

PRIMERGY Econel 100 Server System

Operating Manual

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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 Econel 100 server is an Intel-based server for workgroups and small networks. The server is suitable for use as a file server and also as an application, information or Internet server.

The PRIMERGY Econel 100 server offers a high level of reliability and availability through highly developed hardware and software components.

Security functions in the *BIOS Setup* and on the system board protect the data on the server against manipulation. The supported RAID levels allow the hard disk controllers to offer error tolerance, through data redundancy, for users who want to provide complete protection for valuable data.

1.1 Overview of the Documentation



PRIMERGY manuals are available in PDF format on the *ServerBooks* CD. The *ServerBooks* CD is part of the *ServerStart 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 in the Internet can be found via the URL: <http://manuals.fujitsu-siemens.com>. The PRIMERGY server documentation can be accessed via the *industry standard servers* navigation point.

Concept and target group of this manual

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

This manual is intended for those responsible for installing the hardware and ensuring that the system runs smoothly. The manual contains all the information required for installing and operating your PRIMERGY Econel 100.

To understand the manual, you will need knowledge of hardware and data transmission, as well as basic knowledge of the operating system used. You should also have a good working knowledge of the English language.

Additional server documentation

To the PRIMERGY Econel 100 documentation set belong the following additional manuals:

- “Quick Start Hardware - PRIMERGY Econel 100” (poster)
- “Quick Start Software - PRIMERGY ServerView Suite” (poster)
- “Warranty” manual (print version delivered together with the system, PDF file available on the *ServerBooks* CD)
- “Warranty” manual (print version delivered together with the system, PDF file available on the *ServerBooks* CD)
- “Ergonomics” manual (PDF file available on the *ServerBooks* CD)
- “Returning used devices” manual (PDF file available on the *ServerBooks* CD)
- “Help Desk” (supplement with worldwide help desk telephone numbers)
- Technical Manual for the system board D2179 (PDF file available on the *ServerBooks* CD)
- “BIOS Setup” manual (PDF file available on the *ServerBooks* CD)
- “PRIMERGY Econel 100 Server System Options Guide” (PDF file available on the *ServerBooks* CD)



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

- The “ServerView Suite” contains the *ServerStart* CD, the *ServerBooks* CD and the *ServerSupport* CDs. The PDF version of the “PRIMERGY ServerView Suite - ServerStart” user manual is also available on the *ServerBooks* CD.
- “LSI SATA Software RAID User’s Guide” (PDF file 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

Further sources of information:

- manual for the monitor
- manual for *ServerView server management*
- documentation for the boards and drives
- operating system documentation
- information files of your operating system

(see also “Bibliography” on page 55).

1.2 Features

System board

The features of the system board can be found in the technical manual of the system board D2179 for the hardware and in the *BIOS Setup* for the firmware (see “[Bibliography](#)” on page 55).

Hard disk drives

Up to four SATA hard disk drives, each with a maximum height of 1 inch, are built into the drive rack. There is a wire connection to the controller.

Onboard SATA RAID controller

A SATA RAID controller is integrated on the system board; up to four SATA hard disk drives can be connected to the controller. RAID levels 0, 1 and 10 are supported for each LSI SATA software RAID.



The controller has its own configuration utility. More detailed information may be found in the “LSI SATA Software RAID User’s Guide” manual (on the *ServerBooks* CD under “Controller”).

Accessible drives

The first (top) bay contains the server’s DVD drive. The fourth (bottom) bay can be used for a 3.5" disk drive (1.44 Mbyte).

The two middle 5.25" bays are available for additional usable drives (CD/DVD drives or a magnetic tape drive).

The accessible drives cannot be replaced during operation.

Power supply

The server has a built-in power supply unit, which automatically sets itself to a mains voltage in the range of 100 V - 240 V.

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.

Server management

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

ServerView enables the management of all PRIMERGY servers in the network via a central console. Here *ServerView* supports the following functions:

- Remote power-on (Wake On LAN)
- Intrusion detection
- Temperature monitoring of the CPU and the surrounding area
- Power monitoring
- Fan monitoring
- Watchdog timer for monitoring the operating system and applications

Further information on *ServerView* server management is provided in the associated documentation (see [“Bibliography” on page 55](#)).

ServerStart

You can configure the PRIMERGY server quickly and purposefully with the *ServerStart* software provided. User-guided menus are available for installing the server operating system.

Service and Support

PRIMERGY servers are service-friendly and modular, thus enabling quick and simple maintenance. The flash EPROM program supplied with the Fujitsu Siemens Computers utilities supports a fast BIOS update.

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 (standard and redundant power supply)

Rated voltage range	100 V - 240 V
Frequency	50 Hz - 60 Hz
Rated current in basic configuration	100 V - 240 V / 1.5 A - 0.6 A
Max. rated current:	100 V - 240 V / 7.5 A - 3.5 A
Effective power	216 W
Apparent power	227 VA
Heat dissipation	778 kJ/h (737 btu/h)
Main power fuse	16 A
Protection class	I

National and international standards

Product safety and ergonomics	IEC 60950 / EN 60950 / UL 60950, CSA 22,2 No. 60950
Electromagnetic Compatibility	FCC class A VCCI class A AS/NZS 3548 class A CNS 13438
Interference emission	EN 55022
Harmonic current	EN 6100-3-2 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	205 mm
Total depth	505 mm
Height	385 mm (including feet)

Weight

Approx. 15 - 19 kg (depending on configuration)

Ventilation clearance

At least 200 mm at the front and rear, 200 mm to the left and right

Environmental conditions

Environment class 3K2	EN 60721 Part 3-3
Environment class 2K2	EN 60721 Part 3-2
Temperature:	
● Operating (3K2)	15 °C ... 35 °C
● Transport (2K2)	-25 °C ... 60 °C
Humidity	10% ... 85%

Condensation during operation must be avoided!

Noise level

Sound power level L_{WA_d} (ISO 9296)	≤ 4.3 B (standby) ≤ 4.5 B (operation)
Sound pressure level at bystander position L_{pAm} (ISO 9296)	≤ 24 dB (A) (standby) ≤ 27 dB (A) (operation)

2 Installation Steps: Overview

In this chapter you will find an overview of the steps necessary to install your server system. Links guide you to sections where you can find more detailed information on the individual steps:

- ▶ At first, please take notice of [chapter “Important Notes” on page 15](#) and following.
- ▶ Transport the server to the place where you want to set it up.
- ▶ Unpack the system, check the contents of the package for visible transport damage and check whether the delivery agrees with the details in the delivery note (see [section “Unpacking the Server” on page 26](#)).
- ▶ Make sure all necessary manuals (see [“Additional server documentation” on page 6](#)) are available; possibly print of the PDF files.
- ▶ Set up the server (see [section “Setting up the Server” on page 27](#)).
- ▶ Cable the server. Please take note of the [section “Connecting Devices to the Rack Model” on page 28](#) and the [section “Instructions: Connecting/disconnecting wires” on page 30](#).
- ▶ Connect the system to the line voltage (see [section “Connecting the Server to the Line Voltage” on page 29](#)).
- ▶ Make yourself familiar with the operating and indicator elements on the front and on the rear side of the server (see [section “Operating and Indicator Elements” on page 31](#)).

Installation Steps: Overview

- ▶ Configure the server and install the desired operating system and applications. To do so, you have the following possibilities:
 - Remote configuration and installation with *ServerStart*:

With the *ServerStart*-CD provided, you can configure the server and install the operating system in a convenient manner.

Information on how to operate *ServerStart*, as well as further information, may be found in the "ServerView Suite - ServerStart" manual, supplied as a PDF file.

You find additional information for configuration in [section "Configuration with ServerStart" on page 36](#).
 - Local configuration and installation with and/or without *ServerStart* (see [section "Configuration with ServerStart" on page 36](#) and/or [section "Configuration without ServerStart" on page 37](#)).

3 Important Notes

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

3.1 Safety



The following safety information may also be found in the “Safety” manual.

This device meets the relevant safety regulations for IT 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 activities described in these instructions may only be performed by engineers or maintenance/technical staff. Device repairs may only be carried out by authorized qualified personnel. 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 operating the device



CAUTION!

- During installation and before operating the device, observe the instructions on environmental conditions for your device (see [section “Technical data” on page 10](#)).

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

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

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

Installation and operation



CAUTION!

- If the 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 non-industrial (public) power supply networks for the type A connector.

- The server is automatically set to a mains voltage in the range of 100 V - 240 V. Make sure that your local voltage is within this range.

- This device has a specially approved power cable and must only be connected to a grounded insulated socket.

- Ensure that the power socket on the device or the grounded wall outlet is freely accessible.

- The power switch does not disconnect the device from the mains voltage. To completely disconnect it from the mains voltage, remove the power plug from the power socket.

**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.
- The EN 50173 and EN 50174-1/2 standards apply for LAN cabling. A minimum requirement is the use of a category 5 screened LAN line for 10/100 Mbps Ethernet, or a category 5e line for Gigabit Ethernet. The requirements of the specification ISO/IEC 11801 are to be considered.
- When setting up the server, make sure that the tilt guard provided is mounted properly (tilting risk).
- 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. When connecting up a device, refer to the relevant notes in this manual.
- Never connect or disconnect data transmission lines during a storm (lightning hazard).
- 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.
- In emergencies (e.g. damaged casing, controls or cables, penetration of liquids or foreign matter), switch off the device immediately, remove the power plug and contact your sales outlet or customer service team.
- Proper operation of the system (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!**

- Only install system expansions that satisfy the requirements and rules governing safety and electromagnetic compatibility and relating to telecommunications terminal equipment. If you install other expansions, you may damage the system or violate the safety regulations and regulations governing RFI suppression. Information on which system expansions are suitable can be obtained from the customer service centre or your sales outlet.
- The components marked with a warning label (e.g. lightning symbol) may only be opened, removed or exchanged by authorized, qualified personnel.
- The warranty expires if the device is damaged during the installation or replacement of system expansions.
- You may only set those resolutions and refresh rates specified in the "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 centre.

Batteries**CAUTION!**

- Incorrect replacement of batteries may lead to a risk of explosion. The batteries may only be replaced with identical batteries or with a type recommended by the manufacturer (see the technical manual for the system board under "[Bibliography](#)" on [page 55](#)).
- Replace the lithium battery on the system board in accordance with the instructions in the technical manual for the system board (see "[Bibliography](#)" on [page 55](#)).

Working with CDs/DVDs and CD/DVD drives



CAUTION!

- Use only acceptable CDs/DVDs in your server's CD/DVD drive, in order to avoid data loss, device damage and injury.
- 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).

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



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

- 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 corresponds to the IEC 60825-1 laser class 1.



CAUTION!

The CD/DVD drive contains a light-emitting diode (LED), which under certain circumstances produces a laser beam stronger than laser class 1. Direct view into the laser beam is dangerous.

Never remove parts of the CD/DVD drive casing!

Modules with electrostatic-sensitive components:

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

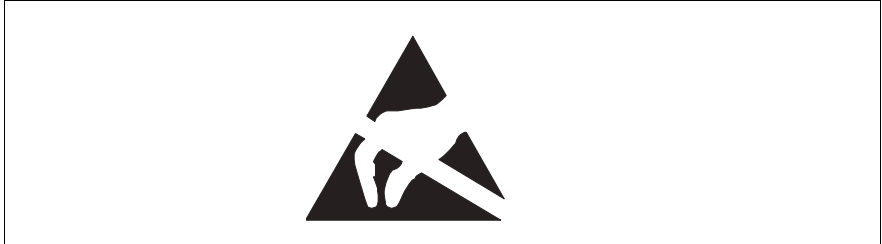


Figure 1: ESD label

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

- You must always discharge yourself of static charges (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 charges.
- Remove the power plug from the power socket before inserting or removing components containing ESDs.
- Hold the components only at the edges or by the 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 points:

- When cleaning the server, observe the relevant notes in the [section “Cleaning the Server” on page 37](#).
- Keep these operating instructions and the further documentation (such as the Technical Manual, CD) near 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/TV 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!

Only transport the server to the new site in its original packaging or in packaging that protects it from knocks and jolts. Do not unpack the server until it is at its installation location.

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

3.5 Environment Protection

Environmentally-friendly product design and development

This means that the designers have taken into account decisive 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 means that key factors such as durability, selection and labeling of materials, emissions, packaging, ease of disassembly and recycling have been taken into account.

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

Notes on saving energy.

Devices that do not have to be switched on permanently should be switched off until they are needed as well as during long breaks and after completion of work.

Notes on packaging

Please do not throw away the packaging. You may need it later for transporting your system unit. If possible, the device should only be transported in its original packaging.

Notes on dealing with consumables

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

In accordance with EU directives, batteries must not be disposed of together with unsorted domestic waste. They must be disposed of in accordance with local regulations concerning special waste.

All batteries containing pollutants are marked with a symbol (a crossed-out garbage can). In addition, the marking is provided with the chemical symbol of the heavy metal decisive for the classification as a pollutant:

Cd Cadmium

Hg Mercury

Pb Lead

Note on labeling plastic parts

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

Returning, recycling and disposal



The device must not be disposed of together with domestic waste. This device is labeled according to European directive 2002/96/EG on waste electrical and electronic equipment (WEEE).

This directive sets the framework for withdrawing and recycling used devices; this is valid across the EU. When returning your used device, please use the return and collection systems available to you. Further information may be found at www.fujitsu-siemens.com/recycling.

Details regarding the return and recycling of devices and expendable items within Europe may also be found in the "Returning used devices" manual, via your local Fujitsu Siemens Computers branch or from our recycling center in Paderborn:

Fujitsu Siemens Computers

Recycling Center

D-33106 Paderborn

Tel. +49 5251 8 18010

Fax +49 5251 8 18015

4 Hardware Installation



CAUTION!

Please note the safety instructions in [chapter “Important Notes” on page 15](#).

Do not expose the server to extreme environmental conditions (see [section “Technical data” on page 10](#)). Protect it from dust, humidity, and heat.

The server 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 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 assembly location.
- Unpack the server (see the next [section “Unpacking the Server”](#)).
- Setting up the server (see [section “Setting up the Server” on page 27](#)).
- Cabling the server. Please take note of the [section “Connecting Devices to the Rack Model” on page 28](#) and the [section “Instructions: Connecting/disconnecting wires” on page 30](#).
- Connect the server to the power supply (see [section “Connecting the Server to the Line Voltage” on page 29](#)).

4.2 Unpacking the Server



CAUTION!

Please observe the safety information in the [chapter “Important Notes” on page 15](#).

If you need to lift or transport the server, ask other people to help you. Do not unpack the server until it is at its assembly location.

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

- ▶ Unpack all individual parts.
- ▶ Check the delivery for any damage during transport.
- ▶ Check whether the delivery agrees with the details on the delivery receipt.

The type rating is indicated on a label on the upper part of the server.

Notify your supplier immediately should you discover that the delivery does not correspond to the delivery receipt.

4.3 Setting up the Server

- ▶ Set up the Server.



CAUTION!

- The device must be protected against direct sunlight.
 - The required minimum distances for operation and maintenance areas must be adhered to.
 - In order to connect other devices (e. g.: storage subsystem) the rear of the server must be accessible.
 - The mains plug must be accessible easily and safely.
 - There must be a clearance of at least 200 mm in front of and behind the server to ensure adequate ventilation.
- ▶ Cable the server. Please take note of the [section “Connecting Devices to the Rack Model” on page 28](#) and the [section “Instructions: Connecting/disconnecting wires” on page 30](#).
 - ▶ Connect the system to the line voltage (see [section “Connecting the Server to the Line Voltage” on page 29](#)).

4.4 Connecting Devices to the Rack Model

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 installed. For further information please consult the "Options Guide" (see ["Bibliography" on page 55](#)).

The standard ports ([figure 2](#)) are marked with symbols, and some are colour-coded.

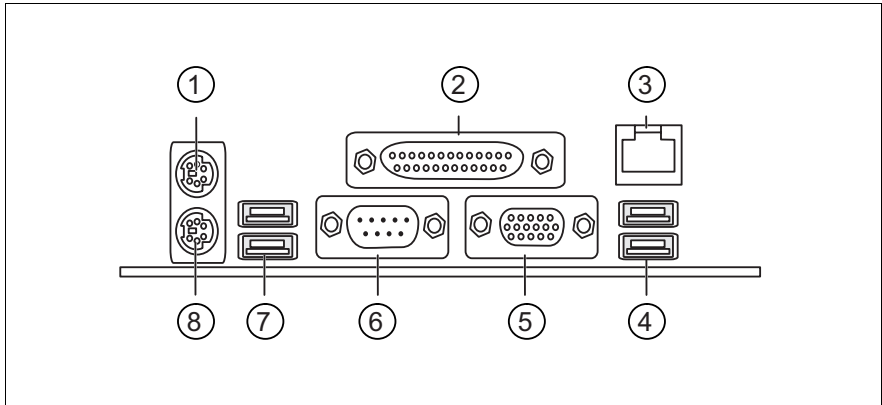


Figure 2: connections

- | | |
|-----------------------------|---------------------------------|
| 1 Mouse port (PS/2) (green) | 5 Monitor port (VGA) (blue) |
| 2 Parallel port (burgundy) | 6 Serial port COM1 (turquoise) |
| 3 LAN connection (RJ45) | 7 USB1 port 1 and 2 (black) |
| 4 USB0 port 1 and 2 (black) | 8 Keyboard port (PS/2) (purple) |

i Some of the devices that can be connected may require special drivers (see the documentation for the connected device).

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

Two further USB ports are located on the front of the server (see [figure 4 on page 31](#)).

4.5 Connecting the Server to the Line Voltage

The server is fitted with a built-in power supply.



CAUTION!

The server is automatically set to a mains voltage in the range of 100 V - 240 V. The server may be placed in operation only, if the mains voltage range set on the server corresponds to the local mains voltage.

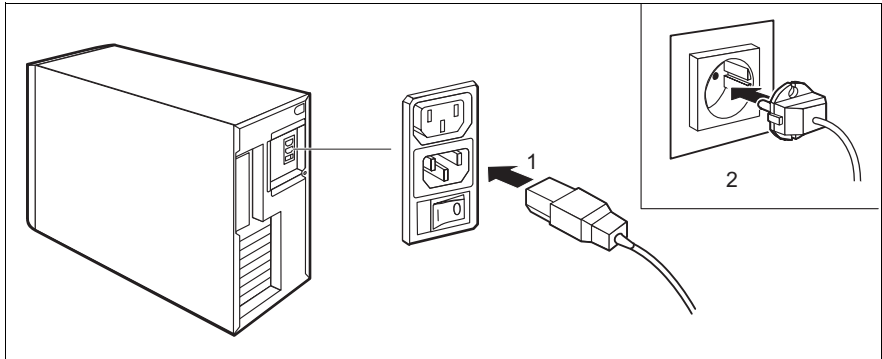


Figure 3: connecting the Server to the Line Voltage

- ▶ Connect the power cord to the server's power supply (1).
- ▶ Insert the mains plug into an earthing contact socket (2) in the internal supply network.

4.6 Instructions: Connecting/disconnecting wires



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 cables

- ▶ Turn off all power and equipment switches.
- ▶ Pull all power plugs out of the grounded power sockets.
- ▶ Plug all cables into the server and peripherals. Secure the data transmission cable connections (e. g. nut retention).
- ▶ Plug all data communication cables into the utility sockets.
- ▶ Plug all power cables into the grounded power sockets.

Disconnecting cables

- ▶ Turn off all power and equipment switches.
- ▶ Pull all power plugs out of the grounded power sockets.
- ▶ Unplug all data communication cables from the utility sockets.
- ▶ Loosen the nut retentions on the connector housings and pull the corresponding cables out from the server and from the peripherals.

5 Preparation for Use and Operation



CAUTION!

Please note the safety instructions in [chapter “Important Notes” on page 15](#).

5.1 Operating and Indicator Elements

5.1.1 The Front Side

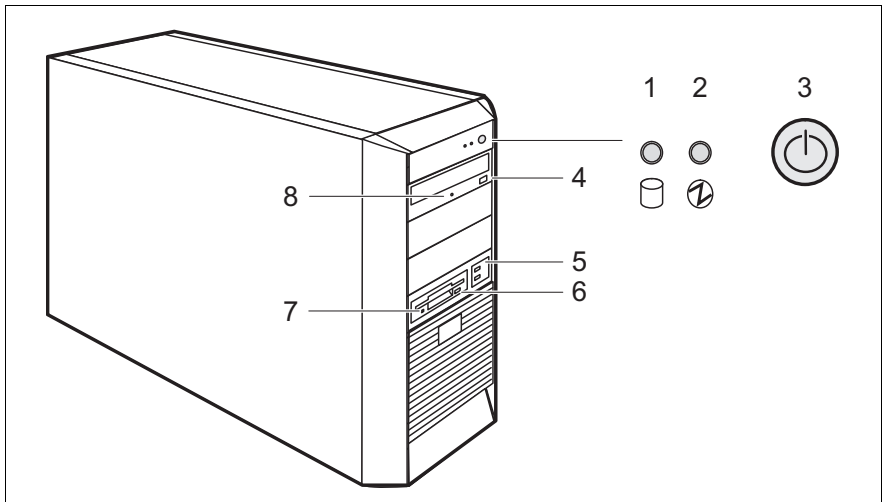


Figure 4: the front side

- | | | | |
|---|----------------------------------|---|-------------------------------|
| 1 | Hard disk drive access indicator | 5 | USB ports |
| 2 | Power-on indicator | 6 | Disk eject button (optional) |
| 3 | ON/OFF button | 7 | Disk drive display (optional) |
| 4 | DVD eject button | 8 | DVD drive indicator |

Operation elements



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 in operation, it can be switched OFF by pressing the ON/OFF button (standby). Further information may be found under [“Other ON/OFF options” on page 35](#).



The power button does not separate the server from the line voltage. To disconnect from the mains completely, remove the power plug.

Indicators on the Control Panel



Operation/Standby indicator (green/orange)

Lights green when the server is switched on and ready.
Lights orange when the server is connected to the mains voltage, but it is switched off (standby mode).



Hard drive active indicator (green)

Access to an internal drive (HDD).

Indicators on the drives

DVD drive indicator

Lights green when the storage medium is being accessed.

Disk drive indicator

Lights green when the storage medium is being accessed.

5.1.2 The Rear Side

Master switch (if present)

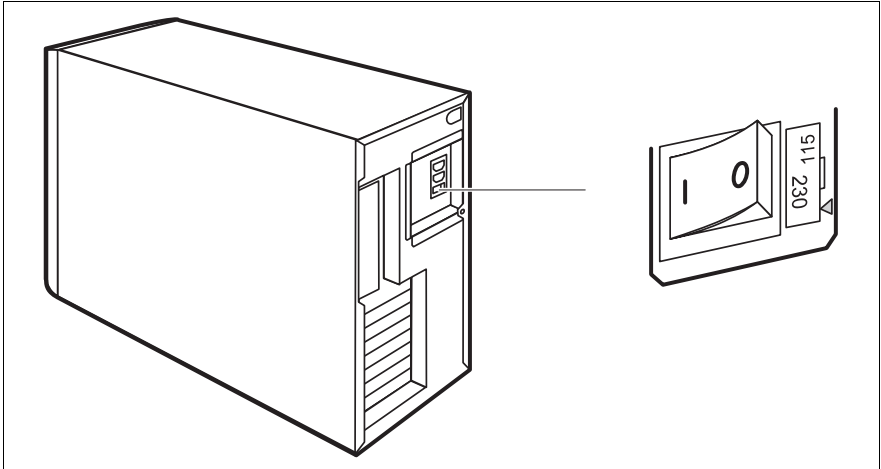


Figure 5: master switch

I = Server switched on

0 = Server switched off

LED indicators on the LAN connection

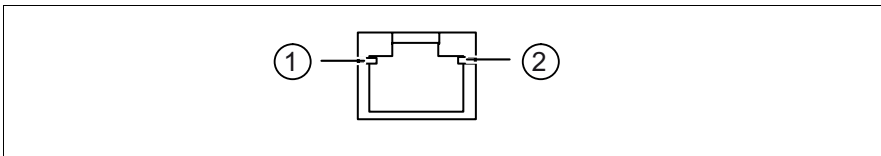


Figure 6: LED indicators on the LAN connection

1 LAN connection indicator (green)

Lights up when a LAN connection is present.

Flashes when data is being sent or received.

2 LAN line speed (orange/green)

Off = 10 Mbps (or no connection, if LED 1 is also off),

Green = 100 Mbps, Yellow = 1000 Mbps.

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 “Troubleshooting and Tips” on page 41](#)).

The power button does not separate the server from the line voltage. To disconnect the device completely from the mains, you must switch off the master switch (if present on the back of the device) (see [figure 5 on page 33](#)) and remove the plug.

Switching the server ON

The power-on indicator (position 2 in [figure 4 on page 31](#)) lights orange (standby mode) when the server is connected to the network and the master switch (if present) is switched on (see [figure 5 on page 33](#)).

– First system installation:

- ▶ Press the ON/OFF button (position 3 in [figure 4 on page 31](#)).
Power-on indicator lights green (position 2 in [figure 4 on page 31](#)).
- ▶ Insert the *ServerStart*-CD and/or an installation disk in the corresponding drive.
- ▶ Follow the on-screen instructions (see also [section “Configuration with ServerStart” on page 36](#) or [section “Configuration without ServerStart” on page 37](#)).

– System already installed:

- ▶ Press the ON/OFF button (position 3 in [figure 4 on page 31](#)).
The server is switched on, performs a system test and boots the operating system.

Switch off server (ACPI compatible operating systems, e. g. Windows 2000, Linux)

The power-on indicator lights green (position 2 in [figure 4 on page 31](#)).

- ▶ Terminate the operating system correctly.

The server is switched off automatically and goes into standby mode. The power-on indicator lights orange.

Switch off server (non-ACPI compatible operating systems)

Power-on indicator lights green (position 2 in [figure 4 on page 31](#)).

- ▶ Terminate the operating system correctly.

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

- ▶ Press the ON/OFF button (position 3 in [figure 4 on page 31](#)) or follow the process described under “[Other ON/OFF options](#)” on page 35.

The server switches OFF and goes in standby mode. The power-on indicator lights orange.

Other ON/OFF options

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 *ServerView* program allows a time to be set at which the server is to be automatically switched on or off.

- **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


By pressing and holding the ON/OFF button (approx. 4-5 sec.), the server can be switched off immediately.

**CAUTION!**

There is a risk that data may be lost.


5.3 Configuring the Server

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

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

5.3.1 Configuring the SATA RAID Controller

A SATA RAID controller is integrated on the system board; up to four SATA hard disk drives can be connected to the controller. RAID levels 0, 1 and 10 are supported for each LSI SATA software RAID. The RAID controller can be configured with *ServerStart* either before or during configuration. Use of *ServerStart* is recommended.

 The controller has its own configuration utility. More detailed information may be found in the “LSI SATA Software RAID User’s Guide” manual (on the *ServerBooks* CD under “Controller”).

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-assisted configuration includes the server configuration with *SCU* and the RAID controller configuration.

Information on how to operate *ServerStart*, as well as further information, may be found in the accompanying “ServerView Suite - ServerStart” manual (see “[Bibliography](#)” on page 55).

If you use *ServerStart*, you can skip the following sections on how to configure the server and install the operating system. Continue with [section “Cleaning the Server” on page 37](#).

5.3.3 Configuration without ServerStart

Configuring the RAID Controller

Configure the corresponding RAID controller as described in the [section “Configuring the SATA RAID Controller” on page 36](#).

Installing the Operating System

- ▶ Insert the installation floppy disk and the CD for 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 is equipped with a RAID controller, please read how to install the desired operating system in the related manual.

5.4 Cleaning the Server



CAUTION!

Switch the server off and pull the power plug out of the grounded-contact power socket.

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 clear.

Clean the keyboard and the mouse with a disinfecting cloth.

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 fitted with an Intrusion Detection Switch, which enables the *ServerView* program to detect if the left-hand side cover or casing is removed, and issues an alarm signal.

To prevent the server from being removed from the place where it was installed, it can be chained with a steel cable to a fixed object; the steel cable must be passed through a lug on the back of the server and secured with a lock.

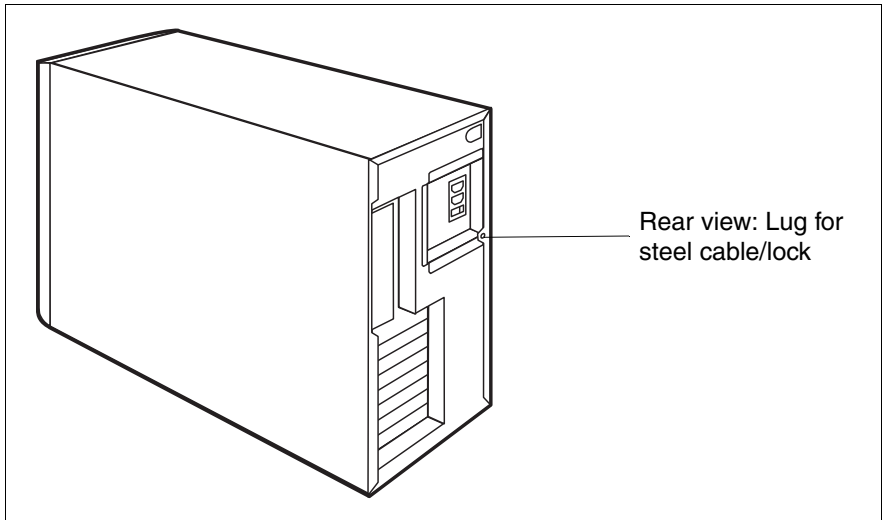


Figure 7: rear view: lug for steel cable/lock

6.2 BIOS Setup Security Functions

The *Security* menu in *BIOS Setup* offers you various options for protecting your data from unauthorised access. This allows you to assign access passwords, or to prevent disks from being written or the BIOS from being overwritten. By combining these options you can achieve optimum protection for your system.



A detailed description of the *Security* menu and of how to assign passwords may be found in the “BIOS Setup” documentation on the PRIMERGY *ServerBooks* CD (see also [“Bibliography” on page 55](#)).

7 Troubleshooting and Tips



CAUTION!

Observe the safety information in the “Safety” manual and in the [chapter “Hardware Installation” on page 25](#).

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 list of the steps and the circumstances that led to the fault. Also make a list of any error messages that were displayed.
- ▶ Switch off the server.
- ▶ Contact our customer service team.

7.1 Power-On Indicator Remains Dark

The power-on indicator remains dark after switching ON:

Power cord incorrectly connected

- ▶ Make sure that the power cable is correctly connected to the server and to the grounded socket.

Power supply overloaded

- ▶ Pull the server power plug out of the power socket.
- ▶ Wait a few seconds before you plug it into the grounded socket again.
- ▶ Switch on your server.

7.2 Screen Remains Blank

Monitor is switched off

- ▶ Switch on your monitor.

Screen has gone blank

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

Brightness control is set to dark

- ▶ Set the brightness control on the monitor to light. 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 grounded socket.
- ▶ Check whether the monitor cable is properly connected to the server and monitor (if it is plugged in with a connector). If a separate graphics card is installed in the server, then the monitor cable must be connected to the graphics card.
- ▶ Switch on the monitor and the server.

7.3 Flickering Stripes on the Monitor Screen



CAUTION!

Switch off the server immediately. The server is in danger of being damaged.

Monitor does not support the set horizontal frequency

- ▶ Find out which horizontal frequency your monitor screen 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 corresponding software for the screen controller for how to set the correct horizontal frequency for your monitor, and follow the procedure accordingly.

7.4 No Screen Display or the Display Drifts

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

- ▶ Find out which horizontal frequency your monitor screen 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 corresponding software for the screen controller for how to set the correct horizontal frequency for your monitor, and follow the procedure accordingly.

7.5 No Mouse Pointer Displayed on Screen

Mouse not connected properly

- ▶ Exit the operating system properly.
- ▶ Switch off the server.
- ▶ Check whether the mouse lead is connected properly

If you are using an adapter or an extension for the mouse lead, check this connection as well.

- ▶ Make sure that only one mouse is connected.
- ▶ Switch on your server.

Mouse driver not loaded

- ▶ Check whether the mouse driver is properly installed and is present when the application program is started. Detailed information can be found in the user manuals for the mouse, the operating system or the application program.

Mouse controller disabled

The mouse controller on the system board must be enabled if you use the supplied mouse.

- ▶ In the *BIOS Setup*, check the settings in the *Advanced* menu under *Peripheral Configuration*, *Mouse Controller*, and if necessary change the setting to *Enabled* or *Auto Detect*.

7.6 Floppy Disk Cannot be Read and/or Written

- ▶ Check whether write protection for the floppy disk is activated.
- ▶ Check the disk drive entry in the *Main* menu of the *BIOS Setup*. This must not be set to *None*.
- ▶ Check the *Diskette Write* entry in the *Security* menu of the *BIOS Setup*. This must not be set to *Disabled*.

7.7 Incorrect Time and/or Date

- ▶ Set the time and date in the operating system or in the *BIOS Setup* under the *Main* menu with *System Time* and *System Date* respectively.



If the time and date are still wrong after the server has been switched off and back on again, change the lithium battery (for a description see the D2179 system board Technical Manual), or contact our customer service team.

7.8 Drives Are Reported as “Dead”

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 Reported Defective

This error message may occur when the server has a RAID controller:

RAID controller is not configured for this hard disk drive

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

If the hard disk drive continues to be shown as defective, then replace it (see “PRIMERGY Econel 100 Server System Options Guide”).

7.10 Error Messages on the Screen

The meanings of the error messages are explained in the “BIOS Setup” manual and in the documentation for the relevant components and programs on the PRIMERGY *ServerBooks* CD.

Abbreviations

AC

Alternating Current

ACPI

Advanced Configuration and Power Interface

ANSI

American National Standards Institute

ASR&R

Automatic Server Reconfiguration and Restart

BIOS

Basic Input-Output System

BMC

Baseboard Management Controller

CC

Cache Coherency

CD

Compact Disk

CD-ROM

Compact Disk-Read Only Memory

CHS

Cylinder Head Sector

CMOS

Complementary Metal Oxide Semiconductor

COM

Communications

CPU

Central Processing Unit

Abbreviations

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

EGB

Elektrostatisch gefährdete Bauteile (components in danger of electrostatic discharge)

EMP

Emergency Management Port

EPP

Enhanced Parallel Port

EMV

Elektromagnetische Verträglichkeit (electromagnetic compatibility)

EPROM

Erasable Programmable Read-Only Memory

ESD	ElectroStatic Discharge (elektrostatische Entladung)
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
HE	Höheneinheit
HSC	Hot-Swap Controller
I²C	Inter-Integrated Circuit
I/O	Input/Output
ICM	Intelligent Chassis Management
ID	Identification

Abbreviations

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

LUN

Logical Unit Number

LVD

Low-Voltage Differential SCSI

LWL

LichtWellenLeiter (fiber optic cable)

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
RAM	Random Access Memory
ROM	Read-Only Memory
RSB	Remote Service Board

Abbreviations

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

WOL

Wakeup on LAN

ZCR

Zero Channel RAID

Bibliography

PRIMERGY server system manuals are also available as PDF files on the *ServerBooks* CD. The *ServerBooks* CD is part of the *PRIMERGY ServerView Suite*, which is delivered with every server system.

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

<http://manuals.fujitsu-siemens.com>. The PRIMERGY server documentation can be accessed via the *industry standard servers* navigation point.

- [1] **Safety**
- [2] **Ergonomics**
- [3] **Warranty**
- [4] **Returning used devices**
- [5] **System Board D2179 for Econel 100**
Technical Manual
- [6] **BIOS Setup**
User Manual
- [7] **Quick Start Hardware - PRIMERGY Econel 100**
Poster
- [8] **Quick Start Software - PRIMERGY ServerView Suite**
Poster
- [9] **PRIMERGY Econel 100 Server System**
Options Guide
- [10] **PRIMERGY ServerView Suite**
ServerStart
User Manual
- [11] **LSI SATA Software RAID**
User's Guide

Bibliography

- [12] **Configurator**
For partners and sales only:
<http://extranet.fujitsu-siemens.com/cafe/products/primergy>

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