

Systembaugruppe D1042 System board D1042

Technisches Handbuch
Technical Manual

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Technical Manual
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Introduction

This description applies for the System board D1042 with PCI bus (Peripheral Component Interconnect).



This system board is available in different configuration levels. Depending on the hardware configuration of your device, it may be that you cannot find several options in your version of the system board, even though they are described.

You may find further information in the description "BIOS Setup".

Further information to drivers is provided in the readme files on hard disk or on the supplied drivers diskettes or on the "Drivers & Utility" CD.

Notational conventions

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



Pay particular attention to texts marked with this symbol. Failure to observe this warning endangers your life, destroys the system, or may lead to loss of data.



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

- ▶ Texts which follow this symbol describe activities that must be performed in the order shown.
- ┆ This symbol means that you must enter a blank space at this point.
- ↵ This symbol means that you must press the Enter key.

Texts in this typeface are screen outputs from the PC.

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

Texts in italics indicate commands or menu item.

"Quotation marks" indicate names of chapters and terms that are being emphasized.

Important notes

Store this technical manual close to the device. If you pass on the device to third parties, you should also pass on the Operating Manual.



Be sure to read this page carefully and note the information before you open the PC.

Please note the information provided in the chapter "Safety" in the Operating Manual of the PC.

Incorrect replacement of the lithium battery may lead to a risk of explosion. It is therefore essential to observe the instructions in the chapter „[Add-on modules](#)“ - „[Replacing the lithium battery](#)“.

The lithium battery must be replaced with an identical battery or a battery type recommended by the manufacturer (CR2032).

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



The shipped version of this board complies with the requirements of the EEC directive 89/336/EEC with regard to "Electromagnetic compatibility".

Compliance was tested in a typical PC configuration.

When installing the board, refer to the specific installation information in the operating manual or technical manual of the receiving device.

Connecting cable for peripherals must be adequately insulated to avoid interference.

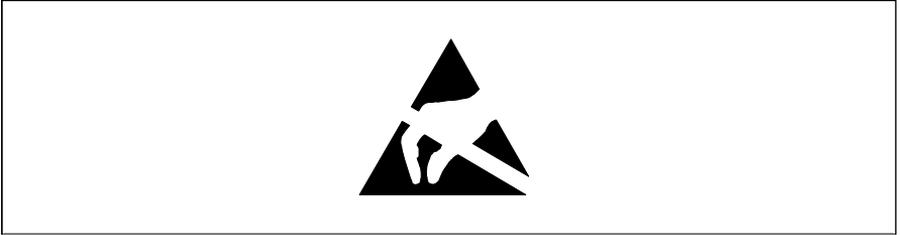


Modules can become very hot during operation. Make sure you do not touch modules when adding components to the system board. There is a danger of burns!



The warranty expires if the device is damaged during the installation or replacement of system expansions. Information on which system expansions you can use is available from your sales office or the customer service.

Boards with electrostatic sensitive devices (ESD) may be identified by labels.



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

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

Features

- ATX system board
- 64-bit microprocessor Intel Pentium with MMX, with 32 Kbytes internal cache (first-Level Cache, 16 Kbytes data cache, 16 Kbytes address cache) or OverDrive-Processor for Pentium

or

- Prepared for AMD-K6
- The system board supports Pentium MMX™.
- 512 Kbyte Second Level Cache
- Memory configuration on the system board: 8 to 256 Mbyte (SDRAM)
- 2 Mbit Flash BIOS
- PCI bus
- IDE hard disk controller connected to PCI bus for up to four IDE drives (e.g. IDE hard disk drives, ATAPI CD-ROM drives), (prepared for ultra DMA33 mode), supports PIO modes 0-4
- Supports booting from a 120 Mbyte floppy disk drive
- Floppy disk controller (up to 2.88 Mbytes format)
- Real-time clock/calendar with integrated battery backup
- Parallel interface (ECP- and EPP-compatible)
- 1 serial port (16C550 compatible with FIFO)
- PS/2 mouse port
- PS/2 keyboard port
- Security functions
- USB (Universal Serial Bus)
- Energy saving functions
- Loudspeaker
- Connector for remote-on (fax/modem board), chipcard reader and infrared interface

Optional Components

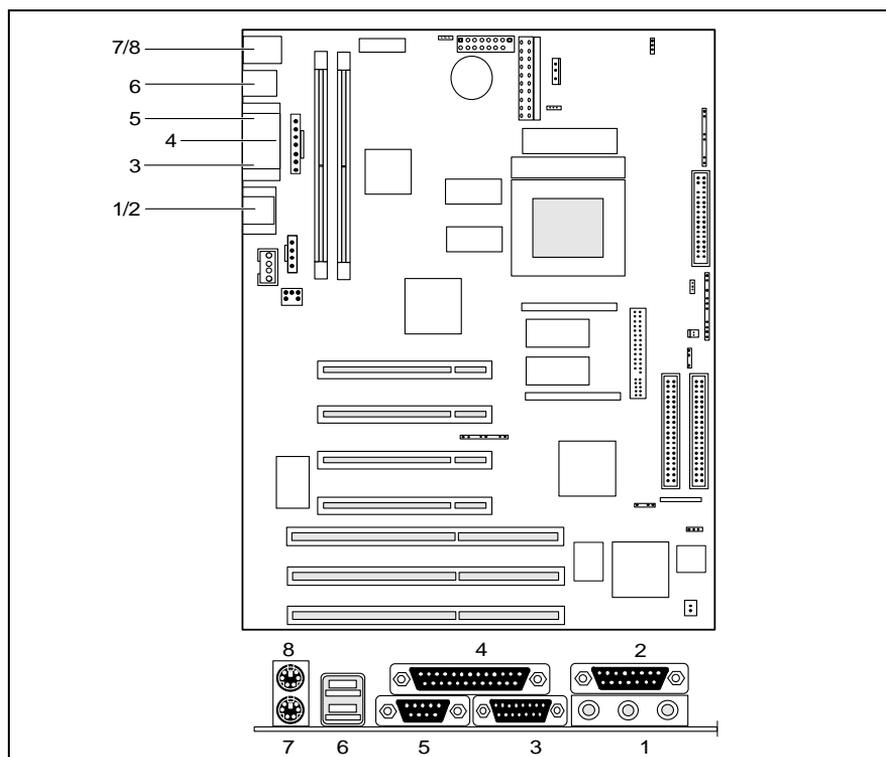
- Monitor port
- 64 bit screen controller connected to PCI bus, graphics processor Matrox MAG 1064SG (Mystique) with Windows accelerator, 3D accelerator and 2 Mbyte SGRAM video memory
- Video memory can be upgraded to 4 or 8 Mbytes of SGRAM (original Matrox memory upgrade)
- Audio controller on ISA-BUS (PnP) Crystal CS 4235 Audio Codec or CS 4236 Audio Codec, 16 bit stereo; compatible with Soundblaster Pro™, Windows Sound System and MPU 401; 3D audio support (only for CS4235); internal FM synthesis



The audio output can be set in the BIOS Setup in the screen *Advanced/Peripheral Configuration*, menu option *Audio Output* to *Line Level* or *Amplifier Level*. Use *Line Level* if you connect headphones or an active loudspeaker (with amplifier) to the audio output. Use *Amplifier Level* if you use passive loudspeakers.

- Connector for feature connector
- Connector for CD-line in, Game/Midi, Voice-Modem, AUX IN
- Microphone jack
- Audio input (Line in)
- Connector for headphones or active speakers
- Connector for Wake On LAN (WOL)
- I²C connector
- Prepared for Siemens Nixdorf system monitoring

Interfaces and connectors



1 = Audio connector

2 = MIDI/Game port

3 = Monitor port

4 = Parallel port

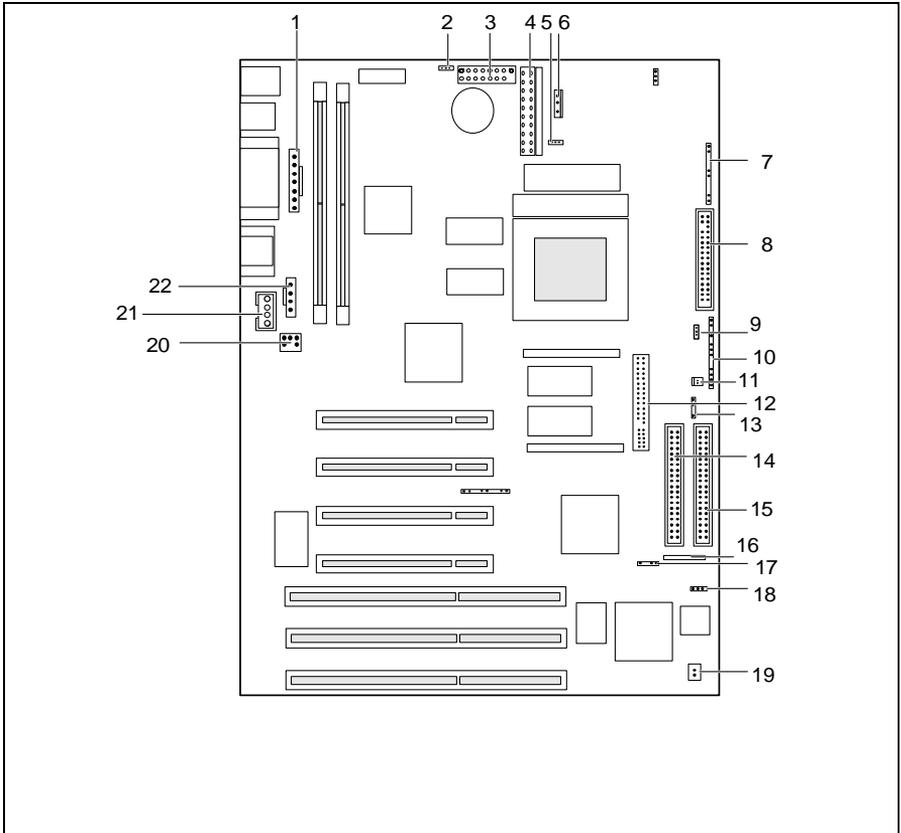
5 = Serial port 1

6 = USB ports

7 = PS/2 keyboard port

8 = PS/2 mouse port

The connectors marked do not have to be present on the system board.



- | | |
|------------------------------------|-------------------------------------|
| 1 = Cover detection | 12 = Feature connector |
| 2 = Intrusion connector | 13 = IrDA |
| 3 = Connector for chipcard reader | 14 = IDE drives 1 and 2 (primary) |
| 4 = Power supply 1 | 15 = IDE drives 3 and 4 (secondary) |
| 5 = Fan | 16 = I ² C connector |
| 6 = Power supply 2 | 17 = Loudspeaker |
| 7 = Connector 2 for control panel | 18 = Wake On LAN (WOL) |
| 8 = Floppy disk drive | 19 = Connector for fax boards |
| 9 = SCSI indicator | 20 = Voice modem |
| 10 = Connector 1 for control panel | 21 = AUX IN |
| 11 = ON/OFF button | 22 = CD Line in |

The connectors marked do not have to be present on the system board.

Possible screen resolution

Depending on the operating system used the screen resolutions in the following table refer to the screen controller on the system board. If you are using an external screen controller, you will find details of supported screen resolutions in the Operating Manual or Technical Manual supplied with the controller.

To select the appropriate setting for your monitor, please use the Matrox VGA drivers supplied.

In Windows 95 you can select your monitor type (you should possibly use the standard type) and the resolution in the *Control Panel* under *Display Properties* in the tabs *MGA-Monitor* and *MGA settings* after these drivers have been installed.

Screen resolution	Refresh rate (Hz)	Horizontal-rate (kHz)	Max. number of colors (2MB)	Max. number of colors (4MB / 8MB)
640x480	120	31 to 51	256	256
640x480	120	31 to 51	64 K	64 K
640x480	120	31 to 51	16 mio.	16 mio.
800x600	120	37 to 77	256	256
800x600	120	37 to 77	64 K	64 K
800x600	120	37 to 77	16 mio.	16 mio.
1024x768	120	48 to 98	256	256
1024x768	120	48 to 98	64 K	64 K
1024x768	120	48 to 98	--	16 mio.
1152x864	110	57 to 100	256	256
1152x864	110	57 to 100	64 K	64 K
1152x864	110	57 to 100	--	16 mio.
1280x1024	100	62 to 107	256	256
1280x1024	100	62 to 107	--	64 K
1280x1024	100	62 to 107	--	16 mio.

-- Not available; * : this value is only available with 8 MB.
64 K: high color (16 bit); 16 million: true color (24 bit)

Screen resolution	Refresh rate (Hz)	Horizontal-rate (kHz)	Max. number of colors (2MB)	Max. number of colors (4MB / 8MB)
1600x1024	90	71 to 96	256	256
1600x1024	90	71 to 96	--	64K
1600x1024	89	71 to 96	--	16 mio.*
1600x1200	84	71 to 105	256	256
1600x1200	84	71 to 105	--	64 K
1600x1200	75	71 to 105	--	16 mio.*
1600x1280	75	94 to 100	256	256
1600x1280	75	94 to 100	--	64 K
1600x1280	72	94 to 100	--	16 mio.*

-- Not available; * : this value is only available with 8 MB.
 64 K: high color (16 bit); 16 million: true color (24 bit)

Resource table

	assigned IRQ	possible IRQ	Possible Address	Possible DMA
Keyboard	IRQ1			
IrDA / chip card reader	IRQ3	IRQ3, IRQ4	02E8, 02F8, 03E8, 03F8	
Serial interface COM1	IRQ4	IRQ4, IRQ3	03F8, 03F8 02E8, 02E8	
Floppy disk drive controller	IRQ6			DMA2
Parallel interface LPT1	IRQ7	IRQ5, IRQ7	0278, 0378, 03BC	DMA1, DMA3
RTC	IRQ8			
Audio controller Joystick: Base address: MPU 401: Adlib:		IRQ5, IRQ7, IRQ9, IRQ11, IRQ12, IRQ15	0200-0207 0220-022F 0240-024F 0260-026F 0280-028F 0300-0301 0330-0331 0338-038B	DMA1, DMA3, DMA0
USB controller	IRQ11			
Mouse controller	IRQ12			
Numeric processor	IRQ13			
IDE controller 1	IRQ14			
IDE controller 2	IRQ15			

"assigned IRQ" = interrupts assigned as shipped

"Possible IRQ" = these interrupts can be used for your particular application

"Possible address" = this address can be used for your particular application

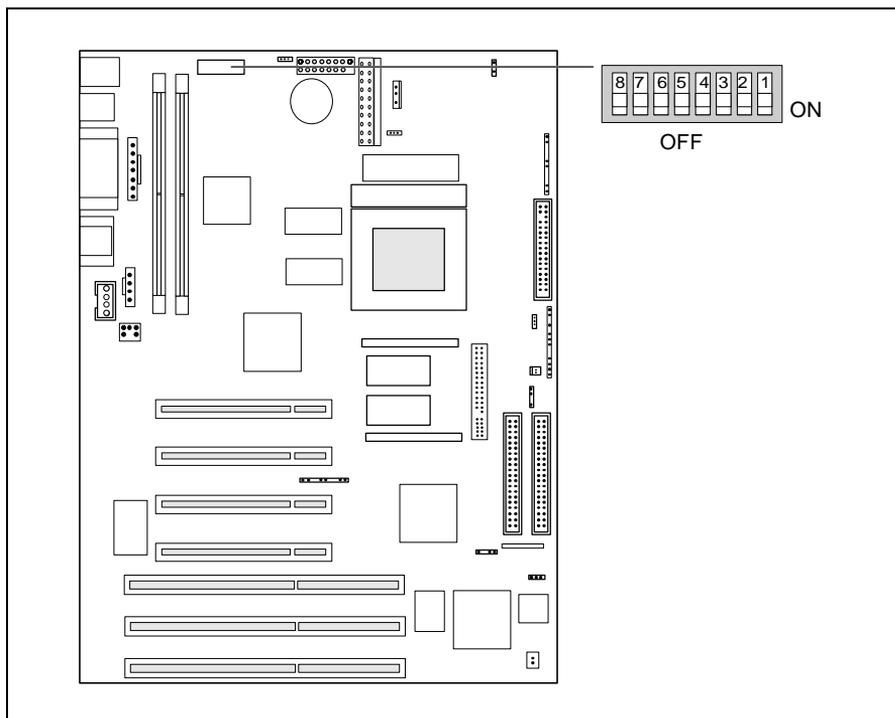
"Possible DMA" = these DMAs can be used for your particular application



MPU 401: If you want to use external MIDI devices (for example a MIDI keyboard), you must assign an interrupt for the MPU 401 (MIDI interface). Detailed information is provided in the audio documentation on the driver and utility CD.

Please note that a resource cannot be used by two applications at the same time.

Settings with switch block



Switch 1, 2, 3 and 4 = clock speed
Switch 5 = write-protection for system BIOS
Switch 6 = must be set to *off*

Switch 7 = reserved
Switch 8 = write protection for floppy disk drive

Clock speed - switch 1, 2, 3 and 4



The switches may only be set as specified in the table below for the particular processor used.

processor	switch 1	switch 2	switch 3	switch 4
166 MHz	on	off	on	on
200 MHz	on	off	off	on
233 MHz	on	off	off	off
Reserved	off	off	off	off

Recovering System BIOS - switch 5

Switch 5 enables recovery of the old system BIOS after an attempt to update has failed. Memory bank 1 must be populated in order to be able to restore the system BIOS. To restore the old BIOS you need a Flash BIOS Diskette (call customer service).

on The System BIOS executes from floppy drive A: and restores the System BIOS on the system board.

off The System BIOS is started from the system board (default setting).

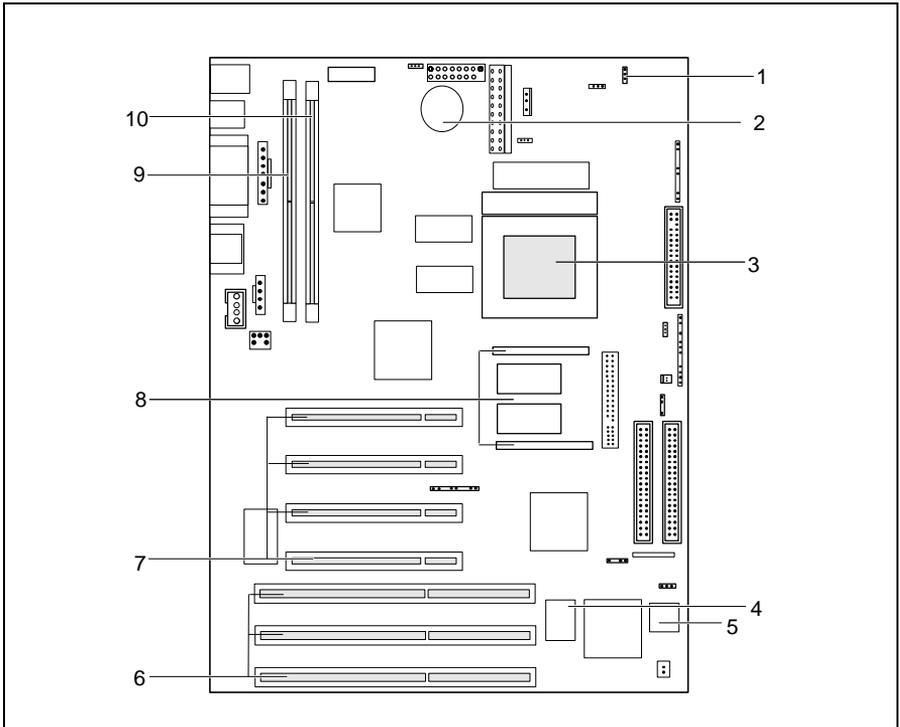
Write-protection for floppy disk drive - switch 8

Switch 8 is used to define whether floppy disks can be written or deleted in the floppy disk drive. To write and delete floppy disks, the write-protection in *BIOS setup* must be disabled (in menu *Security*, the field *Diskette Write* must be set to *Enabled*).

on The floppy disk drive is write-protected.

off Read, write and delete floppy disks is possible (default setting).

Add-on modules



- | | |
|---|---------------------------------------|
| 1 = VCore jumper for processor core voltage | 6 = ISA slots - from below: 1 - 3 |
| 2 = Lithium battery | 7 = PCI slots - from below: 1 - 4) |
| 3 = Processor with heat sink and fan | 8 = Socket for video memory board |
| 4 = Flash BIOS | 9 = Locations bank 1 for main memory |
| 5 = Socket for wavetable chip | 10 = Locations bank 2 for main memory |

The connectors marked do not have to be present on the system board.



Modules can become very hot during operation. Make sure you do not touch modules when adding components to the system board. There is a danger of burns!



All PCI slots have bus master capability.

It is recommended to equip the PCI slots in the following order: first slot 4, followed by slot 3, followed by slot 2, and finally slot 1.

If you have equipped all the PCI slots and are working with the busmaster-compatible onboard VGA controller, you should respond to problems by deactivating the busmaster capability of the VGA controller in the appropriate drivers of the operating system.

You will find the relevant menu item, e.g. with Windows 95 under *Start - Settings - Control Panel - Display - tab Settings - PowerDesk Settings - Performance*: there must then be no tick in the box next to *Use Bus Mastering*.

Further information is provided in the online help of the VGA driver.

Upgrading main memory

Two locations (bank 1 and bank 2) are available on the system board for installing memory modules. DIMM modules (dual inline memory module) are used.

A maximum of 256 Mbytes of SDRAM memory modules may be installed. SDRAM memory modules can be mixed.



You may only use unbuffered 3.3V modules. Buffered modules are not permitted.

You can only use 66 MHz or faster SDRAM memory modules!

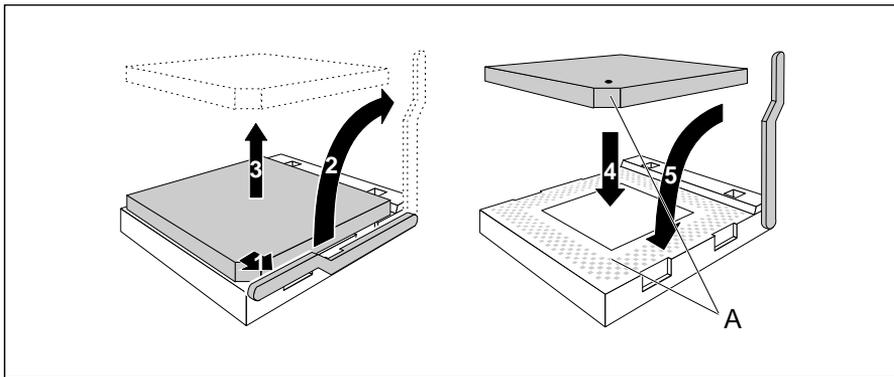
Installing memory modules

- ▶ Flip the retainers to the left and right of the location outward.
- ▶ Insert the memory module into the appropriate location.
- ▶ Press the lateral holders until they snap in place.
- ▶ Press the lateral holders firmly against the location.

Removing a memory module

- ▶ Flip the holders to the right and left of the location outwards.
- ▶ Pull the memory module out of its location.

Replacing the processor



- ▶ Push the lever in the direction of the arrow (1) and lift it as far as it will go (2).
- ▶ Remove the old processor from the socket (3).
- ▶ Insert the new processor in the socket so that the mark on the upper side of the processor matches the mark (A) on the socket (4).



The mark on the processor may be covered by a heat sink. In this case let yourself be guided by the marking in the rows of pins on the underside of the processor.

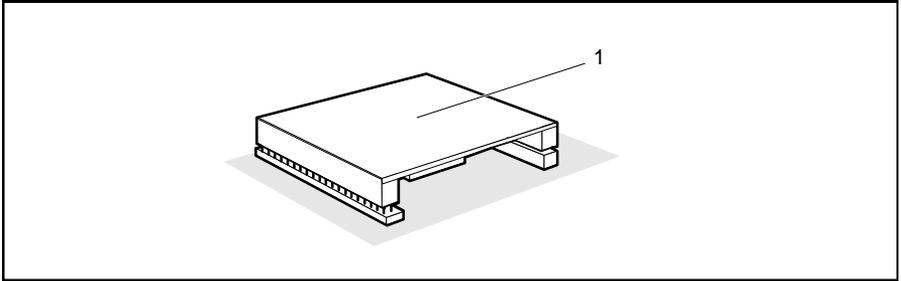
- ▶ Push the lever back down so that it snaps into place.
- ▶ Set the switches 1, 2, 3 and 4 depending on the processor which is installed.

Setting the processor core voltage

Processor type	Jumper VCore
Intel	not inserted
AMD-K6 - 166	connected to 1-2
AMD-K6 - 200	
AMD-K6 - 233	connected to 2-3

Upgrading the video memory

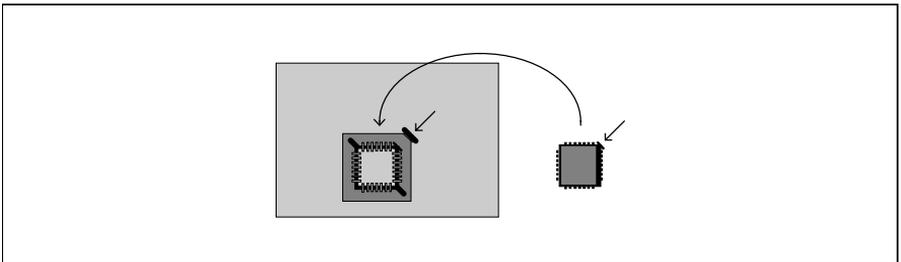
If 2 MB of video memory is installed on the system board, you can increase the video memory to 4 or 8 Mbytes.



Check that the memory extension is correctly aligned before you press it into the base on the system board. The pins on the connector strip must fit exactly into the openings of the female connectors. Otherwise the memory extension might be damaged.

Upgrading the wavetable module

If the system board is prepared for upgrading with a single-chip wavetable module (Crystal CS9236), the upgrade is carried out as shown in the figure.



Replacing the lithium battery

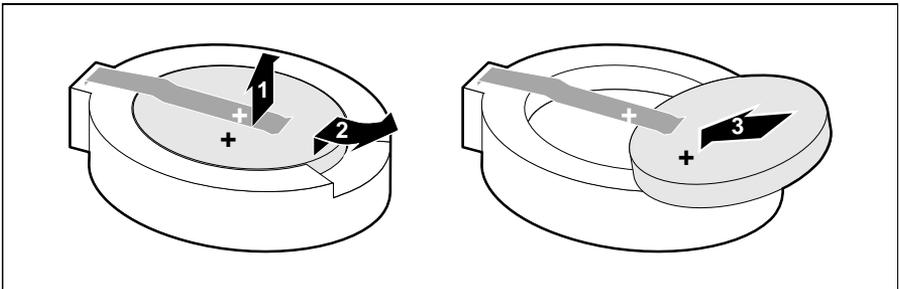


Incorrect replacement of the lithium battery may lead to a risk of explosion.

The lithium battery must be replaced with an identical battery or a battery type recommended by the manufacturer (CR2032).

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

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



- ▶ Lift the contact (1) a few millimeters and remove the battery from its socket (2).
- ▶ Insert a new lithium battery of the same type in the socket (3).