

answers²

Reference Manual

BIOS Setup V4.06

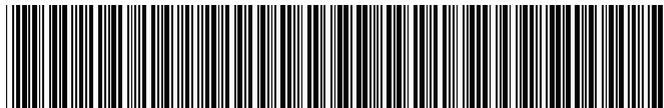
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BIOS Setup V4.06

REFERENCE MANUAL

Introduction

Using the BIOS Setup

Menus of the BIOS Setup

PC Lock

SystemLock

Flash BIOS update

Error messages

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Introduction

In *BIOS Setup* you can set the system functions and the hardware configuration of the device.

When it is supplied, the device is set to factory default settings. You can change these settings in *BIOS Setup*. Any changes you make take effect as soon as you save the settings and quit the *BIOS Setup*.

You can select the following settings in the *BIOS Setup*:

- Main* - System functions
- Advanced* - Advanced system configuration
- Security* - Security functions
- Server* - Server management
- Power* - Energy saving functions
- Exit* - Save and quit



The individual menus and setting options are described in alphabetical order in the next chapters. Since the setting options and menus depend on the hardware configuration of your device, some of them may not be offered in the *BIOS Setup*.

Notational conventions

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



Pay particular attention to texts marked with this symbol. Failure to observe this warning endangers your life, destroys the system, or may lead to loss of data.



Supplementary information, remarks, and tips follow this symbol.

- ▶ Text which follows this symbol describes activities that must be performed in the order shown.
- ┆ This symbol indicates that you must enter a blank space (press the Space Bar) at this point.
- ⏎ This symbol indicates that you must press the Enter key.

Text in this typeface indicates screen outputs.

Text in this bold typeface indicates the entries you make via the keyboard.

Text in italics indicates commands or menu items.

"Quotation marks" indicate names of chapters or terms.

Using the BIOS Setup

Calling BIOS Setup

- ▶ Restart the device by switching power Off/On or pressing **Ctrl Alt Del** (warm boot).

If *Quiet Boot* is set to *Enabled*, a manufacturer's logo appears at the upper edge of the screen and the following message is displayed at the lower edge of the screen:

Press F3 for POST Screen

- ▶ Press the function key **F3** to read the other messages.

If *Quiet Boot* is set to *Disabled* at the factory, a message appears at the upper edge of the screen, e.g.:

Phoenix BIOS™ Version 4.06 Rev.1.03.1031

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

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

Press <F2> to enter SETUP

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

Press <F2> BIOS Setup/<F12> Boot Menu



The message and the available functions depend on the hardware configuration of your device. Therefore it could happen that **F1** or **F12** are not offered by your device.

If you want to call the "BIOS-Setup":

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

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

If you want to call the "Boot Menu" immediately:



You may use this function if you do not want to boot the system from the drive specified as first device in the entry *Boot Sequence* in the submenu *Boot Options*.

- ▶ Press function key **[F12]**.

On the screen, the *Boot Menu* appears as pop up window. You can now select, from which drive you want to boot the operating system. The selection options are the same as those listed in the entry *Boot Sequence* in the submenu *Boot Options*.

Your selection is only valid for the current system boot. At the next system start, the options selected in the entry *Boot Sequence* in the submenu *Boot Options* are valid again.

- ▶ Use the arrow keys **[↑]** or **[↓]** to select from which drive you want to boot the system now and press the enter key.
- ▶ If you want to call the *BIOS-Setup*, use the arrow keys **[↑]** or **[↓]** to select the *Setup* and press the enter key.



You cannot choose a drive marked with "!" for booting.

You can check in *BIOS Setup* why that drive is not available for booting (in the *Boot Options* submenu).

BIOS Setup with incorrect settings

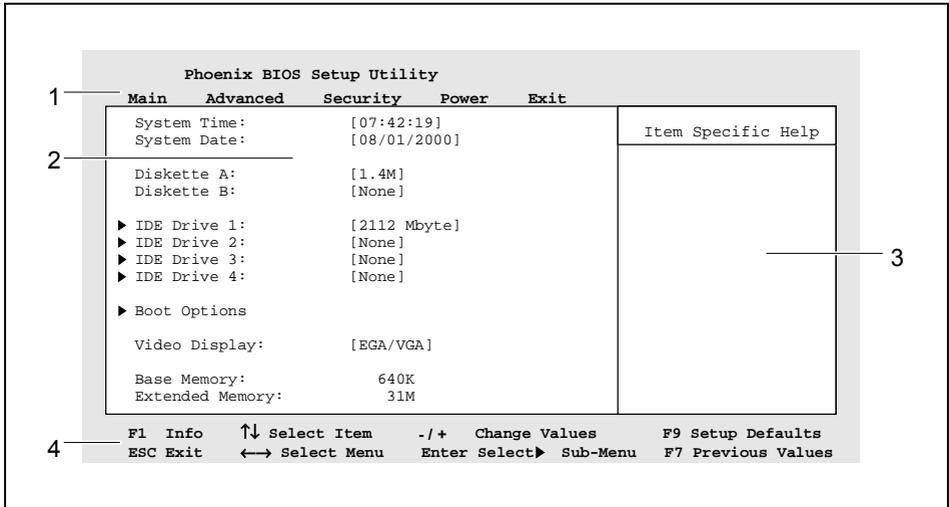


If an incorrect setting in *BIOS Setup* prevents system start and if the system cannot be started three times in a row, the following system start will automatically reset the *BIOS-Setup* default settings once. The following error message appears:

Previous boot incomplete - Default configuration used

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

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



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

1 = Menu bar

2 = Working area

3 = Information area

4 = Operations bar

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

- Menu bar (1)
In the menu bar, you can select the different *BIOS Setup* menus.
- Working area (2)
The working area displays the setting options (fields) of the selected menus. You can set the entries in the displayed fields according to your requirements.
 - ▶ indicates fields which open further submenus. You can change entries in these submenus.
 - * indicates configuration conflicts that must be resolved to ensure that the device functions correctly.
- Information area (3)
The information area displays brief information on the selected field.
- Operations bar (4)
The operations bar indicates which keys you can use to operate *BIOS Setup*.



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

Operating BIOS Setup

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

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

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



If you change entries in BIOS Setup, make a note of the changed entries

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

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

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

Exiting BIOS Setup

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

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

Save Changes & Exit

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

Discard Changes & Exit

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

Get Default Values

To revert all the menus of *BIOS Setup* to the default entries, select *Get Default Values* and *Yes*.

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

Load Previous Values

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

Save Changes

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

Main - system functions

Main	
	Item Specific Help
System Time: [07:42:19] System Date: [08/01/2000]	
Diskette A: [1.4M] Diskette B: [None]	
▶ IDE Drive 1: Type xxx ▶ IDE Drive 2: None ▶ IDE Drive 3: None ▶ IDE Drive 4: None	
▶ Boot Options	
Video Display: [EGA/VGA]	
Base Memory: 640K Extended Memory: 31M	
F1 Info ...	

Example for *Main* menu

Base Memory / System Memory

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

BIOS version

indicates the BIOS version.

BMC F/W Version

indicates the BMC version (BMC = Baseboard Management Controller).

Boot options

calls the submenu in which you can select the settings for system start-up.

Boot Menu - System boot

specifies whether the BOOT menu can be invoked with **F12** during the POST.

Enabled The *Boot* menu can be invoked.

Disabled The *Boot* menu cannot be invoked.

Boot sequence

specifies the sequence of the system files that the system BIOS requires during booting. This sequence can be changed with the cursor.

The **[+]** key moves the drive type entry forward

or

The **[−]** key moves the drive type entry back.

Possible entries (Examples):

Example 1

CD ROM drive
+floppy disk
+hard drive
Legacy LAN card

With example 1 you also have the following options for operating:

- Drives marked with "+" provide a submenu for individual drives available. Place the cursor on a drive marked with "+" and press the Enter key. The drives available are displayed. Available drives may also be USB drives and USB storage devices such as *MemoryBird*.
- Drives marked with "!" cannot be chosen for booting, e.g. because a drive is not connected any longer. You can delete drives marked with "!" using "*" (numerical keypad).
- You can allow/disallow a drive to boot using the space bar.

Example 2

1. CD ROM
2. Diskette
3. Hard Disk
4. Network

or

Example 3

1. ATAPI-CD-ROM
2. Diskette Drive
3. Removable Devices
4. Hard Drive
5. Network Boot
6. 8xx SCSI CD-ROM Symbios
7. B00-D01: Network Boot



B00-D01: Network Boot

This entry enables a system boot with LAN via PXE (**P**reboot **e**Xecution **E**nvironment).

If you can boot the operating system from several LAN boards, then several LAN boards appear as boot boards. They are distinguished with the starting code "B<PCI Bus No.>_D<Device No.>".

With examples 2 and 3 you can also select the first hard disk boot device and the first diskette boot device or a system board boot device in this sequence. The submenus are called:

▶ *Hard Disk Boot Device*

1. <Device name>

▶ *Diskette Boot Device*

2. Alternate Device

Diskette boot device

Specifies the floppy disk drive that must be searched for system files in order to boot the operating system. Only the first entry in the list is decisive. In order to move a floppy disk drive into first position, point the cursor at the name of the drive that you want to move forwards (**[+]** button) or backwards (**[−]** button).

The number of floppy disk drives listed depends on the number of drives connected.

Default Standard floppy disk drive

Diskette 120M / ZIP
LS120 floppy disk drive or Zip drive



Each time you modify the configuration of the floppy disk drive, you must check that the correct floppy disk drive is still set for system boot. If not, readjust the entry.

The entry *Diskette 120M / ZIP* is offered only if a corresponding drive has been installed.

Fast Boot

can reduce the extent of the self-test and thus accelerate the system start-up.

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

Disabled When the device is switched on, the complete device configuration is tested.

Hard disk boot device - Hard disk for system load

All available boot drives / drive controllers in the system are listed. In order to start the operating system, only the hard disk or controller located in first position is searched for the system files. All hard disks / controllers with the BIOS boot specification are listed individually by name. All other hard disks / controllers are grouped under *Alternate Device*.

In order to place a hard disk or a drive controller in first position, you must point the cursor at the name of the drive that you want to move forwards (**→** button) or backwards (**←** button).

Alternate Device

Single entry for all hard disks and drive controllers in the system that do **not** fulfil the BIOS boot specification. The BIOS system cannot influence which hard disk drive is used to boot the system. The boot sequence can be modified by altering the setup of the drive controller or by changing the order of the drive controllers in the slots (scan sequence). It is not possible to tell how many drives are grouped under *Alternate Device*.

If *Alternate Device* is in first position on the list, but contains no hard disks / controllers, this entry is ignored.

<*Device name*>

List entry of a hard disk drive or a drive controller that fulfils the BIOS boot specification. The number of hard disks / controllers listed depends on the drive controllers (e.g. SCSI controller, IDE controller) and drives used. For *Device name*, either the drive controller name or the hard disk name is displayed. If the drive controller name is displayed, you must set the boot sequence in the drive controller setup.



Each time you modify the configuration of the drive controller (SCSI, IDE), you must check that the correct hard disk drive is still set for system boot. If not, readjust the entry.

Memory test

defines whether a memory test is run or not.

Enabled The memory test is carried out during the boot routine of the BIOS.

Disabled The memory test is not carried out during the boot routine of the BIOS.

MultiBoot for HDs

Determines if *Hard Disk Boot Device* or *Hard Drive* should be used or not.

Enabled The menu item *Hard Disk Boot Device* or *Hard Drive* specifies the boot sequence.

Disabled The menu item *Hard Disk Boot Device* or *Hard Drive* cannot affect the boot sequence. The operating system is started from the drive that is found first by the BIOS, i.e. the selection of the PCI slot has an influence on the boot sequence.



If you are using *ServerShield*, turn off *MultiBoot for HDs*.

POST Errors - Aborting system start-up

defines whether the system start-up is to be aborted and the system halted when an error is detected.

Halt On All Errors or *Enabled*

If the self-test detects an error, system start-up is aborted after the self-test, and the system is halted.

No Halt On Any Errors or *Disabled*

The system start-up is not aborted. The error is ignored as far as possible.

Keyboard Check

specifies whether keyboard checks are carried out. This setting is useful for systems which are operated without a keyboard.

Enabled Keyboard checks are carried out. If there are keyboard faults, the system behaves as defined in the setting in the POST Errors menu item.

Disabled No keyboard checks are carried out. Possible keyboard faults are not detected.

Primary display

If multiple monitor controllers are built in, this determines the sequence the BIOS uses to search for the monitor controller.

AGP VGA The search sequence is ISA VGA, AGP VGA, PCI VGA.

PCI VGA The search sequence is ISA VGA, PCI VGA, AGP VGA.

Quiet Boot - boot logo

Instead of a POST information a logo is displayed on the screen.

Enabled The logo is displayed on the screen. A switch to the POST information is made if you press the **[F3]** or the **[Esc]** key or if errors occur.

Disabled The POST information is displayed on the screen.

Removable devices

The operating system assigns drive letters to the removable devices (e.g. LS-120, Zip drive) in the order displayed. In order to move a removable device into first position, point the cursor at the name of the drive that you want to move forwards (**[+]** button) or backwards (**[-]** button).

The number of removable devices listed depends on the number of drives connected.

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.

Disabled The message is not displayed.

SM Error Halt - Error Handling for System Monitoring

configures the system behaviour during the self-test in case of a system monitoring error reported by the BMC (e.g. fan monitoring, temperature monitoring).

This setting is only effective when the setting *Halt On All Errors* or *Enabled* has been selected in the *Post Errors* menu.

Enabled If an error is reported to the BIOS by the BMC, the system start-up is cancelled and the system stopped following the self-test.

Disabled The system start is not cancelled when an error is reported to the BIOS by the BMC. Error message is displayed only.

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 No diskette drive installed or diskette drive is accessed via *IDE Drive*.

Extended Memory

indicates the size of the memory above 1 Mbyte.

IDE Drive 1 to IDE Drive 4

call the submenu to make corresponding settings of the IDE hard disk drive. The manufacturer's designation of the IDE drive is given beside each submenu.. If your mainboard has just one connector for IDE drives, you can only enter settings for IDE drive 1 and IDE drive 2.



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

The maximum transfer rate of two IDE drives connected to the same connector is determined by the slowest one. Fast hard disks should therefore be connected to the first IDE connector and identified as *IDE Drive 1* or *IDE Drive 2*. Slower hard disks or other IDE drives (e.g. CD ROM drives) should be connected to the second IDE connector and identified as *IDE Drive 3* or *IDE Drive 4*.

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

The following description of the setting options given below for *IDE Drive 1* also applies for *IDE Drive 2*, *IDE Drive 3* and *IDE Drive 4*.

32 Bit I/O - Bus width for data transfer

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

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

Disabled The data transfer is 16 bits in width.

Cylinders, Heads, Sectors/Track, Capacity

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

The *Capacity* field (*CHS value/LBA value*) shows the capacity of the hard disk in function of the present computation.

The CHS value is the capacity calculated by BIOS for the Cylinders/Heads/Sectors on the basis of the figures supplied by the hard disk. The LBA value is the capacity calculated by BIOS on the basis of the maximum possible sectors reported by the hard disk.

Since BIOS designates the maximum permissible values for Cylinders/Heads/Sectors, the CHS value cannot exceed 8.4 Gbyte. LBA addressing avoids these restrictions, so it can handle values larger than 8.4 Gbyte. The CHS value and the LBA value are therefore different on hard disks as of 8.4 Gbyte.

For further information on CHS and LBA, see the sections on "LBA Translation - Addressing" and "LBA Translation mode".

Hard Disk Silent Mode - behaviour of hard disk

determines the behaviour of the hard disk. The hard disk must support this function.

Enabled The hard disk makes less noise during operation. The hard disk performance is somewhat reduced.

Disabled The hard disk operates at optimal performance.

HD-ID - identification number

shows the identification number of the hard disk installed. This ID is required to generate the master password for a hard disk. Only the service (help desk) can generate the master password.

LBA Translation - Addressing

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

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

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

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

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

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



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

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

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

LBA Translation mode

Sets the mode responsible for the conversion of physical disk formatting into logical disk formatting. The individual translation modes are compatible with certain earlier BIOS versions.

Setting the *LBA Translation Mode* is only effective if your hard disk supports LBA and if *LBA Translation* is activated in BIOS by setting to *Enabled*.



A hard disk can only be operated using the LBA translation mode that was set prior to partitioning. This is because the three LBA translation modes use different algorithms to convert physical disk geometry into logical disk geometry.

So remember: Never change the LBA translation mode for a disk that has already been written on.

You can only use a hard disk in a different system if the system supports the same LBA translation mode as the one originally set for the hard disk.

- PTL* This translation mode is based on CHS-CHS translation (shift process). The description of the disk geometry as the number of cylinders, heads and sectors is called CHS (Cylinder/Head/Sector). The *PTL* translation mode portrays physical CHS values as logical CHS values. In doing so, it reduces the number of cylinders and increases the number of heads to ensure that the values fall within the preset BIOS limitations.
This translation mode is compatible with BIOS V4.04, V4.05 and V4.06. Hard disks that have previously been used with any of these BIOS versions can be used with the *PTL* translation mode.
- CHS* LBA assisted translation, based on the physical data of the hard disk. BIOS gives the maximum number of sectors based on the physical CHS values, and converts this data into logical CHS values.
This translation mode is compatible with BIOS V1.03. Hard disks that have previously used BIOS version 1.03 can be used with the CHS translation mode.
- LBA* LBA assisted translation, based on the maximum number of sectors reported by the hard disk.
The hard disk gives BIOS the disk geometry not only in CHS values, but also in LBA mode, i.e. addressing is by consecutive sector numbers. BIOS can then calculate the logical CHS values.

PIO Mode - Transfer rate

The PIO (Programmed Input Output) mode defines the transfer rate of the IDE hard disk drive. If at all possible use the entry *Auto* in the field *Type*. This means BIOS will determine the best possible transfer rate for the hard drive.

If transfer rates are set incorrectly, the hard drive will be either too slow (i. e. the hard disk has a higher transfer rate then the one that was set) or the hard drive does not boot correctly, or does not respond (i. e. the hard drive is set to a higher transfer rate then it is capable of).

<i>Default</i>	0,8 Mbyte/s to 2 Mbyte/s
<i>PIO 1</i>	2 Mbyte/s to 4 Mbyte/s
<i>PIO 2</i>	4 Mbyte/s to 5 Mbyte/s
<i>PIO 3</i>	5 Mbyte/s to 10 Mbyte/s
<i>PIO 4</i>	10 Mbyte/s to 16 Mbyte/s
<i>PIO 3 / DMA 1</i>	5 Mbyte/s to 10 Mbyte/s
<i>PIO 4 / DMA 2</i>	up to 16 Mbyte/s
<i>PIO 4 / UDMA 16</i>	up to 16 Mbyte/s
<i>PIO 4 / UDMA 25</i>	up to 25 Mbyte/s
<i>PIO 4 / UDMA 33</i>	up to 33 Mbyte/s
<i>PIO 4 / UDMA 44</i>	up to 44 Mbyte/s
<i>PIO 4 / UDMA 66</i>	up to 66 Mbyte/s
<i>PIO 4 / UDMA 100</i>	up to 100 Mbyte/s

Silent Mode - noise level of optical drive

specifies the noise level of the optical drive. To lower the noise level of the optical drive, the rotating speed is reduced. The optical drive must support this function.

<i>OS only</i>	The rotating speed is not affected by the BIOS. The rotating speed can be changed by other applications.
<i>Disabled</i>	The optical drive operates at its highest rotating speed.
<i>Medium</i>	Depending on the drive, the rotating speed is reduced to a medium value. The optical drive produces less noise during operation and the performance is slightly reduced.
<i>Silent</i>	Depending on the drive, the rotating speed is reduced to its lowest value. The optical drive produces less noise during operating and the performance is reduced.

Transfer Mode

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

Standard or Disabled

One block is transferred for each interrupt.

2 Sectors, 4 Sectors, 8 Sectors, 16 Sectors

The set number of blocks (sectors) is transferred for each interrupt.

Type - Hard Disk Type

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

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

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

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

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

Floppy disk 120M / ZIP or ATAPI Removable

If an ATAPI 120M floppy disk drive or a Zip drive is installed, this entry enables you to boot from the floppy disk drive or Zip drive.

Ultra DMA Mode

specifies a fast Ultra DMA transfer mode for the IDE hard disk drive.

Disabled The fast Ultra DMA transfer mode is not set.

Mode 0, 1, 2 The fast Ultra DMA transfer mode is set.

Primary Master - Hard disk drive

call the submenu to make corresponding settings of the drive.

The following description of the setting possibilities for *Primary Master* also apply to *Secondary Master*, *Primary Slave* and *Secondary Slave*. The default settings depend on the installed drive.

Type - Hard Disk Type

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

- None* You cannot change the hard disk parameters *Cylinders*, *Heads*, *Sector/Track*. An IDE drive has not been installed.
- 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 yourself.
If you have set the hard disk parameters with *Auto*, you can only reduce the values. Examples of user-defined entries (IDE drives):

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

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

ATAPI Removable If an ATAPI 120M diskette drive is installed, this entry enables you to boot from the correspondent drive.

LBA Translation - Addressing

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

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

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

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

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

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



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

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

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

32 Bit I/O - Bus width for data transfer

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

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

Disabled The data transfer is 16 bits in width.

PIO Mode - Transfer rate

The PIO (Programmed Input Output) mode defines the transfer rate of the IDE hard disk drive. If at all possible use the entry *Auto* in the field *Type*. This means BIOS will determine the best possible transfer rate for the hard drive.

If transfer rates are set incorrectly, the hard drive will be either too slow (i. e. the hard disk has a higher transfer rate than the one that was set) or the hard drive does not boot correctly, or does not respond (i. e. the hard drive is set to a higher transfer rate than it is capable of).

<i>Disabled</i>	The transmission speed is not set.
<i>Default</i>	0,8 Mbyte/s to 2 Mbyte/s
<i>PIO 1</i>	2 Mbyte/s to 4 Mbyte/s
<i>PIO 2</i>	4 Mbyte/s to 5 Mbyte/s
<i>PIO 3</i>	5 Mbyte/s to 10 Mbyte/s
<i>PIO 4</i>	10 Mbyte/s to 16 Mbyte/s

Ultra DMA Mode

specifies a fast Ultra DMA transfer mode for the IDE hard disk drive.

<i>Disabled</i>	The fast Ultra DMA transfer mode is not set.
<i>Mode 0, 1, 2</i>	The fast Ultra DMA transfer mode is set.

Serial ATA Configuration

calls up the sub-menu in which you can make changes for the serial ATA interfaces.

SATA Interface

activates or deactivates all serial ATA interfaces on the mainboard.

<i>Enabled</i>	The serial ATA interfaces on the mainboard are activated.
<i>Disabled</i>	The serial ATA interfaces on the mainboard are deactivated.



If you deactivate the serial ATA interfaces, then you release system resources (IRQ, I/O).

SATA Mode

specifies which operating mode the serial ATA interfaces are used in.

<i>Default</i>	The serial ATA interfaces are assigned to the default IDE interface. Further settings you make under <i>SATA Drive Mapping</i> .
<i>RAID</i>	Condition: The mainboard must support this function. The serial ATA interfaces are used as a RAID system with RAID 0. Two identical serial ATA hard disk drives must be connected. Additional settings are made in the <i>RAID Configuration Utility</i> . This utility can be started when booting the system with a key combination. A message to this effect appears on screen.
<i>OS Only</i>	Condition: The operating system must support this function. The serial ATA hard disks are only detected by the operating system. The BIOS does not support the serial ATA interface and does not detect the serial ATA hard disks. No boot hard disks can be connected to the serial ATA interface.

SATA Drive Mapping

specifies how the serial ATA interfaces are assigned to the default IDE interfaces.

SATA 1/2 Only Only the serial ATA interfaces are used. Both IDE interfaces (primary and secondary) are assigned to the serial ATA interfaces. Drives on the IDE interfaces are not detected by the BIOS.

SATA 1/2 + PATA 3/4

The serial ATA interfaces and the secondary IDE interface are used. The primary IDE interface is assigned to the serial ATA interfaces. Drives on the primary IDE interface are not detected by the BIOS.

PATA 1/2 + SATA 1/2

The serial ATA interfaces and the primary IDE interface are used. The secondary IDE interface is assigned to the serial ATA interfaces. Drives on the secondary IDE interface are not detected by the BIOS.

RDRAM Load (for systems with RAM-Bus Architecture only)

displays on systems with RAM-Bus Architecture the total capacity of the installed RDRAM memory modules. Currently, the RAM-Bus is only capable of driving a maximum of 32 Mbyte in the form of RDRAM memory modules.

System time / System date

indicates the date / the time of the device. The date is shown in the format "mm/dd/yyyy". The time is shown in the format "hours:minutes:seconds". If you want to change the current date set / the current time set, enter the new date in the *System Date* field / the new time in the *System Time* field. You can move the cursor between the *System Time* and *System Date* fields 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. Replace the battery.

Video display

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

EGA/VGA, Color 40, Color 80, Monochrome

Default entry: *EGA/VGA*



If the entry *Video Display* is not offered, you can only connect a VGA colour screen.

Advanced - advanced system configuration



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

Advanced ...	
	Item Specific Help
<p style="text-align: center;">Setup Warning!</p> <p>Setting items on this menu to incorrect values may cause your system to malfunction.</p> <ul style="list-style-type: none"> ▶ Cache Memory ▶ Peripheral Configuration ▶ PCI Configuration ▶ Advanced System Configuration ▶ Power On/off ▶ System Management <ul style="list-style-type: none"> Installed O/S: [Yes] Reset Configuration Data: [No] Lock Setup Configuration: [No] Large Disk Access Mode: [DOS] Local Bus IDE adapter: [Enabled] 	
F1 Info ...	

Example for the *Advanced* menu

Advanced system configuration

calls the submenu in which you can make additional settings.

ACPI - Advanced Configuration and Power Interface

switches the ACPI (Advanced Configuration and Power Management Interface) function of the board on or off. This is an extended Plug&Play and power management function.

Enabled The ACPI function is switched on.

Disabled The ACPI function is switched off.

APIC - Multiprocessor Interrupt Controller

defines the functionality of the APIC (Advanced Interrupt Controller) in the processor.

Enabled The second processor (if present) can be used by multiprocessor operating systems to enhance performance.

Disabled The second processor cannot be used by the operating system.



An operating system must always be operated with the settings as installed. Novell NetWare 3.12 can be operated only with the setting *Disabled*.

APIC Mode - interrupt allocation

allows the configuration of a better interrupt allocation under operating systems with APIC (Advanced Interrupt Controller) support.

Enabled The operating system can use APIC.

Disabled The operating system does not use APIC.

ASR&R (only for certain server types)

ASR&R (Automatic Server Reconfiguration & Restart) defines the amount of time the server waits after a disconnection on faults (e.g. due to overtemperature) before it reboots.

Enabled ASR&R is enabled.

Disabled ASR&R is disabled.

BIOS Work Space Location

specifies where the data area for extended BIOS functions is located.

Expansion ROM Area

The data area is located within the area of the BIOS expansions.

Top of Base Memory

The data area lies in the working memory directly below the 640 Kbyte limit. This setting should only be used when not all BIOS extensions, e.g. SCSI, can be loaded from the system BIOS.

CPU Frequency

For some Intel processors it is possible to set the frequency of all processors. All processors then operate with the same frequency. The BIOS ensures that only frequencies permissible for all processors are set.

Auto The maximum possible frequency jointly supported by all processors in the system is set for all processors.

1200 MHz 1300 MHz...

All processors operate with the set frequency.

CPU HLT Detection - reducing the power consumption of the processor

enables reduction of power consumption, if the processor is in idle mode. The system performance can be somewhat decreased.

Enabled The processor in idle mode is recognised and power consumption is reduced. Thus system performance can be affected.

Disabled The processor operates in the standard mode. Power consumption in idle mode is not reduced.

CPU Mismatch Detection - Checking the processor data

The processor data check (processor type and speed) can be enabled here.

The check ascertains whether the processor data has changed between two system starts. In multiprocessor systems a check is also made to ascertain whether the processor data of all processors is identical.

An error message is displayed if the processor data differs.

Enabled The processor data check is enabled.

Disabled The processor data check is disabled.

CPU Timeout Counter

The internal time monitoring of the processor can be activated here.

With the internal time monitoring activated, the processor detects both internal time-outs and time-outs on the CPU bus.

The process signals this with an external signal. In this case the system is restarted.

If time monitoring is deactivated, the system may "freeze-up" and be inoperable.

Enabled Internal processor time monitoring is activated.

Disabled Internal processor time monitoring is deactivated.

CPU Clock Throttling Delay - Delay time of processor frequency adjustment

The activation of the processor frequency adjustment can be delayed here.

The frequency adjustment reduces the processor speed if the processor becomes too hot. This can lead to problems during the boot phase of some operating systems. With operating systems of this kind the processor frequency adjustment may not be activated until a complete system boot is carried out.

None The processor frequency adjustment is always active.

1 min .. 60 min The processor frequency adjustment is not activated until after the set time. The time measurement begins when the operating system is booted.

CPU Serial Number / Processor Serial Number

Here the serial number of a Pentium III can be switched off or on.

Enabled The serial number is enabled.

Disabled The serial number is disabled.



The entry *CPU Serial Number* or *Processor Serial Number* is only visible when a Pentium III processor is installed in the system.

Cache Performance

determines whether greater tolerances should be permitted for cache timing.

Default Greater tolerances are permitted for cache timing.

Fast Setting performance of system.

The following applies for DIMM modules:

SDRAM modules are installed by default (exception: Mainboard D983). If EDO-RAM modules are subsequently installed, the setting *Standard* must be used.

ECC CPU Checking

permits data error recognition and correction between the processor and internal second-level cache to be configured. This can affect the performance.

Enabled Error Correction Code (ECC) is enabled.

Disabled Error Correction Code (ECC) is disabled.

ECC Memory Checking - Error correction for main memory

permits data error recognition and correction using the appropriately equipped memory modules.

Enabled Error Correction Code (ECC) is enabled when all memory modules support ECC.

Disabled Error Correction Code (ECC) is disabled.

Enable extended memory gap

masks in a contiguous memory area (1, 2, 4 or 8 Mbytes in size) in main memory at 8, 12, 14 or 15 Mbytes.

1 MB at 15 MB The specified size of ISA memory area is masked in.

2 MB at 14 MB The specified size of ISA memory area is masked in.

4 MB at 12 MB The specified size of ISA memory area is masked in.

8 MB at 8 MB The specified size of ISA memory area is masked in.

Disabled The ISA memory area is not inserted.

FAN Speed

controls the speed of the processor fan.

Auto The speed is adjusted automatically.

Full Maximum speed.

Feature Connector - Enabling of Feature Connectors

This field is used to enable and disable the feature connector on the mainboard.

Enabled The feature connector is enabled.

Disabled The feature connector is disabled.

Graphics Aperture - set the size of the graphics aperture

sets the size of the graphics aperture when an AGP screen controller is installed. This function expands the available video memory.

4MB/8MB/16MB/32MB/64MB/128MB/256MB

The size of the graphics aperture is set to the selected value.

Hot Spare Memory Feature - Reserve memory bank

The BIOS uses a memory bank as a reserve for the case that too many correctable errors occur in another memory bank. Before any uncorrectable errors occur, the memory content of this memory bank is rerouted into the "spare bank". The potentially defective memory bank is not used further. This procedure takes place during operation. At the same time, the memory error is signalled to the administrator. The potentially defective memory module can then be exchanged during the next scheduled maintenance.

Enabled The *Hot Spare Memory Feature* function is activated.

Disabled The *Hot Spare Memory Feature* function is deactivated.

Hyper-Threading - Use of logical processors

Hyper-threading technology allows a single physical processor to appear as several logical processors. With this technology the operating system can better utilise the internal processor resources, which in turn leads to increased performance. The advantages of this technology can only be used by an operating system that supports ACPI. This setting has no effect on operating systems that do not support ACPI.

Enabled An ACPI operating system can use all logical processor within a physical processor.

Disabled An ACPI operating system can only use the 1st logical processor of the physical processor. This setting should only be used if hyper-threading technology has not been correctly implemented in the ACPI operating system.

ISA Memory Gap

inserts a related ISA memory gap in the main memory area.

Disabled The ISA memory area is not inserted.

Extended An ISA memory area of 1 Mbyte is inserted, starting at 15 Mbytes.

Memory Clocks - Clock signal lines

switches off the clock signal lines for unused memory module slots.

- Unused on* The clock signal lines are also active for unused memory module slots.
- Unused off* The clock signal lines are switched off for unused memory module slots. This reduces electromagnetic environmental influences (EMC).

Memory Current

defines the memory current to be supplied to the memory modules.

- 8mA* The memory modules are supplied with 8 mA memory current.
- 12mA* The memory modules are supplied with 12 mA memory current. The 12 mA setting is only necessary if you are using memory modules with a large storage capacity (upwards of 64 Mbyte), which have a large number of memory chips.

Memory Performance

determines whether greater tolerances should be permitted for memory timing.

- Default* Memory timing is programmed for EDO memory modules which takes into account all possible tolerances.
- Fast* Setting performance of system.

Parity Mode - DRAM Parity Check

Determines whether a parity check is carried out in the case of DRAM modules. If the system BIOS detects that at least one DRAM module does not have a parity bit, the parity check is generally disabled.

- Disabled* No parity check is performed.
- Parity* The parity check is set in parity mode. A one-bit corruption is recognised and an error message is issued.
- ECC* A one-bit corruption is corrected (no error message). An error message is issued for two or more bit corruptions.

PCI Burst Write Combining - Chip set configuration

If you use PCI boards which do not behave in accordance with PCI bus guidelines, you can deactivate *PCI Burst Write Combining*.

- Enabled* PCI Burst Write Combining is enabled.
- Disabled* PCI Burst Write Combining is disabled.

PCI Bus Parity Checking

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

- Enabled* Parity checking is performed.
- Disabled* Parity checking is not performed.

PCI Line Read Prefetch

specifies whether, for a "PCI Memory Read" command, additional cache lines are read. Generally, slightly better system performance is achieved if *PCI Line Read Prefetch* is enabled.

Disabled No additional cache lines are read.

Enabled For a "PCI Memory Read" command additional cache lines are read.

Remap PCI Memory Gap - Reassignment of PCI memory area

The memory addresses directly below 4 Gbyte are used for accessing PCI devices. The size of this area is dependent on the number of PCI devices and the devices themselves. This address area is called a "PCI Memory Gap". If the system is equipped with 4 Gbytes or more of main memory, it is not possible to access the part of the main memory with addresses reserved for accessing PCI devices that lie in the "PCI Memory Gap". If the "Remap PCI Memory Gap" flag is set to *Enabled*, this (otherwise unusable) memory area is assigned addresses above 4 Gbytes and it can be used.

Enabled The PCI memory area is made usable.

Disabled The PCI memory area is not used.



Not all operating systems support memory addresses above the 4 Gbyte limit. Special boot parameters may also be necessary for the operating system to make main memory above 4 Gbytes usable.

SSE Command Set - advanced command set (for systems with AMD processors)

determines, whether the AMD processor can use the SSE command set. To improve performance for multimedia and 3D applications there are two extensions for processors "SSE" or "3DNow!". An AMD processor normally uses only the "3DNow!" extension.

Enabled The AMD processor can use the extensions "SSE" and "3DNow!".

Disabled The AMD processor uses "3DNow!".

System Performance - System Speed

Determines whether system timing is with default parameters or parameters which allow a better performance.

Default System is set to standard.

Fast Setting performance of system.

USB host controller

specifies whether the USB hardware is switched on. If this function is deactivated (*Disabled*), the USB controller will not be recognized by any operating system. As a result, no USB devices can be operated.

Enabled The USB controller is enabled.

Disabled The USB controller is disabled.

USB Legacy Support

specifies whether the USB keyboard emulation is still active after starting the operating system. If a USB keyboard is used, the emulation for the *BIOS setup* is always switched on. This function is also required when the operating system is to be booted from a USB device.

Enabled The function is enabled. The USB keyboard or USB mouse can also be used under operating systems that do not support USB. The operating system can be booted from a USB device if the operating system also supports it.

Disabled The function is disabled. To operate a USB keyboard or USB mouse, it must be supported by the operating system. The operating system cannot be loaded from a USB device.



This function, *USB Legacy Support*, should be switched off (*Disabled*) if the operating system supports USB and you do not want to boot the operating system from USB devices.

ATAPI UDMA Auto Detect - UDMA mode

allows to disable the UDMA mode for CD ROM- or DVD drives. When returning from energy-saving mode (Standby), the operating system can get problems with handling drives with UDMA mode appropriately.

Default UDMA mode is recognised automatically and enabled, if the CD-ROM or DVD drive supports UDMA mode.

Disabled UDMA mode is disabled for all CD-ROM and DVD drives in the system.

Cache Memory

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

Cache - cache utilisation

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.

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

Intern and Extern

The internal and external cache are used.

Intern Only Only the processor cache is used.

or

Enabled Cache is enabled.

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

Cache Base 0-512k / Cache Base 512-640k / Cache Extended Memory Area

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

Write Back The contents of the memory are mapped in the cache and written in the main memory only as required. Main memory and cache contents are not identical. The *Write Back* setting provides the best performance..

Uncached or Disabled The specified BIOS is not mapped to the cache.

Write Through The contents of the memory are simultaneously mapped in the cache and written in the main memory. Main memory and cache contents are identical.

Write Protect The specified BIOS is (read accesses) mapped to the cache.

Cache A000-AFFF / Cache B000-BFFF / Cache C800-CBFF

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

Disabled The specified BIOS is not mapped to the cache.

USWC Caching Uncacheable Speculative Write Combining. The memory contents are not mapped in the cache, but speculative memory accesses are attempted. This type of access makes sense in connection with memory-mapped I/O modules and Video Frame memory.

Write Protect The specified BIOS is (read accesses) mapped to the cache.

Write Through The contents of the memory are simultaneously mapped in the cache and written in the main memory. Main memory and cache contents are identical.

Write Back The contents of the memory are mapped in the cache and written in the main memory only as required. Main memory and cache contents are not identical. The *Write Back* setting provides the best performance..

Cache DRAM Memory Area

Requirement: The *Cache* field must be set to *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. Main memory and cache contents are identical.

Write Back The contents of the memory are mapped in the cache and written in the main memory only as required. Main memory and cache contents are not identical. The *Write Back* setting provides the best performance..

Cache Memory Regions

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

The related ROM area in the cache can be displayed with *Cache Memory Regions*. 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.



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

Cache Mode - Transfer Mode

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

Cache Mode sets the mode in which the CPU uses the cache. The field is set to *Write Back* and can not be changed

In write-back mode the CPU writes information to the cache. The information is only written to the main memory if necessary. Main memory and cache contents are not identical.

Cache System BIOS Area / Cache Video BIOS Area

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

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

Enabled The specified BIOS is mapped to the cache.

Disabled The specified BIOS is not mapped to the cache.

or

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

Write Protect The specified BIOS is (read accesses) mapped to the cache.

Disabled The specified BIOS is not mapped to the cache.

Installed O/S

determines whether a plug&play operating system has been installed.

Other The installed operating system is not a plug&play operating system.

PnP or PnP OS A plug&play operating system has been installed.

PnP ACPI A plug&play operating system that supports ACPI has been installed.

IPMI

opens the submenu with the IPMI (Intelligent Platform Management Interface) settings. The behaviour of the BMC (Baseboard Management Controller) is specified and information displayed here.

BMC Time Sync

specifies whether the internal time of the BMC is calibrated with the system time during each system start-up. The system clock and the clock in the BMC operate independently of each other. This makes a time calibration at regular intervals necessary. In addition, the clocks must be calibrated again on leap days and when changing over to/from summer time. This task is normally carried out by the *ServerView* program.

Disabled The system time and the internal time of the BMC are not calibrated during system start-up (exception: the clock in the BMC reports an invalid time).

Enabled The BMC assumes the system time during each system start-up.

Clear System Event Log

specifies whether the System Event Log file is to be cleared during the next system start-up. All system events and errors are saved in this file.

Disabled The System Event Log is not cleared.

Enabled The System Event Log is cleared during the next system start-up.

Event Log Full Mode

specifies whether or not the System Event Log can be overwritten.

Maintain If the System Event Log file is full, no further events are entered. The System Event Log file must be cleared first before additional events can be entered. Older events have greater importance than newer ones in this case.

Overwrite If the System Event Log is full, additional events overwrite the oldest entries of the System Event Log. Newer events have greater importance than the older ones in this case.

LAN Settings

opens the submenu for the BMC LAN settings. If *RomPilot* is present on the system, its parameters of the same name are linked to the following ones.

DHCP

specifies whether the DHCP support is activated for the BMC. The BMC can automatically have itself assigned an IP address from a DHCP server in the network via the DHCP (Dynamic Host Configuration Protocol) network protocol. A manual entry under *Local IP Address* is then no longer possible.

Disabled The DHCP support is switched off.

Enabled The DHCP support is switched on.

Gateway address

- ▶ Enter the gateway address of the system LAN board here. Use the same gateway address as in the operating system.
Only numeric characters are permitted.

Local IP address

- ▶ Enter the IP address of the system LAN board here. Use the same IP address as in the operating system.
Only numeric characters are permitted.

Server Name

- ▶ Determine the server name to identify the system here.

We recommend to use the same name for the server that will be used later in the operating system. You can use a maximum of 16 ASCII characters. Special characters are permitted.

Subnet Mask

- ▶ Enter the *subnet mask* of the system LAN board here. Use the same *subnet mask* as in the operating system.
Only numeric characters are permitted.

SDRR Browser

opens the submenu of the Sensor Data Record browser.

Entity ID

shows the module to which the current sensor belongs.

Entity Inst

shows the number of the current sensor within its module.

SDR Record ID

shows the identification number of the current sensor.

Switching further to the previous/next sensor is carried out with the "-" or "+" key of the number block.

SDR ID

shows the type of the current sensor.

Sensor No

shows the consecutive number of the current sensor.

Sensor Type[Units]

shows the type and unit of measure of the current sensor.

Sensor Value

shows the currently measured value of the current sensor.

Sensor Value(max)

shows the maximum permissible value of the current sensor.

Sensor Value(min)

shows the minimum permissible value of the current sensor.

SEL Load

shows the filling level of the System Event Log file in percent.

System Event Log

opens the submenu of the System Event Log Browser. All events and errors that occur in the system are saved in the System Event Log file.

Entry Number

shows the number of the current SEL entry.

Further switching to the previous/next entry is carried out with the "-" or "+" key of the number block.

Event Data

shows the data for the current event as a numeric code.

Event Type

shows the type of the current event.

Sensor

shows the sensor that has triggered the current event.

Sensor Event

shows the current event in plain text. The data from *Event Data* are evaluated for this purpose.

Sensor Type

shows the sensor type that has triggered the current event.

Timestamp

shows the data and time at which the current event occurred.

Large disk access mode - Hard disk access

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

DOS 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).

Local Bus IDE adapter

This field allows you to enable and disable the onboard IDE controller.

Enabled The onboard IDE controller is used for the IDE hard disk with the *RemoteView* diagnostic software or for another drive which is connected to the IDE connector e.g. an ATAPI-CD-ROM.

Disabled If no IDE hard disk with the *RemoteView* diagnostic software has been installed nor another drive, the IDE controller can be disabled. This means that the interrupt reserved for the IDE controller is free for other applications.

or



Please note when making settings that the settings in the menus *Primary Master*, *Primary Slave*, *Secondary Master* and *Secondary Slave* must match with the following settings.

Disabled If no IDE hard disk with the *RemoteView* diagnostic software has been installed or another drive, the IDE controller has to be disabled. This means that the interrupt reserved for the IDE controller is free for other applications.

Primary If no SCSI hard disk is installed, but instead IDE hard disk drives are connected to the first IDE connector on the mainboard, then the IDE controller must be set to *Primary*. This means that the interrupt reserved for the IDE controller is not free for other applications.

Secondary If ATAPI CD-ROM drives, IDE hard disk drives or LS-120 drives are connected to the second IDE connector on the mainboard, then the IDE controller must be set to *Secondary*. This means that the interrupt reserved for the IDE controller is not free for other applications.

Both If drives are connected to both IDE connectors on the mainboard, then both IDE controllers must be switched on with the setting *Both*. This means that the interrupts reserved for the IDE controllers are not free for other applications.

Lock Setup Configuration

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

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

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

PCI Configuration

invokes the submenu where you can make settings for the PCI devices (PCI slots and PCI components on the mainboard). The submenu may have a scroll bar depending on the number of PCI devices.

AGP IRQ Line x

Defines which ISA interrupt is used for the existing AGP screen controller.

AGP screen controllers use a maximum of two interrupts (INTA#, INTB#).

The following *AGP IRQ Line* is assigned for INTA# and INTB# in AGP screen controllers:

AGP screen controller	INTA#	INTB#
<i>AGP IRQ Line</i>	1	2

If you use a setting other than *Auto*, the Plug&Play functionality of the system BIOS for the AGP screen controller is deactivated.

Auto The AGP interrupt is assigned automatically in accordance with the plug&play guidelines.

Disabled No ISA interrupt is assigned to the AGP interrupt.

IRQ3, IRQ4, IRQ5, IRQ6, IRQ7, IRQ9, IRQ10, IRQ11, IRQ12, IRQ14, IRQ15

The AGP interrupt is switched to the selected ISA interrupt. You may not select an ISA interrupt that is used by a component on the mainboard (e.g. controller) or an ISA board.



With the *Auto* setting, you can use the *ICU (ISA Configuration Utility)* utility to check how the interrupts are assigned.

Ethernet on Board: Device

determines whether or not the LAN controller on the mainboard is used.

Enabled The LAN controller on the mainboard is enabled.

Disabled The LAN controller on the mainboard is disabled.

Ethernet on Board: Enable Master

determines whether or not the LAN controller on the mainboard is functioning as the master controller.

Enabled The LAN controller on the mainboard is the master controller.

Disabled The LAN controller on the mainboard is a slave controller.

Ethernet on Board: Latency Timer

The field defines the additional number of clock cycles in which a burst can be transferred on the PCI bus over and above what is specified. *n* stands for the number of the PCI slot.

20h, 40h, 60h, 80h, A0h, C0h, E0h, Default (40h)
Number of clock cycles

Embedded Ethernet BIOS

The BIOS of the LAN controller on the mainboard is displayed in the BIOS and can then be used for PXE.

Enabled The BIOS of the onboard LAN controller is displayed.
Disabled The BIOS of the onboard LAN controller is not displayed.

Embedded SCSI BIOS

The SCSI BIOS of the SCSI controller on the mainboard is masked into the BIOS. You can choose whether you want to use the masked-in SCSI BIOS or the SCSI BIOS of an external SCSI controller that has the same SCSI chip (Symbios).

Enabled The masked-in SCSI BIOS of the onboard SCSI controller is used.
Disabled The SCSI BIOS of an external SCSI controller is used.

Interrupt Routing - PCI interrupt assignment mode

Defines how the interrupts are handled under a multiprocessor operating system.

Auto If the mainboard detects a modern multiprocessor operating system (e.g. Windows NT 3.51 or higher, Windows 2000, Windows XP), a change is made from compatible interrupt handling (PCI interrupt is switched to ISA interrupt) to the faster interrupt handling mode (PCI interrupt is switched directly to the multiprocessor interrupt controller). If no multiprocessor operating system is detected, compatible interrupt handling is retained.

Enabled The compatible interrupt handling is retained under the multiprocessor operating system. You should use this setting only if the operating system has problems with the multiprocessor configuration.

PCI device, Slot #n: Default Latency Timer

specifies the additional number of clock cycles in which a PCI master board can be active on the PCI bus over and above what is specified. *n* stands for the number of the PCI slot.

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

No The value predefined by the PCI board 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 additional number of clock cycles in which a burst can be transferred on the PCI bus over and above what is specified. *n* stands for the number of the PCI slot.

0000h to 0280h

Number of clock cycles.

PCI Interrupt Mapping INTx# - Assignment of the PCI interrupts

defines which PCI interrupt is switched to which ISA interrupt.

A mono-functional PCI board uses an interrupt designated *PCI Slot INTA*. Depending on the slot used, this interrupt is assigned to various *PCI INTx#*.

A multifunctional PCI board can use all PCI interrupts, if need be.

PCI Interrupt Mapping	Slot 1 INT				Slot 2 INT				Slot 3 INT				Slot 4 INT			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
INTA#	v							z			y			x		
INTB#		x			v							z			y	
INTC#			y			x			v							z
INTD#				z			y			x			v			

v = for mono-functional boards

v x [y [z]] = for multi-functional boards

Example: For slot 3 the PCI slot INTA of the board is assigned to the PCI INTC#.

If you use a setting other than *Auto*, the Plug&Play functionality of the system BIOS for PCI boards is deactivated.

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

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 mainboard (e.g. controller) or an ISA board.

PCI Interrupt Mapping INTx# - Assignment of the PCI interrupts (at PRIMERGY)

defines which PCI interrupt is switched to which ISA interrupt.

A multifunctional PCI board can use up to four (A, B, C, D) PCI interrupts. A monofunctional PCI board can use only one (A) PCI interrupt.

If you use a setting other than *Auto*, the Plug&Play functionality of the system BIOS for PCI boards is deactivated.

The detailed assignment of the PCI interrupts you can find in the relevant technical manual for the mainboard.

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

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 mainboard (e.g. controller) or an ISA board.

PCI IRQ line x / device - Assignment of the PCI interrupts

Establishes which ISA interrupts will be used for the individual PCI slots and which controller (device) of the mainboard shares this PCI interrupt with the PCI slots (e.g. USB, SCSI).

Multifunctional PCI boards or boards with an integrated PCI-to-PCI bridge can use several PCI interrupts (INTA#, INTB#, INTC#, INTD#). Monofunctional PCI boards (default) only use one PCI interrupt (INTA#) per PCI slot.

The PCI interrupts INTA#, INTB#, INTC# and INTD# are available for every PCI slot.

The detailed assignment of the PCI interrupts you can find in the relevant technical manual for the mainboard.

With monofunctional PCI boards, the following *PCI IRQ Line* is assigned for INTA# of each PCI slot.

Example:

PCI slot	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6
<i>PCI IRQ Line</i> for INTA#	1	2	3	5	6	7

With multifunctional PCI boards, the following *PCI IRQ Line* is assigned for INTA# to INTD# of each PCI slot.

Example:

PCI slot	Slot 1	Slot 2	Slot 3	Slot 4	Slot 5	Slot 6
<i>PCI IRQ Line</i> for INTA#	1	2	3	5	6	7
<i>PCI IRQ Line</i> for INTB#	2	3	4	6	7	8
<i>PCI IRQ Line</i> for INTC#	3	4	1	7	8	5
<i>PCI IRQ Line</i> for INTD#	4	1	2	8	5	6

The same interrupt can be assigned simultaneously to several PCI boards. You should avoid this condition due to reduced performance.

If you use a setting other than *Auto*, the Plug&Play functionality of the system BIOS for the corresponding PCI boards is deactivated.

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

Disabled No ISA interrupt is assigned to the PCI interrupt.

IRQ3, IRQ4, IRQ5, IRQ6, IRQ7, IRQ9, 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 an ISA component on the mainboard (e.g. controller) or an ISA board.

PCI IRQ line x - Assignment of the PCI interrupts (at PRIMERGY)

Defines which ISA interrupts are used for the separate PCI slots.

Multifunctional PCI boards or boards with an integrated PCI-to-PCI bridge can use several PCI interrupts (INTA#, INTB#, INTC#, INTD#). Monofunctional PCI boards (default) only use one PCI interrupt (INTA#) per PCI slot.

The PCI interrupts INTA#, INTB#, INTC# and INTD# are available for every PCI slot.

The detailed assignment of the PCI interrupts you can find in the relevant technical manual for the mainboard.

With monofunctional PCI boards, the following *PCI IRQ Line* is assigned for INTA# of each PCI slot:

D1111 or U41090-J-Z156 and D1998													
PCI slot	1	2	3	4	5	6	7	8	9	10*	10**	11	12
<i>PCI IRQ Line</i> for INTA#	9	12	11	10	5	8	7	6	1	4	3	13	16

*: This assignment of PCI slot 10 applies to the following boards: Traffic Number (TN) 74217.00.1.15 and traffic number (TN) 00528.00.2.15.

** : This assignment of PCI slot 10 applies to the following boards: Traffic Number (TN) 00576.00.3.15 and traffic number (TN) 00689.00.6.15.

D1173													
PCI slot	1	2	3	4	5	6	7	8	9*	10*	11*	12*	13*
<i>PCI IRQ Line</i> for INTA#	11	9	5	7	13	14	15	16	9	10	11	12	9

*: The assignment of the PCI slots is only valid for the K400 system with installed extension board.

Advanced - advanced system configuration

With multifunctional PCI boards, the following *PCI IRQ Line* is assigned for INTA# to INTD# of each PCI slot:

D1111 or U41090-J-Z156 and D1998													
PCI slot	1	2	3	4	5	6	7	8	9	10*	10**	11	12
<i>PCI IRQ Line</i> for INTA#	9	12	11	10	5	8	7	6	1	4	3	13	16
<i>PCI IRQ Line</i> for INTB#	10	9	12	11	6	5	8	7	2	1	4	14	13
<i>PCI IRQ Line</i> for INTC#	11	10	9	12	7	6	5	8	3	2	1	15	14
<i>PCI IRQ Line</i> for INTD#	12	11	10	9	8	7	6	5	4	3	2	16	15

*: This assignment of PCI slot 10 applies to the following boards: Traffic Number (TN) 74217.00.1.15 and traffic number (TN) 00528.00.2.15.

** : This assignment of PCI slot 10 applies to the following boards: Traffic Number (TN) 00576.00.3.15 and traffic number (TN) 00689.00.6.15.

D1173													
PCI slot	1	2	3	4	5	6	7	8	9*	10*	11*	12*	13*
<i>PCI IRQ Line</i> for INTA#	11	9	5	7	13	14	15	16	9	10	11	12	9
<i>PCI IRQ Line</i> for INTB#	12	10	6	8	14	15	16	13	10	11	12	9	10
<i>PCI IRQ Line</i> for INTC#	9	11	7	5	15	16	13	14	11	12	9	10	11
<i>PCI IRQ Line</i> for INTD#	10	12	8	6	16	13	14	15	12	9	10	11	12

*: The assignment of the PCI slots is only valid for the K400 system with installed extension board.

PCI devices on the mainboard use the following *PCI IRQ Line*:

D1111 or U41090-J-Z156					
PCI Device	USB	I960	Ethernet	SCSI 1	SCSI 2
<i>PCI IRQ Line</i>	4	13	14	15	16

D1173					
PCI Device	USB	Ethernet	Copernicus	SCSI A	SCSI B
<i>PCI IRQ Line</i>	-	1	2	3	4

The same interrupt can be assigned simultaneously to several PCI boards. You should avoid this condition due to reduced performance.

If you use a setting other than *Auto*, the Plug&Play functionality of the system BIOS for the corresponding PCI boards is deactivated.

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

Disabled No ISA interrupt is assigned to the PCI interrupt.

3, 4, 5, 7, 10, 11, 12, 14, 15

The selected ISA interrupt is assigned to the PCI interrupt. You may not select an ISA interrupt that is used by a component on the mainboard (e.g. controller) or an ISA board.



With the *Auto* setting, you can use the *ICU (ISA Configuration Utility)* utility to check how the interrupts are assigned.

PCI IRQ Trigger Model

Requirement: *Interrupt Routing* is set to *Enabled*.

Affects the multiprocessor table structure. Some operating systems require the setting *BIOS* (e.g. Novell NetWare).

O/S The default version of the multiprocessor table is used.

BIOS The adapted multiprocessor table is used.

PCI Parity Checking

determines whether a parity check is carried out on PCI bus.

Enabled Each time the PCI data or PCI address bus is accessed, a parity check is performed. If a corrupted bit is detected, an error message is issued.

Disabled PCI bus parity checking is disabled.

PCI / PnP ISA Memory Region Exclusion

reserves memory areas that are used by non Plug&Play-capable ISA boards.

PCI / PnP ISA IRQ Resource Exclusion

reserves interrupts that are used by non Plug&Play-capable ISA boards.

SCSI A / SCSI B: Device

determines whether or not the SCSI controllers on the mainboard are used.

Enabled The SCSI controllers on the mainboard are enabled.

Disabled The SCSI controllers on the mainboard are disabled.

SCSI A / SCSI B: Enable Master

determines whether or not the SCSI controllers on the mainboard are functioning as master controllers.

Enabled The SCSI controllers on the mainboard are master controllers.

Disabled The SCSI controllers on the mainboard are slave controllers.

SCSI A / SCSI B: Latency Timer

The field defines the additional number of clock cycles in which a burst can be transferred on the PCI bus over and above what is specified. *n* stands for the number of the PCI slot.

20h, 40h, 60h, 80h, A0h, C0h, E0h, Default (40h)
Number of clock cycles

ServerView IRQ Line

Defines which ISA interrupt is used for the server management controller.

The server management controller uses a maximum of one interrupt (INTA#).

The *ServerView IRQ Line* is always assigned to INTA# in the server management controller.

If you use a setting other than *Auto*, the Plug&Play functionality of the system BIOS for the server management controller is deactivated.

Auto The server management interrupt is assigned automatically in accordance with the plug&play guidelines.

Disabled No ISA interrupt is assigned to the server management interrupt. The ServerView agent does not receive acknowledgements from the server management of the mainboard.

IRQ 3, IRQ 4, IRQ 5, IRQ 6, IRQ 7, IRQ 9, IRQ 10, IRQ 11, IRQ 12, IRQ 14, IRQ 15

The server management interrupt is switched to the selected ISA interrupt. You may not select an ISA interrupt that is used by a component on the mainboard (e.g. controller) or an ISA board.



With the *Auto* setting, you can use the *ICU (ISA Configuration Utility)* utility to check how the interrupts are assigned.

Shared PCI Master Assignment - [VGA] / [Slot #1]

determines whether the screen controller on the mainboard or in the PCI slot #1 will be operated as the PCI master.

VGA The screen controller can use the PCI bus master.

Slot #1 The PCI board in PCI slot #1 can be operated as the PCI bus master.

VGA Interrupt - Assigning PCI-VGA interrupt

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

Enabled The interrupt is assigned to the screen controller on the built-in PCI board.

Disabled The interrupt can be used for other add-on boards.

PCI IRQ Configuration

calls the submenu in which you can make the settings for the PCI interrupts. The submenu may have a scroll bar depending on the number of PCI interrupts. This submenu is described in the "PCI IRQ line x / device - Assignment of the PCI interrupts" section.

PCI SLOTS Configuration

calls the submenu in which you can make the settings for the PCI slots. The submenu may have a scroll bar depending on the number of PCI slots.

Bus Master

specifies whether or not the PCI slot acts as a busmaster.

Enabled The PCI slot acts as a busmaster.

Disabled The PCI slot does not act as a busmaster.

Latency Timer

The field specifies the additional number of clock cycles in which a burst can be transferred beyond the specification on the PCI bus.

20h, 40h, 60h, 80h, A0h, C0h, E0h, Default (40h)
Number of clock cycles

Option ROM Scan

specifies whether the BIOS of the adapter in this PCI slot is started by the system BIOS.

To load an operating system from an adapter (e.g. SCSI, LAN), the related adapter must be controlled by a BIOS.

Enabled If the adapter in the PCI slot is equipped with a BIOS, this will be started during initialisation by the system BIOS.

Disabled The BIOS of the adapter is not started.

Peripheral configuration - ports and controllers

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

AC'97 Audio

If an AC'97 audio controller is configured on the mainboard, it can be enabled or disabled.

Auto The system BIOS switches on the AC'97 audio controller and specifies which system resources (interrupts, addresses, DMA) are assigned. If an additional AC'97 audio controller is installed on an expansion board, the AC'97 audio controller on the mainboard is switched off and the additional AC'97 audio controller on the expansion board is initialised.

Disabled The AC'97 audio controller on the mainboard is switched off.

Audio controller

If the audio controller is configured on the system board, it can be enabled or disabled.

Auto The system BIOS automatically configures the audio devices. If, in addition to the onboard audio controller, an audio board is also installed, the onboard audio controller will be deactivated.

Enabled All audio controllers are enabled. The system BIOS determines which system resources (interrupts, addresses, DMAs) are occupied.

Disabled The onboard audio controller is disabled.

Audio Output Level

If the audio controller is configured on the mainboard, the audio output level can be set.

Line Level If active loudspeakers are connected, you have to configure the *Line Level*. This setting is the typical output level for audio controllers.

Amplifier Level The *Amplifier Level* setting may only be used with passive speakers or headphones.

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.

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

Floppy Type

Specifies which floppy disk drive controller is to be used.

It is possible to choose from the local (default) controller and the controller for remote access. The default controller permits access to the floppy disk drive installed in the system. On the other hand, the controller for remote access permits access to a floppy disk drive of another system or to a floppy-disk image file stored on another system. The data are routed via the network in this case.

Local The default floppy-disk drive controller of the system is used.

Remote The floppy-disk drive controller for remote access is used.

Remote Once The floppy-disk drive controller for remote access is used for the subsequent system start-up. Then the system automatically switches over to *Local*.

Gameport

If a gameport is configured on the mainboard, it can be enabled or disabled.

Enabled The gameport is enabled.

Disabled The gameport is disabled.

Hard disk controller

This field allows you to enable and disable the built-in IDE hard disk controller(s). 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.

Enabled The IDE drive controller is enabled.

Disabled The IDE hard disk controller is disabled.

or

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

Primary And Secondary

Primary and secondary IDE drive controllers are activated. 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 Both IDE hard disk controllers are disabled.

LAN controller

If the LAN controller is configured on the mainboard, it can be enabled or disabled.

Enabled The system BIOS determines which system resources are occupied.

Disabled The LAN controller is disabled.



D1025: If with the mainboard D1025 the menu item *LAN Controller* is set to *Disabled* and then to *Enabled* again during the next boot process, this is not always recognised.

Disconnect the device from the mains supply (pull out main plug and then insert again) prior to the next switch-on or set the *Reset Configuration Data* menu item in the *Advanced* menu to *Yes*.

LAN Remote Boot - loading operating system via LAN

enables the operating system to be loaded from a server. This function is used particularly when neither floppy disk nor hard disk drives are installed, or they have been switched off. Here there are two different boot protocols:

BootP The *BootP* LAN-BIOS is activated and enables the operating system to be loaded from a server via a local network connection with *BootP*.

PXE The PXE-BIOS is activated and enables the operating system to be loaded from a server via a local network connection with *PXE*.



If the PXE-BIOS is active, you can configure the start sequence in the *Boot Options* menu after restarting.

In addition, you can call the Setup integrated in the PXE-BIOS.

- ▶ After enabling the computer, press the **F3** function key in order to switch to the *POST Screen*.
- ▶ Then press both shift keys until the PXE Setup appears.

or

LSA The *LSA* LAN-BIOS is activated and enables the operating system to be loaded from a server via a local network connection with *LSA*.

Disabled LAN boot not possible. The LAN-BIOS is not activated.

Midiport

If a midiport is configured on the mainboard, it can be enabled or disabled.

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

Auto The midiport is automatically set to the next available combination (address, interrupt).

Disabled The midiport is disabled.

OS Controlled The operating system configures the ports.

Midiport: Base I/O address

defines the base I/O address for the midiport.

330h, 300h The midiport uses the selected address.

Midiport: Interrupt

defines the interrupt for the midiport.

IRQ3, IRQ4, IRQ5, IRQ7, IRQ9, IRQ10

The midiport uses the selected interrupt.

Mouse controller

This field is used to enable and disable the built-in mouse controller on the mainboard.

Auto Detect The connected mouse is automatically detected and activated. Operating systems that support Plug&Play automatically configure the mouse.

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

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

Parallel Drive - drive on parallel port

diverts the floppy disk accesses to the parallel port (for service purposes only).

This setting functions independent of the settings in the *Parallel* and *Parallel Mode* fields.

Auto If an external drive (e.g. a floppy disk drive) is recognised on the parallel port (Pin 24 to logical high), the floppy disk accesses are automatically diverted to the parallel port.

Disabled The floppy disk accesses are not diverted.



If a parallel port encoding plug (dongle) is required for applications, the *Disabled* setting must be selected.

Parallel - parallel port

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

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

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

Disabled The parallel port is disabled.

PnP OS or OS Controlled
The operating system configures the ports.

Parallel Address - Base I/O address and IRQ

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

378h, IRQ 7; 278h, IRQ 5; 3BCh, IRQ 7

The parallel port uses the selected address and the selected interrupt.

Parallel Port: Base I/O address

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

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

Parallel Port: DMA Channel

Specifies the DMA channel for the parallel port.

DMA1, DMA3 The parallel interface uses the selected DMA channel.

Parallel Port: Interrupt

defines the interrupt for the parallel port.

IRQ7, IRQ5 The parallel interface uses the selected interrupt.

Parallel Mode - Parallel data transfer

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. *ECP* and *EPP* 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, at *EPP* the field *Parallel* must be set to 378h or 278h.

Parallel mode is not displayed if you selected *Disabled* under parallel.

Printer The port functions as an output port only.

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. The DMA channel required is determined by the system in accordance with Plug&Play.

SCSI controller

Enables/disables the SCSI controller (Small Computer System Interface) on the mainboard. The SCSI controller occupies an assigned ISA interrupt, even when the controller is switched off. This allows the SCSI controller to be enabled automatically if required. If you want to use this ISA interrupt for other purposes, you must disable it in the *PCI Configuration* menu.

Enabled The SCSI controller is enabled. The ISA interrupt in the *PCI Configuration* menu must not be set to *Disabled*.

Disabled The SCSI controller is disabled.

SCSI Controller (at PRIMERGY)

Enables/disables the SCSI controller (Small Computer System Interface) on the mainboard. The ISA interrupt assigned under *SCSI IRQ Line* is still occupied if the SCSI controller is disabled. This allows the SCSI controller to be enabled automatically if required. If you want to use the ISA interrupt for other purposes, you must disable it in the *SCSI IRQ Line* field.

- Enabled* The onboard SCSI controller is enabled. *SCSI IRQ Line* must not be *Disabled*.
- Disabled* The onboard SCSI controller is disabled.

SCSI IRQ Line - Assignment of ISA interrupt to the SCSI controller (at PRIMERGY)

Defines which ISA interrupt is used for the SCSI controller on the mainboard.

Auto The SCSI PCI interrupt is automatically assigned an ISA interrupt according to the Plug&Play Guidelines.

Disabled No ISA interrupt is assigned to the SCSI PCI interrupt.

3, 4, 5, 6, 7, 9, 10, 11, 12, 14, 15

The selected ISA interrupt is assigned to the SCSI PCI interrupt. You may not select an ISA interrupt that is used by a component on the mainboard (e.g. controller) or an ISA board.

SCSI Option ROM Scan - SCSI ROM expansion

The SCSI BIOS is started by the system BIOS.

To be able to load an operating system from an SCSI controller, the related SCSI controller must be controlled by an SCSI BIOS.

Enabled During the initialisation of the SCSI controller on the mainboard, the SCSI BIOS is started by the system BIOS.

Disabled During the initialisation of the SCSI controller on the mainboard, the SCSI BIOS is not started by the system BIOS.

SCSI Termination LVD

Switches the terminating resistor of the SCSI bus on the SCSI controller of the mainboard on or off. This setting is only effective for the LVD (Low Voltage Differential) SCSI bus.

For further information, please see the technical manual for the mainboard.

Enabled The terminating resistor of the SCSI controller is switched on.

Disabled The terminating resistor of the SCSI controller is switched off. Select this option if the SCSI controller is not the last device at one end of the SCSI circuit.



Each SCSI bus must be terminated (with terminating resistors) at both ends in order to provide error-free data transmission.

Serial 1/Serial 2 - serial ports

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

- Enabled* The serial port is set to the shown address and interrupt. If you set *Enabled*, additional lines are displayed for setting the configuration.
- Auto* The serial port is automatically set to the next available combination (address, interrupt).
- Disabled* The serial port is disabled.
- PnP OS or OS Controlled*
The operating system configures the ports.

Serial Multiplexer

specifies whether the serial interface can be used by the system or the BMC.

- System* The serial interface can be used by the system or the operating system.
- BMC* The serial interface can be used by the BMC. The operating system cannot use the serial interface.

Serial 1 / 2 Address: Base I/O address and IRQ

defines the base I/O address and the interrupt for the serial interface.

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

Serial Port 4 or Serial x

determines whether serial interface 4 (COM4) or x is used by the operating system.

- Enabled* Serial interface 4 (COM4) or x is used by the operating system.
- Disabled* Serial interface 4 (COM4) or x is not used by the operating system.



Only select the *Disabled* setting in special cases!

Serial Mode - Serial interfaces

This field defines whether the second serial port is used as the standard port or as the infrared interface.

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

If you wish to use infrared data transfer, an infrared port with the associated hardware must be incorporated in the device.

- Default* The port functions like a standard serial port and can be used, for example, by an internal SmartCard reader (chip card reader).
- IrDA* (Infra-Red Data Association) The serial port permits infrared data transfer up to 115 kbit/s. External serial port 2 does not function.

USB Controller

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

- Enabled* The system BIOS determines which system resources (interrupts, addresses) are occupied.
- Disabled* The USB controller is disabled.

Wake On LAN

allows the system to be switched on by means of network signals.



If the function *LAN Remote Boot* is enabled, set *Wake On LAN* to *Enabled*.

- Enabled* The LAN controller on the mainboard can switch on the system.
- Disabled* The LAN controller on the mainboard cannot switch on the system.

Plug & Play O/S

defines the Plug&Play functionality. Plug&Play means that inserted boards are automatically recognised 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.

Power On/Off

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



If you have assigned a system password in *System Password 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 but select the setting *Keyboard* in *System Password Mode*.

LAN Wake-up Mode: Monitor - Switching the monitor on/off

Requirement: *Wake On LAN* or *Power On Source: LAN* is set to *Enabled*.

When the system is switched on via the LAN controller on the mainboard, the screen can also be switched on or left off.

- Off* The monitor is not switched on.
- On* The monitor is switched on.

Power Failure Recovery

specifies the system status after recovering from power failure.

Always OFF The system switches on, performs a status check, and switches off.

Always ON The system switches on.

Previous State The system switches on, performs a status check, and enters the status it had before the power failure occurred (ON or OFF).

Disabled The system cannot be switched on.

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.

Power Off Source: Power Button - switch-off with the On/Off switch

specifies whether the system can be switched off with the On/Off switch on the front of the unit when the ACPI function is not active.

Enabled The system can be switched off with the On/Off switch on the front of the unit.

Disabled The system cannot be switched off with the On/Off switch on the front of the unit.



If the On/Off switch on the front of the unit is pressed for longer than 4 seconds, the system always switches off.

Power Off Source: Software

specifies whether the system can be switched off with a program (*DeskOff*, *SWOFF*) or an operating system e.g. one of the Windows operating system versions

Enabled The system can be switched off with a programme.

Disabled The system cannot be switched off with a programme.

Power On Source: SmartCard

specifies whether the system can be switched on via the SmartCard reader (chipcard reader).

Enabled The system can be switched on by means of a SmartCard.

Disabled The system cannot be switched on via the SmartCard reader (chipcard reader).

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.

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

Power On Source: LAN

determines whether the system can be switched on by means of an LAN controller (on the mainboard or additional board).

Enabled The system can be switched on by means of an LAN controller.

Disabled The system cannot be switched on by means of an LAN controller.

Power On Source: Remote

specifies whether the system can be switched on by an incoming message (e.g. via modem, fax or telephone). The signal can be supplied externally via serial port 1 or internally via the modem on connector.

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

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

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 programme for setting this switch-on time.

Enabled The system can be switched on at set times.

Disabled The system cannot be switched on under timer control.



Rebooting after a critical system error (*ASR&R Boot Delay* field in the *Server* menu) is not affected by this setting.

Power On Source: Management of switch-on sources

specifies whether the switch-on sources for ACPI operating systems are managed by the BIOS or the operating system.

BIOS Controlled

The switch-on sources are managed by the BIOS.

ACPI Controlled

The switch-on sources are managed by the ACPI operating system.

Reset Configuration Data

This field specifies whether the configuration data is reset and reinitialised 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 boards and drives are then initialised with this data. Non-Plug&Play components must be entered manually (e.g. Windows, ICU).
- No* After the system is started, the Plug&Play functionality ascertains the current configuration data and uses this data to initialise the installed boards and drives. The configuration data of non-Plug&Play components are not reset.

System Management

calls up the submenu where fan and temperature sensors can be set and monitored.

Alert On LAN

If the *Alert On LAN* function has also been enabled and configured in the operating system, the LAN hardware automatically sends predefined messages approximately every 30 seconds ("Alert").

- Enabled* *Alert On LAN* is enabled.
- Disabled* *Alert On LAN* is disabled.

Battery State

indicates whether the voltage of the CMOS battery is sufficient. When *Fail* is displayed, the CMOS battery should be replaced.

- OK* The voltage of the CMOS battery is sufficient.
- Fail* The CMOS battery should be replaced.

Fan Control - fan rotational speed

controls the speed of the fan.

Depending on the system configuration and applications used, you can change the preset mode. If the system is fully configured, silent mode is not recommended.

- Enhanced Cooling* The fans turn with a high rotational speed.
- Auto* The fan rotational speed is adjusted automatically.
- Silent* Temperature dependent regulation of processor speed enables reduced fan rotational speed which means less noise.

Fan State

Indicates if the fans for the processor (*CPU*), *Power Supply*, *System* and *Auxiliary* are rotating or not. The fans must support this function. If *OK* is displayed, the fan supports the function and is operating properly. If *None* is displayed, the fan is not recognised by BIOS. If *Fail* is displayed, BIOS found a faulty fan or the fan was removed. When leaving *BIOS Setup* status *Fail* is reset.



If the fan does not support the function, *None* is displayed, even if the fan is operating.

<i>CPU</i>	Possible display: <i>None / OK / Fail</i>
<i>Power Supply</i>	Possible display: <i>None / OK / Fail</i>
<i>System</i>	Possible display: <i>None / OK / Fail</i>
<i>Auxiliary</i>	Possible display: <i>None / OK / Fail</i>

SM Error Halt - Error Handling for System Monitoring

Configures the procedures in the event of a fan / temperature sensor error.

Halt On All Errors or *Enabled*

If a fan/temperature sensor error is detected or a fan/temperature sensor is removed, system start is terminated after self test and the system stops.

No Halt On Any Errors or *Disabled*

The system start-up is not aborted. Error message is displayed only.



On older systems, the entry can also be named *Error Halt*.

Thermal Sensor State

Indicates if the temperature sensors for the processor (*CPU*), the *System* and the *Auxiliary* temperature sensor are functioning properly or not. The temperature sensors must support this function. If *OK* is displayed, the temperature sensor supports the function and is operating properly. If *None* is displayed, the temperature sensor is not recognised by BIOS. If *Fail* is displayed, BIOS found a faulty temperature sensor or the temperature sensor was removed. When leaving *BIOS Setup* status *Fail* is reset.



If the temperature sensor does not support the function, *None* is displayed, if the temperature sensor is operating.

<i>CPU</i>	Possible display: <i>None / OK / Fail</i>
<i>System</i>	Possible display: <i>None / OK / Fail</i>
<i>Auxiliary</i>	Possible display: <i>None / OK / Fail</i>

Use Multiprocessor Specification

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

1.4 The newer version of the multiprocessor table is used.

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.

Security - security features

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

Security ...		Item Specific Help
Setup Password	Not Installed	
System Password	Not Installed	
Set Setup Password:	[Enter]	
Setup Password Lock:	[Standard]	
Set System Password:	[Enter]	
System Password Mode:	[System]	
System Password Lock:	[Standard]	
System Load:	[Standard]	
Setup Prompt:	[Enabled]	
Virus Warning:	[Disabled]	
Diskette Write:	[Enabled]	
Flash Write:	[Enabled]	
SmartCard SystemLock:	[Disabled]	
SmartCard and PIN:	[Always required]	
Unblock Own SmartCard	[Disabled]	
Cabinet Monitoring:	[Disabled]	
F1 Info ...		

Example for *Security* menu

Possible security features

Preventing unauthorised BIOS Setup entry

You can activate this protection by setting a setup password in the *Security* menu. In addition, you can suppress the Press F2 to enter SETUP message in the *Security* menu. This message is then no longer displayed while the start-up phase of the device is in progress.

Preventing unauthorised system access

You can activate this protection by setting a system password in the *Security* menu or by activating *MemoryBird SystemLock*.

Preventing unauthorised access to the settings of boards with their own BIOS

You can activate this protection by selecting the value *Extended* for the *Setup Password Lock* field in the *Security* menu.

Preventing system booting from the diskette drive

You can activate this protection by selecting the value *Diskette/CD-ROM-Lock* for the *System Load* field in the *Security* menu.

Activating virus warnings

You can have a warning output if the boot sector has been modified. To activate this warning, select the value *Enabled* for the *Virus Warning* field in the *Security* menu.

Preventing unauthorised writing of diskettes

To activate this protection, select the value *Disabled* for the *Diskette Write* field in the *Security* menu.

Protecting BIOS from being overwritten

To activate this protection, select the value *Disabled* for the *Flash Write* field in the *Security* menu.

Protecting the device from being switched on by an external device

To activate this protection make the required settings in the *Power On/Off* sub menu.

Preventing unauthorised access to the hard disk drives

To activate this protection make the required settings in the *Hard Disk Security* sub menu.

Assigning and cancelling passwords

Setting the Setup/System password

The Setup password prevents unauthorised calling of *BIOS Setup*. Only those who know the Setup password can call *BIOS Setup*.

The system password prevents unauthorised access to your device. With the system password you can prevent booting of the operating system. Only those who know the system password can access the system.

You must also set a Setup password to make the system password effective.



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

Passwords are not displayed as they are entered.

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

- ▶ To set or change the setup/system password, proceed as follows:
- ▶ Call *BIOS Setup* and select the *Security* menu.
- ▶ Mark the *Set Setup Password* or *Set System Password* field and press the Enter key.

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

Enter Current Password

You are asked to enter the new password:

Enter New Password

- ▶ Enter the password and press the Enter key.

You are asked to confirm the password:

Confirm New Password

- ▶ Enter the password again and press the Enter key.

The new password is saved.

Changes have been saved [Continue]

For the setup password:

You can now choose whether you want the Setup password to prevent calling of the *BIOS Setup* only or in addition lock the settings of installed boards with their own BIOS.

- ▶ To prevent calling of the *BIOS Setup* only, mark the *Setup Password Lock* field and select the value *Standard*.
- ▶ To lock the settings of installed boards with their own BIOS in addition to preventing calling of the *BIOS Setup*, mark the *Setup Password Lock* field and select the value *Extended*.

For the system password:

- ▶ To prevent booting of the operating system, mark the *System Password Mode* field and select the value *System*.



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

If you do not want to make any other settings, you can exit *BIOS Setup*.

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

The device is rebooted and the new setup/system password is effective.

Cancelling the setup/system password



If you cancel the Setup password, you automatically deactivate the system password.

To cancel the setup/system password without setting a new password:

- ▶ Call *BIOS Setup* and select the *Security* menu.
- ▶ Mark the *Set Setup Password* or *Set System Password* field and press the Enter key.

You are asked to enter the current password:

Current Password

- ▶ Enter the password and press the Enter key.
- ▶ Press the Enter key twice.
- ▶ Select the option *Save Changes & Exit* in the *Exit* menu.

The device is rebooted and the new setup/system password is cancelled.

Setting MemoryBird SystemLock

MemoryBird SystemLock is an alternative to password protection. *MemoryBird SystemLock* can replace both the setup and system passwords at the same time. This means that if *MemoryBird SystemLock* is enabled, you must first connect your MemoryBird when you want to start your system or open *BIOS Setup*.

You also have the option of setting up password protection for *BIOS Setup* (or leaving it unchanged as previously) and using *MemoryBird SystemLock* only as a substitute for the system password.

In both cases you must authenticate your MemoryBird before enabling *SystemLock* for the first time. This ensures that your system and your *BIOS Setup* can be started only with your MemoryBird.

- ▶ Call *BIOS Setup* and select the *Security* menu.
- ▶ If you want to use *MemoryBird SystemLock* as system protection only, enter a setup password as described in "Setting the Setup/System password".
- ▶ Set the *MemoryBird SystemLock* field to *Enabled*.

If you do not want to make any other settings, you can exit *BIOS Setup*.

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

The device restarts.



SystemLock is not yet enabled! You must authenticate your MemoryBird before you can enable it.

Authenticating MemoryBird

When you first restart your system after setting *MemoryBird SystemLock* to *Enabled*, you are shown a window with the prompt:

Insert a MemoryBird for authentication

- ▶ Click on *OK* and connect your MemoryBird. This determines which MemoryBird you can use in the future to access your system.

MemoryBird SystemLock is now enabled.



If you select *Skip* instead, you can access your system and your *BIOS Setup* as previously. The *MemoryBird SystemLock* is not activated.

MemoryBird as system protection

At every future system start you are prompted to connect your MemoryBird (if it is not already connected). Only then can you access your system.

MemoryBird as setup and system protection

If you have not defined a password for *BIOS Setup* but have enabled *MemoryBird SystemLock*, you are prompted to connect your MemoryBird when you start your system and when you invoke *BIOS Setup*.



If you lose the authenticated MemoryBird and *MemoryBird SystemLock* is enabled, you can no longer access your system and you may no longer be able to access your *BIOS Setup*.

In this instance, please contact our help desk. Cancellation of *MemoryBird SystemLock* is not a warranty case and is therefore subject to charge.

Cancelling MemoryBird SystemLock

- ▶ Call *BIOS Setup* and select the *Security* menu.
- ▶ Set the *MemoryBird SystemLock* field to *Disabled*.

If you do not want to make any other settings, you can exit *BIOS Setup*.

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

The device restarts. *MemoryBird SystemLock* is no longer enabled.

Setting hard disk password or activating SmartCard

The hard disk password or the SmartCard enable you to prevent unauthorised access to your hard disk drives. Only the person who knows the hard disk password or owns the SmartCard with PIN, can boot the operating system from the hard disk or access data on the hard disk.

Hard disk password or SmartCard are not in effect, until you have enabled the *Hard Disk Security* field in the *Hard Disk Security* submenu.

For SmartCard protection you must have enabled the *SystemLock* field.



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

Passwords are not displayed as they are entered.

If you have forgotten your passwords, please contact our help desk (see "Safety and Ergonomics" and "Warranty" manuals).

To set, change the hard disk password or to use the SmartCard, proceed as follows:

- ▶ Call *BIOS Setup* and select the *Security* menu.
- ▶ Call the *Hard Disk Security* submenu.
- ▶ Set the *Hard Disk Security* field to *enabled*.
- ▶ To protect the hard disk with a SmartCard set *Hdd x Password Mode* field to *SmartCard*. Select the option *Save Changes & Exit* in the *Exit* menu. The device is rebooted, and SmartCard protection for the hard disk is effective.
- ▶ To protect the hard disk with a password mark the *Set HDD x Password* field and press the Enter key.
x is the particular hard disk which you want to protect.

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

Enter HD Password

You are asked to enter the new password:

Enter New Password

- ▶ Enter the password and press the Enter key.

You are asked to confirm the password:

Confirm New Password

- ▶ Enter the password again and press the Enter key.

The new password is saved.

HDD x Security State: Installed

If you do not want to make any other settings, you can exit *BIOS Setup*.

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

The notebook is rebooted and the hard disk password is effective.

Cancelling hard disk password

To cancel the hard disk password (without setting a new password):

- ▶ Call *BIOS Setup* and select the *Security* menu.
- ▶ Mark the *Set HDD x Password* field and press the Enter key. *x* is the particular hard disk whose protection you want to cancel.

You are asked to enter the current password:

Enter HD Password

- ▶ Enter the password and press the Enter key.
- ▶ Press the Enter key twice.

The old password is deleted. The following message appears:

HDD x Security State: Not Installed

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

The notebook is rebooted and the hard disk password is cancelled.

Cabinet Monitoring

defines whether the device continues working after the casing has been opened or only after the setup password has been input.

Enabled You can only continue using the device after opening the casing by entering the setup password.

Disabled The device also continues working normally with the casing open. A password is not required.

Diskette Write or Diskette Access

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

Enabled Diskettes can be read, written to or deleted if the *x* option (see technical manual for the mainboard) is set accordingly.

Disabled Diskettes can only be read.

Flash Write

This field can assign write protection to the System BIOS.

- Enabled* The BIOS system can be written to or deleted if the *x* option (see technical manual for the mainboard) is set accordingly. Flash-BIOS update from floppy disk is possible
- Disabled* The System BIOS can neither be written to nor deleted. Flash-BIOS update from floppy disk is not possible.

Hard Disk Security

calls the submenu for protecting the hard disk drives in the system from unauthorised access.

Hard Disk Security

determines, whether the hard disks are protected by passwords from unauthorised access. The hard disk must support this function.

- Enabled* Passwords can be assigned to the hard disks.
- Disabled* The hard disks are not protected by passwords.



As long as a hard disk password is set, you cannot disable the function.

HDD 1, 2, 3 or 4 security state

indicates, in which security state the hard disk is at the moment.

- Not Supported* The hard disk does not support a password. You cannot assign a password to this hard disk.
- Not Installed* No password has been assigned to this hard disk.
- Installed* A password has been just assigned to the hard disk.
- Locked* The hard disk is protected and a password has to be entered for access.
- Frozen* To change the security state of the hard disk, reboot the system and call the *BIOS Setup*.

HDD 1, 2, 3 or 4 password mode

indicates, which access protection is used for the hard disk. The hard disk can be protected by password or SmartCard. For protection by SmartCard the SmartCard SystemLock must be installed (see "SmartCard SystemLock - Installing SystemLock" chapter)

- Default* The hard disk is protected by password.
- SmartCard* The hard disk is protected by SmartCard.

Set HDD 1, 2, 3 or 4 password

allows you to set a password for the hard disk. You are prompted to enter a password for the hard disk before the operating system is started. If the hard disk password matches the system password, the hard disk is automatically unlocked on entering the system password. If various hard disks are used by various users in a system, you can assign a password of his own to each user for his hard disk.

Mark the field and press the Enter key. You can then enter and confirm the hard disk password (see also "Setting hard disk password or activating SmartCard").

MemoryBird SystemLock

MemoryBird SystemLock is an alternative to password protection. *MemoryBird SystemLock* can replace both the setup and system passwords at the same time. You also have the option of setting up password protection for *BIOS Setup* (or leaving it unchanged) and using *MemoryBird SystemLock* only as a substitute for the system password. How you enable *MemoryBird SystemLock* is described in "Setting MemoryBird SystemLock" chapter.

<i>Enabled</i>	Your authenticated MemoryBird must be connected when you invoke <i>BIOS Setup</i> and, if necessary, when you start your system.
<i>Disabled</i>	Your MemoryBird need not be connected. If necessary, you are prompted to enter your password.

Password on boot

activates or deactivates the assigned passwords.

<i>Enabled</i>	The assigned passwords must be entered during system booting.
<i>Disabled</i>	The password request does not appear during system booting. The assigned passwords do not need to be entered.

Set Setup Password

This field enables you to install the Setup password. The setup password prevents unauthorised callup of the *BIOS setup*.

Mark the field and press the Enter key. You can then enter and confirm the setup password (see also "Assigning and cancelling passwords").

Set System Password

Requirement: The setup password is installed.

This field enables you to install the system password. The system password prevents unauthorised access to your system.

Mark the field and press the Enter key. You can then enter and confirm the system password (see also "Assigning and cancelling passwords").

Setup Password / System Password

indicates whether or not the respective password is installed (see also "Assigning and cancelling passwords").

Setup Password Lock

Requirement: The setup password is installed.

This field establishes the effect of the setup password (see also "Assigning and cancelling passwords").

Default The setup password prevents unauthorised callup of the *BIOS setup*.

Extended The Setup password prevents unauthorised calls of the *BIOS Setup* and locks the keyboard when the device is initialised. This prevents unauthorised access to settings for installed boards with a BIOS of their own.
The BIOS of the board can be accessed only if the setup password is entered during initialisation of the board. You must conclude password entry with the enter key. No request for a password is issued on the screen.

Setup Prompt - Setup message

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.

Disabled The setup message is not displayed.

Sicrypt PC-Lock

Please refer to "Installing PC Lock" section for a description of installing PC Lock.

SmartCard SystemLock - Installing SystemLock

Please refer to "Installing SystemLock" section for a description of installing SystemLock.

SmartCard and PIN

defines whether the PC may be started using Wake On LAN without SmartCard and PIN input.

Always required The PC can be started only with SmartCard and PIN.

Ignore on WOL The PC can be started using Wake On LAN without SmartCard and PIN.

Unblock Own SmartCard

defines whether users can unblock their own user SmartCard. Additional information can be found in "Installing SystemLock" chapter.

<i>Enabled</i>	<i>Enabled</i> Users can unblock their own user SmartCard.
<i>Disabled</i>	<i>Disabled</i> Only the administrator can unblock user SmartCards.

System Load

specifies whether the system can be loaded from floppy disk/CD-ROM.

<i>Default</i>	The operating system can be loaded from floppy disk/CD-ROM.
<i>Diskette/CD-ROM-Lock</i>	The operating system cannot be loaded from floppy disk/CD-ROM.



For security reasons, *System Load* is linked to *Setup Password*. This ensures that the operating system cannot be loaded from floppy disk or CD-ROM. *System Load* can only be activated when a setup password has been assigned.

System Password Lock

Establishes whether the system password is bypassed or must be entered when booting with *Wake On LAN*.

<i>WOL Skip</i>	The system password is deactivated when booting with <i>Wake On LAN</i> .
<i>Default</i>	The system password must be entered via the keyboard when booting the operating system.

System Password Mode

Requirement: Setup and system password are installed.

This field establishes the effect of the system password (see also "Assigning and cancelling passwords").

<i>System</i>	When the system is started, the system password enables the operating system to be booted.
<i>Keyboard</i>	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. No request for a password is issued on the screen.



The setting *Keyboard* is not available with USB keyboards, as opposed to PS/2 keyboards. Therefore, select the setting *System* with USB keyboards.

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 start-up. If the boot sectors have been changed and the reason for this is unknown, a programme for finding computer viruses should be loaded.

- Enabled* If the boot sector has been changed since the previous system start-up (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.

Server - server management

Server		Item Specific Help
O/S Boot Timeout: [Disabled] ASR&R Boot Delay: [3 min] Boot Retry Counter: [3] Diagnostic System: [Disabled] Next Boot uses [Boot Option] Temperature Monitoring [Disabled] Memory Scrubbing [Enabled] BIOS Runtime Logging [Enabled] ▶ CPU Status: ▶ Memory Status ▶ Console Redirection ▶ RomPilot ▶ Pager Configuration ▶ VT100 Configuration ▶ Storage Extension		
F1 Info ...		

Example for *Server* menu

ASR&R Boot delay

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.

Possible values are: *1 min to 30 min*.

BIOS Runtime Logging

establishes whether processor, memory or PCI errors are recorded in the error log. Only a certain number of error reports can be stored in the error log. The next error report overwrites the oldest error report in the error log. If a component is sending constant error reports, they constantly overwrite the error log. Older PCI components can sometimes send constant error reports even though they are performing their functions without errors.

Enabled Runtime Logging is enabled. Processor, memory and PCI error reports are entered in the error log.

Disabled Runtime Logging is disabled. Processor, memory and PCI error reports are not entered in the error log.

Boot retry counter

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 (if still possible and *Enabled*).

0 to 7 Number of possible retries.

Clear Screen Delay (sec)

The last screen with BIOS messages remains visible for the set time before the operating system is started.

0 to 32 The last screen with BIOS messages remains visible for the set time (seconds) before the operating system is started.

Console Redirection - Terminal functions

calls the submenu in which you make the settings for operating a terminal on the system. The terminal can be connected to the server system via a direct serial connection (zero modem cable). Screen outputs are directed in parallel to the terminal and the system 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 terminal.

Baud Rate

Requirement: *Disabled* may not be entered in the *Port* field.

Specifies the baud rate for communication with the terminal.

This setting must be identical on both the terminal and the server.

300, 1200, 2400, 9600, 19.2K, 38.4K, 57.6K, 115.2K

Data communication with the terminal is performed at the rate set.

Console Type

shows the set console. This setting must be identical on both the terminal and the server.

VT 100, VT100, 8bit/PC-ANSI, 7bit/ PC ANSI, VT100+, VT-UTF8

Data transfer to the terminal takes place with the set console.

Continue C. R. after POST (C. R. = Console Redirection)

specifies whether or not the *Console Redirection* function is run after the Power-On Self-Test (POST).

On The *Console Redirection* function continues to be run after the POST.

Off The *Console Redirection* function does not continue to be run after the POST.

Flow Control - Port settings

Requirement: *Disabled* may not be entered in the *Port* field.

This setting determines how the transfer via the port is controlled. The setting must be the same on both the terminal and the server.

- None* The port is operated without transfer control.
- XON/XOFF* The port transfer control is carried out by software.
- CTS/RTS* The port transfer control is carried out by hardware. This mode must be supported by the cable.

Media Type

specifies which transfer medium is used for the terminal connection.

- Serial* The terminal connection is established via the serial interface.
- LAN* The terminal connection is established via the LAN interface of the BMC.
- Serial + LAN* The terminal connection is established both via the serial interface and via the LAN interface of the BMC.

Mode - Console redirection mode

Requirement: *Disabled* may not be entered in the *Port* field.

Specifies how long the terminal connection is available.

- Default* The terminal operating mode is only available during the boot process.
- Enhanced* The terminal operating mode (e.g. under MS-DOS) remains available after the boot process.

Port - Terminal port

specifies the transfer rate for communication with the terminal.

Disabled, Serial 1, Serial 2

The specified port is used for communication with the terminal. The setting *Disabled* switches off the terminal functions.

Protocol - Port settings

specifies the transfer protocol for communication with the terminal. This setting should be identical on both the terminal and the server.

VT100, VT100 8 Bit, PC-ANSI 7 Bit, PC-ANSI, VT100+

The specified transfer protocol is used for communication with the terminal. The protocols differ in the key sequences and character sets supported, and in whether they can display colour or only black-and-white.

CPU Status

Requirement: two processors must be installed.

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)*, with the *RemoteView* or the *ServerView* programme.

CPU x Status

Enabled The processor can be used by the operating system.

Disabled The processor cannot be used by the operating system.

Failed The processor cannot be used by the operating system. As long as the status is Failed, an entry is generated in the System Event Log file during each system start-up.



All status displays always appear for all possible processors (*CPU 0 Status*, *CPU 1 Status*) even if only one processor is installed. Even if *Disabled* is entered for all processors, one processor is used for booting.

Diagnostic System

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.

Disk Not installed

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

Memory Scrubbing

specifies whether memory will be screened and one-bit errors recovered. This involves the reading and restoration of the constant memory. This process recovers one-bit memory errors and prevents most multibit memory errors, since the latter are due to an accumulation of one-bit memory errors.



The cause of one-bit memory errors may be inappropriate or incorrect system environment specifications.

Disabled One-bit errors are not corrected. System performance is enhanced.

Enabled One-bit memory errors are corrected.

Memory Status

calls the submenu in which memory modules can be marked as faulty. Faulty memory modules are no longer used when the system is rebooted provided at least one errorfree bank is available. The memory capacity is reduced accordingly. After the defective memory modules have been replaced, you must reset the relevant entries to *Enabled*.

Memory Modules n - Status of the Memory Modules

shows the current status of the memory modules.

<i>Enabled</i>	If the bank is equipped, the memory module is used by the system.
<i>Disabled</i>	The memory module is not used by the system.
<i>Failed</i>	The memory module is not used by the system. If you have replaced a defective memory module, you must reset the entry to <i>Enabled</i> . As long as the module status is Failed, an entry is generated in the System Event Log file during each system start-up.

Next Boot uses - Test with Diagnosis System (RemoteView)

Requirement: One IDE hard disk must be installed in the system with the *RemoteView* diagnostics software and *Enabled* must be set in the *Diagnostic System* field.

The *Diagnostic System* entry starts the IDE hard disk with *RemoteView* (diagnostics system) at the next system boot.

Boot option The first drive listed under *Boot Option (Main Menu)* is used to boot the system.

Diagnostic System
The system is booted by the RemoteView IDE hard disk.

O/S Boot timeout

Requirement: Operating system with server management agents (e.g. Novell NetWare or Windows 2000, OS/2, programme *ServerView*).

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 *ServerView* programme.

Once the time specified in *ServerView* has elapsed, and if no connection has been established with a server management process, a reboot is initiated.

Enabled Time monitoring is enabled.

Disabled No time monitoring takes place.

Power Cycle Delay

specifies the minimum time that must pass until the system can be switched on again after being switched off.

0 - 15 Within the set time (in seconds), the system cannot be switched on again after being switched off.

Timeout value - time set for O/S boot timeout

specifies the time after which a system restart is performed if enabled by means of *O/S Boot Timeout*.

0 The time monitoring is disabled.

1 - 120 The system is restarted after the set time (minutes) has elapsed.

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: serial 1, serial 2; internal: modem board) to a pager if a system error occurs.

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.

1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200

The error transmission is performed at the rate set (baud).

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.

Modem Dial Command

Here you must enter the character sequence for the modem dial command. A maximum of 16 ASCII characters may be used. Special characters are permitted.

Modem Init Command

Here you must enter the character sequence for modem initialisation. A maximum of 16 ASCII characters may be used. Special characters are permitted.

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.



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* in the *Advanced* menu.

Pager Interface Addr. - Pager address

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

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

3F8h, 2F8h, 3E8h, 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.

Pager No

Here you must enter the pager telephone number. A maximum of 12 digits may be used. Letters and special characters are not permitted.

Pager type

Here you must enter the pager type used.

Signal The pager cannot display any messages.

Numeric The pager can only display numbers.

Alphanumeric The pager can display numbers and text.

Provider No - Telephone number of pager service

Here you must enter the telephone number of the pager service provider. A maximum of 16 digits may be used. Letters and special characters are not permitted.

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.

RomPilot

Call up the submenu for the settings to *RomPilot* with *RomPilot*. *RomPilot* is part of *RemoteView* and *ServerView*. *RomPilot* provides access from a remote console via LAN to the system start phase (POST) and MS-DOS. *ServerView* or *RemoteView/Lan* under Windows are available as remote consoles. From the remote console, via the LAN connection, the *BIOS Setup* can be called up and changed or a BIOS-Flash can be carried out. A LAN board and the respective driver are prerequisites for the operation of *RomPilot*. The respective driver for *RomPilot* is included in the delivery unit *RemoteView*. Start the server with the setup or configuration disk for *RomPilot*. For more information about *RomPilot*, consult the *RemoteView* manual.

Requirement: *RomPilot* must be installed with *RemoteView* and the system must contain a LAN board for the operation of *RomPilot*.

Activates or deactivates the function *RomPilot*. At system start, the LAN driver for *RomPilot* operation will be loaded first if *RomPilot* is activated. Then, the system attempts to set up the LAN connection for the selected remote console. If no connection can be made with the selected remote console, the operating system will start. If a connection was made with the remote console, all messages of following system start phase are displayed there in the *RemoteView/LAN* window. Keyboard entries in the *RemoteView/LAN* window are sent to the system and are treated like entries of the connected system keyboard.

Enabled *RomPilot* is activated.

Disabled *RomPilot* is deactivated.



If the connection with the remote console is made, you receive the message *New session xxx*, where *xxx* is the IP address of the remote console.

When the operating system starts the *RomPilot* connection is terminated.

Connect timeout

Here you specify the waiting time that may pass while a connection is established from the system to the remote console. Should no connection have been established after this waiting time expires, then the system is started without the *RemoteView* functions.

The time required to establish a connection depends on the quality of the network connection (e.g. intranet or internet) and the number of remote consoles used.

Extend the waiting time if you experience problems when establishing connections.

Low Low waiting time

Medium Medium waiting time

High Long waiting time

Front End x IP

You enter the IP address of the remote console here.

Front End x Mode

Up to three remote consoles (front-end consoles) can be entered. The system attempts to set up the LAN connection with one of the entered remote consoles in sequence. With the field *Front End x Mode* it can be set if a remote console should be enabled or not.

Enabled The remote console is used.

Disabled The remote console is not used.

Gateway address

Enter the gateway address of the system LAN board here. Use the same gateway address as in the operating system. Only numeric characters are permitted.

Local IP address

Enter the IP address of the system LAN board here. Use the same IP address as in the operating system. Only numeric characters are permitted.

NIC Slot no.

The slot number where the LAN board for *RomPilot* is located can be found here. This field cannot be changed. It is set during *RomPilot* installation with *RemoteView*. It can only be changed with a new installation of *RomPilot*.

Reset on lost connection

If *RomPilot* determines that the connection to the remote-console was lost for a number of seconds a server reset is done.

Enabled *Reset on lost connection* is active.

Disabled *Reset on lost connection* is deactivated.

Server Name

Determine the server name to identify the system here. We recommend to use the same name for the server that will be used later in the operating system. You can use a maximum of 16 ASCII characters. Special characters are permitted.

Subnet mask

Enter the *subnet mask* of the system LAN board here. Use the same *subnet mask* as in the operating system. Only numeric characters are permitted.

Storage Extension



The following submenu does not apply for the PCD-SE storage extension!

Storage Extensions calls the submenu in which you can make the settings for group configuration and for the communication bus. A number of servers and storage extensions (SEs) can be combined into a group (functional unit, family). Within this group each unit (server/SE) is given its own device ID via which it can be addressed for purposes of communication over the communication bus (CAN bus). These devices can be combined into a maximum of ten groups. A group may comprise a maximum of five servers and 16 SEs.

Group number

specifies the group number for SE and server. Communication between SEs and servers is possible only within a group.

0 to 9 Group number.



The group number of the SE is set using the rotary switches on the control board in the SE (see SE operating manual).

Local Server ID

specifies the device ID of the server within the group. Within a group each device must have its own device ID.

0 to 99/127 Device ID of the server.

Use a device ID from 0 to 9 for the server.

Number of connected SE

specifies the number of SEs connected at the server. At system start a check is made whether all SEs of the group are present.

0 to 16 Number of SEs.

SE Communication

permits communication between server and SE via the communication bus (CAN-BUS). If *SE Communication* is *Enabled*, a check is made at system start whether all SEs are present. For this purpose, the number of SEs attached to the server is specified in *Number of connected SE*. In addition, when the server is switched on, all SEs within the group are enabled via the communication bus.

Enabled Communication via the communication bus is enabled.

Disabled Communication with the SE via the communication bus is not possible. The SEs are not enabled with the server.

Server Type

This entry defines the server type (for high-availability configurations).

- Primary* The server is of the type primary server.
Secondary The server is of the type secondary server.

Temperature Monitoring

This field specifies whether the system is switched off if the ambient temperature or the temperature of a processor exceeds the critical value. This protects against damage to the system or data. If the operating has an active server management process, this takes over the temperature monitoring function and executes a shutdown if critical temperatures occur.

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.

VT100 Configuration

calls the submenu in which you make the settings for operating a VT100-compatible terminal on the system. The terminal can be connected to the server system via a direct serial connection (cable) or a dialup connection (modem). Screen outputs are directed in parallel to the terminal and the system 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.

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, 38400, 57600, 115200

Data communication with the terminal is performed at the rate set.

Carrier Wait

Gives the time in seconds that the system will wait for a connection with the terminal. This field is only visible when the *Connection* field is not set to *Direct*.

0, 30, 60, 90, 120, 240, 360

When the set waiting time has elapsed, the system boots without the VT100 connection.

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.

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.

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

Dial In The system and terminal are interconnected via a modem dialup connection when the system is booted. The terminal dials the switched-off system. The system boots and takes up the connection.

Dial In with Callback

The system and terminal are interconnected via a modem dialup connection. The terminal dials the switched-off system. The system boots and takes up the connection. The system then ends the modem connection and redials the caller.

Dial In with Callback Extension

The system and terminal are interconnected via a modem dialup connection. The terminal dials the switched-off system. The system boots and takes up the connection. An extension number must be entered at the terminal. The system ends the modem connection and redials the caller with the extension number.

Modem Dial Command

Here you must enter the character sequence for the modem dial command. This field is only visible when the *Connection* field is not set to *Direct*. A maximum of 16 ASCII characters may be used. Special characters are permitted.

Modem Init Command

Here you must enter the character sequence for modem initialisation. This field is only visible when the *Connection* field is not set to *Direct*. A maximum of 16 ASCII characters may be used. Special characters are permitted.

Password

Specifies the password for VT100 connection. A maximum of 16 ASCII characters may be used. Special characters are permitted.

Password Encryption

Specifies whether the password entered under *Password* is encrypted for transmission.

- Off* The password is transmitted without encryption.
On The password is transmitted in encrypted form.

Phone No

Here you must enter the telephone number of the terminal. This field is only visible when the *Connection* field is not set to *Direct*. A maximum of 16 digits may be used. Letters and special characters are not permitted.

VT100 - VT 100 operating mode

enables or disables VT100 operating mode.

- Enabled* VT100 operating mode is enabled.
Disabled VT100 operating mode is disabled.

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, 3E8h, 2E8h

The specified I/O address is used for communication with the terminal. The serial port at which the terminal or modem is connected must be set to the same address.

VT100 Interface 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 or modem is connected must be set to the same IRQ.

VT100 Mode

Specifies how long the VT100 connection is available.

- Default* The VT100 operating mode is only available during the boot process.
Enhanced The VT100 operating mode (e.g. under MS-DOS) remains available after the boot process.

Power - energy saving functions

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

Power ...		Item Specific Help
APM	[Enabled]	
Power Management Mode:	[Customize]	
Standby Timeout:	[15 min]	
Suspend Timeout:	[10 min]	
Suspend Mode	[Disabled]	
Hard Disk Timeout:	[10 min]	
Resume Timer:	[Off]	
Resume Time:	[00:00:00]	
▶ Activity Detection		
F1 Info ...		

Example for menu *Power*

Activity Detection

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, the active energy saving mode is terminated, for example.

In a network environment the *Wakeup Event* for the network controller interrupt must be disabled, otherwise the system will not switch to *Standby Mode*.

Enabled The specified interrupts are assessed as system activity.

Disabled The specified interrupts have no effect on the active energy saving mode.

ACPI S3 Switch

allows you to switch on or off the Save-to-RAM mode (ACPI S3) if the operating system supports the ACPI S3 functionality.

Enabled The operating system can activate the Save-to-RAM (ACPI S3) mode.

Disabled The operating system cannot activate the Save-to-RAM (ACPI S3) mode.

After Power Failure

specifies whether or not the server is to be rebooted after a power failure.

Stay Off After a power failure the server remains switched off.

Last State The server restores the last state before the power failure. If the server was switched off, it remains switched off, and if it was switched on, then it switches on again.

Power on The server is rebooted after a power failure.

APM - Enabling the APM Interface

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

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

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

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. In the case of newer hard disks, it may happen that in order to increase the life, the hard disk only switches off after several minutes even though a shorter time is set.



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

2 min, 5 min, 10 min, 15 min

Default entry = *10 min*.

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

Power management mode - Extent of energy saving functions

This field defines the extent of the energy saving functions.

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

Maximum Power Savings, Maximum Performance

These entries call predefined settings, thus determining the extent of energy saving.

Disabled None of the energy saving functions is effective.

Resume Timer / Resume On Time

permits the system to be switched on at a time defined under *Resume Time*.

Off The system cannot be switched on.

On The system can be switched on.



This does not apply if *Save To Disk* was selected under *Suspend Mode*.

Resume Time

Requirement: *Resume Timer* is set to *On*.

Resume time for the function *Resume Timer*.

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.

The next *Wakeup Event* terminates standby mode again.

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

Disabled The PC does not switch to standby mode

Suspend mode

Requirement: The *Power Management Mode* must be set to *Customize*. There must be sufficient storage space on the hard disk.

This field specifies whether the current system status (active programmes, files, memory contents) is saved to file *SAVETO.DSK* when the system switches to suspend mode. This system status is restored when you restart the system; in other words, you can carry on working in the same application.

Save To Disk The contents of the main memory, working memory, video memory and cache are saved to the hard disk.

Suspend The memory contents are not saved.

The *Save To Disk* setting only works with:

- Controllers integrated on the mainboard (e.g. screen and audio controllers)
- Add-on boards indicated in the price list.

Other add-on boards are not supported at present.



Do not set the entry in the *Suspend Mode* field to *Save to Disk*, if you are using boards other than those listed above. This applies, for example, to add-on boards such as screen controllers.

These restrictions also apply if you activate the *Quickstart* function (Save to disk) under Windows using *DeskEnergy*.

Before starting the Save to Disk function, you should first close all documents located on network drives.

Suspend Timeout - Suspend mode

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 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.

If Windows NT is used as the operating system, *Suspend Timeout* should also be switched off, as Windows NT does not support access to the power management settings (*Advanced Power Management*, see "After Power Failure").

2 min, 15 min, 30 min, 1 h, 2 h, 3 h, 4 h

Default entry = *15 min*.

Disabled The PC does not switch to suspend mode

Boot

Special menu for some servers (e.g. BX300). The menu items shown here are described in the chapter *Main*.

Exit menu - Exiting BIOS Setup

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

Exit	
Save Changes & Exit Discard Changes & Exit Get Default Values Load Previous Values Save Changes	Item Specific Help
F1 Info ...	

Example for menu *Exit*

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.

Save Changes & Exit

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

SICRYPT PC Lock

With *PC-Lock*, the PC can only be started with an initialised SICRYPT-SmartCard and personal identification number (PIN). SmartCard and PIN are already checked during system booting in the *BIOS Setup*, i.e. before the operating system is booted.



All new SmartCards have a preset administrator and a preset user PIN. Both PINs are preset to *12345678* and for security reasons, we recommend that you change both PINs.

With the *Smarty* or *SmartGuard Professional* software it is also checked during operation whether the proper SmartCard is inserted.

If you do not have the entry *PC-Lock* in the BIOS setup in the *Security* menu, then your system does not support PC Lock. You can update your system BIOS with the flash BIOS update (see "Flash BIOS update" chapter).



After you have initialised the first SmartCard, the entry *PC-Lock* cannot be deactivated (*Disabled*) in the *BIOS-Setup*.

Installing PC Lock



Requirement: The *PC-Lock* function of the system BIOS is activated and the SmartCard reader must be ready-to-operate.

During initial installation, the first SmartCard becomes the Admin SmartCard. Together with the administrator PIN, it has all access rights, and should therefore be kept in a safe place. It can only be used by the authorised user (administrator), e.g. to initialise other, system-specific SmartCards, or to update the system BIOS.

- ▶ Start the PC.

The following message appears:

```
Press F1 to install Sicrypt-Card Security
```

- ▶ Press function key **F1**.

The following message appears:

```
SICRYPT(R) PC-LOCK  
Installing PC-LOCK ...  
Insert a Sicrypt-Card.
```

- ▶ Insert a new SmartCard.



If you want to re-initialise a previously initialised SmartCard, the message *Enter the Admin PIN* appears.

- ▶ Enter the 8-digit administrator PIN.

The following appears:

- *PIN OK* = the PIN was entered correctly.
- *ACCESS DENIED* = you have entered the wrong administrator PIN. After six failed attempts, the SmartCard is blocked, and can no longer be used.

Entering the administrator PIN

- ▶ At the following message, enter the new administrator PIN.

Enter the new Admin PIN:



For the new PIN, 4 to 8-digit numbers are acceptable. For security reasons, we recommend that you change the PIN for every SmartCard, and use an 8-digit number each time.

Confirm the new Admin PIN:

- ▶ Enter the new administrator PIN again for confirmation.

The following appears:

- *NEW PIN OK* = the PIN was entered correctly.
- *NEW PIN FAILED* = you have confirmed the administrator PIN wrongly. You are then requested to enter and confirm the new administrator PIN again.

Entering the User PIN

- ▶ At the following message, enter the new user PIN.

Enter your new PIN:



For the new PIN, 4 to 8-digit numbers are acceptable. For security reasons, we recommend that you change the PIN for every SmartCard, and use an 8-digit number each time.

Confirm the new PIN:

- ▶ Enter the new user PIN again for confirmation.

The following appears:

- *NEW PIN OK* = the PIN was entered correctly.
- *NEW PIN FAILED* = you have confirmed the user PIN wrongly. You are then requested to enter and confirm the new user PIN again.

One of the following messages is displayed:

Initialize another chipcard?

F5=System, F6=System and Setup, F7=Admin, F8=Setup, F9=Unblock, ESC=Abort

or

Initialize another SmartCard?

F5=System, F6=System and Setup, F7=Admin, F8=Setup, F9=Unblock, ESC=Abort

Instructions on how to initialise additional SmartCards are contained in the section "Creating a new SICRYPT-SmartCard".

- ▶ If you do not want to initialise further SmartCards, press **ESC**. The system reports one of the following messages:

Remove the chipcard.

or

Remove the SmartCard.

- ▶ Remove the Admin SmartCard and label it. Never note the PIN on the SmartCard!



Keep SmartCard and PIN in a safe place and protect it from unauthorised access.

Switching on the PC with PC Lock

If you have an internal SmartCard reader, then you can switch on the PC by inserting the SmartCard. If you switch on the PC with an On/Off switch then the following message appears:

Insert a Sicrypt-Card.

- ▶ Insert your SmartCard.

Enter your PIN:

- ▶ Enter your user PIN.

The following appears:

- *PIN OK* = the PIN was entered correctly.
- *ACCESS DENIED* = you have entered the wrong user PIN. After three failed attempts, the SmartCard is blocked, and can only be enabled again by entering the administrator PIN.

Depending on the rights of your SmartCard, you can select the following functions when this message is displayed on the screen:

F2=Setup, F3=Change PIN, F4=Administration

If your SmartCard has the relevant rights, you can

F2 - start the *BIOS Setup*.

F3 - change your own PIN.

F4 - carry out administrator functions.

If you do not select a function, the system starts.

Start BIOS Setup - **F2**

An extended user SmartCard must be inserted.

Change own PIN - **F3**

Possible with every initialised SmartCard.

Carry out administrator functions - **F4**

The Admin SmartCard must be inserted.

Changing own PIN

- ▶ Press function key **[F3]**.
- ▶ Enter the old user PIN.
- ▶ Enter the new user PIN.



For the new PIN, 4 to 8-digit numbers are acceptable.
For security reasons, we recommend that you change the PIN for every SmartCard, and use an 8-digit number each time.

- ▶ Confirm the new PIN.

Carrying out administrator functions

If you have an internal SmartCard reader, then you can switch on the PC by inserting the SmartCard. If you switch on the PC with an On/Off switch then the following message appears:

Insert a Sicrypt-Card.

- ▶ Insert the next Admin SmartCard.
- ▶ When the following message is displayed, press function key **[F4]**.

F2=Setup, F3=Change PIN, F4=Administration

If you press the **[F4]** function key and the Admin SmartCard is inserted, enter the administrator PIN:

Enter the Admin PIN:

- ▶ If you enter the correct administrator PIN, one of the following messages will appear:

PIN OK.

Initialize another chipcard?

F5=System, F6=System and Setup, F7=Admin, F8=Setup, F9=Unblock, ESC=Abort

or

PIN OK.

Initialize another SmartCard?

F5=System, F6=System and Setup, F7=Admin, F8=Setup, F9=Unblock, ESC=Abort

Creating a new SICRYPT-SmartCard

[F5] - Normal user SmartCard (access right "System"):

Allows system start-up only, but forbids changes in *BIOS Setup*.

[F6] - Extended user SmartCard (access right "System and Setup"):

Allows system start-up and changes in *BIOS Setup*.

[F7] - Admin SmartCard (access right "Admin"):

Allows generation of further Admin SmartCards.

[F8] - Service SmartCard (access right "Service"):

Allows changes in *BIOS Setup* only.

[F9] - Re-activate a blocked user SmartCard.

Enables a new user PIN entry.

The further SmartCards should be produced either as normal user SmartCards ("System") or as extended user SmartCards ("System and Setup"). These then have restricted access to the PC. The system reports one of the following messages:

Remove the chipcard.

or

Remove the SmartCard.

- ▶ Remove the Admin SmartCard.



Keep the Admin SmartCard in a safe place and protect it from unauthorised access.

Insert a Sicrypt-Card.

- ▶ Insert the next SmartCard. It is initialised as required.



Always change the administrator and user PIN for all further SmartCards. The administrator PIN is used by the administrator to re-activate a blocked SmartCard.

The system reports one of the following messages:

Remove the chipcard.

or

Remove the SmartCard.

- ▶ Remove the user SmartCard and label it e.g. with the user's name. Never note the PIN on the SmartCard!

SystemLock

With *SystemLock*, the PC can only be started with an initialised SmartCard (SICRYPT, CardOS or Fujitsu) and personal identification number (PIN). SmartCard and PIN are already checked during system booting in the *BIOS Setup*, i.e. before the operating system is booted.



All new SmartCards have a preset PIN (Personal Identification Number) and PUK (Personal Unblocking Key).

On SICRYPT and CardOS SmartCards PIN and PUK are preset to *12345678*. At Fujitsu the PIN is preset to *0000* and the PUK to *administrator*.

For reasons of security, we recommend that you change both PIN and PUK.

So that it is also checked during operation, whether the proper SmartCard has been inserted, you require additional software such as *Smarty*.

If you do not have the entry *SmartCard SystemLock* in the BIOS Setup in the *Security* menu, then your system does not support *SystemLock*. You can update your system BIOS with the flash BIOS update (see "Flash BIOS update" chapter).



After you have initialised the first SmartCard, the entry *SmartCard SystemLock* cannot be deactivated (*Disabled*) in the *BIOS-Setup*. How to deinstall *SystemLock* is described at "Deinstalling SystemLock".

Access rights of the SmartCard

New SmartCards have only a preset PIN and PUK. Access rights and an individual PIN and PUK are not assigned until the SmartCard is initialised. The SmartCard type depends on the access rights assigned to the card as described below:

- User-SmartCard - system start-up, changing PIN
- Super User SmartCard - system start-up, changes in *BIOS Setup*, changing PIN
- Service SmartCard - changes in *BIOS Setup*.
- Admin SmartCard - system start-up, changes in *BIOS Setup*, changing PIN, deinstalling *SystemLock*, initialising SmartCards, activating SmartCards

The following table shows an overview of the rights associated with each SmartCard type when a PIN or PUK is entered:

	User SmartCard		Super User SmartCard		Service SmartCard		Admin SmartCard	
	PIN	PUK	PIN	PUK	PIN	PUK	PIN	PUK
System start-up	x		x				x	
Calling BIOS Setup			x		x		x	
Changing own PIN	x		x		x		x	x
Unblocking own blocked SmartCard		x ¹⁾		x ¹⁾		x ¹⁾		x
Unblocking all blocked SmartCards								x
Generating user cards								x
Deinstalling <i>SystemLock</i>								x

1 = Set in BIOS Setup (*Unblock own SmartCard*)

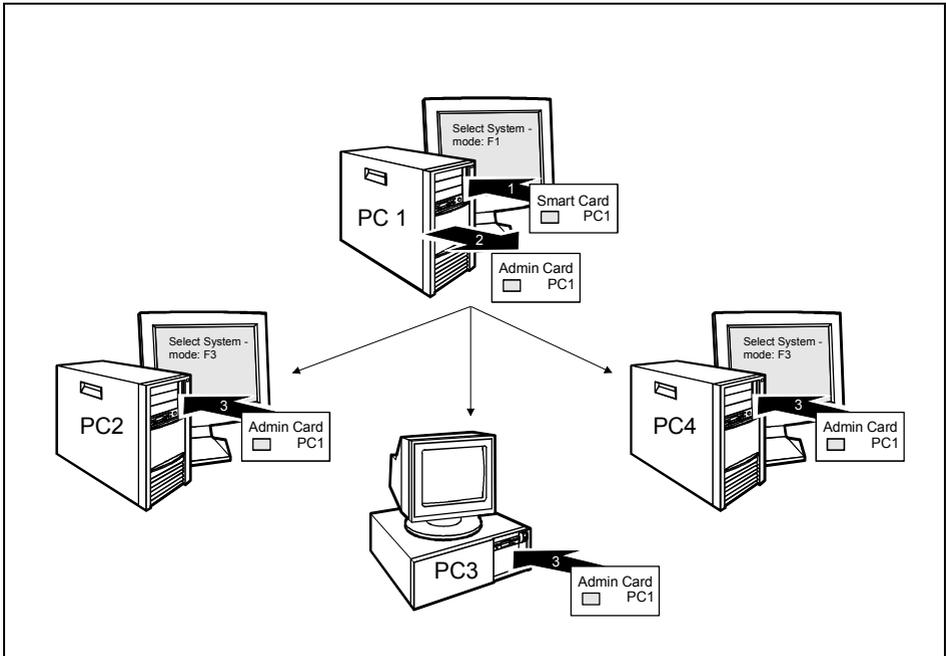
Usually there are always an admin SmartCard and at least one User or Super User SmartCard, to operate a system.

SmartCard user groups

User groups can be set up using *SystemLock*. This enables several systems to be started with a SmartCard. A user group consists of at least two systems. Each user who is allowed to start the systems is provided with a SmartCard. The user can start any of the systems using the SmartCard.

Basic information on setting up user groups

When installing *SystemLock* the first PC of the user group is set up as a "single PC". The Admin SmartCard generated in doing so is used to set up the user group. *SystemLock* sets up each additional PC as a "group PC" during installation. The existing Admin SmartCard is inserted, information is read in and the PC is added to the user group. The Admin SmartCard determines, which user group the PC belongs to.



An example for generating a user group

User SmartCards or Super User SmartCards have to be generated using SystemLock so that the users can access the systems within the user group. Using a User SmartCard or Super User SmartCard a user can log on to each system within the user group.

Installing SystemLock

During initial installation, the first SmartCard becomes the Admin SmartCard. Together with the PUK, it has all access rights, and should therefore be kept in a safe place. It can only be used by the authorised user (administrator), e.g. to initialise user cards.

You need an Admin SmartCard if you want to set up a user group. You use the Admin SmartCard to add further systems to the user group.

How you set up the first PC of a user group or an individual system is described in "Setting up the first system of a user group or an individual system". How you add further systems to a user group is described in "Adding systems to a user group".

Setting up the first system of a user group or an individual system

Requirement: The *SmartCard SystemLock* function of the system BIOS is activated (*Enabled*) and the SmartCard reader must be ready-to-operate.

- ▶ Start the PC.

The following message appears:

```
SmartCard security installation
```

```
Select SystemLock mode: F1=Single PC, F3=Group PC, ESC=Abort
```

- ▶ Press function key **[F1]**.

The following message appears:

```
Installing SystemLock ...
```

```
Insert a SmartCard.
```

- ▶ Insert a new SmartCard.



If you want to re-initialise a previously initialised SmartCard, the message *Enter PUK* appears.

- ▶ Enter the PUK.

The following appears:

- *PUK OK* = the PUK was entered correctly.
- *ACCESS DENIED* = you have entered the wrong administrator PUK. After six failed attempts, the SmartCard is blocked, and can no longer be used.

- ▶ At the following message, enter the new administrator PUK.

```
Enter the new PUK:
```



For the new PUK, 4 to 8-digit numbers are acceptable. For security reasons, we recommend that you change the PUK for every SmartCard, and use an 8-digit number each time.

```
Confirm the new PUK:
```

- ▶ Enter the new PUK again for confirmation.

The following appears:

- *NEW PUK OK* = the PUK was entered correctly.
 - *NEW PUK FAILED* = you have confirmed the administrator PUK wrongly. You are then requested to enter and confirm the new PUK again.
- ▶ At the following message, enter the new user PUK.

```
Enter your new PIN:
```



For the new PIN, 4 to 8-digit numbers are acceptable. For security reasons, we recommend that you change the PIN for every SmartCard, and use an 8-digit number each time.

```
Confirm your new PIN:
```

- ▶ Enter the new PIN again for confirmation.

The following appears:

- *NEW PIN OK* = the PIN was entered correctly.
- *NEW PIN FAILED* = you have confirmed the PIN wrongly. You are then requested to enter and confirm the new PIN again.

The following message appears:

Initialize another SmartCard or press ESC to abort.

F5=User, F6=SuperUser, F7=Admin, F8=Service, F9=Unblock SmartCard,
F10=Uninstall

Instructions on how to initialise additional SmartCards are contained in the section "Carrying out administrator functions".

- ▶ If you do not want to initialise further SmartCards, press **[ESC]** and remove the Admin SmartCard. Never note the PIN or PUK on the SmartCard!



Keep SmartCard and PIN/PUK in a safe place and protect it from unauthorised access.

Adding systems to a user group

Requirement: The *SmartCard SystemLock* function of the system BIOS is activated (*Enabled*) and the SmartCard reader must be ready-to-operate and you own an Admin SmartCard of the user group.

- ▶ Start the PC.

The following message appears:

SmartCard security installation

Select SystemLock mode: F1=Single PC, F3=Group PC, ESC=Abort

- ▶ Press function key **[F3]**.

The following message appears:

Installing SystemLock ...

Insert a SmartCard.

- ▶ Insert the Admin SmartCard of the user group.

Enter your PIN:

- ▶ Enter the PIN.

The following appears:

- *NEW PIN OK* = the PIN was entered correctly.
- *NEW PIN FAILED* = you have confirmed the PIN wrongly. You are then requested to enter and confirm the new PIN again.

The following message appears:

Enter your PUK:

- ▶ Enter the PUK.

The following appears:

- *PUK OK* = the PUK was entered correctly.
- *ACCESS DENIED* = you have entered the wrong administrator PUK. After six failed attempts, the SmartCard is blocked, and can no longer be used.

The following message appears:

```
Initialize another SmartCard or press ESC to abort?  
F5=User, F6=SuperUser, F7=Admin, F8=Service, F9=Unblock SmartCard,  
F10=Uninstall
```

Generate a user card for the PC as described in "Carrying out administrator functions".

- ▶ If you do not want to initialise further SmartCards, press **[ESC]** and remove the Admin SmartCard.

Switching on the PC with SystemLock

If you have an internal SmartCard reader, then you can switch on the PC by inserting the SmartCard. If you switch on the PC with an On/Off switch then the following message appears:

```
Insert a SmartCard.
```

- ▶ Insert your SmartCard.

```
Enter your PIN:
```

- ▶ Enter your PIN.

The following appears:

- *PIN OK* = the PIN was entered correctly.
- *ACCESS DENIED* = you have entered the wrong PIN. After three failed attempts, the SmartCard is blocked, and can only be enabled again by entering the PUK.

Depending on the rights of your SmartCard, you can select the following functions when this message is displayed on the screen:

```
F2=Setup, F3=Change PIN, F4=Administration
```

If your SmartCard has the relevant rights, you can

[F2] - start the *BIOS Setup*.

[F3] - change your PIN.

[F4] - carry out administrator functions.

If you do not select a function, the system starts.

Start BIOS Setup - **[F2]**

A SmartCard with the appropriate rights must be inserted (SuperUser, Service or Admin).

Change PIN - **[F3]**

Possible with every initialised SmartCard.

Carry out administrator functions - **[F4]**

The Admin SmartCard must be inserted.

Changing PIN

- ▶ Press function key **[F3]**.
- ▶ Enter the old PIN.
- ▶ Enter the new PIN.



For the new PIN, 4 to 8-digit numbers are acceptable.
For security reasons, we recommend that you change the PIN for every SmartCard, and use an 8-digit number each time.

- ▶ Confirm the new PIN.

Carrying out administrator functions

If you have an internal SmartCard reader, then you can switch on the PC by inserting the SmartCard. If you switch on the PC with an On/Off switch then the following message appears:

SystemLock

Insert a SmartCard.

- ▶ Insert the next Admin SmartCard. You receive the following message:

Enter your PIN:

Now you can make your choice:

F2=Setup, F3=Change PIN, F4=Administration

- ▶ Press function key **[F4]**. You receive the following message:

Enter the PUK:

- ▶ You receive the following message if you have entered the PUK correctly:

PUK OK.

Initialize another SmartCard or press ESC to abort?

F5=User, F6=SuperUser, F7=Admin, F8=Service, F9=Unblock SmartCard,
F10=Uninstall

[F5] - Normal user SmartCard (access right "System"):

Allows system start-up only, but forbids changes in *BIOS Setup*.

[F6] - Extended user SmartCard (access right "System and Setup"):

Allows system start-up and changes in *BIOS Setup*.

[F7] - Admin SmartCard (access right "Admin"):

Allows generation of further Admin SmartCards.

[F8] - Service SmartCard (access right "Service"):

Allows changes in *BIOS Setup* only.

[F9] - Re-activate a blocked user SmartCard.

Enables a new user PIN entry.

[F10] - Deinstalls *SystemLock*.

The further SmartCards should be produced either as normal user SmartCards ("System") or as extended user SmartCards ("System and Setup"). These then have restricted access to the PC.

SystemLock

- ▶ Press the appropriate function key. You receive the following message:

Remove the SmartCard.

- ▶ Remove the Admin SmartCard.



Keep the Admin SmartCard in a safe place and protect it from unauthorised access.

Insert a SmartCard.

- ▶ Insert the next SmartCard. It is initialised as required.



Always change the PIN and PUK for all further SmartCards. The PUK is used to re-activate a blocked SmartCard.

You receive the following message:

Remove the SmartCard.

- ▶ Remove the user SmartCard and label it e.g. with the user's name. Never note the PIN on the SmartCard!

Deinstalling SystemLock

- ▶ Start the PC.
- ▶ Follow the instructions as described in section "Carrying out administrator functions". Select **F10** for deinstalling *SystemLock*. You can now use the PC again with the need for a SmartCard.

Flash BIOS update

To perform a Flash BIOS update you must first load the relevant file from the Internet.

Under <http://www.fujitsu-siemens.com> you select the desired language (English or German) and then the *Drivers/Manuals* section. Then click *BIOS updates* to go to the Web page where you can see whether a flash BIOS update is available for your computer.

You need a DOS Boot diskette on which the BIOS update file will be saved. This diskette is then called the *Flash-BIOS-Diskette*.



The BIOS is stored in the flash memory. If an error occurs during Flash BIOS updating, the *BIOS Setup* in the flash memory is destroyed. You can then only restore the *BIOS Setup* using "Flash Memory Recovery Mode".

If it is no longer possible to do so, replace the Flash Memory or contact customer service centre.

- ▶ Note down the settings in the *BIOS Setup*.

A Flash BIOS update does not normally affect the settings in the *BIOS Setup*. However, if you want to modify some settings after a Flash-BIOS update you must reconfigure them.

- ▶ Boot the system with the inserted *Flash BIOS floppy disk*.

The FLASHBIO.EXE utility first reads in the BIOS Update file.

Once the Flash Memory type has automatically been recognised, programming begins. The old *BIOS Setup* is deleted and overwritten with the contents of the BIOS Update file.



The system must not be switched off or reset while programming is in progress.

- ▶ Do not press the RESET button or the key combination **Ctrl** + **Alt** + **Del** during this operation.
- ▶ Do not switch off the computer.

These actions would interrupt the Flash BIOS update and destroy the *BIOS Setup*.

Flash BIOS update

Screen messages during programming may look like this:

```
WARNING:
SYSTEM MUST NOT BE SWITCHED OFF OR RESET WHILE FLASH PROGRAMMING
IS IN PROCESS. OTHERWISE THE SYSTEM BIOS WILL BE DESTROYED.

Flash memory: AMD 29F002T

Erasing 1.BLOCK (64K) /
Erasing 2.BLOCK (64K) /
Erasing 3.BLOCK (64K) /
Erasing 4.BLOCK (32K) /
Erasing 5.BLOCK (8K) /

Programming 1.BLOCK (64K) /
Programming 2.BLOCK (64K) /
Programming 3.BLOCK (64K) /
Programming 4.BLOCK (32K) /
Programming 5.BLOCK (8K) /

CMOS Configuration updated.

Flash memory programmed.
```

When the Flash BIOS update is completed, the following message appears on the screen:

```
Flash memory programmed.

Turn off the system and remove flash diskette from drive!
```

- ▶ Switch off the PC and remove the *flash update diskette* from drive A:.

The next time the PC is switched on, it is booted with the new BIOS version.

- ▶ Check the *BIOS Setup* and the settings. If necessary, configure the settings again.

Error message after a Flash BIOS update

If this error message is displayed at the next system boot, proceed as described below: If the message

```
BIOS update for installed CPU failed
```

appears the microcode required for the processor inserted must still be loaded.

- ▶ Boot the system with the inserted *Flash BIOS floppy disk*.
- ▶ Abort the normal Flash BIOS update by answering the question about whether you want to perform the update with
n
- ▶ To carry out the Flash BIOS update for the processor, enter:
`flashbio_/p6` or `bioflash_/p6`

Flash Memory Recovery Mode



The BIOS is stored in the flash memory. If an error occurs during Flash BIOS updating, the *BIOS Setup* in the flash memory is destroyed. You can restore the *BIOS Setup* using "Flash Memory Recovery Mode". If it is no longer possible to do so, replace the Flash Memory or contact customer service centre.

- ▶ Switch off the system and unplug the power plug.
- ▶ Open the casing and switch on "Recovery Mode" (RCV) using the DIP switch (refer to the technical manual about the mainboard or the relevant manual in PDF format on the "Drivers & Utilities" CD).
- ▶ Boot the system with the inserted *Flash BIOS floppy disk*.



Normally no screen outputs are possible in Recovery mode.

Note the signals issued from the loudspeaker.

You have successfully restored the system if you hear the signal sequence "short-short-long-long-long" and the diskette access indicator is dark. The recovery update may take several minutes.

Only if a separate VGA board is mounted can you follow the Recovery Update on screen.



On some systems you must also switch on the "Skip" (SKP) switch to see the outputs on screen (refer to the technical manual for the mainboard or the relevant manual in PDF format on the "Drivers & Utilities" CD).

Then the following message appears:

RECOVERY MODE

- ▶ Switch off the system and unplug the power plug.
- ▶ Remove the diskette from drive A: and change the setting of the DIP switch (RCV).
- ▶ Return all switches which have been changed (e.g. "Skip") to the initial position.
- ▶ Switch the device on again.

The PC is booted with the new BIOS version.

- ▶ Check the *BIOS Setup* and the settings. If necessary, configure the settings again.

DeskFlash



With some mainboards a Flash BIOS update can be performed directly under Windows using the *DeskFlash* utility contained on the "Drivers & Utilities" CD.

In the *Readme* file in the subfolder *DeskFlash* you will find the installation instructions for *DeskFlash*.

Further information on *DeskFlash* is provided in the file `\..\DeskView.PDF` and in the *DeskView* online help.

Error messages

This chapter contains error messages generated by the mainboard.

Available CPUs do not support the same bus frequency - System halted!
Memory type mixing detected
Non Fujitsu Siemens Memory Module detected - Warranty void
There are more than 32 32 RDRAM devices in the system

Check whether the system configuration has changed. If necessary, correct the settings.

BIOS update for installed CPU failed

This message appears if the microcode update required for the connected processor is not contained in the system BIOS.

- ▶ Boot the system with the inserted *Flash BIOS floppy disk*.
- ▶ Abort the normal Flash BIOS update by answering the question about whether you want to perform the update with

n 

- ▶ To carry out the Flash BIOS update for the processor, enter:

flashbio_/p6 

Check date and time settings

The system date and time are invalid. Set the current date and time in the *Main* menu of the *BIOS Setup*.

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 processor to *Disabled* in the *Server - CPU Status* menu; please contact your sales outlet or customer service centre.

CPU mismatch detected

You have replaced the processor or changed the frequency setting. As a result, the characteristic data of the processor have changed. Confirm this change by running the *BIOS Setup* and exiting it again.

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.

Error messages

DMA test failed
EISA CMOS not writable
Extended RAM Failed at offset: nnnn
Extended RAM Failed at address line: nnnn
Failing Bits: nnnn
Fail-Safe Timer NMI failed
Multiple-bit ECC error occurred
Memory decreased in size
Memory size found by POST differed from EISA CMOS
Single-bit ECC error occurred
Software NMI failed
System memory exceeds the CPU's caching limit
System RAM Failed at offset: nnnn
Shadow RAM Failed at offset: nnnn

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

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

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

Incorrect Drive A - 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 outlet or customer service centre.

Invalid System Configuration Data

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

Invalid System Configuration Data - run configuration utility
Press F1 to resume, F2 to Setup

This error message may be displayed if the machine was switched off during system start-up.

Call *BIOS Setup* and switch to the *Advanced* menu. Select the menu item *Reset Configuration Data* and change the setting to *Yes*. Save the change and terminate *BIOS Setup*. Reboot the device.

Hot Spare Memory Feature could not be enabled

The reserve memory bank could not be configured, as either only one memory bank is available to the system or the existing memory banks have different memory sizes. Check whether at least two memory banks of equal size are present in the system and check the status of the memory modules in the submenu *Memory Status* in the *Server* menu in the *BIOS Setup*.

Keyboard controller error

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

Keyboard error

Check that the keyboard is connected properly.

Keyboard error nn
nn Stuck Key

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

Missing or invalid NVRAM token

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

Monitor type does not match CMOS - RUN SETUP

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

On Board PCI VGA not configured for Bus Master

In the *BIOS Setup*, in the *Advanced* menu, submenu *PCI Configuration*, set the *Shared PCI Master Assignment* entry to *VGA*.

One or more RDRAM devices are not used

One or more RDRAM devices have bad architecture/timing

One or more RDRAM devices are disabled

Contact your system administrator or contact our customer service centre.

Operating system not found

Check the entries for the hard disk drive and the floppy disk drive in the *Main* menu and the entries for *Boot Sequence* submenu of the *BIOS Setup*.

Parity Check 1

Parity Check 2

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

Previous boot incomplete - Default configuration used

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

Real time clock error

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

Service Processor not properly installed

The server management controller has not been correctly installed. If the message is still displayed, please contact your sales outlet or customer service centre.

Storage Extension Group = xy

Configuration error, x Storage Extensions(s) found, configured are y SE(s).

Device List: k1, k2 ...

The specified number of storage expansion units (SEs) in the *BIOS Setup* menu *Server - Storage Extensions - Number of connected SE* is incorrect. Check how many SEs within the group are connected at the server and change the setting in *BIOS Setup*. Check whether you have assigned the same device ID twice.

xy = Group number

x = Number of SEs found on the communication bus

y = Number of SEs entered in *Number of connected SE*

k1, k2 ... = Device ID of the storage extensions found

Error messages

System battery is dead - Replace and run SETUP

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

System Cache Error - Cache disabled

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

System CMOS checksum bad - - Default configuration used

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

System Management Configuration changed or Problem occurred

A system fan or system sensor has failed. Check the hardware operation.

System timer error

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

Uncorrectable ECC DRAM error

DRAM Parity error

Unknown PCI error

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

Verify CPU frequency selection in Setup

The frequency setting for the processor is invalid. Correct the *BIOS Setup* and the setting.

DOS error messages

This chapter contains the error messages that occur while DOS is running.

If an uncorrectable error occurs while DOS is running, then the following error text is output on the screen:

Critical error logged to server management processor - system halted

If the NMI button of the control panel is pressed, then the following error text is output on the screen:

Frontpanel NMI activated - system halted

SmartCard reader - error messages

This chapter contains error messages generated by the SmartCard reader (chipcard reader).

Boot access denied

The Sicrypt SmartCard has no access rights to the system.

Check your chipcard

Either the Sicrypt SmartCard has been wrongly inserted, or it is not a *PC-Lock* Sicrypt card.

Chipcard reader FAIL

An error has occurred on the serial port to the SmartCard reader (chipcard reader). If this error occurs always or often, the connection between the SmartCard reader and the mainboard must be checked, or the SmartCard reader must be replaced. While the error is present, access to the system is blocked.

Non authorized chipcard

The Sicrypt SmartCard cannot be used on this PC. The Sicrypt SmartCard has been configured for a different PC.

PC-Lock installation FAIL:

An error has occurred during installation of PC Lock. Do not switch off, but insert the "BIOS Flash diskette", and try the installation again.

The chipcard is blocked.

Enter the Admin PIN:

You have exceeded the maximum number of failed attempts to enter the PIN. The Sicrypt SmartCard is blocked.

Enter the administrator PIN to re-activate the Sicrypt SmartCard. You must then enter a new User PIN to restart the system.

RomPilot - error messages

The following error messages can occur with *RomPilot*:

Dummy LAN driver installed, please replace with correct driver

The wrong LAN driver was installed for the LAN board for *RomPilot* operation. Install the correct LAN driver with the *RomPilot* setup or configuration disk. The disk is part of *RemoteView*.

xx RomPilot error code

xx is the error number. In the following you will find the error code and the respective error description.

If you receive a *RomPilot* error message, proceed as follows:

- ▶ Install or configure *RomPilot* again with *RemoteView*.
- ▶ Please test all set parameters on the server.
- ▶ Test all set parameters on the remote console.

If the message is still displayed, please contact your sales outlet or customer service centre.

Error codes from real-mode kernel initialization

- 00 Unable to find Phoenix Dispatch manager/Post Memory manager entry points.
- 01 Failed to allocate real-mode memory.
- 02 Failed to load protected-mode kernel module.
- 03 Failed to load bundle/module (bundle/module is probably corrupt).
- 04 Protected-mode module is missing kernel signature.

Error codes from protected-mode kernel initialization

- 05 Failed to initialize memory manager/system objects.
- 06 Failed to initialize kernel interrupt tables.
- 07 Failed to allocate descriptor table usage list.
- 08 Failed to create event object for BIOS messages.
- 09 Failed to create objects for BIOS slice.
- 0A Failed to load all modules (module is probably corrupt).
- 0B Kernel initialized successfully.

Error codes from bundle loader module (INIT.PLM)

- 10 Unable to allocate memory below 1MB.
- 11 Unable to allocate memory above 1MB.
- 12 Phoenix Dispatch Manager call to size/load module failed.
- 13 No bundle file found in BIOS image.
- 14 No ODI driver found in BIOS image.
- 15 Too many bundles found in BIOS image.
- 16 Bundle failed to load (bundle is probably corrupt).

Error codes from connection manager (CONMNGR.PLM)

- 18 Failed to register interface with RPC.
- 19 Protocol stack not bound to ODI driver.
- 1A Unable to create thread.
- 1B RomPilot shutdown for transition to DOS.
- 1C RomPilot forced to shutdown by BIOS.

Error codes from export of NV install data (EXPVARS.PLM)

- 20 Unable to allocate memory below 1MB.
- 21 Phoenix Dispatch Manager call to read NV install data failed.
- 22 Unable to allocate memory above 1MB.
- 23 Failed to export symbol.
- 24 Version mismatch between RomPilot and NV install data.
- 25 NV install data is marked as incomplete.
- 26 NV install data is missing RomPilot signature.
- 27 NV install data failed checksum.

Error codes from link support layer (LSL.PLM)

- 28 LSL initialization failed.

Error codes from media support module (MSM.PLM)

- 30 Unable to register shutdown function.
- 31 Network card not initialized.
- 32 Appropriate board not found.

Error codes from protocol stack (PSTACK.PLM)

- 38 IP address is already in use.

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