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SIM RC SECTION

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Contents

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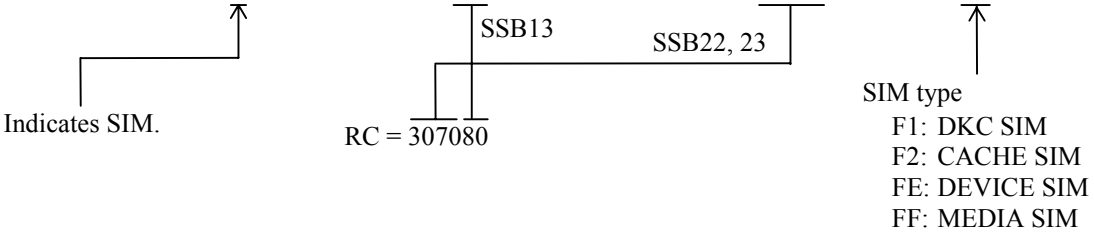
1. Reference Code

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

Byte	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
SIM SSB	00	90	10	00	00	00	8F	E0	44	10	00	04	00	80	04	0C	69	00	00	00	00	02	30	70	05	10	42	C0	F1	00	02	00



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2. Reference Codes

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

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2.1 SIM Reference Codes Detected by the Processor

SIM Reference Codes Detected by the Processor (1/12)

Error		REF CODE 22	REF CODE 23	REF CODE 13	SIM 28	Level of error	Host report	Remarks
LCP/FCP/ HTP error	LCM Hardware error	21	3Z	XY	F1	Moderate	Yes	X: CHA PCB# (*1) Y: LCP#1 (*3) Z: LCP#2 (*3)
	ADP permanent error	21	70	X0	F1	Moderate	Yes	X: CHA PCB# (*1)
	ADP temporary error	21	71	XY	F1	Service	No	X: CHA PCB# (*1) Y: PORT# in PCB (*35)
	ADP blocking	21	72	XY	F1	Moderate	Yes	X: CHA PCB# (*1) Y: PORT# in PCB (*35)
	AL_PA value conflict	21	90	XY	F1	Service	No	X: CHA PCB# (*1) Y: PORT# in PCB (*35)
	Link failure 1	21	93	XY	F1	Serious	Yes	X: CHA PCB# (*1) Y: PORT# in PCB (*49)
	Link failure 2	21	94	XY	F1	Serious	Yes	X: CHA PCB# (*1) Y: PORT# in PCB (*48)
	LCP/FCP/HTP hard error	21	A0	XY	F1	Moderate	Yes	X: CHA PCB# (*1) Y: HTP PATH# (*40)
	LCP/FCP/HTP path temporary error	21	A1	XY	F1	Service	No	X: CHA PCB# (*1) Y: HTP PATH# (*40)
	LCP/FCP/HTP path blocking	21	A2	XY	F1	Moderate	Yes	X: CHA PCB# (*1) Y: HTP PATH# (*40)
	LCP/FCP/HTP blocking	21	A3	XY	F1	Moderate	Yes	X: CHA PCB# (*1) Y: PORT# in PCB (*35)
	Optical signal output failure	21	A6	XY	F1	Moderate	No	X: CHA PCB# (*1) Y: LCP# (*35)
	LED status change failure	21	A7	XY	F1	Moderate	No	X: CHA PCB# (*1) Y: LCP# (*35)
	SFP Fail	21	A8	XY	F1	Moderate	No	X: CHA PCB# (*1) Y: PORT# in PCB (*35)
	IP address conflict detection	21	A9	XY	F1	Service	No	X: CHA PCB# (*1) Y: LCP# (*35)
	SFP TxFault	21	AA	XY	F1	Moderate	No	X: CHA PCB# (*1) Y: PORT# in PCB (*35)
CHA Processor error	CHK1A threshold over	30	70	XY	F1	Service	No	X: CHA PCB# (*1) Y: MP# in PCB
	CHK1B threshold over	30	71	XY	F1	Service	No	X: CHA PCB# (*1) Y: MP# in PCB
	CHK3 threshold over	30	72	XY	F1	Service	No	X: CHA PCB# (*1) Y: MP# in PCB
	Processor blocking	30	73	XY	F1	Moderate	Yes	X: CHA PCB# (*1) Y: MP# in PCB
	FM threshold over	30	74	XY	F1	Service	No	X: CHA PCB# (*1) Y: MP# in PCB
	FM error	30	75	XY	F1	Moderate	Yes	X: CHA PCB# (*1) Y: MP# in PCB
	Incorrect SUM value of FM	30	76	XY	F1	(*27)	No	X: CHA PCB# (*1) Y: MP# in PCB
	Processor Memory Temporary Error	30	77	XY	F1	Service	No	X: CHA PCB# (*1) Y: MP# in PCB

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SIM Reference Codes Detected by the Processor (2/12)

Error		REF CODE 22	REF CODE 23	REF CODE 13	SIM 28	Level of error	Host report	Remarks
CHA Processor error	Processor Memory Temporary Error (ESCON-1 (*55))	30	78	XY	F1	Service	No	X: CHA PCB# Y: MP# in PCB (*1)
	Processor Memory Temporary Error (FICON-1 (*55))	30	79	XY	F1	Service	No	X: CHA PCB# Y: MP# in PCB (*1)
	Processor Memory Temporary Error (OPEN Fibre-1 (*55))	30	7A	XY	F1	Service	No	X: CHA PCB# Y: MP# in PCB (*1)
	Processor Memory Temporary Error (NAS, iSCSI-1 (*55))	30	7B	XY	F1	Service	No	X: CHA PCB# Y: MP# in PCB (*1)
	Processor Memory Temporary Error (ESCON-2 (*56))	30	88	XY	F1	Service	No	X: CHA PCB# Y: MP# in PCB (*1)
	Processor Memory Temporary Error (FICON-2 (*56))	30	89	XY	F1	Service	No	X: CHA PCB# Y: MP# in PCB (*1)
	Processor Memory Temporary Error (OPEN Fibre-2 (*56))	30	8A	XY	F1	Service	No	X: CHA PCB# Y: MP# in PCB (*1)
	Processor Memory Temporary Error (NAS, iSCSI-2 (*56))	30	8B	XY	F1	Service	No	X: CHA PCB# Y: MP# in PCB (*1)
	P/S OFF impossible	38	8F	00	F1	Moderate	No	
	P/S OFF impossible (Device reserved)	38	9F	00	F1	Moderate	No	
	P/S OFF warning (SM backup time not assured)	38	C0	00	F1	Moderate	No	

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SIM Reference Codes Detected by the Processor (3/12)

Error		REF CODE 22	REF CODE 23	REF CODE 13	SIM 28	Level of error	Host report	Remarks
CHA Processor error	Undefined Package is mounted	39	90	XY	F1	Moderate	No	X: CHA PCB# (*1,*5) Y: MP# in PCB
	V-R or serial number is inconsistent	39	91	XY	F1	Moderate	No	X: CHA PCB# (*1) Y: MP# in PCB
	Replace failed	39	93	XY	F1	Moderate	No	X: CHA PCB# (*1) Y: MP# in PCB
	Micro-program version up	39	94	X0	F1	Service	No	X: MP version after replacing (*23)
	Micro-program version up impossible	39	95	XY	F1	Service	No	X: Present MP version (*23) Y: reason code (*13)
	CHF PCB exchange	39	99	XY	F1	Service	No	X: CHA PCB# (*1) Y: MP# in PCB
	Warning of SM DISABLE (MPA detected) (*37)	39	9A	XY	F1	Moderate	No	X: CHA PCB# (*1) Y: 0 = SM Side A Hotline 1 = SM Side B Hotline
	SMA slave error	39	9B	XY	F1	Moderate	No	X: CHA PCB# (*1) Y: MP# in PCB
	MPA slave error	39	9C	XY	F1	Moderate	No	X: CHA PCB# (*1) Y: MP# in PCB
	Injustice DC voltage control (*38)	39	9D	X0	F1	Moderate	No	X: CHA PCB# (*1)
	Injustice CE MODE (*38)	39	9E	X0	F1	Moderate	No	X: CHA PCB# (*1)
	CHT PCB exchange impossible (4GL ↔ 4GS)	39	9F	X0	F1	Moderate	No	X: CHA PCB# (*1)
	CHA patrol check error	39	C0	XY	F1	Service	No	X: CHA PCB# (*1) Y: MP# in PCB
	CHA Memory Correctable error	39	C1	XY	F1	Service	No	X: CHA PCB# Y: MP# in PCB
	Backup/restore SM Information failed	61	00	XX	F1	Moderate	No	XX =00: Backup failed (Hardware factor) 01: Backup failed (Micro factor) 02: Recovery failed

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SIM Reference Codes Detected by the Processor (4/12)

Error		REF CODE			SIM	Level of error	Host report	Remarks
		22	23	13	28			
CHA NAS OS Processor Failure	NAS OS Processor Failure	AC	82	X0	F1	Moderate	Yes	X: CHA PCB# (*44)
	NAS OS Processor Environmental Error	AC	83	X0	F1	Moderate	Yes	X: CHA PCB# (*44)
	NAS OS failure	AC	84	X0	F1	Moderate	Yes	X: CHA PCB# (*44)
	NAS OS failure : Occurrence of a failover or a resource (failure part not reported)	AC	84	01	F1	Moderate	Yes	
	NAS OS failure : Occurrence of a failover	AC	84	X2	F1	Moderate	Yes	X: CHA PCB# (*44)
	NAS OS failure : Occurrence of a LVM_volume failure	AC	84	X3	F1	Moderate	Yes	X: CHA PCB# (*44)
	NAS OS failure : Occurrence of a CLU_partition failure	AC	84	X4	F1	Moderate	Yes	X: CHA PCB# (*44)
	NAS OS failure : Occurrence of a NFS_admin failure	AC	84	X5	F1	Moderate	Yes	X: CHA PCB# (*44)
	NAS OS failure : Occurrence of a File system failure	AC	84	X6	F1	Moderate	Yes	X: CHA PCB# (*44)
	NAS OS failure : Occurrence of a NFS failure	AC	84	X7	F1	Moderate	Yes	X: CHA PCB# (*44)
	NAS OS failure : Occurrence of a IP_address failure	AC	84	X8	F1	Moderate	Yes	X: CHA PCB# (*44)
	NAS OS failure : Occurrence of a CIFS failure	AC	84	X9	F1	Moderate	Yes	X: CHA PCB# (*44)
	NAS OS failure : Occurrence of a scripts start failure	AC	84	XB	F1	Moderate	Yes	X: CHA PCB# (*44)
	NAS OS failure : Occurrence of a GbENIC LinkDown	AC	84	XC	F1	Moderate	Yes	X: CHA PCB# (*44)
	NAS OS failure (Time information acquisition failure from SVP)	AC	84	XD	F1	Moderate	Yes	X: CHA PCB# (*44)
	NAS OS failure : failover completed (Failure)	AC	84	XE	F1	Moderate	Yes	X: CHA PCB# (*44)
	NAS OS failure : failover completed (Success)	AC	84	XF	F1	Moderate	Yes	X: CHA PCB# (*44)
	NAS OS Bus failure	AC	85	X0	F1	Moderate	Yes	X: CHA PCB# (*44)
	Network Port Failure	AC	86	XY	F1	Moderate	Yes	X: CHA PCB# (*44) Y: PORT# of PCB
	NAS OS failure : System Down	AC	87	XY	F1	Serious	No	X: CHA PCB# (*44) Y: Part of failure (classification)
	NAS OS failure : Reduction	AC	88	XY	F1	Moderate	No	X: CHA PCB# (*44) Y: Part of failure (classification)
	NAS OS failure : Alert	AC	89	XY	F1	Service	No	X: CHA PCB# (*44) Y: Part of failure (classification)

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SIM Reference Codes Detected by the Processor (5/12)

Error		REF CODE 22	23	13	SIM 28	Level of error	Host report	Remarks
DKA Processor error	CHK1A threshold over	31	70	XY	F1	Service	No	X: DKA PCB# Y: MP# in PCB (*1)
	CHK1B threshold over	31	71	XY	F1	Service	No	X: DKA PCB# Y: MP# in PCB (*1)
	CHK3 threshold over	31	72	XY	F1	Service	No	X: DKA PCB# Y: MP# in PCB (*1)
	Processor blocking	31	73	XY	F1	Moderate	Yes	X: DKA PCB# Y: MP# in PCB (*1)
	FM threshold over	31	74	XY	F1	Service	No	X: DKA PCB# Y: MP# in PCB (*1)
	FM error	31	75	XY	F1	Moderate	Yes	X: DKA PCB# Y: MP# in PCB (*1)
	Incorrect SUM value of FM	31	76	XY	F1	(*27)	No	X: DKA PCB# Y: MP# in PCB (*1)
	Processor Memory Temporary Error	31	77	XY	F1	Service	No	X: DKA PCB# Y: MP# in PCB (*1)
	Processor Memory Temporary Error (DKF-1 (*55))	31	78	XY	F1	Service	No	X: DKA PCB# Y: MP# in PCB (*1)
	Processor Memory Temporary Error (DKF-2 (*56))	31	88	XY	F1	Service	No	X: DKA PCB# Y: MP# in PCB (*1)
	P/S OFF impossible	3C	8F	00	F1	Moderate	No	
	P/S OFF impossible (Device reserved)	3C	9F	00	F1	Moderate	No	
	P/S OFF warning (SM backup time not assured)	3C	C0	00	F1	Moderate	No	
	Undefined Package is mounted	3D	90	XY	F1	Moderate	No	X: DKA PCB# Y: MP# in PCB (*1,*5)
	V-R or serial number is inconsistent	3D	91	XY	F1	Moderate	No	X: DKA PCB# Y: MP# in PCB (*1)
	Replace failed	3D	93	XY	F1	Moderate	No	X: DKA PCB# Y: MP# in PCB (*1)
	Micro-program version up	3D	94	X0	F1	Service	No	X: MP version after replacing (*23)
	Micro-program version up impossible	3D	95	XY	F1	Service	No	X: Present MP version (*23) Y: reason code (*13)
	Warning of SM DISABLE (MPA detected) (*37)	3D	9A	XY	F1	Moderate	No	X: DKA PCB# (*1) Y: 0 = SM Side A Hotline 1 = SM Side B Hotline
	SMA slave error	3D	9B	XY	F1	Moderate	No	X: DKA PCB# Y: MP# in PCB (*1)
	MPA slave error	3D	9C	XY	F1	Moderate	No	X: DKA PCB# Y: MP# in PCB (*1)
	Injustice DC voltage control (*38)	3D	9D	X0	F1	Moderate	No	X: DKA PCB# (*1)
	Injustice CE MODE (*38)	3D	9E	X0	F1	Moderate	No	X: DKA PCB# (*1)

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SIM Reference Codes Detected by the Processor (6/12)

Error		REF CODE 22	REF CODE 23	REF CODE 13	SIM 28	Level of error	Host report	Remarks
DKA Processor error	FSW LED BUS test	3D	AZ	XY	FE	Moderate	No	X: DKA PCB# (*1) Y: FCA# in PCB (*36) Z: FSW PCB# (*36)
	Tachyon error	3D	B0	XY	FE	Service	No	X: DKA PCB# (*1) Y: MP# in PCB
	DKA patrol check error	3D	C0	XY	F1	Service	No	X: DKA PCB# (*1) Y: MP# in PCB
	DKA Memory Correctable error	3D	C1	XY	F1	Service	No	X: DKA PCB# Y: MP# in PCB
	Backup/restore SM Information failed	61	00	XX	F1	Moderate	No	XX =00: Backup failed (LAN error) 01: Backup failed (Micro factor) 02: Recovery failed

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SIM Reference Codes Detected by the Processor (7/12)

Error		REF CODE 22	REF CODE 23	REF CODE 13	SIM 28	Level of error	Host report	Remarks
SHSN error	Logical path blockade (CHA Processor)	32	8Z	XY	F1	Moderate	No	X: CHA PCB# (*1,*31) Y: MP# in PCB (*45) Z: PATH# 0: A0 PATH 4: C0 PATH 1: A1 PATH 5: C1 PATH 2: B0 PATH 6: D0 PATH 3: B1 PATH 7: D1 PATH
	Logical path blockade (DKA Processor)	33	8Z	XY	F1	Moderate	No	X: DKA PCB# (*1,*31) Y: MP# in PCB (*45) Z: PATH# 0: A0 PATH 4: C0 PATH 1: A1 PATH 5: C1 PATH 2: B0 PATH 6: D0 PATH 3: B1 PATH 7: D1 PATH
CHSN error	Logical path blockade (CHA-DMA0/CL1-CSW)	32	0Z	XY	F1	Moderate	No	X: CHA PCB# (*1,*29) Y: MP# in PCB (*46) Z: C path bitmap
	Logical path blockade (CHA-DMA0/CL2-CSW)	32	1Z	XY	F1	Moderate	No	X: CHA PCB# (*1,*29) Y: MP# in PCB (*46) Z: C path bitmap
	Logical path blockade (CHA-DMA1/CL1-CSW)	32	2Z	XY	F1	Moderate	No	X: CHA PCB# (*1,*29) Y: MP# in PCB (*46) Z: C path bitmap
	Logical path blockade (CHA-DMA1/CL2-CSW)	32	3Z	XY	F1	Moderate	No	X: CHA PCB# (*1,*29) Y: MP# in PCB (*46) Z: C path bitmap
	Logical path blockade (CHA/PMA/CL1-CSW)	32	4Z	XY	F1	Moderate	No	X: CHA PCB# (*1,*29) Y: MP# in PCB (*46) Z: C path bitmap
	Logical path blockade (CHA/PMA/CL2-CSW)	32	5Z	XY	F1	Moderate	No	X: CHA PCB# (*1,*29) Y: MP# in PCB (*46) Z: C path bitmap
	Logical path blockade (DKA/DRR/CL1-CSW)	33	0Z	XY	F1	Moderate	No	X: DKA PCB# (*1,*29) Y: MP# in PCB (*46) Z: C path bitmap
	Logical path blockade (DKA/DRR/CL2-CSW)	33	1Z	XY	F1	Moderate	No	X: DKA PCB# (*1,*29) Y: MP# in PCB (*46) Z: C path bitmap
	Logical path blockade (DKA/FCA0/CL1-CSW)	33	2Z	XY	F1	Moderate	No	X: DKA PCB# (*1,*29) Y: MP# in PCB (*46) Z: C path bitmap
	Logical path blockade (DKA/FCA0/CL2-CSW)	33	3Z	XY	F1	Moderate	No	X: DKA PCB# (*1,*29) Y: MP# in PCB (*46) Z: C path bitmap
	Logical path blockade (DKA/FCA1/CL1-CSW)	33	4Z	XY	F1	Moderate	No	X: DKA PCB# (*1,*29) Y: MP# in PCB (*46) Z: C path bitmap

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SIM Reference Codes Detected by the Processor (8/12)

Error		REF CODE			SIM	Level of error	Host report	Remarks
		22	23	13	28			
CHSN error	Logical path blockade (DKA/FCA1/CL2-CSW)	33	5Z	XY	F1	Moderate	No	X: DKA PCB# (*1,*29) Y: MP# in PCB (*46) Z: C path bitmap
CHA, CHK2 (processor)	RCHA temporary error	3F	84	X0	F1	Service	No	X: CHA PCB# (*1)
	RCHA blocking	3F	85	X0	F1	Serious	Yes	X: CHA PCB# (*1)
DKA CHK2 (processor)	Pinned slot	CF	4X	YY	F1	Moderate	No	X: CU# (*34) YY: LDEV#
	DRR temporary error	CF	80	XY	F1	Service	No	X: DKA PCB# (*1) Y: MP# in PCB
	FCA temporary error	CF	81	XY	F1	Service	No	X: DKA PCB# (*1) Y: Port# (*4)
	DRR blocking	CF	82	XY	F1	Moderate	Yes	X: DKA PCB# (*1) Y: MP# in PCB
	FCA blocking (0-3)	CF	83	XY	F1	Moderate	Yes	X: DKA PCB# (*1) Y: Port# (*4)
	Fibre port blocking (Effect of PATH INLINE failed)	CF	84	XY	F1	Moderate	No	X: DKA PCB# (*1) Y: Port# (*4)
Cache data error	Pinned slot	FF	4X	YY	F2	Moderate	No	X: CU# YY: LDEV#
Cache error	Cache Module Blockade Processing end	FF	C2	YX	F2	Service	Yes	X: PCB# (*1) Side A:Even, Side B:Odd Y: Module group# (*10)
	Cache Package Blockade Processing End	FF	C3	0X	F2	Service	Yes	X: PCB# (*1) Side A:Even, Side B:Odd
	CM/CMA patrol check error	FF	CC	0X	F2	Service	No	X: PCB# (*1) Side A:Even, Side B:Odd
	Area is volatilized	FF	CD	0X	F2	Service	No	X: 0 = Side A,1 = Side B (*2) (*47)
	Package is volatilized	FF	CE	0X	F2	Service	No	X: PCB# (*1) Side A:Even, Side B:Odd
	Module group is volatilized	FF	CF	YX	F2	Service	No	X: PCB# (*1) Side A:Even, Side B:Odd Y: Module group# (*10)
	Correctable error	FF	F0	YX	F2	Service	No	X: PCB# (*1) Side A:Even, Side B:Odd Y: Module group# (*10)
	Cache temporary error	FF	F1	YX	F2	Service	Yes	X: PCB# (*1) Side A:Even, Side B:Odd Y: Module group# (*10)
	Module group blocking	FF	F2	YX	F2	Moderate	Yes	X: PCB# (*1) Side A:Even, Side B:Odd Y: Module group# (*10)
	Package blocking	FF	F3	0X	F2	Moderate	Yes	X: PCB# (*1) Side A:Even, Side B:Odd
	Area blocking	FF	F4	0X	F2	Serious	Yes	X: 0 = Side A, 1 = Side B (*2)
	Both area failed	FF	F5	0X	F2	Moderate	No	X: PCB# (*1) Side A:Even, Side B:Odd

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SIM Reference Codes Detected by the Processor (9/12)

Error		REF CODE 22	REF CODE 23	REF CODE 13	SIM 28	Level of error	Host report	Remarks
Cache error	Injustice DC voltage control (*38)	FF	F6	0X	F2	Moderate	No	X: PCB# (*1) Side A:Even, Side B:Odd
	Injustice CE MODE (*38)	FF	F7	0X	F2	Moderate	No	X: PCB# (*1) Side A:Even, Side B:Odd
	CMA Memory Correctable error	FF	F8	0X	F2	Service	No	X: PCB# Side A:Even, Side B:Odd
	Replace failed (*54)	FF	F9	0X	F2	Serious	No	X: 0 = Side A, 1 = Side B (*2)
	Module group error in On-demand area	FF	FD	YX	F2	Moderate	No	X: PCB# (*1) Y: Module group#
Shared memory error	SMA patrol check error	FF	DC	0X	F1	Service	No	X: PCB# (*2)
	SM MMT patrol check error	FF	DD	00	F1	Serious	No	
	Loss of duplicated information	FF	DE	XX	F1	Service	No	XX: Lost information type (*25)
	One side Area is volatilized	FF	DF	0X	F1	Service	No	X: PCB# (*2)
	Correctable error	FF	E0	YX	F1	Service	No	X: PCB# (*2) Y: Module# (*2,*10)
	Package blocking	FF	E1	0X	F1	Moderate	No	X: PCB# (*2)
	Area blocking	FF	E2	0X	F1	Serious	Yes	X: 0 = Side A, 1 = Side B (*2,*10)
	Real memory size inconsistent	FF	E3	XY	F1	Serious	No	X: Number of module (side A) Y: Number of module (side B) (*8)
	Replace failed (*20)	FF	E4	0X	F1	Serious	No	X: PCB# (*2)
	Both side invalid	FF	E5	00	F1	Acute	No	
	Configuration information compare error (*22)	FF	E6	00	F1	Acute	No	
	Shared memory is volatilized.	FF	E7	00	F1	Serious	No	
	Configuration mismatch	FF	E8	00	F1	Acute	No	
	"DKCMAIN" micro lost	FF	E9	00	F1	Serious	No	(*30)
	HPAV micro lost	FF	E9	01	F1	Serious	Yes	
	Recovery of area blocked temporarily was completed	FF	EA	0X	F1	Service	Yes	X: 0 = Side A, 1 = Side B (*2)
	CHK3 threshold over	FF	EC	0X	F1	Service	No	X: PCB# (*2)
	Area temporary blocking (*19)	FF	EE	0X	F1	Service	Yes	X: 0 = Side A, 1 = Side B (*2)
	Rebooted without volatilization after an instantaneous down	FF	EF	00	F1	Service	No	
	Injustice DC voltage control	FF	D6	0X	F1	Service	No	X: PCB# (*2)
	Injustice CE MODE	FF	D7	0X	F1	Service	No	X: PCB# (*2)
	Module error in On-demand area	FF	ED	YX	F1	Service	No	X: PCB# (*2) Y: Module#

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SIM Reference Codes Detected by the Processor (10/12)

Error		REF CODE 22	REF CODE 23	REF CODE 13	SIM 28	Level of error	Host report	Remarks
Drive error (normal R/W)	Drive port temporary error (Drive path: Boundary 0)	DF	6X	XX	FE	Service (*32)	No	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b)
	Drive port temporary error (Drive path: Boundary 1)	DF	7X	XX	FE	Service (*32)	No	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b)
	Drive temporary error	EF	AX	XX	FE	Service (*32)	No	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b)
	Drive media error	43	4X	XX	FF	Service (*32)	No	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b)
	Drive port blockade (Drive path: Boundary 0)	DF	8X	XX	FE	Moderate (*32)	Yes **	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b)
	Drive port blockade (Drive path: Boundary 1)	DF	9X	XX	FE	Moderate (*32)	Yes **	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b)
	LDEV blockade (Drive path: Boundary 0/ Effect of SCSI blockade) (*15)	DF	AX	XX	FE	Serious	Yes **	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b)
	LDEV blockade (Drive path: Boundary 1/ Effect of SCSI blockade) (*15)	DF	BX	XX	FE	Serious	Yes **	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b)
	Drive blockade (drive) (with redundancy)	EF	0X	XX	FE	Serious	Yes **	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b)
	Drive blockade (drive) (without redundancy)	EF	1X	XX	FE	Serious	Yes **	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b)
	Drive blockade (Effect of Dynamic sparing normal end)	EF	2X	XX	FE	Service	Yes **	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b)
	LDEV blockade (Effect of drive blockade) (*15)	EF	9X	XX	FE	Serious	Yes **	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b)
	Drive blockade by the incorrect set up of a DKU type	EF	FF	0X	FE	Serious	No	X: DKU position (DKU-R:0, DKU-L:1)
	Drive blockade (media) (with redundancy)	43	BX	XX	FF	Serious	Yes **	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b)
	Drive blockade (media) (without redundancy)	43	CX	XX	FF	Serious	Yes **	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b)
	Correction copy start (*7)	45	1X	XX	FE	Service	Yes **	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b) (Source side drive)
	Correction copy normal end (*7)	45	2X	XX	FE	Service	Yes **	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b) (Source side drive)
	Correction copy abnormal end (*7)	45	3X	XX	FE	Serious	Yes **	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b) (Source side drive)
	Correction copy discontinued (*7)	45	4X	XX	FE	Service	No	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b) (Source side drive)

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SIM Reference Codes Detected by the Processor (11/12)

Error		REF CODE 22	REF CODE 23	REF CODE 13	SIM 28	Level of error	Host report	Remarks
Drive error (normal R/W)	Correction copy warning end* (*7) (With blockade LDEV or some error)	45	5X	XX	FE	Service	Yes **	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b) (Source side drive)
	Dynamic sparing start (*7) (Drive copy)	46	1X	XX	FE	Service	Yes **	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b) (Source side drive)
	Dynamic sparing normal end (*7) (Drive copy)	46	2X	XX	FE	Service	Yes **	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b) (Source side drive)
	Dynamic sparing abnormal end (Drive copy) (*7)	46	3X	XX	FE	Moderate	Yes **	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b) (Source side drive)
	Dynamic sparing discontinued (*7)	46	4X	XX	FE	Service	No	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b) (Source side drive)
	Dynamic sparing warning end* (With blockade LDEV or some error) (Drive copy) (*7)	46	5X	XX	FE	Service	Yes **	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b) (Source side drive)
	Pinned slot	EF	4X	YY	FE	Moderate	No	X: CU# YY: LDEV#
Drive error (ORM)	Drive temporary error	50	1X	XX	FE	Service	No	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b)
	Drive media error	50	2X	XX	FF	Service	No	XXX: Drive number (*43) (CDEV#:5b+RDEV#:7b)
Drive micro-program exchange (OEM drive)	OEM drive Microprogram exchange start	4A	10	00	FE	Service	No	
	OEM drive Microprogram exchange normal end	4A	20	00	FE	Service	No	
	OEM drive Microprogram exchange abnormal end	4A	30	00	FE	Service	No	
	OEM drive Microprogram exchange discontinued	4A	40	00	FE	Service	No	

* : Warning end : (1) LDEV blockade status is detected, and copy process for the LDEV is skipped.
(2) Some failures are detected, and copy process is complete.

** : When the drive is 3880 emulation mode, the SIM is not reported to host.

*** : The SIM is not reported to SVP.

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SIM Reference Codes Detected by the Processor (12/12)

Error		REF CODE			SIM	Level of error	Host report	Remarks
		22	23	13	28			
Cache Condition	Cache Write Pending ratio is over 65%	49	10	00	F1	Service	No	(*53)
CSW error	Injustice DC voltage control (*38)	FF	20	0X	F1	Moderate	No	X: CSW PCB# (*1)
	Injustice CE MODE (*38)	FF	21	0X	F1	Moderate	No	X: CSW PCB# (*1)
	CARB patrol check error	FF	22	0X	F1	Service	No	X: CSW PCB# (*1)
	CARB Memory Correctable error	FF	23	0X	F1	Service	No	X: CSW PCB#
SVP interface error (CHA side)	Ethernet error for SVP	14	00	X0	F1	Moderate	Yes	X: CHA PCB# (*1)
	SIM transfer failure to SVP	14	01	X0	F1	Serious	Yes	X: CHA PCB# (*1)
SVP interface error (DKA side)	Ethernet error for SVP	15	00	X0	F1	Moderate	Yes	X: DKA PCB# (*1)
	SIM transfer failure to SVP	15	01	X0	F1	Serious	Yes	X: DKA PCB# (*1)
Power error	HDU power off	AC	50	XY	F1	Moderate	Yes	X: DKU number (*12) Y: HDU number (*12)
	HDU power recovered	AC	51	XY	F1	Service	No	X: DKU number (*12) Y: HDU number (*12)
	DKC was set to power error mode	AC	60	00	F1	Moderate	No	
	DKC was released from power error mode	AC	61	00	F1	Service	No	
	When DKC was set to power error mode, Urgent Destaging start succeeded.	AC	62	00	F1	Service	No	
	When DKC was set to power error mode, Urgent Destaging start failed.	AC	63	00	F1	Moderate	No	
	Power Urgent Destaging start	AC	73	00	F1	Moderate	No	
	Power Urgent Destaging finish	AC	74	00	F1	Moderate	No	
Server error	DB Validation error	AC	90	00	F1	Serious	No	(*41)

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SIM Reference Codes Detected by the Processor for HRC/HODM (1/2)

Error		REF CODE 22	REF CODE 23	REF CODE 13	SIM 28	Level of error	Host report	Remarks
LCP/FCP error (Remote Control Port)	Logical path(s) on the remote copy connections was logically blocked (Due to an error conditions) (*33)	21	80	XY	F1	Moderate	Yes (*52)	X: CHA PCB# (*1) Y: PORT# in PCB (*35)
	The logical path has been recovered from blocked condition on the remote copy conditions.	21	81	XY	F1	Service	Yes (*52)	X: CHA PCB# (*1) Y: PORT# in PCB (*35)
	MCU has received the notification of communication line error detection from extender.	21	82	XY	F1	Moderate	Yes (*52)	X: CHA PCB# (*1) Y: PORT# in PCB (*35)
Pair volume status error	HRC started the initial copy or out of sync for this volume.	D0	0X	YY	FE	Service	Yes (*17)	X: CU# YY:LDEV#
	HRC completed the initial copy for this volume.	D0	1X	YY	FE	Service	Yes (*17)	X: CU# (*34) YY: LDEV#
	HRC for this volume was deleted. (Operation from an SVP/remote console or a host processor)	D0	2X	YY	FE	Service	Yes (*17)	X: CU# (*34) YY: LDEV#
	MCU changed volume pair status. (Operation from an SVP/remote console or a host processor)	D0	3X	YY	FE	Service	No	X: CU# (*34) YY: LDEV#
	Status of the R-VOL is changed.	D1	ZX	YY	FE	Service	Yes (*17)	X: CU# (*34) YY: LDEV# Z: (*16)
	RCU changed status of R-VOL to suspend. (Operation from an SVP/remote console or a host processor.)	D2	0X	YY	FE	Service	No	X: CU# (*34) YY: LDEV#
	Status of the R-VOL was changed from suspend to simplex. (Operation from an SVP/remote console or a host processor.)	D2	1X	YY	FE	Service	No	X: CU# (*34) YY: LDEV#
	Status of R-VOL was changed from duplex to simplex. (Operation from an SVP/remote console or a host processor.)	D2	2X	YY	FE	Service	No	X: CU# (*34) YY: LDEV#
	Status of the R-VOL was changed from pendingduplex to simplex. (Operation from an SVP/remote console or a host processor.)	D2	3X	YY	FE	Service	No	X: CU# (*34) YY: LDEV#

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SIM Reference Codes Detected by the Processor for HRC/HODM (2/2)

Error		REF CODE 22	REF CODE 23	REF CODE 13	SIM 28	Level of error	Host report	Remarks
Pair volume status error	HODM started the migration copy or out of sync for this volume.	D3	0X	YY	FE	Service	Yes (*17)	X: CU# YY: LDEV# (*34)
	HODM completed the migration copy for this volume.	D3	1X	YY	FE	Service	Yes (*17)	X: CU# YY: LDEV# (*34)
	HODM for this volume was deleted. (Operation from an SVP/remote console)	D3	2X	YY	FE	Service	Yes (*17)	X: CU# YY: LDEV# (*34)
	HODM started the erase operation for the R-VOL.	D3	AX	YY	FE	Service	No (*17)	X: CU# YY: LDEV# (*34)
	HODM completed the erase operation for the R-VOL.	D3	BX	YY	FE	Service	No (*17)	X: CU# YY: LDEV# (*34)
	HRC/HODM for this volume was suspended (Due to an unrecoverable failure on the remote copy connections.)	D4	0X	YY	FE	Serious	Yes (*17)	X: CU# YY: LDEV# (*34)
	HRC/HODM for this volume was suspended (Due to an unrecoverable failure on the M-VOL or the remote copy connections)	D4	1X	YY	FE	Serious	Yes (*17)	X: CU# YY: LDEV#
	HRC/HODM for this volume was suspended (Due to an unrecoverable failure on the R-VOL)	D4	2X	YY	FE	Serious	Yes (*17)	X: CU# YY: LDEV#
	HRC for this volume was suspended (Caused by DFW to the R-VOL was prohibited)	D4	3X	YY	FE	Serious	Yes (*17)	X: CU# YY: LDEV#
	HRC for this volume was suspended (Due to an internal error condition detected by the RCU)	D4	4X	YY	FE	Serious	Yes (*17)	X: CU# YY: LDEV#
	HRC for this volume was suspended (Caused by Delete pair operation was issued to the R-VOL)	D4	5X	YY	FE	Serious	Yes (*17)	X: CU# YY: LDEV#
	Erase operation for this volume was not completed. (Due to error conditions)	D4	8X	YY	FE	Serious	Yes (*17)	X: CU# YY: LDEV#
	MCU detected a Moderate Level SIM for RCU.	D4	DX	YY	FE	Moderate	Yes (*18)	X: CU# YY: LDEV#
	MCU detected an Acute or Serious Level SIM for RCU.	D4	EX	YY	FE	Serious	Yes (*18)	X: CU# YY: LDEV#
	Status of the M-VOL was not consistent with the R-VOL.	D4	FX	YY	FE	Serious	Yes (*17)	X: CU# YY: LDEV#
Command device operation	Command device operation execution of command device in state of ONLINE	D5	7X	YY	FE	Service	No	X: CU# YY: LDEV# (*34)

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SIM Reference Codes Detected by the Processor for HRC/HORC (Asynchronous) (1/2)

Error		REF CODE			SIM	Level of error	Host report	Remarks
		22	23	13	28			
Pair volume status error	HRC started the initial copy or out of sync for this volume.	D5	0X	YY	FE	Service	Yes (*17)	X: CU# YY: LDEV# (*34)
	HRC completed the initial copy for this volume.	D5	1X	YY	FE	Service	Yes (*17)	X: CU# YY: LDEV# (*34)
	HRC for this volume was accepted delete pair operation. (Operation from an SVP/remote console or a host processor)	D5	2X	YY	FE	Service	Yes (*17)	X: CU# YY: LDEV# (*34)
	HRC for this volume was accepted suspend pair operation. (Operation from an SVP/remote console or a host processor)	D5	3X	YY	FE	Service	Yes (*17)	X: CU# YY: LDEV# (*34)
	Delete pair operation for this HRC volume has completed.	D5	4X	YY	FE	Service	Yes (*17)	X: CU# YY: LDEV# (*34)
	Suspend pair operation for this HRC volume has completed.	D5	5X	YY	FE	Service	Yes (*17)	X: CU# YY: LDEV# (*34)
	The R-VOL status has changed as requested by MCU.	D6	ZX	YY	FE	Service	Yes (*17)	X: CU# YY: LDEV# (*34) Z: (*16)
	The R-VOL has accepted/completed state change as requested by operation. (Operation from an SVP/remote console or a host processor.)	D7	ZX	YY	FE	Service	No	X: CU# YY: LDEV# (*34) Z: (*26)
	The M-VOL has suspended. (Due to an unrecoverable failure on the remote copy connections.)	DB	0X	YY	FE	Serious	Yes (*17)	X: CU# YY: LDEV# (*34)
	The M-VOL has suspended. (Due to an unrecoverable failure on the M-VOL or the remote copy connections)	DB	1X	YY	FE	Serious	Yes (*17)	X: CU# YY: LDEV# (*34)
	The M-VOL has suspended. (Due to an unrecoverable failure on the R-VOL)	DB	2X	YY	FE	Serious	Yes (*17)	X: CU# YY: LDEV# (*34)
	The M-VOL has suspended. (Caused by DFW to the R-VOL was prohibited)	DB	3X	YY	FE	Serious	Yes (*17)	X: CU# YY: LDEV# (*34)
	The M-VOL has suspended. (Caused by Suspend pair operation was issued to the R-VOL)	DB	4X	YY	FE	Serious	Yes (*17)	X: CU# YY: LDEV# (*34)

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SIM Reference Codes Detected by the Processor for HRC/HORC (Asynchronous) (2/2)

Error		REF CODE			SIM	Level of error	Host report	Remarks
		22	23	13	28			
Pair volume status error	The M-VOL has suspended. (Caused by Delete pair operation was issued to the R-VOL)	DB	5X	YY	FE	Serious	Yes (*17)	X: CU# YY: LDEV# (*34)
	The R-VOL has suspended. (Due to an unrecoverable failure on the remote copy connections)	DB	6X	YY	FE	Serious	Yes (*17)	X: CU# YY: LDEV# (*34)
	The R-VOL has suspended. (Due to an unrecoverable failure on the R-VOL)	DB	7X	YY	FE	Serious	Yes (*17)	X: CU# YY: LDEV# (*34)
	The R-VOL has suspended. (Due to an MCU power-off event)	DB	8X	YY	FE	Service	No	X: CU# YY: LDEV# (*34)
	MCU detected a Service Level SIM for RCU.	DB	CX	YY	FE	Service	Yes	X: CU# YY: LDEV# (*34)
	MCU detected a Moderate Level SIM for RCU.	DB	DX	YY	FE	Moderate	Yes	X: CU# YY: LDEV# (*34)
	MCU detected an Acute or Serious Level SIM for RCU.	DB	EX	YY	FE	Serious	Yes	X: CU# YY: LDEV# (*34)
	Status of the M-VOL was not consistent with the R-VOL.	DB	FX	YY	FE	Serious	Yes (*17)	X: CU# YY: LDEV# (*34)

Notice : SIM which REF.CODE is DB7XXX may be reported in the following case.

- When the Suspend Pair operation with the Drain option is accepted by the MCU/RCU under the host I/O.
- When the Delete Pair operation with the Group option is accepted by the RCU under the host I/O.

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SIM Reference Codes Detected by the Processor for HMRCF/HOMRCF/HIHSM/HXRC/HRCA (1/1)

Error		REF CODE			SIM	Level of error	Host report	Remarks
		22	23	13	28			
HMRCF error or HOMRCF error	Copy abnormal end	47	DY	XX	FE	Moderate	Yes	XX: T-Vol# Y: CU# (*34)
	ShadowImage-FlashCopy (R) Option abnormal end	4B	0Y	XX	FE	Moderate	Yes	XX: T-Vol# Y: CU# (*34)
	All ShadowImage-FlashCopy (R) Option abnormal end by SM volatile	47	E6	00	F1	Moderate	Yes	
	ShadowImage-FlashCopy (R) version2 Option abnormal end	4B	2Y	XX	FE	Moderate	Yes	XX: T-Vol# Y: CU# (*34)
	All ShadowImage-FlashCopy (R) version2 Option abnormal end by SM volatile	47	E5	00	F1	Moderate	Yes	
	Forcible suspend by SM volatile	47	E7	00	FE	Moderate	Yes	
	System Option MODE80 and HMRCF/HOMRCF settings are inconsistent.	47	E0	00	FE	Moderate	No	
HIHSM error	HIHSM Volume Migration Abnormal End	47	FY	XX	FE	Moderate	No	XX: S-Vol# Y: CU# (*34)
HXRC/ HRCA error	Sidefile 'sleep wait' threshold over	49	0X	YY	FE	Service	Yes	X: CU# (*34) YY: LDEV# SVP MODE 118 ON: Generate SIM
Hi-Copy error	Copy abnormal end	4B	1Y	XX	FE	Moderate	Yes	XX: S-Vol# Y: CU#

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

Error		REF CODE			SIM	Level of error	Host report	Corresponding to complete from WebCon	Remarks
		22	23	13	28				
Pool error	Pool utilization threshold excess	60	00	XX	F1	Moderate	Yes	Yes	XX: Pool #
	Pool blocking	60	01	XX	F1	Moderate	Yes	Yes	XX: 00~7F: Pool # FF: SM Full

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

Error		REF CODE			SIM	Level of error	Host report	Remarks
		22	23	13	28			
DCR Status	PreStaging abnormal end	48	21	XX	FE	Service	No	XX: Reason code (*11)

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SIM Reference Codes Detected by the Processor for External Subsystem Connection (1/1)

Error		REF CODE			SIM	Level of error	Host report	Remarks
		22	23	13	28			
External Subsystem Connection	External Subsystem Connection Path Failure	21	D0	XY	F1	Moderate	Yes	X:CHA PCB# Y:PORT# in PCB (*1) (*35) (*42)
	External Subsystem Connection Path recovery	21	D1	XY	F1	Service	No	X:CHA PCB# Y:PORT# in PCB (*1) (*35) (*42)
	External Subsystem path response time out threshold over	21	D2	XY	F1	Service	Yes	X:CHA PCB# Y:PORT# in PCB (*1) (*35) (*42)
	External Subsystem Device failure	EF	D0	00	FE	Serious	Yes	(*42)

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

Error		REF CODE			SIM	Level of error	Host report	Remarks
		22	23	13	28			
LCP/FCP failure (Remote control port)	The remote copy logical path was blockaded (owing to a failure). (*33)	21	80	XY	F1	Moderate	Yes (*52)	X:CHA PCB# (*1) Y:PORT# in PCB (*35)
	Recovery of the remote copy logical path	21	81	XY	F1	Service	No	X:CHA PCB# (*1) Y: PORT# in PCB (*35)
	Reception of a line failure notice from the extender	21	82	XY	F1	Moderate	Yes (*52)	X:CHA PCB# (*1) Y: PORT# in PCB (*35)
Pair volume failure	A volume to be used by the UR was defined	D8	0X	YY	FE	Service	Yes (*57)	X:CU# (*34) YY:LDEV#
	The volume being used by the UR began a copying	D8	1X	YY	FE	Service	Yes (*57)	X:CU# (*34) YY:LDEV#
	The volume being used by the UR completed a copying	D8	2X	YY	FE	Service	Yes (*57)	X:CU# (*34) YY:LDEV#
	The volume being used by the UR received a request for suspension	D8	3X	YY	FE	Service	Yes (*57)	X:CU# (*34) YY:LDEV#
	The volume being used by the UR completed a suspension transaction	D8	4X	YY	FE	Service	Yes (*57)	X:CU# (*34) YY:LDEV#
	The volume being used by the UR received a request for deletion	D8	5X	YY	FE	Service	Yes (*57)	X:CU# (*34) YY:LDEV#
	The volume being used by the UR completed the deletion	D8	6X	YY	FE	Service	Yes (*57)	X:CU# (*34) YY:LDEV#
	The volume being used by the UR was defined (placed in the PSUS status immediately)	D8	7X	YY	FE	Service	Yes (*57)	X:CU# (*34) YY:LDEV#
	A Delta volume to be used by the UR was defined	D8	8X	YY	FE	Service	Yes (*57)	X:CU# (*34) YY:LDEV#
	A Delta volume to be used by the UR was redefine	D8	9X	YY	FE	Service	Yes (*57)	X:CU# (*34) YY:LDEV#
	A change to an S-VOL was received from the MCU	D9	ZX	YY	FE	Service	Yes (*57)	X:CU# (*34) YY:LDEV# Z: (*50)
	A change to an S-VOL was received from the RCU	DA	ZX	YY	FE	Service	No	X:CU# (*34) YY:LDEV# Z: (*51)

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

Error		REF CODE			SIM	Level of error	Host report	Remarks
		22	23	13	28			
Pair volume failure	A volume being used by a P-VOL was suspended (Path recovery was impossible)	DC	0X	YY	FE	Serious	Yes (*57)	X:CU# YY:LDEV# (*34)
	A volume being used by a P-VOL was suspended (A failure on the MCU side was detected)	DC	1X	YY	FE	Serious	Yes (*57)	X:CU# YY:LDEV# (*34)
	A volume being used by a P-VOL was suspended (Suspension of an S-VOL was detected)	DC	4X	YY	FE	Serious	Yes (*57)	X:CU# YY:LDEV# (*34) (*58)
	A volume being used by a P-VOL was suspended (Deletion of an S-VOL pair was detected)	DC	5X	YY	FE	Serious	Yes (*57)	X:CU# YY:LDEV# (*34)
	A volume being used by an S-VOL was suspended (Path recovery was impossible)	DC	6X	YY	FE	Serious	Yes (*57)	X:CU# YY:LDEV# (*34)
	A volume being used by an S-VOL was suspended (A failure on the RCU side was detected)	DC	7X	YY	FE	Serious	Yes (*57)	X:CU# YY:LDEV# (*34)
	A volume being used by an S-VOL was suspended (P/S OFF on the MCU side was detected)	DC	8X	YY	FE	Service	No	X:CU# YY:LDEV# (*34)
	A Delta volume being used by a P-VOL was suspended	DC	9X	YY	FE	Serious	Yes (*57)	X:CU# YY:LDEV# (*34)

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

Error		REF CODE			SIM	Level of error	Host report	Remarks
		22	23	13	28			
Pair volume failure	UR M-JNL Meta overflow warning	DC	E0	AA	FE	Moderate	No	AA:JNLG#
	UR M-JNL Data overflow warning	DC	E1	AA	FE	Moderate	No	AA:JNLG#
	UR R-JNL Meta overflow warning	DC	E2	AA	FE	Moderate	No	AA:JNLG#
	UR R-JNL Data overflow warning	DC	E3	AA	FE	Moderate	No	AA:JNLG#
	The UR Read JNL was interrupted for one minute (A failure on the MCU side was detected)	DC	F0	AA	FE	Moderate	No	AA:JNLG#
	The UR Read JNL was interrupted for five minutes (A failure on the MCU side was detected)	DC	F1	AA	FE	Serious	No	AA:JNLG#
	The UR Read JNL was interrupted for one minute (A failure on the RCU side was detected)	DC	F2	AA	FE	Moderate	No	AA:JNLG#
	The UR Read JNL was interrupted for five minutes (A failure on the RCU side was detected)	DC	F3	AA	FE	Serious	No	AA:JNLG#

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(*1)

CHA PCB#: x‘4’ (Slot 1A), x‘5’ (Slot 1B), x‘c’ (Slot 2F), x‘d’ (Slot 2E) indicates the CHA PCB number. See the figure below.

DKA PCB#: x‘0’ (Slot 1A) x‘4’ (Slot 2F) indicates the DKA PCB number. See the figure below.

CSW PCB#: x‘0’ to x‘1’ indicates the CSW PCB number. See the figure below.

Cache PCB#: x‘0’ to x‘1’ indicates the Cache PCB number. See the figure below.

SM PCB#: x‘0’ to x‘1’ indicates the SM PCB number. See the figure below.

(*2) Side A/B: Indicates the side of cache/shared memory. See the figure below.

	Boundary 0 (cluster 1)			Boundary 1 (cluster 2)		
			Side A	Side B		
	MIX/ CHA 1A	CHA 1B	BASE (CSW0 + SM0 + Cache0) 1C	BASE (CSW1 + SM1 + Cache1) 2D	CHA 2E	MIX/ CHA 2F
MP# in PCB	0 ~ 7	0 ~ 7			0 ~ 7	0 ~ 7
CHA PCB#	4	5			d	c
DKA PCB#	0					4
SM PCB#			0	1		
Cache PCB#			0	1		
CSW PCB#			0	1		

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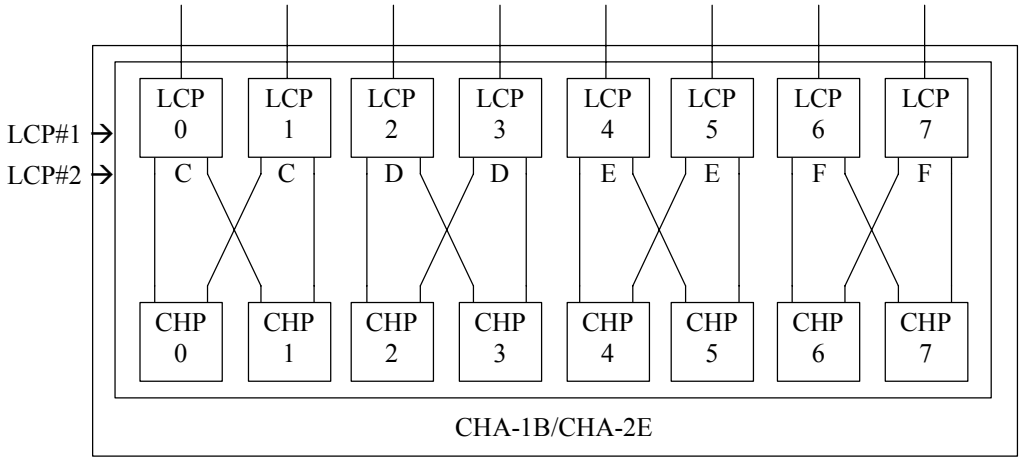
(*3)

LCP #1: x‘0’ to x‘7’ indicates the LCP number.
LCP #2: x‘8’ to x‘F’ indicates the LCP number.



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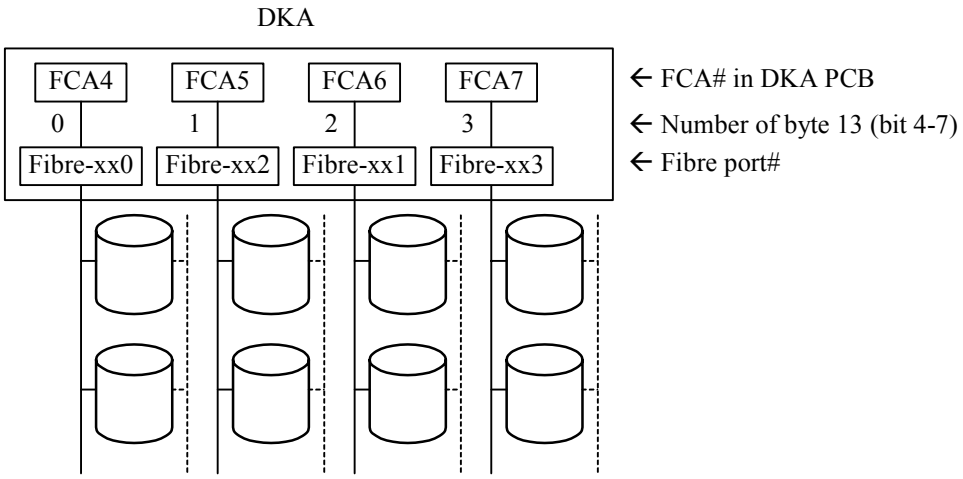
(*4) Port #: x‘0’ to x‘3’ indicates the FIBRE port number. See the figure below.



(*5) The package that is not defined in the configuration information exists.
If it is prepared for new installation, it is necessary to do the new installation procedure.
Otherwise it should be pulled out by executing P/S off.

(*7) Isolate the error according to the procedure shown in TRBL05-210.

(*8) Recover the error according to the procedure shown in TRBL05-360.

(*10) Perform error isolation according to the procedure given in the two separate pages attached to TRBL05-390.
Refer to LOC02-40 and check the DIMM replacement position.

(*11) 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‘90’:	PreStaging canceled
x‘EA’,x‘a0’:	Cache over loaded
x‘EB’, x‘b0’:	Some MP’s blockade

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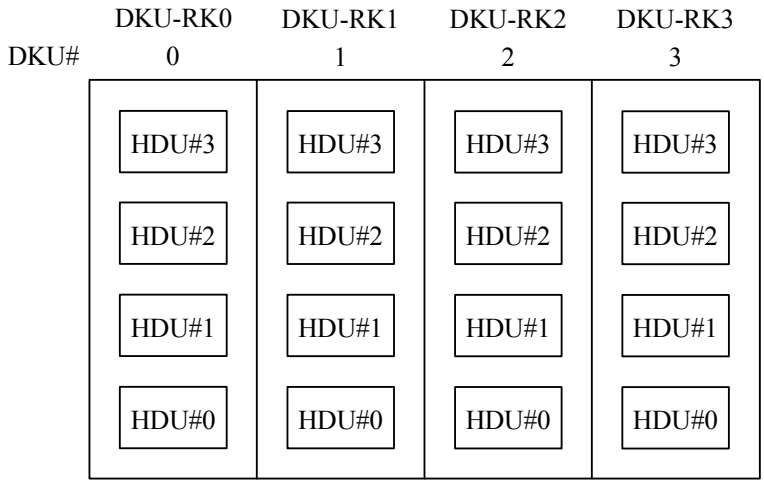
(*12) DKU#: x‘0’ to x‘4’ indicates DKU-RK number. See the figure below.
HDU#: x‘0’ to x‘3’ indicates HDU number. See the figure below.



(*13) reason code
x‘0’: Pinned data exist
x‘1’: The shutdown of the power supply was occurred
x‘2’: Invalid Version/Revision exists

(*15) This SIM occurs even if a single PDEV failure or a single Port failure occurs in ECC-Gr which you operate CVS.
Recover LDEVs according to the procedure shown in TRBL05-410.

(*16) Change pair status number
x‘0’: From simplex to duplex pending
x‘1’: From simplex to duplex
x‘2’: From pending duplex to duplex
x‘3’: From pending duplex to suspend
x‘4’: From duplex to suspend
x‘5’: From duplex to simplex
x‘6’: From pending duplex to simplex
x‘7’: From suspend to simplex
x‘8’: From suspend to duplex pending

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(*17) You can suppress reporting the HRC/HODM Service SIM to the HOST by RCU Option operation (PPRC support by HOST and Service SIM of HRC/HODM).

- Service level SIM

PPRC support by HOST	Service SIM or HRC/HODM	level of error	HRC	HODM
Yes	Report	DKC_SIM	Host Report	Host Report
		DEV_SIM	Not Host Report	Host Report
	Not Report	DKC_SIM	Not Host Report	Not Host Report
		DEV_SIM	Not Host Report	Not Host Report
No	Report	DKC_SIM	Host Report	Host Report
		DEV_SIM	Host Report	Host Report
	Not Report	DKC_SIM	Not Host Report	Not Host Report
		DEV_SIM	Not Host Report	Not Host Report

- Moderate or Serious level SIM

PPRC support by HOST	level of error	HRC	HODM
Yes	DKC_SIM	Host Report	Host Report
	DEV_SIM	Not Host Report	Host Report
No	DKC_SIM	Host Report	Host Report
	DEV_SIM	Host Report	Host Report

(*18) SIMs which REF.CODE are D4DX, D4EX are reported in case of HODM.
In case of HRC, SIMs reported from RCU are reported to the host by MCU.

Severity Level	RC of reported SIM for HRC	RC of reported SIM for HODM
Acute or Serious	No modification	D4EX
Moderate	No modification	D4DX
Service (Not HRC SIM)	No modification	Not reported
Service (HRC SIM)	Not reported	Not reported

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

(*20) In case of the replacement of the BASE PCB on the side having blocked SM (see REP01-270 work ID = RCA1), insert the removed BASE PCB again.

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

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(*23) X represents the X in a program version "?X-??-??/??".

(*24) Cache SIMM sizes of sides A and B are different because the replacement of the cache memory has been performed on one side only. Perform the replacement left referring to the description in the remark column.

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

(*26) Change pair status number
- x'0': Accepted Suspend Pair operation
- x'1': Accepted Delete Pair operation (The R-VOL is in suspended status)
- x'2': Accepted Delete Pair operation (The R-VOL is in duplex status)
- x'3': Accepted Delete Pair operation (The R-VOL is in pending duplex status)
- x'4': Completed Suspend Pair operation
- x'5': Completed Delete Pair operation

(*27) In the case that the error is detected in the area of ROM, the level of error is "Moderate" in other case "Service".

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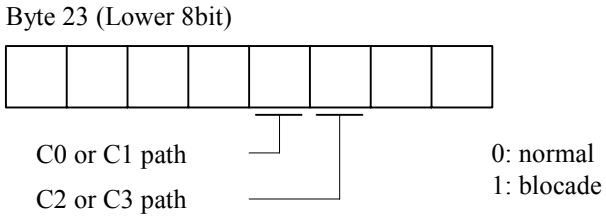
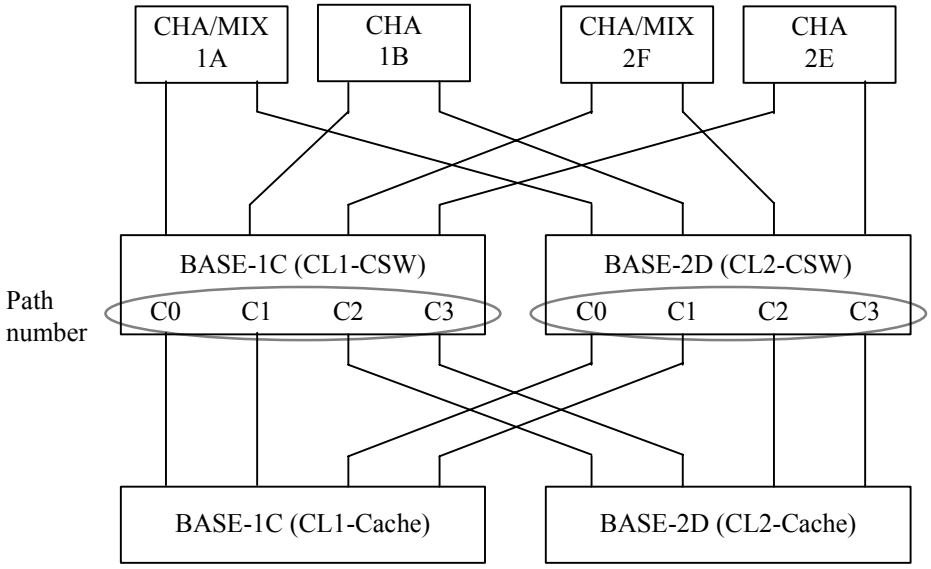
(*29) C path bitmap indicates status of C path. See the figure below.



CHSN Logical path layout



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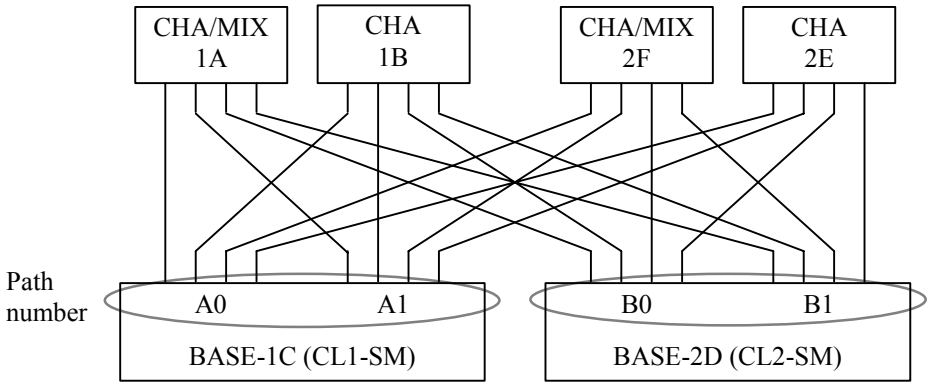
(*30) If this reference code is reported, execute the micro-program exchange procedure (On-line) of the micro type “DKCMAIN”. (MICRO-FC04-10 to 04-150)

(*31) PATH# A0, A1, B0, B1 indicates the SHSN Logical path number. See the figure below.

SHSN Logical path layout



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

(*33) In the fibre channel connection of the TC or UR, this SIM may be issued on the MCU of TC (RCU of UR) side when the microprogram of the RCU of TC (MCU of TC) is replaced. This SIM reports only DKC emulation 3990.

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

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(*35) PORT#: x‘0’ to x‘F’ in PCB indicates the PORT number in CHA PCB. See the table below.

Port#	CL1		CL2	
	1B	1A	2F	2E
0	CL1-E	CL1-A	CL2-A	CL2-E
1	CL3-E	CL3-A	CL4-A	CL4-E
2	CL5-E	CL5-A	CL6-A	CL6-E
3	CL7-E	CL7-A	CL8-A	CL8-E
4	CL1-F	CL1-B	CL2-B	CL2-F
5	CL3-F	CL3-B	CL4-B	CL4-F
6	CL5-F	CL5-B	CL6-B	CL6-F
7	CL7-F	CL7-B	CL8-B	CL8-F
8	CL1-G			CL2-G
9	CL3-G			CL4-G
A	CL5-G			CL6-G
B	CL7-G			CL8-G
C	CL1-H			CL2-H
D	CL3-H			CL4-H
E	CL5-H			CL6-H
F	CL7-H			CL8-H

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(*36) Each one of the FSW PCB# z‘0’ to z‘3’ denotes an FSW number corresponding to each PCB# or MP# in the PCB.
See the table below.

		FSW PCB#			
PCB#	FCA#	FSW#0	FW#1	FSW#2	FSW#3
MIX-1A	4	FSW001-L	FSW101-L	FSW201-L	FSW301-L
	5	FSW023-L	FSW123-L	FSW223-L	FSW323-L
	6	FSW001-L	FSW101-L	FSW201-L	FSW301-L
	7	FSW023-L	FSW123-L	FSW223-L	FSW323-L
MIX-2F	4	FSW001-U	FSW101-U	FSW201-U	FSW301-U
	5	FSW023-U	FSW123-U	FSW223-U	FSW323-U
	6	FSW001-U	FSW101-U	FSW201-U	FSW301-U
	7	FSW023-U	FSW123-U	FSW223-U	FSW323-U

PCB type / FCA#	4MP PK	2MP
4	4	4
5	5	4
6	6	5
7	7	5

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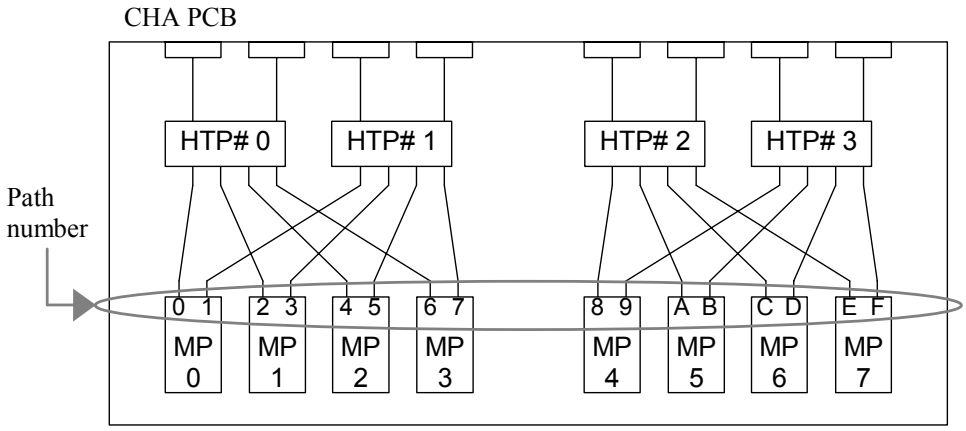
(*37) Recover the error according to the procedure shown in TRBL05-580.

(*38) Recover the error according to the procedure shown in TRBL05-590.

(*39) If this reference code is reported, please conform as shown below.

1. Setting topology
2. HBA/SWITCH (supported or not)

(*40) See the figure below about HTP path number.



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

	0	1	2	3	4	5	6	7
byte40 byte41	Port number (Eg. CL1-0=0, CL1-B=1)							
byte42 byte43	LDEV number							
byte44 byte45 byte46 byte47	Starting LBA address of CDB							
byte48 byte49	Transfer Length of CDB							
byte4A byte4B byte4C byte4D byte4E byte4F byte50 byte51	World Wide Name (WWN) of the host which issued the write request							
byte52	Detected error item(s). Bit-OR of the left items. Check kind 0x01: Check-F1 0x02: Check-L 0x04: Check-F2 0x08: Check-F3							
byte53 ~ byte7F	Not used							

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

	0	1	2	3	4	5	6	7
byte40 byte41	Port number (Eg. CL1-A=0, CL1-B=1)							
byte42 byte43	LDEV number							
byte44 ~ byte47	VDEV number							
byte48 ~ byte4F	Forehand WWN of External Storage connection							
byte50 ~ byte59	Product Number of External Storage							
byte5A ~ byte61	Vendor Name							
byte62 ~ byte71	Model name of External Storage							
byte72 byte73	External LUN#							
byte74	Bit determining whether info identifying Binary/ ASCII for the connected subsystem serial number is valid	Info identifying Binary/ ASCII for the connected subsystem serial number	Reserved					
byte75 ~ byte7F	Reserved							

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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			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.

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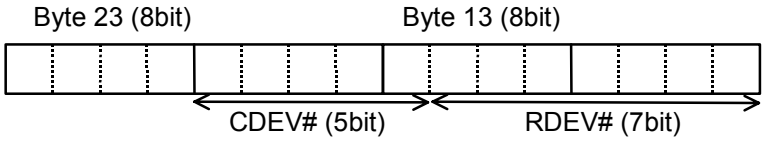
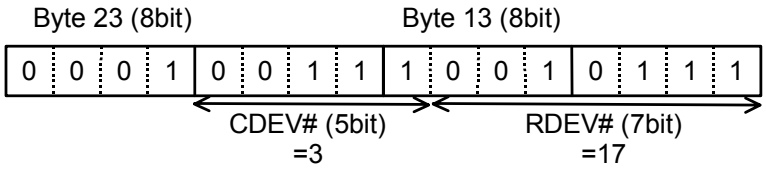
(*43) Drive number XXX indicates the CDEV# / RDEV#. See the table below.



Refer to "Physical-Logical Device Matrixes" from THEORY05-10 for CDEV# / RDEV# (C/R#)-Disk Drive Number correspondence.

Eg.) For SIM-RC EF13-97.



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		CDEV			
		0x00	0x01	0x02	0x03
RDEV	0x00	000	080	100	180
	0x01	001	081	101	181
	0x02	002	082	102	182
	0x03	003	083	103	183
	0x04	004	084	104	184
	0x05	005	085	105	185
	0x06	006	086	106	186
	0x07	007	087	107	187
	0x08	008	088	108	188
	0x09	009	089	109	189
	0x0A	00A	08A	10A	18A
	0x0B	00B	08B	10B	18B
	0x0C	00C	08C	10C	18C
	0x0D	00D	08D	10D	18D
	0x0E	00E	08E	10E	18E
	0x0F	00F	08F	10F	18F
	0x10	010	090	110	190
	0x11	011	091	111	191
	0x12	012	092	112	192
	0x13	013	093	113	193
	0x14	014	094	114	194
	0x15	015	095	115	195
	0x16	016	096	116	196
	0x17	017	097	117	197
	0x18	018	098	118	198
	0x19	019	099	119	199
	0x1A	01A	09A	11A	19A
	0x1B	01B	09B	11B	19B
	0x1C	01C	09C	11C	19C
	0x1D	01D	09D	11D	19D
	0x1E	01E	09E	11E	19E
	0x1F	01F	09F	11F	19F

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		CDEV			
		0x00	0x01	0x02	0x03
RDEV	0x20	020	0A0	120	1A0
	0x21	021	0A1	121	1A1
	0x22	022	0A2	122	1A2
	0x23	023	0A3	123	1A3
	0x24	024	0A4	124	1A4
	0x25	025	0A5	125	1A5
	0x26	026	0A6	126	1A6
	0x27	027	0A7	127	1A7
	0x28	028	0A8	128	1A8
	0x29	029	0A9	129	1A9
	0x2A	02A	0AA	12A	1AA
	0x2B	02B	0AB	12B	1AB
	0x2C	02C	0AC	12C	1AC
	0x2D	02D	0AD	12D	1AD
	0x2E	02E	0AE	12E	1AE
	0x2F	02F	0AF	12F	1AF
	0x30	030	0B0	130	1B0
	0x31	031	0B1	131	1B1
	0x32	032	0B2	132	1B2
	0x33	033	0B3	133	1B3
	0x34	034	0B4	134	1B4
	0x35	035	0B5	135	1B5
	0x36	036	0B6	136	1B6
	0x37	037	0B7	137	1B7
	0x38	038	0B8	138	1B8
	0x39	039	0B9	139	1B9
	0x3A	03A	0BA	13A	1BA
	0x3B	03B	0BB	13B	1BB
	0x3C	03C	0BC	13C	1BC
	0x3D	03D	0BD	13D	1BD
	0x3E	03E	0BE	13E	1BE

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(*44) For CHA NAS OS Processor Failure SIM, perform troubleshoot procedures indicated in "7.4 Troubleshooting Procedures" [NAS07-210] in NAS Software Section.

(*45) SM blocked SIMs (RC = FFE2-0x or FFZ1-0x) reported at the same time, have priority over this SIM. If SHSN path status return to "normal" after those recovery action, complete this SIM together.

(*46) CACHE blocked SIMs (RC = FFF4-0x or FFF3-0x) reported at the same time, have priority over this SIM. If CHSN path status return to "normal" after those recovery action, complete this SIM together.

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(*47) In case of PS/OFF (normal end), the battery backup to CM will be blocked since the battery backup to SM will be prioritized.
In case of PS/ON, the SIM may be reported according to the SM/CM status; if it is definitely caused by the backup blocking as above, please ignore the location that the SIM has indicated.

(*48) SIM = 2194 is valid

	0	1	2	3	4	5	6	7
Byte40 Byte43	0x0000B6AF (Related SSB Code)							
Byte44 Byte47	SIM type + Port#							
Byte48 Byte4B	Starting supervise at time							
Byte4C Byte4F	Starting supervise at MIC_H timer							
Byte50 Byte53	SSB reported count (Comprehensive value)							
Byte54 Byte57	Link Failure supervised timer SVP timer							
Byte58 Byte5B	Link Failure supervised timer (0.96μsec/count)							
Byte5C Byte5F	SSB: B65A reported count							
Byte60 Byte63	SSB: B65C reported count							
Byte64 Byte67	SSB: B65D reported count							
Byte68 Byte6B	SSB: B65E reported count							
Byte6C Byte6F	SSB: B660 reported count							
Byte70 Byte73	SSB: B661 reported count							
Byte74 Byte77	SSB: B668 reported count							
Byte78 Byte7B	SSB: B66A reported count							
Byte7C Byte7F	SSB: DDA1 reported count							

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(*49) SIM = 2193 is valid

	0	1	2	3	4	5	6	7
Byte40 Byte43	0x0000B6AF (Related SSB Code)							
Byte44 Byte47	SIM type + Port#							
Byte48 Byte4B	Loss of Signal Counter (Cumulative value for 30 min to before the reporting SIM)							
Byte4C Byte4F	Bad Received Character Counter (Cumulative value for 30 min to before the reporting SIM)							
Byte50 Byte53	Loss of Sync Counter (Cumulative value for 30 min to before the reporting SIM)							
Byte54 Byte57	Link Failure Counter (Cumulative value for 30 min to before the reporting SIM)							
Byte58 Byte5B	Discarded Frame Counter (Cumulative value for 30 min to before the reporting SIM)							
Byte5C Byte5F	Received _EOFa Counter (Cumulative value for 30 min to before the reporting SIM)							
Byte60 Byte63	BAD_CRC Counter (Cumulative value for 30 min to before the reporting SIM)							
Byte64 Byte67	OLS/NOS Received Counter (Cumulative value for 30 min to before the reporting SIM)							
Byte68 Byte6B	LIPf Received Counter (Cumulative value for 30 min to before the reporting SIM)							
Byte6C Byte6F	Bad_ALPA Counter (Cumulative value for 30 min to before the reporting SIM)							
Byte70 Byte73	Link Down detected Counter (Cumulative value for 30 min to before the reporting SIM)							
Byte74 Byte77	none							
Byte78 Byte7B	none							
Byte7C Byte7F	none							

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(*50) 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

(*51) 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.

(*52) 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, ‘*17’ is higher priority than ‘*52’)
- Others
  It is decided by setting ‘*17’.

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

(*54) Concerned SIM when abnormality occurs in CACHE memory when the BASE P/K replacement recovers, it is output SIM. When SIM is output, the replacement of BASE P/K is executed in another service parts.

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(*55) Error occurred in normal processing.

(*56) Error occurred in interrupting.

(*57) You can suppress reporting the SIM to the optional operation.
Default is “not report”.

(*58) When UR carried out Force Delete in RCU side from a state of Active, SIM be output.

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2.2 SIM Reference Codes Detected by the SVP

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Error			REF code 22	REF code 23	REF code 13	SIM 28	Level of error	Host report	Remarks
Environmental error	Temperature Abnormal Alarm	Back of cabinet Left Side (TH1 detect)	BF	10	10	F1	Moderate	Yes	
		Back of cabinet Right Side (TH12 detect)	BF	10	11	F1	Moderate	Yes	
	Temperature Abnormal Warning	Back of cabinet Left Side (TH1 detect)	BF	12	10	F1	Moderate	Yes	
		Back of cabinet Right Side (TH2 detect)	BF	12	11	F1	Moderate	Yes	
	Voltage alarm	Cluster-1	BF	20	10	F1	Moderate	Yes	
		Cluster-2	BF	20	11	F1	Moderate	Yes	
	ACDC alarm		BF	22	XX (*1)	F1	Moderate	Yes	
	Voltage warning	DKCMN1	BF	31	10	F1	Moderate	Yes	
		DKCMN2	BF	31	11	F1	Moderate	Yes	
	P/S warning	PS11	BF	40	10	F1	Moderate	Yes	
		PS21	BF	40	11	F1	Moderate	Yes	
		PS12	BF	41	10	F1	Moderate	Yes	
		PS22	BF	41	11	F1	Moderate	Yes	
		PS0 Warning	BF	4A	XX (*1)	F1	Moderate	Yes	
		PS1 Warning	BF	4B	XX (*1)	F1	Moderate	Yes	
	HDD-PL 48V Voltage fall	48V Voltage fall 1	BF	4E	XX (*1)	F1	Moderate	Yes	
		48V Voltage fall 2	BF	4F	XX (*1)	F1	Moderate	Yes	
	Battery warning	BATTERY-11	BF	50	10	F1	Moderate	Yes	
		BATTERY-21	BF	50	11	F1	Moderate	Yes	
		BATTERY-12	BF	51	10	F1	Moderate	Yes	
		BATTERY-22	BF	51	11	F1	Moderate	Yes	
		BATTERY-13	BF	52	10	F1	Moderate	Yes	
		BATTERY-23	BF	52	11	F1	Moderate	Yes	
	AC warning (1-phase)	Cluster-1	BF	60	E0	F1	Moderate	Yes	
		Cluster-2	BF	60	E1	F1	Moderate	Yes	

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Error			REF code			SIM	Level of error	Host report	Remarks
			22	23	13	28			
Environmental error	Fan abnormality	FFAN1 (FFAN11)	BF	70	10	F1	Moderate	Yes	
		FFAN2 (FFAN21)	BF	70	11	F1	Moderate	Yes	
		FFAN1 (FFAN12)	BF	71	10	F1	Moderate	Yes	
		FFAN2 (FFAN22)	BF	71	11	F1	Moderate	Yes	
		RFAN1 (RFAN11)	BF	72	10	F1	Moderate	Yes	
		RFAN2 (RFAN21)	BF	72	11	F1	Moderate	Yes	
		FAN Warning1	BF	72	XX (*1)	F1	Moderate	Yes	
		RFAN1 (RFAN12)	BF	73	10	F1	Moderate	Yes	
		RFAN2 (RFAN22)	BF	73	11	F1	Moderate	Yes	
		FAN Warning2	BF	73	XX (*1)	F1	Moderate	Yes	
	JP remains	DKC Alarm	BF	81	A3	F1	Moderate	Yes	
		SVP PS ON/OFF	BF	85	A2	F1	Moderate	Yes	
Environment Monitor failure	Environment monitor error (Access error)	SSVP/MN (DKCMN1 detect)	BF	90	A0	F1	Moderate	No	
		SSVP/MN (DKCMN2 detect)	BF	90	A1	F1	Moderate	No	
	Environment monitor error (Busy)		BF	91	A2	F1	Moderate	No	
	Environment monitor DIAG setting error	SSVP/MN (DKCMN1 detect)	BF	92	A0	F1	Moderate	No	
		SSVP/MN (DKCMN2 detect)	BF	92	A1	F1	Moderate	No	
		SSVP/MN (SSVP P/K detect)	BF	92	A2	F1	Moderate	No	
	CEINH Register error	SSVP/MN (DKCMN1 detect)	BF	93	A0	F1	Moderate	No	
		SSVP/MN (DKCMN2 detect)	BF	93	A1	F1	Moderate	No	
	FSW Access error	Cluster 1	BF	94	XX (*1)	F1	Moderate	No	
		Cluster 2	BF	95	XX (*1)	F1	Moderate	No	
	PS ON error	Cluster 1	BF	98	XX (*1)	F1	Moderate	No	
		Cluster 2	BF	99	XX (*1)	F1	Moderate	No	
	Environment monitor PCB error	SSVP/MN (DKCMN1 detect)	BF	9A	A0	F1	Moderate	No	
		SSVP/MN (DKCMN2 detect)	BF	9A	A1	F1	Moderate	No	

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Error			REF code			SIM	Level of error	Host report	Remarks
			22	23	13	28			
Environment Monitor failure	Alarm disagreement	SSVP/MN (DKCMN1 detect)	BF	A0	A0	F1	Moderate	No	
		SSVP/MN (DKCMN2 detect)	BF	A0	A1	F1	Moderate	No	
	P/S On disagreement	SSVP/MN (DKCMN1 detect)	BF	A1	A0	F1	Moderate	No	
		SSVP/MN (DKCMN2 detect)	BF	A1	A1	F1	Moderate	No	
	P/S Off disagreement	SSVP/MN (DKCMN1 detect)	BF	A2	A0	F1	Moderate	No	
		SSVP/MN (DKCMN2 detect)	BF	A2	A1	F1	Moderate	No	
	Battery output disagreement	SSVP/MN (DKCMN1 detect)	BF	A4	A0	F1	Moderate	No	
		SSVP/MN (DKCMN2 detect)	BF	A4	A1	F1	Moderate	No	
	P/K Data disagreement	MIX PCB-Cluster 1	BF	A0	XX (*1)	F1	Moderate	No	
		MIX PCB-Cluster 2	BF	A1	XX (*1)	F1	Moderate	No	
		FSW-Cluster 1	BF	A8	XX (*1)	F1	Moderate	No	
		FSW-Cluster 2	BF	A9	XX (*1)	F1	Moderate	No	
	SVP CPU FAN Error		BF	E4	00	F1	Moderate	No	
	SVP HDD FAN Error		BF	E4	01	F1	Moderate	No	
	SVP PS FAN Error		BF	E4	02	F1	Moderate	No	
	SVP Temperature Error		BF	E4	03	F1	Moderate	No	
	HDD Error (SMART)		BF	E4	04	F1	Moderate	No	
	PS P/L-DKCPNL between Cable		BF	F2	A0	F1	Moderate	No	

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Error			REF code 22	REF code 23	REF code 13	SIM 28	Level of error	Host report	Remarks
SVP failure	Logical inconsistency		70	XX (*2)	00	F1	Moderate	No	
	HEAP error		71	XX (*2)	00	F1	Moderate	No	
	File error		72	XX (*2)	00	F1	Moderate	No	
	LAN error		73	XX (*2)	00	F1	Moderate	No	
	S-SVP error		74	XX (*3)	XX (*3)	F1	Moderate	Yes	
	Windows error		75	XX (*2)	00	F1	Moderate	No	
	CUDG3 detected error	MIX PCB (CHP), CHA	76	00	XY (*5)	F1	Moderate	No	
		MX PCB (DKP)	76	01	XY (*6)	F1	Moderate	No	
		BASE PCB (Shared Memory)	76	02	00	F1	Moderate	No	
		BASE PCB (CSW)	76	03	00	F1	Moderate	No	
		BASE PCB (CACHE)	76	04	00	F1	Moderate	No	
	LCDG3 detected error	MIX PCB (CHP), CHA	76	10	XY (*5)	F1	Moderate	No	
	BOOT detected error (MIX PCB (CHP), CHA)		79	00	XY (*5)	F1	Moderate	No	(*9)
	BOOT detected error (MIX PCB (DKP))		79	01	XY (*6)	F1	Moderate	No	(*9)
	ISDN Router failure		7B	00	03	F1	Moderate	Yes	
End status of remote microprogram exchange	Normal end		7A	00	00	F1	Service	No	
	Abnormal end (SVP)		7A	01	00	F1	Service	No	
	Abnormal end (MP)		7A	02	00	F1	Service	No	
	Version check error		7A	03	XX (*4)	F1	Service	No	
	Sum check error		7A	04	XX (*4)	F1	Service	No	
	LCP patch error		7A	05	XY (*7)	F1	Service	No	
	Warning (Configuration inconsistency)		7A	10	00	F1	Service	No	
	Warning (S-SVP busy)		7A	11	00	F1	Service	No	
	Warning (LCP busy)		7A	12	XY (*7)	F1	Service	No	
	Internet download error		7A	20	00	F1	Service	No	
	Discontinuation by the user		7A	23	00	F1	Service	No	
Reboot Stop	SVP reboot stop (FD Inserted)		7C	00	00	F1	Moderate	No	
Battery Check	Battery life is over		7C	01	00	F1	Moderate	No	
Audit Log	Audit Log FTP Transfer failed		7C	03	00	F1	Moderate	Yes	

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Error			REF code			SIM	Level of	Host	Remarks
			22	23	13	28	error	report	
Situation Observation Error	Cache Write Pending Ratio Excess		7E	00	XX	F2	Moderate	No	XX: CLPR#
	Cache Read Hit Ratio Excess		7E	01	XX	F2	Moderate	No	XX: CLPR#
	Cache Side File Use Ratio Excess		7E	02	XX	F2	Moderate	No	XX: CLPR#
	Async Cache Side File Use Ratio Excess		7E	03	XX	F2	Moderate	No	XX: CLPR#
	HUR Cache Side File Use Ratio Excess		7E	04	XX	F2	Moderate	No	XX: CLPR#
	Cache Use Ratio Excess		7E	05	XX	F2	Moderate	No	XX: CLPR#
	MP Operating Ratio Excess	MIX PCB (CHP), CHA	7E	10	XY (*5)	F1	Moderate	No	
		MIX PCB (DKP)	7E	11	XY (*6)	F1	Moderate	No	
	Loss Of Signal Count Excess		7E	20	XY (*8)	F1	Moderate	No	
	Bad Received Character Count Excess		7E	21	XY (*8)	F1	Moderate	No	
	Loss Of Synchronization Count Excess		7E	22	XY (*8)	F1	Moderate	No	
	Link Failure Count Excess		7E	23	XY (*8)	F1	Moderate	No	
	Received EOFa Count Excess		7E	24	XY (*8)	F1	Moderate	No	
	Discarded Frame Count Excess		7E	25	XY (*8)	F1	Moderate	No	
	Bad CRC Count Excess		7E	26	XY (*8)	F1	Moderate	No	
	Protocol Error Count Excess		7E	27	XY (*8)	F1	Moderate	No	
	Invalidity Frame Count Excess		7E	28	XY (*8)	F1	Moderate	No	
SVP failure License key	The term of validity is over		7F	F0	00	F1	Serious	Yes	(*10)
On-demand	Cache		7F	F0	02	F1	Service	No	
	LUN		7F	F0	03	F1	Service	No	
Pair Failure SIM Reduce	HRC/HORC/HODM		7F	F1	00	F1	Service	No	
	HRCA/HORCA		7F	F1	01	F1	Service	No	
	MRCF/OMRCF		7F	F1	02	F1	Service	No	
	HUR		7F	F1	03	F1	Service	No	
	COW		7F	F1	04	F1	Service	No	
Dump received	WCHK1 dump (MIX PCB (CHP), CHA)		30	80	XY (*5)	F1	Moderate	No	
	WCHK1 dump (MIX PCB (DKP))		31	80	XY (*6)	F1	Moderate	No	
	ABEND dump (MIX PCB (CHP), CHA)		30	81	XY (*5)	F1	Moderate	No	
	ABEND dump (MIX PCB (DKP))		31	81	XY (*6)	F1	Moderate	No	

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(*1) Error Section (DKU part)

Byte 13	Error Section
60	HDU-RK00
61	HDU-RK01
62	HDU-RK02
63	HDU-RK03
64	HDU-RK10
65	HDU-RK11
66	HDU-RK12
67	HDU-RK13
70	HDU-RK20
71	HDU-RK21
72	HDU-RK22
73	HDU-RK23
74	HDU-RK30
75	HDU-RK31
76	HDU-RK32
77	HDU-RK33

(*2) 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

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(*3) Contents of byte 23 and byte 13 when a S-SVP 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

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

Byte 13	Micro-program type
00	RAM BOOT
01	DKC MANI
02	LCP
03	MCP
04	LCDG
05	DKU
06	SVP
07	S-SVP
08	CUDG4
09	FCP
10	FOP
20	MAIN DIFF
40	CONFIG
50	HTP
60	FCDG
70	PCDG
80	ROMBOOT

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(*5) Contents of byte 13 when a CHP error occurred.
Content of high byte of Byte 13(X)

High byte of Byte 13	Content
0x4	Basic MIX PCB of cluster 1
0x5	Option CHA of cluster 1
0xC	Basic MIX PCB of cluster 2
0xD	Option CHA of cluster 2

Content of low byte of Byte 13(Y)

Low byte of Byte 13	Content
0x0	MIX PCB, 1st. CHP of the CHA
0x1	MIX PCB, 2nd. CHP of the CHA
0x2	MIX PCB, 3rd. CHP of the CHA
0x3	MIX PCB, 4th. CHP of the CHA
0x4	5th. CHP of the CHA
0x5	6th. CHP of the CHA
0x6	7th. CHP of the CHA
0x7	8th. CHP of the CHA

In WCHK1 dump and ABEND dump received SIM = 3080XY, 3081XY, the system error code is indicated on the SIM log detail screen in the format [YYYY] as in Reference Code 3080XY[YYYY].

(*6) Contents of byte 13 when a DKP error occurred.
Content of high byte of Byte 13(X)

High byte of Byte 13	Content
0x0	Basic MIX PCB of cluster 1
0x4	Basic MIX PCB of cluster 2

Content of low byte of Byte 13(Y)

Low byte of Byte 13	Content
0x4	1st. DKP of the MIX PCB
0x5	2nd. DKP of the MIX PCB
0x6	3rd. DKP of the MIX PCB
0x7	4th. DKP of the MIX PCB

In WCHK1 dump and ABEND dump received SIM = 3180XY, 3181XY, the system error code is indicated on the SIM log detail screen in the format [YYYY] as in Reference Code 3180XY[YYYY].

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(*7) Contents of Byte 13 when a LCP error occurred

Contents of high byte13

High byte of Byte 13	Content
0x4	Basic MIX PCB of cluster 1
0x5	Option CHA of cluster 1
0xC	Basic MIX PCB of cluster 2
0xD	Option CHA of cluster 2

Contents of low byte 13

Low byte of Byte 13	Content
0x0	MIX PCB, 1st. LCP of the CHA
0x1	MIX PCB, 2nd. LCP of the CHA
0x2	MIX PCB, 3rd. LCP of the CHA
0x3	MIX PCB, 4th. LCP of the CHA
0x4	MIX PCB, 5th. LCP of the CHA
0x5	MIX PCB, 6th. LCP of the CHA
0x6	MIX PCB, 7th. LCP of the CHA
0x7	MIX PCB, 8th. LCP of the CHA
0x8	9th. LCP of the CHA
0x9	10th. LCP of the CHA
0xA	11th. LCP of the CHA
0xB	12th. LCP of the CHA
0xC	13th. LCP of the CHA
0xD	14th. LCP of the CHA
0xE	15th. LCP of the CHA
0xF	16th. LCP of the CHA

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(*8) Content of Byte 13 when a Port error occurred

Contents of high byte 13

High byte of Byte 13	Content
0x4	Basic MIX PCB of cluster 1
0x5	Option CHA of cluster 1
0xC	Basic MIX PCB of cluster 2
0xD	Option CHA of cluster 2

Contents of low byte 13

Low byte of Byte 13	Content
0x0	MIX PCB, 1st. Port of the CHA
0x1	MIX PCB, 2nd. Port of the CHA
0x2	MIX PCB, 3rd. Port of the CHA
0x3	MIX PCB, 4th. Port of the CHA
0x4	MIX PCB, 5th. Port of the CHA
0x5	MIX PCB, 6th. Port of the CHA
0x6	MIX PCB, 7th. Port of the CHA
0x7	MIX PCB, 8th. Port of the CHA
0x8	9th. Port of the CHA
0x9	10th. Port of the CHA
0xA	11th. Port of the CHA
0xB	12th. Port of the CHA
0xC	13th. Port of the CHA
0xD	14th. Port of the CHA
0xE	15th. Port of the CHA
0xF	16th. Port of the CHA

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(*9) Execute the following procedures according to the error code of initialization function which is shown in 5C-5Fth 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	P/K Replace	Replace the package with another new one.
31000041	MP-Install	Execute it when the P/S OFF is executed with Shut Down Jumpers to install the micro-programs.
	① P/S OFF ② Pull out the Shut Down Jumpers ③ P/S ON	Execute them when you have forgotten to pull out Shut Down Jumpers in the normal P/S ON.
42000041	P/K Replace	Replace the package with another new one.
48000041	① MP-Install 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) P/K 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	Use the same package in ②.
	P/K Replace	Replace the package with another new one.
	① SVP Replace ② MP-Install ③ P/K Replace	Use the same package in ③.
others	① MP-Install ② P/K 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, "Currently running Microprogram Version" and "Stored Microprogram Version per Processor" must be confirmed.

Reference address are as follows.

P/K Replace	REP01-270
SVP Replace	REP01-290 (Work ID : RT7)
MP-Install	MICRO-FC05-10
SSB with the error code 3309	SSBLOG05-1250

(*10) Confirm the Program Product Installation status at the 'License Key' window of Storage Navigator.

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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‘000000’							
4								
5								
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‘0CA5’+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’							

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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‘000000’							
4								
5								
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‘0CA5’+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’							

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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'0CA5'+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								

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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‘0CA5’+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							

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(*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

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(*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.

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(*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