SIEMENS
NIXDORF

System board II

PCD-H

Technical Manual

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PC

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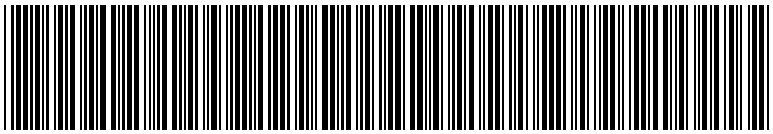

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Technical Manual

May 1994 edition

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Introduction

This description applies for the system board with ISA Bus.

Explanation of symbols

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.

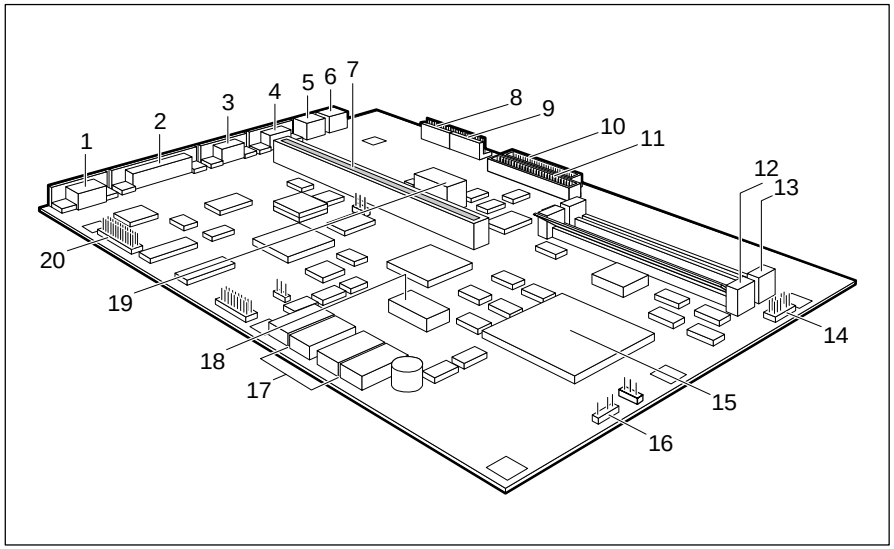
`Texts in this bold typeface` are the entries you make via the keyboard.

Texts in italics indicate commands or menu items.

"Quotation marks" indicate highlighted text and names of chapters.

Features

- 32-bit microprocessor i486 SX/33 MHz (in PGA), i486 DX/33 MHz, i486 DX2/50 MHz or i486 DX2/66 MHz with 8 Kbyte internal cache memory (first level cache)
- Socket for Upgrade with OverDrive processor ODP486/33 MHz or ODPR486/33 MHz
- Memory configuration on system board: 4 Mbyte to 32 Mbyte RAM onboard
- Second level cache memory on the system board: 0 oder 128 Kbyte
- Video memory on the system board: 1 Mbyte
- 114 Byte Setup memory in CMOS RAM
- BIOS can be copied into RAM
- Parts of the main memory can be copied into cache memory
- 128 Kbyte ROM
- Real-time clock/calendar with integrated battery backup
- Loudspeaker
- Floppy disk drive controller (up to 2.88 Mbyte format)
- Hard disk controller for IDE hard disk drives
- VGA controller connected to VESA Local Bus (graphics processor S3 86C805 with Windows accelerator)
- ISA bus interface
- Connector for IDE hard disk drive
- Connector for floppy disk drive
- Connector for external monitor controller
- Connector for external loudspeaker
- Parallel interface
- two serial interfaces
- Mouse interface
- Keyboard port
- Monitor interface



1 = Monitor interface
2 = Parallel interface
3 = Serial interface (Ser 2)
4 = Serial interface (Ser 1)
5 = Mouse interface (bus mouse)
6 = Keyboard port
7 = ISA Bus interface
8 = Connector X250 for power supply
9 = Connector X251 for power supply
10 = Connector X191 for floppy disk drive
11 = Connector X100 for IDE hard disk drive
12 = Socket X150 for main memory Bank 0
13 = Socket X151 for main memory Bank 1
14 = Connector X258 for indicator
15 = Socket D30 for processor
16 = Connector X255 for external loudspeaker
17 = Second level cache memory (D120, D130 to D133)
18 = Lithium battery with connector
19 = Connector X90 for external monitor controller (VESA VGA Pass Through)

Possible screen resolution

The screen resolutions in the following table refer to the VGA controller on the system board.

If you are using an external CRT controller, you will find the possible screen resolution in the Operating Manual of the CRT controller.

Screen resolution	Refresh rate (Hz)	Horizontal-rate (kHz)	Max. number of colours
640x350	70	31,4	16
640x350	84	37,8	16
640x480	60	31,5	16777160
640x480	73	37,9	65536
640x480	90	48	65536
720x400	70	31,4	16
720x400	84	37,8	16
800x600	56	35,4	65536
800x600	57	36,1	65536
800x600	60	37,8	65536
800x600	60	39	65536
800x600	72	48	256
800x600	75	49,5	256
800x600	90	60,3	256
1024x768	43,5 (interl.)	35,5	256
1024x768	60	49	256
1024x768	70	56,6	256
1024x768	75	60,1	256
1280x1024	43,5 (interl.)	49	16
1280x1024	60	63,6	16

The screen resolution depends on the connected monitor.

You may set only those resolutions and refresh rates specified in the "Technical data" section of the monitor description. Otherwise you may damage your monitor. If you are in any doubt, contact your sales office or customer service.

You can use the *WDSETUP* program (under MS-Windows) or the *SET-VGA* program (under MS-DOS) to set the screen resolution. Detailed information is provided under MS-Windows in the file *VGA.WRI*.

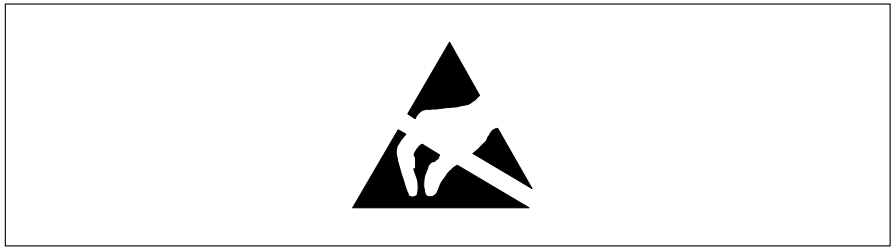
Important notes

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

The lithium battery on the board may only be replaced by specialist technicians. There is a danger of explosion if this is not done properly.
The lithium battery must be replaced with an identical battery or a battery type recommended by the manufacturer.
The lithium battery must be disposed of in accordance with local regulations on the disposal of special refuse.

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

Modules with **e**lectrostatic **s**ensitive **d**evices (ESD) may be identified by labels.



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

– When you handle modules fitted with ESDs, 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 modules containing ESDs.

– Always hold modules with ESDs by their edges.

– Never touch pins or conductors on modules fitted with ESDs.

Notes on software

Program with time loops

Problems can occur with programs in which time loops have been implemented through software loops. This applies in particular to older programs which were written for 8 MHz processors.

SCO-UNIX on devices with processor i486 DX2 or OverDrive

If you upgrade the system board by adding a processor mentioned above, please note the following:
If you use the processor mentioned above, the Adaptec-SCSI controller cannot be addressed under SCO-UNIX 3.2.4 and ODT 2.0.

To solve this problem, you can order from SCO a set of **SLS (Support Level Supplement) floppies** (consisting of 3 floppy disks) under the number **uod361**, free of charge, or contact SNI's spare parts service.

The problem no longer exists in the new releases of SCO-UNIX 3.2.4.2 and ODT 2.1.

There will be no support for older versions (SCO-UNIX versions lower than 3.2.4 and ODT versions lower than 2.0).

Setup menu

```
                          CMOS Setup
                     System Configuration
-------------------------------------------------------------------------------

Time (hh:mm:ss)   08:38:27               Date (mm/dd/yyyy)   07/26/1993

Diskette A:       1.4M
Diskette B:       NONE
                            Cyl    Hd   Pre    LZ   Sec   Mbyte
Hard Disk 1:      48            904    8   NONE   904   46     162
Hard Disk 2:      NONE

Base Memory:      640K                 Video Display:    EGA/VGA
Extended Memory:  3072K                Math Coprocessor: YES
Speed Select:     HIGH

ERROR HALT:       HALT ON ALL ERRORS



-------------------------------------------------------------------------------

<F1> Help         <F8> System info    <F10> Store CMOS  <Esc> Exit  Page
<...> Edit field  <↑↓←→> Next field  <PgUp> Next page  <Ctrl> ...   01
```

Example of the first screen page of a setup menu

```
                          CMOS Setup
                    System Security Options
-------------------------------------------------------------------------------

Time (hh:mm:ss)   08:38:27               Date (mm/dd/yyyy)   07/26/1993

System Load:          STANDARD
Security Features:    DISABLED

Serial 1:      COM1 (3F8h)          Diskette Write:   ENABLED
Serial 2:      COM2 (2F8h)          Diskette Ctrlr:   ENABLED

Parallel:      LPT1 (378h)          HD Ctrlr Mode:    STANDARD
Par Mode:      PRINTER              HD Power Down:    DISABLED
                                    Hard Disk Ctrlr:  ENABLED

Soft Power Off:   DISABLED


-------------------------------------------------------------------------------

<F1> Help         <F8> System info    <F10> Store CMOS  <Esc> Exit  Page
<...> Edit field  <↑↓←→> Next field  <PgUp> Next page  <Ctrl> ...   02
```

Example of the second screen page of a setup menu


```
                          CMOS Setup
                  Additional System Options
-------------------------------------------------------------------------------

Time (hh:mm:ss)   08:38:27               Date (mm/dd/yyyy)   07/26/1993

System BIOS:                64K

Shadow BIOS ROM:            SYSTEM AND VIDEO BIOS
                            C800  CC00  D000  D400  D800  DC00
Shadow Adaptor ROM:         NO    NO    NO    NO    NO    NO


Cache::                     INTERN AND EXTERN
Cache Shadow RAM::          VIDEO BIOS ONLY
                            C800  CC00  D000  D400  D800  DC00
Cache Adaptor ROM:          NO    NO    NO    NO    NO    NO


-------------------------------------------------------------------------------

<F1> Help         <F8> System info    <F10> Store CMOS  <Esc> Exit  Page
<...> Edit field  <↑↓←→> Next field  <PgUp> Next page  <Ctrl> ...   03
```

Example of the third screen page of a setup menu

Settings in the setup menu

Settings and technical information about the configuration of your PC are displayed in the setup menu. How to call the setup menu and how to change the entries is described in the Operating Manual of the PC. A help text can be obtained for every input field by pressing the F1 function key.

The setup menu consists of the following screen pages:
System Configuration, *System Security Options* and *Additional System Options*.

Entries on the first page of the setup menu

Time
Date

The field *Time* defines the time of the PC, the field *Date* defines the date of the PC. When changing the entries use for *Time* the entry format *hh:mm:ss* (hours:minutes:seconds) and for *Date* the entry format *mm/dd/yy* (month/day/year).

If the fields *DATE* and *TIME* are frequently wrong after you switch off and on again, the battery is dead. Please apply in this case to the customer field service.

Diskette A
Diskette B

These two fields are used to specify what type of drive is installed.
The possible settings are *360K*, *1.2M*, *720K*, *1.4M*, *2.8M* and *NONE*.

Default entry for *Diskette A*:
3 1/2-inch floppy disk drive *1.4M*
Default entry for *Diskette B*: *NONE*

Hard Disk 1
Hard Disk 2

These two fields are used to indicate what type of hard disk is installed.
Possible entries are *1* to *49* and *NONE*.

i If the wrong hard disk type is entered, the system cannot be loaded. An error message like the following appears: No operating system.

The entries for hard disk types *48* and *49* (*cylinders*, *head* etc.) must be keyed in via the keyboard. Examples for manual entries for type 48 (IDE hard disk drives):

Size	Cyl	Hd	Pre	Lz	Sec	Mbyte
120 Mbyte:	**762**	**8**	**0**	**0**	**39**	**116**
170 Mbyte:	**904**	**8**	**0**	**0**	**46**	**162**
210 Mbyte:	**683**	**16**	**0**	**0**	**38**	**202**
340 Mbyte:	**904**	**16**	**0**	**0**	**46**	**324**
520 Mbyte:	**1024**	**16**	**0**	**0**	**63**	**504**

Special entries for the hard disk type:
Default for SCSI hard disk drives: *NONE*
Default for ESDI hard disk drives: *1*

Default entry for *HARD DISK 1*: depends on hard disk installed
Default entry for *HARD DISK 2*: *NONE*

Base Memory

This field indicates the amount of main memory available below 1 Mbyte.

Extended Memory

The field *Extended Memory* indicates the memory area whose address space starts at 1 Mbyte.

Video Display

The type of monitor connected is entered in this field.

Possible entries are *EGA/VGA*, *COLOR 40*, *COLOR 80*, *MONO*.

Default entry: *EGA/VGA*

Math Coprocessor

In this field the system enters whether a coprocessor is installed.

Speed Select

The entry in this field has no effect.

Error Halt

This entry defines whether command execution is to be interrupted if an error is detected during the self-test. Available options are:

HALT ON ALL ERRORS
This means that command execution is interrupted each time an error is detected during the self-test.

NO HALT ON ANY ERRORS
Command execution is not interrupted.

NO KEYBOARD ERROR HALT
Command execution is not interrupted in the event of a keyboard error.

NO DISK ERROR HALT
Command execution is not interrupted in the event of floppy or hard disk errors.

NO KEYBOARD OR DISK HALT
Command execution is not interrupted in the event of keyboard, floppy disk or hard disk errors.

i The default setting should only be changed in special applications.

Default entry: *HALT ON ALL ERRORS*

Entries on the second screen page of the setup menu

Time
Date

The second screen page of the setup menu displays also the time and the date of your PC.

System Load

This entry enables you to inhibit loading of the operating system from floppy disk. The following options are available:

STANDARD
The operating system is loaded from floppy disk and from hard disk.

DISKETTE LOCK
The operating system can only be loaded from the hard disk.

NONSTANDARD
This entry has the same effect as the entry *STANDARD*.

Default entry: *STANDARD*

Security Features

This field allows you to define a password to prevent access to the data in your PC. The following options are available:

DISABLED
No passwords are in effect.

SYSTEM AND SETUP LOCK
The setup menu and operating system are protected by passwords.

SETUP LOCK
The setup menu is protected by a password.

KEYBOARD AND SETUP LOCK
The setup menu is protected and the keyboard and the mouse are locked by passwords.

CHANGE PASSWORD
This option is displayed only if a password has already been defined. It enables you to alter the password.

Default entry: *DISABLED*

Serial 1

The serial interface SER1 can be set here.

Possible settings:

COM1 (3F8h)
The serial interface SER1 is set to addresses 3F8h and IRQ4..

COM3 (3E8h)
The serial interface SER1 is set to addresses 3E8h and IRQ4.

DISABLED
The serial interface SER1 is off.

Default setting: *COM1 (3F8h)*

Serial 2

The serial interface SER2 can be set here.

Possible settings:

COM2 (2F8h)
The serial interface SER2 is set to address 2F8h and IRQ3.

COM4 (2E8h)
The serial interface SER2 is set to address 2E8h and IRQ3.

DISABLED
The serial interface SER2 is off.

Default setting: *COM2 (2F8h)*

Parallel

The parallel interface PAR can be set here.

Possible settings:

LPT1 (378h)
The parallel interface PAR is set to address 378h and IRQ7.

LPT3 (3BCh)
The parallel interface PAR is set to address 3BCh and IRQ7. If you use this setting, the entry in the field *Par Mode* must be set to *PRINTER*.

DISABLED
The parallel interface PAR is off.

Default setting: *LPT1 (378h)*

Par Mode

You can define here the transmission mode of the parallel interface.

Possible settings:

PRINTER
The parallel interface PAR can only send.

BIDIRECTION
Additional software enables the parallel interface PAR to send and receive.

EPP
Enhanced Parallel Port. The enhanced parallel transmission according to EPP is supported.

ECP
Extended Capabilities Port. The fast parallel transmission according to ECP is supported.

EPP AND ECP
The transmission according to EPP and ECP is supported.

Default setting: *PRINTER*

Diskette Write

This field allows you to define whether floppy disks can be written and deleted. The jumper in X180 must be set to 3-12, to write and delete floppy disks.

Possible entries:

ENABLED
Floppy disks can be read, written or deleted.

DISABLED
Floppy disks can be read only.

Default entry: *ENABLED*

Diskette CTRLR

This field allows you to disable the diskette controller on the system board.

Possible entries:

ENABLED
The diskette controller on the system board is on.

DISABLED
The diskette controller on the system board is off.

Default entry: *ENABLED*

HD Ctrlr Mode

With this input field, you can set the transmission speed of the IDE hard disk. If the integral IDE hard disk drive does not support this function, select the *STANDARD* entry.

Possible entries:

STANDARD
Normal transmission speed.

4K BLOCK XFER
High transmission speed.
This setting is supported by most hard disks with a disk buffer of four KBytes or more.

Default entry: *STANDARD*

HD Power Down

In this input field you can set the time after which the motor of the IDE hard disk drive powers down if no access operations are performed.

Possible entries:

DISABLED
The function is disabled.

5 MIN
The hard disk drive motor powers down if no access operations are performed for five minutes.

10 MIN
The hard disk drive motor powers down if no access operations are performed for ten minutes.

15 MIN
The hard disk drive motor powers down if no access operations are performed for fifteen minutes.

Default entry: *DISABLED*

Hard Disk CTRLR

This field allows you to disable the hard disk controller on the system board.
Possible entries:

ENABLED
The IDE hard disk controller on the system board is on.

DISABLED
The IDE hard disk controller on the system board is off.

Default entry: *ENABLED*

Soft Power off

This input field is effective if the system board supports PC power off by means of the SWOFF program.

In this field you can specify if it is possible to power off the PC with the SWOFF program.

Possible entries:

DISABLED
The system unit can be powered off only with the ON/OFF switch.

ENABLED
The system unit can be powered off either with the SWOFF program or with the ON/OFF switch.

Default entry: *DISABLED*

Entries on the third screen page of the SETUP menu

Time
Date

The third screen page of the SETUP menu displays also the time and the date of your PC.

System BIOS

In this input field you can make available a ROM address area of 64 Kbytes for requests via the ISA bus (e. g. SCSI-BIOS).

Possible entries:

64K
The address area E0000H - EFFFFH (64 Kbytes) is available for requests via the ISA bus.
The address area F0000H - FFFFFH (64 Kbytes) is reserved for the system BIOS.

128K
The address area E0000H - FFFFFH (128 Kbytes) is reserved for the system BIOS.

Default entry: *64K*

Shadow BIOS ROM

Part of the operating system (System BIOS) is resident in an EPROM. How fast this part of the program runs is determined by the fairly slow EPROMs. The entry in this field enables you to copy the BIOS to the fast RAM after powering up. This shortens the runtimes of these program sections and enhances PC performance (speed).In the same way you can copy the Video BIOS to the RAM.

Memory areas for the *SHADOW BIOS ROM*:

Function	Memory area used
SYSTEM BIOS ONLY	F0000H - FFFFFH
SYSTEM AND VIDEO BIOS	C0000H - C7FFFH/F0000H - FFFFFH
VIDEO BIOS ONLY	C0000H - C7FFFH

The following entries are possible:

SYSTEM AND VIDEO BIOS
System BIOS and Video BIOS are copied.

SYSTEM BIOS ONLY
System BIOS is copied.

VIDEO BIOS ONLY
Video BIOS is copied.

DISABLED
The function is off.

Default entry: *SYSTEM AND VIDEO BIOS*

Shadow Adaptor ROM

In this input field you can copy ROM parts (16 Kbytes in size) into the faster RAM. This can enhance the performance of your PC.

Possible entries:

NO
The ROM part shown above NO is not copied into RAM.

YES
The ROM part shown above YES is copied into RAM.

Default entry: *NO*

Cache

In this input field, you can determine whether a part of the main memory is mapped in the high-speed cache memory (SRAM). Program runs and data accesses can be executed much more quickly in this way.

The following entries are possible:

INTERN AND EXTERN
You may use this setting only, when second level cache memory is inserted on the system board.
The first level cache memory (in the processor) and the second level cache memory (inserted) can be used

INTERN ONLY
The first level cache memory (in the processor) can be used.

DISABLED
The function is disabled.
Neither the first level cache memory (in the processor) nor the second level cache memory (inserted) can be used.

i If the access time is too short for application programs, you must disable the function.

Default entry: *INTERN AND EXTERN*

Cache Shadow RAM

Condition:
In the *Cache* field, *INTERN AND EXTERN* or *INTERN ONLY* must be set and the selected BIOS must be copied to the RAM with the *Shadow BIOS ROM* function!

With this input field, you can map the *SYSTEM BIOS* and the *VIDEO BIOS* in the cache memory. This enhances PC performance (speed).

Possible entries:

SYSTEM BIOS ONLY
System BIOS is mapped in the cache memory.

VIDEO BIOS ONLY
Video BIOS is mapped in the cache memory.

SYSTEM AND VIDEO BIOS
System BIOS and video BIOS are mapped in the cache memory.

DISABLED
The function is disabled.

Default entry: *VIDEO BIOS ONLY*

Cache Adaptor ROM

Condition:
In the *Cache* field, *INTERN AND EXTERN* or *INTERN ONLY* must be set and the selected BIOS must be copied to the RAM with the *Shadow Adaptor ROM* function!

With this input field, you can map parts of the ROM in the cache memory. This enhances PC performance (speed).

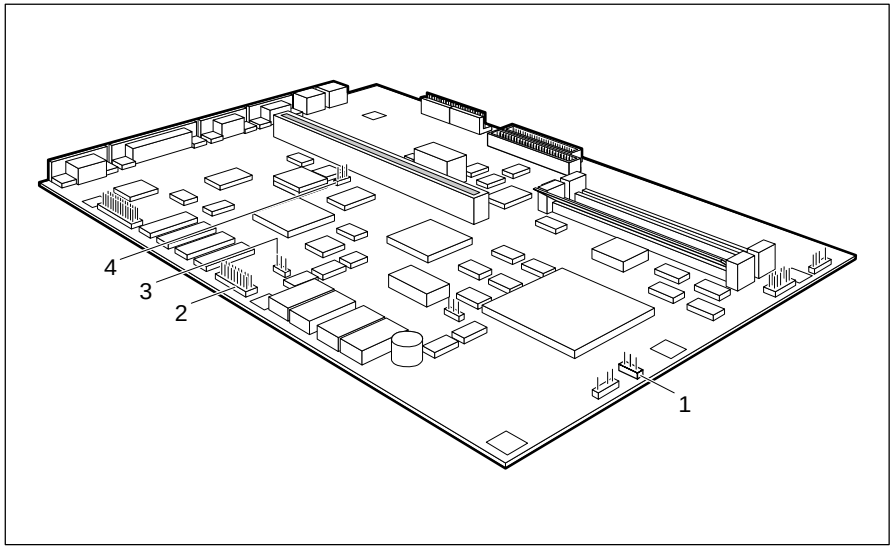
Possible entries:

NO
The ROM part shown above NO is not mapped into cache memory.

YES
The ROM part shown above YES is mapped into cache memory.

Default entry: *NO*

Settings and add-on modules



1 = Jumper X33 for processor type
2 = Jumper block X180
3 = Jumper X71 for connector external CRT controller
4 = Jumper for Interrupt IRQ12

Connector X90 for external CRT controller

You must set jumper X71 depending on whether or not connector X90 is used by the external CRT controller.

Connector X90 is not used = Jumper X71 set to 1-2
Connector X90 is used = Jumper X71 set to 2-3

Default setting:
Jumper X71 set to 1-2 = Connector X90 is not used

Interrupt IRQ12

With the jumper on Pad 40 to Pad 41 you can set the interrupt IRQ12.

IRQ12 used by mouse = jumper set to Pad 40 and Pad 41
IRQ12 not used = jumper not set to Pad 40 and Pad 41

Default setting:
Jumper set to Pad 40 and Pad 41 = IRQ12 used by mouse

VGA controller

You can enable or disable the VGA controller on the system board, by setting the jumper X180 to 1-10

VGA controller enabled = jumper X180 set to 1-10
VGA controller disabled = jumper X180 not inserted in 1-10

Default setting:
Jumper X180 set to 1-10 = VGA controller enabled

Floppy disk drive

You can define whether floppy disks can be written or deleted in the floppy disk drive by setting the jumper X180 to 3-12. To write and delete floppy disks, the field *Diskette Write* in the setup menu must be set to *ENABLED*.

Read, write and delete floppy disks = jumper X180 set to 3-12
Read only floppy disks = jumper X180 not inserted in 3-12

Default setting:
jumper X180 set to 3-12 = floppy disks can be read written and deleted

Primary CRT controller

You can set the primary CRT controller, by setting the jumper X180 to 6-15.

Color CRT controller = jumper X180 set to 6-15
Monochrome CRT controller = jumper X180 not inserted in 6-15

Default setting:
jumper X180 set to 6-15 = Color CRT controller

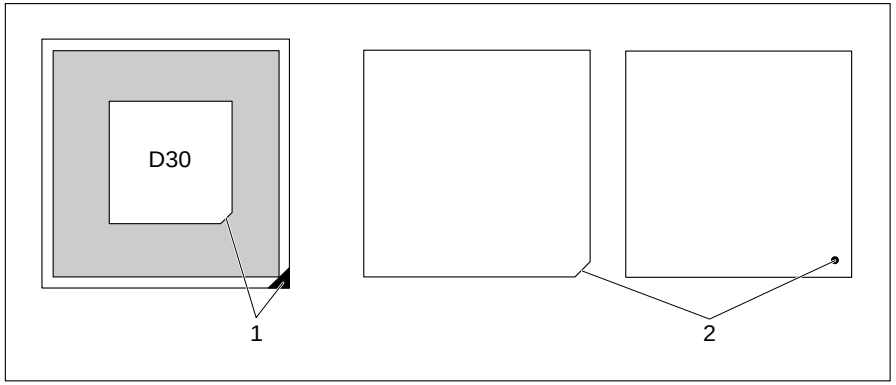
Processor

The jumper X180 8-17 always must be inserted. Depending on the processor type inserted in socket D30, the jumpers X33 and X180 7-16 are inserted differently.

Socket D30	Jumper X33	Jumper X180 7-16
i486 SX, 25 MHz	1-2	---
i486 SX, 33 MHz	1-2	inserted
i486 DX/i486 DX2/OverDrive, 25 MHz / 50 MHz	2-3	---
i486 DX/i486 DX2/OverDrive, 33 MHz/66 MHz	2-3	inserted

--- = not inserted

Upgrading



1 = Mark on the socket 2 = Mark on the top of the processor

- Remove the old processor from the socket.
- Insert the new processor in such a way that the mark on the processor matches the mark on the socket.
- Set the jumpers X33 and X180 7-16 according to the inserted processor.

Main memory

Two locations (X150 and X151) are available on the system board for connecting memory modules. If you want to remove or insert memory modules you have to remove the drive carrier (see "Technical Manual" for the PC).

⚠ You may only use quick memory modules (Access time = 70 nsec or less)!

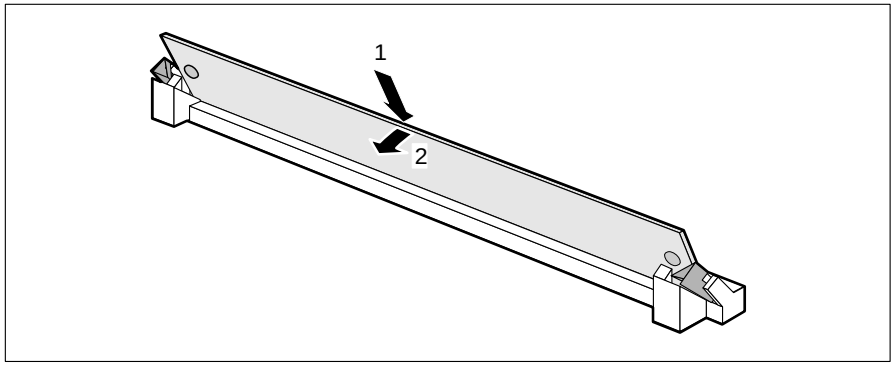
For the memory configuration we recommend the upgrade levels and slots listed in the table .

Memory configuration	memory modules	slots
4 Mbyte	1 of 4 Mbyte	X150
8 Mbyte	2 of 4 Mbyte each	X150 and X151
8 Mbyte	1 of 8 Mbyte	X150
12 Mbyte	1 of 8 Mbyte	X150 and
	1 of 4 Mbyte	X151
16 Mbyte	2 of 8 Mbyte each	X150 and X151
16 Mbyte	1 of 16 Mbyte	X150
24 Mbyte	1 of 16 Mbyte	X150 and
	1 of 8 Mbyte	X151
32 Mbyte	2 of 16 Mbyte each	X150 and X151
32 Mbyte	1 of 32 Mbyte	X150

X150 = Bank 0; X151 = Bank 1;

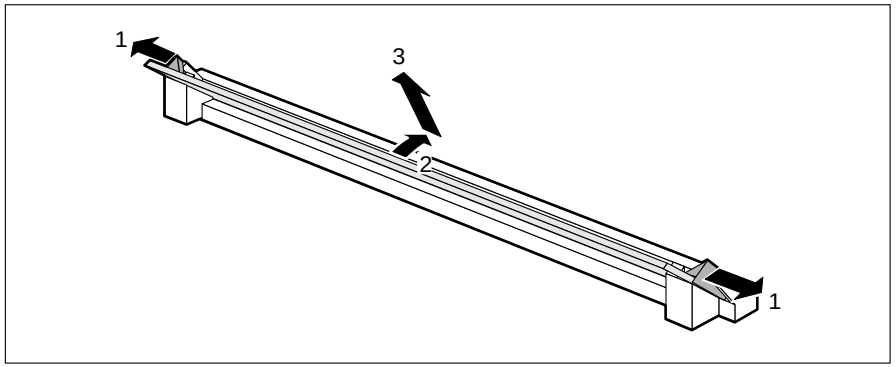
Installing a memory module

If you want to install several memory modules, plug the first memory module into the slot X150 (Bank 0).



- Insert the memory module at an angle into the appropriate slot (1).
  Ensure that the two holes in the memory module line up with the holding pins.
- Tilt the module back until it snaps into place (2).

Removing a memory module



- Force the plastic holders carefully outward at left and right (1).
- Tilt the module forward (2) and pull the module off upward (3).

Second level cache memory

The second level cache memory can be 0 Kbytes or 128 Kbytes in size. There are 5 sockets on the system board (D120, D130 to D133) for incorporating the SRAM components.

You should set the following in the Setup menu in order to be able to use the second level cache memory completely:

– *Shadow BIOS ROM:* *SYSTEM AND VIDEO BIOS*
– *Cache:* *INTERN AND EXTERN*
– *Cache Shadow RAM:* *VIDEO BIOS ONLY*

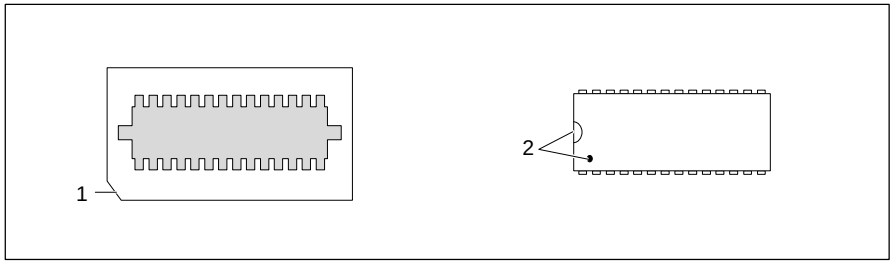
Upgrading

Information on which SRAM components you can use is available from your sales office or the customer service.

You may insert only a SRAM component 32Kbit*9, 15 ns into the socket D120.

You may insert only a SRAM component 32Kbit*8, 20 ns into the sockets D130 to D133.

Note the location of the SRAM chip when you plug in SRAM chip!



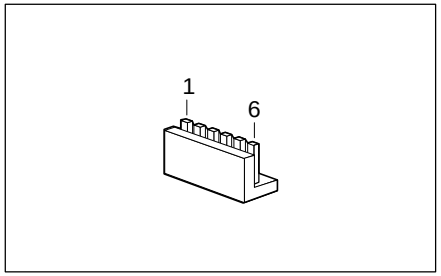
1 = Mark on socket
2 = Mark on the top of the SRAM component

- Insert the SRAM component in such a way that the mark on the SRAM component matches the position of the mark on the socket.
- Set the recommended entries in the Setup menu.

Interface assignment

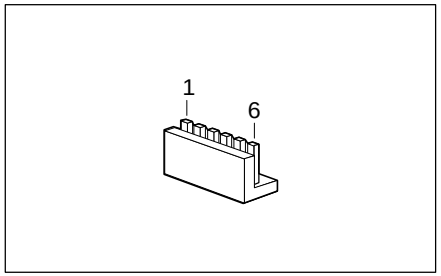
The assignment of the standard interfaces is described in the technical manual of the PC (section "Technical data").

Connector X250 for power supply



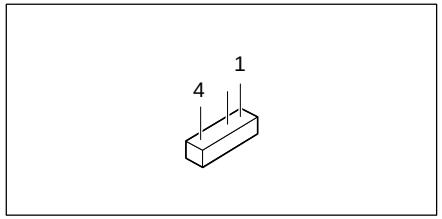
Pin	Meaning
1	Power Good
2	+5V
3	+12 V
4	-12 V
5	0 V
6	0 V

Connector X251 for power supply



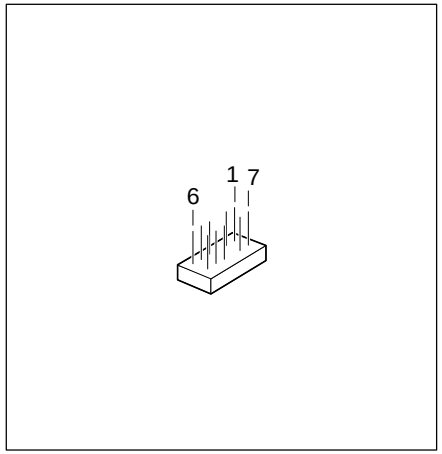
Pin	Meaning
1	0 V
2	0 V
3	-5 V
4	+ 5 V
5	+ 5 V
6	+ 5 V

Connector for external loudspeaker X255



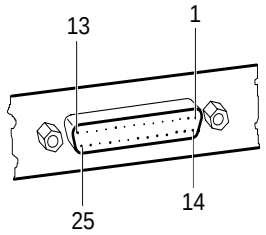
Pin	Meaning
1	+5 V
2	0 V
3	coded
4	external loudspeaker

Connector X258 for indicator



Pin	Signal name
1	System unit ON
2	not used
3	coded
4	not used
5	Reset switch
6	+5 V
7	0 V
8	0 V
9	coded
10	0 V
11	0 V
12	Hard disk drive

Connector X90 for external monitor controller



Pin	Meaning
1	0 V
2	Data 0
3	0 V
4	Data 1
5	0 V
6	Data 2
7	not used
8	Data 3
9	not used
10	Data 4
11	not used
12	Data 5
13	not used

Pin	Meaning
14	Data 6
15	0 V
16	Data 7
17	0 V
18	Clock
19	0 V
20	Blanking
21	0 V
22	Horizontal Sync.
23	not used
24	Vertical Sync.
25	coded
26	0 V

Error messages

This chapter contains the error messages generated by the system board.

`Access Denied - System Halted`
: You have entered an illegal password 3 times. Restart the PC.

`Access to Setup Denied - Press Any Key to Continue`
: You have entered an illegal password 3 times. Press any key.

`CMOS RAM ERROR, CHECK BATTERY/RUN SETUP`
: Check all the entries in the setup menu. If this error occurs each time the PC is powered up, contact your customer field service.

`DISK BOOT FAILURE, INSERT SYSTEM DISK AND PRESS ENTER`
: Insert the operating system floppy disk in the drive and press the Enter key. Check the entries for the floppy and hard disk types in the setup menu.

`DISKETTE DRIVES OR TYPES MISMATCH ERROR - RUN SETUP`
: Check the drive type entered in the *Diskette* field of the setup menu and also the connections for the floppy disk drive.

`ERROR ENCOUNTERED INITIALIZING HARD DRIVE`
: Check the hard disk type entered in the *Hard Disk 1* and *Hard Disk 2* fields of the setup menu and also the connections and jumpers on the hard disk drive.

`ERROR INITIALIZING HARD DISK CONTROLLER`
: Contact your customer field service.

`FLOPPY DISK CNTRLR ERROR OR NO CNTRLR PRESENT`
: Check the entry in the *Diskette* field of the setup menu and also the connections and jumpers on the floppy disk drive.

`Incorrect Password`
: You have entered an illegal password. Enter the password again and press the Enter key.

`IO PARITY ERROR - SYSTEM HALTED`
: Restart your PC. Should the error recur, contact your customer field service.

`KEYBOARD ERROR OR NO KEYBOARD PRESENT`
: Check whether a key is sticking and whether the keyboard is connected correctly.

`MATH COPROCESSOR ADDED/REMOVED - RUN Setup`
: Call up the setup menu and confirm with the F10 and F5 keys the entry in the *COPROCESSOR INSTALLED* field.

`MEMORY PARITY ERROR AT AA:SSSS:OOOO FOUND FFFF EXPECTED EEEE`
: Restart your PC.

`MEMORY SIZE ERROR - RUN SETUP`
: Call up the setup menu and confirm with the F10 and F5 keys the entries in the *Base Memory* and *Extended Memory* fields.

`MEMORY VERIFY ERROR AT AA:SSSS:OOOO FOUND FFFF EXPECTED EEEE`
: Restart your PC.

`Passwords entered do Not Match`
: You have confirmed an illegal password. Enter the password again and press the Enter key.

`RAM PARITY ERROR. CHECKING FOR SEGMENT ADDRESS ...`
`OFFENDING SEGMENT: SSSS`
: Restart your PC.

`RAM PARITY ERROR. CHECKING FOR SEGMENT ADDRESS ...`
`OFFENDING ADDRESS NOT FOUND`
: Restart your PC.

`REAL TIME CLOCK ERROR - RUN SETUP`
: Call up the setup menu and enter the correct time in the *Time* field.

`REFRESH TIMING ERROR`
: Contact your customer field service.

`Security Features Not Changed - Press Any Key to Continue`
: You have confirmed an illegal password 3 times. No password is assigned. Press any key.

`VIDEO EQUIPMENT CONFIGURATION ERROR - RUN SETUP`
: The entry in the *Video Display* field of the setup menu is incorrect. Correct the entry or the jumper for the primary monitor.

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