

# PRIMERGY TX100 S1

Options Guide

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

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

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# 1 Introduction

The PRIMERGY TX100 S1 server is an Intel-based server for workgroups and small networks. The server is suitable for use as a file server and also as an application, information or Internet server.

Thanks to its highly developed hardware and software components, the PRIMERGY TX100 S1 server offers a high level of data security and availability.

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

Its low noise level and high energy efficiency make it ideal for office environments.



The PRIMERGY TX100 S1 has a power management function that reduces power consumption to <65 W in typical configurations. The server thus satisfies the requirements of the U.S. Environmental Protection Agency (EPA).

## 1.1 Concept and target groups

This Options Guide shows you how to extend and upgrade your server.



### CAUTION!

The activities described in this manual may only be performed by technical specialists.



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

## 1.2 Documentation overview

More information on your PRIMERGY TX100 S1 can be found in the following documents:

- "Quick Start Hardware - PRIMERGY TX100 S1" leaflet (only included as a printed copy)
- "Quick Start Software - Quick Installation Guide" DVD booklet (only included with the PRIMERGY ServerView Suite as a printed copy)
- "Safety notes and other important information" manual
- "Warranty" manual
- "Returning used devices" manual
- "Helpdesk" leaflet
- Technical manual for the system board D2679-B11
- "PRIMERGY TX100 S1 Server Operating Manual"
- "PRIMERGY TX100 S1 Server Options Guide"
- "D2679-B11 BIOS Setup Utility for PRIMERGY TX100 S1" manual



PRIMERGY manuals are available in PDF format on the PRIMERGY ServerView Suite DVD 2. The PRIMERGY ServerView Suite DVD 2 is part of the PRIMERGY 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 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:

<http://manuals.ts.fujitsu.com>. The PRIMERGY server documentation can be accessed using the *Industry standard servers* navigation option.

**Further sources of information:**

- PRIMERGY Abbreviations and Glossary on the PRIMERGY 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 Expansions and upgrades

**Upgrading the main memory**

The system board supports up to 8 Gbyte of main memory. There are 4 slots available for the main memory. The slots can be fitted with 1 Gbyte and 2 Gbyte PC2-6400 DDR2 800 MHz (unbuffered) DIMM memory modules.

**Additional accessible drives**

There is one free 5.25-inch bay for an additional accessible drive. The first (upper) bay already has a DVD drive.

**Slots for expansion cards**

The server can be flexibly expanded via four slots:

- One PCIe Gen2 x 8 slot
- One PCIe Gen2 x 4 (mech. x8) slot
- One PCIe Gen2 x 1 slot
- One PCI slot

**Parallel interface for printers**

As an option, a parallel interface can be provided for printers.

### Trusted Platform Module (TPM)





The system board is optional equipped with a TPM (Trusted Platform Module) by the manufacturer. This module enables programs from third party manufacturers to store key information (e.g. drive encryption using Window's Bitlocker Drive Encryption).

The TPM is activated via the BIOS system (for more information, refer to the BIOS manual).

## 1.4 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.



---

## 2 Procedure



### CAUTION!

- The actions described in this manual should only be carried out by technical specialists.
  - Equipment repairs should only 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.
- ▶ First of all, carefully read the safety instructions in chapter "[Safety instructions](#)" on page 11 and following.
  - ▶ Make sure that all necessary manuals (see section "[Documentation overview](#)" on page 6) are available; print the PDF files if required. Most importantly, you will need the operating manual for the server and the technical manual for the system board.
  - ▶ Shut the server down correctly, switch it off, disconnect the power plugs and open the server as described in chapter "[Preparation](#)" on page 17.
  - ▶ Carry out the expansion or upgrade of your server as described in the pertinent chapter.
  - ▶ Close the server, connect it to the power outlet, and switch it on as described in chapter "[Completion](#)" on page 37.
  - ▶ Start the operating system and make the appropriate configuration if necessary (see operating manual).



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## 3 Safety instructions



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

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



### **CAUTION!**

- The actions described in this manual should only be carried out by technical specialists.
- Equipment repairs should only 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.
- If the device is brought in from a cold environment, condensation may form both inside and on the outside of the device.

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

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

## Installation and operation



### CAUTION!

- The device may only be operated in a maximum ambient temperature of 35°C.
- If the device is integrated in an installation that receives power from an industrial (public) power supply network with the IEC309 connector, the (public) power supply protection must comply with the requirements for non-industrial (public) power supply networks for the type A connector.
- The unit automatically adjusts itself to a mains voltage in a range of 100 V - 240 V. Ensure that the local mains voltage lies within these limits.
- This device must only be connected to properly grounded shock-proof sockets 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 shockproof socket close to the device.



**CAUTION!**

- Ensure that the power sockets on the device and the grounded shockproof sockets are freely accessible.
- The On/Off button or the main power switch (if there is one) does not disconnect the device from the mains voltage. To completely disconnect it, you must remove all the power plugs from the 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 to avoid interference.
- 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 form a potential hazard (tripping) and cannot be damaged. When connecting the device, refer to the relevant notes in the operating manual.
- Do not connect or disconnect any data transmission cables during a thunderstorm (lightning hazard).
- Make sure that no objects (e.g. bracelets or paper clips) fall into or liquids spill into the device (risk of electric shock or short circuit).
- In emergencies (e.g. damaged casing, control elements or power cable, penetration of liquids or foreign bodies), switch off the device immediately, unplug it from the grounded power outlets, and contact your customer service center.



**CAUTION!**

- Proper operation of the device (in accordance with IEC 60950-1/EN 60950-1) is only ensured if the casing is fully assembled and the rear covers for the installation bays are in place (electric shock, cooling, fire protection, interference suppression).
- Install only system extensions that satisfy the requirements and rules governing safety, electromagnetic compatibility, and telecommunications terminal equipment. If you install other extensions, you may damage the system or violate these safety regulations. You can find out which system extensions are suitable from the customer service center or your sales outlet.
- The components marked with a warning label (e.g. lightning symbol) may only be opened, removed or exchanged by authorized, qualified personnel.
- If you cause a defect on the device by installing or exchanging system extensions, the warranty will be invalidated.
- Only set the resolutions and refresh rates specified in the operating manual for your monitor. Otherwise, you may damage the monitor. If you are in any doubt, contact your sales outlet or customer service center.

**Batteries**



**CAUTION!**

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

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

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



### CAUTION!

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

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

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

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



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

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

## Laser information

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



### CAUTION!

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

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

## Modules with Electrostatic-Sensitive Devices

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

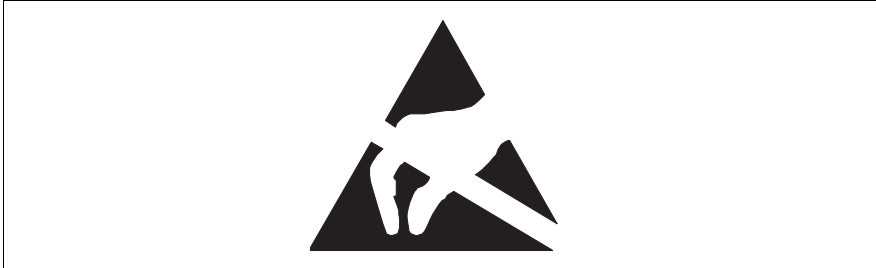


Figure 1: ESD label

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).



---

## 4 Preparation



### CAUTION!

Follow the safety instructions in the chapter "[Safety instructions](#)" on [page 11](#).

### 4.1 Opening the server

- ▶ Terminate all applications and shut down the server correctly.
- ▶ If your operating system has not switched off the server, press the on/off button.
- ▶ Switch off the power supply unit (use the master switch) and disconnect the power plug from the grounded shockproof socket.
- ▶ If required, remove the lock on the side cover.
- ▶ Lay the server on its left side (as seen from the front).

Removing the side cover



Figure 2: Opening the locking lever

- ▶ Pull the locking lever as far as it will go.

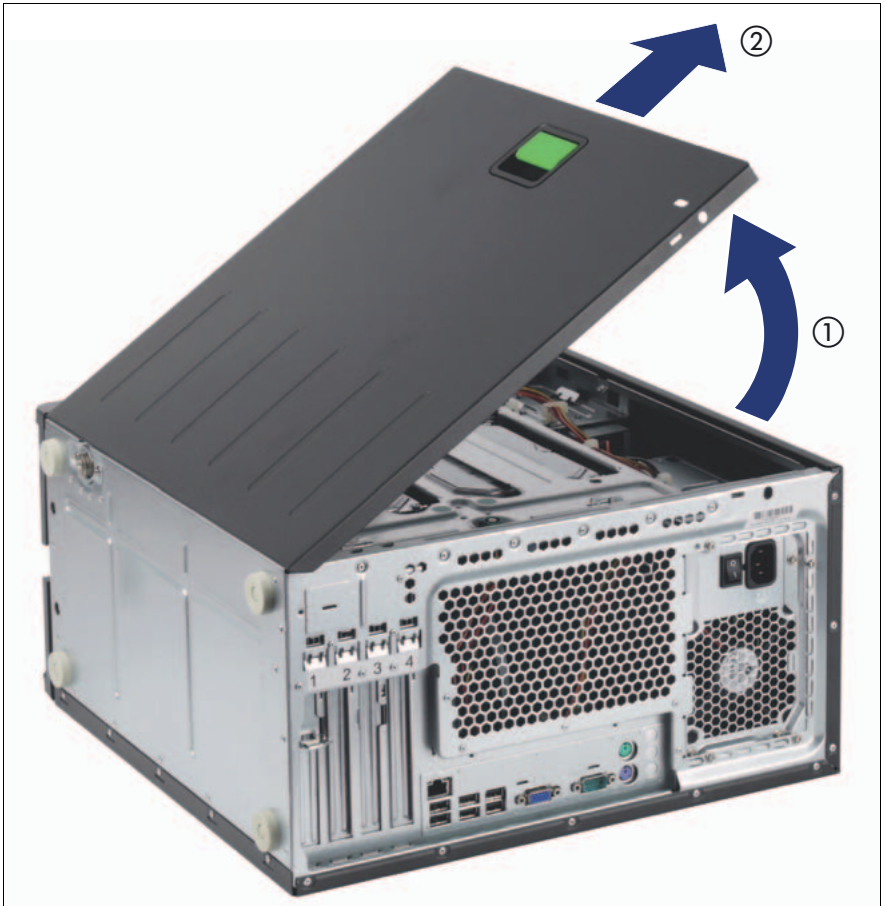


Figure 3: Removing the side cover

- ▶ Lift up the side cover (1).
- ▶ Remove the side cover (2).

Lifting up the drive cage



Figure 4: Lifting up the drive cage

- ▶ Loosen the knurled screw (1).



Figure 5: Lifting up the drive cage

- ▶ Lift up the drive cage.



The built-in torque controller ensures that the drive cage stays up in any position.

## 4.2 Removing the air duct

**i** When removing the air duct, make sure that you do not damage the heat sink on the system board.

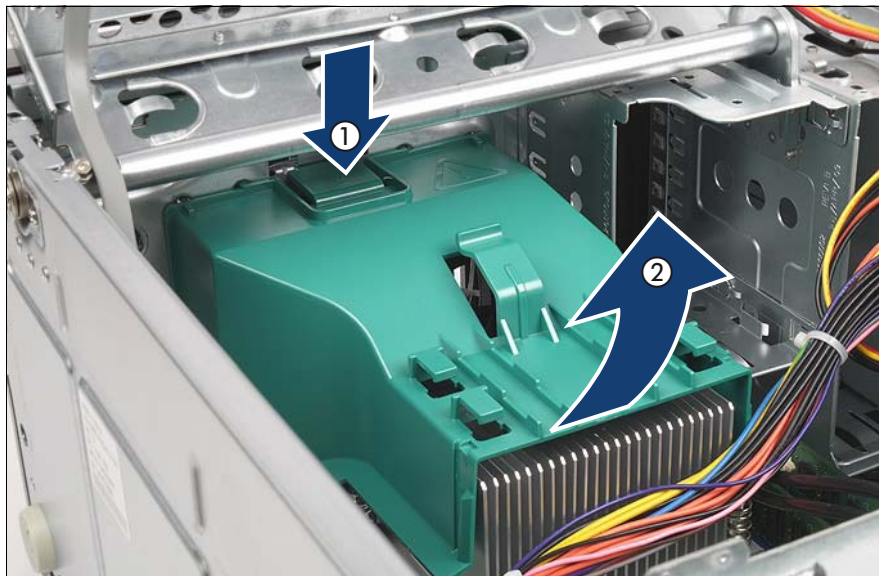


Figure 6: Removing the air duct

- ▶ Open the server (see [section "Opening the server" on page 17](#)).
- ▶ Unhook the cables from the brackets on the air duct.
- ▶ Remove any connected cables that are impeding your work.
- ▶ Unlock the air duct by pressing the locking clip in the direction of the arrow (1).
- ▶ While keeping the locking clip pressed, lift the air duct out of its housing in the direction of the arrow (2).

---

## 5 Main memory



### CAUTION!

Follow the safety instructions in the chapter "[Safety instructions](#)" on [page 11](#).

The system board supports up to 8 GB of main memory. 4 slots (2 memory banks with 2 slots each) are provided for the main memory. Every slot can be fitted with 1 GB or 2 GB unbuffered DDR2 memory modules (PC2-6400 800 MHz).

### 5.1 Equipping rules

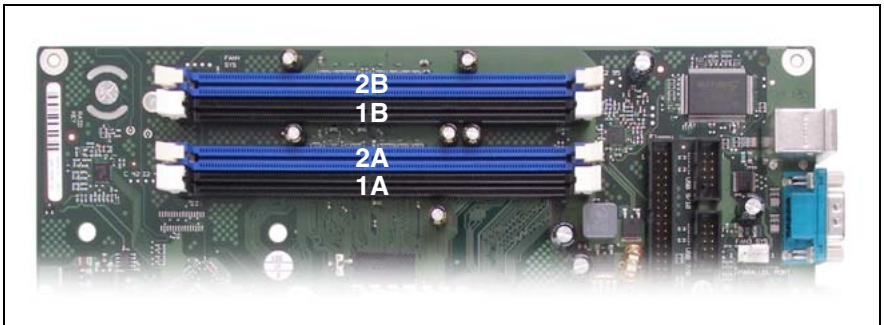


Figure 7: Configuration of the main memory

- Each memory bank is equipped with two memory modules with the same capacity. Memory access takes place in 2-way interleaved mode.
- The module capacity between pairs can differ: pair 1A/1B can be populated with two 1 GB modules and pair 2A/2B with two 2 GB modules.

The table below shows the order in which the memory banks must be equipped:

Mode	DIMM-1A (black)	DIMM-2A (blue)	DIMM-1B (black)	DIMM-2B (blue)
single channel	<b>populated</b>	empty	empty	empty
dual channel	<b>populated</b>	empty	<b>populated</b>	empty
Single/dual channel <sup>1</sup>	<b>populated</b>	<b>populated</b>	<b>populated</b>	empty
dual channel	<b>populated</b>	<b>populated</b>	<b>populated</b>	<b>populated</b>

<sup>1</sup> Dual-channel mode is activated only if the size of the memory module in DIMM-2A is equal to the sum of the memory modules in DIMM-1A and DIMM-1B (for example, DIMM-1A=1 GB, DIMM-1B=1 GB, DIMM-2A=2 GB).

## 5.2 Extending/replacing the main memory

- ▶ Open the server (see section ["Opening the server" on page 17](#)).
- ▶ Remove the air duct (see section ["Removing the air duct" on page 22](#)).

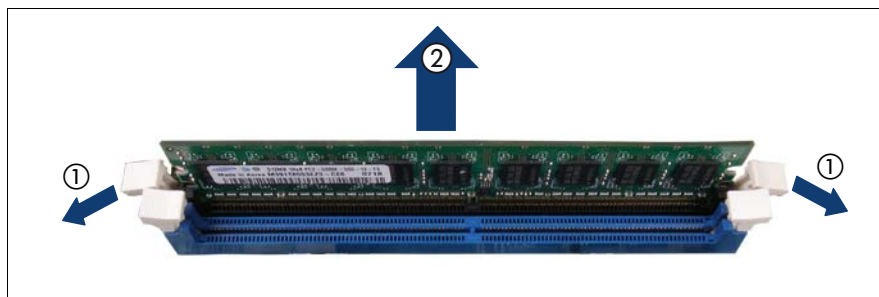


Figure 8: Removing a memory module

- ▶ Press the holders on either side of the mounting location concerned outward (1).
- ▶ If the slot was equipped: pull the memory module out of the slot (2).



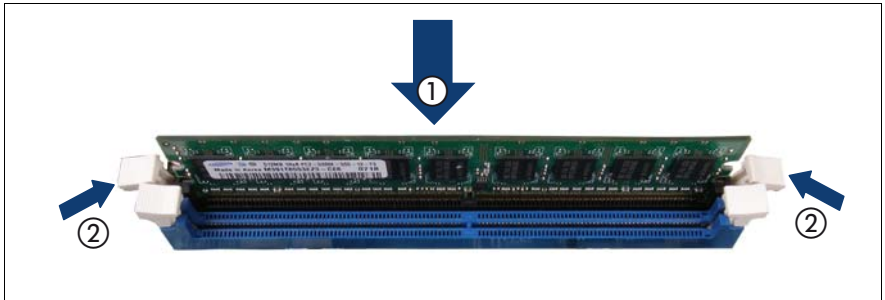


Figure 9: Inserting a memory module

- ▶ Carefully press the new memory module into the slot (1) until the fastening tabs on both sides of it engage (2).
- ▶ Install the air duct (see section "[Installing the air duct](#)" on page 37).
- ▶ Close the server (see section "[Closing the server](#)" on page 38), connect it to the power outlet, and switch it on.



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## 6 Accessible drives



### CAUTION!

Follow the safety instructions in the chapter "[Safety instructions](#)" on [page 11](#).

Two 5.25-inch bays are available for accessible drives. DVD drives or magnetic tape drives can be installed in these slots.

By default, the upper slot is fitted with a DVD drive.

### 6.1 Preparation

- ▶ Open the server (see section "[Opening the server](#)" on [page 17](#)).
- ▶ Remove the dummy cover and the sheet metal plate (TX100S1-2HDD) or the dummy module (TX100S1-4HDD).

#### Removing the dummy cover and the sheet metal plate (TX100S1-2HDD)



Figure 10: Removing the dummy cover

- ▶ Remove the dummy cover.

**CAUTION!**

Keep the dummy cover for future use. If you remove the accessible drive again and do not replace it with a new one, the dummy cover must be reinstalled to comply with EMC regulations and to satisfy cooling requirements and fire protection measures.

- ▶ Use a suitable tool (such as diagonal pliers) to remove the sheet metal plate underneath the dummy cover.

**CAUTION!**

If the tool is not used properly, there is a risk of both personal injury and damage to the housing. Be careful of sharp edges when cutting the sheet metal plate.

**Removing the dummy module (TX100S1-4HDD)**

Figure 11: Removing the dummy module

- ▶ Unscrew the two screws (1).
- ▶ Pull the dummy module out of the housing (2).

**CAUTION!**

Keep the dummy module for future use. If you remove the accessible drive again and do not replace it with a new one, the dummy module must be reinstalled to comply with EMC regulations and to satisfy cooling requirements and fire protection measures.

## 6.2 Installing an accessible 5.25-inch drive



Figure 12: Installing a drive

- ▶ Push the new drive about halfway into the bay (1).
- ▶ Connect the data cable to the accessible drive (see the cabling plans in the Appendix).
- ▶ Connect the power cable to the accessible drive (see the cabling plans in the appendix).
- ▶ Push the drive right into the bay.
- ▶ Secure the drive with two screws (2).
- ▶ Close the server (see section "[Closing the server](#)" on page 38), connect it to the power outlet, and switch it on.



# 7 Expansion cards and parallel interface



### CAUTION!

Follow the safety instructions in the chapter ["Safety instructions" on page 11](#).

The server can be flexibly expanded via four slots.



Slot 1 is the preferred slot for the SAS/SATA RAID controller (bootable).

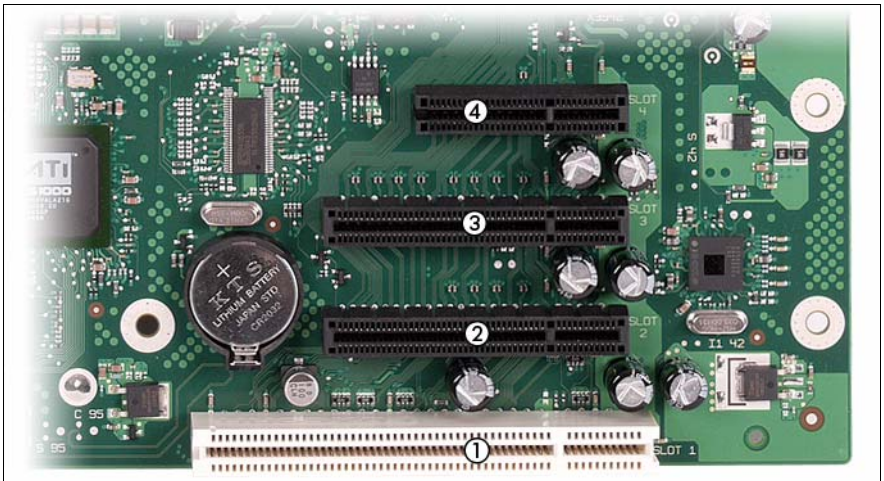


Figure 13: Arrangement of the slots

Slot	Description
1	PCI 32 bit
2	PCIe Gen2 x4 (mech. x8)
3	PCIe Gen2 x8
4	PCIe Gen2 x1



For more information see the Technical Manual of the system board D2679-B11.

## 7.1 Installing an expansion card

- ▶ Open the server (see section ["Opening the server" on page 17](#)).

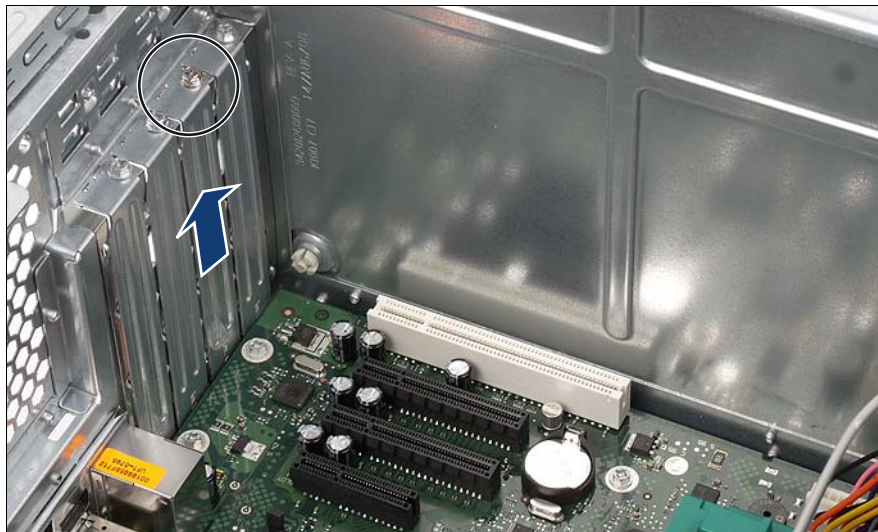


Figure 14: Removing the slot cover

- ▶ Remove the screw (see circle).
- ▶ Pull the slot cover up and out.



### CAUTION!

Keep the slot cover in a safe place. If you remove the expansion card again and do not replace it with a new one, then reinstall the slot cover to comply with EMC regulations and to satisfy cooling requirements and fire protection measures.



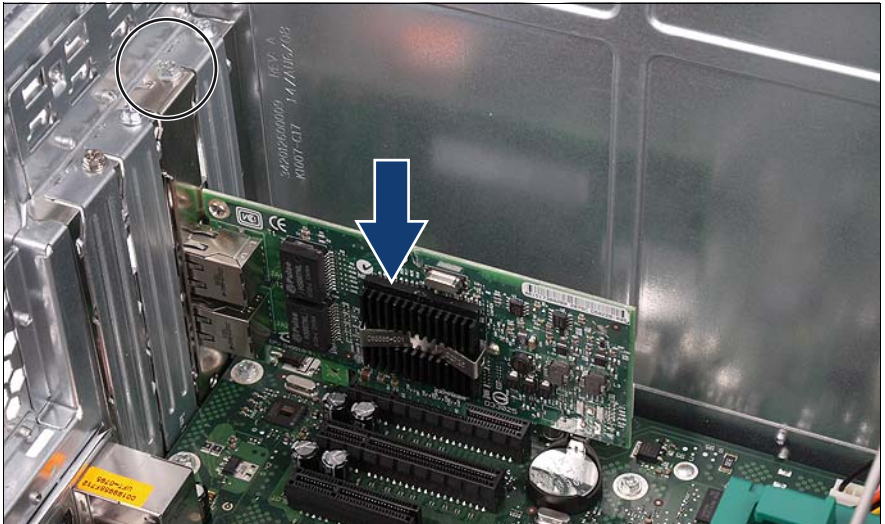


Figure 15: Installing an expansion card

- ▶ Carefully press the new expansion card into the relevant slot on the system board until it clicks into place.
- ▶ Screw the slot cover for the expansion card into place (see circle).
- ▶ If necessary, connect the cable to the expansion card and the other components.
- ▶ Close the server (see section "[Closing the server](#)" on page 38), connect it to the power outlet, and switch it on.

## 7.2 Installing a parallel interface

- ▶ Open the server (see section ["Opening the server" on page 17](#)).
- ▶ Remove the screw from the slot cover for slot 1.
- ▶ Pull the slot cover up and out.



### CAUTION!

Keep the slot cover in a safe place. If you remove the parallel interface again and do not replace it with a new one, then reinstall the slot cover to comply with EMC regulations and to satisfy cooling requirements and fire protection measures.



Figure 16: Extension of the slot cover

- ▶ Attach an extension bracket with one screw to the slot cover of the parallel interface.

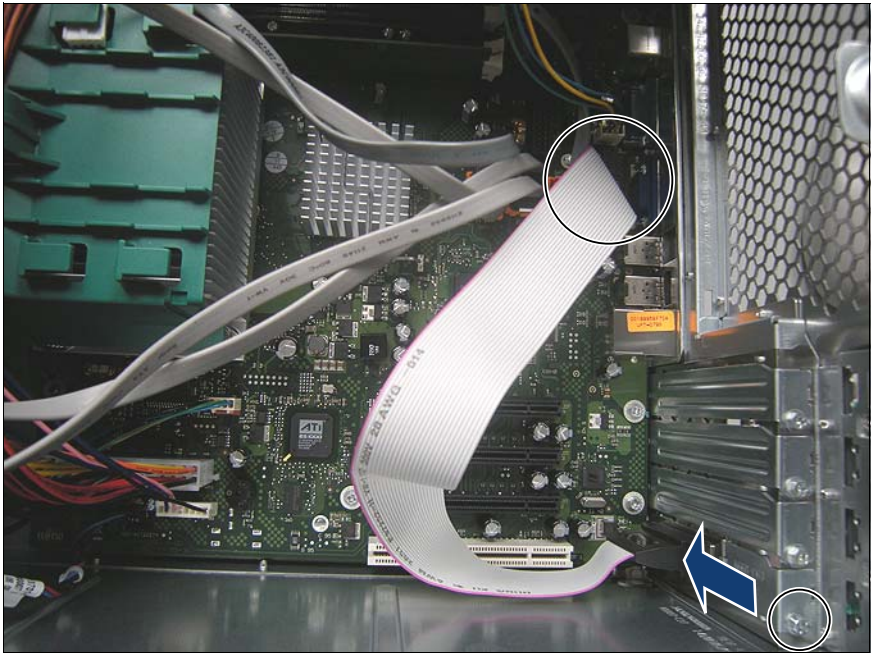


Figure 17: Installing a parallel interface

- ▶ Insert the slot cover of the parallel interface into slot 1.
- ▶ Screw the slot cover of the parallel interface into place.
- ▶ Connect the parallel interface port to the connector PARALLEL PORT on the system board.
- ▶ Close the server (see section ["Closing the server" on page 38](#)), connect it to the power outlet, and switch it on.



---

## 8 Completion



### CAUTION!

Follow the safety instructions in the chapter "[Safety instructions](#)" on [page 11](#).

### 8.1 Installing the air duct



When installing the air duct, make sure that you do not damage the heat sink on the system board.

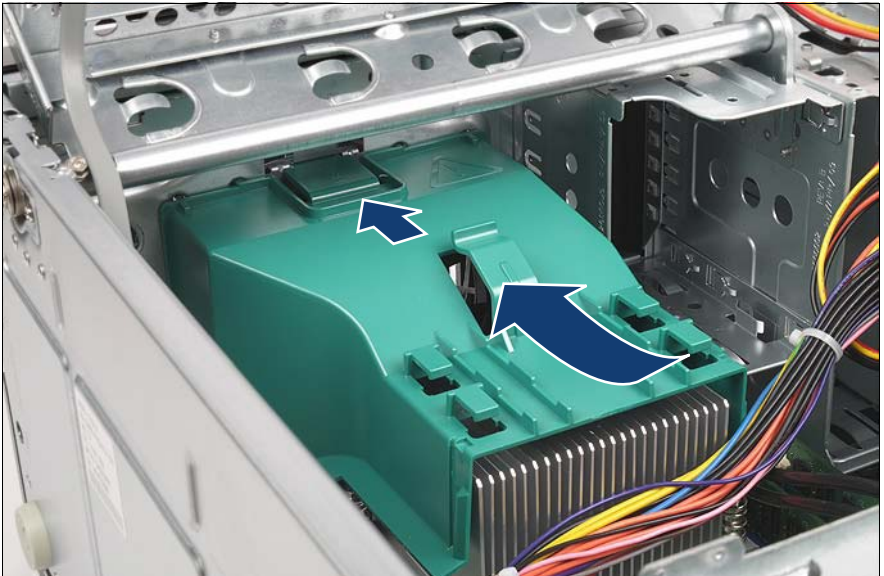


Figure 18: Installing the air duct

- ▶ Place the air duct on the heat sink.
- ▶ Push the air duct towards the front of the server until it clicks into the locking mechanism.

## 8.2 Closing the server

### Closing the drive cage



Figure 19: Closing the drive cage

- ▶ Close the drive cage.
- ▶ Use the knurled screw (1) to screw the drive cage into place.

**Installing the side cover**

Figure 20: Installing the side cover

- ▶ Replace the side cover.
- ▶ Press the locking lever down until it clicks into place.
- ▶ Put the server back into the upright position.
- ▶ Connect all cables on the rear of the server.
- ▶ Connect the power plug to the grounded shockproof socket..
- ▶ Press the On/Off button to start up the server.



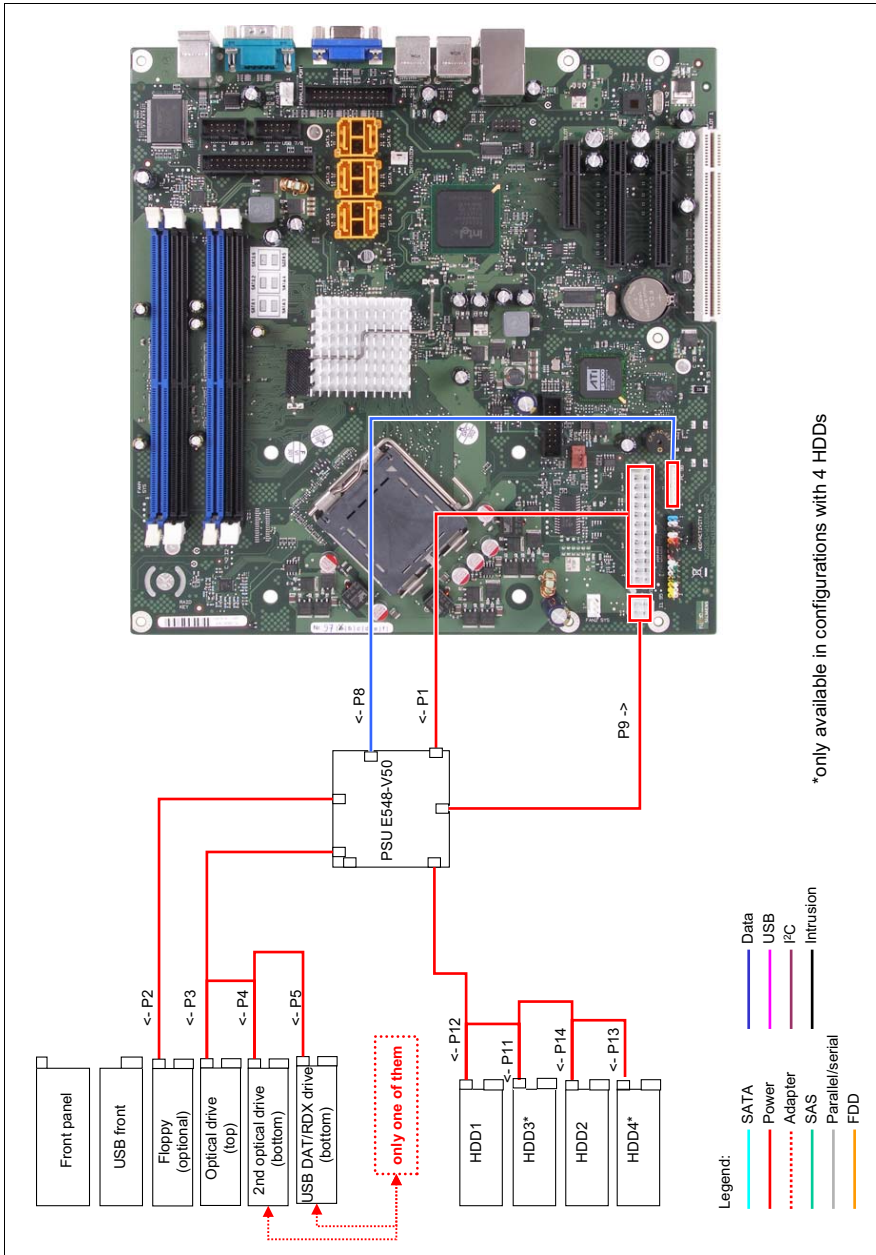


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# **9 Appendix**

## **9.1 Cabling**

You will find suggestions for cabling on the next pages.



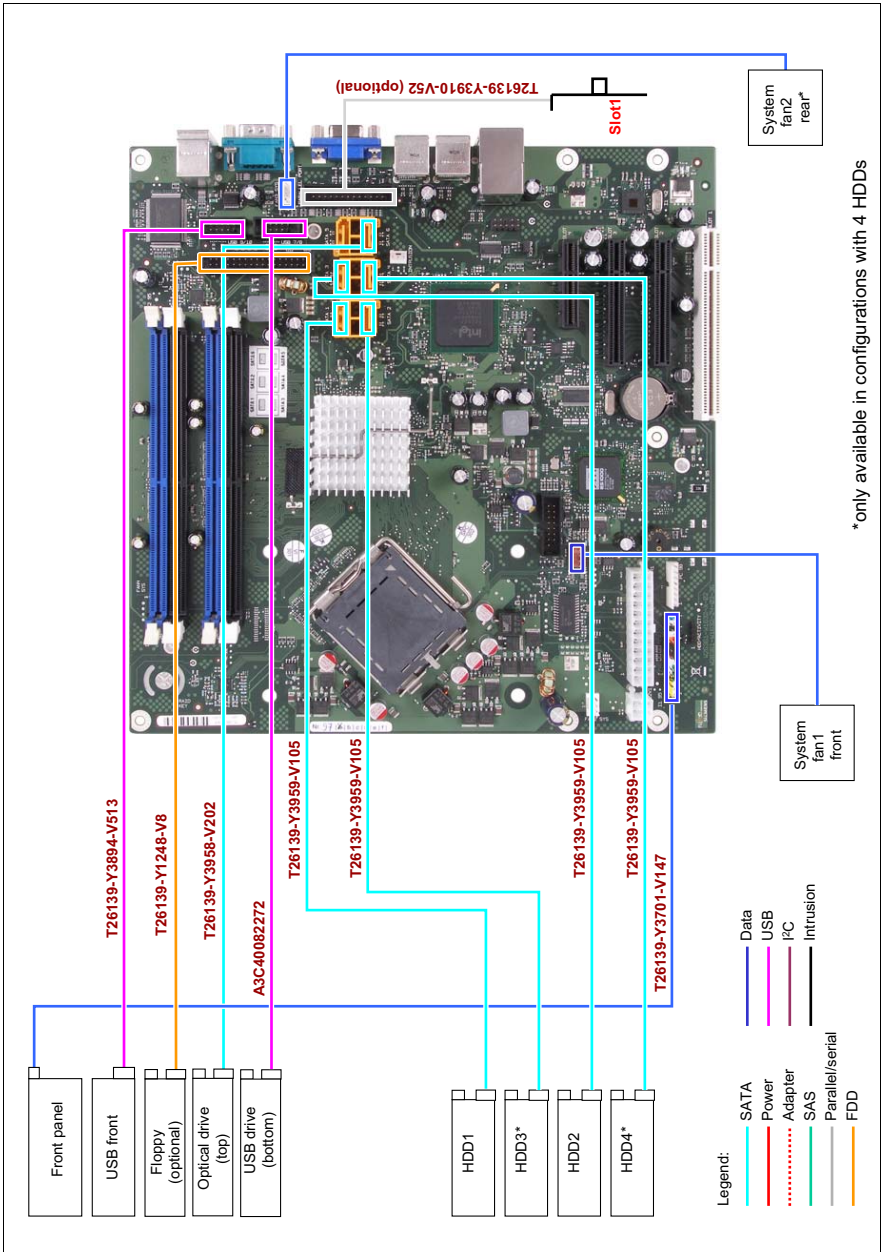


Figure 22: Basic cabling with parallel interface option



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