



PCE-5S

Technical Manual



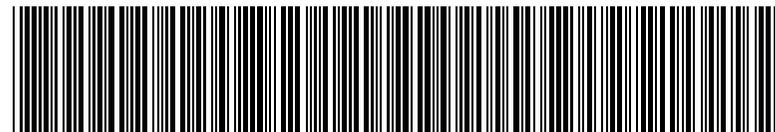
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Introduction

This technical manual describes all the activities required to modify your PCE hardware (e.g. installing boards or drives).

Modifications to the system unit very often require the system to be reconfigured afterwards with the setup menu or the EISA configuration utility. Please read the notes on this subject in the text. If certain system settings can be made using either the setup menu or the EISA configuration utility, you should use the latter.

Some system extensions are supplied together with a floppy disk containing data for the right board configuration. In such a case you must update your backup copy of the Configuration Utility Disk (System Configuration Disk) before you install the system expansion. Please read the section "Copy/update CFG. files" in the User Guide of the EISA Configuration Utility.

Explanation of symbols

The meanings of the symbols and fonts used in this manual are as follows:



Pay particular attention to texts marked with this symbol. They always contain important information.



This symbol is followed by supplementary information, remarks and tips.

► Texts which follow this symbol describe activities that must be performed in the order shown.

□ This symbol means that you must enter a blank space at this point.

↵ This symbol means that you must press the Enter key.

Texts in this typeface are screen outputs from the PC.

Texts in this bold typeface are the entries you make via the keyboard.

Texts in italics indicate commands or menu items.

"Quotation marks" indicate highlighted text and names of chapters.

Safety



Please note the information provided in the Operating Manual of the PCE.

Read these notes carefully and follow the instructions when you open your PCE.

- The power switch does not disconnect the device from the line voltage. To do this, you must pull out the power plug.
- Before opening the unit, first switch it off and then disconnect the power plug.
- No data transmission cable should be connected or disconnected during a thunderstorm.
- Only qualified technicians may repair the device. Unauthorized opening or incorrect repair may greatly endanger the user (electric shock, fire risk).
- Correct operation of the PC in accordance with IEC 950/EN60950 (cooling, protection against fire, RFI suppression) is guaranteed only if the housing is closed. Also put back the back cover for the slots.
- Install only system expansions that satisfy the requirements and rules governing safety and electromagnetic compatibility and relating to telecommunications terminal equipment. If you install other expansions, you may damage the system or violate the safety regulations and regulations governing RFI suppression. Information on which system expansions are suitable can be obtained from the customer service or your sales office.
- The power supply unit (marked with a lightening flash symbol) should be removed and replaced only by authorized specialists.
- If your PCE is equipped with a power outage fallback facility, the battery block should be removed and replaced only by authorized specialists.
- Due to the danger of injury or electric shock, do not remove the rear part of the casing.
- The warranty expires if the PCE is damaged during the installation or replacement of system expansions.

Safety

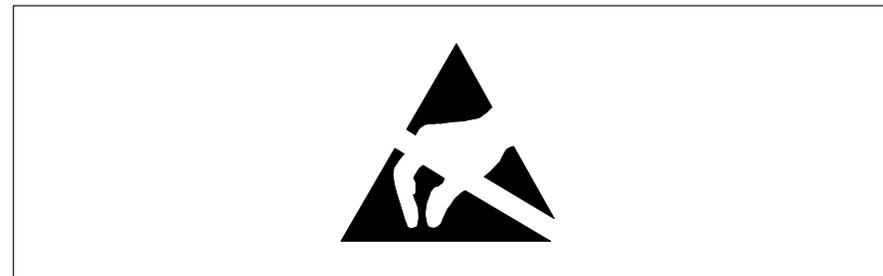


The real-time clock chip on the system board includes a lithium battery which may be replaced only by authorized personnel. Incorrect handling may lead to a risk of explosion.

The chip may be replaced only with an identical chip or with a type recommended by the manufacturer.

The chip must be disposed of in accordance with local regulations concerning special waste.

Modules with ESDs (electrostatic sensitive devices) may be identified by the following label.



When you handle modules fitted with ESDs, you must observe the following points under all circumstances:

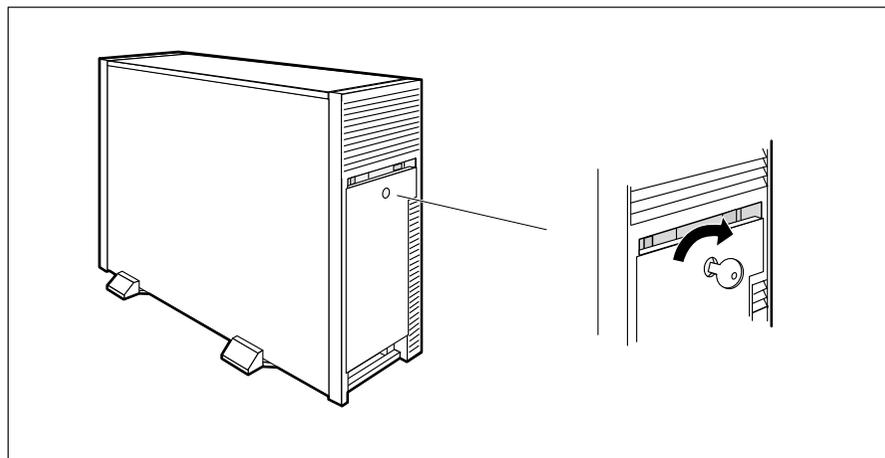
- You must always discharge yourself (e.g. by touching a grounded object) before working with modules containing ESDs.
- The equipment and tools you use must be free of static charges.
- Pull out the power plug before inserting or pulling out modules containing ESDs.
- Always hold modules with ESDs by their edges.
- Never touch pins or conductors on modules fitted with ESDs.

System unit

Opening the system unit

- ▶ Unlock the system unit.
- ▶ Switch the PCE off.
- ▶  Pull out the power plug.

If any cables attached to the system unit are obstructing you, pull out the connectors on the system unit:

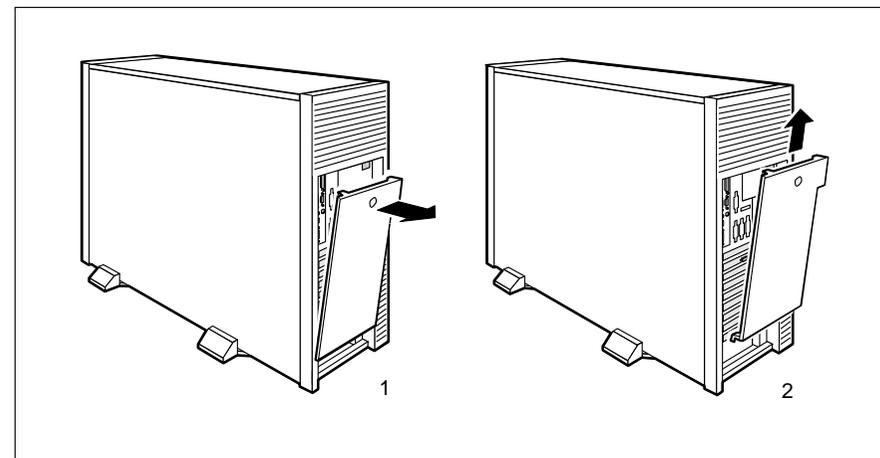


- ▶ Unlock the cover at the rear of the system unit.



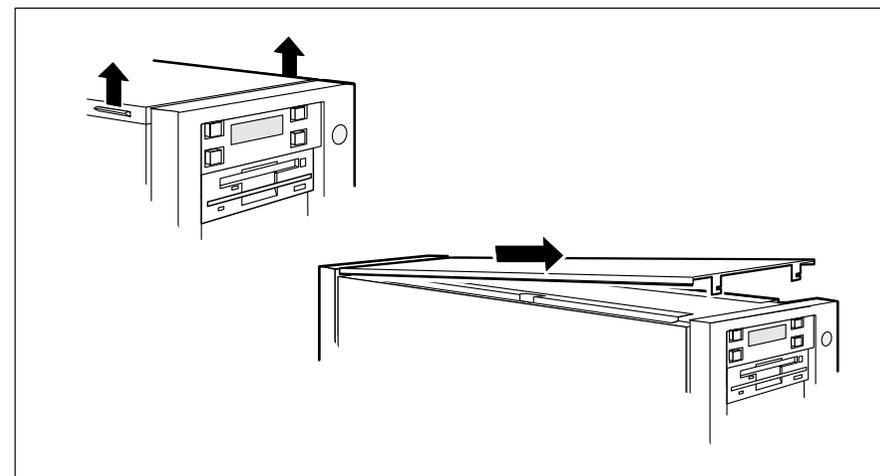
System unit

Opening the system unit

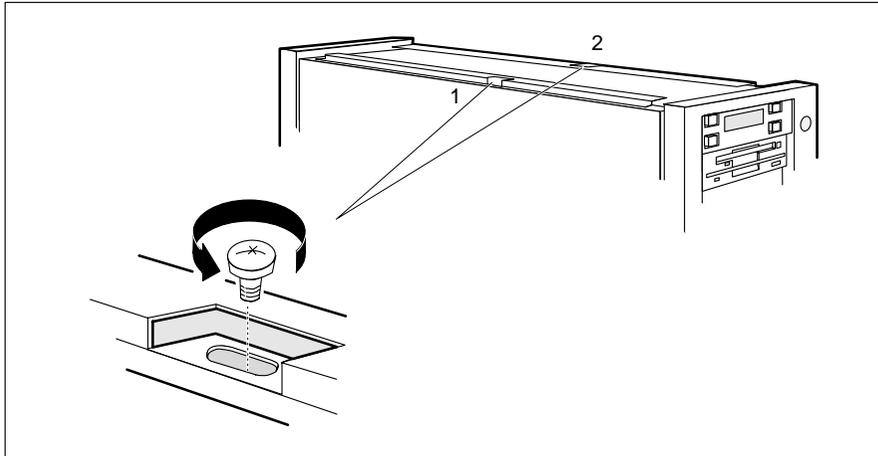


- ▶ Remove the cover at the rear of the system unit (1 + 2).
- ▶ Pull out the connectors at the back of the system unit.

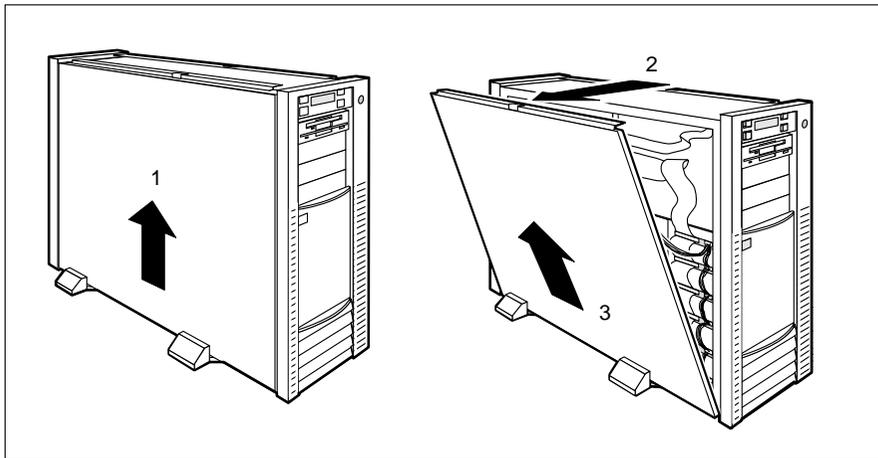
Removing top cover and side covers



- ▶ Lift off the top cover.



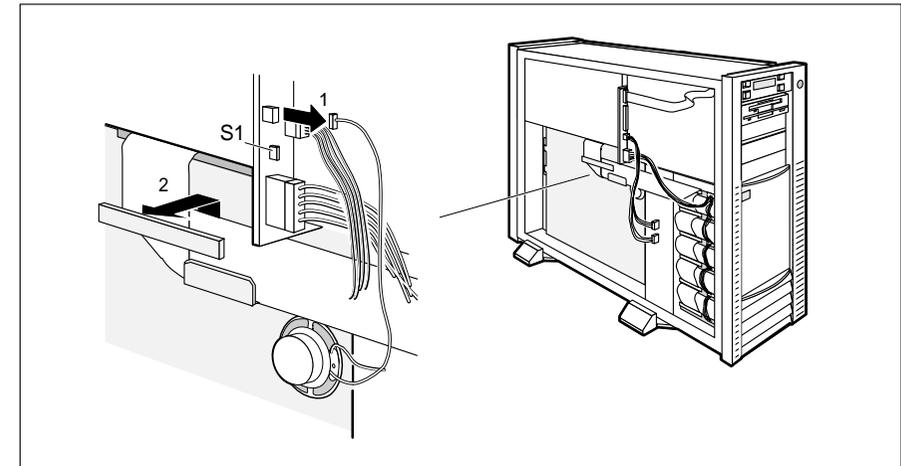
- ▶ Unscrew the screw 1.
- ▶ If you are installing or removing a drive, also undo screw 2.



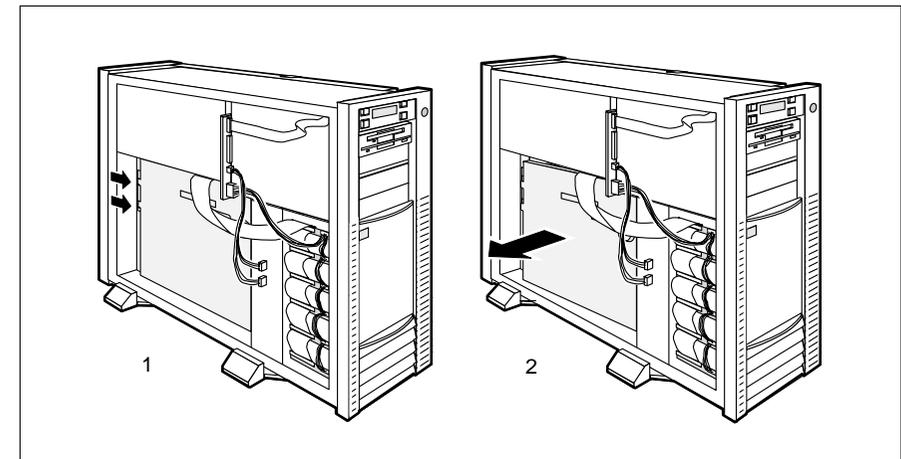
- ▶ Pull off the first side cover upward at an angle (1 + 2 + 3).
- ▶ If you are installing or removing a drive, also remove the second side cover by pulling it upward at a slanting angle.

 Ensure that the two side covers are not confused.

If you want to install or remove boards (e.g. expansion, memory or processor boards), you must also remove the plastic side cover.



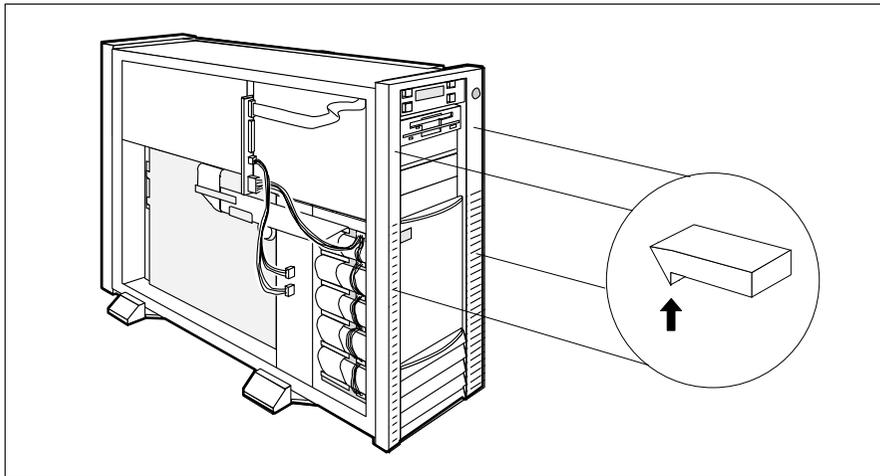
- ▶ If exist, pull the loudspeaker plug on the connection board (1).
- ▶ Release the SCSI cable from the plastic cover (2).



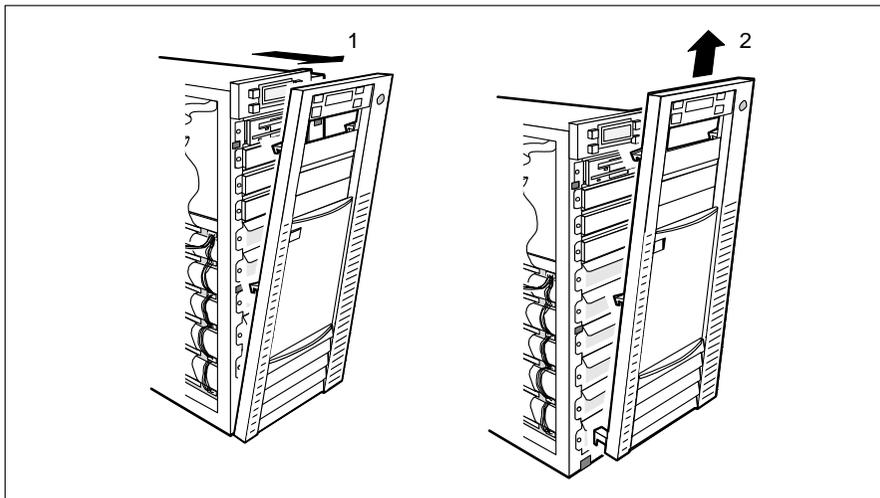
- ▶ Release the clamps (1), and remove the plastic cover (2).

Removing the front cover

You only need to remove the front cover if you are installing or removing a drive.



- ▶ Press the four plastic retainers on the inside of the front cover upward at the same time and tilt the cover forward as shown below.

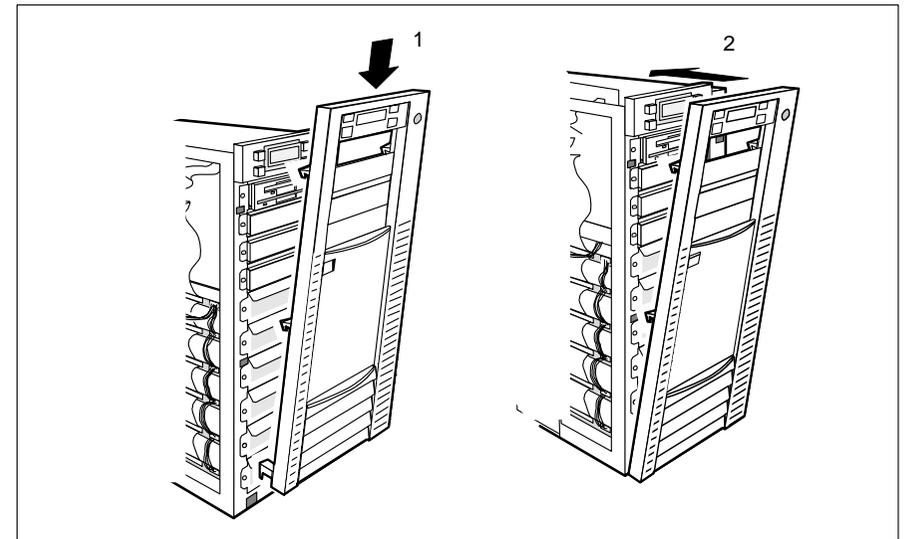


- ▶ Pull off the front cover upward at an slanting angle (1 + 2).

Closing the system unit

To close the system unit, you must first replace the front cover if they have been removed.

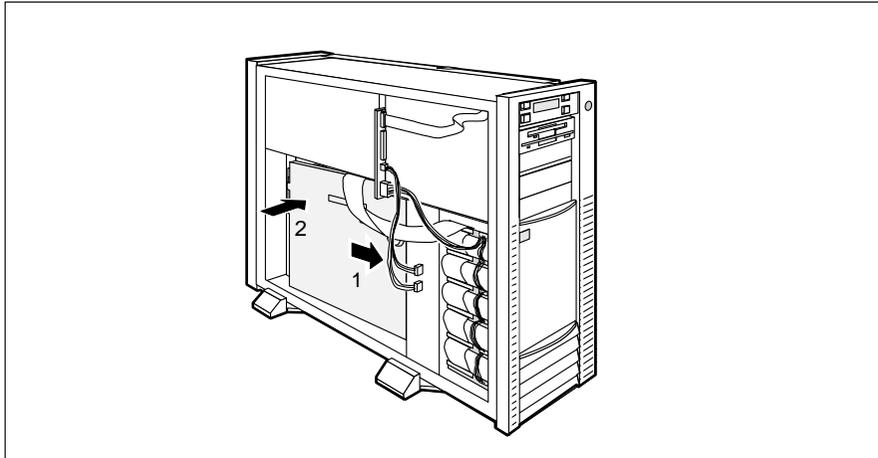
Replacing the front cover



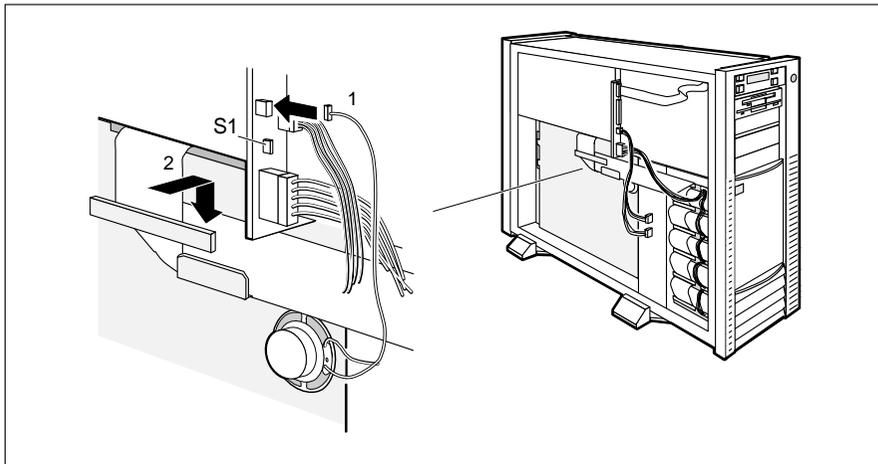
- ▶ Insert the lower plastic guides of the front cover into the openings in the system unit (1).
- ▶ Move the front cover up against the system unit until the four plastic retainers latch (2).

Replacing side covers and top cover

If you have installed or removed boards, you must first attach the plastic cover.



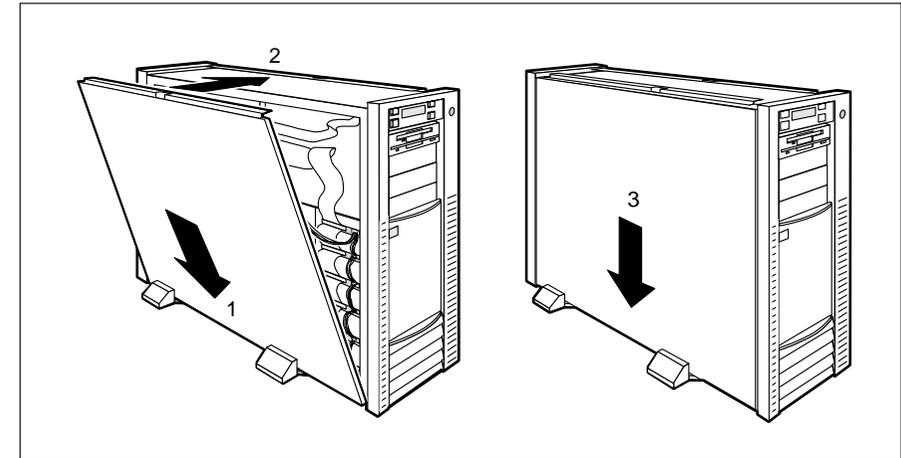
- ▶ Insert the plastic cover as shown (1), and press in the left side until the clamps latch (2).



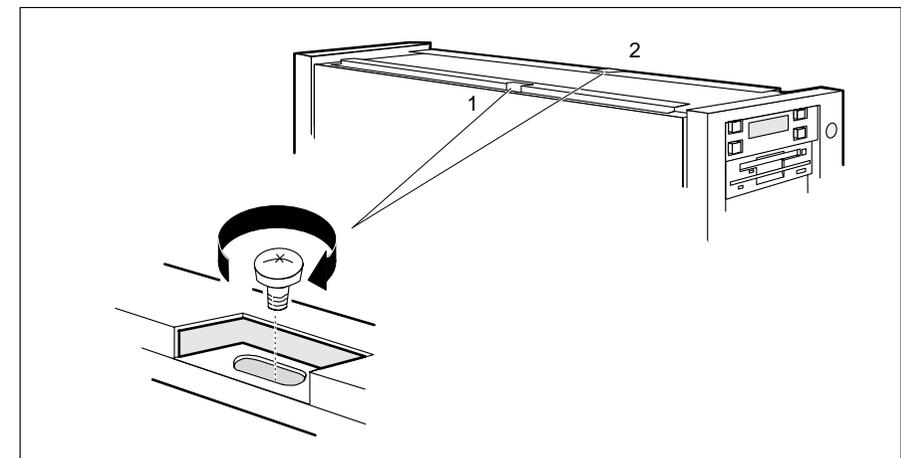
- ▶ If exist, plug the loudspeaker cable into the connection board (1).
- ▶ Attach the SCSI cable to plastic cover (2).



Ensure that the two side covers are not confused when they are installed.

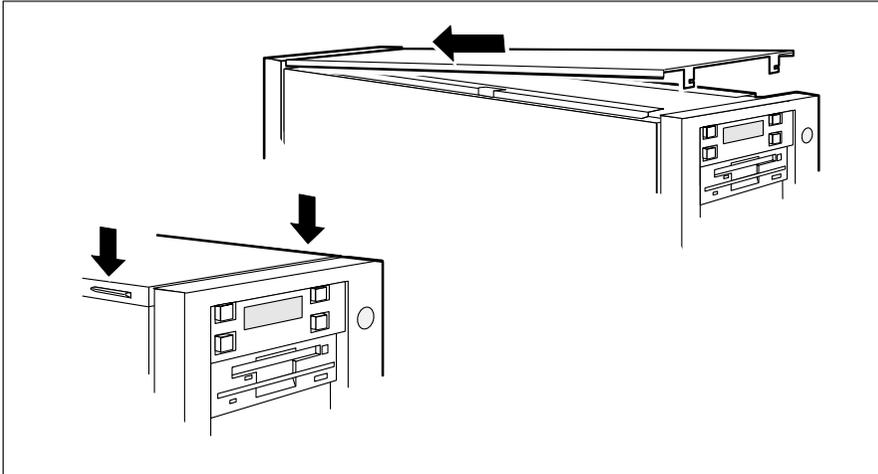


- ▶ Drop the side cover into the groove at a slanting angle (1).
- ▶ Push the side cover up against the system unit (2), and lift the extensions of the cover over the housing slots. Ensure that no cables are pinched.
- ▶ Press the side cover downward (3).

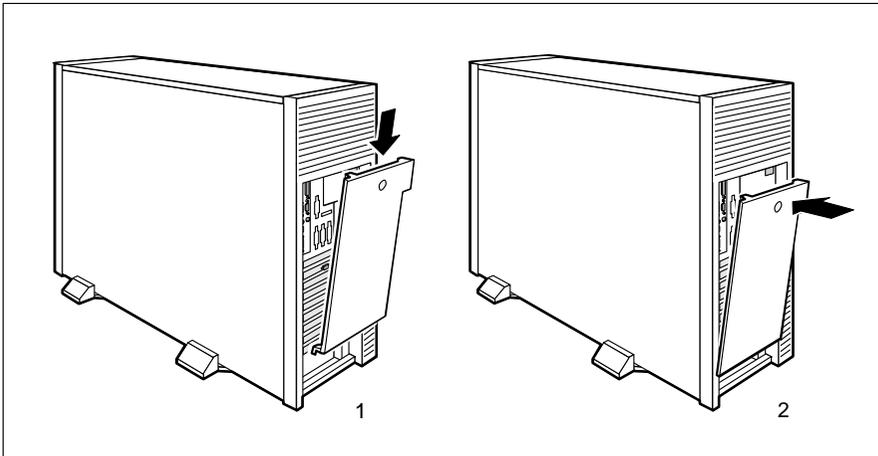


- ▶ Tighten screw (1).

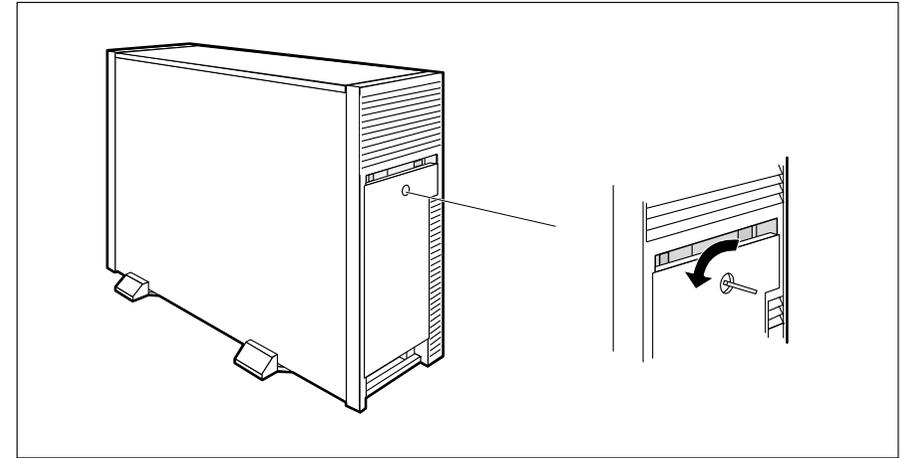
- ▶ If you have also removed the second side cover, insert it likewise and fasten it with screw (2).



- ▶ Insert the top cover as shown and press it down into place.
- ▶ Position the system unit at your workstation.
- ▶ Plug in the cables of all units that were connected to the system unit.



- ▶ Fasten the cover plate at the back of the system unit.

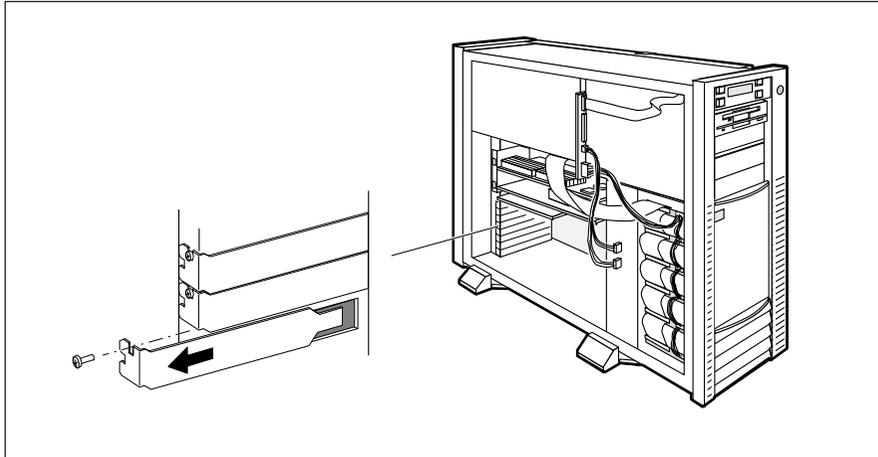


- ▶ Lock the cover plate at the back of the system unit.
- ▶ Insert the power plug.

Installing and removing a board

Installing a board

- ▶ Open the housing as described under "Opening the system unit".

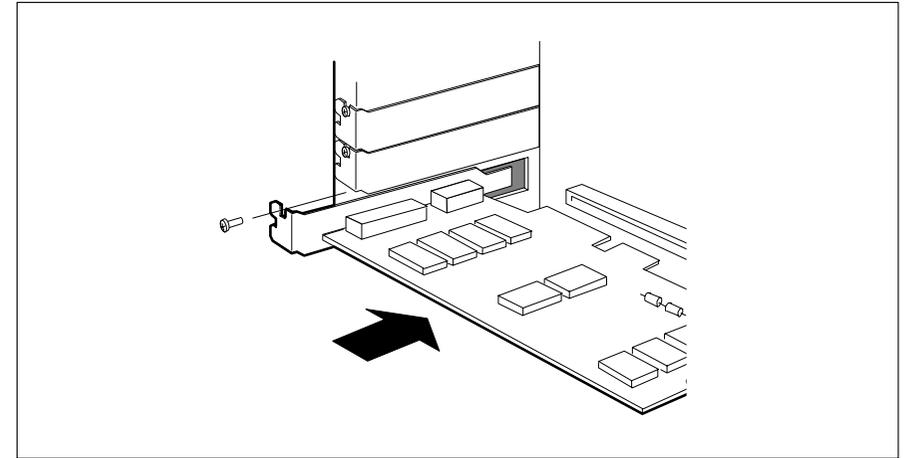


- ▶ Remove the screw and the rear slot cover plate.



Do not dispose of the rear slot cover plate. If you remove the module again, you must reattach the rear slot cover plate for cooling, protection against fire and in compliance with the EMC regulations.

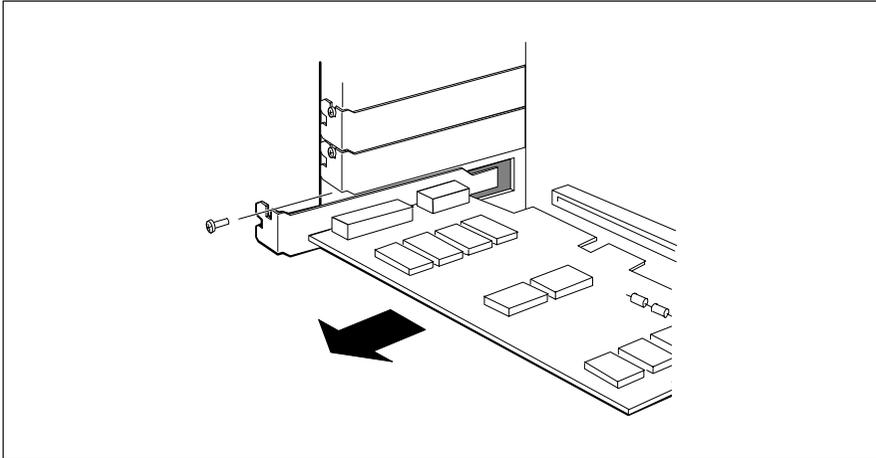
- ▶ Take your board out of its packaging.



- ▶ Push the board horizontally up against the system board at the rear. Ensure that the metal bracket of the board is inserted between spring and slot.
- ▶ Carefully press board into the slot.
- ▶ Fasten the board in position with the screw you removed earlier.
- ▶ Close the housing as described in "Closing the system unit".
- ▶ Switch your PCE on.
- ▶ Start the EISA configuration program to reconfigure your PCE. How to configure the system is described in the User Guide of the EISA configuration program.

Removing a board

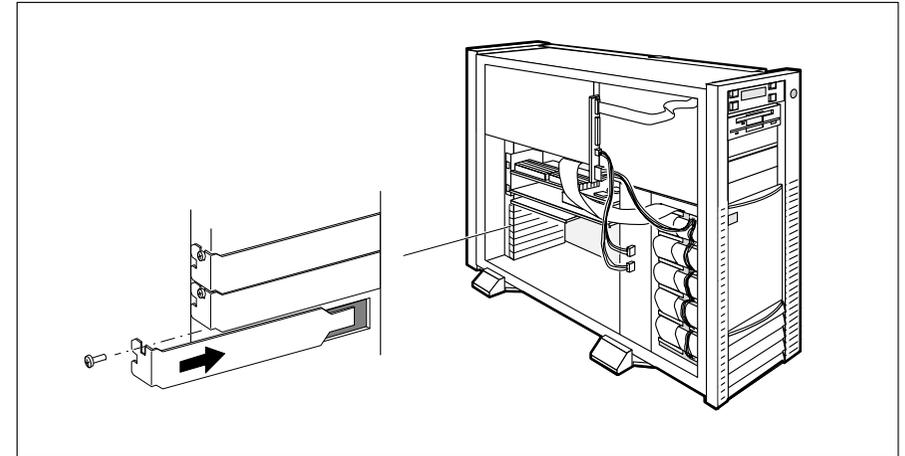
- ▶ Open the housing as described under "Opening the system unit".



- ▶ Remove the screw.
- ▶ Pull the board out of the slot.
- ▶ Place the board in its packaging.



For cooling, protection against fire and in order to comply with EMC regulations, you must refit the rear slot cover plate.

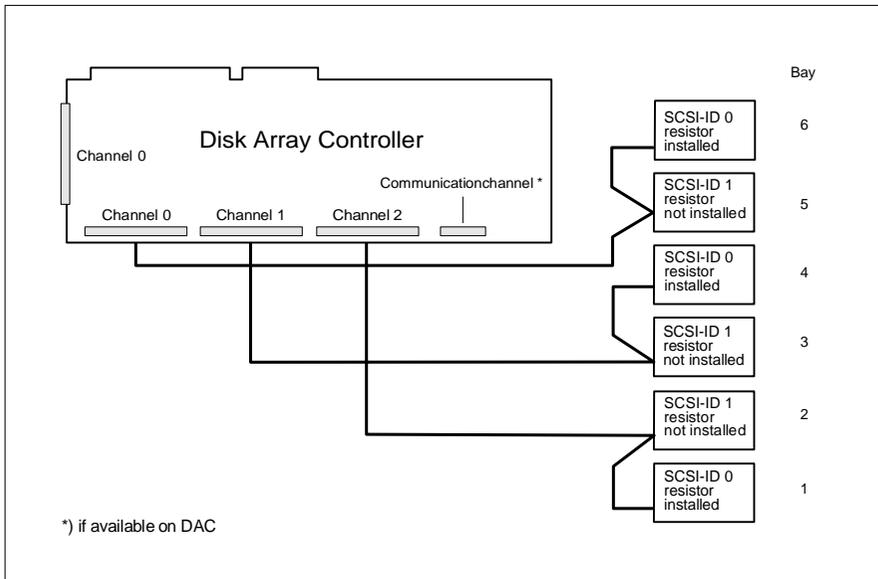


- ▶ Replace the rear slot cover plate. Ensure that the rear slot cover plate is inserted between spring and slot.
- ▶ Fasten the rear slot cover plate with the screw you removed earlier.
- ▶ Close the housing as described in "Closing the system unit".
- ▶ Switch your PCE on.
- ▶ Start the EISA configuration program to reconfigure your PCE. How to configure the system is described in the User Guide of the EISA configuration program.

Cabling of SCSI controller boards

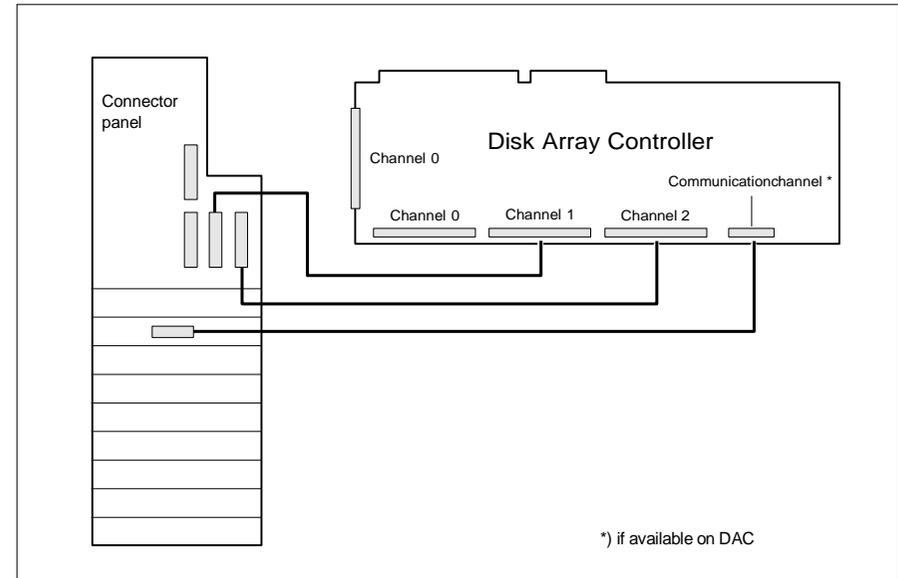
If the internal or external hard disk drives are not driven by the SCSI controllers integrated on the system board but by a separate SCSI controller (standard SCSI controller or Disk Array Controller), the following are changed: the cabling of the hard disk drives, the allocation of the SCSI-ID and the position of the terminating resistors. The following graphics show the three possible usages.

Disk Array Controller on internal drives



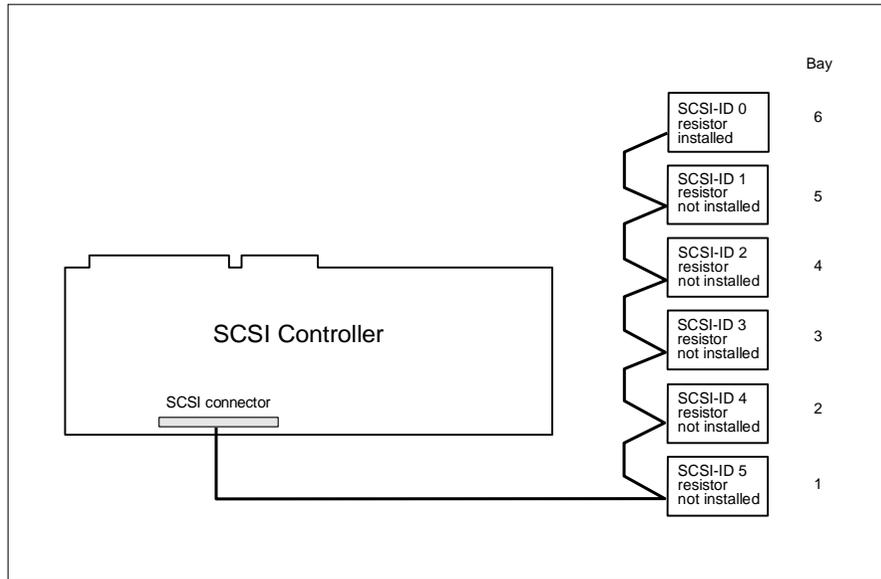
Overview: allocation of slot, SCSI-ID, SCSI channel and terminating resistor

Disk Array Controller on external drives



Overview: allocation of external connector and SCSI channel

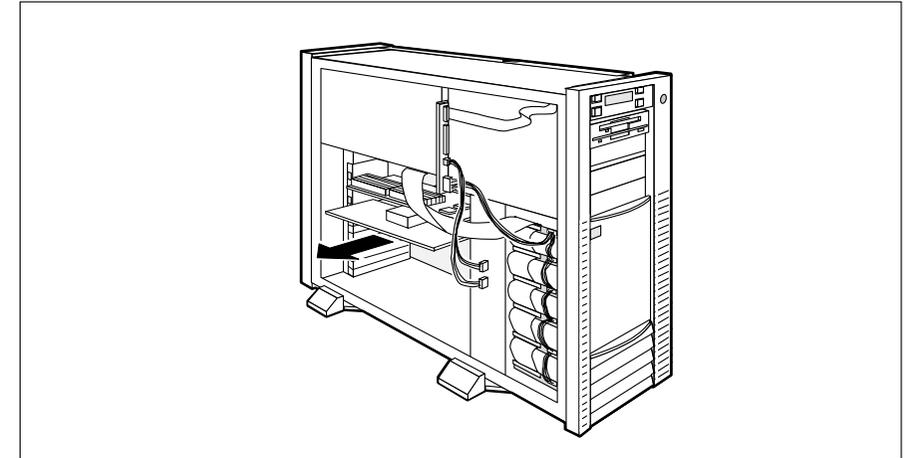
Standard SCSI controller on internal drives



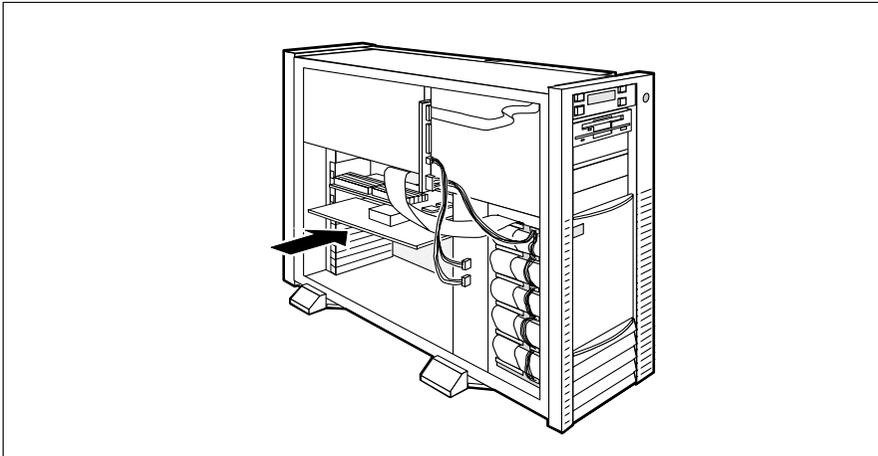
Overview: allocation of slot, SCSI-ID and terminating resistor

Changing the processor board

- ▶ Open the system unit as described under "Opening the system unit".



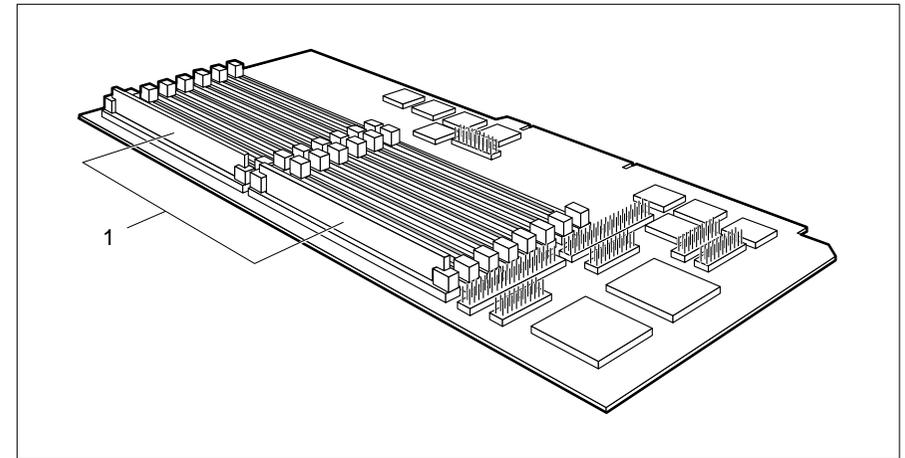
- ▶ Pull the processor board out of the slot.
- ▶ Place the processor board in its packaging.
- ▶ Take the new processor board out of its packaging.



- ▶ Slide the processor board into the guides until it is up against the system board.
- ▶ Carefully press the processor board into the slot on the system board until you feel it engage.
- ▶ Close the system unit as described in "Closing the system unit".

Installing and removing memory modules

In its basic configuration, the main memory has a capacity of 16 or 32 Mbytes and can be expanded to 512 Mbytes by using 32-Mbyte-modules.



1 = memory bank

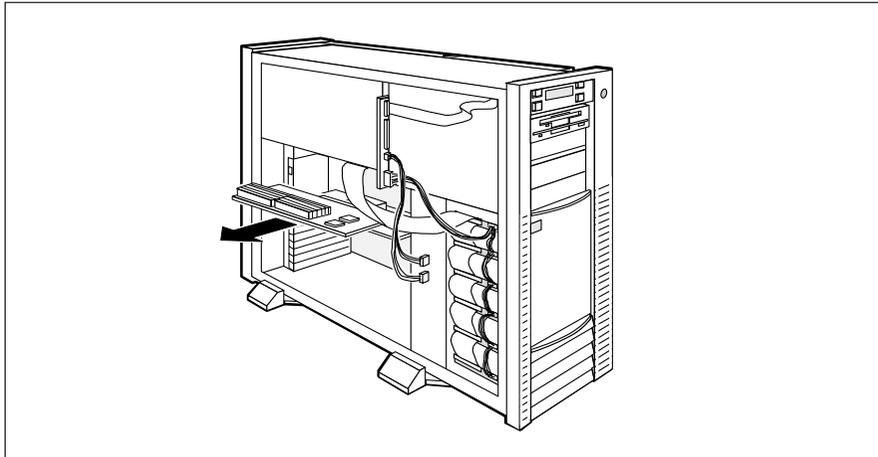
The memory board has 16 sockets for memory modules (SIMM - Single In-line Memory Modules / PS/2 modules) which are divided into 8 memory banks with 2 sockets each. Memory modules have a capacity of either 8 or 32 Mbytes. A memory bank must always be fully occupied and equipped with memory modules of the same capacity. Thus, a memory capacity of 16 or 64 Mbytes is possible for each memory bank, which permits a maximum memory expansion of 512 Mbytes. The size of the memory modules may vary between memory banks. The 8 memory banks can be equipped in any order. There may thus be unequipped memory banks between equipped banks.

Removing the memory board

- ▶ Open the housing as described in "Opening the system unit".



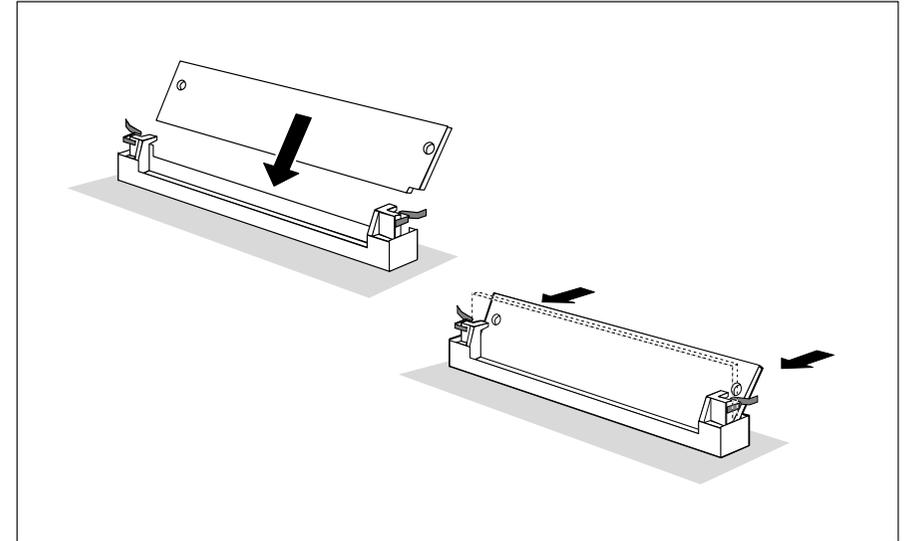
Components may be damaged by static charges. Therefore, be sure to follow the important guidelines at the beginning of this manual.



- ▶ Pull the memory board from the slot.

Installing memory modules

When installing memory modules make sure that the memory modules already installed do not hinder the installation of subsequent modules.



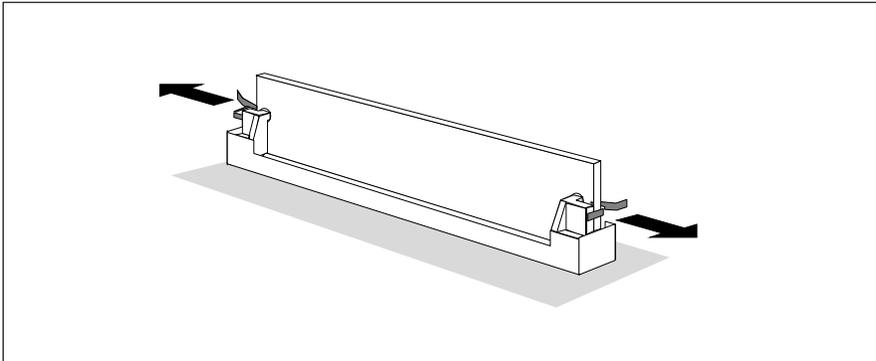
- ▶ Insert the first memory module into its slot from the back at an angle of about 45°.
- ▶ Tilt the module carefully to the front until it snaps into place and is in a vertical position in the socket.
- ▶ Check that the memory module is securely in place in its socket.
The notches on the fastening clips must snap securely into place into the holes on the memory module.
- ▶ Repeat these steps for installing the second and each additional memory module in its appropriate socket.

Removing memory modules

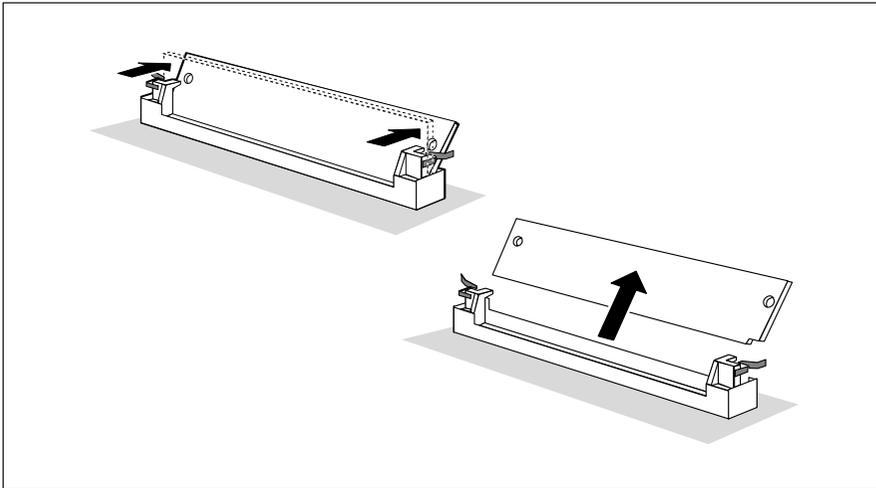
Memory modules must always be removed bank by bank, i.e. 2 modules at a time.



Components may be damaged by static charges. Therefore, be sure to follow the important guidelines at the beginning of this manual.



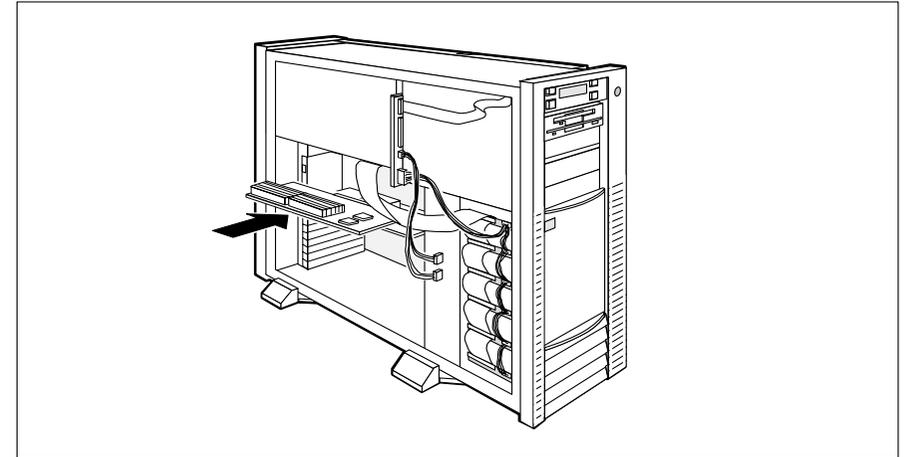
- ▶ Press both fastening clips on the side of the socket outward using the tabs.



- ▶ Tilt the memory module to the back and pull it out of its socket.

- ▶ Repeat the steps for the second module of the memory bank/for the removal of modules of other memory banks.

Installing the memory board



- ▶ Slide the memory board into the guides until it is up against the system board.
- ▶ Carefully press the memory board into the slot until you feel it engage.
- ▶ Close the system unit as described in "Closing the system unit".

Installing and removing disk drives

In the system unit of the PCE, there is room for a total of ten drives.

All bays are of drawer design, thus simplifying installation and removal of the drives. The top four bays (1 - 4) are intended for four accessible drives of half height (slimline), either in 3 1/2" or 5 1/4" format. Instead of two half-height drives, one full-height drive can be installed. The lower six bays (5 - 10) are intended for non-accessible 3 1/2" SCSI drives.

When installing a SCSI drive (e.g. hard disk, streamer or CD ROM drive), first read the documentation which comes with your SCSI drive.

An address (identification number or ID) must be set for each SCSI drive.

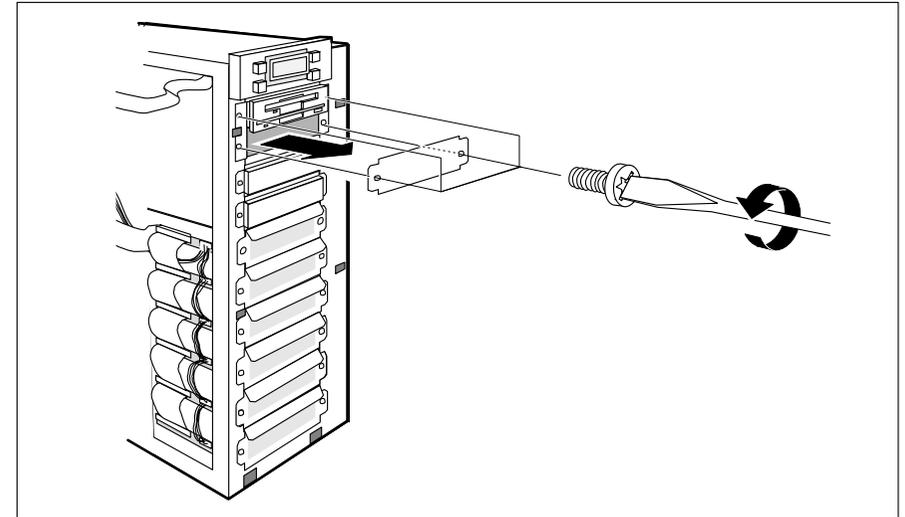
As standard, the terminating resistor is plugged in at the hard disk installed in the lowest bay (ID=0).

 The address of the installed hard disk (ID=0) must not be modified since the system BIOS requires this address for booting the system.

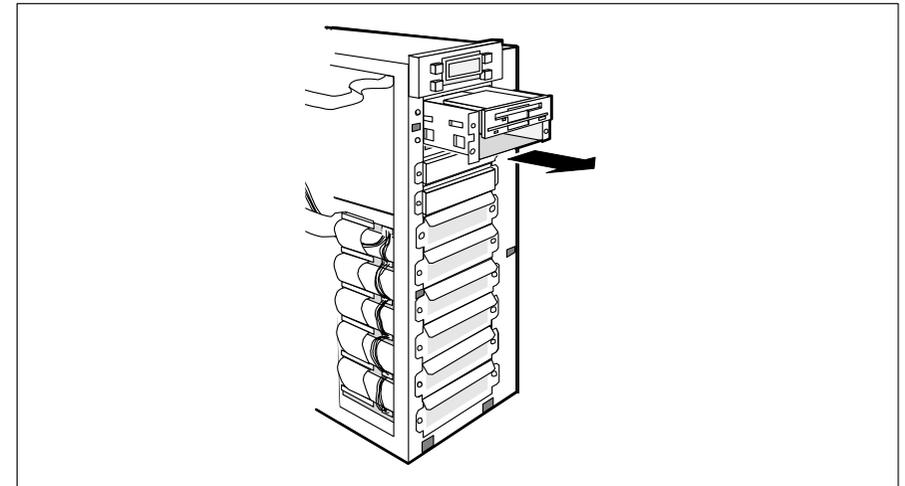
Installing an accessible drive

 SCSI drives in bays 1 - 4 may not have terminating resistors.

- ▶ Open the system unit as described under "Opening the system unit".
- ▶ Select an installation position appropriate for the drive (half-height, full-height).

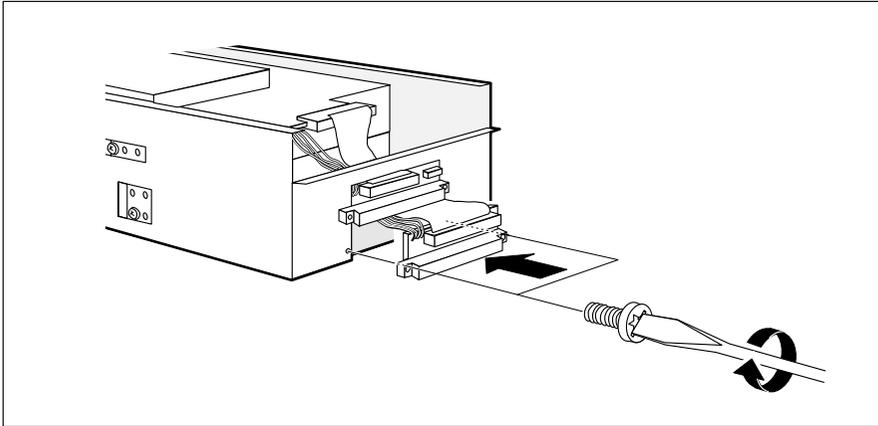


- ▶ Unscrew the mounting screws on the drawer containing the bay in question and remove the associated metal plates.



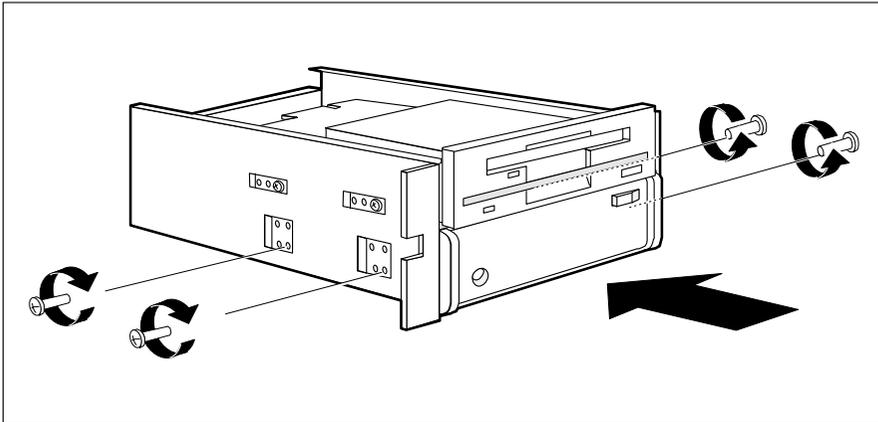
- ▶ Pull the drawer out of the system unit.

For each drive in bays 1 to 4, you require an adapter for connection to the system. Floppy disk drives and SCSI drives require different adapters. A suitable adapter is supplied with each drive.

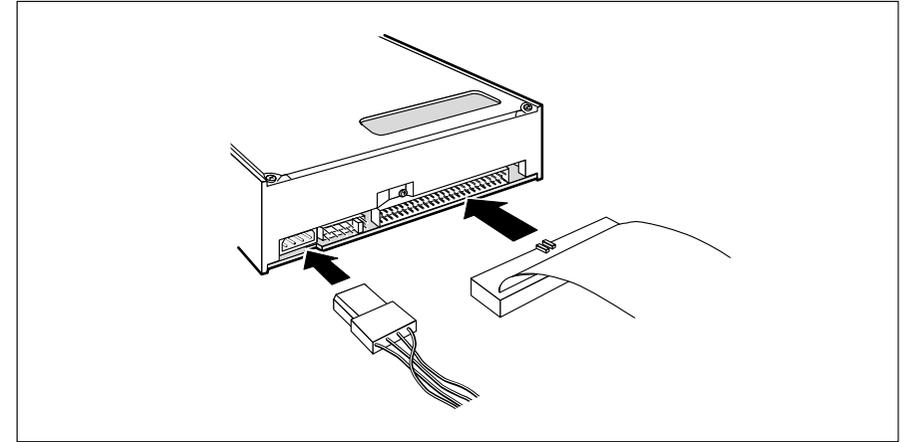


- ▶ Screw the adapter to the rear of the drawer as shown. Ensure that the adapter is screwed in the right way round. The cables must always be on top, the connector for the connection board at the bottom.

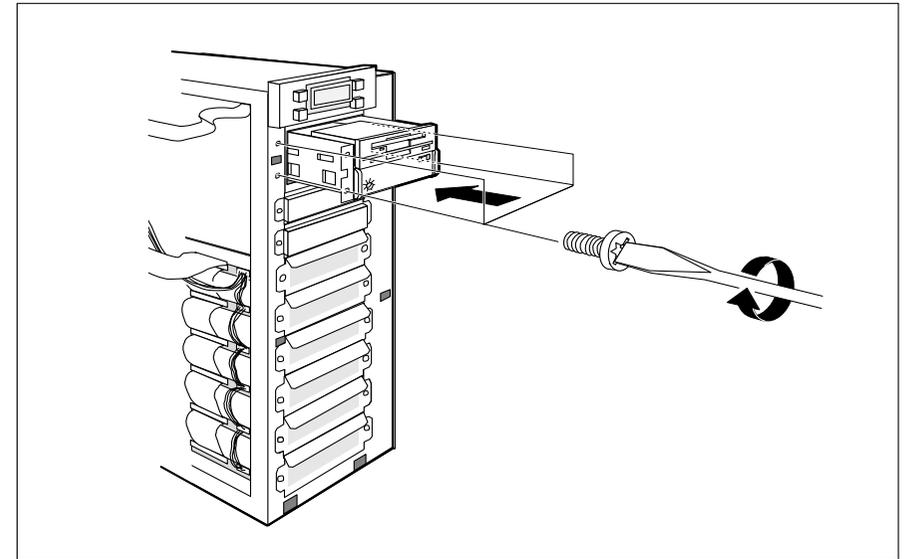
The drive is either installed as a "visible" or "concealed" drive. Installation depends on whether the drive should be accessible from the outside (e.g. floppy disk drive, CD-ROM) or not (hard disk).



- ▶ Place the drive in the drawer.
- ▶ Screw down the drive in accordance with the type of installation.



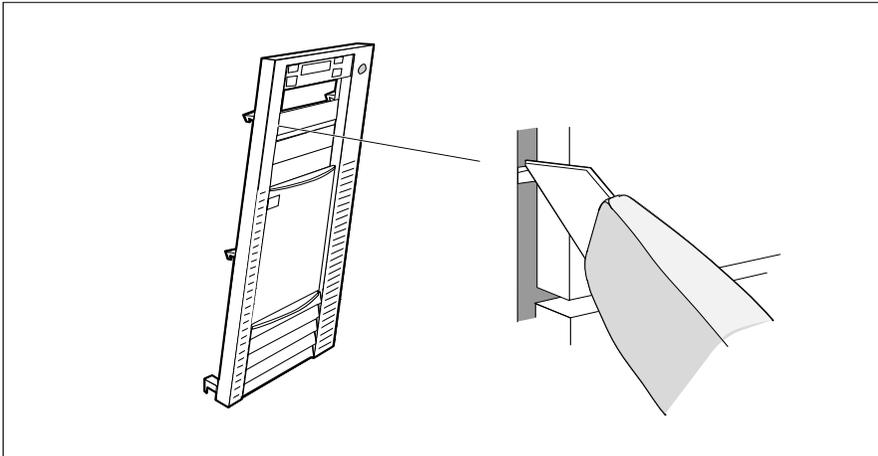
- ▶ Connect the data cable to the drive. Ensure that the connector is plugged in the right way round (coding).
- ▶ Plug the power supply connector into the drive.



- ▶ Slide the drawer into the system unit.
- ▶ Attach the drawer and, if you have installed a drive to be concealed (non-accessible), also screw down the metal plates previously removed.

 If you have installed a visible (accessible) drive, make sure you keep the metal plate in a safe place. If you subsequently remove the drive, you must refit this metal plate or a spare metal plate for cooling purposes, protection against fire and in order to comply with EMC regulations.

If you have installed a visible drive, you must remove the plastic cover from the front cover.



▶ Cut through the studs on the plastic cover on all sides.

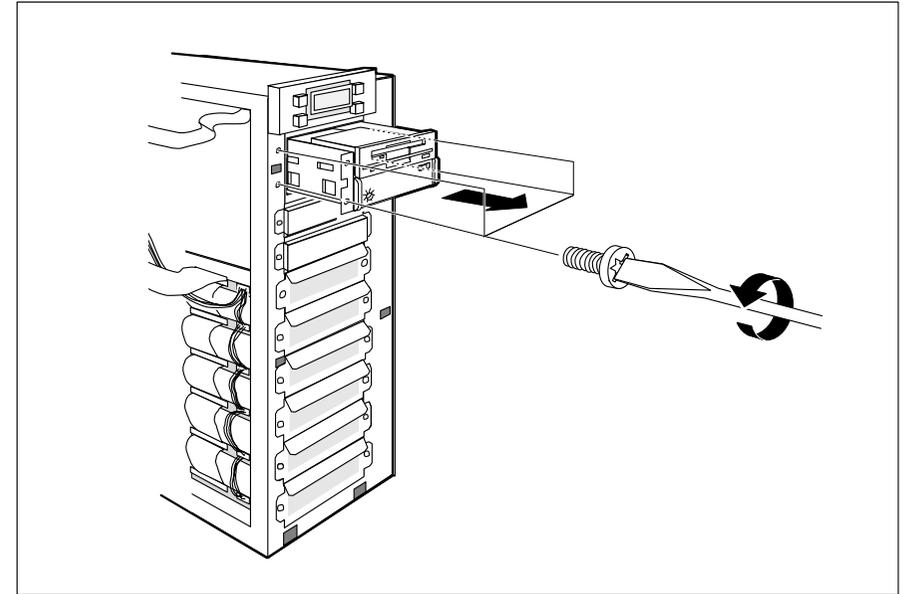
 If you remove an accessible drive, you must replace the flat plate by a raised metal plate. A plastic cover is inserted into this metal plate and replaces the cover now missing in the front cover. Both parts (metal plate and plastic cover) are obtainable as an F set quoting the order number *S26361-F1031-L1*.

▶ Close the housing as described under "Closing the system unit".

The removal or installation of a drive can change the configuration of your PCE. The system must therefore be reconfigured. Read the section "Setup menu" in the Operating Manual.

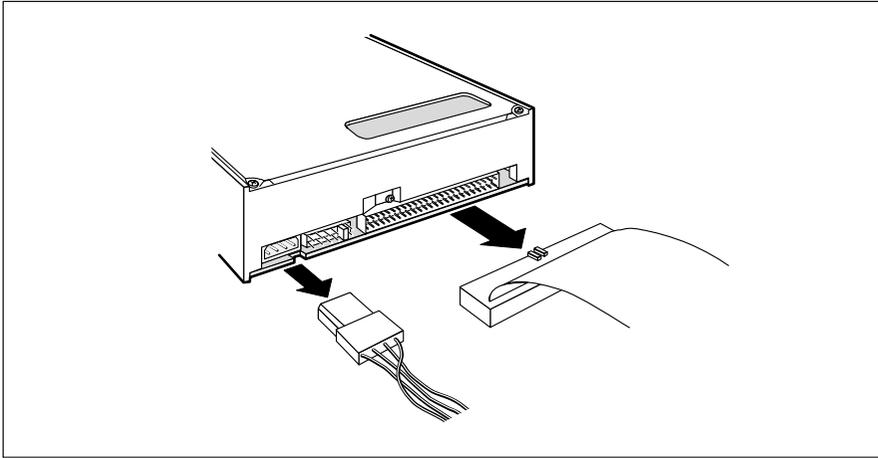
Removing an accessible drive

▶ Open the system unit as described under "Opening the system unit".

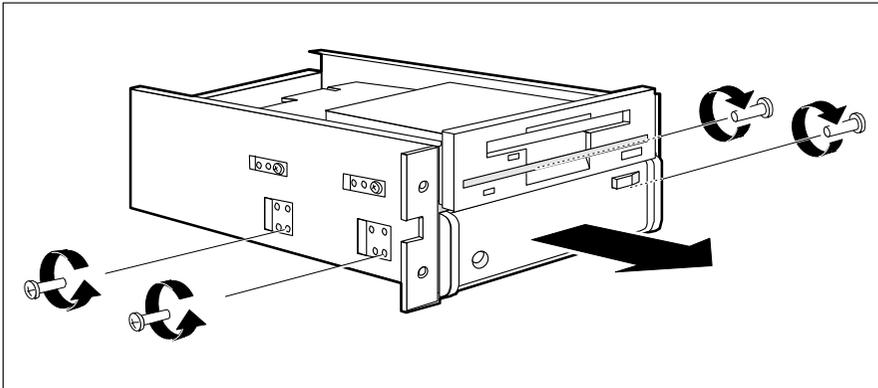


▶ Unscrew the mounting screws on the drawer and remove any metal plates.

▶ Pull the drawer out of the system unit.



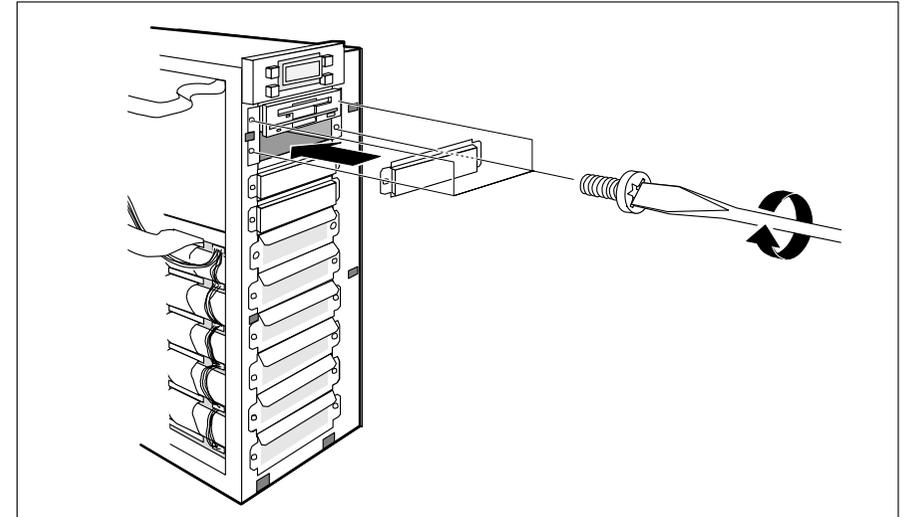
- ▶ Disconnect the data and power cable connectors from the drive.



- ▶ Remove the screws (on both sides) attaching the drive to the drawer.
- ▶ Remove the drive from the drawer.



If you remove an accessible drive, you must replace the flat plate by a raised metal plate. A plastic cover is inserted into this metal plate and replaces the cover now missing in the front cover. Both parts (metal plate and plastic cover) are obtainable as an F set quoting the order number *S26361-F1031-L1*.



- ▶ Slide the drawer into the system unit and screw down the drawer plus metal plate(s).
- ▶ Close the system unit as described under "Closing the system unit".

The removal or installation of a drive can change the configuration of your PCE. The system must therefore be reconfigured. Read the section "Setup menu" in the Operating Manual.

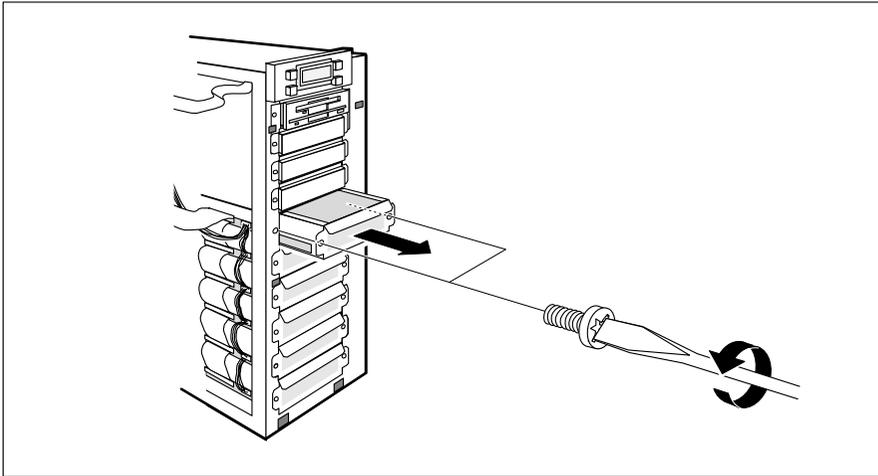
Installing a non-accessible drive

- ▶ Open the system unit as described under "Opening the system unit".

Bays 5 - 10 are intended for non-accessible 3 1/2" SCSI drives. SCSI drives in bays 5 - 9 may not have terminating resistors.

i A SCSI controller can control a maximum of seven SCSI devices. The hard disk installed as standard (lowest bay) is the last SCSI device (i.e. the device connected at the end of the SCSI cable). This hard disk thus has a terminating resistor.

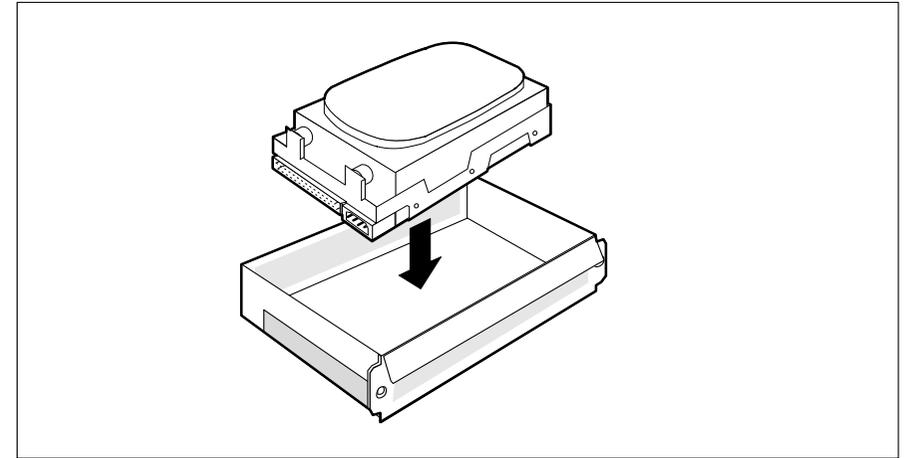
- ▶ Select a bay.



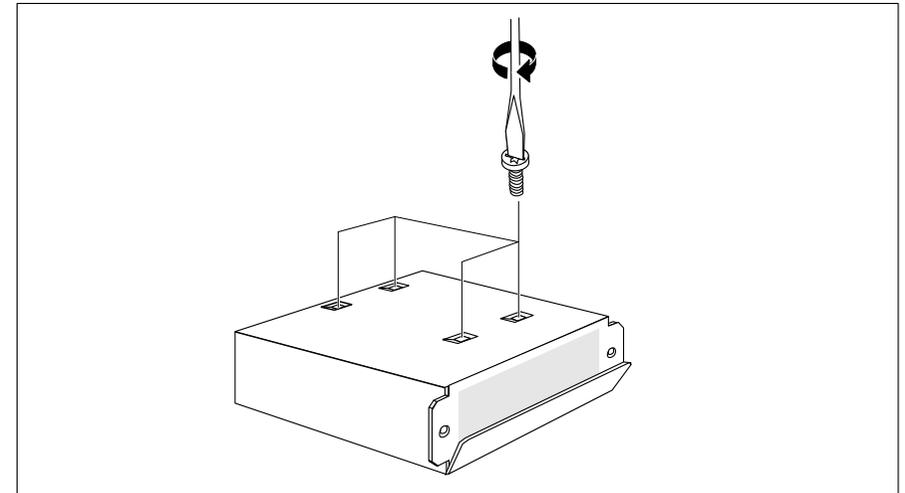
- ▶ Unscrew the screws.
- ▶ Pull the drawer out of the system unit.

! The motor of a SCSI drive is started by the BIOS using a software command on booting. The drive must therefore be so adjusted that its motor does not start up as soon as the PCE is switched on. The documentation for your drive will tell you whether you have to adjust the drive.

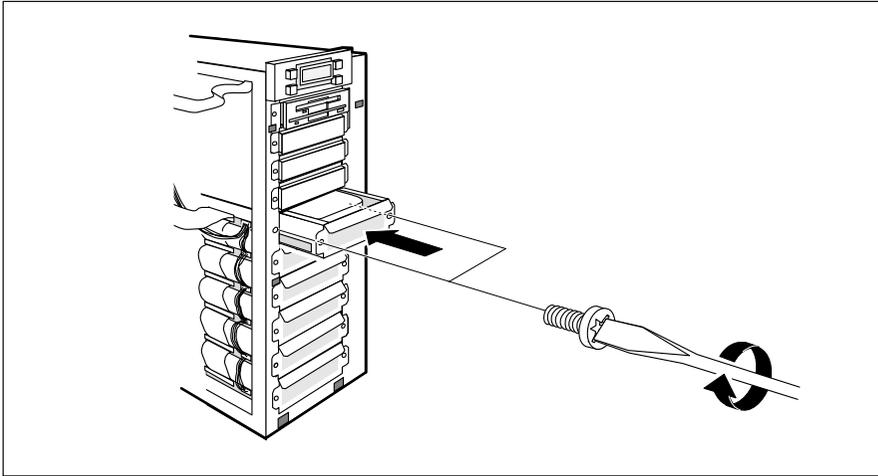
- ▶ Make the necessary adjustments to your drive.



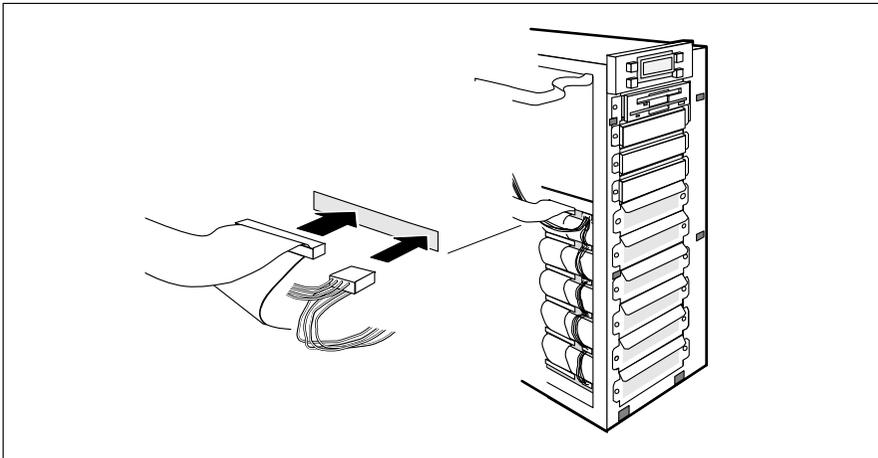
- ▶ Place the drive in the drawer.
- ▶ Hold the drive tightly in the drawer and turn both over.



- ▶ Screw the drive to the drawer.
- ▶ Turn the drawer plus drive over again.



- ▶ Slide the drawer into the system unit and screw the drawer down.

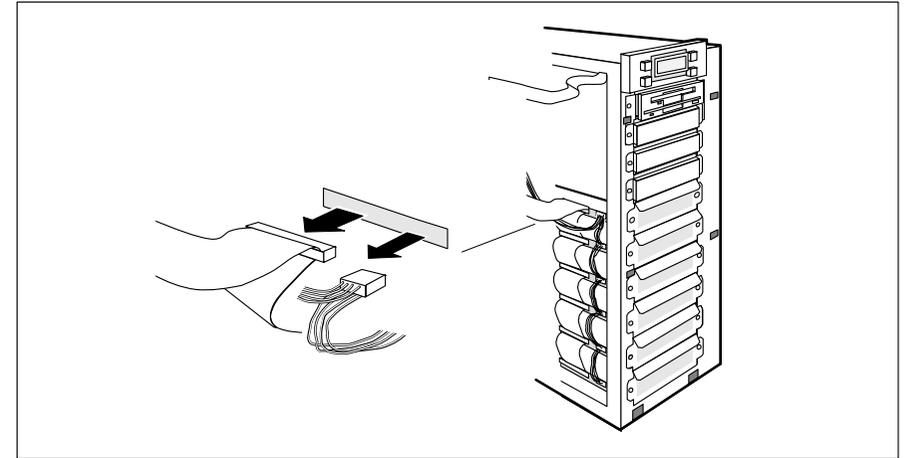


- ▶ Plug the data and power supply connectors into the drive. Ensure that the connectors are inserted the right way round.
- ▶ Close the housing as described under "Closing the system unit".

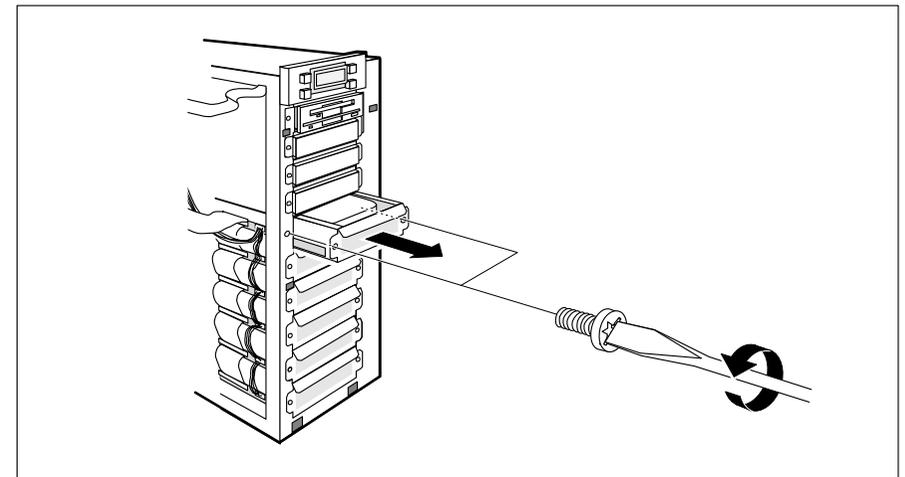
The removal or installation of a drive can change the configuration of your PCE. The system must therefore be reconfigured. Read the section "Setup menu" in the Operating Manual.

Removing a non-accessible drive

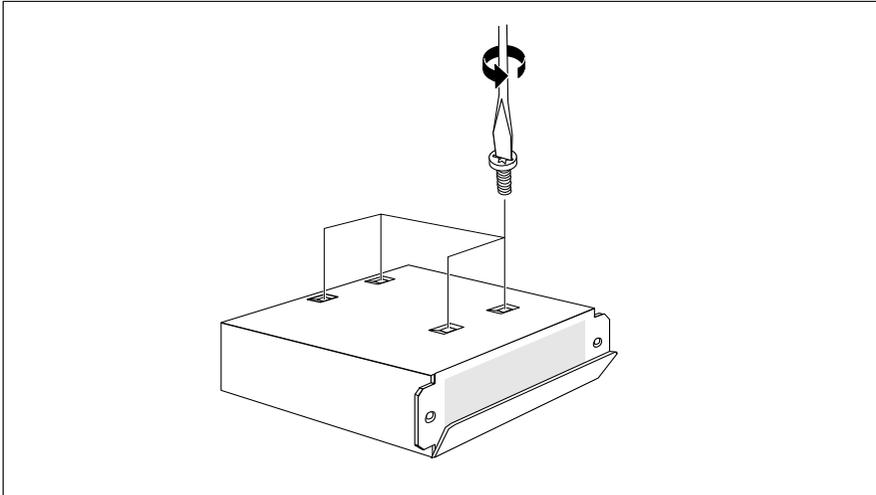
- ▶ Open the system unit as described under "Opening the system unit".



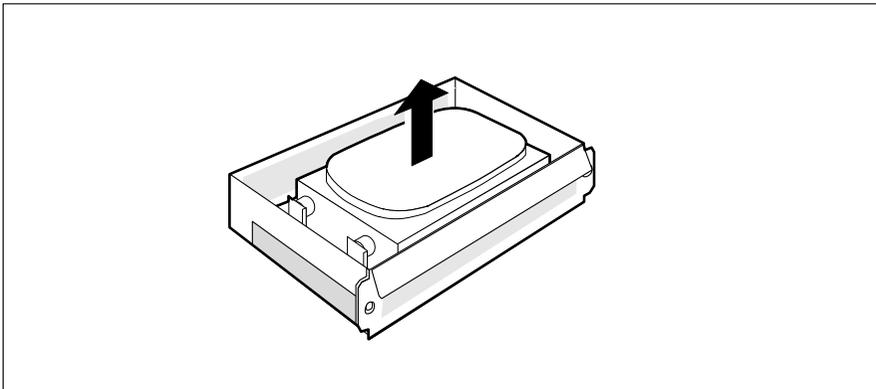
- ▶ Pull the data and power supply connectors from the drive you wish to remove.



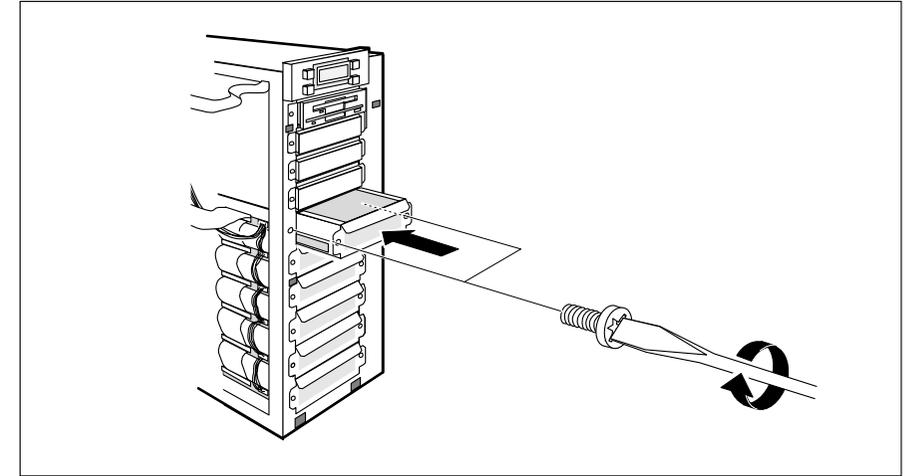
- ▶ Unscrew the screws.
- ▶ Pull the drawer out of the system unit.
- ▶ Turn the drawer over.



- ▶ Hold the drive tightly in the drawer and unscrew the screw.



- ▶ Remove the drive from the drawer.



- ▶ Slide the drawer into the system unit and screw down the drawer.
- ▶ Close the system unit as described under "Closing the system unit".

The removal or installation of a drive can change the configuration of your PCE. The system must therefore be reconfigured. Read the section "Setup menu" in the Operating Manual.

Interrupts, DMAs, Interfaces

Interrupt and DMA assignment

This section deals with interrupt and DMA assignments (system resources) and provides information on the installation of additional boards.

Interrupt assignment

- IRQ 0 = Timer 0
- IRQ 1 = Keyboard
- IRQ 2 = IRQ 9
- IRQ 3 = Serial interface 2 (COM2)
- IRQ 4 = Serial interface 1 (COM1)
- IRQ 5 = free
- IRQ 6 = Floppy disk controller
- IRQ 7 = Parallel interface 1 (LPT1)
- IRQ 8 = Realtime clock interrupt
- IRQ 9 = VGA controller
- IRQ 10 = Standard SAS interface
- IRQ 11 = SCSI controller 1
- IRQ 12 = free
- IRQ 13 = Numeric coprocessor
- IRQ 14 = free
- IRQ 15 = SCSI controller 2

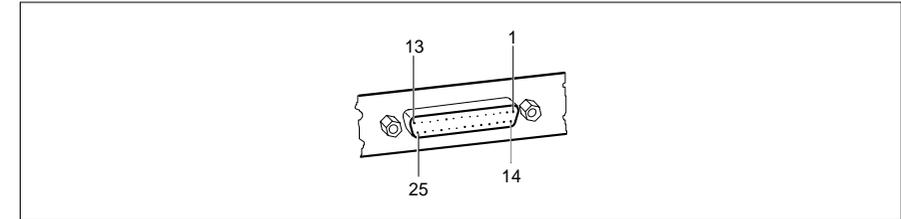
The interrupts 10, 11, 14 and 15 can be programmed in the Setup menu.

DMA assignment

- DMA 0 = free
- DMA 1 = free
- DMA 2 = Floppy disk controller
- DMA 3 = free
- DMA 4 = free
- DMA 5 = free
- DMA 6 = free
- DMA 7 = free

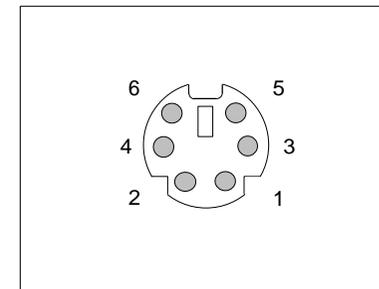


Parallel interface (Centronics)



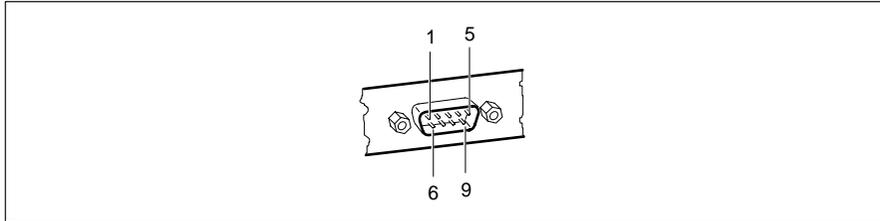
Pin	Signal name	Meaning
1	STROBE	Data message
2 - 9	Data Lines 0-7	Data lines 0-7
10	ACKNOWLEDGE	Data acknowledgement
11	BUSY	Not ready to receive
12	PE	End of paper
13	SELECT	Device selection
14	AUTO	Automatic new line
15	ERROR	Device error
16	INIT	Reset/initialize
17	SELECT IN	Printer selection
18 - 25	GROUND	Ground

Keyboard interface



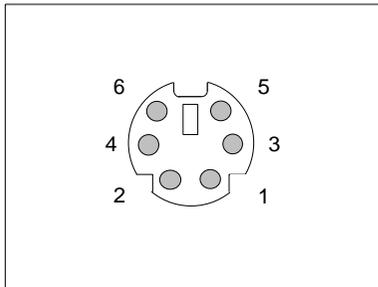
Pin	Signal name
1	Keyboard data
2	free
3	0 V
4	+5 V
5	Keyboard clock
6	free

Serial interfaces 1 and 2



Pin	Signal name	Meaning
1	DCD	Data Carrier Detect
2	RxD	Receive Data
3	TxD	Transmit Data
4	DTR	Data Terminal Ready
5	Signal Ground	Signal Ground
6	DSR	Data Set Ready
7	RTS	Request to Send
8	CTS	Clear to Send
9	Ri	Ring Indicator

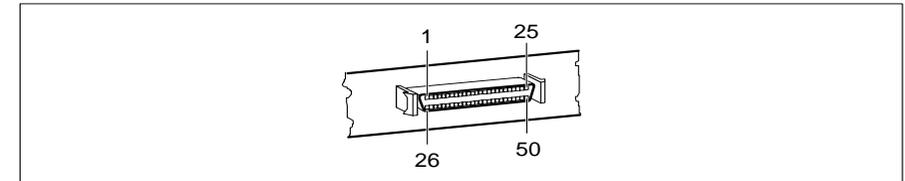
Mouse interface



Pin	Signal name
1	Mouse data
2	free
3	0 V
4	+5 V
5	Mouse clock
6	free

SCSI interface

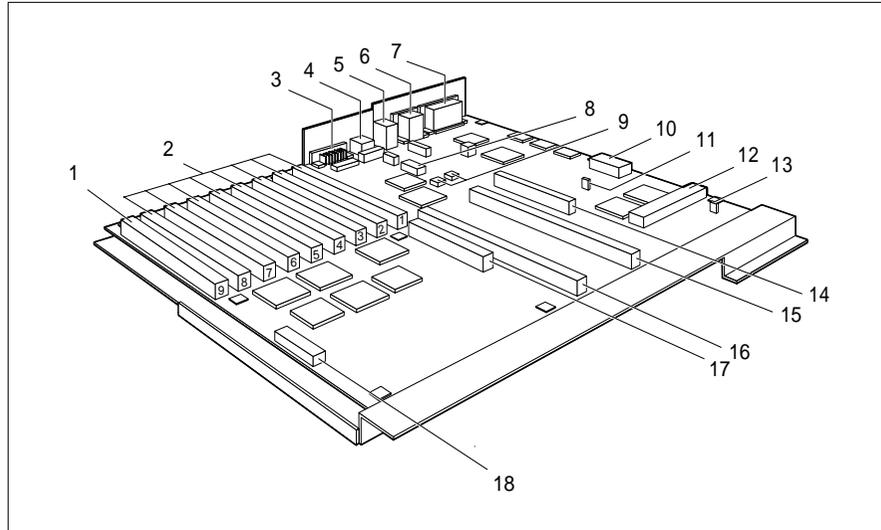
The connection of a SCSI drive is the same for both external and internal use. The cable connecting system board and SCSI drive is a color-coded 50-wire standard SCSI cable with a maximum length of 3 m.



Pin	Signal name	Pin	Signal name
1	Ground	2	-Data bit 0
3	Ground	4	-Data bit 1
5	Ground	6	-Data bit 2
7	Ground	8	-Data bit 3
9	Ground	10	-Data bit 4
11	Ground	12	-Data bit 5
13	Ground	14	-Data bit 6
15	Ground	16	-Data bit 7
17	Ground	18	-Data parity
19	Ground	20	Ground
21	Ground	22	Ground
23	Reserved	24	Reserved
25	Open	26	Terminator power
27	Reserved	28	Reserved
29	Ground	30	Ground
31	Ground	32	-Attention
33	Ground	34	Ground
35	Ground	36	-Busy
37	Ground	38	-Acknowledge
39	Ground	40	-Reset
41	Ground	42	-Message
43	Ground	44	-Select
45	Ground	46	-Control/Data
47	Ground	48	-Request
49	Ground	50	-I/O

Boards

System board



- | | |
|--|---|
| 1 = ISA slot (slot 9) | 10 = Interface for connection board |
| 2 = EISA slot (slots 1 - 8) | 11 = Jumper 3.3V/5V switching for processor board |
| 3 = Keyboard and mouse interface | 12 = SCSI interface 1 (controller 1) |
| 4 = Serial interfaces 1 and 2 | 13 = Slot for memory board |
| 5 = Parallel interface and SCSI interface 2 (controller 2) | 14 = Slot for processor board |
| 6 = DIP switches | 15 = VESA slot (local bus) |
| 7 = Flash EPROM (2 pieces) | 16 = Connector for additional signals of the system control board |
| 8 = Real-time clock (battery buffered) | |
| 9 = Jumper for terminating resistor SCSI interface 1 | |

Boards

Configuration options for the EISA slots

EISA slot	Master and Slave	Slave only
1		x
2	x	
3	x	
4	x	
5		x
6	x	
7		x
8	x	

Terminating resistor for SCSI interface 1

Jumper 9 on the system board is provided for setting the terminating resistor for SCSI interface 1.

Settings:

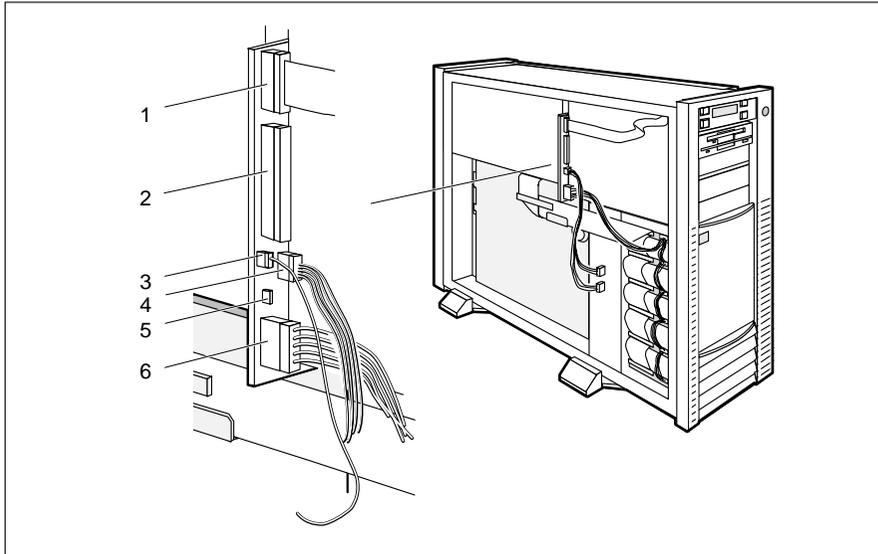
- Jumper inserted
Terminating resistor activated (default setting)
- Jumper not inserted
Terminating resistor not activated

DIP switches

The DIP switches 6 on the system board may not be changed.

Default setting: all switches open

Connection board



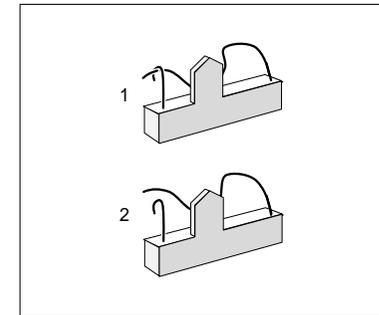
- 1 = Connector for control panel
- 2 = SCSI interface 2 (controller 2)
- 3 = Connector for loudspeaker
- 4 = Connector for fan
- 5 = Switch S1 for terminating resistor SCSI interface 2
- 6 = Power supply connector for drives

Connecting drives to SCSI controller 2

SCSI controller 2 controls the drives in bays 1 - 4, the externally connected drives and the drives connected to SCSI interface 2 of the connection board. Please observe the following when connecting drives to SCSI controller 2:

- SCSI drives in bays 1 - 4 may not have terminating resistors.
- The last externally connected SCSI drive must have a terminating resistor.
- If SCSI drives are connected to SCSI interface 2 of the connection board, the terminating resistor on the connection board must be deactivated, i.e. switch S1 must be opened. The last SCSI drive connected to SCSI interface 2 on the connection board must have a terminating resistor.

i SCSI interface 2 on the connection board is not used as standard. If your operating system however has problems with assigning the drives to two SCSI controllers, the use of this interface could also solve the problems for the hard disk drives.

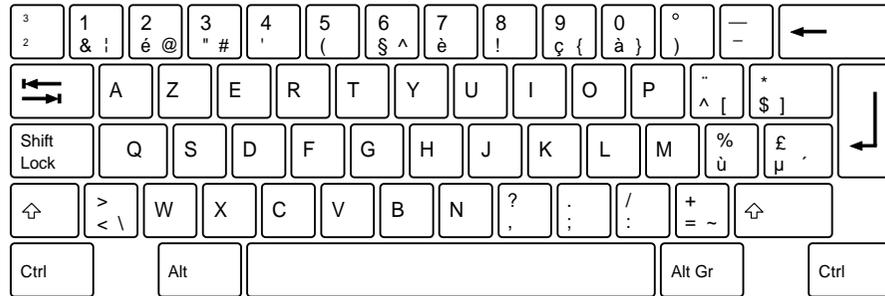


With switch S1 on the connection board, set the terminating resistor for SCSI interface 2.

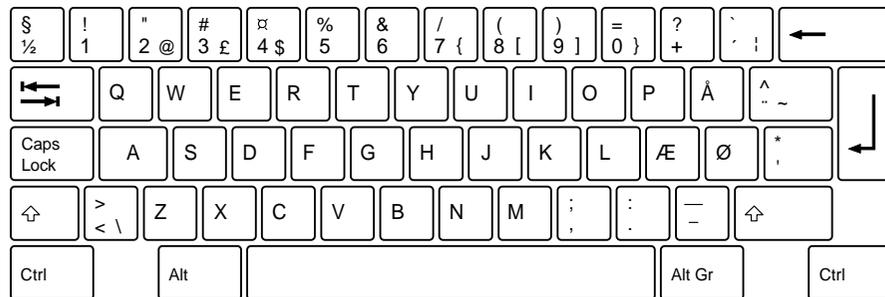
- Settings:
- Position 1
Terminating resistor activated (default setting)
 - Position 2
Terminating resistor not activated

Keyboard labeling

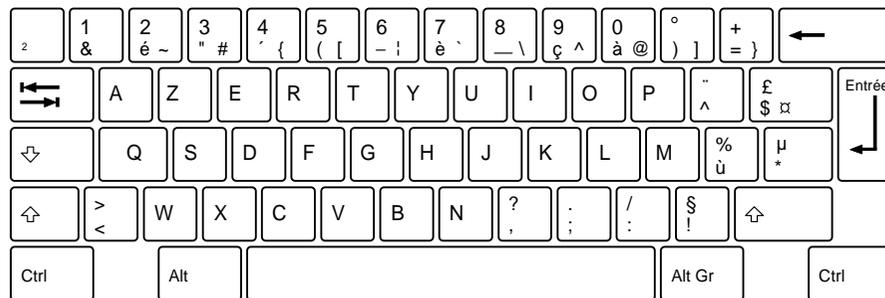
BELGIUM



DENMARK

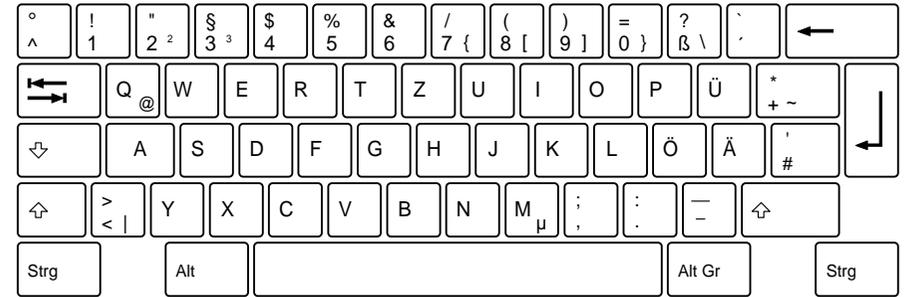


FRANCE

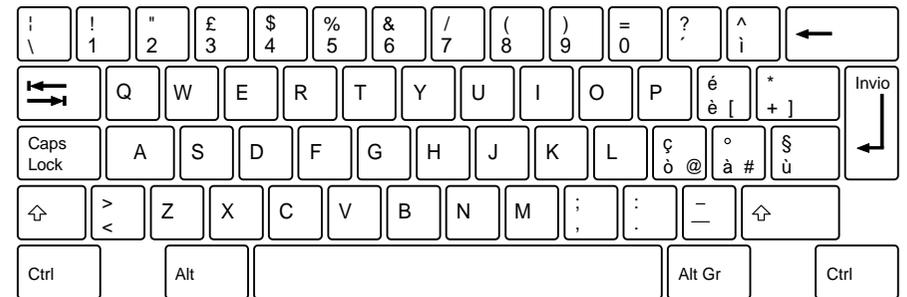


Keyboard labeling

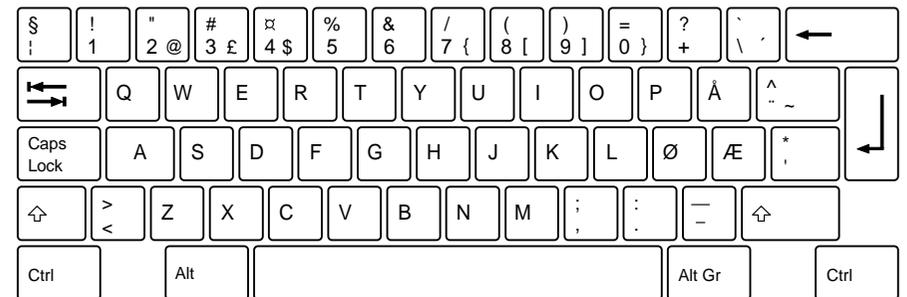
GERMANY



ITALY

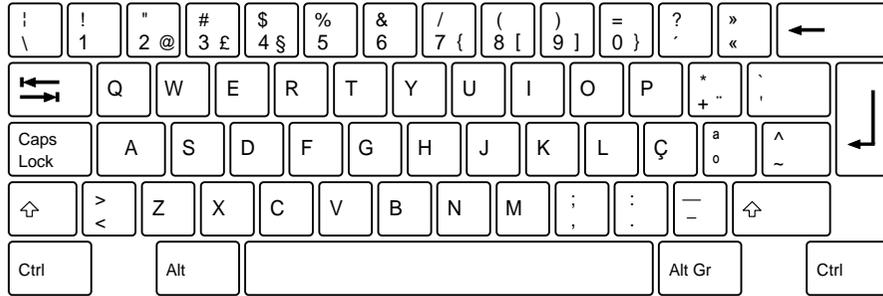


NORWAY

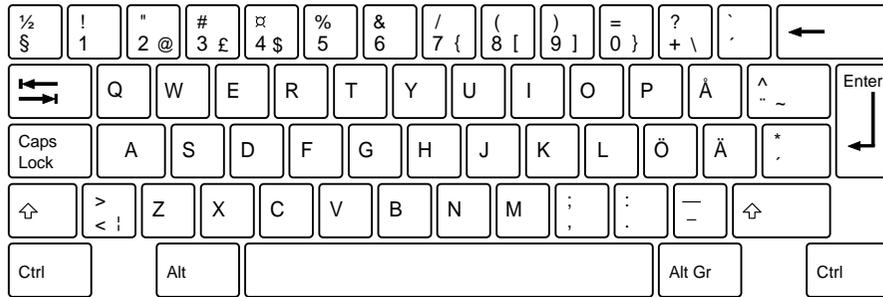


Keyboard labeling

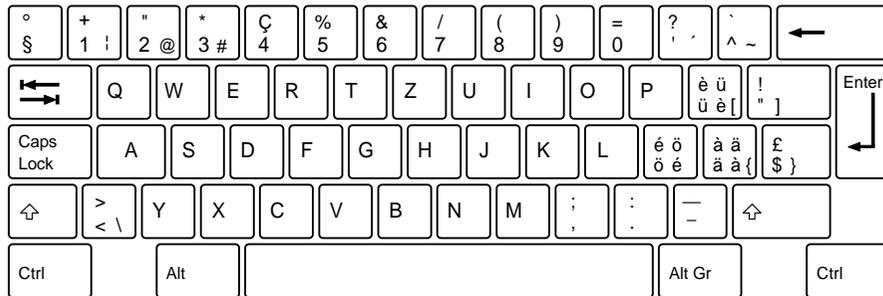
PORTUGAL



SWEDEN

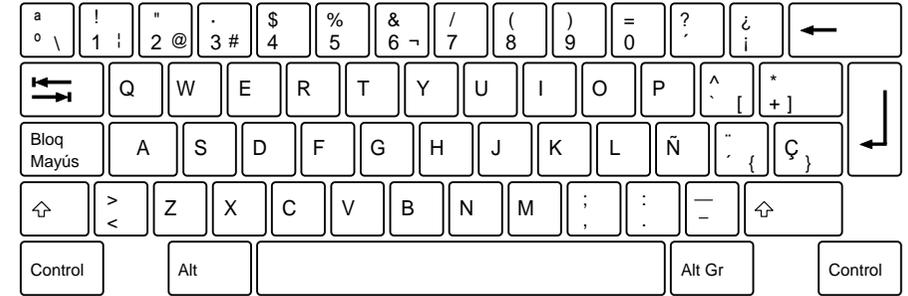


SWITZERLAND

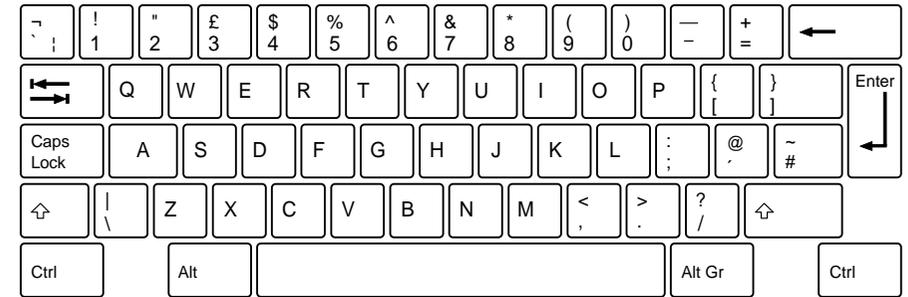


Keyboard labeling

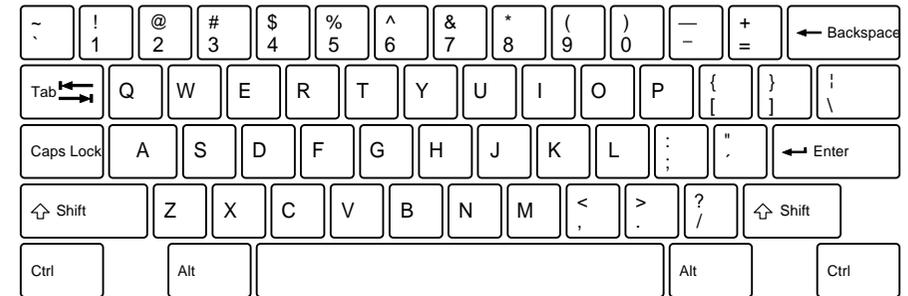
SPAIN



U.K.



U.S.



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1



1



1



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