

SIM RC SECTION

Contents

SIMRC01-10	1. Reference Code
SIMRC02-10	2. Reference Codes
SIMRC02-20	2.1 SIM Reference Codes Detected by the Processor
SIMRC02-330	2.2 SIM Reference Codes Detected by the SVP
SIMRC03-10	3. SIM Format

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

Indicates SIM. → (points to byte 6)

SSB13 → (points to byte 13)

SSB22, 23 → (points to bytes 22 and 23)

RC = 307080 (points to bytes 6, 13, 22, 23)

SIM type
 F1: DKC SIM
 F2: CACHE SIM
 FE: DEVICE SIM
 FF: MEDIA SIM
 → (points to byte 28)

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) You can refer to SIM LOG in the Information window of SVP from immediately after SIM is created. The automatic report of remote maintenance function is also performed at this time.
- (3) When the automatic report of remote maintenance function is completed, a SIM to be automatically completed exists. (The target SIM-RC is noted in Table 2.1 and 2.2.)
- (4) SIM which is shown as “No” in the “Storage Navigator Report” column is not reported to SNMP and not displayed in Storage Navigator.
SIM which is shown as “Yes” in the “Storage Navigator Report ” column is reported to SNMP and displayed in Storage Navigator if it is reported to SVP.
- (5) SIM which is reported to SVP is reported to Technical Support Division.

2.1 SIM Reference Codes Detected by the Processor

SIM Reference Codes Detected by the Processor (1/9)

Error		REF CODE	SIM 28	Level of error	SN report	Remarks
		22,23,13				
Port error	Channel port blocking	2120XX	F1	Moderate	Yes	XX: Port# (*10)
	AL_PA value conflict	2190XX	F1	Service	Yes	XX: CHB# + Port# in CHB (*31)
	Link failure1	2193XX	F1	Serious	Yes	XX: CHB# + Port# in CHB (*31)
	Link failure2 (*25)	2194XX	F1	Serious	Yes	XX: CHB# + Port# in CHB (*31)
	Optical signal output failure	21A6XX	F1	Moderate	Yes	XX: Port# (*10)
	LED status change failure	21A7XX	F1	Moderate	Yes	XX: Port# (*10)
	SFP wrong type	21A8XX	F1	Moderate	No	XX: CHB# + Port# in CHB (*31)
	IP address conflict detection	21A9XX	F1	Service	Yes	XX: Port# (*10)
	SFP TxFault	21AAXX	F1	Moderate	No	XX: CHB# + Port# in CHB (*31)
	External storage system connection path blocking (*24)	21D0XX	F1	Moderate	Yes	XX: CHB# + Port# in CHB (*31)
	External storage system connection path restore (*24)	21D1XX	F1	Service	No	XX: CHB# + Port# in CHB (*31)
	Threshold over by external storage system connection path response time-out (*24)	21D2XX	F1	Service	Yes	XX: CHB# + Port# in CHB (*31)
Processor error	CHK1A threshold over	3070XY	F1	Service	No	X: MPU# (*4) Y: MP# (0 ~ 3) in MPU
	CHK1B threshold over	3071XY	F1	Service	No	X: MPU# (*4) Y: MP# (0 ~ 3) in MPU
	CHK3 threshold over	3072XY	F1	Service	No	X: MPU# (*4) Y: MP# (0 ~ 3) in MPU
	Processor blocking	3073XY	F1	Moderate	Yes	X: MPU# (*4) Y: MP# (0 ~ 3) in MPU

SIM Reference Codes Detected by the Processor (2/9)

Error		REF CODE	SIM 28	Level of error	SN report	Remarks
		22,23,13				
Processor error	FM error	3075XY	F1	Moderate	Yes	X: MPU# (*4) Y: MP# (0 ~ 3) in MPU
	Incorrect SUM value of FM	3076XY	F1	Service	No	X: MPU# (*4) Y: MP# (0 ~ 3) in MPU
	Processor memory temporary error	3077XY	F1	Service	No (*a)	X: MPU# (*4) Y: MP# (0 ~ 3) in MPU
	P/S OFF impossible	388F00	F1	Moderate	No	
	P/S OFF impossible (Device reserved)	389F00	F1	Moderate	No	
	V-R or serial number is inconsistent	3991XY	F1	Moderate	No	X: MPU# (*4) Y: MP# (0 ~ 3) in MPU
	Replace failed	3993XY	F1	Moderate	No	X: MPU# (*4) Y: MP# (0 ~ 3) in MPU
	MN Micro-program exchange failure	3994X0	F1	Moderate	No	X: MPB# (*3)
	MP patrol check error	39B0XY	F1	Service	No	X: MPU# (*4) Y: MP# (0 ~ 3) in MPU
	Backup/restore SM Information failed	6100XX	F1	Moderate	No	XX =00: Backup failed (LAN error) 01: Backup failed (Micro factor) 02: Recovery failed (See TRBL04-780)
	LDEV Blockade (Effect of microcode error)	3A0XYY	F1	Moderate	Yes	X: CU# (*14) YY: LDEV#

(*a) This SIM is automatically completed after the automatic report of remote maintenance function is completed.

SIMRC02-40**SIM Reference Codes Detected by the Processor (3/9)**

Error		REF CODE	SIM	Level of error	SN report	Remarks
		22,23,13	28			
CHB/DKB error	CHB blocking	2130XX	F1	Moderate	Yes	XX: CHB# (*5)
	DKB blocking	2140XX	F1	Moderate	Yes	XX: DKB# (*6)
	CHB/DKB Type disagreement	3C9500	F1	Moderate	No	See TRBL04-640
	LDEV Blockade (Effect of Encryption key lost)	6600XX	F1	Moderate	No	XX =00: No Encryption key
	Acquisition failure of the outside encryption key	661000	F1	Moderate	Yes	See TRBL33-10
	SAS CTL blocking	CF10XX	F1	Moderate	Yes	XX: SAS CTL# (*11)
	A SAS Port, one of WideLink, is partial blocked	CF11XX	F1	Service	No	XX: SAS Port# (*11)
	SAS Port blocked (*33)	CF12XX	F1	Moderate	Yes	XX: SAS Port# (*11)
MAIN Blade error	MAIN Blade correctable error	3CC20X	F1	Service	No	X: MAIN Blade# (*2)
	DRR temporary error	CF80XX	F1	Service	No	XX: DRR# (*9)
	DRR blocking	CF82XX	F1	Moderate	Yes	XX: DRR# (*9)
	DMA temporary error	CF81XX	F1	Service	No	XX: DMA# (*8)
	DMA blocking	CF83XX	F1	Moderate	Yes	XX: DMA# (*8)
	MAIN Blade blocking	CF88XX	F1	Moderate	Yes	XX: MAIN Blade# (*2)
	All DMA blocking	CF89XX	F1	Moderate	Yes	XX: MAIN Blade# (*2)
	Logical DMA blocking	CF6XYY	F1	Moderate	Yes	X: MPU# (*4) YY: DMA# (*8)
	Logical DRR blocking	CFDXYY	F1	Moderate	No	X: MPU# (*4) YY: DRR# (*9)
	MAIN Blade patrol check error	FFCC0X	F2	Service	No	X: Main Blade# (*2) See TRBL04-840

SIM Reference Codes Detected by the Processor (4/9)

Error		REF CODE	SIM 28	Level of error	SN report	Remarks
		22,23,13				
HSN error (*22)	HMA - CM Logical path blockade	32010X	F1	Moderate	No	X: I Path# (0 ~ 1)
	HMA - MP Logical path blockade	330XY0	F1	Moderate	No	X: HMA# (*28) Y: MPU# (*30)
	MP - CM Logical path blockade	340XY0	F1	Moderate	No	X: MPU# (*30) Y: CM# (*29)
	MP - MP Logical path blockade	342XYZ	F1	Moderate	No	X: MPU# (*30) Y: MPU# (*30) Z: HMA# (*28)

SIMRC02-60**SIM Reference Codes Detected by the Processor (5/9)**

Error		REF CODE	SIM	Level of error	SN report	Remarks
		22,23,13	28			
Cache error	Pinned slot	FF4XYY	F2	Moderate	No	X: CU# (*14) YY: LDEV#
	Cache Module Blockade Processing end	FFC2YX	F2	Service	Yes	X: CM# (*7) Y: CMG# (*12)
	Cache Package Blockade Processing end	FFC30X	F2	Service	Yes	X: CM# (*7)
	Area is volatilized	FFCD0X	F2	Service	No	X: Cluster# (*1)
	Package is volatilized	FFCE0X	F2	Service	No	X: CM# (*7)
	Module group is volatilized	FFCFYX	F2	Service	No	X: CM# (*7) Y: CMG# (*12)
	DIMM Correctable error	FFF0YX	F2	Service	No	X: MAIN Blade# (*2) Y: CMG# (*12)
	Cache temporary error	FFF1YX	F2	Service	Yes	X: MAIN Blade# (*2) Y: CMG# (*12)
	Module group blocking	FFF2YX	F2	Moderate	Yes	X: MAIN Blade# (*2) Y: CMG# (*12)
	Package blocking	FFF30X	F2	Moderate	Yes	X: MAIN Blade# (*2)
	Area blocking	FFF40X	F2	Serious	Yes	X: Cluster# (*1)
	Both area failed	FFF50X	F2	Moderate	No	X: MAIN Blade# (*2)
	Replace failed	FFF90X	F2	Serious	No	X: 0 = Side A, 1 = Side B
	Module group failure detection outside of config	FFFDYX	F2	Service	No	X: MAIN Blade# (*2) Y: CMG# (*12)
	Battery is being charged	FE0000	F2	Serious	No	
	Cache is used because the battery charge is complete	FE0100	F2	Service	No	
	Cache unused due to battery charge amount shortage	FE0200	F2	Moderate	No	
	CFM mounting capacity shortage	FE030X	F2	Serious	No	X: MAIN Blade# (*2)
	Definition/Installation mismatch	FFE800	F1	Acute	No	
Shared memory error	SM area blocking	FFE20X	F1	Serious	Yes	X: Cluster# (*1)
	Replace failed	FFE40X	F1	Serious	No	X: MAIN Blade# (*2)
	Configuration information compare error (*19)	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# (*1)
	Area temporary blocking (*18)	FFEE0X	F1	Service	Yes	X: Cluster# (*1)
	Rebooted without volatilization after an instantaneous down	FFEF00	F1	Service	No	

SIM Reference Codes Detected by the Processor (6/9)

Error		REF CODE 22,23,13	SIM 28	Level of error	SN report	Remarks
Drive error (normal R/W)	Drive port temporary error (Drive path: Boundary 0)	DF6XXX	FE	Service (*17)	No	XXX: CDEV#/RDEV# (*34)
	Drive port temporary error (Drive path: Boundary 1)	DF7XXX	FE	Service (*17)	No	XXX: CDEV#/RDEV# (*34)
	Drive temporary error	EFAXXX	FE	Service (*17)	No	XXX: CDEV#/RDEV# (*34)
	Drive media error	434XXX	FF	Service (*17)	No	XXX: CDEV#/RDEV# (*34)
	Drive port blockade (Drive path: Boundary 0)	DF8XXX	FE	Moderate (*17)	Yes	XXX: CDEV#/RDEV# (*34)
	Drive port blockade (Drive path: Boundary 1)	DF9XXX	FE	Moderate (*17)	Yes	XXX: CDEV#/RDEV# (*34)
	LDEV blockade (Drive path: Boundary 0/ Effect of Drive port blockade) (*16)	DFAXXX	FE	Serious	Yes (*b)	XXX: CDEV#/RDEV# (*34)
	LDEV blockade (Drive path: Boundary 1/ Effect of Drive port blockade) (*16)	DFBXXX	FE	Serious	Yes (*b)	XXX: CDEV#/RDEV# (*34)
	Response late Drive	DFFXXX	FE	Service	No	XXX: CDEV#/RDEV# (*34)
	Drive blockade (drive) (with redundancy)	EF0XXX	FE	Serious	Yes	XXX: CDEV#/RDEV# (*34)
	Drive blockade (drive) (without redundancy)	EF1XXX	FE	Serious	Yes	XXX: CDEV#/RDEV# (*34)
	Drive blockade (Effect of Dynamic sparing normal end)	EF2XXX	FE	Service	Yes (*b)	XXX: CDEV#/RDEV# (*34)
	LDEV blockade (Effect of drive blockade) (*16)	EF9XXX	FE	Serious	Yes (*b)	XXX: CDEV#/RDEV# (*34)
	Drive blockade (media) (with redundancy)	43BXXX	FF	Serious	Yes	XXX: CDEV#/RDEV# (*34)
	Drive blockade (media) (without redundancy)	43CXXX	FF	Serious	Yes	XXX: CDEV#/RDEV# (*34)
	Correction copy start (*20)	451XXX	FE	Service	Yes (*b)	XXX: CDEV#/RDEV# (*34)
	Correction copy normal end (*20)	452XXX	FE	Service	Yes (*a) (*b)	XXX: CDEV#/RDEV# (*34) (Source side drive)
	Correction copy abnormal end (*20)	453XXX	FE	Serious	Yes (*b)	XXX: CDEV#/RDEV# (*34) (Source side drive)

(*a) This SIM is automatically completed after the automatic report of remote maintenance function is completed.

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

SIMRC02-80**SIM Reference Codes Detected by the Processor (7/9)**

Error		REF CODE 22,23,13	SIM 28	Level of error	SN report	Remarks
Drive error (normal R/W)	Correction copy discontinued (*20)	454XXX	FE	Service	No	XXX: CDEV#/RDEV# (*34) (Source side drive)
	Correction copy warning end (*20) (With blockade LDEV or some error)	455XXX	FE	Service	Yes (*b)	XXX: CDEV#/RDEV# (*34) (Source side drive)
	Dynamic sparing start (*20) (Drive copy)	461XXX	FE	Service	Yes	XXX: CDEV#/RDEV# (*34) (Source side drive)
	Dynamic sparing normal end (Drive copy) (*20)	462XXX	FE	Service	Yes (*a)	XXX: CDEV#/RDEV# (*34) (Source side drive)
	Dynamic sparing abnormal end (Drive copy) (*20)	463XXX	FE	Moderate	Yes	XXX: CDEV#/RDEV# (*34) (Source side drive)
	Dynamic sparing discontinued (*20) (Drive copy)	464XXX	FE	Service	No	XXX: CDEV#/RDEV# (*34) (Source side drive)
	Dynamic sparing warning end (With blockade LDEV or some error) (*20) (Drive copy)	465XXX	FE	Service	Yes	XXX: CDEV#/RDEV# (*34) (Source side drive)
	Pinned slot	EF4XYY	FE	Moderate	No	X: CU# (*14) YY: LDEV#
Environment error	UNIT connection cable order error	EFFEXX	F1	Moderate	Yes	XX: SAS Port# (*11)
Drive error (ORM)	Drive temporary error	501XXX	FE	Service	No	XXX: CDEV#/RDEV# (*34) (Source side drive)
	Drive media error	502XXX	FE	Service	No	XXX: CDEV#/RDEV# (*34) (Source side drive)
Flash drive replacement recommenda tion	Flash drive End of life	50BXXX	FE	Service	Yes	XXX: CDEV#/RDEV# (*34)
Flash module drive replacement recommenda tion	Flash module drive End of life	50CXXX	FE	Service	Yes	XXX: CDEV#/RDEV# (*34)

(*a) This SIM is automatically completed after the automatic report of remote maintenance function is completed.

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

SIM Reference Codes Detected by the Processor (8/9)

Error		REF CODE	SIM	Level of error	SN report	Remarks
		22,23,13	28			
Flash module drive error	Flash module drive battery warning	50DXXX	FE	Service	No	XXX: CDEV#/RDEV# (*34)
	Flash module drive battery capacity shortage	50EXXX	FE	Moderate	No	XXX: CDEV#/RDEV# (*34)
	Flash module drive micro-program version warning	50F000	FE	Service	No	See M.M.
Drive microprogram 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	4C1XXX	FE	Service	No (*a)	XXX: CDEV#/RDEV# (*34) (Source side drive)
	PDEV Erase Normal End	4C2XXX	FE	Service	No (*a)	XXX: CDEV#/RDEV# (*34) (Source side drive)
	PDEV Erase Abnormal End	4C3XXX	FE	Service	No (*a)	XXX: CDEV#/RDEV# (*34) (Source side drive)
External device error	External storage system connection device blockade (*24)	EFD000	FE	Serious	Yes	
	Abnormal end of Write processing in External storage system	EF5XYY	FE	Moderate	No	X: CU# (*14) YY: LDEV#
	Abnormal end of Read processing in External storage system	FF5XYY	FE	Moderate	No	X: CU# (*14) YY: LDEV#
Cache Condition	Cache Write Pending ratio is over 65%	491000	F1	Service	No	(*15)
Format	Format complete	4100XX	F1	Service	No (*a)	XX = 00: Normal end 01: Abnormal end 02: Partial abnormal end
	Quick Format finish	410100	F1	Service	No (*a)	

(*a) This SIM is automatically completed after the automatic report of remote maintenance function is completed.

SIMRC02-91**SIM Reference Codes Detected by the Processor (9/9)**

Error		REF CODE	SIM 28	Level of error	SN report	Remarks
		22,23,13				
SVP interface error	Ethernet error for SVP	1400X0	F1	Moderate	Yes (*c)	X: MPB# (*3)
	SIM transfer failure to SVP	1401X0	F1	Serious	Yes (*c)	X: MPB# (*3)
System Disk	Audit Log lost	180000	F1	Moderate	Yes	
	System Disk not access	180100	F1	Moderate	Yes	
Power error	DB power off	AC50XX	F1	Moderate	Yes	XX: DB# (*13)
	DB power recovered (*32)	AC51XX	F1	Service	No	XX: DB# (*13)
	DKC was set to power error mode	AC6000	F1	Moderate	No	
	DKC was released from power error mode	AC6100	F1	Service	No	
	When DKC was set to power error mode, Urgent Destaging start succeeded	AC6200	F1	Service	No	
	When DKC was set to power error mode, Urgent Destaging start failed	AC6300	F1	Moderate	No	
	Server failure	AC8001	F1	Serious	No	
MN Micro-program exchange	MN Micro-program exchange failure	3994X0	F1	Moderate	No	X: MPB# (*3)
Long Life support indicator	The upper temperature limit was exceeded	39A000	F1	Service	Yes (*d)	

(*c) This SIM is not reported to SVP.

(*d) This SIM is automatically completed after the temperature falls within the range.

SIMRC02-100**SIM Reference Codes Detected by the Processor for TrueCopy/HAM (1/2)**

Error		REF CODE	SIM 28	Level of error	SN report	SIM LOG display (SVP) (*a)	Remarks
		22,23,13					
Pair volume status error	TC/HAM started the initialcopy or out of sync for this volume	D00XYY	FE	Service	Yes	No	X: CU# (*14) YY: LDEV#
	TC/HAM completed the initial copy for this volume	D01XYY	FE	Service	Yes	No	X: CU# (*14) YY: LDEV#
	TC/HAM for this volume was deleted (Operation from an SVP/Web Console or a host processor)	D02XYY	FE	Service	Yes	No	X: CU# (*14) YY: LDEV#
	completed the Create pair (No copy suspend)	D06XYY	FE	Service	Yes	No	X: CU# (*14) YY: LDEV#
	Status of the R-VOL is changed	D1ZXYY	FE	Service	Yes	No	X: CU# (*14) YY: LDEV# Z: (*21)

(*a) In the case of “Yes”, SIM LOG will be displayed in the SVP.

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

Error		REF CODE	SIM 28	Level of error	SN report	SIM LOG display (SVP) (*a)	Remarks
		22,23,13					
Pair volume status error	TC/HAM for this volume was suspended (Due to an unrecoverable failure on the remote copy connections)	D40XYX	FE	Serious	Yes	Yes	X: CU# (*14) YY: LDEV#
	TC/HAM for this volume was suspended (Due to an unrecoverable failure on the M-VOL or the remote copyconnections)	D41XYX	FE	Serious	Yes	Yes	X: CU# (*14) YY: LDEV#
	TC/HAM for this volume was suspended (Due to an unrecoverable failure on the R-VOL)	D42XYX	FE	Serious	Yes	Yes	X: CU# (*14) YY: LDEV#
	TC/HAM for this volume was suspended (Due to an internal error condition detected by the RCU)	D44XYX	FE	Serious	Yes	Yes	X: CU# (*14) YY: LDEV#
	TC/HAM for this volume was suspended (Caused by Delete pair operation was issued to the R-VOL)	D45XYX	FE	Serious	Yes	Yes	X: CU# (*14) YY: LDEV#
	The R-VOL has suspended (Due to an unrecoverable failure on the remote copy connections)	D46XYX	FE	Serious	Yes	Yes	X: CU# (*14) YY: LDEV#
	The R-VOL has suspended (Due to an unrecoverable failure on the R-VOL)	D47XYX	FE	Serious	Yes	Yes	X: CU# (*14) YY: LDEV#
	Status of the M-VOL was not consistent with the R-VOL	D4FXYY	FE	Serious	Yes	Yes	X: CU# (*14) YY: LDEV#

(*a) In the case of “Yes”, SIM LOG will be displayed in the SVP.

SIMRC02-120**SIM Reference Codes Detected by the Processor for TrueCopy/UR/HAM (1/1)**

Error		REF CODE	SIM 28	Level of error	SN report	SIM LOG display (SVP) (*a)	Remarks
		22,23,13					
FCP error (Remote Control Port)	Logical path(s) on the remote copy connections was logically blocked (Due to an error conditions) (*23)	2180XX	F1	Moderate	Yes	Yes	XX: CHB# + Port# in CHB (*31)
	The logical path has been recovered from blocked condition on the remote copy conditions	2181XX	F1	Service	Yes	No	XX: CHB# + Port# in CHB (*31)

(*a) In the case of “Yes”, SIM LOG will be displayed in the SVP.

SIMRC02-130

SIM Reference Codes Detected by the Processor for ShadowImage/ Volume Migration/Thin Image (1/1)

Error		REF CODE	SIM 28	Level of error	SN report	Remarks
		22,23,13				
SI error	SI Copy abnormal end	47DXYY	FE	Moderate	Yes	X: CU# (*14) YY: LDEV# (target volume)
	Forcible suspend by SM volatile (SI)	47E700	FE	Moderate	Yes	
Volume Migration error	Volume Migration abnormal end	47FXYY	FE	Moderate	Yes	X: CU# (*14) YY: LDEV# (destination volume)
Thin Image error	Forcible suspend by SM volatile	47EC00	F1	Moderate	Yes	
	Thin Image Option abnormal end	4B3XYY	FE	Moderate	Yes	X: CU# (*14) YY: LDEV#
	Warning before depletion of cache management devices	670000	FE	Moderate	Yes	No service report
Pair Failure SIM Reduce	SI	7FF102	F1	Service	No	
	TI	7FF104	F1	Service	No	
	Volume Migration	7FF106	F1	Service	No	

SIMRC02-140**SIM Reference Codes Detected by the Processor for Thin Image Pool (1/1)**

Error		REF CODE	SIM 28	Level of error	SN report	Corresponding to complete from Web Console	Remarks
		22,23,13					
Thin Image Pool error	Pool utilization threshold excess	601XXX	F1	Moderate	Yes	Yes	XXX: Pool# Due to expectation of user's maintenance operation • No LED light on • No service report (*35)
	Pool blocking	602XXX	F1	Moderate	Yes	Yes	XXX: Pool# XXX: FFE: Pools blocking by SM volatile
	SM Space Warning	603000	F1	Moderate	Yes	Yes	Due to expectation of user's maintenance operation • No LED light on • No service report (*35)
	SM Full	624000	F1	Moderate	Yes	Yes	

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

Error		REF CODE	SIM 28	Level of error	SN report	Corresponding to complete from Web Console	Remarks
		22,23,13					
Dynamic Provisioning Pool error	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
	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
	DP Pool error is detected	623XXX	F1	Moderate	Yes	No	XXX: Pool# XXX=FFE: DP Pools blocking by SM volatile
	SM Full (DP)	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 (*36)
	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
	DP Pool LDEV blockade	627XXX	F1	Moderate	Yes	No	XXX: Pool#
	DP Protect attribute setting of Data Retention Utility	628000	F1	Service	Yes	No	

SIMRC02-160

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

Error		REF CODE	SIM	Level of error	SN report	Remarks
		22,23,13				
DCR Status	PreStaging abnormal end	4821XX	FE	Service	Yes	XX: Reason code

SIMRC02-170**List of Reference Codes of SIMs Detected by UR Processor (1/3)**

Error		REF CODE	SIM 28	Level of error	SN report	Remarks
		22,23,13				
Pair volume failure	A volume to be used by the UR was defined	D80XYY	FE	Service	Yes	X: CU# YY: LDEV# (*14)
	The volume being used by the UR began a copying	D81XYY	FE	Service	Yes	X: CU# YY: LDEV# (*14)
	The volume being used by the UR completed a copying	D82XYY	FE	Service	Yes	X: CU# YY: LDEV# (*14)
	The volume being used by the UR received a request for suspension	D83XYY	FE	Service	Yes	X: CU# YY: LDEV# (*14)
	The volume being used by the UR completed a suspension transaction	D84XYY	FE	Service	Yes	X: CU# YY: LDEV# (*14)
	The volume being used by the UR received a request for deletion	D85XYY	FE	Service	Yes	X: CU# YY: LDEV# (*14)
	The volume being used by the UR completed the deletion	D86XYY	FE	Service	Yes	X: CU# YY: LDEV# (*14)
	The volume being used by the UR was defined (placed in the PSUS status immediately)	D87XYY	FE	Service	Yes	X: CU# YY: LDEV# (*14)
	A change to an S-VOL was received from the MCU	D9ZXYY	FE	Service	Yes	X: CU# YY: LDEV# Z: (*26)
	A change to an S-VOL was received from the RCU	DAZXYY	FE	Service	No	X: CU# YY: LDEV# Z: (*14) (*27)

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

Error		REF CODE 22,23,13	SIM 28	Level of error	SN report	Remarks
Pair volume failure	A volume being used by a P-VOL was suspended (Path recovery was impossible)	DC0XYY	FE	Serious	Yes	X: CU# YY: LDEV# (*14)
	A volume being used by a P-VOL was suspended (A failure on the MCU side was detected)	DC1XYY	FE	Serious	Yes	X: CU# YY: LDEV# (*14)
	A volume being used by a P-VOL was suspended (Suspension of an S-VOL failure was detected)	DC2XYY	FE	Serious	Yes	X: CU# YY: LDEV# (*14)
	A volume being used by a P-VOL was suspended (Suspension of an S-VOL was detected)	DC4XYY	FE	Serious	Yes	X: CU# YY: LDEV# (*14)
	A volume being used by a P-VOL was suspended (Deletion of an S-VOL pair was detected)	DC5XYY	FE	Serious	Yes	X: CU# YY: LDEV# (*14)
	A volume being used by an S-VOL was suspended (Path recovery was impossible)	DC6XYY	FE	Serious	Yes	X: CU# YY: LDEV# (*14)
	A volume being used by an S-VOL was suspended (A failure on the RCU side was detected)	DC7XYY	FE	Serious	Yes	X: CU# YY: LDEV# (*14)
	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# (*14)
	Pair suspend (Spread by error of another Affiliate)	DCAXYY	FE	Serious	Yes	X: CU# YY: LDEV# (*14)
	UR M-JNL Meta FULL WARNING	DCE0XX	FE	Moderate	No	XX: JNLG#
	UR M-JNL Data FULL WARNING	DCE1XX	FE	Moderate	No	XX: JNLG#
	UR R-JNL Meta FULL WARNING	DCE2XX	FE	Moderate	No	XX: JNLG#
	UR R-JNL Data FULL WARNING	DCE3XX	FE	Moderate	No	XX: JNLG#

SIMRC02-190**List of Reference Codes of SIMs Detected by UR Processor (3/3)**

Error		REF CODE	SIM 28	Level of error	SN report	Remarks
		22,23,13				
Pair volume failure	The UR Read JNL was interrupted for one minute (A failure on the MCU side was detected)	DCF0XX	FE	Moderate	No	XX: JNLG#
	The UR Read JNL was interrupted for five minutes (A failure on the MCU side was detected)	DCF1XX	FE	Serious	No	XX: JNLG#
	The UR Read JNL was interrupted for one minute (A failure on the RCU side was detected)	DCF2XX	FE	Moderate	No	XX: JNLG#
	The UR Read JNL was interrupted for five minutes (A failure on the RCU side was detected)	DCF3XX	FE	Serious	No	XX: JNLG#

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

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

(*1) Cluster#: See the table below.

(*2) MAIN Blade#: See the table below.

Cluster	MAIN PCB Location	Cluster# (HEX)	MAIN Blade# (HEX)
Cluster-1	MAIN1	x'0'	x'0'
Cluster-2	MAIN2	x'1'	x'1'

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

(*4) MPU#: MPU consecutive numbers in the device. See the table below show relations with the MPU Location.

Cluster	MPB Location	MPU Location	MPB# (HEX)	MPU# (HEX)
Cluster-1	MPB1	MPU-10	x'0'	x'0'
		MPU-11		x'1'
Cluster-2	MPB2	MPU-20	x'1'	x'2'
		MPU-21		x'3'

(*5) CHB#:

CHB consecutive numbers in the device. See the table below show relations with the CHB Location.

Cluster	CHB Location	CHB# (HEX)
Cluster-1	CHB-1A	x'00'
	CHB-1B	x'01'
	CHB-1C	x'02'
	CHB-1D	x'03'
	CHB-1E	x'04'
	CHB-1F	x'05'
Cluster-2	CHB-2A	x'08'
	CHB-2B	x'09'
	CHB-2C	x'0A'
	CHB-2D	x'0B'
	CHB-2E	x'0C'
	CHB-2F	x'0D'

(*6) DKB#:

DKB consecutive numbers in the device. See the table below show relations with the DKB Location.

Cluster	DKB Location	DKB# (HEX)
Cluster-1	DKB-1E	x'00'
	DKB-1F	x'01'
Cluster-2	DKB-2E	x'02'
	DKB-2F	x'03'

(*7) CM#:

CM consecutive numbers in the device. See the table below show relations with the MAIN Blade Location.

Cluster	MAIN Blade Location	CMG Location	CM# (HEX)
Cluster-1	MAIN1	CMG0	x'0'
		CMG1	x'2'
Cluster-2	MAIN2	CMG0	x'1'
		CMG1	x'3'

(*8) DMA#:

DMA consecutive numbers in the device. Six DMA is loaded with MAIN Blade. See the table below show relations with the MAIN Blade Location.

Cluster	MAIN Blade Location	DMA# (HEX)
Cluster-1	MAIN1	x'00' ~ x'05'
Cluster-2	MAIN2	x'08' ~ x'0D'

(*9) DRR#:

DRR consecutive numbers in the device. Four DRR is loaded with MAIN Blade. See the table below show relations with the MAIN Blade Location.

Cluster	MAIN Blade Location	DRR# (HEX)
Cluster-1	MAIN1	x'00' ~ x'03'
Cluster-2	MAIN2	x'04' ~ x'07'

(*10) Port#:

Channel port consecutive numbers in the device. Port of 4 at the maximum is implemented in each CHB. See the table below show relations with the CHB Location.

Cluster	CHB Location	CHB Port Name	Port# (HEX)	Cluster	CHB Location	CHB Port Name	Port# (HEX)
Cluster-1	CHB-1A	1A	x'00'	Cluster-2	CHB-2A	2A	x'20'
		3A	x'01'			4A	x'21'
		5A	x'02'			6A	x'22'
		7A	x'03'			8A	x'23'
	CHB-1B	1B	x'04'		CHB-2B	2B	x'24'
		3B	x'05'			4B	x'25'
		5B	x'06'			6B	x'26'
		7B	x'07'			8B	x'27'
	CHB-1C	1C	x'08'		CHB-2C	2C	x'28'
		3C	x'09'			4C	x'29'
		5C	x'0A'			6C	x'2A'
		7C	x'0B'			8C	x'2B'
	CHB-1D	1D	x'0C'		CHB-2D	2D	x'2C'
		3D	x'0D'			4D	x'2D'
		5D	x'0E'			6D	x'2E'
		7D	x'0F'			8D	x'2F'
	CHB-1E	1E	x'10'		CHB-2E	2E	x'30'
		3E	x'11'			4E	x'31'
		5E	x'12'			6E	x'32'
		7E	x'13'			8E	x'33'
	CHB-1F	1F	x'14'		CHB-2F	2F	x'34'
		3F	x'15'			4F	x'35'
		5F	x'16'			6F	x'36'
		7F	x'17'			8F	x'37'

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

SAS Port#: SAS Port consecutive numbers.

See the table below show relations with the DKB Location.

Cluster	DKB Location	SASCTL# (HEX)	SAS Port# (HEX)
Cluster-1	DKB-1E	x'00'	x'00'
			x'01'
	DKB-1F	x'01'	x'02'
			x'03'
Cluster-2	DKB-2E	x'02'	x'04'
			x'05'
	DKB-2F	x'03'	x'06'
			x'07'

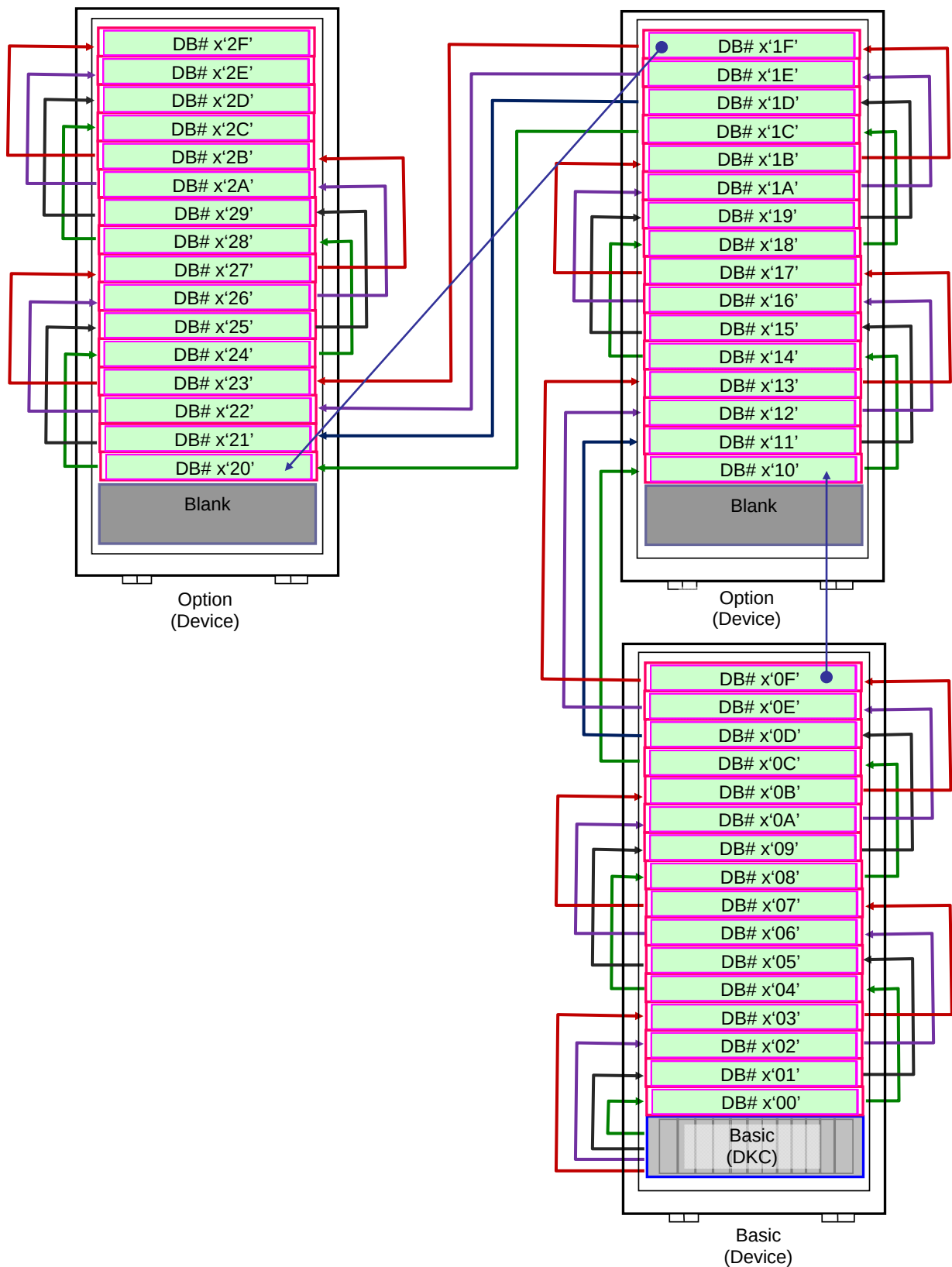
(*12) CMG#:

MG numbers in the MAIN Blade. One CMMG consists of Four pieces of DIMM. See the table below show relations with the DIMM Location.

Cluster	MAIN Blade Location	DIMM Location	CMMG# (HEX)
Cluster-1	MAIN1	CM00 & CM01 & CM02 & CM03	x'0'
		CM10 & CM11 & CM12 & CM13	x'1'
Cluster-2	MAIN2	CM00 & CM01 & CM02 & CM03	x'0'
		CM10 & CM11 & CM12 & CM13	x'1'

(*13) DB#:

x'00' ~ x'2F' indicates the number. See the figure below.



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

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

- (*16) Recover LDEVs according to the procedure shown in [TRBL04-350](#).

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

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

- (*19) 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.

- (*20) Recover the error according to the procedure shown in [TRBL04-140](#).

(*21) Numbers of pair status changes

- x'0': From SMPL to COPY
- x'1': From SMPL to PAIR
- x'2': From COPY to PAIR
- x'3': From COPY to PSUS/PSUE
- x'4': From PAIR to PSUS/PSUE
- x'5': From PAIR to SMPL
- x'6': From COPY to SMPL
- x'7': From PSUS/PSUE to SMPL
- x'8': From PSUS/PSUE to COPY

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

(*23) 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.

(*24) The following information is valid when SIM = 21D0XX, 21D1XX, 21D2XX, EFD000 is reported.

reported.

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

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

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

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

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

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

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

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

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

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

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

SIMRC02-290

(*25) SIM RC = 2194 is valid

	0	1	2	3	4	5	6	7
byte 0x40 byte 0x43	0x0000B6AF (Related SSB Code)							
byte 0x44 byte 0x47	SIM type + Port#							
byte 0x48 byte 0x4B	Starting supervise at time							
byte 0x4C byte 0x4F	Starting supervise at MIC_H timer							
byte 0x50 byte 0x53	SSB reported count (Comprehensive value)							
byte 0x54 byte 0x57	Link Failure supervised timer SVP timer							
byte 0x58 byte 0x5B	Link Failure supervised timer (0.96μsec/count)							
byte 0x5C byte 0x5F	SSB: B65A reported count							
byte 0x60 byte 0x63	SSB: B65C reported count							
byte 0x64 byte 0x67	SSB: B65D reported count							
byte 0x68 byte 0x6B	SSB: B65E reported count							
byte 0x6C byte 0x6F	SSB: B660 reported count							
byte 0x70 byte 0x73	SSB: B661 reported count							
byte 0x74 byte 0x77	SSB: B668 reported count							
byte 0x78 byte 0x7B	SSB: B66A reported count							
byte 0x7C byte 0x7F	SSB: DDA1 reported count							

(*26) Numbers of pair status changes

- x'0': From Simplex to Duplex Pending
- x'1': From Simplex to Duplex
- x'2': From Duplex Pending to Duplex
- x'3': From Duplex Pending to Suspend
- x'4': From Duplex to Suspend
- x'5': From Duplex to Simplex
- x'6': From Duplex Pending to Simplex
- x'7': From Suspend to Simplex
- x'8': From Suspend to Duplex Pending
- x'9': From 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

(*27) 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.

(*28) X, Z show the MAIN Blade# (*2).

(*29) X shows the CM# (*7). When the paths to multiple CMs are blocked at the same time, the value of 0xF is taken.

(*30) X shows the MPU# (*4). When the paths to multiple MPUs are blocked at the same time, the value of 0xF is taken.

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



Cluster	CHB Location	CHB Port Name	CHB# + Port# in PCB (HEX)	Cluster	CHB Location	CHB Port Name	CHB# + Port# in PCB (HEX)
Cluster-1	CHB-1A	1A	x'00'	Cluster-2	CHB-2A	2A	x'40'
		3A	x'01'			4A	x'41'
		5A	x'02'			6A	x'42'
		7A	x'03'			8A	x'43'
	CHB-1B	1B	x'08'		CHB-2B	2B	x'48'
		3B	x'09'			4B	x'49'
		5B	x'0A'			6B	x'4A'
		7B	x'0B'			8B	x'4B'
	CHB-1C	1C	x'10'		CHB-2C	2C	x'50'
		3C	x'11'			4C	x'51'
		5C	x'12'			6C	x'52'
		7C	x'13'			8C	x'53'
	CHB-1D	1D	x'18'		CHB-2D	2D	x'58'
		3D	x'19'			4D	x'59'
		5D	x'1A'			6D	x'5A'
		7D	x'1B'			8D	x'5B'
	CHB-1E	1E	x'20'		CHB-2E	2E	x'60'
		3E	x'21'			4E	x'61'
		5E	x'22'			6E	x'62'
		7E	x'23'			8E	x'63'
	CHB-1F	1F	x'28'		CHB-2F	2F	x'68'
		3F	x'29'			4F	x'69'
		5F	x'2A'			6F	x'6A'
		7F	x'2B'			8F	x'6B'

(*32) After SIM is reported, the DKC recovers from DRIVE BOX that the number is small to order turn.

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

(*34) About “CDEV#/RDEV# (C#/R#)” and “Disk Drive Number”, it is referred to “Physical-Logical Device Matrixes” of [THEORY05-10](#).

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

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

2.2 SIM Reference Codes Detected by the SVP

Error			REF code	SIM 28	Level of error	SN report	Remarks
			22,23,13				
Environmental error	External temperature alarm	Cluster 1	BF1010	F1	Moderate	Yes	
		Cluster 2	BF1011	F1	Moderate	Yes	
	External high temperature warning	Cluster 1	BF1110	F1	Moderate	Yes	
		Cluster 2	BF1111	F1	Moderate	Yes	
	External low temperature warning	Cluster 1	BF1210	F1	Moderate	Yes	
		Cluster 2	BF1211	F1	Moderate	Yes	
	Temperature abnormality warning	MPB1	BF1310	F1	Moderate	No	
		MPB2	BF1311	F1	Moderate	No	
	Temperature abnormality	MPB1	BF1410	F1	Moderate	No	
		MPB2	BF1411	F1	Moderate	No	
		MAIN1	BF1412	F1	Moderate	No	
		MAIN2	BF1413	F1	Moderate	No	
	Injustice DC voltage control	MPB1	BF2010	F1	Moderate	No	
		MPB2	BF2011	F1	Moderate	No	
		MAIN1	BF2012	F1	Moderate	No	
		MAIN2	BF2013	F1	Moderate	No	
	DKCPS warning	DKCPS1	BF4010	F1	Moderate	Yes	
		DKCPS2	BF4110	F1	Moderate	Yes	
	DBPS error		BF50XX	F1	Moderate	Yes	(*1)
	DBPS AC input error		BF60XX	F1	Moderate	Yes	(*1)

Error			REF code	SIM 28	Level of error	SN report	Remarks
			22,23,13				
Environmental error	DKCFAN warning	DKCFAN12	BF7010	F1	Moderate	Yes	
		DKCFAN22	BF7011	F1	Moderate	Yes	
		DKCFAN10	BF7012	F1	Moderate	Yes	
		DKCFAN20	BF7013	F1	Moderate	Yes	
		DKCFAN13	BF7110	F1	Moderate	Yes	
		DKCFAN23	BF7111	F1	Moderate	Yes	
		DKCFAN11	BF7112	F1	Moderate	Yes	
		DKCFAN21	BF7113	F1	Moderate	Yes	
	ENC error		BF80XX	F1	Moderate	No	(*2)
	SVP RAS Switch#1 remains (SVP PS ON/OFF INH SW)		BF85A3	F1	Moderate	Yes	
	External temperature disagreement	Cluster 1	BFA210	F1	Moderate	No	
		Cluster 2	BFA211	F1	Moderate	No	
	PSOFFREQ I/F disagreement	PSOFFREQ0	BFA510	F1	Moderate	No	
		PSOFFREQ1	BFA511	F1	Moderate	No	
	PSOFFOK I/F disagreement	Cluster 1	BFA610	F1	Moderate	No	
		Cluster 2	BFA611	F1	Moderate	No	
	SYSON output disagreement	SYSON0	BFA710	F1	Moderate	No	
		SYSON1	BFA711	F1	Moderate	No	
	DKCPS warning disagreement	DKCPS1	BFA810	F1	Moderate	No	
		DKCPS2	BFA910	F1	Moderate	No	
	PS Status disagreement	MPB1	BFAA10	F1	Moderate	No	
		MPB2	BFAA11	F1	Moderate	No	

Error			REF code	SIM 28	Level of error	SN report	Remarks
			22,23,13				
Environmental error	MN error	Cluster 1	BFAF10	F1	Moderate	No	
		Cluster 2	BFAF11	F1	Moderate	No	
	MN communication error		BFB11X	F1	Moderate	No	(*12)
	Injustice CEMODE	MPB1	BFC010	F1	Moderate	No	
		MPB2	BFC011	F1	Moderate	No	
	Injustice CEDT	MPB1	BFC110	F1	Moderate	No	
		MPB2	BFC111	F1	Moderate	No	
	Battery warning	MAIN1 BATT	BFD012	F1	Moderate	No	
		MAIN2 BATT	BFD013	F1	Moderate	No	
	Battery charge EMPTY	MAIN1	BFD112	F1	Moderate	Yes	
		MAIN2	BFD113	F1	Moderate	Yes	
	CFM warning	MAIN1 CFM	BFD212	F1	Moderate	No	
		MAIN2 CFM	BFD213	F1	Moderate	No	
	Warning for forcible volatile mode	MAIN1	BFD312	F1	Moderate	No	
		MAIN2	BFD313	F1	Moderate	No	
	CM Backup mounting warning	MAIN1 CFM	BFD412	F1	Moderate	Yes	
		MAIN2 CFM	BFD413	F1	Moderate	Yes	
	SVP FAN0 error		BFE400	F1	Moderate	No	
	SVP FAN1 error		BFE401	F1	Moderate	No	
	SVP FAN2 error		BFE402	F1	Moderate	No	
	EXTENDER Hardware error		BFE406	F1	Moderate	No	
	USB interface error		BFE407	F1	Moderate	No	
	ENC data disagreement		BFF0XX	F1	Moderate	No	(*2)

SIMRC02-360

Error		REF code	SIM	Level of error	SN report	Remarks
		22,23,13	28			
SVP failure	Logical inconsistency	70XX00	F1	Moderate	No	(*3)
	Heap error	71XX00	F1	Moderate	No	(*3)
	File error	72XX00	F1	Moderate	No	(*3)
	Windows error	75XX00	F1	Moderate	No	(*3)
	CUDG3 detected error	CHB/DKB	760000	F1	Moderate	No
		MAIN-CM	760400	F1	Moderate	No
	BOOT detected error	7900XY	F1	Moderate	No	(*5), (*7)
	ISDN Router failure	7B0003	F1	Moderate	Yes	
	Invalid SIM data detection	7C0500	F1	Moderate	No	
Processor failure/SVP failure	DKC processor status unviewable and uncontrollable	73XXYY	F1	Moderate	No	XX: (*3) YY: (*5) (See TRBL04-40)
End status of remote micro-program 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	(*4)
	Sum check error	7A04XX	F1	Service	No	(*4)
	Warning (Configuration inconsistency)	7A1000	F1	Service	No	
	Internet download error	7A2000	F1	Service	No	
	Discontinuation by the user	7A2300	F1	Service	No	
Reboot impossible	SVP reboot is impossible (Removable media inserted)	7C0000	F1	Moderate	No	
Battery Check	Battery life is over	7C010X	F1	Service	No	(*11)
Log output failure	Audit Log failure of Host instruction configuration change	7C0200	F1	Moderate	No	
SVP error	Audit Log FTP Transfer failed	7C0300	F1	Moderate	Yes	
Dump Tool	Dump Tool failed	7C0400	F1	Service	Yes	

SIMRC02-370

Error			REF code	SIM 28	Level of error	SN report	Remarks
			22,23,13				
Monitoring Information	Cache Write Pending Ratio Error		7E00XX	F2	Moderate	No	(*10)
	Cache Use Ratio Error		7E05XX	F2	Moderate	No	(*10)
	MP Operating Ratio Error	MP	7E12XY	F1	Moderate	No	(*5)
	Loss Of Signal Count Excess		7E20XY	F1	Moderate	No	(*6)
	Bad Received Character Count Excess		7E21XY	F1	Moderate	No	(*6)
	Loss Of Synchronization Count Excess		7E22XY	F1	Moderate	No	(*6)
	Link Failure Count Excess		7E23XY	F1	Moderate	No	(*6)
	Received EOFa Count Excess		7E24XY	F1	Moderate	No	(*6)
	Discarded Frame Count Excess		7E25XY	F1	Moderate	No	(*6)
	Bad CRC Count Excess		7E26XY	F1	Moderate	No	(*6)
	Protocol Error Count Excess		7E27XY	F1	Moderate	No	(*6)
	Expired Frame Count Excess		7E28XY	F1	Moderate	No	(*6)
	Read Hit Ratio Excess		7E3000	FE	Moderate	No	

SIMRC02-380

Error		REF code	SIM	Level of error	SN report	Remarks
		22,23,13				
Pair Failure SIM Reduce	TC	7FF100	F1	Service	No	
	SI	7FF102	F1	Service	No	
	UR	7FF103	F1	Service	No	
	TI	7FF104	F1	Service	No	
Virus detected	Clean virus from file	7FF4XX	F1	Service	Yes	(*9)
	Quarantine infected file	7FF5XX	F1	Moderate	Yes	(*9)
	Leave alone	7FF6XX	F1	Serious	Yes	(*9)
SVP failure License key	The term of validity is over	7FF7XX	F1	Serious	Yes	(*8)
	The capacity of validity is over	7FF8XX	F1	Serious	Yes	(*8)
	The P.P. is invalid by assumption P.P. invalidity	7FF9XX	F1	Serious	Yes	(*8)
Synchronization time	Synchronization time failure	7FFA00	F1	Service	Yes	
Dump received	WCHK1 dump	3080XY	F1	Moderate	No	(*5)
Processor error	DKC Blockade	30A100	F1	Acute	Yes	

(*1) Error Section (DB part) (1/2)

Byte 13	Error Section
00	DBPS00-1
02	DBPS01-1
04	DBPS02-1
06	DBPS03-1
10	DBPS04-1
12	DBPS05-1
14	DBPS06-1
16	DBPS07-1
20	DBPS08-1
22	DBPS09-1
24	DBPS10-1
26	DBPS11-1
30	DBPS12-1
32	DBPS13-1
34	DBPS14-1
36	DBPS15-1
40	DBPS16-1
42	DBPS17-1
44	DBPS18-1
46	DBPS19-1
50	DBPS20-1
52	DBPS21-1
54	DBPS22-1
56	DBPS23-1
60	DBPS24-1
62	DBPS25-1
64	DBPS26-1
66	DBPS27-1
70	DBPS28-1
72	DBPS29-1
74	DBPS30-1
76	DBPS31-1

Byte 13	Error Section
01	DBPS00-2
03	DBPS01-2
05	DBPS02-2
07	DBPS03-2
11	DBPS04-2
13	DBPS05-2
15	DBPS06-2
17	DBPS07-2
21	DBPS08-2
23	DBPS09-2
25	DBPS10-2
27	DBPS11-2
31	DBPS12-2
33	DBPS13-2
35	DBPS14-2
37	DBPS15-2
41	DBPS16-2
43	DBPS17-2
45	DBPS18-2
47	DBPS19-2
51	DBPS20-2
53	DBPS21-2
55	DBPS22-2
57	DBPS23-2
61	DBPS24-2
63	DBPS25-2
65	DBPS26-2
67	DBPS27-2
71	DBPS28-2
73	DBPS29-2
75	DBPS30-2
77	DBPS31-2

(*1) Error Section (DB part) (2/2)

Byte 13	Error Section
80	DBPS32-1
82	DBPS33-1
84	DBPS34-1
86	DBPS35-1
90	DBPS36-1
92	DBPS37-1
94	DBPS38-1
96	DBPS39-1
a0	DBPS40-1
a2	DBPS41-1
a4	DBPS42-1
a6	DBPS43-1
b0	DBPS44-1
b2	DBPS45-1
b4	DBPS46-1
b6	DBPS47-1

Byte 13	Error Section
81	DBPS32-2
83	DBPS33-2
85	DBPS34-2
87	DBPS35-2
91	DBPS36-2
93	DBPS37-2
95	DBPS38-2
97	DBPS39-2
a1	DBPS40-2
a3	DBPS41-2
a5	DBPS42-2
a7	DBPS43-2
b1	DBPS44-2
b3	DBPS45-2
b5	DBPS46-2
b7	DBPS47-2

(*2) Error Section (DB part) (1/2)

Byte 13	Error Section
00	ENC00-1
02	ENC01-1
04	ENC02-1
06	ENC03-1
10	ENC04-1
12	ENC05-1
14	ENC06-1
16	ENC07-1
20	ENC08-1
22	ENC09-1
24	ENC10-1
26	ENC11-1
30	ENC12-1
32	ENC13-1
34	ENC14-1
36	ENC15-1
40	ENC16-1
42	ENC17-1
44	ENC18-1
46	ENC19-1
50	ENC20-1
52	ENC21-1
54	ENC22-1
56	ENC23-1
60	ENC24-1
62	ENC25-1
64	ENC26-1
66	ENC27-1
70	ENC28-1
72	ENC29-1
74	ENC30-1
76	ENC31-1

Byte 13	Error Section
01	ENC00-2
03	ENC01-2
05	ENC02-2
07	ENC03-2
11	ENC04-2
13	ENC05-2
15	ENC06-2
17	ENC07-2
21	ENC08-2
23	ENC09-2
25	ENC10-2
27	ENC11-2
31	ENC12-2
33	ENC13-2
35	ENC14-2
37	ENC15-2
41	ENC16-2
43	ENC17-2
45	ENC18-2
47	ENC19-2
51	ENC20-2
53	ENC21-2
55	ENC22-2
57	ENC23-2
61	ENC24-2
63	ENC25-2
65	ENC26-2
67	ENC27-2
71	ENC28-2
73	ENC29-2
75	ENC30-2
77	ENC31-2

(*2) Error Section (DB part) (2/2)

Byte 13	Error Section
80	ENC32-1
82	ENC33-1
84	ENC34-1
86	ENC35-1
90	ENC36-1
92	ENC37-1
94	ENC38-1
96	ENC39-1
a0	ENC40-1
a2	ENC41-1
a4	ENC42-1
a6	ENC43-1
b0	ENC44-1
b2	ENC45-1
b4	ENC46-1
b6	ENC47-1

Byte 13	Error Section
81	ENC32-2
83	ENC33-2
85	ENC34-2
87	ENC35-2
91	ENC36-2
93	ENC37-2
95	ENC38-2
97	ENC39-2
a1	ENC40-2
a3	ENC41-2
a5	ENC42-2
a7	ENC43-2
b1	ENC44-2
b3	ENC45-2
b5	ENC46-2
b7	ENC47-2

(*3) Contents of byte 23 when a logical error, a HEAP error, a file error, a LAN error or Windows error occurred

Byte 23	Content
0x00	Dump task
0x01	HDD 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

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

Byte 13	Microprogram type
00	RAM BOOT
01	DKC MAIN
02	HDD
03	SVP
04	CUDG4
05	CONFIG
06	CMBK
07	DKB
08	Expander
09	CFM

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

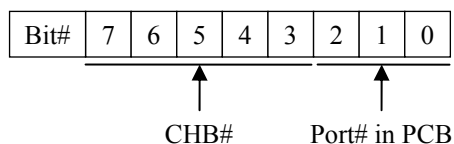
X : MPU# : MPU consecutive numbers in the device (2MPU/1MPB). See the table below show relations with the MPU Location.

Y : MPU MP#

Cluster	MPU Location	Byte13 MPU#+MPU MP#(HEX)
Cluster-1	MPU-10	x'00' ~ x'03'
	MPU-11	x'10' ~ x'13'
Cluster-2	MPU-20	x'20' ~ x'23'
	MPU-21	x'30' ~ x'33'

(*6) Contents of Byte 13 when a Port error occurred

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



Device Module	Cluster	CHB Location	Byte13 CHB# + Port# (HEX)
Basic Module (Module#0)	Cluster-1	CHB-1A	x'00' ~ x'03'
		CHB-1B	x'08' ~ x'0B'
		CHB-1C	x'10' ~ x'13'
		CHB-1D	x'18' ~ x'1B'
		CHB-1E	x'20' ~ x'23'
		CHB-1F	x'28' ~ x'2B'
	Cluster-2	CHB-2A	x'40' ~ x'43'
		CHB-2B	x'48' ~ x'4B'
		CHB-2C	x'50' ~ x'53'
		CHB-2D	x'58' ~ x'5B'
		CHB-2E	x'60' ~ x'63'
		CHB-2F	x'68' ~ x'6B'

- (*7) 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	Define Configuration & Install or MP-Install	Execute it when the P/S ON is executed with CE mode switches to install the microprograms.
	① P/S OFF ② Set the CE mode switches to OFF (upper position) ③ P/S ON	Execute them when you have forgotten to set the CE mode switches to OFF (upper position) in the normal P/S ON.
	(NOTE 1)	
48000041	PCB Replace	Replace the package with another new one.
55000041	PCB Replace	Replace the package with another new one.
56000041	① SVP Replace ② MP-Install ③ PCB Replace	Use the same package in ③.
others	① MP-Install ② PCB Replace	Use the same package in ②.

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

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

Reference address are as follows.

PCB Replace	REP01-300 ~ 310
SVP Replace	REP01-320 (Work ID : RTC7)
MP-Install	MICRO05-10
SSB with the error code 3309	SSBLOG05-3800

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

- (*8) 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
0x03	TrueCopy
0x08	ShadowImage
0x0A	Universal Replicator
0x0B	Universal Volume Manager
0x0E	Open Volume Management
0x12	Data Retention Utility
0x13	LUN Manager
0x15	Cache Residency Manager
0x16	Performance Monitor
0x17	Volume Migration
0x18	Server Priority Manager
0x1B	Storage Navigator
0x1C	SNMP Agent
0x1D	JAVA API
0x20	Configuration File Loader
0x21	Virtual Partition Manager
0x22	Volume Shredder
0x23	Volume Migration V2
0x26	Dynamic Provisioning
0x27	Remote Replication Extended
0x2A	Encryption License Key
0x2B	High Availability Manager
0x2E	Dynamic Tiering
0x2F	SMI-S Provider
0x31	Resource Partition Manager
0x35	Thin Image
0x36	Flash Acceleration
0x37	Flash optimization

(*9) REF CODE 13XX
00 : Basic SVP

(*10) Contents of byte 13 when a Cache error occurred (1/2)

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

(*10) Contents of byte 13 when a Cache error occurred (2/2)

Code	Location	Code	Location	Code	Location	Code	Location
x'40'	MPU-20 CLPR#0	x'41'	MPU-20 CLPR#1	x'42'	MPU-20 CLPR#2	x'43'	MPU-20 CLPR#3
x'44'	MPU-20 CLPR#4	x'45'	MPU-20 CLPR#5	x'46'	MPU-20 CLPR#6	x'47'	MPU-20 CLPR#7
x'48'	MPU-20 CLPR#8	x'49'	MPU-20 CLPR#9	x'4A'	MPU-20 CLPR#10	x'4B'	MPU-20 CLPR#11
x'4C'	MPU-20 CLPR#12	x'4D'	MPU-20 CLPR#13	x'4E'	MPU-20 CLPR#14	x'4F'	MPU-20 CLPR#15
x'50'	MPU-20 CLPR#16	x'51'	MPU-20 CLPR#17	x'52'	MPU-20 CLPR#18	x'53'	MPU-20 CLPR#19
x'54'	MPU-20 CLPR#20	x'55'	MPU-20 CLPR#21	x'56'	MPU-20 CLPR#22	x'57'	MPU-20 CLPR#23
x'58'	MPU-20 CLPR#24	x'59'	MPU-20 CLPR#25	x'5A'	MPU-20 CLPR#26	x'5B'	MPU-20 CLPR#27
x'5C'	MPU-20 CLPR#28	x'5D'	MPU-20 CLPR#29	x'5E'	MPU-20 CLPR#30	x'5F'	MPU-20 CLPR#31
x'60'	MPU-21 CLPR#0	x'61'	MPU-21 CLPR#1	x'62'	MPU-21 CLPR#2	x'63'	MPU-21 CLPR#3
x'64'	MPU-21 CLPR#4	x'65'	MPU-21 CLPR#5	x'66'	MPU-21 CLPR#6	x'67'	MPU-21 CLPR#7
x'68'	MPU-21 CLPR#8	x'69'	MPU-21 CLPR#9	x'6A'	MPU-21 CLPR#10	x'6B'	MPU-21 CLPR#11
x'6C'	MPU-21 CLPR#12	x'6D'	MPU-21 CLPR#13	x'6E'	MPU-21 CLPR#14	x'6F'	MPU-21 CLPR#15
x'70'	MPU-21 CLPR#16	x'71'	MPU-21 CLPR#17	x'72'	MPU-21 CLPR#18	x'73'	MPU-21 CLPR#19
x'74'	MPU-21 CLPR#20	x'75'	MPU-21 CLPR#21	x'76'	MPU-21 CLPR#22	x'77'	MPU-21 CLPR#23
x'78'	MPU-21 CLPR#24	x'79'	MPU-21 CLPR#25	x'7A'	MPU-21 CLPR#26	x'7B'	MPU-21 CLPR#27
x'7C'	MPU-21 CLPR#28	x'7D'	MPU-21 CLPR#29	x'7E'	MPU-21 CLPR#30	x'7F'	MPU-21 CLPR#31

(*11) Contents of Byte 13 when a MAIN Blade error occurred

Byte 13	MAIN Location
00	MAIN1
01	MAIN2

(*12) The part that detected abnormality

X	MPB Location
0	MPB1
1	MPB2

The failed part cannot be identified because this error occurs between MPB1 and MPB2.

Recover the error according to “4.31 Environment monitors inter-MN communication error (SIM = BFB11X)” of [TRBL04-860](#).

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

	0	1	2	3	4	5	6	7
0	x'00'							
1	Permanent Error	'0'		'1'	x'0'			
2		'0'		'1'	x'0'			
3	x'0000'							
4								
5	Device Type (ORB CODE)							
6	Serial # valid	Device address valid	Track address valid	'0'	Format (x'F')			
7	SIM sense record ID (x'E0')							
8	Range subject to the error (*1)				Range affected by repair (*2)			
9	Level of error (*3)		Number of faulty SPs (*4)	Number of SPs in SSID (*5)	Number of faulty SSIDs (*6)	Number of affected SSIDs (*7)	Status (*8)	0
10	Resend SIM (*9)	('0000000')						
11	Hardware level (*10)							
12	Hardware level (*10)							
13	Isolation code (*11)							
14	SSB ID (*12)	SIM sequence number (SIM log record #)						SVP ID (*13)
15	DKC serial number (x'0CE5'+DKC sequence number)							
16								
17								
18								
19								
20	SSID of self storage system							
21	Symptom code (*14)							
22								
23								
24	Logging and Message Control (*15)							
25	Program action code (x'10')							
26	Dual Frame	EDCC Mode	'00'		Asynchronous operation	Serial channel	Report output (1)	'0'
27	'0'	'0000'					Extension path configuration	Fenced storage path
28	x'F1'							
29	Affected SSID							
30								
31	x'00'							

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

	0	1	2	3	4	5	6	7
0	x'00'							
1	Permanent Error	'0'		'1'	x'0'			
2		'0'		'1'	x'0'			
3		x'0000'						
4								
5	Device Type (ORB CODE)							
6	Serial # valid	Device address valid	Track address valid	'0'	Format (x'F')			
7	SIM sense record ID (x'E0')							
8	Range subject to the error (*1)				Range affected by repair (*2)			
9	Level of error (*3)		Number of faulty SPs (*4)	Number of SPs in SSID (*5)	Number of faulty SSIDs (*6)	Number of affected SSIDs (*7)	Status (*8)	0
10	Resend SIM (*9)	('0000000')						
11	Hardware level (*10)							
12	Hardware level (*10)							
13	Isolation code (*11)							
14	SSB ID (*12)	SIM sequence number (SIM log record #)						SVP ID (*13)
15	DKC serial number (x'0CE5'+DKC sequence number)							
16								
17								
18								
19								
20	SSID of self storage system							
21	Symptom code (*14)							
22								
23								
24	Logging and Message Control (*15)							
25	Program action code (x'10')							
26	Dual Frame	EDCC Mode	'00'		Asynchronous operation	Serial channel	Report output	'0'
27	'0'	'0000'				Extension path configuration	Fenced storage path	
28	x'F2'							
29	Affected SSID							
30								
31	x'00'							

SIMRC03-30SIM 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'+DB sequence number)							
16								
17								
18								
19								
20	SSID of self storage system							
21								
22	Symptom code (*14)							
23								
24	Logging & Message Control (*15)							
25	Program Action Code (x'10')							
26	Dual Frame	EDCC Mode	x'0'	x'0'	Asynchro- nous operation	Serial Channel	'1'	'0'
27	x'0'				x'0'	Extension path configu- ration	Storage path	
28	x'FE'							
29	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'+DB sequence number)							
16								
17								
18								
19								
20	SSID of self storage system							
21								
22	Symptom code (*14)							
23								
24	Logging & Message Control (*15)							
25	Program Action Code (x'10')							
26	Dual Frame	EDCC Mode	x'0'	x'0'	Asynchro- nous operation	Serial Channel	'1'	'0'
27	x'0'				x'0'	Extension path configu- ration	Storage path	
28	x'FF'							
29	Cylinder Address High							
30	Cylinder Address Low							
31	Head Address							

(*1) Range subject to the error

① When byte 28 is x'F1' (DKC SIM)

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

② When byte 28 is x'F2' (CACHE SIM)

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

(*2) Range affected by repair

① When byte 28 is x'F1' (DKC SIM)

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

② When byte 28 is x'F2' (CACHE SIM)

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

(*3) Level of error

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

(*4) Number of faulty SPs

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

(*5) Number of SPs in SSID

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

(*6) Number of faulty SSIDs

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

(*7) Number of affected SSIDs

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

(*8) Status

B'0': Degeneration

B'1': Stop

(*9) Resend SIM

B'0': Not resend SIM

B'1': Resend SIM

(*10) Hardware level

Bit 0: ESCON hardware level

[When bit 0 is 0]

Bit 1: Not used

Bits 2-3: Report storage path

Bits 4-5: Number of channels per cluster

B'00' = 4

B'01' = 8

B'10' = Not used

B'11' = Not used

Bit 6: NVS

B'0' = No NVS

B'1' = NVS provided

Bit 7: Not used

Bits 8-10: Cache size

000: Non cache

001: 256MB

010: 512MB

011: 768MB

100: 1024MB

101: 1280MB

110: 1536MB

111: Over 1536MB

Bits 11-13: Cluster hardware level

Bits 14-15: Cache/NVS hardware level

[When bit 0 is 1]

Bit 1: Not used

Bits 2-3: Error storage path

Bits 4-7: Number of channels per cluster

0000: Metal = 4, ESCON = 0

0001: Metal = 8, ESCON = 0

0010: Metal = 4, ESCON = 2

0100: Metal = 4, ESCON = 4

0110: Metal = 0, ESCON = 2

1000: Metal = 0, ESCON = 4

1010: Metal = 0, ESCON = 8

1100: Metal = 0, ESCON = 6

Bit 8: Dual frame

0: Dual frame

1: Modular power

Bits 9-11: Cache size

000: Non cache

001: 256MB

010: 512MB

011: 768MB

100: 1024MB

101: 1280MB

110: 1536MB

111: Over 1536MB

Bits 12-13: Cluster hardware level

Bits 14-15: Cache/NVS hardware level

(*11) Isolation code

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

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

(*12) SSB ID

B'0' = SVP

B'1' = SP

(*13) SVP ID

B'0' = SVP1

B'1' = SVP2

(*14) Symptom code

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

(*15) Logging and Message control

Bit 0 - 3: Not used

Bit 4 - 5: Logging

B'00': Do not log

B'01': Unconditional log

B'10': Log only once

B'11': Log only if persistent

Bit 6 - 7: Operator message

B'00': No message

B'01': Unconditional message

B'10': Send only once

B'11': Send only if persistent

(*16) Service Message

x'1': Action

x'C': No action