ ASCII for the connected storage system serial number	Not used					
byte 0x75 ~ byte 0x78	LDEV number							
byte 0x79 ~ byte 0x7F	Not used							

byte 0x74 bit0: Bit determining whether the information identifying Binary/ASCII for the connected storage system serial number is valid

Bit	Description
ON (1b)	Information identifying whether the connected storage system serial number is in the Binary/ASCII format is “Valid”.
OFF (0b)	Information identifying whether the connected storage system serial number is in the Binary/ASCII format is “Invalid”.

byte 0x74 bit1: Information identifying Binary/ASCII for the connected storage system serial number

Bit	Description
ON (1b)	The serial number of the connected storage system is in the Binary format.
OFF (0b)	The serial number of the connected storage system is in the ASCII format.

Serial number is not acquired from external storage, NULL (0) is set in the Serial number of the connected storage system.

Moreover, Serial number of the connected storage system is stored by left justify in the case of Binary and stored by right justify in the case of ASCII.

When external storage in the following matrix becomes the target of SIM, information of Model name of External Storage in the SIM is different from that of actual product name. When the external storage in the following matrix is connected and SIM is reported, check Model name of External Storage in the SIM against the actual product name to identify target external storage of the SIM.

SIM/ASSIST			Actual product		
Vendor Name	Model Name of External Storage	Product Number of External Storage (NOTE)	Vendor	Product Name	Display in console
HITACHI	9500V	D600xxxx	HITACHI	9570V	9500V
HITACHI	9500V	D60Jxxxx	HITACHI	9530V	9500V
HITACHI	9500V	D60Hxxxx	HITACHI	9580V/9585V	9500V
HITACHI	9500V	71xxxxxx	HITACHI	WMS100	WMS
HITACHI	9500V	73xxxxxx	HITACHI	AMS200	AMS
HITACHI	9500V	75xxxxxx	HITACHI	AMS500	AMS
HITACHI	9500V	77xxxxxx	HITACHI	AMS1000	AMS
HITACHI	AMS	83xxxxxx	HITACHI	AMS2100	AMS
HITACHI	AMS	85xxxxxx	HITACHI	AMS2300	AMS
HITACHI	AMS	87xxxxxx	HITACHI	AMS2500	AMS
HITACHI	HUS	91xxxxxx	HITACHI	HUS110	HUS
HITACHI	HUS	93xxxxxx	HITACHI	HUS130	HUS
HITACHI	HUS	95xxxxxx	HITACHI	HUS150	HUS

NOTE: “xxxx” at Product Number of External Storage means arbitrary number or character. When target product is 9500V series, “xxxx” means the last 4 digits of the serial number.

As for external storage other than those above, information of Model name of External Storage in SIM and that of actual product name is the same. Refer to FRS for detail.

(\*35) SIM RC= 2194 is valid

	0	1	2	3	4	5	6	7
byte40 byte 43	0x0000B6AF (Related SSB Code)							
byte 44 byte 47	SIM type + Port#							
byte 48 byte 4B	Starting supervise at time							
byte 4C byte 4F	Starting supervise at MIC_H timer							
byte 50 byte 53	SSB reported count (Comprehensive value)							
byte 54 byte 57	Link Failure supervised timer SVP timer							
byte 58 byte 5B	Link Failure supervised timer (0.96μsec/count)							
byte 5C byte 5F	SSB: B65A reported count							
byte 60 byte 63	SSB: B65C reported count							
byte 64 byte 67	SSB: B65D reported count							
byte 68 byte 6B	SSB: B65E reported count							
byte 6C byte 6F	SSB: B660 reported count							
byte 70 byte 73	SSB: B661 reported count							
byte 74 byte 77	SSB: B668 reported count							
byte 78 byte 7B	SSB: B66A reported count							
byte 7C byte 7F	SSB: DDA1 reported count							

(\*36) SIM RC= 2193 is valid

	0	1	2	3	4	5	6	7
byte 40 byte 43	0x0000B6AF (Related SSB Code)							
byte 44 byte 47	SIM type + Port#							
byte 48 byte 4B	Loss of Signal Counter (Cumulative value for 30 min to before the reporting SIM)							
byte 4C byte 4F	Bad Received Character Counter (Cumulative value for 30 min to before the reporting SIM)							
byte 50 byte 53	Loss of Sync Counter (Cumulative value for 30 min to before the reporting SIM)							
byte 54 byte 57	Link Failure Counter (Cumulative value for 30 min to before the reporting SIM)							
byte 58 byte 5B	Discarded Frame Counter (Cumulative value for 30 min to before the reporting SIM)							
byte 5C byte 5F	Received _EOFa Counter (Cumulative value for 30 min to before the reporting SIM)							
byte 60 byte 63	BAD_CRC Counter (Cumulative value for 30 min to before the reporting SIM)							
byte 64 byte 67	OLS/NOS Received Counter (Cumulative value for 30 min to before the reporting SIM)							
byte 68 byte 6B	LIPf Received Counter (Cumulative value for 30 min to before the reporting SIM)							
byte 6C byte 6F	Bad_ALPA Counter (Cumulative value for 30 min to before the reporting SIM)							
byte 70 byte 73	Link Down detected Counter (Cumulative value for 30 min to before the reporting SIM)							
byte 74 byte 77	none							
byte 78 byte 7B	none							
byte 7C byte 7F	none							

## (\*37) Numbers of pair status changes

- x'0': From Simplex to Duplex Pending
- x'1': From Simplex to Duplex
- x'2': From Duplex Pending to Duplex
- x'3': From Duplex Pending to Suspend
- x'4': From Duplex to Suspend
- x'5': From Duplex to Simplex
- x'6': From Duplex Pending to Simplex
- x'7': From Suspend to Simplex
- x'8': From Suspend to Duplex Pending
- x'9': From Hold to Duplex
- x'A': From Hold to Duplex Pending
- x'B': From Hold to Simplex
- x'C': From Simplex to Suspend
- x'D': From Simplex to Hold
- x'E': From Suspend to Hold
- x'F': From Duplex to Duplex Pending

## (\*38) Numbers of pair status changes

- x'0': A request for suspension was received.
- x'1': A suspension transaction was completed.
- x'2': An instruction to delete a pair was received in the Suspend status.
- x'3': An instruction to delete a pair was received in the Duplex Pending status.
- x'4': An instruction to delete a pair was received in the Duplex status.
- x'5': A pair deletion was completed.
- x'6': An instruction to delete a pair was received in the Hold status.

## (\*39) The DKC emulation type determines whether the SIM will be reported to the host, as explained below;

- DKC emulation type is 2107
  - You can select the SIM report to the HOST by SYSTEM OPTION.
  - MODE308 = OFF ( Default) : Not Report to the HOST
  - MODE308 = ON : Report to the HOST
  - (However, '\*29' is higher priority than '\*39')
- Others
  - It is decided by setting '\*29'.

(\*40) You can suppress reporting the SIM to the optional operation. Default is "not report"  
(When it is chosen optional operation once, it is not changed till the setting sets it again).(\*41) Refer to [TRBL03-03-10](#) except a normal end.

(\*42) The following information of SIM RC= 21D4, 21D5, EFD4 is valid.

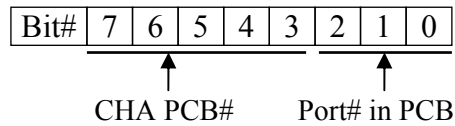
	0	1	2	3	4	5	6	7
byte 0x40 byte 0x41	Port number (ex. CL1-A=0, CL1-B=1)							
byte 0x42 byte 0x43	LDEV number(lower 2 bytes)							
byte 0x44 ~ byte 0x47	VDEV number							
byte 0x48 ~ byte 0x4F	Forehand WWN of External Storage connection							
byte 0x50 ~ byte 0x5B	Product Number of External Storage							
byte 0x5C ~ byte 0x5E	Vendor Name							
byte 0x5F	Not used							
byte 0x60 ~ byte 0x63	Path number on the management of VDEV							
byte 0x64	Not used							
byte 0x65 ~ byte 0x67	LINK ADR (Tool input value)							
byte 0x68 ~ byte 0x6B	LDEV number							
byte 0x70 ~ byte 0x7F	Not used							

(\*43) Mainframe Fibre DM is contained

(\*44) In the case of Mainframe Fibre DM, host report is not performed.



(\*49) High 5 Bit of YY indicates the CHA PCB#. Low 3 Bit of YY indicates the Port# in PCB. See the table below show relations with the PCB Location.



Device Module	Cluster	CHA PCB Location	CHA PCB# + Port# (HEX)
Basic Module (Module#0)	Cluster-1	CHA-1PC	x'00' ~ x'07'
		CHA-1PD	x'08' ~ x'0F'
		CHA-1PE	x'10' ~ x'17'
		CHA-1PF	x'18' ~ x'1F'
		CHA-1PA	x'20' ~ x'27'
		CHA-1PB	x'28' ~ x'2F'
	Cluster-2	CHA-2PC	x'40' ~ x'47'
		CHA-2PD	x'48' ~ x'4F'
		CHA-2PE	x'50' ~ x'57'
		CHA-2PF	x'58' ~ x'5F'
		CHA-2PA	x'60' ~ x'67'
		CHA-2PB	x'68' ~ x'6F'
Option Module (Module#1)	Cluster-1	CHA-1PJ	x'80' ~ x'87'
		CHA-1PK	x'88' ~ x'8F'
		CHA-1PL	x'90' ~ x'97'
		CHA-1PM	x'98' ~ x'9F'
		CHA-1PG	x'A0' ~ x'A7'
		CHA-1PH	x'A8' ~ x'AF'
	Cluster-2	CHA-2PJ	x'C0' ~ x'C7'
		CHA-2PK	x'C8' ~ x'CF'
		CHA-2PL	x'D0' ~ x'D7'
		CHA-2PM	x'D8' ~ x'DF'
		CHA-2PG	x'E0' ~ x'E7'
		CHA-2PH	x'E8' ~ x'EF'

- (\*50) CMBK warning is also appeared when the battery controller on the CMPCB is failed.  
In that case, the possible exchange parts is CMPCB.
- (\*51) When the MP LM DIMM is reported as an Action Code, replace the MP LM DIMM first.
- (\*52) After SIM is reported, the DKC recovers from DKU BOX that the number is small to order turn. Time of the recovery for each DKU BOX is about 2 minutes. It takes about 12 minutes by the recovery at 6 DKU BOX configuration.
- (\*53) Please replace latter located SSW one by one, when two or more the SSW ACC exists.
- (\*54) If SSB code “BCCE” was detected with the same serial number as the blocked channel port around the same time, remove the failure according to the procedure described in [TRBL05-1120](#).
- (\*55) If SSB code “BD1D” was detected with the same port number as the blockaded channel port around the same time, please collect the dump by Auto Dump in type “Normal” and make contact with T.S.D.
- (\*56) This SIM is output in the URxUR Multi-target configuration when two or more mirrors in the primary site are Active, and the metadata utilization and the journal data utilization are 60% to 79%.
- (\*57) You can select the SIM report to the HOST by SYSTEM OPTION.  
MODE598 = OFF (Default) : Not Report to the HOST  
MODE598 = ON : Report to the HOST
- (\*58) For Flash Module Drive battery capacity shortage, refer to [TRBL03-11-10](#).

(\*59) HDU#: HDU consecutive numbers in the device. See the table below show relations with the PCB Location.

HDU#	Location	HDU#	Location	HDU#	Location	HDU#	Location
HDU-000	x'00'	HDU-030	x'18'	HDU-100	x'30'	HDU-130	x'48'
HDU-001	x'01'	HDU-031	x'19'	HDU-101	x'31'	HDU-131	x'49'
HDU-002	x'02'	HDU-032	x'1A'	HDU-102	x'32'	HDU-132	x'4A'
HDU-003	x'03'	HDU-033	x'1B'	HDU-103	x'33'	HDU-133	x'4B'
HDU-004	x'04'	HDU-034	x'1C'	HDU-104	x'34'	HDU-134	x'4C'
HDU-005	x'05'	HDU-035	x'1D'	HDU-105	x'35'	HDU-135	x'4D'
HDU-006	x'06'	HDU-036	x'1E'	HDU-106	x'36'	HDU-136	x'4E'
HDU-007	x'07'	HDU-037	x'1F'	HDU-107	x'37'	HDU-137	x'4F'
HDU-010	x'08'	HDU-040	x'20'	HDU-110	x'38'	HDU-140	x'50'
HDU-011	x'09'	HDU-041	x'21'	HDU-111	x'39'	HDU-141	x'51'
HDU-012	x'0A'	HDU-042	x'22'	HDU-112	x'3A'	HDU-142	x'52'
HDU-013	x'0B'	HDU-043	x'23'	HDU-113	x'3B'	HDU-143	x'53'
HDU-014	x'0C'	HDU-044	x'24'	HDU-114	x'3C'	HDU-144	x'54'
HDU-015	x'0D'	HDU-045	x'25'	HDU-115	x'3D'	HDU-145	x'55'
HDU-016	x'0E'	HDU-046	x'26'	HDU-116	x'3E'	HDU-146	x'56'
HDU-017	x'0F'	HDU-047	x'27'	HDU-117	x'3F'	HDU-147	x'57'
HDU-020	x'10'	HDU-050	x'28'	HDU-120	x'40'	HDU-150	x'58'
HDU-021	x'11'	HDU-051	x'29'	HDU-121	x'41'	HDU-151	x'59'
HDU-022	x'12'	HDU-052	x'2A'	HDU-122	x'42'	HDU-152	x'5A'
HDU-023	x'13'	HDU-053	x'2B'	HDU-123	x'43'	HDU-153	x'5B'
HDU-024	x'14'	HDU-054	x'2C'	HDU-124	x'44'	HDU-154	x'5C'
HDU-025	x'15'	HDU-055	x'2D'	HDU-125	x'45'	HDU-155	x'5D'
HDU-026	x'16'	HDU-056	x'2E'	HDU-126	x'46'	HDU-156	x'5E'
HDU-027	x'17'	HDU-057	x'2F'	HDU-127	x'47'	HDU-157	x'5F'

(\*60) For HDU power recovery, refer to [TRBL03-06-10](#).

(\*61) There is the case that plural PDEV(s) on the SAS port concerned blockade when this SIM occurs at the time of a boot, but PDEV(s) blockade recovers in a procedure of [TRBL03-45-10](#).

(\*62) When this SIM occurs, the Dynamic Sparring will be started to the spare drive, unless drive copy function (i.e. drive copy, copy back or collection copy) is already started in the same RAID group which the drive reported with SIM belongs to.

## 2.2 SIM Reference Codes Detected by the SVP

Error			REF code	SIM 28	Level of error	Host report	Remarks
			22,23,13				
Environmental error	External temperature alarm	DKC-0 CL 1	BF1010	F1	Moderate	Yes	
		DKC-0 CL 2	BF1011	F1	Moderate	Yes	
		DKC-1 CL 1	BF1012	F1	Moderate	Yes	
		DKC-1 CL 2	BF1013	F1	Moderate	Yes	
	External high temperature warning	DKC-0 CL 1	BF1110	F1	Moderate	Yes	
		DKC-0 CL 2	BF1111	F1	Moderate	Yes	
		DKC-1 CL 1	BF1112	F1	Moderate	Yes	
		DKC-1 CL 2	BF1113	F1	Moderate	Yes	
	External low temperature warning	DKC-0 CL 1	BF1210	F1	Moderate	Yes	
		DKC-0 CL 2	BF1211	F1	Moderate	Yes	
		DKC-1 CL 1	BF1212	F1	Moderate	Yes	
		DKC-1 CL 2	BF1213	F1	Moderate	Yes	
	Internal temperature alarm	DKC-0 CL 1	BF1310	F1	Moderate	Yes	
		DKC-0 CL 2	BF1311	F1	Moderate	Yes	
		DKC-1 CL 1	BF1312	F1	Moderate	Yes	
		DKC-1 CL 2	BF1313	F1	Moderate	Yes	
	Internal high temperature warning 2	DKC-0 CL 1	BF1410	F1	Moderate	Yes	
		DKC-0 CL 2	BF1411	F1	Moderate	Yes	
		DKC-1 CL 1	BF1412	F1	Moderate	Yes	
		DKC-1 CL 2	BF1413	F1	Moderate	Yes	
	Internal low temperature warning 1	DKC-0 CL 1	BF1510	F1	Moderate	Yes	
		DKC-0 CL 2	BF1511	F1	Moderate	Yes	
		DKC-1 CL 1	BF1512	F1	Moderate	Yes	
		DKC-1 CL 2	BF1513	F1	Moderate	Yes	

Error			REF code	SIM	Level of error	Host report	Remarks
			22,23,13				
Environmental error	Logic PS voltage alarm	DKC-0 CL 1	BF2010	F1	Moderate	Yes	
		DKC-0 CL 2	BF2011	F1	Moderate	Yes	
		DKC-1 CL 1	BF2012	F1	Moderate	Yes	
		DKC-1 CL 2	BF2013	F1	Moderate	Yes	
	SSVP voltage warning (PS_SUB)	DKC-0 CL 1	BF2210	F1	Moderate	Yes	
		DKC-0 CL 2	BF2211	F1	Moderate	Yes	
		DKC-1 CL 1	BF2212	F1	Moderate	Yes	
		DKC-1 CL 2	BF2213	F1	Moderate	Yes	
	SSVP voltage warning (SVP supply)	DKC-0	BF2310	F1	Moderate	Yes	
		DKC-1	BF2312	F1	Moderate	Yes	
	DKCPS warning	DKCPS-00	BF4010	F1	Moderate	Yes	
		DKCPS-10	BF4012	F1	Moderate	Yes	
		DKCPS-01	BF4110	F1	Moderate	Yes	
		DKCPS-11	BF4112	F1	Moderate	Yes	
		DKCPS-02	BF4210	F1	Moderate	Yes	
		DKCPS-12	BF4212	F1	Moderate	Yes	
		DKCPS-03	BF4310	F1	Moderate	Yes	
		DKCPS-13	BF4312	F1	Moderate	Yes	
	DKCPS (HVDC) warning	DKCPS-00	BF4410	F1	Moderate	Yes	
		DKCPS-10	BF4412	F1	Moderate	Yes	
		DKCPS-01	BF4510	F1	Moderate	Yes	
		DKCPS-11	BF4512	F1	Moderate	Yes	
		DKCPS-02	BF4610	F1	Moderate	Yes	
		DKCPS-12	BF4612	F1	Moderate	Yes	
		DKCPS-03	BF4710	F1	Moderate	Yes	
		DKCPS-13	BF4712	F1	Moderate	Yes	

Error			REF code	SIM	Level of error	Host report	Remarks
			22,23,13				
Environmental error	DKCPS I2C Communication error	DKCPS-00	BF4C10	F1	Moderate	Yes	
		DKCPS-10	BF4C12	F1	Moderate	Yes	
		DKCPS-01	BF4D10	F1	Moderate	Yes	
		DKCPS-11	BF4D12	F1	Moderate	Yes	
		DKCPS-02	BF4E10	F1	Moderate	Yes	
		DKCPS-12	BF4E12	F1	Moderate	Yes	
		DKCPS-03	BF4F10	F1	Moderate	Yes	
		DKCPS-13	BF4F12	F1	Moderate	Yes	
	DKCPS input voltage abnormality	DKCPS-00	BF6010	F1	Moderate	Yes	
		DKCPS-10	BF6012	F1	Moderate	Yes	
		DKCPS-01	BF6110	F1	Moderate	Yes	
		DKCPS-11	BF6112	F1	Moderate	Yes	
		DKCPS-02	BF6210	F1	Moderate	Yes	
		DKCPS-12	BF6212	F1	Moderate	Yes	
		DKCPS-03	BF6310	F1	Moderate	Yes	
		DKCPS-13	BF6312	F1	Moderate	Yes	

Error			REF code	SIM	Level of error	Host report	Remarks
			22,23,13				
Environmental error	DKCFAN warning	DKCFAN-00	BF7010	F1	Moderate	Yes	
		DKCFAN-10	BF7012	F1	Moderate	Yes	
		DKCFAN-01	BF7110	F1	Moderate	Yes	
		DKCFAN-11	BF7112	F1	Moderate	Yes	
		DKCFAN-02	BF7210	F1	Moderate	Yes	
		DKCFAN-12	BF7212	F1	Moderate	Yes	
		DKCFAN-03	BF7310	F1	Moderate	Yes	
		DKCFAN-13	BF7312	F1	Moderate	Yes	
		DKCFAN-04	BF7410	F1	Moderate	Yes	
		DKCFAN-14	BF7412	F1	Moderate	Yes	
		DKCFAN-05	BF7511	F1	Moderate	Yes	
		DKCFAN-15	BF7513	F1	Moderate	Yes	
		DKCFAN-06	BF7611	F1	Moderate	Yes	
		DKCFAN-16	BF7613	F1	Moderate	Yes	
		DKCFAN-07	BF7711	F1	Moderate	Yes	
		DKCFAN-17	BF7713	F1	Moderate	Yes	
		DKCFAN-08	BF7811	F1	Moderate	Yes	
		DKCFAN-18	BF7813	F1	Moderate	Yes	
		DKCFAN-09	BF7911	F1	Moderate	Yes	
DKCFAN-19	BF7913	F1	Moderate	Yes			

Error			REF code	SIM 28	Level of error	Host report	Remarks
			22,23,13				
	SVP RAS Switch#1 remains (SVP PS ON/OFF INH SW)	SVP-BASIC	BF85A3	F1	Moderate	Yes	
	SVP RAS Switch#1 remains (SVP PS ON/OFF INH SW)	SVP-OPTION	BF86A3	F1	Moderate	Yes	
	Communication Error between SSVP and MN	DKC-0 MN1 detect	BF90A0	F1	Moderate	No	
		DKC-0 MN2 detect	BF90A1	F1	Moderate	No	
	MN Access error	MN1 READY-OFF	BF9AA0	F1	Moderate	No	
		MN2 READY-OFF	BF9AA1	F1	Moderate	No	
	MN version disagreement	DKC-0	BF9BA0	F1	Moderate	No	
		DKC-1	BF9BA4	F1	Moderate	No	

Error			REF code	SIM	Level of error	Host report	Remarks
			22,23,13				
Environmental error	Logic PS voltage alarm disagreement	DKC-0 CL 1	BFA0A0	F1	Moderate	No	
		DKC-0 CL 2	BFA0A1	F1	Moderate	No	
		DKC-1 CL 1	BFA0A4	F1	Moderate	No	
		DKC-1 CL 2	BFA0A5	F1	Moderate	No	
	External temperature disagreement	DKC-0	BFA2A0	F1	Moderate	No	
		DKC-1	BFA2A4	F1	Moderate	No	
	Internal temperature alarm disagreement	DKC-0 CL 1	BFA3A0	F1	Moderate	No	
		DKC-0 CL 2	BFA3A1	F1	Moderate	No	
		DKC-1 CL 1	BFA3A4	F1	Moderate	No	
		DKC-1 CL 2	BFA3A5	F1	Moderate	No	
	Internal temperature warning disagreement	DKC-0 CL 1	BFA4A0	F1	Moderate	No	
		DKC-0 CL 2	BFA4A1	F1	Moderate	No	
		DKC-1 CL 1	BFA4A4	F1	Moderate	No	
		DKC-1 CL 2	BFA4A5	F1	Moderate	No	

Error			REF code	SIM	Level of error	Host report	Remarks
			22,23,13				
Environmental error	PSOFFREQ I/F disagreement	DKC-0 PSOFFREQ1	BFA5A0	F1	Moderate	No	
		DKC-0 PSOFFREQ2	BFA5A1	F1	Moderate	No	
		DKC-1 PSOFFREQ1	BFA5A4	F1	Moderate	No	
		DKC-1 PSOFFREQ2	BFA5A5	F1	Moderate	No	
	PSOFFOK I/F disagreement	DKC-0 CL 1	BFA6A0	F1	Moderate	No	
		DKC-0 CL 2	BFA6A1	F1	Moderate	No	
		DKC-1 CL 1	BFA6A4	F1	Moderate	No	
		DKC-1 CL 2	BFA6A5	F1	Moderate	No	
	SYSON I/F disagreement	DKC-0 CL 1	BFA7A0	F1	Moderate	No	
		DKC-0 CL 2	BFA7A1	F1	Moderate	No	
		DKC-1 CL 1	BFA7A4	F1	Moderate	No	
		DKC-1 CL 2	BFA7A5	F1	Moderate	No	
	DKCPS I/F disagreement	DKCPS-00	BFA8A0	F1	Moderate	No	
		DKCPS-10	BFA8A4	F1	Moderate	No	
		DKCPS-01	BFA9A0	F1	Moderate	No	
		DKCPS-11	BFA9A4	F1	Moderate	No	
		DKCPS-02	BFAAA0	F1	Moderate	No	
		DKCPS-12	BFAAA4	F1	Moderate	No	
		DKCPS-03	BFABA0	F1	Moderate	No	
		DKCPS-13	BFABA4	F1	Moderate	No	

Error			REF code	SIM	Level of error	Host report	Remarks
			22,23,13				
Environmental error	Communication Error between MN and MN	DKC-0 MN1 detect	BFACA0	F1	Moderate	No	
		DKC-0 MN2 detect	BFACA1	F1	Moderate	No	
		DKC-1 MN1 detect	BFACA4	F1	Moderate	No	
		DKC-1 MN2 detect	BFACA5	F1	Moderate	No	
	Cable connection error	DKC-0 DKCPNL connection error	BFADA3	F1	Moderate	No	
		DKC-1 DKCPNL connection error	BFADA4	F1	Moderate	No	
		PCIADP/PCICON connection error	BFAEA1	F1	Moderate	No	
	PCTL/PNL abnormally	DKC-0 MN detect	BFAFA0	F1	Moderate	No	(*10)
		DKC-1 MN detect	BFAFA4	F1	Moderate	No	(*10)
		DKC-0 MN disagreement	BFB0A0	F1	Moderate	No	
		DKC-1 MN disagreement	BFB0A4	F1	Moderate	No	
		DKC-0 MN communication error in SSVP	BFB1A0	F1	Moderate	No	
		DKC-1 MN communication error in SSVP	BFB1A4	F1	Moderate	No	
		DKC-0 PS status disagreement	BFB2A0	F1	Moderate	No	
		DKC-1 PS status disagreement	BFB2A4	F1	Moderate	No	

Error			REF code	SIM	Level of error	Host report	Remarks
			22,23,13				
Environmental error	PCTL/PNL abnormally	DKC-0 EPO disagreement	BFB4A0	F1	Moderate	No	
		DKC-1 EPO disagreement	BFB4A4	F1	Moderate	No	
		MODCON cable misconnection	BFB5A4	F1	Moderate	No	
		MODCON unconnection (DKC-0)	BFB6A0	F1	Moderate	No	
		MODCON unconnection (DKC-1)	BFB6A4	F1	Moderate	No	
		MODCON connection (DKC-0)	BFB7A0	F1	Moderate	No	
		MODCON connection (DKC-1)	BFB7A4	F1	Moderate	No	
	DKC ALARM LED light on		BFC010	F1	Serious	Yes	
	Duplex SVP Setup fail		BFE3A2	F1	Moderate	Yes	
	SVP FAN1 Error		BFE400	F1	Moderate	No	
	SVP FAN2 Error		BFE401	F1	Moderate	No	
	EXTENDER Hardware error		BFE406	F1	Moderate	No	
	USB interface error		BFE407	F1	Moderate	No	
	SVP receiving voltage error (CL1)		BFE408	F1	Moderate	No	
	SVP receiving voltage error (CL2)		BFE409	F1	Moderate	No	

Error		REF code	SIM	Level of error	Host report	Remarks	
		22,23,13					
SVP failure	Logical inconsistency	70XX00	F1	Moderate	No	(*1)	
	HEAP error	71XX00	F1	Moderate	No	(*1)	
	File error	72XX00	F1	Moderate	No	(*1)	
	LAN error	73XX00	F1	Moderate	No	(*1)	
	SSVP error	74XXXX	F1	Moderate	Yes	(*2)	
	Windows error	75XX00	F1	Moderate	No	(*1)	
	CUDG3 detected error	CHA/DKA	760000	F1	Moderate	No	
		CACHE	760400	F1	Moderate	No	
LCDG3 detected error	761000	F1	Moderate	No			
Processor boot failure	BOOT detected error	7900XY	F1	Moderate	No	(*3), (*5)	
SVP failure	ISDN Router failure	7B0003	F1	Moderate	Yes		
	Invalid SIM data detection	7C0500	F1	Service	No		
Reboot Stop	SVP reboot is impossible (Removable media inserted)	7C0000	F1	Moderate	No		
Battery Check	Battery life is over	7C010X	F1	Service	No	(*9)	
Audit Log output failure	Host instruction configuration change	7C0200	F1	Moderate	No		
Audit Log	Audit Log FTP Transfer failed	7C0300	F1	Moderate	Yes		
Dump Tool	Dump Tool failed	7C0400	F1	Service	Yes		

Error			REF code	SIM	Level of error	Host report	Remarks
			22,23,13				
MONITORING INFOR -MATION	MP Operating Ratio Error	MP	7E12XY	F1	Moderate	No (*a)	(*3)
	Loss Of Signal Count (Fibre) Excess		7E20XY	F1	Moderate	No	(*4)
	Bad Received Character Count (Fibre) Excess		7E21XY	F1	Moderate	No	(*4)
	Loss Of Synchronization Count (Fibre) Excess		7E22XY	F1	Moderate	No	(*4)
	Link Failure Count (Fibre) Excess		7E23XY	F1	Moderate	No	(*4)
	Received EOFa Count (Fibre) Excess		7E24XY	F1	Moderate	No	(*4)
	Discarded Frame Count (Fibre) Excess		7E25XY	F1	Moderate	No	(*4)
	Bad CRC Count (Fibre) Excess		7E26XY	F1	Moderate	No	(*4)
	Protocol Error Count (Fibre) Excess		7E27XY	F1	Moderate	No	(*4)
	Expired Frame Count (Fibre) Excess		7E28XY	F1	Moderate	No	(*4)
	HTP/FNP multiplicity excess		7E29XY	F1	Moderate	No	(*4)
	HTP/FNP read data transfer ratio error		7E2CXY	F1	Moderate	No	(*4)
	HTP/FNP write data transfer ratio error		7E2DXY	F1	Moderate	No	(*4)
	HTP/FNP operating ratio error		7E2EXY	F1	Moderate	No	(*4)
	Read Hit Ratio Excess		7E3000	FE	Moderate	No	
	Cache Use Ratio Error		7EAXYY	F2	Moderate	No	(*11)
	Cache Write Pending Ratio Error		7EBXYY	F2	Moderate	No	(*11)
Cache MCU Side File Use Ratio Error		7ECXYY	F2	Moderate	No	(*11)	

(\*a) When System Option Mode 967 is set to turning on, there is host report.

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Error		REF code	SIM	Level of error	Host report	Remarks
		22,23,13				
Pair Failure SIM Reduce	TC-MF/TC	7FF100	F1	Service	No	
	SI-MF/SI	7FF102	F1	Service	No	
	UR	7FF103	F1	Service	No	
	TI	7FF104	F1	Service	No	
	FlashCopy (R)	7FF105	F1	Service	No	
Dual SVP	Standby SVP fail	7FF2XX	F1	Moderate	No	(*7)
	SVP fail over	7FF3XX	F1	Moderate	No	(*7)
SVP failure License key	The term of validity is over	7FF7XX	F1	Moderate	Yes	(*6)
	The capacity of validity is over	7FF8XX	F1	Moderate	Yes	(*6)
	The PP is invalid by assumption PP invalidity	7FF9XX	F1	Moderate	Yes	(*6)
Synchronization time	Synchronization time failure	7FFA00	F1	Service	Yes	
Dump received	WCHK1 dump	3080XY	F1	Moderate	No	(*3), (*8)
Processor error	DKC Blockade	30A100	F1	Acute	Yes	

(\*1) Contents of byte 23 when a logical error, a HEEP error, a file error, a LAN error or Windows error occurred

Byte 23	Content
0x00	Dump task
0x01	DKU inline
0x02	Microprogram change (online)
0x03	Information
0x04	LOGOUT
0x05	PATH inline
0x06	Back Ground
0x07	DIAG
0x08	Install
0x09	Online
0x0A	Microprogram change (offline)
0x0B	Special PCB maintenance
0x0C	Common communication function
0xFF	Other AP

(\*2) Contents of byte 23 and byte 13 when a SSVP logical error occurred

Byte23	Byte13	Content
00	01	SSVP ROM SUM Check error (Recovered)
00	02	SSVP RAM RD/WR Error (Recovered)
00	50	Software error (Parameter Error)
10	60	Recovering SVP Communication
10	FF	SSVP Failure detected by SVP
50	01	Environment Monitor Register RD/WR error

## (\*3) Contents of Byte 13 when an MP error occurred

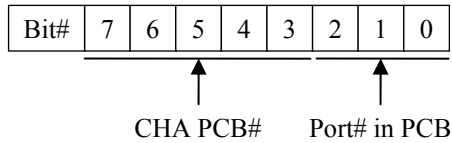
X : MPB# : MPB consecutive numbers in the device. See the table below show relations with the PCB Location.

Y : PCB MP#

Device Module	Cluster	MPB Location	Byte13 MPB#+PCB MP# (HEX)
Basic Module (Module#0)	Cluster-1	MPB-1MA	x'00' ~ x'07'
		MPB-1MB	x'10' ~ x'17'
		MPB-1PE	x'20' ~ x'27'
		MPB-1PF	x'30' ~ x'37'
	Cluster-2	MPB-2MA	x'40' ~ x'47'
		MPB-2MB	x'50' ~ x'57'
		MPB-2PE	x'60' ~ x'67'
		MPB-2PF	x'70' ~ x'77'
Option Module (Module#1)	Cluster-1	MPB-1MC	x'80' ~ x'87'
		MPB-1MD	x'90' ~ x'97'
		MPB-1PL	x'a0' ~ x'a7'
		MPB-1PM	x'b0' ~ x'b7'
	Cluster-2	MPB-2MC	x'c0' ~ x'c7'
		MPB-2MD	x'd0' ~ x'd7'
		MPB-2PL	x'e0' ~ x'e7'
		MPB-2PM	x'f0' ~ x'f7'

## (\*4) Contents of Byte 13 when a Port error occurred

High 5 Bit of YY indicates the CHA PCB#. Low 3 Bit of YY indicates the Port# in PCB. See the table below show relations with the PCB Location.



Device Module	Cluster	CHA PCB Location	Byte13 CHA PCB# + Port# (HEX)
Basic Module (Module#0)	Cluster-1	CHA-1PC	x'00' ~ x'07'
		CHA-1PD	x'08' ~ x'0F'
		CHA-1PE	x'10' ~ x'17'
		CHA-1PF	x'18' ~ x'1F'
		CHA-1PA	x'20' ~ x'27'
		CHA-1PB	x'28' ~ x'2F'
	Cluster-2	CHA-2PC	x'40' ~ x'47'
		CHA-2PD	x'48' ~ x'4F'
		CHA-2PE	x'50' ~ x'57'
		CHA-2PF	x'58' ~ x'5F'
		CHA-2PA	x'60' ~ x'67'
		CHA-2PB	x'68' ~ x'6F'
Option Module (Module#1)	Cluster-1	CHA-1PJ	x'80' ~ x'87'
		CHA-1PK	x'88' ~ x'8F'
		CHA-1PL	x'90' ~ x'97'
		CHA-1PM	x'98' ~ x'9F'
		CHA-1PG	x'A0' ~ x'A7'
		CHA-1PH	x'A8' ~ x'AF'
	Cluster-2	CHA-2PJ	x'C0' ~ x'C7'
		CHA-2PK	x'C8' ~ x'CF'
		CHA-2PL	x'D0' ~ x'D7'
		CHA-2PM	x'D8' ~ x'DF'
		CHA-2PG	x'E0' ~ x'E7'
		CHA-2PH	x'E8' ~ x'EF'

- (\*5) Execute the following procedures according to the error code of initialization function which is shown in 5C-5F byte of the SSB with error code 3309. Also, the SSB is the relative log of SIM with the reference code 7900xx or 7901xx.

Code (4-bytes)	Procedures	Note
21000041	PCB Replace	Replace the package with another new one.
31000041	MP-Install	Execute it when the PS OFF is executed with Maintenance Jumper to install the micro-programs.
	① PS OFF ② Pull out the Maintenance Jumper ③ PS ON	Execute them when you have forgotten to pull out Maintenance Jumper in the normal PS ON.
	① MP-Install ② PCB Replace (NOTE2)	Use the same package in ②.
42000041	(NOTE1)	
48000041	PCB Replace	Replace the package with another new one.
55000041	PCB Replace	Replace the package with another new one.
56000041	① SVP Replace ② MP-Install ③ PCB Replace	Use the same package in ③.
others	① MP-Install ② PCB Replace	Use the same package in ②.

Never fail to make sure the installed micro program version and the each processor's status by displaying the status (Status display) after the above procedures is finished.

Then, for the micro program version, "Major Version" and "MP Each Version" must be confirmed.

Reference address are as follows.

PCB Replace	<a href="#">REP01-300 ~ 310</a>
SVP Replace	<a href="#">REP01-320</a> (Work ID : RTC6)
MP-Install	<a href="#">MICRO05-10</a>
SSB with the error code 3309	<a href="#">SSBLOG05-2090</a>

NOTE1: ① Confirm the PCB name of the package that is set now.

- ② • In the case that the package is the same as the type of the package which you specified in the define configuration:
  - (a) MP-Install
  - (b) PCB Replace (Use the same package)
- In the case that the package is not same as the type of the package that you specified in the define configuration information:
  - (a) MP-Install

NOTE2: If this error has occurred in PS ON process of DKC in the condition that is described below, execute not PCB Replace but PS OFF and ON after MP Install.

- Instantaneous down without PS OFF immediately after Non Stop SCSI Host micro-program exchange and SM is volatile.
- DKC in not Ready.
- Power Event Log (PWE) is not reported from any MP.
- SIM 7900 is reported from all CHF PCBs.

- (\*6) Contents of Byte13 of an SVP failure license key refer to the following lists.  
Confirm the Program Product Installation status (Capacity, a period) at the [License Key] screen of Storage Navigator.

Byte13	P.P. name (HDS)	P.P. name (HP)
0x00	TrueCopy for z/OS (R)	Continuous Access Synchronous for Mainframe
0x02	Compatible XRC	Compatible XRC
0x03	TrueCopy	Continuous Access Synchronous
0x05	ShadowImage for z/OS (R)	Business Copy for Mainframe
0x07	Compatible FlashCopy (R) V2	Compatible FlashCopy (R) V2
0x08	ShadowImage	Business Copy
0x09	Universal Replicator for z/OS (R)	Continuous Access Journal for Mainframe
0x0A	Universal Replicator	Continuous Access Journal
0x0B	Universal Volume Manager	External Storage
0x0D	Virtual LVI	–
0x0E	Open Volume Management	System Array Management
0x11	Volume Retention Manager	–
0x12	Data Retention Utility	–
0x13	LUN Manager	Open Array Management
0x14	Cache Residency Manager for z/OS (R)	–
0x15	Cache Residency Manager	–
0x16	Performance Monitor	Performance Monitor
0x17	Volume Migration	Auto LUN
0x18	Server Priority Manager	Performance Control
0x19	PAV	Parallel Access Volumes
0x1B	Storage Navigator	Remote Web Console
0x1C	SNMP Agent	SNMP Agent
0x1D	JAVA API	JAVA API
0x20	Configuration File Loader	–
0x21	Virtual Partition Manager	–
0x22	Volume Shredder	–
0x23	Volume Migration V2	Auto LUN V2
0x26	Dynamic Provisioning	Thin Provisioning
0x27	Disaster Recovery Extended	Cont Access Journal 3DC & 4x4 Open MF
0x28	Compatible Hyper PAV	Hyper Parallel Access Volumes
0x29	FICON (R) Data Migration	FICON (R) Data Migration
0x2A	Encryption License Key	DKA Encryption
0x2D	Compatible High Performance Connectivity for FICON (R)	Compatible High Performance FICON (R) Connectivity
0x2E	Dynamic Tiering	Smart Tiers
0x2F	SMI-S Provider	SMI-S

(To be continued)

(Continued from the preceding page)

Byte13	P.P. name (HDS)	P.P. name (HP)
0x30	Dynamic Provisioning for Mainframe	Thin Provisioning for Mainframe
0x31	Resource Partition Manager	Resource Partition
0x32	Compatible Software for IBM (R) FlashCopy (R) SE	Compatible FlashCpy SE
0x33	Dynamic Tiering for Mainframe	Smart Tiers for Mainframe
0x35	Thin Image	Fast Snap
0x38	nondisruptive migration	Online Migration
0x39	Global-active device	High Availability

(\*7) REF CODE 13XX

00 : SVP-BASIC

01 : SVP-OPTION

(\*8) When the DKC is Twin DKC configuration, there is a possibility of the power outage or the WCHK1 failure by the power failure in the equipment. Therefore, refer to “3.37 Receiving WCHK1 Dump” ([TRBL03-37-10](#)).

(\*9) Contents of Byte 13 when a BKM error occurred

Byte 13	BKM Location
00	BKM-1BA
01	BKM-2BA
02	BKM-1BB
03	BKM-2BB
04	BKM-1BC
05	BKM-2BC
06	BKM-1BD
07	BKM-2BD

(\*10) This SIM REF code may be created when REF code BF4XXX (PS system warning failure) is created. (Refer to [TRBL03-23-10](#).)

(\*11)

X : MPB Location

YY : CLPR#

X	MPB Location
0	MPB-1MA
1	MPB-1MB
2	MPB-1PE
3	MPB-1PF
4	MPB-2MA
5	MPB-2MB
6	MPB-2PE
7	MPB-2PF
8	MPB-1MC
9	MPB-1MD
a	MPB-1PL
b	MPB-1PM
c	MPB-2MC
d	MPB-2MD
e	MPB-2PL
f	MPB-2PM

**SIMRC03-10****3. SIM Format**SIM Format (DKC SIM SSB28 = x'F1')

	0	1	2	3	4	5	6	7
0	x'00'							
1	Permanent Error	'0'		'1'	x'0'			
2	'0'			'1'	x'0'			
3	x'0000'							
4								
5	Device Type (ORB CODE)							
6	Serial # valid	Device address valid	Track address valid	'0'	Format (x'F')			
7	SIM sense record ID (x'E0')							
8	Range subject to the error (*1)				Range affected by repair (*2)			
9	Level of error (*3)		Number of faulty SPs (*4)	Number of SPs in SSID (*5)	Number of faulty SSIDs (*6)	Number of affected SSIDs (*7)	Status (*8)	0
10	Resend SIM (*9)	'0000000'						
11	Hardware level (*10)							
12	Hardware level (*10)							
13	Isolation code (*11)							
14	SSB ID (*12)	SIM sequence number (SIM log record #)						SVP ID (*13)
15	DKC serial number (x'0D05'+DKC sequence number)							
16								
17								
18								
19								
20	SSID of self storage system							
21								
22	Symptom code (*14)							
23								
24	Logging and Message Control (*15)							
25	Program action code (x'10')							
26	Dual Frame	EDCC Mode	'00'		Asynchronous operation	Serial channel	Report output (1)	'0'
27	'0'	'0000'					Extension path configuration	Fenced storage path
28	x'F1'							
29	Affected SSID							
30								
31	x'00'							

## SIM Format (CACHE SIM SSB28 = x'F2')

	0	1	2	3	4	5	6	7
0	x'00'							
1	Permanent Error	'0'		'1'	x'0'			
2	'0'			'1'	x'0'			
3	x'0000'							
4								
5	Device Type (ORB CODE)							
6	Serial # valid	Device address valid	Track address valid	'0'	Format (x'F')			
7	SIM sense record ID (x'E0')							
8	Range subject to the error (*1)				Range affected by repair (*2)			
9	Level of error (*3)		Number of faulty SPs (*4)	Number of SPs in SSID (*5)	Number of faulty SSIDs (*6)	Number of affected SSIDs (*7)	Status (*8)	0
10	Resend SIM (*9)	('0000000')						
11	Hardware level (*10)							
12	Hardware level (*10)							
13	Isolation code (*11)							
14	SSB ID (*12)	SIM sequence number (SIM log record #)						SVP ID (*13)
15								
16								
17	DKC serial number							
18	(x'0D05'+DKC sequence number)							
19								
20	SSID of self storage system							
21								
22	Symptom code (*14)							
23								
24	Logging and Message Control (*15)							
25	Program action code (x'10')							
26	Dual Frame	EDCC Mode	'00'		Asynchronous operation	Serial channel	Report output	'0'
27	'0'	'0000'				Extension path configuration	Fenced storage path	
28	x'F2'							
29	Affected SSID							
30								
31	x'00'							

## SIM Format (DEVICE SIM SSB28 = x'FE')

	0	1	2	3	4	5	6	7
0	x'0000'							
1								
2	Storage Control Type (x'06')							
3	x'00'							
4	Affected SP			Device Address				
5	Device Type							
6	Serial # valid	Device address valid	Track address valid	'0'	Format (x'F')			
7	SSB ID (*12)	SIM Sequence ID					SVP ID (*13)	
8	Device Exception (x'1')				Service Message (*16)			
9	Level of error (*3)		'000000'					
10	Resend SIM (*9)	'0000000'						
11	Exception Class Fru List Code (x'80')							
12	Hardware and Microcode Corequisite Indicator (x'01')							
13	Device Address (See reference code)							
14	Action Flag (x'05')							
15								
16								
17	Drive serial number							
18	(x'0D05'+DKU sequence number)							
19								
20	SSID of self storage system							
21								
22	Symptom code (*14)							
23								
24	Logging & Message Control (*15)							
25	Program Action Code (x'10')							
26	Dual Frame	EDCC Mode	x'0'	x'0'	Asynchro- nous operation	Serial Channel	'1'	'0'
27	x'0'				x'0'	Extension path configu- ration	Storage path	
28	x'FE'							
29								
30	x'000000'							
31								

## SIM Format (MEDIA SIM SSB28 = x'FF')

	0	1	2	3	4	5	6	7
0	x'0000'							
1								
2	Storage Control Type (x'06')							
3	x'00'							
4	Affected SP			Device Address				
5	Device Type							
6	Serial # valid	Device address valid	Track address valid	'0'	Format (x'F')			
7	SSB ID (*12)	SIM Sequence ID					SVP ID (*13)	
8	Device Exception (x'1')				Service Message (x'1')			
9	Level of error (*3)		Media Maintenance Procedure Number (correctable: x'07', uncorrectable: x'05')					
10	Resend SIM (*9)	('0000000')						
11	Exception Class Fru List Code (x'80')							
12	Hardware and Microcode Corequisite Indicator (x'01')							
13	Device Address (See reference code)							
14	Correctable: x'87', uncorrectable: x'85'							
15								
16								
17	Drive serial number							
18	(x'0D05'+DKU sequence number)							
19								
20	SSID of self storage system							
21								
22	Symptom code (*14)							
23								
24	Logging & Message Control (*15)							
25	Program Action Code (x'10')							
26	Dual Frame	EDCC Mode	x'0'	x'0'	Asynchro- nous operation	Serial Channel	'1'	'0'
27	x'0'				x'0'	Extension path configu- ration	Storage path	
28	x'FF'							
29	Cylinder Address High							
30	Cylinder Address Low							
31	Head Address							

## (\*1) Range subject to the error

## ① When byte 28 is x'F1' (DKC SIM)

x'0': Not used  
 x'1': Error range not known  
 x'2': SP error  
 x'3': CHL-I error  
 x'4': Not affect performance  
 x'5' to x'F': Not used

## ② When byte 28 is x'F2' (CACHE SIM)

x'0': Not used  
 x'1': Error range not known  
 x'2': Error between SP and CACHE  
 x'3': CACHE error  
 x'4': DC/FW error  
 x'5': FW error  
 x'6' to x'F': Not used

## (\*2) Range affected by repair

## ① When byte 28 is x'F1'(DKC SIM)

x'0': Not used  
 x'1': Repair range not known  
 x'2': Repair does not affect performance  
 x'3': SP disabled during repair  
 x'4': SSID disabled during repair  
 x'5' to x'F': Not used

## ② When byte 28 is x'F2' (CACHE SIM)

x'0': Not used  
 x'1': Repair range not known  
 x'2': Repair does not affect performance  
 x'3': CACHE error  
 x'4': DC/FW error  
 x'5': FW error  
 x'6' to x'F': Not used

## (\*3) Level of error

B'00': Service SIM  
 B'01': Moderate SIM  
 B'10': Serious SIM  
 B'11': Acute SIM

## (\*4) Number of faulty SPs

B'0': 1 SP  
 B'1': 2 SPs

## (\*5) Number of SPs in SSID

B'0': 2 SPs  
 B'1': 4 SPs

## (\*6) Number of faulty SSIDs

B'0': 1  
 B'1': 2

## (\*7) Number of affected SSIDs

B'0': 1  
 B'1': 2

## (\*8) Status

B'0': Degeneration

B'1': Stop

## (\*9) Resend SIM

B'0': Not resend SIM

B'1': Resend SIM

## (\*10) Hardware level

Bit 0: ESCON hardware level

[When bit 0 is 0]

Bit 1: Not used

Bits 2-3: Report storage path

Bits 4-5: Number of channels per cluster

B'00' = 4

B'01' = 8

B'10' = Not used

B'11' = Not used

Bit 6: NVS

B'0' = No NVS

B'1' = NVS provided

Bit 7: Not used

Bits 8-10: Cache size

000: Non cache

001: 256MB

010: 512MB

011: 768MB

100: 1024MB

101: 1280MB

110: 1536MB

111: Over 1536MB

Bits 11-13: Cluster hardware level

Bits 14-15: Cache/NVS hardware level

[When bit 0 is 1]

Bit 1: Not used

Bits 2-3: Error storage path

Bits 4-7: Number of channels per cluster

0000: Metal = 4, ESCON = 0

0001: Metal = 8, ESCON = 0

0010: Metal = 4, ESCON = 2

0100: Metal = 4, ESCON = 4

0110: Metal = 0, ESCON = 2

1000: Metal = 0, ESCON = 4

1010: Metal = 0, ESCON = 8

1100: Metal = 0, ESCON = 6

Bit 8: Dual frame

0: Dual frame

1: Modular power

Bits 9-11: Cache size

000: Non cache

001: 256MB

010: 512MB

011: 768MB

100: 1024MB

101: 1280MB

110: 1536MB

111: Over 1536MB

Bits 12-13: Cluster hardware level

Bits 14-15: Cache/NVS hardware level

## (\*11) Isolation code

Byte 13 ≠ X'00' Bytes 22 and 23 are a symptom code.

Byte 13 = X'00' Bytes 22 and 23 are an isolation code. This byte is byte 2 of the association code.

## (\*12) SSB ID

B'0' = SVP

B'1' = SP

## (\*13) SVP ID

B'0' = SVP1

B'1' = SVP2

## (\*14) Symptom code

See bytes 22 and 23 of the reference codes listed in Sections 2.1 and 2.2.

## (\*15) Logging and Message control

Bit 0 - 3: Not used

Bit 4 - 5: Logging

B'00': Do not log

B'01': Unconditional log

B'10': Log only once

B'11': Log only if persistent

Bit 6 - 7: Operator message

B'00': No message

B'01': Unconditional message

B'10': Send only once

B'11': Send only if persistent

## (\*16) Service Message

x'1': Action

x'C': No action