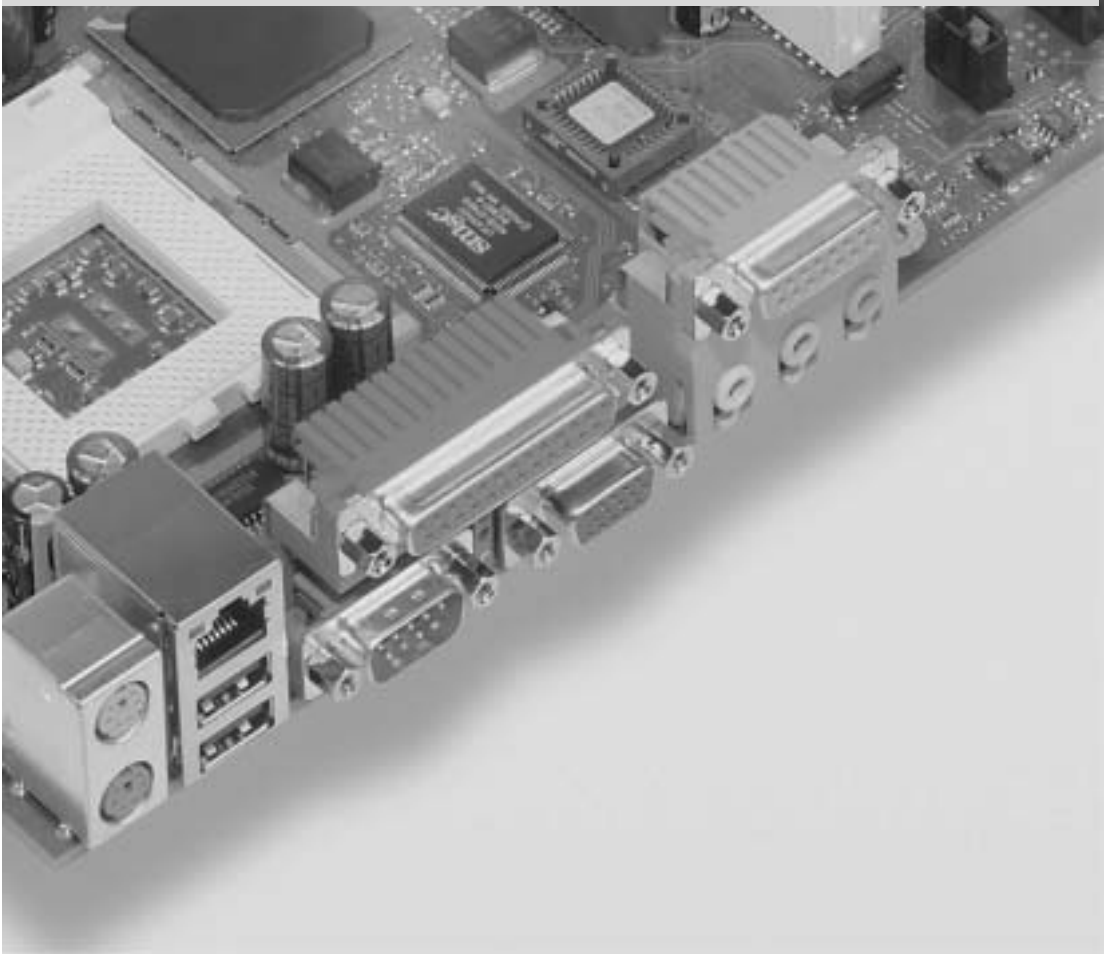


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Systembaugruppe / Systemboard D1214



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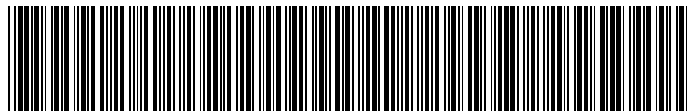
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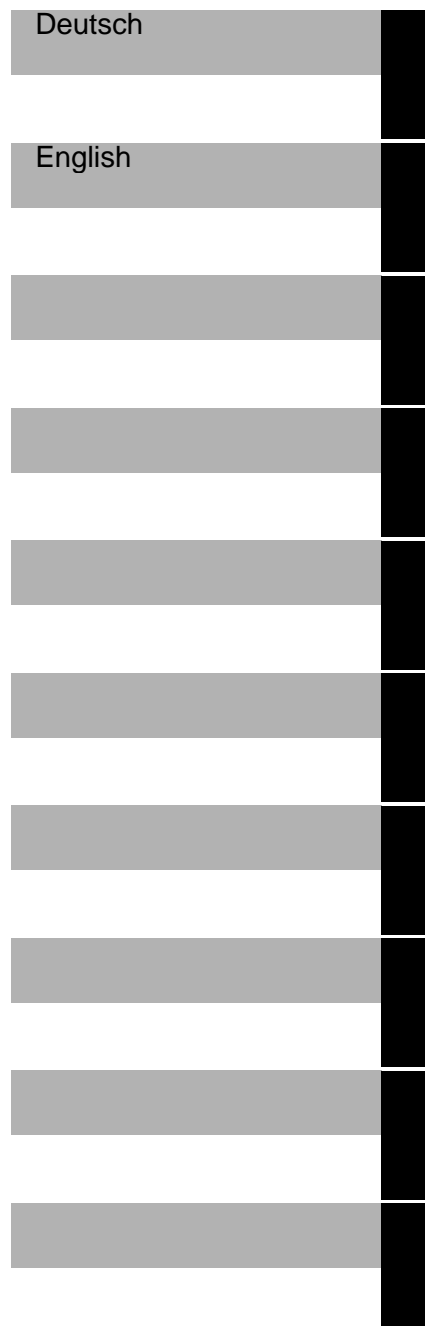
**Systembaugruppe
D1214
System Board D1214**

**Technisches Handbuch
Technical Manual**

**Ausgabe Oktober 2001
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Deutsch

English



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Introduction



Depending on the configuration chosen, some of the hardware components described may not be available on your system board.

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

Further information about drivers is provided in the readme files on the hard disk, on the supplied drivers diskettes, on the "Drivers & Utilities" or on the "ServerStart" CD.

Notational conventions

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



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



Supplementary information, remarks, and tips follow this symbol.

- ▶ Text which follows this symbol describes activities that must be performed in the order shown.
- ␣ This symbol indicates that you must enter a blank space (press the Space Bar) at this point.
- ↵ This symbol indicates that you must press the Enter key.

Text in this typeface indicates screen outputs.

Text in this bold typeface indicates the entries you make via the keyboard.

Text in italics indicates commands or menu items.

"Quotation marks" indicate names of chapters or terms.

Important notes

Store this manual close to the device. If you pass the device on to third parties, you should pass this manual on with it.



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

You cannot access the system board components without first opening the device. How to dismantle and reassemble the device is described in the Operating Manual accompanying the device.

Please observe the safety information provided in the "Important notes" chapter in the device's operating manual.

Incorrect replacement of the lithium battery may lead to a risk of explosion. It is therefore essential to observe the instructions in the "Add-on modules" - "Replacing the lithium battery" section.

Important notes



The shipped version of this board complies with the requirements of the EEC directive 89/336/EEC "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 for the receiving device.

Connecting cables for peripherals must be adequately shielded to avoid interference.



Components can become very hot during operation. Ensure you do not touch components when making extensions to the system board. There is a danger of burns!



The warranty is invalidated 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 outlet or the customer service centre.

Information about boards

To prevent damage to the system board or the components and conductors on it, please take great care when you insert or remove boards. Take great care to ensure that extension boards are slotted in straight, without damaging components or conductors on the system board, or any other components, for example EMI spring contacts.

Be especially careful with the locking mechanisms (catches, centring pins etc.) when you replace the system board or components on it, for example memory modules or processors.

Never use sharp objects (screwdrivers) for leverage.



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

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

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

Features

The components and connectors marked are not necessarily present on the system board.

- System board in μ -ATX format

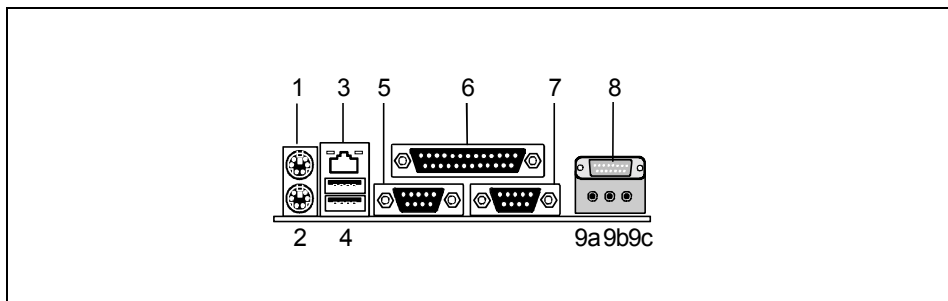
PGA 370 Celeron processor with 66 MHz/100 MHz Front Side Bus for PGA 370 socket and Pentium III with 100 / 133 MHz Front Side Bus for PGA 370 socket. Celeron and Pentium III processors support MMX technology and Intel Streaming SIMD Extensions. The size and frequency of first-level cache and second-level cache are dependent upon the processor used.

- Intel chipset 815 E
consisting of GMCH 82815, ICH 82801BA
- Intel 82559ET LAN controller (10/100 Mbit/s) with RJ45 interface
WOL with Magic Packet™ is supported, as is booting from LAN with Bootix LAN BootP or Intel PXE.
- Analogue Devices AD1885 (AC'97) Audio Codec
internal: Stereo CD-In, Stereo AUX-In
external: Mono Micro-In, Stereo Line-In, Game/Midi port
Stereo Line-out / headphones
- 2 DIMM slots for 32 to 512 Mbyte main memory (SDRAM memory modules meet the PC100/PC133 specification) without ECC
- Flash BIOS
- Power-on functions:
 - Wake on RTC
 - Wake on LAN
 - Wake on PCI Cards
 - Wake on USB
- Energy saving functions:
 - APM and ACPI (requires an operating system that supports ACPI)
 - Switching on/off, standby mode, suspend mode via on/off switch
 - Switching on/off via software
- Security functions:
 - Chipcard reader interface (SmartCard reader)
 - Processor serial number
 - Cover monitoring: cover monitoring reports when the cover has been opened without authorisation.
 - System, Setup and Keyboard password
 - parallel and serial ports can be deactivated
 - Floppy disk write-protection
 - Boot hard disk virus warning function
 - Flash BIOS and EEPROMs (on the memory modules) virus protection function.
- 3 PCI slots
PCI slots support 3.3 V main and auxiliary voltages.
- 1 AGP slot
The AGP slot supports the 1x, 2x and 4x AGP mode and GPA memory boards. The voltage is detected and configured automatically.

Features

- 1 CNR type A slot shared with PCI slot
- IDE hard disk controller connected to PCI bus for up to four IDE drives (e.g. IDE hard disk drives, ATAPI CD-ROM drives)
The IDE hard disk controller are ATA33/66/100, ultra DMA capable and support PIO modes 0-4.
- Floppy disk drive controller (possible formats: 720 KB, 1.44 MB, 2.88 MB)
- The system board supports booting from a 120 MB IDE floppy disk drive.
- 2D/3D graphics processor, 24 bit 230 MHz RAMDAC
GPA memory modules for enhanced 3D graphics performance is supported.
- Monitor connector: Sub D
- 1 external parallel port (ECP- and EPP-compatible)
- 1 external serial port (16C550 compatible with FIFO)
- 1 internal chipcard reader interface (SmartCard reader). This interface can also be used as a second serial port (16C550 compatible with FIFO). This port does not support the ring indicator signal.
- 1 internal WOL interface
- 2 external PS/2 ports for keyboard and mouse
- 2 external USB ports
- 1 internal USB port or 2 internal USB ports
- Real-time clock/calendar with integrated battery backup

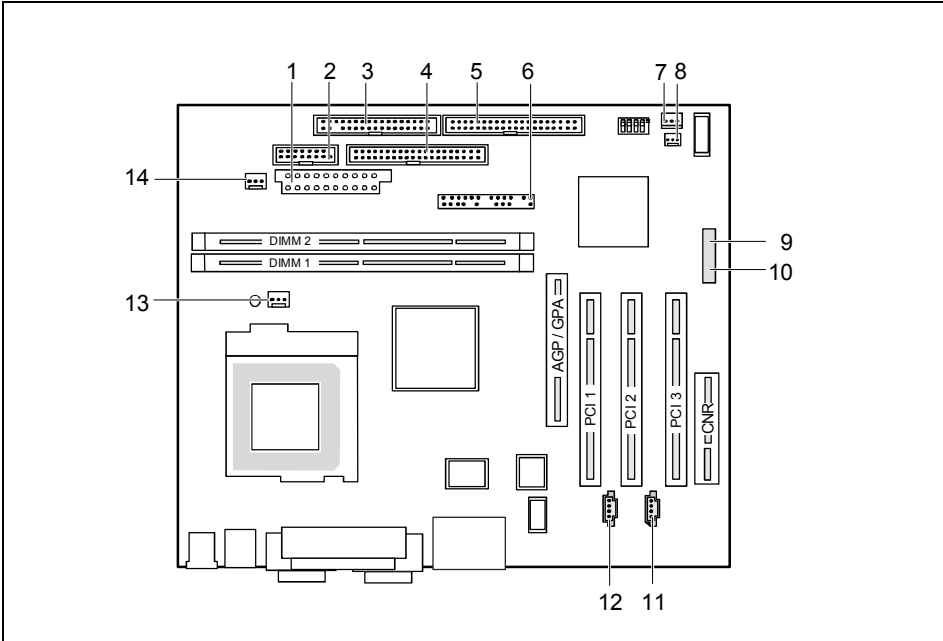
External ports



- | | |
|------------------------|-----------------------|
| 1 = PS/2 mouse port | 7 = VGA port |
| 2 = PS/2 keyboard port | 8 = Game/Midi port |
| 3 = LAN connector | 9a = Audio Line-Out / |
| 4 = USB ports 1 and 2 | Headphones |
| 5 = Serial port 1 | 9b = Audio Line-In |
| 6 = Parallel port | 9c = Audio Micro-In |

The components and connectors marked are not necessarily present on the system board.

Internal ports and connectors



- 1 = Power supply
- 2 = Chipcard reader interface or serial port 2
- 3 = Floppy Disk Drive
- 4 = IDE drives 3 and 4 (secondary)
- 5 = IDE drives 1 and 2 (primary)
- 6 = Connector for control panel and loudspeaker
- 7 = Fan 2 (e.g. for the processor)
- 8 = Wake On LAN
- 9 = USB port 4
- 10 = USB port 3
- 11 = CD audio input
- 12 = AUX audio input
- 13 = Fan 1 (e.g. for the processor)
- 14 = Cover monitoring

The components and connectors marked are not necessarily present on the system board.

Hard disk connection

An ultra ATA/66 or ultra ATA/100 hard disk must be connected with a cable especially designed for the ultra ATA/66 or ultra ATA/100 mode.

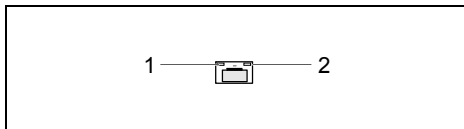
- ▶ Connect the end of the cable marked with blue to the system board.

LAN connector

This system board has an optional Intel 82550™ LAN controller which supports transfer speeds of 10 Mbit/s and 100 Mbit/s. The LAN controller is equipped with a 3 KB transmission and receiving buffer (FIFO) and supports WOL function through Magic Packet™.

It is also possible to boot a device without its own boot hard disk via LAN. Here Bootix LAN BootP and Intel PXE are supported.

The LAN RJ45 connector is equipped with a yellow and a green LED (light emitting diode).



- 1 = a connection exists (e.g. to a hub).
- 2 = Link Mode: the LAN connection is active.
WOL mode: a Magic Packet™ is being received.

Screen resolution

Depending on the operating system used, the screen resolutions in the following table refer to the system board screen controller.

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.

Screen resolution	Refresh rate (Hz)	Horizontal-rate (kHz) **	Max. number of colours
640x480	60 - 85	31,5 - 43,3	256
640x480	60 - 85	31,5 - 43,3	65 K
640x480	60 - 85	31,5 - 43,3	16.7 M
800x600	60 - 85	35,1 - 53,7	256
800x600	60 - 85	35,1 - 53,7	65 K
800x600	60 - 85	35,1 - 53,7	16.7 M
1024x768	60 - 85	48,8 - 68,7	256
1024x768	60 - 85	48,8 - 68,7	65 K
1024x768	60 - 85	48,8 - 68,7	16.7 M
1024 x 768	60 - 100 ***	48,8 - 68,7	16.7 M
1152x864	60 - 85	54,4 - 76,9	256
1152x864	60 - 85	54,4 - 76,9	65 K
1152x864	60 - 85	54,4 - 76,9	16.7 M
1280x1024	60 - 85	64,0 - 91,1	256
1280x1024	60 - 85	64,0 - 91,1	65 K
1280x1024	60 - 85	64,0 - 91,1	16.7 M
1600x1200	60 - 75	75,0 - 93,8	256

* no 16 colour mode

** Horizontal values tolerance ± 0.3 kHz.

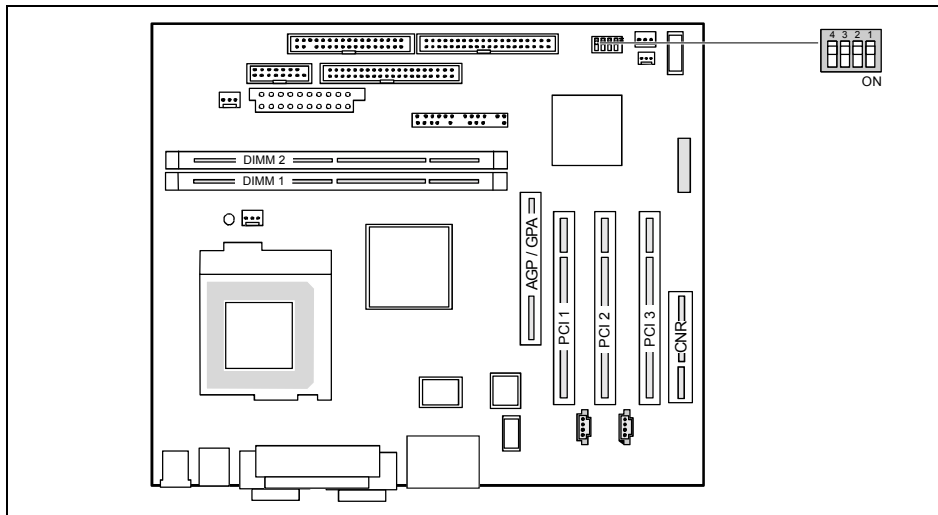
*** depends on the configuration of the system board

PCI bus interrupts

The following table shows which PCI bus interrupts are assigned on the system board.

PCI bus interrupt	Component on system board:
B, C, D, A	PCI bus slot 1
C, D, A, B	PCI bus slot 2
D, A, B, C	PCI bus slot 3
A, B	AGP slot
D	First USB controller
H	Second USB controller
E	LAN controller
A	Graphics processor
B	SMBus
B	AC'97 Audio

Settings with switches and jumpers



Switch 1 = must be set to *off*

Switch 2 = System BIOS recovery

Switch 3 = Write-protection for floppy disk

Switch 4 = must be set to *off*



The clock frequency of the processor is set automatically.

Recovering System BIOS - switch 2

Switch 2 enables recovery of the old system BIOS after an attempt to update has failed. To restore the old system BIOS you need a Flash BIOS Diskette (please call our customer service centre).

On The System BIOS executes from floppy drive A: and the inserted "Flash-BIOS-Diskette" restores the System BIOS on the system board.

Off Normal operation (default setting).

Write protection for floppy disks - switch 3

Switch 3 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*).

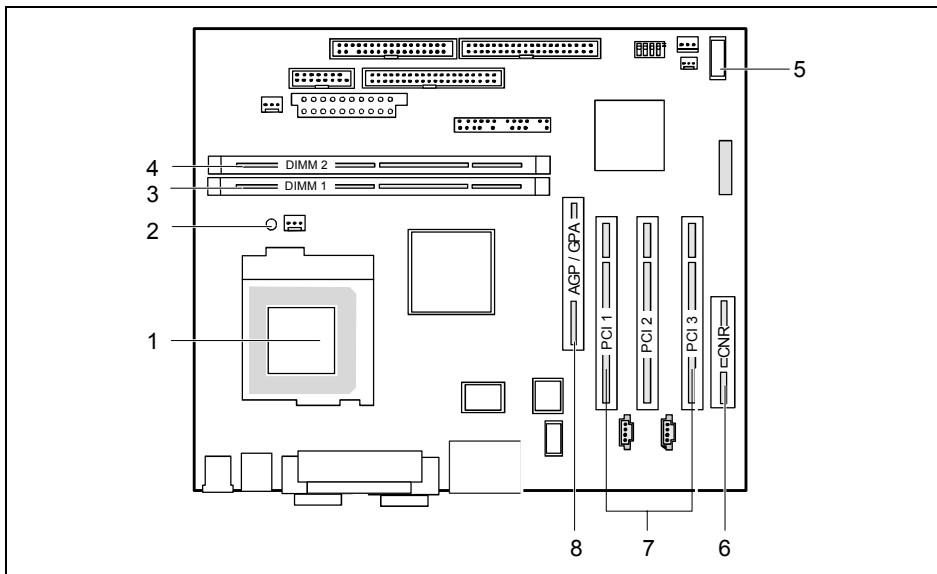
On The floppy disk drive is write-protected.

Off Floppy disks can be read, written and deleted (default setting).

Add-on modules

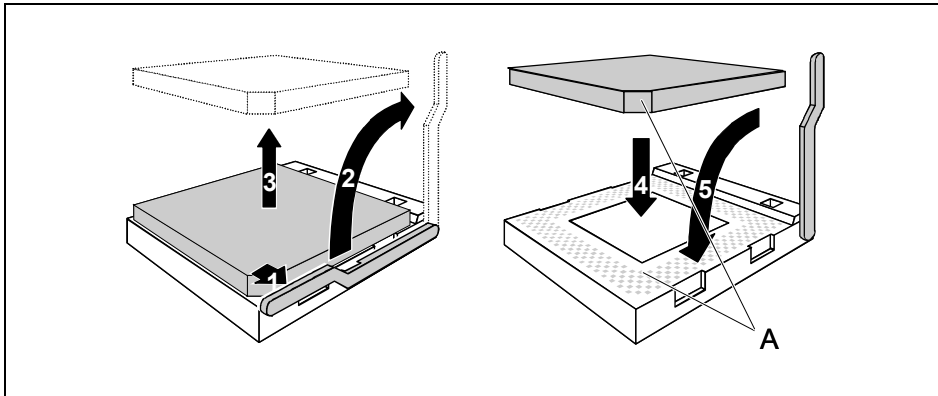


Exit Suspend mode, switch off the device and remove the power plug from the mains supply, before carrying out any of the procedures described in this chapter! Even when you have switched off the device, parts (e.g. memory modules, AGP and PCI extension boards) are still supplied with power. The voltage indicator LED will glow if this is the case.
All AGP and PCI slots support 3.3 V main and auxiliary voltages.



- | | |
|---|-----------------------|
| 1 = Socket for processor with heat sink | 5 = Lithium battery |
| 2 = Voltage indicator LED | 6 = CNR type A slot |
| 3 = Location bank 1 for main memory | 7 = PCI slots 1, 2, 3 |
| 4 = Location bank 2 for main memory | 8 = AGP slot |

Installing and removing processors



- ▶ Pull 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 angled corner of the processor matches the coding on the socket (A) with regard to the position (4).



The angled corner of the processor may be covered by the 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 until it clicks into place (5).

Upgrading main memory

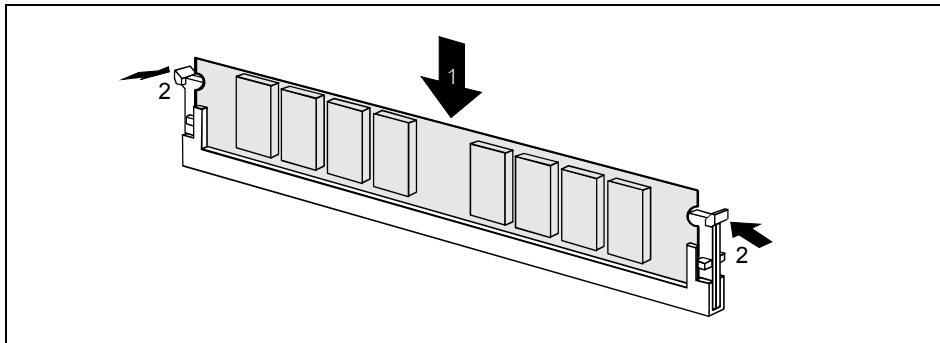
These slots are suitable for DIMM format 16, 32, 64, 128 and 256 Mbyte SDRAM memory modules. Memory modules with different memory capacities can be combined.



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

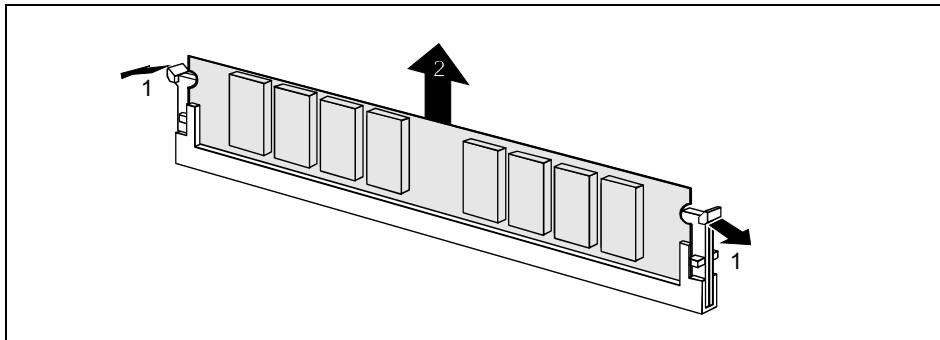
SDRAM memory modules must meet the PC100/PC133 specification. If PC133 memory modules are used, only 2 single sided or 2 double sided memory modules are supported.

Installing a memory module



- ▶ Push the holders on each side of the memory compartment outwards.
- ▶ Insert the memory module into the location (1).
- ▶ At the same time flip the lateral holders upwards until the memory module snaps in place (2).

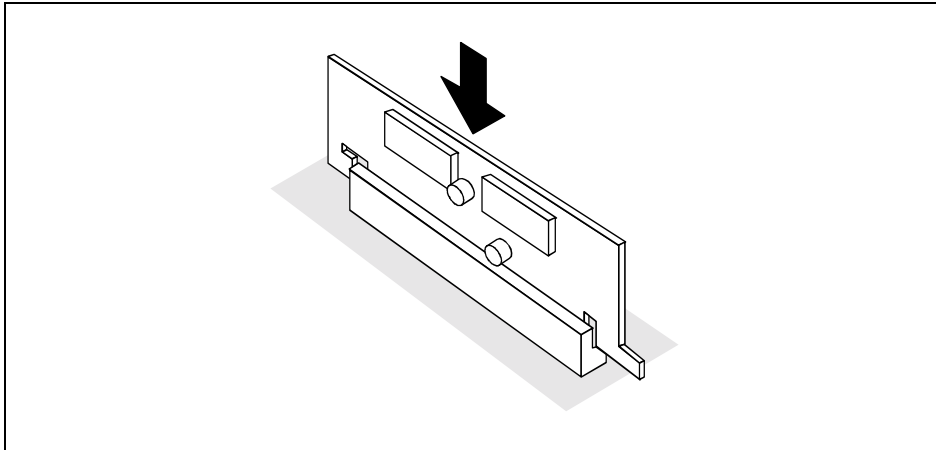
Removing a memory module



- ▶ Push the clips on the right and left of the compartment outward (1).
- ▶ Carefully remove the memory module from the compartment (2).

Upgrading an AGP screen controller or the GPA memory

AGP screen controllers with 1x, 2x and 4x AGP modes are supported. The GPA memory improves the speed of the screen controller on the system board with 3D applications.



- ▶ Insert the memory module into the AGP slot (1)

Installing network board with WOL

- ▶ Install the network board as described in the operating manual for your unit.
- ▶ Push the WOL cable onto the WOL plug connector of the system board.



To use the WOL functionality of a network board the power supply must provide a 5 V auxiliary voltage of at least 1 A. If the system board was not already incorporated in a device when you bought it you must check whether your power supply can provide the auxiliary voltage.

You may find further information in the supplied description of the network board.

Replacing the lithium battery



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

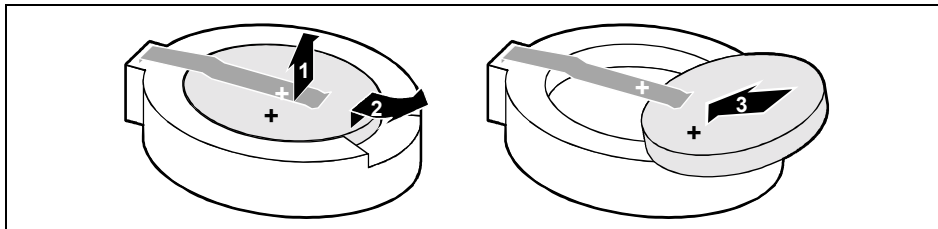
The lithium battery must be replaced with an identical battery or a battery type recommended by the manufacturer (CR2032).

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

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

- **VAROITUS**
Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.
- **VARNING**
Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.
- **ADVARSEL**
Lithiumbatteri - Explosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Lever det brugte batteri tilbage til leverandøren.
- **ADVARSEL**
Explosionsfare ved feilaktig skifte av batteri. Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten. Brukte batterier kasseres i henhold til fabrikantens instruksjoner.

The following graphic representation is also valid if the lithium battery is built-in vertically.



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

Glossary

The technical terms and abbreviations given below represent only a selection of the full list of common technical terms and abbreviations.

Not all technical terms and abbreviations listed here are valid for the described system board.

ACPI	Advanced Configuration and Power Management Interface	IPSEC	Internet Protocol Security
AC'97	Audio Codec '97	ISA	Industrial Standard Architecture
AGP	Accelerated Graphics Port	LAN	Local Area Network
AMR	Audio Modem Riser	LSA	LAN Desk Service Agent
AOL	Alert On LAN	MCH	Memory Controller Hub
APM	Advanced Power Management	MMX	MultiMedia eXtension
ATA	Advanced Technology Attachment	NIC	Networking Interface Card
BIOS	Basic Input Output System	P64H	PCI64 Hub
CAN	Controller Area Network	PCI	Peripheral Component Interconnect
CPU	Central Processing Unit	PXE	Preboot eXecution Environment
CNR	Communication Network Riser	RAM	Random Access Memory
C-RIMM	Continuity Rambus Inline Memory Module	RAMDAC	Random Access Memory Digital Analogue Converter
DDR	Double Data Rate	RDRAM	Rambus Dynamic Random Access Memory
DIMM	Dual Inline Memory Module	RIMM	Rambus Inline Memory Module
DRAM	Dynamic Random Access Memory	RTC	Real Time Clock
ECC	Error Correcting Code	SB	Soundblaster
EEPROM	Electrical Erasable Programmable Read Only Memory	SDRAM	Synchronous Dynamic Random Access Memory
FDC	Floppy Disk Controller	SGRAM	Synchronous Graphic Random Access Memory
FIFO	First-In First-Out	SIMD	Streaming Mode Instruction (Single Instruction Multiple Data)
FSB	Front Side Bus	SMBus	System Management Bus
FWH	Firmware Hub	SVGA	Super Video Graphic Adapter
GMCH	Graphics and Memory Controller Hub	USB	Universal Serial Bus
GPA	Graphics Performance Accelerator	VGA	Video Graphic Adapter
I ² C	Inter Integrated Circuit	WOL	Wake On LAN
IAPC	Instantly Available Power Managed Desktop PC Design		
ICH	I/O Controller Hub		
IDE	Intelligent Drive Electronics		