

Maintenance Guide

NEC Scalable Modular Server

DX2000

Chapter 1 Maintenance

Chapter 2 Useful Features

Chapter 3 Appendix

Documents Provided with This Product

Documents for this product are provided as accompanying booklets (📖) and as electronic manuals (📄) stored on the DX2000 Utility Disk (📀).



Safety Precautions and
Regulatory Notices

Describes points of caution to ensure the safe use of this server.
Read these cautions before using this server.



DX2000 Utility Disk



User's Guide

Chapter 1: General Description	Overviews, names, and functions of the server's parts
Chapter 2: Installation and Connection	Description of installation and connection as the preparation before using this server
Chapter 3: Setup	Server module BIOS configurations and summary of DX2000 Utility Disk
Chapter 4: NW Switch Module	Features supported by internal switch module, how to setup switches, and initial settings for network
Chapter 5: Replacing Modules	How to replace internal modules
Chapter 6: Appendix	Specifications and block diagram of this server



Maintenance Guide

Chapter 1: Maintenance	Server maintenance, troubleshooting, management tool, and management utility
Chapter 2: Useful Features	Useful features and the detail of server module BIOS settings and DX2000 Utility Disk
Chapter 3: Appendix	Error messages and event logs



NW Switch Configuration Guide

Description of various settings of the NW switch



NW Switch Command Reference

Description of commands used for setting the NW switch and usage



Installation Guide (Windows)

Chapter 1: Installing Windows	Installation of Windows, and important information for installation
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Other documents

Detail information such as the operation of EXPRESSSCOPE Engine 3 and Universal RAID Utility is provided.

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Notations Used in This Document

Notations used in the text

In addition to safety-related symbols urging caution, 3 other types of notations are used in this document. These notations have the following meanings.

Important	Indicates critical items that must be followed when handling the hardware or operating software. If the procedures described are not followed, <u>hardware failure, data loss, and other serious malfunctions could occur.</u>
Note	Indicates items that must be confirmed when handling the server or operating software.
Tips	Indicates information that is helpful to keep in mind when using this server.

Hard disk drives

Unless otherwise stated, *hard disk drive* described in this document refers to both of the following.

- **Hard disk drives (HDD)**
- **Solid state drive (SSD)**

POST

POST described in this document refers to the following.

- **Power On Self-Test**

Notations and abbreviation used in this document

This server described in this document refers to the main unit.

Abbreviation described in the text is shown below.

Notation/abbreviation	Name
CSC	Chassis Sensor Card
NW Switch	Network Switch

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UEFI NETWORK STACK 2

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WPA SupPLICant

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■ Tools

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inttypes.h	N/A	http://msinttypes.googlecode.com/svn/trunk/inttypes.h	BSD-style	Copyright (c) 2006 Alexander Chmeris
ipmitool	1.5.4+	http://sourceforge.net/projects/ipmitool	BSD License	http://sourceforge.net/projects/ipmitool
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SHA2	1.0	http://www.aarongifford.com/computers/sha2-1.0.zip	BSD-style	Copyright (c) 2000-2001, Aaron D. Gifford
stdint.h	N/A	http://msinttypes.googlecode.com/svn/trunk/stdint.h	BSD-style	Copyright (c) 2006-2008 Alexander Chmeris

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Keep this document nearby so that you may refer to it as necessary.

Safety precautions

Read "For safety use" attached to this server carefully to use this product safely.

Security notice

Using a network controllable product with its default password may raise a serious risk as it may be hacked by some malicious third person. If a product is supplanted by a malware, it will face possibilities of not only information leakages, but also system damages obstructing its availability and/or integrity. Even if it does not cause damage to own system, the product may be used as a botnet to make a cyber-attack to some other systems.

The default password on our product is provided only for the purpose of changing initial setting during its installation service. In first change of initial setting, please be sure to change the password. NEC Platforms, Ltd. shall not take any liability and responsibility for any damages arising from illegal access.

If the new password is not strong (too short) or easily guessed (such as "123456789", "abcdefg", "password", "Administrator"), illegal access cannot be prevented. Please be sure to use a strong password (use 8 digits or longer, and including numerals, capital letters and small letters).

<<How to change your password>>

Refer to Chapter 5: Using Remote Management in EXPRESSSCOPE Engine 3 User's Guide.

NEC Scalable Modular Server DX2000

1

Maintenance

This chapter explains maintenance of this server, actions to take in case of trouble when operating this server, management tool, and management utility.

1. Transfer, Movement, and Disposal

Describes how to transfer this server to a third party. Also describes how to dispose, move and store this server.

2. Daily Maintenance

Describes what you must confirm for daily use, how to manage files, and how to clean the server.

3. User Support

Describes various services on this product.

4. Troubleshooting

Describes how to identify the causes of problems and actions to take to address them. Refer to this section when you suspect a failure.

5. Resetting and turning off the power forcibly

Describes how to reset the server. Refer to this section when the server is not working.

6. System Diagnostic Tool

Describes the system diagnostics of this server.

7. Serer Management Utility

Describes the management tool and management utility.

I. Transfer, Movement, and Disposal

I.I Transfer to a Third Party

Observe the following precautions when you transfer (or sell) the server or software provided with the server to a third party.

- **Server**

When transferring (or selling) the server to a third party, be sure to provide the server's instructions (including electronic manuals) to the third party.

- **Data on hard disk drives**

Be sure to erase the data stored in hard disk drives to prevent the leakage of sensitive data (such as customer information or company management information) to any third parties. It is the user's responsibility to erase the data.

Important NEC assumes no liability for data leakage should the product be transferred to a third party without erasing the data.

Data seems to be erased when you empty "Recycle Bin" of Windows or execute the "format" command of the operating system. However, the actual data remains on the hard disk drive. Data not erased completely might be restored by special software and used for unexpected purposes.

- **Bundled software**

Observe the following precautions when transferring (selling) the bundled software to a third party.

- Transfer them with the server.
- All provided media and documents must be transferred and no backup copies must be retained.
- Transfer requirements listed in "Software License Agreement" that comes with each software application must be satisfied.
- Software on client PC must be uninstalled before transferring.

1.2 Disposal of the Server and Consumables

- Dispose of this server, hard disk drives, option boards, and batteries according to laws and regulations of the central and/or local government. Also dispose of the power cord attached to this product together with the server to prevent diversion to other products.

Note

- For disposal (or replacement) of the battery in the server module and CSC module, consult with your sales representative.
- It is the user's responsibility to completely erase all data stored on storage devices such as hard disk drives, backup data cartridges, or any other media (such as CD-R/CD-RW) so that the data cannot be restored by a third party.



- Some components including fans and solid state drives (SSD) work for a limited period of time and require replacement. For stable operation of the server, NEC recommends you regularly replace these components. Contact your sales representative for information on replacement or the lifetime of components. The replacement service of SSDs that reached their end of life will be charged.

1.3 Regarding the Transportation of This Server

This server and/or some of the associated optional devices uses lithium metal batteries. **Regulations for air/ocean transportation apply when transporting lithium batteries.** Conform to the regulations if you want to transport this server or optional devices by air or ship.

1.4 Moving and Storing

Follow the steps below when you move or store this server.

 WARNING	
	<p>Be sure to observe the following precautions to use the server safely. Failure to observe the precautions may cause death or serious injury. For details, refer to <i>Safety precautions in Precautions for Use in User's Guide</i>.</p> <ul style="list-style-type: none">• Do not disassemble, repair, or alter the server.• Do not remove the lithium battery.• Disconnect the power plug before installing or removing the server.

CAUTION

Be sure to observe the following precautions to use the server safely. Failure to observe the precautions may cause burns, injury, and property damage. For details, refer to *Safety precautions in Precautions for Use in User's Guide*.

- Make sure to complete installation.
- Do not get your fingers caught.
- Be careful of handling internal components that may be at high temperatures.

Note

- If the server needs to be relocated or stored due to a change in the floor layout to a great extent, contact your sales representative.
- If the server has hard disk drives, move the server while being careful not to damage the drive.
- When storing the server, monitor the environmental conditions of the storage area (temperature: -10°C to 55°C , humidity: 20% to 80%). (No dew condensation is permitted)

Tips

Make backup copies of important data stored in the hard disk drives.

1. Shut down all the server modules installed in this server.
2. Unplug the power cord of the server from the power outlet.
3. Confirm that the POWER LED is off.
4. Disconnect all the cables from the server.
Pull out the server from the rack slowly, with three or more people. For the procedure, refer to *Chapter 2, Installation and Connection in DX2000 User's Guide*.
5. Pack the server securely to protect from damage, shock, and vibration.

Important

If this server is suddenly moved from a cold place to a warm place, condensation will occur and cause malfunctions and failures when the server is used in such a state. Wait for a sufficient period of time before using the server in the operating environment.

Note

- Check and adjust the system clock before operating after relocating or storing the server.
- If the system clock time is significantly delayed or advanced over time in spite of adjustment, contact your sales representative.

2. Daily Maintenance

To use the server under good conditions at all times, periodically check and perform maintenance as follows. If abnormalities are found, ask your sales representative, avoiding impossible operation.

2.1 Monitoring CSC modules

We strongly recommend that you monitor CSC modules remotely during normal system operation.

If not, CSC module's faults might not be detected.

The user needs to prepare a monitoring program.

To monitor CMM from a management terminal, use an IPMI command such as `sensor list`.

2.2 Alerting from BMC and CSC modules

When running the system, we strongly recommend that you use PET alert features to monitor your system.

The BMC and CSC modules can send a PET alert when abnormality such as a hardware error occurs. For how to configure alert features, refer to *Chapter 1 (7.3.1 SNMP trap setting command)*. For a list of alerts, refer to *Chapter 1 (4. Troubleshooting)*.

Platform event trap (PET) events are SNMP trap events compliant with the Intelligent Platform Management Interface (IPMI). The user needs to prepare a program for receiving traps.

2.3 Checking STATUS LED

Check the STATUS LED on the front of the server. For the functions and descriptions of the LED, refer to *Chapter 1 (3. Names and Functions of Parts)* in *DX2000 User's Guide*. If the indicator shows the server abnormality, contact your sales representative.


2.4 Backup






We recommend that you periodically back up the data on the hard disk drives, as well as NW switch settings. For a storage device for back up and a backup tool suitable for your system, contact your sales representative.

Refer to *NEC Scalable Modular Server DX2000 LAN Switch Software Configuration Guide* for more information about backing up NW switch settings.

2.5 Cleaning

Regularly clean the server to keep it in good condition.

 **WARNING**



Be sure to observe the following precautions to use the server safely. Failure to observe the precautions may cause death or serious injury. For details, refer to *Safety precautions in Precautions for Use in User's Guide*.

- Do not disassemble, repair, or alter the server.
- Disconnect the power plug before cleaning the server.

2.5.1 Cleaning the server

Wipe the external surfaces of the server with a dry soft cloth. Follow the procedure below if stains remain on the surfaces.

Important

- Do not use volatile solvents such as thinner and benzene to clean the server. Those solvents could damage or tarnish the material.
- The power outlet, cables, connectors on the rear panel of the server, and the inside of the server must be kept dry.

1. Shut down all the server modules installed in this server.
2. Unplug the power cord of the server from a power outlet.
3. Confirm that the POWER LED is off.
4. Wipe off dust from external surface of the server with a dry cloth.
5. Soak a soft cloth in neutral detergent that is diluted with cold or lukewarm water, and squeeze it firmly.
6. Rub off stains on the server with the cloth prepared in step 5.
7. Soak a soft cloth in water, squeeze it firmly, and wipe the server with it once again.
8. Wipe the server with a dry cloth.

2.5.2 Cleaning the AC cable

Wipe the external surfaces of the AC cable with a dry soft cloth. Follow the procedure below if stains remain on the surfaces.

Important

- Do not use volatile solvents such as thinner and benzene to clean the AC cable. Those solvents could damage or tarnish the material.
- The power outlet, cables, connectors on the rear panel of the server, and the inside of the server must be kept dry.

1. Shut down all the server modules installed in this server.
2. Unplug the power cord of the server from a power outlet.
3. Confirm that the POWER LED is off.
4. Wipe off dust from power plug of AC cable with a dry cloth.
5. Soak a soft cloth in neutral detergent that is diluted with cold or lukewarm water, and squeeze it firmly.
6. Rub off stains on the AC cable with the cloth prepared in step 5.
7. Soak a soft cloth in water, squeeze it firmly, and wipe the AC cable with it once again.
8. Wipe the AC cable with a dry cloth.

3. User Support

Before getting after-sales service, check the contents of the warranty and service.

3.1 Maintenance Services

Service representatives from NEC subsidiary companies or companies authorized by NEC provide maintenance services. For the services, contact your sales representative.

3.2 Before Asking for Repair

If you think that a failure occurred, follow the steps below:

1. Check if the power cord and cables to other products are properly connected.
2. Refer to *Chapter 1 (4. Troubleshooting)*. If you find a symptom similar to your problem, take the action as instructed.
3. Confirm that the required software has been properly installed.
4. Scan for viruses using a commercial Antivirus Software.

If the problem persists after taking the measures above, contact your sales representative. Take notes on LED indications and the display on the screen at the failure, which will be useful information for the repair.

For repair within the warranty period, be sure to apply with your warranty.

4. Troubleshooting

If this system does not operate as intended, check it according to the contents of the following checklist before sending it for repair. If an item in the checklist corresponds with a problem you are experiencing, follow the subsequent check and processing instructions.

If the system still does not operate normally, write down the messages displayed on the management terminal and then contact the maintenance service company.

4.1 From Power On to When the NW Switch Module Starts Operating

[?] Fail to power on the server

- ☐ Is the server properly supplied with power?
 - Check that the AC POWER LED on the rear of the server lights green.
 - Check if the power cord is connected to the power outlet that meets the power specifications for the server.
 - Use the power cord that comes with the server. Additionally, check the power cord for broken shield or bent plugs.
 - Make sure the power breaker for the connected power outlet is on.
- ☐ Is the POWER LED on the front panel of this server lighting green?
 - When the power cord is connected and the AC power is supplied, initialization of the BMC and CSC modules of the server modules and the NW switch module starts. During initialization, the POWER LED lights up in amber.

When initialization is complete, the POWER switch and POWER LED light green.

If the POWER LED lights up in amber, wait about one minute until it turns off.

[?] LAN communication does not start.

- ☐ Is the LINK LED of this server lighting?
 - Check that this server and its communicating device (or hub) are connected properly by a LAN cable.
- ☐ Is the internal switch properly configured?
 - The internal switches must be configured according to your environment. It takes about one minute for the prompt screen appears on management terminal.
- ☐ Is the DHCP server set up correctly?
 - An IP address must be assigned by the DHCP server to each server module and CSC module installed in this server.

[?] The STATUS LED on the front panel lights amber.

- ☐ Is there any warning or error message shown for the internal modules?
 - You need to replace the module for which an error has been detected. Contact the maintenance service company.

4.2 Upon Using the DX2000 Utility Disc

[?] Unable to start the DX2000 Utility Disc

- ☐ Is DX2000 Utility Disc set?
 - Check that DX2000 Utility Disc is properly set.

4.3 Upon Installing an OS

[?] Unable to install an OS

- ☐ You cannot install an OS by using the server only. You need to access the server remotely by using a management terminal. How to install the OS depends on the OS type. See the installation guide (Windows version or Linux version).

[?] SOL is not displayed on the OS installation screen.

- ☐ Add the following option to the OS installation configuration file used for booting the server by using PXE.
`console=ttyS2,115200n8`

4.4 When OS Is Started

[?] Unable to start OS

- ☐ Are server modules installed firmly?
 - Install the modules properly.
Check that server modules on which OS is installed properly mounted.
- ☐ Is the OS installed correctly?
 - Check that the OS has been installed by using the correct procedure.

[?] When the OS is booted immediately after the installation of VMware, nothing is displayed on the RemoteKVM environment and it is not possible to input from the keyboard.

- ☐ To use VM Ware OS in the RemoteKVM environment, specify “ignoreHeadless=TRUE” as the option for the OS startup command.
Set this option in an environment where SOL is activated.

4.5 When Connecting to a Network

[?] Network performance is poor while using 10G LAN module

- ☐ If you experience the poor network performance, it may be improved by setting the flow control to ON. Check the flow control setting of the server module that comes with 10G LAN module, and change the setting value to ON. You have to specify it in the startup script file to change the flow control.

<Example: Changing the flow control setting by using the ethtool command>

To change the setting to on:

```
# ethtool -A ens1f0 rx on tx on
```

To confirm the result:

```
# ethtool -a ens1f0
```

4.6 When Power Off

[?] The power is not turned off

- ☐ Did you issue an IPMI command to power off the server from remotely connected management terminal that runs the management tool?
 - Confirm that the issued IPMI command is correct.

4.7 Etc.

[?] Life time Observation of Internal SSD is not Displaed

- ☐ Download and Installed to Server, latest 「ESMPRO/ServerAgentService」 and script file.
NEC DX Series Information site
<http://www.nec.com/en/global/prod/dxseries/>

[?] Following phenomenon might be occurred at rebooting Windows Server with Hyper-V is enabled.

- ☐ Displaed following message on Virtual LCD of EXPRESSSCOPE Engine 3
Node Manager Internal Error
- ☐ Light on Status LED on Front I/O Panel
- ☐ Following log is recorded to System Event Log(SEL).

Event	Management Engine
	Occurred
	Change of state of Managementp Engine was detected.
	Internal Error
	Extend error Code: 5

5. Resetting and turning off the power forcibly

Refer to the following sections if the server does not work or if you want to reset the server module BIOS settings to the factory settings or turn off the power forcibly

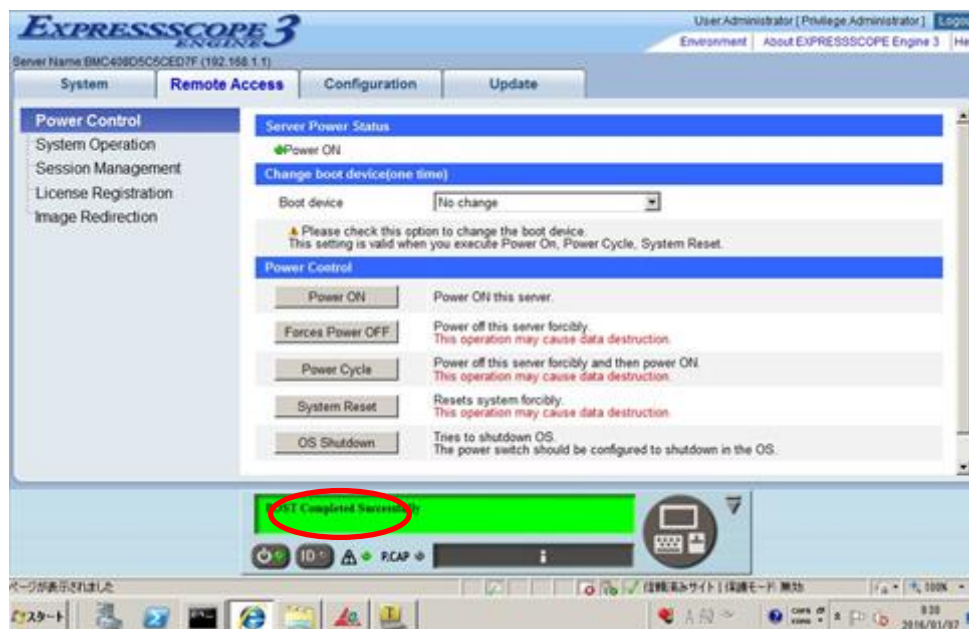
5.1 Reset

5.1.1 Resetting the server module

If the server module halts before starting the OS, reset the server module remotely via EXPRESSSCOPE Engine 3 or ipmi. This clears all the data being processed in the memory, and restarts the server.

<For EXPRESSSCOPE Engine 3>

Select [System Reset] to reset it.



<Via ipmi>

Command example

```
#ipmitool -I lanplus -U <user-name> -P <password> -H <IP address of the BMC in the relevant slot> power reset
```

Note

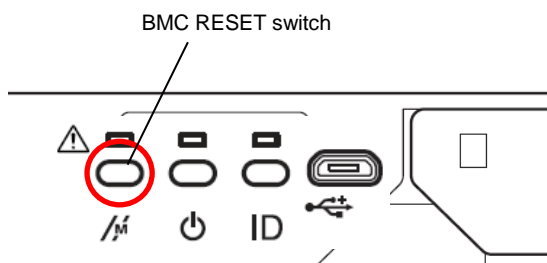
To reset the server when it is not frozen, make sure that no processing is in progress

5.1.2 Resetting the server module BMC

The server module BMC Reset switch allows you to reset only BMC. Hold it down for 4 seconds or more to reset it.

Do not use this switch in usual operation.

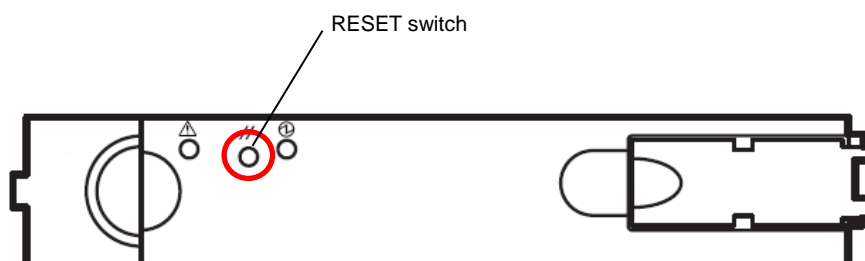
The remote management feature is not available for about 60 seconds after the BMC is reset.



5.1.3 Resetting the NW switch module

The Reset switch in the NW switch module allows you to reset only the NW switch module.

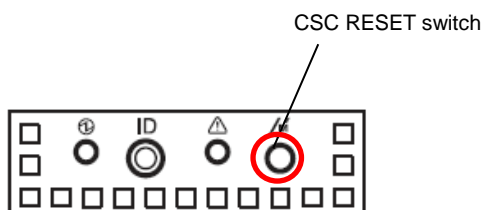
The network connection is not available for about 90 seconds after the reset.



5.1.4 Resetting the CSC module

The CSC Reset switch in the CSC module allows you to reset only the CSC module. Hold it down for at least 4 seconds to reset it.

The remote management feature is not available for about 30 seconds after resetting the module.



5.2 Forced Shutdown

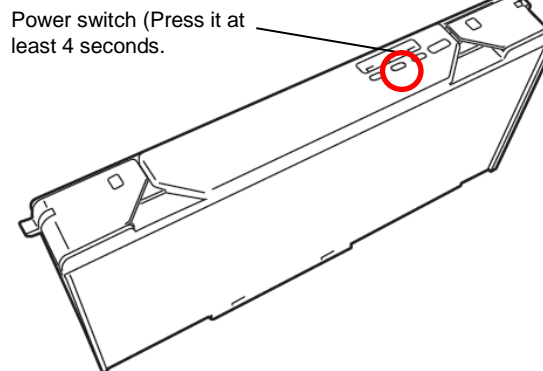
Continue to hold POWER Switch of the server for at least four seconds. The power is then forcibly turned off. *(To turn on the power back again, wait for at least 30 seconds after turning off the power).*

Forced shutdown includes turning off the power of the server module and DX2000.

Server module

Hold down the Power switch of the server module at least 4 seconds to forcibly turn off the power of the server module.

Use this function when an OS command does not shut down the server, the POWER Switch does not turn off the server, or software reset does not work.

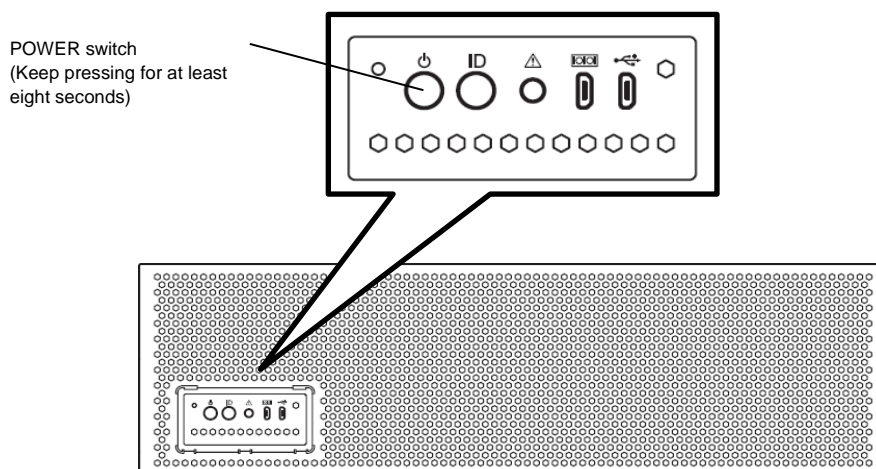


Note

If the remote power-on function is used, cycle the power once to load the OS after the power has been forcibly turned off, and then turn off the power again by shutting down the OS.

DX2000

Hold down the Power switch on the front panel at least eight seconds to forcibly turn off the power of DX2000. This turns off the power of all modules regardless of the operating status of the internal server module. The data in the progress may be lost as the top priority is given to the power-off process. Do not use the feature except in emergency.



6. System Diagnostic Tool

This chapter describes how to operate the system diagnostic tool included in “DX2000 Utility Disk” that comes with this server.

- System diagnostic management tool

Starting the server: To start it in this server, insert the DX2000 Utility Disk into the USB connection CD/DVD-ROM drive on the front of the server and boot it from the DVD-ROM to use it.

To start it from the management terminal, insert the DX2000 Utility Disk into the CD/DVD-ROM drive of the management terminal and boot it from the DVD-ROM to use it.

Function: You can diagnose if this server is properly operating.

- TeDoLi

To start: Insert the DX2000 Utility Disk into the CD/DVD-ROM drive of the console terminal and start TeDoLi with the server module that conduct diagnosis using RemoteKVM function to use it.

Function: You can diagnose if the standalone server module is properly operating.

6.1 System Diagnostic Management Tool

Use the system diagnostic management tool to maintain this sever.

System diagnostic management tool can diagnose CSC modules and multiple server modules of this server simultaneously.

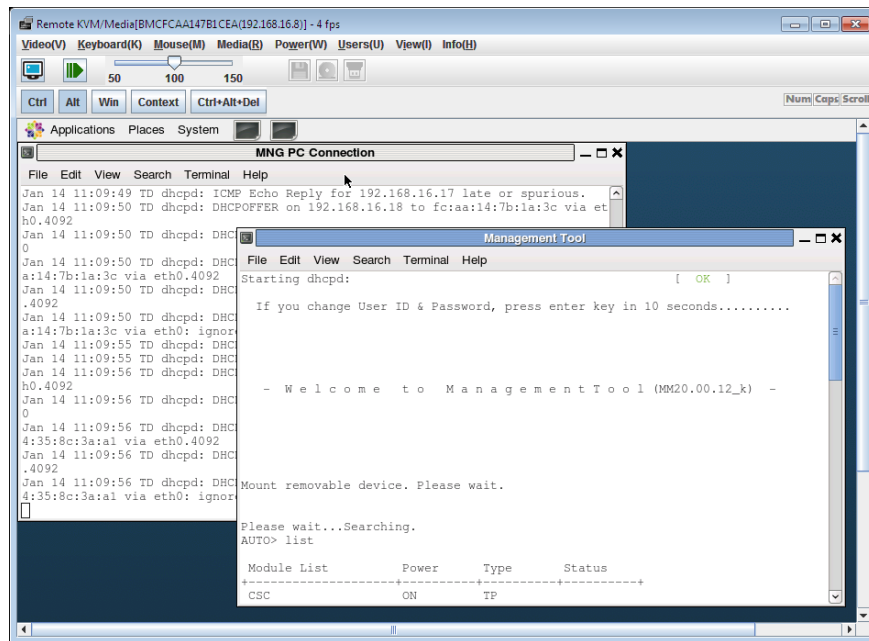
Starting the system diagnostic management tool starts X-window and opens the Management Tool window and the MNG PC Connection window.

The Management Tool window allows you to operate the system diagnostic management tool.

The MNG PC Connection window displays DHCP information.

Note

- Enable DHCP for the BMC network setting of CSC modules and server modules. See User's Guide for changing the setting.
- Management Tool window cannot be used until at least one server module has been detected. If "MNG PC>" prompt does not appear after about five minutes have passed, check the DHCP setting for each module.



Important

- You can execute the system diagnostic management tool only in the factory settings. You may not execute it if you have changed the default settings of this server.
- When you execute the system diagnostic management tool, **do not connect this server to an existing network**. Be sure to execute it in the environment comprising only this server and console terminals. If you connect the system diagnostic management tool to an existing network and start it, it may have an impact on the connected existing network.

● Command support function

The system diagnostic management tool is equipped with the tab complimentary function and the history function to help user input the command.

- Tab complimentary function

This functions by pressing the tab twice quickly. Available commands are all listed if the command line is empty. Applicable commands are narrowed down and listed for a character entered in a line. When applicable commands are narrowed down to one option, it is listed in a command line.

- History function

You can refer to the command history entered after starting the function by up/down arrow keys.

6.1.1 Starting in the server

This section describes how to start the system diagnostic management tool in the server.

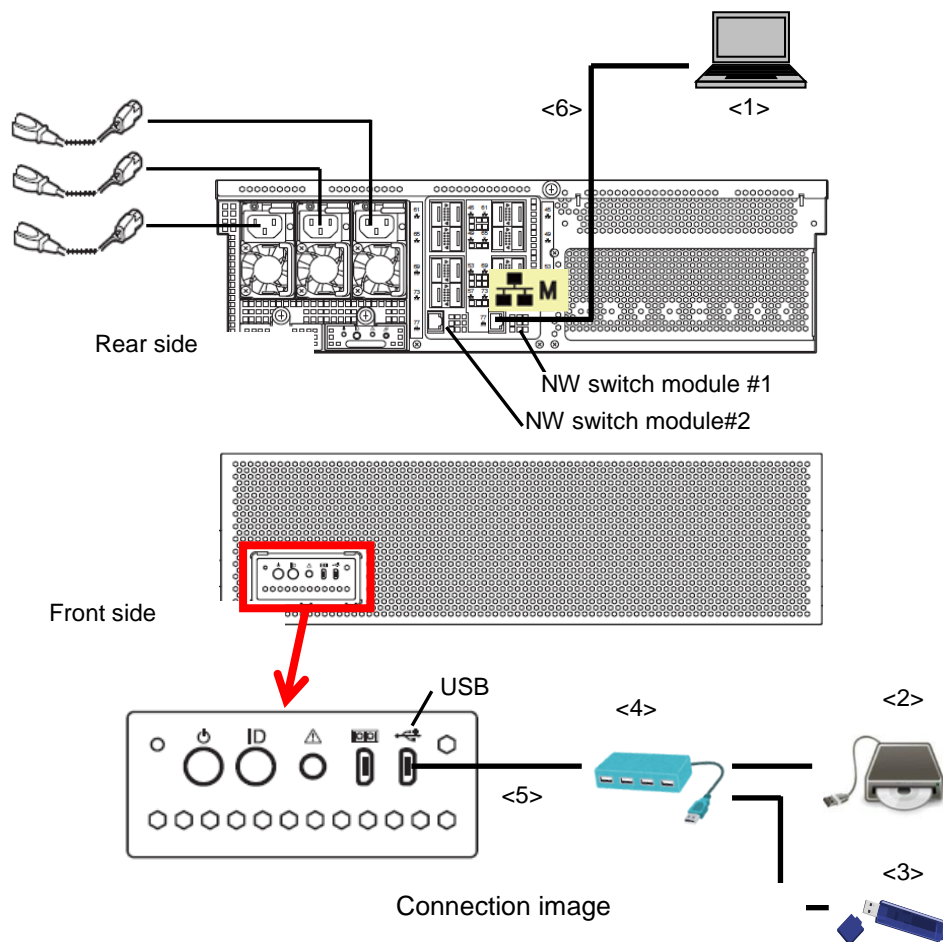
To start it in the server, start the system diagnostic management tool in the server module (hereafter called Deploy server module) mounted on Slot#1.

To start it in the Deploy server module, no restriction is placed on a terminal to be prepared. However, note that you cannot diagnose the Deploy server module by the system diagnostic management tool.

To start the system diagnostic management tool by the management terminal, see “Chapter 1 (6.1.2 Starting by the management terminal)”.

(1) Preparation

The following preparation is required to execute the system diagnostic management tool.



<1>Console terminal

A console terminal is required to display screens of the Deploy server module.

A console terminal is conditional on having at least one LAN port and connecting to Web console with BMC of the Deploy server module in this server.

Connect LAN to the management LAN connector of NW switch module #1 of this server.

Set the network setting of the console terminal to IP address **192.168.16.9** and subnet mask **255.255.240.0**.

BMC of the Deploy server module can be connected to IP address **192.168.16.8** after starting the system diagnostic management tool.

<2>DX2000 Utility Disk medium and CD/DVD-ROM drive

<3>USB memory

<4>USB Hub

Prepare a DC adaptor-feed type USB Hub.

<5>Micro USB to USB (Type A female) conversion cable

You need a cable to convert Micro USB to USB type A (female). Prepare it separately.

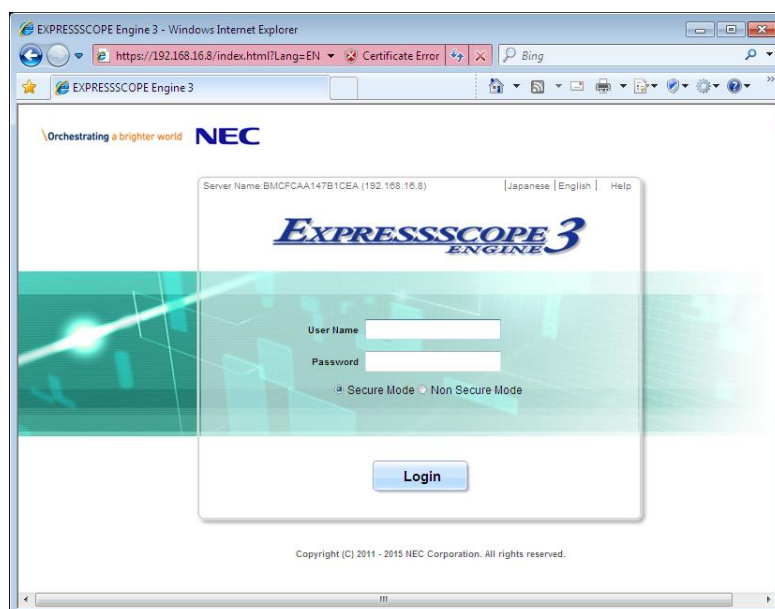
<6>LAN cable (CAT5e or higher)

(2) Starting the system diagnostic management tool

When you have connected a console terminal to this server, start the tool in the following procedure.

1. Connect AC cable to this server.
2. Open the top panel of this server and press the POWER button of the Deploy server module.
3. Boot the DX2000 Utility Disk from the CD/DVD-ROM drive connected to the front side USB.
4. When you have started the system diagnostic management tool, connect BMC of the Deploy server module at IP address 192.168.16.8 from the console terminal.

When you check the POST executing screen before starting it, you need to set the IP address to BMC of the server module and connect to BMC. See “Chapter 1 (6.3 Appendix (1) Setting the IP address of the Deploy server module)” for the setting procedure.

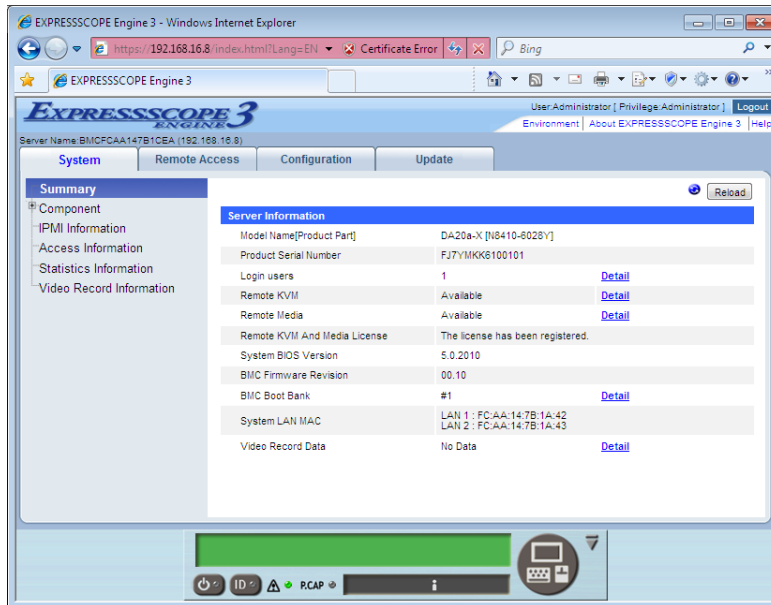


5. Login.

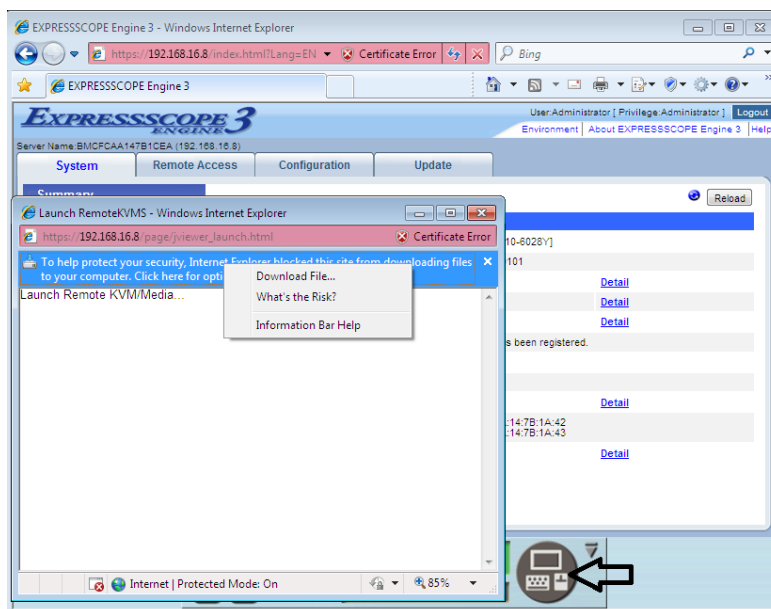
(Default User: Administrator, Password: Administrator)

Important

For security reasons, change the above default settings (User Name, and Password) to the ones appropriate in your network environment. Refer to P10 "Security Notice" for details.



6. Use the RemoteKVM function to display the Deploy server module screen.



7. X-window starts and displays the following message on the Management Tool window.

```
If you change User ID & Password, press enter key in 10 seconds
```

When 10 seconds have passed without any entry, the process moves on and operates with the default User/Password.

(Default User: Mainte, Password: Mainte)

To start the tool with other User/Password than the default User/Password, press the ENTER key within 10 seconds.

Enter User/Password accessible to CSC modules and server modules.

```
If you change User ID & Password, press enter key in 10 seconds...
User ID :
Password :
```

8. The following message is displayed in the Management Tool window. Wait for a while until searching is completed. If the prompt does not appear after about five minutes have passed, check the DHCP setting for each module.

```
Please wait...Searching.
```

The following prompt is displayed when CSC modules and server modules in the server have been searched.

```
MNG PC>
```

9. Enter the command "list" in the Management Tool window and check if server modules are recognized.
10. If you find all server modules unrecognized, enter the command "reload" to start searching again.

```
MNG PC> reload
Please wait...Searching.
```

6.1.2 Starting by the management terminal

This section describes how to start the system diagnostic management tool by the management terminal.

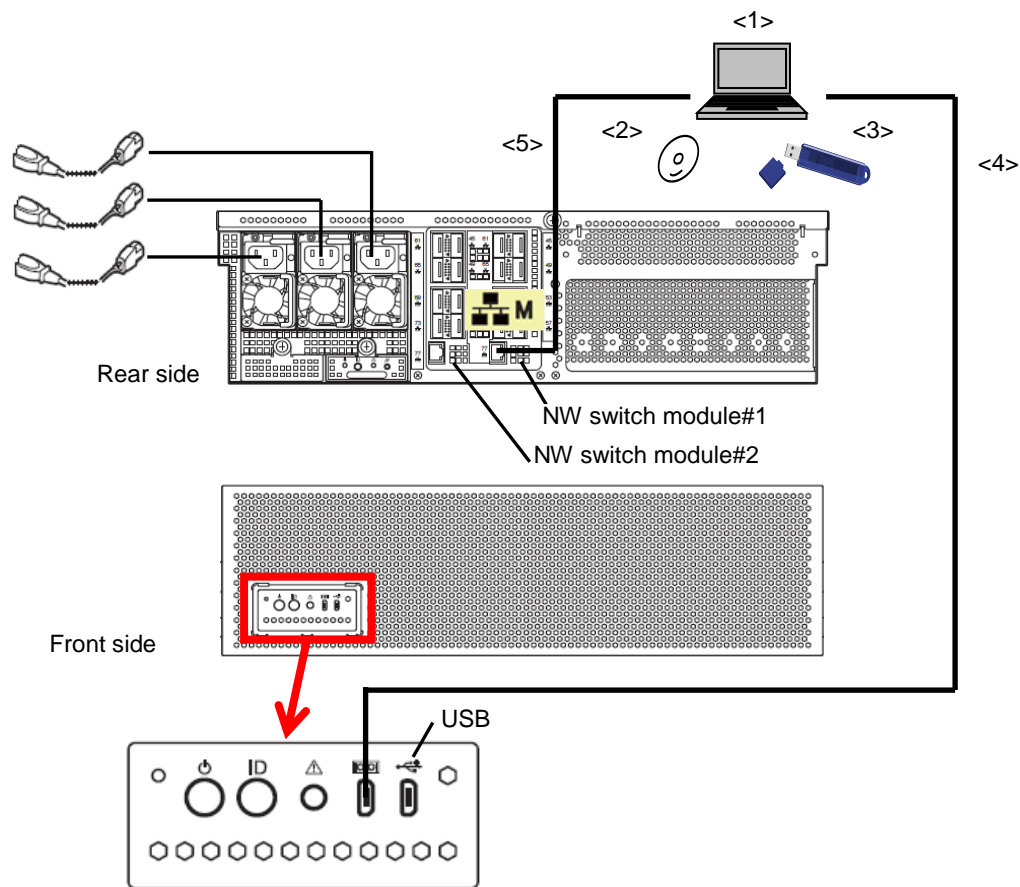
When you start it by the management terminal, you can diagnose all server modules by the system diagnostic management tool. Note that terminals to be prepared are restricted. Therefore, the system diagnostic management tool may not properly operate even if it meets conditions.

See “Chapter 1 (6.1.1 Starting in the server)” to start the system diagnostic management tool in this server.

(1) Preparation

The following preparation is required to execute the system diagnostic management tool.

Do not connect the LAN cable (see <5>) until you are instructed by the starting procedure.



Connection image

<1>Management terminal

The terminal supports Linux and needs to be equipped with the following devices.

- 1) LAN port (Intel, Broadcom and Realtek supported)

Connect LAN to the management LAN connector of the network NW switch module #1 of this server.
Make it connectable to NW switch module #1 and #2 via a network hub if the BMC setting of the server module is set to duplication enabled.

- 2) USB port

- 3) CD/DVD-ROM drive

<2>DX2000 Utility Disk media

<3>USB memory

<4>Micro USB cable

<5>LAN cable (CAT5e or higher)

(2) Starting the system diagnostic management tool

When you have connected the management terminal to this server, start the tool in the following procedure.

1. Connect the AC cable to this server.
2. Turn on the power of the management terminal and boot it from the DX2000 Utility Disk.
3. X-window starts and displays the following message in the Management Tool window.

```
If you change User ID & Password, press enter key in 10 seconds
```

When 10 seconds have passed without any entry, the process moves on and operates with the default User/Password.

(Default User: Mainte, Password: Mainte)

To start the tool with other User/Password than the default User/Password, press the ENTER key within 10 seconds.

Enter User/Password accessible to CSC modules and server modules.

```
If you change User ID & Password, press enter key in 10 seconds...
User ID :
Password :
```

4. The following message is displayed in the Management Tool window.

```
Please wait...Searching.
```

5. On the top of the screen, select "Application" -> "System Tools" -> "Terminal" and start a new window.
6. Execute the following command in the window started above 3.

```
# ./vlan.expect
```

7. Connect the management terminal to this sever with the LAN cable.
8. On completion of searching CSC modules and server modules in this server, the following prompt is displayed in the Management Tool window. If the prompt does not appear after about five minutes have passed, check the DHCP setting for each module.

```
MNG PC>
```

9. Enter the command "list" in the Management Tool window and check if server modules are recognized.
10. If you find all server modules unrecognized, enter the command "reload" to start searching again.

```
MNG PC> reload
Please wait...Searching.
```


6.1.3 Operating the system diagnostic management tool

This section describes how to operate the system diagnostic management tool.

1. Enter "list" in the Management Tool window and check that the power of server modules is turned off.

```
MNG PC> list
```

Module List	Power	Type	Status
CSC	ON	TP	
CPU Board1	ON	MNG PC	
CPU Board2	OFF		
CPU Board3	OFF		
:			
CPU Board43	OFF		
CPU Board44	OFF		

```

CSC : 1 CPU : 43 + MNG PC
PASS: 0 PASS: 0
FAIL: 0 FAIL: 0

MNG PC>
```

2. Enter "start tedoli all" and start diagnosis for CSC modules/all loaded server modules.

```
MNG PC> start tedoli all
MNG PC>
```

3. Enter "list" again after a few minutes. If Type of CPU Board is "TeDoLi" and Status is "Run", CSC modules/server modules have been diagnosed.

```
MNG PC> list
```

Module List	Power	Type	Status
CSC	ON	TP	Run
CPU Board1	ON	MNG PC	
CPU Board2	ON	TeDoLi	Run
CPU Board3	ON	TeDoLi	Run
:			
CPU Board43	ON	TeDoLi	Run
CPU Board44	ON	TeDoLi	Run

```

CSC : 1 CPU : 43 + MNG PC
PASS: 0 PASS: 0
FAIL: 0 FAIL: 0

MNG PC>
```

Important

TeDoLi startup request may be cancelled when BIOS setup is reset due to the change of settings. If Type of CPU Board is not"TeDoLi", shut down the server and run the TeDoLi startup command again. Check that the shutdown process is complete by using the "list" command.

MNG PC> shutdown -f all

MNG PC> list

MNG PC> start tedoli all

The server module TeDoLi terminates in about 8 minutes from the start of execution. Enter "list" again and check that Status of server modules is PASS.

```
MNG PC> list
```

Module List	Power	Type	Status
CSC	ON	TP	Run
CPU Board1	ON	MNG PC	
CPU Board2	ON	TeDoLi	PASS
CPU Board3	ON	TeDoLi	PASS
:			
CPU Board43	ON	TeDoLi	PASS
CPU Board44	ON	TeDoLi	PASS

```
CSC : 1 CPU : 43 + MNG PC
PASS: 0 PASS: 43
FAIL: 0 FAIL: 0

MNG PC>
```

TP (Diagnosis program) of CSC modules is infinitely executed out of synchronization with TeDoLi. Enter "stop 0" to stop it.

```
MNG PC> stop 0
MNG PC>
```

4. If you find "Fail" in Status in step 3, specify the module with ' list "server module number" ' and check the detail.
- (Example: When you find the server module 23 to be Fail, enter "list 23".)

```

MNG PC> list 23

Please wait a moment....

CPU Board 023 List
+-----+-----+-----+-----+-----+
| Num | * | Device List                | Type          | Prev | Status |
+-----+-----+-----+-----+-----+
| 1 | * | MEMORY                     | MEMORY        |      | normal end |
| 2 | * | CPU                        | CPU           |      | normal end |
| 3 | ! | -SATA                      | SATA          |      |          |
| 4 | * | HDD Slot0(TOSHIBA THNSNJ256G8NU) | HDD-INT       |      | fail      |
| 5 | ! | -NIC                       | NIC           |      |          |
| 6 |   | Port1(eth0)                | LOM-PORT      |      |          |
| 7 |   | Port2(eth1)                | LOM-PORT      |      |          |
| 8 | * | SENSOR(TEMPERATURE)         | TEMPERATURE   |      | normal end |
| 9 | * | SENSOR(VOLTAGE)             | VOLTAGE        |      | normal end |
| 10 | ! | LED                        | LED           |      |          |
+-----+-----+-----+-----+-----+

MNG PC>

```

5. To collect log, set a USB memory (FAT format) to the USB hub and enter “log save all”.

```

MNG PC> log save all
Select the device to save log.
1: USB Flash Disk
Enter selection [1]:

```

6. Select a USB memory from the list of log storage devices. Enter a destination folder name to save the log under the input folder. The management tool prompt “MNG PC>” appears on completion of saving.

It takes several minutes until the log have been saved if multiple server modules are loaded.

In the following example, the log is saved in the log2015 folder of the USB memory (1).

```

Enter selection [1]: 1
Enter directory name [/]: log2015
Please wait a moment.....

Now saving...
All logs have been saved.

MNG PC>

```

* The log file is saved in the tar.gz format. Extract it to check the content.

7. The following command shuts down all server modules.

```
MNG PC> shutdown all
MNG PC>
```

8. Enter “list” at the management tool prompt “MNG PC>” and check that all server modules are turned OFF.

```
MNG PC> list

Module List      Power      Type      Status
+-----+-----+-----+-----+
CSC              ON         TP        PASS
CPU Board1       ON         MNG PC
CPU Board2       OFF
CPU Board3       OFF
      :
CPU Board43      OFF
CPU Board44      OFF
+-----+-----+-----+-----+

CSC : 1  CPU : 43 + MNG PC
PASS: 1  PASS: 0
FAIL: 0  FAIL: 0

MNG PC>
```

9. On the top of the screen, select “System”- >“Shut Down...” and press the “Shut Down” button in the displayed dialog box to shut down the system.
10. Pull out the AC cable.

6.1.4 Command list

Commands used in the system diagnostic management tool are listed below. See “Chapter 1 (6.1.5 Command reference)” for the detail of using commands.

Command	Description
start	Starts diagnosis.
stop	Stops diagnosis.
shutdown	Shuts down the server module.
list	Displays the status of modules.
log	Displays the diagnosis log or saves it in a USB memory.
sol	Displays the server module screen on the system diagnostic management tool.
smart	Displays the s.m.a.r.t information of server modules.
reload	Reloads the server module information.
ver	Displays the version of the system diagnostic management tool.
help	Displays the command list.

6.1.5 Command reference

start

Function: Turn on the DC power of the specified server module to start diagnosis.

Start diagnosis of CSC modules of this server.

Argument:

		Description
arg1	<i>type</i>	Specify the tool to be started.
	<i>tedoli</i>	Start diagnosis.
arg2	<i>cpu board</i>	Specify the server module to start the tool.
	<i>all</i>	CSC modules of this server and all server modules are specified.
	<i>x</i>	Specify the server module number.
		Set "0" to specify a CSC module.
		You can specify multiple server modules. Example) "1 6-23 36"→ Server modules 1, 6 to 23 and 36 have been specified.

Screen image :

	Description number
MNG PC> start tedoli all<ENTER>	
MNG PC> list<ENTER>	
Module List Power Type Status	
+-----+-----+-----+-----+	
CSC ON TP Run	
CPU Board1 ON MNG PC	
CPU Board2 ON TeDoLi Run	
CPU Board3 ON TeDoLi Run	
:	
CPU Board43 ON TeDoLi Run	
CPU Board44 ON TeDoLi Run	
+-----+-----+-----+-----+	
CSC : 1 CPU : 43 + MNG PC	
PASS: 0 PASS: 0	
FAIL: 0 FAIL: 0	

stop

Function: Stop diagnosis operating on the specified server module.

Stop diagnosis of CSC modules of this server.

Argument:

		Description
arg1	<i>cpu board</i>	Specify the server module to stop diagnosis.
	<i>all</i>	CSC modules of this server and all server modules are specified.
	<i>x</i>	Specify the server module number.
		Set "0" to specify a CSC module.
		You can specify multiple server modules. Example) "1 6-23 36" → Server modules 1, 6 to 23 and, 36 have been specified.

Screen image:

	Description number
MNG PC> stop all<ENTER>	
MNG PC> list<ENTER>	
Module ListPowerTypeStatus	
+-----+-----+-----+	
CSCONTPPASS	
CPU Board1ONMNG PC	
CPU Board2ONTeDoLiPASS	
CPU Board3ONTeDoLiPASS	
:	
CPU Board43ONTeDoLiPASS	
CPU Board44ONTeDoLiPASS	
+-----+-----+-----+	
CSC : 1CPU : 43 + MNG PC	
PASS: 1PASS: 43	
FAIL: 0FAIL: 0	

shutdown

Function: Shut down (DC Off) the specified module.

Argument:

		Description
arg1	Src	Specify the source of shutdown.
	(nothing)	Shut down the server module from the diagnostic tool (TeDoLi) running on it.
	-f	Shut down the server module forcibly from BMC.
arg2	cpu board	Specify the server module to be shut down.
	all	Specify all server modules of this server.
	x	Specify the server module number.
		You can specify multiple server modules. Example) “1 6-23 36” → Server modules 1, 6 to 23 and, 36 are specified.

Screen image :

	Description number
<pre>MNG PC> shutdown all<ENTER> MNG PC> list<ENTER> Module List Power Type Status +-----+-----+-----+-----+ CSC ON TP PASS CPU Board1 ON CPU Board2 OFF CPU Board3 OFF : CPU Board43 OFF CPU Board44 OFF +-----+-----+-----+-----+ CSC : 1 CPU : 43 + MNG PC PASS: 1 PASS: 0 FAIL: 0 FAIL: 0</pre>	

list

Function: Display information of CSC modules and server modules loaded on this server.

Argument:

		Description
arg1	<i>type</i>	Specify the information to be displayed.
	<i>(nothing)</i>	Display the list of CSC modules and all server modules of this server and their statuses.
	<i>-t</i>	Display the list of CSC modules and all server modules of this server and the time.
	<i>-i</i>	Display the list of CSC modules and all server modules of this server and the IP address of BMC.
	<i>cpu board</i>	Specify CSC modules and server modules to display the detail of diagnosis.
	<i>all</i>	Specify CSC modules of this server and all server modules.
	<i>x</i>	Specify the server module number. Set "0" to specify a CSC module. You can specify multiple server modules. Example) "1 6-23 36" → Server modules 1, 6 to 23 and, 36 are specified.

Screen image :

	Description number
<pre> MNG PC> list<ENTER> Module List Power Type Status +-----+-----+-----+-----+ CSC ON TP Run CPU Board1 ON MNG PC CPU Board2 ON TeDoLi Run CPU Board3 ON TeDoLi Run : CPU Board43 ON TeDoLi Run CPU Board44 ON TeDoLi Run +-----+-----+-----+-----+ CSC : 1 CPU : 43 + MNG PC PASS: 0 PASS: 0 FAIL: 0 FAIL: 0 </pre>	(a)
<pre> MNG PC> list -t<ENTER> Module List Time +-----+-----+ CSC 2014/10/24 13:00:10 CPU Board1 2014/10/24 13:00:10 CPU Board2 2014/10/24 13:00:10 CPU Board3 2014/10/24 13:00:10 : : CPU Board43 2014/10/24 13:00:10 CPU Board44 2014/10/24 13:00:10 +-----+-----+ </pre>	(b)
<pre> MNG PC> list -t<ENTER> Module List Time +-----+-----+ CSC 2014/10/24 13:00:10 CPU Board1 2014/10/24 13:00:10 CPU Board2 2014/10/24 13:00:10 CPU Board3 2014/10/24 13:00:10 : : CPU Board43 2014/10/24 13:00:10 CPU Board44 2014/10/24 13:00:10 +-----+-----+ </pre>	(c)

MNG PC> list -i<ENTER>

Module List

IP Address

CSC

192.168.16.10

CPU Board1

192.168.16.11

CPU Board2

192.168.16.12

CPU Board3

192.168.16.13

:

:

CPU Board43

192.168.16.53

CPU Board44

192.168.16.54

MNG PC> list 4<ENTER>

Please wait a moment....

CPU Board 004 List

Num

*

Device List

Type

Prev

Status

1

*

MEMORY

MEMORY

running

2

*

CPU

CPU

running

3

!

-SATA

SATA

4

*

HDD Slot0(TOSHIBA THNSNJ256G8NU

HDD-INT

running

5

!

-NIC

NIC

6

*

Port1(eth0)

LOM-PORT

7

*

Port2(eth1)

LOM-PORT

8

*

SENSOR(TEMPERATURE)

TEMPERATURE

running

9

*

SENSOR(VOLTAGE)

VOLTAGE

running

10

*

LED

LED

The test will terminate in 9 minutes.

(d)

(e)

Screen image:

Description number	Description
(a)	<p>Display the status of CSC modules and server modules.</p> <p>Module List : Indicates the server module number (loaded position).</p> <p>CSC : Indicates CSC modules.</p> <p>CPU Board : Indicates server modules.</p> <p>Power</p> <p>ON : Indicates DC ON status.</p> <p>OFF : Indicates DC OFF status.</p> <p>Type : Indicates the tool type.</p> <p>(blank) : Indicates that the tool is not started.</p> <p>TP : Indicates the diagnosis module of CSC.</p> <p>MNG PC : Indicates the system diagnostic management tool.</p> <p>TeDoLi : Indicates the diagnostic tool (TeDoLi).</p> <p>Status : Indicates the diagnostic status of the server module.</p> <p>(blank) : Indicates no execution.</p> <p>Run : Indicates that diagnosis is running.</p> <p>PASS : Indicates that diagnosis normally ended.</p> <p>FAIL : Indicates that the result of diagnosis is abnormal.</p> <p>ABRT : Indicates that diagnosis abnormally ended.</p> <p>WARN : Indicates that the result of diagnosis includes warning.</p>
(b)	<p>Display the total of the diagnostic result of CSC modules and server modules.</p> <p>CSC : Indicates the number of loaded CSC modules.</p> <p>PASS : Indicates the number of CSC modules whose diagnostic result was normal.</p> <p>FAIL : Indicates the number of CSC modules whose diagnostic result was abnormal. The display includes ABRT/WARN.</p> <p>CPU : Indicates the number of loaded server modules that can be diagnosed.</p> <p>PASS : Indicates the number of server modules whose diagnostic result was normal.</p> <p>FAIL : Indicates the number of server modules whose diagnostic result was abnormal. The display includes ABRT/WARN.</p> <p>+ MNG PC : Indicates that the system diagnostic management tool is operating on the Deploy server module.</p> <p>This is not displayed when the tool is operating on a management terminal.</p>

(c)	<p>The time of CSC modules and server modules is displayed.</p> <p>Time : Indicates the time of the server modules.</p>
(d)	<p>The IP address of BMC of CSC modules and server modules is displayed.</p> <p>IP Address : Indicates the IP address of BMC.</p>
(e)	<p>Statuses of CSC modules and server module devices are displayed.</p> <p>Device Name : Indicates the device name to be diagnosed.</p> <p>Status : Indicates the status of device diagnosis.</p> <p>(blank) : Indicates no execution.</p> <p>running : Indicates that diagnosis is running.</p> <p>normal end : Indicates that diagnosis normally ended.</p> <p>fail : Indicates that the result of diagnosis is abnormal.</p> <p>abort : Indicates that diagnosis abnormally ended.</p> <p>warning : Indicates that the result of diagnosis includes warning.</p>

log

Function: Collect the diagnosis execution result log and SEL.

Diagnosis execution result log: Text file in the .log format

SEL: Binary file in the .dat format

You can execute this command on CSC modules and server modules whose Type is in “TeDoLi” state.

Argument:

		Description
arg1	<i>operation</i>	Specify the target to collect log.
	<i>save</i>	Save the log in the connected USB memory.
	<i>disp</i>	Display the log on the Management Tool window.
arg2	<i>cpu board</i>	Specify the server module to collect log.
	<i>all</i>	Specify CSC modules of this server and all server modules.
	<i>x</i>	Specify the server module number.
		Set “0” to specify a CSC module. You can specify multiple server modules. Example) “1 6-23 36” → Server modules 1, 6~23 and, 36 have been specified.

Screen image:

	Description number
<pre> MNG PC> log save all<ENTER> Select the device to save log. 1: USB Flash Disk Enter selection[1]: <ENTER> Enter directory name [/]: tedoli<ENTER> Please wait a moment..... Now saving... All logs have been saved. MNG PC> log disp 1<ENTER> Please wait a moment..... Logging to the specified console. !!! Please Enable terminal log function !!! Press any key to continue. <ENTER> </var/log/log/001/cpu_bord_001.log> ##### TeDoLi Log ##### [PROGRAM] Release Version : S16.20.12_k Build Date : Dec 10 2015 11:21:22 Rootfs Version : 16.01.00 : </pre>	<p>(a)</p> <p>(b)</p> <p>(c)</p>

Description:

Description number	Description
(a)	Specify the target to collect log.
(b)	Enter a directory name to create a directory to save the data. Enter a space (default) to create no directory.
(c)	A message to indicate successful log saving.

sol

Function: Display the server module screen on the system diagnostic management tool via SOL.

Argument:

		Description
arg1	<i>cpu board</i>	Specify the server module to be displayed.
	<i>all</i>	Specify all server modules of this server.
	<i>x</i>	Specify the server module number.
		You can specify multiple server modules. Example) “1 6-23 36” → Server modules 1, 6 to 23 and, 36 are specified.

Screen image :

		Description number
MNG PC> sol 2<ENTER> MNG PC>		(a)

Description :

Description number	Description
(a)	Open a window on the system diagnostic management tool to display the console screen of the specified server module.

smart

Function: Displays the s.m.a.r.t information of server modules.

You can execute this command only for the server module whose Type is "TeDoLi".

Argument:

		Description
arg1	<i>cpu board</i>	Specify the server module to display the s.m.a.r.t information.
	<i>all</i>	Specify all server modules of this server.
	<i>x</i>	Specify the server module number.
		You can specify multiple server modules. Example) "1 6-23 36" → Server modules 1, 6 to 23 and, 36 are specified.

Screen image:

	Descript i on number
<pre>MNG PC> smart 6<ENTER> <CPU Board 6> smartctl 5.43 2012-06-30 r3573 [x86_64-linux-2.6.32-358.14.1.el6.x86_64] (local build) Copyright (C) 2002-12 by Bruce Allen, http://smartmontools.sourceforge.net === START OF INFORMATION SECTION === Device Model: SAMSUNG MZNLN128HCGR-00000 Serial Number: S1ZXNXAG603879 LU WWN Device Id: 5 002538 d401ebla7 Firmware Version: EMT2100Q User Capacity: 128,035,676,160 bytes [128 GB] Sector Size: 512 bytes logical/physical Device is: Not in smartctl database [for details use: -P showall] ATA Version is: 8 ATA Standard is: ATA-8-ACS revision 4c Local Time is: Tue Dec 15 10:24:28 2015 JST SMART support is: Available - device has SMART capability. SMART support is: Enabled === START OF READ SMART DATA SECTION === SMART overall-health self-assessment test result: PASSED General SMART Values: Offline data collection status: (0x00) Offline data collection activity was never started. Auto Offline Data Collection: Disabled. : :</pre>	

reload

Function: Reload the server module information.

Screen image:

	Descript i on number
MNG PC> reload<ENTER> Please wait...Searching. MNG PC>	

ver

Function: Display the version of the system diagnostic management tool.

Screen image:

	Descript i on number
MNG PC> ver<ENTER> Release Version : MM20.00.11 Build Date : Dec 11 2015 12:03:53 Rootfs Version : 16.01.00	(a)

Description:

Description number	Description
(a)	The version of the system diagnostic management tool and the build date are displayed.

6.2 TeDoLi

Use TeDoLi to maintain server modules of this server.

TeDoLi allows you to diagnose one server module of this server.

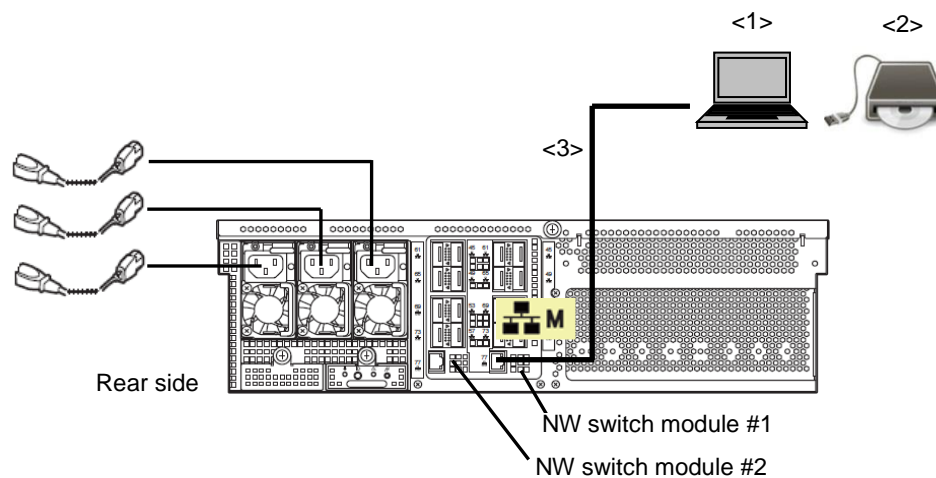
Start TeDoLi to display CUI that allows you to operate TeDoLi.

Important

You can execute TeDoLi tool only in the factory shipment configuration, You may not execute it if you have changed the default setting of this server.

6.2.1 Preparation

The preparation is required to execute TeDoLi.



<1>Console terminal

A console terminal is required to display screens of server modules to execute TeDoLi.

A console terminal is conditional on having at least one LAN port and connecting to Web console with BMC of the server module to execute TeDoLi by Internet Explorer.

Connect LAN to the dedicated LAN connector of NW switch module #1 of this server.

The IP address of BMC is required to connect BMC of the server module to execute TeDoLi.

Connect it to NW switch module #1 and #2 via a network hub if the BMC setting of the server module is set to duplication enabled.

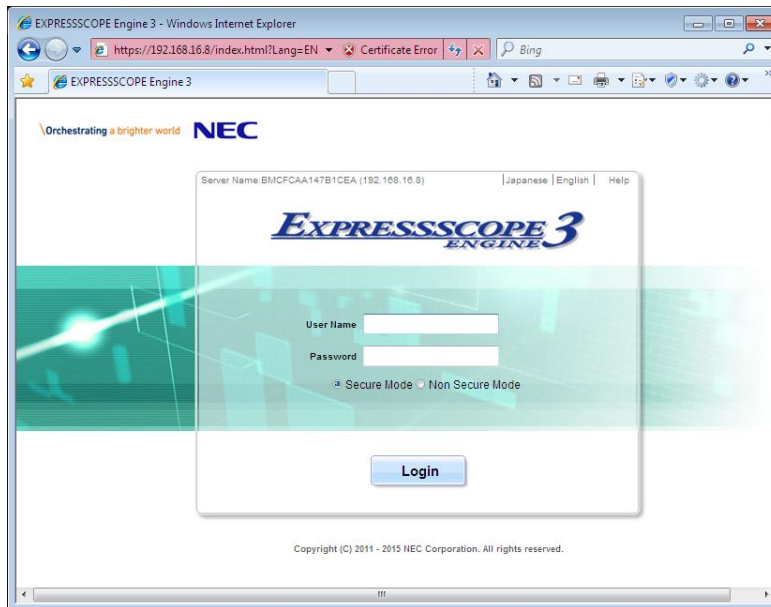
<2>DX2000 Utility Disk medium and CD/DVD-ROM drive

<3>LAN cable (CAT5e or higher)

6.2.2 Starting TeDoLi

When you have connected a console terminal to this server, start the tool in the following procedure.

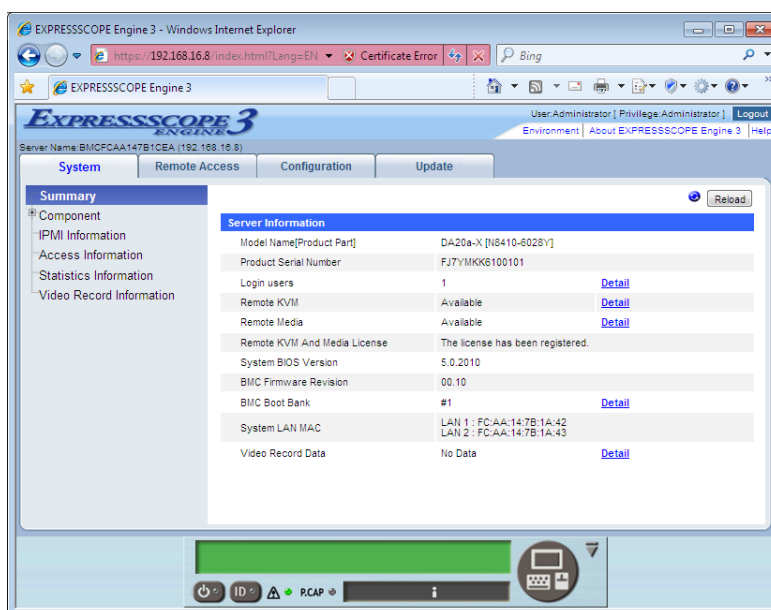
1. Insert the DX2000 Utility Disk into the console terminal.
2. Specify the IP address on the console terminal and connect BMC of the server module to execute TeDoLi.



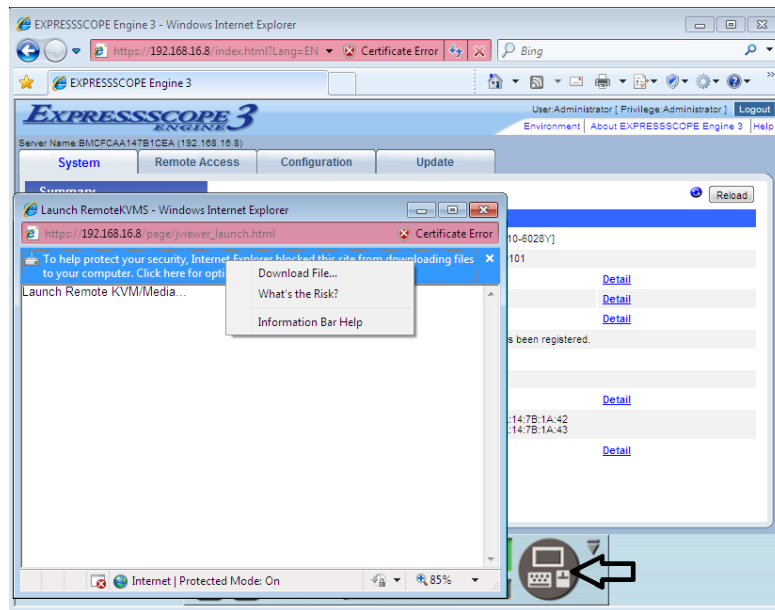
3. Login.
(Default User: Administrator, Password: Administrator)

Important

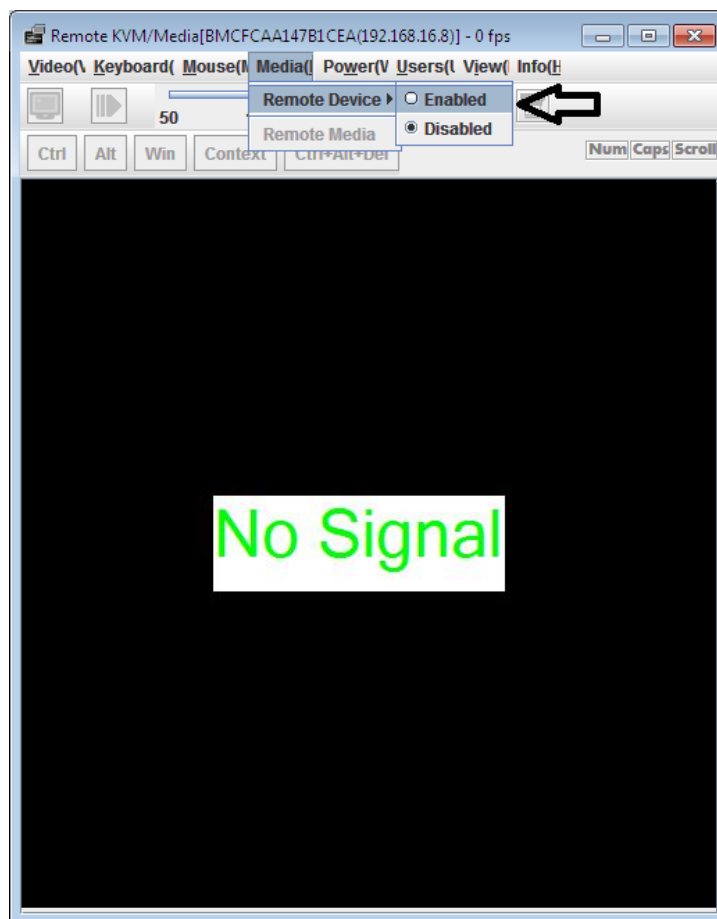
For security reasons, change the above default settings (User Name, and Password) to the ones appropriate in your network environment. Refer to P10 "Security Notice" for details.



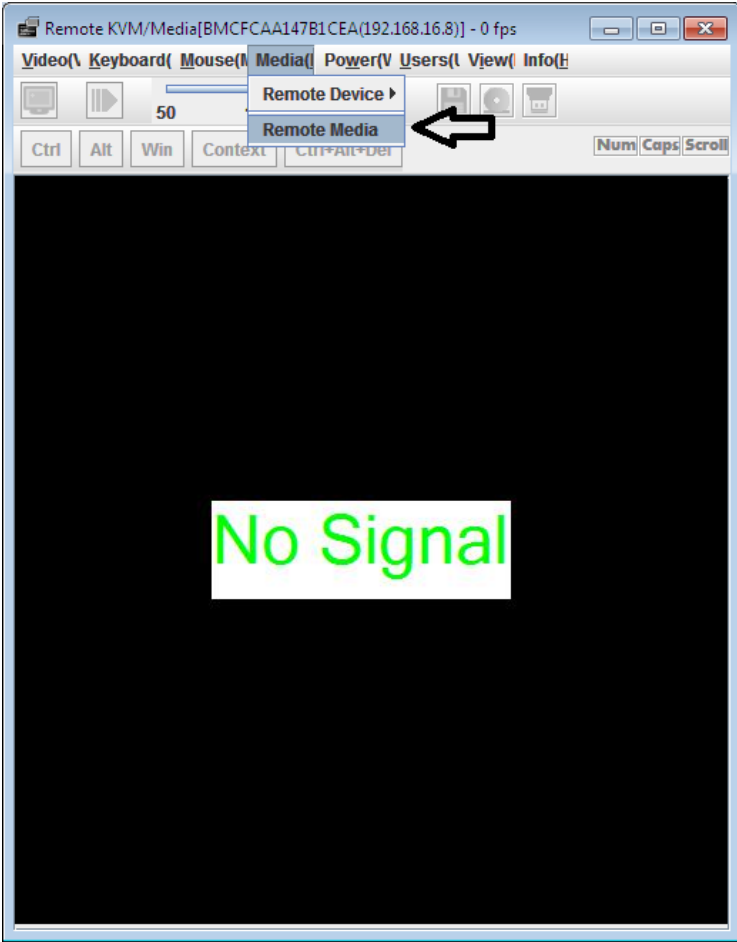
4. Use the RemoteKVM function to display the server module screen to execute TeDoLi.



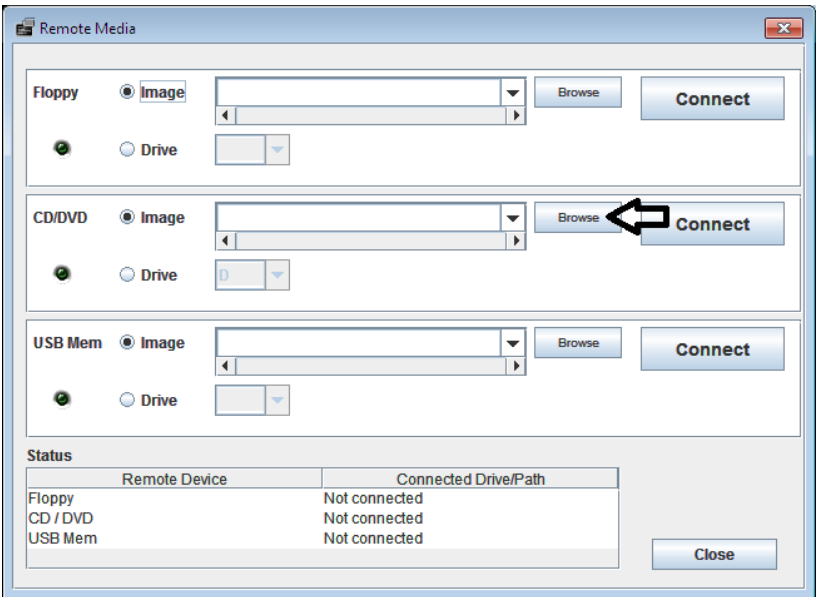
5. Select "Enabled" on the menu to enable the remote device of the RemoteKVM function.



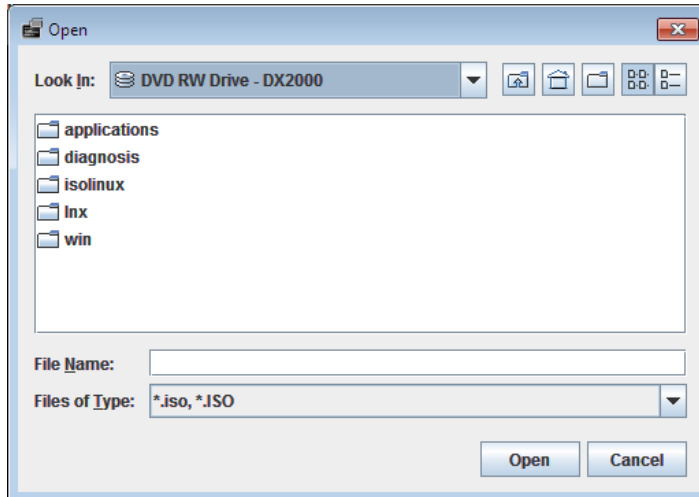
- 6. Select “Remote Media” of the RemoteKVM function.



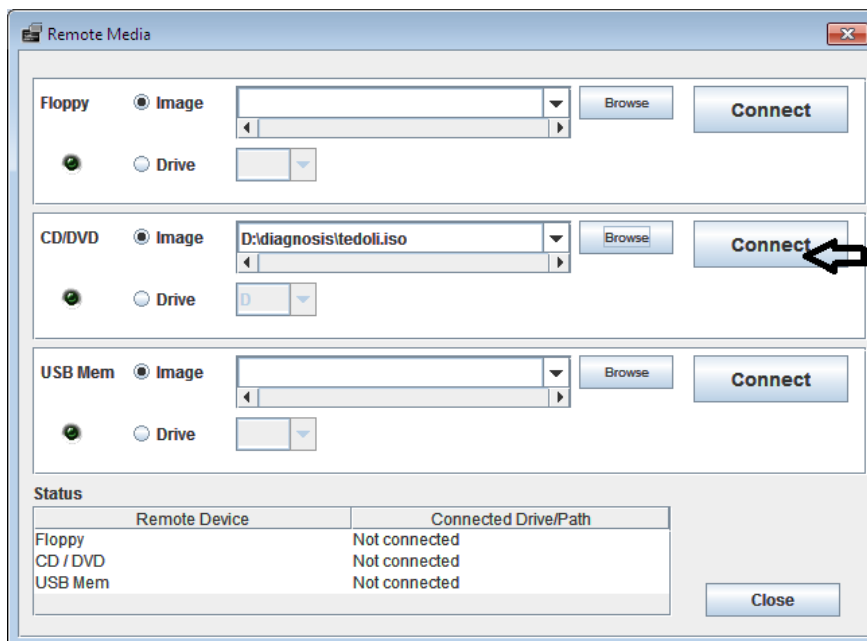
- 7. Press the “Browse” button of CD/DVD of the remote media.



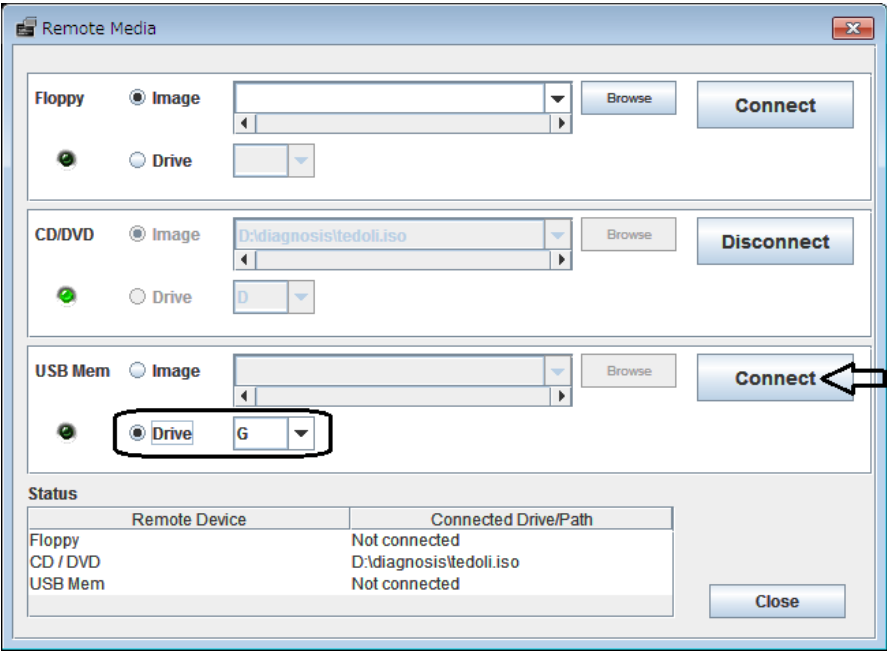
8. Select the “tedoli.iso” file in the “diagnosis” folder on the DX2000 Utility Disk.



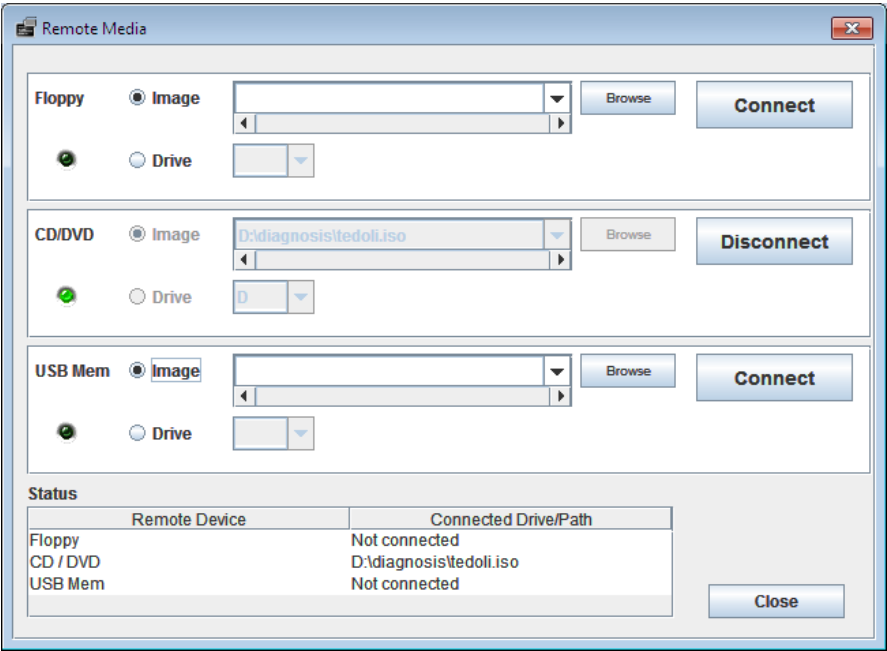
9. Connect the ISO image of TeDoLi by the remote media.



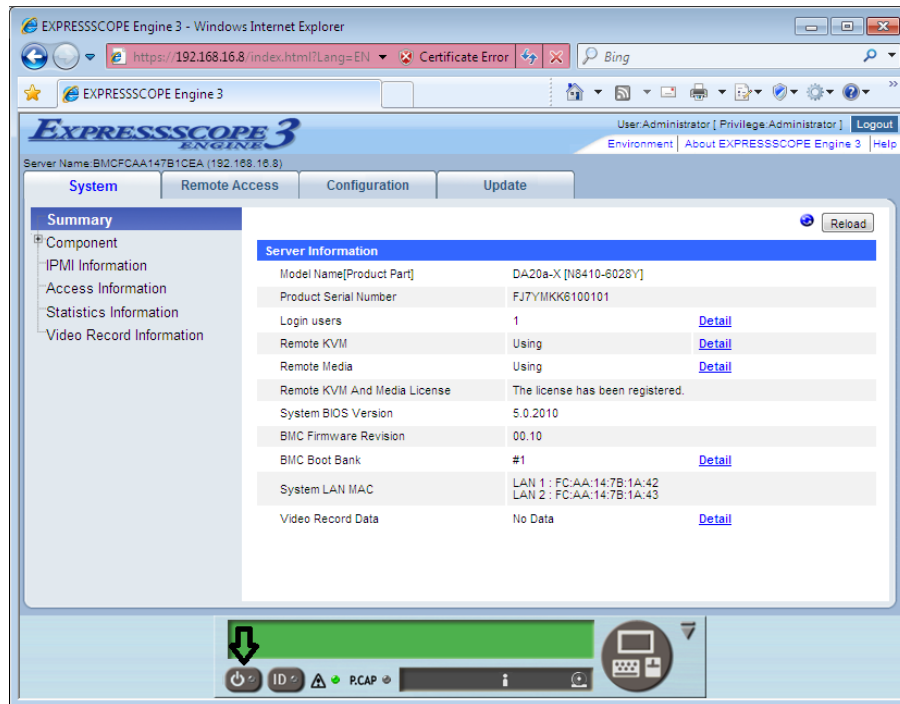
10. If you save the log to the remote media, connect USB Mem to save the log before ISO image of TeDoLi is started. Note that you can select the drive if you mount the media (such as USB memory drives) to save the log on the console terminal machine before RemoteKVM is started.



11. Close the setting window of the remote media.



12. Press the power button to turn on the power of the server module.



13. Wait for several minutes until TeDoLi starts.

When TeDoLi starts, the following message appears in the RemoteKVM window.

```
- Welcome to TeDoLi (SXX.XX.XX) -
```


6.2.3 Checking the device configuration information

Display the device configuration information screen before diagnosing the system.

The screen displays the information about the system processor, hard disk drive, removable media, and PCI card.

Check that the device configuration is correct and that there is no unrecognized device.

```

*****
Please confirm the devices.
*****

-----
CPU Information
=====
CPU : Genuine Intel(R) CPU @ 2.10GHz, 4(4)Cores

-----
Memory Information
=====
Memory RAS Mode : Independent
Memory Capacity : 8 GB

-----
Option Board Information
=====
SATA : LynxPoint 6-port SATA Controller 1 (AHCI mode)
:
:
:
Press enter key to continue.

```

Device configuration information screen

6.2.4 System diagnosis

Decide whether or not to undertake system diagnostic evaluation.

Select "Execute" to execute system diagnosis. Then, move on to step 1.

Select "Cancel" to ignore system diagnosis. Then, move on to "Chapter 1 (6.2.5 Saving log)".

```

*****
Are you sure you want to execute the test?
*****
1: Execute
2: Cancel
Enter selection [Execute]:

```

System diagnostic execution screen

1. Set the system diagnosis time. Enter time to change the displayed default value.

```
*****
Specify the execution time.
*****
Enter execution time [8min]:
```

System diagnosis time setting screen

2. System diagnosis starts. System diagnosis status is displayed in every one minute.

```
*****
Start TeDoLi.
*****
Executing the test.
Execution Control:
Execution Time Limit: 8 minutes.

                                         ElapsedTime:000:00:29
MEMORY  Run / CPU      Run / HDD0      Run / SENSOR( Run
SENSOR( Run /

                                         ElapsedTime:000:01:29
MEMORY  Run / CPU      Run / HDD0      Run / SENSOR( Run
SENSOR( Run /
```

System diagnosis status screen

3. System diagnosis finishes when the time set in step 2 has passed.
- Check the result of the system diagnosis, save the log and contact a maintenance service company if you find FAIL.

Completed all the tests.
Please confirm the execution results.

Num	*	Device List	Simple	Status(round)
1	*	MEMORY	MEMORY	PASS (213)
2	*	CPU	CPU	PASS (43)
3	!	-SATA		
4	*	HDD Slot0(SAMSUNG MZNLN256HCHP-	HDD0	PASS (4086)
5	!	-NIC		
6		Port1(eth0)	NIC/Port	
7		Port2(eth1)	NIC/Port	
8	!	-Slot2		
9		Port1(eth2)	Slot2/Po	
10		Port2(eth3)	Slot2/Po	
11	*	SENSOR(TEMPERATURE)	SENSOR(T	PASS (45)
12	*	SENSOR(VOLTAGE)	SENSOR(V	PASS (43)
13	!	LED		

Press enter key to continue.

System diagnosis result check screen

6.2.5 Saving log

Save the log to collect the result of the system diagnosis and check the life of SSD.

Select a destination device to save the log in a removable disk.

If you save the log in the remote media connected at the startup, the device name is shown as “Remote USB MEM”.

Select an output console to save the log using the terminal log function.

```
*****
Save the result file.
*****
Select the Log Operation.
1: Save (TS32MJF2B      )
2: Display
3: Cancel
Enter selection [Cancel]:
```

Destination to save log selection screen

1. When you select save(xxx)

You can specify a directory name to save the log. Start saving the log according to the direction.

The log date is automatically added to the log file name. (td_yymmddhhmmss.tar.gz).

```
*****
Save the result file.
*****
Select the Log Operation.
1: Save (TS32MJF2B      )
2: Display
3: Cancel
Enter selection [Cancel]: 1
Enter directory name [/]: tedoli
Now saving...
All logs have been saved.
```

Screen to specify a directory to save the log

2. When you select display(serial)

Start saving the log according to the direction after having set the automatic log collection function of the displayed terminal software.

```
*****
Save the result file.
*****
Select the Log Operation.
1: Save (TS32MJF2B      )
2: Display
3: Cancel
Enter selection [Cancel]: 2

!!!! Enable terminal log function !!!!!

Press enter key to continue .
```

Screen to specify terminal output

Move on to “Chapter 1 (6.2.6 Quitting system diagnosis)” after having saved the log.

6.2.6 Quitting system diagnosis

Quit the system diagnosis.

Select Reboot or Shutdown.

```
*****
Please select next action.
*****
1: Attempt to retry the test
2: Reboot
3: Shutdown
Enter selection [Shutdown]: 3
```

Quit menu screen

The system diagnosis has been done.

6.2.7 Checking the SSD life information

You can check the life of SSD from the saved log.

- When you saved the log in a removable device

Extract the file `td_yymmddhhmmss.tar.gz`.

Open one of `td_yymmddhhmmss.log` from the extracted files.

- When you saved the log in a file using the terminal log function

Open the file saved in the terminal.

The life level 1 to 5 is displayed in “[DEVICE INFORMATION] SSD device information” in the file.

Use the search key “SSD Life Level”.

An example of displaying the device information of SSD is shown below.

```
Host          : 0
Channel       : 0
SCSI ID       : 0
Lun           : 0
Vendor Name   : ATA
Model         : SAMSUNG MZNLN256HCHP-00000
Type          : Direct-Device
ANSI SCSI Revision: 05
Block Number  : 500118192
Block Size    : 512
Capacity      : 256060514304
Serial Number : XXXXXXXXXXXXXXXX
Rotation Rate : 1
SSD Life Level : Level 5      *Life information
SSD Life       : 89 percent
Device File    : /dev/sg0
Firmware Revision : EMT2100Q
```

The meaning of the life information level is shown in the table below.

Level	Life (%)	Meaning
5	100- 51	Safe
4	50- 21	Live
3	20- 11	Coming to the end
2	10- 6	Replacement required
1	5- 0	Dead

6.3 Appendix

(1) Setting the IP address of the Deploy server module

To display the POST execution screen of the Deploy server module before running the system diagnostic management tool, you need to set Static IP for BMC in advance.

This server allows serial console connection to Deploy server modules.

You can display a screen on the console terminal by connecting the console terminal and a UART port on the front side.

In this case, you need a USB-UART Bridge driver. Install it on the console terminal from the DX2000 Utility Disk in advance.

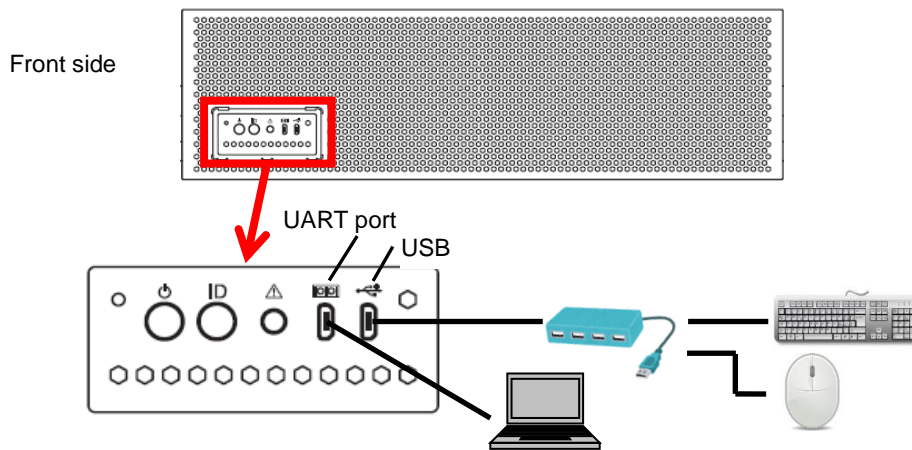
This section describes the procedure to confirm connection using Tera Term on Windows OS. Prepare remote logon client software to fit your environment.

<Driver storage path of DX2000 Utility Disk>

USB-UART Bridge driver for Windows : %drivers%other%USB-UART Bridge%CP210x_VCP_Windows

USB-UART Bridge driver for Linux : %drivers%other%USB-UART Bridge%Linux 2.6.x

: %drivers%other%USB-UART Bridge%Linux 3.x.x



Connection image

1. The serial port setting using Tera Term is shown below.

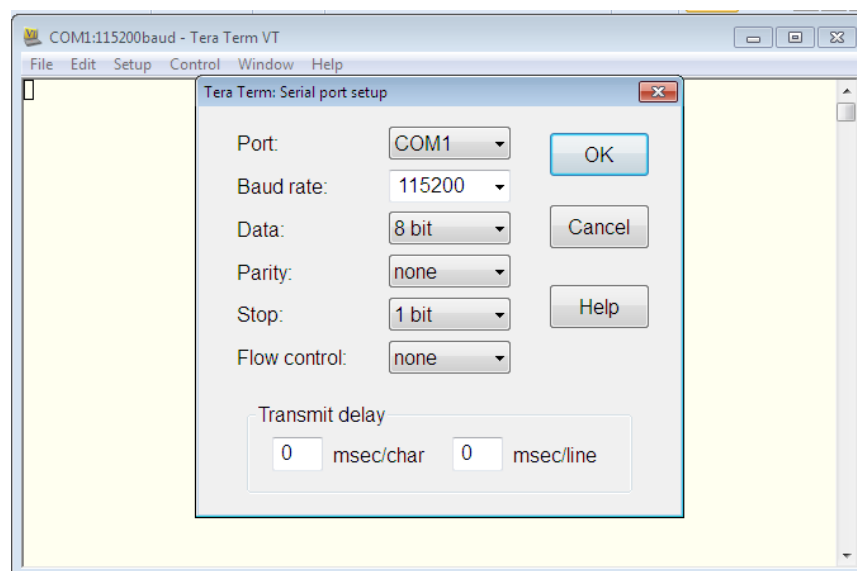
Baud rate: 115200 [bps]

Data: 8 bit

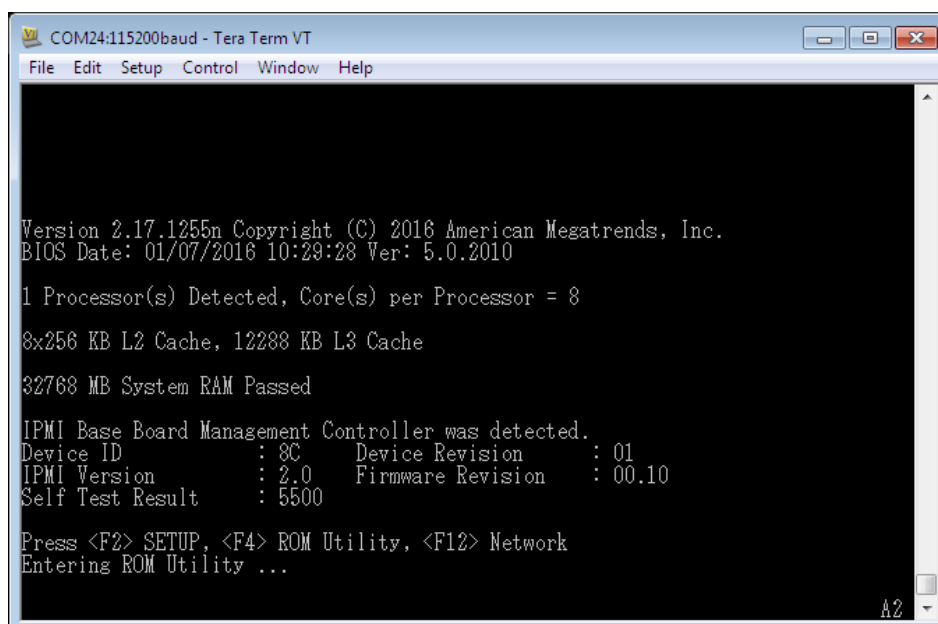
Parity: none

Stop: 1 bit

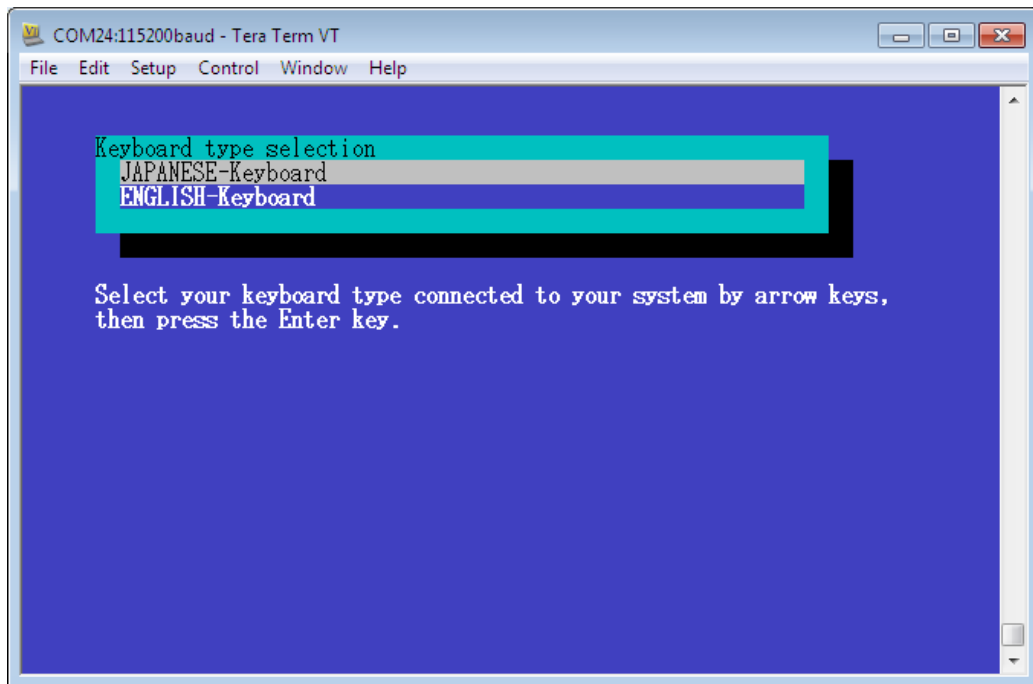
Flow control: none



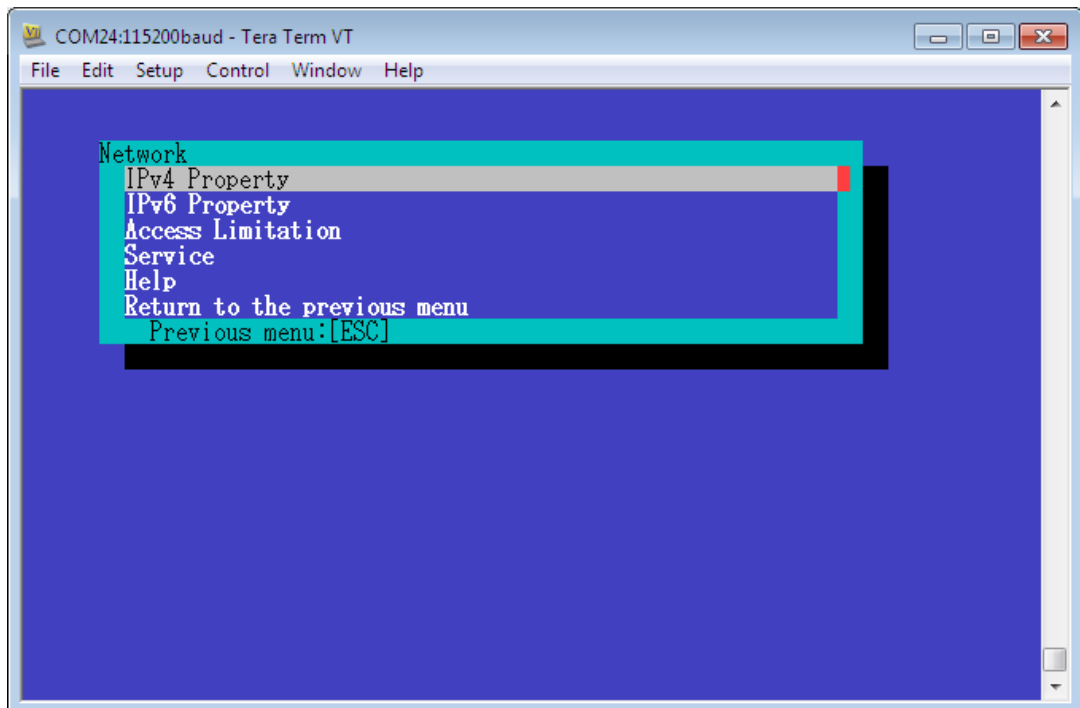
2. To connect Deploy server modules, select "Silicon Labs Quad CP210x USB to UART Bridge: Interface 0 (COMxx)".
3. When you start Deploy server modules, the POST progress status is displayed on the Tera Term screen as shown below.
Press the F4 key during POST and select ROM Utility. Use a keyboard connected to Deploy server modules.



4. ROM Utility starts and displays the Keyboard selection screen at the beginning.
Select a keyboard type.

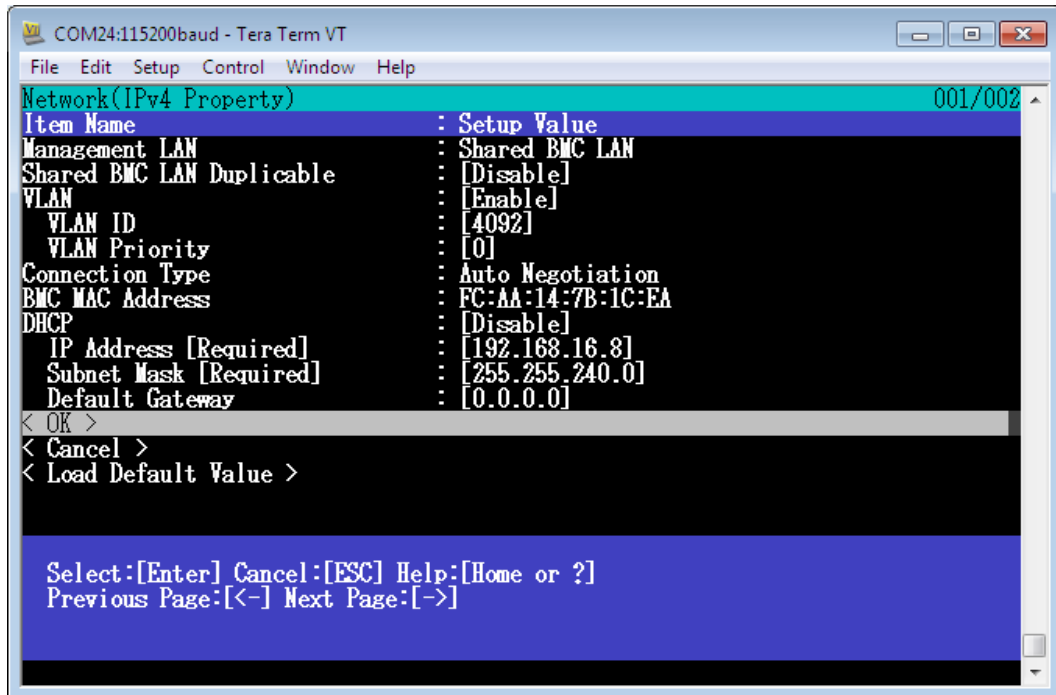


5. Change the BMC network setting from the Server Configuration Utility Menu.
Select the menu as follows. [Server Configuration Utility Menu] - [EXPRESSSCOPE Engine 3] - [Configuration] - [Network] - [IPv4 Property]



6. Set the following from the IPv4 Property menu of Network.
 - DHCP: Enable → Disable
 - IP Address: 192.168.16.8
 - Subnet Mask: 255.255.240.0

After changing items described above, select < OK > and press the [Enter] key to reflect the setting.



7. After the setting is reflected, confirm the connection to BMC.

(2) Redisplaying the Management Tool window

If you have closed the Management Tool window by mistake, you can redisplay it in the following steps.

1. On the system diagnostic management tool, select [Applications], [System tools] and [Terminal] on the top of the screen and start a local terminal.
2. The following command redisplay the Management Tool window.

```
# /usr/local/td/tedoli
```

It may take 4 minutes or more to display "MNG PC>" prompt due to module search.

(3) Changing the test time of the diagnostic tool

When you execute the diagnostic tool (TeDoLi) on the system diagnostic management tool, the test time is set to 8 minutes by default. If you want to change the execution time, change the following configuration file.

The setting time range is 1 to 9999 [min.].

1. On the system diagnostic management tool, select [Applications], [System tools] and [Terminal] on the top of the screen to start a terminal.
2. Open the configuration file by using the following command.

```
[root@TD ~]# vi-N /var/lib/tftpboot/tedoli.conf
```

3. Change the setting as shown below.

```
select all
desel LOM-PORT
:
time 8          * Change this value. For example, set "30" to set 30 minutes.
exec
```

(4) Network testing with the diagnostic tool

This section describes how to test a network with the system diagnostic management tool. Network test is disabled by default. Change the following configuration file.

1. On the system diagnostic management tool, select [Applications], [System tools] and [Terminal] on the top of the screen to start a terminal.
2. Open the configuration file by using the following command.

```
[root@TD ~]# vi-N /var/lib/tftpboot/tedoli.conf
```

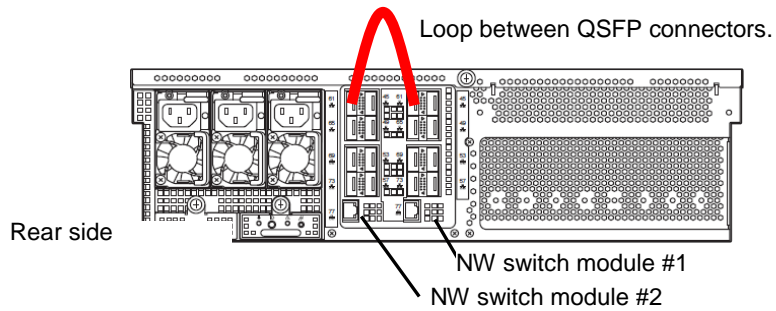
3. Change the setting as shown below.

```
select all
desel LOM-PORT          * Delete this line.
desel ETH-PORT         * Delete this line.
param -s all LOM-PORT eec
param -s all ETH-PORT eec
outcmd "ethtool -A eth2 rx on tx on"
outcmd "ethtool -A eth3 rx on tx on"
time 8
exec
```

4. Connect QSFP modules of NW switch modules #1 and #2 with the cable.

QSFP port numbers are not necessarily the same. However, connect modules to enable communication between QSFP ports of each NW switch module.

A network test of the diagnostic test tool performs data communication to LAN#1 and LAN#2 of the server module. Therefore, you need to connect NW switch modules with the cable and enable communication between LAN#1 and LAN#2 of the server module.



5. Conduct a diagnosis test. Set Flow Control to ON of all QSFP ports for NW switch module setting to conduct a network test in multiple server modules at a time. See "Configuration guide DX2000 LAN Switch software" for NW switch module setting.

7. Server Management Utility

This section describes how to operate the Server Management Utility stored on the DX2000 Utility Disk that comes with this server.

- Server Management Utility

Starting the server: insert the DX2000 Utility disk of the server management terminal into the CD/DVD-ROM drive and copy the contents to LinuxOS of the server management terminal to use it.

Function: You can check the information of modules implemented on this server.

You can turn on/off the UID LED on each module installed on this server.

You can control the power on/off of the server module installed on this device.

You can initialize the BMC network setting of the server module installed on this device.

You can restart the BMC of the server module installed on this device.

You can restart the NW switch module installed on this device.

7.1 Server Management Utility

Use the Server Management Utility to set, manage and maintain this server. We recommend that you permanently set a PC on which the Server Management Utility can be executed (described as server management terminal here).

Execute the Server Management Utility with the root authority.

Move the Server Management Utility to the directory in which you installed the Server Management Utility before executing it.

The Server Management Utility communicates with CSC modules and server modules in this server to get information.

The Server Management Utility can manage multiple DX2000 servers connected to the network.

The Server Management Utility identifies and displays each server based on the serial number on the chassis of each device. It can also control a specific server only when the IP address of the CSC module is specified.

7.1.1 Preparation

- Use the Server Management Utility after installing it on a server management terminal. Use a PC with at least one LAN port on which you can install Linux (64bit).
- Install Linux (64bit) on a server management terminal. The utility does not work on Linux (32bit).
(We have confirmed that the Server Management Utility operates on CentOS6.4 (x86_64).)
- Install the ipmitool (Version 1.6.0 or later) on a server management terminal.
- Assign an IP address that can communicate with the CSC module/server module as the IP address of the server management terminal. Make sure that the following communication can be performed.
 1. If the server management terminal and CSC module/server module are in the same segment, a response from the CSC module/server module can be received when an ARP request (arping) is sent from the server management terminal.
 2. If the server management terminal and CSC module/server module are in different segments, a response from the CSC module/server module can be received when a ping is sent from the server management terminal.
 3. Information can be obtained from the CSC module/server module successfully when ipmitool is executed on the server management terminal (Default User: Mainte, Password: Mainte).

The following figure is an example of connection when using Server Management Utility.

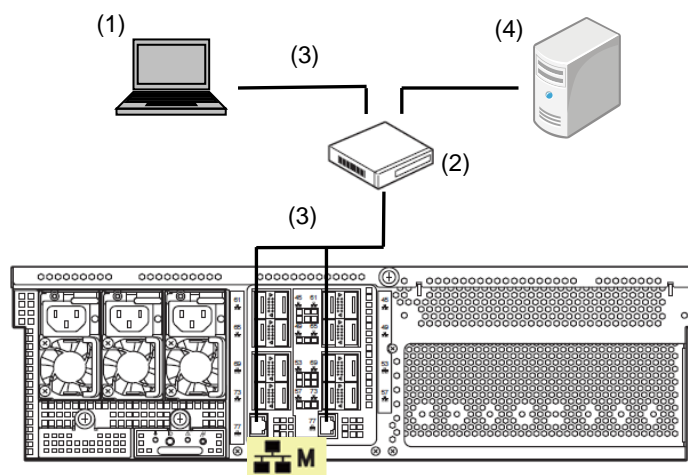


Image for connecting

- (1) Server Management Terminal
- (2), (3) Switching hub, LAN cable
Connect LAN cables to the management LAN on the NW switch module #1, #2
- (4) DHCP Server
You need this to allocate an IP address to CSC/server modules by DHCP.

7.1.2 Install

Copy the “Server Management Utility” from “applications/utl” folder of DX2000 Utility Disk to server management terminal.

Then, add appropriate owner and execution authority to “Server Management Utility” to be run by the root user.

Example)

Install(Copy) it in /opt/mng directory at the mounting point (/mnt) of the DX2000 Utility Disk(DVD-ROM) on the server management terminal.

```
# mkdir /opt/mng
# cp /mnt/applications/utl/mng_util /opt/mng
# chown root:root /opt/mng/mng_util
# chmod u+x /opt/mng/ mng_util
# cd /opt/mng
```

7.1.3 Starting the management utility

After installing the management utility, execute the mng_util command at the installation directory and start the management utility. When executing the mng_util command, specify the username and password that has the permission to access CSC modules and server modules.

If the username and password are omitted, default settings (username: Mainge; password; Mainte) is used.

```
> ./mng_util -U username -P password
mng_util version 01.05
>
```

7.1.4 Command Table

Commands used in Management Utility is listed below. The detail of each command is described in the following pages.

Command	Function
search	Searches each module
slotlist	Displays implemented modules
niclist	Displays IP/MAC address
frulist	Displays FRU/GUID
uidon	Turns on UID LED
uidoff	Turns off UID LED
saveist	Creates MAC address list
poweron	Turns on the power of the server module.
poweroff	Turns off the power of the server module
powerreset	Restarts the server module
powersoft	Shuts down the server module
getsel	Acquires SEL
bmclanclear	Initializes the BMC network setting of the server module
bmcreset	Restarts the BMC of the server module
nwreset	Restarts the NW switch module
quit	Quits the management utility
help	Displays a list of commands

7.1.5 Search (search)

Search IP addresses of BMC of CSC modules and server modules to get various kinds of information.
You can specify a pattern for a scope to search IP addresses.

- 1. Specifying a scope of the IP address
Search BMC of CSC modules and server modules from the scope of the specified IP address to display information. IP addresses and MAC addresses of the LAN for the modules that were found are grouped by chassis.
[Format] search [IP address Low]-[IP address High]

```
> search 192.168.0.01-192.168.0.254

Chassis serial : 123456789012
Board      ManagementLAN MAC IP      DataLAN1 MAC      DataLAN2 MAC
-----
CSC        94:DE:80:AB:01:91 192.168.0.1
LAN-SW1    94:DE:80:AB:02:A8 192.168.0.2
LAN-SW2    94:DE:80:AB:02:A9 192.168.0.3
CPU Board1 94:DE:80:AB:00:34 192.168.0.11 94:DE:80:AB:03:D2 94:DE:80:AB:03:D3
CPU Board2 94:DE:80:AB:00:35 192.168.0.12 94:DE:80:AB:03:D4 94:DE:80:AB:03:D5
CPU Board3 94:DE:80:AB:00:36 192.168.0.13 94:DE:80:AB:03:D6 94:DE:80:AB:03:D7
CPU Board4 94:DE:80:AB:00:37 192.168.0.14 94:DE:80:AB:03:D8 94:DE:80:AB:03:D9
```


2. Specifying a LAN segment of the server management terminal

Search network segment of the server management terminal for BMC of CSC modules and server modules to display information. IP addresses and MAC addresses of the LAN for the modules that were found are grouped by chassis.

[Format] search OWN

Example: When IP address is set to 192.168.0.15 and subnet mask 255.255.255.0 in the server management terminal, the modules are searched in the range of 192.168.0.0 to 192.168.0.255.

```
> search OWN

Chassis serial : 123456789012
Board          ManagementLAN MAC IP          DataLAN1 MAC    DataLAN2 MAC
-----
CSC            94:DE:80:AB:01:91 192.168.0.1
LAN-SW1        94:DE:80:AB:02:A8 192.168.0.2
LAN-SW2        94:DE:80:AB:02:A9 192.168.0.3
CPU Board1     94:DE:80:AB:00:34 192.168.0.11    94:DE:80:AB:03:D2 94:DE:80:AB:03:D3
CPU Board2     94:DE:80:AB:00:35 192.168.0.12    94:DE:80:AB:03:D4 94:DE:80:AB:03:D5
CPU Board3     94:DE:80:AB:00:36 192.168.0.13    94:DE:80:AB:03:D6 94:DE:80:AB:03:D7
CPU Board4     94:DE:80:AB:00:37 192.168.0.14    94:DE:80:AB:03:D8 94:DE:80:AB:03:D9
```

Important

When many valid IP addresses are contained in the search range, there is a possibility that the target CSC modules or server modules may not be found. In such a case, change the settings in the server management terminal to set the sufficient value for the maximum number of ARP cache entries for the server management terminal.

7.1.6 Implemented module display (slotlist)

Display the implementation information obtained by search commands by sorting by chassis.

```
[Format] slotlist -I [CSC module] -C [module number]

options)
  -I [CSC module]
    : all      ... All CSC modules found by search commands
    : IP address ... IP address of the CSC module
  -C [module number]
    : all      ... CSC module and all server modules
    : number   ... CSC module (0) / server modules (1 - 44)
```

Important

Because one CSC module is installed on each device, the Server Management Utility controls the device using the IP address of the CSC module specified.

- Information displayed by implemented modules
 - Chassis serial: Serial number of the chassis on which the CSC module specified by IP address is mounted
 - Slot: Slot number in the chassis
 - Module Type: Module type
 - CSC ... CSC module
 - CPU Board ... server module
 - PCI Board ... PCI module
 - ... Module not installed
 - N Code: A part of FRU data of the module
 - Power: Power state of the module
 - Status: Status state of the module
 - UID: UID state of the module

> slotlist -I 192.168.0.1 -C 0-3					
Chassis serial : 123456789012					
Slot	Module Type	N Code	Power	Status	UID
CSC	CSC	[N8100-xxx]	Green	Amber	Blue
Slot1	CPU_Board	[N8100-xxx]	OFF	OFF	OFF
Slot2	PCI_Board	-	-	-	-
Slot3	-	-	-	-	-

7.1.7 IP/MAC address display (niclist)

Display the IP address and the MAC address of LAN obtained by search commands by sorting by chassis information.

[Format] niclist -I [CSC module] -C [module number]

options)

-I [CSC module]

: all

... All CSC modules found by search commands

: IP address

... IP address of the CSC module

-C [module number]

: all

... CSC module, NW switch module and all server modules

: number

... CSC module, NW switch module (0) / server modules(1 - 44).

• IP/MAC address display information

Chassis serial: Serial number of the chassis on which the CSC module specified by IP address is mounted

Board: Implemented module type:

CSC ... CSC module

LAN-SW ... NW switch module

CPU board ... Server module

Management LAN MAC: MAC address of the management LAN

IP: IP address of the management LAN

DataLAN1 MAC: MAC address of NW switch module #1 in each server module

DataLAN2 MAC: MAC address of NW switch module #2 in each server module

```
> niclist -I all -C all
```

Chassis serial : 123456789012

Board	ManagementLAN MAC	IP	DataLAN1 MAC	DataLAN2 MAC
CSC	94:DE:80:AB:01:91	192.168.0.1		
LAN-SW1	94:DE:80:AB:02:A8	192.168.0.2		
LAN-SW2	94:DE:80:AB:02:A9	192.168.0.3		
CPU Board1	94:DE:80:AB:00:34	192.168.0.11	94:DE:80:AB:03:D2	94:DE:80:AB:03:D3
CPU Board2	94:DE:80:AB:00:35	192.168.0.12	94:DE:80:AB:03:D4	94:DE:80:AB:03:D5
CPU Board3	94:DE:80:AB:00:36	192.168.0.13	94:DE:80:AB:03:D6	94:DE:80:AB:03:D7
CPU Board4	94:DE:80:AB:00:37	192.168.0.14	94:DE:80:AB:03:D8	94:DE:80:AB:03:D9

Chassis serial : 234567890123

Board	ManagementLAN MAC	IP	DataLAN1 MAC	DataLAN2 MAC
CSC	94:DE:80:AB:01:92	192.168.1.1		
LAN-SW1	94:DE:80:AB:02:AA	192.168.1.2		
LAN-SW2	94:DE:80:AB:02:AB	192.168.1.3		
CPU Board1	94:DE:80:AB:00:44	192.168.1.11	94:DE:80:AB:03:E2	94:DE:80:AB:03:E3

:

7.1.8 FRU/GUID display (frulist)

Display the FRU/GUID information obtained by search commands by sorting by chassis information.

[Format] frulist -I [CSC module] -C [module number]

options)

-I [CSC module]

: all ... All CSC modules found by search commands
: IP address ...IP address of the CSC module

-C [module number]

: all ... CSC module, all server modules
: number ... CSC module (0) / server modules(1 - 44).

• FRU/GUID display information

Chassis serial: Serial number of the chassis on which the CSC module specified by IP address is mounted

Board: Implemented module type

Firmware Revision: Firmware revision of BMC of the CSC module and each server module

System GUID: GUID included in FRU of the CSC module and each server module

FRU data managed by each module for subsequent lines after that beginning with "-- CSC --"

```
> frulist -I 192.168.0.11 -C all
```

```
Chassis serial : 123456789012
```

```
Board          Firmware Revision System GUID
```

```
-----
CSC            1.8                0006ce2c-0f6a-e311-0180-94de80aafdee
CPU Board1     1.8                001280c9-ca2e-e011-0180-94de80ab02d8
CPU Board2     1.8                8062477d-136a-e311-0180-94de80aafea4
-----
```

```
-- CSC
```

```
-----
Board Mfg Date      : Fri Oct 16 10:21:00 2015
Board Mfg           : GIGABYTE
Board Product       : CACME1-0
Board Serial        : 123456789012
Board Part Number   : 856-180748-104
Product Manufacturer : NEC
Product Name        : DX2000
Product Part Number : [N8400-6202]
Product Version     : FR1.0
Product Serial      : 123456789ABCDE
Product Asset Tag    : _____
Product Extra       : 01
-----
```

```
-- CPU Board1
```

```
-----
Board Mfg Date      : Fri Oct 16 19:48:00 2015
Board Mfg           : GIGABYTE
:
-----
```

7.1.9 UID LED Light On (uidon)

UID LED of the CSC module and server modules light up.

[Format] uidon -I [CSC module] -C [module number]

options)

-I [CSC module]

: all ... All CSC modules found by search commands
: IP address ... IP address of the CSC module

-C [module number]

: all ... CSC module, all server modules
: number ... CSC module (0) / server modules(1 - 44).

```
> uidon -I 192.168.0.11 -C 10
```

7.1.10 UID LED Light Off (uidoff)

UID LED of the CSC module and server modules turn off.

[Format] uidoff -I [CSC module] -C [module number]

options)

-I [CSC module]

: all ... All CSC modules found by search commands
: IP address ... IP address of the CSC module

-C [module number]

: all ... CSC module, all server modules
: number ... CSC module (0) / server modules(1 - 44).

```
> uidoff -I 192.168.0.11 -C 10
```

7.1.11 Creating MAC address list (savelist)

Output the information of the IP address and the MAC address of LAN obtained by search commands.

Output formats include CSV format and dhcp.conf format.

1. CSV format

[Format] savelist -I [CSC module] -f [file path]

options)

-I [CSC module]

: all ... All CSC modules found by search commands

: IP address ... IP address of the CSC module

-f [file path]

: Output destination file path name

```
> savelist -I all -f /tmp/aaa.csv
```

Output file sample

```
# Chassis serial, Board, ManagementLAN MAC, ManagementLAN IP, DataLAN1 MAC, DataLAN2 MAC
123456789012, CSC, 94:DE:80:AB:01:91, 192. 168. 0. 1, ,
123456789012, LAN-SW1, 94:DE:80:AB:02:A8, 192. 168. 0. 2, ,
123456789012, LAN-SW2, 94:DE:80:AB:02:A9, 192. 168. 0. 3, ,
123456789012, CPU Board1, 94:DE:80:AB:00:34, 192. 168. 0. 11, 94:DE:80:AB:03:D2, 94:DE:80:AB:03:D3
123456789012, CPU Board2, 94:DE:80:AB:00:35, 192. 168. 0. 12, 94:DE:80:AB:03:D4, 94:DE:80:AB:03:D5
123456789012, CPU Board3, 94:DE:80:AB:00:36, 192. 168. 0. 13, 94:DE:80:AB:03:D6, 94:DE:80:AB:03:D7
123456789012, CPU Board4, 94:DE:80:AB:00:37, 192. 168. 0. 14, 94:DE:80:AB:03:D8, 94:DE:80:AB:03:D9
```

2. dhcp.conf format

[Format] savelist -I [CSC module] -f [file path] -dhcpconf

options)

-I [CSC module]

: all ... All CSC modules found by search commands

: IP address... IP address of the CSC module

-f [file path]

: Output destination file path name

```
> savelist -I all -f /tmp/aaa.conf -dhcpconf
```

Output file sample

```
host client01001{
    hardware ethernet 94:DE:80:AB:01:91;
}
host client01002{
    hardware ethernet 94:DE:80:AB:02:A8;
}
host client01003{
    hardware ethernet 94:DE:80:AB:02:A8;
}
:
:
:
host client01441{
    hardware ethernet 94:DE:80:AB:03:D8;
}
host client01442{
    hardware ethernet 94:DE:80:AB:03:D9;
}
host client01443{
    hardware ethernet 94:DE:80:AB:03:D9;
}
```

Name host names as shown below.

clientAABBC

AA: Identification number of the chassis

Sort serial numbers in ascending order and allocate them from 01 in sequence.

BB: Slot number

00: CSC and NW switch module

01-44: server module

C : Identification number of LAN

⇒ See below for CSC and NW switch module

1: CSC module

2: NW switch module #1

3: NW switch module #2

⇒ See below for Server module.

1: BMC of the server module

2: LAN of NW switch module #1 in each server module

3: LAN of NW switch module #2 in each server module

7.1.12 Power-on (poweron)

Turn on the power of the server module.

[Format] poweron -I [CSC module] -C [module number]

options)

-I [CSC module]

: all ... All CSC modules found by search commands
: IP address ... IP address of the CSC module

-C [module number]

: all ... All server modules
: number ... Server modules(1 - 44)

```
> poweron -I 192.168.0.1 -C 10
```

7.1.13 Power-off (poweroff)

Turn off the power of the server module.

[Format] poweroff -I [CSC module] -C [module number]

options)

-I [CSC module]

: all ... All CSC modules found by search commands
: IP address ... IP address of the CSC module

-C [module number]

: all ... All server modules
: number ... Server modules(1 - 44)

```
> poweroff -I 192.168.0.1 -C 10
```

7.1.14 Power restart (powerreset)

Restart the power of the server module.

[Format] powerreset -I [CSC module] -C [module number]

options)

-I [CSC module]

: all ... All CSC modules found by search commands
: IP address ... IP address of the CSC module

-C [module number]

: all ... All server modules
: number ... Server modules(1 - 44)

```
> powerreset -I 192.168.0.1 -C 10
```


7.1.15 Shut down (powersoft)

Shut down the server module.

[Format] powersoft -I [CSC module] -C [module number]

options)

-I [CSC module]

: all ... All CSC modules found by search commands

: IP address ... IP address of the CSC module

-C [module number]

: all ... All server modules

: number ... Server modules(1 - 44)

```
> powersoft -I 192.168.0.1 -C 10
```

7.1.16 SEL acquisition (getsel)

Acquire SEL of the CSC module/server module.

A directory with the serial number of the chassis is created under the specified directory, and files with SEL written in the IPMI information format are output for each module.

The obtained file can be viewed with the IPMI Viewer.

[Format] getsel -I [CSC module] -C [module number] -d [directory path]

options)

-I [CSC module]

: all ... All CSC modules found by search commands

: IP address ... IP address of the CSC module

-C [module number]

: all ... All CSC modules found by search commands

: number ... CSC module (0) / server modules(1 - 44)

-d [directory path]

: Output destination directory path name

```
> getsel -I 192.168.0.1 -C 10 -d /tmp
```

7.1.17 BMC network setting initialization (bmclanclear)

Initialize the BMC network setting of the server module.

After this command is used, the BMC network setting of the server module is changed to the default setting. Be careful when using this command because communication may become unavailable depending on the environment.

For the initial values of the BMC network, refer to "4. Connection to BMC" in Chapter 3 of the DX2000 User's Guide.

[Format] `bmclanclear -I [CSC module] -C [module number]`

options)

`-I [CSC module]`

: all ... All CSC modules found by search commands
: IP address ... IP address of the CSC module

`-C [module number]`

: all ... All server modules
: number ... Server modules(1 - 44)

```
> bmclanclear -I 192.168.0.1 -C 10
```

7.1.18 BMC restart (bmcreset)

Restart the BMC of the server module.

After this command is used, the target BMC is in the restart processing and cannot respond for about 60 seconds.

[Format] `bmcreset -I [CSC module] -C [module number]`

options)

`-I [CSC module]`

: all ... All CSC modules found by search commands
: IP address ... IP address of the CSC module

`-C [module number]`

: all ... All server modules
: number ... Server modules(1 - 44)

```
> bmcreset -I 192.168.0.1 -C 10
```

7.1.19 NW switch module restart (nwreset)

Restart the NW switch module.

After this command is used, the target NW switch module is in the restart processing, and the connection environment via the NW switch module cannot respond for about 120 seconds.

Note that restarting the NW switch module affects the network of the operating system side.

[Format] nwreset -I [CSC module] -N [module number]

options)

-I [CSC module]

: all

... All CSC modules found by search commands

: IP address

... IP address of the CSC module

-N [module number]

: number

... NW switch modules (1, 2)

```
> nwreset -I 192.168.0.1 -N 1
```

7.1.20 Quit (quit)

Quit the management utility.

[Format] quit

```
> quit
```

Useful Features

This chapter describes useful features for using the server. Refer to this chapter according to your purpose and need.

1. Server Module BIOS

Describes how to configure the server module BIOS settings and parameters.

1. Server Module BIOS

You can check and change the parameters for server modules by using the BIOS Setup utility (SETUP). To display the BIOS SETUP, use a console screen on Remote KVM of EXPRESSENGINGE 3 or use a SOL feature of ipmi. Refer to Chapter 3 (4.5 Setting Required for Using Serial over LAN (SOL)) in DX2000 User's Guide.

1.1 Starting SETUP

Refer to *Chapter 3 Setup* in *DX2000 User's Guide* and turn on the server module, and then proceed with POST. Wait until the following message appears at the bottom left of the screen.

Press <F2> SETUP

If you press <F2>, SETUP will start after POST, and the Main menu appears.

You can also start SETUP by pressing <F2> while expanding option ROM.

1.2 Parameter Descriptions

The SETUP utility has the following six major menus.

- Main menu
- Advanced menu
- Security menu
- Server menu
- Boot menu
- Save & Exit menu

These menus have submenus for relevant items. Selecting submenus allows you to configure further detailed parameters.

1.2.1 Main

If you start up the SETUP utility, the Main menu is displayed first.



Option	Parameter	Description
BIOS Information	—	—
BIOS Version	(Information only)	The BIOS version is displayed.
Build Date	(Information only)	The BIOS build date is displayed.
Access Level	(Information only)	Whether the user is logging in as an administrator or a user is displayed. If no password has been specified, “Administrator” is displayed.
UEFI Spec Version	(Information only)	UEFI version supported by this server
Memory Information	—	—
Total Memory	(Information only)	The total capacity of installed memory is displayed.
System Date	WWW MM/DD/YYYY	Set the system date.
System Time	HH:MM:SS	Set the system time

[]: Factory setting

Tips

Be sure to confirm that the date and time are correctly configured.

Check the system clock monthly. Additionally, if you implement the server in a system that requires highly accurate time, use of a time server (an NTP server) is recommended.

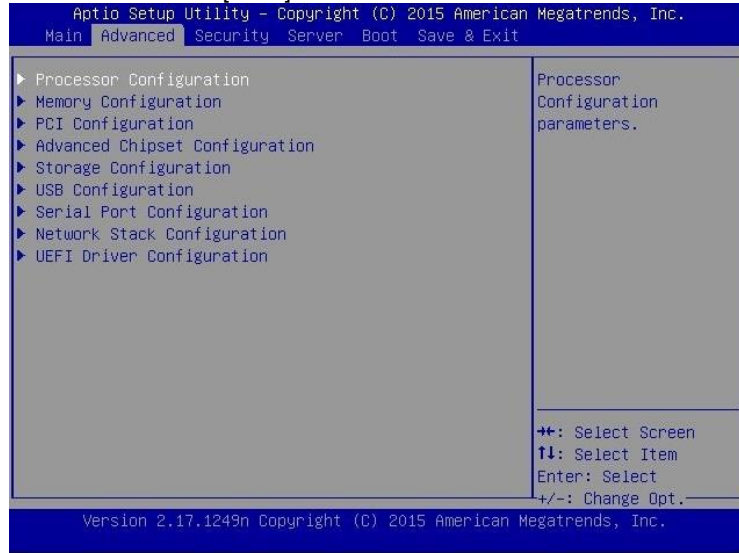
When you find the system clock significantly gain or lose time over time even by adjusting it, contact your dealer or a maintenance service company.

1.2.2 Advanced

If you move the cursor to Advanced, the Advanced menu appears.

For the menus that show a "►" to their left, select a menu and press the <Enter> key to display its submenu.

When Boot Mode is [UEFI]



When Boot Mode is [Legacy]

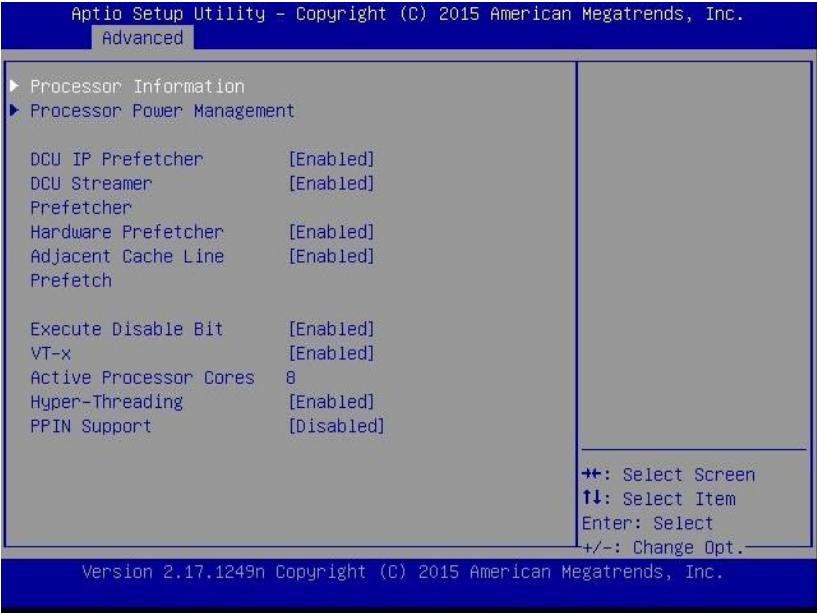


Note

You cannot select the Network Stack Configuration submenu and the UEFI Driver Configuration submenu when "Boot Mode" is [Legacy].

(1) Processor Configuration submenu

From the Advanced menu, select Processor Configuration and then press the <Enter> key to display the menu screen shown below. For the menu that has ► on the left, move the cursor to it and then press the <Enter> key to show its submenus.

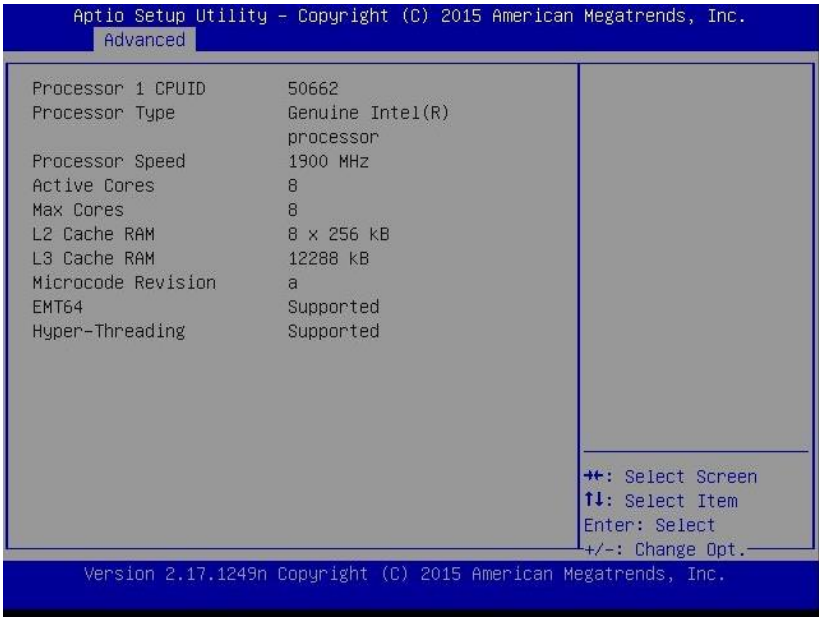


For details about the options, see the table below.

Option	Parameter	Description
Processor Information	—	—
Processor Power Management	—	—
DCU IP Prefetcher	Disabled [Enabled]	Enable or disable Data Cache Unit (DCU) IP Prefetcher of the processor.
DCU Streamer Prefetcher	Disabled [Enabled]	Enable or disable DCU Streamer Prefetcher of the processor.
Hardware Prefetcher	Disabled [Enabled]	Enable or disable the hardware Prefetcher.
Adjacent Cache Line Prefetch	Disabled [Enabled]	Enable or disable the optimization of accessing the cache from the memory.
Execute Disable Bit	Disabled [Enabled]	Enable or disable Execute Disable Bit feature. This option is displayed only when the installed processor supports this feature.
VT-x	Disabled [Enabled]	Enable or disable Intel Virtualization Technology (feature to virtualize processor).
Active Processor Cores	1-[X]	Specify the number of cores to enable in each processor package. The number of cores that can be specified depends on the processor installed. X indicates the maximum number of cores.
Hyper-Threading	Disabled [Enabled]	Enable or disable the function to execute two threads with one core. This is displayed only when the processor supporting this function is mounted.
PPIN Support	[Disabled] Enabled	Enable or disable Protected Processor Inventory Number (PPIN). This is displayed only when the processor supporting this function is mounted.

[]: Factory setting

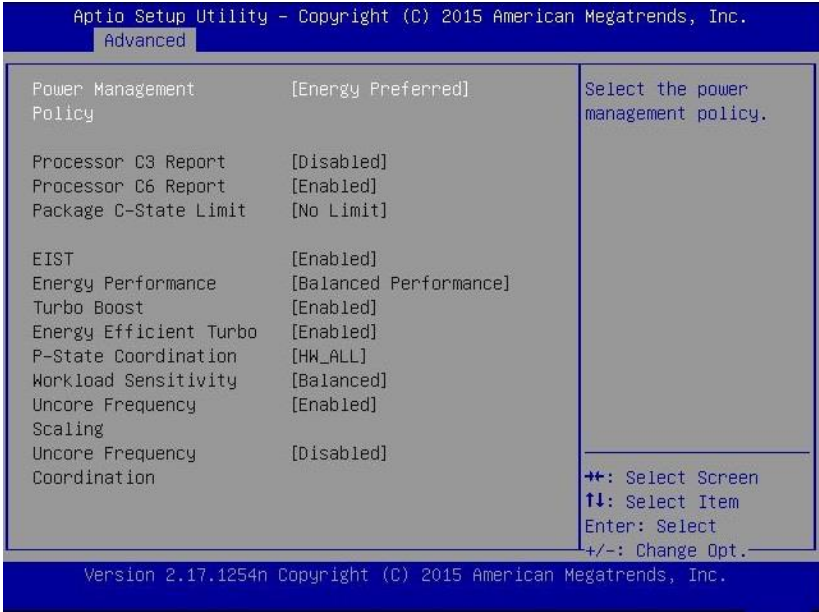
(a) Processor Information submenu



Option	Parameter	Description
Processor 1 CPUID	(Information Only)	ID of Processor 1
Processor Type	(Information Only)	Type of Processor 1
Processor Speed	(Information Only)	Clock speed of Processor 1
Active Cores	(Information Only)	Number of effective cores in Processor 1
Max Cores	(Information Only)	The maximum number of cores in Processor 1
L2 Cache RAM	(Information Only)	The secondary cache size of Processor 1
L3 Cache RAM	(Information Only)	The tertiary cache size of Processor 1
Microcode Revision	(Information Only)	The revision of the microcode applied to Processor 1 is displayed.
EMT64	(Information Only)	[Supported] is displayed when the processor 1 supports Intel 64 architecture.
Hyper-Threading	(Information Only)	[Supported] is displayed when the processor 1 supports Hyper-Threading Technology.

[]: Factory setting

(b) Processor Power Management submenu



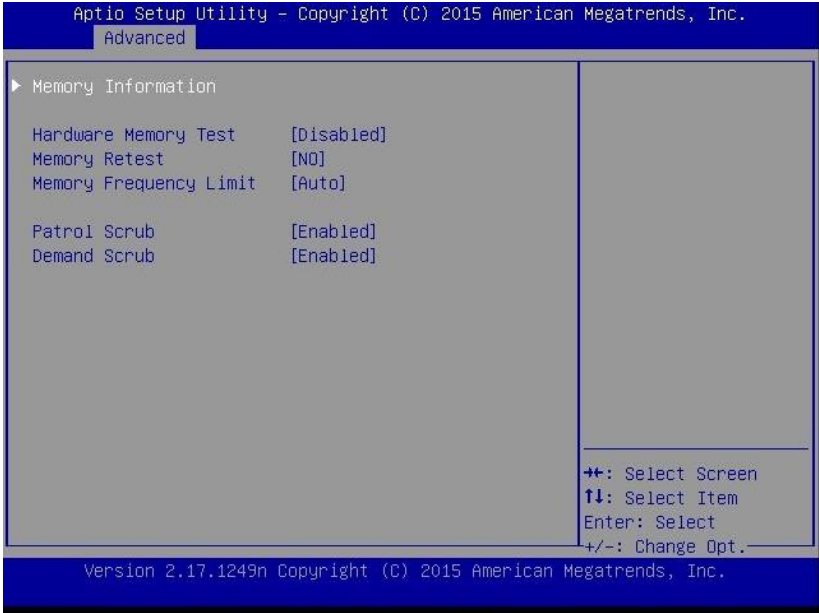
For details about the options, see the table below.

Option	Parameter	Description
Power Management Policy	Performance Preferred [Energy Preferred] Custom	Set Power Management Policy. Set this item to [Custom] to select the following menu items.
Processor C3 Report	[Disabled] Enabled	Enable or disable the function to report the availability of the processor C3 state to OS.
Processor C6 Report	Disabled [Enabled]	Enable or disable the function to report the availability of the processor C6 state to OS.
Package C-State Limit	C0/C1 C2 C6(non Retention) C6(Retention) [No Limit]	Specify the upper limit for Package C State of processor.
EIST	Disabled [Enabled]	Enable or disable the Enhanced Intel SpeedStep Technology feature. This option is displayed only when the installed processor supports this feature.
Energy Performance	Performance [Balanced Performance] Balanced Power Power	Set a ratio to decide whether a priority is given to the performance or the power saving in the operation of the processor. This item is displayed when you set "EIST" to [Enabled].
Turbo Boost	Disabled [Enabled]	Enable or disable the Turbo Boost Technology feature. This option is displayed only when the installed processor supports this feature.
Energy Efficient Turbo	Disabled [Enabled]	Enable or disable Energy Efficient Turbo. This item is displayed when you set. "EIST" to [Enabled] and "Turbo Boost" to [Enabled].
P-State Coordination	[HW_ALL] SW_ALL SW_ANY	Specify the P-STATE Coordination type. This parameter is displayed when EIST is set to "Enabled".
Workload Sensitivity	[Balanced] I/O sensitive	Set [I/O sensitive] when you want to put a higher priority to the system performance for the I/O workload.
Uncore Frequency Scaling	Disabled [Enabled]	Enable or disable the function to adjust the operating frequency of Uncore.
Uncore Frequency Coordination	[Disabled] Enabled	Enable or disable the function to adjust the operating frequency of Uncore between processors. This item is displayed when you set "Uncore Frequency Scaling" to [Enabled].

[]: Factory setting

(2) Memory Configuration submenu

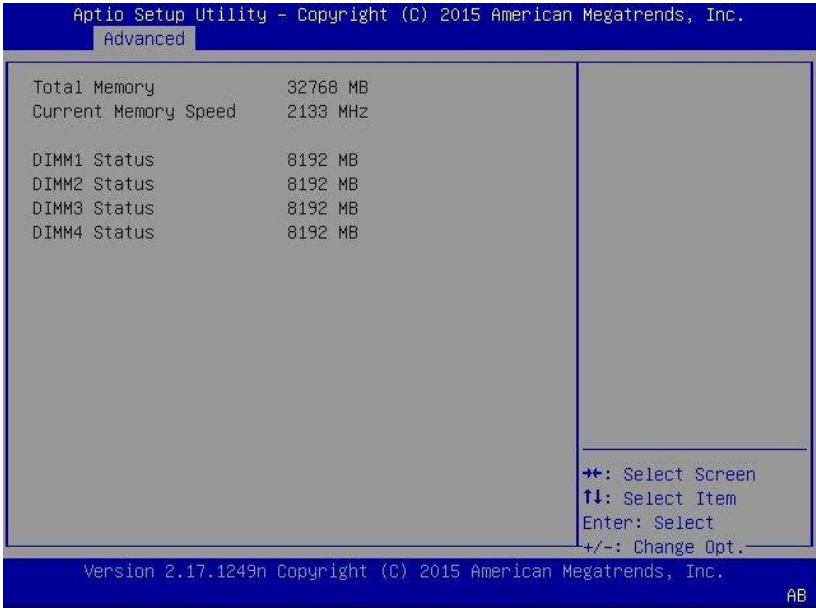
From the Advanced menu, select Memory Configuration and then press the <Enter> key to display the menu screen shown below. For the menu that has on the left, move the cursor to it and then press the <Enter> key to show its submenus.



Option	Parameter	Description
Memory Information	—	—
Hardware Memory Test	[Disabled] Enabled	Enable or disable to execute memory test during POST. When it is [Enabled] and an error is detected during memory test, the corresponding memory resource is reduced.
Memory Retest	[No] Yes	Set [Yes] to clear the error information in the memory and reconfigure all memories at next POST. This parameter automatically returns to [No] after memories are reconfigured.
Memory Frequency Limit	[Auto] 1600 MHz 1866 MH	Specify the upper limit of operating frequency of memory. The operating frequency may be lowered than the specified value depending on memory configuration.
Patrol Scrub	Disabled [Enabled]	Enable or disable memory RAS feature (Patrol Scrubbing).
Demand Scrub	Disabled [Enabled]	Enable or disable memory RAS feature (Demand Scrubbing).

[]: Factory setting

(a) Memory Information submenu

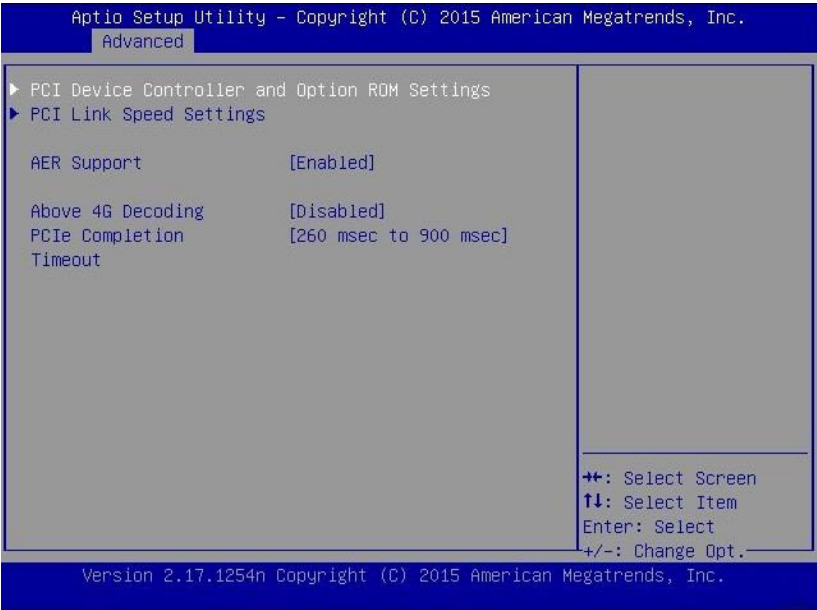


Option	Parameter	Description
Total Memory	(Information Only)	The physical capacity of installed memory is displayed.
Current Memory Speed	(Information Only)	The current memory operating frequency is displayed.
DIMM1-4 Status	(Information Only)	<div>The status of each DIMM is indicated as follows.</div> <div>[Value]: Normal: The value indicates the amount of memory.</div> <div>[Value (Error)]: In trouble (the memory is effective.) The value indicates the amount of memory.</div> <div>[Disabled]: In trouble: The memory is reduced.</div> <div>[Not Present]: Not implemented</div>

[]: Factory setting

(3) PCI Configuration submenu

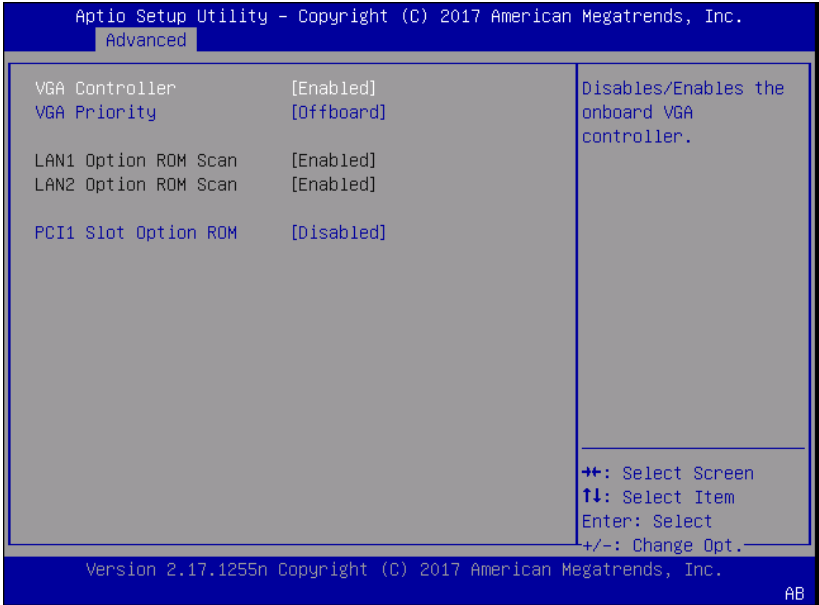
From the Advanced menu, select PCI Configuration and then press the <Enter> key to display the menu screen as shown below.



Option	Parameter	Description
PCI Device Controller and Option ROM Settings	—	—
PCI Link Speed Settings	—	—
AER Support	Disabled [Enabled]	Enable or disable the function to control PCIe Advanced Error Reporting from OS. Onboard LAN/VGA is precluded from this function.
Above 4G Decoding	[Disabled] Enabled	Enable or disable the function to map memory in the address space exceeding 64GB for 64bit PCIe devices.
PCIe Completion Timeout	50 μsec to 10 msec 16 msec to 55 msec 65 msec to 210 msec [260 msec to 900 msec] 1 sec to 3.5 sec 4 sec to 13 sec 17 sec to 64 sec	Set Completion Timeout time for PCIe devices.

[]: Factory setting

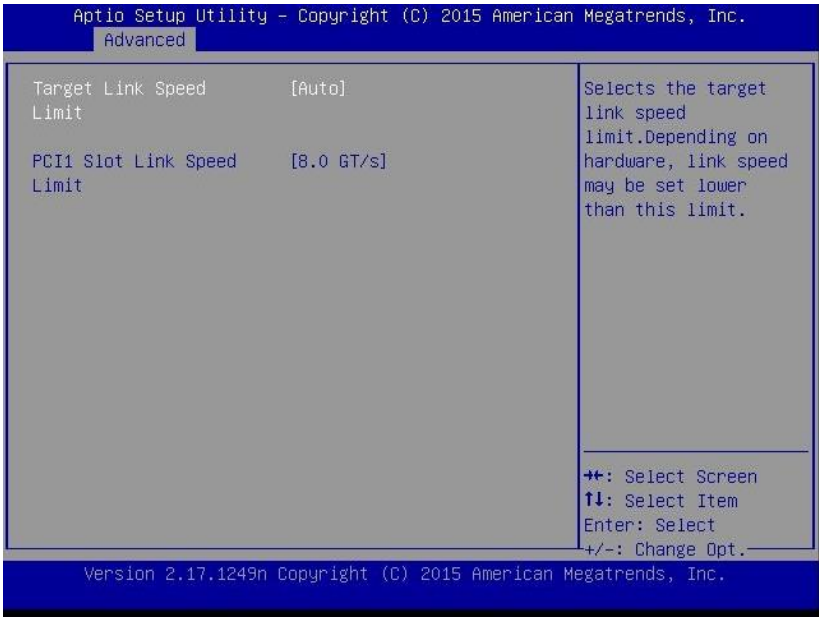
(a) PCI Device Controller and Option ROM Settings submenu



Option	Parameter	Description
VGA Controller	Disabled [Enabled]	Enable or disable the onboard VGA controller. This item is automatically set to [Enabled] when there is no valid VGA controller except those onboard and Serial Redirection is disabled.
VGA Priority	[Offboard] Onboard	Set a priority of the option ROM expansion of the VGA controller.
LAN1-2 Option ROM Scan	(Displayed)	Option ROM expansion status of the onboard LAN.
PCI1 Slot Option ROM	[Disabled] Enabled	Enable or disable the option ROM expansion of the PCI slot.

[]: Factory setting

(b) PCI Link Speed Settings submenu

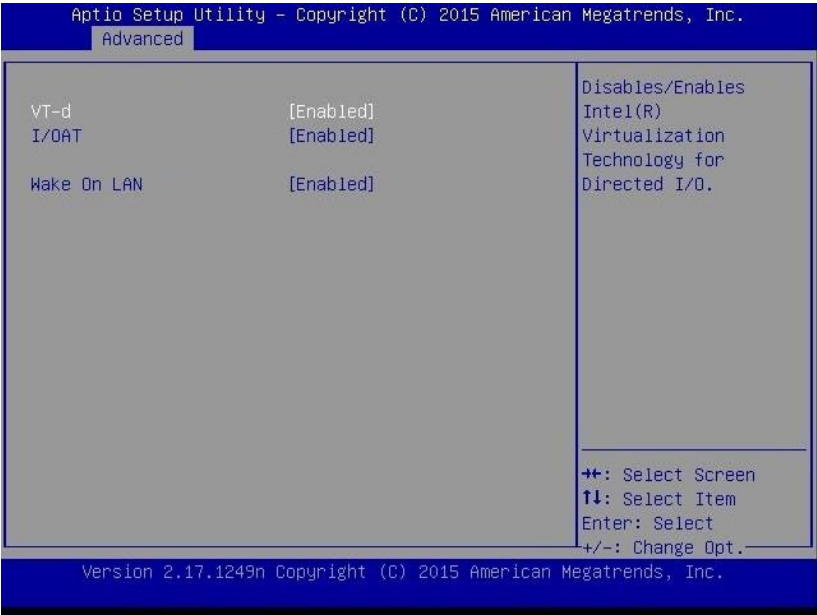


Option	Parameter	Description
Target Link Speed Limit	[Auto] 2.5GT/s 5.0GT/s	Set the upper limit of the Link speed of onboard PCI devices and PCI devices connected to PCI slots.
PCI1 Slot Link Speed Limit	2.5GT/s 5.0GT/s [8.0GT/s]	Set the upper limit of the Link speed of PCI slots in the range of the Link speed set by "Target Link Speed Limit".

[]: Factory setting

(4) Advanced Chipset Configuration submenu

From the Advanced menu, select Advanced Chipset Configuration and then press the <Enter> key to display the menu screen as shown below.

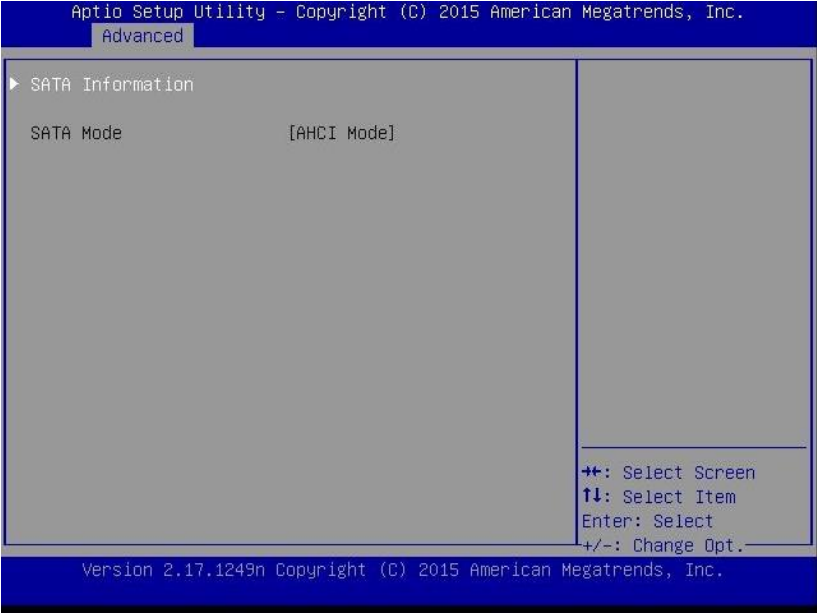


Option	Parameter	Description
VT-d	Disabled [Enabled]	Enable or disable Intel Virtualization Technology for Directed I/O (I/O virtualization support function). This is displayed only when a processor supporting this function is mounted.
I/OAT	Disabled [Enabled]	Enable or disable Intel I/O Acceleration Technology.
Wake On LAN	Disabled [Enabled]	Enable or disable the feature that remotely powers on through a network.

[]: Factory setting

(5) Storage Configuration submenu

From the Advanced menu, select Storage Configuration and then press the <Enter> key to display the menu screen shown below. For the menu that has ► on the left, move the cursor to it and then press the <Enter> key to show its submenus.



Option	Parameter	Description
SATA Information	—	—
SATA Mode	(Information only)	SATA Mode is displayed.

[]: Factory setting

(a) **SATA Information submenu**

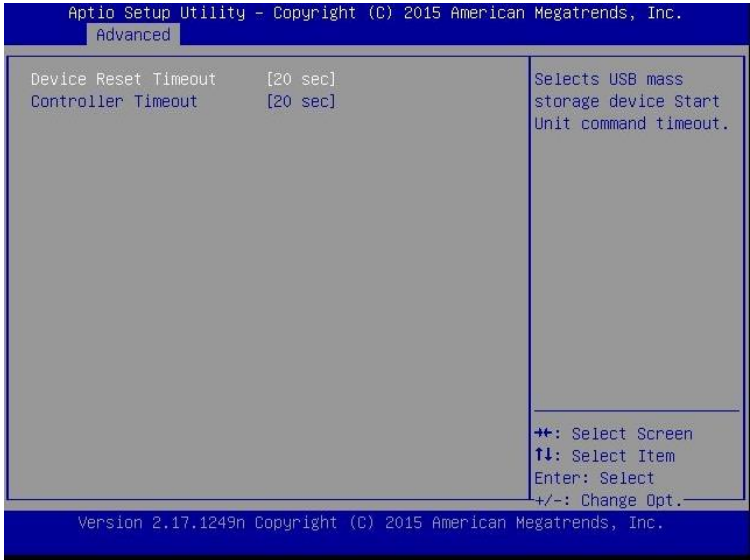


Option	Parameter	Description
SATA Port0	(Information Only)	Each device connected to each port is displayed. [Not Present] is displayed for those unconnected.

[]: Factory setting

(6) USB Configuration submenu

Select [USB Configuration] in the Advanced menu and press <Enter> key. The following screen is displayed.

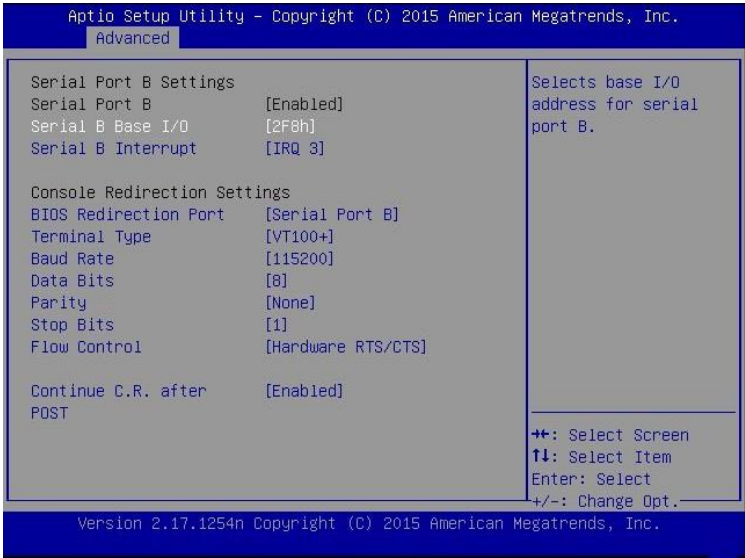


Option	Parameter	Description
Device Reset Timeout	10 sec [20 sec] 30 sec 40 sec	Set a timeout time to issue the Start Unit command to a USB device.
Controller Timeout	1 sec 5 sec 10 sec [20 sec]	Set a timeout time to issue Control, Bulk and Interrupt Transfer commands to the USB controller.

[]: Factory setting

(7) Serial Port Configuration submenu

Select [Serial Port Configuration] in the Advanced menu and press <Enter> key. The following screen is displayed.



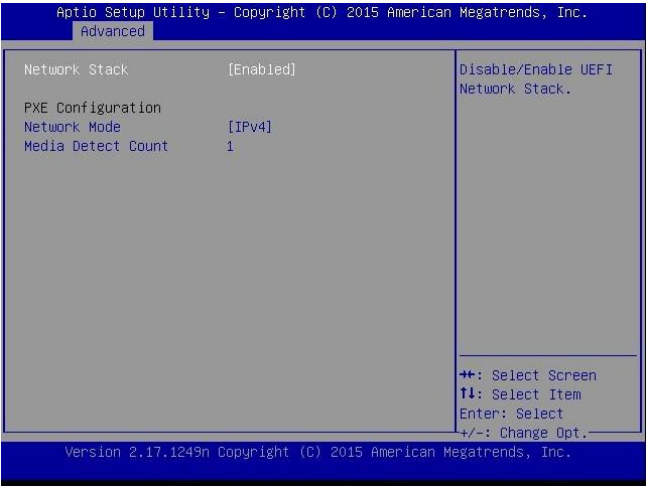
See the table in the next page for each item.

Option	Parameter	Description
Serial Port B Settings	—	—
Serial Port B	(Information only)	—
Serial B Base I/O	3F8h [2F8h] 3E8h 2E8h	Set the base I/O address of the serial port B.
Serial B Interrupt	[IRQ 3] IRQ 4	Set the interrupt of the serial port B.
Console Redirection Settings	—	—
BIOS Redirection Port	Disable [Serial Port B]	Enable or disable the console redirection function of the serial port. Set [Serial Port B] to use direct connection using a terminal such as ESMPRO/ServerManager. Set the screen size of a terminal to 80x25. The following connection set items are displayed.
Terminal Type	[VT100+] VT-UTF8 PC-ANSI	Select a type of the terminal.
Baud Rate	9600 19200 57600 [115200]	Set the baud rate.
Data Bits	7 [8]	Set a bit width of the data.
Parity	[None] Even Odd	Set a type of parity.
Stop Bits	[1] 2	Set a length of stop bits.
Flow Control	None [Hardware RTS/CTS]	Set a flow control method.
Continue C.R. after POST	Disabled [Enabled]	Set whether or not to continue console redirection after POST.

[]: Factory setting

(8) Network Stack Configuration submenu

Select [Network Stack Configuration] in the Advanced menu and press <Enter> key. The following screen is displayed.



Option	Parameter	Description
Network Stack	Disabled [Enabled]	Enable or disable UEFI network stack. Enable this function to display following menu items.
PXE Configuration	—	—
Network Mode	Disabled [IPv4] IPv6	Set PXE network mode.
Media Detect Count	[1]-50	Set a count to try detecting media to connect PXE.

[]: factory setting

(9) UEFI Driver Configuration submenu



Option	Parameter	Description
(UEFI Driver Name)	—	This item is displayed when the onboard LAN controller or the UEFI driver of each PCI device is loaded. This submenu varies depending on the UEFI driver.
Driver Health	—	—

(a) Driver Health submenu



Option	Parameter	Description
(UEFI Driver Name)	(Information only)	The status of UEFI Driver Health is displayed. This item is displayed when the onboard LAN controller or the UEFI driver of each PCI device is loaded and when the UEFI driver is compatible with Driver Health.

1.2.3 Security

If you move the cursor to Security, the Security menu appears. For the menu that has ► on the left, move the cursor to it and then press the <Enter> key to show its submenus. Then configure the settings.



Select Administrator Password or User Password, and then press the <Enter> key to display the screen where you can register/change the password.

Tips

- Set “Administrator Password” first before setting “User Password”.
- Do not set any password before installing OS.

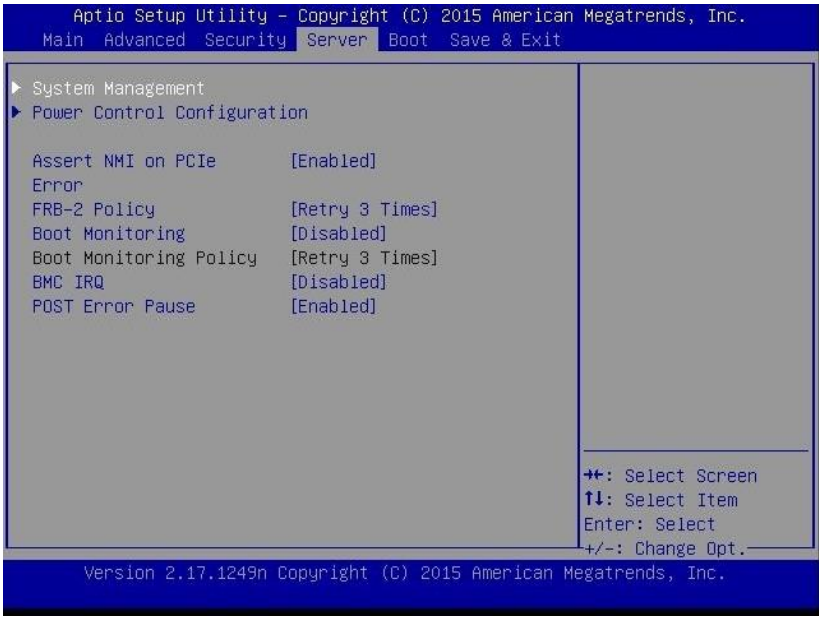
For details about the options, see the table below.

Option	Parameter	Description
Password Configuration	—	—
Administrator Password	3 to 20 alphanumeric characters	When the <Enter> key is pressed, the password entry screen to set administrative right is displayed. This password can be used to access all SETUP menus. Password can be set only when SETUP is started by administrative right. If no password is set, SETUP starts with administrative right.
User Password	3 to 20 alphanumeric characters	When the <Enter> key is pressed, the password entry screen to set user right is displayed. With this password, access to SETUP menus is limited. The user password can be set when SETUP is started by administrative right or user right.
Security Configuration	—	—
Remote Keyboard and Mouse	Disabled [Enabled]	Enable or disable remote keyboard supported by BMC and remote mouse function.

[]: Factory setting

1.2.4 Server

If you move the cursor to **Server**, the **Server** menu screen appears. For the menu that has ► on the left, move the cursor to it and then press the <Enter> key to show its submenus.



For details about the options, see the table below.

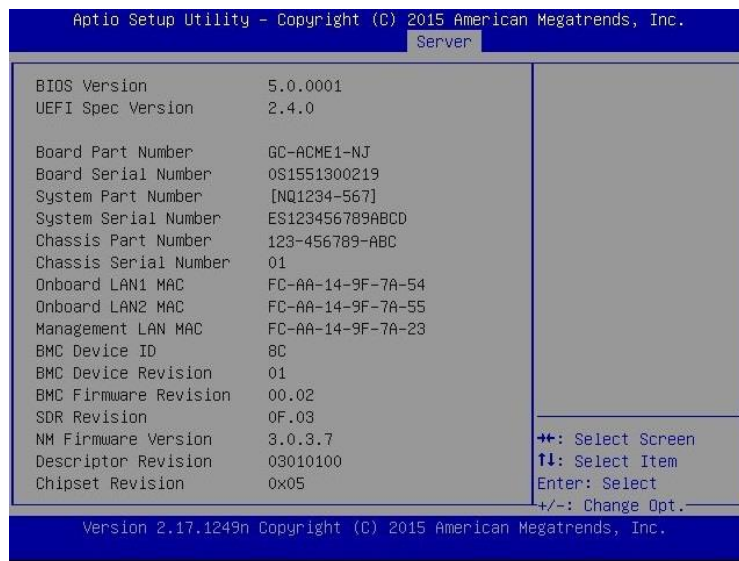
For the menu System Management, move the cursor to it and then press the <Enter> key to show its submenus.

Option	Parameter	Description
System Management	—	—
Power Control Configuraiton	—	—
Assert NMI on PCIe Error	Disabled [Enabled]	Enable or disable NMI issue function by detecting PCIe Uncorrectable errors and PCI PERR/SERR.
FRB-2 Policy	[Retry 3 Times] Disable FRB2 Timer Always Reset	Specify the system operation when an FRB level 2 error occurs.
Boot Monitoring	[Disabled] 5-60 minutes	Enabler or disable the boot monitoring function and set the timeout time. Install ESMPRO/ServerAgentService to use this function. Set this function to [Disabled] if ESMPRO/ServerAgentService is not installed.
Boot Monitoring Policy	[Retry 3 times] Always Reset	Set the operation to automatically reset this server when a timeout occurs during boot monitoring. Set [Retry 3times] to try starting OS up to 3 times. Set [Always Reset] to always start OS. Enable "Boot Monitoring" to select this function.
BMC IRQ	[Disabled] IRQ11	Set whether or not to allocate interrupt line to BMC.
Post Error Pause	Disabled [Enabled]	Enable or disable the function to deter starting OS until user entry when an error is detected during POST. Set [Disabled] to try starting OS without waiting for a user instruction.

[]: Factory setting

(1) System Management submenu

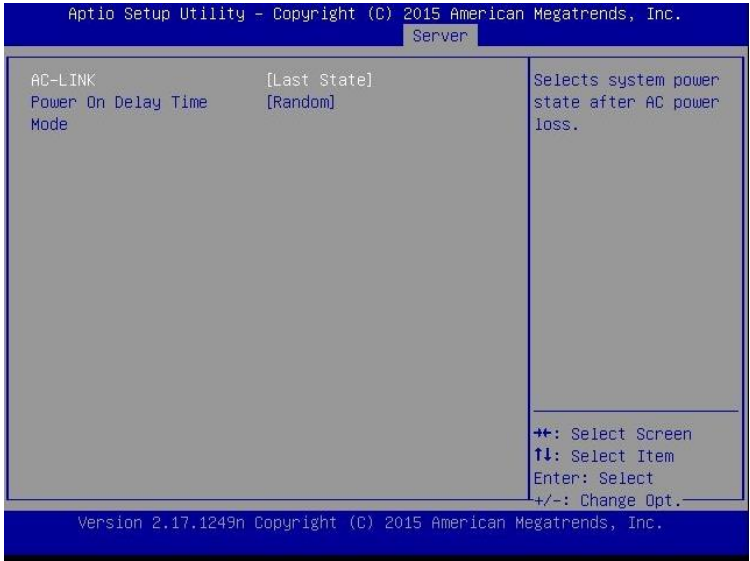
Select [System Management] in the Server menu and press <Enter> key. The following screen is displayed.



Option	Parameter	Description
BIOS Version	(Information Only)	BIOS version
UEFI Spec Version	(Information Only)	UEFI version supported by this server
MRC Version	(Information Only)	MRC version supported by this server
Board Part Number	(Information Only)	Part number of the mother board
Board Serial Number	(Information Only)	Serial number of the mother board
System Part Number	(Information Only)	Part number of the system
System Serial Number	(Information Only)	Serial number of the system
Chassis Part Number	(Information Only)	Part number of the chassis
Chassis Serial Number	(Information Only)	Serial number of the chassis
Onboard LAN1 MAC	(Information Only)	MAC address of the standard LAN1
Onboard LAN2 MAC	(Information Only)	MAC address of the standard LAN2
Management LAN MAC	(Information Only)	MAC address of the management LAN
BMC Device ID	(Information Only)	BMC device ID
BMC Device Revision	(Information Only)	BMC revision
BMC Firmware Revision	(Information Only)	BMC firmware revision
SDR Revision	(Information Only)	Sensor data record revision
NM Firmware Version	(Information Only)	Intel Node Manager firmware version
Descriptor Revision	(Information Only)	Descriptor revision
Chipset Revision	(Information Only)	Chipset revision

(2) Power Control Configuration submenu

Select [Power Control Configuration] in the Server menu and press <Enter> key. The following screen is displayed.



Option	Parameter	Description
AC-LINK	Stay Off [Last State] Power On	You can set the AC link function. Set the DC power status when the AC power is supplied again after the AC power is turned off. (See the attached table.)
Power On Delay Time Mode	Manually Setting [Random]	Select either “Setting with user input value” or “Setting with random value” for the waiting time until the DC power is turned on. Set [Last State] or [Power On] to AC-LINK to select this item.
Delay Time	[50]-600	Set a waiting time in seconds. The minimum configurable time may be changed from the factory setting. Set [Manually Setting] to “Power On Delay Time Mode” to select this item.

The table below shows AC-LINK setting and the DC power operation when the power is supplied again after the AC power turned off.

Status before the AC power is turned off	AC-LINK setting		
	Stay Off	Last State	Power On
Operating(DC power ON)	Off	On	On
Paused(DC power OFF)	Off	Off	On
Forced shutdown*	Off	On	On

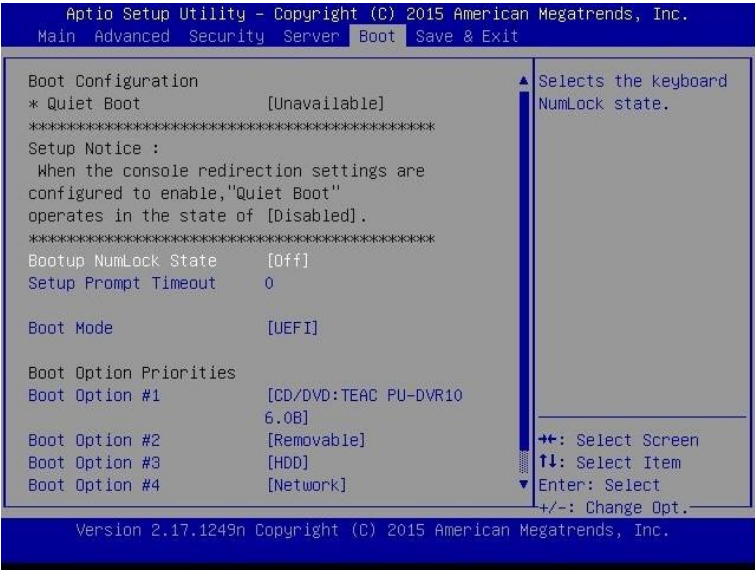
* Hold down the POWER switch at least 4 seconds. The power is forcibly turned off.

Tips

AC-LINK setting will be enabled next time when POST is executed.

1.2.5 Boot

If you move the cursor to Boot, the Boot menu where you can configure the boot order appears.



Option	Parameter	Description
Boot Configuration	—	—
Quiet Boot	Disabled [Enabled]	Enable or disable the function to display the logo during POST. Set [Disabled] to display the execution information during POST instead of the logo. When “BIOS Redirection Port” is enabled, [Unavailable] is displayed. You cannot change the setting (automatic operation in [Disabled]).
Bootup NumLock State	On [Off]	Enable or disable NumLock of the keyboard.
Setup Prompt Timeout	[0] - 65535	Set <F2> key input waiting time to start SETUP from 0 to 65535 seconds.
Boot Mode	Legacy [UEFI]	Set a boot mode. ● Set [UEFI] to this item for the following OS. — Red Hat Enterprise Linux 6(x86_64) — Red Hat Enterprise Linux 7(x86_64) — Windows Server 2012 R2 ● Set [Legacy] to this item for the following OS. — Red Hat Enterprise Linux 6(x86) — VMware ESXi 5 — VMware ESXi 6

[]: Factory setting

Option	Parameter	Description
Boot Option Priorities	—	—
Boot Option #1	—	These items display the priority of boot devices. If all of the Boot Options are set to Disabled, the SETUP starts running upon completion of POST. When making Boot device effective once again after changing Boot Option to [Disabled] once by a UEFI boot mode, it's also necessary to make Priorities of each device-type effective. When "Boot Mode" is changed, devices are displayed after rebooting.
Boot Option #2	—	
Boot Option #3	—	
Boot Option #4	—	
CD/DVD Priorities	—	Set a starting priority for each device type.
Removable Priorities	—	
HDD Priorities	—	
Network Priorities	—	

[]: Factory setting

How to change the priority of bootable devices

1. When BIOS detects a bootable device, information on the device is displayed in the designated area.
2. The boot priority (from first to forth) of the registered boot device can be changed by using <↑>/<↓> and <+>/<-> keys. Move the cursor to a device by using <↑>/<↓> keys, and change the priority by using <+>/<-> keys.

Priorities of bootable devices**(1) To connect multiple bootable devices**

The system boots a higher priority device set by Boot Option. If it failed in booting, it boots the next higher priority device of the same device type. If it failed to boot the lowest priority device of the same device type, it boots a higher priority device of the next device type.

For example, if there are two priorities in each device type, Boot Option and priorities of device types are as follows.

- Boot Option and priorities of device types (1 to 8)

1. Boot Option #1: CD/DVD

CD/DVD Priorities Boot Option #1 : CD/DVD device 1 ... (1)

CD/DVD Priorities Boot Option #2 : CD/DVD device 2 ... (2)

2. Boot Option #2: Removable

Removable Priorities Boot Option #1 : Removable device 1 ... (3)

Removable Priorities Boot Option #2 : Removable device 2 ... (4)

3. Boot Option #3: HDD

HDD Priorities Boot Option #1 : HDD device 1 ... (5)

HDD Priorities Boot Option #2 : HDD device 2 ... (6)

4. Boot Option #4: Network

Network Priorities Boot Option #1 : Network device 1 ... (7)

Network Priorities Boot Option #2 : Network device 2 ... (8)

(2) To add a bootable device

A new bootable device connected is registered as the lowest priority device of each device type.

(3) To remove a bootable device

A bootable device removed from the server is deleted from the priority devices of each device type.

(4) To execute [Load Setup Defaults]

Execute [Load Setup Defaults] in the “Save & Exit” menu to set Boot Option and priorities of each device type as shown below.

a) Priority of Boot Option

1. Boot Option #1: CD/DVD
2. Boot Option #2: Removable
3. Boot Option #3: HDD
4. Boot Option #4: Network

b) Priority of each device type

- The priorities of the devices except USB (such as SATA device and RAID) increased. USB devices are registered next to those devices.

c) Bootable devices

- When they are disabled, they are enabled and registered to the priority devices of each device type.

(5) To use remote media

Remote media operate as follows.

- AMI Remote CD/DVD devices are registered as the highest priority devices in “CD/DVD Priorities”.
- Execute [Load Setup Defaults] in “Save & Exit” menu to register AMI Remote CD/DVD devices as the highest priority devices in “CD/DVD Priorities”.

(*1) See “EXPRESSSCOPE Engine 3 User’s Guide” for the detail of the remote management extended license.

Tips

- To use remote media, connect remote KVM, enable the remote device and reboot the server module.
- When the boot mode is UEFI, the device information registered by the installed OS is displayed in “HDD Priorities”.
When the BIOS setting (NVRAM) is cleared in UEFI boot mode, BIOS registers the device information displayed in “HDD Priorities” again.
Therefore, the device information may be different from that registered by the installed OS, the device can be booted without problems.
- When the boot mode is Legacy, the model number of the hard disk is displayed in “HDD Priorities”.

1.2.6 Save & Exit

If you move the cursor to Save & Exit, the Save & Exit menu appears.



The options of this menu are described below.

(a) Save Changes and Exit

The SETUP utility closes with all the changes saved in NVRAM (Non-volatile memory). After the SETUP utility closes, the system automatically reboots.

(b) Discard Changes and Exit

The SETUP utility closes without saving the changes in NVRAM. The setting at startup of SETUP utility is retained.

After the SETUP utility closes, the system automatically reboots.

(c) Save Changes and Power Off

The utility closes with all the changes saved in NVRAM.

Then, the server automatically turns off the power.

(d) Discard Changes and Power Off

The utility closes without saving changes in NVRAM. BIOS setting at starting the utility is inherited. After closing, the server automatically turns off the power.

(e) Load Setup Defaults

This option resets all values in the SETUP utility to the default settings.

Note

The default value may be different from the factory setting depending on the model. See the setting list of each item to set values again according to the environment used.

Appendix

1. POST Error Message

List of error messages detected by the self-diagnostic function POST

2. BMC Error Messages

List of error messages detected by BMC

3. Error Messages of CSC Modules

List of error messages detected by CSC modules

4. Revision Record

Revision history of this document

1. POST Error Message

When POST detects an error, it displays an error message on SOL screen of management terminal.

Message indicating a memory error (In this example, the message indicates that an error was detected on DIMM1 installed in the module.)

System Monitoring Check
... Passed
ERROR
AE81: DIMM1 with error is enabled.
AE01: DIMM1 has been disabled.
AE02: DIMM2 has been disabled.

Press <F2> to setup

The following table lists error messages and the actions to take in response to them.

- Tips
- When you call maintenance personnel, please take note of the content of the display.
 - The list only contains messages for the server. For details about error messages of optional devices, and the actions to take, refer to the instructions that come with each product.

(1) Error messages

(1/4)

Error Message		Cause	Solution
8000	System variable is corrupted.	Illegal setup information of BIOS was detected.	Start SETUP, execute Load Setup Defaults and configure the required setting. If you find the same error continually detected, contact a maintenance service company.
8001	Real time clock error	Real time clock error was detected.	Start SETUP and set the time and date again. If you find the same error continually detected, contact a maintenance service company.
8002	Check date and time settings	Incorrect date and time set on real time clock was detected.	
8003	System battery is dead - Replace and run SETUP	The battery for storing system settings is dead.	Contact a maintenance service company to have them replace the battery. Then, start SETUP and configure the setting again.
8005	Previous boot incomplete - Default configuration used	The previous POST processing did not finish.	Start SETUP, execute Load Setup Defaults and configure the required setting.
8006	System configuration data cleared by Jumper.	SETUP setting is cleared by Jumper.	Start SETUP and set each item again. If the problem persists, contact a maintenance service company. This message is displayed when you have replaced the lithium battery.
8007	SETUP Menu Password cleared by Jumper.	SETUP password is cleared by Jumper.	Start SETUP and set each item again. If the problem persists, contact a maintenance service company.
8020	BIOS update error.	BIOS update failed.	Update BIOS again. If you find the same error continually detected, contact a maintenance service company.
8800	DXE_NB_ERROR	An error was detected during initialization of chipset.	Contact a maintenance service company.
8801	DXE_NO_CON_IN	An error was detected during initialization of console.	
8802	DXE_NO_CON_OUT		
8803	PEI_DXE_CORE_NOT_FOUND	A fault in Flash ROM was detected.	
8804	PEI_DXEIPL_NOT_FOUND		
8805	DXE_ARCH_PROTOCOL_NOT_AVAILABLE		
8806	PEI_RESET_NOT_AVAILABLE	Not correctly reset	
8807	DXE_RESET_NOT_AVAILABLE		
8808	DXE_FLASH_UPDATE_FAILED	The Flash ROM was not written to correctly.	
8830	PEI_RECOVERY_NO_CAPSULE	The Flash ROM was not recovered correctly.	
8831	PEI_RECOVERY_PPI_NOT_FOUND		
8832	PEI_RECOVERY_FAILED		
9000	Unsupported CPU detected	An unsupported CPU was detected.	
9001	Unsupported CPU detected on CPU #1		
9040	PEI_CPU_SELF_TEST_FAILED	An error was detected in CPU initialization.	
9041	Detected CPU Error on CPU #1	An error was detected on CPU 1.	
A001	Memory Error detected in DIMM1	An error was detected in DIMM1.	
A002	Memory Error detected in DIMM2	An error was detected in DIMM2.	
A003	Memory Error detected in DIMM3	An error was detected in DIMM3.	
A004	Memory Error detected in DIMM4	An error was detected in DIMM4.	

(2/4)

Error Message		Cause	Solution
A800	Memory not detected	Available memory is not implemented.	Contact a maintenance service company.
A804	Latest memory module is corrupted.	The system flash memory is corrupted.	
AE01	DIMM1 has been disabled.	A memory error was detected. DIMM1 is disabled.	
AE02	DIMM2 has been disabled.	A memory error was detected. DIMM2 is disabled.	
AE03	DIMM3 has been disabled.	A memory error was detected. DIMM3 is disabled.	
AE04	DIMM4 has been disabled.	A memory error was detected. DIMM4 is disabled.	
AE81	DIMM1 with error is enabled.	A memory error was detected in DIMM1. As all memories are disabled, it was forcibly enabled.	
AE82	DIMM2 with error is enabled.	A memory error was detected in DIMM2. As all memories are disabled, it was forcibly enabled.	
AE83	DIMM3 with error is enabled.	A memory error was detected in DIMM3. As all memories are disabled, it was forcibly enabled.	
AE84	DIMM4 with error is enabled.	A memory error was detected in DIMM4. As all memories are disabled, it was forcibly enabled.	
B000	Expansion ROM not initialized	Failed to expand option ROM.	Disable option ROM expansion for the option board on which OS is not started.
B001	Expansion ROM not initialized - PCI Slot 1	Option ROM expansion in PCI slot 1 failed.	Start SETUP and disable[PCI Configuration] - [PCI Device Controller and Option ROM Settings] - [PCIxx Slot Option ROM] in the Advanced menu. (xx: PCI slot number)
B030	PCI System Error on Bus/Device/Function	PCI SERR was detected.	Contact a maintenance service company.
B040	PCI Parity Error on Bus/Device/Function	PCI PERR was detected.	
B211	PCI Slot 1 - PCIe Link Failure	Connection failure of PCIe bus was detected on PCI slot 1.	
B231	PCI Slot 1 - PCIe Link Width Error	A Link Width error was detected in PCI Slot 1.	
B271	PCI Slot 1 - PCIe Link Speed Error	Link Speed error was detected on PCI Slot 1.	
B800	DXE_PCI_BUS_OUT_OF_RESOURCES	Resources to be allocated to PCI expansion card was insufficient.	
C020	The error occurred during voltage sensor reading.	The voltage sensor caused a read error.	
C021	System Voltage out of the range.	A voltage trouble was detected.	
C040	SR0M data read error	FRU caused a data read error.	

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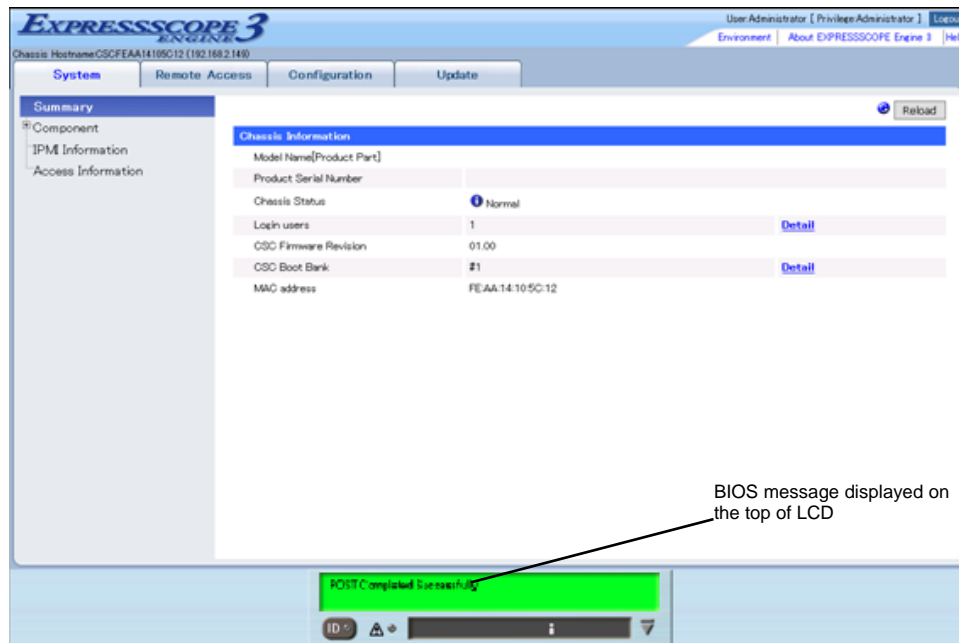
Error Message		Cause	Solution
C061	1st SMBus device Error detected.	An error was detected in 1st SM Bus.	Contact a maintenance service company.
C062	2nd SMBus device Error detected.	An error was detected in 2nd SM Bus.	
C063	3rd SMBus device Error detected.	An error was detected in 3rd SM Bus.	
C064	4th SMBus device Error detected.	An error was detected in 4th SM Bus.	
C065	5th SMBus device Error detected.	An error was detected in 5th SM Bus.	
C066	6th SMBus device Error detected.	An error was detected in 6th SM Bus.	
C067	7th SMBus device Error detected.	An error was detected in 7th SM Bus.	
C068	8th SMBus device Error detected.	An error was detected in 8th SM Bus.	
C101	BMC Memory Test Failed..	BMC device (chip) error.	Remove the server module, wait for 30 seconds, implement it again and start it. If you find the same error continually detected, contact a maintenance service company.
C102	BMC Firmware Code Area CRC check Failed.		
C103	BMC core hardware failure.		
C104	BMC IBF or OBF check failed.	Accessing the BMC address failed.	
C105	BMC SEL area full.	The area to save the system event log is full.	Erase the event log as needed.
C10C	BMC update firmware corrupted.	BMC firmware update corrupted.	Remove the server module, wait for 30 seconds, implement it again and start it. If you find the same error continually detected, contact a maintenance service company.
C10D	Internal Use Area of BMC FRU corrupted.	FRU storing device information corrupted.	
C10E	BMC SDR Repository empty.	An error was detected in SDR of BMC.	
C10F	IPMB signal lines do not respond.	Failure of Satellite Management Controller was detected.	
C110	BMC FRU device failure.	FRU storing device information corrupted.	
C111	BMC SDR Repository failure.	Failure was detected in SROM that stores the SDR.	
C112	BMC SEL device failure.	BMC SEL device failure	
C113	BMC RAM test error.	BMC RAM error was detected.	
C114	BMC Fatal hardware error.	A hardware error was detected in BMC.	
C115	Management controller not responding	Management controller does not respond.	Update the BMC firmware. If you find the same error continually detected, contact a maintenance service company.
C116	Private I2C bus not responding.	Private I2C bus does not respond.	Remove the server module, wait for 30 seconds, implement it again and start it. If you find the same error continually detected, contact a maintenance service company.
C117	BMC internal exception	BMC internal error was detected.	
C118	BMC A/D timeout error.	BMC A/D timeout error was detected.	
C119	SDR repository corrupt.	BMC error or SDR data error was detected.	
C11A	SEL corrupt.	BMC error or System event log error was detected.	
C11B	BMC Mezzanine card is not found.	BMC Mezzanine card is not found.	Contact a maintenance service company.
C11C	BMC Mezzanine partition is invalid.	BMC Mezzanine card format is invalid.	
C11D	BMC is in Forced Boot Mode.	Detected that BMC is in Forced Boot Mode.	Remove the server module, wait for 30 seconds, implement it again and start it. If you find the same error continually detected, contact a maintenance service company.
C11E	Communication with BMC was failed in previous boot	Communication with BMC failed in the previous boot.	Remove the server module, wait for 30 seconds, implement it again and start it. If you find the same error continually detected, contact a maintenance service company.

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Error Message		Cause	Solution
C11F	Backup Data of BMC Mezzanine card has corrupted.	BMC Mezzanine card has corrupted.	Contact a maintenance service company.
C120	BMC Runtime FW corrupted.	Failure in starting BMC FW	Remove the server module, wait for 30 seconds, implement it again and start it. If you find the same error continually detected, contact a maintenance service company.
C121	BMC Force Update FW corrupted.	Failure in starting BMC FW	
C122	BMC Configuration area corrupted.	BMC configuration area corrupted.	
C123	BMC eMMC inaccessible.	Initialization failed due to access error to BMC internal flash memory.	
C125	BMC eMMC mode error.	An operating mode error of the BMC internal flash memory was detected.	
C126	BMC eMMC partition corrupted.	A partition error of the BMC internal flash memory was detected.	
C127	BMC eMMC format corrupted.	A format error of the BMC internal flash memory was detected.	
C128	BMC is in Update Mode.	BMC is in a firmware update mode.	Remove the server module, wait for 30 seconds, implement it again and start it. If you find the same error continually detected, contact a maintenance service company.
C300	Out - of - band setup configuration failure	Access to the BMC Mezzanine card failed.	
C302	Hardware configuration error.	The hardware configuration of this server is incorrect.	Contact a maintenance service company.
C501	ME is in Recovery Mode.	Intel Node Manager is in Recovery Mode.	Remove the server module, wait for 30 seconds, implement it again and start it. If you find the same error continually detected, contact a maintenance service company.
C624	Invalid internal BIOS Configuration Data.	An internal error of BIOS Configuration Data was detected.	
C625	BIOS Configuration Data Send Error.	Transmission error of BIOS Configuration Data	
C626	BIOS Configuration Data Read Error.	Read error of BIOS Configuration Data	
C627	BIOS Configuration Data Write Error.	Write error of BIOS Configuration Data	
C628	System configuration data cleared by System Boot Options command.	SETUP configuration was cleared by the standard command of Set System Boot Options compliant with IPMI.	Start SETUP and set each item again. If the problem persists, contact a maintenance service company.

(2) Error messages on the virtual LCD

You can check error messages on the virtual LCD displayed in the Web browser of EXPRESSSCOPE engine 3. See “EXPRESSSCOPE Engine 3 User’s guide” for the virtual LCD.



The table below shows error messages, meaning and actions.

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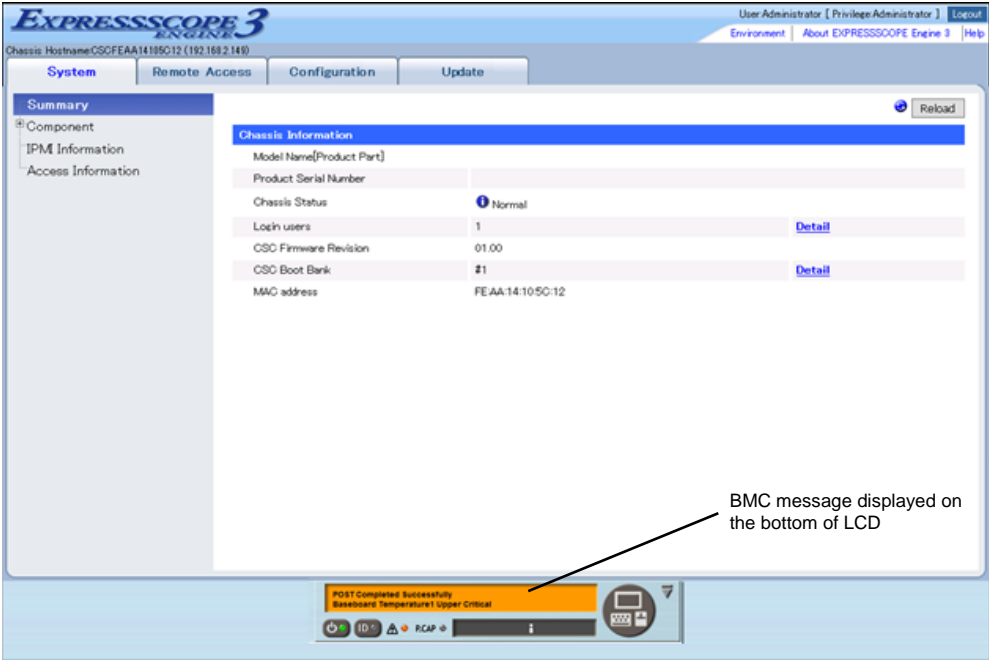
BIOS message displayed on the top of LCD	Cause	Action
XX POST Started	Displayed during POST “XX” indicates the POST code in execution.	Not an error
XX BIOS Rev YYYY	Displayed during POST “XX” indicates the POST code in execution. “YYYY” indicates the version of the system BIOS.	
POST Completed Successfully	POST is successfully completed.	
POST ERROR XXXX	Error XXXX was detected during POST.	Check the error message displayed on LCD and take an action.
No Available Memory in System	No available memory is implemented.	Check if memory is correctly implemented.
Error Pause in POST	An error was detected during POST. POST paused.	Check the error message displayed on the screen and take an action.
Entering BIOS SETUP MENU	Starting BIOS SETUP MENU	This is not an error. This message disappears when the SETUP operation finishes.

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BIOS message displayed on the top of LCD	Cause	Solution
BIOS Recovery Running	Recovering BIOS	This is not an error. Wait until BIOS has been recovered.
BIOS Updater Running	Updating BIOS	This is not an error. Wait until BIOS has been updated.
PCI Bus System Error 1	A system error of the PCI bus was detected.	Contact a maintenance service company.
PCI Bus Parity Error 1	A parity error of the PCI bus was detected.	
CPUx_DIMMxCorrectable Error	Recoverable errors of the memory were detected frequently.	

2. BMC Error Messages

You can check error messages on the virtual LCD displayed in the Web browser of EXPRESSSCOPE engine 3. See “EXPRESSSCOPE Engine 3 User’s guide” for the virtual LCD.



BMC is used for the server and the chassis. The table below shows error messages, meaning and actions.

(1) BMC error messages for the server

(1/2)

BMC messages displayed on the bottom of LCD	Cause	Solution
Processor Voltage Lower Non-Critical	Voltage error detected	Contact a maintenance service company.
Processor Voltage Upper Non-Critical		
Processor Voltage Lower Critical		
Processor Voltage Upper Critical		
BaseBoard Voltage Lower Non-Critical		
BaseBoard Voltage Upper Non-Critical		
BaseBoard Voltage Lower Critical		
BaseBoard Voltage Upper Critical		
VBAT Lower Non-Critical		
VBAT Upper Non-Critical		
VBAT Lower Critical		
VBAT Upper Critical		
Baseboard Temperature1 Lower Non-Critical	Temperature error detected	The fan may be faulty or clogged. Contact a maintenance service company.
Baseboard Temperature1 Upper Non-Critical		
Baseboard Temperature1 Lower Critical		
Baseboard Temperature1 Upper Critical		
Ambient Temperature Lower Non-Critical		
Ambient Temperature Upper Non-Critical		
Ambient Temperature Lower Critical		
Ambient Temperature Upper Critical		
DIMM Area Temperature Lower Non-Critical		
DIMM Area Temperature Upper Non-Critical		
DIMM Area Temperature Lower Critical		
DIMM Area Temperature Upper Critical		
Processor Thermal Control Upper Non-Critical		
Processor Thermal Control Upper Critical		
DUMP Request !	The dump button was pressed.	Wait until the memory dump finishes.
Processor Thermal Trip	The power was forcibly turned off due to the abnormal temperature of CPU.	Contact a maintenance service company.
DIMM1 Uncorrectable Error	An uncorrectable error was detected in memory 1.	
DIMM2 Uncorrectable Error	An uncorrectable error was detected in memory 2.	
DIMM3 Uncorrectable Error	An uncorrectable error was detected in memory 3.	
DIMM4 Uncorrectable Error	An uncorrectable error was detected in memory 4.	
Processor Internal Error	An internal error (IERR) of CPU was detected.	

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BMC messages displayed on the bottom of LCD	Cause	Solution
Sensor Failure Detected.	A sensor error was detected.	Contact a maintenance service company.
SMI timeout	Timeout was detected during system interrupt process.	
IPMI Watchdog timer timeout (Power off)	Timeout of the watchdog timer was detected.	
Node Manager Firmware Image execution Failed	Node Manager failed.	Pull out the power cord, wait at least 30 seconds and start it again. If the problem persists, contact a maintenance service company.
Node Manager Firmware Flash Erase Error		
Node Manager Firmware Flash Corrupted		
Node Manager Internal Error		
Node Manager can't communicate BMC		
Node Manager Manufacturing Error		
Node Manager Persistent Storage Integrity Error		

3. Error Messages of CSC Modules

You can check error messages on the virtual LCD displayed in the Web browser of EXPRESSSCOPE engine 3.

The table below shows error messages, meaning and actions.

(1/3)

LCD display message	Cause	Solution
Power Supply AC Lost	The AC cable of PSU3 is not connected.	Check if the AC cable is connected. If you find it correctly connected and find the problem, contact a maintenance service company.
Power Supply2 AC Lost	The AC cable of PSU2 is not connected.	
Power Supply1 AC Lost	The AC cable of PSU1 is not connected.	
Power Supply2 Predictive Failure detected	PSU2 failed.	Replace PSU. Contact a maintenance service company.
Power Supply1 Predictive Failure detected	PSU1 failed.	
Power Supply Predictive Failure detected	PSU3 or PSU DC failed.	
System FAN8 Lower Non-Critical	The rotating speed of FAN8 is lower than the threshold.	Replace the fan. Contact a maintenance service company.
System FAN7 Lower Non-Critical	The rotating speed of FAN7 is lower than the threshold.	
System FAN6 Lower Non-Critical	The rotating speed of FAN6 is lower than the threshold.	
System FAN5 Lower Non-Critical	The rotating speed of FAN5 is lower than the threshold.	
System FAN4 Lower Non-Critical	The rotating speed of FAN4 is lower than the threshold.	
System FAN3 Lower Non-Critical	The rotating speed of FAN3 is lower than the threshold.	
System FAN2 Lower Non-Critical	The rotating speed of FAN2 is lower than the threshold.	
System FAN1 Lower Non-Critical	The rotating speed of FAN1 is lower than the threshold.	
Power Supply2 Failure detected	PSU2 failed.	Replace the PSU. Contact a maintenance service company.
Power Supply1 Failure detected	PSU1 failed.	
Power Supply Failure detected	PSU3 or PSU DC failed.	
Power Supply2 Temperature Lower Non-Critical	The temperature of PSU2 is lower than the threshold.	Check the environment temperature. If you find no problem, replace the PSU. Contact a maintenance service company.
Power Supply1 Temperature Lower Non-Critical	The temperature of PSU1 is lower than the threshold.	
Power Supply Temperature Lower Non-Critical	The temperature of PSU3 is lower than the threshold.	
Power Supply2 Temperature Upper Non-Critical	The temperature of PSU2 is lower than the threshold.	Check the environment temperature and the dust in the chassis. If you clean it and find the problem, replace the PSU. Contact a maintenance service company.
Power Supply1 Temperature Upper Non-Critical	The temperature of PSU1 is lower than the threshold.	
Power Supply Temperature Upper Non-Critical	The temperature of PSU3 is lower than the threshold.	
Baseboard Temperature2 Lower Non-Critical	The sensor on the baseboard detected the temperature below the threshold.	Check the environment temperature and find no problem, replace the chassis. Contact a maintenance service company.
Baseboard Temperature1 Lower Non-Critical	The sensor on the baseboard detected the temperature below the threshold.	
Baseboard Temperature Lower Non-Critical	The sensor on the baseboard detected the temperature below the threshold.	

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LCD display message	Cause	Solution
Baseboard Temperature2 Upper Non-Critical	The sensor on the baseboard detected the temperature over the threshold.	Check the environment temperature and the dust in the chassis. If you clean it and find the problem, replace the PSU. Contact a maintenance service company.
Baseboard Temperature1 Upper Non-Critical	The sensor on the baseboard detected the temperature over the threshold.	
Baseboard Temperature Upper Non-Critical	The sensor on the baseboard detected the temperature over the threshold.	
Ambient Temperature Lower Non-Critical	The intake temperature of the device is lower than the threshold.	Check the environment temperature and find no problem, replace the chassis. Contact a maintenance service company.
Ambient Temperature Upper Non-Critical	The intake temperature of the device is higher than the threshold.	
BaseBoard Voltage Lower Non-Critical	The sensor on the baseboard detected the voltage below the threshold.	Replace the chassis. Contact a maintenance service company.
BaseBoard Voltage Upper Non-Critical	The sensor on the baseboard detected the voltage over the threshold.	
Processor2 Voltage Lower Non-Critical	The sensor of the CPU of on LAN-SW#2 detected the voltage below the threshold.	Replace the LAN-SW. Contact a maintenance service company.
Processor2 Voltage Upper Non-Critical	The sensor of the CPU of on LAN-SW#2 detected the voltage over the threshold.	
Sensor Failure Detected.	I2C internal bus error was detected.	Contact a maintenance service company.
Power Supply2 Temperature Lower Critical	The temperature of PSU2 is lower than the threshold.	Check the environment temperature and find no problem, replace the PSU. Contact a maintenance service company.
Power Supply1 Temperature Lower Critical	The temperature of PSU1 is lower than the threshold.	
Power Supply Temperature Lower Critical	The temperature of PSU3 is lower than the threshold.	
Power Supply2 Temperature Upper Critical	The temperature of PSU2 is higher than the threshold.	Check the environment temperature and the dust in the chassis. If you clean it and find the problem, replace the PSU. Contact a maintenance service company.
Power Supply1 Temperature Upper Critical	The temperature of PSU1 is higher than the threshold.	
Power Supply Temperature Upper Critical	The temperature of PSU3 is higher than the threshold.	
Baseboard Temperature2 Lower Critical	The sensor on the baseboard detected the temperature below the threshold.	Check the environment temperature and find no problem, replace the chassis. Contact a maintenance service company.
Baseboard Temperature1 Lower Critical	The sensor on the baseboard detected the temperature below the threshold.	
Baseboard Temperature Lower Critical	The sensor on the baseboard detected the temperature below the threshold.	
Baseboard Temperature2 Upper Critical	The sensor on the baseboard detected the temperature below the threshold.	Check the environment temperature and the dust in the chassis. If you clean it and find the problem, replace the chassis. Contact a maintenance service company.
Baseboard Temperature1 Upper Critical	The sensor on the baseboard detected the temperature over the threshold.	
Baseboard Temperature Upper Critical	The sensor on the baseboard detected the temperature over the threshold.	
Ambient Temperature Lower Critical	The intake temperature of the device is lower than the threshold.	Check the environment temperature and find no problem, replace the chassis. Contact a maintenance service company.
Ambient Temperature Upper Critical	The intake temperature of the device is higher than the threshold.	

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LCD display message	Cause	Solution
VBAT Lower Critical	The voltage of the battery on the baseboard is lower than the threshold.	Replace the battery. Contact a maintenance service company.
VBAT Upper Critical	The voltage of the battery on the baseboard is higher than the threshold.	
BaseBoard Voltage Lower Critical	The sensor on the baseboard detected the voltage below the threshold.	Replace the chassis. Contact a maintenance service company.
BaseBoard Voltage Upper Critical	The sensor on the baseboard detected the voltage over the threshold.	
Processor2 Voltage Lower Critical	The sensor of the CPU of on LAN-SW#2 detected the voltage below the threshold.	Replace the LAN-SW. Contact a maintenance service company.
Processor2 Voltage Upper Critical	The sensor of the CPU of on LAN-SW#2 detected the voltage over the threshold.	
Processor1 Voltage Lower Critical	The sensor of the SW of on LAN-SW#1 detected the voltage below the threshold.	
Processor1 Voltage Upper Critical	The sensor of the SW of on LAN-SW#1 detected the voltage over the threshold.	

4. SNMP TRAP

Source	Type	Event ID	Error Type	Summary	Details	Item name in EXPRESSSCOPE Engine3 Web Console	(Note) The information contains in mail alert which is send from EXPRESSSCOPE Engine3 or SP3. "Event Information" is first line and "Description" is second line.
BMC	IPMI	[40001002]	Information	Event Logging Area Cleared	Event Logging Area Cleared Log Area Reset/Cleared	Event Logging	Event Logging - Area Cleared Log Area Reset/Cleared
BMC	IPMI	[40001200]	Information	System Event Information	System Event Information System Reconfigured(include BIOS Setup/BMC configuration)	Sytem Event	System Event - Information System Reconfigured(include BIOS Setup/BMC configuration)
BMC	IPMI	[40001201]	Information	System Event Information	System Event Information OEM System Boot Event(Hard Reset)	Sytem Event	System Event - Information OEM System Boot Event(Hard Reset)
BMC	IPMI	[40001205]	Information	System Event Information	System Event Information Timestamp Clock Sync	Sytem Event	System Event - Information Timestamp Clock Sync
BMC/CSC	IPMI	[40001400]	Information	Button/Switch Information	Button/Switch Information Power Button	Button/Switch	Button/Switch - Information Power Button
BMC	IPMI	[40001402]	Information	Button/Switch Information	Button/Switch Information Reset Button	Button/Switch	Button/Switch - Information Reset Button
BMC	IPMI	[40001D00]	Information	System Boot/Restart Initiated Information	System Boot/Restart Initiated Information Initiated by power up	System Boot/Restart Initiated	System Boot/Restart Initiated - Information Initiated by power up
BMC	IPMI	[40001D03]	Information	System Boot/Restart Initiated Information	System Boot/Restart Initiated Information User requested PXE boot(PF12 Key)	System Boot/Restart Initiated	System Boot/Restart Initiated - Information User requested PXE boot(PF12 Key)
BMC	IPMI	[40001F01]	Information	OS Boot Information	OS Boot Information C: boot completed	OS Boot	OS Boot - Information C: boot completed
BMC	IPMI	[40002003]	Information	OS Stop/Shutdown Information	OS Stop/Shutdown Information OS Graceful Shutdown	OS Stop/Shutdown	OS Stop/Shutdown - Information OS Graceful Shutdown
BMC/CSC	IPMI	[40002200]	Information	System ACPI Power State Information	System ACPI Power State Information Working	System ACPI Power State	System ACPI Power State – Information Working
BMC	IPMI	[40002205]	Information	System ACPI Power State Information	System ACPI Power State Information DC Off	System ACPI Power State	System ACPI Power State – Information DC Off
BMC/CSC	IPMI	[40002207]	Information	System ACPI Power State Information	System ACPI Power State Information AC Off	System ACPI Power State	System ACPI Power State – Information AC Off
BMC/CSC	IPMI	[80000110]	Warning	Temperature Error	Temperature Error Transition to Non-Critical from OK	Temperature(Monitoring Threshold)	Temperature - Error Lower Non-critical - going low
BMC/CSC	IPMI	[40000110]	Information	Temperature Recovery	Temperature Recovery Transition to Non-Critical from OK	Temperature(Monitoring Threshold)	Temperature - Recovery Lower Non-critical - going low
BMC/CSC	IPMI	[C0000112]	Error	Temperature Error	Temperature Error Transition to Critical from less severe	Temperature(Monitoring Threshold)	Temperature - Error Lower Critical - going low
BMC/CSC	IPMI	[40000112]	Information	Temperature Recovery	Temperature Recovery Transition to Critical from less severe	Temperature(Monitoring Threshold)	Temperature - Recovery Lower Critical - going low
BMC/CSC	IPMI	[80000117]	Warning	Temperature Error	Temperature Error Transition to Non-Critical from OK	Temperature(Monitoring Threshold)	Temperature - Error Upper Non-critical - going high
BMC/CSC	IPMI	[40000117]	Information	Temperature Recovery	Temperature Recovery Transition to Non-Critical from OK	Temperature(Monitoring Threshold)	Temperature - Recovery Upper Non-critical - going high
BMC/CSC	IPMI	[C0000119]	Error	Temperature Error	Temperature Error Transition to Critical from less severe	Temperature(Monitoring Threshold)	Temperature - Error Upper Critical - going high
BMC/CSC	IPMI	[40000119]	Information	Temperature Recovery	Temperature Recovery Transition to Critical from less severe	Temperature(Monitoring Threshold)	Temperature - Recovery Upper Critical - going high
BMC/CSC	IPMI	[80000210]	Warning	Voltage Error	Voltage Error Transition to Non-Critical from OK	Voltage(Monitoring Threshold)	Voltage - Error Lower Non-critical - going low
BMC/CSC	IPMI	[40000210]	Information	Voltage Recovery	Voltage Recovery Transition to Non-Critical from OK	Voltage(Monitoring Threshold)	Voltage - Recovery Lower Non-critical - going low
BMC/CSC	IPMI	[C0000212]	Error	Voltage Error	Voltage Error Transition to Critical from less severe	Voltage(Monitoring Threshold)	Voltage - Error Lower Critical - going low
BMC/CSC	IPMI	[40000212]	Information	Voltage Recovery	Voltage Recovery Transition to Critical from less severe	Voltage(Monitoring Threshold)	Voltage - Recovery Lower Critical - going low

BMC/CSC	IPMI	[80000217]	Warning	Voltage Error	Voltage Error Transition to Non-Critical from OK	Voltage(Monitoring Threshold)	Voltage - Error Upper Non-critical - going high
BMC/CSC	IPMI	[40000217]	Information	Voltage Recovery	Voltage Error Transition to Non-Critical from OK	Voltage(Monitoring Threshold)	Voltage - Recovery Upper Non-critical - going high
BMC/CSC	IPMI	[C0000219]	Error	Voltage Error	Voltage Error Transition to Critical from less severe	Voltage(Monitoring Threshold)	oltage - Error Upper Critical - going high
BMC/CSC	IPMI	[40000219]	Information	Voltage Recovery	Voltage Recovery Transition to Critical from less severe	Voltage(Monitoring Threshold)	Voltage - Recovery Upper Critical - going high
CSC	IPMI	[80000417]	Warning	Fan(Speed) Error	Fan(Speed) Error Transition to Non-Critical from OK	FAN(Speed)	Fan(Speed) - Error Lower Non-critical - going low
CSC	IPMI	[40000417]	Information	Fan(Speed) Recovery	Fan(Speed) Recovery Transition to Non-Critical from OK	FAN(Speed)	Fan(Speed) - Recovery Lower Non-critical - going low
BMC	IPMI	[80000504]	Warning	Physical Security (Chassis Intrusion) Error	Physical Security(Chassis Intrusion) Error Lan Leash Lost(System is unplugged from LAN)	Physical Security (Chassis Intrusion)	Physical Security (Chassis Intrusion) - Error LAN Leash Lost(System is unplugged from
BMC/CSC	IPMI	[40000600]	Information	Platform Security Violation Attempt Error	Platform Security Violation Attempt Error Secure Mode (Front Panel Lockout) Violation attempt	Platform Security Violation Attempt	Platform Security Violation Attempt - Error Secure Mode (Front Panel Lockout) Violationattempt
BMC	IPMI	[C0000700]	Error	Processor Error	Processor Error IERR	Processor	Processor Error IERR
BMC	IPMI	[C0000701]	Error	Processor Error	Processor Error Thermal Trip	Processor	Processor Error Thermal Trip
BMC	IPMI	[C000070B]	Error	Processor Error	Processor Error Machine Check Exception (Uncorrectable)	Processor	Processor - Error Machine Check Exception(Uncorrectable)
BMC	IPMI	[4000070C]	Information	Processor Error (Windows OS only)	Processor Error Mcorrectable machine Check Error	Processor	rocessor - Error Correctable Machine Check Error
CSC	IPMI	[40000800]	Information	Power Supply Inserted	Power Supply Inserted Presence status changed	Power Supply	ower Supply - Inserted Presence status changed
CSC	IPMI	[40000800]	Information	Power Supply Removed	Power Supply Removed Presence status changed	Power Supply	Power Supply - Removed Presence status changed
CSC	IPMI	[80000801]	Warning	Power Supply Error	Power Supply Error Power Supply Failure detected	Power Supply	Power Supply - Error Power Supply Failure detected
CSC	IPMI	[40000801]	Information	Power Supply Recovery	Power Supply RecoveryPower Supply Failure detected	Power Supply	Power Supply - Recovery Power Supply Failure detected
CSC	IPMI	[80000802]	Warning	Power Supply Error	Power Supply Error Predictive Failure	Power Supply	Power Supply - Error Predictive Failure
CSC	IPMI	[40000802]	Information	Power Supply Recovery	Power Supply Recovery Predictive Failure	Power Supply	Power Supply - Recovery Predictive Failure
CSC	IPMI	[C0000803]	Error	Power Supply Error	Power Supply Error Power Supply input lost (AC/DC)	Power Supply	Power Supply - Error Power Supply input lost(AC/DC)
CSC	IPMI	[40000803]	Information	Power Supply Recovery	Power Supply Recovery Power Supply input lost (AC/DC)	Power Supply	Power Supply - Recovery Power Supply input lost(AC/DC)
CSC	IPMI	[400009B0]	Information	Power Unit Recovery	Power Unit Recovery Redundancy Regained	Power Unit Redundancy	Power Unit - Error Non-Redundant(Sufficient Resources)
CSC	IPMI	[800009B3]	Warning	Power Unit Information	Power Unit Information Non-Redundant(Sufficient Resources)	Power Unit Redundancy	Power Unit - Error Non-Redundant(Sufficient Resources)
CSC	IPMI	[800009B4]	Warning	Power Unit Information	Power Unit Information Non-Redundant(Sufficient Resources from Insufficient Resources)	Power Unit Redundancy	Power Unit - Recovery Non-Redundant(Sufficient Resources from Insufficient Resources)
CSC	IPMI	[C00009B5]	Error	Power Unit Error	Power Unit Error Non-Redundant(Insufficient Resources)	Power Unit Redundancy	Power Unit - Error Non-Redundant(Insufficient Resources)
BMC	IPMI	[40000C00]	Information	Memory Information	Memory Information Memory corrected	Memory	Memory - Error Correctable ECC
BMC	IPMI	[C0000C01]	Error	Memory Error	Memory Error Uncorrectable ECC memory error occurred	Memory	Memory - Error Uncorrectable ECC
BMC	IPMI	[80000E31]	Warning	POST Memory Resize Asserted	POST Memory Resize Asserted State Asserted	POST Memory Resize	POST Memory Resize - Asserted State Asserted
BMC	IPMI	[C0000F00]	Error	POST Error	POST Error System FW Error	POST	POST - Error System FW Error
BMC	IPMI	[80001000]	Warning	Event Logging Disabled	Event Logging Disabled Memory Corrected Logging	Event Logging	Event Logging - Disabled Correctable Memory Error Logging
BMC	IPMI	[80001006]	Warning	Event Logging Disabled	Event Logging Disabled Correctable Machine Check Error Logging	Event Logging	Event Logging - Disabled Correctable Machine Check Error Logging
BMC	IPMI	[C0001300]	Error	Critical Interrupt	Critical Interrupt Front Panel NMI (Dump Switch)	Critical Interrupt	Critical Interrupt Front Panel NMI(Dump Switch)

BMC	IPMI	[C0001304]	Error	Critical Interrupt	Critical Interrupt PCI PERR	Critical Interrupt	Critical Interrupt PCI PERR
BMC	IPMI	[C0001305]	Error	Critical Interrupt	Critical Interrupt PCI SERR	Critical Interrupt	Critical Interrupt PCI SERR
BMC	IPMI	[40001E00]	Information	Boot Error	Boot Error No bootable media	Boot Error	Boot Error No bootable media
BMC	IPMI	[40001E02]	Information	Boot Error	Boot Error PXE Server not found(Network Download Program)	Boot Error	Boot Error PXE Server not found(Network Download Program)
BMC	IPMI	[80001E02]	Warning	Boot Error	Boot Error PXE Server not found(Network Download Program)	Boot Error	Boot Error PXE Server not found(Network Download Program)
BMC	IPMI	[C0002001]	Error	OS Stop/Shutdown	OS Stop/Shutdown Run-time Critical Stop	OS Stop/Shutdown	OS Stop/Shutdown Run-time Critical Stop
BMC	IPMI	[C0002100]	Error	Slot/Connector Error	Slot/Connector Recovery Fault Status asserted	Slot/Connector	Slot/Connector - Recovery Fault Status asserted
BMC	IPMI	[80002108]	Warning	Slot/Connector Error	Slot/Connector Error Slot is Disabled	Slot/Connector	Slot/Connector - Error Slot is Disabled
BMC	IPMI	[40002108]	Information	Slot/Connector Recovery	Slot/Connector Recovery Slot is Disabled	Slot/Connector	Slot/Connector - Recovery Slot is Disabled
BMC	IPMI	[40002201]	Information	System ACPI Power State Information	System ACPI Power State Information Sleeping	System ACPI Power State	System ACPI Power State – Information Sleeping
BMC	IPMI	[40002204]	Information	System ACPI Power State Information	System ACPI Power State Information Suspend-to-disk	System ACPI Power State	System ACPI Power State – Information Suspend-to-disk
BMC	IPMI	[40002300]	Error	Watchdog Timer Expired	Watchdog Timer Expired Timer expired, status only(no action, no interrupt)	Watchdog Timer	Watchdog Timer - Expired Timer expired, status only(no action, no interrupt)
BMC	IPMI	[C0002301]	Error	Watchdog Timer Expired	Watchdog Timer Expired Hard Reset	Watchdog Timer	Watchdog Timer - Expired Hard Reset
BMC	IPMI	[C0002302]	Error	Watchdog Timer Expired	Watchdog Timer Expired Power Down	Watchdog Timer	Watchdog Timer - Expired Power Down
BMC	IPMI	[C0002303]	Error	Watchdog Timer Expired	Watchdog Timer Expired Power Cycle	Watchdog Timer	Watchdog Timer - Expired Power Cycle
BMC	IPMI	[C0002308]	Error	Watchdog Timer Expired	Watchdog Timer Expired Timer interrupt	Watchdog Timer	Watchdog Timer - Expired Timer interrupt
BMC	IPMI	[C000DC08]	Error	Management Engine Error	Management Engine Error Not Recover from Power Consumption Limit	Power Capping	Management Engine - Error Not Recover from Power Consumption Limit(Critical)
BMC	IPMI	[C000DC00]	Error	Management Engine Asserted	Management Engine Asserted Management Engine status change detected	Management Engine	Management Engine - Asserted Management Engine status change detected
BMC	IPMI	[C000F331]	Error	SMI Timeout Asserted	SMI Timeout Asserted State Asserted	SMI Timeout	SMI Timeout - Asserted State Asserted
BMC	IPMI	[C000F600]	Error	Sensor Failure	Sensor Failure I2C Bus Device Address Not Acknowledged	Sensor Failure	Sensor Failure I2C Bus Device Address Not Acknowledged
BMC	IPMI	[C000F601]	Error	Sensor Failure	Sensor Failure I2C Bus Device Error Detected	Sensor Failure	Sensor Failure I2C Bus Device Error Detected
BMC	IPMI	[C000F602]	Error	Sensor Failure	Sensor Failure I2C Bus Timeout	Sensor Failure	Sensor Failure I2C Bus Timeout

5. Revision Record

Date Issued	Description
February 2016	Newly created
April 2016	<ul style="list-style-type: none"> - The media provided with the product is changed to DVD-ROM. - <i>Section 4.5, "When Connecting to a Network"</i> was added to <i>Chapter 1</i>. - Notes are added to <i>Section 6.1, "System Diagnostic Management Tool"</i> in <i>Chapter 1</i>. - Descriptions are added to step 8 of "(2) Starting the system diagnostic management tool" of <i>Section 6.1.1, "Starting in the server"</i> in <i>Chapter 1</i>. - Important notes are added to step 3 and 7 of <i>Section 6.1.3, "Operating the system diagnostic management tool"</i> in <i>Chapter 1</i>. - Step 10 is added to <i>Section 6.2.2, "Starting TeDoLi"</i> in <i>Chapter 1</i>. - Descriptions are added to <i>Section 6.2.5, "Saving log"</i> in <i>Chapter 1</i>.
June 2016	<ul style="list-style-type: none"> - <i>Chapter 1.Section 6, "System Diagnostic Tool"</i> was changed. - <i>Chapter 1.Section 7, "Server Management Utility"</i> was changed.
March 2017	<ul style="list-style-type: none"> - <i>Section 4.7, "Etc."</i> was added to <i>Chapter 1</i>. - <i>Section 4, "SNMP TRAP."</i> was added to <i>Chapter 3</i>.
November 2017.	"Important notice" were added.

[MEMO]

NEC Scalable Modular Server

DX2000
Maintenance Guide

November 2017

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