

# ESPRIMO E5xx/E7xx/E9xx



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# **ESPRIMO E5xx/E7xx/E9xx**

## **Operating Manual**

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# Your ESPRIMO

... is available with various configuration levels which differ in terms of hardware and software equipment. You can install additional drives (for example a DVD drive) and other boards.

This manual tells you how to start using your device and how to operate it in daily use. This manual applies for all configuration levels. Depending on the chosen configuration level, some of the hardware components described may not be available on your PC. Please also read the notes about your operating system.

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

Further information on this device is provided:

- in the poster "Getting Started"
- in the "Safety/regulations" manual
- in the "Warranty" manual
- in the operating manual for the monitor
- in the manual for the mainboard
- in your operating system documentation
- in the information files (e.g. \*.PDF, \*.HTML, \*.DOC, \*.CHM, \*.TXT, \*.HLP)



Some of the manuals listed can be found in electronic form on the "Drivers & Utilities" DVD.

You can access and view the required information using the *Acrobat Reader* program, which is also included on the DVD. You can of course also print out a copy of the manual if you prefer.

## Validity of the Reference Manual

This Reference Manual is valid for the following systems:

- ESPRIMO E500, E510
- ESPRIMO E700, E705, E710, E720
- ESPRIMO E900, E910, E920

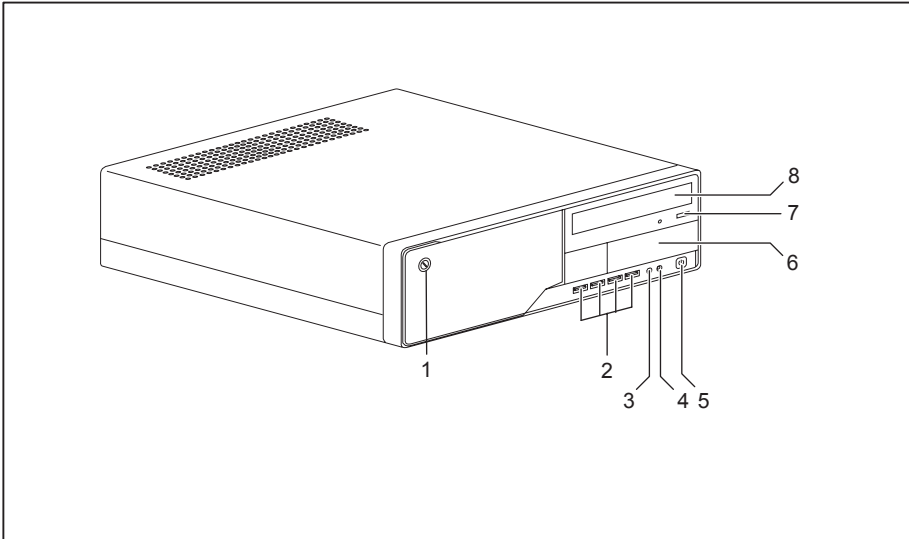
## Notational conventions

|                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Pay particular attention to text marked with this symbol. Failure to observe these warnings could pose a risk to health, damage the device or lead to loss of data. The warranty will be invalidated if the device becomes defective through failure to observe these warnings.                                                                                                                                                                     |
|  | Indicates important information for the proper use of the device.                                                                                                                                                                                                                                                                                                                                                                                   |
|  | Indicates an activity that must be performed                                                                                                                                                                                                                                                                                                                                                                                                        |
|  | Indicates a result                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>This font</b>                                                                 | indicates data entered using the keyboard in a program dialogue or at the command line, e.g. your password ( <b>Name123</b> ) or a command used to start a program ( <b>start.exe</b> )                                                                                                                                                                                                                                                             |
| This font                                                                        | indicates information that is displayed on the screen by a program, e.g.: Installation is complete.                                                                                                                                                                                                                                                                                                                                                 |
| <i>This font</i>                                                                 | indicates <ul style="list-style-type: none"> <li>terms and texts used in a software interface, e.g.: Click on <i>Save</i></li> <li>names of programs or files, e.g. <i>Windows</i> or <i>setup.exe</i>.</li> </ul>                                                                                                                                                                                                                                  |
| "This font"                                                                      | indicates <ul style="list-style-type: none"> <li>cross-references to another section, e.g. "Safety information"</li> <li>cross-references to an external source, e.g. a web address: For more information, go to <a href="http://www.fujitsu.com/fts">"http://www.fujitsu.com/fts"</a></li> <li>Names of CDs, DVDs and titles or designations for other materials, e.g.: "CD/DVD Drivers &amp; Utilities" or "Safety/Regulations" manual</li> </ul> |
|  | indicates a key on the keyboard, e.g:                                                                                                                                                                                                                                                                                                                              |
| <b>This font</b>                                                                 | indicates terms and texts that are emphasised or highlighted, e.g.: <b>Do not switch off the device</b>                                                                                                                                                                                                                                                                                                                                             |

# Ports and operating elements

This chapter presents the individual hardware components of your device. This will provide you with an overview of the ports and operating elements on the device. Please familiarise yourself with these components before starting to work with your device.

## Front



1 = Casing lock (optional)

2 = USB ports (number of ports is device-dependent)

3 = Microphone port

4 = Headphone port

5 = ON/OFF switch

6 = module bay for 3 1/2 inch drive

7 = Insert/eject button (CD/DVD)

8 = module bay for 5 1/4 inch drive

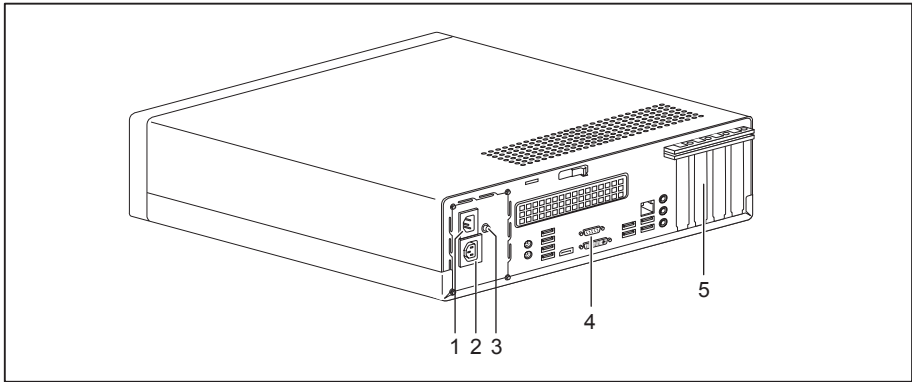
## Rear

The power supply required for your device depends on the configuration level chosen:

- Device with alternating voltage socket, monitor socket and Primary Resume Button.
- Device with alternating voltage socket and main switch
- Device with alternating voltage socket and monitor socket

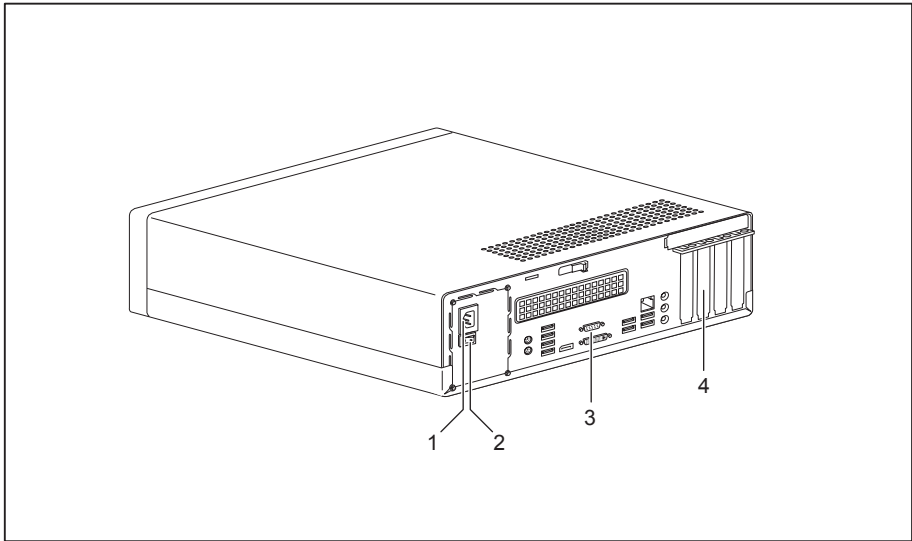
The configuration level of the device also determines whether it is fitted with high-profile or low-profile boards, as shown in the diagrams below.

**Device with alternating voltage socket, monitor socket and Primary Resume Button.**



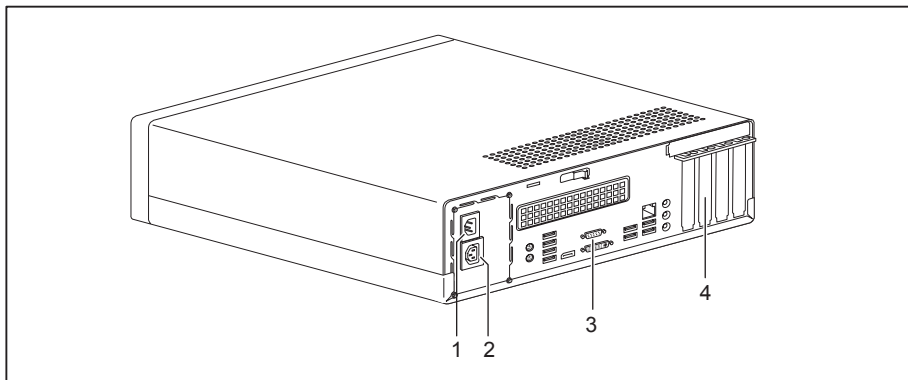
- |                                        |                                                      |
|----------------------------------------|------------------------------------------------------|
| 1 = Alternating voltage socket (AC IN) | 4 = Ports for external devices (device-dependent)    |
| 2 = Monitor socket                     | 5 = Slot covers (shown here: low-profile board cage) |
| 3 = Primary Resume Button              |                                                      |

**Device with alternating voltage socket and main switch**



- |                                                   |                                                  |
|---------------------------------------------------|--------------------------------------------------|
| 1 = Alternating voltage socket (AC IN)            | 4 = Slot covers (shown here: low-profile boards) |
| 2 = Main switch                                   |                                                  |
| 3 = Ports for external devices (device-dependent) |                                                  |

### Device with alternating voltage socket and monitor socket



1 = Alternating voltage socket (AC IN)

2 = Monitor socket

3 = Ports for external devices  
(device-dependent)

4 = Slot covers (shown here: low-profile  
boards)

# 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 information



Please note the information provided in the "Safety/regulations" manual and in the following safety notes.

When installing and operating the device, please observe the notes on environmental conditions in Chapter ["Technical specification", Page 66](#) as well as the instructions in Chapter ["Getting started", Page 13](#).

When setting up the device, make sure there is clearance all around it so that the casing receives enough ventilation. In order to avoid overheating, do not cover the ventilation areas of the monitor or the device.

You must only operate the device if the rated voltage used by the device is set to the local mains voltage.

The main switch (if present) and the ON/OFF switch do not disconnect the device from the mains voltage. To completely disconnect from the mains voltage, remove the power plug from the power socket.

Replace the lithium battery on the mainboard in accordance with the instructions in ["Replacing the lithium battery", Page 65](#).

Caution, components in the system can get very hot.

The activities described in these instructions must always be performed with the greatest care.

Repairs to the device must only be performed by qualified technicians. Incorrect repairs could put the user at great risk or cause serious damage to the equipment (electric shock, risk of fire).

## 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.

If the device is brought from a cold environment into the room where it will be used, condensation may occur. Before operating the device, wait until it is absolutely dry and has reached approximately the same temperature as the installation site.

## Cleaning the device



Turn off all power and equipment switches and disconnect the power plug from the mains outlet.

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 (alcohol, thinner or acetone).

Never clean the device with water! Water entering into the device could present a serious risk to users (e.g. electric shock).

Ensure that no liquid enters the system.

The surface can be cleaned 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

Further information can be found on the "Drivers & Utilities" DVD.

## CE marking

The shipped version of this device complies with the requirements of European Union directives 2004/108/EC "Elektromagnetische Verträglichkeit", 2006/95/EC "Niederspannungsrichtlinie" and 2009/125/EC "Ökodesign Richtlinie".

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

Contact the corresponding government office in 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 Compliance Statement

If the device complies with the FCC regulations, the FCC sign can be found on the type rating plate.

### FCC Class B Compliance Statement

#### DOC (INDUSTRY CANADA) NOTICES

##### Notice to Users of Radios and Television :

This class B digital apparatus complies with Canadian ICES-003.

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 not responsible for any radio or television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Fujitsu. The correction of interferences caused by such unauthorized 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.

### FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

The transmitters in this device must not be co-located or operated in conjunction with any other antenna or transmitter.

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.

Users are not authorized to modify this product. Any modifications invalidate the warranty.

This equipment may not be modified, altered, or changed in any way without signed written permission from Fujitsu. Unauthorized modification will void the equipment authorization from the FCC and Industry Canada and the warranty.

# Getting started



Please observe the safety information in the ["Important notes", Page 10](#) 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 contents of the package for any visible damage caused during transport.
- ▶ Check whether the delivery conforms to 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 a location for device and set up device
- Connect external devices such as mouse, keyboard and monitor
- Check the voltage at the mains outlet and connect the device to an electrical outlet
- Switch the device on

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

### External devices



If you have received other external devices in addition to your own device (e.g. a printer), do not connect these until after the initial installation. The following sections describe how to connect these external devices.

### 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", Page 35](#) chapter.

# Setting up the device



When installing your device, please read the recommendations and safety notes in the "Safety" manual.

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 feet will mark the surface they stand on.

Depending on the location of your device, bothersome vibrations and noises may occur. To prevent this, a distance of at least 10 mm / 0.39 in should be maintained from other devices on casing sides without ventilation surfaces.

In order to avoid overheating, do not cover the ventilation areas on the monitor or the device.

A minimum distance of 200 mm / 7.87 in from the device must be observed for ventilation areas.

Do not stack several devices on top of each other.

Do not expose the device to extreme ambient conditions (see ["Technical specification", Page 66](#), "Ambient conditions"). Protect the device against dust, humidity and heat.

## Operating position

You can use the device in a vertical or horizontal operating position.

With the aid of suitable feet, it is possible to use the device in a vertical operating position (see ["Vertical operating position \(optional\)", Page 15](#)).

## Vertical operating position (optional)



Use the optional rubber feet or base feet if you wish to operate the device in the vertical operating position.

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

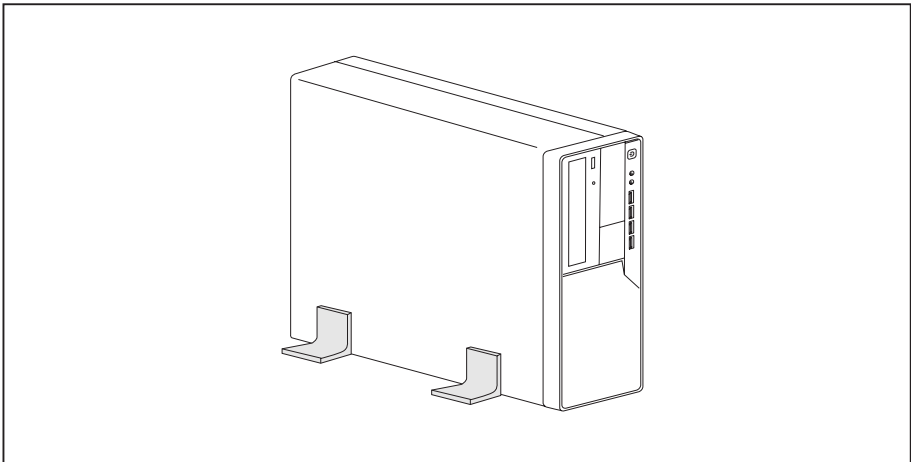


Operation in a vertical operating position is not permitted in Taiwan.

## Using the device with base feet (optional)

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

- If necessary, disconnect the cables connected to the device.

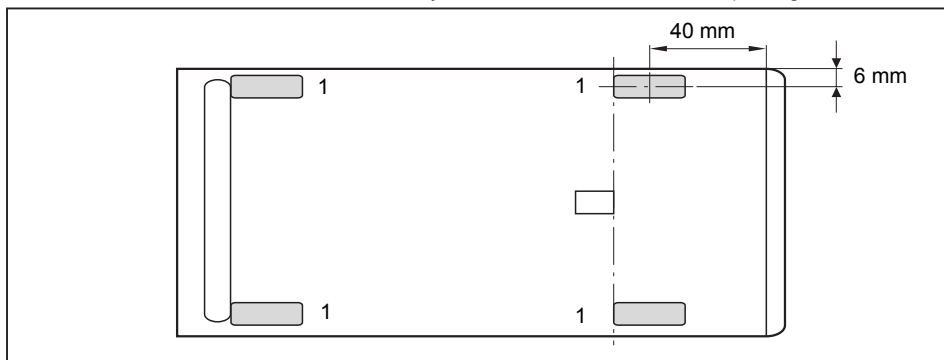


- Place the device on the base feet as shown.

### Using the device with rubber feet (optional)

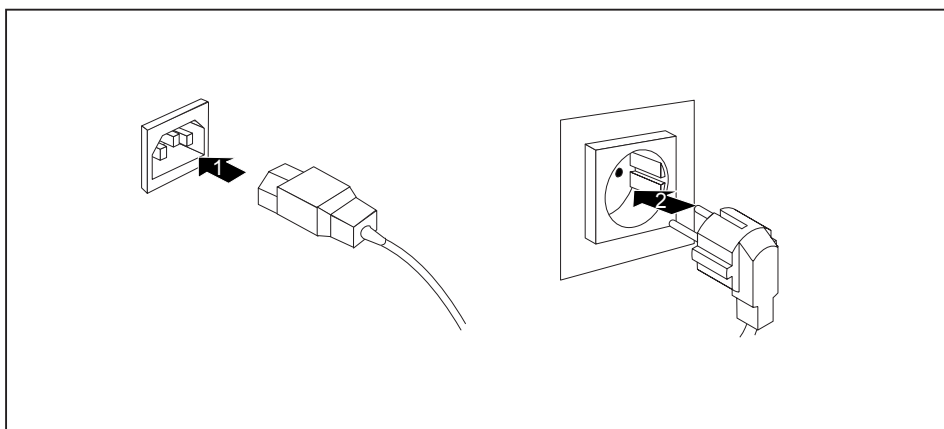
Proceed as follows to operate the device in the vertical operating position using the rubber feet:

- ▶ If necessary, disconnect the cables connected to the device.
- ▶ First, position the casing vertically so that the ON/OFF switch is located at the bottom.
- ▶ Pull off the foil from the rubber feet that you will find in the accessories package.



- ▶ Affix the rubber feet (1) to the outside of the casing. The positions of the rubber feet must correspond to the dimensions given so that the device is stable.
- ▶ Stand the device on the rubber feet.
- ▶ Reconnect any cables which were disconnected earlier.

### Connecting the device to the mains supply



- ▶ Connect the power cable to the device (1).
- ▶ Plug the power plug into a grounded mains outlet (2).

## 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 the cables

- ▶ Turn off all power and equipment switches.
- ▶ Remove all power plugs from the grounded mains outlets.
- ▶ Connect all the cables to the device and the external devices. Please make sure that you always observe the safety notes provided in ["Important notes", Page 10](#).
- ▶ Plug all data communication cables into the appropriate sockets.
- ▶ Plug all power cables into the grounded mains outlets.



USB devices are hot-pluggable. This means you can connect and disconnect USB cables while your device is switched on.

Additional information can be found in ["Connecting external devices to the USB ports", Page 20](#) and in the documentation for the USB devices.

## Disconnecting the cables

- ▶ Switch off all affected devices.
- ▶ Remove all power plugs from the grounded mains outlets.
- ▶ Unplug all data communication cables from the appropriate sockets.
- ▶ Disconnect all of the cables from the device and from the external devices.

## Ports on the device

The ports 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). Detailed information on the location of the ports is provided in the manual for the mainboard.

|                                                                                  |                                                                   |                                                                                   |                                                                   |
|----------------------------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------|
|  | Serial interface, turquoise                                       |  | Microphone port, pink (rear of device) or black (front of device) |
|  | VGA monitor port, blue                                            |  | Audio input (Line In), light blue                                 |
|  | Headphones, pale green(rear of device) or black (front of device) |  | Audio output (Line Out), light green                              |
|  | USB - Universal Serial Bus, black                                 |  | LAN port                                                          |
|  | PS/2 mouse port, green                                            |  | PS/2 keyboard port, purple                                        |
|  | DVI-I monitor port                                                |  | DisplayPort                                                       |



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

## Connecting a monitor

- ▶ Follow the instructions contained in the monitor manual to prepare the monitor for operation (e.g. connecting cables).
- ▶ Connect the data cable of the monitor into the required monitor port of your device.



The monitor connector on the device is only approved for use with monitors that have a rated current less than or equal to 1.0 A at 230 V or less than or equal to 2.0 A at 100 V. The values for the monitor current consumption can be found in the technical data for the monitor or in the operating manual for the monitor.

- ▶ Depending on the configuration level of your device, plug the monitor power cable into the grounded mains outlet.

## Connecting the mouse

You can connect a USB mouse or a PS/2 mouse to your device.

### Connecting a USB mouse

- ▶ Connect the USB mouse to one of the USB ports on the device.

### Connecting a PS/2 mouse



The PS/2 mouse is only detected by the device if you connect the mouse when the device is switched off and then switch the device on again.

- ▶ Switch your device off.



If you do not attach a mouse to 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.

- ▶ Connect the PS/2 mouse to the PS/2 mouse port of the device.
- ▶ Switch your device on again.

## Connecting the keyboard

You can connect a USB keyboard or a PS/2 keyboard to your device.

### Connecting a USB 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.
- ▶ Insert the flat rectangular USB plug of the keyboard cable into one of the device's USB ports.

### Connecting a PS/2 keyboard

Use the supplied keyboard cable only.



The PS/2 keyboard is only detected by the device if you connect the keyboard when the device is switched off and then switch the device on again.

- ▶ Switch your device off.
- ▶ 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.
- ▶ Switch your device on again.

# Connecting external devices to the serial interface

External devices can be connected to the serial interface (e.g. a printer or modem).

- ▶ Connect the data cable to the external device.
- ▶ Connect the data cable to the corresponding serial interface.
- ↳ 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 serial interface require drivers. Your operating system already includes many drivers. If the required drive is missing, install it. The latest 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 ports (e.g. printer, scanner, modem or keyboard).



USB devices are hot-pluggable. This means you can connect and disconnect USB cables while your device is switched on.

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 one of the USB ports on your device.

## Device drivers



The external USB 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 external USB device requires its own software, please install it from the data carrier provided with the USB device.

To ensure the transmission capacity of USB 2.0, the cable from the external USB device to the USB port of your device must not be longer than 3 m.

## Switching on for the first time: installing the software



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.



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.

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

## Switching on the monitor and device

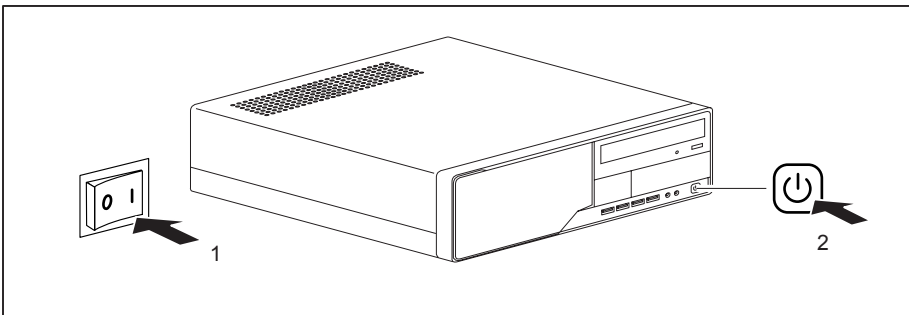


In order to avoid overheating, do not cover the ventilation areas of the monitor or the device.



Depending on the variant, the device may be equipped with a main power switch on the back of the device in addition to the ON/OFF button on the front.

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



- On devices with main power switch: set the main switch on the back of the device to the "I" position (1).
- Press the ON/OFF switch on the front of the device (2).
- ↳ The power indicator glows and the device is started.

### Installing the software

- ▶ During installation, follow the on-screen instructions.
- ▶ If anything is unclear regarding the data you are asked to input, read the online Help in your operating system.



You will find more information on the system, as well as drivers, utilities and updates on the "Drivers & Utilities" DVD and on the Internet at ["http://www.fujitsu.com/fts/support"](http://www.fujitsu.com/fts/support).

You will find information and help on the Windows operating system functions on the Internet at ["http://windows.microsoft.com"](http://windows.microsoft.com)

# Operation

## Switch the device on

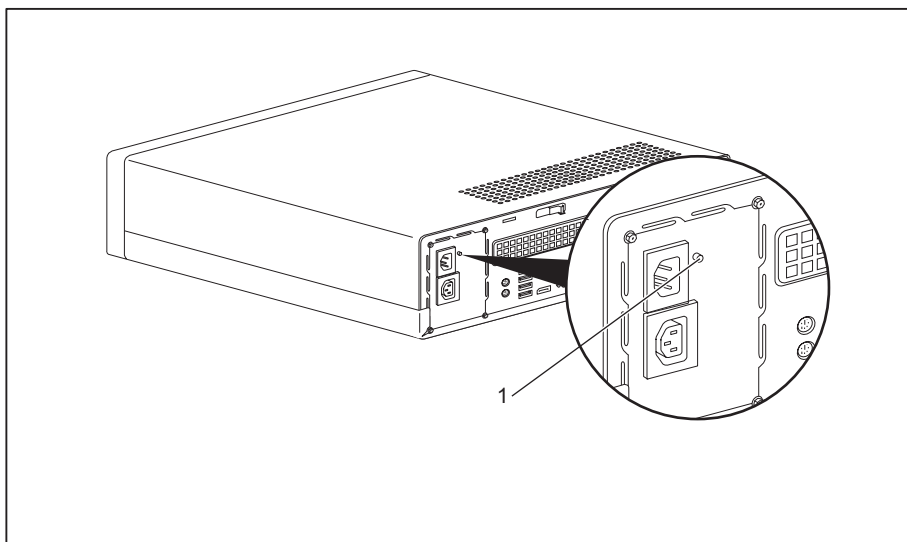
- ▶ If necessary, switch the monitor on (see the operating manual for the monitor).
- ▶ Switch on the device using the main power switch located on the rear of the device (if present).
- ▶ Press the ON/OFF switch on the front of the device.
- ↳ The power indicator glows and the device starts.

## Switching on a device when the lithium battery is discharged (0-Watt devices)

A 0-Watt device consumes no current when it is switched off and in the quiescent state.

Your 0-Watt device is equipped with an emergency on button (primary resume button) which can be used if it can no longer be started, for instance because the lithium battery is discharged.

After the emergency on button (1) has been pressed for a short time, the device can be switched on again using the ON/OFF switch at the front of the device.



- ▶ Press the emergency on button (1) to start the device.

## Switching off the device

- ▶ Shut down the operating system in the proper way.
- ▶ If the operating system does not automatically switch the device into energy-saving mode or switch it off, press the ON/OFF switch. Warning, this could lead to a loss of data!
- ▶ Switch the device off at the main switch (if present).
- ↳ The device consumes energy as follows (depending on the power supply of your device):
  - Device with alternating voltage socket, monitor socket and emergency on button:
    - with activated zero watts function: no energy
    - with unactivated zero watts function: low energy
  - Device with alternating voltage socket and main power switch: no energy
  - Device with alternating voltage socket and monitor socket: low energy

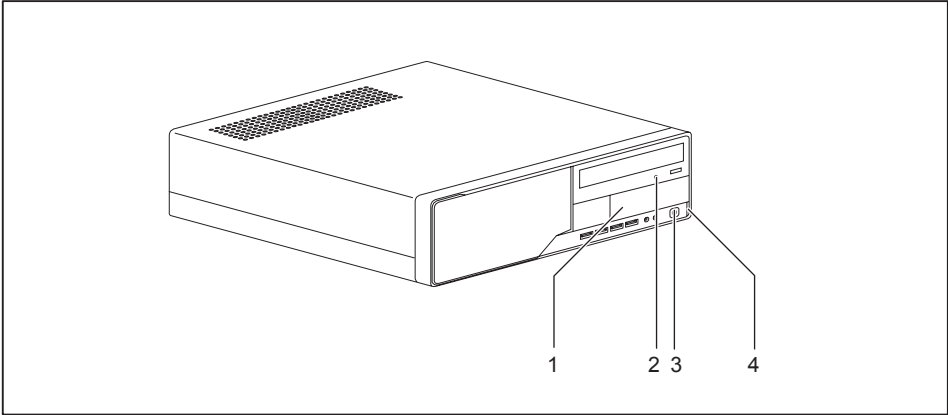


The main switch and the ON/OFF switch do not disconnect the device from the mains voltage. To completely disconnect from the mains voltage, remove the power plug from the power socket.

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

# Indicators on 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.

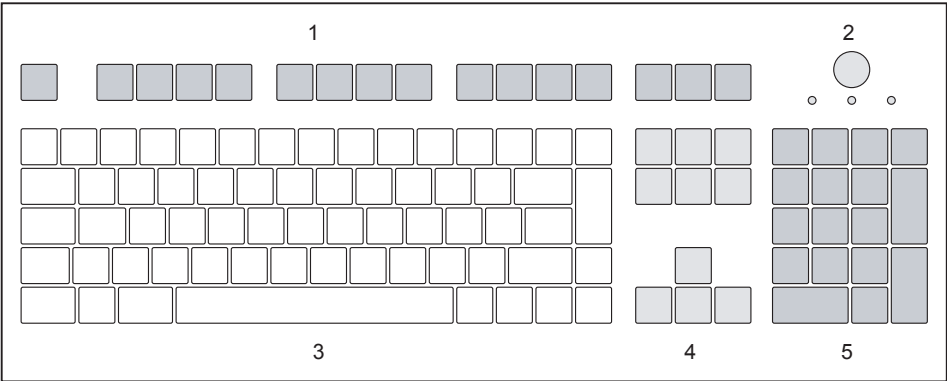


| No. | Indicator                                                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Indicator for optional components, e.g. SmartCard reader | The indicator lights up when optional components, e.g. SmartCard reader, are accessed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 2   | Drive indicator                                          | The indicator lights up when the CD-ROM or DVD drive in the device is accessed. Never under any circumstances remove the CD/DVD while the indicator is lit.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 3   | Power-on indicator                                       | <p><b>Caution:</b> When energy saving mode is active, the device must not be switched off at the main power switch (if present) or disconnected from the mains, as this may result in data loss.</p> <ul style="list-style-type: none"> <li>• The indicator is illuminated:<br/>The device is switched on.</li> <li>• The indicator is flashing:<br/>The device is in energy-saving mode. After being switched on with the ON/OFF switch, the device powers up or returns to the state it was in before it entered energy-saving mode.</li> <li>• The indicator is not lit:<br/>The device is switched off.</li> </ul> |
| 4   | Hard disk indicator                                      | The indicator lights up when the hard disk drive in the device is being accessed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

# Keyboard



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



- 1 = Function keys
- 2 = On/off switch (optional)
- 3 = Alphanumeric keypad
- 4 = Cursor keys
- 5 = Numeric keypad (calculator keypad)

## Important keys and keyboard shortcuts

The description of the following keys and keyboard shortcuts applies to Microsoft operating systems. Details of other keys and keyboard shortcuts can be found in the documentation for the relevant application program.

| Key / key combination | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                       | <b>On/off switch (optional)</b><br><br>Depending on the setting in the <i>BIOS Setup</i> , the device can be switched on or off with this switch. Some operating systems allow you to configure additional functions of the ON/OFF switch in the Control Panel.<br><br>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. |
|                       | <b>Enter key</b><br><br>confirms the highlighted selection. The Enter key is also referred to as the "Return" key.                                                                                                                                                                                                                                                                                                                                                              |

| Key / key combination                                                                                                                                                                                                                                          | Description                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                | <b>Windows key (device-dependent: variant 1)</b><br>calls up the Windows <i>Start</i> menu.                                                                                                                                                                                                                                                 |
|                                                                                                                                                                                | <b>Menu key (device-dependent: variant 1)</b><br>calls up the menu for the marked item (Windows).                                                                                                                                                                                                                                           |
|                                                                                                                                                                                | <b>Windows key (device-dependent: variant 2)</b><br>The Windows key switches between the start screen and the application which was used last.                                                                                                                                                                                              |
|                                                                                                                                                                                | <b>Menu key (device-dependent: variant 2)</b><br>The Menu key opens the menu for the active application.                                                                                                                                                                                                                                    |
|                                                                                                                                                                                | <b>Shift key</b><br>enables upper-case letters and the upper key symbols to be displayed.                                                                                                                                                                                                                                                   |
|                                                                                                                                                                                | <b>Alt Gr key (country-dependent)</b><br>produces a character shown on the bottom right of a key (e.g. the @ sign on the  key).                                                                                                                            |
|                                                                                                                                                                                | <b>Num Lock key</b><br>By pressing the Num Lock key you switch between the upper- and lower-case levels of the calculator keypad.<br><br>When the Num Lock indicator is lit the numeric keypad and arithmetic keys are active.<br><br>When the Num Lock indicator is not lit the cursor control functions on the Numeric keypad are active. |
|                                                                                                                                                                               | <b>Ctrl key</b><br>performs a special operation when pressed in conjunction with another key. The  key is also called the "Control" or "Control key".                                                                                                    |
|  +  +  | <b>Windows Security/Task Manager</b><br>This key combination opens the Windows Security/Task Manager window.                                                                                                                                                                                                                                |

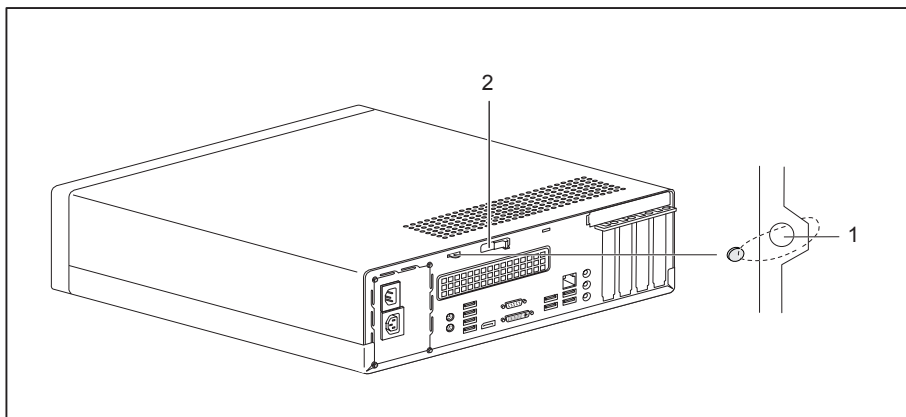
## Settings in BIOS Setup

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 or manual for the mainboard). You can 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.

### Anti-theft protection and lead-sealing



1 = Holes for padlock/lead-seal

2 = Device for "Kensington Lock"

#### Anti-theft protection

You can protect your device from theft

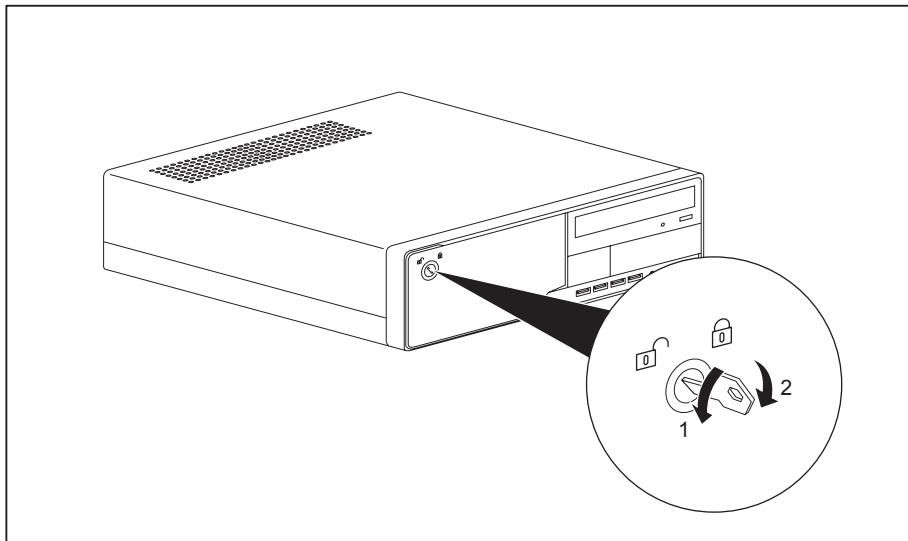
- with the holes (1), a padlock and a chain, which you have connected to a fixed object beforehand.
- with the Kensington Lock device (2) and a Kensington MicroSaver. Consult the manual for your Kensington Lock.

#### Lead-sealing

The casing can be sealed to prevent it being opened by unauthorised persons. To do this, feed the sealing chain through the holes (1) and seal the chain with the lead seal.

## Mechanical casing lock (optional)

With the casing lock you can mechanically lock the casing to prohibit unauthorised persons from opening it. The keys can be found on the rear panel of your device.



### Unlocking the casing

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

### Locking the casing

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

## BIOS setup security functions

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

- Prevent unauthorized access to *BIOS Setup*
- Prevent unauthorised system access
- Prevent unauthorised access to the settings of boards with their own BIOS
- Activate virus warnings
- Protect BIOS from overwriting
- Protect 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.

### Operating the SmartCard reader (optional)



Operation is not permitted in Taiwan.

- ▶ Connect the external SmartCard reader to your system as described in the instructions for the SmartCard reader.
- ↳ After the device is switched on, you will be prompted to insert your SmartCard.

# Problem solutions and tips



Comply with the safety information in the "Safety" manual and the chapter "[Getting started](#)", [Page 13](#), when attaching or detaching cables.

If a fault occurs, try to rectify it in accordance with the measures described in the following documents:

- in this chapter
- in the documentation relating to the peripheral devices
- in the Help sections for the individual programs
- in the documentation for the operating system in use.

## Help if problems occur

Should you encounter a problem with your computer that you cannot resolve yourself:

- ▶ Note the ID number of your device. The ID number is found on the type rating plate on the back, the underside or the top of the casing.
- ▶ For further clarification of the problem, contact the Service Desk for your country (see the Service Desk list or visit the Internet at "<http://support.ts.fujitsu.com/contact/servicedesk>"). When you do this, please have ready the identity number and serial number of your system.

## Troubleshooting

### Power indicator remains off after you have switched on your device

| Cause                               | Remedy                                                                                                                                                                                                                                                                              |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The mains voltage supply is faulty. | <ul style="list-style-type: none"> <li>▶ Check that the power cable is correctly plugged into the device and into a grounded mains outlet.</li> <li>▶ Check that the main switch at the rear of the monitor is set to the "I" position.</li> <li>▶ Switch the device on.</li> </ul> |
| Internal power supply overloaded.   | <ul style="list-style-type: none"> <li>▶ Pull the power plug of the device out of the mains outlet.</li> <li>▶ Wait for about 3 minutes.</li> <li>▶ Plug the power plug into a properly grounded mains outlet again.</li> <li>▶ Switch the device on.</li> </ul>                    |

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

| Cause        | Remedy                                                                                                                                                                                                                                                                                                          |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System crash | <p>► Keep the on/off switch pressed for at least 4 seconds until the machine switches off.</p> <p>Caution: This can lead to a loss of data!</p> <p>This procedure does not allow the operating system to shut down in an orderly way. The next time the system is started there may well be error messages.</p> |

## The device cannot be switched on with the ON/OFF switch (0-Watt devices)

| Cause                              | Remedy                                                                                                                                                                                  |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The lithium battery is discharged. | <p>► Press the emergency on button at the rear of the device, see chapter <a href="#">"Switching on a device when the lithium battery is discharged (0-Watt devices)"</a>, Page 23.</p> |

## Monitor remains blank

| Cause                                             | Remedy                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Monitor is switched off.                          | <p>► Switch your monitor on.</p>                                                                                                                                                                                                                                                                                                                                   |
| Power saving has been activated (screen is blank) | <p>► Press any key on the keyboard.</p> <p>or</p> <p>► Deactivate the screen saver. If necessary, enter the appropriate password.</p>                                                                                                                                                                                                                              |
| Brightness control is set to dark                 | <p>► Adjust the brightness control. For detailed information, please refer to the operating manual supplied with your monitor.</p>                                                                                                                                                                                                                                 |
| Power cable not connected                         | <p>► Switch off the monitor and the device.</p> <p>► 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.</p> <p>► Check that the device power cable is properly plugged into the device and a grounded mains outlet.</p> <p>► Switch on the monitor and the device.</p> |

| Cause                             | Remedy                                                                                                                                                                                                                                                                             |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Monitor cable not connected       | <ul style="list-style-type: none"> <li>▶ Switch off the monitor and the device.</li> <li>▶ Check that the monitor cable is properly connected to the device and monitor.</li> <li>▶ Switch on the monitor and the device.</li> </ul>                                               |
| Incorrect setting for the monitor | <ul style="list-style-type: none"> <li>▶ Restart the system.</li> <li>▶ Press <b>[F8]</b> while the system is booting.</li> <li>▶ Start the system in Safe Mode.</li> <li>▶ Set up the monitor as described in the documentation for your operating system and monitor.</li> </ul> |

## No mouse pointer displayed on the screen

| Cause                                 | Remedy                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The mouse is not correctly connected. | <ul style="list-style-type: none"> <li>▶ Shut down the operating system properly.</li> <li>▶ Switch the device off.</li> <li>▶ 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.</li> <li>▶ Switch the device on.</li> </ul>                   |
| The mouse controller is not enabled.  | <ul style="list-style-type: none"> <li>▶ Check in the <i>BIOS-Setup</i> whether the mouse controller is <i>enabled</i>.</li> <li>▶ 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.</li> </ul> |

## Time and/or date is not correct

| Cause                              | Remedy                                                                                                                                                                                                                                                |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Time and date are incorrect.       | <ul style="list-style-type: none"> <li>▶ Set the correct time and date within the operating system you are using.</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>▶ Set the correct time and/or date in the <i>BIOS Setup</i>.</li> </ul> |
| The lithium battery is discharged. | <ul style="list-style-type: none"> <li>▶ If the time and date are repeatedly wrong when you switch on your device, replace the lithium battery (see <a href="#">"Replacing the lithium battery", Page 65</a>).</li> </ul>                             |

## Error messages on the screen

Error messages and their explanations are provided:

- in the technical manual for the mainboard
- in the documentation for the programs used

## Installing new software

When installing programs 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.

## Restoring the hard disk contents

You will find the instructions for restoring the contents of the hard disk in the "Recovery Guide" manual.

## Tips

| Topic                   | Tip                                                                                                    |
|-------------------------|--------------------------------------------------------------------------------------------------------|
| Out of system resources | <p>► Close unnecessary applications.</p> <p>or</p> <p>► Run the applications in a different order.</p> |
| Other manuals           | Further manuals are provided as PDF files on the "Drivers & Utilities" DVD.                            |

# System expansions



Repairs to the device must only be performed by qualified technicians. Incorrect repairs may greatly endanger the user (electric shock, fire risk) and will invalidate your warranty.

After consulting the Hotline/Help Desk, you may remove and install the components described in this manual yourself.



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 beforehand.

The following illustrations may differ slightly from your device, depending on its configuration level.

If further documentation was delivered with your device, please also read this through carefully.

In addition, before removing or installing system components, please pay attention to the following:



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

Remove the power plug before opening the device.

Be careful that no wires become trapped when removing or installing components.

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



An update of the BIOS may be required for a system expansion or hardware upgrade. Further information can be found in the BIOS help section or if necessary in the Technical Manual for the mainboard.

# Information about boards

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

Note that some components on the mainboard may be very hot if the device was in use shortly before the casing was removed.

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 handling boards fitted with ESDs, you must always 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.
- Only touch or hold the boards by the edge or, if present, at the areas marked green (Touch Points).
- Never touch pins or conductors on boards fitted with ESDs.

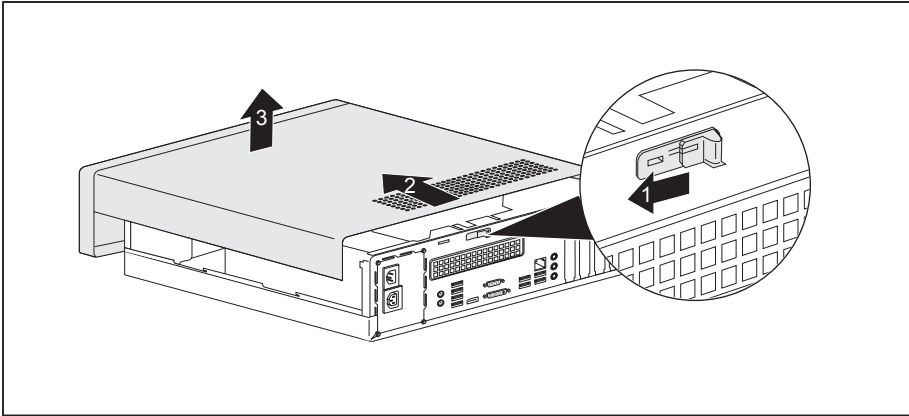
## Removing the casing cover

- Switch the device off.



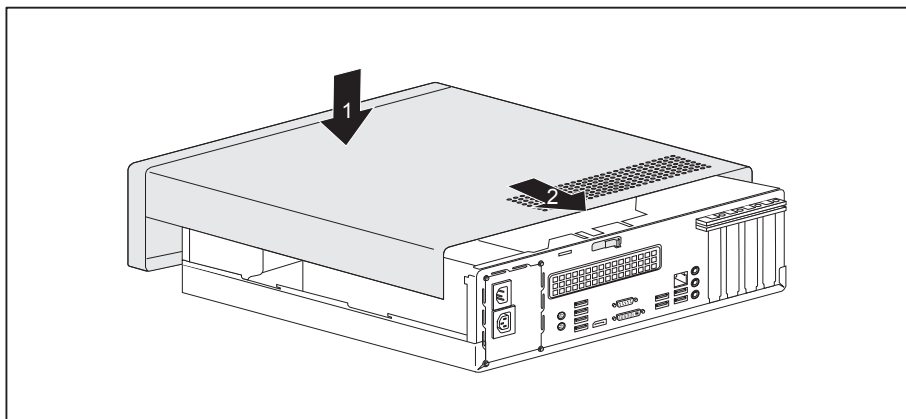
The device must not be in the energy-saving mode!

- Remove any plugged-in wires which are in the way.



- Slide the retaining mechanism in the direction of the arrow (1).
- Slide the casing cover a small distance in the direction indicated by the arrow (2) and lift it off (3).

## Reattaching the casing cover.



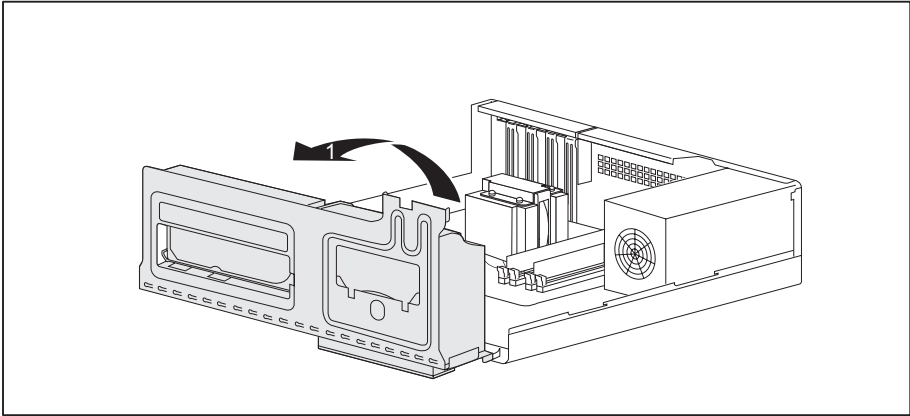
- ▶ Place the casing cover onto the casing (1) and slide it as far as possible in the direction indicated by the arrow (2).
- ↳ The casing cover will click into place automatically, without any need to move the retaining mechanism.
- ▶ Connect the cables to the device.

## Opening the drive cage

- Remove the casing cover (see Chapter ["Removing the casing cover", Page 37](#)).



When folding out the drive cage, ensure that you do not fold it out to an angle greater than 90°, as shown in the diagram.

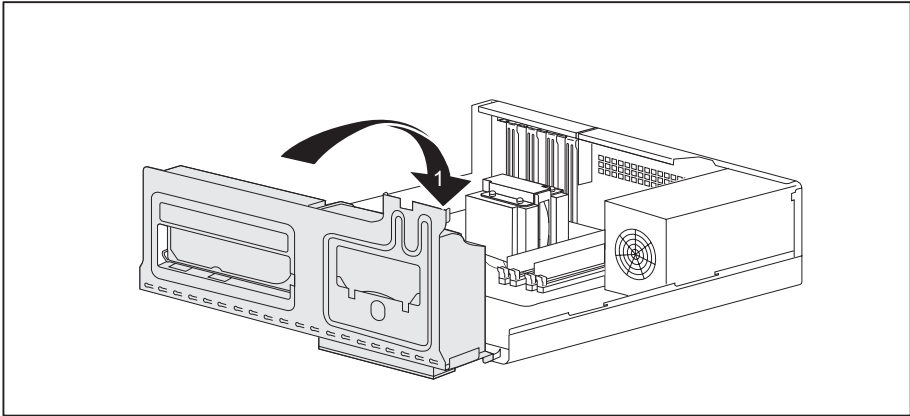


- Fold out the drive cage (1).

## Closing the drive cage



Take care not to trap any cables when folding the drive cage into the closed position.  
Make sure that the retaining mechanism on the memory module is closed.



- ▶ Fold the drive cage to the closed position (1).
- ▶ Fit the casing cover back onto the casing (see Chapter ["Reattaching the casing cover."](#), Page 38).

## Overview of drive bays and drives in your device

The casing can accommodate several accessible and non-accessible drives:

- one drive bay for an accessible 5 1/4 inch drive
- one drive bay for an accessible 3 1/2 inch drive
- one drive bay for an non-accessible 3 1/2 inch drive (hard disk)



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

# Installing and removing the accessible 5<sup>1</sup>/<sub>4</sub> inch drive

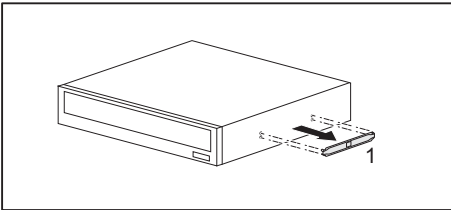
## Fitting the drive cover for the 5 <sup>1</sup>/<sub>4</sub> inch drive

In order to use the locking function for the accessible 5<sup>1</sup>/<sub>4</sub> drive, the corresponding drive cover must be fitted to the drive before the drive is installed in the casing. Proceed as follows:

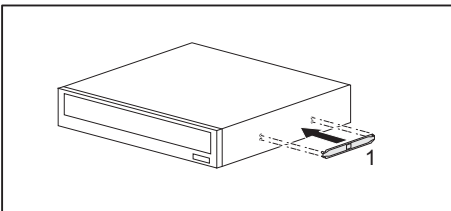


The drive cover can be found either on the drive place holder or on the installed drive.

- ▶ Remove the casing cover (see Chapter ["Removing the casing cover", Page 37](#)).
- ▶ Remove the accessible drive or the drive place holder (see ["Removing an accessible drive", Page 44](#)).



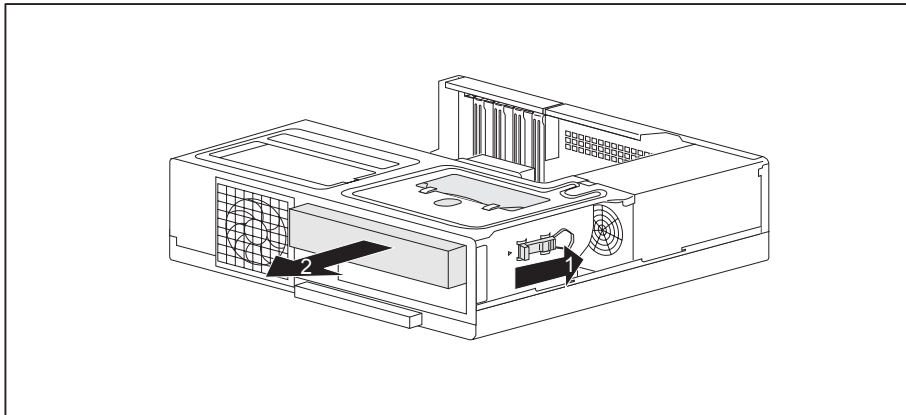
- ▶ Release the drive cover in the direction of the arrow (1) from the drive/drive placeholder that was removed.



- ▶ Attach the drive cover onto the drive/drive place holder to be fitted (1).

## Installing an accessible drive

- ▶ Remove the casing cover (see Chapter ["Removing the casing cover", Page 37](#)).

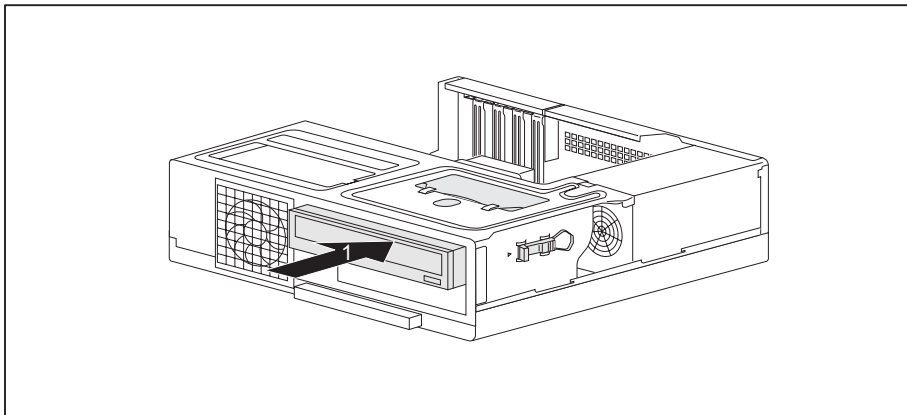


- ▶ If no drive is installed, then remove the drive placeholder by sliding the retaining mechanism in the direction of the arrow (1).
- ▶ Pull the drive out of the drive cage in the direction of the arrow (2).



Do not dispose of the drive placeholder. For cooling, protection against fire, and in order to comply with EMC (electromagnetic compatibility) regulations, you must refit the placeholder if you remove the drive again later (see ["Removing an accessible drive", Page 44](#)).

- ▶ Take the new drive out of its packaging.
- ▶ Fit the drive cover onto the drive (see Chapter ["Fitting the drive cover for the 5 1/4 inch drive", Page 41](#)).



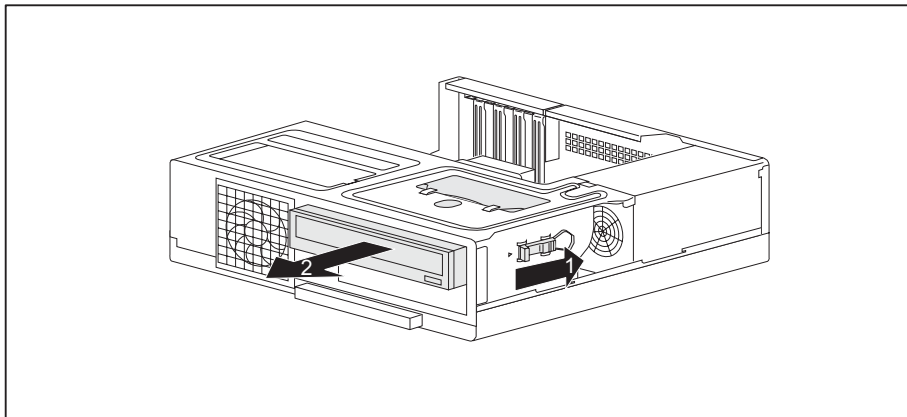
- ▶ Slide the new drive into the drive cage (1) until it engages.
- ▶ Connect the cables to the drive. Make sure the polarity is correct.
- ▶ Fit the casing cover back onto the casing (see Chapter ["Reattaching the casing cover." , Page 38](#)).



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

## Removing an accessible drive

- ▶ Remove the casing cover (see Chapter ["Removing the casing cover", Page 37](#)).
- ▶ Disconnect any cables connected to the drive.



- ▶ Slide the retaining mechanism in the direction of the arrow (1).
- ▶ Pull the drive out of the drive cage in the direction of the arrow (2).
- ▶ If you do not install a new drive, then a drive placeholder must be installed in the drive bay to prevent any foreign objects from entering the casing.
- ▶ Fit the casing cover back onto the casing (see Chapter ["Reattaching the casing cover.", Page 38](#)).



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

## Installing/removing a SmartCard reader, WLAN module or multcard reader (optional, 3½ inch)



Operation of the module is not permitted in Taiwan.

It is possible to install a SmartCard and/or WLAN module for wireless LAN (Local Area Network) in the drive bay for the 3½ inch drive.



The SmartCard reader and WLAN module can be installed together in the same module carrier. The two boards can also be installed individually without the second board. The WLAN module must be installed in the lower slot of the carrier and the SmartCard reader in the upper slot of the carrier.

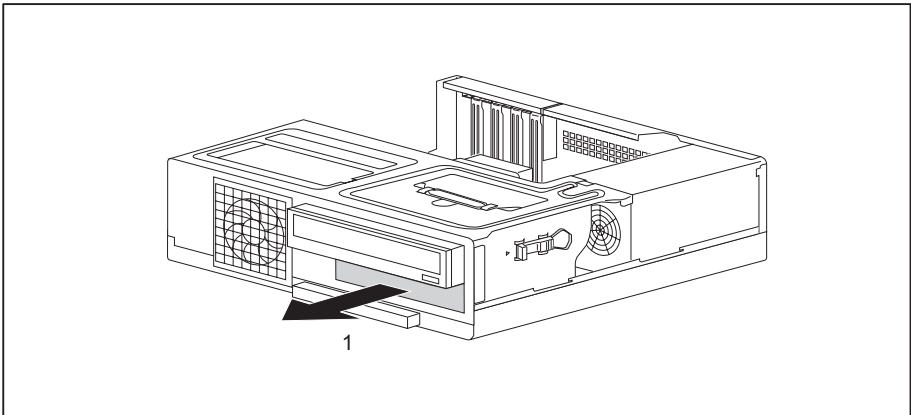
If you want to install the SmartCard reader and the WLAN module together, install the WLAN module first.

To remove, carry out the above steps in reverse order.

It is also possible to install a multcard reader instead of the module carrier for the SmartCard reader and/or WLAN module.

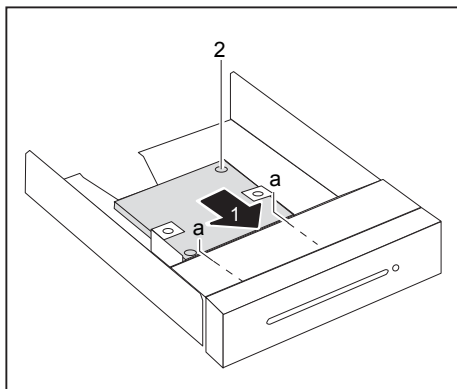
### Preparing to install/remove components

- Remove the casing cover (see Chapter ["Removing the casing cover", Page 37](#)) and take the blanking plate off the drive bay in the casing cover.



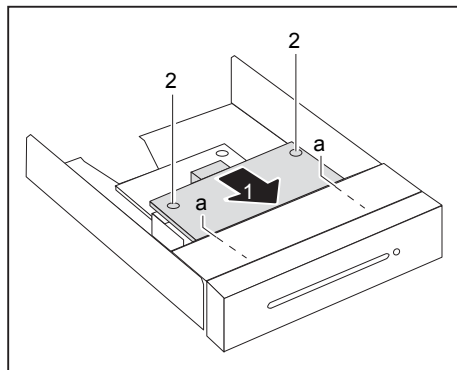
- Remove the cover plate from the drive bay for the 3½-inch drive (1).

## Attaching the WLAN module to the module carrier



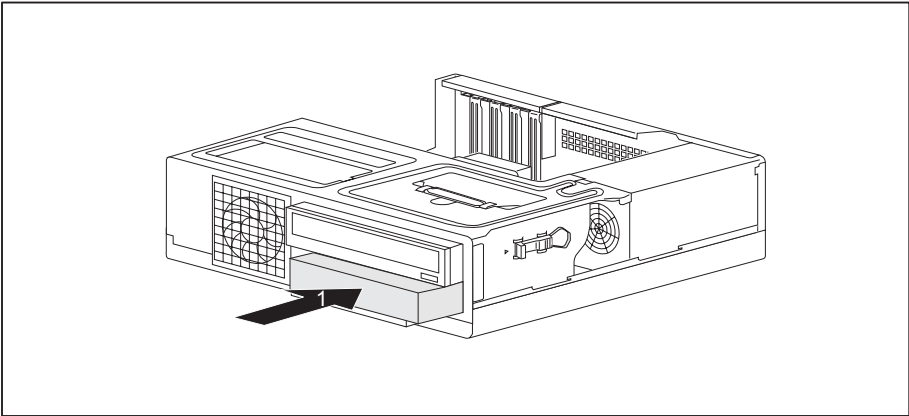
- ▶ With the component side facing downwards, slide the WLAN module in the direction of the arrow (1) into the guide on the module holder (a).
- ▶ Fasten the WLAN module in place with the screw (2).

## Screwing the SmartCard reader onto the module holder

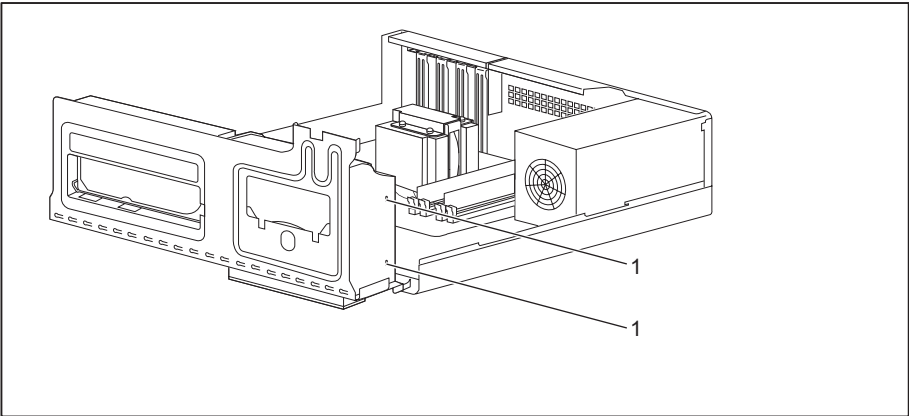


- ▶ Push the SmartCard reader - with the component side facing downwards - into the guide on the module holder (a) in the direction of the arrow (1).
- ▶ Secure the SmartCard reader with the screws (2).

## Installing a multiscard reader or module carrier containing a SmartCard reader and/or WLAN module



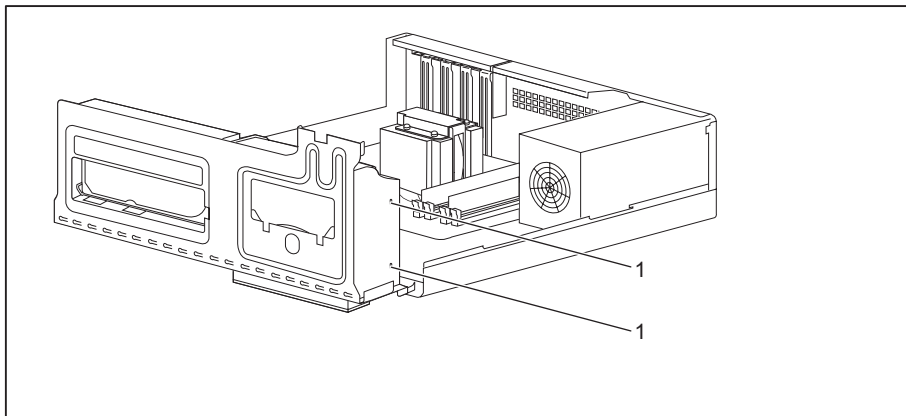
- ▶ Slide the module carrier/multiscard reader into the drive casing in the direction of the arrow (1).
- ▶ Fold out the drive cage (see Chapter ["Opening the drive cage", Page 39](#)).



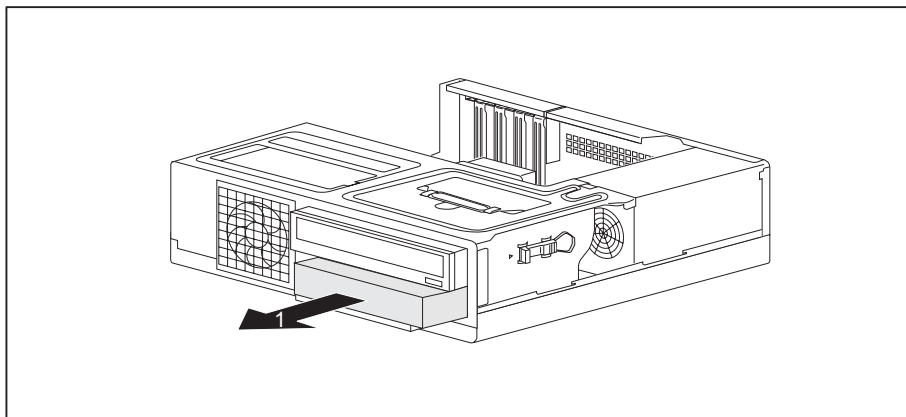
- ▶ Secure the module carrier/multiscard reader with the screws (1).
- ▶ Connect the cables to the module carrier/multiscard reader. Make sure the polarity is correct.
- ▶ Fold the drive cage back into the closed position (see Chapter ["Closing the drive cage", Page 40](#)).

## Removing the module carrier with SmartCard reader and/or WLAN module or multcard reader

- Disconnect any cables connected to the module carrier/multcard reader.

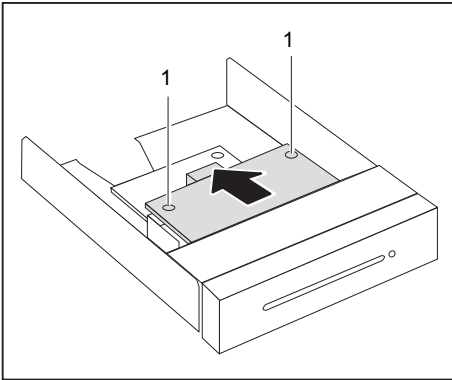


- Remove the screws (1) from the module carrier/multcard reader.
- Fold the drive cage back into the closed position (see Chapter ["Closing the drive cage"](#), Page 40).



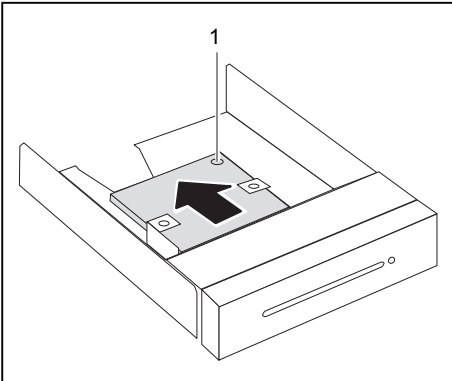
- Slide the module carrier/multcard reader out of the casing in the direction of the arrow (1).

## Removing the SmartCard reader from the module holder



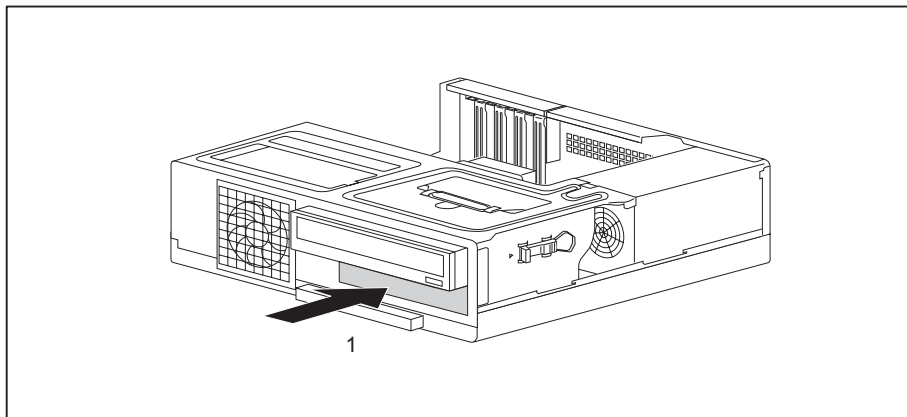
- ▶ Undo the screws (1).
- ▶ Pull the SmartCard reader out of the module holder in the direction of the arrow (2).

## Removing the WLAN module from carrier



- ▶ Loosen the screw (1).
- ▶ Pull the WLAN module out of the module carrier in the direction of the arrow.

## Completing installation/removal of components



- ▶ Fasten the cover plate to the drive bay for the 3½-inch drive (1).
- ▶ Fasten the blanking plate onto the drive bay in the casing cover.
- ▶ Fit the casing cover back onto the casing (see Chapter ["Reattaching the casing cover."](#), Page 38).

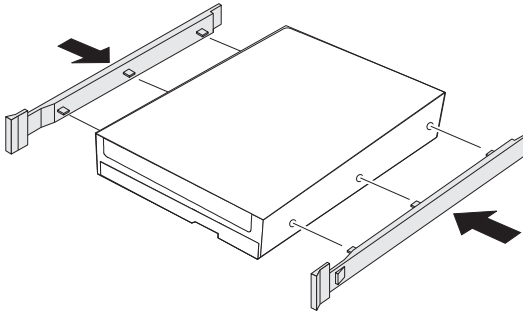
# Installing and removing the hard disk drive

## Installing a hard disk drive

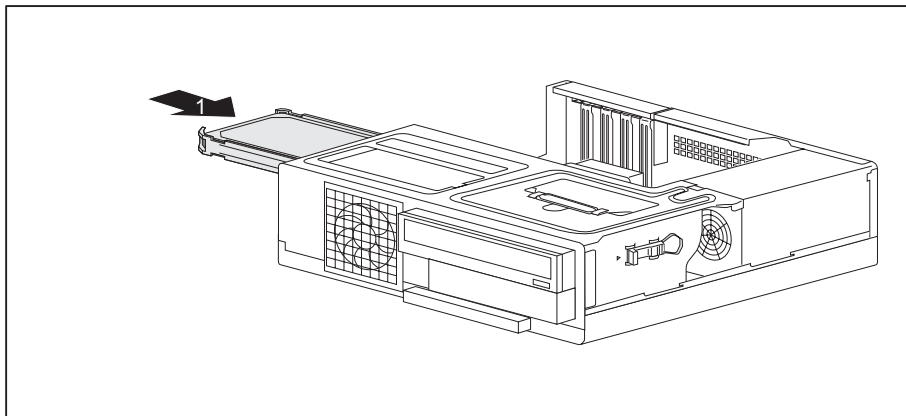
- Remove the casing cover (see Chapter ["Removing the casing cover", Page 37](#)).

**i**

EasyChange rails for the hard disk drive are located in the drive cage.



- Fasten the EasyChange rails to the side of the hard disk drive by inserting the upper pins of the EasyChange rail in the corresponding holes on the hard disk.



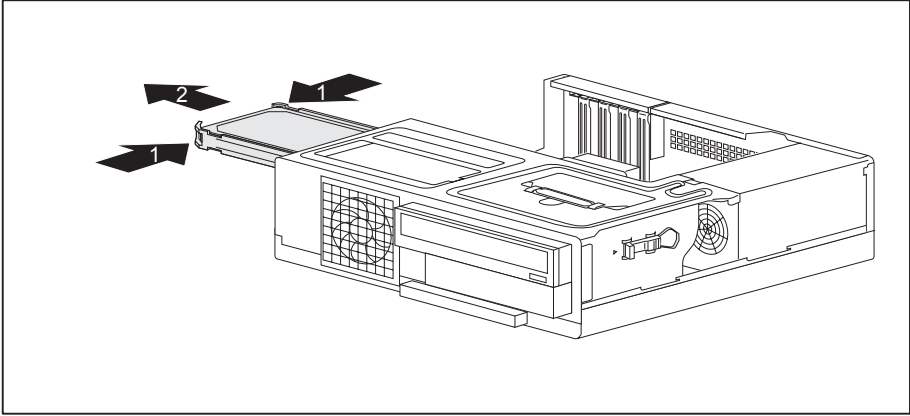
- ▶ Slide the hard disk drive with the EasyChange rails fitted into the drive cage in the direction of the arrow (1). Check that the component side of the hard disk drive faces downwards towards the base of the casing.
- ▶ Connect the cables to the hard disk drive.
- ▶ Fit the casing cover back onto the casing (see Chapter ["Reattaching the casing cover." , Page 38](#)).



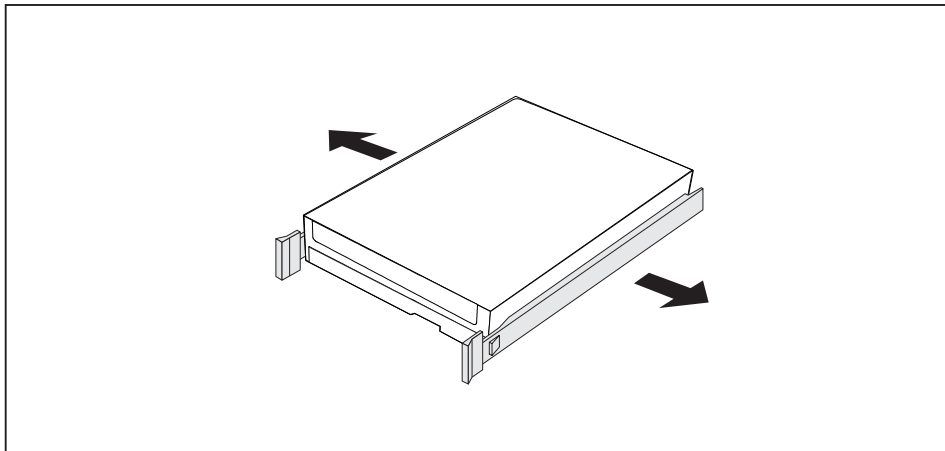
It may be necessary to modify the entry for the drive in the BIOS Setup accordingly.

## Removing the hard disk drive

- ▶ Remove the casing cover (see Chapter ["Removing the casing cover", Page 37](#)).
- ▶ Disconnect any cables connected to the hard disk drive.



- ▶ Slightly press together the EasyChange rails on the hard disk drive (1) and pull the hard disk drive out of the drive cage in the direction of the arrow (2).



- ▶ Pull the EasyChange rails off the hard disk drive.
- ▶ If you no longer need the EasyChange rails, secure them again at their location in the drive cage.
- ▶ Fit the casing cover back onto the casing (see Chapter ["Reattaching the casing cover.", Page 38](#)).



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

## Installing and removing boards

Depending on the device variant, your device will be equipped to accept either high-profile boards or low-profile boards.

### Installing and removing high-profile boards (device-dependent)

You can install additional modules in order to increase the performance of your machine.

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 on shipment.

A slot cover is provided for every slot. If no board is installed, the slot cover must be used to protect the slot.

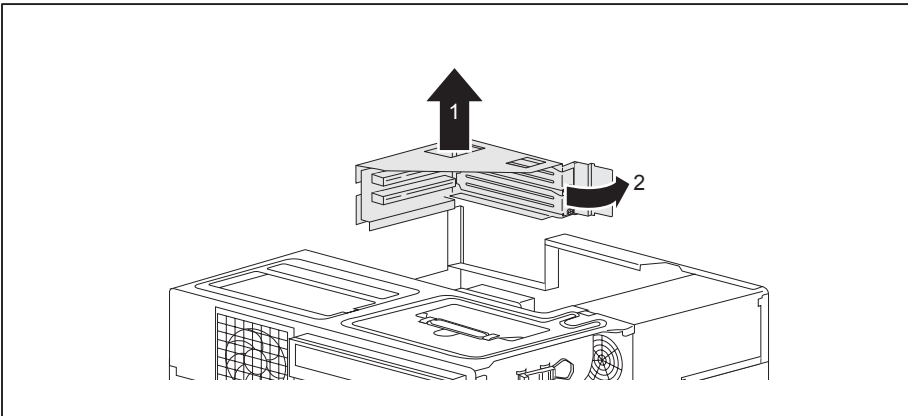


When you install a board, do not discard the corresponding slot cover.

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

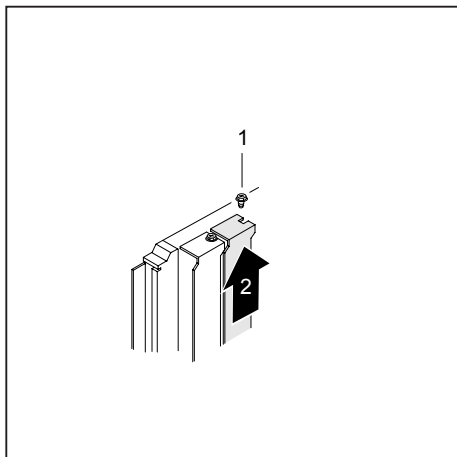
### Removing the board cage

- Remove the casing cover (see Chapter ["Removing the casing cover", Page 37](#)).



- Lift the board cage out of the casing (1).
- Open the retaining mechanism on the board cage (2).

### Removing a slot cover.

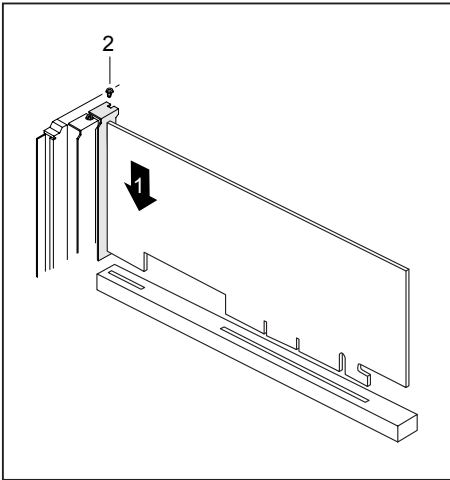


- ▶ Undo the screw (1, optional).
- ▶ Pull the slot cover out of the slot (2).



Do not throw away 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.

## Installing a board



- Push the board into the slot (1) until it engages.
- Tighten the screw (2, optional).

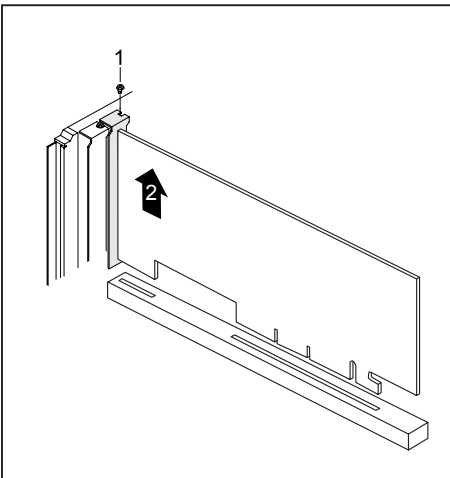
- If necessary, connect the cables to the board.



If you have installed or removed a 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.

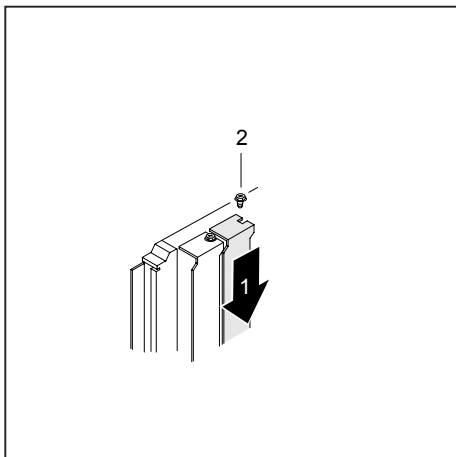
## Removing boards

- If necessary, disconnect the cables which are connected to the board.



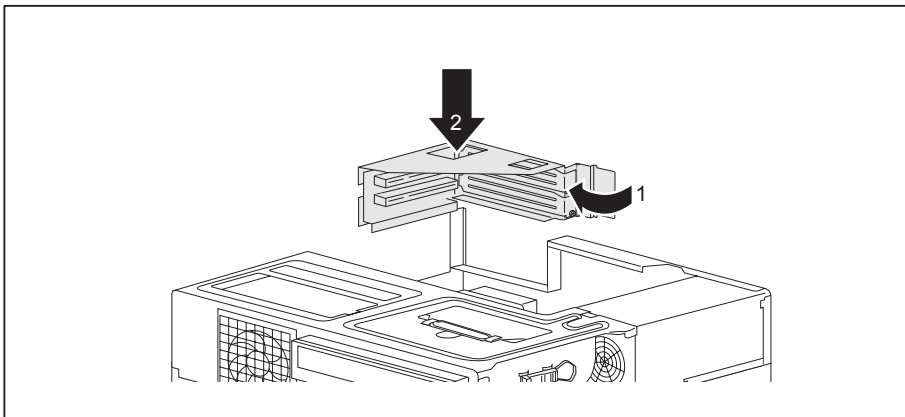
- Undo the screw (1, optional).
- Pull the board out of the slot (2).
- Place the board in suitable packaging.

### Reinstalling a slot cover



- ▶ Push the slot cover into the slot (1).
- ▶ Tighten the screw (2, optional).

### Installing the board cage



- ▶ Close the retaining mechanism on the board cage (1).
- ▶ Insert the board cage into the casing (1).
- ▶ Fit the casing cover back onto the casing (see Chapter ["Reattaching the casing cover."](#), Page 38).



If you have installed or removed a 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 low-profile boards (device-dependent)

For every slot there is a slot cover provided. If no board is installed, the slot cover protects the slot.

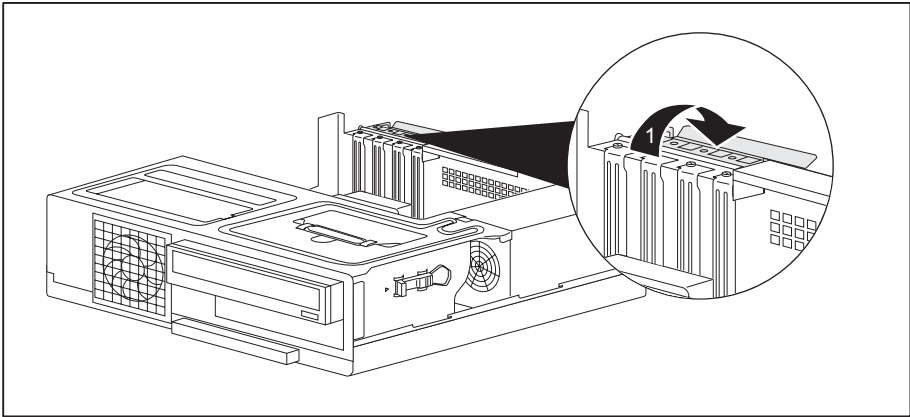


When you install a board, do not discard the corresponding slot cover.

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

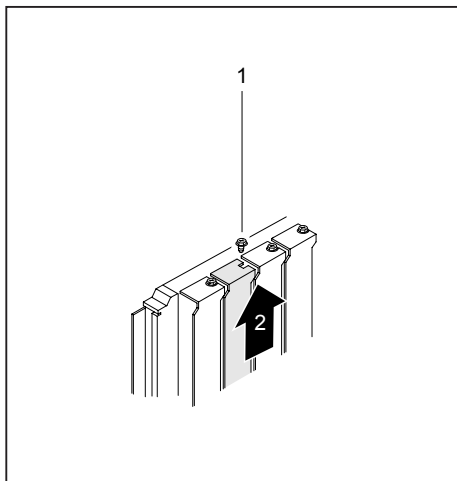
### Opening the board retaining mechanism

- Remove the casing cover (see Chapter ["Removing the casing cover", Page 37](#)).



- Fold out the board retaining mechanism (1).

### Removing a slot cover.

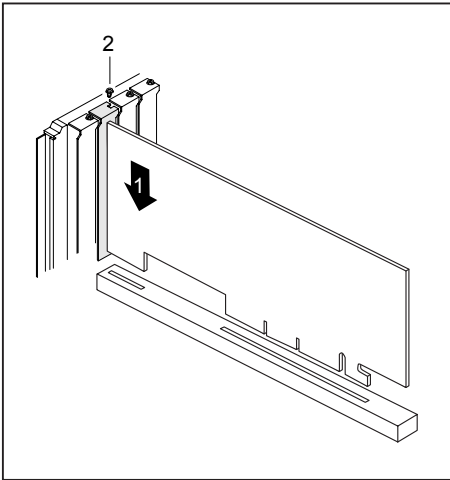


- ▶ Undo the screw (1, optional).
- ▶ Pull the slot cover out of the slot (2).



Do not throw away 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.

## Installing a board



- Push the board into the slot (1) until it engages.
- Tighten the screw (2, optional).

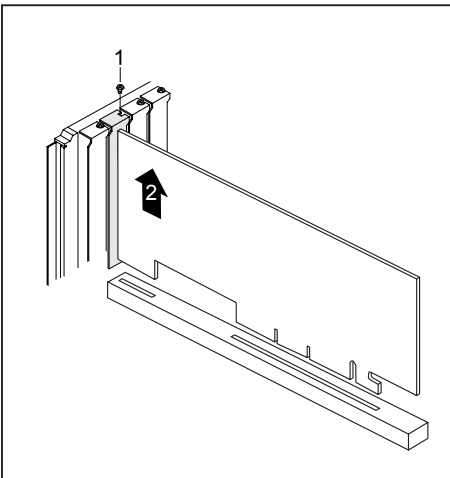
- If necessary, connect the cables to the board.



If you have installed or removed a 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.

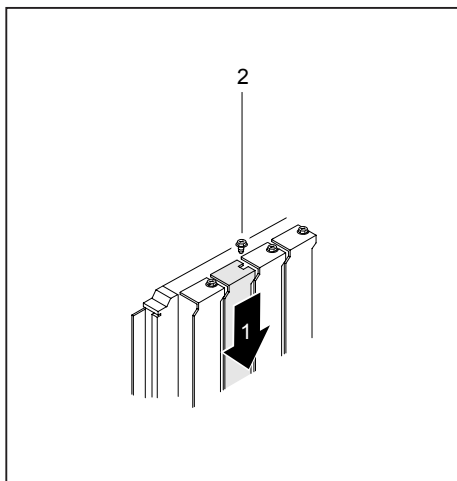
## Removing boards

- If necessary, disconnect the cables which are connected to the board.



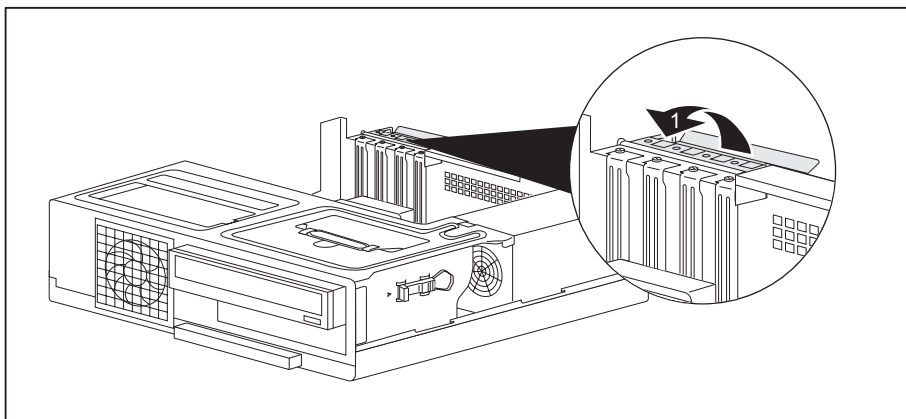
- Undo the screw (1, optional).
- Pull the board out of the slot (2).
- Place the board in suitable packaging.

### Reinstalling a slot cover



- ▶ Push the slot cover into the slot (1).
- ▶ Tighten the screw (2, optional).

### Closing the board retaining mechanism



- ▶ Fold the board retaining mechanism to the closed position (1).
- ▶ Fit the casing cover back onto the casing (see Chapter ["Reattaching the casing cover."](#), Page 38).

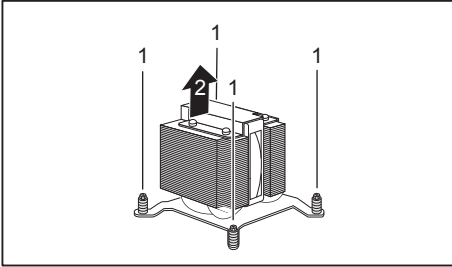


If you have installed or removed a board, please check the relevant PCI slot settings in the *BIOS Setup*. If necessary, change the settings. Further information is provided in the PCI board documentation.

## Installing and removing heat sinks

### Removing the heat sink

- ▶ Remove the casing cover (see Chapter ["Removing the casing cover", Page 37](#)).
- ▶ Disconnect the fan cables from the mainboard.

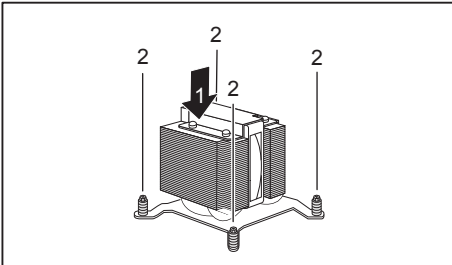


- ▶ Undo the screws (1).
- ▶ Remove the heat sink from the casing (2).



Never operate the device without the heat sink fitted! Reinstall the heat sink before switching on the device.

### Installing the heat sink



- ▶ Insert the heat sink into the casing (1), making sure to correctly align the screw holes on the heat sink with the screw holes on the mainboard and taking note of the arrows on the heat sink. The arrows must point to the rear of the device.
- ▶ Tighten the screws (2) in a crosswise fashion.

- ▶ Connect the fan cables to the mainboard.
- ▶ Fit the casing cover back onto the casing (see Chapter ["Reattaching the casing cover.", Page 38](#)).

## Mainboard expansions

Details on how to upgrade the main memory or the processor of your device can be found in the manual for the mainboard.

### Upgrading main memory

- ▶ Remove the casing cover (see Chapter ["Removing the casing cover", Page 37](#)).
- ▶ Upgrade the memory according to the description in the manual for the mainboard.
- ▶ Fit the casing cover back onto the casing (see Chapter ["Reattaching the casing cover.", Page 38](#)).

### Processor, replacing

- ▶ Remove the casing cover (see Chapter ["Removing the casing cover", Page 37](#)).
- ▶ Remove the heat sink (see ["Removing the heat sink", Page 63](#)).
- ▶ Upgrade the processor according to the description in the manual for the mainboard.
- ▶ Reinstall the heat sink (see ["Installing the heat sink", Page 63](#)).
- ▶ Fit the casing cover back onto the casing (see Chapter ["Reattaching the casing cover.", Page 38](#)).

## Replacing the 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.



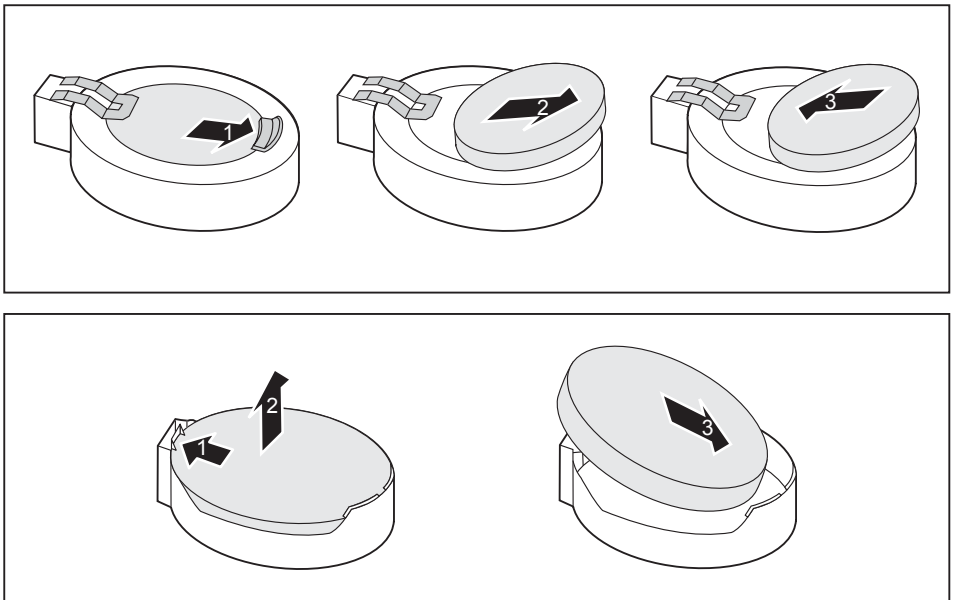
Incorrect replacement of the lithium battery may lead to a risk of explosion!

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

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

Ensure that you observe the correct polarity when replacing the lithium battery!

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 (3) and press it down until it engages.

# Technical specification

|                                                                                                                                         |                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| <b>Electrical data</b>                                                                                                                  |                                                                      |
| Safety standards complied with:                                                                                                         | IEC 60950, EN 60950, UL 60950 CSA 22.2 No.60950-1                    |
| Protection class:                                                                                                                       | I                                                                    |
| Rated voltage range:                                                                                                                    | 100 V – 240 V                                                        |
| Rated frequency:                                                                                                                        | 50 Hz – 60 Hz                                                        |
| Max. rated current:                                                                                                                     |                                                                      |
| Device with monitor socket:<br>of which Value for monitor socket:                                                                       | 100 V – 240 V<br>5.0 A – 2.5 A<br><br>100 V – 240 V<br>2.0 A – 1.0 A |
| Device without monitor socket:                                                                                                          | 100 V – 240 V<br>3.5 – 1.5 A                                         |
| <b>Dimensions</b>                                                                                                                       |                                                                      |
| Width/depth/height:                                                                                                                     | 340 mm / 383 mm / 98 mm /<br>13.39 in x 15.09 in x 3.86 in           |
| <b>Weight</b>                                                                                                                           |                                                                      |
| In basic configuration:                                                                                                                 | approx. 8 kg / 17.64 lbs                                             |
| <b>Environmental conditions</b>                                                                                                         |                                                                      |
| Environment class (3K2):                                                                                                                | DIN IEC 721 part 3-3                                                 |
| Environment class (2K2):                                                                                                                | DIN IEC 721 part 3-2                                                 |
| Temperature:                                                                                                                            |                                                                      |
| Operating (3K2):                                                                                                                        | 10 °C .... 35 °C /<br>50 °F ... 95 °F                                |
| Transportation (2K2):                                                                                                                   | –25 °C .... 60 °C /<br>–13 °F ... 140 °F                             |
| The formation of condensation is not permitted while the device is in operation !<br>Clearance required to ensure adequate ventilation: |                                                                      |
| Without air vents                                                                                                                       | min. 10 mm / 0.39 in                                                 |
| With air vents                                                                                                                          | min. 200 mm / 7.87 in                                                |



The data sheet for this device provides further technical data. The data sheet can be found on our website ["http://fujitsu.com/fts/"](http://fujitsu.com/fts/).

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