

Areas Covered

Before Reading This Manual

This section explains the notes for your safety and conventions used in this manual. Make sure to read this section.

Chapter 1 Overview

This chapter explains component names and basic operations of this server, as well as an overview of the software provided with this server. In addition, the workflow, from placing the server to starting the operation, is also described.

Chapter 2 Checking before OS Installation

This chapter explains the preparation on the server and cautions necessary before OS installation. Please read this chapter before starting installation.

Chapter 3 OS Installation Using ServerStart

This chapter explains how to install the OS on the server using ServerStart.

Chapter 4 Manual OS Installation

This chapter explains how to install the OS without using ServerStart.

Chapter 5 Operations after OS Installation

This chapter explains the operations to be performed after OS installation. Be sure to perform those operations before operating the server.

Chapter 6 High Reliability Tools

For stable PRIMERGY server operations, we recommend that high reliability tools be installed. This chapter explains the installation and necessary settings of high reliability tools.

Chapter 7 Installing Internal Options

This chapter explains how to install internal options on this server.

Chapter 8 Hardware Configuration/Utilities

This chapter explains how to make the environment settings necessary to operate the server.

Chapter 9 Operation and Maintenance

This chapter explains the operations necessary after starting to use this server as well as daily care and maintenance.

Appendix

This appendix explains the specifications for the server and internal options. It also covers how to recycle the products.

Before Reading This Manual

For Your Safety...

This manual contains important information, required to operate the server safely. Thoroughly review the information in this manual before using the server. Especially note the points under "Safety Precautions", and only operate the server with a complete understanding of the material provided. This manual and "Safety Precautions" should be kept in an easy-to-access location for quick reference when using this server.

Data Backup

To protect data stored in this device (including basic software and application software), perform backup and other necessary operations. Note that data protection is not guaranteed when repairs are performed. It is the customer's responsibility to maintain backup copies in advance. In case of data loss, Fujitsu assumes no liability for data maintenance or restoration and damages that occur as a result of the data loss for any reason, except for items covered under warranty.

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The Products are designed, developed and manufactured as contemplated or general use, including without limitation, general office use, personal use, household use, and ordinary industrial use, but are not designed, developed and manufactured as contemplated for use accompanying fatal risks or dangers that, unless extremely high safety is secured, could lead directly to death, personal injury, severe physical damage, or other loss (hereinafter "High Safety Required Use"), including without limitation, nuclear reaction control in nuclear facility, aircraft flight control, air traffic control, mass transport control, medical life support system, missile launch control in weapon system. You shall not use this Product without securing the sufficient safety required for the High Safety Required Use. If you wish to use this Product for High Safety Required Use, please consult with our sales representatives in charge before such use.

Problems may occur with this device in the event of an instantaneous voltage drop of the power supply due to lightning, etc. To prevent an instantaneous voltage drop of the power supply, we recommend that you use an uninterruptible power supply system.

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Remarks

■ Warning Descriptions

Various symbols are used throughout this manual. These are used to emphasize important points for your safety and that of others. The following are the symbols and their meanings.



 WARNING	Ignoring this symbol could be potentially lethal.
 CAUTION	Ignoring this symbol may lead to physical injury and/or damage the server or hardware options.

The following symbols are used to indicate the type of warning or caution being described.

	The triangle mark emphasizes the urgency of the WARNING and CAUTION. Details are detailed inside the triangle and above it.
	A barred circle (⊘) warns against certain actions (Do Not). These actions are detailed inside the circle and above it.
	A black circle indicates actions that must be taken. These actions are detailed inside the black circle and above it.

■ Symbols

Symbols used in this manual have the following meanings.

 IMPORTANT	These sections explain prohibited actions and points to note when using this device. Make sure to read these sections.
 POINT	These sections explain information needed to operate the hardware and software properly. Make sure to read these sections.
→	This mark indicates reference pages or manuals.

■ Key Descriptions / Operations

Keys are represented throughout this manual in the following manner.

E.g.: [Ctrl] key, [Enter] key, [→] key, etc.

The following indicate pressing several keys at once.

E.g.: [Ctrl] + [F3] key, [Shift] + [↑] key, etc.

■ Entering Commands (Keys)

Command entries are displayed in the following way.

```
diskcopy a: a:
      ↑  ↑
```

- In the areas of the "↑" mark, press the [Space] key once.
- When the operating system is Windows, commands are not case sensitive.
- CD-ROM drive names are shown as [CD-ROM drive]. Enter your drive name according to your environment.

[CD-ROM drive]:\setup.exe

■ Screen Shots and Figures

Screen shots and figures are used as visual aids throughout this manual. Windows, screens, and file names may vary depending on the OS, software, or configuration of the server used. Figures in this manual may not show cables that are actually connected for convenience of explanation.

■ Consecutive Operations

Consecutive operations are described by connecting them with arrows (→).

Example: Procedure of clicking the [Start] button, pointing to [Programs], and clicking [Accessories]

↓

Click [Start] → [Programs] → [Accessories].

■ Abbreviations

The following expressions and abbreviations are used throughout this manual.

This document may contain information on other operating systems.

table: Abbreviations of Product Names

Product name	Expressions and abbreviations	
PRIMERGY RX300 S2	This server or the server	
Microsoft® Windows Server™ 2003, Standard Edition	Windows Server 2003, Standard Edition or Windows Server 2003	Windows
Microsoft® Windows Server™ 2003, Enterprise Edition	Windows Server 2003, Enterprise Edition or Windows Server 2003	
Microsoft® Windows® 2000 Server	Windows 2000 Server	
Microsoft® Windows® 2000 Advanced Server	Windows 2000 Advanced Server, or 2000 Server	
Microsoft® Windows® Preinstallation Environment	Windows PE	
Microsoft® Windows® XP Professional	Windows XP Professional	
Microsoft® Windows® 2000 Professional	Windows 2000 Professional	
Microsoft® Windows NT® Workstation Operating System 4.0	Windows NT	
Red Hat® Enterprise Linux® AS	Red Hat Enterprise Linux AS	Linux
Red Hat® Enterprise Linux® ES	Red Hat Enterprise Linux ES	

■ Server Types

Server types are described as follows.

table: Server Types

Type	Expressions and abbreviations
Servers without an internal hard disk	Diskless type

Reference Information

■ Software Manuals

Software Manual contains other reference information and cautions for ServerStart not described in this manual. Please read it before using ServerStart.

Software Manual is contained as a "README.TXT" file in the root directory on the ServerStart CD-ROM. Use a text editor to read it.

■ Latest Information about Software Provided with This Server

For the latest information regarding ServerStart and other software provided with this server, refer to the Fujitsu PRIMERGY website (<http://primergy.fujitsu.com/>).

Warning and Caution Labels

Warning and caution labels are found on the server.

Do not remove or stain these labels.

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Chapter1

Overview

1

This chapter explains component names and basic operations of this server, as well as an overview of the software provided with this server. In addition, the workflow, from placing the server to starting the operation, is also described.

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1.1 RX300 S2

This server has the following features.

■ High Reliability

● Advanced Memory Protection Function

The server supports the Chipkill function using PC2-3200-compliant memory (DDR2 SDRAM) and the spare memory function (depending on the memory configuration) to enable data recovery in the event of a memory error.

● Disk Array System Configuration

A disk array system (RAID0/1/5/10) can be configured using the onboard SCSI array controller (installed as standard).

● Redundant Function

The hard disk units, power supply units, and system fans support the redundant function.

When the onboard SCSI array controller is used, a failed hard disk unit can be replaced or repaired without turning off the server and peripheral devices (a hot plug is supported in configurations other than RAID0).

Adding an optional power supply unit enables the redundant function.

● PHP (PCI Host Plug) Function Support

An expansion card can be replaced without turning off the server and peripheral devices when the expansion card fails (PCI slots 4 and 5 only in Windows Server 2003).

● Hardware and Software Designed for Data Security

The locks on the rack and security (password) setting in the BIOS Setup Utility protect hardware and data assets in the server against theft, ensuring data security with high reliability.

● Proactive Fan Function

When a fan fails or the ambient temperature rises, the system fan speed is increased automatically to avoid increase in temperature in the server, ensuring stable server operation.

● High Reliability Tools

High reliability tools offer stable system operation. For information about high reliability tools, refer to "1.2.2 High Reliability Tools" (→pg.19).

■ High-speed Processing

● 64-bit Intel® Xeon™ Processors

The server can have up to two 64-bit Intel® Xeon™ processors for high-speed data processing (one processor in standard servers).

The server supports the Hyper-Threading function that uses one physical CPU as two logical CPUs, providing high-efficiency and high-speed processing.

● PCI-X

The server uses PCI buses with a maximum data transfer speed of 1066MB/sec.

● Ultra320 SCSI

The SCSI array controller supports Ultra320 SCSI that provides a maximum data transfer speed of 320MB/sec, ensuring high-speed data transfer.

■ Compact Design and Scalability

● Space Saving 2U Design

This server is slim, with a thickness of 2U. The server, display device, keyboard, and external SCSI options fit in a 19-inch rack, which saves the installation space.

● Maximum Memory Size of 16GB

In addition to the preinstalled 1GB memory, the system has four memory banks for supporting up to 16GB memory.

● Maximum Hard Disk Size of 1800GB

Up to six internal hard disk units can be installed in the 3.5-inch storage bays. The hard disk size can be increased up to 1800GB.

● With a Standard Internal CD-ROM Drive Unit

The server has one standard internal CD-ROM drive unit.

● Five PCI slots

The server has five PCI slots, including 64-bit, 133MHz PCI-X slots. Functions can be added by using expansion cards.

By using a card slot conversion kit, they can be changed to three 64-bit 100MHz (PCI-X) PCI slots.

1.2 Supplied Software

ServerStart for supporting setup and high reliability tools for avoiding problems during server operation are supplied with this server.

1.2.1 Setup Support Tool - ServerStart

ServerStart is a setup support tool that helps to install PRIMERGY. It offers easy server installation and proper installation of recommended drivers.

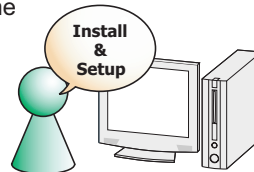
■ Installing ServerStart

Installing ServerStart

Not using ServerStart

- Complicated hardware configuration (RAID configuration, etc.)
- User definition, access privileges, network settings
- It is necessary to input successively for installation, resulting in more mistakes and longer time

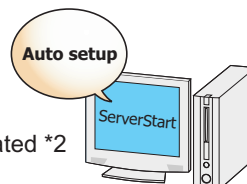
Example:
Operations such as setting IP address, creating users, and registering computer name are required



Using ServerStart

- Automatic RAID configuration is possible
- Auto installation of recommended drivers (SCSI, LAN, etc.) enables high reliable installation
- High reliability tool can be installed automatically *1

Example:
Operations during OS installation is automated *2



*1 High reliability tools are software with comprehensive strength for stable system operation of the server management

*2 Some input (License window, etc.) and media repositioning are excluded

● Configuration File (SerStartBatch.ini)

A configuration file stores the server setup and client information configured in ServerStart. To create a configuration file, use the ServerStart floppy disk supplied with this server. Store only one file on each floppy disk. Do not set the ServerStart floppy disk to the write-protected state.

You can use any name for the configuration file. However, the file must be installed in the server as "SerStartBatch.ini". When installing the file, make sure to save it as "SerStartBatch.ini" on the ServerStart floppy disk.

Start up ServerStart, insert the ServerStart floppy disk containing "SerStartBatch.ini", and click [Start] to install the server.

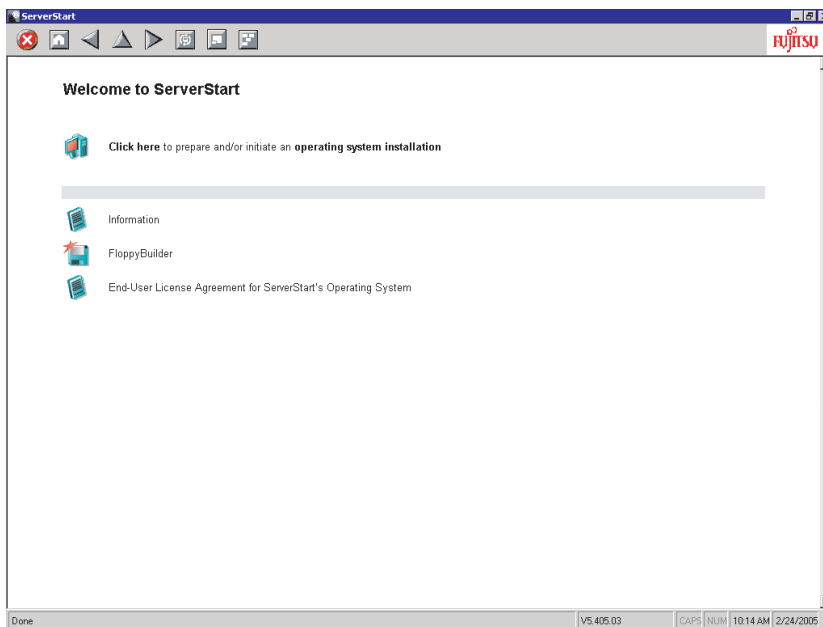
■ Intuitive User Interface

The intuitive user interface allows you to easily set the necessary information.

● Main Window

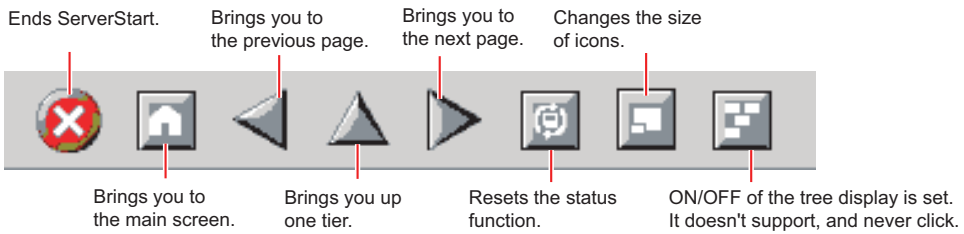
When ServerStart is started, the following window appears.

The window and tool bar differ depending on the mode.



● Toolbar

In Guided Mode/Expert Mode



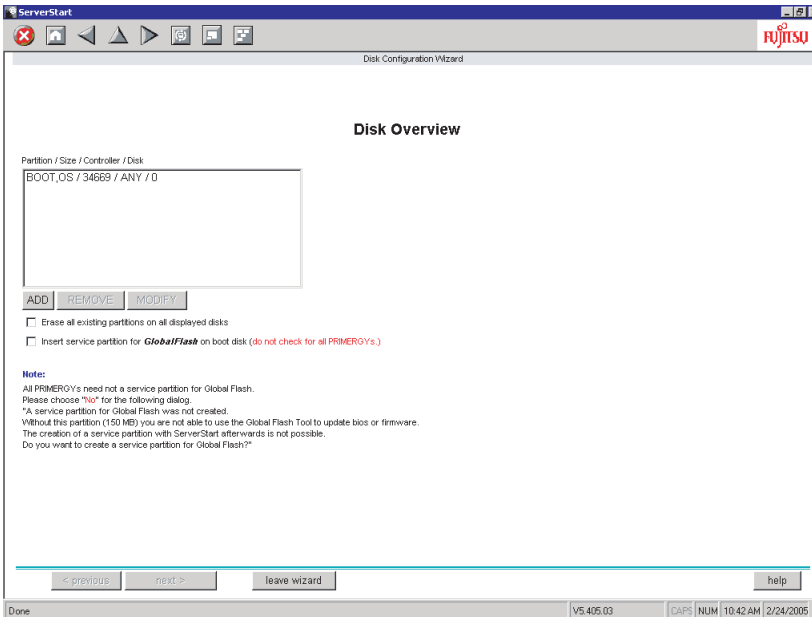
IMPORTANT

- ▶ While the wizard is running, do not click the ◀ ▶ icons on the tool bar to move to the previous or next window. To move to a different window, click the [Previous], [Up], or [Next] button at the bottom of the wizard window.

● Wizard Window

Clicking a wizard displays a wizard window.

Set items in the wizard window. To move to a step in the next wizard window, click the operation button at the bottom of the window. Clicking [help] displays a tip for setting the item.



■ Network Configuration

ServerStart can configure a network at server installation.

For details on available network patterns, refer to "Using ServerStart to configure the Network".

■ Automatic Driver Installation

Recommended drivers for automatically recognized expansion cards are installed with the server. This prevents possible mistakes in driver installation, such as installation of an older version or drivers which were not supplied with this server.

■ Automatic RAID Configuration

When an onboard SCSI array controller is used, specify the RAID type and the number of hard disk units before starting installation. A disk array can be configured without starting the RAID utility.

■ Remote Installation

ServerStart can store resources necessary for installation, such as the OS and Service Pack, a different server on the network and install the OS via the network. This method is used when the server does not have a CD-ROM or floppy disk drive.

SystemcastWizard Professional (optional) is a useful tool for extracting a lot of files in a short time.

1.2.2 High Reliability Tools

High reliability tools are a comprehensively useful set of software for stable system operations of the server. The following tools have respective roles to manage normal operations or recovery from errors.

- Server Monitoring Tools
- System Diagnosis Support Tools
- LAN Driver Advanced Setup Tools

■ Server Monitoring Tools

The server monitoring tools monitor the hardware status on behalf of the administrator and notify him/her in the event of an error.

● Detecting a Server Failure Early [ServerView]

ServerView is software that monitors whether the server hardware is in a normal state to protect important server resources. When using ServerView, the server hardware is monitored all the time. If an error that could cause trouble is detected, the administrator is notified in real-time. This allows the server administrator to remove a system error early and avoid trouble.

● Detecting a Disk Failure Early [RAID Management Tool]

RAID Management Tool is software that monitors the disk array. RAID Management Tool runs as a Windows Server 2003/Windows 2000 Server system service. When an event occurs, it leaves an event log in the event viewer's application logs. At the same time, a pop-up window indicates a hard disk failure, rebuild status, etc.

■ System Diagnosis Support Tools

The system diagnosis support tool is for supporting system diagnosis during normal operation or in the event of trouble.

● Solving Problems Early [DSNAP]

DSNAP is a command line utility that collects all the failure investigation information. System file configuration information, major registry settings, and event logs can be collected easily from the command line.

DSNAP is used to allow maintenance personnel to understand your system software configuration and settings correctly and ensure smooth investigations when a problem occurs in your Windows Server 2003/Windows 2000 Server system. Pass the information along with memory dumps to your maintenance personnel.

■ LAN Driver Advanced Setup Tools

LAN Driver Advanced Setup Tool sets details on the LAN, including the use of the Teaming function and VLAN configuration.

● Intel® PROSet

Intel® PROSet is a tool for setting details on the LAN card when it is used with another LAN card or the onboard LAN for using the Teaming function or when it is used for configuring a VLAN.

● Broadcom Advanced Control Suite (BACS)

BACS is a tool for setting details on the onboard LAN when it is used to use the Teaming (load balance) function between the onboard LAN, or to setup a VLAN using the onboard LAN.

1.2.3 Installing High Reliability Tools

You can install all high reliability tools provided with PRIMERGY by specifying them in "Application Wizard" when the OS is installed is initiated with ServerStart.

After manual OS installation, high reliability tools can be installed all at once, just as they are installed during OS installation with ServerStart.

In each case, the following high reliability tools are installed.

table: High reliability tool installation

High Reliability Tools	Batch installation with ServerStart
RAID Management Tool	A
ServerView	S
DSNAP	S
Intel® PROSet	A
Broadcom Advanced Control Suite (BACS)	A

A: Installed in any case

S: Installed if selected



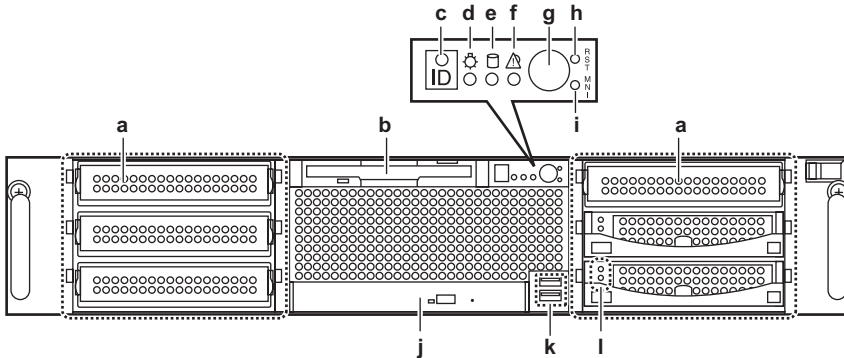
- ▶ Linux does not support batch installation with ServerStart.
- ▶ ServerView must be configured after installation even when the high reliability tools have been installed at once with ServerStart. Refer to "Chapter 6 High Reliability Tools" (→pg.167).

In case where the operating system has been installed with ServerStart, if a high reliability tool is not installed or the OS has been manually installed, use a standard installer for each tool. For the installation procedure using the standard installer, refer to "Chapter 6 High Reliability Tools" (→pg.167)

1.3 Component Names and Functions

This section explains the component names and functions of the server.

1.3.1 Server (Front View)



a 3.5-inch storage bay

Install the internal hard disk unit or internal backup device into the server unit.

b Floppy disk drive

Writes/reads data to/from a floppy disk.

c System identification LED button

When pressing this button, the front and rear system identification LEDs are lit blue so that the locations of devices being maintained can be determined.

d Power LED (⦿)

This LED is lit green when the server is turned on. This is lit amber when the server is not turned on (standby mode). This does not light when the power cable is unplugged from the outlet.

e Hard disk access LED (◻)

This LED blinks when data is being written to or read from the hard disk.

f Failure LED (⚠)

This LED lights or blinks in amber when an error is detected in the server components. If this LED lights, contact an office listed in the "Contact Information" of the "Start Guide".

g Power switch (⏻)

Press this switch to turn the server on.

IMPORTANT


- ▶ Do not turn the server off when the hard disk access LED is blinking. Data in the hard disk may be damaged.

h Reset switch (⏻)

Pressing this switch resets and restarts the system.

IMPORTANT


- ▶ When the hard disk access LED lights, do not reset the system. Data in the hard disk may be damaged.

i Maintenance switch ()


This switch is used only by maintenance personnel. Do not touch this.

j CD-ROM drive

Reads data or programs from a CD-ROM.

k USB connector ()

Connects peripheral equipment conforming to the USB standard (2.0 or 1.1).

l Hard disk status display LED ()

Indicates the state of the hot swappable internal hard disk unit mounted at the location of the LED. The following shows the meaning of each LED.



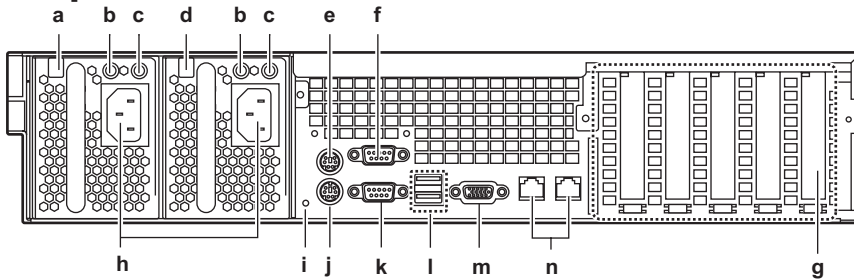
- Hard disk access display LED ()
This LED lights green when data is being written to or read from the hard disk.
- Hard disk failure LED ()
During array system configuration, this LED is lit amber when an error is detected in the internal hard disk unit. It is lit or blinks depending on the hard disk status as follows.

table: Hard disk status

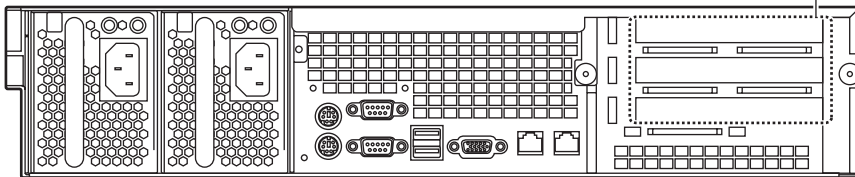
LED status	Hard disk status
Off	Normal mode
Lights amber	Hard disk failure or rebuild error
Slow blinks in amber	Rebuilding
Quick blinks in amber	Recognizing the hard disk

1.3.2 Server (Rear View)

[Standard]



[With basic card slot conversion mechanism]



a Power supply unit 1 (installed as standard)

One power supply unit is installed by default. Up to two units can be installed. Adding a power supply unit enables the redundant power supply function.

b Power supply unit failure LED

The LED indicates the power supply unit status.

table: Power supply unit status

LED status	Power supply unit status
Lights amber	When a power supply unit fails
Off	Normal mode or power off


c Power status LED

This LED is on, depending on the power supply status as follows.

table: Power supply status

LED status	Power supply status
Lights green	In normal mode (operating mode)
Lights amber	In normal mode (standby mode)
Off	Power not supplied (power off)

d Power supply unit 2 (Option)

e Mouse connector (6 pins) ()


A mouse is plugged in.

f Serial port 2 ()

Cables of peripheral equipment conforming to the RS-232C standard such as modems are plugged in.

g PCI slot**h** Inlet

Power cables are plugged in.

i Rear maintenance LED / System identification LED ( / ID)

This LED lights amber when the server is not turned on (standby mode). When the server is turned on and an error is detected in a server component, this LED lights or blinks amber (OFF in normal status).


If this LED lights or blinks when the server is turned on, contact an office listed in the "Contact Information" of the "Start Guide".

When pressing the system identification LED button located on the front of the server, the front and rear LEDs are lit blue so that the locations of devices being maintained can be determined.

Also, the [System Identification LED Display] button of ServerView can be used to light them.


j Keyboard connector (6 pins) ()

A keyboard is plugged in.

k Serial port 1 (9 pins) (1 )

Cables of peripheral equipment conforming to the RS-232C standard such as modems are plugged in. This port can also be used as a server management port by changing BIOS setting.

For how to use the server management port, refer to "Appendix C Using the Server Management Port" (→pg.299).

l USB connector ()

Connects peripheral equipment conforming to the USB standard (2.0 or 1.1).

m Display connector (15 pins) ()

A display cable is plugged in.

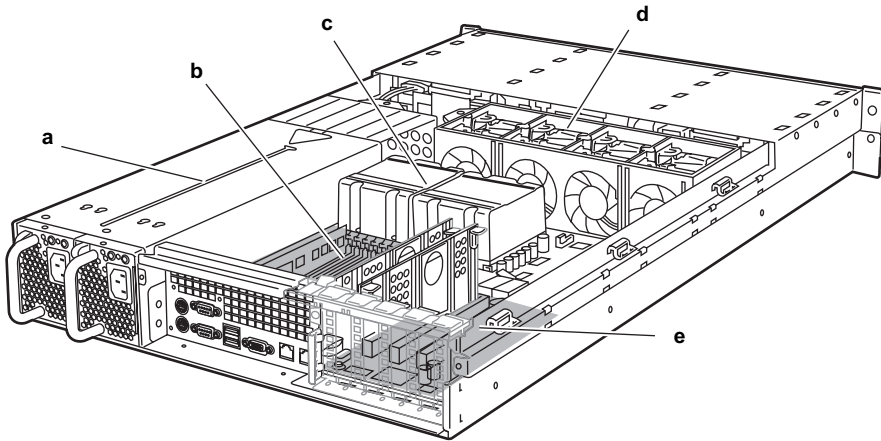
n LAN (10/100/1000BASE-T) connector (LAN A/LAN B)

An Unshielded Twisted Pair (UTP) cable is plugged in. For 1000Mbps connection, a cable conforming to category 5 enhanced is required. The meanings of the two LED are shown in the table below.

table: LAN connection status

LED location	LED status	Connection status
Right	Lights green	Link is being established
	Blinks green	Data is being transferred.
	Off	Link is not established.
Left	Lights amber	Connection is established at 1000Mbps.
	Lights green	Connection is established at 100Mbps
	Off	Connection is established at 10Mbps or the LAN is not connected.

1.3.3 Server (Internal)



a Power supply unit

b Memory slot

Contains memory.

c CPU socket

Install the CPU. One socket is installed by default. Up to two sockets can be installed.

d System fan

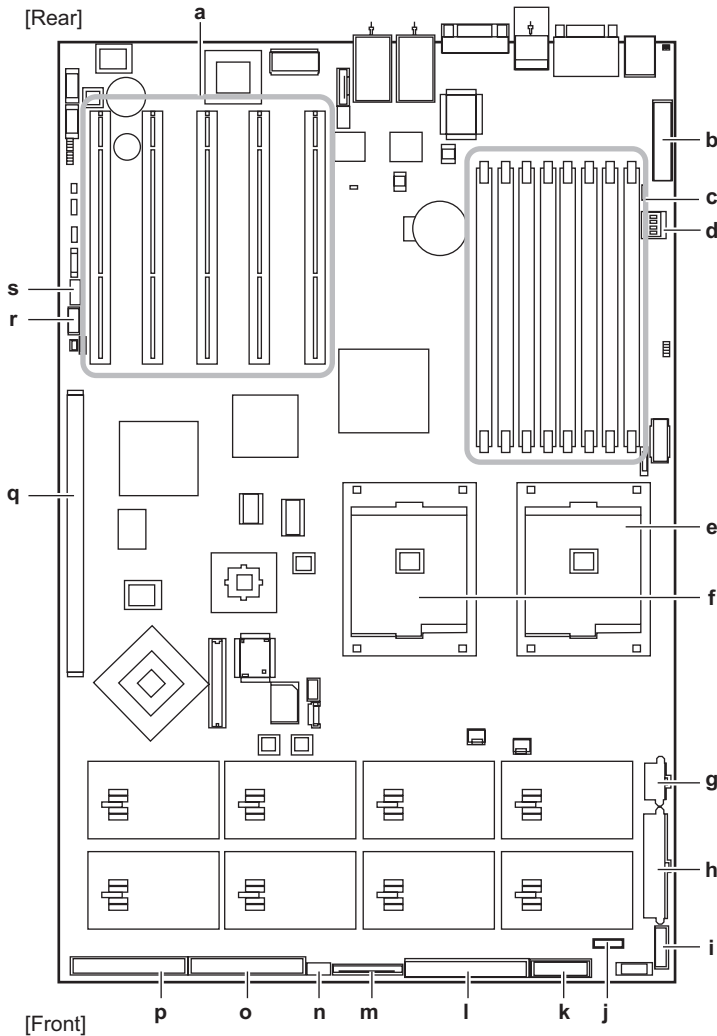
The system fan has a redundant configuration and a failed system fan can be replaced while the system is running.

Contact an office listed in the "Contact Information" of the "Start Guide" for the system fan replacement.

e PCI slot

Contains extension cards that enhance the server functions. Expansion cards with the PCI bus interface can be installed in the PCI slots.

1.3.4 Baseboard



- a** PCI slot
Contains an expansion card.
- b** Parallel port connector
Parallel port expansion kit is plugged in.
- c** Memory slot
Contains memory. One memory bank consists of Slots A and B in this server. Be sure to install a pair of memory modules.
- d** Switch block
For details about switch settings, refer to "8.1 Switch Block Settings" (→pg.222).
- e** CPU socket 0
- f** CPU socket 1
Install the CPU.

g Power connector1

h Power connector2

i Power connector3

j USB connector

k Control panel connector

l IDE connector

An IDE cable of the internal CD-ROM drive is plugged in.

m Floppy disk drive connector

A floppy disk drive cable is plugged in.

n SMB connector

o SCSI connector A

An internal hard disk unit is plugged in.

p SCSI connector B

An internal hard disk unit is plugged in.

q Array cache memory slot

r Internal power connector

An internal power cable is plugged in when a remote service board is installed. For more details, refer to "● Remote Service Board" (→pg.193) in "7.5.2 Installable Expansion Cards and Notes on Installation" (→pg.191).

s Server control connector

A server control cable is plugged in when a remote service board is installed. For more details, refer to "● Remote Service Board" (→pg.193) in "7.5.2 Installable Expansion Cards and Notes on Installation" (→pg.191).

1.4 Standard Operations

This section explains standard server operations, including how to turn the server on/off and to insert/eject a floppy disk.

1

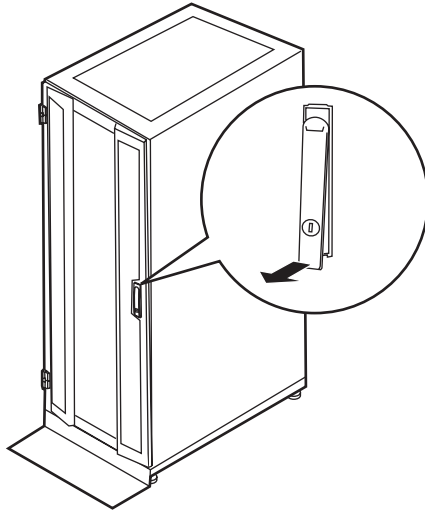
Overview

1.4.1 Opening the Rack Door

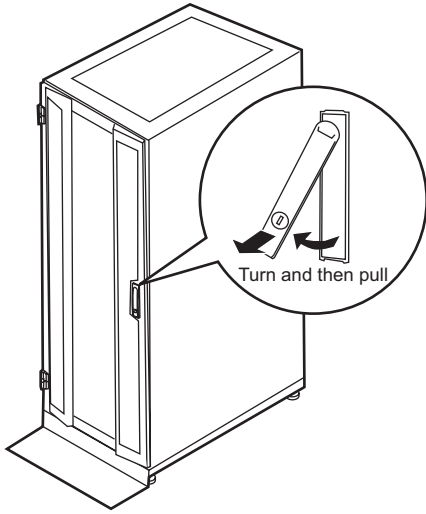
This section explains how to open the front and rear doors of the 40U standard rack. Refer to the manual included in the rack for procedures on opening other rack doors.

■ Opening the Front Door

- 1** Turn the rack key and pull the rack handle up.
When the rack is locked, turn the rack key to unlock.
→ "9.4.1 Hardware Security" (pg.277)

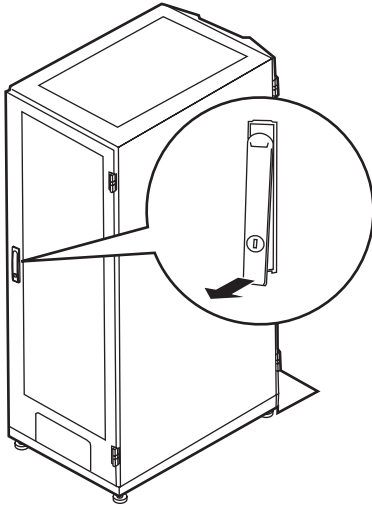


- 2 Turn the handle in the direction of the arrow and pull it forward.

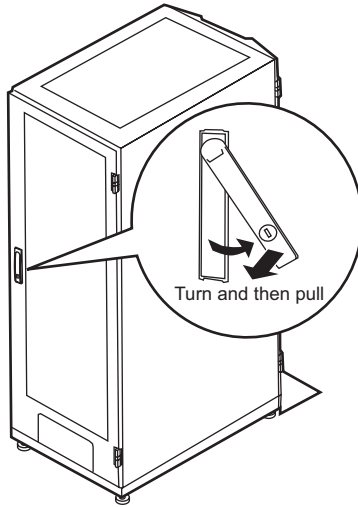


■ Opening the Rear Door

- 1 Turn the rack key and pull the rack handle up.



- 2** Turn the handle in the direction of the arrow and pull it forward.



POINT

- ▶ Unless you are inserting/removing media or turning the power on/off, keep the rack door closed. Doing so blocks electric waves from cell phones, etc.
- ▶ Do not lose the keys. If the key is lost, contact an office listed in the "Contact Information" of the "Start Guide".

1.4.2 Turning On the Server

CAUTION



- Do not move, strike, or shake the server when it is turned on. This can damage the hard disk in the server and cause data loss.



- Turn the server on when the temperature is in its operating environment range (10-35 °C). For details on the operating environment, refer to "Start Guide" and "Safety Precautions".

When operating the device outside of this operating environment, the server may operate improperly, damage data etc.

Furthermore, Fujitsu cannot be held responsible for any related damage, malfunction, or loss of data, etc.



- The fans rotate at high speed immediately after the server is turned on, but this is not defective. When the temperature is in the server's operating environment range (10-35 °C), they start to rotate at normal speed later.

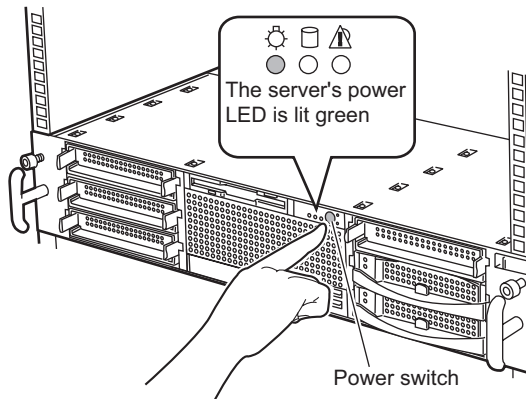


- Be sure to wait for 10 seconds or more after shutdown before turning the server on.

- 1** Open the rack door.
- 2** Make sure that the floppy disk drive and CD-ROM drives are empty.
- 3** Turn on the display and peripheral devices.
- 4** Press the power switch on the front of the server.

The server's power LED is lit green. When the power is turned on, the server performs Power On Self Tests (POST). If any abnormalities are detected by POST, error messages are displayed.






→"9.2.2 Error Messages" (pg.260)



POINT

- ▶ The time to turn on/off the server can be set with the ASR setting (on the [Power On/Off] tab) using ServerView supplied with this server.
For details, refer to "3.2 Settings for Server Monitoring" in "ServerView User's Guide" on the PRIMERGY Document & Tool CD (Disc 2).
- ▶ It may take a few seconds until the server to power on after pressing the power switch.

1.4.3 Turning Off the Server

-  **WARNING**

 - In the event of smoke or sparks, immediately unplug the electric cord. Failure to do so may lead to a fire or electrocution.
-  **CAUTION**

 - When turning off the server, be sure to follow the procedures described in this section. Data can be lost if these procedures are not followed correctly.
- 
 - Be sure to wait for 10 seconds or longer after shutdown before turning the server on.

1 Make sure that the floppy disk drive and CD-ROM drives are empty.

2 Shut down the OS.

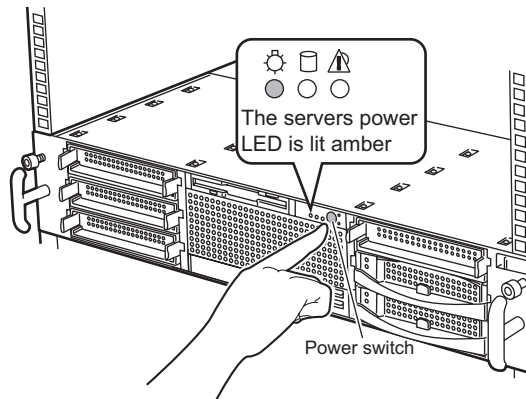
In the following cases, the server is turned off after the OS is shut down (Step 3 is not necessary).

- Windows OS
- When ServerView is installed

In other cases, shut down the OS and make sure that the floppy disk and hard disk access LEDs are off.

3 Press the power switch on the front of the server.

The server's power LED lights amber, and the server is turned off.



4 Turn off the display and peripheral devices.

POINT

- ▶ The time to turn on/off the server can be set with the ASR setting (on the [Power On/Off] tab) using ServerView supplied with this server. For details, refer to "3.2 Settings for Server Monitoring" in "ServerView User's Guide" on the PRIMERGY Document & Tool CD (Disk 2).

■ Cautions for Turning the Power On/Off (for a Windows OS)

For the power switch of this server, you can specify the following operation modes depending on the OS settings.

- For Windows Server 2003
"Do Nothing", "Prompt Input", "Standby", "Hibernation", or "Shutdown" (normally, "Shutdown" is specified).
- For Windows 2000 Server
"Standby", "Hibernation", "Power Off" (Normally "Power Off")

On this server, functions corresponding to "Standby" and "Hibernation" are supported as BIOS and hardware functions. However, some drivers and software installed in the server do not support these functions. For this reason, functions corresponding to "Standby" and "Hibernation" are unavailable on this server.

When the operating mode is set to "Standby" or "Hibernation", the system may operate improperly or hard disk data may be corrupted.

For details about operating mode settings, refer to the manual supplied with the OS.

POINT

- ▶ For Windows Server 2003, change the power switch operation mode to "Do Nothing" or "Prompt Input" to prevent the OS from shutting down when the power switch is erroneously pressed during operation.

1.4.4 Inserting and Ejecting a Floppy Disk

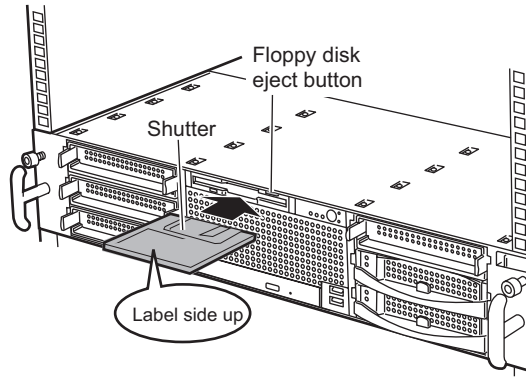
■ Cautions

When using a floppy disk, note the following points.

- Do not expose the disk to any fluids.
- Do not open the shutter of the floppy disk and touch the disk surface.
- Do not bend the floppy disk or place heavy objects on it.
- Do not expose the floppy disk to strong magnetic fields.
- Do not drop the floppy disk on hard surfaces.
- Do not store the disk in extremely hot or cold conditions.
- Do not store the disk in humid or dusty conditions.
- Do not put layers of labels on the floppy disk. Doing so may cause the drive to be clogged with the disk.
- Keep the disk away from condensation or water droplets.

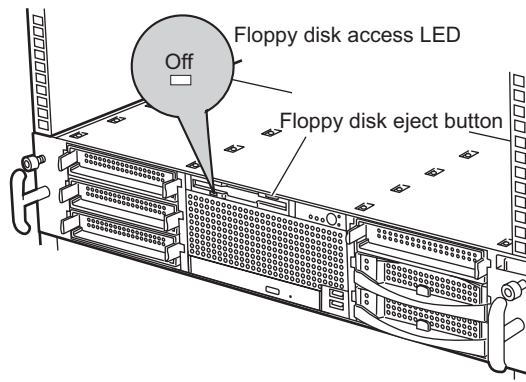
■ Inserting the Floppy Disk

- 1 Insert the floppy disk into the floppy disk drive from the shutter side.
When clicking into place, the floppy disk eject button pops out.



■ Ejecting the Floppy Disk

- 1 Make sure that the floppy disk access LED is off. Press the floppy disk eject button.
The floppy disk is ejected.



- Do not eject the floppy disk while the floppy disk access LED is on. The data stored on the floppy disk may be damaged.

1.4.5 Inserting and Ejecting a CD-ROM

This section explains how to insert and eject a CD-ROM.

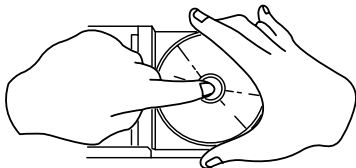
■ Cautions for Handling CD-ROM Drive

- Use the drive in a dry place with low airborne dust levels. Entry of water, a paper clip, or other liquids or metal objects can cause electric shock or failures.
- Do not use the drive in a place exposed to shocks or vibration.
- Do not insert any object other than the specified CD-ROMs.
- Do not pull or push the CD-ROM tray forcibly.
- Do not disassemble the CD-ROM drive.
- Clean the CD-ROM tray before use. Use a dry, soft cloth for cleaning.
- When the CD-ROM drive is not used for a prolonged period, eject the CD-ROM to prevent accidents. To avoid dust or particles, keep the CD-ROM tray closed (in a loaded position).
- This server supports CD-ROMs with the following logo. Do not use CD-ROMs without the logo. Doing so may cause failures.



■ Cautions for Handling CD-ROMs

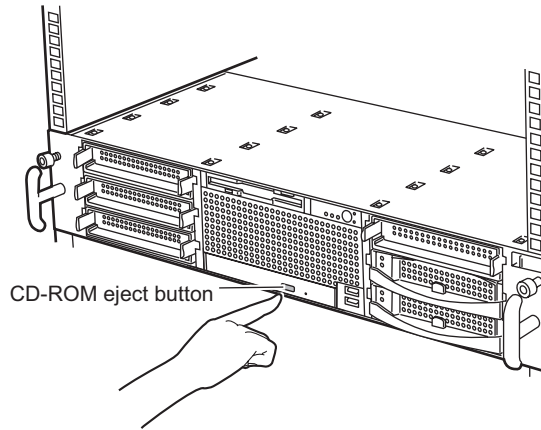
- When removing the disk from the case, pull the disk up while pressing the center holder of the case as shown in the figure below.



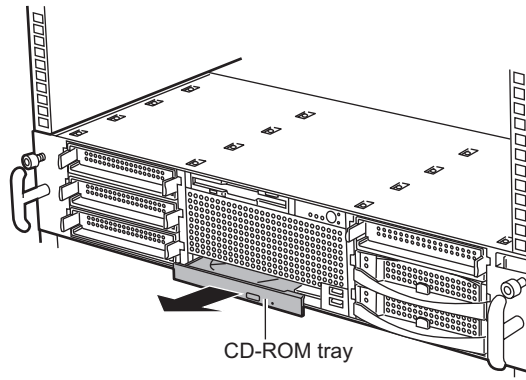
- Hold the CD-ROM on its edge to avoid contact with the disk surface.
- Do not contaminate the CD-ROM surface with fingerprints, oil, or dust. If the disk is dirty, wipe it from the center to the edge with a dry, soft cloth. Do not use benzine, thinner, water, record sprays, antistatics, or silicone clothes.
- Be careful not to scratch the CD-ROM surface.
- Avoid heat.
- Do not bend the floppy disk or place heavy objects on it.
- Do not use a ball-point pen or pencil on the label (printed) side.
- Do not apply stickers to the label side. Abnormal vibration can occur due to eccentricity.
- When the CD-ROM is moved from a cold place into a warm place, dew condensation may occur, resulting in data read errors. If this is the case, wipe droplets away with a dry, soft cloth and let the unit dry naturally. Do not use a hair dryer.
- To avoid dust, scratches, or deformation, store CD-ROMs in the case whenever not in use.
- Do not store CD-ROMs in areas of high temperature exposed to direct sunlight for many hours or near heating appliances.

■ Inserting the CD-ROM

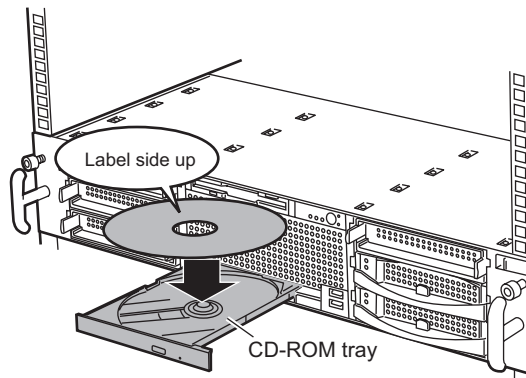
- 1** Make sure the server is turned on and press the CD-ROM eject button.
The CD-ROM tray comes out a little.



- 2** Pull the CD-ROM tray out.



- 3** Place the CD-ROM at the center of the tray.
While supporting the CD-ROM tray, push the tray until it clicks into position.

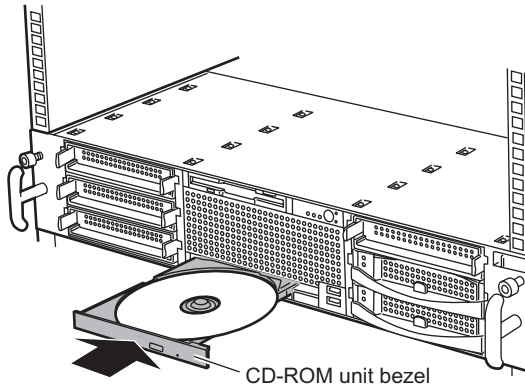


IMPORTANT

- ▶ If the CD-ROM is placed improperly when the tray is pushed into the unit, the CD-ROM or the drive may be damaged.
- ▶ Be careful not to touch the lens of the CD-ROM drive.

4 Move the tray back.

Push the tray gently until it clicks into position.



POINT

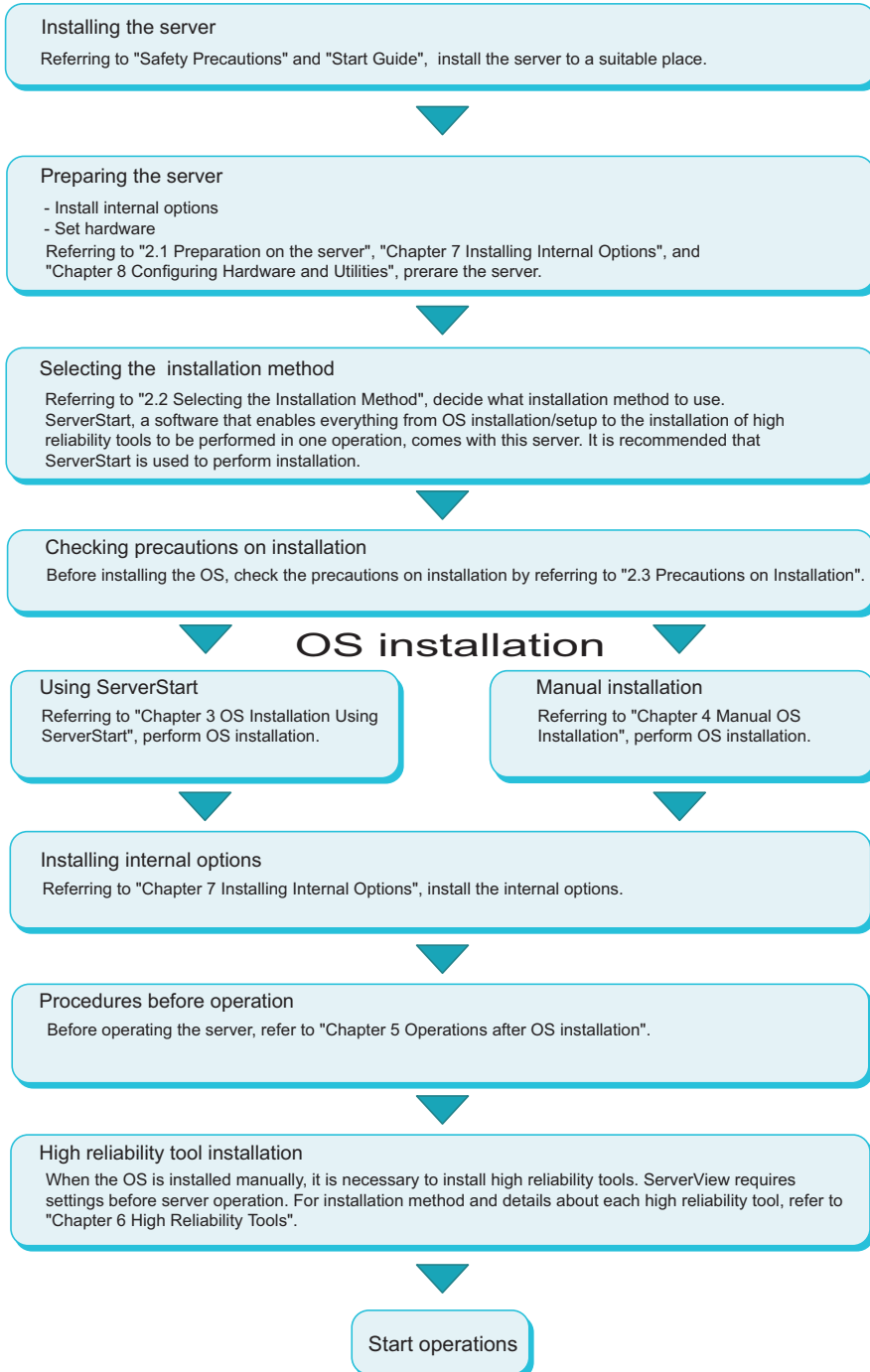
- ▶ Push the center of the CD-ROM unit bezel gently until the tray clicks into position.

■ Ejecting the CD-ROM

To eject the CD-ROM, press the CD-ROM eject button in the same way as steps 1 to 2 in "■ Inserting the CD-ROM" (→pg.37).

1.5 Workflow

Use the following workflow from server installation to start of operation.



Chapter 2

Checking before OS Installation

2

This chapter explains the preparation on the server and cautions necessary before OS installation. Please read this chapter before starting installation.

2.1	Preparation on the Server	42
2.2	Selecting the Installation Method	46
2.3	Precautions on Installation	47
2.4	Preparation for Using ServerStart on a Client Computer	52

2.1 Preparation on the Server

Before starting installation, install internal options to the server and perform necessary hardware settings.

2.1.1 Installing Internal Options

Internal options are classified into those that must be installed before the OS installation and those that must be installed after the OS installation.

For installation procedures, refer to "Chapter 7 Installing Internal Options" (→pg.171).

● Internal options that must be installed before the OS installation

- Memory modules
- CPU
- Expansion cards

● Internal options that must be installed after the OS installation

- Optional SCSI devices
- Internal hard disk units where the Operating System is not installed



- ▶ If an internal option device that must be installed after the OS installation has been already installed, remove the device, install the OS, then reinstall the device.

■ Cautions for Installing an Expansion Card

When using an expansion card, read the notes on the expansion card.

■ Cautions for Installing an Optional SCSI Device

When adding an optional SCSI device (DAT, etc.) using a SCSI card, connect it after installing the OS. Connecting it before OS installation may result in improper drive letter assignment.

■ Cautions for Installing a Memory Module

This server supports up to 16GB of memory. However, the maximum installable size varies depending on the OS. Furthermore, since the server uses part of the memory as PCI resources, the maximum available size is limited.

The following shows the maximum installable size and the maximum available size.

table: Maximum Installable Size and Maximum Available Size

OS	Installed memory size	Available memory size
Windows 2000 Server *1 Windows Server 2003, Standard Edition *1	3.0GB or smaller	Same as the installed memory size
	4.0GB	Installed memory size - (0.1 to 0.6GB) *3
Windows 2000 Advanced Server *2	3.0GB or smaller	Same as the installed memory size
	4.0 to 8.0GB	Installed memory size - (0.1 to 0.6GB) *3
Windows Server 2003, Enterprise Edition	3.0GB or smaller	Same as the installed memory size
	4.0 to 16.0GB	Installed memory size - (0.1 to 0.6GB) *3

*1: Windows 2000 Server and Windows Server 2003, Standard Edition support up to 4GB of memory.

*2: Windows 2000 Advanced Server support up to 8GB of memory.

*3: Because 0.1 to 0.6GB of memory is used as PCI resources, the available memory size varies depending on the installed card.



BIOS setting for installing 4GB or more of memory

- ▶ To install 4GB or more of memory, select the [Advanced System Configuration] submenu from the [Advanced] menu of the BIOS Setup Utility and set [Remap PCI Memory Gap] to [Enabled]. For more details, refer to "8.2.8 Advanced System Configuration Submenu" (→pg.235).

● Cautions Applicable When the OS is Windows Server 2003, Enterprise Edition or Windows 2000 Advanced Server

When installing 4GB or more of memory in a server operating with Windows 2000 Advanced Server or Windows Server 2003, Enterprise Edition, the /PAE option in the "Boot.ini" file must be described. For the procedure for editing the "Boot.ini" file, refer to the manual supplied with the OS.



- ▶ The "Boot.ini" file is an important file for the system. If the file is edited improperly, the system may not start up. Edit it carefully.

"Boot.ini" file description example

```
[operating systems]
multi(0)disk(0)rdisk(0)partition(1)?WINNT="Microsoft
Windows 2000 Advanced Server" /PAE /fastdetect
```

■ LAN Cable

Be sure to connect the LAN cable when the server is not connected to the Internet. If the OS is installed or applications are automatically installed without connecting the LAN cable to the LAN card, an error may be recorded in the event viewer after setup completes.



- ▶ Connecting to the Internet during setup can cause security problems. Do not connect to the Internet until the setup completes.

2.1.2 Hardware Settings

Before starting installation, set necessary hardware, such as the BIOS Setup Utility.

■ BIOS Setup Utility

The BIOS Setup Utility must be set in the following cases. For details on how to set the BIOS Setup Utility, refer to "8.2 BIOS Setup Utility" (→pg.223).

● Changing the Boot Drive

To change the boot drive, start up the BIOS Setup Utility, select [Boot Option], and set the boot drive. →"8.2.4 Boot Options Submenu" (pg.228)

● Performing Remote Installation

Before performing remote installation of ServerStart, use the following procedures to enable network startup (PXE). In addition, check the MAC address.

1 Take the following steps in the BIOS Setup Utility.

1. Start the BIOS Setup Utility.
→"8.2.1 Starting and Exiting the BIOS Setup Utility" (pg.223)
2. Select [Boot Options] and press the [Enter] key.
The Boot Options menu window appears.
3. Change [MultiBoot for HDs] to [Enabled].
4. Press the [Esc] key and select the [Advanced] menu.
5. Select the [Peripheral Configuration] submenu and change [LAN Remote Boot Ch.A] to [PXE].
→"8.2.6 Peripheral Configuration Submenu" (pg.231)
6. Press the [Esc] key. Select [Save Changes & Exit] from the [Exit] menu to exit the BIOS Setup Utility.
7. Start the BIOS Setup Utility again.
8. Select the [Boot Option] submenu from the [Main] menu. Press the [Enter] key.
The Boot Option submenu window appears.
9. Change the [Boot Sequence] setting as shown below.

```
1 BootManage PXE, Slot 0500
2 CD-ROM
3 Removable Device
4 Hard Drive
```

10. Exit the BIOS Setup Utility and turn off the server.

2 Check the MAC address.

Start up the server from the network.

The MAC address is displayed as shown below.

```
CLIENT MAC ADDR: XX XX XX XX XX XX
```

The MAC address is required for remote installation. Write it down.

POINT

- ▶ You can turn the power on from a client (via a LAN) by utilizing the Wakeup on LAN (WOL) function. Refer to "5.5.5 Turning the Power On via a LAN" (→pg.152).

IMPORTANT

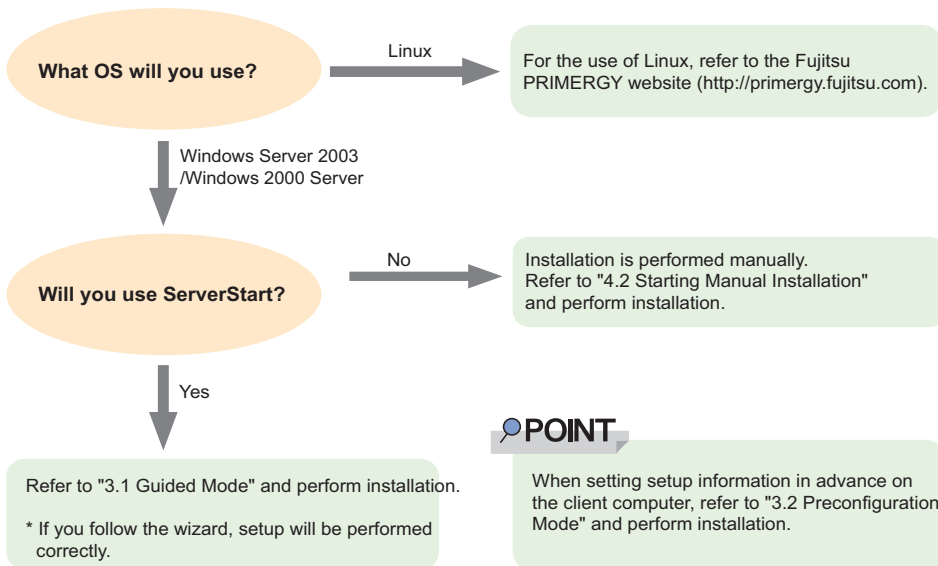
- ▶ Be sure to install ServerView to control the power supply via a LAN.

2.2 Selecting the Installation Method

When installing the OS for the first time, there are multiple installation methods. Refer to the following to decide on the method.

POINT

- ▶ To set up multiple servers with the same model and configuration, refer to "3.5 Installation on Multiple (the Second and Subsequent) Servers" (→pg.106).



POINT

When setting setup information in advance on the client computer, refer to "3.2 Preconfiguration Mode" and perform installation.

■ Installation Using ServerStart

When an OS is installed using ServerStart, the driver for the expansion card that is automatically recognized will be installed automatically. In addition, high reliability tools and array controller administrative tools are installed automatically. Installation using ServerStart is recommended. For features of ServerStart, refer to "1.2.1 Setup Support Tool - ServerStart" (→pg.16).

■ Installation While Maintaining the Established RAID Environment

In guided mode or preconfiguration mode, select [Use existing array] for [Configuration mode] at [RAID Wizard] (in the [RAID Configuration] window) and install the OS.

■ Installation Using ServerStart While Maintaining the Existing Partitions

In expert mode, start up Disk Manager, format the installation partition, and install the OS.

2.3 Precautions on Installation

Read the following notes before starting OS installation.

2.3.1 Installation Partition Size

For installation using ServerStart, the installation partition size can be set as follows, depending on the OS to be installed and format.

table: Installation Partition Size

Available size	Windows Server 2003	Windows 2000 Server
Minimum	2200MB	2048MB
Maximum	2TB	2TB

● Notes

- When you want to set the OS and BOOT partitions in different partitions, specify the partition size directly.
(The BOOT partition is the partition for startup. Minimum information required for startup, such as "ntldr", is stored.
The OS partition is the partition for installing the OS.)
- In either of the following cases, specify a partition size less than 2TB.
 - When the same partition is specified as the OS and BOOT partitions
 - When different partitions are specified as the OS and BOOT partitions
- The OS cannot be installed in a partition larger than 2TB.

2.3.2 Notes on Configuring RAID

Take the following notes when you configure a RAID system.

■ Hardware Configuration

- Only internal hard disk units can be used.
- Be sure to use hard disk units of the same model and with the same capacity.
- Up to six hard disk units can be installed. Do not set the number of units more than the maximum.
- The number of units that can be set at each RAID level is as follows.
 - RAID level 0: 2 to 6 units
 - RAID level 1: 2 units
 - RAID level 5 (recommended): 3 to 6 units
 - RAID level 10: 4 or 6 units



- ▶ When the OS is installed using ServerStart, only one RAID card can be installed. If you need more cards, install them after OS installation.

■ Array Configuration

The following shows the pack order of hard disk units for a two-channel array configuration by ServerStart.

For more details on the array configuration, refer to "PRIMERGY RX300 S2 Onboard SCSI RAID User's Guide".

table: Array Configuration

Item	Contents
Number of physical packs	1
Number of system drives	1
Pack order of hard disk units	<p>Channel 0 is packed preferentially in ascending order of SCSI-ID set for the hard disk units.</p> <p>E.g.:(In a two-channel configuration)</p> <p>Pack A-1 Channel 0 SCSI-ID 0</p> <p>Pack A-2 Channel 0 SCSI-ID 1</p> <p>Pack A-3 Channel 0 SCSI-ID 2</p> <p>Pack A-4 Channel 1 SCSI-ID 0</p> <p>Pack A-5 Channel 1 SCSI-ID 1</p> <p>When a hot spare is specified, the hard disk unit with the largest channel number and the largest SCSI-ID will be used as the hot spare hard disk unit.</p>

■ Checking before OS Installation

- When a RAID-configured disk is used
When using a configured disk, delete a physical pack in advance. For how to delete a physical pack, refer to "PRIMERGY RX300 S2 Onboard SCSI RAID User's Guide".
- Number of disk units
If the number of actually installed units is smaller than the setting for the number of units (+1 when a hot spare is specified), installation using ServerStart is aborted because of an error.
When the number of installed disk units is greater than the setting, the disk units are set up according to the setting. Extra units will be configured as standby disk units. You can add a physical pack later. For more details, refer to "PRIMERGY RX300 S2 Onboard SCSI RAID User's Guide".

2.3.3 Notes on a Multiple LAN Adapter Configuration

Using the OS installation wizard of ServerStart, you can configure multiple LAN adapters (network adapters) on the system. However, there are the following limitations.

● Adapter Numbers

To configure multiple LAN cards, select the adapter numbers in order of Adapter 1 and Adapter 2, and enter settings for each adapter. Note that the order of adapter numbers is not necessarily the same as the order of slots for the installed LAN adapters. This means that the setting for Adapter 1 is not always applied to the onboard LAN. After installing the OS, check the LAN adapters to make sure that they are configured as intended.

2.3.4 Cautions for Using ServerStart

■ Operating ServerStart

Most ServerStart operations are performed with the mouse. Items may not be moved with the [Tab] key or cursor keys. Be sure to use the mouse when operating ServerStart.

■ Ejecting the CD-ROM

Do not eject the ServerStart CD-ROM while ServerStart is running. If the ServerStart CD-ROM is ejected and inserted again, ServerStart starts up in multiple windows, and settings you have made can be lost.

■ Exiting ServerStart

After operation in guided mode or expert mode, exiting ServerStart restarts the system. Ejecting disks from the floppy disk and CD-ROM drives and click [OK]. When the display on the screen disappears, turn off the system.

■ License for Use of System for ServerStart

"License for Use of System for ServerStart" linked from the ServerStart startup window is a license for use of Windows PE contained in the ServerStart CD-ROM. Windows PE for starting up ServerStart can be only used for installing Windows Server 2003 or Windows 2000 Server provided under a separate legal license.

■ Setting Up the Printer

ServerStart does not support setup of printers. Perform installation after setup is completed.

2.3.5 Expansion Cards Supported by ServerStart

ServerStart supports automatic driver installation for the following expansion cards.

table: Automatic Expansion Card Driver Installation

Name	Model	Bus
Onboard FDD/IDE	-	-
Onboard LAN	-	PCI
Onboard VGA	-	PCI
Onboard SCSI array controller	-	PCI
RAID Ctrl 2-Channel 128 MB w/ BBU	PG-142E3	PCI
LAN card	PG-1852	PCI
	PG-1862	PCI
	PG-1882/PG-1882L	PCI
	PG-1892/PG-1882L	PCI
SCSI card	PG-128	PCI
	PG-130L	PCI
Fiber Channel Controller	PG-FC106	PCI

2.3.6 Cautions for Manual Installation

■ Cautions for SCSI Array Controller

The onboard SCSI array controller must be configured before the OS is installed. To check the onboard RAID card configuration, start up WebBIOS. For more details, refer to "PRIMERGY RX300 S2 Onboard SCSI RAID User's Guide".

■ Free Space Required for Installation

The partition where the OS is installed must have enough free space for obtaining memory dump. For more details, refer to "5.1 Memory Dump/Paging File Setting" (→pg.130).

■ Cautions on Restarting

In the course of installation, a message appears to indicate that the setup program restarts. Wait until it restarts.

For more details on background operations, refer to "PRIMERGY RX300 S2 Onboard SCSI RAID User's Guide".

2.4 Preparation for Using ServerStart on a Client Computer

When using the preconfiguration mode for setting installation information in advance or when creating a driver disk using the FloppyBuilder function, install ServerStart on the client computer.

● System Requirements for Client Computers

Client computers must satisfy the following requirements.

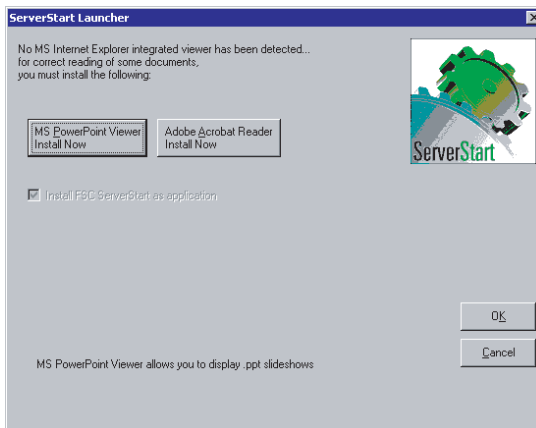
Hardware	Personal computers operated with Windows NT, Windows XP Professional, or Windows 2000 Professional (A CD-ROM drive and 10MB or more of free space are required.)
Software	Microsoft® Internet Explorer 5.5 or later

2.4.1 Installing ServerStart



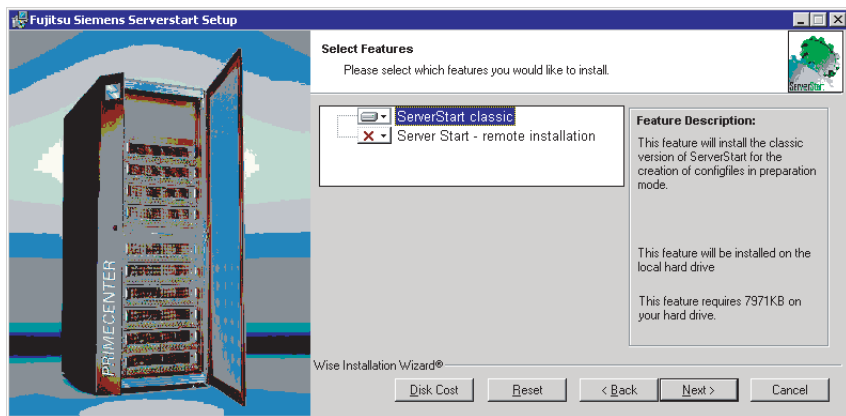
- ▶ If a different version of ServerStart has been installed, uninstall it. The FloppyBuilder function or installation wizard may not operate properly on a different version.
For details on how to uninstall ServerStart, refer to "2.4.2 Uninstalling ServerStart" (→pg.54).

- 1** Insert the ServerStart CD-ROM into the client computer's CD-ROM drive.
The [ServerStart Launcher] window appears.
When the [ServerStart Launcher] window does not appear, execute "Launcher.exe" in the CD-ROM.

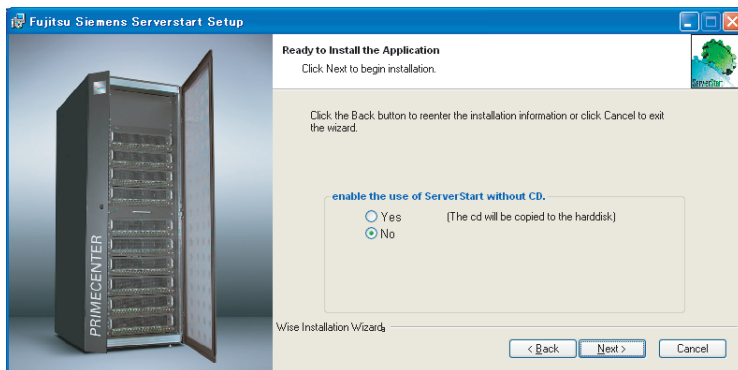


- 2** Click [OK].
The Windows installer starts and the Setup window appears.

- 3 Click [Next].
The [License Agreement] window appears.
- 4 Select [I accept the license agreement] and click [Next].
The [User Information] window appears.
- 5 Enter the user information of the software and click [Next].
The [Installation Folder] window appears.
- 6 Specify the installation folder and click [Next]. To change the installation folder, click [Browse] and select the folder.
The [Select Features] window appears.



- 7 Set [ServerStart - remote installation] to "Disable this function" and click [Next].
The [Ready to Install the Application] window appears.



- 8 Specify whether or not to copy the contents of the CD.
When you select [Yes] for "enable the use of ServerStart without CD.", you can start the preconfiguration mode on the client computer without using the CD-ROM.
If you select [Yes], specify the target folder. The target folder must have enough free space to copy the contents of the CD-ROM.

 **IMPORTANT**

- ▶ On WindowsNT, the CD-ROM is not copied. You must click [No]. The ServerStart CD-ROM is required to start ServerStart.

9 Click [Next].

Installation is executed.

 **POINT**

- ▶ If a message prompting you to restart the system appears before or after installation, eject the CD-ROM and restart the system according to the message. When the system restarts, insert the ServerStart CD-ROM and start installation again.
If the "This program does not respond." message appears during restart operation, click [Exit] to continue the restart operation.

When the installation is completed, the completion window appears.

10 Click [Exit].

ServerStart has been installed to the client computer

2.4.2 Uninstalling ServerStart

Perform the following procedure to uninstall ServerStart from the client computer.

1 Click [Start] → [Settings] → [Control Panel].

2 Double-click [Add or Remove Applications] ([Add or Remove Programs] on some operating systems).

3 Select [Fujitsu ServerStart] and click [Remove] (or [Modify]).

When the uninstallation is executed successfully, Fujitsu ServerStart is deleted.

If [ServerStart - remote installation] has been installed using ServerStart, "FjPXEServer" seems undeleted. Leave it and complete the operation.

 **POINT**

- ▶ On Windows 2000 Professional clients, "Add or Remove Applications" may become unable to respond during uninstallation. If this occurs, log off from the system.

Chapter 3

OS Installation Using ServerStart

3

This chapter explains how to install the OS in the server using ServerStart.

3.1	Guided mode	56
3.2	Preconfiguration Mode	73
3.3	Expert Mode	80
3.4	Remote Installation	87
3.5	Installation on Multiple (the Second and Subsequent) Servers	106

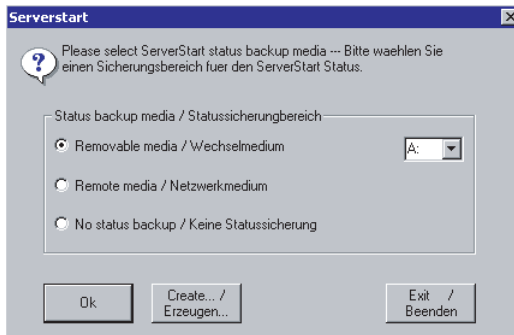
3.1 Guided mode

In guided mode, follow the wizard to specify hardware configuration and the OS to be installed, save the information necessary for installation in a configuration file, and install the OS.

3.1.1 Starting Up the Guided Mode

Start up the guided mode.

- 1 Turn on the server and insert the ServerStart CD-ROM immediately. ServerStart starts up and a message appears prompting you to insert the ServerStart floppy disk.

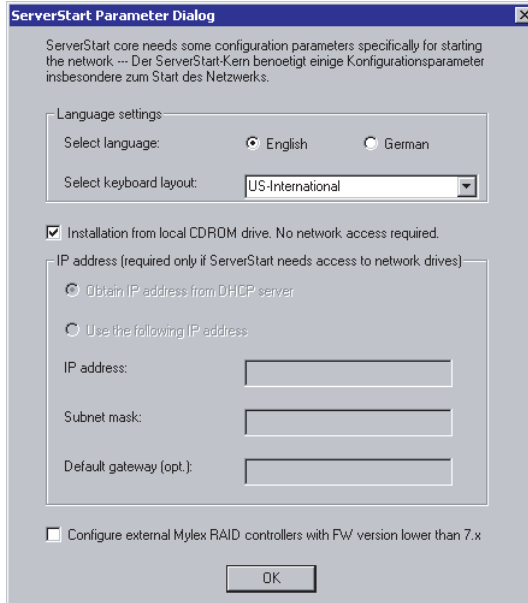


- 2 Insert the ServerStart floppy disk supplied with the server. Make sure that "Removable media" and "A:" are selected and click [Create].

POINT

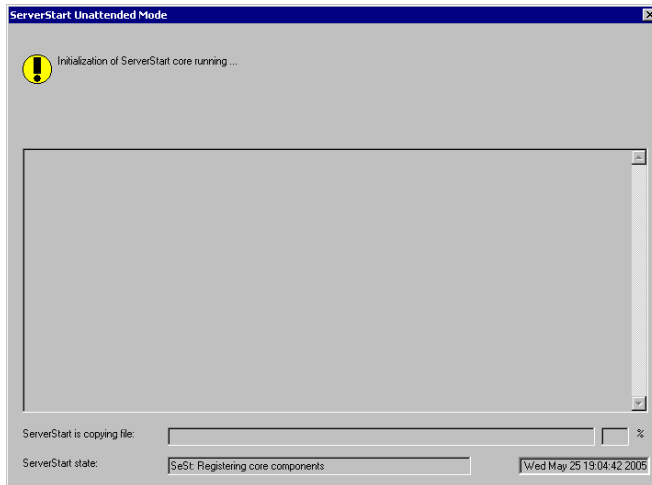
- ▶ Set the ServerStart floppy disk in the write-enabled state.

The network setting window for remote installation appears.

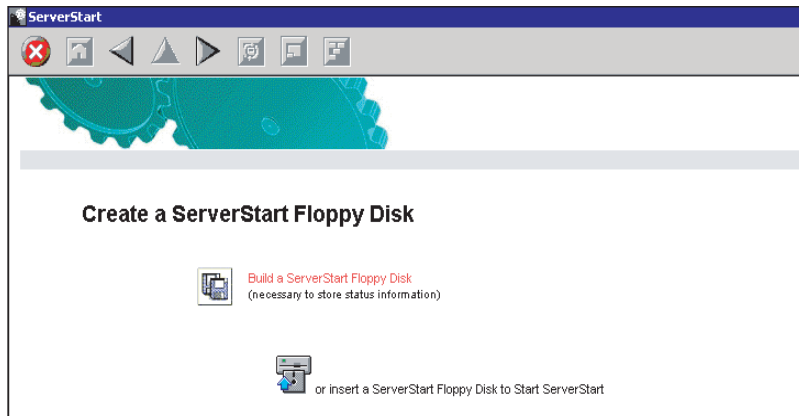


3 Click [OK].

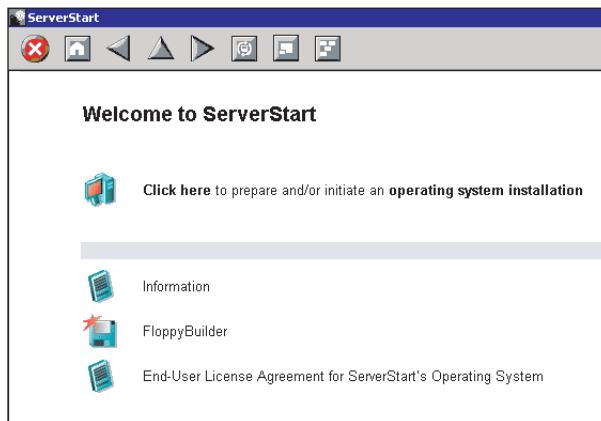
The [Initialization of ServerStart core running] window appears and unattended installation will be started. Depending on the hardware configurations, this process may take a few minutes.



When the process is completed, the [Create a ServerStart Floppy Disk] window appears.



- 4** Click [Build a ServerStart Floppy Disk].
Creation of a ServerStart floppy disk starts. When the creation is completed, the "Floppy disk has been created." message appears.
- 5** Click [OK].
"Please Select your keyboard" window appears.
- 6** Select your keyboard language from the dropdown list and click [OK].
The subsequent start procedure may take several minutes.
The [Welcome to ServerStart] window appears.

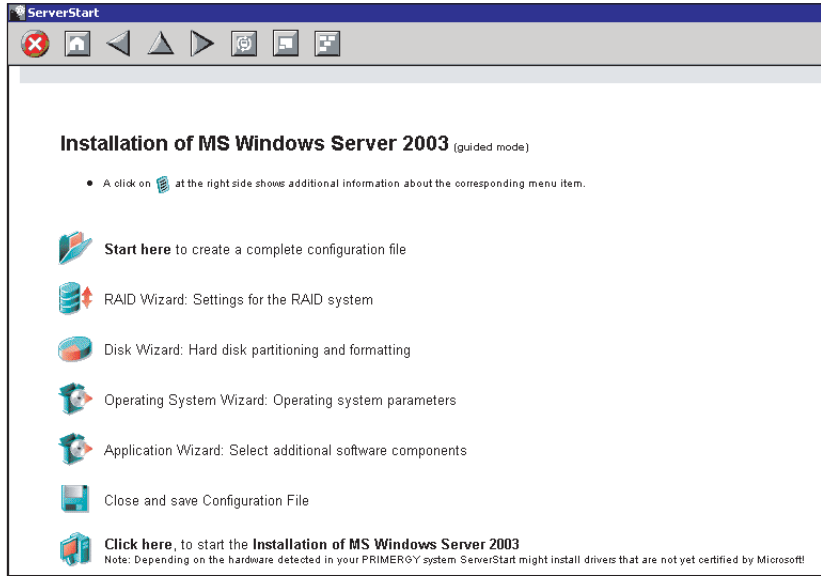


- 7** Click [Click here to prepare and/or initiate an operating system installation].
The [Select the operating system to be installed] window appears.
Click [Special Hints on Operating System Installation] and read the contents. Important information such as limitations on disk configuration is described.
- 8** Click [MS Windows Operating Systems].
The [Microsoft Windows Operating System Installation] window appears.

9 Click the OS to install.

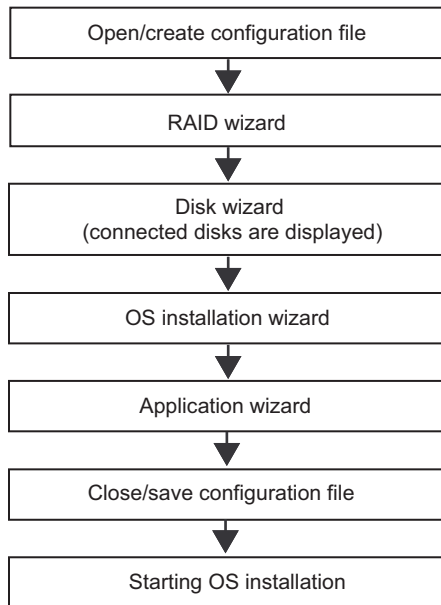
10 Click [Prepare & initiate an unattended installation of (OS)].

The guided mode for the selected OS starts up.



Start up the wizards to set items in the following procedures.

Exiting the wizard returns the display to the guided mode window.

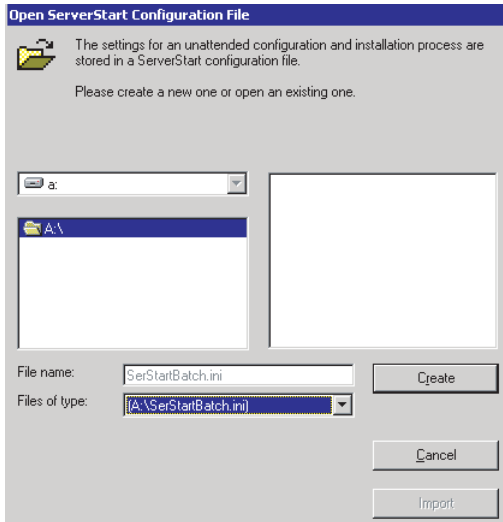


3.1.2 Open/create a Configuration File

Open a configuration file. Or create a new file.

- 1 Click [Start have to create a complete configuration file].

The [Open ServerStart Configuration File] window appears.



IMPORTANT

- ▶ Once a configuration file is opened, another file cannot be opened until you click [Close and save Configuration File].

- 2 Select the configuration file and click [Create].

The [Create] button is changed to the [Continue] button.

- 3 Click [Continue].

The [RAID Wizard] starts up automatically (→"3.1.3 RAID wizard" (pg.61)).

3.1.3 RAID wizard

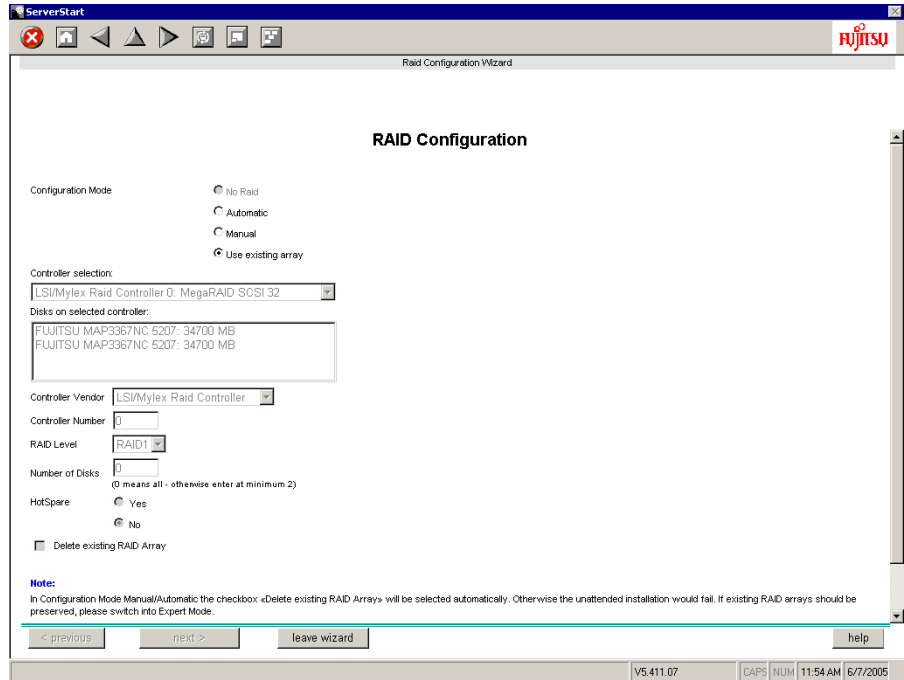
Configure RAID.

1 Click [RAID Wizard: Setting for the RAID system].

The [RAID Configuration] window appears.

Only array controllers already installed are displayed.

The number of hard disk units connected to the array controller is displayed.



POINT

- ▶ If you open a configuration file that has been created before, displayed settings may differ from the previously set values. Be sure to check the settings.
- ▶ One hot spare (standby disk) can be configured. However, it cannot be set for RAID0. When the hot spare disk is set to "Use", set the number of disk units to the number of installed disk units minus 1.
E.g.: When four hard disk units are installed, set the RAID level to "RAID5", and when the hot spare disk is set to "Use", set the number of disk units to "3".

2 Set items and click [leave wizard].

The RAID wizard closes.

3.1.4 Disk wizard

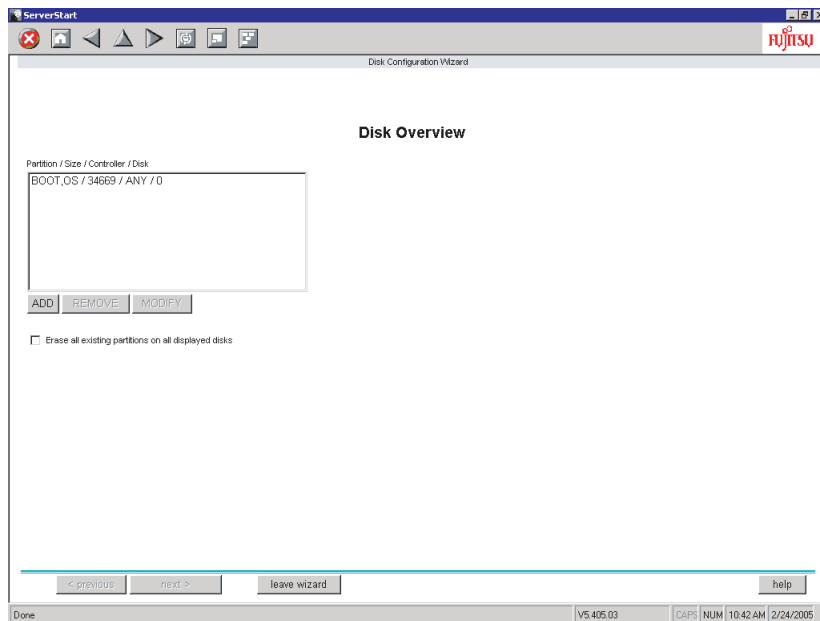
Create and format hard disk partitions.



- ▶ The disk wizard starts up with the default settings. Be sure to click [MODIFY] to check the settings. Change them as necessary.

1 Click [Disk Wizard: Hard disk partitioning and formatting].

The [Disk Overview] window appears.



POINT

- ▶ When the installation disk has partitions, check [Erase all existing partitions on all displayed disks].
- ▶ When other disks than the installation disk have an active partition, create a partition on the disks with an active partition and check [Erase all existing partitions on all displayed disks].

2 Add, remove, or modify partitions as necessary.

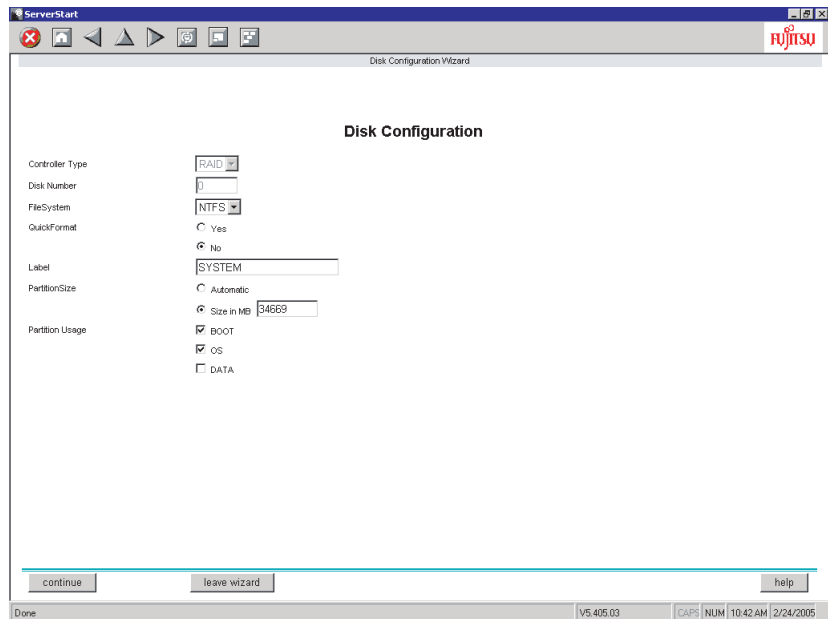


- ▶ Partition size of the FAT file system
When "FAT" is selected in [File system] and a value equal to or more than 4095MB or "Automatic setting" is specified in [Partition size], the size of created partitions will be 4095MB.
- ▶ The following limits apply to the volume label length. A volume label longer than the limit may be used. However, it can cause installation failure. Enter a volume label within the limit.
 - FAT: Up to 11 byte characters
 - NTFS: Up to 32 byte characters

Add a partition

1. Click [Add].

The [Disk Configuration] window appears.



2. Set items and click [continue].

The new partition is added to the partition list.

Remove a partition

1. Select the partition to remove and click [REMOVE].

The partition is removed.

Modify the partition configuration

1. Select the partition to modify and click [MODIFY].

The [Disk Configuration] window appears.

2. Change items and click [continue].

The partition is modified.

- 3** Click [leave wizard] after settings are completed.

The disk wizard closes.



- ▶ If you are in guided mode and want to start up the disk wizard again after exiting the wizard, save the configuration file.
ServerStart may restart when the disk wizard restarts. If this occurs, open the configuration file you have saved and start setting from the item where you have discontinued. If the configuration file is not saved, the settings are lost. Start setting again from the beginning.

3.1.5 OS Installation Wizard

Set computer information, user information, and the network protocol.

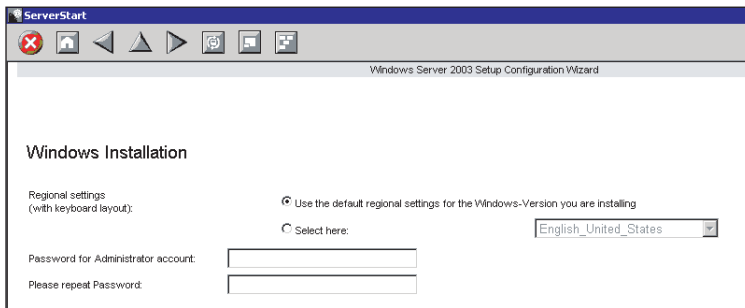
ServerStart can configure multiple network patterns. When configuring a domain controller, refer to "Using ServerStart to configure the Network".

POINT

- ▶ The set up window differs depending on the OS to be installed. The following describes operations on Windows Server 2003.

1 Click [Windows Server 2003 setup configuration Wizard].

The [Windows Installation] window appears.

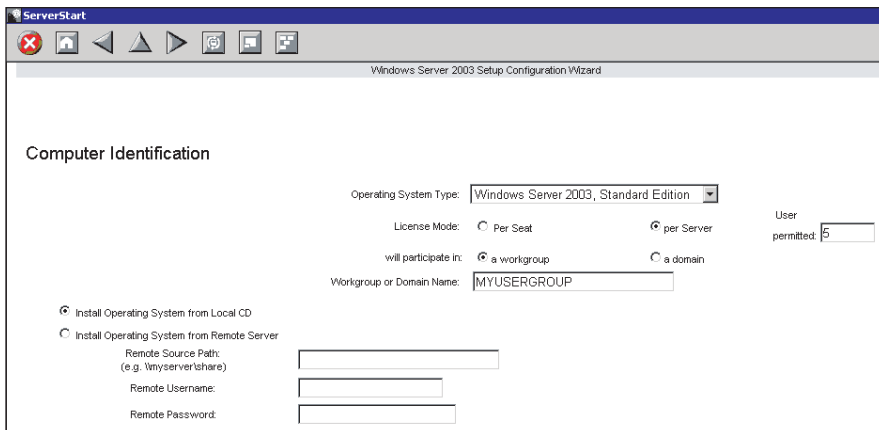


2 Enter the password in [Password for Administrator account] and [Please repeat Password] and click [Next].

POINT

- ▶ If the password differs between [Password for Administrator account] and [Please repeat Password], an error dialog window appears. Enter the correctly password.

The [Computer Identification] window appears.



3 Set items and click [Next].

The [Installation Directory and Time Zone] window appears.

The screenshot shows the 'Installation Directory and Time Zone' window of the Windows Server 2003 Setup Configuration Wizard. The window title is 'ServerStart' and the subtitle is 'Windows Server 2003 Setup Configuration Wizard'. The main content area is titled 'Installation Directory and Time Zone'. It contains the following fields and options:

- Time Zone:** A dropdown menu showing '(GMT+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna'.
- Installation Drive:** A radio button labeled 'Use Default' is selected.
- Drive Letter:** A dropdown menu showing 'C: SYSTEM'.
- Installation Directory:** A radio button labeled 'Use default' is selected.
- Other options include 'Prompt User' and 'Specify now:' (with an empty text box).

4 Set items and click [Next].

The [User Name] window appears.

The screenshot shows the 'User Name' window of the Windows Server 2003 Setup Configuration Wizard. The window title is 'ServerStart' and the subtitle is 'Windows Server 2003 Setup Configuration Wizard'. The main content area is titled 'User Name'. It contains the following fields:

- User Name:** A text input field.
- Organization:** A text input field.
- Computer Name:** A text input field.
- Product-ID (optional):** A series of five small text input fields separated by dashes.

Below the fields, there is a note: 'If you use an OEM operating system CD you don't need to enter a Product-ID.'

5 Set items and click [Next].

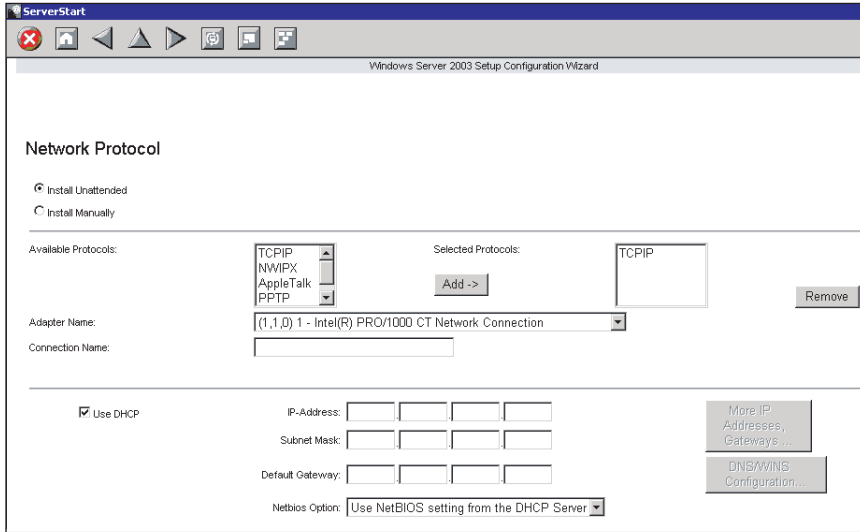
The [Display Settings] window appears.

The screenshot shows the 'Display Settings' window of the Windows Server 2003 Setup Configuration Wizard. The window title is 'ServerStart' and the subtitle is 'Windows Server 2003 Setup Configuration Wizard'. The main content area is titled 'Display Settings'. It contains the following fields:

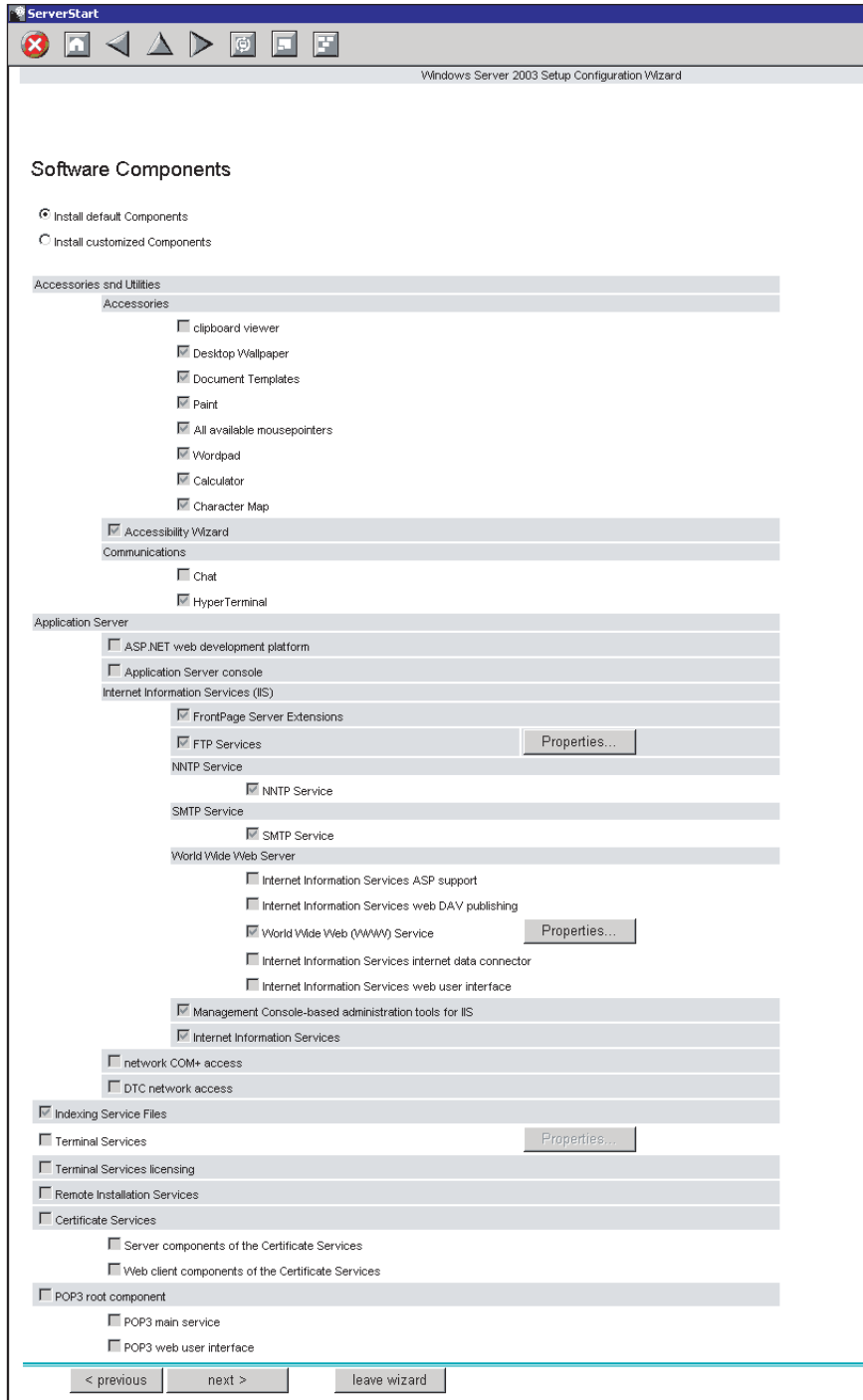
- Resolution:** A dropdown menu showing '800 * 600'.
- VRefresh:** A dropdown menu showing '70'.
- BitsPerPel:** A dropdown menu showing '16'.

6 Set items and click [Next].

The [Network Protocol] window appears.

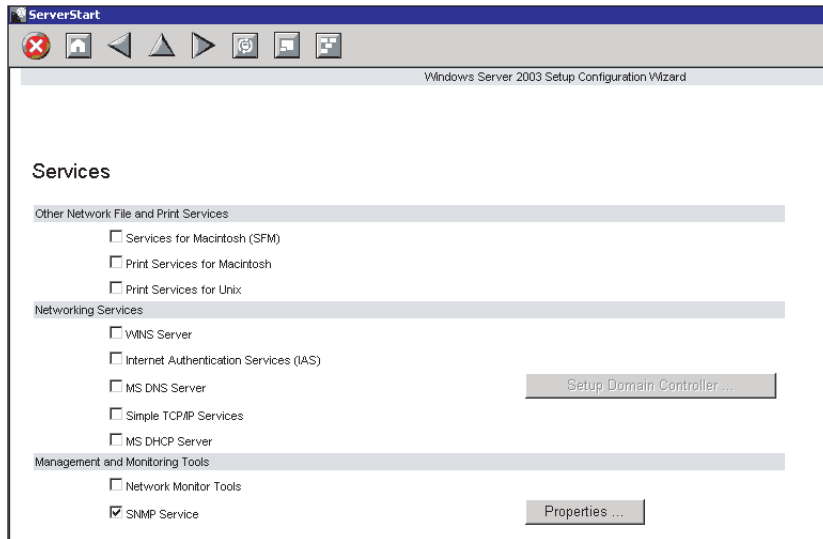


- 7 Set items and click [Next].
The [Software Components] window appears.



8 Set items and click [Next].

The [Services] window appears.



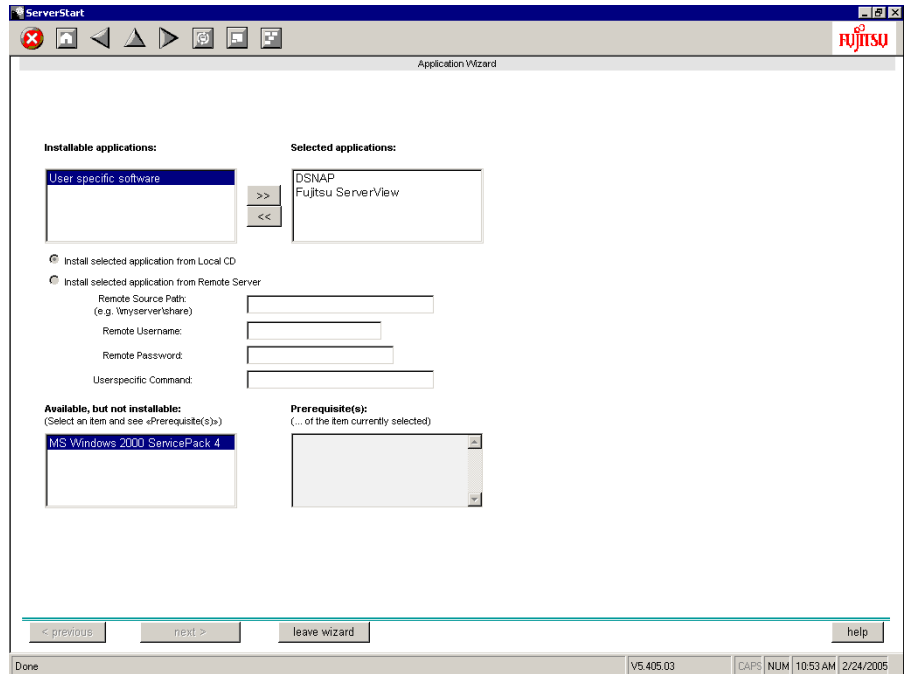
9 Set items and click [leave wizard].

The OS installation wizard closes.

3.1.6 Application Wizard

Specify installation of supplied applications such as high reliability tools.

- 1 Click [Application Wizard: Select additional software components].
The application wizard appears.



- 2 From the [Installable applications] list, select applications to be installed and click [>>].
Set all applications to be installed on the [Selected applications] list.
- 3 Click [leave wizard].
The application wizard closes.

3.1.7 Close/save the Configuration File

When settings in all wizards are completed, save the configuration file.

- 1** Click [Close and save Configuration File].
The [Save ServerStart Configuration File] window appears.
- 2** Click [Save As].
The configuration file is saved.



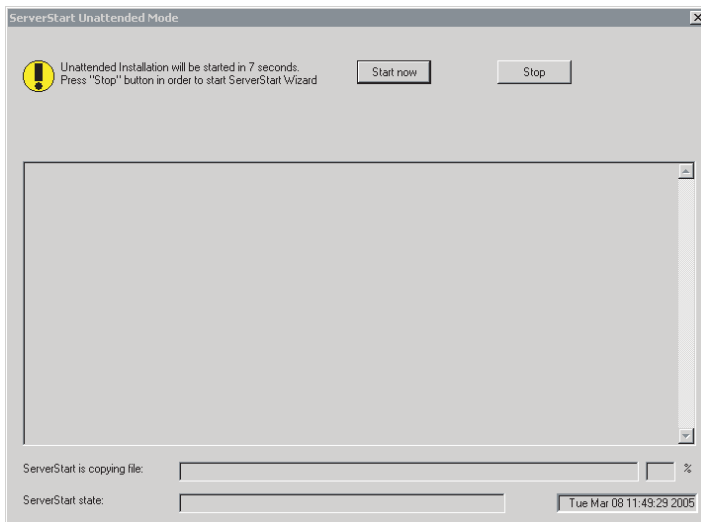
- ▶ You can specify any name for the configuration file. However, OS installation is possible only when it is saved as "SerStartBatch.ini". When installing the OS, make sure to save it as "SerStartBatch.ini" on the ServerStart floppy disk.

3.1.8 Starting OS Installation

Install the OS to the server.

During installation, do not use the mouse or keyboard unless it is necessary for installation operations. Otherwise, installation may fail.

- 1** Click [Click here, to the Installation of (OS)].
The [ServerStart Unattended Mode] window appears.



2 Click [Start now].**POINT**

- ▶ Clicking [Start now] deletes all disk contents and starts installation. Click [Stop] when you do not perform installation.

After 10 seconds, installation starts automatically.

- When RAID has been configured, the system restarts.
- If a message prompting you to insert the Service Pack CD-ROM appears, insert the CD-ROM and click [OK].
This message does not appear when Service Pack is not selected.
- If a message prompting you to insert the ServerView CD-ROM appears, insert the PRIMERGY Document & Tool CD (Disc 1) and click [OK].
This message does not appear when ServerView will not be installed or the PRIMERGY Document & Tool CD (Disc 1) has been inserted already.
- If a message prompting you to insert the ServerStart CD-ROM appears, insert the CD-ROM and click [OK].

3 When a message prompting you to insert the OS CD-ROM appears, insert the CD-ROM and click [OK].

After files are copied, a message prompting you to insert the ServerStart CD-ROM appears.

4 Insert the ServerStart CD-ROM and click [OK].

The License Agreement window appears.

5 Click [I agree].

After files are copied, a message prompting you to eject the CD-ROM and floppy disk appears.

6 Eject the CD-ROM and floppy disk and click [OK].

Then the system is restarted.

The system continues the installation operation after restart.

OS GUI setup, LAN utility installation, Service Pack installation, and Active Directory installation are performed automatically.

7 When a confirmation message to restart appears, click [Restart].

The system restarts and installs high reliability tools.

Installation is performed automatically.

8 When a message on installation completion appears, press any key.**9** Restart the system.

Click [Start]→[Shutdown]. Select [Restart] and click [OK].

The system restarts.

10 When the system restarts, log on to the server using the Administrator account for the local computer.

The server setup and OS installation have been completed.

Refer to "Chapter 5 Operations after OS Installation" (→pg.129) and perform necessary procedures before starting server operations.

3.2 Preconfiguration Mode

In preconfiguration mode, set and save the information necessary for installation in a configuration file on a client computer (with a CD-ROM drive and 10MB or more of free space). Set the saved configuration file on the server for installation.

POINT

- ▶ If ServerStart is not installed in the client computer where the preconfiguration mode is executed, refer to "2.4 Preparation for Using ServerStart on a Client Computer" (→pg.52) to install ServerStart. If a different version of ServerStart has been installed, uninstall it and install the proper version. For details on how to uninstall ServerStart, refer to "2.4.2 Uninstalling ServerStart" (→pg.54).

IMPORTANT

- ▶ If ServerStart is started up on a computer where a different version of ServerStart is installed, the installation wizard may not operate properly. Make sure to uninstall a different version of ServerStart.

3.2.1 Starting Up the Preconfiguration Mode

Start up the preconfiguration mode.

1 Start up ServerStart.

If ServerStart has already been started, it is not necessary to start it up again. If it has not, start it up according to the following procedures:

When the CD has been copied Windows 2000 Professional/Windows XP Professional

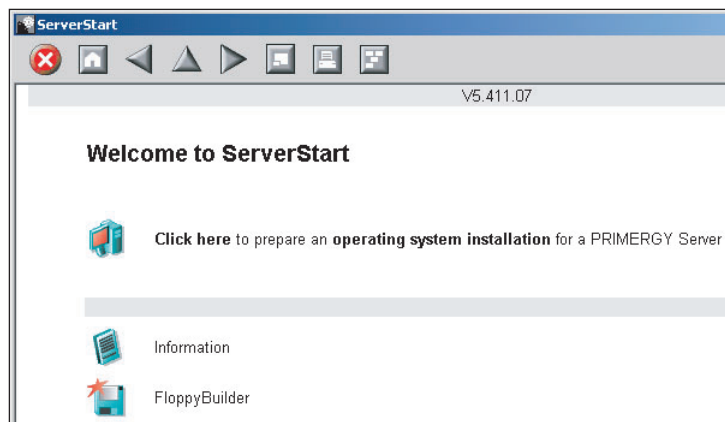
1. Click [Start] → [Programs] → [Fujitsu ServerStart] → [ServerStart].

ServerStart starts up and the [Welcome to ServerStart] window appears.

When Windows NT is used, or if the CD has not been copied

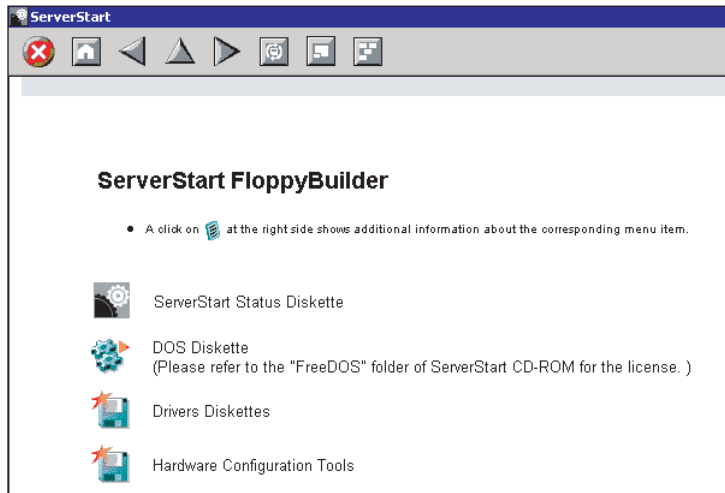
1. Insert the ServerStart CD-ROM into the client computer's CD-ROM drive.

ServerStart starts up and the [Welcome to ServerStart] window appears.



2 Click [FloppyBuilder].

The [ServerStart FloppyBuilder] window appears.



3 Click [ServerStart Status Diskette Floppy Disk].

A message prompting you to insert the floppy disk appears.

4 Insert the ServerStart floppy disk supplied with the server and click [OK].

POINT

- ▶ Set the ServerStart floppy disk in the write-enabled state.

Creation of a ServerStart floppy disk starts. When the creation is completed, the "Floppy disk has been created." message appears.

5 Click [OK].

6 Click [] (HOME) on the tool bar.

The display returns to the [Welcome to ServerStart] window.

7 Click [Click here to prepare an operating system installation for a PRIMERGY Server].

The [Prepare the installation of an operating system for PRIMERGY Servers] window appears.

IMPORTANT

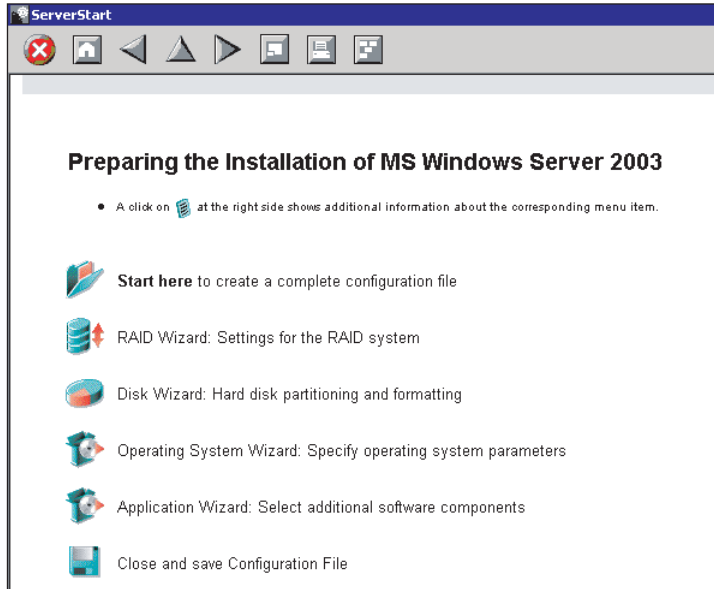
- ▶ Before starting installation, click [Cautions for Installation] and read the contents. Important information such as limitations on disk configuration is described.

8 Click [Creation of a ServerStart Configuration file for the installation of an Microsoft Windows Operating System].

The [Microsoft Windows Operating System Installation] window appears.

9 Select the OS to be installed.

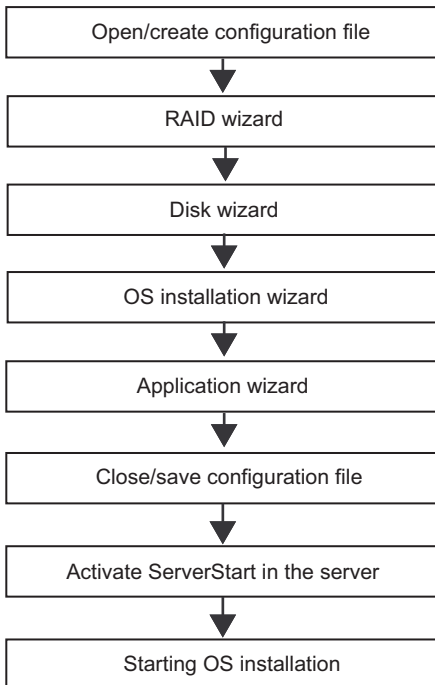
The [Preparing Installation] window appears.



3.2.2 Configure Settings in Wizards

Click the wizards to set items in the following procedures. For setting procedures, refer to description on guided mode wizards ("3.1.2 Open/create a Configuration File" (→pg.60) to "3.1.6 Application Wizard" (→pg.69)).

Exiting a wizard returns the display to the preconfiguration mode window.



3.2.3 Close/save the Configuration File

When settings in all wizards are completed, save the configuration file.

- 1 Click [Close and save Configuration File].
The [Save ServerStart Configuration File] window appears.

- 2 Click [Save As].
The [ServerStart Remote Installation IP Settings] window appears.

- 3 Set items when performing remote installation.

- 4 Click [Set].
The configuration file is saved.

IMPORTANT

- ▶ You can specify any name for the configuration file. However, OS installation is possible only when it is saved as "SerStartBatch.ini". When installing the OS, make sure to save it as "SerStartBatch.ini" on the ServerStart floppy disk.

3.2.4 Starting OS Installation

Install the OS to the server using the created configuration file.

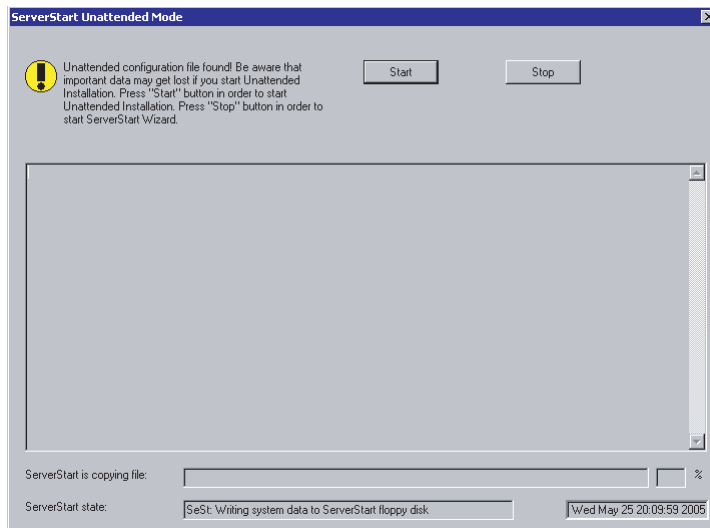
During installation, do not use the mouse or keyboard unless it is necessary for installation operations. Otherwise, installation may fail.

- 1** Turn on the server and insert the ServerStart CD-ROM immediately.
A message prompting you to insert the ServerStart floppy disk appears.
- 2** Insert the ServerStart floppy disk containing the created configuration file and click [OK].



- ▶ Set the ServerStart floppy disk in the write-enabled state. If it is write protected, installation will fail.

The [Initialization of ServerStart core running] window appears and unattended installation will be started. Depending on the hardware configuration, this process may take a few minutes. When initialization is completed, the [ServerStart Unattended Mode] window appears.



- 3** Click [Start].

Installation starts.

- When RAID has been configured, the system restarts.
- If a message prompting you to insert the Service Pack CD-ROM appears, insert the CD-ROM and click [OK].
This message does not appear when Service Pack is not selected.
- If a message prompting you to insert the ServerView CD-ROM appears, insert the PRIMERGY Document & Tool CD (Disc 1) and click [OK]. This message does not appear when ServerView will not be installed or the PRIMERGY Document & Tool CD (Disc 1) has been inserted already.

- If a message prompting you to insert the ServerStart CD-ROM appears, insert the CD-ROM and click [OK].
- 4** When a message prompting you to insert the OS CD-ROM appears, insert the CD-ROM and click [OK].
After files are copied, a message prompting you to insert the ServerStart CD-ROM appears.
 - 5** Insert the ServerStart CD-ROM and click [OK].
The License Agreement window appears.
 - 6** Click [I Agree].
After files are copied, a message prompting you to eject the CD-ROM and floppy disk appears.
 - 7** Eject the CD-ROM and floppy disk and click [OK].
The system restarts. The system continues the installation operation after restart. OS GUI setup, LAN utility installation, Service Pack installation, and Active Directory installation are performed automatically.
 - 8** When a confirmation message appears on restart, click [Restart].
The system restarts and installs high reliability tools. Installation is performed automatically.
 - 9** When a message on installation completion appears, press any key.
 - 10** Restart the system.
Click [Start] → [Shutdown]. Select [Restart] and click [OK]. The system restarts.
 - 11** When the system restarts, log on to the server using the Administrator account for the local computer.

The server setup and OS installation have been completed.

Refer to "Chapter 5 Operations after OS Installation" (→pg.129) and perform necessary procedures before starting server operations.


3.3 Expert Mode

In expert mode, start up Disk Manager, format the installation partition, and install the OS.

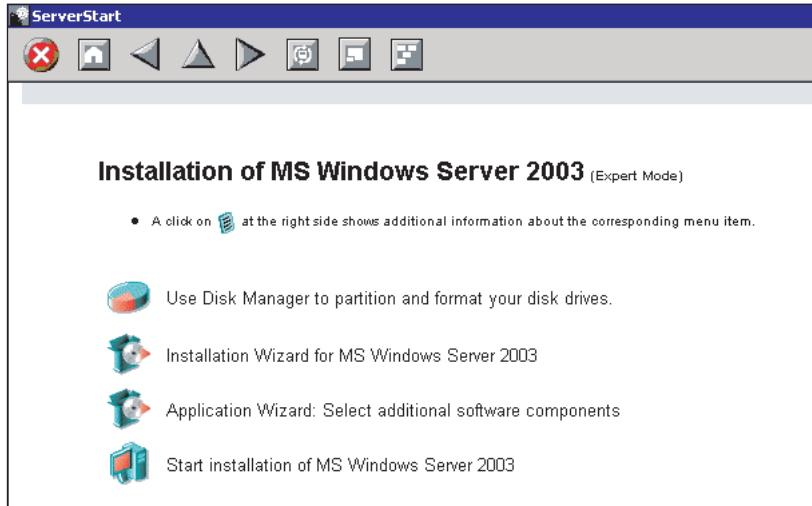
Use the expert mode only when you want to perform installation while maintaining the existing partitions. Use the guided mode for normal installation.

3.3.1 Starting Up the Expert Mode

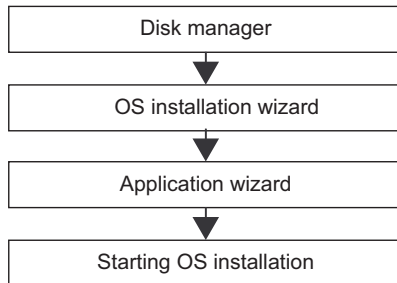
Start up the expert mode.

- 1** Turn on the server and insert the ServerStart CD-ROM immediately.
ServerStart starts up and a message appears prompting you to insert the ServerStart floppy disk.
- 2** Insert the ServerStart floppy disk supplied with the server. Make sure that "Removable media" and "A:" are selected and click [Create].
The network setting window for remote installation appears.
 **POINT**
▶ Set the ServerStart floppy disk in the write-enabled state.
- 3** Click [OK].
The [Initialization of ServerStart core running] window appears and unattended installation will be started. Depending on the hardware configurations, this process may take a few minutes.
When the process is completed, the [Create a ServerStart Floppy Disk] window appears.
- 4** Click [Build a ServerStart Floppy Disk].
Creation of a ServerStart floppy disk starts. When the creation is completed, the "Floppy disk has been created." message appears.
- 5** Click [OK].
"Please Select your keyboard" window appears.
- 6** Select your keyboard language from the dropdown list and click [OK].
The subsequent start procedure may take several minutes.
The [Welcome to ServerStart] window appears.
- 7** Click [Click here to prepare and/or initiate an operating system installation].
The [Select the operating system to be installed] window appears.
Click [Special Hints on Operating System Installation] and read the contents. Important information such as limitations on disk configuration is described.

- 8** Click [MS Windows Operating Systems].
The [Microsoft Windows Operating System Installation] window appears.
- 9** Select the OS to install.
- 10** Click [Install MS Window Server 2003 interactively (expertise required)].
The expert mode starts.



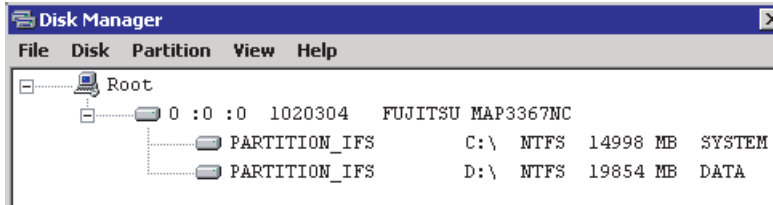
Start up the configuration tools to set items in the following procedures. Exiting a tool returns to the display to the expert mode window.



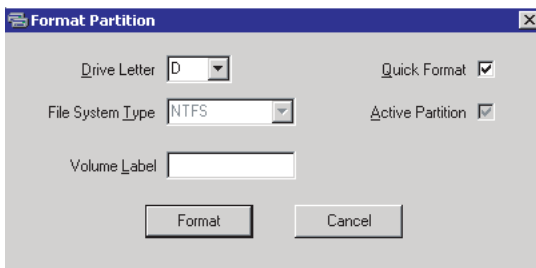
3.3.2 Disk Manager

Start up Disk Manager and format the installation partition.

- 1 Click [Use Disk Manager to partition and format your disk drives].
Disk Manager starts up.



- 2 Format the OS installation partition. Select the OS installation partition and click the [Partition] menu → [Format].
The [Format Partition] window appears.



IMPORTANT

- ▶ Be sure to specify the active partition on drive C.
- ▶ Partitions equal to or larger than 4096MB cannot be FAT formatted.

- 3 Set items and click [Format].
The partition is formatted.
- 4 When the formatting is completed, click the [File] menu → [Exit].
Disk Manager closes and the display returns to the expert mode window.

3.3.3 OS Installation Wizard

Set computer information, user information, and the network protocol.

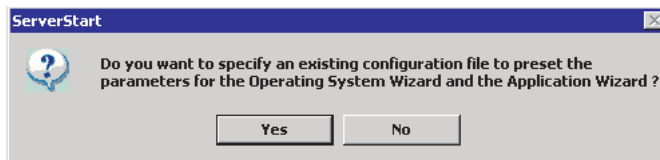
ServerStart can configure multiple network patterns. When configuring a domain controller, refer to "Using ServerStart to configure the Network".

POINT

- ▶ The setting window differs depending on the OS to be installed. The following describes operations on Windows Server 2003.

1 Click [Installation Wizard for MS Windows Server 2003].

A message prompting you to specify the configuration file appears.



2 Click [No].

The [Windows Installation] window appears.

3 Enter the password in [Password for Administrator account] and [Please repeat Password] and click [Next].

POINT

- ▶ If the password differs between [Password for Administrator account] and [Please repeat Password], an error dialog window appears. Enter the correctly password.

The [Computer Identification] window appears.

4 Set items and click [Next].

The [Installation Directory and Time Zone] window appears.

5 Set items and click [Next].

The [User Name] window appears.

6 Set items and click [Next].

The [Display Settings] window appears.

7 Set items and click [Next].

The [Network Protocol] window appears.

8 Set items and click [Next].

The [Software Components] window appears.

9 Set items and click [Next].

The [Services] window appears.

10 Set items and click [leave wizard].

The display returns to the expert mode window.

3.3.4 Application Wizard

Specify installation of supplied applications such as high reliability tools.

For details on the application wizard, refer to "3.1.6 Application Wizard" (→pg.69).

3.3.5 Starting OS Installation

Install the OS to the server.



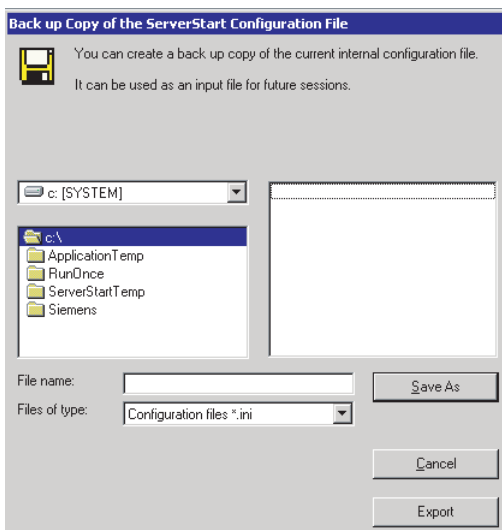
- ▶ When the installation partition is not empty, a confirmation message appears. If it does not matter, click [OK] to continue the installation procedure.
- ▶ If an incorrect setting (such as the CD key) is found during installation, an error window will appear. Enter the correct value in the window to continue the installation procedure. However, corrections made here are not reflected to the configuration file.

1 Click [Click here, to the Installation of (OS)].

A confirmation window asking whether you want to save the current settings appears.

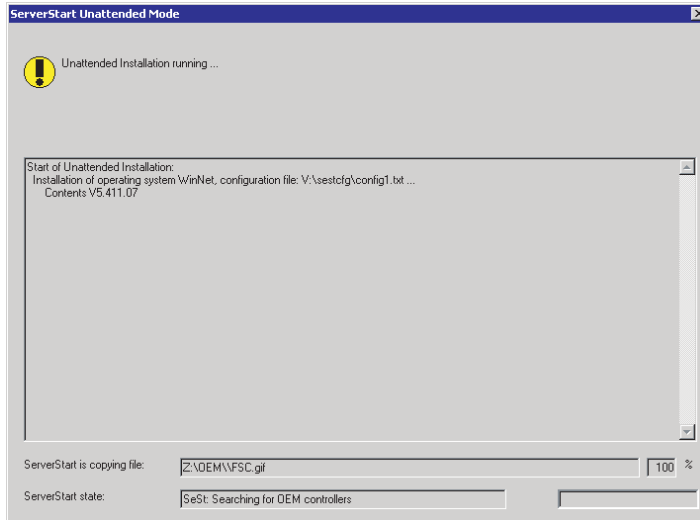
2 Click [Yes].

The following window appears.



3 Enter the file name and click [Save As].

Installation starts automatically.



- If a message prompting you to insert the Service Pack CD-ROM appears, insert the CD-ROM and click [OK].
This message does not appear when Service Pack is not selected.
- If a message prompting you to insert the ServerView CD-ROM appears, insert the PRIMERGY Document & Tool CD (Disc 1) and click [OK]. This message does not appear when ServerView will not be installed or the PRIMERGY Document & Tool CD (Disc 1) has been inserted already.
- If a message prompting you to insert the ServerStart CD-ROM appears, insert the CD-ROM and click [OK].

4 When a message prompting you to insert the OS CD-ROM appears, insert the CD-ROM and click [OK].

After files are copied, a message prompting you to insert the ServerStart CD-ROM appears.

5 Insert the ServerStart CD-ROM and click [OK].

The License Agreement window appears.

6 Click [I agree].

After files are copied, a message prompting you to eject the CD-ROM and floppy disk appears.

7 Eject the CD-ROM and floppy disk and click [OK].

Then the system is restarted.

The system continues the installation operation after restart.

OS GUI setup, LAN utility installation, Service Pack installation, and Active Directory installation are performed automatically.

8 When a confirmation message to restart appears, click [Restart].

The system restarts and installs high reliability tools.

Installation is performed automatically.

9 When a message on installation completion appears, press any key.

10 Restart the system.

Click [Start] → [Shutdown]. Select [Restart] and click [OK].

The system restarts.

11 When the system restarts, log on to the server using the Administrator account for the local computer.

The tool for updating drivers starts up.

The server setup and OS installation have been completed.

Refer to "Chapter 5 Operations after OS Installation" (→pg.129) and perform necessary procedures before starting server operations.

3.4 Remote Installation

ServerStart supports remote installation.



- ▶ Before performing remote installation, be sure to read "Cautions for Remote Installation" in the online help.

3.4.1 Overview of Remote Installation

Remote installation is a method to save resources necessary for installation, such as the OS and Service Pack, in a different server on the network and install them via the network.

If a remote resource server is configured, you can install the same resources to multiple servers. This method is useful in configuring multiple servers.

● Target Server and Remote Resource Server/PXE Server

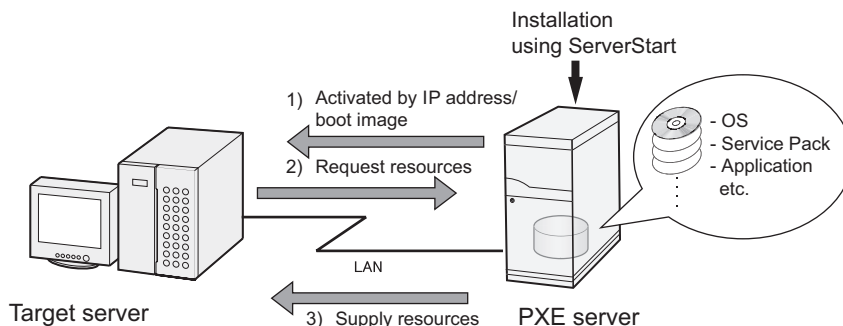
A server to which resources are installed is called a "target server". A server that stores resources necessary for remote installation is called a "remote resource server". A server that can start up a target server through network startup (PXE) is called a "PXE server".

■ Installation Method

Remote installation uses a PXE or a remote resource server.

● Remote Installation Using a PXE Server

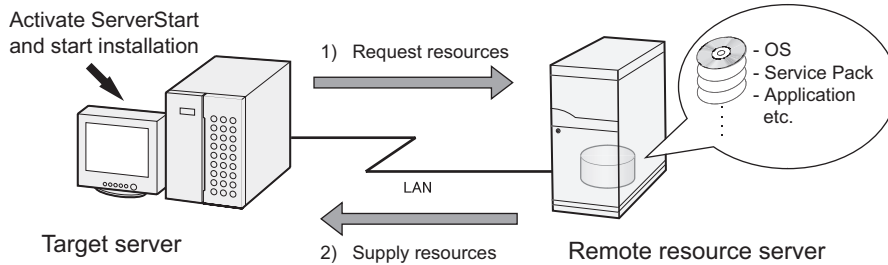
In remote installation using a PXE server, the network startup (PXE) function of the PXE server starts up the target server and performs installation in preconfiguration mode. This method is used when the target server does not have a CD-ROM or floppy disk drive.



In addition to the PXE server, a "remote resource server" that stores remote resources and a "DHCP server" that performs the DHCP service are required for remote installation using a PXE server. When you have only one server, store remote resources on the PXE server to install the DHCP service. When you have multiple servers, select one for performing the DHCP service and another for storing remote resources.

● Remote Installation Using a Remote Resource Server

In remote installation using a remote resource server, ServerStart starts up on the target server. Procedures for starting installation are the same as those in normal installation (preconfiguration mode, guided mode, and expert mode). Once installation started, resources necessary for installation are provided from the remote resource server. Thus, procedures such as inserting a CR-ROM are not necessary.



3.4.2 System Requirements for Remote Resource/PXE Servers

Because remote installation is performed via a network, the environment must have at least one Windows server and a local area network.

In addition, the following environment is required.

■ Remote Resource/PXE Server Requirements

table: System Requirements for Remote Resource/PXE Servers

	PXE server	Remote resource server
OS	Windows 2000 Server SP2 -SP4	Windows Server 2003 Windows 2000 Server Windows NT Server 4.0
Memory modules	256MB or more	256MB or more
Operating environment	<ul style="list-style-type: none"> • DHCP server function (required on the same network) • File sharing function (required) 	<ul style="list-style-type: none"> • File sharing function (required)



Notes on the PXE server

- ▶ Check that no other PXE server exists on the same LAN.
- ▶ Servers installed with software with the PXE function such as SystemcastWizard/SystemcastWizard Professional, Quick Recovery Manager, or the Microsoft RIS function cannot be used as a PXE server.

■ Checking Server Free Space

Decide a server to use as a remote resource server / PXE server and check it for enough free space for storing resources.

● Checking the Number of Servers

- When you have only one server, use it as the remote resource server, PXE server, and DHCP service server. Check it for the required amount of free space.
- When you have multiple servers
 - Check if a server performing the DHCP service exists. If not, decide a server for the DHCP service.
 - When there are multiple resources, they can be divided and stored in multiple remote resource servers.

● Checking Server Free Space

The following table shows the amount of free space required for each installation resource.

table: Free Space Required for Resources

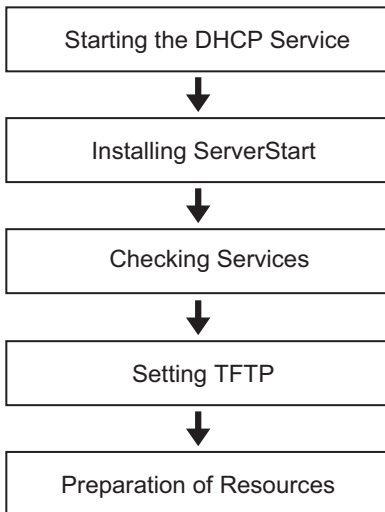
Resource	Required free space
ServerStart	About 650MB
Windows Server 2003	644MB
Windows 2000 Server	472MB
Windows 2000 Service Pack 4	433MB

Calculate the total resource size. Check that the remote resource server / PXE server has enough free space (free space greater than the space required for the resources). When the amount of free space is insufficient, you must use more remote resource servers.

3.4.3 Preparation of the PXE Server (When the PXE Server is Used)

When performing remote installation using a PXE server, preparatory procedures, such as installing ServerStart, are required.

Perform the following procedures to prepare the PXE server.



■ Starting the DHCP Service

Check that the DHCP service is running on the same network.

If the DHCP service function is not installed, perform the following procedures (for Windows Server 2003) to install the DHCP service.

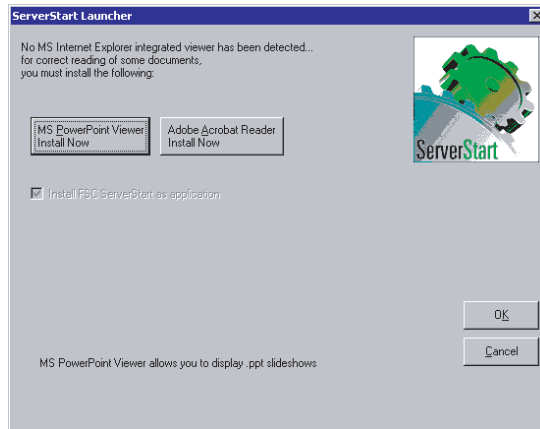
- 1** Click [Start] → [Control Panel] → [Add or Remove Applications].
- 2** Click [Add or Remove Windows Components]. Click the [Dynamic Host Configuration Protocol (DHCP)] service from [Network Services].
The DHCP service is installed.
- 3** Create and configure a DHCP scope so that the IP address can be distributed.

■ Installing ServerStart

- 1 Insert the ServerStart CD-ROM into the PXE server.

The [ServerStart Launcher] window appears.

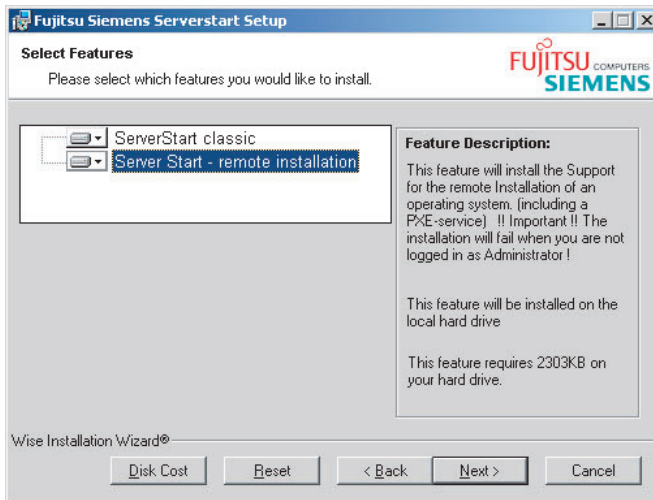
When the [ServerStart Launcher] window does not appear, execute "Launcher.exe" in the CD-ROM.



- 2 Click [OK].
The Windows installer starts and the Setup window appears.
- 3 Click [Next].
The [License Agreement] window appears.
- 4 Select [I accept the license agreement] and click [Next].
The [User Information] window appears.
- 5 Enter the user information of the software and click [Next].
The [Installation Folder] window appears.

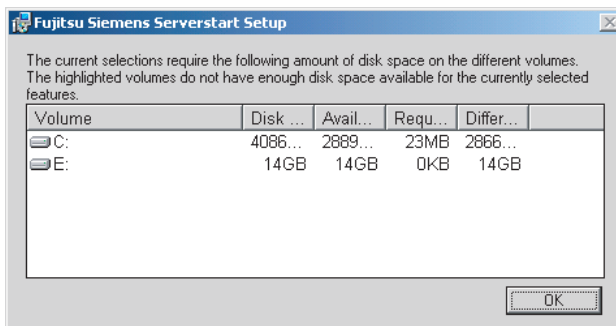
6 Select the installation folder and click [Next].

To change the installation folder, click [Browse] and select the folder. The [Select Features] window appears.



Configure [ServerStart - remote installation] so that it will be installed.

Clicking [Disk Cost] displays the following window where you can check the amount of free space.



7 Click [Next].

The [content tree] window appears.

content tree
please enter the parameters required for the content tree

install content tree on disk (~500MB): Yes
 No

network share for the content tree
SeSt_ISO

Path for the Content of the ServerStart CD
C:\Program Files\Fujitsu Siemens\ServerStart\sestiso\
Browse

hint
During the configuration of the remote installation for a client you have to specify a user account for the access to the content tree. The content tree is shared automatically by the installer but no special user is created.

Wise Installation Wizard®

< Back Next > Cancel

8 Configure the ServerStart image necessary for network startup (PXE) and click [Next].

The [User account for access to the contents tree] window appears.

Useraccount for access to the content tree
please enter username and password for the account which is necessary for access to the content tree during remote installation

user account for content tree

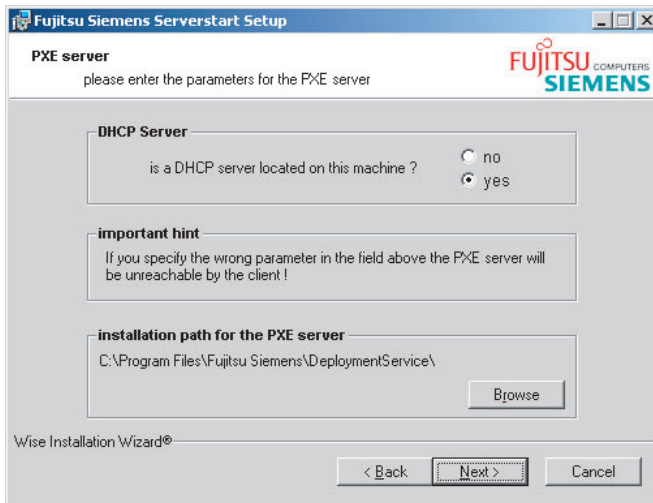
user name: user1
password: xxxxxx
please repeat: xxxxxx
domain or computer name: domain1

important hint !
This user must already exist on the target machine !

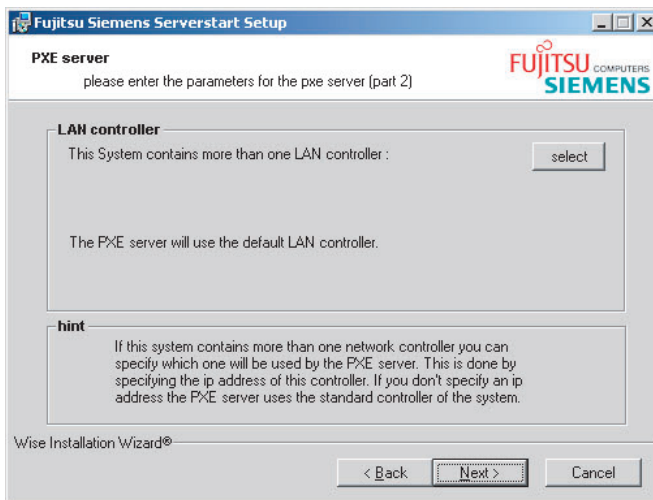
Wise Installation Wizard®

< Back Next > Cancel

- 9** Specify the user account for the content tree and click [Next].
The [PXE Server] window appears.



- 10** Select [yes] when the PXE server performs the DHCP service or select [no] when the DHCP and PXE servers are configured separately. Then click [Next].
The [PXE Server] window appears.



- 11** When there are multiple LAN ports, click [Select], select the LAN controller on the LAN controller selection screen, and click [Next].
The [Important hint] window appears.

- 12** Click [Next].
The [Ready to Install the Application] window appears.

13 Click [Show Readme file].

The [Readme] window appears. Read the text. When you finish, click [**X**] in the upper-right corner of the window to close the [Readme] window.

14 Click [Next].

The image file is copied.

The image file copying process takes about 10 to 20 minutes.

The installation completes when the installation completion window appears.

15 Click [Start] → [Shutdown]. Select [Restart] and click [OK].

The system restarts.

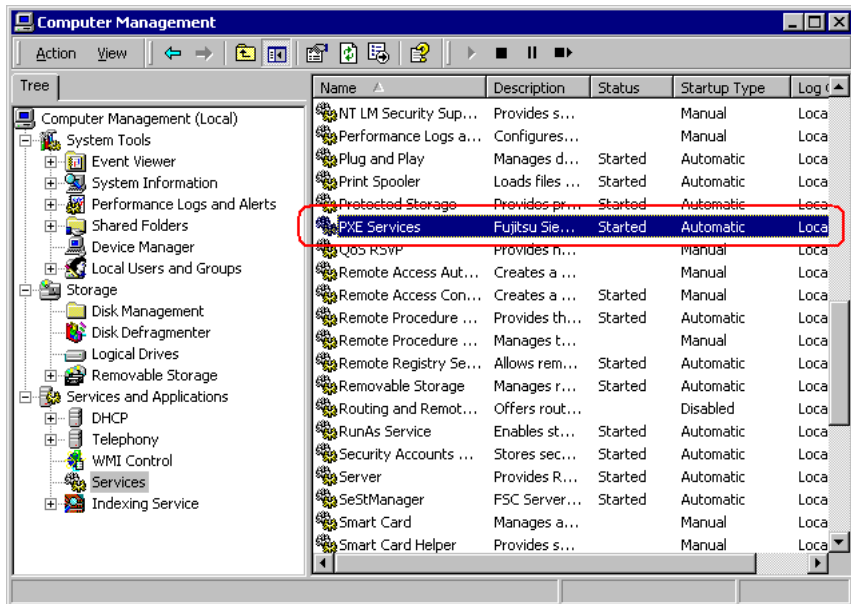
■ Checking Services

● Checking [PXE Services] and [TFTP Service]

1 Right-click the [My Computer] icon and click [Manage].

2 Select [Services] from [Services and Applications].

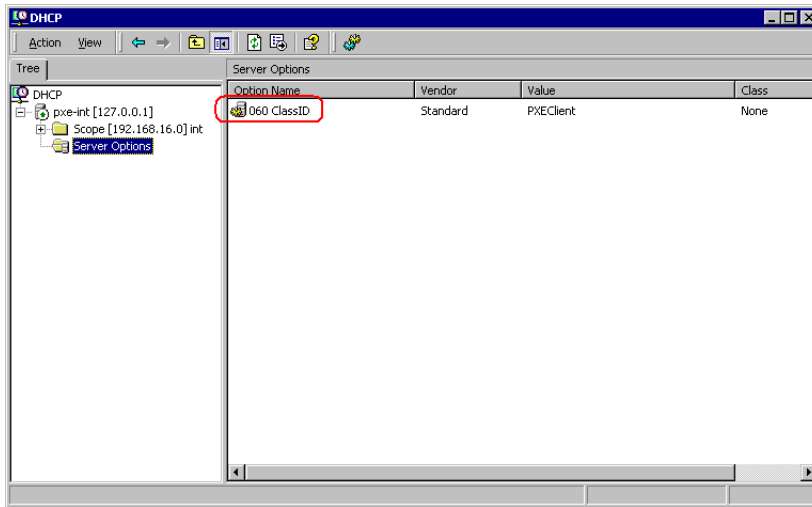
On the Services list, check that PXE Services and TFTP Service have been installed and started.



● Checking the DHCP Service

Perform the following check only when the PXE server performs the DHCP service.

- 1 On the PXE server, click [Start] → [Programs] → [Administrative Tools] → [DHCP] to start up the DHCP administrative tool.
- 2 Click [Server Options] and check that the "060 ClassID" server option is added.



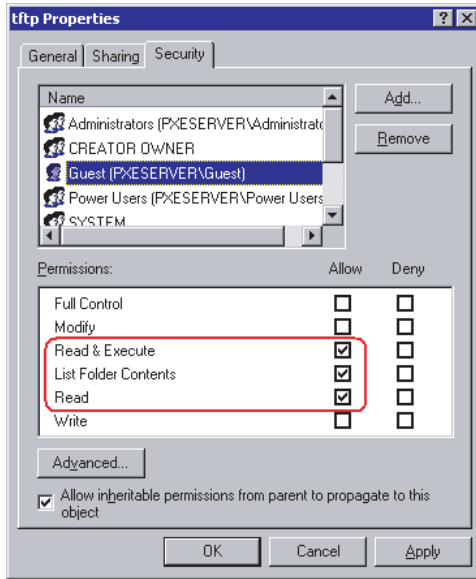
■ Setting TFTP

TFTP is an FTP service function that requires no authentication. In remote installation, the TFTP service is used to distribute the boot image required for startup.

For the TFTP path, set the appropriate access rights for the Guest account to obtain the image via network startup (PXE).

- 1 Click [Start] → [Programs] → [Accessories] → [Windows Explorer] and move to the TFTP path (the default is C:\Program Files\FujitsuSiemens\DeploymentService\tftp).
- 2 Right-click the TFTP folder and click [Properties].

- 3** Click the [Security] tab, add the Guest account, and set the "Read & Execute", "List Folder Contents", and "Read" access permissions.



The preparation of the PXE server has been completed.
Then, perform "3.4.4 Preparation of Remote Resources" (→pg.97).

3.4.4 Preparation of Remote Resources

Store resources to be installed on the remote resource server (PXE server) before starting installation.

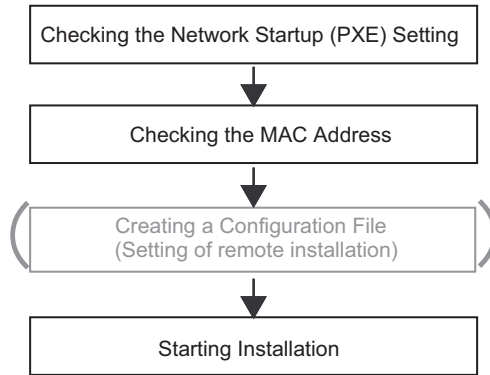


- ▶ For sharing resources, log on to the remote resource/PXE server with the Administrator account.

- 1** Prepare resources required for installation.
 - CD-ROM for the OS to be installed
 - Service Pack CD-ROM for the OS to be installed
 - ServerStart floppy disk
 - PRIMERGY Document & Tool CD (Disc 1) (for installing ServerView)
 - Others
- 2** Create a shared folder for storing resources.
Create a shared folder for each CD prepared in Step 1.
E.g.:E:\W2K3Sv for Windows Server 2003
- 3** Extract the resources.
Using Windows Explorer, copy the CD-ROM for the resource to the shared folder.

3.4.5 Starting Remote Installation Using a PXE Server

Perform remote installation using a PXE server in the following procedures.



■ Checking the Network Startup (PXE) Setting

Remote installation using a PXE server is performed via the onboard LAN. Enable the network startup (PXE) of the target server.

For more details on network startup, refer to "2.1.2 Hardware Settings" (→pg.44).

■ Checking the MAC Address of the Onboard LAN

In remote installation, target servers are identified according to the MAC address. MAC addresses are unique information to LAN cards. Check the MAC address on each target server. Write down the MAC address of the onboard LAN. For details on how to check the MAC address of an onboard LAN, refer to "2.1.2 Hardware Settings" (→pg.44).

■ Creating a Configuration File

You can create a configuration file on a client computer before starting installation. For the procedure, refer to "3.2.1 Starting Up the Preconfiguration Mode" (→pg.73) and "3.2.2 Configure Settings in Wizards" (→pg.76).

When creating a configuration file on the PXE server, start installation.

POINT

- ▶ Specify the shared name prepared instead of the local CD-ROM as installation information.

■ Starting Installation

1 On the PXE server, start up ServerStart.

If ServerStart has already been started, you do not have to restart it.

If it is not started, click [Start] → [Programs] → [Fujitsu ServerStart] → [ServerStart].

The [Welcome to ServerStart] window appears.

- 2** Click [Click here to prepare an operating system installation for a PRIMERGY Server].
The [Prepare the installation of an operating system for PRIMERGY Servers] window appears.
- 3** Click [Creation of a ServerStart Configuration file for the installation of an Microsoft Windows Operating System].
The [Microsoft Windows Operating System Installation] window appears.
- 4** Click the OS to install.
The [Preparing the Installation] window appears.
If a configuration file has already been created, go to Step 6.



- 5** Set items in wizards to create a configuration file.
Refer to "3.2.2 Configure Settings in Wizards" (→pg.76). Set items in wizards and save the configuration file.
Exiting a wizard returns to the preconfiguration mode window.
- 6** Click [Click here to initiate the Remote Installation Process].
The [Configure Remote Installation Target Server] window appears.

7 Configure remote installation.

Remote Installation Target System

To be able to initiate a remote installation process ServerStart needs some data:

Target system:

MAC address of target system: 11-11-11-11-11-11
(The MAC address can be obtained via FSC ServerView, or by reading the console output during the boot process of the target system with PXE option switched on)

PRIMERGY model type: PRIMERGY TX200 S2

Processor Option:
 Mono
 Multi
 Hyper-threaded

Configuration File: c:\serverstartbatch.ini

Access to ServerStart data:

ServerStart contents tree (UNC): \\PXESESERVER\SeSt_ISO\iso

User name for remote access: pxeserverAdministrator

Password: *

Remote Installation Linux:

Boot image directory: [Empty field]

Bootstrap Loader: [Empty field]

Remote installation incl. SCU settings and/or RAID configuration

Start Installation Cancel

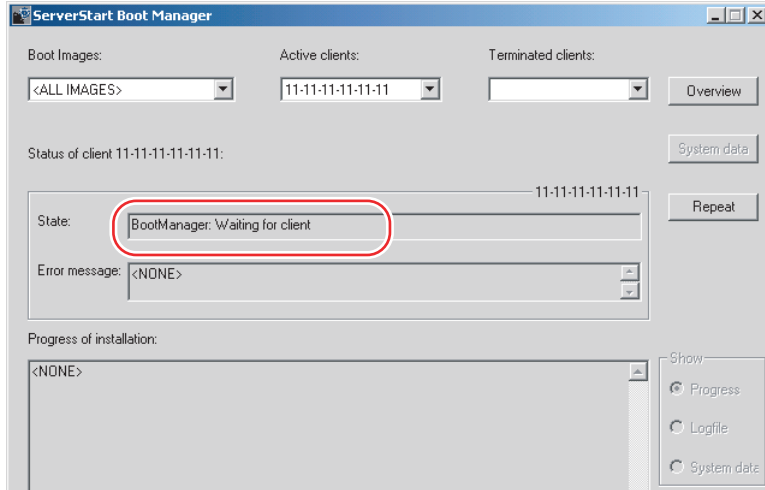
1. Enter the "MAC address of the target system".
2. Select the "PRIMERGY model type".
3. Specify the "Configuration file" containing the installation settings.

8 Click [Start Installation].

Installation starts. All disk contents on the target server are deleted.

The [ServerStart Boot Manager] window appears.

Check that the status is "Waiting for client".

**9** Turn on the target server.

It is started up via the network (PXE) and installation starts.

When the resources have been copied, the "Preparation for automatic OS installation has completed." message appears.

Subsequent installation is performed automatically.

When the installation is completed, an installation completion message appears on the target server.

10 Press any key on the target server.**11** Restart the system on the target server.

The server setup and OS installation have been completed.

Refer to "Chapter 5 Operations after OS Installation" (→pg.129) and perform necessary procedures before starting server operations.

3.4.6 Starting Remote Installation Using a Remote Resource Server

In remote installation using a remote resource server, installation is performed using shared resources on the remote resource server.

Perform "3.4.4 Preparation of Remote Resources" (→pg.97) before starting installation.

■ Configuring a Remote Floppy

A remote floppy is a shared folder for storing and using a configuration file on the network, instead of loading it from the ServerStart floppy disk. When the server does not have a floppy disk drive and installation is performed in guided mode or expert mode, use a remote floppy.

- 1** Create a new folder in the shared folder on the remote resource server.
E.g.: C:\export\ServerStart\Floppy
- 2** Create a "ServerStart Floppy Disk" tag file for the ServerStart floppy disk. Start up Command Prompt and enter the following command.
C:\>copy nul C:\export\ServerStart\Floppy\ServerStart Floppy Disk"

■ Checking Remote Resources

Check that the remote resource server is shared properly.

- 1 Start up "Command Prompt" on the remote resource server. Enter the following and press the [Enter] key.

```
prompt:>net share
```

Check that the created shared folder is displayed properly.

For the net command, refer to Windows Help.

■ Starting Installation

Start installation from the target server.

● In Guided Mode / Expert Mode

- 1 Turn on the server and insert the ServerStart CD-ROM immediately.
ServerStart starts up and a message appears prompting you to insert the ServerStart floppy disk.

- 2 Create a ServerStart floppy disk.

When the ServerStart floppy disk supplied with the server is used

1. Insert the ServerStart floppy disk supplied with the server. Make sure that "Removable media" and "A:" are selected and click [Create].

The network startup setting window for remote installation appears.

2. Click [OK].

The [Initialization of ServerStart core running] window appears and unattended installation will be started. Depending on the hardware configuration, this process may take a few minutes. When the process is completed, the [Create a ServerStart Floppy Disk] window appears.

3. Click [Build a ServerStart Floppy Disk].

Creation of a ServerStart floppy disk starts. When the creation is completed, the "Floppy disk has been created." message appears.

When the remote floppy is used

1. Select "Remote (media)" and click [OK].

The [Network Startup Setting] window for remote installation appears.

2. Click [OK].

The [Specify Drive] window appears.

3. Enter [Remote path], [User name], and [Password] and click [OK].

The [Initialization of ServerStart core running] window appears and unattended installation will be started. Depending on the hardware configuration, this process may take a few minutes. When the process is completed, the [Welcome to ServerStart] window appears.

- 3 Click [Click here to prepare and/or initiate an operating system installation].

The [Select the operating system to be installed] window appears.

Click [Special Hints on Operating System Installation] and read the contents. Important information such as limitations on disk configuration is described.

4 Click [MS Windows Operating Systems].

The [Microsoft Windows Operating System Installation] window appears.

5 Select the OS to install and the mode.

6 Set items in wizards and save the configuration file.

For settings in wizards, refer to "3.1 Guided mode" (→pg.56) or "3.3 Expert Mode" (→pg.80). Set items in wizards and save the configuration file. When using the remote floppy, specify the path to the shared folder for the remote floppy as the configuration file saving location.

 **POINT**

- ▶ Specify the shared name of the prepared shared folder instead of the local CD-ROM as installation source information.

7 Click [Click here, to the Installation of (OS)].

Installation starts. At steps where the CD-ROM for resources such as the OS to be installed is necessary, the resource is automatically acquired from the resource server via the network.

8 Eject the CD-ROM and floppy disk and click [OK].

The system restarts. When the installation is completed, an installation completion message appears on the target server.

9 Press any key on the target server.

10 Restart the system on the target server.

The server setup and OS installation have been completed.

Refer to "Chapter 5 Operations after OS Installation" (→pg.129) and perform necessary procedures before starting server operations.

● **In Preconfiguration Mode**

1 Create a configuration file.

For the creation procedure, refer to "3.2 Preconfiguration Mode" (→pg.73).

 **POINT**

- ▶ Specify the shared name of the prepared shared folder instead of the local CD-ROM as installation source information.

2 Turn on the server and insert the ServerStart CD-ROM immediately.

ServerStart starts up and a message appears prompting you to insert the ServerStart floppy disk.

3 Set the created configuration file and click [OK].

The [Initialization of ServerStart core running] window appears and unattended installation will be started. Depending on the hardware configuration, this process may take a few minutes. When the process is completed, the [ServerStart Unattended Mode] window appears.

4 Click [Start].

Installation starts. At steps where the CD-ROM for resources such as the OS to be installed is necessary, the resource is automatically acquired from the resource server via the network.

5 Eject the CD-ROM and floppy disk and click [OK].

The system restarts. When the installation is completed, an installation completion message appears on the target server.

6 Press any key on the target server.**7** Restart the system on the target server.

The server setup and OS installation have been completed.

Refer to "Chapter 5 Operations after OS Installation" (→pg.129) and perform necessary procedures before starting server operations.

3.5 Installation on Multiple (the Second and Subsequent) Servers

This chapter explains how to perform installation on multiple servers using ServerStart.

By editing the configuration file created for installation on the first server, you can use it for installation on other servers of the same model and configuration. This reduces the setup time. However, installation on the first server must be performed using ServerStart in guided mode or preconfiguration mode.



- ▶ Check that ServerStart supplied with the first server is of the same version as that supplied with the other servers. If the version is different, this installation method will not work.

3.5.1 Preparation for Installation

■ Required Software

The following software is required for installation on the second and subsequent servers. Be sure to have these items close at hand.

- CD-ROM for the OS to be installed
- ServerStart CD-ROM
- ServerStart floppy disk

A: ServerStart floppy disk containing the configuration file used for installation on the first server

B: ServerStart floppy disks supplied with the ServerStart CD-ROMs for the second and subsequent servers

If ServerStart floppy disks are not supplied, prepare as many floppy disks as there are servers.

- PRIMERGY Document & Tool CD (Disc 1) (for installing ServerView)
- Service Pack CD-ROM for the OS to be installed

■ Preparatory Procedure

Perform the following procedure before installation.

Using Explorer or Command Prompt, copy the ServerStart floppy disk (A) to the ServerStart floppy disk (B).

3.5.2 Installation in Guided Mode

Edit the configuration file and perform installation in guided mode.

- 1** Turn on the server and insert the ServerStart CD-ROM immediately.
ServerStart starts up and a message appears prompting you to insert the ServerStart floppy disk.
- 2** Insert the ServerStart floppy disk copied in the preparatory procedure into the floppy disk drive and click [Create].
The network setting window for remote installation appears.
- 3** Click [OK].
The [Initialization of ServerStart core running] window appears and unattended installation will be started. Depending on the hardware configuration, this process may take a few minutes. When the process is completed, the [Create a ServerStart Floppy Disk] window appears.
- 4** Click [or Insert a ServerStart Floppy Disk to Start ServerStart].
The [Welcome to ServerStart] window appears.
- 5** Click [Click here to prepare and/or initiate an operating system installation].
The [Prepare the installation of an operating system for PRIMERGY Servers] window appears.
- 6** Click [MS Windows Operating Systems].
The [Microsoft Windows Operating System Installation] window appears.
- 7** Click the OS to install.
- 8** Click [Prepare & initiate an unattended installation of (OS)].
The guided mode starts.
- 9** Click [Start have to create a complete Configuration File].
The [Open ServerStart Configuration File] window appears.
- 10** Specify "SerStartBatch.ini" on drive A and click [Create].
The display returns to the guided mode window.
For procedures from setting wizards to completion of installation, refer to "3.1 Guided mode" (→pg.56).
When performing remote installation, refer to "3.4 Remote Installation" (→pg.87).



Settings values in wizards

- ▶ Setting items in wizards are set to the values set on the first server. For installation on subsequent servers, you must change the following items in the "OS installation wizard". For other items, change the setting as necessary. You do not need to start up wizards where no settings will be changed.

table: Settings to be Changed for Installation on Subsequent Servers

Window name	Setting item name	Remarks
User Information	Computer name	The setting must be changed when the second and subsequent servers are on the same network as the first server.
	Product ID/CD key	The setting must be changed.
Network Protocol	IP address	The setting must be changed when the second and subsequent servers are on the same network as the first server.

- ▶ If the settings for the first server are not reflected to wizards, perform the procedure over again from copying the floppy disk.

3.5.3 Installation in Preconfiguration Mode

Edit the configuration file and perform installation in preconfiguration mode.

If ServerStart is not installed in the client computer where the preconfiguration mode is executed, refer to "2.4 Preparation for Using ServerStart on a Client Computer" (→pg.52) to install ServerStart. If a different version of ServerStart has been installed, uninstall it and install the proper version. For details on how to uninstall ServerStart, refer to "2.4.2 Uninstalling ServerStart" (→pg.54).



- ▶ ServerStart starts up when it is installed. However, be sure to follow these installation procedures. "3.2.1 Starting Up the Preconfiguration Mode" (→pg.73) Performing the procedure deletes the contents of the ServerStart floppy disk, making the disk unavailable for installation on multiple servers.

1 Start up ServerStart.

If ServerStart has already been started, it is not necessary to restart it. If it has not, start it up according to the following procedures.

When the CD has been copied on Windows 2000 Professional/Windows XP Professional

1. Click [Start] → [Programs] → [Fujitsu ServerStart] → [ServerStart].
ServerStart starts up and the [Welcome to ServerStart] window appears.

When Windows NT is used, or if the CD has not been copied

1. Insert the ServerStart CD-ROM into the client computer's CD-ROM drive.
ServerStart starts up and the [Welcome to ServerStart] window appears.

2 Select the OS to be installed.

The preconfiguration mode starts up.

- 3** Insert the ServerStart floppy disk copied in the preparatory procedure into the floppy disk drive and click [Start here to configuration file].

The [Open ServerStart Configuration File] window appears.

- 4** Specify "SerStartBatch.ini" on drive A and click [Create].

The display returns to the preconfiguration mode window.

For procedures from setting wizards to completion of installation, refer to "3.2 Preconfiguration Mode" (→pg.73).

When performing remote installation, refer to "3.4 Remote Installation" (→pg.87).



Settings values in wizards

- ▶ Setting items in wizards are set to the values set on the first server. For installation on subsequent servers, you must change the following items in the "OS installation wizard". For other items, change the settings as necessary. You do not need to start up wizards where no settings will be changed.

table: Settings to be Changed for Installation on Subsequent Servers

Window name	Setting item name	Remarks
User Information	Computer name	The setting must be changed when the second and subsequent servers are on the same network as the first server.
	Product ID/CD key	The setting must be changed.
Network Protocol	IP address	The setting must be changed when the second and subsequent servers are on the same network as the first server.

- ▶ If the settings for the first server are not reflected to wizards, perform the procedures from copying the floppy disk over again.

Chapter 4

Manual OS Installation

4

This chapter explains how to initiate the install the OS without using ServerStart.

4.1	Creating Driver Disks	112
4.2	Starting Manual Installation	117
4.3	Installing the LAN Driver	124

4.1 Creating Driver Disks

When installing the OS manually, it is necessary to create driver installation disks beforehand. Also, driver disks must be created when you add an expansion card during server operation.

■ Preparation for Creating Driver Disks

You need floppy disks for driver disks. A floppy disk is necessary for each driver.

Driver disks are created using the ServerStart FloppyBuilder function. The FloppyBuilder function is available in the following environments.

- Starting up the ServerStart system on a client computer (Recommended)
- Starting up the system from the ServerStart CD-ROM on the server

POINT

- ▶ When creating driver disks the tools on a client computer, install ServerStart on the computer beforehand. Install ServerStart according to "2.4 Preparation for Using ServerStart on a Client Computer" (→pg.52).
If a different version of ServerStart has been installed, uninstall it and install the proper version. For details on how to uninstall ServerStart, refer to "2.4.2 Uninstalling ServerStart" (→pg.54).

IMPORTANT

- ▶ The FloppyBuilder function may not operate correctly if you start up ServerStart while ServerStart of a different version is installed in the computer. Make sure to uninstall a different version of ServerStart.

4.1.1 Required Driver Disks

The driver disks to be created differ depending on the OS to be installed.

■ For Windows Server 2003

table: Drivers Required for Installing Windows Server 2003

Expansion card / onboard controller	Driver
Chipset	Intel E7520/E7320 Chipset Ver6.2.0.1005
Graphic controller	Standard driver provided with the OS
Onboard SCSI array controller	PG142E3 Windows 2000/2003 Drivers Disk V3.0L10*
RAID Ctrl 2-Channel 128MB w/ BBU (PG-142E3)	
Onboard LAN	PRIMERGY TX300 S2 Onboard LAN Driver for Windows 2000/2003 V7.6.6
LAN card (PG-1852 / PG-1862 / PG-1882 / PG-1882L/PG-1892/PG-1892L)	PG-1852/1862/188x/189x LAN Driver for Windows 2003 Ver8.3*
SCSI card (PG-128/PG-130L)	Standard driver provided with the OS
Fibre Channel Controller (PG-FC106)	PG-FC106 Windows 2000/2003 Drivers Disk V5.10a10*
Other expansion cards	Driver supplied with the expansion card

* Created from the ServerStart CD-ROM

■ For Windows 2000 Server

table: Drivers Required for Installing Windows 2000 Server

Expansion card / onboard controller	Driver
Chipset	Intel E7520/E7320 Chipset Ver6.2.0.1005
Graphic controller	PRIMERGY RX300 S2 Onboard VGA
Onboard SCSI array controller	PG-142E3 Windows 2000/2003 Drivers Disk V3.0L10*
RAID Ctrl 2-Channel 128MB w/ BBU (PG-142E3)	
Onboard LAN	PRIMERGY RX300 S2 Onboard LAN Driver for Windows 2000/2003 V7.6.6
LAN card (PG-1852 / PG-1862 / PG-1882 / PG-1882L/PG-1892/PG-1892L)	PG-1852/1862/188x/189x LAN Driver for Windows 2000 Ver8.3*
SCSI card (PG-128/PG-130L)	Standard driver provided with the OS
Fibre Channel Controller (PG-FC106)	PG-FC106 Windows 2000/2003 Drivers Disk V5.10a10*
Other expansion cards	Driver supplied with the expansion card

* Created from the ServerStart CD-ROM



- ▶ The latest drivers, refer to the Fujitsu PRIMERGY website (<http://primergy.fujitsu.com>).

4.1.2 How to Create Driver Disks

Driver disks are created from the ServerStart CD-ROM using the ServerStart FloppyBuilder function. If ServerStart has already been started, it is not necessary to restart it. If it has not, perform the following startup procedures.

■ Starting ServerStart

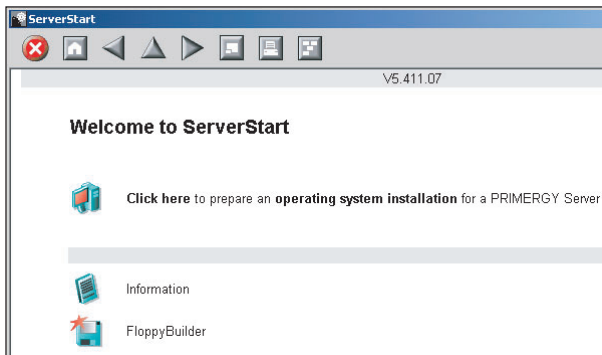
● For Creation on a Client Computer

When the CD has been copied on Windows 2000 Professional/Windows XP Professional

- 1 Click [Start] → [Programs] → [Fujitsu ServerStart] → [ServerStart].
ServerStart starts up and the [Welcome to ServerStart] window appears.

When Windows NT is used, or if the CD has not been copied

- 1 Insert the ServerStart CD-ROM into the client computer's CD-ROM drive.
ServerStart starts up and the [Welcome to ServerStart] window appears.



● For Creation on the Server

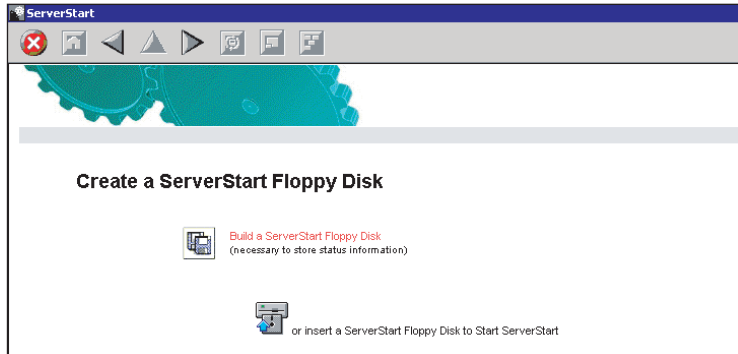
- 1 Turn on the server and insert the ServerStart CD-ROM immediately.
ServerStart starts up and a message appears prompting you to insert the ServerStart floppy disk.
- 2 Insert the attached "ServerStart floppy disk" into the server's floppy disk drive.
Then make sure "Removable media" and "A:" are selected and click [Create].
A network setup window for remote installation appears.

POINT

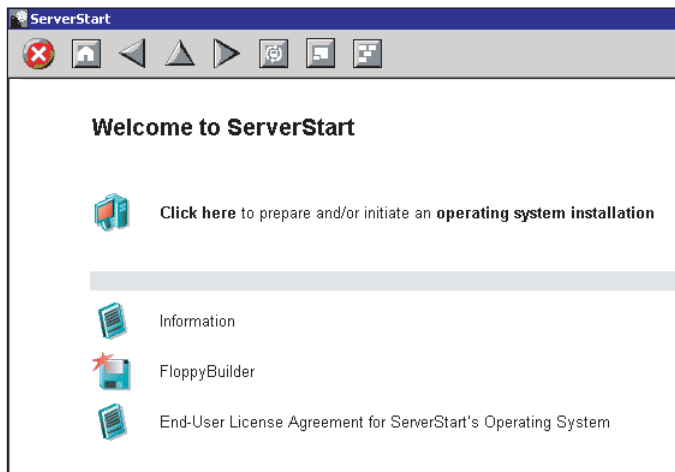
- ▶ If a configuration file already exists in the ServerStart floppy disk and [OK] is clicked without clicking [Create], the [ServerStart Unattended Mode] window appears. Make sure to click [Exit]. The [Welcome to ServerStart] window appears.
If [Start] is clicked in the [ServerStart Unattended Mode] window, the installation of the server will start and all disk contents will be deleted.

3 Click [OK].

The [Initialization of ServerStart core running] window appears and unattended installation will be started. Depending on the hardware configuration, this process may take a few minutes. When the process is completed, the [Create a ServerStart Floppy Disk] window appears.

**4** Click [or Insert a ServerStart Floppy Disk to Start ServerStart].

The [Welcome to ServerStart] window appears.

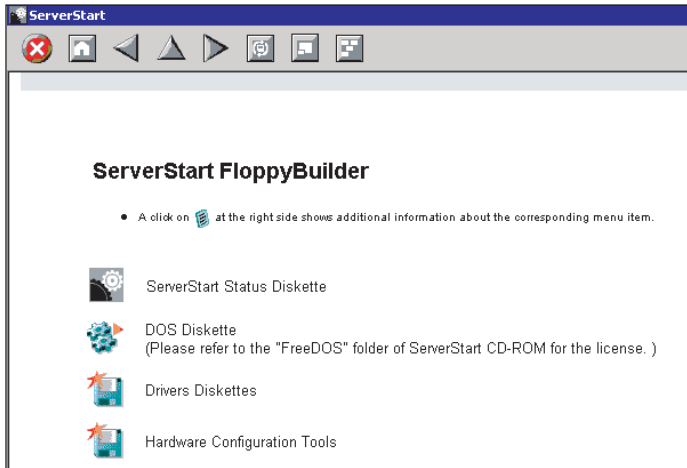
**5** Eject the ServerStart floppy disk.

■ Creating Driver Disks

Start up ServerStart and confirm that the [Welcome to ServerStart] window is displayed.

1 Click [FloppyBuilder].

The [ServerStart FloppyBuilder] window appears.



2 Click [Drivers Diskettes].

The [FloppyBuilder Driver Disk] window appears.

3 Click the type of the driver you want to create.

4 Click the driver disk you want to create.

Follow the message and insert a floppy disk.

5 Perform the subsequent operations according to the messages on the window.

The floppy disk will be formatted automatically and file copying will start.

The driver disk is automatically created. When a message appears indicating that creating the disk is completed, click [OK] and eject the disk.

4.2 Starting Manual Installation

This section explains the procedures for installing the OS manually.

4.2.1 Installing Windows Server 2003

1 Create driver disks.

Prepare necessary drivers before installing Windows Server 2003.

Some drivers are created from the ServerStart CD-ROM. For how to create driver disks, refer to "4.1 Creating Driver Disks" (→pg.112).

2 Insert the Windows Server 2003 CD-ROM.

Turn on the server and insert the Windows Server 2003 CD-ROM immediately into the CD-ROM drive. Check there are no floppy disks in the floppy disk drive. When the active area is specified on the hard disk, the following message appears.

```
Press any key to boot from CD...
```

Pressing any key while this message is displayed boots the system from the CD-ROM.

3 The [Windows Server 2003 Setup] window appears.

Immediately, the following message appears at the bottom of the window. Press the [F6] key.

```
Press F6 if you need to install a third party
SCSI or RAID driver ...
```



- ▶ This message will be displayed for a short time after the setup window (blue screen) appears. Press the [F6] key immediately after the window turns blue.

4 Install the drivers manually.

1. When the following message appears, press the [S] key.

```
To specify additional SCSI adapters, CD-ROM drives,
or special disk controllers for use with Windows,
including those for which you have a device
support disk from a mass storage device
manufacturer, press S.
```

2. When the "Please insert the disk labeled Manufacturer-supplied hardware support disk into Drive A:" message appears, insert the driver disk created from the ServerStart CD-ROM and press the [Enter] key.

The following message appears.

```
You have chosen to configure a SCSI Adapter for use with
Windows, using a device support disk provided by an
adapter manufacturer.
Select the SCSI Adapter you want from the following list,
or press ESC to return to the
previous screen.
```

3. Select the following and press the [Enter] key.

```
LSI MEGARAID Products for Windows 2003 (x86)
```

4. When the following message appears, press the [S] key.

```
The driver you provided seems to be newer than the Windows
default driver.
```

5 When a Fibre Channel Controller (PG-FC106) is installed, install the fibre channel card driver.

1. When the following message appears, press the [S] key.

```
To specify additional SCSI adapters, CD-ROM drives,
or special disk controllers for use with Windows,
including those for which you have a device
support disk from a mass storage device
manufacturer, press S.
```

2. When the "Please insert the disk labeled Manufacturer-supplied hardware support disk into Drive A:" message appears, insert the fibre channel card driver disk created from the ServerStart CD-ROM and press the [Enter] key.

The following message appears.

```
You have chosen to configure a SCSI Adapter for use with
Windows, using a device support disk provided by an
adapter manufacturer.
Select the SCSI Adapter you want from the following list,
or press ESC to return to the
previous screen.
```

3. Select the following and press the [Enter] key.

```
Emulex LP9802 PCI-Fiber Channel HBA
```

4. When the following message appears, press the [S] key.

```
The driver you provided seems to be newer than the
Windows default driver.
```

6 Follow the instructions from the setup program to continue the installation procedure.

If a message indicating that the driver has failed in the Windows logo test for validating the compatibility with Windows appears, select [Yes] to continue the installation procedure.

7 Install the chipset driver.

1. Insert the ServerStart CD-ROM into the drive of the server.
When the ServerStart window appears, exit ServerStart.
2. Execute the following command on the ServerStart CD-ROM.
[CD-ROM drive]:\DRIVERS\ChipSet\Intel\infinst_autol.exe
The installation wizard starts up.
3. Click [Next]. Follow instructions in the window to perform installation.
4. When the "InstallShield(R) wizard has completed." message appears, eject the ServerStart CD-ROM from the CD-ROM drive and click [Finish] to restart the system.

8 Install the LAN driver.

Install the LAN driver using the driver disk created from the ServerStart CD-ROM. For more details, refer to "4.3 Installing the LAN Driver" (→pg.124).

9 Install the SAF-TE driver.

1. Insert the ServerStart CD-ROM into the drive of the server.
When the ServerStart window appears, exit ServerStart.
2. Click [Start] → [Administrative Tools] → [Computer Management].
3. Click [Device Manager].
4. Double-click [TOSHIBA SAF-TE SCSI Processor Device] under [System devices].
The properties window appears.
5. Click the [Driver] tab and click [Update Driver].
The [Device Driver Upgrade Wizard] window appears.
6. Click [Next].
7. Select [Find an optimum driver (Recommended)] and click [Next].
8. Select only [CD-ROM drive] in [Search location options] and click [Next].
9. Select [Install another driver] and click [Next].
10. Select [FSC SCSI Termination Module] and click [Next].
Installation starts. When it is completed, a completion message appears.
11. Click [Finish].
12. Click [Close] to close the properties window.

10 Install the RAID Management Tool.

For the installation procedure, refer to "Installing RAID Management Tool (Global Array Manager)" in "PRIMERGY RX300 S2 Onboard SCSI RAID User's Guide".

The installation of Windows Server 2003 has completed.

● Before Starting Operation

After OS installation, refer to the following and perform the necessary procedures.

- Installation of high reliability tools
To ensure stable server operation, refer to "Chapter 6 High Reliability Tools" (→pg.167) and install high reliability tools.
- "Chapter 5 Operations after OS Installation" (→pg.129)
Perform the necessary procedures.

4.2.2 Installing Windows 2000 Server

1 Create driver disks.

Prepare necessary drivers before installing Windows 2000 Server.

Some drivers used with Windows 2000 Server are created from the ServerStart CD-ROM. For how to create driver disks, refer to "4.1 Creating Driver Disks" (→pg.112).

2 Insert the Windows 2000 Server CD-ROM.

Turn on the server and insert the Windows 2000 Server CD-ROM immediately into the CD-ROM drive. Check there are no floppy disks in the floppy disk drive. When the active area is specified on the hard disk, the following message appears.

```
Press any key to boot from CD....
```

Pressing any key while this message is displayed boots the system from the CD-ROM.

3 The [Windows 2000 Server Setup] window appears.

Immediately, the following message appears at the bottom of the window. Press the [F6] key.

```
Press F6 if you need to install a third party SCSI or RAID
driver ...
```



- ▶ This message will be displayed for a short time after the setup window (blue screen) appears. Press the [F6] key immediately after the window turns blue.

4 Install the drivers manually.

1. When the following message appears, press the [S] key.

```
To specify additional SCSI adapters, CD-ROM drives,
or special disk controllers for use with Windows
2000, including those for which you have a device
support disk from a mass storage device
manufacturer, press S.
```

2. When the "Please insert the disk labeled Manufacturer-supplied hardware support disk into Drive A:" message appears, insert the driver disk created from the ServerStart CD-ROM and press the [Enter] key.

The following message appears.

```
You have chosen to configure a SCSI Adapter for use
with Windows 2000, using a device support disk
provided by an adapter manufacturer.
Select the SCSI Adapter you want from the following
list, or press ESC to return to the previous screen.
```

3. Select the following and press the [Enter] key.

```
LSI MEGARAID Products for Windows 2000
```

4. Follow instructions in the window to perform installation.

When a message prompting you to insert a floppy disk appears, insert the driver disk and press the [Enter] key.

POINT

- ▶ Repeat these procedures to install a driver for another card.

- 5 Follow the instructions from the setup program to continue the installation procedures.

IMPORTANT

Cautions on Restarting

- ▶ In the course of installation, a message appears to indicate that the setup program restarts. Wait until it restarts automatically.

- 6 Install the chipset driver.

1. Insert the ServerStart CD-ROM into the drive of the server.

When the ServerStart window appears, exit ServerStart.
2. Execute the following command on the ServerStart CD-ROM.


```
[CD-ROM drive]:\DRIVERS\ChipSet\Intel\infinst_autol.exe
```

The installation wizard starts up.
3. Click [Next]. Follow instructions in the window to perform installation.
4. When the "InstallShield(R) wizard has completed." message appears, eject the ServerStart CD-ROM from the CD-ROM drive and click [Finish] to restart the system.

- 7 Install the LAN driver.

Install the LAN driver using the driver disk created from the ServerStart CD-ROM. For more details, refer to "4.3 Installing the LAN Driver" (→pg.124).

- 8 Install the SAF-TE driver.

1. Insert the ServerStart CD-ROM into the drive of the server.

When the ServerStart window appears, exit ServerStart.
2. Right-click the [My Computer] icon on the desktop and click [Manage] from the displayed menu.

3. Click [Device Manager] from the displayed list.
4. Double-click [TOSHIBA SAF-TE SCSI Processor Device] under [System devices].
The properties window appears.
5. Click the [Driver] tab and click [Update Driver].
The [Device Driver Upgrade Wizard] window appears.
6. Click [Next].
7. Select [Find an optimum driver (Recommended)] and click [Next].
8. Select only [CD-ROM drive] in [Search location options] and click [Next].
9. Select [Install another driver] and click [Next].
10. Select [FSC SCSI Termination Module] and click [Next].
Installation starts. When it is completed, a completion message appears.
11. Click [Finish].
12. Click [Close] to close the properties window.

9 Install the display driver.

1. Insert the ServerStart CD-ROM into the drive of the server.
When the ServerStart window appears, exit ServerStart.
2. Right-click the [My Computer] icon on the desktop and click [Manage] from the displayed menu.
3. Click [Device Manager] from the displayed list.
4. Double-click [ATI Technologies Inc. RAGE XL PCI] under [Display Adapter].
The properties window appears.
5. Click the [Driver] tab and click [Update Driver].
The [Start Device Driver Upgrade] window appears.
6. Click [Next].
The [Install Hardware Device Driver] window appears.
7. Select [Find an optimum driver (Recommended)] and click [Next].
The [Identify Driver File] window appears.
8. Select [CD-ROM drive] in [Search location options] and click [Next].
9. When a message indicating that the driver has been found appears in the [Find Driver File] window, click [Next].
When the installation is completed, a completion message appears.
10. Click [Finish].
11. Click [Close] to close the properties window.
12. Eject the ServerStart CD-ROM from the CD-ROM drive and restart the system to make the settings effective.

10 After driver installation, apply Windows 2000 Service Pack.

For details, refer to the description in the window.

Drivers may be replaced with those in the Service Pack during Service Pack application. For more details, refer to the manual supplied with the hardware.

11 Install the RAID Management Tool.

For the installation procedure, refer to "Installing RAID Management Tool (Global Array Manager)" in "Onboard SCSI RAID User's Guide".

The installation of Windows 2000 Server has completed.

● Before Starting Operation

After OS installation, refer to the following and perform the necessary procedures.

- High reliability tool installation
To ensure stable server operation, refer to "Chapter 6 High Reliability Tools" (→pg.167) and install high reliability tools.
- "Chapter 5 Operations after OS Installation" (→pg.129)
Perform the necessary procedures.

4.2.3 Installing Linux

For the use of Linux, refer to the Fujitsu PRIMERGY website (<http://primergy.fujitsu.com>).

4.3 Installing the LAN Driver

This section explains the procedure for installing the driver.

In addition to the case where the OS is installed manually, the driver must be installed when a LAN card is added.

4.3.1 Installing the LAN Driver (Windows Server 2003)

The LAN driver installation procedure differs depending on whether the network adapter was recognized during the OS installation.

POINT

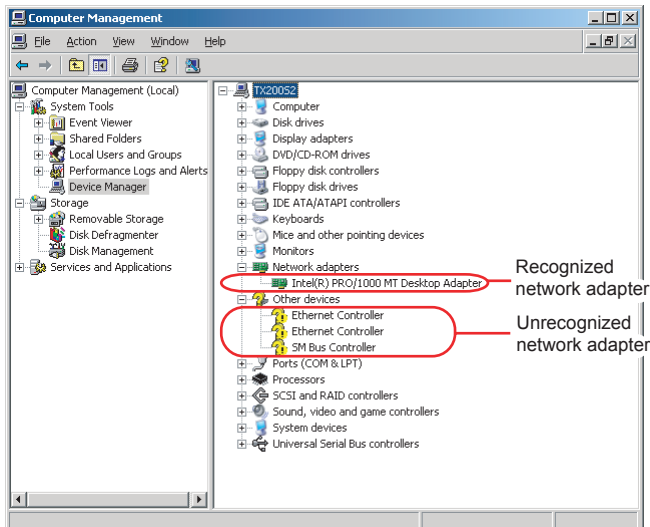
- ▶ For the following LAN cards, the network adapter is recognized when the card is mounted during OS installation.
 - PG-1852
 - PG-1862

1 Click [Start] → [Administrative Tools] → [Computer Management].

2 Click [Device Manager].

On the Device Manager list, check if a recognized network adapter is present.

(Window example)



When a recognized network adapter is present, [Network adapters] appears.

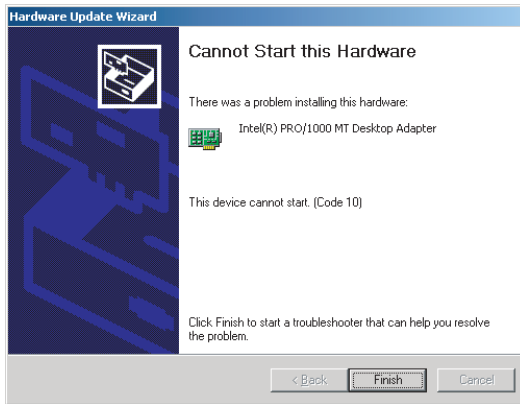
- When a recognized network adapter is present
 - Perform "■ Updating LAN Drivers" (→pg.125) on the LAN device name under [Network adapters],
 - then "■ Installing the LAN Driver" (→pg.126) on [Ethernet controller] under [Other devices].

- When a recognized network adapter is not present
Perform "■ Installing the LAN Driver" (→pg.126) on [Ethernet controller] under [Other devices].

POINT

When the LAN driver is installed to [Other devices] before updating the driver for the network adapter recognized immediately after the OS installation

- ▶ When driver installation starts, the following window appears.



Clicking [Finish] displays the [Help and Support Center] window. Click [X] to close the window. After installation, the "!" mark is displayed at the LAN device name in Device Manager. Device names are displayed properly when all LAN drivers are installed and the system is restarted.

■ Updating LAN Drivers

Perform the following procedures on all LAN device names under [Network adapters] in [Device Manager].

- 1 Double-click a LAN device name under [Network adapters].

POINT

- ▶ Names of the LAN devices are displayed as follows.

table: LAN device name

LAN cards	LAN device name
PG-1852	Intel(R) PRO/1000 MT Desktop Adapter
PG-1862	Intel(R) PRO/1000 MT Dual Port Server Adapter

- 2 Insert the driver disk created from the ServerStart CD-ROM into the server.
- 3 Click [Update Driver] in the [Driver] tab window.
The [Welcome to the Hardware Update Wizard] window appears.
- 4 Select [Install the software automatically (Recommended)] and click [Next].
The driver will be installed.
- 5 Click [Finish].

- 6** Click [Close] to close the properties window.

■ Installing the LAN Driver

Perform the following procedures on each [Ethernet controller] under [Other devices] in [Device Manager].

- 1** Insert the driver disk created from the ServerStart CD-ROM into the server.
For the onboard LAN, insert the ServerStart CD-ROM.
- 2** Double-click [Ethernet controller] under [Other devices].
The properties window for the Ethernet controller appears.
- 3** Click [Reinstall Driver] in the [General] tab window.
The [Welcome to the Hardware Update Wizard] window appears.
- 4** Select [Install the software automatically (Recommended)] and click [Next].
The driver will be installed.
- 5** Click [Finish].
- 6** Click [Close] to close the properties window.
- 7** Eject the driver disk and restart the system.


POINT

- ▶ After LAN driver installation, names of the LAN devices are displayed as follows.

table: LAN device name

LAN cards	LAN device name
Onboard LAN (1000BASE-T)	Broadcom NetXtreme Gigabit Ethernet
PG-1852	Intel(R) PRO/1000 MT Desktop Adapter
PG-1862	Intel(R) PRO/1000 MT Dual Port Server Adapter
PG-1882/PG-1882L	Intel(R) PRO/1000 MF Server Adapter (LX)
PG-1892/PG-1892L	Intel(R) PRO/1000 MT Server Adapter

4.3.2 Installing the LAN Driver (Windows 2000 Server)

- 1** Insert the driver disk created from the ServerStart CD-ROM into the server.
For the onboard LAN, insert the ServerStart CD-ROM.
- 2** Right-click the [My Computer] icon on the desktop and select [Manage] from the displayed menu.
- 3** Click [Device Manager].
As many [Ethernet controller] items as the installed LAN ports are displayed under [Other devices].
Double-click each [Ethernet controller] item and perform the following Steps 4 to 11 on all LAN ports.
- 4** Double-click [Ethernet controller] under [Other devices].
The properties window for the Ethernet controller appears.
- 5** Click [Reinstall Driver] in the [General] tab window.
The [Device Driver Upgrade Wizard] window appears.
- 6** Click [Next].
- 7** Select [Install an optimum driver (Recommended)] and click [Next].
The [Identify Driver File] window appears.
- 8** Select [Floppy disk drive] ([CD-ROM drive] for onboard LAN) in [Search location options] and click [Next].
Detected drivers are displayed.
- 9** Click [Next].
Driver installation starts. When it is completed, a completion window appears.
- 10** Click [Finish].
- 11** Click [Close] to close the properties window.
 **POINT**
 - ▶ When [Ethernet controller] items are displayed under [Other devices], perform the above Steps 4 to 11 on all [Ethernet controller] items.
- 12** Eject the driver disk and restart the system.

 **POINT**

- ▶ After LAN driver installation, names of the LAN devices are displayed as follows.

table: LAN device name

LAN cards	LAN device name
Onboard LAN (1000BASE-T)	Broadcom NetXtreme Gigabit Ethernet
PG-1852	Intel(R) PRO/1000 MT Desktop Adapter
PG-1862	Intel(R) PRO/1000 MT Dual Port Server Adapter
PG-1882/PG-1882L	Intel(R) PRO/1000 MF Server Adapter (LX)
PG-1892/PG-1892L	Intel(R) PRO/1000 MT Server Adapter

■ When a LAN Card is Added

The following window may appear at system startup after addition of a LAN card. Perform the appropriate procedure according to the displayed window.

- When the "New Hardware Detection Wizard" window appears
Insert the driver disk created from the ServerStart CD-ROM and perform Step 6 and subsequent steps in "Updating LAN Drivers".
- When the [Insert Disk] window prompts you to insert the "Intel PRO Adapter CD-ROM or floppy disk" or "Intel® PRO/1000 Disk Driver".
Insert the driver disk created from the ServerStart CD-ROM and install the driver.

 **IMPORTANT**

- ▶ The "Digital signature was not found" message may appear. If it appears, click [Yes] to continue the operations.
- ▶ When the [Overwriting the Files] window appears, normally do not overwrite the files (select [Do not overwrite all files]).

4.3.3 Latest Drivers

The latest drivers, refer to the Fujitsu PRIMERGY website (<http://primergy.fujitsu.com>).

Chapter 5

Operations after OS Installation

5

This chapter explains the operations to be performed after OS installation. Be sure to perform these operations before operating the server.

5.1	Memory Dump/Paging File Setting	130
5.2	Creating a Disk for System Recovery	140
5.3	Storing the System Setting Information	142
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5.6	LAN Driver Advanced Setup [BACS]	154
5.7	LAN Driver Advanced Setup [Intel® PROSet]	161

5.1 Memory Dump/Paging File Setting

Before start operating this server, configure the setting for obtaining memory dump. The setting procedure varies between Windows Server 2003 and Windows 2000 Server.

● Memory Dump

If memory dump is set, debugging information will be automatically saved when a STOP error (fatal system error) occurs in the system. Using the saved memory dump, error cause can be analyzed.

If the amount of installed memory is large, pay special attention when setting the memory dump file. The settings for obtaining memory dump should be configured after installing the files to be used for operations (OS, applications, etc.).

5.1.1 How to Obtain Memory Dump For Windows Server 2003

Check the following settings before starting configuration to obtain memory dump.

■ Checking Hard Disk Free Space

To obtain memory dump, sufficient hard disk capacity is required for creating paging files and memory dump files.

The obtainable dump types and required hard disk capacity are as follows.

● Complete Memory (Full) Dump

When the system unexpectedly stops, contents of the whole system memory are recorded. The file is stored in the directory displayed in the [Dump file] box.

- Paging file: Installed physical memory + 11MB (Recommended: Installed physical memory x 1.5)
- Memory dump file: Same amount as installed physical memory

● Kernel Memory Dump

Information of only kernel memory space is recorded. The file is stored in the directory displayed in the [Dump file] box. Capacity required for kernel memory dump is as follows.

- Paging file: Depending on installed physical memory amount
 - For memory of 256 to 1,373MB - Installed physical memory x 1.5
 - For memory of 1,374MB or more - 32-bit system: 2GB + 16MB 64-bit system: RAM size + 128MB
- Memory dump file: Depending on the used amount of kernel-mode address space during STOP

● Small Memory Dump

Minimum amount of useful information for problem identification is recorded. If this option is specified, a new file is created each time the system unexpectedly stops.

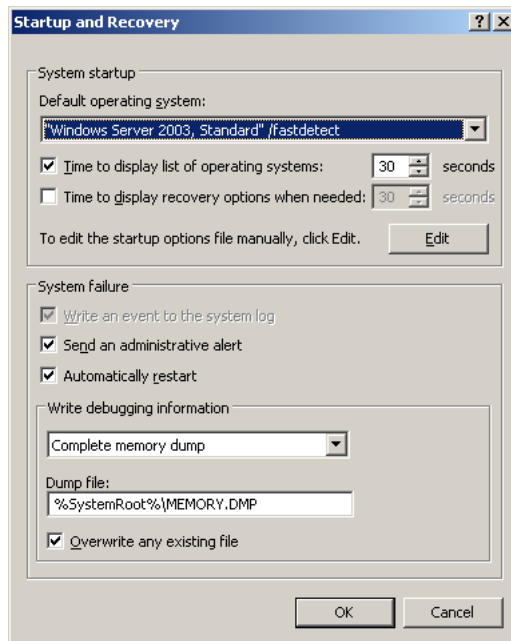
History of such files is stored in the directory displayed in [Small dump directory].

- Paging file: 2MB or more
- Memory dump file: 64KB or 128KB

■ Memory Dump File Setting

Set up the memory dump file according to the following procedures.

- 1** Log on to the server with administrator privileges.
- 2** Check free space of the drive where the memory dump file is to be stored.
Check the required amount of free space according to "■ Checking Hard Disk Free Space" (→pg.130).
If the drive has no free space, refer to "■ Cannot collect the memory dump" (→pg.268).
- 3** Click [Start] → [Control Panel] → [System].
The [System Properties] window appears.
- 4** Click the [Advanced] tab and click [Settings] in [Startup and Recovery].
The [Startup and Recovery] window appears.



5 Set as follows.

1. In the [Write debugging information] section, select the memory dump file type.
 - Small memory dump (64KB)
Minimum information is recorded to the memory dump file.
Each time a fatal error occurs, a new file is created in the directory specified in [Small dump directory].
 - Kernel memory dump
Only kernel memory is recorded to the memory dump file.
 - Complete memory dump (Recommended)
The whole system memory information is recorded to the memory dump file.
2. In [Dump file] or [Small dump directory], specify the directory to save the memory dump file, with its full path.
In case of kernel memory dump or complete memory dump, if [Overwrite any existing file] is checked, debugging information is overwritten to the specified file every time.

6 Click [OK] to close the [Startup and Recovery] window.

7 Click [OK] to close the [System Properties] window.

8 Restart the system.

The setting is enabled after the system is restarted.

■ Paging File Setting

Set up the paging file according to the following procedures.

1 Log on to the server with administrator privileges.

2 Check free space of the drive where the system is installed.

Check the required amount of free space according to "■ Checking Hard Disk Free Space" (→pg.130).

If the drive has no free space, refer to "■ Cannot collect the memory dump" (→pg.268).

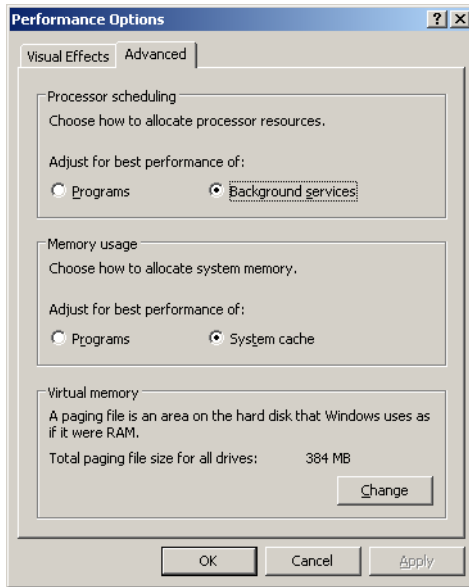
3 Click [Start] → [Control Panel] → [System].

The [System Properties] window appears.

4 Click the [Advanced] tab and click [Settings] in [Performance].

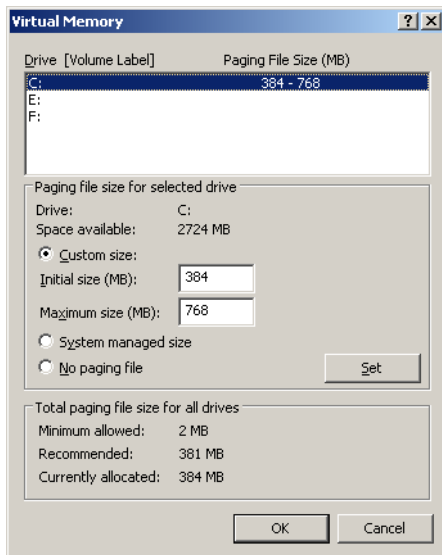
The [Performance Options] window appears.

5 Click the [Advanced] tab.



6 Click [Change] in the [Virtual memory] section.

The [Virtual Memory] window appears.



7 Specify the drive where the paging file is to be created.

In [Drive], select the drive where the system is installed.

The selected drive is displayed in [Drive] in [Paging file size for selected drive].

8 Select [Custom size] and enter a value in [Initial size].

The value depends on the type of the set dump file.

Specify a value larger than the value shown in [Recommended] in [Total paging file size for all drives].



- ▶ When a smaller value is specified for the paging file size, performance may be affected. For maximum system efficiency, be sure to set [Initial size] with a value larger than the [Recommended] size described in [Total paging file size for all drives]. The recommended size is total memory installed in the system x 1.5. However, if a program consuming a large amount of memory is regularly used, set a larger size as required.

9 Enter a value in [Maximum size].

Specify a value larger than the [Initial size].

10 Save the settings.

Click [Set] in the [Paging file size for selected drive] section.

The settings are saved, and the value specified is displayed in [Paging File Size] of [Drive].

11 Click [OK] to close the [Virtual Memory] window.

12 Click [OK] to close the [Performance Options] window.

13 Click [OK] to close the [System Properties] window.

14 Restart the system.

The setting is enabled after the system is restarted.

5.1.2 How to Obtain Memory Dump For Windows 2000 Server

Check the following settings before starting configuration to obtain memory dump.

■ Checking Hard Disk Free Space

Once memory dump is obtained, a file containing contents of the whole physical memory installed in the system is created. Before storing the dump file, confirm that there is sufficient free space in the hard disk.

The obtainable dump types and required hard disk capacity are as follows.

● Complete Memory (Full) Dump

When the system unexpectedly stops, contents of the whole system memory are recorded. If this option is selected, space to retain the paging file as large as the whole physical memory x 1.3 is required in the boot volume.

- Included information

Common header, all virtual address pages that are not paged out during STOP

- Required size
Installed physical memory x 1.3

● Kernel Memory Dump

Information of only kernel memory space is recorded. When the system unexpectedly stops, the process that records information to the log file is speeded up. According to the amount of memory installed in the server, available area of 50 to 800MB is required for the paging file in the boot volume.

- Included information
Common header, summary dump header (complete memory dump) - (user process space page) - (cache region page) - (unused pool region page)
- Required size
Depending on the used amount of kernel-mode address space during STOP

● Small Memory Dump

Minimum amount of useful information for problem identification is recorded. In this option, a paging file of at least 2MB is required in the boot volume. Also, a new file is created each time the system unexpectedly stops.

History of such files is stored in the directory displayed in [Small dump directory] (usually, C:\winnt\minidump).

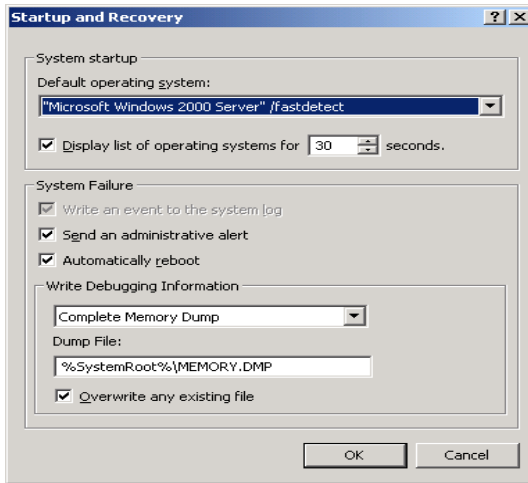
- Included information
Common header, minidump header, kernel module, memory information, processor information, process information, thread information, stuck page, unloaded module information
- Required size
2MB or more

■ Memory Dump File Setting

Set up the memory dump file according to the following procedures.

- 1** Log on to the server with administrator privileges.
- 2** Check free space of the drive where the memory dump file is to be stored.
Check the required amount of free space according to "■ Checking Hard Disk Free Space" (→pg.134).
If the drive has no free space, refer to "■ Cannot collect the memory dump" (→pg.268).
- 3** Click [Start] → [Settings] → [Control Panel].
- 4** Double-click the [System] icon.
The [System Properties] window appears.

- 5** Click the [Advanced] tab and click [Startup and Recovery].
The [Startup and Recovery] window appears.



- 6** Set as follows.
1. In the [Write debugging information] section, select the memory dump file type.
 - Small memory dump (2MB or more)
Minimum information is recorded to the memory dump file.
Each time a fatal error occurs, a new file is created in the directory specified in [Small dump directory].
 - Kernel memory dump
Only kernel memory is recorded to the memory dump file.
 - Complete memory dump (Recommended)
The whole system memory information is recorded to the memory dump file.
 2. In [Dump file] or [Small dump directory], specify the directory to save the memory dump file, with its full path.
In case of kernel memory dump or complete memory dump, if [Overwrite any existing file] is checked, debugging information is overwritten to the specified file every time.

- 7** Click [OK] to close the [Startup and Recovery] window.

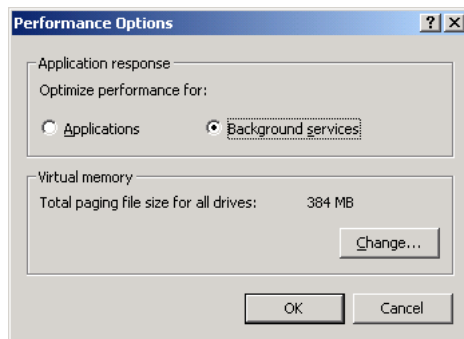
- 8** Click [OK] to close the [System Properties] window.

- 9** Restart the system.
The setting is enabled after the system is restarted.

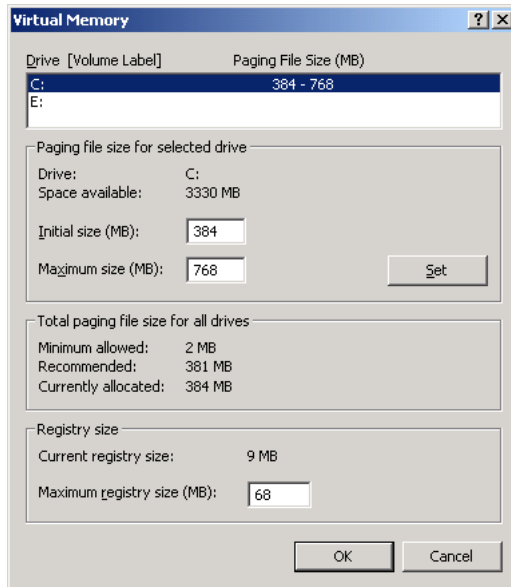
■ Paging File Setting

Set up the paging file according to the following procedures.

- 1** Log on to the server with administrator privileges.
- 2** Check free space of the drive where the system is installed.
Check the required amount of free space according to "■ Checking Hard Disk Free Space" (→pg.134). If the drive has no free space, refer to "■ Cannot collect the memory dump" (→pg.268).
- 3** Click [Start] → [Settings] → [Control Panel].
- 4** Double-click the [System] icon.
The [System Properties] window appears.
- 5** Click the [Advanced] tab and click [Performance Options].
The [Performance Options] window appears.



- 6** Click [Change] in the [Virtual memory] section.
The [Virtual Memory] window appears.



- 7** Specify the drive where the paging file is to be created.
In [Drive], select the drive where the system is installed.
The selected drive is displayed in [Drive] in [Paging file size for selected drive].
- 8** Specify the [Initial size].
The value depends on the type of the set dump file.
Specify a value larger than the value shown in [Recommended] in [Total paging file size for all drives].



- ▶ When a smaller value is specified for the paging file size, performance may be affected. We recommend to specify the paging file size larger than the recommended value.

- 9** Specify the [Maximum size].
Specify a value larger than the [Initial size].
- 10** Save the settings.
Click [Set] in the [Paging file size for selected drive] section.
The settings are saved, and the value specified is displayed in [Paging File Size] of [Drive].
- 11** Click [OK] to close the [Virtual Memory] window.
- 12** Click [OK] to close the [Performance Options] window.
- 13** Click [OK] to close the [System Properties] window.

14 Restart the system.

The setting is enabled after the system is restarted.

5.2 Creating a Disk for System Recovery

If the installation of the OS was performed manually, create a system recovery disk.

POINT

- ▶ If the system file, system configuration or environment setting change at startup, etc., are damaged, such data can be reconstructed using the recovery information stored in the created system recovery disk.
- ▶ To create a recovery disk, you need an unused formatted floppy disk. Prepare it in advance.

5.2.1 Creating the Automated System Recovery (ASR) Set For Windows Server 2003

After setting up Windows Server 2003, create a system recovery set. To do this, you need an unused formatted floppy disk and a medium to store back up files.

- 1** Click [Start] → [All Programs] → [Accessories] → [System Tool] → [Backup].
The [Backup or Recovery Wizard] window appears.
- 2** Click [Next].
The [Backup or Recovery] window appears.
- 3** Select [Create a backup of files and settings], and then click [Next].
The [Items to Create Backups] window appears
- 4** Select [All the information in this computer], and then click [Next].
The [Backup Type, Destination and Name of the Backup File] window appears.
- 5** Specify name and destination of the backup file, and then click [Next].
The [Backup or Recovery Wizard Complete] window appears.
- 6** Click [Finish].
Backup process starts.
- 7** If a message prompting you to insert a floppy disk appears, insert the floppy disk and click [OK].
Automated system recovery disk is created.

- 8** When the process is completed, a message appears. Eject the floppy disk according to the message and put a label on it.
Label example: Windows Automated System Recovery Disk: Backup.bkf, Created at 12:00 04/01/2003
- 9** Click [OK] to exit [Backup Utility].
- 10** Click [Close] to close the [Backup Progress] window.
An automated system recovery set has been created.
Store the automated system recovery set just created in a secure location.

5.2.2 Creating a System Recovery Disk For Windows 2000 Server

After setting up Windows Server 2000, create a system recovery disk. To do this, you need an unused formatted floppy disk.

- 1** Put a label showing "Windows 2000 system recovery disk" onto a floppy disk and insert it into the floppy disk drive.
- 2** Click [Start] → [Programs] → [Accessories] → [System Tools] → [Backup].
The backup window appears.
- 3** Click the [Wizard] tab and click [System Recovery Disk].
Create a system recovery disk by following the window instructions.

5.3 Storing the System Setting Information

Before starting operations, store the configuration information of the BIOS setup utility. By storing this information, the system can be recovered with the stored information in case of a system failure (such as when the information is deleted due to the drain of the built-in battery). Use Server Management Tools for storing and recovering the system configuration information.



- ▶ Since the system configuration information is significant in maintaining the server, be sure to store the BIOS information after the following operations.
 - When the information is changed with the BIOS setup utility
 - When the hardware configuration of this server is changed (e.g. a CPU, memory, baseboard or expansion card is added/removed or changed)
- ▶ As the stored system configuration information will be used during maintenance, etc., send it to your maintenance personnel.

■ Preparation for Using Server Management Tools

Before using Server Management Tools, prepare the "Server Management Tools" disk supplied with the server at hand.

■ Cautions

- Server Management Tools are for this server only. Do not use those tools on other systems. Otherwise, the system can be damaged.
- Only the information that is configured with the BIOS setup utility can be stored/recovered with Server Management Tools. The BIOS information in internal SCSI devices or expansion cards cannot be stored/recovered.
- Make sure to start up the server with the "Server Management Tools" disk before running Server Management Tools. Do not run Server Management Tools on the server started from the hard disk or by the other floppy disks. Otherwise, the system may be corrupted.
- Do not eject a floppy disk while the floppy disk access LED is on. Such an action may lead not only to corruption of the floppy disk data but also an unstable state of the system.
- If an error message appears while running Server Management Tools, respond to the message according to "■ Server Management Tools Error Messages" (→pg.263).

5.3.1 How to Store the BIOS Information

Store the BIOS information according to the following procedures.



- ▶ Before starting the operation, if the "OS Boot Monitoring" function of ServerView is enabled, disable it (it is disabled by default).
If you start up the system while the "OS Boot Monitoring" function remains effective, the operation of the server may become unpredictable at such times as an abrupt power interruption or restart.
If it is necessary to operate the server with the "OS Boot Monitoring" function enabled, enable the function after storing the BIOS information.
For details of ServerView, refer to "ServerView User's Guide".
- ▶ You cannot save the set values of the BIOS setup utility in the following location. Write them down beforehand.
 - Information under [Main] menu → [Boot Option] submenu → [Boot Sequence]

1 Turn on the server and insert the "Server Management Tools" disk into the floppy disk drive.

2 When the DOS prompt window appears, enter the following command and press the [Enter] key.

```
A:\SMTOOL>biossave.bat
```



- ▶ If storing has already been performed with Server Management Tools, the stored file must exist in the floppy disk. In this case, overwriting the file may lead to incompleteness of BIOS information recovery. Move the file to another floppy disk, rename the file or delete it by executing the following command.
A:\SMTOOL>deldat.bat [Enter]

3 If the BIOS information is stored correctly, the following message appears.

Success!

5.3.2 How to Recover the BIOS Information

If the information configured with the BIOS setup utility was deleted due to a drain of the built-in server battery, etc., restore the BIOS information according to the following procedures.



- ▶ Do not turn off the server during a program run.
- ▶ Before starting up the system by inserting the "ServerStart CD-ROM" or "Server Management Tools" disk, check to see that the "OS Boot Monitoring" function of ServerView is disabled (default setting). If you start up the system while the "OS Boot Monitoring" function remains effective, the operation of the server may become unpredictable at such times as an abrupt power interruption or restart. If the server is operated with the "OS Boot Monitoring" function enable, enable the function again before resuming operation. For details of ServerView, refer to "ServerView User's Guide".

- 1** Turn on the server and insert the "Server Management Tools" disk into the floppy disk drive.
- 2** When the DOS prompt window appears, enter the following command and press the [Enter] key.
A:\SMTOOL\>biosrest.bat
- 3** If the BIOS information is restored correctly, the following message appears.

Success!

- 4** The BIOS information will be enabled after the next system restart. Restart the server.
Perform Step 1 to display the DOS prompt window. The restoration procedure has been completed. The server can now be turned off safely.

5.4 Creating Maintenance Tools

This section explains how to create tools for maintaining the server. Maintenance tools are created with the FloppyBuilder function of ServerStart.

With the FloppyBuilder function of ServerStart, you can create the following tools.

- DOS floppy disks
- Hardware Configuration Tools (such as Server Management Tools)

The FloppyBuilder can be used under environments such as.

- the ServerStart system started on a client computer (recommended)
- the system started on the server using the ServerStart CD-ROM

POINT

- ▶ When creating the tools on a client computer, install ServerStart on the computer beforehand. Install ServerStart according to "2.4 Preparation for Using ServerStart on a Client Computer" (→pg.52). If ServerStart of a different version is installed in the computer, make sure to uninstall the ServerStart. Then perform installation again. For details on how to uninstall ServerStart, refer to "2.4.2 Uninstalling ServerStart" (→pg.54).

IMPORTANT

- ▶ The FloppyBuilder function may not operate correctly if you start up ServerStart while ServerStart of a different version is installed in the computer. Make sure to uninstall a different version of ServerStart.

5.4.1 Creating a DOS Floppy Disk

For DOS data stored into the floppy disk, refer to the file in the following folder of the ServerStart CD-ROM.

[CD-ROM drive]: \FreeDOS

To create a DOS floppy disk, you need an unused floppy disk. Prepare it in advance.

If ServerStart has already been started, it is not necessary to restart it. If it has not, start it up according to the following procedures.

■ Starting ServerStart

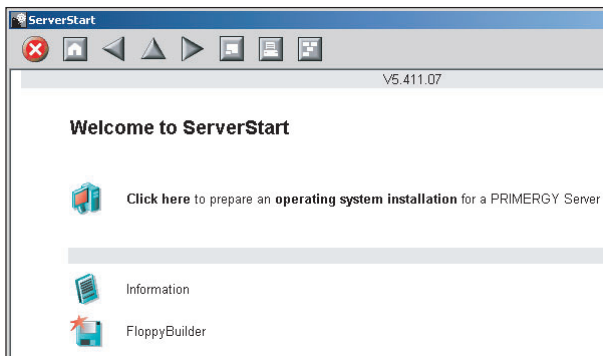
● For Creation on a Client Computer

When the CD has been copied on Windows 2000 Professional/Windows XP Professional

- 1 Click [Start] → [Programs] → [Fujitsu ServerStart] → [ServerStart].
ServerStart starts up and the [Welcome to ServerStart] window appears.

When Windows NT is used, or if the CD has not been copied

- 1 Insert the ServerStart CD-ROM into the client computer's CD-ROM drive.
ServerStart starts up and the [Welcome to ServerStart] window appears.



● For Creation on the Server

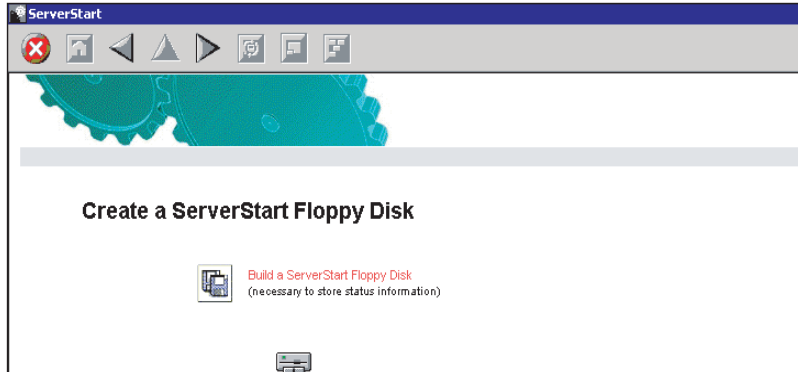
- 1 Turn on the server and insert the ServerStart CD-ROM immediately.
ServerStart starts up and a message appears prompting you to insert the ServerStart floppy disk.
- 2 Insert the attached "ServerStart floppy disk" into the server's floppy disk drive.
Then make sure "Removable media" and "A:" are selected and click [Create].
A network setup window for remote installation appears.

POINT

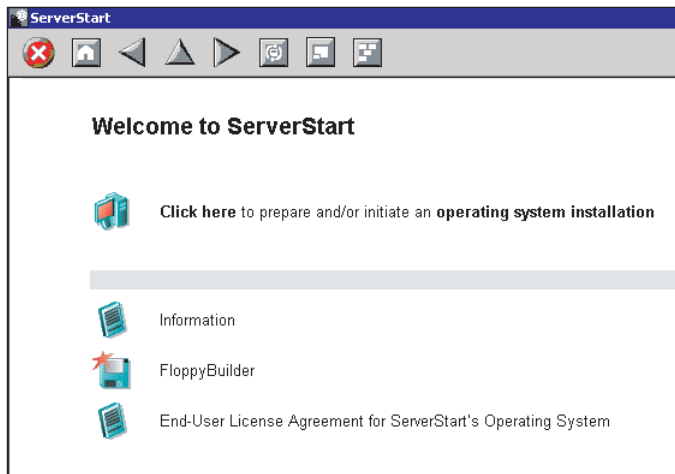
- ▶ If a configuration file already exists in the ServerStart floppy disk and [OK] is clicked without clicking [Create], the [ServerStart Unattended Mode] window appears. Make sure to click [Exit]. The [Welcome to ServerStart] window appears.
If [Start] is clicked in the [ServerStart Unattended Mode] window, the installation of the server will start and all disk contents will be deleted.

3 Click [OK].

The [Initialization of ServerStart core running] window appears and unattended installation will be started. Depending on the hardware configuration, this process may take a few minutes. When the process is completed, the [Create a ServerStart Floppy Disk] window appears.

**4** Click [or Insert a ServerStart Floppy Disk to Start ServerStart].

The [Welcome to ServerStart] window appears.

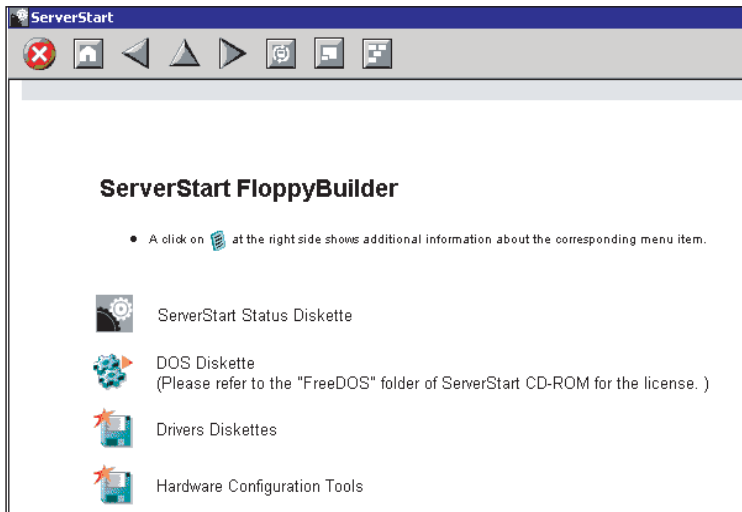
**5** Eject the ServerStart floppy disk.

■ Creating a DOS Floppy Disk

Start up ServerStart and confirm that the [Welcome to ServerStart] window is displayed.

1 Click [FloppyBuilder].

The [ServerStart FloppyBuilder] window appears.



2 Click [DOS Diskette].

Insert the prepared floppy disk by following the message.

3 Perform the procedures following to the messages on the window.

The floppy disk will be formatted automatically and file copying will start.

The DOS floppy disk will be created automatically.

When a message appears indicating that creating the disk is completed, click [OK] and eject the disk.

5.4.2 Creating a Hardware Configuration Tool

This section explains how to create a Hardware Configuration Tool from the ServerStart CD-ROM.

Prepare floppy disks as many as the tools you want to create beforehand.

Types of a Hardware Configuration Tool vary by model.

1 Start up ServerStart and click [FloppyBuilder].

For details on procedures for starting up ServerStart, refer to "■ Starting ServerStart" (→pg.146).

2 Click [Hardware Configuration Tool].

3 Click the tool you want to create.

Insert the prepared floppy disk by following the message.

4 Perform the subsequent operations according to the messages on the window.

The floppy disk will be formatted automatically and file copying will start.

The respective tools will be created automatically. When a message appears indicating that the disk is created, click [OK] and eject the disk.

5.5 Notes Before Operating the Server

This section explains the settings required before starting to operate the server.

For the respective settings, refer to "First Step Guide".

- If a LAN card was added, install a driver according to "4.3 Installing the LAN Driver" (→pg.124).
- When connecting a SCSI optional device (such as a hard disk cabinet or DAT), connect it according to "Chapter 7 Installing Internal Options" (→pg.171).
- For the settings for the installed applications supplied with the product, refer to the manuals of each application.

5.5.1 Updating the System

■ Windows Update

The system being used must be updated to prevent potential problems in the system.

Executing Windows Update can automatically search the latest version of QFE applicable to the OS and update the system to the latest status. Execute Windows Update periodically.

Executing Windows Update requires a network environment connectable to the Internet.

5.5.2 Auto-run Function from CD-ROM Drives

Perform the following procedures to change the settings of the auto-run function from the CD-ROM drives after server installation.

- 1** Make the registry editable, and change the value of AutoRun of the following registry key:

HKEY_LOCAL_MACHINE\System\CurrentControlSet\Services\CDRom

To enable auto-run, set the value of Autorun to "1", and to disable auto-run, set the value to "0".

- 2** Restart the system.

The setting is enabled after the system is restarted.

5.5.3 Drive Letter Assignment in Expert Mode

In expert mode, you cannot specify a drive letter to a particular partition arbitrarily. Drive letters specified with Disk Manager in expert mode will be sequentially assigned from the first partition with "C, D, E..." when installation is completed, and an unused drive letter will be assigned to the CD-ROM drive.

To change the drive letter, perform the following procedures after installation.



- ▶ You cannot change the drive letters for the system and boot drive.

■ For Windows Server 2003

- 1** Click [Start] → [Administrative Tools] → [Computer Management].
- 2** Click [Disk Management].
- 3** Right-click the partition to change the letter and click [Change Drive Letter and Path].
The [Change Drive Letter and Path] window appears.
- 4** Click [Edit].
The [Change Drive Letter or Path] window appears.
- 5** Change the drive letter.

■ For Windows 2000 Server

- 1** Right-click [My Computer] icon on the desktop and select [Manage].
- 2** Click [Disk Management].
- 3** Right-click the partition to change the letter and select [Change Drive Letter and Path].
The [Change Drive Letter and Path] window appears.
- 4** Click [Edit].
The [Change Drive Letter or Path] window appears.
- 5** Change the drive letter.

5.5.4 Notes on Advanced Uninterruptible Power Supply (UPS)

Note the following points when using an advanced uninterruptible power supply (referred to as UPS afterward).

■ UPS Shutdown Time Setting

Specify enough time for the UPS power-off time (time from the shutdown direction to the actual power-off). If this time is set insufficiently, the power will be cut off before system shutdown, which may result in destruction of data. For more details, refer to the manuals for UPS and UPS management software.

■ Power Supply Control by UPS

Change BIOS settings as follows to power the server on automatically using the UPS management software (PowerChute Network Shutdown, PowerChute Business Edition) at power recovery or during scheduled operation. For details on how to set the BIOS Setup Utility, refer to "8.2 BIOS Setup Utility" (→pg.223).

- 1** Start the BIOS Setup Utility.
- 2** From the [Advanced] menu, select the [Power On/Off] submenu and press the [Enter] key.
The [Power On/Off] submenu window appears.
- 3** Set the [Power Failure Recovery] to [Always On].
→"8.2.9 Power On/Off Submenu" (pg.237)

5.5.5 Turning the Power On via a LAN

You can turn the power on the server from a client (via a LAN) by utilizing the Wakeup on LAN (WOL) function.

IMPORTANT

- ▶ Be sure to install ServerView to control the power supply via a LAN.

POINT

- ▶ When the power cable is disconnected from the server or the server is powered off due to power interruption, restart the server. Unless the server is restarted, the WOL function will be disabled.

■ BIOS Setup Utility Setting

When power management is performed via a LAN, configure the settings as follows using the BIOS Setup Utility. The power management via a LAN is set to "Enabled" by default.

- 1** Start the BIOS Setup Utility.
→"8.2.1 Starting and Exiting the BIOS Setup Utility" (pg.223)
- 2** From the [Advanced] menu, select the [Power On/Off] submenu and press the [Enter] key.
The [Power On/Off] submenu window appears.
- 3** Set [Power On Source: LAN] to [Enabled].
→"8.2.9 Power On/Off Submenu" (pg.237)

POINT

- ▶ To start up the server via a LAN, refer to "● Performing Remote Installation" (→pg.44).

5.5.6 Other Notes on Operation

■ Unnecessary Files

After OS installation is completed, folders named Runonce and Runonce 2 may be left in the drive where the OS is installed. Delete these folders since you do not need them for the system operation.

■ Notes on 24-hour Operation

● Automated System Operation

To provide an extra margin of safety against unintentional damage, introduce disaster-prevention measures in the office and keep disaster prevention personnel (such as a security guard or janitor) in the building.

● Unintentional Power-off Prevention

We recommend the installation of a special power supply device (such as a distribution board) to prevent unplanned power shut-offs.

5.6 LAN Driver Advanced Setup [BACS]

BACS is an integrated GUI application consisting of programs such as BASP (Broadcom Advanced Server Program) that provides the load balancing feature, etc., by teaming up multiple adapters.

BACS is used in the following situations.

- Use the teaming (load balance) function between onboard LANs.
- Setup a VLAN using the onboard LAN
- Perform the other advanced setups of the onboard LAN

POINT

Use of Intel® PROSet

- ▶ Use Intel® PROSet (→pg.161) to perform the following advanced setups of a LAN card.
 - Use the Teaming function between LAN cards or between a LAN card and the onboard LAN
 - Setup a VLAN using a LAN card
 - Use the Jumbo frame with a LAN card
 - Perform the other advanced setups of a LAN card

5.6.1 BACS Installation

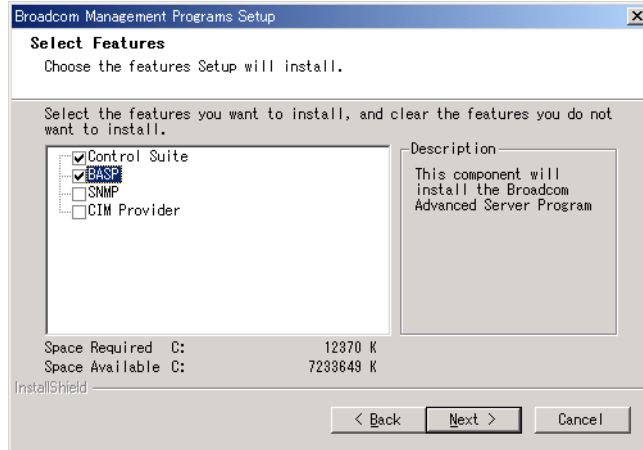
If the OS was installed using ServerStart, "BACS" is already installed with the driver. If the OS was installed manually, BACS will not be installed.

If [Broadcom Control Suite] is not displayed in the [Control Panel], install BACS according to the following installation procedures.

- 1** Start the following EXE file contained in the ServerStart CD-ROM.
[CD-ROM drive]: \PROGRAMS\GENERAL\Broadcom\MAforS2\setup.exe
The installer starts up.

- 2** The installer starts up. Proceed the installation by following the window instructions.

When the window below appears during the installation procedure, check [BASP] and click [Next].



5.6.2 Load Balance

Once a Windows Server 2003 or Windows 2000 Server Team is created, virtual adapters (BASP Virtual Adapter) will be created in the [Device Manager] and/or [Network and Dial-up Connections] of the system. Do not disable or delete a virtual adapter from the [Device Manager] or [Network and Dial-up Connections]. When deleting a virtual adapter, make sure to use BACS.

■ Load Balance Setup Procedure

- 1** Start up BACS. The procedure differs depending on the OS being used.

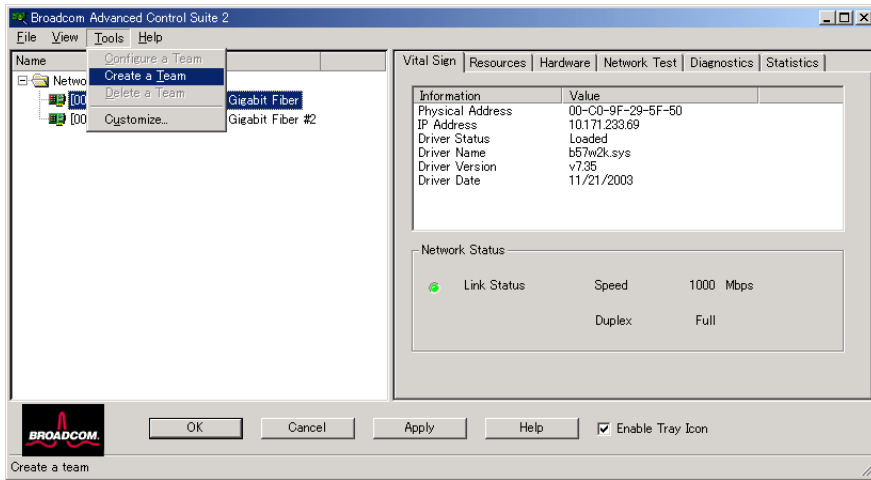
For Windows Server 2003

1. Click [Start] → [Control Panel] → [Broadcom Control Suite 2].

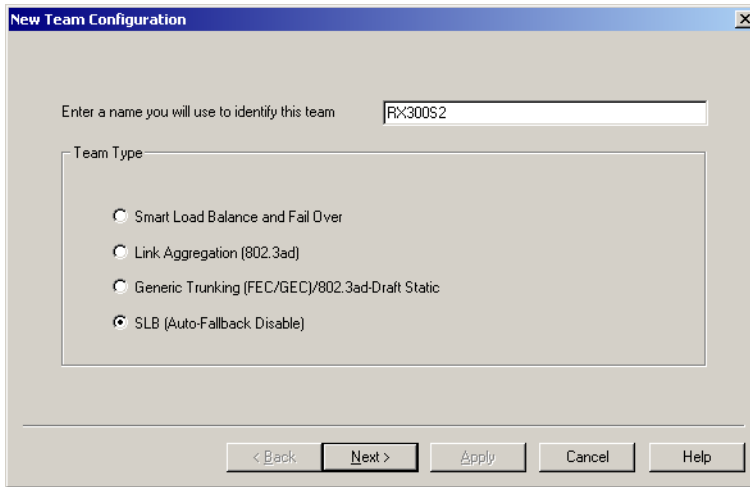
For Windows 2000 Server

1. Click [Start] → [Settings] → [Control Panel].
The [Control Panel] window appears.
2. Start up "Broadcom Control Suite 2".

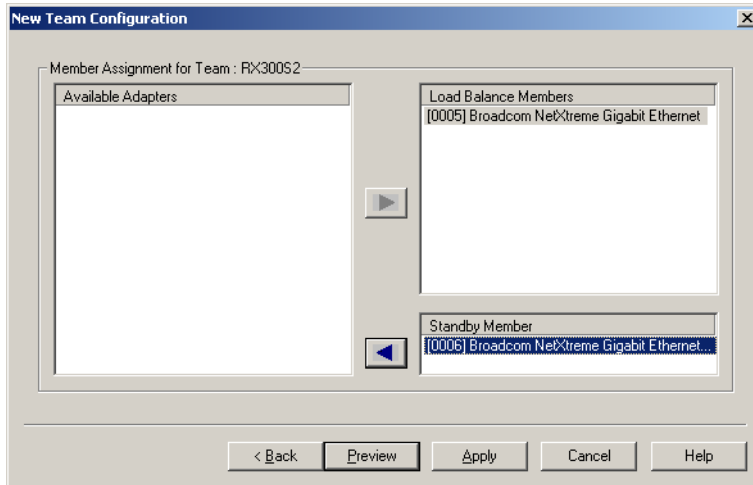
2 Click [Create Team] from the [Tools] menu.



3 Specify [Name] and [Team Type] for the team in the [Configure New Team] window.

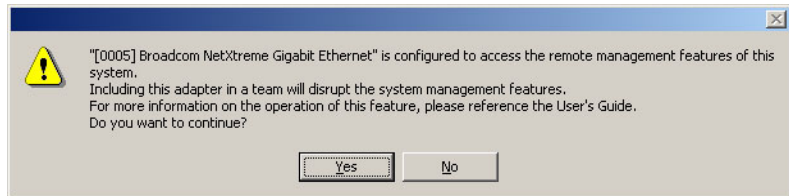


- 4 Select an adapter to add to the created team from [Available adapters], click the [◀] and [▶] buttons, and move the adapter to [Load Balance member] or [Standby member].



POINT

- ▶ When adding adapter "[0005] Broadcom NetXtreme Gigabit Ethernet", the following message appears but click [Yes (Y)] and go to the next step. "[0005] Broadcom NetXtreme Gigabit Ethernet" (port LAN A) is connected to BMC (micro controller for server management) and can control power supply and other functions via a LAN. When a team is created, communication function with BMC is not inherited to other adapters.



- 5 Click [Apply] to apply the settings.

After the network is temporarily disconnected, a window is displayed. Click [Yes (Y)]. When continuing to VLAN settings, go to "5.6.3 VLAN Setup Procedure" (→pg.158).

5.6.3 VLAN Setup Procedure

- 1 Start up BACS. The procedure differs depending on the OS being used.

For Windows Server 2003

1. Click [Start] → [Control Panel] → [Broadcom Control Suite 2].

For Windows 2000 Server



1. Click [Start] → [Settings] → [Control Panel].

The [Control Panel] window appears.

2. Start up "Broadcom Control Suite 2".

- 2 Right-click a LAN adaptor or the Team name of a Teamed Up adaptor and click [Add VLAN] from the displayed menu.

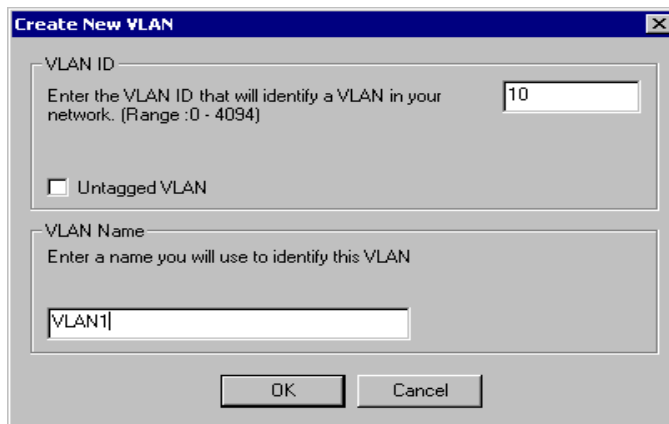
POINT

- ▶ A LAN adaptor is displayed with a  mark.
- ▶ The Team name of a Teamed Up adaptor is displayed with a  mark.

- 3 Specify [VLAN ID] and [VLAN Name] in the [Add VLAN] window.

The [VLAN ID] should be identical with the switch setting.

The [VLAN Name] does not need to be identical with the switch setting.



POINT

- ▶ You cannot use a "VLAN ID" or "VLAN Name" that has already been used. Enter another set value.

- 4 When the setting for the team is completed, click [OK].

- 5 Click [Apply] to apply the settings.

After the network is temporarily disconnected, a window is displayed. Click [Yes (Y)].

5.6.4 Cautions on Using the Teaming (SLB (Auto-Fallback Disable)) Function

When a primary adapter is recovered from a failure during standby operation, auto-fallback is not performed for the primary adapter. Communication is continued with the standby adapter. To return to the communication using the primary adapter, perform the following operation.

- 1 Start up BACS. The procedure differs depending on the OS being used.

For Windows Server 2003

1. Click [Start] → [Control Panel] → [Broadcom Control Suite 2].

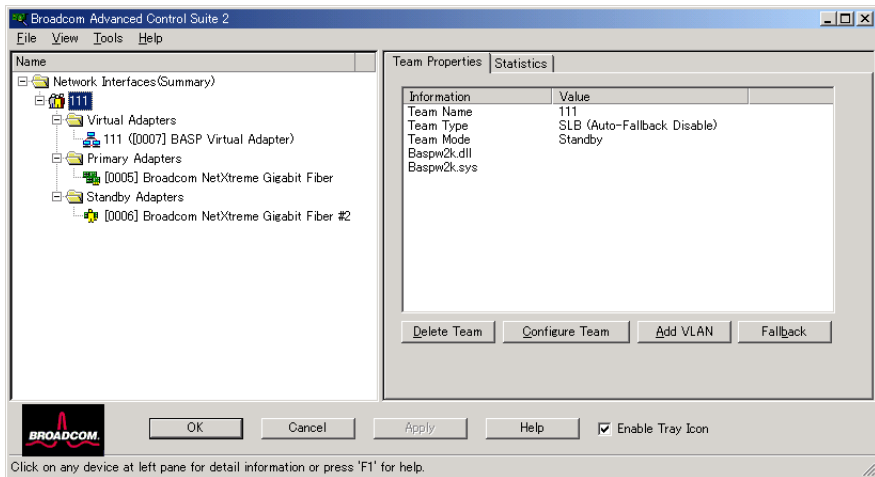
For Windows 2000 Server

1. Click [Start] → [Settings] → [Control Panel].

The [Control Panel] window appears.


2. Start up "Broadcom Control Suite 2".


- 2 Check that communication is performed with the [standby adapter] on the Teamed Up adapter tree.



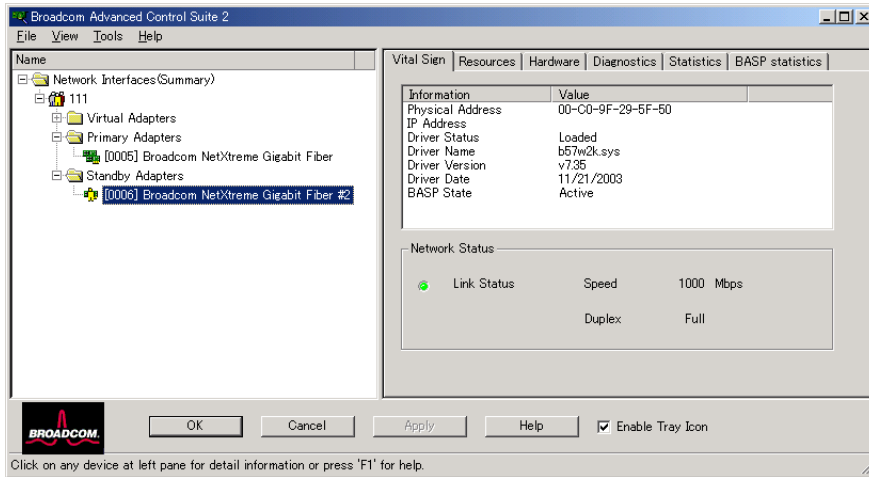
The currently communicated adapter is displayed with a  mark.


- 3 Check that the primary adapter is running properly on the Teamed Up adapter tree.

The primary adapter that is running properly is displayed with a  mark.

If the primary adapter is not running properly, a  mark is displayed.

- 4 Select the Team name of the Teamed Up adapter, and click [Fallback] from the [Team Properties] tab in the right pane of the window.



Check that the  mark moved from the standby adapter to the primary adapter and communication is maintained.

5.7 LAN Driver Advanced Setup [Intel® PROSet]

"Intel® PROSet" is a tool for configuring details on the LAN driver. This is used in the following situations.

- Use the Teaming function between LAN cards or between a LAN card and the onboard LAN
- Setup a VLAN using a LAN card
- Use the Jumbo frame with a LAN card
- Perform the other advanced setups of a LAN card

POINT

Use of BACS

- ▶ Use BACS (→pg.154) to perform the following advanced setups of the onboard LAN.
 - Use the teaming (load balance) function between onboard LANs.
 - Setup a VLAN using the onboard LAN
 - Perform the other advanced setups of the onboard LAN

5.7.1 Intel® PROSet Installation

If the OS was installed using ServerStart, Intel® PROSet is already installed with the driver. If the OS was installed manually, Intel® PROSet will not be installed.

On Windows Server 2003/Windows 2000 Server, if [Intel® PROSet] is not registered in the [Control Panel], install Intel® PROSet according to the following installation procedures.

- 1** Start the following EXE file contained in the ServerStart CD-ROM.

For Windows Server 2003

[CD-ROM drive]: \Tools\GENERAL\Intel\ProsetW2k3\Proset.exe

For Windows 2000 Server

[CD-ROM drive]: \Tools\GENERAL\Intel\ProsetW2k\Proset.exe

- 2** Select [Automatic execution-runs setup immediately] and click [OK].
Perform the subsequent procedures by following the instructions.

5.7.2 Notes on Referring to the Intel® PROSet Help Topics

When referring to help topics, note the following points.

- Do not use the driver downloaded from the Intel Corporation online service page on this server.
- If the descriptions in the help and this manual vary, give priority to this manual.
- The name of LAN cards appears in the help texts corresponds to the cards as follows.

table: LAN cards appear in the help texts

LAN cards appear in the help text	Corresponding LAN cards
PRO/1000 Desktop	PG-1852
PRO/1000 Server	PG-1862/PG-1882(L)/PG-1892(L)
PRO/1000 Adaptor	PG-1852/PG-1862/PG-1882(L)/PG-1892(L)
PRO/1000 Copper Adaptor	PG-1852/PG-1862/PG-1892(L)
PRO/1000 Fiber Adaptor	PG-1882(L)
82540-based Adaptor	PG-1852

- The controllers of the onboard LAN and LAN cards are as follows.

table: Controller being used

LAN cards	Controller being used
PG-1852	Intel® 82540EM
PG-1862	Intel® 82546EB
PG-1882(L)/PG-1892(L)	Intel® 82545GM

5.7.3 Cautions for PG-1852/1862/188x/189xLAN Driver V8.3

■ Event Log

Once a Team is setup, multiple identical logs from the same source that starts with the following log may be stored in the system log file of the event viewer at system start-up.

Source	iANSMiniport
ID	11
Type	Warning
Description	The following adaptor link is not connected: (Adapter name) * (Adapter name) varies depending on the OS or hardware configuration.

Since such event logs will be stored nonetheless even if the Teaming function is operated normally, ignore them.

5.7.4 Teaming Function

■ Notes

When using the Teaming function, note the following points.

- You require Service Pack 2 or later for Windows 2000 Server.
- For AFT/ALB/FEC/GEC type, you can incorporate up to four LAN ports into one team and two ports for a SFT type team.
- Once a Team is created, virtual adapters (Intel® Advanced Network Service Virtual Adapter) will be created in the [Device Manager] and/or [Network and Dial-up Connections] of the system. Do not disable or delete this virtual adapter from the [Device Manager] or [Network and Dial-up Connections]. When deleting a virtual adapter, make sure to use "Intel® PROSet".
- When the Teaming function is being used, you can only use the following protocols.
 - For AFT/SFT/FEC/GEC type: IP, NetBEUI, IPX (NCP), IPX (NetBIOS)
 - For ALB type: IP, IPX (NCP)
- When the Teaming function is being used, you cannot use the hardware assist function of IPSEC. Do not use this function even if the function is installed in all cards in the team.
- When the Teaming function is being used, you cannot use Windows Load Balancing Service (WLBS) and Network Load Balancing (NLB).
- PG-1852 does not become a member of a Team.
- You cannot select FEC/GEC type when Teaming Up the onboard LAN and a LAN card.
- If FEC/GEC type is selected, you can only use the switch for link aggregation.
- When adding/deleting a FEC/GEC type member, perform such operation under a linked down state.



- ▶ Only a link down error between a LAN card (onboard LAN) and the switch it connects with, and the equivalent errors lead to switching of the route. Therefore, if only the switch or LAN card (onboard LAN) is partially damaged and the route being used is sound at the link level, the route will not be switched in the team, but the communication within the Team may become an error.

■ Teaming Configuration Procedure

- 1** Start up "Intel® PROSet". The procedure differs depending on the OS being used.

For Windows Server 2003

1. Click [Start] → [Control Panel] → [Intel(R) PROSet].

For Windows 2000 Server

1. Click [Start] → [Settings] → [Control Panel].
The [Control Panel] window appears.
2. Start up "Intel(R) PROSet".

- 2** Select a card to incorporate in a Team and right-click it.
- 3** Click [Create New Team] in [Add to Team].
[Teaming Up Wizard] appears.

4 Select a Teaming type with which you want to create a Team.

Select the following depending on the Teaming type selected accordingly.

- AFT type: "Adapter fault tolerance"
- ALB type: "Adaptive load balancing"
- SFT type: "Switch fault tolerance"
- FEC type: "FEC/802.3ad Static link aggregation"
- GEC type: "GEC/802.3ad Static link aggregation"

5 Select a LAN card to incorporate in the Team and click [Next].

6 Click [Finish].

7 Click [OK].

When the Teaming setting is completed, the following virtual adapter will be created.

- Intel(R) Advanced Network Services Virtual Adapter
- Upper protocols will be bound with the main virtual adapter.
You cannot bind them with the LAN card consisting of a Team.
The IP address can be set in the main virtual adapter.

5.7.5 VLAN

■ Notes

When using a VLAN, note the following points.

- You can only have "NetBIOS over TCP/IP" enabled for up to four VLANs in the whole system.
- On a VLAN, do not use protocols other than TCP/IP.
- You can only set ten or less VLANs to a LAN port.
- When adding or deleting a VLAN, always use "Intel(R) PROSet". Do not disable or delete a VLAN from the [Device Manager] or [Network and Dial-up Connections].

■ VLAN Setup Procedure

1 Start up "Intel® PROSet". The procedure differs depending on the OS being used.

For Windows Server 2003

1. Click [Start] → [Control Panel] → [Intel(R) PROSet].

For Windows 2000 Server

1. Click [Start] → [Settings] → [Control Panel].
The [Control Panel] window appears.
2. Start up "Intel(R) PROSet".

2 Select a LAN card to setup a VLAN and right-click it.

- 3** Click [Add VLAN]. The following message may be displayed at the time. In such a case, click [Yes].

You need to connect with the switch that supports IEEE VLANs (802.1Q). Do you want to enable QoS Packet Tagging?

- 4** Specify [ID] and [Name]. Then click [OK].
The [ID] should be identical with the switch setting.
The [Name] does not need to be identical with the switch setting.
- 5** Repeat Steps 3 through 5 to set respective VLANs.
- 6** Click [OK].
When setup of the VLAN is completed, the following virtual adapter will be created.
 - "Intel(R) Advanced Network Services Virtual Adapter"
 Upper protocols will be bound with the main virtual adapter. You cannot bind them with the LAN card consisting a VLAN. The IP address should be specified in the main virtual adapter.

5.7.6 Local Address Setting

Specify a local address according to the following procedures.

- 1** Start up "Intel® PROSet". The procedure differs depending on the OS being used.
 - For Windows Server 2003
 1. Click [Start] → [Control Panel] → [Intel(R) PROSet].
 - For Windows 2000 Server
 1. Click [Start] → [Settings] → [Control Panel].
The [Control Panel] window appears.
 2. Start up "Intel(R) PROSet".
- 2** Select a LAN card to set the local address and click the [Advanced] tab.
- 3** Specify a local address in [Locally Managed Address].

5.7.7 Jumbo Frame

1000BASE-T/1000BASE-SX supports Jumbo frame. When using Jumbo frame, construct the Jumbo frame network using only devices that support Jumbo frame and apply the settings that will enable Jumbo frame.

Configure setting for Jumbo frame according to the following procedures.

- 1** Start up "Intel(R) PROSet" from [Control Panel].
- 2** Select a LAN card to perform configuration and click the [Advanced] tab.
- 3** Specify the maximum frame size in the [Jumbo Frame] tab.

■ Other Cautions

You cannot connect devices directly with a cross cable without connecting a hub switch or router in between.

Chapter 6

High Reliability Tools

6

For stable PRIMERGY server operations, we recommend that high reliability tools be installed. This chapter explains the installation and necessary settings of high reliability tools.

6.1	Server Monitoring Tool [ServerView]	168
6.2	Solving Problems Early [DSNAP]	169

6.1 Server Monitoring Tool [ServerView]

ServerView constantly monitors the status of the servers' hardware in the network and provides a console with which the administrator can check the status of all the servers at a glance. In addition, if an error occurs, the administrator will be notified in real-time to take immediate action.

■ Installing ServerView

● When Installed Using ServerStart

If the OS is implemented and setup using ServerStart, ServerView will be installed at once with the OS and other high reliability tools.

● When Installed Manually

When installing ServerView individually, refer to "Chapter 2 Installing" in "ServerView User's Guide".

● For Linux

ServerView cannot be installed using ServerStart. To install ServerView into a Linux system, refer to "ServerView User's Guide".



- ▶ Be sure to install SNMP service before installing ServerView.

■ Setting Required after Installation

Perform necessary operations after ServerView installation referring to "2.4 Checking after Installation" in "ServerView User's Guide".

■ Boot Monitoring Setting

We recommend enabling the "Boot Monitoring" function after ServerView is installed. For setting procedures and explanation on the function, refer to "[Restart Settings] Tab" of "3.2.4 Serious Error Handling (ASR)" in "ServerView User's Guide".

6.2 Solving Problems Early [DSNAP]

DSNAP is a tool for collectively acquiring failure investigation information such as server environment information.

■ Installing DSNAP

Copy the "DSNAP.EXE" file stored in the "\\PROGRAMS\Japanese\DSNAP" folder of the ServerStart CD-ROM into the server's hard disk.

■ How to Use

This topic is discussed in the "\\PROGRAMS\Japanese\DSNAP\README.TXT" file in the ServerStart CD-ROM. Use a text editor to open it.

Chapter 7

Installing Internal Options

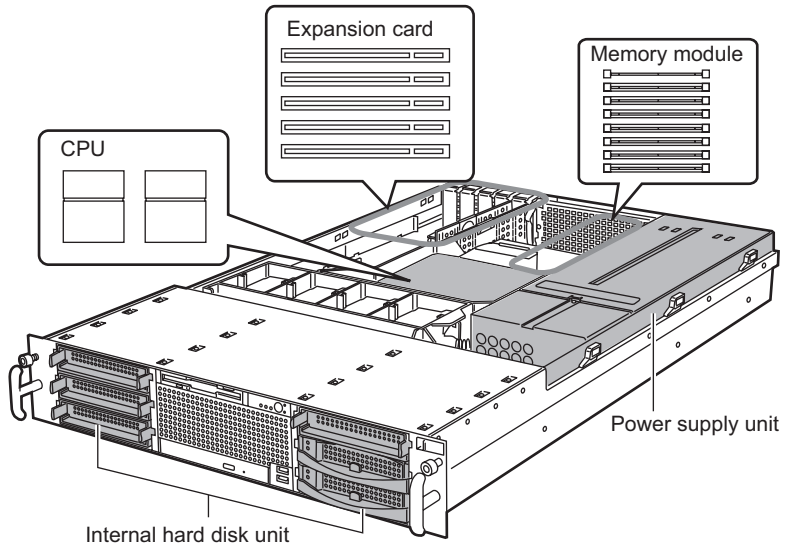
This chapter explains how to install internal options on the server. Contact an office listed in the "Contact Information" of the "Start Guide" regarding installation and removal of internal options.

7.1	Before Installing Internal Options	172
7.2	Removing and Attaching the Top Cover	174
7.3	Installing a CPU	176
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7.8	Installing a Parallel Port	209
7.9	Installing a Power Supply Unit	212
7.10	Replacing System Fan	215
7.11	Connection of an Optional Devices	216

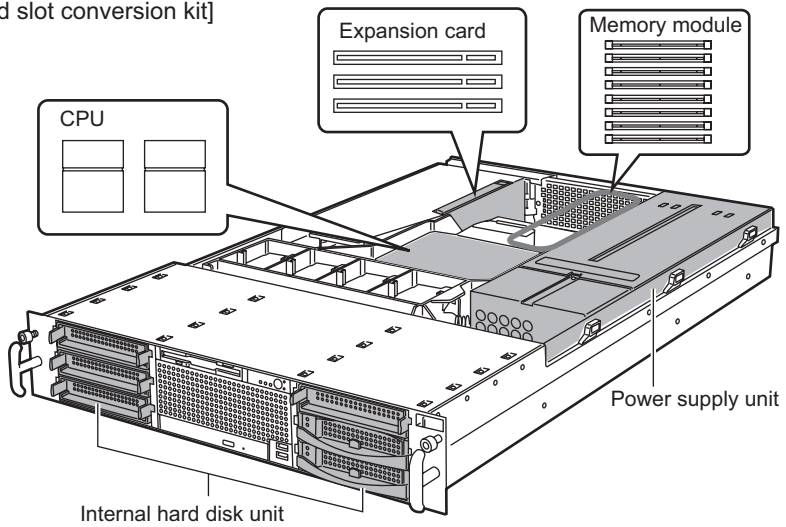
7.1 Before Installing Internal Options

The following types of internal options can be installed on this server.

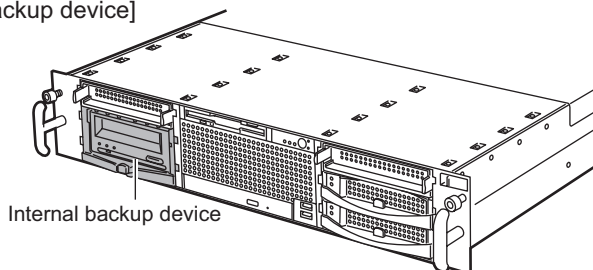
[Standard]



[With basic card slot conversion kit]



[With internal backup device]



POINT

- ▶ When installing or removing devices, make sure to use the removed screws on the same location and devices that were last installed or removed. Failure to do so may damage the device.
- ▶ The types of installable options described in this manual are subject to change without notice.

**WARNING**

Electric Shock

- When installing/removing internal options to/from the server, turn off the server, all peripheral devices, and any other connected devices. Also unplug all power cables from the server. Failure to do so may cause electric shock (→"1.4.3 Turning Off the Server" (pg.33)).

When configuring an array system (RAID1/5/10), the internal hard disk units can be replaced without turning the power off.

- Do not disassemble the PSU. Doing so may cause electric shock.



Do not

- Do not install unauthorized third party internal options. Doing so may cause a device failure, fire, or electric shock.
- Do not damage or modify internal cables or devices. Doing so may cause a device failure, fire, or electric shock.

**CAUTION**

- Devices inside the server remain hot after shutdown. Wait for a while after shutdown before installing or removing internal options.
- The circuit boards and soldered parts of internal options are exposed. They can be damaged by static electricity. Before handling them, first touch a metal part of the server to discharge static electricity.
- Do not touch the circuitry on boards or soldered parts. Hold the metallic areas or the edge of the circuit boards.
- If devices are installed using the methods other than those outlined in this chapter or disassembled, the warranty will be invalidated.

7.2 Removing and Attaching the Top Cover

Remove the top cover to install internal options.

Perform the following procedures to remove the top cover.



WARNING



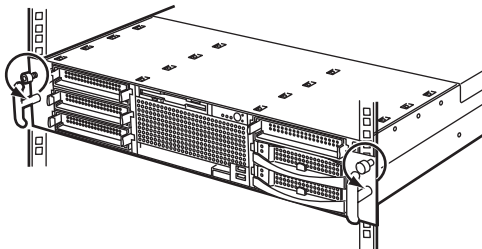
Electric Shock • When removing or attaching the top cover, turn off the server and all peripheral devices. Also unplug all power cables from the server (→"1.4.3 Turning Off the Server" (pg.33)). Failure to do so may cause electric shock.



• Use tip preventive stabilizers when installing the rack.
Pulling the server out of the rack without installing stabilizers may cause the rack to tip over.

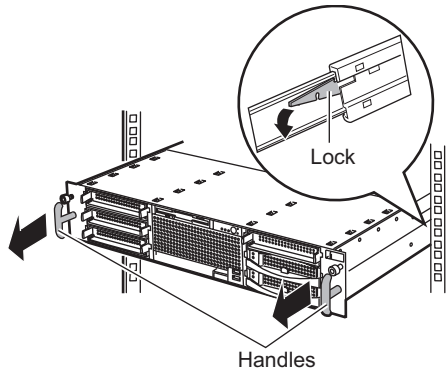
7.2.1 How to Remove the Top Cover

- 1** Open the rack door.
→"1.4.1 Opening the Rack Door" (pg.29)
- 2** Turn off the server and peripheral devices, then unplug the power cables from the server.
→"1.4.3 Turning Off the Server" (pg.33)
- 3** Remove all cables (e.g., SCSI and LAN cables) from the server.
- 4** Touch a metal part of the server to discharge static electricity.
- 5** Loosen the retaining screws used to fasten the server to the rack.

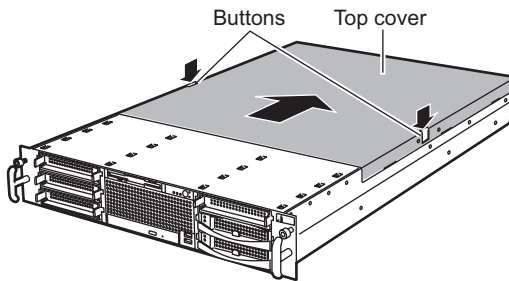


6 Slide the server.

Hold the handles and pull the server out toward you until it clicks, so that it locks in place on the rail on the right.



- When sliding the server or pushing it back, be careful not to pinch fingers or clothes.

7 While pressing the left and right buttons, slide the top cover backward.**8** Pull up the top cover slowly, and remove it from the server.**How to Attach the Top Cover**

- Make sure that no tools or unnecessary components were left inside the server before attaching the top cover back into place.
- Before turning on the server, make sure that the top cover is closed.







To attach the top cover, simply reverse procedures in "7.2.1 How to Remove the Top Cover" (→pg.174).

POINT

- ▶ When sliding the server backward, press the lock on the right rail to unlock.

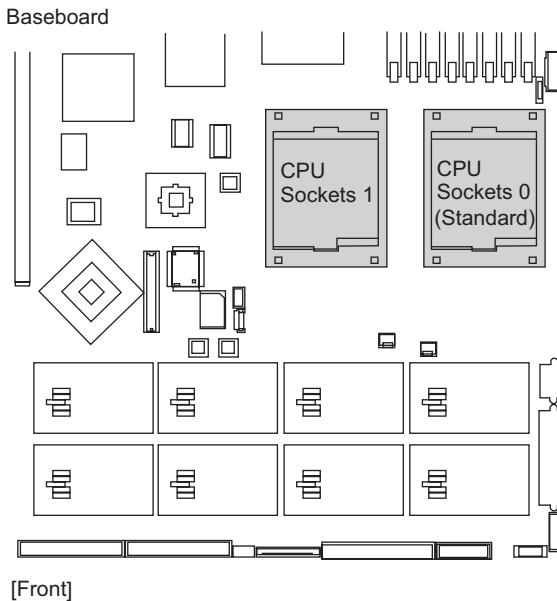
7.3 Installing a CPU

The server can have up to two CPUs by adding an optional CPU.

- WARNING**  **Electric Shock**  • Before installation or removal, turn off the server and all peripheral devices. Also unplug all power cables from the server. →"1.4.3 Turning Off the Server" (pg.33)Failure to do so may cause electric shock or device failures.
- CAUTION**   • Do not install unauthorized third party CPUs. Doing so may cause failures.
-  • Do not use CPUs that differ in frequency or cache size. The system will not start up.
-  • The circuit boards and soldered parts of internal options are exposed. They can be damaged by static electricity. Before handling them, first touch a metal part of the server to discharge static electricity.
- Do not touch the circuitry on boards or soldered parts. Hold the metallic areas or the edge of the circuit boards.

7.3.1 CPU Installation Locations

CPU socket 0 is installed with a CPU by default. Install an optional CPU in CPU socket 1.



7.3.2 Available CPUs and Notes on Installation

■ Available CPUs

The following CPUs can be installed on this server. The additional CPU must be the same model (with the same frequency/cache size) as the existing CPU.

table: List of Available CPUs

Product name	Model	Remarks
Processor Xeon 3.0GHz/2MB	PG-FG252	For 3.0GHz/2MB
Processor Xeon 3.2GHz/2MB	PG-FG253	For 3.2GHz/2MB
Processor Xeon 3.6GHz/2MB	PG-FG254	For 3.6GHz/2MB

■ Contents of Optional CPU Package

Before installing CPU, refer to "Appendix B.1 CPU Specifications" (→pg.295) to check the contents of the optional package.

■ Changing the OS

When adding a CPU to a one-CPU server with the Hyper-Threading function disabled, the OS must be changed to the multi-processor kernel. (The Hyper-Threading function is set to "Enable" at the time of purchase.)

● For Windows

For how to change the OS, refer to "9.8 Changing OS Settings" (→pg.287).

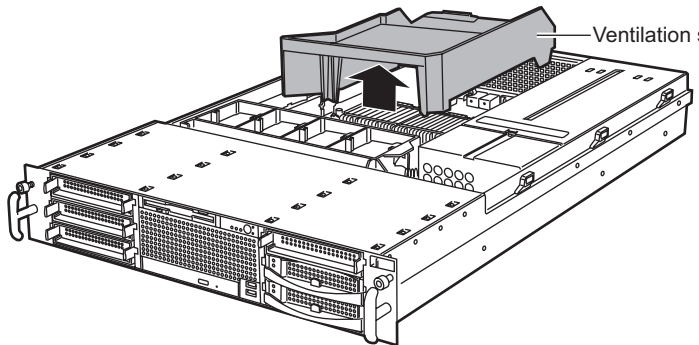
● For Linux

It is recommended that users of the Linux array type refer to the Linux manual supplied with the server. Customers using the Linux distribution OS on the diskless type server are advised to refer to the following.

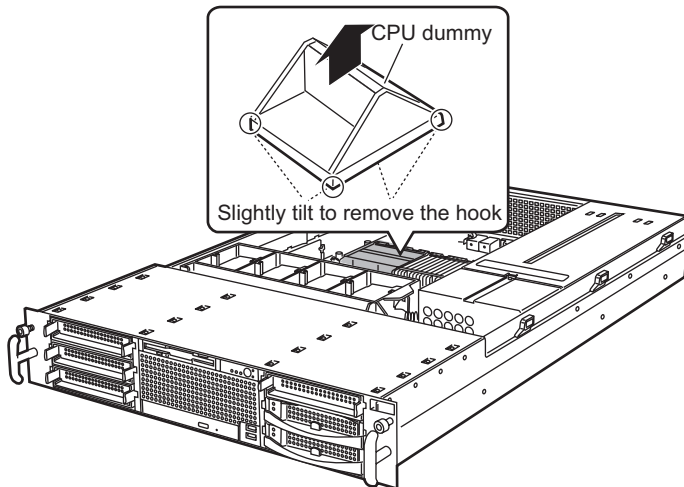
The Fujitsu PRIMERGY website :<http://primergy.fujitsu.com>

7.3.3 How to Install a CPU

- 1** Turn the power off and remove the top cover.
→"7.2 Removing and Attaching the Top Cover" (pg.174)
- 2** Touch a metal part of the server to discharge static electricity.
- 3** Remove the ventilation system cover.
Pull up and remove the ventilation system cover.

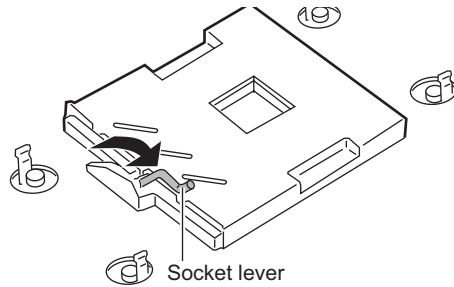


- 4** Remove the CPU dummy attached to CPU Socket 1.
Tilt the CPU dummy slightly to remove the four hooks and then pull it out.



5 Release the socket lever.

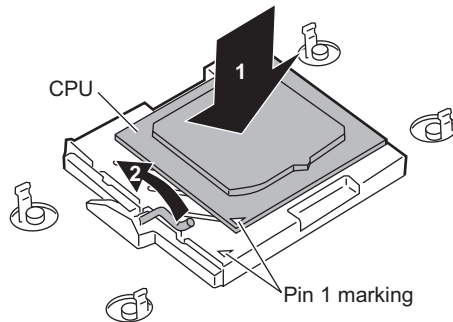
Slide the socket lever to the side and lift it slowly to release it.



- The socket lever turns approx 135 degrees. Be sure to open the socket lever fully to release it. If the socket lever is not fully open during installation, the CPU may be damaged.

6 Install the CPU.

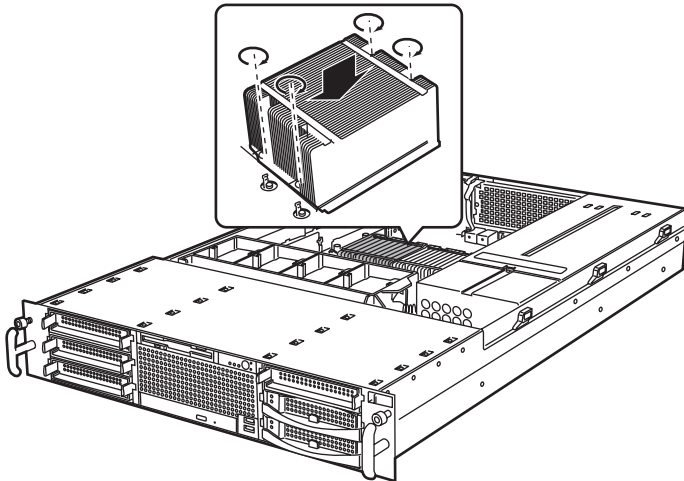
1. Align the pin 1 marking (small triangle) on the CPU socket with the triangle on the CPU, and insert the pins into the socket.
2. Return the socket lever to fasten the CPU.



- When installing the CPU in the socket, be careful not to bend the CPU pins.

7 Install the heat sink.

Attach the heat sink to the installed CPU and fasten it with the screws.
Carefully tighten the screws in diagonal order.



8 Attach the ventilation system cover and top cover.

→"7.2 Removing and Attaching the Top Cover" (pg.174)

9 Return the server to the rack.

10 Initialize the Extended System Configuration Data (ESCD).

On the [Advanced] menu of the BIOS Setup Utility, set [Reset Configuration Data] to [Yes].
→[Reset configuration Data] in "8.2.5 Advanced Menu" (→pg.230)

11 Store the BIOS settings.

→"5.3 Storing the System Setting Information" (pg.142)

■ How to Remove a CPU

To remove a CPU, simply reverse the installation procedures.

7.3.4 Defective CPU Disconnection Function

This server is equipped with the defective CPU disconnection function.

This function disconnects the CPU judged to be defective (abnormal) during Power On Self Test (POST) to start the server. On two-CPU servers, if one CPU is defective, the other CPU starts up the server.

The defective CPU can be checked with the information displayed during POST.

■ Removing the Defective CPU

Remove the defective CPU, referring to "■ How to Remove a CPU" (→pg.180).

POINT

- ▶ After replacing the CPU, start the BIOS Setup Utility and select the [Server] menu "8.2.13 CPU Status Submenu" (→pg.244) to check that [CPU n Status] (n is the number of the CPU) is set to [Enabled]. If the item is set to [Disabled] or [Failed], change the setting to [Enabled]. If it is not set to [Enabled], the server will start with the CPU recognized as being defective and constantly disconnected. To use the new CPU, set the item to [Enabled] for releasing the failed CPU status at the next startup.

7.4 Installing Memory Modules

Additional memory will help to increase the amount of data to read at a time and improve the server processing capability.



WARNING



Electric Shock

- Before installation or removal, turn off the server and all peripheral devices. Also unplug all power cables from the server. Failure to do so may cause electric shock (→"1.4.3 Turning Off the Server" (pg.33)).
- Do not install unauthorized third party memory modules. Doing so may cause electric shock, a fire, or failures.
- Wait for a sufficient period of time after server shutdown before installing or removing memory. Failure to do so may cause burns.



CAUTION



- When installing or removing memory modules, make sure to remove the screws on the specified points only. Failure to do so may cause injury or device failures.



- Touch only the specified part of the printed circuit board. Failure to do so may cause injury or device failures.

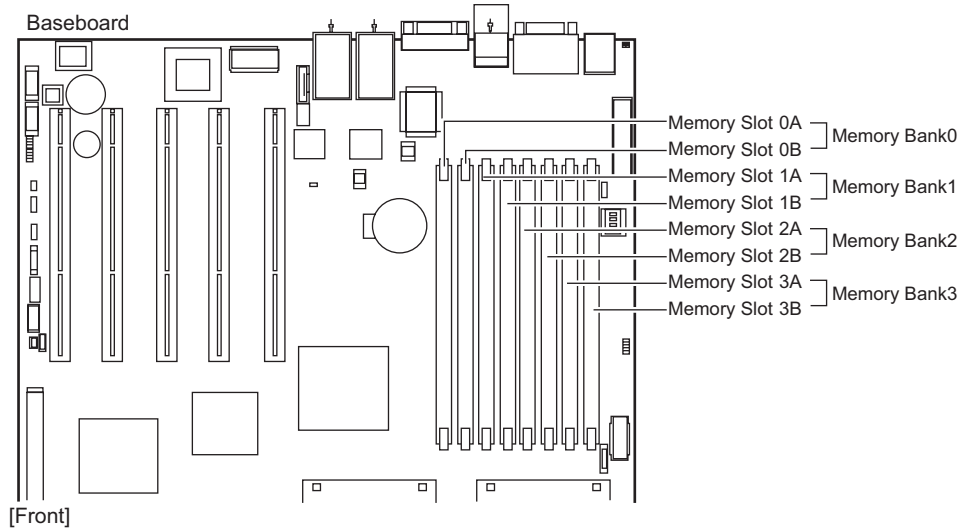


- The circuit boards and soldered parts of internal options are exposed. They can be damaged by static electricity. Before handling them, first touch a metal part of the server to discharge static electricity.
- Do not insert and remove memory modules repeatedly. Doing so may cause failures.
- Do not touch the circuitry on boards or soldered parts. Hold the metallic part or the edge of the circuit boards.

7.4.1 Location and Order of Memory Module Installation

Install memory modules in the memory slots on the baseboard.

One memory bank consists of Slots A and B on this server.



■ Installation Order

To install memory modules, install by a pair of memory modules, each having the same capacity, to the corresponding slots in the sequence of Bank 3, Bank 2, Bank 1, and Bank 0.

7.4.2 Available Memory Modules and Cautions on Installation

■ Available Memory Modules

The following memory module types can be used on this server.

table: List of Available Memory Modules

Product name	Model	Remarks
Memory Module-1GB	PG-RM1BC	512MB DDR2 SDRAM (2)
Memory Module-2GB	PG-RM2BC	1GB DDR2 SDRAM (2)
Memory Module-4GB	PG-RM4BC	2GB DDR2 SDRAM (2)

■ Contents of the Optional Memory Package

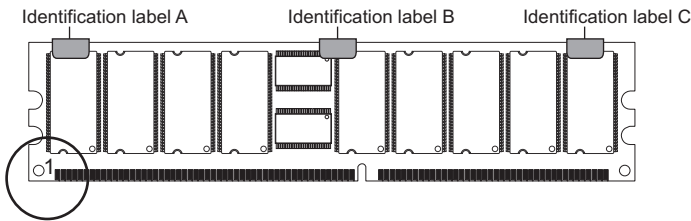
Before installing memory modules, refer to "Appendix B.2 Memory Specifications" (→pg.295) to check the contents of the optional package.

■ Identifying Memory Modules

When installing memory modules check that the number beginning with "CA" (e.g., CA05946-E101) printed on the label is identical on the two DIMMs. Be sure to install a pair of modules with the same number.

If the DIMMs have identification labels, be sure to install a pair of DIMMs with the same capacity and the label placed on the same location.

The figure below shows the identification label locations.



- Identification label placement pattern

Check the identification labels in a position where the circled corner is on the left as shown in the above figure. Identification labels are applied in any of the following patterns.

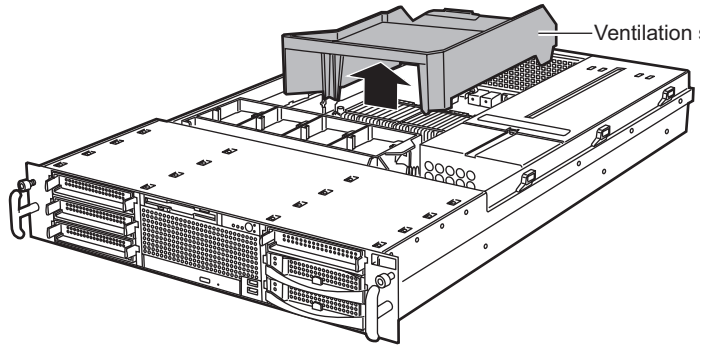
table: List of Identification Label Location Patterns

Pattern	Identification label A	Identification label B	Identification label C
1	-	-	-
2	A	-	-
3	-	A	-
4	-	-	A
5	A	A	-
6	A	-	A
7	-	A	A
8	A	A	A

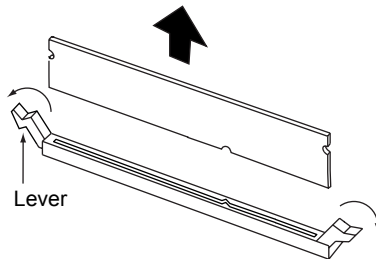
A: Label applied
 -: Label not applied

7.4.3 How to Install/Remove Memory Modules

- 1** Turn the power off and remove the top cover.
→"7.2 Removing and Attaching the Top Cover" (pg.174)
- 2** Touch a metal part of the server to discharge static electricity.
- 3** Remove the ventilation system cover.
Pull up and remove the ventilation system cover.



- 4** To replace a memory module, open the levers outward on both sides of the slot.



CAUTION

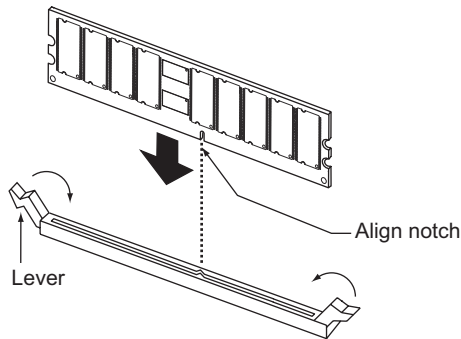


- Make sure not to open the clips outward too quickly because the memory module may pop up, which could cause damage.

5 Open the levers on both sides of the slot and insert the memory module.

Align a notch of the memory module to correspond with the memory slot and insert the module perpendicularly to the slot.

When the module is correctly inserted, the levers on both sides will close. Check to see whether the module is securely placed. If the levers are not closed completely, push them with your fingers to close.



CAUTION



• An improperly engaged memory module could cause a fire. Do not insert the memory module on the wrong side.

6 Attach the ventilation system cover and top cover.

→"7.2 Removing and Attaching the Top Cover" (pg.174)

7 Return the server to the rack.

8 Initialize the Extended System Configuration Data (ESCD).

On the [Advanced] menu of the BIOS Setup Utility, set [Reset Configuration Data] to [Yes].

→[Reset configuration Data] in "8.2.5 Advanced Menu" (→pg.230)

9 Store the BIOS settings.

→"5.3 Storing the System Setting Information" (pg.142)

7.4.4 Defective Memory Disconnection Function

This server is equipped with the defective memory disconnection function.

This function disconnects memory blocks (two DIMMs) judged to be defective (abnormal) during Power On Self Test (POST) to start the server. When POST is executed, if the memory capacity is discovered to be smaller than the capacity of the memory installed, there is a possibility of memory defect.

During POST or from the system event log, you can check the slot location that has defective memory. If defective memory is discovered, replace it, and then restart the server.

■ Replacing the Defective Memory

Replace the defective memory with a new one according to "7.4.3 How to Install/Remove Memory Modules" (→pg.185).

POINT

- ▶ After replacing the memory, start the BIOS Setup Utility and select the [Server] menu -"8.2.14 Memory Status Submenu" (→pg.245) to check that [Module nA/B] (nA/B is the number of the memory slot) is set to [Enabled].
If the item is set to [Disabled] or [Failed], change the setting to [Enabled]. If it is not set to [Enabled], the server will start with the memory recognized as being defective and constantly disconnected.
To use the new memory, set the item to [Enabled] for releasing the failed memory status at the next startup.

7.5 Installing Expansion Cards

This section explains the types of expansion card, installation procedures, and notes on expansion cards.



Electric Shock

- Before installation, turn off the server and peripheral devices. Unplug the power cables from the outlets (→"1.4.3 Turning Off the Server" (pg.33)). Failure to do so may cause electric shock.



- Expansion cards are susceptible to static electricity. Place them on conductive pads or keep them in their packaging as long as they are not necessary.

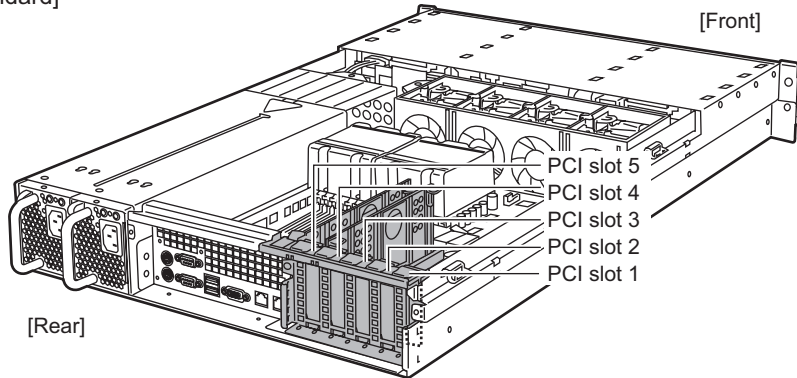


- The circuit boards and soldered parts of internal options are exposed. They can be damaged by static electricity. Before handling them, first touch a metal part of the server to discharge static electricity.
- Do not touch the circuitry on boards or soldered parts. Hold the metallic parts or the edges of the circuit boards.

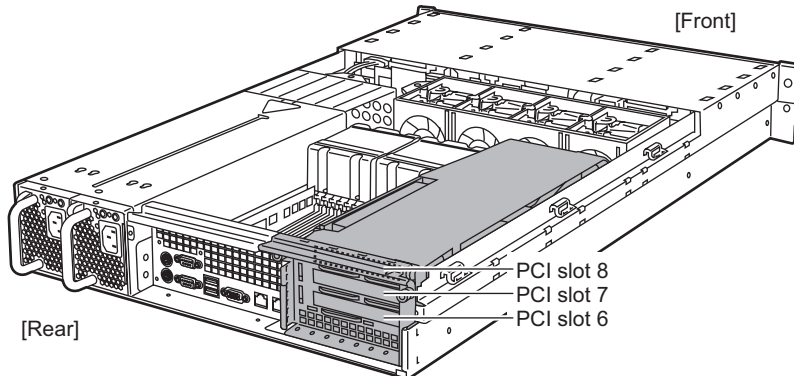
7.5.1 Where to Install an Expansion Card

This server has five standard PCI slots. Up to five expansion cards can be installed. When this server is equipped with the optional basic card slot conversion kit, up to three expansion cards can be installed.

[Standard]



[With basic card slot conversion kit]



■ PCI Slot Specifications

The PCI slots conform to the PCI local bus specifications (Rev. 2.2).

table: PCI slot specifications

PCI slot	Specifications
1,2,3	64-bit 100MHz (*1), PCI-X, LowProfile
4,5	64-bit 133MHz (*1), PCI-X, LowProfile, PHP supported
6,7,8	64-bit 100MHz, PCI-X

*1: PCI Bus Clock varies depending on the number of installed expansion cards and their specifications.

■ PHP (PCI Hot Plug)

- This server supports the PHP function in PCI Slots 4 and 5. An expansion card can be replaced without turning off the server and peripheral devices when an expansion card fails. This function is available only for Windows Server 2003. Using this function in other OS will cause a malfunction such as system failure.

- In Windows 2000 Server, expansion cards inserted in PCI Slots 4 and 5 are displayed on the [Hardware Removal] window; however, they cannot be removed. Be sure not to remove the expansion cards.
- Some applications do not support the PHP function. Check whether your application supports this function.

On this server, you can replace the expansion cards below using the PHP function. Note that other expansion cards are not supported.

- Eth. Ctrl 1000-BASE-T Cu Ip (PG-1892L)
- Eth. Ctrl 1000-BASE-SX Fibre LC Ip (PG-1882L)



- When replacing an expansion card using the PHP function, be sure to contact an office listed in "Contact Information" of the "Start Guide" for operation by your maintenance support.



- ▶ PCI Bus Clock runs with low operation clocks if the installed device has low operation clocks.

7.5.2 Installable Expansion Cards and Notes on Installation

This section explains expansion cards that can be installed on this server and provides notes on installation.

■ Installable Expansion Cards

● When Installed as Standard

table: Installable expansion cards (Standard)

Installable card (Model name)	Number of cards		Remarks
Parallel Port Option (PG-PP03)	1	5	
Remote Service Board (PG-RSB103L)	1		
SCSI Ctrl U160 lp (PG-130L)	2		Ultra160 SCSI for external SCSI option
Fibre Channel Controller (PG-FC106)	2		
Eth. Ctrl 1000-BASE-T Cu lp (PG-1892L)	4		1000BASE-T
Eth. Ctrl 1000-BASE-SX Fibre LC lp (PG-1882L)	2		1000BASE-SX

● With Basic Card Slot Conversion Kit

table: Installable expansion cards (With Basic Card Slot Conversion Kit)

Installable card (Model name)	Number of cards		Remarks
RAID Ctrl 2-Channel 128 MB w/ BBU (PG-142E3)	2	3	Ultra320 SCSI 2ch, for external array system, with battery backup function
Remote Service Board (PG-RSB103)	1		
SCSI Ctrl U160 (PG-128)	2		Ultra160 SCSI, for external SCSI option
Fibre Channel Controller (PG-FC106)	2		
Eth. Ctrl 1000-BASE-T Cu (PG-1892)	3		1000BASE-T
Eth. Ctrl 1000-BASE-SX Fibre LC (PG-1882)	2		1000BASE-SX
Eth. Ctrl 1000-BASE-T Cu (PG-1852)	3		1000BASE-T
Eth. Ctrl 2 x 1000-BASE-T Cu (PG-1862) *1	2		1000BASE-T

*1: The PG-1862 cannot be installed together with other LAN cards.

■ Location and Order of Expansion Card Installation

For Install expansion cards, use the PCI slots in accordance with the order indicated in the following table. Install cards in the following order. If they are installed in the wrong order, they will not work properly.

● When Installed as Standard

table: Expansion card installation positions and order (Standard)

Installable expansion card (Model name)	PCI slot					Installation order
	1	2	3	4	5	
Parallel Port (PG-PP03)	-	-	-	-	1	1
Remote Service Board (PG-RSB103L)	-	-	1	-	-	2
SCSI Ctrl U160 lp (PG-130L)	1	2	3	4	5	3
Fibre Channel Controller (PG-FC106)	3	4	5	1	2	4
Eth. Ctrl 1000-BASE-T Cu lp (PG-1892L)	3	4	5	1	2	5
Eth. Ctrl 1000-BASE-SX Fibre LC lp (PG-1882L)	3	4	5	1	2	6

-: Not installable.

● With Basic Card Slot Conversion Kit

table: Expansion card installation positions and order (With Basic Card Slot Conversion Kit)

Installable expansion card (Model name)	PCI slot			Installation order
	6	7	8	
RAID Ctrl 2-Channel 128MB w/ BBU (PG-142E3)	1	2	3	1
Remote Service Board (PG-RSB103)	1	2	3	2
SCSI Ctrl U160 (PG-128)	1	2	3	3
Fibre Channel Controller (PG-FC106)	1	2	3	4
Eth. Ctrl 1000-BASE-T Cu (PG-1892)	1	2	3	5
Eth. Ctrl 1000-BASE-SX Fibre LC (PG-1882)	1	2	3	6
Eth. Ctrl 1000-BASE-T Cu (PG-1852)	1	2	3	7
Eth. Ctrl 2 x 1000-BASE-T Cu (PG-1862) *1	1	2	3	8

*1: The PG-1862 cannot be installed together with other LAN cards.

■ Notes on Installing Expansion Cards

● Driver

For expansion card drivers, refer to "2.3.5 Expansion Cards Supported by ServerStart" (→pg.50).

● Notes on Each Card

For notes of specific expansion card, refer to the manuals supplied with the card and the notes provided with the server. Also, check the following for respective expansion cards.

● SCSI Card/RAID Card

- Connection of a SCSI device
Connect a SCSI device supported by this server to the SCSI or RAID card. Operations of unsupported SCSI devices are not guaranteed.

- Precautions for OS installation

In addition to the completion of RAID card configuration, the hard disk under the RAID card must be initialized or the background initialization process must be started before the OS is installed.

When the OS is installed using ServerStart, ServerStart performs configuration and hard disk initialization automatically.

● BIOS Settings

The expansion ROM for expansion cards is disabled on this server. To configure an expansion card, the expansion ROM must be temporarily enabled in the BIOS Setup Utility. The configuration procedures are as follows.

- 1** Enable the expansion ROM of the slot for the expansion card to be configured. Start up the BIOS Setup Utility and select the "■ PCI SLOTS Configuration Submenu" (→pg.234) from the [Advanced] menu. Change [Option ROM Scan] from [Disabled] to [Enabled].
- 2** From the "8.2.17 Exit Menu" (→pg.250), select [Save Changes & Exit] to exit the BIOS Setup Utility.
- 3** Restart the server and configure the expansion card in POST.
- 4** After configuring the expansion card, start up the BIOS Setup Utility again and return the setting you have changed in Step 1 to the original setting.

● LAN Card/Onboard LAN

When using the LAN card (PG-1852/PG-1862/PG-1882/PG-1882L/PG-1892/PG-1892L) under the Windows 2000 Server, change the LAN card settings after the driver has been installed. (→"4.3 Installing the LAN Driver" (pg.124))

● Remote Service Board

- Before installing the remote service board

For preparation and procedures for installing a remote service board, refer also to the manual supplied with the board.



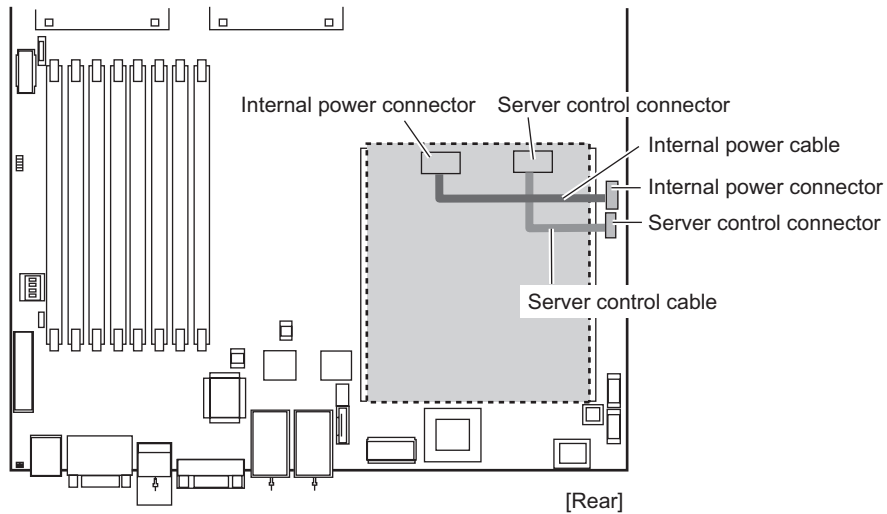
CAUTION



- Do not connect the remote service board AC adapter until you finish installing the remote service board and close the top cover of the server. Doing so may cause a device failure, fire, or electric shock.
- When replacing remote service boards or adding other optional devices, unplug the power cable of the remote service board AC adapter from the outlet.
Failure to do so may cause a device failure, fire, or electric shock.
- When the server is installed in an upper position in the rack, fasten the AC adapter in the rack. If the AC adapter unit is suspended, excessive force can be put on the cable, causing failures.

- Where to connect the remote service board control cable

Connect the internal power cable and server control cable supplied with the remote service board as shown in the figure below.



IMPORTANT

- ▶ To use the remote service board, ServerView is required. Be sure to install it. For how to install ServerView, refer to "6.1 Server Monitoring Tool [ServerView]" (→pg.168). For the remote service board functions, refer to "ServerView User's Guide".
- ▶ When the remote service board is connected, the monitor brightness may become lower. In this case, adjust the monitor for higher brightness.
- ▶ The recommended screen refresh rate for the monitor is 70Hz. In case of poor resolution of the monitor display, set the screen refresh rate to 70Hz.

POINT

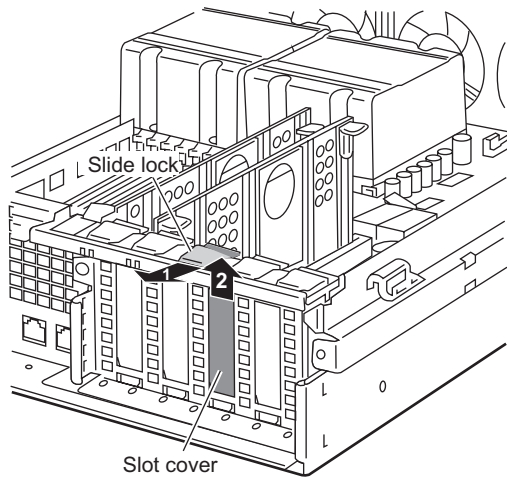
- ▶ Only the remote service board PG-RSB103 can be installed with the basic card slot conversion kit.
- ▶ Only the remote service board PG-RSB103L can be installed without the basic card slot conversion kit.

7.5.3 How to Install an Expansion Card

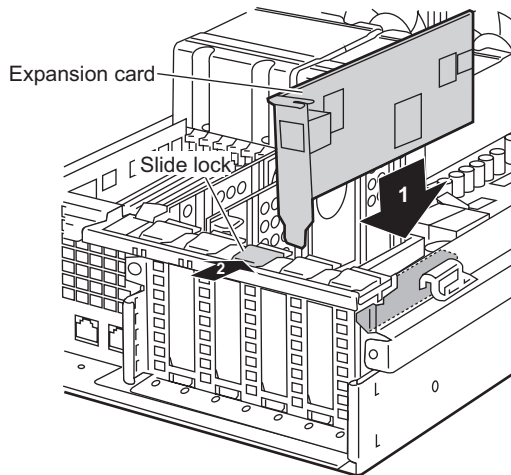
This section explains how to install an expansion card.

■ Installing an Expansion Card in Slots 1 to 3 (Standard)

- 1** Turn off the server and peripheral devices and remove the top cover.
→"7.2 Removing and Attaching the Top Cover" (pg.174)
- 2** Touch a metal part of the server to discharge static electricity.
- 3** Release the slide lock and remove the slot cover.



- 4** Securely push the expansion card in each slot (1), and return the slide lock to the original position (2).



5 Attach the top cover.

→"7.2 Removing and Attaching the Top Cover" (pg.174)

POINT

- ▶ Be sure to keep the removed slot cover for later use.
- ▶ To remove the expansion card, simply reverse the installation procedures.

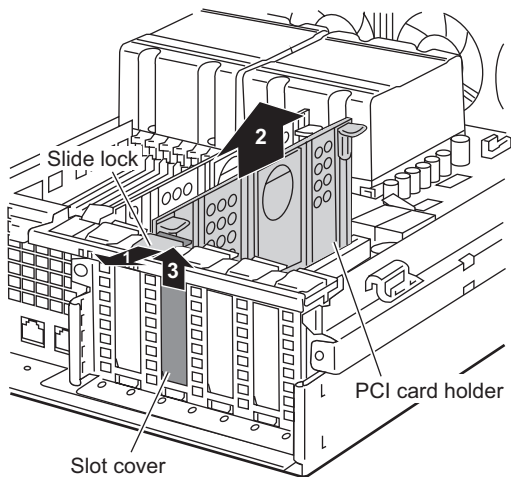
■ Installing an Expansion Card in Slots 4 and 5 (Standard)

1 Turn off the server and peripheral devices and remove the top cover.

→"7.2 Removing and Attaching the Top Cover" (pg.174)

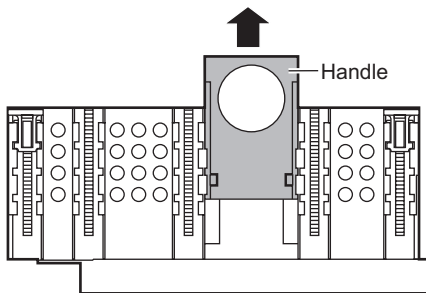
2 Touch a metal part of the server to discharge static electricity.

3 Release the slide lock (1), and remove the PCI card holder and slot cover (2, 3).



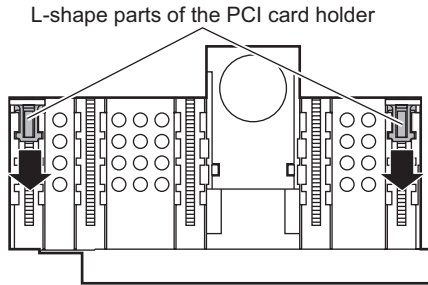
POINT

- ▶ Be sure to keep the removed slot cover for later use.
- ▶ To remove the PCI card holder, pull out the handle.

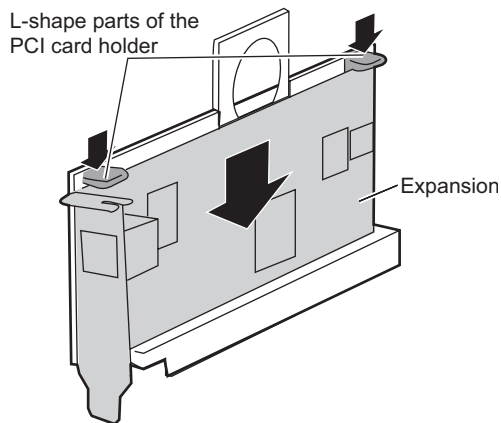


4 Attach the expansion card to the PCI card holder.

1. Slide the L-shape parts of the PCI card holder downward, and pull out the holder.



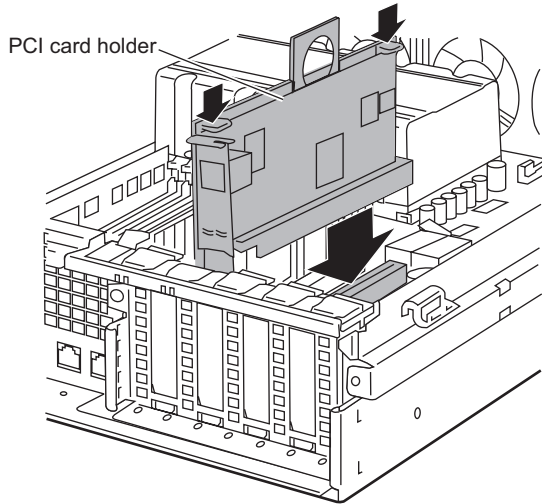
2. Attach the expansion card in the PCI card holder, slide the L-shape parts of the PCI card holder from the top, and then fix the expansion card.



IMPORTANT

- ▶ Securely fix the expansion card so that two L-shape parts of the PCI card holder are positioned horizontally.

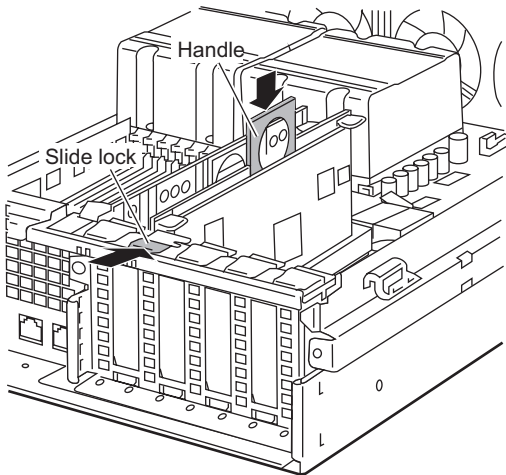
- 5 While holding the L-shape parts of the PCI card holder, securely place the holder into the original PCI slot.



IMPORTANT

- ▶ Hold down on the L-shape parts of the PCI card holder to properly install the PCI card holder into the PCI slot.

- 6 Return the slide lock and handle to the original positions.



- 7 Attach the top cover.

→"7.2 Removing and Attaching the Top Cover" (pg.174)

POINT

- ▶ To remove the expansion card, simply reverse the installation procedures.

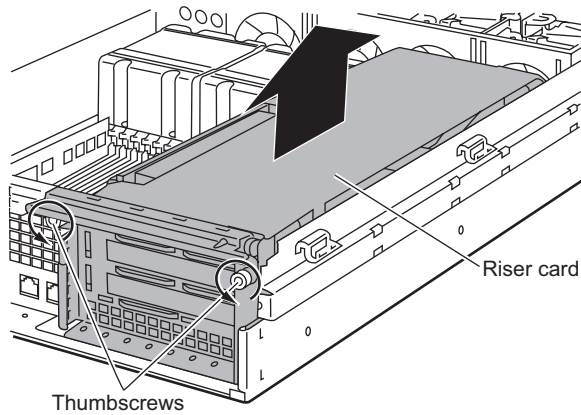
■ Installing an Expansion Card in Slots 6 to 8 (With Basic Card Slot Conversion Kit)

1 Turn off the server and peripheral devices and remove the top cover.
→ "7.2 Removing and Attaching the Top Cover" (pg.174)

2 Touch a metal part of the server to discharge static electricity.

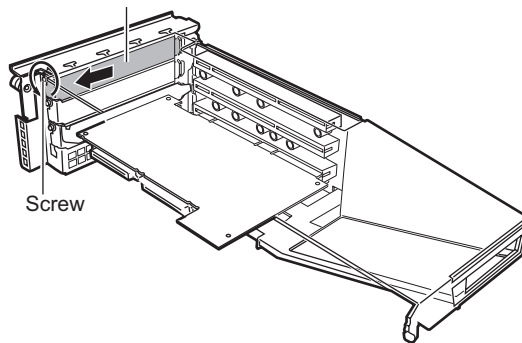
3 Remove the riser card.

Loosen the screws that fix the riser card and rear side of the server, then pull up and remove the riser card.



4 Remove the slot cover from the riser card.

Pull out the screws, and remove the slot cover.

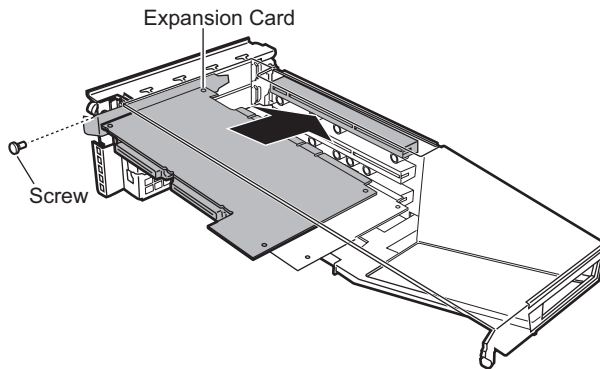


POINT

- ▶ Be sure to keep the removed slot cover for later use.

5 Attach an expansion card.

Securely attach the expansion card to the connector of the riser card, and fix it with the screws removed in step 4.

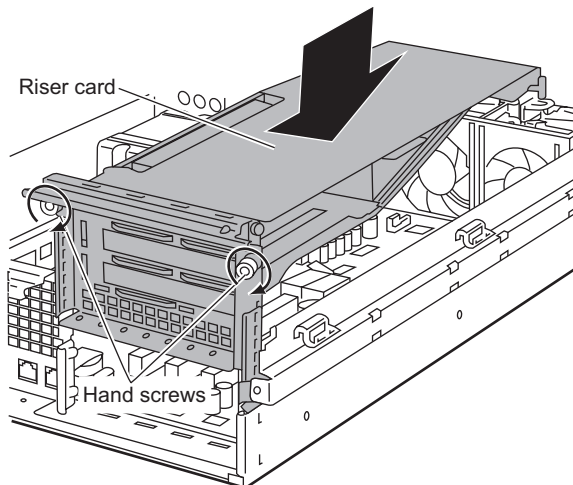


POINT

- ▶ Insert the expansion card to the connector of the riser card. Then remove it once and attach it to the connector of the riser card again.

6 Attach the riser card to the server.

Securely attach the riser card to the connector of the server, and fasten hand screws to fix it.



POINT

- ▶ After attaching the riser card to the server, remove it once and attach it to the server again.

7 Attach the top cover.

→"7.2 Removing and Attaching the Top Cover" (pg.174)

POINT

- ▶ To remove the expansion card, simply reverse the installation procedure.

7.6 Installing an Internal Hard Disk Unit

This section explains how to install internal hard disk units.



WARNING



Electric Shock

- Turn off the server and peripheral devices, and unplug the power cables. Failure to do so may cause electric shock (→"1.4.3 Turning Off the Server" (pg.33)).

In the array system configuration (RAID1/5/10), the 3.5-inch internal option can be replaced without turning the power off.



CAUTION



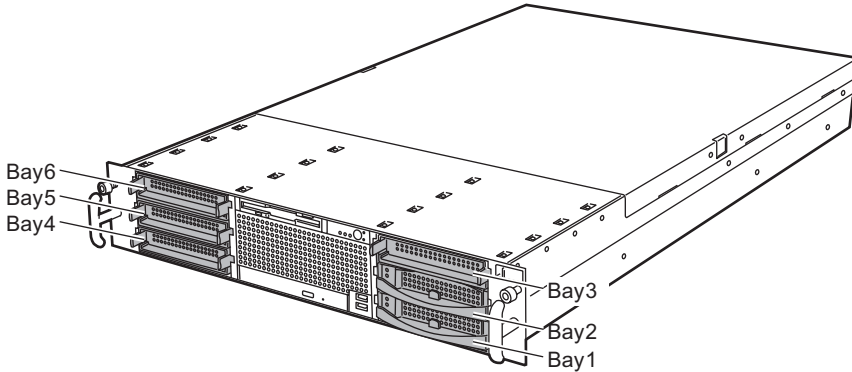
- Rough handling of the hard disk unit can damage the stored data. To cope with any unexpected problems, always back up important data. When backing up data to another hard disk unit, you should make backups on a file or block basis.
- Use the unit in a dry place with low airborne dust levels.
- Take great care so that you do not hit the hard disk or bring it into contact with metallic objects.
- The circuit boards and soldered parts of internal options are exposed. They can be damaged by static electricity. Before handling them, first touch a metal part of the server to discharge static electricity.
- Do not touch the circuitry on boards or soldered parts. Hold the metallic parts or the edges of the circuit boards.
- Use the device on a shock-and-vibration free surface.
- Keep the device away from direct sunlight, radiators or other heat sources.
- Do not use the unit in a place where the temperature is extremely high or low, or experiences extreme temperature changes.
- Do not disassemble the hard disk unit.



7.6.1 Internal Hard Disk Unit Installation Positions and Order

Install internal hard disk units in 3.5-inch storage bays in the front of the server.

When the server is installed with an internal backup device, you can install up to three internal hard disk units.



■ Installation Order

Install the internal hard disk units and internal backup devices in the 3.5-inch storage bays in the following order.

table: Order of Internal Hard Disk Unit Installation

State of 3.5-inch storage bay	Installation order
When installed as standard	Bay 1 → Bay 4 → Bay 2 → Bay 5 → Bay 3 → Bay 6
With internal backup devices	Bay 1 → Bay 2 → Bay 3

■ SCSI-ID Setting

SCSI-ID setting is not required for the 3.5-inch storage bay.

These 3.5-inch storage bays use hot plugs. A Single Connector Attachment2 (SCA2) connector is used as an interface with an internal hard disk unit. This bay is equipped with power and signal cables as one body; therefore, you need perform no troublesome cable connection.

7.6.2 Available Internal Hard Disk Units

■ Available Internal Hard Disk Units

Up to six internal hard disk units can be installed in 3.5-inch storage bays.

table: List of available hard disks

Product name	Model	Overview
HDD U320 10K 73GB hot plug 1"	PG-HDH71K	73.4GB, 10,000rpm, Ultra320 SCSI 1 inch, hot plug supported
HDD U320 10K 147GB hot plug 1"	PG-HDH41K	146.8GB, 10,000rpm, Ultra320 SCSI 1 inch, hot plug supported
HDD U320 10K 300GB hot plug 1"	PG-HDH31K	300GB, 10,000rpm, Ultra320 SCSI 1 inch, hot plug supported
HDD U320 15K 73GB hot plug 1"	PG-HDH75K	73.4GB, 15,000rpm, Ultra320 SCSI 1 inch, hot plug supported

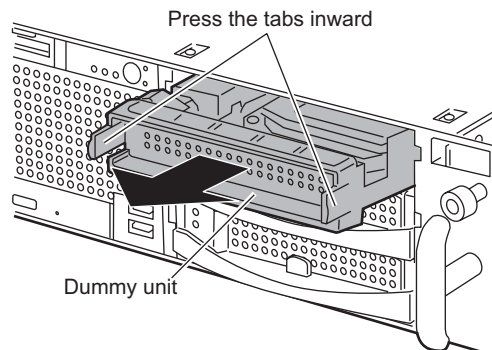
■ Contents of the Optional Internal Hard Disk Unit Package

Before installing internal hard disk units, refer to "Appendix B.3 Internal Hard Disk Unit Specifications" (→pg.296) to check the contents of the optional package.

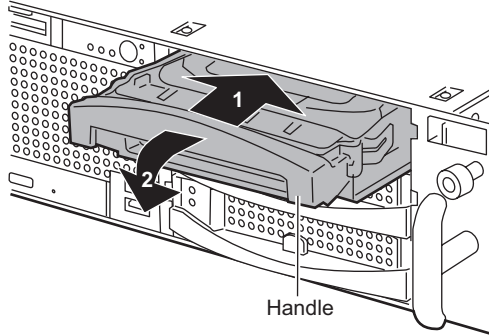
7.6.3 How to Install the Internal Hard Disk Unit

- 1 Turn off the server and peripheral devices, then unplug the power cables from the server.
→"1.4.3 Turning Off the Server" (pg.33)
- 2 Touch a metal part of the server to discharge static electricity.
- 3 Remove the dummy unit from the bay to accommodate an internal hard disk unit.

A dummy unit is inserted into a bay not occupied by an internal hard disk unit. Slowly pull the dummy unit out towards you with the latches pressed inward. Be sure to keep the removed dummy units for later use.

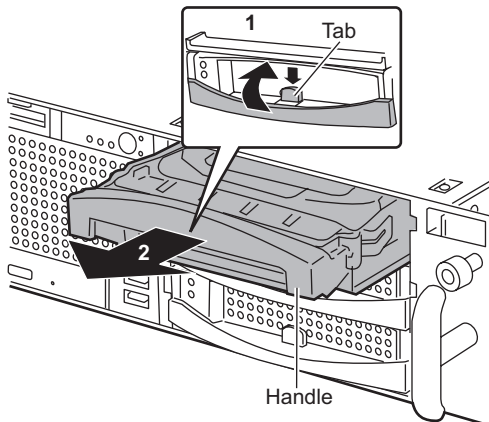


- 4** Install an internal hard disk unit in 3.5-inch storage bay.
 1. While pulling up the handle, insert the internal hard disk unit in the 3.5-inch storage bay.
 2. Push down the handle and securely insert the disk unit into the bay.



■ How to Remove the Internal Hard Disk Unit

- 1** Turn off the server and peripheral devices, then unplug the power cables from the server.
→"1.4.3 Turning Off the Server" (pg.33)
- 2** Touch a metal part of the server to discharge static electricity.
- 3** Remove the internal hard disk unit.
With the front tab of the internal hard disk unit to remove pressed, turn the handle upward (1) and pull the hard disk unit towards you (2). To remove the internal hard disk unit, use both hands to pull it out.



- 4** Install a new internal hard disk unit or a dummy unit.

■ Replacing the Failed Internal Hard Disk Unit

When an array system (RAID1/5/10) is configured with the onboard SCSI array controller on this server, a failed hard disk unit can be replaced and restoration can be performed without turning off the server and peripheral devices (hot swappable/hot pluggable). For details on the array system, refer to "Onboard SCSI RAID User's Guide".

The following is an outline of the procedure for replacing a failed internal hard disk unit.

- 1** Check the hard disk unit failure LED on each bay.
- 2** Touch a metal part of the server to discharge static electricity.
- 3** Move the handle on the failed hard disk unit up and pull it towards you.
- 4** Wait for approximately 60 seconds (until the hard disk stops rotating) and pull out the failed hard disk unit.
- 5** Install a new internal hard disk unit.
- 6** Rebuild the new hard disk unit.
"Rebuild" may be executed automatically after hard disk unit was replaced. You can confirm the state of the hard disk unit by checking the hard disk failure LED.

7.7 Installing Internal Backup Device

You can install the internal backup device using the 3.5-inch storage bay.



WARNING



Electric Shock

- Before installation, turn off the server and peripheral devices. Unplug the power cables from the outlets. Failure to do so may cause electric shock (→"1.4.3 Turning Off the Server" (pg.33)).



CAUTION



- The circuit boards and soldered parts of internal options are exposed. They can be damaged by static electricity. Before handling them, first touch a metal part of the server to discharge static electricity.
- Do not touch the circuitry on boards or soldered parts. Hold the metallic parts or the edges of the circuit boards.

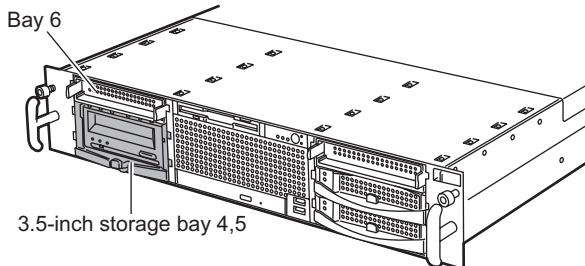
7.7.1 Internal Backup Device Installation Positions and Notes

When a custom-made internal backup device is purchased, it is attached to 3.5-inch storage bays 4 and 5.



- ▶ A SCSI card (PG-130L or PG-128) is required to install an internal backup device.
- ▶ When the server is equipped with an internal backup device, you can install up to three internal hard disk units.

Do not install any internal hard disk unit in bay 6.



■ Installation Order in 3.5-inch Storage Bays

For the option installation order in 3.5-inch storage bays including internal hard disk units, refer to "7.6.1 Internal Hard Disk Unit Installation Positions and Order" (→pg.202).

7.7.2 Available Internal Backup Devices

On this server, you can install the internal backup devices using the 3.5-inch storage bay.

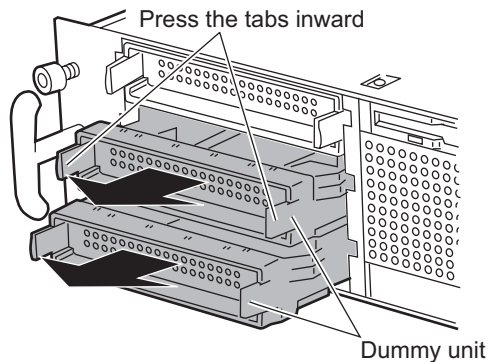
For more information on the internal backup device, refer to the user guide provided with the internal backup device.

table: List of available internal backup devices

Product name	Model	Remarks
Tape Drv DAT72 36GB internal w/Drive Cage	PG-DT502D2	Internal SCSI cables supplied

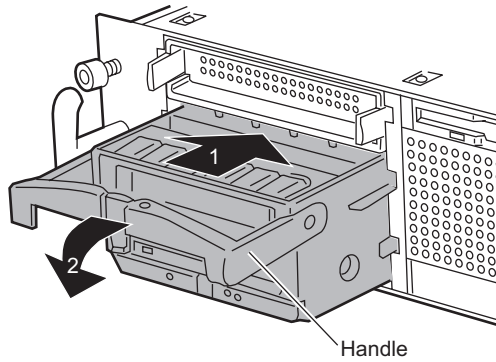
7.7.3 Installing Internal Backup Devices

- 1** Turn off the server and peripheral devices, then unplug the power cables from the server.
→"1.4.3 Turning Off the Server" (pg.33)
- 2** Touch a metal part of the server to discharge static electricity.
- 3** Remove the dummy units or internal hard disk units in bays 4 and 5.



4 Install an internal backup device.

1. Insert the internal backup device with the handle raised.
2. Pull down the handle and securely insert the device.



5 Remove the SCSI cable used to connect the SCSI back panel to the baseboard.

6 Connect the SCSI cable supplied with the internal backup device to the SCSI back panel, and then connect it to the SCSI card.

When connecting the SCSI cable to the SCSI card through the SCSI back panel, pass it between sponges on the side of the fan cage.

IMPORTANT



- ▶ For connection examples of internal backup devices, refer to "7.11.1 Connection Examples of Internal Option Devices" (→pg.216).
- ▶ The internal backup device does not support the hot swap and hot plug.



■ How to Remove the Internal Backup Device

To remove the internal backup device, simply reverse the installation procedures.

7.8 Installing a Parallel Port

This section explains how to install an extension parallel port (option).

- 
WARNING

 Electric Shock • Turn off the server and peripheral devices, and unplug the power cables from the outlet. Failure to do so may cause electric shock (→"1.4.3 Turning Off the Server" (pg.33)).

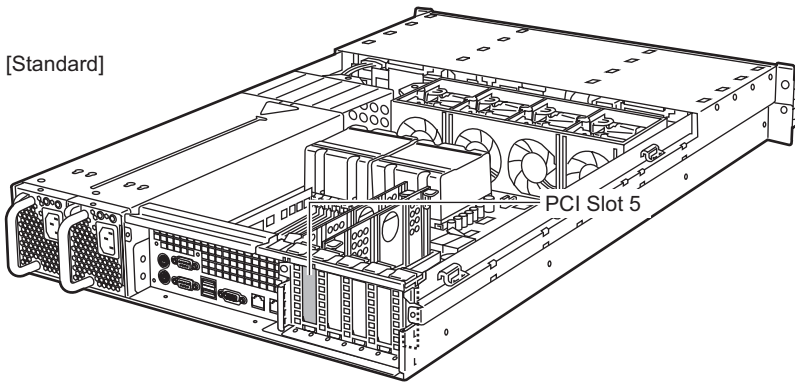
- 
CAUTION

 • The circuit boards and soldered parts of internal options are exposed. They can be damaged by static electricity. Before handling them, first touch a metal part of the server to discharge static electricity.

- Do not touch the circuitry on boards or soldered parts. Hold the metallic parts or the edges of the circuit boards.

7.8.1 Parallel Port Installation Position

The parallel port option is installed in PCI Slot 5 (standard).

[Standard]



7.8.2 Available parallel port

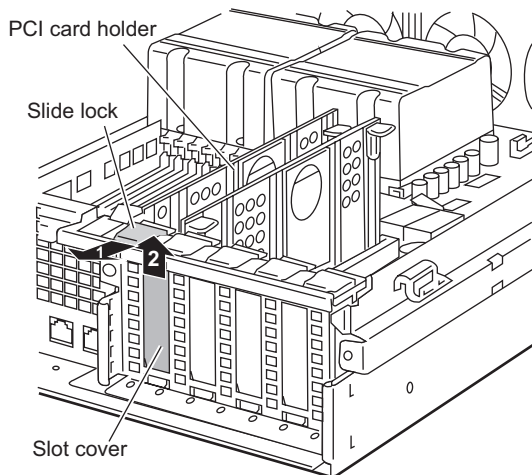
The following types of parallel port option can be extended on the server.

table: Available parallel port

Product name	Model	Remarks
Parallel Port Option	PG-PP03	

7.8.3 How to Install a Parallel Port

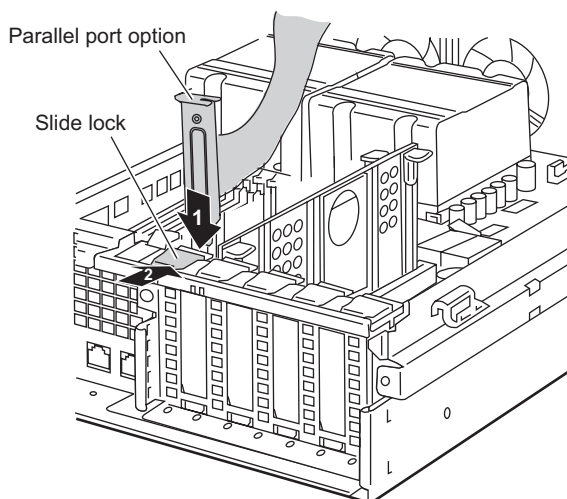
- 1** Turn off the server and peripheral devices and remove the top cover.
→"7.2 Removing and Attaching the Top Cover" (pg.174)
- 2** Touch a metal part of the server to discharge static electricity.
- 3** Release the slide lock in slot 5 (1), and remove the slot cover (2). Remove the PCI card holder in slot 5.



POINT

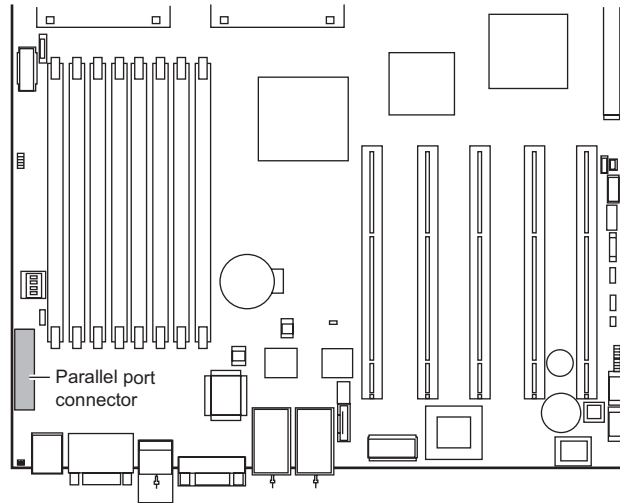
- ▶ Be sure to keep the removed slot cover and PCI card holder for later use.

- 4** Attach the parallel port option to slot 5 (1), and fix it with the slide lock (2).



- 5 Connect the cable of the parallel port option to the baseboard connector.

[Baseboard]



[Rear]

- 6 Attach the top cover.

→"7.2 Removing and Attaching the Top Cover" (pg.174)

7.9 Installing a Power Supply Unit

One power supply unit is installed in this server by default. Up to two units can be installed.

Adding one power supply unit enables you to use the redundant power supply function.

This section provides notes on adding a power supply unit and explains how to install, remove, and replace it.



- When installing/removing the power supply unit to/from the server, turn off the server and all peripheral devices (→"1.4.3 Turning Off the Server" (pg.33)). Also unplug all power cables from the power supply unit. Failure to do so may cause electric shock.
However, if the redundant power supply function is supported, you can replace a failed power supply unit as the power remains turned on.
- When removing the power supply unit, do not insert your hand into the power supply unit slot. Doing so may cause electric shock.

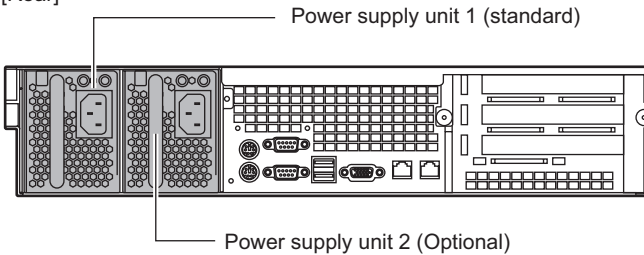
POINT

- ▶ Replace a failed power supply unit as soon as possible.

7.9.1 Where to Install the Power Supply Unit

Install the power supply unit in power supply unit 2.

[Rear]



7.9.2 Available Power Supply Units

The table below shows the power supply unit that can be installed on the server.

table: Available power supply unit

Product name	Model	Remarks
Power Supply Module	PG-PU117	

7.9.3 How to Install the Power Supply Unit

This section explains how to install and remove the power supply unit.



CAUTION



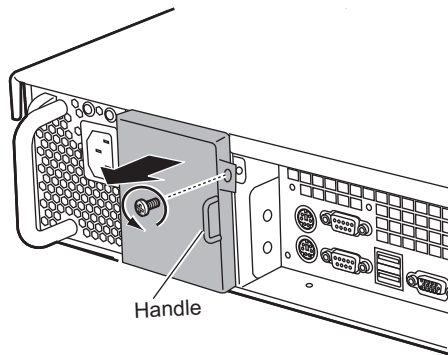
- Areas around the power supply unit may be very hot. Turn off the power and wait for a while before starting work.

- 1** Turn off the server and peripheral devices and unplug the power cables from the inlet.

→"1.4.3 Turning Off the Server" (pg.33)

- 2** Remove the dummy unit.

Remove the screws of the dummy unit, and pull it out toward you, holding the handle.

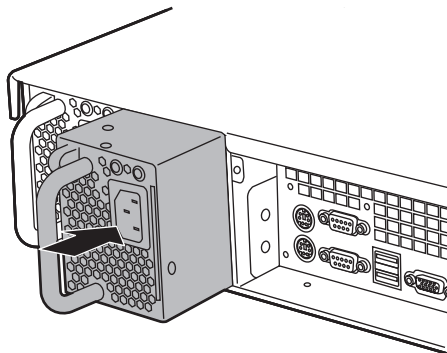


POINT

- ▶ Be sure to keep the removed screws for later use.

- 3** Attach the power supply unit.

Hold the power supply unit with both hands. Insert it straight into the power supply unit slot.



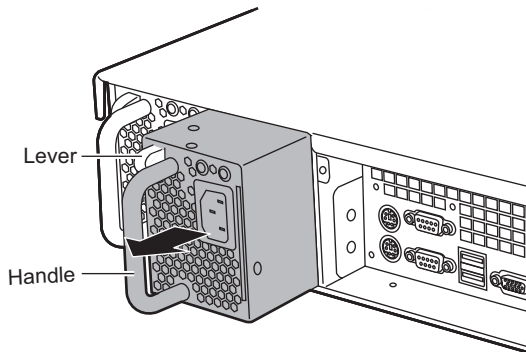
POINT

- ▶ When attaching a power supply unit, be sure to confirm that the connector of the power supply unit is not damaged or bent.

- 4** Connect the power cable to the inlet.

■ How to Remove the Power Supply Unit

- 1** Turn the server off.
→ "1.4.3 Turning Off the Server" (pg.33)
- 2** Disconnect the power cable from the inlet.
- 3** While pressing the lever, remove the power supply unit.
Hold the handle on the power supply unit and pull the unit towards you. While pulling the unit out, support it with the other hand.



POINT

- ▶ When it is difficult to remove the power supply unit, do not forcibly pull it out. Fully press the power supply unit to the back of the server once and pull it out with the lever lowered completely.

7.9.4 Replacing the Power Supply Unit when the Redundant Function is Enabled

When the redundant function of the system power is enabled, if one power supply unit causes a failure, the green LED of the faulty power supply unit goes off. The faulty power supply unit can be replaced without turning off the server.

After removing the power supply unit, be sure to attach a new power supply unit.

- 1** Disconnect the power cable from the inlet of the faulty power supply unit.
- 2** Remove the faulty power supply unit, by reverse step 3 in "7.9.3 How to Install the Power Supply Unit" (→pg.213).
- 3** Attach a new power supply unit.
- 4** Connect the power cable to the inlet of the replaced power supply unit.

7.10 Replacing System Fan

This server supports the redundant system fan function. Even if one of the system fans fails, the system will continue to operate.

When a system fan causes a fault, the LED of the system fan blinks amber.

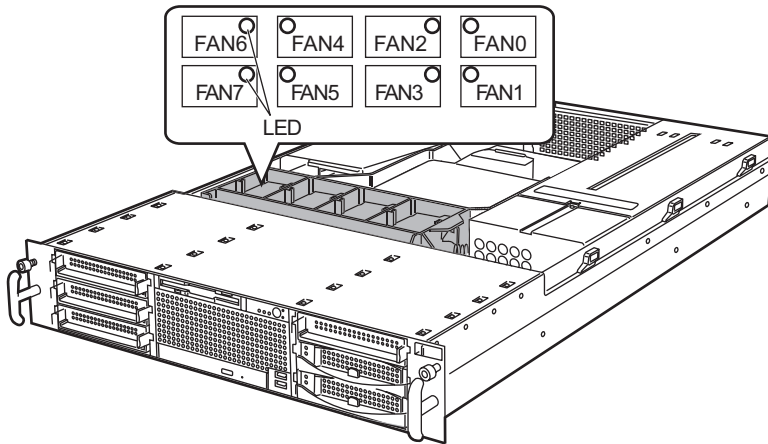
If the LED lights amber, the system fan need to be replaced.

Contact an office listed in the "Contact Information" of the "Start Guide".

POINT

- ▶ Replace a failed system fan as soon as possible.

The system fan numbers are as follows.



7.11 Connection of an Optional Devices

This section explains the connection of optional devices.

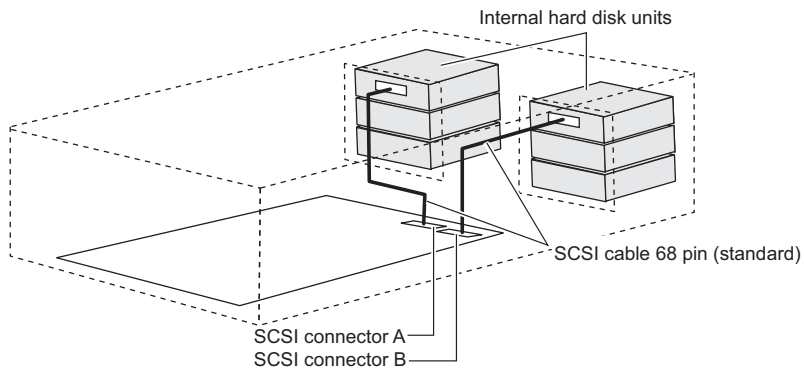
7.11.1 Connection Examples of Internal Option Devices

The following shows connection examples of internal option devices. Connection conditions vary depending on examples. See each example.

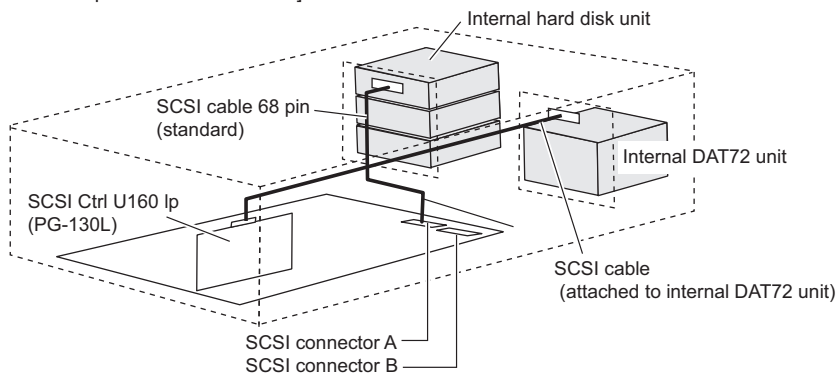
■ Installing the Internal Hard Disk Units in the Array System Configuration

The following shows the system configuration and cable connection examples in the array system configuration using the onboard SCSI array controller (standard).

[Standard]



[When internal backup devices are installed]



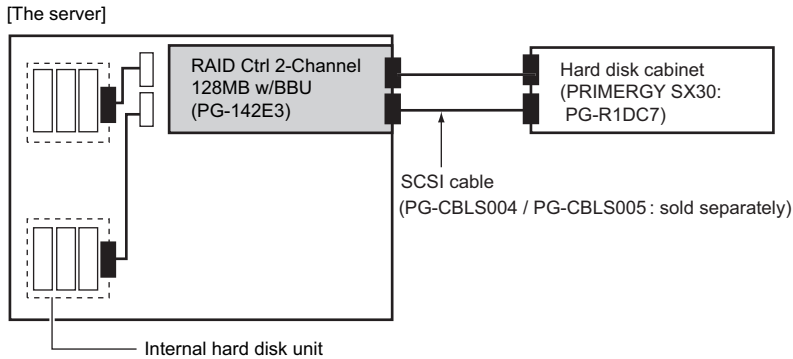
POINT

- ▶ After attaching internal options, take care so that it does not come in contact with the close boards, such as expansion card.

7.11.2 Connecting External SCSI Options

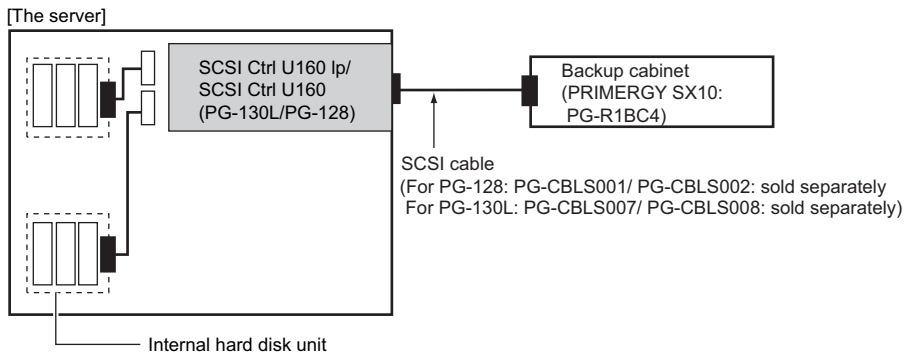
■ Connection of a Hard Disk Cabinet to Configure a Large-capacity Array System

Connect the hard disk cabinet as shown below.



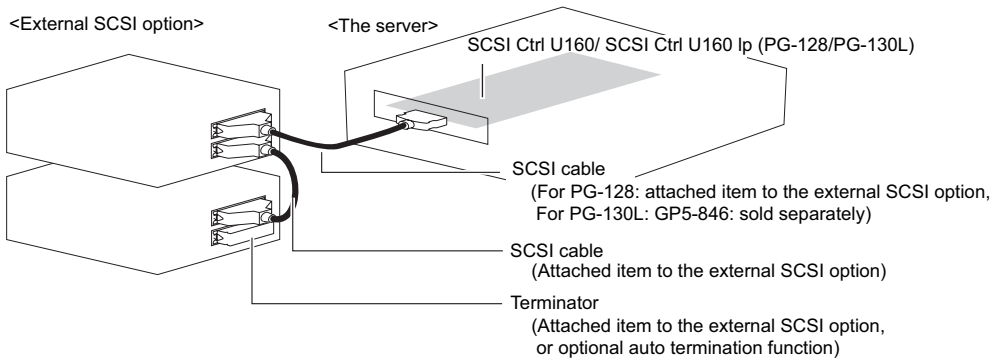
■ Connection of a Backup Cabinet

Connect the backup cabinet as shown below.



■ Connection of Other External SCSI Options

External SCSI options with different SCSI-IDs are connected in a daisy chain as shown in the following figure. Up to two devices can be connected.



■ Notes on Connecting External SCSI Options

● SCSI-ID Setting

Do not use the same setting for different devices.

● Terminator

Install a terminator to the external SCSI option at the end of the daisy chain. Alternatively, use the auto termination function of the external SCSI option.



- ▶ Be sure to use the terminator supplied with a SCSI device only on that device.

● SCSI Cable

Select the SCSI cable for connecting a SCSI device depending on usage.

table: SCSI cable list

Connected device		Model name	Length	Remarks
External device	Server			
External SCSI option (Half-pitch 68 pins)	SCSI Ctrl U160 lp (PG-130L) (VHDCI 68 pins)	GP5-846	2m	Sold separately
PRIMERGY SX10 (Half-pitch 68 pins)	SCSI Ctrl U160 lp (PG-130L) (VHDCI 68 pins)	PG-CBLS007	1.8m	Sold separately
PRIMERGY SX10 (Half-pitch 68 pins)	SCSI Ctrl U160 lp (PG-130L) (VHDCI 68 pins)	PG-CBLS008	5.0m	Sold separately
External SCSI option (Half-pitch 68 pins)	SCSI Ctrl U160 (PG-128) (Half-pitch 68 pins)	-	-	Supplied with external SCSI options
Backup cabinet PG-R1BC4 (Half-pitch 68 pins)	SCSI Ctrl U160 (PG-128) (Half-pitch 68 pins)	PG-CBLS001	1.5m	Sold separately
Backup cabinet PG-R1BC4 (Half-pitch 68 pins)	SCSI Ctrl U160 (PG-128) (Half-pitch 68 pins)	PG-CBLS002	5.0m	Sold separately

table: SCSI cable list

Connected device		Model name	Length	Remarks
External device	Server			
Hard disk cabinet PG-R1DC7 (VHDCI 68 pins)	RAID Ctrl 2-Channel 128 MB w/ BBU (PG-142E3) (VHDCI 68 pins)	PG-CBLS004	2.0m	Sold separately
Hard disk cabinet PG-R1DC7 (VHDCI 68 pins)	RAID Ctrl 2-Channel 128 MB w/ BBU (PG-142E3) (VHDCI 68 pins)	PG-CBLS005	5.0m	Sold separately

● Daisy Chain Connection

Daisy chain connection is impossible between devices with different SCSI interfaces. Use a SCSI card separately for connection.

DLT and LTO library devices cannot be connected in a daisy chain.

Chapter 8

Hardware Configuration/ Utilities

8

This chapter explains how to make the environment settings necessary to operate the server.

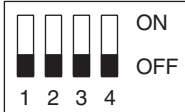
8.1	Switch Block Settings	222
8.2	BIOS Setup Utility	223

8.1 Switch Block Settings

The BIOS password setting can be canceled through the switch block settings.

■ Switch Location

The switch block of the server is located on the baseboard (→"1.3.4 Baseboard" (pg.27)) as shown below.



■ Switch Settings

The following shows the description of each switch.

[table: Switch Settings](#)

Switch No.	Description
Switch 1	Always keep in OFF position.
Switch 2	Sets whether or not to delete a password. ON: Deletes the password. OFF: Does not delete the password. (Default)
Switch 3	Always keep in OFF position.
Switch 4	Always keep in OFF position.



- When setting a switch block, turn off the server and peripheral devices, and unplug all power plugs from the outlet (→"1.4.3 Turning Off the Server" (pg.33)). Failure to do so may cause electric shock.

8.2 BIOS Setup Utility

This section explains settings for the BIOS Setup Utility and items regarding each setting.

8.2.1 Starting and Exiting the BIOS Setup Utility

The following explains how to start and exit the BIOS Setup Utility.

■ How to Start the BIOS Setup Utility

- 1 Turn the server on.
- 2 During POST, press the [F2] key while the message "<F2>BIOS Setup / <F12> BOOT Menu" is displayed on the screen.

The [Main menu] window appears when the POST completes.

PhoenixBIOS Setup Utility				
Main	Advanced	Security	Server	Exit
System Time:	[HH:MM:SS]	Item Specific Help		
System Date:	[MM:DD:YYYY]			
Diskette A:	[1.4M]			
▶ IDE Drive 1:	[None]			
▶ IDE Drive 2:	[None]			
▶ IDE Drive 3:	[SR244W-(SM)]			
▶ IDE Drive 4:	[None]			
▶ Boot Options				
Base Memory:	640 KB			
Extended Memory:	xxx M			
F1 Info	↑↓ Select Item	-/+ Change Values	F9 Setup Defaults	
Esc Exit	←→ Select Menu	Enter Select ▶ Sub-Menu	F7 Previous Values	

POINT

- ▶ When the [F2] key is pressed, the [Main menu] window may not appear. In this case, press the [Ctrl] + [Alt] + [Delete] keys at the same time to restart the system and boot the BIOS setup.
- ▶ While the message "<F2> BIOS Setup / <F12> BOOT Menu" is displayed, pressing the [F12] key causes the Boot Menu screen to appear when POST completes.

Boot Menu	
1.	CD-ROM Drive
2.	+Diskette
3.	+Hard Drive
4.	Legacy LAN Card Setup
<↑> Select <Enter> Confirm	

● Key Operations in the BIOS Setup Utility

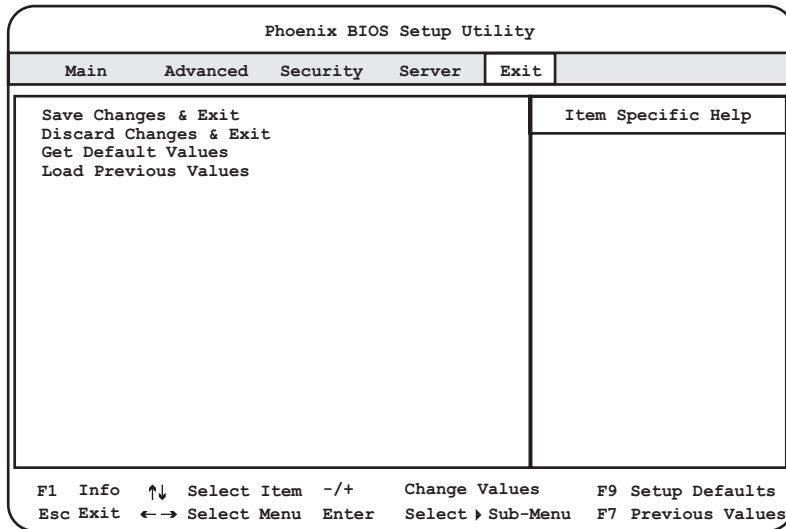
The roles of the keys used for using the BIOS Setup Utility are as follows.

table: List of Key Operations on the BIOS Setup Utility Window

Key	Description
[F1]	Displays or hides detailed information.
[Esc]	When a submenu window is displayed, exits it and returns to the previous menu. When the menu window is displayed exits this utility.
[↑] [↓]	Scrolls through the menu option list.
[←] [→]	Switches between menus.
[-] [+]	Changes the value of an item.
[Enter]	Activates the selected item. Displays the submenu of items with the ► mark.
[F9]	Sets the items to the initial values (initial values may be different from the setting values at the time of purchase).
[F7]	Changes the item value to the previous value.

■ How to Exit the BIOS Setup Utility

- 1 Use the [←] [→] keys to display the [Exit] menu.



- 2 Use the [↑] [↓] keys to select the exit mode.
 - To save configuration changes before exiting.
Move the cursor to [Save Changes & Exit] and press the [Enter] key.
The message "Save configuration changes and exit now?" is displayed.
 - To exit without saving configuration changes.
Move the cursor to [Discard Changes & Exit] and press the [Enter] key.
The message "Configuration has not been saved! Save before exiting?" is displayed.
- 3 Use the [←] and [→] keys to move the cursor to [Yes] or [No], and press the [Enter] key.
 - If you selected [Save Changes & Exit] from the [Exit] menu.
Select [Yes] to exit.
After saving changes to settings, the BIOS Setup Utility closes and the server restarts.
Select [No] not to exit.
The display returns to the BIOS Setup Utility window.
 - If you selected [Discard Changes & Exit] from the [Exit] menu.
Select [Yes] to save changes before exit.
The BIOS Setup Utility closes and the server restarts.
Select [No] to exit without saving changes to settings.
The BIOS Setup Utility closes and the OS starts.

8.2.2 Main Menu

The [Main] menu window is initially displayed when you start the BIOS Setup Utility. Settings for time and date and for the drives are configured in the [Main] menu window.

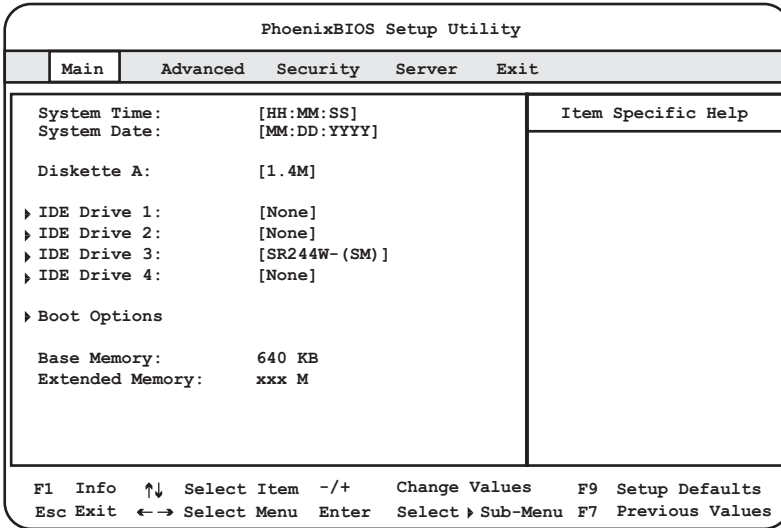


table: Items on the Main Menu

Item	Setting	Description
System Time	Present time	The system time is set in "hours:minutes:seconds" format. The hours should be based on a 24-hour clock. For example, 6:30:00 P.M. is set as "18", "30", "00". Note: ▶ If a highly precise system time is necessary, install a network synchronized time system (NTP, etc.).
System Date	Present date	The system date is set in "month:day:year" format. For example, August 20, 2005 is set as "08", "20", "2005".
Diskette A	1.4M (Fixed parameter)	Sets the type of Floppy Disk Drive A (recording density and drive size).
IDE Drive 1	[Enter]	Sets the type and operating mode for connected IDE devices. →"8.2.3 IDE Drive 1/IDE Drive 2/IDE Drive 3/IDE Drive 4 Submenu" (pg.227)
IDE Drive 2		
IDE Drive 3		
IDE Drive 4		
Boot Options	[Enter]	Sets system startup options. →"8.2.4 Boot Options Submenu" (pg.228)
Base Memory	Available base memory size of up to 1MB is displayed.	
Extended Memory	Memory size of 1MB or more is displayed.	

8.2.3 IDE Drive 1/IDE Drive 2/IDE Drive 3/IDE Drive 4 Submenu

Appears when [IDE Drive 1/2/3/4] is selected from the [Main] menu.

Sets the type and operating mode for connected IDE devices.

PhoenixBIOS Setup Utility	
Main	
IDE Drive 1: [None]	Item Specific Help
Type: [Auto]	
Transfer Mode: [Disabled]	
LBA Translation: [Disabled]	
32Bit I/O: [Enabled]	
PIO Mode: [Standard]	
Ultra DMA Mode: [Disabled]	
F1 Info ↑↓ Select Item -/+ Change Values F9 Setup Defaults Esc Exit ←→ Select Menu Enter Select ▸ Sub-Menu F7 Previous Values	

table: Items of IDE Drive 1/2/3/4 Menu Window

Item	Setting	Description
Type	Auto (Fixed parameter)	Sets the type of the IDE device.
Transfer Mode	Disabled (Fixed parameter)	Automatically detects and displays the number of sectors that can be transferred at once.
LBA Translation	Disabled (Fixed parameter)	Sets whether to enable or disable the LBA (Logical Block Addressing: access based on logical serial numbers).
32Bit I/O	Enabled (Fixed parameter)	Specifies the bus width for data transfer between the CPU and the IDE controller.
PIO Mode	<ul style="list-style-type: none"> • IDE1/2/4 Standard (Fixed parameter) • IDE3 PIO4/DMA2 (Fixed parameter) 	Sets the data transfer mode.
Ultra DMA Mode	<ul style="list-style-type: none"> • IDE1/2/4 Disabled (Fixed parameter) • IDE3 Mode 2 (Fixed parameter) 	Sets the DMA (Direct Memory Access) data transfer mode.

8.2.4 Boot Options Submenu

Appears when [Boot Options] is selected from the [Main] menu.

Sets system startup options.

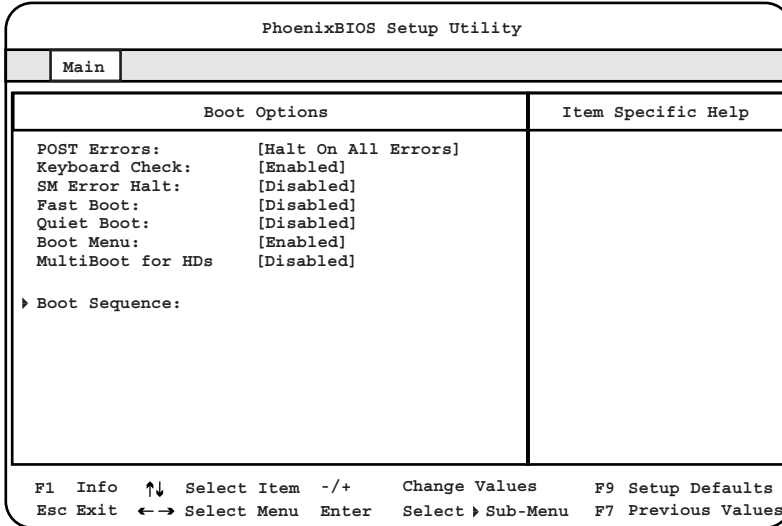


table: Items on the Boot Options Submenu

Item	Setting	Description
POST Errors	Halt On All Errors (Fixed parameter)	Sets whether or not to stop the boot process and shut down the system, in case a POST (Power On Self Test) error is detected. <ul style="list-style-type: none"> • No Halt On Any Errors It does not stop the boot process. Detected errors are ignored. • Halt On All Errors When a POST (Power On Self Test) error is detected, it stops the boot process and shuts down the system when POST is completed.
Keyboard Check	<ul style="list-style-type: none"> • Disabled • Enabled (at the time of purchase) 	Sets whether or not to check keyboard connection during POST.
SM Error Halt	Disabled (Fixed parameter)	Sets the procedure in case an error occurs regarding the fan or temperature sensor.
Fast Boot	Disabled (Fixed parameter)	Sets whether or not to reduce the scope of POST and thereby speed up system startup.
Quiet Boot	Disabled (Fixed parameter)	Sets whether or not to display the logo screen instead of POST information.

table: Items on the Boot Options Submenu

Item	Setting	Description
Boot Menu	Enabled (Fixed parameter)	Sets whether to enable or disable the boot menu.
MultiBoot for HDs	<ul style="list-style-type: none"> • Disabled (at the time of purchase) • Enabled 	<p>Sets whether or not it is possible to specify the order of hard disks to boot the operating system (OS) when several hard disk units are installed.</p> <p>Note:</p> <p>▶ To perform a network boot (PXE), set to [Enable].</p>
Boot Sequence	<p>Press [Enter] to display the boot sequence.</p> <ul style="list-style-type: none"> • CD-ROM Drive • Diskette • Hard Drive • Legacy LAN Card 	<p>Sets the order of selected drives to boot the OS. Use the [+] [-] keys to change the order of priority for the selected device. Booting from a selected device can be disabled with the [Space] key. (The mark "!" is prefixed to the name of the disabled device.) If a non-existing device is displayed, delete it from the list with the [*] key.</p>

8.2.5 Advanced Menu

Configures peripheral and PCI devices.

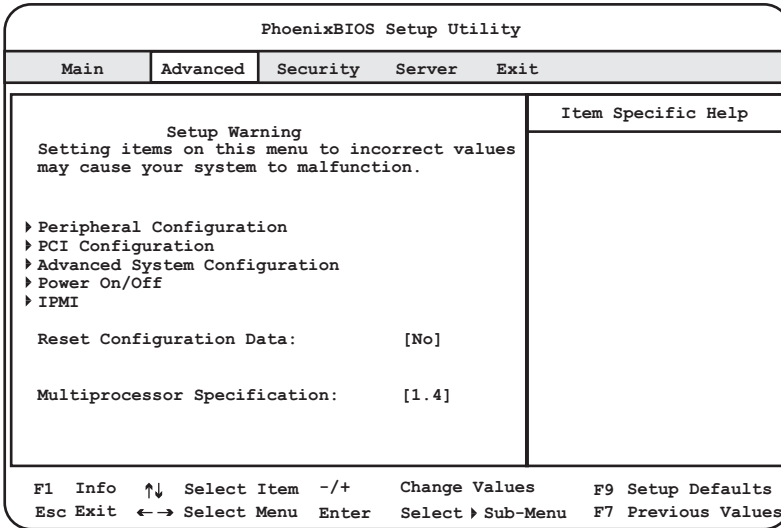


table: Items on the Advanced Menu

Item	Setting	Description
Peripheral Configuration	[Enter]	Configures the serial port, parallel port, etc. →"8.2.6 Peripheral Configuration Submenu" (pg.231)
PCI Configuration	[Enter]	Configures the PCI device. →"8.2.7 PCI Configuration Submenu" (pg.233)
Advanced System Configuration	[Enter]	Configures additional settings. →"8.2.8 Advanced System Configuration Submenu" (pg.235)
Power On/Off	[Enter]	Configures power On/Off settings. →"8.2.9 Power On/Off Submenu" (pg.237)
IPMI	[Enter]	Configures the Baseboard Management Controller (BMC). →"8.2.10 IPMI Submenu" (pg.238)
Reset Configuration Data	<ul style="list-style-type: none"> • Yes • No (at the time of purchase) 	Sets the initialization of the Extended System Configuration Data (ESCD) where the system resources are recorded.
Multiprocessor Specification	1.4 (Fixed parameter)	Sets the version of the multiprocessor table to be used. The multiprocessor table is necessary for the operating system for multiprocessors to recognize the system's multiprocessor specifications.

8.2.6 Peripheral Configuration Submenu

Appears when [Peripheral Configuration] is selected from the [Advanced] menu.

Configures the serial port, parallel port, etc.

The items not indicated below are displayed using the scroll bar.

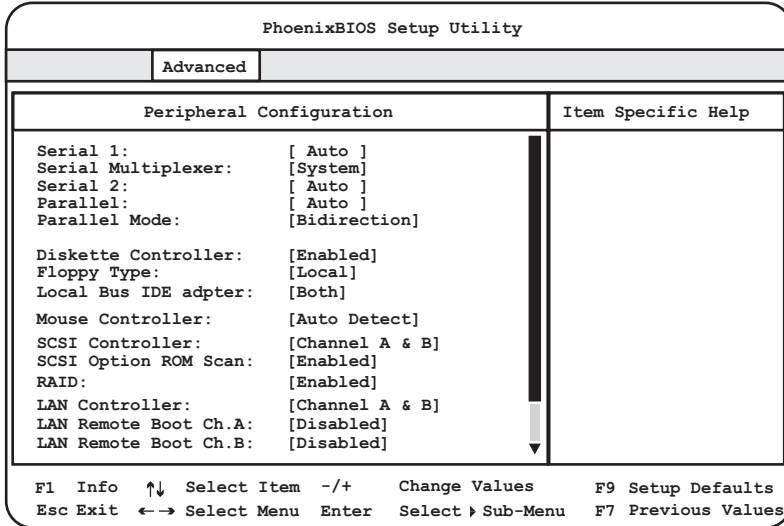


table: Items on the Peripheral Configuration Submenu

Item	Setting	Description
Serial 1	<ul style="list-style-type: none"> • Disabled • Enabled • Auto (at the time of purchase) • OS Controlled 	Sets whether to enable or disable the serial port. Set to [Disabled] when used as a server management port. Note: ▶ When changing [Serial Multiplexer] to [BMC], be sure to set this item to [Disabled].
Serial Multiplexer	<ul style="list-style-type: none"> • System (at the time of purchase) • BMC • Shared 	Changes the function of Serial Port 1. <ul style="list-style-type: none"> • System Used as a serial port (when the UPS is connected). • BMC Used as a server management port. Set Serial 1 to [Disabled]. • Shared This server cannot use this. Note: ▶ Do not set this item to [Shared].
Serial 2	<ul style="list-style-type: none"> • Disabled • Enabled • Auto (at the time of purchase) • OS Controlled 	Sets whether to enable or disable the serial port.
Parallel	Auto (Fixed parameter)	Sets whether to enable or disable the serial port.

table: Items on the Peripheral Configuration Submenu

Item	Setting	Description
Parallel Mode	<ul style="list-style-type: none"> • Printer • Bidirection (at the time of purchase) • EPP • ECP 	Sets the data transfer mode of the parallel port.
Diskette Controller	<ul style="list-style-type: none"> • Enabled (at the time of purchase) • Disabled 	Sets whether to enable or disable the floppy disk controller.
Floppy Type	Local (Fixed parameter)	Sets the type of floppy disk to be used. When using the server's internal floppy disk drive, select [Local].
Local Bus IDE adapter	Both (Fixed parameter)	Sets whether or not to use the IDE adapter.
Mouse Controller	<ul style="list-style-type: none"> • Disabled • Enabled • Auto Detect (at the time of purchase) 	Sets whether or not to use the mouse connected to the mouse connector.
SCSI Controller	ChannelA&B (Fixed parameter)	Sets whether to enable or disable the onboard SCSI controller.
SCSI Option ROM Scan	<ul style="list-style-type: none"> • Disabled • Enabled (at the time of purchase) 	Sets whether or not to initialize the extended ROM.
RAID	Enabled (Fixed parameter)	Sets whether to enable or disable RAID.
LAN Controller	ChannelA&B (Fixed parameter)	Sets whether to enable or disable the onboard LAN controller (channel A, or channels A and B).
LAN Remote Boot Ch.A	<ul style="list-style-type: none"> • Disabled (at the time of purchase) • PXE 	Sets whether to enable loading of the OS from the server. This function is used particularly when neither a floppy disk drive or a hard disk drive is installed or they are turned off.
LAN Remote Boot Ch.B		

8.2.7 PCI Configuration Submenu

Appears when [PCI Configuration] is selected from the [Advanced] menu.
 Configures the PCI device.

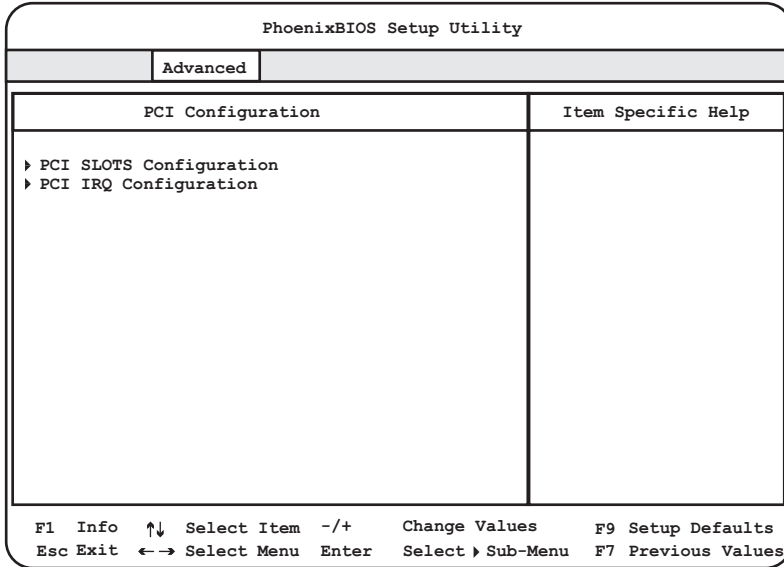


table: Items on the PCI Configuration Submenu

Item	Setting	Description
PCI SLOTS Configuration	[Enter]	Configures the PCI slots. → "■ PCI SLOTS Configuration Submenu" (pg.234)
PCI IRQ Configuration	[Enter]	Sets PCI IRQs for the PCI slots. → "■ PCI IRQ Configuration Submenu" (pg.234)

■ PCI SLOTS Configuration Submenu

Configures the PCI slots.

table: Items on the PCI SLOTS Configuration Submenu

Item	Setting	Description
PCI Slot 1 Configuration Option ROM Scan	<ul style="list-style-type: none"> • Disabled (at the time of purchase) • Enabled 	Sets whether or not to initialize the extended ROM in each PCI slot.
PCI Slot 2 Configuration Option ROM Scan		
PCI Slot 3 Configuration Option ROM Scan		
PCI Slot 4 Configuration Option ROM Scan		
PCI Slot 5 Configuration Option ROM Scan		
PCI Slot 6 Configuration Option ROM Scan		
PCI Slot 7 Configuration Option ROM Scan		
PCI Slot 8 Configuration Option ROM Scan		

■ PCI IRQ Configuration Submenu

Sets PCI IRQs for the PCI slots.

table: Items on the PCI IRQ Configuration Submenu

Item	Setting	Description
PCI IRQ Line 1	Auto (Fixed parameter)	Sets PCI IRQ assignment for the PCI slots.
PCI IRQ Line 2		
PCI IRQ Line 3		
PCI IRQ Line 4		
PCI IRQ Line 5		
PCI IRQ Line 6		
PCI IRQ Line 7		
PCI IRQ Line 8		

8.2.8 Advanced System Configuration Submenu

Appears when [Advanced System Configuration] is selected from the [Advanced] menu.

Configures additional settings.

PhoenixBIOS Setup Utility	
Advanced	
Advanced System Configuration	Item Specific Help
PCI Bus Parity Checking:	[Enabled]
Memory Redundancy:	[Disabled]
Remap PCI Memory Gap:	[Disabled]
CPU Mismatch Detection:	[Enabled]
CPU Timeout Counter:	[Disabled]
CPU Frequency (GHZ):	[Automatic]
Hyper-Threading:	[Enabled]
Limit CPUID Functions:	[Disabled]
CPU Thermal Management:	[Enhanced]
CPU Halt Mode (C1E):	[Standard]
NX Memory Protection:	[Disabled]
CPU MC Status Clear:	[Next Boot]
Enhanced SpeedStep:	[Disabled]
CPU Throttling Delay:	[No Delay]
USB Host Controller:	[Enabled]
USB2.0 Host Controller:	[Enabled]
USB BIOS Legacy Support:	[Disabled]
F1 Info ↑↓ Select Item -/+ Change Values F9 Setup Defaults Esc Exit ← → Select Menu Enter Select ▶ Sub-Menu F7 Previous Values	

table: Items on the Advanced System Configuration Submenu

Item	Setting	Description
PCI Bus Parity Checking	Enabled (Fixed parameter)	Sets whether to enable or disable the PCI bus parity checking.
Memory Redundancy	<ul style="list-style-type: none"> Disabled (at the time of purchase) Sparing Mirroring 	Sets whether or not to use the spare memory or mirror function. To use the spare memory or mirror function, install ServerView.
Remap PCI Memory Gap	<ul style="list-style-type: none"> Disabled (at the time of purchase) Enabled 	Specify an area to be allocated to PCI Memory Gap. Note: ▶ When installing 4GB or more memory, set to [Enabled].
CPU Mismatch Detection	Enabled (Fixed parameter)	Sets whether to enable or disable checking the CPU type and frequency.
CPU Timeout Counter	Disabled (Fixed parameter)	The server does not support this.
CPU Frequency (GHz)	Automatic (Fixed parameter)	Configures the CPU clock frequency.
Hyper-Threading	<ul style="list-style-type: none"> Disabled Enabled (at the time of purchase) 	Sets whether or not to run one CPU as a dual-processing CPU. The setting [Enabled] may enhance processing performance by allowing maximum use of the CPU resources.
Limit CPUID Functions	Disabled (Fixed parameter)	Configures the CPU internal setting.
CPU Thermal Management	Enhanced (Fixed parameter)	Configures the CPU internal setting. Note: ▶ This item is displayed only when using the 3.6GHz CPU.

table: Items on the Advanced System Configuration Submenu

Item	Setting	Description
CPU Halt Mode (C1E)	Standard (Fixed parameter)	Configures the CPU internal setting.
NX Memory Protection	Disabled (Fixed parameter)	
CPU MC Status Clear	Next Boot (Fixed parameter)	
Enhanced SpeedStep	Disabled (Fixed parameter)	Configures the CPU internal setting. Note: ▶ This item is displayed only when the 3.6GHz CPU is used.
CPU Throttling Delay	No Delay (Fixed parameter)	Sets the time delay after which the CPU moves to throttling when it overheats.
USB Host Controller	<ul style="list-style-type: none"> • Disabled • Enabled (at the time of purchase) 	Sets whether or not to use the USB host controller (2.0 or 1.1).
USB2.0 Host Controller	<ul style="list-style-type: none"> • Disabled • Enabled (at the time of purchase) 	
USB BIOS Legacy Support	<ul style="list-style-type: none"> • Disabled (at the time of purchase) • Enabled 	Sets whether to enable or disable a USB-compatible keyboard in an MS-DOS environment. This item cannot be selected when [USB Host Controller] is set to [Disabled].

8.2.9 Power On/Off Submenu

Appears when [Power On/Off] is selected from the [Advanced] menu.

Configures power On/Off settings.

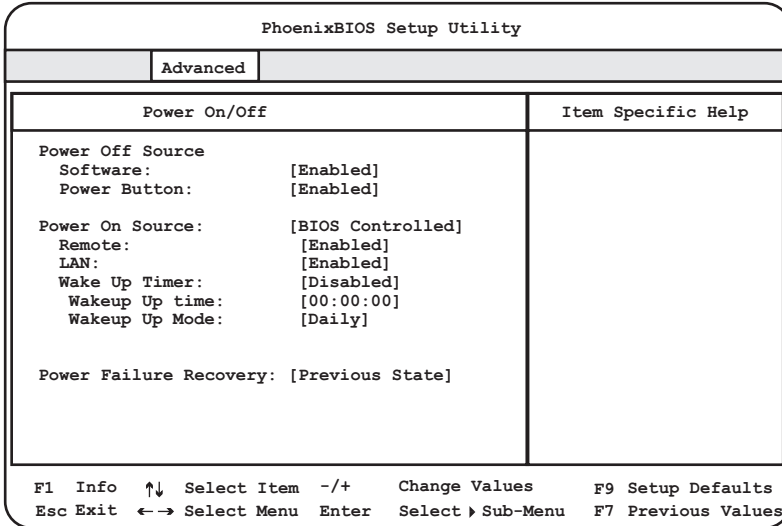


table: Items on the Power On/Off Submenu

Item	Setting	Description
Power Off Source	-	-
Software	<ul style="list-style-type: none"> Disabled Enabled (at the time of purchase) 	Sets whether or not to enable the power to be turned off using a program or the operating system.
Power Button	<ul style="list-style-type: none"> Disabled Enabled (at the time of purchase) 	Sets whether or not to allow the use of the power switch for turning the power off, when the ACPI function is disabled.
Power On Source	<ul style="list-style-type: none"> BIOS Controlled (at the time of purchase) ACPI Controlled 	Sets to turning the power on.
Remote	<ul style="list-style-type: none"> Disabled Enabled (at the time of purchase) 	Sets whether or not the power is turned on when the modem (connected to the serial port) receives a ring signal.
LAN	<ul style="list-style-type: none"> Disabled Enabled (at the time of purchase) 	Sets whether or not to enable the power to be turned on via LAN.
Wake Up Timer	Disabled (Fixed parameter)	Sets whether or not the power is turned on at a certain time or after a certain time has passed.

table: Items on the Power On/Off Submenu

Item	Setting	Description
Wake Up Time	-	Configures the power-on time setting using the timer.
Wake Up Mode	-	Specifies the power-on interval using the timer.
Power Failure Recovery	<ul style="list-style-type: none"> • Always Off • Always On • Previous State (at the time of purchase) 	Sets the server power status after system down due to power failure or after power recovery by the UPS. Note: ▶ Set this item to [Always ON] when a UPS is used.

8.2.10 IPMI Submenu

Appears when [IPMI] is selected from the [Advanced] menu.
 Configures the Baseboard Management Controller (BMC).

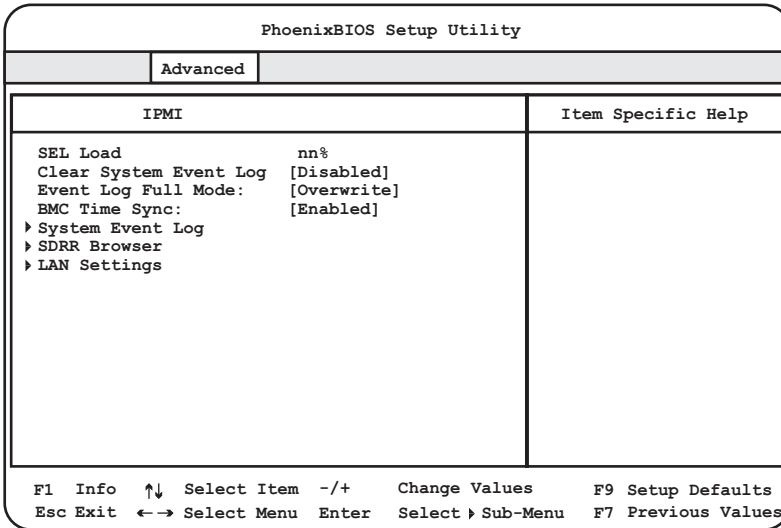


table: Items on the IPMI Submenu

Item	Setting	Description
SEL Load	-	Displays the stored SEL in percentage.
Clear System Event Log	<ul style="list-style-type: none"> • Disabled (at the time of purchase) • Enabled 	Deletes logs stored in System Event Log (SEL). (Do not delete SEL from this menu.)
Event Log Full Mode	<ul style="list-style-type: none"> • Overwrite (at the time of purchase) • Maintain 	Configures the log when full SEL is indicated.
BMC Time Sync	Enabled (Fixed parameter)	Sets whether or not to synchronize the BMC internal timer with RTC at startup.

table: Items on the IPMI Submenu

Item	Setting	Description
System Event Log	[Enter]	Displays the SEL contents. The system event log this submenu displays is a reference SEL. To display SEL in detail, refer to "9.3 System Event Log" (→pg.273).
SDRR Browser	[Enter]	Displays each sensor data item.
LAN Settings	[Enter]	Performs LAN settings to enable remote operations using RemoteControlService. →"■ LAN Settings Submenu" (pg.239)

■ LAN Settings Submenu

Performs LAN settings to enable remote operations using RemoteControlService.

table: Items on the LAN Settings Submenu

Item	Setting	Description
Local IP address	-	Enter the IP address of the onboard LAN. Note: ▶ Set an IP address different from that in OS settings.
Subnet mask	-	Enter the subnet mask of the onboard LAN specified in [Local IP address].
Gateway address	-	Enter the gateway address of the onboard LAN specified in [Local IP address].
User ID 1 Password	-	Enter the user ID 1 password of the onboard LAN specified in [Local IP address].

8.2.11 Security Menu

Configures the security features.

PhoenixBIOS Setup Utility				
Main	Advanced	Security	Server	Exit
Setup Password	Not Installed	Item Specific Help		
System Password	Not Installed			
Set Setup Password:	[Press Enter]			
Setup Password Lock:	[Standard]			
Set System Password:	[Press Enter]			
System Password Mode:	[System]			
System Load:	[Standard]			
Setup Prompt:	[Enabled]			
Virus Warning:	[Disabled]			
Diskette Write:	[Enabled]			
Flash Write:	[Enabled]			
F1 Info ↑↓ Select Item -/+ Change Values F9 Setup Defaults Esc Exit ←→ Select Menu Enter Select ▶ Sub-Menu F7 Previous Values				

table: Items on the Security Menu

Item	Setting	Description
Setup Password	-	Displays whether a setup password is specified. [Not installed] appears when the password is not set, and [Installed] appears when it is set.
System Password	-	Displays whether an administrator password (system password) is set or not. [Not installed] appears when the password is not set, and [Installed] appears when it is set.
Set Setup Password	[Enter]	Sets a setup password. The setup password prevents unauthorized startup of the BIOS Setup. Select this field and press the [Enter] key. Then enter the setup password. For procedures for setting, changing, and deleting the password, refer to "9.4.2 Security against Unauthorized Use" (→pg.278).
Setup Password Lock	<ul style="list-style-type: none"> Standard (at the time of purchase) Extended 	Sets the scope protected by the setup password. A setup password must be specified in advance.
Set System Password	[Enter]	Sets a system password. The system password prevents unauthorized access to the system. A setup password must be specified. Select this field and press the [Enter] key. Then enter the system password. For procedures for setting, changing, and deleting the password, refer to "9.4.2 Security against Unauthorized Use" (→pg.278).
System Password Mode	<ul style="list-style-type: none"> System (at the time of purchase) Keyboard 	Sets the scope protected by the system password. A setup password and a system password must be specified.

table: Items on the Security Menu

Item	Setting	Description
System Load	<ul style="list-style-type: none"> • Standard (at the time of purchase) • Diskette/CDROM Lock 	Sets whether to enable or disable system startup from a floppy disk or CD-ROM.
Setup Prompt	<ul style="list-style-type: none"> • Disabled • Enabled (at the time of purchase) 	Sets whether or not to display a setup message "<F2>BIOS Setup/<F12>BOOT Menu" on the [POST] window during system restart.
Virus Warning	Disabled (Fixed parameter)	Sets whether or not to check the changes of the boot sector of the hard disk drive after the previous system startup. If the boot sector is changed without a clear reason, it is necessary to scan the system for computer viruses with a virus detection program.
Diskette Write	<ul style="list-style-type: none"> • Disabled • Enabled (at the time of purchase) 	Sets whether to enable or disable write protect on a floppy disk.
Flash Write	<ul style="list-style-type: none"> • Disabled • Enabled (at the time of purchase) 	Sets whether to enable or disable write protect in the system BIOS.

8.2.12 Server Menu

Configures server settings.

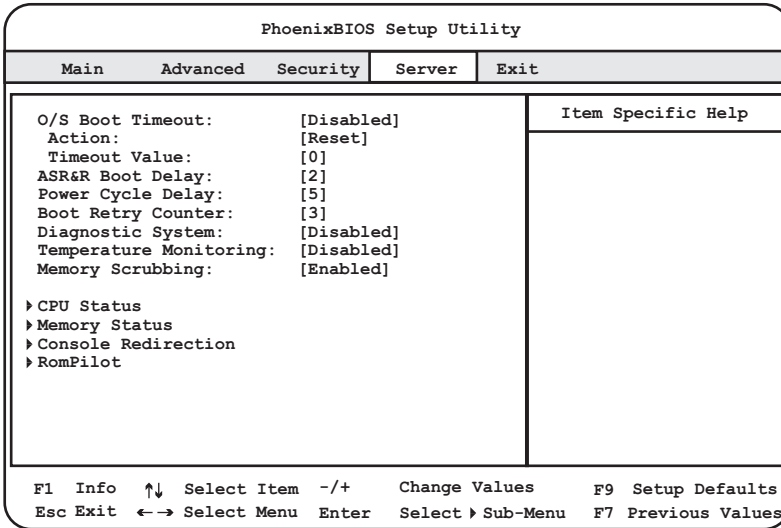


table: Items on the Server Menu

Item	Setting	Description
O/S Boot Timeout	<ul style="list-style-type: none"> Disabled (at the time of purchase) Enabled 	<p>Sets whether to enable or disable the OS Boot Monitoring function, when ServerView is installed to the OS.</p> <p>If for some reason booting the operating system is interrupted when this function is enabled, the system will automatically restart.</p> <p>Note:</p> <ul style="list-style-type: none"> ▶ The OS Boot Monitoring function can also be enabled or disabled from ServerView. ▶ If ServerView is not installed to the OS, be sure to set to [Disabled]. If the setting is enabled, the server may automatically turn off or restart unexpectedly. ▶ Even when ServerView is installed to the OS, if starting the system while the ServerStart CD-ROM or DOS floppy disk is inside, be sure to disable the OS Boot Monitoring function. If the system is started with this function enabled, the server may automatically turn off or restart improperly. If the OS Boot Monitoring function is needed, it should be reset to enabled before resuming normal server operation. ▶ When setting this function, refer to "ServerView User's Guide" to fully learn about its specifications, in order to use it properly with the correct settings.

table: Items on the Server Menu

Item	Setting	Description
Action	<ul style="list-style-type: none"> • Continue • Reset (at the time of purchase) • Power Cycle 	Sets the operation to be performed when a timeout occurs during OS boot monitoring.
Timeout Value	<ul style="list-style-type: none"> • 0 (at the time of purchase) • 1–100 	When [O/S Boot Timeout] is set to [Enabled], the system restarts automatically if the OS fails to start up within the time set for this item.
ASR&R Boot Delay	<ul style="list-style-type: none"> • 2 (at the time of purchase) • 1–30 	Sets the time required until the Automatic Server Reconfiguration & Restart (ASR&R) function reboots.
Power Cycle Delay	5 (Fixed parameter)	Sets the time until the server is turned on after it is turned off.
Boot Retry Counter	<ul style="list-style-type: none"> • 3 (at the time of purchase) • 0–7 	Sets the maximum number of retries to boot the operating system within the range of 1 to 7. The count value is decremented by one after each instance of retry processing.
Diagnostic System	Disabled (Fixed parameter)	Sets the operation to be performed when the number of system boot retries exceeds the number specified in [Boot Retry Counter].
Temperature Monitoring	Disabled (Fixed parameter)	Sets whether or not to turn the power off in the event of abnormal temperature.
Memory Scrubbing	Enabled (Fixed parameter)	Sets whether or not to correct errors of memory space that is currently not used by the OS or application programs.
CPU Status	[Enter]	This submenu sets whether or not to allow the use of the installed CPU. →"8.2.13 CPU Status Submenu" (pg.244)
Memory Status	[Enter]	This submenu sets whether or not to allow the use of the installed memory. →"8.2.14 Memory Status Submenu" (pg.245)
Console Redirection	[Enter]	This submenu configures detailed settings for console redirection. →"8.2.15 Console Redirection Submenu" (pg.246)
RomPilot	[Enter]	This server cannot use this.

8.2.13 CPU Status Submenu

Appears when [CPU Status] is selected from the [Server] menu.

This submenu sets whether or not to allow the use of the installed CPU.

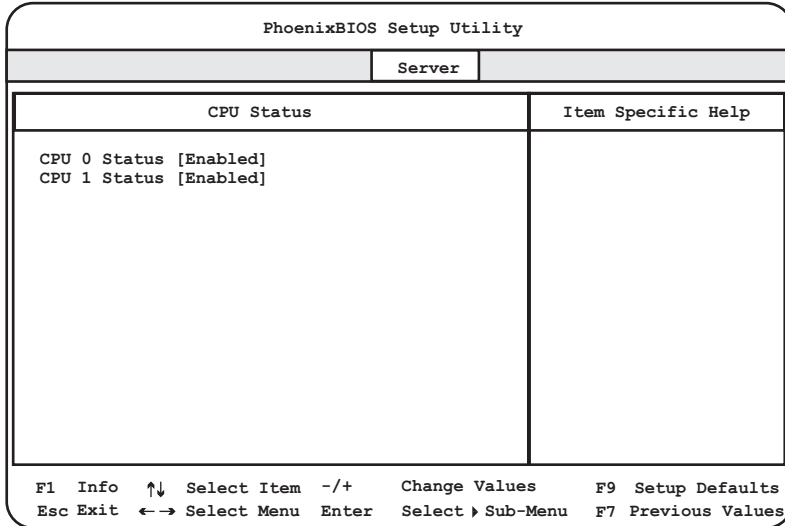


table: Items on the CPU Status Submenu

Item	Setting	Description
CPU 0 Status	Enabled (Fixed parameter)	Sets whether or not to allow the use of CPUs installed in CPU Sockets 0 and 1. If the item is set to [Disabled] or [Failed], change the setting to [Enabled] after replacing the CPU.
CPU 1 Status		

8.2.14 Memory Status Submenu

Appears when [Memory Status] is selected from the [Server] menu.

This submenu sets whether or not to allow the use of the installed memory.

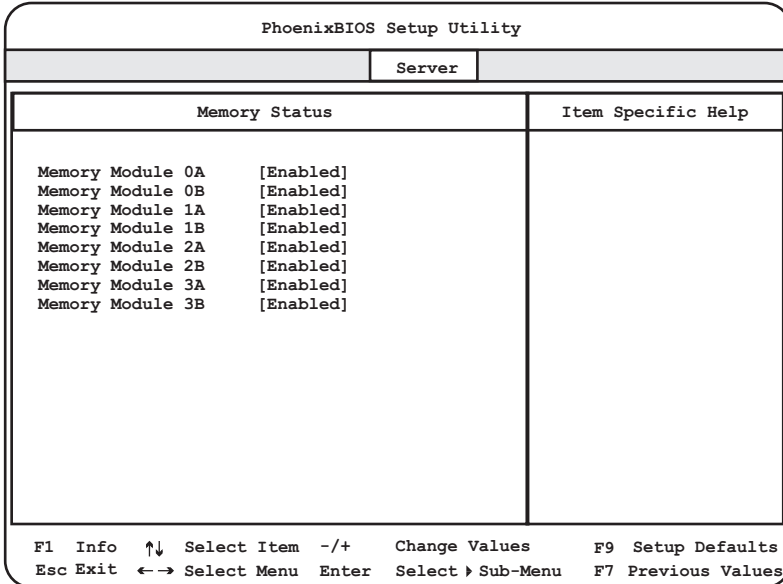


table: Items on the Memory Status Submenu

Item	Setting	Description
Memory Module 0A	Enabled (Fixed parameter)	Sets whether or not to allow the use of memory in Memory Slots 0A to 3B. If [Disabled] or [Failed] is displayed, change the setting to [Enabled] after replacing the memory.
Memory Module 0B		
Memory Module 1A		
Memory Module 1B		
Memory Module 2A		
Memory Module 2B		
Memory Module 3A		
Memory Module 3B		

8.2.15 Console Redirection Submenu

Appears when [Console Redirection] is selected from the [Server] menu.

This submenu configures detailed settings for console redirection.

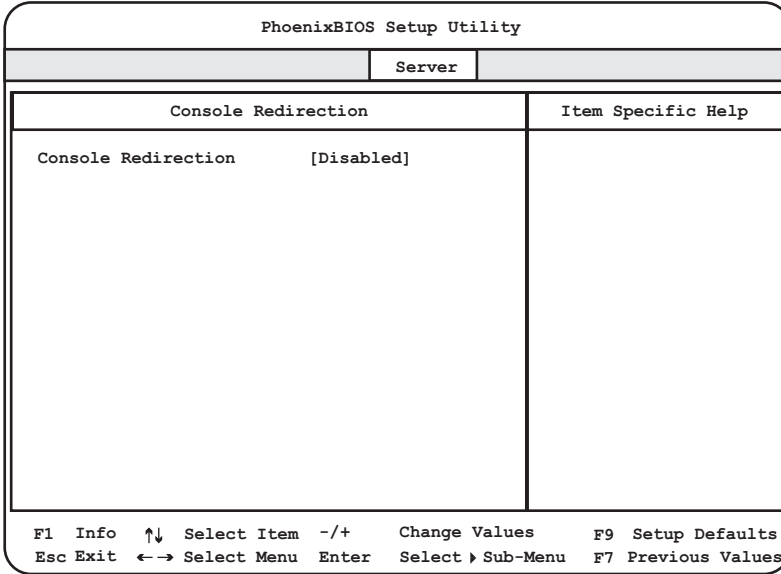


table: Items on the Console Redirection Submenu

Item	Setting	Description
Console Redirection	<ul style="list-style-type: none"> Disabled (at the time of purchase) Enabled 	Sets whether to enable or disable console redirection.
Port	<ul style="list-style-type: none"> Serial 1 (at the time of purchase) Serial 2 	Sets the serial port to be used for console redirection. This item appears when [Console Redirection] is set to [Enabled].
Media Type	<ul style="list-style-type: none"> Serial (at the time of purchase) LAN Serial+LAN 	Sets the connection type for console redirection. This item appears when [Console Redirection] is set to [Enabled]. When [Port] is set to [Serial 2], only [Serial] is displayed. <ul style="list-style-type: none"> Serial Console redirection is performed via the serial port. LAN Console redirection is performed via the LAN. Serial+LAN Console redirection is performed via the serial port and LAN.

table: Items on the Console Redirection Submenu

Item	Setting	Description
Baud Rate	<ul style="list-style-type: none"> • 1200 • 2400 • 4800 • 9600 (at the time of purchase) • 19.2K • 38.4K • 57.6K • 115.2K 	Sets the baud rate for console redirection. This item appears when [Console Redirection] is set to [Enabled].
Protocol	<ul style="list-style-type: none"> • VT100 • VT100, 8bit • PC-ANSI, 7bit • PC-ANSI • VT100+ (at the time of purchase) 	Sets the console type for console redirection. This item appears when [Console Redirection] is set to [Enabled].
Flow Control	<ul style="list-style-type: none"> • None • XON/XOFF • CTS/RTS (at the time of purchase) 	Sets the flow control. This item appears when [Console Redirection] is set to [Enabled].
Mode	<ul style="list-style-type: none"> • Standard • Enhanced (at the time of purchase) 	Sets the range of use for console redirection. This item appears when [Console Redirection] is set to [Enabled].

8.2.16 RomPilot Submenu

Appears when [RomPilot] is selected from the [Server] menu.

This server cannot use this.

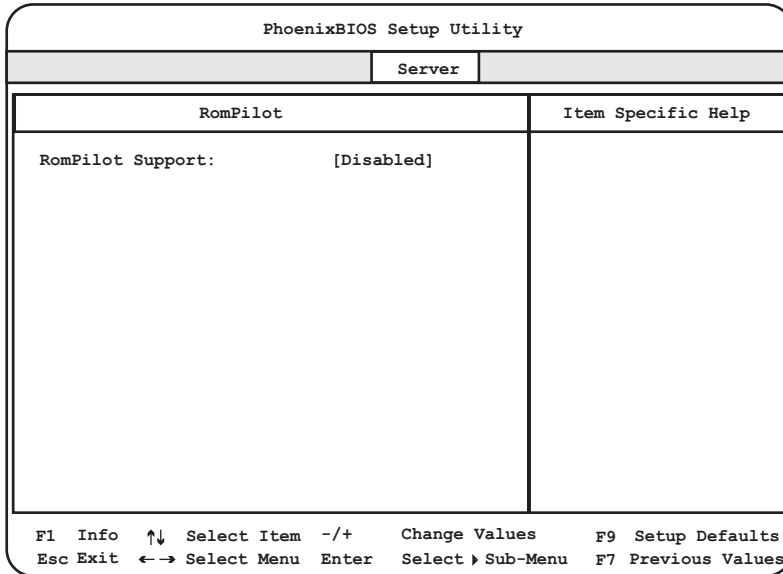


table: Items on the RomPilot Submenu

Item	Setting	Description
RomPilot Support	Disabled (Fixed parameter)	Sets whether or not to use RomPilot.
Reset on lost connection	<ul style="list-style-type: none"> Disabled Enabled (at the time of purchase) 	Sets whether or not to reset the server a few seconds after it was disconnected from the remote console. This item appears when [RomPilot Support] is set to [Enabled].
Connect Timeout	<ul style="list-style-type: none"> Low (at the time of purchase) Medium High 	Sets the wait time taken to try a connection from RomPilot to Front Ends 0 to 2 in sequence when two or more management terminals are specified in Front End 0 to 2 IP. If no connection is established in the set time, an attempt is made to connect to the next Front End. This item appears when [RomPilot Support] is set to [Enabled].
NIC Slot No.	3 (Fixed parameter)	Sets the slot number of a LAN card found by RomPilot. This item appears when [RomPilot Support] is set to [Enabled].
Server Menu	-	Sets the name of a unique server used in RomPilot. This item appears when [RomPilot Support] is set to [Enabled].
Local IP address	-	Specifies the IP address of the onboard LAN. Specifying the IP address reflects the same value as [Local IP address] in the IPMI submenu from the [Advanced] menu. This item appears when [RomPilot Support] is set to [Enabled].

table: Items on the RomPilot Submenu

Item	Setting	Description
Subnet mask/Gateway address	-	Sets the address of the subnet mask and default gateway used in [Local IP address]. This item appears when [RomPilot Support] is set to [Enabled].
Front End n Mode	<ul style="list-style-type: none"> • Disabled (at the time of purchase) • Enabled 	Specifies a type of the terminal used for console redirection with an IP address. Up to three IP addresses are specifiable.
Front End n IP	-	This item appears when [RomPilot Support] is set to [Enabled].

8.2.17 Exit Menu

This menu exits the BIOS Setup Utility.

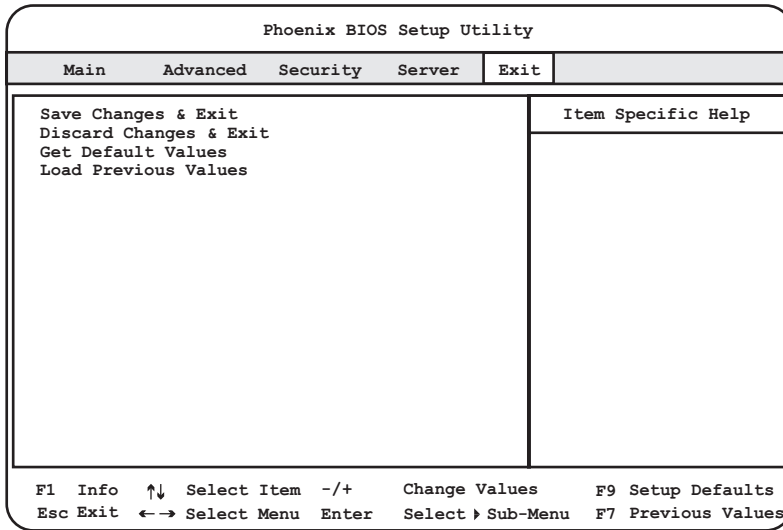


table: Items on the Exit Menu

Item	Description
Save Changes & Exit	Saves the current settings on the CMOS and exits the BIOS Setup Utility. The server restarts at the same time.
Discard Changes & Exit	Exits the BIOS Setup Utility without saving current settings. Previously saved settings remain valid.
Get Default Values	Loads and displays the default settings for the server.
Load Previous Values	Loads and displays the settings that were enabled when the BIOS Setup Utility started up.

Chapter 9

Operation and Maintenance

9

This chapter explains the operations necessary after starting to use this server as well as daily care and maintenance.

9.1	Daily Maintenance	252
9.2	Troubleshooting	256
9.3	System Event Log	273
9.4	Security	277
9.5	Backup	281
9.6	Restoring the System	284
9.7	Reinstalling the OS	286
9.8	Changing OS Settings	287
9.9	Maintenance Service	291

9.1 Daily Maintenance

This section explains how to check the status of the operating server, as well as how to perform daily maintenance.

9.1.1 Checking the Server Condition

Use the status LED or server monitoring tool to check the server status.

■ Checking Each LED

This server is equipped with LEDs that display various hardware conditions.

Check the server status via each LED after starting the server. For positions and functions of each status LED, refer to "1.3 Component Names and Functions" (→pg.22).

■ Server Monitoring Tool (ServerView)

ServerView is software to monitor that the server hardware is in a normal state to protect important server resources. When using ServerView, the server hardware is monitored all the time. If an error that could cause trouble is detected, the administrator is notified in real-time for early detection. This allows the server administrator to remove a system error early and avoid trouble.

For an overview and installation of ServerView and other high reliability tools, refer to "1.2.2 High Reliability Tools" (→pg.19) and "Chapter 6 High Reliability Tools" (→pg.167).

9.1.2 Cleaning

Clean the server and optional devices periodically to prevent failures.



WARNING



- **Electric Shock** Before cleaning, turn off the server and unplug the power cables from the outlets. Also power off peripherals and disconnect them from the server. Failure to do so may cause electric shock (→"1.4.3 Turning Off the Server" (pg.33)).

■ Cleaning the Server

Wipe with a soft, dry cloth. For stains that do not come off with a dry cloth, wipe with a cloth lightly dampened with a mild detergent. Once the stain has been removed, wipe off any remaining detergent with a cloth dampened with water. When wiping the server, be sure that no moisture enters the server machine.

Do not use solvents. Use a mild detergent only. Otherwise, the server may be damaged.

Use a vacuum cleaner periodically to prevent dust buildup in ventilation holes.

POINT

- ▶ In dusty environments, dust piles up on the front and rear panels of the server over short periods. Install the server in a different location to avoid failures.

■ Cleaning the Server Interior

In dusty environments, dust deposits on the server. Dust deposits may cause a server failure, fire, or electric shock. To keep the PRIMERGY server in good condition, use a vacuum cleaner periodically to remove dust deposits.

POINT

Cleaning components

- ▶ CPUs: Dust deposits must be removed because it will impair the cooling performance.
- ▶ Fans: Remove dust from and around the fans.
- ▶ Memory/expansion cards: Remove dust between memory modules and between expansion cards. Remove dust from the connector before adding a memory module or an expansion card.
- ▶ Internal hard disk units/5-inch internal options: Remove dust deposits from units and devices. Tape devices are particularly susceptible to dust and may cause failures. Install them in a clean environment.



WARNING



Electric Shock

- Do not disassemble the PSU when cleaning the server interior. Doing so may cause failures or electric shock.

IMPORTANT

- ▶ Be careful when removing components such as CPUs, memory modules, or hard disk units. Be sure to install parts and cables in the original position.
- ▶ Leaving dust brushed off or blown with air on the server can cause failure. Be sure to take it out of the server.

■ Cleaning the Keyboard

Wipe with a soft, dry cloth.

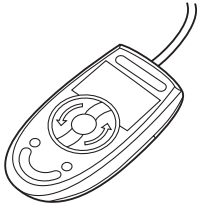
■ Cleaning the Mouse

Wipe the surface with a soft, dry cloth. If the tracking ball does not spin or roll smoothly, remove the ball and clean it.

● Cleaning Method

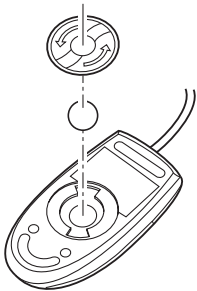
1 Remove the cover from under the mouse.

Remove the cover under the mouse by rotating it in the direction of the arrow.



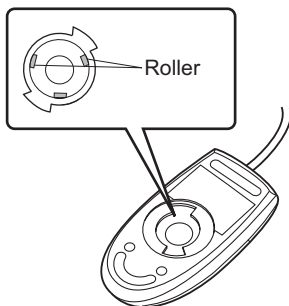
2 Remove the ball and rinse it with water.

Flip the mouse over to remove the ball. Afterwards, wash it with water.



3 Clean the inside of the mouse.

Wipe the inside of the mouse, the roller, and the bottom cover with a damp cloth.



4 Insert the ball and apply the cover.

After the ball and inside of the mouse are dry, insert the ball and apply the cover.

■ Cleaning the Floppy Disk Drive

Prolonged use of the floppy disk drive accumulates dust on the device head (the part which reads/writes data). A dirty head can impair the ability to read/write data to/from a floppy disk correctly. Clean the head once every three months.

■ Optional Devices

For cleaning optional devices, refer to the manual of each device.

9.2 Troubleshooting

This section explains the resolutions when the server is not running properly or when error messages are displayed.

For each situation, refer to the following. If the problem is not resolved after performing the following troubleshooting, contact an office listed in the "Contact Information" of the "Start Guide".

When contacting an office listed in the "Contact Information" of the "Start Guide", refer to "9.9.2 Contacting Maintenance Support" (→pg.291) and collect the required information.

- Hardware problems.
→"9.2.1 Hardware Troubleshooting" (pg.256)
- Error messages.
→"9.2.2 Error Messages" (pg.260)
- Software problems.
→"9.2.3 Software Troubleshooting" (pg.265)

9.2.1 Hardware Troubleshooting

This section explains hardware related troubleshooting. If the server does not operate properly or if a failure is suspected, check the following.

For optional devices, refer to the manual included with the optional device.

■ Server

● **The server does not power on, or the power LED on the front of the server does not light up.**

Check to see whether the power cable is properly connected to the outlet.

For instructions on connecting the power cable, refer to "Start Guide".

● **An error message is displayed.**

Refer to "9.2.2 Error Messages" (→pg.260).

● **When an expansion card is added, other expansion cards or onboard devices are not recognized.**

Reinstall the drivers for the expansion cards or onboard devices that are not recognized.

- **A temperature warning is output to the hardware event log and OS event log, or ServerView issues a notification of a temperature warning such as by a popup message.**

The above log is output or the above notification is issued by ServerView when the ambient temperature is within 30 to 35 °C, which is near the upper limit of the temperature boundaries (10 to 35 °C). This is to notify the administrator before the ambient temperature actually exceeds the range of the temperature boundaries.

Although continued use within the temperature boundaries poses no problems within itself, reconsider the surrounding environment conditions if this log is output or if ServerView issues this notification.

- **POST stops, generating the "Expansion ROM not initialized..." message.**

Change [Reset Configuration Data] on "8.2.5 Advanced Menu" (→pg.230) to [Yes] in the BIOS Setup Utility.

- **The server does not recognize the connected RS-232C device.**

Check that Serial Port 1 is configured as a server management port.

Serial Port 1 can be used as a server management port on this server; however, it cannot be connected to an RS-232C device.

For how to use the server management port, refer to "Appendix C Using the Server Management Port" (→pg.299).

- **Serial ports are not recognized properly in Device Manager.**

This may occur when the Serial 1 and Serial 2 settings are changed with "8.2.6 Peripheral Configuration Submenu" (→pg.231) in the [Advanced] menu of the BIOS Setup Utility. If this occurs, delete all serial ports in Device Manager and restart the system.

■ Display

- **The display does not power on.**

Check to see whether the power cable of the display is properly connected to the outlet. For details, refer to "Start Guide" or the manual of the display.

- **Nothing is displayed on the screen.**

- Check to see whether the display cable is connected properly.

If it is not connected, turn the server off and then connect the cable. For the connection location, refer to "Start Guide".

- Check that the brightness volume and contrast volume of the display are adjusted correctly. If they need to be adjusted, perform the necessary adjustments.

For details, refer to the manual of the display.

- There may be an error in the system area of the memory. Contact an office listed in the "Contact Information" of the "Start Guide".

● **Typing the keyboard does not display any characters, or the mouse cursor does not move.**

Check to see whether the keyboard and mouse are connected properly. If they are not connected, turn the server off and then connect the cables to the server. For the connection location, refer to "Start Guide".

● **The screen shakes.**

If a device that produces a strong magnetic field such as a television or speaker is near the display, place them further away from the display.

The display may also shake if a nearby cell-phone receives a call. Do not use a cell-phone near the display.

● **The screen display is distorted.**

The screen display may be distorted during 3D program execution or the 3D program may terminate abnormally. If this occurs, set Color quality in screen properties to anything other than True Color (32 bits).

■ **Floppy Disk Drive**

● **Cannot read or write to the floppy disk.**

The head may be dirty.

Clean the drive using a cleaning disk.

For cleaning methods, refer to "9.1.2 Cleaning" (→pg.252).

● **Cannot write to the floppy disk.**

The write protection of the floppy disk may be applied. Flip the switch on the disk to allow writing.

■ **CD-ROM Drive Unit**

● **Cannot read data.**

- Check to see whether the CD-ROM is inserted properly.

If it is not inserted, correctly insert the CD-ROM so that the label is facing up.

- Check to see whether the CD-ROM is not dirty.

If it is dirty, wipe it with a soft, dry cloth.

- Check to see whether the CD-ROM is not scratched or bent.

If scratched or damaged, replace the CD-ROM.

● **The unit does not operate properly.**

Check to see whether the internal cable is connected properly.

If it is not connected, correctly connect the internal cable. For the connection location, refer to "7.11 Connection of an Optional Devices" (→pg.216).

■ SCSI Device (Internal/External)

● The unit does not operate properly.

- Check to see whether the internal cable is connected properly.
If it is not connected, correctly connect the cable.
- Check to see whether the SCSI IDs and terminator are set properly.
If they are not set, correctly set the SCSI ID and terminator.

9.2.2 Error Messages

This section explains the error messages for this server.

■ POST Error Messages

When an error occurs during POST (Power On Self Test: a device check performed during the server startup process) on this server, take the corresponding corrective actions described in the table below.

table: List of POST error messages

Message	Description
Failure Fixed Disk 0	From the BIOS Setup Utility, check the [IDE Drive1 - 4] setting of "8.2.2 Main Menu" (→pg.226) or the [Local Bus IDE adapter] setting of the [Advanced] menu -"8.2.6 Peripheral Configuration Submenu" (→pg.231). If the message still appears, contact an office listed in the "Contact Information" of the "Start Guide".
Failure Fixed Disk 1	
Fixed Disk Controller Failure	
Keyboard controller error	The keyboard is abnormal. Replace the keyboard or mouse. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
Keyboard error	Check to see whether the keyboard is connected properly. If the message still appears, the keyboard must be replaced.
Keyboard error nn	Remove objects, if any, that are pressing against any keys on the keyboard. ("nn" is a hexadecimal code representing the key.) Check to see whether the keyboard is connected properly. If the message still appears, the keyboard must be replaced.
Stuck Key nn	
Keyboard locked - Unlock key switch	Check to see whether the keyboard is connected properly. If the message still appears, the keyboard must be replaced.
Monitor type does not match CMOS - Run Setup	An invalid monitor type is set. Contact an office listed in the "Contact Information" of the "Start Guide".
Critical memory error occurred - system halted	The memory is abnormal. Stop the server once, then restart it. If the message still appears, check the error log and replace the faulty memory.
Extended RAM Failed at offset: nnnn	
System RAM Failed at offset: nnnn	
Shadow RAM Failed at offset: nnnn	
Memory type mixing detected	The installation configuration of the memory is wrong. Verify that the same type of memory is installed to the slots of the same bank. If the memory is properly installed, it needs to be replaced.
Hot Spare Memory Feature could not be enabled	The hot spare memory function cannot be enabled. Check that all the memory modules that are installed are all of the same capacity. If the message still appears even though the installation is correct, the memory or baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
Correctable memory error in module x	The memory is abnormal. Replace the memory module that corresponds to "module n" (where n is the slot number).
Uncorrectable memory error in module x	
Memory decreased in Size	Power off the server and turn it back on. If the message still appears, check the error log and replace the faulty memory.

table: List of POST error messages

Message	Description
One or more RDRAM devices are not used	The memory is abnormal. If memory that is not supported by this server is installed, replace it with supported memory.
One or more RDRAM devices have bad architecture/timing	
One or more RDRAM devices are disabled	
There are more than 32 RDRAM devices in the system	
Non Fujitsu Siemens Memory Module detected Warranty void!	The memory is abnormal.
System battery is dead - Replace and run SETUP	The memory is abnormal. Contact an office listed in the "Contact Information" of the "Start Guide".
System CMOS checksum bad - Default configuration used	The CMOS is abnormal. Correct the current settings with the BIOS Setup Utility or configure the settings at the time of purchase.
Password checksum bad- Passwords cleared	The set password is incorrect. Reset the password using the BIOS Setup Utility.
System timer error	Stop the server once, then restart it. If the message still appears, the keyboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
Real time clock error	Enter the correct time on the "8.2.2 Main Menu" (→pg.226) of the BIOS Setup Utility. If the message still appears, the keyboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
Check date and time settings	Check the date and time setting on the "8.2.2 Main Menu" (→pg.226) of the BIOS Setup Utility. If the same error occurs frequently, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
Previous boot incomplete - Default configuration used	Be sure to perform the following operation. Failure to do so may result in the OS not starting or the server not operating correctly. Press the [F2] key to start the BIOS Setup Utility. (Do not press the [F1] key.) Select [Save Changes & Exit] in "8.2.17 Exit Menu" (→pg.250) and press the [Enter] key. If message "Save configuration changes and exit now?" appears, use the [←] [→] keys to move the cursor to [Yes] or [No], and press the [Enter] key. The BIOS Setup Utility closes and the server restarts. After this, start the system as usual.
Memory Size found by POST differed from EISA CMOS	Power off the server and turn it back on. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
CPU mismatch detected	Check the CPUs before and after replacement in order to install the correct CPU. If the message still appears after the correct CPU was installed, change the [Reset Configuration Data] setting to [Yes] on the "8.2.5 Advanced Menu" (→pg.230) of the BIOS Setup Utility.
Available CPUs do not support the same bus frequency- system halted	CPUs with varying frequencies are installed. If the message still appears after the correct CPU was installed, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".

table: List of POST error messages

Message	Description
Diskette drive A error	Check the settings of [Diskette A] or [Diskette B] on the "8.2.2 Main Menu" (→pg.226) of the BIOS Setup Utility. Check to see whether the floppy disk drive cable is connected properly.
Diskette drive B error	
Incorrect Drive A - run SETUP	Correct the settings of [Diskette A] or [Diskette B] on the "8.2.2 Main Menu" (→pg.226) of the BIOS Setup Utility.
Incorrect Drive B - run SETUP	
System Cache Error - Cache disabled	Stop the server once, then restart it again. If the message still appears, check the error log and replace the CPU if it is at fault. Or the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
System memory exceeds the CPU's caching limit	
EISA CMOS not writable	Power off the server and turn it back on. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
DMA Test Failed	
Software NMI Failed	
Fail-safe Timer NMI Failed	
Verify CPU Frequency selection in Setup	Power off the server and turn it back on. If the message still appears, check the error log and replace the CPU if it is at fault. Or the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
System Management Configuration changed	If this is displayed right after changing the hardware configuration, disregard it. If the same message is displayed again, change the [Reset Configuration Data] setting to [Yes] on the "8.2.5 Advanced Menu" (→pg.230) of the BIOS Setup Utility.
Invalid System Configuration Data	Change [Reset Configuration Data] on the "8.2.5 Advanced Menu" (→pg.230) to [Yes] in the BIOS Setup Utility.
Invalid System Configuration Data - run configuration utility	
Patch for installed CPU not loaded. Please run the bios flash update diskette.	Contact an office listed in the "Contact Information" of the "Start Guide".
The system performed an emergency shutdown.	The system shut down due to some reason; refer to the event log for details.
Manually-operated Retention Latch is not closed at Hot-Plug PCI slot n	The latch of the PCI slot is opened. Close the latch.
CNR Plug and Play EEPROM contents are damaged.	A CNR error. Power off the server and turn it back on. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
CNR version newer than motherboard, some CNR functionality may be lost.	
CNR and AC97 Version do not match, AC97 functionality of CNR ignored.	
Illegal AC97 configuration, AC97 Audio and Modem functions disabled.	
Illegal AC97 configuration, AC97 Modem function disabled.	
CNR LAN Interface not compatible with Motherboard, LAN function disabled.	
USB version required by the CNR is not supported by the motherboard. The CNR USB functions will operate at lower spe	
CNR EEPROM PCI Configuration data size mismatch	

table: List of POST error messages

Message	Description
BIOS update for installed CPU failed	Contact an office listed in the "Contact Information" of the "Start Guide".
CPU ID 0n failed	Change [CPU n Status] (n: CPU number) on the "8.2.13 CPU Status Submenu" (→pg.244) to [Yes] in the BIOS Setup Utility. Afterwards, replace the faulty CPU.
Invalid NVRAM media type	The NVRAM is abnormal. Power off the server and turn it back on. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
Missing or invalid NVRAM token	
Operating system not found	The OS to start cannot be found. Check to see whether an unnecessary floppy disk has been inserted, the cables of each device are connected correctly, or whether the OS is recognized by POST. Check the Boot Sequence setting on the "8.2.4 Boot Options Submenu" (→pg.228) of the BIOS Setup Utility in the [Main] menu. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
Parity Check 1	Power off the server and turn it back on. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
Parity Check 2	
Unknown PCI Error	Replace the expansion card. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of the "Start Guide".
Fault Status Asserted on PCI hot plug slot	The slide lock of PCI slot 1 or 2 may be opened. Check whether or not the slide lock is closed. If the PCI slot is closed, contact an office listed in the "Contact Information" of the "Start Guide".

■ Server Management Tools Error Messages

The following error messages may appear while executing Server Management Tools. Perform the corresponding resolution listed in the table. If messages other than the following are displayed, contact an office listed in the "Contact Information" of the "Start Guide".

table: List of Server Management Tools Error Messages

Message	Description
Write protect error writing drive A. Abort, Retry, Fail?	The inserted floppy disk is write-protected. Disable the write-protect, and then press the [R] key.
Not ready writing drive A. Abort, Retry, Fail?	The floppy disk is not inserted into the floppy disk drive. Insert the proper floppy disk ("Server Management Tools" floppy disk), and then press the [R] key.

table: List of Server Management Tools Error Messages

Message	Description
ERROR:Fail to create data file.	<p>The following are possible causes. Check the floppy disk status again.</p> <ul style="list-style-type: none"> • The floppy disk is write-protected. Disable the write-protect and retry. • The floppy disk is not inserted into the floppy disk drive. Insert the proper floppy disk, and then retry. • The floppy disk contains abnormal contents. Create the "Server Management Tools" floppy disk again. If this occurred while recovering BIOS information, configure the information using the BIOS Setup Utility. Then store the BIOS information.
ERROR:Fail to write 1st CMOS data into data file. nn	
ERROR:Fail to write 2nd CMOS data into data file. nn	
ERROR:Fail to write ESCD data into the data file. nn	
ERROR:Fail to write SEEPROM data into the data file. nn	
ERROR:Fail to open data file.	The file for recovering the BIOS information does not exist on this floppy disk. Insert the floppy disk on which the BIOS information was stored, and then retry.
ERROR:Fail to write 1st CMOS data into system. nn	<p>The following are possible causes. Check the floppy disk status again.</p> <ul style="list-style-type: none"> • The floppy disk is not inserted into the floppy disk drive. Insert the proper floppy disk, and then retry. • A different model or an unsupported version of BIOS information. Insert the proper floppy disk, and then retry. • The floppy disk contains abnormal contents. Create the "Server Management Tools" floppy disk again. If this occurred while recovering BIOS information, configure the information using the BIOS Setup Utility. Then store the BIOS information.
ERROR:Fail to write 2nd CMOS data into system file. nn	
ERROR:Fail to write ESCD data into system file. nn	
ERROR:Fail to write SEEPROM data into system. nn	
Other messages	Contact an office listed in the "Contact Information" of the "Start Guide".

9.2.3 Software Troubleshooting

This section explains software related troubleshooting. For troubles during OS installation or system operation, refer to the following contents.

■ Trouble at a ServerStart Startup

● After a boot from the ServerStart CD-ROM, nothing is displayed on the screen.

This problem may occur if the hard disk drive still contains previous information. In that case, this problem will occur when the Windows Server 2003 Installation CD-ROM is inserted.

To eliminate this problem, physically format the hard disk drive to delete the previous information and start up ServerStart. For the physical format, refer to "PRIMERGY RX300 S2 Onboard SCSI RAID User's Guide".

■ Trouble during OS Installation

● Automatic logon is not performed during Windows 2000 setup.

During OS installation, ServerStart installs applications and hardware utilities supplied with the OS. Installation and subsequent restart and logon are performed automatically as necessary. In rare cases, however, automatic logon is not performed and the logon window appears. In this window, use the user name and password you have set before starting installation. After logon, the setup procedures are continued.

● Automatic installation stopped at an entry screen during Active Directory configuration.

If automatic installation has stopped during Active Directory configuration, check the error message first. Automatic installation can stop when the password is required, such as when registration in DNS fails. Check the environment and continue the installation manually. If the problem is not solved, click [Cancel] and after the OS installation, manually configure Active Directory.

If you have continued the Active Directory installation wizard manually, the following message appears when the installation wizard closes.

"You must restart Windows to make the settings in the Active Directory installation wizard effective."

When this message appears, click [Restart] to continue the installation.

■ Error Messages during Installation

The following error messages may appear during installation using ServerStart. Check the corrective action against the relevant error.

● "WzDiskAdmin: System Error!, Last Error: The device is not ready." appears.

Optional SCSI devices (e.g., hard disk cabinet, MO disk unit, or DAT unit) may be connected. Disconnect the optional SCSI devices and perform installation again. Connect the optional devices after the installation completes.

● "WzDiskAdmin: Partition detected! Please delete all partition before starting Configuration" appears.

Run the guide or preconfiguration mode again. Check [Delete all partitions on the displayed disk] in the disk wizard.

● "WzRaid: RAID arrays detected! Please delete all RAID arrays before starting Configuration" appears.

Use the ServerStart floppy disk you have created. Check [Delete existing RAID array] or select [Use existing array] in the RAID wizard.

● "Operating System not found" appears when the system restarts after file copy from the CD-ROM.

The following are possible causes. Check them.

- The array controller card comes later than the onboard SCSI array controller in order of device startup.
- The Active flag is specified.
- The BIOS setting of the RAID card connected to the internal hard disk unit is set to [Disable]. For details on the BIOS setting of the RAID card, refer to the user guide supplied with the RAID card.

● "Missing Operating System" appears during installation.

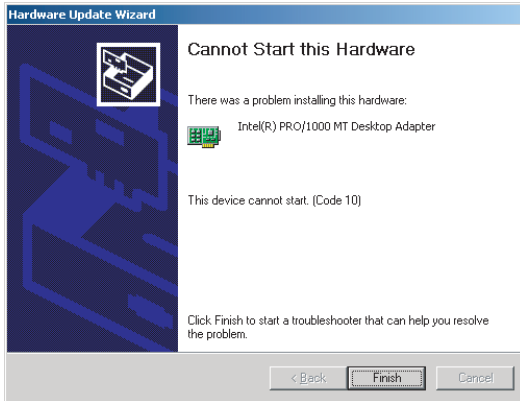
The installation partition size may be too large. Specify the installation partition size correctly. For details on the installation partition size, refer to "2.3.1 Installation Partition Size" (→pg.47).

● "Error 1920. Service (PXE Services) failed to start" appears during preconfigured installation.

The system installed with the preconfigured settings (PXE server) may not be connected to the network. Check the LAN cable connection and click [Rerun].

■ Error Window Appears after LAN Driver Installation (on Windows Server 2003)

The following window may appear when the installation of the LAN driver to the [Ethernet controller] under [Other devices] starts.



This is because the LAN driver for the network adapter recognized immediately after the OS installation is not updated.

Clicking [Finish] in this window displays the [Help and Support Center] window. Click [X] to close this window.

The "!" mark is displayed at the LAN device name in Device Manager. Device names are displayed properly when all LAN drivers are installed and the system is restarted.

For details on LAN driver installation, refer to "4.3.1 Installing the LAN Driver (Windows Server 2003)" (→pg.124).

■ LAN Operation Fails or Error Message Appears during LAN Driver Installation

A conflict may have occurred between system resources including the LAN and other expansion cards. Delete all LAN drivers and check that conflicts between system resources do not exist. Then, restart the system and install the LAN drivers.

→"4.3 Installing the LAN Driver" (pg.124)

■ Event Log Errors after Installation

After installation, the following events may be displayed in Event Viewer.

Check and perform the corrective action against the relevant event.

table: Error events at installation

ID	Description	Cause and corrective action
9	The device nnnn, did not respond during the timeout time.	This message may appear when an expansion card such as a RAID card or a SCSI card is installed. However, this is not a problem.
15	The device, nnnn, is not ready for access yet.	
62	This computer is a domain PDC at the root of forest. Use the net command "net time /setsntp:<server name>" to configure it for synchronization from an external time source.	<p>Cause: An NTP was selected as a component.</p> <p>Corrective action: ServerStart cannot configure the NTP server automatically due to the absence of items for specifying it. After OS installation, perform the following procedure to specify the time server.</p> <ol style="list-style-type: none"> 1. Start SNTP server operation on another machine. Assume that the SNTP server address is <172.22.78.246>. 2. Enter the following at a command prompt. net time /setsntp:172.22.78.246 w32tm -s 172.22.78.246
1000	The user or computer name cannot be identified. The return value is "1722".	<p>Cause: The primary DNS server address may be invalid or the server cannot be connected.</p> <p>Corrective action: Perform the following procedures to correct the DNS address in Internet protocol (TCP/IP) properties.</p> <ol style="list-style-type: none"> 1. Right-click [My Network] and click [Properties]. 2. Right-click [Local Area Connection] and click [Properties]. 3. Click [Internet Protocol (TCP/IP)] and click [Properties]. 4. Enter the correct DNS address in the [Primary DNS server] box.

■ Cannot collect the memory dump

If the memory dump file cannot be created, perform the following procedures.

● Correct the settings

If the memory dump cannot be collected, check the settings of the paging file and memory dump file.

For setting procedures, refer to "5.1 Memory Dump/Paging File Setting" (→pg.130).

● Collect memory dump to other than the system drive

If the memory dump was set to be collected to the system drive (C:\), change the settings so that the memory dump can be saved to a drive other than the system drive.

For setting procedures, refer to "5.1 Memory Dump/Paging File Setting" (→pg.130).

If only the system drive exists, or if there is no free space in any of the drives, perform one of the following:

- Adding a hard disk
- Replacing with a larger hard disk

● Reduce the installed memory to collect the memory dump

To obtain memory dump regardless of the installed memory size, reduce the installed memory to an obtainable size.

Check the memory dump settings when changing the installed memory size.

For setting procedures, refer to "5.1 Memory Dump/Paging File Setting" (→pg.130).

● Change the write type of the debugging information (Windows Server 2003/Windows 2000 Server)

If the memory dump cannot be collected, select a write type of debugging information within the range of free space of the volume size.

If the above does not provide a solution, try increasing the size of the hard disk or adding an additional hard disk.

■ Restore the System

In the unfortunate event where the system file, system configuration, or environment changes during startup are corrupted, use the repair information stored on the recovery disk created at the installation to restore the system.

For restoration procedures, refer to the following.

- "9.6.1 For Windows Server 2003" (→pg.284)
- "9.6.2 For Windows 2000 Server" (→pg.285)

■ Fails in Remote Installation

If remote installation fails, check the following.

● Checking Services

Check that the DHCP, PXE Service, and TFTP Service are running.

For checking procedures, refer to "3.4 Remote Installation" (→pg.87).

● Setting TFTP

To access TFTP Service, add a Guest account to the TFTP folder and set appropriate access rights.

For setting procedures, refer to "3.4 Remote Installation" (→pg.87).

● Checking Network Function Settings

The server must support network function (PXE).

For setting procedures, refer to "● Performing Remote Installation" (→pg.44) in "2.1.2 Hardware Settings".

● Checking the MAC Address

Check that the current MAC address is the correct MAC address of the server.

For the MAC address checking procedure, refer to "● Performing Remote Installation" (→pg.44) in "2.1.2 Hardware Settings".

● Checking LAN Cable Connection

Check that the LAN cable is connected to the LAN card corresponding to the specified MAC address and that the LAN card is connected to the network.

■ SNMP Service Startup Fails

Regardless of whether the Simple Network Management Protocol (SNMP) is installed, if the SNMP service is not started, perform the following procedure to start the SNMP service.

● For Windows Server 2003

- 1 Click [Start] → [Administrative Tools] ← [Computer Management].
- 2 Select [Services] from the [Services and Applications] menu.
- 3 From the details, select [SNMP Service].
- 4 Select [Start] from the [Action] menu.

● For Windows 2000 Server

- 1 Right-click the [My Computer] icon on the desktop and click [Manage] from the displayed menu.
- 2 Select [Services] from the [Services and Applications] menu.
- 3 From the details, select [SNMP Service].
- 4 Select [Start] from the [Action] menu.

POINT

- ▶ To have the service automatically started each time the OS starts, double-click [SNMP Service] from the details, and select [Automatic] for the [Startup type] setting on the displayed window.

■ Time Display in Linux OS Environment

● Difference in Time between the OS and the Hardware Clock

During OS operation in a Linux environment, the software clock on the OS, rather than the hardware clock in the server, is used to display the time.

This may cause a difference in time between the OS and the hardware clock.

When you want to see the accurate time on the OS, it is recommended to use the NTP service to periodically correct the time displayed on the OS.

● Changing the Time Settings for the OS and Hardware Clock

In a Linux environment, the time displayed on the OS (the software clock value on the OS) is written to the hardware clock on the server when the OS is shut down.

- Procedure for prohibiting the time on the OS from being written to the hardware clock
When you do not want the time on the OS to be written to the hardware clock at an OS shutdown, comment the following line out in `/etc/rc0.d/S01halt`.

```
runcmd $"Syncing hardware clock to system time" /sbin/hwclock $CLOCKFLAGS
```

↓

```
#runcmd $"Syncing hardware clock to system time" /sbin/hwclock $CLOCKFLAGS
```

- Procedure for reflecting the hardware clock value to the time on the OS
To reflect the hardware clock value to the software clock value on the OS, run the following command.

```
>hwclock --hctosys
```

9.3 System Event Log

To operate system event log, use Server Management Tools.

POINT

- ▶ When the area for writing to the system event log is full, the server is set to automatically overwrite older event logs. For details on this setting, refer to "8.2.10 IPMI Submenu" (→pg.238) under the [Advanced] menu of the BIOS Setup Utility.

9.3.1 How to Use Server Management Tools

This section explains how to use Server Management Tools.

Server Management Tools performs the following against the system event log of the Baseboard Management Controller (BMC: a micro-controller used for managing the baseboard environment, such as its temperature and voltage sensors).

- Viewing the System Event Log
- Saving the system event log
- Deleting the system event log

When a system event log occurs, save the log using Server Management Tools and contact an office listed in the "Contact Information" of the "Start Guide".

IMPORTANT

- ▶ The Server Management Tools disk supplied with this server is exclusively for this server. Do not use those tools on other systems. If it is used, the system can be damaged.
- ▶ Run Server Management Tools when the server is operating. Refer to "■ Starting Server Management Tools" (→pg.273). Do not run this tool on the server started from the hard disk drive or other floppy disks. Otherwise, the system may be corrupted.
- ▶ Do not eject the floppy disk when the floppy disk access LED is on. Doing so may destroy the data on the floppy disk.

■ Starting Server Management Tools

IMPORTANT

- ▶ Before starting the system from the "Server Management Tools" disk, check to see that the "OS Boot Monitoring" function of ServerView is disabled (default setting).
If the system is started with this function enabled, the server may automatically turn off or restart improperly.
If the "OS Boot Monitoring" function is needed, it should be reset to enabled before resuming normal server operation. For details of ServerView, refer to "ServerView User's Guide".

- 1 Insert the "Server Management Tools" disk supplied with this server and turn the power on.

The system will boot from the floppy disk and the DOS prompt is displayed.

- 2 Enter the following command and press the [Enter] key.

```
A:\SMTOOL>IPMIVIEW.EXE
```

The menu window of Server Management Tools appears.

```

FUJITSU
SIEMENS      IPMI-Tool - Vx.xx
COMPUTERS

General Information
Temperature Information
Fan Information
Voltage Information
System Event Log (SEL)
FRU Information (ID Proms)
User Management
LAN Configuration
Server Management Control Settings

<↑ ↓> Select   <ENTER> Start   <ESC> Exit

```

IMPORTANT

- ▶ Only the following functions are supported by Server Management Tools.
 - System Event Log (SEL)
 - User Management
 - LAN Configuration

■ Exiting Server Management Tools

- 1 Press the [Esc] key once in the menu window of Server Management Tools.

The power can be turned off when the DOS prompt is displayed.

9.3.2 Viewing the System Event Log

Viewing the system event log is performed from System Event Log (SEL) of Server Management Tools.

1 Start Server Management Tools.

The menu window of Server Management Tools appears.

2 Use the [↑] and [↓] keys to select [System Event Log (SEL)], and press the [Enter] key.

The [SYSTEM EVENT LOG (SEL)] window appears.

```

FUJITSU
SIEMENS          SYSTEM EVENT LOG (SEL)
COMPUTERS

004 MMM-DD-YYYY HH:MM:SS [*****] *****
003 MMM-DD-YYYY HH:MM:SS [*****] *****
002 MMM-DD-YYYY HH:MM:SS [*****] *****
001 MMM-DD-YYYY HH:MM:SS [*****] *****
000 MMM-DD-YYYY HH:MM:SS [*****] *****

<↕↔,PgUp/Dn,(Ctrl-)Home/End> Move <F2> SaveToFile <F3> Clear <ESC> Exit

```

3 Use the following key operations to scroll the window and check the contents.

[↑], [↓], [←], [→], [Page Up], [Page Down], [Ctrl] + [Home], [Ctrl] + [End]

4 To exit the system event log, press the [Esc] key.

9.3.3 Saving/Deleting the System Event Log

When the system event log is full, the oldest log is overwritten with the newest log. Periodically check the system event log and save/delete as necessary.

■ Saving the System Event Log

1 Start Server Management Tools.

The menu window of Server Management Tools appears.

2 Use the [↑] and [↓] keys to select [System Event Log (SEL)], and press the [Enter] key.

The [SYSTEM EVENT LOG (SEL)] window appears.

3 Press the [F2] key.

4 Enter the name of the file to save the system event log to, and press the [Enter] key.

The system event log is saved to the floppy disk under the specified file name.

■ Deleting the System Event Log

1 Start Server Management Tools.

The menu window of Server Management Tools appears.

2 Use the [↑] and [↓] keys to select [System Event Log (SEL)], and press the [Enter] key.

The [SYSTEM EVENT LOG (SEL)] window appears.

3 Press the [F3] key.

A confirm delete window appears.

4 Press the [Enter] key.

This deletes the system event log.

POINT

- ▶ Selecting [System Event Log (SEL)] right after deleting the system event log will result in an error. Allow approximately 10 seconds to select it normally.

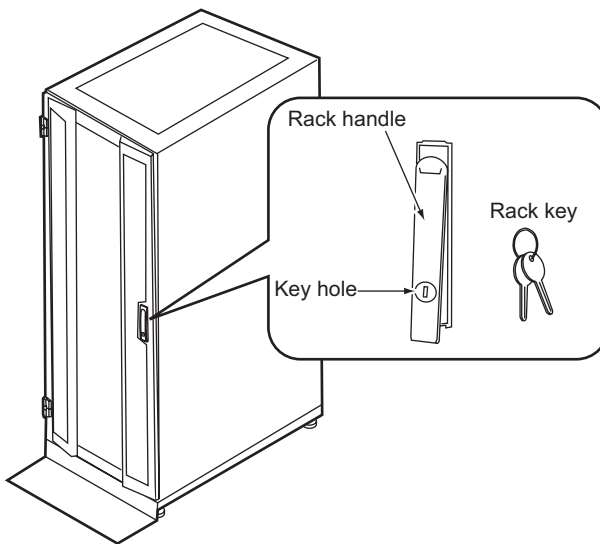
9.4 Security

Security features are provided in order to protect the server hardware and software from theft. Additional security functions, which prevent unauthorized use, provided by the BIOS Setup Utility are also available to help maintain a highly reliable data security system.

9.4.1 Hardware Security

Lock the rack door to protect the hardware in the rack from theft or tampering.

To close the rack door, shut the door and return the rack handle, and turn the rack key.



POINT

- ▶ Do not lose the rack key. If the key is lost, contact an office listed in the "Contact Information" of the "Start Guide".
- ▶ For instructions on opening the rack door, refer to "1.4.1 Opening the Rack Door" (→pg.29).
- ▶ The above explanation is based on the 40U standard rack. For details on other rack systems, refer to their respective manuals.

9.4.2 Security against Unauthorized Use

A password can be set to prevent unauthorized use of the server.

When a password is set, the server is accessible only to the users who know the password.

The password is set in the BIOS Setup Utility. For details on the BIOS Setup Utility, refer to "8.2.11 Security Menu" (→pg.240).

■ Password Types

The following two types of password can be set in this server.

The password types define the privileges of server operations.

● System Password (Administrator Password)

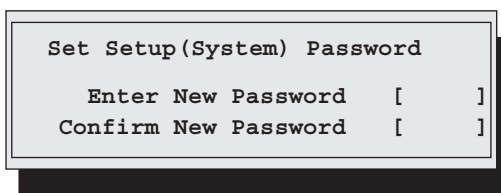
This is the password that allows specific persons to access the BIOS setup. Unless the set password is entered, the BIOS setup cannot be accessed and the OS cannot be booted.

● Setup Password (User password)

This is the password that allows specific persons to use the server. Unless the set password is entered, part of the BIOS setup cannot be accessed and the OS cannot be booted.

■ Setting a Password

- 1** Start the BIOS Setup Utility.
→"8.2.1 Starting and Exiting the BIOS Setup Utility" (pg.223)
- 2** Use the [←] [→] keys to select [Security] from the [Main] menu.
The [Security] menu appears.
- 3** Use the [↑] and [↓] keys to move the cursor to [Set System Password] or [Set Setup Password], and press the [Enter] key.
The password entry window appears.



- 4** Enter the password in the [Enter New Password] field.
Alphanumeric characters can be used. Blocks are displayed instead of the letters entered. To cancel the password setting, press the [Esc] key.
- 5** In the [Confirm New Password] field, enter the password you have entered in Step 4 and press the [Enter] key.
[System Password] or [Setup Password] on the [Security] menu shows [Installed].

POINT

- ▶ When only the user or administrator password is set, the same setting items are accessible to both users and administrators.
- ▶ When both passwords are set, users can set dates and user passwords only.

■ Deleting / Changing Password

To delete or change a password, select [Set System Password] or [Set Setup Password] from the [Security] menu.

Set Setup(System) Password		
Enter Current Password	[]
Enter New Password	[]
Confirm New Password	[]

- 1** Enter the current password in the [Enter Current Password] field in the password entry window.
- 2** Enter a new password in the [Enter New Password] field.
To delete the password, enter nothing and perform Step 4.
- 3** In the [Confirm New Password] field, enter the password you have entered in Step 2.
To delete the password, enter nothing and perform Step 4.
- 4** Press the [Enter] key.
When you delete the password, [System Password] or [Setup Password] on the [Security] menu shows [Not installed].

POINT

- ▶ The system shuts down after three invalid password entries. If this happens, power off the server, turn it back on, and then enter the correct password.
- ▶ If you forgot your password and cannot start the server, change the switch block setting on the baseboard to reset the passwords (→"8.1 Switch Block Settings" (pg.222)). Then return the switch block to the original setting, and then set the password using this utility.

9.4.3 Security When Disposing the Server

■ Notes regarding the Deletion of Data from the Hard Disk When Disposing or Transferring the Server

When disposing or transferring a server that has been used, the data in the hard disk may be read and used unscrupulously. To prevent confidential or important data from leaking out, the data on the hard disk must be wiped before disposing of or transferring the server.

However, wiping the hard disk is not an easy task. Simply initializing (formatting) the hard disk or deleting the files may give the pretense that the data no longer exists, but in reality the data is simply no longer accessible to the OS, and it is still accessible to malicious individuals that can restore the data. Therefore, if confidential or important data is saved to the hard disk, in addition to the operations mentioned above, it is recommended to use third-party tools or services to wipe the data completely from the disk to prevent its restoration.

When disposing of or transferring the server, it is the customers responsibility to wipe data contained in the hard disk in order to prevent such important data from leaking.

Also, if software license agreements prohibit unauthorized distribution of software (OS or application software), transferring the server without removing the software may violate the license agreements. These issues must be taken into consideration.

9.5 Backup

This server utilizes high reliability components and hard disks, however, as a precautionary measure, it is recommended that periodic backups be taken of the data.

9.5.1 Importance of Backups

A backup of data stored on the server is required for data restoration in the event of server trouble resulting in a system failure or accidental data loss due to operational errors.

If the data on the server is backed up, it can be restored from the backup data in the event of data corruption in hard disk units due to hardware failures or operational errors. If backups are not made, restoration is impossible and your important data will be lost permanently. For anxiety-free system operation, be sure to perform periodic backups of the system.

9.5.2 Backup Devices, Software and Their Operations

Backup operations differ depending on network operating systems, applications, and system operations. Contact an office listed in the "Contact Information" of the "Start Guide" and make backups using the following items.

- Backup device (e.g., DAT72 unit)
 - Backup software
(Standard backup software supplied with the OS, e.g., ARCserve, Changer Option)
 - Backup operations (schedules)
- Use our genuine backup devices and software. Observe the backup medium (tape) storage conditions.

■ Notes on Operating Backups

Notes on operating backups are as follows.

For details, refer to the device manuals.

● Head Cleaning

Airborne dust and dust from the magnetic media can collect on the head of the magnetic tape device. To remove this dust, head cleaning must be implemented. Implement head cleaning when the device displays a cleaning request. Particularly DDS devices require periodic head cleaning, otherwise dust can cling to the magnetic head, creating a situation that cannot be cleaned with standard head cleaning methods, and eventually render the device useless.

Also note that the cleaning media has a limit to how many times it can be used. Manage its lifespan. Using cleaning media that exceeded its lifespan will have no cleaning effect. Note these points especially when performing automatic backups with library devices.

● **Managing Media Lifespans**

Media is a consumable product that must be replaced regularly.

Continued use of media exceeding its lifespan can have negative effects on the device (e.g. increase the speed of dust accumulation).

The lifespan of media varies depending on the environment and operation condition of the device, the type of backup software used, and other operation conditions, however, it is recommended that they be replaced sooner than later.

To manage the lifespan, write the use start date on the media.

● **Rotating Media**

When using a single media cartridge repeatedly, backup data can be temporarily lost in the event the backup fails. Or if the hard disk were to fail during a backup, the data will become unrecoverable.

Rotate between several media for backups.

● **Avoid Leaving Media in Devices**

Because the magnetic recording surface of the device is exposed, media can easily be affected by airborne dust when left inserted for a long period of time. Insert the media before using it, and remove the media after use, and restore it in its case.

Also note that some tape devices write management information to the tape when ejecting the media. If the power were to go out when the media is still in the device, this writing process will not be performed and the media may become corrupted.

To avoid this, remove the media from the device when turning off the server/device.

● **Verifying Data after a Backup**

Some backup software products provide data verification functions after a backup is completed. Such functions will read and verify the data written to the media after a backup is completed. This will increase the usage of the media, thus reducing the number of times it can be used for backups.

Depending on the hardware being used, some devices perform "read after write" operations on data; note the points of this section as necessary.

● **Ejecting Media after a Backup**

Some backup software products provide functions for ejecting media after a backup is completed. Such functions will rewind the tape after a backup is completed and then eject the media from the drive.

Be sure to execute this function for autoloader/library devices. Depending on the structure of some servers, this function may cause the media to eject from an internal device of the server and hit the chassis door. If this is the case, open the door when ejecting, or do not eject the media.

● **Media Label Types and Positions**

When writing information such as the name on media, use the label that came with the media.

The area in which a label can be posted on the media of each device varies.

Failing to post labels in the designated area can damage the device.

● Data Storage

When storing data for long periods of time, store the media in a location least affected by temperature, humidity, and magnetic fields.

9.6 Restoring the System

In the unfortunate event where the system file, system configuration, or environment changes during startup are corrupted, use the repair information stored on the recovery disk created at the installation to restore the system.

POINT

- ▶ Create a recovery disk when you have installed an OS or changed the system configuration. Refer to "5.2 Creating a Disk for System Recovery" (→pg.140).

9.6.1 For Windows Server 2003

● Items Required

- Windows Server 2003 CD-ROM
- Automated System Recovery (ASR) floppy disk (created beforehand)
- Backup media (created beforehand)
- Driver disk (for RAID cards or onboard SCSI)
For drivers to be used and how to create driver disks, refer to "4.1 Creating Driver Disks" (→pg.112).
- Windows Server 2003 First Step Guide

- 1** Follow "Windows Server 2003 First Step Guide" to start Windows Server 2003 setup.
- 2** When a message prompting you to press the [F6] key appears immediately after the start of setup, press the [F6] key.
- 3** When a message prompting you to press the [F2] key appears, press the [F2] key.
A message prompting you to insert the ASR floppy disk appears.
- 4** Insert the ASR floppy disk and follow the window instructions.
- 5** The system restarts and a message appears. Press the [F6] key.
- 6** Follow the window instructions to restore the system.

POINT

Notes on Automated System Recovery

- ▶ Automated System Recovery does not restore data files.

9.6.2 For Windows 2000 Server

● Items Required

- Windows 2000 Server CD-ROM
- Windows 2000 Server system recovery disk (created beforehand)
- Windows 2000 Server First Step Guide

- 1** Follow "Windows 2000 Server First Step Guide" to start Windows 2000 Server setup.
- 2** From the [Welcome to Setup] window of the Windows 2000 Server Setup program, press the [R] key to select restoration.
- 3** Follow the message on the setup window to restore the system.

POINT

Notes on system restoration

- ▶ The system may return to the initial installation conditions depending on the restoration information used. In this case, the system must be configured after system restoration.
- ▶ Windows 2000 Server may have to be reinstalled if system files or system information are severely damaged. If this is the case, reinstall it. Refer to "9.7 Reinstalling the OS" (→pg.286).
- ▶ The message "The file *****.*** is not the original file copied when Windows 2000 was installed." appears during file restoration. Press the [Enter] or [A] key to restore the file.

9.7 Reinstalling the OS

This section explains the procedure for reinstalling the OS.

9.7.1 Checking before OS Reinstallation

■ Removing the Optional Devices

Remove the following optional devices before reinstallation. Install or connect them after OS installation.

- Optional SCSI device (hard disk cabinet, DAT unit, etc.)
- Internal hard disk units that do not contain the OS installation folder
- Internal backup device
- USB devices

■ Deletion of Data from the Disc

Reinstallation deletes all disk contents. Save the necessary data and system configuration in a different location.

■ Other Notes

Notes on initial installation also apply.

9.7.2 Reinstallation Using ServerStart

When the previous installation was performed in guide or preconfiguration mode, the ServerStart floppy disk used in that installation can be used again. When the reinstallation is performed with the same configuration as that for the previous installation, you do not have to edit the configuration file on the ServerStart floppy disk. You do not have to configure setting on wizards. After ServerStart starts up, click [Start (OS) Installation] to perform installation.

9.8 Changing OS Settings

This section explains the procedure for changing OS settings.

When you have changed to enable Hyper-Threading using the BIOS setting after starting operation in a one CPU configuration or when you add a CPU, change the OS to the multi-processor kernel.

When you will reduce the number of CPUs from two to one or disable Hyper-Threading, change the OS to the uni-processor kernel.

POINT

- ▶ It is recommended that users of the Linux service bundle array type refer to the Linux manual supplied with the server.
Customers using the Linux distribution OS on a diskless type server are advised to refer to the Fujitsu PRIMERGY website (<http://primergy.fujitsu.com>).
- ▶ Hyper-Threading is enabled at the time of purchase. For functions and settings of Hyper-Threading, refer to "8.2.8 Advanced System Configuration Submenu" (→pg.235).

IMPORTANT

- ▶ Back up the data before changing settings.
- ▶ Several files must be copied when you change the OS to the multi-processor kernel.
Use the same files as those in the service pack currently applied.

9.8.1 For Windows Server 2003

After adding a CPU or changing the Hyper-Threading setting, starting up the OS changes OS settings. A pop-up message appears. Follow the window instructions.

9.8.2 For Windows 2000 Server

Change OS settings in the following procedure, then add a CPU or change the Hyper-Threading setting.

1 Startup Windows 2000 Server.

2 Start up Device Manager.

1. Click [Start] → [Settings] → [Control Panel].
2. Double-click the [System] icon.
3. Select the [Hardware] tab and click [Device Manager (D)...] in [Device Manager].
Device Manager starts up.

3 Display computer properties.

1. Select [Devices (by type)] from the [View] menu.
2. Select [Computer] in the tree view and click [+] to expand it.
3. Double-click the following item.
 - [ACPI uni-processor] to change the OS to the multi-processor kernel
 - [ACPI multi-processor] to change the OS to the uni-processor kernel

4 Click the [Driver] tab and click [Update Driver (P)...].

The device driver upgrade wizard starts up.

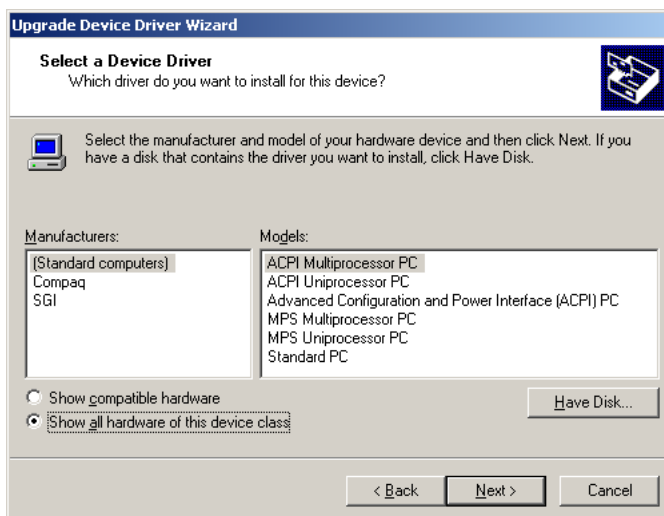
5 Update drivers.

1. Click [Next] in the [Start Device Driver Upgrade Wizard] window.

The [Install Hardware Device Driver] window appears.

2. In search method selection, select [Display known drivers for this device and select a driver from the list.] and click [Next].

The [Select a Device Driver] window appears.



3. Select [Display all hardware in this device class]. From the [Manufacturers] list, select [(Standard computer)]. Select either of the following from [Models].

- [ACPI multi-processor PC] to change the OS to the multi-processor kernel
- [ACPI uni-processor PC] to change the OS to the uni-processor kernel

IMPORTANT

- ▶ If the wrong model is selected, the system does not operate properly. You must reinstall the OS in some cases. Take great care of changing the OS.

4. Click [Next].

The [Start Device Driver Installation] window appears.

5. Click [Next].

Driver update starts. The [Finish] window appears when it completes.

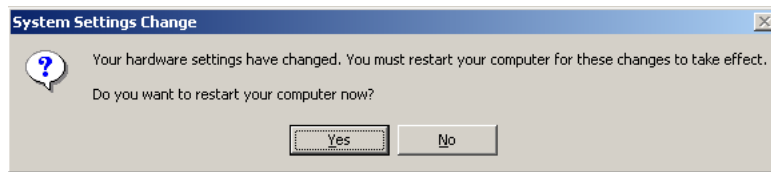
6. Click [Finish].

The [ACPI Multi-processor PC Properties] window or [ACPI Uni-processor PC Properties] window appears.

6 Shut down and turn the server off.

1. Click [Close].

The [System Settings Change] window appears.



2. Click [Yes].

The computer shuts down and restarts automatically.

7 Add an optional CPU or change the Hyper-Threading setting in the BIOS Setup Utility.

→"7.3 Installing a CPU" (pg.176)

→"8.2.1 Starting and Exiting the BIOS Setup Utility" (pg.223)

→"8.2.8 Advanced System Configuration Submenu" (pg.235)

8 Restart the system.

When the OS starts up, check that the item under [Computer] is changed in Device Manager of Control Panel.

9.9 Maintenance Service

This section explains the details of the maintenance service.

If the cause of the failure is uncertain or if the original condition cannot be restored, contact the seller or an office listed in the "Contact Information" of the "Start Guide".

9.9.1 Maintenance Service

■ Non-durable Components

Depending on the environment and usage of the customer, non-durable components of the server may need to be replaced during the maintenance support period.

Customers who have signed up to hardware maintenance contact will be provided with replacement parts free of charge and will have higher priority for replacement. Customers not signed up to hardware maintenance contact will be charged for operation cost (including the maintenance parts) separately.

POINT

Replacing non-durable components

- ▶ To ensure stable operation of the server system, it is recommended that a maintenance service agreement be purchased.
- ▶ Lifetime of non-durable components

The lifetime of such components is calculated based on appropriate usage environments.

Although the guaranteed range for operation is set between 10 and 35°C, the lifetime is assumed at a constant average temperature of 25°C.

- ▶ Types of non-durable components

table: Non-durable Component List

Component	Description
RAID card battery	Regardless of the time the power was turned on and off, the lifetime is 3yrs.

9.9.2 Contacting Maintenance Support

For "Contact Information", refer to "Start Guide". Before contacting maintenance support, check the following.

- Model name and product ID of the server
They are described on the label on the server. For the label location, refer to "Start Guide".
- Hardware configuration (Types and locations of internal options)
- Configuration information (BIOS Setup Utility, WebBIOS settings)
- OS
- LAN/WAN system configuration
- Phenomena (what happened when doing what, what was displayed, etc.)
- Date/time of occurrence

- Environmental settings of the server
- LED statuses

 **POINT**

- ▶ Print and fill in the "Configuration Sheet" of the "Configuration Sheets" and the "Accident Sheet".

Appendix

This appendix explains the specifications for the server and internal options. It also covers how to recycle the products.

A	Server Specifications	294
B	Specifications for Internal Options	295
C	Using the Server Management Port	299
D	Recycling	305

A Server Specifications

This section explains the specifications for the server.

table: Server Specifications

Item		Functions and Specifications
Type		Diskless type
Model		PGUR3023AA
CPU	Standard	64-bit Intel [®] Processor Xeon™ 3E GHz / 2MB
	With the conversion kit	64-bit Intel [®] Processor Xeon™ 3.20E GHz / 2MB 64-bit Intel [®] Processor Xeon™ 3.60E GHz / 2MB
	Number of multiplication	1 (Max. 2)
Memory modules	Standard	1GB (512MB DDR2 400 SDRAM DIMM × 2)
	Adding size	1GB / 2GB / 4GB (installed in a pair)
	Maximum	16GB (8 slots 2GM DIMM × 8)
Video RAM capacity		8MB
Graphics		VGA chip: ATI RAGE XL 648 × 480, 800 × 600, 1024 × 768, 1280 × 1024 Displayed colors: Differ depending on resolution and OS
CD-ROM drive		1 bay Type: 24 × CD-ROM unit (IDE) Installed as standard.
5-inch storage bay		None (Internal DAT72 unit installable in 3.5-inch storage bay)
3.5-inch storage bay		6 bays (including standard hard disk), hot pluggable in all bays
	Standard	option
	Adding size	73.4GB / 146.8GB / 300GB (10,000rpm, Ultra320 SCSI) 73.4GB (15,000rpm, Ultra320 SCSI)
	Maximum	300GB × 6 = 1800GB
Disk array		Standard (onboard SCSI array controller)
Expansion slots	Standard	PCI-X slot (64 bits / 133MHz, Low Profile, PHP) × 2 PCI-X slot (64 bits / 100MHz, Low Profile) × 3
	At basic conversion	PCI-X slots (64 bits / 100MHz) × 3 (Full length × 1, Short length × 2)
Floppy disk drive		3.5inch (2 mode 1.44MB/720KB) (Standard)
Interface		LAN (100BASE-T / 100BASE-TX / 10BASE-T) × 2 (Baseboard installed as standard), Serial × 2, parallel × 1 (optional), keyboard, mouse, monitor, USB × 4
Keyboard and Mouse		option
Dimension (mm)		Width 445 (483) × Depth 717 (756) × Height 88 (Occupied unit 2U) (): Dimensions including projections
Weight		Max. 30 kg
Internal clock precision		± 2 to 3 minutes/month
Power consumption		Max. 569W / Max. 2048kJ/h
Power		100V-240V AC (50/60Hz) / bipolar ground type
Power supply unit		Standard: 1, Max.: 2 (Redundant power supply devices)
Fan		System fan: 8 (Redundant)
OS		Windows Server 2003, Standard Edition / Windows Server 2003, Enterprise Edition Windows 2000 Server / Windows 2000 Advanced Server Red Hat Enterprise Linux AS / Red Hat Enterprise Linux ES

The specifications for the server are subject to change for the purpose of improvement without prior notice.

B Specifications for Internal Options

This section explains the specifications for hardware options for the server. When you have bought a hardware option as a standard option, check that the package contains the following items before use. Should it happen that items are missing, contact an office "Contact Information" of the "Start Guide".

B.1 CPU Specifications

■ Package

- CPU (1)
- Heat sink (1)

■ Specifications

table: CPU Specifications

Item	Functions and Specifications		
Product name	Processor Xeon 3.0GHz/2MB	Processor Xeon 3.2GHz/2MB	Processor Xeon 3.6GHz/2MB
Model	PG-FG252	PG-FG253	PG-FG254
Clock frequency	3.0GHz	3.2GHz	3.6GHz
Internal secondary cache size	2MB	2MB	2MB

B.2 Memory Specifications

■ Package

- DIMM (2)

■ Specifications

table: Memory Specifications

Item	Functions and Specifications		
Product name	Memory Module-1GB	Memory Module-2GB	Memory Module-4GB
Model	PG-RM1BC	PG-RM2BC	PG-RM4BC
Modules	512MB-SDRAM DIMM × 2	1GB-SDRAM DIMM × 2	2GB-DDR2 DIMM × 2
Capacity	1GB	2GB	4GB
Clock frequency	400MHz		
Number of pins	240 pins		

B.3 Internal Hard Disk Unit Specifications

■ Package

- Internal hard disk unit (1)

■ Specifications

table: Internal Hard Disk Unit Specifications

Item	Functions and Specifications			
Model	PG-HDH71K	PG-HDH41K	PG-HDH31K	PG-HDH75K
Interface	Ultra320 SCSI			
Storage media	3.5inch hard disk			
Memory capacity *1	73.4GB	146.8GB	300GB	73.4GB
Maximum data transfer speed	320MB/s (Ultra320 Wide)			
Average latency speed	2.99ms			2.00ms
Rpm	10,000rpm			15,000rpm
Energy consumption efficiency based on the Law Regarding the Rationalization of Energy Use *2	0.07 (B Class)	0.05 (C Class)	0.03 (C Class)	0.16 (F Class)
Dimension (W x D x H)	101.6 x 146.0 x 25.4 (mm)			
Weight *3	0.75kg			0.8kg

*1: The value indicates memory capacity of the formatted hard disk (1GB = 10003 bytes).

*2: The value indicates power consumption per 1GB.

*3: A hot plug carrier is not included.

B.4 Parallel Port Option Specifications

■ Package

- Parallel Port Option (1)

■ Specifications

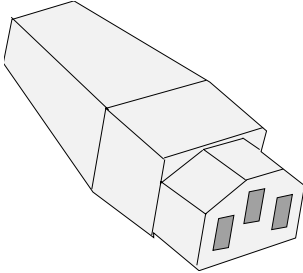
table: Parallel port option specifications

Item	Functions and Specifications
Product name	Parallel Port Option
Model	PG-PP03

B.5 Power Cord Selection

The power cord for this unit has been packed separately and has been selected according to the country of destination. It must be used to prevent electric shock. Use the following guidelines if it is necessary to replace the original cord set.

The female receptacle of the cord set must meet CEE-22 requirements (see Figure).



■ For the United States and Canada

Use a UL listed and CSA labeled cord set consisting of a three conductor cord with a maximum length of 15 feet.

For units which stand on a desk or table, type SVT or SJT cord sets should be used.

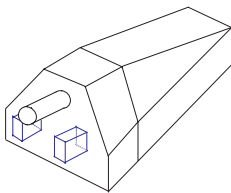
For units which stand on the floor, only SJT type cord sets should be used.

The cord set must be selected according to the current rating for your unit.

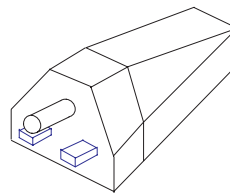
Please consult the table below for the selection criteria for power cords used in the United States and Canada.

table: Selection Criteria for Power Cords Used in the United States and Canada

Cord Type	Size of Conductors in Cord	Maximum Current Rating of Unit
SJT	18 AWG	10 Amps
	16 AWG	12 Amps
	14 AWG	12 Amps
SVT	18 AWG	10 Amps
	17 AWG	12 Amps



- Parallel
For units set at 115 V:
use a parallel blade, grounding type attachment plug rated 15 A, 125 V.



- Tandem
For units set at 230 V:
use a tandem blade, grounding type attachment plug rated 15 A, 250 V.

● For units set at 230 V (outside of the United States and Canada):

Use a cord set consisting of a minimum AWG according to the table above and a grounding type attachment plug rated 15 A, 250 V. The cord set should have the appropriate safety approvals for the country in which the equipment will be installed and should be marked HAR.

■ For the United Kingdom

Should the plug on the flexible cord not be of the type for your socket outlets, do not use an adapter but remove the plug from the cord and discard. Carefully prepare the end of the supply cord and fit a suitable plug.



- This appliance must be earthed.

POINT

- ▶ The wires in this mains lead are colored in accordance with the following code.
 - Green and Yellow: Earth
 - Blue: Neutral
 - Brown: Live

As the colors of the wires in the mains lead of this appliance may not correspond with the colored markings identifying the terminals in your plug, proceed as follows.

- The wire which is colored Green and Yellow must be connected to the terminal in the plug which is marked with the letter E or by the earth symbol or colored Green or Green and Yellow.
- The wire which is colored Blue must be connected to the terminal which is marked with the letter N or colored Black.
- The wire which is colored Brown must be connected to the terminal which is marked with the letter L or colored Red.

C Using the Server Management Port

This server supports the remote control function.

When a personal computer (PC) is connected to the server management port of this server with an RS-232C cross cable, the PC can be used to control (turn on/off and reset) the server power supply.

To enable the remote control function, perform the following procedures.

- Configuring the Server Management Port
- Connecting the Server to a PC
- Configuring terminal software communication settings on the PC

C.1 Configuring the Server Management Port

Serial port 1 on the server is used as the server management port. In the BIOS Setup Utility, specify Serial port 1 as the server management port.

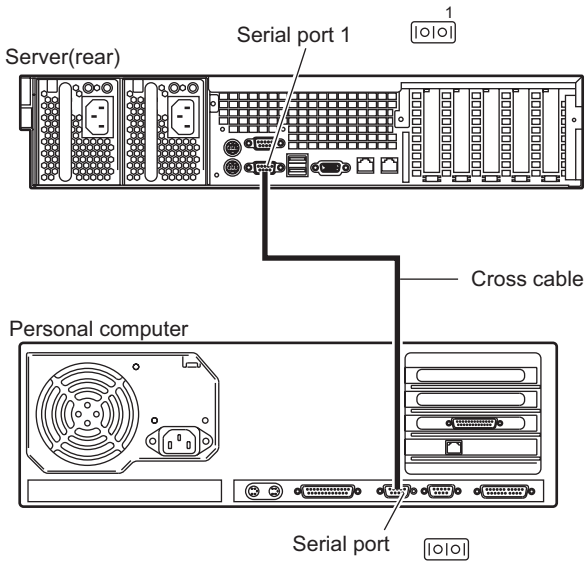


- ▶ When the server management port is specified, Serial port 2 becomes the only serial port the OS can recognize.

- 1** Turn on the server. Press the [F2] key during POST to start up the BIOS Setup Utility.
- 2** Select the [Main] menu → the [Peripheral Configuration] submenu. Set the following items.
 - Set [Serial1] to [Disabled].
 - Set [Serial Multiplexer] to [BMC].
- 3** From the [Exit] menu, select [Saving Changes & Exit] to exit the BIOS Setup Utility.

C.2 Connecting the Server to a PC

Connect the server to a PC using an RS-232C cross cable.



POINT

- ▶ Take the following steps in the BIOS Setup Utility.
- ▶ "8.2.6 Peripheral Configuration Submenu" (→pg.231) of the [Advanced] menu
 - Set [Serial1] to [Disabled].
 - Set [Serial Multiplexer] to [BMC].

The serial port recognized from the OS is only COM1 ($\frac{2}{0|0|0}$).

C.3 Configuring the Terminal Software (PC)

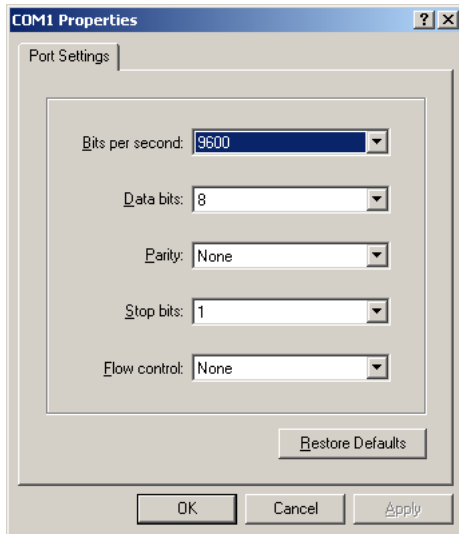
To use the remote control function, specify the baud rate and flow control method for the terminal software on the PC.

Set up the PC ports as shown below. (The server ports are fixed to the set values below.)

table: Configuring the Terminal Software

Item	Contents
Bits/sec.	9600
Data bit	8
Parity	Not applied
Stop bit	1
Flow control	Not applied

(Window example)



C.4 Remote Power Supply Control

The server power supply can be remote-controlled with the terminal software on the PC. The menus to be displayed differ depending on whether the server is on or off.

■ Starting Up the Remote Controller

- 1 Start up the terminal software.
- 2 When "Login:" appears, enter "Remote" and press the [Enter] key.

Note that "Remote" is case-sensitive.

```
Login:Remote
```

- 3 When "Password:" appears, enter "Remote" and press the [Enter] key.
- Note that "Remote" is case-sensitive. As shown below, the characters you have entered are displayed as asterisks.

```
Password: *****
```

POINT

- ▶ When "Main>" appears, enter "q" and press the [Enter] key. "Login:" will appear.

- 4 The remote control window appears.

The window to be displayed differs depending on whether the server is on or off.

■ Each Menu

The menus and their operations are as follows.

● When the server is on

The following window appears. The server can be reset, restarted, or turned off.

```
*****
Welcome to System RX300S2
BMC FW: 0x.xx   SDRR: xx.xx
State: On (na = Currently not available)
*****

REMOTE MAINTENANCE MENU
(1) Immediate Power Down
(2) Immediate Reset
(3) Graceful Power Down
(4) Power Cycle
    na Power On
(6) View System Eventlog (SEL)
Enter selection or (0) to quit:
```

● When the server is off

```
*****
Welcome to System RX300S2
BMC FW: 0x.xx   SDRR: nn.nn
State: On (na = Currently not available)
*****

REMOTE MAINTENANCE MENU
na Immediate Power Down
na Immediate Reset
na Graceful Power Down
na Power Cycle
(5) Power On
(6) View System Eventlog (SEL)
Enter selection or (0) to quit:
```

table: Description for each menu

Menu	Operation
Immediate Power Down	Turns the server off. Enabled only when the server is turned on.
Immediate Reset	Resets the server. Enabled only when the server is turned on.
Graceful Power Down	Shuts down the OS and turns the server off. ServerView must be installed. Enabled only when the server is turned on.
Power Cycle	Turns the server off and back on again. Enabled only when the server is turned on.
Power On	Turn the server on. Enabled only when the server is turned off (stand by).
View System Eventlog(SEL)	Displays the system event logs.

Entering "0" exits the remote control function and displays the prompt.

D Recycling

This section explains how to recycle this server.

■ Disposing of the Server

When scrapping this server, contact an office listed in the "Contact Information" of the "Start Guide". This server must be disposed of as industrial waste.

Furthermore, if the server is disposed of as it is, someone else may gain access to the information contained on the hard disks. It is therefore recommended that all drives be formatted before disposal. However, just formatting or deleting files may not avoid the risk that the data is restored and used for wrongful purposes. If confidential or private information is saved, in order to make it impossible to be restored, it is recommended to use third-party data wiping tools.

■ Disposing of Used-up Batteries

Used-up batteries must be disposed of as industrial waste and therefore require special processing. Let a licensed industrial waste disposal company take care of disposing them.

■ Disposing of Liquid Crystal Displays

Liquid crystal displays must be disposed of as industrial waste and therefore require special processing. Let a licensed industrial waste disposal company take care of disposing them.

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