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Server

System board D887
Processor boards D888 and D911

Technical Manual

intel inside

PENTIUM®PRO
PROCESSOR

A26361-D887-Z120-1-7619

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System board D887 Processor boards D888 and D911

Technical Manual

July 1996 edition

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Introduction

This Technical Manual applies for the system board D887, the processor boards D888 and D911, as well as for the termination board D956.

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.

$\boxed{i}$ 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 highlighted text and names of chapters."

Features

- A maximum of 4 Pentium Pro processors on two processor boards, each with two ZIF bases

- Processor: Pentium Pro, 166 MHz and 200 MHz with integrated 16 Kbytes first-level cache and 512 Kbytes second-level cache

- 82450GX chipset

- 72-bit data bus (64-bit data and 8-bit parity)

- 64 Mbyte to 2 Gbyte main memory (4 banks) for DIM modules, EDC protected

- 512 Kbytes Flash BIOS

- 6 PCI slots (1 slot shared)

- 4 EISA slots, bus master-capable (1 slot shared)

- Monitor controller connected to PCI bus, graphics processor Cirrus Logic CL-GD5436, 1 Mbyte DRAM video memory

- ASIC for Server Management

- IDE hard disk controller connected to ISA bus for up to two IDE drives(e.g. IDE hard disk drives)

- Real-time clock/calendar with integrated battery backup

- Floppy disk controller (up to 2.88 Mbytes format)

- Connector for loudspeaker, two fans, remote-On, floppy disk drive, IDE disk drive, control panel and service

- Monitor interface

- Parallel interface (ECP- and EPP-compatible)

- Two serial ports (compatible 16550, 16-Byte-FIFO)

- PS/2 mouse interface

- PS/2 keyboard interface

- CAN bus port for control of external drive cabinets (CAN = Controller Area Network)

- Security functions in BIOS

Ports and connectors system board
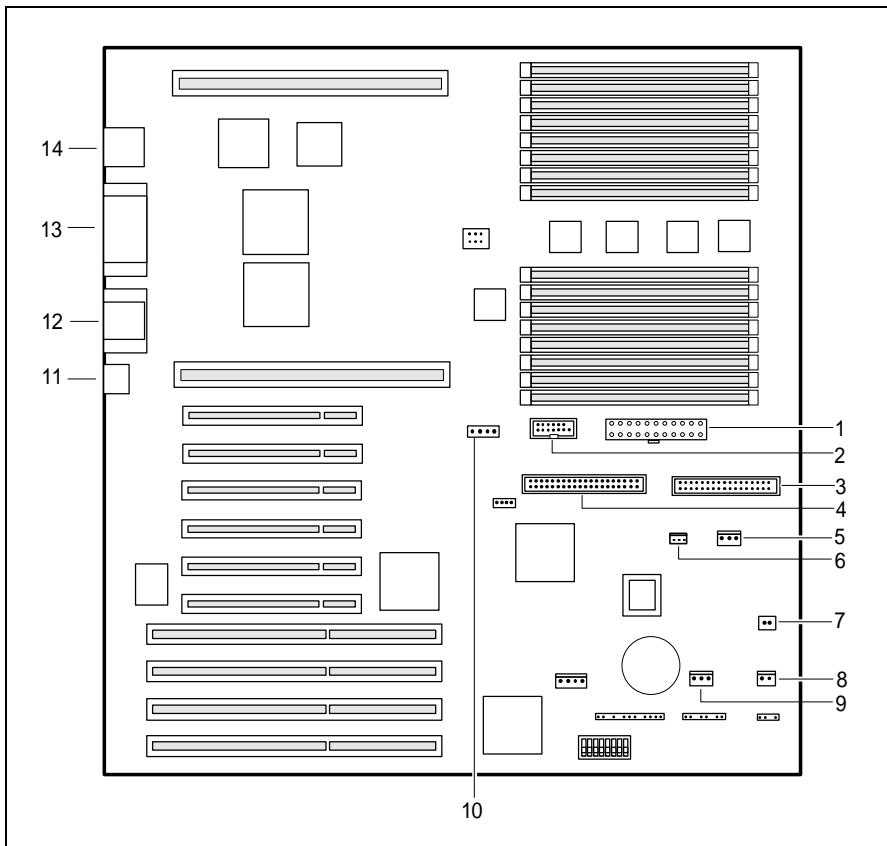
1 = Power supply
2 = Signaling/auxiliary voltage
3 = Floppy disk drive
4 = IDE drives
5 = Fan 1
6 = Temperature sensor for air intake
7 = Remote Power On

8 = ON/OFF switch
9 = Fan 2
10 = CAN bus controller
11 = Keyboard and mouse
12 = Serial port 1 and 2
13 = Parallel port and CAN bus
14 = Monitor interface

Ports and connectors processor boards
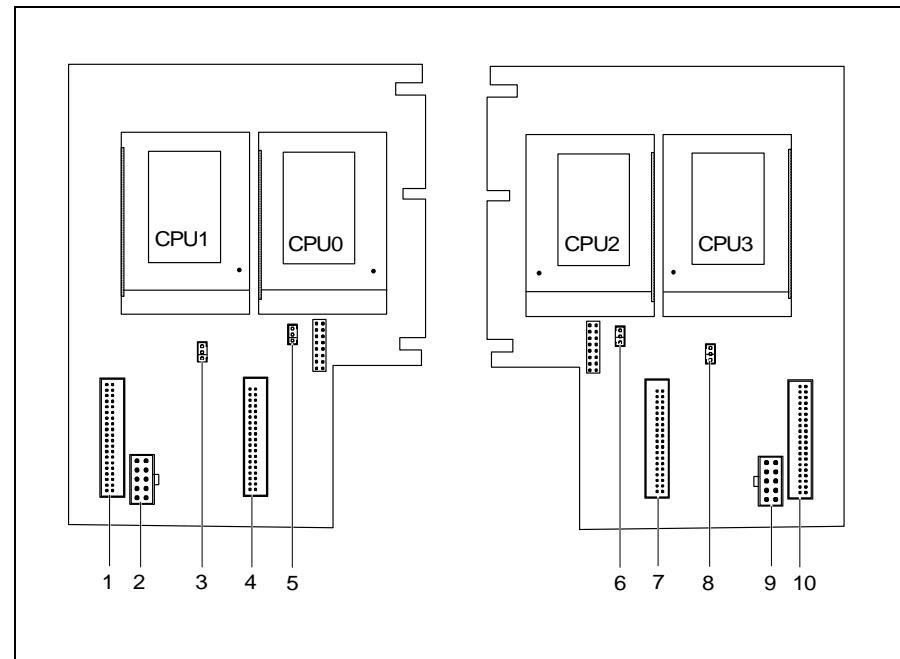
1 = Voltage regulator for processor 1 (CPU 1)
2 = Power supply
3 = Temperature sensor for processor 1 (CPU 1)
4 = Voltage regulator for processor 0 (CPU 0)
5 = Temperature sensor for processor 0 (CPU 0)
6 = Temperature sensor for processor 2 (CPU 3)
7 = Voltage regulator for processor 2 (CPU 2)
8 = Temperature sensor for processor 3 (CPU 3)
9 = Power supply
10 = Voltage regulator for processor 3 (CPU 3)

Possible screen resolution

The screen resolutions in the following table refer to the graphics processor 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 MS-DOS using the *SET-VGA* program.

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

no 16 color mode
** The horizontal rate values may have a tolerance range of ± 0.3 kHz.

Interrupt table

	assigned IRQ
System clock	IRQ0
Keyboard	IRQ1
not available	IRQ2
Serial port COM 2	IRQ3
Serial interface COM1	IRQ4
free	IRQ5
Floppy disk drive controller	IRQ6
Parallel interface LPT1	IRQ7
Real-time clock (RTC)	IRQ8
Monitor controller/free	IRQ9
free	IRQ10
free	IRQ11
Mouse controller	IRQ12
Numeric processor	IRQ13
IDE controller	IRQ14
free	IRQ15

"assigned IRQ" = interrupts assigned as shipped

i Note that an interrupt cannot be used by two ISA boards or onboard controllers at the same time.

The monitor controller of the system board does not require interrupt IRQ9. If you are using a different controller, it may need interrupt IRQ9.

Important Notes

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

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

Incorrect replacement of the lithium battery may lead to a risk of explosion. It is therefore essential to observe the instructions in the section "Extensions on the system board" - "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

 Explosionsfara 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.

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

Modules with electrostatic sensitive devices (ESD) may be identified by labels.
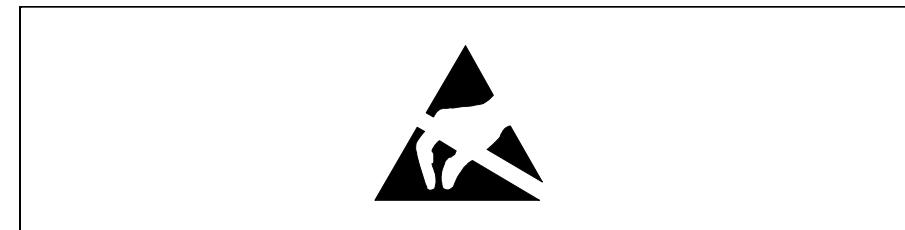
When you handle modules fitted with ESDs, you must observe the following points under all circumstances:

• 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 modules containing ESDs.

• Always hold modules with ESDs by their edges.

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

Settings in BIOS Setup

In *BIOS Setup* you can set the system functions and the hardware configuration of the system. In addition, the BIOS Setup displays technical information on the system configuration.

When it is supplied, the system is set to factory default settings. When it is supplied, the PC 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 configuration
Advanced - advanced system configuration
Security - security features
Server - server management functions
Exit - save and quit

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

Main menu

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*)
- IDE hard disk drive (in the submenus of *Hard Disk*)
- System boot (in the submenus of *Boot Options*)
- Display device (in the field marked *Video Display*)

```
                           Phoenix BIOS Setup
  Main      Advanced    Security     Server     Exit

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

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

▶ Hard Disk 1:          None
▶ Hard Disk 2:          None

▶ Boot Options

  Video Display:        [EGA/VGA]

  Base Memory:           640K
  Extended Memory:        63M


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

Example for *Main* menu

System Time / System Date

The *System Time* field and the *System Date* field show the time and date respectively according to the system. 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). You can move the cursor between the *System Time* and *System Date* fields (e.g. from hours to minutes) using the tabulator key.

⚠	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 "Extensions on the system board" - "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*).
> (Default entry Diskette A : *1.4M*).

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

Hard Disk 1 and Hard Disk 2

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.

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

```
                           Phoenix BIOS Setup
   Main

         Hard Disk 1:          850 Mbyte         Item Specific Help

    Autotype Hard Disk:        [Press Enter]

    Type:                      [None]
    Cylinders:                 [     0]
    Heads:                     [     0]
    Sectors/Track:             [     0]
    Write Precomp:             [None]

    LBA Translation:           [Disabled]



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

Example for the submenu *Hard Disk 1*

> ⚠   You may use the *Autotype Hard Disk* function only with IDE hard disk
> drives, that are:
>
> –   new, unpartitioned and unrecorded.
> –   partitioned using the *Autotype Hard Disk* function.
> –   will be partioned using the *Autotype Hard Disk* function.
>
> If other parameters were used to partition the IDE hard disk and you want to retain the partitioning, you may not use *Autotype Hard Disk*.
>
> 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	hard disk capacity			
parameter	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 Prec.	None	None	None	None

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*.

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. This allows 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.

Boot Options

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

```
+------------------------------------------------------------------+
|                                                                  |
+---------------------------------------+--------------------------+
|          Boot Options                 |   Item Specific Help     |
+---------------------------------------+--------------------------+
|                                       |                          |
|    POST Error Halt:   [Halt On All Errors]                       |
|    Quick Boot:        [Disabled]      |                          |
|                                       |                          |
|                                       |                          |
|                                       |                          |
|                                       |                          |
|                                       |                          |
+---------------------------------------+--------------------------+
 F1  Help     ↑↓  Select Item   -/+  Change Values    F9 Setup Defaults
 ESC Exit     ←→ Select Menu    Enter Select ▶ Sub-Menu  F7 Previous Values
```

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

Disabled   The entire system configuration is checked when the system is
                   switched on. (Default entry).

Video Display

This field is used to specify the type of monitor connected.

EGA/VGA, Color 80, Monochrome
                   Default entry: *EGA/VGA*

Base Memory - Main memory

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

Extended Memory - Main memory

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)
- Interfaces and controllers (in the *Peripheral Configuration* submenu)
- PCI functionality (in the *PCI Configuration* submenu)
- Additional system settings (in the *Advanced System Configuration* submenu)
- Multiprocessor table (in the *Use Multiprocessor Specification* field)
- Plug&Play functionality (in the *Plug and Play O/S* field)
- Configuration data (in the *Reset Configuration Data* field)
- Configuration of the second I/O-APIC (in the *Use second I/O APIC* field)
- IDE hard disk access (in the *Large Disk Access Mode* field)

```
                          Phoenix BIOS Setup
    Main     Advanced     Security     Server     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

   Use Multiprocessor Specification     [1.4]

   Plug & Play O/S:                     [No]
   Reset Configuration Data:            [No]
   Use second I/O APIC                  [No]
   Large Disk Access Mode:              [DOS]




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

Example for the *Advanced* menu

Cache Memory

calls the submenu in which you can make the settings for the first-level and second-level cache.

```
                          Phoenix BIOS Setup
          Advanced

         Cache Memory                    │   Item Specific Help


  Cache:                  [Enabled]

  Cache System BIOS Area: [Write Protect]
  Cache Video BIOS Area:  [Write Protect]
  Cache DRAM Memory Area  [Write Back]

  Cache Memory Regions:
    C800 - CBFF:          [Disabled]
    CC00 - CFFF:          [Disabled]
    D000 - D3FF:          [Disabled]
    D400 - D7FF:          [Disabled]
    D800 - DBFF:          [Disabled]
    DC00 - DFFF:          [Disabled]


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

Example for submenu *Cache Memory*

Cache - cache utilization

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 system 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 enabled (default entry).

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 - Transmission mode / Main memory in the cache

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

Cache DRAM Memory Area specifies the write access to the cache in the main memory area.

In write-back mode the processor writes information to the cache and the information is only written to the main memory if necessary. The information is only written to the main memory if necessary. Main memory and cache contents are not identical. In write-back mode the system performance is higher than in write-through mode.
In write-through-mode the processor writes information to the cache and to the main memory. Main memory and cache contents are identical.

Write Back   The cache works in write-back mode (default entry).

Write Through The cache works in write-through mode.

Disabled   The cache is not used for the main memory area.

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).

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.

```
                              Phoenix BIOS Setup
        Advanced

             Shadow Memory                    Item Specific Help

  System Shadow:           Enabled
  Video Shadow:           [Enabled]

  Shadow Memory Regions:
    C800 - CBFF:          [Disabled]
    CC00 - CFFF:          [Disabled]
    D000 - D3FF:          [Disabled]
    D400 - D7FF:          [Disabled]
    D800 - DBFF:          [Disabled]
    DC00 - DFFF:          [Disabled]



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

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 unless an external monitor controller is used.

Shadow Memory Regions - ROM areas

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).

Peripheral Configuration

⚠️ Use the EISA configuration program (ECU) to make settings on the interfaces and controllers.

Peripheral Configuration calls the submenu to make the settings for the ports and controllers.

```
                              Phoenix BIOS Setup
        Advanced

        Peripheral Configuration               Item Specific Help

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

  Diskette Controller:   [Enabled]
  IDE Adapter:       :   [Enabled]

  Mouse Controller:      [Enabled]



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

Example for submenu *Peripheral Configuration*

Serial 1 / Serial 2 - Serial interfaces

This field selects the address and the interrupt used to access the relevant serial interface.

3F8h, IRQ4, *2F8h, IRQ3*, *3E8h, IRQ4*, *2E8h, IRQ3*,
    The serial port is set to the shown address and interrupt.

Auto   The serial interface is automatically set to the next available combination (address, interrupt) (Default entry).

Disabled   The serial interface is disabled.

Parallel - parallel interface

This field selects the address and the interrupt used to access the parallel interface.

378h, IRQ7, *278h, IRQ5*, *3BCh, IRQ7*
    The parallel port is set to the shown address and interrupt.

Auto   The parallel interface is automatically set to the next available combination (address, interrupt) (Default entry).

Disabled   The parallel interface is disabled.

Parallel Mode

This field is used to specify whether the parallel interface is to be used as a bi-directional input/output port or just as an output port.

Printer   The port functions as an output port only (default entry).

Bidirection   Data can be transferred in both directions across the port.

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.

IDE Adapter

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

Enabled   The IDE hard disk controller is enabled (default entry).

Disabled   The IDE hard disk drive controller is 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.

PCI Configuration

PCI Configuration calls the submenu in which you can make the settings for the PCI slots. The submenu is provided with a scroll bar so that you can view the settings for other PCI slots.

```
                            Phoenix BIOS Setup
        Advanced

           PCI Configuration                  Item Specific Help

  PCI Interrupt Mapping on HB0 INTA#: [Auto]
  PCI Interrupt Mapping on HB0 INTB#: [Auto]
  PCI Interrupt Mapping on HB0 INTC#: [Auto]
  PCI Interrupt Mapping on HB0 INTD#: [Auto]

  PCI Interrupt Mapping on HB1 INTA#: [Auto]
  PCI Interrupt Mapping on HB1 INTB#: [Auto]
  PCI Interrupt Mapping on HB1 INTC#: [Auto]
  PCI Interrupt Mapping on HB1 INTD#: [Auto]

  PCI Device, Slot #4
     Default Latency Timer:    [Yes]
     Latency Timer:            [00060]

  PCI Device, Slot #5
     Default Latency Timer:    [Yes]
     Latency Timer:            [00060]

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

Example for submenu *PCI Configuration*

PCI Interrupt Mapping on HBx INTx#

defines which PCI interrupt is switched to which ISA interrupt. For the change to take effect, you must switch your system off and then on again after the *BIOS Setup* has terminated.

Multifunctional PCI modules can use several PCI interrupts. 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.

In addition to the standard PCI interrupts there are also separate PCI interrupts, INTA#, INTB#, INTC# and INTD#, for PCI slots 3 through 6 (slots 6 through 9). However, this interrupt assignment is valid only for mono operating systems, such as MS-DOS, or when the second I/O-APIC is deactivated.

For PCI modules requiring only one PCI interrupt the PCI interrupts must be assigned as follows:
PCI slot 1 (slot #4, HB0) = INTA#
PCI slot 2 (slot #5, HB0) = INTB#

PCI slot 3 (slot #6, HB1) = INTA#
PCI slot 4 (slot #7, HB1) = INTB
PCI slot 5 (slot #8, HB1) = INTC#
PCI slot 6 (slot #9, HB1) = INTD#

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

Disabled   No ISA interrupt is assigned to the PCI interrupt.

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.

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 system 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 relevant field of *PCI Device, Slot #n: Latency Timer* determines the number of clock cycles.

PCI Device, Slot #n: Latency Timer

Requirement: The relevant field of *PCI Device, Slot #n: Default Latency Timer* must be set to *No*.

The entry 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 = *0060h*).

Advanced System Configuration

calls the submenu in which you can make additional settings.

```
                        Phoenix BIOS Setup
            Advanced

          Advanced System Configuration        Item Specific Help

  PCI Bus Parity Checking [HB0]     [Enabled]
  PCI Bus Parity Checking [HB1]     [Enabled]

   PPro to PCI Write Posting:        [Disabled]
   PCI to PPRO Write Posting (HB1)   [Enabled]
   PCI Line Read Prefetch:           [Enabled]


   PPro In Order Queue Depth:        [1]


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

Example for submenu *Advanced System Configuration*

PCI Bus Parity Checking [HB0] / [HB1]

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

You can deactivate PCI bus parity checking for PCI slots 1 and 2 (slots 4 and 5)
with HB0 (host bridge 0) and for PCI slots 3 through 6 (slots 6 through 9) with HB1
(host bridge 1).

Enabled   Parity checking is activated for the relevant host bridge (default
                 entry).

Disabled   Parity checking is deactivated for the relevant host bridge.

PPro to PCI Write Posting / PCI to PPro Write Posting (HB1)
PCI Line Read Prefetch / PPro In Order Queue Depth

⚠ These fields are for service purposes only. Do not change the setting.
Always set the default value with the F9 function key.

Use Multiprocessor Specification

specifies which version of the multiprocessor table is used. The multiprocessor
table is needed by multiprocessor operating systems to recognize the
multiprocessor characteristics of the system.

1.4   The newer version of the multiprocessor table is used (default
                 entry).

1.1   The older version of the multiprocessor table is used. You should
                 use this setting only if the operating system has problems with the
                 multiprocessor configuration.

Plug & Play O/S - Plug&Play functionality

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.
                 You should select this setting only if the operating system supports
                 Plug&Play.

No   The BIOS takes over the complete Plug&Play functionality (default
                 setting).

Reset Configuration Data

specifies whether or not the configuration data are reset and reinitialized when the system is started.

Yes   After the system is started, the 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. Non-Plug&Play components must be entered manually.

No   After the system is started, the Plug&Play functionality ascertains the current configuration data and uses this data to initialize the installed boards and drives. The configuration data of non-Plug&Play components are not reset (default entry).

Use second I/O APIC - second Interrupt Controller

On multiprocessor operating systems the I/O-APIC (advanced programmable interrupt controller) is used instead of the normal interrupt controller. The system module has two I/O-APICs. The interrupt lines of PCI slots 1 and 2 (slots 4 and 5) and of the EISA slots are connected to the first I/O-APIC. The interrupt lines of PCI slots 3 through 5 (slots 6 through 9) are connected to the second I/O-APIC.

If you use a non-multiprocessor operating system (e.g. MS-DOS), neither the first nor the second I/O-APIC is active, and all PCI interrupt lines are connected to the standard interrupt controller. If with multiprocessor operating systems you have problems with the second I/O-APIC or with the four additional PCI interrupts for PCI slots 3 through 5 (slots 6 through 9), you can deactivate the second APIC, and thus connect the interrupts with the first I/O-APIC.

Yes   The second I/O-APIC is used. The settings made under *PCI Interrupt Mapping on HB1* are no longer valid when a multiprocessor operating system is used (except for *Auto*).

No   The second I/O-APIC is not used. The settings made under *PCI Interrupt Mapping on HB1* are also valid for multiprocessor operating systems (default entry).

Large Disk Access Mode

specifies the type of hard disk access for large IDE hard disks (more than 1024 cylinders, 16 heads).

DOS   If the operating system uses MS-DOS-compatible hard disk accesses (default setting).

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 boot (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*)
- Setup message (in the *Setup Prompt* field)
- Virus Warning   (in the field marked *Virus Warning*)
- Prevention of write operations to floppy disk (in the field marked *Diskette Write*)
- Write protection for BIOS Setup Flash chip (in the field marked *Flash Write*)
- Switching off by software(in the field marked *Soft Power Off*)
- Remote Power On (in the field marked *Remote Power On*)

```
                          Phoenix BIOS Setup
     Main     Advanced    Security    Server     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           [Enabled]

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

     Soft Power Off:         [Disabled]
     Remote Power On:        [Disabled]

     F1  Help    ↑↓  Select Item   -/+  Change Values    F9 Setup Defaults
     ESC Exit    ←→ Select Menu    Enter Select ▶ Sub-Menu  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 Enter key. You can then enter and confirm the setup password (see also the 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.
The BIOS of the module can be accessed only if the setup password is entered during initialization of the module. No request for a password is issued on the screen.

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 Enter key. You can then enter and confirm the system password (see also the Operating Manual).

Settings in BIOS Setup

System Password Mode - Effect of the system password

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 system is started, the system password enables the operating system to be booted (default setting).

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

i	No request for a password is issued on the screen.

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- Setup message

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

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

Disabled   The setup message is not displayed.

Settings in BIOS Setup

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

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

Enabled   Floppy disks can be read, written or deleted, provided switch 6 of the switch block is set to *OPEN* (default entry).

Disabled   Floppy disks can only be read.

Flash Write

This field can assign write protection to the System BIOS.

Enabled   The system BIOS can be written or deleted, provided switch 6 of the switch block is set to *OPEN*. 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

---

Soft Power Off

This field specifies whether the System can be switched off with a program (e.g. *SWOFF*).

Enabled   The system can be switched off by the *SWOFF* program.

Disabled   The system cannot be switched off with the *SWOFF* program (default entry).

Remote Power On

specifies whether the system can be switched on from a receiving data (e.g. modem, time).

Enabled   The system can be switched on from an incoming message.

Disabled   The system cannot be switched on from an incoming message (default entry).

Set Server Management - Server Menu

You can set the following functions in the *Server* menu:
- Server management mode (in the field marked *Server Management*)
- Boot timeout of the operating system (in the field marked *O/S Boot Timeout*)
- Boot delay (in the field marked *ASR&R Boot Delay*)
- Number of attempts to boot the operating system (in the field marked *Boot Retry Counter*)
- Diagnostic system (in the field marked *Start Diagnostic System*)
- Time monitoring (in the field marked *Hardware Watchdog*)
- Temperature monitoring (in the field marked *Damage Temperature Monitoring*)
- Processor status (in the submenu of *CPU Status*)
- Main memory status (in the submenu of *Memory Status*)
- Error transmission (in the field marked *Pager Configuration*)
- VT100 functionality (in the field marked *VT100 Configuration*)

```
                          Phoenix BIOS Setup
   Main      Advanced      Security   Server    Exit

   Server Management:           [Enabled]          Item Specific Help

   O/S Boot Timeout:            [Disabled]
   ASR&R Boot Delay:            [3 min]
   Boot Retry Counter:          [3]
   Diagnostic System:           [Disabled]
   Hardware Watchdog:           [Enabled]
   Damage Temp. Monitoring      [Disabled]

 ► CPU Status:
 ► Memory Status

 ► Pager Configuration
 ► VT100 Configuration



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

Example for *Server* menu

Server management - Activating server management

specifies the operating mode of the server management BIOS.

Enabled   Activates the server management functionality of the system BIOS. This setting is required to enable a server management process of the operating system (e.g. ServerMan) to communicate with the system BIOS (default entry).

Disabled   The server management functionality is deactivated.

O/S Boot Timeout

Requirement: Novell NetWare or Windows NT operating system, ServerMan program

O/S Boot Timeout specifies whether a system reboot is performed when the operating system is not able to establish a connection with the server management BIOS within a defined period after system booting. The server management BIOS assumes that there is a boot error and initiates a reboot.

⚠️ If the operating system does not have a server management process, you must select the setting *Disabled* so that the server management BIOS does not erroneously initiate a reboot. The server management process (agent) is installed using the *ServerMan* program.

2 min, 5 min, 15 min, 30 min, 60 min, 120 min, 240 min
> After the displayed timeout period has expired, the system is rebooted if no connection with a server management process has been established.

Disabled   No time monitoring takes place (default entry).

ASR&R Boot Delay

Requirement: *Enabled* must be set in the *Server Management* field.

Specifies the boot delay after shutdown due to a fault (e.g. excessively high temperature). The system is rebooted after the set wait period has expired (default entry: *3 min*).

Further possible values are: *1 min*, *2 min*, *5 min*, *7 min*, *10 min*, *15 min* and *20 min*

Boot Retry Counter

Requirement: *Enabled* must be set in the *Server Management* field.

Specifies the maximum number of attempts to boot the operating system. After the time set in *O/S Boot Timeout* has expired, each failed retry is followed by a system reboot. Other critical system errors also result in system reboot and in counter decrementing. After the last retry the system is definitively shut down or a diagnostic system started.

0 to *7*   Number of possible retries (default entry: *3*).

Diagnostic System

Requirement: *Enabled* must be set in the *Server Management* field.

Specifies what is to happen after the number of system reboots defined in *Boot Retry Counter*.

Enabled   The test and diagnostic system is started from the first IDE hard disk drive.

Disabled   The test and diagnostic system is not started although an IDE hard disk drive with the test and diagnostic system is installed on the system (default entry).

Disk not installed
> An IDE hard disk drive with the test and diagnostic system is not installed on the system.

Hardware Watchdog

Requirement: *Enabled* must be set in the *Server Management* field.

Specifies whether the system performs a reboot if the server management BIOS cannot reset a hardware counter at defined time intervals (system hangs).

Enabled   System reboot is performed after the time interval has passed (default entry).

Disabled   No system reboot is performed after the time interval has passed.

Damage Temperature Monitoring - Temperature control

specifies whether the system is switched off if the ambient temperature or the temperature of a processor exceeds the critical value. At the critical value the operating range for the system is exceeded. Depending on the *Boot Retry Counter*, the system switches itself on again after the period specified under *ASR&R Boot Delay*. In this period the system should have cooled down again.

Enabled   The system switches itself off if the temperature exceeds the critical value.

Disabled   The system does not switch itself off if the temperature exceeds the critical value. (Default entry).

⚠ If the operating system has a server management process, an error is reported before the critical temperature is reached (entry in the Error/Event-Log). The server management process (agent) is installed using the *ServerMan* program.

CPU x Status - Processor status

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

```
                     Phoenix BIOS Setup
   Main     Advanced     Security    Server    Exit

        CPU Status                         Item Specific Help

   CPU 0 Status      [Enabled]
   CPU 1 Status      [Enabled]
   CPU 2 Status      [Enabled]
   CPU 3 Status      [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 *CPU Status*

determines whether or not the processor can be used. Switch a processor off only if it has reported an internal malfunction. The malfunction is recorded in the error log, which you can view with the *SCU* (server configuration utility) or the *ServerMan* program.

The boot processor which is used to boot first, and from which the system test is executed, is:

- – CPU 1 for two processors
- – CPU 2 for three processors
- – CPU 3 for four processors

If you set the boot processor to *Disabled*, the system switches to another processor during booting after the memory test.

Enabled   The processor can be used by the operating system (default entry).

Disabled   The processor cannot be used by the operating system.

i   All status displays always appear (*CPU 0 Status, CPU 1 Status, CPU 2 Status, CPU 3 Status*) even if only one processor is installed.

Memory Status

calls the submenu in which memory modules can be marked as faulty. Enter *failed* for a memory module for which an error message is entered in the error log. You can view the error log with the *SCU* (server configuration utility) or the *ServerMan* program. If a memory bank contains memory modules marked as faulty, the entire memory bank is usually no longer used. If you have replaced a defective memory module, you must reset the entry to *Enabled*.

```
Phoenix BIOS Setup
  Main    Advanced    Security    Server    Exit

       Memory Status                          Item Specific Help

Bank 0
  Memory Modul 0      [Enabled]
  Memory Modul 1      [Enabled]
  Memory Modul 2      [Enabled]
  Memory Modul 3      [Enabled]
 Bank 1
  Memory Modul 4      [Enabled]
  Memory Modul 5      [Enabled]
  Memory Modul 6      [Enabled]
  Memory Modul 7      [Enabled]
 Bank 2
  Memory Modul 8      [Enabled]
  Memory Modul 9      [Enabled]
  Memory Modul 10     [Enabled]
  Memory Modul 11     [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 *Memory Status*

Memory Modules n - Status of the Memory Modules

shows the current status of the memory modules.

Enabled   If the bank is equipped, the memory module is used by the system (default entry).

Failed   The memory module is not used by the system. If you have replaced a defective memory module, you must reset the entry to *Enabled*.

Pager Configuration

calls the submenu in which you can make the settings for remote transmission of errors by means of a pager. The server management BIOS can send a message (server number) via an attached modem (external: serial 1, serial 2; internal: modem board) to a pager if a system error occurs. Further settings for remote error transmission must be made by a server management process of the operating system or using *SCU*. The telephone number of the pager server, the subscriber number and the modem initialization sequences can also be entered there.

```
                    Phoenix BIOS Setup
                         Server

        Pager Configuration                  Item Specific Help

  Pager:                  [Disabled]
  Pager Interface Addr.:   3E8h
  Server Number:          [   0]
  Baud Rate:               2400
  Com. Setting:            8/1, No Parity



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

Example for submenu *Pager Configuration*

Pager

enables or disables the pager.

Enabled   In the event of an error a message (server number) is sent to a pager. A modem must be attached that can be accessed at the address set in the field *Pager Interface Addr*.

Disabled   In the event of an error no message is sent to a pager (default entry).

⚠️   The modem board must be set so that it can be accessed via the pager interface address (see documentation on the modem board). On external modems attached via *Serial 1* or *Serial 2*, the pager interface address must correspond to the setting for *Serial 1* or *Serial 2* on the screen page *Advanced*.

Pager Interface Addr.

Requirement: *Enabled* must be set in the field *Pager*.

Defines the I/O address used to communicate with the modem via a serial interface.

3F8h, 2F8h, 3E8, 2E8h

The specified I/O address is used for communication with the modem. The serial port at which the modem is attached must be set to the same address (default entry: *3E8h*).

Server Number

Requirement: *Enabled* must be set in the field *Pager*.

Specifies the number used to uniquely identify the server in a pager message.

0 to *65535*   Identification number of the server
(default entry: *0*)

Baud Rate

Requirement: *Enabled* must be set in the field *Pager*.

Indicates the baud rate of the serial port at which the modem for remote error transmission is attached.

2400   Error transmission is performed at 2400 baud. This value is predefined and cannot be changed.

Com. Setting - port setting

Requirement: *Enabled* must be set in the field *Pager*.

Indicates the data format used for error transmission.

8/1, No Parity   Error transmission is performed with 8 data bits, 1 stop bit and without a parity check. The values are predefined and cannot be changed.

VT100 Configuration

calls the submenu in which you make the settings for operating a VT100-compatible terminal on the system. A terminal can be connected directly at the server system via a serial port; screen output can be directed to this terminal in parallel to the attached monitor. Keyboard input at the terminal is likewise sent to the system and treated like input at the attached server keyboard. The BIOS setup of the system, for example, can be called up and modified at the terminal.

⚠ It is not possible to enter a system password in *Keyboard Mode* at the VT100 terminal.

```
Phoenix BIOS Setup Copyright 1985-95 Phoenix Technologies Ltd.
                              Server

          VT100 Configuration              Item Specific Help

  VT100:               [Disabled]
  VT100 Interface Addr.:   3F8h
  VT100 Interface IRQ:     IRQ 4
  Connection               Direct
  Baud Rate:               9600
  Com. Setting:            8/1, No Parity



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

Example for submenu *VT100 Configuration*

VT100 - VT 100 operating mode

enables or disables VT100 operating mode.

Enabled   VT100 operating mode is enabled.

Disabled   VT100 operating mode is disabled (default entry).

VT100 Interface Addr. - VT100-address

Requirement: *Enabled* must be set in the field *VT100*.

Defines the I/O address for communication with the terminal.

3F8h, 2F8h, 3E8, 2E8h
                 The specified I/O address is used for communication with the terminal. The serial port at which the terminal is connected must be set to the same address (default entry: *3F8h*).

VT100 IRQ

Requirement: *Enabled* must be set in the field *VT100*.

Defines the interrupt for communication with the terminal.

 IRQ3, IRQ4, IRQ5, IRQ6, IRQ7
                 The specified IRQ is used for communication with the terminal. The serial port at which the terminal is connected must be set to the same IRQ (default entry: *IRQ4*).

Connection - Connection type

Requirement: Enabled must be set in the field *VT100*.

Specifies the connection type for communication with the terminal.

Direct   There is a direct cable connection between the system and the terminal (default entry).

Modem   The system and terminal are interconnected via a modem dialup connection when the system is booted.

Baud Rate

Requirement: *Enabled* must be set in the field *VT100*.

Specifies the baud rate for communication with the terminal.

1200, 2400, 4800, 9600, 19200
                 Data communication with the terminal is performed at the rate set (default entry: *9600*).

Com. Setting - port setting

Requirement: *Enabled* must be set in the field *VT100*.

Indicates the data format used for terminal emulation.

8/1, No Parity   The connection is established with 8 data bits, 1 stop bit and without a parity check. The values are predefined and cannot be changed.

Exit menu

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

```
                           Phoenix BIOS Setup
    Main      Advanced      Security     Server    Exit

    Save Changes & Exit                               Item Specific Help
    Discard Changes & Exit                           _____
    Get Default Values
    Load Previous Values
    Save Changes



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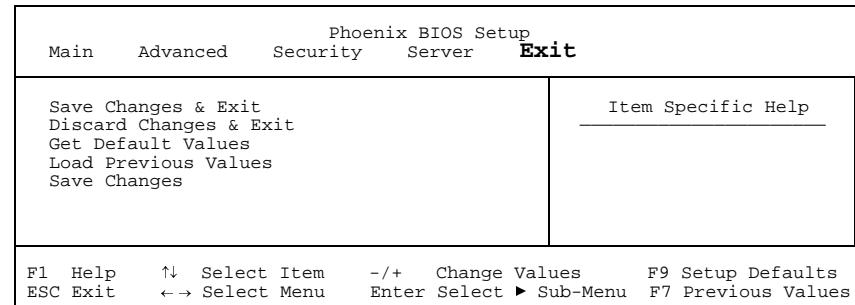
Example for menu *Exit*

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 without exiting the *BIOS Setup*.

Settings on the system board
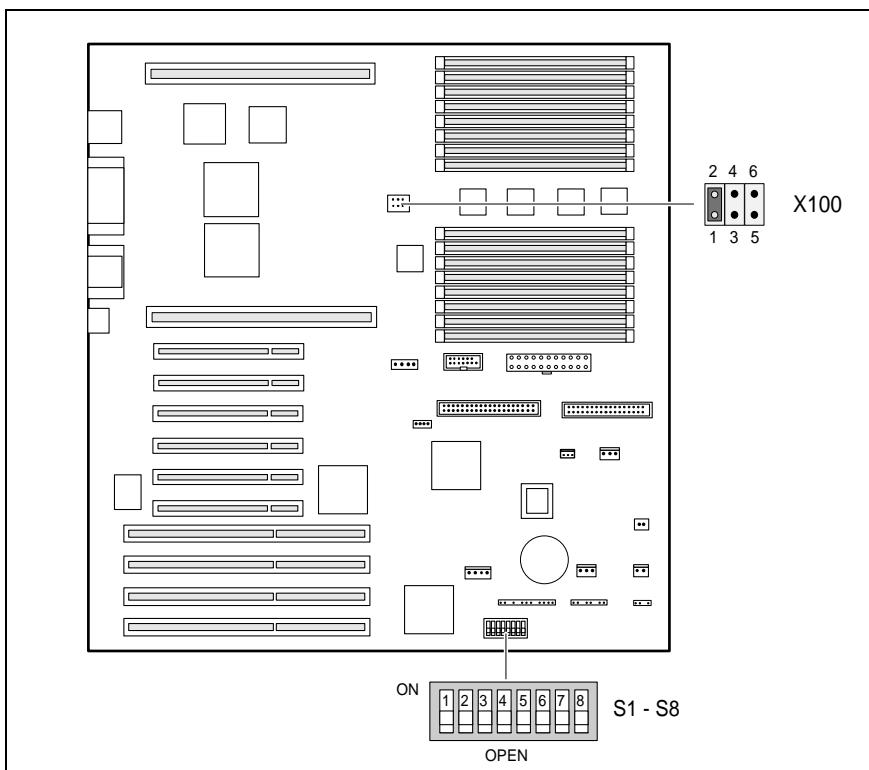
X100 = System bus clock
S1 = System BIOS Recovery
S2 = reserved (Setting *OPEN* may
      not be changed)
S3 = free
S4 = free

S5 = Write protection for system BIOS
S6 = Write protection for floppy disk drive
S7 = reserved (Setting *OPEN* may
      not be changed)
S8 = free

System bus clock - X100 jumpers

A system bus clock of 66 MHz is set for the system module. The system bus clock affects the processor frequency for the processors on the processor boards.

System bus clock	jumper 1 - 2	jumper 3 - 4	jumper 5 - 6
66 MHz	inserted	not inserted	not inserted

Recovering System BIOS - switch 1

Switch 1 in switch block enables recovery of the old system BIOS after an attempt to update has failed. To restore the old BIOS you need a Flash BIOS Diskette (call customer service).

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

ON   The system is started from the Flash BIOS Diskette in drive A. A recovery of the system BIOS is executed.

If switch 1 is set to ON, the setting of switch 5 is ineffective.

Write protection for System BIOS - switch 5

Switch 5 in switch block permits or prevents an update of the system BIOS. 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.

OPEN   System BIOS can be overwritten (default setting).

ON   System BIOS is write protected.

Write protection for floppy disk drive - switch 6

Switch 6 is used to define whether floppy disks can be written or deleted in the floppy disk drive. To write and delete floppy disks, the write protection in *BIOS setup* must be disabled (in menu *Security*, the field *Diskette Write* must be set to *Enabled*).

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

ON   The floppy disk drive is write protected.

Switch 2, 3, 4, 7 and 8

The switches 2 and 7 are reserved. Never change the default setting (*OPEN*)! The switches 3, 4 and 8 are not used.

Settings on the processor boards
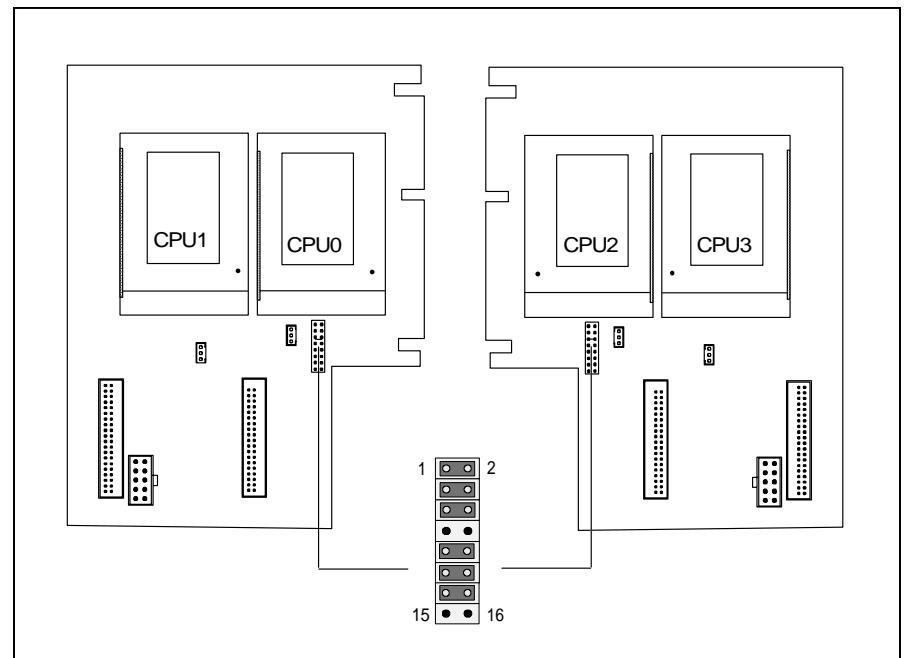
Jumper for processor frequency

Jumpers for processor frequency

Depending on the processors used, you must insert the jumpers for processor frequency on the processor board and the jumpers for the system bus clock on the system module. All of the processors used must have the same processor frequency.

⚠ The jumpers may only be set as specified in the table below for the particular processors used.

System bus clock of the system module 66 MHz			
Processor frequency	Jumpers 1 - 2 9 - 10	Jumpers 3 - 4 11 - 12	Jumpers 5 - 6 13 - 14	Jumpers 7 - 8 15 - 16
166 MHz	inserted	inserted	inserted	not inserted
200 MHz	inserted	inserted	not inserted	inserted

Extensions on the system board
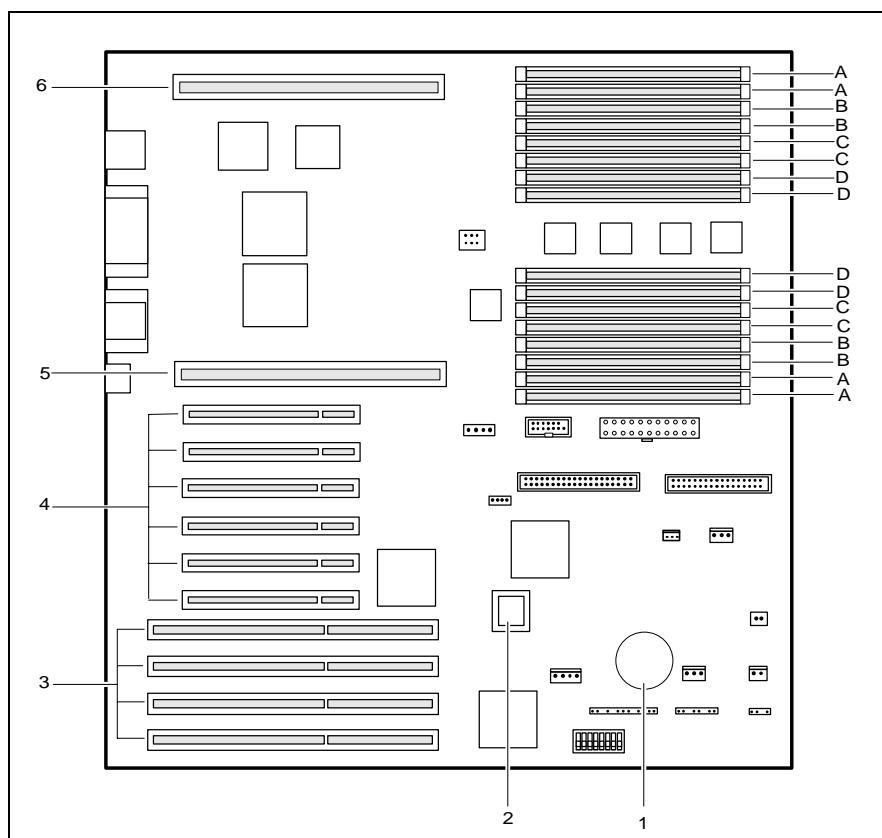
1 = Lithium battery
2 = Flash BIOS
3 = EISA slots (from below: 1, 2, 3, 4)
4 = PCI slots
(from below: 1, 2, 3, 4, 5, 6)
5 = First processor board
6 = Second processor board or termination board

A = Location main memory bank A
B = Location main memory bank B
C = Location main memory bank C
D = Location main memory bank D

Upgrading main memory

There are sixteen slots for memory modules on the system module. These slots are divided into four memory banks (bank A through bank D). You may use memory modules of 16, 32, 64 or 128 Mbytes. One memory bank must always be fully equipped with memory modules of the same capacity. A memory capacity of 64, 128, 256 or 512 Mbyte is therefore possible, thus resulting in a maximum memory extension of 2 Gbyte. You may only use fast memory modules (access time = 70ns or less). Equipping must be performed starting with bank A and continuing through to bank D.

i	After a change to the memory extension, you must run the EISA configuration program (ECU) and save the new configuration.

Installing memory modules

▶   Flip the holders to the right and left of the location outwards.

▶   Push the memory module into the relevant location until it snaps in place. The lateral holders will then flip back up.

Removing a memory module

▶   Flip the holders to the right and left of the location outwards.

▶   Pull the memory module out of its location.

Installing processor boards

One or two processor boards, each with two processors, can be inserted on the system module. The first processor board contains processors 0 and 1, the second processor board contains processors 2 and 3. If only the first processor board is installed, the termination board must be inserted in the slot of the second processor board.

The processor board or termination board is mounted on the support tray of the processor board. The operating instructions for your device will tell you how to mount a module on the support tray.

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. Your vendor or dealer or their authorized representatives will take used batteries back free of charge so that they can be recycled or disposed of in the proper manner.

Make sure that you insert the battery the right way round. The plus pole must be on the top!
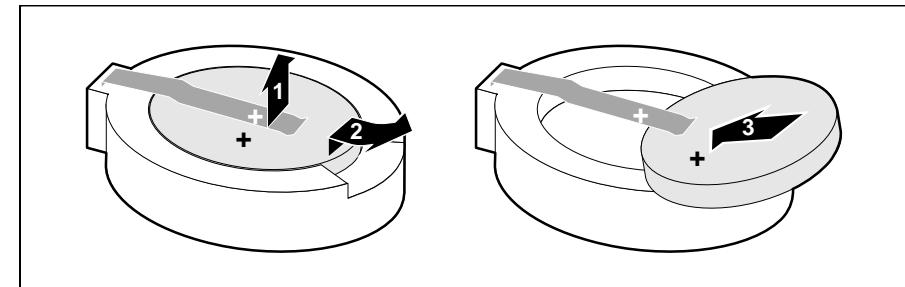
► Lift the contact (1) a few millimeters and remove the battery from its socket (2).

► Insert a new lithium battery of the same type in the socket (3).

Set the time and/or date in the BIOS Setup.

Extensions on the processor boards
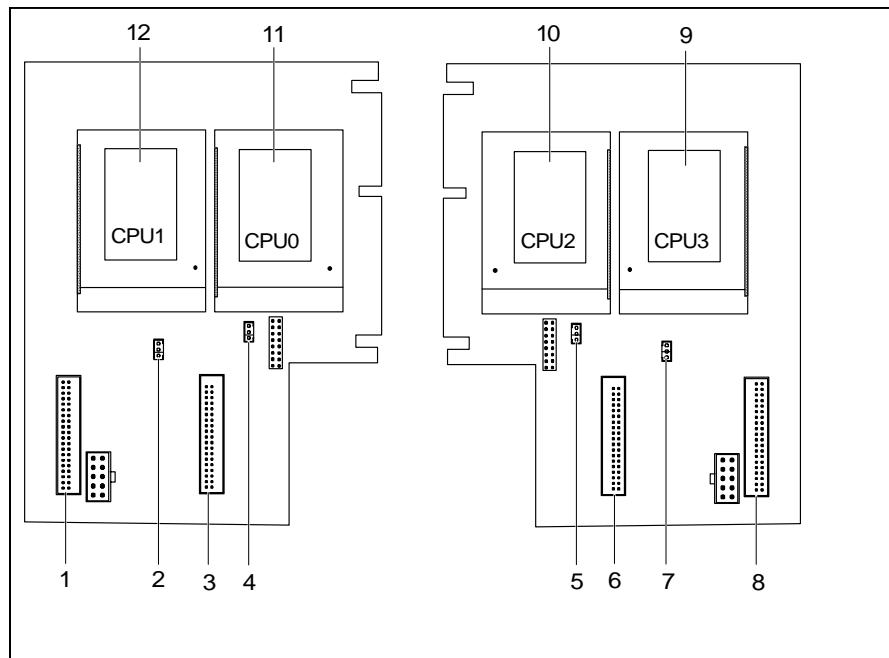
1 = Slot for current converter module processor 1
2 = Port for temperature sensor processor 1
3 = Slot for current converter module processor 0
4 = Port for temperature sensor processor 0
5 = Slot for current converter module processor 2
6 = Port for temperature sensor processor 2
7 = Slot for current converter module processor 3
8 = Port for temperature sensor processor 3
9 = Slot for processor 3
10 = Slot for processor 2
11 = Slot for processor 1
12 = Slot for processor 0

Replacing the processor

One or two processors can be inserted on a processor board (socket type 8).

⚠ On the processor boards you may use only processors of the same type. We recommend that you have processors replaced and upgrades carried out by our service customer department.

You may use only processors which you have obtained from your sales office or customer service.

The processors must be installed in sequence. This involves inserting the processors in their free slots.
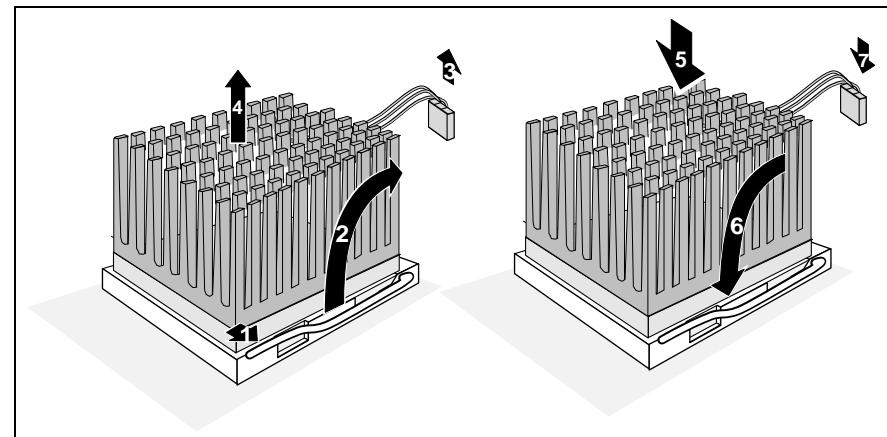
► Push the lever in the direction of the arrow (1) and lift it as far as it will go (2).

► Pull the connector of the processor's temperature sensor (3) and lift the processor out of the slot (4).

► Insert the new processor in the slot. Because of the arrangement of the rows of pins on the bottom of the processor, the processor is inserted correctly when it clicks into the socket softly (5).

► Push the lever back down so that it snaps into place (6).

► Reinsert the connector of the processor's temperature sensor (7) into the correct socket on the processor board.

► Set the jumpers for processor frequency in accordance with the installed processor. When doing so, take into account the setting of the system bus clock on the system module.

i When you add a processor, you must insert an appropriate current converter module in the corresponding slot.

Error messages

This chapter contains error messages generated by the system board.

```
nn Stuck Key
```

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

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

Check the entry for the diskette drive in the *Main* menu and the entry for the diskette drive controller in the *Advanced - Peripheral Configuration* menu of the *BIOS Setup*. Check the connections to the diskette drive.

```
CPU ID 0x failed
```

Switch the server off and on again. If the message is still displayed, go into the BIOS setup and set the corresponding CPU to *disabled* in the *Server - CPU Status* menu; then contact our customer service department.

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

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

```
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.

```
Fail Safe Timer NMI
Software NMI
Expansion Board was disabled
```

Switch the system off and check that the EISA modules are connected and function properly. If the message is still displayed, please contact your sales office or customer service.

```
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 configuration information
Invalid EISA configuration storage
Configuration error for slot
```

Stellen Sie im *BIOS-Setup* im Menü *Advanced* den Eintrag für *Reset Configuration Data* auf *Yes*. Starten Sie das EISA-Konfigurationsprogramm (ECU), und konfigurieren Sie das System neu. If the message is still displayed, please contact your sales office or customer service.

```
Invalid NVRAM media type
```

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

```
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.

```
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 system off and on. If the message is still displayed, please contact your sales office or customer service.

```
PCI System Error (NMI) on second PPro to PCI Bridge
PCI System Error (NMI) on first PPro to PCI Bridge
Uncorrectable ECC DRAM error
```

Switch the system off and on. 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 PC starts with incomplete system configuration. If the message is still displayed, please contact your sales office or customer service.

```
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 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 system off and on. 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 system off and on. 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.

```
nn Stuck Key
```

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

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

Vérifiez dans le menu *Main* du *BIOS setup* l'entrée correspondant au lecteur de disquettes et dans le menu *Advanced - Peripheral Configuration* du *BIOS setup* l'entrée correspondant au controleur du lecteur de disquettes. Vérifiez les connecteurs du lecteur de disquettes.

```
CPU ID 0x failed
```

Redémarrez votre PC. Si le message réapparaît appelez le BIOS setup et et entrez le paramètre *disabled* du processeur correspondant dans le menu *Server - CPU Statu*; puis adressez-vous à votre revendeur ou à notre S.A.V..

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

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

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

Vérifiez dans le menu *Main* du *BIOS setup* l'entrée correspondant au lecteur de disque dur et dans le menu *Advanced - Peripheral Configuration* du *BIOS setup* l'entrée correspondant au controleur du lecteur de disque dur IDE. Vérifiez les connecteurs du lecteur de disquettes.

```
Fail Safe Timer NMI
Software NMI
Expansion Board was disabled
```

Mettez le système hors tension et vérifiez que les modules EISA fonctionnent correctement et sont bien connectés. Si ce message apparaît chaque fois que vous démarrez votre PC, adressez-vous à votre revendeur ou à notre S.A.V.

```
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 configuration information
Invalid EISA configuration storage
Configuration error for slot
```

Pour l'entrée *Reset Configuration Data* du menu *Advanced* du *BIOS setup*, activez le paramètre *Yes*. Chargez le programme de configuration EISA (ECU) et reconfigurez le système. Si ce message apparaît encore chaque fois que vous démarrez votre PC, adressez-vous à votre revendeur ou à notre S.A.V.

```
Invalid NVRAM media type
```

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

```
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.

```
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
```

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
```

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

```
PCI System Error (NMI) on second PPro to PCI Bridge
PCI System Error (NMI) on first PPro to PCI Bridge
Uncorrectable ECC DRAM error
```

Redémarrez votre PC. 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 $\boxed{F2}$ pour vérifier et corriger les valeurs dans *BIOS Setup*. Si vous appuyez la touche de fonction $\boxed{F1}$ le PC démarre en configuration incomplète. Si le message réapparaît, adressez-vous à votre revendeur ou à notre S.A.V.

```
Real time clock error
```

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 PC. 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 PC. 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.

```
nn Stuck Key
```

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

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

En en menú *Main* del *BIOS-Setup* verifique el valor correspondiente a la unidad de disquete y en el menú *Advanced - Peripheral Configuration* el valor para el controlodor de la unidad de disquete. Controle las conexiones de la unidad de disquete.

```
CPU ID 0x failed
```

Arranque de nuevo el PC. Si sigue visualizándose este mensaje, entre en el *BIOS Setup* y ajuste la correspondiente CPU como *disabled* en el menú *Server - CPU Status*; a continuación diríjase a su distribuidor o a nuestro servicio de postventa.

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

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

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

En el menú *Main* del *BIOS-Setup* verifique los valores para la unidad de disco duro y en el menú *Advanced - Peripheral Configuration* el valor para el controlador de unidad IDE. Controle las conexiones y los puentes de la unidad de disco duro.

```
Fail Safe Timer NMI
Software NMI
Expansion Board was disabled
```

Desconecte el sistema y verifique si los módulos EISA funcionan y han sido conectados correctamente. Si aparece este mensaje cada vez que conecta el sistema, diríjase a su distribuidor o al servicio de postventa.

```
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 configuration information
Invalid EISA configuration storage
Configuration error for slot
```

En el menú *Advanced* del *BIOS-Setup* ajuste el valor *Yes* para *Reset Configuration Data*. Arranque el programa de configuración EISA (ECU) y configure de nuevo su sistema. Si sigue visualizándose este mensaje cada vez que arranca su sistema, diríjase a su distribuidor o a nuestro servicio de postventa.

```
Invalid NVRAM media type
```

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

```
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.

```
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.

```
PCI System Error (NMI) on second PPro to PCI Bridge
PCI System Error (NMI) on first PPro to PCI Bridge
Uncorrectable ECC DRAM error
```

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 error`

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.

`nn Stuck Key`

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

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

Controllate nel *BIOS-Setup*, menu *Main*, il valore indicato per il drive dei dischetti e nel menu *Advanced - Peripheral Configuration* il valore per il controller del drive dei dischetti. Controllate i collegamenti del drive per dischetti.

`CPU ID 0x failed`

Switch the server off and on again. If the message is still displayed, go into the BIOS setup and set the corresponding CPU to *disabled* in the *Server - CPU Status* menu; then contact our customer service department.

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

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

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

Controllate nel *BIOS-Setup*, menu *Main*, i valori per il drive del disco fisso e nel menu *Advanced - Peripheral Configuration* il valore per il controller del driver IDE. Controllate i collegamenti ed i ponticelli del drive del disco fisso.

`Fail Safe Timer NMI`
`Software NMI`
`Expansion Board was disabled`

Spegnete il sistema e verificate che i componenti EISA funzionino e siano collegati in modo corretto. Se questo messaggio compare dopo l'accensione, rivolgeteVi al Vostro rivenditore o al nostro servizio di assistenza tecnica.

```
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 configuration information
Invalid EISA configuration storage
Configuration error for slot
```

> Impostate nel *BIOS-Setup* del menu *Advanced* il valore per *Reset Configuration Data* su *Yes*. Avviate il programma di configurazione EISA (ECU) e riconfigurate il sistema. Se questo messaggio continuo ad venir visualizzato dopol'accensione, rivolgeteVi al Vostro rivenditore oppure al nostro servizio di assistenza tecnica.

```
Invalid NVRAM media type
```

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

```
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.

```
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.

```
PCI System Error (NMI) on second PPro to PCI Bridge
PCI System Error (NMI) on first PPro to PCI Bridge
Uncorrectable ECC DRAM error
```

> 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 error
```

> 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.

```
nn Stuck Key
```

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

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

Kontrollera inställningarna för diskettenheten i menyn *Main* i *BIOS-Setup*-menyn och inställningarna för diskettenhets-controllern i menyn *Advanced - Peripheral Configuration*. Kontrollera att diskettenheten är korrekt ansluten.

```
CPU ID 0x failed
```

Starta upp PCn på nytt. Om meddelandet fortfarande visas, går du in i BIOS-Setup-menyn och ställer in motsvarande CPU på *disabled* i *Server - CPU Status* menyn; kontakta din återförsäljare eller vår kundservice.

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

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

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

Kontrollera inställningarna för hårddiskenheten i menyn *Main* i *BIOS-Setup*-menyn och inställningarna för IDE-drivenhets-controllern i menyn *Advanced - Peripheral Configuration*. Kontrollera hårddiskenhetens kontakter och kopplingspaneler.

```
Fail Safe Timer NMI
Software NMI
Expansion Board was disabled
```

Stäng av systemet och kontrollera att EISA-komponenterna fungerar och är korrekt anslutna. Om detta meddelande visas varje gång maskinen sätts på, bör du kontakta din återförsäljare eller vår kundservice.

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

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

```
Invalid configuration information
Invalid EISA configuration storage
Configuration error for slot
```

Ställ in värdet *Yes* för *Reset Configuration Data* i menyn *Advanced* i *BIOS-Setup*-menyn. Starta EISA-konfigurationsprogrammet (ECU), och konfigurera om systemet på nytt. Om detta meddelande visas varje gång maskinen sätts på, bör du kontakta din återförsäljare eller vår kundservice.

```
Invalid NVRAM media type
```

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

```
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.

```
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.

```
PCI System Error (NMI) on second PPro to PCI Bridge
PCI System Error (NMI) on first PPro to PCI Bridge
Uncorrectable ECC DRAM error
```

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 error
```

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.

```
nn Stuck Key
```

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

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

Controleer in de *BIOS-Setup*, in het menu *Main*, de instelling voor het diskettestation en in het menu *Advanced - Peripheral Configuration* de instelling voor de diskettestation-controller. Controleer de aansluitingen van het diskettestation.

```
CPU ID 0x failed
```

Switch the server off and on again. If the message is still displayed, go into the BIOS setup and set the corresponding CPU to *disabled* in the *Server - CPU Status* menu; then contact our customer service department.

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

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

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

Controleer in de *BIOS-Setup*, in het menu *Main*, de instellingen voor de harde schijf en in het menu *Advanced - Peripheral Configuration* de instelling voor de IDE-controller. Controleer de aansluitingen en de doorverbindingen van de harde schijf.

```
Fail Safe Timer NMI
Software NMI
Expansion Board was disabled
```

Schakel het systeem uit en ga na of de EISA-modules goed werken en goed zijn verbonden. Als deze melding altijd verschijnt als het systeem wordt ingeschakeld, moet u contact opnemen met uw verkoper of met onze klantendienst.

```
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 configuration information
Invalid EISA configuration storage
Configuration error for slot
```

Zet in de *BIOS-Setup* in het menu *Advanced* de instelling voor *Reset Configuration Data* op *Yes*. Start het EISA-configuratieprogramma (FCU) en configureer het systeem opnieuw. Als deze melding weer verschijnt telkens het systeem wordt ingeschakeld, moet u contact opnemen met uw verkoper of met onze klantendienst..

```
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.

```
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.

```
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.

```
PCI System Error (NMI) on second PPro to PCI Bridge
PCI System Error (NMI) on first PPro to PCI Bridge
Uncorrectable ECC DRAM error
```

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 error
```

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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