Chapter 2

BIOS Utility

Most systems are already configured by the manufacturer or the dealer. There is no need to run Setup when starting the computer unless you get a Run Setup message.

The Setup program loads configuration values into the battery-backed nonvolatile memory called CMOS RAM. This memory area is not part of the system RAM.

If you repeatedly receive Run Setup messages, the battery may be bad. In this case, the system cannot retain configuration values in CMOS. Ask a qualified technician for assistance.

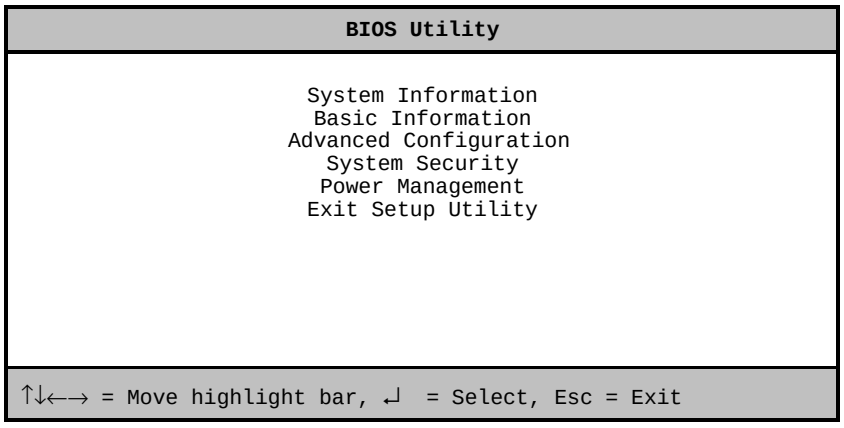
Before you run Setup, make sure that you have saved all open files. The system reboots immediately after you exit Setup.

2.1 Entering Setup

To enter Setup, press the key combination CTRL+ALT+ESC.

You must press CTRL+ALT+ESC while the system is booting. This key combination does not work during any other time.

The BIOS Utility Main menu then appears:

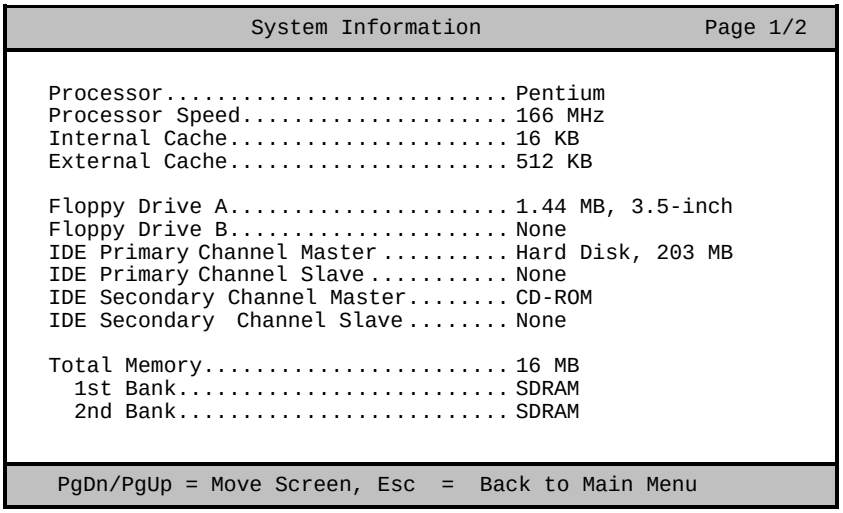


The parameters on the screens show default values. These values may not be the same as those in your system.

The grayed items on the screens have fixed settings and are not user-configurable.

2.2 System Information

The following screen appears if you select System Information from the Main menu.



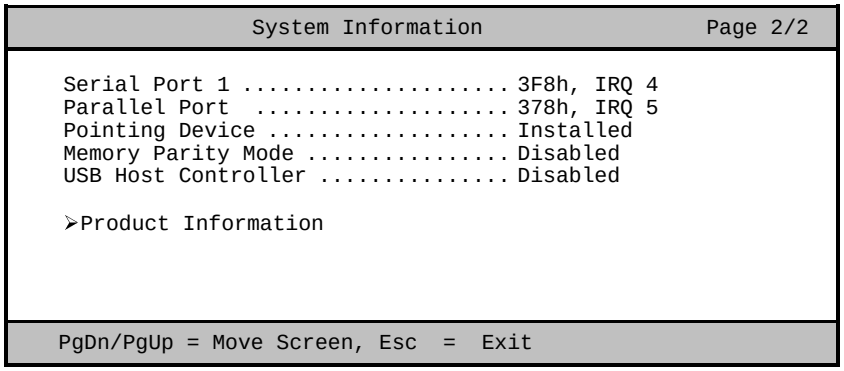
The System Information menu shows the current basic configuration of your system.

The command line at the bottom of the menu tells you how to move from one screen to another and return to the Main menu.

Press PGDN to move to the next page or PGUP to return to the previous page.

Press ESC to return to the Main menu.

The following screen shows page 2 of the System Information menu.



The following sections explain the parameters.

2.2.1 Processor

The Processor parameter specifies the type of processor currently installed in your system. The system supports Pentium/MMX processor.

2.2.2 Processor Speed

The Processor Speed parameter specifies the speed of the processor currently installed in your system. The system can support Pentium/MMX processor running at 166, 200, or 233 MHz.

2.2.3 Internal Cache

This parameter specifies the first-level or the internal memory (i.e., the memory integrated into the CPU) size, and whether it is enabled or disabled. For information on how to configure the system memory, see section 2.4.

2.2.4 External Cache

This parameter specifies the second-level cache memory size currently supported by the system. The available cache sizes are 256 KB or 512 KB (manufacturing setting). For information on how to configure the system memory, see section 2.4.

2.2.5 Floppy Drive A

This parameter specifies the system's current floppy drive A settings. For information on how to configure the floppy drives, see section 2.3.2.

2.2.6 Floppy Drive B

This parameter specifies the system's current floppy drive B settings. For information on how to configure the floppy drives, see section 2.3.2.

2.2.7 IDE Primary Channel Master

This parameter specifies the current configuration of the IDE device connected to the master port of the primary IDE channel. For information on how to configure the IDE devices drives, see section 2.3.3.

2.2.8 IDE Primary Channel Slave

This parameter specifies the current configuration of the IDE device connected to the slave port of the primary IDE channel. For information on how to configure the IDE devices drives, see section 2.3.3

2.2.9 IDE Secondary Channel Master

This parameter specifies the current configuration of the IDE device connected to the master port of the secondary IDE channel. For information on how to configure the IDE devices drives, see section 2.3.3.

2.2.10 IDE Secondary Channel Slave

This parameter specifies the current configuration of the IDE device connected to the slave port of the secondary IDE channel. For information on how to configure the IDE devices drives, see section 2.3.3.

2.2.11 Total Memory

This parameter specifies the total amount of onboard memory. The memory size is automatically detected by BIOS during the POST. If you install additional memory, the system automatically adjusts this parameter to display the new memory size.

1st Bank

This parameter indicates the type of DRAM installed in Bank 1. The None setting indicates that there is no DRAM installed. For the location of Bank 1, refer to Figure 1-2.

2nd Bank

This parameter indicates the type of DRAM installed in Bank 2. The None setting indicates that there is no DRAM installed. For the location of Bank 2, refer to Figure 1-2.

2.2.12 Serial Port 1

This parameter shows the serial port 1 address and IRQ settings.

2.2.13 Parallel Port

This parameter shows the parallel port address and IRQ settings.

2.2.14 Pointing Device

The BIOS utility automatically detects if there is a mouse connected to your system. If there is, this parameter displays the Installed setting. Otherwise, this is set to None.

2.2.15 Memory Parity Mode

This parameter specifies if the ECC and parity check features are enabled or disabled. The parity check feature enables BIOS to detect data errors. The ECC feature enables BIOS not only to detect, but as well as correct data errors. For information on how to enable or disable the ECC and parity check features, see section 2.4.5.

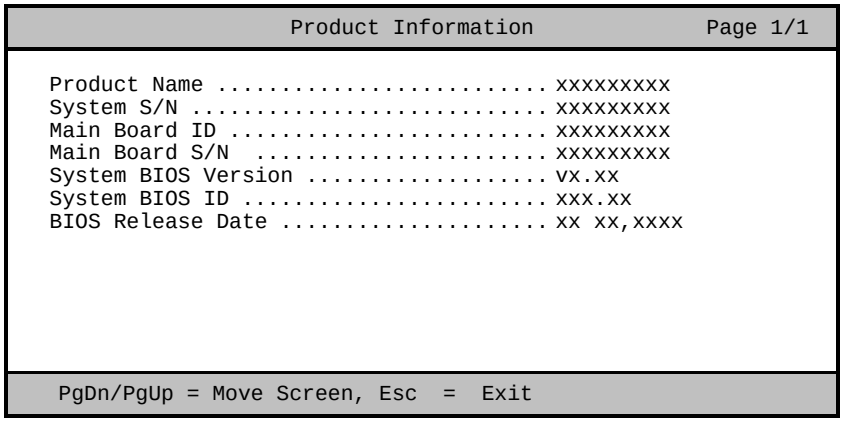
2.2.16 USB Host Controller

This parameter specifies whether the onboard USB controller is enabled or disabled. For information on how to enable or disable USB, see section 2.4.7.

2.2.17 Product Information

The Product Information contains the general data about the system, such as the product name, serial number, BIOS version, etc. These information are necessary for troubleshooting (may be required when asking for technical support).

The following figure shows how the Product Information screen appears.



Product Name

This parameter specifies the official name of the system.

System S/N

This parameter specifies the system's serial number.

Main Board ID

This parameter specifies the system board's identification number.

Main Board S/N

This parameter specifies the system board's serial number.

System BIOS Version

This parameter specifies the version of the BIOS utility.

System BIOS ID

This parameter specifies the identification number of the BIOS utility.

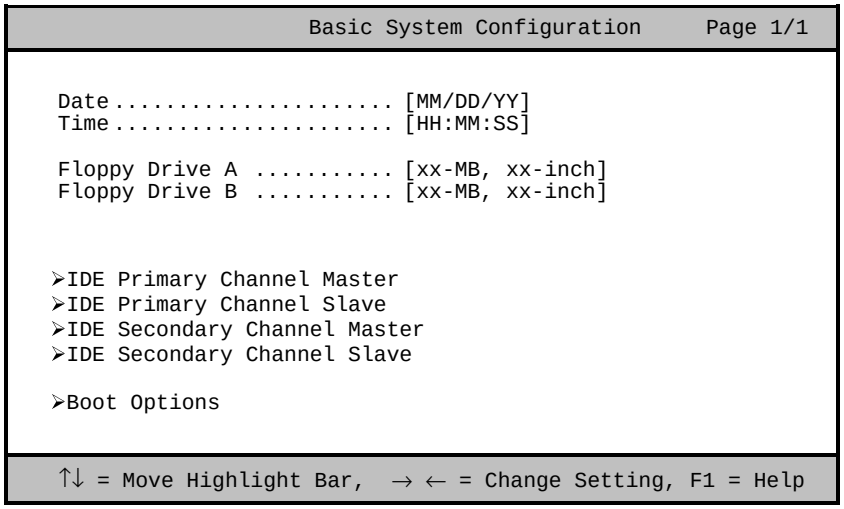
BIOS Release Date

This parameter specifies the official date the BIOS version is released.

2.3 Basic System Configuration

Select Basic System Configuration to input configuration values such as date, time, and disk types.

The following screen shows the Basic System Configuration menu.



2.3.1 Date and Time

The real-time clock keeps the system date and time. After setting the date and time, you do not need to enter them every time you turn on the system. As long as the internal battery remains good (approximately seven years) and connected, the clock continues to keep the date and time accurately even when the power is off.

Date

Highlight the items on the Date parameter and press → or ← to set the date following the month-day-year format.

Valid values for month, day, and year are:

- Month 1 to 12
- Day 1 to 31
- Year 1980 to 2099

Time

Highlight the items on the Time parameter and press → or ← to set the time following the hour-minute-second format.

Valid values for hour, minute, and second are:

- Hour 00 to 23
- Minute 00 to 59
- Second 00 to 59

2.3.2 Floppy Drives

To enter the configuration value for the first floppy drive (drive A), highlight the Floppy Drive A parameter. Press → or ← key to view the options and select the appropriate value.

Possible settings for the Floppy Drive parameters:

- [None]
- [360 KB, 5.25-inch]
- [1.2 MB, 5.25-inch]
- [720 KB, 3.5-inch]
- [1.44 MB, 3.5-inch]
- [2.88 MB, 3.5-inch]

Follow the same procedure to configure floppy drive B. Choose None if you do not have a second floppy drive.

2.3.3 IDE Drives

To configure the IDE drives connected to your system, select the parameter that represents the channel and port where the desired hard disk to configure is connected. The options are:

IDE Primary Channel Master

This parameter lets you configure the hard disk drive connected to the master port of IDE channel 1.

IDE Primary Channel Slave

This parameter lets you configure the hard disk drive connected to the slave port of IDE channel 1.

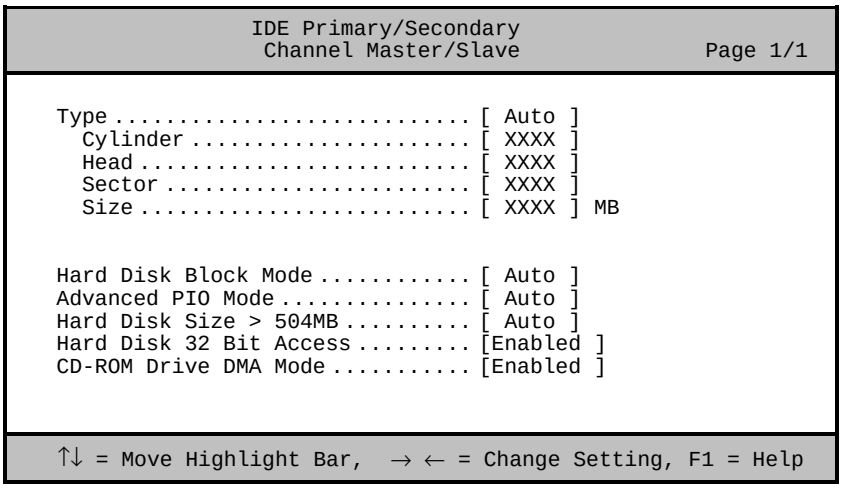
IDE Secondary Channel Master

This parameter lets you configure the hard disk drive connected to the master port of IDE channel 2.

IDE Secondary Channel Slave

This parameter lets you configure the hard disk drive connected to the slave port of IDE channel 2.

The following screen appears if you select any of the IDE Drive parameters:



TYPE

This parameter lets you specify the type of hard disk installed in your system. If you want BIOS to automatically configure your hard disk, select Auto. If you know your hard disk type, you can enter the setting manually.

Setting this parameter also sets the Cylinder, Head, Sector, and Size parameters.

CYLINDERS

This parameter specifies the number of cylinders of your hard disk, and is automatically set depending on your Type parameter setting.

HEAD

This parameter specifies the number of heads of your hard disk, and is automatically set depending on your Type parameter setting.

SECTORS

This parameter specifies the number of sectors of your hard disk, and is automatically set depending on your Type parameter setting.

SIZE

This parameter specifies the size of your hard disk, in MB. This is automatically set depending on your Type parameter setting.

Enhanced IDE Features

HARD DISK BLOCK MODE

This function enhances disk performance depending on the hard disk in use. If you set this parameter to Auto, the BIOS utility automatically detects if the installed hard disk drive supports the Block Mode function. If supported, it allows data transfer in block (multiple sectors) at a rate of 256 bytes per cycle. To disregard the feature, change the setting to Disabled.

ADVANCED PIO MODE

When set to Auto, the BIOS utility automatically detects if the installed hard disk supports the function. If supported, it allows for faster data recovery and read/write timing that reduces hard disk activity time. This results to better hard disk performance. To disregard the feature, change the setting to Disabled.

HARD DISK SIZE > 504 MB

When set to Auto, the BIOS utility automatically detects if the installed hard disk supports the function. If supported, it allows you to use a hard disk with a capacity of more than 504 MB. This is made possible through the Logical Block Address (LBA) mode translation. However, enhanced IDE feature works only under DOS and Windows 3.x, 95 environment. Other operating systems require this parameter to be set to Disabled.

HARD DISK 32-BIT ACCESS

Enabling this parameter improves system performance by allowing the use of the 32-bit hard disk access. This enhanced IDE feature works only under DOS, Windows 3.x, Windows 95, and Novell NetWare. If your software or hard disk does not support this function, set this parameter to Disabled .

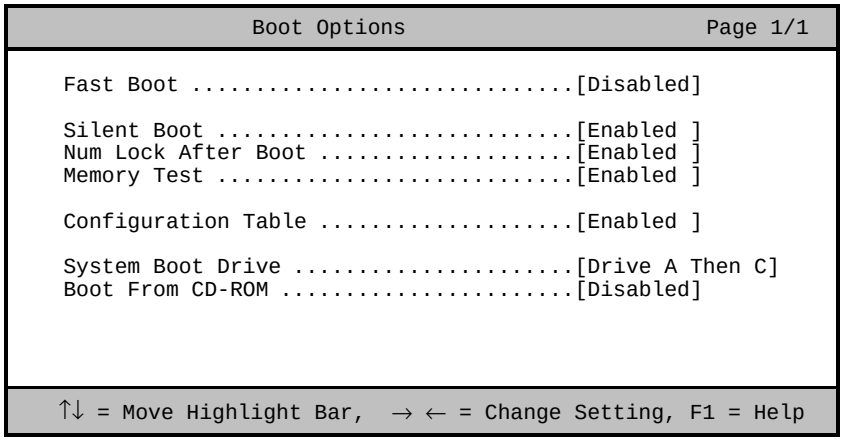
CD-ROM DRIVE DMA MODE

Set this parameter to Enabled to enable the DMA mode for the CD-ROM drive. This improves the system performance since it allows direct memory access to the CD-ROM. To deactivate the function, set the parameter to Disabled .

2.3.4 Boot Options

This option allows you to specify your preferred setting for bootup.

The following screen appears if you select Boot Options from the Basic Configuration menu:



Fast Boot

This parameter allows the system to boot faster by skipping some POST routines. The default setting is Auto.

Silent Boot

This parameter enables or disables the Silent Boot function. When set to Enabled, BIOS is in graphical mode and displays only an identification logo during POST and while booting. After which the screen displays the operating system prompt (such as DOS) or logo (such as Windows 95). If any error occurred while booting, the system automatically switches to the text mode.

Even if your setting is Enabled, you may also switch to the text mode while booting by pressing F9 after you hear a beep that indicates the activation of the keyboard.

When set to Disabled, BIOS is in the conventional text mode where you see the system initialization details on the screen.

Num Lock After Boot

This parameter allows you to activate the Num Lock function upon booting. The default setting is Enabled.

Memory Test

When set to Enabled, this parameter allows the system to perform a RAM test during the POST routine. When set to Disabled, the system detects only the memory size and bypasses the test routine. The default setting is Disabled.

Configuration Table

This parameter allows you to display the configuration table after POST but before booting. The configuration table gives a summary of the hardware devices and settings that BIOS detected during POST. The default setting is Enabled.

System Boot Drive

This parameter allows you to specify the system search sequence. The selections are:

- Drive A then C: The system checks drive A first. If there is a diskette in the drive, the system boots from drive A. Otherwise, it boots from drive C.
- Drive C then A: The system checks drive C first. If there is a hard disk (drive C) installed, the system boots from drive C. Otherwise, it boots from drive A.

- C: The system always boots from drive C.
- A: The system always boots from drive A.

Boot from CD-ROM

When set to Enabled, the system checks for a bootable CD in the CD-ROM drive. If a CD is present, the system boots from the CD-ROM; otherwise, it boots from the drive specified in the System Boot Drive parameter.

When set to Disabled, the system boots from the drive specified in the System Boot Drive parameter.

2.4 Advanced Configuration

The Advanced Configuration option allows you to configure the advanced system memory functions.

Do not change any settings in the Advanced Configuration if you are not a qualified technician to avoid damaging the system.

The following screen shows the Advanced Configuration parameters.

```
                Advanced Configuration                  Page 1/1


  Internal Cache (CPU Cache) ......... [Enabled ]
  External Cache  .................... [Enabled ]
  Cache Scheme ....................... [Write-back]

  Memory at 15MB-16MB Reserved for  .. [System]
  Memory Parity Mode ................. [Disabled]

  C8000h-DFFFF Shadow ................ [Disabled]

  ➢Onboard Peripheral Configuration
  ➢PnP/PCI System Configuration


  ↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help
```

2.4.1 Internal Cache (CPU Cache)

This parameter enables or disables the first-level or internal memory, that is, the memory integrated into the CPU. The default setting is Enabled.

2.4.2 External Cache

This parameter enables or disables the external cache memory. The external cache is incorporated in the CPU module.

2.4.3 Cache Scheme

This parameter sets the cache to `Write-through` or `Write-back` modes. `Write-back` updates the cache but not the memory when there is a write instruction. It updates the memory only when there is an inconsistency between the cache and the memory. `Write-through` updates both the cache and the memory whenever there is a write instruction.

2.4.4 Memory at 15MB-16MB Reserved For

To prevent memory address conflicts between the system and expansion boards, reserve this memory range for the use of either the system or an expansion board.

2.4.5 Memory Parity Mode

This parameter allows you to enable or disable the ECC and parity check features. Select `Parity` to enable the parity check feature. Select `ECC` to enable the ECC feature. The ECC feature enables BIOS to detect and correct data errors.

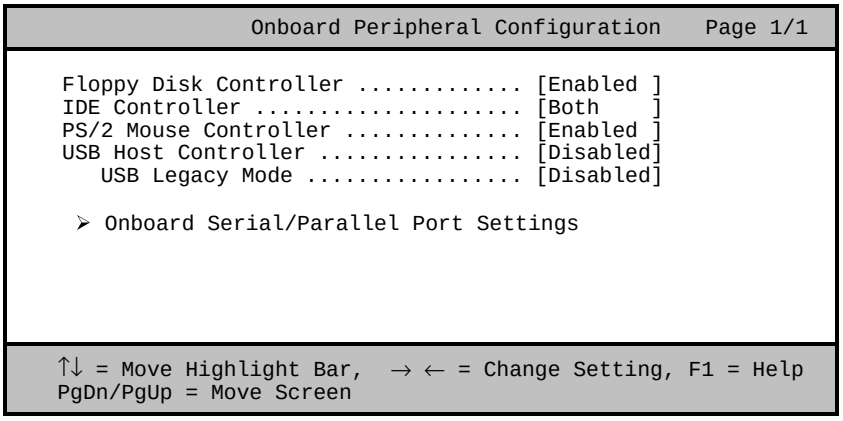
Disable this parameter to disregard the function.

2.4.6 C8000h - DFFFF Shadow

The system reserves a portion of random access memory (RAM) for the shadow RAM function. This parameter allows you to shadow the C8000h-DFFFF address range, enabling I/O ROM functions to run directly from the shadow RAM for faster operation. When you set this parameter to Disabled, the functions run normally from ROM.

2.4.7 Onboard Peripheral Configuration

The Onboard Peripheral Configuration allows you to configure the onboard communication ports and the onboard devices. Selecting this option from the Advanced Configuration menu displays the following screen:



Floppy Disk Controller

This parameter lets you enable or disable the onboard floppy disk controller.

IDE Controller

Set this parameter to Primary to enable only the primary IDE controller; Secondary to enable only the secondary IDE controller; Both to enable both primary and secondary IDE controller; or Disabled to disable all IDE controllers.

PS/2 Mouse Controller

This parameter enables or disables the onboard PS/2 mouse controller.

USB Host Controller

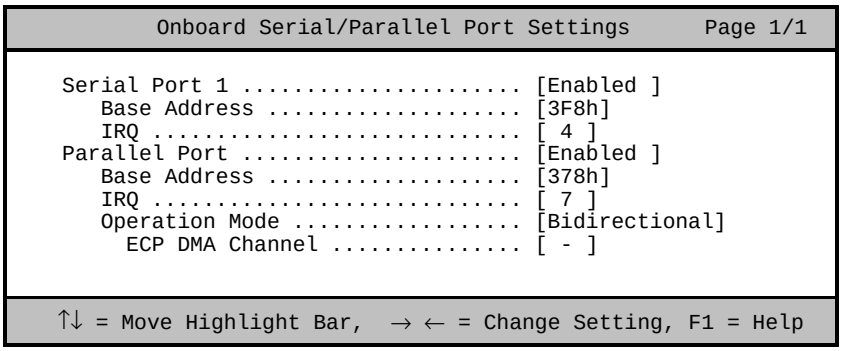
This parameter lets you enable or disable the USB controller on board. When enabled, it activates the USB function of the system. When disabled, it also deactivates the function.

USB LEGACY MODE

This function, when enabled, lets you use a USB keyboard in DOS environment. Set this to Disabled to deactivate the USB keyboard function in DOS environment.

Onboard Serial/Parallel Port Settings

The Onboard Serial/Parallel Port Settings menu allows you to configure the onboard communication ports and the onboard devices. Selecting this option from the Onboard Peripheral Configuration menu displays the following screen:



SERIAL PORT 1

This parameter allows you to enable or disable the serial port 1.

Base Address

This function lets you set a logical base address for serial port 1. The options are:

- 3F8h
- 2F8h
- 3E8h
- 2E8h

IRQ

This function lets you assign an interrupt for serial port 1. The options are IRQ 3 and 4.

The Base Address and IRQ parameters are configurable only if Serial Port 1 is enabled.

PARALLEL PORT

This parameter allows you to enable or disable the parallel port.

Base Address

This function lets you set a logical base address for the parallel port. The options are:

- 3BCh
- 378h
- 278h

IRQ

This function lets you assign an interrupt for the parallel port. The options are IRQ 5 and 7.

The Base Address and IRQ parameters are configurable only if Parallel Port is enabled.

If you install an add-on card that has a parallel port whose address conflicts with the parallel port onboard, the system automatically disables the onboard functions.

Check the parallel port address on the add-on card and change the address to one that does not conflict.

Operation Mode

This item allows you to set the operation mode of the parallel port. Table 2-1 lists the different operation modes.

Table 2-1 Parallel Port Operation Mode Settings

Setting	Function
Standard Parallel Port (SPP)	Allows normal speed one-way operation
Standard and Bidirectional	Allows normal speed operation in a two-way mode
Enhanced Parallel Port (EPP)	Allows bidirectional parallel port operation at maximum speed
Extended Capabilities Port (ECP)	Allows parallel port to operate in bidirectional mode and at a speed higher than the maximum data transfer rate

ECP DMA Channel

This item becomes active only if you select Extended Capabilities Port (ECP) as the operation mode. It allows you to assign DMA channel 1 or DMA channel 3 for the ECP parallel port function (as required in Windows 95).

PnP/PCI System Configuration

The PnP/PCI System Configuration allows you to specify the settings for your PCI devices. Selecting this option displays the following screen:

```
                PnP/PCI System Configuration       Page 1/1

PCI IRQ Setting  ...........[  Auto  ]
                            INTA   INTB   INTC   INTD
   PCI Slot 1 ..............[--]   [--]   [--]   [--]
   PCI Slot 2 ..............[--]   [--]   [--]   [--]
   PCI Slot 3 ..............[--]   [--]   [--]   [--]
   Onboard PCI VGA .........[--]


PCI IRQ Sharing ..............[No ]
VGA Palette Snoop  ...........[Disabled]
Plug and Play OS .............[No ]
Reset Resource Assignments ..[No ]

↑↓ = Move Highlight Bar,  → ← = Change Setting, F1 = Help
```

PCI IRQ SETTING

This function is fixed at Auto setting and is non-configurable. It automatically configures the plug-and-play (PnP) devices installed in your system.

Refer to your manual for technical information about the PCI card.

PCI Slots

These parameters specify the auto-assigned interrupt for each of the PCI devices. Like the PCI IRQ Setting parameter, these are also non-configurable.

Onboard PCI VGA

This parameter specifies the auto-assigned interrupt for the onboard PCI VGA device. Like the PCI IRQ Setting parameter, this is also non-configurable.

PCI IRQ SHARING

Setting this parameter to Yes allows you to assign the same IRQ to two different devices. To disable the feature, select No.

If there are no IRQs available to assign for the remaining device function, we recommend that you enable this parameter.

VGA PALETTE SNOOP

This parameter permits you to use the palette snooping feature if you installed more than one VGA card in the system.

The VGA palette snoop function allows the control palette register (CPR) to manage and update the VGA RAM DAC (Digital Analog Converter, a color data storage) of each VGA card installed in the system. The snooping process lets the CPR send a signal to all the VGA cards so that they can update their individual RAM DACs. The signal goes through the cards continuously until all RAM DAC data have been updated. This allows display of multiple images on the screen.

Some VGA cards have required settings for this feature. Check your VGA card manual before setting this parameter.

PLUG AND PLAY OS

When this parameter is set to Yes, BIOS initializes only PnP boot devices such as SCSI cards. When set to No, BIOS initializes all PnP boot and non-boot devices such as sound cards.

Set this parameter to Yes *only if your operating system is Windows 95.*

RESET RESOURCE ASSIGNMENTS

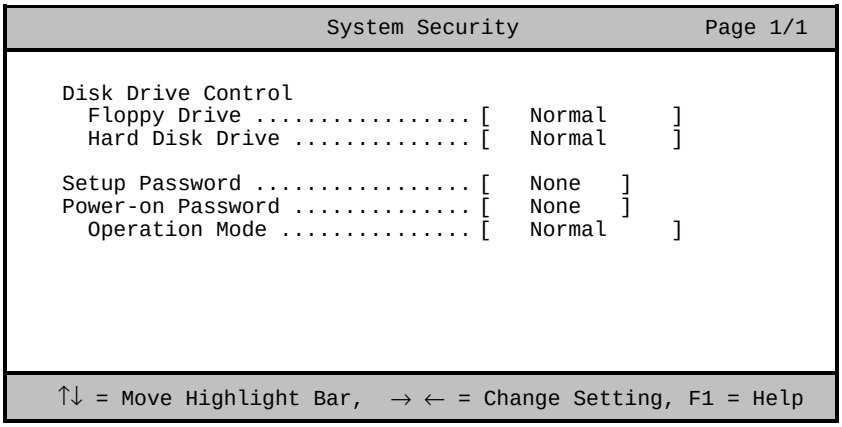
Set this parameter to Yes to avoid IRQ conflict when installing non-PnP or PnP ISA cards. This clears all resource assignments and allows BIOS to reassign resources to all installed PnP devices the next time the system boots. After clearing the resource data, the parameter resets to No.

Refer to section 1.12.3 for instructions on installing and configuring ISA cards.

2.5 System Security Setup

The Setup program has a number of security features to prevent unauthorized access to the system and its data.

The following screen appears if you select System Security from the Main menu:



2.5.1 Disk Drive Control

The disk drive control features allow you to control the floppy drive or the hard disk drive boot function to prevent loading operating systems or other programs from a certain drive while the other drives are operational.

Table 2-2 lists the drive control settings and their corresponding functions.

Table 2-2 Drive Control Settings

Floppy Drive	
Setting	**Description**
Normal	Floppy drive functions normally
Write Protect All Sectors	Disables the write function on all sectors
Write Protect Boot Sector	Disables the write function only on the boot sector
Hard Disk Drive	
Setting	**Description**
Normal	Hard disk drive functions normally
Write Protect All Sectors	Disables the write function on all sectors
Write Protect Boot Sector	Disables the write function only on the boot sector

2.5.2 Setup Password

The Setup Password prevents unauthorized access to the BIOS utility.

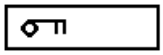
Setting a Password

1. Make sure that switch 1 of S1 is set to On (bypass password).

You cannot enter the BIOS utility if a Setup password does not exist and switch 1 of S1 is set to Off *(password check enabled).*

By default, switch 1 of S1 is set to On *(bypass password).*

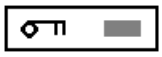
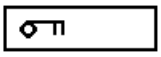
2. Enter BIOS utility and select System Security.
3. Highlight the Setup Password parameter and press the ↑ or ↓ key. The password prompt appears:



4. Type a password. The password may consist of up to seven characters.

Be very careful when typing your password because the characters do not appear on the screen.

5. Press [ENTER]. A prompt asks you to retype the password to verify your first entry.

6. Retype the password then press [ENTER].

   After setting the password, the system automatically sets the Setup Password parameter to Present.

7. Press [ESC] to exit the System Security screen and return to the Main menu.

8. Press [ESC] to exit the BIOS utility. A dialog box appears asking if you want to save the CMOS data.

9. Select Yes to save the changes and reboot the system.

10. While rebooting, turn off the system then open the housing.

11. Set switch 1 of S1 to Off to enable the password function.

The next time you want to enter the BIOS utility, you must key in your Setup password.

Changing or Removing the Setup Password

Should you want to change your setup password, do the following:

1. Enter the BIOS utility and select System Security.

2. Highlight the Setup Password parameter.

3. Press ← or → to display the password prompt and key in a new password.

   or

   Press ← or → and select None to remove the existing password.

4. Press ESC to exit the System Security screen and return to the Main menu.

5. Press ESC to exit the BIOS utility. A dialog box appears asking if you want to save the CMOS data.

6. Select Yes to save the changes.

Bypassing the Setup Password

If you forget your setup password, you can bypass the password security feature by hardware. Follow these steps to bypass the password:

1. Turn off and unplug the system.

2. Open the system housing and switch 1 of S1 is set to On to bypass the password function.

3. Turn on the system and enter the BIOS utility. This time, the system does not require you to type in a password.

You can either change the existing Setup password or remove it by selecting None. *Refer to the previous section for the procedure.*

2.5.3 Power On Password

The Power On Password secures your system against unauthorized use. Once you set this password, you have to type it whenever you boot the system. To set this password, enter the BIOS utility, select System Security, then highlight the Power On Password parameter. Follow the same procedure as in setting the Setup password.

Make sure to set switch 1 of S1 to Off *to enable the Power On password.*

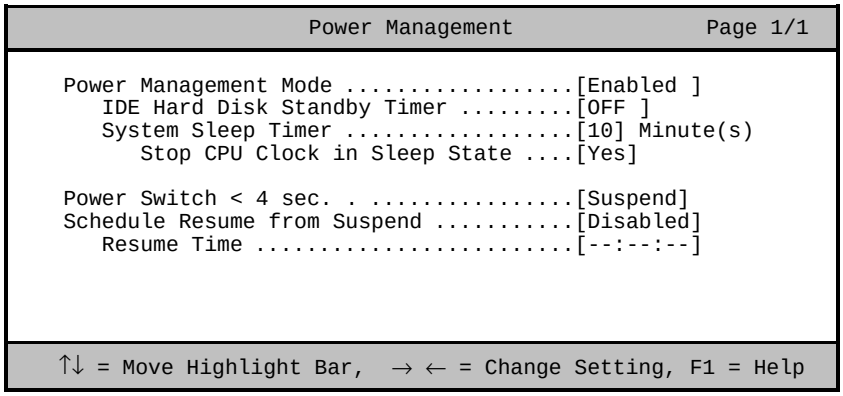
Operation Mode

This function lets you enable or disable the password prompt display. When set to Normal, the password prompt appears before system boot. When set to Network, the password prompt do not appear; however, the keyboard will be locked after system boot and will remain locked until the correct password is entered.

2.6 Power Management

The Power Management menu lets you configure the system power-management feature.

The following screen shows the Power Management parameters and their default settings:



2.6.1 Power Management Mode

This parameter allows you to reduce power consumption. When this parameter is set to Enabled, you can configure the IDE hard disk and system timers. Setting to Disabled deactivates the power-management feature and all the timers.

IDE Hard Disk Standby Timer

This parameter allows the hard disk to enter standby mode after inactivity of 1 to 15 minutes, depending on your setting. When you access the hard disk again, allow 3 to 5 seconds (depending on the hard disk) for the disk to return to normal speed. Set this parameter to OFF if your hard disk does not support this function.

System Sleep Timer

This parameter sets the system to the lowest power-saving mode. It automatically enters the sleep or the suspend mode after a specified period of inactivity. Any keyboard or mouse action detected resume system operation.

STOP CPU CLOCK IN SLEEP STATE

If you want to stop the CPU clock when the system enters the sleep or suspend mode, set this parameter to Yes. If not, then select No.

2.6.2 Power Switch < 4 sec.

When set to Power-off, the system automatically turns off when the power switch is pressed. When set to Suspend, the system enters the suspend mode.

2.6.3 Schedule Resume from Suspend

This option lets you enable or disable the automatic system resume function. This function allows you to specify the time when to resume the system from suspend mode. You can specify the time in the Resume Time parameter.

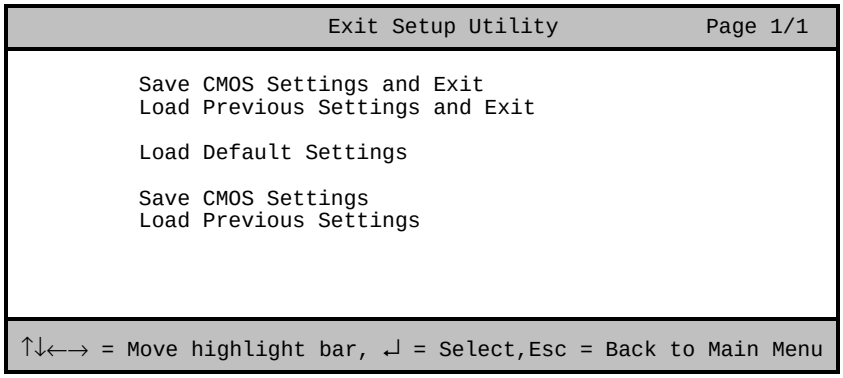
2.6.4 Resume Time

This parameter lets you specify the time when to resume the system from suspend mode to normal mode. The time setting is in hour-minute-second format.

This parameter is configurable only when the Schedule Resume function is enabled.

2.7 Exit Setup Utility

To exit the BIOS utility, select Exit Setup Utility from the Main menu. The following screen appears:



2.7.1 Save CMOS Settings and Exit

Select this option if you want to save the current CMOS settings and exit the BIOS utility.

2.7.2 Load Previous Settings and Exit

Select this option to cancel the current changes made to the BIOS settings, reload the previous settings and exit the BIOS utility after reload.

2.7.3 Load Default Settings

This option loads the default settings for the optimized system configuration. Press ESC to return to the Main menu.

2.7.4 Save CMOS Settings

Select this option to save the current BIOS settings, including your recent modifications. Press ESC to return to the Main menu.

2.7.5 Load Previous Settings

This option cancels all modifications that you have made in the system configuration and reloads your previous settings. Press ESC to return to the Main menu..