SIEMENS
NIXDORF

System board

PCD-H, PCD-4LSX

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Technical Manual

A26361-D756-Z120-1-7619

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Technical Manual

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Introduction

This description applies for the system boards with the processors 80486SX, 80486DX and 80486DX2.

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

80486SX

– 32-bit microprocessor 80486SX/25 MHz or 33 MHz with 8 Kbyte internal cache memory (first level cache)

80486DX

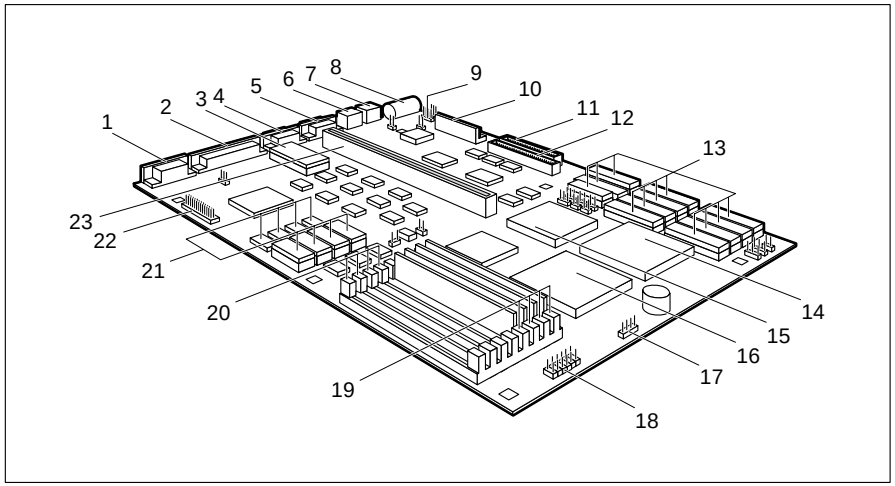
– 32-bit microprocessor 80486DX/25 MHz or 33 MHz with integrated coprocessor and 8 Kbyte internal cache memory (first level cache)

80486DX2

– 32-bit microprocessor 80486DX2/50 MHz or 66 MHz with integrated coprocessor and 8 Kbyte internal cache memory (first level cache)

Common features

– Socket for Upgrade with 80487SX/25 MHz/33 MHz or ODP486/25 MHz/33 MHz
– Socket for 80486SX/33 MHz, 80486DX/25 MHz/33 MHz, 80486DX2/50 MHz/66 MHz or ODPR486/25 MHz/33 MHz
– Memory configuration: 4 Mbyte to 32 Mbyte RAM onboard
– Second level cache memory on the system board: 0 Kbyte, 64 Kbyte or 256 Kbyte
– Video memory on the system board: 1 Mbyte
– 114 Byte Setup memory in CMOS RAM
– 8-bit EPROM (128 Kbyte * 8)
– Real-time clock/calendar with integrated battery backup
– Loudspeaker
– Floppy disk drive controller (up to 1.4 Mbyte format)
– ERGO VGA III controller
– Bus interface
– Connector for IDE hard disk drive
– Connector for floppy disk drive
– Connector for external monitor controller
– Connector for external loudspeaker
– Parallel interface
– 2 serial interfaces
– Mouse interface
– Keyboard port
– Monitor interface



1 = Monitor interface
2 = Parallel interface
3 = EPROM with BIOS
4 = Serial interface (Ser 2)
5 = Serial interface (Ser 1)
6 = Mouse interface
7 = Keyboard port
8 = Lithium battery
9 = Connector for lithium battery
10 = Connector for power supply
11 = Connector for floppy disk drive
12 = Connector for IDE hard disk drive
13 = Slots U48 - U58 for second level cache memory
14 = Socket U1 for 80486SX, 80486DX, 80486DX2 or ODPR486
15 = Solder location U3 for 80486SX
16 = Socket U2 for 80487SX or ODP486
17 = Connector for external loudspeaker
18 = Connector for indicator
19 = Memory bank 0 (J2 bis J5)
20 = Memory bank 1 (J6 bis J9)
21 = Video memory
22 = Connector for external monitor controller
23 = Bus interface

Possible screen resolution

Screen resolution	Refresh rate (Hz)	Horizontal-rate (kHz)	Max. number of colours
640x350	70	31,5	16
640x350 *)	83	39,4	16
640x350	84	37,8	16
640x480	60	31,5	16777160
640x480	72	37,9	65536
640x480 *)	72	39,4	65536
720x400	70	31,5	16
720x400 *)	83	39,4	16
720x400	84	37,8	16
800x600	56	35,2	65536
800x600	60	37,9	65536
800x600	72	48,1	256
800x600	75	49,5	256
1024x768	43,5 (interl.)	35,5	256
1024x768	60	48,3	256
1024x768	70	56	256
1024x768	75	60,2	256
1280x1024	43,5 (interl.)	48	16

*) = overscan

Important notes

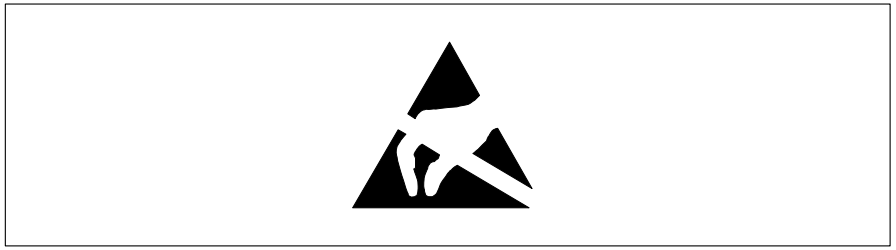
Please note the information provided in the chapter "Safety" in the Operating Manual of the PC.

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 ESDs (**e**lectrostatic **s**ensitive **d**evices) 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 80486DX2/50 MHz/66 MHz processor

If you upgrade the system board by adding an 80486DX2/50 MHz or 80486DX2/66 MHz upgrade processor, please note the following:
If you use the 80486DX2/50 MHz or 80486DX2/66 MHz processors, 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)   02/17/1993

Diskette A:       1.4M
Diskette B:       NONE
                            Cyl    Hd   Pre    LZ   Sec   Mbyte
Hard Disk 1:      48          762    8   NONE  NONE   39     120
Hard Disk 2:      NONE

Base Memory:      640K                  Video Display:    EGA/VGA
Extended Memory:  3072K                 Math Coprocessor: NO
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
                  Additional System Options
-------------------------------------------------------------------------

Time (hh:mm:ss)   08:38:27               Date (mm/dd/yyyy)   02/17/1993

System Load:          STANDARD
Security Features:    DISABLED

Shadow BIOS ROM:      SYSTEM AND VIDEO BIOS
Cache:                WRITE BACK
Cache Shadow RAM:     VIDEO BIOS ONLY


Serial 1:   COM1 (3F8h)           Diskette Write:   ENABLED
Serial 2:   COM2 (2F8h)           Diskette Ctrlr:   ENABLED
Parallel:   LPT1 (378h)           Hard Disk Ctrlr:  ENABLED
Par Mode:   PRINTER               HD Ctrl Mode:     STANDARD


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

<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

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, *Additional System Options* and *System Information*.

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 changinging the entries use for *Time* the enty 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* und *NONE*.

Default entry for *Diskette A*:

3 1/2-inch floppy disk drive	*1.4M*
5 1/4-inch floppy disk drive	*1.2M*

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 (see also chapter "Settings and add-on modules")
Possible entries are *1* to *49* and *NONE*.

If the wrong hard disk type is entered, the system cannot be loaded.

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

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

This entry allows you to define the system speed after system startup.
Possible entries are *HIGH* (e.g. 33 MHz with the 80486DX/33 MHz) or *LOW* (8 MHz).

Default entry: *HIGH*

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.

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 the hard disk.

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

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*

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.

Default entry: *SYSTEM AND VIDEO BIOS*

Cache

If a processor with an internal cache memory is plugged into the system board, the cache input field and the cache memory function are available.

In the 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:

WRITE BACK
The function is switched on (quicker access to the cache memory than with WRITE THROUGH).

WRITE THROUGH
The function is switched on.

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: *WRITE BACK*

Cache Shadow RAM

Condition:
In the cache field, *WRITE BACK* or *WRITE THROUGH* must be set and the selected memory segments must be *copied to the RAM with the Shadow BIOS ROM* function!

With this input field, you can select ROM segments which will be mapped in the cache memory in addition to the main memory segments.

The following entries are possible:

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*

Serial 1
The serial interface SER1 can be set here.

Possible settings: *COM1 (3F8h)*, *COM3 (3E8h)*, *DISABLED*.

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 entry: *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 entry: *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.

DISABLED
The parallel interface PAR is off.

Default entry: *LPT1 (378h)*

Par Mode

You can define here whether the parallel interface PAR can only send, or both send and receive.

Possible settings:

PRINTER
The parallel interface PAR can only send.

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

Default entry: *PRINTER*

Diskette Write

This field allows you to define whether floppy disks can be written and deleted. 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*

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*

HD Ctrl 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.

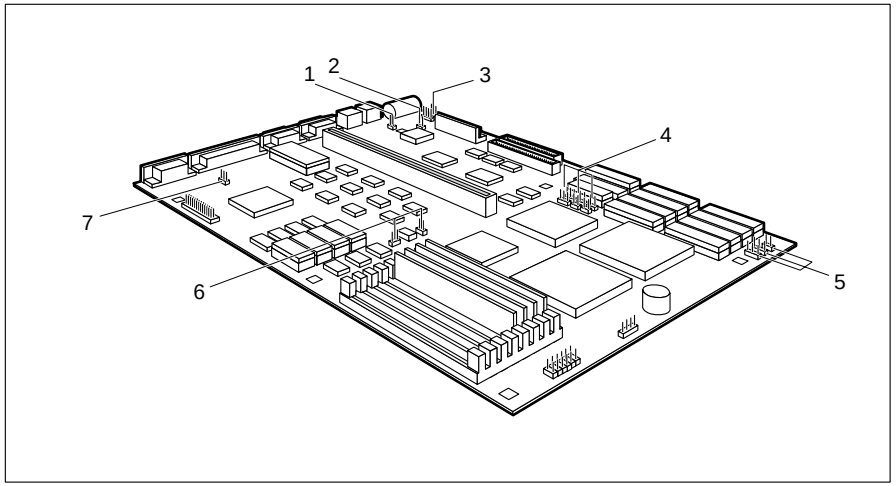
Possible entries:

STANDARD
Normal transmission speed.

IDE HIGH SPEED
High transmission speed.
This setting is supported by most hard disks with a disk buffer of four KBytes or more.

Default entry: *STANDARD*

Settings and add-on modules



1 = U-plug JP11 for mouse port
2 = U-plug JP10 for primary CRT controller
3 = U-plug JP8 for lithium battery
4 = U-plug JP12 - JP17 for second level cache memory
5 = U-plugs JP1 - JP3 for Processor type
6 = U-plugs JP5 and JP6 for system speed
7 = U-plug JP25 for ERGO VGA III controller

Lithium battery on the system board

You can disable the lithium battery on the system board with the JP8 U-plug. If the lithium battery is disabled, the data in the CMOS RAM is deleted.

Lithium battery enabled = U-plug JP8 set to 1-2
Lithium battery disabled = U-plug JP8 set to 2-3

Default setting:
U-plug JP8 set to 1-2 = Lithium battery enabled

Primary CRT controller

If there are two integral screen controllers, set the primary screen controller with the JP10 U-plug.

Monochrome CRT controller = U-plug JP10 not inserted
Color CRT controller = U-plug JP10 inserted

Default setting:
U-plug JP10 inserted = Color CRT controller

Mouse interface and interrupt 12 (IRQ12)

You can switch the mouse interface on or off with the JP10 U-plug. If the mouse interface is switched on, interrupt 12 (IRQ12) is used for the mouse.

Mouse interface and IRQ12 enabled = U-plug JP11 inserted
Mouse interface and IRQ12 disabled = U-plug JP11 not inserted

Default setting:
U-plug JP11 inserted = mouse interface and IRQ12 enabled

ERGO VGA III controller

You can enable or disable the ERGO VGA III controller on the system board with the JP25 U-plug.

ERGO VGA III controller enabled = U-plug JP25 inserted
ERGO VGA III controller disabled = U-plug JP25 not inserted

Default setting:
U-plug JP25 inserted = ERGO VGA III controller enabled

Processor type and processor speed

There are three sockets on the system board for the processor:
– U1 - the processor is inserted
– U2 - the processor is inserted (upgrade)
– U3 - the processor is soldered onto the board

Depending on the processor type used, the U-plugs JP1 to JP3 are inserted differently. Depending on the processor speed, the U-plugs JP5 and JP6 are inserted differently.

Processor type / speed	U-plug assignment of JP1	JP2	JP3	JP5	JP6
80486SX/ 25 (U3)	1-2	2-3	inserted	inserted	---
80486SX/ 33 (U3)	1-2	2-3	inserted	---	inserted
80486SX/ 33 (U1)	---	1-2	---	---	inserted
80486DX/ 33 (U1)	1-2	2-3	inserted	---	inserted
80486DX2/ 50 (U1)	1-2	2-3	inserted	inserted	---
80486DX2/ 66 (U1)	1-2	2-3	inserted	---	inserted

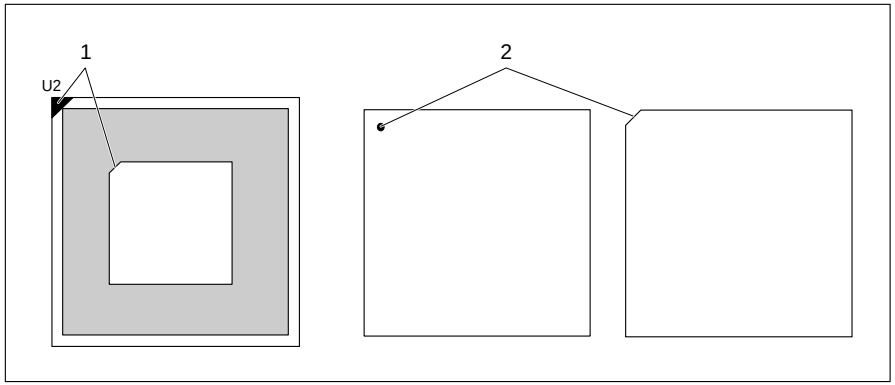
--- = not inserted

Upgrading

You can upgrade the system board by simply plugging in the processor.

Note the mounting location of the chip when you plug in the new processor!

If you upgrade a 33 MHz processor with a coprocessor or OverDrive processor for 25 MHz, you must pull the JP6 U-plug and insert the JP5 U-plug.



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

▶ Insert the new processor in such a way that the mark on the processor matches the mark on the socket.

Upgrading a 80486SX/25

▶ Insert the 80487SX-25 coprocessor or the OPD486-25 OverDrive processor in the U2 socket.

Upgrading a 80486SX/33

▶ Plug the OverDrive processor OPD486-33 into the upgrade socket U2.

Upgrading a 80486DX/33

▶ Plug the OverDrive processor OPD486-33 into the upgrade socket U2.

For other upgrade options, please contact our customer service.

Main memory

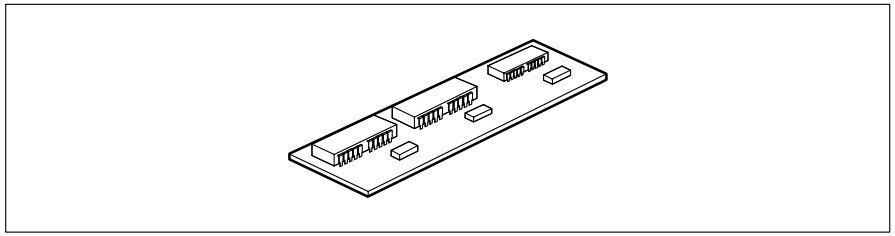
8 locations (J2 to J5 = Bank 0; J6 bis J9 = Bank 1) are available on the system board for connecting memory modules.

⚠ Only the upgrade levels and slots listed in the table are permissible for the memory configuration.

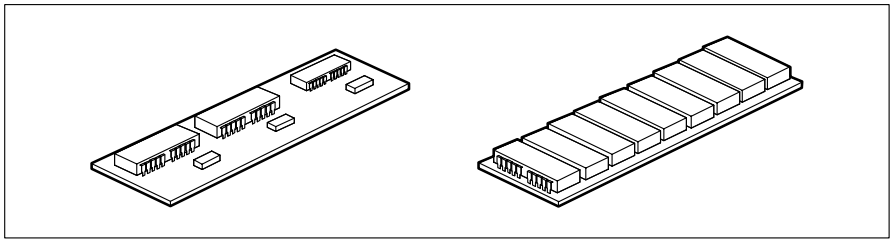
Memory configuration	memory modules	slots
4 Mbyte	4 of 1 Mbyte each	Bank 0
8 Mbyte	8 of 1 Mbyte each	Bank 0 and Bank 1
16 Mbyte	4 of 4 Mbyte each	Bank 0
20 Mbyte	4 of 1 Mbyte each	Bank 0
	4 of 4 Mbyte each	Bank 1
32 Mbyte	8 of 4 Mbyte each	Bank 0 and Bank 1

Memory modules

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



Memory module with 1 Mbyte



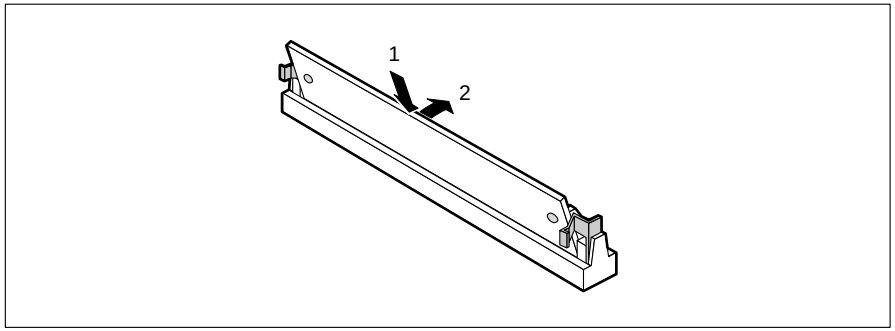
Memory modules with 4 Mbyte

Installing a memory module

⚠ You may not insert different memory modules in one bank.

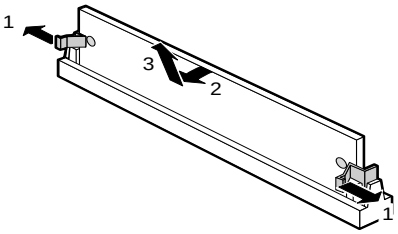
When using only 4 memory modules they must be inserted in bank 0 (J2 to J5).

Install the memory module in such a way that the components side faces the inside of the system unit.



- Plug the module into its slot at a slanting angle (1).
- 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, 64 Kbytes, 128 Kbytes or 256 Kbytes in size. There are 11 sockets on the system board (U48 to U58) for incorporating the SRAM components.

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

Only the SRAM components and sockets listed in the table below are permissible for the configuration of the second level cache memory.

Slot	Memory configuration					
	64 Kbyte		128 Kbyte		256 Kbyte	
U48	8Kbit*8	15 ns	8Kbit*8	15 ns	8Kbit*8	15 ns
U49	---	---	---	---	8Kbit*8	15 ns
U50	16Kbit*4	15 ns	16Kbit*4	15 ns	16Kbit*4	15 ns
U51 - U54	8Kbit*8	20 ns	32Kbit*8	20 ns	32Kbit*8	20 ns
U55 - U58	8Kbit*8	20 ns	---	---	32Kbit*8	20 ns

--- = not inserted

Depending on the configuration of the second level cache memory, the U-plugs JP12 to JP17 are inserted differently.

Memory configuration	U-plug setting of					
	JP12	JP13	JP14	JP15	JP16	JP17
0 Kbyte	2-3	2-3	---	---	---	---
64 Kbyte	2-3	2-3	---	---	---	---
128 Kbyte	1-2	1-2	inserted	---	---	inserted
256 Kbyte	2-3	2-3	inserted	inserted	inserted	inserted

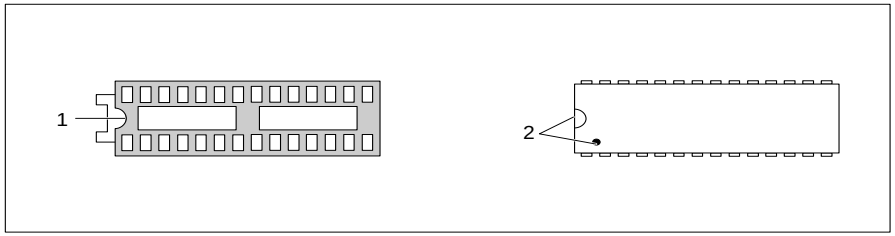
--- = not inserted

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

– *Speed Select:* *HIGH*
– *Shadow BIOS ROM:* *SYSTEM AND VIDEO BIOS*
– *Cache:* *WRITE BACK*
– *Cache Shadow RAM:* *VIDEO BIOS ONLY*

Upgrading

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 U-plugs JP12 to JP17 in accordance with the memory configuration.
- Set the recommended entries in the SETUP menu.

Table of hard disks

This table lists the different types of hard disk.

Type	Tracks	Heads	Mbyte
1	306	4	10
2	615	4	20
3	615	6	30
4	940	8	62
5	940	6	46
6	615	4	20
7	462	8	30
8	733	5	30
9	900	15	112
10	820	3	20
11	855	5	35
12	855	7	49
13	306	8	20
14	733	7	42
15	0	0	0
16	612	4	20
17	977	5	40
18	977	7	56
19	1024	7	59
20	733	5	30
21	733	7	42
22	733	5	30
23	306	4	10
24	830	10	105
25	615	4	20

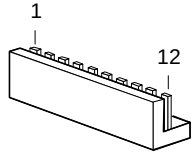
Type	Tracks	Heads	Mbyte
26	1024	4	34
27	1024	5	42
28	1024	8	68
29	512	8	34
30	615	2	10
31	989	5	41
32	1020	15	127
33	0	0	0
34	0	0	0
35	1024	9	76
36	1024	5	42
37	830	10	68
38	823	10	68
39	615	4	20
40	615	8	40
41	917	15	114
42	1023	15	127
43	823	10	68
44	820	6	40
45	1024	8	68
46	925	9	69
47	699	7	40
48	manual entries		
49	manual entries		

Special entries:
Default for SCSI hard disk drive: *NONE*
Default for ESDI hard disk drive: *1*

Interface assignment

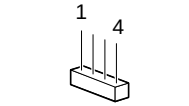
The assignment of the standard interfaces is described in the technical manual of the PC (section "Technical data").

Connector for power supply J1



Pin	Meaning
1	Power Good
2	+5 V
3	+12 V
4	-12 V
5 - 8	0 V
9	-5 V
10 - 12	+5 V

Connector for external loudspeaker J13

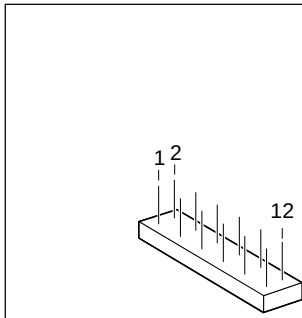


Pin	Meaning
1	external loudspeaker
2	internal loudspeaker
3	0 V
4	+5 V

Connector for lithium battery J14

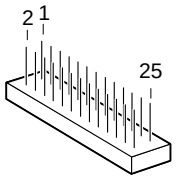
Pin	Meaning
1	0 V
2	+

Connector for indicator JP30



Pin	Signal name
1	System unit ON
2	0 V
3	Turbo
4	0 V
5	coded
6	coded
7	Turbo switch
8	0 V
9	Reset switch
10	0 V
11	+5 V
12	Hard disk drive

Connector J23 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	Select Video
8	Data 3
9	Select Synchronization
10	Data 4
11	Select DAC
12	Data 5
13	free

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	free
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 U-plugs 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 U-plugs 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 ey 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 U-plug for the primary monitor.

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