Format F, Message 0 (operation terminated)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'0')			
8	Not used (x'000000')							
9								
10								
11	Hardware level (Note)							
12								
13	SSID of mate subsystem							
14	(x'0000' for EDCC)							
15	Manufacturer code ('000000')						Factory code ('00')	
16	Not used (x'00')							
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FFF0')							
23								

Note: Hardware level

Bit 0: Hardware level

When the bit 0 = 0,

Bit 1: Not used

Bit 2-3: Reported storage path

Bit 4-5: Number of channels per cluster

00: 4

01: 8

10: Not used

11: Not used

Bit 6: NVS

0: Not exist

1: Exist

Bit 7: Not used

Bit 8-10: Cache size

000: Non cache

001: 256MB

010: 512MB

011: 768MB

100: 1024MB

101: 1280MB

110: 1536MB

111: Over 1536MB

Bit 11-13: Cluster hardware level

Bit 14-15: Cache/ NVS hardware level

Bit 14-15: Cache/ NVS hardware level

When the bit 0 = 1,

Bit 1: Not used

Bit 2-3: Failed storage path

Bit 4-7: Number of channels per cluster

0000: Parallel channel = 4, serial channel = 0

0001: Parallel channel = 8, serial channel = 0

0010: Parallel channel = 4, serial channel = 2

0100: Parallel channel = 4, serial channel = 4

0110: Parallel channel = 0, serial channel = 2

1000: Parallel channel = 0, serial channel = 4

1010: Parallel channel = 0, serial channel = 8

1100: Parallel channel = 4, serial channel = 6

Bit 8: Dual frame

0: Dual frame

1: Modular power

Bit 9-11: Cache size

000: Non cache

001: 256MB

010: 512MB

011: 768MB

100: 1024MB

101: 1280MB

110: 1536MB

111: Over 1536MB

Bit 11-13: Cluster hardware level

Format F, Message 1 (microprogram detected cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'1')			
8	Queue transition in progress (Side A)	Queue transition in progress (Side B)	Free SGCB queue operation in progress	Free SLCB queue operation in progress	Free GRPT queue operation in progress	Not used		
9*	Not used							
	VDEV number							
10*	Queue type							
	VDEV number		Slot number					
11*	Queue number							
	Slot number							
12*	Queue number							
	Slot number							
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacture code ('000000')						Factory code ('00')	
16	Not used							
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FFF1')							
23								

*: When byte 8, bit 2-4 = 000, upper value is valid.
When byte 8, bit 2-4 ≠ 000, lower value is valid.

Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'01': Error in cache board (other than ECCUNCORR and PLRCCCCERR), without undefined registers x'81': Error in cache board (other than ECCUNCORR and PLRCCCCERR), with undefined registers							
9	BOARD ERR							
	WRENABLE signal abnormal	RAS0 signal abnormal	RAS1 signal abnormal	CAS0 signal abnormal	CAS1 signal abnormal	ADR0 signal parity error	ADR1 signal parity error	SYND signal parity error
10	BOARD ERR							
	ECC compare error	Uncorrect-able memory error at reading	ECC error at writing	(Not used)	LRC0 error at writing	LRC1 error at writing	LRC2 error at writing	LRC3 error at writing
11	BOARD ERR							
	Clock abnormal	ADRCTL detected abnormal clock	ECCCTL1 detected abnormal clock	ECCCTL2 detected abnormal clock	(Not used)	Address counter abnormal	Data transfer counter abnormal	Refresh counter abnormal
12	BOARD ERR							
	Refresh operation abnormal	RAS0 signal abnormal	RAS1 signal abnormal	CAS0 signal abnormal	CAS1 signal abnormal	(Not used)	(Not used)	(Not used)
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16	Slot number of CACHE with an inboard error (board number)							
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (xFF')							
23	Symptom code (xF2')							

(Notice) If Module ID, Routine ID (Reason code or SSB free area byte 2, 3) is C560 ~ C56A, format change to following:

byte 8	: Module ID 1	byte 9	:Routine ID 1
byte 10	: Module ID 2	byte 11	: Routine ID 2
byte 12-15	: Return code	byte 16-19	:Processor No.
byte 20	: (none)	byte 21	: SSID
byte 22	: Sympton code (high)	byte 23	: Sympton code (low)

Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'02': Error in cache board (ECCUNCORR), without undefined registers x'82': Error in cache board (ECCUNCORR), with undefined registers							
9	Accessed module group number							
10	BOARD ERR							
	ECC compare error	Uncorrect-able memory error at reading	ECC error at writing	(Not used)	LRC0 error at writing	LRC1 error at writing	LRC2 error at writing	LRC3 error at writing
11	MEM ERROR 0-3							
	Module group number			Module side number	Bits 05 to 11 valid	Byte number with a memory error		
12	MEM ERROR 0-3							
	Byte number with a memory error		Bits 12 to 17 valid	Byte number with a memory error				
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16	Slot number of CACHE with an inboard error (board number)							
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FF')							
23	Symptom code (x'F2')							

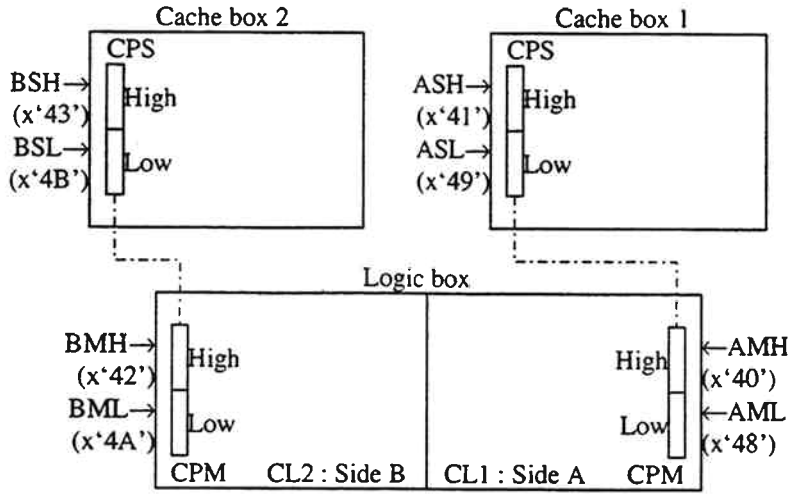
Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'03': Error in cache board (PLRCERR), without undefined registers x'83': Error in cache board (PLRCERR), with undefined registers							
9	Operation mode							
	Bus use mode 0: Sequential mode 1: Transaction mode 2: Transaction to sequential 3: Sequential to transaction		Access section 0: Memory/ initialization 1: CACHE register/ CPC register	Bus mode 0: Two-bus mode 1: Not used 2: Bus-L mode 3: Bus-H mode		Transfer mode 0: Normal write 1: Normal read 3: Cache to cache 4: Double write 7: Initialization 2, 5, 6: Not used		
10	Response status							
	F bus H response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus H.	H-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus H.	F bus L response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus L.	L-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus L.
11	CACHE slave 1 BODERR							
	ECC compare error	Uncorrectable memory error at reading	ECC error at writing	(Not used)	LRC0 error at writing	LRC1 error at writing	LRC2 error at writing	LRC3 error at writing
12	CACHE slave 2 BODERR (x'00' in one-slave mode)							
	ECC compare error	Uncorrectable memory error at reading	ECC error at writing	(Not used)	LRC0 error at writing	LRC1 error at writing	LRC2 error at writing	LRC3 error at writing
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16	Slot number of CACHE with an inboard error (board number)							
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FF')							
23	Symptom code (x'F2')							

Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'04': Error in CPC board, without undefined registers x'84': Error in CPC board, with undefined registers							
9	LBUS ERR							
	Receive address parity error	Transfer count ³4	(RSV)	(RSV)	Data parity error	(RSV)	(RSV)	(RSV)
10	CPCLS1 ERR							
	Counter parity error of RW1 sequencer	Counter parity error of RW2 sequencer	Counter parity error of OUT sequencer	Counter parity error of local sequencer	Sequencer parity error of OUT sequencer	DTSYNC counter parity error	Local bus DT SYNC counter parity error	(RSV)
11	CPCLS1 ERR							
	Sequencer parity error of RW1 sequencer	Sequencer parity error of RW2 sequencer	RW1 sequencer flag abnormal	Sequencer parity error of local sequencer	Sequencer parity error of OUT sequencer	(RSV)	(RSV)	(RSV)
12	CPCLS2 ERR							
	Data parity error of OBF data	Data parity error of OUT data	CACHE port data buffer empty	(RSV)	(RSV)	(RSV)	(RSV)	(RSV)
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16	Slot number of CPC with an inboard error (Note 1)							
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FF')							
23	Symptom code (x'F2')							

(Note 1) Slot number of CPC



Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'08': Bus system error (two buses, two slaves, CPC used), without undefined registers x'88': Bus system error (two buses, two slaves, CPC used), with undefined registers							
9	Operation mode							
	Bus use mode 0: Sequential mode 1: Transaction mode 2: Transaction to sequential 3: Sequential to transaction		Access section 0: Memory/ initializa- tion 1: CACHE register/ CPC register	Bus mode 0: Two-bus mode 1: Not used 2: Bus-L mode 3: Bus-H mode		Transfer mode 0: Normal write 1: Normal read 3: Cache to cache 4: Double write 7: Initialization 2, 5, 6: Not used		
10	Response status							
	F bus H response wait timeout	CACHE/ CPC made a response of bus system error detec- tion on F bus H.	H-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus H.	F bus L response wait timeout	CACHE/ CPC made a response of bus system error detec- tion on F bus L.	L-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus L.
11	CACHE (slave 1) address error	CACHE (slave 1) protocol/ nonprotocol error	Slave 1 number (Cache access : Slot number of Cache (slave 1) (Note 1) Cache initialization : Slot number of Cache (Note 1) CPC access : Slot number of CPC (Note2))					
12	CACHE (slave 2) address error	CACHE (slave 2) protocol/ nonprotocol error	Slave 2 number (Cache access : Slot number of Cache (slave 2) (Note 1) Cache initialization : x'00' CPC access : x'00'					
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16								
	CPC (AMH) detected bus system error	CPC (AML) detected bus system error	CPC (ASH) detected bus system error	CPC (ASL) detected bus system error	CPC (BMH) detected bus system error	CPC (BML) detected bus system error	CPC (BSH) detected bus system error	CPC (BSL) detected bus system error
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FF')							
23	Symptom code (x'F2')							

(Note 1) See SIM RC section (SIM-RC02-30).
(Note 2) See SSB03-2460.

Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'09': Bus system error (two buses. one slave. CPC unused). without undefined registers x'89': Bus system error (two buses. one slave, CPC unused). with undefined registers							
9	Operation mode							
	Bus use mode 0: Sequential mode 1: Transaction mode 2: Transaction to sequential 3: Sequential to transaction		Access section 0: Memory/ initialization 1: CACHE register/ CPC register	Bus mode 0: Two-bus mode 1: Not used 2: Bus-L mode 3: Bus-H mode		Transfer mode 0: Normal write 1: Normal read 3: Cache to cache 4: Double write 7: Initialization 2, 5, 6: Not used		
10	Response status							
	F bus H response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus H.	H-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus H.	F bus L response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus L.	L-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus L.
11	Slave 1 number (board number) (Cache access : Slot number of Cache (slave 1) (Note 1) Cache initialization : Slot number of Cache (Note 1))							
12	Slave 2 number (board number) (Cache access : Slot number of Cache (slave 2) (Note 1) Cache initialization : x'00')							
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16								
	CACHE (slave 1) bus-H address error	CACHE (slave 1) bus-H protocol/ nonprotocol error	CACHE (slave 1) bus-L address error	CACHE (slave 1) bus-L protocol/ nonprotocol error	CACHE (slave 2) bus-H address error	CACHE (slave 2) bus-H protocol/ nonprotocol error	CACHE (slave 2) bus-L address error	CACHE (slave 2) bus-L protocol/ nonprotocol error
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FF')							
23	Symptom code (x'F2')							

(Note 1) See SIM RC section (SIM-RC02-30).

Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'0A': Bus system error (two buses, one slaves, CPC used), without undefined registers x'8A': Bus system error (two buses, one slaves, CPC used), with undefined registers							
9	Operation mode							
	Bus use mode 0: Sequential mode 1: Transaction mode 2: Transaction to sequential 3: Sequential to transaction		Access section 0: Memory/ initialization 1: CACHE register/ CPC register	Bus mode 0: Two-bus mode 1: Not used 2: Bus-L mode 3: Bus-H mode		Transfer mode 0: Normal write 1: Normal read 3: Cache to cache 4: Double write 7: Initialization 2, 5, 6: Not used		
10	Response status							
	F bus H response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus H.	H-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus H.	F bus L response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus L.	L-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus L.
11	Slave 1 number (Cache access : Slot number of Cache (slave 1) (Note 1) Cache initialization : Slot number of Cache (Note 1) CPC access : Slot number of CPC (Note2))							
12	CACHE bus-H address error 1	CACHE bus-H address error 2	CACHE bus-H protocol/ nonprotocol error	CACHE bus-L address error 1	CACHE bus-H address error 2	CACHE bus-L protocol/ nonprotocol error	Error 1 in CACHE board	Error 2 in CACHE board
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16	CPC(AMH/ BMH) detected address error	CPC(AMH/ BMH) detected protocol/ nonprotocol error	CPC (AML/ BML) detected address error	CPC (AML/ BML) detected protocol/ nonprotocol error	CPC (ASH/ BSH) detected address error	CPC (ASH/ BSH) detected protocol/ nonprotocol error	CPC (ASL/ BSL) detected address error	CPC (ASL/ BSL) detected protocol/ nonprotocol error
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FF')							
23	Symptom code (x'F2')							

(Note 1) See SIM RC section (SIM-RC02-30).
(Note 2) See SSB03-2460.

Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'0B': Bus system error (two buses, one slaves, CPC unused), without undefined registers x'8B': Bus system error (two buses, one slaves, CPC unused), with undefined registers							
9	Operation mode							
	Bus use mode 0: Sequential mode 1: Transaction mode 2: Transaction to sequential 3: Sequential to transaction		Access section 0: Memory/ initialization 1: CACHE register/ CPC register	Bus mode 0: Two-bus mode 1: Not used 2: Bus-L mode 3: Bus-H mode		Transfer mode 0: Normal write 1: Normal read 3: Cache to cache 4: Double write 7: Initialization 2, 5, 6: Not used		
10	Response status							
	F bus H response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus H.	H-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus H.	F bus L response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus L.	L-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus L.
11	Slave 1 number (board number) (Cache access : Slot number of Cache (slave 1) (Note 1) Cache initialization : Slot number of Cache (Note 1))							
12	CACHE bus-H address error 1 (A/CSYNC error)	CACHE bus-H address error 1 (parity error)	CACHE bus-H address error 1 (program error)	CACHE bus-H address error 1 (compare error)	CACHE bus-H address error 2	CACHE bus-H protocol error (other than ESSEQERR)	CACHE bus-H protocol error (ESSEQERR)	CACHE bus-H nonprotocol error
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16								
	CACHE bus-L address error 1 (A/CSYNC error)	CACHE bus-L address error 1 (parity error)	CACHE bus-L address error 1 (program error)	CACHE bus-L address error 1 (compare error)	CACHE bus-L address error 2	CACHE bus-L protocol error (other than ESSEQERR)	CACHE bus-L protocol error (ESSEQERR)	CACHE bus-L nonprotocol error
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FF')							
23	Symptom code (x'F2')							

(Note 1) See SIM RC section (SIM-RC02-30).

Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'0C': Bus system error (bus H/L, two slaves, CPC used), without undefined registers x'8C': Bus system error (bus H/L, two slaves, CPC used), with undefined registers							
9	Operation mode							
	Bus use mode 0: Sequential mode 1: Transaction mode 2: Transaction to sequential 3: Sequential to transaction		Access section 0: Memory/ initialization 1: CACHE register/ CPC register	Bus mode 0: Two-bus mode 1: Not used 2: Bus-L mode 3: Bus-H mode		Transfer mode 0: Normal write 1: Normal read 3: Cache to cache 4: Double write 7: Initialization 2, 5, 6: Not used		
10	Response status							
	F bus H response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus H.	H-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus H.	F bus L response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus L.	L-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus L.
11	CACHE (slave 1) address error	CACHE (slave 1) protocol/ nonprotocol error	Slave 1 number (Cache access : Slot number of Cache (slave 1) (Note 1) Cache initialization : Slot number of Cache (Note 1) CPC access : Slot number of CPC (Note2))					
12	CACHE (slave 2) address error	CACHE (slave 2) protocol/ nonprotocol error	Slave 2 number (Cache access : Slot number of Cache (slave 2) (Note 1) Cache initialization : x'00' CPC access : x'00')					
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16								
	CPC (AMH/L) detected address error	CPC (AMH/L) detected protocol/ nonprotocol error	CPC (ASH/L) detected address error	CPC (ASH/L) detected protocol/ nonprotocol error	CPC (BMH/L) detected address error	CPC (BMH/L) detected protocol/ nonprotocol error	CPC (BSH/L) detected address error	CPC (BSH/L) detected protocol/ nonprotocol error
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FF')							
23	Symptom code (x'F2')							

(Note 1) See SIM RC section (SIM-RC02-30).
(Note 2) See SSB03-2460.

Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'0D': Bus system error (bus H/L, two slaves, CPC unused), without undefined registers x'8D': Bus system error (bus H/L, two slaves, CPC unused), with undefined registers							
9	Operation mode							
	Bus use mode 0: Sequential mode 1: Transaction mode 2: Transaction to sequential 3: Sequential to transaction		Access section 0: Memory/ initialization 1: CACHE register/ CPC register	Bus mode 0: Two-bus mode 1: Not used 2: Bus-L mode 3: Bus-H mode		Transfer mode 0: Normal write 1: Normal read 3: Cache to cache 4: Double write 7: Initialization 2, 5, 6: Not used		
10	Response status							
	F bus H response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus H.	H-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus H.	F bus L response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus L.	L-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus L.
11	Slave 1 number (Cache access : Slot number of Cache (slave 1) (Note 1) Cache initialization : Slot number of Cache (Note 1))							
12	Slave 2 number (Cache access : Slot number of Cache (slave 2) (Note 1) Cache initialization : x'00')							
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16	CACHE (slave 1) bus-H/L address error 1	CACHE (slave 1) bus-H/L address error 2	CACHE (S1) bus-H/L protocol/ nonprotocol error	Error in CACHE (slave 1) board	CACHE (slave 2) bus-H/L address error 1	CACHE (slave 2) bus-H/L address error 2	CACHE (S2) bus-H/L protocol nonprotocol error	Error in CACHE (slave 2) board
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FF')							
23	Symptom code (x'F2')							

(Note 1) See SIM RC section (SIM-RC02-30).

Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'0E' : Bus system error (bus H/L, one slave, CPC used), without undefined registers (Cache access) x'8E' : Bus system error (bus H/L, one slave, CPC used), with undefined registers (Cache access)							
9	Operation mode							
	Bus use mode 0: Sequential mode 1: Transaction mode 2: Transaction to sequential 3: Sequential to transaction		Access section 0: Memory/ initialization 1: CACHE register/ CPC register	Bus mode 0: Two-bus mode 1: Not used 2: Bus-L mode 3: Bus-H mode		Transfer mode 0: Normal write 1: Normal read 3: Cache to cache 4: Double write 7: Initialization 2, 5, 6: Not used		
10	Response status							
	F bus H response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus H.	H-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus H.	F bus L response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus L.	L-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus L.
11	Slave 1 number (Cache access : Slot number of Cache (slave 1) (Note 1) Cache initialization : Slot number of Cache (Note 1))							
12	CACHE bus-H/L address error 1 (A/CSYNC error)	CACHE bus-H/L address error 1 (parity error)	CACHE bus-H/L address error 1 (program error)	CACHE bus-H/L address error 1 (compare error)	CACHE bus-H/L address error 2	CACHE bus-H/L protocol error (other than ESSEQERR)	CACHE bus-H/L protocol error (ESSEQERR)	CACHE bus-H/L nonprotocol error
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16								
	CPC (AMH/ L, BMH/L) detected address error 1	CPC (AMH/ L, BMH/L) detected address error 2	CPC (AMH/ L, BMH/L) detected FBUSERR	CPC (AMH/ L, BMH/L) detected JBUSERR	CPC (ASH/ L, BSH/L) detected address error 1	CPC (ASH/ L, BSH/L) detected address error 2	CPC (ASH/ L, BSH/L) detected FBUSERR	CPC (ASH/ L, BSH/L) detected JBUSERR
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FF')							
23	Symptom code (x'F2')							

(Note 1) See SIM RC section (SIM-RC02-30).

Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'0E': Bus system error (bus H/L, one slave, CPC used), without undefined registers (CPC access) x'8E': Bus system error (bus H/L, one slave, CPC used), with undefined registers (CPC access)							
9	Operation mode							
	Bus use mode 0: Sequential mode 1: Transaction mode 2: Transaction to sequential 3: Sequential to transaction		Access section 0: Memory/ initialization 1: CACHE register/ CPC register	Bus mode 0: Two-bus mode 1: Not used 2: Bus-L mode 3: Bus-H mode		Transfer mode 0: Normal write 1: Normal read 3: Cache to cache 4: Double write 7: Initialization 2, 5, 6: Not used		
10	Response status							
	F bus H response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus H.	H-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus H.	F bus L response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus L.	L-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus L.
11	CPC slot number (See SSB03-2460)							
12	LBUS ERR							
	Receive address parity error	Transfer count > 4	(RSV)	(RSV)	Receive data parity error	(RSV)	(RSV)	(RSV)
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16								
	CPC (AMH/ L, BMH/L) detected address error 1	CPC (AMH/ L, BMH/L) detected address error 2	CPC (AMH/ L, BMH/L) detected FBUSERR	CPC (AMH/ L, BMH/L) detected JBUSERR	CPC (ASH/ L, BSH/L) detected address error 1	CPC (ASH/ L, BSH/L) detected address error 2	CPC (ASH/ L, BSH/L) detected FBUSERR	CPC (ASH/ L, BSH/L) detected JBUSERR
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FF')							
23	Symptom code (x'F2')							

Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'0F': Bus system error (bus H/L, one slave, CPC unused), without undefined registers x'8F': Bus system error (bus H/L, one slave, CPC unused), with undefined registers							
9	Operation mode							
	Bus use mode 0: Sequential mode 1: Transaction mode 2: Transaction to sequential 3: Sequential to transaction		Access section 0: Memory/ initialization 1: CACHE register/ CPC register	Bus mode 0: Two-bus mode 1: Not used 2: Bus-L mode 3: Bus-H mode		Transfer mode 0: Normal write 1: Normal read 3: Cache to cache 4: Double write 7: Initialization 2, 5, 6: Not used		
10	Response status							
	F bus H response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus H.	H-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus H.	F bus L response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus L.	L-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus L.
11	Slave 1 number (Cache access : Slot number of Cache (slave 1) (Note 1) Cache initialization : Slot number of Cache (Note 1))							
12	Response status							
	CACHE bus-H/L ACSEQERR detected	CACHE bus-H/L ACTIMEOT detected	CACHE bus-H/L address error 1 (parity error) detected	CACHE bus-H/L address error 1 (program error)	CACHE bus-H/L address error 1 (LRCUNMATCH)	CACHE bus-H/L address error 1 (compare error)	"Unused bit on" detected on CACHE bus H/L	CACHE bus-H/L address error 2 detected
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16								
	DTSEQERR (REG: 20C/21C:b00) detected	DTSTOP (REG: 20C/21C:b01) detected	ACACT (REG: 20C/21C:b02) detected	CNTUNMATCH (REG: 20C/21C:b03) detected	ENTOFF (REG: 20C/21C:b04) detected	ESSEQERR (REG: 20C/21C:b05) detected	DATAPE (REG: 20C/21C:b08) detected	OVERRUN (REG: 20C/21C:b09) detected
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FF')							
23	Symptom code (x'F2')							

(Note 1) See SIM RC section (SIM-RC02-30).

Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'10': Timeout (no error cause, two buses), without undefined registers x'90': Timeout (no error cause, two buses), with undefined registers							
9	Operation mode							
	Bus use mode 0: Sequential mode 1: Transaction mode 2: Transaction to sequential 3: Sequential to transaction		Access section 0: Memory/ initialization 1: CACHE register/ CPC register	Bus mode 0: Two-bus mode 1: Not used 2: Bus-L mode 3: Bus-H mode		Transfer mode 0: Normal write 1: Normal read 3: Cache to cache 4: Double write 7: Initialization 2, 5, 6: Not used		
10	Response status							
	F bus H response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus H.	H-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus H.	F bus L response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus L.	L-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus L.
11	Slave 1 number (Cache access : Slot number of Cache (slave 1) (Note 1) Cache initialization : Slot number of Cache (Note 1) CPC access : Slot number of CPC (Note2))							
12	Slave 2 number (Cache access : Slot number of Cache (slave 2) (Note 1) Cache initialization : x'00' CPC access : x'00')							
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16	BSA0/1::CK2AST1							
	EXERR1 HI byte input data P-ERR	EXERR1 LO byte input data P-ERR	EXERR2 HI byte input data P-ERR	EXERR2 LO byte input data P-ERR	Remote system BSA error	Slave ID error	LRC check field data parity error	LRC check field LRC error
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FF')							
23	Symptom code (x'F2')							

(Note 1) See SIM RC section (SIM-RC02-30).
(Note 2) See SSB03-2460.

Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'11': CHKERR report (no error cause, two buses), without undefined registers x'91': CHKERR report (no error cause, two buses), with undefined registers							
9	Operation mode							
	Bus use mode 0: Sequential mode 1: Transaction mode 2: Transaction to sequential 3: Sequential to transaction		Access section 0: Memory/ initialization 1: CACHE register/ CPC register	Bus mode 0: Two-bus mode 1: Not used 2: Bus-L mode 3: Bus-H mode		Transfer mode 0: Normal write 1: Normal read 3: Cache to cache 4: Double write 7: Initialization 2, 5, 6: Not used		
10	Response status							
	F bus H response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus H.	H-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus H.	F bus L response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus L.	L-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus L.
11	Slave 1 number (Cache access : Slot number of Cache (slave 1) (Note 1) Cache initialization : Slot number of Cache (Note 1) CPC access : Slot number of CPC (Note2))							
12	Slave 2 number (Cache access : Slot number of Cache (slave 2) (Note 1) Cache initialization : x'00' CPC access : x'00')							
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16	BSA0/1::CK2AST1							
	EXERR1 HI byte input data P-ERR	EXERR1 LO byte input data P-ERR	EXERR2 HI byte input data P-ERR	EXERR2 LO byte input data P-ERR	Remote system BSA error	Slave ID error	LRC check field data parity error	LRC check field LRC error
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FF')							
23	Symptom code (x'F2')							

(Note 1) See SIM RC section (SIM-RC02-30).
(Note 2) See SSB03-2460.

Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'12': BSA detected error (no error cause, two buses), without undefined registers x'92': BSA detected error (no error cause, two buses), with undefined registers							
9	Operation mode							
	Bus use mode 0: Sequential mode 1: Transaction mode 2: Transaction to sequential 3: Sequential to transaction		Access section 0: Memory/ initialization 1: CACHE register/ CPC register	Bus mode 0: Two-bus mode 1: Not used 2: Bus-L mode 3: Bus-H mode		Transfer mode 0: Normal write 1: Normal read 3: Cache to cache 4: Double write 7: Initialization 2, 5, 6: Not used		
10	Response status							
	F bus H response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus H.	H-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus H.	F bus L response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus L.	L-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus L.
11	Slave 1 number (Cache access : Slot number of Cache (slave 1) (Note 1) Cache initialization : Slot number of Cache (Note 1) CPC access : Slot number of CPC (Note2))							
12	Slave 2 number (Cache access : Slot number of Cache (slave 2) (Note 1) Cache initialization : x'00' CPC access : x'00')							
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16	BSA0/1::CK2AST1							
	EXERR1 HI byte input data P-ERR	EXERR1 LO byte input data P-ERR	EXERR2 HI byte input data P-ERR	EXERR2 LO byte input data P-ERR	Remote system BSA error	Slave ID error	LRC check field data parity error	LRC check field LRC error
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FF')							
23	Symptom code (x'F2')							

(Note 1) See SIM RC section (SIM-RC02-30).
(Note 2) See SSB03-2460.

Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'13': Error status report (no error cause, two buses), without undefined registers x'93': Error status report (no error cause, two buses), with undefined registers							
9	Operation mode							
	Bus use mode 0: Sequential mode 1: Transaction mode 2: Transaction to sequential 3: Sequential to transaction		Access section 0: Memory/ initialization 1: CACHE register/ CPC register	Bus mode 0: Two-bus mode 1: Not used 2: Bus-L mode 3: Bus-H mode		Transfer mode 0: Normal write 1: Normal read 3: Cache to cache 4: Double write 7: Initialization 2, 5, 6: Not used		
10	Response status							
	F bus H response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus H.	H-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus H.	F bus L response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus L.	L-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus L.
11	Slave 1 number (Cache access : Slot number of Cache (slave 1) (Note 1) Cache initialization : Slot number of Cache (Note 1) CPC access : Slot number of CPC (Note2))							
12	Slave 2 number (Cache access : Slot number of Cache (slave 2) (Note 1) Cache initialization : x'00' CPC access : x'00')							
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16	BSA0/1::CK2AST2-5							
	Two-bus access error in one-bus mode	Blocked MG/CACHE section access	Inboard error/clock refresh abnormal	Register/ memory access before initialization	Cache memory access during cell refresh	Discrepancy between register setting and access instruction	Discrepancy between DIAG/SP mode and command instruction	Master send data parity error
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FF')							
23	Symptom code (x'F2')							

(Note 1) See SIM RC section (SIM-RC02-30).
(Note 2) See SSB03-2460.

Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'14': Error status report (no error cause, two buses), without undefined registers x'94': Error status report (no error cause, two buses), with undefined registers							
9	Operation mode							
	Bus use mode 0: Sequential mode 1: Transaction mode 2: Transaction to sequential 3: Sequential to transaction		Access section 0: Memory/ initialization 1: CACHE register/ CPC register	Bus mode 0: Two-bus mode 1: Not used 2: Bus-L mode 3: Bus-H mode		Transfer mode 0: Normal write 1: Normal read 3: Cache to cache 4: Double write 7: Initialization 2, 5, 6: Not used		
10	Response status							
	F bus H response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus H.	H-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus H.	F bus L response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus L.	L-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus L.
11	Slave 1 number (Cache access : Slot number of Cache (slave 1) (Note 1) Cache initialization : Slot number of Cache (Note 1) CPC access : Slot number of CPC (Note2))							
12	Slave 2 number (Cache access : Slot number of Cache (slave 2) (Note 1) Cache initialization : x'00' CPC access : x'00')							
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16	BSA0/1::CK2AST1							
	EXERR1 HI byte input data P-ERR	EXERR1 LO byte input data P-ERR	EXERR2 HI byte input data P-ERR	EXERR2 LO byte input data P-ERR	Remote system BSA error	Slave ID error	LRC check field data parity error	LRC check field LRC error
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FF')							
23	Symptom code (x'F2')							

(Note 1) See SIM RC section (SIM-RC02-30).
(Note 2) See SSB03-2460.

Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'15': CHKERR report (no error cause, one bus), without undefined registers x'95': CHKERR report (no error cause, one bus), with undefined registers							
9	Operation mode							
	Bus use mode 0: Sequential mode 1: Transaction mode 2: Transaction to sequential 3: Sequential to transaction		Access section 0: Memory/ initialization 1: CACHE register/ CPC register	Bus mode 0: Two-bus mode 1: Not used 2: Bus-L mode 3: Bus-H mode		Transfer mode 0: Normal write 1: Normal read 3: Cache to cache 4: Double write 7: Initialization 2, 5, 6: Not used		
10	Response status							
	F bus H response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus H.	H-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus H.	F bus L response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus L.	L-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus L.
11	Slave 1 number (Cache access : Slot number of Cache (slave 1) (Note 1) Cache initialization : Slot number of Cache (Note 1) CPC access : Slot number of CPC (Note2))							
12	Slave 2 number (Cache access : Slot number of Cache (slave 2) (Note 1) Cache initialization : x'00' CPC access : x'00')							
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16	BSA0/1::CK2AST1							
	EXERR1 HI byte input data P-ERR	EXERR1 LO byte input data P-ERR	EXERR2 HI byte input data P-ERR	EXERR2 LO byte input data P-ERR	Remote system BSA error	Slave ID error	LRC check field data parity error	LRC check field LRC error
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FF')							
23	Symptom code (x'F2')							

(Note 1) See SIM RC section (SIM-RC02-30).
(Note 2) See SSB03-2460.

Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'16': BSA detected error (no error cause), without undefined registers x'96': BSA detected error (no error cause), with undefined registers							
9	Operation mode							
	Bus use mode 0: Sequential mode 1: Transaction mode 2: Transaction to sequential 3: Sequential to transaction		Access section 0: Memory/ initialization 1: CACHE register/ CPC register	Bus mode 0: Two-bus mode 1: Not used 2: Bus-L mode 3: Bus-H mode		Transfer mode 0: Normal write 1: Normal read 3: Cache to cache 4: Double write 7: Initialization 2, 5, 6: Not used		
10	Response status							
	F bus H response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus H.	H-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus H.	F bus L response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus L.	L-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus L.
11	Slave 1 number (Cache access : Slot number of Cache (slave 1) (Note 1) Cache initialization : Slot number of Cache (Note 1) CPC access : Slot number of CPC (Note2))							
12	Slave 2 number (Cache access : Slot number of Cache (slave 2) (Note 1) Cache initialization : x'00' CPC access : x'00')							
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16	BSA0/1::CK2AST1							
	EXERR1 HI byte input data P-ERR	EXERR1 LO byte input data P-ERR	EXERR2 HI byte input data P-ERR	EXERR2 LO byte input data P-ERR	Remote system BSA error	Slave ID error	LRC check field data parity error	LRC check field LRC error
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FF')							
23	Symptom code (x'F2')							

(Note 1) See SIM RC section (SIM-RC02-30).
(Note 2) See SSB03-2460.

Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'17': Error status report (no error cause, one bus), without undefined registers x'97': Error status report (no error cause, one bus), with undefined registers							
9	Operation mode							
	Bus use mode 0: Sequential mode 1: Transaction mode 2: Transaction to sequential 3: Sequential to transaction		Access section 0: Memory/ initialization 1: CACHE register/ CPC register	Bus mode 0: Two-bus mode 1: Not used 2: Bus-L mode 3: Bus-H mode		Transfer mode 0: Normal write 1: Normal read 3: Cache to cache 4: Double write 7: Initialization 2, 5, 6: Not used		
10	Response status							
	F bus H response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus H.	H-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus H.	F bus L response wait timeout	CACHE/ CPC made a response of bus system error detection on F bus L.	L-side BSA bus system error	CACHE/ CPC made a response of abnormal end on F bus L.
11	Slave 1 number (Cache access : Slot number of Cache (slave 1) (Note 1) Cache initialization : Slot number of Cache (Note 1) CPC access : Slot number of CPC (Note2))							
12	Slave 2 number (Cache access : Slot number of Cache (slave 2) (Note 1) Cache initialization : x'00' CPC access : x'00')							
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16	BSA0/1::CK2AST2-5							
	Two-bus access error in one-bus mode	Blocked MG/CACHE section access	Inboard error/clock refresh abnormal	Register/ memory access before initialization	Cache memory access during cell refresh	Discrepancy between register setting and access instruction	Discrepancy between DIAG/SP mode and command instruction	Master send data parity error
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FF')							
23	Symptom code (x'F2')							

(Note 1) See SIM RC section (SIM-RC02-30).
(Note 2) See SSB03-2460.

Format F, Message 2 (cache failure)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'2')			
8	Subcode: x'70': Inboard error at initialization, without undefined registers x'F0': Inboard error at initialization, with undefined registers							
9	BOARD ERR							
	WRENABLE signal abnormal	RAS0 signal abnormal	RAS1 signal abnormal	CAS0 signal abnormal	CAS1 signal abnormal	ADR0 signal parity error	ADR1 signal parity error	SYND signal parity error
10	BOARD ERR							
	ECC compare error	Uncorrect-able memory error at reading	ECC error at writing	(Not used)	LRC0 error at writing	LRC1 error at writing	LRC2 error at writing	LRC3 error at writing
11	CR ERR							
	Clock abnormal	ADRCTL detected abnormal clock	ECCCTL1 detected abnormal clock	ECCCTL2 detected abnormal clock	(Not used)	Address counter abnormal	Data transfer counter abnormal	Refresh counter abnormal
12	CR ERR							
	Refresh operation abnormal	RAS0 signal abnormal	RAS1 signal abnormal	CAS0 signal abnormal	CAS1 signal abnormal	(Not used)	(Not used)	(Not used)
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16	Slot number of CACHE with an inboard error (Note 1)							
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FF')							
23	Symptom code (x'F2')							

(Note 1) See SIM RC section (SIM-RC02-30).

Format F, Message 6 (CFW impossible)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'6')			
8	Reason code (Note)							
9	Not used							
10								
11								
12								
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16	Not used							
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FFF6')							
23								

(Note) Reason code

X'00'	: Reserved
X'01	: CFW ID inconsistent
X'02'-X'0F'	: Reserved

Format F, Message A (NVS terminated)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'A')			
8	Reason code (Note)							
9	Not used							
10	Not used							
11	Not used +							
12	Not used							
13 14	SSID of mate subsystem (x'0000' for EDCC)							
15	Manufacturer code ('000000')						Factory code ('00')	
16	Not used							
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20 21	SSID of self subsystem							
22 23	Symptom code (x'FFFA')							

(Note) Reason code

X'00'-X'01'	: Reserved
X'02'	: NVS failure
X03'- X'0F'	: Reserved

Format F. Message B (HRC/HODM Pair Suspend)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'B')			
8	R-Vol suspended	R-Vol failed	Reason code (Note)					
9	RCU device address							
10	RCU Manufacture code/Factory code							
11	(x'0C690')							
12								
13	RCU Sequence No.							
14								
15	MCU Manufacture code/Factory code							
16	(x'0C690')							
17								
18	MCU Sequence No							
19								
20								
21								
22	Sympton code (x'FE')							
23	Sympton code (same byte #8)							

(Note) Reason code

X'14'-X'2F' : Reserved
X'30' : Pair suspended. MCU device write error.
X'31' : Pair suspended. RCU subsystem error/or MCU subsystem error.
X'32' : Pair suspended. RCU device communication error.
X'33' : Pair suspended (Critical device status). All write command is rejected until pair re-established.
X'34' : Pair suspended. RCU device is not ready (intervention required).

Format F, Message F (Cache/Shared Memory/M-bus/F-bus/J-bus warning)

	0	1	2	3	4	5	6	7
7	Format (x'F')				Message (x'F')			
8	Subcode (details given separately)							
9	Hardware information (details given separately)							
10								
11								
12								
13	SSID of mate subsystem (x'0000' for EDCC)							
14								
15	Manufacturer code ('000000')						Factory code ('00')	
16	Hardware information (details given separately)							
17	Module ID							
18	Routine ID							
19	Processor number				Error code (don't care)			
20	SSID of self subsystem							
21								
22	Symptom code (x'FFFF')							
23								

F/M=FF (cache/shared memory/M bus/F bus/J bus warning) Hardware information

(1) Byte 8 = 02: Cache 1 bit error

	0	1	2	3	4	5	6	7
8	Subcode: x'02': Cache 1 bit error							
9	Cache board slot number (See SIM RC section (SIM-RC02-30).)							
10	MEMERROR0/1/2/3							
	Module group number			Module side number	Bits 05 to 11 valid	Byte number of memory error · Byte number of 1-byte error · First byte number of 2-byte error		
11	MEMERROR0/1/2/3							
	Byte number of memory error		Bits 13 to 17 valid	Byte number of memory error · Second byte number of 2-byte error				
12	WARNING							
	1-byte error detected in memory	2-byte error detected in memory	(Not used)	(Not used)	(Not used)	(Not used)	(Not used)	(Not used)

16	Module number (CMXX : See LOCATION02-50/60)

(2) Byte 8 = 03: Cache 2 bit error

	0	1	2	3	4	5	6	7
8	Subcode: x'03': Cache 2 bit error							
9	Cache board slot number (See SIM RC section (SIM-RC02-30).)							
10	MEMERROR0/1/2/3							
	Module group number			Module side number	Bits 05 to 11 valid	Byte number of memory error · Byte number of 1-byte error · First byte number of 2-byte error		
11	MEMERROR0/1/2/3							
	Byte number of memory error		Bits 13 to 17 valid	Byte number of memory error · Second byte number of 2-byte error				
12	WARNING							
	1-byte error detected in memory	2-byte error detected in memory	(Not used)	(Not used)	(Not used)	(Not used)	(Not used)	(Not used)

16	Module group number (four CMXX : See LOCATION02-50/60)

F/M=FF (cache/shared memory/M bus/F bus/J bus warning) Hardware information

(3) Byte 8 = 04: Shared memory 1 symbol error

	0	1	2	3	4	5	6	7
8	Subcode: X'04': Shared memory 1 symbol error							
9	Shared memory slot number (side A: x'00', side B: x'01')							
10	SMC MBUS ERRORSTATUS							
	Correctable error	Uncorrecta-ble error	Read data check error	Write data check error	DBL access inconsistent	Transfer count error	Bus mode error	Transfer mode error
11	SMC FBUS ERRORSTATUS							
	Correctable error	Uncorrecta-ble error	Read data check error	Write data check error	DBL access inconsistent	Transfer count error	Bus mode error	Transfer mode error
12	SMC MEMORYREADY							
	(Not used)	(Not used)	(Not used)	(Not used)	(Not used)	(Not used)	(Not used)	Memory ready
13	SMC MBUS ERROR LOCATION							
	Smodule with correctable error							
	module 00	module 01	module 02	module 03	module 04	module 05	module 06	module 07
14	SMC MBUS ERROR LOCATION							
	Smodule with correctable error							
	module 08	module 09	module 10	module 11	module 12	module 13	module 14	module 15
15	SMC FBUS ERROR LOCATION							
	Smodule with correctable error							
	module 00	module 01	module 02	module 03	module 04	module 05	module 06	module 07
16	SMC FBUS ERROR LOCATION							
	Smodule with correctable error							
	module 08	module 09	module 10	module 11	module 12	module 13	module 14	module 15

(4) Byte 8 = 10: Three SMC MBUS BUSOPEN lines inconsistent

	0	1	2	3	4	5	6	7
8	Subcode: x'10': Three SMC MBUS BUSOPEN lines inconsistent							
9	Shared memory slot number (side A: x'00', side B: x'01')							
10	SMC MBUS ERRORSTATUS							
	Bus open unmatch	Last cycle error	No DSYNC	No CSYNC	Wait ESYNC error	Data check error	Command check error	Address check error
11	SMC FBUS ERRORSTATUS							
	Bus open unmatch	Last cycle error	No DSYNC	No CSYNC	Wait ESYNC error	Data check error	Command Check error	Address check error
12	Not used							

16	Not used

F/M=FF (cache/shared memory/M bus/F bus/J bus warning) Hardware information

(5) Byte 8 = 11/12: Three SMP lines inconsistent

	0	1	2	3	4	5	6	7
8	Subcode: x'11': Three SMP MBUSOPEN lines inconsistent x'12': Three SMP MCHKERR lines inconsistent							
9	MPID							
10	SMP MBOPEN R							
	Not used	Not used	Not used	Not used	MBOPEN 0	MBOPEN 1	MBOPEN 2	Warning
11	SMP MCHKERR R							
	Not used	Not used	Not used	Not used	MCHK error 0	MCHK error 1	MCHK error2	Warning
12	SMP FLCHKERR R							
	Not used	Not used	Not used	Not used	FLCHK error 0	FLCHK error 1	FLCHK error 2	Warning

16	Not used

(6) Byte 8 = 14: Three SMC FBUSL BUSOPEN lines inconsistent

	0	1	2	3	4	5	6	7
8	Subcode: x'14': Three SMC FBUSL BUSOPEN lines inconsistent							
9	Shared memory slot number (side A: x'00', side B: x'01')							
10	SMC MBUS ERRORSTATUS							
	Bus open unmatch	Last cycle error	No DSYNC	No CSYNC	ESYNC error	Data check error	Command check error	Address check error
11	SMC FBUS ERRORSTATUS							
	Bus open unmatch	Last cycle error	No DSYNC	No CSYNC	ESYNC error	Data check error	Command check error	Address check error
12	Not used							

16	Not used

F/M=FF (cache/shared memory/M bus/F bus/J bus warning) Hardware information

(7) Byte 8 = 16: Three SMP lines inconsistent

	0	1	2	3	4	5	6	7
8	Subcode: x'16': Three SMP FLCKERR lines inconsistent							
9	MPID							
10	SMP MBOPEN R							
	Not used	Not used	Not used	Not used	MBOPEN 0	MBOPEN 1	MBOPEN 2	Warning
11	SMP MCHKERR R							
	Not used	Not used	Not used	Not used	MCHK error 0	MCHK error 1	MCHK error 2	Warning
12	SMP FLCHKERR R							
	Not used	Not used	Not used	Not used	FLCHK error 0	FLCHK error 1	FLCHK error 2	Warning

16	Not used

(8) Byte 8 = 18/19/1A: Three BSA FBUSH lines inconsistent

	0	1	2	3	4	5	6	7
8	Subcode: x'18': Three BSA FBUSH BUSOPEN lines inconsistent x'19': Three BSA FBUSH LIVEINS lines inconsistent x'1A': Three BSA FBUSH CHKERR lines inconsistent							
9	MPID							
10	BSA H CK2DST1							
	FBUS OPEN0	FBUS OPEN1	FBUS OPEN2	FBUS OPEN 0 & 1	FBUS OPEN 1 & 2	FBUS OPEN 0 & 2	(Not used)	(Not used)
11	BSA H CK2DST2							
	LIVE INS 0	LIVE INS 1	LIVE INS 2	LIVE INS 0 & 1	LIVE INS 0 & 2	LIVE INS 1 & 2	(Not used)	(Not used)
12	BSA H CK2AST0							
	CHKERR0	CHKERR1	CHKERR2	CHKERR0 & CHKERR1	CHKERR0 & CHKERR2	CHKERR1 & CHKERR2	(Not used)	(Not used)

16	Not used

F/M=FF (cache/shared memory/M bus/F bus/J bus warning) Hardware information

(9) Byte 8 = 1C/1D/1E: Three BSA FBUSL lines inconsistent

	0	1	2	3	4	5	6	7
8	Subcode: x'1C': Three BSA FBUSL BUSOPEN lines inconsistent x'1D': Three BSA FBUSL LIVEINS lines inconsistent x'1E': Three BSA FBUSL CHKERR lines inconsistent							
9	MPID							
10	BSA L CK2DST1							
	FBUS OPEN0	FBUS OPEN1	FBUS OPEN2	FBUS OPEN 0 & 1	FBUS OPEN 1 & 2	FBUS OPEN 0 & 2	(Not used)	(Not used)
11	BSA L CK2DST2							
	LIVE INS 0	LIVE INS 1	LIVE INS 2	LIVE INS 0 & 1	LIVE INS 0 & 2	LIVE INS 1 & 2	(Not used)	(Not used)
12	BSA L CK2AST0							
	CHKERR0	CHKERR1	CHKERR2	CHKERR0 & CHKERR1	CHKERR0 & CHKERR2	CHKERR1 & CHKERR2	(Not used)	(Not used)
16	Not used							

(10) Byte 8 = 20/21: Three CPC (H-side) CHKERR lines inconsistent

	0	1	2	3	4	5	6	7
8	Subcode: x'20': Three CPC (AMH/BMH) JBUSH CHKERR lines inconsistent x'21': Three CPC (ASH/BSH) JBUSH CHKERR lines inconsistent							
9	CPC slot number (See SSB03-2460)							
10	CPC AMH/BMH WARNING							
	F-bus FCHKERR0 -2 inconsistent	J-bus FCHKERR0 -2 inconsistent	(RSV)	(RSV)	(RSV)	(RSV)	(RSV)	(RSV)
11	CPC ASH/BSH WARNING							
	F-bus FCHKERR0 -2 inconsistent	J-bus FCHKERR0 -2 inconsistent	(RSV)	(RSV)	(RSV)	(RSV)	(RSV)	(RSV)
12	CPC AML/BML WARNING							
	F-bus FCHKERR0 -2 inconsistent	J-bus FCHKERR0 -2 inconsistent	(RSV)	(RSV)	(RSV)	(RSV)	(RSV)	(RSV)
16	CPC ASL/BSL WARNING							
	F-bus FCHKERR0 -2 inconsistent	J-bus FCHKERR0 -2 inconsistent	(RSV)	(RSV)	(RSV)	(RSV)	(RSV)	(RSV)

F/M=FF (cache/shared memory/M bus/F bus/J bus warning) Hardware information

(11) Byte 8 = 24/25: Three CPC (L-side) CHKERR lines inconsistent

	0	1	2	3	4	5	6	7
8	Subcode: x'24': Three CPC (AML/BML) JBUSL CHKERR lines inconsistent x'25': Three CPC (ASL/BSL) JBUSL CHKERR lines inconsistent							
9	CPC slot number (See SSB03-2460)							
10	CPC AMH/BMH WARNING							
	F-bus FCHKERR0-2 inconsistent	J-bus FCHKERR0-2 inconsistent	(RSV)	(RSV)	(RSV)	(RSV)	(RSV)	(RSV)
11	CPC ASH/BSH WARNING							
	F-bus FCHKERR0-2 inconsistent	J-bus FCHKERR0-2 inconsistent	(RSV)	(RSV)	(RSV)	(RSV)	(RSV)	(RSV)
12	CPC AML/BML WARNING							
	F-bus FCHKERR0-2 inconsistent	J-bus FCHKERR0-2 inconsistent	(RSV)	(RSV)	(RSV)	(RSV)	(RSV)	(RSV)
16	CPC ASL/BSL WARNING							
	F-bus FCHKERR0-2 inconsistent	J-bus FCHKERR0-2 inconsistent	(RSV)	(RSV)	(RSV)	(RSV)	(RSV)	(RSV)

4. ECKD 32-BYTE SSB

4.1 Basic Sense Bytes

The following describes details of 32 ECKD basic sense bytes 0 to 6 and 22 to 31.

Byte \ Bit	ECKD 32-Byte Sense Data							
	0	1	2	3	4	5	6	7
0	Command rejection	Intervention required	Not used	Device check	Data check	Not used		Incomplete domain
1	Permanent error	Invalid track format	Not used	Operator message	Not used	File protection	Write inhibit	Imprecise ending
2	Storage control type							
3	Remaining count, or, command overrun reached threshold *							
4	Device address							
5	Device type							
6	Unit indication 0: SSB2 1: SSB5	SSB4 valid	SSB29-31 valid	Not used	Format			
7 to 21	Bytes 7 to 21: Depend on the exception class and format. (For details, see Section 4.3.)							
22	Exception class							
23	Exception code, or, CHL#, LPN, and LCP# beyond the threshold †							
24	Logging message control							
25	Program action code							
26	Dual frame	EDCC Mode	Duplex pair	Subvolume error	Nonsynchro-nous operation	Serial channel	Report output	Permanent path error
27	32-byte SSB (0)	Not used			DKU86I TRK. compatible mode	Not used	Path number	
28	Message code, or, number of read or searched bytes ††							
29	Cylinder address, or, number of read or searched bytes ††							
30								
31	Head address, or, number of read or searched bytes ††							

: Varies by the exception class and format.

* "Remaining count" is for exception class 0 and format 4; otherwise, "Command overrun threshold reached" applies.

† "CHL#, LPN, and LCP# beyond the threshold" is for exception class 6; otherwise, "Exception code" applies.

†† "Number of read or searched bytes" is for exception class 6.

Otherwise:

Byte 28 = "Message code"
Byte 29-30 = "Cylinder address"
Byte 31 = "Head address"

Common Sense Bytes (ECKD 32-Byte SSB)

ECKD 32-Byte SSB

Byte	Bit	Name	Description	
0	0	Command rejection	A chain ended without receiving the expected number of data transfer commands in the LR/LRE domain. If no other error is detected, "incomplete domain" (byte 0, bit 7) is also set to 1.	
	1	Intervention required	1. The drive is not physically connected. 2. The drive power is off. 3. The ENABLE/DISABLE switch is set to DISABLE.	
	2	Not used		
	3	Device check	DKC or drive hardware is abnormal.	
	4	Data check	Indicates that a data error has been detected in the information from the drive. This bit is set to 1 when the data error is uncorrectable or error correction is prohibited by the mask byte.	
	5	Not used		
	6	Not used		
	7	Incomplete domain	Indicates that as many data transfer commands as defined in the LOCATE RECORD count parameter have not been received.	
1	0	Permanent error	Indicates that an error occurred and recovery failed.	
	1	Invalid track format	1. The record size parameter is inconsistent with the record to be updated. 2. Nonstandard R0 was detected during branching in Fast Write/Dual Copy operation.	
	2	Not used	X'06'	
	3	Operator message	Not used for other than DKC SIM. For DKC SIM, indicates that messages are output to the operator	
	4	Not used		
	5	File protection	An attempt was made to move to a track not defined in DEFINE EXTENT during execution of the LOCATE RECORD command (updating write in asynchronous mode).	
	6	Write inhibit	A write command has been received that uses a resource write-prohibited by the DIAGNOSTIC CONTROL command. "Device check" (byte 0, bit 3) is also set to 1.	
	7	Imprecise ending	Indicates that CCW has ended abnormally in the LR/LRE domain and the error is for a previously completed command (whose end status report is already finished).	
2	Storage control type/environmental data present		1. For excluding DKC SIM and Cache SIM, this byte indicate DKC type (x'06'). 2. For DKC SIM and Cache SIM, this byte indicate environmental data present (x'10').	
3	Remaining count; or, command overrun threshold reached		When the command overrun threshold is reached in exception class 6: X'01'	Exception class 0 In exception class 0 and format 4: "Remaining count" (number of records/tracks remaining in the LR/LRE domain being handled)
4	Device address		1. When the exception class is 4, 6, B, C, D, or E: Bit 0-1: Storage path number Bit 2: Controller number Bit 3-7: Device number 2. When the exception class is 1, 2, 3, or F: Always '00'	

Byte	Bit	Name	Description
5	Device type code		1. For exception class 4, 6, B, C, D and E, this byte indicates device type (x'24'). 2. For exception class 1, 2, 3 and F, always x'00'.
6	Content and format		Indicates whether the other bytes of SSB are valid or invalid and their formats
	0	Unit flage	0: SSB2 (storage control type) is valid 1: SSB5 (device type) is valid
	1	Device address valid	0: SSB4 is invalid 1: SSB4 is valid
	2	CYL, HD address valid	0: SSB29-31 invalid 1: SSB29-31 valid
	3	Not used	
	4-7	Format	When x'F', this SSB is SIM.
22	0-3	Exception class	0: File protection, invalid track format, status exception, command sequence exception 4: Data check, retry prohibition, PCI, subretry success 6: Subsystem data B: Failure between DKC and DASD CTL (reserved) C: Controller failure (reserved) D: Failure between controller and device E: Device failure
	4-7		For details, see Section 4.3.
23	Exception code; or, CHL#, LPN, and LCP# beyond the threshold		
24	(Logging message control)		
	0-2	Not used	
	3	Logging mode	Forced log mode
	4-5	Logging action	00: Not logged 01: Unconditionally logged 10: Logged only once 11: Logged only for frequent occurrence on the path
	6-7	Operator message control	00: Message not output 01: Message output unconditionally 10: Message output only once 11: Message output only once only for frequent occurrence on the path
25	Program action code		BIT0= 0: BIT 1-7 Single program action code BIT0= 1: BIT1: 0 SSBs 26 and 27 have no meaning. 1 Executes error recovery specific to DC. 2: 0 Does not execute ERP based on SSB28. 1 Executes ERP based on SSB28. 3: Another path retry request 4-5: Not used 6-7: 00 Does not retry 01 Retry twice 10 Retry ten times 11 Retry 255 times

Byte	Bit	Name	Description	
26 *	0	Dual frame	0: Single-frame configuration 1: Dual-frame configuration	
	1	EDCC mode	0: DCC mode 1: EDCC mode	
	2	Duplex pair	0: Simplex 1: Duplex pair	
	3	Subvolume error	0: Not a subvolume error 1: Subvolume error	
	4	Nonsynchronous operation	0: Synchronous operation 1: Asynchronous operation	
	5	Serial channel	0: Parallel channel 1: Serial channel	
	6	Report output	0: Excluding environmental data present and SIM 1: Environmental data present and SIM	
	7	Permanent path error	0: Permanent error for all paths 1: Permanent error for this path	
27 *	0	32-byte SSB	ECKD 32-byte SSB = 0	
	1-3	Not used		
	4	DKU86I TRK compatible mode	0: Not in DKU86I track compatible mode 1: In DKU86I track compatible mode or changing to DKU86I track compatible mode	
	5	Not used		
	6-7	Path number	Indicates the SSB creation path number.	
28	Message code		Instructs the message status of the EREP log and operator console.	"Number of read or searched bytes" for exception class 6
29	Cylinder address		Indicates the cylinder address with an error.	
30				
31	Head address		Indicates the head address with an error.	

*: Configuration information

4.2 Exception Classes and Formats

Exception class	Format	Description
0	0-1	Reserved
	2	Reserved
	3	Machine condition exception
	4	Command sequence exception
	5-F	Reserved
4	0	Reserved
	1	Data exception (PCI, permanent)*
	2	Reserved
	3-E	Reserved
	F	SIM
6	0	Reserved
	1	Subsystem information*
	2-F	Reserved
B	0	Reserved
	1	Shared Memory Failure
	2-7	Reserved
	8	LCP/MCP Failure
	9	Host Adapter CHK2
	A	Disk Adapter CHK2
	B	DRR CHK2
	C	Reserved
	D	Power Failure
	E	Processor Failure
	F	Logical inconsistency
D	0	Drive report error*
	1	SPC report error*
	2-E	Reserved
	F	SIM
E	0	Drive failure, LDEV blockade/Pin volume detected/Write inhibited, LDEV not ready*
	1-E	Reserved
	F	SIM

*: For DKU87I (IBM 3390 emulation mode) only.

Exception 0, Format 3 (Machine condition exception)

	0	1	2	3	4	5	6	7
6	Unit indication	Byte 4 valid	Bytes 29 to 31 valid	Not used	Format (x'3')			
7	LR/LRE command operation byte							
8	Extension operation byte (byte 17) for LR/LRE command							
9	byte 2 for LR/LRE command							
10	Reserved							
11	Search parameter of LR command (CCHHR) or Record ID of re-execution command (R)							
12								
13								
14								
15								
16	Sector number to re-execute the LR							
17	TLF for LR/LRE command							
18								
19	Operation byte = 0x3F :LR/LRE External operation byte Others :Reserved							
20	SSID							
21								
22	Exception code x'08C1'							
23								

Exception 0, Format 4 (Command sequence exception)

	0	1	2	3	4	5	6	7
6	Unit indication	Byte 4 valid	Bytes 29 to 31 valid	Not used	Format (x'4')			
7	LR/LRE command operation byte							
8	Extension operation byte (byte 17) for LR/LRE command							
9	Head address of extent (DX command parameter)							
10								
11								
12								
13	Path group ID (bytes 1 to 7 of the ID transferred by the newest SET PATH GROUP ID command)							
14								
15								
16								
17								
18								
19								
20	SSID of self subsystem							
21								
22	Exception code x'0212': incomplete domain							
23								

Exception 4. Format 1 (data exception, PCI, permanent)

	0	1	2	3	4	5	6	7
6	Unit indication	Byte 4 valid	Bytes 29 to 31 valid	Not used	Format (x'1')			
7	Sector number*							
8	Cylinder address*							
9								
10	Head address*							
11								
12	Record number*							
13	Error displacement							
14								
15	Drive serial number (X'0C69' + DKU sequence number)							
16								
17								
18								
19								
20	SSID of self subsystem							
21								
22	Exception class (x'4')				Message†			
23	Correction flag††							

* Not determined for occurrence in HA or R0.

† Contents of message
- x'0': Data check in HA field
- x'1': Data check in C field
- x'2': Data check in K field
- x'3': Data check in D field
- x'4': Missing sink byte in HA field
- x'5': Missing sink byte in C field (PA error)
- x'6': Missing sink byte in K field
- x'7': Missing sink byte in D field
- x'8': Not used
- x'9': Missing AM during retry
- x'A' to x'F': Not used

†† Contents of correction flag
- Bits 0 and 1: CORRECTION BIT
  - 00: Correctable (Recovered)
  - 11: Uncorrectable
- Bit 2: Offset active
- Bits 3 to 7: Not used

Exception 6. Format 1 (Subsystem information)

	0	1	2	3	4	5	6	7
6	Unit indication	Byte 4 valid	Bytes 27 to 31 valid	Not used	Format (x'1')			
7	Data overrun threshold exceeded							
8	Seek count							
9								
10	Drive serial number (X '0C69' + DKU sequence number)							
11								
12								
13								
14								
15	DKC serial number (X'0C6900' + DKC sequence number)							
16								
17								
18								
19								
20	SSID of self subsystem							
21								
22	Exception class (x'6')				Exception code (x'F')			
23	0: Statistics or RRBL command 2: Channel data overrun				For parallel/serial channel standard path: CHL#/LPN (0-7) For serial channel extension path: LCP number			

Exception B. Format 1 (Shared Memory Failure)

	0	1	2	3	4	5	6	7
6	Unit indication	Byte 4 valid	Bytes 29 to 31 valid	Not used	Format (x'0')			
7	0x81							
8	Subcode (F/M = 81 SSB Byte 8)							
9	F/M = 81 SSB Byte 9							
10	Module ID (F/M = 81 SSB Byte 18)							
11	Routine ID (F/M =81 SSB Byte 19)							
12	Internal SSB Serial number							
13								
14	F/M = 81 SSB Byte 10							
15	Drive serial number (X'0C69' + DKU sequence number)							
16								
17								
18								
19								
20	SSID							
21								
22	Exception class (0xB)/Exception code (0x1)							
23	Exception code (F/M = 81 SSB Byte 20:Processor#/Message code)							

Exception B. Format 8 (LCP/MCP Failure)

	0	1	2	3	4	5	6	7
6	Unit indication	Byte 4 valid	Bytes 29 to 31 valid	Not used	Format (x'0')			
7	0x88							
8	LCP Error Code (F/M = 88 SSB Byte 9)							
9	LCP Error Code (F/M = 88 SSB Byte 10)							
10	Module ID (F/M = 88 SSB Byte 18)							
11	Routine ID (F/M =88 SSB Byte 19)							
12	Internal SSB Serial number							
13								
14	LCP Error Message (F/M = 88 SSB Byte 8)							
15	Drive serial number (X'0C69' + DKU sequence number)							
16								
17								
18								
19								
20	SSID							
21								
22	Exception class (0xB)/Exception code (0x8)							
23	Exception code (F/M = 88 SSB Byte 20:Processor#/Message code)							

Exception B. Format 9 (Host Adapter CHK2)

	0	1	2	3	4	5	6	7
6	Unit indication	Byte 4 valid	Bytes 29 to 31 valid	Not used	Format (x'0')			
7	0x89							
8	Subcode (F/M = 89 SSB Byte 8)							
9	F/M = 89 SSB Byte 9							
10	Module ID (F/M = 89 SSB Byte 18)							
11	Routine ID (F/M =89 SSB Byte 19)							
12	Internal SSB Serial number							
13								
14	Error ID Code *1							
15	Drive serial number (X'0C69' + DKU sequence number)							
16								
17								
18								
19								
20	SSID							
21								
22	Exception class (0xB)/Exception code (0x9)							
23	Exception code (F/M = 89 SSB Byte 20:Processor#/Message code)							

*1

ID Code	Sense
0x20	LA Error
0x10	LRC Error
0x00	Other Error

Exception B. Format A (Disk Adapter CHK2)

	0	1	2	3	4	5	6	7
6	Unit indication	Byte 4 valid	Bytes 29 to 31 valid	Not used	Format (x'0')			
7	0x8A							
8	Subcode (F/M = 8A SSB Byte 8)							
9	F/M = 8A SSB Byte 9							
10	Module ID (F/M = 8A SSB Byte 18)							
11	Routine ID (F/M =8A SSB Byte 19)							
12	Internal SSB Serial number							
13								
14	Error ID Code *1							
15	Drive serial number (X'0C69' + DKU sequence number)							
16								
17								
18								
19								
20	SSID							
21								
22	Exception class (0xB)/Exception code (0xA)							
23	Exception code (F/M = 8A SSB Byte 20:Processor#/Message code)							

*1

ID Code	Sense
0x20	LA Error
0x10	LRC Error
0x00	Other Error

Exception B, Format B (DRR CHK2)

	0	1	2	3	4	5	6	7
6	Unit indication	Byte 4 valid	Bytes 29 to 31 valid	Not used	Format (x'0')			
7	0x8B							
8	Subcode (F/M = 8B SSB Byte 8)							
9	F/M = 8B SSB Byte 9							
10	Module ID (F/M = 8B SSB Byte 18)							
11	Routine ID (F/M =8B SSB Byte 19)							
12	Internal SSB Serial number							
13								
14	Error ID Code *1							
15	Drive serial number (X'0C69' + DKU sequence number)							
16								
17								
18								
19								
20	SSID							
21								
22	Exception class (0xB)/Exception code (0xB)							
23	Exception code (F/M = 8B SSB Byte 20:Processor#/Message code)							

*1

ID Code	Sense
0x10	LRC Error
0x00	Other Error

Exception B. Format D (Power Failure)

	0	1	2	3	4	5	6	7
6	Unit indication	Byte 4 valid	Bytes 29 to 31 valid	Not used	Format (x'0')			
7	0x8D							
8	Subcode (F/M = 8D SSB Byte 8)							
9	F/M = 8D SSB Byte 9							
10	F/M = 8D SSB Byte 10							
11	F/M =8D SSB Byte 11							
12	Internal SSB Serial number							
13								
14	F/M = 8D SSB Byte 18							
15	Drive serial number (X'0C69' + DKU sequence number)							
16								
17								
18								
19								
20	SSID							
21								
22	Exception class (0xB)/Exception code (0xD)							
23	Exception code (F/M = 8D SSB Byte 20:Processor#/Message code)							

Exception B. Format E (Power Failure)

	0	1	2	3	4	5	6	7
6	Unit indication	Byte 4 valid	Bytes 29 to 31 valid	Not used	Format (x'0')			
7	0x8E							
8	F/M = 8E SSB Byte 8							
9	F/M = 8E SSB Byte 9							
10	Module ID (F/M = 8E SSB Byte 18)							
11	Routine ID (F/M =8E SSB Byte 19)							
12	Internal SSB Serial number							
13								
14	F/M = 8E SSB Byte 10							
15	Drive serial number (X'0C69' + DKU sequence number)							
16								
17								
18								
19								
20	SSID							
21								
22	Exception class (0xB)/Exception code (0xE)							
23	Exception code (F/M = 8E SSB Byte 20:Processor#/Message code)							

Exception B, Format E (Wait Sense Time Over)

	0	1	2	3	4	5	6	7
6	Unit indication	Byte 4 valid	Bytes 29 to 31 valid	Not used	Format (x'0')			
7	0x8E							
8	F/M = 8E SSB Byte 8							
9	F/M = 8E SSB Byte 9							
10	Lost SSB's Module ID (F/M = 8E SSB Byte 14)							
11	Lost SSB's Routine ID (F/M =8E SSB Byte 15)							
12	Internal SSB Serial number							
13								
14	F/M = 8E SSB Byte 10							
15	Drive serial number (X'0C69' + DKU sequence number)							
16								
17								
18								
19								
20	SSID							
21								
22	Exception class (0xB)/Exception code (0xE)							
23	Exception code (F/M = 8E SSB Byte 20:Processor#/Message code)							

Exception B. Format F (Logical inconsistency)

	0	1	2	3	4	5	6	7
6	Unit indication	Byte 4 valid	Bytes 29 to 31 valid	Not used	Format (x'0')			
7	0x8F							
8	Module ID (F/M = 8F SSB Byte 8)							
9	F/M = 8F SSB Byte 9							
10	F/M = 8F SSB Byte 10							
11	F/M =8F SSB Byte 11							
12	Internal SSB Serial number							
13								
14	F/M = 8F SSB Byte 12							
15	Drive serial number (X'0C69' + DKU sequence number)							
16								
17								
18								
19								
20	SSID							
21								
22	Exception class (0xB)/Exception code (0xF)							
23	Exception code (F/M = 8F SSB Byte 20:Processor#/Message code)							

Exception D. Format 1 (SPC report error)

	0	1	2	3	4	5	6	7
6	Unit indication	Byte 4 valid	Bytes 29 to 31 valid	Not used	Format (x'1')			
7	Type code ('111') (SPC report error)			Not used	Reserved			
8	SPC interruption status register (See SSB04-110 ~ 140)							
9	SPC command step register (See SSB04-150 ~ 170)							
10	SCSI command code (See SSB04-95)							
11	Threshold type (See SSB04-280)							
12	Module ID							
13	Routine ID							
14	Not used							
15	Drive serial number (X'0C69' + DKU sequence number)							
16								
17								
18								
19								
20	SSID of self subsystem							
21								
22	Exception class (x'D')				DKA No.			
23	CDEV No.				RDEV No.			

Exception D. Format 0 (drive report error)

	0	1	2	3	4	5	6	7
6	Unit indication	Byte 4 valid	Bytes 29 to 31 valid	Not used	Format (x'0')			
7	Type code ('000') (drive report error)			Not used	Sense key†			
8	Additional Sense Code+Additional Sense Code Qualifier (See SSB04-190 ~ 270)							
9								
10	SCSI command code††							
11	Threshold type (See SSB04-280)							
12	Module ID							
13	Routine ID							
14	Not used							
15	Drive serial number (X'0C69' + DKU sequence number)							
16								
17								
18								
19								
20	SSID of self subsystem							
21								
22	Exception class (x'E')				DKA No.			
23	CDEV No.				RDEV No.			

† Sense key
- x'0': NO SENSE
- x'1': RECOVERED
- x'2': NOT READY
- x'3': MEDIUM ERROR
- x'4': HARDWARE ERROR
- x'5': ILLEGAL REQUEST
- x'6': UNIT ATTENTION
- x'7': DATA PROTECT
- x'8': BLANK CHECK (Not used)
- x'9': VENDOR UNIQUE (Not used)
- x'A': COPY ABORTED (Not used)
- x'B': ABORTED COMMAND
- x'C': EQUAL (Not used)
- x'D': VOLUME OVERFLOW (Not used)
- x'E': MISCOMPARE
- x'F': (RESERVED)

†† SCSI command
- x'00': TEST UNIT READY
- x'03': REQUEST SENSE
- x'04': FORMAT UNIT
- x'07': REASSIGN BLOCKS
- x'12': INQUIRY
- x'15': MODE SELECT
- x'1A': MODE SENSE
- x'1B': START/STOP UNIT
- x'1C': RECEIVE DIAGNOSTIC RESULT
- x'1D': SEND DIAGNOSTIC
- x'28': READ (EXTEND)
- x'2A': WRITE (EXTEND)
- x'2E': WRITE AND VERIFY
- x'3B': WRITE BUFFER

Exception E. Format 0 (drive report error)

	0	1	2	3	4	5	6	7
6	Unit indication	Byte 4 valid	Bytes 29 to 31 valid	Not used	Format (x'0')			
7	Type code ('000') (drive report error)			Not used	Sense key†			
8	Additional Sense Code+Additional Sense Code Qualifier (See SSB04-190 ~ 270)							
9								
10	SCSI command code††							
11	Threshold type (≠ x'5X/6X')							
12	Module ID							
13	Routine ID							
14	Not used							
15	Drive serial number (X'0C69' + DKU sequence number)							
16								
17								
18								
19								
20	SSID of self subsystem							
21								
22	Exception class (x'E')				DKA No.			
23	CDEV No.				RDEV No.			

† Sense key
- x'0': NO SENSE
- x'1': RECOVERED
- x'2': NOT READY
- x'3': MEDIUM ERROR
- x'4': HARDWARE ERROR
- x'5': ILLEGAL REQUEST
- x'6': UNIT ATTENTION
- x'7': DATA PROTECT
- x'8': BLANK CHECK (Not used)
- x'9': VENDOR UNIQUE (Not used)
- x'A': COPY ABORTED (Not used)
- x'B': ABORTED COMMAND
- x'C': EQUAL (Not used)
- x'D': VOLUME OVERFLOW (Not used)
- x'E': MISCOMPARE
- x'F': (RESERVED)

†† SCSI command
- x'00': TEST UNIT READY
- x'03': REQUEST SENSE
- x'04': FORMAT UNIT
- x'07': REASSIGN BLOCKS
- x'12': INQUIRY
- x'15': MODE SELECT
- x'1A': MODE SENSE
- x'1B': START/STOP UNIT
- x'1C': RECEIVE DIAGNOSTIC RESULT
- x'1D': SEND DIAGNOSTIC
- x'28': READ (EXTEND)
- x'2A': WRITE (EXTEND)
- x'2E': WRITE AND VERIFY
- x'3B': WRITE BUFFER

ID	Kind	Description
2078	W	You should add the alternate path or delete the HODM pair. Do you want to stop this process? **[Contents]** (The meaning is same as the message) **[Action]** Please select [Yes] to stop the operation. You should delete the pair or add alternate path by decided with customers and retry again. If you select [No], SVP will continue the process.
2079	W	HRC/HODM data copy in progress. Please wait for copy end or you should delete or suspend the HRC/HODM volume pair using SVP operation on MCU. Do you want to stop this process? **[Contents]** (The meaning is same as the message) **[Action]** Please select [Yes] to stop the operation. You should wait until HRC/HODM is finished copy or you have to delete or suspend the HRC/HODM pair from MCU by decided with customers and retry again.
2080	I	Specified R-VOL is still online from HOST. **[Contents]** (The meaning is same as the message) **[Action]** Please check if the input number of R-VOL is correct. If not, input the correct R-VOL number. If the number is correct, please vary offline the concerned path from the host.
2081	E	Connection error occurred between Remote Console and Controller. **[Contents]** Remote Console could not connect to the DKC. SVP sometimes displays "Controller" as "Subsystem" but these are same meaning. **[Action]** Please check the connection and retry the same operation. If it can not be recovered by retry operation, then at first, disconnect from DKC, and connect machine again. Next, retry the same operation.
2082	I	Wait 10 minutes. Then please check if subsystem's status is OK and no SIM. After that press [OK]. **[Contents]** Remote Console could not connect to the DKC. **[Action]** Please check the connection and retry the same operator.
2083	I	Can't execute specified function while HRC & HODM monitoring is active. If you want to execute the function, please stop the monitoring function at first and retry again. **[Contents]** Remote Console could not connect to the DKC. **[Action]** Please check the connection and retry the same operator.
2084	W	The specified number of Path is less than the Minimum number of Paths on RCU Option screen. **[Contents]** The number of Paths is less than the Minimum number of Paths on RCU option screen. **[Action]** Confirm the number of Minimum Paths with RCU Option screen and retry the operation after establishing the number of paths more than Minimum Paths.

3. Interruption related to phase transition

Interruption code	Cause of interruption	Conditions for interruption
54h	Initial phase error*	Inconsistency occurred when the phase of the received C. COMMAND received the first REQ signal.
55h	Initial phase error & MSG received†	An initial phase error occurred and one message was received for the target MSG-IN request.
56h	Initial phase error & STATUS received†	An initial phase error occurred and one STATUS was received for the target STATUS receive request.
42h	Command stop (ATN condition detected)††	During execution of the data phase that failed in phase transition due to the generation of the ATN condition of the initiator, the transfer is stopped at the transfer block boundary and this interruption is reported. (At this time, the data register is empty.)
43h	Command stop (ATN condition detected & MSG received)†	One message was received after responding to the MSG-OUT request of the initiator that failed in phase transition due to the generation of the ATN condition of the initiator. During execution of the data phase, one message is received after responding at the transfer block boundary. (At this time, the data register is empty.)

* If a phase error has occurred and the DATAIN phase has been requested, the operation is as follows:

1) When the target with a nexus is in the asynchronous transfer mode

   One-byte data is received.

2) When the target with a nexus is in the synchronous transfer mode

   The number of bytes for the received REQ signal are received (ACK signal is not asserted).

† Occurs only when the AUTO receive mode is set.

†† Occurs only when the AUTO receive mode is not set.

4. Interruption related to report

Interruption code	Cause of interruption	Conditions for interruption
60h	Command complete	Received command has ended normally.
64h	Command Reject	1) A command has been received during automatic operation of this SPC (AUTO selection/reselection response). 2) Another command has been received during execution of a command. 3) The message length is 33 or more bytes when the SEND MSG command for EXTEND-MSG has been received.
65h	Command Invalid	1) A command of the target has been received during operation as an initiator. 2) A command of the initiator has been received during operation as a target. 3) A sequential command is present in the user program memory. 4) The received command code is not defined. 5) A command that requires the setting of the data block register/data byte register (MC byte counter) has been received, but the register value is "0". 6) Transfer is impossible because the CDB length of group 6/7 is set to "0". 7) The CDB of group 3/4 or a transfer command has been received.
66h	REG parity error detected	A parity error has been detected in the register set by the host MPU.
67h	COMMAND PAUSE	1) The COMMAND PAUSE command was received and processing ended.
68h	Self-diagnostic result "GOOD"	Self-diagnostics are performed, and the result is "normal."
69h	Self-diagnostic result "NO GOOD"	Self-diagnostics are performed, and the result is "abnormal."
70h	Disconnected	Bus free status has been detected while making a nexus as an initiator.
71h	REQ Asserted	Next phase execution is requested from the target. This interruption occurs only when no command is received in the nexus.
61h	Command complete (ATN condition detected)	The command ends normally and the ATN condition generated by the initiator is detected only when an ATN signal is asserted when an ACK signal is asserted for the last phase of the executed command.
62h	Command complete (ATN condition detected & MSG received)	A command has ended normally and one message has been received after responding to the ATN condition generated by the initiator. An ATN signal is detected only when an ATN signal is asserted when an ACK signal is asserted for the last phase of the executed command.

5. Interruption related to selection/reselection

Interruption code	Cause of interruption	Conditions for interruption
82h	Sel/Reselection timeout	The time that is set for selection/reselection timeout has been exceeded.
90h	Reselected	The target has been reset as the initiator.
80h	Selected	The initiator has been selected as the target.
81h	Selected with ATN	The initiator has been selected as the target, and the ATN condition generated by the initiator has been detected.

5. Interruption related to response operation for auto selection/reselection

Interruption code	Cause of interruption	Conditions for interruption
B0h	AUTO mode phase error	The reselection phase changed to a phase other than the MSG-IN phase.
B1h	MSG received	After the reselection phase, one message was received.
A0h	AUTO mode phase error	No ATN signal was asserted in the selection phase. This interruption occurs only when the MSG-OUT phase is set after the selection phase.
A1h	MSG received	After the selection phase, a message other than Identify-MSG was received.
A2h	Illegal Identify MSG received	Identify-MSG was received after the selection phase, but bits 5, 4, and 3 are set to '1'.
A3h	MSG received with Identify MSG	After the selection phase, Identify-MSG was received, followed by another message.
A4h	unknown CDB received	After the selection phase, an attempt to receive one command was made, but only one byte was received because the CD8 length of group 6 or 7 was unobtainable. This interruption occurs only when the MSG or CMD phase is set after the selection phase.
A5h	unknown CDB received with Identify MSG	After the selection phase, an attempt was made to receive a command following Identify-MSG, but only one byte was received because the CD8 length of group 6 or 7 was unobtainable.
A6h	CMD received **	After the selection phase, one command was received. This interruption occurs only when the MSG or CMD phase is set after the selection phase.
A7h	CMD received with Identify MSG	After the selection phase, Identify-MSG was received, followed by a command.
A8h	CMD received & MSG received	After the selection phase, one command was received. Then one message was received for the attention status. This interruption occurs only when the MSG or CMD phase is set after the selection phase.
A9h	CMD received with Identify MSG received	After the selection phase, Identify-MSG was received, followed by a command. Then one message was received for the attention status.

Command step

No.	Command name	Function	STEP	Description
1	RESELECTION & 1-MSG	1) Performs reselection. 2) Changes to the MSG-IN phase. 3) Issues a message.	X'00'	Command received BUS FREE phase awaited
			X'01'	BUS FREE phase detected During arbitration
			X'02'	Bus use right acquired During reselection
			X'03'	Nexus established Transition to the MSG-IN phase MSG-IN phase running
			X'04'	All MSG bytes being issued Command complete
2	RESELECTION & N-Byte-MSG	1) Performs reselection. 2) Changes to the MSG-IN phase. 3) Issues a message.	X'00'	Command received BUS FREE phase awaited
			X'01'	BUS FREE phase detected During arbitration
			X'02'	Bus use right acquired During reselection
			X'03'	Nexus established Transition to the MSG-IN phase MSG-IN phase running
			X'04'	All MSG bytes being issued Command complete
3	RESELECTION & TERMINATE	1) Performs reselection. 2) Performs the Terminate sequence.	X'00'	Command received BUS FREE phase awaited
			X'01'	BUS FREE phase detected During arbitration
			X'02'	Bus use right acquired During reselection
			X'03'	Nexus established Transition to the STATUS phase STATUS phase running
			X'04'	STATUS issuance complete Transition to the MSG-IN phase MSG-IN phase running
			X'05'	Message issuance complete Disconnect Command complete
4	RESELECTION & LINK TERMINATE	1) Performs reselection. 2) Performs the LINK-Terminate sequence.	X'00'	Command received BUS FREE phase awaited
			X'01'	BUS FREE phase detected During arbitration
			X'02'	Bus use right acquired During reselection
			X'01'	Nexus established Transition to the STATUS phase STATUS phase running
			X'03'	STATUS issuance complete Transition to the MSG-IN phase MSG-IN phase running
			X'04'	All MSG bytes being issued Command complete

No.	Command name	Function	STEP	Description
5	TERMINATE	1) Changes to the STATUS phase. 2) Issues one-byte status. 3) Changes to the MSG-IN phase. 4) Issues a one-byte message. 5) Disconnect	X'00'	Command received
			X'01'	During transition to the STATUS phase STATUS phase running
			X'02'	STATUS issuance complete Transition to the MSG-IN phase MSG-IN phase running
			X'03'	Message issuance complete Disconnect Command complete
6	LINK TERMINATE	1) Changes to the STATUS phase. 2) Issues one-byte status. 3) Changes to the MSG-IN phase. 4) Issues a one-byte message.	X'00'	Command received BUS FREE phase awaited
			X'01'	Transition to the STATUS phase STATUS phase running
			X'02'	STATUS issuance complete Transition to the MSG-IN phase MSG-IN phase running
			X'03'	Message issuance complete Command complete
7	DISCONNECT SEQUENCE	1) Changes to the MSG-IN phase. 2) Issues a two-byte message. 3) Disconnect	X'00'	Command received BUS FREE phase awaited
			X'01'	Transition to the MSG-IN phase MSG-IN phase running
			X'02'	Two-byte message issuance complete Disconnect Command complete
8	SEND N-Byte-MSG	1) Changes to the MSG-IN phase 2) Issues N-byte messages (two or more messages)	X'00'	Command received
			X'03'	Transition to the MSG-IN phase MSG-IN phase running
			X'04'	All MSG bytes being issued Command complete
9	RECEIVE N-Byte-CMD	1) Changes to the CMD phase. 2) Receives an N-byte CDB (undefined CDB).	X'00'	Command received
			X'04'	Transition to the CMD phase CMD phase running
			X'05'	All CDB bytes received completely Command complete
10	RECEIVE N-Byte-MSG	1) Transition to the MSG-OUT phase 2) Receives an N-byte CDB (33 bytes or more messages).	X'00'	Command received
			X'02'	Transition to the MSG-OUT phase MSG-OUT phase running
			X'03'	All message bytes received completely Command complete
11	RESELECTION	Performs reselection.	X'00'	Command received BUS FREE phase awaited
			X'01'	BUS FREE phase detected During arbitration
			X'02'	Bus use right acquired During reselection
			X'03'	Nexus established Command complete
12	SET REQ	Asserts REQ.	X'00'	Command received
			X'01'	C. Command Complete
13	RESET REQ	Negates REQ.	X'00'	Command received
			X'01'	C. Command Complete

No.	Command name	Function	STEP	Description
14	Disconnect	Releases a BSY signal.	X'00'	Command received
			X'01'	C. Command Complete
15	SEND DATA from MPU	1) Changes to the DATA-IN. phase. 2) Issues data in the program transfer mode	X'00'	Command received
			X'01'	Transition to the DATA-IN phase DATA-IN phase running
			X'02'	All data bytes received completely Command complete
16	SEND DATA from DMA	1) Changes to the DATA-IN. phase. 2) Issues data in the program transfer mode	X'00'	Command received
			X'01'	Transition to the DATA-IN phase DATA-IN phase running
			X'02'	All data bytes received completely Command complete
17	RECEIVE DATA from MPU	1) Changes to the DATA-OUT phase. 2) Receives data in the program transfer mode.	X'00'	Command received
			X'01'	Transition to the DATA-OUT phase. DATA-OUT phase running
			X'02'	All data bytes received completely Command complete
18	RECEIVE DATA from DMA	1) Changes to the DATA-OUT phase. 2) Receives data in the program transfer mode.	X'00'	Command received
			X'01'	Transition to the DATA-OUT phase. DATA-OUT phase running
			X'02'	All data bytes received completely Command complete
19	SEND 1-MSG	1) Changes to the MSG-IN phase 2) Issues a message.	X'00'	Command received
			X'01'	Transition to the MSG-IN phase MSG-IN phase running
			X'02'	All message bytes issued completely Command complete
20	RECEIVE MSG	1) Changes to the MSG-OUT phase. 2) Issues a message.	X'00'	Command received
			X'01'	Transition to the MSG-OUT phase MSG-OUT phase running
			X'02'	All message bytes received completely Command complete
21	SEND STATUS	1) .Changes to the STATUS phase. 2) Issues one-byte status.	X'00'	Command received
			X'01'	Transition to the STATUS phase STATUS phase running
			X'02'	STATUS issuance complete Command complete
22	RECEIVE CMD	1) Changes to the CMD phase. 2) Receives CDB.	X'00'	Command received
			X'01'	Transition to the CMD phase CMD phase running
			X'02'	All CDB bytes received completely Command complete

SCSI sense key

Sense key	Definition
0_H	NO SENSE: Indicates that the key information reported from the specified logical unit is not for specific use. This indicates that the command has ended normally.
1_H	RECOVERED ERROR: Indicates that the last command has ended normally after recovery operation by the controller. Details can be determined by checking the additional sense byte and information byte.
2_H	NOT READY: Indicates that the addressed logical unit cannot be accessed. Recovery from this status may require operator's intervention.
3_H	MEDIUM ERROR: Indicates that the command has ended in the irrecoverable error status due to damage to the medium or an error in recorded data.
4_H	HARDWARE ERROR: Indicates that the controller has detected an irrecoverable hardware error (e.g., controller failure, device failure, parity error, etc.) during execution of a command or self-diagnostics.
5_H	ILLEGAL REQUEST: Indicates that illegal data has been detected in the CDB or the additional parameter given as data for some commands (FORMAT UNIT, MODE SELECT, etc.). The controller terminates the command without changing the medium if an invalid parameter has been detected in the CDB. If an invalid parameter has been detected in the additional parameter given as data, the medium may already have been changed.
6_H	UNIT ATTENTION: Indicates that the unit attention status has occurred because the MODE SELECT parameter has been changed or the controller has been reset.
7_H	DATA PROTECT: Indicates that a write command has been received when write to media is prohibited. Write operation is not performed.
8_H	BLANK CHECK. (Not used)
9_H	Vendor Unique. (Not used)
A_H	COPY ABORTED. (Not used)
B_H	ABORTED COMMAND: Indicates that the controller has aborted the command. The host can retry the command for recovery.
C_H	EQUAL. (Not used)
D_H	VOLUME OVERFLOW. (Not used)
E_H	MISCOMPARE: Data comparison failed during byte comparison and verification. Or, data in the WRITE BUFFER command from the same host was changed before execution of the READ BUFFER command.
F_H	Reserved

Additional sense code + Additional sense code Qualifier

Sense key	Code*	Error name	Description
0	00 00	No Additional Sense Information	No valid additional sense information.
4	01 00	No Index/Sector Signal	▪ Index signal cannot be detected. • Sector signal cannot be detected.
1/4	02 00	No Seek Complete	The Seek operation of the drive cannot be performed properly.
1/4	03 00	Write Fault	Drive Write Fault has been detected.
1/4	03 80	Write at inhibit condition	The Write is attempted under the write inhibit condition.
2	04 00	Drive Not Ready	• Drive Ready signal cannot be detected. • The drive cannot be accessed.
2	04 01	Drive is in Process of Becoming Ready	The drive is not ready and will soon get ready.
2	04 02	Drive Not Ready, Initializing Command Required	The drive is not ready. Issue the START UNIT command to get it ready.
2	04 04	Drive Not Ready, Format in Progress	The drive is not ready. (Format in progress)
2	04 80	Drive not Ready	The drive is not ready caused by drop ready.
2	05 00	Drive Not Selected	Drive cannot be selected. (Does not occur)
1/4	06 00	Not Track Zero Found	Positioning to track zero is impossible.
4	08 00	Logical Unit Communication Failure	A drive interface error has occurred.
4	08 01	Logical Unit Communication Time Out	A drive interface time-out error has occurred.
4	08 02	Logical Unit Communication Parity Error	A drive interface parity error has occurred.
1/4	09 00	Track Following Error	Track positioning failed.
1/4	09 80	Track Positioning Error during ATN OFF to MESDI CMD EXEC	The track is out of position between ATN OFF and MESDI command (seek) issued.
1	0C 01	Write Error Recovered with Auto Reallocation	(Does not occur.)
3	0C 02	Write Error-Auto Reallocation Failed	Automatic reallocation was attempted for an ID error detected during a write, but it failed. (Does not occur.)
3	10 00	ID CRC Error	A CRC or ECC error has occurred in the ID field. (Does not occur.) DK306:CRC, DK308:ECC.
3	11 00	Unrecovered Read Error	An error has occurred in the DATA field (retry not applied).

* The higher-order byte of the code indicates an additional sense code (byte 8), and the lower-order byte an additional sense code qualifier (byte 9).

Sense key	Code	Error name	Description
3	11 01	Read Retries Exhausted	A retry was attempted for a DATA field read error, but recovery was impossible (error correction not applied).
3	11 02	Error Too Long to Correct	ECC correction of the DATA field read error is impossible.
3	11 04	Unrecovered Read Error-Auto Reallocation Failed	(Does not occur.)
3	11 82	Error Too Long to Multi-Symbol Soft Correction	Can not correct a Read error in DATA field with Multi-Symbol Soft Correction.
3	12 00	No Address Mark Found in ID Field	No address mark cannot be detected in the ID field. (Does not occur.)
1/3	13 00	No Address Mark Found in Data Field	No address mark cannot be detected in the DATA field.
1/3	13 80	Sprit Data AM Not Found	AM in Sprit Data is not found.
1	13 E1	Data AM not Found: Recovered with VFO Hi-gain Offset 1)	Data AM not Found is recovered with VFO Hi-gain Offset (1)
1	13 E2	Data AM not Found: Recovered with VFO Hi-gain Offset (2)	Data AM not Found is recovered with VFO Hi-gain Offset (2)
1	13 E3	Data AM not Found: Recovered with VFO Hi-gain Offset (3)	Data AM not Found is recovered with VFO Hi-gain Offset (3)
1	13 E4	Sprit AM not Found: Recovered with VFO Hi-gain Offset (1)	Sprit AM not Found is recovered with VFO Hi-gain Offset (1)
1	13 E5	Sprit AM not Found: Recovered with VFO Hi-gain Offset (2)	Sprit AM not Found is recovered with VFO Hi-gain Offset (2)
1	13 E6	Sprit AM not Found: Recovered with VFO Hi-gain Offset (3)	Sprit AM not Found is recovered with VFO Hi-gain Offset (3)
1/3	14 01	No Record Found	A block with a consistent ID field cannot be detected.
1/3	14 80	Flag Error	The flag in the ID field is inconsistent.
1/3	14 81	Drive Fault with ATN OFF	A drive fault was detected when ESDI ATN is off.
1/3	14 82	Mismatch Sector ID	The sector address in the ID field is inconsistent.
1/3	14 83	Drive Error with no Factor	A drive error was detected, but all error cause were off.
3	14 84	ID Check Code Error at ID ON the Fly	Check Code error is detected in ID On the Fly.
3	14 91	Uncorrectable Data Error using previous sector ID	A data error was recovered by a previous sector ID retry, but the data is uncorrectable error by ECC.

Sense key	Code	Error name	Description
3	14 93	Data AM not found using previous Sector ID	A previous sector ID retry was attempted, but the data AM of the data cannot be detected.
3	14 94	Sprit Data AM Not Found using Previous Sector ID	A previous sector ID retry was attempted, but the Sprit data AM of the data cannot be detected.
1	14 98	ECC Correctable Error using previous Sector ID	A data error was recovered using previous sector ID retry, but the data is recovered data by ECC.
3	14 A0	Reassign Fault because of Reserve Sector No REC	A reassign command failed. (The reserved sector is No REC.)
3	14 A1	Previous Sector Error with Previous Sector ID retry	A previous sector ID retry was attempted, but an error occurred in previous ID.
3	14 B1	Error too much to recover using previous ID	A previous sector ID retry cannot execute. (Number of error ID ≥ 2)
1/3	14 C0	ID On the Fly Correction Error	ID error is detected with ID On the Fly correction and CCH not coincident.
1/3	14 E1	No Record Found with VFO Hi-Gain Offset (1)	No Record Found with VFO Hi-Gain Offset (1)
1/3	14 E2	No Record Found with VFO Hi-Gain Offset (2)	No Record Found with VFO Hi-Gain Offset (2)
1/3	14 E3	No Record Found with VFO Hi-Gain Offset (3)	No Record Found with VFO Hi-Gain Offset (3)
3	15 00	Seek Positioning Error	The target address cannot be sought. (Does not occur.)
1/3	15 01	Mechanical Positioning Error	A seek error has occurred. (Does not occur.)
1/3	15 02	Positioning Error Detected by Read of Medium	A seek ended normally but the address was not the target address.
1/3	16 00	Data Synchronization Mark Error	(Does not occur.)
1	17 00	Recovered Data with No Error Correction Applied	Indicates that a retry has succeeded in error recovery.
1	17 01	Recovered Data with Retries	A retry has succeeded in error recovery (no head offset).
1	17 02	Recovered Data with Positive Head Offset	A retry with a positive head offset has succeeded in error recovery.
1	17 03	Recovered Data with Negative Head Offset	A retry with a negative head offset has succeeded in error recovery.
1	17 05	Recovered Data Using Previous Sector ID	A data recovery has been executed by a previous ID retry.
1	17 06	Recovered Data without ECC-Data Auto Reallocated	(Does not occur.)
1	17 85	Recovered Data with Physical SCT Pulse Read	Error is recovered with Physical Sector pulse read.
1	17 86	Auto REA Exhausted without ECC Correction	(Does not occur)

Sense key	Code	Error name	Description
1/3	17 D6	Drive Overrun Occurred	Drive Overrun occurred by hardware failure.
1	17 E1	Recovered Data with VFO Hi-Gain Offset (1)	Data error is recovered with VFO Hi-Gain Offset (1).
1	17 E2	Recovered Data with VFO Hi-Gain Offset (2)	Data error is recovered with VFO Hi-Gain Offset (2).
1	17 E3	Recovered Data with VFO Hi-Gain Offset (3)	Data error is recovered with VFO Hi-Gain Offset (3).
1	18 00	Recovered Data with Error Correction Applied	Error recovery has been accomplished with ECC correction (no retry).
1	18 01	Recovered Data with ECC and Retries Applied	Indicates that a retry has succeeded in error recovery with ECC correction.
1	18 02	Recovered Data with ECC and/or Retries Data Auto Reallocated	(Does not occur.)
1	18 80	Recovered Data without Retries or Multi-Symbol Soft Correction	Recovered Data without Retries or Multi-Symbol Soft Correction.
1	18 81	Recovered Data with Retries and/or Multi-Symbol Soft Correction	Recovered Data with Retries and/or Multi-Symbol Soft Correction.
1/3	19 02	Defect List Error in Primary List	An error has occurred during Primary (P) list access.
1/3	19 03	Defect List Error in Grown List	An error has occurred during Grown (G) list access.
5	1A 00	Parameter List Length Error	Parameter list length is invalid. (Does not occur.)
1/3	1C 01	Primary Defect List Not Found	Positioning to the Primary (P) list failed.
1/3	1C 02	Grown Defect List Not Found	Positioning to the Grown (G) list failed.
E	1D 00	Miscompare During Verify Operation	Indicates that a data compare error has occurred during Verify operation.
5	20 00	Invalid Command Operation Code	The operation code is invalid.
5	21 00	Logical Block Address out of Range	A logical address (LBA) beyond the capacity of the medium has been pointed out.
5	21 44	Logical Block Address out of Zone Range	Illegal access is made over a zone in LBA Mapping.
5	24 00	Illegal Field in CDB	An error is in the CDB command. Examples: Reserved bit/value _ Zero Unsupported bit/value _ Zero

ID	Kind	Description
2183	E	Configuration file read error has occurred. **[Contents]** Error has occurred on reading configuration form SVP file. **[Action]** Retry maintenance, but same error has occurred, reboot SVP.
2184	W	The unused FD is inserted though the option is installed in this controller. If you select [OK] with checking 'ON' in the next window, the FD will be used only for this controller. **[Contents]** The unused FD is inserted though there will be used FD because the function is installed. If you select [OK] with checking 'ON' in the next window, the FD will be used only for this controller. **[Action]** Please look for the used FD this controller, and use it. If you need to continue the operation, please select [OK].
2185	I	Please remove the special FD. **[Contents]** Please remove the special FD from SVP. **[Action]** Please remove the FD, and select [OK].
2186	I	Too many ECC groups which you selected! **[Contents]** Your selection was not correct. **[Action]** Please check the ECC group.
2187	I	Too many Spare Drives which you selected! **[Contents]** Your selection was not correct. **[Action]** Please check the spare drives and select again.
2188	I	You select different attribute ECC group other groups, Please select same attribute ECC group. **[Contents]** Your selected group was not correct. **[Action]** Please check the ECC group and select again.
2189	I	The ECC group which you selected is already setup complete. Please select. **[Contents]** Your selected group was not correct. **[Action]** Please check the group and select again.
2190	I	Too many logical devices. **[Contents]** Too many logical devices. **[Action]** Please check the logical devices.
2191	I	Please enter number of cylinders. **[Contents]** Please enter number of cylinders. **[Action]** Please check the number and enter.
2192	I	Too many logical devices (Customized Volume). **[Contents]** Too many logical devices (Customized Volume). **[Action]** Please check the logical devices.

ID	Kind	Description
2193	I	Invalid number of cylinders. [Contents] You entered the wrong number of cylinders. [Action] Please check the number of cylinders and enter again.
2194	I	Illegal logical device allocation. [Contents] Detected the illegal logical device allocation. [Action] Please check the logical device allocation.
2195	I	This logical device ID is already used. [Contents] This logical device ID is already used. [Action] Please check the device ID.
2196	I	Please enter logical device ID. [Contents] Please enter logical device ID. [Action] Please check the correct logical device ID and enter.
2197	I	This logical device ID is already used. [Contents] This device ID is already used. [Action] Please check the logical device ID again.
2198	I	Invalid SSID. [Contents] Invalid SSID was detected. [Action] Please check the SSID.
2199	I	This SSID is already used. [Contents] The SSID was already used. [Action] Please check the SSID again.
2200	I	Capacity of Shared memory which you entered is lower than minimum capacity. [Contents] You entered the wrong capacity. [Action] Please check the minimum capacity and enter again.
2201	W	This name has already defined. Please input another name. [Contents] This name has already defined. Please input another name. [Action] Select [OK], and input another name.
2202	W	This controller has already defined. [Contents] The serial number has already defined. [Action] Check the serial number.

ID	Kind	Description
2203	W	WARNING: Panel switches status is ignored because "Set Force" option is specified. Are you sure you want to change the devices status forcibly?
	[Contents]	You set the Set Force option so that Remote Console will set the Lock/Read only/Read-Write to the target devices forcibly.
	[Action]	If you want to change the devices status forcibly, please select Yes. Remote Console will set your setting information to the target devices forcibly. If you do not what to change, please select No. Remote Console will stop changing the status.
2204	I	Please confirm that system configuration of SCSI host returned the original condition.
	[Contents]	Confirm that system configuration of SCSI host returned the original condition.
	[Action]	Select OK after confirming that system configuration of SCSI host returned the original condition.
2205	I	Backup file for SCSI path information already exists. Do you replace existing file?
	[Contents]	This message checks whether you will replace existing backup file for SCSI path information with new one.
	[Action]	If you replace existing backup file, select [Yes] button.
2206	I	Controller is not ready.
	[Contents]	Controller which you want to connect or you have connected is not ready to execute Remote Console function.
	[Action]	Please check the target controller if it is ready.
2207	I	Keylock Panel is not built-in.
	[Contents]	A Controller Which you what to connect does not equip the Keylock Panel.
	[Action]	Please check the target controller if the Keylock Panel has already equipped.
2208	W	Switches status does not match Keylock Panel. Please open "Device Status Overview" screen, and confirm switches status.
	[Contents]	When setting the lock/Read-only/Read-Write to the devices, the Keylcok panel has already changed and your setting information will not be available.
	[Action]	Please select Refresh button to display the last status of panel switches in the "Device Status Overview" screen. And please retry again.
2209	I	Backup file for SCSI path information was made.
	[Contents]	This is end of making a backup file for SCSI path information.
	[Action]	
2210	I	This will restore SCSI path information with a backup file.
	[Contents]	If you select [OK] button, this will restore a backup file for SCSI path information.
	[Action]	If you read a backup file and display the information, select [OK] button.
2211	I	This will make SCSI path information a backup file for.
	[Contents]	If you select [OK] button, this will make a backup file for SCSI path information.
	[Action]	If you make a backup file, select [OK] button.

ID	Kind	Description
2212	I	Without making a backup file for SCSI path information, do you delete selected SCSI path definition?
	[Contents]	This message checks whether you will delete selected SCSI path definition without making a backup file for SCSI path information.
	[Action]	In case of deleting selected SCSI path definition without making a backup file, select {Yes] button. Otherwise, select [No] button to make backup file.
2213	I	PORT is not selected. Please select PORT(S).
	[Contents]	This message says that you need to select PORT(S) form PORT display column before selecting [Set] button.
	[Action]	Please select PORT(S) from PORT display column.
2214	I	MODE is not selected. Please select MODE.
	[Contents]	This message says that you need to select MODE form MODE display column before selecting [Set] button.
	[Action]	Please select MODE form MODE display column.
2215	I	Please select [Backup] button for making a backup file.
	[Contents]	This message prompts to select [Backup] button for making a backup file for SCSI path information.
	[Action]	If you make a backup file for SCSI path information, please select [Backup] button.
2216	I	Do you want to check sub system status?
	[Contents]	Select checking or not sub system status.
	[Action]	If you want to check sub system status, select [Yes]. If you don't want to check, select [No].
2217	E	Error has occurred at DKU path inline. Please confirm connection of target part, and press Retry.
	[Contents]	Possibly you have connected the wrong terminal of replaced part and cable.
	[Action]	Connect cable to the right terminal, and select [Retry]. If connection has not wrong, select [Cancel].
2218	E	Please reboot the PC and do the same operation again. If you could not do the same operation, please call Technical Support Center.
	[Contents]	SVP detected invalid data so that you should reboot PC.
	[Action]	Alter selecting [OK], please reboot the PC and dot the same operation again. If you could not do the same operation, please call Technical Support Center.
2219	W	No available configuration. Please check CONFIG files or CONFIG version.
	[Contents]	There is no drive type/emulation type for install in CONFIG file.
	[Action]	Check CONFIG version, if invalid, install CONFIG valid version.
2220	W	You have installed maximum number of logical devices.
	[Contents]	You have installed max. number of available logical devices.
	[Action]	Check all logical device ID which you entered (compare with work sheet).

ID	Kind	Description
2221	W	No enough free logical device ID. Please enter another logical device ID.
	[Contents]	There is no enough free logical device ID from ID you are entered to end of ID.
	[Action]	Check all logical device ID which you entered (compare with work sheet).
2222	W	No enough free SS ID. Please enter another SS ID.
	[Contents]	There is no enough free SS ID form ID you entered to end of ID.
	[Action]	Check all SS ID which entered (compare with work sheet).
2223	W	Please select DCR type.
	[Contents]	No select DCR type.
	[Action]	Select DCR type.
2224	W	Invalid parameter.
	[Contents]	You enter invalid parameter of DCR configuration.
	[Action]	Check all parameter and enter valid parameter.
2225	W	There is no enough DCR area.
	[Contents]	You enter over available size of DCR.
	[Action]	Check all parameter and enter valid parameter (compare with work sheet).
2226	W	Different DCR type is already uses in this area.
	[Contents]	DCR area which you entered is already used for another DCR type.
	[Action]	Check DCR type, cylinder, head which you entered and enter valid parameter (compare with work sheet).
2227	E	HRC or HODM operation was rejected.
	[Contents]	All CHAs are not active for HRC & HODM.
	[Action]	Please replace the CHAs and retry operation.

Threshold type

Code	Threshold (failure) type	Code	Threshold (failure) type
00	CHA CHK1A	30	Cache 1 bit correctable error
01	CHA CHK1B	31	Cache uncorrectable error
02	CHA CHK3	32	Cache 2 bits correctable error
03	CHA CHK2	33	CPC check error
04	CHA ADP temporary error	40	SCSI port failure
05	LCM hardware error	41	Drive mechanism recovered error
06	BSA F bus open	42	Drive mechanism unrecovered error
07	BSA LIVEINS	43	Drive media recovered error
08	BSA check error	44	Drive media unrecovered error
09	SMP M bus open	45	Drive R/W recovered error
0A	SMP M bus check error	46	Drive R/W unrecovered error
0B	SMP H/L check error	47	Drive interface recovered error
10	DKA CHK1A	48	Drive interface unrecovered error
11	DKA CHK1B	49	Controller recovered error
12	DKA CHK3	4A	Controller unrecovered error
13	DKA SCA temporary error	4B	SCSI interface recovered error
14	DKA DRR temporary error	4C	SCSI interface unrecovered error
16	BSA F bus open	4D	Drive I/O read error
17	BSA LIVEINS	4E	Drive I/O write error
18	BSA check error	60	SVP interface error
19	SMP M bus open	FF	Invalid threshold type
1A	SMP M bus check error		
1B	SMP H/L check error		
20	Shared memory correctable error		
21	Shared memory uncorrectable error		
22	SMC M bus open		
23	SMC H/L bus open		

Exception E. Format 0 (LDEV blockade/Pin volume detected/Write inhibited) (Note 1)

	0	1	2	3	4	5	6	7
6	Unit indication	Byte 4 valid	Bytes 29 to 31 valid	Not used	Format (x'0')			
7	Type Code ('000')			Not used				
8	Ready	Enable	SSB pending	Not used				
9	Not used							
10	Media maintenance reserve	Pin volume	Write inhibited	Not used				
11	Not used							
12	Module ID (Note 2)							
13	Routine ID (Note 2)							
14	Not used							
15	Drive serial number (x'0C69' + DKU sequence number)							
16								
17								
18								
19								
20	SSID of self subsystem							
21								
22	Exception code (x'E000')							
23								

(Note 1) Byte 0, Bit 3 (device check) is set to 1.

(Note 2) Module ID · Routine ID

x'5011/501C/5202' ; LDEV blockade
x'501A/501B' ; PIN volume detected
x'6605/6697/6705/6784/6805/6853/6909/6953' ; Write inhibited

Exception E. Format 0 (LDEV not ready) (Note 1)

	0	1	2	3	4	5	6	7
6	Unit indication	Byte 4 valid	Bytes 29 to 31 valid	Not used	Format (x'2')			
7	Type Code ('000')			Not used	Not used			
8	Ready	Enable	SSB pending	0	0	0	0	0
9	x'00'							
10	Media maintenance reserve	Pin volume	0	0	0	0	0	0
11	Host type	DKC type	0	0	DKU type			
12	Module ID (x '50'/x '52')							
13	Routine ID (x'1C'/x'02')							
14	Not used							
15	Drive serial number (x'0C69' + DKU sequence number)							
16								
17								
18								
19								
20	SSID of self subsystem							
21								
22	Exception code (x'E210')							
23								

(Note 1) Byte 0, bit1 (intervention required) is set to 1.