System board D983

Technical Manual

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System board D983

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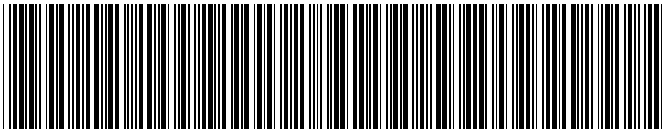

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System board D983

Technical Manual

November 1998 edition

Contents

Introduction

This description applies for the system board D983 with PCI bus (Peripheral Component Interconnect).
You may find further information in the reference manual "BIOS Setup".

Notational conventions

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

Failure to do so may endanger your health, the operational integrity and electrical safety of your PC, or the security of your data.

This symbol is followed by supplementary information, remarks and tips.

► Texts which follow this symbol describe activities that must be performed.
␣ 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 item.
"Quotation marks" indicate names of chapters and terms that are being emphasized.

Features

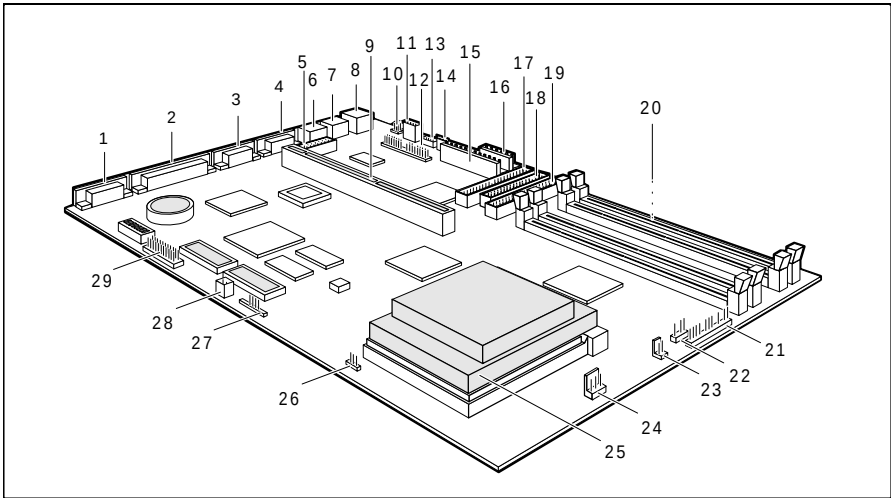
- 64-bit microprocessor Pentium Pro with 16 Kbytes internal cache (8 Kbytes data cache, 8 Kbytes code cache) and 256 Kbyte or 512 Kbyte internal Second-Level Cache or OverDrive-Prozessor for Pentium
- Memory configuration on system board: 8 to 512 Mbytes (FPM or EDO)
- Error recognition via ECC
- 256 Kbytes Flash BIOS
- PCI bus
- IDE hard disk controller connected to PCI bus for up to four IDE drives (e.g. IDE hard disk drives, ATAPI CD ROM drive)
- Real-time clock/calendar with integrated battery backup
- Floppy disk controller (up to 2.88 Mbytes format)
- Bus interface for platter
- Connector for remote-on (fax/modem board), feature connector, loudspeaker, chipcard reader and infrared interface (IrDA)
- Parallel port (ECP- and EPP-compatible)
- 2 serial ports
- 2 USB (Universal Serial Bus) interfaces
- PS/2 mouse port
- PS/2 keyboard port
- Energy saving functions
- Security functions

Optional Components

- Piezo loudspeaker
- Monitor port
- Monitor controller connected to PCI bus, graphics processor Cirrus Logic CL-GD5436 or CL-GD5446 with Windows accelerator and 1 Mbyte or 2 Mbytes DRAM video memory
- Audio controller on ISA-BUS (Creative VIBRA 16C; 16 bit; compatible with Sound Blaster 16, MPU401, Multimedia PC and Multimedia PC II)
- Connector for CD-line in, audio, voice modem, AUX-in
- Microphone connector (via supplementary board)
- Audio port (line in) (via supplementary board)
- Headphone connector (via supplementary board)
- Game/Midi connector (via supplementary board)

i The microphone connector, audio port and headphone connector are connected via a common plug (Game/Midi / Audio) on the system board.

Ports and connectors



1 = Monitor port
2 = Parallel port
3 = Serial port 2
4 = Serial port 1
5 = Chipcard reader
6 = PS/2 mouse port
7 = PS/2 keyboard port
8 = USB 1 and 2
9 = Slot board
10 = Voice modem
11 = CD Line in
12 = Game/Midi / Audio
13 = AUX-in
14 = Connector for soft-off power supply
15 = Power supply 5 V and ±12 V
16 = Power supply 3.3 V
17 = IDE drives 1 and 2 (primary)
18 = Floppy disk drive
19 = IDE drives 3 and 4 (secondary)
20 = Infrared interface
21 = LED indicators in front panel
22 = External loudspeaker
23 = Power on switch
24 = Fan connector
25 = Processor with heat sink and fan
26 = Connector for processor fan
27 = SCSI LED
28 = Remote on via fax/modem
29 = Feature connector for supplementary board

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

i If the connector for the chipcard reader port is used, no device may be connected to serial interface 1.

Possible screen resolution

The screen resolutions in the following table refer to the monitor controller on the system board. If you are using an external monitor controller, you will find details of supported screen resolutions in the Operating Manual or Technical Manual supplied with the controller.
You can set the screen resolution under Windows 95 by selecting *Control Panel - Display - Settings.*
You can set the screen resolution under MS-DOS using the *SET-VGA* program.

Screen resolution	Refresh rate (Hz)	Horizontal-rate (kHz) **	Max. number of colors
640x350	70	31,5	16
640x350	84	38	16
640x480	60	31,5	16777216
640x480	75	37,5	16777216
640x480	85	43,4	16777216
640x480	100	50,6	16777216
720x400	70	31,5	16
720x400	84	38	16
800x600	60	38	65536
800x600	60	38	16777216
800x600	72	48	65536
800x600	72	48	16777216
800x600	75	47	65536
800x600	75	47	16777216
800x600	85	53,7	65536
800x600	85	53,7	16777216
800x600	100	63	65536
800x600	100	63	16777216

to be continued

Screen resolution	Refresh rate (Hz)	Horizontal-rate (kHz) **	Max. number of colors
1024x768	87 interlaced	36	256
1024x768	87 interlaced	36	65536
1024x768	60	48,4	256
1024x768	60	48,4	65536
1024x768	75	60	256
1024x768	75	60	65536
1024x768	85	68,7	256 *
1024x768***	85	68,7	65536 *
1024x768	100	81	256 *
1280x1024	87 interlaced	49	16
1280x1024	87 interlaced	49	256
1280x1024	60	63,7	256 *
1280x1024	75	80,4	256 *

* no 16 color mode

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

*** not graphics processor Cirrus Logic CL-GD5446

The values marked are only available with a 2-Mbytes video memory.

Resource table

	Assigned IRQ	Possible IRQ	Possible Address	Possible DMA
Keyboard	IRQ1			
Serial port COM2 / IrDA	IRQ3		02F8, 03F8 02E8, 03E8	
Serial port COM1 / Chip card reader	IRQ4		03F8, 02F8 03E8, 02E8	
Floppy disk drive controller	IRQ6			DMA2
Parallel port LPT1	IRQ7	IRQ5, IRQ7	0278, 0378	DMA1, DMA2, DMA3
RTC	IRQ8			
Audio controller Joystick: Base address: MPU 401: Adlib:		IRQ5, IRQ7, IRQ9, IRQ10	 0200-0207 0220-022F 0240-024F 0260-026F 0280-028F 0300-0301 0330-0331 0338-038B	DMA1, DMA3, DMA5, DMA7
USB controller	IRQ11			
Mouse controller	IRQ12			
Numeric processor	IRQ13			
IDE controller 1	IRQ14			
IDE controller 2	IRQ15			

„Assigned IRQ“ = interrupts assigned as shipped
„Possible IRQ“ = these interrupts can be used for your particular application
„Possible address“ = this address can be used for your particular application
„Possible DMA“ = this DMA can be used for your particular application

i Please note that a resource cannot be used by two applications at the same time.

Important Notes

Be sure to read this page carefully and note the information before you open the PC.
Please note the information provided in the chapter "Safety" in the Operating Manual of the PC.
Incorrect replacement of the lithium battery may lead to a risk of explosion. It is therefore essential to observe the instructions in the section "Add-on modules“ - "Replacing the lithium battery"
The lithium battery must be replaced with an identical battery or a battery type recommended by the manufacturer (CR2032).
Do not throw lithium batteries into the trashcan. The lithium battery must be disposed of in accordance with local regulations concerning special waste.

ADVARSEL

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Lever det brugte batteri tilbage til leverandøren.

ADVARSEL

Eksplosjonsfare ved feilaktig skifte av batteri. Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten. Brukte batterier kasseres i henhold til fabrikantens instruksjoner.

VARNING

Eksplosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkarenfabrikanten. Kassera använt batteri enligt fabrikantens instruktion.

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

CE

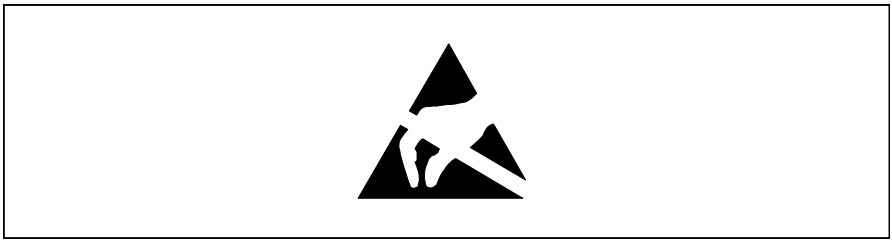
This board complies with the requirements of the EEC directive 89/336/EEC with regard to "Electromagnetic compatibility". Conformity was tested in the typical configuration of a Personal Computer.
When installing the board, observe the specific installation notes in the Operating Manual or Technical Manual for the appropriate device.

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

Modules can become very hot during operation. Make sure you do not touch modules when adding components to the system board. There is a danger of burns!

Notes on installing and removing boards

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.

Settings in BIOS Setup

The *BIOS Setup* allows you to set your hardware configuration and system functions. In addition, the *BIOS Setup* displays technical information on the PC's configuration.
When it is supplied, the device is set to factory default settings which you can alter in the *BIOS Setup* menus. Any changes you make take effect as soon as you save the settings and quit the *BIOS Setup.*
The Operating Manual describes how to call the *BIOS Setup* and change menu entries.
You can select the following settings in the *BIOS Setup*:
Main - system functions
Advanced - advanced system configuration
Security - security features
Power - power management features
BIOSFaX - quick start functions
Exit - save and quit

i The various menus are described below with all setting options. Since the setting options depend on your PC's hardware configuration, some of them may not be offered in the *BIOS Setup.*

Main menu - System settings

In the *Main* menu you can set up the following:

- Time (in the field marked *System Time*)
- Date (in the field marked *System Date*)
- Floppy disk drive (in the field marked *Diskette A* or *Diskette B*)
- Hard disk drive (in the submenus of *Hard Disk*)
- Display device (in the field marked *Video Display*)
- System boot (in the submenus of *Boot Options*)

```
    Phoenix BIOS Setup
  Main    Advanced    Security    Power    BIOSFaX    Exit

  System Time:          [07:42:19]          Item Specific Help
  System Date:          [08/11/1995]

  Diskette A:           [1.4M]
  Diskette B:           [None]

► Hard Disk 1:          1 Gbyte
► Hard Disk 2:          None
► Hard Disk 3:          None
► Hard Disk 4:          None

► Boot Options

  Video Display:        [EGA/VGA]

  Base Memory:             640K
  Extended Memory:           7M

F1  Help    ↑↓  Select Item    -/+   Change Values      F9 Setup Defaults
ESC Exit    ←→ Select Menu   Enter  Execute Command    F7 Previous Values
```

Example for *Main* menu

System Time / System

The *System Time* field and the *System Date* field show the time and date respectively according to the PC. The time is shown in the format hh:mm:ss (hours:minutes:seconds) and the date is shown in the format mm/dd/yyyy (month/day/year).

If the settings in the *System Time* and *System Date* fields are frequently wrong when you power up the computer, the lithium battery is dead. Change the battery as described in „Add-on modules“ - Replacing the lithium battery“).

Diskette A / Diskette B

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

360K, 720K, 1.2M, 1.4M, 2.8M
: The entry depends on the floppy disk drive installed.
(Default entry Diskette A : *1.4M*).

None
: A floppy disk drive is not installed.
(Default entry for Diskette B:).

Hard Disk 1 to Hard Disk 4

call the submenu to make corresponding settings of the IDE hard disk drive.

i You should change the default settings only if you are connecting an additional IDE drive to one of the two IDE connectors.
The maximum transfer rate of two IDE drives connected to the same connector is determined by the slowest one. Fast hard disks should therefore be connected to the first IDE connector and identified as *Hard Disk 1* or *Hard Disk 2*. Slower hard disks or other IDE drives (e.g. CD ROM drives) should be connected to the second IDE connector and identified as *Hard Disk 3* or *Hard Disk 4*.

The following description of the setting options for *Hard Disk 1* also applies to *Hard Disk 2*, *Hard Disk 3* and *Hard Disk 4*. The default settings depend on the installed drive.

```
  Phoenix BIOS Setup
  Main

        Hard Disk 1:          1 Gbyte          Item Specific Help

  Autotype Hard Disk:         [Press Enter]

  Type:                       [User]
  Cylinders:                  [ 1654]
  Heads:                      [   16]
  Sectors/Track:              [   63]
  Write Precomp:              [None]

  Transfer Mode:              [Standard]
  LBA Translation:            [Enabled]
  PIO Mode:                   [Fast PIO 3]
  32 Bit I/O:                 [Enabled]

F1  Help    ↑↓  Select Item    -/+   Change Values      F9 Setup Defaults
ESC Exit    ←→ Select Menu    Enter  Execute Command    F7 Previous Values
```

Example for the submenu *Hard Disk 1*

Only if you have installed a new unrecorded IDE hard disk drive, you should mark the *Autotype Hard Disk* field.
If you have set the hard disk parameters with *Autotype Hard Disk*, you can only reduce the values.

If you have installed a new unrecorded IDE hard disk drive, you should mark the *Autotype Hard Disk* field and press Enter. This has the effect of setting the optimum values for the IDE hard disk drive. You can change these values if you set the *Type* field to *User*.

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* and *Write Precomp*). An IDE drive has not been installed.

1 to *39* The hard disk parameters (*Cylinders, Heads,* etc.) are preset.

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.

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

Hard disk parameter	Hard disk capacity			
	850 Mbyte	1,2 Gbyte	1,6 Gbyte	2,1 Gbyte
Cylinders	1654	2484	3148	4092
Heads	16	16	16	16
Sectors	63	63	63	63
Write Precomp	None	None	None	None

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

Cylinders, Heads, Sectors/Track, Write Precomp - hard disk parameter
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*.

Transfer Mode
This field specifies the transfer mode for the IDE hard disk drive.
Standard One block is transferred for each interrupt (default entry).
2 Sectors, 4 Sectors, 6 Sectors, 8 Sectors, 16 Sectors
The set number of blocks (sectors) is transferred for each interrupt.

LBA Translation - Addressing
This field enables and disables the LBA (Logical Block Addressing) mode. LBA mode allows you to install and use hard disks with a capacity of more than 528 Mbytes. If a hard disk supports LBA mode, you can use the full capacity of the IDE hard disk.
The default entry depends on the installed IDE hard disk drive. Change the default entries only if you are installing another hard disk drive.

You may only use IDE drives in the LBA mode 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 with LBA mode disabled.

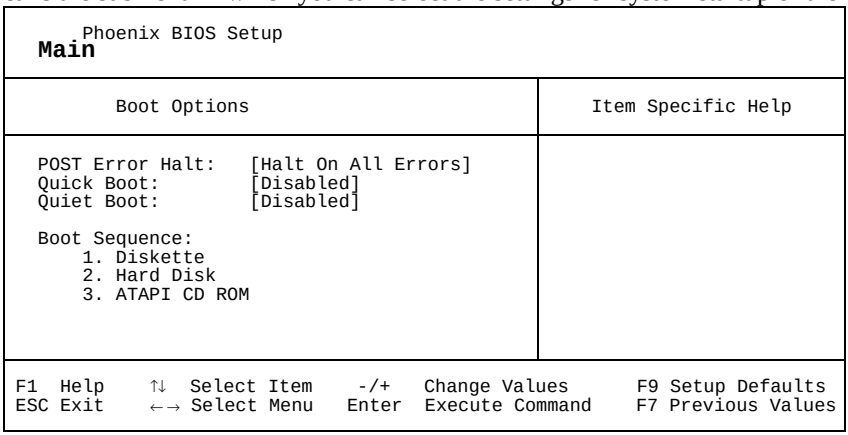
Enabled If the hard disk supports LBA and it has a capacity of more than 528 Mbytes, the BIOS translates the hard disk parameters, allowing the disk's full capacity to be used.
If the hard disk does not support LBA, its parameters are not translated.
Disabled The BIOS uses the hard disk parameters and supports a maximum capacity of 528 Mbytes.

PIO Mode
The PIO (Programmed Input Output) Mode defines the transfer rate of the IDE hard disk drive.
Standard 0,8 Mbyte/s to 2 Mbytes/s (default entry)
Fast PIO 1 2 Mbytes/s to 4 Mbytes/s
Fast PIO 2 4 Mbytes/s to 5 Mbytes/s
Fast PIO 3 5 Mbytes/s to 10 Mbytes/s
Fast PIO 4 more than 10 Mbytes/s

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 (default entry).. This enhances performance.
Disabled The data transfer is 16 bits in width.

Boot Options

calls the submenu in which you can select the settings for system startup of the PC.



Example for submenu *Boot Options*

POST Error Halt - Aborting system startup
defines whether the system startup is to be aborted and the system halted when an error is detected.

Halt On All Errors
If the self-test detects an error, system startup is aborted after the self-test, and the system is halted (default entry).

No Halt On Any Errors
The system startup is not aborted. The error is ignored as far as possible. The error is ignored as far as possible.

Quick Boot
can reduce the extent of the self-test and thus accelerate the system startup.

Enabled When the PC is switched on, the quick self-test is carried out, in which the floppy disk drives are not checked.

Disabled When the PC is switched on, the complete PC configuration is tested (default entry).

Quiet Boot
Instead of a start information a logo is diplayed on the screen.

Enabled The logo is displayed. A switch to the start information is made if you press the ESC key or if errors occur.

Disabled The start information is displayed on the screen (default entry).

Boot Sequence
defines the sequence in which the system BIOS searches the drives for system files to start the operating system. If you wish to change this sequence, place the cursor on the entry for the drive you to which wish to move forward (⊞ key) or back (⊟ key).
Default entry: *1. Diskette*
2. Hard Disk
3. ATAPI CD ROM

Video Display

This field is used to specify the type of monitor connected.
EGA/VGA, Color 80, Monochrome
Default entry: *EGA/VGA*

Base Memory

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

Extended Memory

This field indicates the size of the memory above 1 Mbyte.

Advanced menu - Making advanced system settings

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

You can make the following system settings in the *Advanced* menu:

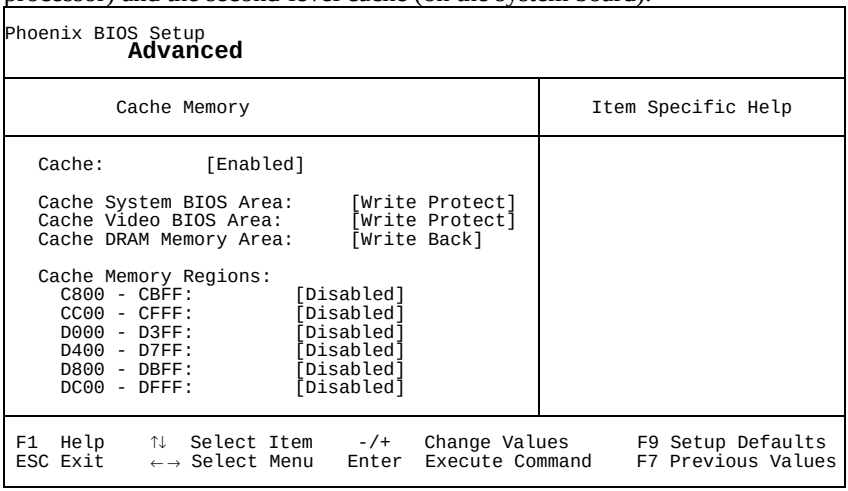
- Internal cache and second-level cache (in the *Cache Memory* submenu)
- Copy BIOS sections to the RAM (in the *Shadow Memory* submenu)
- Ports and controllers (in the *Peripheral Configuration* submenu)
- PCI functionality (in the *PCI Configuration* submenu)
- Data access to hard disk (in the *Advanced System Configuration* submenu)
- Plug&Play functionality (in the *Plug and Play O/S* field)
- Configuration data (in the *Reset Configuration Data* field)
- Hard disk access (in the *Large Disk Access Mode* field)

```
          Phoenix BIOS Setup
   Main    Advanced    Security    Power    BIOSFaX    Exit

                     Warning!                          Item Specific Help
  Setting items on this menu to incorrect
values
  may cause your system to malfunction.

 ► Cache Memory
 ► Shadow Memory
 ► Peripheral Configuration
 ► PCI Configuration
 ► Advanced System Configuration

   Plug & Play O/S:              [Yes]
   Reset Configuration Data:     [No]

   Large Disk Access Mode:       [DOS]

 F1  Help    ↑↓  Select Item    -/+    Change Values       F9 Setup Defaults
 ESC Exit    ←→  Select Menu   Enter   Execute Command     F7 Previous Values
```

Example for the *Advanced* menu

Cache - Cache Memory

calls the submenu in which you can make the settings for the internal cache (in the processor) and the second-level cache (on the system board).



Example for submenu *Cache Memory*

Cache
This field switches the cache on and off. The cache is a buffer to which parts of the main memory and BIOS can be temporarily copied. The PC's performance is higher when the cache is switched on.
You must disable the cache:

- if the access time is too short for older applications
- if you are installing *OS/2 Warp*.

Enabled	Cache is used.
Disabled	Cache is disabled. All cache-related settings are then without effect.

Cache System BIOS Area / Cache Video BIOS Area

Requirement: The Cache field must be set to *Enabled.*

Cache System BIOS Area and *Cache Video BIOS Area* lets you specify the BIOS that should be mapped to the cache. Mapping the BIOS to the cache increases system performance.

Write Protect	The specified BIOS is mapped to the cache (default entry).
Disabled	The specified BIOS is not mapped to the cache.

Cache DRAM Memory Area

Prerequisite: The *Cache* field must contain *Enabled.*

Parts of the main memory can be mapped in the cache using *Cache DRAM Memory Area*. If the contents of the memory are in the cache, the device's performance is enhanced.

Write Through	The contents of the memory are simultaneously mapped in the cache and written in the main memory. The main memory and the cache contain the same information.
Write Back	The contents of the memory are mapped in the cache and written in the main memory only as required. The main memory and the cache do not contain the same information. The *Write Back* setting provides the best performance (default entry).
Disabled	The contents of the memory are not mapped in the cache .

Cache Memory Regions

Requirement: The Cache field must be set to *Enabled.*

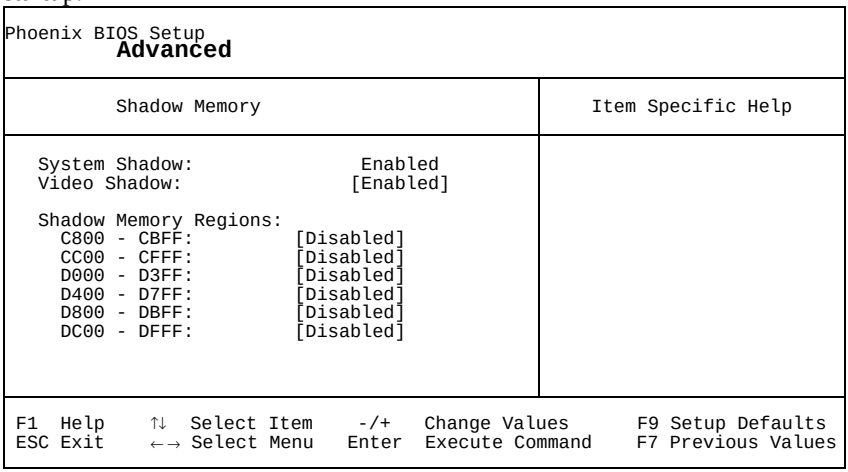
Cache Memory Regions lets you specify the BIOS ROM areas that should be mapped to the cache. Mapping the BIOS ROM areas to the cache increases system performance.

Enabled	The relevant ROM area is mapped to the cache.
Disabled	The relevant ROM area is not mapped to the cache (default entry).

If your ISA board uses a dual ported RAM in the associated ROM area, set the entry to *Disabled.*

Shadow Memory

calls the submenu in which you can specify which parts of the ROM (Read Only Memory) are to be copied to the faster RAM (Random Access Memory) at system startup.



Example for submenu *Shadow Memory*

System Shadow
This field is always *Enabled*, because the System BIOS is automatically copied to the faster RAM.

Video Shadow
This field allows you to copy the video BIOS to fast RAM. Copying the video BIOS to fast RAM increases system performance.

Enabled The video BIOS is copied to fast RAM (default entry).

Disabled The video BIOS is not copied to fast RAM. This setting is not effective with an external monitor controller connected to the PCI bus.

Shadow Memory Regions
Shadow Memory Regions allows you to copy ROM areas to fast RAM. Copying ROM areas to fast RAM increases system performance.
Enabled The ROM area is copied to fast RAM.
Disabled The ROM area is not copied to fast RAM (default entry).

If your ISA board uses a dual ported RAM in the associated ROM area, set the entry to *Disabled.*

Peripheral Configuration

calls the submenu in which you can set the ports and controllers.

```
      Phoenix BIOS Setup
         Advanced

         Peripheral Configuration                Item Specific Help

  Serial 1:                [Auto]
  Serial 2:                [Auto]
  Serial 2 Mode:           [Standard]
  Parallel:                [Auto]
  Parallel Mode:           [Printer]

  Diskette Controller:     [Enabled]
  Hard Disk Controller:    [Primary And
Secondary]

  Mouse Controller:        [Enabled]
  Audio Controller:        [Enabled]
  USB Controller:          [Disabled]

F1  Help    ↑↓  Select Item    -/+   Change Values      F9 Setup Defaults
ESC Exit    ←→ Select Menu   Enter  Execute Command    F7 Previous Values
```

Example for submenu *Peripheral Configuration*

Serial 1 / Serial 2
This field selects the address and the interrupt used to access the relevant serial port.
3F8h, IRQ4, *2F8h, IRQ3*, *3E8h, IRQ4*, *2E8h, IRQ3*,
The serial port is set to the shown address and interrupt.
Auto The serial port is automatically set to the next available combination (address, interrupt) (Default entry).
Disabled The serial port is disabled.

Serial 2 Mode
This field defines whether the second serial port is used as the standard port or as the infrared interface.
If you wish to use infrared data transfer, an infrared interface with the associated hardware must be incorporated in the device.
Standard The port operates as a serial port (default entry).
IRDA (Infra-Red Data Association) The serial port permits infrared data transfer up to 115 kbit/s. External serial port 2 does not function.
Disabled The serial port is disabled.

Parallel
This field selects the address and the interrupt used to access the parallel port.
378h, IRQ7, *278h, IRQ5*, *3BCh, IRQ7*
The parallel port is set to the shown address and interrupt.
Auto The parallel port is automatically set to the next available combination (address, interrupt) (Default entry).
Disabled The parallel port is disabled.

Parallel 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. *EPP* and *ECP* transfer modes allow faster transfer rates of 2 and 2.4 Mbytes/s. These modes will only work with peripheral devices which support them. In addition, the field *Parallel* must be set to *378h* or *278h*.

Printer	The port functions as an output port only (default entry).
Bidirection	Data can be transferred in both directions across the port.
EPP	Fast transfer mode (up to 2 Mbytes/s), can output and receive data. The mode requires a peripheral device which supports the EPP (Enhanced Parallel Port) transfer mode.
ECP	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.

Diskette 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. (default entry).
Disabled	The floppy disk controller is disabled - IRQ 6 is free.

Hard Disk Controller
This field allows you to enable and disable the built-in 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.

Primary The first IDE hard disk controller is enabled (default entry). Two IDE drives (preferably high-speed hard disks) can be attached to the first (primary) connector. IRQ14 is occupied.

Primary And Secondary
Primary and secondary IDE drive controllers are activated (default entry). Up to four IDE drives can be connected. Low-speed drives are preferred for the second (secondary) connector (e.g. CD-ROM). IRQ14 and IRQ15 are occupied.

Disabled The two IDE hard disk controller are disabled.

Mouse Controller
This field is used to enable and disable the built-in mouse controller on the system board.

Enabled The mouse controller is enabled (default entry)- IRQ 12 is used. .

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

Audio Controller
This field sets the base address for the audio controller on the system board or disables the audio controller.

Enabled The system BIOS determines which system resources (interrupts, addresses, DMAs) are occupied (default entry).

Disabled The audio controller is disabled.

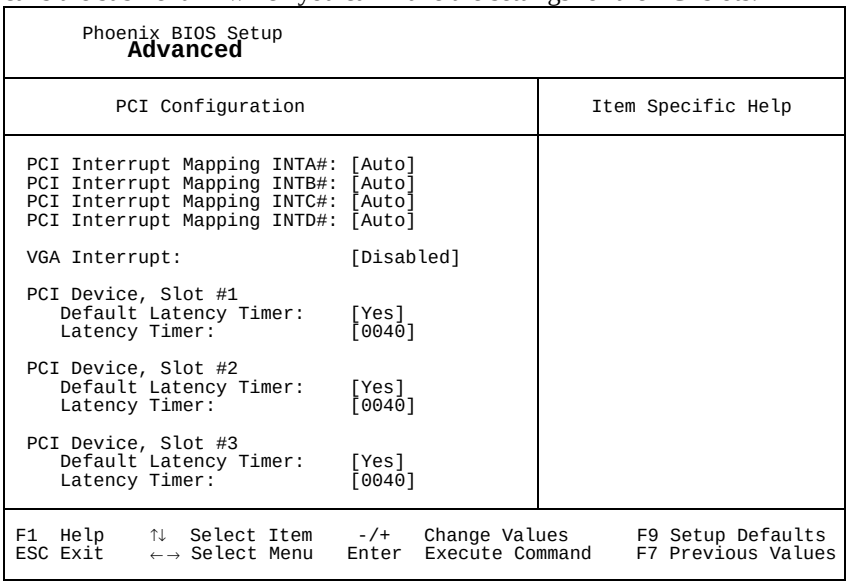
USB Controller
switches the USB controller (Universal Serial Bus) of the system board on or off.

Enabled The system BIOS determines which system resources (interrupts, addresses) are occupied.

Disabled The USB controller is disabled (default entry).

PCI Configuration

calls the submenu in which you can make the settings for the PCI slots.



Example for submenu *PCI Configuration*

PCI Interrupt Mapping INTx#
defines which PCI interrupt is switched to which ISA interrupt. For the change to take effect, you must switch your PC off and then on again after the *BIOS Setup* has terminated.
With multifunctional PCI boards, all PCI interrupts can be used. The controllers on the system board do not need any PCI interrupts.
If you use a setting other than *Auto*, the Plug&Play functionality of the system BIOS for PCI boards is deactivated.
The PCI interrupts INTA#, INTB# and INTC# are assigned as follows:
PCI slot 1 = INTA#, PCI slot 2 = INTB#, PCI slot 3 = INTC#

Auto The PCI interrupts are assigned automatically in accordance with the Plug&Play guidelines (default entry).

Disabled No PCI interrupt is used for the PCI board in the assigned PCI slot.

IRQ03, IRQ04, IRQ05, IRQ06, IRQ07, IRQ09, IRQ10, IRQ11, IRQ12, IRQ14, IRQ15 The PCI interrupt is switched to the selected ISA interrupt. You may not select an ISA interrupt that is used by a component on the system board (e.g. controller) or an ISA board.

VGA Interrupt
assigns PCI interrupt to the monitor controller on the built-in PCI module. If you have not defined any other interrupt with *PCI Interrupt Mapping*, IRQ9 is assigned.

Enabled The interrupt is assigned to the monitor controller on the built-in PCI module.

Disabled The interrupt can be used for other add-on modules (default entry).

PCI Device, Slot #n: Default Latency Timer
specifies the lowest number of clock cycles in which a PCI master module can be active at the PCI bus. *n* stands for the number of the PCI slot. For the change to take effect, you must switch your PC off and then on again after the *BIOS Setup* has terminated.

Yes The value predefined by the PCI module is accepted. The entry in the corresponding field for PCI Device, *Slot #n: Latency Timer* is ignored.

No The value predefined by the PCI module is ignored. The value set in the corresponding field for *PCI Device, Slot #n*: *Latency Timer* determines the number of clock cycles.

PCI Device, Slot #n: Latency Timer
Requirement: The corresponding field for *PCI Device, Slot #n*: *Default Latency Timer* must be set to No.
The field defines the lowest number of clock cycles in which a burst can be transferred on the PCI bus. *n* stands for the number of the PCI slot.
0000h to *0280h* Number of clock cycles (default entry = *0040h*).

Advanced System Configuration

calls the submenu in which you can make additional settings.

```
      Phoenix BIOS Setup
         Advanced

        Advanced System Configuration          Item Specific Help

  ISA Memory Gap:                [Disabled]
  PCI Bus Parity Checking:       [Enabled]
  PCI Burst Write Combining:     [Enabled]
  ECC Control:                   [Enabled]
  Feature Connector:             [Disabled]
  FAN Control:                   [Disabled]

F1  Help    ↑↓  Select Item    -/+   Change Values      F9 Setup Defaults
ESC Exit    ←→ Select Menu   Enter  Execute Command    F7 Previous Values
```

Example for submenu *Advanced System Configuration*

ISA Memory Gap
inserts a contiguous ISA memory area of 1 Mbyte into the main memory area of 15 to 16 Mbytes.

Enabled	The ISA memory area is inserted.
Disabled	The ISA memory area is not inserted (default entry).

PCI Bus Parity Checking
If you use PCI modules which do not behave in accordance with PCI bus guidelines, you can deactivate PCI parity checking.

Enabled	Parity checking is performed (default entry).
Disabled	Parity checking is not performed.

PCI Burst Write Combining - Chip set configuration
If you use PCI modules which do not behave in accordance with PCI bus guidelines, you can deactivate PCI Burst Write Combining.

Enabled	PCI Burst Write Combining is enabled (default entry).
Disabled	PCI Burst Write Combining is disabled.

ECC Control - Error correction for main memory
permits data error recognition and correction using the appropriately equipped memory modules.

Enabled	Error Correction Code (ECC) is active if all memory modules support ECC (default entry).
Disabled	Error Correction Code (ECC) is disabled.

Feature Connector
Enables or disables the feature connector on the system board.

Enabled	The feature connector is enabled.
Disabled	The feature connector is disabled (default entry).

FAN Control
controls the speed of the processor fan.

Enabled Speed is controlled.

Disabled Maximum speed (default entry).

Do not change the default!

Plug & Play O/S

defines the Plug&Play functionality. Plug&Play means that inserted modules are automatically recognized and installed if they support Plug&Play.

Yes The operating system takes over some of the Plug&Play functions (default entry). You should select this setting only if the operating system supports Plug&Play.

No The BIOS takes over the complete Plug&Play functionality.

Reset Configuration Data

This field specifies whether the configuration data is reset and reinitialized when the PC is started.

Yes When the PC is started the old configuration data is reset and the entry in this field is set to NO. The new configuration data is determined by means of the Plug&Play functionality. The mounted modules and drives are then initialized with this data.

No The Plug&Play functionality ascertains the current configuration data and uses it to initialize the installed modules and drives. The configuration data of non-Plug&Play components is not reset (default entry).

Large Disk Access Mode

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 the operating system uses MS-DOS-compatible hard disk accesses.

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

Menu Security - Setting up the security features

You can set up the following security features in the *Security* menu:

- Protecting BIOS Setup (in the field marked *Set Setup Password*)
- Protecting BIOS of add-on modules (in the field marked *Setup Password Lock*)
- Protecting system boots (in the field marked *Set System Password*)
- Locking input devices (in the field marked *System Password Mode*)
- Prevention of system boots from floppy disk (in the field marked *System Load*)
- Displaying Setup prompt (in the field marked *Setup Prompt*)
- Virus Warning (in the field marked *Virus Warning*)
- Prevention of write operations to floppy disk (in the field marked *Diskette Write*)
- Write protection of System BIOS (in the field marked *Flash Write*)
- Switching off by software(in the field marked *Soft Power Off*)
- On/Off functionality (in the submenu *Power On/Off*)

```
 Phoenix BIOS Setup
 Main   Advanced   Security   Power   BIOSFaX   Exit

 Setup Password          Not Installed        Item Specific Help
 System Password         Not Installed        ──────────────────

 Set Setup Password:     [Press Enter]
 Setup Password Lock:    [Standard]
 Set System Password:    [Press Enter]
 System Password Mode:   [System]

 System Load:            [Standard]
 Setup Prompt:           [Enabled]
 Virus Warning:          [Disabled]

 Diskette Write:         [Enabled]
 Flash Write:            [Enabled]

► Power On/Off

F1  Help   ↑↓  Select Item   -/+   Change Values     F9 Setup Defaults
ESC Exit   ←→ Select Menu   Enter  Execute Command   F7 Previous Values
```

Example for *Security* menu

Setup Password / System Password

These fields indicate whether the appropriate password is installed or not.

Set Setup Password

This field enables you to install the setup password. The setup password prevents unauthorized callup of the *BIOS setup*.
Mark the field and press the Return key. You can then enter and confirm the setup password (see also the PC Operating Manual).

Setup Password Lock

specifies the effect of the Setup Password. The setting in this field takes effect as soon as a Setup Password has been installed.

Standard The setup password prevents unauthorized callup of the *BIOS setup* (Default entry).

Extended The Setup Password prevents unauthorized calls of the *BIOS Setup* and locks the keyboard when the PC is initialized. This prevents unauthorized access to settings for installed boards with a BIOS of their own.

Set System Password

Requirement: The setup password is installed.
This field enables you to install the system password. The system password prevents unauthorized access to your system.
Mark the field and press the Return key. You can then enter and confirm the system password (see also the PC Operating Manual).

System Password Mode

specifies the effect of the system password. The setting in this field becomes effective as soon as a system password is installed.

System When the PC is started, the system password enables the operating system to be booted.

Keyboard When the PC is started, the operating system is booted and the keyboard and mouse are locked. The system password unlocks the keyboard and mouse.

System Load

This field specifies the drive from which the operating system can be loaded.

Standard The operating system can be loaded from floppy disk or hard disk (default entry).

Diskette Lock The operating system can only be loaded from hard disk.

Setup Prompt

This field specifies whether the message `Press F2 to enter SETUP` is displayed when the PC is rebooted.

Enabled The message `Press F2 to enter SETUP` is displayed when the system is started (default entry).

Disabled The message is not displayed.

Virus Warning

This field checks the boot sectors of the hard disk drive to see if any changes have been made since the previous system startup. If they have been changed and the reason for this is unknown, a program for finding computer viruses should be loaded.

Enabled If the boot sector has been changed since the previous system startup (e.g. new operating system or virus attack), a warning is displayed. The warning stays on the screen until you acknowledge the changes with *Confirm* or deactivate the function (*Disabled*).

Confirm This entry confirms a required change in a boot sector (e.g. new operating system).

Disabled The boot sectors are not checked (default entry).

Diskette Write - Write protection for floppy disk drive

This field is used to enable and disable floppy disk write protection.

Enabled Floppy disks can be read, written or deleted, provided switch FDP is *off* (default entry).

Disabled Floppy disks can only be read.

Flash Write - Write protection for System BIOS

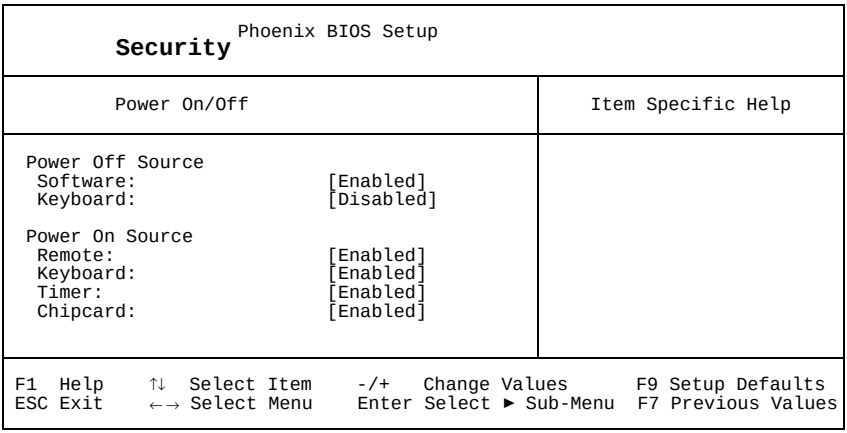
This field can assign write protection to the System BIOS.

Enabled The System BIOS can be written to or deleted, provided switch FLP is *off*. BIOS update from floppy disk is possible (default entry).

Disabled The System BIOS can neither be written to nor deleted. BIOS update from floppy disk is not possible.

Power On/Off

calls the submenu in which you can specify how the system can be powered on and off. These settings cause the to be switched on and off in the same way as using the on/off button on the system unit. The on/off button is always operable and cannot be disabled.



Example for the submenu *Power On/Off*

If you have assigned a system password in *System Mode*, the boot procedure is suspended during remote power on of the system (using *Remote Power On* or *Timer On*) as the system waits for entry of the system password. For this reason you should not assign a system password in *System Mode* if you want to use remote power on or select the setting *Keyboard* in *System Password Mode.*

Power Off Source: Software
specifies whether the system can be switched off with a program (*DeskOff, SWOFF*) or an operating system (*Windows 95, Windows NT with Siemens HAL*).

Enabled The system can be switched off with a program (default entry).

Disabled The system cannot be switched off with a program.

Power Off Source: Keyboard
specifies whether the system can be switched off using a special on/off button on the keyboard.

Enabled The system can be switched off using a special on/off button on the keyboard.

Disabled The system cannot be switched off using a special on/off button on the keyboard (default entry).

Power On Source: Remote
specifies whether the system can be powered on by an incoming message (e.g. modem). The signal can be supplied externally via serial interface 1 or internally via the remote on connector.

Enabled The system can be switched on by an incoming message (default entry).

Disabled The system cannot be switched on by an incoming message.

Power On Source: Keyboard
specifies whether the system can be switched on using a special on/off button on the keyboard.

Enabled The system can be switched on using a special on/off button on the keyboard (default entry).

Disabled The system cannot be switched on using a special on/off button on the keyboard.

Power On Source: Timer
specifies whether the system can be timed to switch on at a particular time or after a particular period of time.
The switch-on time cannot be specified in BIOS Setup. You require a suitable program for setting this switch-on time.

Enabled The system can be switched on under timer control (default entry).
Disabled The system cannot be switched on under timer control.

Chipcard
specifies whether the system can be switched on via the chipcard reader.

Enabled The system can be switched on via the chipcard reader (default entry).
Disabled The system cannot be switched on via the chipcard reader.

Power menu - Setting energy saving functions

Programs for power management (e.g. *POWER.EXE*) can change the settings for the energy saving functions.
You can set the following functions in the *Power* menu:

- Enabling of APM interface (in the *Advanced Power Management* field)
- Extent of energy saving functions (in the *Power Management Mode* field)
- Standby mode (in the *Standby Timeout* field)
- Suspend mode (in the *Suspend Timeout* field)
- Energy saving functions (in the *Hard Disk Timeout* field)
- Processor speed in standby mode (in the *Standby CPU Speed* field)
- Save system status (in the *Save To Disk* field)
- Defining system activities (in the *Wakeup Event* field)

```
Phoenix BIOS Setup
   Main    Advanced    Security    Power    BIOSFaX      Exit

   APM                              [Enabled]          Item Specific Help
   Power Management Mode:           [Customize]        ──────────────────

   Standby Timeout:                 [15 min]
   Suspend Timeout:                 [10 min]
   Standby CPU Speed:               [Medium]
   Hard Disk Timeout:               [10 min]
   Save To Disk:                    [Disabled]

 ► Wakeup Event

F1  Help    ↑↓  Select Item    -/+   Change Values      F9 Setup Defaults
ESC Exit    ←→ Select Menu    Enter  Execute Command    F7 Previous Values
```

Example for menu *Power*

APM - Enabling the APM Interface

Determines whether an operation system can change the advanced power management settings in the system BIOS.

Enabled The operating system has access to the power management settings and can change these if necessary (default entry).

Disabled Changes can not be made to power management setting by an operating system.

Power Management Mode

This field defines the extent of the energy saving functions.

Customize The functions set in the fields *Standby Timeout, Hard Disk Timeout* and *Standby CPU Speed* are effective in power management (default entry). (Default entry).

Maximum, *Medium* or *Minimum Power Savings*
These entries call predefined settings, thus determining the extent of energy saving.

Disabled None of the energy saving functions is effective.

Standby Timeout

Requirement: the *Power Management Mode* must be set to Customize.
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 clock is set in accordance with the entry in the *Standby CPU Speed* field.
The next *Wakeup Event* terminates standby mode again.

2 min, *5 min*, *10 min*, *15 min*, *30 min*
Default entry = *15 min.*

Disabled The system does not switch to standby mode.

Suspend Timeout

Requirement: the *Power Management Mode* must be set to Customize.
This field defines the amount of time without system activity the system is to wait before switching from standby mode to suspend mode. In suspend mode, the screen is dark and the processor is switched off.
The next wakeup event terminates suspend mode again
In a network environment *Suspend Timeout* must be disabled, otherwise data transfer will be aborted.

2 min, *5 min*, *10 min*, *15 min*, *30 min*
Default entry = *15 min.*

Disabled The system does not switch to suspend mode.

Hard Disk Timeout

Requirement: the *Power Management Mode* must be set to Customize.

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.

2 min, 5 min, 10 min, 15 min
Default entry = *10 min.*

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

Standby CPU Speed

Requirement: the *Power Management Mode* must be set to Customize.
This field specifies the processor's clock speed in standby mode. The entries *High, Medium* and *Low* cause programs to run more slowly.
In a network environment the processor's clock speed must be set to *Max*, otherwise data transfer will take place at reduced speed.

Max Maximum clock speed
High 1/4 of maximum clock speed
Medium 1/8 of maximum clock speed (default entry)
Low 1/16 of maximum clock speed

Save To Disk

Requirements: the *Power Management Mode* must be set to *Customize*, and there must be sufficient storage space on the hard disk.
This field specifies whether the current system status (active programs, files, memory contents) is saved to file *SAVETO.DSK* when the PC switches to suspend mode. If the system status is saved, it is restored when you restart the PC; in other words, you can carry on working in the same application.

Enabled The contents of the main memory, working memory, video memory and cache are saved to the hard disk.
Disabled The memory contents are not saved (default entry).

The setting *Enabled* only functions with the following PC components:

- Controllers which are integrated onto the system board (e.g. graphics and audio controllers
- The following expansion cards, which are marked in the price list.

No other expansion cards are currently supported.

Do not set the entry in the *Save to disk* field to *Enabled* if you use cards other than those listed above. This applies particularly to expansion cards such as SCSI and graphics controllers.
The above restrictions also apply if you activate the *Quickstart* (Save to disk) function under Windows by means of *DeskEnergy*.
Before the *Save to Disk* function is starting you should close all documents located on network drives.

Wakeup Event

This field calls the submenu in which you can set the interrupts which are to be evaluated as system activities. When one of these interrupts occurs, e. g. the active energy saving mode is terminated.
In a network environment the *Wakeup Event* for the network controller interrupt must be disabled, otherwise the system will not switch to *Standby Mode.*

```
Phoenix BIOS Setup
         Power

         Wakeup Event                    Item Specific Help

  IRQ 1:          Enabled
  IRQ 3:         [Disabled]
  IRQ 4:         [Disabled]
  IRQ 5:         [Disabled]
  IRQ 6:         [Enabled]
  IRQ 7:         [Disabled]
  IRQ 8:         [Disabled]
  IRQ 9:         [Disabled]
  IRQ 10:        [Disabled]
  IRQ 11:        [Disabled]
  IRQ 12:        [Enabled]
  IRQ 13:         Disabled
  IRQ 14:        [Enabled]
  IRQ 15:        [Enabled]

F1  Help    ↑↓  Select Item    -/+   Change Values      F9 Setup Defaults
ESC Exit    ←→ Select Menu    Enter Select ▶ Sub-Menu  F7 Previous Values
```

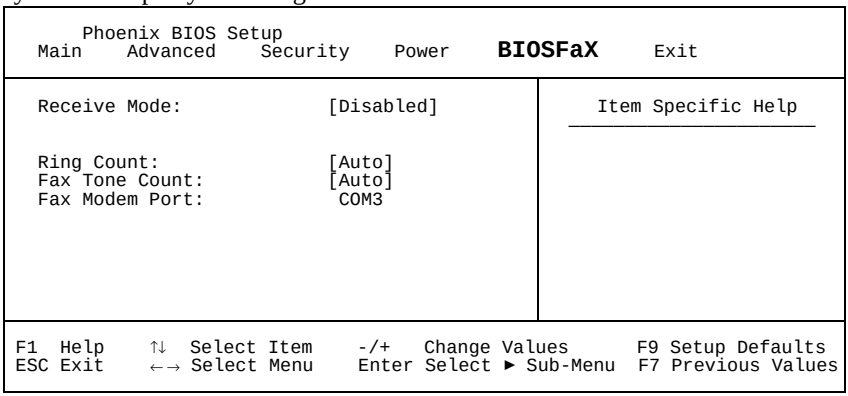
Example for the submenu *Wakeup Event*

Enabled The associated interrupt is evaluated as a system activity.

Disabled The associated interrupt has no effect on the active energy saving mode.

BIOSFaX menu - quick start functions

With the *BIOSFaX* menu you can select whether your system can be switched on via modem and whether an abbreviated system startup is executed. During this system startup any incoming call or fax is stored.



Example for menu *BIOSFaX*

Receive Mode

Requirement: Remote on functionality (*Remote on*) must be enabled.
This field determines the mode in which the modem is operated. Depending on the setting, any incoming message will be recorded.

Voice and Fax	Any incoming call or fax will be recorded.
Voice	Only an incoming call will be recorded.
Fax	Only an incoming fax will be recorded.
Disabled	Modem functionality is not available when the system is switched off (default entry).

Ring Count

This field is used to define how often a ring tone should sound before the modem answers. Possible settings: *2, 3, 4, 5, 6, 7* or *Auto* (default entry).

Fax Tone Count

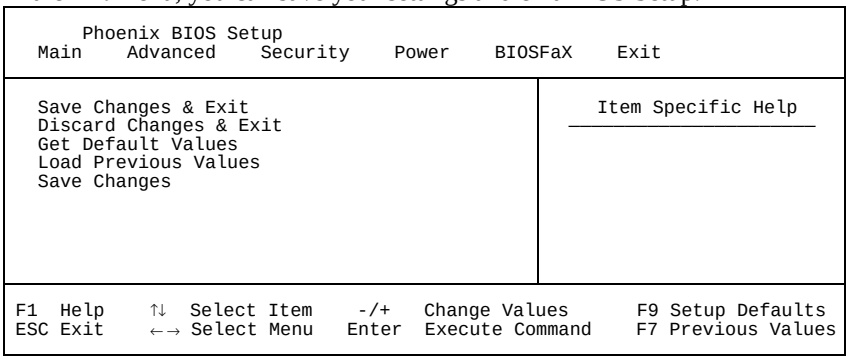
This field is used to define how often a fax tone should sound before the modem answers. Possible settings: *1, 2, 3, 4, 5, 6, 7* or *Auto* (default entry).

Fax Modem Port

This field shows which serial interface is used for the modem. This setting is assigned by the system and cannot be changed.
Possible displays: *COM1*, *COM2*, *COM3* or *COM4*.

Exit menu - Exiting BIOS Setup

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



Example for menu *Exit*

Save Changes & Exit

saves the settings you have made and exits BIOS Setup.

Discard Changes & Exit

exits BIOS Setup without saving the new settings.

Get Default Values

reverts all settings to the default values.

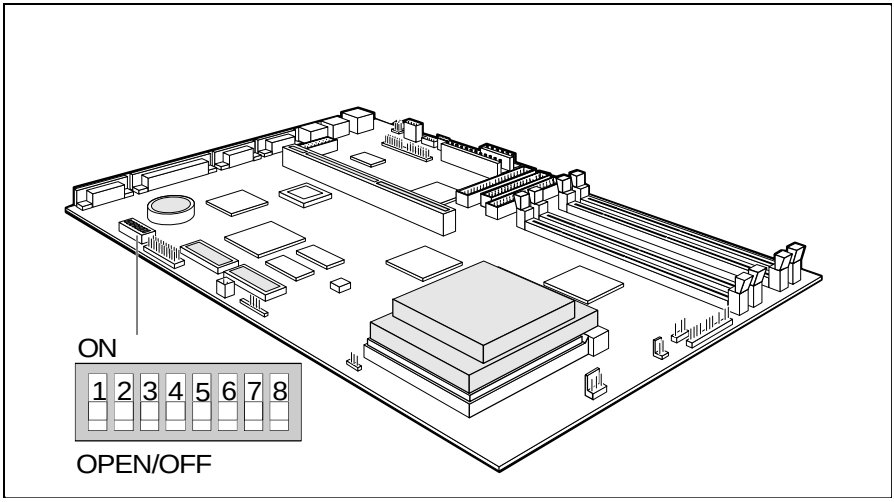
Load Previous Values

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

Save Changes

saves the settings you have made.

Settings with switch block



Switch 1 = write protection for system BIOS
Switch 2 = must be set to *open*
Switch 3 = recovering System BIOS
Switch 4 = write protection for floppy disk drive
Switch 5, 6, 7 and 8 = clock speed

Write protection for System BIOS - switch 1 (FLP)

Switch 1 (FLP) enables and disables system BIOS updating. Before an update of the system BIOS can be carried out, write protection for the system BIOS must also be disabled in the *BIOS Setup* (in the *Security menu*, the *Flash Write* field must be set to *Enabled*). If you wish to update your system BIOS, please consult our customer service.

on	System BIOS is write protected.
off	System BIOS can be overwritten (default setting).

Recovering System BIOS - switch 3 (RCV/RLF)

Switch 3 (RCV/RLF) enables recovery of the old system BIOS after an attempt to update has failed. Write protection for the System BIOS must be disabled in the BIOS setup and before the System BIOS can be recovered (switch 1 = *off*). To restore the old BIOS you need a Flash BIOS Diskette (call customer service).

on The System BIOS executes from floppy drive A: and restores the System BIOS on the system board.

off The System BIOS is started from the system module (default setting).

Write protection for floppy disk drive - switch 4 (FDP)

Switch 4 (FDP) is used to define whether floppy disks can be written or deleted in the floppy disk drive. To write and delete floppy disks, the write protection in *BIOS setup* must be disabled (in menu *Security*, the field *Diskette Write* must be set to *Enabled*).

on The floppy disk drive is write protected.

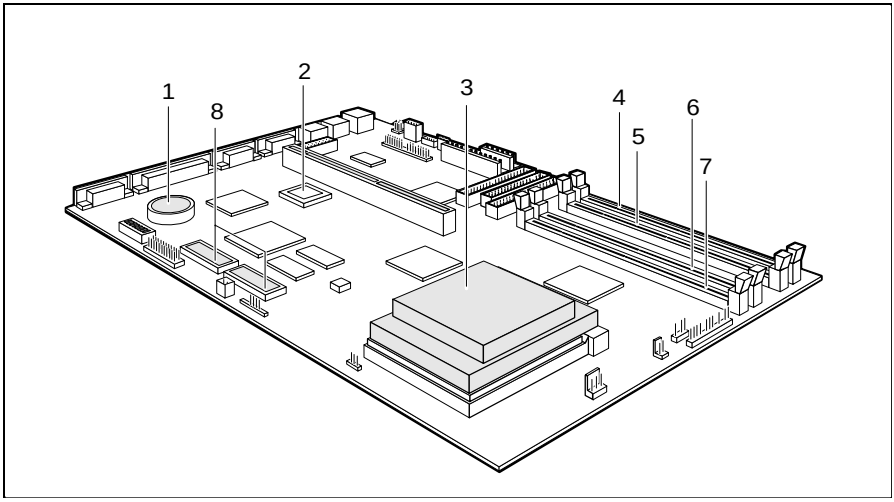
off Read, write and delete floppy disks is possible (default setting).

Clock speed - switch 5, 6, 7 and 8 (CF1/LF1, CF2/LF2, CF3/LF3)

The switches may only be set as specified in the table below for the particular processor used.

Processor	Switch 5 F66/FCG	Switch 6 CF1/LF1	Switch 7 CF2/LF2	Switch 8 CF3/LF3
150 MHz	open	on	on	open
166 MHz	on	on	on	open
180 MHz	open	on	open	on
200 MHz	on	on	open	on

Add-on modules



1 = Lithium battery
2 = Flash BIOS
3 = Processor with heat sink and fan
4 = Locations bank 0 for main memory
5 = Locations bank 1 for main memory
6 = Locations bank 2 for main memory
7 = Locations bank 3 for main memory
8 = Socket for video memory

Upgrading main memory

Four locations (bank 0 and bank 3) are available on the system board for installing memory modules. The board supports a maximum of 512 Mbytes.
You may use memory modules of 8, 16, 32, 64 or 128 Mbytes.

You may only use fast memory modules (access time = 70ns or less) or EDO memory modules (access time = 60ns).
You may use only unbuffered, single-bank DIMM modules (3.3 V).
To avoid damage to the system board only cache modules released by Siemens should be used.

The ECC error identification is only possible for ECC modules.

Installing memory modules

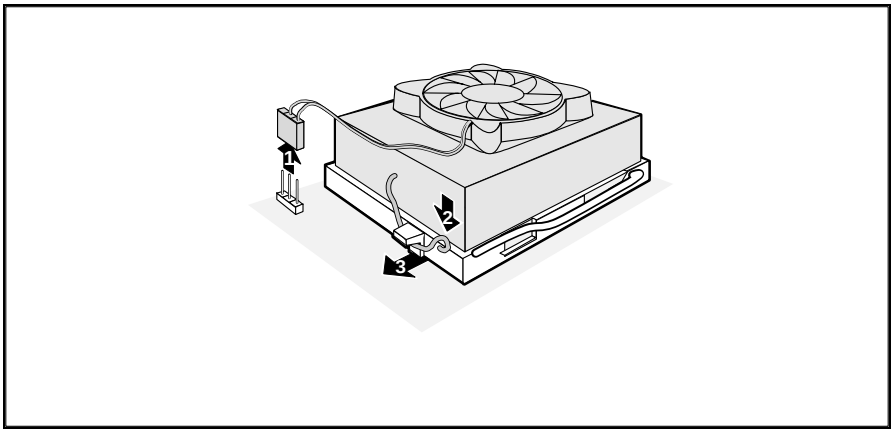
- ► Flip the holders to the right and left of the location outwards.
- ► Push the memory module into the relevant location.
- ► Press the lateral holders until they snap in place.
- ► Press the lateral holders firmly against the location.

Removing a memory module

- ► Flip the holders to the right and left of the location outwards.
- ► Pull the memory module out of the location.

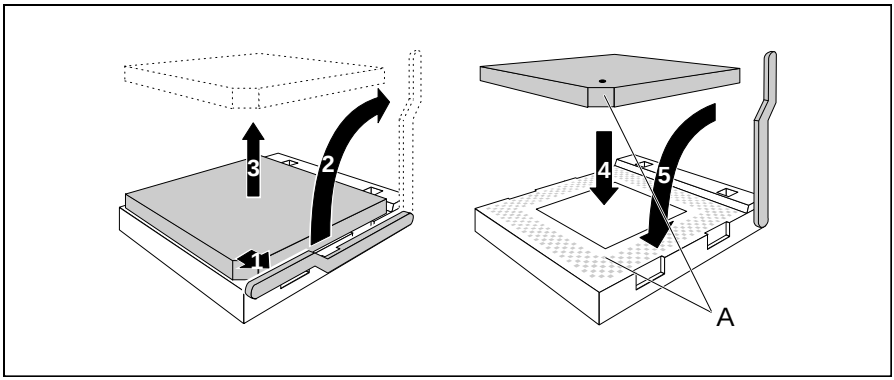
Replacing the processor

Removing the processor fan



- ► Remove the connector (1) of the processor fan.
- ► Press the retainers in the direction of the arrow (2) and (3) and tilt it upwards.
- ► Lift the processor fan off the processor.

Exchanging the processor

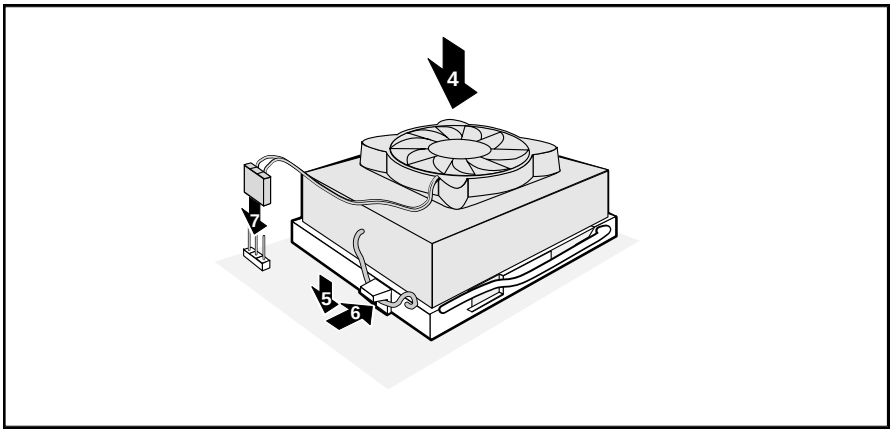


- ► Push the lever in the direction of the arrow (1) and lift it as far as it will go (2).
- ► Remove the old processor from the socket (3).
- ► Insert the new processor in the socket so that the mark on the upper side of the processor matches the mark (A) on the socket (4).

The mark on the processor may be covered.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 (5) so that it snaps into place.

Fitting the processor fan

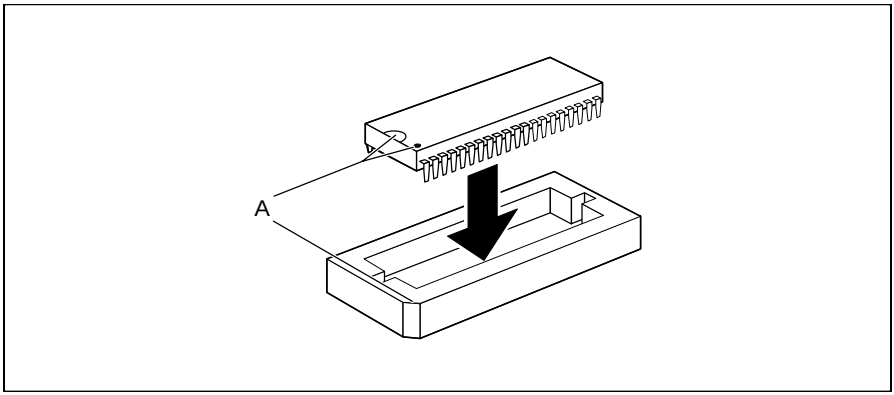


- ► Fit the processor fan on the new processor (4). Apply heat transfer compound evenly between the processor fan and the processor.
- ► Tilt the retainers downwards and press in the direction of the arrow (5) and (6) until it engages.
- ► Fit the connector (7) of the processor fan.
- ► Set the switches 5, 6 , 7 and 8 (F66, CF1, CF2 und CF3) depending on the processor which is installed.

Upgrading the video memory

If your system board is supplied with a video memory configuration of 1 Mbyte, you may enlarge the video memory up to 2 Mbytes.

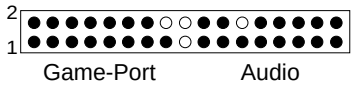
Information on which DRAM components you can use is available from your sales office or the customer service.
Note the location of the DRAM chip when you plug it in!



► Insert the DRAM component in such a way in the socket for video memory that the mark on the upper side of the DRAM component (A) matches the position of the mark on the socket.

Connecting an audio board

If an audio board is installed at the front of your system or you install one at the front, you must attach the connecting line to the Game/Midi / Audio port on the system board. The Game/Midi / Audio port is a combined plug..



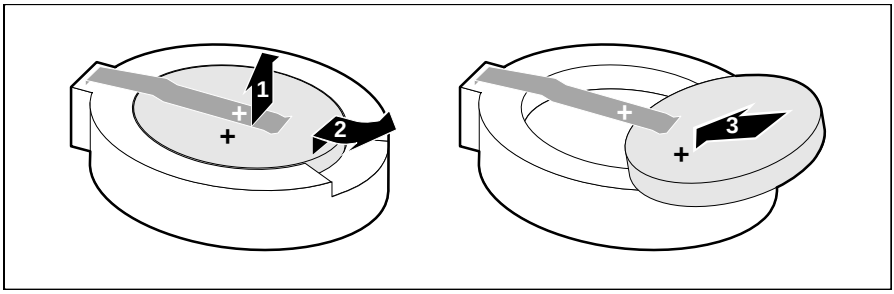
► Plug the connecting line onto the side marked with *Audio*.

If an audio board is installed at the back of your system or you install one at the back, you must attach the connecting line to the Game/Midi / Audio port on the system board. The plug on the connecting line is exactly the same width as the Game/Midi / Audio port.

► Plug the connecting line into the Game/Midi / Audio port.

Replacing the lithium battery

Incorrect replacement of the lithium battery may lead to a risk of explosion.
The lithium battery must be replaced with an identical battery or a battery type recommended by the manufacturer (CR2032).
Do not throw lithium batteries into the trashcan. The lithium battery must be disposed of in accordance with local regulations concerning special waste.
Make sure that you insert the battery the right way round. The plus pole must be on the top!



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

Error messages

This chapter contains error messages generated by the system board.

`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 office or customer service.

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

Check the entries for the hard disk drive in the *Main* menu of the *BIOS Setup*. Check the hard disk drive's connections and jumpers.

`Incorrect Drive A - run Setup`
`Incorrect Drive B - run Setup`

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

`Invalid NVRAM media type`

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

`Invalid System configuration Data`

In the *Advanced* menu of the *BIOS-Setup* set the entry for *Reset Configuration Data* to *Yes*.

`Keyboard controller error`

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

`Keyboard error`

Check that the keyboard is connected properly.

`Keyboard error nn`

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 of the *BIOS Setup*.

`Parity Check 1`
`Parity Check 2`
: Switch the device off and on again. If the message is still displayed, please contact your sales office or customer service.

`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 device starts with incomplete system configuration. If the message is still displayed, please contact your sales office or customer service.

`Real time clock failure`
: Call the *BIOS Setup* and enter the correct time in the *Main* menu. If the message is still displayed, please contact your sales office or customer service.

`System battery is dead - Replace and run SETUP`
: Replace the lithium battery on the system module 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 office or customer service.

`System CMOS checksum bad - run SETUP`
: 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 office or customer service.

Messages d'erreur

Ce chapitre vous donne les messages d'erreur générés par le BIOS du système.

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

Vérifiez dans le menu Main du BIOS setup l'entrée correspondant au lecteur de disquettes. Vérifiez les connecteurs du lecteur de disquettes.

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

Redémarrez votre appareil. Si le message réapparaît, adressez-vous à votre revendeur ou à notre S.A.V.

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

Vérifiez dans le menu Main du BIOS setup l'entrée correspondant au lecteur de disque dur. Vérifiez les connecteurs et les cavaliers du lecteur de disque dur.

`Incorrect Drive A - run Setup`
`Incorrect Drive B - run Setup`

Entrez dans le menu Main du BIOS setup et paramétrez correctement l'entrée correspondant au lecteur de disquettes.

`Invalid NVRAM media type`

Redémarrez votre appareil. Si le message réapparaît, adressez-vous à votre revendeur ou à notre S.A.V.

`Invalid System configuration Data`

Pour l'entrée *Reset Configuration Data* du menu *Advanced* du *BIOS setup*, activez le paramètre *Yes*.

`Keyboard controller error`

Connectez un autre clavier. Si le message réapparaît, adressez-vous à votre revendeur ou à notre S.A.V.

`Keyboard error`

Assurez-vous que le clavier est correctement connecté.

`Keyboard error nn`

Libérez la touche du clavier (nn est le code hexadécimal de cette touche).

`Monitor type does not match CMOS - RUN SETUP`

Entrez dans le menu Main du BIOS setup et paramétrez correctement l'entrée correspondant au type d'écran.

`Operating system not found`
: Vérifiez dans le menu Main du BIOS setup les entrées correspondant au lecteur de disque dur et au lecteur de disquettes.

`Parity Check 1`
`Parity Check 2`
: Redémarrez votre appareil. Si le message réapparaît, adressez-vous à votre revendeur ou à notre S.A.V.

`Previous boot incomplete - Default configuration used`
: Appuyez la touche de fonction F2 pour vérifier et corriger les valeurs dans BIOS Setup. Si vous appuyez la touche de fonction F1 l'appareil démarre en configuration incomplète. Si le message réapparaît, adressez-vous à votre revendeur ou à notre S.A.V.

`Real time clock failure`
: Appelez le BIOS setup et entrez l'heure exacte dans le menu Main. Si le message réapparaît, adressez-vous à votre revendeur ou à notre S.A.V.

`System battery is dead - Replace and run SETUP`
: Remplacez la batterie au lithium sur la carte système et procédez à de nouveaux réglages dans le BIOS setup.

`System Cache Error - Cache disabled`
: Redémarrez votre appareil. Si le message réapparaît, adressez-vous à votre revendeur ou à notre S.A.V.

`System CMOS checksum bad - run SETUP`
: Appelez le BIOS setup et corrigez les réglages effectués en dernier lieu ou activez les réglages standard.

`System timer error`
: Redémarrez votre appareil. Si le message réapparaît, adressez-vous à votre revendeur ou à notre S.A.V.

Mensajes de error

Aquí se describen los mensajes de error que son generados por el BIOS-Setup.

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

Compruebe en el menú principal del *BIOS-Setup* el registro para la unidad de disquete. Compruebe las conexiones de dicha unidad..

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

Arranque de nuevo el PC. Si sigue visualizándose este mensaje, diríjase a su distribuidor o a nuestro servicio de postventa.

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

Compruebe en el menú principal del *BIOS-Setup* los registros para la unidad de disco duro. Compruebe las conexiones y puentes enchufables de la unidad de disco duro.

`Incorrect Drive A - run Setup`
`Incorrect Drive B - run Setup`

Defina correctamente el registro de la unidad de disquete en el menú principal del *BIOS-Setup*.

`Invalid NVRAM media type`

Arranque de nuevo el PC. Si sigue visualizándose este mensaje, diríjase a su distribuidor o a nuestro servicio de postventa.

`Invalid System configuration Data`

En el menú *Advanced* del *BIOS-Setup* ajuste el valor *Yes* para *Reset Configuration Data.*

`Keyboard controller error`

Conecte otro teclado. Si sigue visualizándose este mensaje, diríjase a su distribuidor o a nuestro servicio de postventa.

`Keyboard error`

Compruebe si el teclado está conectado correctamente.

`Keyboard error nn`

Desbloquee la tecla del teclado (*nn* es el código hexadecimal para la tecla).

`Monitor type does not match CMOS - RUN SETUP`

Defina correctamente en el menú principal del *BIOS-Setup* el registro para el tipo de pantalla..

`Operating system not found`
: Compruebe en el menú principal del *BIOS-Setup* los registros de la unidad de disco duro y de la unidad de disquete.

`Parity Check 1`
`Parity Check 2`
: Arranque de nuevo el PC. Si sigue visualizándose este mensaje, diríjase a su distribuidor o a nuestro servicio de postventa.

`Previous boot incomplete - Default configuration used`
: Pulsando la tecla F2 puede verificar y corregir los registros del BIOS-Setup. Pulsando la tecla F1, el sistema arranca con la configuración incompleta. Si sigue visualizándose este mensaje, diríjase a su distribuidor o a nuestro servicio de postventa.

`Real time clock failure`
: Active el *BIOS-Setup* y registre la hora correcta en el menú principal (*Main*). Si sigue visualizándose este mensaje, diríjase a su distribuidor o a nuestro servicio de postventa..

`System battery is dead - Replace and run SETUP`
: Sustituya la pila de litio en el módulo de sistema y repita las operaciones de ajuste en el *BIOS-Setup*..

`System Cache Error - Cache disabled`
: Arranque de nuevo el PC. Si sigue visualizándose este mensaje, diríjase a su distribuidor o a nuestro servicio de postventa.

`System CMOS checksum bad - run SETUP`
: Active el *BIOS-Setup* y corrija los últimos registros hechos o ajuste los registros estándar.

`System timer error`
: Arranque de nuevo el PC. Si sigue visualizándose este mensaje, diríjase a su distribuidor o a nuestro servicio de postventa.

Messagi di errore

I messaggi di errore emessi dal system BIOS sono descritti qui in seguito.

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

Controllate il valore indicato per il drive per dischetti nel *BIOS-Setup* del menu principale (*Main*). Controllate i collegamenti del drive per dischetti.

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

Riavviate nuovamente il PC. Se il messaggio ricompare rivolgeteVi al Vostro rivenditore o al nostro servizio di assistenza tecnica..

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

Controllate nel *BIOS-Setup* del menu principale i valori indicati per il drive del disco rigido. Controllate i collegamenti ed i ponticelli del drive del disco rigido.

`Incorrect Drive A - run Setup`
`Incorrect Drive B - run Setup`

Impostate nel BIOS-Setup del menu principale (*Main*) il valore corretto per il drive per dischetti.

`Invalid NVRAM media type`

Riavviate nuovamente il PC. Se il messaggio ricompare rivolgeteVi al Vostro rivenditore o al nostro servizio di assistenza tecnica.

`Invalid System configuration Data`

Impostate nel *BIOS-Setup* del menu *Advanced* il valore per *Reset Configuration Data* su *Yes*.

`Keyboard controller error`

Collegate un'altra tastiera. Se il messaggio ricompare rivolgeteVi al Vostro rivenditore o al nostro servizio di assistenza tecnica.

`Keyboard error`

Controllate che la tastiera sia collegata correttamente.

`Keyboard error nn`

Liberate il tasto dalla tastiera (*nn* indica il codice esadecimale del tasto).

`Monitor type does not match CMOS - RUN SETUP`

Impostate nel *BIOS-Setup* del menu principale (*Main*) il valore corretto per il tipo di monitor.

`Operating system not found`
: Controllate nel BIOS-Setup del menu principale i valori indicati per il drive per il disco rigido e per il drive per dischetti.

`Parity Check 1`
`Parity Check 2`
: Riavviate nuovamente il PC. Se il messaggio ricompare rivolgeteVi al Vostro rivenditore o al nostro servizio di assistenza tecnica.

`Previous boot incomplete - Default configuration used`
: Premendo il tasto funzione F2 potete verificare e corregere le impostazioni nel *BIOS-Setup*. Premendo il tasto funzione F1, il PC viene avviato con la cofigurazione di sistema completa. Se il messaggio ricompare rivolgeteVi al Vostro rivenditore o al nostro servizio di assistenza tecnica.

`Real time clock failure`
: Richiamate il *BIOS-Setup* ed inserite nel menu principale (*Main*) l'ora esatta. Se il messaggio ricompare rivolgeteVi al Vostro rivenditore o al nostro servizio di assistenza tecnica.

`System battery is dead - Replace and run SETUP`
: Sostituite la batteria al litio dell'unità di sistema ed inserite nuovamente i valori di impostazione nel *BIOS-Setup*.

`System Cache Error - Cache disabled`
: Riavviate nuovamente il PC. Se il messaggio ricompare rivolgeteVi al Vostro rivenditore o al nostro servizio di assistenza tecnica..

`System CMOS checksum bad - run SETUP`
: Richiamate il *BIOS-Setup* e correggete gli ultimi valori impostati oppure indicati i valori standard.

`System timer error`
: Riavviate nuovamente il PC. Se il messaggio ricompare rivolgeteVi al Vostro rivenditore o al nostro servizio di assistenza tecnica.

Felmeddelanden

Nedan beskrivs de felmeddelanden som system-BIOS matar ut på systemkomponenten.

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

Kontrollera inställningen för diskettenheten i menyn Main i *BIOS-Setup*-menyn. Kontrollera diskettenhetens anslutningar.

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

Starta upp PCn på nytt. Om meddelandet fortfarande visas bör du kontakta din återförsäljare eller vår kundservice.

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

Kontrollera inställningarna för hårddisken i menyn *Main* i *BIOS-Setup*-menyn. Kontrollera hårddiskens anslutningar och insticksbryggorna.

`Incorrect Drive A - run Setup`
`Incorrect Drive B - run Setup`

Korrigera inställningen för diskettenheten i menyn *Main* i *BIOS-Setup*-menyn.

`Invalid NVRAM media type`

Starta upp PCn på nytt. Om meddelandet fortfarande visas bör du kontakta din återförsäljare eller vår kundservice.

`Invalid System configuration Data`

Ställ in värdet *Yes* för *Reset Configuration Data* i menyn *Advanced* i *BIOS-Setup*-menyn.

`Keyboard controller error`

Anslut ett annat tangentbord. Om meddelandet fortfarande visas bör du kontakta din återförsäljare eller vår kundservice.

`Keyboard error`

Kontrolla att tangentbordet är korrekt anslutet.

`Keyboard error nn`

Frigör den angivna tangenten (*nn* är tangentens hexadecimalkod).

`Monitor type does not match CMOS - RUN SETUP`

Korrigera inställningarna för bildskärmtypen i menyn *Main* i *BIOS-Setup* menyn.

`Operating system not found`
: Kontrollera inställningarna för hårddisken och diskettenheten i menyn *Main* i *BIOS-Setup*-menyn.

`Parity Check 1`
`Parity Check 2`
: Starta upp PCn på nytt. Om meddelandet fortfarande visas bör du kontakta din återförsäljare eller vår kundservice.

`Previous boot incomplete - Default configuration used`
: Om du trycker på funktionstangenten F2, kan du kontrollera och korrigera inställningarna i *BIOS-Setup*. Om du trycker på funktionstangenten F1 startas PCn med den ofullständige systemkonfigurationen. Om meddelandet fortfarande visas bör du kontakta din återförsäljare eller vår kundservice.

`Real time clock failure`
: Ropa upp *BIOS-Setup*-menyn och ställ in korrekt klockslag i menyn *Main*. Om meddelandet fortfarande visas bör du kontakta din återförsäljare eller vår kundservice..

`System battery is dead - Replace and run SETUP`
: Byt ut litiumbatteriet på systemkomponenten och genomför inställningarna i *BIOS-Setup*-menyn på nytt.

`System Cache Error - Cache disabled`
: Starta upp PCn på nytt. Om meddelandet fortfarande visas bör du kontakta din återförsäljare eller vår kundservice.

`System CMOS checksum bad - run SETUP`
: Ropa upp *BIOS-Setup*-menyn. Korrigera de senast gjorda inställningarna eller ställ in standardvärdena igen.

`System timer error`
: Starta upp PCn på nytt. Om meddelandet fortfarande visas bör du kontakta din återförsäljare eller vår kundservice.

Foutmeldingen

Vervolgens worden de foutmeldingen beschreven die het BIOS-systeem op de systeembouwgroep geeft.

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

Controleer in de setup van het *BIOS*, in het menu *Main*, de instelling van het diskettestation. Controleer de aansluitingen van het diskettestation.

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

Start de PC opnieuw. Als de melding opnieuw verschijnt, neem dan a.u.b. contact op met uw dealer of met onze klantendienst.

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

Controleer in de setup van het *BIOS*, in het menu *Main*, de instellingen van de harde schijf. Controleer de aansluitingen en de jumpers van de harde schijf.

`Incorrect Drive A - run Setup`
`Incorrect Drive B - run Setup`

Stel in de setup van het *BIOS*, in het menu *Main*, het diskettestation op de juiste wijze in.

`Invalid NVRAM media type`

Start de PC opnieuw. Als de melding opnieuw verschijnt, neem dan a.u.b. contact op met uw dealer of met onze klantendienst.

`Invalid System configuration Data`

Zet in de *BIOS-Setup* in het menu *Advanced* de instelling voor *Reset Configuration Data* op *Yes*.

`Keyboard controller error`

Sluit een ander toetsenbord aan. Als de melding opnieuw verschijnt, neem dan contact op met uw dealer of met onze klantendienst.

`Keyboard error`

Controleer of het toetsenbord goed is aangesloten.

`Keyboard error nn`

Laat de toets van het toetsenbord los (*nn* is de hexadecimale code voor de toets).

`Monitor type does not match CMOS - RUN SETUP`
Stel in de setup van het *BIOS*, in het menu *Main*, het monitortype op de juiste wijze in.

`Operating system not found`
Controleer in de setup van het *BIOS*, in het menu *Main*, de instellingen van de harde schijf en het diskettestation..

`Parity Check 1`
`Parity Check 2`
Start de PC opnieuw. Als de melding opnieuw verschijnt, neem dan a.u.b. contact op met uw dealer of met onze klantendienst.

`Previous boot incomplete - Default configuration used`
Als u op de functietoets F2 drukt, kunt u in de setup van het *BIOS* de instelling uittesten en verbeteren. Als u op de functietoets F1 drukt, start de PC met de onvolledige systeemconfiguratie. Als de melding opnieuw verschijnt, neem dan a.u.b. contact op met uw dealer of met onze klantendienst.

`Real time clock failure`
Roep de setup van het *BIOS* op en stel in het menu *Main* de juiste tijd in.Als de melding opnieuw verschijnt, neem dan a.u.b. contact op met uw dealer of met onze klantendienst.

`System battery is dead - Replace and run SETUP`
Vervang de lithiumbatterij op het motherboard en stel de BIOS opnieuw in.

`System Cache Error - Cache disabled`
Start de PC opnieuw. Als de melding opnieuw verschijnt, neem dan a.u.b. contact op met uw dealer of met onze klantendienst.

`System CMOS checksum bad - run SETUP`
Roep de setup van het *BIOS* op en corrigeer wat u voor het laatst heeft ingesteld of stel de defaultwaarden in.

`System timer error`
Start de PC opnieuw. Als de melding opnieuw verschijnt, neem dan a.u.b. contact op met uw dealer of met onze klantendienst.

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