

FUJITSU Workstation CELSIUS W550 / W550power



Thank you for buying an innovative product from Fujitsu.

Latest information about our products, useful tips, updates etc. is available on our website: ["http://www.fujitsu.com/fts/"](http://www.fujitsu.com/fts/)

You can find driver updates at: ["http://support.ts.fujitsu.com/download"](http://support.ts.fujitsu.com/download)

Should you have any technical questions, please contact:

- our Hotline/Service Desk (see Service Desk list or from the Internet at: ["http://support.ts.fujitsu.com/contact/servicedesk"](http://support.ts.fujitsu.com/contact/servicedesk))
- Your sales partner
- Your sales office

We hope you enjoy using your new Fujitsu system!



Published by / Contact address in the EU

Fujitsu Technology Solutions GmbH

Mies-van-der-Rohe-Straße 8

80807 Munich, Germany

["http://www.fujitsu.com/fts/"](http://www.fujitsu.com/fts/)

Copyright

© Fujitsu Technology Solutions GmbH 2015. All rights reserved.

Publication Date

10/2015

Order No.: A26361-K1445-Z321-1-7619, edition 1

FUJITSU Workstation CELSIUS W550 / W550power

Operating Manual

Your CELSIUS...	5
Ports and operating elements	7
Important notes	9
Getting started	13
Operation	21
Troubleshooting and tips	28
System expansions	32
Technical data	55
Index	56

Remarks

Information on the product description meets the design specifications of Fujitsu and is provided for comparison purposes. Several factors may cause the actual results to differ. Technical data is subject to change without prior notification. Fujitsu rejects any responsibility with regard to technical or editorial mistakes or omissions.

Trademarks

Fujitsu, the Fujitsu logo and CELSIUS are registered trademarks of Fujitsu Limited or its subsidiaries in the USA and other countries.

Kensington is a registered trademark of the ACCO brand.

Microsoft and Windows are trademarks or registered trademarks of Microsoft Corporation in the USA and/or other countries.

DVI is a registered trademark or unregistered trademark of the Digital Display Working Group.

All other trademarks specified here are the property of their respective owners.

Copyright

No part of this publication may be copied, reproduced or translated without the prior written consent of Fujitsu.

No part of this publication may be saved or transferred by any electronic means without the written approval of Fujitsu.

Contents

Your CELSIUS...	5
Validity of the Reference Manual	5
Notational conventions	6
Ports and operating elements	7
Front	7
Rear	8
Important notes	9
Safety information	9
Transporting the device	9
Cleaning the device	10
Energy saving, disposal and recycling	10
CE marking	11
FCC Compliance Statement	12
FCC Class B Compliance Statement	12
Getting started	13
Unpacking and checking the delivery	13
Steps for initial setup	13
Setting up the device	14
Connecting the machine to the mains	14
Connecting external devices	15
Ports on the device	15
Connecting a monitor	16
Connecting the mouse	17
Connecting the keyboard	18
Connecting external devices to the parallel (optional) or serial port	18
Connecting external devices to the USB ports	19
Switching on for the first time: installing the software	19
Switching on monitor and device	20
Installing the software	20
Operation	21
Indicators on the device	21
Switch the device on	21
Switching off the device	22
Keyboard	23
Important keys and keyboard shortcuts	23
Settings in BIOS Setup	24
Property and data protection	25
Anti-theft protection and lead-sealing	25
Mechanical casing lock (optional)	26
BIOS setup security functions	26
Access authorisation via SmartCard	27
Operating the SmartCard reader (optional)	27
Troubleshooting and tips	28
Help if problems occur	28
Troubleshooting	28
Power-on indicator remains unlit after you have switched on your device	28
The device cannot be switched off with the ON/OFF switch.	29

Monitor remains blank	29
No mouse pointer displayed on the screen	30
Time and/or date is not correct	30
Error messages on the screen	30
Installing new software	30
Restoring the hard disk contents	31
Tips	31
System expansions	32
Information about boards	33
Opening the casing	34
Closing the casing	35
Overview of drive bays and drives in your device	35
Installing and removing the accessible 5 1/4 inch drive	36
Fitting the drive cover for the 5 1/4 inch drive	36
Installing an accessible drive	37
Removing an accessible drive	38
Installing/removing the SmartCard reader and/or WLAN module (optional, 3 1/2-Zoll)	39
Installing/removing a 3 1/2" reader in a 3 1/2" bay (optional, SmartCard or MultiCard)	39
Removing the module holder	40
Screwing the WLAN module onto the module holder	40
Screwing the SmartCard reader onto the module holder	41
Installing the module holder with SmartCard reader and/or WLAN module	41
Removing the module holder with SmartCard reader and/or WLAN module	42
Removing the SmartCard reader from the module holder	43
Removing the WLAN module from the module holder	43
Removing and installing the memory card reader (optional, 3 1/2 inch, MultiCard)	44
Installing the memory card reader	44
Removing the memory card reader	45
Installing and removing the hard disk drive	46
Installing a hard disk drive	47
Removing the hard disk drive	48
Installing and removing a board	49
Installing a board	49
Removing a board	51
Replacing the processor	52
Installing and removing processor cooling devices	52
Removing the heat sink	52
Installing the heat sink	52
Mainboard expansions	53
Upgrading main memory	53
Replacing the lithium battery	54
Technical data	55
Index	56

Your CELSIUS...

... is available with various configuration levels which differ in terms of hardware and software equipment. You can install accessible drives (e.g. DVD drives) and other modules.

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 also provided:







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

Validity of the Reference Manual

This Reference Manual is valid for the following systems:

- FUJITSU Workstation CELSIUS W550
- FUJITSU Workstation CELSIUS W550power

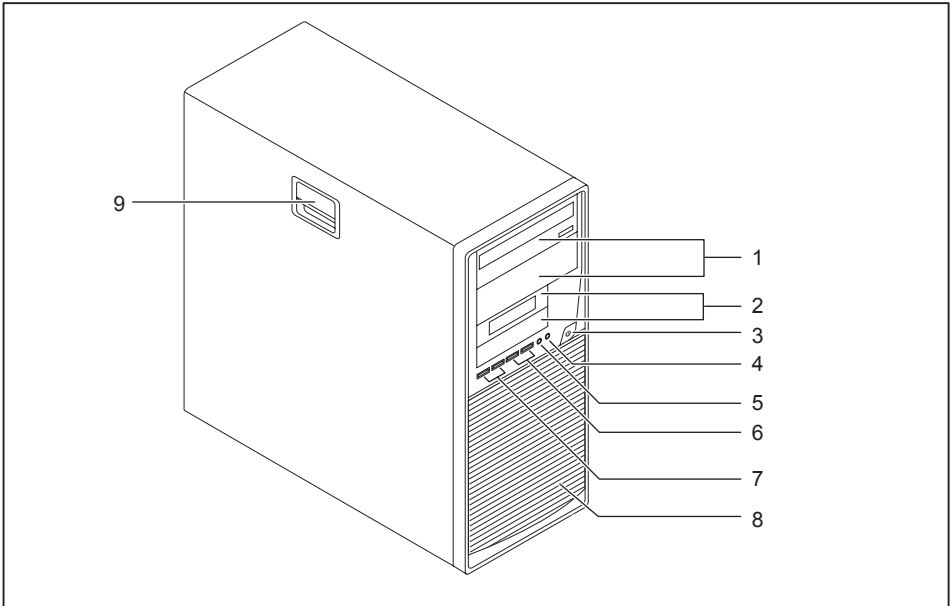
Notational conventions

	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
This font	indicates data entered using the keyboard in a program dialogue or at the command line, e.g. your password (Name123) or a command used to start a program (start.exe)
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"> terms and texts used in a software interface, e.g.: Click on <i>Save</i> names of programs or files, e.g. <i>Windows</i> or <i>setup.exe</i>.
"This font"	indicates <ul style="list-style-type: none"> cross-references to another section, e.g. "Safety information" cross-references to an external source, e.g. a web address: For more information, go to "http://www.fujitsu.com/fts" Names of CDs, DVDs and titles or designations for other materials, e.g.: "CD/DVD Drivers & Utilities" or "Safety/Regulations" manual
	indicates a key on the keyboard, e.g: 
This font	indicates terms and texts that are emphasised or highlighted, e.g.: Do not switch off the device

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 = Module bays for 5 $\frac{1}{4}$ " drives

2 = Module bays for 3 $\frac{1}{2}$ " drives

3 = ON/OFF switch

4 = Headphone port

5 = Microphone jack

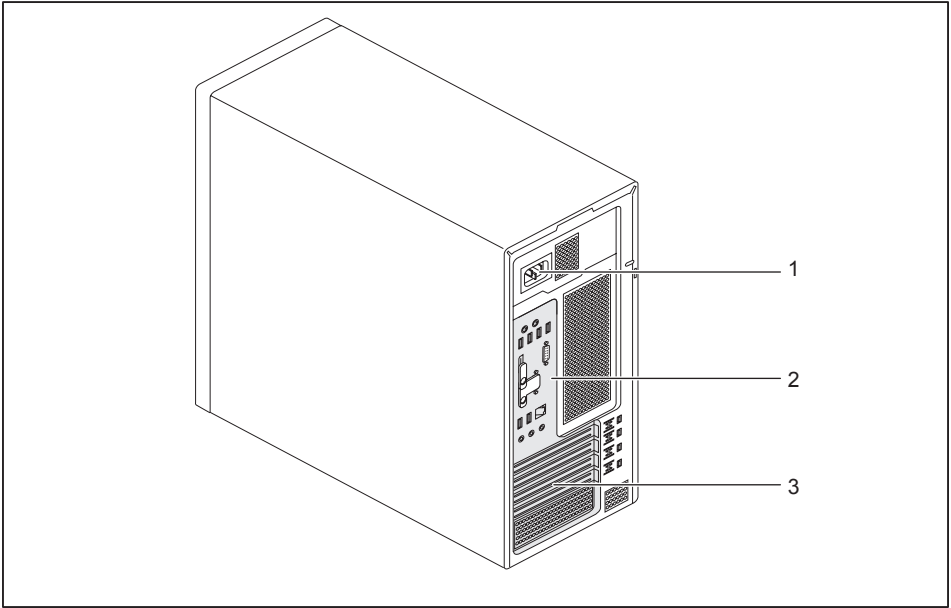
6 = USB 2.0 ports

7 = USB 3.0 ports

8 = Hard disk front panel (removable)

9 = Casing lock (optional)

Rear



1 = Alternating voltage socket (AC IN)

3 = Slot covers

2 = Ports for external devices
(device-dependent)

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 55](#) 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 ON/OFF switch does not disconnect the device from the mains voltage. You must remove the mains plug from the mains socket to completely disconnect from the mains voltage.

Operate the device only with the casing closed.

Replace the lithium battery on the mainboard in accordance with the instructions in ["Replacing the lithium battery", Page 54](#).

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. To avoid damaging the device, wait until it has reached room temperature and is absolutely dry before initial startup.

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/>").

CE marking

The shipped version of this device complies with the requirements of EU directives 2004/108/EC "Electromagnetic compatibility", 2006/95/EC "Low voltage directive", 2011/65/EC "RoHS directive" and 2009/125/EC "codesign directive".

CE marking for devices with radio component

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

CE nnnn (!) ; nnnn: For digits and exclamation mark (!), see label on the product.

You can find more information and declarations of conformity on the Internet at:
["http://globalsp.ts.fujitsu.com/sites/certificates"](http://globalsp.ts.fujitsu.com/sites/certificates).

This equipment can be used in the following countries:

Belgium	Bulgaria	Denmark	Germany
Estonia	Finland	France	Greece
UK	Ireland	Iceland	Italy
Croatia	Latvia	Liechtenstein	Lithuania
Luxembourg	Malta	Netherlands	Norway
Austria	Poland	Portugal	Rumania
Sweden	Switzerland	Slovakia	Slovenia
Spain	Turkey	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 is 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.

Getting started



Please observe the safety information in the ["Important notes", Page 9](#) 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 32](#) 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" should be maintained from other devices on casing sides without ventilation surfaces.

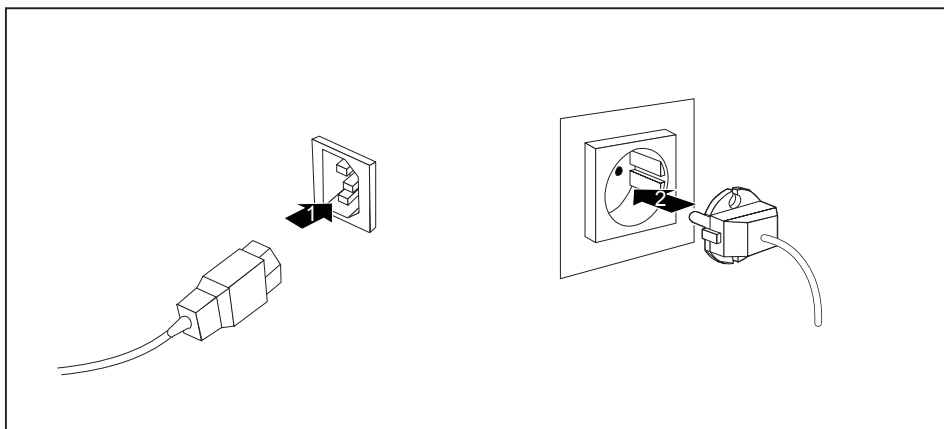
In order to avoid overheating, do not cover the ventilation areas of the monitor or the device.

A minimum distance of 200 mm / 7.87" 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 55](#), 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).



After the mains power cable has been attached, the device automatically switches itself on for a few seconds to run a system test, then switches off again.

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!

Ports on the device

The ports are located on the front and back of the device. Not all ports are necessarily present on your device. 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.

	PS/2 keyboard port		Parallel port/prINTER (optional)
	Serial port 1		Serial port 2
	VGA monitor port		Microphone port
	Headphones		Audio input (Line in)
	Audio output (Line out)		PS/2 mouse port
	USB 2.0 - Universal Serial Bus		LAN port
	USB 3.0 - Universal Serial Bus		SCSI connection
	DVI-I monitor port		DisplayPort



Some of the connected devices require special software (e.g. drivers) (refer to the documentation for the connected device and operating system).

Connecting a monitor



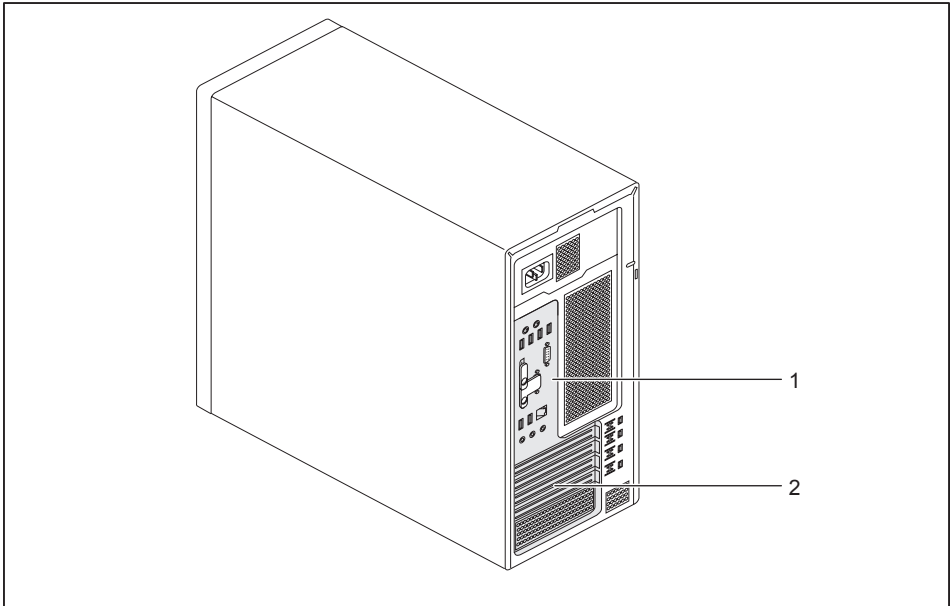
In the factory settings, the system is configured so that an available PCI display adapter is provided for screen output during initial setup.

This is also the case if there is an internal display adapter.

As soon as a PCI display adapter is plugged in or if the CPU has no graphics core, all onboard display adapter ports are covered ex works.

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

If you equip a device with an integrated display adapter and an optional display adapter, the integrated display adapter is initially deactivated on attaching the optional display adapter. If both display adapters are to be operated, you must first activate this function in the *BIOS setup*.



1 = Monitor ports of the mainboard (only processors with graphics core)

2 = Monitor ports of the optional display adapter



Only attach the monitor to your device when it is switched off.

- ▶ 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 on the device (DVI-I, DisplayPort).



If an additional display adapter other than the CPU display adapter is plugged into the system, only one additional monitor is provided for display on the onboard display adapter. The two others act as ServicePorts and are not intended for simultaneous image playback.

The DisplayPort is the preferred port. Therefore, the cover here can be broken off with the help of a predetermined breaking point, in order to make the port accessible. If a DVI or VGA port is required, the display adapter cover must be removed.

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.

- ▶ 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 round plug of the keyboard cable into the keyboard port on the device.
- ▶ Switch your device on again.

Connecting external devices to the parallel (optional) or serial port

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



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. If the device requires separate software, please note the information in the manufacturer's manual.

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. You can find the licence number as a label on your device (no longer applies to Windows 8 or higher).

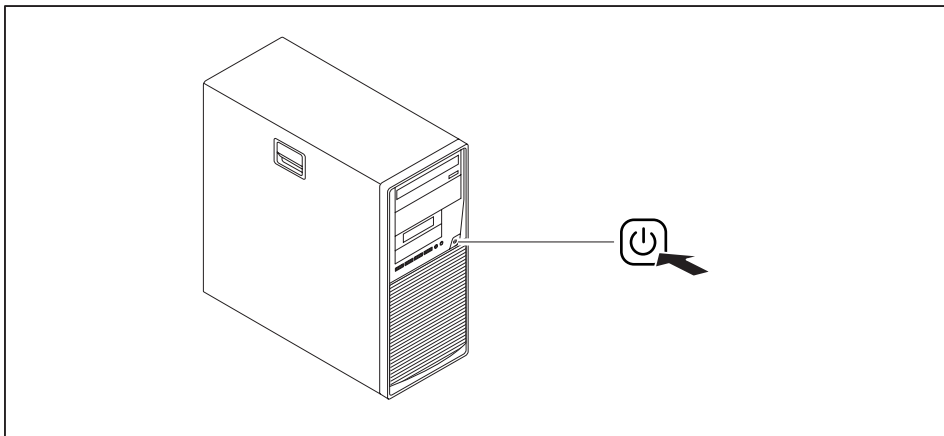
Switching on monitor and device



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

- ▶ Switch the monitor on (see the operating manual for the monitor).
- ▶ Switch the device on. To do this, follow the instructions below.

Switching on the device



- ▶ Press the ON/OFF switch on the front of the device.
- ↳ The power indicator lights up and the device starts.

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.

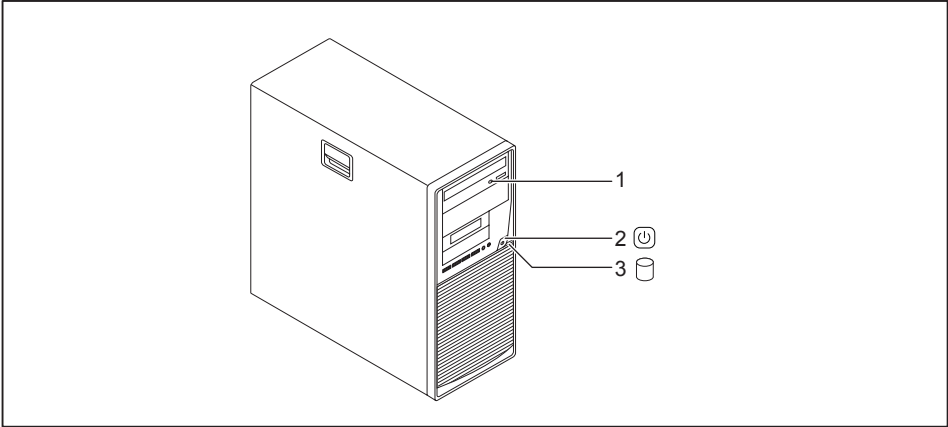


You will find more information on the system, as well as drivers, utilities and updates on the "Drivers & Utilities" DVD and on the Internet at ["http://www.fujitsu.com/fts/support"](http://www.fujitsu.com/fts/support).

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

Operation

Indicators on the device



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	Power-on indicator	<ul style="list-style-type: none"> The indicator is illuminated: The device is switched on. The indicator is flashing: 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. The indicator is not illuminated: The device is disconnected from the mains or is ready. If the device is ready it can be switched on with the ON/OFF switch.
3	Hard disk indicator	The indicator lights up when the hard disk drive in the device is being accessed.



In energy-saving mode the device must not be disconnected from the mains supply, as data loss may occur.

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 lights up and the device starts.

Switching off the device

- ▶ Shut down the operating system in a defined manner. In Windows: via the *Start* menu and the *Turn Off Computer* function.

or

- ▶ Briefly press the ON/OFF switch.
 - ▶ If the operating system does not automatically switch the device into energy-saving mode or switch it off, press the ON/OFF switch until the device switches off. Warning, this could lead to a loss of data!
- ↳ If the device is switched off, the device consumes a minimum of energy.



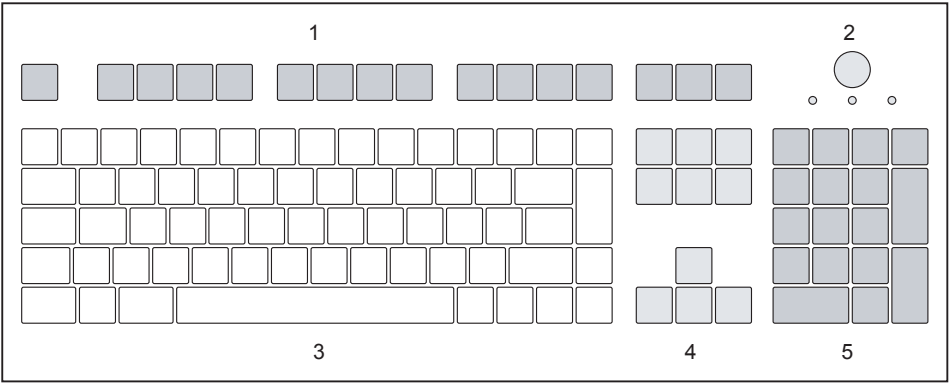
The ON/OFF switch does not disconnect the device from the mains voltage. To completely disconnect the mains voltage, remove the power plug from the power socket.

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

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
	On/off switch (optional) 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. With some keyboards the ON/OFF switch can only be used with an ACPI (Advanced Configuration and Power Management Interface). Otherwise the key is inoperative. The mainboard must support this function.
	Enter key confirms the highlighted selection. The Enter key is also referred to as the "Return" key.

Key / key combination	Description
	Windows key (device-dependent: variant 1) calls up the Windows <i>Start</i> menu.
	Menu key (device-dependent: variant 1) calls up the menu for the marked item (Windows).
	Windows key (device-dependent: variant 2) Switches between the start screen and the last used application.
	Menu key (device-dependent: variant 2) Opens the menu for the active application.
	Shift key enables upper-case letters and the upper key symbols to be displayed.
	Alt Gr key (country-dependent) produces a character shown on the bottom right of a key (e.g. the @ sign on the  key).
	Num Lock key 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.
	Ctrl key performs a special operation when pressed in conjunction with another key. The  key is also called the "Control" or "Control key".
	Windows Security/Task Manager This key combination opens the Windows Security/Task Manager window.

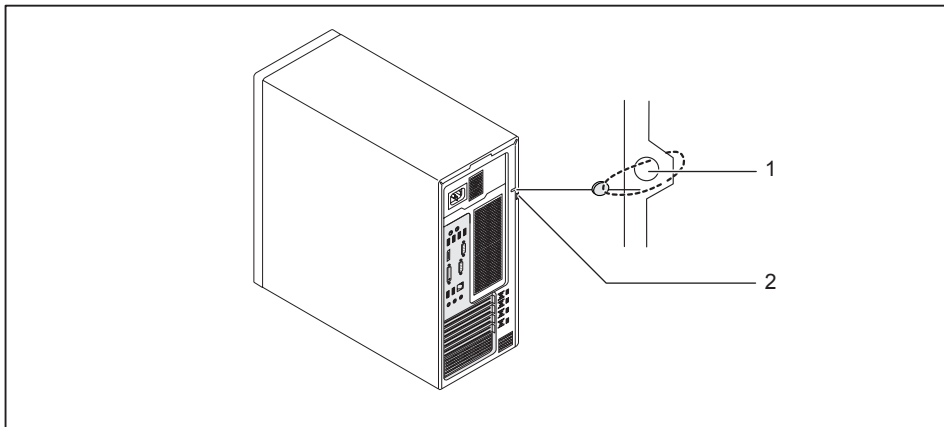
Settings in BIOS Setup

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 padlock

2 = Device for Security Lock

Anti-theft protection

You can protect your device from theft

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

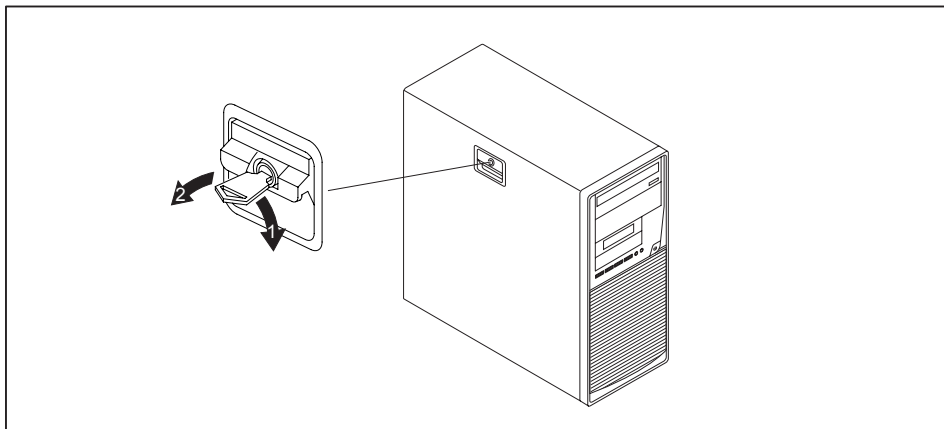
Lead-sealing

To prevent unauthorised persons from opening the casing, the casing can be lead-sealed. To do this, feed the sealing chain through the holes (2) 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.

If you use a casing with a casing lock, the safety guard in front of the drives is also secured against unauthorised opening.



Locking the casing

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

Unlocking the casing

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

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 this module 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.
- ▶ 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-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">▶ Check whether the power cable is plugged properly into the device and a grounded mains outlet.
Internal power supply overloaded.	<ul style="list-style-type: none">▶ Pull the power plug of the device out of the mains outlet.▶ Wait approx. 3 min.▶ Plug the power plug into a properly grounded mains outlet again.▶ Switch the device on.

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

Cause	Remedy
System crash	<ul style="list-style-type: none"> ▶ Keep the on/off switch pressed for at least 4 seconds until the machine switches off. <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>

Monitor remains blank

Cause	Remedy
Monitor is switched off.	<ul style="list-style-type: none"> ▶ Switch your monitor on.
Power saving has been activated (screen is blank)	<ul style="list-style-type: none"> ▶ Press any key on the keyboard. <p>or</p> <ul style="list-style-type: none"> ▶ Deactivate the screen saver. If necessary, enter the appropriate password.
Brightness control is set to dark	<ul style="list-style-type: none"> ▶ 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"> ▶ Switch off the monitor and the device. ▶ Check that the monitor power cable is properly connected to the monitor and to a grounded mains outlet or to the monitor socket of the device. ▶ Check that the device power cable is properly plugged into the device and a grounded mains outlet. ▶ Switch on the monitor and the device.
Monitor cable not connected	<ul style="list-style-type: none"> ▶ Switch off the monitor and the device. ▶ Check that the monitor cable is properly connected to the device and monitor. ▶ Switch on the monitor and the device.
Incorrect setting for the monitor	<ul style="list-style-type: none"> ▶ Restart the system. ▶ Press [F8] while the system is booting. ▶ Start the system in Safe Mode. ▶ Set up the monitor as described in the documentation for your operating system and monitor.

No mouse pointer displayed on the screen

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

Time and/or date is not correct

Cause	Remedy
Time and date are incorrect.	<ul style="list-style-type: none"> ▶ Set the correct time and date within the operating system you are using. <p>or</p> <ul style="list-style-type: none"> ▶ Set the correct time and/or date in the <i>BIOS Setup</i>.
The lithium battery is discharged.	<ul style="list-style-type: none"> ▶ If the time and date are repeatedly wrong when you switch on your device, replace the lithium battery (see "Replacing the lithium battery", Page 54).

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
Lack 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.

Opening the casing

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

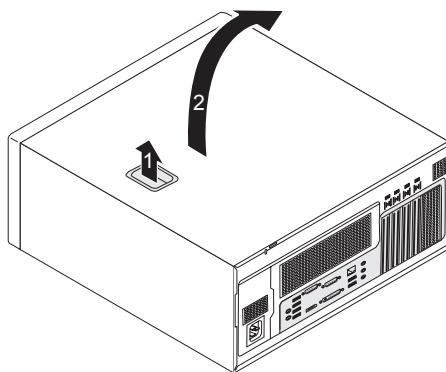


Please observe the safety information in ["Important notes", Page 9](#).

Disconnect the mains plug from the mains outlet.

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

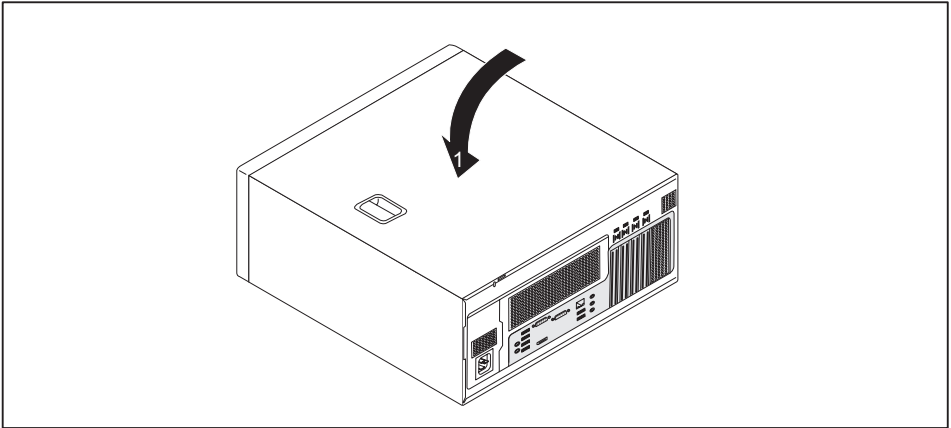
- Remove any connected wires which are in the way.
- On devices with a casing lock: Unlock the casing.
- Lay the device on its side in the manner shown.



- 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 drive bays and drives in your device

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

- two drive bays for accessible 5¹/₄" drives
- two drive bays for accessible 3¹/₂" drives
- Drive bays for multiple non-accessible 2¹/₂" and 3¹/₂" drives (hard disks):
 - two 3¹/₂ inch drives (HDD)
 - one 2¹/₂ inch drive (HDD)

In addition, the power version offers drive bays for two non-accessible 3¹/₂ inch drives (HDD).



"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.

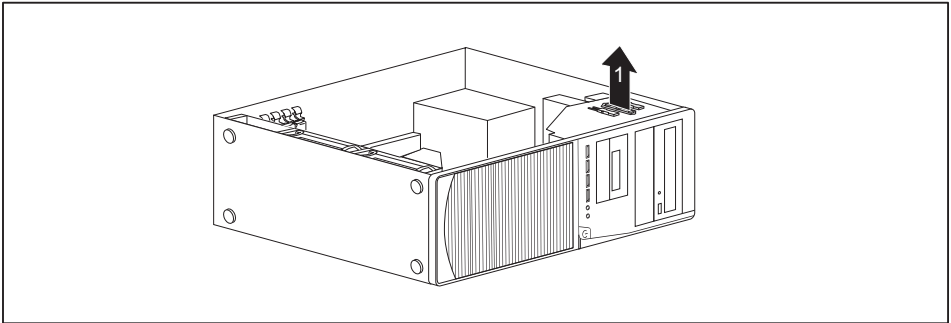
Installing and removing the accessible 5¹/₄ inch drive

The following chapter illustrates the standard version and not the power version. However, the procedure in the following chapters is the same for both versions.

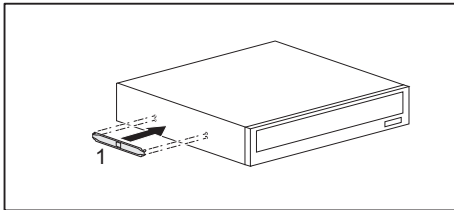
Fitting the drive cover for the 5 ¹/₄ inch drive

To use the latch function of the accessible 5¹/₄ 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 34](#)).



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



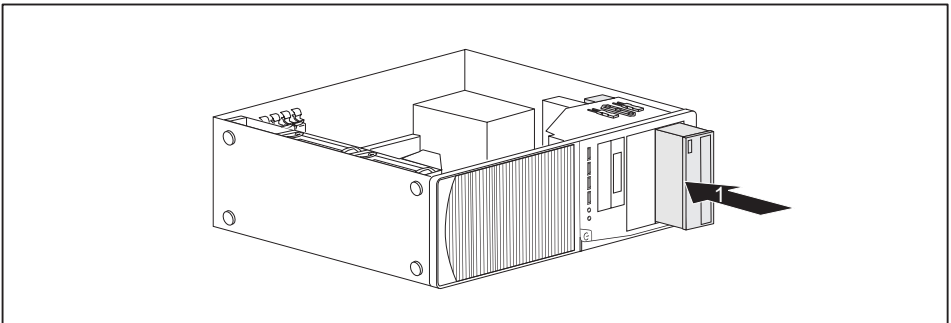
- Connect the drive cover to the drive (1).

Installing an accessible drive

- ▶ Open the casing (see ["Opening the casing", Page 34](#)).
 - ▶ If you are installing the drive in the upper bay and a cover (optional) is already in place, please remove it.
- or
- ▶ If you are installing the drive in the lower bay and a cover (optional) is already in place, please remove it.
 - ▶ Break out the pre-stamped metal 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 36](#)).



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 38](#)).



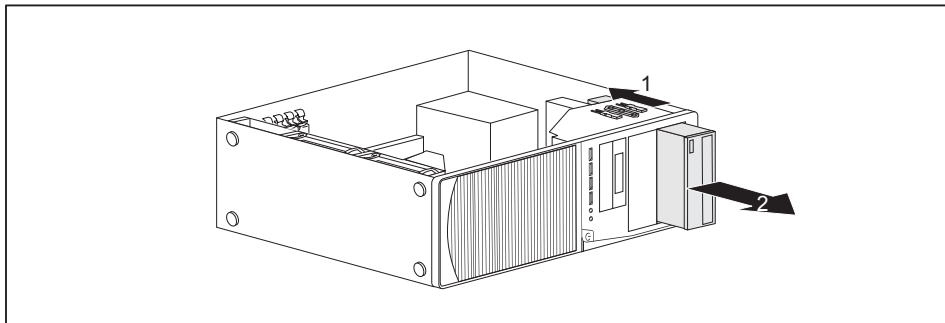
- ▶ Slide the accessible drive into the casing until it snaps in place (1).
- ▶ Connect the cables to the drive. Make sure the polarity is correct.
- ▶ Close the casing (see ["Closing the casing", Page 35](#)).



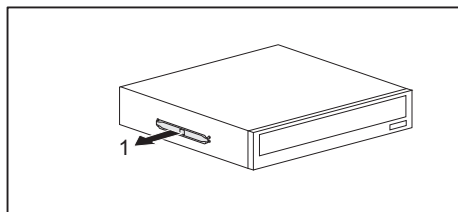
It may be necessary to modify the entry for the drive in the *BIOS Setup*.

Removing an accessible drive

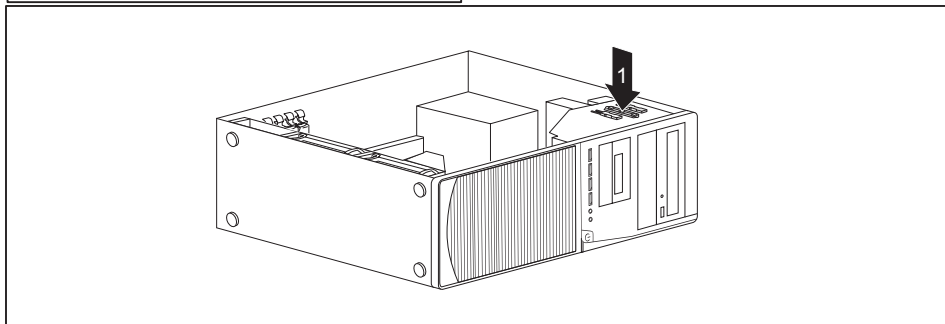
- ▶ Open the casing (see ["Opening the casing", Page 34](#)).



- ▶ 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.
- ▶ 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 35](#)).



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

Installing/removing the SmartCard reader and/or WLAN module (optional, 3½-Zoll)

You can also install a SmartCard reader and/or a WLAN module for wireless LAN (Local Area Network) or a memory card reader in the drive bays for 3½ inch drives (see ["Removing and installing the memory card reader \(optional, 3½ inch, MultiCard\)", Page 44](#)).



The SmartCard reader and WLAN module can be installed together in one module holder (optional). If you have ordered a device with a WLAN module and SmartCard reader, the module holder, SmartCard reader and WLAN module will already be installed at the time of delivery.

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

If you have ordered a device without a WLAN module or SmartCard reader, a blind cover is installed instead of the module holder.

Installing/removing a 3½" reader in a 3½" bay (optional, SmartCard or MultiCard)

The following chapter illustrates the standard version and not the power version. However, the procedure in the following chapters is the same for both versions.



Operation of the module is not permitted in Taiwan.

You can for instance install a SmartCard or MultiCard reader in the 3½" drive bay. The reader is mounted onto a module holder when installed in the casing.

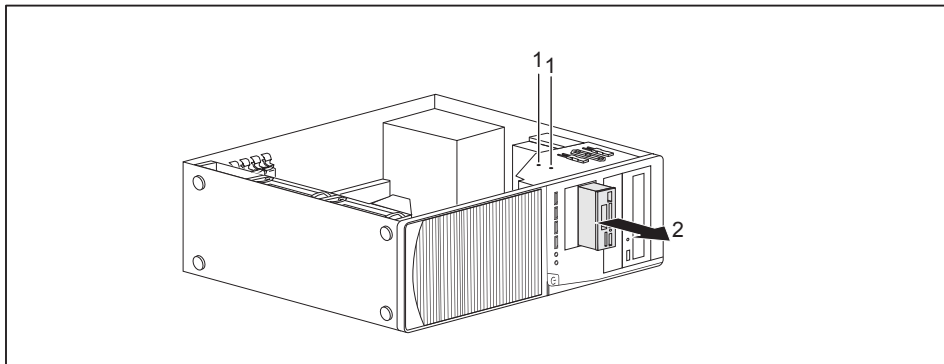


SmartCard or MultiCard readers can be mounted on a module holder (optional). If you have ordered a device with a SmartCard or MultiCard reader, the module holder, SmartCard or MultiCard reader are already built in on delivery.

If you have ordered a device without a SmartCard or MultiCard reader, a blind cover is installed instead of the module holder.

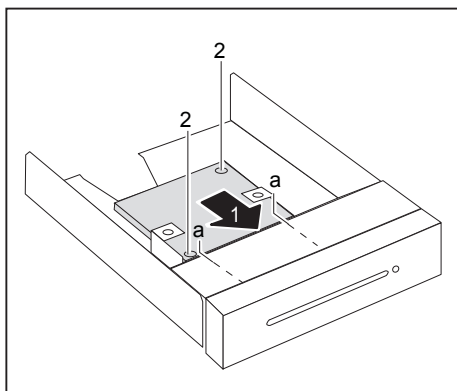
Removing the module holder

- Open the casing (see ["Opening the casing", Page 34](#)).
- Disconnect the cables connected to the module holder.



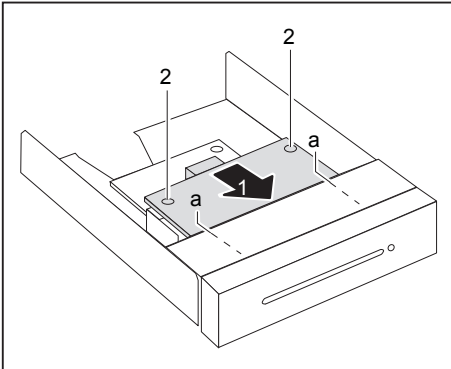
- Remove the screws (1) on the module holder.
- Push the module holder out of the casing in the direction of the arrow (2).

Screwing the WLAN module onto the module holder



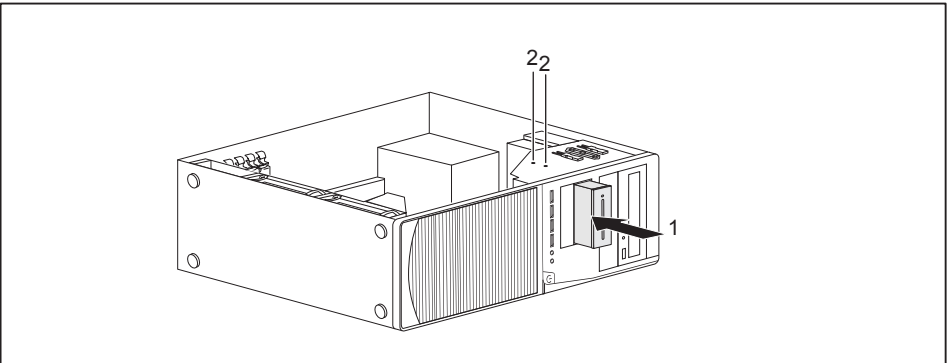
- Push the WLAN module - with the component side facing downwards - in the direction of the arrow (1) into the guide on the module holder (a).
- Fasten the WLAN module with the screws (2).

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).

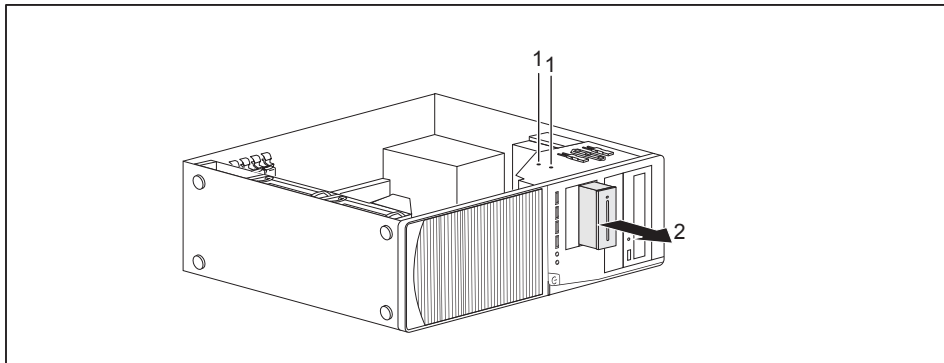
Installing the module holder with SmartCard reader and/or WLAN module



- Push the module holder into the casing in the direction of the arrow (1).
- Fasten the module holder 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 35](#)).

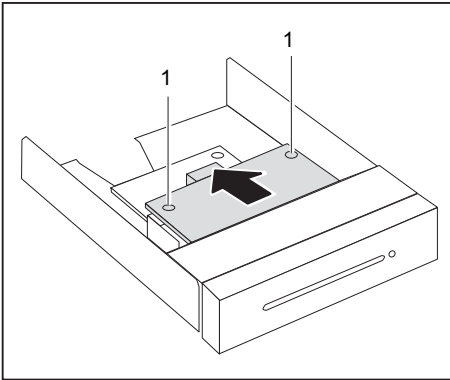
Removing the module holder with SmartCard reader and/or WLAN module

- ▶ Open the casing (see ["Opening the casing", Page 34](#)).
- ▶ Disconnect the cables connected to the module holder.



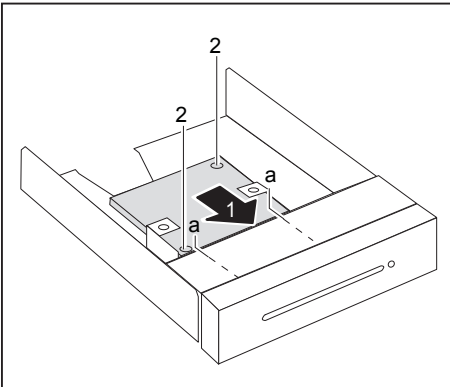
- ▶ Remove the screws (1).
 - ▶ Push the module holder out of the casing in the direction of the arrow (2).
 - ▶ Remove the SmartCard reader and WLAN module from the module holder (see ["Removing the SmartCard reader from the module holder", Page 43](#) and ["Removing the WLAN module from the module holder", Page 43](#)) and install the module holder again (corresponds to ["Installing the module holder with SmartCard reader and/or WLAN module", Page 41](#)).
- or
- ▶ Remove the SmartCard reader and WLAN module from the module holder (see ["Removing the SmartCard reader from the module holder", Page 43](#) and ["Removing the WLAN module from the module holder", Page 43](#)) and install a blind cover in the drive bay.
 - ▶ Close the casing (see ["Closing the casing", Page 35](#)).

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 the module holder



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

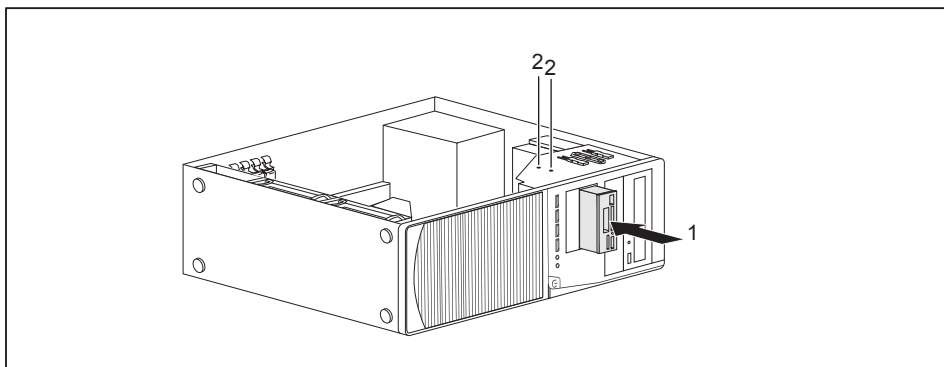
Removing and installing the memory card reader (optional, 3½ inch, MultiCard)

You can also install a memory card reader or a SmartCard reader and/or a WLAN module for wireless LAN (Local Area Network) in the drive bay for 3½ inch drives (see ["Installing/removing the SmartCard reader and/or WLAN module \(optional, 3½-Zoll\)"](#), Page 39).



The memory card reader can, unlike the SmartCard reader and WLAN module, be installed directly in the device without a module holder.

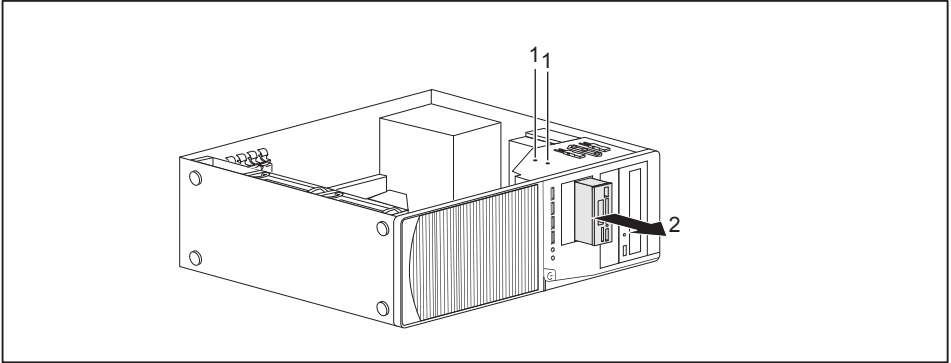
Installing the memory card reader



- ▶ Push the memory card reader into the casing in the direction of the arrow (1).
- ▶ Fasten the memory card reader with 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 35).

Removing the memory card reader

- ▶ Open the casing (see ["Opening the casing", Page 34](#)).
- ▶ Disconnect the cables connected to the memory card reader.



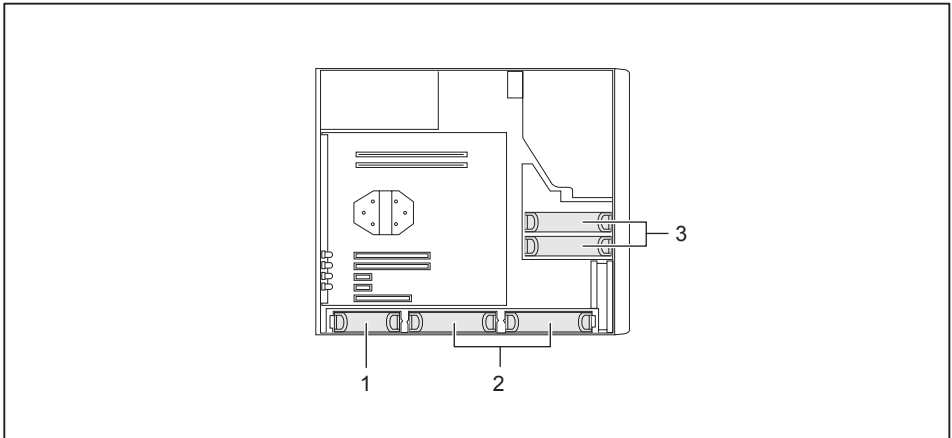
- ▶ Remove the screws (1).
- ▶ Slide the memory card reader out of the casing in the direction of the arrow (2).
- ▶ Install a blind cover in the drive bay.
- ▶ Close the casing (see ["Closing the casing", Page 35](#)).

Installing and removing the hard disk drive



The following description applies both to 3¹/₂ inch drives and to 2¹/₂ inch drives. The installation and removal procedure is the same for both types.

You can find EasyChange rails for a second 3¹/₂ inch hard disk drive on the drive cage. EasyChange rails for a second 2¹/₂ inch hard disk drive are provided together with the drive.

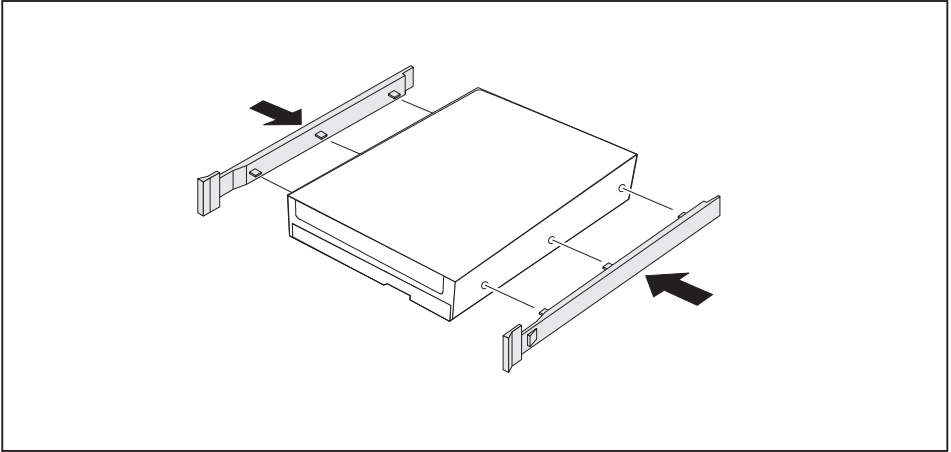


- 1 = 2¹/₂ inch hard disk
2 = 3¹/₂ inch hard disks

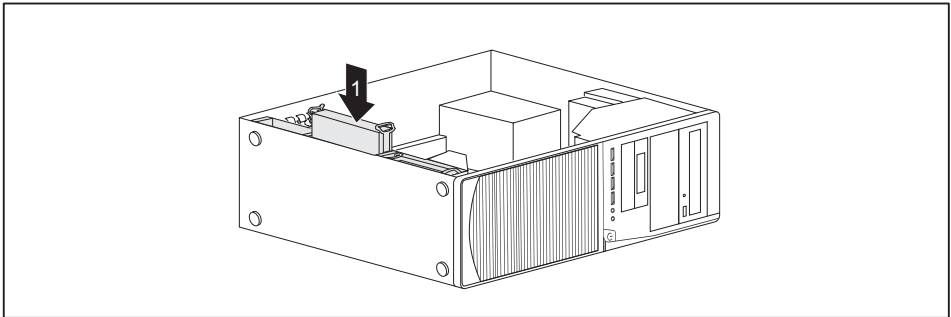
- 3 = 3¹/₂ inch hard disks (only in power version))

Installing a hard disk drive

- Open the casing (see ["Opening the casing", Page 34](#)).



- 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.



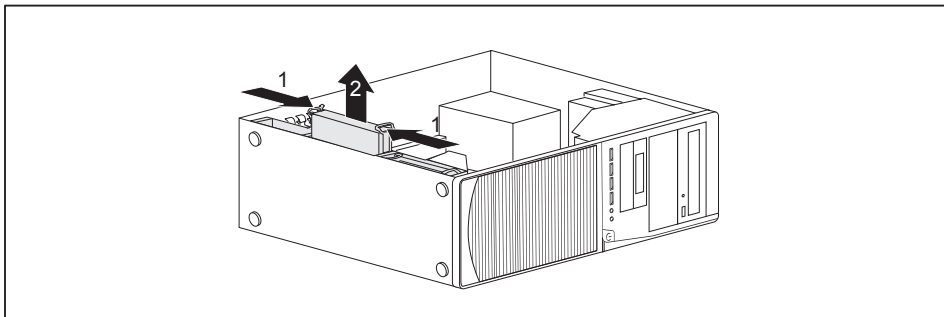
- Slide the hard disk drive with the EasyChange rails into the drive cage in the direction of the arrow (1). Check that the component side of the hard disk drive faces inwards towards the casing floor.
- Connect the cables to the hard disk drive.
- Close the casing (see ["Closing the casing", Page 35](#)).



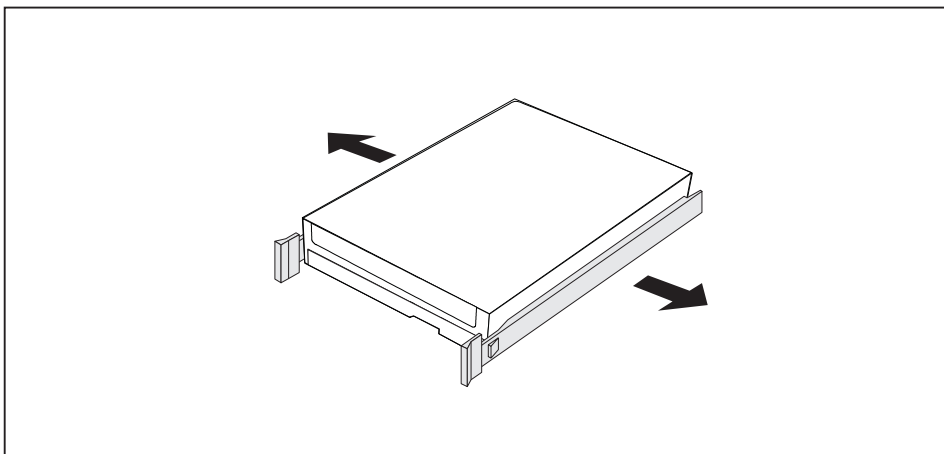
It may be necessary to modify the entry for the drive in the *BIOS Setup*.

Removing the hard disk drive

- ▶ Open the casing (see ["Opening the casing", Page 34](#)).



- ▶ 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.
- ▶ Slightly press together the EasyChange rails mounted on the hard disk drive (1) and pull the hard disk drive completely 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.



It may be necessary to modify the entry for the drive 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.

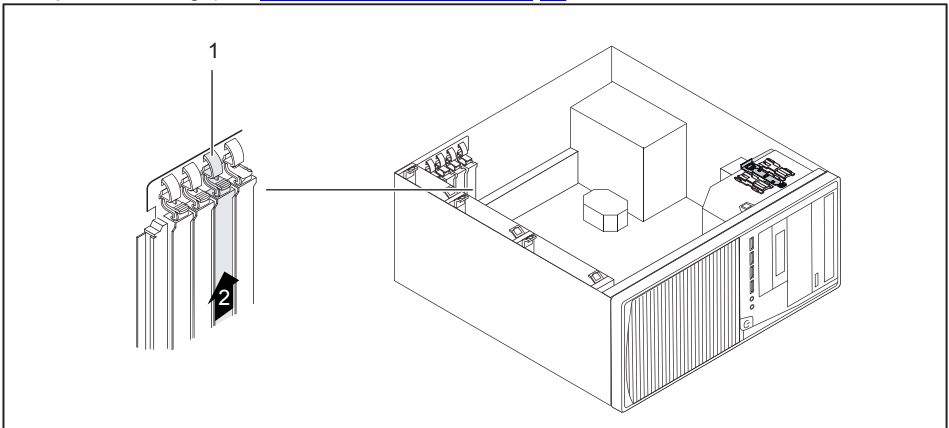
The following chapter illustrates the standard version and not the power version. However, the procedure in the following chapters is the same for both versions.

Installing a board



If possible, always install display adapters in the second slot from the right.

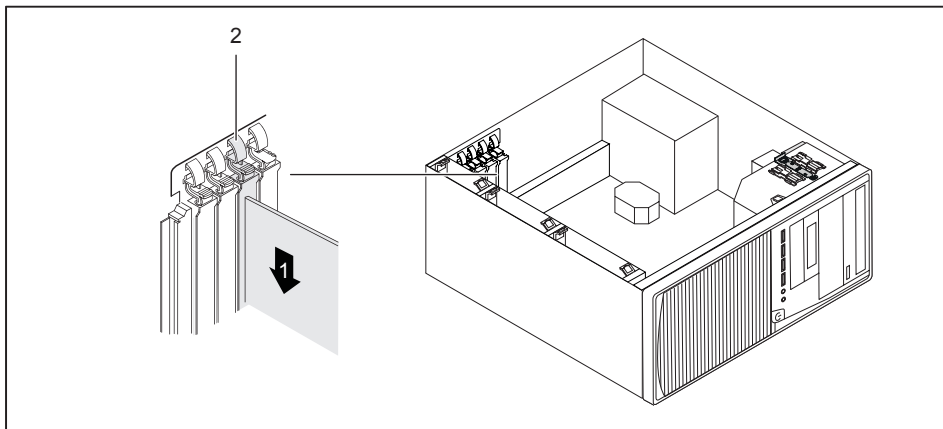
- Open the casing (see ["Opening the casing", Page 34](#)).



- Push the retaining clip (1) towards the slot cover to unlock it, then move it towards the back panel of the device.
- 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.



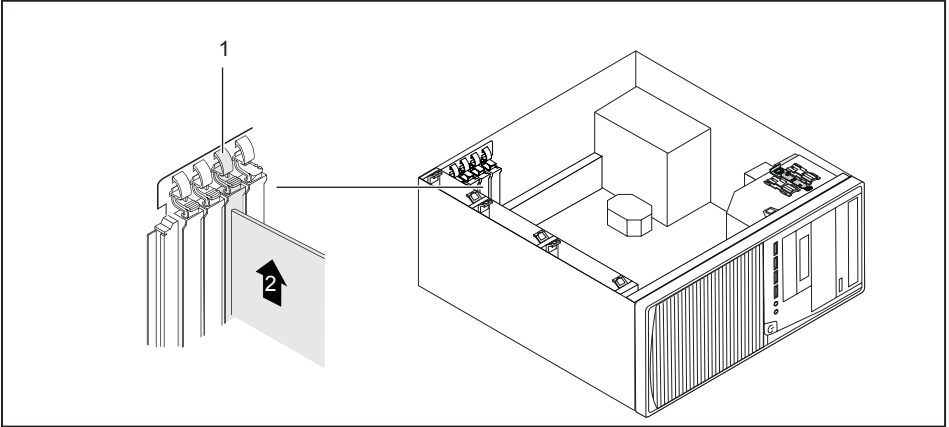
- Push the board into the slot (1).
- Swivel the retaining clamp back again until you feel it click into place (2).
- Connect the cables to the board.
- For display adapters with an additional power connection (< 65 W): attach the display adapter power cable to the power supply.
- Close the casing (see ["Closing the casing", Page 35](#)).



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

Removing a board

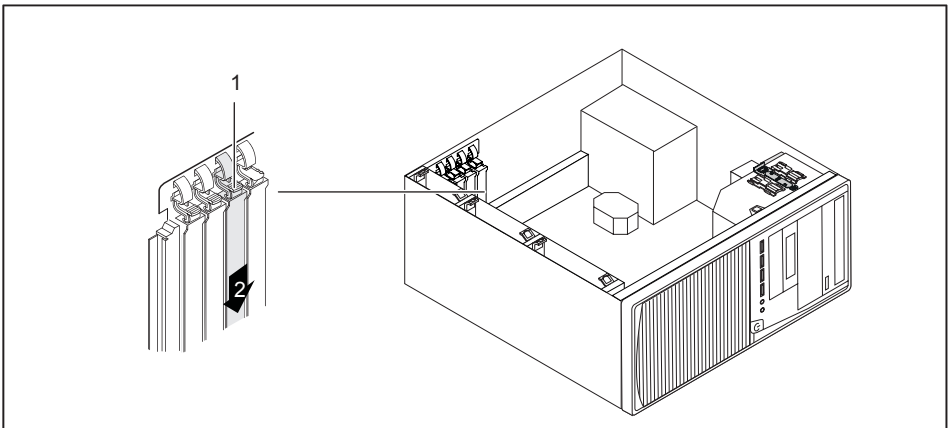
- ▶ Open the casing (see ["Opening the casing", Page 34](#)).
- ▶ Disconnect the cables connected to the board.



- ▶ Push the retaining clip (1) towards the slot cover to unlock it, then move it towards back panel of the device.
- ▶ Pull the board out of the slot in the direction of the arrow (2).
- ▶ 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).

- ▶ Press on the retaining clip until it you feel it engage (2).
- ▶ Close the casing (see ["Closing the casing", Page 35](#)).



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.

Replacing the processor

- ▶ Open the casing (see ["Opening the casing", Page 34](#)).
- ▶ Remove the heat sink (see ["Removing the heat sink", Page 52](#)).
- ▶ Replace the processor as described in the manual for the mainboard.
- ▶ Install the heat sink again (see ["Installing the heat sink", Page 52](#)).
- ▶ Close the casing (see ["Closing the casing", Page 35](#)).

Installing and removing processor cooling devices

Removing the heat sink

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

- ▶ Open the casing (see ["Opening the casing", Page 34](#)).
- ▶ Undo the screws on the heat sink.
- ▶ Lift the heat sink out of the casing.
- ↳ You can now replace the processor.

Installing the heat sink

- ▶ Open the casing (see ["Opening the casing", Page 34](#)).
- ▶ Reinstall the heat sink so that the air flow is fed towards the back of the casing (see arrow on the heat sink).
- ▶ Tighten the screws.



Never attach or detach fans during operation. This can cause problems controlling the mainboard fan.

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 34](#)).
- ▶ Upgrade the main memory according to the description in the manual for the mainboard.
- ▶ Close the casing (see ["Closing the casing", Page 35](#)).

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.



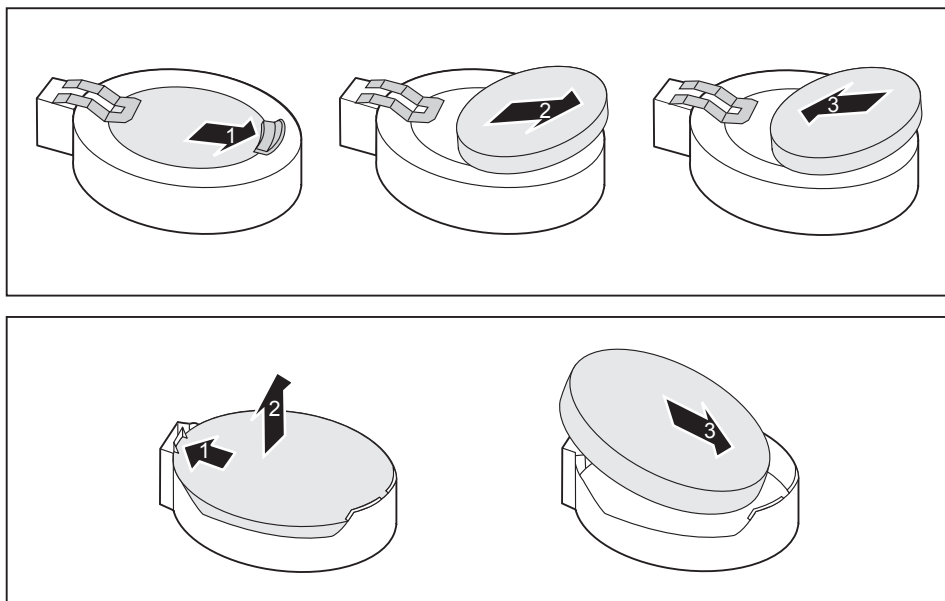
Incorrect replacement of the lithium battery may lead to a risk of explosion!

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

Electrical data	
Safety standards complied with:	IEC 60950-1, EN 60950-1, 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	3.5 A - 1.5 A
Dimensions	
Width x Depth x Height:	175 mm x 419 mm x 395 mm /6.89 in x 16.5 in x 15.55 in
Weight	
in basic configuration:	ca. 11 kg / 24.25 lbs
Ambient conditions	
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 /–13 °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	min. 10 mm / 0.39 inch
with air vents	min. 200 mm / 7.87 inch



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/).

Index

A

- Access permission, SmartCard 27
- Alphanumeric keypad 23
- Anti-theft protection 25
- Audio input 15
- Audio output 15

B

- Battery 54
- BIOS Setup 24
 - security functions 26
- BIOS Setup,
 - configuration 24
 - settings 24
 - system settings 24
- Board
 - installing 49
 - removing 51
- Board,
 - installing 49
 - removing 49
- Button,
 - ON/OFF switch 23

C

- Casing
 - Mechanical lock 26
- Casing lock 26
- Casing mechanical lock 26
- Casing,
 - closing 35
 - Lead-sealing 25
 - opening 34
- CE marking 11
- Chain 25
- Components
 - installing/removing 32
- Connecting a PS/2 keyboard 18
- Connecting,
 - keyboard 18
 - mouse 17
 - PS/2 keyboard 18
 - PS/2 mouse 17
 - USB keyboard 18
- Contents of delivery 13
- Ctrl+Alt+Del 24
- Cursor keys 23

D

- Data protection 25
- Device
 - Connections 15
 - setting up 14
- Device drivers
 - Parallel port 18
- Device drivers,
 - Serial port 18
- Device,
 - Anti-theft protection 25
 - closing 35
 - Lead-sealing 25
 - opening 34
 - switching off 22
 - switching on 20–21
 - transporting 9–10
 - upgrades 32
- Devices
 - connecting 18
- Devices,
 - connecting 19
- Disposal 10
- Drivers & Utilities DVD 10

E

- Electromagnetic compatibility 11
- Energy saving 10
- Ergonomic
 - Workstation 14
- External devices
 - connecting 18
 - Ports 15
- External devices,
 - connecting 19

F

- Function keys 23

G

- Getting started 13

H

- Headphones 15

I

- Important notes 9

Installing,
 software 19–20
 switching on for the first time 19

K

Keyboard 23
 Keyboard port 15
 keyboard shortcuts 24
 Keyboard shortcuts 23
 Keyboard,
 alphanumeric keypad 23
 connecting 18
 cursor keys 23
 function keys 23
 numeric keypad 23
 port 18
 Keys 23
 Ctrl 24
 Ctrl+Alt+Del 24
 Menu key 24

Keys,
 Alt Gr 24
 Control 24
 Ctrl key 24
 cursor keys 23
 Enter 23
 Enter key 23
 menu key 24
 Num Lock 24
 Return 23
 shift 24
 shift key 24
 Start key 24

L

LAN port 15
 Lead-sealing 25
 Line in 15
 Line out 15
 Lithium battery 53
 Lithium battery,
 replacing 54
 Lock 26
 Low voltage directive 11

M

Main memory 53
 upgrading 53
 Mainboard
 Upgrades 53
 Mains adapter,
 connecting 14

Microphone jack 15
 Monitor port 15
 Monitor,
 switching off 22
 switching on 20–21
 Mouse port 15
 Mouse,
 connecting 17

N

Note
 safety 9
 Notes
 CE marking 11
 important 9
 Numeric keypad 23

O

ON/OFF switch 23
 Overview
 Device 5

P

Packaging 13
 Packaging,
 unpacking 13
 Parallel port 15, 18
 Connecting devices 18
 Settings 18
 Ports 7, 15
 Preparing for first use, overview 13
 Preparing for use,
 overview 13
 Printer 15
 Processor 53
 Property protection 25
 PS/2 mouse port 15
 PS/2 mouse,
 connecting 17
 port 17

R

Recycling 10
 Replacing,
 lithium battery 54
 Replacing, lithium battery 54
 Retransportation 9–10

S

Safety information 9

- Security functions
 - BIOS Setup 26
 - SmartCard 27
- Security measures 25
- SecurityLock 25
- Serial port 15, 18
 - Connecting devices 18
- Serial port,
 - Settings 18
- Servicing 32
- Setup,
 - see BIOS Setup 24
- SmartCard reader,
 - operating 27
- Software,
 - installing 19–20
- System expansion 32
- System settings,
 - BIOS Setup 24
- System unit, see Device 10

T

- Transportation 9–10

U

- Universal Serial Bus 15
- Upgrades
 - Mainboard 53
- Upgrades,
 - device 32
- USB devices,
 - connecting 19
- USB port 17–18
- USB port,
 - connecting devices 19
 - connecting keyboard 18
 - connecting the mouse 17
- User Documentation DVD 10

W

- Workstation 14