Areas Covered

Before Reading This Manual

This section explains the notes for your safety and conventions used in this manual.

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 and cautions for the server before OS installation. Observe this chapter before starting installation.

Chapter 3   OS Installation

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

Chapter 4   Operations after OS Installation

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

Chapter 5   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 6   Installing Internal Options

This chapter explains how to install and remove the various hardware options.

Chapter 7   Configuring Hardware and Utilities

This chapter explains how to make the environment settings necessary to operate the server and how to use each utility.

Chapter 8   Operation and Maintenance

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

Appendix

This appendix explains the specifications for the server and for its internal options.

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.

High Safety

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.

■ SATA hard disk unit (SATA model)

The SATA hard disk that is installed in the SATA model is designed to be used about eight hours per day for five years with small scale and comparatively low access frequency.

Refrain from using for mission-critical tasks in which continuous 24/7/365 operation is necessary, or database in which the access is frequently repeated, and high reliability is required.

To prevent the loss of important data, regular data backup is recommended.

■ Trademarks

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. Fully understand these symbols when reading this manual.

⚠WARNING	Failure to observe this warning may cause serious injury or death, and/or destroy the system.
⚠CAUTION	Failure to observe this warning may lead to injury, destruction of the system, or loss of data.

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

⚠	A triangle mark emphasizes the urgency of the WARNING and CAUTION. Details are described next to the triangle.
🚫	A barred circle (🚫) warns against certain actions (Do Not). Details are described next to the circle.
❗	A black circle indicates actions that must be taken. Details are described next to the black circle.

■ 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.

■ DVD-ROM drive description

DVD-ROM drive is described as "CD/DVD drive" herein.

■ Entering commands (Keys)

Command entries are displayed in the following way.

```
diskcopy a: a:
         ↑    ↑
```

- At each blank in a command line (as pointed out above), press the [Space] key once.
- When using Windows or DOS OS, commands are not case sensitive.
- CD/DVD drive names are shown as [CD/DVD drive]. Enter your drive name according to your environment.

  [CD/DVD 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 "−".

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

■ Server types

Server types are described as follows.

table: Server Types

Type	Expressions and abbreviations
Servers without an internal hard disk	Diskless type
Server installed on a rack	Rack type

■ Abbreviations

The following expressions and abbreviations are used throughout this manual.

table: Abbreviations of Product names

Product name	Expressions and abbreviations			
PRIMERGY TX150 S6 (SAS model)	SAS model	TX150 S6 or the server		
PRIMERGY TX150 S6 (SATA model)	SATA model			
Microsoft® Windows Server® 2003 R2, Standard Edition	Windows Server 2003 R2	Windows Server 2003	Windows	
Microsoft® Windows Server® 2003, Standard Edition	Windows Server 2003, Standard Edition			
Microsoft® Windows Server® 2003, Standard x64 Edition	Windows Server 2003 x64 [1]			
Microsoft® Windows Server® 2003 R2, Standard x64 Edition	Windows Server 2003 R2 x64			
Microsoft® Windows® Small Business Server 2003	SBS 2003 [1]			
Microsoft® Windows® Small Business Server 2003 R2	SBS 2003 R2			
Microsoft® Windows® 2000 Server	Windows 2000 Server			
Microsoft® Windows® Preinstallation Environment	Windows PE			
Microsoft® Windows Vista® Business	Windows Vista			
Microsoft® Windows® XP Professional	Windows XP Professional			
Microsoft® Windows® 2000 Professional	Windows 2000 Professional			
Microsoft® Windows Server® 2003 Service Pack	Service Pack			
Microsoft® Windows Server® 2003 x64 Service Pack				
Red Hat Enterprise Linux ES (v.4 for x86)	Linux			
Red Hat Enterprise Linux ES (v.4 for EM64T)				
Red Hat Enterprise Linux 5 (for x86)				
Red Hat Enterprise Linux 5 (for Intel64)				

*1: Unless otherwise noted, Windows Server 2003 can also mean SBS 2003 and Windows 2003 x64.

■ PRIMERGY TX150 S6 model descriptions

PRIMERGY TX150 S6 has SAS model and SATA model. Herein, unless otherwise noted, these descriptions apply to both models. For descriptions unique to a given model, a model name is cited. Before reading this manual, check the "model label" attached to the following location on each server.

[Rack Type]

SAS model
↑
or
↓
SATA model
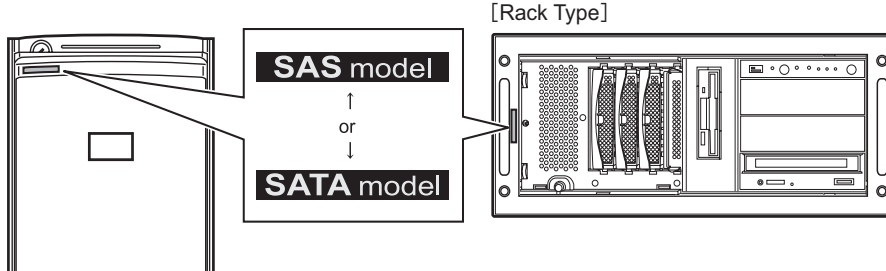
Reference Information

■ 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 PRIMERGY Startup Disc. 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.

Contents

Chapter 4 Operations after OS Installation

Chapter 5 High Reliability Tools

Chapter 6 Installing Internal Options

Chapter 7 Configuring Hardware and Utilities

Chapter 8 Operation and Maintenance

Appendix

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.

1.1 TX150 S6

This server is an entry-level server with high-speed processing and cost-effectiveness, having the following features.

■ High reliability

● Memory modules enabling high-speed processing

This server supports the memory module of DDR2-800 Unbuffered ECC DIMM, enabling high-speed processing.

● Disk array configuration

For SAS model, array configuration can be made with an installed SAS controller card (Integrated Mirroring SAS) or SAS array controller card (MegaRAID SAS) in standard.
For SATA model, array configuration can be made with Onboard Software RAID.
Depending on established array configurations, replacement and/or recovery of the hard disk unit(s) can be performed as remaining the server and peripheral devices being turned on (available for hot plug, except of RAID 0) when the server fails.

● Redundant function

Configured disk array systems (except of RAID 0) allow replacement and/or recovery of hard disk units without turning off the server and peripheral devices when the hard disk in the server is failed (available for hot plug).

● Hardware and software designed for data security

This server is designed to provide provisions for data securities to guard the hardware and data assets with systems, such as locking a drive cover and setting a password in BIOS Setup Utility.

● Proactive fan function

Stable system operation is performed with automatically increasing the rotating speed of the system fan to control temperature in the server as a fan fails or the ambient temperature rises.

● High reliability tools

High reliability tools, such as ServerView which is the tool for monitoring the server status, offer further stable system operation. Refer to "1.2.2 High Reliability Tools" (→pg.19) for details.

■ High-speed processing

● Intel® Xeon® Processor

An Intel® Xeon® Processor (dual core processor) is installed, which is capable to perform high-speed data processing.
When using CPU Conversion kit, further high-speed performance can be obtained as a quad-core processor is installed.

■ Excellent scalability

● Maximum 8GB memory size

In addition to the preinstalled 512MB memory, the memory is expandable up to 8GB.

● Four hard disk bays

Up to four internal hard disk units can be installed in 3.5-inch storage bays.
Hard disk units, maximum capacity of 300GB for SAS model and 500GB for SATA model, are supported.

● Six PCI slots

The server has six PCI slots. Functions can be expanded with using expansion cards.

POINT

When SAS model is used
▶ Up to five expandable PCI cards can be added since Slot 5 has been installed a SAS array controller card as a standard feature.

● 5-inch internal option bay

The 5-inch options such as backup unit can be installed to accommodate for mounting data.

● Rack type

With attaching a Rack Conversion kit, the server can be installed on a rack.

1.2 Supplied Software

The following software is supplied together with the server. ServerStart supports setting up the system and high reliability tools to prevent troubles while server system is running.

1.2.1 Setup Support Tool - ServerStart

ServerStart is an initial setup support tool for PRIMERGY. It offers simple procedures for setup and proper installation for recommended drivers.

■ Setting up with ServerStart

When performing the OS installation with ServerStart, drivers which are corresponding to the automatically recognized expansion cards will be installed by ServerStart. In addition, high reliability tools and array controller management tools are automatically installed. It prevents the related errors. It is recommended to perform the OS installation with using ServerStart.

Not using ServerStart

■ Complicated hardware settings such as RAID configuration
■ User definition, access policies and network settings
■ Manual settings for each item
  resulting in leading mistakes and taking time for server installation.

Install & Setup

Example:
IP address settings, creation of user,
registration of computer name, and etc.
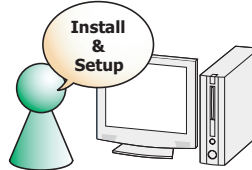
Using ServerStart

■ Automatic RAID configuration
■ Automatic installation of recommended drivers
■ Automatic installation of high reliability tools
  are available.

Auto setup

ServerStart

Example:
Automated operations such as OS installation.
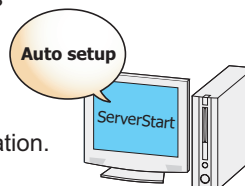
POINT

▸ Some operations such as a license window and media replacements are required to be performed manually.

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

■ Merit with ServerStart setup

● Network configuration

ServerStart can configure a network on server installation. For details on available network patterns, refer to "Using ServerStart to Configure the Network".

● Automatic driver installation

This function installs the recommended drivers for such as automatically recognized expansion cards on the server installation. It is preventative for mismatch driver installations, such as previous version or incompatible drivers.

● Automatic RAID configuration

Without RAID utility, disk array can be configured by specifying a RAID type and number of hard disk unit.

■ Intuitive user interface

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

● Main window

When ServerStart starts up, the following window appears. The window and tool bar differ, depending on the mode.
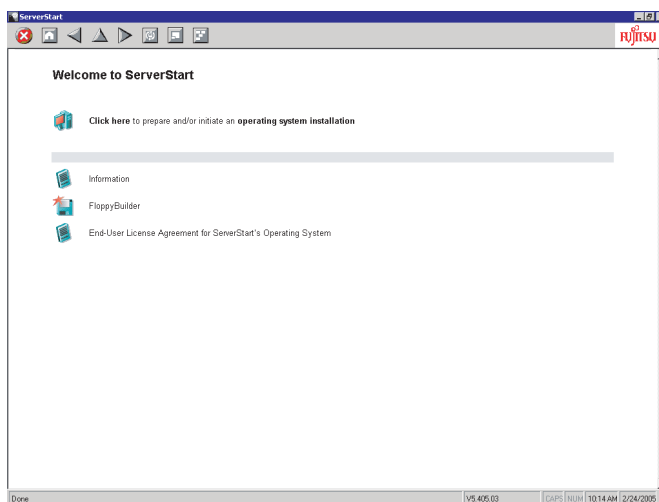
● **Tool bar**

For the expert mode

Ends ServerStart.
Returns to the previous page.
Goes to the next page.
Changes the size of icons.
Returns to the main screen.
Goes to one tier upper.
Resets the status function.
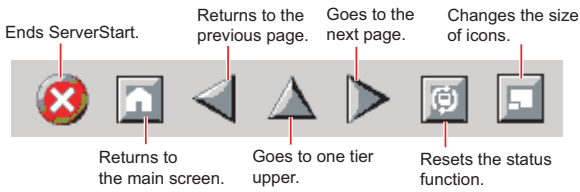
IMPORTANT

▸ While the wizard is running, do not click the ◁ △ ▷ icon to move to the previous or next window or to upper tree level. 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 each item 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 an explanation for setting the item.
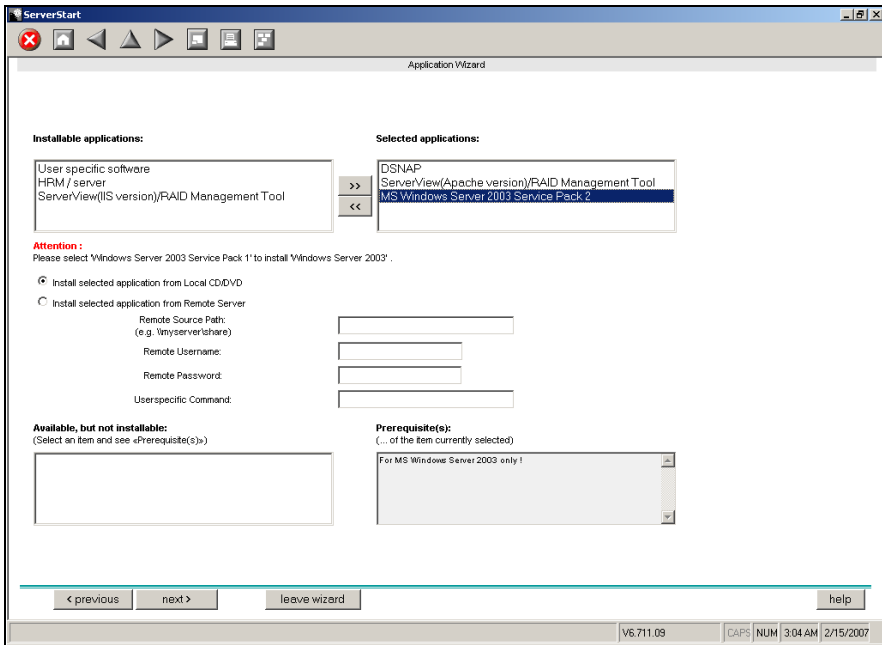
1.2.2 High Reliability Tools

High reliability tools provide comprehensive supports for stable system operations of the server. The following tools have individual management function through normal operations to restoration 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 and notify the event of an error when irregular status occurs.

● Early detection of a server failure [ServerView]

ServerView monitors the server status to protect important server resources. The server hardware keeps under observation all the time and a potential irregular status will be notified in timely manner when it is detected. A corrective action can be taken in early stage and eliminate the system error before growing a serious matter.

IMPORTANT

▶ For notes of security for ServerView, refer to " ● Security" in Section "1.1.7 Note", ServerView User's Guide.

● Maintenance support tool [HRM/server]

HRM/server performs the server maintenance operation promptly and surely to retain stable system operation.

● Early detection of a disk problem [RAID Management Tool]

RAID Management Tool monitors a configured disk array performance. 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 tools boost device management in order to perform stable server operation.

● Early solution to problems [DSNAP]

DSNAP is a command line utility for collectively acquiring failure analysis information. Command line operation makes easy to set the configuration information of the system file and major registries, and collect the event log. When a problem occurs in your Windows Server 2003 system, DSNAP is used for a support engineer to understand your system software configuration and settings correctly and to promote research smoothly. Provide this with memory dump to your support engineer.

■ LAN driver advanced setup Tools

These tools set details on the LAN, including the use of teaming (load balance) function and VLAN configuration.

● Broadcom Advanced Control Suite (BACS)

BACS is a tool for setting details on the onboard LAN.

● Intel® PROSet

Intel® PROSet is a tool for setting details on the LAN card in case such as using teaming function between LAN cards or onboard LAN and LAN card, and configuring a VLAN with LAN card.

1.2.3 Installing High Reliability Tools

Collective installation of all high reliability tools, provided with PRIMERGY, may be made by specifying them in "Application Wizard".
The following high reliability tools are installed with ServerStart.

table: High reliability tools installation

High reliability tool	ServerStart installation	
	Quick installation mode	Expert mode
RAID Management Tool / ServerView (for Apache)	I	S
RAID Management Tool / ServerView (for IIS)	M	N
HRM/server	I	I
DSNAP	I	S
Broadcom Advanced Control Suite (BACS)	I	I
Intel® PROSet	I	I

I : Installed automatically
N: Installed if selected (Not selected by default)
S: Installed if selected (Selected by default)
M: Install manually.

IMPORTANT

- ▸ SBS 2003 and Linux do not support batch installation with ServerStart.
- ▸ ServerView is required configuration after installation even when the high reliability tools have been installed at once with ServerStart. Refer to "Chapter 5 High Reliability Tools" (→pg.103).

🔎POINT

▶ When using ServerStart to install the OS, RAID Management Tool and ServerView are installed together. These cannot be selected individually.

▶ To use all functions of ServerView, "Java2 Runtime Environment Standard Edition" and "Web server" are required. When using ServerStart to install the OS, "Java2 Runtime Environment Standard Edition" is installed automatically. For Web server, you can use either of the followings by selecting a menu.

- ServerView (for Apache)
  Install ServerView Web-Server (Web server for ServerView, Apache for Win32 base) and install ServerView configuring to use this Web server.

- ServerView (for IIS)
  Install Microsoft Internet Information Server (IIS) supplied with Windows separately. ServerView is installed with the setting to operate using IIS installed on the system.

When IIS is not found in the system, ServerView Web-Server is installed even if "ServerView (for IIS)" is selected. ServerView (for Apache) is selected by default. To install ServerView (for IIS), select "RAID Management Tool / ServerView (for IIS)". If "RAID Management Tool / ServerView (for IIS)" is selected, ServerView (for Apache) is not installed.
It is not possible to release both of ServerView (for IIS) / ServerView (for Apache).
ServerView (for IIS) may not be installed in the quick installation mode.

▶ Intel$^®$ PROSet will be installed only when an optional LAN card is installed properly and the driver is applied correctly.

▶ If the OS is installed on other than drive C using ServerStart, Intel$^®$ PROSet will not be installed. In this case, install Intel$^®$ PROSet manually. For details, refer to "4.7.1 Intel® PROSet Installation" (→pg.98).

1.3 Component Names and Functions

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

1.3.1 Server (front view)

Drive cover

Pull the drive cover down to the lower end of the server.
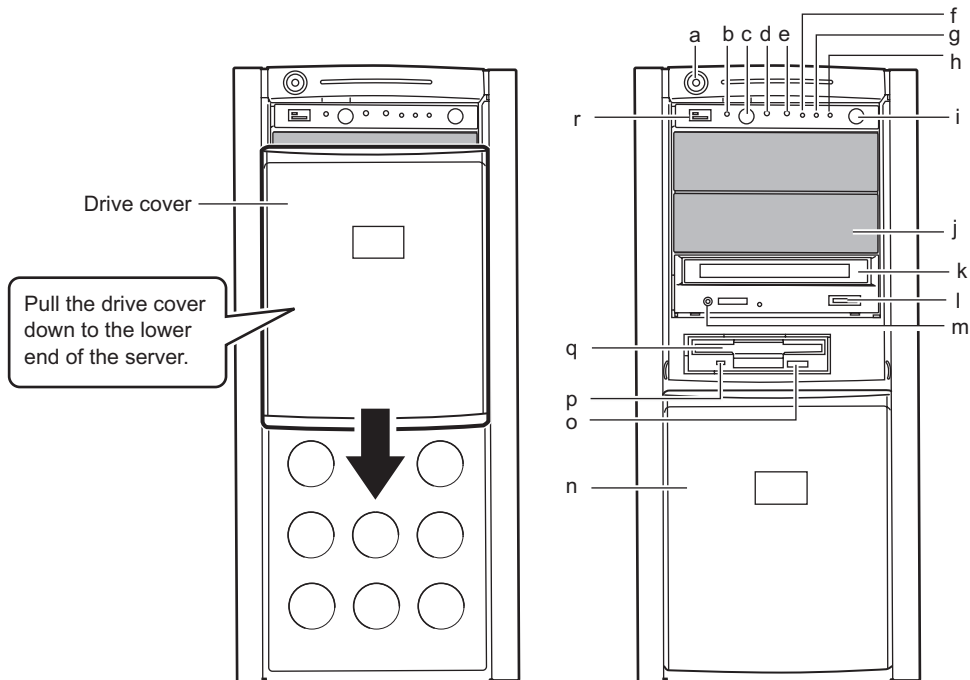
a Drive cover key

Lock the drive cover to avoid improper handling of the server.

Remain the drive cover raised up while in server operation. For details, refer to "8.4.1 Hardware Security" (→pg.191).

b System identification LED

This LED is used for maintenance. When pressing the system identification LED button, 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.

c System identification LED button

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

d Reset switch

Pressing this switch resets and restarts the system.

IMPORTANT

▶ Do not restart the system when the hard disk access LED is blinking.
Data in the hard disk may be damaged.

e Maintenance switch

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

f System status LED (⚠)

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

g Hard disk access LED (▢)

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

h Power LED (⏻)

This LED is lit green when the server is turned on.

POINT

▶ Power LED is lit in amber when the server is in standby mode (when the AC power is on and the DC power is off), but this does not indicate an error.

i Power switch

Press this switch to turn on the server.

IMPORTANT

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

j 5-inch storage bay

Those storage bays contain a 5-inch internal device. Unlike external devices, an internal option does not need to be connected to the outlet because its power is supplied from the server. It also saves space.

k CD/DVD drive

This drive reads data or programs from a CD/DVD.

l CD/DVD eject button

Press this button to eject a CD/DVD.
Do not press this when the CD/DVD access LED is on.

m CD/DVD access LED

This LED blinking when data is being read from a CD/DVD.

n Drive cover

This slides up and down.

o Floppy disk eject button

Press this button to eject a floppy disk.
Do not press this when the floppy disk access LED is on.

p Floppy disk access LED

This LED blinking when data is being written to or read from a floppy disk.

q Floppy disk drive

This drive writes/reads data to/from a floppy disk.

r USB connector (⇆)

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

■ Inside the hard disk cover
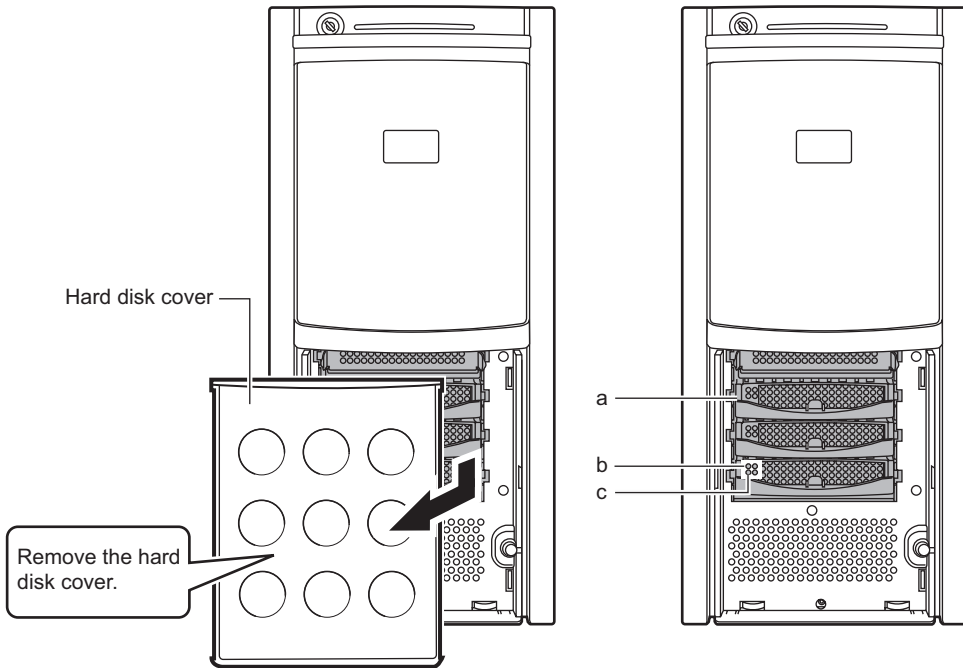
a 3.5-inch storage bay

Those storage bays contain an internal hard disk.

b Hard disk access LED (◎)

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

table: Meaning of the Hard Disk Access LED

LED status	Hard disk access status
Off	Hard disk is not accessed
Green	Hard disk is accessed

c Hard disk failure LED (⊗)

It is lit or blink depending on the hard disk status as follows.

table: Meaning of the Hard Disk Failure LED

LED status	Hard disk status
Off	In normal mode or hot spare mode
Amber (lighting)	Error detected in the hard disk (in an array configuration)
Amber (blinking)	Rebuilding

1.3.2 Server (rear view)
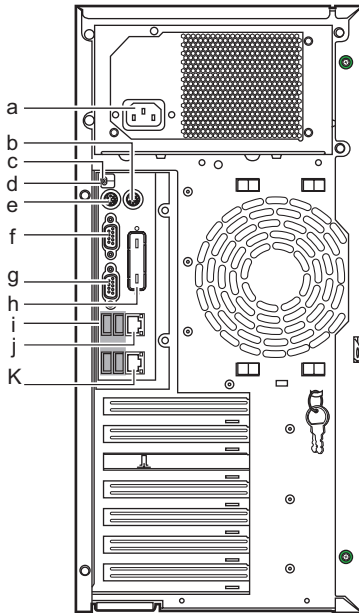
a Power connector

Connect a power cable.

b Mouse connector (🖱)

Connect a mouse cable.

c System status LED

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

d System identification LED

This LED is used for maintenance. When pressing the system identification LED button, 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.

e Keyboard connector (⌨)

Connect a keyboard connector.

f Serial port (🔲)

Connect cables of peripheral equipments conforming to the RS-232C standard such as a modem.

g Display connector (🔲)

Connect a display cable.

h Parallel port (option)

Install an optional parallel port.

i USB connector (⟨⟨⟨)

Connect peripheral equipments conforming to the USB standard (2.0 or 1.1).

j Service LAN Port

This is a LAN port for the Remote Management Controller. The Remote Management function can be used by a Web interface as connecting a LAN cable. For information on how to use Remote Management Controller, refer to "Appendix D Remote Management Controller" (→pg.218).

k LAN (10/100/1000BASE-T) port ( )

Connect an Unshielded Twisted Pair (UTP).

For 1000Mbps connection, a category 5 enhanced or a category 6 cable is required.

For 10Mbps/100Mbps connection, a category 5 or higher cable is required.

LED
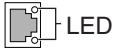
The meaning of the LED is shown in the table below.

table: Meaning of the LAN port LED

LED location	LED status	Connection status
Upper LED	Green (lighting)	Link is being established
	Green (blinking)	Data is being transferred
	Off	Link is not established
Lower LED	Amber (lighting)	Connection established at 1000 Mbps
	Green (lighting)	Connection established at 100 Mbps
	Off	Connection established at 10 Mbps

1.3.3 Server (internal)
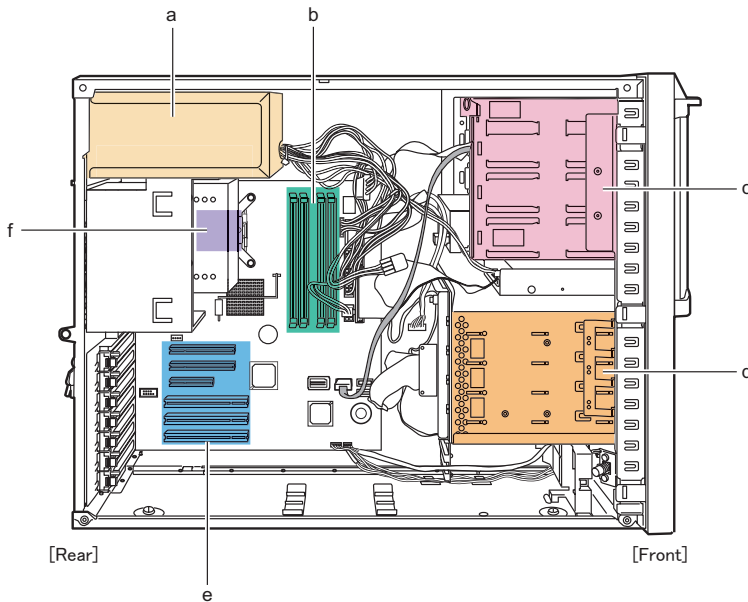
a Power supply unit

b Memory slot

   Install memory modules.

c 5-inch storage bay

   Install a 5-inch internal optional device.

d 3.5-inch storage bay

   Install a 3.5-inch internal optional device.

e PCI card Slot

   Install an extension card that enhances the server functions. PCI cards with a PCI bus interface can be installed in the PCI card slots. For SAS model, a SAS controller card or a SAS array controller card has been installed as a standard feature.

f CPU

1.3.4 Baseboard
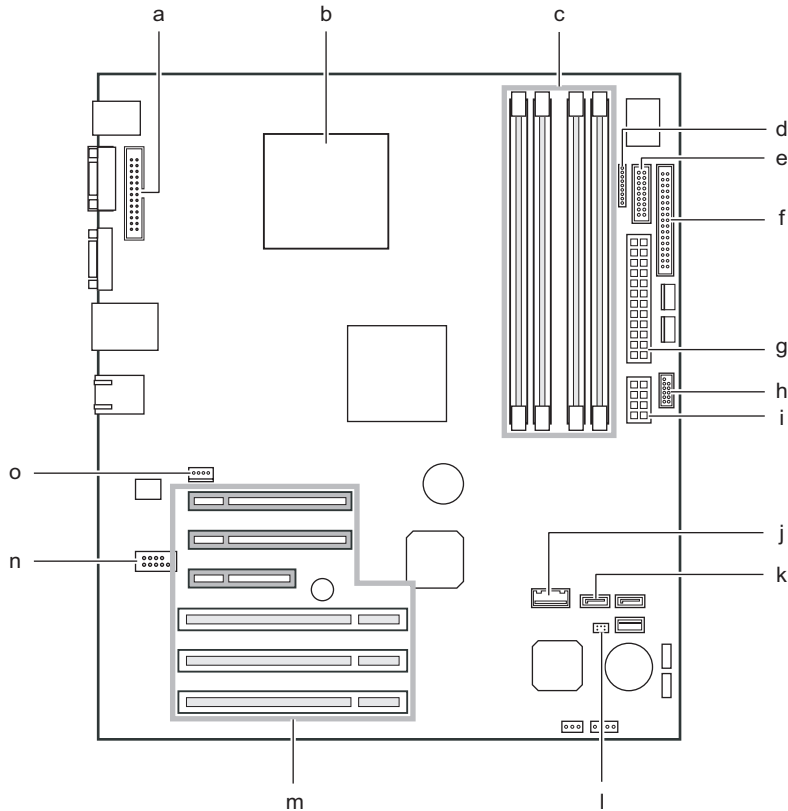
a Parallel port connector

Connect a parallel port cable when using a parallel port option.

b CPU socket

Install the CPU.

c Memory slot

Install a memory module. If more memory is added, the amount of the data that can be read at a time increases and the processing performance of the server improves.

d Power fan monitoring connector

e Front panel connector

Connect a front panel cable.

f Floppy disk connector

Connect a floppy disk drive cable.

g Power connector 1

h USB connector

Connect a USB cable.

i Power connector 2

j Internal hard disk unit connector

Connect an internal hard disk unit cable for SATA model. When a SAS array controller card is installed, this connector is not used.

k SATA connector

Connect the SATA cable of the internal DVD-ROM unit.

l Jumper

For details on jumper settings, refer to "7.1 Jumper Settings" (→pg.148)

m PCI slots

Fix an expansion card. PCI slots (1 to 6) are numbered from bottom to top in the figure of baseboard.

For SAS model, Slot 5 has been installed with a SAS array controller card as a standard feature.

n Serial connector

Connect a serial port cable when optional serial port is installed.

o System fan connector

1.4 Standard Operations

This section explains such standard operations as turning the server on/off and handling the disk drive.

1.4.1 Sliding the Drive Cover

When using a floppy disk drive, a CD/DVD drive, and 5-inch internal options, slide the drive cover to the bottom of the server.
Lock the drive cover remaining the cover raised up while in server operation. For details, refer to "8.4.1 Hardware Security" (→pg.191).

1 Turn the drive cover key counterclockwise to unlock the cover.
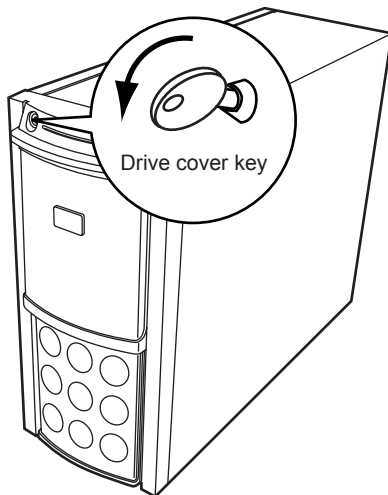
Drive cover key

2 Slide the drive cover.
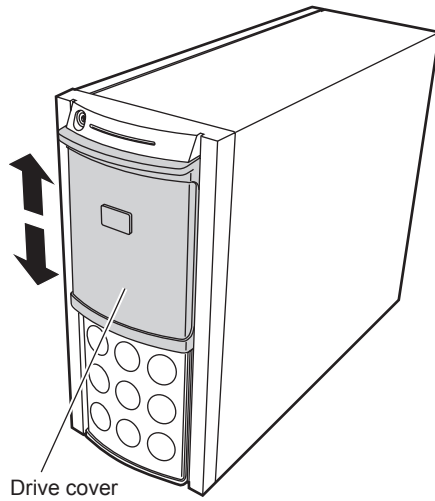
Drive cover

1.4.2 Opening the Rack Door

This section explains how to open the front and rear doors of the 40U standard rack.
For other racks, refer to rack's manuals.

■ Opening the front 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.

Turn and then pull
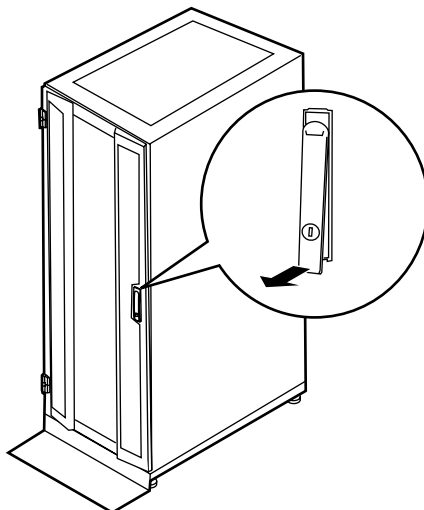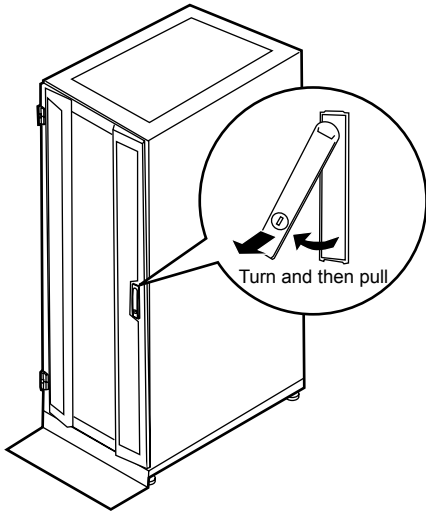
■ Opening the rear door

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

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

Turn and then pull
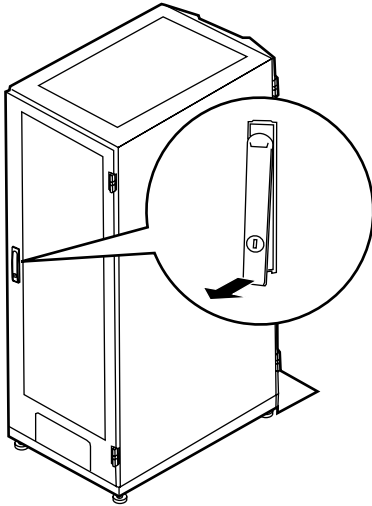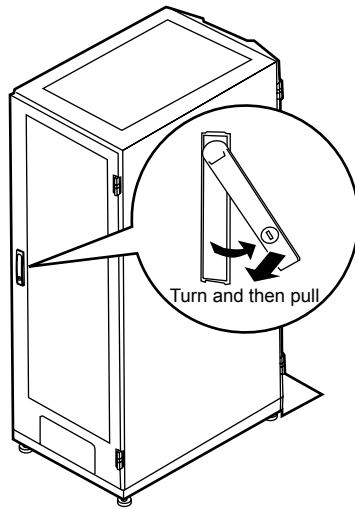
POINT

▶ Unless you are inserting/removing media or turning the power on/off, keep the door closed. Keeping the door closed 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 "Start Guide".

1.4.3 Turning On the Server

⚠CAUTION

🚫 Do not

• 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 about 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 Slide the drive cover.

→"1.4.1 Sliding the Drive Cover" (pg.30)

2 Make sure that the floppy disk drive and CD/DVD drive 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 ("8.2.2 Error Messages" (→pg.178)).
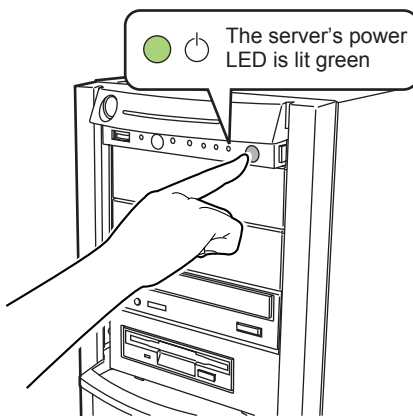
The server's power
LED is lit green

POINT

▸ The time to turn the server off can be set with the ASR setting (on the [Power On/Off] tab) using ServerView. For details, refer to "3.4 Serious Error Handling (ASR)" in "ServerView User's Guide."

▸ If you press the [F12] key right after the POST memory amount check, the Boot Menu is displayed, where you can change the boot disk ("■ How to start BIOS Setup Utility" (→pg.149)).

1.4.4 Turning Off the Server

⚠CAUTION

Electric Shock

• In the event of smoke or sparks, immediately disconnect the electric cord. Failure to do so may lead to a fire or electric shock.

• Follow the procedures below to turn off the server. Data can be lost if these procedures are not followed correctly.

1 Slide the drive cover.

→"1.4.1 Sliding the Drive Cover" (pg.30)

2 Make sure that the floppy disk drive and CD/DVD drives are empty.

3 Shut down the OS.

In the following cases, the server is turned off after the OS is shut down (Step 4 is not necessary).

• Windows OS

• ServerView is installed

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

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

The server's power LED is lit amber.

The servers power LED is lit amber
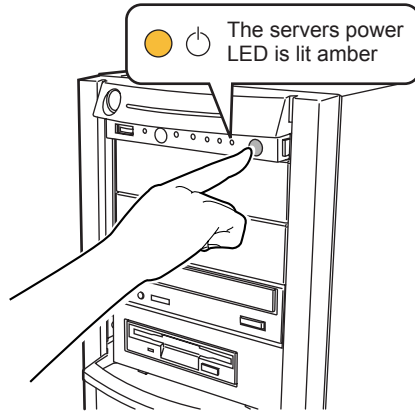
5 Turn off the display and peripheral devices.

⚠CAUTION ⚠ • Be sure to wait for 10 seconds at least after shutdown before turning the server on.

POINT

▶ The time to turn the server off can be set with the ASR setting (on the [Power On/Off] tab) using ServerView. For details, refer to "3.4 Serious Error Handling (ASR)" in "ServerView User's Guide."

■ Cautions when turning the power off (Windows Server 2003)

For the power switch operation mode of this server, you can specify the following modes depending on the OS settings (normally, "Shutdown" is specified).

"Do Nothing", "Prompt Input", "Standby", "Hibernation", or "Shutdown"

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.

1.4.5 Inserting and Ejecting a Floppy Disk

■ Cautions

When using floppy disks, note the following points to avoid failures:

- 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 moisture condensation or water droplets.

■ Inserting the floppy disk

POINT

▶ Use a floppy disk formatted in DOS/V. Operations are not guaranteed when you use other floppy disks.

1 Insert the floppy facing the label up into the floppy disk drive at the side with a shutter.

It makes a clicking sound and the floppy disk eject button pops out.

Shutter

Label   Floppy disk eject button
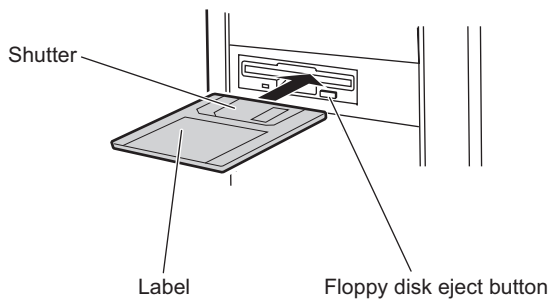
■ **Ejecting the floppy disk**

1 Make sure that the floppy disk access LED is off.

Floppy disk access LED
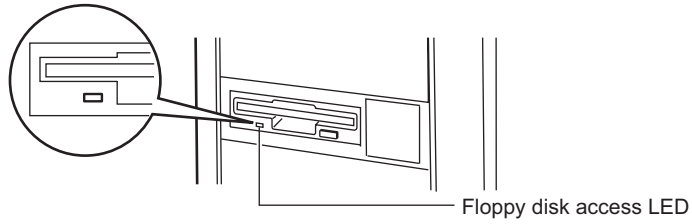
IMPORTANT

▶ Do not eject the floppy disk while the floppy disk access LED is on. Doing so may damage data.

2 Press the floppy disk eject button.

The floppy disk comes out.
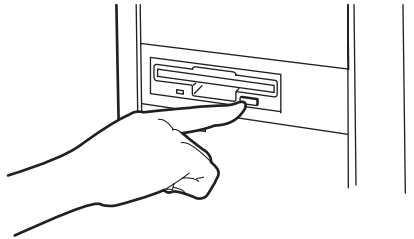
1.4.6 Inserting and Ejecting a CD/DVD

This section explains how to insert and eject a CD/DVD.

To prevent causes of mechanical failures, observe the precautions about handling CD/DVD stated below.

■ Cautions for handling drives

- Avoid an area with high humidity and airborne dust level. Electric shocks and/or server failures may be caused by liquids such as water, or metallic items, such as paper clips, entering a drive.
- Do not use the drive in an area where is easily influenced by shocks and vibrations.
- Do not insert any objects other than the specific CD/DVDs.
- Do not pull on, press hard, or handle the CD/DVD tray roughly.
- Do not disassemble the CD/DVD drive.
- Before use, clean the CD/DVD tray using a soft, dry cloth.
- As a precaution, remove discs from the CD/DVD drive when the drive is not to be used for a long time. Keep the CD/DVD tray closed to prevent foreign matter, such as dust, from entering the CD/DVD drive.

■ Cautions for handling media

- Hold CD/DVDs by their edges to avoid contact with the disc surface.
- Do not contaminate the CD/DVD surface with fingerprints, oil, dust, etc. If dirty, clean with a soft, dry cloth, wiping from the center to the edge. Do not use benzene, thinners, water, record sprays, antistatic agents, or silicone-impregnated cloth.
- Be careful not to damage the CD/DVD surface.
- Keep the CD/DVDs away from heat sources.
- Do not bend or place heavy objects on CD/DVDs.
- Do not attach stickers or similar to the label side. Doing so may cause rotational eccentricity and abnormal vibrations.
- When a CD/DVD is moved from a cold place to a warm place, moisture condensation on the CD/DVD surface can cause data read errors. In this case, wipe the CD/DVD with a soft dry cloth then let it air dry. Do not dry the CD/DVD using devices such as a hair dryer.
- To avoid dust, damage, and deformation, keep the CD/DVD in its case whenever it is not in use.
- Do not store CD/DVDs at high temperatures. Areas exposed to prolonged direct sunlight or near heating appliances are to be avoided.

■ Inserting the CD/DVD

1 Make sure the server is turned on and press the CD/DVD eject button.

The CD/DVD tray comes out a little.
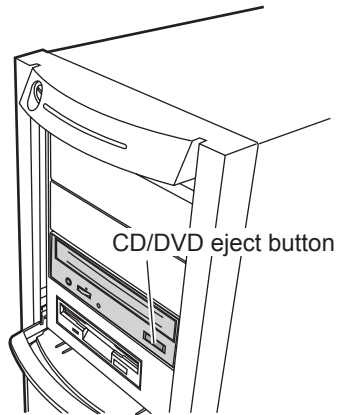
CD/DVD eject button

2 Place the CD/DVD (label side up) onto the tray.
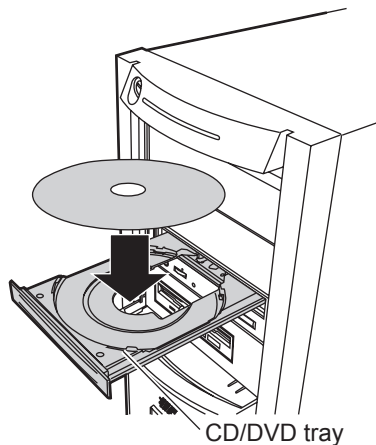
CD/DVD tray

3 Press the CD/DVD eject button again.

The tray is inserted into the server and CD/DVD is set.

POINT

▶ When CD/DVD is set, the CD/DVD access LED is lit. To go to next operation, confirm that the LED is off.

■ Ejecting the CD/DVD

To eject the CD/DVD, confirm that the CD/DVD access LED is off and then press the CD/DVD eject button.

1.5 Workflow

To start the server operation, perform the following procedures.

Installing the server

Refer to "Safety Precautions" and "Start Guide" to install the server on a suitable location.

▼

Preparing the server

- Install internal options
- Set configurations of hardware
Refer to "2.1 Preparation on the Server", "Chapter 6 Installing Internal Options" and
"Chapter 7 Configuring Hardware and Utilities".

▼

Selecting a installation method and observing precautions on installation

Refer to "2.2 Selecting an Installation Method" to decide what installation method to use.
Prior to OS installation, observe precautions with referring to "2.3 Precautions on Installation".

▼

OS installation

Refer to "Chapter 3 OS Installation" to perform OS installation.

▼

Installing internal options

Refer to "Chapter 6 Installing Internal Options" to install the internal options.

▼

Operations before running the server

Before operating the server, refer to "Chapter 4 Operations after OS Installation".

▼

High reliability tools installation

For ServerView, the settings is required prior to the server operation.
For details on each high reliability tool, refer to "Chapter 5 High Reliability Tools".

▼

Start operations

Chapter 2

Checking before OS Installation

2

This chapter explains the preparation and
cautions for the server before OS installation.
Observe this chapter before starting installation.

2.1 Preparation on the Server

Before starting installation of the OS, install internal options in the server and perform hardware settings.

2.1.1 Installing Internal Options

The installation sequence depends on the internal options which must be installed before or after installation of the OS. For installation procedures, refer to "Chapter 6 Installing Internal Options" (→pg.111).

● **Options to be installed before the OS installation**

- Internal hard disk unit to install OS
- Memory modules
- Expansion cards
- USB floppy disk drive

IMPORTANT

▶ ServerStart floppy disk or driver disk is used to install the OS. Connect the USB floppy disk drive in advance.

● **Options to be installed after the OS installation**

- Optional SCSI/SAS devices
- Internal hard disk units where the OS is not installed

IMPORTANT

▶ If an internal option device that must be installed after the OS installation has been already installed, remove the device, and reinstall the device after completion of OS installation.

■ **Installing optional external devices**

When installing an external option SCSI/SAS device and/or a USB connected device, turn off power supply or unplug their connection cables from the server during the OS installation. Connect them again after the OS installation.

■ **Cautions for installing an expansion card**

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

■ Cautions for installing a memory module

The supported maximum capacity varies depending on OS to be installed. Furthermore, since the server uses part of memory as PCI resources, the maximum available size has limitation. The table below describes maximum installable memory size and available memory size.

table: Onboard-capable memory size and available size

OS	Installed memory size	Available memory size
Windows Server 2003 SBS 2003	Up to 2GB	Same as the installed memory capacity
	2GB to 4GB	As shown below, available memory size varies depending on the settings of [NX Memory Protection] of [Advanced Processor Configuration] submenu on [Advanced] menu for BIOS Setup Utility. • [Disabled]: 2GB • [Enabled]: Equivalent to the installed memory size [*1]
Windows Server 2003 x64	Installed memory size	Same as the installed memory capacity
Linux	Installed memory size	Same as the installed memory capacity

*1: The installed memory size may be changed to available memory size by setting /PAE option in the Boot.ini file. For details on editing the Boot.ini file, refer to the manual for OS to be installed.

■ LAN cable

Connect a LAN cable to the server that is not able to access the Internet.

IMPORTANT

▸ Security problems may occur if you access the Internet during setup operation. Do not access the Internet until the setup completes.

When the OS installation and/or automatic installation of an application are performed without connecting the LAN cable to the LAN card, an error may be recorded in the event viewer after setup completes.
Connect a LAN cable to LAN card after Service Pack 2 is applied when:

• Perform a half-duplex connection with 10 Mbps

• Install Intel® PROSet

When performing OS installation with ServerStart to the server with a LAN card installed, Intel® PROSet is automatically installed.

2.1.2 Hardware Settings

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

■ BIOS Setup Utility

The BIOS Setup Utility must be set in the following cases. For details on how to set BIOS Setup Utility, refer to "7.2 BIOS Setup Utility" (→pg.149).

● Changing drives to boot

To change drives to boot, start up BIOS Setup Utility, select the [BOOT] menu then change the boot drive. For how to setup boot drive, refer to "7.2.17 Boot Menu" (→pg.168)

2.2 Selecting an Installation Method

When installing the OS with ServerStart, there are multiple installation methods. Prior to OS installation, refer to the following to decide on the method.

2.2.1 Supported OS

The following operating systems can be installed with using ServerStart V6.711.

- Microsoft® Windows Server® 2003, Standard Edition
- Microsoft® Windows Server® 2003, Enterprise Edition
- Microsoft® Windows Server® 2003, Standard x64 Edition
- Microsoft® Windows Server® 2003, Enterprise x64 Edition
- Microsoft® Windows Server® 2003 R2, Standard Edition
- Microsoft® Windows Server® 2003 R2, Enterprise Edition
- Microsoft® Windows Server® 2003 R2, Standard x64 Edition
- Microsoft® Windows Server® 2003 R2, Enterprise x64 Edition

POINT

▶ ServerStart does not support OS installation of SBS 2003 / Linux.
▶ Any of unsupported OS can not be installed.

2.2.2 Installation Modes of ServerStart

■ Quick installation mode

This mode completes the OS installation by executing plain settings. Select this mode when you want to install the OS quickly and simply. To install while maintaining the established RAID environment, the quick installation mode must be selected to install the OS.
Select [Logical Disk 0] in the [Select the Boot Controller and Boot Disk] window and install the OS.

■ Expert mode

In this mode, start up Disk Manager and format the partition where your OS is installed prior to installation of the OS. Select the expert mode only when installing the OS while maintaining the existing partitions. Also, when using ServerStart while maintaining the existing partitions, start up Disk Manager, format an installation partition and install the OS.

2.3 Precautions on Installation

Observe all the following notes before starting OS installation.

2.3.1 Installation Partition Size

The installation partition sizes are stated as below when using ServerStart to install your OS.
- Maximum size: 2TB
- Minimum size: 2200MB

● **Notes**

- When setting the OS and BOOT partitions on different partitions, specify the partition size directly. (The BOOT partition indicates the partition for startup. Minimum information required for startup such as "ntldr" is allocated on the partition. The OS partition indicates the partition for installing the OS.)
- In either of the following cases, specify a partition size 2TB or less.
  - 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 on a partition larger than 2TB.

2.3.2 Notes on Configuring RAID

Observe the notes described as follows prior to configuring RAID.

■ **Hard disk unit**

- Only internal hard disk units can be used.
  Although up to four internal hard disk units can be installed on this server, the number of available hard disk units to be installed varies RAID level to be configured. For details, refer to Array Controller Document & Tool CD.
- Be sure to use hard disk units of the same model with the same capacity.

■ **Array configuration**

Array controllers to be used vary depending on model of the server. For RAID configuration of each model, refer to applicable manuals.

● **When using a SAS controller card (Integrated Mirroring SAS) (SAS Model Only)**

Configure RAID with an internal hard disk which is connected to a SAS controller card. The array controller to be employed is "Integrated Mirroring SAS" and available RAID level is "RAID 1" only. For details, refer to "Integrated Mirroring SAS Users Guide" in Array Controller Document & Tool CD.

● **When using a SAS array controller card (MegaRAID SAS)**

Configure RAID with an internal hard disk unit which is connected to a SAS array controller card. The array controller to be employed is "MegaRAID SAS" and available RAID level is "RAID 0 / RAID 1/ RAID 1+0 / RAID 5/ RAID 6". For details, refer to "MegaRAID SAS Users Guide" in Array Controller Document & Tool CD.

● **When using an onboard software RAID (SATA Model Only)**

Configure RAID with an internal hard disk unit which is connected to an internal hard disk connector on the baseboard. The array controller to be employed is "Embedded MegaRAID SATA" and available RAID level is "RAID 0" or "RAID 1". For details, refer to "Embedded MegaRAID SATA Users Guide" in Array Controller Document & Tool CD.

POINT

▸ Only one array controller is available with connecting to the internal hard disk. Multiple array controllers can not be used. When a SAS array controller card (PG-248B / PG-248C) is installed in SATA model, available array controller is "MegaRAID SAS" only.

■ Notes

• When RAID-configured hard disk unit is used
Hard disk units that have been used before may have unwanted partition information or array configuration information, which may cause unexpected problems. If you connect any hard disk units with usage history to this server, format them at low level on another system before connecting them to the server. For information on how to format the hard disk, refer to the manual supplied with the system to be used.

• Number of hard disk units
If the number of actually installed units is less than that the setting for the number of units (plus one, when hot spare is specified), installation using ServerStart is aborted because of an error.
When the number of actually installed hard disk units is larger than configured, the disk units are set up according to the setting. Extra units will be configured as standby disk units.

2.3.3 Cautions for Using ServerStart

Observe the cautions described below when the OS installation is performed with ServerStart.

■ Operating ServerStart

Mainly, a mouse is used for ServerStart operations. In some cases, operation with the [Tab] key or cursor are not available. Be sure to use a mouse while operating ServerStart.

■ 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 configuration 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.

■ Ejecting PRIMERGY Startup Disc

Do not eject PRIMERGY Startup Disc while ServerStart is running. If the PRIMERGY Startup Disc is ejected and inserted again, ServerStart starts up in multiple windows, and settings you have made may be lost.

■ Exiting ServerStart

After operation in the expert mode, exiting ServerStart restarts the system. Remove discs from the floppy disk and CD/DVD 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 ServerStart of the PRIMERGY Startup Disc. Windows PE for starting up ServerStart can be only used for installing Windows Server 2003 R2 and Windows Server 2003, provided under a separate legal license.

■ Display of onboard LAN

Display of an onboard LAN on the OS is as below when OS installation performs with ServerStart.

table: Display of onboard LAN

LAN port	Property on My Network	LAN device name
Onboard LAN	Local Area Connection	BroadcomNetXtreme Gigabit Ethernet

■ Adapter numbers

For ServerStart, onboard multiple LAN adapters (network adapter) may be configured on OS installation wizard.
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.

■ Setting up the printer

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

2.3.4 Automatic Driver Installation with ServerStart

ServerStart supports automatic driver installation for the following expansion cards.

table: Automatic driver installation

Onboard controller/Card type	Product ID	Bus
Onboard FDD/IDE/SATA	-	-
Onboard SATA	-	-
Onboard LAN	-	PCI-E
Onboard VGA	-	PCI
Onboard Software RAID	-	-
SAS controller card	-	PCI-E
SAS array controller card	PG-248B/ PG-248C	PCI-E
LAN Card	PG-1853	PCI
	PG-289 / PG-2861	PCI-E
SCSI card	PG-2281	PCI-E

Chapter 3

3

OS Installation

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

3.1 Quick Installation Mode

In this quick installation mode, the OS is installed after configuring minimum required settings. To install the OS quickly and easily, use the quick installation mode.

1 Turn on the server and insert PRIMERGY Startup Disc immediately.

ServerStart starts up. The select-media window for the configuration file appears.
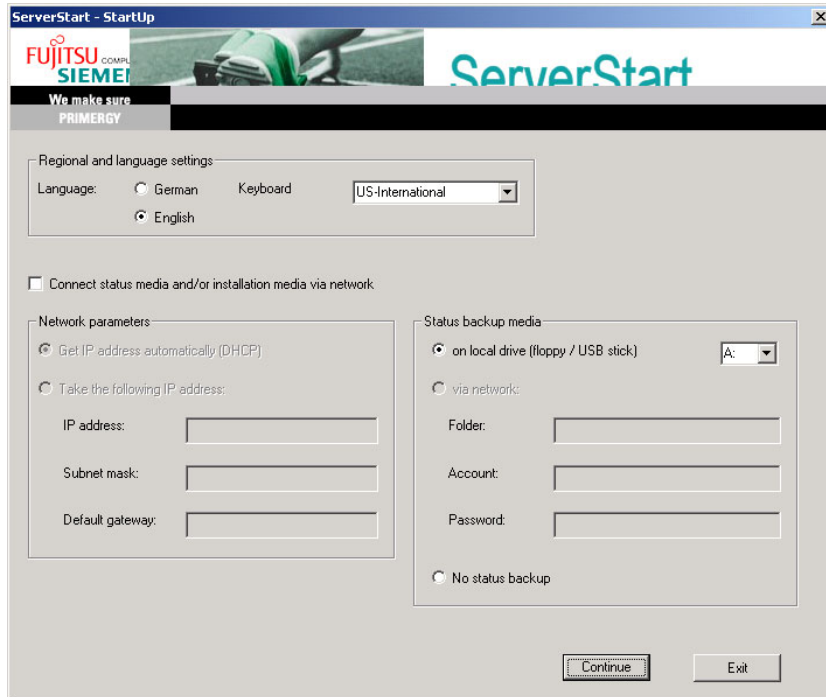
2 Insert the ServerStart floppy disk supplied with the server. Make sure that "on local drive (floppy/USB stick)" and "A:" are selected and click [Continue].

🔎 **POINT**

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

The [Initialization of ServerStart core running] window appears and the ServerStart initialization process starts. Depending on hardware configuration, this process may take a few minutes. After completion, the license agreement window appears.
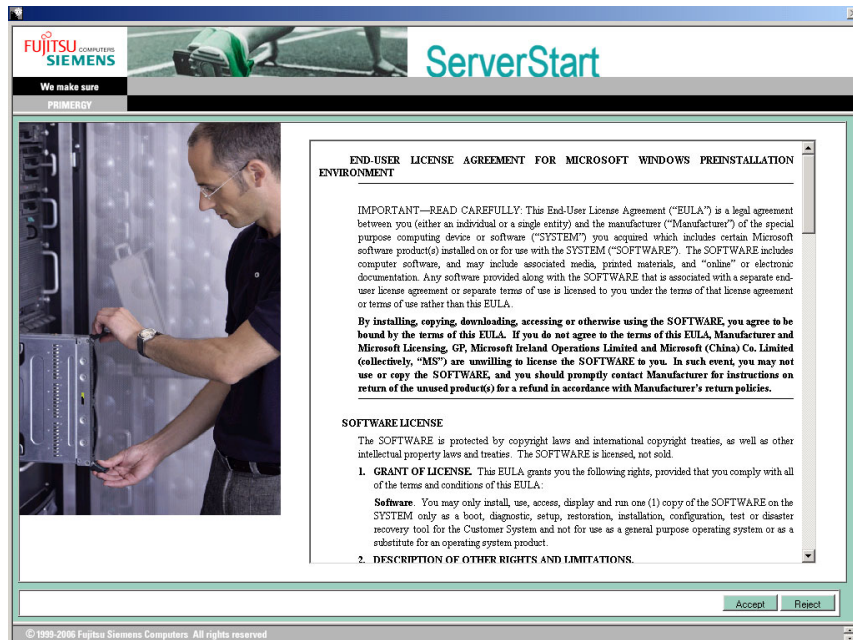
3 Click [Accept].

The [Welcome to ServerStart] window appears.

4 Select "Quick Installation (Windows only)" and click [Next].

The [Select the Boot Controller and Boot Disk] window appears.
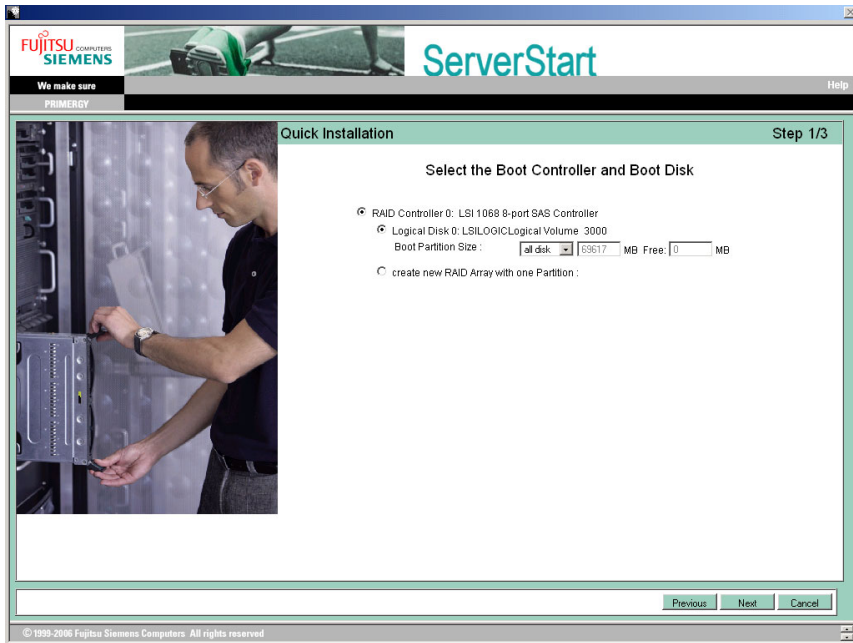
5 Set configuration of the RAID and disks and click [Next].

<u>To install the OS while maintaining the established RAID environment</u>

Select [Logical Disk 0] and specify partition size to be created.

One partition can be created. Select [Logical Disk 0] since the RAID is not required to be created.

<u>To configure RAID</u>

Select [create new RAID array with one partition] and specify the RAID level to be configured and the size of the partition.

All existing RAID will be deleted. Also, only one partition can be created.

POINT

▶ When [Auto] is selected, the RAID is configured with the following levels, depending on the number of the installed disk units.
  • When two hard disk units are installed: RAID 1
  • When three hard disk units are installed: RAID 5
  • When more than three hard disk units are installed: RAID 5 with hot spare function
▶ The configurations of the created partitions are as follows.
  • Volume label: system
  • File system: NTFS
  • Partition configuration: Boot/OS

The [Please select the OS to install] window appears.
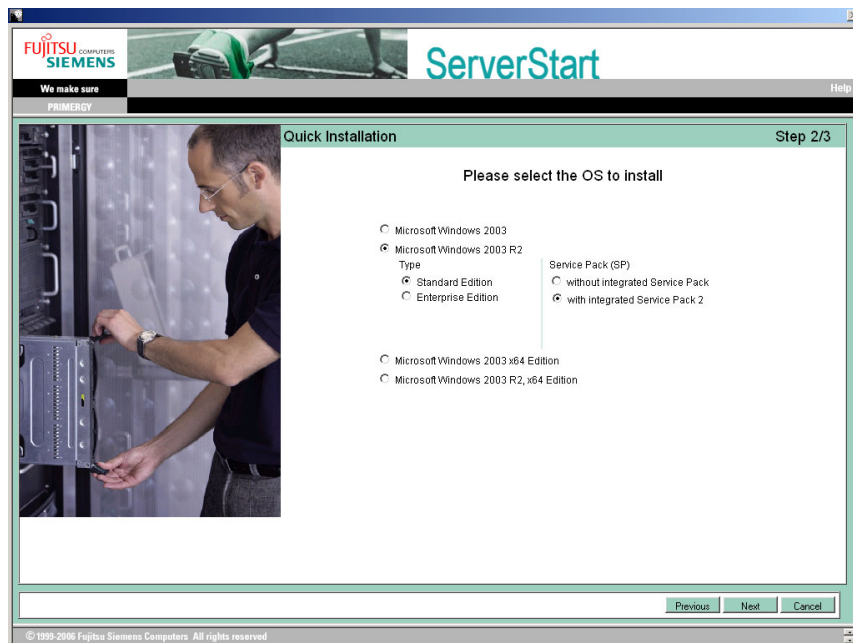
6 Select the OS to be installed and click [Next].

The [Configure your unattended Windows Installation] window appears.
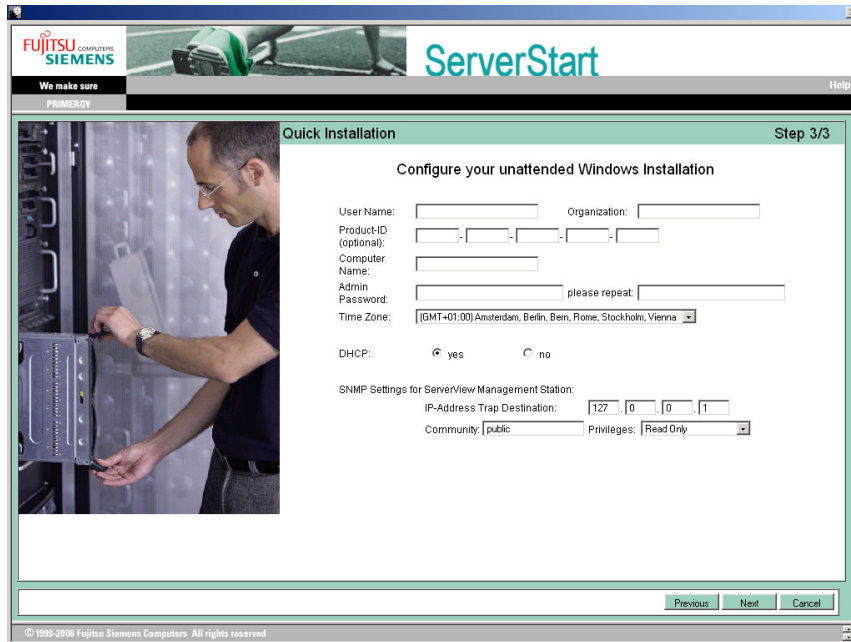
7 Set the items and click [Next].

The [Summary] window appears.

8 Confirm the settings and click [Start Installation].

9 Click [Start now].

Installation starts.

1. If a message prompts you to insert Array Controller Document & Tool CD, insert the CD/DVD and click [OK].
2. If a message prompts you to insert Service Pack CD-ROM, Insert the CD-ROM and click [OK].
3. For Windows Server 2003 x64, a message appears and prompts you to insert Startup Disc Win64 and restart the system. Insert Startup Disc Win64.

10 When a message prompts you to insert the OS CD/DVD, insert the CD/DVD and click [OK].

For Windows Server 2003 / Windows Server 2003 x64

1. Insert the OS CD/DVD (Installation disc).

   After files are copied, a message prompts you to eject the CD/DVD and floppy disk.

For Windows Server 2003 R2 / Windows Server 2003 R2 x64

1. Insert the OS CD/DVD (Installation disc) Disc 1.

   After files are copied, a message prompts you to insert the Disc 2.
2. Insert the OS CD/DVD (Installation disc) Disc 2.

   After files are copied, a message prompts you to eject the CD/DVD and floppy disk.

11 Eject the CD/DVD and floppy disk and click [OK].

The system is restarted.

The system continues the installation operation after restart.

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

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

The system restarts and installs high reliability tools.

POINT

▶ Thus the Command Prompt windows may appear and disappear during installation of Server-View, the installation process is properly proceeding.

13 Press any key when a message notifies completion of installation.

14 Restart the system.

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

The system restarts.

15 Perform the settings for the RAID management tool (ServerView RAID).

For the setting procedures, refer to the manuals in Array Controller Document & Tool CD.

• Settings of an array administrator account

The Windows user account is required when using ServerView RAID. Create a group named "raid-adm", and an account with any name for an array administrator within the group "raid-adm".

• Configuration of HDD Check Scheduler

Modify the settings of HDD Check Scheduler if necessary when using a SAS array controller card (MegaRAID SAS) and Onboard Software RAID (Embedded MegaRAID SATA). It has been set at 12 o'clock everyday as a default setting.

• Configuration of Battery Recalibration Scheduler

Modify the settings of Battery Recalibration Scheduler if necessary when using a SAS array controller card (MegaRAID SAS) together with a battery backup unit. It has been set at 11 o'clock on the first day of every month as a default setting.

The server setup and OS installation have been completed.

Refer to "Chapter 4 Operations after OS Installation" (→pg.73) and perform necessary procedures before starting server operations.

3.2 Expert Mode

In the expert mode, start up Disk Manager, format the installation partition, and install the OS. Use this mode only when you want to perform installation while maintaining the existing partitions.

3.2.1 Starting Up the Expert Mode

Start up the expert mode.

1 Turn on the server and insert PRIMERGY Startup Disc immediately.

ServerStart starts up. The select-media window for the configuration file appears.
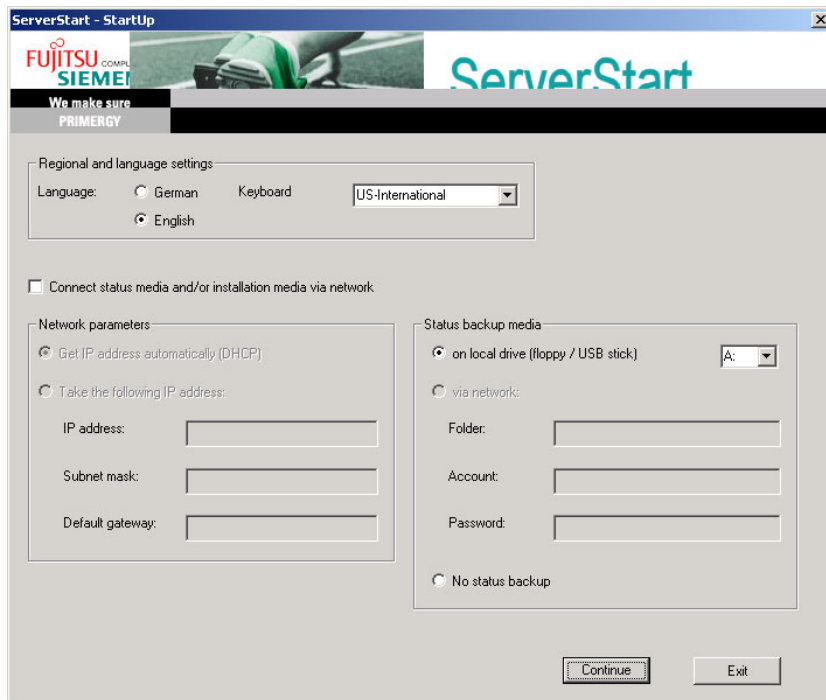
2 Set the ServerStart floppy disk, provided with the server, and ensure that "Removable media" and "A:" are selected. Click [Create].

The [Initialization of ServerStart core running] window appears and the ServerStart initialization process starts. Depending on hardware configuration, this process may take a few minutes. After completion, the license agreement window appears.
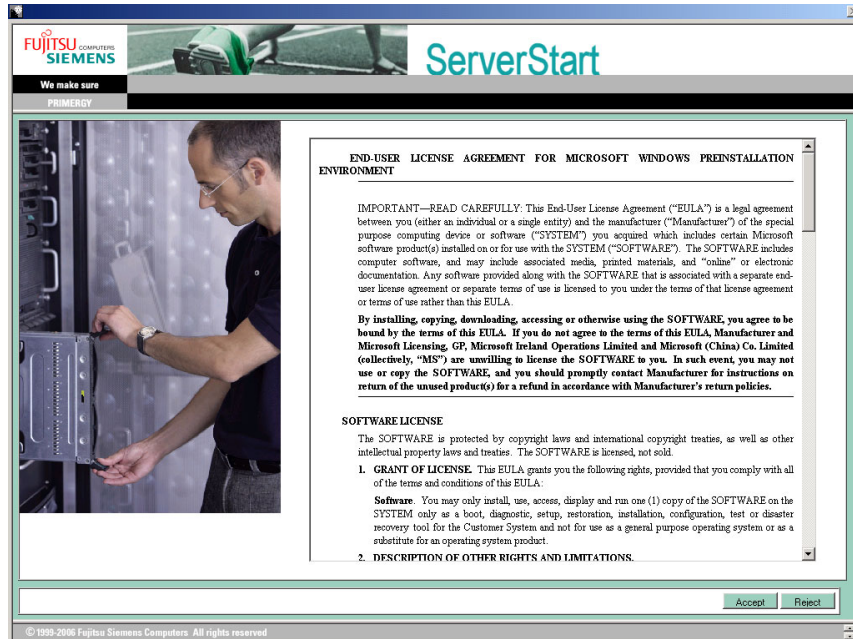
3 Click [Accept].

The [Welcome to ServerStart] window appears.
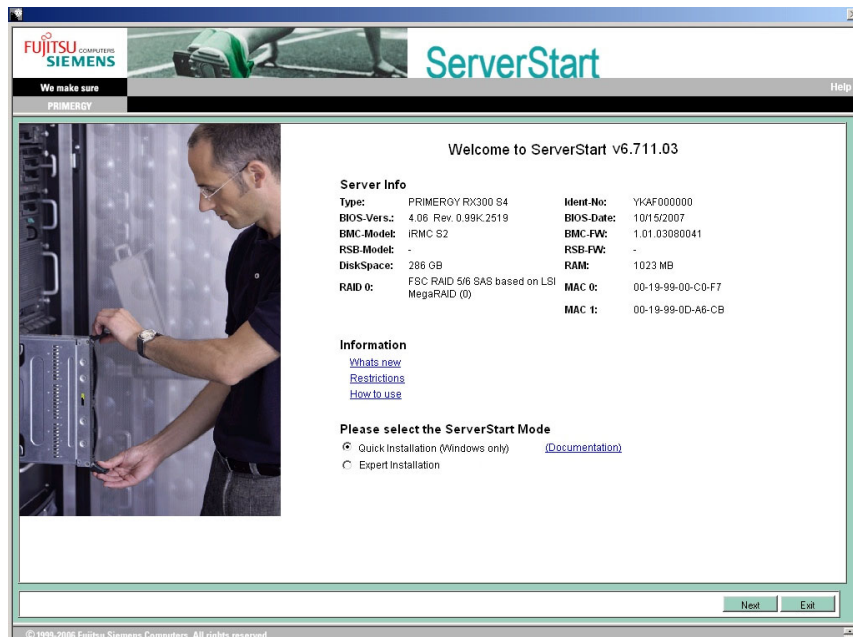
4 Select [Expert Installation] and click [Next].

The [Create a ServerStart Floppy Disk] window appears.
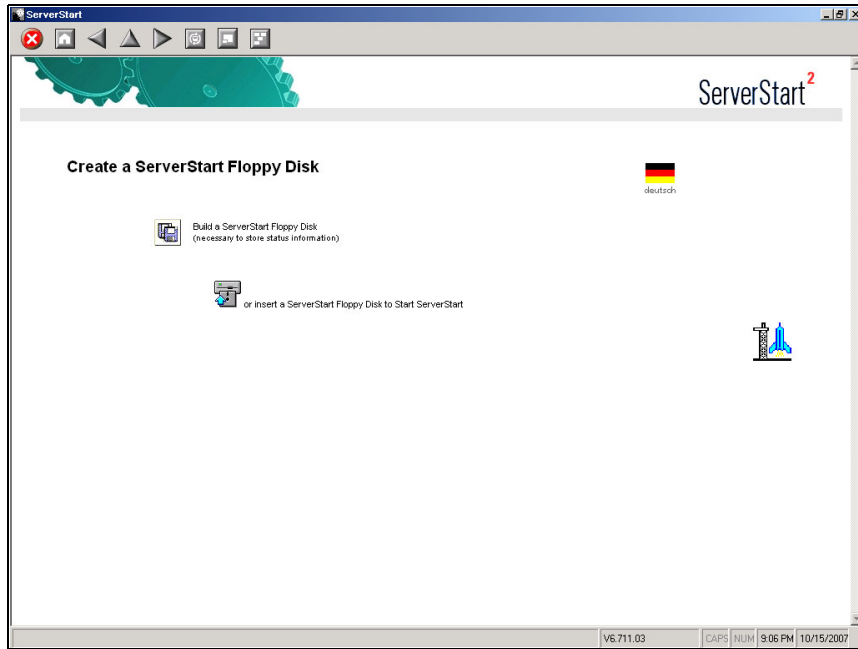
5 Click [Build a ServerStart Floppy Disk].

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

6 Click [OK].

The [Please Select your Keyboard] window appears.

7 Select your keyboard language from the drop-down list and click [OK].

The subsequent start procedure may take several minutes.

The [Welcome to ServerStart] window appears.
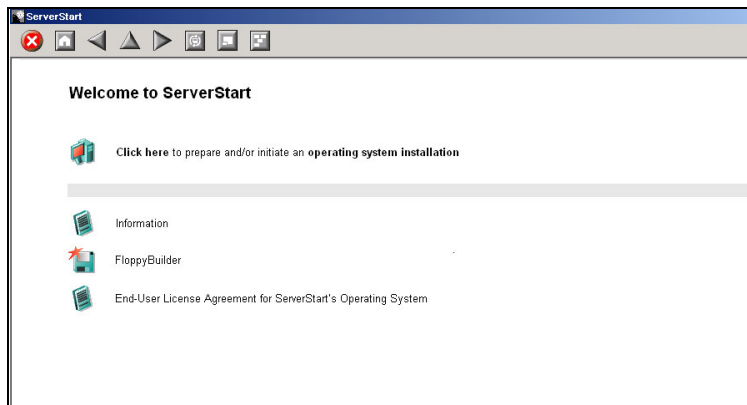
8 Click [Click here to prepare and/or initiate an operating system installation].

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

Click [Special Hints on Operating System Installation] and observe them carefully. Important information such as limitations on configuration of hard disk units is described.

9 Click [MS Windows Operating Systems].

The [Microsoft Windows Operating System Installation] window appears.

10 Click [Install MS Windows Server 2003 or MS Small Business Server (SBS) 2003].

The [Installation of MS Windows Server 2003] window appears.

11 Click [Install MS (OS) interactively (expertise required)].

The expert mode starts.

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

IMPORTANT

▶ Make sure to open the menu of each wizard and confirm the settings.

3.2.2 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.
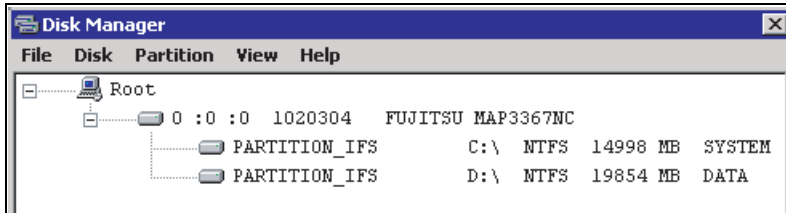
2 Format the OS installation partition. Select the OS installation partition and click the [Partition] menu – [Format].

The [Format Partition] window appears.
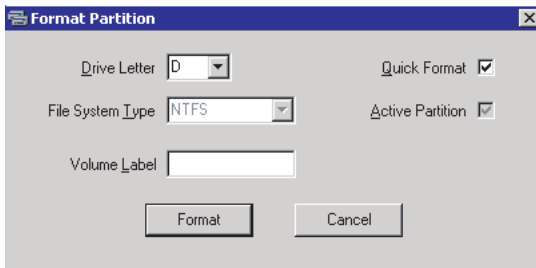
IMPORTANT

▶ Be sure to set the active partition on drive C.

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.

3.2.3 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 setup windows vary depending on the OS to be installed. For example, operation on Server 2003
R2 is given below. Server 2003 R2 is corresponding to your OS to be installed.

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

A message prompts you to specify the configuration file.
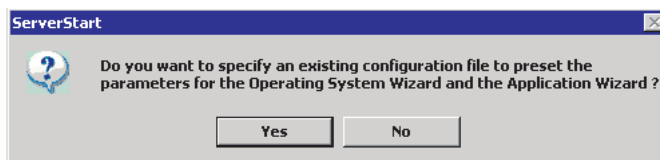
2 Click [No].

The [Windows Installation] window appears.
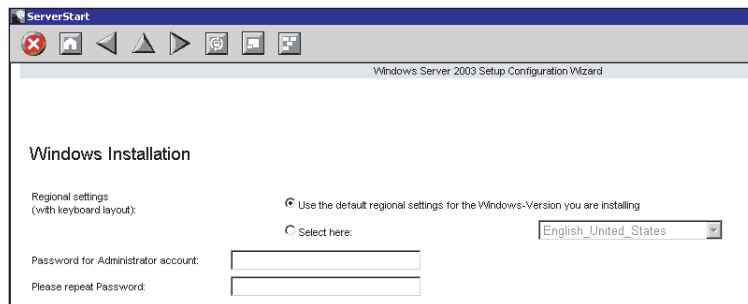
3 Enter the password in [Password for Administrator account] and [Please repeat
Password] and click [Next].

⚲POINT

▶ If the passwords of [Password for Administrator account] and [Please repeat Password] are
not identical, an error message occurs. Enter the password correctly.

The [Computer Identification] window appears.
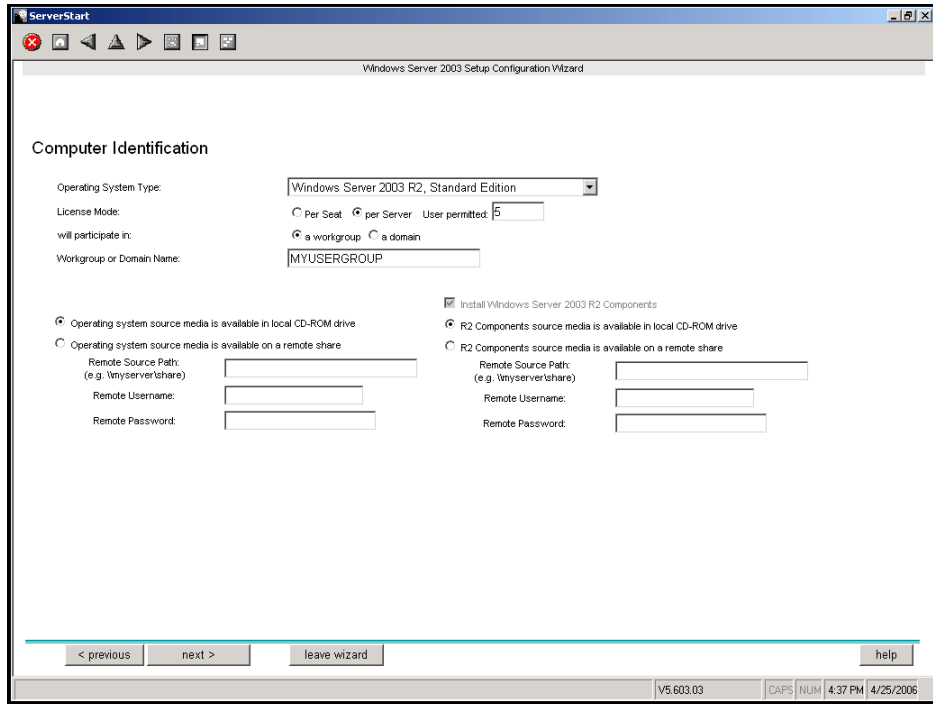
4 Set items and click [next].

The [Installation Directory and Time Zone] window appears.
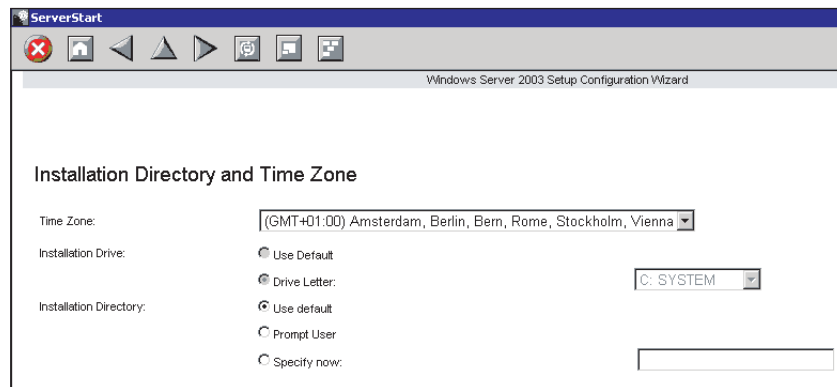
5 Set items and click [next].

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.

IMPORTANT
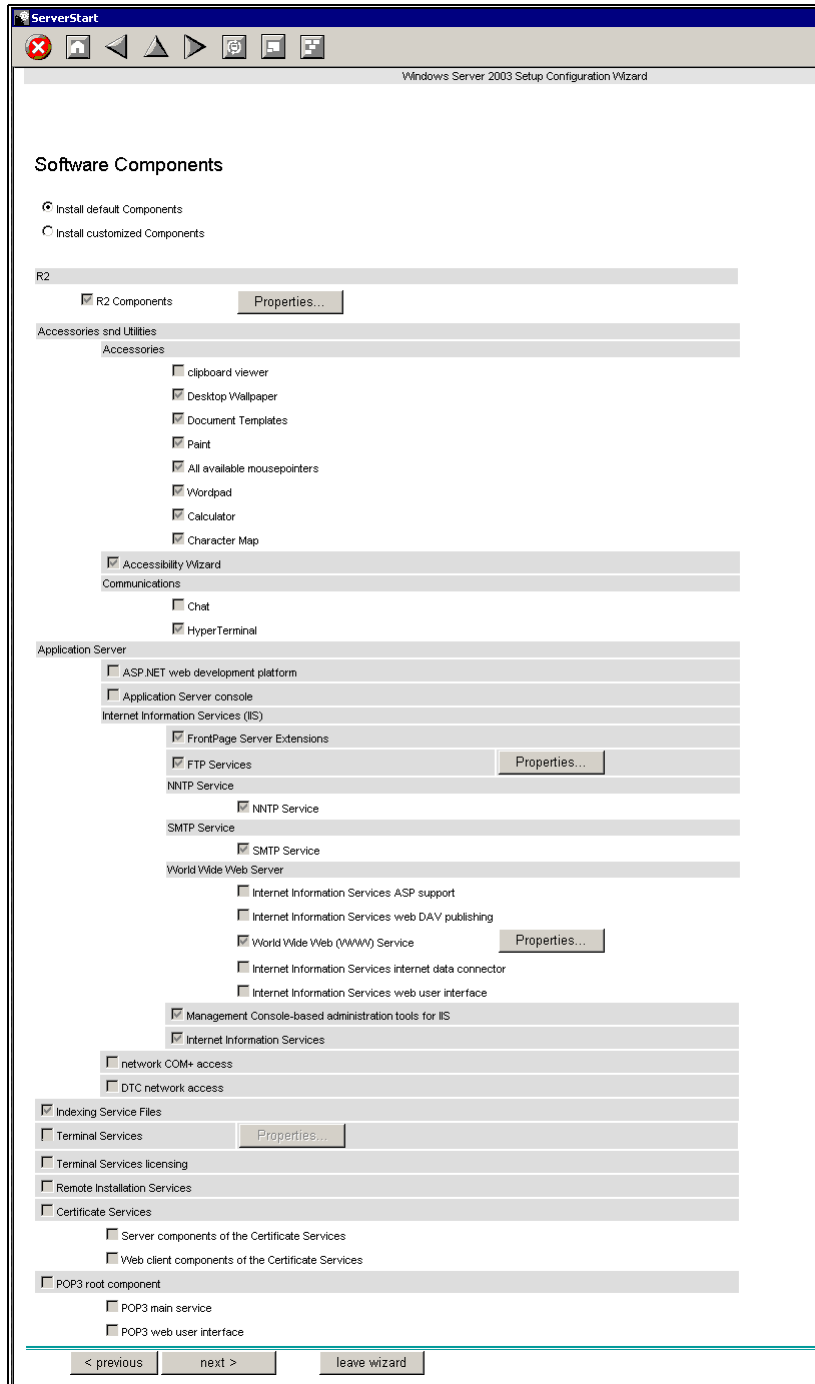
▶ If Windows Server 2003 R2 is selected at the Computer Identification, R2 components are always copied to the hard disk. To install the components, click [Properties] and check the box of the components to be installed.

9 Set items and click [next].

The [Services] window appears.
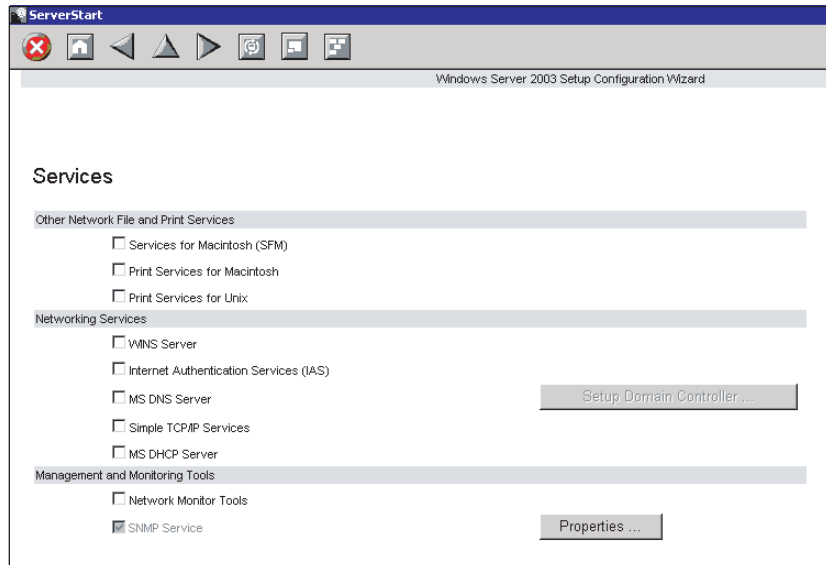
POINT

▶ Simple Network Management Protocol is always installed. Click [Properties] to change the settings.

10 Set items and click [leave wizard].

The display returns to the expert mode window.

3.2.4 Application Wizard

Set configurations for installation of supplied applications such as high reliability tools. Open those windows and confirm the settings carefully.

1 Click [Application Wizard: Select additional software components].

The application wizard appears.
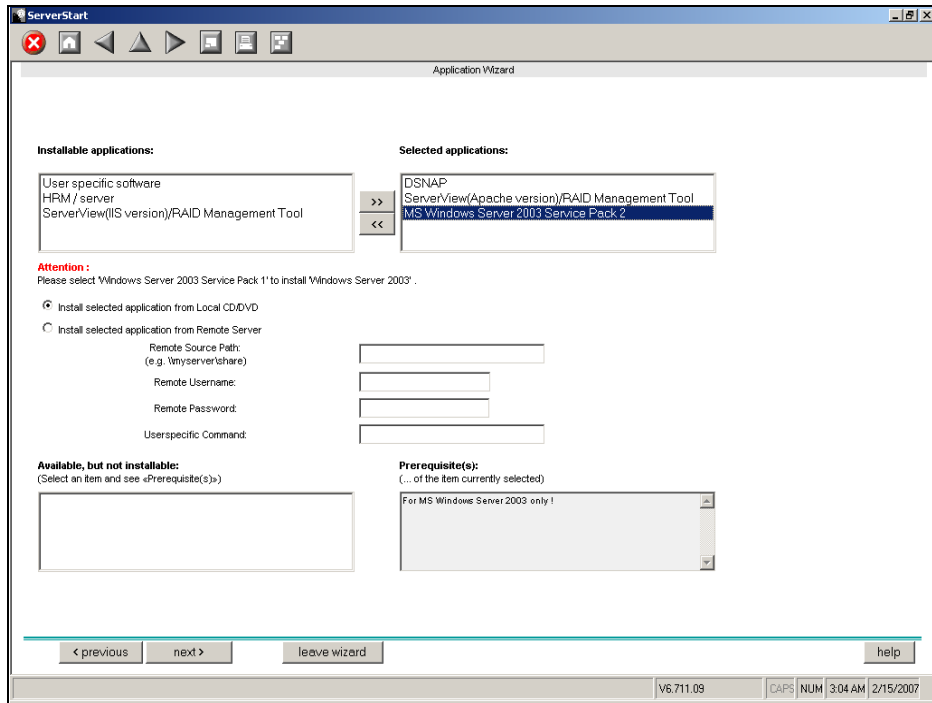
2 From the list in [Installable applications], select application software to be installed and click [>>].

Set all applications to be installed on the [Selected applications] list.

POINT

▶ Although the selection can be released in the expert mode, it may take a long time to restore the system when errors occur without the management tools. Be sure to install these tools.
  • DSNAP
  • Broadcom Advanced Control Suite
  • RAID Management Tool
  • ServerView (Apache)
  • ServerView (IIS)
▶ Only Service Pack 2 is available to perform automatic installation with ServerStart.

3 Click [leave wizard].

The application wizard closes.

3.2.5 Starting OS Installation

Install the operating system to the server.

IMPORTANT

Notes on the installation

▶ When the installation partition is not empty, a confirmation message appears. Unless otherwise considered as problem, 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 values in the window to continue the installation procedure. However, corrections made here are not reflected on the configuration file.

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

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

2 Click [Yes].

The following window appears.
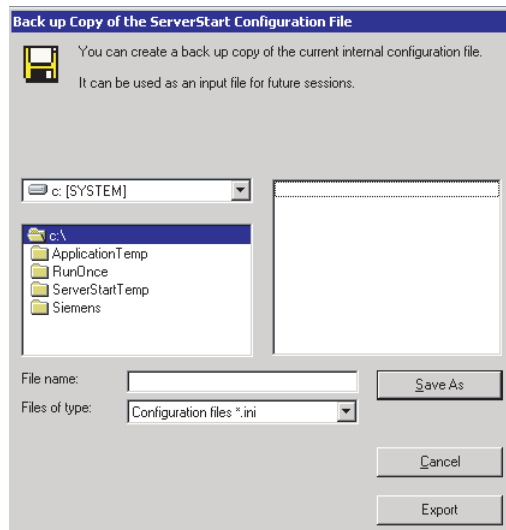
3 Enter the file name and click [Save As].

Installation starts automatically.

1. If a message prompts you to insert Array Controller Document & Tool CD, insert the CD-ROM and click [OK].
2. If a message prompts you to insert the Service Pack CD-ROM, insert the CD-ROM and click [OK].
3. For Server 2003 x64, a message prompts you to insert Startup Disc Win64 and restart the system. Insert the Startup Disc Win64.

4 When a message prompts you to insert the OS CD/DVD, insert the CD/DVD and click [OK].

For Windows Server 2003 / Windows Server 2003 x64

1. Insert the OS CD/DVD (Installation disc).

The license agreement window appears.

2. Click [I agree].

After files are copied, a message prompts you to eject the CD/DVD and floppy disk.

For Windows Server 2003 R2 / Windows Server 2003 R2 x64

1. Insert the OS CD/DVD (Installation disc) Disc 1.

The license agreement window appears.

2. Click [I agree].

After files are copied, a message prompts you to insert the Disc 2.

3. Insert the Disc 2 of OS CD/DVD (Installation disc).

After files are copied, a message prompts you to eject the CD/DVD and floppy disk.

5 Eject the CD/DVD and floppy disk and click [OK].

The system is restarted. The system continues the installation operation after restart.

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

○POINT

▶ When SATA hard disk has been installed, the massage appears that SATA HDD is detected. Click [OK] and proceed to the operation.

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

The system restarts and installs high reliability tools.

○POINT

▶ Thus the Command Prompt windows may appear and disappear during installation of Sever-View, the installation process is properly proceeding.

7 Press any key when a message notifies completion of installation.

8 Restart the system.

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

The system restarts.

9 Perform the settings for the RAID management tool (ServerView RAID).

For the setting procedures, refer to the manuals in Array Controller Document & Tool CD.

• Settings of an array administrator account

The Windows user account is required when using ServerView RAID. Create a group named "raid-adm", and an account with any name for an array administrator within the group "raid-adm".

• Configuration of HDD Check Scheduler

Modify the settings of HDD Check Scheduler if necessary when using a SAS array controller card (MegaRAID SAS) and Onboard Software RAID (Embedded MegaRAID SATA). It has been set at 12 o'clock everyday as a default setting.

- Configuration of Battery Recalibration Scheduler
  Modify the settings of Battery Recalibration Scheduler if necessary when using a SAS array controller card (MegaRAID SAS) together with a battery backup unit. It has been set at 11 o'clock on the first day of every month as a default setting.

The server setup and OS installation have been completed. Refer to "Chapter 4 Operations after OS Installation" (→pg.73) and perform necessary procedures before starting server operations.

Chapter 4

Operations after OS Installation

4

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

4.1 Memory Dump/Paging File Setting

Before starting operating this server, configure the setting for obtaining memory dump.

● **Memory dump**

Debugging information, when memory dump has been set, will be automatically saved in case that a STOP error (fatal system error) occurs in the system. Error causes may be apparent by analyzing the saved memory dump.
When a large-capacity memory is installed, care shall be exercised to configure the settings of 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.).

4.1.1 How to Obtain Memory Dump

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 (recommended)**

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 × 1.5)
- Memory dump file: Equivalent to installed physical memory

IMPORTANT

▶ Complete memory dump can not be used on the computer in which the 2GB or larger memory is installed.

● **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 × 1.5
  For memory of 1,374MB or more - 32-bit system: 2GB + 16MB, 64-bit system: Installed physical memory + 128MB
- Memory dump file: Depending on the kernel-mode address space being used during STOP

● **Small memory dump**

Minimum information to identify a problem is recorded. When this option is selected, a new file is created each time the system unexpectedly stops.

Those file histories are stored in the directory displayed in [Small dump directory].

- Paging file: Minimum 2MB
- 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 the administrator account.

2 Check free space of the drive where the memory dump file is to be stored.

Check the required free space according to "■ Checking hard disk free space" (→pg.74).

If the drive has insufficient free space, refer to "■ Cannot collect the memory dump" (→pg.187).

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.
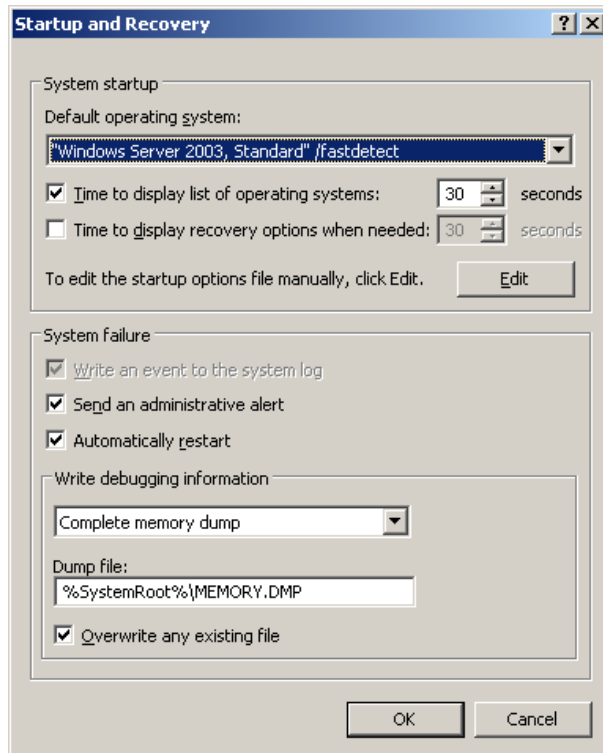
5 Set as follows:

1. In the [Write debugging information] section, select the memory dump file type.
   - Complete memory dump (Recommended)
     The whole system memory information is recorded to the memory dump file.
   - Kernel memory dump
     Only kernel memory is recorded to the memory dump file.
   - 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].

2. In [Dump file] or [Small dump directory], specify the directory to save the memory dump file, with its full path.
   For kernel memory dump or complete memory dump, when check the box of the [Overwrite any existing file], 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 restarts.

■ Paging file setting

Set up the paging file according to the following procedures:

1 Log on to the server with the administrator account.

2 Check free space of the drive where the system has been installed.
Check the required free space according to "■ Checking hard disk free space" (→pg.74).
If the drive has insufficient free space, refer to "■ Cannot collect the memory dump" (→pg.187).

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.
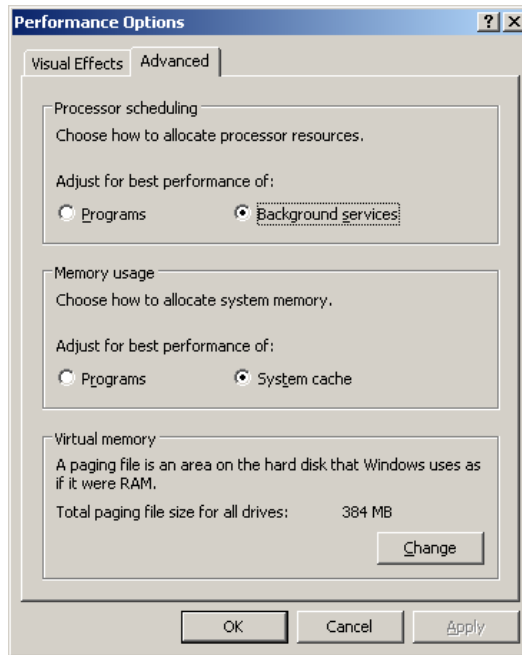
6 Click [Change] of the [Virtual memory].

The [Virtual Memory] window appears.
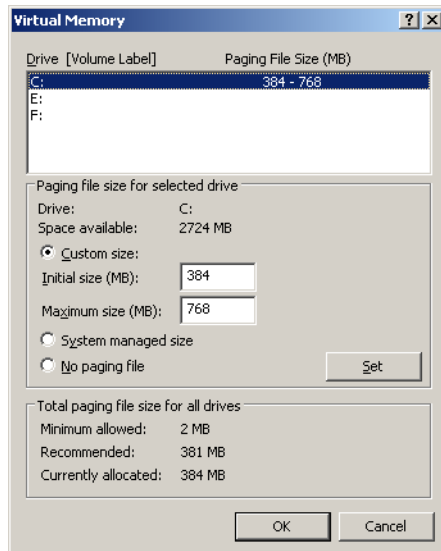
7 Select the drive where the paging file is to be created.

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.

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

⚠️IMPORTANT

▶ 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 occupies a large part of memory is regularly used, set a larger size as required.

9 Enter a value in [Maximum size].

Set 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.

■ Rebooting after OS dump setting

Rebooting may not be executed when the server fails even if rebooting has been set after obtaining dumping.

Immediate provision may be required when the server fails. However, configure the settings of rebooting with the Watchdog, when continuous operation is required. For details and configuration procedures for the Software Watchdog, refer to "3.4 Serious Error Handling (ASR)" in "ServerView User's Guide".

4.2 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., is damaged, such data can be reconstructed using the recovery information stored in the created system recovery disk.

▶ To create a recovery disk, prepare an unused formatted floppy disk.

4.2.1 Creating the Automated System Recovery (ASR) Set

After setting up Windows Server 2003, create a system recovery set. An unused formatted floppy disk and a medium are required 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 Enter a name and a 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 prompts you to insert a floppy disk, 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 for sure.

4.3 Storing the System Configuration Information

Before starting operations and when changing the system configuration information, store the configuration information. By storing this information, the system can be recovered with the stored information in case of a system failure (such as when the baseboard fails). Use Server Management Tools for storing and recovering the system configuration information.

IMPORTANT

▶ Since the system configuration information is significant in maintaining the server, be sure to store the configuration 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. memory, hard disk unit, baseboard or expansion card is added/removed or changed)
  • When the Remote Management Controller information is changed
▶ As the stored system configuration information will be used for maintenance operation.

■ Cautions

• "Server Management Tools" disk is exclusively for this server. Do not use it on other systems. Otherwise, the systems may be damaged.
• Only the information that is configured with BIOS Setup Utility and the configuration information of the Remote Management Controller can be stored/recovered. However, a user account for the Remote Management Controller and the license information of the Remote Management Ctrl Upgrade kit cannot be stored.
• Make sure to perform this operation only when the server is started with the "Server Management Tools" disk. Do not run Server Management Tools on the server started from the hard disk or by the other floppy disk. Otherwise, the system may be damaged.
• 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.184).

■ Creating Server Management Tools disk

Server Management Tools disk is required to be created when stated as "blank" on the label of the "Server Management Tools" disk supplied with the server. Create Server Management Tools by referring to "4.4 Creating Maintenance Tools and Driver Disks" (→pg.85).

4.3.1 Storing the BIOS Information and the Remote Management Controller Information

Store the BIOS information and the Remote Management Controller information according to the following procedures.

IMPORTANT

▶ 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/Remote Management Controller information. For details of ServerView, refer to "ServerView User's Guide".
▶ Server Management Tools disk is required to be created when mentioned as empty "blank" on the label of the "Server Management Tools" disk, supplied with the server. Create Server Management Tools by referring to "4.4 Creating Maintenance Tools and Driver Disks" (→pg.85).

1 Insert the Server Management Tools disk into the floppy disk drive and turn on the server.

The window for selecting a keyboard appears.

```
Please select:
   1 = JP Keyboard
   2 = US Keyboard
Your selection
```

2 Select a keyboard.

Select [1] for Japanese keyboard or select [2] for English keyboard. Japanese keyboard is selected by default.

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

```
A:\SMT>BIOSSAVE.bat
```

IMPORTANT

  ▶ Do not input the file extension at the end of a file name.
  ▶ The file name is given as "cmosfile" when a file name is not input.

4 If the BIOS information or the Remote Management Controller information is stored successfully, the following message appears.

```
Success !
```

5 Confirm that the stored information files are created.

Enter the following command to display the stored information files which are created.

```
A:\SMT>dir
```

The BIOS information has been stored. The server can now be turned off safely.

4.3.2 Recovering the BIOS / Remote Management Information

If the information configured with 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.

IMPORTANT

▸ Do not turn off the server while a program is running.
▸ Before starting up the system, check that the "OS Boot Monitoring" function of ServerView is disabled (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 the server is operated with the "OS Boot Monitoring" function enabled, enable the function again before resuming operation. For details of ServerView, refer to "ServerView User's Guide".
▸ Server Management Tools disk is required to be created when mentioned as empty "blank" on the label of the "Server Management Tools" disk, supplied with the server. Create Server Management Tools by referring to "4.4 Creating Maintenance Tools and Driver Disks" (→pg.85).

1 Insert the Server Management Tools disk into the floppy disk drive and turn on the server.

The window for selecting a keyboard appears.

```
Please select:
   1 = JP Keyboard
   2 = US Keyboard
Your selection
```

2 Select a keyboard.

Select [1] for Japanese keyboard or select [2] for English keyboard. Japanese keyboard is selected by default.

3 When the DOS Prompt window appears, confirm that the BIOS stored information files are in the floppy disk.

Enter the following command to confirm that the stored information files are in the floppy disk.

```
A:\SMT>dir
```

4 Enter the following command and press the [Enter] key.

```
A:\SMT>BIOSRESET.bat
```

IMPORTANT

> ▶ Do not input the file extension at the end of a file name.
> ▶ The file name is given as "cmosfile" when a file name is not input.

5   If the BIOS information is restored correctly, the following message appears.

```
Success !
```

6   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.

4.4 Creating Maintenance Tools and Driver Disks

This section explains how to create the server maintenance tools and driver disks with FloppyBuilder function of ServerStart.

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

- Server Management Tools disk
- DOS Diskette

FloppyBuilder can be used under environments such as:

- The ServerStart system started on a client computer (recommended)
- The ServerStart system started from PRIMERGY Startup Disc on the server

POINT

▶ When creating the tools on a client computer, it is necessary to install ServerStart on the client computer beforehand.
If ServerStart of a different version is installed on the computer, make sure to uninstall the ServerStart. Then perform installation again. For details on how to uninstall ServerStart, refer to "■ Uninstalling ServerStart" (→pg.87).

4.4.1 Installing ServerStart

Install ServerStart on a client computer when creating a drive disk using FloppyBuilder function.

● System requirements for client computers

Client computers must satisfy the following requirements.

Hardware	Personal computers operated with Windows Vista, Windows XP Professional, or Windows 2000 Professional (A DVD drive and minimum 10MB free disk space are required.)
Software	Microsoft® Internet Explorer 5.5 or later

POINT

Using ServerStart on the server

▶ ServerStart can be installed to the server, when using Windows Server 2003. Install ServerStart in accordance with this chapter.
Note that ServerStart is not available to the server where Windows Server 2003 x64 is installed.

1 Insert the PRIMERGY Startup Disc into the client computer.

The [PRIMERGY Startup Disc] window appears.

2 Click [ServerStart V6.711].

[Fujitsu Siemens ServerStart] window appears.
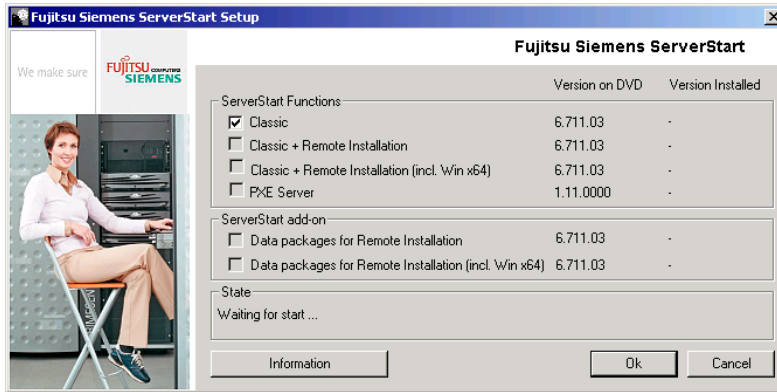
POINT

▸ The massage "Do you want to run or save this file?" may appear depending the OS in use. Fol-
low as below.

1. Click [Run].
   A massage appears that "The publisher could not be verified. Are you sure you want to
   run this software?"
2. Click [Run].
   Execute "SeStSetup.exe" in the disk when [Fujitsu ServerStart Setup] window does not
   display.

3 Check the checkbox of [Classic] only and click [OK].

The Setup window appears.

4 Click [Next].

The [License Agreement] window appears.

5 Select [I accept the license agreement] and click [Next].

The [User Information] window appears.

6 Enter the user information of the software and click [Next].

The [Destination Folder] window appears.
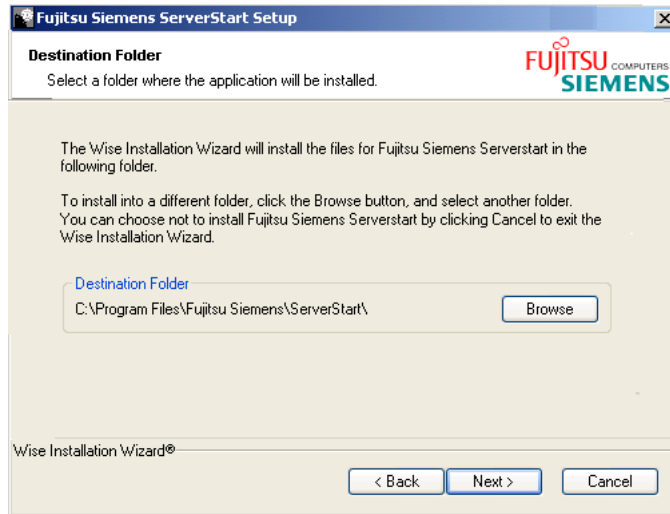
7 Specify the installation folder and click [Next]. To change the installation folder, click [Browse] and select the folder.

The [Ready to Install the Application] window appears.

8 Click [Next].

Installation is executed.

POINT

> ▶ If a message prompts you to restart the system before or after installation, eject the disc and restart the system according to the message. When the system restarts, insert PRIMERGY Startup Disc 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.

9 Click [Exit].

ServerStart has been installed to the client computer.

■ Uninstalling ServerStart

Uninstall ServerStart on the client computer according to the following procedure when necessary.

1 Click [Start] – [All Programs] – [Fujitsu Siemens ServerStart] – [Uninstall ServerStart].

2 Click [OK].

When the uninstallation is executed successfully, ServerStart is deleted.

4.4.2 Startup Method for FloppyBuilder

Start up ServerStart and FloppyBuilder. Startup methods vary depending on the cases of creating on a client server, or the server.

● **For creation on a client computer**

1 Set the PRIMERGY Startup Disc to the client computer.

Once "PRIMERGY Startup Disc" window appears, exit the window.

2 Click [Start] – [All Programs] – [Fujitsu Siemens ServerStart] – [ServerStart (Start from DVD)].

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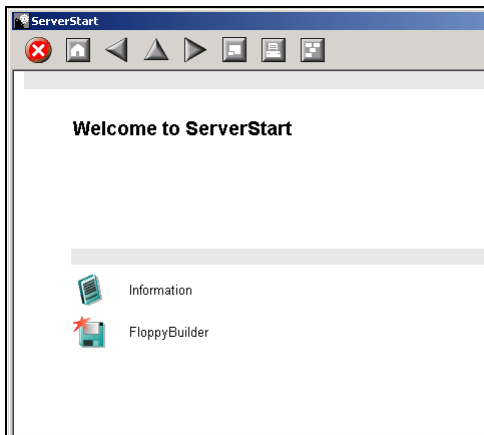
3 Click [FloppyBuilder].

The [ServerStart FloppyBuilder] window appears.
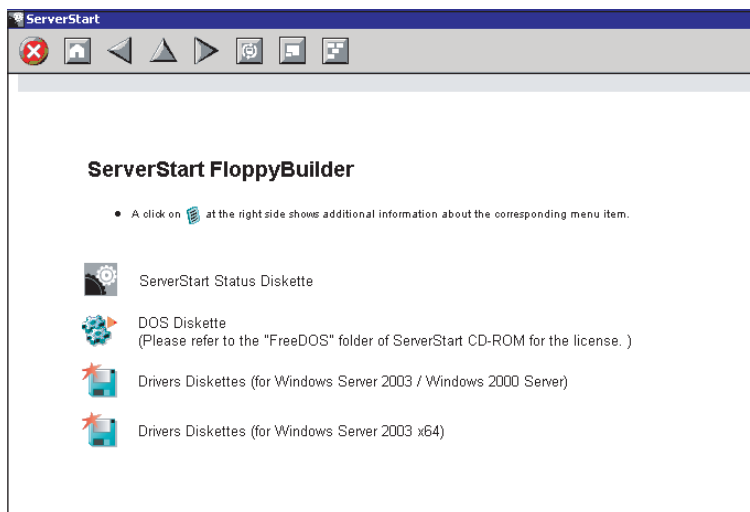
● **For creation on the server**

1 Turn on the power of the server and set PRIMERGY Startup Disc.

ServerStart starts up and select media window for the configuration file appears.

2 Select [RAM Disk] and click [Next].

The [Initialization of ServerStart core running] window appears and the initialization operation launches. In some cases, initialization operation may take a few minutes depending on hardware configuration. After completion, the license agreement window appears.

3 Click [Accept].

The [Welcome to ServerStart] window appears.
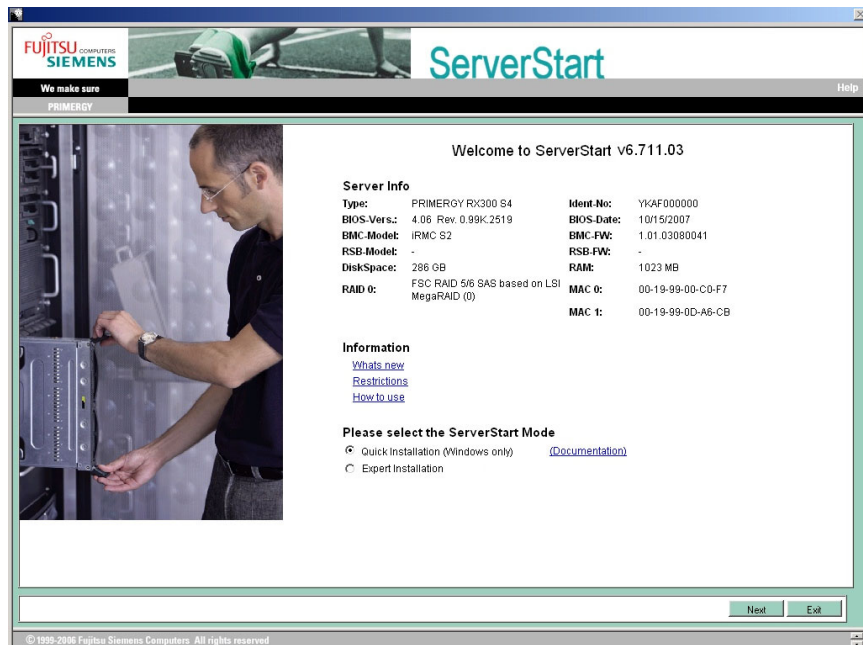
4 Select [Expert Installation] and click [Next].

The [Welcome to ServerStart] window appears.
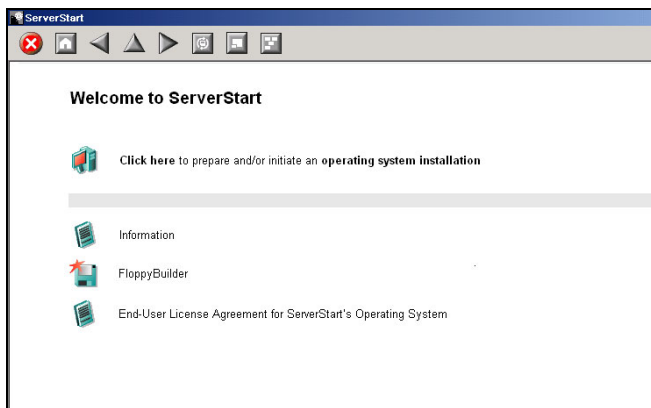
5 Click [FloppyBuilder].

The [ServerStart FloppyBuilder] window appears.
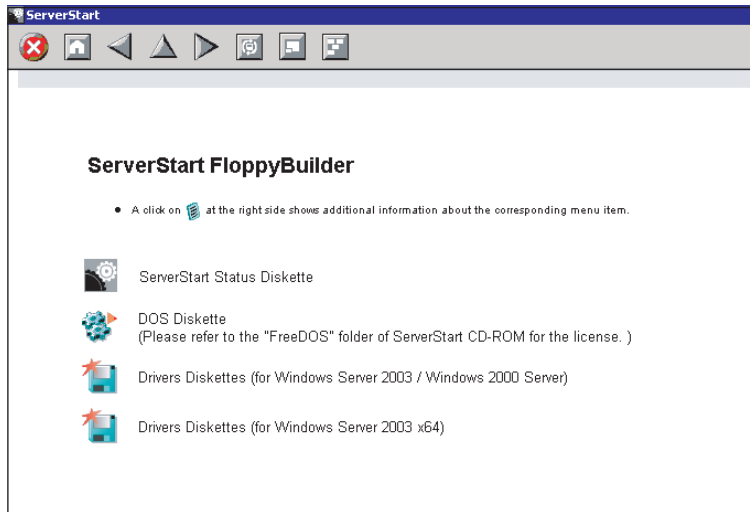
4.4.3 Creating Server Management Tools Disk

Start up ServerStart and confirm that the FloppyBuilder window is displayed.

1 Click [Server Management Tools].

2 Click the tool to be created.

Insert the prepared floppy disk by following the message.

3 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.

4 Fill the following items on the label of the floppy disk.

• The model of the server
• Version and Level of the Server Management Tools
• Date of the floppy disk created

4.4.4 Creating Driver Disks

Obtain floppy disks as many as the number of the drivers to be created before taking the procedures below. Start up ServerStart and confirm that the FloppyBuilder window is displayed.

1 Click [Drivers Diskettes (for Windows Server 2003 / R2)] or [Drivers Diskettes (for Windows Server 2003 x64 / R2 x64)] according to the installed OS.
The [FloppyBuilder Driver Disk] window appears.

2 Click the type of the driver to be created.

3 Click the driver disk to be created.
Follow the message and insert a floppy disk.

4 Perform the subsequent operations according to the messages on the windows.
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 floppy disk.

4.4.5 Creating a DOS Diskette

For DOS data stored into the floppy disk, refer to the file in the following folder of the PRIMERGY Startup Disc.
[CD/DVD drive]:\FreeDOS
To create a DOS diskette, prepare an unused floppy disk.
Start up ServerStart and confirm that the FloppyBuilder window is displayed.

1 Start up ServerStart and Click [FloppyBuilder].

2 Click [DOS Diskette].

3 Perform the subsequent operations according to the messages on the window.
The floppy disk will be formatted automatically and file copying will start.
The DOS diskette will be created automatically. When a message appears indicating that the disk is created, click [OK] and eject the disk.

4.5 Notes before Operating the Server

This section explains the settings required before starting to operate the server. For details on the settings, refer to the following URL.

http://www.microsoft.com/technet/prodtechnol/exchange/2003/Library/default.mspx

POINT

▶ For the settings of the installed application software supplied with the server, refer to the manuals of each of them.

IMPORTANT

▶ For notes on the ServerView security, refer to "Security" in "1.1.7 Notes" in the "ServerView User's Guide".

4.5.1 Auto-run Function from CD/DVD Drives

Perform the following procedures to change the settings of the auto-run function from the CD/DVD 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

Set the value of AutoRun to "1" to enable auto-run, or to "0" to disable auto-run.

2 Restart the system.

The setting is enabled after the system restarts.

4.5.2 Drive Letter Assignment in the Expert Mode

In the expert mode, assignment of a drive letter to a particular partition arbitrarily is not available. Drive letters specified on Disk Manager in the 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/DVD drive. When you change the drive letter, perform the following procedures after installation.

IMPORTANT

▶ The drive letters for the system and boot drive is not changeable.

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.

4.5.3 Notes on Advanced Uninterruptible Power Supply (UPS)

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

■ UPS shutdown time setting

Set a sufficient time interval of UPS power-off time (time from the shutdown command to the actual power-off). If the interval is not adequate, the power will be cut off before system shutdown. It may cause data collapse. For details, refer to the manuals of UPS and the UPS management software.

■ Power supply control by UPS

Change the BIOS settings to turn on the server automatically at power recovery or during scheduled operation using the UPS management software (PowerChute Network Shutdown and PowerChute Business Edition).

1 Start BIOS Setup Utility.

→"7.2.1 Starting and Exiting BIOS Setup Utility" (pg.149)

2 Click the [Power] menu and set [Power Failure Recovery] to [Always On].

→"7.2.10 Power Menu" (pg.162)

3 Save the changes and exit BIOS Setup Utility.

4.5.4 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 otherwise, the WOL function will be disabled.
▶ Only the onboard LAN is available to correspond to the WOL function for this server. To control power supply via a LAN, connect the onboard LAN and set the onboard LAN adapter bind to "1" for sure.

■ BIOS Setup Utility setting

When performing power management via a LAN, set [Enabled] in the [LAN] item of the power menu in BIOS Setup Utility. The [Enabled] in the [LAN] has been set as the initial setting.

4.5.5 Other Notes on Operation

■ Unnecessary files

After OS installation is completed, folders named Runonce and Runonce2 may be left in the drive where the OS has been installed. Delete these folders since those are not necessary for the system operation.

■ Automated system operation

When performing automated system operation, enhancement of the safety operation with this server against unexpected accidents is necessary, employing such measures as introducing disaster-prevention provisions and stationing responsible for disaster prevention (such as a security guard or janitor) in the building.

■ Unintentional power-off prevention

It is recommended to employ a dedicated power supply device (such as a power distribution board) to prevent accidental power shut-offs.

4.6 LAN Driver Advanced Setup [BACS]

BACS is an integrated GUI application software. Use BACS to perform advanced settings of onboard LAN.

IMPORTANT

▶ VLAN is not available using together with onboard LAN.

POINT

▶ Use Intel® PROSet (→pg.98) 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
  • Perform the other advanced settings of a LAN card

4.6.1 BACS Installation

If [Broadcom Control Suite 2] is not displayed in the [Control Panel], install BACS according to the following installation procedures:

■ For Windows Server 2003 x64

1 Start up the following file contained in the PRIMERGY Startup Disc.
[CD/DVD drive]:\PROGRAMS\General\Broadcom\MgmtApps_x64\setup.exe
The installer starts up.
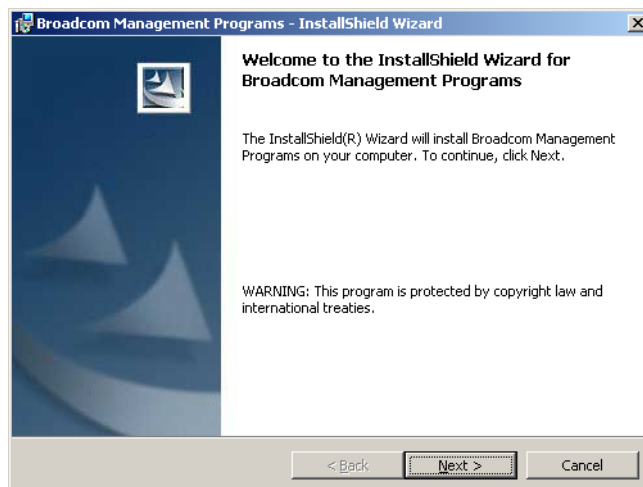
2 Click [Next].

The license agreement window appears.
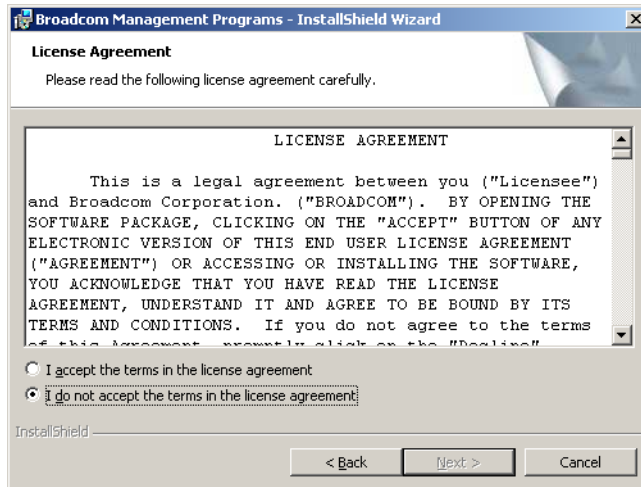
3 Click [I accept the terms in the license agreement] and click [Next].

The [Custom Setup] window appears.
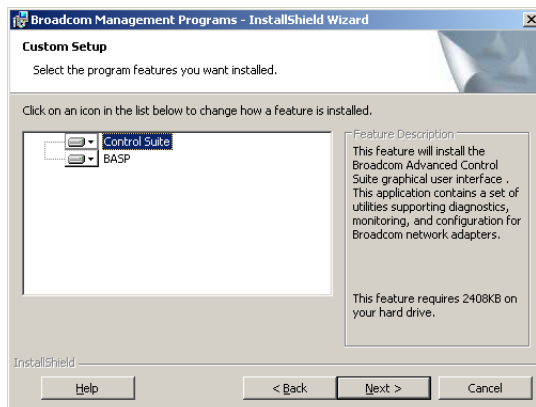
4 Click [Next].

Proceed to the installation by following the window instructions.

■ For Windows Server 2003

☉POINT

▶ If the OS is installed using ServerStart, "BACS" is already installed with the driver.

1 Start up the following file contained in the PRIMERGY Startup Disc.

[CD/DVD drive]:\PROGRAMS\General\Broadcom\MgmtApps\setup.exe

The installer starts up.

2 Proceed to the installation by following the window instructions.

When the window below appears during the installation procedure, confirm that the checkbox of [BASP] is checked and click [Next].
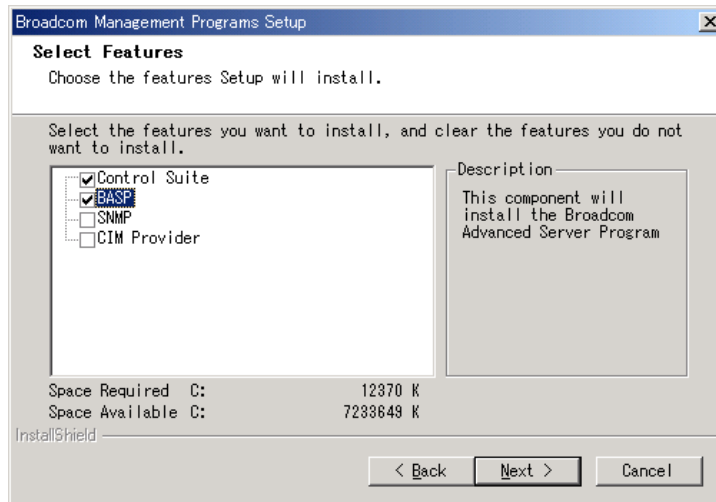
4.7 LAN Driver Advanced Setup [Intel® PROSet]

"Intel® PROSet" is a tool for configuring details on the LAN driver. This is used in the following cases.

- Use the Teaming function between LAN cards or between a LAN card and the onboard LAN
- Setup a VLAN using a LAN card
- Perform advanced settings of a LAN card

POINT

▶ Use BACS (→pg.95) to advanced settings of the onboard LAN.

4.7.1 Intel® PROSet Installation

If the tabs such as [Link], [Teaming], and [VLANs] are not added on the property of LAN adapters which can be selected from the [Device Manager], install Intel® PROSet according to the following installation procedures:

1 Start up the following file contained in the PRIMERGY Startup Disc.
For Windows Server 2003 x64
[CD/DVD drive]:\DRIVERS\LAN\Intel\APPS\PROSETDX\Win64\DxSetup.EXE
For Windows Server 2003
[CD/DVD drive]:\DRIVERS\LAN\Intel\APPS\PROSETDX\Win32\DxSetup.EXE

2 Click [Next].

3 Select [Accept] and click [Next].

4 Select [Driver and Intel(R) PROSet/Advanced Network Service] and click [Next].

5 Click [Install].

6 Click [Finish].

4.7.2 Cautions for PG-185x/186x/188x/189x/286x LAN Driver V11.2

■ 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 startup.

Source	iANSMiniport
ID	11
Type	Warning
Description	The following adapter link is not connected: (adapter name) * (adapter name) varies depending on the OS or hardware configuration.

The event logs stated above are ignorable since those will be stored even if the Teaming function is operating properly.

4.7.3 Teaming Function

■ Type of teaming

The type of teaming is described below.

● Adapter Fault Tolerance (AFT)

Adapter Fault Tolerance (AFT) is a technology and provides link redundancy by using multiple LAN ports. When a failure occurs in the link being in use (Primary Link), the communication continues by switching the process to the standby link (Secondary Link) without interrupting. For AFT, all ports in the team must be connected to the same switch.

● Adaptive Load Balancing (ALB)

Adaptive Load Balancing (ALB) is a technology that distributes the transmitting and receiving data to multiple LAN ports to improve the performance in addition to redundancy function of AFT (When "Receive Load Balancing (RLB)" in advanced setting is set to [Disabled], the reception is done only in the Primary Link). For ALB, all ports in the team must be connected to the same switch.

● Switch Fault Tolerance (SFT)

Switch Fault Tolerance (SFT) is a redundancy function equal to AFT in configuration when LAN ports are connected to a separate switch. SFT switches the link to be used between LAN ports and switches that are connected to the LAN ports when a failure occurs.
However, failures in the links outside of the switches, which are indicated with←, ↓ or → in the figure below, can not be detected.
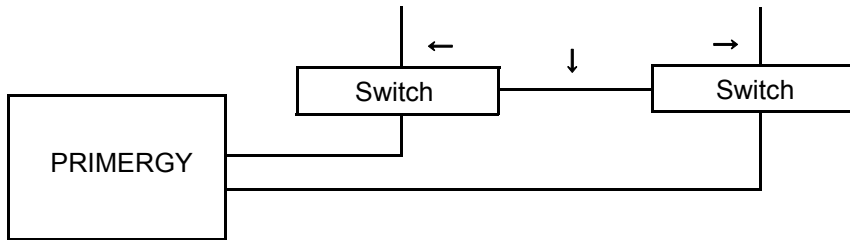
● **Static Link Aggregation**

Select this mode when connecting a team to a Cisco FEC/GEC compliant switch or a switch that supports IEEE802.3ad-Draft Static. Switch settings are also necessary. All ports in the team must be connected to the same switch.

■ **Notes**

When using the Teaming function, note the following points.

- For AFT/ALB/Static link type, up to four LAN ports can be incorporated into one team and two ports for a SFT type team.
- Once a Team is created, virtual adapters (Team: (Team Name)) 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, only the following protocols can be used:
  - For AFT/SFT/Static Link: IP, NetBEUI, IPX (NCP), IPX (NetBIOS)
  - For ALB type: IP, IPX (NCP)
- When the Teaming function is being used, Windows Load Balancing Service (WLBS) and Network Load Balancing (NLB) are not available.
- If Static Link function is in use, such switches are only available which is corresponding to link aggregation.
- When adding/deleting a Static Link member, perform such operation under linked down status.
- The Teaming configuration with the IntelR PROSet Broadcom onboard LAN and the Intel LAN card is available. Note the following points when configure those settings.
  - Make sure to set either one port of the Intel LAN cards as [Set Primary]. For the configuration, click the [Settings] tab and [Modify Team...], select the LAN card, and click [Set Primary].

IMPORTANT

▶ 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 with the Team may become an error.

■ Teaming configuration procedure

1 Click [Start] – [Administrative Tools] – [Computer Management] to start up Intel® PROSet.

2 Click [Network adapters] under [Device Manager] and double-click a LAN adapter to be incorporated in a Team.

3 Click the [Teaming] tab, select [Team with other adapters] and click [New Team].

4 Enter a team name and click [Next].

5 Check the LAN adapter to be incorporated in the Team and click [Next].

6 Select a Teaming type with which a Team will be created and click [Next].
Select the following Teaming type depending on usage:
- AFT : "Adapter Fault Tolerance"
- ALB : "Adaptive Load Balancing"
- SFT : "Switch Fault Tolerance"
- Static Link : "Static Link Aggregation"

7 Click [Finish].

8 Click [OK] to close the property window of the created Teaming adapter.

9 Click [OK] to close the property window of the LAN adapter.
When the Teaming setting is completed, the following virtual adapter will be created.
- "Team:(Team Name)"
Upper protocols will be bound with the main virtual adapter.
They can not be bound with the LAN card included in a Team.
The IP address can be set on the main virtual adapter.

4.7.4 VLAN

■ Notes

Note the following points when using a VLAN.
- When adding or deleting a VLAN, perform such an operation with "Intel(R) PROSet". Do not disable or delete a VLAN on the [Device Manager] or [Network and Dial-up Connections].
- Up to 10 VLANs may be configured in a single LAN port.
- Up to four "NetBIOS over TCP/IP"-enabled VLANs are available in whole of a system.
- TCP/IP is only available on a VLAN. Do not use other protocols.

- When LLC and the LNDFC protocols are installed by the Fujitsu communication control service, these protocols are bound (connected) unconditionally. Therefore, release the bind of VLAN and these protocols in the system where these protocols and VLAN are installed at the same time.

■ VLAN configuration procedure

1 Click [Start] – [Administrative Tools] – [Computer Management] to start up Intel® PROSet.

2 Click [Network adapters] under [Device Manager] and double-click a LAN.

3 Click the [VLANs] tab, and click [New...].

4 Specify [VLAN ID] and [VLAN Name]. Then click [OK].
The [VLAN ID] should be identical with the switch setting. The configuration range, 1 to 4094 can be specified. Any name can be specified as the [VLAN Name].

5 Click [OK] to close the property window for the LAN adapter.
When setup of the VLAN is completed, the following virtual adapter will be created.
- "(LAN Adapter Name)-VLAN:(VLAN Name)"
Upper protocols will be bound with the main virtual adapter. They can not be bound with the LAN card configuring a VLAN. The IP address should be specified in the main virtual adapter.

Chapter 5

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.

5.1 RAID Management Tool

RAID Management Tool performs configuration, initialization and monitoring of the hard disk array. For details, refer to the manual in the Array Controller Document & Tool CD.

◯ POINT

OS installation using ServerStart
▶ When the OS has been installed using ServerStart, RAID Management Tool has been also installed together with the OS as well as other high reliability tools.

■ Before starting operation

Set an array administrator account for the RAID management tool (ServerView RAID).
For details, refer to the manual in the Array Controller Document & Tool CD.

● Configuration of the array administrator account

Set an array administrator account for the RAID management tool (ServerView RAID).
A Windows user account is required when using ServerView RAID.
Create a group named "raid-adm", and an account with any name for an array administrator within the group, "raid-adm".

● Configuration of HDD Check Scheduler

Modify the settings of HDD Check Scheduler if necessary when using a SAS array controller card (MegaRAID SAS) and an Onboard Software RAID (Embedded MegaRAID SATA). It has been set at 12 o'clock everyday as a default setting.

● Configuration of Battery Recalibration Scheduler

Modify the settings of Battery Recalibration Scheduler if necessary when using a SAS array controller card together with a battery backup unit. It has been set at 11 o'clock on the first day of every month as a default setting.

5.2 Server Monitoring Tool [ServerView]

ServerView constantly monitors the hardware status of each server in the network and, at the same time, provides a console which enables to recognize the status of all the servers promptly. ServerView keeps the server hardware under monitoring all the time. An error that could cause trouble, if detected, will be notified in real-time. This function helps to remove a system error at earlier stage and avoid troubles.

IMPORTANT

▶ For notes on ServerView security, refer to "Security" in "1.1.7 Note" in the "ServerView User's Guide".

■ Importance of monitoring the server with ServerView

For safe operation of PRIMERGY, perform monitoring of the server using ServerView for sure. Even if the server is operating with a redundancy configuration, overlooking or neglecting errors could result in a system stop or data loss. As soon as one constituent part of the redundancy configuration fails, the corresponding countermeasures must be taken. For that reason, monitoring the server with ServerView is necessary.

If ServerView is not installed, the following serious problems may occur.

● RAID error monitoring

ServerView notifies users of the RAID errors. In an environment where ServerView is not in use, any errors will be notified. Leaving the RAID error unsolved may lead to a system stop caused by multiple hard disk unit malfunctions.

● Memory monitoring

ServerView monitors the memory. In an environment where ServerView is not in use, a memory single-bit error cannot be detected during operation. The server must restart as those errors are detected with using BIOS Setup Utility or Server Management Tools. Leaving this error unsolved may develop to multiple-bit errors and cause a system stop.

● Fan monitoring

ServerView monitors the fan function. In an environment where ServerView is not in use, fan malfunction (failure/stop) cannot be detected during operation. The server must restart as those errors are detected with using BIOS Setup Utility or Server Management Tools. Leaving the malfunction unsolved may lead to overheating inside the server and a system stop.

● Temperature monitoring

ServerView monitors the temperature. In an environment where ServerView is not in use, the increasing temperature inside the server, caused by such as the fan malfunction described above, cannot be detected to prevent a system failure. The server must restart as those errors are detected by using BIOS Setup Utility or Server Management Tools.

● **Voltage monitoring**

ServerView monitors the voltage. In an environment where ServerView is not in use, voltage surge cannot be detected during operation. The server must restart as those errors are detected by using BIOS Setup Utility or Server Management Tools. Voltage surges may result in malfunction or data loss.

● **Power supply monitoring**

ServerView monitors the power supply. In an environment where ServerView is not in use, power supply irregularities cannot be detected during operation. The server must restart as those errors are detected by using BIOS Setup Utility or Server Management Tools. System stops due to power supply failures cannot be prevented.

5.2.1 Installing ServerView

● **When installed using ServerStart**

When the OS has been installed using ServerStart, ServerView has been also installed together with the OS as well as other high reliability tools.

● **When installed manually (Linux)**

ServerView cannot be installed using ServerStart. To install ServerView manually on a Linux system, refer to "Chapter 2 Installation" in "ServerView User's Guide".

IMPORTANT

▶ Be sure to install SNMP service before installing ServerView.

■ **When an error screen appears after ServerView installation (Windows Server 2003 only)**

If Windows Server 2003 Service Pack 1 is applied, the following message may appear on restarting immediately after installing/uninstalling ServerView.

```
In order to protect the computer, this program is terminated by
Windows.
Name: SNMP Service
```

This message does not imply an error. Click [Close Message] to close the message.

5.2.2 Setting Required after Installation

Perform necessary operations after ServerView installation referring to "2.4 Setting after Installation" in "ServerView User's Guide".

■ Boot monitoring setting

It is recommended to enable the "Boot Monitoring" function after ServerView is installed. For setting procedures and explanation on the function, refer to "[Restart Settings] Tab" of "3.4 Serious Error Handling (ASR)" in "ServerView User's Guide".

5.3 Maintenance Support Tool [HRM/ Server]

HRM/server supports quick and proper maintenance operation to achieve high server operation stability.

5.3.1 Installing HRM/Server

● **When installed using ServerStart**

When the OS has been installed using ServerStart, HRM/server has been also installed together with the OS as well as other high reliability tools.

● **When installed manually (Linux)**

HRM/server cannot be installed using ServerStart.
To install HRM/server manually into a Linux system, refer to "HRM/server for PRIMERGY (Windows/ Linux)" at the following location of the PRIMERGY Startup Disc.
[CD/DVD drive]:\PROGRAMS\Japanese2\HRM\iasv_hrm_install.pdf

IMPORTANT

▶ It is necessary to install ServerView to use HRM/server.

5.3.2 How to Use

For system requirements for HRM/server or usage information, refer to "HRM/server for PRIMERGY (Windows/Linux)" at the following location of PRIMERGY Startup Disc.
[CD/DVD drive]:\PROGRAMS\Japanese2\HRM\iasv_hrm_install.pdf

5.4 Solving Problems Early [DSNAP]

DSNAP is a tool for collectively acquiring failure investigation information such as server environment information.

POINT

OS installation using ServerStart

▸ When the OS has been installed using ServerStart, DSNAP has been also installed together with the OS as well as other high reliability tools.

5.4.1 Installing DSNAP

● For Windows Server 2003 x64

Copy the following file stored in the PRIMERGY Startup Disc on the hard disk in the server.
[CD/DVD drive]:\PROGRAMS\Japanese\DSNAPx64\DSNAPx64.EXE

● For Windows Server 2003

When installing DSNAP separately, copy the following file stored in the PRIMERGY Startup Disc on the hard disk in the server.
[CD/DVD drive]:\PROGRAMS\Japanese\DSNAP\DSNAP.EXE

5.4.2 How to Use

● For Windows Server 2003 x64

Refer to the following file stored in the PRIMERGY Startup Disc. Use such a text editor to open it.
[CD/DVD drive]:\PROGRAMS\Japanese\DSNAPx64\README.TXT

● For Windows Server 2003

Refer to the following file stored in the PRIMERGY Startup Disc. Use such a text editor to open it.
[CD/DVD drive]:\PROGRAMS\Japanese\DSNAP\README.TXT

Chapter 6

Installing Internal Options

6

This chapter explains how to install and remove the various hardware options.

6.1 Before Installing Internal Options

The following types of internal options can be installed in this server.
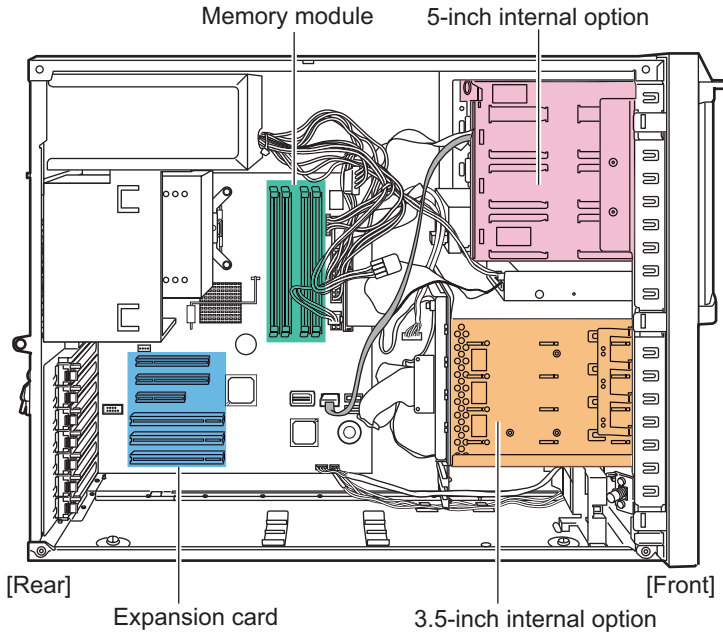
> **POINT**
>
> ‣ When installing and removing options, make sure to use the removed screws on the same devices that were last installed or removed. Failure to do so can damage the device.
> ‣ The types of optional devices listed in this manual may be updated without any notice. Please be forewarned.
> ‣ When installing optional products (such as internal/external options and USB equipments), be sure to use the products in a system configuration diagram for stable PRIMERGY server operations. Fujitsu does not warrant that the server related products will operate properly if you use the unauthorized third party options.

⚠WARNING

Electric Shock

- Before 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 outlet. Failure to do so can cause electric shock ("1.4.4 Turning Off the Server" (→pg.34)).
- Do not disassemble the PSU. Doing so can cause electric shocks.

Do not

- Use our genuine internal options only. Failure to do 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 approximately 10 minutes 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 and soldered parts. Hold the metallic areas or the edge of the circuit boards.
- When installing an internal device, make sure to avoid pinching cables.
- If devices are installed or disassembled by other methods than those outlined in this chapter, the warranty will be invalidated.

6.2 Removing and Attaching Covers

Remove covers to install peripheral devices. Perform the following procedures to remove covers.

⚠ WARNING Electric Shock ⚡
- Before removing or attaching covers, turn off the server, all peripheral devices, and any other connected devices. Also unplug all power cables from the outlet. Failure to do so can cause electric shock ("1.4.4 Turning Off the Server" (→pg.34)).

6.2.1 Removing Covers

1 Turn off the server and connected devices, and unplug all power cables from the outlet.

2 Remove the hard disk cover.
Pull the cover open (1) and lift it to remove (2).

Hard disk cover
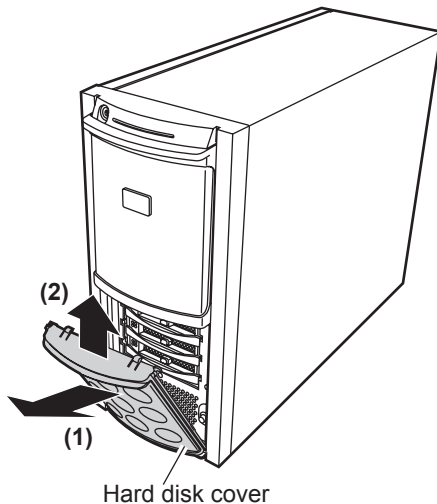
3 Remove the side cover.

    1. Loosen the screws on the rear side.
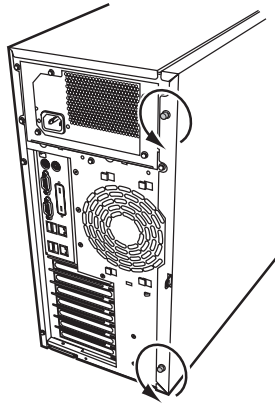
    2. Slowly slide the side cover to the rear side (1), and then open it to remove it from the server (2).

Side cover
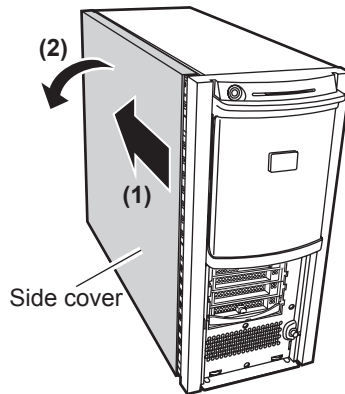
4 Remove the front cover.

The front cover is fastened with five tabs. Pull the left tabs first, and then remove the front cover while pressing the right tabs.

Left tabs

Front cover

Right tabs
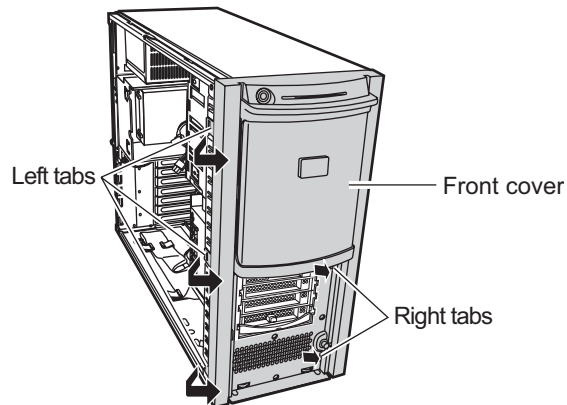
POINT

‣ Remove the front cover as necessary, such as when installing a 5-inch internal device.

IMPORTANT

‣ When removing the front cover, if the latches on the back of the front cover are hard to release from the frame, insert a long stick-shaped object inside the server, press the latch on the back of the front cover in the direction of the arrow (1), and release it (2), as shown in the figure below. The latch of the front cover may break if you try to release it by force.

Latch   **(2)**

(1)

Front Cover
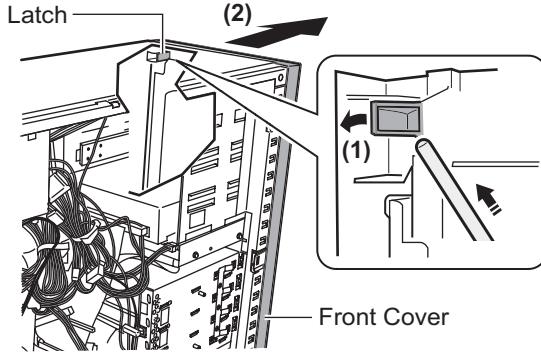
■ **Attaching covers**

To attach the covers, simply reverse the removal procedures.

⚠ **CAUTION**

• Before turning on the server, make sure that all covers are in place.

• Before attaching the side cover, make sure no tools or unnecessary components are left inside the server.

6.2.2 Removing the Top Cover of the Rack Type

When the Rack Conversion kit (optional) is used, remove the top cover. The top cover of the rack type corresponds to the side cover of the tower type.

1 Open the rack door.

→"1.4.2 Opening the Rack Door" (pg.31)

2 Remove all the cables connected to the server.

3 Remove the retaining screws used to fasten the server to the rack.
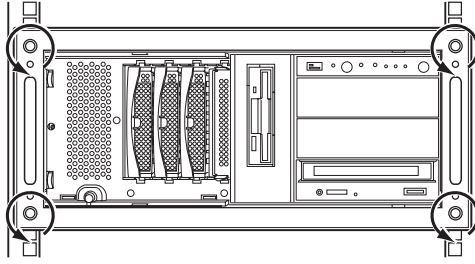
4 Slide the server.

Hold the handles from inside and pull the server out toward you until it clicks, so that it locks in place on the rails on both sides.

Handles
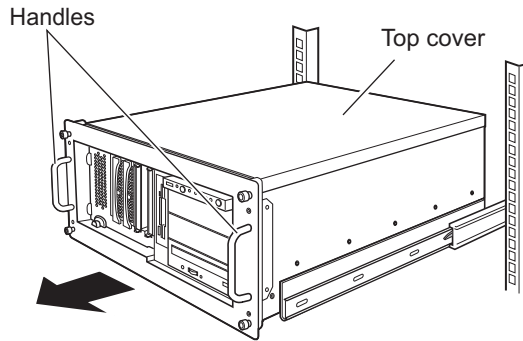
Top cover

5 Remove the top cover.

Remove the screws on the rear side. Slowly slide the top cover to the rear side, and then remove it from the server.

■ Attaching the top cover

To attach the top cover, simply reverse the removal procedures.

⚠CAUTION ⚠

• Before turning on the server, make sure that all covers are in place.

• Before attaching the top cover, make sure no tools or unnecessary components are left inside the server.

6.3 Installing Memory Modules

Additional memory modules will help to increase the amount of data that can be read at a time and improve the server processing capability.

⚠ WARNING

Electric Shock • When installing or removing memory modules, turn off the server, all peripheral devices, and any other connected devices. Also unplug all power cables from the outlet.
Failure to do so can cause electric shock.

• Use our genuine memory modules only.
Failure to do so may cause a device failure, fire, or electric shock.

• Wait for a sufficient period of time after server shutdown before installing or removing memory.
Failure to do so can cause burns.

⚠ CAUTION

injury • When installing or removing memory, make sure to remove the screws at the specified locations only. There is a risk of injury if screws other than those at the specified locations are removed. This could also damage the server.

• Touch only the specified part of the printed circuit board.
Failure to do so could cause injury or damage the server.

• Memory modules are made of delicate components that are extremely sensitive to static electricity, and they can be destroyed by static electricity from your clothes or body. Before handling them, first touch some metallic object to discharge static electricity.

• Do not insert and remove memory modules repeatedly. This could damage the server.

• Hold the edges of the memory module, as shown in the figure below. Do not touch the gold contacts and memory chip.

Do not touch this part.

Memory module

Memory chip
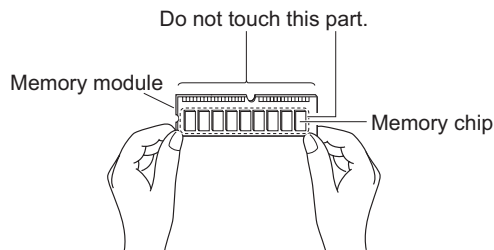
6.3.1 Installation Locations of Memory Modules

Install memory modules to the memory slots on the baseboard.
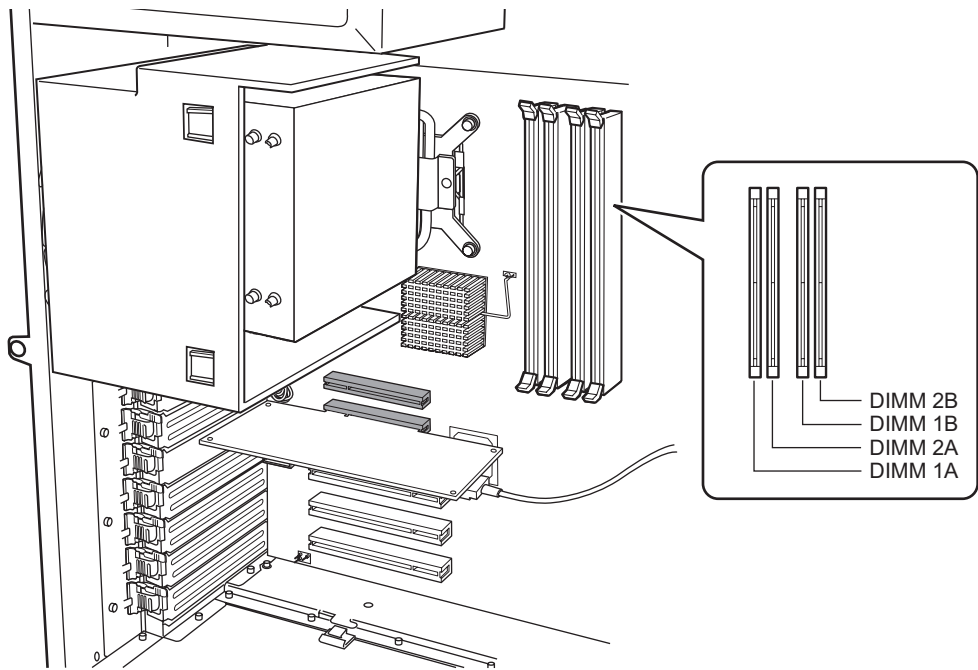
- DIMM1A: For basic RAM modules or memory modules that can be installed with the basic RAM module conversion kit.
- DIMM2A, DIMM1B and DIMM2B: For additional expandable RAM modules.

■ Installation order

Install the memory modules in ascending order of memory capacity from the memory slot DIMM1A →DIMM1B→DIMM2A→DIMM2B.

6.3.2 Installable Memory Modules and Notes

■ Installable memory modules

The following memory modules can be used in this server.

table: List of installable memory modules

Product name (Product ID)	Remarks
Memory Module-512MB (PG-RM51BH)	512MB (512MB-DIMM × 1)
Memory Module-1GB (PG-RM1BH)	1GB (1GB-DIMM × 1)
Memory Module-2GB (PG-RM2BH)	2GB (2GB-DIMM × 1)

POINT

▶ Before installation, refer to "B.1 Memory" (→pg.208) to check the packaged contents.

6.3.3 How to Install and Remove Memory Modules

1 Turn off the server and connected devices, and unplug all power cables from the outlet.

2 Remove the side cover.

→"6.2 Removing and Attaching Covers" (pg.114)

3 Touch a metal part of the server to discharge static electricity.

4 Install / Remove a memory module.

When installing memory modules

Open the retention clips 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 retention clips on both sides will close. Then, check that they secure the memory module.

If the retention clips are not securely closed, push them with your fingers to close.
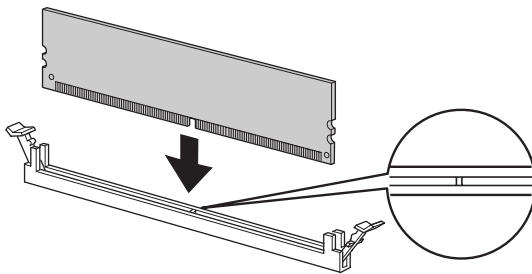
⚠CAUTION ⚠   • If the memory module has not been correctly inserted, it may cause a fire. Insert the memory module with attention to its direction.

When removing memory modules

Open outward the retention clips on both sides of the slot and remove the memory module.
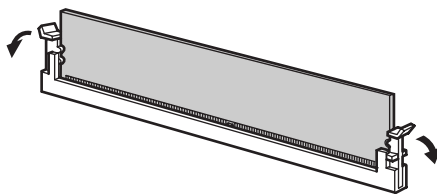
⚠CAUTION ⚠   • If a memory module is installed and you pull the retention clips strongly outwards, the memory module pops up. Doing so may cause a device failure.

5 Attach the side cover.

6.3.4 Defective Memory Disconnection Function

This server is equipped with defective memory disconnection function.
This function disconnects the memory judged to be defective (abnormal) during Power On Self Test (POST) to start the server. If the memory capacity is discovered to be smaller than the capacity of the memory installed during POST, there is a possibility of memory defect.
You can check the slot whose memory is defective from the system event log.
Replace the defective memory, if discovered, and then restart the server.

■ Replacing a defective memory module

1 Check the slot whose memory is defective from the system event log.

→"8.3 System Event Log" (pg.190)

2 Replace the defective memory with a new one according to "6.3.3 How to Install and Remove Memory Modules" (→pg.120).

3 Start up BIOS Setup Utility.

→"7.2.1 Starting and Exiting BIOS Setup Utility" (pg.149)

4 Select [Memory Status] from the [Server] menu and check that the replaced memory module is set to [Enabled].

If the item is set to [Failed], change the setting to [Enabled].

→"7.2.13 Memory Status Submenu" (pg.165)

₽POINT

▶ If it is not set to [Enabled], the server will start with the memory module recognized as being defective and constantly disconnected. To use a new memory module, set the item to [Enabled] for releasing the failed memory status at the next startup.

5 Release the error status of the defective memory.

Refer to "ServerView User's Guide" for the operational method.

6.4 Installing Expansion Cards

This section explains the types of expansion cards, notes and installation procedures.

⚠WARNING Electric Shock ⚡
- When installing or removing an expansion card, turn off the server, all peripheral devices, and any other connected devices. Also unplug all power cables from the outlet.
  Failure to do so can cause electric shock.
- Install our genuine expansion cards only.
  Failure to do so may cause a device failure, fire, or electric shock.

⚠CAUTION ❗
- 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 chassis to discharge static electricity.
- Do not touch the circuitry on boards or soldered parts. Hold the metallic areas or the edges of the circuit boards.

6.4.1 Installation Location of Expansion Cards

The server has six PCI slots to accommodate up to six expansion cards.
The specifications are different according to the PCI slot number.

PCI slot 6 (PCI-Express x8)
PCI slot 5 (PCI-Express x8)
PCI slot 4 (PCI-Express x4)
PCI slot 3 (PCI 32bit 33MHz)
PCI slot 2 (PCI 32bit 33MHz)
PCI slot 1 (PCI 32bit 33MHz)
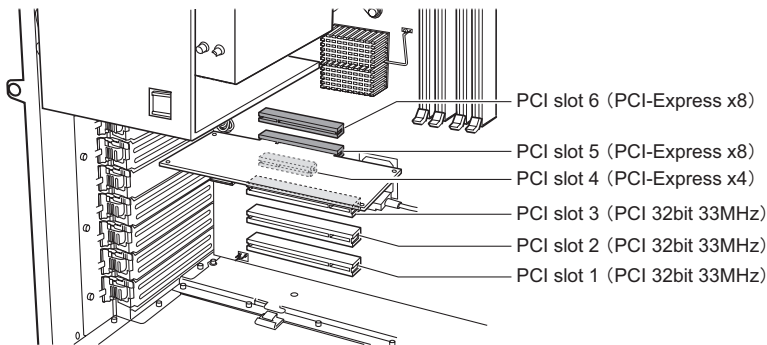
🔍POINT
- ▸ For SAS model, a SAS controller card or SAS array controller card has been installed in Slot 5.

6.4.2 Installable Expansion Cards and Notes

■ Installable expansion cards

table: List of installable expansion cards

Card type	Product name (Product ID)	Number of cards		
SAS array controller card	SAS RAID Ctrl (PG-248B)	1	1	3*1
	SAS RAID Ctrl with BBU (PG-248C)	1		
SCSI card	SCSI Ctrl U320 (PG-2281)	2		
LAN card	Eth. Ctrl 2x1Gbit PCI-E 1000-BASE-T (PG-2861)	2		
	Eth. Ctrl 1x1Gbit PCI-E 1000-BASE-T (PG-289)	2		
	Eth. Ctrl 1x1Gbit PCI 1000-BASE-T (PG-1853)	3	3	

*1: For SAS model, maximum number up to 2 cards can be installed as the Slot 5 has been occupied for a SAS controller or a SAS array controller card as a standard feature.
Further, additional installation of SAS array controller card (PG-248B / PG-248C) is not available. Only one SAS array controller card may be installed included the installed card as a standard feature.

■ Order of expansion card installation

Install expansion cards into the slots in accordance with the priority indicated in the following table.

table: Expansion card installation order and slots

Product name (Product ID)	PCI slot						Installation order
	1	2	3	4	5	6	
SAS RAID Ctrl (PG-248B/ PG-248C)	–	–	–	–	1	–	1 *1
SCSI Ctrl U320 (PG-2281)	–	–	–	3	2	1	2
Eth. Ctrl 2x1Gbit PCI-E 1000-BASE-T (PG-2861)	–	–	–	3	2	1	3
Eth. Ctrl 1x1Gbit PCI-E 1000-BASE-T (PG-289)	–	–	–	3	2	1	4
Eth. Ctrl 1x1Gbit PCI 1000-BASE-T (PG-1853)	3	2	1	–	–	–	5

*1: For SAS model, a SAS controller card or SAS array controller card has been installed as a standard feature.
Do not remove the card.

IMPORTANT

▶ Follow the "Installation order" shown in the table, Expansion Card Installation Order and Slot, when installing the cards and drivers. If you turn on the power after installing multiple expansion cards simultaneously or in a wrong order, they will not function properly.

■ Notes on installing expansion cards

- Install installable expansion cards only.
- Before installing an expansion card, refer to the manual supplied with the options and observe the related notes. Further, observe the notes below.

● **SAS array controller card**

  • When PG-284C is installed
    A battery backup unit (BBU) is supplied with SAS array controller card (PG-248C). Install the battery backup unit for sure.
    →"6.4.4 Installing a Battery Backup Unit" (pg.126)
  • For SATA Model
    When a SAS array controller card is onboard for SATA model, a connecting cable for internal hard disk unit must be connected to the SAS array controller card.
    →"6.4.5 When a SAS array controller is Installed for SATA Model" (pg.128)

● **Installation/removal of SCSI card (PG-2281)**

  Since SCSI card (PG-2281) has internally bridge circuit, configuration information will change when the card is installed into the server. The installed OS may recognize the onboard LAN controller as newly installed device when installing/removing a SCSI card (PG-2281) after the OS installation. Therefore reconfigurations of the onboard LAN, such as IP address, and software in use for the onboard LAN are required.

6.4.3 How to Install Expansion Cards

1 Turn off the server and connected devices, and unplug all power cables from the outlet.

2 Remove the side cover.
   →"6.2 Removing and Attaching Covers" (pg.114)

3 Touch a metal part of the server to discharge static electricity.

4 Remove the clip that fixes the slot cover (1), and remove the slot cover (2).

(1) Pull up this lever to release lock.
Remove the clip.
Clip
Slot cover
(2)
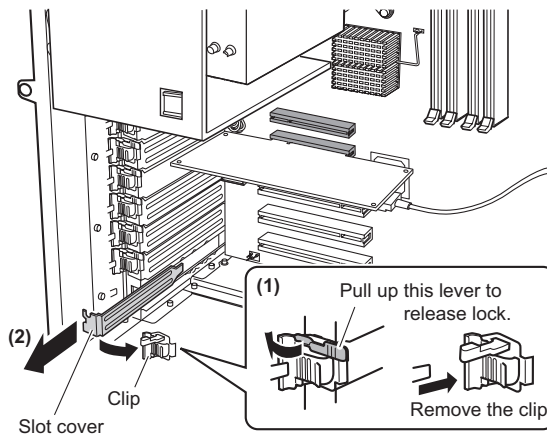
POINT
> ▶ Be sure to keep the removed slot cover for later use.
> If operating the server with no expansion cards, attach the slot cover to keep dust away.

5 Firmly press the expansion card into the connector of the PCI slot.

Face down the surface
and install the card.
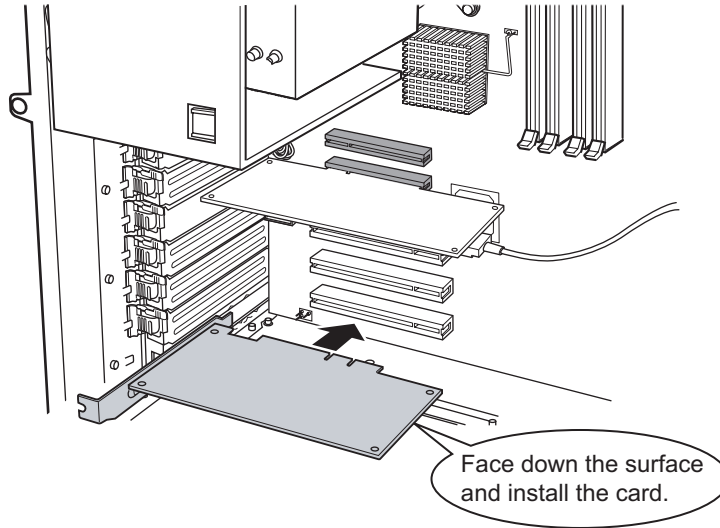
POINT
When installing a SAS array controller card (PG-248C)
> ▶ Install the supplied battery backup unit onto the designated area and connect its cable.
> →"6.4.4 Installing a Battery Backup Unit" (pg.126)

6 Fix the expansion card with the clip.

Pull back the lever
to lock.
(2)

(1)
Set the clip.

Clip
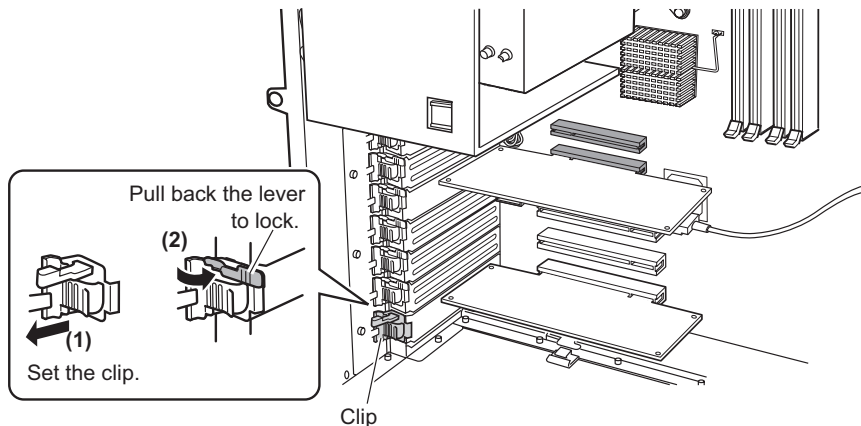
POINT
When a SAS array controller card (PG-248B / PG-248C) is onboard for SATA model
> ▶ The connecting status of the internal hard disk unit cable must be modified after a SAS array
> controller card is installed. Refer to "6.5.1 Installation Locations of Internal Hard Disk Units"
> (→pg.131)

7 Attach the side cover.

■ Removing the expansion card

To remove the expansion card, simply reverse the installation procedures.

6.4.4   Installing a Battery Backup Unit

When installing a SAS array controller card (PG-248C), surely install the supplied backup unit.

■ Installation location of a battery backup unit

Install a battery backup unit on the bottom, inside of the server as shown in the figure below.

[Rear]   [Front]

Installation location of a Battery backup unit
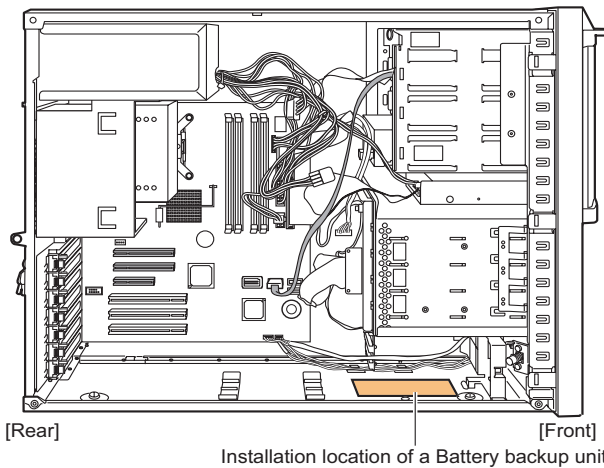
■ How to install a battery backup unit

1 Turn off the server and the connected peripheral devices and unplug those cables.

2 Take off the side cover.
→"6.2 Removing and Attaching Covers" (pg.114)

3 Touch a metal part of the server to discharge static electricity.

4 Connect the battery backup unit cable supplied with the battery backup unit.
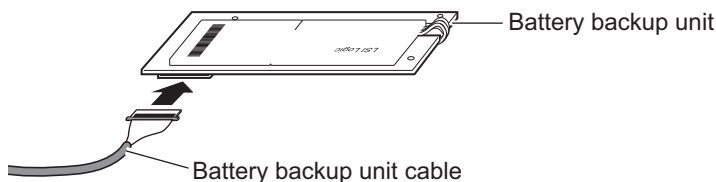
Battery backup unit

Battery backup unit cable

IMPORTANT

▶ When the cable does not connect properly, it may be upside down. As the connector is brittle, do not insert it tightly.

5 Lay the server down and install the battery backup unit (1). Hold the unit at 3 points with screws (2) as seen in the figure below.
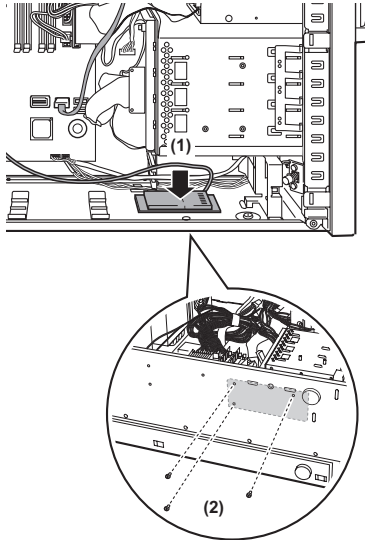
6 Connect the battery backup unit cable to the SAS array controller card.

IMPORTANT

▶ When the cable does not connect properly, it may be upside down. As the connector is brittle, do not insert it tightly.
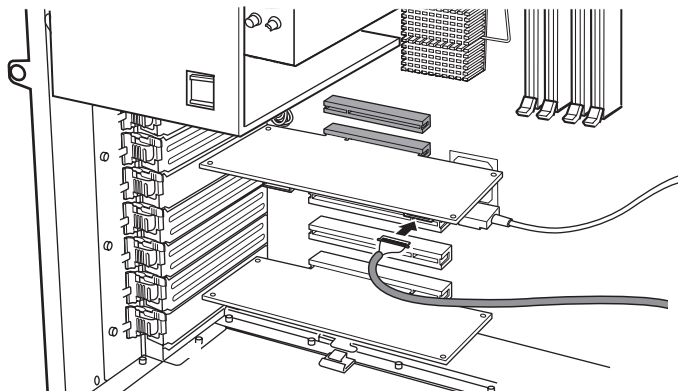
7 Put the server on with lengthwise.

8 Attach the side cover.

IMPORTANT

▶ Surely install the battery recalibration after installation of the battery backup unit. As default setting, the battery recalibration will execute at 11 o'clock on the 1st day of every month. Modify the setting as necessary. For details, refer to the manual in Array Controller Document & Tool CD.

■ Removing battery backup unit

To remove the battery backup unit, simply reverse the installation procedures.

● Handling a battery backup unit after removal

The battery is nickel hydride battery and indicated as "NI-MH". The battery is recyclable. At the end of its useful life, under various states and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

6.4.5 When a SAS array controller is Installed for SATA Model

For SATA model, after a SAS array controller card installation, it must be connected with an internal hard disk unit cable. The BIOS Setup Utility is also required to reconfigure the setting values. Perform the following procedures.

1 Disconnect the internal hard disk unit cable which has been connected to the baseboard.
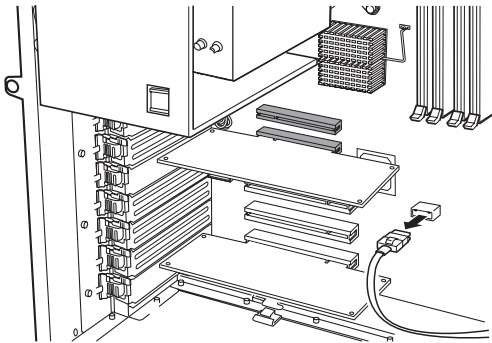
2 Insert the hard disk unit cable to the connector, SAS-MLC1, of the SAS array controller card.

SAS-MLC1
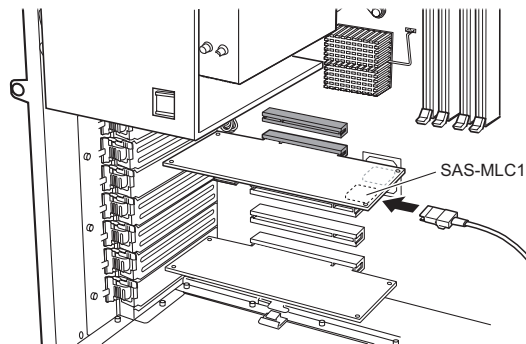
3 Attach the side cover.

4 Turn on the server and start up BIOS Setup Utility.
→"7.2.1 Starting and Exiting BIOS Setup Utility" (pg.149)

5 Select [Advanced] menu – [Advanced System Configuration] and change the settings of [SATA RAID Enable] and [SATA AHCI Enable] to [Disabled].
→"7.2.6 Advanced System Configuration Submenu" (pg.157)

6 Press the [F10] key to save the modified configuration and exit BIOS Setup Utility.

7 Start up BIOS Setup Utility again and select [Boot] menu to check the settings of [BIOS priority order].
When the change of settings completes properly, [3.PCI SCSI: (Bus02 Dev00) PCI RAID Ad] can be displayed on the menu.

POINT

▶ After changing the settings of BIOS, store the changed system configuration information in case.
→"4.3 Storing the System Configuration Information" (pg.81)

6.5 Installing Internal Hard Disk Units

This section explains how to install internal hard disk units.

⚠WARNING

Electric Shock ⚡

- When installing or removing internal hard disk units, turn off the server, all peripheral devices, and any other connected devices. Also unplug all power cables from the outlet. (→"1.4.4 Turning Off the Server" (pg.34))
  However, when the array system is configured (except for RAID 0), the defect hard disk unit can be replaced without turning off the server.

⚠CAUTION ❗

- When the hard disk unit is starting up, you may hear a resonant noise for a while, but this does not mean a failure.
- Depending on the OS, you can configure the write cache settings for the hard disk drives. However, disable the write cache for use in this server. If the power failure should occur while the write cache is enabled, cached data may be lost.
- When disposing of, transferring, or returning a hard disk unit, wipe out the data on the hard disk for your own security. Contact an office listed in the "Contact Information" of "Start Guide" regarding repairs of the hard disk units.
- Rough handling of hard disk units can damage the stored data. To cope with any unexpected problems, always back up important data. When backing up data to another hard disk drive, you should make backups on a file or partition basis.
- Use the unit in a dry place with low dust levels.
- Be careful not to hit the hard disk unit or bring it into contact with metallic objects.

🚫

- Use and store the unit in a shock and vibration free environment.
- Keep the unit away from direct sunlight and from radiators or other heat sources.
- Do not use or store the unit in extremely hot or cold location, or locations with extreme temperature changes.
- Do not disassemble hard disk units.

6.5.1　Installation Locations of Internal Hard Disk Units

Install internal hard disk units into 3.5-inch storage bays.

Bay 4 (Slot Number 3)
Bay 3 (Slot Number 2)
Bay 2 (Slot Number 1)
Bay 1 (Slot Number 0)
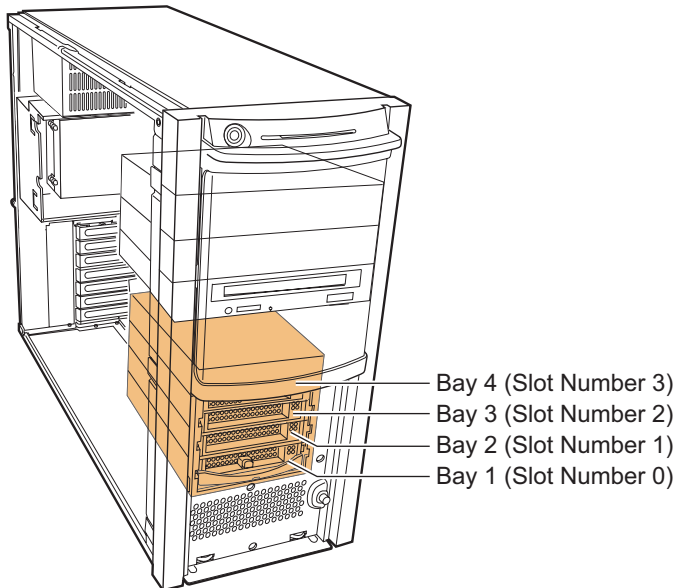
The locations where to install 3.5-inch storage bays displays for the Slot Number which software such as RAID Management Tools indicates.

■ Installation order

Install the internal hard disk unit in order of the bay 1→bay 2→bay 3→bay 4.

6.5.2　Installable Internal Hard Disk Units and Notes

Before installing an internal hard disk unit, observe the following notes.

■ Installable internal hard disk units

The following internal hard disk units can be installed on this server.

⚲POINT

▶ Additionally, the number of installable hard disk units varies depending on the array configuration in use. For details, refer to the manual in the Array Controller Document & Tool CD.

▶ Before installation, refer to "B.2 Internal Hard Disk Units" (→pg.209) to check the packaged contents.

● **SAS model**

table: Installable internal hard disk units

Product name	Product ID
HDD SAS 15k 73GB hot plug 3.5inch	PG-HDB75A
HDD SAS 15k 147GB hot plug 3.5inch	PG-HDB45A
HDD SAS 15k 300GB hot plug 3.5inch	PG-HDB35A

● **SATA model**

table: Installable internal hard disk units

Product name	Product ID
HDD SATA 7.2k 80GB hot plug 3.5inch	PG-HDF87B
HDD SATA 7.2k 160GB hot plug 3.5inch	PG-HDF67B
HDD SATA 7.2k 500GB hot plug 3.5inch	PG-HDF57B

■ Replacing the failed internal hard disk unit

When the hard disk is failed, it can be replaced and repaired without turning off the server and peripheral devices (available for hot swap and hot plug). For details about the array system and replacing the failed hard disk unit, refer to the manuals in Array Controller Document & Tool CD.

6.5.3 How to Install the Internal Hard Disk Unit

1 Turn off the server and connected devices, and unplug all power cables from the outlet.

2 Remove the hard disk cover.
→"6.2 Removing and Attaching Covers" (pg.114)

3 Touch a metal part of the server to discharge static electricity.

4 Remove the dummy unit from the bay to accommodate an internal hard disk unit.

Pull the dummy unit out towards you with its tabs being pressed inward. Be sure to keep the removed dummy units for later use.

Tabs
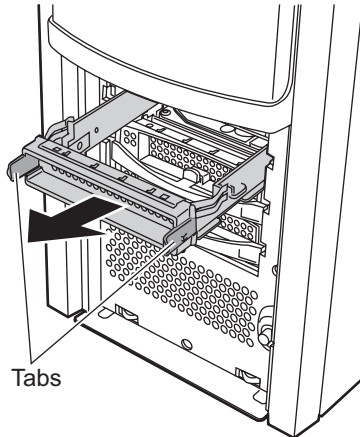
5 Install the internal hard disk unit into the 3.5-inch storage bay.

Insert the unit into the bay with the handle up (1) and pull down the handle firmly (2).

(1)

(2)

Handle
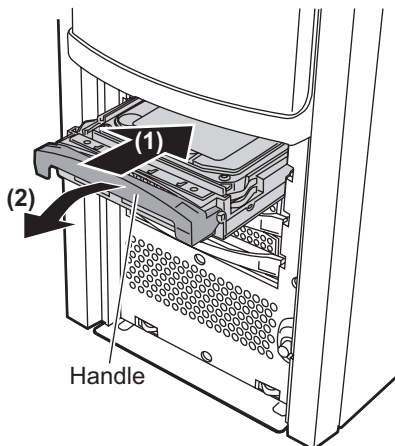
6 Attach the hard disk cover.

6.5.4 How to Remove the Internal Hard Disk Unit

1 Turn off the server and connected devices, and unplug all power cables from the outlet.

2 Remove the hard disk cover.

→"6.2 Removing and Attaching Covers" (pg.114)

3 Touch a metal part of the server to discharge static electricity.

4 Remove the internal hard disk unit.

By pressing the front tab of the internal hard disk unit to remove, 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.

Handle
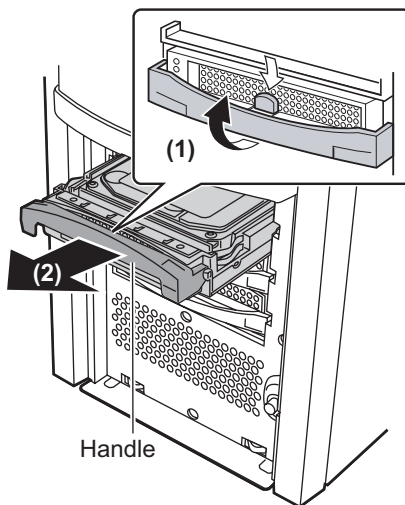
5 Install a dummy unit or a new hard disk unit.

6 Attach the hard disk cover.

6.6 Installing 5-inch Internal Options

This section explains how to install a 5-inch internal device.

⚠WARNING Electric Shock ⚡
- When installing or removing internal devices, turn off the server, all peripheral devices, and any other connected devices. Also unplug all power cables from the outlet.
  Failure to do so can cause electric shock.
- Install our genuine internal devices only.
  Failure to do so may cause a device failure, fire, or electric shock.

⚠CAUTION 🚫
- When installing or removing hardware options, make sure to remove the screws on the specified points only.
  There is a chance of injury if screws other than those on the specified points are removed. This could also damage the server.

🖐
- Touch only the specified part of the printed circuit board.
  Failure to do so could cause injury and also damage the server.

POINT

▸ Before adding a 5-inch internal device, install the OS and turn off the server once.

6.6.1 Installation Location of 5-inch Internal Devices

Install 5-inch internal devices in 5-inch storage bay 2.

5-inch storage bay 3
5-inch storage bay 2
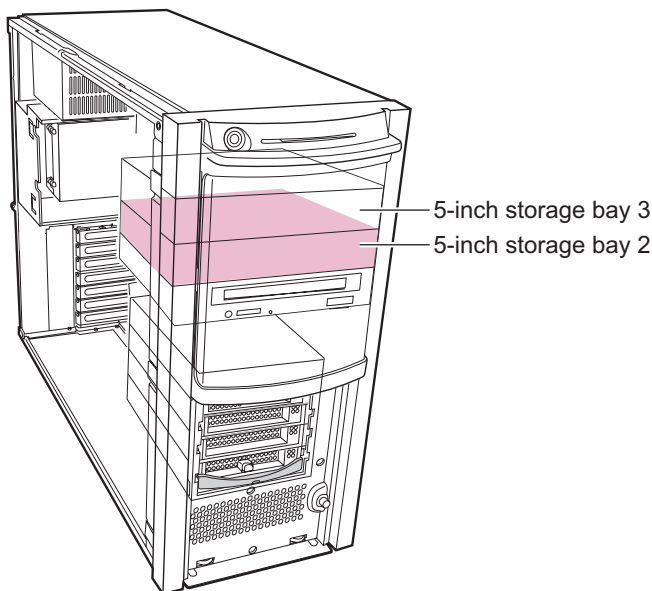
IMPORTANT

▶ Only the 5-inch storage bay 2 is available for additional device installation. Do not use 5-inch storage bay 3.

6.6.2 Installable 5-inch Internal Devices

One of the internal 5-inch options shown below may be installed into this server.

table: Installable 5-inch internal devices

Unit type	Product name	Product ID	Cable (separate)	SCSI ID
Internal DAT72 unit	Tape Drv DAT72 36GB internal	PG-DT5041	-	-
Internal LTO3 unit	Tape Drv LTO3 Ultrium3/ Ultrium2 400GB	PG-LT302	PG-CBLS027	5

6.6.3 How to Install a 5-inch Internal Device

1 Turn off the server and connected devices, and unplug all power cables from the outlet.

2 Remove the side and front covers.
→"6.2 Removing and Attaching Covers" (pg.114)

3 Touch a metal part of the server to discharge static electricity.

4 When installing an internal LTO unit, fix the SCSI card (PG-2281) to the server.
→"6.4.3 How to Install Expansion Cards" (pg.124)

5 Remove the dummy unit.
Pull the dummy unit out slowly, keeping the tabs on the 5-inch storage bay rails (on both sides) pressed inward.

Tabs
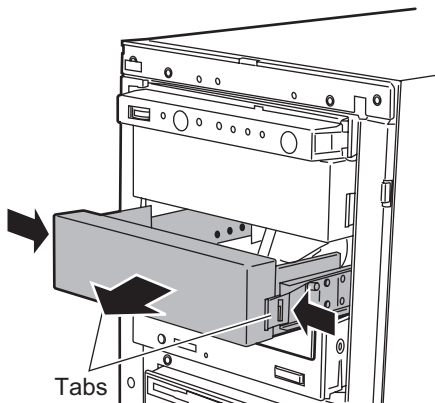
POINT

▶ Be sure to keep the removed dummy units for later use.

6 Detach the 5-inch storage bay rails from the removed dummy unit.

Remove eight screws that fix the 5-inch storage bay rails to detach.
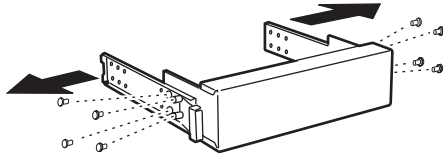
7 Attach the removed 5-inch storage bay rails to the internal device to be added.

Use the supplied screws if the screws are supplied with the internal option. If these are not supplied, use four screws which were removed off the 5-inch storage bay rails.
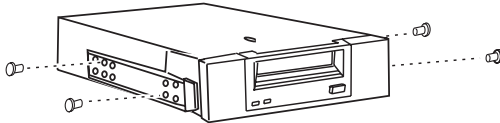
8 Install the internal device to the 5-inch storage bay.
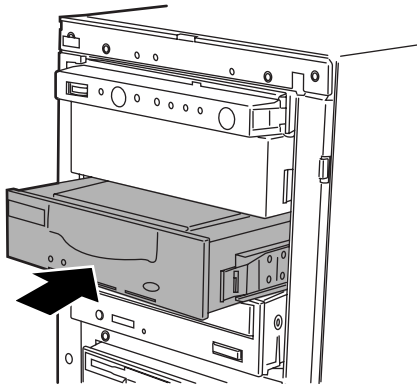
9 Connect a USB cable or SCSI cable to the internal option.

The cables to be used differ according to the internal options.

<u>For internal LTO3 unit</u>

Connect A connector of a SCSI cable to the internal option to be installed and connect the other side of the SCSI cable to a SCSI card.

B   A

Line of 1st pin

Connect to SCSI card   Terminal resister
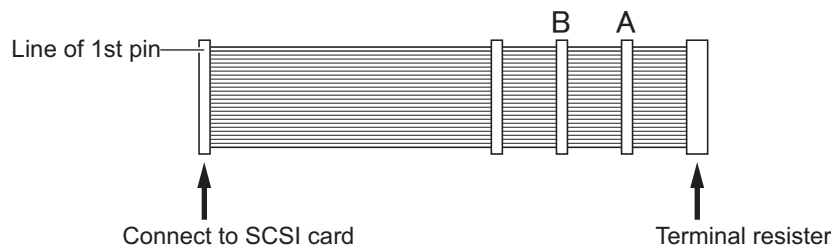
For internal DAT72 unit

1. Insert USB cable to the DAT72 unit.

    Connect a USB cable that is in the server. Remove the cap before connecting the cable.

[Rear side of internal option]

USB connector   Power connector

Remove this cap.
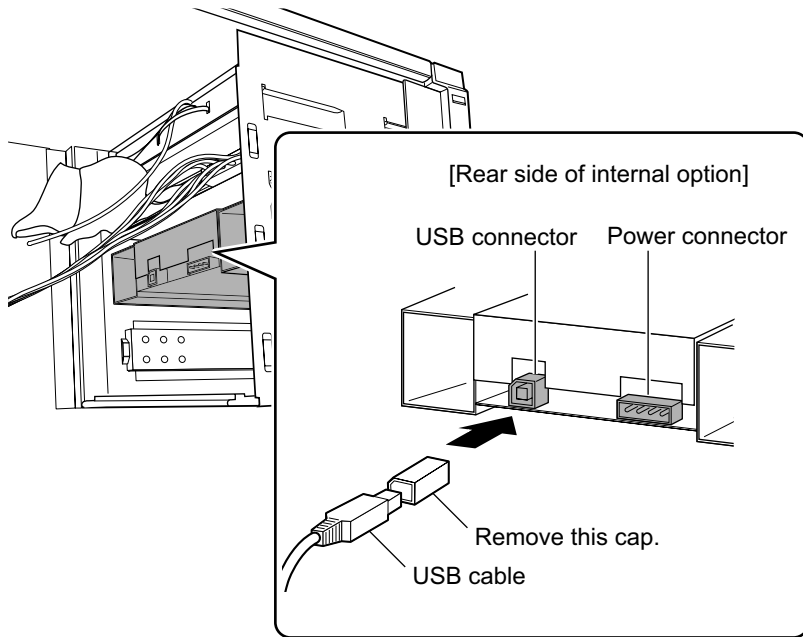
USB cable

2. Connect the USB cable to the baseboard. Refer to the "1.3.4 Baseboard" (→pg.28) for the location of the USB connector.

10 Connect the power cable to the 5-inch internal devices.

Connect the power cable, marked as P3, to the 5-inch option.

11 Attach the front and side covers.

12 Set up SCSI-ID when an internal LTO unit is installed.

Use the utility supplied with the SCSI card to configure SCSI-ID. For details on how to use the utility, refer to the manual of SCSI card.

6.7 Installing a Parallel Port Option

When a parallel port is necessary, install a parallel port option.

⚠WARNING   Electric Shock ⚡
- When installing or removing a parallel port, turn off the server, all peripheral devices, and any other connected devices. Also unplug all power cables from the outlet.
  Failure to do so can cause electric shock.

⚠CAUTION 🚫
- Touch only the specified part of the printed circuit board.
  Failure to do so could cause injury and also damage the server.
- Be careful not to be injured when handling the parallel port connector panel that is removed from the rear of the server.

■ Installable Parallel Port Option

table: Installable Parallel Port

Product name	Product ID
Parallel Port Option	PG-PP06

⚲POINT

▶ Before installation, refer to "B.3 Parallel Port Option" (→pg.210) to check the packaged contents.
▶ For the installation area of parallel port option, refer to "1.3.2 Server (rear view)" (→pg.25).

6.7.1 How to Install a Parallel Port

1 Turn off the server and connected devices, and unplug all power cables from the outlet.

2 Remove the side cover.
→"6.2 Removing and Attaching Covers" (pg.114)

3 Touch a metal part of the server to discharge static electricity.

_4_ Remove the system fan.

Remove the system fan cable and lift the system fan to remove it.

System fan

System fan
cable
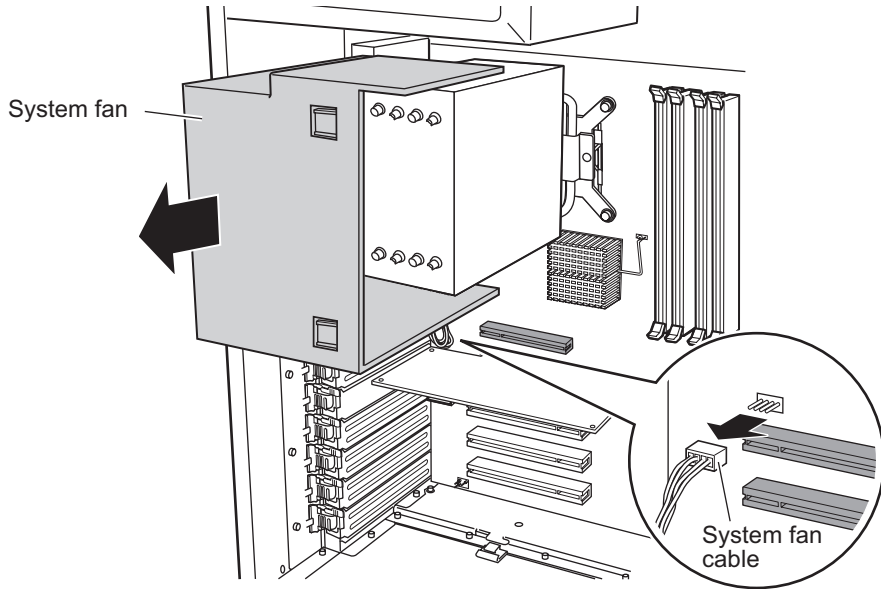
_5_ Remove the parallel port connector panel from the rear side of the server.

Insert a flat blade screwdriver into the hole at the center of the panel. Turn around the screwdriver
to the right and left and pull the panel off.
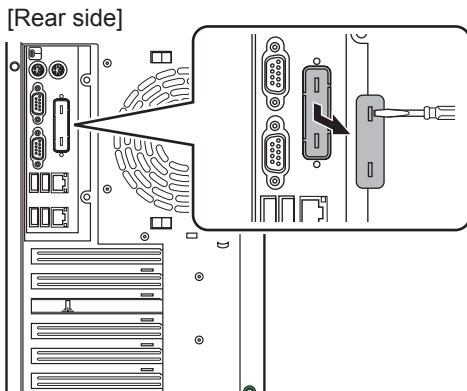
[Rear side]

6 Connect a parallel cable to the baseboard parallel connector (1) and attach the connector of the cable to the rear panel (2).

Connector

(1)

(2)
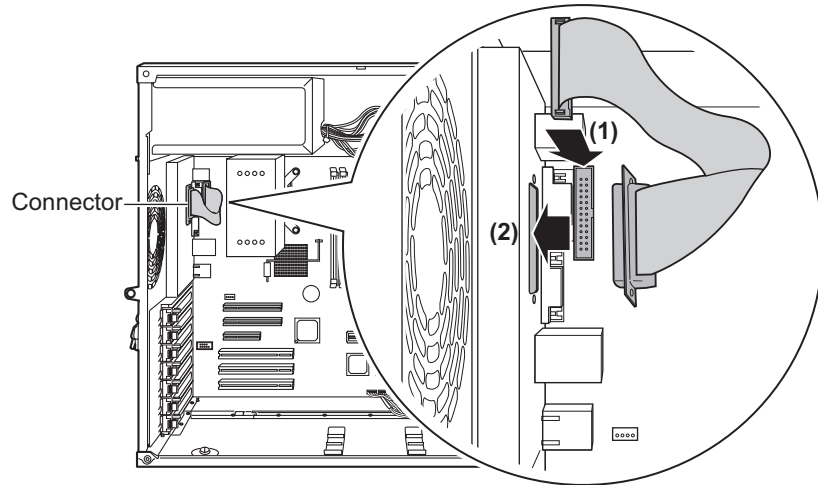
7 Fix the connector using screws from the rear side.

[Rear Side]
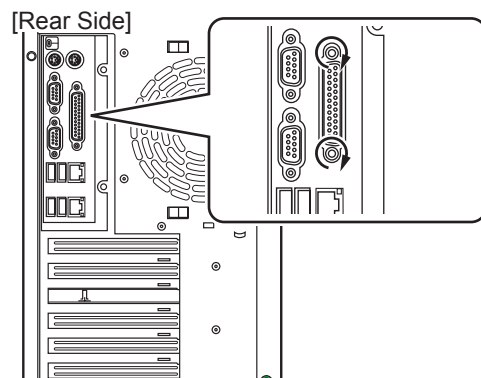
8 Attach the system fan.

Connect a system fan cable to the system fan connector and attach the system fan.
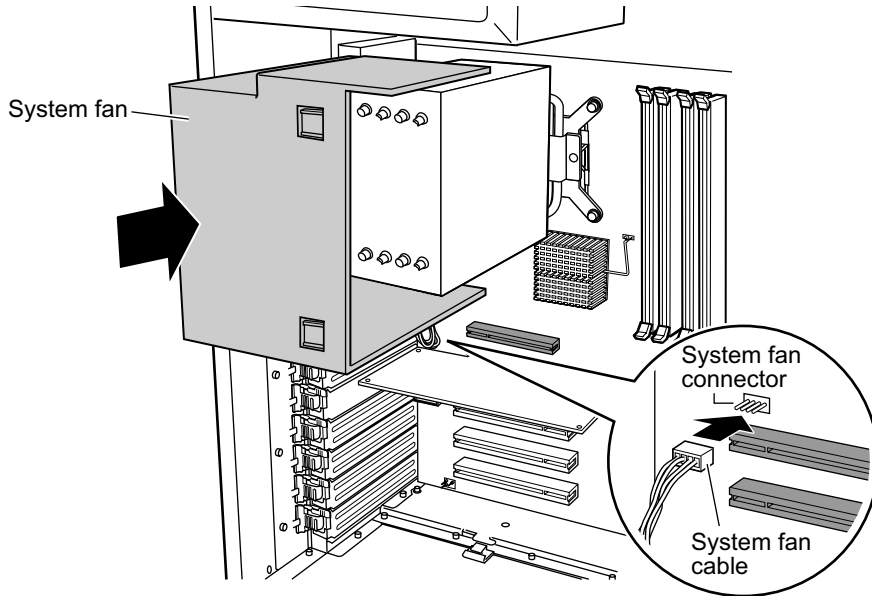
9 Attach the side cover.

10 Turn on the server and start up BIOS Setup Utility.

→"7.2.1 Starting and Exiting BIOS Setup Utility" (pg.149)

11 Select [Peripheral Configuration] on [Advance] menu and change the setting of [Parallel Port] to [Enabled].

→"7.2.5 Peripheral Configuration Submenu" (pg.155)

12 Press [F10] key and save the renewed setting and exit BIOS Setup Utility.

⚲POINT

▸ After changing the settings of BIOS, store the changed system configuration information in case.
→"4.3 Storing the System Configuration Information" (pg.81)

6.8 Installing an Optional Serial Port

When add a serial port, install an optional serial port.

⚠WARNING Electric Shock • When installing or removing a serial port, turn off the server, all peripheral devices, and any other connected devices. Also unplug all power cables from the outlet.
Failure to do so can cause electric shock.

⚠CAUTION • Touch only the specified part of the printed circuit board.
Failure to do so could cause injury and also damage the server.

6.8.1 Where to Install an Optional Serial Port

Install an optional serial port to the serial port slot and connect its serial cable to the serial cable connector.

Serial port slot

Serial cable connector
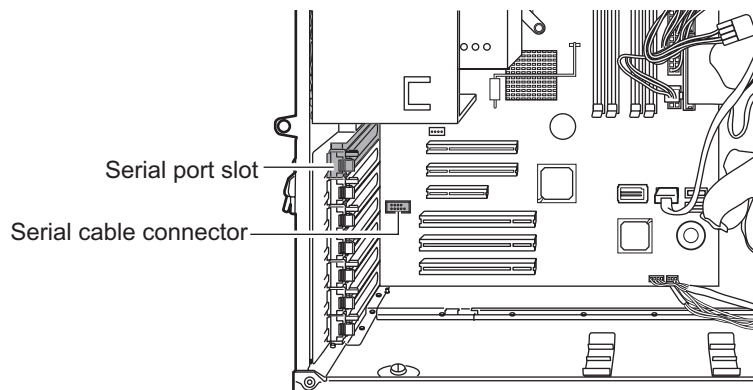
■ Installable optional Serial Port

table: Installable optional Serial Port

Product name	Product ID
Serial Port	PG-COM04

🔎**POINT**

▶ Before installation, refer to "B.4 Serial Port" (→pg.210) to check the packaged contents.

6.8.2 How to Install an Optional Serial Port

1 Turn off the server and connected devices, and unplug all power cables from the outlet.

2 Remove the side cover.
→"6.2 Removing and Attaching Covers" (pg.114)

3 Touch a metal part of the server to discharge static electricity.

4 Release lock of the clip which fixes the slot cover (1) and remove the lot cover (2).

(2)

Slot cover

Clip

(1) Pull up this lever
to release lock.

Remove the clip.
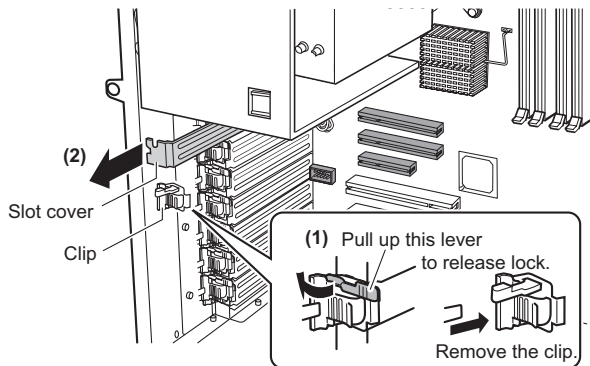
POINT

▶ Be sure to keep the removed slot cover for later use.
When an added serial port is removed, attach the slot cover to keep dust away.

5 Install the serial port, and connect its serial cable to the serial cable connector.

IMPORTANT

▶ When PCI card(s) has been already occupied at PCI Slot 5 or 6, remove them as a serial cable is short. After connecting the serial cable, install removed-PCI card(s) again in manner that the serial cable passes under the PCI card(s).

6 Attach the clip to the slot cover and fix the optional serial port.

7 Attach the side cover.

8 Turn on the server and start up BIOS Setup Utility.
→"7.2.1 Starting and Exiting BIOS Setup Utility" (pg.149)

9 Select [Peripheral Configuration] on [Advance] menu and change the setting of [Parallel Port] to [Enabled].
→"7.2.5 Peripheral Configuration Submenu" (pg.155)

10 Press [F10] key and save the renewed setting and exit BIOS Setup Utility.

🔎**POINT**

▶ After changing the settings of BIOS, store the changed system configuration information in case.
→"4.3 Storing the System Configuration Information" (pg.81)

6.9 Connecting External SCSI Devices

This section explains connection of external SCSI devices.

■ Connectable external SCSI devices

The following external SCSI devices can be connected to this server.

table: connectable external SCSI devices

Product name	Product ID
Backup Cabinet (PRIMERGY SX10)	PG-R1BC4

■ Connecting Backup Cabinet

To connect backup cabinet, install SCSI card (PG-2281) to this server.

The cables stated below must be prepared as necessary.

- PG-CBLS001 (1.5m)
- PG-CBLS002 (5m)

■ Notes on connecting external SCSI devices

● Settings for SCSI-ID

Be sure to set up each device without overlapping.

● Daisy chain connection

Daisy chain connection is not available for PRIMERGY SX10.

Chapter 7

Configuring Hardware and Utilities

This chapter explains how to make the
environment settings necessary to operate the
server and how to use each utility.

7.1 Jumper Settings

This section explains jumper settings.

7.1.1 Jumper Location and Settings

■ Jumper location

The jumper of the server is located on the baseboard as shown below.
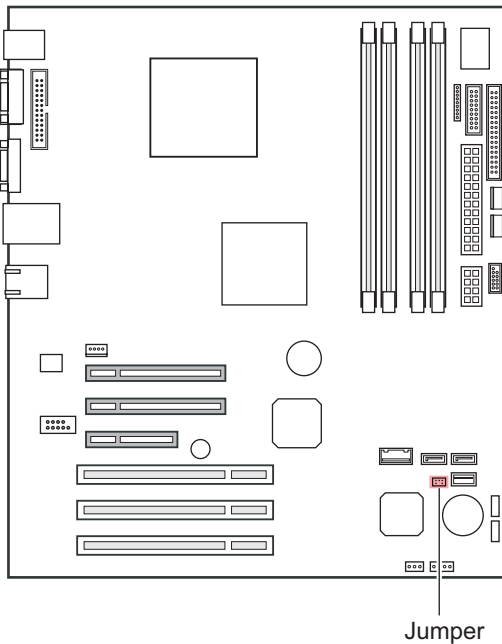
Jumper

■ Jumper settings

The settings stated below may be made in accordance with the jumper location.

<p style="text-align:center">table: Jumper settings</p>

Key	Mean	Description
	Standard Location	It is the regular location. Put the jumper back to the standard location after operation.
	Password Skip	When a password has been set, BIOS Setup Utility launches without password authentication.

7.2 BIOS Setup Utility

This section explains settings for BIOS Setup Utility and items regarding each setting.

7.2.1 Starting and Exiting BIOS Setup Utility

The following explains how to start and exit BIOS Setup Utility.

■ How to start BIOS Setup Utility

1 Turn on the server.

2 During POST, press the [F2] key while the message "<F2>BIOS Setup / <F12> BOOT Menu" is displayed on the screen.

The [Main menu] screen appears when the POST completes.

```
                Phoenix TrustedCore(tm) Setup Utility

    Main    Advanced    Security    Power    Server    Boot    Exit

                                                    Item Specific Help
    System Time :          [HH:MM:SS]
    System Date :          [MM:DD:YYYY]

    Diskette A :           [1.4M]

  ▶ SATA Port 1
    SATA Port 2
    SATA Port 3
    SATA Port 4
  ▶ SATA Port 5
    SATA Port 6

  ▶ Boot Features

    System Memory :        633K
    Extended Memory :      ***M

  F1   Info     ↑↓  Select Item   -/+   Change Values      F9   Setup Defaults
  Esc  Exit     ←→  Select Menu   Enter Select ▶ Sub-Menu  F10  Save and Exit
```

🔎**POINT**

When the [Main menu] screen does not appear

▶ When the [Main menu] screen does not appear because the [F2] is pressed at wrong timing, press the [Ctrl] + [Alt] + [Delete] keys at the same time to restart the system, then start BIOS Setup Utility.

🔎**POINT**

▶ While the message "<F2> BIOS Setup / <F12> BOOT Menu" is displayed, pressing the [F12] key displays the [Boot Menu] screen when POST completes.→"7.2.17 Boot Menu" (pg.168)

● **Key operations in BIOS Setup Utility**

The functions of the keys used for setting BIOS Setup Utility are as follows:

table: List of Key operations on BIOS Setup Utility screen

Key	Description
[F1]	Displays the system information. Press the [Esc] key to close.
[Esc]	Ends a submenu and returns to the previous menu. Or displays the Exit menu.
[↑][↓]	Scrolls through the menu option list.
[←][→]	Switches menus.
[-][+]	Changes the values of an item.
[Enter]	Selects an item. For items with ▶ , the submenu appears.
[F9]	Sets the configured value of each item to its initial (default) value. Reconfiguration is not available for all the items on the [LAN Settings] submenu.
[F10]	Saves the value of each item and exits BIOS Setup Utility.

IMPORTANT

‣ Note the following points to return the configured values to those initial values with the [F9] key.
  • Confirm that the settings of [SATA RAID Enable] and [SATA AHCI] are [Disabled] on the [Advanced System Configurations] submenu of the [Advanced] menu when an Onboard Software RAID is not used. If not, the system may not start up properly.
  • When an Onboard Software RAID is used, confirm the startup priority has been set properly on [Boot] menu. When the priority of CD/DVD drive is low, startup from the CD/DVD drive may fail.

■ **How to exit BIOS Setup Utility**

1 Use the [←] [→] keys to display the [Exit] menu.

```
Phoenix TrustedCore(tm) Setup Utility
  Main    Advanced    Security    Power    Server    Boot    Exit

  Save Changes & Exit                              Item Specific Help
  Discard Changes & Exit
  Get Default Values
  Load Previous Values




  F1   Info      ↑↓  Select Item   -/+    Change Values      F9   Setup Defaults
  Esc  Exit      ←→  Select Menu   Enter  Select ▶ Sub-Menu  F10  Save and Exit
```
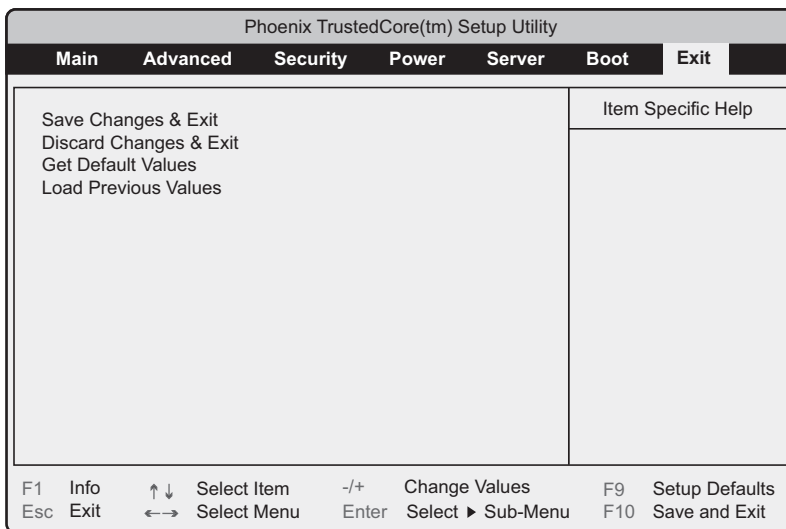
2 Use the [↑] [↓] keys to select the exit mode.

<u>To save configuration changes before exiting:</u>

Select [Save Changes & Exit] and press the [Enter] key.

The message "Save configuration changes and exit now?" is displayed.

<u>To exit without saving configuration changes:</u>

Select [Discard Changes & Exit] and press the [Enter] key.

When the settings are changed, the "Configuration has not been saved! Save before exiting?" message is displayed.

3 Use the [←] [→] keys to move the cursor to [Yes] or [No], and press the [Enter] key.

<u>If you select [Save Changes & Exit] on [Exit] menu:</u>

- Select [Yes] to exit.

  After saving changes to settings, BIOS Setup Utility closes and the server restarts.

- Select [No] to continue.

  The display returns to BIOS Setup Utility screen.

<u>If you select [Discard Changes & Exit] on [Exit] menu:</u>

- Select [Yes] to save changes before exit.

  The BIOS Setup Utility closes and the server restarts.

- Select [No] when not saving the settings.

  The BIOS Setup Utility closes and the OS starts.

7.2.2 Main Menu

The [Main] menu is initially displayed when you start BIOS Setup Utility.

Settings for time and date and for the drives are configured on the [Main] menu.

```
┌─────────────────────────────────────────────────────────────────────┐
│                 Phoenix TrustedCore(tm) Setup Utility                 │
│  ┌──────┐                                                             │
│  │ Main │  Advanced   Security   Power   Server   Boot    Exit        │
│  └──────┘                                                             │
│                                                      Item Specific Help│
│    System Time :         [HH:MM:SS]                                    │
│    System Date :         [MM:DD:YYYY]                                  │
│                                                                       │
│    Diskette A :          [1.4M]                                       │
│                                                                       │
│  ▶ SATA Port 1                                                        │
│    SATA Port 2                                                        │
│    SATA Port 3                                                        │
│    SATA Port 4                                                        │
│  ▶ SATA Port 5                                                        │
│    SATA Port 6                                                        │
│                                                                       │
│  ▶ Boot Features                                                      │
│                                                                       │
│    System Memory :       633K                                         │
│    Extended Memory :     ***M                                         │
│                                                                       │
│  F1   Info    ↑↓  Select Item   -/+   Change Values    F9   Setup Defaults│
│  Esc  Exit    ←→  Select Menu   Enter Select ▶ Sub-Menu F10  Save and Exit│
└─────────────────────────────────────────────────────────────────────┘
```

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". 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, September 20, 2005 is set as "09", "20", "2005".
Diskette A	1.4M (Unchangeable)	Settings (recording density and drive size) for the type of Floppy Disk Drive A may be made.
SATA Port 1 to 4	Displays such as the device capacity, LBA mode, DMA transfer mode and the version of the firmware. Pressing [Enter] key displays this submenu of SATA Port.	
SATA Port 5 to 6	Displays such as LBA mode, DMA transfer mode and the version of the firmware. Pressing [Enter] key displays this submenu of SATA Port.	
Boot Features	Configures the system startup settings. Pressing [Enter] key displays the "7.2.3 Boot Features Submenu" (→pg.153) screen.	
System Memory	Displays available system memory size less than 1 MB.	
Extended Memory	Displays available system memory size larger than 1 MB.	

7.2.3 Boot Features Submenu

Use this submenu to set system startup options.

```
                    Phoenix TrustedCore(tm) Setup Utility

      Main

                  Boot Features                    Item Specific Help

    POST Errors :            [Enabled]
    Keyboard Check :         [Enabled]
    Fast Boot :              [Disabled]
    POST Diagnostic Screen : [Enabled]
    Boot Menu :              [Enabled]
    NumLock :                [Auto]

    F1   Info      ↑↓  Select Item   -/+    Change Values      F9   Setup Defaults
    Esc  Exit      ←→  Select Menu   Enter  Select ▶ Sub-Menu  F10  Save and Exit
```

table: Items on the Boot Features Submenu

Item	Setting	Description
POST Errors	Enabled (Unchangeable)	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.
Keyboard Check	• Disabled • Enabled (Initial value)	Sets whether or not to check keyboard connection during POST.
Fast Boot	Disabled (Unchangeable)	Sets whether or not to reduce the scope of POST and thereby speed up system startup.
POST Diagnostic Screen	Enabled (Unchangeable)	Sets whether or not to display POST Diagnostic Screen
Boot Menu	Enabled (Unchangeable)	Sets whether or not to display the boot drive selection window after POST.
NumLock	Auto (Unchangeable)	Sets the state of the NumLock key when booting the server.

7.2.4 Advanced Menu

The [Advanced] menu sets the peripheral devices and PCI device options.

```
                  Phoenix TrustedCore(tm) Setup Utility
     Main    Advanced    Security    Power    Server    Boot    Exit

                                                    Item Specific Help
                    Setup Warning
       Setting items on this menu to incorrect
       values may cause your system to malfunction.

     ▶ Peripheral Configuration
     ▶ Advanced System Configuration
     ▶ Advanced Processor Options
     ▶ PCI Configuration




     F1   Info      ↑↓   Select Item    -/+    Change Values      F9   Setup Defaults
     Esc  Exit      ←→   Select Menu    Enter  Select ▶ Sub-Menu  F10  Save and Exit
```

table: Items on the Advanced Menu

Item	Description
Peripheral Configuration	Configures the serial port, parallel port, etc. Press the [Enter] key to display the "7.2.5 Peripheral Configuration Submenu" (→pg.155) screen.
Advanced System Configuration	Configures additional settings. Press the [Enter] key to display the "7.2.6 Advanced System Configuration Submenu" (→pg.157) screen.
Advanced Processor Options	Configures processor settings. Press the [Enter] key to display the "7.2.7 Advanced Processor Options Submenu" (→pg.158) screen.
PCI Configuration	Configures the PCI device. Press the [Enter] key to display the "7.2.8 PCI Configuration Submenu" (→pg.159) screen.

7.2.5 Peripheral Configuration Submenu

Use this submenu to set the serial port, parallel port, etc.

```
                 Phoenix TrustedCore(tm) Setup Utility
      Advanced

              Peripheral Configuration              Item Specific Help

   Serial 1 :                    [Auto]
   Serial Multiplexer :          [System]
   Serial 2 :                    [Disabled]

   Parallel port :               [Auto]
     Mode:                       [Printer]

   Diskette Controller :         [Enabled]

     USB Front :                 [Enabled]
     USB Rear :                  [Enabled]
     USB Devices :               [All]

   LAN Controller :              [Enabled]
   LAN 1 Oprom :                 [Disabled]


   F1   Info      ↑↓   Select Item    -/+    Change Values    F9    Setup Defaults
   Esc  Exit      ←→   Select Menu    Enter  Select ▶ Sub-Menu  F10  Save and Exit
```

table: Items on the Peripheral Configuration submenu

Item	Setting	Description
Serial 1	• Disabled • Enabled • Auto (Initial value) • OS Controlled	Sets whether to enable or disable the serial port. Set this to [Disabled] when used as a server management port. **Note:** ▶ When [Serial Multiplexer] is changed to [iRMC], set this item to [Disabled].
Serial 1 Address	3F8h/IRQ4 (Unchangeable)	Appears when [Enabled] is selected for [Serial 1].
Serial Multiplexer	• System (Initial value) • iRMC	Switches the function of serial port 1. • System Uses this port as a serial port. (Setting at the time of UPS connection) • iRMC Uses this port as a server management port. In this case, set [Serial 1] to [Disabled].
Serial 2	• Disabled (Initial value) • Enabled • Auto • OS Controlled	Sets whether to enable or to disable the serial port 2.
Serial 2 Address	2F8h/IRQ 3 (Unchangeable)	Appears when [Enabled] is selected for [Serial 2].
Parallel Port	• Disabled (Initial value) • Enabled • Auto	Sets whether to enable or disable the parallel port.
Mode	Bidirection (Unchangeable)	Sets the data transfer mode of the parallel port. When [Enabled] or [Auto] is set in the [Parallel Port], items of this mode are displayed.
Parallel Address	378/IRQ7 (Unchangeable)	Appears when [Enabled] is selected for [Parallel Port].

table: Items on the Peripheral Configuration submenu

Item	Setting	Description
Diskette Controller	Enabled (Unchangeable)	Sets the floppy disk controller configuration.
USB Front	• Disabled • Enabled (Initial value)	Sets whether or not to use the USB port on the front side.
USB Rear	• Disabled • Enabled (Initial value)	Sets whether or not to use the USB port on the rear side.
USB Devices	All (Unchangeable)	Sets whether to enable or disable USB devices.
LAN Controller	Enabled (Unchangeable)	Sets whether to enable or disable the onboard LAN controller.
LAN 1 Oprom	• Disabled (Initial value) • PXE • iSCSI	Sets whether or not to perform a network boot. This function allows booting the server via the network. It is used for remote installation of the OS, etc. This item may be set when the setting of [LAN Controller] is [Enabled].

7.2.6 Advanced System Configuration Submenu

Configure the onboard system settings.

```
                    Phoenix TrustedCore(tm) Setup Utility
        Advanced

        Advanced System Configuration        │  Item Specific Help

   Onboard Video:                [Enabled]

   High Precision Event Timer:   [Disabled]

   SMART Device Monitoring:      [Enabled]

   SATA RAID Enable:             [Disabled]
   SATA AHCI Enable:             [Disabled]




   F1   Info      ↑↓  Select Item    -/+    Change Values      F9   Setup Defaults
   Esc  Exit      ←→  Select Menu   Enter  Select ▶ Sub-Menu  F10  Save and Exit
```

table: Items on the Advanced System Configuration submenu

Item	Setting	Description
Onboard Video	Enabled (Unchangeable)	Sets whether to enable or disable the display function on the baseboard.
High Precision Event Timer	• Disabled (Initial value) • Enabled	Sets whether or not to use the high precision timer of the chipset.
SMART Device Monitoring	Enabled (Unchangeable)	Sets whether or not to monitor SMART device.
SATA RAID Enable	• Disabled[*1] • Enabled	Sets whether to enable or disable the SATA RAID function.
SATA AHCI Enable	Disabled (Unchangeable)	Sets whether to enable or disable AHCI mode. This item may be configured when [Disabled] is set of [SATA RAID Enable]. This setting is [Enabled] when [SATA RAID Enable] is set to [Enabled].

*1: The initial setting is [Enabled] only for SATA model with array configuration. For SAS model and SATA model without array configuration, the initial setting is [Disabled].

7.2.7 Advanced Processor Options Submenu

Use this submenu to configure the processor.

```
                Phoenix TrustedCore(tm) Setup Utility
      ┌─────────────────┐
      │    Advanced     │
      └─────────────────┘
      ┌────────────────────────────────────────┬──────────────────────┐
      │       Advanced Processor Options        │   Item Specific Help │
      ├────────────────────────────────────────┼──────────────────────┤
      │  CPU Mismatch Detection :    [Enabled]  │                      │
      │  Enhanced SpeedStep :        [Disabled] │                      │
      │  CPU Halt Mode :             [Enhanced] │                      │
      │  Enhanced Idle Power State : [Disabled] │                      │
      │  CPU Thermal Management :    [Enabled]  │                      │
      │                                         │                      │
      │  Virtualization Technology:  [Disabled] │                      │
      │  NX Memory Protection :      [Disabled] │                      │
      │                                         │                      │
      │  Adjacent Cache Line Prefetch : [Enabled]│                     │
      │  Hardware Prefetch :         [Enabled]  │                      │
      │                                         │                      │
      │  Core Multi-Processing :     [Enabled]  │                      │
      │  Limit CPUID Functions :     [Disabled] │                      │
      │  CPU MC Status Clear :       [Next Boot]│                      │
      ├────────────────────────────────────────┴──────────────────────┤
      │ F1   Info    ↑↓  Select Item   -/+   Change Values             │
      │                                               F9  Setup Defaults│
      │ Esc  Exit    ←→  Select Menu   Enter Select ▶ Sub-Menu         │
      │                                               F10 Save and Exit │
      └────────────────────────────────────────────────────────────────┘
```

table: Items on the Advanced Processor Options submenu

Item	Setting	Description
CPU Mismatch Detection	Enabled (Unchangeable)	Sets whether to enable or disable checking the CPU type and frequency.
Enhanced SpeedStep	Disabled (Unchangeable)	Sets whether to enable or disable the power saving function.
CPU Halt Mode	Enhanced (Unchangeable)	Configures the CPU internal setting.
Enhanced Idle Power State	Disabled (Unchangeable)	Configures the CPU internal setting. This item is displayed only when Xeon 3065/3085 processor is onboard.
CPU Thermal Management	Enabled (Unchangeable)	Configures the CPU internal settings.
Virtualization Technology	• Disabled (Initial value) • Enabled	Sets whether to enable or disable Virtualization Technology.
NX Memory Protection	• Disabled (Initial value) • Enabled	Sets whether to enable or disable "execute disable bit function" of processor.
Adjacent Cache Line Prefetch	Enabled (Unchangeable)	Configures the CPU internal settings.
Hardware Prefetch	Enabled (Unchangeable)	
Core Multi-Processing	Enabled (Unchangeable)	Sets whether to enable or disable multi-core function.
Limit CPUID Functions	Disabled (Unchangeable)	Sets whether or not to limit CPUID expanded function. If the OS does not support expanded functions, the system may not start.
CPU MC Status Clear	Next Boot (Unchangeable)	Configures the CPU internal settings.

7.2.8 PCI Configuration Submenu

Use this submenu to set the PCI device.

```
                  Phoenix TrustedCore(tm) Setup Utility
         Advanced

              PCI Configuration              │  Item Specific Help

  ▶ PCI Slot Configuration

    PCI IRQ  line 1:        [Auto Select]
    PCI IRQ  line 2:        [Auto Select]
    PCI IRQ  line 3:        [Auto Select]
    PCI IRQ  line 4:        [Auto Select]
    PCI IRQ  line 5:        [Auto Select]
    PCI IRQ  line 6:        [Auto Select]
    PCI IRQ  line 7:        [Auto Select]
    PCI IRQ  line 8:        [Auto Select]


  F1   Info      ↑↓  Select Item   -/+   Change Values    F9   Setup Defaults
  Esc  Exit      ←→  Select Menu   Enter Select ▶ Sub-Menu F10  Save and Exit
```

table: Items on the PCI Configuration submenu

Item	Setting	Description
PCI SLOTS Configuration	Configures the PCI slots. Press the [Enter] key to display the [PCI SLOTS Configuration] submenu screen.	
PCI Slot 1 Configuration Option ROM SCAN	• Enabled • Disabled (Initial value)	Sets whether or not to initialize the extended ROM on each PCI slot.
PCI Slot 2 Configuration Option ROM SCAN	• Enabled • Disabled (Initial value)	
PCI Slot 3 Configuration Option ROM SCAN	• Enabled • Disabled (Initial value)	
PCI-E x4 Slot 4 Configuration Option ROM SCAN	• Enabled • Disabled (Initial value)	
PCI-E x8 Slot 5 Configuration Option ROM SCAN	• Enabled (Initial value) • Disabled	
PCI-E x8 Slot 6 Configuration Option ROM SCAN	• Enabled • Disabled (Initial value)	
PCI IRQ Line 1–8	Auto Select (Unchangeable)	Sets the PCI IRQ.

7.2.9 Security Menu

The [Security] menu sets the security options.

```
                  Phoenix TrustedCore(tm) Setup Utility

    Main     Advanced    Security    Power    Server    Boot    Exit

                                                      Item Specific Help
    Supervisor Password :      Not installed
    User Password :            Not installed

    Set Supervisor Password :  [Enter]
    Set User Password :        [Enter]
    Password on boot :         [Disabled]


    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  F10  Save and Exit
```

<p style="text-align:center;">table: Items on the Security menu</p>

Item	Setting	Description
Supervisor Password	Displays whether a password (administrator password) is set. • Not Installed: A password is not set yet. • Installed: A password is already set.	
User Password	Displays whether the user password is set. • Not Installed: A password is not set yet. • Installed: A password is already set.	
Set Supervisor Password	Displays the setting of a password which is used for security of BIOS setup. Once the password is set, password entry is required when start up BIOS Setup Utility. Press the [Enter] key to display the password entry window. Enter the Supervisor password. For details, refer to "8.4.2 Security against Unauthorized Use" (→pg.192).	
Setup Password Lock	• Standard (Initial value) • Extended	Sets a scope of protection with the supervisor password. Setting of [Supervisor Password] is necessary to use this function.
Set User Password	Sets a user password. Once the password is set, password entry is required when access to the server. This password may be set when [Supervisor Password] has been set. Press the [Enter] key to display the password entry window. Enter the User password. For details, refer to "8.4.2 Security against Unauthorized Use" (→pg.192).	

table: Items on the Security menu

Item	Setting	Description

User Password Mode	• Standard (Initial value)
	• Keyboard
		Displays the measure of password entry when the system starts up.
		• System
		  Security lock will be released by entry of the password when a password entry window appears on the system startup.
		• Keyboard
		  Although a window does not appear for requirement of password entry, operation with a keyboard and mouse will be blocked up. Security lock will be released after entering the password and pressing the [Enter] key.

Password on boot	• Disabled (Initial value) • Enabled	Sets whether to enable or disable to enter the password when boot the server by Wakeup On LAN. This item may be set when a User Password has been set.
System Password Lock	• Standard (Initial value) • WOL SKIP	Sets whether to enter a password or not when turn on by Wakeup On LAN.
Virus Warning	Disabled (Unchangeable)	Sets whether or not to check 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	• Disabled • Enabled (Initial value)	Sets whether or not to allow writing on a floppy disk.
Flash Write	• Disabled • Enabled (Initial value)	Sets whether or not to allow writing on the BIOS Flash ROM.

7.2.10 Power Menu

Use this menu to configure power On/Off settings.

```
┌─────────────────────────────────────────────────────────────────────┐
│               Phoenix TrustedCore(tm) Setup Utility                   │
├───────────────────────────────────────────────────────────────────────┤
│   Main    Advanced    Security    Power    Server    Boot    Exit     │
├───────────────────────────────────────────────────────────────────────┤
│                                                                       │
│   Power-on Source        [BIOS Controlled]         Item Specific Help │
│     Remote :             [Enabled]                                    │
│     LAN :                [Enabled]                                    │
│     Wake Up Timer :      [Disabled]                                   │
│       Wake Up Time :     [00:00:00]                                   │
│       Wake Up Mode :     [Dally]                                      │
│                                                                       │
│   Power Failure Recovery :   [Always Off]                             │
│                                                                       │
│                                                                       │
│                                                                       │
│                                                                       │
│                                                                       │
│                                                                       │
├───────────────────────────────────────────────────────────────────────┤
│  F1   Info     ↑↓   Select Item    -/+    Change Values      F9   Setup Defaults │
│  Esc  Exit     ←→   Select Menu    Enter  Select ▶ Sub-Menu  F10  Save and Exit  │
└─────────────────────────────────────────────────────────────────────┘
```

table: Items on the Power menu

Item	Setting	Description
Power-on Source	BIOS Controlled (Unchangeable)	Configures the power-on setting.
Remote	• Disabled (Initial value) • Enabled	Sets whether or not the server to be turned on when the modem (connected to the serial port) receives a ring signal.
LAN	• Disabled • Enabled (Initial value)	Sets whether to enable or disable the server to be turned on via LAN.
Wake Up Timer	Disabled (Unchangeable)	Sets whether or not the power is turned on at a certain time or after a certain time has passed. A separate program is required to set startup time. Sets the following items when the setting is [Enabled].
Wake Up Time	[00:00:00]	Sets the startup time when using [Wake Up Timer].
Wake Up Mode	Daily (Unchangeable)	Sets the startup mode when using [Wake Up Timer].
Wake Up Day	1 (Unchangeable)	Sets this item when [Monthly] in [Wake Up Mode] has been set.
Power Failure Recovery	• Always On • Always Off (Initial value) • Previous State	Sets whether to turn the power on or off after a temporary main power outage due to power interruption, etc. **Note:** ▶ For UPS scheduled operation, set to [Always On]. Otherwise, the server may not be turned on at the set time.

7.2.11 Server Menu

The [Server] menu sets the server options.

```
                    Phoenix TrustedCore(tm) Setup Utility
     Main      Advanced    Security    Power    Server    Boot    Exit

                                                        Item Specific Help
    O/S Boot Timeout :        [Disabled]
      Action :                [Reset]
      Timeout Value :         [0]
    ASR&R Boot Delay :        [2]
    Power Cycle Delay :       [7]
    Temperature Monitoring :  [Disabled]

    Boot Retry Counter :      [3]



  ▶ CPU Status
  ▶ Memory Status
  ▶ PCI Status
  ▶ Console Redirection
  ▶ IPMI

  F1   Info      ↑↓  Select Item    -/+   Change Values      F9   Setup Defaults
  Esc  Exit      ←→  Select Menu   Enter  Select ▶ Sub-Menu  F10  Save and Exit
```

table: Items on the Server menu

Item	Setting	Description
O/S Boot Time out	• Disabled (Initial value) • Enabled	Sets whether to enable or disable the [OS Boot Monitoring] function, when ServerView is installed to the OS. When this function is enabled, if for some reason booting the operating system is interrupted, the system will automatically restart. OS Boot Monitoring function can also be enabled or disabled from ServerView. **Note:** ▶ If ServerView has not been installed on the system, be sure to set this item to [Disabled]. If not, the improper setting may cause unplanned irregular operation such as turning off or restart the server automatically without any commands. ▶ When starting the system with remaining the PRIMERGY Startup Disc or DOS diskette inserted, be sure to disable the "OS Boot Monitoring" function, even when ServerView has been installed on the system. If not, the improper setting may cause unplanned irregular operation such as turning off or restart the server automatically without any commands on starting up the system. ▶ When setting this function, observe "ServerView User's Guide" prior to use of this function. Sufficient comprehension is required to run this function safely.

table: Items on the Server menu

Item	Setting	Description
Action	• Continue • Reset (Initial value) • Power Cycle	Sets the actions to be taken if OS does not start up properly within the time set in the [Timeout Value].
Timeout Value	• 0 (Initial value) • 1–100	Sets the period of timeout in minutes.
ASR&R Boot Delay	2 (Unchangeable)	Sets the standby time in minutes for reboot the system after shutdown due to trouble (such as overheating). The system reboot after the set standby time.
Power Cycle Delay	7 (Unchangeable)	Sets the time until the server is turned on after it is turned off.
Temperature Monitoring	Disabled (Unchangeable)	Sets whether or not the server can be turned on when the temperature is not in its operating environment range (10-35 °C).
Boot Retry Counter	• 3 (Initial value) • 0–7	Sets the maximum number of retries to boot the operating system within the range of 0 to 7.
CPU Status	Sets whether or not to allow the use of the installed CPU. →"7.2.12 CPU Status Submenu" (pg.164)	
Memory Status	Sets whether or not to allow the use of the memory slot. →"7.2.13 Memory Status Submenu" (pg.165)	
PCI Status	Sets whether or not to allow the use of PCI slots. →"7.2.14 PCI Status Submenu" (pg.165)	
Console Redirection	Configures detailed settings for console redirection. →"7.2.15 Console Redirection Submenu" (pg.166)	
IPMI	Sets details for the IPMI. →"7.2.16 IPMI Submenu" (pg.167)	

7.2.12 CPU Status Submenu

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 Status	Enabled (Unchangeable)	Sets whether or not to allow the use of CPU installed in CPU Socket.

7.2.13 Memory Status Submenu

This submenu sets whether or not to allow the use of the installed memory.

table: Items on the Memory Status Submenu

Item	Setting	Description
DIMM-1A	Enabled (Unchangeable)	Sets whether or not to enable the use of the memory modules in memory slot 1A to 2B. If [Disabled] or [Failed] is displayed, replace the faulty memory module and then change the setting to [Enabled]. When Load default is executed, all the memory slots status will be changed to [Enabled]. The status of the memory slots will be changed to [Empty] in next startup, if the memory slots are not in use.
DIMM-2A		
DIMM-1B		
DIMM-2B		

7.2.14 PCI Status Submenu

This submenu sets whether or not to allow the use of PCI slots.

table: Items on the CPI Status Submenu

Item	Setting	Description
Slot 1	Empty (Unchangeable)	Sets whether or not to allow the use of PCI cards of the PCI slot 1 to 6. The settings of those items may be changed to [Enabled], when set to [Failed]. When Load default is executed, all the status of the PCI slots will be changed to [Enabled]. PCI status will be returned to [Empty] in next startup, if the PCI slots are not used.
Slot 2		
Slot 3		
Slot 4		
Slot 5		
Slot 6		

7.2.15 Console Redirection Submenu

This submenu configures detailed settings for console redirection.

table: Items on the Console Redirection submenu

Item	Setting	Description
Console Redirection	• Disabled (Initial value) • On-board COM A • On-board COM B	Sets whether to enable or disable console redirection. When set to [On-board COM A] or [On-board COM B], the following parameters appear. Set each parameter.
Baud Rate	• 300 • 1200 • 2400 • 9600 (Initial value) • 19.2K • 38.4K • 57.6K • 115.2K	Sets the baud rate used in the console redirection.
Console Type	• VT100 • VT100,8bit • PC-ANSI,7bit • PC-ANSI • VT100+ (Initial value) • VT-UFT8 • ASCII	Sets the console type for console redirection.
Flow Control	• None • XON/XOFF • CTS/RTS (Initial value)	Sets flow control for console redirection.
Continue C.R. after POST	• Off • On (Initial value)	Sets the range of use for console redirection.

7.2.16 IPMI Submenu

Use this submenu to configure IPMI settings.

```
                  Phoenix TrustedCore(tm) Setup Utility
                                            Server

               IPMI                              Item Specific Help

      SM Error Halt :          [Enabled]
      iRMC Time Sync :         [Enabled]
      Clear System Event Log : [Disabled]
      Event Log Full Mode :    [Overwrite]

      Date Format to show      [MM DD YYYY]
      Date Separator           [  /  ]

    ▶ System Event Log
    ▶ System Event Log (list mode)
    ▶ Realtime Sensor Data
    ▶ LAN Settings
    ▶ IPMI Status

    F1   Info      ↑↓  Select Item    -/+    Change Values      F9   Setup Defaults
    Esc  Exit      ←→  Select Menu     Enter  Select ▶ Sub-Menu  F10  Save and Exit
```

table: Items on the IPMI submenu

Item	Setting	Description
SM Error Halt	• Disabled • Enabled (Initial value)	Sets the processing procedures when an error occurs in the fan or the temperature sensor.
iRMC Time Sync	Enabled (Unchangeable)	Synchronizes the internal clock of iRMC (integrated Remote Management) with the system time.
Clear System Event Log	• Disabled (Initial value) • Enabled	Sets whether or not to clear the event log.
Event Log Full Mode	Overwrite (Unchangeable)	Sets whether or not to overwrite event logs in case that the capacity to record event logs is full.
Date Format to show	[MM DD YYYY] (Unchangeable)	Sets how to show the date format on referring event logs.
Date Separator	[/] (Unchangeable)	Sets how to separate the date on referring event logs.
System Event Log	Displays the system event logs. Press the [Enter] key to display the system event log window. Pressing the [+] [-] keys displays previous and subsequent entries.	
System Event Log (list mode)	Displays the system event logs. Press the [Enter] key to display the system event log window. The event logs are displayed in a list.	
Realtime Sensor Data	Confirms the sensor information. Pressing [Enter] key displays the Realtime Sensor Data window.	
LAN Settings	Configures the LAN settings of the Remote Management Controller port. This setting is required when performing the remote operation using Remote Control Service. Press the [Enter] key to display the [LAN Settings] screen.	

table: Items on the IPMI submenu

Item	Setting	Description
Service LAN	Enabled (Unchangeable)	Sets whether or not to allow the use of the remote management controller port.
DHCP	• Disabled (Initial value) • Enabled	Sets whether or not to obtain LAN IP address of the Remote Management Controller port from the DHCP server. When set [Disabled], IP address setting can not be made.
Local IP Address	[000.000.000.001]	Enter the IP address, the subnet mask, the default gate way of the ports for the remote management controller.
Subnet Mask	[000.000.000.000]	
Gateway Address	[000.000.000.000]	
IPMI Status	Displays IPMI information. Pressing [Enter] key displays the IPMI Status screen.	

7.2.17 Boot Menu

This menu sets the priority order of startup. The names of CD devices and HDD devices on the display vary depending on the on board devices.

```
                    Phoenix TrustedCore(tm) Setup Utility

     Main      Advanced      Security      Power      Server      Boot      Exit

    Boot priority order :                              Item Specific Help
      1 :  IDE CD :
      2 :  Legacy Floppy Drive
      3 :  IDE 0 :
      4 :  PCI BEV : Boot Manage PXE, Slot 0400
      5 :  PCI BEV : MBA v10.0.9 Slot 0400
      6 :
      7 :
      8 :
    Excluded from boot order
        : Legacy Network Card
        : Bootable Add-in Cards



    F1    Info        ↑↓   Select Item     -/+    Change Values        F9    Setup Defaults
    Esc   Exit        ←→   Select Menu     Enter  Select ▶ Sub-Menu    F10   Save and Exit
```

7.2.18 Exit Menu

This menu exits BIOS Setup Utility.

```
                 Phoenix TrustedCore(tm) Setup Utility

   Main    Advanced    Security    Power    Server    Boot    Exit

                                                    Item Specific Help
   Save Changes & Exit
   Discard Changes & Exit
   Get Default Values
   Load Previous Values




   F1   Info      ↑↓   Select Item    -/+    Change Values      F9   Setup Defaults
   Esc  Exit      ←→   Select Menu    Enter  Select ▶ Sub-Menu  F10  Save and Exit
```
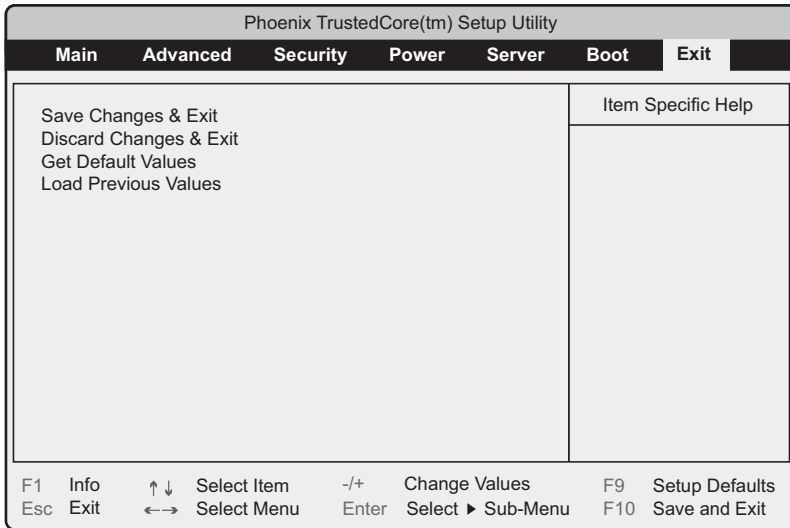
Select the options for handling BIOS settings when exiting the utility.

table: Items on the Exit menu

Item	Description
Save Changes & Exit	Saves the current settings and exit BIOS Setup Utility. After it exits, the server reboots.
Discard Changes & Exit	Exits BIOS Setup Utility without saving current settings. Previously saved settings remain valid.
Get Default Values	Returns to the default values of the server for all items. Reconfiguration is not available for all the items on LAN Setting submenu.
Load Previous Values	Sets all items to the values before the last changes by reading from CMOS. Current setting values are discarded. Reconfiguration is not available for all the items on LAN Setting submenu.

IMPORTANT

▸ Note the following points to return the configured values to those initial value by [Get Default Values].
  • Confirm that the settings of [SATA RAID Enable] and [SATA AHCI] are [Disabled] on the [Advanced System Configurations] submenu of the [Advanced] menu when an Onboard Software RAID is not used. If not, the system may not start up properly.
  • When an Onboard Software RAID is used, confirm the startup priority has been set properly on the [Boot] menu. When the priority of CD/DVD drive is low, startup from the CD/DVD drive may fail.

Chapter 8

Operation and Maintenance

8

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

8.1 Daily Maintenance

This section explains procedures for checking the status of the server in operation and for performing daily maintenance.

● Information for PRIMERGY

For the latest information on PRIMERGY, update modules, drivers and the software, refer to the Fujitsu PRIMERGY website.

http://www.fujitsu.com/global/services/computing/server/ia/driver/

Regarding BIOS and firmware, contact to Fujitsu Support Office. Refer to the website below.

 http://www.fujitsu.com/global/contact/computing/PRMRGY_index.html

8.1.1 Checking the Server Status

■ Checking each LED

This server is equipped with LEDs that display various hardware conditions.
Check the server status with each LED after starting the server. For locations and functions of each status LED, refer to "1.3 Component Names and Functions" (→pg.22).

■ Server monitoring tool (ServerView)

ServerView monitors the status of the server hardware in order to protect server resources. When using ServerView, the server hardware is monitored all the time. If an error that could cause trouble is detected, the error is notified in real-time which enables early detection. This allows quicker response to system errors and prevents the error from becoming a serious problem.
For an overview and installation of ServerView and other high reliability tools, refer to "1.2.2 High Reliability Tools" (→pg.19) and "Chapter 5 High Reliability Tools" (→pg.103).

8.1.2 Cleaning

Perform periodical cleaning for the server.

| ⚠ WARNING | Electric Shock ⚡ | • Before cleaning, turn off the server and unplug the power cables from the outlets. Also turn off peripherals and disconnect them from the server. Otherwise electric shock may occur. (→"1.4.4 Turning Off the Server" (pg.34)). |
| | 🚫 | • Do not use any cleaning sprays (including inflammable types). It may cause a device failure or a fire. |

■ Cleaning the server

Wipe with a soft, dry cloth. For difficult stains, wipe with a cloth lightly dampened with a mild detergent. Once the stain has been removed, wipe off remaining detergent with a cloth dampened with water. When wiping the server, be sure that no liquid gets into the server. Use mild detergent only. Other cleaning agents such as solvent are prohibited. Using cleaning agents other than those recommended may damage the server.

Vacuum the server periodically to prevent dust accumulation in ventilation holes.

POINT

‣ In dusty environments, dust accumulates on both of the front and rear panels of the server even in a short period. Install the server in a different location to avoid failures.

■ Cleaning interior of the server

In dusty environments, dust accumulates inside of the server. Dust deposits may cause a server failure, fire, or electric shock. To keep the PRIMERGY server in good condition, vacuum the interior of the server periodically to remove dust deposits.

POINT

Cleaning components

‣ CPU: Dust deposits must be removed, otherwise it will impair the cooling performance.
‣ Fan: Remove dust from and around the fan.
‣ 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 devices: 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 can cause failures or electric shock.

IMPORTANT

‣ Be careful when removing components such as CPU, memory modules, or hard disk units. Be sure to install parts and cables in the original position.
‣ Leaving dust on the server can cause failure. Be sure to remove any dust from 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 move smoothly, remove the ball and clean it.

● **Cleaning procedures**

1 Remove the cover from the base of the mouse.

Remove the cover by rotating it in the direction of the arrow.
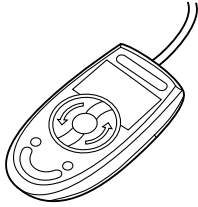
2 Remove the ball and rinse it with water.

Flip the mouse over to remove the ball. Afterwards, wash it with water.
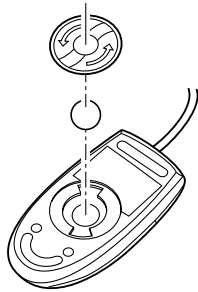
3 Clean the inside of the mouse.

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, put back the ball and the cover.

■ Cleaning the floppy disk drive

Long-term use of the floppy disk drive attributes to accumulation of 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.

● **Cleaning procedures**

1 Insert the cleaning disk into the floppy disk drive.

2 Access the floppy disk drive from the OS.

• For Windows, access it with Explorer.

• For Linux, execute the "mount" or "dd" commands of the floppy disk drive.

The process is completed when an error message such as to indicate that the disk cannot be read is displayed.

3 Remove the cleaning disk from the floppy disk drive.

■ Optional devices

For details about cleaning optional devices, refer to the manual for each optional device.

8.1.3 Replacement of Consumable Items

Consumable items is required to be replaced to maintain its performance and function. Users are responsible for procurement and replacement of consumable item shown below. For procurement, contact an office listed in the "Contact Information" of "Start Guide".
For procedures of replacement, refer to the "6.4.4 Installing a Battery Backup Unit" (→pg.126).

■ Consumable item

This server contains the consumable item listed below.

table: List of the consumable item

Consumable item	Product ID	Objective product	Description
Battery Backup Unit	PG-BBU1	SAS array controller card (PG-248C)	The Battery Backup Unit is required to be replaced within 3 years from procurement of the server or the previous replacement regardless of the accumulated time period of use.

8.2 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.
Hardware problems: "8.2.1 Hardware Troubleshooting" (→pg.176)
Error messages: "8.2.2 Error Messages" (→pg.178)
Software problems: "8.2.3 Software Troubleshooting" (→pg.185)

If the problem is not resolved after performing troubleshooting, contact an office listed in the "Contact Information" of "Start Guide". When contacting your maintenance engineer, refer to "8.8.1 Contacting Maintenance Support" (→pg.201) and collect the required information.

● **Information for PRIMERGY**

For the latest information on PRIMERGY, update modules, drivers and the software, refer to the Fujitsu PRIMERGY website.
http://www.fujitsu.com/global/services/computing/server/ia/driver/
Regarding BIOS and firmware, contact to Fujitsu Support Office. Refer to the website below.
 http://www.fujitsu.com/global/contact/computing/PRMRGY_index.html

8.2.1 Hardware Troubleshooting

This section explains hardware related troubleshooting. Check the following if the server does not operate properly or a failure is suspected. For optional devices, refer to the manual for each 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".

● **The access LED does not light up.**

The server may be damaged. Contact an office listed in the "Contact Information" of "Start Guide". When contacting your maintenance engineer, refer to "8.8.1 Contacting Maintenance Support" (→pg.201) and obtain the required information.

● **An error message is displayed.**

Handle the error message by referring to "8.2.2 Error Messages" (→pg.178).

■ 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" and the manual of the display.

● The screen is distorted when Linux shuts down.

Although the screen display may be distorted when shutting down the system in the Linux environment, the system is shut down successfully. This has no effect on the system.

● 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 "Start Guide".

● Typing on 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 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.

■ Floppy disk drive

● Cannot read or write to the floppy disk.

The device head may be dirty. Clean the drive using a cleaning disc. For cleaning methods, refer to "8.1.2 Cleaning" (→pg.172).

● Cannot write to the floppy disk.

The write protection of the floppy disk may be applied. Flip the switch on the disc to allow writing.

■ Optional devices (internal / external)

● The unit does not operate properly.

- Check to see whether the internal cable is connected properly. If not connected, correctly connect the internal cable. For the connection location, refer to "6.6.2 Installable 5-inch Internal Devices" (→pg.136).
- For SCSI devices, check to see whether the SCSI-ID and terminator are set correctly. If they are not set, correctly set the SCSI-ID and terminating resistance.

■ DVD-ROM drive unit

● Cannot read data.

- Check to see whether the CD/DVD is inserted properly. If it is not, insert the CD/DVD properly so that the label is facing up.
- The CD/DVD may be contaminated. Wipe it with a soft, dry cloth.
- The CD/DVD may be scratched or warped. If scratched or damaged, do not use such a CD/DVD.

● The DVD-ROM unit does not operate properly.

Check to see whether the internal cable is connected properly. If not connected, correctly connect the internal cable.

8.2.2 Error Messages

■ POST error messages

This section explains error messages of Power On Self Test: a device check performed during the server startup (POST).
If an error occurs during POST, the following messages are displayed.

⚲POINT

- ▶ When check/change the settings of the BIOS Setup Utility, refer to "7.2 BIOS Setup Utility" (→pg.149).
- ▶ For instructions on checking peripheral connections, refer to "Start Guide".
- ▶ For details on installing internal options, refer to "Chapter 6 Installing Internal Options" (→pg.111).

table: List of POST error messages

Message	Description
Failure Fixed Disk	Indicates a SATA device error. Check whether the SATA hard disk unit is properly installed. If the message still appears, the hard disk unit must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
Stuck Key	Indicates a keyboard error. Check whether the any key on the keyboard is being pressed, or the keyboard is properly connected. If the message still appears, the keyboard must be replaced.
Keyboard error	

table: List of POST error messages

Message	Description
Keyboard controller error	Indicates a keyboard controller error. Check whether the any key on the keyboard is being pressed. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
System RAM Failed at offset: ********h Shadow RAM Failed at offset: ********h Extended RAM Failed at address line: ****h	Indicates a memory error. Turn off the server and turn it back on. If the message still appears, check the error log and replace the faulty memory module. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
Memory type mixing detected	The installation configuration of the memory is not acceptable. Check that the same type of memory modules is installed in the slots of the same bank. If the message displays even though the installation is adequate, replace the memory module. Even when the message still appears after replacement, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
Memory decreases in Size	Indicates a memory error. Due to a memory failure, available memory capacity is less than the capacity of the actually installed memory. Check the error log and replace the faulty memory module. If the message still appears after the replacement, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
Non Fujitsu Siemens Memory Module detected - Warranty restricted!	Indicates a memory error. Check whether the settings of BIOS Setup Utility are correct. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide"
System battery is dead - Replace and run SETUP	Indicates a battery error. Check whether the battery on the baseboard is properly set. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
System CMOS checksum bad - Default configuration used	Indicates an error of the CMOS settings. Correct the current settings with BIOS Setup Utility or restore the settings to the initial values. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
System timer error	Indicates a system clock error. Turn 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 "Start Guide".
Real time clock error	Indicates a Real Time Clock (RTC) error. Start up BIOS Setup Utility and enter the present time and date on the [Main] menu. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
Check date and time settings	Indicates an error of the date and time settings. Start up BIOS Setup Utility and enter the present time and date on the [Main] menu. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".

table: List of POST error messages

Message	Description
Previous boot incomplete - Default configuration used	POST did not complete during the last startup. Be sure to perform the following operation. Unless otherwise the failure may result in failure of OS startup or server operation. 1. Start BIOS Setup Utility. 2. From the [Exit] menu, select [Save Changes & Exit] and press the [Enter] key. The message "Save configuration changes and exit now?" is displayed. 3. Select [Yes] and press the [Enter] key. The BIOS Setup Utility closes and the server restarts.
CPU had been changed - Run SETUP	The CPU has been changed. Check whether the CPU is properly installed. If the installation of CPU is appropriate and the massage still appears, the CPU or the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
CPU mismatch detected Available CPUs do not support the same bus frequency- system halted!	The CPU frequency has changed. Check whether the supported CPU is installed. If the compatible CPU is appropriate and the massage still appears, update the BIOS with using a BIOS update tool, provided with the CPU. If the message still appears, the CPU or the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
Baseboard Management Controller Error	Indicates a BMC error. Turn off the server, unplug the outlet and turn it back on. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
Diskette drive A error Incorrect Drive A type - run SETUP	Indicates a floppy disk drive error. Check whether the floppy disk drive cable is connected properly. Also check the settings of [Diskette A] on the [Main] menu of BIOS Setup Utility. If both the connecting environment and the setting values are correct and the message still appears, the floppy disk drive, the cables or the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
System cache Error - Cache disabled	Indicates a system cache error. Turn off the server and turn it back on. If the message still appears, check the error log and replace the CPU if is faulty. If the CPU is considered as keeping its capability, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
Verify CPU Frequency selection in Setup	Indicates a CPU error. Turn off the server and turn it back on. If the message still appears, check the error log and replace the CPU if faulty. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
CPU runtime error (IERR#) detected	Indicates an installed CPU error. Check the error log and replace the CPU. If the message still appears after replacement, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
Uncorrectable memory error	Indicates a memory error. Check the error log and replace the appropriate memory module. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".

table: List of POST error messages

Message	Description
Memory configuration has changed - Run SETUP	Indicates a memory error. The memory size has changed since the last startup. Check the error log and replace the appropriate memory module. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
No usable system memory	Indicates a memory error. No memory modules, available to the system, are detected. Check the error log and replace the memory module. If the message still appears, contact an office listed in the "Contact Information" of "Start Guide".
Memory module disabled! This module is no longer available for the operating system.	Indicates a memory error. Turn off the server and check whether the memory module is installed correctly. If the message still appears, check the error log and replace the appropriate memory module. If the message still appears after the replacement, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
No usable CPU	Indicates an installed CPU error. Replace the CPU. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide". .
Patch for installed CPU not loaded. Please run the bios flash update diskette.	Check that the correct CPU is installed. If the correct CPU is properly installed and the message still appears, the CPU or the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
CPU disable! CPU is no longer available for the operating system.	Indicates a CPU error. No CPUs available to the system are detected. Check the error log and replace the CPU. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
Invalid System Configuration Data	Indicates an error of the system configuration. Check whether the employed configuration is supported. If the configuration is supported and the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
Resource Conflict	IRQ, DMA, or I/O address conflicts between an onboard device and an expansion card. Check that the setting of [PCI IRQ line] is set to [Auto Select] in the [PCI Configuration] submenu of the [advanced] menu, BIOS Setup Utility. If the message still appears, the expansion card or the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
IRQ not configured	The IRQ for an onboard device or an expansion card is not configured. Check and modify the configuration of [PCI configuration] on the [Advanced] menu of BIOS Setup Utility. If the message still appears, the expansion card or baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
Expansion ROM not initialized	Indicates an error of initialization for the PCI extended ROM. Disconnect the device/card which has been initialized on the screen and replace the appropriate card. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".

table: List of POST error messages

Message	Description
Allocation error static node #	An onboard device or an expansion card cannot be used. Disconnect the device/card and replace the appropriate card. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
Baseboard Management Controller has detected an Error	Indicates a BMC error. The error log needs to be checked and the relevant part(s) replaced. Contact an office listed in the "Contact Information" of "Start Guide".
iRMC reports sensor status: CRITICAL temp	Indicates that irregular temperature is detected. Check the operating environment and improve its condition if ill-affecting problems occur. If the message still appears, check the error log and the appropriate part(s) must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
iRMC reports sensor status: WARNING temp	
iRMC reports sensor status: CRITICAL Volt-ages	Indicates a power voltage error. Turn off the server and unplug the power cable from the outlet. Then, reconnect the power cable and turn on the server. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
iRMC reports sensor status: CRITICAL Battery	Indicates a voltage error of a battery. Turn off the server and unplug the power cable from the outlet. Then, reconnect the power cable and turn on the server. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
iRMC reports sensor status: WARNING Battery	
iRMC reports sensor status: CRITICAL FAN1 SYS	Indicates a system fan error. Check whether there are any obstacles interfering the fan rotation. If there is no interference and the message still appears, the system fan or baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
RMC reports sensor status: CRITICAL FAN PSU	Indicates a PSU fan error. Check whether there are any obstacles interfering the fan rotation. If there is no interference and the message still appears, the PSU fan or baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
PCI system error BUS/DEVICE/FUNCTION xxxxh	Indicates a PCI or a memory error. Check whether the PCI Express card is correctly installed. If the installation is correct and the message still appears, replace the PCI Express card. If the message still appears after replacement, the baseboard or the CPU must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
iRMC Controller Error	Indicates an iRMC controller error. Check and verify the irregularities in the system event log. After confirmation of no irregular logs, turn off the server. Wait for 10 seconds at least and turn it on back. If the message still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
PCI Express link width degraded	Indicates an error of PCI Express card. Check whether the PCI Express card is properly onboard. If the installation is correct and the message still appears, replace the PCI Express card. If the error message appears, the baseboard or CPU must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".

table: List of POST error messages

Message	Description
Operating system not found	OS to be launched can not be found. Check whether there are no floppy disks in the floppy disk drive, the device is regularly recognized, and the cables are connected properly. Additionally, check the setting values of the [Boot] menu on BIOS Setup Utility. If no irregularities are detected and the massage still appears, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
Server Management Configuration NVRam Bad-defaults loaded	Indicates a setting error of NVRam. Reconfigure the setting values which have been previously changed or return all the setting values to the initial values. When the correct setting values have been saved by the Server Management Tools, restore the values. If the error message still appears thereafter, the baseboard must be replaced. Contact an office listed in the "Contact Information" of "Start Guide".
System Management Configuration changed	Indicates an error of the hard disk configuration. Or the hard disk configuration has changed. This message may be ignored if the hard disk configuration has exactly changed. In case that no changes of the hard disk configuration are performed, check the cable connection status. If the cables have been connected properly and the error message still appears, the affecting part(s) must be changed. Check the system event log and what part has irregularities. Contact an office listed in the "Contact Information" of "Start Guide".

■ Server Management Tools error messages

The following error messages may appear while executing Server Management Tools. In such cases, perform the appropriate resolutions. If messages other than the following are displayed, contact an office listed in the "Contact Information" of "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" disc), and then press the [R] key.
ERROR: Fail to create data file. 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	The following factors may be possibly root causes. Check the floppy disk condition again. • 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 improper data. Create "Server Management Tools" again. If this occurs while recovering the BIOS information, configure the information using BIOS Setup Utility. Then store the BIOS information.
ERROR: Fail to open data file.	The file to recover 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 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	The following factors may be possibly root causes. Check the floppy disk condition again. • 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 improper data. Create "Server Management Tools" again. If this occurs while recovering BIOS information, configure the information using BIOS Setup Utility. Then store the BIOS information.
Other messages	Contact an office listed in the "Contact Information" of "Start Guide".

8.2.3 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 PRIMERGY Startup Disc, nothing is displayed on the screen.

This situation may occur if the hard disk drive still contains the previous information. In that case, this situation may occur even when insert Windows Server 2003 Installation CD-ROM.

In such a situation, physically format the hard disk drive to delete the previous information and start up ServerStart.

For physical formatting for hard disk drive, refer to the manual on Array Controller Document & Tool CD.

■ Error messages during installation

The following error messages may appear during installation using ServerStart. Observe the corrective action against the relevant error.

● "WzDiskAdmin: System Error! ...., Last Error: The device is not ready." appears

Optional SCSI/SAS devices (e.g., hard disk cabinet, DAT unit) may be connected.
Disconnect the optional SCSI/SAS devices and perform installation again. Connect the optional devices after the installation completes.

● "Operating System not found" appears when the system restarts from the CD/DVD after file copy

The following factor may be possibly root cause.

• The Active flag is selected.

● "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.46).

● "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].

■ **Application software which uses tftp client function (tftp.exe) does not operate properly**

For the system on which Windows Server 2003 is installed, since the tftp client function (tftp.exe) is not installed by default, and application software which uses the tftp client function (tftp.exe) does not operate properly. To use the tftp client function (tftp.exe), install "tftp.exe" from the OS installation disc according to the following procedures.

1 Insert the OS installation disc into the CD/DVD drive.
The OS installation disc must be any of Windows Server 2003 CD that has applied SP1, Windows Server 2003 x64 DVD or Windows Server 2003 R2 Disc 1 CD-ROM.

2 Start the Command Prompt and move to the i386 folder of the CD/DVD drive.

3 Execute the following command to extract "tftp.exe" in the "%Systemroot%\system32" folder.

```
[CD/DVD drive]:\i386>expand -r:tftp.exe TFTP.EX_ %Systemroot%\system32
```

*4* Confirm that "tftp.exe" exists in the "%Systemroot%\System32" folder.

■ **Error Window appears after installing or uninstalling ServerView (For Windows Server 2003)**

For Windows Server 2003 with Service Pack 1 applied, the following message may appear on restarting after installing/uninstalling ServerView. The operation will run properly. Click [Close Message] to close the message.

```
In order to protect the computer, this program is terminated by
Windows. Name: SNMP Service
```

■ **Error Window appears after LAN driver installation (For Windows Server 2003)**

The following window may appear when the installation of the LAN driver to the [Ethernet controller] under [Other devices] starts.
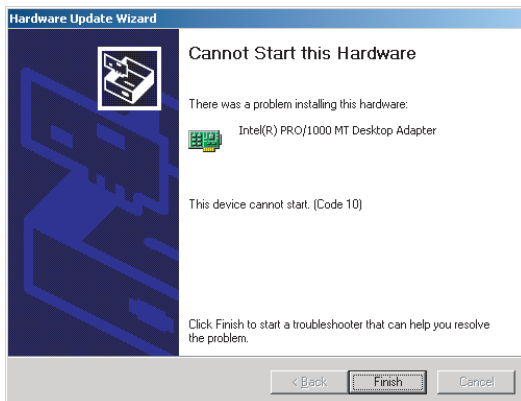
This error results from that the LAN driver for the network adapter recognized immediately after the OS installation is not updated.

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. The device names are displayed properly when all the LAN drivers are installed and the system is restarted.

■ 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 the LAN drivers and check that conflicts between system resources do not exist. Then, restart the system and reinstall the LAN drivers again.

■ 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: List of event log errors that may occur after installation

ID	Description	Cause and corrective action
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.	Cause: An NTP was selected as a component. Corrective action: ServerStart cannot configure the NTP server due to the absence of items for specifying it. After OS installation, perform the following procedure to specify the time server. 1. Start SNTP server operation on another machine. For example, 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".	Cause: The primary DNS server address may be invalid or the server cannot be accessed. Corrective action: Perform the following procedures to correct the DNS address in Internet protocol (TCP/IP) properties. 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.

● Correcting 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 "4.1 Memory Dump/Paging File Setting" (→pg.74).

● **Collecting memory dump to other than the system drive**

If the memory dump is 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 "4.1 Memory Dump/Paging File Setting" (→pg.74). 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 unit
- Replacing with a higher-capacity hard disk unit

● **Reducing the installed memory to collect the memory dump**

There must be enough free disk space that matches the size of the installed memory; therefore, reduce the installed memory to a collectable size. Check the memory dump settings when changing the installed memory size.

For setting procedures, refer to "4.1 Memory Dump/Paging File Setting" (→pg.74).

● **Changing the write type of the debugging information**

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 unit. For setting procedures, refer to "4.1 Memory Dump/Paging File Setting" (→pg.74)

■ Restoring the system

In the event where the system file, system configuration, or environment changes during startup are corrupted, use the repair information stored on the repair disk created at the installation to restore the system. For restoration procedures, refer to the following:

- "8.6.1 For Windows Server 2003" (→pg.198)

■ SNMP service startup fails

If the Simple Network Management Protocol (SNMP) is installed, but has not started, perform the following procedures to start the service.

1 Click [Start] – [Computer Management].

2 Select [Services] on the [Services and Applications] menu.

3 On the details, select [SNMP Service].

4 Select [Start] on the [Action] menu.

POINT

▶ To have the service automatically start each time the OS starts, double-click [SNMP Service] on the details, and select [Automatic] for the [Startup type] setting of the [SNMP Service Properties] window.

■ Time display in Linux OS environment

● Difference in time between the OS and the hardware clock

Since the software clock on OS is employed but not the hardware clock functioned in the server for time display in Linux environment, time lag may occur between the OS and the hardware clock.
When time precision is required on 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 in 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

8.3 System Event Log

This section explains how to refer to and operate system event logs.

8.3.1 How to Refer to Event Logs

ServerView S2 is used for reference of system event logs. A summary of reference procedures is described below. For details such as how to start up ServerView, refer to the "ServerView User's Guide"

1 Start up ServerView S2.

2 Click the server to be referred from the ServerList.

3 Select [Configuration] – [Recovery] on the menu list on the left side.

The list of all the system event logs is displayed.

⌕POINT

▶ Web interface of remote management controller may be used for the reference of system event logs. To use remote management controller, refer to "D Remote Management Controller" (→pg.218).

8.3.2 Deleting the System Event Log

Use BIOS Setup Utility to delete the system event logs.

1 Start up BIOS Setup Utility.

→"7.2.1 Starting and Exiting BIOS Setup Utility" (pg.149).

2 Select the [IPMI] submenu on the [Server] menu.

3 Set [Clear System Event Log] item to [Enabled].

4 Save the configured value and exit BIOS Setup Utility.

8.4 Security

This server provides security provisions in order to protect resources of both hardware and software against such as theft. Additional security functions, such as preventing unauthorized use, provided by BIOS Setup Utility are also available to help maintain a highly reliable data security system.
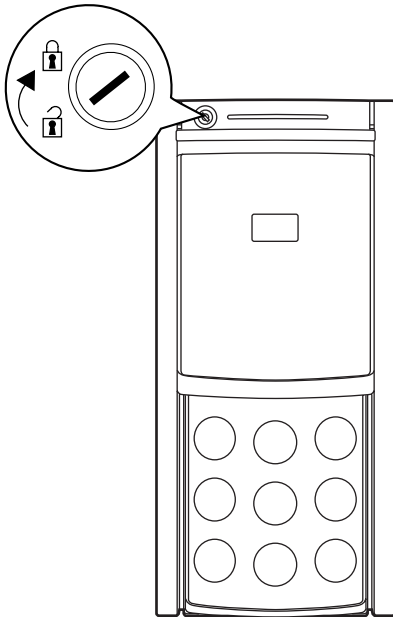
8.4.1 Hardware Security

This section describes security function of hardware.

■ Locking the drive cover

Lock the drive cover to protect the hardware (hard disk units and 5-inch internal options) in the server from theft or tampering.
Turn the key clockwise to lock the cover.

POINT

▶ The drive cover shall be locked on the upper part of the server while the server is running in manner that the lock point is about 25 mm away from the top edge of the server to the drive cover. If not adequate, the cover may not be locked. Check the cover is properly locked anytime.

▶ Do not lose the drive cover key. If the key is lost, contact an office listed in the "Contact Information" of "Start Guide".

▶ For instructions on opening the drive cover, refer to "1.4.1 Sliding the Drive Cover" (→pg.30).

■ **Rack type**

Lock the rack door to protect the hardware in the rack from theft.

To close the rack door, shut the door and return the rack handle, and turn the rack key.
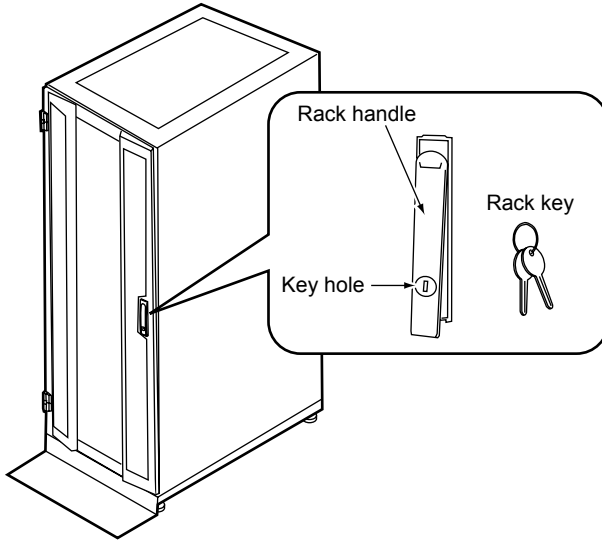
POINT

▸ Do not lose the rack key. If the key is lost, contact an office listed in the "Contact Information" of "Start Guide".

▸ For instructions on opening the rack door, refer to "1.4.2 Opening the Rack Door" (→pg.31).

▸ The above explanation is based on the 40U standard rack. For details on other rack systems, refer to the manuals supplied with those.

8.4.2 Security against Unauthorized Use

A password can be set to prevent unauthorized use of the server. Setting a password makes it necessary to enter the password in order to access the server. Without the password, the server cannot be used.

■ **Password types**

There are two types of passwords that define the privileges of server operations.

● **User password (user password)**

The password required to use the server. Unless the set password is entered, part of the BIOS setup cannot be accessed and the OS cannot be booted.

● **Administrator password (supervisor password)**

This is the password that only allows the administrator to set up this server. Unless the set password is entered, the BIOS setup cannot be accessed and the OS cannot be booted.

■ Setting a password

The password is set in BIOS Setup Utility. For details on BIOS Setup Utility, refer to "7.2.9 Security Menu" (→pg.160).
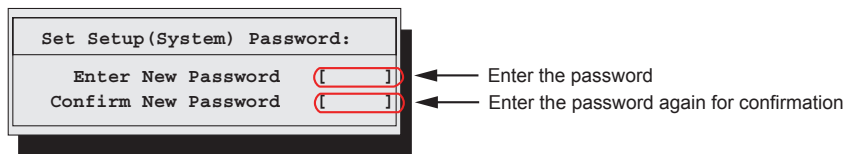
1 Start BIOS Setup Utility.

"7.2.1 Starting and Exiting BIOS Setup Utility" (→pg.149)

2 Select the [Security] menu and select the type of password to set.

- For the administrator password, select [Set Supervisor Password] and press the [Enter] key.
- For the user password, select [Set User Password] and press the [Enter] key.

3 When the password input window is displayed, enter the password to set.

```
Set Setup(System) Password:

    Enter New Password    [      ]  ◄──── Enter the password
  Confirm New Password    [      ]  ◄──── Enter the password again for confirmation
```
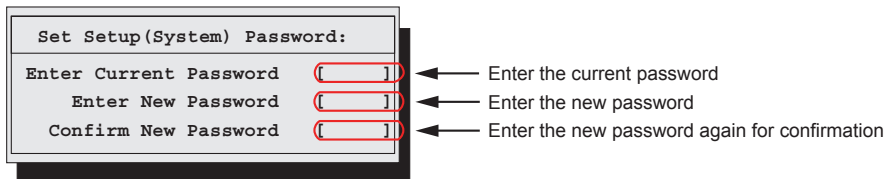
4 Enter the password again to confirm it.

5 Press the [Enter] key.

This sets the password.

● Changing / Deleting passwords

If a password is already set, perform the above password setting operations to display the password change window.

- To change the password, perform the following settings and press the [Enter] key.

```
Set Setup(System) Password:

Enter Current Password    [      ]  ◄──── Enter the current password
    Enter New Password    [      ]  ◄──── Enter the new password
  Confirm New Password    [      ]  ◄──── Enter the new password again for confirmation
```

- To delete the password, enter the current password, and then press the [Enter] key without entering anything in the second and third fields. The status of "User (Supervisor) Password" changes to "Not installed".

Ｐ POINT

▶ The system shuts down after three times password attempts. If this happens, turn 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 jumper setting on the baseboard to reset the passwords. For jumper settings, refer to "7.1 Jumper Settings" (→pg.148).

8.4.3 Security When Disposing of the Server

■ Notes regarding the deletion of data from the hard disk when disposing of or transferring the server

When disposing of 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 disposal or transfer.

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 customer's 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.

8.5 Backup

This server utilizes high reliability components and hard disks, however, as a further precautionary provision, it is recommended that periodic backups be taken of the data.

8.5.1 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 in the event of hardware failures or data corruption in hard disks due to operational errors. If backups are not made, restoration is impossible and data will be permanently lost. To prepare for unexpected problems, be sure to perform periodic backups of the system.

8.5.2 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 "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 etc.)
  Use our genuine backup devices and software. Observe the backup medium (tape etc.) storage conditions.

₽ POINT

▶ For Mirroring/disk array systems
To enhance system reliability, it is recommended to employ a mirroring or disk array system using an array controller together with periodical backup.

■ Notes on operating backups

Notes on operating backups are as follows. For details, refer to the device manuals and Readme.txt, included in the device driver.

● 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 on how many times it can be used. 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 lifespan

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. Also if the hard disk fails during backup, the backup data cannot be recovered. Perform backup operations using multiple mediums on a rotating basis.

● Avoid leaving media in devices

Because the magnetic recording surface of the device is exposed, media can easily 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.

8.6 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 "4.2 Creating a Disk for System Recovery" (→pg.79).
 ▶ If the procedures of restoring the system are described in the manual of the backup devices or Readme.txt of the device drivers, refer to these procedures.

8.6.1 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 an array controller)
   For details on required driver disk and how to create a drive disk, refer to "4.2 Creating a Disk for System Recovery" (→pg.79).

1 Turn on the server and insert the Windows Server 2003 CD-ROM immediately.
Check there are no floppy disks in the floppy disk drive.

2 When the active area is specified on the hard disk, the following message appears. Press any key while this message is displayed.

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

Setup window for Windows Server 2003 appears.

3 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 ...
```

IMPORTANT

 ▶ 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 When a message prompts you to press the [F2] key, press the [F2] key.
A message prompts you to insert the ASR floppy disk.

5 Insert the ASR floppy disk and follow the window instructions.

6 Install the driver.

Drivers to be installed vary depending on the array controller in use. Install an appropriate driver described below.

- When a SAS controller card (Integrated Mirroring SAS) is used:
  LSI Logic Fusion-MPT SAS Driver
- When a SAS array controller (MegaRAID SAS) card is used:
  LSI Logic MegaRAID SAS RAID Controller Driver
- When an Onboard Software RAID is used:
  LSI Logic Embedded MegaRAID
- When no array is configured:
  No driver installation is required.

For the procedures to install driver, refer to the site below.

http://www.fujitsu.com/global/services/computing/server/ia/driver/

7 Follow the window instructions to restore the system.

- When prompted to change the floppy disk, follow the instructions and change it.
- If a message appears indicating that the driver has not passed Windows Logo testing to verify its compatibility with Windows, select [Yes] to continue the installation procedure.
- When prompted to insert media, set the backup media created beforehand and follow the messages to continue.

POINT

Notes on Automated System Recovery

▶ Automated System Recovery does not restore data files.

8.7 Reinstalling the OS

This section explains the procedure for reinstalling the OS.

8.7.1 Checking before OS Reinstallation

■ Removing the optional devices

Remove the following optional devices before reinstalling the OS. Install or connect them after OS installation.

- Optional SCSI/SAS devices (e.g., hard disk cabinet or DAT unit) connected via a SCSI /SAS card (e.g., hard disk cabinet or DAT unit)
- Internal hard disk units that do not contain the OS installation folder
- 5-inch internal devices
- Optional USB connected devices

■ Deletion of data from the hard disk unit

Reinstalling a disk will delete all the contents of that disk. Please be careful. Save the necessary data and system configuration in a different location. Some drivers and software are not installed together with the OS. Install them after OS installation.

■ Other notes

Other notes are the same as those that apply for first time installation. Please check in advance.

8.7.2 Reinstallation Using ServerStart Floppy Disk

When the previous installation was performed in guide or preparation 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. Use the expert mode when you want to perform reinstallation while maintaining the existing partitions.

8.8 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 "Start Guide".

8.8.1 Contacting Maintenance Support

Before contacting maintenance support, check the following.

 POINT

▶ Fill in the "Configuration Sheet" and "Accident Sheet" of "Configuration Sheets".

● **Item**

- Product 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, SCSI Setup Utility settings)
- OS
- LAN/WAN system configuration
- Phenomena (what happened when doing what, what was displayed, etc.)
- Date and time of an accident
- Environmental settings of the server
- LED statuses

Appendix

This appendix explains the specifications for the server and for its internal options.

A Server Specifications

This section explains the specifications for the server.

A.1 SAS Model

table: Server specifications - SAS Model

Item		Functions and specifications		
Product name		PRIMERGY TX150 S6 SAS model		
Product ID		PGT1562AA		
Chipset		Intel 3210/ICH9R®		
CPU	Type	Dual Core Intel® Xeon® Processor		Quad Core Intel® Xeon® Processor
		3065 (2.33GHz/4MB)	3085 (3.00GHz/4MB)	X3210 (2.13GHz/2×4MB)
	Number of cores	2		4
	L2 Cache Size	4 MB		2 × 4MB
	FSB	1333MHz		1066MHz
	Number of CPUs	Standard: 1 (Maximum: 1)		
Memory	Type	512MB (Standard) / 1GB / 2GB PC2-6400 (DDR2-800) Unbuffered ECC DIMM		
	Number of memory modules	Standard: 1 (Maximum: 4)		
	Adding size	512MB / 1GB / 2GB		
	Maximum	8GB (For 2GB DIMM)		
PCI slot		PCI 32bit/33MHz × 3 PCI-Express (x4) × 1 PCI-Express (x8) × 2		
5-inch storage bay	Number of bays	3 (1 empty bay)		
	Standard	DVD-ROM		
3.5-inch storage bay	Type	73.4GB / 146.8GB / 300GB (15krpm)		
	Number of bays	4		
	I/F	SAS		
	Maximum	1.2TB (300GB × 4)		
Disk array controller		For SAS controller card (standard): Integrated Mirroring SAS For SAS array controller card: MegaRAID SAS		
Onboard controller	Video	iRMC2/ 8MB Video RAM Resolution: 640 × 480, 800 × 600, 1024 × 768, 1280 × 1024 Display color: Differs depending on resolution and OS.		
	SAS	None (Corresponds Modular RAID)		
	SATA	6 Ports		
	LAN	Broadcom 5755 (1 × Gigabit Ethernet)		
External I/O port	Video	1 (Analogue RGB Dsub 15 pin)		
	Keyboard	1 (PS/2 Mini DIN 6 pin)		
	Mouse	1 (PS/2 Mini DIN 6 pin)		
	USB	5 (USB 2.0, Front × 1, Rear × 4)		
	Serial	2 (Dsub 9 pin, the secondary is optional.)		
	Parallel	1 (Dsub 25 pin, optional.)		
	LAN	2 (Modular (RJ-45) 8 pin) One port is occupied for the Remote Management Controller (iRMC2).		
Power Supply unit	Number of units	Standard: 1 (Maximum: 1)		
	Redundancy/ Hot plug	None		
	Input voltage/ Connector	100-240 VAC (50-60Hz)		

<div align="center">table: Server specifications - SAS Model</div>

Item		Functions and specifications
Fan unit	Number of units	System fan unit × 1, Power fan unit × 1
	Redundancy/ Hot plug	None
Floppy Disk drive		Standard
Internal clock precision		± 2 to 3 minutes/month
Power consumption / Heating value		Max. 280W (1008kJ/h)
Weight		26kg (28kg for rack type)
Dimensions (Width × Depth × Height (mm))		205 × 615 × 444 For rack type (including protrusion): 440 (482) × 562 (617) × 221.2 (5U)
Noise		34dB (A)

The specifications for this server are liable to be updated without any notice. Please be forewarned.

■ Supported OS

The supported operating systems for this server are as below.

- Windows Server 2003, Standard Edition (SP2 or later)
- Windows Server 2003, Standard x 64 Edition (SP2 or later)
- Windows Server 2003 R2, Standard Edition (SP2 or later)
- Windows Server 2003 R2, Standard x64 Edition (SP2 or later)
- Windows Small Business Server 2003 R2 (SP2 or later)
- Windows Small Business Server 2003 (SP2 or later)
- Red Hat Enterprise Linux ES (v.4 for x86)
- Red Hat Enterprise Linux ES (v.4 for EM64T)
- Red Hat Enterprise Linux 5 (for x86)
- Red Hat Enterprise Linux 5 (for Intel64)

A.2　SATA Model

table: Server specifications - SATA Model

Item		Functions and specifications		
Product name		PRIMERGY TX150 S6 SATA model		
Product ID		PGT1562AB		
Chipset		Intel 3210/ICH9R®		
CPU	Type	Dual Core Intel® Xeon® Processor		Quad Core Intel® Xeon® Processor
		3065 (2.33GHz/4MB)	3085 (3.00GHz/4MB)	X3210 (2.13GHz/2×4MB)
	Number of cores	2		4
	L2 Cache Size	4 MB		2 × 4MB
	FSB	1333MHz		1066MHz
	Number of CPUs	Standard: 1 (Maximum: 1)		
Memory	Type	512MB (Standard) / 1GB / 2GB PC2-6400 (DDR2-800) Unbuffered ECC DIMM		
	Number of memory modules	Standard: 1 (Maximum: 4)		
	Adding size	512MB / 1GB / 2GB		
	Maximum	8GB (For 2GB DIMM)		
PCI slot		PCI 32bit/33MHz × 3 PCI-Express (x4) × 1 PCI-Express (x8) × 2		
5-inch storage bay	Number of bays	3 (1 empty bay)		
	Standard	DVD-ROM		
3.5-inch storage bay	Type	80GB / 160GB / 500GB (7.2krpm)		
	Number of bays	4		
	I/F	SATA		
	Maximum	2TB (500GB × 4)		
Disk array controller		For Software RAID (standard): Embedded MegaRAID SATA For SAS array controller card: MegaRAID SAS		
Onboard controller	Video	iRMC2/ 8MB Video RAM Resolution: 640 × 480, 800 × 600, 1024 × 768, 1280 × 1024 Display color: Differs depending on resolution and OS.		
	SAS	None (Corresponds Modular RAID)		
	SATA	6 Ports		
	LAN	Broadcom 5755 (1 × Gigabit Ethernet)		
External I/O port	Video	1 (Analogue RGB Dsub 15 pin)		
	Keyboard	1 (PS/2 Mini DIN 6 pin)		
	Mouse	1 (PS/2 Mini DIN 6 pin)		
	USB	5 (USB 2.0, Front × 1, Rear × 4)		
	Serial	2 (Dsub 9 pin, the secondary is optional.)		
	Parallel	1 (Dsub 25 pin, optional.)		
	LAN	2 (Modular (RJ-45) 8 pin) One port is occupied for the Remote Management Controller (iRMC2).		
Power Supply unit	Number of units	Standard: 1 (Maximum: 1)		
	Redundancy/ Hot plug	None		
	Input voltage/ Connector	100-240 VAC (50-60Hz)		
Fan unit	Number of unit	System fan unit × 1, Power fan unit × 1		
	Redundancy/ Hot plug	None		
Floppy Disk drive		Standard		
Internal clock precision		± 2 to 3 minutes/month		
Power consumption /Heating value		Max. 280W / 1008k J/h		
Weight		26kg (28kg for rack type)		

table: Server specifications - SATA Model

Item	Functions and specifications
Dimensions (Width × Depth × Height (mm))	205 × 615 × 444 For rack type (including protrusion): 440 (482) × 562 (617) × 221.2 (5U)
Noise	34dB (A)

The specifications for this server are liable to be updated without any notice. Please be forewarned.

■ Supported OS

The supported operating systems for this server are as below.

- Windows Server 2003, Standard Edition (SP2 or later)
- Windows Server 2003, Standard x 64 Edition (SP2 or later)
- Windows Server 2003 R2, Standard Edition (SP2 or later)
- Windows Server 2003 R2, Standard x64 Edition (SP2 or later)
- Windows Small Business Server 2003 R2 (SP2 or later)
- Windows Small Business Server 2003 (SP2 or later)
- Red Hat Enterprise Linux ES (v.4 for x86)
- Red Hat Enterprise Linux ES (v.4 for EM64T)
- Red Hat Enterprise Linux 5 (for x86)
- Red Hat Enterprise Linux 5 (for Intel64)

B Specifications for Internal Options

This section explains the specifications for internal options for the server. When you have bought an internal 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 listed in the "Contact Information" of "Start Guide".

B.1 Memory

■ Package

- Memory module (1)

■ Specifications

table: Memory specifications

Item	Function and specifications		
Product name	Memory Module-512MB	Memory Module-1GB	Memory Module-2GB
Product ID	PG-RM51BH	PG-RM1BH	PG-RM2BH
Capacity	512MB	1GB	2GB
Clock frequency	800MHz (Dual edge)		
PIN count	240PIN		

B.2 Internal Hard Disk Units

■ Package

- Hard disk unit (1)

■ Specifications

● SAS hard disk unit

table: Internal SAS hard disk unit specification

Item	Function and specification		
Product name	HDD SAS 15k 73GB hot plug 3.5inch	HDD SAS 15k 147GB hot plug 3.5inch	HDD SAS 15k 300GB hot plug 3.5inch
Product ID	PG-HDB75A	PG-HDB45A	PG-HDB35A
Interface	SAS (Serial Attached SCSI)		
Memory capacity [1]	73.4GB	146.8GB	300GB
Maximum data transfer speed	3Gbit/s		
Average latency speed	2.00ms		
Rpm	15,000rpm		
Dimensions	$101.6 \times 146.0 \times 25.4$ (mm)		
Weight [2]	800g		

[1]:The value indicates memory capacity of the formatted hard disk unit (1GB = 1000^3 bytes).
[2]:A Hot plug carrier is not included.

● SATA hard disk unit

table: Internal SATA hard disk unit specifications

Item	Function and specification		
Product name	HDD SATA 7.2k 80GB hot plug 3.5inch	HDD SATA 7.2k 160GB hot plug 3.5inch	HDD SATA 7.2k 500GB hot plug 3.5inch
Product ID	PG-HDF87B	PG-HDF67B	PG-HDF57B
Interface	SATA (Serial ATA)		
Memory capacity [1]	80GB	160GB	500GB
Maximum data transfer speed	3Gbit/s		
Average latency speed	4.2ms		
Rpm	7,200rpm		
Dimensions	$101.6 \times 147 \times 26.1$ (mm)		
Weight [2]	450g		635g

[1]:The value indicates memory capacity of the formatted hard disk unit (1GB = 1000^3 bytes).
[2]:A hot plug carrier is not included.

B.3　Parallel Port Option

■ Package

- Parallel Port Option (1)

■ Specification

table: Parallel Port Option specifications

Item	Function and specifications
Product name	Parallel Port Option
Product ID	PG-PP06

B.4　Serial Port

■ Packages

- Serial Port (1)
- Serial Port cable

■ Specifications

table: Serial Port specifications

Item	Function and specification
Product name	Serial Port
Product ID	PG-COM04

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).
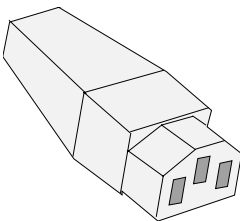
■ For the United States and Canada

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 16 AWG 14 AWG	10 Amps 12 Amps 12 Amps
SVT	18 AWG 17 AWG	10 Amps 12 Amps
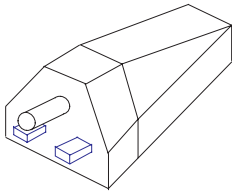
- Parallel
  For units set at 115 V: Use a parallel blade, grounding type
  Attachment plug rated 15 A, 125 V.
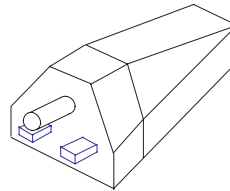
- Tandem
  For units set at 230 V: Use a tandem blade, grounding type
  Attachment plug rated 15 A, 250 V.

● 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.

⚠CAUTION ⚠ • 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   Remote Control Function

This server supports the Remote Control function. When a personal computer (PC) is connected to the serial port of this server with an RS-232C cross cable, the PC can be used to control the server power supply (turn on/off and reset) remotely.

C.1   Preparation for Using Remote Control Function

To enable the remote control function, perform the following procedure.

- Reconfiguring the BIOS settings
- Connecting the server to a PC
- Configuring the terminal software communication settings on the PC

■ Reconfiguring the BIOS settings

When using the remote control function and console redirection, perform the following the BIOS Setup Utility settings.

1   Turn on the server. Press the [F2] key during POST to start up BIOS Setup Utility.

2   Select the [Advanced] menu – [Peripheral Configuration], and set [Serial Multiplexer] to [iRMC].

3   From the [Exit] menu, select [Saving Changes & Exit] to exit BIOS Setup Utility.

■ Connecting the server to a PC

Connect the server to a PC using an RS-232C cross cable.
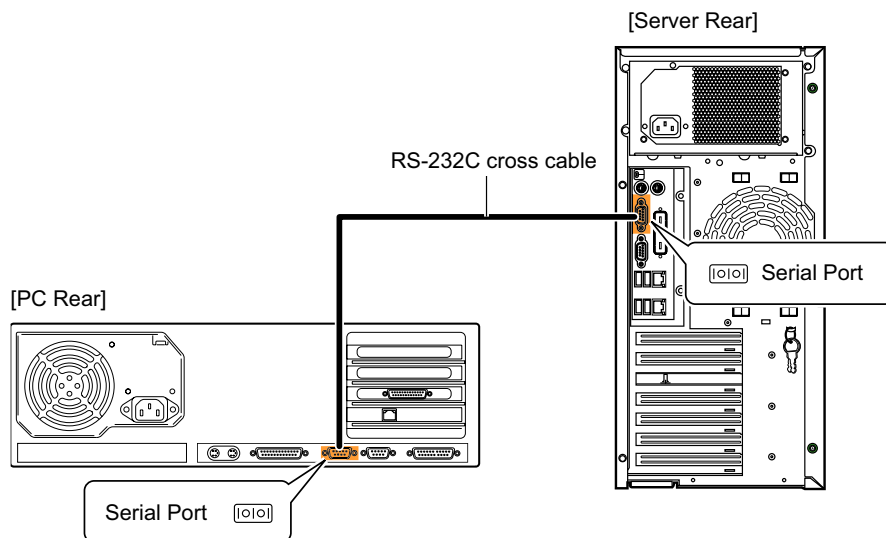
■ Configuring the terminal software (PC)

Perform settings for the remote control function using terminal software on the PC.

● Port configuration

Configure the port on the PC as follows:

table: Port settings

Item	Contents
Bits per second	9600
Data bits	8
Parity	None
Stop bits	1
Flow control	None

(Window example)
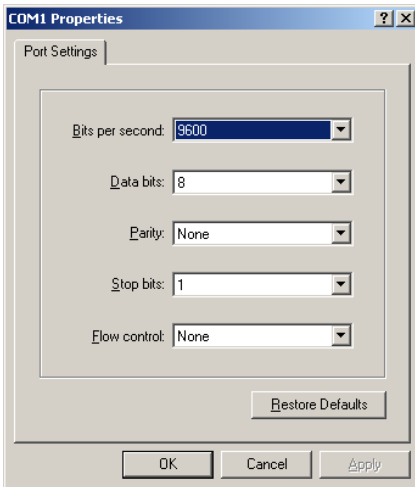
C.2　Remote Power Supply Control

This section explains how to control the server power supply remotely.

The server power supply can be remote-controlled with the terminal software on the PC.

■ Starting up the Remote Controller

1 Start up the terminal software.

The remote control window appears.

```
**************************************
*  Welcome to PRIMERGY Remote Manager  *
*  Firmware Revision x.xxA (x.xx)       *
*  SDRR *.**   ID 0203  TX150S6         *
*  Firmware built xxx xx xxxx xx:xx:xx *
**************************************

System Type  : PRIMERGY TX150 S6
System ID    : xxxxxxxx
System Name  : TX150S6-2 (xxx.xxx.xxx.xxx)
System OS    : xxxxxxxx
System Status: OK
Power Status : On

Please enter user name :
Please enter pass phrase :
```

The server status is displayed on [Power Status].

table: Meaning of [Power Status]

Display	Description
On	The server is turned on.
Off	The server is turned off.

2 When "Please enter user name:" appears, enter the user name and press the [Enter] key.

3 When "Please enter pass phrase:" appears, enter the password and press the [Enter] key.

Note that the password is case-sensitive. As shown below, the characters you have entered are displayed as asterisks.

```
Please enter pass phrase: ******
```

The remote control main menu appears.

```
****************************************
*  Welcome to PRIMERGY Remote Manager  *
*  Firmware Revision x.xxA (x.xx)       *
*  SDRR *.**   ID 0203  TX150S6         *
*  Firmware built xxx xx xxxx xx:xx:xx *
****************************************

System Type  : PRIMERGY TX150 S6
System ID    : xxxxxxxx
System Name  : TX150S6-2 (xxx.xxx.xxx.xxx)
System OS    : xxxxxxxx
System Status: OK
Power Status : On


     Main Menu

(1) System Information...
(2) Power Management...
(3) Enclosure Information...
(4) Service Processor...

(c) Change password
(r) Console Redirection (EMS/SAC)
(s) Start a Command Line shell...

Enter selection or (0) to quit:
```

4 Press the [2] key and select "Power Management".

The Power Management menu appears.

```
****************************************
*  Welcome to PRIMERGY Remote Manager  *
*  Firmware Revision x.xxA (x.xx)       *
*  SDRR *.**   ID 0203  TX150S6         *
*  Firmware built xxx xx xxxx xx:xx:xx *
****************************************

System Type  : PRIMERGY TX150 S6
System ID    : xxxxxxxx
System Name  : TX150S6-2 (xxx.xxx.xxx.xxx)
System OS    : xxxxxxxx
System Status: OK
Power Status : On


     Power Management Menu

(1) Immediate Power Off
(2) Immediate Reset
(3) Power Cycle
(*) Power On

(*) Graceful  Power Off (Shutdown)
(*) Graceful  Reset     (Reboot)

Enter selection or (0) to quit:
```

5 Select a menu and press the corresponding number key.

"*" is displayed in the bracket of unavailable menu.

table: Power Management Menu

Menu name	Key	Operation
Immediate Power Off	[1]	Turns off the server.
Immediate Reset	[2]	Resets the server.
Power Cycle	[3]	Turns off the server and back on again. When Windows is operating, the server restarts after the OS is shut down.
Power On	[4]	Turns on the server.
Graceful Power Off (Shutdown)	[5]	Shuts down the OS and turns off the server. When Windows is operating, the server is turned off after the OS is shut down.
Graceful Reset	[6]	Shuts down the OS and resets the server. When Window is operating, the server is reset after the OS is shut down.
-	[0]	Exits the remote controller.

6 If pressing the [1], [2], [3], [4], [5] or [6] key, perform the following operation.

When "Do you really want reboot (yes/no)?" appears, enter "yes" and press the [Enter] key.
For [3], [5] or [6], the pop-up window "System shutdown due to <software command> in 60 seconds! Press Cancel to abort!" appears when Windows is operating. Select [OK].

D Remote Management Controller

This section explains functions and features of the Remote Management Controller and the optional Remote Management Ctrl Upgrade kit (PG-RMCU2).

D.1 Overview of the Remote Management Controller

PRIMERGY TX150 S6 has the Remote Management Controller (iRMC2) on the baseboard. The Remote Management Controller makes the high-quality, high-reliability remote service board function possible.

To use the console redirection function and the remote storage function, the license key of optional Remote Management Ctrl Upgrade kit (PG-RMCU2) is necessary. For details of Remote Management Ctrl Upgrade kit (PG-RMCU2), refer to "D.4 Remote Management Ctrl Upgrade kit (PG-RMCU2)" (→pg.221).

■ Features of the Remote Management Controller

- The Remote Management Controller (iRMC2) and LAN are provided on the baseboard. This makes possible to control power supply and reset of the server without depending on the state of the server.
- The console redirection function and the remote storage function can be used by optional Remote Management Ctrl Upgrade kit (PG-RMCU2).
- It provides with LAN interface.
- It has the server monitoring function (monitoring server's hang/temperature/voltage).
- It has the server abnormality notification function (it is possible to notify abnormally at the server hang).
- It is possible to display the server status and control power supply/reset of the server by using the Web interface.

IMPORTANT

▶ When the baseboard is replaced, the Remote Management Controller may have to be set again. In case of reconfiguration, write down the set values in configuration sheets.

D.2 Preparation for Using Remote Management Controller

To enable the Remote Management Controller, perform the following procedure.

- Reconfiguring the BIOS settings
- Connecting the Server to a PC

■ Reconfiguring the BIOS settings

When using the function of the Remote Management Controller, perform the following the BIOS Setup Utility settings.

1 Turn on the server. Press the [F2] key during POST to start up BIOS Setup Utility.

2 Select the [Advanced] menu – [IPMI] – [LAN Settings], and set the each item.

For the detailed setting items, refer to "7.2.16 IPMI Submenu" (→pg.167).

3 From the [Exit] menu, select [Saving Changes & Exit] to exit BIOS Setup Utility.

IMPORTANT

▶ Save the setting information of set parameters using the Server Management Tools. For details, refer to "4.3 Storing the System Configuration Information" (→pg.81).

■ Connecting the server to a PC

Connect the server to a PC using a LAN cable.
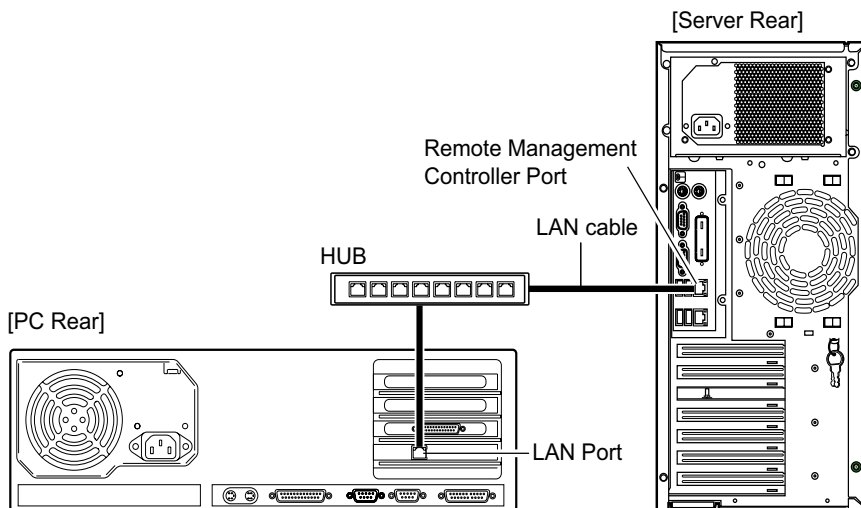
D.3 Window of the Remote Management Controller

The Remote Management Controller uses the Web interface function.

The following window appears when starting the Remote Management Controller.
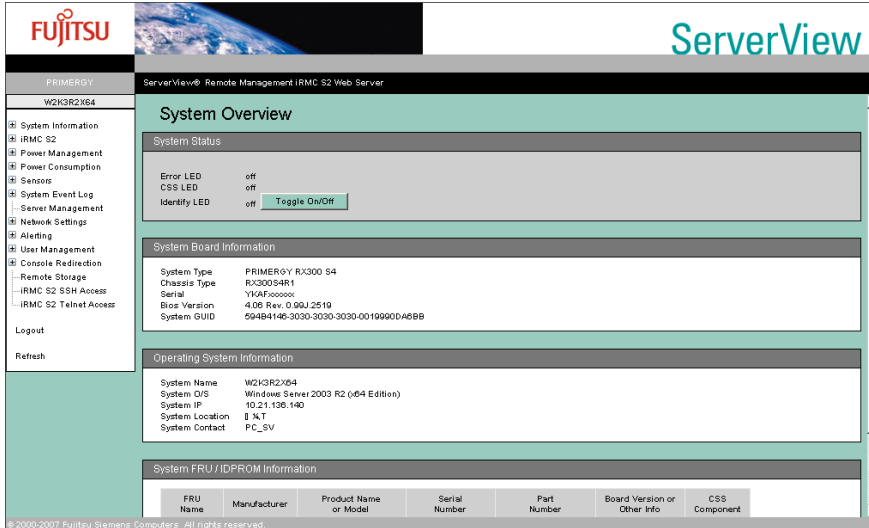
The following functions are available.

<p align="center">table: Functions of the Remote Management Controller</p>

Item	Description
System Information	Displays the system information on which the Remote Management Controller is running.
iRMC S2	Displays the Remote Management Controller information and configures the controller.
Power Management	Sets the power supply control.
Sensor	Displays the status of each server sensor such as fan, temperature and power supply.
System Event Log	Displays the system event log stored on the baseboard.
Server Management	Displays server management information.
Network Settings	Configures network settings of the Remote Management Controller.
Alerting	Configures the SNMP trap and alert mail settings.
User Management	Sets information of user logging on the Remote Management Controller.
Console Redirection	Configures the console redirection and starts it up.
Remote Storage	Displays the Remote Storage unit status, and configures the Remote Storage Server.
iRMC SSH Access	Displays the iRMC SHH Access window.
iRMC Telnet Access	Displays the iRMC Telnet Access window.
Logout	Logs out from the session of the Remote Management Controller Web interface.
Refresh	Refreshes the Web interface window of the Remote Management Controller.

For how to start and use the Remote Management Controller, refer to "Remote Management Controller User's Guide".

■ **Comparison with the server management function of ServerView**

ServerView, software provided with the server, can manage the server remotely if OS is normally operating. The Remote Management Controller can operate even in the state of the server hang, therefore, it is effective when the server cannot be monitored by ServerView.

D.4 Remote Management Ctrl Upgrade kit (PG-RMCU2)

This option is a license key to make Remote Management Controller's console redirection function and remote storage function effective.

table: Specification of Remote Management Controller upgrade

Item	Specifications
Product name	Remote Management Ctrl Upgrade kit
Product ID	PG-RMCU2
Function	Console redirection function, Remote storage function

● **Console redirection function**

The server can be remotely operated by using console redirection function. Remote operation such as the keyboard and mouse operation, and seeing the contents of the display of the server are possible.
By using console redirection function, it makes possible to achieve the function of the KVM switching in the environment where multiple servers are used. The composition of the multiple servers' environment is shown in the figure below.
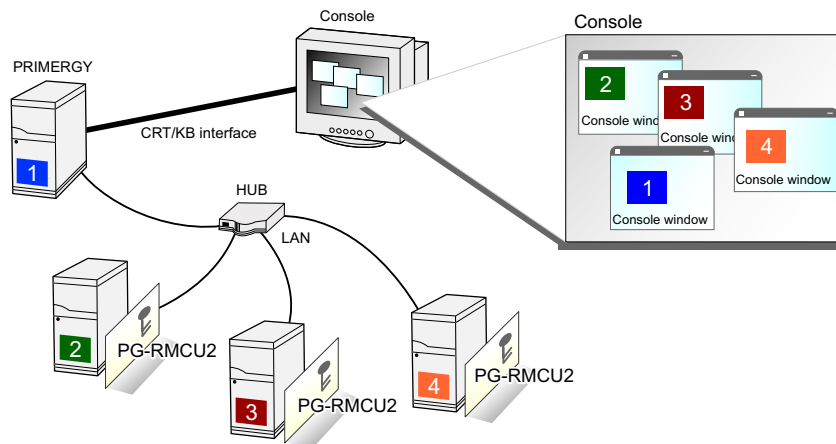
● **Remote storage function**

This is a function to recognize the external memory device connected by using the console redirection function as a remote device of the server.

The configuration of the remote storage function is shown in the figure below.
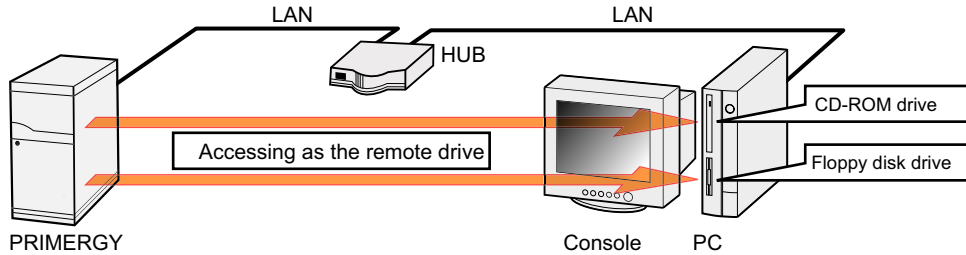
POINT

▶ The following devices can be used in the remote storage connection. However, the writing into the DVD drive is not supported.
  • Internal floppy disk drive
  • ATAPI CD-ROM drive
  • ATAPI DVD drive
  • USB floppy disk drive
  • USB CD-ROM drive

● **License key settings**

Enter the license key from the Web to make effective the console redirection function and the remote storage function.

For details of the setting method, refer to the manual supplied with PG-RMCU2.

E   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 "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 disk units. 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 disposal.

■ 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 disposal.

Index

PRIMERGY TX150 S6
User's Guide

B7FH-5151-01ENZ0-01

Issued on   January, 2008

Issued by   FUJITSU LIMITED