RM300 E - System Unit

(Reliant UNIX)

This technical documention has been reviewed and certified according to the TÜV Product Service/tekom testing specifications for qualified technical documentation (DOCcert).

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Continued ▶

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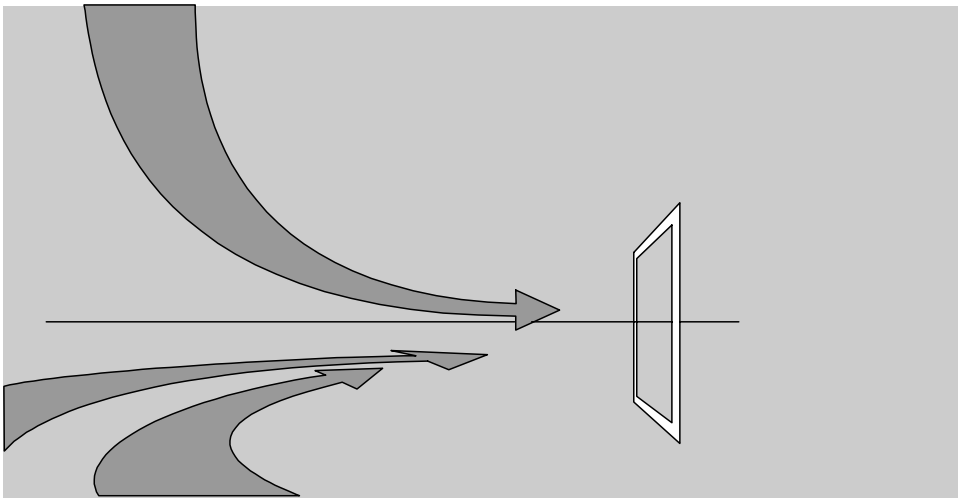
Preface



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The RM300 E system unit is a high-performance UNIX server in RISC technology based on the MIPS® R5000® and R10000® processors.
The RM300 E is particularly suited for company use as a small decentral department server or as a powerful workgroup server. Typical areas of use are database applications and communications in client/server architectures.

Two variants of the RM300 E are available: they can either be used as standalone systems or installed in the RM 19 inch rack. This manual refers to both variants. If there are no differences, only the standalone variant is described.

High-availability components

The system may optionally be equipped with components designed to prevent errors that can interrupt system operation or to bypass them using automatic response mechanisms. These high-availability components guarantee largely trouble-free operation and hence the security of the data on the system.

These components include:

- Uninterruptible power supply (UPS), providing protection against power failures

- Automation of regular backups
  Regular data backups can be automated using a control program working in conjunction with almost any external storage medium. Regular backups are always necessary, even if you have taken other measures such as disk mirroring or redundancy to ensure the security of your data.

- Disk mirroring
  Drive and controller failures are countered by setting up primary and secondary drives in the system unit and in peripherals cabinets on different controllers.

- RAID systems (Redundant Array of Independent Disks)
  The hard disks can be configured in the system as a RAID array. RAID systems can be attached to the computer as high-availability sub-systems. If single disks fail, no data is lost and the application can continue running. A disk failure simply results in a temporary drop in performance.

- Hardware peripheral rack configuration for extending the hot replacement peripherals.

Summary of contents

You must read the chapter "Important notes" from the manual "RM300 E / RM400 E - General Information" **before** you work with your system unit. It contains information required for safe placement and handling of the system unit.

The manual "RM300 E - System unit" is in two parts: the operating manual and the technical description. The page numbers have been supplemented with "OM" for the operating manual and "TD" for the technical description to aid orientation.

The operating manual explains how to install, operate and controll your system unit.

The installation of the Reliant UNIX operating system is described in the manual "RM300 E / RM400 E - Software for configuration/installation". For further information on Reliant UNIX, refer to the appropriate Siemens manuals. You can install and configure application programs under Reliant UNIX.

The technical description describes the internal construction of your system unit. The description enables you to modify your system unit without having an in-depth knowledge of computer technology. Please follow the instructions that are relevant for you in this technical description. You will avoid errors and make fast progress. The instructions that are relevant for you depend on the hardware installed in your system unit.

The manual comprises the following chapters:

- Installing the system unit
  This chapter provides you with information on the delivery scope and how to place and connect your system unit.

- Starting up and operating the system unit
  This chapter shows you how to unlock and operate your system unit and how to operate the integrated floppy disk drive.

- Installing peripherals
  This chapter describes the rear panel of your system unit, with the various connectors for printer, modem and SCSI peripherals.

- Troubleshooting
  This chapter provides you with a brief overview of how you can detect minor faults and possibly rectify them yourself.

- Moving your system unit
  This chapter tells you what you have to watch out for when moving your system unit to another location.

- Base configuration and expansion options
  This chapter provides you with information on the components in the base configuration of your system unit and how you can expand it.

- Equipment settings
  This chapter provides an overview of the default settings for monitors and printers.

- Opening the system unit
  This chapter gives you an overview of the internal construction of your system unit.

- System unit drives
  This chapter describes how you can install and deinstall drives.

- System unit components
  This chapter provides you with the information needed to install and deinstall components and boards.

- Accessories
  This chapter tells you what accessories are available for your system and lists the associated order numbers.

- Reference section
  In this chapter you find
  – a list of figures
  – an index for finding expressions quickly

Target group

The manual is intended for those responsible for installing hardware and ensuring trouble-free system operation. The manual is designed to allow you to put your system unit into operation without any special previous knowledge of the system.

Some familiarity with hardware and communications is necessary to understand the various connection options as well as a basic understanding of the Reliant UNIX operating system.

For further information on installing and deinstalling peripherals, components and expansion boards, refer to the second part "Technical description" of this manual. This section contains important, useful instructions and information extending beyond initial operation and is intended for administrators.

User-friendly information - the proof of quality

The product liability law (ProdHaftG) from 1.1.1990 sets the user information, which is part of the technical documentation, at the same level as the product. This gives the user information a completely new standing.

This operating manual was carefully checked by an independent office to improve the quality of the user information. The check was carried out by the DOC^{cert} project, a community project of the TÜV Süddeutschland[1] and the tekom, Gesellschaft für technische Kommunikation e.V.[2]

DOC^{cert} combines the quality control and technical experience of the TÜV with the knowhow of the tekom, which is the largest specialist association in Europe for technical communication and documentation.

[1]The TÜV (Technical Surveillance Association) is Europe‘s leading independent testing and certification organization. The testing laboratories and certification body conform to the “General Requirements for the Accreditation of Testing Laboratories“ (ISO/IEC Guide 25 and 38; EN45001 and EN45002) and the “General Requirements for Accreditation of Certifying Bodies“ (ISO/IEC Guide 28, 40 and 48, EN45011 and EN45012).

[2]tekom is the German equivalent to ISTC in England and STC in USA.

This operating manual was checked against a criteria catalog developed by DOC^{cert}. The check is always carried out in conjunction with the product concerned to ensure that the operating manual matches the reality.

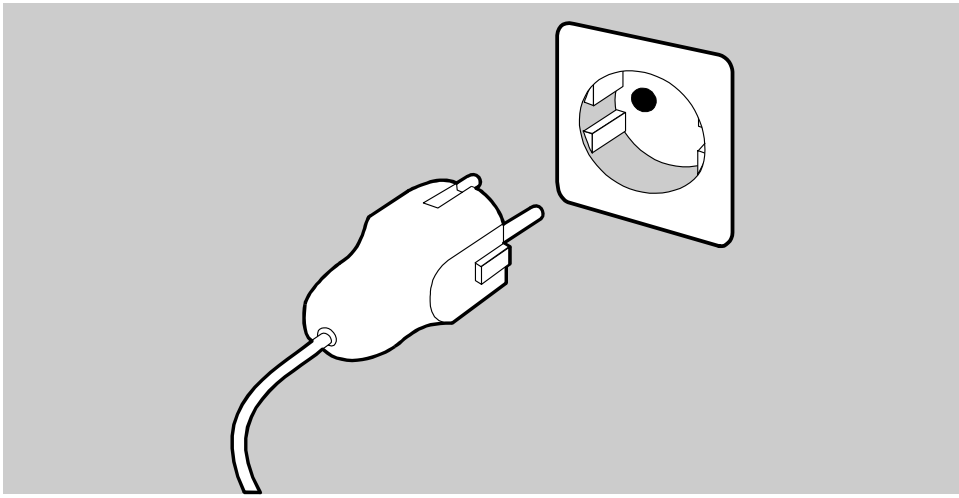
At the same time the audit provides useful tips for improving the quality of the manuals further, after all “nobody is perfect“.

The following main characteristics are checked:
– General comprehensibility
– User friendliness
– Health and occupational safety
– Security of use while observing the standards, laws and guidelines
– Environmental protection
– Layout and format, legibility
– Correspondence with product
– Accuracy of contents and complete description

Evidence of having passed the test successfully is provided by this DOC^{cert} audit symbol at the beginning of this product manual.

The operating manuals for the RM and PRIMERGY systems are the first manuals in the IT sector to have faced the challenge and both English and German versions have been awarded the audit symbol.

Installing the system unit



Unpacking your system

Setting up the system unit and the peripherals

Connecting up the system unit

Installing the system unit into the rack

Connection the system unit to the power outlet

Unpacking your system

► When you unpack your system, check that the shipment is complete and undamaged.

i Do not throw the packaging materials away. You may need them later if you ever need to move your system to a different location.

► If the shipment is complete and undamaged, you can start installing the system.

► If the shipment is incomplete or damaged, inform your local Siemens office immediately, fill out the complaints card and send it to Siemens.

Your RM300 E system shipment should include:

– RM300 E system unit with power cord and two keys (for the control panel and for the drive bay door)

– Manual „RM300 E / RM400 E - General Information“

– Manual “RM300 E - System Unit“

– Manual “RM300 E / RM400 E - Software for configuration/installation“

– Manual “RM300 E / RM400 E - Storage Devices“

– Manual “RM300 E / RM400 E - Controller“

– Manual “RM-Systems Safety Instructions”

– Product pass

– Complaints card

– Console

Graphical monitor.
monitor, connecting cable (monitor to system unit) and operating manual for the monitor, keyboard with connecting cable and (depending on the console) a mouse

or

Alphanumeric console.
terminal (V.24), keyboard, power cord, two connecting cables (keyboard to terminal and terminal to system unit) and operating manual for the terminal

– Operating system Reliant UNIX on CD-ROM
Delivery information and manual: “Reliant UNIX Installation and Operation - RM200, RM300, RM400”

If you ordered the RM300 together with the rack installation kit, you will additionally receive a conversion kit for the system unit to install it in the RM 19 inch rack.

Setting up the system unit

When setting up the system unit, make sure

- ... that there is enough room to perform maintenance, diagnostic and upgrading work (120 cm* on left, 20 cm on right, 40 cm at rear).
  * This room must only be available for maintenance purposes, i.e. the space can be cleared by moving the unit.
- ... that the rear of the system unit is freely accessible, as the peripherals need to be connected to the backplane.
- ... that the front of the system unit is freely accessible and that none of the air vents are obstructed.
- ... that the rear of the unit is at least 40 cm from the wall to allow warm air to pass out without hindrance.
- ... that the power plug can be reached easily and without risk.
- ... that the device is protected from direct sunlight.
- ... that the required environmental conditions are maintained at all times (see section “Technical specifications of the RM300 E system unit” on page 89).

Setting up the monitor

For instructions on setting up your monitor you should refer to the corresponding operating manual.

Setting up the peripherals cabinet

The peripherals cabinet is set up and installed solely by Siemens service personnel.

Connecting up the system unit

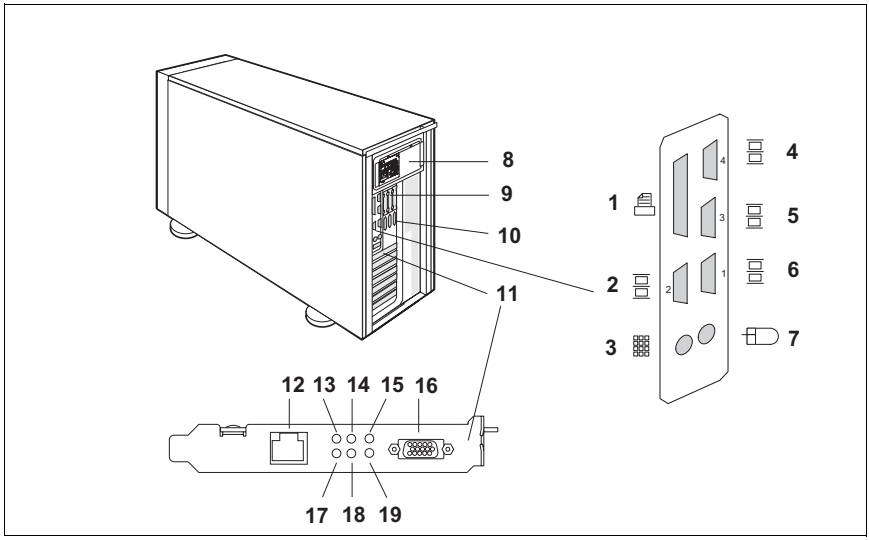


Figure 1: Connecting the monitor, keyboard and mouse to the system unit

1	Printer	System printer port (Bitronics interface)
2	COM2	Serial interface (V.24, modem capability)
3	Keyboard	Keyboard port
4	COM4	Serial interface (V.24, modem capability)
5	COM3	Serial interface (V.24, modem capability)
6	COM1	Serial interface (V.24, modem capability)
7	Mouse	PS/2 mouse port
8		Power supply
9		Slot for additional interfaces 1 x SCSI 50 pole; optional 2 x SCSI 68 pole
10		Slot for additional interfaces (RM300 E: irrelevant)
11		Slot for the Super Combo Controller graphics, Ethernet, SCSI (internal)
12		10/100 Mbit Ethernet RJ45 F
13	LED	100 Mbit Ethernet connector
14	LED	Link OK

15	LED	SCSI activity
16	Monitor	Connector for the monitor
17	LED	Collision
18	LED	Activity
19	LED	SCSI GPIO4/diagnostics

When you are making the connections between the system unit and the peripherals, the devices must not be plugged into the power (danger of electric shock).

All cables and lines must be routed in such a way that no-one can tread on them or trip over them.

To tighten the securing screws on the cable connectors you will need a small flathead screwdriver and a small crosspoint screwdriver.

Attaching the mouse

If you want to use your system in full graphics mode (see also the section „Boot options“ on page OM-38) you have to connect the mouse.

► Plug the round 6-pin connector on the mouse connecting cable into the matching 6-pin socket on the system unit backplane (7).

The arrow on the cable connector must be on the right as you push the connector into the socket.

Attaching the keyboard

► Plug the connector on one end of the keyboard connecting cable into the matching socket on the underside of the keyboard. The cable connector must lock into place.

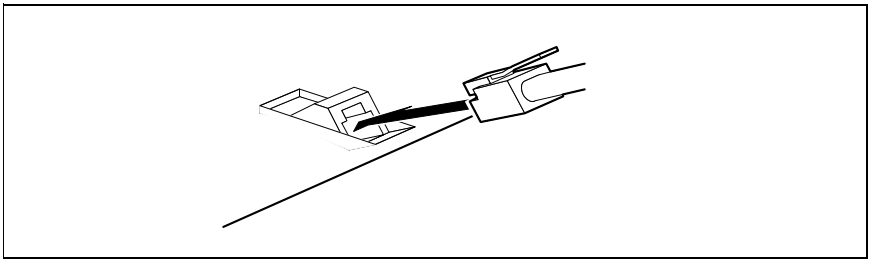


Figure 2: Attaching the keyboard

► Plug the other end of the keyboard connecting cable into the matching 6-pin socket (directly beneath the mouse socket) on the system unit backplane (3). The arrow on the cable connector must be on the right as you push the connector into the socket.

Connecting the alphanumeric console

► Attach the 9-pin socket on the connecting cable (console to system unit) to the corresponding 9-pin V.24 connector marked COM1 (system unit backplane (6)) and secure the connector by tightening the securing screws.

► Plug the other end of the cable into the matching socket on the back of the alphanumeric console.

► Attach the keyboard to the console as described in the operating manual for the alphanumeric console.

The line speed for alphanumeric console terminals must be set to 19200 baud. For information on how to set the line speed, refer to the operating manual for your terminal.
The default settings are described in chapter “Equipment settings” on page OM-73.

An **alphanumeric console with a VGA monitor** is connected in the same way as a graphical monitor (except that there is no mouse).

Attaching the monitor

33 cm (14"), 35 cm (15"), 40 cm (17") and 50 cm (21") monitors can be attached to the system. Monitors are shipped with a power cord and a connecting cable.

The monitor is connected to the rear of the system unit, either to the Super Combo controller or to the PCI graphics controller.

Connecting the monitor to the Super Combo controller

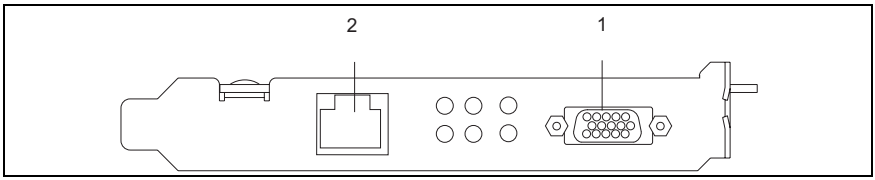


Figure 3: Super Combo controller

- ► Insert the 15 pole plug of the connecting cable (monitor – system unit) into the 15 pole socket (1) of the Super Combo controller and tighten the screws.
- ► Plug the other end of the cable into the matching socket on the back of the monitor.

Connecting the monitor to the optional PCI graphics controller

If you have installed the optional PCI graphics controller, you must connect monitors to this controller. The optional PCI graphics controller provides a higher resolution.

- ► Insert the 15 pole plug of the connecting cable (monitor – system unit) into the 15 pole socket of the optional PCI graphics controller and tighten the screws.

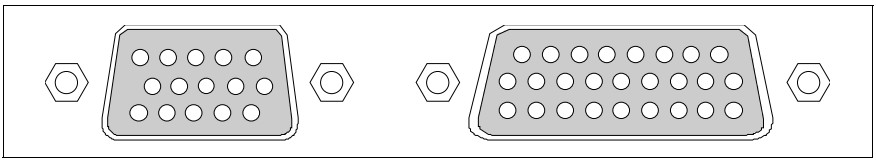


Figure 4: Optional PCI graphics controller (CG16, CG17, CG24)

These two sockets are on one of the card slots for controllers on the rear of the system unit. The 15-pin socket (left) is designed for attaching monitors to the PCI graphics controller; the 26-pin socket (right) is reserved for future enhancements.

► Plug the other end of the cable into the matching socket on the back of the monitor.

Connecting the monitor to the power outlet

► Connect the monitor power cord to a grounded power outlet.

Installing the system unit into the rack

Do not expose the system unit to extreme environmental conditions (see section “Technical specifications of the RM300 E system unit” on page TD-89). Protect it from dust, humidity and heat.

Installation steps

1. Mount installation kit and insert system unit (see order lists for location diagram prepared with Rack Architect)
2. Connect the devices to the system unit in accordance with the rack configuration.
3. Connecting the system unit to the line voltage

Fit assembly kit and rack-mount the system unit

► Using the mounting aid (stencil) mark the position of the attachment points on the support upright of the system unit (six height units). Refer to the information on the mounting aid.

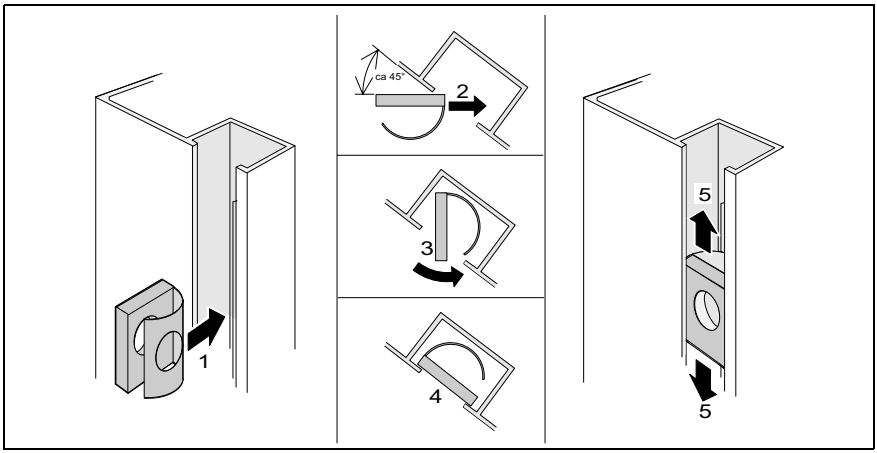


Figure 5: Placing the spring nuts

► Place the spring nuts in the groove of the support uprights at the marked attachment points (1 - 4).

► If necessary, adjust the position of the nuts in the groove until they lock into the correct position (5).

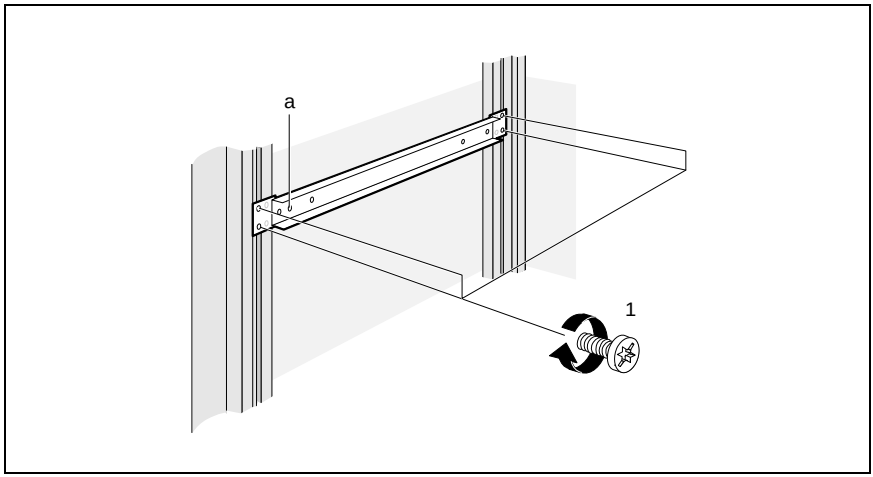


Figure 6: Mounting the carrier rails

► Secure the two carrier rails left and right in the rack using the Allen key No. 5 supplied (1). When doing so, make sure that the orientation hole (a) is at the front and the centering bumps of the mounting rail engage in the holes of the mounting spars next to the spring nuts.

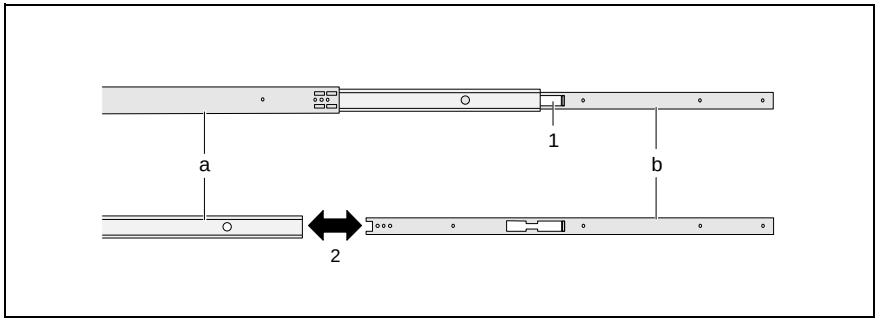


Figure 7: Mounting the extending rails

► Press in the locking springs (1) on the extending rails and dismantle the rails into their rack (a) and their system unit parts (b)(2).

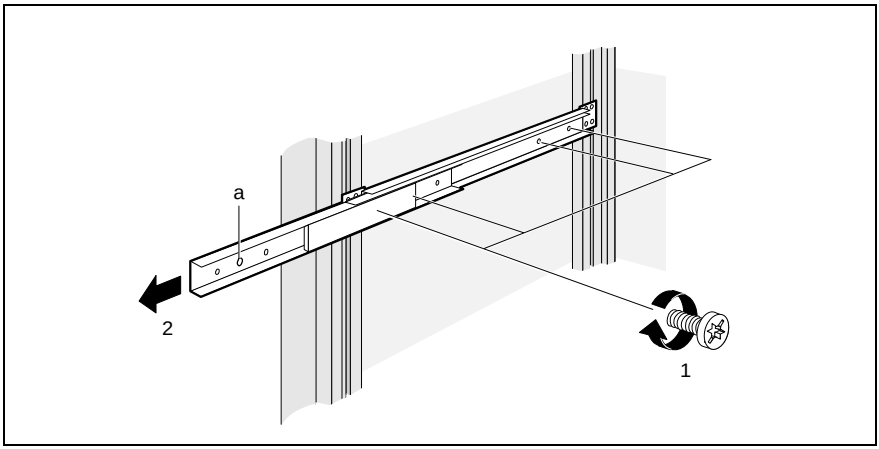


Figure 8: Mounting the extending rails on the carrier rails

► Screw the rack parts of the extending rails onto the mounting rails mounted in the rack with four countersunk-head screws (1). You can access concealed holes by pushing the extending rail through the gap (a).

► Completely pull out the removed extending rail pieces (2).

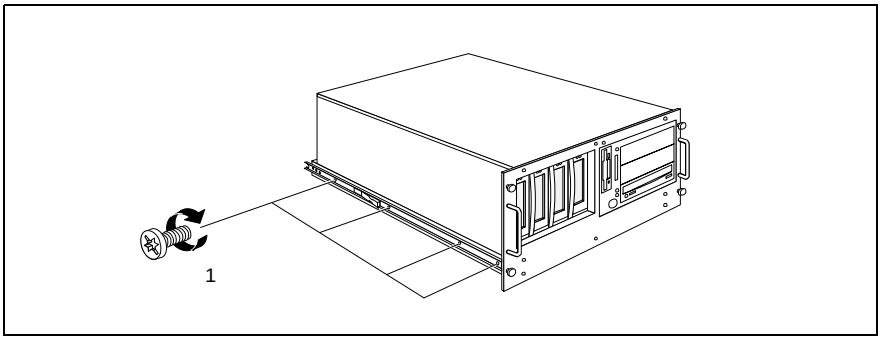


Figure 9: Mounting the system unit pieces of the extending rails

► Screw the system unit pieces of the extending rails onto the system unit at the left and right with four countersunk-head screws (1).

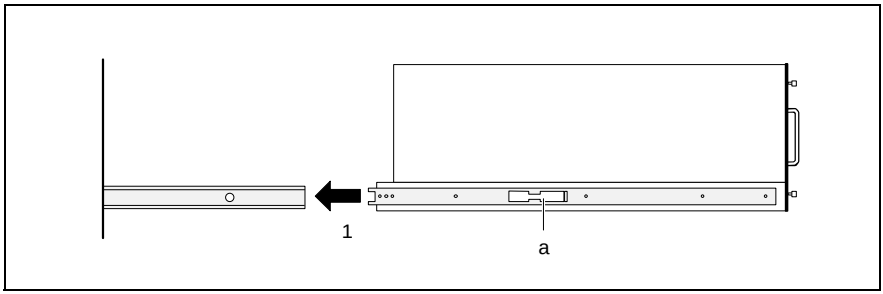


Figure 10: Connecting the system unit with extending rails

► Push the system unit with the mounted extending rail parts into the extending rail parts mounted in the rack (1) until the locking springs (a) engage on both sides.

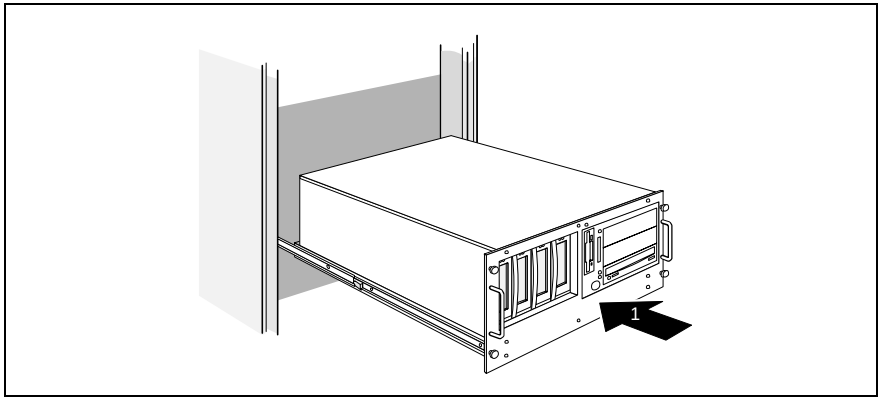


Figure 11: Pushing the system unit into the rack

► Push the system unit into the rack (1).

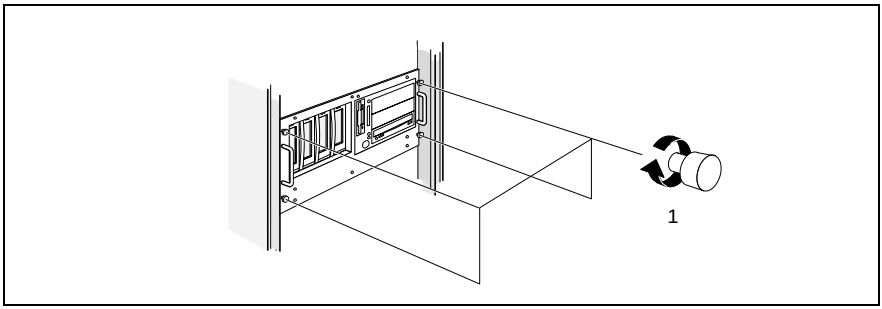


Figure 12: Securing the system unit in the rack

► Secure the system unit in the rack (1) using the four knurled screws.

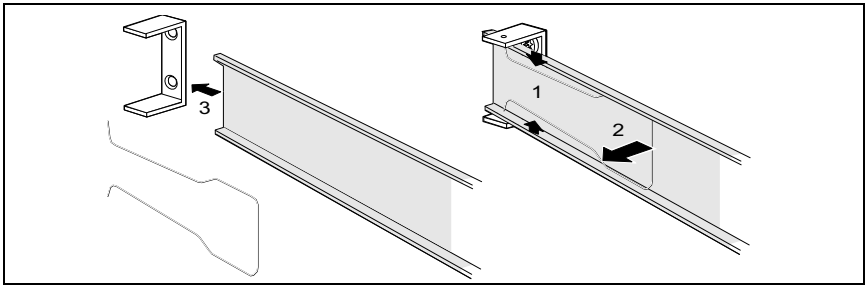


Figure 13: Removing the U brackets

► Remove the assembly supports from the articulated cable carrier (1 + 2 + 3).

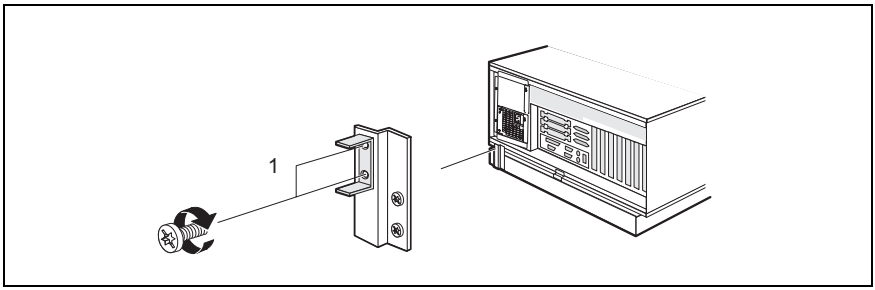


Figure 14: Fixing the U brackets

► Screw an assembly support onto the support base of the system unit (1).
► For each angle bracket place two spring nuts in the groove of the rear right support upright. They must be at the same height as the U bracket on the support base of the system unit.

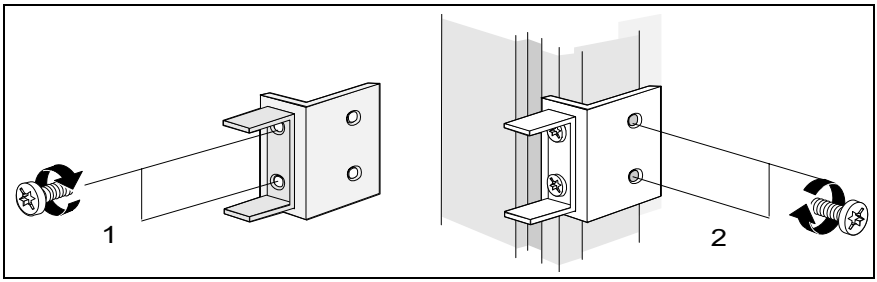


Figure 15: Mounting second U bracket

► Screw the second U bracket onto the angle bracket (1). Then screw the angle bracket onto the rack in the place reserved for it (2).

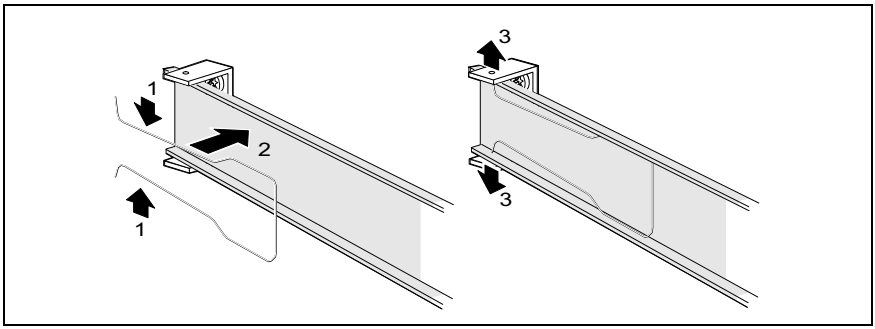


Figure 16: Fastening the cable carrier to U brackets

► Fasten the articulated cable carrier to the U brackets, as shown in the diagram (1 + 2 + 3).

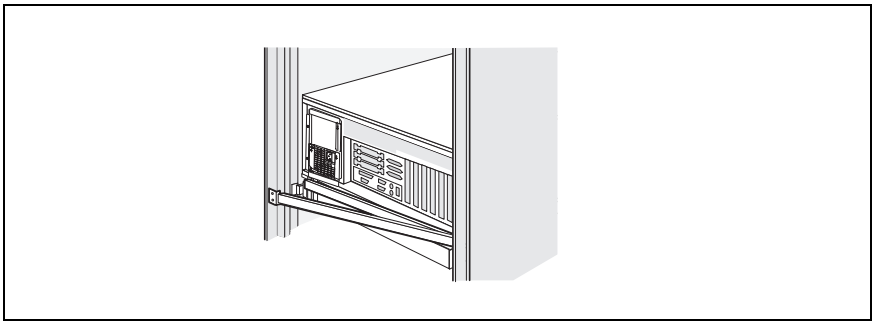


Figure 17: Articulated cable carrier

The articulated cable carrier is now installed as shown in the diagram.

Connecting devices to the rack system unit

All ports are on the rear of the system unit. The standard ports are indicated by symbols.

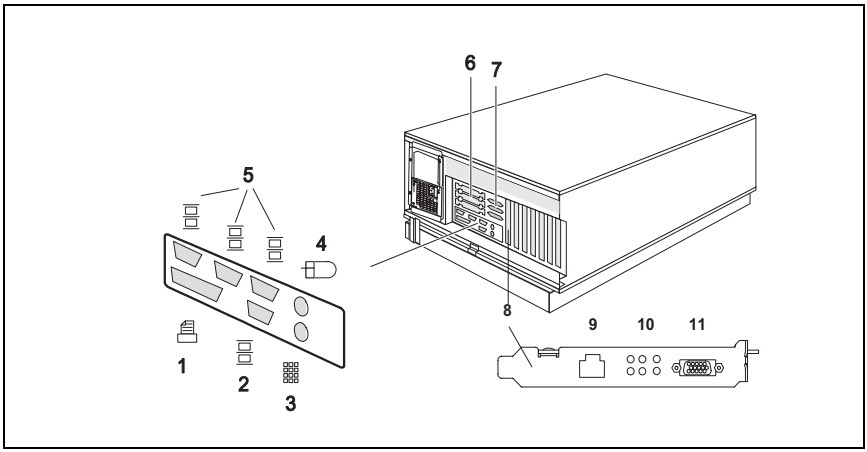


Figure 18: Connecting devices to rack system unit

1 = System printer port (Bitronics interface)
2 = Serial port
3 = Keyboard port
4 = PS/2 mouse port
5 = Additional serial interfaces 1,3,4
6 = Slot for additional interfaces
7 = Slot for additional interfaces
8 = Super Combo controller
9 = Connector for Ethernet RJ45 F
10 = LEDs
11 = Monitor connector

► Connect the data cables at the system unit and peripherals.

► Mark the lines so that you can always identify them.

Routing cables

Because of the different maximum cable lengths in single-ended and differential-ended SCSI mode, two types of cable routing are possible in the rack: limited and unlimited cable routing.

Limited cable laying

When operating in the single-ended SCSI mode, the maximum cable length for external SCSI cables of 1.50 m or 1.80 m limits the way you can lay cable in the rack. This means that the SCSI cables can no longer be attached to the articulated cable carrier in their entirety.

► Plug the SCSI cables into the system unit and storage extension unit.

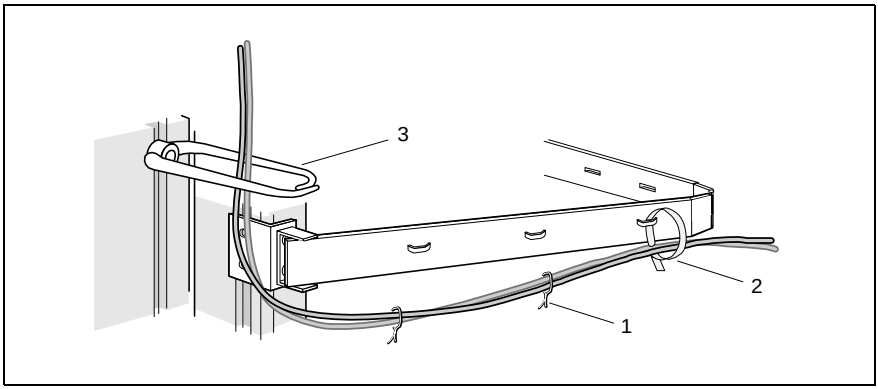


Figure 19: Routing cables for SCSI SE operation

► Secure the SCSI cables using the cable tie (1).

► Fasten the bound SCSI cables onto the articulated cable carrier using one cable tie per bound set of cables. You should fasten the cables to the articulated cable carrier near the bend in the guide (2).

► Check to see if the carriers can be pulled out without breaking or even overstretching the SCSI cables.

► Route the SCSI cables through the cable channel (3) after having reinserted the system unit and storage extension unit.

Before you pull out any slide-in modules cabled in this way you must remove the SCSI cables from the cable guides.

All other cables, such as the CAN bus cables can be laid as described in the section "Unlimited cable laying".

If you wish to pull out a slide-in module later for which the cable has been laid as described above, follow these steps:

- ► Take the SCSI cables out of the cable channel.
- ► Pull and push the slide-in module out and in carefully so that no cables are pulled off or become pinched.
- ► Replace the SCSI cables back into the cable channel.

Unlimited cable laying

A maximum cable length of 20 m is possible for differential-ended SCSI operation. The SCSI cables can therefore be fastened to the articulated cable carriers. The slide-in modules can thus be pulled out later without any further preparations.

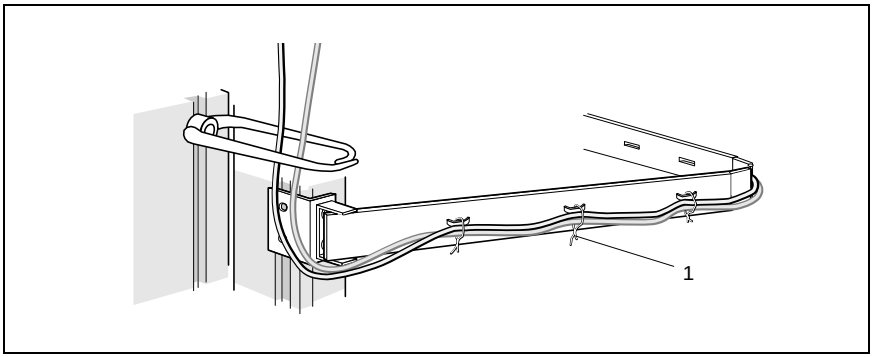


Figure 20: Routing cables for SCSI DF operation

- ► Route the cables as shown in the diagram.
- ► Secure the cables using the cable ties (1) on the articulated cable carrier.

Connecting the system unit to the power outlet

Before you connect the system unit to the power outlet, you must check that the voltage set on the unit matches that of the power outlet.

The system unit and monitor must be unpacked and acclimatized to room temperature for at least two hours before they are switched on.

Your system unit contains either one or two power supplies and you will therefore receive either one or two power cords that you will have to connect. If two power supplies are fitted into your system unit, they are designated as “redundant power supplies”.

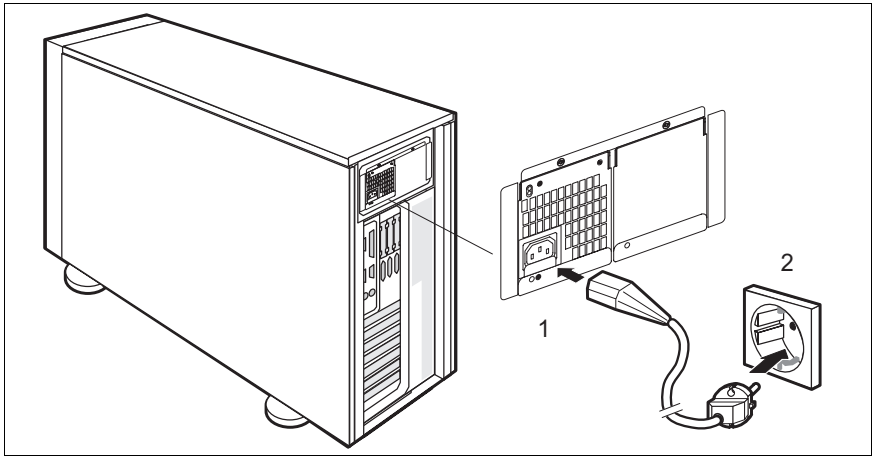


Figure 21: Connecting the system unit to the power outlet

- ► Connect the system unit power cord to the system unit (1).
- ► Connect the system unit power cord to the grounded power outlet (2).

Make sure that the safety socket used for connecting the system unit is protected with 16A or 15A (USA) automatic circuit breaker.

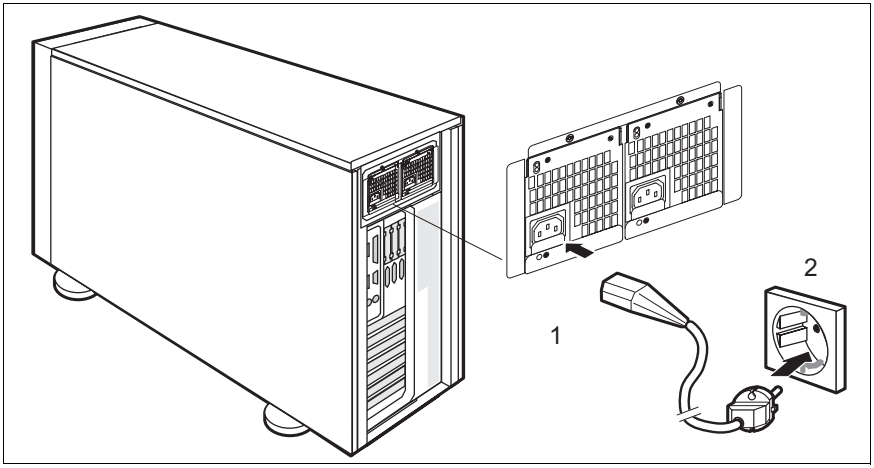


Figure 22: Redundant power supplies (standalone variant)

Connecting the system unit to the power outlet (rack variant)

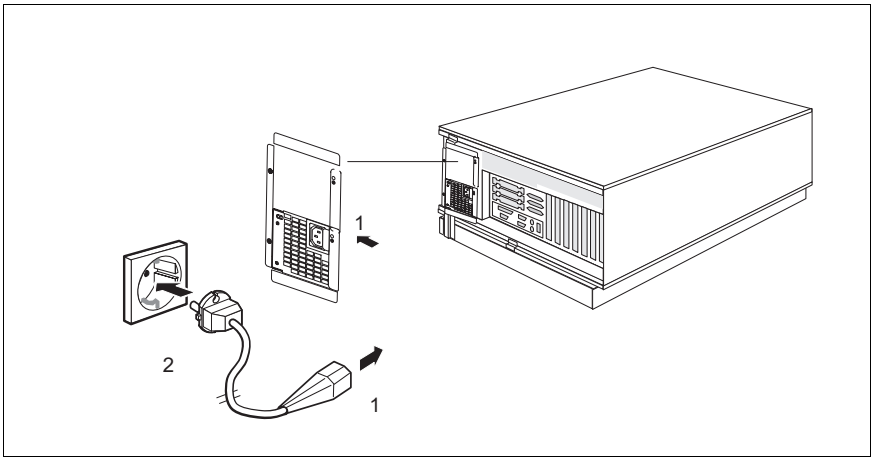


Figure 23: Connecting the system unit to the power outlet (rack variant)

- ► Connect the system unit power cord to the system unit (1).
- ► Plug the power cord into a free power outlet socket on the socket strip in the rack (2) (see the „RM 19-Inch Operating Manual“).

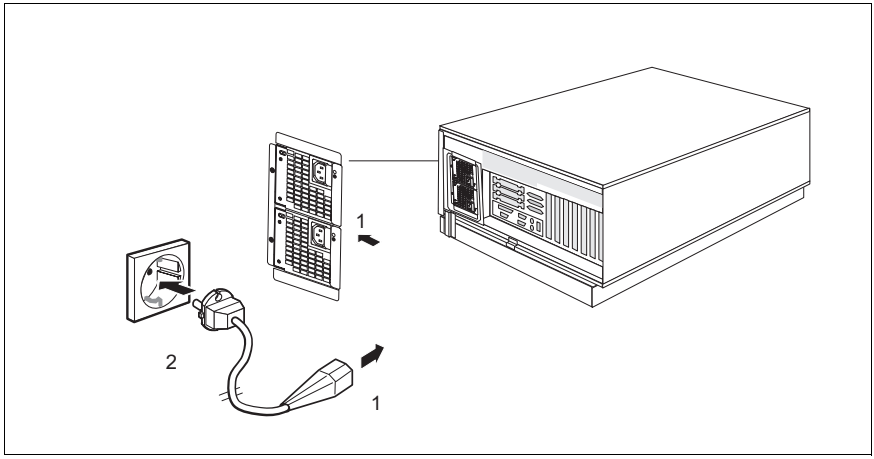
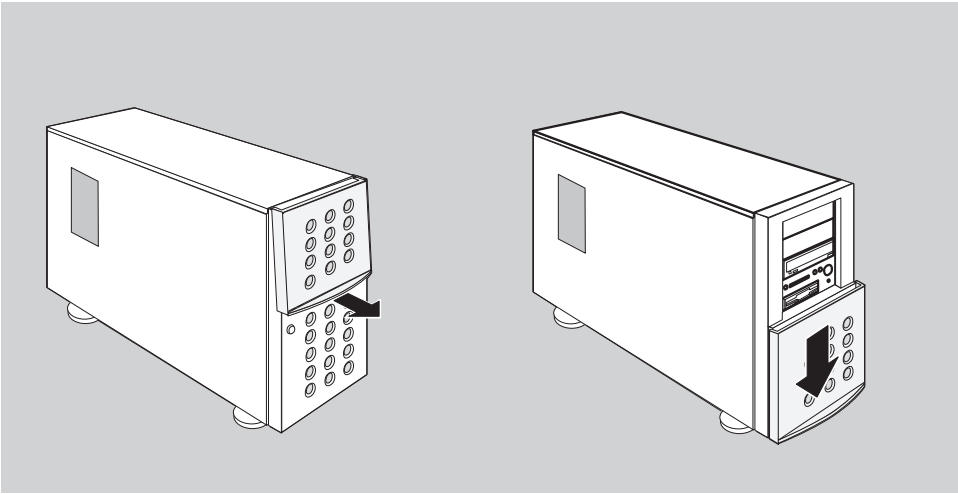


Figure 24: Redundant power supplies (rack variant)

► Connect the system unit power cord to the system unit (1).

► Connect the system unit power cord to the grounded power outlet (2).

Starting up and operating the system unit



Unlocking the system unit

The system unit control panel

Switching the system unit on and off

Accessible drives

Locking the system unit

Service compartment in the system unit

Cleaning the system unit

Unlocking the system unit

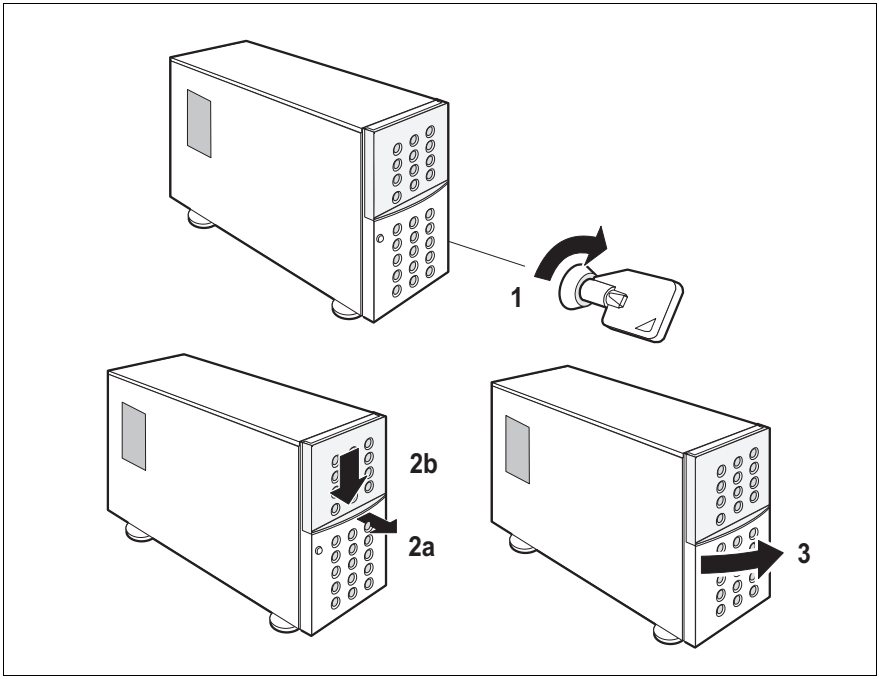


Figure 25: Unlocking system unit

- ► Unlock the lock with the green key (1). The door remains lightly engaged in the casing.
- ► If you only require access to the operating panel and the accessible disk drives, then slide the drive cover downward (2a + 2b). The key can be left in the lock while doing so.
- ► If you require access to the hard disk drive plug-in modules of the server, then open the door (3).

It is also possible to open the drive cover, however keep the door locked. Proceed as follows:

► Unlock the lock.

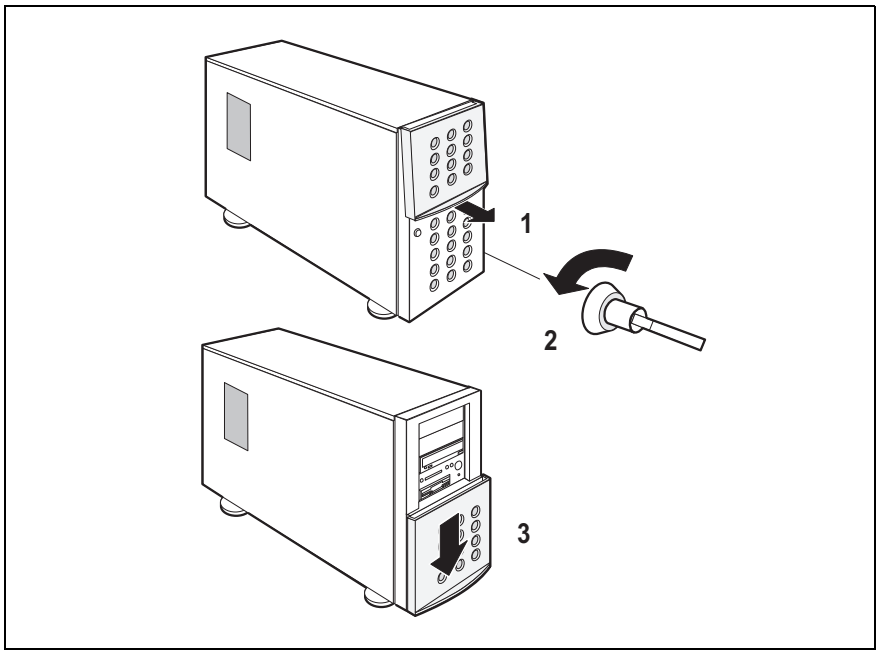


Figure 26: Sliding the drive cover downwards

► Pull the lower section of the drive cover forward by the handle (1).

► Lock the lock again (2).

► Slide the drive cover downwards (3).

The system unit control panel

The control panel of your system unit is protected by the drive cover. The drive cover must be slid down (1) to provide access to the control panel..

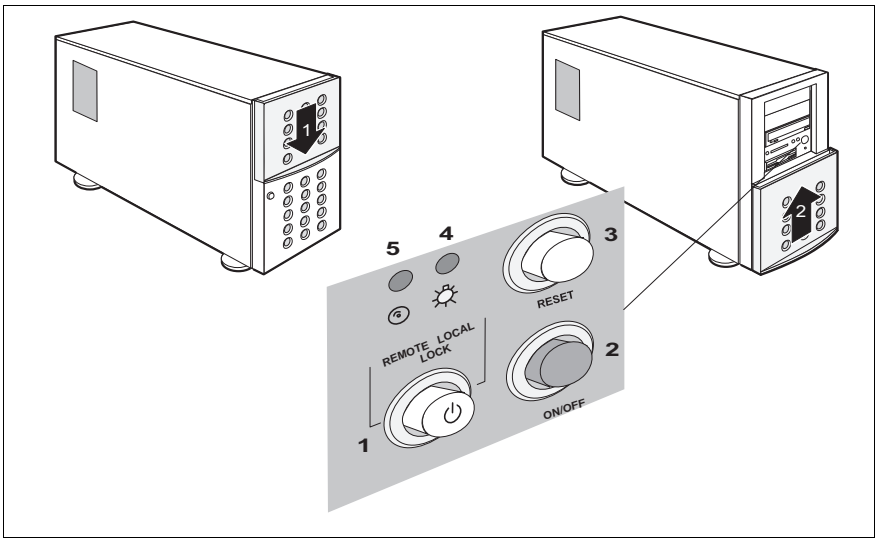


Figure 27: System unit control panel

The control panel contains the following elements:

1 Key lock switch

Set to LOCK:
The [ON/OFF] and [RESET] buttons are disabled.

Set to LOCAL:
The system unit can be switched on and off manually. The [ON/OFF] and [RESET] buttons are enabled.

Set to REMOTE:
The system unit can be switched on remotely, typically via modem.

Under the Reliant UNIX operating system it is also possible to switch the system unit off remotely.

This key can be turned while the system is in operation and can be removed from the lock in any of the three positions. This has no effect on the operational status of the system.

2 ON/OFF

ON/OFF switches the system unit on and off. ON/OFF can only be operated if the keylock switch is in the LOCAL position.

You must switch on the monitor and the console switch before switching on the system unit.

Never press ON/OFF if the operating system is active and the keylock switch is set to LOCAL. This may cause data to be lost.

3 RESET

RESET can only be pressed if the keylock switch is set to LOCAL.

If you press RESET and keep it pressed for more than two seconds, the system will reboot.

Under Reliant UNIX, if you briefly press RESET (holding it for less than two seconds), the system will switch to the kernel debugger, which is used for servicing (see the manual “Reliant UNIX Installation and Operation - RM200, RM300, RM400”).

Press RESET only if there is no other way of dealing with a malfunction, as you may lose data.

4 POWER LED

The LED lights green when the system unit is switched on.
The LED lights orange when the system unit is in standby mode.

5 DISK/ERROR LED

The LED lights green when the internal SCSI drives or other devices are accessed.

The LED lights orange if an error occurs (e.g. a global error in the system unit, such as fan failure, overheating, etc.).

Switching the system unit on and off

The system unit and the monitor must be connected to the same distribution board, as otherwise compensating currents may flow.

The line voltage set on your system must be the same as the voltage supplied by the building's wiring system.

The system unit goes into standby mode when it is connected to the power outlet. The control panel LED on the front of the system unit lights orange.

► Switch on the monitor before you switch on the system unit.

You can switch on the system unit manually or remotely. After switched on the system unit the POWER LED will light up green.
After a short delay the connected peripherals cabinets are also switched on automatically; the ON/BATT LED on these devices also lights up green.

Once the system unit has been switched on, the system performs a self-test routine. The duration of this routine depends on how your system is configured.

To switch the system unit on manually:

► Slide the drive cover down to access the control panel.

► Insert the black key in the keylock switch on the control panel and turn it to LOCAL.

► Press ON/OFF.

To switch the system unit on remotely

It is possible to switch on the system unit remotely via a modem or a connected terminal.

If the system unit is switched on remotely via the public switched telephone network using a V.24/V.28 modem, the connection can be established using either a suitably equipped V.24 interface on the system board or the V.24 interfaces of the terminal controller TC4P (CT45).

If the system unit, the monitor and the motherboard have been suitably configured, you can switch the system unit on remotely as follows:

► The key must be turned to the REMOTE position.

► Switch on the system unit, for example by switching on an appropriately configured monitor.

Boot options

Your system boots:

– in full graphics mode if a keyboard and mouse are connected,

– in alphanumeric mode with output to the graphical monitor if a keyboard is connected but no mouse,

– in alphanumeric mode with output to the first serial interface (COM1) for an alphanumeric terminal if no keyboard is connected.

Reliant UNIX operating system

The Reliant UNIX operating system is already installed on your system as shipped.

For instructions on reinstallation refer to the chapter on package installation and removal in the manual “Reliant UNIX Installation and Operation – RM200, RM300, RM400”.

To switch the system unit off

► Shut down the operating system (see the manual “RM300 E / RM400 E - Software for configuration/installation”).

► Press ON/OFF.

Accessible drives

The drive for $3^1/_2$ inch floppy disks (1,44 Mbyte) is included in the base system. Other drives, like the magnetic tape drives for $^1/_4$ inch, 4 mm and 8 mm formats, the CD-ROM drive (standard installation medium for Reliant UNIX) etc. can be ordered as options. The optional drives are described in the manual “RM300 E / RM400 E - Storage devices”.

Three slots for 5 1/4 inch SCSI devices are provided in the system unit for these optional drives. Either three half height drives (3 x HH) can be installed or one full height drive (1 x FH) and one half height drive (1 x HH).

The slots are installed in a cage. A special cage is used in the rack variant to enable the drives to be mounted horizontally. This is particularly advantageous for a CD-ROM drive without a caddy.

Floppy disk drive

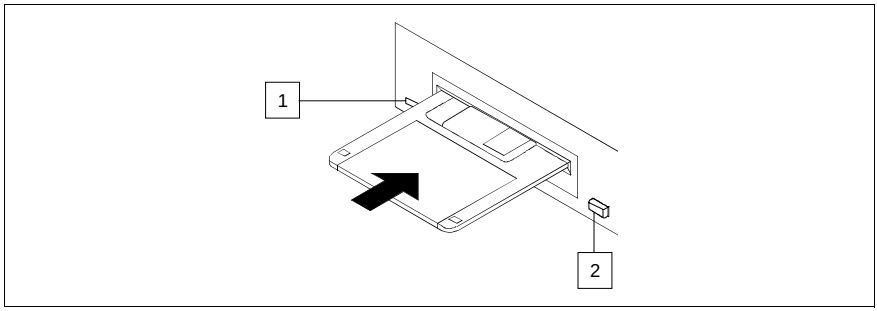


Figure 28: Floppy disk drive

(**1**) Access LED

(**2**) Release button

You must not press the release button (**2**) on the floppy disk drive while the access LED (**1**) is lit, otherwise the floppy disk may be damaged.

Inserting a floppy disk

► Hold the disk with the metal shutter facing the drive and the round plate in the middle of the disk facing downwards.

► Push the disk right into the drive until it clicks into place and the release button pops out.

Removing a floppy disk

You must not remove a floppy disk while the floppy disk drive access LED is lit, otherwise the floppy disk may be damaged.

► Press the release button.

The floppy disk will now slide part of the way out of the drive slot, and you can pull it all the way out of the drive.

Floppy disks

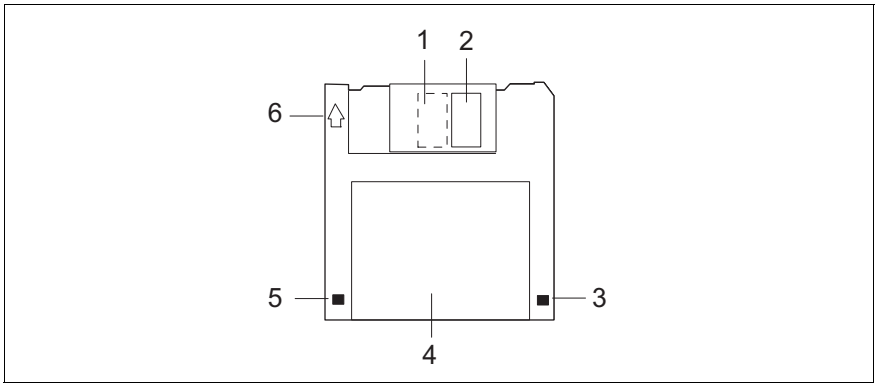


Figure 29: 3.5" floppy disk

(**1**) Head access slot

(**2**) Shutter

(**3**) Cutout for automatic detection of a high-density disk

(**4**) Label area

(**5**) Write-protect notch
write protection on: small rectangular aperture open
write protection off: small rectangular aperture closed

(**6**) Insertion pointer

- Format your floppy disks before you write to them for the first time (unless you are using preformatted disks). Floppies must be formatted in DOS or UNIX format.
- Keep floppy disks away from magnetic objects, e.g. speakers.
- Keep floppy disks away from direct sunlight and sources of heat. The optimum storage temperature is between +10°C and +52°C.
- Do not bend floppy disks or use a sharp pencil, a ball-point pen or an eraser on the casing.
- Use a soft felt-tip pen to write on the label before applying it.

Locking the system unit

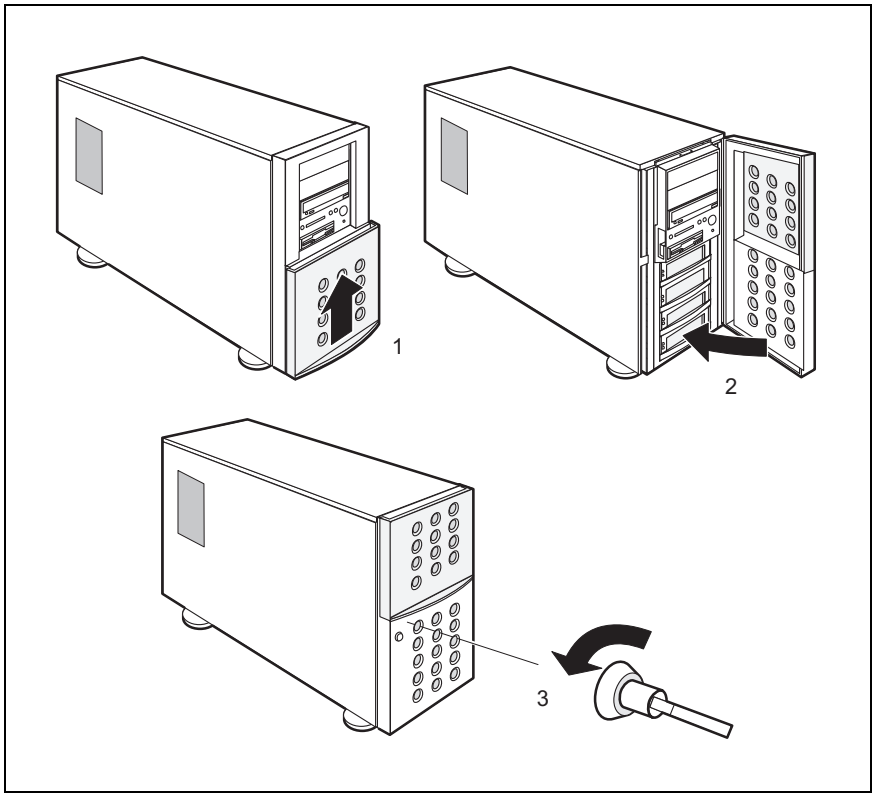


Figure 30: Locking the system unit

- ► Close the drive cover (1) and/or the door of the system unit (2).
- ► Turn the key counterclockwise (3).

Service compartment in the system unit

For the safe, handy storage of CDs, floppy disks, administrator and/or maintenance notes (e.g. maintenance labels, server network address), the system unit is provided with a drawer on the front.

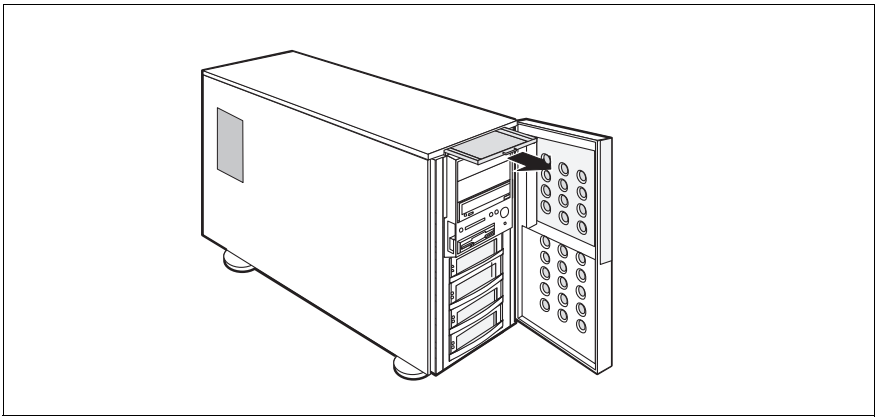


Figure 31: Service compartment in the system unit

Cleaning the system unit

To clean the components of the housing you simply need to wipe them down with a dry cloth. If the surface is very dirty, you can use a cloth which you have moistened with a non-caustic cleaning agent. After cleaning with a damp cloth, do not switch the system unit back on until it is completely dry.

You can clean your mouse and keyboard with disinfectant wipes, but do not leave fluid on the surfaces for more than five minutes.

Never leave these wipes lying on the housing after use. The cleaning agent will attack the plastic if left there for an extended period.

You should also clean the surface of the monitor screen at regular intervals. Use a moistened lint-free soft cloth followed by a dry soft cloth. You can also use special screen wipes.

Cleaning the floppy disk drive

Clean the read/write head of the floppy disk drive with the appropriate cleaning disk at the following intervals:

used every day:	clean once a week
used every week:	clean once a month
but always:	clean once a quarter

Follow the instructions given on the packaging of the cleaning disk.

Protecting against unauthorized access

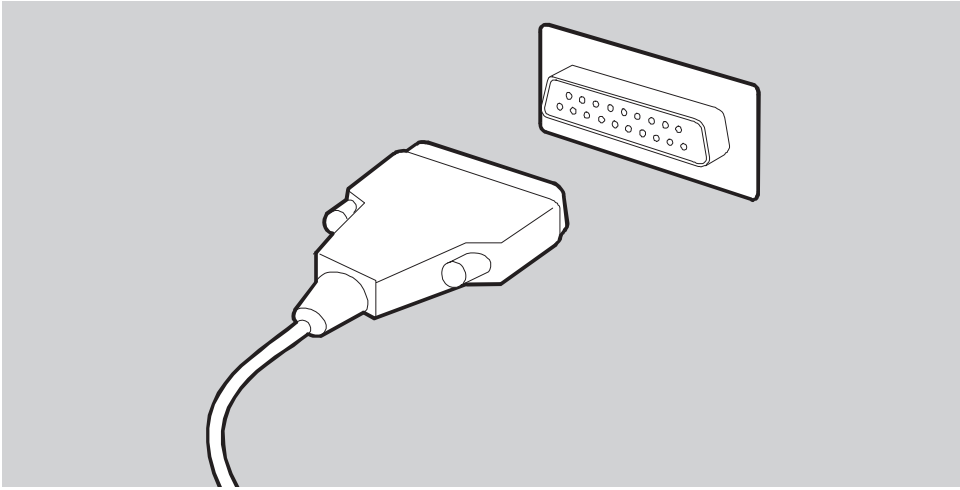
If your system unit is built into a rack, the lockable rack door provides optimum protection against unauthorized access.

The rack server is optimally protected against unauthorized access with the lockable rack door.

If your system unit is the standalone variant, the lockable door provides protection against unauthorized opening and switching on or off.

In addition, it is also equipped with anti-theft protection. At the bottom right on the rear there is a hole through which you can feed a steel cable for securing the server to an immovable object.

Installing peripherals



Attaching peripherals

- System unit backplane
- Attaching printers, modems and terminals
- Attaching the system unit to a LAN and a WAN
- Attaching SCSI peripherals
- Adding peripherals later
- Attaching the system unit to a UPS

Starting up peripherals

Attaching peripherals

Once you have installed your system unit and your monitor, you can start attaching the peripherals.

To tighten the securing screws on the cable connectors you will need a small flathead screwdriver and a small crosspoint screwdriver.

When you are making the connections between the system unit and the peripherals, the system unit must be off and devices must not be plugged into the power.

The system unit, the monitor and the peripherals must all be set to the correct line voltage.

All cables and lines must be routed in such a way that no-one can tread on them or trip over them.

You must use shielded connecting cables to attach your peripherals to the system unit.

The system unit and the peripherals must all be connected to the same distribution board to prevent the flow of compensating currents.
If this is not possible, a transmission method for differing distribution boards must be carried out by an authorized specialist (electrician), even for short distances.

If the above connection conditions are not fulfilled, data transmission malfunctions and damage to the equipment may result.

The system unit backplane

You will find the connectors for peripheral devices on the backplane of your system unit. The connectors available on your system unit will depend on the installed boards. The standard connectors are identified with symbols.

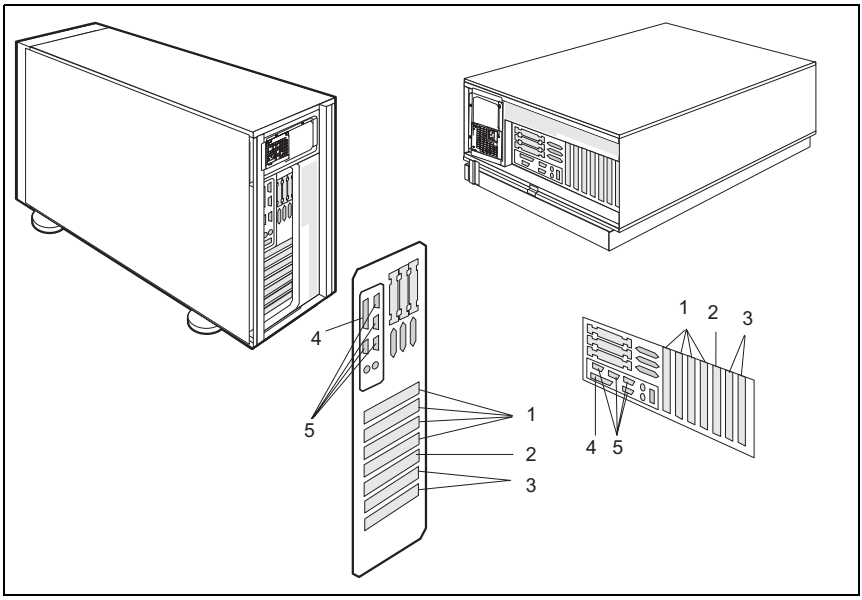


Figure 32: System unit backplane and separate connection fields

(1)	PCI	PCI slots 1 - 4 (numbered from top to bottom)
(2)	PCI/EISA	PCI slot 5 / EISA slot 1
(3)	EISA	EISA slots 2 and 3
(4)	Printer	Bitronics interface
(5)	COM1- COM4	Serial V.24 interfaces

Attaching printers, modems and terminals

You use the Bitronics interface (4) (Printer) to connect the system printer to the system unit. You can attach modems, terminals and additional printers to the V.24 ports (5) (COM1 to COM4).

Connecting a printer to the Bitronics interface

- ► Attach the power cord and the connecting cable to the printer as described in the printer operating manual. You can order a connecting cable separately if you need one (maximum allowable line length three meters).
- ► Attach the other end of the connecting cable to the matching port on the system unit (4).
- ► Secure both connectors.

Attaching a printer (or modem) to a V.24 port

- ► Attach the power cord and the connecting cable to the printer or terminal (or modem) as described in the accompanying operating manual.
- ► Attach the other end of the connecting cable to the matching port on the system unit (5).
- ► Secure both connectors.

Adjusting printer settings

When you attach printers, you need to adjust the printer settings. Your printer operating manual will tell you how to change the settings on your printer.

The default settings are:

Baud rate:	9600
Parity:	None
Data bits:	8
Stop bits:	1

If your settings differ from these defaults, you must also adjust the associated interface in the operating system to match the modified values.

The highest permissible line speed for V.24 ports is 38,400 baud. The highest permissible speed for your printer will be specified in the accompanying operating manual. You can use the following values as a rough guide:

Speed 9,600 Bd:	maximum line length 30 m
Speed 19,200 Bd:	maximum line length 15 m
Speed 38,400 Bd:	maximum line length 7.5 m

Attaching the system unit to a LAN

In its base configuration the system has one Super Combo controller. You can also install additional LAN controllers in the free slots on the system unit backplane.

The Super Combo controller in the RM300 E has a twisted-pair (10/100BaseT) connection.

The Reliant UNIX operating system can only be installed remotely via the Super Combo controller installed in PCI slot 1 (see the manual “Installing and Operating Reliant UNIX – RM200, RM300, RM400)”.

Attachment via twisted-pair (10BaseT)

- ► Plug the connector on the twisted-pair cable into socket of the Super Combo controller ((**2**) in figure 3 on page 17). The connector must lock into place.

Attaching the system unit to a WAN

In its base configuration the system does not have a WAN controller. If you have a WAN controller installed, you need suitable data circuit-terminating equipment (DCE) to make the connection to the WAN.

If you have any questions on the subject of DCE and long-range data transmission lines, you should consult your local Siemens office.

Attaching SCSI peripherals

You can connect the following SCSI (Small Computer System Interface) devices to the system unit, for example:

- via SCSI SE (single ended, 50 pole, 8 bit)
  e.g. peripherals box BG50, containing one or two of the following drives:
  – 4 mm or 8 mm cartridge tape drive
  – quarter-inch cartridge tape drive
  – OD (optical disk) drive
  – CD-ROM drive
  – 4 mm tape jukebox

- via SCSI LVD (e. g. via low voltage differential controller CS21)
  e. g. peripheral cabinet DU40

- via SCSI DF (differential)
  e. g. 8 mm tape jukebox, OD jukebox or peripherals cabinet for $3^1/_2$ inch hard disk drives

The devices that are to be attached to the SCSI ports must be set up in the immediate vicinity of the system unit as there is a limit on the length of the cable connections. The maximum overall length for SCSI connecting cables routed outside the system unit housing is two meters for single-ended SCSI connections and 15 meters for differential SCSI connections.
Further information is given in the operating manual for the peripherals box.

The SCSI port (external) is intended for single-ended SCSI devices, while the optional SCSI ports are for any additional SCSI devices associated with controllers which have been installed in the expansion slots.

The SCSI controllers can be installed in the appropriate slots on the PCI/EISA bus.

► Connect the various devices as instructed in the appropriate operating manuals. Make sure that the power plugs of all your peripherals are attached to the same distribution board as the system unit.

You must not connect or disconnect the connecting cables between SCSI devices in external cabinets and the system unit when the system unit is switched on. This will result in malfunctions and may lead to loss of data.

Single-ended SCSI devices must only be attached to a SCSI SE port. Connecting one to the wrong port may cause the hardware to malfunction.

Connecting external devices to a SCSI controller

- ► Make sure that an optional external SCSI controller is installed.
- ► Connect the SCSI controller port on the system unit backplane to one of the two ports on the external device.
- ► Attach the accompanying terminator*) (containing the terminating resistor) to the free port on the external device.
  *) The terminator is only required in the BG50 and BG3/4 peripheral racks. Termination is installed internally in new peripheral boxes (STM-SE or -LVD modules).

For details of suitable combinations of SCSI controllers and SCSI peripherals you should consult your local Siemens office.

Adding peripherals later

If you want to add peripherals at a later date, you must always proceed in the following order.

1. Shut down the system.
2. Press the ON/OFF button to switch the system unit off.
   Under Reliant UNIX, if you shut down the system with the *shutdown* command, the system switches itself off automatically.
3. Unplug the system unit's power cord.
4. Make the connections between the system unit and the new peripheral.
5. Plug in the power cords of the system unit and the peripheral.
6. Restart the system.

Attaching the system unit to a UPS

Read the operating instructions for the uninterruptible power supply (UPS) before connecting it to the system unit.

The uninterruptible power supply (UPS) is connected upstream of the system and thus provides a steady supply of electricity to the system regardless of the status of the line power. It largely protects the computer against loss of power (blackouts), power dips and power surges.

- First plug the 9-pin connector on the connecting cable into the COM2 port on the system unit backplane.
- Then plug the system unit power connector into the socket on the UPS.

To find out how to install the software and configure it for UPS operation, refer to the manual “Reliant UNIX Installation and Operation – RM200, RM300, RM400”.
The default value, however, is COM2.

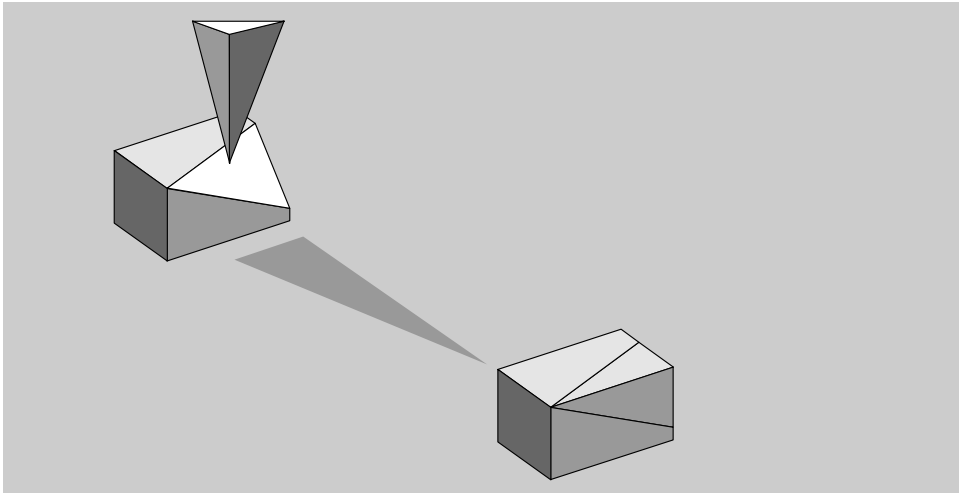
If the port that you use on the system unit backplane has previously been used for a terminal, it must be deconfigured under *SYSADM* (alpha-numeric monitor) or *Config* (graphical monitor). Also refer to the manuals “System Administration and Hardware Configuration Using the SYSADM User Interface” and “Hardware Configuration with Config under SINIX/windows”.

Starting up peripherals

To start up peripherals (monitor and printer, peripherals box), follow the instructions accompanying the devices in question.

Always switch on the SCSI peripherals before you switch on the system unit.

Troubleshooting



Problems when booting the system

Problems with the floppy disk drive

The following pages describe problems that may arise and suggest ways of solving them:

– The first part deals with problems that may occur when you switch on and boot the system.

– The second part relates to problems that may occur when you are using the floppy disk drive.

Error messages for the operating system and the application software are discussed in the relevant manuals. The user guide “Diagnostic and Troubleshooting” is recommended for further reading.

If the recommended actions are unsuccessful, try rebooting (switch the system unit off and after about 10 seconds switch it back on again).

If rebooting does not help, inform Siemens Service. Record all the activities which may have caused the problem and any actions you have taken so far in attempting to eliminate it.

Problems when booting the system

Problem	Possible cause	Recommended solution
System unit will not power up, POWER LED does not light up	No line voltage	Check that power connector is correctly inserted in system unit, check line voltage at power plug
		If unsuccessful: inform Siemens Service
No output on monitor while system is booting	Monitor not switched on	Switch on monitor
	Brightness controller set too low	Change brightness setting as described in monitor operating manual
Error messages on monitor while system is booting		Reboot system; if error messages persist, inform Siemens Service
POWER ON/ selftest error messages on the console	Hardware errors detected	Power down operating system
		Initiate boot procedure
		If error messages persist, see user guide “Diagnostic and Troubleshooting” .

Table 1: Errors when booting the system

Problem	Possible cause	Recommended solution
Panic messages on the console - system crash	Hardware or software error	Consult “System Administrator’s Guide”
		After PANIC you are in IKDB mode (Internal Kernel Debugger). To obtain the diagnostic documents (dump), enter: IKDB>*EX* <system outputs> IKDB>*EX* This saves the most important contents of the registers and memories. You should subsequently reboot the system. The data relevant for diagnosis is then automatically saved in the dump files. See also the user guide “Diagnostic and Troubleshooting” .
		If error messages persist, see user guide “Diagnostic and Troubleshooting” .

Table 1: Errors when booting the system

Problem	Possible cause	Recommended solution
Monitor screen remains dark	Monitor not switched on	Switch on monitor
	Screen has been automatically blanked (screen saver)	Press any key
	Brightness controller set too low	Change brightness setting as described in monitor operating manual
	Faulty connection between system unit and monitor	Check connection between system unit and monitor
		Check power connection
		Check that power outlet is supplying power
	Connecting cable attached to standard SVGA port even with PCI graphics controller installed	Repeat installation; attach color monitor connecting cable to PCI graphics controller
Monitor remains dark or bright but displays no characters or only uninterpretable characters	Monitor incorrectly set	Set monitor correctly
Monitor still remains dark		Note any actions taken and inform Siemens Service
Input from keyboard not accepted	Console: Keyboard cable not connected	Connect keyboard cable
	Graphical monitor: Mouse connected to keyboard port and vice versa	Connect mouse and keyboard to correct ports

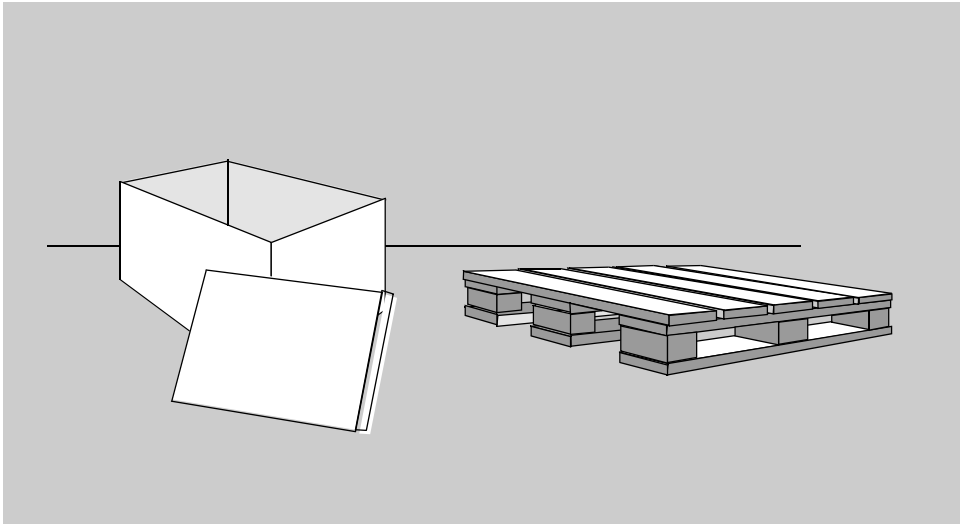
Table 1: Errors when booting the system

Problems with the floppy disk drive

Problem	Possible cause	Recommended solution
Cannot read floppy disk	Disk damaged	Try another disk
	Wrong format of disk	Check disk format: UNIX format e.g. *tar, cpio ...* DOS format e.g. *dosdir a:*
Cannot write to floppy disk	Disk not formatted	Format disk
	Disk write-protected	Disable write protection
	Disk damaged	Try another disk
	Wrong type of disk	Use right type of disk
Access LED does not light up	Device not addressed correctly	Use right device name
	Defective drive	Inform Siemens Service

Table 2: Problems with the floppy disk drive

Moving your system unit



Moving the system unit

Carry out the following steps in the order shown below if you want to move your system unit:

- ► Before moving the system unit to another location, back up all the data stored on the hard disks. For instructions on backing up data, refer to the Reliant UNIX “System Administrator’s Guide”.
- ► Shut down the operating system.
- ► Remove any floppy disks, cartridges and CD-ROMs from the drives.
- ► Switch off the system unit and the peripherals and pull off all power plugs.
- ► Check that the connecting cables are marked in a way that will enable you to reconnect them correctly.
- ► Disconnect all the cables.
- ► For safety’s sake you should transport each device separately.

Transport the system unit in its original packaging. Make sure that the system unit is not subjected to any shock or impact in transit, as this may damage the hard disk drive.

When installing the system unit at its new location, make absolutely sure that the line voltage is set correctly.

Moving the monitor

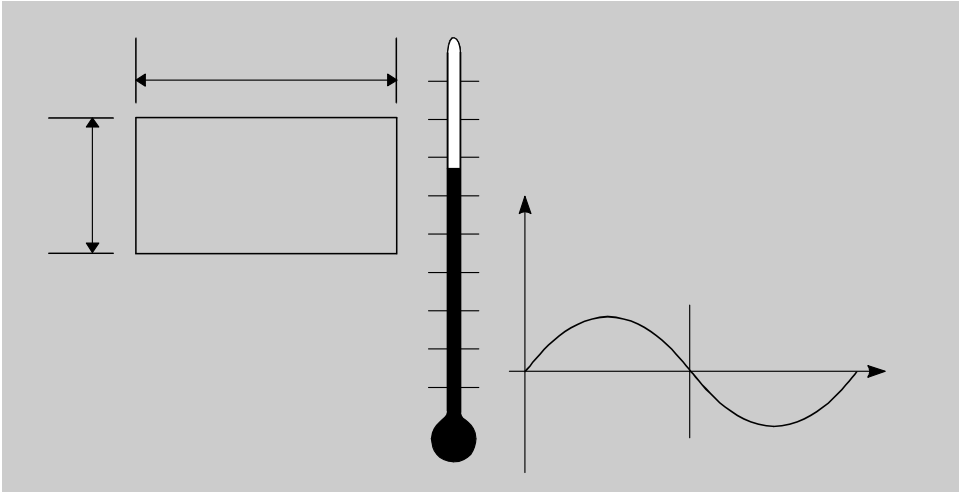
Transport the monitor in its original packaging.

In view of the risk of CRT implosion, you must protect the monitor against mechanical impact.

Moving the peripherals cabinet

When moving the peripherals cabinet, take the same precautions as when moving the system unit.

Base configuration and expansion options



System unit components

Base configurations

Expansion options

System unit components

The system unit houses the motherboard, the processor board, the controllers and the power supply. A 3 $^1/_2$" hard disk drive and a 3 $^1/_2$" floppy disk drive are installed in the system unit by default. Additional drives like the quarter-inch, 4 mm and 8 mm cartridge tape drives, CD-ROM drives etc can be installed as options. You will find a description of these drives in the manual „RM300 E / RM400 E - storage devices“.

The following equipment can be attached to the system unit:

- Display screens (graphical monitors)
  14" (33 cm), 15" (35 cm), 17" (40 cm), 21" (50 cm)
  Only 33 cm (14“), 35 cm (15“) and 40 cm (17“) monitors are permitted for the rack variant.

- Other terminals
  or alphanumeric console monitor

- Printers
  connected to the Bitronics, V.24 and LAN ports
  or to the V.11 port

- Peripherals cabinets
  containing additional hard disks and RAID (Redundant Array of Independent Disks) subsystems

- Optical storage media
  OD (optical disk) drives and OD jukeboxes

- Modems

- Other peripherals
  such as drives in peripherals boxes, tape (cartridge) jukeboxes
  or terminal servers and data multiplexers

- Uninterruptible power supply

Base configurations

- System unit, comprising:

– Motherboard with:
  1 x I/O (input/output) controller (4 x V.24, 1 x Bitronics, mouse and keyboard port)
  1 x SVGA port
  1 x Ethernet® controller 10/100 Mbit/s
  1 x SCSI-2 (Small Computer System Interface) Controller SE (single-ended) 8/16 bit
  1 x SCSI-2 Controller SE 16 bit

– 2 controller slots on integrated EISA (Extended Industry Standard Architecture) bus

– 3 controller slots on integrated PCI bus (Peripheral Component Interconnect). The first PCI slot is intended for the Super Combo controller.

– 1 shared PCI-/EISA slot

– Processor board (depending on model)

Model	**Processor board**	**Clock speed**	**Second-level cache (SLC)**
E10	MIPS R5000	200 MHz	0,5 Mbyte
E20	MIPS R5000	250 MHz	2 Mbyte
E50	1 - 2 MIPS R10000	200 MHz	2 Mbyte/CPU
E60	1 - 2 MIPS R10000	250 MHz	4 Mbyte/CPU

(subject to technical modifications)

– $3^1/_2$" floppy disk drive

and depending on the chosen configuration
  up to 2 GB of RAM (primary storage)
  2 GB / 4.5 GB / 9.1 GB (with 16 bit SCSI interface) of hard disk drive in the hot replacement frame

- Graphical monitor or alphanumeric console monitor

- Keyboard (keyboard with trackball with the rack variant)

- Mouse (only for full graphical mode) (not with the rack variant)

- 1 PCI Slot 1 with Super Combo Board CC91 with
  – 1 x SVGA interface
  – 1 x Ethernet 10 or 100 Mbit/s (10BaseT)
  – 1 x SCSI SE 16 bit for internal cabling.

Expansion options

We are constantly enhancing our systems to keep pace with the demands of the market. You can find out what enhancements have been made since you bought your system by consulting your local Siemens office, and you can at any time have these components added to your system by our service organization.

For information on expanding the system on your own, refer to technical description in this manual.

Note that not all combinations of expansion options are possible and that there may exist software restrictions. If you need details of suitable combinations, you should consult your local Siemens office.

Upgrading the processor board

Each model can be upgraded to a more powerful model by exchanging the processor board.

Please contact your local Siemens office to find out more about expansion options to more powerful processor boards.

Expanding primary storage (RAM)

When you install the memory banks ensure that the memory banks used have no more than two different capacities. The memory bank with the highest capacity must always be installed on the first memory banks.

Expanding RAM by adding memory banks	
Number of memory banks in system	max. 4 memory banks
Capacity per memory bank	64, 128, 256 or 128 MB (two different capacities possible)
RAM capacity of system	64 MB to 2 GB

Expanding hard disk storage

$3^1/_2$" hard disk drives are available with capacities of 2 GB, 4.5 GB and 9.1 GB in OLR frames.

Optical storage media

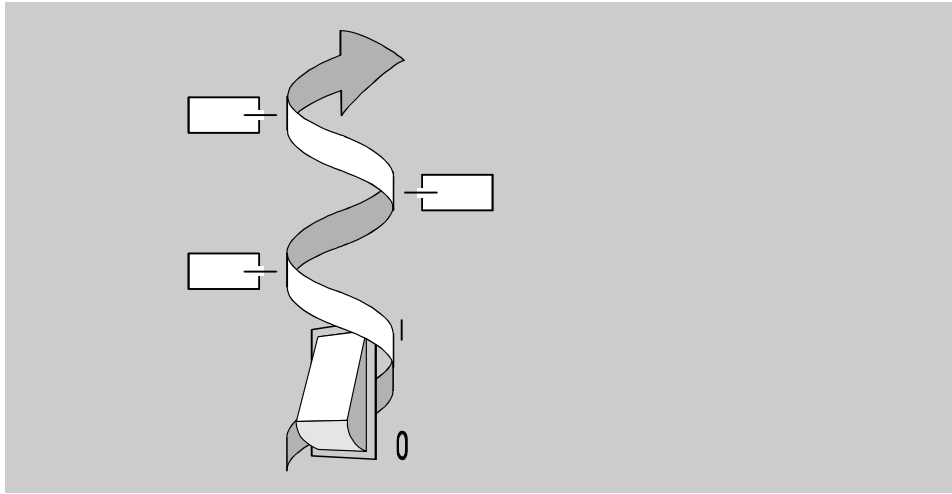
The following list shows the optical storage media that you can install in your system unit or in an external housing:

Component	**Internal**	**External**
CD-ROM, 650 MB	X	X
OD drive, 650 MB/1.3 GB/2.6 GB		X

Cartridge tape drives

The magnetic tape devices that you can install in your system unit or in an external housing are listed in the manual “RM300 E / RM400 E - Storage devices”.

Equipment settings



Default settings for terminals and printers

Drive names

Addresses of SCSI devices

Default settings for terminals and printers

You can connect a whole range of different terminals and printers to your system. For more detailed information on these peripheral devices, see the relevant operating manuals. For information on terminals and printers suitable for your system, contact your local Siemens office.

Because terminals and printers are supplied with default settings, you may have to adapt them to the interface of your system unit.

Configuring the V.24 interfaces

The designations which are marked with * (asterisk) in the tables in this section are the same as those used in the *Config* interface. For more information on configuring the interfaces, refer to the manual “System Administration and Hardware Configuration Using the SYSADM User Interface” and the manual “Hardware Configuration with Config under SINIX/windows”.

Direct serial interfaces

The four direct serial interfaces can be addressed with the following special files (*Attachment device* column):

Interface	Attachment type*	Attachment device*	Connector name*	Major, minor dev. number
COM1	DIRECT*	MOTHERBOARD*	port_0	128,5
COM2	DIRECT*	MOTHERBOARD*	port_1	128,6
COM3	DIRECT*	MOTHERBOARD*	port_2	128,7
COM4	DIRECT*	MOTHERBOARD*	port_3	128,9

Terminal controller interfaces

The interfaces of the terminal controller can be addressed with the following names (*Attachment device* and *Connector name* columns) once they have been created using *Config*.

Example of two installed and configured terminal controllers (CT11 and CT13)

Interface	Attach-ment type*	Attachment device*	Connector name*	Major, minor device number
TC 1, connector 1	tc	tc0	unit0_1	79, 0-127
:	:	:	:	:
TC 1, connector 16	tc	tc0	unit0_16	79, 0-127
TC 1, connector 17	tc	tc0	unit1_1	79, 0-127
:	:	:	:	:
TC 1, connector 32	tc	tc0	unit1_16	79, 0-127
TC 1, connector 33	tc	tc0	unit2_1	79, 0-127
:	:	:	:	:
TC 1, connector 48	tc	tc0	unit2_16	79, 0-127
TC 1, connector 49	tc	tc0	unit3_1	79, 0-127
:	:	:	:	:
TC 1, connector 64	tc	tc0	unit3_16	79, 0-127
TC 2, connector 1	tc	tc1	unit0_1	79, 0-127
:	:	:	:	:
TC 2, connector 16	tc	tc1	unit0_16	79, 0-127
TC 2, connector 17	tc	tc1	unit1_1	79, 0-127
:	:	:	:	:
TC 2, connector 32	tc	tc1	unit1_16	79, 0-127
TC 2, connector 33	tc	tc1	unit2_1	79, 0-127
:	:	:	:	:
TC 2, connector 48	tc	tc1	unit2_16	79, 0-127
TC 2, connector 49	tc	tc1	unit3_1	79, 0-127
:	:	:	:	:
TC 2, connector 64	tc	tc1	unit3_16	79, 0-127

Configuring the Bitronics interface

The Bitronics interface for the system printer can be addressed via the */dev/cpt* special file.

Default settings for serial console terminals

To operate the system, you require either a graphical monitor or a serial terminal as a console. The alphanumeric terminal is connected to the V.24 port of the first serial interface.

This interface was configured during installation of the operating system on your system. You must adjust the console settings to this configuration. Please refer to the operating manual for your terminal for assistance. In addition to the default settings given here, the terminals also offer non-relevant settings in the parameter menus.

At least check the line speed set on your console terminal. A baud rate of 19200 must be set for console terminals. For information on how to set the line speed, refer to the operating manual for your terminal.

Setting the console parameters for terminal type 9766

The console terminal must be set to the following values (host interface):

Baud rate:	19200
Parity:	None
Data bits:	8
Stop bits:	1

During the installation phase the 9766 should be operated in firmware mode (vt220 emulation). In this mode only the international keyboard is supported.

To operate the 9766 in multiscreen mode, you must install the following packages from the operating system CD using *SYSADM->Software_products*:

– SIDPTG2
– CONS (from a secondary terminal, not from the console)

Setting the console parameters for terminal type TC20-V100

Set the same parameters here as for terminal type 9766.

Setting the console parameters for terminal type TC10-V100

Set the same parameters here as for terminal type 9766.

Connecting additional terminals

If you wish to connect more terminals in addition to the console, you must configure the appropriate interfaces using the *Config* user interface. The parameters listed above must be set for all V.24 interfaces to which terminals are to be attached. The terminals must then be adjusted to the interface configuration.

If you wish to change the default parameter settings, you have to adjust the relevant interface in the operating system to the new values.

The maximum permitted value for the line speed of the V.24 ports (direct and distributor box) is 38,400 baud. The maximum permitted value for your terminal can be found in the operating manual for the respective device.

You can use the *Config* user interface to configure the interfaces (see “System Administration and Hardware Configuration Using the SYSADM User Interface” and “Hardware Configuration with Config under SINIX/windows”). Practical examples are provided.

The following table lists a number of connection options for various types of monitors:

Terminal	Mother-board	TC		TC IHSS	TACLAN		CT21	CT40/CT53			ITC
	V.24	V.24	V.11	MP	di-rect	Mo-dem	TAK	V.24 CT41	V.11 CT42	IHSS CT43	IHSS
97801-524	X	X	–	–	X	X	X	X	–	–	–
97801-502	–	–	X	–	X	–	X	–	X	–	–
97801-VT02	X	X	–	–	X	X	X	X	–	–	–
97801-VT01	–	–	X	–	X	–	X	–	X	–	–
9766-M971	–	–	–	X	–	–	–	–	–	X	X
9766-M973	X	X	–	–	X	X	X	X	–	–	–
BA80 (V.24)	X	X	–	–	X	X	–	X	–	–	–
BA80 (IHSS)	–	–	–	X	–	–	–	–	–	X	X
TC20-V100	X	X	X	–	X	X	X	X	X	–	–
TC20-V801	–	–	X	–	X	–	X	–	X	–	–
TC10-V240	X	X	–	–	X	X	X	X	–	–	–
TC10-V110	–	–	X	–	X	–	X	–	X	–	–
TM10	X	X	(X)	–	X	X	X	X	(X)	(X)	(X)
TXM10	X	X	(X)	–	X	X	X	X	(X)	(X)	(X)

X Connection possible
– Connection not possible
(X) Connection only possible with an optional interface card in the terminal

You will find more information on connecting the terminals in:
– the chapter “Installing the system unit” on page OM-9
– the operating manual for your terminal

Default settings for printers with a serial connection

The printers suitable for your system unit can be connected as specified in the following table.

To ensure error-free data transfer between the interface of the system unit and the printer, the printer must be adapted to the configuration of the interface.

Set the following parameters on the printer:

For information on setting these values on the printer, refer to the relevant operating manual.

Baud rate:	9600
Parity:	None
Data bits:	8
Stop bits:	1

The maximum permitted value for the line speed of V.24 interfaces is 38,400 baud. The maximum permitted value for your printer can be found in the operating manual for the respective device.

If you wish to change the default parameter settings, you have to adjust the relevant interface in the operating system to the new values.

You can use the *Config* user interface to configure the interfaces (see the manual “System Administration and Hardware Configuration Using the SYSADM User Interface”). For more information on printer operation, administration and settings, refer to the Xprint V5.0 manuals.

The following table shows the various interfaces via which the printers can be operated:

Prirnter	Mother-board		TC		9766/ BA80	TACLAN		LAN (Ethn.)	TC4P	
	V.24	Centronics	V.24	V.11	MP	V.24	V.11		V.24	V.11
4009-ND10/60	X	X	X	–	X	X	–	–	X	–
4011-ND10/60	X	X	X	X	X	X	X	–	X	–
4011-N920/970	X	X	X	–	X	X	–	–	X	–
9014-11	–	–	–	X	X	–	X	–	–	X
9014-12	–	X	–	–	X	–	–	–	–	–
4812-I11	X	X	X	–	X	X	–	–	X	–
4813-I10/60	X	X	X	X	X	X	X	–	–	–
4819-P10	X	X	X	X	X	X	X	–	X	X
4820-P10	X	X	X	X	X	X	X	–	X	X
4821-P15	X	X	X	X	X	X	X	X	–	–
4824-P20/25	X	X	X	X	X	X	X	X	–	–

Setting the defaults

Apart from setting the parameters, you must ensure that the defaults specified in the respective operating manual are set on the printer (DIP (Dual In-line Package) switches, control panel).

Terminal settings for CMX administration

If you wish to administer CMX (Communication Management under UNIX®), the relevant terminal must be set as follows:

Terminal type	**Operating mode**	**Keyboard**	**$TERM shell variable**
97801-524 97801-524	97801 VT220	Reliant UNIX Reliant UNIX	*97801* *vt220* oder *ansi*
BA 80/9766 BA 80/9766	VT220* VT220*	ct08/TA31 ct06/TA28	*ba80-08* *ba80-06*
97801-VT02	VT320	VT	*vt02*
TC20	97801 VT320 ANSI	97801 VT/MF2 MF2	*97801* *vt320* *ansi-tc20*

The table above contains recommended values for setting the terminals.

Drive names

This section lists the drive-specific device names (special files) with which the drives can be addressed. If you wish to execute a write or read command for a data medium, you must specify the device name of the drive containing the data medium. Access to the drives can be defined by means of options. These options and their meanings are explained, as is the way to determine the device names.

Device name (autoconf output)	**Type**	**Special file name**
fd01	Floppy disk drive	*/dev/at/flp/rf[0t|x3ht|x3dt]*
HP 88780	$^1/_2$ inch MT, 160 Mbyte	*/dev/ios0/rstapeXXY[h][n][o]*
MC23 (MC41)	4 mm MTC (DAT, 4 Gbytes)	*/dev/ios0/rstapeXXY[h][n][o][c]*
MC45	4 mm MTC jukebox (DAT, 6 x 12 Gbytes)	*/dev/ios0/rstapeXXY[h][n][o][c]*
MC44	4 mm MTC (DAT, 12.0 Gbytes)	*/dev/ios0/rstapeXXY[h][n][o]*
MC15	8 mm MTC (7 Gbytes and data compression)	*/dev/ios0/rstapeXXY[c][h][n][o]*
MC75	8 mm MTC (20 Gbytes and data compression)	*/dev/ios0/rstapeXXY[c][h][n][o]*
MC80	DLT drive	*/dev/ios0/rstapeXXY[c][h][n][o]*
MC12 (MK21)	1/4 inch MTC 525 Mbytes	*/dev/ios0/rstapeXXY[h][n][o]*
MC16	1/4 inch MTC 4 Gbyte	*/dev/ios0/rstapeXXY[h][n][o]*
OS29 (CD-ROM)	CD-ROM (650 Mbytes)	*/dev/ios0/sdiskXXYs0*

Options (in square brackets) for special file names

c Data compression
h High density
n No rewind
o No rewind, leave in block

Determining device names

With the UNIX command *autoconf -l* or via the program *SYSADM-> Configuration Hardware* (alphanumeric console) or *XConfig* (graphical monitor) you can see which devices are installed:

► Enter the following command:

```
$ /sbin/autoconf -l | pg
```

The names for the peripheral devices are output as they are given in the table on the previous page. In the *autoconf* output, these names are preceded by a part of the symbolic device name, e.g. *ios0/stape006 MC12*.

If you look under *MC12* in the table, you will see that this is the name for the quarter-inch cartridge tape drive. You must also look for the bus address and the drive address in the *autoconf* output (in the example above: bus address = 00, Drive address = 6). You must replace the character string *XXY* with this numeric string (here: 006) in the special file names when issuing write/read commands.

Example:

You want to save a file named *file* in *tar* format to your $^1/_4$" cartridge tape unit:

```
$ tar cvf /dev/ios0/rstape006 file
```

Addresses for SCSI devices

All devices attached to the SCSI SE port or a SCSI controller (hard disks and other drives) must have a unique address, known as the SCSI ID. The IDs of preinstalled drives are preset when the system is shipped. When attaching external drives, make sure you do not allocate an ID which has already been assigned.

Each device that is given an address/ID must be allocated a device name in Reliant UNIX. This name must be unique. On device name allocation refer to the manual “Reliant UNIX Installation and Operation – RM200, RM300, RM400”.

Addresses for SCSI devices connected to onboard controllers

You can, for example, use *XConfig* or the *autoconf* command to show which addresses the SCSI controllers occupy.

► Enter the following command:

```
$ /sbin/autoconf -l | pg
```

In the *autoconf* display you will find part of the symbolic device name, for example: *ios0/stape00***6** *MC12*.

The digit in bold type is the SCSI address (ID).

The CD-ROM is always assigned ID 5. The operating system can also be installed from this drive (boot procedure).

Addresses for SCSI devices in peripherals cabinets

Peripherals cabinets are attached to SCSI controllers installed in the optional slots in the system unit. Both EISA and PCI controllers can be used. The addresses of hard disks in peripherals cabinets can be listed with the *autoconf* command.

Configuration of peripherals cabinets is handled by the Siemens service personnel.

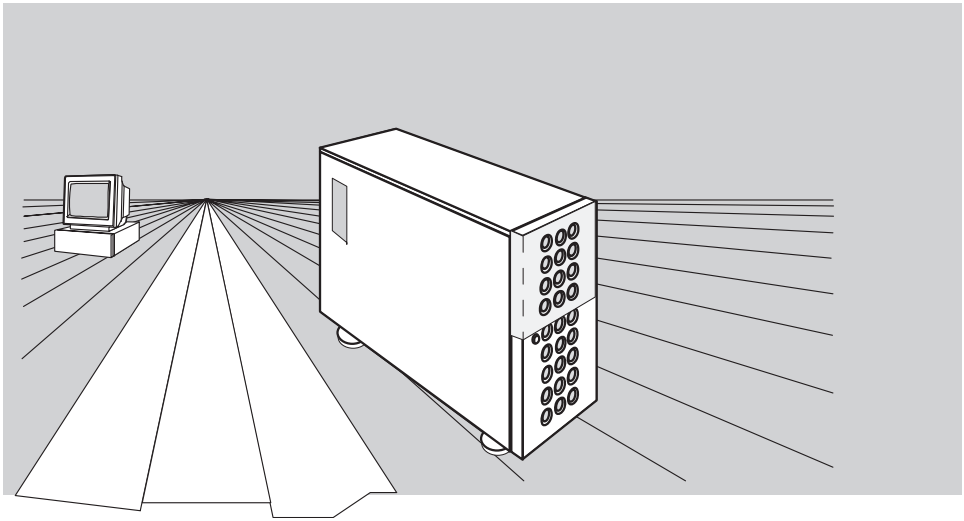
Addresses for the floppy disk drive

The floppy disk drive in the system unit has its own controller.

Major/minor dev. number	Capacity	Device names in Reliant UNIX[1]
23/116	1,44 Mbyte	*/dev/at/flp/[r]fx3h*

[1]Other additional device names have been set up for some device entries.

Opening the system unit



Technical specifications of the system unit

Internal design of the system unit

Opening/closing the system unit

Removing/installing the internal front panel

Removing the side covers

Technical specifications of the RM300 E system unit

Electrical specifications

Rated voltage	100 V or 240 V (selectable)
Rated voltage tolerance	+6/-10%
Rated frequency	50Hz/60Hz
Rated current (total)	max. 2.6 A at 240 V max. 5.5 A at 100 V
Power consumption:	
Effective power (=heat emmission)	max. 600 W

Standards

Product safety and ergonomics	IEC 950, EN 60950, UL 1950, CSA 950, ZH1/618
Electromagnetic compatibility	
Interference emission	EN 55022, class B
Interference immunity	EN 50082-2
CE certificate	Low voltage declaration LVD 73/23/EEC EMC Regulation 89/339/EEC
Certificatation	GS; UL(USA); $_{c}$UL(CND); CB-Certifikate

Noise level (ISO 9296)

Sound power level (L_{WAd})	6.5 dB
Operating sound level pressure (L_{pAm})	45 dB

Environmental conditions (according to DIN IEC 721)

Operating climate	
Temperature	5° C to 40° C
Relative humidity	5% to 85%
Transport/storage climate	
Temperature	-25° C to 60° C
Relative humidity	15% to 98%

Mechanical environmental conditions (DIN EN 60721-3)

Operation	Class 3M2
Transport	Class 2M1

Dimensions

	in mm (H x W x D)
System cabinet (tower)	481 x 220 x 700
System cabinet with floor stand (Tower)	481 x 278 x 700
System cabinet (19“ rack)	266 x 483 x 754

Ventilation clearances

Clearances for adequate ventilation	
front	200 mm
back	400 mm
side	200 mm

Weight

System cabinet (tower)	max. 40 kg
System cabinet (19“ rack)	max. 45 kg

Internal design of the system unit

The RM300 E system unit accommodates a number of components and modules which are arranged at different levels inside the system units.

To give you a better overview of the internal design of the system unit, you will find on the following pages a list of the components and modules contained in the system unit and their mounting position in the unit.

The view inside the system unit shown in figure 33 is only possible if you have:

- set up the system unit such that it is accessible from all sides,
- unlocked the door with the key,
- loosened the fastening screw for the left side cover and removed the side cover (see page TD-100).

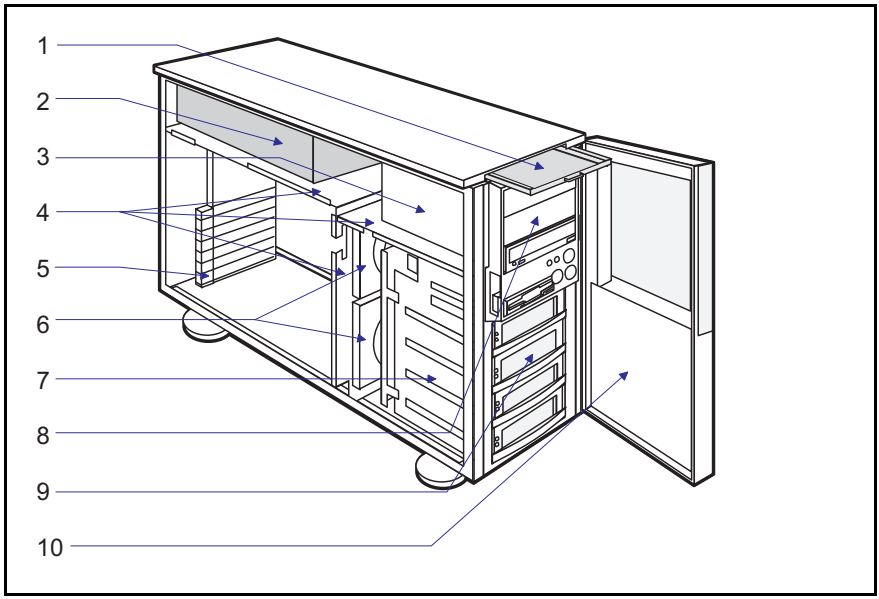


Figure 33: The internal components of the system unit

Modules of the system unit

The components of the system unit include:

1 the integrated drawer for holding some of the system documentation or a CD-ROM,

2 the system unit's power supply unit, which provides the internal system unit components with power,

3 the drive holder for the front drives, which accommodate the optional removable media of the system unit,

4 the internal shield plates,

5 the slot covers on the back, which will later be replaced by the installed modules and components,

6 the system unit fans, which cool the internal hot replacement drives, the disk drive and the system board/CPU,

7 the drive holder for the front drives, which holds the system unit's optional hot replacement drives and the disk drive,

8 the slot covers of the optional removable media drives (e.g. CD-ROM drive, MTC drive etc.),

9 the slot covers of the system unit's optional hot replacement drives,

10 the door of the system unit.

Opening/closing the system unit

Before you open the system unit, the system must be shut down completely.

The power cords must be unplugged.

It is essential that you observe the security instructions in the section “Important notes” when handling systems and modules.

In addition, a security switch (one on each side) switches off the system immediately when opened!

Before exchanging or installing modules you should observe the following:

- When setting up the system unit make sure that the opened unit is accessible from all sides.
- Check whether any other precautions are necessary for resuming operation later, e.g. backing up the configuration files.
- Switch off the system so that both the system unit and the terminal which it supplies with power are disconnected.
- After unlocking the system unit remove the key, as it is not required for the following procedure and could cause injury.
- If the cables plugged into the system unit are in the way, loosen the screws on the plugs and remove the cables.

Before removing the cables, make sure that they are all clearly marked; if not, mark them. This may save a lot of time on reinstallation.

Opening the system unit door

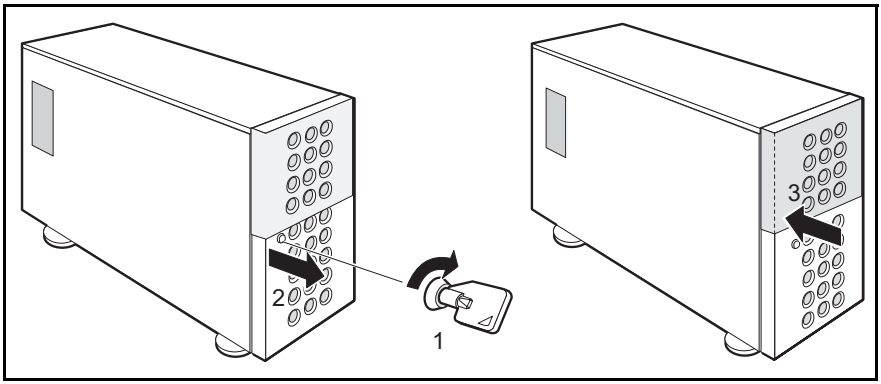


Figure 34: Opening the door of the system unit

Unlock the door

► Unlock the door to the system unit which hides the internal drives by turning the key marked (1) in the direction indicated by the arrow.

Open the system unit door

► Pull the door in the direction marked (2).

Locking the door of the system unit

► Close the system unit door in the direction marked (3). To lock the door you must turn the key to the left.

When closing the sliding drive door, note that the keys only fit properly behind this door if they are folded. Also, there should only be one key in the lock.

The best solution is not to leave the key in the lock if the drive door is to be closed.

Removing the door

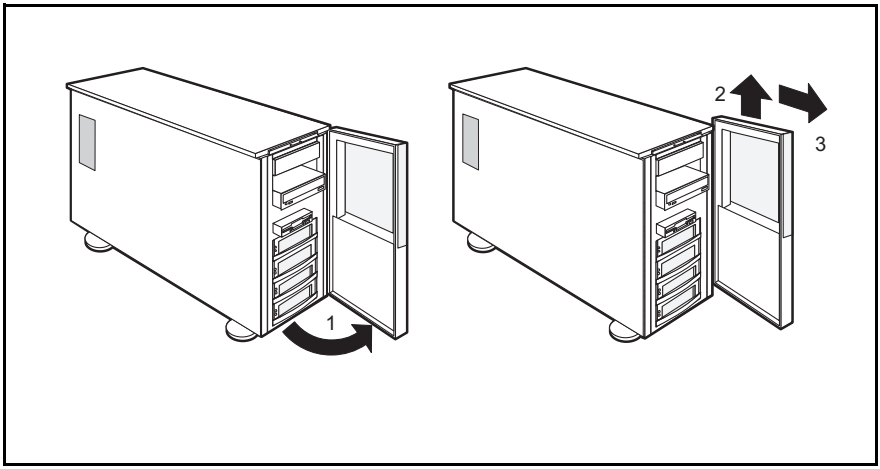


Figure 35: Removing the door

Open the door

► Open the door of the system unit in the direction marked (1).

Take off the door

► Lift the door of the system unit in the direction marked (2).

► Take the door off the door holders in the direction marked (3).

Mounting the system unit door

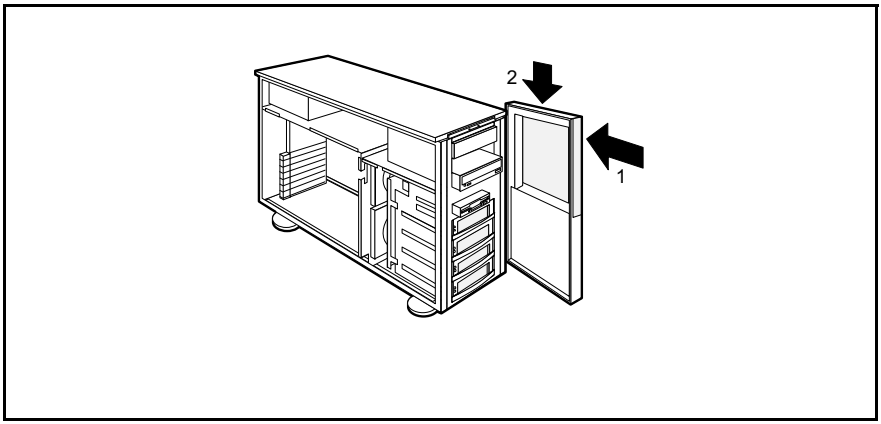


Figure 36: Mounting the door

- ► Insert the system unit door in the holders in the direction marked (1).
- ► Press the door in the direction marked (2).

Removing/installing the internal front panel

To install or remove the optional drives for removable media, you must remove the front panel.

When installing or removing the panel, make sure you do not tilt or damage the buttons and the board of the internal front panel.

Removing the front panel

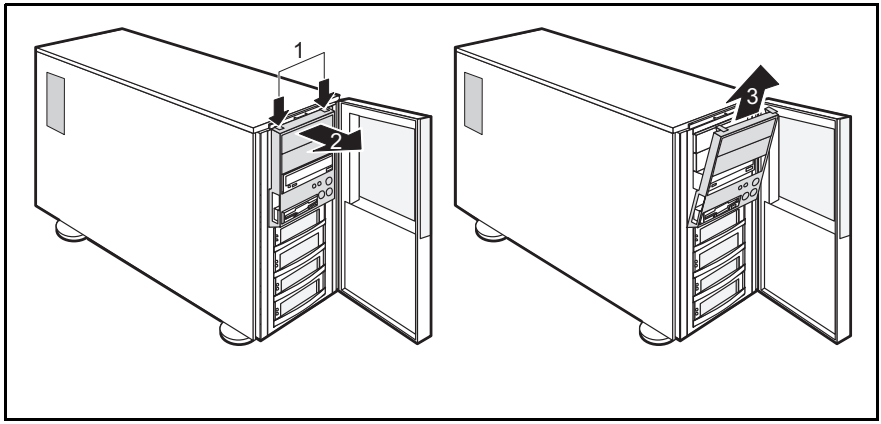


Figure 37: Removing the front panel

- ► Push the two snap-in elements of the panel in the direction marked (1).
- ► Snap the panel off in the direction marked (2).
- ► Lift the panel off the bottom holders in the direction marked (3).

Mounting the front panel

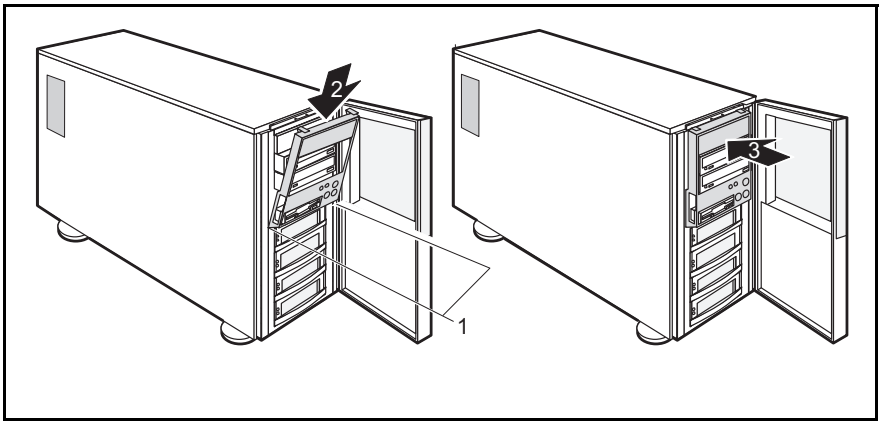


Figure 38: Mounting the front panel

- ► Place the panel on the holders marked (1) at the front of the system unit.
- ► Press the panel into the holders in the direction marked (2).
- ► Press the panel against the front of the system unit in the direction marked (3). The snap-on elements of the panel at the front of the system unit must click into place.

Removing the side covers

The RM300 E system unit has two separate side covers, one on the right and one on the left. Behind these side covers you can access the components and modules of the system. The left side cover hides the majority of the components and modules while the right side cover gives access to the drives.

- The left side cover

  Behind this side cover you can access the power supply unit, the front fans and the modules for the various system ports. Also, the left side of the front drive holder is accessible from here.

- The right side cover

  Behind this side cover you can access the right side of the top drives for removable media.

Before opening the system unit, the power cord must be unplugged.

It is essential that you observe the security instructions in the section “Important notes” in the manual “RM300 E / RM400 E - General Information“ when handling systems and modules.

Before removing or mounting the side covers you should observe the following:

► When setting up the system unit make sure that the opened unit is accessible from all sides.

► The door of the system unit must already be removed.

► The Reliant UNIX operating system must be shut down.

Removing the left side cover

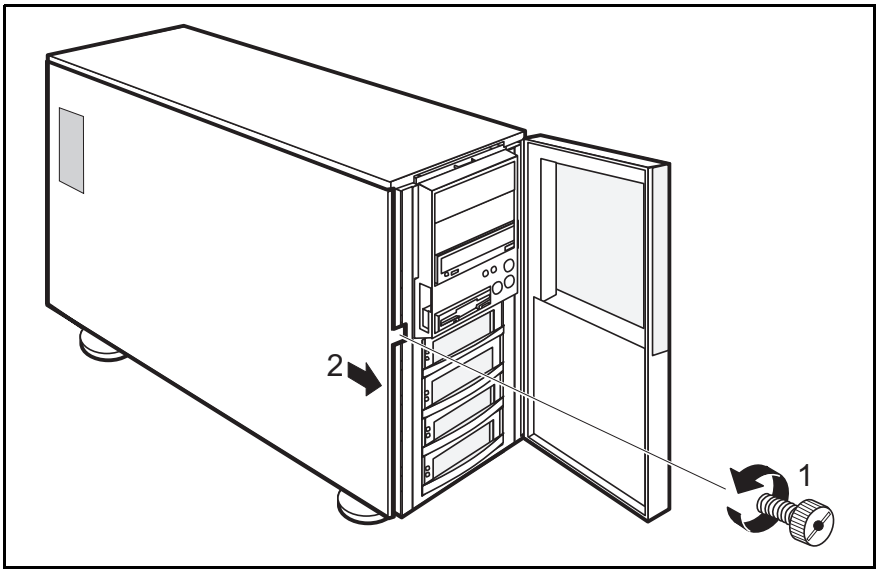


Figure 39: Unscrewing the left cover

Loosening the fastening screw

On the front of the system unit you will find a fastening screw (knurled screw/Torx) which connects the left side cover to the internal assembly frame of the system unit.

► Loosen the screw marked (1) in figure 39.

Loosen the left side cover

► Slide the left side cover of the system unit in the direction marked (2).
At this stage, an internal security switch disconnects the system from the power supply.

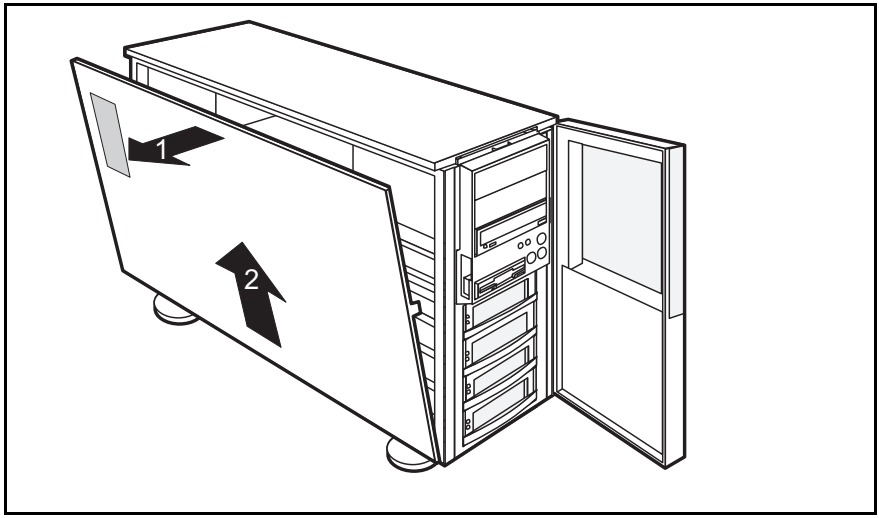


Figure 40: Taking off the left side cover

Take off the left side cover

- ► Pull the left side cover of the system unit in the direction marked (1).
- ► Lift the left side cover off the guide rail of the system unit in the direction marked (2).

Mounting the left side cover

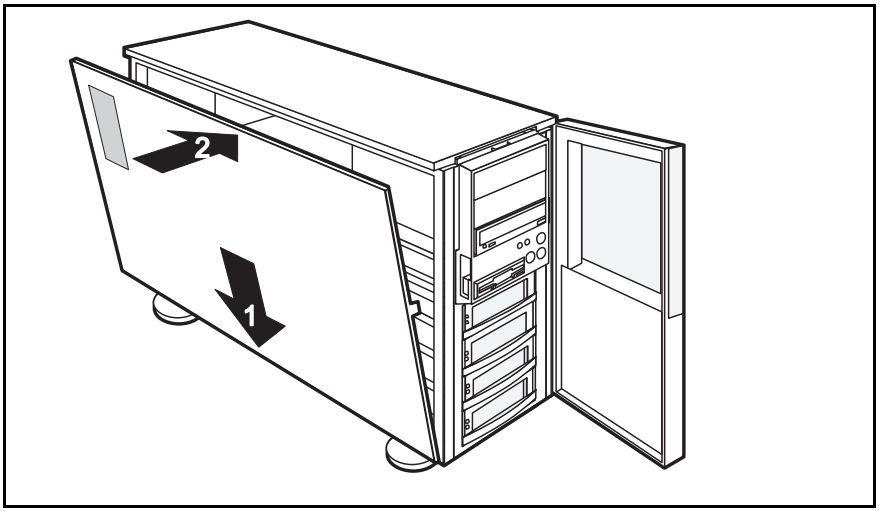


Figure 41: Mounting the left side cover

Mount the left side cover

- ► Insert the left side cover in the guide rail of the system unit in the direction marked (1).
- ► Press the left side cover against the system unit in the direction marked (2).

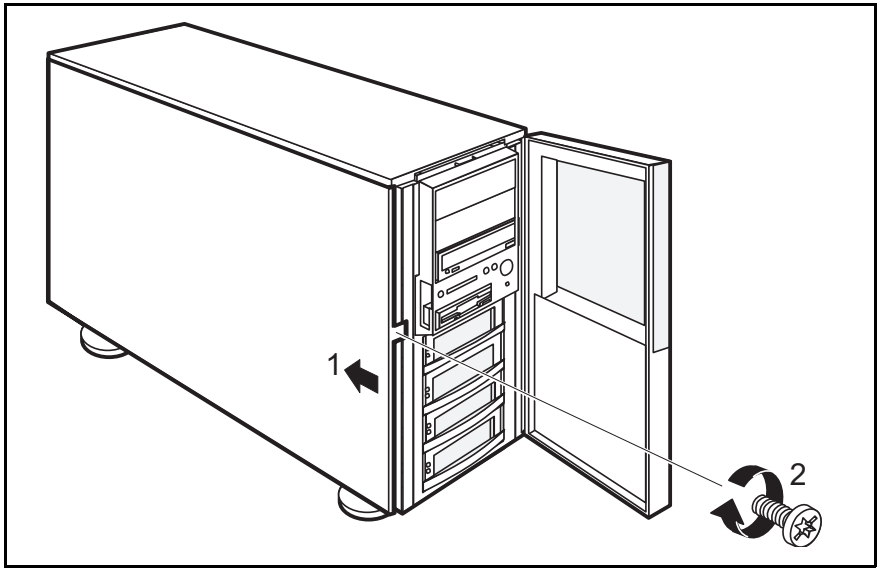


Figure 42: Attaching the left side cover

Attach the left side cover

► Slide the left side cover of the system unit in the direction marked (1) as far as it will go.

Fastening the screws

At the front of the system unit you will find a fastening screw which connects the left side cover to the internal assembly frame of the system unit.

► Tightly fasten the screw marked (2) in figure 42.

Removing the right side cover

Use the same procedure to remove the right side cover if you want to install or remove a drive for removable media in the middle or top slot.

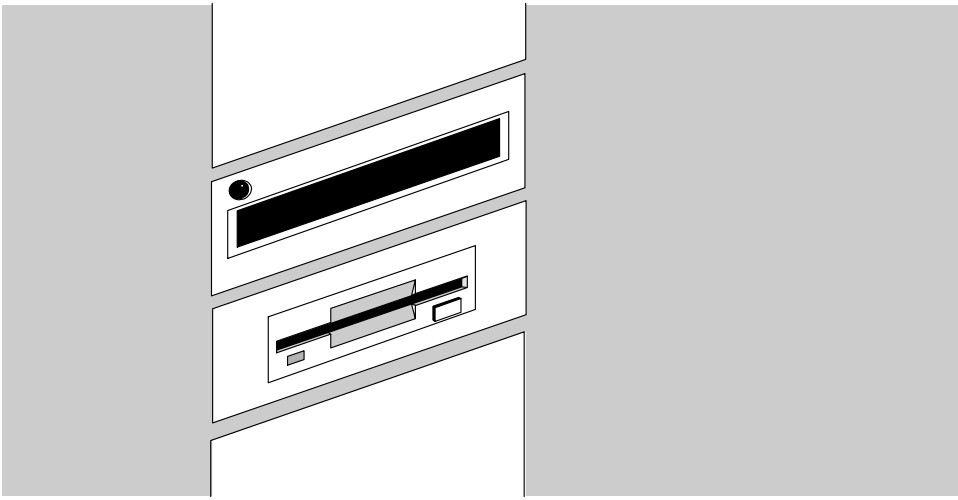
To do this, you must first remove the system unit door.

Mounting the right side cover

Use the same procedure to mount the right side cover if you have installed or removed a drive for removable media in the middle or top slot.

Afterwards you must replace the system unit door.

System unit drives



Installing and removing drives

Installing and removing hot-replacement drives

This chapter describes how to install and remove the drives in the RM300 E system unit.

Installing and removing drives

Before removing or installing drives you should observe the following:

- The interior of the system unit must be freely accessible. You must therefore remove the door and the outside cover.
- The power supply plugs and the data cables must be disconnected from the drives.
- As fastening screws are used on both sides, the system unit must be freely accessible both from the left and right side to access the screws.
- The drives (e.g. MTC or CD-ROM drive) are attached to the installed 5.25“-drive carrier.

Removing a drive

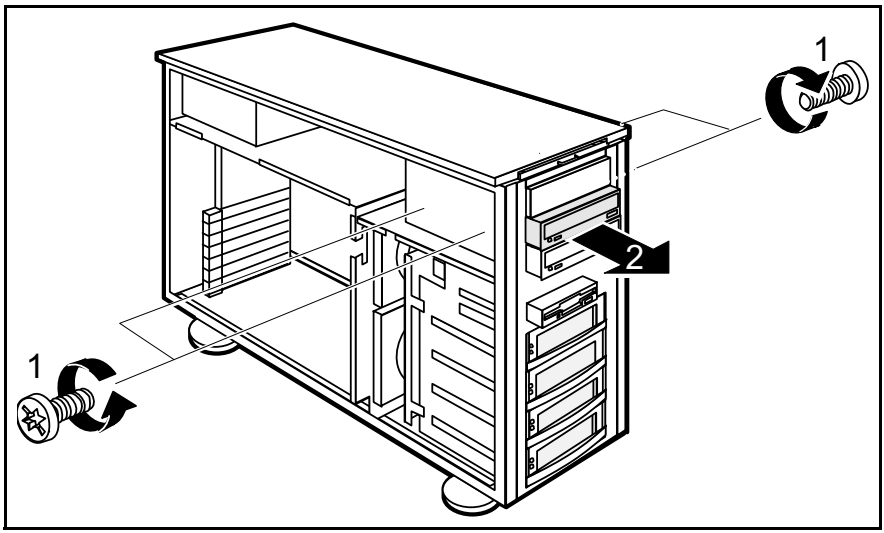


Figure 43: Removing drives

The drives are attached to the internal assembly frame of the system unit with four fastening screws. These screws are located on the sides of the drive carrier.

- ► Disconnect the power supply plugs and the data cables from the drives.
- ► Remove the fastening screws marked (1) which attach the drives to the drive carrier.
- ► Pull the drive out of the drive carrier in the system unit in the direction marked (2).

Inserting the front panel

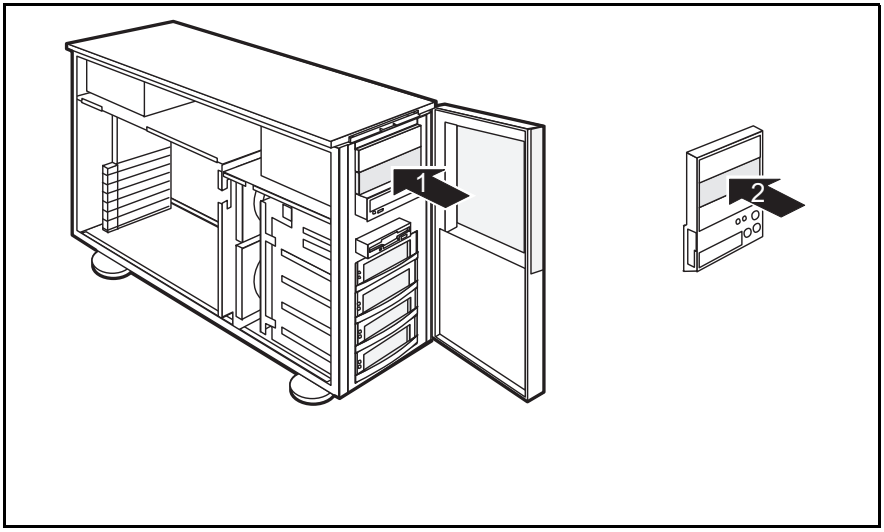


Figure 44: Inserting the front panel

- ► Insert an EMC insert into the free slot in the direction marked (1).
- ► Insert a plastic cover in the front controls panel in the direction marked (2).
- ► Install the controls panel in the front of the system unit as described in section “Mounting the front panel” on page TD-99.

Removing the slot cover

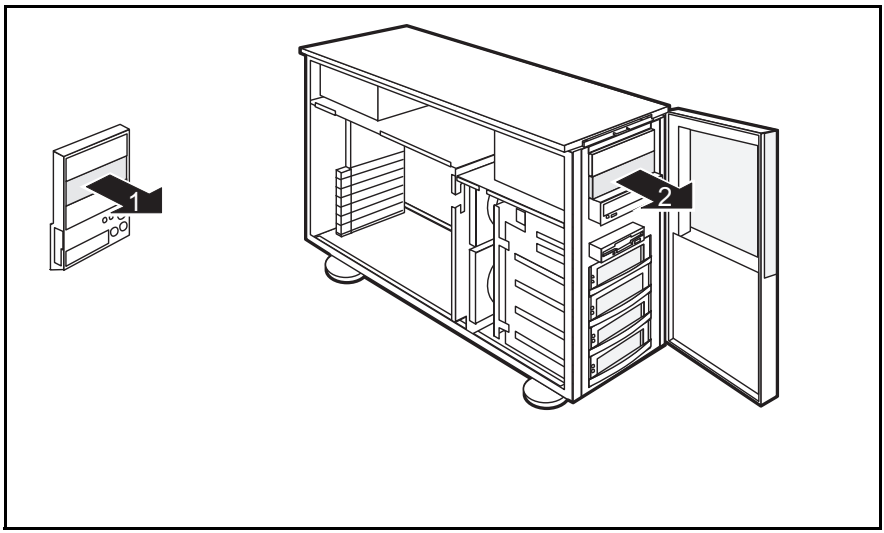


Figure 45: Removing the slot cover

- ► Pull the plastic cover out of the front panel in the direction marked (1).
- ► Remove the EMC insert from the slot in the direction marked (2).
- ► Install the controls panel in the front of the system unit as described in section “Mounting the front panel” on page TD-99.

Installing a drive

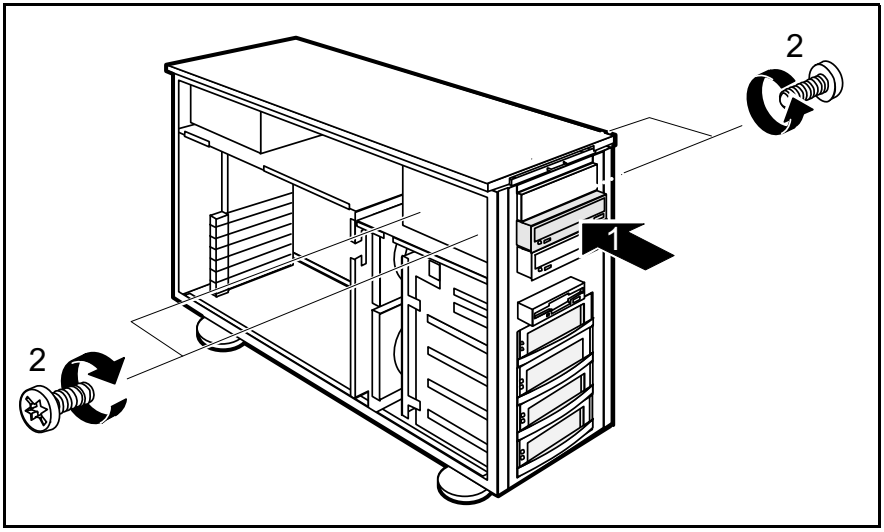


Figure 46: Installing a drive

The drives are attached to the internal assembly frame of the system unit with four fastening screws. These screws are located on the sides of the drive carrier.

- ► Push the drive into the drive carrier in the system unit in the direction marked (1).
- ► Attach the drive to the drive carrier with the fastening screws marked (2).
- ► Connect the power supply plugs and the data cables to the drives.

Installing and removing hot-replacement drives

Before installing and removing hot-replacement drives you must observe the following:

- The front panel of the system unit must be freely accessible. Thus the door of the system unit must be open.
- The “drive active” indicator must not be lit when removing a drive.
- If the system is running, the exchange of a hot-replacement drive must be indicated by the “drive error” indicator.

Removing a hot-replacement drive

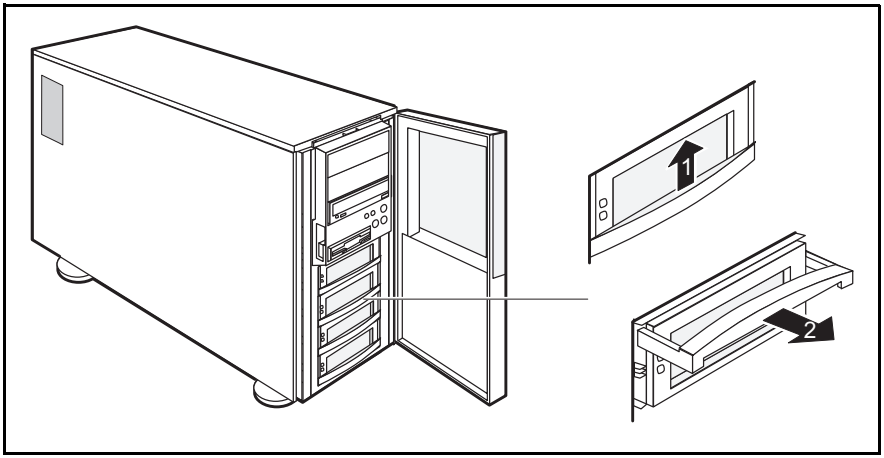


Figure 47: Removing a hot-replacement drive

The drives are installed in the internal assembly frame of the system unit by means of a slide-in unit.

- ► Lift the lock handle in the direction marked (1).
- ► Pull the slide-in hard disk unit out of the system unit slot in the direction marked (2).

Inserting the EMC dummy cover

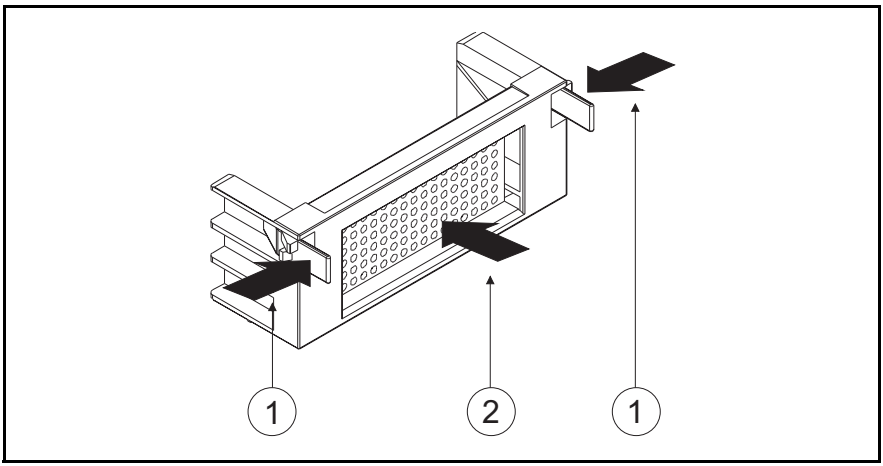


Figure 48: Inserting the EMC dummy cover

If you remove a hot-replacement hard disk slide-in unit, there will be an open slot at the front of the system unit. This open slot breaks EMC security and must always be closed.

Therefore an EMC dummy cover must be installed which restores EMC security.

- ► Press together the snap-on elements marked (1) in the direction indicated.
- ► Insert the EMC dummy cover into the free hot-replacement slot in the direction marked (2).

Removing the EMC dummy cover

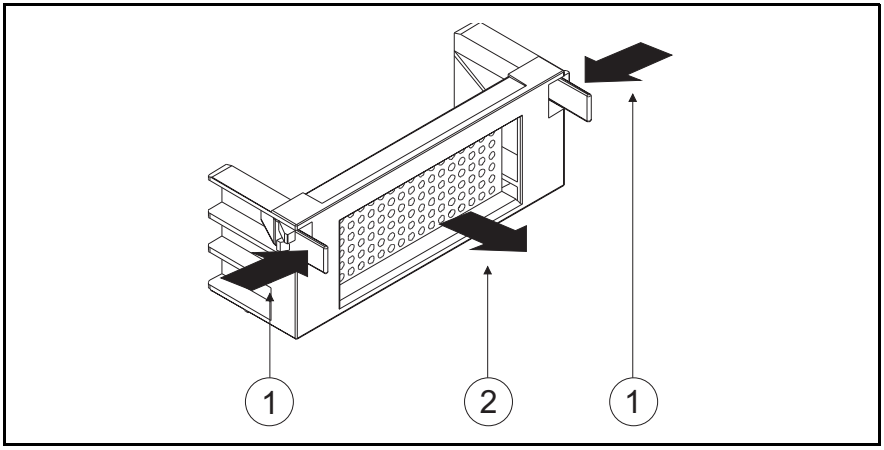


Figure 49: Removing the EMC dummy cover

To install a hot-replacement hard disk slide-in unit you must first remove the EMC dummy cover from the hot-replacement slot.

- ► Press together the snap-on elements marked (1) in the direction indicated.
- ► Pull the EMC dummy cover out of the free hot-replacement slot in the direction marked (2).

Installing a hot-replacement drive

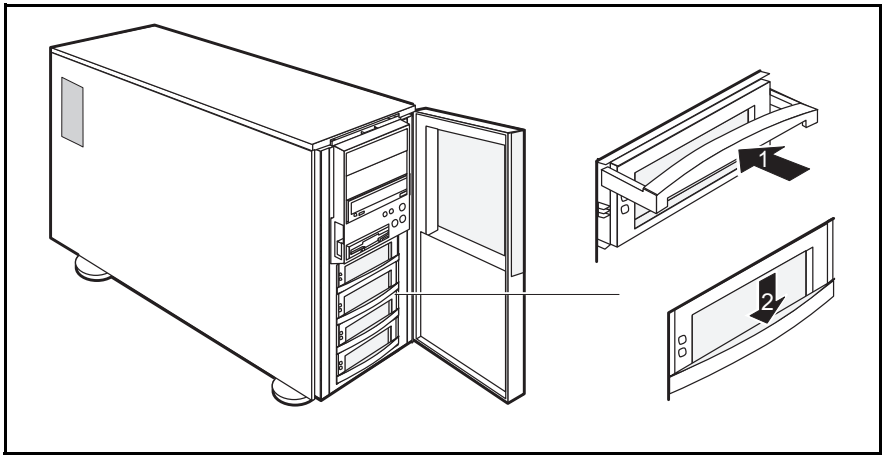
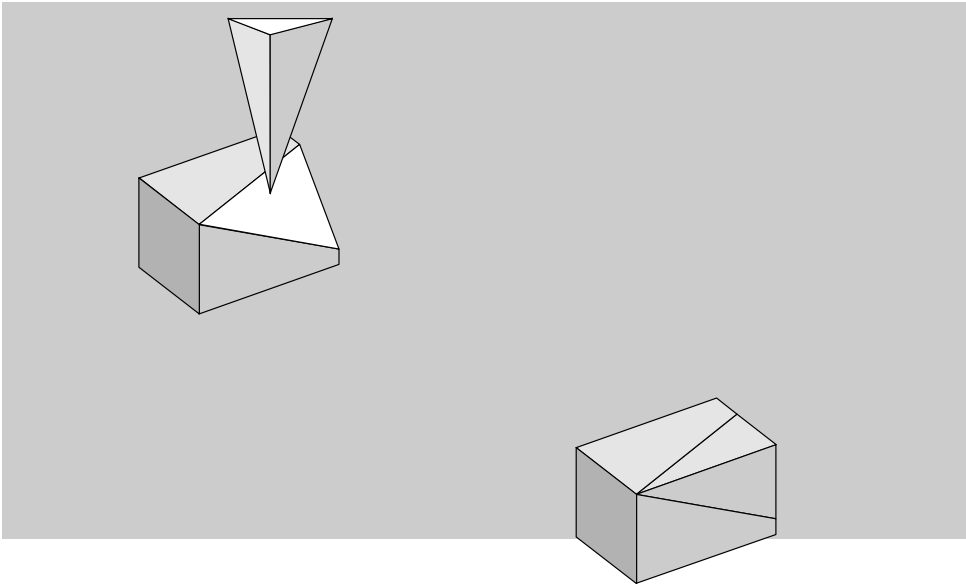


Figure 50: Installing a hot-replacement drive

The drives are installed in the internal assembly frame of the system unit by means of a slide-in unit.

- ► Push the hard-disk slide-in unit as far as possible into the slot in the direction marked (1).
- ► Push down the lock handle against the front panel of the system unit in the direction marked (2). This causes the drive to click into place and attaches it to the system unit.
- ● By pressing lightly on the lock handle of the drive you can check whether the drive is sitting properly in the drive.

System unit components



Installing and removing modules

Installing a second power supply unit

Connection sequence

Cabling of the power supply unit

Installing and removing the DIMM memory modules

Installing and removing modules

Before installing or removing modules (e.g. graphics and line controllers) you should observe the following:

- When setting up the system unit make sure that the opened unit is accessible from all sides.
- The interior of the system unit must be freely accessible. Proceed as follows:

  ► Remove the left side cover from the system unit.

The system is automatically shut down if the side covers are removed!

Do not throw away the slot panel. If you remove the controller again, you must reinsert the controller panel because of electromagnetic compatibility regulations.

When installing the module you should be careful with the EMC springs which are attached to the modules. Make sure that the springs are not bent and that they have adequate contact with the assembly frame of the system unit.

The CPU module and the Super Combo board are not attached with the usual plastic clips. For safety reasons they are fixed with screws.

Removing the slot cover

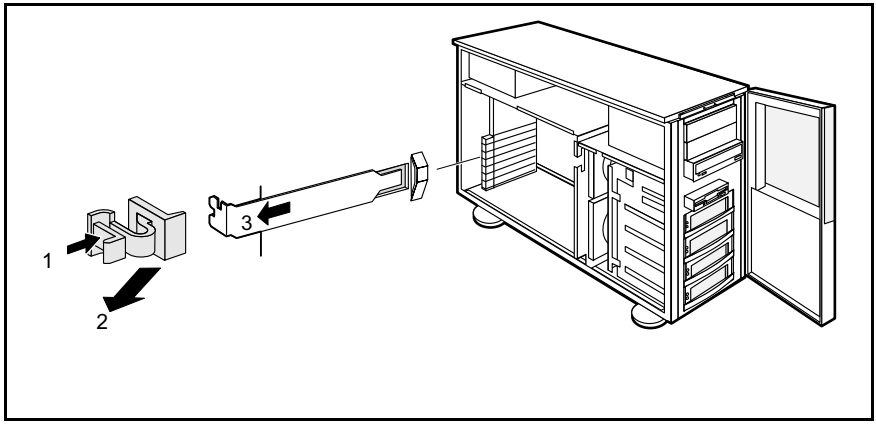


Figure 51: Removing the slot cover

- ► Press the fastening clip in the direction marked (1).
- ► Take off the fastening clip in the direction marked (2).
- ► Pull the slot cover out of the system unit slot in the direction marked (3).

Do not throw away the slot panel. If you remove the controller again, you must reinsert the controller panel because of cooling, fire protection and electromagnetic compatibility regulations.

Installing modules

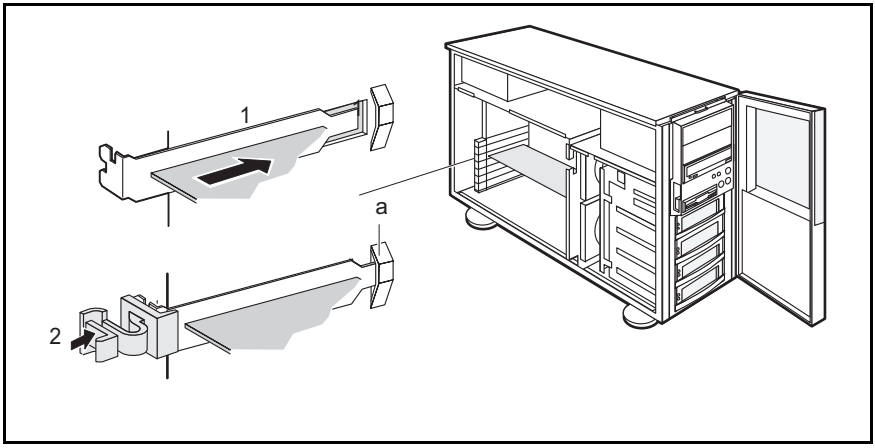


Figure 52: Installing modules

- ► Slide the module into the slot in the direction marked (1) and carefully press it into the corresponding slot on the system board.
  For long controllers a guide rail is provided on the right side.
- ► Insert the fastening clip for the module in the direction marked (2). Make sure the clip clicks into place in the housing.
- ► If necessary plug the corresponding cables into the module.
- ► Reinstall the left side cover of the system unit (see section “Mounting the left side cover” on page TD-103).

Removing modules

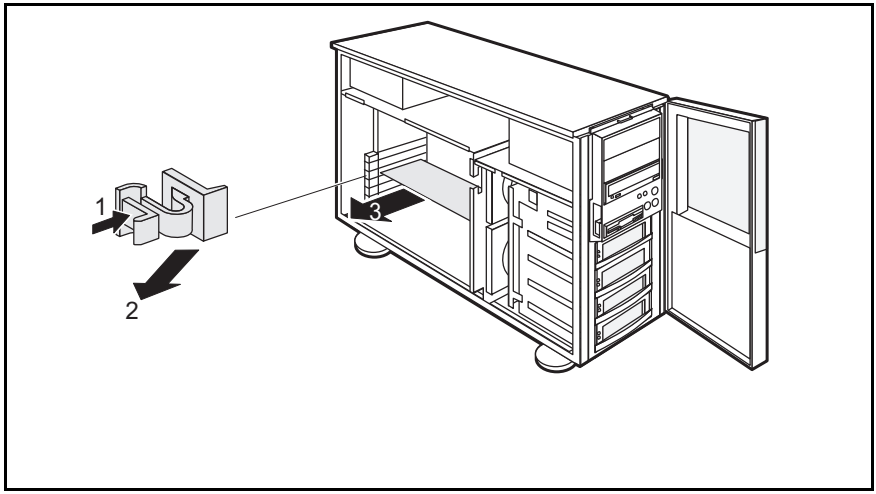


Figure 53: Removing modules

- ► Remove the left side cover of the system unit (see section “Removing the left side cover” on page TD-101).
- ► If necessary detach the cables from the module.
- ► Press on the fastening clip in the direction marked (1) and remove the clip in the direction marked (2).
- ► Pull the module out of the slot in the system unit in the direction marked (3).

Installing the slot cover

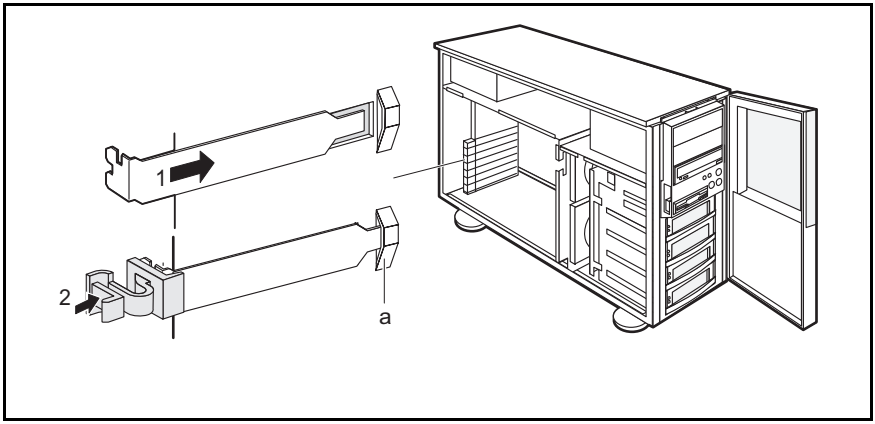


Figure 54: Installing the slot cover

- ► Insert the slot cover in the empty slot of the system unit in the direction marked (1).
- ► Insert the fastening clip for the slot cover in the direction marked (2). Make sure the clip clicks into place on the system unit.
- ► Reinstall the left side cover of the system unit (see section “Mounting the left side cover” on page TD-103).

Installing a second power supply unit

Before installing a second power supply unit you should observe the following:

- The system unit should be set up such that the opened unit is accessible from all sides.
- The interior of the system unit must be freely accessible. Proceed as follows:
  - ► Open the door of the system unit.
  - ► Remove the left side cover from the system unit.
- An internal safety switch automatically shuts down the system when the side cover is removed.

Removing the dummy slide-in unit

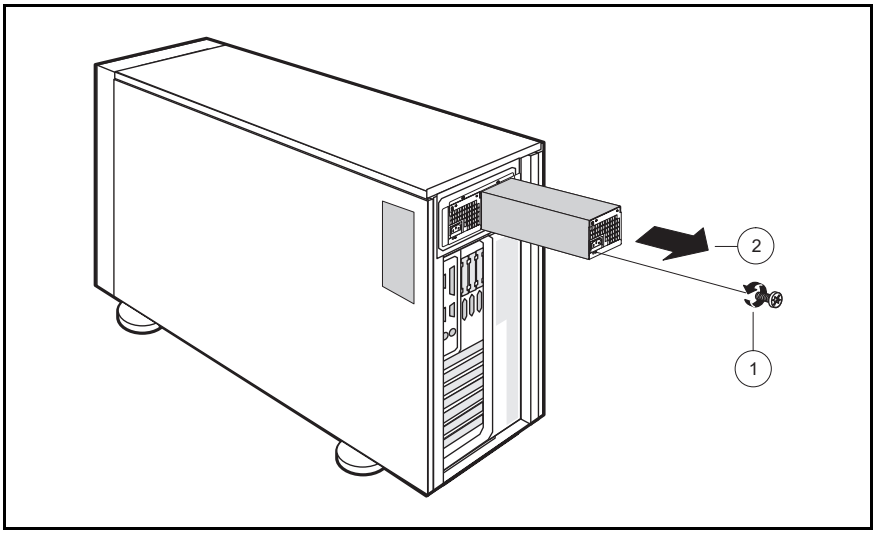


Figure 55: Removing the dummy slide-in unit

The slot for the optional second power supply unit contains a dummy unit. This dummy unit must be removed.

- ► Loosen the fastening screw (1) of the power supply unit lock.
- ► Push the lock bar of the dummy unit upwards.
- ► Pull the dummy unit out of the RM300 E system unit in the direction marked (2).

Inserting the second power supply unit

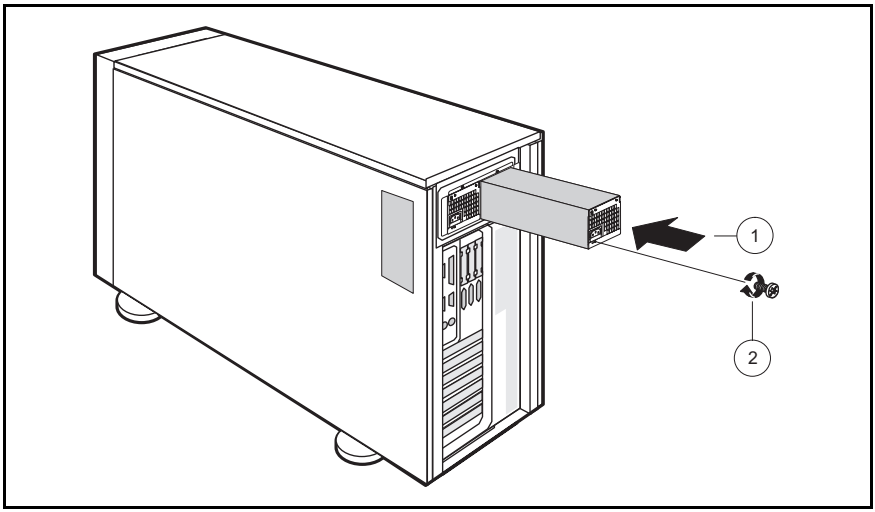


Figure 56: Fastening a second power supply unit

The power supply unit is attached to the internal assembly frame of the system unit with a fastening screw. This screw is located on the back of the power supply unit.

- ► Insert the second power supply unit in the corresponding slot in the direction marked (1).
- ► Lock the power supply unit with the bar underneath the power supply connector, such that it is firmly attached to the system unit.
- ► Fasten the bar with the fastening screw marked (2).
- ► Connect all plug-in connections for the power supply of the individual components and modules in the sytem unit as described in the section “Cabling of the power supply unit” on page TD-130.

Connection sequence

When connecting the power supply unit cables to the motherboard you should follow the sequence described below:

1. Establish the connection for the I^2C bus between the power supply unit and the motherboard (I^2C connector (1) and I^2C connector (7) in figure 57).

2. Establish the connection for the power supply between the power supply unit and the motherboard (ATX connector (5) and ATX connector (6) in figure 57).

3. Establish the connection for the removable media drives between the power supply unit and the power supply connectors of the drives (connector (2) in figure 57).

4. Establish the connection for the hot-replacement drives between the power supply unit and the power supply connectors of the hot-replacement drives (connector (2) in figure 57).

5. Establish the connection for the safety switches between the power supply unit and the right and left safety switches (connector (3) and connector (4) in figure 57).

Cabling of the power supply unit

The power supply unit must be connected with the motherboard and the other components (e.g. drives for removable media, hot-replacement drives etc.) with the cables supplied .

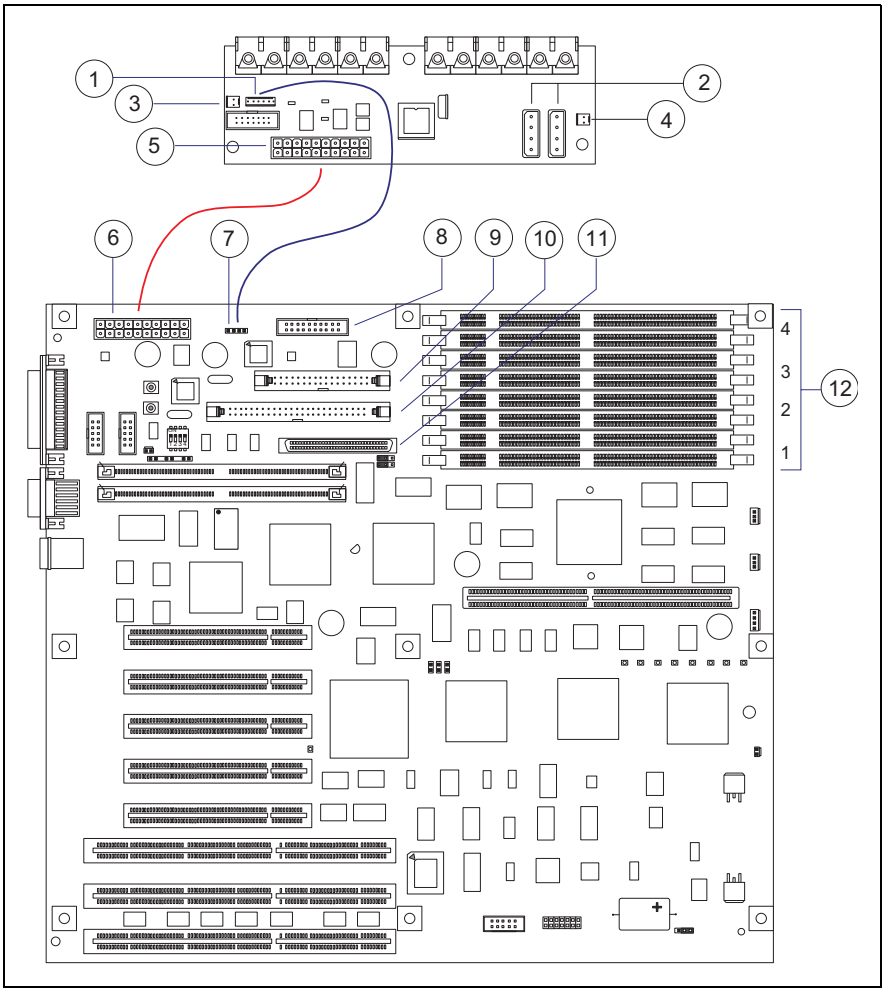


Figure 57: Motherboard and connection panel of the power supply unit

Power supply unit:

1	Connector for the I^2C bus
2	Connector for the power supply of the removable media drives and the hot-replacement drives
3	Connector for the safety switches of the right and left side cover
4	Connector for the safety switches of the right and left side cover
5	ATX connector for the power supply of the motherboard

Motherboard:

6	ATX connector for the power supply of the motherboard
7	Connector for the I^2C bus
8	Connector for connection with the control panel
9	Connector for connection with the floppy disk drive
10	Connector for connection with the 8-bit single-ended SCSI drives
11	Connector for connection with the 16-bit single-ended SCSI drives
12	The four memory banks for accommodating the main memory and its extensions

Installing and removing the DIMM memory modules

The RM300 E system has four memory banks with two slots each. These memory banks are located in the top half of the motherboard on the right.

The following requirements must be met for removing and installing memory modules:

- The system unit should be set up so that it is accessible from all sides.
- The interior of the system unit must be freely accessible. Proceed as follows:

  ► Remove the left side cover of the system unit.

Electrostatic charge can damage components. It is therefore important that you observe the relevant instructions in the first part of the manual (e.g. regarding the ESD label).

When installing the memory modules you must be aware that the memory banks can only accommodate modules of two different capacities. It is important that the memory modules with the higher capacity are always installed in the first memory banks.

The possible main memory configurations are shown in the following table.

Expanding main memory by adding memory modules	
Number of memory banks in the system	max. 4
Capacity per memory bank	64, 128, 256, 512
Main memory capacity of the system	64 MB to 2 GB

Table 3: Expanding main memory

The following table provides an overview of the possible types of RAM module, including the order numbers.

Product	Capacity	Number of DIMMs	Organi-zation	Ident. number (one DIMM)
RM300-SP22	32 MB	2	2 MB x 72	56865.06.4.30
RM300-SP23	64 MB	2	4 MB x 72	54013.06.5.30
RM300-SP24	128 MB	2	8 MB x 72	60958.00.7.15
RM300-SP25	256 MB	2	16 MB x 72	71927.00.5.15
RM300-SP26	512 MB	2	32 MB x 72	72500.00.5.28

Table 4: Types of RAM module

The location of the memory banks on the motherboard of the RM300 E is shown in figure 57 on page TD-130.

Installing the DIMM modules

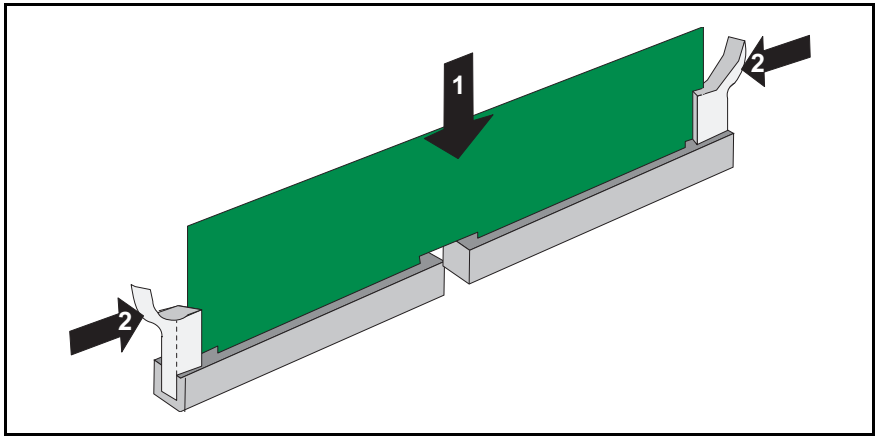


Figure 58: Exchanging memory modules

When installing memory modules, check the codes on the memory module and on the memory bank. The codes must match exactly, otherwise the memory module will not fit into the memory bank.

- ► Always install memory modules from bottom (bank 1) to top (bank 4).
- ► Insert the memory module vertically into the socket on the memory bank and press it into the slot in the direction marked (1).
- ► Press down the fastening buttons in the direction marked (2).
- ► Make sure the memory modules are fixed in the memory bank.
- ► Repeat these steps to install the other memory modules in the corresponding memory banks.

Electrostatic charge can damage components. It is therefore important that you observe the relevant instructions in the first part of the manual (e.g. regarding the ESD label).

Removing the DIMM modules

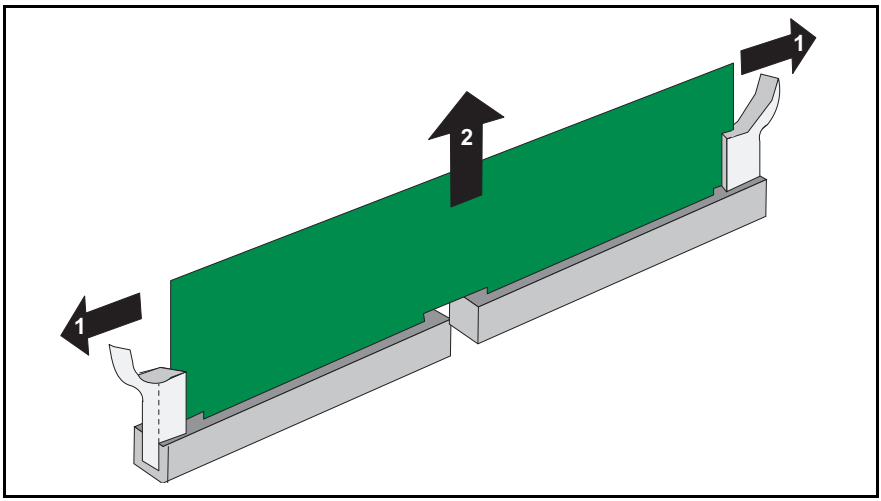


Figure 59: Removing memory modules

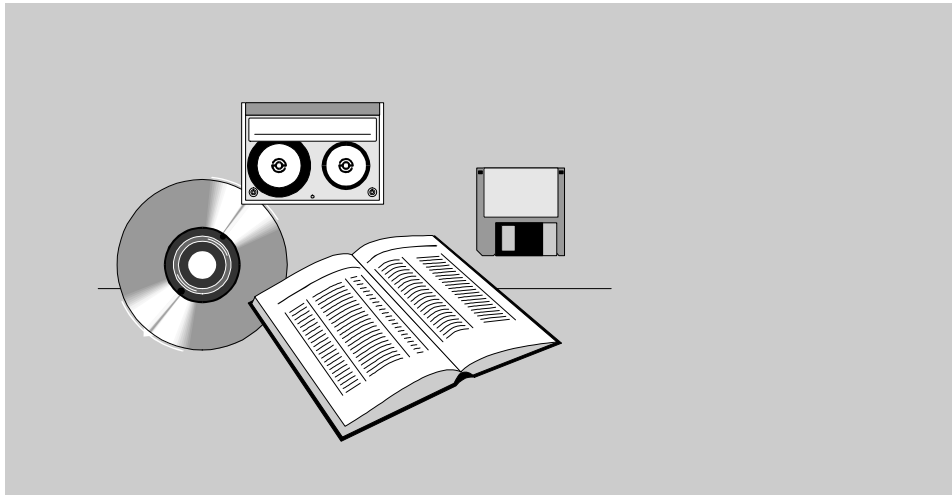
- Memory modules must always be removed per bank, i.e. two modules at a time, and in reverse order of their installation (bank 4, 3, 2, 1).

  ► Press the fastening buttons on the memory bank with your fingertips in the direction marked (1).

  ► Carefully pull the memory module out of the memory bank in the direction marked (2).

- Repeat the steps to remove the other memory modules of a memory bank.

Accessories



For information on ordering accessories, contact your local Siemens office. The tables on the following pages list the available items.

Floppy disks

	Order number
$3^1/_2$" disks formatted, max. 1.44 MB	106 0000 3139
$3^1/_2$" disks unformatted, max. 1.44 MB	106 0000 3138

Cleaning kits

	Order number
Cleaning cloth	106 0000 3330
Professional cleaning set for DP equipment with monitor and plastic cleaner, fleece cloths ..	106 0000 3259

Cables for peripherals

The cables are not part of the scope of supply for the various peripherals. The following lists show you some of the commonest types of cable. The code *xx* stands for the part of the order number which specifies the length (e.g. M5 = 5 m, C250 = 250 cm).

Monitor, printer and modem cables

Device type	Cable label	Product number
9766 (V.24) TC10-V24 (V.24) TC20-V100	T26139-Y2081-M*xx* T26139-Y2052-M*xx* T26139-Y2377-M*xx*	KB063-M5/-M10 KB064-M5/-M15 KB168-M5/-M15
Printer (V.24) Printer (V.24) Printer (V.24)	T26139-Y2052-M*xx* T26139-Y2094-M*xx* 95929.0*x*.7.16	KB064-M5/-M15 KB069-M5/-M15 KB005-M5/-M10/-M15
Printer (Bitronics)	T26139-Y1891-V2	KB065-M3
Modem Modem (Teleservice)	T26139-Y1517-M*xx* 6748.0*x*.2.16	KB024-M3/-M5/-M10/-M15 KB011-M5/-M10/-M15

Cables for connections to TC4 (P) and CT50 (with connector box CT52 and CT53) terminal controller with V.24, IHSS or V.11 port

Device type	Cable label	Product number
V.24 adapter cable	T26139-Y2107-V1	KB030-C120
TC10-V24 TC20 to adapter cable	T26139-Y2108-V*x* T26139-Y2106-M3	KB031-M15/-C750 KB032-M3
Printer (V.24) to adapter cable	T26139-Y2102-M*xx*	KB028-M5/-M15
9766 to adapter cable Adapter cable for V.11 V.11 extension cable V.11 devices to TC4P TC20-V100 TC4P to IHSS line BA80/9766 to IHSS	T26139-Y1309-M*xx* T26139-Y2221-C120 T26139-Y457-V*xx* T26139-Y2105-M*xx* T26139-Y2376-M*xx* 51410.07.0.16 T26139-Y2061-M*xx*	KB078-M7/-M15 KB077-C120 KB068-M15/-M20 /-M30/-M40 KB076-M3/-M10/-M30 KB167-M3/-M5/-M10 KB191-M5 KB008-M1/-M5/-C250

Connection to terminal controller

Device type	Cable label	Product number
V.24 adapter cable	T26139-Y2107-C120	KB030-C120
TC10-V24 TC20 to adapter cable	T26139-Y2108-V*x* T26139-Y2106-M3	KB031-M15/-C750 KB032-M3
Printer (V.24) to adapter cable	T26139-Y2102-M*xx*	KB028-M5/-M15
9766 to adapter cable	T26139-Y1309-M*xx*	KB078-M7/-M15
Adapter cable for V.11	T26139-Y2221-C120	KB077-C120
V.11 extension cable	T26139-Y457-V*xx*	KB068-M15/-M20/-M30/-M40
V.11 devices to TC4 (P)	T26139-Y2105-M*xx*	KB076-M3/-M10/-M30
TC20-V100	T26139-Y2376-M*xx*	KB167-M3/-M5/-M10

Connection to intelligent terminal controller with IHSS

Device type	Cable label	Product number
ITC to IHSS	T26139-Y2125-V1	KB006-M5
BA80/9766 to IHSS	T26139-Y2061-M*xx*	KB008-M1/-M5/-C250

Connection to IHSS multipoint controller

Device type	Cable label	Product number
SW8 to IHSS	90893.00.7.16	KB154-M5
BA80/9766 to IHSS	T26139-Y2061-M*xx*	KB008-M1/-M5/-C250
SW8R/M to modem	90883.00.4.15	KB156-M5

Connection to TACSI controller (E-SIM)

Device type	Cable label	Product number
E-SIM to AFP network	T26139-Y1333-V1	KB087-M10
97801-530 to AFP (RJ45)	T26139-Y1776-M*x*	KB119-M4/-M8
7801-530 to AFP (IHSS)	T26139-Y955-M*x*	KB145-M4/-M8
TC10-V24 to TAK (V.24) TC10-V110 to TAK (V.11)	T26139-Y970-M*xx* T26139-Y457-V*xx*	KB146-M10/-M20/-M30 KB068-M15/-M20/-M30/-M40
TC20-V100 to TAK (V.24) TC20 adapter cable (V.24) TC20-V100 to TAK (V.11) TC20 adapter cable (V.11)	T26139-Y2108-Vx T26139-Y2365-V1 T26139-Y2332-Mx T26139-Y2364-C120	KB031-M15/-C750 KB141-C120 KB099-M3/-M5 KB134-C120
PC to TAK (V.24)	93155.0x.8.16	KB003-M5/-M10
9766/PC to TAK (V.24)	T26139-Y2035-M*xx*	KB018-M5/-M10
Printer to TAK (V.24)	95930.0x.7.16	KB022-M5/-M10
Printer to TAK (V.11)	T26139-Y457-V*xx*	KB068-M15/-M20/-M30/-M40

Cables for connections to LAN controllers

Device type	Cable	Product number
Ethernet connecting cable for AUI	V45590-A112-A2/-A3/ -A4/-A5	KB026-M3/-M10/-M20/-M30
Ethernet connecting cable for 10BaseT	T26139-Y2425-M*xx*	KB192-M3/-M6/-M12/-M30/ -M50/-M100

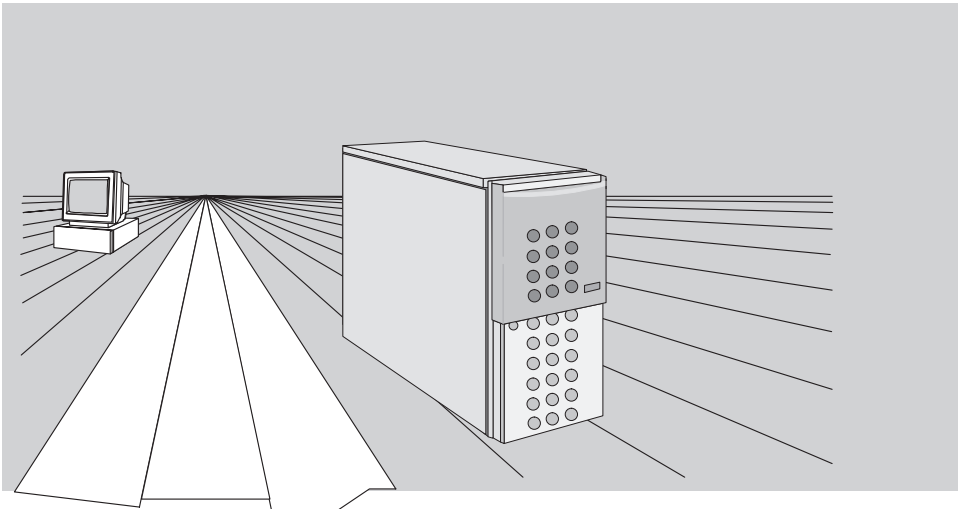
Cables for connections to WAN controllers (EWAN/EWAN-L)

Device type	Cable label	Product number
V.24 connection cable	T26139-Y1517-M*xx*	KB024-M3/-M5/-M10/-M15
X.21 connection cable	T26139-Y1013-M*x*	KB025-M3/-M5/-M7
EWAN only: Adapter cable (1 x V.24 1 x V.11) Adapter cable (3 x V.24 1 x V.11) Adapter cable (1 x V.24 3 x V.11)	 T26139-Y2297-M1 T26139-Y2298-M1 T26139-Y2299-M1	 KB148-M3/-M6 /-M12/-M30/-M50/-M100 KB149-M3/-M6 /-M12/-M30/-M50/-M100 KB150-M3/-M6 /-M12/-M30/-M50/-M100

Cables for connections from peripherals box to system unit

Device type	Cable label	Product number
Peripherals box (BG50) SCSI connection cable	T26139-Y2207-*x xx*	KB044-C35/-M1

Reference section



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Suggestions
Corrections

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