Operating Manual - English

FUJITSU

PRIMERGY MX130 S2 Server

Operating Manual

Edition September 2011

Comments… Suggestions… Corrections…

The User Documentation Department would like to know your opinion of this manual. Your feedback helps us optimize our documentation to suit your individual needs.

Feel free to send us your comments by e-mail to manuals@ts.fujitsu.com.

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 for general uses such as general office use, personal use, domestic use and normal industrial use. It has not been designed or manufactured for uses which demand an extremely high level of safety and carry a direct and serious risk to life or body if such safety cannot be ensured.

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://primeserver.fujitsu.com/primergy/harddisk/

Only for the Japanese market:

Shielded LAN cables should be used in this product.

Contents

1 Introduction

The PRIMERGY MX130 S2 server is a server for small and medium-sized networks and can be used in the vertical position or as a desktop model.

The PRIMERGY MX130 S2 server features exceptionally low energy consumption, very quiet running and a compact size. As a result, it is also the ideal solution for small offices.

Thanks to its highly developed hardware and software components, the PRIMERGY MX130 S2 server offers a high level of data security and availability.

Security functions in the BIOS Setup protect the data on the server against manipulation.

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 MX130 S2 Server 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 MX130 S2 Server can be found in the following documents:

– "Quick Start Hardware - PRIMERGY MX130 S2" leaflet
(only included as a printed copy)

– "Quick Start Software - Quick Installation Guide" DVD booklet
(only included with the ServerView Suite as a printed copy)

– "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

– "Returning used devices" manual and "Service Desk" leaflet
" サポート＆サービス " for the Japanese market

– "PRIMERGY MX130 S2 Server Upgrade and Maintenance Manual"

– "Short Description - Mainboard D3090/D3091"

– “Description - BIOS Manual D3090/D3091"

PRIMERGY manuals are available in PDF format on the ServerView Suite DVD 2. The ServerView Suite DVD 2 is part of the ServerView Suite supplied with every server.

If you no longer have the ServerView Suite DVDs, you can obtain the relevant current versions using the order number U15000-C289 (the order number for the Japanese market: please refer to the configurator of the server *http://primeserver.fujitsu.com/primergy/system/*).

The PDF files of the manuals can also be downloaded free of charge from the Internet. The overview page showing the online documentation available on the Internet can be found using the URL (for EMEA market): *http://manuals.ts.fujitsu.com*. The PRIMERGY server documentation can be accessed using the *Industry standard servers* navigation option.

For the Japanese market:

Please refer to the following URL for the latest product manuals:
http://primeserver.fujitsu.com/primergy/manual/

Before using the product, please check for additional information that may be available under the following URL:
http://primeserver.fujitsu.com/primergy/products/note/

Further sources of information:

– ServerView Suite Glossary on the ServerView Suite DVD 2
– 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:

Text in italics	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.
 **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.

2 Functional overview

This section provides information on the features and technical data of the PRIMERGY MX130 S2 server. For information on key characteristics and layout of the system board, see "Short Description - Mainboard D3090/D3091".

2.1 Features

AMD Sempron, Athlon II or Phenom II processor

The server has an AMD Sempron, Athlon II or Phenom II processor for high-speed data processing. The server is also prepared for the AMD FX processor series.

For the latest information on optional products provided for the MX130 S2 see the configurator:

http://ts.fujitsu.com/products/standard_servers/index.html
(for the EMEA market)

http://primeserver.fujitsu.com/primergy/system.html
(for the Japanese market)

System board

The features of the system board are described in the "Short Description - Mainboard D3090/D3091" for the hardware and in the "Description - BIOS Manual D3090/D3091" 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 “Description - BIOS Manual D3090/D3091").

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 configurations:

– For up to four non hot-plug 3.5-inch SATA hard disk drives:

  Up to four 3.5-inch SATA HDD modules can be used in the drive cage. Each HDD module can accommodate an SATA hard disk drive with a maximum height of 1 inch.

– For up to six 2.5-inch SATA hard disk drives:

  Up to six 2.5-inch SATA HDD can be used.

  Remark:

  2.5-inch SATA HDDs available on project request in EMEA market only.

Onboard SATA controller

A SATA controller is integrated on the system board; up to six SATA hard disk drives can be connected to the controller. The AMD RAID 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 58.

Accessible drives/components

Two mounting locations are available:

– a 5.25-inch bay for a backup drive or a full size DVD drive.

– a 5.25-inch bay with a slimline DVD 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 100V - 240V.

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.

The RAID function supports different RAID levels and increase the availability and data security of the system.

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 58).

Service and support

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

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

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

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	D3090
Chipset	AMD 880G

Processor

Processor quantity and type	1x AMD FX / Phenom II / AMD Athlon II / Sempron (AM3+ / AM3 package - 95W)

Memory Modules Configuration

Memory slots	4
Memory slot type	DIMM (DDR3) ECC / non-ECC
Memory capacity (min. - max.)	2 GB - 16 GB
Memory protection	ECC
Memory notes	2 GB (1 module(s) 2 GB) DDR3, ECC, 1333 MHz, PC3-10600, DIMM 4 GB (1 module(s) 4 GB) DDR3, ECC, 1333 MHz, PC3-10600, DIMM

Interfaces

USB connectors	12 (2 x front, 6 x back, 4 x internal)
DVI	1 (Dual link DVI-I), ATI Radeon® HD 4250 (up to 2811MB) on board
Graphics (15-pin)	1 no dedicated 15-pin VGA port available. VGA is available via the supplied DVI to VGA adapter.
Serial 1 (9-pin)	1 x 9pin, 16 byte FIFO, 16550 compatible
Mouse / Keyboard (PS/2)	1
LAN / Ethernet (RJ-45)	1 x Gbit/s Ethernet

Onboard or integrated controllers

RAID	6 port SATA with RAID 0/1/10 for HDDs
SATA Controller	SATA2
LAN	BCM 57780, 10/100/1000 Mbit/s Ethernet, PXE-Boot by LAN via PXE-Server
Trusted Platform Module (TPM)	Infineon / 1.2 (option)

Slots

PCI-Express 2.0 x4	1x Low profile max. length 180 mm
PCI-Express 2.0 x16	1x Low profile max. length 180 mm
PCI-Express 2.0 x1	1x Low profile max. length 85 mm
PCI slots	1x Low profile max. length 180 mm
	PCI 32/33 MHz, 3.3V / 5V

Drive bays

Hard disk bays	4 x 3.5-inch non hot-plug SATA
Hard disk bay configuration	Maximum 4x 3.5” HDDs possible. 2x HDD with easy change, 2x with screw-in.
Accessible drive bays	1 x 5.25/1.6-inch for backup devices or CD-RW/DVD
Notes accessible drives	1x slimline DVD accessible. Alternatively to slimline DVD a 4th 3.5” HDD can be used.

Fans

Number of fans	3
Fan configuration	Front fan, CPU fan, PSU fan
Fan notes	Non hot plug

Operating Panel

Operating buttons	On/Off button
Status LEDs	Power (green)
Status LED at system rear side:	LAN connection (green) LAN speed (green / yellow)

Dimensions / Weight

Upright operating position (W x D x H)	98 mm x 383 mm x 340 mm (excluding feet)
Horizontal operating position (W x D x H)	340 mm x 383 mm x 98 mm (excluding feet)
Weight	approx. 8 kg
Weight notes	Actual weight may vary depending on configuration

Ventilation clearance

At least 200 mm on the front and rear.

Ambient conditions

Environment class 3K2 Environment class 2K2	EN 60721 / IEC 721 Part 3-3 EN 60721 / IEC 721 Part 3-2
Temperature: Operation (3K2) Transport (2K2)	 10 °C ... 35 °C -25 °C ... 60 °C
Humidity	10% ... 85% (non condensing)

Condensation during operation must be avoided!

Noise level

Noise emission	According to ISO9296
Sound power level L_{WAd} (ISO 9296)	3.5 B (standby) 3.5 B (operation)
Sound pressure level at adjacent workstation L_{pAm} (ISO 9296)	20 dB(A) (standby) 20 dB(A) (operation)

Electrical values

Power supply configuration	1x standard power supply
Max. output	250 W
Rated voltage range	100V - 240V
Rated frequency range	50 Hz - 60 Hz
Rated Current	3.5 A - 1.5 A (100 V / 240 V)

Compliance with regulations and standards

Product safety and ergonomics	
International	IEC 60950-1
Europe	
Safety	EN 60950-1
Ergonomics	ISO 9241-3 EN 2941-3 EK1-ITB 2003:2007
USA / Canada	UL 60950-1 / CSA-C22.2 60950-1-03
Taiwan	CNS 14336
Electromagnetic compatibility	
International	CISPRA 24
Europe	EN 55022 EN 55024 EN 61000-3-2 EN 61000-3-3 ETS 300386
USA / Canada	47CFR part 15 Class A / ICES-003
Taiwan	CNS 13438 Class A
Japan	VCCI Class A / JEITA
CE marking to EU directives	Low Voltage Directive 2006/95/EC Electromagnetic compatibility 2004/108/EC

3 Installation steps, overview

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

- First of all, it is essential that you familiarize yourself with the safety information in chapter "Important information" on page 25.
- 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 42).
- Make sure that all necessary manuals (see "Documentation overview" on page 12) are available; print out the PDF files if required.
- Set up the server (see section "Setting up the server" on page 43).
- Wire the server. Follow the instructions in sections "Connecting devices to the server" on page 50 and "Notes on connecting/disconnecting cables" on page 52.
- Connect the server to the mains (see section "Connecting the server to the mains" on page 51).
- Familiarize yourself with the controls and indicators on the front and rear of the server (see section "Controls and indicators" on page 53).
- 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 1 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 ServerView Suite DVD 2 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 58.

– 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 58 or section "Configuring the server and installing the operating system without the ServerView Installation Manager" on page 60).

You will find more information on installing the server remotely or locally in the "ServerView Suite Installation Manager" user's guide (on the ServerView Suite DVD 2 under *Industry Standard Servers - Software - ServerView Suite - Server Installation and Deployment*).

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 must be performed by technical specialists.
- Equipment repairs must be performed by service staff. Please note that unauthorized interference with the system will void the warranty and exempt the manufacturer from all liability.
- Any failure to observe the guidelines in this manual, and any improper repairs could expose the user to risks (electric shock, energy hazards, fire hazards) or damage the equipment.

Before starting up

CAUTION!

- During installation and before operating the device, observe the instructions on environmental conditions for your device (see "Ambient conditions" on page 21).
- 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.
- 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 100V - 240V. 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 cables.
- Ensure that the device is connected to a grounded power outlet close to the device.

CAUTION!

- Ensure that the power sockets on the device and the 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 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.
- The EN 50173 and EN 50174-1/2 standards apply for LAN cabling. The minimum requirement is the use of a category 5 screened LAN cable for 10/100 Mbit/s Ethernet, or a category 5e cable for Gigabit Ethernet. The requirements from the ISO/IEC 11801 specification must also be met.
- 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 strike).
- Make sure that no objects (e.g. jewelery, 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/EN 60950-1) 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: hot-pluggable power supply units 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.

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 MX130 S2 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 MX130 S2 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:

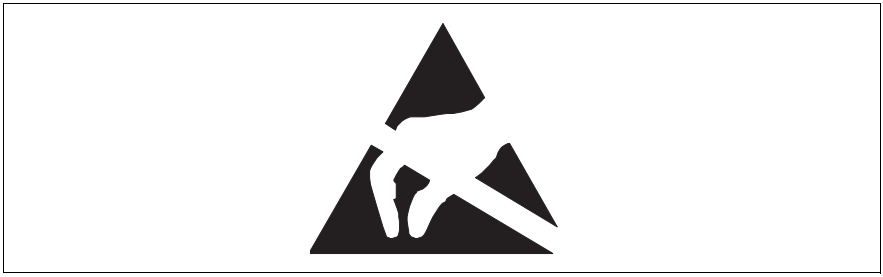

Figure 1: ESD label

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.

i 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 61.
- 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 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).

4.3 ENERGY STAR

Energy Star is applicable only for 230 V mains voltage.

In typical configurations the PRIMERGY MX130 S2 satisfies the stringent requirements of the Ecolabel Energy Star for Computers Version 5.0. These requirements ensure energy savings when computers are being used and performing a range of tasks, as well as when they are turned off or into a low power mode. For example, the power consumption of the PRIMERGY MX130 S2 in the operation mode “idle” is less than 65 W.

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 BIOS or energy options subsequently. In such cases, the properties guaranteed by ENERGY STAR can no longer be assured.

Devices that are certified in accordance with ENERGY STAR environmental standards help to save money and reduce greenhouse gas emissions.

Detailed information concerning the requirements for the ENERGY STAR eco-label, as well as products that satisfy these requirements, can be found on the Internet at *http://www.energystar.gov/* .

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.

The system has a hibernate mode (S4 mode) from which it can be woken up via WOL (Wake-up On LAN). In order to use this feature, however, the S4 mode must be activated/enabled in the corresponding operating system installed.

The following description is an example and can only serve as a guide for other operating systems.

To bring your system into S4 mode (= hibernate mode), proceed as follows:

Operating system Microsoft Windows 2008 Enterprise Edition

Activation

► Open a DOS shell using C:\Windows\System32\cmd.exe and enter the following command to activate S4 mode:

powercfg -h ON

Configuration

To set the driver for the internal LAN controller:

► Open the *Device Manager* via *Start - Control Panel - System - Device Manager*.

► Select *Network Adapters*.

► Select the internal LAN controller: Broadcom Netlink™ Gigabit Ethernet.

► Select *Properties* in the overview, and then select *Power Management*.

► In the Wake on LAN field, enable the following option:

– Allow this device to wake the server.

– *Wake on Magic packet* and

– *Wake on Magic Packet from power off state*.

► Press *OK*.

Execution

To execute the power down command in a DOS shell:

Using the **shutdown /h** command, your system saves all user data (e.g: open windows and running programs), shuts down the system, and transfers it to S4 mode.

Exiting the hibernate/idle state (S4 mode)

You switch on the system again either manually using the On/Off button or using the WOL function (WOL= Wake-up On LAN).

To do this, a Magic Packet with the MAC address of the system to be woken up is sent to the internal LAN controller.

You will find the valid MAC address for your device in the BIOS:

► During boot press F2 to enter BIOS.

► Navigate to *Main - System Information* and press Enter.

The MAC address is shown under *Network Controller Details*.

Alternatively, you can find out the MAC address valid for your device using the command line tool IPCONFIG.

LINUX operating systems

Activation

► To activate S4 mode, enter the following command:

resume=/dev/sdxx

Using this command, the memory area in which the data is saved is assigned at the same time.

Execution

Using the following command, the system is switched off and brought into S4 mode:

echo -n "disk" > /sys/power/state

Exiting the hibernate/idle state (S4 mode)

You switch on the system again either manually using the On/Off button or using the WOL function (WOL= Wake-up On LAN).

To do this, a Magic Packet with the MAC address of the system to be woken up is sent to the internal LAN controller.

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.

4.6 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* (for the EMEA market)
– *http://primeserver.fujitsu.com/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

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

5 Hardware installation

CAUTION!

- Follow the safety instructions in the chapter "Important information" on page 25.
- Do not expose the server to extreme environmental conditions (see "Ambient conditions" on page 21). 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 25.

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.
- ► Notify your supplier immediately should you discover that the items delivered do not correspond to the delivery note.

5.2 Setting up the server

► Set up the server.

Note that the server may be operated in the vertical (see section "Positioning the server with stabilizers" on page 44) or horizontal position (see section "Positioning the server horizontally" on page 48).

CAUTION!

– The device must be protected from direct sunlight.
– The required minimum distances for operation and maintenance areas must be adhered to.
– The server must be accessible at the rear for connection to other devices (e.g. memory subsystem).
– 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 of the system.

► Wire the server. Follow the instructions in sections "Connecting devices to the server" on page 50 and "Notes on connecting/disconnecting cables" on page 52.

► Connect the server to the mains (see section "Connecting the server to the mains" on page 51).

5.2.1 Positioning the server with stabilizers

CAUTION!

If the server is positioned vertically, the set up direction is compulsory: The On/Off button must be at the top to ensure sufficient ventilation.

Stabilizers can be attached. Stabilizers are optional and not necessary for vertical operation in non-critical environments.

For Japan market the stabilizers are included in delivery kit. In other regions the stabilizers are optional or included in selected configurations.

The stabilizers must be attached in the correct direction (see figure 4 on page 46).

Clipping the stabilizers together

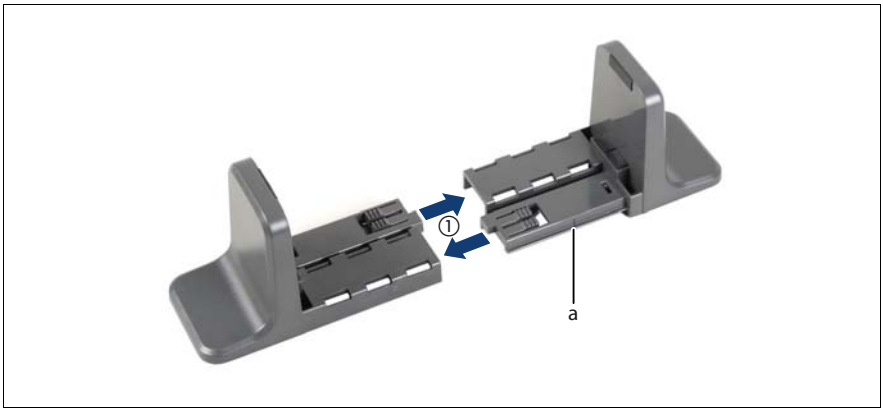

Figure 2: Clipping the stabilizer together

► Clip the stabilizers together in the direction of the arrow as far as the marking line (a).

Adjusting the width of the stabilizers

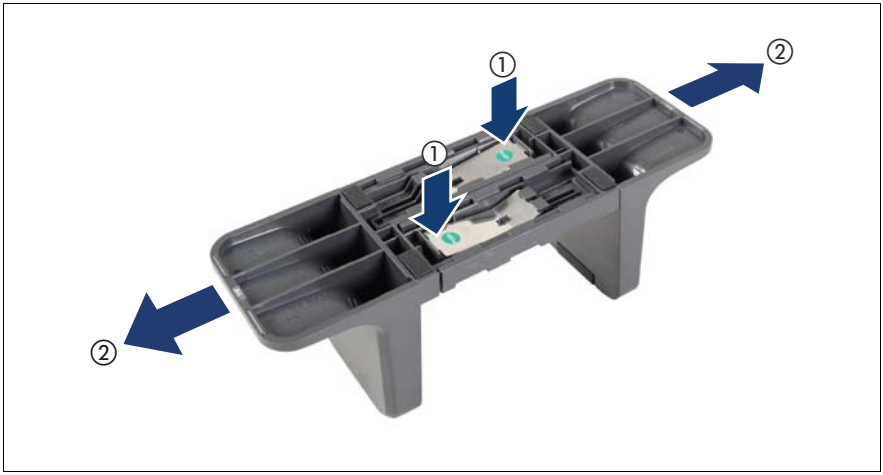

Figure 3: Adjusting the width of a stabilizer

You may have to adjust the width of the stabilizers.

- ► Press the two locking levers (1) and keep them pressed.
- ► Pull the stabilizer apart (2).

Placing the server on the stabilizers

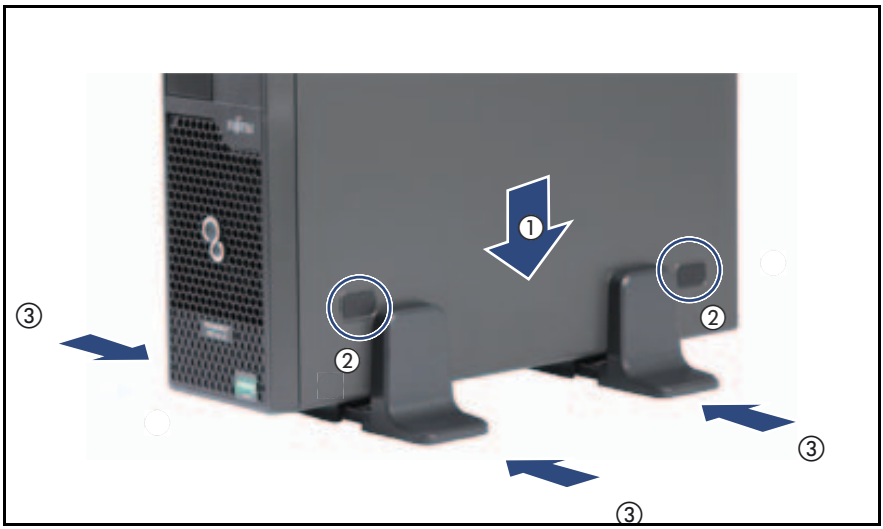

Figure 4: Placing the server on stabilizers

- ► Place the server on the stabilizers (1).

  Position the stabilizer between the rubber feet mounting positions (2). Ensure not to cover air vents on the left side.

- ► Press the stabilizers together (3).

5.2.2 Positioning the server with rubber feet

For Japan market the stabilizers must to be used for vertical operation.

The other possibility is to use the 4 rubber feet (added in system pack).

5.2.2.1 Positioning the server vertically

Proceed as follows to operate the server in the vertical operating position using the rubber feet:

- ► First, position the casing vertically so that the On/Off button is located at the bottom.

► Pull off the foil from the rubber feet that you will find in the accessories package.

Figure 5: Positioning the rubber feet in the vertical operating position

► Affix the rubber feet to the outside of the casing.

The positions of the rubber feet must correspond to the dimensions given so that the server is stable.

The feet must be affixed at the border of the side cover after the bight. From rear and front side (without front cover) the distance is 30 mm to the begin of the rubber feet or 40 mm to the middle of the rubber feet.

► Place the server on the rubber feet.

5.2.2.2 Positioning the server horizontally

Proceed as follows to operate the server in the horizontal operating position:

- ► Position the casing horizontally so that the On/Off button is located on the upper left side.
- ► Pull off the foil from the rubber feet that you will find in the accessories package.

Figure 6: Positioning the rubber feet in the horizontal operating position

- ► Affix the rubber feet to the outside of the casing.

  The positions of the rubber feet must correspond to the dimensions given so that the server is stable.
- ► Place the server on the rubber feet.

CAUTION!

If the server is positioned horizontally, ensure that the rubber feet are pointing downward.

Figure 7: Positioning the server horizontally

5.2.2.3 Rotating the Fujitsu Infinity Mark

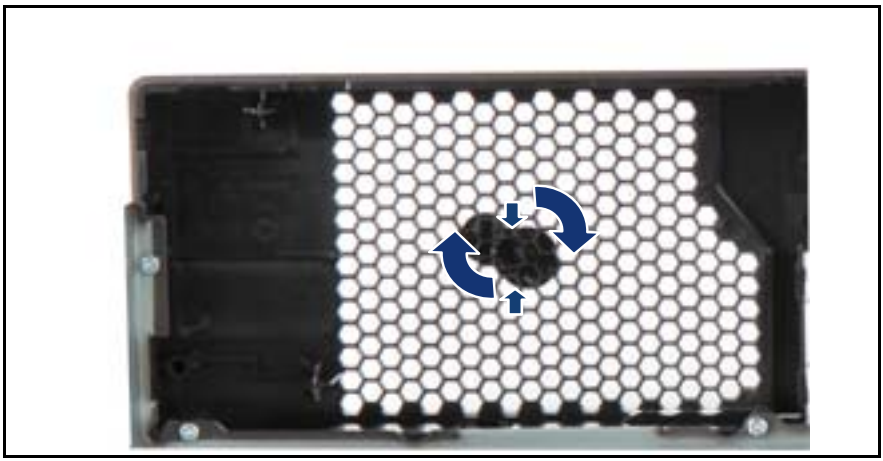

Figure 8: Rotating the Fujitsu Infinity Mark

► Rotate the Fujitsu Infinity Mark clockwise by 90 degrees.

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. For further information refer to the “PRIMERGY MX130 S2 Server Upgrade and Maintenance manual”.

The standard connectors are indicated by symbols and color coding:

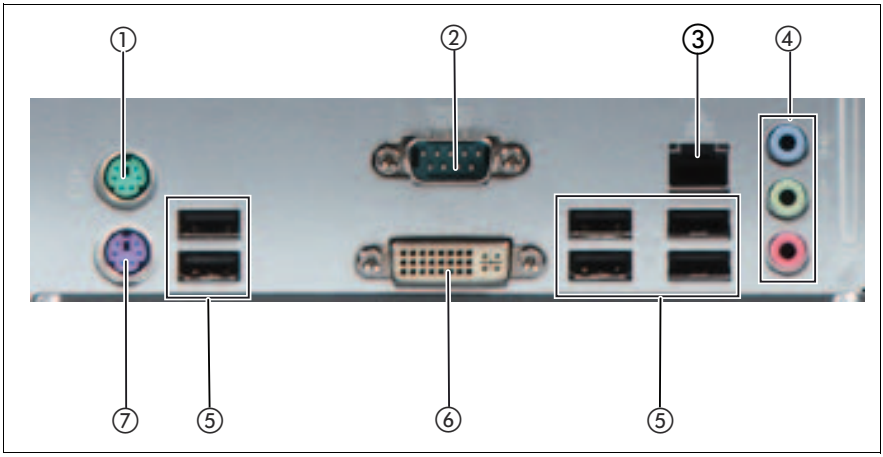

Figure 9: Connector panel on the rear side

1	PS2 connector (for mouse)
2	Serial connector (COM1)
3	Standard LAN connector
4	Audio connectors (optional)
5	6 USB connectors
6	Video connector (DVI-I)
7	PS2 connector (for keyboard)

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 additional USB connectors are located on the front of the server.

5.4 Connecting the server to the mains

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

CAUTION!

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

- ► Insert the mains plug into an earthing contact socket in the internal supply network.

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.

6 Starting up and operation

CAUTION!

Follow the safety instructions in chapter "Important information" on page 25.

6.1 Controls and indicators

6.1.1 Front of server

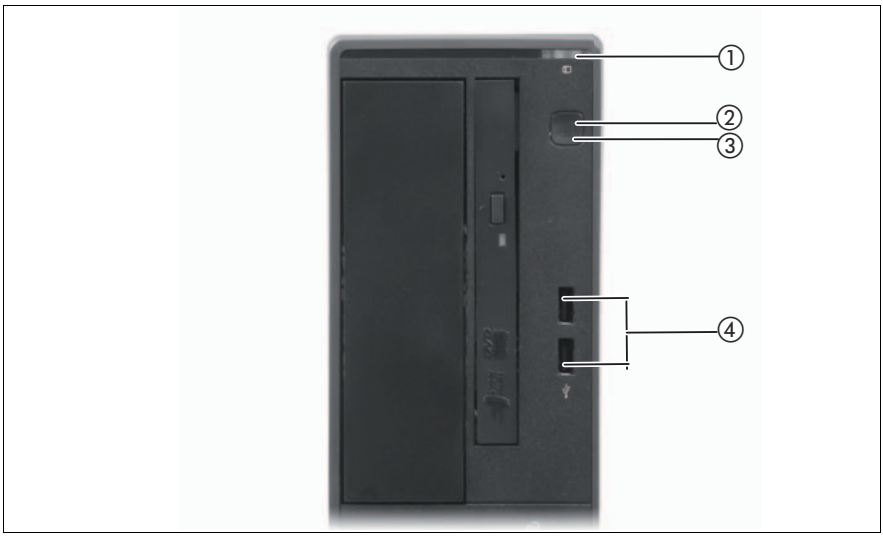

Figure 10: Front side (indicators and controls)

1	HDD activity indicator	3	On/Off button
2	Power-on indicator	4	2 USB connectors

6.1.1.1 Control 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 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).

6.1.1.2 Indicators on the control panel

Power indicator (green)

Glows green when the server is switched on.

Is dark when the server is switched OFF, but mains voltage is present (standby mode).

HDD activity indicator (green)

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

6.1.1.3 Indicators on the drives

Optical drive activity indicator

Lights up green when the storage medium is being accessed.

6.1.2 Rear of the server

LAN indicators

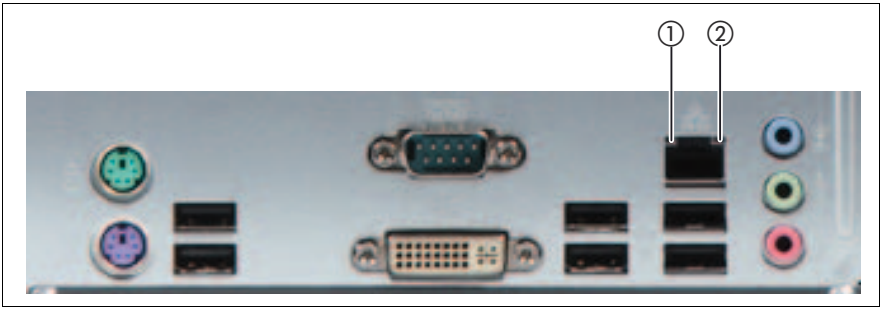

Figure 11: Indicators on the connector panel: LAN indicators

1	LAN link/transfer	**Steady green signal** when a LAN connection exists. **Remains dark** when no LAN connection exists. **Flashes green** when LAN transfer takes place.
2	LAN speed	**Steady yellow signal** in the event of a LAN transfer rate of 1 Gbit/s **Steady green signal** in the event of a LAN transfer rate of 100 Mbit/s. **Remains dark** in the event of a LAN transfer rate of 10 Mbit/s.

You will find further information in the "Description - BIOS Manual D3090/D3091".

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 section "Flickering stripes on monitor screen" on page 66).

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

Switching the server on

The power-on indicator (item 2 in figure 10 on page 53) lights green.

– **Starting up for the first time:**

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

► Press the On/Off button (item 3 in figure 10 on page 53).

The power-on indicator lights green (item 2 in figure 10 on page 53).

► Insert the ServerView Suite DVD 1 in the DVD drive.

► Follow the on-screen instructions (see also section "Configuring the onboard SATA controller" on page 58 or section "Configuring the server and installing the operating system without the ServerView Installation Manager" on page 60).

– **System already installed**:

► Press the On/Off button (item 3 in figure 10 on page 53).

The power-on indicator lights green (item 2 in figure 10 on page 53).

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

Switching the server off

Power-on indicator (item 2 in figure 10 on page 53) lights green.

► Shut down the operating system properly.

The server is automatically switched off. The power-on indicator is dark.

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:

– **Specified switch on time / switch off time**

  The server is switched ON or OFF at a time specified in the ServerView Operations Manager.

– **Ring indicator**

  The server is switched on by an internal or external modem.

– **Wake 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 of the settings in the BIOS).

– **“Power override” function**

  The server can be switched off immediately by pressing and holding the On/Off button (approx. 4-5 sec.).

  CAUTION!

  There is a risk that data may be lost.

6.3 Configuring the server

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

6.3.1 Configuring the onboard SATA controller

A SATA controller is integrated on the system board. You can configure the onboard SATA 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 “RAIDXPERT USER MANUAL”.

6.3.2 Configuring the SATA RAID controller

This server has SATA RAID functionality. You can configure the SATA RAID functionality either before or during installation with the ServerView Installation Manager. Using the ServerView Installation Manager is recommended.

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 1 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.

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 61.

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

Configuring the onboard SATA controller

Configure the controller as described in section "Configuring the onboard SATA controller" on page 58.

Configuring the SATA RAID controller

Configure the controller as described in section "Configuring the onboard SATA controller" on page 58.

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 the server off 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

7.1 BIOS Setup security functions

The *Security* menu in BIOS Setup offers various options for protecting your data from unauthorized access. For example, it allows you to assign passwords or prevent 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 how to assign passwords can be found in the BIOS Setup documentation on the ServerView Suite DVD 2.

8 Troubleshooting and tips

CAUTION!

Follow the safety instructions in the “Safety notes and regulations” manual and in chapter "Hardware installation" on page 41.

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(s) is/are correctly connected to the server and the grounded power outlet(s).

Power supply overloaded

► Disconnect the server power plug(s) from the grounded power outlet(s).

► Wait a few minutes before you plug it/them into the grounded power outlet(s) again.

► Switch on your server.

8.2 Screen remains blank

Monitor is switched off

► Switch on your monitor.

Screen has gone blank

► Press any key on the keyboard.

or

► Deactivate screen saver. Enter the appropriate password.

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.

8.3 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.

8.4 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.

8.5 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.

8.6 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 MX130 S2 Server Upgrade and Maintenance Manual) or contact our customer service team.

8.7 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.

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

8.8 Error message on screen

The meaning of the error message is explained in the documentation for the relevant components and programs on the ServerView Suite DVD 2.