

DIAGNOSIS SECTION

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1. Types of Diagnosis

This Storage System has the following diagnostic functions.

Table 1-1 Diagnostics Test Routines

Item No.	Type	Diagnosis	Part	Timing
1	LAN Check	Diagnosis of LAN among Maintenance PC - GUM - MP	MPU, MP	When a LAN error occurs or a LAN failure between Controller Chassis and Web Console is detected by a communication time-out error.
2	DKB	Encryption Disk Board status reference	DKB	When checking whether the encryption function of Disk Board is normal.

2. DIAG Details

2.1 LAN Diagnostic Checker

The LAN diagnostic checker checks the LAN connection state between SVP and DKC from the following two points of view to judge whether the LAN failure is a physical failure on hardware, or a failure in the communication software while the physical connection has no problem.

This check function can be executed when the storage system is operating.

Table 2-1 LAN Diagnosis

Item No.	Test Name	Function	Purpose
1	Hardware check	Performs the ping test between each SSVP and each MP.	Checking whether SVP and DKC are physically connected.
2	Software check	Uses the software to perform the LAN connection check on the MPs that respond to the hardware check (ping test) and are found to be physically connected.	Checking whether the function of the communication software is normal.

NOTE : The two checks are automatically performed in order from Item No.1 to Item No.2 per startup.

The maximum execution time of the LAN diagnostic checker (total time of the hardware check and the software check) is shown below.

Storage System (Configuration)	Maximum Execution Time
VSP5100, 5100H	1 minute
VSP5500, 5500H (1 CBX pair)	2 minutes
VSP5500, 5500H (2 CBX pairs)	3 minutes
VSP5500, 5500H (3 CBX pairs)	4 minutes

2.2 Encryption Disk Board Status Reference Check

You can refer to the Disk Board status (encryption status/error status).

This check function can be executed when the storage system is operating.

Table 2-2 Encryption Status Reference

Item No.	Test Name	Function	Purpose	Maximum execution time
1	Disk Board status reference	Transmits and executes a status reference command to SPCve. A result is displayed on SSB.	Checks the status of Disk Board (Encryption status/Error status).	About 2 min.

3. DIAG Test Procedures (SVP Operations)

3.1 LAN Check Procedure

1. <Connect the Maintenance PC>

Connect the Maintenance PC to the SSVP, and then log in to the SVP.

NOTE: When executing this check function on the storage system in which the SVP High Reliability Kit is installed, log in to the Master SVP.

- “Attachment/Removal Procedure of Maintenance PC” ([INST\(IN\)13-02-10](#))
- “Connection to the SVP” ([SVP01-30](#))

2. <Start the SVP window>

From the menu of Web Console, click [Maintenance Components] - [Maintenance Other Components].

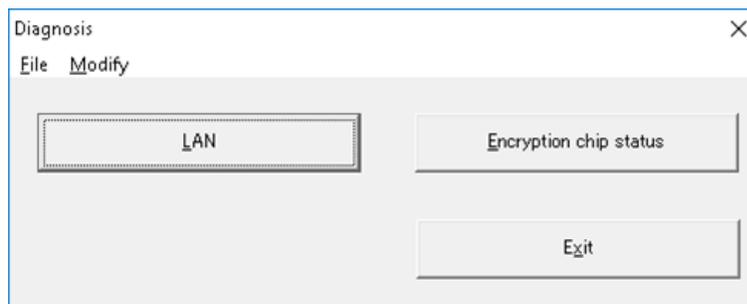
3. <Change Operation Mode>

Change the mode to [Modify mode].

Click [Diagnosis].

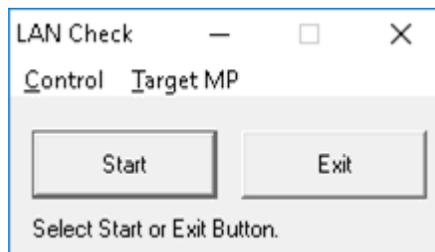
4. <Select LAN>

Click [LAN].



5. <Start LAN Check>

Click [Start] in the LAN Check window.



<Supplementary Explanation>

By default, the targets for the diagnosis are [Equipped MP] (installed processors).

Only when directed by the Technical Support Division, select [All MP] (all processors) for [Target MP], and then execute the diagnosis.

- Installed Processor : Select [Equipped MP] from [Target MP].
- All Processors : Select [All MP] from [Target MP].

6. <Display Wait Message>

The Wait message is displayed.

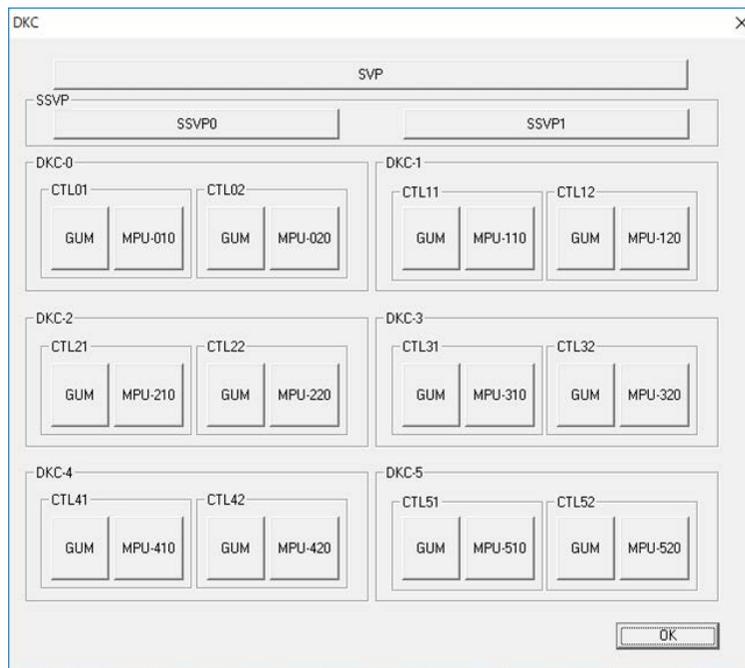


The window will change to the result display window in a few minutes.

7. <Display Result>

(1) Status display of SVP, SSVP, GUM, and MPU

SVP, SSVP, GUM, and MPU statuses are displayed.



When MPU (MPU-XXX) is clicked, the window is changed to the processor status window.

The SVP, SSVP, and GUM buttons do not display the detail window even if you click them. They just display their statuses.

The window is returned to the LAN Check menu window by clicking [OK].

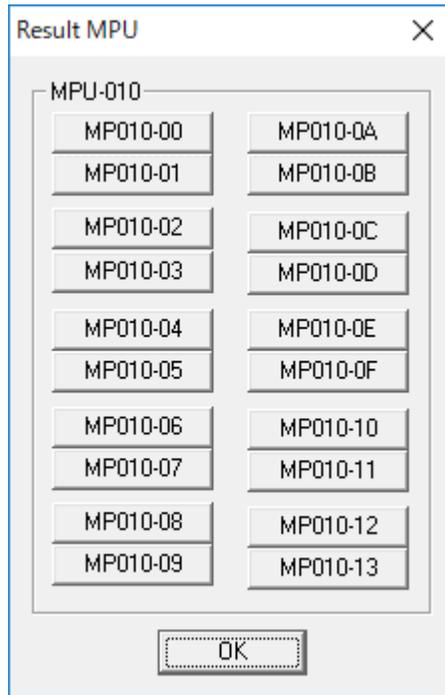
[Status Explanation]

The state of the SVP, SSVP, GUM, and MPU buttons indicates the test result as follows:

- Black : The test object is normal
- Blinking : The test object is abnormal. For the connection diagnosis of an SSVP, if there is no ping response to the set IP address while there is a ping response to the default IP address, “#” is displayed in front of the SSVP name.
- Gray : The test object is not installed.

(2) Processor status display

The processor status is displayed.



When the MP button is clicked, the window is changed to the detailed status window.

The window is returned to the MPU status window by clicking [OK].

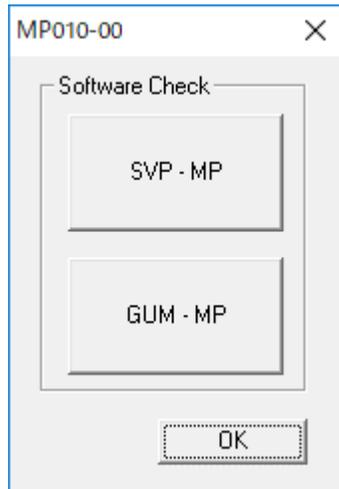
[Status Explanation]

The test result is shown by the status of the MP button as follows:

- Black : The concerned processor is normal.
- Blinking : The test object is abnormal. For the connection diagnosis of a processor, if there is no ping response to the set IP address while there is a ping response to the default IP address, “#” is displayed in front of the processor name.
- Gray : The test object is not installed.

(3) Detailed Status Display

Detailed information on the concerned processor is displayed.



The window is returned to the processor status window by clicking [OK].

[Status Explanation]

The test result is shown by the status of the button as follows:

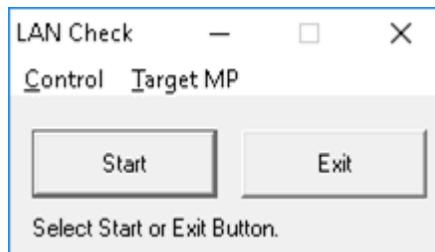
- Black : The processor is normal from the viewpoint of software.
- Blinking : The blinking part has a problem.
- Gray : Not diagnosed yet.

8. <Complete LAN Check>

NOTE: If errors are detected, perform “Recovery Procedure for Error Parts Detected by LAN Check” ([TRBL02-04-440](#)).

If you have come to this page from TROUBLESHOOTING SECTION or MICRO-FC SECTION, go back there to continue the workflow in the section.

Click [Exit] in the LAN Check window.



3.2 Encryption Chip Status Check Procedures

1. <Connect the Maintenance PC>

Connect the Maintenance PC to the SSVP, and then log in to the SVP.

NOTE: When executing this check function on the storage system in which the SVP High Reliability Kit is installed, log in to the Master SVP.

- “Attachment/Removal Procedure of Maintenance PC” ([INST\(IN\)13-02-10](#))
- “Connection to the SVP” ([SVP01-30](#))

2. <Start the SVP window>

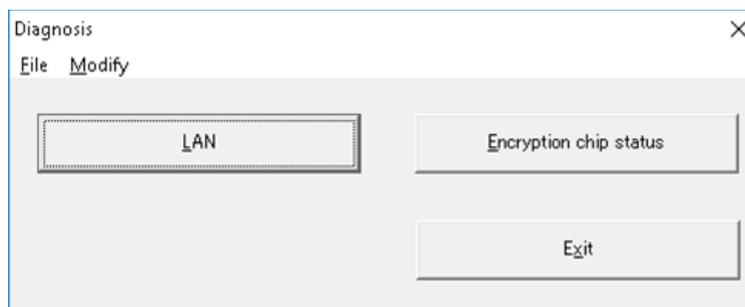
From the menu of Web Console, click [Maintenance Components] - [Maintenance Other Components].

3. <Change Operation Mode >

Change the mode to [Modify mode].
Click [Diagnosis].

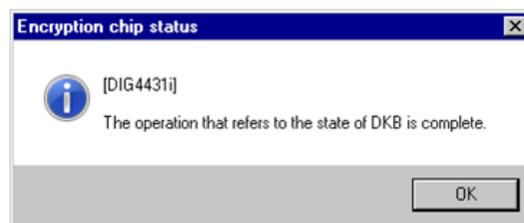
4. <Select Encryption chip status>

Click [Encryption chip status].



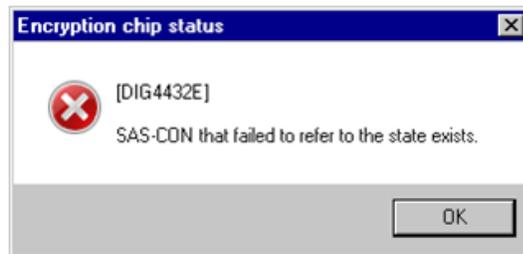
5. <Confirm Encryption Disk Board>

- When the encryption Disk Board status reference is completed
If Checker makes the status check of the encryption Disk Board complete, the execution confirmation message [4431] is displayed.



Check the status of the Encryption Disk Board referring to the SSB log “Error Code = f87e”.
For the procedure for displaying the SSB log, see “Log indication” ([SVP02-02-10](#)), and for the procedure for referring to the SSB log, see SSBLOG SECTION ([SSBLOG00-00](#)).

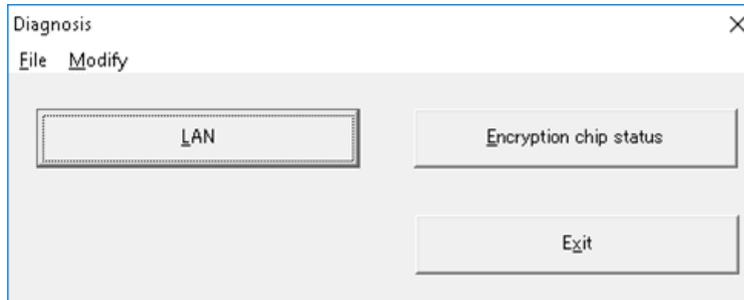
- When the encryption Disk Board status reference fails
If SAS-CON (SAS-CTL) which failed in referring to a status exists in Disk Board, the error message [4432] is displayed.



If SAS-CON (SAS-CTL) fails in referring to a status, the SSB log “Error Code = f87f” is displayed. If SAS-CON (SAS-CTL) completes the reference operation, the SSB log “Error Code = f87e” is displayed. Check the status of the Encryption Disk Board according to the SSB log. For the procedure for displaying the SSB log, see “Log indication” ([SVP02-02-10](#)), and for the procedure for referring to the SSB log, see SSBLOG SECTION ([SSBLOG00-00](#)).

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6. <Complete Exiting from Encryption chip status>
Click [OK] in the message window displayed by [Step 5](#).

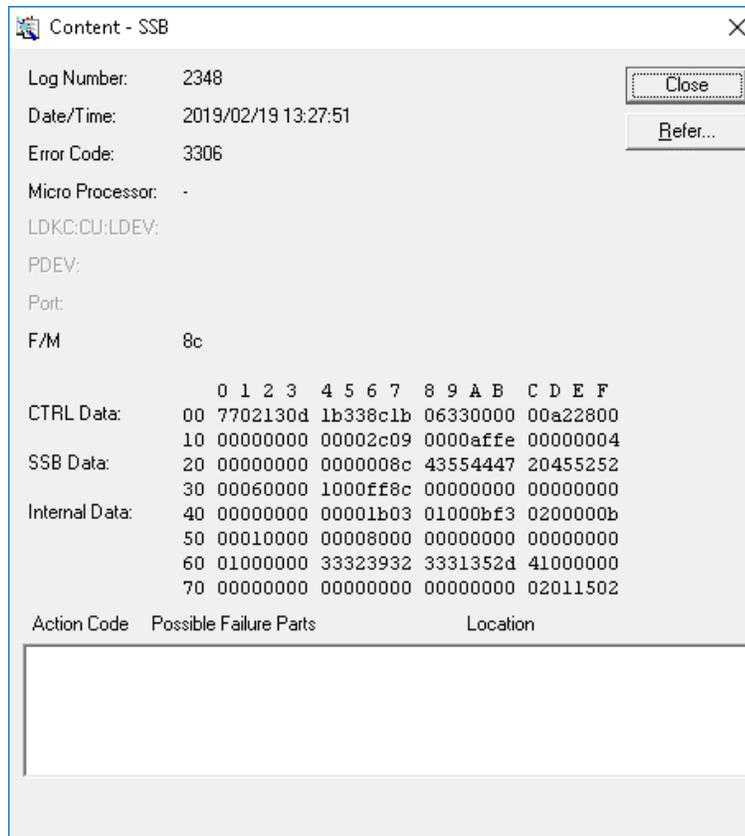
-
7. <Complete Diagnosis>
Click [Exit].



4. DIAG Errors

NOTE: For the SVP version less than 90-02-01/00, identify failed parts according to [“4.1 How to Identify Failed Parts in the Case of CUDG Detected Failure \(SSB Code “3306”\)”](#).
For the SVP version 90-02-01/00 or later, see action codes displayed for the SSB code “3306” to identify failed parts.

4.1 How to Identify Failed Parts in the Case of CUDG Detected Failure (SSB Code “3306”)



Byte 0x4F indicates the error cause, and Byte 0x50 to 0x5F indicate the information about the parts suspected to be failed.

Identify the locations of the parts suspected to be failed based on Byte 0x50 to 0x5F. When multiple parts are suspected to be failed, check the code (error cause) of Byte 0x4F, and then replace the parts in order of the replacement priority shown in the table in [“Replacement priority of failed parts”](#).

For details of the CUDG detected failure (SSB code “3306”), see [\(SSBLOG05-1500\)](#).

- Byte 0x50 (ISW)

Value	ISW Location
0x80	ISW01
0x40	ISW02
0x20	ISW11
0x10	ISW12

- Byte 0x51 : Bit3 ~ 0 (CTL)

Value (CTL#)	CTL Location
0x00	CTL01
0x01	CTL02
0x02	CTL11
0x03	CTL12
0x04	CTL21
0x05	CTL22
0x06	CTL31
0x07	CTL32
0x08	CTL41
0x09	CTL42
0x0A	CTL51
0x0B	CTL52

- Byte 0x52 (DKB)

Value	CTL#	DKB Location
0x80	0x00	DKB-01D
	0x01	DKB-02D
	0x02	DKB-11D
	0x03	DKB-12D
	0x04	DKB-21D
	0x05	DKB-22D
	0x06	DKB-31D
	0x07	DKB-32D
	0x08	DKB-41D
	0x09	DKB-42D
	0x0A	DKB-51D
	0x0B	DKB-52D
0x40	0x00	DKB-01H
	0x01	DKB-02H
	0x02	DKB-11H
	0x03	DKB-12H
	0x04	DKB-21H
	0x05	DKB-22H
	0x06	DKB-31H
	0x07	DKB-32H
	0x08	DKB-41H
	0x09	DKB-42H
	0x0A	DKB-51H
	0x0B	DKB-52H

• Byte 0x53 (CHB)

Value	CTL#	CHB Location
0x80	0x00	CHB-01A
	0x01	CHB-02A
	0x02	CHB-11A
	0x03	CHB-12A
	0x04	CHB-21A
	0x05	CHB-22A
	0x06	CHB-31A
	0x07	CHB-32A
	0x08	CHB-41A
	0x09	CHB-42A
	0x0A	CHB-51A
	0x0B	CHB-52A
0x40	0x00	CHB-01B
	0x01	CHB-02B
	0x02	CHB-11B
	0x03	CHB-12B
	0x04	CHB-21B
	0x05	CHB-22B
	0x06	CHB-31B
	0x07	CHB-32B
	0x08	CHB-41B
	0x09	CHB-42B
	0x0A	CHB-51B
	0x0B	CHB-52B
0x20	0x00	CHB-01C
	0x01	CHB-02C
	0x02	CHB-11C
	0x03	CHB-12C
	0x04	CHB-21C
	0x05	CHB-22C
	0x06	CHB-31C
	0x07	CHB-32C
	0x08	CHB-41C
	0x09	CHB-42C
	0x0A	CHB-51C
	0x0B	CHB-52C

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Value	CTL#	CHB Location
0x10	0x00	CHB-01D
	0x01	CHB-02D
	0x02	CHB-11D
	0x03	CHB-12D
	0x04	CHB-21D
	0x05	CHB-22D
	0x06	CHB-31D
	0x07	CHB-32D
	0x08	CHB-41D
	0x09	CHB-42D
	0x0A	CHB-51D
	0x0B	CHB-52D
0x08	0x00	CHB-01E
	0x01	CHB-02E
	0x02	CHB-11E
	0x03	CHB-12E
	0x04	CHB-21E
	0x05	CHB-22E
	0x06	CHB-31E
	0x07	CHB-32E
	0x08	CHB-41E
	0x09	CHB-42E
	0x0A	CHB-51E
	0x0B	CHB-52E
0x04	0x00	CHB-01F
	0x01	CHB-02F
	0x02	CHB-11F
	0x03	CHB-12F
	0x04	CHB-21F
	0x05	CHB-22F
	0x06	CHB-31F
	0x07	CHB-32F
	0x08	CHB-41F
	0x09	CHB-42F
	0x0A	CHB-51F
	0x0B	CHB-52F

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Value	CTL#	CHB Location
0x02	0x00	CHB-01G
	0x01	CHB-02G
	0x02	CHB-11G
	0x03	CHB-12G
	0x04	CHB-21G
	0x05	CHB-22G
	0x06	CHB-31G
	0x07	CHB-32G
	0x08	CHB-41G
	0x09	CHB-42G
	0x0A	CHB-51G
	0x0B	CHB-52G
0x01	0x00	CHB-01H
	0x01	CHB-02H
	0x02	CHB-11H
	0x03	CHB-12H
	0x04	CHB-21H
	0x05	CHB-22H
	0x06	CHB-31H
	0x07	CHB-32H
	0x08	CHB-41H
	0x09	CHB-42H
	0x0A	CHB-51H
	0x0B	CHB-52H

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- Byte 0x54 (CACHE) There is a case becoming plural bit '1'.
The type (DIMM or LR-DIMM) of DIMM in the target location can be identified by the value of Byte 0x58 (see [DIAG04-130](#)).

Value	CTL#	DIMM Location
0x80	0x00	CTL01 DIMM00
	0x01	CTL02 DIMM00
	0x02	CTL11 DIMM00
	0x03	CTL12 DIMM00
	0x04	CTL21 DIMM00
	0x05	CTL22 DIMM00
	0x06	CTL31 DIMM00
	0x07	CTL32 DIMM00
	0x08	CTL41 DIMM00
	0x09	CTL42 DIMM00
	0x0A	CTL51 DIMM00
	0x0B	CTL52 DIMM00
0x40	0x00	CTL01 DIMM01
	0x01	CTL02 DIMM01
	0x02	CTL11 DIMM01
	0x03	CTL12 DIMM01
	0x04	CTL21 DIMM01
	0x05	CTL22 DIMM01
	0x06	CTL31 DIMM01
	0x07	CTL32 DIMM01
	0x08	CTL41 DIMM01
	0x09	CTL42 DIMM01
	0x0A	CTL51 DIMM01
	0x0B	CTL52 DIMM01
0x20	0x00	CTL01 DIMM02
	0x01	CTL02 DIMM02
	0x02	CTL11 DIMM02
	0x03	CTL12 DIMM02
	0x04	CTL21 DIMM02
	0x05	CTL22 DIMM02
	0x06	CTL31 DIMM02
	0x07	CTL32 DIMM02
	0x08	CTL41 DIMM02
	0x09	CTL42 DIMM02
	0x0A	CTL51 DIMM02
	0x0B	CTL52 DIMM02

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Value	CTL#	DIMM Location
0x10	0x00	CTL01 DIMM03
	0x01	CTL02 DIMM03
	0x02	CTL11 DIMM03
	0x03	CTL12 DIMM03
	0x04	CTL21 DIMM03
	0x05	CTL22 DIMM03
	0x06	CTL31 DIMM03
	0x07	CTL32 DIMM03
	0x08	CTL41 DIMM03
	0x09	CTL42 DIMM03
	0x0A	CTL51 DIMM03
	0x0B	CTL52 DIMM03
0x08	0x00	CTL01 DIMM10
	0x01	CTL02 DIMM10
	0x02	CTL11 DIMM10
	0x03	CTL12 DIMM10
	0x04	CTL21 DIMM10
	0x05	CTL22 DIMM10
	0x06	CTL31 DIMM10
	0x07	CTL32 DIMM10
	0x08	CTL41 DIMM10
	0x09	CTL42 DIMM10
	0x0A	CTL51 DIMM10
	0x0B	CTL52 DIMM10
0x04	0x00	CTL01 DIMM11
	0x01	CTL02 DIMM11
	0x02	CTL11 DIMM11
	0x03	CTL12 DIMM11
	0x04	CTL21 DIMM11
	0x05	CTL22 DIMM11
	0x06	CTL31 DIMM11
	0x07	CTL32 DIMM11
	0x08	CTL41 DIMM11
	0x09	CTL42 DIMM11
	0x0A	CTL51 DIMM11
	0x0B	CTL52 DIMM11

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Value	CTL#	DIMM Location
0x02	0x00	CTL01 DIMM12
	0x01	CTL02 DIMM12
	0x02	CTL11 DIMM12
	0x03	CTL12 DIMM12
	0x04	CTL21 DIMM12
	0x05	CTL22 DIMM12
	0x06	CTL31 DIMM12
	0x07	CTL32 DIMM12
	0x08	CTL41 DIMM12
	0x09	CTL42 DIMM12
	0x0A	CTL51 DIMM12
	0x0B	CTL52 DIMM12
0x01	0x00	CTL01 DIMM13
	0x01	CTL02 DIMM13
	0x02	CTL11 DIMM13
	0x03	CTL12 DIMM13
	0x04	CTL21 DIMM13
	0x05	CTL22 DIMM13
	0x06	CTL31 DIMM13
	0x07	CTL32 DIMM13
	0x08	CTL41 DIMM13
	0x09	CTL42 DIMM13
	0x0A	CTL51 DIMM13
	0x0B	CTL52 DIMM13

- Byte 0x56 (CFM, LANB, ALL DIMM)

Value	CTL#	CFM, LANB, ALL DIMM Location
0x80	0x00	CFM-010
	0x01	CFM-020
	0x02	CFM-110
	0x03	CFM-120
	0x04	CFM-210
	0x05	CFM-220
	0x06	CFM-310
	0x07	CFM-320
	0x08	CFM-410
	0x09	CFM-420
	0x0A	CFM-510
	0x0B	CFM-520
0x40	0x00	CFM-011
	0x01	CFM-021
	0x02	CFM-111
	0x03	CFM-121
	0x04	CFM-211
	0x05	CFM-221
	0x06	CFM-311
	0x07	CFM-321
	0x08	CFM-411
	0x09	CFM-421
	0x0A	CFM-511
	0x0B	CFM-521
0x20	–	Reserved
0x10	0x00	LAN01
	0x01	LAN02
	0x02	LAN11
	0x03	LAN12
	0x04	LAN21
	0x05	LAN22
	0x06	LAN31
	0x07	LAN32
	0x08	LAN41
	0x09	LAN42
	0x0A	LAN51
	0x0B	LAN52

(To be continued)

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Value	CTL#	CFM, LANB, ALL DIMM Location
0x08	–	Reserved
0x04	–	Reserved
0x02	–	Reserved
0x01	0x00	CTL01 ALL DIMM (*1)
	0x01	CTL02 ALL DIMM (*1)
	0x02	CTL11 ALL DIMM (*1)
	0x03	CTL12 ALL DIMM (*1)
	0x04	CTL21 ALL DIMM (*1)
	0x05	CTL22 ALL DIMM (*1)
	0x06	CTL31 ALL DIMM (*1)
	0x07	CTL32 ALL DIMM (*1)
	0x08	CTL41 ALL DIMM (*1)
	0x09	CTL42 ALL DIMM (*1)
	0x0A	CTL51 ALL DIMM (*1)
0x0B	CTL52 ALL DIMM (*1)	

- *1: The type (DIMM or LR-DIMM) of DIMM can be identified by the value of Byte 0x58.
 When Byte 0x58 is 0x00, the type is DIMM.
 When Byte 0x58 is other than 0x00, the type is LR-DIMM.

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• Byte 0x57 (HIE, X-PATH CABLE)

Value	CTL#	HIE, X-PATH CABLE Location
0x80	0x00	HIE-01G
	0x01	HIE-02G
	0x02	HIE-11G
	0x03	HIE-12G
	0x04	HIE-21G
	0x05	HIE-22G
	0x06	HIE-31G
	0x07	HIE-32G
	0x08	HIE-41G
	0x09	HIE-42G
	0x0A	HIE-51G
	0x0B	HIE-52G
0x40	0x00	HIE-01C
	0x01	HIE-02C
	0x02	HIE-11C
	0x03	HIE-12C
	0x04	HIE-21C
	0x05	HIE-22C
	0x06	HIE-31C
	0x07	HIE-32C
	0x08	HIE-41C
	0x09	HIE-42C
	0x0A	HIE-51C
	0x0B	HIE-52C
0x20	–	Reserved
0x10	–	Reserved
0x08	0x00	ISW01-0 - HIE-01G-0
	0x01	ISW01-1 - HIE-02G-0
	0x02	ISW01-2 - HIE-11G-0
	0x03	ISW01-3 - HIE-12G-0
	0x04	ISW01-4 - HIE-21G-0
	0x05	ISW01-5 - HIE-22G-0
	0x06	ISW01-6 - HIE-31G-0
	0x07	ISW01-7 - HIE-32G-0
	0x08	ISW01-8 - HIE-41G-0
	0x09	ISW01-9 - HIE-42G-0
	0x0A	ISW01-A - HIE-51G-0
	0x0B	ISW01-B - HIE-52G-0

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Value	CTL#	HIE, X-PATH CABLE Location
0x04	0x00	ISW02-0 - HIE-01G-1
	0x01	ISW02-1 - HIE-02G-1
	0x02	ISW02-2 - HIE-11G-1
	0x03	ISW02-3 - HIE-12G-1
	0x04	ISW02-4 - HIE-21G-1
	0x05	ISW02-5 - HIE-22G-1
	0x06	ISW02-6 - HIE-31G-1
	0x07	ISW02-7 - HIE-32G-1
	0x08	ISW02-8 - HIE-41G-1
	0x09	ISW02-9 - HIE-42G-1
	0x0A	ISW02-A - HIE-51G-1
	0x0B	ISW02-B - HIE-52G-1
0x02	0x00	ISW11-0 - HIE-01C-0
	0x01	ISW11-1 - HIE-02C-0
	0x02	ISW11-2 - HIE-11C-0
	0x03	ISW11-3 - HIE-12C-0
	0x04	ISW11-4 - HIE-21C-0
	0x05	ISW11-5 - HIE-22C-0
	0x06	ISW11-6 - HIE-31C-0
	0x07	ISW11-7 - HIE-32C-0
	0x08	ISW11-8 - HIE-41C-0
	0x09	ISW11-9 - HIE-42C-0
	0x0A	ISW11-A - HIE-51C-0
	0x0B	ISW11-B - HIE-52C-0
0x01	0x00	ISW12-0 - HIE-01C-1
	0x01	ISW12-1 - HIE-02C-1
	0x02	ISW12-2 - HIE-11C-1
	0x03	ISW12-3 - HIE-12C-1
	0x04	ISW12-4 - HIE-21C-1
	0x05	ISW12-5 - HIE-22C-1
	0x06	ISW12-6 - HIE-31C-1
	0x07	ISW12-7 - HIE-32C-1
	0x08	ISW12-8 - HIE-41C-1
	0x09	ISW12-9 - HIE-42C-1
	0x0A	ISW12-A - HIE-51C-1
	0x0B	ISW12-B - HIE-52C-1

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- Byte 0x58 (information to identify DIMM type) There is a case where multiple bits are “1”. Each bit indicates the type (0: DIMM, 1: LR-DIMM) of DIMM in each location. For the values shown in the table below, the type of DIMM in the target location is LR-DIMM.

Value	CTL#	DIMM Location (DIMM Type)
0x80	0x00	CTL01 DIMM00 (LR-DIMM)
	0x01	CTL02 DIMM00 (LR-DIMM)
	0x02	CTL11 DIMM00 (LR-DIMM)
	0x03	CTL12 DIMM00 (LR-DIMM)
	0x04	CTL21 DIMM00 (LR-DIMM)
	0x05	CTL22 DIMM00 (LR-DIMM)
	0x06	CTL31 DIMM00 (LR-DIMM)
	0x07	CTL32 DIMM00 (LR-DIMM)
	0x08	CTL41 DIMM00 (LR-DIMM)
	0x09	CTL42 DIMM00 (LR-DIMM)
	0x0A	CTL51 DIMM00 (LR-DIMM)
	0x0B	CTL52 DIMM00 (LR-DIMM)
0x40	0x00	CTL01 DIMM01 (LR-DIMM)
	0x01	CTL02 DIMM01 (LR-DIMM)
	0x02	CTL11 DIMM01 (LR-DIMM)
	0x03	CTL12 DIMM01 (LR-DIMM)
	0x04	CTL21 DIMM01 (LR-DIMM)
	0x05	CTL22 DIMM01 (LR-DIMM)
	0x06	CTL31 DIMM01 (LR-DIMM)
	0x07	CTL32 DIMM01 (LR-DIMM)
	0x08	CTL41 DIMM01 (LR-DIMM)
	0x09	CTL42 DIMM01 (LR-DIMM)
	0x0A	CTL51 DIMM01 (LR-DIMM)
	0x0B	CTL52 DIMM01 (LR-DIMM)
0x20	0x00	CTL01 DIMM02 (LR-DIMM)
	0x01	CTL02 DIMM02 (LR-DIMM)
	0x02	CTL11 DIMM02 (LR-DIMM)
	0x03	CTL12 DIMM02 (LR-DIMM)
	0x04	CTL21 DIMM02 (LR-DIMM)
	0x05	CTL22 DIMM02 (LR-DIMM)
	0x06	CTL31 DIMM02 (LR-DIMM)
	0x07	CTL32 DIMM02 (LR-DIMM)
	0x08	CTL41 DIMM02 (LR-DIMM)
	0x09	CTL42 DIMM02 (LR-DIMM)
	0x0A	CTL51 DIMM02 (LR-DIMM)
	0x0B	CTL52 DIMM02 (LR-DIMM)

(To be continued)

(Continued from the preceding page)

Value	CTL#	DIMM Location (DIMM Type)
0x10	0x00	CTL01 DIMM03 (LR-DIMM)
	0x01	CTL02 DIMM03 (LR-DIMM)
	0x02	CTL11 DIMM03 (LR-DIMM)
	0x03	CTL12 DIMM03 (LR-DIMM)
	0x04	CTL21 DIMM03 (LR-DIMM)
	0x05	CTL22 DIMM03 (LR-DIMM)
	0x06	CTL31 DIMM03 (LR-DIMM)
	0x07	CTL32 DIMM03 (LR-DIMM)
	0x08	CTL41 DIMM03 (LR-DIMM)
	0x09	CTL42 DIMM03 (LR-DIMM)
	0x0A	CTL51 DIMM03 (LR-DIMM)
	0x0B	CTL52 DIMM03 (LR-DIMM)
0x08	0x00	CTL01 DIMM10 (LR-DIMM)
	0x01	CTL02 DIMM10 (LR-DIMM)
	0x02	CTL11 DIMM10 (LR-DIMM)
	0x03	CTL12 DIMM10 (LR-DIMM)
	0x04	CTL21 DIMM10 (LR-DIMM)
	0x05	CTL22 DIMM10 (LR-DIMM)
	0x06	CTL31 DIMM10 (LR-DIMM)
	0x07	CTL32 DIMM10 (LR-DIMM)
	0x08	CTL41 DIMM10 (LR-DIMM)
	0x09	CTL42 DIMM10 (LR-DIMM)
	0x0A	CTL51 DIMM10 (LR-DIMM)
	0x0B	CTL52 DIMM10 (LR-DIMM)
0x04	0x00	CTL01 DIMM11 (LR-DIMM)
	0x01	CTL02 DIMM11 (LR-DIMM)
	0x02	CTL11 DIMM11 (LR-DIMM)
	0x03	CTL12 DIMM11 (LR-DIMM)
	0x04	CTL21 DIMM11 (LR-DIMM)
	0x05	CTL22 DIMM11 (LR-DIMM)
	0x06	CTL31 DIMM11 (LR-DIMM)
	0x07	CTL32 DIMM11 (LR-DIMM)
	0x08	CTL41 DIMM11 (LR-DIMM)
	0x09	CTL42 DIMM11 (LR-DIMM)
	0x0A	CTL51 DIMM11 (LR-DIMM)
	0x0B	CTL52 DIMM11 (LR-DIMM)

(To be continued)

(Continued from the preceding page)

Value	CTL#	DIMM Location (DIMM Type)
0x02	0x00	CTL01 DIMM12 (LR-DIMM)
	0x01	CTL02 DIMM12 (LR-DIMM)
	0x02	CTL11 DIMM12 (LR-DIMM)
	0x03	CTL12 DIMM12 (LR-DIMM)
	0x04	CTL21 DIMM12 (LR-DIMM)
	0x05	CTL22 DIMM12 (LR-DIMM)
	0x06	CTL31 DIMM12 (LR-DIMM)
	0x07	CTL32 DIMM12 (LR-DIMM)
	0x08	CTL41 DIMM12 (LR-DIMM)
	0x09	CTL42 DIMM12 (LR-DIMM)
	0x0A	CTL51 DIMM12 (LR-DIMM)
	0x0B	CTL52 DIMM12 (LR-DIMM)
0x01	0x00	CTL01 DIMM13 (LR-DIMM)
	0x01	CTL02 DIMM13 (LR-DIMM)
	0x02	CTL11 DIMM13 (LR-DIMM)
	0x03	CTL12 DIMM13 (LR-DIMM)
	0x04	CTL21 DIMM13 (LR-DIMM)
	0x05	CTL22 DIMM13 (LR-DIMM)
	0x06	CTL31 DIMM13 (LR-DIMM)
	0x07	CTL32 DIMM13 (LR-DIMM)
	0x08	CTL41 DIMM13 (LR-DIMM)
	0x09	CTL42 DIMM13 (LR-DIMM)
	0x0A	CTL51 DIMM13 (LR-DIMM)
	0x0B	CTL52 DIMM13 (LR-DIMM)

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• Byte 0x5C : Bit3 ~ 0 (other CTL)

*: Bit7 (0x80) is an effective invalid judgment flag of the other CTL information.

'1': Effective '0': Invalid

Value (other CTL#)	CTL Location
0x00 (0x80)	CTL01
0x01 (0x81)	CTL02
0x02 (0x82)	CTL11
0x03 (0x83)	CTL12
0x04 (0x84)	CTL21
0x05 (0x85)	CTL22
0x06 (0x86)	CTL31
0x07 (0x87)	CTL32
0x08 (0x88)	CTL41
0x09 (0x89)	CTL42
0x0A (0x8A)	CTL51
0x0B (0x8B)	CTL52

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• Byte 0x5D (other HIE, other X-PATH CABLE)

Value	other CTL#	other HIE, other X-PATH CABLE Location
0x80	0x00 (0x80)	HIE-01G
	0x01 (0x81)	HIE-02G
	0x02 (0x82)	HIE-11G
	0x03 (0x83)	HIE-12G
	0x04 (0x84)	HIE-21G
	0x05 (0x85)	HIE-22G
	0x06 (0x86)	HIE-31G
	0x07 (0x87)	HIE-32G
	0x08 (0x88)	HIE-41G
	0x09 (0x89)	HIE-42G
	0x0A (0x8A)	HIE-51G
	0x0B (0x8B)	HIE-52G
0x40	0x00 (0x80)	HIE-01C
	0x01 (0x81)	HIE-02C
	0x02 (0x82)	HIE-11C
	0x03 (0x83)	HIE-12C
	0x04 (0x84)	HIE-21C
	0x05 (0x85)	HIE-22C
	0x06 (0x86)	HIE-31C
	0x07 (0x87)	HIE-32C
	0x08 (0x88)	HIE-41C
	0x09 (0x89)	HIE-42C
	0x0A (0x8A)	HIE-51C
	0x0B (0x8B)	HIE-52C
0x20	–	Reserved
0x10	–	Reserved
0x08	0x00 (0x80)	ISW01-0 - HIE-01G-0
	0x01 (0x81)	ISW01-1 - HIE-02G-0
	0x02 (0x82)	ISW01-2 - HIE-11G-0
	0x03 (0x83)	ISW01-3 - HIE-12G-0
	0x04 (0x84)	ISW01-4 - HIE-21G-0
	0x05 (0x85)	ISW01-5 - HIE-22G-0
	0x06 (0x86)	ISW01-6 - HIE-31G-0
	0x07 (0x87)	ISW01-7 - HIE-32G-0
	0x08 (0x88)	ISW01-8 - HIE-41G-0
	0x09 (0x89)	ISW01-9 - HIE-42G-0
	0x0A (0x8A)	ISW01-A - HIE-51G-0
	0x0B (0x8B)	ISW01-B - HIE-52G-0

(To be continued)

(Continued from the preceding page)

Value	other CTL#	other HIE, other X-PATH CABLE Location
0x04	0x00 (0x80)	ISW02-0 - HIE-01G-1
	0x01 (0x81)	ISW02-1 - HIE-02G-1
	0x02 (0x82)	ISW02-2 - HIE-11G-1
	0x03 (0x83)	ISW02-3 - HIE-12G-1
	0x04 (0x84)	ISW02-4 - HIE-21G-1
	0x05 (0x85)	ISW02-5 - HIE-22G-1
	0x06 (0x86)	ISW02-6 - HIE-31G-1
	0x07 (0x87)	ISW02-7 - HIE-32G-1
	0x08 (0x88)	ISW02-8 - HIE-41G-1
	0x09 (0x89)	ISW02-9 - HIE-42G-1
	0x0A (0x8A)	ISW02-A - HIE-51G-1
	0x0B (0x8B)	ISW02-B - HIE-52G-1
0x02	0x00 (0x80)	ISW11-0 - HIE-01C-0
	0x01 (0x81)	ISW11-1 - HIE-02C-0
	0x02 (0x82)	ISW11-2 - HIE-11C-0
	0x03 (0x83)	ISW11-3 - HIE-12C-0
	0x04 (0x84)	ISW11-4 - HIE-21C-0
	0x05 (0x85)	ISW11-5 - HIE-22C-0
	0x06 (0x86)	ISW11-6 - HIE-31C-0
	0x07 (0x87)	ISW11-7 - HIE-32C-0
	0x08 (0x88)	ISW11-8 - HIE-41C-0
	0x09 (0x89)	ISW11-9 - HIE-42C-0
	0x0A (0x8A)	ISW11-A - HIE-51C-0
	0x0B (0x8B)	ISW11-B - HIE-52C-0
0x01	0x00 (0x80)	ISW12-0 - HIE-01C-1
	0x01 (0x81)	ISW12-1 - HIE-02C-1
	0x02 (0x82)	ISW12-2 - HIE-11C-1
	0x03 (0x83)	ISW12-3 - HIE-12C-1
	0x04 (0x84)	ISW12-4 - HIE-21C-1
	0x05 (0x85)	ISW12-5 - HIE-22C-1
	0x06 (0x86)	ISW12-6 - HIE-31C-1
	0x07 (0x87)	ISW12-7 - HIE-32C-1
	0x08 (0x88)	ISW12-8 - HIE-41C-1
	0x09 (0x89)	ISW12-9 - HIE-42C-1
	0x0A (0x8A)	ISW12-A - HIE-51C-1
	0x0B (0x8B)	ISW12-B - HIE-52C-1

Replacement priority of failed parts

The table below shows the replacement priority of failed parts according to the error cause (Byte 0x4F) of the SSB code "3306".

Error cause	Replacement priority of failed parts				
	1st	2nd	3rd	4th	5th
(10)h	CTL	–	–	–	–
(20)h	CTL	All DIMMs	–	–	–
(0C)h	Failed DIMM	All DIMMs	CTL	–	–
(0D)h	Failed DIMM	CTL	All DIMMs	–	–
(0E)h	All DIMMs	CTL	–	–	–
(09)h	IF PK(CHB/DKB)	CTL	–	–	–
(0B)h	CFM	CTL	–	–	–
(0F)h	IF PK(DKB)	CTL	–	–	–
(15)h	IF PK(CHB)	CTL	–	–	–
(16)h			–	–	–
(17)h			–	–	–
(18)h			–	–	–
(19)h			–	–	–
(1A)h			–	–	–
(1B)h			–	–	–
(1D)h			–	–	–
(04)h	LANB	CTL	–	–	–
(40)h	HIE	CTL	–	–	–
(41)h	CTL	HIE in the CTL	–	–	–
(50)h	X-path cable	HIE in the CTL	ISW	–	–
(52)h	ISW	X-path cable	HIE	–	–
(60)h	X-path cable connected to other CTL	X-path cable	HIE in other CTL	HIE in the CTL	ISW
(61)h	X-path cable connected to other CTL	HIE in other CTL	ISW	–	–
(62)h	X-path cable	HIE in the CTL	ISW	–	–
Other than the above	IF PK(CHB/DKB)	All DIMMs	CTL	–	–

*: The part where other are not listed in is a part of the own CTL.