

# PRIMERGY RX600 S4 Server

## Options Guide

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## **Certified documentation according to DIN EN ISO 9001:2000**

To ensure a consistently high quality standard and user-friendliness, this documentation was created to meet the regulations of a quality management system which complies with the requirements of the standard DIN EN ISO 9001:2000.

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# 1 Preface

The PRIMERGY RX600 S4 server is an Intel-based server for mid-size and large companies. It is suitable for use as a file server as well as an application, information, or Internet server.

The server offers a high degree of reliability and availability through highly developed hardware and software components. These include hard disk drive modules, system fans, power supply units and PCI slots (all the components listed are hot-pluggable), as well as ServerView Prefailure Detection (PFD), “Automatic Server Reconfiguration and Restart” (ASR&R) and the ServerView server management software.

The server is used exclusively as a rack model. It offers a whole host of configuration options but only uses four height units in the 19-inch rack.

## 1.1 Concept and target group of this manual

This options guide shows you how you can expand and upgrade the server.



### CAUTION!

The actions described in this manual should only be performed by technical specialists.



The installation and removal of the hot-plug components is described in the operating manual supplied with the server.

## 1.2 Documentation overview



PRIMERGY manuals are available in PDF format on the ServerBooks DVD, which is part of the ServerView Suite package provided with each server system.

These PDF files can also be downloaded from the Internet free of charge: At <http://manuals.fujitsu-siemens.com> you will find an overview page showing the online documentation available on the Internet. You can go to the PRIMERGY server documentation by clicking *industry standard servers*.

### Additional documentation about the server

The PRIMERGY documentation comprises the following additional manuals:

- The “Safety notes and other important information” manual (printed copy always supplied with the server, and available as a PDF file on the ServerBooks DVD supplied)
- The “Guarantee” manual (printed copy always supplied with the server, and available as a PDF file on the ServerBooks DVD supplied)
- The “Ergonomics” manual (PDF file available on the ServerBooks DVD supplied)
- The operating manual for the PRIMERGY RX600 S4 server (PDF file available on the ServerBooks DVD supplied)
- The technical manual for the system board D2244 (PDF file available on the ServerBooks DVD supplied)
- The “PRIMERGY RX600 S4 BIOS Setup Utility” manual (PDF file available on the ServerBooks DVD supplied)
- The service supplement for PRIMERGY RX600 S4 (PDF file available on the ServerBooks DVD supplied)
- The “ServerView Suite” manual (printed copy always supplied with the server, and available as a PDF file on the ServerBooks DVD supplied)
- The “WebBIOS Configuration Utility” (PDF file available on the ServerBooks DVD supplied)
- The “PRIMERGY ServerView Suite – integrated Remote Management Controller (iRMC S2)” manual (PDF file available on the ServerBooks DVD supplied).



You can order a supplementary ServerBooks DVD by sending an e-mail to the following address, quoting your server data:

[Reklamat-PC-LOG@fujitsu-siemens.com](mailto:Reklamat-PC-LOG@fujitsu-siemens.com)

### Further sources of information:

- Technical manual for the relevant rack
- Manual for the monitor
- Documentation for boards and drives
- Documentation for your operating system
- Information files on your operating system

## 1.3 Extensions and conversions

### Additional processors

The system board can be upgraded to include up to four processors. You may only use processors of the same type; all processors must have the same frequency and cache size.

### Extending the main memory

The system board provides slots for four memory boards, each of which can accommodate up to eight memory modules. The slots are suitable for DDR-II / 533 or 667 MHz Fully Buffered DIMM modules with up to 8 Gbytes capacity per DIMM module. This allows a maximum memory configuration of 256 Gbytes.

### Additional accessible drives

You can add a CD/DVD drive in 0.5x5.25-inch format or a tape drive in 5.25x1.6-inch format.

### Additional controllers in PCI slots

The system board has seven PCI Express slots:

- Slots 1-4 are hot-plug PCI slots which can be fitted with hot-pluggable controllers (the hot-plug PCI slots are described in the operating manual). They have a bandwidth of 4 GB/s.
- Slots 5 through 7 are non-hot-plug PCI slots with a bandwidth of 2 GB/s.
- Slots 4 and 5 may only be fitted with half-length modules.

### Battery (BBU) for the RAID5 controller

An optional battery (intelligent battery backup unit = iBBU) is available for the SAS RAID 5 controller to protect its memory contents in the event of a power failure.

## ServerView Remote Management

Remote Management is the remote-management solution for PRIMERGY systems from Fujitsu Siemens Computers. Remote Management and the associated hardware components integrated in the system allow remote monitoring and servicing as well as rapid recovery of the system in the event of an error.

## Remote Management with the Remote Management Controller iRMC S2

The iRMC S2 (intelligent Remote Management Controller) is integrated on the I/O riser card as the baseboard management controller (BMC). It provides the ServerView remote management functions. For further information, see the “PRIMERGY ServerView Suite – integrated Remote Management Controller (iRMC S2)” manual.

## 1.4 Notational conventions

The following notational conventions are used in this manual:

<i>Italics</i>	indicate commands, menu items or software programs.
“Quotation marks”	indicate names of chapters and terms that need to be emphasized.
▶	indicates an action that must be performed.
 <b>CAUTION!</b>	indicates that, if you ignore the information given at this point, your health, the correct functioning of your system or the security of your data may be at risk.
	indicates supplementary information, remarks and tips.

Table 1: Notational convention

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## 2 Procedure



### CAUTION!

- The actions described in this manual should only be performed by engineers, service personnel or technical specialists.
  - Equipment repairs must only be performed by qualified staff.
  - Any failure to observe the guidelines in this manual, and any unauthorized opening or improper repairs could endanger the user (through electric shock, fire hazards) or damage the equipment.
  - Please note that any unauthorized opening of the server will void the warranty and exempt the manufacturer from all liability.
- ▶ First of all please familiarize yourself with the safety instructions in the [chapter “Safety instructions” on page 11 ff.](#)
  - ▶ Make sure that all the manuals you need (see [“Additional documentation about the server” on page 6](#)) are available, printing out the PDF files if necessary.

You will definitely need:

- the operating manual for the server,
  - the service supplement for the server, and
  - the technical manual for the system board.
- ▶ Shut down the server correctly, switch it off, pull out the power plugs, and open the server as described in the [chapter “Preparation” on page 17f.](#)
  - ▶ Extend or upgrade your server as described in the relevant chapter.



The installation and removal of the hot-plug components is described in the operating manual supplied with the server.

- ▶ Close the server, plug in the power plugs, and switch on the server as described in the [chapter “Completion” on page 47f.](#)
- ▶ Start the operating system and, if necessary, configure it as required (see the operating manual).



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## 3 Safety instructions



The following safety instructions are also provided in the manual “Safety notes and other important information”.

This device meets the relevant safety regulations for IT equipment. If you have any questions about whether you can install the server in the intended environment, please contact your sales outlet or our customer service team.



### CAUTION!

- The actions described in this manual should only be performed by technical specialists.
- Repairs to the device that do not relate to CSS failures must only be carried out by service personnel. Please note that unauthorized interference with the system will void the warranty and exempt the manufacturer from all liability.
- Any failure to observe the guidelines in this manual, and any improper repairs could expose the user to risks (electric shock, energy hazards, fire hazards) or damage the equipment.

### Before starting up



### CAUTION!

- During installation and before operating the device, observe the instructions on environmental conditions for your device.
- If the device is brought in from a cold environment, condensation may form both inside and on the outside of the device.

Wait until the device has acclimatized to room temperature and is absolutely dry before starting it up. Material damage may be caused to the device if this requirement is not observed.

- Transport the device only in the original packaging or in packaging that protects it from knocks and jolts.

## Installation and operation



### CAUTION!

- If the device is integrated in an installation that receives power from an industrial (public) power supply network with the IEC309 connector, the (public) power supply protection must comply with the requirements for the non-industrial (public) power supply networks for the type A connector.
- The device automatically sets itself to a voltage in the range of 100 V - 240 V. Make sure that your local voltage is within this range.
- This device has a specially approved power cable and must only be connected to a safety socket on the rack mains socket strip.
- The ON/OFF button does not disconnect the device from the mains voltage. To completely disconnect it from the mains voltage, remove the power plug from the safety socket.
- Always connect the device and the attached peripherals to the same power circuit. Otherwise you run the risk of losing data if, for example, the server is still operating but the peripheral device (e.g. storage subsystem) has failed during a power outage.
- Take notice that the data cables to peripheral devices are adequately shielded.
- To the LAN wiring the requirements apply in accordance with the standards EN 50173 and EN 50174-1/2. As minimum requirement the use of a protected LAN line of category 5 for 10/100 MBps Ethernet, and/or of category 5e for Gigabit Ethernet is considered. The requirements of the specification ISO/IEC 11801 are to be considered.
- Route the cables in such a way that they do not form a potential hazard and that they cannot be damaged. When connecting up a device, refer to the relevant notes in this manual.
- Never connect or disconnect data transmission lines during a storm (lightning hazard).



**CAUTION!**

- Make sure that no objects (such as bracelets or paper clips) fall into or liquids spill into the device (risk of electric shock or short circuit).
- In emergencies (e.g. damaged casing, controls or cables, penetration of liquids or foreign matter), switch off the device immediately, remove the power plug from the safety socket and contact your sales outlet or customer service team.
- Proper operation of the device (in accordance with IEC 60950-1/ EN 60950-1) is only ensured if the casing is completely assembled and the rear covers for the installation openings have been put in place (electric shock, cooling, fire protection, interference suppression).
- Only install system expansions that satisfy the requirements and rules governing safety and electromagnetic compatibility and relating to telecommunications terminal equipment. If you install other expansions, you may damage the system or violate the safety regulations and regulations governing RFI suppression. Information on which system expansions are suitable can be obtained from the customer service centre or your sales outlet.
- The components or parts marked with a warning label (e.g. lightning symbol) may only be opened, removed or exchanged by authorized, qualified personnel.
- The warranty expires if the device is damaged during the installation or replacement of system expansions.
- You may only set those resolutions and refresh rates specified in the operating manual of the monitor. Otherwise, you may damage your monitor. If you are in any doubt, contact your sales outlet or customer service centre.

## Batteries



### CAUTION!

- Incorrect replacement of batteries may result in a risk of explosion. The batteries may only be replaced with identical batteries or with a type recommended by the manufacturer (see the technical manual for the system board).
- Replace the lithium-battery on the system board in accordance with the instructions in the technical manual for the system board.

## Working with CDs/DVDs and CD/DVD drives

When working with devices with CD/DVD drives, these instructions must be followed.



### CAUTION!

- Only use CDs/DVDs that are in perfect condition in your server's CD/DVD drive, in order to prevent data loss, equipment damage and injury.
- Check each CD/DVD for damage, cracks, breakages etc. before inserting it in the drive.

Note that any additional labels applied may change the mechanical properties of a CD/DVD and cause imbalance.

Damaged and imbalanced CDs/DVDs can break at high drive speeds (data loss).

Under certain circumstances, sharp CD/DVD fragments can pierce the cover of the CD/DVD drive (equipment damage) and can fly out of the device (danger of injury, particularly to uncovered body parts such as the face or neck).



You can prevent mechanical damage and damage to the CD/DVD drive, as well as premature CD/DVD wear, by observing the following suggestions:

- Only insert CDs/DVDs in the drive when needed and remove them after use.
- Store the CDs/DVDs in suitable sleeves.
- Protect the CDs/DVDs from exposure to heat and direct sunlight.



*Laser information*

The CD/DVD drive complies with IEC 60825-1 laser class 1.



**CAUTION!**

The CD/DVD drive contains a light-emitting diode (LED), which under certain circumstances produces a laser beam stronger than laser class 1. Looking directly at this beam is dangerous.

**Never remove parts of the CD/DVD drive casing!**

**Modules with electrostatic-sensitive components**

Systems and components that might be damaged by electrostatic discharge (ESD) are marked with the following label:

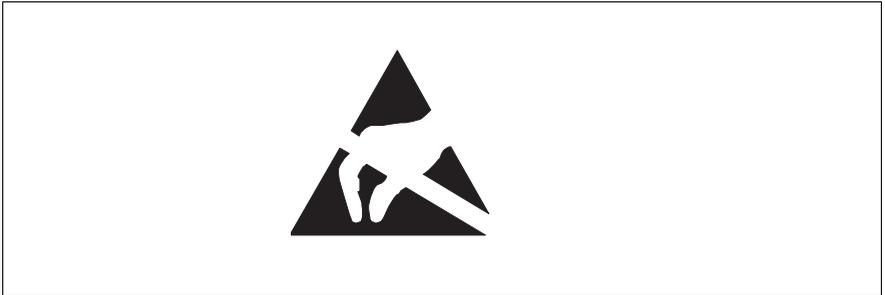


Figure 1: ESD label

When you handle components fitted with ESDs, you must observe the following points under all circumstances:

- Remove the power plug before installing or removing components containing ESDs.
- You must always discharge yourself of static charges (e.g. by touching a grounded object) before working.
- The equipment and tools you use must be free of static charges.
- Only touch the components at the positions highlighted in green (touch points).
- Do not touch any exposed pins or conductors on a component.
- Use a grounding cable designed for this purpose to connect yourself to the system unit as you install components.

- Place all components on a static-safe base.



You will find a detailed description for handling ESD components in the relevant European or international standards (DIN EN 61340-5-1, ANSI/ESD S20.20).

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## 4 Preparation



### CAUTION!

Make sure you observe the safety notes in the [chapter “Safety instructions” on page 11ff.](#)

- ▶ Exit all applications and shut down the server properly.
- ▶ If your operating system has not switched off the server, press the On/Off button.
- ▶ Unplug the power plugs from the grounded power outlets.

### 4.1 Opening the server

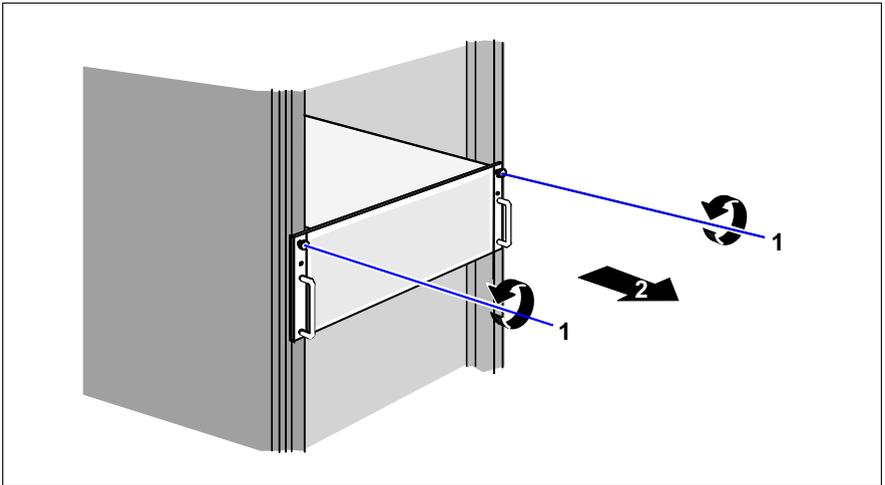


Figure 2: Removing the server

- ▶ Undo the knurled screws (1) and pull the server carefully out of the rack (2) as far as possible.
- ▶ In the majority of cases it makes sense to remove the server from the rack.



How to remove the server from the rack cabinet is described in the operating manual.

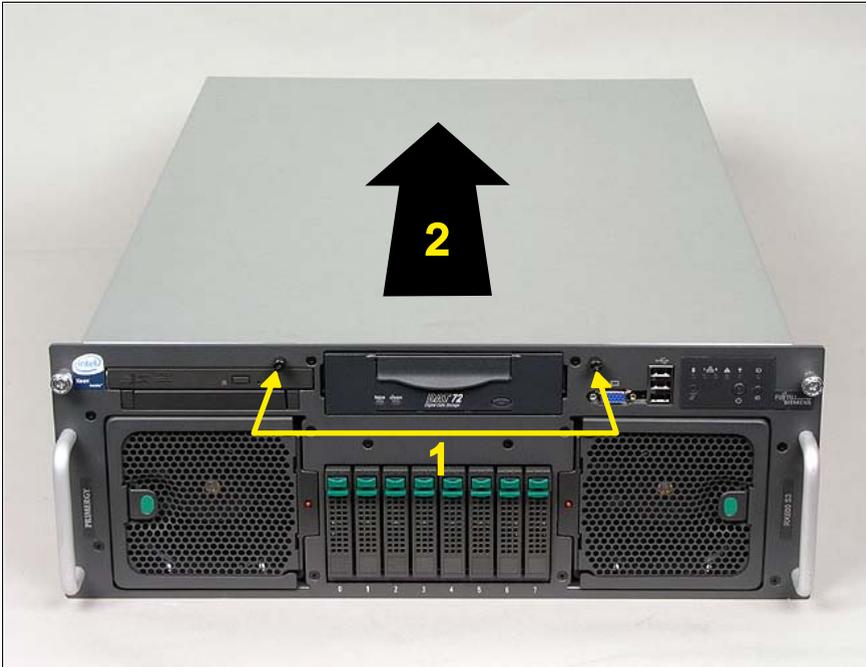


Figure 3: Removing the housing cover

- ▶ Undo the two captive screws on the front (1).
- ▶ Push the housing cover back a few centimeters (2).
- ▶ Take off the housing cover.

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## 5 Main memory



### CAUTION!

Make sure you observe the safety notes in the [chapter “Safety instructions” on page 11ff.](#)

The system board provides slots for four memory boards, each of which can accommodate up to eight memory modules.

The slots are suitable for DDR-II / 533 or 667 MHz FBDIMM modules with up to 8 Gbytes capacity per memory module, allowing a maximum memory configuration of 256 Gbytes.



Due to the many and varied memory configuration options in the RX600 S4, work on the memory boards should **only be performed by qualified engineers**. The required procedure is therefore described in the service supplement for this server.



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## 6 Processors



### CAUTION!

Make sure you observe the safety notes in the [chapter “Safety instructions” on page 11ff.](#)

Processors are components which are extremely sensitive to electrostatic discharge and must therefore be handled with caution.

After removing a processor from its protective wrapper or from a socket, always place it on an insulated, antistatic surface and always with the smooth side down.

Never slide a processor over a surface.

### 6.1 Installing additional processors

The system board can be upgraded to include up to four processors.



### CAUTION!

If you fit CPU sockets 2-4, you must observe the following:

1. If you install a total of two CPUs, you must use the CPU sockets of CPU 1 and CPU 2.
2. If you install a total of three CPUs, you must use the CPU sockets of CPU 1, CPU 2 and CPU 4 (**not CPU 3!**).
3. If you install a total of four CPUs, you must use the CPU sockets of CPU 1 through CPU 4.

Always use processors of the same type. All processors must have the same frequency and cache size. For multi-processor operation, you must use a suitable multi-processor operating system.

- ▶ Open the server as described in the [chapter “Preparation” on page 17f.](#)

## Removing the processor cover

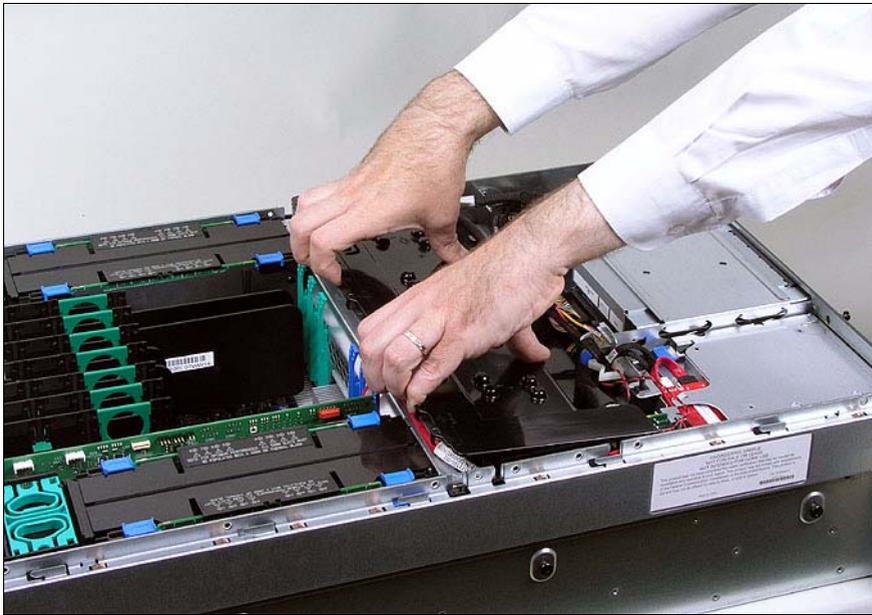


Figure 4: Removing the processor cover

- ▶ Hold the processor cover as shown in the figure above and lift it off.

## Removing the dummy heat sink

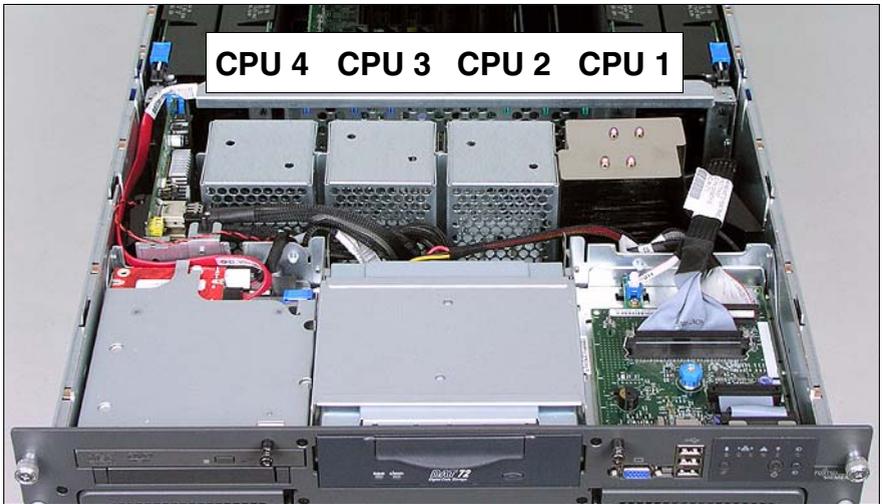


Figure 5: Heat sink dummies on the CPU sockets 2 - 4

- ▶ Remove the heat sink dummy from the relevant processor socket. To do this, undo the four captive screws at the bottom of the dummy.



### ATTENTION!

Observe the fitting rules in [section “Installing additional processors”](#) on page 21.

## Installing the processor

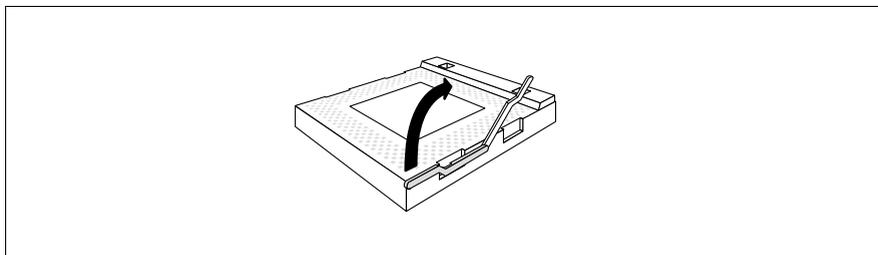


Figure 6: Opening the socket lever

- ▶ Release the socket lever by pressing it sideways ; then lift it up as far as it will go.

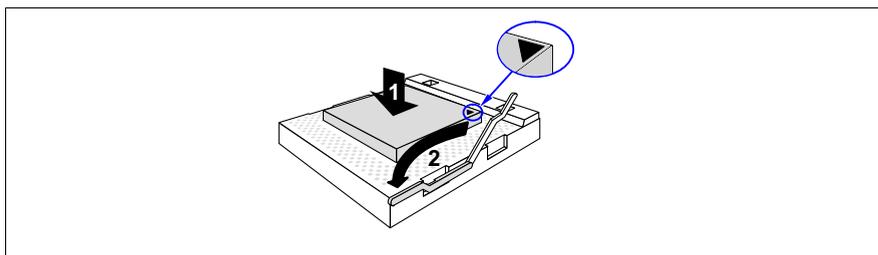


Figure 7: Inserting the processor

**CAUTION!**

The processor can only be installed in one direction. Note the marking on one of the corners (see diagram above). To avoid damaging the pins, do not force the processor into the socket.

- ▶ Position the new processor above the socket, and press it carefully into the socket (1).
- ▶ Lock the processor into place in the socket by pushing the socket lever back into its original position (2).

### Installing the heat sink

**CAUTION!**

Never install a processor without a heat sink, as the processor may overheat, causing itself and the complete system board to fail.

- ▶ Carefully place the heat sink onto the processor.



Make sure you do not touch or damage the thermal paste on the underside of the heat sink.

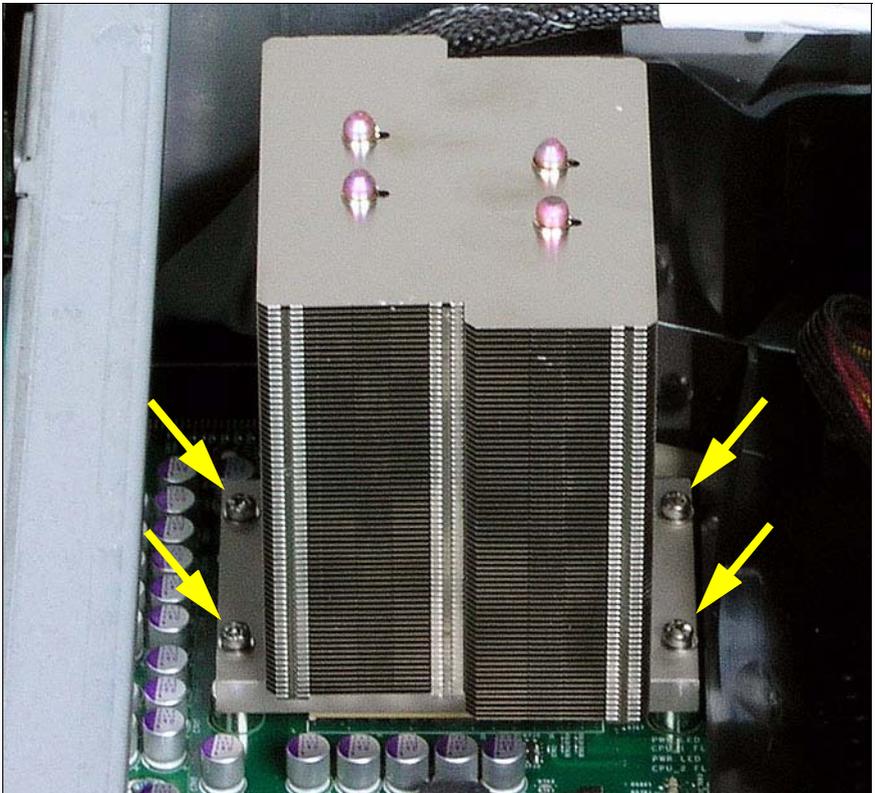


Figure 8: Fastening the heat sink

- ▶ Fasten the heat sink with four screws. First fasten two diagonally opposite screws, then the other two.

## Mounting the processor cover

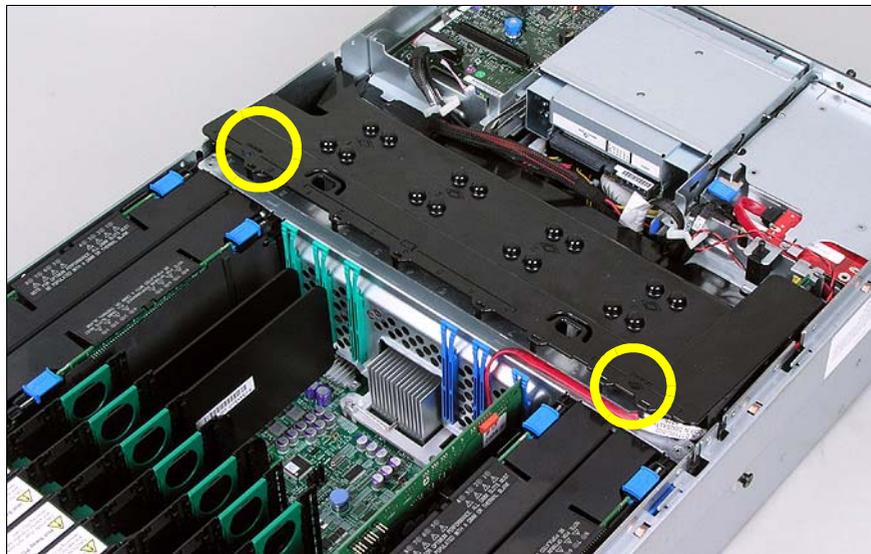


Figure 9: Mounting the processor cover

- ▶ Reinstall the processor cover.



Make sure the processor cover engages properly by pressing the points marked "Memory" (see circles) on the cover.

- ▶ Close the server, plug in the power plugs, and switch on the server as described in the [chapter "Completion" on page 47f.](#)

## 6.2 Replacing a processor



### CAUTION!

You may only use processors of the same type on the system board.

- ▶ Open the server as described in the [chapter “Preparation” on page 17f.](#)
- ▶ Remove the processor cover (see [page 22](#))

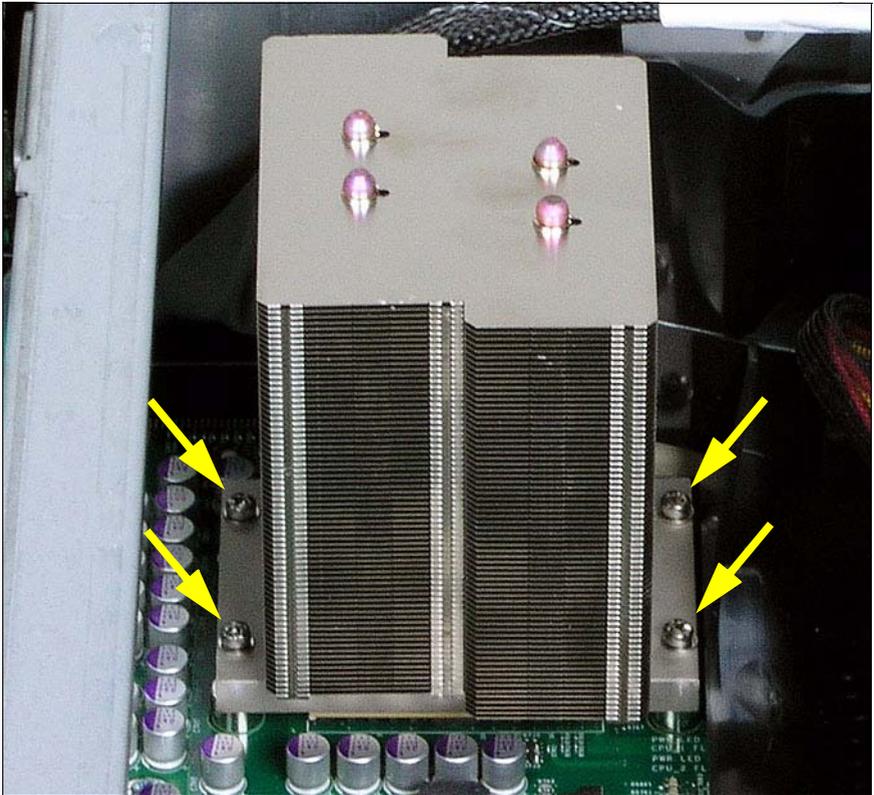


Figure 10: Removing the heat sink

- ▶ Remove the four screws of the heat sink. First undo two diagonally opposite screws, then the other two.
- ▶ Turn the heat sink carefully back and forth to loosen it. Then lift it out to remove it.

- ▶ Remove the residual thermal paste from the underside of the heat sink.
- ▶ Clean the underside of the heat sink using a lint-free cloth.

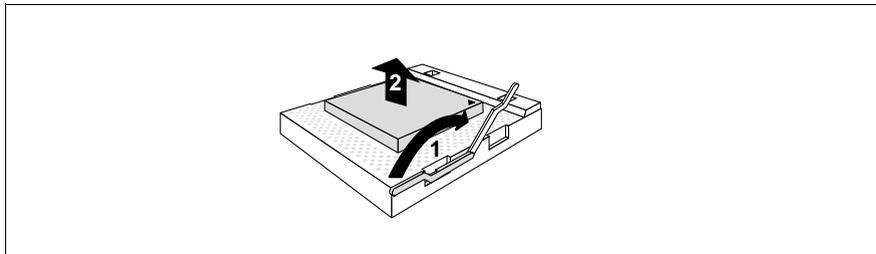


Figure 11: Removing the old processor

- ▶ Release the socket lever by pressing it sideways, and lift it up as far as it will go (1).
- ▶ Lift the installed processor carefully out of its socket (2).

### Installing the new processor



#### CAUTION!

The processor can only be installed in one direction. Note the marking on one of the corners (see diagram above). To avoid damaging the pins, do not force the processor into the socket.

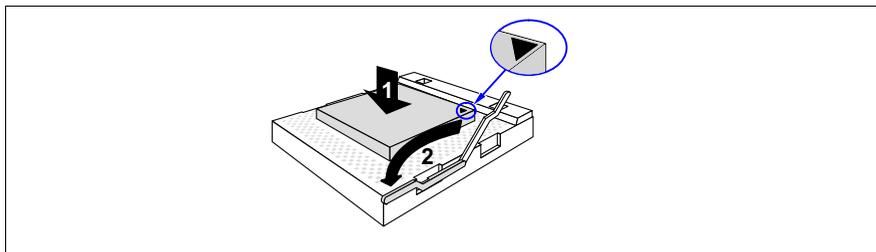


Figure 12: Installing the new processor

- ▶ Position the new processor above the socket, and press it carefully into the socket (1).
- ▶ Lock the processor into place in the socket by pushing the socket lever back into its original position (2).
- ▶ Carefully place the heat sink onto the processor.



Make sure the thermal paste on the underside of the heat sink is not damaged.

- ▶ Fasten the heat sink with four screws (see [page 25](#)). First fasten two diagonally opposite screws, then the other two.
- ▶ Reinstall the processor cover (see [page 26](#)).
- ▶ Close the server, plug in the power plugs, and switch on the server as described in the [chapter “Completion” on page 47f](#).



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## 7 Accessible drives



### CAUTION!

Make sure you observe the safety notes in the [chapter “Safety instructions” on page 11ff.](#)

The PRIMERGY RX600 S4 server offers a total of two bays for accessible drives. You can install a tape drive and a CD/DVD drive.

### 7.1 Installing the CD/DVD drive

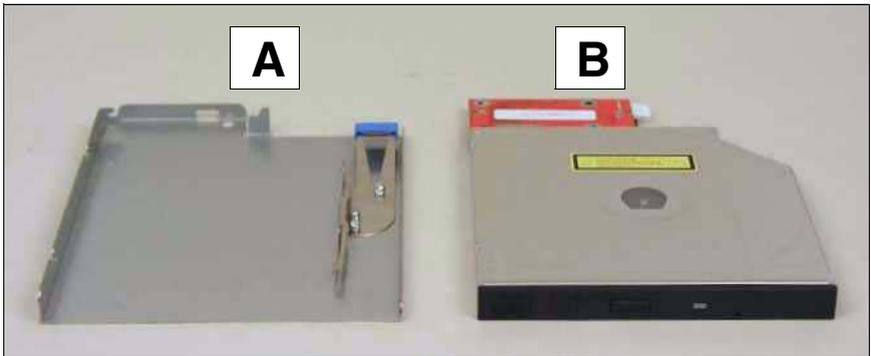


Figure 13: CD/DVD drive with module frame

A CD/DVD drive (B) can be installed in the server. This drive is installed in the server in a module frame (A).

#### Removing the module frame

The module frame for the CD/DVD drive is installed in the bay.

- ▶ Open the server as described in the [chapter “Preparation” on page 17f.](#)

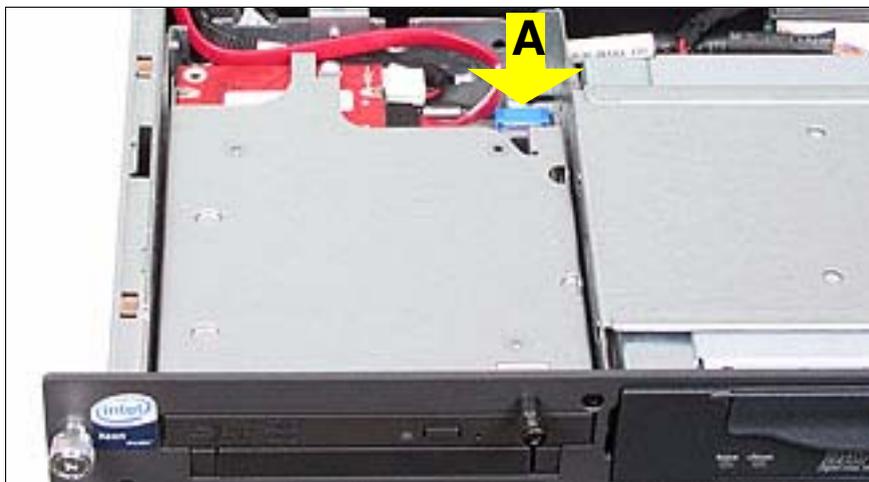


Figure 14: Removing the module frame

- ▶ Press the blue lever (A) and push the module frame forward out of the server.

### Mounting a CD/DVD drive



Figure 15: Mounting the interface board

- ▶ Insert the interface board (B) into the opening (A) on the rear of the CD/DVD drive housing.



Figure 16: Mounting the drive in its frame

- ▶ Place the CD/DVD drive in the frame such that it engages in the two openings of the module frame (see circles).



Figure 17: The pre-mounted CD/DVD drive (back)

- ▶ Push the CD/DVD drive into its bay in the server from the front until it engages.

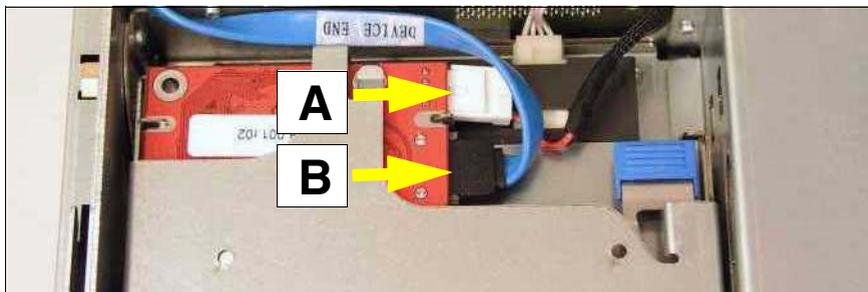


Figure 18: Connecting a CD/DVD drive

- ▶ Plug the power cable (A) and the data cable (B) into the interface board of the CD/DVD drive.
- ▶ Close the server, plug in the power plugs, and switch on the server as described in the [chapter “Completion” on page 47f.](#)

## 7.2 Installing a tape drive

A tape drive can be installed in the bay in the middle of the server. If no device is installed in the bay, it contains only the module frame.

### Removing the module frame

- ▶ Open the server as described in the [chapter “Preparation” on page 17f.](#)

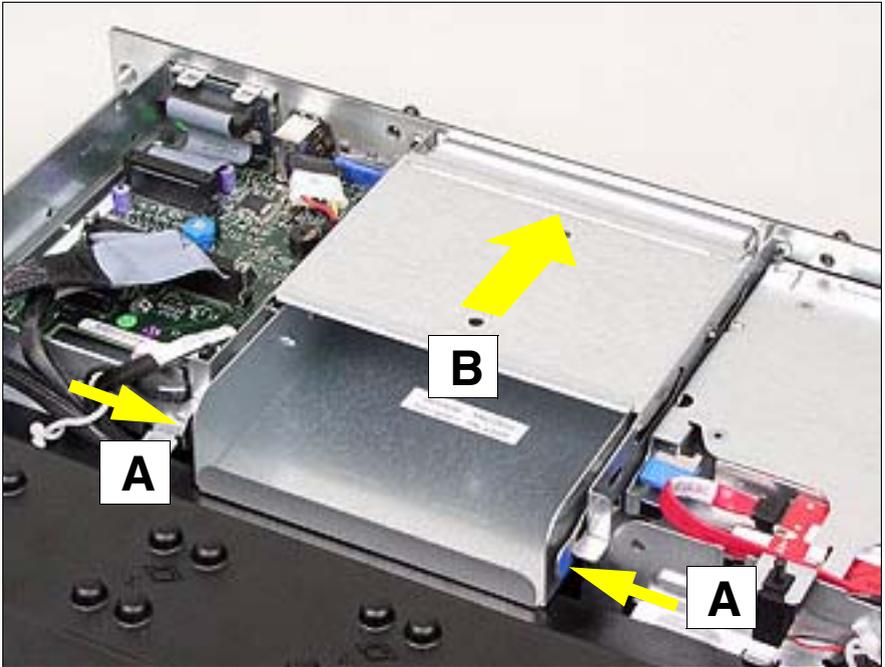


Figure 19: Removing the module frame

- ▶ Press the two blue points on the spring clips on the module frame (A) and push the module frame forward out of the server (B).

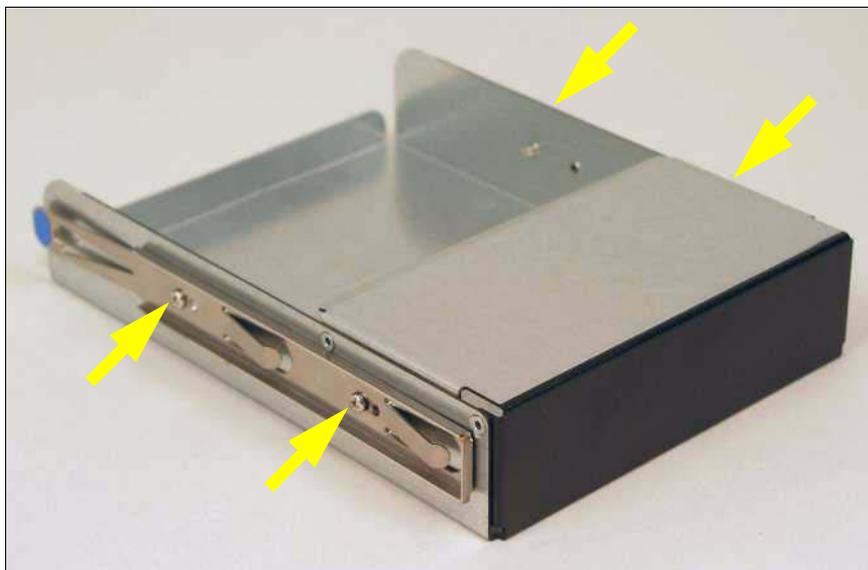


Figure 20: Module frame with sliding rails

- ▶ Remove the two sliding rails attached to the sides by undoing the 4 screws.



**CAUTION!**

Keep the module frame for future use. If you remove the drive without installing a new one, you must reinstall the module frame to comply with EMC regulations and to satisfy cooling requirements and fire protection measures.



Figure 21: Fastening the sliding rails on the drive

- ▶ Fasten the two sliding rails on both sides of the drive to be installed using two screws for each.



Figure 22: Inserting the tape drive

- ▶ Push the accessible drive into the empty bay as far as it will go, so that it slots into place.

## Mounting the tape drive

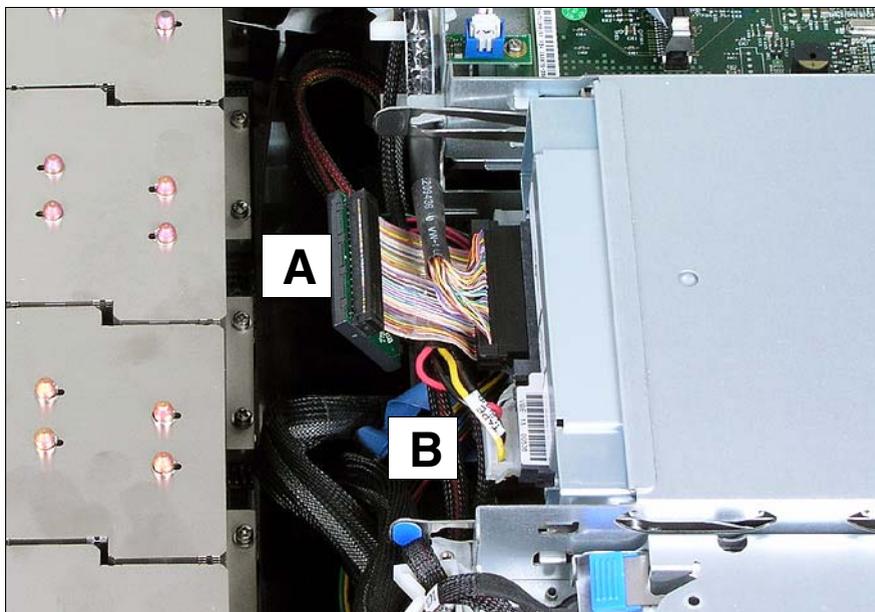


Figure 23: Connecting the tape drive

- ▶ Connect the data cable (A) to the drive.
- ▶ Connect the power cable (B) to the drive.

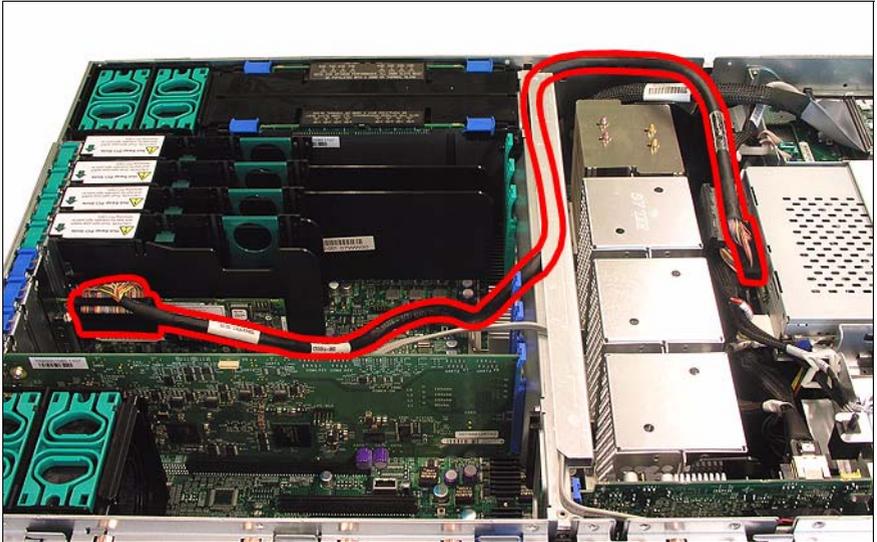


Figure 24: Cable routing from the tape to the PCI controller

- ▶ Route the data cable as shown in [figure 24](#).
- ▶ Connect the other end of the data cable to an unused connector on a PCI-SCSI controller.
- ▶ Close the server, plug in the power plugs, and switch on the server as described in the [chapter “Completion” on page 47f](#).



---

## 8 Controllers in non-hot-plug PCI slots



### CAUTION!

Make sure you observe the safety notes in the [chapter “Safety instructions” on page 11ff.](#)

The system board has three non-hot-plug PCIe slots (slots 5 through 7), each with a bandwidth of 2 GB/s and a mounting length of max. 315 mm.

When replacing/installing non-hot-pluggable components, you must proceed as follows:

- ▶ Exit all applications and shut down the server properly.
- ▶ If your operating system has not switched off the server, press the On/Off button.
- ▶ Unplug the power plugs from the grounded power outlets.

### 8.1 Installing controllers

- ▶ Open the server as described in the [chapter “Preparation” on page 17f.](#)
- ▶ Please read the documentation supplied with the PCI board.
- ▶ Plug any necessary cables into the PCI board.
- ▶ Remove the slot cover of the relevant slot on the back of the server.



Keep the slot cover. If you remove a board, you must reinstall the slot cover to comply with EMC (electromagnetic compatibility) regulations and to satisfy cooling requirements and fire protection measures.

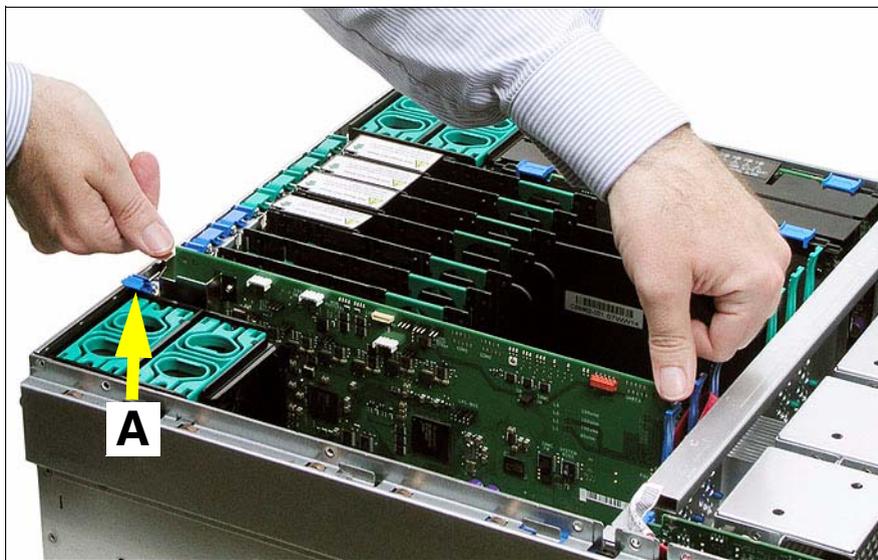


Figure 25: Installing a controller in a non-hot-plug PCI slot

- ▶ Insert the controller in the slot and press it in carefully. Close the locking mechanism of the slot (A).
- ▶ If necessary, plug in the cables on the board and other components.
- ▶ Close the server, plug in the power plugs, and switch on the server as described in the [chapter “Completion” on page 47f.](#)

---

## 9 Battery for the RAID5 controller



### CAUTION!

Make sure you observe the safety notes in the [chapter “Safety instructions” on page 11ff.](#)

The iBBU (intelligent battery backup unit) is an intelligent battery for protecting the data of the RAID5 controller in the event of power failure or voltage dips. The data is saved for several hours.

### 9.1 Installing the battery (iBBU)

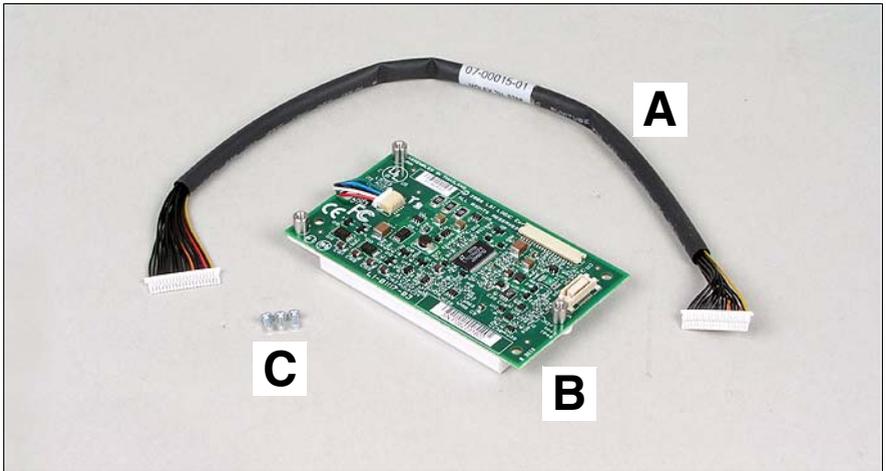


Figure 26: Components of the optional iBBU package

A	Connection cable to the SAS riser card (not used with the RX600S4)
B	Battery (iBBU)
C	Screws for fastening the battery to the SAS riser card

- Open the server as described in the [chapter “Preparation” on page 17f.](#)

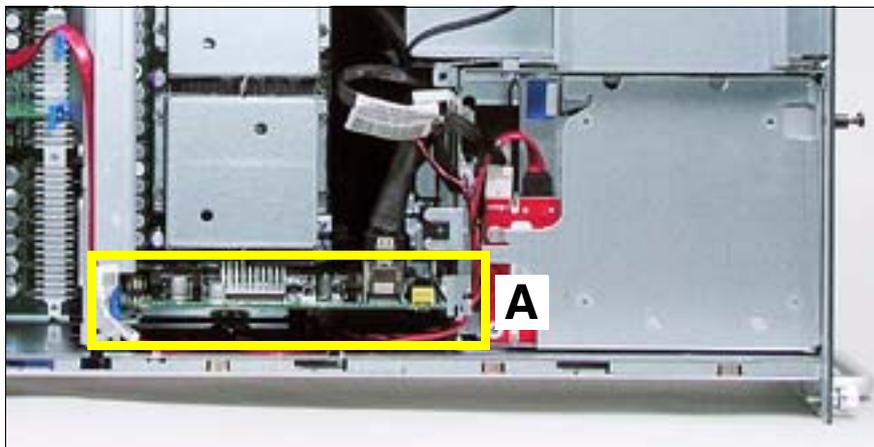


Figure 27: Position of the SAS riser card in the server

- ▶ Remove the SAS riser card (A) from the server.
- ▶ Place the SAS riser card on a suitable antistatic surface with the component side facing down.

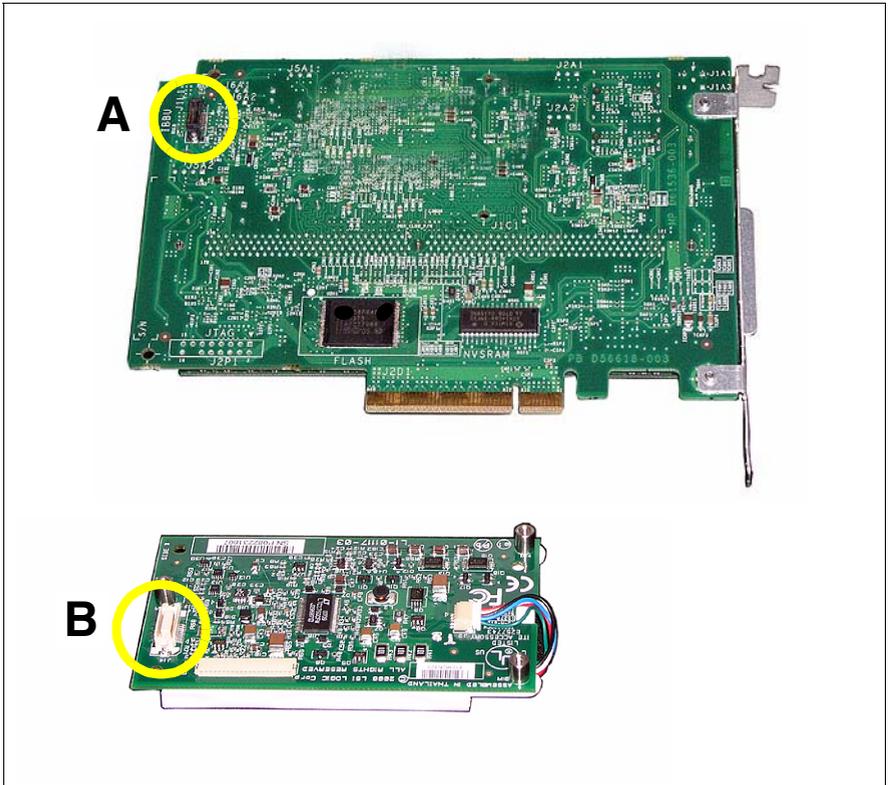


Figure 28: SAS riser card (top) and battery iBBU (bottom)

- ▶ Plug the connector (B) of the battery onto the connector (A) on the SAS riser card.
- ▶ Fasten the battery to the SAS riser card with the three supplied screws.
- ▶ Close the server, plug in the power plugs, and switch on the server as described in the [chapter “Completion” on page 47f.](#)



---

# 10 Completion



## CAUTION!

Make sure you observe the safety notes in the [chapter “Safety instructions” on page 11ff.](#)

## 10.1 Closing the server

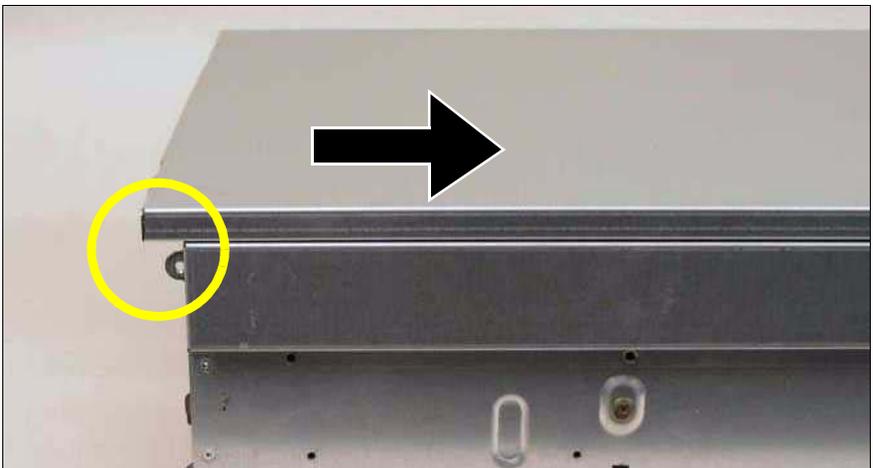


Figure 29: Mounting the housing cover

- ▶ Position the cover on the server in such a way that the rear edge protrudes 1-2 cm from the housing (see circle).
- ▶ Push the housing cover forward as far as possible.
- ▶ Fasten the housing cover to the front of the system with the two captive screws (see [page 18](#)).
- ▶ Install the server in the rack.



The relevant procedure is described in the operating manual.

- ▶ Fasten the server in the rack cabinet using the knurled screws.
- ▶ Plug in the power plugs and switch the server on.



---

# Abbreviations

The specialist terms and abbreviations listed here are not a complete list of all common terms or abbreviations.

**AC**

Alternating Current

**ACPI**

Advanced Configuration and Power Interface

**ANSI**

American National Standards Institute

**ASR&R**

Automatic Server Reconfiguration and Restart

**BBU**

Battery Backup Unit

**BIOS**

Basic Input-Output System

**BMC**

Baseboard Management Controller

**BTU**

British Thermal Unit

**CC**

Cache Coherency

**CD-ROM**

Compact Disk-Read Only Memory

**CHS**

Cylinder Head Sector

**CMOS**

Complementary Metal Oxide Semiconductor

## Abbreviations

---

**COM**

Communications

**CPU**

Central Processing Unit

**DC**

Direct Current

**DIMM**

Dual Inline Memory Module

**DIP**

Dual Inline Package

**DMA**

Direct Memory Access

**DMI**

Desktop Management Interface

**DVD**

Digital Versatile Disk

**ECC**

Error Checking and Correcting

**ECP**

Extended Capabilities Port

**EEPROM**

Electrically Erasable Programmable Read-Only Memory

**EFI**

Extensible Firmware Interface

**EIA**

Electronic Industries Alliance

**EMC**

Electromagnetic Compatibility

<b>EMP</b>	Emergency Management Port
<b>EPP</b>	Enhanced Parallel Port
<b>EPROM</b>	Erasable Programmable Read-Only Memory
<b>ESD</b>	ElectroStatic Discharge
<b>FAT</b>	File Allocation Table
<b>FPC</b>	Front Panel Controller
<b>FRU</b>	Field Replaceable Unit
<b>FSB</b>	Front Side Bus
<b>GAM</b>	Global Array Manager
<b>GUI</b>	Graphical User Interface
<b>HDD</b>	Hard Disk Drive
<b>HSC</b>	Hot-Swap Controller
<b>HU</b>	Height Unit
<b>I<sup>2</sup>C</b>	Inter-Integrated Circuit

## Abbreviations

---

<b>I/O</b>	Input/Output
<b>iBBU</b>	Intelligent Battery Backup Unit
<b>ICM</b>	Intelligent Chassis Management
<b>ID</b>	Identification
<b>IDE</b>	Integrated Drive Electronics
<b>IEC</b>	International Electrotechnical Commission
<b>IME</b>	Integrated Mirroring Enhanced
<b>IPMB</b>	Intelligent Platform Management Bus
<b>IPMI</b>	Intelligent Platform Management Interface
<b>IRMC</b>	Intelligent Remote Management Controller
<b>IRQ</b>	Interrupt Request Line
<b>LAN</b>	Local Area Network
<b>LBA</b>	Logical Block Address
<b>LCD</b>	Liquid Crystal Display

<b>LED</b>	Light Emitting Diode
<b>LP</b>	Low Profile
<b>LUN</b>	Logical Unit Number
<b>LVD</b>	Low-Voltage Differential SCSI
<b>MMF</b>	Multi Mode Faser
<b>MRL</b>	Manual Retention Latch
<b>NMI</b>	Non Maskable Interrupt
<b>NTFS</b>	New Technology File System
<b>NVRAM</b>	Non Volatile Random Access Memory
<b>OS</b>	Operating System
<b>PAM</b>	Promise Array Management
<b>PCI</b>	Peripheral Component Interconnect
<b>PDA</b>	Prefailure Detection and Analysing
<b>PDF</b>	Portable Data Format

## Abbreviations

---

**PFD**

Prefailure Detection (ServerView)

**POST**

Power-On Self Test

**PS/2**

Personal System/2

**RAID**

Redundant Array of Independent Disks

**RAM**

Random Access Memory

**RoHS**

Restriction of the Use of Certain Hazardous Substances (Waste from Electric and Electronic Equipment, EU Directive)

**ROM**

Read-Only Memory

**RoMB**

RAID on Motherboard

**RSB**

Remote Service Board

**RTC**

Real Time Clock

**RTDS**

Remote Test and Diagnostic System

**SAF-TE**

SCSI Accessed Fault-Tolerance Enclosures

**SAS**

Serial Attached SCSI

**SATA**

Serial Advanced Technology Attachment

<b>SBE</b>	Single-Bit Error
<b>SCA</b>	Single-Connector Attachment
<b>SCSI</b>	Small Computer System Interface
<b>SCU</b>	System Configuration Utility
<b>SDR</b>	Sensor Data Record
<b>SDRAM</b>	Synchronous Dynamic Random Access Memory
<b>SEL</b>	System Event Log
<b>S.M.A.R.T</b>	Self-Monitoring, Analysis, and Reporting Technology
<b>SMI</b>	System Management Interrupt
<b>SSU</b>	System Setup Utility
<b>SVGA</b>	Super Video Graphics Adapter
<b>USB</b>	Universal Serial Bus
<b>VGA</b>	Video Graphics Adapter
<b>VRD</b>	Voltage Regulator Down

## Abbreviations

---

**VRM**

Voltage Regulator Module

**WEEE**

Waste from Electric and Electronic Equipment (EU Directive)

**WOL**

Wakeup on LAN

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