

# FUJITSU Server PRIMERGY RX100 S8

Operating Manual

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## **Certified documentation according to DIN EN ISO 9001:2008**

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 9001:2008.

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## **Before reading this manual**

### **For your safety**

This manual contains important information for safely and correctly using this product.

Carefully read the manual before using this product. Pay particular attention to the accompanying manual "Safety Notes and Regulations" and ensure these safety notes are understood before using the product. Keep this manual and the manual "Safety Notes and Regulations" in a safe place for easy reference while using this product.

### **Radio interference**

This product is a "Class A" ITE (Information Technology Equipment). In a domestic environment this product may cause radio interference, in which case the user may be required to take appropriate measures. VCCI-A

### **Aluminum electrolytic capacitors**

The aluminum electrolytic capacitors used in the product's printed circuit board assemblies and in the mouse and keyboard are limited-life components. Use of these components beyond their operating life may result in electrolyte leakage or depletion, potentially causing emission of foul odor or smoke.

As a guideline, in a normal office environment (25°C) operating life is not expected to be reached within the maintenance support period (5 years). However, operating life may be reached more quickly if, for example, the product is used in a hot environment. The customer shall bear the cost of replacing replaceable components which have exceeded their operating life. Note that these are only guidelines, and do not constitute a guarantee of trouble-free operation during the maintenance support period.

### **High safety use**

This product has been designed and manufactured to be used in commercial and/or industrial areas as a server.

When used as visual display workplace, it must not be placed in the direct field of view to avoid incommoding reflections (applies only to TX server systems).

The device has not been designed or manufactured for uses which demand an extremely high level of safety and carry a direct and serious risk of life or body if such safety cannot be assured.

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These uses include control of nuclear reactions in nuclear power plants, automatic airplane flight control, air traffic control, traffic control in mass transport systems, medical devices for life support, and missile guidance control in weapons systems (hereafter, "high safety use"). Customers should not use this product for high safety use unless measures are in place for ensuring the level of safety demanded of such use. Please consult the sales staff of Fujitsu if intending to use this product for high safety use.

### **Measures against momentary voltage drop**

This product may be affected by a momentary voltage drop in the power supply caused by lightning. To prevent a momentary voltage drop, use of an AC uninterruptible power supply is recommended.

(This notice follows the guidelines of Voltage Dip Immunity of Personal Computer issued by JEITA, the Japan Electronics and Information Technology Industries Association.)

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### **Harmonic Current Standards**

This product conforms to harmonic current standard JIS C 61000-3-2.

### **Only for the Japanese market: About SATA hard disk drives**

The SATA version of this server supports hard disk drives with SATA / BC-SATA storage interfaces. Please note that the usage and operation conditions differ depending on the type of hard disk drive used.

Please refer to the following internet address for further information on the usage and operation conditions of each available type of hard disk drive:

<http://jp.fujitsu.com/platform/server/primergy/harddisk/>

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**Only for the Japanese market:**



Although described in this manual, some sections do not apply to the Japanese market. These options and routines include:

- USB Flash Module (UFM)
- CSS (Customer Self Service)



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# 1 Introduction

The PRIMERGY RX100 S8 server is an Intel®-based server for small and medium-sized networks and can be used in the rack systems made by Fujitsu and in current standard rack systems made by various other manufacturers.

Thanks to its highly developed hardware and software components, the PRIMERGY RX100 S8 server offers a high level of data security and availability. These include the Server Management ServerView Suite, Prefailure Detection and Analysis (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.

The server occupies 1 height unit in the rack.

## 1.1 Concept and target groups for this manual

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

This operating manual is intended for those responsible for installing the hardware and ensuring that the system runs smoothly. It contains all the information you need to put your PRIMERGY RX100 S8 into operation.

To understand the various expansion options, you will need to be familiar with the fields of hardware and data transmission and you will require a basic knowledge of the underlying operating system.

### 1.2 Documentation overview

More information on your PRIMERGY RX100 S8 can be found in the following documents:

- "Quick Start Hardware - PRIMERGY RX100 S8" leaflet
- "ServerView Quick Start Guide"
- "Safety Notes and Regulations" manual  
"安全上のご注意" for the Japanese market
- "Warranty" manual  
"保証書" for the Japanese market
- "ServerView Suite Local Service Concept - LSC" manual
- "Returning used devices" manual and "Service Desk" leaflet  
"サポート&サービス" for the Japanese market
- "PRIMERGY RX100 S8 Server Upgrade and Maintenance Manual"
- "D3229 BIOS Setup Utility for PRIMERGY RX100 S8 Reference Manual"



All documentation on PRIMERGY hardware and ServerView software is available online from the Fujitsu manuals server at:

- <http://manuals.ts.fujitsu.com> (global market)
- <http://jp.fujitsu.com/platform/server/primergy/manual> (Japanese market)

The complete PRIMERGY documentation set can also be downloaded as a DVD ISO image at:



- <ftp://ftp.ts.fujitsu.com/images/serverview/manuals> (global market)
- <http://jp.fujitsu.com/primergy/downloads> (Japanese market)

#### Further sources of information:

- ServerView Suite Glossary
- Manual for the monitor
- Documentation for the boards and drives
- Operating system documentation
- Information files in your operating system

## 1.3 Notational conventions

The following notational conventions are used in this manual:

<i>Text in italics</i>	indicates commands or menu items.
"Quotation marks"	indicate names of chapters and terms that are being emphasized.
▶	describes activities that must be performed in the order shown.
 <b>CAUTION!</b>	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.



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## 2 Functional overview

This section provides information on the features and technical data of the PRIMERGY RX100 S8 server.

### 2.1 Features

#### **Intel® Xeon®, Pentium®, or Core i3 processor**

The server has an Intel® Xeon®, Pentium®, or Core i3 processor for high-speed data processing.

#### **Customer Self Service (CSS)**

The PRIMERGY Customer Self Service (CSS) concept enables you to identify and replace the affected component yourself in the case of certain error scenarios.

In the CSS concept, you can replace the following components yourself in the event of an error:

- Hot-plug HDD/SSD modules
- Hot-plug power supply units
- Memory modules
- System fans
- Expansion cards

For information on replacing these components, see the "PRIMERGY RX100 S8 Server Upgrade and Maintenance Manual".

CSS indicators on the control panel and on the back of the PRIMERGY server provide you with information if a CSS event arises.

In addition, CSS errors are displayed in the ServerView Operations Manager, the server management software from Fujitsu.

In the event of errors, the ServerView Operations Manager refers you directly to the affected component and its order information in the Illustrated Spares catalog of the server in question. (This feature is not available for the Japanese market.)



Further information on the CSS concept is provided in the "PRIMERGY ServerView Suite Local Service Concept - LSC" manual on the Fujitsu manuals server.

For the latest information on optional products provided for the RX100 S8 see the configurator of the server:

[http://ts.fujitsu.com/products/standard\\_servers/index.html](http://ts.fujitsu.com/products/standard_servers/index.html)  
(for the EMEA market)

<http://jp.fujitsu.com/platform/server/primergy/system/>  
(for the Japanese market)

### System board

The features of the system board are described in the "PRIMERGY RX100 S8 Server Upgrade and Maintenance Manual" for the hardware and in the "D3229 BIOS Setup Utility for PRIMERGY RX100 S8 Reference Manual" for the firmware.

### Trusted Platform Module (TPM)

A Trusted Platform Module (TPM) for safer storage of keys can be implemented as an option. This module enables programs from third party manufacturers to store key information (e.g. drive encryption using Windows Bitlocker Drive Encryption).

The TPM is activated via the BIOS system (for more information, refer to the "D3229 BIOS Setup Utility for PRIMERGY RX100 S8 Reference Manual").



#### **CAUTION!**

- When using the TPM, note the program descriptions provided by the third party manufacturers.
- You must also create a backup of the TPM content. To do this, follow the third party manufacturer's instructions. Without this backup, if the TPM or the system board is faulty you will not be able to access your data.
- If a failure occurs, please inform your service about the TPM activation before it takes any action, and be prepared to provide them with your backup copies of the TPM content.



## Hard disk drives

The server is shipped with one of the following drive cages:

- For up to four 3.5-inch SAS/SATA HDD modules:

Up to four 3.5-inch SAS/SATA HDD modules can be used in the drive cage. Each HDD module can accommodate an SAS/SATA hard disk drive with a maximum height of 1 inch. The module is connected to the SAS/SATA backplane wirelessly. This allows HDD modules to be plugged in or pulled out easily.

Hybrid configurations of SAS and SATA HDD modules within one drive cage are not supported.

- For up to four, eight or ten 2.5-inch SAS/SATA HDD modules or 2.5-inch SATA SSD modules:

Each module can accommodate SAS/SATA hard disk drive or an SATA SSD drive with a 2.5-inch format. The HDD/SSD modules are connected to the SAS/SATA backplane wirelessly. This allows modules to be plugged in or pulled out easily.



Up to eight SAS/SATA drives are controlled by the SAS/SATA RAID controller already installed.



Configurations with Eco SATA can only be mixed with BC SATA HDD type. SAS and BC SATA drives with the same size can be mixed, but not used in the same logical RAID volume.

Hybrid configurations of SATA HDD and SATA SSD modules are supported.

If the server has the corresponding RAID configuration, the HDD/SSD modules can also be replaced during operation.

## Onboard SATA controller

A SATA controller is integrated on the system board; up to four SATA hard disk drives can be connected to the controller. The LSI Embedded MegaRAID software (SATA Software RAID) supports RAID levels 0, 1 and 10.

For more information on configuring the controller, see section ["Configuring the onboard SATA controller" on page 70](#).

### SAS/SATA RAID controller

The server is available with the following SAS/SATA RAID controllers for operating the internal SAS/SATA hard disk drives:

- Modular RAID 0/1 controller with "Integrated Mirroring Enhanced" (SAS IME) for SAS1.0

RAID levels 0, 1 and 1E are supported for internal hard disk drive configurations.

- Modular RAID 0/1 controller with "MegaRAID functionality" (SAS MegaRAID) for SAS1.0 and SAS2.0

RAID levels 0, 1, 10 and 1E are supported for internal hard disk drive configurations.

- Modular RAID 5/6 controller with "MegaRAID functionality" (SAS MegaRAID) for SAS1.0 and SAS2.0

RAID levels 0, 1, 10, 1E, 5, 50, 6 and 60 are supported for internal hard disk drive configurations. As an option, a battery backup unit (BBU) or a flash backup unit (FBU) can save the memory content even if the power fails. Cache memory size of 512 Mbyte or 1 Gbyte is available.



For more information on configuring the controller, see section ["Configuring the SAS/SATA RAID controller" on page 71](#).

Further information on SAS/SATA RAID controllers is provided in the "Modular RAID Controller Installation Guide" (on the Fujitsu manuals server under *Industry Standard Servers - Expansion Cards - Storage Adapters - LSI SAS / SCSI RAID Controllers*).

Further information on other SAS/SATA RAID controllers (e.g. for operating external SAS/SATA hard disk drives or tape drives) is available on the Fujitsu manuals server under *Industry Standard Servers - Expansion Cards - Storage Adapters - LSI SAS / SCSI RAID Controllers*.

### Accessible drives

An installation slot for an ultra slim CD-RW/DVD drive 0.4" (optional) is available.

### Power supply

In its basic configuration the server has a standard power supply unit or a hot-plug power supply unit that adjusts automatically to any mains voltage in the range 100 V - 240 V. Besides the hot-plug power supply unit, a second hot-plug power supply unit can be installed optionally to serve as a redundant power supply. If one power supply unit fails, the second power supply unit in the redundant configuration ensures operation can continue uninterrupted.

### Cool-safe<sup>®</sup> Advanced Thermal Design

The Cool-safe<sup>®</sup> Advanced Thermal Design option allows you to operate the system within a higher temperature range of 5 °C to 40 °C.



This option can only be ordered from the manufacturer and is indicated by the logo on the identification rating plate.



#### CAUTION

You may only install components that support the higher operating range in a system that has the Cool-safe<sup>®</sup> Advanced Thermal Design option. Further information on this is available in the configurator.

### High level of availability and data security

When memory data is accessed, 1-bit errors are identified in the main memory and automatically corrected with the error correcting code (ECC) method.

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

The PDA (Prefailure Detection and Analysis) technology from Fujitsu analyzes and monitors all components that are critical for system reliability.

A RAID controller supports different RAID levels and increase the availability and data security of the system.

The hot-plug HDD modules provide additional availability.

### iRMC S4 with integrated management LAN connector

The iRMC S4 (integrated **R**emote **M**anagement **C**ontroller) is a Baseboard Management Controller (BMC) with integrated management LAN connector and expanded functionality that was previously only available with additional plug-in cards. In this way, the iRMC S4 enables complete control of PRIMERGY servers, regardless of system status, and thus particularly the control of PRIMERGY servers that are in the "out-of-band" system status.

Major functions supported by the iRMC S4 include the following:

- Browser access via iRMC S4's own Web server
- Secure communication (SSH, SSL)
- Power Management for the managed server (depending on its system status)
- Power Consumption Management
- Connecting virtual drives as remote storage
- Text-based and graphic console bypass (Advanced Video Redirection)
- Remote Storage
- Command Line Interface (CLI)
- Simple, interactive or script-based iRMC S4 configuration
- Customer Self Service (CSS)
- iRMC S4's own user management

- Multi-computer, global iRMC S4 user administration using an LDAP Directory Service
- Automatic network configuration via DNS / DHCP
- Power supply of the iRMC S4 via the system standby supply
- Full-coverage alarm management
- System Event Log (SEL) reading and processing
- IPMI support
- CIM / WS-MAN support
- Internal Event Log for user login / logout auditing

More information about the iRMC S4 can be found in the "iRMC S4 - integrated Remote Management Controller" user guide (on the Fujitsu manuals server under *Industry Standard Servers - Software - ServerView Suite - Out-Of-Band Management*).

### Server management

Server management is implemented using the ServerView Operations Manager supplied and the PDA (Prefailure Detection and Analysis) technology from Fujitsu. PDA reports the threat of a system error or overload at an early stage, allowing preventive measures to be taken.

The ServerView Operations Manager enables the management of all PRIMERGY servers in the network via a central console. The ServerView Operations Manager supports the following functions:

- Round-the-clock monitoring, regardless of server status
- High-performance, graphical console bypass (AVR) protected by HTTPS/SSL (128 bit)
- Remote storage via USB
- Remote power on
- Temperature monitoring of the CPU and the surrounding area
- Detailed status and error reports for processors and main memory
- Watchdog timer for Automatic Server Reconfiguration and Restart (ASR&R) in the event that memory modules or processors fail
- Power monitoring

## Functional overview

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- End-of-life monitoring of fans with prompt notification before failure
- Watchdog timer for monitoring the operating system with ASR&R

Further information on the ServerView Operations Manager is provided in the associated documentation.

### ServerView Installation Manager

You can configure the PRIMERGY server quickly and precisely with the ServerView Installation Manager software provided. User-guided menus are available for installing the server operating system (for further details see section "[Configuring the server](#)" on page 70).

### Service and support

PRIMERGY servers are easy to maintain and modular, thus enabling quick and simple maintenance.

The handles and locks (touch points) used to exchange components are colored green to ensure simple and immediate recognition.

In order to prevent the components from being damaged by incorrect handling when they are being installed and removed, the areas of all components that can be touched without damaging them are also marked green.

PRIMERGY diagnostic LEDs fitted on the system board indicate which component (memory module, processor, fan or expansion card) is not functioning properly.

The Flash EPROM program supplied with the Fujitsu utilities supports a fast BIOS update.

With the iRMC S4 (integrated Remote Management Controller) on the system board, the PRIMERGY RX100 S8 server can also be maintained and serviced remotely. This enables remote diagnosis for system analysis, remote configuration and remote restart should the operating system or hardware fail.

### ServerView Remote Management

ServerView Remote Management is the remote management solution from Fujitsu for PRIMERGY servers. ServerView Remote Management and the relevant hardware components integrated on the system board allow remote monitoring and maintenance as well as fast restoration of operation in the event of errors.

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.

The administrator can access all system information and information from the sensors such as fan speeds or voltages via the iRMC S4's Web interface (see section "[iRMC S4 with integrated management LAN connector](#)" on page 20). You can also start the text-based or graphic console bypass (Advanced Video Redirection, AVR) and connect virtual drives as remote storage.



More information about the iRMC S4 can be found in the "iRMC S4 - integrated Remote Management Controller" user guide (on the Fujitsu manuals server under *Industry Standard Servers - Software - ServerView Suite - Out-Of-Band Management*).

## 2.2 Server specification

This section explains the specifications for the server. The specifications for this server are liable to be updated without any notice. Please be forewarned.

### System Board

System board type	D3229
Chipset	Intel® C226

### Processor

Processor quantity and type	1x Intel® Xeon® E3-1200v3 family / Pentium® / Celeron® / Core i3
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### Memory Modules Configuration

Memory slots	4 (2 banks with 2 DIMMs each)
Memory slot type	DIMM (DDR3L) UDIMM
Memory capacity (min. - max.)	2 GB - 32 GB
Memory protection	ECC
Memory notes	Dual channel support. For dual channel performance, a minimum of 2 memory modules has to be ordered. Capacity per channel has to be the same.

### Interfaces

USB 2.0 connectors	4 (2x rear, 2x internal)
USB 3.0 connectors	4 (2x front, 2x rear)
Graphics (15-pin)	1 x VGA (rear); 1x front VGA as an option
Serial (9-pin)	1 x serial RS-232-C, usable for iRMC or system or shared
LAN / Ethernet (RJ-45)	1 x standard LAN, 1 x shared LAN



Management LAN (RJ45)	1 x dedicated management LAN port for iRMC S4 (10/100/1000 Mbit/s); management LAN traffic can be switched to shared onboard Gbit LAN port
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**Onboard or integrated controllers**

RAID Controller	Modular RAID 0/1 controller with "Integrated Mirroring Enhanced" (SAS IME) for SAS1.0. RAID levels 0, 1 and 1E are supported for internal hard disk drive configurations.
	Modular RAID 0/1 controller with "MegaRAID functionality" (SAS MegaRAID) for SAS1.0 and SAS2.0. RAID levels 0, 1, 10 and 1E are supported for internal hard disk drive configurations.
	Modular RAID 5/6 controller with "MegaRAID functionality" (SAS MegaRAID) for SAS1.0 and SAS2.0. RAID levels 0, 1, 10, 1E, 5, 50, 6 and 60 are supported for internal hard disk drive configurations.
SATA Controller	Intel® C226, 1 port used for accessible drive; 4 port for internal SATA HDDs with RAID 0, 1, 10 for Windows and Linux
Remote Management Controller	Integrated Remote Management Controller (iRMC S4), 256 MB DDR3-800 SRAM for video, IPMI 2.0 compatible
Trusted Platform Module (TPM)	Infineon TCG V1.2 compliant (option)

## Functional overview

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### Slots

PCI Express 3.0 x8	2 x low-profile length 175 mm; one slot may be occupied by Modular RAID
PCI Express 2.0 x4 (mech. x8)	1 x low-profile
Slot notes	Optional support of 1x full height PCIe Gen3 x8 card, instead of 1x PCIe Gen2 x4 and 1x PCIe Gen3 x8.  In configurations with Intel® Core i3 or Intel® Pentium® processors slots are operated with PCI-Express 2.0.

### Drive bays

Hard disk bay configuration	4/8/10 x 2.5-inch for hot-plug SAS/SATA HDD modules or SATA SSD modules  4 x 3.5-inch for hot-plug SAS/SATA HDD modules
Accessible drive bays	1 x 5.25/0.4-inch for CD-RW/DVD
Notes accessible drives	all possible options described in relevant system configurator

### Operating Panel

Operating buttons	On/off switch
	NMI button
	Reset button
	ID button
Status LEDs	System status (orange)
	CSS (orange)
	Identification (blue)
	Hard disks access (green)
	Power (green)
	AC connected (green)

Status LED at system rear side	System status (orange)
	CSS (orange)
	Identification (blue)
	LAN connection (green)
	LAN speed (green / yellow)

### Dimensions / Weight

Width	482.6 mm (bezel) / 435.4 mm (body)
Depth	610.75 mm
Installation depth in rack	558.75 mm (without projecting parts)
Height	42.8 mm / 1 HU
Weight	approx. 8.8 kg – 13.2 kg
Weight notes	Weight may vary depending on actual configuration
Rack mounting kit	Rack mounting kit as option

### Ventilation clearance

At least 200 mm on the front and rear

### Ambient conditions

Environment class 3K2	EN 60721 / IEC 721 Part 3-3
Environment class 2K2	EN 60721 / IEC 721 Part 3-2
Temperature:	
Operation (3K2)	5 °C ... 40 °C (with Cool-safe® ATD) 10 °C ... 35 °C (without Cool-safe® ATD)
Transport (2K2)	-25 °C ... 60 °C
Humidity	10% ... 85% (non condensing)

Condensation during operation must be avoided!

## Functional overview

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### Noise level

The acoustic noise values are depending on the system configuration.

	<b>standard fan configuration</b>	<b>redundant fan configuration</b>
Sound power level $L_{WA_d}$ (ISO 9296)	< 5.2 B (standby) < 5.3 B (operation)	< 5.4 B (standby) < 5.4 B (operation)
Sound pressure level at adjacent workstation $L_{pAm}$ (ISO 9296)	< 34 dB(A) (standby) < 35 dB(A) (operation)	< 36 dB(A) (standby) < 36 dB(A) (operation)

### Electrical values

Power supply configuration	1x standard power supply or 1x hot-plug power supply or 2x hot plug power supply for redundancy
Max. output	300 W (standard power supply unit) 450 W (hot-plug power supply unit)
Rated voltage range	100 V - 240 V
Rated frequency range	50 Hz - 60 Hz
Rated current	max. 4.0 A - 2.0 A (100 V - 240 V)

**Compliance with regulations and standards**

Product safety and ergonomics	
International	IEC 60950-1 2ed.
Europe	
Safety	EN 60950-1 2ed. EN 50371 EN 50392
Ergonomics	ISO 9241-3 EN 2941-3 EK1-ITB2000:2013
USA / Canada	CSA-C22.2 No. 60950-1-07 2ed. UL 60950-1 2ed.
Taiwan	CNS 14336
China	GB 4943
Electromagnetic compatibility	
International	CISPR 22
Europe	EN 55022 Class A EN 55024 EN 61000-3-2 EN 61000-3-3 ETSI 300386
USA / Canada	47CFR part 15 Class A / ICES-003
Taiwan	CNS 13438 Class A
China	GB 9245 / GB 17625
Japan	VCCI Class A / JEITA
Korea	KN 22 / KN 24
CE marking to EU directives	Low Voltage Directive 2006/95/EC Electromagnetic compatibility 2004/108/EC

## Functional overview

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### Screen resolution

The screen resolutions in the following table refer to the graphics controller on the system board. The graphics controller is integrated in the iRMC S4 (integrated Remote Management Controller).

<b>Screen resolution (pixel)</b>	<b>Maximum refresh rate (Hz)</b>	<b>Max. number of colours</b>
640x480	85	32 bit
800x600	85	32 bit
1024x768	75	32 bit
1152x864	60	16 bit
1280x1024	60	24 bit
1600x1200	60	16 bit
1920x1080	60	16 bit

If you are using an external graphics controller, you will find details of supported screen resolutions in the Operating Manual or Technical Manual supplied with the graphics controller.

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## 3 Installation steps, overview

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

- ▶ First of all, it is essential that you familiarize yourself with the safety information in chapter ["Important information" on page 33](#).
- ▶ Transport the server to the place where you want to set it up.
- ▶ Unpack all parts, check the contents of the package for visible transport damage and check whether the items delivered match the details on the delivery note (see section ["Unpacking the server" on page 48](#)).
- ▶ Make sure that all necessary manuals (see ["Documentation overview" on page 12](#)) are available; print out the PDF files if required.
- ▶ Components that have been ordered additionally may be delivered loose with the server. Install these in the server as described in the supplied documentation.
- ▶ Install the server in the rack (see section ["Installing/removing the server in/from the rack" on page 49](#)).
- ▶ Wire the server. Follow the instructions in sections ["Connecting devices to the server" on page 51](#) and ["Notes on connecting/disconnecting cables" on page 56](#).
- ▶ Connect the server to the mains (see section ["Connecting the server to the mains" on page 53](#)).
- ▶ Familiarize yourself with the controls and indicators on the front and rear of the server (see section ["Control elements and indicators" on page 59](#)).
- ▶ Configure the server and install the desired operating system and applications. The following options are available:
  - Remote installation with the ServerView Installation Manager:  
With the ServerView Suite DVD provided, you can configure the server and install the operating system in a convenient manner.

Details on how to operate the ServerView Installation Manager, as well as some additional information, are included in the "ServerView Suite Installation Manager" user's guide (on the Fujitsu manuals server under *Industry Standard Servers - Software - ServerView Suite - Server Installation and Deployment*).

Configuration information can also be found in section "[Configuring the server and installing the operating system with the ServerView Installation Manager](#)" on page 72.

- Local configuration and installation with or without the ServerView Installation Manager (see section "[Configuring the server and installing the operating system with the ServerView Installation Manager](#)" on page 72 or section "[Configuring the server and installing the operating system without the ServerView Installation Manager](#)" on page 73).



You will find more information on installing the server remotely or locally in the "ServerView Suite Installation Manager" user's guide (on the Fujitsu manuals server under *Industry Standard Servers - Software - ServerView Suite - Server Installation and Deployment*).



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## 4 Important information

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

### 4.1 Safety instructions



The following safety instructions are also provided in the manual "Safety Notes and Regulations" or "安全上のご注意".

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



#### CAUTION!

- The actions described in this manual shall be performed by technical specialists. A technical specialist is a person who is trained to install the server including hardware and software.
- Repairs to the device that do not relate to CSS failures shall be performed by service personnel. Please note that unauthorized interference with the system will void the warranty and exempt the manufacturer from all liability.
- Any failure to observe the guidelines in this manual, and any improper repairs could expose the user to risks (electric shock, energy hazards, fire hazards) or damage the equipment.
- Before installing/removing internal options to/from the server, turn off the server, all peripheral devices, and any other connected devices. Also unplug all power cords from the power outlet. Failure to do so can cause electric shock.



#### CAUTION!

Hazardous moving parts. Keep away from moving fan blades.

### Before starting up



#### CAUTION!

- During installation and before operating the device, observe the instructions on environmental conditions for your device (see ["Ambient conditions" on page 27](#)).
- If the server has been moved from a cold environment, condensation may form both inside and on the outside of the machine.

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

- Only transport the server in the original packaging or in packaging that protects it from impacts and jolts.

### Installation and operation



#### CAUTION!

- This unit should not be operated in ambient temperatures above 35 °C. For servers with Cool-safe® Advanced Thermal Design the ambient temperature can increase to 40 °C.
- If the unit is integrated into an installation that draws power from an industrial power supply network with an IEC309 connector, the power supply's fuse protection must comply with the requirements for non-industrial power supply networks for type A connectors.
- The unit automatically adjusts itself to a mains voltage in a range of 100 V - 127 V / 200 V - 240 V. Ensure that the local mains voltage lies within these limits.
- This device must only be connected to properly grounded power outlets or insulated sockets of the rack's internal power supply with tested and approved power cords.
- Ensure that the device is connected to a properly grounded power outlet close to the device.



### CAUTION!

- Ensure that the power sockets on the device and the properly grounded power outlets are freely accessible.
- The On/Off button or the main power switch (if present) does not isolate the device from the mains power supply. To disconnect it completely from the mains power supply, unplug all network power plugs from the properly grounded power outlets.
- Always connect the server and the attached peripherals to the same power circuit. Otherwise you run the risk of losing data if, for example, the server is still running but a peripheral device (e.g. memory subsystem) fails during a power outage.
- Data cables must be adequately shielded.
- Ethernet cabling has to comply with EN 50173 and EN 50174-1/2 standards or ISO/IEC 11801 standard respectively. The minimum requirement is a Category 5 shielded cable for 10/100 Ethernet, or a Category 5e cable for Gigabit Ethernet.
- Route the cables in such a way that they do not create a potential hazard (make sure no-one can trip over them) and that they cannot be damaged. When connecting the server, refer to the relevant instructions in this manual.
- Never connect or disconnect data transmission lines during a storm (risk of lightning hazard).
- Make sure that no objects (e.g. jewelry, paperclips etc.) or liquids can get inside the server (risk of electric shock, short circuit).
- In emergencies (e.g. damaged casing, controls or cables, penetration of liquids or foreign bodies), switch off the server immediately, remove all power plugs and contact your sales outlet or customer service team.



### CAUTION!

- Proper operation of the system (in accordance with IEC 60950-1/2 resp. EN 60950-1/2) is only ensured if the casing is completely assembled and the rear covers for the installation slots have been fitted (electric shock, cooling, fire protection, interference suppression).
- Only install system expansions that satisfy the requirements and rules governing safety and electromagnetic compatibility and those relating to telecommunication terminals. If you install other expansions, they may damage the system or violate the safety regulations. Information on which system expansions are approved for installation can be obtained from our customer service center or your sales outlet.
- The components marked with a warning notice (e.g. lightning symbol) may only be opened, removed or exchanged by authorized, qualified personnel. Exception: CSS components can be replaced.
- The warranty is void if the server is damaged during installation or replacement of system expansions.
- Only set screen resolutions and refresh rates that are specified in the operating manual for the monitor. Otherwise, you may damage your monitor. If you are in any doubt, contact your sales outlet or customer service center.
- Before installing/removing internal options to/from the server, turn off the server, all peripheral devices, and any other connected devices. Also unplug all power cords from the outlet. Failure to do so can cause electric shock.
- Do not damage or modify internal cables or devices. Doing so may cause a device failure, fire, or electric shock.
- Devices inside the server remain hot after shutdown. Wait for a while after shutdown before installing or removing internal options.
- The circuit boards and soldered parts of internal options are exposed and can be damaged by static electricity. Before handling them, first touch a metal part of the server to discharge static electricity from your body.
- Do not touch the circuitry on boards or soldered parts. Hold the metallic areas or the edges of the circuit boards.



### CAUTION!

- Install the screw removed during installation/detaching Internal Options in former device/position. To use a screw of the different kind causes a breakdown of equipment.
- The installation indicated on this note is sometimes changed to the kind of possible options without notice.

## 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 PRIMERGY RX100 S8 Server Upgrade and Maintenance manual).
- Do not throw batteries into the trash can.
- Batteries must be disposed of in accordance with local regulations concerning special waste.
- Replace the lithium battery on the system board in accordance with the instructions in the PRIMERGY RX100 S8 Server Upgrade and Maintenance manual.
- 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

### Working with CDs/DVDs/BDs and optical drives

When working with devices with optical drives, these instructions must be followed.



#### CAUTION!

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

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

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

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

- High humidity and airborne dust levels are to be avoided. Electric shocks and/or server failures may be caused by liquids such as water, or metallic items, such as paper clips, entering a drive.
- Shocks and vibrations are also to be avoided.
- Do not insert any objects other than the specified CDs/DVDs/BDs.
- Do not pull on, press hard, or otherwise handle the CD/DVD/BD tray roughly.
- Do not disassemble the optical drive.
- Before use, clean the optical disk tray using a soft, dry cloth.
- As a precaution, remove disks from the optical drive when the drive is not to be used for a long time. Keep the optical disk tray closed to prevent foreign matter, such as dust, from entering the optical drive.
- Hold CDs/DVDs/BDs by their edges to avoid contact with the disk surface.

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



You can prevent damage from the optical drive and the CDs/DVDs/BDs, as well as premature wear of the disks, by observing the following suggestions:

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

### Laser information

The optical drive complies with IEC 60825-1 laser class 1.



#### **CAUTION!**

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

**Never remove parts of the optical drive casing!**

### Modules with Electrostatic-Sensitive Devices

Modules with electrostatic-sensitive devices are identified by the following sticker:

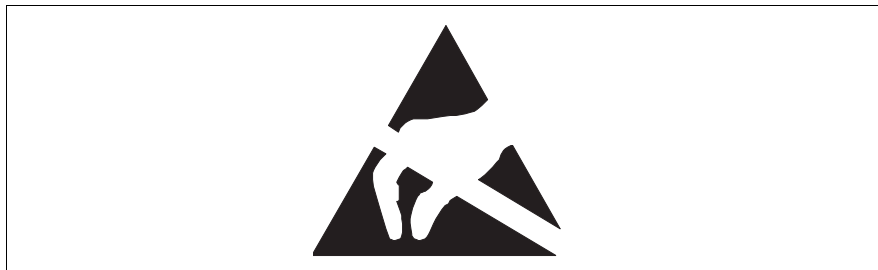


Figure 1: ESD label

When you handle components fitted with ESDs, you must always observe the following points:

- Switch off the system and remove the power plugs from the power outlets before installing or removing components with ESDs.
- You must always discharge static build-up (e.g. by touching a grounded object) before working with such components.
- Any devices or tools that are used must be free of electrostatic charge.
- Wear a suitable grounding cable that connects you to the external chassis of the system unit.
- Always hold components with ESDs at the edges or at the points marked green (touch points).
- Do not touch any connectors or conduction paths on an ESD.
- Place all the components on a pad which is free of electrostatic charge.



For a detailed description of how to handle ESD components, see the relevant European or international standards (EN 61340-5-1, ANSI/ESD S20.20).



**Other important information:**

- During cleaning, observe the instructions in section "[Cleaning the server](#)" on [page 74](#).
- Keep this operating manual and the other documentation (such as the technical manual, documentation DVD) close to the device. All documentation must be included if the equipment is passed on to a third party.

## 4.2 ENERGY STAR



Products that have been certified compliant with ENERGY STAR and identified as such are in full compliance with the specification at shipping. Note that energy consumption can be affected by software that is installed or any changes that are made to the hardware configuration or BIOS or energy options subsequently. In such cases, the properties guaranteed by ENERGY STAR can no longer be assured.

The "ServerView Operations Manager" user guide contains instructions for reading out measurement values, including those relating to current energy consumption and air temperatures. Either the Performance Monitor or the Task Manager can be used to read out CPU utilization levels.

## 4.3 CE conformity



The system complies with the requirements of the EC directives 2004/108/EC regarding "Electromagnetic Compatibility" and 2006/95/EC "Low Voltage Directive". This is indicated by the CE marking (CE = Communauté Européenne).

### 4.4 FCC Class A Compliance Statement

If there is an FCC statement on the device, it 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 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. 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.

#### **WARNING:**

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

## 4.5 Transporting the server



### **CAUTION!**

Only transport the server in its original packaging or in packaging that protects it from impacts 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.

Never lift or carry the device by the Quick Release Levers (QRLs) on the front panel.

## 4.6 Notes on installing the server in the rack



### CAUTION!

- For safety reasons, at least two people are required to install the server in the rack because of its weight and size.  
(For the Japanese market, please refer to "安全上のご注意".)
- Never lift the server into the rack using the QRLs (Quick Release Levers) on the front panel.
- When connecting and disconnecting cables, observe the relevant instructions in the "Important Information" chapter of the technical manual for the corresponding rack. The technical manual is supplied with the corresponding rack.
- When installing the rack, make sure that the anti-tilt mechanism is correctly fitted.
- Do not extend more than one unit out of the rack simultaneously even if the tilt protection is in place. If several units are simultaneously extended from the rack, there is a risk that the rack could tip over. See the safety information of the rack and the warning label.
- Only for the EMEA market:  
The rack must be connected to the power supply by an authorized specialist (electrician).
- If the server is integrated into an installation that draws power from an industrial power supply network with an IEC309 type connector, the power supply's fuse protection must comply with the requirements for non-industrial power supply networks for the type A connector.

## 4.7 Environmental protection

### Environmentally-friendly product design and development

This product has been designed in accordance with the Fujitsu standard for "environmentally friendly product design and development". This means that key factors such as durability, selection and labeling of materials, emissions, packaging, ease of dismantling and recycling have been taken into account.

This saves resources and thus reduces the harm done to the environment. Further information can be found at:

- [http://ts.fujitsu.com/products/standard\\_servers/index.html](http://ts.fujitsu.com/products/standard_servers/index.html) (for the EMEA market)
- <http://jp.fujitsu.com/platform/server/primergy/concept/> (for the Japanese market)

### Energy-saving information

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

### Packaging information

This packaging information doesn't apply to the Japanese market.

Do not throw away the packaging. You may need it later for transporting the system. If possible, the equipment should only be transported in its original packaging.

### Information on handling consumables

Please dispose of printer consumables and batteries in accordance with the applicable national regulations.

In accordance with EU directives, batteries must not be disposed of with unsorted domestic waste. They can be returned free of charge to the manufacturer, dealer or an authorized agent for recycling or disposal.

All batteries containing pollutants are marked with a symbol (a crossed-out garbage can). They are also marked with the chemical symbol for the heavy metal that causes them to be categorized as containing pollutants:

Cd Cadmium  
Hg Mercury  
Pb Lead

## Important information

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### Labels on plastic casing parts

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

### Returns, recycling and disposal

Please handle returns, recycling and disposal in accordance with local regulations.



The device must not be disposed of with domestic waste. This device is labeled in compliance with European directive 2002/96/EC on waste electrical and electronic equipment (WEEE).

This directive sets the framework for returning and recycling used equipment and is valid across the EU. When returning your used device, please use the return and collection systems available to you. Further information can be found at

<http://ts.fujitsu.com/recycling>.

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

Fujitsu Technology Solutions  
Recycling Center  
D-33106 Paderborn

Tel. +49 5251 525 1410  
Fax +49 5251 525 32 1410

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## 5 Hardware installation



### CAUTION!

- Follow the safety instructions in the chapter "[Important information](#)" on page 33.
- Do not expose the server to extreme environmental conditions (see "[Ambient conditions](#)" on page 27). Protect the server from dust, humidity and heat.
- Make sure that the server is acclimatized for the time indicated in this table before putting it into operation.

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

Table 1: Acclimatization time

In the [table "Acclimatization time"](#), the temperature difference refers to the difference between the operating environment temperature and the temperature to which the server was exposed previously (outside, transport or storage temperature).

### 5.1 Unpacking the server



#### CAUTION!

Follow the safety instructions in ["Important information" on page 33](#).

The server must always be lifted or carried by at least two people.  
(For the Japanese market, please refer to "安全上のご注意".)

Do not unpack the server until it is at its installation location.

- ▶ Transport the server to the place where you want to set it up.
- ▶ Unpack all individual parts.

Keep the original packaging in case you want to transport the server again (applies only to EMEA market).

- ▶ Check the delivery for any damage during transport.
- ▶ Check whether the items delivered match the details on the delivery note.

The product name and serial number of the product can be found on the ID card (see section ["ID card" on page 60](#)).

- ▶ Notify your supplier immediately should you discover that the items delivered do not correspond to the delivery note.
- ▶ Remove all scratching protection foils from the front panel, HDD frames, Fujitsu and PRIMERGY logo, VGA dummy and ODD dummy in case they are still stuck to the server system.



## 5.2 Installing/removing the server in/from the rack



### CAUTION!

- Please observe the safety information and notes on rack mounting in chapter "Important information" on page 33 and section "Notes on installing the server in the rack" on page 44.
- At least two people are needed to install / remove the server in the rack. (For the Japanese market, please refer to "安全上のご注意".)
- Do not extend more than one unit out of the rack simultaneously even if the tilt protection is in place. If several units are simultaneously extended out of the rack, there is a risk that the rack could tip over.

### Fujitsu rack systems

The rack systems from Fujitsu support the installation of PRIMERGY servers:

- PRIMECENTER rack
- PRIMECENTER M1 rack
- DataCenter rack
- 19-inch standard rack (for the Japanese market)
- 19-inch slim rack (for the Japanese market)



For information on mounting the server in the rack please refer to the Mounting Instructions provided with the Rack Mounting Kit. Further information you find in the manual of your rack system.

For the Japanese market, please refer also to the "Rack system structure guide".



Online documentation for rack installation can be found on:

<http://manuals.ts.fujitsu.com/index.php?id=5406-5605-5606>  
(for the EMEA market)

[http://jp.fujitsu.com/platform/server/primergy/manual/peri\\_rack.html](http://jp.fujitsu.com/platform/server/primergy/manual/peri_rack.html)  
(for the Japanese market).

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

The power is supplied via the multiple socket outlets fitted in the rack (for the EMEA market).

## Hardware installation

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The main features of Fujitsu rack systems are as follows:

- rail systems that can be mounted without tools
- support systems having a linear alignment feature to ensure that they can be adjusted to different rack depths

Asymmetrical PRIMECENTER Rack and DataCenter Rack provide an enhanced cable management in the lateral rack area.

### 3rd party racks



Installation in most current rack systems from other manufacturers (3rd party racks) is also supported. For details please contact your sales representative.

## 5.3 Connecting devices to the server

The connectors for external devices are on the front and rear of the server. The additional connectors available on your server depend on the expansion cards installed.

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



Figure 2: Ports on the front

The following connectors are located on the front of the server:

1	2 x USB 3.0 connectors
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A front VGA connector is available as an option

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## Hardware installation

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

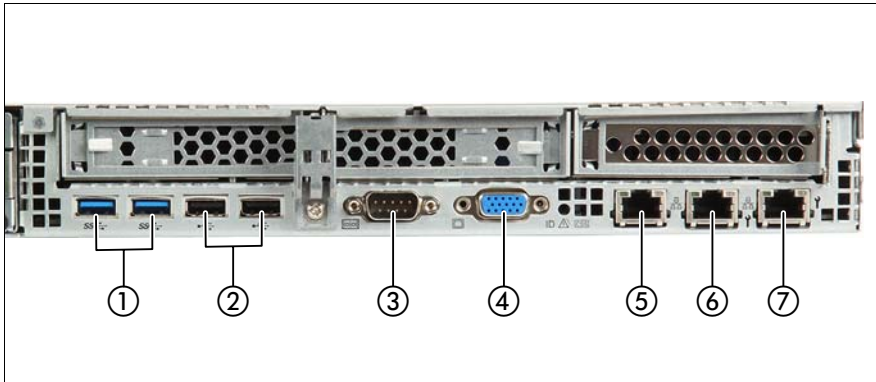


Figure 3: Connectors on the rear

1	2 x USB 3.0 connectors	5	Standard LAN connector (LAN1)
2	2 x USB 2.0 connectors	6	Shared LAN connector (LAN2)
3	Serial connector COM1 *	7	Management LAN connector
4	Video connector (blue)		



Shared LAN connector is displayed in the BIOS Setup Utility and on the MAC address label as LAN2. Standard LAN connector is displayed in the BIOS Setup Utility and on the MAC address label as LAN1.

- \* The serial interface COM1 can be used as the standard interface or for communication with iRMC.
- Connect the data cables to the server and peripherals.

### 5.3.1 Connecting the monitor

- ▶ Plug the data cable for the monitor into the video connector on the server (item 4 in figure 3 on page 52).



#### CAUTION

The height of VGA cable connectors can vary. Please make sure that the VGA connector cables do not interfere with the server below.

- ▶ Connect the insulated connector on the monitor power cable to a grounded outlet in the rack's socket strip (see also the technical manual for the rack).

## 5.4 Connecting the server to the mains

In its basic configuration the server has a permanently installed power supply unit or a hot-plug power supply unit. Besides the hot-plug power supply unit, a second hot-plug power supply unit can be installed optionally to serve as a redundant power supply. If one power supply unit fails, the second power supply unit in the redundant configuration ensures operation can continue uninterrupted.



#### CAUTION!

The server is automatically set to a mains voltage in the range 100 V - 127 V / 200 V - 240 V. You may only operate the server if its rated voltage range corresponds to the local mains voltage.

- ▶ Connect the power cord to the server power supply unit.
- ▶ Connect the mains connector to an outlet on the rack's socket strip.



For details, please see the technical manual for the rack.

### 5.4.1 Using cable ties (standard PSU)

You can secure the power cord using a cable tie to ensure that the insulated connector cannot be disconnected from the server accidentally. The cable tie is included in the accessories pack that is delivered together with the server.



Figure 4: Using cable ties

- ▶ Thread the cable tie through the eye (1).
- ▶ Pull the cable tie tight to secure the power cord.

The insulated connector cannot now be disconnected from the server accidentally.

You can loosen the cable tie by opening the small locking lever (2).

## 5.4.2 Using the cable clamps (hot-plug PSU)

You can secure the power cords in cable clamps to ensure that the insulated connectors cannot be disconnected from the server accidentally.



Figure 5: Using cable clamps

- ▶ Pull the cable clamp up (1).
- ▶ Thread the power cord through the cable clamp (2).
- ▶ Press the cable clamp down until it engages to secure the cable (3).

### 5.5 Notes on connecting/disconnecting cables



#### **CAUTION!**

Always read the documentation supplied with the device you wish to connect.

Never connect, or disconnect cables during a thunderstorm.

Never pull on a cable when disconnecting it. Always take hold of the cable by the plug.

Follow the sequence described below to connect or disconnect external devices to or from the server:

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

#### **Connecting cables**

- ▶ Turn off all power and equipment switches.
- ▶ Disconnect all power plugs from the properly grounded power outlets.
- ▶ Connect all cables to the server and peripherals.
- ▶ Plug all data communication cables into the utility sockets.
- ▶ Plug all power cords into the properly grounded power outlets.

#### **Disconnecting cables**

- ▶ Turn off all power and equipment switches.
- ▶ Disconnect all power plugs from the properly grounded power outlets.
- ▶ Unplug all data communication cables from the utility sockets.
- ▶ Disconnect the relevant cables from the server and all the peripherals.



For connecting or disconnecting LAN cables, the server does not need to be powered off. To avoid loss of data teaming function has to be enabled.



### **Information for ensuring electromagnetic compatibility**

All data and signal cables must have sufficient shielding. The use of cable type S/FTP Cat5 or better is recommended.

Use of unshielded or badly shielded cables may lead to increased emission of interference and/or reduced fault-tolerance of the device.



# 6 Starting up and operation



## CAUTION!

Follow the safety instructions in chapter "[Important information](#)" on page 33.

## 6.1 Control elements and indicators

### 6.1.1 Front of the server

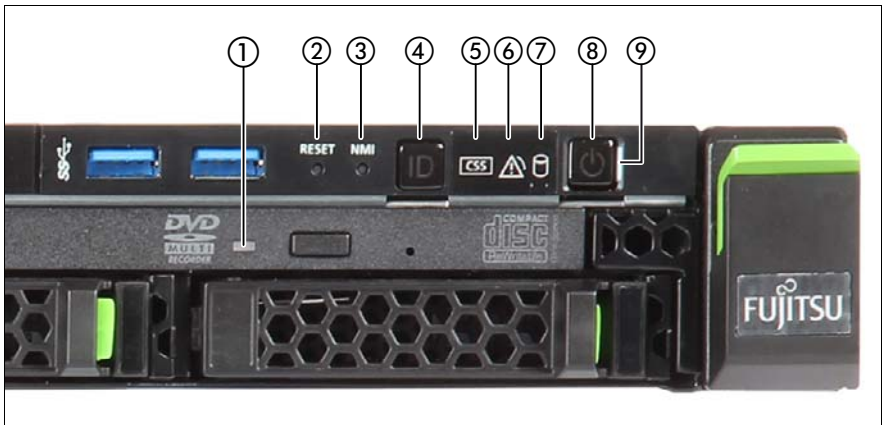


Figure 6: Controls and indicators on the front panel

1	Optical drive activity indicator	6	Global Error indicator
2	Reset button	7	Hard disk activity indicator
3	NMI button	8	On/Off button / power-on indicator
4	ID button / ID indicator	9	Power-off indicator (AC connected)
5	CSS indicator		

### 6.1.1.1 ID card



Figure 7: Controls and indicators on the front panel

You can pull out the ID card (1) and push it back again.

The ID card contains various system information, such as the product name, serial number, order number, MAC addresses and DNS name (in the Japanese market, only the product name and the serial number).

### 6.1.1.2 Control elements

#### ID ID button

ID LED lights up (blue) on the front and on the rear of the server when the ID button is pressed. Both ID indicators are synchronized.



#### 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.



#### **CAUTION!**

Risk of loss of data!



The On/Off button does not disconnect the server from the mains voltage. To disconnect from the mains completely, remove the power plug(s).

**RST** Reset button

Pressing the reset button reboots the system.



**CAUTION!**

Risk of loss of data!

**NMI** NMI button



**CAUTION!**

Do not press! Risk of loss of data! The NMI button may only be used by service personnel.

### 6.1.1.3 Indicators on the control panel

**ID** ID indicator (blue)

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

The ID indicator can also be activated via the ServerView Operations Manager and the iRMC S4 Web interface and its status reported to the ServerView Operations Manager and the iRMC S4.



**Power-on indicator (green)**

**Does not light up**, when the system is in power-off mode but connected to the mains (AC connected).

**Lights up green** during the power-on delay and while the system is in normal operation (S0).

### **Power-off indicator (AC connected)**

at the right side of the On/Off button (green)

**Does not light up** in the following cases:

- the system is not connected to the mains
- the system is powered on and in normal operation (S0)

**Lights up green** in the following cases:

- the system is in power-off mode but connected to the mains (AC connected)
- the system has been switched on and is in power-on delay



After connecting the server to the mains it takes about 60 seconds until the server enters the standby mode.

### **CSS CSS indicator (orange)**

- **Lights up orange** if a prefailure event was detected for a CSS component that you can fix yourself (for reasons of precaution) with the CSS concept.
- **Flashes orange** if an error was detected that you can fix yourself with the CSS concept.
- **Does not light up** when the system is OK.

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

The indicator also lights up in standby mode.

For more information on the CSS concept, see the PRIMERGY RX100 S8 Server Upgrade and Maintenance manual.



### **Hard disk activity indicator (green)**

**Lights up green** when an internal hard disk drive is accessed.



### Global Error indicator (orange)

- **Lights up orange** if a prefailure event has been detected that requires (precautionary) service intervention.
- **Flashes orange** if an error was detected that requires service intervention.
- **Does not light up** if there is no critical event.

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

The indicator also lights up in standby mode.

You can find more details on the indicated errors in the System Event Log (SEL), in the ServerView Operations Manager or via the iRMC S4's Web interface.

### 6.1.1.4 Indicators on the accessible drives/components

#### Optical drive activity indicator

Lights up green when the storage medium is being accessed.

#### Indicators on the hot-plug HDD module



Figure 8: Indicators on the hot-plug HDD module

1	<b>HDD BUSY (green)</b> <ul style="list-style-type: none"><li>– Lit: HDD in active phase (drive active, drive being accessed)</li><li>– Does not light: HDD inactive</li></ul>
2	<b>HDD FAULT (orange)</b> <ul style="list-style-type: none"><li>– Does not light: no HDD error</li><li>– Lights up: HDD Faulty or Rebuild Stopped (drive defective/needs replacing, a rebuild process was stopped or the HDD module is not correctly inserted)</li><li>– Slow flashing: HDD Rebuild (the data is being restored after changing a drive)</li></ul>



## 6.1.2 Rear of server

### ID indicator and error indicator

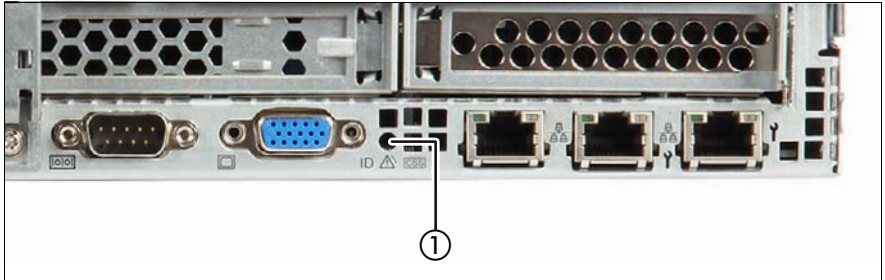


Figure 9: Indicators on the connector panel: ID and Error indicators

1	ID and Error indicators (blue and orange)
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#### ID ID indicator (blue)

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

The ID indicator can also be activated via the ServerView Operations Manager and the iRMC S4 Web interface and its status reported to the ServerView Operations Manager and the iRMC S4.



#### Error indicator (orange)

**CSS**

- **Lights up orange** if a prefailure event has been detected.
- **Flashes orange** if an error was detected.
- **Does not light up** if there is no critical event.

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

The indicator also lights up in standby mode.

You can find more details on the indicated errors in the System Event Log (SEL), in the ServerView Operations Manager or via the iRMC S4's Web interface.

### LAN indicators

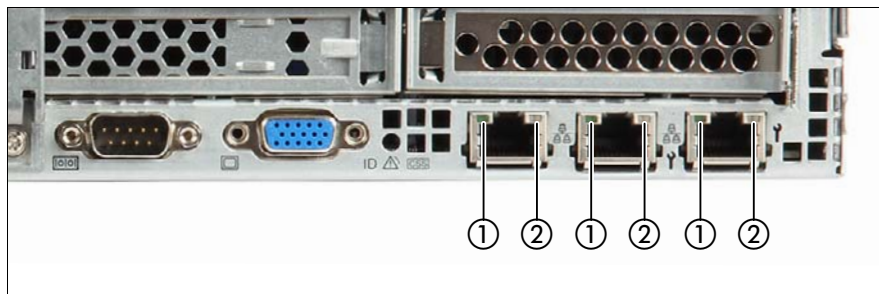


Figure 10: LAN indicators

LED	Indicator	Description
1	LAN link/transfer	<b>Lights up green</b> when a LAN connection exists. <b>Remains dark</b> when no LAN connection exists. <b>Flashes green</b> when LAN transfer takes place.
2	LAN speed	<b>Lights up yellow</b> in the event of a LAN transfer rate of 1 Gbit/s <b>Lights up green</b> in the event of a LAN transfer rate of 100 Mbit/s. <b>Remains dark</b> in the event of a LAN transfer rate of 10 Mbit/s.

## Indicator on hot-plug power supply unit

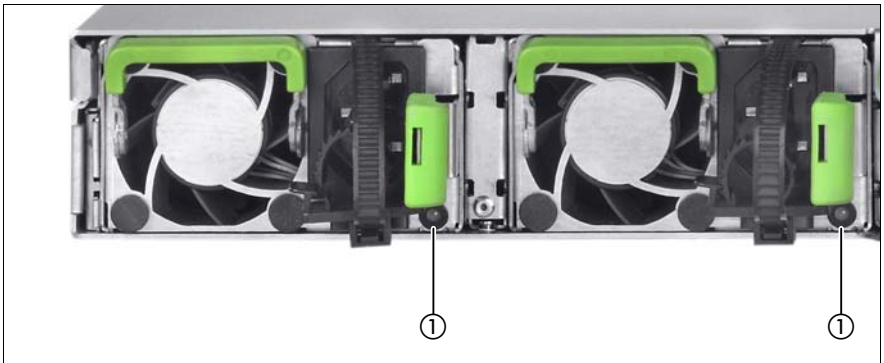


Figure 11: Indicator on hot-plug power supply unit

1	<p>Indicator on hot-plug power supply unit (two colors)</p> <p><b>Flashes green (1 Hz)</b> when the server is switched off, but mains voltage is present (standby mode).</p> <p><b>Lights up green</b> when the server is switched on and functioning properly.</p> <p><b>Flashes orange</b> in case of an overload (&gt;105%).</p> <p><b>Lights up orange</b> in the following cases:</p> <ul style="list-style-type: none"><li>– PSU failure</li><li>– Over voltage or under voltage</li><li>– Over temperature</li><li>– Fan failure</li></ul>
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### 6.2 Switching the server on and off



#### CAUTION!

- If nothing appears on the screen but flickering stripes after switching on the server, switch the server off immediately (see chapter "[Troubleshooting and tips](#)" on page 79).
- The On/Off button does not disconnect the server from the mains voltage. To completely disconnect it from the mains voltage, remove all power plug(s) from the socket(s).
- Do not move, strike, or shake the server when it is turned on. This can damage the hard disk in the server and cause data loss.
- Turn the server on when the temperature is in its operating environment range (15–35°C). For details on the operating environment, refer to "Safety Precautions". When operating the device outside of this operating environment, the server may operate improperly, damage data etc. Furthermore, Fujitsu cannot be held responsible for any related damage, malfunction, or loss of data, etc.
- Be sure to wait for 10 seconds or more after shutdown before turning the server on.
- After connecting power cords, press a power supply button after it passes for more than 10 seconds.

#### Switching the server on

The AC connected indicator (item 5 in figure [9 on page 65](#)) lights up green (standby mode) when the server is connected to the mains.



It takes about 60 seconds until power-on becomes possible.

#### – Starting up for the first time:

For the Japanese market, please refer to "はじめにお読みください" as well.

- ▶ Press the On/Off button (see figure [6 on page 59](#)).
- ▶ Insert ServerView Suite DVD in the DVD drive.

- ▶ Follow the on-screen instructions (see also section ["Configuring the server and installing the operating system with the ServerView Installation Manager" on page 72](#) or section ["Configuring the server and installing the operating system without the ServerView Installation Manager" on page 73](#)).
- **System already installed:**
  - ▶ Press the On/Off button (see figure [6 on page 59](#)).

The server is switched on, performs a system test and boots the operating system.

### Switching the server off

The power-on indicator lights up green (see figure [6 on page 59](#)).

- ▶ Shut down the operating system properly.

The server is switched off automatically and goes into standby mode. The AC connected indicator lights up green.



If the operating system does not switch the server off automatically, press the On/Off button for at least four seconds and/or send a corresponding control signal.

### Other On/Off options

Besides the On/Off button, the server can be switched ON and OFF in the following ways:

- **Timer-controlled switch-on/off**

Using the ServerView Operations Manager or iRMC S4, you can configure that the server is switched on/off controlled by timer.
- **Ring indicator**

The server is switched on by an internal or external modem.
- **Wake up On LAN (WOL)**

The server is switched on by a command via the LAN (Magic Packet™).
- **After power failure**

The server automatically reboots following a power failure (depending on the settings in the BIOS or in iRMC S4).

### – Power button override

The system can be switched off by pressing and holding down the On/Off button (for approximately 4 - 5 seconds).



#### **CAUTION!**

There is a risk that data may be lost.

### – iRMC S4

iRMC S4 offers various options for switching the server on and off, e.g. via the *Power On Off* page of the iRMC S4 Web interface.

## 6.3 Configuring the server

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



Make sure that the power saving functions are disabled in the *Power* menu of the BIOS Setup during operation.

### 6.3.1 Configuring the onboard SATA controller

A SATA controller is integrated on the system board. You can configure the onboard controller either before or during installation with the ServerView Installation Manager. Using the ServerView Installation Manager is recommended.



The controller has its own configuration utility. For further information, refer to the “Embedded MegaRAID Software User’s Guide” (on the Fujitsu manuals server under *Industry Standard Servers - Expansion Cards - Storage Adapters - LSI SAS / SCSI RAID Controllers*).




Descriptions of operating systems not covered in the controller manual are provided in the corresponding readme under:

<http://www.fujitsu.com/global/services/computing/server/ia/driver/index.html>  
(for the EMEA market).


<http://jp.fujitsu.com/platform/server/primergy/downloads/>  
(for the Japanese market).

## 6.3.2 Configuring the SAS/SATA RAID controller

The server has a SAS/SATA RAID controller with "MegaRAID functionality". You can configure the SAS/SATA RAID controller either before or during installation with the ServerView Installation Manager. Using the ServerView Installation Manager is recommended.

 A separate utility is available to the controller for MegaRAID configuration. For further information, refer to the "SAS Software User's Guide" (on the Fujitsu manuals server under *Industry Standard Servers - Expansion Cards - Storage Adapters - LSI Configuration Software*).

Further information on modular RAID controllers is provided in the "Modular RAID Controller Installation Guide" (on the Fujitsu manuals server under *Industry Standard Servers - Expansion Cards - Storage Adapters - LSI SAS / SCSI RAID Controllers*).

 Descriptions of operating systems not covered in the controller manual are provided in the corresponding readme under:

<http://www.fujitsu.com/global/services/computing/server/ia/driver/index.html>  
(for the EMEA market).

<http://jp.fujitsu.com/platform/server/primergy/downloads/>  
(for the Japanese market).

### 6.3.3 Configuring the server and installing the operating system with the ServerView Installation Manager

Using the ServerView Installation Manager on the ServerView Suite DVD provided, you can conveniently configure the server and install the operating system. This includes configuring the server-specific settings using the ServerView Configuration Manager and configuring the RAID controller using the **ServerView RAID Manager**.

#### Advantages of the ServerView Installation Manager

- Wizard assisted configuration of your server hardware and disk arrays
- Wizard assisted installation of all leading server operating systems
- Wizard-assisted 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 corresponding readme files under:

<http://www.fujitsu.com/global/services/computing/server/ia/driver/index.html>  
(for the EMEA market).

<http://jp.fujitsu.com/platform/server/primergy/downloads/>  
(for the Japanese market).

To find out how to operate the ServerView Installation Manager and for further information, refer to the associated manual.

If you are using the ServerView Installation Manager, you can skip the following section on how to configure the server and install the operating system. Continue from section "[Cleaning the server](#)" on page 74.



## 6.3.4 Configuring the server and installing the operating system without the ServerView Installation Manager

### Configuring the onboard SAS/SATA controller

Configure the controller as described in section "[Configuring the onboard SATA controller](#)" on page 70.

### Configuring the onboard SAS controller with "Integrated Mirroring Enhanced"

Configure the controller as described in section "[Configuring the onboard SATA controller](#)" on page 70.

### Configure SAS/SATA RAID controller with "MegaRAID functionality"

Configure the controller as described in section "[Configuring the SAS/SATA RAID controller](#)" on page 71.

### Installing the operating system

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

### 6.4 Cleaning the server



#### **CAUTION!**

Switch off the server and disconnect the power plugs from the properly grounded power outlets.

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.

Do not use any cleaning sprays (including flammable types). It may cause a device failure or a fire.

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.

---

## 7 Property and data protection

The lockable rack door protects the server against unauthorized access.

To protect the system and data internally against unauthorized access, you can activate the security functions of the BIOS Setup.

### 7.1 BIOS Setup security functions

The *Security* menu in BIOS Setup offers various options for protecting your data from unauthorized access. By combining these options, you can achieve optimum protection for your system.



A detailed description of the *Security* menu and how to assign passwords can be found in the BIOS Setup documentation.



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## 8 Troubleshooting and tips



### CAUTION!

Follow the safety instructions in the "Safety notes and regulations" manual or "安全上のご注意" and in chapter ["Important information" on page 33](#).

If a fault occurs, attempt to resolve it using the measures described:

- in this chapter,
- in the documentation for the connected 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 performed 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.

### 8.1 Power-on indicator remains unlit

The power-on indicator remains dark after you switch on your device.

#### Power cable incorrectly connected

- ▶ Make sure that the power cable is correctly connected to the server and to the power outlet on the rack's socket strip.

#### Power supply overloaded

- ▶ Disconnect the server power plug from the insulated socket.
- ▶ Wait a few seconds before you plug it into the insulated socket again.
- ▶ Switch on your server.

### 8.2 Server switches itself off

#### Server Management has detected an error

- ▶ Check the error list of System Event Log in ServerView Operations Manager or in the iRMC S4 web interface, and attempt to eliminate the error.

### 8.3 Screen remains blank

#### Monitor is switched off

- ▶ Switch on your monitor.

#### Screen has gone blank

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



If a monitor is connected to the optional front VGA connector, the monitor connected to the rear VGA connector remains blank.

#### Brightness control is set to dark

- ▶ Set the brightness control on the monitor to light. For detailed information, 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 power outlet.
- ▶ 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.

## 8.4 Flickering stripes on monitor screen



### 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 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 the software for the screen controller for details of how to set the correct horizontal frequency for your monitor, and follow the procedure accordingly.

## 8.5 No screen display or 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 the software for the screen controller for details of how to set the correct horizontal frequency for your monitor, and follow the procedure accordingly.

## 8.6 No mouse pointer displayed on screen

### Mouse driver not loaded

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

### 8.7 Incorrect date and time

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

**i** Note that the operating system may affect the system time. For example, the operating system time may deviate from the system time under Linux, and would overwrite the system time in the default setting on shutdown.

If the date and time are still wrong after the server has been switched off and back on again, replace the lithium battery (for a description refer to the PRIMERGY RX100 S8 Server Upgrade and Maintenance manual) or contact our customer service team.

### 8.8 Drives reported as “dead” when starting system

This error message can occur when the onboard SAS controller has RAID functionality or the server is equipped with a PCI RAID controller.

#### **RAID controller configuration incorrect**

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

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

### 8.9 Added drive reported as defective

#### **RAID controller is not configured for this drive**

The drive was probably installed when the system was switched off.

- ▶ Reconfigure the RAID controller for the drive using the corresponding utility. Information is provided in the documentation for the RAID controller.

or

- ▶ Remove and reinstall the drive while the system is switched ON.

If the drive continues to be shown as defective, then replace it.



## 8.10 Error message on screen

The meaning of the error message is explained in the documentation for the relevant components and programs on the Fujitsu manuals server.

## 8.11 Expansion cards or onboard devices not recognized

When an expansion card is added, other expansion cards or onboard devices might not be recognized.

- ▶ Reinstall the drivers for the expansion cards or onboard devices that are not recognized.

## 8.12 Temperature warning

A temperature warning is output to the hardware event log and OS event log, or ServerView issues a notification of a temperature warning such as by a popup message.

The above log is output or the above notification is issued by ServerView when the ambient temperature exceeds the upper limit of the temperature boundaries. The upper limit is 35°C for standard server and 40°C with Cool-safe® Advanced Thermal design.

- ▶ Although continued use within the temperature boundaries poses no problems within itself, reconsider the surrounding environment conditions if this log is output or if ServerView issues this notification.

## 8.13 No effect of keyboard or mouse

Typing the keyboard does not display any characters, or the mouse cursor does not move.

- ▶ Check to see whether the keyboard and mouse are connected properly. If they are not connected or you replaced them yourself, then connect the cables to the server.

### 8.14 Optical drive cannot read data

- ▶ Check to see whether the CD/DVD/BD is inserted properly. If it is not inserted, correctly insert the disk so that the label is facing up.
- ▶ Check to see whether the CD/DVD/BD is not dirty. If it is dirty, wipe it with a soft, dry cloth.
- ▶ Check to see whether the CD/DVD/BD is not scratched or bent. If scratched or damaged, replace the CD/DVD/BD.