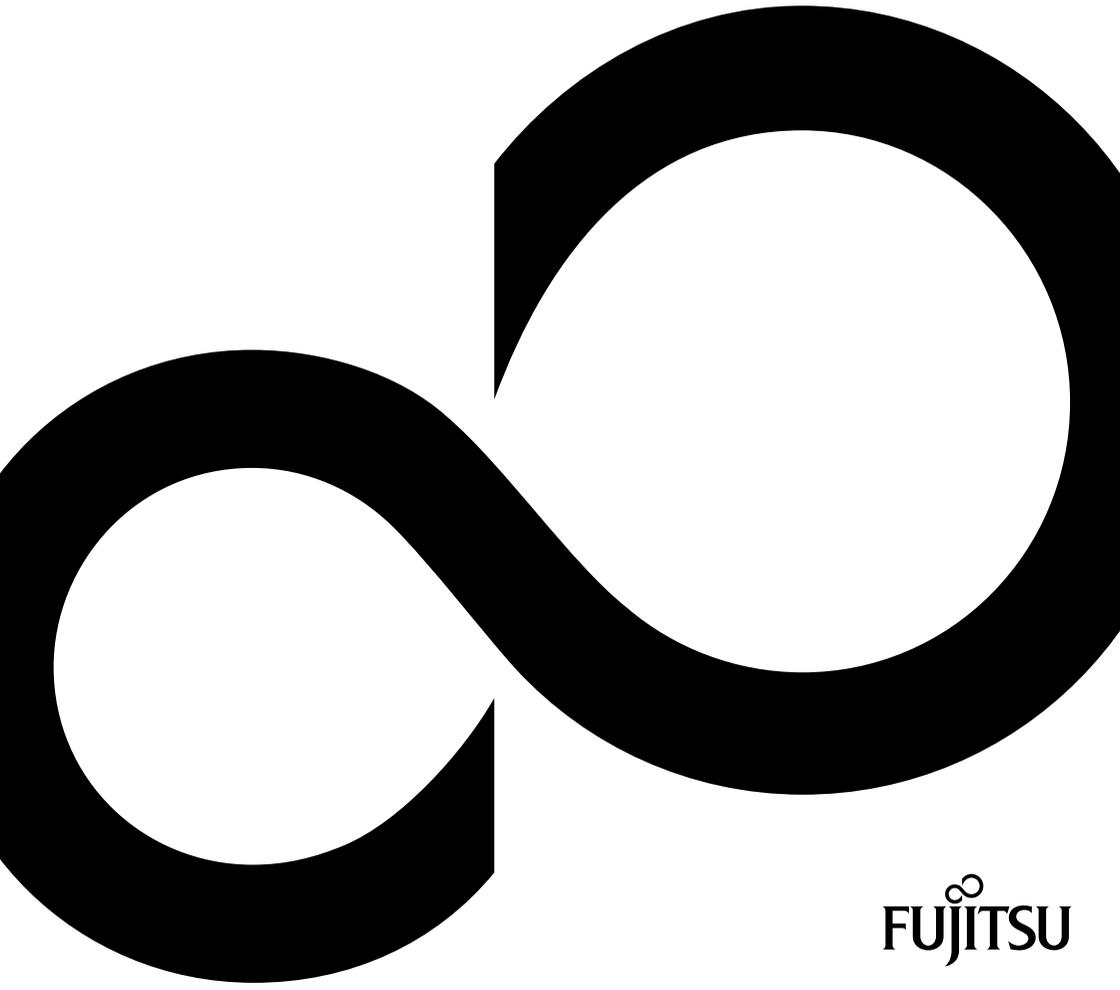


# FUJITSU Desktop ESPRIMO P5xx / P7xx / P9xx

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# **FUJITSU Desktop**

## **ESPRIMO P5xx / P7xx / P9xx**

### 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)



With the programme *Acrobat Reader*, you can display targeted information on the screen quickly. It is of course also possible to print out a copy of the manual if required.

## Validity of the Reference Manual

This Reference Manual is valid for the following systems:

- FUJITSU Desktop ESPRIMO P55x
- FUJITSU Desktop ESPRIMO P75x
- FUJITSU Desktop ESPRIMO P95x

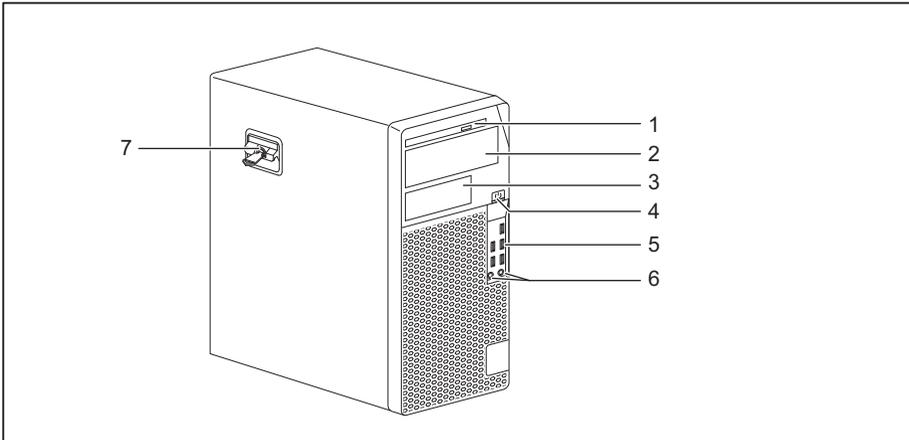
## Notational conventions

	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 you start to work with the device.

## Front



1 = Slim-line drive

2 = Module bay for a 5 $\frac{1}{4}$ -inch drive

3 = Module bay for a 3 $\frac{1}{2}$ -inch drive (optional)

4 = ON/OFF switch

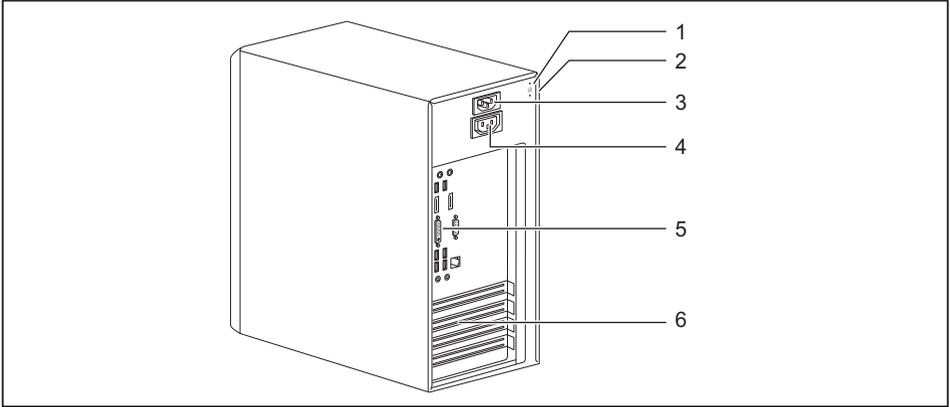
5 = USB ports

6 = Microphone connection (right), headphone connection (left)

In order to use a headset, connect the headset with both connections.

7 = Latch with optional casing lock

## Rear



- 1 = Device for a Security Lock
- 2 = Holes for a padlock
- 3 = Alternating voltage socket (AC IN)
- 4 = Screen socket (AC OUT, optional)

- 5 = Ports for external devices  
(device-dependent)
- 6 = Slot covers

# 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 data", Page 75](#) 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.

Only operate the device with the casing closed.

Replace the lithium battery on the mainboard in accordance with the instructions in ["Replacing the lithium battery", Page 74](#).

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

You can find information on these subjects in the "Environment and Energy Information" manual or on our website (["http://www.fujitsu.com/fts/about/fts/environment-care/"](http://www.fujitsu.com/fts/about/fts/environment-care/)).

# Getting started



Please observe the safety information in the ["Important notes", Page 11](#) 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 33](#) chapter.

## Setting up the device



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

We recommend that you place your device on a surface which is not slippery. In view of the many 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.

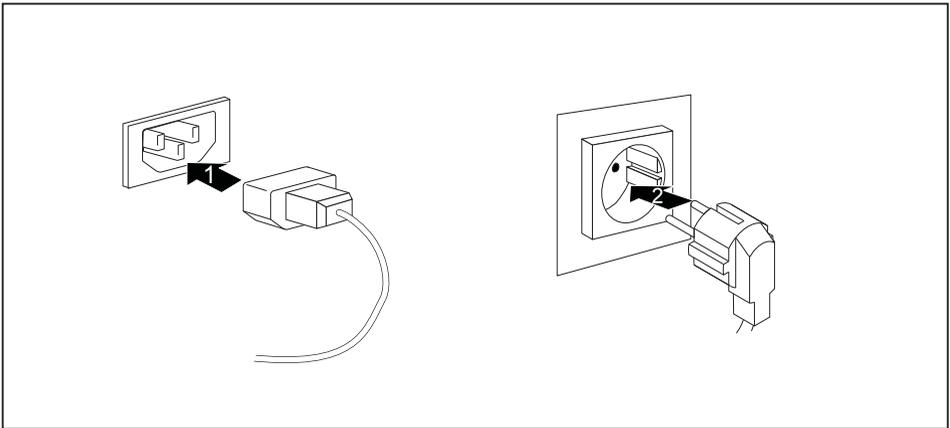
In order to avoid overheating, do not cover the ventilation areas of the monitor or the device.

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 data", Page 75](#), section "Ambient conditions"). Protect the device against dust, humidity and heat.

## Connecting the machine to the mains



- ▶ Connect the mains cable to the machine (1).
- ▶ Plug the mains plug into a three-pin socket (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 when disconnecting a cable. Never pull the cable!

To ensure that your device works properly, use only the supplied connection cable or only use a high-quality connection cable.

## 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.

	Headphones, black or light green		Audio input (Line In), light blue
	Microphone port, black or pink		Audio output (Line Out), light green
	USB 3.1 Gen1 - Universal Serial Bus, Type A: blue, Type C: black		USB 2.0 - Universal Serial Bus, type A, black
	USB 3.1 Gen2 - Universal Serial Bus, Type A: blue, Type C: black		
	PS/2 mouse port, green		PS/2 keyboard port, purple
	DVI-D monitor port		Display port
	VGA monitor port, blue		LAN port
	Serial port		Parallel port



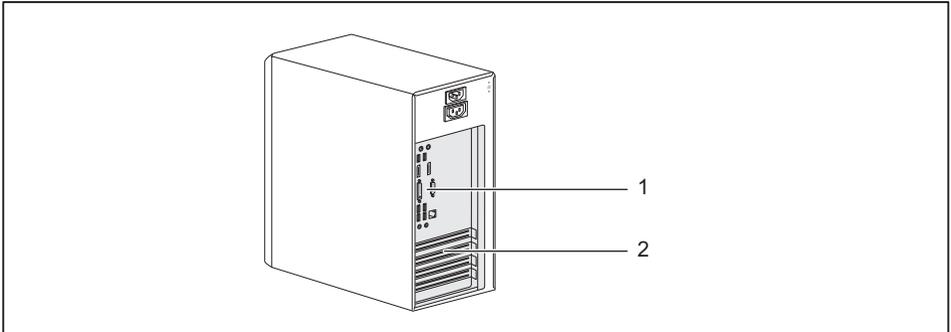
Some of the connected devices require special drivers (see the documentation for the connected device).

## Connecting a monitor



Only connect the screen to your device when it is switched off.

Depending on requirements, you can use the monitor ports of the mainboard (1) or the monitor ports of an optional display adapter in one of the board slots (2) to connect a monitor to your device.



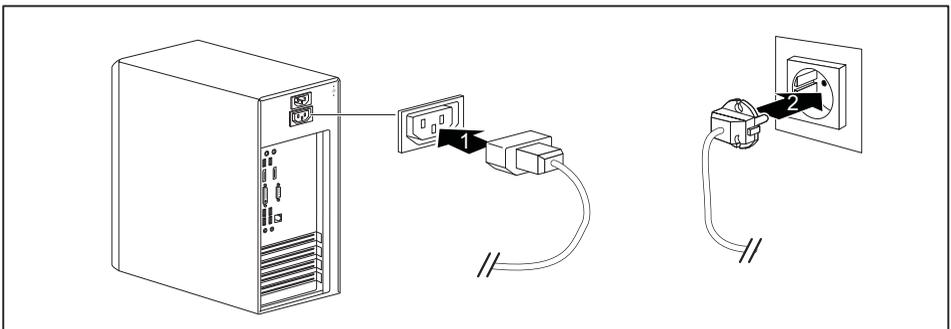
1 = Mainboard monitor ports

2 = Monitor ports of the display adapter

- ▶ Follow the instructions contained in the monitor manual to prepare the monitor for operation (e.g. connecting cables).
- ▶ Connect the data cable to a suitable monitor port of the device (VGA, DVI-I, Display port).



The monitor power cable may only be connected to the monitor socket of the device if the monitor current consumption is less than 1.0 A at 230 V or 2.0 A at 100 V. The values for the monitor current consumption can be found in the technical data on the monitor or in the operating manual for the monitor.



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



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

## 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

- ▶ Connect the PS/2 mouse to the PS/2 mouse port of the device.

## Connecting the keyboard

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

### 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.
- ▶ Plug the flat rectangular USB connector of the keyboard cable into a USB port of the device.

### Connecting a PS/2 keyboard

Use the supplied keyboard cable only.

- ▶ Plug the rectangular connector of the keyboard cable into the rectangular socket on the underside or on the rear of the keyboard.
- ▶ Plug the round connector of the keyboard cable into a keyboard port of the device.

## Connecting external devices to the parallel or serial interface (optional)

External devices can be connected to the parallel or serial port (e.g. a printer or a scanner).

- ▶ Connect the data cable to the external device.
- ▶ Depending on the device, connect the data cable to the parallel port or the serial port.



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

### Port settings



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

### Device drivers



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

## Connecting external devices to the USB ports

You can connect a wide range of external devices to the USB ports (e.g. printer, scanner, mouse 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



External USB devices which you connect to one of the USB ports don't usually need their own drivers because the software required is already included in the operating system. If the device requires separate software, please follow the instructions in the manufacturer's documentation.

## 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.

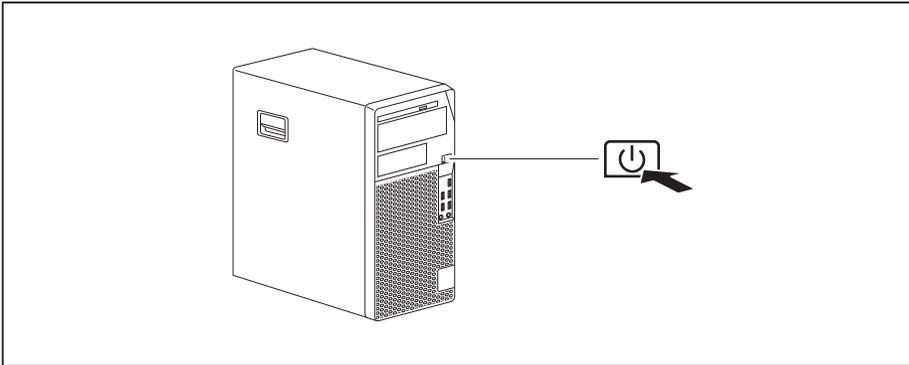
When you switch on the device for the first time, the supplied software is installed and configured. Plan a reasonable amount of time for this, as this process must not be interrupted.

## Switch on the monitor and the machine



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

- ▶ Switch on the monitor (see operating instructions for the monitor).



- ▶ Press the on/off button on the front of the machine.
- ↳ The operational display will light up and the machine will start.

## 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 optional "Drivers & Utilities" DVD and on the Internet at ["http://www.fujitsu.com/fts/support"](http://www.fujitsu.com/fts/support).

You can 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).
- ▶ Press the ON/OFF switch on the front of the device.
- ↳ The power indicator glows and the device is started.

## 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!

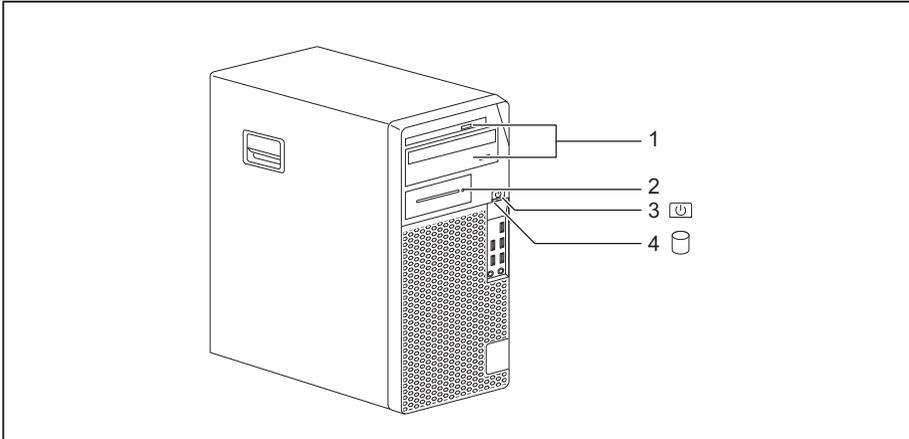


The ON/OFF switch does not disconnect the device from the mains voltage. For complete disconnection from the mains voltage, you must pull the mains plug out of the socket.

- ▶ 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.

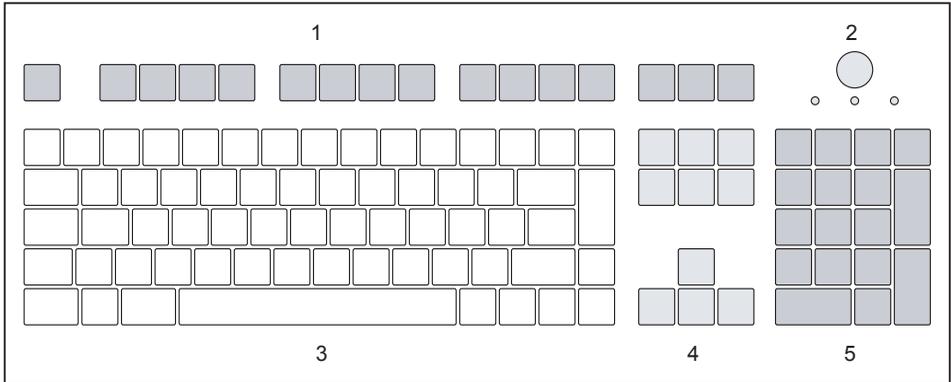


No.	indicator	Description
1	Drive indicators	The indicator lights up when the CD-ROM or DVD drive of the device is accessed. You must never under any circumstances remove the CD/DVD while the indicator is lit.
2	Indicator for optional components, e.g. SmartCard reader	The indicator lights up when the optional component, e.g. the SmartCard reader, is accessed.
3	Power-on indicator	<p><b>Warning:</b> In the energy saving mode, the device must not be disconnected from the mains, as this can result in a loss of data.</p> <ul style="list-style-type: none"> <li>Indicator is illuminated: The device is switched on.</li> <li>The indicator flashes (depending on device type): 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 illuminated: The device is switched off or disconnected from the mains. If the device is ready for operation, it can be switched on with the ON/OFF switch.</li> </ul>
4	Hard disk indicator	The indicator lights up when the hard disk drive of the device is accessed.

# Keyboard



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

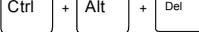


- 1 = Function keys
- 2 = On/off switch (optional)
- 3 = Alphanumeric keypad
- 4 = Cursor keys
- 5 = Numeric keypad (calculator keypad)

## 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
	<p><b>On/off switch (optional)</b></p> <p>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.</p> <p>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.</p>
	<p><b>Enter key</b></p> <p>confirms the highlighted selection. The Enter key is also referred to as the "Return" key.</p>

Key / key combination	Description
	<b>Windows key</b> calls up the Windows <i>Start</i> menu.
	<b>Menu key</b> calls up the menu for the marked item (Windows).
	<b>Shift key</b> enables upper-case letters and the upper key symbols to be displayed.
	<b>Alt Gr key (country-dependent)</b> produces a character shown on the bottom right of a key (e.g. the @ sign on the  key).
	<b>Num Lock key</b> By pressing the Num Lock key you switch between the upper- and lower-case levels of the calculator keypad.  When the Num Lock indicator is lit the numeric keypad and arithmetic keys are active.  When the Num Lock indicator is not lit the cursor control functions on the Numeric keypad are active.
	<b>Ctrl key</b> 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> This key combination opens the Windows Security/Task Manager window.

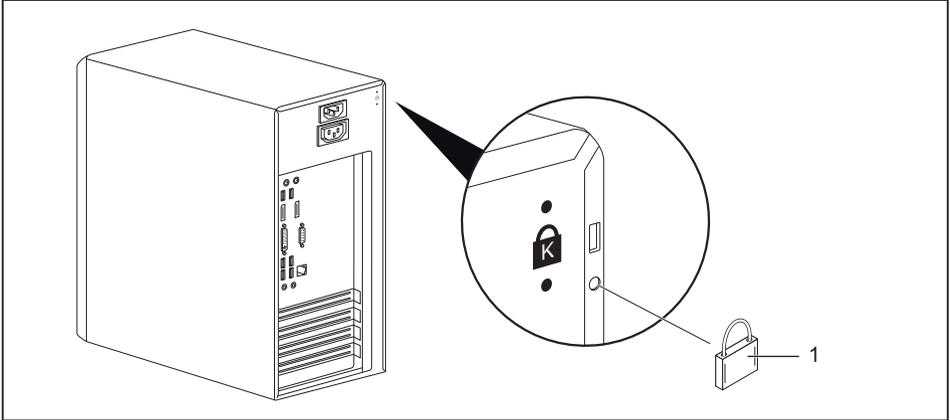
## Settings in BIOS Setup

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*.

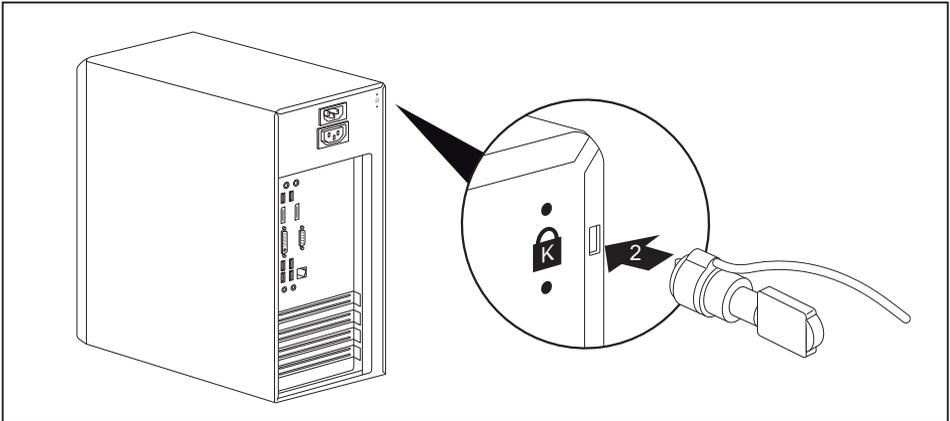
## Property and data protection

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

### Anti-theft protection and lead-sealing



1 = Holes for a padlock



2 = Device for a Security Lock

## Anti-theft protection

You can protect your device from theft

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

## Lead-sealing

To prevent unauthorised persons from opening the casing, the casing can be lead-sealed. To do this, feed the sealing chain through the holes (1) and seal the chain with the lead seal.

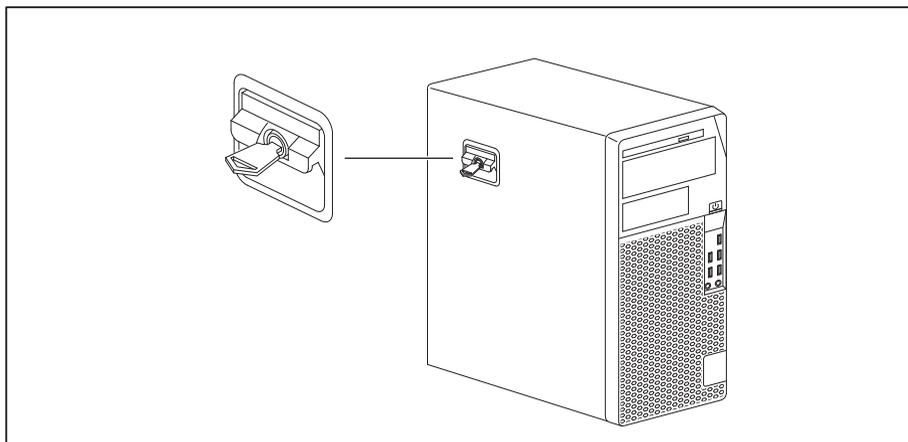
## Mechanical casing lock (optional)

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.



In addition to the casing lock, an open  and a closed lock  are also illustrated.

- Key turned towards the closed lock: The device is locked.
- Key turned towards the open lock: The device is unlocked.



## Locking the casing

- ▶ Turn the key towards the closed lock .

## Unlocking the casing

- ▶ Turn the key towards the open lock .

## 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 of a SmartCard reader with a RFID reader 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.

# Troubleshooting and tips



Refer to the safety notes in the "Safety/regulations" manual and in the ["Getting started", Page 13](#) chapter when connecting or disconnecting cables.

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

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

## 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.
- ▶ Contact the Service Desk responsible for your country for clarification of the problem: ["http://support.ts.fujitsu.com/contact/serviceDesk"](http://support.ts.fujitsu.com/contact/serviceDesk). When you do this, please have ready the ID number and serial number of your system.

## Troubleshooting

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

Cause	Troubleshooting
The mains voltage supply is faulty.	<ul style="list-style-type: none"> <li>▶ Check whether the power cable is plugged properly into the device and a grounded mains outlet.</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 approx. 3 min.</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	Troubleshooting
System crash	<ul style="list-style-type: none"> <li>▶ Press the On/Off switch for at least 4 seconds, until the device switches off.</li> </ul> <p>Attention: Warning, this could lead to a loss of data!</p> <p>The Operating System is not shut-down properly in the process. Error messages are therefore possible the next time the system is booted.</p>

## Monitor remains blank

Cause	Remedy
Monitor is switched off	▶ Switch your monitor on.
Power saving has been activated (screen is blank)	<ul style="list-style-type: none"> <li>▶ Press any key on the keyboard.</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>▶ Deactivate the screen saver. If necessary, enter the appropriate password.</li> </ul>
Brightness control is set to dark	▶ Adjust the brightness control. For detailed information, please refer to the operating manual supplied with your monitor.
Power cable not connected	<ul style="list-style-type: none"> <li>▶ Switch off the monitor and the device.</li> <li>▶ 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.</li> <li>▶ Check that the device power cable is properly plugged into the device and a grounded mains outlet.</li> <li>▶ Switch on the monitor and the device.</li> </ul>
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 your operating system in the proper manner, for instance using <b>[Ctrl] + [Alt] + [Del]</b>.</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>▶ Make sure that only one mouse is connected.</li> <li>▶ Switch the device on.</li> </ul>
Disabled USB ports	<ul style="list-style-type: none"> <li>▶ In the <i>BIOS Setup</i>, check whether the USB ports are <i>Enabled</i> (see the "BIOS Setup" manual or the mainboard manual</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</a>", <a href="#">Page 74</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.

## Tips

Topic	Tip
Out of system resources	<ul style="list-style-type: none"><li data-bbox="561 231 1013 260">▶ Close unnecessary applications.</li><li data-bbox="561 272 583 301">or</li><li data-bbox="600 298 1013 327">▶ Run the applications in a different order.</li></ul>

# 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/Service 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.

## Opening the casing

- ▶ Switch the device off. The device must not be in power-saving mode.

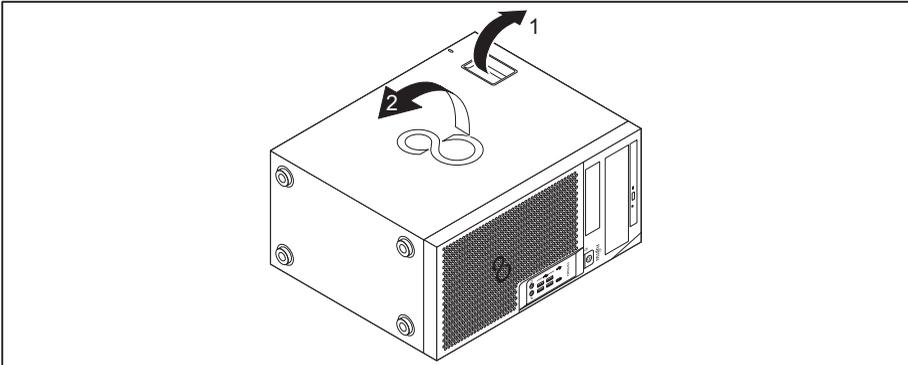


Please observe the safety information in ["Important notes", Page 11](#).

Disconnect the mains plug from the mains outlet.

Only insert the power plug after you have closed the casing.

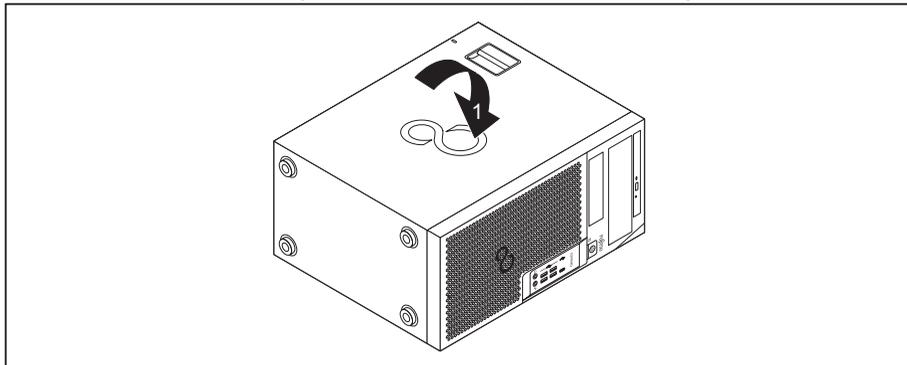
- ▶ Remove any connected wires which are in the way.
- ▶ On devices with a casing lock: Unlock the casing.
- ▶ Lay the device on its side in the manner shown.



- ▶ Pull the locking device (1) and swivel the side part in the direction of the arrow (2).

## Closing the casing

- ▶ Insert the side part in the guide rail on the lower part of the casing.



- ▶ Swivel the side cover in the direction of the arrow (1) until it engages.
- ▶ On devices with a casing lock: Lock the casing.
- ▶ Reconnect the cables that you disconnected before.

## Overview of the drive bays and drives in your device

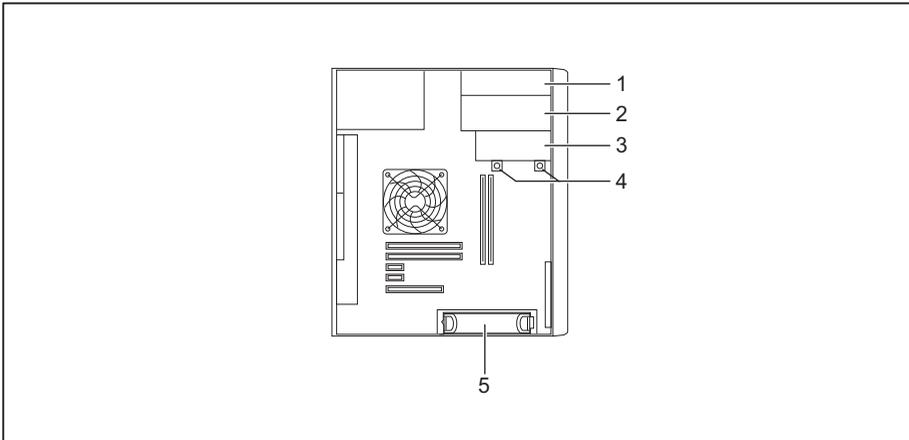
Depending on the device version selected, your device has the following bays for accessible and non-accessible drives.

**i**

"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.

Both device versions have an additional bay for an M.2 module on the motherboard, which is not marked in the illustrations below.

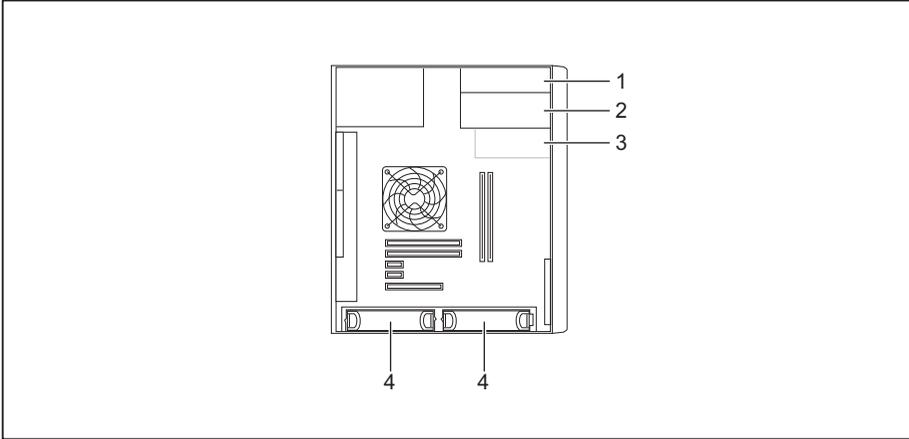
### FUJITSU Desktop ESPRIMO device version 1



1 = Drive bay for an accessible slimline drive  
 2 = Drive bay for an accessible 5<sup>1</sup>/<sub>4</sub>-inch drive  
 3 = Drive bay for Drive bay for a 1<sup>1</sup>/<sub>2</sub>-inch hard disk drive or an accessible SmartCard reader, memory card reader)

4 = Drive bay for a 2<sup>1</sup>/<sub>2</sub>-inch hard disk drive / SSD  
 5 = Drive bay for a 3<sup>1</sup>/<sub>2</sub>-inch or 2<sup>1</sup>/<sub>2</sub>-inch hard disk drive (with adapter)

**FUJITSU Desktop ESPRIMO device version 2**



- 1 = Drive bay for an accessible slimline drive
- 2 = Drive bay for an accessible 5 1/4-inch drive
- 3 = Drive bay for an accessible 3 1/2-inch drive (optional, e.g. SmartCard reader, memory card reader)

- 4 = Drive bay for a 3 1/2-inch or 2 1/2-inch hard disk drive (with adapter)

## Install and remove the slim-line drive

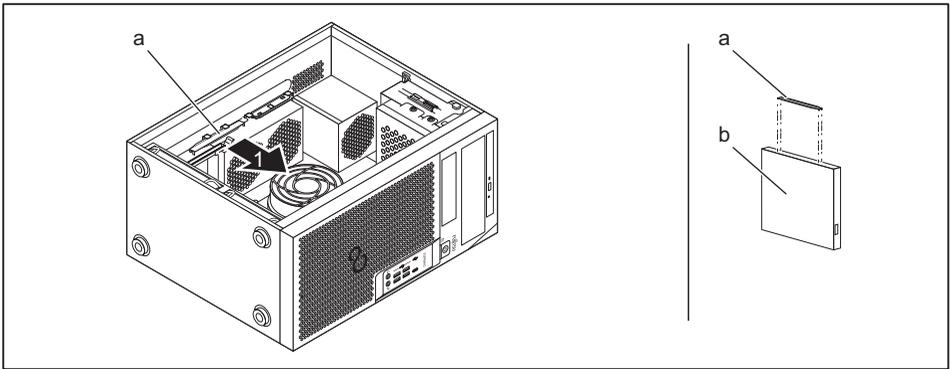
### Installing an accessible drive

To use the locking function of the slimline drive, you must fit the appropriate drive plate on the drive before installing the drive in the casing.

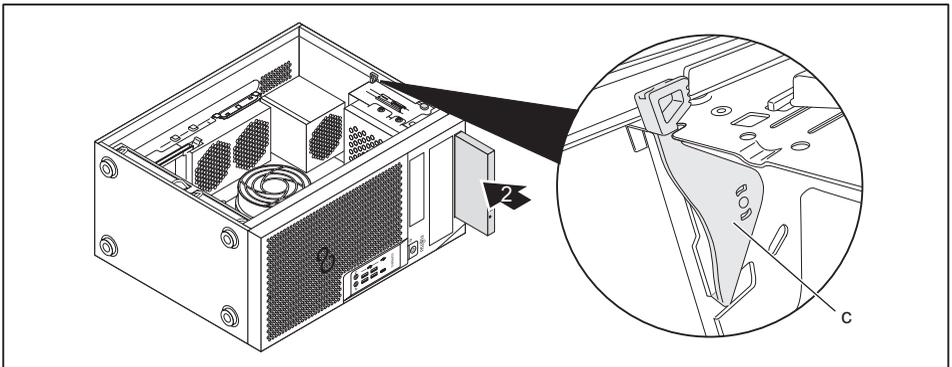
- ▶ Open the casing (see ["Opening the casing", Page 35](#)).
- ▶ If you have already fitted a cover (optional), remove it.



Do not throw away the cover. For cooling and protection against fire you must refit the cover if you remove the drive again later (see ["Removing an accessible drive", Page 43](#)).



- ▶ Take the drive cover (a) out of the holder in the direction of the arrow (1).
- ▶ Attach the drive cover (a) to the slim-line drive (b).



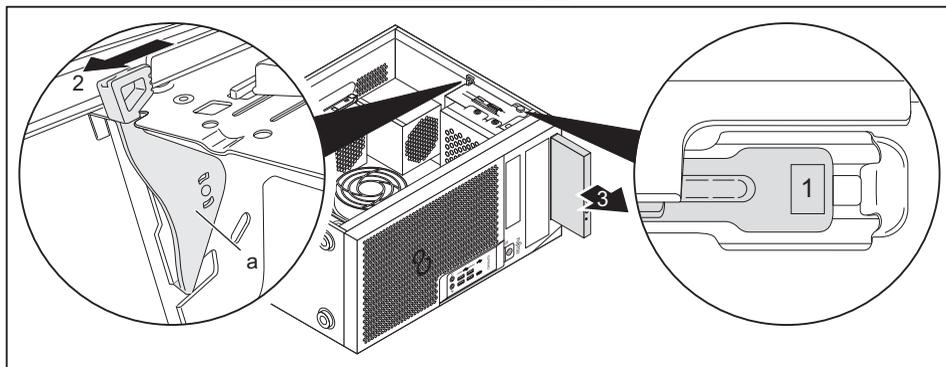
- ▶ Slide the drive into the housing (2) until it slots into place in the lock (c).
- ▶ Close the casing (see ["Closing the casing", Page 36](#)).



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

### Removing an accessible drive

- ▶ Open the casing (see ["Opening the casing", Page 35](#)).



- ▶ Press the release button (1).
- ▶ Press the clip (a) in the direction of the arrow (2).
- ↳ The drive will be pushed forward out of the slot.
- ▶ Pull the drive out of the casing in the direction of the arrow (3).
- ▶ Remove the drive cover (b) from the drive (c).
- ▶ Insert the drive cover in the direction of the arrow (4) into the holder.
- ▶ If necessary, make the required settings on the remaining hard disk drives.
- ▶ If you are not installing a new drive, reinstall the previously removed cover (optional) for the purposes of cooling, fire protection and to prevent foreign objects from getting into the casing.
- ▶ Close the casing (see ["Closing the casing", Page 36](#)).



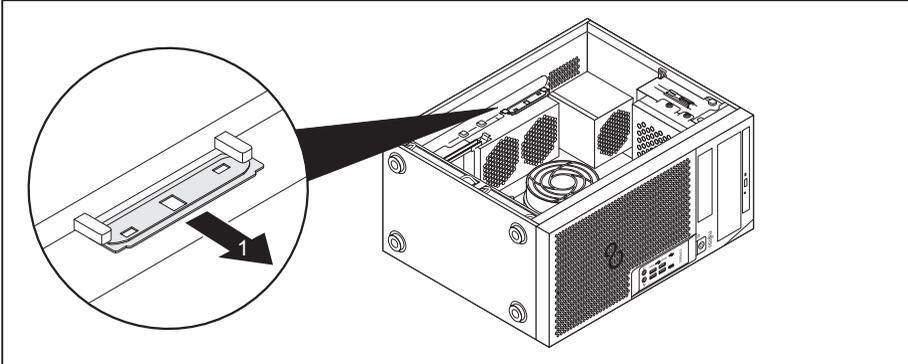
It may be necessary to modify the entry for the drive in the *BIOS Setup*.

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

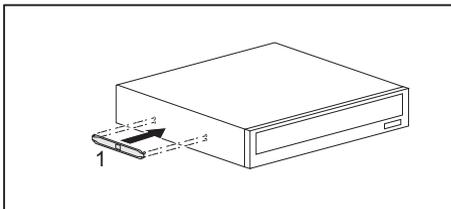
### Fitting the drive cover for the 5<sup>1</sup>/<sub>4</sub> inch drive

To use the latch function of the accessible 5<sup>1</sup>/<sub>4</sub> inch drive, you must fit the corresponding drive cover before installing the drive in the casing. Proceed as follows:

- ▶ Open the casing (see ["Opening the casing", Page 35](#)).



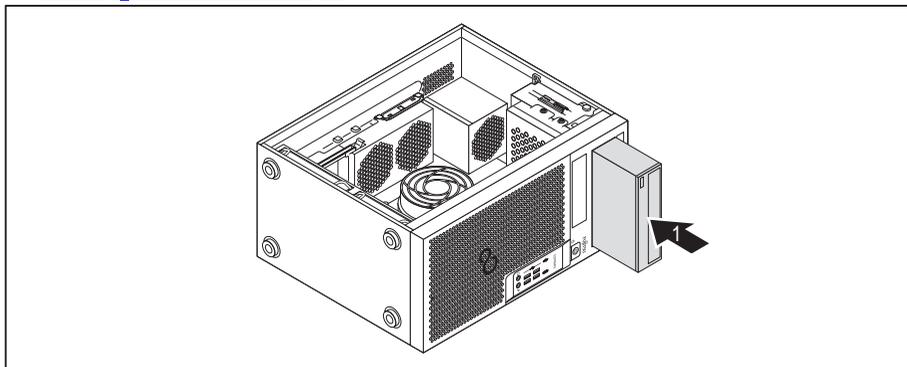
- ▶ Remove the drive cover from the bracket in the direction of the arrow (1).



- ▶ Connect the drive cover to the drive (1).

## Installing an accessible drive

- ▶ Open the casing (see ["Opening the casing", Page 35](#)).
- ▶ Break out the pre-cut plastic cover on the drive bay.
- ▶ Fit the drive cover for the 5 1/4 inch drive (see ["Fitting the drive cover for the 5 1/4 inch drive", Page 41](#)).



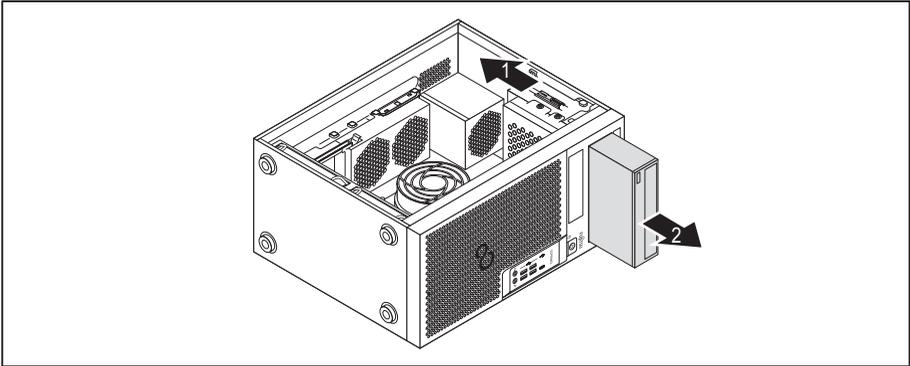
- ▶ Slide the accessible drive into the casing until it snaps in place (1).
- ▶ Connect the cables to the drive. Make sure the polarity is correct.
- ▶ Close the casing (see ["Closing the casing", Page 36](#)).



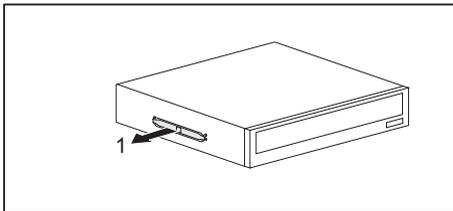
It may be necessary to modify the entry for the drive in the *BIOS Setup*.

## Removing an accessible drive

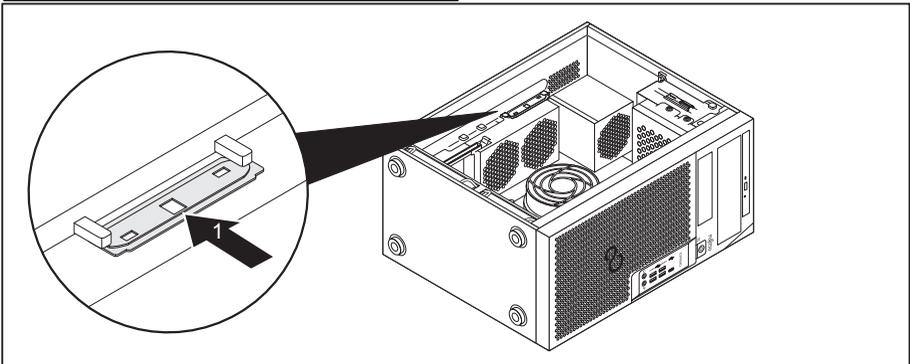
- ▶ Open the casing (see ["Opening the casing", Page 35](#)).



- ▶ Disconnect the cables connected to the drive.
- ▶ Slide the clip in the direction of the arrow (1).
- ▶ Pull the drive out of the casing in the direction of the arrow (2).



- ▶ Remove the drive cover from the drive (1).



- ▶ Place the drive cover on the holder in the direction of the arrow (1).
- ▶ If necessary, make the required settings on the remaining hard disk drives.
- ▶ Close the casing (see ["Closing the casing", Page 36](#)).



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

## Insertion and removal of a SmartCard reader (optional, 3½-inch)



The insertion and removal of a SmartCard reader is only possible if you have ordered a corresponding type of device. It is not possible to retrofit the housing with the necessary components inside it.

The operation of this system is not permitted in Taiwan.

You can install a SmartCard reader, a memory card reader (MultiCard) or a 3½-inch hard disk drive (ESPRIMO P55x only) in the upper drive bay for 3½-inch drive, depending on the device variant ( see ["Installing and removing memory card reader \(MultiCard\) or 3½-inch hard disk drive \(ESPRIMO P55x only\) \(optional, 3½-inch\)", Page 49](#)).

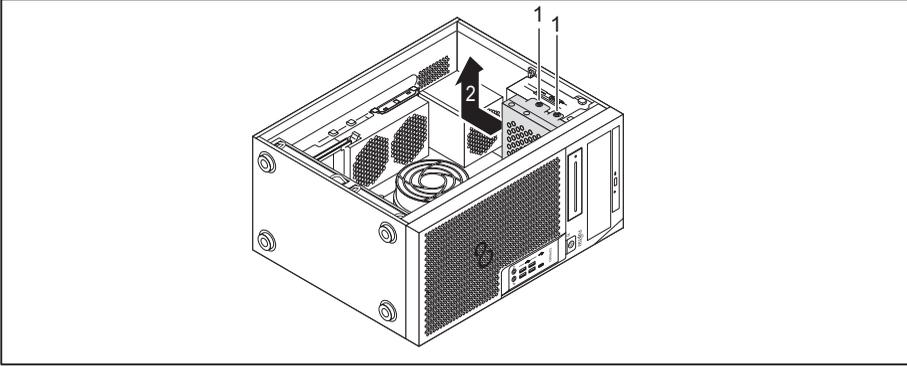


The SmartCard reader is inserted in a module holder (optional). If you ordered a device with a SmartCard reader, the module holder and the SmartCard reader will already have been installed when the device was delivered to you.

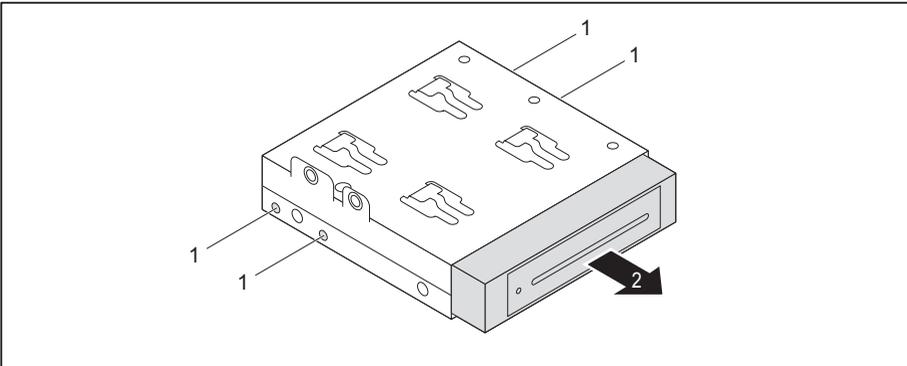
If you ordered a device without a SmartCard reader, a dummy cover will have been fitted instead of the module holder.

## Removing the module holder

- ▶ Open the casing (see ["Opening the casing", Page 35](#)).
- ▶ Disconnect the cables connected to the module holder.

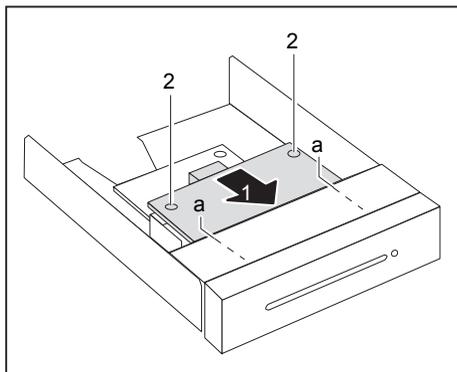


- ▶ Remove the screws (1).
- ▶ Lift the drive cage out of the casing in the direction of the arrow (2).



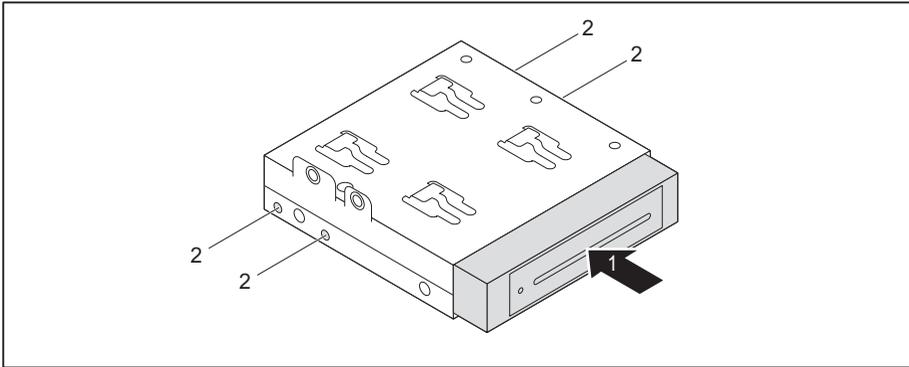
- ▶ Remove the screws (1).
- ▶ Slide the module holder out of the drive cage in the direction of the arrow (2).

## Screwing the SmartCard reader onto the module holder

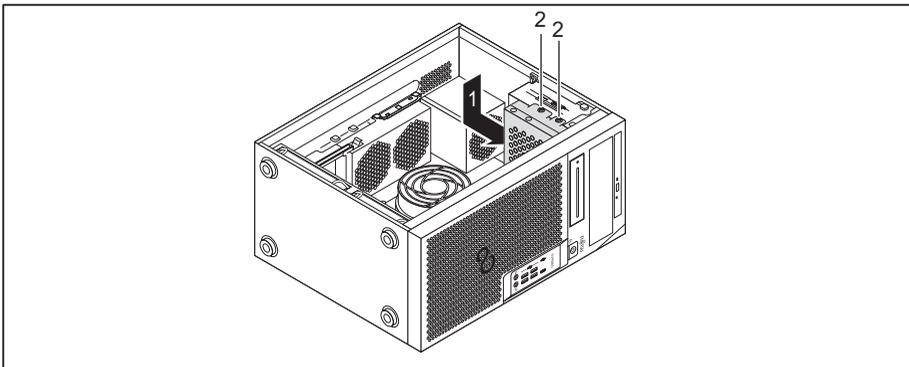


- ▶ Push the SmartCard reader - with the component side facing downwards - into the guide on the module holder (a) in the direction of the arrow (1).
- ▶ Secure the SmartCard reader with the screws (2).

## Inserting the module holder with the SmartCard reader



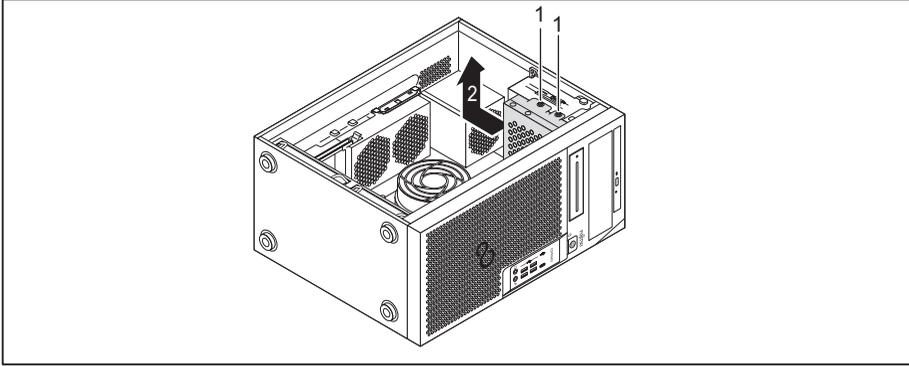
- ▶ Push the module holder into the drive cage in the direction of the arrow (1).
- ▶ Fasten the module holder with the screws (2).



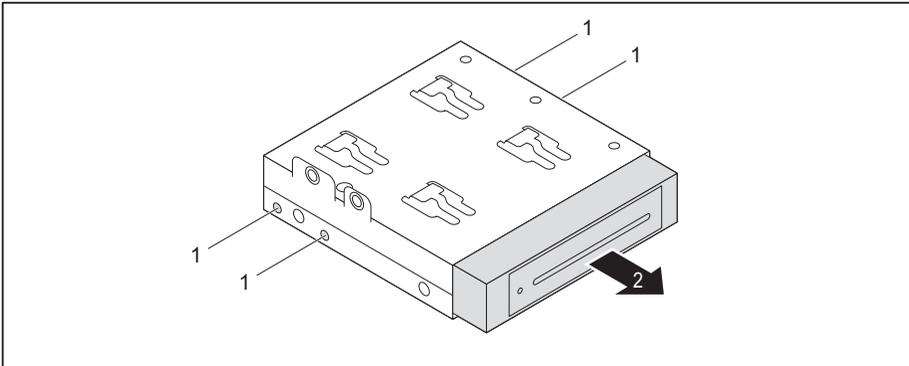
- ▶ Position the drive cage in the casing in the direction of the arrow (1).
- ▶ Secure the drive cage with the screws (2).
- ▶ Connect the cables to the boards and the mainboard. Make sure the polarity is correct.
- ▶ Close the casing (see ["Closing the casing", Page 36](#)).

## Removing the module holder with the SmartCard reader

- ▶ Open the casing (see ["Opening the casing", Page 35](#)).
- ▶ Disconnect the cables connected to the module holder.



- ▶ Remove the screws (1).
- ▶ Lift the drive cage out of the casing in the direction of the arrow (2).

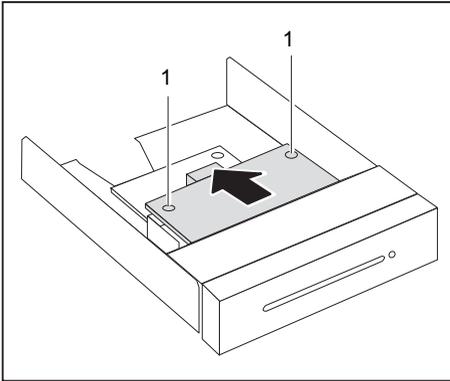


- ▶ Remove the screws (1).
- ▶ Slide the module holder out of the drive cage in the direction of the arrow (2).
- ▶ Release the SmartCard reader from the module holder (see ["Removing the SmartCard reader from the module holder", Page 49](#)) and reinsert the module holder (this corresponds to ["Inserting the module holder with the SmartCard reader", Page 47](#)).

or

- ▶ Release the SmartCard reader from the module holder (see ["Removing the SmartCard reader from the module holder", Page 49](#)) and insert a dummy cover into the drive bay.
- ▶ Close the casing (see ["Closing the casing", Page 36](#)).

## 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).

## Installing and removing memory card reader (MultiCard) or 3½-inch hard disk drive (ESPRIMO P55x only) (optional, 3½-inch)

**i**

The installation and removal of a memory card reader or hard disk drive is only possible if you have ordered a corresponding device variant. It is not possible to retrofit the casing with the necessary components inside it.

You can install a memory card reader (MultiCard), a 3½-inch hard disk drive (ESPRIMO P55x only) or a SmartCard reader in the drive bay for 3½-inch drive (see ["Insertion and removal of a SmartCard reader \(optional, 3½-inch\)", Page 44](#)).

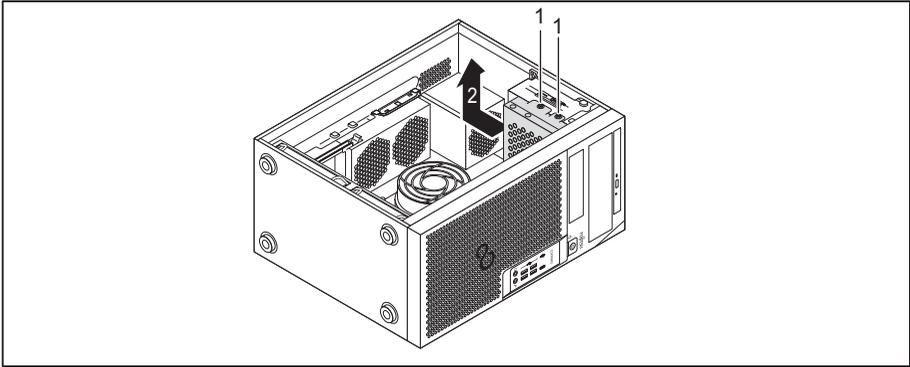
**i**

Unlike the SmartCard reader, the memory card reader and the hard disk drive can be inserted directly into the device without a module holder.

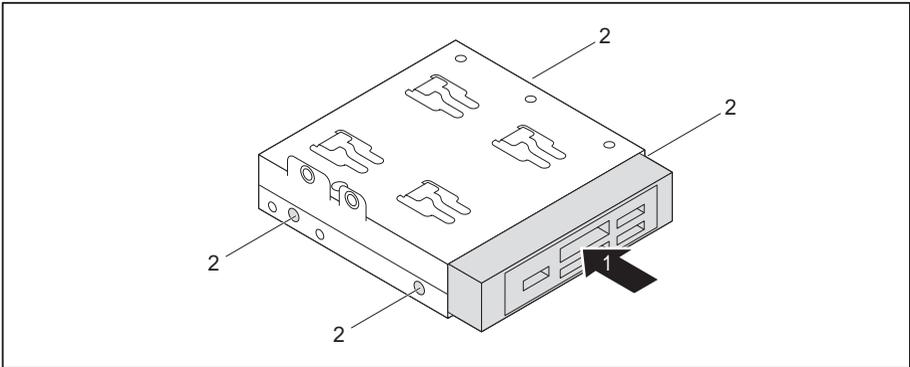
The process is identical for a memory card reader device and hard disk drive. Installation and removal using a memory card reader device is described below.

## Installing the memory card reader

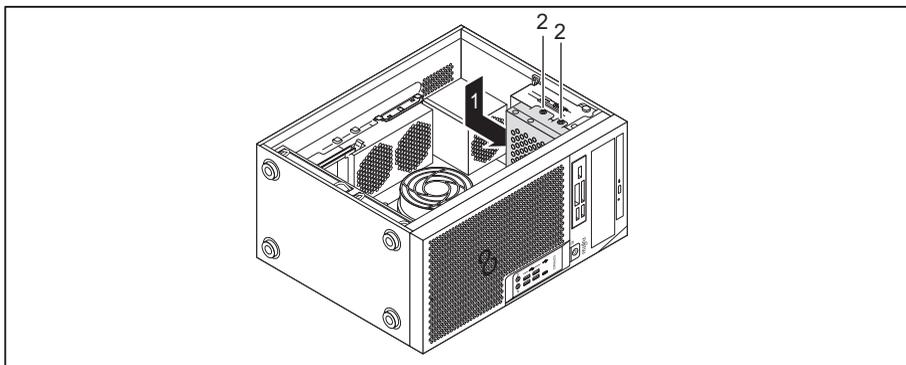
- ▶ Open the casing (see ["Opening the casing", Page 35](#)).



- ▶ Remove the screws (1).
- ▶ Lift the drive cage out of the casing in the direction of the arrow (2).
- ▶ Press the blanking plate in and then break it out of the housing.



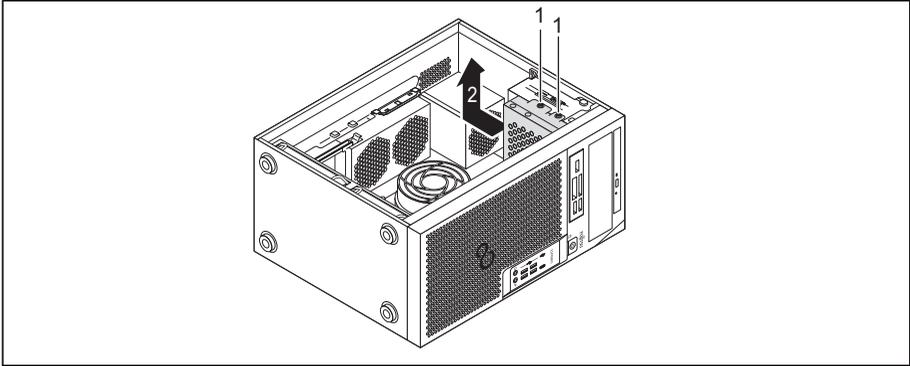
- ▶ Push the memory card reader into the drive cage in the direction of the arrow (1).
- ▶ Fasten the memory card reader with the screws (2).



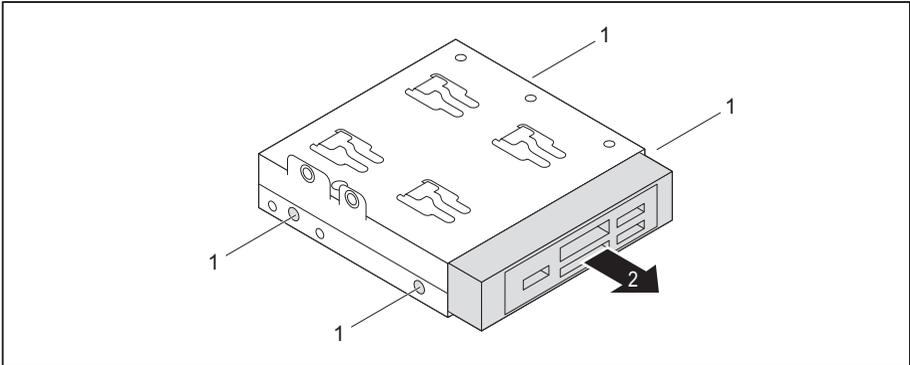
- ▶ Position the drive cage in the casing in the direction of the arrow (1).
- ▶ Fasten the screws (2).
- ▶ Connect the cables to the memory card reader and to the mainboard. Make sure the polarity is correct.
- ▶ Close the casing (see ["Closing the casing", Page 36](#)).

## Removing the memory card reader

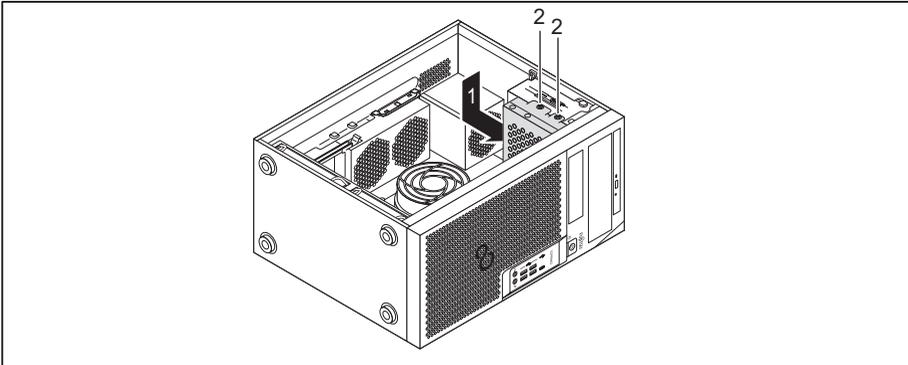
- ▶ Open the casing (see ["Opening the casing", Page 35](#)).
- ▶ Disconnect the cables connected to the memory card reader.



- ▶ Remove the screws (1).
- ▶ Lift the drive cage out of the casing in the direction of the arrow (2).



- ▶ Remove the screws (1).
- ▶ Slide the memory card reader out of the drive cage in the direction of the arrow (2).



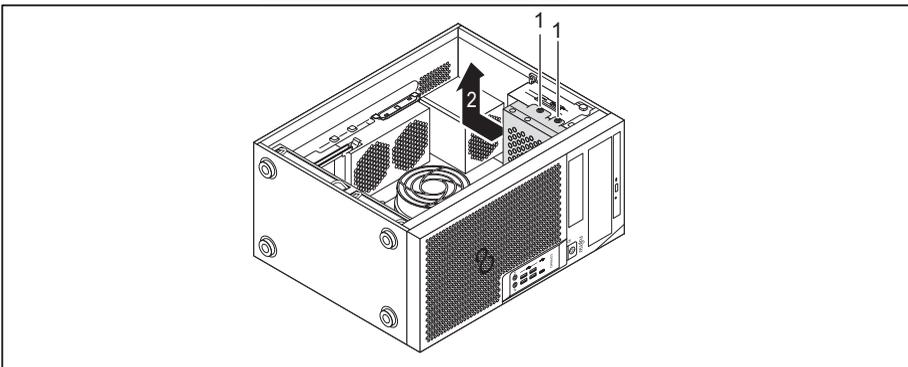
- ▶ Position the drive cage in the casing in the direction of the arrow (1).
- ▶ Fasten the screws (2).
- ▶ Install a blind cover in the drive bay.
- ▶ Close the casing (see ["Closing the casing", Page 36](#)).

## Installing and removing 2½-inch / SSD hard disk drive (ESPRIMO P55x only)

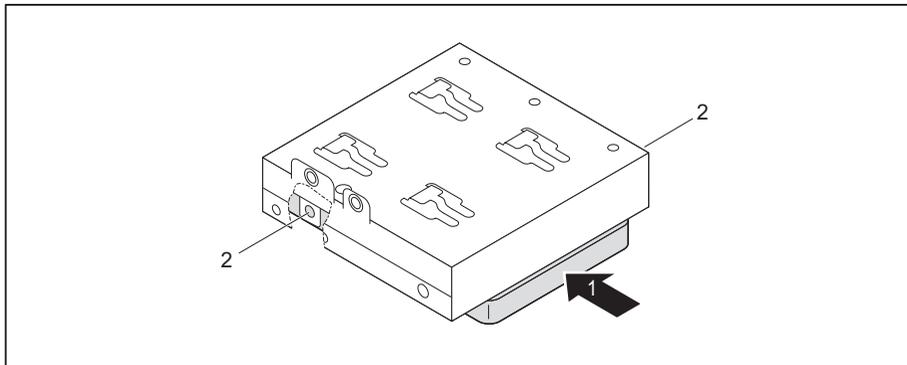
For device variant ESPRIMO P55x, a 2½-inch hard disk drive / SSD can also be installed under the drive cage.

### Installing the hard disk drive

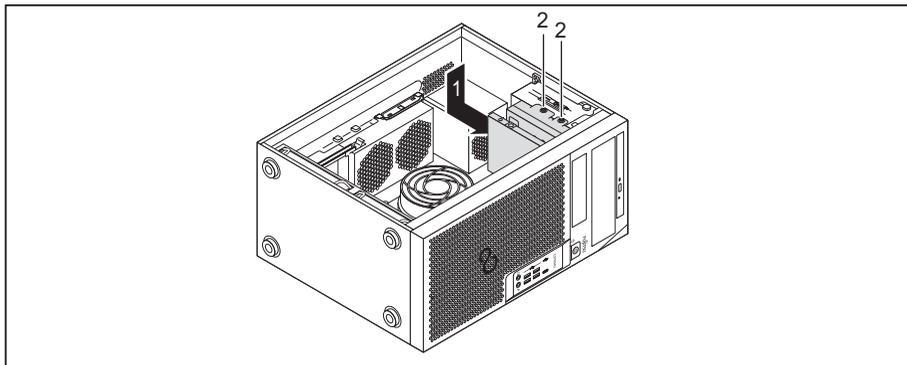
- ▶ Open the casing (see ["Opening the casing", Page 35](#)).



- ▶ Remove the screws (1).
- ▶ Lift the drive cage out of the casing in the direction of the arrow (2).



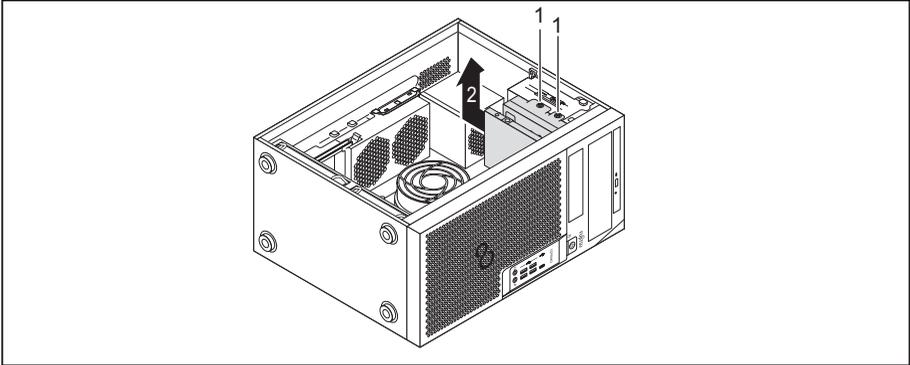
- ▶ Place the hard disk drive onto the drive cage (1).
- ▶ Fasten the hard disk drive with the screws (2).



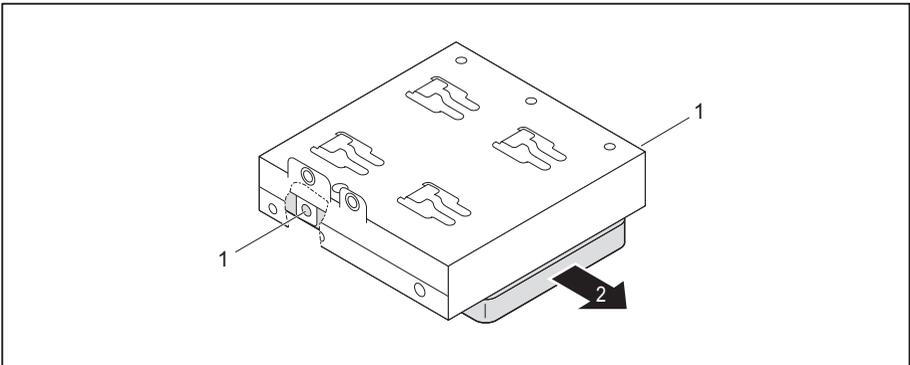
- ▶ Position the drive cage in the casing in the direction of the arrow (1).
- ▶ Fasten the screws (2).
- ▶ Connect the cables to the hard disk drive.
- ▶ Close the casing (see ["Closing the casing", Page 36](#)).

## Removing the hard disk drive

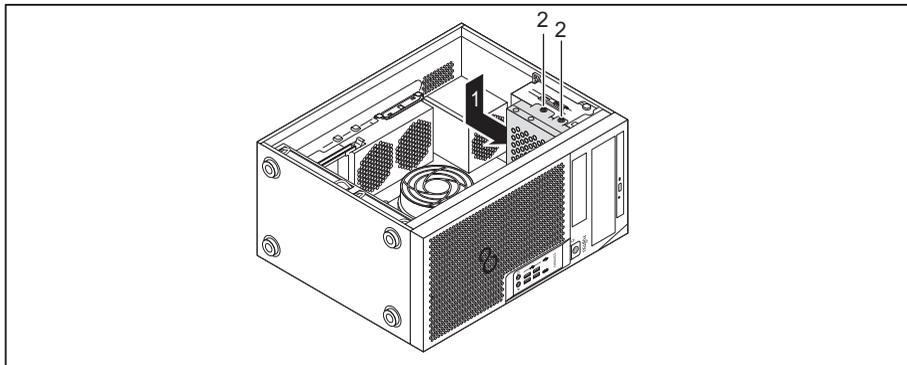
- ▶ Open the casing (see ["Opening the casing", Page 35](#)).
- ▶ Disconnect the cables connected to the hard disk drive.



- ▶ Remove the screws (1).
- ▶ Lift the drive cage out of the casing in the direction of the arrow (2).



- ▶ Remove the screws (1).
- ▶ Remove the hard disk drive from the drive cage (2).



- ▶ Position the drive cage in the casing in the direction of the arrow (1).
- ▶ Fasten the screws (2).
- ▶ Close the casing (see ["Closing the casing", Page 36](#)).

## Installing and removing the hard disk drive in the lower part of the device

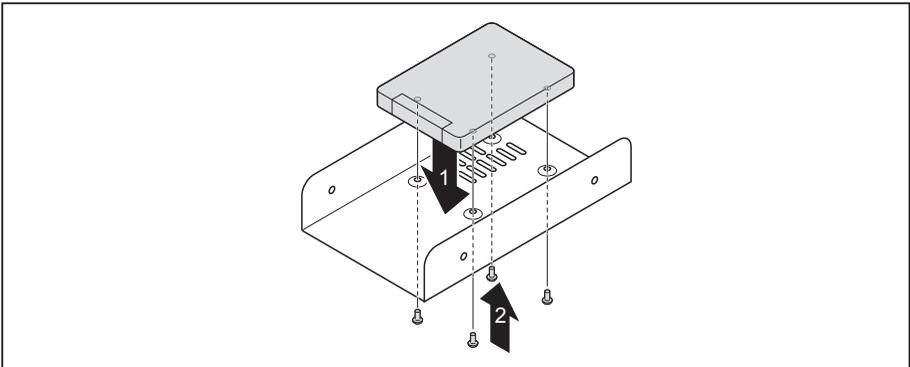
**i**

The device versions ESPRIMO P75x and P95x have two hard disk drive bays in the lower area. The device version ESPRIMO P55x may have one or two lower hard disk drive bays. The following description applies to both hard disk drive bays.

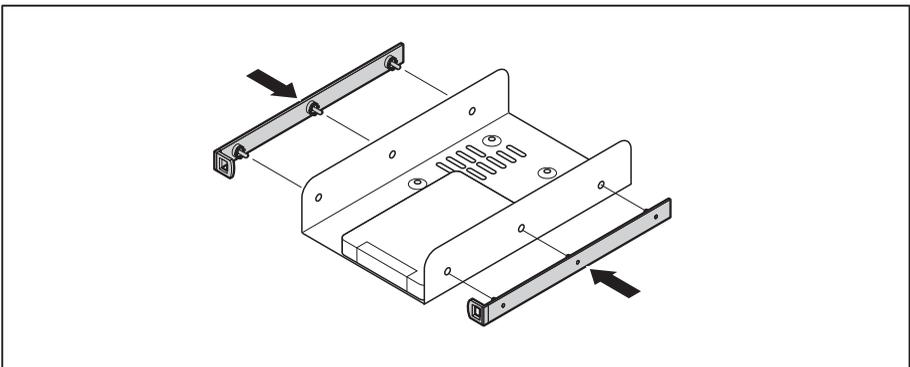
3<sup>1</sup>/<sub>2</sub>-inch hard disk drives are secured in the drive bay with EasyChange rails. 2<sup>1</sup>/<sub>2</sub>-inch hard disk drives are installed in an additional adapter, which is in turn secured with EasyChange rails.

The EasyChange rails for the installation are provided together with the particular drive.

### Preparing installation of the 2<sup>1</sup>/<sub>2</sub>-inch hard disk drive

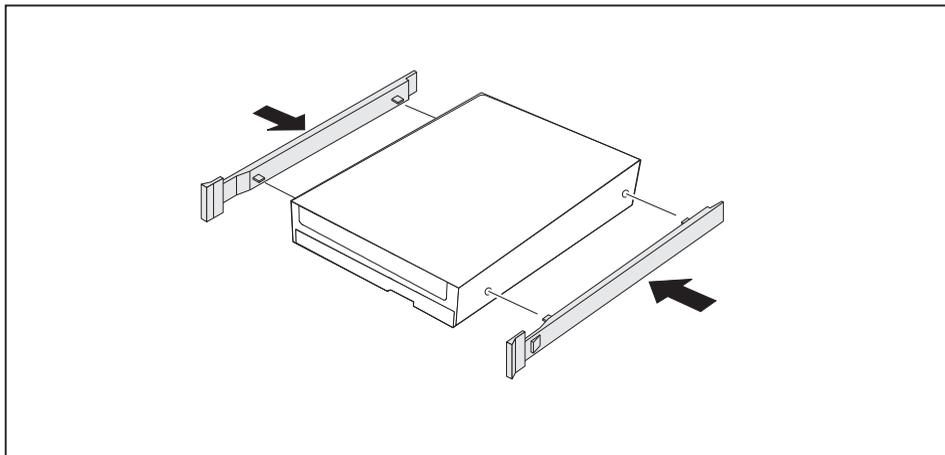


- ▶ Insert the hard disk drive into the adapter (1).
- ▶ Fasten the hard disk drive with the screws (2).



- ▶ Secure the EasyChange rails to the side of the adapter by inserting the upper pins of the EasyChange rail into the corresponding holes of the adapter.

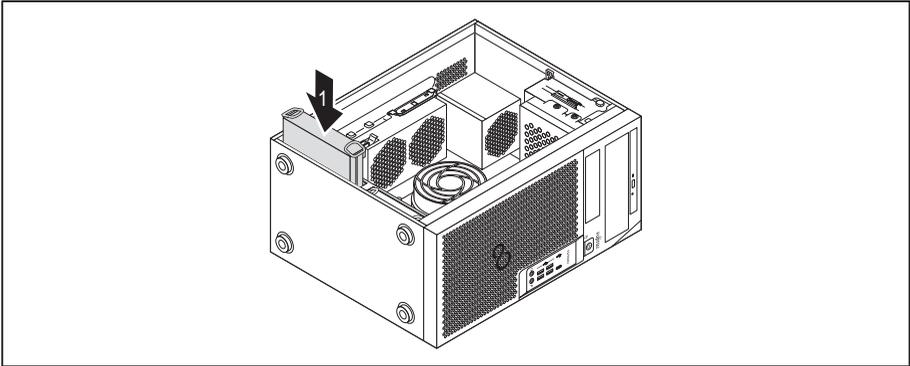
## Preparing installation of the 3<sup>1</sup>/<sub>2</sub>-inch hard disk drive



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

## Installing a hard disk drive

- ▶ Open the casing (see ["Opening the casing", Page 35](#)).



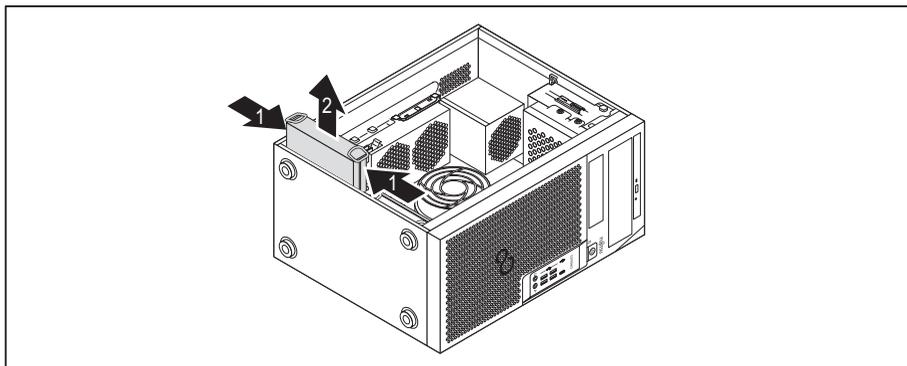
- ▶ Slide the hard disk drive with the EasyChange rails into the drive cage in the direction of the arrow (1). Check that the component side of the hard disk drive faces inwards towards the casing floor.
- ▶ Connect the cables to the hard disk drive.
- ▶ Close the casing (see ["Closing the casing", Page 36](#)).

**i**

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

## Removing the hard disk drive

- ▶ Open the casing (see ["Opening the casing", Page 35](#)).

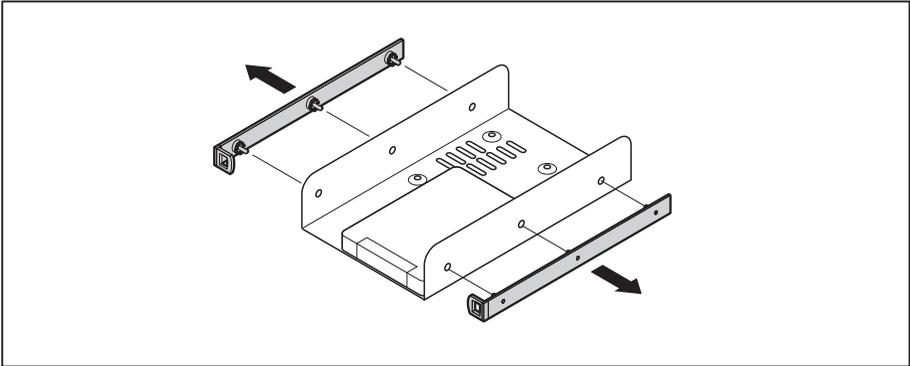


- ▶ Slightly press together the EasyChange rails mounted on the hard disk drive (1) and carefully pull the hard disk drive slightly out of the drive cage in the direction of the arrow (2).
- ▶ Disconnect the cables connected to the hard disk drive.

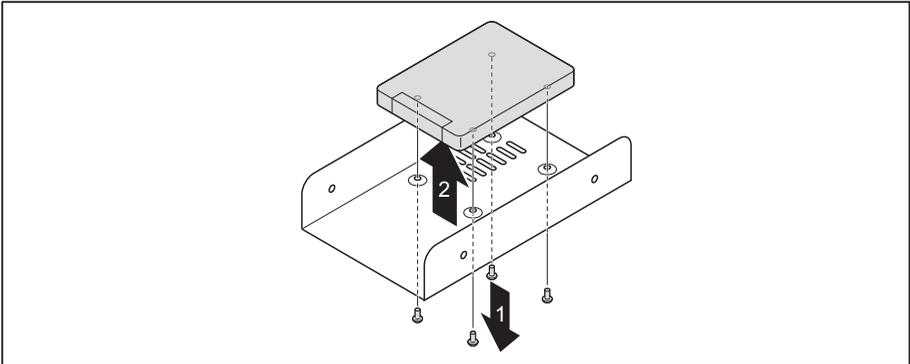


It may be necessary to modify the entry for the drive in the *BIOS Setup*.

## Finishing removal of the 2 1/2-inch hard disk drive

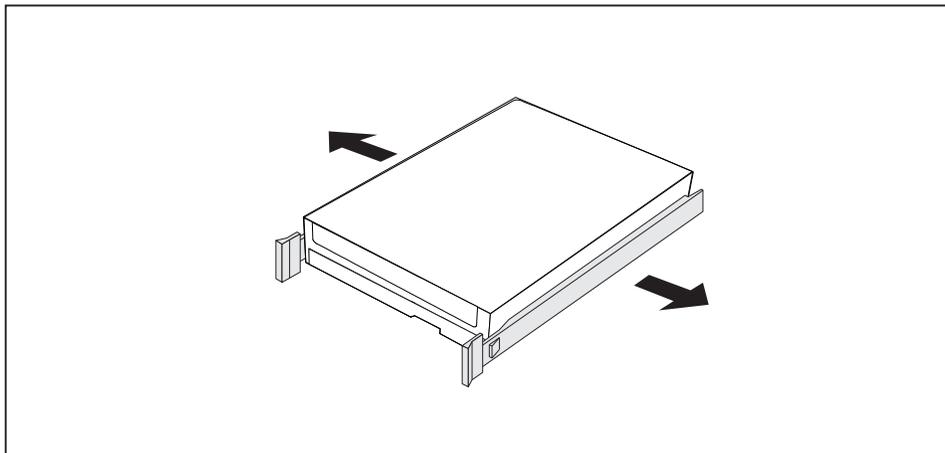


- ▶ Pull the EasyChange rails off the hard disk drive.
- ▶ If you no longer need the EasyChange rails, secure them again at their drive bay in the casing.



- ▶ Remove the screws (1).
- ▶ Take the hard disk drive out of the adapter (2).

## Finishing removal of the 3<sup>1</sup>/<sub>2</sub>-inch hard disk drive



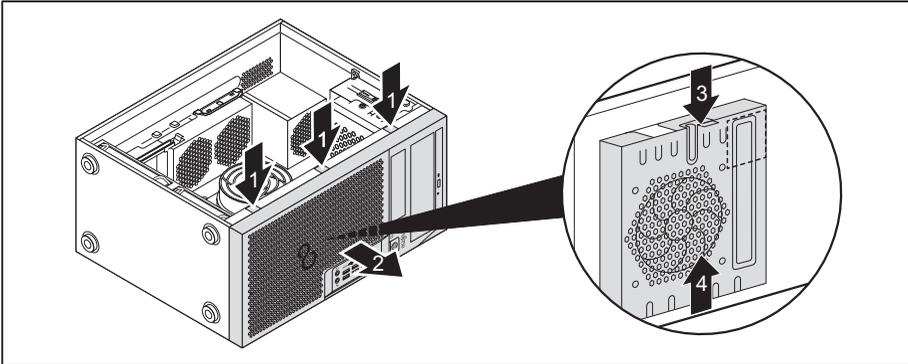
- ▶ Pull the EasyChange rails off the hard disk drive.
- ▶ If you no longer need the EasyChange rails, secure them again at their drive bay in the casing.

## Removing and fitting the front fan

In order to remove or fit long component groups or M.2 modules, it is necessary to remove the front fan under the front panel while working on the device.

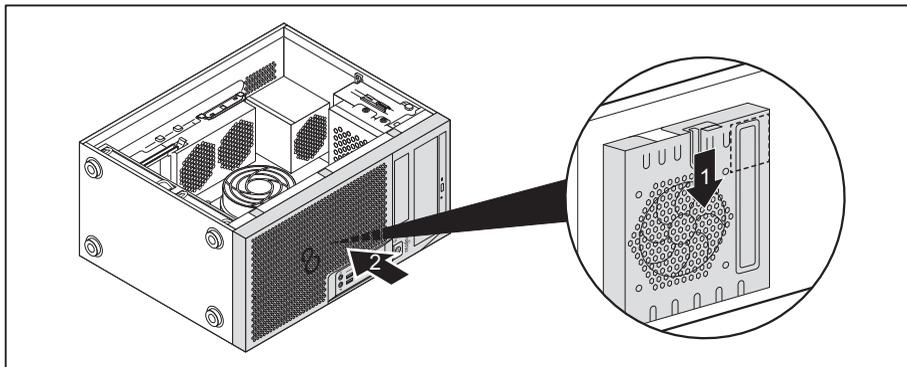
### Removing the front fan

- ▶ Instructions: Open the casing (see ["Opening the casing", Page 35](#)).
- ▶ Disconnect the fan cable from the mainboard.



- ▶ Release the detents of the front cover (1).
  - ▶ Remove the front cover from the casing in the direction of the arrow (2).
  - ▶ Release the detent (3) and slide the fan away from the casing in the direction of the arrow (4).
- ↳ You can now remove or install the M.2 module or long modules.

## Installing the front fan

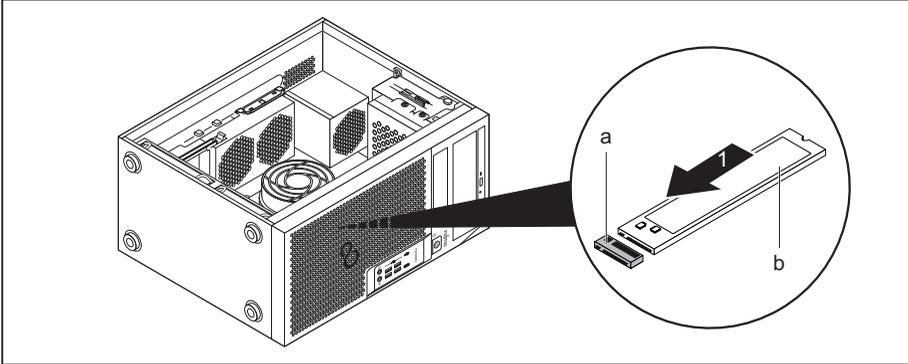


- ▶ Attach the front fan to the centering pins on the housing and move it in the direction of the arrow (1).
- ↳ The front fan will then be locked in position.
- ▶ Fit the front cover onto the casing (2).
- ▶ Connect the fan cable to the mainboard.
- ▶ Close the casing (see ["Closing the casing", Page 36](#)).

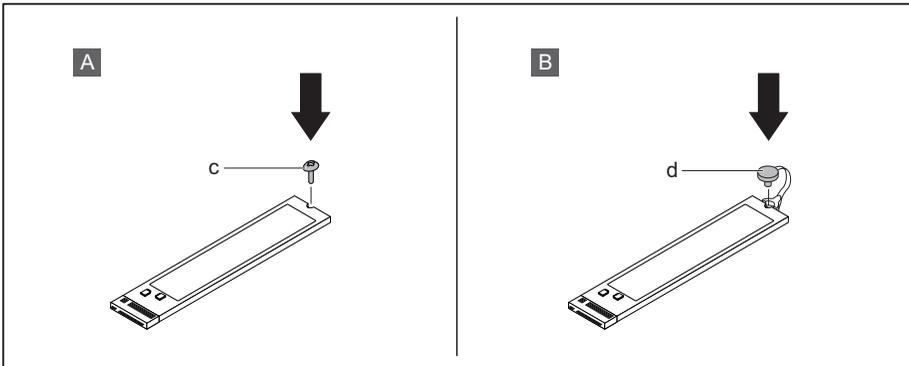
## Installing and removing an M.2 module

### Installing an M.2 module

- ▶ Open the casing (see ["Opening the casing", Page 35](#)).



- ▶ Insert the M.2 module (b) at a slight angle in the direction of the arrow (1) into the slot (a) on the mainboard.



- ▶ **Variant A with screw:** Secure the M.2 module on the mainboard with the screw (c).

or

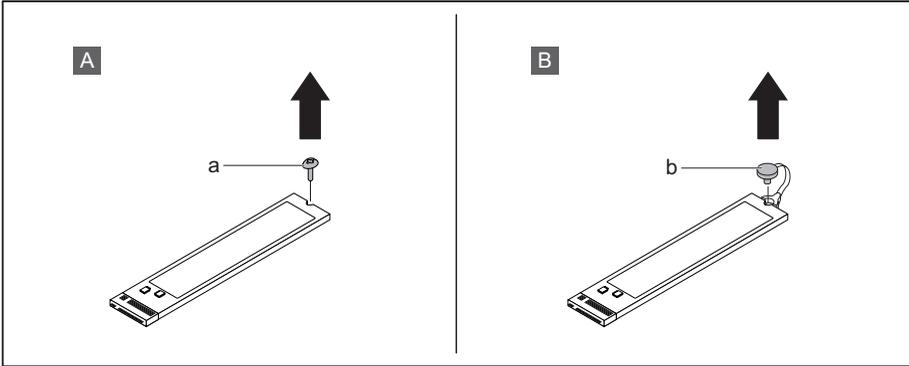
- ▶ **Variant B with plastic lock.** Secure the M.s module by closing the plastic lock (d) on the mainboard.
- ▶ Close the casing (see ["Closing the casing", Page 36](#)).

**i**

If necessary, you must adjust the entry for the drive accordingly in the *BIOS Setup*.

## Removing an M.2 module

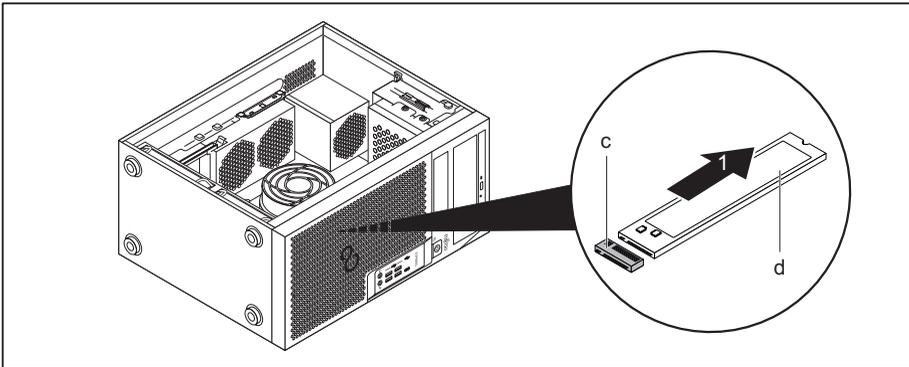
- ▶ Open the casing (see ["Opening the casing", Page 35](#)).



- ▶ **Variant A with screw:** Undo the screw (a).

or

- ▶ **Variant B with plastic lock.** Open the plastic lock.



- ▶ Pull the M.2 module (d) slightly at an angle in the direction of the arrow (1) and out of the slot (c) on the mainboard and remove it from the casing.
- ▶ Close the casing (see ["Closing the casing", Page 36](#)).



If necessary, you must adjust the entry for the drive accordingly in the *BIOS Setup*.

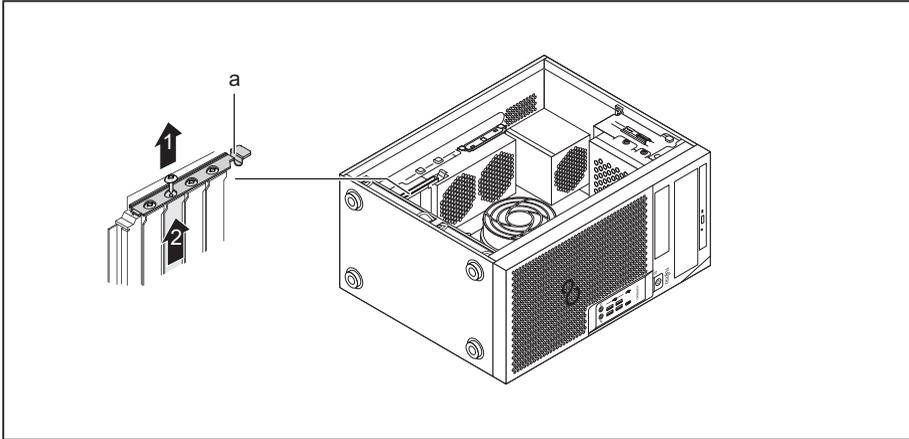
## Installing and removing a board

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.

### Installing a board

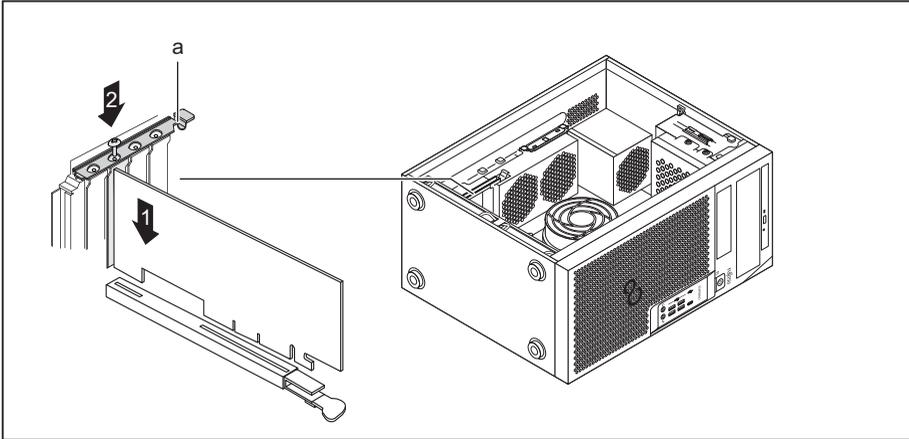
- ▶ For long modules: Remove the front fan (see ["Removing and fitting the front fan", Page 63](#)).
- ▶ Open the casing (see ["Opening the casing", Page 35](#)).



- ▶ Fold the module lock (a) upwards to open it.
- ▶ Loosen the screw on the slot cover (1), if one is fitted.
- ▶ Pull the slot cover out of the slot in the direction of the arrow (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.



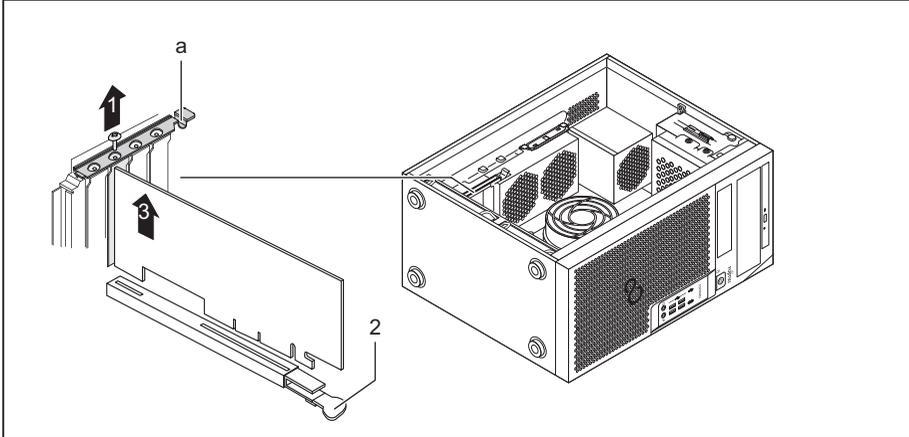
- ▶ Push the board into the slot (1).
- ▶ Secure the module with the screw (2), if one is fitted.
- ▶ Fold the module lock (a) back down to close it.
- ▶ If necessary, connect the cables to the board.
- ▶ For long modules: Install the front fan (see ["Removing and fitting the front fan", Page 63](#)).
- ▶ Close the casing (see ["Closing the casing", Page 36](#)).



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 a board

- ▶ For long modules: Remove the front fan (see ["Removing and fitting the front fan", Page 63](#)).
- ▶ Open the casing (see ["Opening the casing", Page 35](#)).
- ▶ Disconnect the cables connected to the board.



- ▶ Fold the module lock (a) upwards to open it.
- ▶ Loosen the screw on the module (1), if one is fitted.

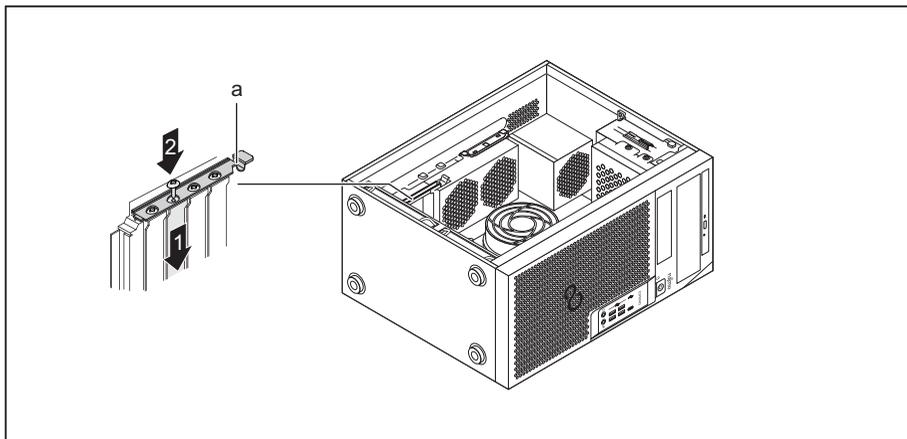


Modules in the PCI Express x16 slot are also secured at the bottom of the slot with a locking latch (2). Push the latch to the side to release the card. You can then remove the card as described below.

- ▶ Pull the slot cover out of the slot in the direction of the arrow (3).
- ▶ Place the board in suitable packaging.



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



- ▶ Slide the slot cover into the slot (1).
- ▶ Secure the slot cover with the screw (2), if one is provided.
- ▶ Fold the module lock (a) back down to close it.
- ▶ For long modules: Install the front fan (see ["Removing and fitting the front fan", Page 63](#)).
- ▶ Close the casing (see ["Closing the casing", Page 36](#)).



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

## Installing and removing external WLAN antennas

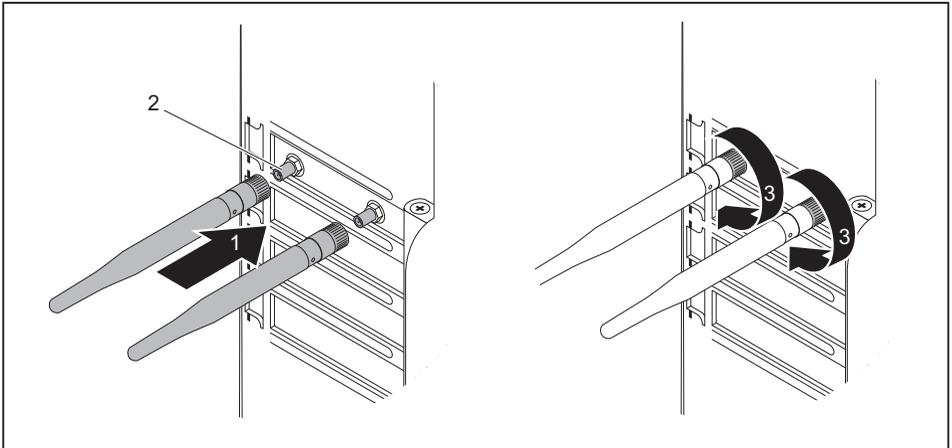
If you have installed a suitable board, you can install and remove the associated WLAN antennas as described below.

**i**

Operation of WLAN antennas is not permitted in Taiwan.

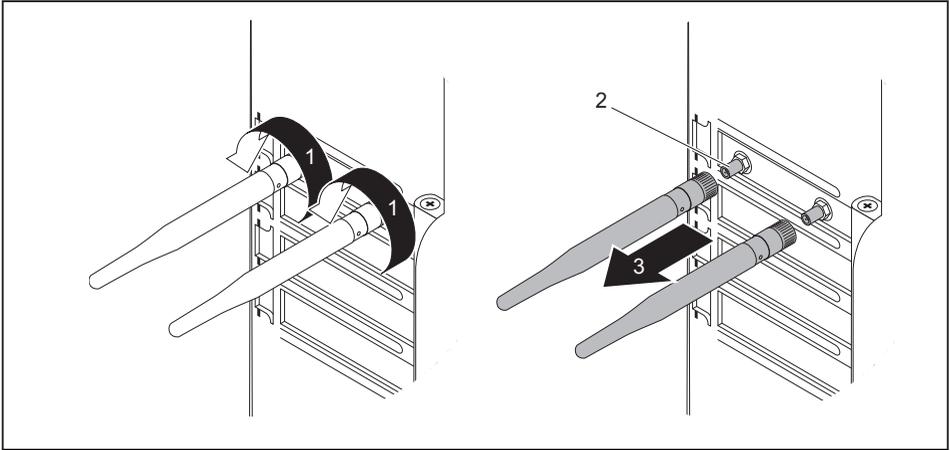
### Installing external WLAN antennas

- A suitable board is installed (see ["Installing a board", Page 67](#)).



- ▶ Working in the direction of the arrow (1), place the WLAN antennas onto the plug-in positions of the board (2).
- ▶ Secure the WLAN antennas by turning in the direction of the arrow (3).
- ▶ Align the WLAN antennas as required.

## Removing external WLAN antennas



- ▶ Undo the WLAN antennas by turning in the direction of the arrow (1).
- ▶ Pull the WLAN antennas in the direction of the arrow (3) and away from the plug-in positions of the board (2).

## Installing and removing heat sinks

### Removing the heat sink

The shape and position of the heat sink are device-dependent.

- ▶ Open the casing (see ["Opening the casing", Page 35](#)).
- ▶ Disconnect the fan cable (FAN1 or FAN (CPU)) from the mainboard.
- ▶ Undo the screws on the heat sink.
- ▶ Lift the heat sink out of the casing.
- ↳ You can now replace the processor.



Never operate the device without a heat sink! Before initial startup, install the heat sink again in the same way as it was installed in the device before removal.

## Installing the heat sink

- ▶ Open the casing (see ["Opening the casing", Page 35](#)).



Install the heat sink again in the same way as it was fitted in the device at the time of removal.

- ▶ Insert the heat sink into the casing. To do this, correctly align the screw holes on the heat sink with the screw holes on the mainboard.
- ▶ Tighten the screws.
- ▶ Connect the fan cables to the mainboard.
- ▶ Close the casing (see ["Closing the casing", Page 36](#)).

## 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

- ▶ Open the casing (see ["Opening the casing", Page 35](#)).
- ▶ Upgrade the main memory according to the description in the manual for the mainboard.
- ▶ Close the casing (see ["Closing the casing", Page 36](#)).

### Replacing the processor

- ▶ Open the casing (see ["Opening the casing", Page 35](#)).
- ▶ Remove the heat sink (see ["Removing the heat sink", Page 72](#)).
- ▶ Replace the processor as described in the manual for the mainboard.
- ▶ Install the heat sink again (see ["Installing the heat sink", Page 73](#)).
- ▶ Close the casing (see ["Closing the casing", Page 36](#)).

## 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.



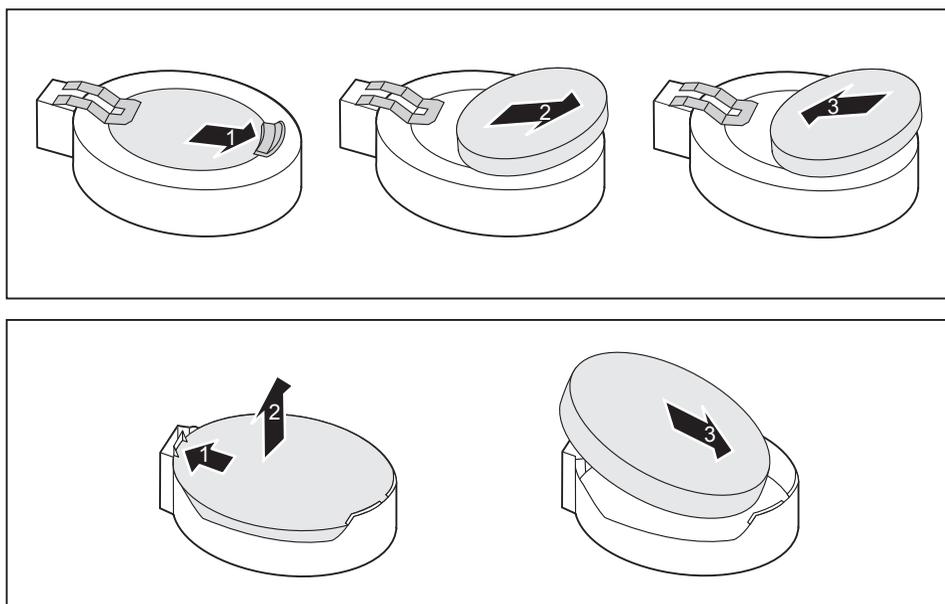
Incorrect replacement of the lithium battery may lead to a risk of explosion!

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.

Make sure that you observe the correct polarity when replacing the lithium battery. The plus pole must be on the top!

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



- ▶ Press the catch in the direction of the arrow (1).
- ↳ The battery jumps out of the holder slightly.
- ▶ Remove the battery (2).
- ▶ Push the new lithium battery of the identical type into the holder (3) and press it down until it engages.

# Technical data

<b>Electrical data</b>	
Protection class:	I
Rated voltage range	100 V – 240 V
Rated frequency	50 Hz – 60 Hz
Max. rated current (with monitor socket):	100 V – 240 V 5.2 – 2.5 A
Max. rated current (without monitor socket):	100 V – 240 V 4.6 – 2.1 A
Max. rated current (optional monitor socket):	100 V – 240 V 2.0 – 1.0 A
<b>Dimensions</b>	
Width/depth/height:	180 mm x 304 mm x 371 mm / 7,09 in x 11,97 in x 14,61 in
<b>Weight</b>	
in basic configuration:	c. 8 kg / 17,64 lbs
<b>Ambient conditions</b>	
Environment class 3K2	DIN IEC 721 part 3-3
Environment class 2K2	DIN IEC 721 part 3-2
Temperature	
Operation (3K2)	10 °C .... 35 °C / 50 °F ... 95 °F
Transportation (2K2)	-25 °C .... 60 °C / -3 °F ... 140 °F
The formation of condensation is not permitted while the device is in operation !	
Clearance required to ensure adequate ventilation:	
without air vents	at least 10 mm / 0,39 in
with air vents	at least 200 mm / 7,87 in



The data sheets of these devices contains further technical data. The data sheets can be found on our website at ["http://www.fujitsu.com/fts/"](http://www.fujitsu.com/fts/).

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