FUJITSU

ESPRIMO E

Operating Manual

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Published by
Fujitsu Technology Solutions GmbH
A26361-K690-Z220-1-7619, Edition 1
2009/06

Produced by
XEROX Global Services

ESPRIMO E

Operating Manual

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Important notes
Preparing for use
Operation
Troubleshooting and tips
System expansions
Technical data
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June 2009 edition

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Your ESPRIMO E...

...is available with various configuration levels with different hardware and software. In addition, you can install accessible drives (e.g. DVD drive), hard disks and other boards.

This manual tells you how to put your device into operation and how to operate it in daily use. This manual applies for all configuration levels. Depending on the configuration level chosen some of the hardware components described may not be available on your PC. Please observe the notes on your operating system.

Depending on the configuration selected, the operating system is preinstalled on your hard disk (e.g. *Windows Vista*).

DeskUpdate allows you under some operating systems to easily and quickly install the latest drivers and operating system extensions with a few mouse clicks. *DeskUpdate* is contained on the "Drivers & Utilities" CD.

Further information on this device is provided:

- in the "Safety" manual
- in the "Ergonomics" manual
- in the "Warranty" manual
- in the operating manual for the monitor
- in the manual for the mainboard
- in the "BIOS Setup" manual
- in your operating system documentation
- in the information files (e.g. **.TXT*, **.DOC*, **.CHM*, **.HLP*, **.PDF*, **.HTML*)

You will find an electronic version of some of the listed manuals on the "User Documentation" or "Drivers & Utilities" CD.

You can access and view the required information using the *Acrobat Reader* program, which is also on the CD. If necessary, you can also make a print version of the manual.

Notational conventions

The following symbols are used in this manual:

indicates information which is important for your health or for preventing physical damage.

indicates important information which is required to use the system properly.

► Text which follows this symbol describes activities that must be performed in the order shown.

This font indicates programme names, commands, or menu items.

"Quotation marks" indicate names of chapters, data carriers, and terms that are being emphasised.

Important notes

In this chapter you will find information regarding safety which it is essential to take note of when working with your device.

Safety notes

Pay attention to the information provided in the "Safety" manual and in the following safety notes.

During installation and before operating the device, please observe the instructions on environmental conditions in the "Technical data" chapter as well as the instructions in the "Preparing for use" chapter.

You may only operate the device, if the rated voltage for the device is set to the local mains voltage. Check the rated voltage set for this device (see the "Preparing for use" chapter).

The ON/OFF switch does not disconnect the device from the mains voltage. To completely disconnect the mains voltage, remove the power plug from the grounded mains outlet.

Replace the lithium battery on the mainboard in accordance with the instructions in the "Extensions to the mainboard" - "Replacing lithium battery" chapter.

Caution, components in the system can get very hot.

Transporting the device

Transport all parts separately in their original packaging or in a packaging which protects them from knocks and jolts, to the new site. Do not unpack them until all transportation manoeuvres are completed.

Cleaning the device

Turn off all power and equipment switches and remove the power plug from the mains supply.

Do not clean any interior parts yourself, leave this job to a service technician.

Do not use any cleaning agents that contain abrasives or may corrode plastic.

Ensure that no liquid enters the system.

Wipe the casing with a dry cloth. If particularly dirty, use a cloth that has been moistened in mild domestic detergent and then carefully wrung out. Use disinfectant wipes to clean the keyboard and the mouse.

Energy saving, disposal and recycling

Information on these topics can be found on the "Drivers & Utilities" CD or on our website *http://ts.fujitsu.com*.

CE marking

CE marking for devices shipped without wireless component up to 15/01/2007

The shipped version of this device complies with the requirements of the EEC directives 89/336/EEC "Electromagnetic compatibility" and 73/23/EEC "Low voltage directive".

CE marking for devices without wireless components supplied between 16.01.2007 and 19.07.2007

The shipped version of this device complies with the requirements of the EC Guidelines 89/336/EEC "Electromagnetic compatibility" and 2006/95/EC "Low voltage directive".

CE marking for devices without wireless components introduced for sale from 20.07.2007

The shipped version of this device complies with the requirements of the EC Guidelines 2004/108/EC "Electromagnetic compatibility" and 2006/95/EC "Low voltage directive".

CE marking for devices with radio component

This equipment complies with the requirements of Directive 1999/5/EC of the European Parliament and Commission from 9 March, 1999 governing Radio and Telecommunications Equipment and mutual recognition of conformity.

This equipment can be used in the following countries:

Belgium	Denmark	Germany	Estonia
Finland	France	Greece	UK
Ireland	Iceland	Italy	Latvia
Liechtenstein	Lithuania	Luxemburg	Malta
Netherlands	Norway	Austria	Poland
Portugal	Sweden	Switzerland	Slovakia
Slovenia	Spain	Czech Republic	
Hungary	Cyprus	Bulgaria	Rumania

Contact the corresponding government office of the respective country for current information on possible operating restrictions. If your country is not included in the list, then please contact the corresponding supervisory authority as to whether the use of this product is permitted in your country.

FCC Class B Compliance Statement

The following statement applies to the products covered in this manual, unless otherwise specified herein. The statement for other products will appear in the accompanying documentation.

NOTE:

This equipment has been tested and found to comply with the limits for a "Class B" digital device, pursuant to Part 15 of the FCC rules and meets all requirements of the Canadian Interference-Causing Equipment Standard ICES-003 for digital apparatus. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in strict accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Fujitsu Technology Solutions GmbH is not responsible for any radio or television interference caused by unauthorised modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Fujitsu Technology Solutions GmbH. The correction of interferences caused by such unauthorised modification, substitution or attachment will be the responsibility of the user.

The use of shielded I/O cables is required when connecting this equipment to any and all optional peripheral or host devices. Failure to do so may violate FCC and ICES rules.

Preparing for use

Please take note of the safety information in the "Important notes" chapter.

Unpacking and checking the delivery

It is recommended not to throw away the original packaging material! It may be required for reshipment at some later date.

► Unpack all the individual parts.

► Check the delivery for damage incurred during transportation.

► Check whether the delivery agrees with the details in the delivery note.

Should you discover that the delivery does not correspond to the delivery note, notify your local sales outlet immediately.

Steps for initial setup

Only a few steps are necessary to put your new device into operation for the first time:

- Select location for device and set up device
- Connect the monitor, mouse and keyboard
- Check the voltage at the mains outlet and connect the device to an electrical outlet
- Switching the device on

You will learn more about the individual steps in the following sections.

Drives and boards

If you have received drives or boards with your device, please do not install them until after first-time setup. How to install drives and boards is described in the "System expansions" chapter.

Setting up the device

When installing your device, give consideration to the safety notes in the "Safety" manual.

Only install the device in the operating positions for which it is intended.

We recommend that you place your device on a surface with good anti-slip qualities. In view of the multitude of different finishes and varnishes used on furniture, it is possible that the rubber / plastic feet will mark the surface they stand on.

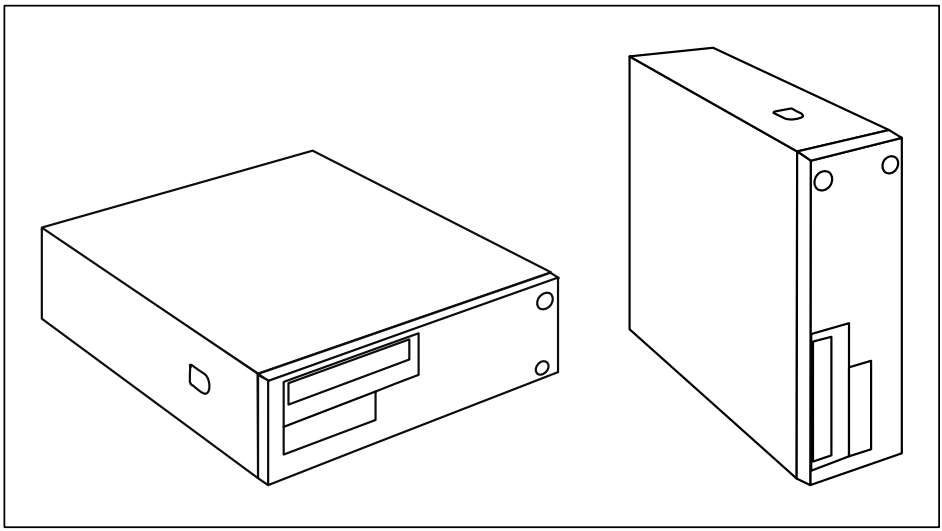
Do not expose the device to extreme environmental conditions (see "Technical data"). Protect the device from dust, humidity, and heat.

When installing the workstation, provide sufficient clearance around the device, as indicated in the "Technical data" chapter to ensure adequate ventilation. In order to avoid overheating, do not cover the ventilation area of the monitor or the device.
Do not stack several devices on top of each other.

If you place a monitor on the device, it may weigh a maximum of 25 kg. Make sure that you do not block any ventilation slots on the device.

Depending on the location of your device, bothersome vibrations and noises may occur. To prevent this, a distance of at least 3 mm should be maintained from other devices on casing sides without ventilation surfaces.

The device can operate in either a vertical or horizontal position.

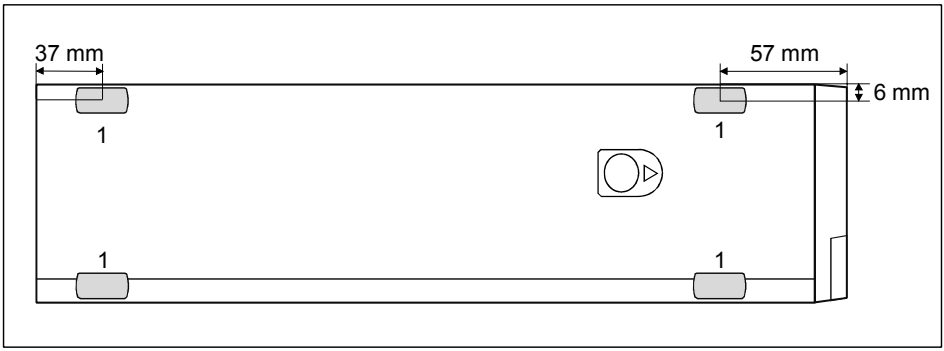


The horizontal operating position is only permitted with the rubber/plastic feet (due to heat produced on the underside).

Vertical operating position

Proceed as follows to operate the device in the vertical operating position:

- ► If necessary, disconnect the cables.
- ► Position the casing vertically so that the ON/OFF switch is located at the bottom.
- ► Pull off the foil from the rubber / plastic feet that you will find in the accessories package.



- ► Glue the rubber/plastic feet (1) on the casing wall.
  In order to ensure that the device is stable, the position of the rubber/plastic feet must correspond to the given dimensions.
- ► Place the unit on the rubber / plastic feet and reconnect any cables disconnected previously.

The set-up direction is specified. The ON/OFF switch must be at the top to ensure sufficient ventilation.

Connect the monitor, mouse and keyboard

The ports for the monitor, mouse, and keyboard are on the front and rear of the device.

Keyboard port / purple

Monitor port / blue

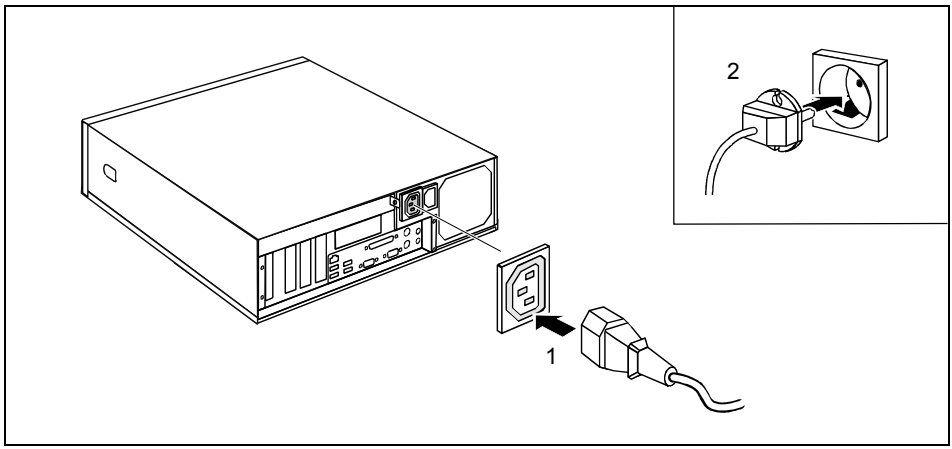
PS/2 mouse port / green

USB port / black

Connecting the monitor

► Follow the instructions contained in the monitor manual to prepare the monitor for operation (e.g. connecting cables).

► Plug the data cable into the monitor port of the device.



► Depending on your device configuration level, plug the monitor power cable into either the monitor socket of the device (1) or a grounded power outlet (2).

When you connect the monitor to the monitor socket of the device, it automatically switches off as soon as the device switches off.

The monitor power cable may only be connected to the monitor socket of the device if the monitor current consumption is smaller than 1.5 A with 230 V or 3 A with 115 V. The values for the monitor current consumption can be found in the technical data on the monitor or in the operating manual for the monitor.

Connecting the mouse

Depending on the equipment level selected, your device will be supplied with a PS/2 mouse or a USB mouse.

Connecting a PS/2 mouse

► Connect the PS/2 mouse to the PS/2 mouse port of the device.

Connecting USB mouse

► Connect the USB mouse to the USB port of the device.

i If you do not attach a mouse at the PS/2 mouse port, you can disable the mouse controller in the *BIOS Setup* in order to free the IRQ12 for a different application.

Connecting a keyboard

Depending on the equipment level selected, your device will be supplied with a standard keyboard or a USB keyboard.

Connecting standard keyboard

Use the supplied keyboard cable only.

► Plug the rectangular connector of the keyboard cable into the rectangular socket on the underside or on the rear of the keyboard.

► Plug the round plug of the keyboard cable into the keyboard port on the device.

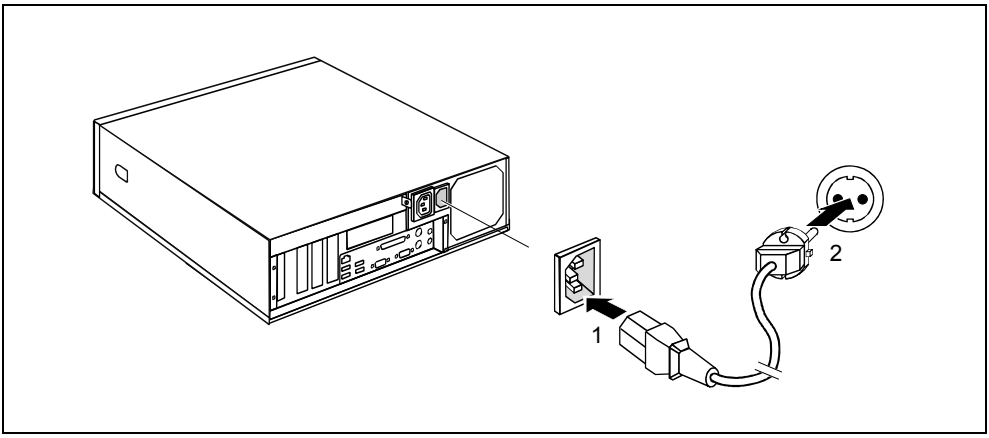
Connecting USB keyboard

Use the supplied keyboard cable only.

► Plug the rectangular connector of the keyboard cable into the socket on the underside or on the rear of the keyboard.

► Insert the flat rectangular USB plug of the keyboard cable into a USB port of the device.

Connecting the device to the mains voltage

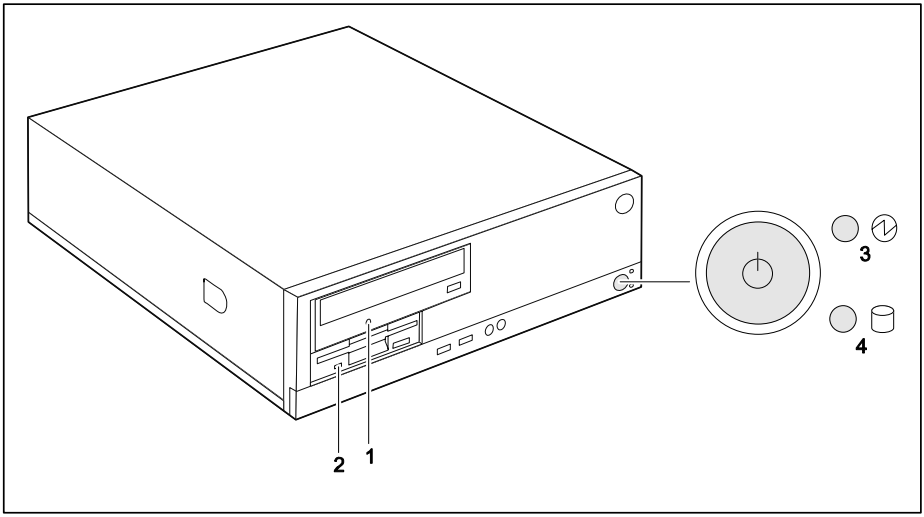


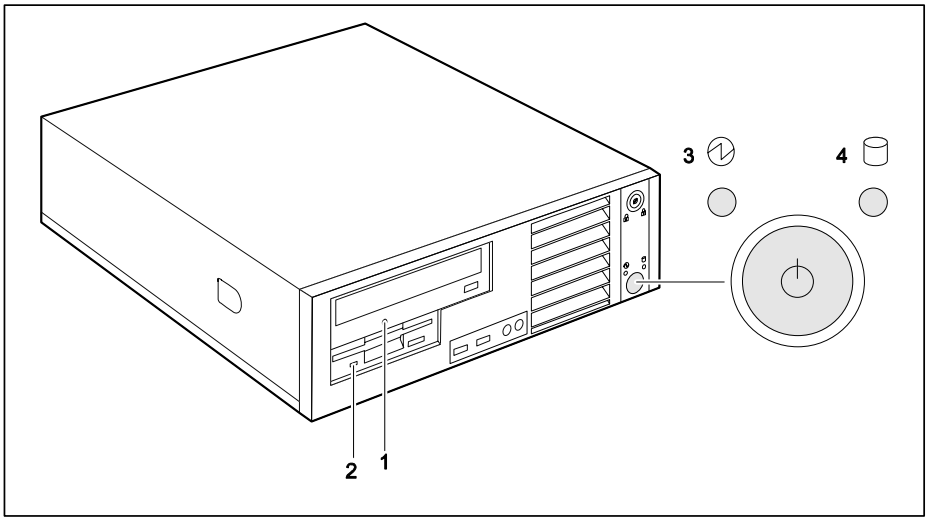
► Connect the power cable to the device (1).

► Plug the power plug into a grounded mains outlet (2).

Indicators provided by the device

The indicators are on the front of the casing. Which indicators are available on your device depends on the configuration level you have selected.





1 = CD-ROM or DVD indicator
2 = Floppy disk indicator/SmartCard reader indicator
3 = Power-on indicator
4 = Hard disk indicator

1 - CD-ROM or DVD indicator

The indicator lights up when the CD-ROM or DVD drive is accessed. You may only remove the CD/DVD when the indicator is dark.

2 - Floppy disk indicator or SmartCard reader indicator

Floppy disk indicator:
The indicator lights up when the floppy disk drive of the device is accessed. You may only remove the floppy disk when the indicator is unlit.

SmartCard reader indicator:
The indicator lights up as soon as the SmartCard reader is ready for operation.
The indicator flashes when the SmartCard is accessed.

3 - Power-on indicator

– The indicator is green:
The device is on.

The display can also light up green if the device has been switched off by holding the ON/OFF switch (see "The device cannot be switched off with the ON/OFF switch").

– The indicator lights up orange or flashes green:
The device is ready-to-operate or in energy-saving mode. After being switched on with the power button, the device switches on or returns to the state it was in before the energy-saving mode.

In the energy-saving mode the device may not be disconnected from the mains supply, as this may otherwise result in data loss.

– The indicator does not light up:
The device is disconnected from the power supply or is ready for operation. If your device is ready-to-operate it can be enabled with the ON/OFF switch.

4 - Hard disk indicator

The indicator lights up when the hard disk of the device is accessed.

Initial switch-on: Software will be installed

If the device is integrated into a network, the user and server details as well as the network protocol are required during the software installation. Contact your network administrator if you have any questions about these settings.

When you switch on the device for the first time, the supplied software is installed and configured. Plan a reasonable amount of time for this, as this process must not be interrupted.

Once the installation has been started the device must not be switched off, unless the installation has been completed.

During installation, the device may only be rebooted when you are requested to do so!

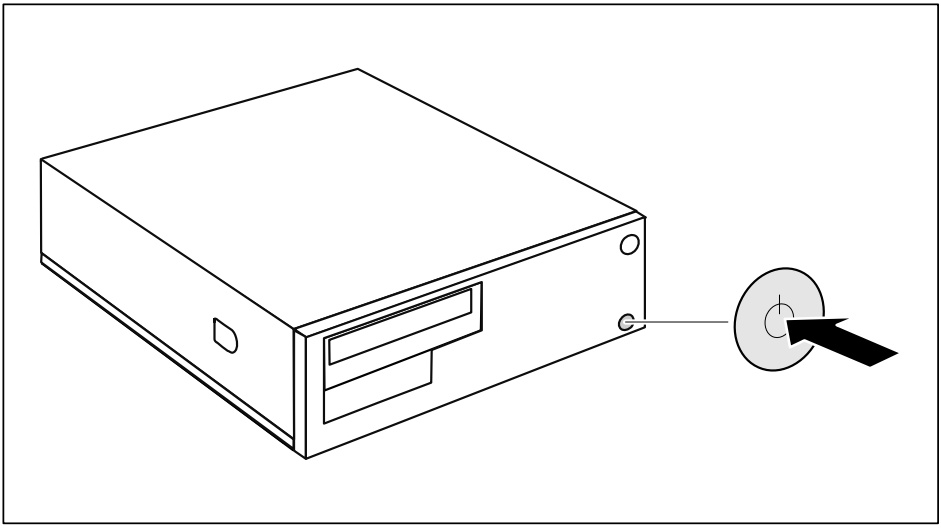
The installation will otherwise not be carried out correctly and the contents of the hard disk must be completely restored.

You may need the licence number for Windows during the installation. The licence number is located on a sticker on your device.

Switching on monitor and device

► Switch the monitor on (see the operating manual for the monitor).

► Switch the device on. To do this, follow the instructions below.



1 = ON/OFF switch

► Press the ON/OFF switch on the front of the device.

The power-on indicator lights green and the device is started.

Installing the software

► During installation, follow the instructions on screen.

► Consult the operating system manual if there is anything unclear about the requested input data.

i

Further information about the system, drivers, utilities and updates can be found on the "Drivers & Utilities" CD or on our website *http://ts.fujitsu/support.com*.

Connecting external devices

Read the documentation on the external device before connecting it.

With the exception of USB devices, always remove all power plugs before connecting external devices!

Do not connect or disconnect cables during a thunderstorm.

Always take hold of the actual plug. Never unplug a cable by pulling the cable itself.

Connect and disconnect the cables in the order described below.

Connecting cables

- ► Turn off all power and equipment switches.
- ► Remove all power plugs from the grounded mains outlets.
- ► Plug all cables into the device and peripherals. You must observe the information provided in the "Important notes" chapter.
- ► Plug all data communication cables into the utility sockets.
- ► Plug all power cables into the grounded mains outlets.

Disconnecting cables

- ► Turn off all power and equipment switches.
- ► Remove all power plugs from the grounded mains outlets.
- ► Unplug all data communication cables from the utility sockets.
- ► Unplug all cables from the device and peripherals.

USB devices are hot-pluggable. This means you can connect and disconnect devices while your operating system is running.

Additional information can be found in the "Connecting external devices to the parallel or serial port" section and in the documentation for the USB devices.

Ports provided by the device

The connections are located on the front and back of the device. The ports available on your device depend on the configuration level you have selected. The standard ports are marked with the symbols shown below (or similar). Exact details of the position of the ports are supplied in the manuals for the boards.

Keyboard port, purple

PS/2 mouse port, green

Serial port 1, teal or turquoise

Serial port 2, teal or turquoise

Monitor port, blue

Parallel port/Printer, burgundy

Headphones port, orange or light green

Microphone jack (mono), pink

Audio output (Line out), light green

Audio input (Line in), light blue

Game port, gold

SCSI connection

USB - Universal Serial Bus, black

LAN port

Some of the connected devices require special drivers (see the documentation for the connected device).

Connecting external devices to the parallel or serial port

If your device has parallel and serial ports, you can connect external devices to these ports (such as a printer or modem).

► Connect the data cable to the external device.

► Depending on the device, connect the data cable to the parallel port or the serial port .

For an exact description of how to connect external devices to the corresponding port, please see the external device documentation.

Port settings

You can change the port settings (e.g. address, interrupt) in the *BIOS Setup*.

Device drivers

The devices connected to the parallel or serial port require drivers. Your operating system already includes many drivers. If the required drive is missing, install it. Current drivers are usually available on the Internet or will be supplied on a data carrier.

Connecting external devices to the USB ports

You can connect a wide range of external devices to the USB port (e.g. printer, scanner, modem or keyboard).

USB devices are hot-pluggable. This means you can connect and disconnect devices while your operating system is running.

Additional information can be found in the documentation for the USB devices.

► Connect the data cable to the external device.

► Connect the data cable to a USB port .

Device drivers

The devices you connect to the USB ports usually require no driver of their own, as the required software is already included in the operating system. However, if the USB device requires its own software, please install it from the data carrier provided with the USB device.

Operation

Switching the device on

► If necessary, switch the monitor on (see the operating manual for the monitor).

► Press the ON/OFF switch on the front of the device.

The power-on indicator lights green and the device is started.

Switching off the device

► Shut down the operating system properly. For Windows: select *Shut Down* from the *Start* menu.

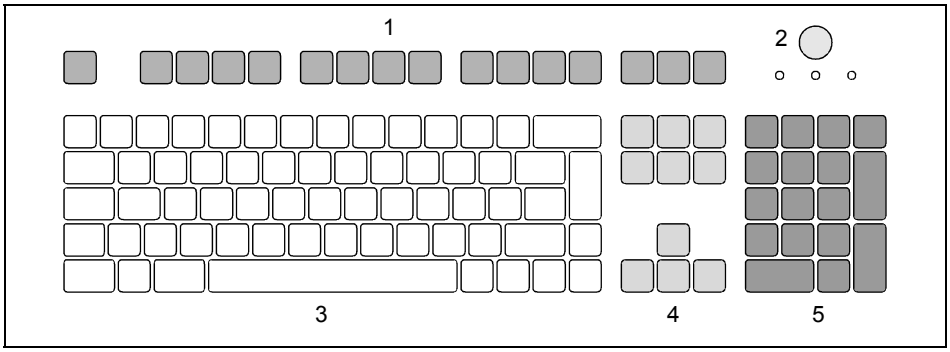
► If the operating system does not automatically switch the device into an energy-saving mode or switch it off, press the ON/OFF switch.

The device then consumes a minimum amount of energy.

The ON/OFF switch does not disconnect the device from the mains voltage. To completely disconnect the mains voltage, remove the power plug from the socket.

► If necessary, switch the monitor off (see the operating manual for the monitor).

Keyboard



1 = Function keys
2 = Power button (optional)
3 = Alphanumeric keypad
4 = Cursor keys
5 = Numeric keypad (calculator keypad)

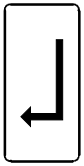
The illustrated keyboard is an example and may differ from the model you use.

Important keys and key combinations

The description of the following keys and key combinations applies to Microsoft operating systems. Details of other keys and key combinations can be found in the documentation of the relevant application programme.

ON/OFF switch (optional)
Depending on the setting in the *BIOS Setup*, the system can be switched on, off, or on and off with this button. Some operating systems allow you to configure additional functions of the ON/OFF switch in the Control Panel.

With some keyboards the ON/OFF switch can only be used with an ACPI (Advanced Configuration and Power Management Interface). Otherwise the key is inoperative. The mainboard must support this function.



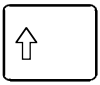
Enter key
confirms the marked selection. The enter key is also referred to as the "Return" key.

Start key
calls up the Windows *Start* menu.

(Windows XP)

(Windows Vista)

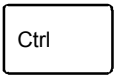
Menu key
invokes the menu for the marked item (Windows).



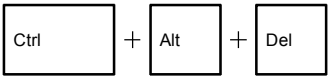
Shift key
enables upper-case letters and the upper key symbols to be used.

Alt Gr (e.g. German keyboard)
produces a character shown on the right-hand side of a key (e.g. the character @ on the key **Q**).

Num Lock key
by pressing the Num Lock key you switch between the Numeric keypad cursor control functions and digit or comma functions.
When the Num Lock indicator is lit the digit and comma keys are active.
When the Num Lock indicator is not lit the cursor control functions are active in the Numeric keypad.



Ctrl key
starts key combination actions. The **Ctrl** key is also called "Control" or "Control key".

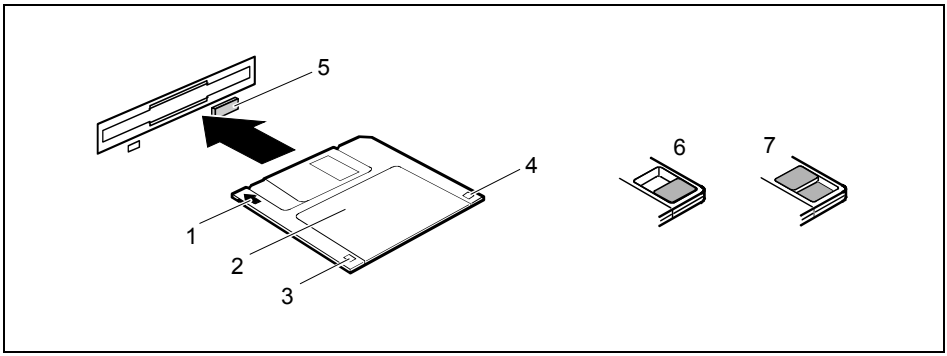


Warm boot
restarts your device. Press simultaneously the keys **Ctrl**, **Alt** + **Del**. Under some operating systems the Task Manager appears first. Then you must press all three keys again to re-boot.

Working with floppy disks

Follow the instructions supplied by the vendor of the floppy disks.

Do not clean the floppy disk drive with cleaning floppy disks. Any attempt would destroy the read/write head in the disk drive within 20 seconds.



1 = Insertion direction
2 = Label area
3 = Write protection tab for a 1.44 Mbyte floppy disk
4 = Identification of a 1.44 MB floppy disk or write protect switch on a 120 MB floppy disk
5 = Eject button for inserted floppy disks
6 = Disk is write-protected
7 = Disk is not write-protected

To insert a diskette

► Push the floppy disk into the drive in the insertion direction (1) until it engages. The label should be facing upward.

To remove a diskette

► Push the eject button (5).

Protect the floppy disk against being overwritten or erased

► Slide the write-protect slider into position (6). The hole is now visible.

Deactivate write protection

Slide the write-protect slider into position (7). The hole is now covered.

Settings in BIOS Setup

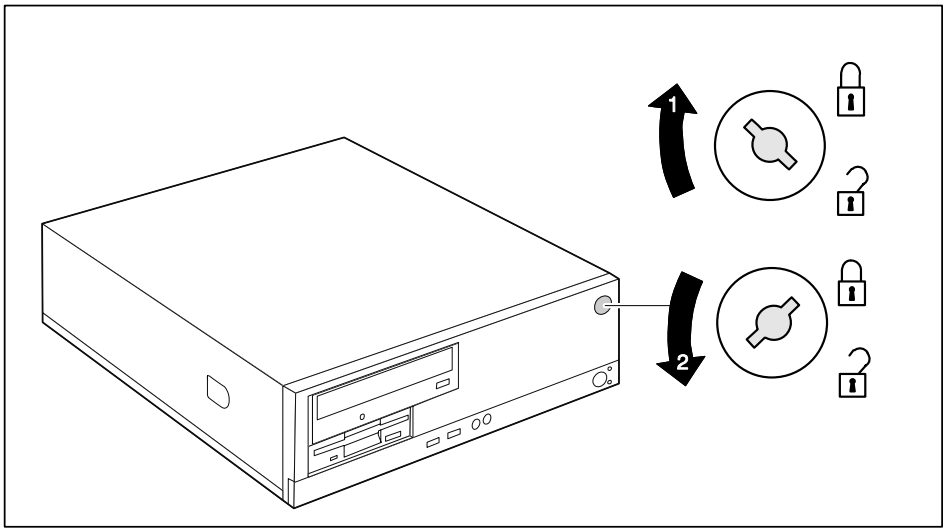
In *BIOS Setup* you can set the system functions and the hardware configuration of the device. When the PC is delivered, the default entries are valid (see "BIOS Setup" manual and if necessary manual for the mainboard). You may customise these settings to your requirements in the *BIOS Setup*.

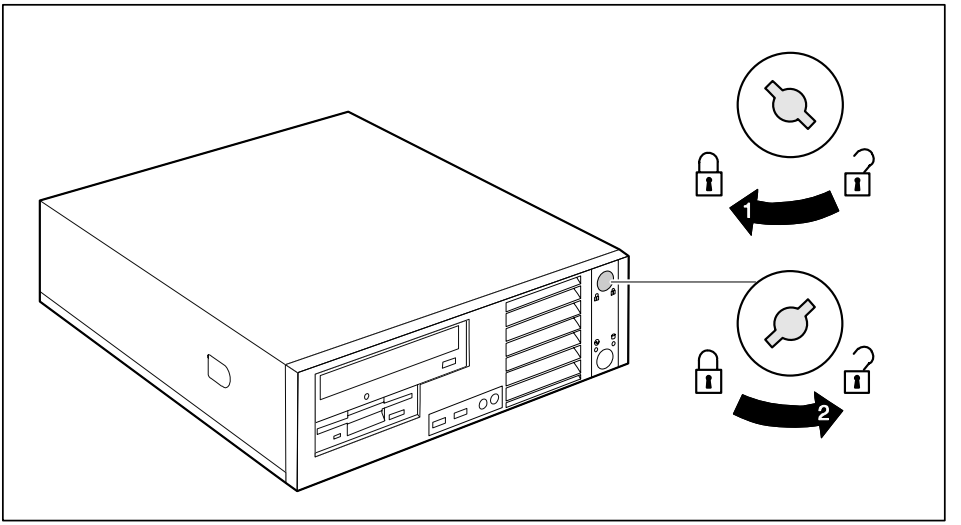
Property and data protection

Software functions and mechanical locking offer a broad range of functions for protecting your device and your personal data from unauthorised access. You can also combine these functions.

Mechanical casing lock (optional)

With the casing lock you can mechanically lock the casing to prohibit unauthorised persons from opening it. On delivery, you will find the keys on the rear panel of your device.





Locking the casing

► Turn the key in the direction of the arrow (1).

Unlocking the casing

► Turn the key in the direction of the arrow (2).

Anti-theft protection and lead-sealing

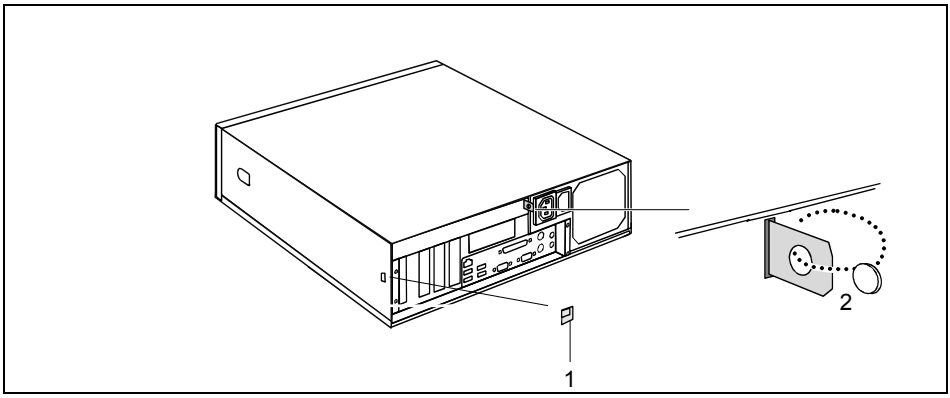
Anti-theft protection

You can protect your device from theft.

- with the Kensington Lock device (1) and with a Kensington MicroSaver. Consult the manual for your Kensington Lock.
- with the eye (2), a padlock and a chain, which you have connected to a fixed object beforehand.

Lead-sealing

To prevent unauthorised persons from opening the casing, the casing can be sealed. To do this, feed a sealing chain through the eye (2) and seal the chain with the lead seal.



1 = Device for "Kensington Lock" 2 = Eye for lead seal and (pad)lock

BIOS setup security functions

The *Security* menu in *BIOS Setup* offers you various options for protecting your personal data against unauthorised access, e.g.:

- Preventing unauthorised *BIOS Setup* entry
- Preventing unauthorised system access
- Preventing system booting from the diskette drive
- Activating virus warnings
- Protecting BIOS from being overwritten
- Protecting the device from being switched on by an external device

You can also combine these functions.

You will find a detailed description of the *Security* menus and how to assign passwords in the manual for the mainboard or in the "BIOS Setup" manual.

Access authorisation via SmartCard

In systems equipped with a SmartCard reader, access can be restricted to those users who have a corresponding SmartCard.

Access protection with SystemLock

With *SystemLock* you can protect your system from unauthorised booting. Then a system can only be booted when the user inserts a valid SmartCard in the SmartCard reader and enters his/her personal code number (PIN). To use *SystemLock* you require the following components:

- External or internal SmartCard reader
- *SystemLock* installed (see "BIOS Setup" manual)
- SmartCard

SystemLock controls access to your device. When a SmartCard is initialised, permissions are assigned for system access (system, setup, system+setup, admin). You can configure several SmartCards for one system and initialise them with different permissions. In addition you can protect access to your hard disk.

In this way users can be divided into user groups. Users of a user group use SmartCards with the same permissions.

More information on SystemLock

If you also want to use other security software in addition to *SystemLock* (e.g. *SMARTY*), please read the documentation on your security software beforehand.

SystemLock permissions

You can initialise a SmartCard with one of the following permissions:

System	The system starts following entry of the user PIN. You can change the user PIN.
Setup	You can open and change the *BIOS Setup* and change the user PIN.
System+Setup	The system starts following entry of the user PIN. You can open and change the *BIOS Setup* and change the user PIN.
Admin	The system starts following entry of the user PIN. You can change the user PIN an the administrator PIN, unlock locked SmartCards, open and change the *BIOS Setup* and generate additional SmartCards for this system.

For instructions on how to install and operate *SystemLock*, and how to initialise SmartCards, see the "BIOS Setup" manual.

Operating the SmartCard reader

- Operating the internal SmartCard reader

  If the SmartCard reader is ready-to-use, the SmartCard reader indicator on the front of the device lights green.

- Operating the external SmartCard reader

After the device is switched on, you will be prompted to insert your SmartCard.

Troubleshooting and tips

Take note of the safety notes in the "Safety" manual and in the "Preparing for use" chapter, when you connect or disconnect cables.

If a fault occurs, try to correct it as described in the following places:

- in this chapter
- in the documentation of the connected devices
- in the help systems of the software used
- in the documentation of your operating system

If you fail to correct the problem, proceed as follows:

► Switch off the device.

► Make a note of the steps and the circumstances that led to the fault.

► Make a note of any error messages displayed.

► Note the ID number of your device. The Ident-No. can be found on the type rating plate on the back of the casing.

► Contact your sales outlet or our customer service centre.

Installing new software

When installing programmes or drivers, important files may be overwritten and modified. To be able to access the original data in the event of any problems following installation, you should backup your hard disk prior to installation.

Power-on indicator remains unlit after you have switched on your device

This may be due to the following:

The mains voltage supply is faulty

► Check whether the power cable is plugged properly into the device and a grounded mains outlet.

► Switch the device on.

Internal power supply overloaded

► Pull the power plug of the device out of the mains outlet.

► Wait for a moment.

► Plug the power plug into a properly grounded mains outlet again.

► Switch the device on.

The device cannot be switched off with the ON/OFF switch

Cause: The device has not been switched on with the ON/OFF switch.

► Press the ON/OFF switch again.

Cause: System crash

► Press the ON/OFF switch for at least 4 seconds, until the device switches off.

i The operating system is not shut-down properly in the process. Error messages are therefore possible the next time the system is booted.

The screen stays blank

If your screen remains blank this may be due to the following:

Monitor is switched off

► Switch your monitor on.

Power saving has been activated (screen is blank)

► Press any key on the keyboard.

or

► Deactivate the screen saver. If necessary, enter the appropriate password.

Brightness control is set to dark

► Adjust the brightness control. For detailed information, please refer to the operating manual supplied with your monitor.

Power cable not connected

► Switch off the monitor and the device.

► Check that the monitor power cable is properly connected to the monitor and to a grounded mains outlet or to the monitor socket of the device.

► Check that the device power cable is properly plugged into the device and a grounded mains outlet.

► Switch on the monitor and the device.

Monitor cable not connected

► Switch off the monitor and the device.

► Check that the monitor cable is properly connected to the device and monitor.

► Switch on the monitor and the device.

Wrong monitor has been set under Windows 2000

- ► Restart the device.
- ► If the message *Starting Windows* appears, press function key **F8**

The *Windows 2000 Advanced Options Menu* appears.

- ► Select *Safe Mode* or *Safe Mode with Network*.
- ► Set the correct values for the attached monitor as described in the operating manual of the monitor by selecting *Start - Settings - Control Panel - Display - Settings*.

Wrong monitor has been set under Window XP

- ► Restart the device.
- ► Press **F8** while the system is booting.

Either the *Windows Advanced Start Options* menu or the menu for selecting the operating system appears.

- ► If the menu for selecting the operating system appears, press **F8**.
- ► Select *Safe Mode* or *Safe Mode with Network*.
- ► Set the correct values for the attached monitor as described in the operating manual of the monitor by selecting *Start - Settings - Control Panel - Display* and then the *Appearance*, *Themes*, *Settings* tabs.

Wrong setting for the monitor under Windows Vista

- ► Restart the device.
- ► Press **F8** while the system is booting.
- ► Either the *Windows Advanced Start Options* menu or the menu for selecting the operating system appears.
- ► If the menu for selecting the operating system appears, press **F8**.
- ► Select *Safe Mode* or *Safe Mode with Network*.
- ► Set the correct values for the connected monitor, as described in the operating manual of the monitor, by selecting *Start (Settings) - Control Panel - Display - Settings*

The wrong RAM modules have been inserted

See the manual for the mainboard for information on which memory modules can be used.

No mouse pointer displayed on the screen

- ► Shut down the operating system properly.
- ► Switch off the device.
- ► Check that the mouse cable is properly connected to the system unit.

  If you use an adapter or extension lead with the mouse cable, check the connections.
- ► Make sure that only one mouse is connected.
- ► Switch the device on.

The mouse controller must be enabled if you use a PS/2 mouse on the PS/2 mouse port .

- ► Check in the *BIOS Setup* that the mouse controller is *Enabled*.
- ► Check that the mouse driver is properly installed and is present when the application programme is started. Detailed information can be found in the user guide for the mouse and application programme.

The floppy disk cannot be read or written

- ► Check that the write protection of the floppy disk or the floppy disk drive is activated (refer to the "BIOS Setup" manual and if necessary to the manual for the mainboard).
- ► Check the relevant entries for floppy disk drive in the *Main* menu of the *BIOS Setup*.
- ► Check that the floppy disk drive controller is enabled (refer also to the manual for the mainboard or in the "BIOS Setup" manual).
- ► Check that the cables of the floppy disk drive are properly connected (see "Replacing the floppy disk drive").

Time and/or date is not correct

You can set the time and date in the *BIOS Setup* or in the operating system.

► Set the time and date.

If the time and date are repeatedly wrong when you switch on your PC, the on-board battery is flat. Change the lithium battery as described in the "Extensions to the mainboard"-"Replacing lithium battery".

Error messages on the screen

Error messages and their explanation are contained:

- in the manual for the mainboard
- in the "BIOS Setup" manual
- in the documentation for the programmes used

Restoring the hard disk contents

Should you need to restore your hard disk, the instructions are provided on the case of the "Recovery CD" (delivered with your system).

Tips

Out of system resources

If you have too many applications running at once, you may experience problems due to a lack of system resources.

► Close unnecessary applications.

Or

► Run the applications in a different order.

Other manuals

Additional manuals are provided as PDF files on the "User Documentation" or "Drivers & Utilities" CD.

System expansions

As the device has to be shut down in order to install/deinstall system hardware components, it is a good idea to print out the relevant sections of this chapter.

It may be necessary to update the BIOS when carrying out a system expansion or hardware upgrade. Additional information is contained in the "BIOS Setup" manual or possibly in the manual for the mainboard.

When installing components that become very hot, make sure that the maximum permissible temperature is not exceeded.

The device must be switched off when installing/removing the system expansions and may not be in the energy-saving mode.

Remove the power plug before opening the device.

This chapter describes all the activities required to modify your device hardware (e.g. installing boards or drives).

Read the supplied documentation before installing new drives and/or boards.

Refer to the manual for the mainboard before making any extensions to the mainboard.

Information about boards

Take care with the locking mechanisms (catches and centring pins) when you are replacing boards or components on boards.

To prevent damage to the board or the components and conductors on it, please take care when you insert or remove boards. Make sure expansion boards are inserted straightly.

Never use sharp objects (screwdrivers) for leverage.

Boards with electrostatic sensitive devices (ESD) are identifiable by the label shown.

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

- You must always discharge static build up (e.g. by touching a grounded object) before working.
- The equipment and tools you use must be free of static charges.
- Always hold boards with ESDs by their edges.
- Never touch pins or conductors on boards fitted with ESDs.

Opening the casing

► Switch off the device. The device must not be in the energy-saving mode!

Please take note of the safety information in the "Important notes" chapter.

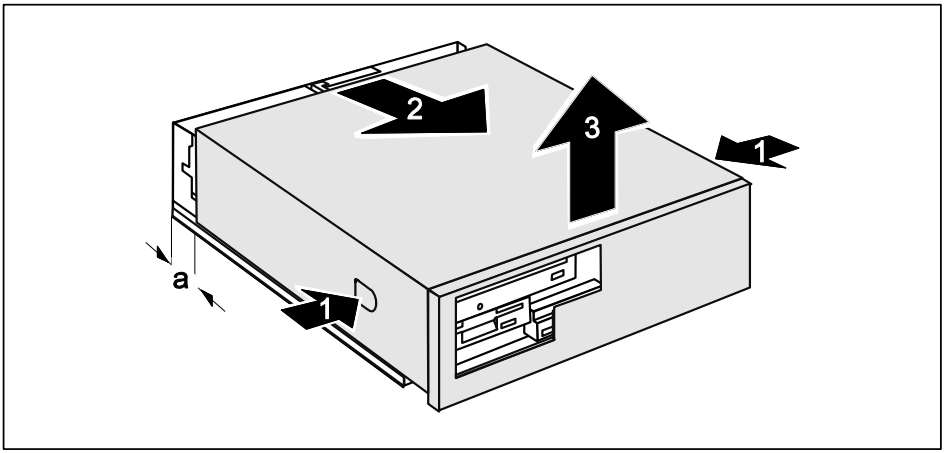
Pull the power plug out of the mains outlet!

► Remove all cables from the casing.

► Place the casing in a convenient working position.

On devices with main power switch

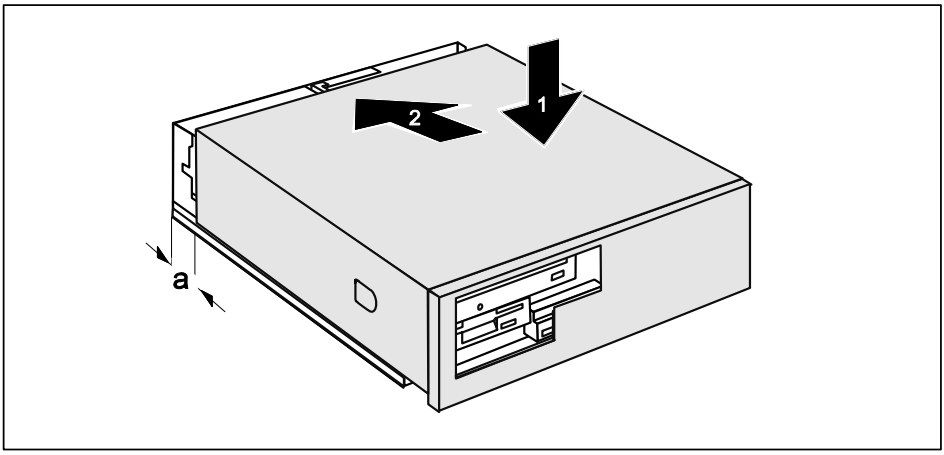
► Turn the key in the direction of the arrow to unlock the casing (see "Mechanical casing lock (optional)“).



► Press the two locking catches (1), hold them pressed and slide the upper casing in the direction of the arrow (2) until the spacing (a) is approximately 2 cm.

► Lift off the top cover in an upward direction (3).

Closing the casing



► Place the top cover on the casing base (1) so that the distance (a) is approximately 2 cm. Ensure that the top cover of the casing engages in the guide rails in the lower part of the casing.

► Push the top cover in the direction of the arrow (2) until it engages.

On devices with main power switch

► Turn the key in the direction of the arrow to lock the casing again.

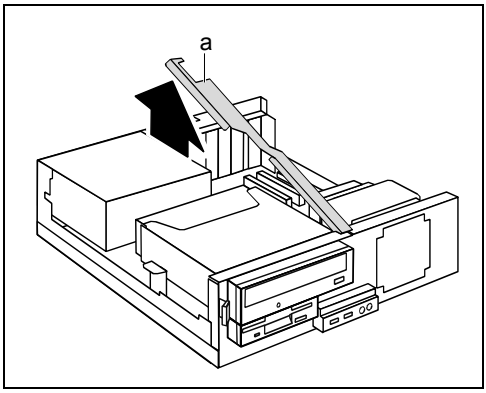
► Return the system unit to its original position.

► Reconnect the cables that you disconnected before.

Installing and removing the cross-piece

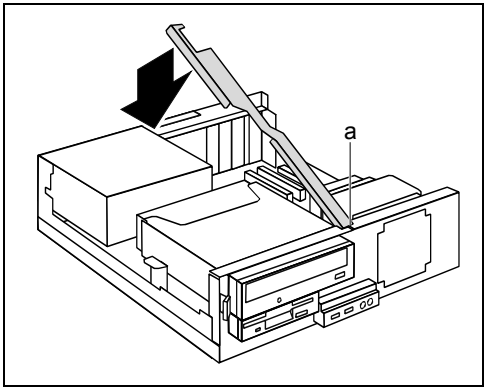
► Open the casing (see "Opening the casing").

Removing the cross-piece



► Lift off the cross-piece upward at the marking (a) in the direction of the arrow.

Installing the cross-piece



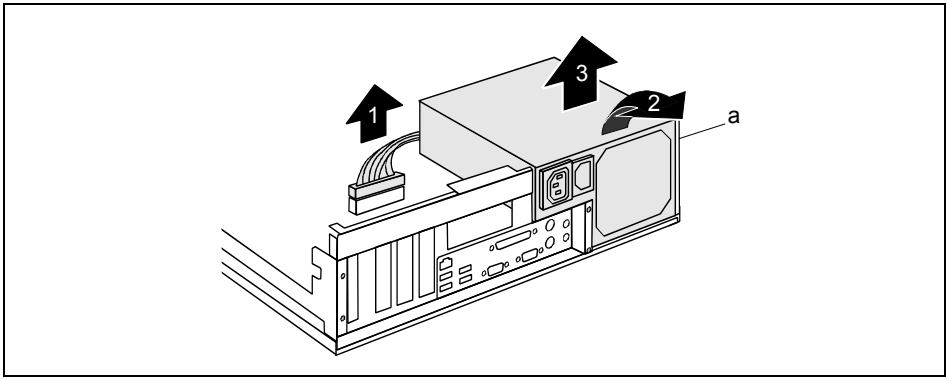
► Insert the cross-piece into its guide lugs (a) on the front of the casing at an angle from above.

► Press the cross-piece downward in the direction of the arrow until it rests on the casing and engages.

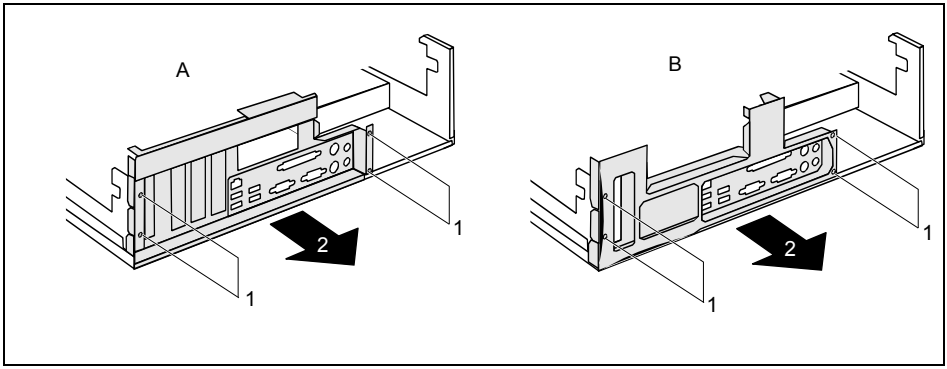
► Close the casing (see "Closing the casing").

Replacing rear panel

- ► Open the casing (see "Opening the casing").
- ► Remove the cross-piece (see "Removing the cross-piece").
- ► If necessary, remove the board bracket (see "Removing board bracket").



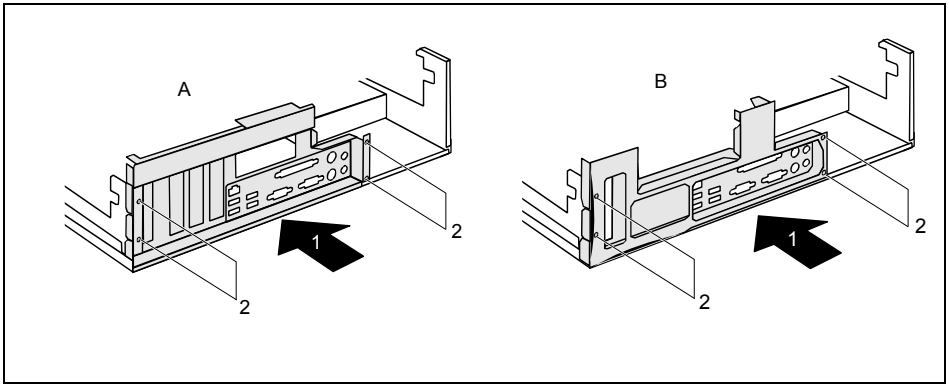
- ► Disconnect the power supply connector (1) from the mainboard and the drives.
- ► Tilt the power supply forward in the direction of the arrow (2) so that the lug (a) unhooks.
- ► Carefully lift the power supply out of the casing in the direction of the arrow (3) and lay it next to the device.



A = Rear panel for low-profile boards

B = Rear panel for long boards

- ► Remove the four screws (1).
- ► Pull the rear panel from the casing in the direction of the arrow (2).

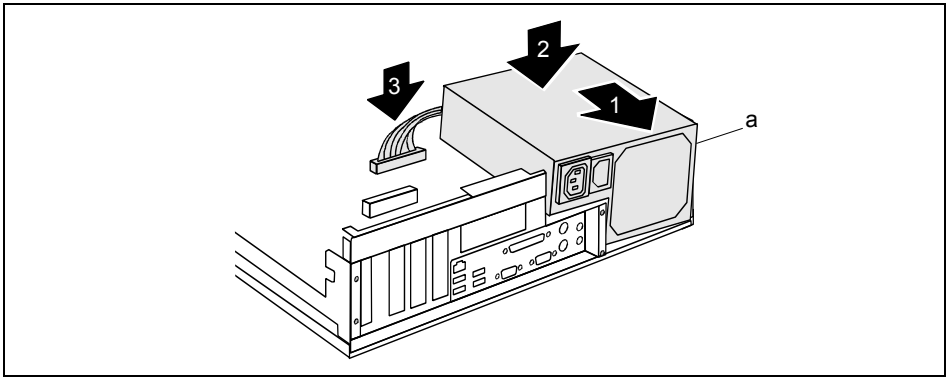


A = Rear panel for low-profile boards

B = Rear panel for long boards

► Place the new rear panel on the casing in the direction of the arrow (1).

► Fasten the new rear panel with the four screws (2).



► Place the power supply in the casing at a slight angle in the direction of the arrow (1).

Make sure that the side lug (a) of the power supply hooks into the notch on the casing panel provided for it.

► Fold the power supply downward in the direction of the arrow (2).

► Connect the power supply connector (3) to the connections on the mainboard and the drives.

► If necessary, install the board bracket (see "Installing board bracket").

► Replace the cross piece (see "Installing the cross-piece").

► Close the casing (see "Closing the casing").

Installing and removing a board

Please take note of the section "Information about boards".

There is a corresponding rear panel for both low-profile boards and long boards.

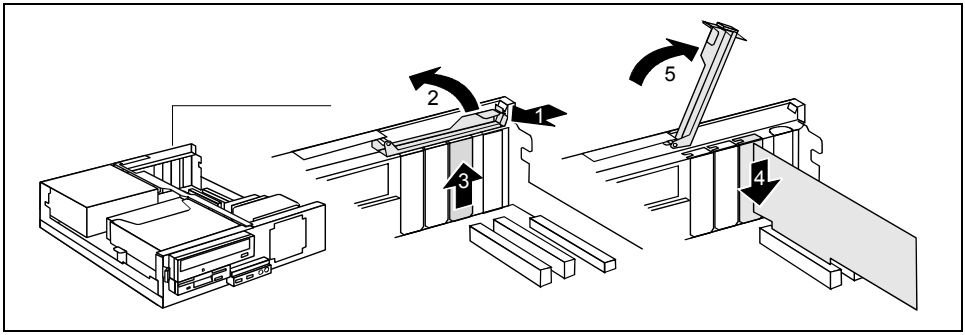
The number, position and arrangement of the board slots on the mainboard can be found in the manual for the mainboard. Boards may already be installed when the device is shipped.

You can fix boards in two ways:

- with the lock (low-profile boards only)
- with the bracket

Installing board in low-profile slot

► Open the casing (see "Opening the casing").



► Press on the locking lever in the direction of the arrow (1), unhook it and swing it up in the direction of the arrow (2).

► Remove the rear slot cover plate from the slot (3).

Do not dispose of the cover plate. For cooling, protection against fire and in order to comply with EMC regulations, you must refit the cover plate if you remove the board.

► Make the required settings for the board.

► Push the board up to its slot (4) as far as the stop.

► Press the board into the slot so that it engages.

► Fold the lock closed in the direction of the arrow (5) and allow it to engage.

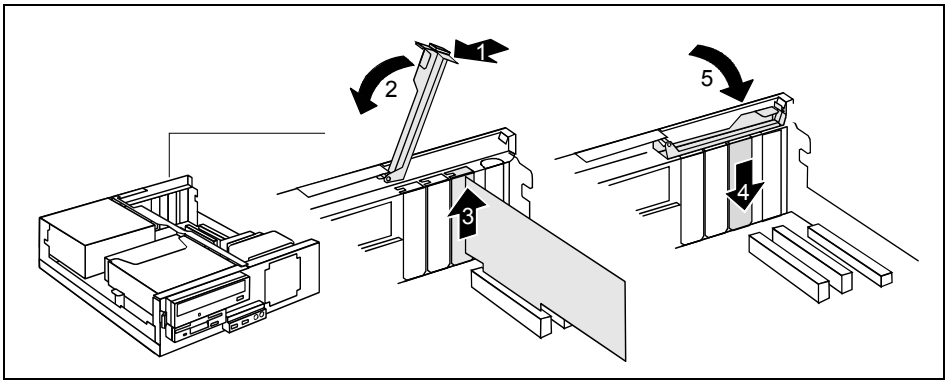
► If necessary, connect the cables.

► Close the casing (see "Closing the casing").

If you have installed or removed a PCI board, please check the relevant PCI slot settings in the *BIOS Setup*. If necessary, change the settings. Further information is provided in the PCI board documentation.

Removing board from low-profile slot

- ► Open the casing (see "Opening the casing").
- ► Disconnect the cables connected to the board.



- ► Press on the locking lever in the direction of the arrow (1), unhook it and swing it up in the direction of the arrow (2).
- ► Pull the board out of the slot (3).

For cooling, protection against fire, and in order to comply with EMC (electromagnetic compatibility) regulations, you must refit the cover plate.

- ► Push the rear slot cover plate into the slot (4). Ensure that the point of the cover engages on the outside of the casing.
- ► Fold the lock closed in the direction of the arrow (5) and allow it to engage.
- ► Close the casing (see "Closing the casing").

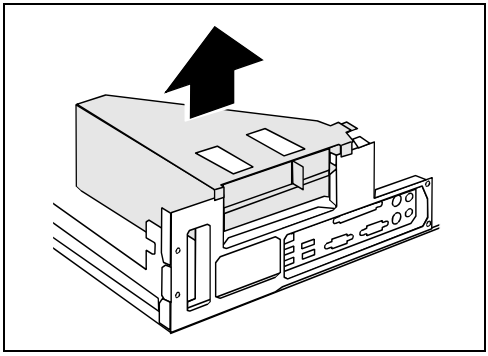
If you have installed or removed a PCI board, please check the relevant PCI slot settings in the *BIOS Setup*. If necessary, change the settings. Further information is provided in the PCI board documentation.

Installing and removing board with bracket

You can install both low-profile boards and long boards in the board bracket.

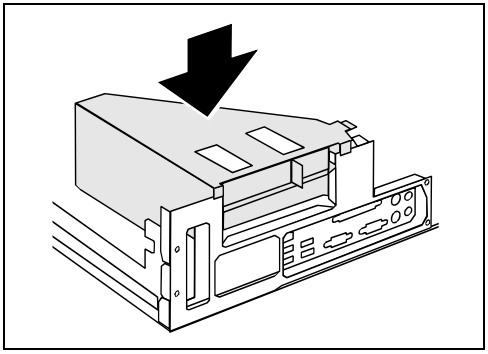
Removing board bracket

- ► Open the casing (see "Opening the casing").
- ► Remove the cross-piece (see "Removing the cross-piece").



- ► Pull the board bracket out of the casing in the direction of the arrow.

Installing board bracket

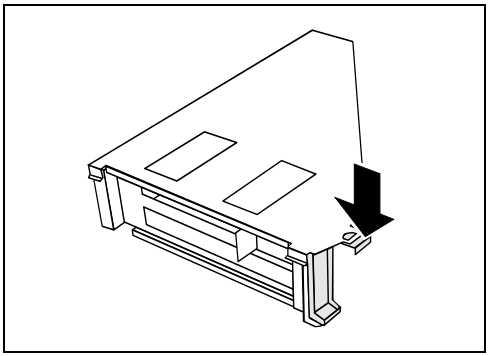


- ► Insert the board bracket into the casing in the direction of the arrow until it clicks into position.
- ► Replace the cross piece (see "Installing the cross-piece").
- ► Close the casing (see "Closing the casing").

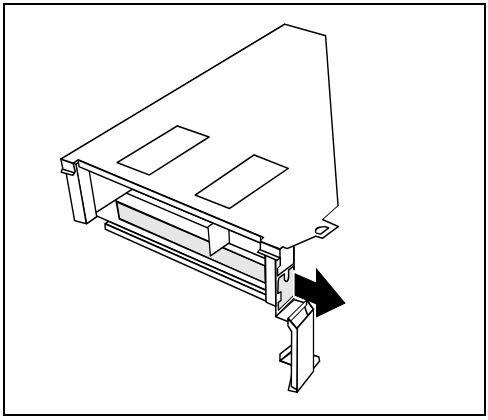
Installing board in bracket

► Make the required settings for the board.

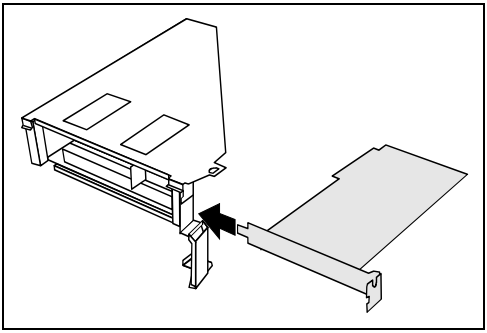
Do not dispose of the slot cover. For cooling, protection against fire and in order to comply with EMC regulations, you must refit the slot cover if you remove the board.



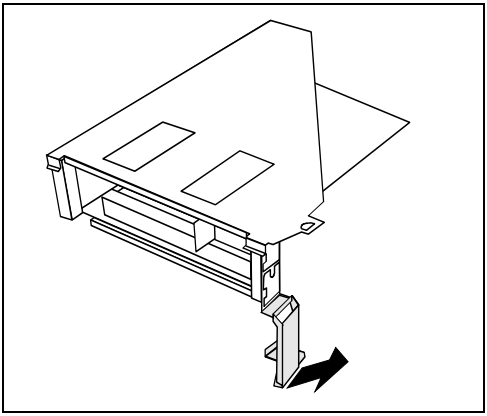
► Press on the retaining bracket in the direction of the arrow and fold it down.



► Pull the slot cover out of the slot in the direction of the arrow.



- ► Push the board up to its slot in the direction of the arrow as far as the stop.
- ► Press the board into the slot so that it engages.



- ► Fold up the retaining bracket so that it engages.
- ► If necessary, connect the cables.
- ► Reinstall the board bracket in reverse order as described above.
- ► Replace the cross piece (see "Installing the cross-piece").
- ► Close the casing (see "Closing the casing").

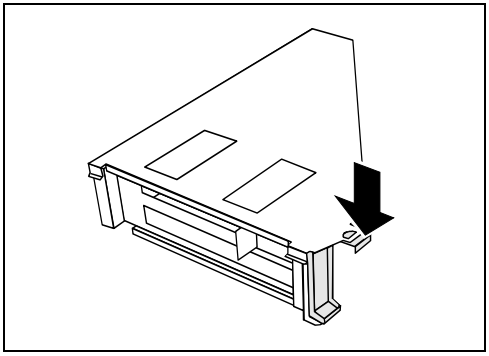
i

If you have installed or removed a PCI board, check the relevant PCI slot settings in the *BIOS Setup*. If necessary, change the settings. Further information is provided in the PCI board documentation.

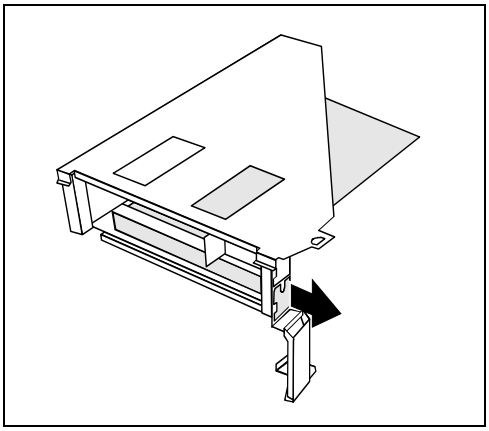
The upper slot is suitable for low-profile cards with an adapter.

Removing board from bracket

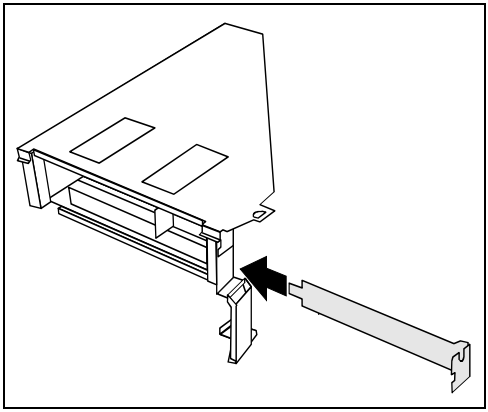
► Disconnect the cables connected to the board.



► Press on the retaining bracket in the direction of the arrow and fold it down.



► Pull the board out of the slot of the board bracket in the direction of the arrow.



- ► Push the slot cover into the slot in the direction of the arrow. Ensure that the point of the slot cover engages on the outside of the board bracket.
- ► Fold up the retaining bracket so that it engages.

For cooling, protection against fire, and in order to comply with EMC (electromagnetic compatibility) regulations, you must refit the slot cover.

If you have installed or removed a PCI board, check the relevant PCI slot settings in the *BIOS Setup*. If necessary, change the settings. Further information is provided in the PCI board documentation.

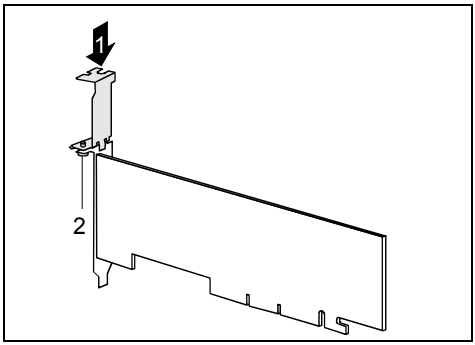
The upper slot is suitable for low-profile cards with an adapter.

Low-Profile boards with adapter

To also install low-profile boards in long board slots, you must mount a corresponding slot adapter beforehand The slot adapter is located on the slot cover of the upper slot.

► Unscrew the screw that connects the slot adapter to the slot cover.

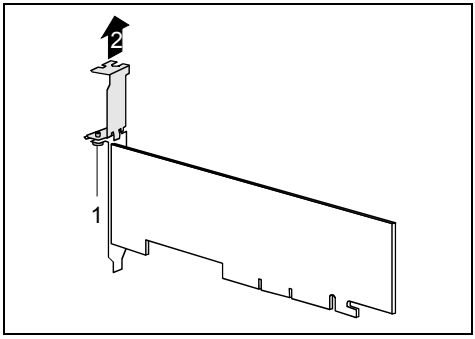
Mounting slot adapter



► Fit the slot adapter in the direction of the arrow (1) on the slot cover of the low-profile board and screw it on (2).

Now you can install the low-profile board in a suitable slot like a normal board (see "Installing board in bracket").

Removing slot adapter



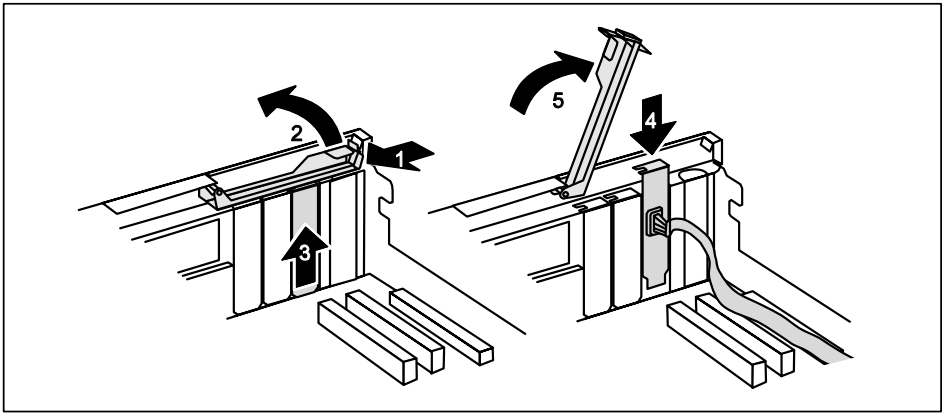
► Unscrew the screw (1) and remove the slot adapter in the direction of the arrow (2).

Installing and removing optional ports

An additional port (serial or parallel) can be installed in a rear slot cover plate like a board. For an exact description of how to connect external devices to ports, refer to the documentation for the external device.

Installing an additional serial port

► Open the casing (see "Opening the casing").



► Press on the locking lever in the direction of the arrow (1), unhook it and swing it up in the direction of the arrow (2).

► Remove the rear slot cover plate from the slot (3).

Do not dispose of the cover plate. For cooling, protection against fire and in order to comply with EMC regulations, you must refit the cover plate if you later remove the port.

► Push the port into the slot (4) as far as it will go.

► Press the port into the slot until you feel it engage.

► Fold the lock closed in the direction of the arrow (5) and allow it to engage.

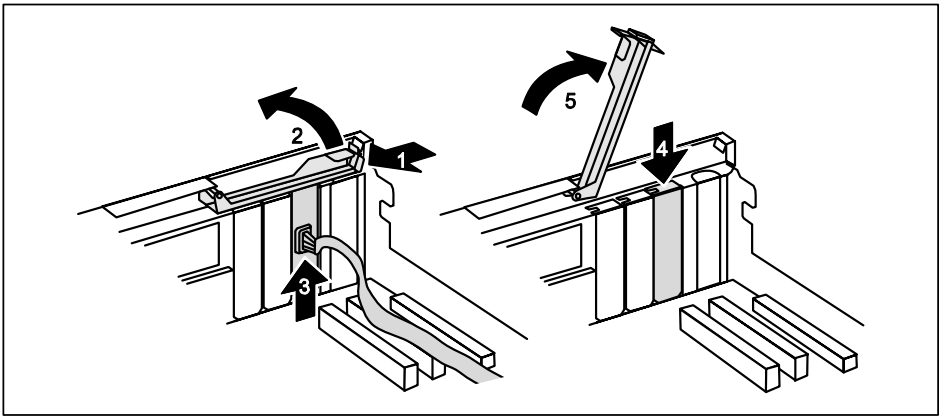
► Connect the cable of the additional port to the connector on the mainboard.

► Close the casing (see "Closing the casing").

Removing an optional port

► Open the casing (see "Opening the casing").

► Disconnect the cable from the connector on the mainboard.



► Press on the locking lever in the direction of the arrow (1), unhook it and swing it up in the direction of the arrow (2).

► Remove the port from the slot (3).

For cooling, protection against fire, and in order to comply with EMC (electromagnetic compatibility) regulations, you must refit the cover plate.

► Push the rear slot cover plate into the slot (4). Ensure that the point of the cover engages on the outside of the casing.

► Fold the lock closed in the direction of the arrow (5) and allow it to engage.

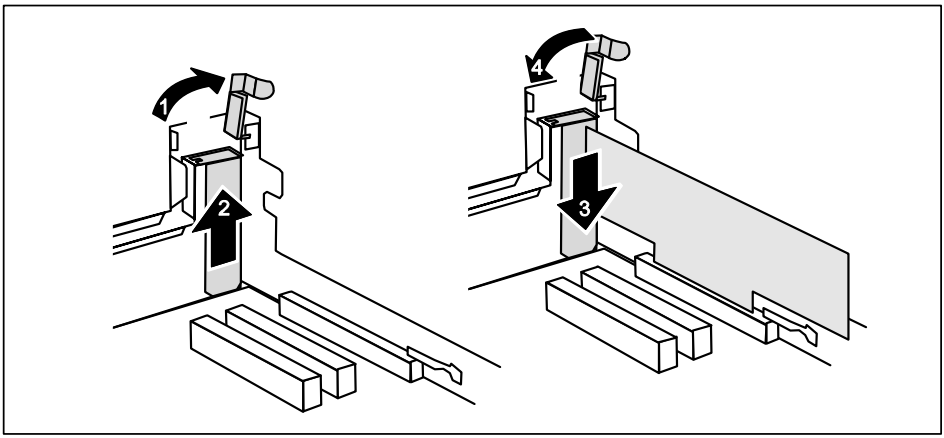
► Close the casing (see "Closing the casing").

Installing and removing the graphics card

The outermost slot in your device is specially designed for graphics cards (e.g. PCI Express Low Profile).

Installing the graphics card

► Open the casing (see "Opening the casing").



For devices with low-profile slots

► Open the locking lever (see "Installing board in low-profile slot").

► Pull the slot cover out of the slot in the direction of the arrow (2).

► Push the board up to its slot (3) in the direction of the arrow as far as the stop.

► Close the locking lever (see "Installing board in low-profile slot").

► Close the casing (see "Closing the casing").

For devices with board bracket for long boards

► Press on the retaining bracket in the direction of the arrow and fold it down.

► Pull the slot cover out of the slot in the direction of the arrow (2).

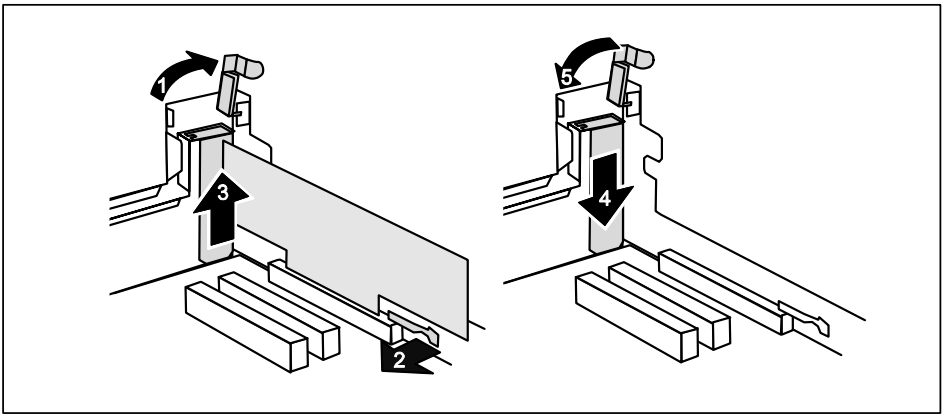
► Push the board up to its slot (3) in the direction of the arrow as far as the stop.

► Fold the retaining bracket down again in the direction of the arrow (4). Ensure that the retaining bracket engages.

► Close the casing (see "Closing the casing").

Removing the graphics card

► Open the casing (see "Opening the casing").



For devices with low-profile slots

► Open the locking lever (see "Installing board in low-profile slot").

► Press against the ledge of the slot (2) to release the graphics card from the slot.

► Pull the graphics card out of the slot in the direction of the arrow (3).

► Push the slot cover into the slot in the direction of the arrow (1). Make sure that the tip of the slot cover engages in the notch in the casing bottom.

► Close the locking lever (see "Installing board in low-profile slot").

► Close the casing (see "Closing the casing").

For devices with board bracket for long boards

► Press on the retaining bracket in the direction of the arrow and fold it down.

► Press against the ledge of the slot (2) to release the graphics card from the slot.

► Pull the graphics card out of the slot in the direction of the arrow (3).

► Push the slot cover into the slot in the direction of the arrow (4). Make sure that the tip of the slot cover engages in the notch in the casing bottom.

► Fold the retaining bracket down again in the direction of the arrow (5). Ensure that the retaining bracket engages.

► Close the casing (see "Closing the casing").

Installing and removing drives

In the standard model the device may be equipped with the following drives:

- one accessible 3 ½ inch drive (floppy drive)
- one non-accessible 3 1/2 inch drive (hard disk)
- one accessible 5 ¼ inch drive (e.g. DVD or CD ROM drive)

or:

- two non-accessible 3 ½ inch drive (hard disk)
- one accessible 5 ¼ inch drive (e.g. DVD or CD ROM drive)

"Accessible drives" are e.g. DVD or CD ROM drives, into which a data carrier can be inserted from outside. Non-accessible drives are e.g. hard disks.

IDE drives and serial ATA drives

By default IDE drives and serial ATA drives are supported (also see the manual for the mainboard).

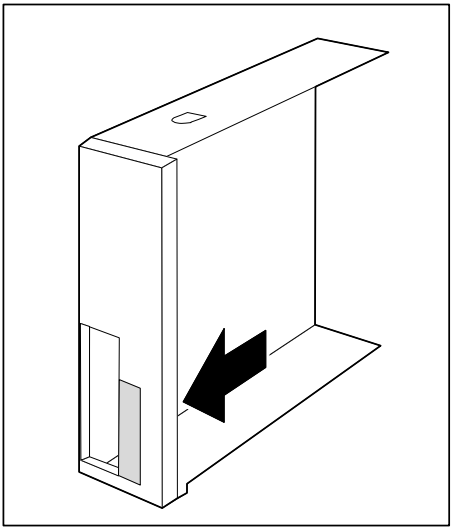
Installing and removing plastic drive covers

Removing plastic drive cover

If you install an accessible drive in the 3 ½ inch installation bay and this bay was previously empty or contained the second hard disk, you must first remove the plastic drive cover.

► Open the casing (see "Opening the casing").

► Lay the casing cover accessibly on a non-slide surface.



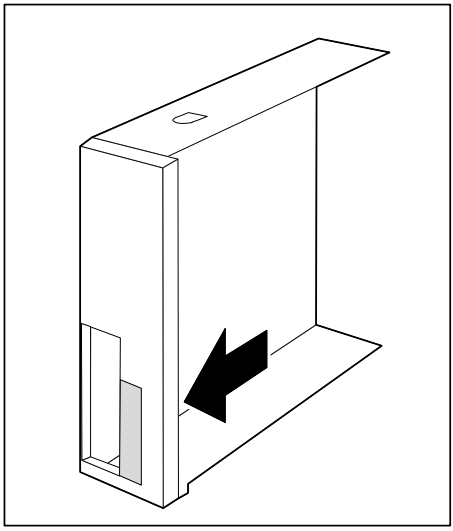
► Press the plastic drive cover from the inside out of the front panel in the direction of the arrow.

With some types of device you can reinstall the cover. With other types of device, the cover is broken off and cannot be reused. However, you can purchase another cover as an accessory, and reinstall it.

Do not throw away the safety covers. If you remove the drive again later, you must reinstall the covers (cooling, fire protection or EMC regulations to be complied with).

Installing plastic drive cover

Depending on the drive, you must reinstall the plastic drive cover. Depending on the type of device, this is either included with the equipment or can be purchased as an accessory.



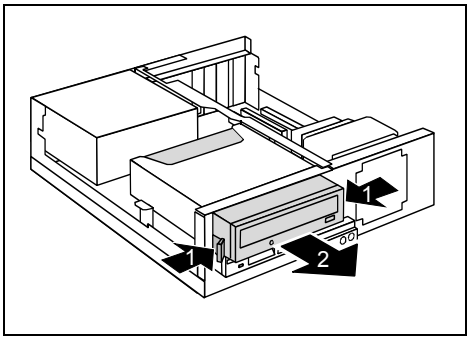
- ► Press the plastic drive cover from the inside into the front panel in the direction of the arrow until you feel it latch into place.
- ► Close the casing (see "Closing the casing").

Replacing drive in 5 ¼ inch bay

► Open the casing (see "Opening the casing").

Removing a drive

► Pull the data and the power supply connectors from the desired drive.



► Press the EasyChange rails (1) together and pull the drive out of the casing (2).

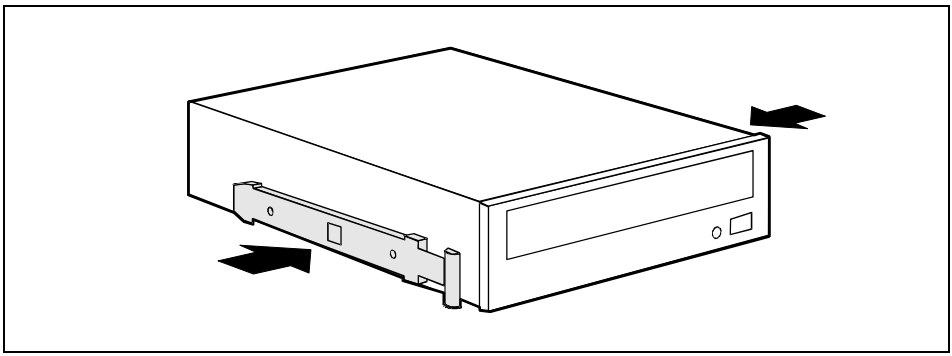
► Remove the EasyChange rails from the drive.

i If your device is equipped with a drive carrier instead of the drive, you can remove and install the carrier in the same way.

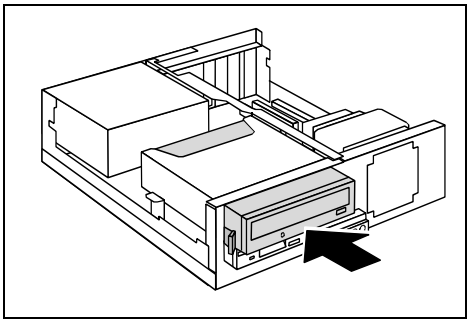
Installing a drive

► Take the new drive out of its packaging.

► Adjust the required settings on the drive (if necessary, on already-installed drives as well).



► Press the EasyChange rails into the provided holes.



► Push the accessible drive into the casing until the EasyChange rails engage.

► Plug the data and the power supply connectors into the drive.

Make sure the polarity is correct.

i It may be necessary to modify the entry for the drive in the *BIOS Setup*.

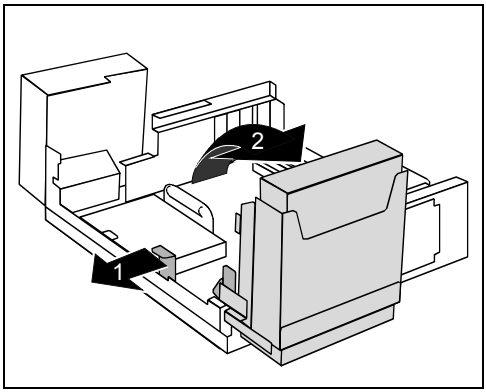
► Close the casing (see "Closing the casing").

Folding up and down the drive cage

- ► Open the casing (see "Opening the casing").
- ► Remove the cross-piece (see "Removing the cross-piece").

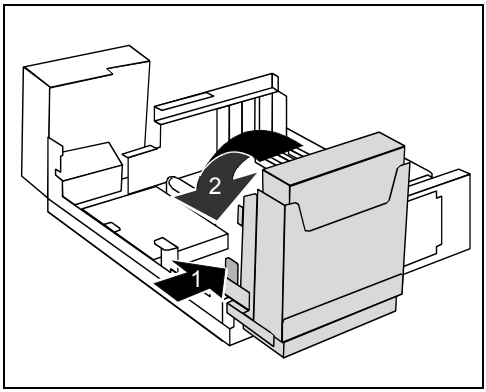
i Also observe the sticker on the drive cage.

Folding up the drive cage



- ► Open the lock of the drive cage by pressing the catch (a) lightly in the direction of the arrow (1).
- ► Fold the drive cage upward in the direction of the arrow (2) until it clicks into position.

Folding down the drive cage



- ► Press on the locking lug (1) of the drive cage and then fold the drive cage with light pressure in the direction of the arrow (2) until the lever engages.

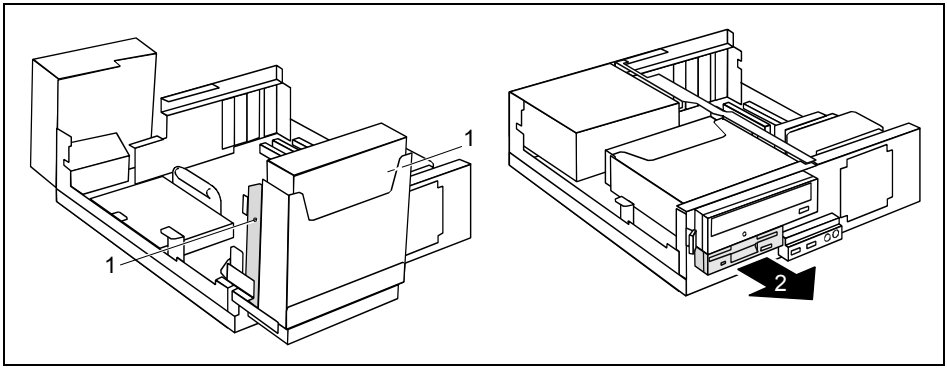
Make sure that the cables are not kinked or pinched.

- ► Replace the cross piece (see "Installing the cross-piece").
- ► Close the casing (see "Closing the casing").

Replacing the floppy disk drive

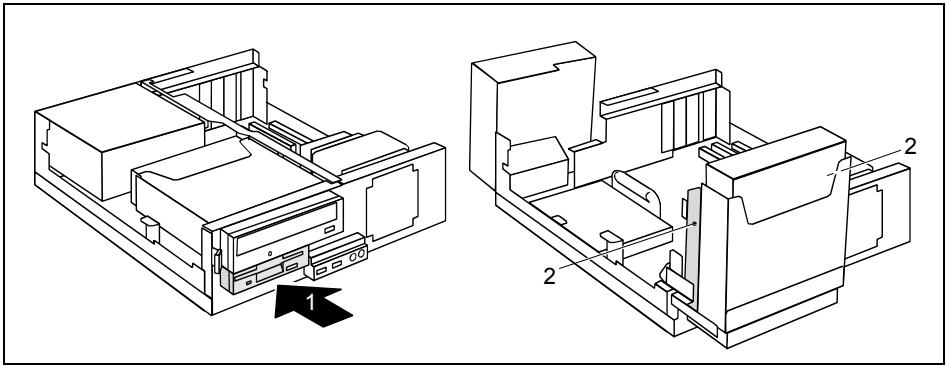
- ► Open the casing (see "Opening the casing").
- ► Remove the cross-piece (see "Removing the cross-piece").
- ► Fold up the drive cage (see "Folding up and down the drive cage").

Removing the floppy disk drive



- ► Remove the screws (1).
- ► Disconnect the cables from the floppy disk drive.
- ► Fold down the drive cage (see "Folding down the drive cage").
- ► Pull the drive out of the casing in the direction of the arrow (2).

Installing the floppy disk drive

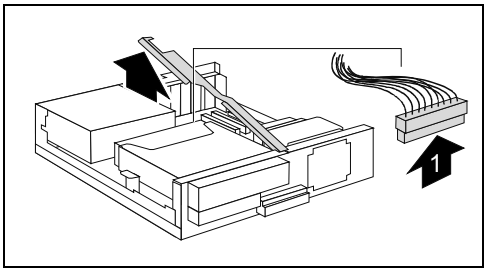


- ► Push the drive into the casing in the direction of the arrow (1).
- ► Fold up the drive cage (see "Folding up the drive cage").
- ► Fasten the floppy disk drive with the screws (2).
- ► Connect the cables.
- ► Fold down the drive cage (see "Folding down the drive cage").
- ► Replace the cross piece (see "Installing the cross-piece").
- ► Close the casing (see "Closing the casing").

i It may be necessary to modify the entry for the drive in the *BIOS Setup*.

Replacing hard disk

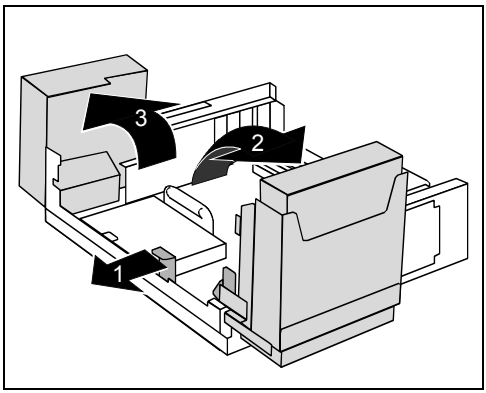
► Open the casing (see "Opening the casing").



► Remove the cross-piece (see "Removing the cross-piece").

► Remove the data and the power supply connectors from the mainboard.

► Disconnect the power supply connector from the hard disk.

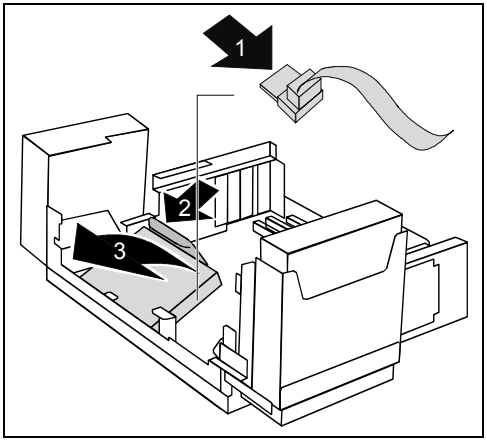


► Open the lock of the drive cage by pressing the catch (a) lightly in the direction of the arrow (1).

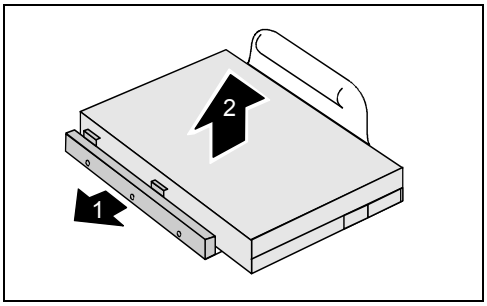
► Fold the drive cage upward in the direction of the arrow (2) until it clicks into position.

► Fold the power supply upward in the direction of the arrow (3) until it engages.

Removing the hard disk



- ► Remove all connected cables (1) from the hard disk.
- ► Press the lever of the hard disk carrier in direction of the arrow (2).
- ► Remove the hard disk with the bracket out of the device in the direction of the arrow (2).

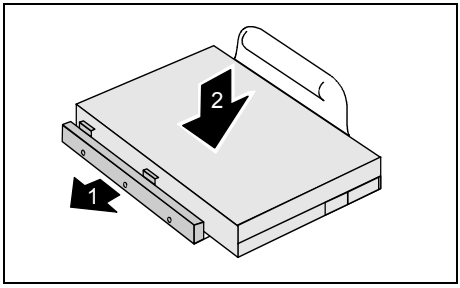


- ► Pull the support rail (1) of the bracket somewhat toward the outside.
- ► Remove the hard disk from the bracket in the direction of the arrow (2).

i It may be necessary to modify the entry for the drive in the *BIOS Setup*.

Installing the hard disk

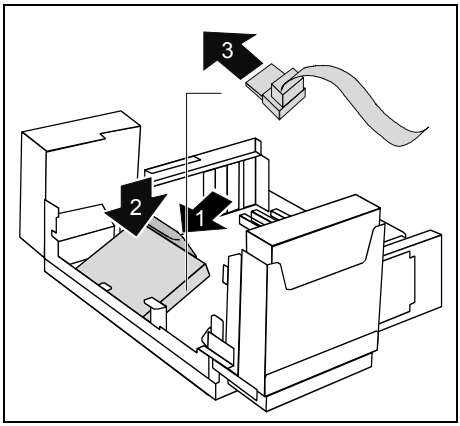
► Remove the new hard disk from the package.



► Pull the support rail (1) of the bracket somewhat toward the outside.

► Place the hard disk into the hard disk carrier in the direction of the arrow (2).

Make sure that the bracket pins engage in the holes of the hard disk.



► Place the new hard disk in the casing at a slight angle in the direction of the arrow (1).

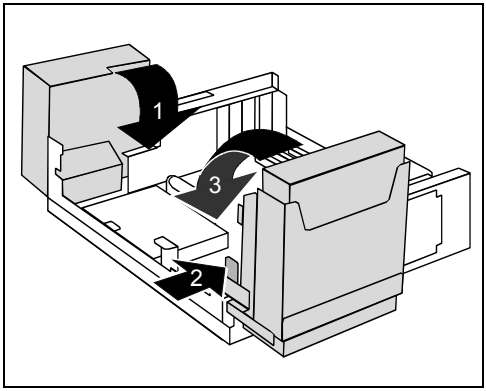
► Press the hard disk downward in the direction of the arrow (2) until it rests on the casing bottom.

Make sure that the rear edge of the hard disk is flush with the marking on the casing bottom.

► Plug the data and the power supply connectors into the hard disk.

Even if your serial-ATA hard disk has two power supply connectors you may use only one. Otherwise damages may result.

Observe the vendors operating manual.



► Fold down the power supply in the direction of the arrow (1) until the power supply engages.

► Press on the locking lug (2) of the drive cage and then fold the drive cage with light pressure in the direction of the arrow (3) until the lever engages.

Make sure that the cables are not kinked or pinched.

► Connect the power supply connector.

► Replace the cross piece (see "Installing the cross-piece").

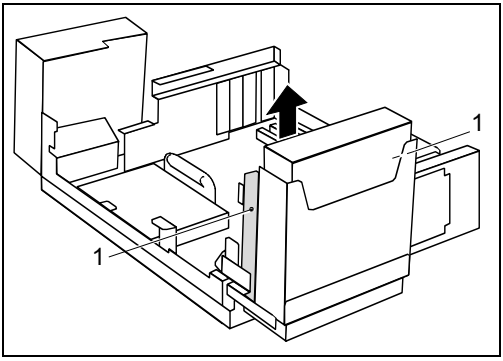
► Close the casing (see "Closing the casing").

i It may be necessary to modify the entry for the drive in the *BIOS Setup*.

Replacing second hard disk in 3 ½ inch drive cage

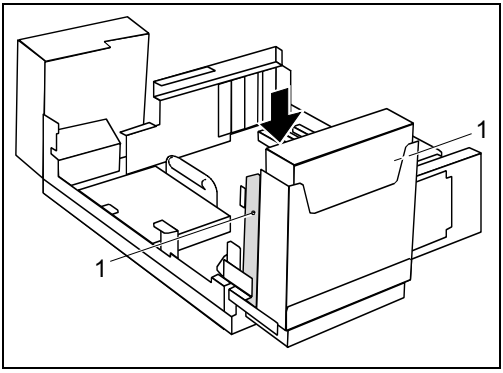
- ► Open the casing (see "Opening the casing").
- ► Remove the cross-piece (see "Removing the cross-piece").
- ► Fold up the drive cage (see "Folding up the drive cage").

Removing second hard disk



- ► Remove the screw (1).
- ► Disconnect the cables from the hard disk.
- ► Remove the drive the direction of the arrow out of the casing.

Installing second hard disk



- ► Slide the drive into the casing in the direction of the arrow.
- ► Secure the hard disk with the screws (1).
- ► Connect the cables.
- ► Fold down the drive cage (see "Folding down the drive cage").

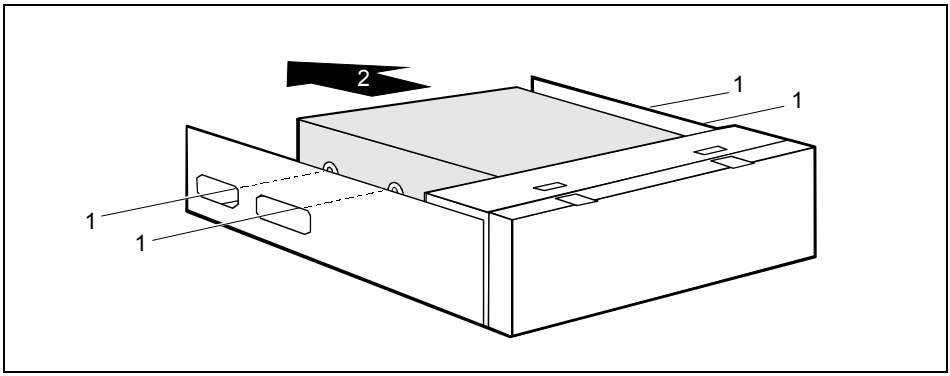
- ► If necessary, mount the plastic drive cover (see "Installing plastic drive cover").
- ► Replace the cross piece (see "Installing the cross-piece").
- ► Close the casing (see "Closing the casing").

i It may be necessary to modify the entry for the drive in the *BIOS Setup*.

Replacing second hard disk in 5 ¼ inch drive carrier

► Remove the drive carrier as described in "Replacing drive in 5 ¼ inch bay" chapter.

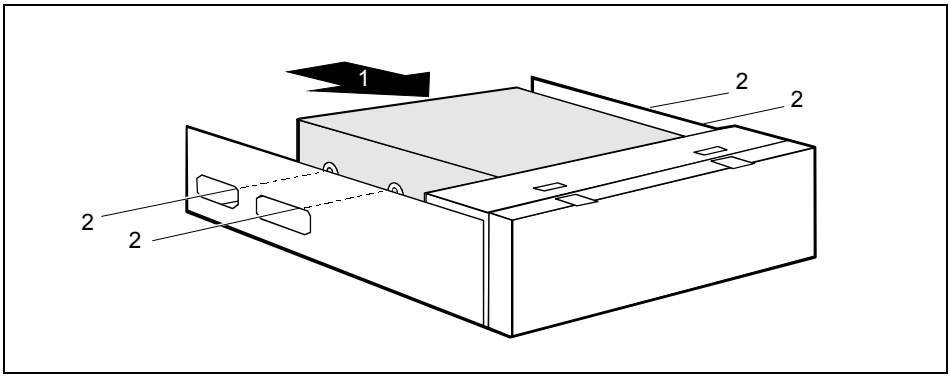
Removing the hard disk



► Remove the screws (1).

► Pull the hard disk out of the drive carrier in the direction of the arrow (2).

Installing the hard disk



► Remove the new hard disk from the package.

► Slide the hard disk into the drive carrier in the direction of the arrow (1).

► Secure the hard disk with the screws (2).

► Remove the drive carrier as described in "Replacing drive in 5 ¼ inch bay" chapter.

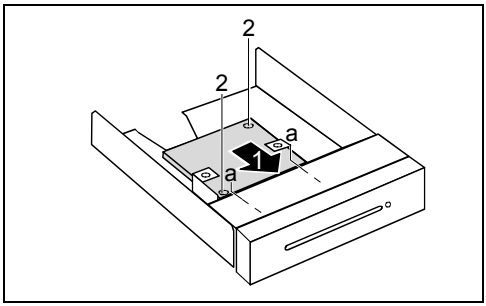
Installing/removing a SmartCard reader and/or WLAN module (optional)

You can also install a SmartCard reader and/or a WLAN module for wireless LAN (Local Area Network) in place of the drive in the installation bay of the floppy disk drive.

i

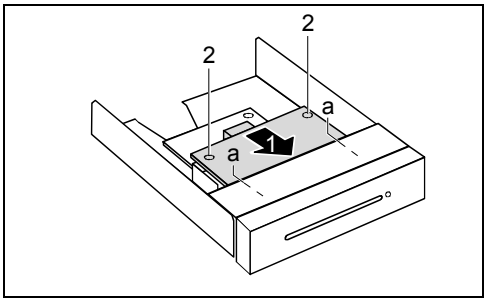
The SmartCard reader and WLAN module can be installed together in the carrier. However, you can also install only one of the two boards. The WLAN module is installed in the lower slot of the carrier and the SmartCard reader in the upper slot of the carrier. If you want to install the SmartCard reader and the WLAN module together, first install the WLAN module. Removal is carried out in the reverse order.

Screwing WLAN module onto carrier



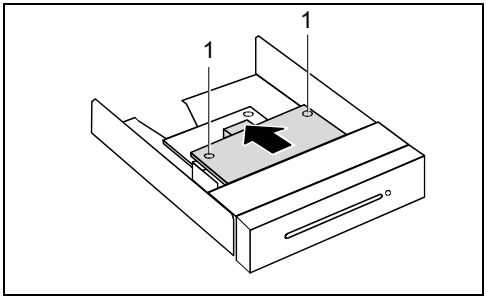
- ► Push the WLAN module - with the component side facing downwards - in the direction of the arrow (1) into the guide (a).
- ► Fasten the WLAN module with the screws (2).

Screwing SmartCard reader onto carrier



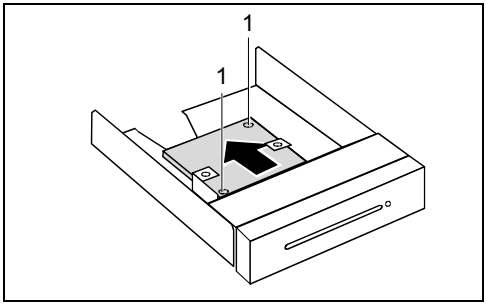
- ► Push the SmartCard reader - with the component side facing downwards - in the direction of the arrow (1) into the guide (a).
- ► Fasten the SmartCard reader with the screws (2).

Removing SmartCard reader from carrier



- ► Loosen the screws (1).
- ► Pull the SmartCard reader out of the carrier in the direction of the arrow (2).

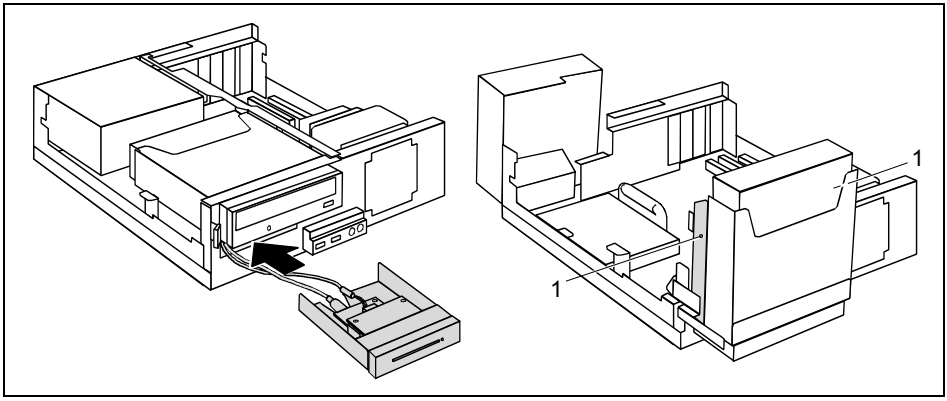
Removing WLAN module from carrier



- ► Loosen the screws (1).
- ► Pull the WLAN module out of the holder in the direction of the arrow.

Installing SmartCard reader and/or WLAN module

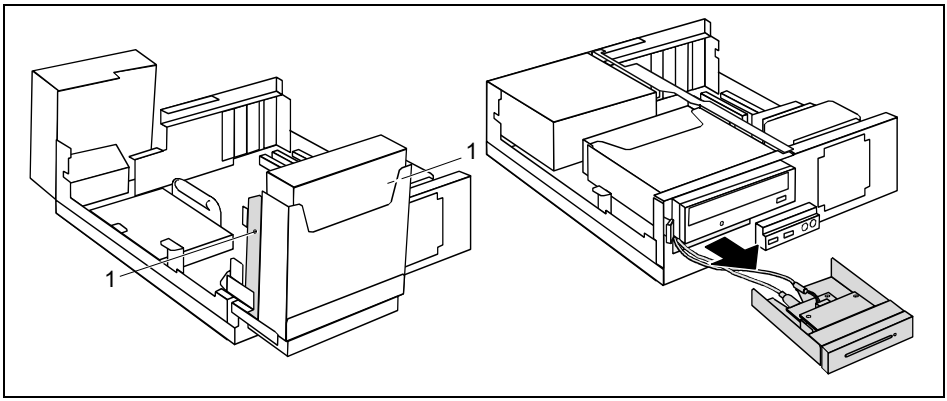
- ► Open the casing (see "Opening the casing").
- ► Remove the cover from the upper casing top cover if necessary (see "Removing plastic drive cover").
- ► Remove the cross-piece (see "Removing the cross-piece").



- ► Slide the carrier into the casing in the direction of the arrow.
- ► Fold up the drive cage (see "Folding up the drive cage").
- ► Fasten the holder with the screws (1).
- ► Fold down the drive cage (see "Folding down the drive cage").
- ► Connect the cables.
- ► Replace the cross piece (see "Installing the cross-piece").
- ► Close the casing (see "Closing the casing").

Removing SmartCard reader and/or WLAN module

- ► Open the casing (see "Opening the casing").
- ► Remove the cross-piece (see "Removing the cross-piece").
- ► Fold up the drive cage (see "Folding up the drive cage").



- ► Remove the screws (1).
- ► Disconnect the cables.
- ► Fold down the drive cage (see "Folding down the drive cage").
- ► Pull the holder out of the casing in direction of the arrow.
- ► Replace the cross piece (see "Installing the cross-piece").

If you remove the SmartCard reader and/or the WLAN module without replacing it with a floppy drive, you must reinstall the bay cover for reasons of cooling and fire protection and to comply with the prevailing EMC (electromagnetic compatibility) regulations.

- ► Mount the cover in the casing top cover if necessary (see "Installing plastic drive cover").
- ► Close the casing (see "Closing the casing").

More detailed information on the use of Wireless LAN can be found in the "Wireless LAN" manual. This manual is provided as PDF file on the "User Documentation" or "Drivers & Utilities" CD.

Extensions to the mainboard

The description of how to upgrade the main memory and/or processor is contained in the manual for the mainboard.

- ► Open the casing (see "Opening the casing").
- ► Fold up the drive cage (see "Folding up the drive cage").

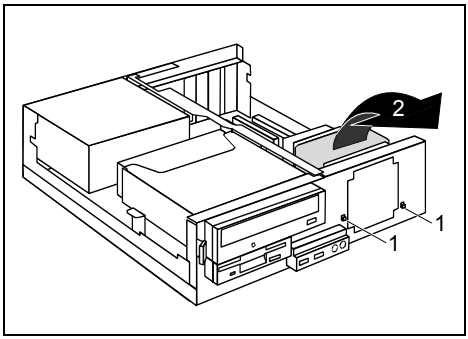
Upgrading main memory

- ► Upgrade the memory according to the description in the manual for the mainboard.
- ► Fold down the drive cage (see "Folding down the drive cage").
- ► Close the casing (see "Closing the casing").

Replacing the processor

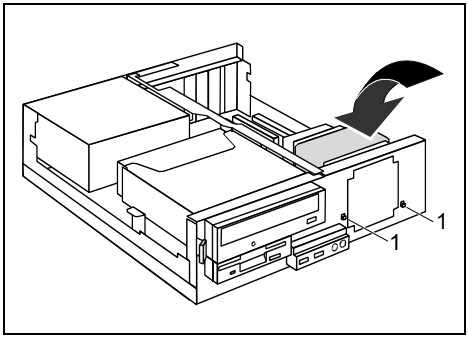
Before you can replace the processor, you have to folding up the ventilation duct.

Folding up ventilation duct



- ► Press together the two locking lugs (1) of the ventilation duct until they disengage.
- ► Grasp the ventilation duct from above and fold it up.
- ► Pull the power supply cable of the processor fan off the mainboard (see manual for mainboard).
- ► Replace the processor as it is described in the manual for the mainboard.

Folding down ventilation duct



- ► Connect the power supply cable on the processor fan (see manual for mainboard).
- ► Fold down the ventilation duct.

Make sure that the locking lugs (1) engage.

- ► Connect all the cables removed before.
- ► Close the casing (see "Closing the casing").

Replacing lithium battery

In order to permanently save the system information, a lithium battery is installed to provide the CMOS-memory with a current. A corresponding error message notifies the user when the charge is too low or the battery is empty. The lithium battery must then be replaced.

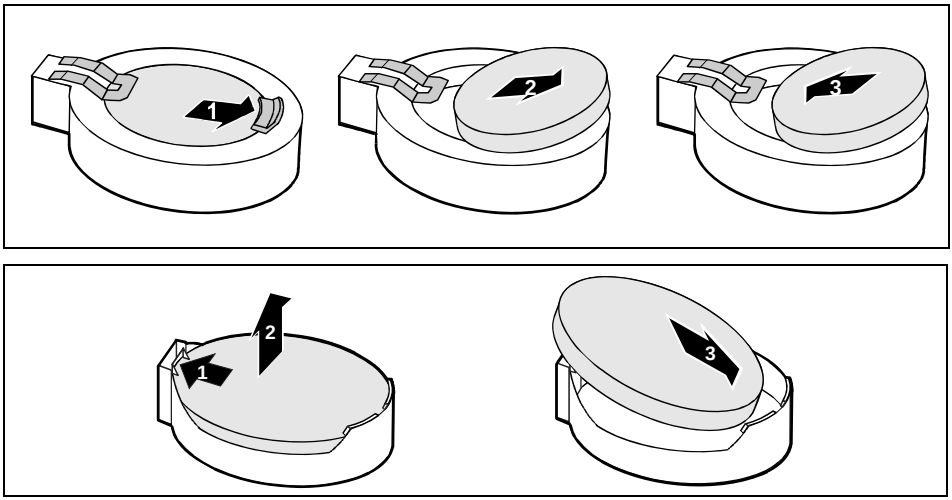
Incorrect replacement of the lithium battery may lead to a risk of explosion!

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

Do not throw lithium batteries into the household waste. They must be disposed of in accordance with local regulations concerning special waste.

Make sure that you insert the battery the right way round: The plus pole must be on the top!

The lithium battery holder exists in different designs that function in the same way.



► Press the catch in the direction of the arrow (1).

The battery jumps out of the holder slightly.

► Remove the battery (2).

► Push the new lithium battery of the identical type into the holder and press it downward until it engages.

Technical data

Electrical data

Regulations complied with:	IEC60950/EN60950, UL60950, CSA22.2 No.60950	
Protection class:	I	
Rated voltage range:	100 V -240 V	
Frequency:	50 Hz - 60 Hz	
Max. rated current		
● Device with monitor socket:	100 V - 127 V 200 V -240 V	6.0 A 3.0 A
● Monitor socket (output):	100 V - 127 V 200 V -240 V	3.0 A 1.5 A

Dimensions

Width/depth/height:	350 mm/383 mm/95 mm

Weight

with the basic configuration	approx. 9.7 kg

Environmental conditions

Environment class (3K2)	DIN IEC 721 part 3-3
Environment class (2K2)	DIN IEC 721 part 3-2
Temperature:	
● Operating (3K2)	15 °C .... 35 °C
● Transport (2K2)	-25 °C .... 60 °C

Condensation in operating must be avoided.

Clearance required to ensure adequate ventilation

Horizontal operating position:

● front	min. 200 mm
● rear	min. 200 mm

Vertical operating position:

● front	min. 200 mm
● rear	min. 200 mm

The data sheet of the device contains further technical data. You will find the data sheet on the internet at *http://ts.fujitsu.com/*

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