System board
D1129

Technical Manual

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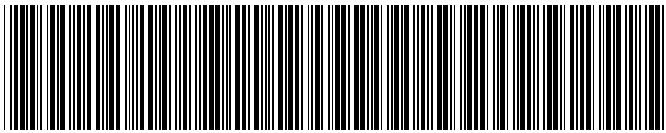

A26361-K541-Z120-1-7419

System board D1129

Technical Manual

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August 1999 edition

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Introduction

This manual describes the features of the system board as well as the setting options and the extensions that you can make to the system board.

You can find more detailed information in the Operating Manual of the device or in the manual "Terminal Setup".

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

Features

- System board in LPX format
- Cyrix GXm processor with MMX and 166, 200, 233 or 266 MHz internal and 66 MHz external clock rate
- 2 DIMM slots for 32 to 256 Mbyte main memory (SDRAM memory modules)
- 1 PCI slot, 1 ISA/PCI slot
- Controller for 2 serial ports (NS16C550-compatible)
- Controller for parallel port (SPP, EPP, ECP-compatible)
- Graphics controller IGS5000 series with integrated TV out
- LAN controller AMD family PCNet III
- Audio controller (NS4548, Audio Codec '97)
- IDE controller with Ultra-DMA/33 for 4 IDE devices
- internal ports:
  - 1 floppy disk drive
  - 2 IDE
  - serial port 2 for chipcard reader
- external ports:
  - 1 parallel port
  - 1 serial port
  - 1 keyboard port
  - 1 mouse port
  - 2 USB ports
  - 1 LAN port
  - 1 VGA port
  - 1 multiple port (Video in/out)
- Security functions
- Energy saving functions
- Flash BIOS

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 press the Enter key.

`Texts in this typeface` are screen outputs.

Texts in italics indicate commands or menu items.

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

Important notes

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

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

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.

Before disconnecting cables from the system board remember how the connectors are plugged in. Some connectors may not be coded.

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

CE

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.

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 care above all 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, centering 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.

Data 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 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.

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

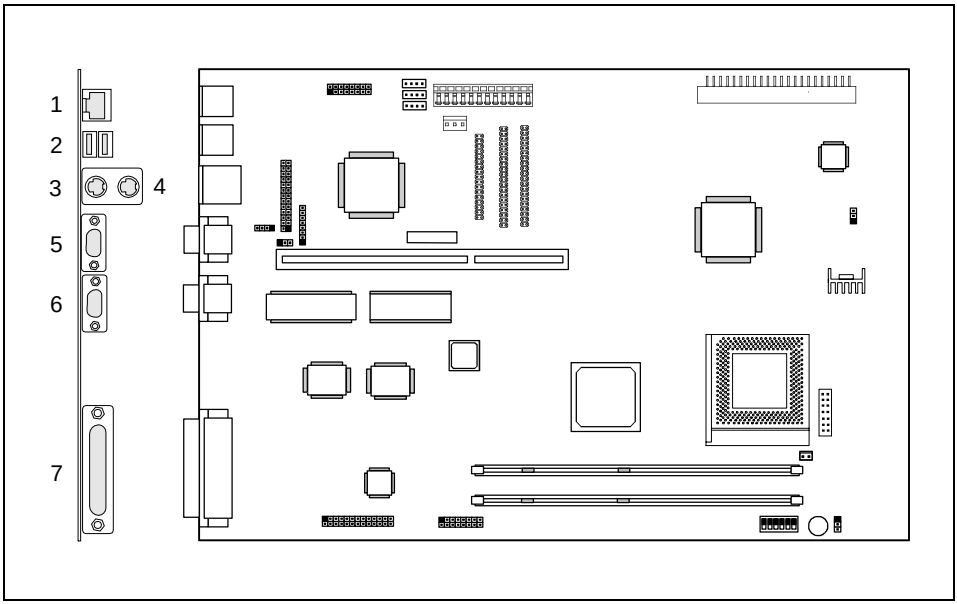
When you handle boards fitted with ESDs, you must observe the following points under all circumstances:

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

Connectors, settings and resources

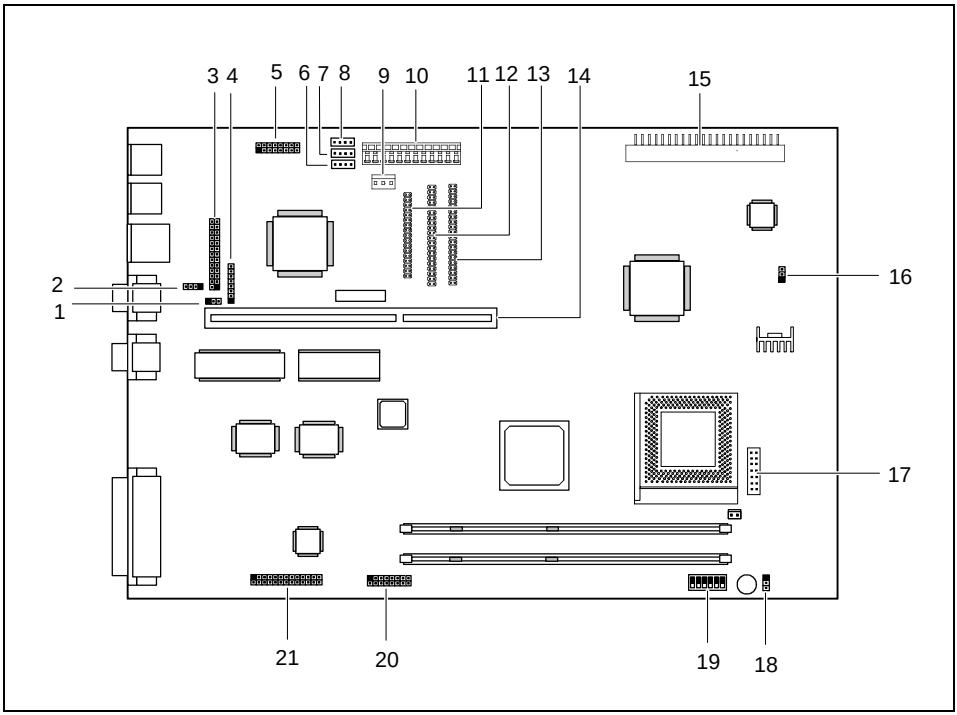
This chapter provides an overview of all connections on the system board and describes the configuration possibilities available with plug-in jumpers and switches.

External ports



1 = LAN port
2 = USB ports
3 = PS/2 keyboard port
4 = PS/2 mouse port
5 = serial port (COM 1)
6 = Monitor port (VGA)
7 = Multiple port (Video in/out)

Internal connections, plug-in jumpers and switches



1 = Jumper JP2 for BIOS write protection
2 = Connection for modem ring
3 = Connection for parallel port (LPT 1)
4 = Connection for DOC programming
5 = Connection for Audio/TV board
6 = Connection for modem Audio in
7 = Connection for CD Audio in
8 = Connection for DVB Audio in
9 = Connection for standby power supply
10 = Connector for power supply
11 = Connection for floppy disc drive
12 = Connection for secondary IDE
13 = Connection for primary IDE
14 = Slot for riser card
15 = Connector for front panel
16 = Jumper JP3 for processor core voltage
17 = Connection for chipcard reader (COM 2)
18 = Jumper JP1 for sound output
19 = Switch block
20 = Connection for DVB in
21 = Connection for DVB out

i The pin of a plug-in jumper or of a connection marked in black indicates Pin 1.

Jumper JP1 - sound output

Setting	Function
connected to 1 -2	Sound output via soundcard
connected to 2 - 3*	Sound output via beeps

* = Default setting

Jumper JP2 - BIOS write protection

Setting	Function
connected to 1 -2	BIOS write-protected
connected to 2 - 3*	BIOS writeable

* = Default setting

Jumper JP3 - selection of process core voltage

Setting	Processor core voltage (Vcore)
connected to 1 -2	2,9 V
connected to 2 -3	2,5 V

Switch block

The clock frequencies of the of the processor and of the PCI are set with the switch block.

Adjusting processor frequency (switch SW1, SW2 and SW3)

The processor frequency is derived via a multiplier from the PCI bus frequency.

Multiplier	Switch SW1	Switch SW2	Switch SW3
Test	off	off	off
4	off	off	on
5	on	on	off
6	on	off	on
7	off	on	on
8	on	on	on
9	off	on	off
10	on	off	off

Setting PCI bus frequency (switch SW4, SW5 and SW6)

PCI bus frequency	Switch SW4	Switch SW5	Switch SW6
25 MHz	off	off	off
30 MHz	on	off	off
33* MHz	off	on	off
32 MHz	on	on	off
27,5 MHz	off	off	on
37,5 MHz	on	off	on
41,7 MHz	off	on	on
34,5 MHz	off	off	off

* = Default setting

Screen resolution

Depending on the BIOS, the operating system and the drivers used, the monitor resolutions for the graphics controller on the system board specified in the following apply. In addition, deviations from the information in the table are possible due to custom-specific implementations.

If you are using an external screen controller, you will find details of supported screen resolutions in the Operating Manual or Technical Manual supplied with the controller.

To select the appropriate setting for your monitor, please use the drivers supplied. In Windows 9x you can select your monitor type and the resolution in the "Control Panel" under "Display Properties".

Table 1

Screen resolution	Max. number of colors	TV mode	Vertical frequency (kHz)	Horizontal frequency (kHz)
640 x 400	265	NTSC	60	31,5
640 x 480	256	PAL / NTSC	60 / 72 / 75	31,5 / 37,9 / 37,5
640 x 480	64 K	PAL / NTSC	60 / 72 / 75	31,5 / 37,9 / 37,5
640 x 480	16,8 M	PAL / NTSC	60 / 72 / 75	31,5 / 37,9 / 37,5
720 x 540	256	PAL	50	31,25
720 x 540	64 K	PAL	50	31,25
720 x 540	16,8 M	PAL	50	31,25
800 x 600	16	PAL	60 / 72 / 75 / 56	37,9 / 47,3 / 46,9 / 35,2
800 x 600	256	PAL	60 / 72 / 75 / 56	37,9 / 48,0 / 46,9 / 35,2
800 x 600	64 K	PAL	60 / 72 / 75	37,9 / 48,0 / 46,9 / 35,2
800 x 600	16,8 M	PAL	60 / 72 / 75	37,9 / 48,0 / 46,9 / 35,2
1024 x 768	16	-	60 / 72 / 75 / 87I	48,4 / 58,5 / 60,0 / 35,5
1024 x 768	256	-	60 / 72 / 75 / 87I	48,4 / 58,5 / 60,0 / 35,5
1024 x 768	64 K	-	60 / 72 / 75 / 87I	48,4 / 58,5 / 60,0 / 35,5
1024 x 768	16,8 M	-	60 / 72 / 75 / 87I	48,4 / 58,5 / 60,0 / 35,5
1280 x 1024	16	-	60 / 72 / 75 / 87I	64,6 / 78,0 / 80,0 / 47,6
1280 x 1024	256	-	60 / 72 / 75 / 87I	64,6 / 78,0 / 80,0 / 47,6
1280 x 1024	64 K	-	60 / 72 / 75 / 87I	64,6 / 78,0 / 80,0 / 47,6
1280 x 1024	16,8 M	-	60 / 72 / 75 / 87I	64,6 / 78,0 / 80,0 / 47,6

- not available

Table 2

Screen resolution	Max. number of colors	TV mode	Vertical frequency* (kHz)	Horizontal frequency* (kHz)
640 x 440	265	NTSC	60	31,5
640 x 440	64 K	NTSC	60	31,5
640 x 480	16	PAL / NTSC	50 / 60	31,5
640 x 480	256	PAL / NTSC	60	31,5
640 x 480	64 K	PAL / NTSC	60	31,5
640 x 480	16,8 M	PAL / NTSC	60	31,5
720 x 480	256	PAL / NTSC	50 / 60	31,5
720 x 480	64 K	PAL / NTSC	50 / 60	31,5
720 x 480	16,8 M	PAL / NTSC	50 / 60	31,5
720 x 540	256	PAL	50	31,5
720 x 540	64 K	PAL	50	31,5
720 x 540	16,8 M	PAL	50	31,5
720 x 576	256	PAL	50	31,5
720 x 576	64 K	PAL	50	31,5
720 x 576	16,8 M	PAL	50	31,5
800 x 600	16	PAL	60	37,9
800 x 600	256	PAL	60	37,9
800 x 600	64 K	PAL	50	37,9
856 x 480	256	PAL / NTSC	50 / 60	31,5
856 x 480	64 K	PAL / NTSC	50 / 60	31,5
856 x 480	16,8 M	PAL / NTSC	50 / 60	31,5
976 x 576	256	PAL	50	31,5
976 x 576	64 K	PAL	50	31,5
976 x 576	16,8 M	PAL	50	31,5
1024 x 768	256	-	60	48,4
1024 x 768	64 K	-	60	48,4
1024 x 768	16,8 M	-	60	48,4
1280 x 1024	256	-	60	64,6
1280 x 1024	64 K	-	60	64,6
1280 x 1024	16,8 M	-	60	64,6

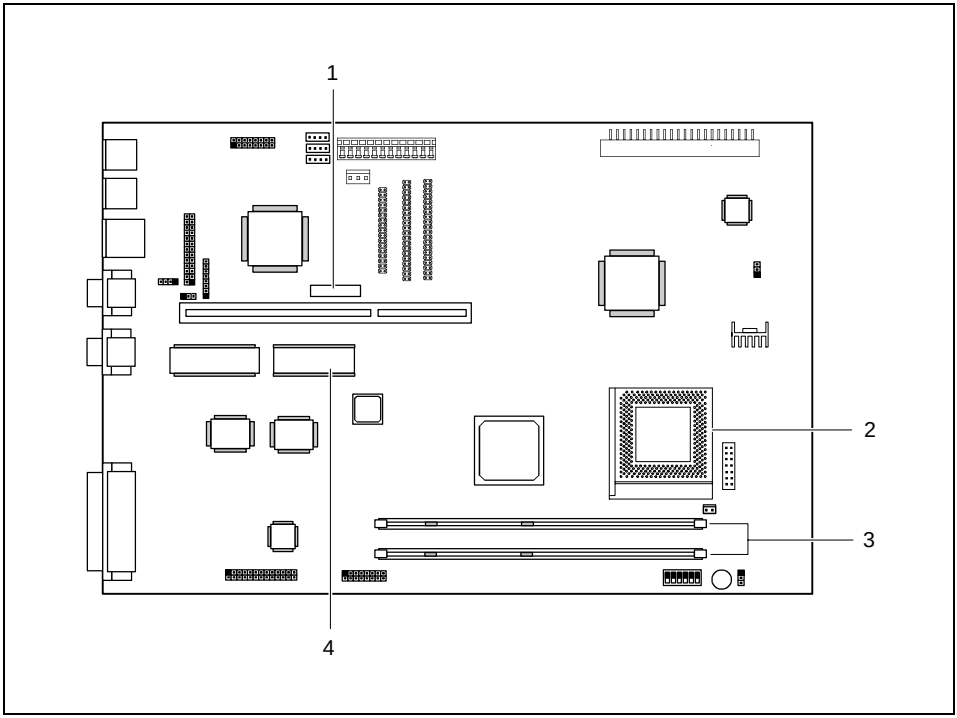
- not available
* TV frequencies (PAL/NTSC) only

Resource table

Resources	possible IRQ	Possible Address (hex)	Possible DMA
Timer	**0**		
Keyboard	**1**		
Interrupt controller	**2**		
Serial interface COM1	3, **4**	02E8, **02F8**, 03E8, 03F8	
Serial port COM2	**3**, 4	02E8, 02F8, 03E8, **03F8**	
Floppy disk drive	**6**		**2**
Parallel interface LPT1	5, **7**	0378H, 0278H, 03BC	1, 3
RTC	**8**		
USB	**9**		
Mouse	**12**		
Numeric processor	**13**		
IDE primary	**14**	01F0H-01F7H	
IDE secondary	**15**	0170H-0177H	

The resources assigned on delivery are shown highlighted. The others are optionally adjustable.

System expansions



1 = Battery
2 = Processor socket (for Cyrix GXm **only**)
3 = 2 DIMM sockets
4 = Socket for DOC chip

The processor socket is only suitable for Cyrix GXm processors.

Upgrading main memory

The system board is equipped with two 168 pin sockets with which the main memory can be upgraded to a maximum of 256 Mbyte.

These slots are suitable for 32, 64 and 128 Mbyte SDRAM memory modules of the DIMM format.

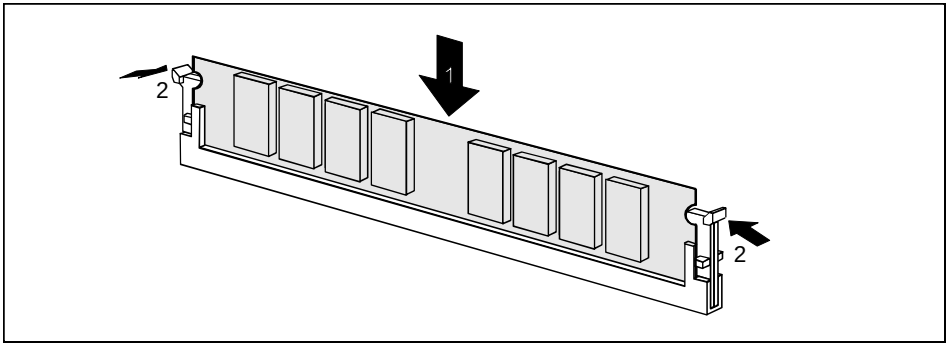
Memory modules with different memory capacities can be combined.

DIMM 1	DIMM 2	Total	DIMM 1	DIMM 2	Total
32 Mbytes	Empty	32 Mbytes	32 Mbytes	128 Mbytes	160 Mbytes
64 Mbytes	Empty	64 Mbytes	64 Mbytes	32 Mbytes	96 Mbytes
128 Mbytes	Empty	128 Mbytes	64 Mbytes	64 Mbytes	128 Mbytes
Empty	32 Mbytes	32 Mbytes	64 Mbytes	128 Mbytes	192 Mbytes
Empty	64 Mbytes	64 Mbytes	128 Mbytes	32 Mbytes	160 Mbytes
Empty	128 Mbytes	128 Mbytes	128 Mbytes	64 Mbytes	192 Mbytes
32 Mbytes	32 Mbytes	64 Mbytes	128 Mbytes	128 Mbytes	256 Mbytes
32 Mbytes	64 Mbytes	96 Mbytes			

DIMM = Dual Inline Memory Module
SDRAM = Synchronous Dynamic Random Access Memory

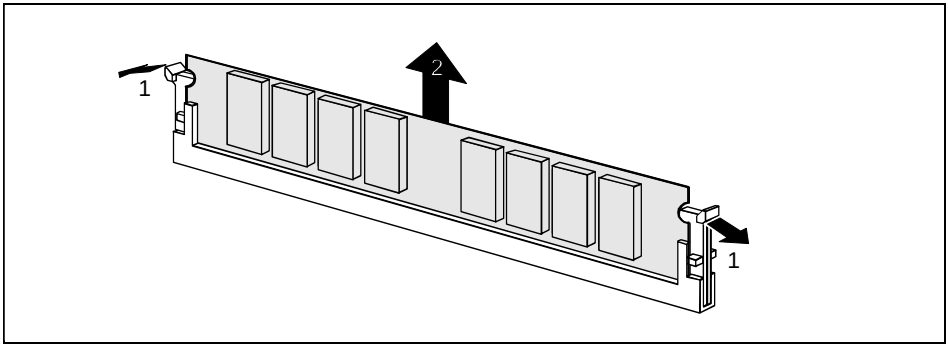
Proceed as follows when installing or removing memory modules:

Installing memory modules



- ▶ Fold the clips of the slot outward on both sides and insert the memory module in the slot (1).
- ▶ At the same time flip the lateral holders upwards until the memory module snaps in place (2).

Removing a memory module

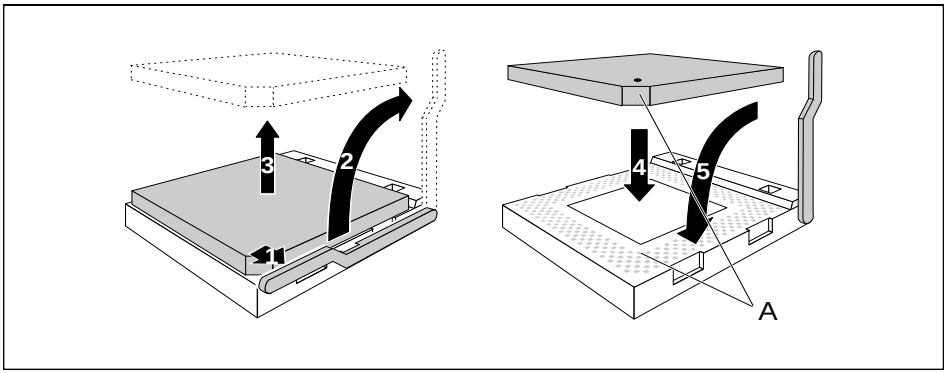


- ▶ Press the clips on the left and right side outward (1) and pull the memory module out of the slot (2).

Replacing processor

Only replace the Cyrix GXm processor with a Cyrix processor of the same type. The processor socket is only suitable for Cyrix GXm processors. Do not mount Intel, IDT or AMD processors in the socket to prevent damage to the processor.

- Remove the fan connector.



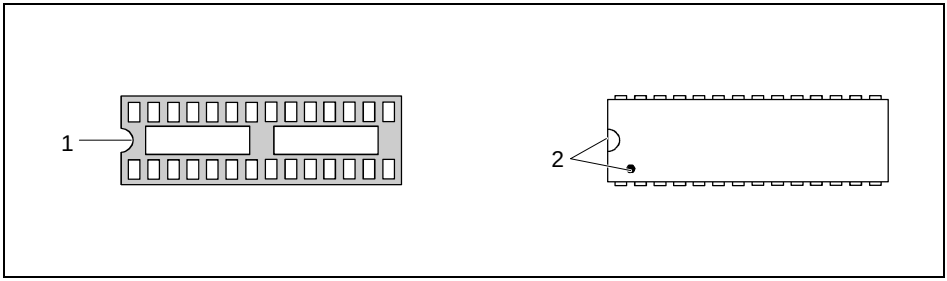
- Push the lever in the direction of the arrow (1) and lift it as far as it will go (2).
- Remove the old processor from the socket (3).
- Insert the new processor in the socket so that the mark on the upper side of the processor matches the mark (A) on the socket (4).

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

- Push the lever back down so that it snaps into place.
- Connect the fan connector.

Retrofitting DOC chip

The DOC chip (DOC = Disk On Chip) contains the Windows CE operating system and can replace the hard disk drive.



1 = Marking on socket 2 = Marking on DOC chip

▶ Mount the DOC chip in the socket so that the markings on the socket and on the DOC chip match.

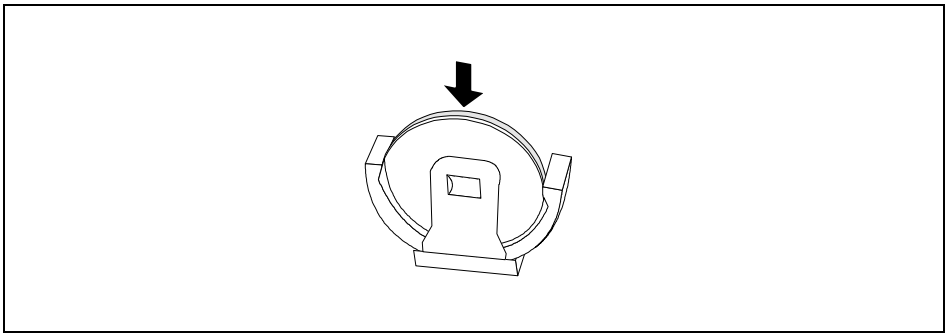
Replacing lithium battery

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 point to the contact !



▶ Insert a new lithium battery of the same type in the socket.

BIOS Setup

Calling BIOS Setup

- Restart the device (switching on/off or warm boot).

The following message e. g. will be displayed at the upper edge of the screen:

```
Phoenix BIOS™ Version 4.06 Rev.1.03.1031
```

First, the version number of *BIOS-Setup*, `Version 4.06,` is displayed, then the revision number of *BIOS-Setup*, e. g. `Rev. 1.03.1031`. The last three or four digits indicate the system board number. Based on the system board number you can locate the respective technical manual for the system board on the "Drivers & Utilities" or "ServerStart" CD.

One of the following messages will be displayed at the bottom of the screen:

```
Press <F2> to enter SETUP
Press <F1> to resume, <F2> to SETUP
```

- Press function key F2.
- If you have assigned a setup password, you must now enter this password and confirm it with the Enter key.

The *Main* menu of *BIOS Setup* is displayed on the screen.

BIOS-Setup with incorrect settings

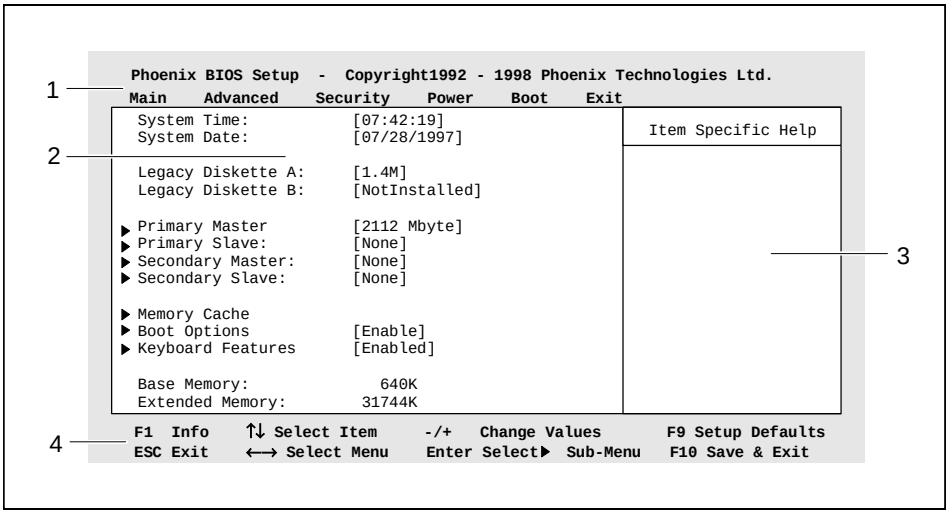
i

If an incorrect setting in *BIOS-Setup* prevents system start and if the system cannot be started three times in a row, the following system start will automatically reset the *BIOS-Setup* default settings once. The following error message appears:

```
Previous boot incomplete - Default configuration used
```

By pressing function key F2 you can check and correct the settings in *BIOS Setup* (see chapter "Error messages".

If an incorrect setting in *BIOS-Setup* prevents system start, this setting can now be corrected. This re-enables error free system start.



Example of the *Main* menu of the *BIOS Setup*

1 = Menu bar
2 = Working area
3 = Information area
4 = Operations bar

The *BIOS Setup* screen is divided into the following areas:

- Menu bar (1)
  In the menu bar, you can select the different *BIOS Setup* menus.
- Working area (2)
  The working area displays the setting options (fields) of the selected menus. You can set the entries in the displayed fields according to your requirements.

  ▶ indicates fields which open further submenus. You can change entries in these submenus.
  * indicates configuration conflicts that must be resolved to ensure that the device functions correctly.
- Information area (3)
  The information area displays brief information on the selected field.
- Operations bar (4)
  The operations bar indicates which keys you can use to operate *BIOS Setup*.

i You can display additional information (e.g. BIOS version) by pressing the function key F1.

Operating BIOS Setup

To select the required menu in the menu bar, use the cursor ← or →. To select the required field, use the cursor keys ↑ or ↓. The field selected is highlighted.

To display a submenu, select the corresponding field (marked with ▶), and press the Enter key. Press the ESC key to return from the submenu to its superior menu.

To change the entry for the selected field, use the + or - keys on the numerical keypad.

To set the default entries for all menus, press the function key F9.

To revert the fields of all menus to the entries that were in effect when *BIOS Setup* was called, press the function key F10.

To save changed settings without exiting *BIOS Setup*, select *Save Changes* in the *Exit* menu.

To save changed settings and to exit the *BIOS Setup*, select *Exit Saving Changes* in the *Exit* menu.

i If you change entries in *BIOS Setup*, make a note of the changed entries, or print out the changed screen page.
You can print the current screen page using the key combination Shift + Print if a printer is connected to the parallel port of the device.

Exiting BIOS Setup

To exit *BIOS Setup*, select the *Exit* menu from the menu bar. You can then decide which settings you want to save. The *Exit* menu offers the following options.

You must mark the required option and activate it with the Enter key.

Exit Saving Changes

Select *Exit Saving Changes* and *Yes* to save the current settings and exit the *BIOS Setup*. The device is rebooted and the new settings come into effect.

Exit Discarding Changes

Select *Exit Discarding Changes* and *Yes* to discard the changes you have made. The settings which were in force when *BIOS Setup* was called remain effective. *BIOS Setup* is terminated and the device is rebooted.

Load Setup Defaults

To revert all the menus of *BIOS Setup* to the default entries, select *Load Setup Defaults* and *Yes*.

i Note that the hard disk type is set to *None* and the hard disk parameters are deleted. You may have to re-enter the settings for the hard disks before you exit the *BIOS Setup*.

If you want to exit *BIOS Setup* with these settings, select *Save Changes & Exit* and *Yes*.

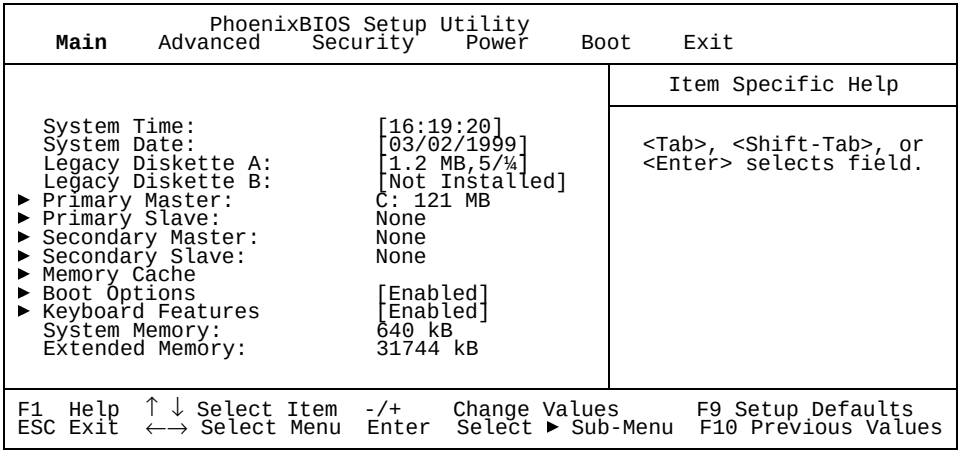
Discard Changes

To load the values of all the menus of *BIOS Setup* that were in effect when *BIOS Setup* was called, select *Discard Changes* and *Yes*. If you want to exit *BIOS Setup* with these settings, select *Exit Saving Changes* and *Yes*.

Save Changes

To save settings without exiting *BIOS Setup*, select *Save Changes* and *Yes*.

Main - system functions



Example for *Main* menu

System Time/System Date

System Time indicates the time of the device. If you change the time setting, enter the time in the format *HH:MM:SS* (hour:minute:second).

System Date indicates the date of the device. If you change the date setting, enter the date in the format *MM.DD.YYYY* (month/day/year).

Legacy Diskette A / Legacy Diskette B

These two fields are used to specify the type of floppy disk drive installed.

360Kb, 720Kb, 1.2Mb, 1.44Mb, 2.88Mb
The entry is dependent on the floppy disk drive installed.

Disabled A floppy disk drive is not installed.

Primary/Secondary Master/Slave - hard disk drive

call the submenu to make corresponding settings of the IDE hard disk drive. The manufacturer's designation of the IDE drive is given beside each submenu..

You should change the default settings only if you are connecting an additional IDE drive to one of the IDE connectors.

The maximum transfer rate of two IDE drives connected to the same connector is determined by the slowest one. Therefore, it is preferable to connect fast hard disk drives to the first IDE connector (Primary) and to enter them as *Primary Master* or *Primary Slave*. It is preferable to connect slow hard disk drives or other IDE drives (e.g. a CD-ROM-drive) to the second IDE connector (Secondary) and to enter them as a *Secondary Master* or *Secondary Slave*.

In the case of system boards with newer controllers, all four IDE drives are supported independently and configured for the maximum transfer rate. This means that a fast and a slow IDE drive can be connected to one connector without impeding the speed of the fast drive.

The following description of the setting possibilities for *Primary Master* also apply to *Primary Slave*, *Secondary Master* and *Secondary Slave*.

```
                PhoenixBIOS Setup Utility
 Main
  Primary Master:   [WDC AC14300R-(PM)]      Item Specific Help

 Type:                      [Auto]
                  CHS Format
 Cylinders:                 [ 8912]          Attempts to
 Heads:                     [  15]           automatically detect
 Sectors:                   [63]             the drive type for
 Maximum Capacity:          4312MB           drives that comply with
                  LBA Format                 ANSI specifications
 Total Sectors:             8421840
 Maximum Capacity:          4312MB
 SMART Monitoring:          Enabled

 Multi-Sector Transfers:    [16 Sectors]
 LBA Mode Control:          [Enabled]
 32 Bit I/O:                [Enabled]
 Transfer Mode:             [Fast PIO 4]

F1  Help  ↑ ↓ Select Item   -/+   Change Values      F9 Setup Defaults
ESC Exit  ←→ Select Menu  Enter  Select ► Sub-Menu  F10 Previous Values
```

Type - Hard Disk Type

This field is used to specify the type of hard disk drive.

None You cannot change the hard disk parameters *Cylinders*, *Heads*, *Sector/Track*. An IDE drive has not been installed.

User You can enter the hard disk parameters yourself.
If you have set the hard disk parameters with *Auto*, you can only reduce the values.
Examples of user-defined entries (IDE drives):

Hard disk capacity (MB)	Hard disk parameter		
	Cylinders	Heads	Sectors
539	1046	16	63
850	1647	16	63
853	1654	16	63
1055	2046	16	63
1082	2097	16	63
1281	2484	16	63
1624	3148	16	63
2009	3893	16	63
2111	4092	16	63
2559	4960	16	63
3166	6136	16	63
3860	7480	16	63

Auto If the hard disk supports this mode, the setup menu reads the hard disk parameters from the disk itself. You do not need to select the parameters yourself.

CD-ROM If an ATAPI CD-ROM drive is installed, this entry enables you to boot from the CD-ROM drive.

Cylinders, Heads, Sectors, Maximum Capacity - Hard disk parameters

These hard disk parameters are set in accordance with the IDE hard disk drive. If you want to change the hard disk parameters manually, set the *Type* field to *User*.

The *Maximum Capacity* field shows the capacity of the hard disk depending on the respective calculation (CHS or LBA).
The CHS value is the capacity calculated by BIOS for the Cylinders/Heads/Sectors on the basis of the figures supplied by the hard disk. The LBA value is the capacity calculated by BIOS on the basis of the maximum possible sectors reported by the hard disk.
Since BIOS designates the maximum permissible values for Cylinders/Heads/Sectors, the CHS value cannot exceed 8.4 Gbyte. LBA addressing avoids these restrictions, so it can handle values larger than 8.4 Gbyte. The CHS value and the LBA value are therefore different on hard disks as of 8.4 Gbyte.

For additional information, refer to the section "LBA Mode Control - Translation mode".

SMART Monitoring - SMART drive monitoring

SMART, Self-Monitoring Analysis Reporting Technology, is the self-monitoring function of modern IDE drives and enables early recognition of failures.

Enabled SMART is switched on.

Disabled SMART is switched off.

Multi-Sector Transfer - Transfer mode

This field specifies the transfer mode for the IDE hard disk drive.

Disabled *Multi-Sector Transfer* is switched off.

2 Sectors, *4 Sectors*, *8 Sectors*, *16 Sectors*
The set number of sectors is transferred per interrupt.

LBA Mode Control - Translation mode

Sets the addressing on consecutive sector numbers (LBA = Logical Block Addressing).

IDE and BIOS restrict the formatting of hard disks in cylinders, heads and sectors through maximum permissible values. IDE permits more cylinders but fewer heads than BIOS. A combination of IDE and BIOS restrictions yields a maximum addressable storage area of 528 Mbyte.

The following table lists the maximum permissible values and the corresponding maximum addressable storage areas.

	BIOS	IDE	Combination BIOS/IDE
Max. sectors per head (at 512 Byte)	63	255	63
Max. heads per cylinder	256	16	16
Max. cylinders	1024	65535	1024
Capacity	8,4 Gbyte	136,9 Gbyte	528 Mbyte

LBA Translation converts the physical formatting of hard disks in cylinders, heads and sectors so that the logical values generated lie within the above BIOS limitations. This means that a hard disk capacity of over 528 Mbyte can be supported. Operating systems and application programs work with these logical hard disk values. IDE hard disks of over 528 Mbyte are configured and operated using LBA mode. If a hard disk supports LBA mode, you can use the full capacity of the IDE hard disk.

Change the default entries only if you are installing another hard disk drive.

You may only use IDE drives with the LBA mode if this was selected when they were set up. In other words, if you set up a hard disk with LBA mode disabled, you may only operate the hard disk in disabled LBA mode .

Enabled If the hard disk supports LBA and it has a capacity of more than 528 Mbytes, the BIOS translates the hard disk parameters, allowing the disk's full capacity to be used. This allows the disk's full capacity to be used.

Disabled The BIOS uses the hard disk parameters and supports a maximum capacity of 528 Mbytes.

32 Bit I/O - Bus width for data transfer

This field specifies the width of data transmission between the processor and the IDE controller.

Enabled The data transfer is 32 bits in width at the PCI bus. This enhances performance.

Disabled The data transfer is 16 bits in width.

Transfer Mode (speed)

Specifies the transfer mode, and with it the transfer speed of the IDE hard disk. If at all possible use the entry *Auto* in the field *Type*. This means BIOS will determine the best possible transfer rate for the hard drive. Only the modes supported by the IDE device are listed.

If an incorrect transfer mode is set, the IDE device is either too slow (i.e. the IDE device is capable of a higher transfer rate than is set) or the IDE device does not start or cannot be addressed (i.e. the IDE device is set for a higher transfer rate than it is capable of).

Default 2 Mbyte/s to 4 Mbyte/s

Fast PIO 1 2 Mbyte/s to 4 Mbyte/s

Fast PIO 2 2 Mbyte/s to 4 Mbyte/s

Fast PIO 3 5 Mbyte/s to 10 Mbyte/s

Fast PIO 4 10 Mbyte/s to 16 Mbyte/s

F PIO 3 / DMA 1
5 Mbyte/s to 10 Mbyte/s

F PIO 4 / DMA 2
10 Mbyte/s to 16 Mbyte/s

Memory Cache - Cache

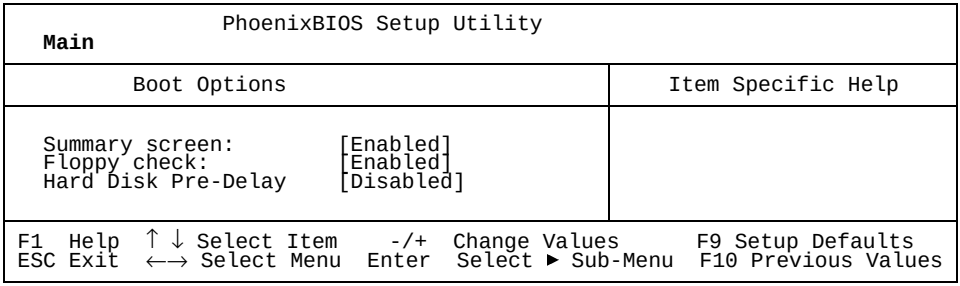
switches the internal cache memory of the processor on or off. When switched on, the cache increases the performance of the device.

Disabled Cache memory is disabled.

Enabled Cache memory is enabled.

Boot Options

calls the sub-menu in which you enter the settings for the system boot of the device.



Floppy Check

specifies whether the type of the floppy disk drive is determined during system boot.

Disabled The type of the floppy disk drive is not determined. The system starts up faster.

Enabled The type of the floppy disk drive is determined. The system starts up more slowly.

Summary Screen

specifies whether the system messages are to be displayed during the system boot.

Enabled System messages are displayed during the system boot.

Disabled System messages are not displayed during the system boot.

Hard Disk Pre-Delay -

specifies the time the BIOS waits until it accesses the hard disk during system boot. The delay may be particularly necessary for older hard disks.

Disabled The BIOS accesses the hard disk without delay.

3, 6, 9, 12, 15, 21, 30
The BIOS waits for the time selected.

Keyboard Features - Keyboard Settings

calls the submenu in which you can make the settings for the keyboard.

```
                    PhoenixBIOS Setup Utility
  Main
┌──────────────────────────────┬──────────────────────────────┐
│      Keyboard Features       │      Item Specific Help      │
│                              │                              │
│ Numlock:                [Off]│ Selects Power-on state       │
│ Key Click:              [Disabled]│ for Numlock             │
│ Keyboard auto-repeat rate: [30/sec]│                        │
│ Keyboard auto-repeat delay: [1/2 sec]│                      │
└──────────────────────────────┴──────────────────────────────┘
F1  Help  ↑ ↓ Select Item   -/+   Change Values      F9 Setup Defaults
ESC Exit  ←→ Select Menu  Enter  Select ► Sub-Menu  F10 Previous Values
```

Numlock - Num key

specifies the state of the Num key after the system boot.

Auto Switches the state of the Num key to *on* when a numeric keyboard is detected.

On Sets the state of the Num key to *on*.

Off Sets the state of the Num key to *off*.

Key Click - Key tone

specifies whether a key tone is generated when a key is pressed.

Enabled A key tone is generated when a key is pressed.

Disabled No key tone is generated when a key is pressed.

Keyboard Auto-Repeat Rate - Key repeat rate

specifies how often a key input is automatically repeated per second when the key is pressed for longer than the key repeat delay.

2, 6, 10, 13.3, 18.5, 21.8, 26.7, 30
The selected repeat rate is used.

Keyboard Auto-Repeat Delay - Key repeat delay

specifies the delay time in seconds after which the automatic key repetition begins.

1/4, 1/2, 3/4, 1 The selected delay is used.

System Memory - System memory

This field indicates the size of the available base memory below 1 Mbyte.

Extended Memory

shows the size of the main memory above 1 Mbyte.

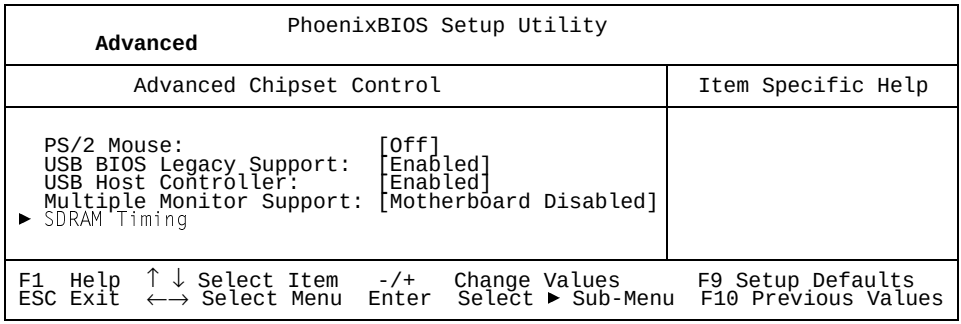
Advanced - advanced system configuration

Change the default settings only for special applications. Incorrect settings can cause malfunctions.

```
                PhoenixBIOS Setup Utility
   Main     Advanced     Security     Power     Boot     Exit

                                                  Item Specific Help

                 Setup Warning
Setting items on this menu to incorrect values
may cause your system to malfunction.

► Advanced Chipset Control
► I/O Device Configuration
► Audio Options Menu
► PCI Configuration
  Secured Setup Configurations:  [No]
  Installed O/S:                 [Other]
  Reset Configuration Data:      [No]
  Large Disk Access Mode:        [DOS]
  TV/VGA Selection:              [Auto Detection]

F1  Help  ↑ ↓ Select Item   -/+   Change Values       F9 Setup Defaults
ESC Exit  ←→ Select Menu  Enter  Select ► Sub-Menu  F10 Previous Values
```

Example for the *Advanced* menu

Advanced Chipset Control



Example for submenu *Advanced Chipset Control*

PS/2 Mouse

specifies the operating mode of the mouse controller on the system board.

Enabled The mouse controller is enabled - IRQ 12 is used.

Disabled The mouse controller is disabled - IRQ 12 is free.

Auto Detect A connected mouse is detected and activated by the BIOS.

OS Controlled With operating systems that support Plug&Play, the mouse is configured by the operating system.

USB BIOS Legacy Support - USB keyboard/mouse

switches the USB (Universal Serial Bus) support for a USB keyboard and USB mouse on or off. The USB support must be switched on for operating systems which offer no USB support themselves (e.g. DOS, UNIX).

Enabled The USB support is switched on. USB keyboard and USB mouse are directly supported by the system BIOS.

Disabled The USB support is switched off. USB keyboard and USB mouse are not directly supported by the system BIOS.

USB Host Controller - USB port

switches the USB controller (Universal Serial Bus) of the system board on or off.

Enabled The USB controller is enabled. The system BIOS determines which system resources (interrupts, addresses) are occupied.

Disabled The USB controller is disabled. No resources are occupied.

Multiple Monitor Support - Multi-monitor support

specifies which graphics part of the system is activated.

Motherboard Primary
The graphics controller in the processor is activated.

Motherboard Disabled
The graphics controller in the chip set is activated.

Adapter Primary
The graphics controller in an expansion slot is activated.

SDRAM Timing - SDRAM settings

```
                    PhoenixBIOS Setup Utility
          Advanced
┌──────────────────────────────────┬──────────────────────────────┐
│         SDRAM Timing             │      Item Specific Help      │
│                                  │                              │
│  SDRAM Timing:          [SPD]    │                              │
│  CAS Latency:           [SPD]    │                              │
│  Other SDRAM Control:   [AUTO]   │                              │
└──────────────────────────────────┴──────────────────────────────┘
F1  Help  ↑ ↓ Select Item   -/+   Change Values       F9 Setup Defaults
ESC Exit  ←→ Select Menu  Enter  Select ► Sub-Menu  F10 Previous Values
```

SDRAM Timing - SDRAM access

sets the timing for SDRAM access. A small division ratio can increase performance.

SPD The data from the SDRAM-EEPROM are used.

Auto The BIOS specifies the timing itself.

/2, /2.5, /3, /3.5, /4, /4.5
The selected division ratio is used.

CAS Latency - CAS delay

sets the CAS delay. CAS is a signal which determines memory access together with other signals. A shorter CAS delay can increase performance.

SPD The data from the SDRAM-EEPROM are used.

2 clock, 3 clock The set delay is used.

Other SDRAM Control - SDRAM settings (other)

permits additional SDRAM settings.

Only make changes under the *User* setting when you know exactly what lies behind the settings and what a change in the values will do.

Auto The settings are determined by the BIOS (recommended).

User User-defined settings. Please do not make changes if you are unclear as to their effects.

I/O Device Configuration - Input/output device configuration

calls up the sub-menu in which you can make changes for the input/output devices.

```
                    PhoenixBIOS Setup Utility
  Main    Advanced    Security    Power    Boot    Exit

   I/O Device Configuration                    Item Specific Help

  Serial port A:                [Enabled]
    Base I/O address:           [3F8]
    Interrupt:                  [IRQ 4]
  Serial port B:                [Enabled]
    Mode:                       [Normal]
    Base I/O address:           [2F8]
    Interrupt:                  [IRQ 3]
  Parallel Port:                [User]
    Mode:                       [Bi-directional]
    Base I/O address:           [378]
    Interrupt:                  [IRQ5]
    DMA channel:                [DMA 1]
  Floppy disk controller:       [Enabled]
  Local Bus IDE adapter:        [Both]

F1  Help  ↑ ↓ Select Item   -/+   Change Values       F9 Setup Defaults
ESC Exit  ←→ Select Menu  Enter  Select ► Sub-Menu  F10 Previous Values
```

Serial Port A / Serial Port B

configures the serial port.

Disabled The serial port is disabled.

Enabled The serial port is set to the shown address and interrupt. If you set *Enabled*, additional lines are displayed for setting the configuration.

Auto The serial port automatically adjusts to an available combination of resources (address, interrupt).

OS Controlled The operating system configures the ports.

Mode (only serial port 2)

specifies whether the second serial port is used as a standard port, infrared port or as a MIDI port. With the infrared port, a distinction is also made between IrDA and ASK-IR.

Serial mode is not displayed if you selected *Disabled* under Serial 1 / Serial 2.

Normal The port is used as a standard serial port.

IrDA The port is used as an IrDA port.

ASK-IR The port is used as an ASK-IR port.

MIDI The port is used as a MIDI port.

Base I/O address

2F8,3F8, 2E8, 3E8
The serial port uses the selected address.

Interrupt

IRQ 3, IRQ 4 The serial interface uses the selected interrupt.

Parallel Port

configures the parallel port.

Disabled The parallel port is disabled.

Enabled The parallel port is set to the shown address and interrupt. If you set *Enabled*, additional lines are displayed for setting the configuration.

Auto The parallel port is automatically set to an available combination of resources (address, interrupt, DMA).

OS Controlled The operating system configures the port.

Mode - Transfer mode

This field is used to specify whether the parallel port is to be used as a bi-directional input/output port or just as an output port. The *Bi-directional* transfer mode enables faster data transfer rates of 2 and 2.4 Mbyte/s. The condition for the *Bi-directional* transfer mode (also known as ECP and EPP) are peripherals which support these modes.

Output Only The port functions as an output port only.

Bi-directional Data can be transferred in both directions across the port. Fast transfer mode (up to 2.4 Mbytes/s), can output and receive data. The mode requires a peripheral device which supports the ECP (Enhanced Capability Port) transfer mode. The DMA channel required is determined by the system in accordance with Plug&Play.

Base I/O address

determines the base I/O address for the parallel port.

378h, 278h, 3BCh
The parallel interface uses the selected address.

Interrupt

defines the interrupt for the parallel port.

IRQ 5, IRQ 7 The parallel interface uses the selected interrupt.

DMA

defines the interrupt for the parallel port.

DMA 1, DMA 3
The parallel interface uses the selected DMA channel.

Floppy Disk Controller

This field is used to enable and disable the built-in floppy disk controller on the system board.

Enabled The floppy disk controller is enabled - IRQ 6 is used.

Disabled The floppy disk controller is disabled - IRQ 6 is free.

Local Bus IDE adapter - IDE hard disk controller

This field allows you to enable and disable the on-board IDE hard disk controller. The associated interrupts (IRQ 14 for the first connector, IRQ 15 for the second connector) will only be available if no IDE hard disk drive is physically connected.

Disabled The two IDE hard disk controller are disabled.

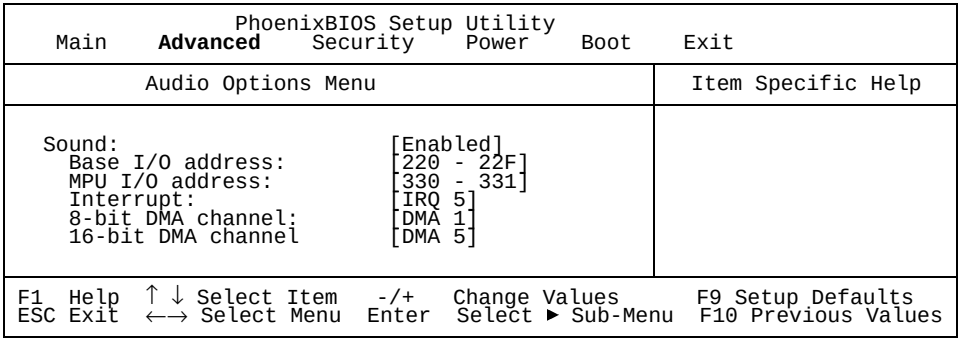
Primary The first IDE hard disk controller is enabled. Two IDE drives can be attached to the first (primary) connector. IRQ 14 is assigned.

Secondary The first IDE hard disk controller is enabled. Two IDE drives can be attached to the first (secondary) connector. IRQ 15 is assigned.

Both Primary and secondary IDE drive controllers are switched on. Up to four IDE drives can be connected. Low-speed drives are preferred for the second (secondary) connector (e.g. CD-ROM). IRQ 14 and IRQ 15 are assigned.

Audio Options Menu - Audio settings

calls the sub-menu in which you can enter audio settings.



Sound - Audio

configures the audio part of the system board.

Disabled The audio part is switched off.

Enabled The audio part is switched on.

Base I/O address

220 - 22F, 240 - 24F, 260 - 26F, 280 - 28F
The audio controller uses the selected I/O address.

MPU I/O address

300 - 301, 330 - 331
The audio controller uses the selected MPU I/O address.

Interrupt

IRQ 2, IRQ 5, IRQ 7, IRQ 10
The audio controller uses the selected interrupt.

8-bit DMA channel

DMA 0, DMA 1, DMA 3
The audio controller uses the selected DMA channel.

16-bit DMA channel

DMA 5, DMA 6, DMA 7
The audio controller uses the selected DMA channel.

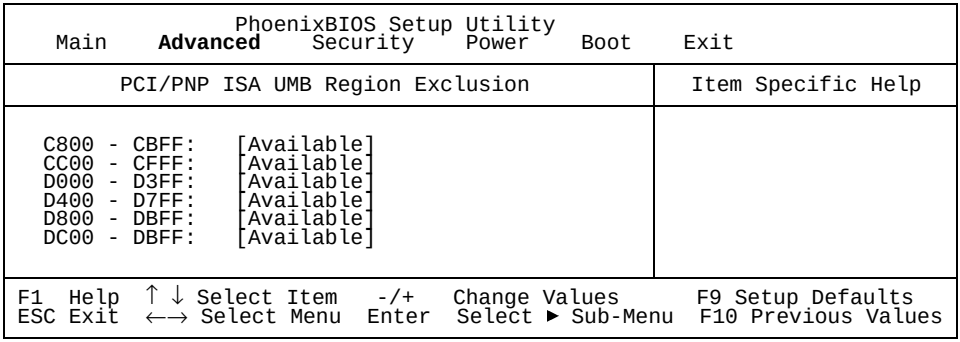
PCI Configuration

invokes the submenu where you can make settings for the PCI devices (PCI slots and PCI components on the system board).

```
                PhoenixBIOS Setup Utility
   Main    Advanced    Security    Power    Boot    Exit

         PCI Configuration                    Item Specific Help

▶ PCI/PNP ISA UMB Region Exclusion
▶ PCI/PNP ISA IRQ Resource Exclusion
▶ PCI/PNP ISA DMA Resource Exclusion
  ISA graphics device installed:  [No]
  PCI IRQ line 1:                 [Auto Select]
  PCI IRQ line 2:                 [Auto Select]

  Option ROM Scan:                [Disabled]

F1  Help  ↑ ↓ Select Item   -/+   Change Values      F9 Setup Defaults
ESC Exit  ←→ Select Menu  Enter  Select ▶ Sub-Menu  F10 Previous Values
```

PCI/PNP ISA UMB Region Exclusion - Block UMB region

calls the sub-menu in which you can block the individual UMB regions (Upper Memory Blocks) so that they cannot be used by standard ISA cards (i.e. not Plug&Play cards).

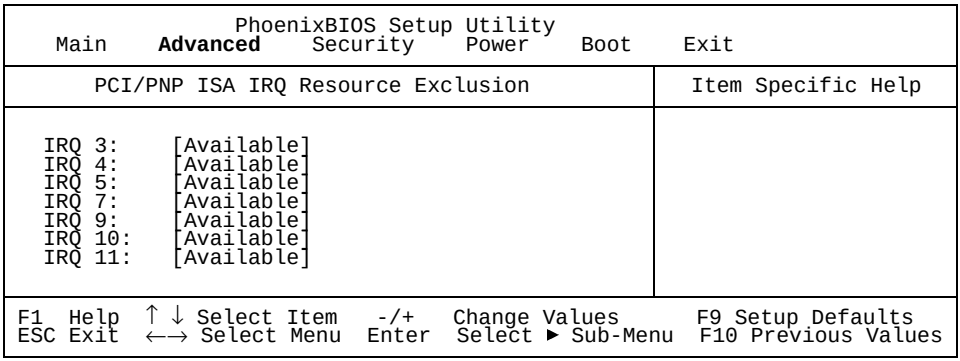


Available This UMB region can be used by PCI and Plug&Play ISA cards.

Reserved This UMB region cannot be used by PCI and Plug&Play ISA cards.

PCI/PNP ISA IRQ Resource Exclusion - Block IRQ

calls the sub-menu in which you can block individual IRQs (interrupts) so that they can be used by standard ISA cards (i.e. non-Plug&Play cards).

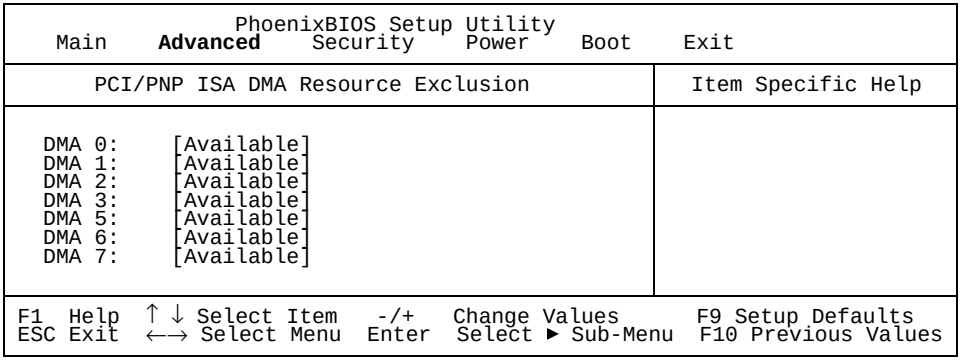


Available This interrupt can be used by PCI and Plug&Play ISA cards.

Reserved This interrupt is not used by PCI and Plug&Play ISA cards.

PCI/PNP ISA DMA Resource Exclusion - Block DMA

calls the sub-menu in which you can block individual DMA channels (Direct Memory Access), so that they can be used by standard-ISA cards (i.e. non-Plug&Play cards).



Available This DMA channel can be used by PCI and Plug&Play ISA cards.

Reserved This DMA channel is not used by PCI and Plug&Play ISA cards.

ISA graphics device installed - ISA graphics controller installed

informs the BIOS whether an ISA graphics controller (non-VGA) is installed and enables it to access the pallet data of the PCI VGA graphics controller.

No No ISA graphics controller is installed.

Yes An ISA graphics controller is installed

PCI IRQ line 1 / 2 - PCI interrupt assignment

assigns a hardware interrupt to a PCI interrupt. No interrupt may be used which is already used by an ISA or EISA device. The *Auto* setting may not be used either when an ISA or EISA device is installed in the system.

Disabled No interrupt is assigned.

Auto Select A free interrupt is automatically assigned.

3, 4, 5, 7, 9, 10, 11, 12, 14, 15
The selected interrupt is assigned.

Option ROM Scan - ROM expansion

specifies whether ROM expansions are looked for and integrated in the system during the system boot. With a ROM expansion it is, for example, to realize a system boot via the network.

Disabled ROM expansions are not searched for.

Enabled ROM expansions are searched for.

Secured Setup Configurations - Protect Setup settings

defines whether the setup parameters can be modified by a plug and play operating system.

Yes The setup parameters cannot be modified by a plug and play operating system.

No The setup parameters can be modified by a plug and play operating system.

Installed O/S

informs the BIOS of the installed operating system.

Other No MS Windows operating system is installed.

Win95 Windows 95 is installed.

Reset Configuration Data

specifies whether the configuration data in the ESCD, in which the configuration data of all non-Plug&Play devices are stored, are deleted and the standard value set.

Yes The configuration data in the ESCD are reset to standard values.

No The configuration data in the ESCD remain unchanged.

Large Disk Access Mode - Hard disk access

specifies the type of hard disk access for large hard disks (more than 1024 cylinders, 16 heads). The default setting depends on the operating system used.

DOS If the operating system uses MS-DOS-compatible hard disk accesses (e.g. Windows 95, Windows 98, Windows NT).

Other If the operating system uses hard disk accesses which are not MS-DOS-compatible (e.g. Novell, SCO Unix).

TV/VGA Selection

specifies the video output.

Auto Detection Automatically determines which video output devices are connected and activates the corresponding output. If a television set is connected, the system switches into the RGB mode; if a monitor is connected, into the VGA mode. If a television set and a monitor are connected, on the VGA mode and the VGA port are activated.

Comp+VGA The output to the television set takes place with an FBAS signal, while the monitor receives a VGA signal at 50 Hz.

TV-RGB The output to the television set takes place with an RGB signal (best quality).

TV-YC + VGA The output to the television set takes place with an S-VHS signal, while the monitor receives a VGA signal at 50 Hz.

Security - security features

The *Security* menu offers you various options for protecting your system and personal data from unauthorized access. By combining these options, you can achieve optimum protection for your system.

```
                PhoenixBIOS Setup Utility
   Main    Advanced    Security    Power    Boot    Exit

                                                  Item Specific Help

Supervisor Password Is:   Clear
User Password Is:         Clear

Set User Password         [Enter]
Set Supervisor Password   [Enter]

Diskette access:          [Disabled]
Fixed disk boot sector:   [Normal]
Virus Check Reminder:     [Disabled]
System backup Reminder:   [Disabled]
Password on boot:         [Disabled]

F1  Help  ↑ ↓ Select Item  -/+    Change Values     F9 Setup Defaults
ESC Exit  ←→ Select Menu  Enter  Select ▶ Sub-Menu  F10 Previous Values
```

Example for *Security* menu

Set User/Supervisor Password

With the Supervisor password you can prevent or limit unauthorized access to the *BIOS Setup*. Only those who know the Supervisor password has unrestricted access to the *BIOS Setup*.

With the User password you can block the booting of the operating system to prevent unauthorized access to the system. Only those who know the user password can access the system.

A User password can first be set up when you have assigned a Supervisor password.

The password must be four to eight characters in length. All alphanumerical characters can be used; no differentiation is made between upper-case and lower-case.

Passwords are not displayed as they are entered.

If you have forgotten your passwords, please contact our technical customer service.

To set or change the user/supervisor password, proceed as follows:

- Mark the *Set User Password* or *Set Supervisor Password* field and press the Enter key.

When a password has been set, you will be asked to enter it:

```
Enter Current Password
```

You are asked to enter the new password:
`Enter New Password`

▶ Enter the password and press the Enter key.

You are asked to confirm the password:
`Confirm New Password`

▶ Enter the password again and press the Enter key.

The new password is saved.
`Changes have been saved [Continue]`

To lock the keyboard and the mouse, use the security functions of your operating system instead of the *Keyboard* entry.

▶ Select the option *Save Changes & Exit* in the *Exit* menu.

The device restarts and the new *User*/*Supervisor* password becomes effective.

Diskette Access - Access protection for floppy disk drive

specifies whether a floppy disk access or a system boot from floppy disk is protected with a password.

User	Allows unlimited access to floppy disks.
Supervisor	Only allows floppy disks to be accessed with the Supervisor password.

Fixed Disk Boot Sector - Write protection for hard-disk boot sector

This field can assign write protection to the System BIOS. The hard disk can only be partitioned or formatted with a password.

Normal	The hard-disk boot sector is not protected.
Write Protect	The hard-disk boot sector is write-protected.

Virus Check Reminder - Virus check reminder

specifies whether the question appears during system boot asking whether the system has already been checked for viruses. The question must be answered with Yes or No. If the question is answered with No, the question appears again during the next system boot. If it is answered with Yes, the reminder does not appear again until after the configured time.

Disabled The reminder function is disabled.

Daily The reminder appears daily during the first system boot.

Weekly The reminder appears weekly during the first system boot.

Monthly The reminder appears monthly during the first system boot.

System Backup Reminder - System backup reminder

specifies whether the question appears during system boot asking whether a backup copy of the system has already been created. The question must be answered with Yes or No. If the question is answered with No, the question appears again during the next system boot. If it is answered with Yes, the reminder does not appear again until after the configured time.

Disabled The reminder function is disabled.

Daily The reminder appears daily during the first system boot.

Weekly The reminder appears weekly during the first system boot.

Monthly The reminder appears monthly during the first system boot.

Password on Boot - Password query during system startup

Requirement: The supervisor password is installed.

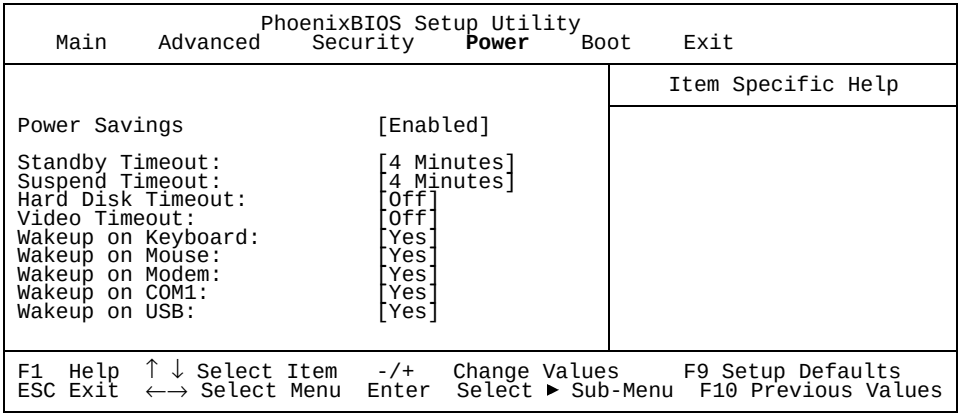
Specifies whether the system is protected with a password.

Disabled No password is requested during system boot.

Enabled A password is requested during system boot.

Power - energy saving functions

Programs for power management (e.g. *POWER.EXE*) can change the settings for the energy saving functions.



Example for menu *Power*

Power Savings - energy saving functions

This field defines the extent of the energy saving functions.

Disabled None of the energy saving functions is effective.

Enabled The functions set in the fields *Standby Timeout*, *Suspend Timeout*, *Hard Disk Timeout* and *Video Timeout* are effective in power management.

Maximum Power Savings, Maximum Performance
These entries call predefined settings, thus determining the extent of energy saving.

Standby Timeout

Requirement: The *Power Savings* field must be set to *Enabled*.
This field defines the amount of time without system activity the system is to wait before switching to standby mode. In the Standby mode the screen is dark and the process clock frequency is reduced. The next *wakeup event* terminates standby mode again.

1 Minute, 2 Minutes, 4 Minutes, 5 Minutes, 10 Minutes, 20 Minutes, 30 Minutes, 1 Hour
The system switches into the standby mode after the selected time.

Off The PC does not switch to standby mode

Suspend Timeout - Suspend mode

Requirement: The *Power Savings* field must be set to *Enabled*.
This field defines the amount of time without system activity the system is to wait before switching to standby mode. In standby mode, the screen is dark and the processor is switched off.
The next wakeup event terminates suspend mode again.

i

In a network environment *Suspend Timeout* must be disabled, otherwise data transfer will be aborted.

If Windows NT is used as the operating system, *Suspend Timeout* should also be switched off, as Windows NT does not support access to the power management settings.

1 Minute, 2 Minutes, 4 Minutes, 5 Minutes, 10 Minutes, 20 Minutes, 30 Minutes, 1 Hour
The system switches into the suspend mode after the selected time.

Off The PC does not switch to suspend mode

Hard Disk Timeout

Requirement: The *Power Savings* field must be set to *Enabled*.
This field defines the amount of time without system activity before the motor of the hard disk drive is switched off. As soon as there is a hard disk access, the motor is switched back on. In the case of newer hard disks, it may happen that in order to increase the life, the hard disk only switches off after several minutes even though a shorter time is set.

i

The energy saving is minimal in the case of newer hard disks.

1 Minute, 2 Minutes, 4 Minutes, 5 Minutes, 10 Minutes, 20 Minutes, 30 Minutes, 1 Hour
The motor of the hard disk drive switches off after the selected time.

Off The PC does not switch off the hard disk drive.

Video timeout - Energy saving functions for the monitor

Requirement: The *Power Savings* field must be set to *Customize*.
This field defines the amount of time without system activity before the monitor is switched off. As soon as there is a hard disk access, the monitor is switched back on.

1 Minute, 2 Minutes, 4 Minutes, 5 Minutes, 10 Minutes, 20 Minutes, 30 Minutes, 1 Hour
The monitor switches off after the selected time.

Off The monitor does not switch off.

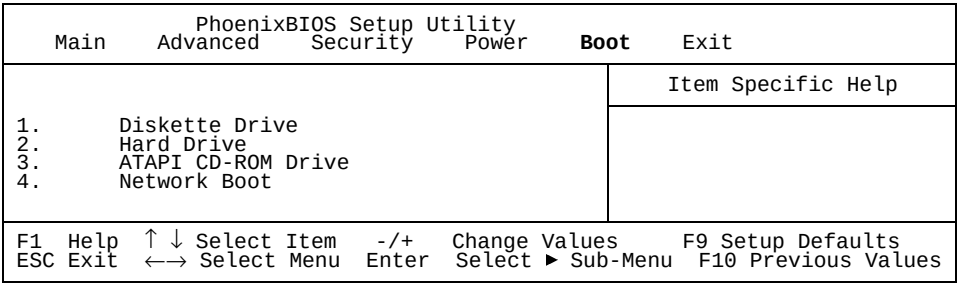
Wakeup on Keyboard, Mouse, Modem, COM1, USB

specifies which event ends the energy-saving mode.

No The system remains in the energy-saving mode when the related event occurs.

Yes The system ends the energy-saving mode when the related event occurs.

Boot - System boot



Example for *Boot* menu

The Boot menu specifies which sequence the system BIOS searches the drives for system files to boot the operating system. The list of drives in the Boot menu is worked through from top to bottom until an operating system is found. The list contains the following entries:

Diskette Drive

Hard Drive

ATAPI CD-ROM Drive

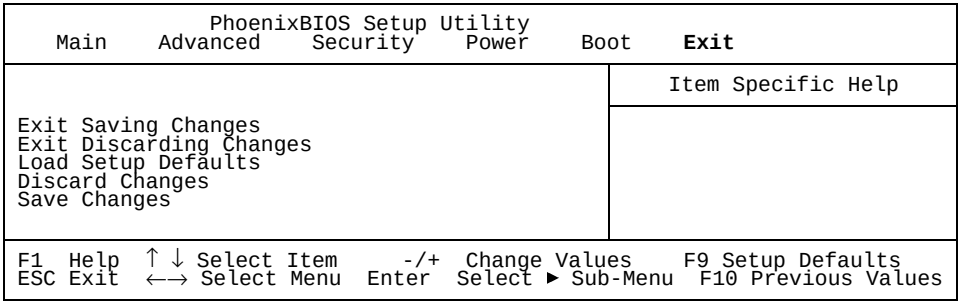
Network Boot

To change this order, position the cursor on the entry of the drive type you want to move up (+ key) or down (- key) and press the corresponding key.

i Following each change to the configuration, check whether the desired drive is still set for the system boot and adjust the entry again if necessary.

Exit menu - Exiting BIOS Setup

In the *Exit* menu, you can save your settings and exit *BIOS Setup*.



Example for menu *Exit*

Exit Saving Changes

saves the settings you have made and exits *BIOS Setup*.

Exit Discarding Changes

exits *BIOS Setup* without saving the new settings.

Load Setup Defaults - Load Default Entries

reverts all settings to the default values.

Discard Changes

sets the values which were in effect when *BIOS Setup* was called.

Save Changes

saves the settings you have made.

Error messages

This chapter contains error messages generated by the system boards

`Diskette drive A error`
`Diskette drive B error`

Check the entry for the diskette drive in the *Main* menu of the *BIOS Setup*. Check the connections to the diskette drive.

`Extended RAM Failed at offset: nnnn`
`Failing Bits: nnnn`
`System RAM Failed at offset: nnnn`

Switch the device off and on again. If the message is still displayed, please contact your sales outlet or customer service center.

`Failure Fixed Disk 0`
`Failure Fixed Disk 1`
`Fixed Disk Controller Failure`

Check the entry for the hard disk drive in the *Main* menu and the entry for the IDE drive controller in the *Advanced - Peripheral Configuration* menu of the *BIOS Setup*. Check the hard disk drive's connections and jumpers.

`Incorrect Drive A type - run SETUP`
`Incorrect Drive B type - run SETUP`

Correct the entry for the diskette drive in the *Main* menu of the *BIOS Setu*p.

`Invalid System Configuration Data  ?????`

Set the default values in the BIOS Setup (*Exit* menu, *Load Setup Defaults* menu item).

`Keyboard controller Failed`

Connect another keyboard or another mouse. If the message is still displayed, please contact your sales outlet or customer service center.

`Keyboard error`

Check that the keyboard is connected properly.

`Keyboard error nn`
`nn Stuck Key`

Release the key on the keyboard (*nn* is the hexadecimal code for the key).

`Monitor type does not match CMOS - RUN SETUP`

Correct the entry for the monitor type in the *Main* menu of the *BIOS Setup*.

`Operating system not found`

Check the entries for the hard disk drive and the floppy disk drive in the *Main* menu and the entries for *Boot Sequence* submenu of the *BIOS Setup*. Check whether a bootable data carrier is present.

`Parity Check 1`
`Parity Check 2`

Switch the device off and on again. If the message is still displayed, please contact your sales outlet or customer service center.

`Previous boot incomplete - Default configuration used`

By pressing function key F2 you can check and correct the settings in *BIOS Setup*. By pressing function key F1 the system starts with incomplete system configuration. If the message is still displayed, please contact your sales outlet or customer service center.

`Real time clock error`

Call the *BIOS Setup* and enter the correct time in the *Main* menu. If the message is still displayed, please contact your sales outlet or customer service center.

`System battery is dead - Replace and run SETUP`

Replace the lithium battery on the system board and redo the settings in the *BIOS Setup*.

`System Cache Error - Cache disabled`

Switch the device off and on again. If the message is still displayed, please contact your sales outlet or customer service center.

`System CMOS checksum bad - Default configuration used`

Call the *BIOS Setup* and correct the previously made entries or set the default entries.

`System timer error`

Switch the device off and on again. If the message is still displayed, please contact your sales outlet or customer service center.

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