

PRIMERGY RX600 S3 Server

Operating Manual

Edition July 2006

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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 Introduction

The PRIMERGY RX600 S3 server is an Intel-based server for mid-size and large companies. The server is suitable for use as a file server and also as an application, information or Internet server. It is available as a rack model.

The PRIMERGY RX600 S3 server offers a high level of reliability and availability through highly developed hardware and software components. These include hot-plug hard disk drive modules, hot-plug system fans and power supply units, hot-plug PCI slots and memory boards, the *ServerView* server management software, “Prefailure Detection and Analysing” (PDA) and “Automatic Server Reconfiguration and Restart” (ASR&R).

Security functions in the *BIOS Setup* and on the system board protect the data on the server against manipulation. Additional security is provided by the lockable rack door.

This server occupies 4 height units (HU) in the rack.

1.1 Overview of the Documentation



PRIMERGY manuals are available in PDF format on the *ServerBooks* CD which is part of the PRIMERGY *ServerView Suite* delivered with each server system.

The PDF files for the manuals can also be downloaded free of charge from the Internet. The overview page showing the online documentation available on the Internet can be found via the URL:

<http://manuals.fujitsu-siemens.com> (choose: industry standard servers).

Concept and Target Group of this Manual

This operating manual describes how to install, commission and operate your server.

It is intended for those responsible for installing the hardware and ensuring that the system runs smoothly. The manual contains all of the information required for installing your PRIMERGY RX600 S3 server.

To understand the different expansion options it is necessary to have a knowledge of hardware and data transmission, as well as basic knowledge of the operating system used.

Additional Components of the Server Documentation

The PRIMERGY RX600 S3 documentation comprises the following manuals:

- "Quick Start Hardware - PRIMERGY RX600 S3" (poster)
- "Quick Start Software - PRIMERGY ServerView Suite" (poster)
- "Warranty" manual (print version delivered together with the system, PDF file available on the *ServerBooks* CD also delivered with the system)
- "Safety" manual (print version always delivered together with the system, PDF file available on the *ServerBooks* CD)
- "Ergonomics" manual (PDF file available on the *ServerBooks* CD)
- "Helpdesk" (poster with worldwide helpdesk telephone numbers)
- Technical Manual for the D2352 system board (PDF file available on the *ServerBooks* CD)
- "D2352 BIOS Setup Utility" (PDF file available on the *ServerBooks* CD)
- "PRIMERGY RX600 S3 Server Options Guide" (PDF file available on the *ServerBooks* CD)



In the Options Guide, the server extension and modification possibilities are described.

- "ServerView Suite" includes the *ServerStart* CD, the *ServerBooks* CD and the *ServerSupport* CDs. The PDF version of the user manual "PRIMERGY - ServerView Suite - ServerStart" is also available on the *ServerBooks* CD.



If you need a backup of the *ServerBooks* CD, send the details of your server via email address: Reklamat-PC-LOG@fujitsu-siemens.com.

- "MegaRAID 320 Storage Adapters" (PDF file available on the *ServerBooks* CD)
- "MegaRAID Device Driver Installation" (PDF file available on the *ServerBooks* CD)
- "MegaRAID Configuration Software" (PDF file available on the *ServerBooks* CD)
- "Global Array Manager Client Software User's Guide" (PDF file available on the *ServerBooks* CD)
- "Global Array Manager Server Software User's Guide" (PDF file available on the *ServerBooks* CD)

Other Sources of Information

- Technical manual for the rack
- Manual for the monitor
- Manual for *ServerView server management software*
- Manual for the remote test and diagnostic system *RemoteView*
- Documentation for the boards and drives
- Documentation for your operating system
- Information files for your operating system

(see also ["Related publications" on page 107](#))

1.2 Features

System Board

The features of the system board (D2352) are described in the technical manual for the system board in relation to the hardware and in the *BIOS setup* manual for the firmware (see [“Related publications” on page 107](#)).

Hot-Plug PCI Slots

In addition to two standard PCI slots, the server also comprises five hot-plug PCI slots (for one PCI-X board and four PCI Express boards) that allow boards to be installed and removed online, assuming the operating system supports this functionality (for further information see [section “Hot-plug PCI Boards” on page 88](#)).

Hard Disk Drives

The server has a drive bay that can each accommodate up to five ULTRA 320-SCSI hard disk drive modules. Each hard disk drive module (HDD module) can accommodate a SCSI hard disk drive with an SCA (Single Connector Attachment) interface and a maximum height of 1 inch. The module is connected to the SCSI backplane without cables via the SCA interface. This allows hard disk drive modules to be simply plugged in or pulled out (for further details see [section “Hot-plug Hard Disk Drives” on page 78](#)).

The hard disk drive system is designed for Ultra3 SCSI and is operated using two channels with three (channel A) and two (channel B) hard disk drives each. The hard disk drives can either be operated in "pure" SCSI mode by the onboard controller (see [“SCSI Controller” on page 9](#)) or by an additional RAID controller (see [“MegaRAID RoMB Controller” on page 9](#)).

With a RAID controller and the corresponding RAID configuration, defective HDD modules may be replaced while the system is running (hot-plug).

An external SCSI interface is also offered optionally to allow external storage subsystems to be connected.

SCSI Controller

For operating internal hard disk drives or an internal magnetic tape drive, an onboard 2-channel Ultra320 LSI SCSI controller is available. Alternatively, an external storage subsystem (e.g. magnetic tape drive) may be connected to the second channel at the rear of the server. If both channels are already being used internally, an additional SCSI controller must be built into a PCI slot.

MegaRAID RoMB Controller

RAID functionality is assured by a MegaRAID controller which is configured as "RAID on Mother Board" (RoMB) by default. If the server was ordered with the RAID option, activation of the RoMB controller is performed "ex factory" by means of an activation key on the system board. RAID levels 0, 1, 10, 5, 50 are supported. The MegaRAID RoMB controller uses the onboard Ultra320 SCSI controller by means of a logic specially integrated on the system board. Optionally, a BBU is available for the RoMB controller to secure memory contents in case of a power failure.

Accessible Drives/Components

Various mounting locations are available:

- one location with a LocalView module (standard)
- one location for a slimline CD or DVD drive (standard)
- one location for a SCSI 5,25-inch magnetic tape drive (option)

The accessible drives/components integrated in these locations cannot be replaced while the system is up and running.

Power Supply

The server has two hot-plug power supply units that adjust automatically to any power voltage in the range from 200 V - 240 V. Thus, redundancy of the power supply is ensured. If one power supply unit fails, the second unit will maintain uninterrupted operation. The defective power supply unit can be replaced online (for further details see [section "Replacing a Hot-plug Power Supply Unit" on page 75](#)).

Ventilation

The server is cooled by means of four hot-plug system fans (redundant configuration). Two fans each are contained in one fan unit. Fan control is performed via temperature sensors. If a sensor fails or is removed, the relevant system fans run at maximum speed to ensure optimum hardware protection. If the server cover is removed, **all** system fans are operated at maximum speed.

In case of a defective fan, uninterrupted operation is ensured. A defective fan unit can be replaced online (for further details see [section “Replacing a Hot-plug System Fan Unit” on page 77](#)).

High Level of Availability and Reliability

When memory data is accessed, 1-bit errors in the main memory are recognized and automatically corrected with the ECC (Error Correcting Code) method. The patented memory scrubbing function regularly starts up the EDC (Error Detection Code) mechanism and thus ensures continuous data integrity.

The memory modules used support Chipkill technology.

Support is likewise provided for hot-spare memory technology, in which a memory bank is used like a replacement bank. If a memory module fails, the bank with the defective memory is automatically deactivated and the replacement bank is activated in its place (assuming it has been configured appropriately in the BIOS). The deactivated memory bank is no longer used and the faulty memory module can be replaced at the next opportunity. In order to be able to use the hot-spare memory function, all occupied memory banks must have an identical memory configuration.

Memory boards can be secured against failure either by memory mirroring (two or four boards required) or by memory RAID (four boards required). Both methods cannot be used simultaneously.

With the hot-plug function, memory boards may be replaced or added while the system is up and running (see [“Hot-plug Memory Boards” on page 84](#)).

ASR&R (Automatic Server Reconfiguration and Restart) restarts the system in the case of an error and automatically "hides" the defective system components.

The PDA (Prefailure Detection and Analyzing) technology from Fujitsu Siemens Computers analyzes and monitors all components important for system reliability.

In conjunction with the MegaRAID RoMB controller, the onboard Ultra320 SCSI controller supports RAID levels 0, 1, 10, 5 and 50, thus increasing system availability.

The hot-plug HDD modules, fan units, power supply units and PCI boards provide additional security.

Server Management

Server management is implemented with the aid of the supplied *ServerView* software and PDA (Prefailure Detection and Analyzing) technology from Fujitsu Siemens Computers. PDA reports early the threat of a system error or overloading so that preventative measures can be taken.

ServerView enables the management of all PRIMERGY servers in the network via a central console. The following key features are supported among others by *ServerView* in this context:

- Remote power-on (Wake On LAN)
- Temperature monitoring of the CPU and the surrounding area
- Detailed status and error reports for bus systems, processors and main memory
- Watchdog timer for Automatic Server Reconfiguration and Restart (ASR&R) in the event of failure of memory modules or processors
- Power monitoring
- Early detection of a defective fan
- Watchdog timer for operating system monitoring and application monitoring with ASR&R

Further information on *ServerView* server management is provided in the associated documentation (see [“Related publications” on page 107](#)).

ServerStart

You can configure your PRIMERGY server quickly and purposefully with the *ServerStart* software provided. User-guided menus are available for installing the server operating system (for further details see [section “Configuring the Server” on page 63](#)).

Service and Support

PRIMERGY servers are service-friendly and modular, thus enabling quick and simple maintenance.

Handles and locks (touch points) which can be operated without tools are colored green to ensure simple and immediate recognition (see also “[Hot-plug Components](#)” on page 75).

With the LocalView module at the server front, the status of the important system components can be monitored at any time without opening the casing. For more information on LocalView, see “[Related publications](#)” on page 107.

Further information is provided with the diagnostic LEDs on the hot-plug components (power supply units, fan units, PCI boards, memory boards, HDD modules).

The Global Flash tool supplied with the Fujitsu Siemens Computers utilities supports a fast BIOS update via the LAN port; local BIOS update is performed via the USB port. The optional *RemoteView* remote test and diagnostics system allows the PRIMERGY RX600 S3 server to be maintained from remote locations.

RemoteView

RemoteView is the remote management solution from Fujitsu Siemens Computers for PRIMERGY systems. *RemoteView* and the relevant hardware components integrated on the system board allow remote monitoring and maintenance as well as fast restoration of operability in the event of errors.

With *RemoteView* you get an ample remote test and diagnosis package. Remote monitoring and maintenance avoids time-consuming and costly on-site repairs and reduces service costs. This leads to a reduction in the total cost of ownership and an excellent return on investment for the remote management solution.

RemoteView helps

- switch ON/OFF the system remotely
- monitor systems and analyze the cause of faults
- prepare error resolution or have this process initiated independently if possible
- identify potential sources of error
- configure the system
- adjust system settings and initiate system restarts from a remote location

For more information on *RemoteView* see [“Related publications” on page 107](#).

A so-called Remote Service Board (RSB) can be used in conjunction with *RemoteView*. Together they facilitate a remote diagnosis for system analysis, remote configuration, and remote restart, should the operating system or hardware fail. For more information on the RSB see the Options Guide.

1.3 Notational Conventions

The following notational conventions are used in this manual:



<i>Text in italics</i>	indicate commands, menu items or software programs.
“Quotation marks”	indicate names of chapters and terms that are being emphasized.
▶	describes activities that must be performed in the order shown
 CAUTION!	pay particular attention to texts marked with this symbol. Failure to observe this warning may endanger your life, destroy the system or lead to the loss of data.
	indicates additional information, notes and tips

Table 1: Notational conventions

1.4 Technical Data

Electrical Data (Hot-plug Power Supply Unit)

Rated voltage range	200 V - 240 V
Frequency	50 Hz - 60 Hz
Rated current in basic configuration	1,6 A (240 V)
Max. rated current	4,75 A (240 V)
Effective power	1000 W
Apparent power	1140 VA
Heat dissipation	3600 KJ/h (3412 BTU)
Main power fuse	16 A
Protection class	I

National and International Standards

Product safety and ergonomics	IEC 60950 / EN 60950 / UL 60950 3rd. Ed., CAN/CSA-C22.2 No. 60950 3rd. Ed.
Electromagnetic compatibility	FCC Class A VCCI Class A (JEIDA) AS / NZS 3548 Class A (C-Tick) CNS 13438 Class A (BSMI) CFR47, part 15, subpart B, Class A / ICES-003 Class A
Interference emission	EN 55022 Class A
Harmonic current	EN 61000-3-2 JEIDA
Flicker	EN 61000-3-3
Interference immunity	EN 55024
CE label according to EU directives	Low-Voltage Directive 73/23/EEC Electromagnetic Compatibility 89/336/EEC (Product safety)

Mechanical Values

Width	482.6 mm
Depth	737.0 mm
Height	176.0 mm or 4 HU
Rack mount depth	700.0 mm
Rack cable depth	100.0 mm (1000 mm rack recommended)

Weight

approx. 39 kg (depending on configuration)

Ventilation Clearance

at least 200 mm on the front and on the rear side

Environmental Conditions

Environment class 3K2	EN60721 / IEC 721 section 3-3
Environment class 2K2	EN60721 / IEC 721 section 3-2
Temperature: Operation (3K2) Transport (2K2)	10 °C 35 °C -25 °C 60 °C
Humidity	10% ... 85%

Condensation during operation must be avoided!

Noise Level

Sound power level $L_{WA,d}$ (ISO 9296)	≤ 7.0 B (operating)
Sound pressure level at bystander position L_{pAm} (ISO 9296)	≤ 57 dB(A) (operating)

2 Overview of Installation Steps

This chapter provides an overview of the steps involved in installing your server. You will find further information on the relevant installation steps in the referenced sections.

- ▶ First of all, carefully read the safety information in the [chapter “Important Notes” on page 19](#).
- ▶ Transport the server to the desired installation location.
- ▶ Unpack all individual parts, check them for any damage during transport and check whether the delivery agrees with the details on the delivery sheet (see [section “Unpacking the Server” on page 32](#)).
- ▶ Ensure that all of the necessary manuals (see [“Additional Components of the Server Documentation” on page 6](#)) are to hand; if necessary, print the PDF files.
- ▶ Install the server into the rack (see [section “Installing/Removing the Server into the Rack” on page 33](#)).
- ▶ Attach the cables to the server. Before doing this, read the [section “Connecting Devices to the Server” on page 43](#) and the [section “Hints: Connecting/Disconnecting Cables” on page 47](#).
- ▶ Connect the server to the power system (see [section “Connecting the Server to the Mains Voltage” on page 45](#)).
- ▶ Familiarize yourself with the operating and indicator elements on the front and back of the server (see [section “Operating and Indicator Elements” on page 49](#)).
- ▶ Configure the server and install the desired operating system and applications. You can do this in two ways:

- Remote configuration and installation using *ServerStart*:

The *ServerStart* CD provided is an effective way of configuring the server and installing the operating system.

To find out how to operate *ServerStart* and for further information, refer to the manual "ServerView Suite - ServerStart" provided as a PDF file.

You will find information on configuration in the [section “Configuration with ServerStart” on page 64](#).

Overview of Installation Steps

- Local configuration and installation with or without *ServerStart* (see [section “Configuration with ServerStart” on page 64](#) or [section “Configuration without ServerStart” on page 65](#)).

3 Important Notes

In this chapter you will find essential information regarding safety when working with your server.

3.1 Notes on Safety



You will also find the following safety instructions in the manual entitled “Safety”.

This device complies with the relevant safety regulations for data processing equipment.

If you have any questions about where you can set up the device, contact your sales outlet or our customer service team.



CAUTION!

The actions described in these instructions should only be performed by technical specialists. Equipment repairs should only be performed by authorized, qualified staff. Any unauthorized openings and improper repairs could expose the user to risks (electric shock, energy hazards, fire hazards) and could also damage the equipment. Please note that any unauthorized openings of the device will result in the invalidation of the warranty and exclusion from all liability.

Before Setting up



CAUTION!

- During installation and before operating the device, observe the instructions on environmental conditions for your device (see [section “Technical Data” on page 14](#)).

- If the device is brought in from a cold environment, condensation may form both inside and on the outside of the machine.

Before operating the device, wait until it is absolutely dry and has reached approximately the same temperature as the installation site. Failure to observe these guidelines can lead to material damage of the device.

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

Installation and Operation



CAUTION!

- If the rack model 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 server automatically sets itself to a voltage in the range of 200 V - 240 V. Make sure that your local voltage is within this range.
- This device has safety tested power cables and must only be connected to properly grounded power sockets.
- Ensure that the power sockets on the device or the grounded mains outlet are freely accessible.
- The power switch does not disconnect the device from the mains voltage. To completely disconnect it from the mains voltage, the power plugs must be removed from the grounded power sockets.

**CAUTION!**

- 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 central processing unit is still running, but the peripheral device (e.g. storage subsystem) has failed during a power outage.
- Data cables must be adequately shielded to avoid interference.
- 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 (make sure no-one can trip over them) and that they cannot be damaged. Refer to the relevant notes in the operating manual when connecting the device.
- No data transmission cable should be connected or disconnected during a thunderstorm (lightning hazard).
- 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, elements, or cables, penetration of liquids or foreign matter), switch off the device immediately, remove the power connectors from the grounded power sockets, and contact your customer service center.
- Proper operation of the device (in accordance with IEC 60950/EN 60950) 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).

**CAUTION!**

- Install only 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 center or your sales outlet.
- The components marked with a warning label (e.g. lightning symbol) may only be opened, removed, or exchanged by authorized, qualified personnel. The hot-plug power supply units are exceptions to this rule.
- The warranty is invalidated if the device is damaged during the installation or replacement of system expansions.
- You may set only those resolutions and refresh rates specified in the "Technical data" section of the monitor description. Otherwise, you may damage your monitor. If you are in any doubt, contact your sales outlet or customer service center.

Batteries**CAUTION!**

- Incorrect replacement of batteries may lead to a risk of explosion. The battery may only be replaced with an identical battery or with a type recommended by the manufacturer (see the technical manual for the system board under "[Related publications](#)" on page 107).
- Replace the lithium battery on the system board in accordance with the instructions in the technical manual for the system board (see "[Related publications](#)" on page 107).

Notes on Handling CDs/DVDs and CD/DVD Drives



CAUTION!

- Use only CDs/DVDs in proper condition in the CD/DVD drive of your server to prevent data loss, damage to the device and injuries.
- Therefore, check each CD/DVD for damage, cracks, breakage etc. before inserting it in the drive.

Please 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 conditions, sharp-edged pieces of broken CDs/DVDs can penetrate the cover of the drive (damage to the device) and be thrown out of the device (danger of injury, particularly on uncovered body parts such as the face or neck).



You protect the CD/DVD drive and prevent mechanical damage, as well as premature wearing of the CDs/DVDs by observing the following suggestions:

- Only insert the 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.

Note about the Laser

The CD/DVD drive is classified for laser class 1 according to IEC 60825-1.



CAUTION!

The CD/DVD drive contains a laser diode (LED). Sometimes, the LED produces a stronger laser beam than laser class 1. Direct view into the laser beam is dangerous.

Never remove parts of the CD/DVD drive assembly!

Modules with Electrostatic-Sensitive Devices:

Electrostatic-sensitive components may be identified by the following sticker:

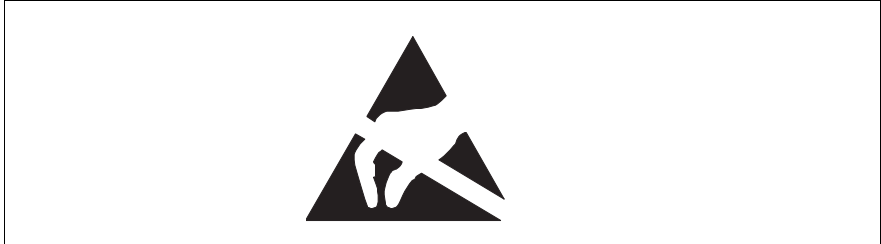


Figure 1: ESD label

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

- Remove the power plugs from the power sockets before inserting or removing components containing ESDs.
- You must always discharge static build up (e.g. by touching a grounded object) before working.
- Use a grounding cable designed for this purpose to connect yourself to the system unit as you install components.
- The equipment and tools you use must be free of static charge.
- Always hold components with ESDs at the edges or at the positions highlighted in green (touch points).
- Do not touch any exposed pins or conductors on a component.
- 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 (EN 61340-5-1, ANSI/ESD S20.20).

Other Important Notes:

- When cleaning the device, please observe the relevant notes in the section [section “Cleaning the Server” on page 66](#).
- Keep this operating manual and all additional documentation (such as the technical manual, CD) together with the device. All documentation should be included if the device is passed on to a third party.

3.2 CE Certificate



The shipped version of this device complies with the requirements of the EEC directives 89/336/EEC "Electromagnetic compatibility" and 73/23/EEC "Low voltage directive". The device therefore qualifies for the CE certificate (CE=Communauté Européenne).

3.3 FCC Class A Compliance Statement

If there is an FCC statement on the device, then:

The following statement applies to the products covered in this manual, unless otherwise specified herein. The statement for other products will appear in the accompanying documentation.

NOTE:

This equipment has been tested and found to comply with the limits for a „Class A“ digital device, pursuant to Part 15 of the FCC rules and meets all requirements of the Canadian Interference-Causing Equipment Standard ICES-003 for digital apparatus. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in strict accordance with the instructions, may cause harmful interference to radio communications. However, there is no warranty that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/T.V. technician for help.

Fujitsu Siemens Computers is not responsible for any radio or television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Fujitsu Siemens Computers. The correction of interferences caused by such unauthorized modification, substitution or attachment will be the responsibility of the user.

The use of shielded I/O cables is required when connecting this equipment to any and all optional peripheral or host devices. Failure to do so may violate FCC and ICES rules.

3.4 Transporting the Server



CAUTION!

Transport the server only in its original packaging or in a packaging which protects it from knocks and jolts. Do not unpack the server until you are done transporting.

If you need to lift or transport the server, ask other people to help you.

Never lift or transport the server (rack model) using the handles on the front panel.

3.5 Notes on Installing into the Rack



CAUTION!

- **For safety reasons, at least two people are required to install the rack model because of its weight and size.**
- Never lift the server into the rack using the handles on the front panel.
- When connecting and disconnecting cables, observe the relevant notes in the chapter "Important notes" in the technical manual for the corresponding rack. The technical manual is supplied with the corresponding rack.
- Ensure that the anti-tilt bracket is correctly mounted when you set up the rack.
- For safety reasons only one unit may be withdrawn from the rack at a time when performing assembly or service work.
- If more than one unit is withdrawn from the rack at any one time, there is a danger that the rack will tilt forward.
- The power connection for the rack must be installed by an authorized technician (electrician).
- If the rack model 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.

3.6 Environmental Protection

Environmentally Friendly Product Design and Development

This product has been designed in accordance with the Fujitsu Siemens Computers standards for "environmentally friendly product design and development". This means that the designers have taken into account important criteria such as durability, selection of materials and coding, emissions, packaging, the ease with which the product can be dismantled and the extent to which it can be recycled.

This saves resources and thus reduces the harm done to the environment.

Notes on Saving Energy

Devices that do not have to be on permanently should not be switched on until they need to be used and should be switched off during long breaks and on completion of work

Notes on Packaging

Please do not throw away the packaging. It may be needed later for transporting your system unit. If possible, devices should be transported in their original packaging.

Notes on Dealing with Consumables

Please dispose of printer consumables and batteries in accordance with local government regulations.

Do not throw batteries and accumulators into the household waste. They must be disposed of in accordance with local regulations concerning special waste (see also "[Returning Batteries](#)" on page 30).

Notes on Labeling Plastic Housing Parts

Please avoid attaching your own labels to plastic housing parts wherever possible, since this makes it difficult to recycle them.

Returning Used Electrical and Electronic Devices in EU Countries

- Separate collection

Users of electrical and electronic devices are obligated to collect used devices separately. Electrical (electronic) used devices may not be disposed of together with unsorted household refuse. The separate collection is a condition for reuse, recycling and utilisation of used electrical (electronic) devices, which ensures the protection of resources.

- Return and collection systems

Electrical (electronic) used devices from private households can be returned free of charge. To return your used device, please use the country-specific return and collection systems available to you (see [“Local Contacts” on page 30](#)).

The return of used devices which pose a health or safety risk for human beings due to soiling during use may be refused.

- Reuse, recycling and utilisation

By actively using the offered return and collection systems, you make your contribution to the reuse, recycling and utilisation of electrical (electronic) devices.

- Effects on the environment and human health

Electrical (electronic) used devices contain parts which must be handled selectively according to the EU directive. Separate collection and selective treatment are the basis for environment-friendly disposal and the protection of human health.

- Meaning of the symbol "Crossed out rubbish bin on wheels"

Electrical (electronic) devices which are marked with one of the following symbols may not be disposed of with household refuse in accordance with the EU directive.

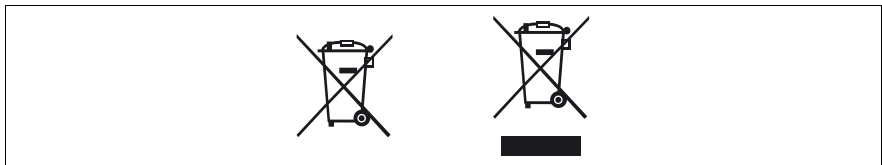


Figure 2: Symbols for electrical (electronic) devices

Returning Batteries

Batteries which are marked with one of the following symbols may not be disposed of together with household refuse according to the applicable EU directive.

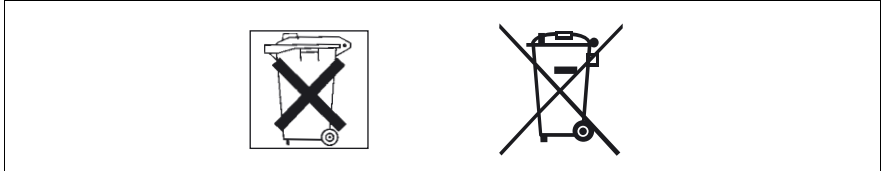


Figure 3: Symbols for batteries

With batteries containing harmful substances, the chemical symbol for the heavy metal contained is indicated below the waste bin.

Cd Cadmium

Hg Mercury

Pb Lead

The following applies to Germany:

- Private consumers can return batteries at the point of sale or the immediate vicinity thereof free of charge (exception: starter batteries).
- The final consumer is obligated to return defective or used batteries to the seller or to the return points established for this purpose.

Local Contacts

For details on take-back and reuse of devices and consumables within Europe, contact your Fujitsu Siemens Computers branch office/subsidiary or our recycling centre in Paderborn:

Fujitsu Siemens Computers
Recycling Center
D-33106 Paderborn

Tel.: +49 5251 8 18010

Fax +49 5251 8 18015

Internet: www.fujitsu-siemens.com/recycling

4 Hardware Installation



CAUTION!

Please note the safety instructions in [chapter “Important Notes” on page 19](#).

Do not expose the server to extreme environmental conditions (see [section “Technical Data” on page 14](#)). Protect it from dust, moisture, and heat.

Before operating the server, it must be acclimatized in its operating environment for an acclimatization time.

Temperature difference (°C)	Minimum acclimatization time (hours)
5	3
10	5
15	7
20	8
25	9
30	10

Table 2: Acclimatization time

4.1 Installation Steps

The following installation steps are described in detail in other sections of this chapter:

- ▶ Transporting the server to the desired site.
- ▶ Unpacking the server (see next [section “Unpacking the Server”](#)).
- ▶ Mounting the rack model into the rack (see [section “Installing/Removing the Server into the Rack” on page 33](#)) as shown in the layout arrangement created with *System Architect*.
- ▶ Cabling the server. Please also refer to the Technical Manual for the corresponding rack, the [section “Connecting Devices to the Server” on page 43](#) and [section “Hints: Connecting/Disconnecting Cables” on page 47](#).
- ▶ Connecting the server to the power supply (see [section “Connecting the Server to the Mains Voltage” on page 45](#)).

4.2 Unpacking the Server



CAUTION!

Please note the safety instructions in [chapter “Important Notes” on page 19](#).

If you need to lift or transport the server, ask other people to help you.

Do not unpack the server until all transport maneuvers are completed.

It is recommended to not throw away the original packaging material! It may be required for transportation at some later date.

- ▶ Unpack all the individual parts.
- ▶ Check the contents of the package for visible transport damage.
- ▶ Check whether the delivery agrees with the details in the delivery note.

The identification rating plate is located on the left side of the server.

If you find transport damage or inconsistencies between the contents of the package and the delivery note, inform your supplier immediately!

4.3 Installing/Removing the Server into the Rack



CAUTION!

- Please observe the safety precautions and references to rack installation in [chapter “Important Notes” on page 19](#).
- At least two people are needed to position the server in the rack.
- The rack may tip over if more than one unit is removed at the same time from the rack.

Requirements of the Rack

The rack systems of Fujitsu Siemens Computers (PRIMECENTER Rack, DataCenter Rack) perfectly support the installation of the PRIMERGY server systems. Installation into current OEM rack systems (3rd-Party Racks) is possible, if they support the EIA-310-D standard for 19-inch racks.



Classic Rack is not supported with the PRIMERGY RX600 S3.

To accommodate the ventilation concept and ensure proper ventilation of the components in the rack, any unused areas must be closed using dummy covers.

Power is supplied via the socket strips available in the rack.

The main features of the rack systems of Fujitsu Siemens Computers are as follows:

PRIMECENTER Rack

- In connection with so-called assembly brackets frontally bolted telescopic rails or sliding rails.
Two of these assembly brackets and/or the sliding rails are provided with a linear alignment possibility to ensure an adjustment to different rack depths.
- Extended cable management within the lateral rack area.

DataCenter Rack

- Directly laterally bolted telescopic rails or sliding rails (except within the rear left area where a support bracket is used).
- Extended cable management within the lateral rack area.

The mounting of the rails in the different racks is described in the next sections.

The mounting of the cable management is described in detail in the Technical Manual for the respective rack.

The following applies to rack systems of different OEM manufacturers:

3rd-Party Rack

Certain boundary conditions are to be fulfilled:

- Installation dimensions (see the dimensions shown in [figure 4 on page 35](#)).
- | | |
|----|---|
| 1 | rack front side |
| 2 | rack rear side |
| A | rack depth (comparison PRIMECENTER Rack 940/1000 mm) |
| B | rack width (comparison PRIMECENTER Rack 700 mm) |
| C | clearance of the 19-inch installation level |
| C1 | front 19-inch installation level |
| C2 | rear 19-inch installation level |
| D | area for cable routing (cable area depth) and ventilation |
| E | area for front panel and ventilation |
| F | right and left area for support systems |
| P | PRIMERGY installation depth |
| a1 | front left support upright |
| a2 | front right support upright |
| b1 | rear left support upright |
| b2 | rear right support upright |

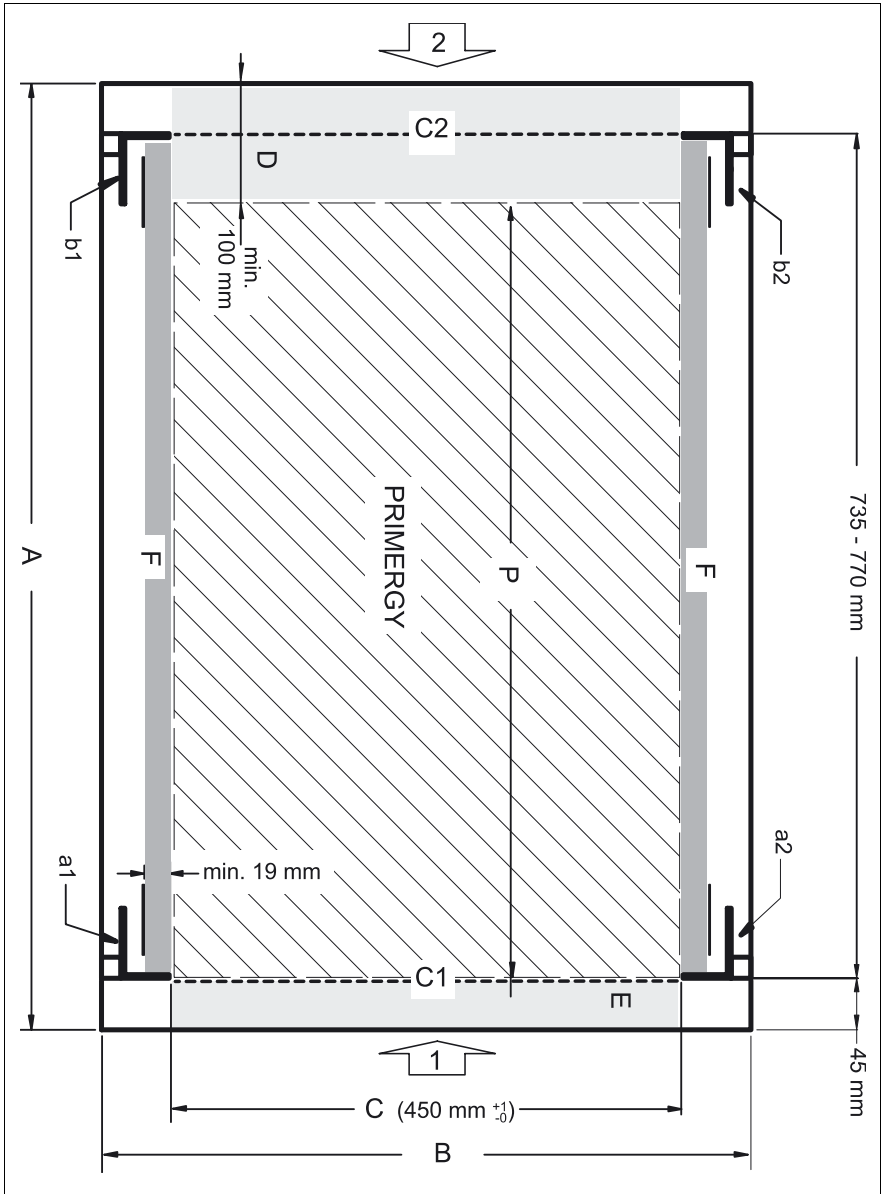


Figure 4: Mechanical requirements

- Please ensure the functionality of the security mechanisms (e. g. stopper or retention systems) on the server.
- The form of the rack support uprights must ensure the frontal screwing on of the rails.
- Frontally bolted telescopic rails or sliding rails.

The rails are provided with a linear alignment possibility to ensure an adjustment to different rack depths.

- No support of the cable management delivered with the mounting kit.
- Climatic conditions.
For the ventilation of the installed server, an unhindered air intake in the rack front and an air discharge in the rear cover of the rack are necessary.

In principle the ventilation concept plans that the necessary cooling is reached by the horizontal self-ventilation of the installed devices (air flow from the front to the rear).

- Power supply.
For the installation in 3rd-Party Racks it is to be made certain that appropriate socket strips are present.

4.3.1 Mounting into the PRIMECENTER Rack

For mounting the server in the PRIMECENTER Rack the following parts are necessary:

- one support bracket with two M5x10 screws including plugwashers
- one rack mounting kit consisting of two telescopic rails (left/right), ready for use
- eight centering screws M5 (two each for front and rear, left and right)

i General information is provided in the Technical Manual for the PRIMECENTER Rack (see also “[Related publications](#)” on page 107).

For mounting the left telescopic rail in the PRIMECENTER Rack, the delivered support bracket must first be mounted on the rear left support upright.

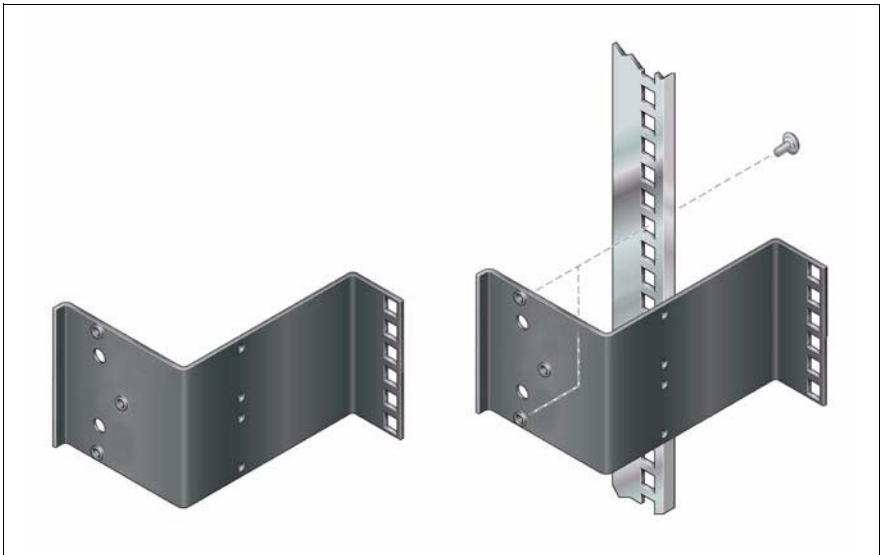


Figure 5: Mounting the support bracket

- ▶ Mount the support bracket at the appropriate height on the left rear support upright as described in the Technical Manual of the PRIMECENTER Rack.

i For better orientation, the height units are marked on the support uprights.



Figure 6: Mounting the telescopic rails into the PRIMECENTER Rack

- ▶ Fasten the variable support system with the telescopic rails to the vertical bars of the rack using four centering screws M5 (see [figure 6](#)) in the corresponding square holes.
- ▶ Secure the telescopic rails with the screws delivered (one each at every attachment hole).

i No cage nuts are necessary for securing the telescopic rails as the attachment holes are threaded.

- ▶ Mount the PRIMECENTER Rack cable management as described in the Technical Manual of the PRIMECENTER Rack.
- ▶ Mount the server (see [section “Installing the Server” on page 40](#)).
- ▶ Route the cables with the inserted server as described in the Technical Manual of the PRIMECENTER Rack.

4.3.2 Mounting into the DataCenter Rack

See section [“Mounting into the PRIMECENTER Rack” on page 37](#).

4.3.3 Mounting into 3rd-Party Racks

See section [“Mounting into the PRIMECENTER Rack” on page 37](#).

4.3.4 Installing the Server

**CAUTION!**

At least two persons are needed to position the server in the rack.

- ▶ Pull the mounted telescope bars completely out toward the front. They must click into place so that you can no longer push them back.



Figure 7: Inserting the server

- ▶ Lift the server onto the right and left chassis holder and let the three screws engage in the corresponding openings at the top edges of the two chassis holders on the right and left.

The following steps can then be carried out by one person only.

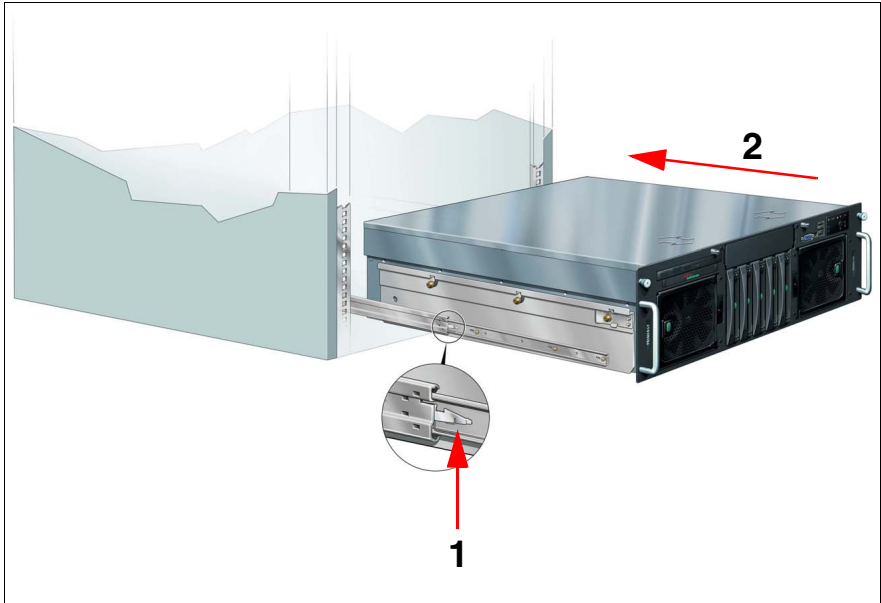


Figure 8: Releasing the telescopic rails and sliding the server into the rack

- ▶ Push the safety catch (1) on both telescopic bars in the direction of the arrow and slide the server into the rack (2).



Figure 9: Fastening the server

- ▶ Place the cage nuts for fastening the front panel in the corresponding holes of the front support uprights and fasten the server using two knurled screws (1).
- ▶ The HDD modules are each provided with a transport lock. Remove the locks before you commission the server (see [“HDD module: removing the transport lock”](#) on page 81).

To remove the server, follow the same procedure in the reverse order. When removing the server make sure you pull out the left and right chassis holders (see [figure 7](#) on page 40) in parallel.

4.4 Connecting Devices to the Server

The ports for external devices are on the front and on the rear of the server. Which additional ports are available on your server depends on the PCI boards and other options installed (e.g. an optional SCSI port).



Some of the devices that can be connected may require special software, e.g. drivers, to be installed and configured (see the documentation for the connected device).

On the front side of the server there is a VGA port and three USB ports (see [figure 10](#)).

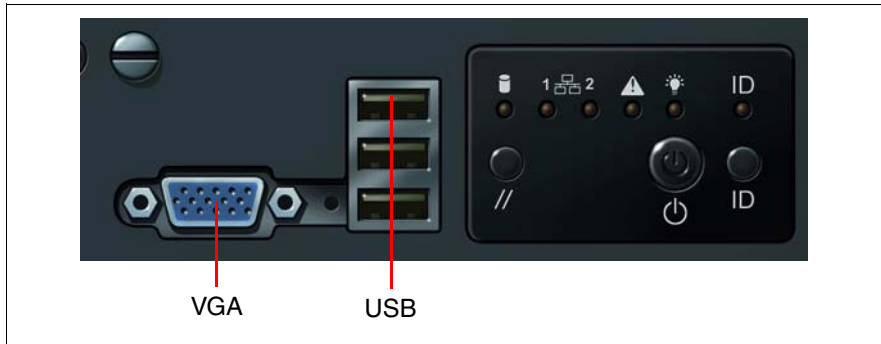


Figure 10: Ports on the front side



The two VGA ports on the front and rear side (see [figure 11 on page 44](#)) may only be used alternatively; the unused port is deactivated automatically.

The standard ports on the rear side are marked with symbols, and some are color-coded:

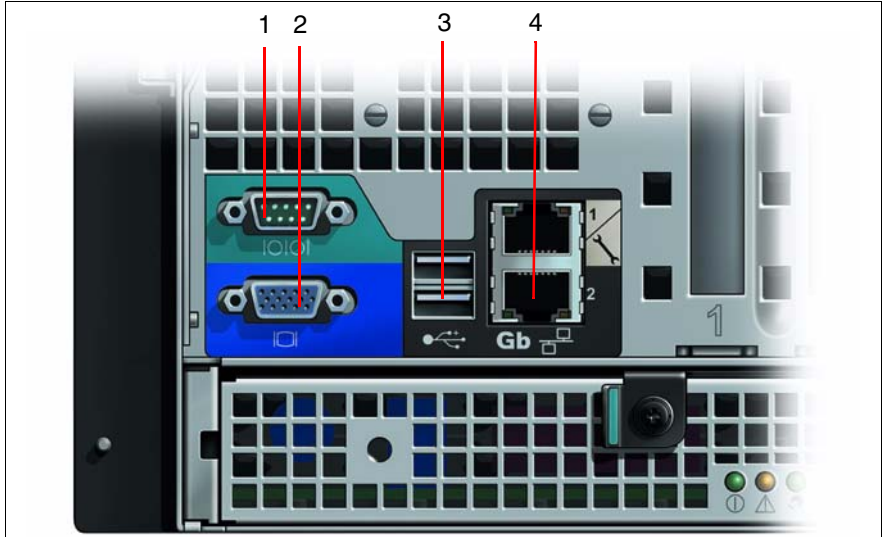


Figure 11: Rear ports (left)

1	Serial port COM1 (turquoise)	3	USB ports (2)
2	VGA port (blue)	4	LAN ports 1 and 2

There are more ports on the rear, see [figure 12](#).

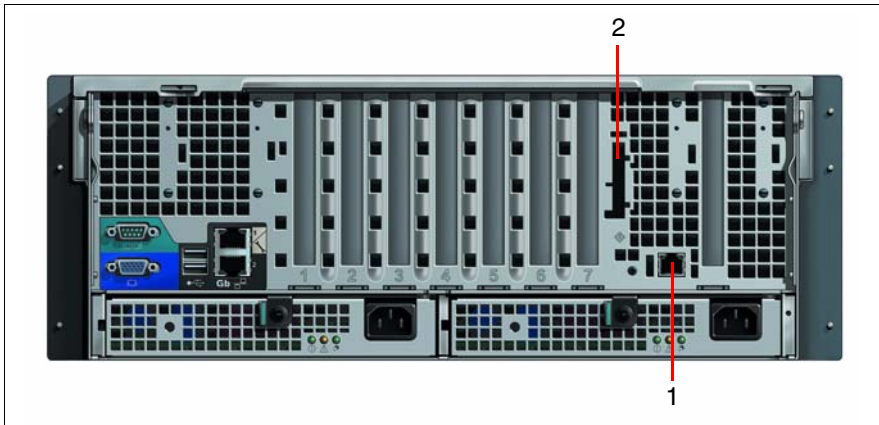


Figure 12: Rear ports (right)

1 LAN port (currently not usable, reserved for future extensions)	2 SCSI port (optional, connected to SCSI channel B or to an additional PCI board)
--	---

- ▶ Connect the data cables to the server and peripherals.



Keyboard and mouse are to be connected via USB. There are no PS/2 ports available for these devices.

4.5 Connecting the Server to the Mains Voltage

The server has two hot-plug power supply units. This ensures a redundant power supply. If a defect occurs in one power supply unit, the respective other power supply unit ensures unimpaired further operation. Each hot-plug power supply may be replaced while the system is operating (see [“Replacing a Hot-plug Power Supply Unit” on page 75](#)).



CAUTION!

The server automatically sets itself to a voltage in the range of 200 V - 240 V. Make sure that your local voltage is within this range.



Figure 13: Connecting the server to the mains voltage

- ▶ Connect the insulated connectors of the power cables to the two power supply units of the server.
- ▶ Connect the power plug to a grounded mains outlet of the in-house mains or of the mains socket strip of the rack (see Technical Manual of the rack).

i

Because of the two hot-plug power supply units, phase redundancy in the power supply of the server can be established. In this case each of the power supply units is directly connected either to two different phases or to two different power circuits of the in-house mains.

4.6 Connecting the Monitor

- ▶ Plug the data cable of the monitor into the monitor port (VGA) of the server. Both the VGA port on the front or the rear may be used alternatively.
- ▶ Connect the power cable of the monitor to a grounded mains outlet of the in-house mains or of the mains socket strip of the rack.

4.7 Hints: Connecting/Disconnecting Cables



CAUTION!

Be sure to read the documentation for the peripheral devices before connecting them.

Do not connect or disconnect data cables during a thunderstorm.

When removing a cable, always hold it by the plug.

Connect and disconnect the cables in the order described below.

Connecting leads

- ▶ Turn off all power and equipment switches.
- ▶ Unplug all power plugs of grounded power sockets.
- ▶ Plug all cables into the server and peripherals.
- ▶ Plug all data communication cables into the utility sockets.
- ▶ Plug all power cables into the grounded power sockets.

Disconnecting leads

- ▶ Turn off all power and equipment switches.
- ▶ Unplug all power plugs of grounded power sockets.
- ▶ Unplug all data communication cables from the utility sockets.
- ▶ Pull the corresponding cables out from the server and from the peripherals.

5 Commissioning and Operation



CAUTION!

Please note the safety instructions in [chapter “Important Notes” on page 19](#).

5.1 Operating and Indicator Elements

5.1.1 The Front

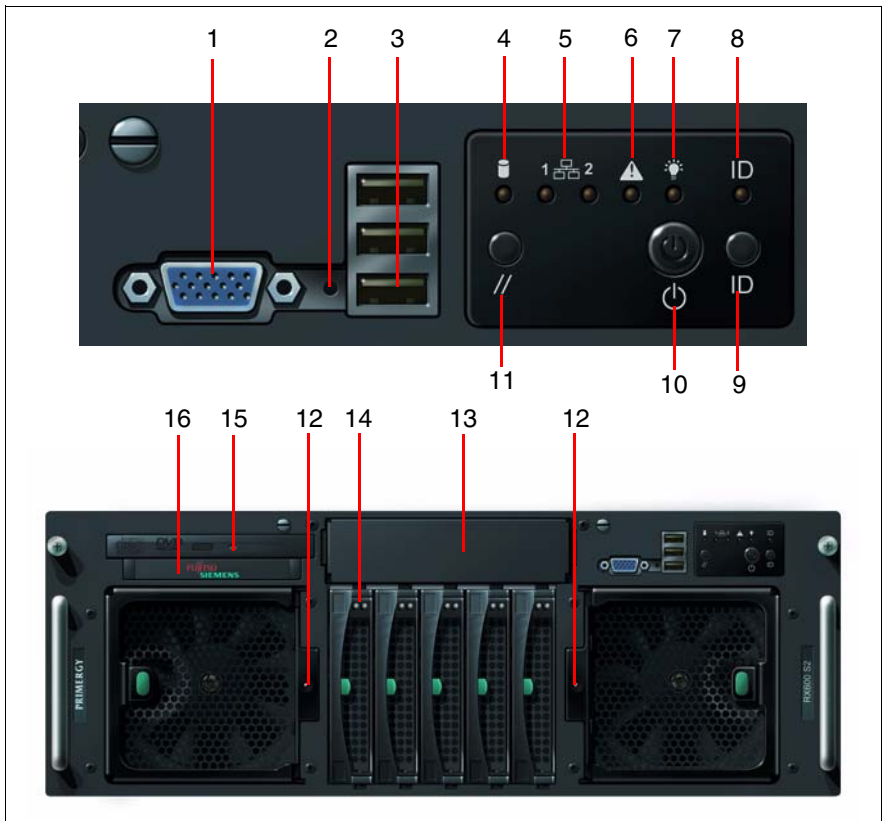


Figure 14: General front view (below), detail: connecting and operating panel (above)

1	VGA port	9	ID button
2	NMI button	10	ON/OFF button
3	USB ports (3)	11	Reset button
4	Drive active indicator	12	Fan indicator (see “Indicators on the Hot-plug Fans” on page 57)
5	LAN active indicators (2)	13	Accessible drive (optional)
6	Global Error indicator	14	Hard disk drive control indicators (see page 56)
7	Power-on indicator	15	CD/DVD-ROM drive indicator (see “CD/DVD-ROM Indicator” on page 53)
8	ID indicator	16	System indicator (see “System Indicator (LocalView)” on page 53)

5.1.1.1 Operating Elements

NMI NMI button



Please do not press! The NMI button may only be used by the Service.

// Reset button

Pressing the reset button reboots the system.



ON/OFF button

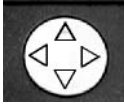
When the system is switched OFF, it can be switched ON again by pressing the ON/OFF button. When the system is operating, pressing the ON/OFF button will switch OFF the system. For more information see [“Other ON/OFF Possibilities”](#) on page 62.



The ON/OFF button does not disconnect the server from the mains. To disconnect from the mains completely, remove the power plugs.

ID ID button

Pressing the ID button lights up the ID LEDs (blue) on the front and on the rear of the server. The two ID LEDs are synchronized.



Menu selection button for system indicator (LocalView)

The Menu selection button is used to control the LCD for the system indicator (LocalView). It allows switching between the indication modes and scrolling within the indication modes.

Pressing the Menu selection button only briefly (for less than 1 second) allows you to scroll within the indication mode.

Pressing the Menu selection button for longer than 1 second allows you to change the indication mode. The Menu selection button works regardless of the setting.

For more information see section [“System Indicator \(LocalView\)” on page 53](#).

5.1.1.2 Indicators on the Operating Panel

Drive active indicator

Lights or flashes green when one of the SCSI disks controlled by the onboard SCSI controller is being accessed.

Lights or flashes orange when an error or another event has occurred (see [“Hard Disk Drive Indicators” on page 56](#)).



LAN active indicators (green) for the LAN ports 1 and 2 on the rear.

Flashes when a LAN transfer occurs.



Flashing is synchronous with the LAN indicators on the rear of the server (see [“LAN Indicators on the Connection Panel” on page 58](#)).



Global Error indicator (green/orange)

Does not light when power is switched OFF or a POST error has occurred.

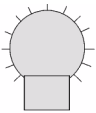
Lights green when the system is ok. The power is ON, no service incident or event has occurred.

Flashes green when a processor or a memory component has failed.

Lights orange when a critical event has occurred. Users can check the *BIOS Setup* or the system and event log via *ServerView* for event details.

Flashes orange when a non-critical (prefailure) event has been recognized. Users can check the system and event log via *ServerView* for event details.

If the event is still acute after a power failure, the indicator is activated after the restart.



Power-on indicator (green)

Lights when the server is switched ON.

Flashes when the server is switched ON and is in sleep mode (ACPI status S1)

Does not light when the server is switched OFF.

ID ID indicator (blue)

Lights blue when the system has been selected by pressing the ID button. To deactivate, press the button again.

The ID indicators (blue) on the front and on the rear of the server light up synchronously when the ID button is pressed.

The ID indicator can also be activated via *ServerView* and its status reported to *ServerView*.

5.1.1.3 Indicators on the Accessible Drives/Components

CD/DVD-ROM Indicator

Lights green when the storage medium is being accessed.

System Indicator (LocalView)

A drawer mechanism allows you to pull out the LocalView control panel from the system housing in order to read off information. Press on the front of the module to release the catch.

You can also swivel the LocalView control panel down 120° from its normal position. This makes it easier to read if the server is located very high up in the rack.

The following messages are displayed in the alphanumeric system indicator (LocalView):

- System information
- Hardware system errors
- BIOS messages (POST codes)
- BIOS errors (error class and code)

If no system errors occur in the start phase, the system indicator changes to system information mode. This is the normal indication mode.

If errors occur during operation, the system indication automatically changes to system error mode and remains in this mode until the indication mode is changed using the Menu selection button.

System Information Mode

The system indication is in system information mode during normal operation. The administrator can decide what information will be displayed in this mode. It should however uniquely identify the system.

The information entered is not evaluated by the system in any way, i.e. there is no relationship with real system settings such as IP addresses or server names in the network. Two entries are always displayed at a time. The next two entries are displayed by briefly (for less than 1 second) pressing the Menu selection button on the control panel.

Pressing the Menu selection button for longer than 1 second allows you to change the indication mode. The Menu selection button works regardless of the setting.

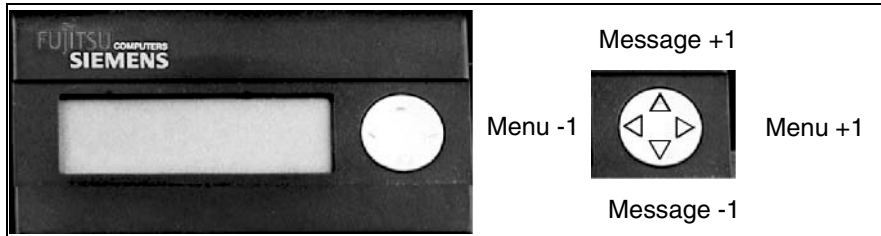


Figure 15: The system indicator (LocalView) LCD and the Menu selection button

Message selection	Button pressed:	Displays the menu name and the message number xofx
	Button released:	Displays the message
	Upwards arrow:	Next message
	Downwards arrow:	Previous message
Menu selection	Button pressed:	Displays the menu name
	Button released:	Displays the current entry
	Arrow left:	Previous menu
	Arrow right:	Next menu
No entries in the menu		Displays the menu name + "No entries available"

System Error Mode

If serious errors occur during normal operation, the system indicator automatically switches to system error mode and displays the error.

Each error message comprises two lines: The first line contains the error description and the second the date and time of its occurrence.

All error messages are stored in a non-volatile memory. The records of error messages can be queried at any time by switching from system information mode to system error mode using the Menu selection button and scrolling forwards and backwards through the error messages.

5.1.1.4 Hard Disk Drive Indicators

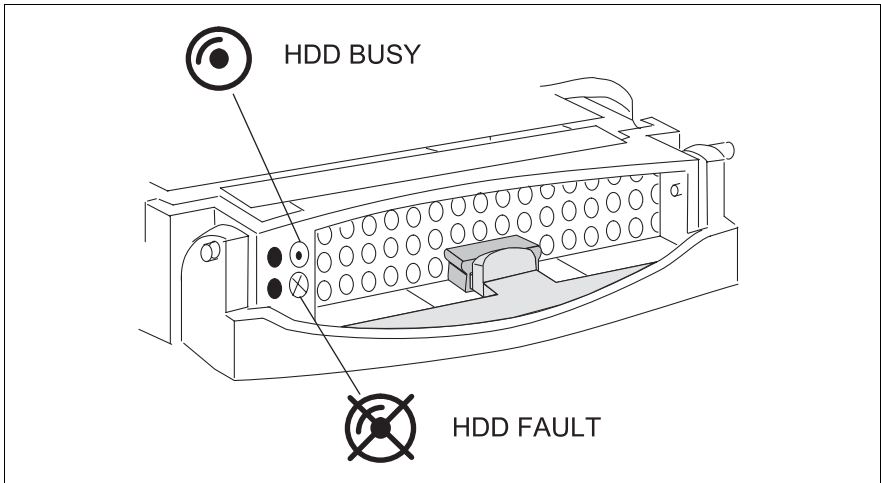


Figure 16: Hard disk drive indicators

<p>LED green</p>	<p>HDD BUSY</p> <ul style="list-style-type: none"> – lights: HDD in active phase – does not light: HDD inactive
<p>LED orange</p>	<p>HDD FAULT (in conjunction with a RAID controller)</p> <ul style="list-style-type: none"> – does not light: No HDD Error – lights: HDD Faulty or Rebuild Stopped (drive defective/needs replacing, a rebuild process was stopped or the HDD module is not correctly inserted) – slow blink: HDD Rebuild (the data is restored by the RAID controller after changing a hard disk drive) – fast blink: HDD Identify – four fast blinks/pause: HDD Predicted Fault – two fast blinks/pause: HDD Hot Spare (Hot spare drive active. The corresponding drive has failed).

If permanent errors are shown by a HDD fault indicator, the drive in question should be replaced as soon as possible. This can be done while the system is operating (see [“Hot-plug Hard Disk Drives”](#) on page 78).

5.1.1.5 Indicators on the Hot-plug Fans

The server has two fan units with two system fans each. The fan status indicator (LED) visible on the front side is valid for **both** fans in one unit.



Figure 17: Fan status indicator (right fan unit)

LED	Meaning
is off	Both fans in the corresponding fan unit are ok.
lights orange	At least one fan is defective. The corresponding fan unit must be replaced (see “Replacing a Hot-plug System Fan Unit” on page 77).

5.1.2 The Rear

5.1.2.1 LAN Indicators on the Connection Panel

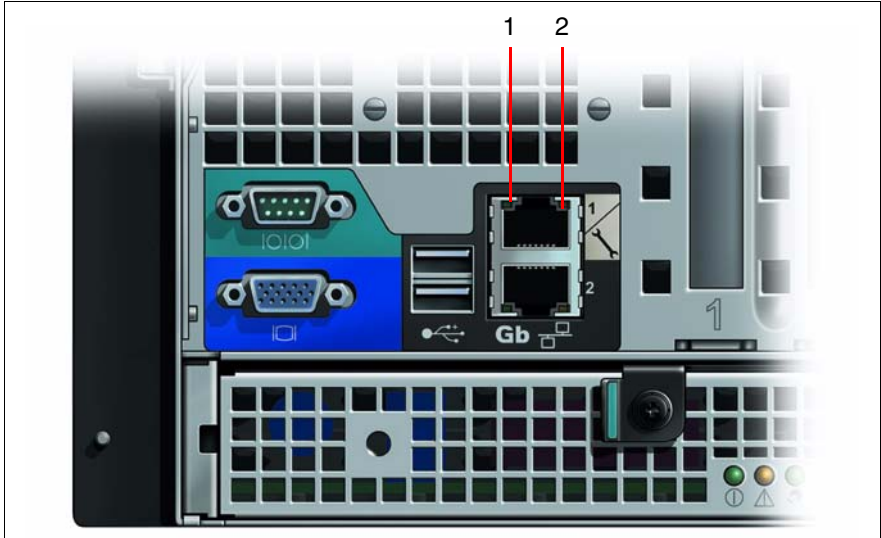


Figure 18: LAN indicators on the rear (left)

1	<p>LAN active indicator (green)</p> <p>Flashes when a LAN transfer occurs.</p> <p>i Flashed synchronously with the LAN indicators on the front side of the server (see “Indicators on the Operating Panel” on page 51).</p>
2	<p>LAN transfer rate indicator (green/orange)</p> <p>OFF: 10 Mbps transfer rate (or no connection)</p> <p>Lights green: 100 Mbps transfer rate</p> <p>Lights orange: 1000 Mbps transfer rate</p>

i The two LAN ports are "mirrored", thus turned by 180 degrees. However, opposite LEDs on both LAN ports have the same meaning.

5.1.2.2 ID indicator and ID button

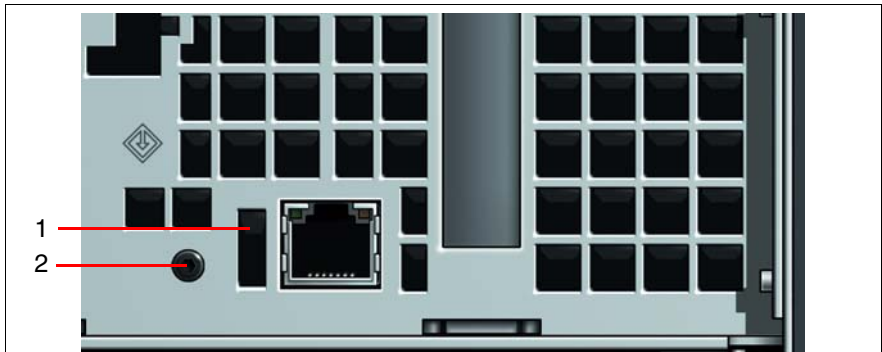


Figure 19: ID indicator and ID button (right)

1	<p>ID indicator (blue)</p> <p>Lights blue when the system has been selected by pressing the ID button (2). To deactivate, press the button again.</p> <p>The ID indicator can also be activated via <i>ServerView</i> and its status reported to <i>ServerView</i>.</p>
2	<p>ID button</p> <p>The ID indicators on the front and on the rear of the server light up synchronously when the ID button is pressed.</p>

5.1.2.3 Indicators on the Hot-plug Power Supply Units

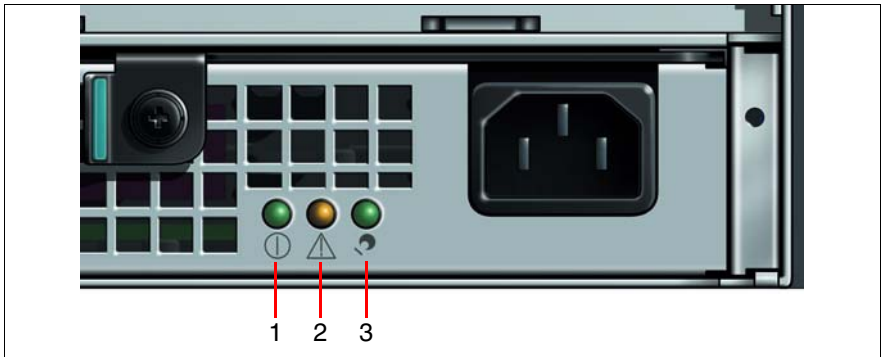


Figure 20: Indicators on the power supply units (right unit)

1	Operating indicator (green) Lights when the server is switched ON and running.
2	Error indicator (orange) Lights when an error has occurred in the power supply unit.
3	Power indicator (green) Lights when the server is connected to the mains.

When the server is operating normally, LED 1 and 3 light permanently. LED 2 does not light. As soon as LED 2 is lighting, thus signalling an error, the corresponding power supply unit should be replaced as soon as possible. This can be done during operation (see [“Replacing a Hot-plug Power Supply Unit” on page 75](#)).

5.2 Switching the Server ON and OFF



CAUTION!

If after switching ON the server there is nothing but flickering stripes on the screen, switch the server OFF immediately (see [chapter “Problem Solutions and Tips” on page 71](#)).

The ON/OFF button does not disconnect the server from the mains. To disconnect from the mains completely, remove the power plugs.

Switching the Server ON

The power-on indicator on the front does not light (position 7 on [figure 14 on page 49](#)). The power indicator on the power supply units lights when the server is connected to the mains (position 3 in [figure 20 on page 60](#)).

- First system installation:
 - ▶ Press the ON/OFF button (position 10 in [figure 14 on page 49](#)).
The power-on indicator lights green.
 - ▶ Insert the *ServerStart*-CD into the CD/DVD drive.
 - ▶ Follow the instructions on the monitor (see also [section “Configuration with ServerStart” on page 64](#) or [section “Configuration without ServerStart” on page 65](#)).
- System already installed:
 - ▶ Press the ON/OFF button (position 10 in [figure 14 on page 49](#)).
The server is switched ON, performs a system test and boots the operating system.

Switching the Server OFF (ACPI-compatible Operating Systems, e.g. Windows 2000, Linux)

Power-on indicator lights green (position 7 on [figure 14 on page 49](#)).

- ▶ Shut down the operating system in an orderly manner.
The server is switched OFF automatically and goes to standby mode. The power-on indicator is dark.

Switching the Server OFF (non ACPI-compatible Operating Systems)

Power-on indicator lights green (position 7 in [figure 14 on page 49](#)).

- ▶ Shut down the operating in an orderly manner.

The server remains switched ON and the power-on indicator remains green.

- ▶ Press the ON/OFF button (position 10 in [figure 14 on page 49](#)) or use one of the possibilities described in “[Other ON/OFF Possibilities](#)” on [page 62](#).

The server switches OFF and the power-on indicator is dark.

Other ON/OFF Possibilities

In addition to the ON/OFF button, the server can be switched ON and OFF in the following ways:

- Specified **switch-On time/switch-OFF time**

The server is automatically switched ON or OFF at a time specified in the *ServerView* program.

- **Ring indicator**

The server is switched ON via an internal or external modem.

- **Wakeup On LAN (WOL)**

The server is switched ON by a command via the LAN.

- **After power failure**

The server automatically switches ON following a power failure (depending of the settings in the BIOS).

- **Power override function**

The system may be switched OFF "unconditionally" by pressing the ON/OFF button for about 4 to 5 seconds.



CAUTION!

Data loss may occur!

- **IPMI**

The server is switched ON by an IPMI console (via the serial COM1 port or via the RJ45 LAN port).

5.3 Configuring the Server

This section contains information about configuring the server and installing the operating system.

i Make sure that the energy saving functions are disabled in the *BIOS Setup* during server operation.

5.3.1 Configuring the SCSI RAID Controller

You may configure the RAID either before running *ServerStart* or with *ServerStart*. Usage of *ServerStart* is recommended.

Configuring the SCSI RAID controller is either performed via the BIOS configuration utility (calling CTRL-h during BIOS POST) or with the *ServerStart* CD using *GAM* (Global Array Management).

More information is contained in the controller documentation on the *Server-Books* CD in section "controllers", see also "[Related publications](#)" on page 107.

i Note on *SCSI-IDs*:
Please note that the SCSI-IDs for the hot-plug hard disk drives are permanently assigned (from left to right: channel A: from A0 to A2 and channel B: from B0 to B1).

i Descriptions of operating systems not covered in the RAID controller manual are provided in the appropriate readme files on the driver CDs.

i If the RAID functionality is not activated on the RoMB, the onboard SCSI controller should be configured using CTRL-c during BIOS-POST.

5.3.2 Configuration with ServerStart

With the *ServerStart*-CD provided, you can configure the server and install the operating system in a convenient manner. The menu-guided configuration includes the server configuration with the *SCU* and the RAID controller configuration with *GAM* (Global Array Manager).

The ServerStart Advantages

- Automatic configuration of your server's hardware and disk arrays.
- Installation assistance for all leading server operating systems.
- Creation of configuration files for unattended installation of several PRIMERGY servers with identical hardware configurations.
- Installation of drivers and additional software.



The software that can be installed depends on your server's hardware configuration. This configuration is detected automatically.



Descriptions of operating systems not covered in the RAID controller manual are provided in the appropriate readme files on the driver CDs.

To find out how to operate *ServerStart* and for further information, refer to the corresponding *ServerStart* manual (see [“Related publications” on page 107](#)).

If you use *ServerStart*, you can skip the following section on how to configure the server and install the operating system. Continue with [section “Cleaning the Server” on page 66](#).

5.3.3 Configuration without ServerStart

Configuring the Onboard SCSI Controller

Configure the SCSI controller as described in section [“Configuring the SCSI RAID Controller”](#) on page 63.

Configuring a PCI RAID Controller

If your server has an additional PCI RAID controller, configure it as described in the pertaining documentation.

Installing the Operating System

- ▶ Insert the installation disk and the CD of the operating system you want to install.
- ▶ Reboot the server.
- ▶ Follow the instructions on the screen and in the manual for the operating system.

If your server has a RAID controller, please read in the pertaining controller manual how to install the desired operating system.

5.4 Cleaning the Server



CAUTION!

Switch the server off, and pull the power plugs out of the grounded-contact power sockets.

Do not clean any interior parts yourself; leave this job to a service technician.

Do not use any cleaning agents that contain abrasives or may corrode plastic.

Ensure that no liquid enters the system. Ensure that the ventilation areas of the server and the monitor are free.

Use a cloth for disinfection to clean the keyboard and the mouse.

Wipe the server and monitor casing with a dry cloth. If particularly dirty, use a cloth that has been moistened in a mild domestic detergent and then carefully wrung out.

6 Property and Data Protection

6.1 Mechanical Access Protection

The server is protected against unauthorized access by means of a lockable rack door.

6.2 BIOS Setup Security Functions

The *System Security* menu in *BIOS Setup* offers you various options for protecting your data from unauthorized access. For example, you can assign passwords for users and administrators. By combining these options in a meaningful way, you can achieve optimum protection for your system.



You will find a detailed description of the *Security* menu and how to assign passwords in the BIOS manual for the D2352 system board on the *ServerBooks* CD (see also [“Related publications” on page 107](#)).

7 Problem Solutions and Tips



CAUTION!

Observe the safety information in the manuals "Security" and in [chapter "Hardware Installation" on page 31](#).

If a problem occurs, try to resolve it as described:

- in this chapter,
- in the documentation for the attached devices,
- in the help systems of the software used.

If you fail to correct the problem, proceed as follows:

- ▶ Make a note of the steps and the circumstances that led to the fault. Note also any error message which may have been displayed.
- ▶ Switch the server OFF.
- ▶ Contact our Service organization.

7.1 Power-on Indicator Remains Dark

The power-on indicator remains dark after switching ON:

Power cable not connected correctly

- ▶ Make sure that the power cables are correctly connected to the server and to the grounded power sockets.

Power supply overloaded

- ▶ Pull the server power plugs out of their sockets.
- ▶ Wait a few seconds and plug the power plugs into their grounded sockets again.
- ▶ Switch your server ON.

7.2 The Server Switches itself OFF

Server management has detected an error

- ▶ Check the error list or the ErrorLog file in the *ServerView* program, and attempt to eliminate the error.

7.3 The Monitor Remains Dark

Monitor is switched OFF

- ▶ Switch ON your monitor.

Power saving has been activated (screen is blank)

- ▶ Press any key on the keyboard.
or
- ▶ Deactivate screen blanking (screen saver). Enter the appropriate password.

Brightness control is set too dark

- ▶ Adjust the brightness control to increase the brightness. For detailed information, please refer to the operating manual supplied with your monitor.

Power cable or monitor cable not connected

- ▶ Switch OFF the monitor and the server.
- ▶ Check whether the power cable is properly connected to the monitor and to the power socket.
- ▶ Check whether the monitor cable is properly connected to the server and monitor (if it is connected with a plug). If a separate graphics card is installed in the server, then the monitor cable must be connected to the connection on this graphics card.
- ▶ Switch ON the monitor and the server.

7.4 Flickering Stripes across the Monitor



CAUTION!

Switch OFF the server immediately. Risk of damaging the server.

Monitor does not support the set horizontal frequency

- ▶ Find out which horizontal frequency your monitor supports. You will find the horizontal frequency (also known as line frequency or horizontal deflection frequency) in the documentation for your monitor.
- ▶ Refer to the documentation for your operating system or to the corresponding software for the monitor controller for how to set the correct horizontal frequency for your monitor, and follow the procedure accordingly.

7.5 No Monitor Display or Display Drifts

The wrong horizontal frequency and/or resolution has been selected for the monitor or for the application program.

- ▶ Find out which horizontal frequency your monitor supports. You will find the horizontal frequency (also known as line frequency or horizontal deflection frequency) in the documentation for your monitor.
- ▶ Refer to the documentation for your operating system or to the corresponding software for the monitor controller for how to set the correct horizontal frequency for your monitor, and follow the procedure accordingly.

7.6 Time and/or Date are Incorrect

- ▶ Set the time and/or date in the operating system or in the *BIOS Setup Main* menu.



If the time and date are repeatedly wrong when you switch on your server, you must change the lithium battery (for a description, see the Technical Manual for the D2352 system board), or contact our Service organization.

7.7 System Fails to Boot

The system fails to boot after installing a new hard disk drive.

SCSI configuration incorrect

- ▶ Check the settings for the hard disk drives in the SCSI configuration menu.

7.8 Drives "dead" at System Boot

RAID controller configuration incorrect

- ▶ Check and correct the settings for the drives with the RAID controller utility.

Further information is provided in the manual on the RAID controller.

7.9 Added Drive Defective

RAID controller is not configured for this hard disk drive

The drive was installed with the system switched OFF.

- ▶ Reconfigure the RAID controller for the drive with the corresponding utility. Information is contained in the documentation on the RAID controller.

or

- ▶ Re-insert the HDD module with the system switched ON into a free module bay.

If the hard disk drive continues to be shown as defective, then replace it (see [section "Installing/Removing a HDD/Dummy Module" on page 80](#)).

7.10 Error Messages on the Monitor

The meaning of the error messages is explained in the *BIOS Setup* manual and in the documentation for the relevant components and programs on the PRIMERGY *ServerBooks* CD.

7.11 Error Messages on the Control Panel (LocalView)

Error messages always consist of two lines. The first line contains the error message, the second line the date and time in the format month/day/year hours:minutes (e.g. 01/28/00 11:39).

8 Hot-plug Components

This chapter describes how to handle hot-plug components and/or how to modify your server hardware.

The hot-plug procedure (replacing and adding components while the system is operating) enhances the availability of system operation, ensuring a high degree of data security and system stability.

First, hot-plug components are described which are directly accessible from the outside: power supply units, fans and HDD modules. After that, hot-plug components are treated which are only accessible after removing the cover: memory boards and PCI boards.



CAUTION!

Please observe the safety information in [chapter “Important Notes” on page 19](#).



CAUTION!

Defective hot-plug components should be replaced as soon as possible. Above all, this applies to system fans and power supply units.



Upgrading or replacing fix installed components is described in the Options Guide or in the Service Manual and may only be performed by qualified maintenance staff.

8.1 Replacing a Hot-plug Power Supply Unit

The server has two hot-plug power supply units installed, ensuring a redundant power supply. If one unit fails, the other unit ensures unimpaired further operation. The defective power supply unit can be replaced during operation.



CAUTION!

Before replacing a **non-defective** hot-plug power supply unit in a non-redundant configuration (only **one** power supply unit present), the server **must** be switched OFF.

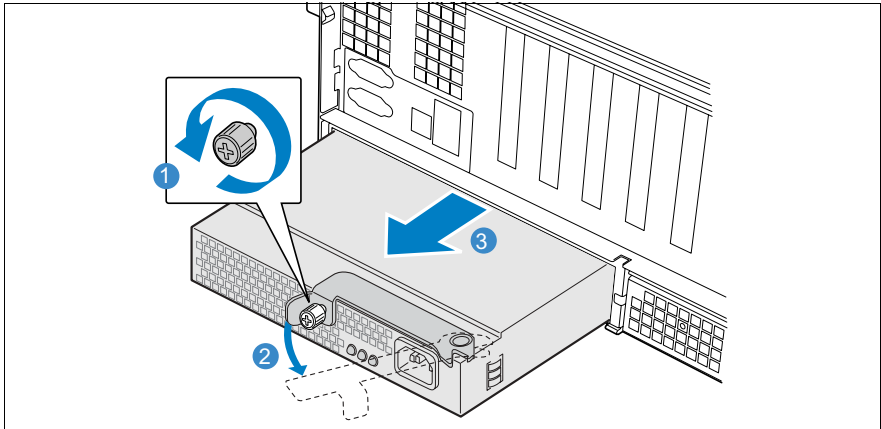


Figure 21: Releasing and pulling out a power supply unit

- ▶ Remove the cable from the defective power supply unit.
- ▶ Release the thumbscrew (1) and rotate the handle in the direction of the arrow (2).
- ▶ Pull the defective power supply unit completely out of the bay (3), using the handle.



CAUTION!

Never leave the power supply bay empty for longer than two minutes during operation. Otherwise, system components might be damaged because of excessive temperatures.

- ▶ With the handle in the open position, insert the new power supply unit into the free bay until it engages.
- ▶ Rotate the handle to the close position and tighten the thumbscrew (1).



Please ensure that the new power supply unit engages correctly in the bay and is locked in position.

This is the only way to avoid the power supply unit being shaken out of its mountings and damaged during transport.

- ▶ Connect the new power supply unit to the mains.

If the unit is operating normally, the green LEDs 1 and 3 on the power supply unit should be lighting (see [“Indicators on the Hot-plug Power Supply Units” on page 60](#)).

8.2 Replacing a Hot-plug System Fan Unit

The server has two pairs of redundant system fans (2+2) installed. Each pair is contained in a fan unit accessible from the server front.

The failure of a system fan is notified by the Global Error indicator on the server front and on the respective system fan unit (both LEDs light orange, see [“Indicators on the Operating Panel” on page 51](#) and [“Indicators on the Hot-plug Fans” on page 57](#)).

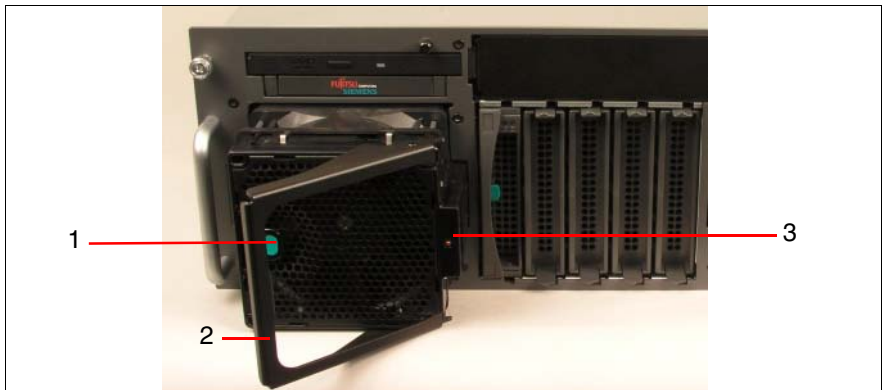


Figure 22: Releasing and pulling out the left fan unit

- ▶ Press the green button (1).
The handle (2) is released.
- ▶ Pull the defective fan unit out of the bay, grasping it by the handle (2).



CAUTION!

Never leave the fan unit bay empty for longer than two minutes during operation. Otherwise, system components might be damaged because of excessive temperatures.

- ▶ Insert the new fan unit into the free bay and push the handle closed until it clicks into place.

The new fan unit is tested by Server Management. The relevant LED (3) then either does not light at all (fan is working properly) or lights orange (fan is not working properly).

8.3 Hot-plug Hard Disk Drives

Up to five U320 SCSI hard disk drives can be installed into the server.

The hard disk drives are built on a carrier which allows defective drives to be replaced or new drives to be added during operation. The hard disk drive and the carrier constitute the hard disk drive module (called "HDD module" in the following sections).

**CAUTION!**

Only a service technician may remove a hard disk drive from the HDD module.

**CAUTION!**

The HDD modules (drives) must be marked clearly so that they can be put back into their original place after an upgrade. If this is not taken into account, existing data can be destroyed.

**CAUTION!**

The hot-plug function can only be performed together with a corresponding RAID configuration.

Further information about RAID configurations or RAID levels can be found in the RAID controller documentation (see [“Related publications” on page 107](#)).

8.3.1 Handling HDD Modules

Hard disk drives incorporated in the HDD modules are highly sensitive electromagnetic devices and must be handled with great care. It is extremely likely that an incorrect handling will lead to a partially and/or total failure of the hard disk drives.

These failures will result in data errors and to loss of data or to total destruction of the hard disk drive.

Please observe following rules, which will help to avoid the occurrence of this type of problems:

- Store and transport HDD modules only within the limits stipulated in the specification.
- When transporting HDD modules (even over short distances), always use the original packaging (ESD labeling).
- Never expose a HDD module to a temperature shock. Avoid the formation of condensation inside and on the outside of the hard disk drives.



CAUTION!

The HDD module must be acclimatized in its operating environment for an acclimatization time.

Temperature difference (°C) (operating environment/outside)	Minimum acclimatization time (hours)
5	3
10	5
15	7
20	8
25	9
30	10

Table 3: Acclimatization time for the HDD module

- ▶ Always put the HDD module down carefully, with its largest surface facing downwards, to avoid the danger of tipping over.

8.3.2 Installing/Removing a HDD/Dummy Module

Removing the Dummy Module

Free slots are provided with a dummy module (an empty carrier) which must be removed before installing an additional HDD module.

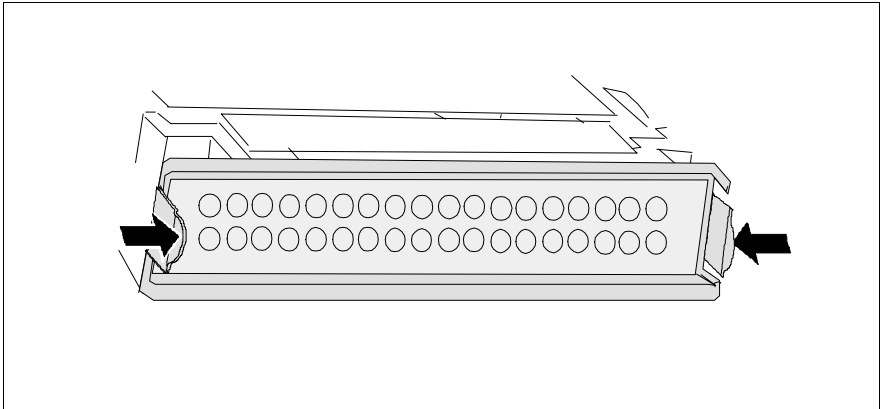


Figure 23: Removing the dummy module

- ▶ Press both tabs on the dummy module together (see [figure 23](#)) until the locking mechanism disengages, and remove the dummy module from the slot.

Installation of the dummy module occurs in reverse order.



CAUTION!

Keep the dummy module for future use. If the HDD module is removed again and is not replaced with a new module, then the dummy module must be reinstalled due to cooling, the applicable EMC (electromagnetic compatibility) regulations and fire protection.

Unlocking the HDD Module

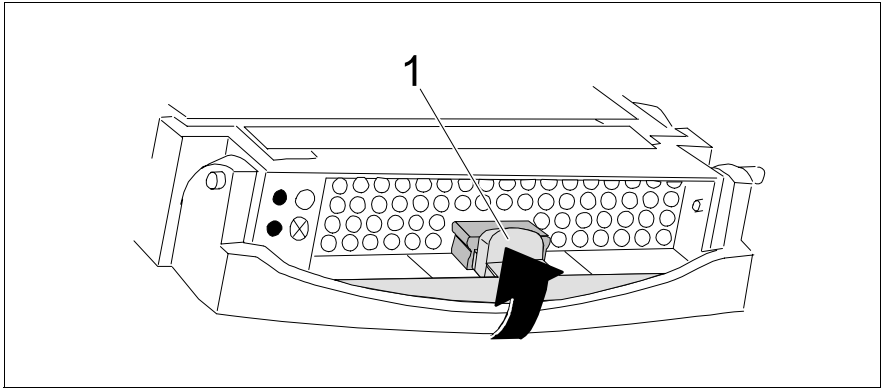


Figure 24: Unlocking the HDD module

- ▶ Release the locking mechanism by pressing the locking button (1).
- ▶ Push the handle of the HDD module fully in the direction of the arrow.



If the HDD modules are provided with a transport lock (1 in [figure 25](#)), remove it before you release the locking mechanism.

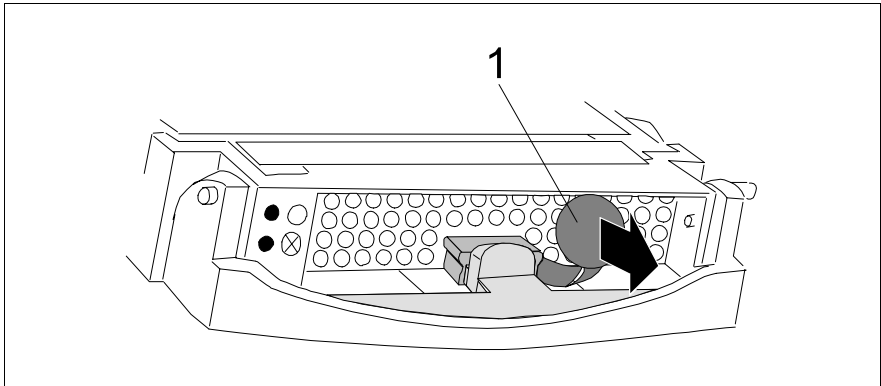


Figure 25: HDD module: removing the transport lock

Installing the HDD Module



Figure 26: Installing the HDD module

- ▶ Insert the HDD module with the opened handle carefully into the empty slot until it stops.

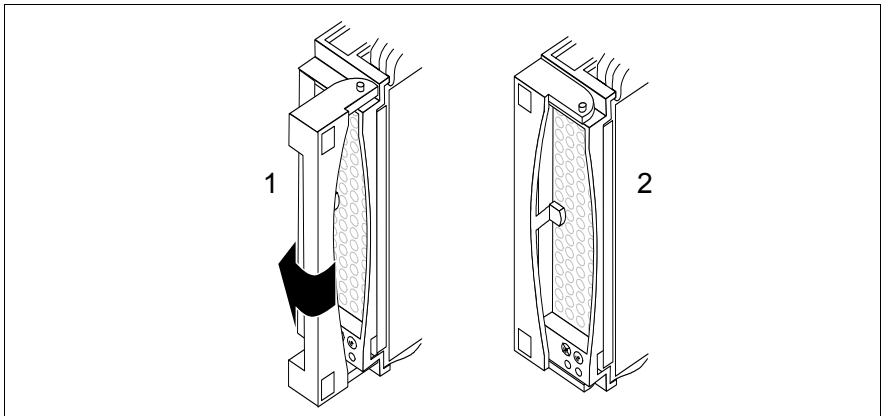


Bild 27: Locking the HDD module

- ▶ Push the module handle completely in the original position (1) until the locking mechanism engages (2).

Replacing the HDD Module

If you want to replace a HDD module during operation, proceed as follows:

- ▶ Pull out the HDD module by a few centimeters.



CAUTION!

Under no circumstances should you remove a HDD module while the system is in operation, if you are not sure that the hard disk drive is operated by a RAID controller and belongs to a disk array which is operating in RAID level 1, 5, 10 or 50.

Only pull out a HDD module if the drive is **not being accessed**.

Observe the control LEDs for the corresponding HDD module (see [“Hard Disk Drive Indicators” on page 56](#)).

- ▶ Wait for at least 60 seconds.



This period is necessary for the RAID controller to recognize that a HDD module has been pulled out and for the hard disk drive to come to a stop.

- ▶ Pull out the HDD module completely.
- ▶ Insert the new HDD module, as described in [“Unlocking the HDD Module” on page 81](#) and in [“Installing the HDD Module” on page 82](#).



CAUTION!

If the HDD module is removed and not replaced with a new module, then the dummy module must be reinstalled due to cooling, the applicable EMC (electromagnetic compatibility) regulations and fire protection. Make sure that the retaining clips of the dummy module engage correctly in the location.

8.4 Hot-plug Memory Boards



CAUTION!

The actions described in these instructions should only be performed by technical specialists. Equipment repairs should only be performed by authorized, qualified staff. Any unauthorized openings and improper repairs could expose the user to risks (electric shock, energy hazards, fire hazards) and could also damage the equipment.

Please observe the safety information in [chapter “Important Notes” on page 19](#).

The following operations are possible while the system is running:

- **Hot-replace:** Replacing defective memory boards (see [“Removing a Hot-plug Memory Board” on page 85](#) und [“Inserting a Hot-plug Memory Board” on page 87](#))



CAUTION!

Hot-replace during system operation is only possible if the memory boards are in a redundant configuration in *BIOS setup*. This means they must either be in mirroring mode or in RAID mode.

- **Hot-add:** Inserting new memory boards into empty slots (see [“Removing the Dummy Module” on page 86](#) und [“Inserting a Hot-plug Memory Board” on page 87](#))



CAUTION!

If mirroring mode or RAID mode is not specified in *BIOS setup*, hot-add during system operation is only possible if "maximum compatibility" in configured in *BIOS setup*.



Additionally, hot-add and hot-replace must be supported by the operation system. If the above conditions are not fulfilled, no hot-plug operations are possible. The server must then be shut down before the operation can be started.

Only memory boards of the same type and the same settings may be replaced or added. The new memory board will not be put into operation if the configuration is not consistent.

Replacing and adding DIMMs to the memory boards is described in the Options Guide.

8.4.1 Removing a Hot-plug Memory Board

- ▶ Remove the system cover (see [“Opening/Closing the Casing”](#) on page 98).



Figure 28: Preparing a memory board for removal

- ▶ Check the green mirroring (1) or RAID (2) indicator on the memory board.



If **none** of both indicators is lighting:

- ▶ Shut down the server and remove the memory board in powerless condition.
- ▶ Press the white attention button (4) on the memory board you want to remove.

The attention LED (3) is flashing: BIOS is preparing the memory board for removal.

- ▶ Wait until the attention LED (3) and **additionally** the green power LED (5) are OFF.

The memory board is now ready for removal.



If the attention LED (3) does not stop flashing, the memory board in question may not be removed. Either the configuration is not redundant (memory mirroring or memory RAID is not set in BIOS), or the configuration has lost its redundancy, e.g. because only three of four originally intact memory boards are still available in a RAID configuration.

- ▶ Shut down the server and remove the memory board in powerless condition.

- ▶ Press the green latch (2).
The green handle (1) is released.

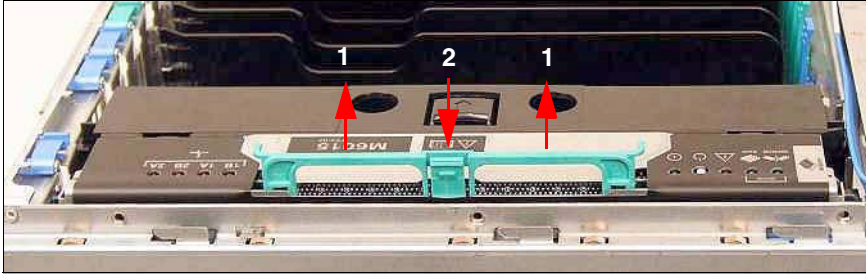


Figure 29: Pulling out a memory board

- ▶ Pull out the memory board in the direction of the arrow (1), grasping it by the green handle.
- ▶ To insert a new memory board, continue with section [“Inserting a Hot-plug Memory Board” on page 87](#).



CAUTION!

If the memory board is removed and not replaced with a new board, then the dummy module must be reinstalled due to cooling, the applicable EMC (electromagnetic compatibility) regulations and fire protection. Make sure that the dummy module engages correctly in its location.

8.4.2 Removing the Dummy Module

All memory board locations are provided with dummy modules which must be removed before inserting a new memory board.

- ▶ Remove the cover (see [“Opening/Closing the Casing” on page 98](#)).
- ▶ Insert your fingers into the two holes on the top of the dummy module.
- ▶ Push the tab between the two holes in the direction of the arrow and pull out the dummy module.



Keep the dummy module for future use.

8.4.3 Inserting a Hot-plug Memory Board

- ▶ Align the ends in the card guides and slide the memory board into the memory board slot.

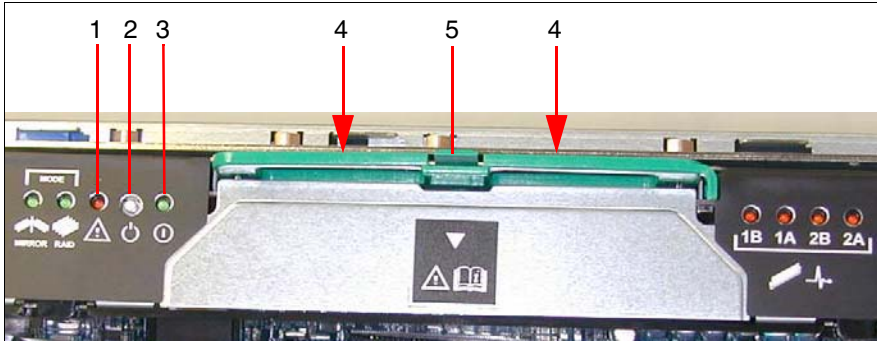


Figure 30: Inserting a memory board

- ▶ Push the green handle (4) down into the fully locked position until the latch (5) engages.
- ▶ Push the white attention button (2) to integrate the new memory board into the system.

The attention LED (1) is flashing. The integration procedure is running.

- ▶ Wait until the attention LED (1) stops flashing and the green power LED (3) is lighting.

The new memory board is integrated into the system.



If the green power LED (3) is not lighting, the new memory board was rejected by the system, e.g. because its size did not match the current configuration.

- ▶ Close the cover again (see [“Opening/Closing the Casing” on page 98](#)).

8.5 Hot-plug PCI Boards



CAUTION!

The actions described in these instructions should only be performed by technical specialists. Equipment repairs should only be performed by authorized, qualified staff. Any unauthorized openings and improper repairs could expose the user to risks (electric shock, energy hazards, fire hazards) and could also damage the equipment.

Please observe the safety information in [chapter “Important Notes” on page 19](#).



CAUTION

Each PCI slot of the server must be occupied by either a PCI board or a dummy module, which is a supporting plate attached to a pull-out aid.

The following operations are possible while the system is running:

- Replacing PCI boards (see [“Removing Hot-plug PCI Boards” on page 90](#) and [“Inserting a Hot-plug PCI Board” on page 96](#))



Only PCI boards of the same type and with the same settings may be exchanged. If the boards do not match, the new board will not be commissioned.

- Adding PCI boards (see [“Removing the Dummy Module” on page 94](#) and [“Inserting a Hot-plug PCI Board” on page 96](#))
- ▶ Before starting, you should read the accompanying documentation supplied with the board.



Figure 31: PCI slots with and without hot-plug functions



Hot-plug functions are only available for hot-plug PCI boards that are inserted in the PCI slots 1 - 5 (green retention latches, see [figure 31](#)).

The PCI slots 6 and 7 (blue retention latches in [figure 31](#)) are not for hot-plug use. The server must be switched OFF, before any PCI boards may be replaced or inserted additionally in these slots. This procedure is described in the Options Guide and in the Service Supplement, respectively.

8.5.1 Removing Hot-plug PCI Boards

- ▶ Open the cover (see [“Opening/Closing the Casing”](#) on page 98).
- ▶ If required by the operating system (e.g. Windows 2000), start the PCI hot-plug software (*PCI Card HotReplace*). You will find operating instructions in the file “README for the PCI Hot Plug Software V3.0” on the *ServerStart* CD.

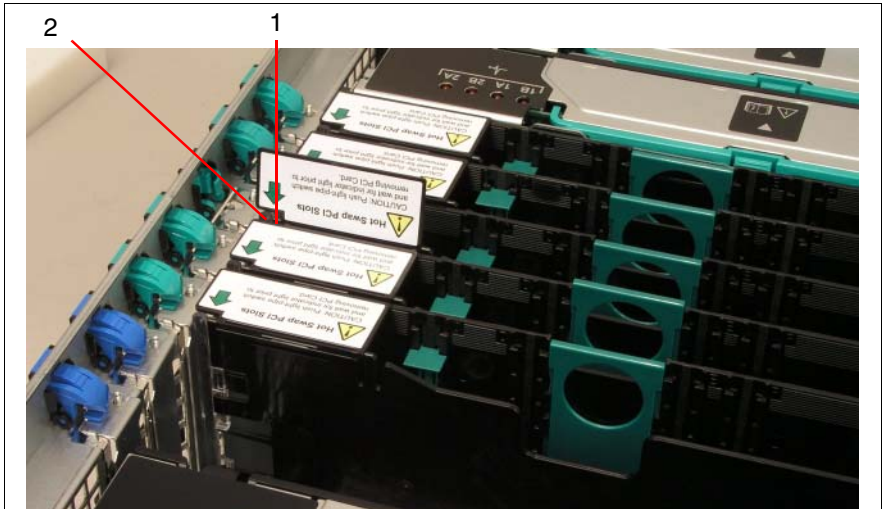


Figure 32: Deactivating a PCI board

- ▶ Deactivate the PCI board using by pressing the attention button (1, see [figure 32](#)) on the board.

The attention button (1) and the power indicator (2, LED) for the hot-plug PCI slot flash orange while the slot is in the disable sequence.

- ▶ Wait until the power indicator (2) goes out.

The slot is now powered off.

- ▶ If there are any cables connecting the PCI board, remove them carefully.



Figure 33: Unlocking a PCI board and removing it by its pull-out aid

- ▶ Open the locking of the PCI board by pushing the green retention latch to the left in the direction of the arrow until it slides out of its opening.

The PCI board is now mechanically unlocked.

- ▶ Take the pull-out aid by the green handle, and pull it together with the PCI board out of the PCI slot.



Do not pull at the PCI board.

Removing the PCI Board from the Pull-out Aid



CAUTION!

When removing the PCI board from the pull-out aid, pay special attention to the snap-fits holding it attached to the pull-out aid (see [figure 34 on page 92](#)). Do not lift them more than approx. 1 mm, i. e. only wide enough to have the PCI board released. Otherwise the snap-fits could be damaged.

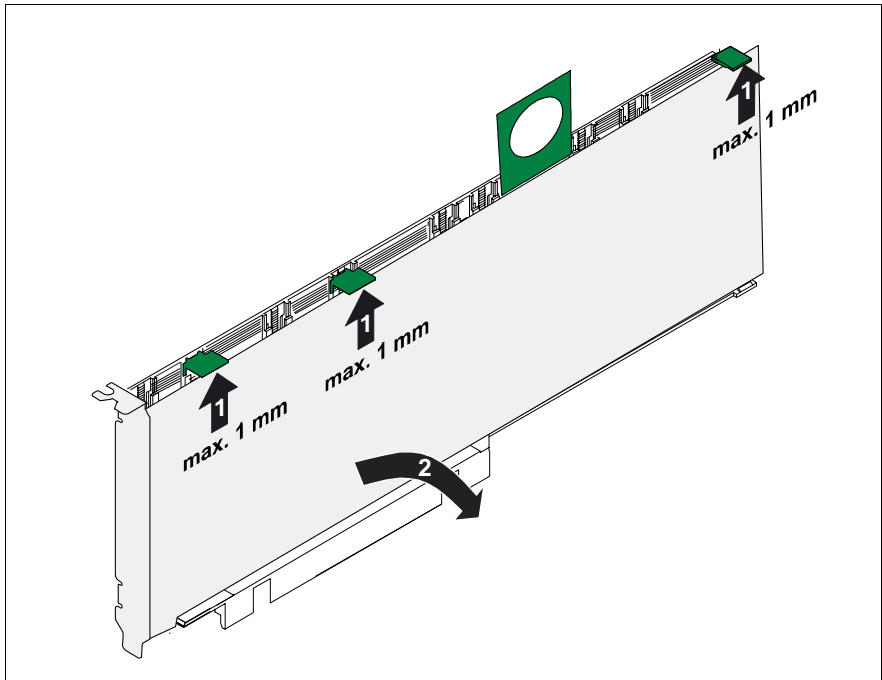


Figure 34: Removing the PCI board from the pull-out aid

- ▶ Lift the green movable snap-fits, but not more than approx. 1 mm (1), until the PCI board is released completely.
- ▶ Take the PCI board off (2), and put it aside.

Removing the Snap-fits

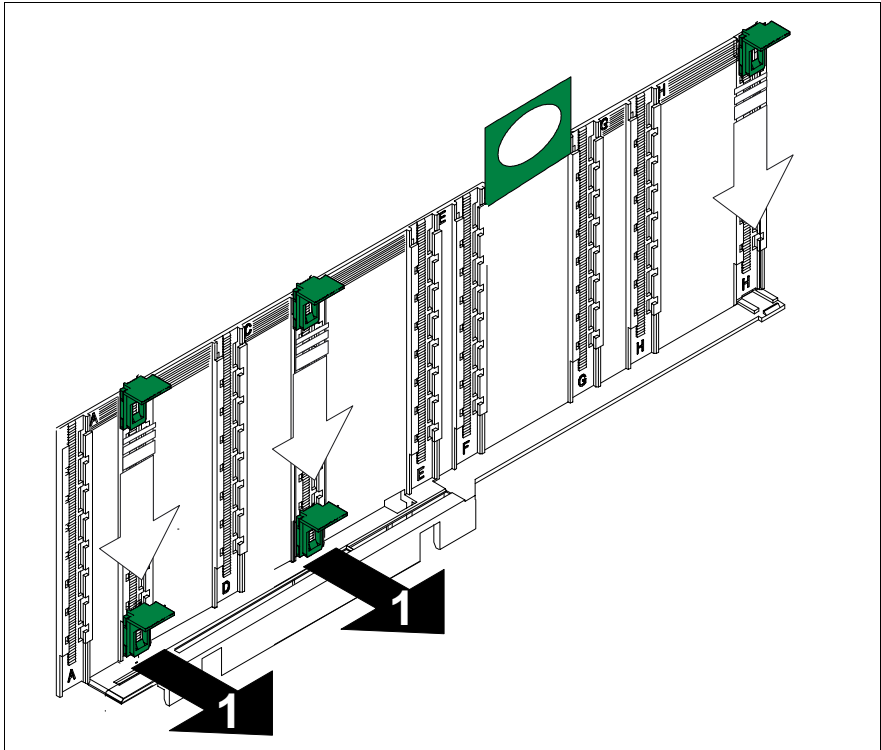


Figure 35: Removing the snap-fits from the pull-out aid

- ▶ Slide the green snap-fits downwards until they are released from the pull-out aid (1).
- ▶ Take the snap-fits (1) and keep them.
- ▶ For inserting a new PCI board please continue with section [“Inserting a Hot-plug PCI Board”](#) on page 96.



CAUTION!

If a PCI board is removed and not replaced with a new board, a dummy module must be reinstalled due to cooling, to comply with applicable EMC regulations (regulations on electromagnetic compatibility) and to protect against fire. Make sure that the dummy module engages correctly in its location.

8.5.2 Removing the Dummy Module

When no PCI board is inserted in a slot, the slot is occupied by a dummy module, which is a supporting plate attached to a pull-out aid.

Before inserting an additional hot-plug PCI board, the dummy module must be removed from the desired slot.

- ▶ Remove the cover (see [“Opening/Closing the Casing” on page 98](#)).
- ▶ Remove the dummy module in the same way as a PCI module (see [figure 33 on page 91](#)).

Removing the Supporting Plate from the Pull-out Aid

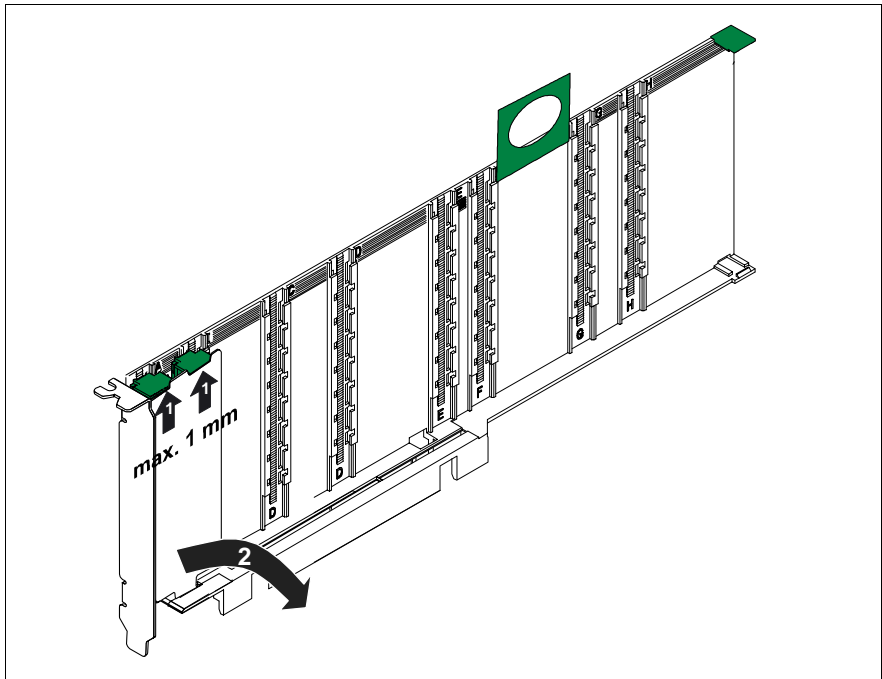


Figure 36: Removing the supporting plate from the pull-out aid



CAUTION!

When removing the PCI board from the pull-out aid, pay special attention to the snap-fits holding it attached to the pull-out aid (see [figure 34 on page 92](#)). Do not lift them more than approx. 1 mm, i. e. only wide enough to have the PCI board released completely. Otherwise the snap-fits could be damaged.

- ▶ Lift the green movable snap-fits, but not more than approx. 1 mm (1) until the PCI board is released completely.
- ▶ Take the supporting plate off (2), and put it aside.



Keep the supporting plate for future use.

- ▶ Slide the green snap-fits downwards until they are released from the pull-out aid (see [figure 35 on page 93](#)) and keep them.

8.5.3 Inserting a Hot-plug PCI Board

Inserting a PCI Board into the Pull-out Aid

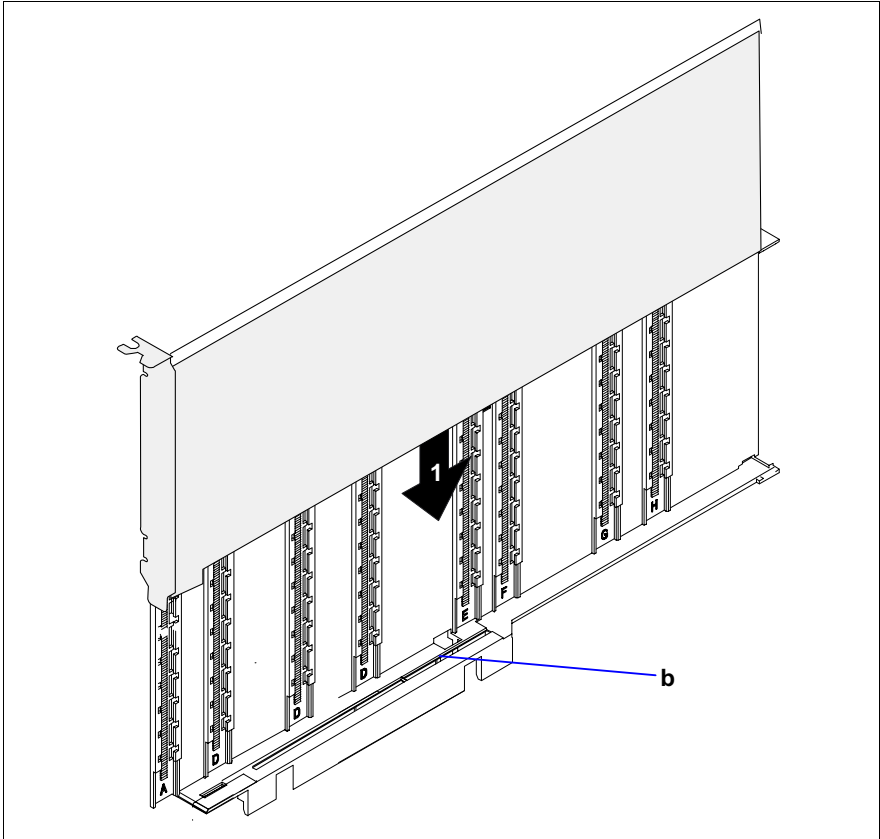


Figure 37: Inserting a new PCI Board into the pull-out aid

- ▶ Insert the new PCI board in the opening (b) provided for it in the pull-out aid (1).



This is not applicable for short and low-profile PCI boards.

- ▶ Insert one of the green snap-fits in the guidance and push it downwards, until it engages at the upper edge of the PCI board.

**CAUTION!**

Make sure that the connections on the PCI board are not blocked by snap-fits.

- ▶ Proceed in the same way using other snap-fits.

Commissioning a PCI Board

- ▶ Insert the PCI board attached to the pull-out aid in the PCI slot.
- ▶ Lock the PCI board (see [figure 33 on page 91](#)) by pushing the green latch back into the casing until it engages.
- ▶ If present, connect the cables of the new PCI board.
- ▶ Press the attention button (1, see [figure 32 on page 90](#)).

The attention LED and the power LED flash orange.
The slot is in the enable sequence.

- ▶ Wait until the attention LED and the power indicator light green.

The slot is now powered on.



If the attention LED keeps flashing, an error has occurred.

- ▶ Remove the PCI board and repeat the procedure.
- ▶ Close the cover again (see [“Opening/Closing the Casing” on page 98](#)).

8.6 Opening/Closing the Casing



CAUTION!

The actions described in these instructions should only be performed by technical specialists. Equipment repairs should only be performed by authorized, qualified staff. Any unauthorized openings and improper repairs could expose the user to risks (electric shock, energy hazards, fire hazards) and could also damage the equipment.

Please observe the safety information in [chapter “Important Notes” on page 19](#).



CAUTION!

The cover must be reinstalled as soon as possible due to cooling, to comply with applicable EMC regulations (regulations on electromagnetic compatibility) and to protect against fire.

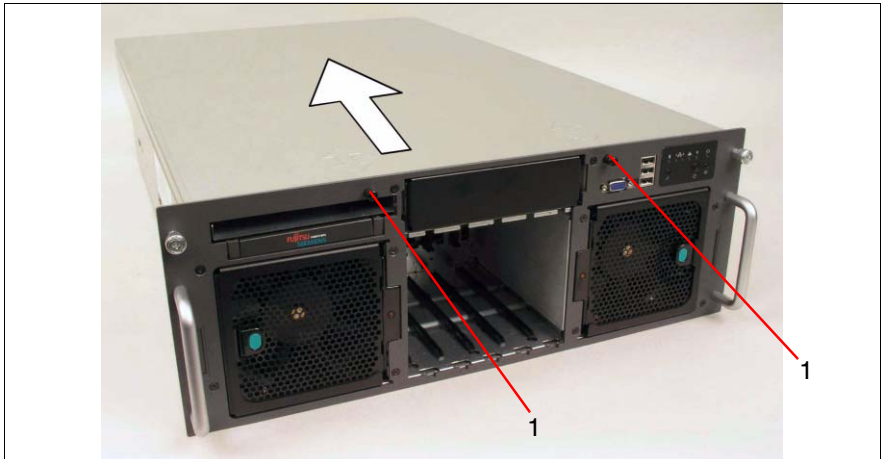


Figure 38: Opening the casing

- ▶ To **open** the casing, release the two captive screws (1) on the front, push the cover by 1 - 2 centimeters in the direction of the arrow and take the cover off.
- ▶ To **close** the casing, put the cover on top of the casing and push it towards the front until it stops. Finally, tighten the two captive screws (1) again.

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

Compact Disk

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

EMP	Emergency Management Port
EPP	Enhanced Parallel Port
EPROM	Erasable Programmable Read-Only Memory
ESD	ElectroStatic Discharge
FAT	File Allocation Table
FPC	Front Panel Controller
FRU	Field Replaceable Unit
FSB	Front Side Bus
GAM	Global Array Manager
GUI	Graphical User Interface
HDD	Hard Disk Drive
HSC	Hot-Swap Controller
HU	Height Unit
I²C	Inter-Integrated Circuit

Abbreviations

I/O

Input/Output

ICM

Intelligent Chassis Management

ID

Identification

IDE

Integrated Drive Electronics

IEC

International Electrotechnical Commission

IME

Integrated Mirroring Enhanced

IPMI

Intelligent Platform Management Interface

IRQ

Interrupt Request Line

LAN

Local Area Network

LBA

Logical Block Address

LCD

Liquid Crystal Display

LED

Light Emitting Diode

LP

Low Profile

LUN

Logical Unit Number

LVD	Low-Voltage Differential SCSI
MRL	Manual Retention Latch
MMF	Multi Mode Faser
NMI	Non Maskable Interrupt
NTFS	New Technology File System
NVRAM	Non Volatile Random Access Memory
OS	Operating System
PAM	Promise Array Management
PCI	Peripheral Component Interconnect
PDA	Prefailure Detection and Analysing
PDF	Portable Data Format
POST	Power ON Self Test
PS/2	Personal System/2
RAID	Redundant Arrays of Independent Disks

Abbreviations

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 Mother Board

RSB

Remote Service Board

RTC

Real Time Clock

RTDS

Remote Test- und Diagnose-System

SAF-TE

SCSI Accessed Fault-Tolerance Enclosures

SATA

Serial Advanced Technology Attachment

SBE

Single Bit Error

SCA

Single Connector Attachment

SCSI

Small Computer System Interface

SCU

System Configuration Utility

SDR

Sensor Data Record

SDRAM

Synchronous Dynamic Random Access Memory

SEL

System Event Log

S.M.A.R.T

Self-Monitoring, Analysis, and Reporting Technology

SMI

System Management Interrupt

SSU

System Setup Utility

SVGA

Super Video Graphics Adapter

USB

Universal Serial Bus

VGA

Video Graphics Adapter

WEEE

Waste from Electric and Electronic Equipment (EU Directive)

WOL

Wakeup on LAN

ZCR

Zero Channel RAID

Related publications

Manuals for PRIMERGY server systems are available as PDF files on the *ServerBooks* CD. The *ServerBooks* CD is part of the PRIMERGY *ServerView Suite* delivered with each server system.

The current versions of the required manuals can be downloaded free of charge as PDF files from the Internet. The overview page showing the online documentation available on the Internet can be found via the URL:

<http://manuals.fujitsu-siemens.com> (choose: *industry standard servers*).

- [1] **RX600 S3 Server**
Options Guide
- [2] **System Board D2352 for RX600 S3/TX600 S3**
Technical Manual
- [3] **D2352 BIOS Setup Utility for PRIMERGY RX600 S3/TX600 S3**
Reference Manual
- [4] **Quickstart Hardware - PRIMERGY RX600 S3**
Poster
- [5] **Quickstart Software - PRIMERGY ServerView Suite**
Poster
- [6] **PRIMERGY ServerView Suite**
ServerStart
User Manual
- [7] **PRIMERGY ServerView Suite**
ServerView S2
Server Management
User Manual
- [8] **PRIMERGY ServerView Suite**
ServerView
Server Management
User Manual
- [9] **MegaRAID 320 Storage Adapters**
User Manual

Related publications

- [10] **MegaRAID Device Driver Installation**
User Manual
- [11] **MegaRAID Configuration Software**
User Manual
- [12] **Global Array Manager Client Software**
User Manual
- [13] **PRIMECENTER Rack**
Technical Manual
- [14] **DataCenter Rack**
Technical Manual
- [15] **19-Zoll-Rack/19 Inch Rack**
Technical Manual
- [16] **LocalView**
User Manual
- [17] **PRIMERGY ServerView Suite**
RemoteView
User Manual
- [18] **Safety**
- [19] **Warranty**
- [20] **Ergonomics**

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Operating Manual



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