



System board D1111

Technical Manual

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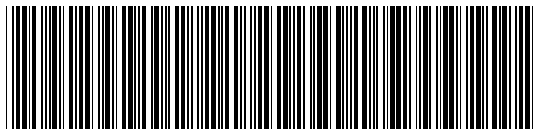
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Introduction

This Technical Manual describes the system board D1111, which can be equipped with up to four Intel Xeon processors.



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 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" or "ServerStart" 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.



Supplementary information, remarks and tips follow this symbol.

- ▶ 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.

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

Texts in italics indicate commands or menu items.

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

Important notes



Pay attention to the information provided in the manual "Safety, Guarantee and Ergonomics" and to the following notes. Be sure to read this page carefully and note the information before you open the device.

- Store this manual close to the device. If you pass on the device to third parties, you should also pass on this manual.
- You cannot access the components of the system board without first opening the device. How to dismantle and reassemble the device is described in the Operating Manual accompanying the device.
- Please note the information provided in the chapter "Safety" in the Operating Manual of the device.
- 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.
-
- Connecting cables for peripherals must be adequately insulated to avoid interference.
- Components can become very hot during operation. Make sure you do not touch components when making extensions to the system board. There is a danger of burns!



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

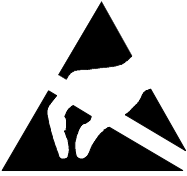
Compliance was tested in a typical PC configuration.

When installing the board, refer to the specific installation information in the Operating Manual or Technical Manual of the receiving device.



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 center.

Notes on installing and removing boards



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

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

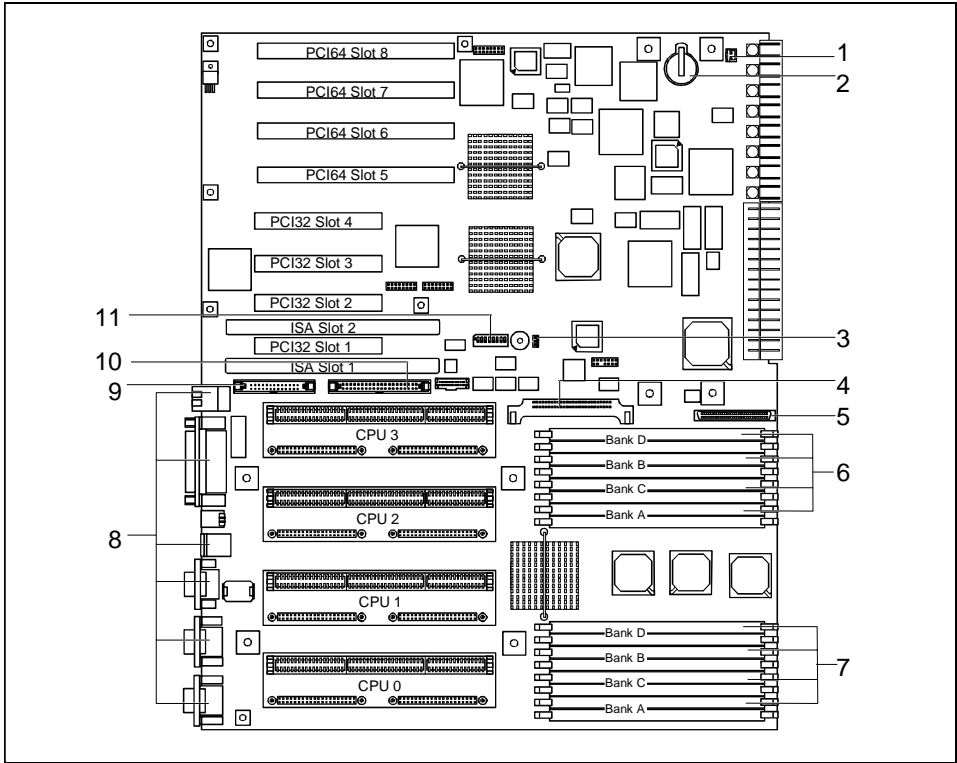
- You must always discharge yourself (e.g. by touching a grounded object) before working.
- The equipment and tools you use must be free of static charges.
- Pull out the power plug before inserting or pulling out boards containing ESDs.
- Always hold boards with ESDs by their edges.
- Never touch pins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

Features

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

- Intel Chipset 82450NX
- Pentium III Xeon with 500 MHz or higher, with 100 MHz Front Side Bus, 512 Kbyte, 1 Mbyte or 2 Mbyte second-level cache
- four processor slots for Pentium III Xeon processors
- 16 DIMM slots (EDO-RAM memory modules)
- four 64 bit hot-plug PCI slots
- two 32 bit hot-plug PCI slots
- two 32 bit PCI slots (both shared)
- two ISA slots (both shared)
- SCSI controller SYM53C896 onboard with 2 x Ultra 2 LVD/SE interfaces and with a transfer rate of max. 80 Mbyte/s
- Cirrus GD5446 screen controller with 2 Mbyte video memory
- Intel i82558 Fast Ethernet LAN controller
- IDE hard disk controller connected to PCI bus
ultra DMA33 mode capable, supports PIO modes 0-4
- one external parallel interface (ECP- and EPP-compatible)
- four external serial ports
- one external and one internal USB port (USB = Universal Serial Bus)
- CAN bus
- two external PS/2 interfaces for keyboard and mouse
- system monitoring

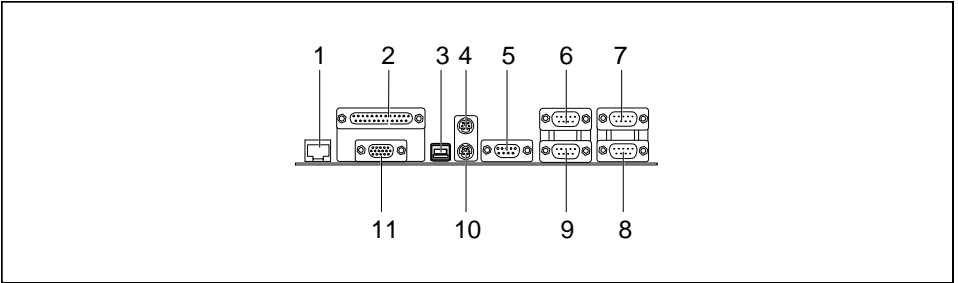
Interfaces and connectors



- | | |
|------------------------------|----------------------------------|
| 1 = Fax connection | 7 = Memory banks A, C, B, D |
| 2 = Lithium battery (CR2032) | 8 = External ports |
| 3 = Wake-On LAN | 9 = Connector for hot plug panel |
| 4 = Voltage regulator | 10 = IDE drive (primary) |
| 5 = SCSI LVD connection | 11 = Switch block |
| 6 = Memory banks A, C, B, D | |

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

External ports



1 = LAN port

2 = Parallel port

3 = USB port

4 = PS/2 mouse port

5 = CAN port

6 = Serial interface COM4 / Chip card reader

7 = Serial port COM2

8 = Serial interface COM1

9 = Serial port COM 3

10 = PS/2 keyboard port

11 = VGA connector



If a chipcard reader is installed, no device may be connected to serial interface 4.
Please use the current driver from the mailbox for the chipcard reader.

ISA bus resources

Device	IRQ	Address	DMA
Keyboard	1		
Serial port COM2	3	03F8, 02F8 , 03E8, 02E8	
Serial interface COM1	4	03F8 , 02F8, 03E8, 02E8	
	5		
Floppy disk drive controller	6		2
Parallel interface LPT1	7	0278, 0378, 03BC	0, 1, 3
Real-time clock (RTC)	8		
free	9, 10, 11		
Mouse controller	12		
Numeric processor	13		
IDE controller	14	1F0-1F7	
free	15		
Serial port COM 3	possible: 15, 12, 11, 10, 9, 7, 6, 5, 4 (shared with COM1), 3	03F8, 02F8, 03E8 , 02E8	
Serial port COM 4	possible: 15, 12, 11, 10, 9, 7, 6, 5, 4, 3 (shared with COM2)	03F8, 02F8, 03E8, 02E8	

"IRQ" = interrupt assigned as shipped

"Address" = this address can be used for your particular device

"Address" = this DMA can be used for your particular device

Default settings are shown in bold print.

PCI bus resources

PCI slots

The following table shows an overview of the PCI slots:

PCI slot	64bit/32bit	Hot plug	Shared	Description
1	32 bit	no	yes	32 bit PCI bus slot
2	32 bit	no	yes	32 bit PCI bus slot
3	32 bit	yes	no	32 bit hot-plug PCI bus slot
4	32 bit	yes	no	32 bit hot-plug PCI bus slot
5	64 bit	yes	no	64 bit hot-plug PCI bus slot
6	64 bit	yes	no	64 bit hot-plug PCI bus slot
7	64 bit	yes	no	64 bit hot-plug PCI bus slot
8	64 bit	yes	no	64 bit hot-plug PCI bus slot

Possible screen resolution

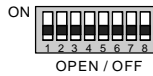
Depending on the operating system used the screen resolutions in the following table refer to the screen controller on the system board. If you are using an external screen controller, you will find details of supported screen resolutions in the Operating Manual or Technical Manual supplied with the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

Screen resolution	Refresh rate (Hz)	Horizontal-rate (kHz) **	Max. number of colors
640x350	70	31,5	16
640x350	84	38	16
640x480	60	31,5	16777216
640x480	75	37,5	16777216
640x480	85	43,4	16777216
640x480	100	50,6	16777216
720x400	70	31,5	16
720x400	84	38	16
800x600	60	38	65536
800x600	60	38	16777216
800x600	72	48	65536
800x600	72	48	16777216
800x600	75	47	65536
800x600	75	47	16777216
800x600	85	53,7	65536
800x600	85	53,7	16777216
800x600	100	63	65536
800x600	100	63	16777216
1024x768	87 interlaced	36	256
1024x768	87 interlaced	36	65536
1024x768	60	48,4	256
1024x768	60	48,4	65536
1024x768	75	60	256
1024x768	75	60	65536
1024x768	85	68,7	256 *
1024x768	100	81	256 *
1280x1024	87 interlaced	49	16
1280x1024	87 interlaced	49	256
1280x1024	60	63,7	256 *
1280x1024	75	80,4	256 *

* no 16 color mode

** The horizontal rate values may have a tolerance range of ± 0.3 kHz.

Settings with switches



Switch 1 to 5 = not used

Switch 6 = Write protection for floppy disks

Switch 7 = Skipping password query

Switch 8 = Recovering system BIOS

Write protection for floppy disks - switch 6

Switch 6 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).

Skipping the password query - switch 7

Switch 7 is used to define whether the password is queried at system startup, if the password protection is enabled in *BIOS Setup* (in *Security* menu, the *Password* field must be set to *Enabled*).

on The password query is skipped.

off The password query is effective (default setting).

Recovering System BIOS - switch 8

Switch 8 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 center).

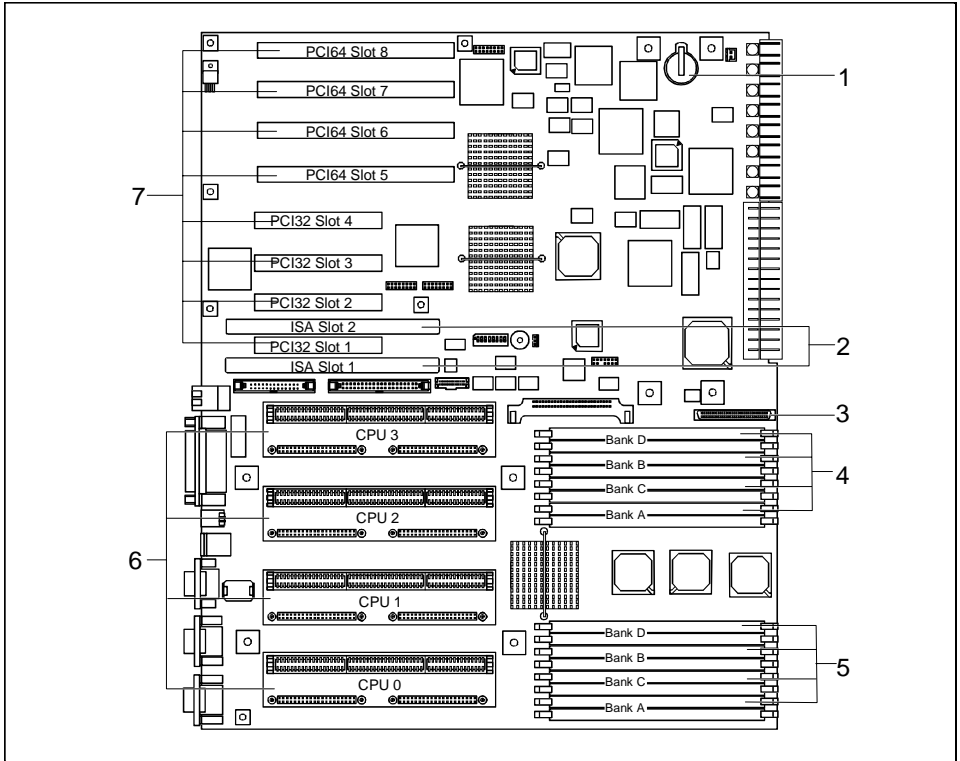
on The system boots from the "Flash BIOS floppy disk" from Drive A and reprograms the system BIOS on the board.

off The system is started with the system BIOS from the board. The system BIOS cannot be reprogrammed (default setting).

Add-on modules



For all steps described in this chapter pull the power plug out of the power outlet!



1 = Lithium battery

2 = ISA slots 1, 2

3 = SCSI LVD connection

4 = Locations for main memory (from bottom to top: 0A, 1A, 0C, 1C, 0B, 1B, 0D, 1D)

5 = Locations for main memory (from bottom to top: 2A, 3A, 2C, 3C, 2B, 3B, 2D, 3D)

6 = Slots for processors

7 = PCI slots 1 to 8



PCI slots support 3.3 V main and auxiliary voltages.

Slot sequence

- An additional screen controller, e.g. Matrox Millennium II PCI, must be inserted into slot 1.
- 64 bit adapters should be inserted into 64 bit slots. Slots 6 and 7 must be used first.

Upgrading main memory

These slots are suitable for 32, 64, 128 and 256 Mbyte EDO-RAM memory modules of the DIMM format. The organization in four memory banks A to D enables fast memory access with four-fold interleave. The board supports a maximum of 4 Gbytes.

Four identical memory modules must be installed per memory bank. Partial equipping of a memory bank is not possible. The equipping sequence of the memory banks is arbitrary.

Every slot has a unique address (e.g. 2B). The letter specifies the memory bank to which the slot belongs, while the digit specifies the number of the slot within the memory bank. 2B therefore designates slot 2 in memory bank B.

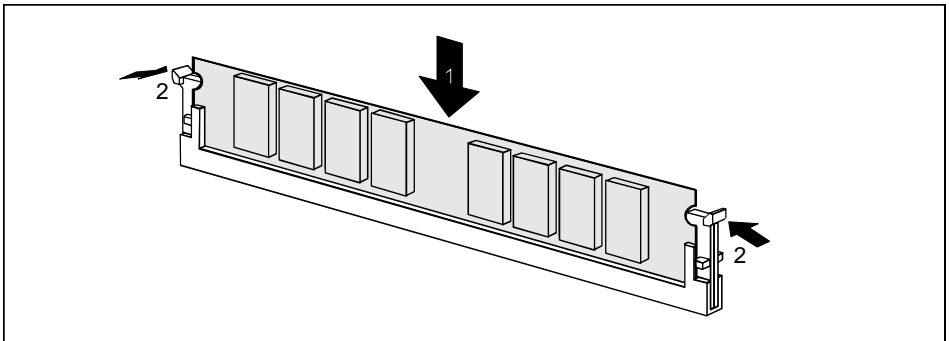
DIMM = Dual Inline Memory Module

EDO-RAM = Extended Data Output Random Access Memory



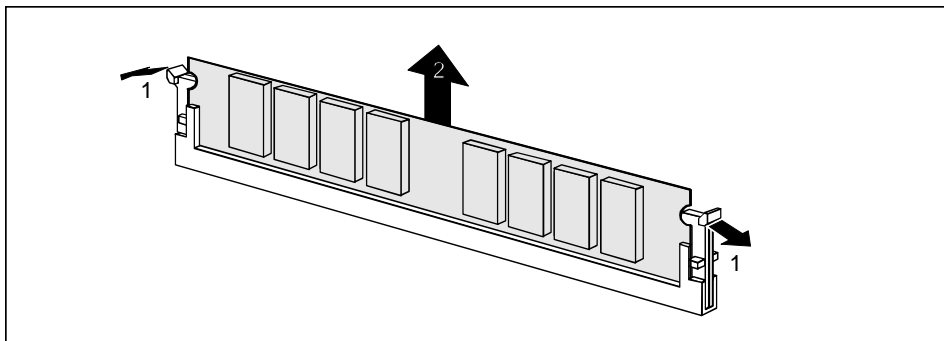
You may only use buffered 3.3V memory modules. Unbuffered memory modules are not permitted.

Installing memory modules



- ▶ Flip the holders on each side of the relevant location outwards.
- ▶ Insert the memory module in the slot while folding the side holders up until the memory module engages (2).

Removing a memory module



- ▶ Flip the holders to the right and left of the location outwards (1).
- ▶ Pull the memory module out of its location (2).

SCSI LVD connection

The SCSI LVD connection leads via a cable to an external standard SCSI connection. This makes it possible to connect external SCSI devices to SCSI channel A of the onboard SCSI controller (see the operating manual).

Replacing the lithium battery

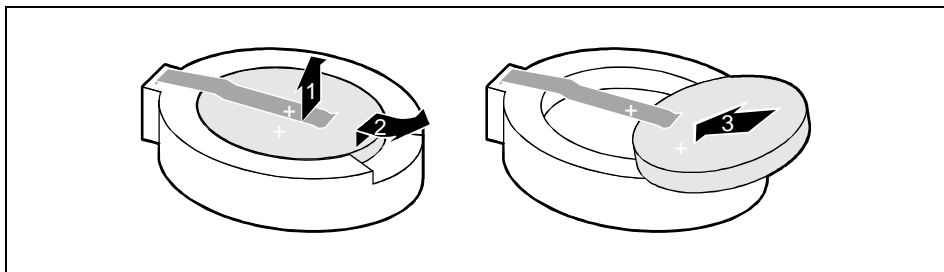


Incorrect replacement of the lithium battery may lead to a risk of explosion.

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).



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