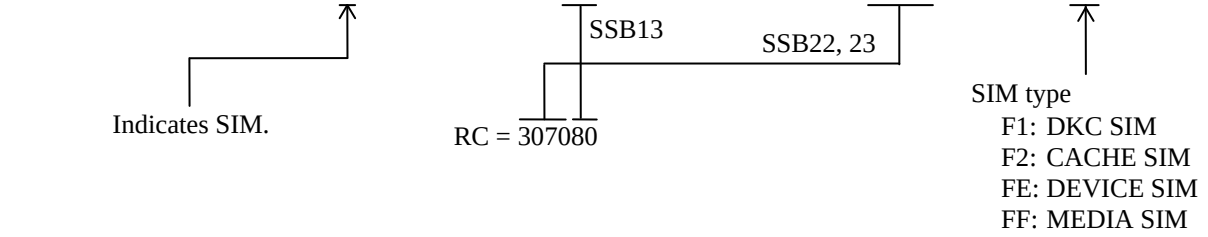
SIM RC SECTION

Contents

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	F1	00	02	00



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 = wwxxyyzz
- 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 subsystem.
- 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 subsystem (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 repost (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 22,23,13	SIM 28	Level of error	Host report	Remarks
Port error	Chanel port blocking	2120XX	F1	Moderate	Yes	XX: Port# (*12) (*58) (*59)
	AL_PA value conflict	2190XX	F1	Service	No	XX: CHAPCB# + Port# in PCB (*50)
	Link failure1 (*37)	2193XX	F1	Serious	Yes	XX: CHAPCB# + Port# in PCB (*50)
	Link failure2 (*36)	2194XX	F1	Serious	Yes	XX: CHAPCB# + Port# in PCB (*50)
	HTP hard error	21BXYY	F1	Moderate	Yes	X: MPB# (*3) YY: Port Path# (*13)
	HTP path blocking	21CXYY	F1	Moderate	Yes	X: MPB# (*3) YY: Port Path# (*13)
	HTP blocking	21A3XX	F1	Moderate	Yes	XX: CHAPCB# + Port# in PCB (*50)
	SFP wrong type	21A8XX	F1	Moderate	No	XX: CHAPCB# + Port# in PCB (*50)
	SFP TxFault	21AAXX	F1	Moderate	No	XX: CHAPCB# + Port# in PCB (*50)
	External subsystem connection path blocking (*35)	21D0XX	F1	Moderate	Yes	XX: CHAPCB# + Port# in PCB (*50)
	External subsystem connection path restore (*35)	21D1XX	F1	Service	No	XX: CHAPCB# + Port# in PCB (*50)
	Threshold over by external subsystem connection path response time-out (*35)	21D2XX	F1	Service	Yes	XX: CHAPCB# + Port# in PCB (*50)
Processor error	CHK1A threshold over	3070XY	F1	Service	No	X: MPB# (*3) Y: MP# (0 ~ 3) in PCB
	CHK1B threshold over	3071XY	F1	Service	No	X: MPB# (*3) Y: MP# (0 ~ 3) in PCB
	CHK3 threshold over	3072XY	F1	Service	No	X: MPB# (*3) Y: MP# (0 ~ 3) in PCB

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

Error		REF CODE 22,23,13	SIM 28	Level of error	Host report	Remarks
Processor error	Processor blocking (*52)	3073XY	F1	Moderate	Yes	X: MPB# (*3) Y: MP# (0 ~ 3) in PCB
	FM error	3075XY	F1	Moderate	Yes	X: MPB# (*3) Y: MP# (0 ~ 3) in PCB
	Incorrect SUM value of FM	3076XY	F1	Service	No	X: MPB# (*3) Y: MP# (0 ~ 3) in PCB
	Processor memory temporary error	3077XY	F1	Service (*a)	No	X: MPB# (*3) Y: MP# (0 ~ 3) in PCB
	P/S OFF impossible	388F00	F1	Moderate	No	
	P/S OFF impossible (Device reserved)	389F00	F1	Moderate	No	
	MPB temperature abnormality	38C1X0	F1	Moderate	No	X: MPB# (*3) (See TRBL05-840)
	Undefined Package is mounted	3990XY	F1	Moderate	No	X: MPB# (*3) Y: MP# (0 ~ 3) in PCB
	V-R or serial number is inconsistent	3991XY	F1	Moderate	No	X: MPB# (*3) Y: MP# (0 ~ 3) in PCB
	MPB temperature abnormality warning	3992X0	F1	Moderate	No	X: MPB# (*3)
	Replace failed	3993XY	F1	Moderate	No	X: MPB# (*3) Y: MP# (0 ~ 3) in PCB
	MP injustice DC voltage control (*24)	399DX0	F1	Moderate	No	X: MPB# (*3)
	Injustice CE MODE (*24)	399EX0	F1	Moderate	No	X: MPB# (*3)
	Injustice CEDT0 (*24)	399FX0	F1	Moderate	No	X: MPB# (*3)
	MP patrol check error	39B0XY	F1	Service	No	X: MPB# (*3) Y: MP# (0 ~ 3) 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 TRBL05-900)
	LDEV Blockade (Effect of microcode error)	3A0XYY	F1	Moderate	Yes	X: CU# (*17) YY: LDEV#

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

SIM Reference Codes Detected by the Processor (3/10)

Error		REF CODE 22,23,13	SIM 28	Level of error	Host report	Remarks
CHA/DKA error	CHA/DKA Type disagreement	3C9500	F1	Moderate	No	See TRBL05-680
	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)
	CHA Injustice DC voltage control (*24)	3CCDXX	F1	Service	No	XX: CHA PCB# (*4)
	CHA temperature abnormality	3CCEXX	F1	Moderate	No	XX: CHA PCB# (*4) (See TRBL05-840)
	DKA patrol check error	3DC0XX	F1	Service	No	XX: DKA PCB# (*5)
	DKA Memory Correctable error	3DC1XX	F1	Service	No	XX: DKA PCB# (*5)
	DKA Injustice DC voltage control (*24)	3DCDXX	F1	Service	No	XX: DKA PCB# (*5)
	DKA temperature abnormality	3DCEXX	F1	Moderate	No	XX: DKA PCB# (*5) (See TRBL05-840)
	LDEV Blockade (Effect of Encryption key lost)	6600XX	F1	Moderate	No	XX =00: No Encryption key
	SAS CTL blocking	CF10XX	F1	Moderate	Yes	XX: SAS CTL# (*14)
	A SAS PORT, one of 2WL, is partial blocked	CF11XX	F1	Service	No	XX: SAS Port# (*14)
	SAS PORT blocked (*56)	CF12XX	F1	Moderate	Yes	XX: SAS Port# (*14)
	DRR temporary error	CF80XX	F1	Service	No	XX: DRR# (*11)
	DRR blocking	CF82XX	F1	Moderate	Yes	XX: DRR# (*11)
	DMA temporary error	CF81XX	F1	Service	No	XX: DMA# (*9)
	DMA blocking	CF83XX	F1	Moderate	Yes	XX: DMA# (*9)
	Sync DMA temporary error	CF86XX	F1	Service	No	XX: LR# (*8)
	Sync DMA blocking	CF87XX	F1	Moderate	Yes	XX: LR# (*8)
	LR blocking	CF88XX	F1	Moderate	Yes	XX: LR# (*8)
	All DMA blocking	CF89XX	F1	Moderate	Yes	XX: LR# (*8)
	Logical DMA blocking	CF6XYY	F1	Moderate	Yes	X: MPB# (*3) YY: DMA# (*9)
	Logical Sync DMA blocking	CF7XYY	F1	Moderate	Yes	X: MPB# (*3) YY: LR# (*8)
	MFDMA temporary error	CFAXXX	F1	Service	No	XXX:MFDMA# (*10)
	MFDMA blocking	CFBXXX	F1	Moderate	Yes	XXX:MFDMA# (*10)
	All MFDMA blocking	CFC0XX	F1	Moderate	Yes	XX: LR# (*8)
	Logical DRR blocking	CFDXYY	F1	Moderate	No	X: MPB# (*3) YY: DRR# (*11)

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

Error		REF CODE 22,23,13	SIM 28	Level of error	Host report	Remarks
HSN error (*31)	CHA/DKA - CM Logical path blockade	32XXYY	F1	Moderate	No	XX: LR# (*46) YY: CM PCB# (*47) ESW PCB#
	CHA/DKA - MP Logical path blockade	33XXYY	F1	Moderate	No	XX: LR# (*46) YY: MPB# (*48) ESW PCB#
	MP - CM Logical path blockade	340XYY	F1	Moderate	No	X: MPB# (*49) YY: CM PCB# (*47) ESW PCB#
	MP - MP Logical path blockade	342XYY	F1	Moderate	No	X: MPB# (*49) YY: MPB# (*48) ESW PCB#
ESW error	ESW Injustice DC voltage control (*24)	FF200X	F1	Moderate	No	X: ESW PCB# (*7)
	ESW unfair patrol check error	FF220X	F1	Service	No	X: ESW PCB# (*7)
	ESW correctable error	FF230X	F1	Service	No	X: ESW PCB# (*7)
	MPA warning	FF9CYX	F1	Service	No	X: ESW PCB# (*7) Y: MPB# (*3)
	ESW temperature abnormality	FF9D0X	F1	Moderate	No	X: ESW PCB# (*7) (See TRBL05-840)

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

Error		REF CODE 22,23,13	SIM 28	Level of error	Host report	Remarks
Cache error	Pinned slot	FF4XYY	F2	Moderate	No	X: CU# (*17) YY: LDEV#
	Cache Module Blockade Processing end	FFC2YX	F2	Service	Yes	X: CM PCB# (*6) Y: CMG# (*15)
	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# (*15)
	DIMM Correctable error	FFF0YX	F2	Service	No	X: CM PCB# (*6) Y: CMG# (*15)
	Cache temporary error	FFF1YX	F2	Service	Yes	X: CM PCB# (*6) Y: CMG# (*15)
	Module group blocking	FFF2YX	F2	Moderate	Yes	X: CM PCB# (*6) Y: CMG# (*15)
	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)
	CM Injustice DC voltage control (*24)	FFF60X	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
	Battery warning	FFFA0X	F2	Service	No	X: CM PCB# (*6)
	SSD warning	FFFB0X	F2	Service	No	X: CM PCB# (*6) (*51)
	CMA temperature abnormality	FFFC0X	F2	Moderate	No	X: CM PCB# (*6) (See TRBL05-840)
	Module group error in On-demand area	FFFDYX	F2	Service	No	X: CM PCB# (*6) Y: CMG# (*15)
	Warning for forcible volatile mode (*53)	FFFE0X	F2	Moderate	No	X: CM PCB# (*6)
	Cache battery is being charged	FE0000	F2	Serious	No	(*63)
	Cache is used for the Battery charge completion	FE0100	F2	Service	No	
	Cache unused due to Battery charge amount shortage	FE0200	F2	Moderate	No	
	Cache SSD mounting capacity shortage	FE030X	F2	Serious	No	X: CM PCB# (*6)
	Definition/Installation mismatch	FFE800	F1	Acute	No	See TRBL05-710

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

Error		REF CODE 22,23,13	SIM 28	Level of error	Host report	Remarks
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 (*29)
	Replace failed	FFE40X	F1	Serious	No	X: CM PCB# (*6)
	Configuration information compare error (*23)	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 (*22)	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 22,23,13	SIM 28	Level of error	Host report	Remarks
Drive error (normal R/W)	Drive port temporary error (Drive path: Boundary 0)	DF6XYY	FE	Service (*21)	No	X: CDEV# YY: RDEV# (*14)
	Drive port temporary error (Drive path: Boundary 1)	DF7XYY	FE	Service (*21)	No	X: CDEV# YY: RDEV# (*14)
	Drive temporary error	EFAXYY	FE	Service (*21)	No	X: CDEV# YY: RDEV# (*14)
	Drive media error	434XYY	FF	Service (*21)	No	X: CDEV# YY: RDEV# (*14)
	Drive port blockade (Drive path: Boundary 0)	DF8XYY	FE	Moderate (*21)	Yes (*c)	X: CDEV# YY: RDEV# (*14)
	Drive port blockade (Drive path: Boundary 1)	DF9XYY	FE	Moderate (*21)	Yes (*c)	X: CDEV# YY: RDEV# (*14)
	LDEV blockade (Drive path: Boundary 0/ Effect of Drive port blockade) (*20)	DFAXYY	FE	Serious	Yes (*b) (*c)	X: CDEV# YY: RDEV# (*14)
	LDEV blockade (Drive path: Boundary 1/ Effect of Drive port blockade) (*20)	DFBXYY	FE	Serious	Yes (*b) (*c)	X: CDEV# YY: RDEV# (*14)
	Drive Link Rate Abnormality (Drive path: Boundary 0)	DFCXYY	FE	Service	No	X: CDEV# YY: RDEV# (*14)
	Drive Link Rate Abnormality (Drive path: Boundary 1)	DFDXYY	FE	Service	No	X: CDEV# YY: RDEV# (*14)
	Response late Drive	DFFXYY	FE	Service	No	X: CDEV# YY: RDEV# (*14)
	Drive blockade (drive) (with redundancy)	EF0XYY	FE	Serious	Yes (*c)	X: CDEV# YY: RDEV# (*14)
	Drive blockade (drive) (without redundancy)	EF1XYY	FE	Serious	Yes (*c)	X: CDEV# YY: RDEV# (*14)
	Drive blockade (Effect of Dynamic sparing normal end)	EF2XYY	FE	Service	Yes (*b) (*c)	X: CDEV# YY: RDEV# (*14)
	LDEV blockade (Effect of drive blockade) (*20)	EF9XYY	FE	Serious	Yes (*b) (*c)	X: CDEV# YY: RDEV# (*14)

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

(*c) When the drive is 3880 emulation mode, the SIM is not reported to host.

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

Error		REF CODE 22,23,13	SIM 28	Level of error	Host report	Remarks
Drive error (normal R/W)	Drive blockade (media) (with redundancy)	43BXYY	FF	Serious	Yes (*c)	X: CDEV# (*14) YY: RDEV#
	Drive blockade (media) (without redundancy)	43CXYY	FF	Serious	Yes (*c)	X: CDEV# (*14) YY: RDEV#
	Correction copy start (*25)	451XYY	FE	Service	Yes (*b) (*c)	X: CDEV# (*14) YY: RDEV#
	Correction copy normal end (*25)	452XYY	FE	Service	Yes (*a) (*b) (*c)	X: CDEV# (*14) YY: RDEV# (Source side drive)
	Correction copy abnormal end (*25)	453XYY	FE	Serious	Yes (*b) (*c)	X: CDEV# (*14) YY: RDEV# (Source side drive)
	Correction copy discontinued (*25)	454XYY	FE	Service	No	X: CDEV# (*14) YY: RDEV# (Source side drive)
	Correction copy warning end (*25) (With blockade LDEV or some error)	455XYY	FE	Service	Yes (*b) (*c)	X: CDEV# (*14) YY: RDEV# (Source side drive)
	Dynamic sparing start (*25) (Drive copy)	461XYY	FE	Service	Yes (*c)	X: CDEV# (*14) YY: RDEV# (Source side drive)
	Dynamic sparing normal end (Drive copy) (*25)	462XYY	FE	Service	Yes (*a) (*c)	X: CDEV# (*14) YY: RDEV# (Source side drive)
	Dynamic sparing abnormal end (Drive copy) (*25)	463XYY	FE	Moderate	Yes (*c)	X: CDEV# (*14) YY: RDEV# (Source side drive)
	Dynamic sparing discontinued (Drive copy) (*25)	464XYY	FE	Service	No	X: CDEV# (*14) YY: RDEV# (Source side drive)
	Dynamic sparing warning end (With blockade LDEV or some error) (Drive copy) (*25)	465XYY	FE	Service	Yes (*c)	X: CDEV# (*14) YY: RDEV# (Source side drive)
	Pinned slot	EF4XYY	FE	Moderate	No	X: CU# (*17) YY: LDEV#

(*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.

(*c) When the drive is 3880 emulation mode, the SIM is not reported to host.

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

Error		REF CODE 22,23,13	SIM 28	Level of error	Host report	Remarks
Drive error (ORM)	Drive temporary error	501XYY	FE	Service	No	X: CDEV# YY: RDEV# (Source side drive) (*14)
	Drive media error	502XYY	FF	Service	No	X: CDEV# YY: RDEV# (Source side drive) (*14)
Flash drive replacement recommend-ation	Flash drive End of life	50BXYY	FE	Service	Yes	X: CDEV# YY: RDEV# (*14)
Flash module drive replacement recommend-ation	Flash module drive End of life	50CXYY	FE	Service	Yes	X: CDEV# YY: RDEV# (*14)
Flash module drive error	Flash module drive battery error (ORM)	505XYY	FE	Service	No	X: CDEV# YY: RDEV# (*14)
	Flash module drive battery error	508XYY	FE	Moderate	No	X: CDEV# YY: RDEV# (*14)
	Flash module drive battery warning	50DXYY	FE	Service	No	X: CDEV# YY: RDEV# (*14)
	Flash module drive battery capacity shortage (*62)	50EXYY	FE	Moderate	No	X: CDEV# YY: RDEV# (*14)
Drive mic-roprogram exchange (OEM drive)	OEM drive Microprogram exchange start	4A1000	FE	Service	No (*a)	
	OEM drive Microprogram exchange normal end	4A2000	FE	Service	No (*a)	
	OEM drive Microprogram exchange abnormal end	4A3000	FE	Moderate	No	
	OEM drive Microprogram exchange discontinued	4A4000	FE	Service	No (*a)	
PDEV Erase	PDEV Erase Start	4C1XYY	FE	Service	No (*a)	X: CDEV# YY: RDEV# (Source side drive) (*14)
	PDEV Erase Normal End	4C2XYY	FE	Service	No (*a)	X: CDEV# YY: RDEV# (Source side drive) (*14)
	PDEV Erase Abnormal End (*65)	4C3XYY	FE	Service	No (*a)	X: CDEV# YY: RDEV# (Source side drive) (*14)
External device error	External subsystem connection device blockade	EFD000	FE	Serious	Yes	
	Abnormal end of Write processing in External storage system	EF5XYY	FE	Moderate	No	X: CU# YY: LDEV# (*17)
	Abnormal end of Read processing in External storage system	FF5XYY	FE	Moderate	No	X: CU# YY: LDEV# (*17)

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

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

Error		REF CODE 22,23,13	SIM 28	Level of error	Host report	Remarks
Cache Condition	Cache Write Pending ratio is over 65%	491000	F1	Service	No	(*19)
Format	Format complete	4100XX	F1	Service	No (*a)	XX = 00: Normal end (*42) 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)
System Disk	Audit Log lost	180000	F1	Moderate	Yes	
	Audit Log not access	180100	F1	Moderate	Yes	
Power error	HDU power off (*64)	AC50XY	F1	Moderate	Yes	X: Module number (*1) Y: DKU number (*16)
	HDU power recovered (*54)	AC51XY	F1	Service	No	X: Module number (*1) Y: DKU number (*16)
	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	
Environment error	DKU FAN DOOR opens more than 30 minutes (*57)	AC76XY	F1	Service	No	X: Module number (*1) Y: DKU number (*16)
	DKC Module#0 HDDFAN DOOR OPEN ERROR	AC77XX	F1	Service	No	XX: HDDFAN DOOR number (*55)
	DKC Module#1 HDDFAN DOOR OPEN ERROR	AC78XX	F1	Service	No	XX: HDDFAN DOOR number (*55)
Server error	DB Validation error (*34)	AC9000	F1	Serious	No (*d)	

(*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/HAM (1/2)

Error		REF CODE 22,23,13	SIM 28	Level of error	Host report	SIM LOG display (SVP) (*b)	Remarks
Pair volume status error	TC-MF/TC/HAM started the initial copy or out of sync for this volume	D00XYY	FE	Service	Yes (*30) (*a)	No	X: CU# (*17) YY: LDEV#
	TC-MF/TC/HAM completed the initial copy for this volume	D01XYY	FE	Service	Yes (*30) (*a)	No	X: CU# (*17) YY: LDEV#
	TC-MF/TC/HAM for this volume was deleted (Operation from an SVP/Web Console or a host processor)	D02XYY	FE	Service	Yes (*30) (*a)	No	X: CU# (*17) YY: LDEV#
	TC-MF completed the Create pair (No copy suspend)	D06XYY	FE	Service	Yes (*30)	No	X: CU# (*17) YY: LDEV#
	Remote Copy pair status change (MCU Command)	D1ZXYY	FE	Service	Yes (*30) (*a)	No	X: CU# (*17) YY: LDEV# Z: (*27)
	Start of differential copy	D30XYY	FE	Service	Yes (*30)	No	X: CU# (*17) 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.
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/HAM (2/2)

Error		REF CODE 22,23,13	SIM 28	Level of error	Host report	SIM LOG display (SVP) (*b)	Remarks
Pair volume status error	TC-MF/TC/HAM for this volume was suspended (Due to an unrecoverable failure on the remote copy connections)	D40XYY	FE	Serious	Yes (*30) (*a)	Yes	X: CU# (*17) YY: LDEV#
	TC-MF/TC/HAM for this volume was suspended (Due to an unrecoverable failure on the M-VOL or the remote copyconnections)	D41XYY	FE	Serious	Yes (*30) (*a)	Yes	X: CU# (*17) YY: LDEV#
	TC-MF/TC/HAM for this volume was suspended (Due to an unrecoverable failure on the R-VOL)	D42XYY	FE	Serious	Yes (*30) (*a)	Yes	X: CU# (*17) YY: LDEV#
	TC-MF for this volume was suspended (Caused by DFW to the R-VOL was prohibited)	D43XYY	FE	Serious	Yes (*30) (*a)	Yes	X: CU# (*17) YY: LDEV#
	TC-MF/TC/HAM for this volume was suspended (Due to an internal error condition detected by the RCU)	D44XYY	FE	Serious	Yes (*30) (*a)	Yes	X: CU# (*17) YY: LDEV#
	TC-MF/TC/HAM for this volume was suspended (Caused by Delete pair operation was issued to the R-VOL)	D45XYY	FE	Serious	Yes (*30) (*a)	Yes	X: CU# (*17) YY: LDEV#
	The R-VOL has suspended. (Due to an unrecoverable failure on the remote copy connections)	D46XYY	FE	Serious	Yes (*30) (*a)	Yes	X: CU# (*17) YY: LDEV#
	Erase operation for this volume was not completed (Due to error conditions)	D48XYY	FE	Serious	Yes (*30) (*a)	Yes	X: CU# (*17) YY: LDEV#
	Status of the M-VOL was not consistent with the R-VOL	D4FXYY	FE	Serious	Yes (*30) (*a)	Yes	X: CU# (*17) 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 22,23,13	SIM 28	Level of error	Host report	SIM LOG display (SVP) (*b)	Remarks
Command device operation	Command device operation execution of command device in state of ONLINE	D57XYY	FE	Service	No	Yes	X: CU# (*17) YY: LDEV#

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

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SIM Reference Codes Detected by the Processor for TrueCopy for Mainframe/ TrueCopy/UR/HAM

Error		REF CODE 22,23,13	SIM 28	Level of error	Host report	SIM LOG display (SVP) (*b)	Remarks
LCP/FCP error (Remote Control Port)	Logical path(s) on the remote copy connections was logically blocked (Due to an error conditions) (*33)	2180XX	F1	Moderate	Yes (*40) (*a)	Yes	XX: CHAPCB# + Port# in PCB (*50)
	The logical path has been recovered from blocked condition on the remote copy conditions	2181XX	F1	Service	Yes (*40) (*a)	No	XX: CHAPCB# + Port# in PCB (*50)
	MCU has received the notification of communication line error detection from extender	2182XX	F1	Moderate	Yes (*40) (*a)	Yes	XX: CHAPCB# + Port# in PCB (*50)

(*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/CoW/ TI (1/1)

Error		REF CODE 22,23,13	SIM 28	Level of error	Host report	Remarks
SI-MF error/ SI error/	SI-MF/SI Copy abnormal end (*44)	47DXYY	FE	Moderate	Yes (*45)	X: CU# (*17) YY: LDEV# (target volume)
FlashCopy (R) error	FlashCopy (R) Option abnormal end	4B2XYY	FE	Moderate	Yes	X: CU# (*17) YY: LDEV# (T-VOL)
	All FlashCopy (R) Option abnormal end by SM volatile	47E500	F1	Moderate	Yes	
	Forcible suspend by SM volatile (SI-MF/SI) (*44)	47E700	FE	Moderate	Yes	
	System Option MODE80 and SI-MF/SI settings are inconsistent.	47E000	FE	Moderate	No	
Volume Migration error	Volume Migration Abnormal End	47FXYY	FE	Moderate	No (*b)	X: CU# (*17) YY: LDEV# (destination volume)
XRC error	Sidefile 'sleep wait' threshold over	490XYY	FE	Service	Yes (*a)	X: CU# (*17) YY: LDEV# SVP MODE 118 ON: Generate SIM
Copy-on-Write Snapshot/ Thin Image error	Forcible suspend by SM volatile	47EC00	F1	Moderate	Yes	
	Copy-on-Write Snapshot/ Thin Image Option abnormal end	4B3XYY	FE	Moderate	Yes	X: CU# (*17) YY: LDEV#
Thin Image error	Warning before depletion of cache management devices	670000	FE	Moderate	Yes	No service report
Pair Failure	SI-MF/SI (*44)	7FF102	F1	Service	No	
SIM Reduce	Copy-on-Write Snapshot/ Thin Image	7FF104	F1	Service	No	
	FlashCopy (R)	7FF105	F1	Service	No	
	Volume Migration	7FF106	F1	Service	No	

(*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 Copy-on-Write Snapshot/ Thin Image Pool (1/1)

Error		REF CODE 22,23,13	SIM 28	Level of error	Host report	Corresponding to complete from Web Console	Remarks
Copy-on-Write Snapshot/ 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 Full	602FFF	F1	Moderate	Yes	Yes	For Copy-On-Write Snapshot
	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 22,23,13	SIM 28	Level of error	Host report	Corresponding to complete from Web Console	Remarks
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 System Threshold was exceeded	621XXX	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	Yes	

(*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 22,23,13	SIM 28	Level of error	Host report	Remarks
DCR Status	PreStaging abnormal end	4821XX	FE	Service	No (*a)	XX: Reason code (*28)

(*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 22,23,13	SIM 28	Level of error	Host report	Remarks
Mainframe Fibre Data Migration	Blocking the Data Migration path	21D4XX	F1	Moderate	No	XX: CHAPCB# + Port# in PCB (*50)
	Data Migration Path Recovery	21D5XX	F1	Service	No	XX: CHAPCB# + Port# in PCB (*50)
	Blocking the Data Migration source device	EFD400	FE	Moderate	No	(*43)

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

Error		REF CODE 22,23,13	SIM 28	Level of error	Host report	Remarks
Pair volume failure	A volume to be used by the UR was defined	D80XYY	FE	Service	Yes (*41) (*a)	X: CU# YY: LDEV# (*17)
	The volume being used by the UR began a copying	D81XYY	FE	Service	Yes (*41) (*a)	X: CU# YY: LDEV# (*17)
	The volume being used by the UR completed a copying	D82XYY	FE	Service	Yes (*41) (*a)	X: CU# YY: LDEV# (*17)
	The volume being used by the UR received a request for suspension	D83XYY	FE	Service	Yes (*41) (*a)	X: CU# YY: LDEV# (*17)
	The volume being used by the UR completed a suspension transaction	D84XYY	FE	Service	Yes (*41) (*a)	X: CU# YY: LDEV# (*17)
	The volume being used by the UR received a request for deletion	D85XYY	FE	Service	Yes (*41) (*a)	X: CU# YY: LDEV# (*17)
	The volume being used by the UR completed the deletion	D86XYY	FE	Service	Yes (*41) (*a)	X: CU# YY: LDEV# (*17)
	The volume being used by the UR was defined (placed in the PSUS status immediately)	D87XYY	FE	Service	Yes (*41) (*a)	X: CU# YY: LDEV# (*17)
	A Delta volume to be used by the UR was defined	D88XYY	FE	Service	Yes (*41) (*a)	X: CU# YY: LDEV# (*17)
	A Delta volume to be used by the UR was redefine	D89XYY	FE	Service	Yes (*41) (*a)	X: CU# YY: LDEV# (*17)
	A change to an S-VOL was received from the MCU	D9ZXYY	FE	Service	Yes (*41) (*a)	X: CU# YY: LDEV# (*17) Z: (*38)
	A change to an S-VOL was received from the RCU	DAZXYY	FE	Service	No	X: CU# YY: LDEV# (*17) Z: (*39)

(*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 22,23,13	SIM 28	Level of error	Host report	Remarks
Pair volume failure	A volume being used by a P-VOL was suspended (Path recovery was impossible)	DC0XYY	FE	Serious	Yes (*41) (*a)	X: CU# YY: LDEV# (*17)
	A volume being used by a P-VOL was suspended (A failure on the MCU side was detected)	DC1XYY	FE	Serious	Yes (*41) (*a)	X: CU# YY: LDEV# (*17)
	A volume being used by a P-VOL was suspended (Suspension of an S-VOL failure was detected)	DC2XYY	FE	Serious	Yes (*41) (*a)	X: CU# YY: LDEV# (*17)
	A volume being used by a P-VOL was suspended (Suspension of an S-VOL was detected)	DC4XYY	FE	Serious	Yes (*41) (*a)	X: CU# YY: LDEV# (*17)
	A volume being used by a P-VOL was suspended (Deletion of an S-VOL pair was detected)	DC5XYY	FE	Serious	Yes (*41) (*a)	X: CU# YY: LDEV# (*17)
	A volume being used by an S-VOL was suspended (Path recovery was impossible)	DC6XYY	FE	Serious	Yes (*41) (*a)	X: CU# YY: LDEV# (*17)
	A volume being used by an S-VOL was suspended (A failure on the RCU side was detected)	DC7XYY	FE	Serious	Yes (*41) (*a)	X: CU# YY: LDEV# (*17)
	A volume being used by an S-VOL was suspended (P/S OFF on the MCU side was detected)	DC8XYY	FE	Service	No	X: CU# YY: LDEV# (*17)
	A Delta volume being used by a P-VOL was suspended	DC9XYY	FE	Serious	Yes (*41) (*a)	X: CU# YY: LDEV# (*17)
	Pair suspend (Spread by error of another Affiliate)	DCAXYY	FE	Serious	Yes (*41) (*a)	X: CU# YY: LDEV# (*17)

(*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 22,23,13	SIM 28	Level of error	Host report	Remarks
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 (*61)	XX: JNLG#
	UR M-JNL Data overflow warning	DCE1XX	FE	Moderate	Yes (*61)	XX: JNLG#
	UR R-JNL Meta overflow warning	DCE2XX	FE	Moderate	Yes (*61)	XX: JNLG#
	UR R-JNL Data overflow warning	DCE3XX	FE	Moderate	Yes (*61)	XX: JNLG#
	UR M-JNL Meta overflow warning in URxUR Multi-target configuration	DCF4XX	FE	Moderate	No	XX: JNLG# (*60)
	UR M-JNL Data overflow warning in URxUR Multi-target configuration	DCF5XX	FE	Moderate	No	XX: JNLG# (*60)

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

Error		REF CODE 22,23,13	SIM 28	Level of error	Host report	Remarks
Quorum Disk error	HAM Quorum Disk Restore	DEE0XX	FE	Service	No	XX: QuorumDisk ID
	HAM Quorum Disk Blocked	DEF0XX	FE	Serious	No	XX: QuorumDisk ID

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

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

(*2) Cluster#: See thetable 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'
	Cluster-2	MPB-2MC	x'2'
		MPB-2MD	x'3'
Option Module (Module#1)	Cluster-1	MPB-1ME	x'4'
		MPB-1MF	x'5'
	Cluster-2	MPB-2MG	x'6'
		MPB-2MH	x'7'

(*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-1EU	x‘00’
		CHA-1EL	x‘08’
		CHA-1FU	x‘10’
		CHA-1FL	x‘18’
		CHA-1AU	x‘20’
		CHA-1AL	x‘28’
	Cluster-2	CHA-2QU	x‘40’
		CHA-2QL	x‘48’
		CHA-2RU	x‘50’
		CHA-2RL	x‘58’
		CHA-2MU	x‘60’
		CHA-2ML	x‘68’
Option Module (Module#1)	Cluster-1	CHA-1GU	x‘80’
		CHA-1GL	x‘88’
		CHA-1HU	x‘90’
		CHA-1HL	x‘98’
		CHA-1LU	x‘A0’
		CHA-1LL	x‘A8’
	Cluster-2	CHA-2TU	x‘C0’
		CHA-2TL	x‘C8’
		CHA-2UU	x‘D0’
		CHA-2UL	x‘D8’
		CHA-2XU	x‘E0’
		CHA-2XL	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-1AU	x‘00’
		DKA-1AL	x‘08’
	Cluster-2	DKA-2MU	x‘10’
		DKA-2ML	x‘18’
Option Module (Module#1)	Cluster-1	DKA-1LU	x‘20’
		DKA-1LL	x‘28’
	Cluster-2	DKA-2XU	x‘30’
		DKA-2XL	x‘38’

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

Device Module	Cluster	CACHE Location	CM PCB# (HEX)
Basic Module (Module#0)	Cluster-1	CM-1CA	x‘0’
		CM-1CB	x‘2’
		CM-1CE	x‘4’
		CM-1CF	x‘6’
	Cluster-2	CM-2CC	x‘1’
		CM-2CD	x‘3’
		CM-2CG	x‘5’
		CM-2CH	x‘7’
Option Module (Module#1)	Cluster-1	CM-1CJ	x‘8’
		CM-1CK	x‘A’
		CM-1CN	x‘C’
		CM-1CP	x‘E’
	Cluster-2	CM-2CL	x‘9’
		CM-2CM	x‘B’
		CM-2CQ	x‘D’
		CM-2CR	x‘F’

(*7) ESW PCB#: ESW PCB consecutive numbers in the device. See the table below show relations with the PCB Location.

Device Module	Cluster	ESW Location	ESW PCB# (HEX)
Basic Module (Module#0)	Cluster-1	ESW-1SA	x‘0’
		ESW-1SB	x‘2’
	Cluster-2	ESW-2SC	x‘1’
		ESW-2SD	x‘3’
Option Module (Module#1)	Cluster-1	ESW-1SE	x‘4’
		ESW-1SF	x‘6’
	Cluster-2	ESW-2SG	x‘5’
		ESW-2SH	x‘7’

(*8) LR#: LR(MHUB) consecutive numbers in the device. One LR (MHUB) is loaded with CHA PCB and two LRs are loaded with DKA PCB. See the table below show relations with the PCB Location.

Device Module	Cluster	CHA PCB Location	LR# (HEX)
Basic Module (Module#0)	Cluster-1	CHA-1EU	x‘00’
		CHA-1EL	x‘01’
		CHA-1FU	x‘02’
		CHA-1FL	x‘03’
		CHA-1AU	x‘04’
		DKA-1AU	x‘04’ ~ x‘05’
		CHA-1AL	x‘06’
		DKA-1AL	x‘06’ ~ x‘07’
	Cluster-2	CHA-2QU	x‘08’
		CHA-2QL	x‘09’
		CHA-2RU	x‘0A’
		CHA-2RL	x‘0B’
		CHA-2MU	x‘0C’
		DKA-2MU	x‘0C’ ~ x‘0D’
		CHA-2ML	x‘0E’
		DKA-2ML	x‘0E’ ~ x‘0F’
Option Module (Module#1)	Cluster-1	CHA-1GU	x‘10’
		CHA-1GL	x‘11’
		CHA-1HU	x‘12’
		CHA-1HL	x‘13’
		CHA-1LU	x‘14’
		DKA-1LU	x‘14’ ~ x‘15’
		CHA-1LL	x‘16’
		DKA-1LL	x‘16’ ~ x‘17’
	Cluster-2	CHA-2TU	x‘18’
		CHA-2TL	x‘19’
		CHA-2UU	x‘1A’
		CHA-2UL	x‘1B’
		CHA-2XU	x‘1C’
		DKA-2XU	x‘1C’ ~ x‘1D’
		CHA-2XL	x‘1E’
		DKA-2XL	x‘1E’ ~ x‘1F’

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

Device Module	Cluster	CHA PCB Location	DMA# (HEX)
Basic Module (Module#0)	Cluster-1	CHA-1EU	x‘00’ ~ x‘03’
		CHA-1EL	x‘04’ ~ x‘07’
		CHA-1FU	x‘08’ ~ x‘0B’
		CHA-1FL	x‘0C’ ~ x‘0F’
		CHA-1AU	x‘10’ ~ x‘13’
		DKA-1AU	x‘10’ ~ x‘17’
		CHA-1AL	x‘18’ ~ x‘1B’
		DKA-1AL	x‘18’ ~ x‘1F’
	Cluster-2	CHA-2QU	x‘20’ ~ x‘23’
		CHA-2QL	x‘24’ ~ x‘27’
		CHA-2RU	x‘28’ ~ x‘2B’
		CHA-2RL	x‘2C’ ~ x‘2F’
		CHA-2MU	x‘30’ ~ x‘33’
		DKA-2MU	x‘30’ ~ x‘37’
		CHA-2ML	x‘38’ ~ x‘3B’
		DKA-2ML	x‘38’ ~ x‘3F’
Option Module (Module#1)	Cluster-1	CHA-1GU	x‘40’ ~ x‘43’
		CHA-1GL	x‘44’ ~ x‘47’
		CHA-1HU	x‘48’ ~ x‘4B’
		CHA-1HL	x‘4C’ ~ x‘4F’
		CHA-1LU	x‘50’ ~ x‘53’
		DKA-1LU	x‘50’ ~ x‘57’
		CHA-1LL	x‘58’ ~ x‘5B’
		DKA-1LL	x‘58’ ~ x‘5F’
	Cluster-2	CHA-2TU	x‘60’ ~ x‘63’
		CHA-2TL	x‘64’ ~ x‘67’
		CHA-2UU	x‘68’ ~ x‘6B’
		CHA-2UL	x‘6C’ ~ x‘6F’
		CHA-2XU	x‘70’ ~ x‘73’
		DKA-2XU	x‘70’ ~ x‘77’
		CHA-2XL	x‘78’ ~ x‘7B’
		DKA-2XL	x‘78’ ~ x‘7F’

(*10) MFDMA#: MFDMA onsecutive numbers in the device. 16 DMA is loaded with each M/F CHA PCB. See the table below show relations with the PCB Location.

Device Module	Cluster	CHA PCB Location	DMA# (HEX)
Basic Module (Module#0)	Cluster-1	CHA-1EU	x‘000’ ~ x‘00F’
		CHA-1EL	x‘010’ ~ x‘01F’
		CHA-1FU	x‘020’ ~ x‘02F’
		CHA-1FL	x‘030’ ~ x‘03F’
		CHA-1AU	x‘040’ ~ x‘04F’
		CHA-1AL	x‘060’ ~ x‘06F’
	Cluster-2	CHA-2QU	x‘080’ ~ x‘08F’
		CHA-2QL	x‘090’ ~ x‘09F’
		CHA-2RU	x‘0A0’ ~ x‘0AF’
		CHA-2RL	x‘0B0’ ~ x‘0BF’
		CHA-2MU	x‘0C0’ ~ x‘0CF’
		CHA-2ML	x‘0E0’ ~ x‘0EF’
Option Module (Module#1)	Cluster-1	CHA-1GU	x‘100’ ~ x‘10F’
		CHA-1GL	x‘110’ ~ x‘11F’
		CHA-1HU	x‘120’ ~ x‘12F’
		CHA-1HL	x‘130’ ~ x‘13F’
		CHA-1LU	x‘140’ ~ x‘14F’
		CHA-1LL	x‘160’ ~ x‘16F’
	Cluster-2	CHA-2TU	x‘180’ ~ x‘18F’
		CHA-2TL	x‘190’ ~ x‘09F’
		CHA-2UU	x‘1A0’ ~ x‘1AF’
		CHA-2UL	x‘1B0’ ~ x‘1BF’
		CHA-2XU	x‘1C0’ ~ x‘1CF’
		CHA-2XL	x‘1E0’ ~ x‘1EF’

(*11) DRR#: DRR consecutive numbers in the device. Two DRR is loaded with CHA PCB, and four 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-1EU	x‘00’ ~ x‘01’
		CHA-1EL	x‘02’ ~ x‘03’
		CHA-1FU	x‘04’ ~ x‘05’
		CHA-1FL	x‘06’ ~ x‘07’
		CHA-1AU	x‘08’ ~ x‘09’
		DKA-1AU	x‘08’ ~ x‘0B’
		CHA-1AL	x‘0C’ ~ x‘0D’
		DKA-1AL	x‘0C’ ~ x‘0F’
	Cluster-2	CHA-2QU	x‘10’ ~ x‘11’
		CHA-2QL	x‘12’ ~ x‘13’
		CHA-2RU	x‘14’ ~ x‘15’
		CHA-2RL	x‘16’ ~ x‘17’
		CHA-2MU	x‘18’ ~ x‘19’
		DKA-2MU	x‘18’ ~ x‘1B’
		CHA-2ML	x‘1C’ ~ x‘1D’
		DKA-2ML	x‘1C’ ~ x‘1F’
Option Module (Module#1)	Cluster-1	CHA-1GU	x‘20’ ~ x‘21’
		CHA-1GL	x‘22’ ~ x‘23’
		CHA-1HU	x‘24’ ~ x‘25’
		CHA-1HL	x‘26’ ~ x‘27’
		CHA-1LU	x‘28’ ~ x‘29’
		DKA-1LU	x‘28’ ~ x‘2B’
		CHA-1LL	x‘2C’ ~ x‘2D’
		DKA-1LL	x‘2C’ ~ x‘2F’
	Cluster-2	CHA-2TU	x‘30’ ~ x‘31’
		CHA-2TL	x’32’ ~ x’33’
		CHA-2UU	x’34’ ~ x’35’
		CHA-2UL	x’36’ ~ x’37’
		CHA-2XU	x’38’ ~ x’39’
		DKA-2XU	x’38’ ~ x’3B’
		CHA-2XL	x’3C’ ~ x’3D’
		DKA-2XL	x’3C’ ~ x’3F’

(*12) 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-1EU	x‘00’ ~ x‘07’
		CHA-1EL	x‘10’ ~ x‘17’
		CHA-1FU	x‘08’ ~ x‘0F’
		CHA-1FL	x‘18’ ~ x‘1F’
		CHA-1AU	x‘40’ ~ x‘47’
		CHA-1AL	x‘50’ ~ x‘57’
	Cluster-2	CHA-2QU	x‘80’ ~ x‘87’
		CHA-2QL	x‘90’ ~ x‘97’
		CHA-2RU	x‘88’ ~ x‘8F’
		CHA-2RL	x‘98’ ~ x‘9F’
		CHA-2MU	x‘C0’ ~ x‘C7’
		CHA-2ML	x‘D0’ ~ x‘D7’
Option Module (Module#1)	Cluster-1	CHA-1GU	x‘20’ ~ x‘27’
		CHA-1GL	x‘30’ ~ x‘37’
		CHA-1HU	x‘28’ ~ x‘2F’
		CHA-1HL	x‘38’ ~ x‘3F’
		CHA-1LU	x‘60’ ~ x‘67’
		CHA-1LL	x‘70’ ~ x‘77’
	Cluster-2	CHA-2TU	x‘A0’ ~ x‘A7’
		CHA-2TL	x‘B0’ ~ x‘B7’
		CHA-2UU	x‘A8’ ~ x‘AF’
		CHA-2UL	x‘B8’ ~ x‘BF’
		CHA-2XU	x‘E0’ ~ x‘E7’
		CHA-2XL	x‘F0’ ~ x‘F7’

(*13) 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-1EU	1A/3A	x‘00’	5A/7A	x‘02’	1B/3B	x‘04’	5B/7B	x‘06’
CHA-1FU	1E/3E	x‘08’	5E/7E	x‘0A’	1F/3F	x‘0C’	5F/7F	x‘0E’
CHA-1EL	1C/3C	x‘10’	5C/7C	x‘12’	1D/3D	x‘14’	5D/7D	x‘16’
CHA-1FL	1G/3G	x‘18’	5G/7G	x‘1A’	1H/3H	x‘1C’	5H/7H	x‘1E’
CHA-1GU	1J/3J	x‘20’	5J/7J	x‘22’	1K/3K	x‘24’	5K/7K	x‘26’
CHA-1HU	1N/3N	x‘28’	5N/7N	x‘2A’	1P/3P	x‘2C’	5P/7P	x‘2E’
CHA-1GL	1L/3L	x‘30’	5L/7L	x‘32’	1M/3M	x‘34’	5M/7M	x‘36’
CHA-1HL	1Q/3Q	x‘38’	5Q/7Q	x‘3A’	1R/3R	x‘3C’	5R/7R	x‘3E’
CHA-1AU	9A/BA	x‘40’	DA/FA	x‘42’	9B/BB	x‘44’	DB/FB	x‘46’
CHA-1AL	9C/BC	x‘50’	DC/FC	x‘52’	9D/BD	x‘54’	DD/FD	x‘56’
CHA-1LU	9J/BJ	x‘60’	DJ/FJ	x‘62’	9K/BK	x‘64’	DK/FK	x‘66’
CHA-1LL	9L/BL	x‘70’	DL/FL	x‘72’	9M/BM	x‘74’	DM/FM	x‘76’
CHA-2QU	2A/4A	x‘80’	6A/8A	x‘82’	2B/4B	x‘84’	6B/8B	x‘86’
CHA-2RU	2E/4E	x‘88’	6E/8E	x‘8A’	2F/4F	x‘8C’	6F/8F	x‘8E’
CHA-2QL	2C/4C	x‘90’	6C/8C	x‘92’	2D/4D	x‘94’	6D/8D	x‘96’
CHA-2RL	2G/4G	x‘98’	6G/8G	x‘9A’	2H/4H	x‘9C’	6H/8H	x‘9E’
CHA-2TU	2J/4J	x‘A0’	6J/8J	x‘A2’	2K/4K	x‘A4’	6K/8K	x‘A6’
CHA-2UU	2N/4N	x‘A8’	6N/8N	x‘AA’	2P/4P	x‘AC’	6P/8P	x‘AE’
CHA-2TL	2L/4L	x‘B0’	6L/8L	x‘B2’	2M/4M	x‘B4’	6M/8M	x‘B6’
CHA-2UL	2Q/4Q	x‘B8’	6Q/8Q	x‘BA’	2R/4R	x‘BC’	6R/8R	x‘BE’
CHA-2MU	AA/CA	x‘C0’	EA/GA	x‘C2’	AB/CB	x‘C4’	EB/GB	x‘C6’
CHA-2ML	AC/CC	x‘D0’	EC/GC	x‘D2’	AD/CD	x‘D4’	ED/GD	x‘D6’
CHA-2XU	AJ/CJ	x‘E0’	EJ/GJ	x‘E2’	AK/CK	x‘E4’	EK/GK	x‘E6’
CHA-2XL	AL/CL	x‘F0’	EL/GL	x‘F2’	AM/CM	x‘F4’	EM/GM	x‘F6’

(*14) SASCLT#: 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.

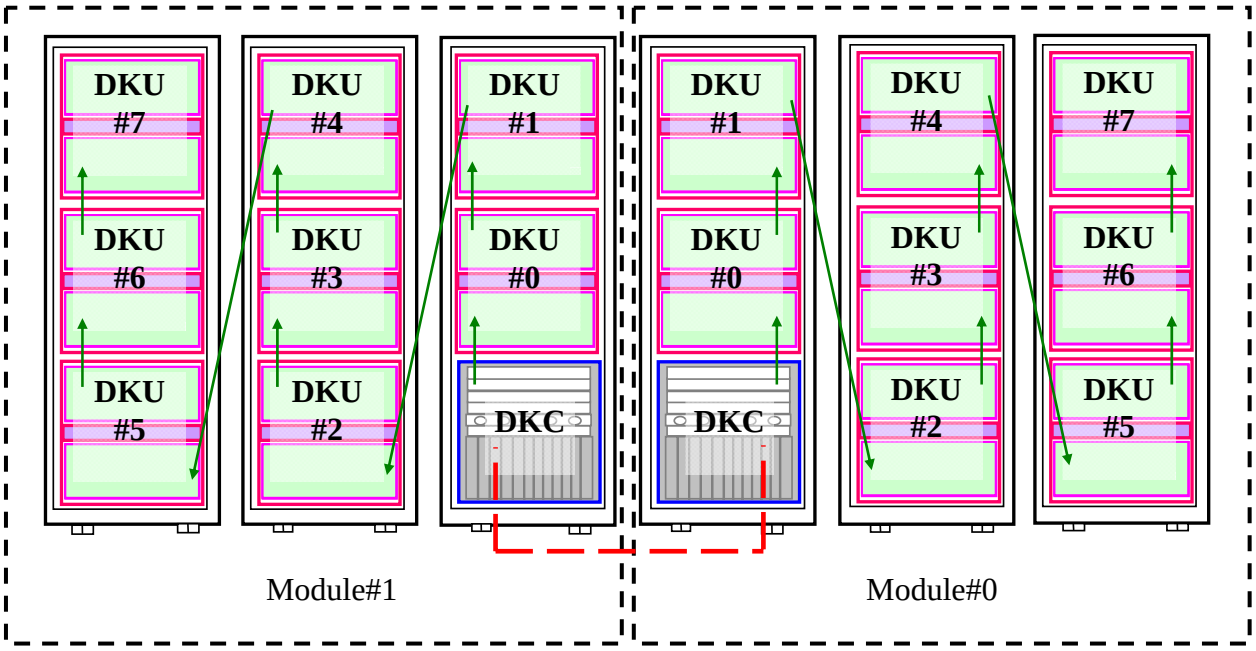
In addition, about “CDEV#/RDEV# (C#/R#)” and “Disk Drive Number”, it is referred to “Physical-Logical Device Matrixes ” of THEORY05-10.

Device Module	Cluster	DKA PCB Location	SASCTL# (HEX)	SAS Port# (HEX)	CDEV# (HEX)
Basic Module (Module#0)	Cluster-1	DKA-1AU	0x‘00’	0x‘00’	0x‘00’ / 0x‘04’
				0x‘01’	0x‘01’ / 0x‘05’
			0x‘01’	0x‘02’	0x‘02’ / 0x‘06’
				0x‘03’	0x‘03’ / 0x‘07’
		DKA-1AL	0x‘02’	0x‘04’	0x‘00’ / 0x‘04’
				0x‘05’	0x‘01’ / 0x‘05’
			0x‘03’	0x‘06’	0x‘02’ / 0x‘06’
				0x‘07’	0x‘03’ / 0x‘07’
	Cluster-2	DKA-2MU	0x‘04’	0x‘08’	0x‘00’ / 0x‘04’
				0x‘09’	0x‘01’ / 0x‘05’
			0x‘05’	0x‘0A’	0x‘02’ / 0x‘06’
				0x‘0B’	0x‘03’ / 0x‘07’
		DKA-2ML	0x‘06’	0x‘0C’	0x‘00’ / 0x‘04’
				0x‘0D’	0x‘01’ / 0x‘05’
			0x‘07’	0x‘0E’	0x‘02’ / 0x‘06’
				0x‘0F’	0x‘03’ / 0x‘07’
Option Module (Module#1)	Cluster-1	DKA-1LU	0x‘08’	0x‘10’	0x‘08’ / 0x‘0C’
				0x‘11’	0x‘09’ / 0x‘0D’
			0x‘09’	0x‘12’	0x‘0A’ / 0x‘0E’
				0x‘13’	0x‘0B’ / 0x‘0F’
		DKA-1LL	0x‘0A’	0x‘14’	0x‘08’ / 0x‘0C’
				0x‘15’	0x‘09’ / 0x‘0D’
			0x‘0B’	0x‘16’	0x‘0A’ / 0x‘0E’
				0x‘17’	0x‘0B’ / 0x‘0F’
	Cluster-2	DKA-2XU	0x‘0C’	0x‘18’	0x‘08’ / 0x‘0C’
				0x‘19’	0x‘09’ / 0x‘0D’
			0x‘0D’	0x‘1A’	0x‘0A’ / 0x‘0E’
				0x‘1B’	0x‘0B’ / 0x‘0F’
		DKA-2XL	0x‘0E’	0x‘1C’	0x‘08’ / 0x‘0C’
				0x‘1D’	0x‘09’ / 0x‘0D’
			0x‘0F’	0x‘1E’	0x‘0A’ / 0x‘0E’
				0x‘1F’	0x‘0B’ / 0x‘0F’

(*15) 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	CMMG# (HEX)
CM00 & CM01	x'0'
CM10 & CM11	x'1'
CM20 & CM21	x'2'
CM30 & CM31	x'3'

(*16) DKU #: '0' ~ x'7' indicates the DKU number. See the figure below.



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

(*18) When SIM to show as follows was reported at the same time, have priority overthis 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

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

(*20) Recover LDEVs according to the procedure shown in TRBL05-360.

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

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

(*23) 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.

(*24) Recover the error according to the procedure shown in TRBL05-530.

(*25) Recover the error according to the procedure shown in TRBL05-160.

(*26) Reason Code

x‘E1’, x‘10’: No DCR PP
x‘E2’, x‘20’: Subsystem 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’: P/S OFF
x‘E9’ x‘90’: PreStaging canceled
x‘EA’,x‘a0’: Cache over loaded
x‘EB’,x‘b0’: Some MP’s blockade

(*27) 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

(*28) 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.

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

(*30) 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

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

(*32) 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

(*33) 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.

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

	0	1	2	3	4	5	6	7
byte40 byte41	Port number (Eg. CL1-A=0, CL3-A=1)							
byte42 byte 43 byte 44 byte 45	HDEV number							
byte 46 byte 47 byte 48 byte 49	LDEV number of executing command processing							
byte 50 byte 51 byte 52 byte 53 byte 54 byte 55 byte 56 byte 57	Starting LBA address in CDB							
byte 58 byte 59 byte 60 byte 61	Transfer Length in CDB							
byte 62 byte 63 byte 64 byte 65 byte 66 byte 67 byte 68 byte 69	World Wide Name (WWN) of the host which issued the write request							
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							

(*35) 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 subsystem serial number	Not used					
byte 0x75 ~ byte 0x78	LDEV number							
byte 0x79 ~ byte 0x7F	Not used							

byte0x74 bit0: Bit determining whether the information identifying Binary/ASCII for the connected subsystem serial number is valid

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

byte0x74 bit1: Information identifying Binary/ASCII for the connected subsystem serial number

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

Serial number is not acquired from external storage, NULL (0) is set in the Serial number of the connected subsystem.
Moreover, Serial number of the connected subsystem 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 (*1)	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

(*1) “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.

(*36) 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							

(*37) 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							

(*38) 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

(*39) 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.

(*40) The DKC emulation type determines whether the SIM will be reported to the host, as explained below;
- DKC emulation type is 2105 or 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, ‘*30’ is higher priority than ‘*40’)
- Others
  It is decided by setting ‘*30’.

(*41) 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).

(*42) Refer to TRBL24-10 except a normal end.

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

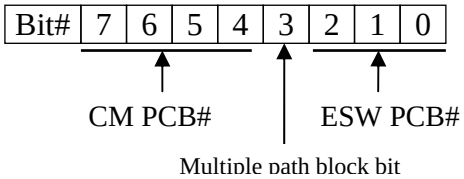
	0	1	2	3	4	5	6	7
byte 0x40 byte 0x41	Port number (ex. CL1-A=0, CL1-B=1)							
byte 0x42 byte 0x43	LDEV number(lower 2 bytes)							
byte 0x44 ~ byte 0x47	VDEV number							
byte 0x48 ~ byte 0x4F	Forehand WWN of External Storage connection							
byte 0x50 ~ byte 0x5B	Product Number of External Storage							
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							

(*44) Mainframe Fibre DM is contained

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

(*46) XX shows the LR#(*8). When the paths to multiple LRs are blocked at the same time, the value of 0xFF is taken.

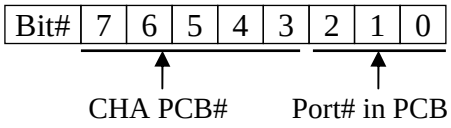
(*47) High 4 Bit of YY indicates the CM PCB#(*6). Low 3 Bit of YY indicates the ESW PCB#(*7). When the paths to multiple CM PCBs are blocked at the same time, high 4 bit takes the value of 0xF and bit3 takes the value of 1.



(*48) High 4 Bit of YY indicates the MPB#(*3). Low 3 Bit of YY indicates the ESW PCB#(*7). When the paths to multiple MPBs are blocked at the same time, high 4 bit takes the value of 0xF.

(*49) X shows the MPB#(*3). When the paths to multiple MPBs are blocked at the same time, the value of 0xF is taken.

(*50) 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-1EU	x‘00’ ~ x‘07’
		CHA-1EL	x‘08’ ~ x‘0F’
		CHA-1FU	x‘10’ ~ x‘17’
		CHA-1FL	x‘18’ ~ x‘1F’
		CHA-1AU	x‘20’ ~ x‘27’
		CHA-1AL	x‘28’ ~ x‘2F’
	Cluster-2	CHA-2QU	x‘40’ ~ x‘47’
		CHA-2QL	x‘48’ ~ x‘4F’
		CHA-2RU	x‘50’ ~ x‘57’
		CHA-2RL	x‘58’ ~ x‘5F’
		CHA-2MU	x‘60’ ~ x‘67’
		CHA-2ML	x‘68’ ~ x‘6F’
Option Module (Module#1)	Cluster-1	CHA-1GU	x‘80’ ~ x‘87’
		CHA-1GL	x‘88’ ~ x‘8F’
		CHA-1HU	x‘90’ ~ x‘97’
		CHA-1HL	x‘98’ ~ x‘9F’
		CHA-1LU	x‘A0’ ~ x‘A7’
		CHA-1LL	x‘A8’ ~ x‘AF’
	Cluster-2	CHA-2TU	x‘C0’ ~ x‘C7’
		CHA-2TL	x‘C8’ ~ x‘CF’
		CHA-2UU	x‘D0’ ~ x‘D7’
		CHA-2UL	x‘D8’ ~ x‘DF’
		CHA-2XU	x‘E0’ ~ x‘E7’
		CHA-2XL	x‘E8’ ~ x‘EF’

(*51) SSD warning is also appeared when the battery controller on the CMPCB is failed. In that case, the possible exchange parts is CMPCB.

(*52) When the MP LM DIMM is reported as an Action Code, replace the MP LM DIMM first.

(*53) Recover the error according to the procedure shown in TRBL05-930.

(*54) 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 10 minutes. It takes about 80 minutes by the recovery at 8 DKU BOX configuration.

(*55) HDDFAN#
(X: REFCODE AC77XX→0, AC78XX→1)

Byte 13	Location
00	HDDFAN-X00/X04 DOOR
01	HDDFAN-X01/X05 DOOR
02	HDDFAN-X02/X06 DOOR
03	HDDFAN-X03/X07 DOOR
10	HDDFAN-X10/X14 DOOR
11	HDDFAN-X11/X15 DOOR
12	HDDFAN-X12/X16 DOOR
13	HDDFAN-X13/X17 DOOR
20	HDDFAN-X20/X24 DOOR
21	HDDFAN-X21/X25 DOOR
22	HDDFAN-X22/X26 DOOR
23	HDDFAN-X23/X27 DOOR
30	HDDFAN-X30/X34 DOOR
31	HDDFAN-X31/X35 DOOR
32	HDDFAN-X32/X36 DOOR
33	HDDFAN-X33/X37 DOOR

Byte 13	Location
40	HDDFAN-X40/X44 DOOR
41	HDDFAN-X41/X45 DOOR
42	HDDFAN-X42/X46 DOOR
43	HDDFAN-X43/X47 DOOR
50	HDDFAN-X50/X54 DOOR
51	HDDFAN-X51/X55 DOOR
52	HDDFAN-X52/X56 DOOR
53	HDDFAN-X53/X57 DOOR
60	HDDFAN-X60/X64 DOOR
61	HDDFAN-X61/X65 DOOR
62	HDDFAN-X62/X66 DOOR
63	HDDFAN-X63/X67 DOOR
70	HDDFAN-X70/X74 DOOR
71	HDDFAN-X71/X75 DOOR
72	HDDFAN-X72/X76 DOOR
73	HDDFAN-X73/X77 DOOR

(*56) Please replace latter located SSW one by one, when two or more the SSW ACC exists.

(*57) When three times of HDDFAN DOOR checks after the maintenance work fail consecutively, this SIM is reported.

(*58) 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 TRBL07-1070.

(*59) 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.

(*60) 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%.

(*61) 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

(*62) For Flash Module Drive battery capacity shortage, refer to TRBL40-10.

(*63) For “Cache battery is being charged”, refer to TRBL41-10.

(*64) Even if HDU shown in SIM does not do electric power off, if the connected HDU near the DKA side does power off, this SIM is reported.

(*65) Self replacement of PDEV will be failed. Please replace it to new one.

2.2 SIM Reference Codes Detected by the SVP

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

Error			REF code 22,23,13	SIM 28	Level of error	Host report	Remarks
Environmental error	Logic PS voltage alarm	DKC-0 Cluster 1	BF2010	F1	Moderate	Yes	
		DKC-0 Cluster 2	BF2011	F1	Moderate	Yes	
		DKC-1 Cluster 1	BF2012	F1	Moderate	Yes	
		DKC-1 Cluster 2	BF2013	F1	Moderate	Yes	
	Sub PS voltage alarm	DKC-0 Cluster 1	BF2110	F1	Moderate	Yes	
		DKC-0 Cluster 2	BF2111	F1	Moderate	Yes	
		DKC-1 Cluster 1	BF2112	F1	Moderate	Yes	
		DKC-1 Cluster 2	BF2113	F1	Moderate	Yes	
	DKCPS warning	DKC-0 DKCPS-0	BF4010	F1	Moderate	Yes	
		DKC-1 DKCPS-0	BF4012	F1	Moderate	Yes	
		DKC-0 DKCPS-1	BF4110	F1	Moderate	Yes	
		DKC-1 DKCPS-1	BF4112	F1	Moderate	Yes	
		DKC-0 DKCPS-2	BF4210	F1	Moderate	Yes	
		DKC-1 DKCPS-2	BF4212	F1	Moderate	Yes	
		DKC-0 DKCPS-3	BF4310	F1	Moderate	Yes	
		DKC-1 DKCPS-3	BF4312	F1	Moderate	Yes	

Error			REF code 22,23,13	SIM 28	Level of error	Host report	Remarks
Environmental error	DKUPS warning	DKUPS	BF50XX	F1	Moderate	Yes	(*1)
	DKCFAN warning	DKC-0 DKCFAN-10	BF7010	F1	Moderate	Yes	
		DKC-0 DKCFAN-20	BF7011	F1	Moderate	Yes	
		DKC-1 DKCFAN-10	BF7012	F1	Moderate	Yes	
		DKC-1 DKCFAN-20	BF7013	F1	Moderate	Yes	
		DKC-0 DKCFAN-11	BF7110	F1	Moderate	Yes	
		DKC-0 DKCFAN-21	BF7111	F1	Moderate	Yes	
		DKC-1 DKCFAN-11	BF7112	F1	Moderate	Yes	
		DKC-1 DKCFAN-21	BF7113	F1	Moderate	Yes	
		DKC-0 DKCFAN-12	BF7210	F1	Moderate	Yes	
		DKC-0 DKCFAN-22	BF7211	F1	Moderate	Yes	
		DKC-1 DKCFAN-12	BF7212	F1	Moderate	Yes	
		DKC-1 DKCFAN-22	BF7213	F1	Moderate	Yes	
		DKC-0 DKCFAN-13	BF7310	F1	Moderate	Yes	
		DKC-0 DKCFAN-23	BF7311	F1	Moderate	Yes	
		DKC-1 DKCFAN-13	BF7312	F1	Moderate	Yes	
		DKC-1 DKCFAN-23	BF7313	F1	Moderate	Yes	

Error			REF code 22,23,13	SIM 28	Level of error	Host report	Remarks
Environmental error	DKCFAN warning	DKC-0 DKCFAN-14	BF7410	F1	Moderate	Yes	
		DKC-0 DKCFAN-24	BF7411	F1	Moderate	Yes	
		DKC-1 DKCFAN-14	BF7412	F1	Moderate	Yes	
		DKC-1 DKCFAN-24	BF7413	F1	Moderate	Yes	
		DKC-0 DKCFAN-15	BF7510	F1	Moderate	Yes	
		DKC-0 DKCFAN-25	BF7511	F1	Moderate	Yes	
		DKC-1 DKCFAN-15	BF7512	F1	Moderate	Yes	
		DKC-1 DKCFAN-25	BF7513	F1	Moderate	Yes	
		DKC-0 DKCFAN-16	BF7610	F1	Moderate	Yes	
		DKC-0 DKCFAN-26	BF7611	F1	Moderate	Yes	
		DKC-1 DKCFAN-16	BF7612	F1	Moderate	Yes	
		DKC-1 DKCFAN-26	BF7613	F1	Moderate	Yes	
	JP remains	SVP PS ON/OFF (SVP-BASIC)	BF85A3	F1	Moderate	Yes	
		SVP PS ON/OFF (SVP-OPTION)	BF86A3	F1	Moderate	Yes	
	MN Access error	MN1	BF90A0	F1	Moderate	No	
		MN2	BF90A1	F1	Moderate	No	
		MN1 READY-OFF	BF9AA0	F1	Moderate	No	
		MN2 READY-OFF	BF9AA1	F1	Moderate	No	
	MN version disagreement		BF9BA4	F1	Moderate	No	

Error			REF code 22,23,13	SIM 28	Level of error	Host report	Remarks
Environmental error	Logic PS voltage alarm disagreement	DKC-0 Cluster 1	BFA0A0	F1	Moderate	No	
		DKC-0 Cluster 2	BFA0A1	F1	Moderate	No	
		DKC-1 Cluster 1	BFA0A4	F1	Moderate	No	
		DKC-1 Cluster 2	BFA0A5	F1	Moderate	No	
	Sub PS voltage alarm disagreement	DKC-0 Cluster 1	BFA1A0	F1	Moderate	No	
		DKC-0 Cluster 2	BFA1A1	F1	Moderate	No	
		DKC-1 Cluster 1	BFA1A4	F1	Moderate	No	
		DKC-1 Cluster 2	BFA1A5	F1	Moderate	No	
	Extrenal temperature disagreement	DKC-0	BFA2A0	F1	Moderate	No	
		DKC-1	BFA2A4	F1	Moderate	No	
	Internal temperature alarm disagreement	DKC-0 Cluster 1	BFA3A0	F1	Moderate	No	
		DKC-0 Cluster 2	BFA3A1	F1	Moderate	No	
		DKC-1 Cluster 1	BFA3A4	F1	Moderate	No	
		DKC-1 Cluster 2	BFA3A5	F1	Moderate	No	
	Internal temperature warning disagreement	DKC-0 Cluster 1	BFA4A0	F1	Moderate	No	
		DKC-0 Cluster 2	BFA4A1	F1	Moderate	No	
		DKC-1 Cluster 1	BFA4A4	F1	Moderate	No	
		DKC-1 Cluster 2	BFA4A5	F1	Moderate	No	

Error			REF code 22,23,13	SIM 28	Level of error	Host report	Remarks
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 Cluster 1	BFA6A0	F1	Moderate	No	
		DKC-0 Cluster 2	BFA6A1	F1	Moderate	No	
		DKC-1 Cluster 1	BFA6A4	F1	Moderate	No	
		DKC-1 Cluster 2	BFA6A5	F1	Moderate	No	
	SYSON I/F disagreement	DKC-0 Cluster 1	BFA7A0	F1	Moderate	No	
		DKC-0 Cluster 2	BFA7A1	F1	Moderate	No	
		DKC-1 Cluster 1	BFA7A4	F1	Moderate	No	
		DKC-1 Cluster 2	BFA7A5	F1	Moderate	No	
	DKCPS I/F disagreement	DKC-0 DKCPS-0	BFA8A0	F1	Moderate	No	
		DKC-1 DKCPS-0	BFA8A4	F1	Moderate	No	
		DKC-0 DKCPS-1	BFA9A0	F1	Moderate	No	
		DKC-1 DKCPS-1	BFA9A4	F1	Moderate	No	
		DKC-0 DKCPS-2	BFAAA0	F1	Moderate	No	
		DKC-1 DKCPS-2	BFAAA4	F1	Moderate	No	
		DKC-0 DKCPS-3	BFABA0	F1	Moderate	No	
		DKC-1 DKCPS-3	BFABA4	F1	Moderate	No	

Error			REF code 22,23,13	SIM 28	Level of error	Host report	Remarks
Environmental error	Communication Error between SSVP 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 connection error	BFAEA1	F1	Moderate	No	
	PCTL/PNL abnormaly	DKC-0 MN1 detect	BFAFA0	F1	Moderate	No	(*16)
		DKC-0 MN2 detect	BFAFA1	F1	Moderate	No	(*16)
		DKC-1 MN1 detect	BFAFA4	F1	Moderate	No	(*16)
		DKC-1 MN2 detect	BFAFA5	F1	Moderate	No	(*16)
		DKC-0 MN disagreement	BFB0A0	F1	Moderate	No	
		DKC-1 MN disagreement	BFB0A4	F1	Moderate	No	
		DKC-0 MN communication error	BFB1A0	F1	Moderate	No	
		DKC-1 MN communication error	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 22,23,13	SIM 28	Level of error	Host report	Remarks
Environmental error	PCTL/PNL abnormaly	DKC-0 EPO disagreement	BFB4A0	F1	Moderate	No	
		DKC-1 EPO disagreement	BFB4A4	F1	Moderate	No	
	Cable connection error	Between DKC-0 and DKC-1	BFB5A0	F1	Moderate	No	
	FAN Warning		BFC0XX	F1	Moderate	Yes	(*2), (*17)
	FAN fuse has blown		BFC4XX	F1	Moderate	Yes	(*2)
	HDDPWR Warning	HDDPWR	BFDXXX	F1	Moderate	No	(*7)
	Duplex SVP Setup fail		BFE3A2	F1	Moderate	Yes	
	SVP FAN1 Error		BFE400	F1	Moderate	No	
	SVP FAN2 Error		BFE401	F1	Moderate	No	
	SVP Temperature Error		BFE403	F1	Moderate	No	
	HDD Error (SMART)		BFE404	F1	Moderate	No	
	SINGLEBIT Error		BFE405	F1	Moderate	No	
	SSW data disagreement	SSW	BFF0XX	F1	Moderate	No	(*4)
	SSW access error	SSW	BFF1XX	F1	Moderate	No	(*4)

Error			REF code 22,23,13	SIM 28	Level of error	Host report	Remarks
SVP failure	Logical inconsistency		70XX00	F1	Moderate	No	(*5)
	HEAP error		71XX00	F1	Moderate	No	(*5)
	File error		72XX00	F1	Moderate	No	(*5)
	SSVP error		74XXXX	F1	Moderate	Yes	(*6)
	Windows error		75XX00	F1	Moderate	No	(*5)
	CUDG3 detected error	CHA/DKA	760000	F1	Moderate	No	
		ESW	760300	F1	Moderate	No	
		CACHE	760400	F1	Moderate	No	
	LCDG3 detected error		761000	F1	Moderate	No	
	BOOT detected error		7900XY	F1	Moderate	No	(*8), (*10)
	ISDN Router failure		7B0003	F1	Moderate	Yes	
	Invalid SIM data detection		7C0500	F1	Service	No	
Processor failure / SVP failure	DKC processor status unviewable and uncontrollable (*18)		73XXYY	F1	Moderate	No	XX: (*5) YY: (*8) (See TRBL05-40)
End status of remote microprogram exchange	Normal end		7A0000	F1	Service	No	
	Abnormal end (SVP)		7A0100	F1	Service	No	
	Abnormal end (MP)		7A0200	F1	Service	No	
	Version check error		7A03XX	F1	Service	No	(*7)
	Sum check error		7A04XX	F1	Service	No	(*7)
	HTP patch error		7A05XY	F1	Service	No	(*9)
	Warning (Configuration inconsistency)		7A1000	F1	Service	No	
	Warning (SSVP busy)		7A1100	F1	Service	No	
	Warning (HTP busy)		7A12XY	F1	Service	No	(*9)
	Internet download error		7A2000	F1	Service	No	
	Discontinuation by the user		7A2300	F1	Service	No	
Reboot Stop	SVP reboot stop (FD Inserted)		7C0000	F1	Moderate	No	
Battery Check	Battery life is over		7C010X	F1	Service	No	(*15)
Log output failure	Audit Log failure of 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 22,23,13	SIM 28	Level of error	Host report	Remarks
Situation Observation Error	Cache Write Pending Ratio Error		7E00XX	F2	Moderate	No	(*13)
	Cache MCU Side File Use Ratio Error		7E02XX	F2	Moderate	No	(*13)
	Cache Use Ratio Error		7E05XX	F2	Moderate	No	(*13)
	MP Operating Ratio Error	MP	7E12XY	F1	Moderate	No	(*8)
	Loss Of Signal Count (Fibre) Excess		7E20XY	F1	Moderate	No	(*9)
	Bad Received Character Count (Fibre) Excess		7E21XY	F1	Moderate	No	(*9)
	Loss Of Synchronization Count (Fibre) Excess		7E22XY	F1	Moderate	No	(*9)
	Link Failure Count (Fibre) Excess		7E23XY	F1	Moderate	No	(*9)
	Received EOFa Count (Fibre) Excess		7E24XY	F1	Moderate	No	(*9)
	Discarded Frame Count (Fibre) Excess		7E25XY	F1	Moderate	No	(*9)
	Bad CRC Count (Fibre) Excess		7E26XY	F1	Moderate	No	(*9)
	Protocol Error Count (Fibre) Excess		7E27XY	F1	Moderate	No	(*9)
	Expired Frame Count (Fibre) Excess		7E28XY	F1	Moderate	No	(*9)
	HTP/FNP multiplicity excess		7E29XY	F1	Moderate	No	(*9)
	HTP/FNP read data transfer ratio error		7E2CXY	F1	Moderate	No	(*9)
	HTP/FNP write data transfer ratio error		7E2DXY	F1	Moderate	No	(*9)
	HTP/FNP operating ratio error		7E2EXY	F1	Moderate	No	(*9)
	Read Hit Ratio Excess		7E3000	FE	Moderate	No	
	Link Failure Count (FCoE) Excess		7E40XY	F1	Moderate	No	(*9)
	Virtual Link Failure Count (FCoE) Excess		7E41XY	F1	Moderate	No	(*9)
	Symbol Error Count (FCoE) Excess		7E43XY	F1	Moderate	No	(*9)
	FCS Error Count (FCoE) Excess		7E45XY	F1	Moderate	No	(*9)

Error		REF code 22,23,13	SIM 28	Level of error	Host report	Remarks
Pair Failure SIM Reduce	TC-MF/TC	7FF100	F1	Service	No	
	SI-MF/SI	7FF102	F1	Service	No	
	UR	7FF103	F1	Service	No	
	CoW/TI	7FF104	F1	Service	No	
	FlashCopy (R)	7FF105	F1	Service	No	
Dual SVP	Standby SVP fail	7FF2XX	F1	Moderate	No	(*12)
	SVP fail over	7FF3XX	F1	Moderate	No	(*12)
Virus detected	Clean virus from file	7FF4XX	F1	Service	Yes	(*12)
	Quarantine infected file	7FF5XX	F1	Moderate	Yes	(*12)
	Leave alone	7FF6XX	F1	Serious	Yes	(*12)
SVP failure License key	The term of validity is over	7FF7XX	F1	Serious	Yes	(*11)
	The capacity of validity is over	7FF8XX	F1	Serious	Yes	(*11)
	The PP is invalid by assumption PP invalidity	7FF9XX	F1	Serious	Yes	(*11)
Synchronization time	Synchronization time failure	7FFA00	F1	Service	Yes	
Dump received	WCHK1 dump	3080XY	F1	Moderate	No	(*8), (*14)
	ABEND dump	3081XY	F1	Moderate	No	(*8)
Processor error	DKC Blockade	30A100	F1	Acute	Yes	

(*1) Error Section (DKU part (UBX/SBX))

Byte 13	Error Section
00	DKUPS-000
01	DKUPS-001
02	DKUPS-002
03	DKUPS-003
10	DKUPS-010
11	DKUPS-011
12	DKUPS-012
13	DKUPS-013
20	DKUPS-020
21	DKUPS-021
22	DKUPS-022
23	DKUPS-023
30	DKUPS-030
31	DKUPS-031
32	DKUPS-032
33	DKUPS-033
40	DKUPS-040
41	DKUPS-041
42	DKUPS-042
43	DKUPS-043
50	DKUPS-050
51	DKUPS-051
52	DKUPS-052
53	DKUPS-053
60	DKUPS-060
61	DKUPS-061
62	DKUPS-062
63	DKUPS-063
70	DKUPS-070
71	DKUPS-071
72	DKUPS-072
73	DKUPS-073

Byte 13	Error Section
08	DKUPS-100
09	DKUPS-101
0a	DKUPS-102
0b	DKUPS-103
18	DKUPS-110
19	DKUPS-111
1a	DKUPS-112
1b	DKUPS-113
28	DKUPS-120
29	DKUPS-121
2a	DKUPS-122
2b	DKUPS-123
38	DKUPS-130
39	DKUPS-131
3a	DKUPS-132
3b	DKUPS-133
48	DKUPS-140
49	DKUPS-141
4a	DKUPS-142
4b	DKUPS-143
58	DKUPS-150
59	DKUPS-151
5a	DKUPS-152
5b	DKUPS-153
68	DKUPS-160
69	DKUPS-161
6a	DKUPS-162
6b	DKUPS-163
78	DKUPS-170
79	DKUPS-171
7a	DKUPS-172
7b	DKUPS-173

(*1) Error Section (DKU part (FBX)) (1)

Byte 13	Error Section
00	DKUPS-0000
01	DKUPS-0001
02	DKUPS-0010
03	DKUPS-0011
04	DKUPS-0020
05	DKUPS-0021
06	DKUPS-0030
07	DKUPS-0031
10	DKUPS-0100
11	DKUPS-0101
12	DKUPS-0110
13	DKUPS-0111
14	DKUPS-0120
15	DKUPS-0121
16	DKUPS-0130
17	DKUPS-0131
20	DKUPS-0200
21	DKUPS-0201
22	DKUPS-0210
23	DKUPS-0211
24	DKUPS-0220
25	DKUPS-0221
26	DKUPS-0230
27	DKUPS-0231
30	DKUPS-0300
31	DKUPS-0301
32	DKUPS-0310
33	DKUPS-0311
34	DKUPS-0320
35	DKUPS-0321
36	DKUPS-0330
37	DKUPS-0331

Byte 13	Error Section
08	DKUPS-1000
09	DKUPS-1001
0a	DKUPS-1010
0b	DKUPS-1011
0c	DKUPS-1020
0d	DKUPS-1021
0e	DKUPS-1030
0f	DKUPS-1031
18	DKUPS-1100
19	DKUPS-1101
1a	DKUPS-1110
1b	DKUPS-1111
1c	DKUPS-1120
1d	DKUPS-1121
1e	DKUPS-1130
1f	DKUPS-1131
28	DKUPS-1200
29	DKUPS-1201
2a	DKUPS-1210
2b	DKUPS-1211
2c	DKUPS-1220
2d	DKUPS-1221
2e	DKUPS-1230
2f	DKUPS-1231
38	DKUPS-1300
39	DKUPS-1301
3a	DKUPS-1310
3b	DKUPS-1311
3c	DKUPS-1320
3d	DKUPS-1321
3e	DKUPS-1330
3f	DKUPS-1331

(*1) Error Section (DKU part (FBX)) (2)

Byte 13	Error Section
40	DKUPS-0400
41	DKUPS-0401
42	DKUPS-0410
43	DKUPS-0411
44	DKUPS-0420
45	DKUPS-0421
46	DKUPS-0430
47	DKUPS-0431
50	DKUPS-0500
51	DKUPS-0501
52	DKUPS-0510
53	DKUPS-0511
54	DKUPS-0520
55	DKUPS-0521
56	DKUPS-0530
57	DKUPS-0531
60	DKUPS-0600
61	DKUPS-0601
62	DKUPS-0610
63	DKUPS-0611
64	DKUPS-0620
65	DKUPS-0621
66	DKUPS-0630
67	DKUPS-0631
70	DKUPS-0700
71	DKUPS-0701
72	DKUPS-0710
73	DKUPS-0711
74	DKUPS-0720
75	DKUPS-0721
76	DKUPS-0730
77	DKUPS-0731

Byte 13	Error Section
48	DKUPS-1400
49	DKUPS-1401
4a	DKUPS-1410
4b	DKUPS-1411
4c	DKUPS-1420
4d	DKUPS-1421
4e	DKUPS-1430
4f	DKUPS-1431
58	DKUPS-1500
59	DKUPS-1501
5a	DKUPS-1510
5b	DKUPS-1511
5c	DKUPS-1520
5d	DKUPS-1521
5e	DKUPS-1530
5f	DKUPS-1531
68	DKUPS-1600
69	DKUPS-1601
6a	DKUPS-1610
6b	DKUPS-1611
6c	DKUPS-1620
6d	DKUPS-1621
6e	DKUPS-1630
6f	DKUPS-1631
78	DKUPS-1700
79	DKUPS-1701
7a	DKUPS-1710
7b	DKUPS-1711
7c	DKUPS-1720
7d	DKUPS-1721
7e	DKUPS-1730
7f	DKUPS-1731

(*2) Error Section (DKU part)

Byte 13	Error Section
00	HDDFAN-000
01	HDDFAN-001
02	HDDFAN-002
03	HDDFAN-003
04	HDDFAN-004
05	HDDFAN-005
06	HDDFAN-006
07	HDDFAN-007
10	HDDFAN-010
11	HDDFAN-011
12	HDDFAN-012
13	HDDFAN-013
14	HDDFAN-014
15	HDDFAN-015
16	HDDFAN-016
17	HDDFAN-017
20	HDDFAN-020
21	HDDFAN-021
22	HDDFAN-022
23	HDDFAN-023
24	HDDFAN-024
25	HDDFAN-025
26	HDDFAN-026
27	HDDFAN-027
30	HDDFAN-030
31	HDDFAN-031
32	HDDFAN-032
33	HDDFAN-033
34	HDDFAN-034
35	HDDFAN-035
36	HDDFAN-036
37	HDDFAN-037

Byte 13	Error Section
40	HDDFAN-040
41	HDDFAN-041
42	HDDFAN-042
43	HDDFAN-043
44	HDDFAN-044
45	HDDFAN-045
46	HDDFAN-046
47	HDDFAN-047
50	HDDFAN-050
51	HDDFAN-051
52	HDDFAN-052
53	HDDFAN-053
54	HDDFAN-054
55	HDDFAN-055
56	HDDFAN-056
57	HDDFAN-057
60	HDDFAN-060
61	HDDFAN-061
62	HDDFAN-062
63	HDDFAN-063
64	HDDFAN-064
65	HDDFAN-065
66	HDDFAN-066
67	HDDFAN-067
70	HDDFAN-070
71	HDDFAN-071
72	HDDFAN-072
73	HDDFAN-073
74	HDDFAN-074
75	HDDFAN-075
76	HDDFAN-076
77	HDDFAN-077

(*2) Error Section (DKU part)

Byte 13	Error Section
08	HDDFAN-100
09	HDDFAN-101
0a	HDDFAN-102
0b	HDDFAN-103
0c	HDDFAN-104
0d	HDDFAN-105
0e	HDDFAN-106
0f	HDDFAN-107
18	HDDFAN-110
19	HDDFAN-111
1a	HDDFAN-112
1b	HDDFAN-113
1c	HDDFAN-114
1d	HDDFAN-115
1e	HDDFAN-116
1f	HDDFAN-117
28	HDDFAN-120
29	HDDFAN-121
2a	HDDFAN-122
2b	HDDFAN-123
2c	HDDFAN-124
2d	HDDFAN-125
2e	HDDFAN-126
2f	HDDFAN-127
38	HDDFAN-130
39	HDDFAN-131
3a	HDDFAN-132
3b	HDDFAN-133
3c	HDDFAN-134
3d	HDDFAN-135
3e	HDDFAN-136
3f	HDDFAN-137

Byte 13	Error Section
48	HDDFAN-140
49	HDDFAN-141
4a	HDDFAN-142
4b	HDDFAN-143
4c	HDDFAN-144
4d	HDDFAN-145
4e	HDDFAN-146
4f	HDDFAN-147
58	HDDFAN-150
59	HDDFAN-151
5a	HDDFAN-152
5b	HDDFAN-153
5c	HDDFAN-154
5d	HDDFAN-155
5e	HDDFAN-156
5f	HDDFAN-157
68	HDDFAN-160
69	HDDFAN-161
6a	HDDFAN-162
6b	HDDFAN-163
6c	HDDFAN-164
6d	HDDFAN-165
6e	HDDFAN-166
6f	HDDFAN-167
78	HDDFAN-170
79	HDDFAN-171
7a	HDDFAN-172
7b	HDDFAN-173
7c	HDDFAN-174
7d	HDDFAN-175
7e	HDDFAN-176
7f	HDDFAN-177

(*3) Error Section (DKU part 3.5inch HDD)

XXX	Error Section
000	HDDPWR-000
001	HDDPWR-001
002	HDDPWR-002
003	HDDPWR-003
004	HDDPWR-004
005	HDDPWR-005
006	HDDPWR-006
007	HDDPWR-007
010	HDDPWR-010
011	HDDPWR-011
012	HDDPWR-012
013	HDDPWR-013
014	HDDPWR-014
015	HDDPWR-015
016	HDDPWR-016
017	HDDPWR-017
020	HDDPWR-020
021	HDDPWR-021
022	HDDPWR-022
023	HDDPWR-023
024	HDDPWR-024
025	HDDPWR-025
026	HDDPWR-026
027	HDDPWR-027
030	HDDPWR-030
031	HDDPWR-031
032	HDDPWR-032
033	HDDPWR-033
034	HDDPWR-034
035	HDDPWR-035
036	HDDPWR-036
037	HDDPWR-037

XXX	Error Section
040	HDDPWR-040
041	HDDPWR-041
042	HDDPWR-042
043	HDDPWR-043
044	HDDPWR-044
045	HDDPWR-045
046	HDDPWR-046
047	HDDPWR-047
050	HDDPWR-050
051	HDDPWR-051
052	HDDPWR-052
053	HDDPWR-053
054	HDDPWR-054
055	HDDPWR-055
056	HDDPWR-056
057	HDDPWR-057
060	HDDPWR-060
061	HDDPWR-061
062	HDDPWR-062
063	HDDPWR-063
064	HDDPWR-064
065	HDDPWR-065
066	HDDPWR-066
067	HDDPWR-067
070	HDDPWR-070
071	HDDPWR-071
072	HDDPWR-072
073	HDDPWR-073
074	HDDPWR-074
075	HDDPWR-075
076	HDDPWR-076
077	HDDPWR-077

(*3) Error Section (DKU part 3.5inch HDD)

XXX	Error Section
100	HDDPWR-100
101	HDDPWR-101
102	HDDPWR-102
103	HDDPWR-103
104	HDDPWR-104
105	HDDPWR-105
106	HDDPWR-106
107	HDDPWR-107
110	HDDPWR-110
111	HDDPWR-111
112	HDDPWR-112
113	HDDPWR-113
114	HDDPWR-114
115	HDDPWR-115
116	HDDPWR-116
117	HDDPWR-117
120	HDDPWR-120
121	HDDPWR-121
122	HDDPWR-122
123	HDDPWR-123
124	HDDPWR-124
125	HDDPWR-125
126	HDDPWR-126
127	HDDPWR-127
130	HDDPWR-130
131	HDDPWR-131
132	HDDPWR-132
133	HDDPWR-133
134	HDDPWR-134
135	HDDPWR-135
136	HDDPWR-136
137	HDDPWR-137

XXX	Error Section
140	HDDPWR-140
141	HDDPWR-141
142	HDDPWR-142
143	HDDPWR-143
144	HDDPWR-144
145	HDDPWR-145
146	HDDPWR-146
147	HDDPWR-147
150	HDDPWR-150
151	HDDPWR-151
152	HDDPWR-152
153	HDDPWR-153
154	HDDPWR-154
155	HDDPWR-155
156	HDDPWR-156
157	HDDPWR-157
160	HDDPWR-160
161	HDDPWR-161
162	HDDPWR-162
163	HDDPWR-163
164	HDDPWR-164
165	HDDPWR-165
166	HDDPWR-166
167	HDDPWR-167
170	HDDPWR-170
171	HDDPWR-171
172	HDDPWR-172
173	HDDPWR-173
174	HDDPWR-174
175	HDDPWR-175
176	HDDPWR-176
177	HDDPWR-177

(*3) Error Section (DKU part 2.5inch HDD)

XXX	Error Section
000	HDDPWR-0000
001	HDDPWR-0001
002	HDDPWR-0010
003	HDDPWR-0011
004	HDDPWR-0020
005	HDDPWR-0021
006	HDDPWR-0030
007	HDDPWR-0031
008	HDDPWR-0040
009	HDDPWR-0041
00a	HDDPWR-0050
00b	HDDPWR-0051
00c	HDDPWR-0060
00d	HDDPWR-0061
00e	HDDPWR-0070
00f	HDDPWR-0071
010	HDDPWR-0100
011	HDDPWR-0101
012	HDDPWR-0110
013	HDDPWR-0111
014	HDDPWR-0120
015	HDDPWR-0121
016	HDDPWR-0130
017	HDDPWR-0131
018	HDDPWR-0140
019	HDDPWR-0141
01a	HDDPWR-0150
01b	HDDPWR-0151
01c	HDDPWR-0160
01d	HDDPWR-0161
01e	HDDPWR-0170
01f	HDDPWR-0171

XXX	Error Section
020	HDDPWR-0200
021	HDDPWR-0201
022	HDDPWR-0210
023	HDDPWR-0211
024	HDDPWR-0220
025	HDDPWR-0221
026	HDDPWR-0230
027	HDDPWR-0231
028	HDDPWR-0240
029	HDDPWR-0241
02a	HDDPWR-0250
02b	HDDPWR-0251
02c	HDDPWR-0260
02d	HDDPWR-0261
02e	HDDPWR-0270
02f	HDDPWR-0271
030	HDDPWR-0300
031	HDDPWR-0301
032	HDDPWR-0310
033	HDDPWR-0311
034	HDDPWR-0320
035	HDDPWR-0321
036	HDDPWR-0330
037	HDDPWR-0331
038	HDDPWR-0340
039	HDDPWR-0341
03a	HDDPWR-0350
03b	HDDPWR-0351
03c	HDDPWR-0360
03d	HDDPWR-0361
03e	HDDPWR-0370
03f	HDDPWR-0371

(*3) Error Section (DKU part 2.5inch HDD)

XXX	Error Section
040	HDDPWR-0400
041	HDDPWR-0401
042	HDDPWR-0410
043	HDDPWR-0411
044	HDDPWR-0420
045	HDDPWR-0421
046	HDDPWR-0430
047	HDDPWR-0431
048	HDDPWR-0440
049	HDDPWR-0441
04a	HDDPWR-0450
04b	HDDPWR-0451
04c	HDDPWR-0460
04d	HDDPWR-0461
04e	HDDPWR-0470
04f	HDDPWR-0471
050	HDDPWR-0500
051	HDDPWR-0501
052	HDDPWR-0510
053	HDDPWR-0511
054	HDDPWR-0520
055	HDDPWR-0521
056	HDDPWR-0530
057	HDDPWR-0531
058	HDDPWR-0540
059	HDDPWR-0541
05a	HDDPWR-0550
05b	HDDPWR-0551
05c	HDDPWR-0560
05d	HDDPWR-0561
05e	HDDPWR-0570
05f	HDDPWR-0571

XXX	Error Section
060	HDDPWR-0600
061	HDDPWR-0601
062	HDDPWR-0610
063	HDDPWR-0611
064	HDDPWR-0620
065	HDDPWR-0621
066	HDDPWR-0630
067	HDDPWR-0631
068	HDDPWR-0640
069	HDDPWR-0641
06a	HDDPWR-0650
06b	HDDPWR-0651
06c	HDDPWR-0660
06d	HDDPWR-0661
06e	HDDPWR-0670
02f	HDDPWR-0671
070	HDDPWR-0700
071	HDDPWR-0701
072	HDDPWR-0710
073	HDDPWR-0711
074	HDDPWR-0720
075	HDDPWR-0721
076	HDDPWR-0730
077	HDDPWR-0731
078	HDDPWR-0740
079	HDDPWR-0741
07a	HDDPWR-0750
07b	HDDPWR-0751
07c	HDDPWR-0760
07d	HDDPWR-0761
07e	HDDPWR-0770
07f	HDDPWR-0771

(*3) Error Section (DKU part 2.5inch HDD)

XXX	Error Section
100	HDDPWR-1000
101	HDDPWR-1001
102	HDDPWR-1010
103	HDDPWR-1011
104	HDDPWR-1020
105	HDDPWR-1021
106	HDDPWR-1030
107	HDDPWR-1031
108	HDDPWR-1040
109	HDDPWR-1041
10a	HDDPWR-1050
10b	HDDPWR-1051
10c	HDDPWR-1060
10d	HDDPWR-1061
10e	HDDPWR-1070
10f	HDDPWR-1071
110	HDDPWR-1100
111	HDDPWR-1101
112	HDDPWR-1110
113	HDDPWR-1111
114	HDDPWR-1120
115	HDDPWR-1121
116	HDDPWR-1130
117	HDDPWR-1131
118	HDDPWR-1140
119	HDDPWR-1141
11a	HDDPWR-1150
11b	HDDPWR-1151
11c	HDDPWR-1160
11d	HDDPWR-1161
11e	HDDPWR-1170
11f	HDDPWR-1171

XXX	Error Section
120	HDDPWR-1200
121	HDDPWR-1201
122	HDDPWR-1210
123	HDDPWR-1211
124	HDDPWR-1220
125	HDDPWR-1221
126	HDDPWR-1230
127	HDDPWR-1231
128	HDDPWR-1240
129	HDDPWR-1241
12a	HDDPWR-1250
12b	HDDPWR-1251
12c	HDDPWR-1260
12d	HDDPWR-1261
12e	HDDPWR-1270
12f	HDDPWR-1271
130	HDDPWR-1300
131	HDDPWR-1301
132	HDDPWR-1310
133	HDDPWR-1311
134	HDDPWR-1320
135	HDDPWR-1321
136	HDDPWR-1330
137	HDDPWR-1331
138	HDDPWR-1340
139	HDDPWR-1341
13a	HDDPWR-1350
13b	HDDPWR-1351
13c	HDDPWR-1360
13d	HDDPWR-1361
13e	HDDPWR-1370
13f	HDDPWR-1371

(*3) Error Section (DKU part 2.5inch HDD)

XXX	Error Section
140	HDDPWR-1400
141	HDDPWR-1401
142	HDDPWR-1410
143	HDDPWR-1411
144	HDDPWR-1420
145	HDDPWR-1421
146	HDDPWR-1430
147	HDDPWR-1431
148	HDDPWR-1440
149	HDDPWR-1441
14a	HDDPWR-1450
14b	HDDPWR-1451
14c	HDDPWR-1460
14d	HDDPWR-1461
14e	HDDPWR-1470
14f	HDDPWR-1471
150	HDDPWR-1500
151	HDDPWR-1501
152	HDDPWR-1510
153	HDDPWR-1511
154	HDDPWR-1520
155	HDDPWR-1521
156	HDDPWR-1530
157	HDDPWR-1531
158	HDDPWR-1540
159	HDDPWR-1541
15a	HDDPWR-1550
15b	HDDPWR-1551
15c	HDDPWR-1560
15d	HDDPWR-1561
15e	HDDPWR-1570
15f	HDDPWR-1571

XXX	Error Section
160	HDDPWR-1600
161	HDDPWR-1601
162	HDDPWR-1610
163	HDDPWR-1611
164	HDDPWR-1620
165	HDDPWR-1621
166	HDDPWR-1630
167	HDDPWR-1631
168	HDDPWR-1640
169	HDDPWR-1641
16a	HDDPWR-1650
16b	HDDPWR-1651
16c	HDDPWR-1660
16d	HDDPWR-1661
16e	HDDPWR-1670
16f	HDDPWR-1671
170	HDDPWR-1700
171	HDDPWR-1701
172	HDDPWR-1710
173	HDDPWR-1711
174	HDDPWR-1720
175	HDDPWR-1721
176	HDDPWR-1730
177	HDDPWR-1731
178	HDDPWR-1740
179	HDDPWR-1741
17a	HDDPWR-1750
17b	HDDPWR-1751
17c	HDDPWR-1760
17d	HDDPWR-1761
17e	HDDPWR-1770
17f	HDDPWR-1771

(*4) Error Section (DKU part)

Byte 13	Error Section
00	SSW000-HP0
01	SSW000-LP1
02	SSW001-HP0
03	SSW001-LP1
04	SSW002-HP0
05	SSW002-LP1
06	SSW003-HP0
07	SSW003-LP1
10	SSW010-HP0
11	SSW010-LP1
12	SSW011-HP0
13	SSW011-LP1
14	SSW012-HP0
15	SSW012-LP1
16	SSW013-HP0
17	SSW013-LP1
20	SSW020-HP0
21	SSW020-LP1
22	SSW021-HP0
23	SSW021-LP1
24	SSW022-HP0
25	SSW022-LP1
26	SSW023-HP0
27	SSW023-LP1
30	SSW030-HP0
31	SSW030-LP1
32	SSW031-HP0
33	SSW031-LP1
34	SSW032-HP0
35	SSW032-LP1
36	SSW033-HP0
37	SSW033-LP1

Byte 13	Error Section
40	SSW040-HP0
41	SSW040-LP1
42	SSW041-HP0
43	SSW041-LP1
44	SSW042-HP0
45	SSW042-LP1
46	SSW043-HP0
47	SSW043-LP1
50	SSW050-HP0
51	SSW050-LP1
52	SSW051-HP0
53	SSW051-LP1
54	SSW052-HP0
55	SSW052-LP1
56	SSW053-HP0
57	SSW053-LP1
60	SSW060-HP0
61	SSW060-LP1
62	SSW061-HP0
63	SSW061-LP1
64	SSW062-HP0
65	SSW062-LP1
66	SSW063-HP0
67	SSW063-LP1
70	SSW070-HP0
71	SSW070-LP1
72	SSW071-HP0
73	SSW071-LP1
74	SSW072-HP0
75	SSW072-LP1
76	SSW073-HP0
77	SSW073-LP1

(*4) Error Section (DKU part)

Byte 13	Error Section
08	SSW100-HP0
09	SSW100-LP1
0a	SSW101-HP0
0b	SSW101-LP1
0c	SSW102-HP0
0d	SSW102-LP1
0e	SSW103-HP0
0f	SSW103-LP1
18	SSW110-HP0
19	SSW110-LP1
1a	SSW111-HP0
1b	SSW111-LP1
1c	SSW112-HP0
1d	SSW112-LP1
1e	SSW113-HP0
1f	SSW113-LP1
28	SSW120-HP0
29	SSW120-LP1
2a	SSW121-HP0
2b	SSW121-LP1
2c	SSW122-HP0
2d	SSW122-LP1
2e	SSW123-HP0
2f	SSW123-LP1
38	SSW130-HP0
39	SSW130-LP1
3a	SSW131-HP0
3b	SSW131-LP1
3c	SSW132-HP0
3d	SSW132-LP1
3e	SSW133-HP0
3f	SSW133-LP1

Byte 13	Error Section
48	SSW140-HP0
49	SSW140-LP1
4a	SSW141-HP0
4b	SSW141-LP1
4c	SSW142-HP0
4d	SSW142-LP1
4e	SSW143-HP0
4f	SSW143-LP1
58	SSW150-HP0
59	SSW150-LP1
5a	SSW151-HP0
5b	SSW151-LP1
5c	SSW152-HP0
5d	SSW152-LP1
5e	SSW153-HP0
5f	SSW153-LP1
68	SSW160-HP0
69	SSW160-LP1
6a	SSW161-HP0
6b	SSW161-LP1
6c	SSW162-HP0
6d	SSW162-LP1
6e	SSW163-HP0
6f	SSW163-LP1
78	SSW170-HP0
79	SSW170-LP1
7a	SSW171-HP0
7b	SSW171-LP1
7c	SSW172-HP0
7d	SSW172-LP1
7e	SSW173-HP0
7f	SSW173-LP1

(*5) 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

(*6) 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

(*7) Contents of byte 13 when a version check error or sum check error occurred

Byte 13	Micro-program type
00	RAM BOOT
01	DKC MAIN
02	DKU
03	SVP
04	SSVP
05	CUDG4
06	CONFIG
07	HTP
08	FCDG
09	SCHIP
0A	CMBK

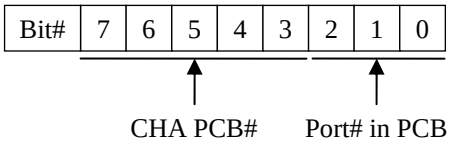
(*8) Contents of Byte 13 when an MP error occurred

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‘03’
		MPB-1MB	x‘10’ ~ x‘13’
	Cluster-2	MPB-2MC	x‘20’ ~ x‘23’
		MPB-2MD	x‘30’ ~ x‘33’
Option Module (Module#1)	Cluster-1	MPB-1ME	x‘40’ ~ x‘43’
		MPB-1MF	x‘50’ ~ x‘53’
	Cluster-2	MPB-2MG	x‘60’ ~ x‘63’
		MPB-2MH	x‘70’ ~ x‘73’

(*9) 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-1EU	x‘00’ ~ x‘07’
		CHA-1EL	x‘08’ ~ x‘0F’
		CHA-1FU	x‘10’ ~ x‘17’
		CHA-1FL	x‘18’ ~ x‘1F’
		CHA-1AU	x‘20’ ~ x‘27’
		CHA-1AL	x‘28’ ~ x‘2F’
	Cluster-2	CHA-2QU	x‘40’ ~ x‘47’
		CHA-2QL	x‘48’ ~ x‘4F’
		CHA-2RU	x‘50’ ~ x‘57’
		CHA-2RL	x‘58’ ~ x‘5F’
		CHA-2MU	x‘60’ ~ x‘67’
		CHA-2ML	x‘68’ ~ x‘6F’
Option Module (Module#1)	Cluster-1	CHA-1GU	x‘80’ ~ x‘87’
		CHA-1GL	x‘88’ ~ x‘8F’
		CHA-1HU	x‘90’ ~ x‘97’
		CHA-1HL	x‘98’ ~ x‘9F’
		CHA-1LU	x‘A0’ ~ x‘A7’
		CHA-1LL	x‘A8’ ~ x‘AF’
	Cluster-2	CHA-2TU	x‘C0’ ~ x‘C7’
		CHA-2TL	x‘C8’ ~ x‘CF’
		CHA-2UU	x‘D0’ ~ x‘D7’
		CHA-2UL	x‘D8’ ~ x‘DF’
		CHA-2XU	x‘E0’ ~ x‘E7’
		CHA-2XL	x‘E8’ ~ x‘EF’

Blank Sheet

(*10) 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 P/S OFF is executed with Maintenance Jumper to install the micro-programs.
	① P/S OFF ② Pull out the Maintenance Jumper ③ P/S ON	Execute them when you have forgotten to pull out Maintenance Jumper in the normal P/S ON.
42000041	① MP-Install ② PCB Replace (Note 2)	Use the same package in ②.
48000041	(Note 1)	
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	REP01-220 ~ 230
SVP Replace	REP01-240 (Work ID : RTC7)
MP-Install	MICRO05-10
SSB with the error code 3309	SSBLOG05-2190

Note 1: 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

Note 2 : If this error has occurred in P/S ON process of DKC in the condition that is described below, execute not PCB Replace but P/S OFF and ON after MP Install.
- Instantaneous down without P/S 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.

(*11) 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 / Snapshot
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	Mainframe Array Management
0x0E	Open Volume Management	–
0x0F	Volume Security	–
0x10	Volume Security Port Option	–
0x11	Volume Retention Manager	–
0x12	Data Retention Utility	–
0x13	LUN Manager	Open Systems 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	– (Note) The feature of Performance Monitor includes the one of Performance Control. For the HP model (P9500), “0x18” is not reported.
0x19	PAV	Parallel Access Volumes
0x1A	Database Validator	–
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
0x24	Copy-on-Write Snapshot	–
0x26	Dynamic Provisioning	Thin Provisioning
0x27	Disaster Recovery Extended	Cont Access Journal 3DC & 4x4 Open MF

Byte13	P.P. name (HDS)	P.P. name (HP)
0x28	Compatible Hyper PAV	Hyper Parallel Access Volumes
0x29	FICON (R) Data Migration	FICON (R) Data Migration
0x2A	Encryption License Key	DKA Encryption
0x2B	High Availability Manager	External Storage Access Manager
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
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 FlashCopy SE
0x33	Dynamic Tiering for Mainframe	Smart Tiers for Mainframe
0x35	Thin Image	Fast Snap
0x36	Flash Acceleration	Performance Accelerator

(*12) REF CODE 13XX
00 : Basic SVP
01 : Option SVP

(*13) Contents of byte 13 when a Cache error occurred

Code	Location	Code	Location	Code	Location	Code	Location
x‘00’	MPB-1MA CLPR#0	x‘01’	MPB-1MA CLPR#1	x‘02’	MPB-1MA CLPR#2	x‘03’	MPB-1MA CLPR#3
x‘04’	MPB-1MA CLPR#4	x‘05’	MPB-1MA CLPR#5	x‘06’	MPB-1MA CLPR#6	x‘07’	MPB-1MA CLPR#7
x‘08’	MPB-1MA CLPR#8	x‘09’	MPB-1MA CLPR#9	x‘0A’	MPB-1MA CLPR#10	x‘0B’	MPB-1MA CLPR#11
x‘0C’	MPB-1MA CLPR#12	x‘0D’	MPB-1MA CLPR#13	x‘0E’	MPB-1MA CLPR#14	x‘0F’	MPB-1MA CLPR#15
x‘10’	MPB-1MA CLPR#16	x‘11’	MPB-1MA CLPR#17	x‘12’	MPB-1MA CLPR#18	x‘13’	MPB-1MA CLPR#19
x‘14’	MPB-1MA CLPR#20	x‘15’	MPB-1MA CLPR#21	x‘16’	MPB-1MA CLPR#22	x‘17’	MPB-1MA CLPR#23
x‘18’	MPB-1MA CLPR#24	x‘19’	MPB-1MA CLPR#25	x‘1A’	MPB-1MA CLPR#26	x‘1B’	MPB-1MA CLPR#27
x‘1C’	MPB-1MA CLPR#28	x‘1D’	MPB-1MA CLPR#29	x‘1E’	MPB-1MA CLPR#30	x‘1F’	MPB-1MA CLPR#31
x‘20’	MPB-1MB CLPR#0	x‘21’	MPB-1MB CLPR#1	x‘22’	MPB-1MB CLPR#2	x‘23’	MPB-1MB CLPR#3
x‘24’	MPB-1MB CLPR#4	x‘25’	MPB-1MB CLPR#5	x‘26’	MPB-1MB CLPR#6	x‘27’	MPB-1MB CLPR#7
x‘28’	MPB-1MB CLPR#8	x‘29’	MPB-1MB CLPR#9	x‘2A’	MPB-1MB CLPR#10	x‘2B’	MPB-1MB CLPR#11
x‘2C’	MPB-1MB CLPR#12	x‘2D’	MPB-1MB CLPR#13	x‘2E’	MPB-1MB CLPR#14	x‘2F’	MPB-1MB CLPR#15
x‘30’	MPB-1MB CLPR#16	x‘31’	MPB-1MB CLPR#17	x‘32’	MPB-1MB CLPR#18	x‘33’	MPB-1MB CLPR#19
x‘34’	MPB-1MB CLPR#20	x‘35’	MPB-1MB CLPR#21	x‘36’	MPB-1MB CLPR#22	x‘37’	MPB-1MB CLPR#23
x‘38’	MPB-1MB CLPR#24	x‘39’	MPB-1MB CLPR#25	x‘3A’	MPB-1MB CLPR#26	x‘3B’	MPB-1MB CLPR#27
x‘3C’	MPB-1MB CLPR#28	x‘3D’	MPB-1MB CLPR#29	x‘3E’	MPB-1MB CLPR#30	x‘3F’	MPB-1MB CLPR#31

(*13) Contents of byte 13 when a Cache error occurred

Code	Location	Code	Location	Code	Location	Code	Location
x‘40’	MPB-2MC CLPR#0	x‘41’	MPB-2MC CLPR#1	x‘42’	MPB-2MC CLPR#2	x‘43’	MPB-2MC CLPR#3
x‘44’	MPB-2MC CLPR#4	x‘45’	MPB-2MC CLPR#5	x‘46’	MPB-2MC CLPR#6	x‘47’	MPB-2MC CLPR#7
x‘48’	MPB-2MC CLPR#8	x‘49’	MPB-2MC CLPR#9	x‘4A’	MPB-2MC CLPR#10	x‘4B’	MPB-2MC CLPR#11
x‘4C’	MPB-2MC CLPR#12	x‘4D’	MPB-2MC CLPR#13	x‘4E’	MPB-2MC CLPR#14	x‘4F’	MPB-2MC CLPR#15
x‘50’	MPB-2MC CLPR#16	x‘51’	MPB-2MC CLPR#17	x‘52’	MPB-2MC CLPR#18	x‘53’	MPB-2MC CLPR#19
x‘54’	MPB-2MC CLPR#20	x‘55’	MPB-2MC CLPR#21	x‘56’	MPB-2MC CLPR#22	x‘57’	MPB-2MC CLPR#23
x‘58’	MPB-2MC CLPR#24	x‘59’	MPB-2MC CLPR#25	x‘5A’	MPB-2MC CLPR#26	x‘5B’	MPB-2MC CLPR#27
x‘5C’	MPB-2MC CLPR#28	x‘5D’	MPB-2MC CLPR#29	x‘5E’	MPB-2MC CLPR#30	x‘5F’	MPB-2MC CLPR#31
x‘60’	MPB-2MD CLPR#0	x‘61’	MPB-2MD CLPR#1	x‘62’	MPB-2MD CLPR#2	x‘63’	MPB-2MD CLPR#3
x‘64’	MPB-2MD CLPR#4	x‘65’	MPB-2MD CLPR#5	x‘66’	MPB-2MD CLPR#6	x‘67’	MPB-2MD CLPR#7
x‘68’	MPB-2MD CLPR#8	x‘69’	MPB-2MD CLPR#9	x‘6A’	MPB-2MD CLPR#10	x‘6B’	MPB-2MD CLPR#11
x‘6C’	MPB-2MD CLPR#12	x‘6D’	MPB-2MD CLPR#13	x6E’	MPB-2MD CLPR#14	x‘6F’	MPB-2MD CLPR#15
x‘70’	MPB-2MD CLPR#16	x‘71’	MPB-2MD CLPR#17	x‘72’	MPB-2MD CLPR#18	x‘73’	MPB-2MD CLPR#19
x‘74’	MPB-2MD CLPR#20	x‘75’	MPB-2MD CLPR#21	x‘76’	MPB-2MD CLPR#22	x‘77’	MPB-2MD CLPR#23
x‘78’	MPB-2MD CLPR#24	x‘79’	MPB-2MD CLPR#25	x‘7A’	MPB-2MD CLPR#26	x‘7B’	MPB-2MD CLPR#27
x‘7C’	MPB-2MD CLPR#28	x‘7D’	MPB-2MD CLPR#29	x‘7E’	MPB-2MD CLPR#30	x‘7F’	MPB-2MD CLPR#31
x‘80’	MPB-1ME CLPR#0	x‘81’	MPB-1ME CLPR#1	x‘82’	MPB-1ME CLPR#2	x‘83’	MPB-1ME CLPR#3
x‘84’	MPB-1ME CLPR#4	x‘85’	MPB-1ME CLPR#5	x‘86’	MPB-1ME CLPR#6	x‘87’	MPB-1ME CLPR#7
x‘88’	MPB-1ME CLPR#8	x‘89’	MPB-1ME CLPR#9	x‘8A’	MPB-1ME CLPR#10	x‘8B’	MPB-1ME CLPR#11
x‘8C’	MPB-1ME CLPR#12	x‘8D’	MPB-1ME CLPR#13	x‘8E’	MPB-1ME CLPR#14	x‘8F’	MPB-1ME CLPR#15
x‘90’	MPB-1ME CLPR#16	x‘91’	MPB-1ME CLPR#17	x‘92’	MPB-1ME CLPR#18	x‘93’	MPB-1ME CLPR#19
x‘94’	MPB-1ME CLPR#20	x‘95’	MPB-1ME CLPR#21	x‘96’	MPB-1ME CLPR#22	x‘97’	MPB-1ME CLPR#23
x‘98’	MPB-1ME CLPR#24	x‘99’	MPB-1ME CLPR#25	x‘9A’	MPB-1ME CLPR#26	x‘9B’	MPB-1ME CLPR#27
x‘9C’	MPB-1ME CLPR#28	x‘9D’	MPB-1ME CLPR#29	x‘9E’	MPB-1ME CLPR#30	x‘9F’	MPB-1ME CLPR#31

(*13) Contents of byte 13 when a Cache error occurred

Code	Location	Code	Location	Code	Location	Code	Location
x‘A0’	MPB-1MF CLPR#0	x‘A1’	MPB-1MF CLPR#1	x‘A2’	MPB-1MF CLPR#2	x‘A3’	MPB-1MF CLPR#3
x‘A4’	MPB-1MF CLPR#4	x‘A5’	MPB-1MF CLPR#5	x‘A6’	MPB-1MF CLPR#6	x‘A7’	MPB-1MF CLPR#7
x‘A8’	MPB-1MF CLPR#8	x‘A9’	MPB-1MF CLPR#9	x‘AA’	MPB-1MF CLPR#10	x‘AB’	MPB-1MF CLPR#11
x‘AC’	MPB-1MF CLPR#12	x‘AD’	MPB-1MF CLPR#13	x‘AE’	MPB-1MF CLPR#14	x‘AF’	MPB-1MF CLPR#15
x‘B0’	MPB-1MF CLPR#16	x‘B1’	MPB-1MF CLPR#17	x‘B2’	MPB-1MF CLPR#18	x‘B3’	MPB-1MF CLPR#19
x‘B4’	MPB-1MF CLPR#20	x‘B5’	MPB-1MF CLPR#21	x‘B6’	MPB-1MF CLPR#22	x‘B7’	MPB-1MF CLPR#23
x‘B8’	MPB-1MF CLPR#24	x‘B9’	MPB-1MF CLPR#25	x‘BA’	MPB-1MF CLPR#26	x‘BB’	MPB-1MF CLPR#27
x‘BC’	MPB-1MF CLPR#28	x‘BD’	MPB-1MF CLPR#29	x‘BE’	MPB-1MF CLPR#30	x‘BF’	MPB-1MF CLPR#31
x‘C0’	MPB-2MG CLPR#0	x‘C1’	MPB-2MG CLPR#1	x‘C2’	MPB-2MG CLPR#2	x‘C3’	MPB-2MG CLPR#3
x‘C4’	MPB-2MG CLPR#4	x‘C5’	MPB-2MG CLPR#5	x‘C6’	MPB-2MG CLPR#6	x‘C7’	MPB-2MG CLPR#7
x‘C8’	MPB-2MG CLPR#8	x‘C9’	MPB-2MG CLPR#9	x‘CA’	MPB-2MG CLPR#10	x‘CB’	MPB-2MG CLPR#11
x‘CC’	MPB-2MG CLPR#12	x‘CD’	MPB-2MG CLPR#13	x‘CE’	MPB-2MG CLPR#14	x‘CF’	MPB-2MG CLPR#15
x‘D0’	MPB-2MG CLPR#16	x‘D1’	MPB-2MG CLPR#17	x‘D2’	MPB-2MG CLPR#18	x‘D3’	MPB-2MG CLPR#19
x‘D4’	MPB-2MG CLPR#20	x‘D5’	MPB-2MG CLPR#21	x‘D6’	MPB-2MG CLPR#22	x‘D7’	MPB-2MG CLPR#23
x‘D8’	MPB-2MG CLPR#24	x‘D9’	MPB-2MG CLPR#25	x‘DA’	MPB-2MG CLPR#26	x‘DB’	MPB-2MG CLPR#27
x‘DC’	MPB-2MG CLPR#28	x‘DD’	MPB-2MG CLPR#29	x‘DE’	MPB-2MG CLPR#30	x‘DF’	MPB-2MG CLPR#31
x‘E0’	MPB-2MH CLPR#0	x‘E1’	MPB-2MH CLPR#1	x‘E2’	MPB-2MH CLPR#2	x‘E3’	MPB-2MH CLPR#3
x‘E4’	MPB-2MH CLPR#4	x‘E5’	MPB-2MH CLPR#5	x‘E6’	MPB-2MH CLPR#6	x‘E7’	MPB-2MH CLPR#7
x‘E8’	MPB-2MH CLPR#8	x‘E9’	MPB-2MH CLPR#9	x‘EA’	MPB-2MH CLPR#10	x‘EB’	MPB-2MH CLPR#11
x‘EC’	MPB-2MH CLPR#12	x‘ED’	MPB-2MH CLPR#13	x‘EE’	MPB-2MH CLPR#14	x‘EF’	MPB-2MH CLPR#15
x‘F0’	MPB-2MH CLPR#16	x‘F1’	MPB-2MH CLPR#17	x‘F2’	MPB-2MH CLPR#18	x‘F3’	MPB-2MH CLPR#19
x‘F4’	MPB-2MH CLPR#20	x‘F5’	MPB-2MH CLPR#21	x‘F6’	MPB-2MH CLPR#22	x‘F7’	MPB-2MH CLPR#23
x‘F8’	MPB-2MH CLPR#24	x‘F9’	MPB-2MH CLPR#25	x‘FA’	MPB-2MH CLPR#26	x‘FB’	MPB-2MH CLPR#27
x‘FC’	MPB-2MH CLPR#28	x‘FD’	MPB-2MH CLPR#29	x‘FE’	MPB-2MH CLPR#30	x‘FF’	MPB-2MH CLPR#31

(*14) 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 "5.38 Receiving WCHK1 Dump (SIM = 3080XX)" (TRBL05-950).

(*15) Contents of Byte 13 when a CM PCB error occurred

Byte 13	CM PCB Location
00	CM-1CA
01	CM-2CC
02	CM-1CB
03	CM-2CD
04	CM-1CE
05	CM-2CG
06	CM-1CF
07	CM-2CH

Byte 13	CM PCB Location
08	CM-1CJ
09	CM-2CL
0A	CM-1CK
0B	CM-2CM
0C	CM-1CN
0D	CM-2CQ
0E	CM-1CP
0F	CM-2CR

(*16) This SIM REF code may be created when REF code BF4XXX (PS system warning failure) is created. (Refer to TRBL05-450.)

(*17) If this SIM (= BFC0XX) was created, refer to "5.28 Recovery procedure of the HDDFAN Error (SIM = BFCXYZ)" (TRBL05-700).

(*18) If the SIM is generated when all the following conditions (a) and (c) are met, contact Technical Support Division.
(a) The DKCMAIN micro-program version is 70-05-00-00/00-01 or later.
(b) At the time of cache memory installation or SM size change maintenance, DKC is shut down while the recovery message of the Cluster 2 processing is displayed.
After that, when start-up involving SIMRC = FFEF00 is performed, the SIM is generated.
(c) At the time of maintenance in (b), the check of "64KLDEV, SI/VM Extension1, FCv2, FCSE, DP, CoW, TI, TPF" is changed from OFF to ON.

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‘0CE5’+DKC sequence number)							
16								
17								
18								
19								
20	SSID of self subsystem							
21								
22	Symptom code (*14)							
23								
24	Logging and Message Control (*15)							
25	Program action code (x‘10’)							
26	Dual Frame	EDCC Mode	‘00’		Asynchro-nous operation	Serial channel	Report output (1)	‘0’
27	‘0’	‘0000’					Extension path configu-ration	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	DKC serial number (x‘0CE5’+DKC sequence number)							
16								
17								
18								
19								
20	SSID of self subsystem							
21								
22	Symptom code (*14)							
23								
24	Logging and Message Control (*15)							
25	Program action code (x‘10’)							
26	Dual Frame	EDCC Mode	‘00’		Asynchro-nous operation	Serial channel	Report output	‘0’
27	‘0’	‘0000’				Extension path configu-ration	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	Drive serial number (x‘0CE5’+DKU sequence number)							
16								
17								
18								
19								
20	SSID of self subsystem							
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	x‘000000’							
30								
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	Drive serial number (x‘0CE5’+DKU sequence number)							
16								
17								
18								
19								
20	SSID of self subsystem							
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 resent SIM
B‘1’: Resent 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