PRIMERGY TX600

You will find updates and new components in the chapter 'Updates' positioned after the index.

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General information

Description

The PRIMERGY TX600 server is an Intel-based server for mid-size networks and large companies. The server is suitable for use as a file server as well as an application, information, or internet server. It is available as a floor-standing or rack model. The floor-standing model can be converted into a rack model using an optional conversion kit.

The PRIMERGY TX600 server offers a high level of reliability and availability through highly developed hardware and software components. These include hot-swap hard disk drive modules, redundant system fans and power supply units, and hot-plug PCI slots, the ServerView server management software, "Prefailure Detection and Analyzing" (PDA), and "Automatic Server Reconfiguration and Restart" (ASR&R).

The term hot-swap refers to the online replacement of a component (e.g. a failed hard disk drive, which is configured as a member of a disk array (RAID)).

The term hot-plug refers to the replacement of components while the power is switched on. In the special case of hot-plug PCI boards it is ensured that the corresponding PCI slot is powered off before the board is removed.

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 intrusion detection and the lockable drive cover on the floor-standing model and/or the lockable rack door.
**Features**

**System board D1411**
- ServerWorks GC LE chipset
- 4 processor sockets for Gallatin processors with 2.0 GHz and higher, socket 603, with 400MHz front-side bus and quad-pumped data bus
- 512 Kbyte second-level cache, and 1 or 2MB TLC
- 8 slots for main memory, PC2100 modules (registered DDR DIMM memory modules with 266 MHz and ECC) for 1-16 Gbyte main memory
- 4x 64-bit hot-plug PCI-X slots with 3x 133MHz, 1x100 MHz
- 1x 64-bit PCI-X slot with 100 MHz (prepared for ZCR)
- 1x 64-bit PCI slot with 33 MHz (long design possible)
- SCSI controller AIC7902 Ultra 320 capable, two-channel; board supports Zero Channel RAID (with Host RAID function)
- Screen controller ATI Rage XL VGA onboard with 230 MHz RAMDAC and 8 Mbyte SDRAM memory
- Ethernet LAN-Controller Broadcom BCM 5704 with 2x 1 Gbit
- Onboard Remote Management controller (RMC) with a own COM and LAN interface and an optional battery backup unit
- 2 IDE interfaces ATA100 capable, support PIO mode 0-4
- Floppy port (34-pin classical)
- 1 external parallel interface (ECP- and EPP-compatible)
- 2 external serial ports (COM1 and COM2)
- 1 external serial interface for Remote Management
- 3 external and 2 internal USB1.1 ports
- 2 external RJ45 LAN ports
- 1 external RJ45 LAN port for Remote Management
- 2 external PS/2 interfaces for keyboard and mouse
- 1 external port for the optional battery backup unit of the RMC
- System monitoring

**Hot-plug PCI slots**

As well as standard PCI slots, the server also has four hot-plug PCI slots that allow boards to be installed and removed online, assuming the operating system supports this functionality.
LocalView module ( alphanumeric system display)

The LocalView module provides an alphanumeric display of system information and hardware errors. It is an intelligent module with a micro controller and its own memory that can run independently of the attached server system.

The LocalView module includes the LCD panel and the toggle switch, both of which are integrated in a peripheral bay. The mechanism used allows the module to be pulled out and opened with ease. The LocalView module is installed in a free 5.25 inch server slot. A description of the indicators and how to use LocalView can be found in the “Diagnostics” module of the Service Manual.

Hard disk drives

The server has two drive cages, each of which can accommodate up to six ULTRA320-SCSI hard disk slide-in modules. Each hard disk module can accommodate a SCSI hard disk drive with an SCA (Single Connector Attachment) interface and a maximum height of 1. The module is connected to the SCSI backplane without cables via the SCA interface. This allows hard disk modules to be simply plugged in or pulled out.

The hard disk drive system is designed for Ultra3 SCSI and can be configured as a dual-channel system with three hard disk drives each or as a single-channel system with six hard disk drives. The hard disk drives can be controlled by the onboard controller or by a plug-in RAID controller.

If the server has a RAID controller and a corresponding RAID configuration, defective hard disk modules can be exchanged online (hot-swap).

Accessible drives

Various mounting slots are available:

- Two 5.25 inch half-height (1.6 inch) slots for accessible drives (e.g. magnetic tape drives)
  Alternatively, these slots can be used to install a 3.2-inch-high accessible drive.
- One slot for a 3.5 inch slimline floppy disk drive (1.44 MB) and one slot for a slimline DVD-ROM drive.

  The accessible drives integrated in the 5.25 inch slots cannot be replaced online.
**Description**

**Power supply**
In its basic configuration, the server has two hot-swap wide-range power supply units which adjust automatically to any power voltage in the range of 100 V to 240 V. If one power supply unit fails, the second ensures that operation can continue uninterrupted. The defective power supply unit can be replaced online.

**Ventilation**
The server is cooled by means of the power supply unit fans and eight system fans (redundant configuration).

If one fan in a redundant pair fails, the other fan ensures that operation can continue uninterrupted. A defective system fan can be replaced online.

Every CPU has its own heat sink with fan.

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

The memory modules used support Chipkill™ technology, which in addition increases the effectiveness of the monitoring and correction of memory errors.

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

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

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

Optional RAID controllers support RAID levels 0, 1, 5 and 10 and increase system availability.
Server management

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

ServerView allows the management of all PRIMERGY servers in the network via a central console. The following are some of the key features supported by ServerView in this context.

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

Further information on the ServerView server management is provided in the associated documentation.

ServerStart

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

Service and support

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

The handles and locks (touch points) of the different hot-plug/hot-swap components are colored green to allow quicker recognition. Also colored green are the elements of all other components that can be handled without tools.

PRIMERGY diagnostic LEDs arranged on the system board identify the component (memory module, CPU, VRMs) on the board that is not functioning correctly.
The flash EPROM program supplied with the Fujitsu Siemens Computers utilities supports a fast BIOS update.

The optional RemoteView remote testing and diagnostics system allows the PRIMERGY TX300 server to be maintained from remote locations. Remote diagnostics can therefore be performed for system analysis, remote configuration and remote restart should the operating system or hardware fail.

RemoteView

RemoteView is the remote management solution from Fujitsu Siemens Computers for Intel-based PRIMERGY systems. RemoteView 3.0 and the relevant hardware components integrated on the system board allow remote monitoring and maintenance as well as fast restoration of operability in the event of errors.

Remote monitoring and maintenance avoids time-consuming and costly on-site repairs and reduces service costs. This leads to a reduction in the total cost of ownership and an excellent return on investment for the remote management solution.

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

#### Options

**Converting from a floor-standing model to a rack model**

The floor-standing model can be optionally converted to allow the server to be mounted in any typical rack system.

**Additional hot-swap tape drive**

A hot-swap tape drive can be installed optionally in the hard disk drive cage. As a result, two slots will be occupied in the drive cage which are then no longer available for HDD modules.

**Additional RemoteView**

*RemoteView* is a feature-rich remote testing and diagnostics package. The testing and diagnostics software is stored on a chipDISK. The chipDISK is a memory module with an IDE interface and is located on the system board. In the event of an error the testing and diagnostics software is automatically loaded from the chipDISK and then executed.

**ZCR (Zero Channel RAID) Controller**

The ZCR controller, together with the onboard controller, offers RAID functionality. It is used for the internal hard disk drives as well as for the accessible drives.

**Additional external SCSI interface**

If the internal HDD modules are connected via a RAID controller, a channel of the onboard controller can also be made available via an external SCSI interface for connecting storage subsystems.

<table>
<thead>
<tr>
<th>Options</th>
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</tr>
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</tr>
</tbody>
</table>
**Function**

**General information**

**Function**

**Configuration diagram**

- **System unit**
  - **Memory**
  - **Processor**
    - Xeon MP (3)
    - Xeon MP (4)
    - Xeon MP (4)
    - Xeon MP (1)

- **Extension slots**
  - PCI-X 64 bit / 133 MHz, long (hot-plug)
  - PCI-X 64 bit / 100 MHz, long (hot-plug)
  - PCI-X 64 bit / 100 MHz, long (hot-plug)
  - PCI-X 64 bit / 100 MHz, long (hot-plug)
  - PCI-X 64 bit / 100 MHz, long (hot-plug)
  - PCI 64 bit / 33 MHz, long

- **Operating panel**
  - 5.25" x 0.5" DVD-ROM
  - 3.5" x 0.5" floppy disk
  - Local View module
  - 5.25" x 1.6" SCSI drive
  - 5.25" x 1.8" SCSI drive

- **Accessible drives**
  - Hard disk drives
    - hot-plug
  - 3.5" x 1" ID 5
  - 3.5" x 1" ID 4
  - 3.5" x 1" ID 3
  - 3.5" x 1" ID 2
  - 3.5" x 1" ID 1
  - 3.5" x 1" ID 0

- **Hot-plug power supply (redundant)**
  - 1. PSU
  - 2. PSU

The highest assembled bank is the hot-spare bank (if the feature is enabled).

Processors must be plugged in order according the picture.
### Product designations

The sales information contained in this service manual is provided to help the service technicians and should not be used as sales documentation. Some of the products in the overview may no longer be available to order.

<table>
<thead>
<tr>
<th>Product</th>
<th>Base units</th>
</tr>
</thead>
<tbody>
<tr>
<td>S26361-K901-V300</td>
<td>Floor-standing model 2.0GHz/1 MB TLC</td>
</tr>
<tr>
<td>S26361-K901-V301</td>
<td>Floor-standing model 2.5GHz/1 MB TLC</td>
</tr>
<tr>
<td>S26361-K901-V302</td>
<td>Floor-standing model 2.8GHz/2 MB TLC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product</th>
<th>Base units</th>
</tr>
</thead>
<tbody>
<tr>
<td>S26361-K901V400</td>
<td>Rack model 2.0 GHz/1 MB TLC</td>
</tr>
<tr>
<td>S26361-K901V401</td>
<td>Rack model 2.5GHz/1 MB TLC</td>
</tr>
<tr>
<td>S26361-K901V402</td>
<td>Rack model 2.8GHz/2 MB TLC</td>
</tr>
</tbody>
</table>
### Product designations

**Product Rack mounting kits**

<table>
<thead>
<tr>
<th>Product</th>
<th>Rack mounting kits</th>
</tr>
</thead>
<tbody>
<tr>
<td>S26361-F2734-L36</td>
<td><strong>Mounting kit</strong> for mounting rack server in:</td>
</tr>
<tr>
<td></td>
<td>– 19&quot; racks (DataCenter and PRIMECENTER rack)</td>
</tr>
<tr>
<td></td>
<td>– all other server racks conforming to EIA standard EIA-310-D</td>
</tr>
<tr>
<td></td>
<td><strong>Contents:</strong></td>
</tr>
<tr>
<td></td>
<td>– 1 pair of telescopic rails</td>
</tr>
<tr>
<td></td>
<td>– 1 pair of carrier rails</td>
</tr>
<tr>
<td></td>
<td>– 1 bracket PC rack</td>
</tr>
<tr>
<td></td>
<td>– 1 cable management PC rack</td>
</tr>
<tr>
<td>S26361-F1927-L210</td>
<td><strong>Conversion kit</strong> (for later conversion), floor-standing model into rack model</td>
</tr>
</tbody>
</table>

**Product Upgradings/Conversions**

<table>
<thead>
<tr>
<th>Product</th>
<th>Upgradings/Conversions</th>
</tr>
</thead>
<tbody>
<tr>
<td>T26139-Y3882-E101</td>
<td>External SCSI connection</td>
</tr>
</tbody>
</table>

**Product Processors**

<table>
<thead>
<tr>
<th>Product</th>
<th>Processors</th>
</tr>
</thead>
<tbody>
<tr>
<td>S26361-F2817-E201</td>
<td>XEON 2.0 GHz/400 MHz FSB with 1 MB TLC on chip, incl. heat sink; maximum 3</td>
</tr>
<tr>
<td>S26361-F2817-E251</td>
<td>XEON 2.5 GHz/400 MHz FSB with 1 MB TLC on chip, incl. heat sink; maximum 3</td>
</tr>
<tr>
<td>S26361-F2817-E282</td>
<td>XEON 2.8 GHz/400 MHz FSB with 2 MB TLC on chip, incl. heat sink; maximum 3</td>
</tr>
</tbody>
</table>

PRIMERGY TX600 with 4 CPU slots. For a CPU extension the additional CPU must be of identical type, cache size and clock rate.
General information

Product designations

**Product** | **Main memory**
--- | ---
| | – There are 8 slots divided into 4 banks with 2 memory modules each.  
| | – These take 1 GB, 2GB or 4GB PC 2100 DDR-RAM modules.  
| | – The maximum main memory capacity is 16 GB!  
| | – Mixing of modules within one bank is not allowed.  
| | – Standard for TX600:  
| | – ECC with memory scrubbing and chipkill

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S26261-F2762-E524</td>
<td>Main memory 1 GB (2 modules), PC21000 registered DDR RAM, occupies one bank, maximum 2/system</td>
</tr>
<tr>
<td>S26261-F2762-E525</td>
<td>Main memory 2 GB (2 modules), PC21000 registered DDR RAM, occupies one bank, maximum 2/system</td>
</tr>
<tr>
<td>S26261-F2762-E526</td>
<td>Main memory 4 GB (2 modules), PC21000 registered DDR RAM, occupies one bank, maximum 2/system</td>
</tr>
</tbody>
</table>

**Product** | **Accessible drives**
--- | ---
| | – The system unit has 2 x 5.25 inch slots (1.6 inch height) and slots for mounting the following:  
| | – 1.44 MB floppy disk drive 0.5" and  
| | – DVD-ROM drive 0.5" (IDE)

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S26361-F2850-E3</td>
<td>Tape drive SDLT 320, 160GB, 16 MB/s, LVD/U2W, 3.2 x 5.25&quot;, maximum 1/system</td>
</tr>
<tr>
<td>S26361-F2233-E13</td>
<td>Tape drive DAT DDS4 Autoloader, 6x20 GB, 3 MB/s, LVD/U2W, 3.2 x 5.25&quot;, maximum 1/system</td>
</tr>
<tr>
<td>S26361-F2573-E3</td>
<td>Tape drive LTO Ultrium, 100 GB, 7.5 MB/s, LVD/U2W, 1.6 x 5.25&quot;, maximum 2/system</td>
</tr>
<tr>
<td>S26361-F2849-E3</td>
<td>Tape drive VXA 2, 80 GB, 6MB/s, LCD/U2W 1.6 x 5.25&quot;, maximum 2/system</td>
</tr>
<tr>
<td>S26361-F2233-E3</td>
<td>Tape drive DAT DDS4, 20 GB, 3 MB/s, LVD/U2W 1.6 x 5.25&quot;, maximum 1/system</td>
</tr>
<tr>
<td>S26361-F2848-E3</td>
<td>Tape drive DAT DDS5, 36GB, 3MB/s, U2W SCSI 1.6 x 5.25&quot;, maximum 1/system</td>
</tr>
</tbody>
</table>
| **Option:** Hot-plug backup drive | An optional hot-plug backup drive can be configured:  
| | – occupies 2 x 1" HDD bays  
| | – requires a RAID controller

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S26361-F2233-E6</td>
<td>Tape drive DAT DDS4, hot-plug, 20 GB, 3 MB/s, LVD/U2W 1.6 x 3.5&quot;, maximum 1/system</td>
</tr>
</tbody>
</table>
**Product designations**

**General information**

<table>
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<tr>
<th>Product</th>
<th>Hard disk drives</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>- The system unit has 12 slots</td>
</tr>
<tr>
<td></td>
<td>- The 80-pin SCA hard disk drives are plugged into a cascaddable 2-channel SCSI backplane</td>
</tr>
<tr>
<td></td>
<td>- Hot replacement is possible with DAC and RAID setup</td>
</tr>
<tr>
<td>S26361-F2764-E136</td>
<td>36 GB, 10000 rpm, U320 SCSI (320 MB/s), maximum 12/system</td>
</tr>
<tr>
<td>S26361-F2764-E173</td>
<td>73 GB, 10000 rpm, U320 SCSI (320 MB/s), maximum 12/system</td>
</tr>
<tr>
<td>S26361-F2764-E114</td>
<td>146 GB, 10000 rpm, U320 SCSI (320 MB/s), maximum 12/system</td>
</tr>
<tr>
<td>S26361-F2764-E518</td>
<td>18 GB, 15000 rpm, U320 SCSI (320 MB/s), maximum 12/system</td>
</tr>
<tr>
<td>S26361-F2764-E536</td>
<td>36 GB, 15000 rpm, U320 SCSI (320 MB/s), maximum 12/system</td>
</tr>
<tr>
<td>S26361-F2764-E573</td>
<td>73 GB, 15000 rpm, U320 SCSI (320 MB/s), maximum 12/system</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product</th>
<th>Miscellaneous</th>
</tr>
</thead>
<tbody>
<tr>
<td>S26361-F2116-E9</td>
<td>RemoteView for remote maintenance with IDE chipDISK, maximum 1/system</td>
</tr>
<tr>
<td>S26361-F2425-E300</td>
<td>RemoteView external power supply</td>
</tr>
</tbody>
</table>
System allocation

The PRIMERGY TX600 server is supported with at least the following software and firmware versions:

<table>
<thead>
<tr>
<th>Software and Firmware</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm Service</td>
<td>2.20.07</td>
</tr>
<tr>
<td>DDM LINUX SuSE SLES7</td>
<td>2.01.19</td>
</tr>
<tr>
<td>DDM and Multipath W2K, W2003</td>
<td>3.00.09</td>
</tr>
<tr>
<td>Duplex Write NT4.0</td>
<td>2.01</td>
</tr>
<tr>
<td>Easy Mirror for NT and Windows 2000</td>
<td>2.01.05</td>
</tr>
<tr>
<td>Easy Mirror Linux Red Hat and SuSE</td>
<td>planned</td>
</tr>
<tr>
<td>Global Flash Agent NT / W2K</td>
<td>4.01.01</td>
</tr>
<tr>
<td>Global Flash Manager</td>
<td>4.01.03</td>
</tr>
<tr>
<td>Linux Red Hat ServerView Agent</td>
<td>3.01-06</td>
</tr>
<tr>
<td>Linux SuSE ServerView Agent</td>
<td>3.01-06</td>
</tr>
<tr>
<td>Multipath LINUX SuSE SLES7/SLES8</td>
<td>2.01.07</td>
</tr>
<tr>
<td>Multipath LINUX RedHat Advanced Server 2.1 with Update to 2.4.9-e.12</td>
<td>2.01.07</td>
</tr>
<tr>
<td>Multipath NT4.0</td>
<td>2.01</td>
</tr>
<tr>
<td>NetWare ServerView Agent Novell NetWare</td>
<td>not yet released</td>
</tr>
<tr>
<td>NT / W2K / W2003 ServerView Agent</td>
<td>3.01.05</td>
</tr>
<tr>
<td>Open Unix 8 Agent</td>
<td>not yet available</td>
</tr>
<tr>
<td>RemoteView</td>
<td>3.10.17</td>
</tr>
<tr>
<td>ServerStart</td>
<td>5.309</td>
</tr>
<tr>
<td>ServerSupport</td>
<td>5.309</td>
</tr>
<tr>
<td>ServerView Frontend</td>
<td>3.50.04</td>
</tr>
<tr>
<td>ServerView Web extension</td>
<td>2.34.04</td>
</tr>
</tbody>
</table>
Service

Operating systems

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Operating system</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft</td>
<td>Windows NT 4.0 Server</td>
<td>ok</td>
</tr>
<tr>
<td></td>
<td>Windows NT 4.0 Server Enterprise Edition</td>
<td>ok</td>
</tr>
<tr>
<td></td>
<td>Windows NT 4.0 Terminal Server Edition</td>
<td>ok</td>
</tr>
<tr>
<td></td>
<td>Windows 2000 Server</td>
<td>ok</td>
</tr>
<tr>
<td></td>
<td>Windows 2000 Advanced Server</td>
<td>ok</td>
</tr>
<tr>
<td></td>
<td>Windows 2003 Enterprise Edition</td>
<td>ok</td>
</tr>
<tr>
<td></td>
<td>Windows 2003 Standard Edition</td>
<td>ok</td>
</tr>
<tr>
<td>Caldera</td>
<td>Open Unix 8</td>
<td>-</td>
</tr>
<tr>
<td>Novell</td>
<td>Netware 6</td>
<td>planning</td>
</tr>
<tr>
<td>SCO</td>
<td>UNixWare 7.1.3</td>
<td>ok</td>
</tr>
<tr>
<td>Linux</td>
<td>SuSE Linux Professional</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>SuSE SLES 8</td>
<td>ok</td>
</tr>
<tr>
<td></td>
<td>Red Hat Linux Professional</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Red Hat Advanced Server 2.1</td>
<td>planning</td>
</tr>
</tbody>
</table>

Service

The model rating plate is located:

- On the floor-standing model on the top cover next to the rear
- On the rack model on the left side of the server.

The system serial number is written on the type label. You will need this in the event of a hardware error.
Technical data

Electrical data (hot-swap power supply unit)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Wide range power supply unit</td>
</tr>
<tr>
<td>Rated voltage range</td>
<td>100 - 240 V</td>
</tr>
<tr>
<td>Rated frequency</td>
<td>47 - 63 Hz</td>
</tr>
<tr>
<td>Rated current in basic configuration</td>
<td>6 - 2.5 A</td>
</tr>
<tr>
<td>Maximum rated current</td>
<td>11 - 4.5 A</td>
</tr>
<tr>
<td>Active power</td>
<td>1100 W</td>
</tr>
<tr>
<td>Apparent power</td>
<td>1100 VA</td>
</tr>
<tr>
<td>Heat emission</td>
<td>3960 kJ/h</td>
</tr>
<tr>
<td>Building fuse</td>
<td>16 A</td>
</tr>
<tr>
<td>Protection class</td>
<td>I</td>
</tr>
</tbody>
</table>

Standards observed

<table>
<thead>
<tr>
<th>Standard</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product safety and ergonomics</td>
<td>IEC 60950 / EN 60950 / UL 1950, CSA 22.2 No. 950</td>
</tr>
<tr>
<td>Electromagnetic compatibility</td>
<td>FCC class A</td>
</tr>
<tr>
<td></td>
<td>VCCI class A</td>
</tr>
<tr>
<td></td>
<td>AS / NZS 3548 class A</td>
</tr>
<tr>
<td></td>
<td>BSMI class A (CNS13438)</td>
</tr>
<tr>
<td>Emitted interference</td>
<td>EN 55022</td>
</tr>
<tr>
<td>Harmonic current</td>
<td>EN 61000-3-2 JEIDA</td>
</tr>
<tr>
<td>Flicker</td>
<td>EN 61000-3-3</td>
</tr>
<tr>
<td>RFI suppression</td>
<td>EN 55024</td>
</tr>
<tr>
<td>CE label according to EU directives</td>
<td>Low-Voltage Directive 73/23/EEC</td>
</tr>
<tr>
<td></td>
<td>Electromagnetic Compatibility 89/336/EEC</td>
</tr>
</tbody>
</table>
Technical data

General information

Dimensions

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Floor-standing model</th>
<th>Rack model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>286 mm (with feet)</td>
<td>444 mm (without front panel)</td>
</tr>
<tr>
<td>Depth</td>
<td>743 mm</td>
<td>743 mm (without handles)</td>
</tr>
<tr>
<td>Height</td>
<td>473 mm (with feet)</td>
<td>177 mm or 5 HU</td>
</tr>
</tbody>
</table>

Weight

Approx. 55 kg (depending on the configuration)

Ventilation clearance

At least 200 mm at the front and at the rear

Maintenance area for the floor-standing model

1.2 m² on the left side. The maintenance area may also be used, but must be quickly accessible.

Environmental conditions

| Environment class 3K2 | DIN IEC 721 part 3-3 |
|Environment class 2K2 | DIN IEC 721 part 3-2 |
|Temperature:          |                     |
| Operating (3K2)      | 10 °C... 35 °C      |
| Transport (2K2)      | -25 °C... 60 °C     |
|Humidity              | 10%... 85%          |

Condensation during operation must be avoided!

Noise level

| Sound power level $L_{WAd}$ (ISO 9296): | ≤ 6.5 B (standby) |
|                                          | ≤ 6.7 B (operation) |
| Sound pressure level at bystander position $L_{PAir}$ (ISO 9296) | ≤ 50 dB(A) (standby) |
|                                          | ≤ 52 dB(A) (operation) |
Installation and initial operation

Installation

Preparation

Unpacking the server

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

Ask someone for help with carrying the server.

If you discover that the delivery was damaged during transport or does not correspond to the delivery note, notify your supplier immediately!

- Unpack all parts.
- Carry the server to its installation location.

Installation steps for the floor-standing server

- Connect the devices to the server according to the configuration.
- Connect the server to the mains.
- Route the cables.

Installation steps for the rack server

- Mount the assembly kit and insert the server (see order lists for location diagram prepared with Rack Architect); see page 02-TX600-170 ff.
- Connect the devices to the server according to the rack configuration.
- Connect the server to the mains.
- Route the cables.
Installation and initial operation

Preparing the keyboard

Plug the appropriate connector of the keyboard cable into the socket on the underside of the keyboard as shown in the illustration above.

Connecting devices to the server

The ports for external devices are on the rear of the server. Which ports are available on your server depends on the boards installed.

The standard ports are indicated by symbols and by color coding for the connectors.
Installation and initial operation

### Installation

**Rack model**

<table>
<thead>
<tr>
<th>Port</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>Remote Management controller (green)</td>
</tr>
<tr>
<td>1b</td>
<td>Global Error indicator (orange)</td>
</tr>
<tr>
<td>1c</td>
<td>ID indicator (blue)</td>
</tr>
<tr>
<td>2</td>
<td>LAN ports</td>
</tr>
<tr>
<td>3</td>
<td>USB ports 1 and 2</td>
</tr>
<tr>
<td>4</td>
<td>Serial port for the Remote Management controller</td>
</tr>
<tr>
<td>5</td>
<td>Monitor port VGA (blue)</td>
</tr>
<tr>
<td>6</td>
<td>Serial port COM1 (turquoise)</td>
</tr>
<tr>
<td>7</td>
<td>PS/2 keyboard port (purple)</td>
</tr>
<tr>
<td>8</td>
<td>PS/2 mouse port (green)</td>
</tr>
<tr>
<td>9</td>
<td>Serial port COM2 (turquoise)</td>
</tr>
<tr>
<td>10</td>
<td>Parallel port LPT1 (burgundy)</td>
</tr>
<tr>
<td>11</td>
<td>LAN port for the Remote Management controller</td>
</tr>
</tbody>
</table>

Some of the devices that you connect require special software (e.g. drivers). See the documentation for the connected device.

- Connect the data cables to the server and peripherals.
- You will find an additional USB port on the front of the server (see page 02-TX600-28).
Installation and initial operation

Connecting the server to the mains

In its basic configuration the server has a hot-swap power supply unit. A second hot-swap power supply unit can be added to achieve redundant power supply. If a defect occurs in one power supply unit, the other one ensures unimpaired further operation.

⚠️ The server automatically sets itself to a voltage in the range of 100 V to 240 V. Make sure that your local voltage is within this range.

Hot-plug power supply modules

- Connect the insulated connector of the power cable to the power supply unit of the server (1), and the power plug to a grounded mains outlet (2) of the in-house mains and/or into the mains socket strip of the rack (see the Technical Manual for the rack).

For information on the status display, see page 02-TX600-38.
Installation and initial operation

Initial operation and operating

The server must be acclimatized to its operating environment for the right length of time.

<table>
<thead>
<tr>
<th>Temperature difference (°C) (operating environment/outside)</th>
<th>Minimum acclimatization time (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>25</td>
<td>9</td>
</tr>
<tr>
<td>30</td>
<td>10</td>
</tr>
</tbody>
</table>

Locking and unlocking the floor-standing server

Locking the drive covers prevents unauthorized access to the accessible drives and the hard disk drives.

To unlock and lock the server, you will need the key supplied.
Access to the accessible drives

- Unlock the floor-standing model by turning the key 90° clockwise (1).
- Slide the cover of the accessible drives downward (2).

> If you want to prevent access to the hard disk drive modules, lock the floor-standing model again (3).

Now the cover of the accessible drives cannot be slid into the top position and the hard disk cover cannot be removed.
Access to the hard disk modules

- Unlock the floor-standing model and remove the key.
- Slide the cover of the accessible drives up as far as possible using both thumbs (1). You will feel a certain resistance (the cover clicks into place again about half a centimeter above the locked position.)
- Remove the hard disk cover toward the front (2) and lift it off its anchor.

The reinstalling of the hard disk cover and the locking of the floor-standing model are performed in reverse order.
Controls and indicators on the front panel

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>On/Off button</td>
</tr>
<tr>
<td>2</td>
<td>Operating indicator</td>
</tr>
<tr>
<td>3</td>
<td>'Drive active indicator (lights only by access on chipDISK)</td>
</tr>
<tr>
<td>4</td>
<td>Global Error indicator</td>
</tr>
<tr>
<td>5</td>
<td>NMI button</td>
</tr>
<tr>
<td>6</td>
<td>Reset button</td>
</tr>
<tr>
<td>7</td>
<td>ID button</td>
</tr>
<tr>
<td>8</td>
<td>ID indicator</td>
</tr>
<tr>
<td>9</td>
<td>USB port</td>
</tr>
<tr>
<td>10</td>
<td>Hard-disk drive indicators (see page 02-TX600-34)</td>
</tr>
<tr>
<td>11</td>
<td>System display (LocalView)</td>
</tr>
<tr>
<td>12</td>
<td>Floppy drive</td>
</tr>
<tr>
<td>13</td>
<td>DVD drive</td>
</tr>
<tr>
<td>14</td>
<td>Lock (floor-standing model only)</td>
</tr>
</tbody>
</table>
### Operation controls

<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lock</strong></td>
<td>The floor-standing model can be locked to prevent access to the drives.</td>
</tr>
<tr>
<td><strong>Power button</strong></td>
<td>When the system is switched off, it can be switched on by pressing the power button. When the system is operating, it can be switched off by pressing the power button. If the device does not respond, press and hold the button for at least 4 seconds. The power button does not disconnect the server from the mains. To completely disconnect from the mains, unplug the power cable. If the Remote Management controller is switched on and the system was previously disconnected from the mains, it will take about 60 seconds (system check of the Remote Management controller) after reconnecting to the mains before the server can be switched on again.</td>
</tr>
<tr>
<td><strong>RST</strong></td>
<td><strong>Reset button</strong> Pressing the Reset button with a pointed object (e.g. an unbent paperclip) reboots the system.</td>
</tr>
<tr>
<td><strong>NMI</strong></td>
<td><strong>NMI button</strong> Pressing the NMI button with a pointed object (e.g. an unbent paperclip) shuts the operating system down immediately.</td>
</tr>
<tr>
<td><strong>ID</strong></td>
<td><strong>Identification button (ID button)</strong> The ID indicators on the front and rear of the server light up (blue) when the ID button is pressed. The two ID indicators are synchronized.</td>
</tr>
<tr>
<td><strong>Menu button (LocalView module)</strong></td>
<td>The menu button controls the LED display. You can toggle between and scroll within display modes. To scroll within a display mode, press the menu button for less than a second. To change display modes, press the menu button for at least a second.</td>
</tr>
</tbody>
</table>
### Indicators on the control panel

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power-on indicator (bicolor)</strong></td>
<td>Glows orange when the server is switched off but mains voltage is present (standby mode). Glows green when the server is switched on. Flashes orange when the server is in standby mode again after a power failure.</td>
</tr>
<tr>
<td><strong>Indicator drive active (green)</strong></td>
<td>Glows only when the optional chipDISK is being accessed.</td>
</tr>
<tr>
<td><strong>Global Error Indicator (orange)</strong></td>
<td>Does not light up if the system is ok, i.e. the power is ON, no service incident or critical event has occurred. Flashes orange if a critical event has occurred. Users can check BIOS Setup, system- and event log or via ServerView for event details. The indicator also flashes in standby mode. Glows orange if a prefailure event has been recognized. Users can check system- and event log or via ServerView for event details. The indicator does also light up in standby mode. If the event is still acute after a power failure, the indicator is activated after the restart.</td>
</tr>
<tr>
<td><strong>ID indicator (blue)</strong></td>
<td>Glows blue when the system has been selected by pressing the ID button. To deactivate, press the ID button again. The ID indicator can also be activated via ServerView or its status is reported to ServerView.</td>
</tr>
<tr>
<td><strong>LCD display field (LocalView module)</strong></td>
<td>The LCD display shows system information and hardware system errors (see also page 02-TX600-31).</td>
</tr>
</tbody>
</table>

*To reset the Global Error LED proceed as follows:*

Reboot the system. If the LED status should remain unchanged, consult the system event log in ServerView or the BIOS menu Advanced Settings - IPMI and solve the problem specified there. 
Reboot the system.
**System display (LocalView module)**

A drawer mechanism allows you to pull the LocalView control panel out of the system housing to view information. Press on the front of the module to unlock it.

You can also swivel the LocalView control panel downward at a 120° angle. This makes reading easier if the server is located high up in the rack.

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

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

If no errors occur during the startup phase, the system display changes to system information mode. The system information mode is the normal display mode. If errors occur during operation, the system display switches automatically to system error mode and remains there until the display mode is changed via the menu button.

**System information mode**

In normal operation, the system display is in system information mode. The administrator can select the information to be displayed in this mode. It should, however, be used to uniquely identify the system.

The information you enter is not evaluated by the system, i.e. it is not related to actual system settings such as the IP address or server name in the network. Two entries are displayed at a time. You can display the next two entries by pressing the menu button for less than a second.

Using the menu button on the system display (LCD) you can toggle between menus and retrieve status messages.
You can make 16 entries with a maximum of 20 characters each. The first entry should indicate the server name as used in the network, but this is not mandatory. As long as no information is entered, the system display shows the message "please configure system info".

To enter information, use the \textit{SPMAN} tool, which can be found on the \textit{ServerStart} CD under the \textit{Tools} menu. The system information is retained when the system is restarted.

The following table shows examples of possible system information messages that you can enter via the \textit{SPMAN} tool:

\begin{table}[h]
\centering
\begin{tabular}{|c|c|}
\hline
Message selection & Button pressed: Menu name and message number \( x \) of \( x \) are displayed. \\
& Button released: Message is displayed \\
& Up arrow: Next message \\
& Down arrow: Previous message \\
\hline
Menu selection & Button pressed: Menu name is displayed \\
& Button released: Current entry is displayed \\
& Left arrow: Previous message \\
& Right arrow: Next message \\
\hline
No entries in menu & Menu name + "No entries available" is displayed \\
\hline
\end{tabular}
\end{table}

You can enter the \textit{SPMAN} tool can be found in the Tools menu on the \textit{ServerStart} CD.
Installation and initial operation

Initial operation and operating

<table>
<thead>
<tr>
<th>System state</th>
<th>Displayed message</th>
</tr>
</thead>
<tbody>
<tr>
<td>System active</td>
<td>Server name (node)</td>
</tr>
<tr>
<td>System ok</td>
<td>System ok</td>
</tr>
<tr>
<td></td>
<td>IP address</td>
</tr>
<tr>
<td></td>
<td>Cluster address</td>
</tr>
<tr>
<td></td>
<td>Operating system and version</td>
</tr>
<tr>
<td></td>
<td>Number of CPUs and frequency in MHz</td>
</tr>
<tr>
<td></td>
<td>Memory in Mbytes</td>
</tr>
<tr>
<td></td>
<td>Type/no. of PCI modules</td>
</tr>
<tr>
<td></td>
<td>NICs</td>
</tr>
<tr>
<td></td>
<td>RAID controllers with configuration / number of channels and hard disk drives</td>
</tr>
</tbody>
</table>

Indicators on the drives

- **DVD-ROM drive indicator**
  - glows green when the storage medium is being accessed.
- **Floppy disk drive indicator**
  - glows green when the storage medium is being accessed.
- **Indicators on the optional magnetic tape drive**

<table>
<thead>
<tr>
<th></th>
<th>Clean indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Clean indicator</td>
</tr>
<tr>
<td>2</td>
<td>Media indicator</td>
</tr>
<tr>
<td>3</td>
<td>Drive indicator</td>
</tr>
</tbody>
</table>
**Hard disk drive indicator**

<table>
<thead>
<tr>
<th>HDD BUSY (green)</th>
<th>HDD FAULT (orange)</th>
</tr>
</thead>
<tbody>
<tr>
<td>– lit: HDD in active phase</td>
<td></td>
</tr>
<tr>
<td>– not lit: HDD inactive</td>
<td></td>
</tr>
<tr>
<td>(only in conjunction with a RAID controller)</td>
<td></td>
</tr>
<tr>
<td>– lit: HDD faulty or rebuild stopped (drive defective/needs replacing, a rebuild process was stopped or the HDD module is not correctly inserted)</td>
<td></td>
</tr>
<tr>
<td>– slow flash: HDD rebuild (the data is restored by the RAID controller after a change of hard disk drive)</td>
<td></td>
</tr>
<tr>
<td>– fast flash: HDD identify (drive is identified)</td>
<td></td>
</tr>
<tr>
<td>– four fast flashes/pause: HDD predicted fault</td>
<td></td>
</tr>
<tr>
<td>– two fast flashes/pause: HDD hot spare (hot-spare drive active. The corresponding drive has failed).</td>
<td></td>
</tr>
</tbody>
</table>
Indicators on the rear

Indicators on the external connector panel

1. **LAN connection indicator of the Remote Management controller**
   - Orange LED: glows if a LAN connection is available.

2. **LAN active indicator of the Remote Management controller**
   - Green LED: flashes when a LAN transfer occurs.

3. **LAN connection indicator of LAN A and LAN B**
   - Green LED: glows if a LAN connection is available.

4. **LAN active indicator of LAN A and LAN B**
   - Orange LED: flashes when a LAN transfer occurs.

5a. **Remote Management controller active indicator (green)**
   - Glows green when the Remote Management controller is active.

5b. **Global Error indicator (orange)** see page 02-TX600-30

5c. **ID indicator (blue)** see page 02-TX600-30

6. **Hot-plug PCI warning indicator (orange)** see page 02-TX600-36

7. **Hot-plug PCI power indicator (green)** see page 02-TX600-36
Initial operation and operating

Indicators on hot-plug PCI slots

The indicators on these slots behave differently depending on whether the operating system supports hot-plug functionality.

<table>
<thead>
<tr>
<th>Power indicator (green)</th>
<th>Warning indicator (orange)</th>
<th>Status description</th>
</tr>
</thead>
</table>
| not lit                  | not lit                     | 1. Device switched off.  
2. Device operating but PCI slot not powered up. One board may be installed or removed. |

Operating system with hot-plug functionality
Installation and initial operation

<table>
<thead>
<tr>
<th>Power indicator (green)</th>
<th>Warning indicator (orange)</th>
<th>Status description</th>
</tr>
</thead>
<tbody>
<tr>
<td>flashing</td>
<td>not lit</td>
<td>Device operating.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PCI slot is in enable or disable sequence.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wait until the green LED has changed its status (does not light up after disable or lights up after enable sequence).</td>
</tr>
<tr>
<td>glowing</td>
<td>not lit</td>
<td>Device operating.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PCI slot powered up. <strong>No board may be installed or removed.</strong></td>
</tr>
<tr>
<td>not lit</td>
<td>glowing</td>
<td>Device operating: a problem has occurred.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>There are two possible causes for this status:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– The MRL sensor was pressed without authorization (see page 02-TX600-73). This status cannot be exited (NMI initiated)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– There was a power failure during the enable sequence (the PCI slot is reset to disable status).</td>
</tr>
</tbody>
</table>

Operating system without hot-plug functionality

<table>
<thead>
<tr>
<th>Power indicator (green)</th>
<th>Warning indicator (orange)</th>
<th>Status description</th>
</tr>
</thead>
<tbody>
<tr>
<td>not lit</td>
<td>not lit</td>
<td>Device switched OFF.</td>
</tr>
<tr>
<td>glowing</td>
<td>not lit</td>
<td>Device operating.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PCI slot powered up.</td>
</tr>
</tbody>
</table>
Status indicators on the hot-plug power supply modules

<table>
<thead>
<tr>
<th>Pos.</th>
<th>LED glowing</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>green</td>
<td>The power supply unit is on and ok</td>
</tr>
<tr>
<td>2</td>
<td>red</td>
<td>An error has occurred</td>
</tr>
<tr>
<td>3</td>
<td>green</td>
<td>Mains power is present</td>
</tr>
</tbody>
</table>
Indicators on the fan

The LED indicates the status of the associated system fan.

<table>
<thead>
<tr>
<th>LED</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>green</td>
<td>Fan is working</td>
</tr>
<tr>
<td>orange</td>
<td>Fan is defective</td>
</tr>
</tbody>
</table>
Switching the server ON and OFF

If, after switching on the server, you see only flickering stripes on the screen, switch off the server immediately. See page 02-TX600-71.

The ON/OFF button does not disconnect the server from the mains voltage. To disconnect completely from the mains, unplug the power plug.

Switching on

- Press the ON/OFF button on the front of the device.

Initial system installation

Insert the ServerStart CD and any available configuration floppy, and restart the device. Follow the instructions in the "Software" module of the Service Manual.

System already installed

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

Switching off

- Shut down the operating system.
- Press the ON/OFF button.

The server is switched off.

Other switch on/switch off methods

As well as using the power button, you can switch the server on and off in the following ways:

- Specified power-on time/power-off time
  Using the ServerView program you can set the time at which the server is switched on or off.

- Modem signal (ring indicator)
  The server is switched on via an internal or external modem.

- Wake On LAN (WOL)
  The server is switched on by a command via the LAN (Magic Package).
Installation and initial operation  Initial operation and operating

- **After power failure**
  The system restarts automatically after a power failure (depending on the BIOS setup).

- **Remote**
  The server can be switched on or reset (warm reset) via LAN/modem by means of the RemoteView Service Board.

**Starting up hot-plug PCI slots**

As well as standard slots, the server also has hot-plug PCI slots. These slots allow boards to be installed and removed during operation, assuming the operating system supports this functionality.

Every hot-plug PCI slot is assigned two indicators that signal the current status of the slot. The indicators are visible externally on the rear of the server (see page 02-TX600-35).

The possible indicator modes and their meanings are explained on page 02-TX600-36 ff.

If you attempt to remove the relevant board despite the green indicator being lit, the slot is automatically powered off to protect the board and system from any damage.

The hot-plug functionality is supported by the currently available Windows operating systems.

The PCI hot-plug software (*PCI Card HotReplace*) is located on the *ServerStart* CD supplied or is installed with the *ServerView* agents. You will find additional information on installation and operation in the file “README for the PCI Hot Plug Software V3.0” on the *ServerStart* CD.

PCI components may only be installed and removed by personnel with the appropriate technical training.
Configuration of the server

How to configure the server is described in the "Software" module (ServerStart-inst) of the Service Manual.

Activating RemoteView for the diagnostics system (RTDS)

To be able to start RemoteView automatically, you must enter the disk parameters in the BIOS setup and boot once from the RemoteView medium (chipDISK).

- Restart the server.
- Press [F2] when the message Press <F2> to enter SETUP is displayed on the screen.
- Select the menu item IDE Drive 1 from the Main screen page in the BIOS setup.
- Set the value for Type to Auto.
- Select the menu item Server from the BIOS setup.
- Set the value for Diagnostic System to enabled. Then set the entry for Next Boot Uses to Diagnostic System.
- Save the settings and exit the BIOS setup. The server boots MS-DOS and RemoteView from the chipDISK.

If the RemoteView software is not yet installed on the chipDISK, install the software as described in the manual for RemoteView.

- To terminate RemoteView, use the menu item Boot Original OS. The server will then boot the standard operating system. For more details on the operation, see the “Diagnostics” module in the Service Manual.
Settings

System board D1411

Interfaces and connectors

| 1 | CPU fan 1 (in ServerView FAN 8) |
| 2 | CPU fan 4 (in ServerView FAN 11) |
| 3 | CPU fan 2 (in ServerView FAN 9) |
| 4 | CPU fan 3 (in ServerView FAN 10) |
| 9 | SCSI channel A |
| 10 | Switch block |
| 11 | Main power |
| 12 | Accu card |
Settings

Installation and initial operation

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>ChipDISK (IDE primary)</td>
</tr>
<tr>
<td>6</td>
<td>DVD-ROM (IDE secondary)</td>
</tr>
<tr>
<td>7</td>
<td>Power support</td>
</tr>
<tr>
<td>8</td>
<td>SCSI channel B</td>
</tr>
</tbody>
</table>

**External ports**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PS/2 mouse port (green)</td>
</tr>
<tr>
<td>2</td>
<td>Serial port COM2 (turquoise)</td>
</tr>
<tr>
<td>3</td>
<td>Parallel port LPT (burgundy)</td>
</tr>
<tr>
<td>4</td>
<td>Serial port of the Remote Management controller</td>
</tr>
<tr>
<td>5</td>
<td>LAN connector of the Remote Management controller</td>
</tr>
<tr>
<td>6</td>
<td>LAN A connector</td>
</tr>
<tr>
<td>7</td>
<td>LAN B connector</td>
</tr>
<tr>
<td>8</td>
<td>USB connector 1</td>
</tr>
<tr>
<td>9</td>
<td>USB connector 0</td>
</tr>
<tr>
<td>10</td>
<td>VGA port (blue)</td>
</tr>
<tr>
<td>11</td>
<td>Serial port COM1 (turquoise)</td>
</tr>
<tr>
<td>12</td>
<td>PS/2 keyboard port (purple)</td>
</tr>
</tbody>
</table>

**Temperature / system monitoring**

Temperature and system monitoring aim to reliably protect the computer hardware against damage caused by overheating. In addition, any unnecessary noise is also prevented by reducing the fan speed, and information is provided on the system status.

The temperature and system monitoring are controlled by an onboard controller developed by Fujitsu Siemens. The following functions are supported:
Installation and initial operation

**Settings**

**Temperature monitoring:**
Measurement of the processor temperature, measurement of the air temperature upon entry with a temperature sensor.

**Fan monitoring:**
Blocked fans or a reduced fan speed due to aging can be detected with the fan monitoring function. Blocked fans are operated with 12 V pulse voltage. An attempt is made to restart a blocked system fan with a cyclical voltage pulse. If the system fan is removed with the device switched off, this results in an error message when the device is switched on again. This is indicated visually by the flashing of the system error LED on the control panel. In addition, an entry is generated in the BIOS error log.

**Fan control:**
The system fan and power supply fan are regulated according to the temperature.

**Sensor monitoring:**
The installed sensors are also monitored. If a sensor outputs an impermissible value, this results in an increase in the fan speed to the maximum value in order to ensure the maximum possible protection of the hardware.

A failed sensor results in an error message. This is indicated visually by the flashing of the system error LED on the control panel. In addition, an entry is generated in the BIOS error log.

**Intrusion detection:**
Unauthorized opening of the cover of a floorstand housing is detected - even when the system is switched off. However, this will only be indicated when the system is switched on again.
This procedure generates an entry in the BIOS error log.
Settings

Installation and initial operation

**LAN connectors A and B**

The system board is equipped with a new-generation high-integration module. This Broadcom 5704 LAN controller supports transfer rates of 10 Mbit/s, 100 Mbit/s and 1 Gbit/s. The LAN controller has a large transmission and receiving buffer (FIFO) and supports the WOL function through Magic Packet™. It is also possible to boot a device without its own boot hard disk via LAN. Here Broadcom PXE is supported.

The LAN RJ45 connectors have an orange and a green LED.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Green LED</td>
</tr>
<tr>
<td>2</td>
<td>Orange LED</td>
</tr>
</tbody>
</table>

**LAN connectors of the Remote Management controller**

You find on the system board a Remote Management controller. This Remote Management controller is equipped with an own serial interface, a LAN connector and an optional battery backup unit.

The LAN RJ45 connector has an orange and a green LED.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Orange LED</td>
</tr>
<tr>
<td>2</td>
<td>Green LED</td>
</tr>
</tbody>
</table>
Add-on modules

1. DC/DC converter (2.5 V)
2. CPU 1
3. CPU 4
4. VRM for CPU 1
5. VRM for CPU 2
6. CPU 2
7. CPU 3
8. VRM for CPU 3
9. VRM for CPU 4
10. Battery
11. DC/DC converter (3.3 V, 5 V)
12. PCI card slots 1-6
13. Status LEDs
14. Memory banks 0-3
PCI slot 1 is the only 5V slot. Slots 2 to 6 are 3.3 V slots. PCI slot 6 supports a zero-channel RAID controller.

**Slot sequence**

- A “zero-channel RAID controller” board can only be mounted in PCI slot 6 to offer a RAID solution with the onboard RAID controller.
- A 5V PCI Card can only be plugged into PCI slot 1.
- Slots 2 to 5 are “hot-plug” slots in which PCI boards can be replaced in the switched-on device. Please see your operating manual for the correct procedure.

**ISA bus resources**

<table>
<thead>
<tr>
<th>Device</th>
<th>IRQ</th>
<th>Address</th>
<th>DMA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keyboard</td>
<td>1</td>
<td>060, 064</td>
<td></td>
</tr>
<tr>
<td>Serial port COM2</td>
<td>3</td>
<td>03F8, 02F8, 03E8, 02E8</td>
<td></td>
</tr>
<tr>
<td>Serial port COM1</td>
<td>4</td>
<td>03F8, 02F8, 03E8, 02E8</td>
<td></td>
</tr>
<tr>
<td>Floppy disk drive controller</td>
<td>6</td>
<td>03F0-3F5, 3F7</td>
<td>2</td>
</tr>
<tr>
<td>Parallel port LPT1</td>
<td>7</td>
<td>0278, 0378, 03BC</td>
<td>0, 1, 3</td>
</tr>
<tr>
<td>Real-time clock (RTC)</td>
<td>8</td>
<td>070-071</td>
<td></td>
</tr>
<tr>
<td>free</td>
<td>9, 10, 11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mouse controller</td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Numeric processor</td>
<td>13</td>
<td>0F0-0FE</td>
<td></td>
</tr>
<tr>
<td>IDE controller</td>
<td>14</td>
<td>1F0-1F7</td>
<td></td>
</tr>
<tr>
<td>free</td>
<td>15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*“IRQ” = interrupt assigned as shipped
*“Address” = this address can be used for your particular device
*“Address” = this DMA can be used for your particular device
Default settings are shown in bold print.
Installation and initial operation

Settings

PCI bus resources

PCI slots

<table>
<thead>
<tr>
<th>PCI slot</th>
<th>Voltage</th>
<th>Frequency in MHz</th>
<th>Hot-plug</th>
<th>PCIX</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5 V</td>
<td>33</td>
<td>no</td>
<td>no</td>
<td>64-bit PCI bus slot</td>
</tr>
<tr>
<td>2</td>
<td>3.3 V</td>
<td>100</td>
<td>yes</td>
<td>yes</td>
<td>64-bit PCI bus slot (primary)</td>
</tr>
<tr>
<td>3</td>
<td>3.3 V</td>
<td>100/133</td>
<td>yes</td>
<td>yes</td>
<td>64-bit PCI bus slot (secondary)</td>
</tr>
<tr>
<td>4</td>
<td>3.3 V</td>
<td>100/133</td>
<td>yes</td>
<td>yes</td>
<td>64-bit PCI bus slot (secondary)</td>
</tr>
<tr>
<td>5</td>
<td>3.3 V</td>
<td>133</td>
<td>yes</td>
<td>yes</td>
<td>64-bit PCI bus slot (secondary)</td>
</tr>
<tr>
<td>6</td>
<td>3.3 V</td>
<td>100</td>
<td>no</td>
<td>yes</td>
<td>64-bit PCI bus slot (up to 340 mm), prepared for ZCR (= Zero-Channel RAID) controller, primary</td>
</tr>
</tbody>
</table>

*) If there is only one controller present on either slot 3 or 4, this can be operated at 133 MHz.

PCI slot 6 and the SCSI controller are connected to the same bus.

Using an “Adaptec 2000 S (ZCR) Controller”, a RAID solution can be implemented. For this purpose, this controller must only be installed in PCI slot 6.

PCI IRQ Line x - assignment of the PCI interrupts

*PCI IRQ Line x* defines which ISA interrupts are used for the separate PCI slots.

If you select *Auto* in the BIOS setup, the interrupts are assigned automatically and no further settings are required.

Multifunctional PCI boards or boards with an integrated PCI-to-PCI bridge can use several PCI interrupts (INTA#, INTB#, INTC#, INTD#). Monofunctional PCI boards (default) only use one PCI interrupt (INTA#) per PCI slot.

The PCI interrupts INTA#, INTB#, INTC# and INTD# are available for each PCI slot.

The same interrupt can be assigned simultaneously to several PCI boards. You should avoid this condition due to reduced performance.

If you use a setting other than *Auto*, the Plug&Play functionality of the system BIOS for the corresponding PCI boards is deactivated.
### Settings

#### Installation and initial operation

**Auto**  
The PCI interrupts are assigned automatically in accordance with the Plug&sPlay guidelines.

**Disabled**  
No ISA interrupt is assigned to the PCI interrupt.

0, 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 22, 23  
The selected ISA interrupt is assigned to the PCI interrupt. You may not select an ISA interrupt that is used by a component on the system board (e.g. controller) or an ISA board.

When the **Auto** setting is selected, you can check the interrupt assignments using the **ICU** (*ISA Configuration Utility)*.

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slot 1</td>
<td>PCI IRQ line 0</td>
<td>PCI IRQ line 1</td>
<td>PCI IRQ line 6</td>
<td>PCI IRQ line 7</td>
</tr>
<tr>
<td>Slot 2</td>
<td>PCI IRQ line 8</td>
<td>PCI IRQ line 9</td>
<td>PCI IRQ line 10</td>
<td>PCI IRQ line 11</td>
</tr>
<tr>
<td>Slot 3</td>
<td>PCI IRQ line 14</td>
<td>PCI IRQ line 15</td>
<td>PCI IRQ line 12</td>
<td>PCI IRQ line 13</td>
</tr>
<tr>
<td>Slot 4</td>
<td>PCI IRQ line 12</td>
<td>PCI IRQ line 13</td>
<td>PCI IRQ line 14</td>
<td>PCI IRQ line 15</td>
</tr>
<tr>
<td>Slot 5</td>
<td>PCI IRQ line 4</td>
<td>PCI IRQ line 5</td>
<td>PCI IRQ line 6</td>
<td>PCI IRQ line 7</td>
</tr>
<tr>
<td>Slot 6</td>
<td>PCI IRQ line 2***</td>
<td>PCI IRQ line 3***</td>
<td>PCI IRQ line 22***</td>
<td>PCI IRQ line 23***</td>
</tr>
<tr>
<td>VGA</td>
<td>IRQ 19</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>COP A</td>
<td>PCI IRQ line 16</td>
<td>PCI IRQ line 17</td>
<td>PCI IRQ line 18</td>
<td>PCI IRQ line 19</td>
</tr>
<tr>
<td>SCSI*</td>
<td>PCI IRQ line 22</td>
<td>PCI IRQ line 23</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>LAN A**</td>
<td>PCI IRQ line 20</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>LAN B**</td>
<td>-</td>
<td>PCI IRQ line 21</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

A...D = Interrupt output of the PCI controller

*  : Interrupts of SCSI channel A or B.

**  : LAN interrupts are not PCI-specific.

***: In the case of the ZCR, the interrupts 22 and 23 are disabled
Installation and initial operation

Settings

Supported screen resolutions

Depending on the operating system used, the screen resolutions in the following table refer to the graphics controller on the system board. 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 controller.

<table>
<thead>
<tr>
<th>Screen resolution</th>
<th>Refresh rate (Hz)</th>
<th>Maximum number of colors</th>
</tr>
</thead>
<tbody>
<tr>
<td>640x480</td>
<td>200</td>
<td>16.7 million</td>
</tr>
<tr>
<td>800x600</td>
<td>200</td>
<td>16.7 million</td>
</tr>
<tr>
<td>1024x768</td>
<td>150</td>
<td>16.7 million</td>
</tr>
<tr>
<td>1052x864</td>
<td>120</td>
<td>16.7 million</td>
</tr>
<tr>
<td>1280x1024</td>
<td>100</td>
<td>16.7 million</td>
</tr>
<tr>
<td>1600x1200</td>
<td>75</td>
<td>16.7 million</td>
</tr>
</tbody>
</table>

Settings with switches

Switch 1 = CMOS clear
Switch 2 = Override memory
Switch 3 = Reserved
Switch 4 = Reserved
Switch 5 = Disable Remote Management controller
Switch 6 = Write protection for floppy disks
Switch 7 = Skip password query
Switch 8 = Recover system BIOS

Default for switches 1 to 8 = Off.
Switches 3 and 4 must be set to Off.

The clock frequency of the processor is set automatically and cannot be changed manually.
Settings

Installation and initial operation

CMOS clear - switch 1
Switch 1 determines whether CMOS entries can be deleted or not.

*on* The CMOS entries can be deleted.

*off* The CMOS entries cannot be deleted (default setting).

ℹ️ Only the BIOS parameters will be deleted. The parameters for the Remote Management controller are not deleted.

Override memory - switch 2
Switch 2 determines whether the memory configuration from CMOS will be used or will be redetermined.

*on* The memory configuration saved in CMOS is ignored and the physical memory size redetermined.

*off* The memory configuration from CMOS is used (default setting).

Reserved - switch 3
Switch 3 is reserved. Off is default setting.

Reserved - switch 4
Switch 4 is reserved. Off is default setting.

Disable Remote Management controller - switch 5
Switch 5 is used to switch the Remote Management controller off/on.

*on* The Remote Management controller is inactive.

*off* The Remote Management controller is active (default setting).

ℹ️ If the Remote Management controller is switched on and the system was previously disconnected from the mains, it will take about 60 seconds (system check of the Remote Management controller) after reconnecting to the mains before the server can be switched on again.

This switch only will be accepted after the system has been disconnected from the mains and an optional RSB accu card has been removed.
Installation and initial operation

Settings

Write protection for floppy disks - switch 6
Switch 6 is used to define whether floppy disks can be written to or deleted in the floppy disk drive. To allow writing to and deletion of floppy disks, the write-protection in the BIOS setup must be disabled (in the Security menu, the Diskette Write field must be set to Enabled).

on The floppy disk drive is write-protected.
off Floppy disks can be read, written to and deleted (default setting).

Skipping the password query - switch 7
Switch 7 is used to define whether the password is queried at system startup, if the password protection is enabled in BIOS Setup (in the Security menu, the Password field must be set to Enabled).

on The password query is effective.
off The password query is skipped. Passwords are deleted (default setting).

Recovering system BIOS - switch 8
Switch 1 enables recovery of the old system BIOS after an update attempt has failed. To restore the old system BIOS you need a Flash BIOS floppy disk.

on The system boots from the Flash BIOS floppy disk from drive A and reprograms the system BIOS on the board.
off The System BIOS is started with the system BIOS from the system board (default setting).

RemoteView chipDISK
To be able to use RemoteView, the remote test and diagnostics system, on the server, a RemoteView chipDISK is optionally available for the PRIMERGY TX600. The chipDISK has an IDE interface and is mounted directly in the (X23) plug (next to the DVD port) on the system board (see also page 02-TX600-43).
Operating panel board

Part number: A3C40041712

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Control panel cable connector (6-pin)</td>
</tr>
<tr>
<td>2</td>
<td>Control panel cable connector (16-pin)</td>
</tr>
<tr>
<td>3</td>
<td>I²C bus connector</td>
</tr>
<tr>
<td>4</td>
<td>USB connector</td>
</tr>
</tbody>
</table>
SCSI backplane

Part number: A3C40036399

The LEDs are made visible on the front of the mounting frames via light conductors, which are situated in the mounting frames of the drives.

The termination is on the SCSI backplane.
Power backplane

Part number: A3C40036405

1 X1 Power connector to system board
2 X10 Connector to power supplies
3 - - Power backplane controller
4 X9 Connector to power supplies
5 X8 Intrusion switch
6 X21 Power SCSI drive
7 X7 Security switch (jumpered)
8 X71 PC bus SCSI drive
9 X23 Power connector fan board
10 X20 Power SCSI drive
11 X2 PC bus SCSI drive
12 X12 Sideband connector to fan board
13 X22 Power connector DAT drive
14 X11 Connector to control panel
15 X12 Power support connector to system board
### Fan backplane

Part number: A3C40036408

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fan 0 connector</td>
</tr>
<tr>
<td>2</td>
<td>Fan 1 connector</td>
</tr>
<tr>
<td>3</td>
<td>Fan 2 connector</td>
</tr>
<tr>
<td>4</td>
<td>Fan 3 connector</td>
</tr>
<tr>
<td>5</td>
<td>Fan 7 connector</td>
</tr>
<tr>
<td>6</td>
<td>Fan 6 connector</td>
</tr>
<tr>
<td>7</td>
<td>X9 Sideband signal connector</td>
</tr>
<tr>
<td>8</td>
<td>Fan 5 connector</td>
</tr>
<tr>
<td>9</td>
<td>X10 Power connector</td>
</tr>
<tr>
<td>10</td>
<td>Fan 4 connector</td>
</tr>
</tbody>
</table>
## Settings

### Installation and initial operation

#### Hot-plug panel

Part number: A3C40037271

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>X1 Connector for hot-plug PCI cable</td>
</tr>
</tbody>
</table>

#### Tape SCA2 adapter

Part number: A3C40037889

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>X1 SCA2 connector</td>
</tr>
<tr>
<td>2</td>
<td>X2 SCSI connector</td>
</tr>
<tr>
<td>3</td>
<td>X3 Jumper</td>
</tr>
<tr>
<td></td>
<td>The required jumper position depends on the streamer you use:</td>
</tr>
<tr>
<td></td>
<td>Pos. J1: for Seagate DDS4 streamer</td>
</tr>
<tr>
<td></td>
<td>Pos. J2: for Sony DDS4 streamer</td>
</tr>
<tr>
<td></td>
<td>Jumpers must be installed in order to activate the &quot;enable parity checking&quot; option.</td>
</tr>
<tr>
<td>4</td>
<td>Jumper connector, connects to the jumper array on the streamer</td>
</tr>
<tr>
<td>5</td>
<td>Power supply connector</td>
</tr>
</tbody>
</table>
Internal cabling

Basic cabling

Diagram showing internal cabling connections and components.
Cabling of power backplane

Redundant power supply
Addresses for SCSI devices

Each device connected to the SCSI interface or to a SCSI controller (hard disks and accessible SCSI drives) must have a unique address. This address is called an ID (identifier).

**SCSI IDs for accessible drives**

The SCSI IDs of both 5.25" drive slots are set on the corresponding drive.

When connecting drives, make sure that no ID is assigned more than once.

**SCSI IDs for hard disk drives**

The SCSI IDs of the hard disk drives are not set on the drive but are determined by the drive slot (SCA connector) on the SCSI backplane.

There are two SCSI backplanes, each of which is connected to a channel of the onboard SCSI controller. Six drive slots are connected to each of the backplanes.

<table>
<thead>
<tr>
<th>SCSI A</th>
<th>SCSI B</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,5&quot;x1&quot; ID 5</td>
<td>3,5&quot;x1&quot; ID 5</td>
</tr>
<tr>
<td>3,5&quot;x1&quot; ID 4</td>
<td>3,5&quot;x1&quot; ID 4</td>
</tr>
<tr>
<td>3,5&quot;x1&quot; ID 3</td>
<td>3,5&quot;x1&quot; ID 3</td>
</tr>
<tr>
<td>3,5&quot;x1&quot; ID 2</td>
<td>3,5&quot;x1&quot; ID 2</td>
</tr>
<tr>
<td>3,5&quot;x1&quot; ID 1</td>
<td>3,5&quot;x1&quot; ID 1</td>
</tr>
<tr>
<td>3,5&quot;x1&quot; ID 0</td>
<td>3,5&quot;x1&quot; ID 0</td>
</tr>
</tbody>
</table>

All necessary SCSI terminators are already installed in the server. It is not possible to plug a terminator into the drives.
### Overview of cables

The following cables are used in the PRIMERGY TX600 systems.

<table>
<thead>
<tr>
<th>Part number</th>
<th>name</th>
<th>from</th>
<th>to</th>
</tr>
</thead>
<tbody>
<tr>
<td>A3C40030220 T26139-Y3931-V2</td>
<td>System board signal cable</td>
<td>Power backplane</td>
<td>System board</td>
</tr>
<tr>
<td>A3C40039938 T26139-Y3923-V1</td>
<td>Front panel cable</td>
<td>Power backplane</td>
<td>Front panel signals</td>
</tr>
<tr>
<td>A3C40039940 T26139-Y3718-V105</td>
<td>SM I²C bus cable</td>
<td>Front panel</td>
<td>ID/Temp-Combo/LocalView LCD</td>
</tr>
<tr>
<td>A3C40039945 T26139-Y3560-V104</td>
<td>Fan board DC cable</td>
<td>Power backplane</td>
<td>Fan board</td>
</tr>
<tr>
<td>A3C40039945 T26139-Y3560-V104</td>
<td>HDD DC cable 1</td>
<td>Power backplane</td>
<td>HDD backplane 1</td>
</tr>
<tr>
<td>A3C40039945 T26139-Y3560-V104</td>
<td>HDD DC cable 2</td>
<td>Power backplane</td>
<td>HDD backplane 2</td>
</tr>
<tr>
<td>A3C40039948 T26139-Y2482-V5</td>
<td>Drive DC Cable</td>
<td>Power backplane</td>
<td>Tape1 / Tape2 / CD ROM</td>
</tr>
<tr>
<td>A3C40039949 T26139-Y3744-V1</td>
<td>SM I²C bus cable 1</td>
<td>Power backplane</td>
<td>HDD backplane 1</td>
</tr>
<tr>
<td>A3C40039949 T26139-Y3744-V1</td>
<td>SM I²C bus cable 2</td>
<td>Power backplane</td>
<td>HDD backplane 2</td>
</tr>
<tr>
<td>A3C40040455 T26139-Y3906-V6</td>
<td>Hot-plug PCI cable</td>
<td>System board</td>
<td>Hot-plug panel</td>
</tr>
<tr>
<td>A3C40041270 T26139-Y3662-V302</td>
<td>IDE cable</td>
<td>System board</td>
<td>DVD-ROM adapter</td>
</tr>
<tr>
<td>A3C40041271 T26139-Y3696-V10</td>
<td>FDD cable</td>
<td>System board</td>
<td>FDD</td>
</tr>
<tr>
<td>A3C40041272 T26139-Y2493-V7</td>
<td>Fan board signal cable</td>
<td>Power backplane</td>
<td>Fan board</td>
</tr>
<tr>
<td>A3C40042393 T26139-Y3917-V2</td>
<td>SCSI HDD cable 1</td>
<td>System board</td>
<td>HDD backplane 1</td>
</tr>
<tr>
<td>A3C40042393 T26139-Y3917-V2</td>
<td>SCSI HDD cable 2</td>
<td>System board</td>
<td>HDD backplane 2</td>
</tr>
</tbody>
</table>
## Overview of cables

<table>
<thead>
<tr>
<th>Part number</th>
<th>Name</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>A3C40049305</td>
<td>System board DC cable</td>
<td>Power backplane</td>
<td>System board</td>
</tr>
<tr>
<td>T26139-Y3758-V6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A3C40051229</td>
<td>SCSI tape drive cable</td>
<td>HBA (PCI card)</td>
<td>Tape drive</td>
</tr>
<tr>
<td>T26139-Y3847-V2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Diagnostics

LocalView module

The LocalView module provides an alphanumeric display of system information and hardware errors. It is an intelligent module with a microcontroller and its own memory that can run independently of the server system attached.

The LocalView module includes the LCD panel and the toggle switch, both of which are integrated in a peripheral bay. The mechanism used allows the module to be pulled out and opened with ease. The LocalView module is installed in a free 5.25 inch server slot.

A description of the indicators and how to use LocalView can be found in the "Diagnostics" module of the Service Manual.
## Numbering of the components in ServerView

### Fans

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAN 0</td>
<td>System fan 1, floor-standing model, top, back row; rack model, left, back row (both seen from the front)</td>
</tr>
<tr>
<td>FAN 1</td>
<td>System fan 2, floor-standing model, second from top, back row; rack model, second from left, back row (both seen from the front)</td>
</tr>
<tr>
<td>FAN 2</td>
<td>System fan 3, floor-standing model, second from bottom, back row; rack model second from right, back row (both seen from the front)</td>
</tr>
<tr>
<td>FAN 3</td>
<td>System fan 4, floor-standing model, bottom, back row; rack model, right, back row (both seen from the front)</td>
</tr>
<tr>
<td>FAN 4</td>
<td>System fan 5, floor-standing model, top, front row; rack model, left, front row (both seen from the front)</td>
</tr>
<tr>
<td>FAN 5</td>
<td>System fan 6, floor-standing model, second from top, front row; rack model, second from left, front row (both seen from the front)</td>
</tr>
<tr>
<td>FAN 6</td>
<td>System fan 7, floor-standing model, second from bottom, front row; rack model, second from right, front row (both seen from the front)</td>
</tr>
<tr>
<td>FAN 7</td>
<td>System fan 8, floor-standing model, bottom, front row; rack model, right, front row (both seen from the front)</td>
</tr>
<tr>
<td>FAN 8</td>
<td>Fan CPU 1</td>
</tr>
<tr>
<td>FAN 9</td>
<td>Fan CPU 2</td>
</tr>
<tr>
<td>FAN 10</td>
<td>Fan CPU 3</td>
</tr>
<tr>
<td>FAN 11</td>
<td>Fan CPU 4</td>
</tr>
<tr>
<td>FAN 12</td>
<td>Power supply unit fan PSU 0, floor-standing model, bottom; rack model, right (both seen from the front)</td>
</tr>
<tr>
<td>FAN 13</td>
<td>Power supply unit fan PSU 0, floor-standing model, bottom center; rack model, right of center (both seen from the front)</td>
</tr>
<tr>
<td>FAN 14</td>
<td>Power supply unit fan PSU 1, floor-standing model, top center; rack model, left of center (both seen from the front)</td>
</tr>
<tr>
<td>FAN 15</td>
<td>Power supply unit fan PSU 1, floor-standing model, top; rack model, left (both seen from the front)</td>
</tr>
</tbody>
</table>
### Temperature sensors

<table>
<thead>
<tr>
<th>Sensor no.</th>
<th>Message in ServerView agent</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>T0</td>
<td>CPU Temp</td>
<td>Temperature CPU 0</td>
</tr>
<tr>
<td>T1</td>
<td>CPU Temp</td>
<td>Temperature CPU 1</td>
</tr>
<tr>
<td>T2</td>
<td>CPU Temp</td>
<td>Temperature CPU 2</td>
</tr>
<tr>
<td>T3</td>
<td>CPU Temp</td>
<td>Temperature CPU 3</td>
</tr>
<tr>
<td>T4</td>
<td>Inlet Temp</td>
<td>Ambient temperature; position in peripheral-bay recess behind peripheral cage</td>
</tr>
</tbody>
</table>

### Power supply units

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSU0</td>
<td>Slot 0, floor-standing model bottom (seen from the rear); rack model left</td>
</tr>
<tr>
<td>PSU1</td>
<td>Slot 1, floor-standing model top (seen from the rear); rack model right</td>
</tr>
</tbody>
</table>
PRIMERGY diagnostic LEDs

Remote Management controller

IDE PRI
IDE SEC

Power Supply

Sata 1

Sata 0

BIOS

VGA Controller

PCI 1

PCI 2, hot plug

PCI 3-4, hot plug

PCI 5, hot plug

PCI 6-7, HOST RAID

Power Switch

VGA1

VGA2

VGA3

VGA4

Remote Management controller

SMBIOS

VMB1

VMB2
## PRIMERGY diagnostic LEDs

Each time after the Remote Management controller has booted, all LEDs light up for a second to test their functioning.

<table>
<thead>
<tr>
<th>LED on</th>
<th>Device</th>
<th>Diagnostic</th>
<th>LED</th>
<th>Device</th>
<th>Normal operation</th>
<th>Another operation state</th>
</tr>
</thead>
</table>
| amber  | Memory | - Multibit Error  
- Correctable Errors  
- Threshold exceeded  
- Refailure Limits reached (ServerView)  
- Hot Spare Memory active | green | SMP | ON  
OFF | SMP inactive |
| amber  | CPU    | - IERR  
- System Error Log entry | amber | Global Error | OFF  
ON  
flashing | Prefailure detected  
Global Error |
| amber  | VRM    | - VRM not present  
- VRM defective | blue | Device ID | OFF  
ON | System identified |
| amber  | DC-DC | - DC-DC converter defective  
- DC-DC converter not present | | | | |
Troubleshooting

Power-on indicator remains dark after switch-on
● Power cable not plugged in correctly
  ▶ Make sure that the power cable is plugged correctly into the server and the grounded power outlet.
  ▶ Check the cables which lead from the multiple AC socket to the power supply units.
● Power supply overloaded
  ▶ Unplug the power plug of the server.
  ▶ Wait a few seconds, then plug the power plug into the grounded power outlet again.
  ▶ Switch on the server.

Server switches itself off
● Server Management has detected an error
  ▶ Check the error list in the ServerView program or the ErrorLog file and try to correct the detected error.

Screen remains dark
● Monitor is switched off
  ▶ Switch on the monitor.
● Screen is blanked out
  ▶ Press any key on the keyboard.
  or
  ▶ Switch off the screen saver. Enter the required password.
● Brightness control is set to dark
  ▶ Set the brightness control of the screen to bright. For detailed information, please refer to the operating manual supplied with the monitor.
● Power cable or monitor cable not connected
  ► Switch off monitor and server.
  ► Make sure the power cable is plugged correctly into the monitor and the grounded power outlet.
  ► Make sure the monitor cable is connected correctly to the server and the monitor (if there is a plug). If a separate graphics card is installed in the server, the monitor cable must be connected to the connection on this graphics card.
  ► Switch on the monitor and the server.

Flickering stripes on the screen

⚠ Switch off the server immediately.

● Monitor does not support the horizontal frequency set.
  ► Find out which horizontal frequencies are supported by your monitor. Further information on the horizontal frequency (also called line frequency or horizontal deflection frequency) can be found in the operating manual for the monitor.
  ► You can look up how to set the correct horizontal frequency of the monitor in the manual for the software of the graphics card or the operating system manual.

No screen display or drifting screen display

● The wrong horizontal frequency or resolution is set for the monitor or the application program.
  ► Find out which horizontal frequencies are supported by your monitor. Further information on the horizontal frequency (also called line frequency or horizontal deflection frequency) can be found in the operating manual for the monitor.
  ► You can look up how to set the correct horizontal frequency of the monitor in the manual for the software of the graphics card or the operating system manual.
Troubleshooting

No mouse pointer displayed on the screen

- Mouse driver not installed
  - Check that the mouse driver is installed correctly and activated. Information on the mouse driver can be found in the documentation for the mouse, operating system and application program.

- Mouse controller disabled
  - If the supplied mouse is used, the mouse controller on the system board must be switched on.
  - Check whether the mouse controller is enabled in the BIOS Setup.

Floppy disk cannot be read or written

- Check whether the write protection of the floppy disk is activated.
- Check the entry for the floppy disk drive in the BIOS Setup.
- Check in the BIOS Setup whether the floppy disk drive controller and the write permission are switched on (you will also find information on this in the technical manual for the system board).
- Make sure that the cables of the floppy disk drive are connected correctly.

Time and/or date not correct

- Set the time and/or the date in the operating system or in the BIOS Setup.

i If the time and date are repeatedly wrong after the server has been switched off and on, the lithium battery must be replaced. (For further information, see the technical manual for the system board.)

System will not boot after installing a new hard disk drive

- SCSI configuration incorrect (ultra-wide SCSI controller)
  - In the SCSI configuration menu, check the settings for the hard disk drives (SCSI Device Configuration) and the settings under Advanced Configuration Options.
Diagnostics

Troubleshooting

**Drives are reported as “dead” at system boot**

This error message can occur when the server has a RAID controller.

- SCSI cabling wrong
  - Make sure that the SCSI cabling and the SCSI cabling assignment still correspond to the original state.

- Configuration of the RAID controllers is wrong.
  - Check and correct the settings for the drives with the DAC utility \textit{DACCF}.

Further information can be found in the operating manual for the RAID controller.

**Added drive is reported as defective**

This error message can occur when the server has a RAID controller.

For further information see the manual for the RAID controller.

**Hot-plug PCI warning indicator lights up**

- MRL sensor was pressed without authorization
  
  The locking bar for the relevant hot-plug PCI board bay was pressed without authorization.

  \begin{figure}[h]
  \centering
  \includegraphics[width=0.5\textwidth]{hotplug-pci-warning.png}
  \caption{Hot-plug PCI warning indicator}
  \end{figure}

  \textbf{Warning:} The locking bar may only be pressed if both indicators for the relevant PCI slot \textbf{do not light up}.

  If there is a board in the PCI slot whose MRL sensor was illegally pressed, an NMI is initiated (\textit{blue screen}).

  - Press the On/Off button for longer than five seconds or remove the power plug.
  - Reboot the server.
Troubleshooting

Diagnostics

**Hot-plug PCI power indicator not lit after replacing the board**

- Incorrect PCI board installed
  
  Only PCI boards of the same type and with the same settings may be exchanged.
  
  If the boards do not match, the new board is not activated: the enable sequence is aborted after five seconds and the flashing power indicator goes out.
  
  ▶ Check the new PCI board for type and settings (mode, speed).
  
  ▶ Repeat the replacement process.

**Power failure during enable sequence**

- The enable sequence was aborted. The PCI board was either not installed correctly (tilted) or is defective.
  
  ▶ Remove and insert the PCI board correctly.
  
  ▶ Repeat the enable process (see page 02-TX600-124).
  
  ▶ If the error occurs again, it is likely that the PCI board is defective.
  
  ▶ Repeat the enable process with a new PCI board.
Removal/installation routines

Preparation

⚠️ When working with systems and boards, make sure you observe the safety information in the “General information” module of the Service Manual.

⚠️ Before handling the components, make sure you electrostatically discharge yourself by touching a grounded object. Be aware that electrostatic-sensitive devices (ESDs) should only be held at the edges and you should not touch any terminal posts or circuit-board conductors.

Any devices or tools that are used must be free of electrostatic charge. For this purpose you should use a suitable grounding cable that connects you to the external chassis of the system unit when removing or installing components.

 Procedures which are identical for the floor-standing and rack models are described for the floor-standing model only.

For easy and immediate identification, the handles or locking mechanisms (touch points) of the different hot-plug/hot-swap components are shown in green. Also colored green are the elements of all other components that can be handled without tools.

► If you do not want to carry out hot-plug operations, please shut down the operating system, switch off the server, and unplug all power plugs.

Opening/closing the server

Floor-standing model

To open the server, proceed as follows:

– Remove the front cover
– Remove the right side cover
Removing/installing the front cover

- Unlock the floor-standing model.
- Remove the key.

- Push down on the plastic buttons on both sides (1).
- Tilt the front cover slightly to remove it in the direction of the arrow (2).

To replace the hard disk cover and lock the floor-standing model, follow the instructions above in reverse order.
Removing/installing the right side cover

- Remove the green knurled screw located on the right edge of the front side.

  Knurled screws may only be fastened so tightly with tools that they can be loosened again manually.

- Push the right side cover approximately 2 cm in the direction of the arrow (3).

- Remove the side cover.

To replace the right side cover, follow the instructions above in reverse order.
Opening/closing the server  

Rack model

Removing/installing the rack model

Undo the four knurled screws (1) and pull the server carefully out of the rack as far as it will go (2).
Procedure with older telescopic rails:

- Push down the safety clip (1) and carefully pull the server toward you (2).

⚠️ Because of the weight of the server, you will need a second person to help you lift it out of the rack.
Opening/closing the server

Removal/installation routines

Unlock the telescopic rails on the left and right by undoing the six screws (M4x6).

Lift the server out of the rack (2).

To install the server in the rack, follow the instructions above in reverse order.

Removing the front panel of the rack

Requirements
  – The server has been moved out.

For how to remove the rack panel, see page 02-TX600-168.
Removing/installing the main cover

Requirements

*Floor-standing model*
- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-76)
- Right side cover has been removed (see page 02-TX600-77)

*Rack model*
- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out

1. Open the fan cover.
2. Undo both screws (1).
3. Push the main cover back a few centimeters (2).
4. Lift the main cover off upward (3).

To replace the cover, follow the instructions above in reverse order.
Removing/Installing the peripheral cover

Requirements

Floor-standing model

- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-76)
- Right side cover has been removed (see page 02-TX600-77)

Rack model

- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out

 ê

- Undo the four screws which fasten the peripheral cover and remove the cover.

To replace the cover, follow the instructions above in reverse order.
SCSI hard disk subsystem

The SCSI hard disk subsystem consists of the hard disk modules, the SCSI backplane and the SCSI controller.

In the PRIMERGY TX600 server you can install up to 12 hard disk modules. Only Ultra3 SCSI drives (LVD) with a 3½ inch format, a maximum height of 1 inch and an SCA interface are used. The hard disk drives are mounted in slide-in units, which makes it very easy to insert or remove a hard disk. The slide-in units have a status indicator and an error indicator. The SCSI IDs of the hard disk drive plug-in modules are permanently assigned (see also page 02-TX600-61).

If a hard disk drive is operated on a RAID controller and belongs to a disk array operated in RAID level 1 or level 5, a defective hard disk drive can be replaced during operation (hot-swapping). To swap a hard disk drive, you need one with the same or a higher capacity. After the replacement, the data is automatically rebuilt on the new hard disk drive, provided the RAID controller is configured correctly. See the information on the ServerBooks CD-ROM (section "Controllers") or in the RAID controller manual.

To allow you to tell the capacity of a hard disk drive at a glance, the server comes with several prefabricated stickers showing storage capacities. Each hard disk module should be labeled with a sticker indicating the capacity of the installed hard disk drive. If no suitable sticker is available, you will also find blank stickers which you can label yourself. The stickers are color-coded for an easier identification.

Notes on RAID levels

- RAID levels 0 and 7
  Rebuild is not possible. If a hard disk fails, its data will be lost.

- RAID levels 1 and 5 without standby hard disk
  Data is automatically rebuilt on the new disk when the old disk is replaced.

- RAID levels 1 and 5 with standby hard disk
  A standby hard disk is automatically activated as a replacement for the defective hard disk. The data from the defective disk is rebuilt on the standby disk.

  Read the documentation for the new hard disk drive.
Components and indicators of the hard disk module

The hard disk drives which can be ordered for the server are supplied already mounted in the hard disk modules. The slide-in units have a status indicator and an error indicator. Empty bays are covered with dummy covers.

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hard disk module (hard disk carrier with installed hard disk drive)</td>
</tr>
</tbody>
</table>
| 2 | Indicators  
   HDD access (LED green)  
   HDD error (LED orange) |
| 3 | Handle for engaging and disengaging the hard disk module |
| 4 | Locking button |
| 5 | Indentation for a sticker with the current drive identifier |
| 6 | Dummy cover |
| 7 | Locking tabs |

Functions of the indicators

**Green LED:** The green indicator *lights up* when a hard disk drive is being accessed.

*You may not replace the hard disk module at this time!*

**Orange LED:** The orange LED *flashes* when, in conjunction with a RAID controller, the configuration is being determined or a rebuild is being carried out.

*You may not replace the hard disk module at this time!*

- The orange LED *remains lit* if the hard disk drive is deactivated and/or defective and can be replaced.
Installing/removing a SCSI hard disk module

Removing/inserting the dummy cover

Push the cover of the accessible drives up as far as it will go using both thumbs (1). You will feel a certain resistance (the cover clicks into place again about half a centimeter above the locked position).

Remove the cover toward you (2).

To insert the drive cover, follow the instructions above in reverse order.

If you want to install a hard disk drive in a bay which has never contained one, you must remove the dummy cover beforehand.
Removing the dummy cover

- Press the two plastic clips on the left and right together (1) until the lock is released.
- Remove the dummy cover from the bay (2).

⚠️ Keep the dummy cover for future use. If the hard disk module is removed again and not replaced with a new one, the dummy cover must be reinstalled to comply with EMC regulations, cooling requirements and fire protection measures.

Installing the dummy cover

- Insert the dummy cover into the bay.

ℹ️ Make sure that the dummy cover engages properly in the bay.
Installing a SCSI hard disk module

- Undo the locking mechanism (1) by pressing the locking button.
- Push the handle of the hard disk module up fully (2).
Push the hard disk module into a free slot (1) as far as it will go.

Push the handle of the hard disk module down fully (2) until the locking mechanism engages (3)
Removing a SCSI hard disk module

- Undo the locking mechanism by pressing the locking button.
- Push the handle of the hard disk module up fully.
- Remove the hard disk module.

⚠️ If the hard disk module is removed again and not replaced with a new one, the dummy cover must be reinstalled to comply with EMC regulations, cooling requirements and fire protection measures.

Replacing a SCSI hard disk module during operation

- A SCSI hard disk module may only be replaced during operation:
  - if the orange LED on the hard disk module remains lit
  - if you have set the hard disk drive to "offline" beforehand via the RAID controller configuration software.
- Never remove a hard disk module during operation if you are not sure that the hard disk drive is operated on a RAID controller and is part of a disk array that operates at RAID level 1 or 5.
- "Hot-swapping" is only possible in conjunction with a corresponding RAID configuration.

To replace a SCSI hard disk module during operation, proceed as follows:

- Undo the locking mechanism of the hard disk module indicated as defective by pressing the locking button.
- Push the handle of the hard disk module up fully.
- Pull the hard disk module out a few centimeters by its handle.
- Wait at least 60 seconds so that the RAID controller can recognize that a hard disk module has been removed and the hard disk can come to a standstill.
- Pull the hard disk module out completely.
- Undo the locking mechanism of the new hard disk module by pressing the locking button.
- Push the handle of the hard disk module up fully.
SCSI hard disk subsystem

Removal/installation routines

Insert a new hard disk module in the bay as far as it will go.
Now push the carrier handle of the hard disk module down fully to engage the locking mechanism.

Changing the SCSI hard disk drive in the hard disk carrier

Please note that the hard disk drives which can be ordered for the server are supplied already mounted in hard disk modules. A hard disk drive should only be changed out of its carrier in special circumstances. Proceed as follows:

Remove the hard disk module containing the defective drive (see page 02-TX600-85 and page 02-TX600-89).
Remove the four screws at the sides of the hard disk carrier, two on the right and two on the left.
Take the hard disk drive out of the hard disk carrier.
Replace the hard disk drive or the hard disk carrier.
Mount the hard disk drive in the hard disk carrier with the four screws.

Installation is performed in reverse order.
Installing/removing a hot-swap magnetic tape drive

A hot-swap tape drive can be installed as an option in the SCSI hard disk cage. This will occupy two slots in the cage, which are then no longer available for hard disk modules.

The optional hot-swap magnetic tape drive may only be installed in the two top (floor-standing model) or furthest-right (rack model) slots of the SCSI hard disk drive cage.

The slots contain dummy covers or hard disk modules which must be removed.

- Remove the dummy covers (see page 02-TX600-85) or the hard disk modules (see page 02-TX600-89) from the two slots.

⚠️ Keep the dummy covers for future use. If the drive is removed again and not replaced with a new one, the dummy covers must be reinstalled to comply with EMC regulations, cooling requirements and fire protection measures.

- Undo the locking mechanism by pressing the locking button (1).

- Push the handle of the tape drive module up fully as indicated by the arrow.
SCSI hard disk subsystem

Removal/installation routines

- Carefully push the drive into the empty slot (1) (occupies two slots) as far as it will go.
- Push the handle completely in the direction of the arrow (2) until the locking mechanism engages (3).

Removal is performed in reverse order.
Changing the tape drive in the drive carrier

- Remove the tape drive.
- Push the handle up fully.
- Remove the 4 screws on the sides of the carrier, two on the right and two on the left.
- Pull the tape drive out of the front of the carrier.
Set the jumper J1 or J2 (see page 02-TX600-58) on the SCA2 adapter. The jumpers can be accessed from the bottom (see arrow A).

If jumpers were set on the back of the tape drive, remove them (see arrow B).

Insert the new tape drive into the carrier.

Fix the tape drive to the carrier with the four screws.

To remove the drive, follow the same procedure in reverse order.
Removing/installation routines

SCSI hard disk subsystem

Replacing the SCSI backplane

Requirements

Floor-standing model

- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-76)
- Right side cover has been removed (see page 02-TX600-77)
- Main cover has been removed (see page 02-TX600-81)
- Fan box has been removed (see page 02-TX600-115)
- All hard disk drive modules from the backplane to be replaced have been removed

⚠ Make sure that the hard disk drive modules are adequately marked so that you can return them to their original slots later.

Rack model

- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out
- Main cover has been removed (see page 02-TX600-81)
- Fan box has been removed (see page 02-TX600-115)
- All hard disk drive modules from the backplane to be replaced have been removed

⚠ Make sure that the hard disk drive modules are adequately marked so that you can return them to their original slots later.

- Detach any cables from the SCSI backplane you want to replace.
SCSI hard disk subsystem

Removal/installation routines

Remove the knurled screw (1) of the SCSI backplane to be replaced.

Take off the protective grid from the SCSI backplane, holding it at a slight angle.

Take off the insulating sheet from the SCSI backplane and keep it safe for future use.

Take off the SCSI backplane.

Installation of the new SCSI backplane is performed in reverse order.
Accessible drives and operating panel

The PRIMERGY TX600 server has a peripheral cage with slots for:

- a 3.5 inch slimline floppy disk drive (1.44 MB),
- a slimline DVD-ROM drive,
- the control panel,
- the LocalView module,
- two accessible 5.25 inch drives (e.g. optional magnetic tape drive). Alternatively these slots can be used to install one 3.2-inch-high accessible drive (magnetic tape jukebox).

Each SCSI drive has a unique SCSI ID (see also page 02-TX600-61). The termination must be switched off. The SCSI bus is terminated at one end of the cable with an active terminator. The other end of the cable is terminated on the controller. Please see the documentation for the relevant drive.

Installing/removing the peripheral cage

Requirements

Floor-standing model

- Server is switched off
- Power cables are disconnected
- Front cover has been removed (see page 02-TX600-76)
- Right side cover has been removed (see page 02-TX600-77)
- Fan box has been removed (see page 02-TX600-115)
- Peripheral cover has been removed (see page 02-TX600-82)

Rack model

- Server is switched off
- Power cables are disconnected
- Rack model has been pulled out
- Rack front panel has been removed (see page 02-TX600-80)
- Fan box has been removed (see page 02-TX600-115)
- Peripheral cover has been removed (see page 02-TX600-82)
Accessible drives and operating panel  Removal/installation routines

- Undo all the connections on the back of the peripheral cage.
- Undo the knurled screw in the opening on the peripheral bay so that you can move the peripheral cage.

- Slide the peripheral cage a few centimeters out.
- Undo all connectors of the control panel and of the drives.
- Slide the peripheral cage carefully out of the peripheral bay.

Installation of the peripheral cage is performed in reverse order.
Installing/removing an accessible 5.25 inch drive

Requirements

Floor-standing model

- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-76)
- Right side cover has been removed (see page 02-TX600-77)
- Peripheral cover has been removed (see page 02-TX600-82)
- Fan box has been removed (see page 02-TX600-115)
- Peripheral cage has been removed (see page 02-TX600-97)

Rack model

- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out (see page 02-TX600-78)
- Peripheral cover has been removed (see page 02-TX600-82)
- Fan box has been removed (see page 02-TX600-115)
- Peripheral cage has been removed (see page 02-TX600-97)

If the 5.25 inch drive is removed and not replaced by a new one, the dummy cover must be reinstalled to comply with EMC regulations, cooling requirements and fire protection measures.
Accessible drives and operating panel

Removing/installing the dummy cover

- Remove the total of 4 screws from both sides of the peripheral cage.
- Remove the dummy cover.

⚠️ Keep the dummy cover for future use. If the drive is removed and not replaced by a new one, the dummy cover must be reinstalled to comply with EMC regulations, cooling requirements and fire protection measures.

Installation of the dummy cover is performed in reverse order.
Installing an accessible 5.25 inch drive

- Insert the drive in the peripheral cage and fix it with two screws on each side of the cage.

  Keep the remaining screws for future use. The different drives require different screws.

- Slide the peripheral cage into the peripheral bay (see page 02-TX600-97).

- Connect the SCSI flat ribbon cable to the connector on the accessible drive.

- Connect the power plug to the power connector of the accessible drive.

Removal of the drive is performed in reverse order.
Installing/removing a floppy disk drive

Requirements

Floor-standing model
- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-76)
- Right side cover has been removed (see page 02-TX600-77)
- Peripheral cover has been removed (see page 02-TX600-82)
- Fan box has been removed (see page 02-TX600-115)
- Peripheral cage has been removed (see page 02-TX600-97)

Rack model
- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out
- Peripheral cover has been removed (see page 02-TX600-82)
- Fan box has been removed (see page 02-TX600-115)
- Peripheral cage has been removed (see page 02-TX600-97)

- Unlock the plug and disconnect the flat foil cable.
- Pull the snap-on mounting out a little (1).
- Pull the drive out of the peripheral cage (2).

Installation is performed in reverse order.
Replacing a DVD-ROM drive

Requirements

Floor-standing model
- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-76)
- Right side cover has been removed (see page 02-TX600-77)
- Peripheral cover has been removed (see page 02-TX600-82)
- Fan box has been removed (see page 02-TX600-115)
- Peripheral cage has been removed (see page 02-TX600-97)

Rack model
- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out
- Peripheral cover has been removed (see page 02-TX600-82)
- Fan box has been removed (see page 02-TX600-115)
- Peripheral cage has been removed (see page 02-TX600-97)

1. Disconnect the IDE data cable from the drive connector (1).
2. Disconnect the power cable from the drive (2).
3. Pull the green handle (3) down to unlock it and pull the drive out of the cage.

Installation is performed in reverse order.
Replacing the operating panel board

Requirements

*Floor-standing model*
- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-76)
- Right side cover has been removed (see page 02-TX600-77)
- Fan box has been removed (see page 02-TX600-115)
- Peripheral cage has been removed (see page 02-TX600-97)

*Rack model*
- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out
- Fan box has been removed (see page 02-TX600-115)
- Peripheral cage has been removed (see page 02-TX600-97)

► Pull the operating panel module out of the peripheral cage as far as possible to unplug the connected cables.

► Pull out the snap-on mounting a little (1).

► Pull out the operating panel module.
Push the operating panel module into the housing (1) until the snap-on mounting (2) fits into the hole (3) of its frame.

Push the snap-on mounting until it engages.

Reconnect the cables (operating panel cable, I²C bus cable).

This completes the replacement.
LocalView module

The LocalView module serves as a status display for the servers of the PRIMERGY range. On the display of the LocalView module, you can read the status messages directly on the server. These status messages provide information on the system and inform you of hardware problems (e.g. fan failure, CPU surge).

Replacing a LocalView module

Requirements

Floor-standing model
- Server is switched off
- Power cords are disconnected
- Front cover has been removed (see page 02-TX600-76)
- Right side cover has been removed (see page 02-TX600-77)
- Fan box has been removed (see page 02-TX600-115)
- Peripheral cage has been removed (see page 02-TX600-97)

Rack model
- Server is switched off
- Power cords are disconnected
- Rack model has been pulled out
- Fan box has been removed (see page 02-TX600-115)
- Peripheral cage has been removed (see page 02-TX600-97)
Removal/installation routines

LocalView module

- Undo the cable on the back of the LocalView module.

- Push the green lever (1) to the left to undo the locking of the LocalView frame.

- Push the frame forward out of the drive cage (2).

Installation is performed in reverse order.
Power Supply

In the basic configuration, the server is equipped with two hot-plug power supply modules.

Replacing a hot-plug power supply module

⚠️ If a defective hot-plug power supply module is not replaced immediately, it must be left in the device until its replacement.

Requirements

– None

Information:

An individual hot-plug power supply module can be replaced during operation.

Removing a hot-plug power supply module

▶ Pull the power cable out of the grounded power outlet and out of the defective hot-plug power supply unit.

▶ Push the locking lever in the direction of the arrow (1) and pull the hot-plug power supply module out of its slot.
Installing a hot-plug power supply module

⚠️ You can only install hot-plug power supply units of the same type.

- Push the power supply module into the empty slot until it engages.

⚠️ Only once the power supply module engages can you be sure that electrical contact has been made with the server and can you prevent the power supply unit from sliding out of its support during transport.

- Connect the new power supply module to a grounded power outlet with the power cable supplied.

The status indicators of the power supply module are explained on page 02-TX600-38.
Removing/installing the power backplane

Requirements

Floor-standing model
- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-76)
- Right side cover has been removed (see page 02-TX600-77)
- Main cover has been removed (see page 02-TX600-81)
- Shuttle has been pulled out a little
- Fan box holder has been removed (see page 02-TX600-117)
- Both hot-plug power supply modules have been pulled out (see page 02-TX600-110)

Rack model
- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out
- Main cover has been removed (see page 02-TX600-81)
- Shuttle has been pulled out a little
- Fan box holder has been removed (see page 02-TX600-117)
- Both hot-plug power supply modules have been pulled out (see page 02-TX600-110)

Removing the power backplane
The power backplane is mounted under the fan box holder.

- Disconnect all cables from the power backplane.
  
  Make a note of the cabling.
Remove/installation routines

**Power Supply**

1. Remove the green knurled screw which fastens the power backplane to the bottom of the chassis (1).

   *Knurled screws may only be fastened so tightly with tools that they can be loosened again manually.*

2. Push the power backplane to the right until it stops (2).

3. Take the power backplane out of the server.

Installation is performed in reverse order.
System fans

The server is cooled by eight system fans (redundant).

- System fans 0 + 4 form a redundant pair
- System fans 1 + 5 form a redundant pair
- System fans 2 + 6 form a redundant pair
- System fans 3 + 7 form a redundant pair

If one fan of each of the redundant pairs fails, continued operation without restrictions is still ensured. A defective fan can be exchanged during operation.
Replacing a redundant system fan

The defective system fan is indicated by its orange glowing LED (see page 02-TX600-39).

Requirements

Floor- standing model

- Front cover has been removed (see page 02-TX600-76)
- Right side cover has been removed (see page 02-TX600-77)

Rack model

- Rack model has been pulled out

Open the fan cover and identify the defective system fan.
Reach through the finger holes of the green plastic tab and pull out the fan module.

⚠️ The defective system fan will continue to rotate for approx. 10 seconds. Wait until the fan comes to a standstill.

Insert the new fan module in the now empty slot.

ℹ️ The new system fan can be tested using special Server Management commands. During the test, the LEDs flash green. Depending on the result of the test, the LED is set to either green (fan is ok) or to orange (fan is not ok).
Removing/installing a fan backplane

Requirements

*Floor-standing model*
- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-76)
- Right side cover has been removed (see page 02-TX600-77)
- Main cover has been removed (see page 02-TX600-81)

*Rack model*
- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out
- Main cover has been removed (see page 02-TX600-81)

Removing/installing the fan box

- Remove all fans from the fan box one after the other.
- Undo the locking of the fan box by pulling on the two snap-on mountings.
- Lift the fan box out of the housing.
System fans

Removal/installation routines

**Removing/installing the fan backplane**

- Disconnect all the connected cables from the fan backplane.

- Undo the green knurled screw (1) and slide the fan backplane in the direction of the arrow (2).

  Knurled screws may only be fastened so tightly with tools that they can be loosened again manually.

- Take the fan backplane out of the housing.

  Installation is performed in reverse order.
Installing/removing the fan box holder

Requirements

*Floor-standing model*
- Server is switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-76)
- Right side cover has been removed (see page 02-TX600-77)
- Main cover has been removed (see page 02-TX600-81)
- Fan backplane has been removed (see page 02-TX600-115)

*Rack model*
- Server is switched off
- Power cords have been disconnected
- Rack model has been pulled out
- Main cover has been removed (see page 02-TX600-81)
- Fan backplane has been removed (see page 02-TX600-115)

> Pull the shuttle out a little.

> Undo the two green knurled screws (see arrows).

Knurled screws may only be fastened so tightly with tools that they can be loosened again manually.
Take the fan box carrier out of the housing.

Installation is performed in reverse order.

**External SCSI interface**

**Upgrading an external SCSI interface**

To upgrade an external SCSI interface you need the conversion kit T26139-Y3882-E101.

The conversion kit consists of:

- one 68-pin SCSI cable with HD screw plug

**Requirements**

*Floor-standing model*

- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-76)
- Right side cover has been removed (see page 02-TX600-77)
- Main cover has been removed (see page 02-TX600-81)

*Rack model*

- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out
- Main cover has been removed (see page 02-TX600-81)
Attach the SCSI connector to the designated position in the chassis (see figure).

Make sure that the flat foil cables close by are not damaged.

Route the connection cable to one of the two SCSI connectors on the system board (X42 or X43).
RemoteView medium

RemoteView medium

To be able to use RemoteView - the remote monitoring and diagnostics system - on the server, a RemoteView chipDISK is installed in the PRIMERGY TX600. The chipDISK features an IDE interface and is plugged into the X23 connection on the system board.

Installing/removing the chipDISK

Requirements

Floor-standing model

- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-76)
- Right side cover has been removed (see page 02-TX600-77)
- Main cover has been removed (see page 02-TX600-81)

Rack model

- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out
- Main cover has been removed (see page 02-TX600-81)
Insert the chipDISK in the intended slot on the system board.

The primary IDE channel remains hidden in the BIOS until the chipDISK is activated for servicing.
RemoteView medium

**Configuring the chipDISK**

To be able to start RemoteView automatically at a later stage, you must enter the chipDISK (hard disk) parameters in the BIOS setup and boot once from the RemoteView medium (chipDISK).

Proceed as follows:

- Restart the server.
- Press **[F2]** when the message *Press <F2> to enter SETUP* is displayed on the screen.
- Select the menu item *IDE Drive 1* from the *Main* screen page in the BIOS setup.
- Set the value for *Type* to *Auto*.
- Select the menu item *Server* in the BIOS setup.
- Set the value for *Diagnostic System* to *enabled*. Then change the setting for *Next Boot Uses* to *Diagnostic System*.
- Save the settings and exit the BIOS setup.

The server boots MS-DOS and the RemoteView from the chipDISK.

If the RemoteView software is not yet installed on the chipDISK, install the software as described in the RemoteView manual.

- To terminate RemoteView, select the menu item *Boot Original OS*.

The server will then boot the standard operating system.

For how to operate RemoteView, see the “Diagnostics” module of the Service Manual.
Boards in PCI slots

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

Before installing or removing a board, please read the documentation supplied with it.

The hot-plug function is supported by the currently available operating systems Novell NetWare 5.0 and 5.1. For the Windows NT 4.0 and Windows 2000 operating systems the necessary components are provided with the installation of the ServerView Agent.

Replacing a (hot-plug) PCI board

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

Requirements

Floor-standing model
- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-76)
- Right side cover has been removed (see page 02-TX600-77)

Rack model
- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out
 Boards in PCI slots  

Removal/installation routines

Hot-plug functions are only available for hot-plug PCI boards that are inserted in the PCI slots 2 - 5 (see figure above). The first and the last of the PCI slots (1 and 6 in the figure above) are not for hot-plug use. The server must be switched OFF, before any PCI boards may be replaced or inserted additionally in these slots.

Removing the PCI board

- Open the PCI housing flap.
- When a hot-plug PCI board is to be removed, start the PCI hot-plug software (Utilities PCI Card HotReplace resp. Unplug or Eject Hardware). You will find operating instructions in the file “README for the PCI Hot Plug Software V3.0” on the ServerStart CD.
  
- When a non-hot-plug PCI board is to be removed, this step is omitted, as well as the next two steps.
- Deactivate the PCI board using the relevant PCI hot-plug software or by pressing the button (a) (see page 02-TX600-125).

The power indicator for the hot-plug PCI slot (see page 02-TX600-36) flashes green. The slot is in the disable sequence.
Removal/installation routines

Board in PCI slots

- Wait until the power indicator changes its status (not lighting). The slot is now powered off.

- Move the locking slide away from the PCI board (1), so as to cover button (a).

⚠️ When a hot-plug PCI board is to be removed, the locking slide may only be moved if both indicators for the relevant PCI slot are not lighting.

The locking slide activates the MRL sensor, which informs the operating system that the PCI slot has been deactivated.

If the MRL sensor is activated without authorization (one of the LEDs is still lighting) and there is a board in the PCI slot, an NMI is initiated (Blue Screen). This state cannot be exited. There is a risk that data may be lost.

- If there are any cables connecting the PCI board, remove them carefully.
The PCI board is attached to a separating plate (see figure above with an RX600 server for example).

- Take the separating plate by the grooved surface (a), and pull it together with the PCI board out of the PCI slot (1).

⚠️ Do not pull at the PCI board.

When removing the PCI board from the separating plate, pay special attention to the snap-fits holding it attached to the separating plate (see page 02-TX600-127). Do not lift them more than approx. 1 mm, i.e. only wide enough to have the PCI board released. Otherwise the snap-fits could be damaged.
Removal/installation routines

Boards in PCI slots

Release the PCI board first from the snap-fit (a) located permanently on the separating plate (1). Do not lift it more than approx. 1 mm. Note that this step is not required for short and low profile PCI boards.

Then lift the green movable snap-fits (b), but not more than approx. 1 mm (2), until the PCI board is released completely. Take the PCI board off (3), and put it aside.
† Slide the snap-fits downwards (1), until they are released from the separating plate (2), and keep them.

Removal of the PCI board is now complete.
Inserting a new PCI board

- Insert the new PCI board in the opening (a) provided for it in the separating plate (1).
- Make the PCI board first engage in the snap-fit located permanently on the separating plate.

  This step is not required for short and low profile PCI boards.

- Then choose one of the separating plate guidances adjacent to an area of the PCI board that is not covered by a connector. Insert one of the green snap-fits in the guidance and push it downwards, until it engages at the upper edge of the PCI board.
- Proceed in the same way using other snap-fits.
Boards in PCI slots

- Insert the PCI board attached to the separating plate in the PCI slot.
- Press two green snap-fits simultaneously to push the PCI board downwards together with the separating plate, until it stops and is firmly engaged.

Move the locking-slide towards the PCI board, so as to make button (a) visible again. Make sure that the locking slide engages.

When a hot-plug PCI board is to be inserted, activate it using the relevant software or by pressing the button (a).

The power indicator for the hot-plug PCI slot (see page 02-TX600-36) flashes green. The slot is in the enable sequence.

- When a non-hot-plug PCI board is to be inserted, this step and the following are omitted.

Wait until the power indicator lights constant. The slot is now powered on.

- If there were any cables connecting the PCI board, reconnect them.
- Close the PCI housing flap once again (must click audibly into place).

Installation of the PCI board is now complete.
Installing an additional PCI board

► You should read the accompanying documentation supplied with the board beforehand.

Removing the supporting plate

► Open the PCI housing flap.

► Move the locking slide away from the PCI board (1), so as to cover button (a).
When no PCI board is inserted in a slot, the slot is occupied by a dummy module, which is a supporting plate (a) attached to a separating plate (see figure above with an RX600 server for example).

- Take the separating plate by the grooved surface (b), and pull the separating plate together with the supporting plate out of the PCI slot (1).
When removing the supporting plate from the separating plate, pay special attention to the snap-fits holding it attached to the separating plate. Do not lift them more than approx. 1 mm, i.e. only wide enough to have the supporting plate released. Otherwise the snap-fits could be damaged.

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

  - Keep the supporting plate for future use. If you remove the board and it is not replaced with a new one, you must reinstall the dummy cover together with the separating plate to comply with cooling requirements.

- Slide the snap-fits downwards, until they are released from the separating plate (see page 02-TX600-128), and keep them.
Boards in PCI slots

Inserting an additional PCI board

To insert an additional PCI board, proceed in the same way as when inserting a new PCI board in replacement of another PCI board (see page 02-TX600-129).

Installing a PCI RAID controller

Before installing or removing a board, please read the documentation supplied with it.

Whenever the internal SCSI controller shall not control the internal hard disk drives, an additional PCI RAID controller is required.

Requirements

Floor-standing model

- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-76)
- Right side cover has been removed (see page 02-TX600-77)
- Main cover has been removed (see page 02-TX600-81)
- Fan box holder has been removed (see page 02-TX600-117)

Rack model

- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out
- Main cover has been removed (see page 02-TX600-81)
- Fan box holder has been removed (see page 02-TX600-117)

- Pull the connectors of both SCSI cables from the system board connectors (X42 and X43).
Loosen the cable binders (if existing) on both SCSI cables.

Lengthen both SCSI cables up to the PCI board cage. Leave them cables into their cable clamps.

Insert the PCI RAID controller into its slot as describes in section „Boards in PCI slots“ on page 02-TX600-123.
Boards in PCI slots

Removal/installation routines

► Connect the SCSI cables onto the PCI RAID controller.

Installation is now complete.
Removal/installation routines

System board

Ventilation duct

The ventilation duct redirects the flow of air to the processor heat sinks, to the memory banks, and to components on the system board. In most cases when work is done on the system board, the ventilation duct must be removed beforehand.

Removing/installing the ventilation duct

Requirements

Floor-standing model

- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-77)
- Right side cover has been removed (see page 02-TX600-77)
- Main cover has been removed (see page 02-TX600-81)

Rack model

- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out
- Main cover has been removed (see page 02-TX600-81)
**System board**

**Removal/installation routines**

**Removing the ventilation duct**

The ventilation duct is located on the processor fans.

⚠️ Do not touch the rotating parts.

When the ventilation duct is removed, the rotating processor fans could cause injury.

- Remove the duct by lifting it upward.

Installation is performed in reverse order.
Main memory

The eight slots for the main memory are suitable for 1 GB, 2 GB and 4 GB PC2100 DDR RAM modules with DIMM format. Their arrangement in four memory banks enables fast memory access with two-fold interleaving. One bank can be optionally configured as "hot-spare" bank. The board supports a maximum memory configuration of 16 GB.

Every memory bank (each with 2 DIMMs) has to be equipped completely, beginning with bank 4.x downward (see page 02-TX600-47). When equipping the memory modules with the lowest memory capacity have to be plugged first.

⚠️ You may only use buffered (registered) 3.3V memory modules. Unbuffered memory modules are not permitted.

DDR RAM modules must be designed for a clock frequency of 266 MHz (meets PC2100 specification).

Installing/removing memory modules

Requirements

Floor-standing model
- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-77)
- Right side cover has been removed (see page 02-TX600-77)
- Main cover has been removed (see page 02-TX600-81)

Rack model
- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out
- Main cover has been removed (see page 02-TX600-81)
Installing a memory module

- Push the clips at the sides of the memory compartment outward.
- Insert the memory module in the slot (1), making sure that the side holders engage (2).

Removing a memory module

- Push the clips at the sides of the memory compartment outward (1).
- Carefully remove the memory module from the compartment (2).
Processors

The D1411 system board has four sockets of type 603 and can be upgraded with further processors.

- You may only use processors of the same type on the system board. All additional processors must have the same clock rate and cache size as the first one. If multiprocessor operation is required, you must use a suitable multiprocessor operating system.

- Processors are components which are extremely sensitive to electrostatic discharges and must therefore be handled with caution. After removing a processor from its protective wrapper or from a socket, place it on an insulated, antistatic surface with the smooth side down. Never slide a processor over a surface.

Installing/removing processors

Requirements

Floor-standing model
- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-77)
- Right side cover has been removed (see page 02-TX600-77)
- Main cover has been removed (see page 02-TX600-81)
- Ventilation duct has been removed (see page 02-TX600-138)

Rack model
- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out
- Main cover has been removed (see page 02-TX600-81)
- Ventilation duct has been removed (see page 02-TX600-138)
Before removing a processor from its socket, the heat sink with the processor fan must be removed.

**Removing the processor heat sink**

Loosen the four screws of the heat sink fastening in diagonally opposite sequence using a TORX15 - or a normal slot-head screwdriver. Make sure the screws stay on the heat sink.

Disconnect the processor fan lead (1) from the corresponding connector on the system board (see page 02-TX600-43).

Loosen the heat sink by carefully moving it back and forth.

Remove the heat sink.

<table>
<thead>
<tr>
<th></th>
<th>Cable for processor fan</th>
<th>4a</th>
<th>Heat sink fastening</th>
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<tbody>
<tr>
<td>2</td>
<td>Socket lever</td>
<td>4b</td>
<td>Heat sink</td>
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<tr>
<td>3</td>
<td>Processor (not visible)</td>
<td>4c</td>
<td>Processor fan</td>
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<td>3</td>
<td>3 Processor (not visible)</td>
<td>4c Processor fan</td>
</tr>
</tbody>
</table>

- Loosen the four screws of the heat sink fastening in diagonally opposite sequence using a TORX15 - or a normal slot-head screwdriver. Make sure the screws stay on the heat sink.

- Disconnect the processor fan lead (1) from the corresponding connector on the system board (see page 02-TX600-43).

- Loosen the heat sink by carefully moving it back and forth.

- Remove the heat sink.
Removing the processor

1. Push the socket lever to the side to release it (1).
2. Pull the socket lever in the direction of the arrow (2) until it reaches an angle of approximately 90°.
   
   You will feel a certain resistance as you pull the lever.

3. Carefully lift the installed processor out of the socket (3).

Installing the processor

1. Unused CPU sockets are protected with a thin foil.

2. If necessary, remove the foil from the socket of the relevant CPU.

3. Position the new processor over the socket.
The processor can only be installed in one direction. Note the marking on one of the corners (A). Do not use force to press it into the socket to avoid damaging the pins or the processor.

- Press the processor carefully into the socket (4).
- Lock the processor into place in the socket by returning the socket lever to its original position.

Preparing the processor heat sink

- Remove any residual thermal paste from the underside of the heat sink.
- Clean the underside of the heat sink using a lint-free cloth.

Preparing the processor

- Apply a small amount of thermal paste to the top of the new processor.
- Distribute the thermal paste thinly and evenly.

Installing the processor heat sink

- Never install a processor without heat sink and fan, as otherwise the processor may overheat and fail, causing the complete system board to fail.
- Reinstall the processor heat sink.
- Tighten the four screws of the heat sink fastening in diagonally opposite sequence.
- Connect the processor fan lead to the corresponding connector on the system board (see page 02-TX600-43).

Make sure that the connecting cables are kept tight to prevent them from flapping noisily in the air current.

The processor automatically sets the clock frequency, which cannot be changed manually. If the processors have different frequencies in the front-side bus, the system will stop.
Changing the processor heat sink

Requirements

Floor-standing model

– Server has been switched off
– Power cords have been disconnected
– Front cover has been removed (see page 02-TX600-77)
– Right side cover has been removed (see page 02-TX600-77)
– Main cover has been removed (see page 02-TX600-81)
– Ventilation duct has been removed (see page 02-TX600-138)

Rack model

– Server has been switched off
– Power cords have been disconnected
– Rack model has been pulled out
– Main cover has been removed (see page 02-TX600-81)
– Ventilation duct has been removed (see page 02-TX600-138)

➤ Remove the processor heat sink (see page 02-TX600-142).
➤ Clean the surface of the processor with a lint-free cloth.
➤ Remove the protective covering from the new processor heat sink.
➤ Install the new heat sink (see page 02-TX600-144).

Changing DC/DC converters and VRMs

Requirements

Floor-standing model

– Server has been switched off
– Power cords have been disconnected
– Front cover has been removed (see page 02-TX600-77)
– Right side cover has been removed (see page 02-TX600-77)
– Main cover has been removed (see page 02-TX600-81)
System board  Removal/installation routines

Rack model

- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out
- Main cover has been removed (see page 02-TX600-81)

When changing the DC/DC converters that are located next to the PCI cage (see position 11 in figure on page 02-TX600-47) the PCI slot insulating plate (see page 02-TX600-148) has to be removed first.

► Push the clips at the sides of the respective module (DC/DC converter or VRM) outward.
► Carefully remove the defective module from the compartment.
► Insert the new module in the slot, making sure that the side holders engage

Replacement is now complete.

Lithium battery

To allow permanent saving of the system information, a lithium battery is installed which supplies the CMOS memory with power. If the battery voltage is too low or the battery is empty, a corresponding error message is displayed. The lithium battery must then be replaced.

Replacing the lithium battery

Requirements

Floor-standing model

- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-77)
- Right side cover has been removed (see page 02-TX600-77)
- Main cover has been removed (see page 02-TX600-81)
Removal/installation routines

**System board**

**Rack model**

- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out
- Main cover has been removed (see page 02-TX600-81)

⚠ Incorrect replacement of the lithium battery may cause a risk of explosion.

- The lithium battery must be replaced with an identical battery or with a battery type recommended by the manufacturer (CR2032).
- Do not throw lithium batteries into the trash can. Please dispose of them in accordance with local government regulations.
- Make sure you insert the battery the right way round. The positive pole must be on top!

- Press the contact spring a few millimeters outward (1) until you can remove the lithium battery from its holder (2).
- Insert a new lithium battery of identical type into the holder (3).
- Push the battery down (4) until it slots into place.
Removing/installing the PCI slot insulation plate

The PCI slot insulation plate is used for insulation between the PCI boards and the system board.

Requirements

Floor-standing model
- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-77)
- Right side cover has been removed (see page 02-TX600-77)
- Main cover has been removed (see page 02-TX600-81)

Rack model
- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out
- Main cover has been removed (see page 02-TX600-81)
Removing the PCI slot insulation plate

- Carefully remove all the cables from the PCI boards.
  - Mark the cables for easy identification, so you can reconnect them correctly later.
- Carefully remove all the boards.
- Release the green snap-on mounting (1).
- Lift the PCI slot insulation plate out of the PCI cage.

Installation is done in reverse order.
System board

Removal/installation routines

Changing the system board

Removing the system board

Requirements

Floor-standing model
- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-77)
- Right side cover has been removed (see page 02-TX600-77)
- Main cover has been removed (see page 02-TX600-81)
- Ventilation duct has been removed (see page 02-TX600-138)

Rack model
- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out
- Main cover has been removed (see page 02-TX600-81)
- Ventilation duct has been removed (see page 02-TX600-138)
Lay the server on a flat surface with the uncovered right side facing upward. Place the server in such a way that its feet can project over the edge of the table.

⚠️ Get a second person to help you with this, as the server may weigh up to 55 kg.

▶ Remove all external cables.
▶ Remove the memory modules (see page 02-TX600-140).
▶ Remove all controllers from their slots.
▶ Remove all cables that are connected to the system board.

ℹ️ Make a note of the slots for the controllers and the cabling.
Remove the PCI board cage by undoing the three green knurled screws.

Knurled screws may only be fastened so tightly with tools that they can be loosened again manually.

Remove all add-on cards (e.g. VRM boards) from the system board.

Remove all processors (see page 02-TX600-142).

Remove the PCI slot insulation plate (see page 02-TX600-149).
Remove the seven screws from the system board.

Hold the system board near the CPU socket and the SCSI connectors.

⚠️ Do not hold the system board by the heat sinks to remove it from the casing.
System board

Removal/installation routines

Lift up the system board (1) and carefully remove it backwards from the casing.

This is the only way to pull the connectors out of the external connector panel.
Installing the system board

► Hold the system board near the CPU socket and the SCSI connectors.

► Insert the system board by holding it at a slight angle (1) and sliding it down into the casing (2).

► Push the connectors into the external I/O shield (3). You will feel a slight resistance.

⚠️ Be careful not to damage the EMC springs, as they must comply with EMC regulations, cooling requirements and fire protection measures.

► Carefully lower the system board into the shuttle.

If necessary, adjust the position of the system board by gently moving it to and fro.

► Fasten the system board with seven screws (see page 02-TX600-153).

► Install the PCI board cage.

► Install the PCI board insulation plate (see page 02-TX600-149).
System board  Removal/installation routines

- Reconnect all the cables to their original connectors.
  - For the cabling see page 02-TX600-59.
- Reinstall the processors (see page 02-TX600-141).
- Reinstall all add-on cards that were on the system board.
- Reinsert the controllers in their slots.
- Reinstall the memory modules in their memory banks (see page 02-TX600-140).
- Reinstall all external cables.

⚠️ After installing the new system board, you may need to update the BIOS to ensure correct operation.
IDTEMP combo

This board contains two important system components:

– EEPROM for the chassis ID and ident. number of the server
– Temperature sensor for monitoring the environmental temperature

The data for the EEPROM and the current temperature values are transmitted to the system board via the connected I²C bus.

The IDTEMP combo must be correctly installed in order to achieve exact temperature monitoring, to allow graphical display of the server in the Server Management and to install the server using ServerStart.

⚠️ The IDTEMP combo must not be changed automatically because the information in the EEPROM identifies the system.
If the combo is defective, a replacement combo must be ordered from the factory, specifying the ident. number (see type label).

ℹ️ The information provided on the IDTEMP combo must not be altered.
The only exception is if the server is being converted from a floor-standing model to a rack model, in which case the server identification must be changed to match the image displayed in the Server Management system.

Replacing the IDTEMP combo

The IDTEMP combo is mounted in a recess in the peripheral bay housing. It is only accessible when the peripheral cover is removed.

Requirements

**Floor-standing model**

– Server has been switched off
– Power cords have been disconnected
– Front cover has been removed (see page 02-TX600-76)
– Right side cover has been removed (see page 02-TX600-77)
– Peripheral cover has been removed (see page 02-TX600-82)
IDTEMP combo

Removal/installation routines

Rack model

- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out
- Peripheral cover has been removed (see page 02-TX600-82)

- Disconnect the I²C bus cable from the IDTEMP combo.
- Undo the screw (1).
- Remove the IDTEMP combo.
- Insert the new IDTEMP combo and attach it with the screw (1).
- Connect the I²C bus cable to the new IDTEMP combo.

Replacement of the IDTEMP combo is now complete.
**Intrusion detection switch**

In the floor-standing version of the PRIMERGY TX600 server an intrusion detection switch monitors the removing of the housing. This switch is located on the front of the housing in the bottom right corner (1).

**Replacing the intrusion detection switch**

**Requirements**

*Floor-standing model only*

- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-76)
- Right side cover has been removed (see page 02-TX600-77)
- Fan box holder has been removed (see page 02-TX600-117)
Removing the intrusion detection switch

- Disconnect the intrusion detection cable from the connector "Intrusion switch" (X8) on the power backplane (see page 02-TX600-56).

- Undo the two screws which fasten the intrusion detection switch.
- Remove the intrusion detection switch through the opening in the peripheral bay (1).

Installation is performed in reverse order.
Changing the housing variant

This requires the conversion kit S26361-F1927-L210 with the following contents:

- 1 rack panel
- 1 plastic front cover
- 2 telescopic rails
- 2 mounting brackets
- 4 black countersunk-head screws, M4 x 10 Torx (for rack panel)
- 8 Allen set screws (for telescopic rails)
- 6 Phillips head screws, M3 x 4,5 (for mounting brackets)

Converting from floor-standing model to rack model

Requirements

- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed (see page 02-TX600-76)
- Right side cover has been removed (see page 02-TX600-77)
- All hard disk modules have been removed (to reduce the weight and guarantee data security)
Changing the housing variant

Removal/installation routines

Removing the left side cover

- Lift off the left side cover upward.
Removing feet from the floor-standing model

For this you need a raised support on which the rollers can project over the edge.

Get a second person to help you turn the server on its side, as the server may weigh up to 55 kg.

- Lay the server on its left side. Make sure the feet project over the edge.

- Unscrew the four screws on each foot.
- Remove the rollers.
Removing the mounting rails

- Undo the four screws (1) with which the upper mounting rail is connected to the spacers.
- Undo the two screws of the lower mounting rail (2).
- Push the mounting rail first slightly to the right and then remove it downward (3).
Undo the three screws which fasten the upper mounting rail and remove it.
Changing the housing variant

Converting the peripheral cage
The peripheral cage for the accessible drives is designed to allow it to be easily removed for the rack version and then reinstalled having been turned 90° to the right.

- Remove the main cover (see page 02-TX600-81).
- Remove the fan box (see page 02-TX600-115).
- Undo all cables from the drives in the peripheral cage and from the control panel (see page 02-TX600-104).

- Undo the knurled screw which fastens the peripheral cage to the peripheral bay (1).
- Slide the peripheral cage carefully out of the peripheral bay (2).
- Turn the peripheral cage 90° to the right.
Slide the peripheral cage back into the peripheral bay and fasten it with the knurled screw.

Plug all cables into the drives and the operating panel.

Reinstall the fan box.

Mount the covers.
Changing the housing variant

Mounting/removing the rack front panel

Fasten the rack bezel with two countersunk-head screws on each side by screwing on both handles.

Removal of the rack bezel is performed in reverse order.

Mounting the server in the rack

- Mount the server in the rack (see page 02-TX600-170).
- Mount the hard disk drive modules.
- Connect the devices to the server according to the rack configuration (see page 02-TX600-22).
- Route the cables.
- Connect the server to the mains (see page 02-TX600-24).
Removal/installation routines

Changing the housing variant

Setting the server type in ServerView

In order to display the rack server correctly in ServerView, the server type must be set:

- Insert the ServerStart CD-ROM in the drive.
- Call the scuw program under \tools\general\scu and change the server type into PRIMERGY TX600 Rack.

The conversion is now complete.

The following parts are no longer used after the conversion:

- Floor-standing feet
- Floor-standing front bezel
- Balance mounting rails
- Left and right side housing covers
- Intrusion detection switch
Installing/removing the rack model

The following kits are available for subsequent mounting in racks:

**S26361-F1331-L7**
- PRIMERGY TX600 mounting kit for mounting servers in:
  - 42/23 HU rack

**S26361-F2734-L36** (includes telescopic rails type 1)
- PRIMERGY TX600 mounting kit for mounting servers in:
  - all server racks conforming to EIA standard EIA-310-D

The following kit had not yet been defined when this manual went to press:

**S26361-Fxxxx-Lxx** (includes telescopic rails type 2)
- PRIMERGY TX600 mounting kit for mounting servers in:
  - 19” racks (DataCenter rack and PRIMECENTER rack)
  - all other server racks conforming to EIA standard EIA-310-D

**Preparation**

- Mounting the server in or removing it from the rack requires at least two people because the server can weigh up to 55 kg.
- The rack may tip over if more than one heavy unit is removed.
- The server must not be mounted in the topmost height unit (42 HU Classic rack, 38 HU/42 HU PRIMECENTER rack or DataCenter rack), because otherwise the boards cannot be changed even when a slide-in unit is pulled out as far as possible.
- To make the rack server lighter during mounting, all power supply modules and SCSI hard disk drives should be removed. Check that the drives are marked so that they can be replaced in their original slots later.
Mounting in the PRIMECENTER rack

Procedure for telescopic rails type 1

For mounting the server in the PRIMECENTER rack you will need the following parts from the rack mounting kit S26361-F2734-L36:

- Support bracket
- Two telescopic rails (assembled)
- Four mounts (VL; VR; HL; HR) (see figure below)
- Eight fixing brackets

1. Attach the supplied fastener VL to the front end of the left telescopic rail (1) with two screws M5x8 (2).
2. Attach the supplied fastener HL to the rear end of the left telescopic rail (3) with two screws M5x8 (4) and two hexagonal flange nuts M5 (5).
3. Repeat the procedure for the right telescopic rail and the corresponding fasteners VR and HR.
Installing/removing the rack model

When mounting the left telescopic rail in the PRIMECENTER rack, the supplied support bracket must first be mounted on the rear left support upright such that it is level with the lower edge of the server.

► See the assembly instructions in the technical manual for the PRIMECENTER rack.

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

► Mount the support bracket at the appropriate height on the left rear support upright as described in the technical manual for the PRIMECENTER rack.

You do not need flange nuts to fasten the telescopic rails because the fasteners have threaded holes. For fixing in position, two fixing brackets each must be pre-mounted on the support uprights and the support bracket:

► Place the fixing brackets (1) in the holes of the support upright or support bracket at the attachment points marked.
Using the supplied Allen key (no. 5), secure the end of the telescopic rails with the corresponding fasteners and two M4 screws each (1 and 2) in the rack on the support uprights or support bracket.

Note that two fixing brackets each time are used in the appropriate openings of the support uprights or support bracket.

If necessary, adjust the length of the telescopic rails using the oval holes of the fasteners HL and HR.

Mount the PRIMECENTER rack cable management (articulated cable guide) as described in the technical manual for the PRIMECENTER rack.

Mount the server (see page 02-TX600-185).

Route the cables with the server inserted, as described in the technical manual for the PRIMECENTER rack.

Place the cage nuts for fastening the front panel in the corresponding holes of the front support uprights and fasten the server using four knurled screws.
Installing/removing the rack model

Procedure for telescopic rails type 2

For mounting the server in the PRIMECENTER rack you will need the following parts from the rack mounting kit S26361-F2734-L36:

– Support bracket
– Two telescopic rails (assembled)
– Eight fixing brackets

When mounting the left telescopic rail in the PRIMECENTER rack, the supplied support bracket must first be mounted on the rear left support upright such that it is level with the lower edge of the server.

► See the assembly instructions in the technical manual for the PRIMECENTER rack.

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

► Mount the support bracket at the appropriate height on the left rear support upright as described in the technical manual for the PRIMECENTER rack.

You do not need flange nuts to fasten the telescopic rails because the fasteners have threaded holes. For fixing in position, two fixing brackets each must be pre-mounted on the support uprights and the support bracket:

► Place the fixing brackets (1) in the holes of the support upright or support bracket at the attachment points marked.
Using the supplied Allen key (no. 5), secure the end of the telescopic rails with the corresponding fasteners and two M5 screws each (1 and 2) in the rack on the support uprights or support bracket.

Note that two fixing brackets each time are used in the appropriate openings of the support uprights or support bracket.

If necessary, adjust the length of the telescopic rails.

Mount the PRIMECENTER rack cable management (articulated cable guide) as described in the technical manual for the PRIMECENTER rack.

Mount the server (see page 02-TX600-185).

Route the cables with the server inserted, as described in the technical manual for the PRIMECENTER rack.

Place the cage nuts for fastening the front panel in the corresponding holes of the front support uprights and fasten the server using four knurled screws (see also figure on page 02-TX600-188).
Mounting in the DataCenter rack

For mounting the server in the DataCenter rack you will need the following parts from the rack mounting kit S26361-F2734-L36:

- Support bracket
- Two telescopic rails (assembled)
- Fastener HL
- Two fixing brackets

Attach the supplied fasteners HL to the rear end of the left telescopic rail (1) with two screws M5x8 (2) and two hexagonal flange nuts M5 (3).

When mounting the left telescopic rail in the DataCenter rack, the supplied support bracket must first be mounted on the rear left support upright such that it is level with the lower edge of the server.

See the assembly instructions in the Service Manual for the DataCenter rack (see "System components" module).
Using the mounting aid (stencil), mark the position of the attachment points for the telescopic rails and for the server (front panel) on the support uprights (four height units).

Make sure you read the information on the mounting aid.

Mount the support bracket at the appropriate height on the left rear support upright as described in the Service Manual for the DataCenter rack (see “System components” module).

Place the spring nuts for fastening the telescopic rails in the relevant groove of the support uprights at the attachment points marked.

If necessary, adjust the position of the nuts in the groove until they lock into the correct position.

You do not need flange nuts to fasten the left telescopic rail to the support bracket because the fastener has threaded holes. For fixing in position, two fixing brackets must be pre installed on the support bracket (see figure below):

Place the mounting springs (1) in the corresponding holes of the support bracket at the attachment points marked.
Installing/removing the rack model

Removal/installation routines

The telescopic rail with mounted fastener (HL) will be secured to the front left support upright and the support bracket.

- Using the supplied Allen key (no. 5), secure the end of the telescopic rail with no fastener to the rack with two M5 screws (1) at the front left support upright.

  Note that the guide nubs of the telescopic rail next to the spring nuts must engage in the holes in the support upright.

- Secure the end of the telescopic rail with fastener (HL) to the rack on the support bracket using two M4 screws (2).

  Note that the two fixing brackets are used in the appropriate openings of the support bracket.

- If necessary, adjust the length of the telescopic rails using the oval holes of the fasteners (HL).
Attach the telescopic rail with no fastener (HL) to the rack on the right-hand support uprights using two M5 screws.

Note that the guide nubs of the telescopic rail next to the spring nuts must engage in the holes in the support uprights.

Mount the DataCenter rack cable management (articulated cable guide) as described in the Service Manual of the DataCenter rack (see module "System components", article "DataCenter rack", section "Cable management").

Mount the server (see page 02-TX600-185).

Route the cables with the server inserted, as described in the Service Manual for the DataCenter rack (see module "System components", article "DataCenter rack", section "Routing cables").

Place the cage nuts for fastening the front panel in the corresponding holes of the front support uprights at the marked points and fasten the server using four knurled screws (see also figure on page 02-TX600-188).

Mounting in the Classic rack

For mounting the server in the Classic (19-inch) rack, you need the following parts from the rack mounting kit S26361-F1331-L7:
- Two telescopic rails (assembled)
- Protective sheath for Fibre Channel fiber-optic cable

See the assembly instructions in the technical manual for the Classic (19-inch) rack.

Using the mounting aid (stencil), mark the position of the attachment points for the telescopic rails and for the server (front panel) on the support uprights (four height units).

Make sure you read the information on the mounting aid.

Place the spring nuts for fastening the telescopic rails in the relevant groove of the support uprights at the attachment points marked.

If necessary, adjust the position of the nuts in the groove until they lock into the correct position.
Installing/removing the rack model

Removal/installation routines

Using the supplied Allen key (no. 5), secure the two telescopic rails in the rack with two M5 screws each on the right and left support uprights. Note that the guide nubs of the telescopic rails next to the spring nuts must engage in the holes in the support uprights.

Mount the server (see page 02-TX600-185).

Mounting the articulated cable carrier (cable management)

Contrary to the instruction in the technical manual for the 19-inch (Classic) rack, the articulated cable carrier is fastened only to the support upright - not to the server.

To secure the articulated cable carrier, place two spring nuts in the groove of the rear right support upright in the rack. The mounting height must match the height of the cables connected to the server.
Fix the articulated cable carrier with two mounting screws on the rear right support upright.

Route the cables as shown in the figure and secure them to the articulated cable carrier with cable ties (1).

To avoid damage to Fibre Channel fiber-optic cables, these must be encased in a protective sheath (see page 02-TX600-183).

Securing the cables to the articulated cable carrier ensures that, if the server is pulled out, the articulated cable carrier extends accordingly and opens.
Installing/removing the rack model

Removal/installation routines

The server can thus be pulled out later without further preparations.
Laying the Fibre Channel fiber-optic cable

The protective sheath (approx. 1m long) supplied with the mounting kit is designed to be separable.

- Separate the outer protective sheath (1) from the inner one.
- Carefully lay the fiber-optic cable (3) in the inner protective sheath (2).
- Put the outer protective sheath (1) over the inner one.

⚠️ The sheath openings must face opposite directions as shown in the sectional view A-B.
Installing/removing the rack model

Removal/installation routines

Lay the fiber-optic cable in the articulated cable carrier as shown in the figure and secure them with cable ties (1).

⚠️ Please make sure that the arms are arranged such that the fiber-optic cable protected in this way cannot be damaged, whether the articulated cable carrier is extended or folded.

Mounting in third-party racks

For mounting the server in a third-party rack you will need the following parts from the rack mounting kit S26361-F2734-L36:

- Two telescopic rails (assembled)
- Four fasteners (VL, VR, HL, HR)
- Possibly eight fixing brackets
- Possibly a protective sheath for Fibre Channel fiber-optic cable

⚠️ For information on the mechanical installation or the climatic conditions, please see the original manual from the rack manufacturer.

⚠️ When installing in third-party racks, make sure that the air flow in the rack is from front to back.
Removal/installation routines

Installing/removing the rack model

- Mount the necessary original parts (like the support bracket or cable management).
  
  ![Information]
  It may be the case that a number of parts supplied with the rack mounting kit are not used because original parts from the third-party rack are used.

- Attach the four supplied fasteners to the telescopic rails as described on page 02-TX600-171.

- Mount the telescopic rails with the relevant fasteners in the third-party rack as described on page 02-TX600-171.

- Mount the server (see page 02-TX600-185).

- Lay the cables as described in the original rack manual.

- Secure the server to the front panel using four knurled screws (see also figure on page 02-TX600-188).

Installing the server

Procedure for telescopic rails type 1

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

- Pull the mounted telescopic rails completely out toward the front. They must click into place so that you can no longer push them back.
Installing/removing the rack model

Removal/installation routines

Lower the server onto the extended telescopic rails.
Adjust the server so that the holes of the telescopic rails are in line with those of the server. When doing this, ensure that the telescope rails are kept in the locked position.
Secure the telescopic rails to the server on the left and right with the T20 Torx screwdriver (six screws).

The following steps now only require one person.

Press in the safety springs (1) on both telescopic rails.
Procedure for telescopic rails type 2

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

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

- Lower the server onto the extended telescopic rails (1).
Installing/removing the rack model

- Slide the server a little in the direction marked (2) until the noses of the telescopic rails engage. Position the server so that the holes of the telescopic rails are in line with those of the server. When doing this, ensure that the telescopic rails are kept in the locked position.

- Secure the telescopic rails to the server with one screw on each side (3) using the T20 Torx screwdriver.

The following steps now only require one person.
- Press in the safety springs on both telescopic rails.

Fastening the server in the rack

- Push the server into the rack (1).
- Fasten the server to the rack (2) using the four knurled screws.
Overviews, lists

Spare parts

You find the actualized spare part lists under:
http://extranet.fujitsu-siemens.com/service/spareparts/primergy

Glossary

The technical terms and abbreviations given below represent only a selection of the full list of common technical terms and abbreviations.

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<td>Accelerated Graphics Port</td>
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<td>AOL</td>
<td>Alert On LAN</td>
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<td>APM</td>
<td>Advanced Power Management</td>
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<td>ASR&amp;R</td>
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<td>Advanced Technology Attachment</td>
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<td>Basic Input Output System</td>
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<td>CAN</td>
<td>Controller Area Network</td>
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<td>CC</td>
<td>Cache coherency</td>
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<td>Compact Disk</td>
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<tr>
<td>CD-ROM</td>
<td>Compact Disk-Read Only Memory</td>
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<tr>
<td>CMOS</td>
<td>Complementary Metal Oxide Semiconductor</td>
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<tr>
<td>COM</td>
<td>Communication</td>
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<td>CPU</td>
<td>Central Processing Unit</td>
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<td>DAC</td>
<td>Disk Array Controller</td>
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<td>DC</td>
<td>Direct Current</td>
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<td>DIP</td>
<td>Dual Inline Package</td>
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<td>DMA</td>
<td>Direct Memory Access</td>
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<td>Abbreviation</td>
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<td>DMI</td>
<td>Desktop Management Interface</td>
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<td>Error Checking and Correction</td>
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<td>ECP</td>
<td>Extended Capabilities Port</td>
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<tr>
<td>EEPROM</td>
<td>Electrical Erasable Programmable Read Only Memory</td>
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<tr>
<td>EGB</td>
<td>Elektrostatisch gefährdete Bauteile (components are in danger of electrostatic)</td>
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<tr>
<td>EMC</td>
<td>Electromagnetic Compatibility</td>
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<tr>
<td>EMP</td>
<td>Emergency Management Port</td>
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<td>EMV</td>
<td>Elektromagnetische Verträglichkeit (electromagnetic compatibility)</td>
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<td>EPP</td>
<td>Enhanced Parallel Port</td>
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<td>ESD</td>
<td>ElectroStatic Discharge (elektrostatische Entladung)</td>
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<td>FIFO</td>
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<td>FSB</td>
<td>Front Side Bus</td>
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<td>GAM</td>
<td>Global Access Manager</td>
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<td>GUI</td>
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<td>Hard Disk Drive</td>
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<td>I2C</td>
<td>Inter Integrated Circuit</td>
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<td>IDE</td>
<td>Intelligent Drive Electronics</td>
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<td>I/O</td>
<td>Input/Output</td>
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<td>ICM</td>
<td>Intelligent Chassis Management</td>
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<tr>
<td>ID</td>
<td>Identification</td>
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<tr>
<td>IDE</td>
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<td>IPSEC</td>
<td>Internet Protocol Security</td>
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<tr>
<td>IRQ</td>
<td>Interrupt Request</td>
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<tr>
<td>ISA</td>
<td>Industry Standard Architecture</td>
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<tr>
<td>LAN</td>
<td>Local Area Network</td>
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<tr>
<td>LBA</td>
<td>Logical Block Address</td>
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<tr>
<td>LCD</td>
<td>Liquid Crystal Display</td>
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<tr>
<td>LUN</td>
<td>Logical Unit Number</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>LVD</td>
<td>Low-Voltage Differential SCSI</td>
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<tr>
<td>LWL</td>
<td>LichtWellenLeiter (fiber optic cable)</td>
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<tr>
<td>MMF</td>
<td>Multi Mode Fiber</td>
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<tr>
<td>NMI</td>
<td>Non Maskable Interrupt</td>
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<tr>
<td>NVRAM</td>
<td>Non Volatile Random Access Memory</td>
</tr>
<tr>
<td>OLR</td>
<td>OnLine Removable</td>
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<tr>
<td>OS</td>
<td>Operating System</td>
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<tr>
<td>PC98</td>
<td>Information bus between system board and power supply</td>
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<tr>
<td>P64H</td>
<td>PCI64 Hub</td>
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<tr>
<td>PCI</td>
<td>Peripheral Component Interconnect</td>
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<tr>
<td>PDA</td>
<td>Prefailure Detection and Analysing</td>
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<tr>
<td>POST</td>
<td>Power ON Self Test</td>
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<tr>
<td>PXE</td>
<td>Preboot eXecution Environment</td>
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<tr>
<td>RAID</td>
<td>Redundant Arrays of Independent Disks</td>
</tr>
<tr>
<td>RAM</td>
<td>Random Access Memory</td>
</tr>
<tr>
<td>RAMDAC</td>
<td>Random Access Memory Digital Analog Converter</td>
</tr>
<tr>
<td>RDRAM</td>
<td>Rambus Dynamic Random Access Memory</td>
</tr>
<tr>
<td>RMC</td>
<td>Remote Management Controller</td>
</tr>
<tr>
<td>ROM</td>
<td>Read-Only Memory</td>
</tr>
<tr>
<td>RSB</td>
<td>Remote Service Board</td>
</tr>
<tr>
<td>RTC</td>
<td>Real-Time Clock</td>
</tr>
<tr>
<td>RTDS</td>
<td>Remote Test and Diagnose-System</td>
</tr>
<tr>
<td>SAF-TE</td>
<td>SCSI Accesses Fault-Tolerance Enclosures</td>
</tr>
<tr>
<td>SBE</td>
<td>Single Bit Error</td>
</tr>
<tr>
<td>SCA</td>
<td>Single Connector Attachment</td>
</tr>
<tr>
<td>SCSI</td>
<td>Small Computer System Interface</td>
</tr>
<tr>
<td>SDR</td>
<td>Sensor Data Record</td>
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<tr>
<td>SDRAM</td>
<td>Synchronous Dynamic Random Access Memory</td>
</tr>
<tr>
<td>SEL</td>
<td>System Event Log</td>
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<tr>
<td>SGRAM</td>
<td>Synchronous Graphic Random Access Memory</td>
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<td>SMB</td>
<td>System Management Bus</td>
</tr>
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<td>SMI</td>
<td>System Management Interrupt</td>
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<tr>
<td>SSU</td>
<td>System Setup Utility</td>
</tr>
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</tr>
<tr>
<td>USB</td>
<td>Universal Serial Bus</td>
</tr>
<tr>
<td>VGA</td>
<td>Video Graphic Adapter</td>
</tr>
<tr>
<td>WOL</td>
<td>Wake On LAN</td>
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<td>ZCR</td>
<td>Zero Channel RAID Controller</td>
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Updates

This chapter only describes updates and new components. You will find the not modified components in the leading server item.

Update revision 01.2004

Contents
- Modified technical data (page 02-TX600-199)
- Modified internal cabling (page 02-TX600-200)
- Added overview of cables (page 02-TX600-203)
- New pull out aid (page 02-TX600-204).
- Information about DC/DC converter (page 02-TX600-205).
- New PCI slot insulation plate (page 02-TX600-207).
- New ventilation duct (page 02-TX600-210).
- New equipping order for processors (page 02-TX600-211)

Modified technical data

Standards observed

Modified internal cabling

Basic cabling

![Diagram of internal cabling](image-url)
Cabling of power backplane

Legend:
- Power
- Fan backplane
- Intrusion switch
- DVD (IDE)
- Floppy
- Acc. drive
- Acc. drive
- Power backplane
- 1st SCSI backplane 6 disks
- 2nd SCSI backplane 6 disks
- VRM
- VRM
- VRM
- VRM
- VRM
- CPU 1
- CPU 2
- CPU 3
- CPU 4
- Acc. drive
- Acc. drive
SCSI cabling with RAID controller

Legend:
- SCSI
- IDE/FD
- Data
- External SCSI connector (optional)
- Tape Drive (optional)
- SCSI controller (2-chan. PCI Card)
- Power backplane
- Power supply
Added overview of cables

<table>
<thead>
<tr>
<th>Part number</th>
<th>name</th>
<th>from</th>
<th>to</th>
</tr>
</thead>
<tbody>
<tr>
<td>A3C40030220 T26139-Y3931-V2</td>
<td>System board signal cable</td>
<td>Power backplane</td>
<td>System board</td>
</tr>
<tr>
<td>A3C40039938 T26139-Y3923-V1</td>
<td>Front panel cable</td>
<td>Power backplane</td>
<td>Front panel signals</td>
</tr>
<tr>
<td>A3C40039940 T26139-Y3718-V105</td>
<td>SM PC bus cable</td>
<td>Front panel</td>
<td>ID/Temp-Combo/LocalView LCD</td>
</tr>
<tr>
<td>A3C40039945 T26139-Y3560-V104</td>
<td>Fan board DC cable</td>
<td>Power backplane</td>
<td>Fan board</td>
</tr>
<tr>
<td>A3C40039945 T26139-Y3560-V104</td>
<td>HDD DC cable</td>
<td>Power backplane</td>
<td>SCSI backplane 1</td>
</tr>
<tr>
<td>A3C40039945 T26139-Y3560-V104</td>
<td>HDD DC cable</td>
<td>Power backplane</td>
<td>SCSI backplane 2</td>
</tr>
<tr>
<td>A3C40039948 T26139-Y2482-V5</td>
<td>Drive(s) DC cable</td>
<td>Power backplane</td>
<td>Tape1 / Tape2 / DVD ROM</td>
</tr>
<tr>
<td>A3C40039949 T26139-Y3744-V1</td>
<td>I²C bus cable</td>
<td>Power backplane</td>
<td>SCSI backplane 1</td>
</tr>
<tr>
<td>A3C40039949 T26139-Y3744-V1</td>
<td>I²C bus cable</td>
<td>Power backplane</td>
<td>SCSI backplane 2</td>
</tr>
<tr>
<td>A3C40041270 T26139-Y3662-V302</td>
<td>IDE cable</td>
<td>System board</td>
<td>DVD-ROM adapter</td>
</tr>
<tr>
<td>A3C40041271 T26139-Y3696-V10</td>
<td>FDD cable</td>
<td>System board</td>
<td>FDD</td>
</tr>
<tr>
<td>A3C40041272 T26139-Y2493-V7</td>
<td>Fan board signal cable</td>
<td>Power backplane</td>
<td>Fan board</td>
</tr>
<tr>
<td>A3C40042393 T26139-Y3917-V2</td>
<td>SCSI HDD cable 1</td>
<td>System board</td>
<td>SCSI backplane 1</td>
</tr>
<tr>
<td>A3C40042393 T26139-Y3917-V2</td>
<td>SCSI HDD cable 2</td>
<td>System board</td>
<td>SCSI backplane 2</td>
</tr>
<tr>
<td>A3C40049305 T26139-Y3758-V6</td>
<td>System board DC cable</td>
<td>Power backplane</td>
<td>System board</td>
</tr>
<tr>
<td>A3C40049307 T26139-Y3906-V6</td>
<td>Hot-plug PCI cable</td>
<td>System board</td>
<td>Hot-plug panel</td>
</tr>
<tr>
<td>A3C40051229 T26139-Y3847-V2</td>
<td>Tape drive(s) cable</td>
<td>System board or PCI card</td>
<td>Tape 1/ Tape 2</td>
</tr>
<tr>
<td>A3C40051452 T26139-Y2419-V303</td>
<td>Intrusion switch cable</td>
<td>Intrusion switch (front bezel)</td>
<td>Power backplane</td>
</tr>
</tbody>
</table>
New pull out aid

New pull out aids (separating plates) with a pull out handle are used.

The installation/removal is described on page 02-TX600-123. The formerly used permanent snap-fit (black) is now movable and green.

Pull the green pull out aid handle upwards as far as it will go.
Pull the pull out aid with the PCI controller out at its handle.

Information about changing DC/DC converter

If the new separable PCI slot insulation plate is installed, it is sufficient to take away the DC/DC converter cover.

Requirements

Rack model

- server has been switched off
- power cords have been disconnected
- rack model has been pulled out
- main cover has been removed

Floor-standing model

- server has been switched off
- power cords have been disconnected
- front cover has been removed
- right side cover has been removed
- main cover has been removed
Release the green snap-on mounting, turn the DC/DC converter cover upwards and take it away.

Push the clips at the sides of the respective module outward and pull out the DC/DC converter.

The pull out aid was removed for better visibility. It is not necessary to remove it.
Updates

Update revision 01.2004

New PCI slot insulation plate

- The new PCI slot insulation plate consists of the PCI slot cover and the DC/DC converter cover.
- If you want to change a DC/DC converter or remove the power cable connector from the system board, it is sufficient to lift the DC/DC converter cover.

Requirements

Rack model
- Server has been switched off
- Power cords have been disconnected
- Rack model has been pulled out
- Main cover has been removed
- PCI controllers have been removed

Floor-standing model
- Server has been switched off
- Power cords have been disconnected
- Front cover has been removed
- Right side cover has been removed
- Main cover has been removed
- PCI controllers have been removed
**Removing the complete PCI slot insulation plate**

- Release the green snap-on mounting.

- Turn the DC/DC converter cover upwards and take it out (1).
- Take the PCI slot cover out (2).
Installing the complete PCI slot insulation plate

- Insert the PCI slot cover.
- Hook the DC/DC converter cover (1).
- Close the DC/DC converter cover and press the snap on downwards (2).
New ventilation duct for processor and memory

The ventilation duct consists of two parts. It can be removed as one part or in the order: first ventilation duct processor, then ventilation duct memory.

In case of memory modules of 2 GB or more the ventilation duct memory must be installed.

Requirements

Rack model
- server has been switched off
- power cords have been disconnected
- rack model has been pulled out
- main cover has been removed

Floor-standing model
- server has been switched off
- power cords have been disconnected
- front cover has been removed
- right side cover has been removed
- main cover has been removed
Removing ventilation duct

- Take out the composed ventilation duct (two parts).
  For installation insert the composed ventilation duct.

New equipping order for processors

- If there are two or more CPUs, they all must have the same frequency and cache size.

  The CPU sockets have to be equipped mandatory in the following order:

  1. CPU in socket for CPU 1
  2. CPU in socket for CPU 2
  3. CPU in socket for CPU 4 (!)
  4. CPU in socket for CPU 3 (!)
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