# CHAPTER 4

# BIOS SETUP

## THE BIOS

- BIOS stands for Basic Input and Output System. It is sometimes called ROM BIOS because it is stored in a Read-Only Memory(ROM) chip on the mainboard. BIOS is the first program to run when you turn on your computer.
- BIOS performs the following functions:
  1. Initializing and testing hardware in your computer (a process called “POST” , for Power On Self Test).
  2. Loading and running your operating system.
  3. Helping your operating system and application programs to manage your PC hardware by means of a set of routines called BIOS Run-Time Service.

**This chapter contains the following topics :**

## 4-1 WHAT IS BIOS SETUP

- BIOS setup is an interactive BIOS program that you need to run when:
  1. Changing the hardware of your system. (For example: installing a new Hard Disk etc.)
  2. Modifying the behavior of your computer. (For example: changing the system time or date, or turning special features on or off etc.)
  3. Enhancing your computer's behavior. (For example: speeding up performance by turning on shadowing or cache)

## 4-2 HOW TO RUN BIOS SETUP

- To access BIOS setup menu, press < DEL > key after "POST", and before the OS is loaded. The BIOS usually display the following message:

```
Press DEL to enter SETUP
```

## 4-3 WHAT IS CMOS

- CMOS is the memory maintained by a battery. The BIOS uses CMOS to store the settings you have selected in SETUP. The CMOS also maintains the internal clock. Every time you turn on your computer, the BIOS Looks into CMOS for the settings you have selected and configures your computer accordingly. If the battery is out of power, the CMOS data will be lost and POST will issue a "CMOS invalid" or "CMOS checksum invalid" message. If this happens, you have to replace the battery and do some proper settings in SETUP.

## 4-4 WHAT IS POST

- POST is an acronym for Power On Self Test. POST will test all things the BIOS does before the operating system is started. Each of POST routines is assigned a POST code, a unique number which is sent to I/O port 080h before the routine is executed.

## 4-5 BIOS UPGRADE

- System BIOS is incorporated into a Flash memory component of the mainboard. Flash BIOS allows user to upgrade BIOS without the need to replace an EPROM component.

- The upgrade utility can be loaded on a floppy diskette and used to provides the capability to save, verify, and update the system BIOS. The upgrade utility can be run from a hard disk drive or a network drive.

## 4-5.1 BEFORE UPGRADING BIOS

- It is highly recommended that you save a copy of the original mainboard BIOS along with a Flash EPROM Programming utility (AWDFLASH.EXE) to a bootable floppy disk in case you need to reinstall the BIOS later.

## 4-5.2 UPGRADE PROCESS

***Note:*** *Normally, to upgrade BIOS is unnecessary if the system is working fine without any problem. Users should not upgrade the BIOS unless you experience incompatible problems or need to create new features. However, please read all information in this section before upgrading.*

"AWDFLASH.EXE" is a Flash EPROM Programming utility that updates the BIOS by uploading a new BIOS file to the programmable flash ROM on the mainboard, This program only works in ***DOS environment only, the utility can not be executed in win95/98, ME, NT or WINDOWS 2000 environment.***

### Upgrading the system BIOS

Step 1. Please visit the board maker's website, download latest BIOS file and award flash utility "AWDFLASH.EXE". The BIOS file format will be *.bin, of which "*" stands for the specific file name.

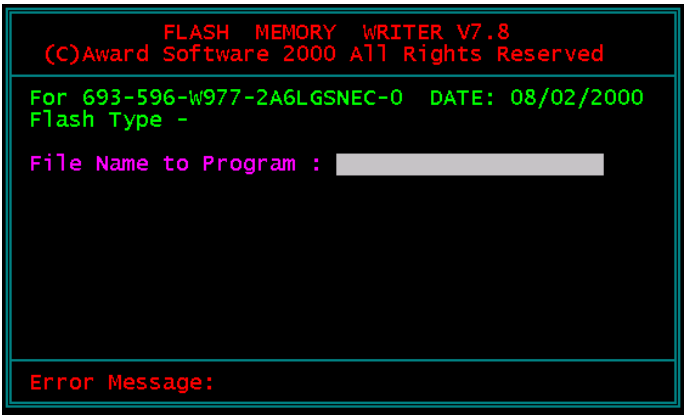
Step 2. Create a bootable diskette. Then copy the BIOS file and award flash utility "AWDFLASH.EXE" into the diskette.

Step 3. Insert the diskette into drive A, reboot your system and boot form the diskette.

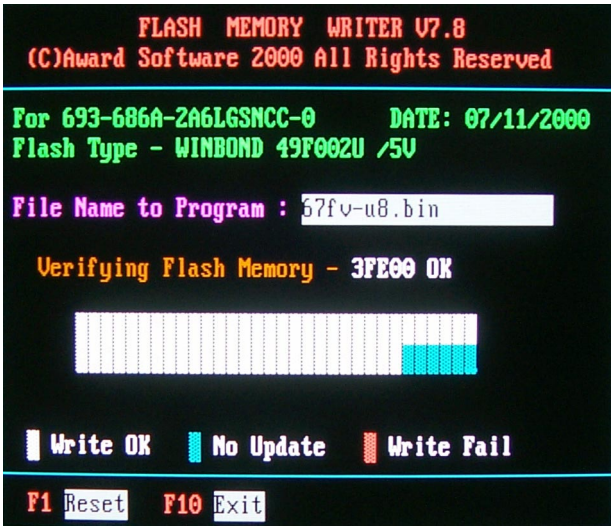
Step 4. Type **awdflash *.bin /sn/py/cc** and then press <Enter> to run BIOS upgrade program. (*.bin depends on your mainboard model and version code. Instead of typing "*", you should type specific file name for your specific mainboard).

Step 5. Please press <F1> or <F10> to exit or reset your system, ***Warning !*** If the message ***"Write Fail"*** appears while Award "FLASH MEMORY WRITER" is verifying Flash memory, just repeat the process. Please DO NOT reset or turn off the system. If the award memory flash utility is not able to update the BIOS successfully, your system may not be able to boot up.

Step 6. You will need a message "CMOS checksum error-Default loaded" during booting the system. Press <Del> to run CMOS setup utility, then reload "LOAD SETUP DEFAULTS" or **"Load Optimized Defaults"** and save this change.




Award Flash Memory Writer Start Screen




Award Flash Memory Writer Complete Screen

The parameters of AWDFLASH.EXE

/sn: No original BIOS backup
/py: Program flash memory
/cc: Clear CMOS data (and update data automatically) after programming

***NOTE:*** *Users can type AWDFLASH /? to get further details about the parameters. Incorrect usage of the parameter will damage the BIOS information, so we strongly recommend user to leave parameters alone unless you fully understand their function.*

# 4-6 BIOS SETUP --- CMOS SETUP UTILITY

## 4-6.1 CMOS SETUP UTILITY

• This mainboard comes with the AWARD BIOS from AWARD Software Inc. Enter the CMOS Setup Utility Main Menu by:

1. Turn on or reboot your system. After a series of diagnostic checks, the following message will appear:

**PRESS <DEL> TO ENTER SETUP**

2. Press the <DEL> key and the main program screen will appear as follows.

CMOS Setup Utility - Copyright (C) 1984 - 2001 Award Software

| | |
|---|---|
| ▸ Standard CMOS Features | ▸ Frequeny/Voltage Control |
| ▸ Advanced BIOS Features | Load Optimized Defaults |
| ▸ Advanced Chipset Features | Set Supervisor Password |
| ▸ Integrated Peripherals | Set User Password |
| ▸ Power Management Setup | SAVE & EXIT SETUP |
| ▸ PnP/PCI Configurations | EXIT WITHOUT SAVING |
| ▸ SmartDoc Anti-Burn shield | |
| Esc : Quit<br>F10 : Save & Exit Setup | ↑↓→← : Select Item |
| Time, Date, Hard Disk Type... | |

3. Use the arrow keys on your keyboard to select an option, and press <Enter>. Modify the system parameters to reflect the options installed in your system.
4. You may return to the Main Menu anytime by pressing <ESC>.
5. In the Main Menu, “SAVE AND EXIT SETUP” saves your changes and reboots the system, and “EXIT WITHOUT SAVING” ignores your changes and exits the program.

## 4-6.2 STANDARD CMOS SETUP

- Standard CMOS Setup records some basic system hardware configuration and sets the system clock and error handling. You only need to modify the configuration values of this option if you want to change your system hardware configuration or when the data stored in the CMOS memory gets lost or damaged.

Run the STANDARD CMOS SETUP as follows:

1. Choose "STANDARD CMOS SETUP" from the Main Menu and a screen with a list of options will appear:

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
Standard CMOS Features

| | | |
|---|---|---|
| Date (mm:dd:yy) | Mon, January 15 2001 | Item Help |
| Time (hh:mm:ss) | 9 : 52 : 15 | Menu Level ▸ |
| ▸ IDE Primary Master | None | |
| ▸ IDE Primary Slave | CREATIVEDVD1240E | |
| ▸ IDE Secondary Master | IBM-DTLA-307045 | |
| ▸ IDE Secondary Slave | None | |
| Drive A | 1.44M, 3.5 in | |
| Drive B | None | |
| Video | EGA/VGA | |
| Halt On | All,But Keyboard | |
| Base Memory | 640K | |
| Extended Memory | 31744K | |
| Total Memory | 32768K | |

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys.

**Date (mm:dd:yy)** The BIOS determines the day of the week from the other date information. This field is for information only.
Press the left or right arrow key to move to the desired field (date, month, year). Press the PgUp or PgDn key to increment the setting, or type the desired value into the field.

**Time (hh:mm:ss)** The time format is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Press the left or right arrow key to move to desired field. Press the PgUp or PgDn key to increment the setting, or type the desired value into the field.

**Primary / Secondary Master / Slave** This field records the specifications for all non-SCSI hard disk drives installed in your system. Refer to the respective documentation on how to install the drives.

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
IDE Primary Master

| IDE HDD Auto-Detection | Press Enter | Item Help |
|---|---|---|
| | | Menu Level ▸▸ |
| IDE Primary Master | Auto | |
| Access Mode | Auto | |
| Capacity | 13022 MB | |
| Cylinder | 25232 | |
| Head | 16 | |
| Precomp | 0 | |
| Landing Zone | 25231 | |
| Sector | 63 | |

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

**Drive A / Drive B** Select this field to the type(s) of floppy disk drive(s) installed in your system. The choices are:
360KB, 5.25in;
1.2MB, 5.25in;
720KB, 3.5in;
1.44MB, 3.5in;
2.88MB, 3.5in;
None.

**Video** Select the type of primary video subsystem in your computer. The BIOS usually detects the correct video type automatically. The BIOS supports a secondary video subsystem, but you do not select it in setup.

**Halt On** During the power-on self-test (POST), the computer stops if the BIOS detects a hardware error. You can tell the BIOS to ignore certain errors during POST and continue the boot-up process.

**Base Memory** Typically 640KB. Also called conventional memory. The DOS operating system and conventional applications use this area.

**Extended Memory** Above the 1MB boundary. Early IBM personal computers could not use memory above 1MB, but current PCs and their software can use extended memory.

**Total Memory** This option shows system memory capacity.

3. Press <ESC> to return to the Main Menu when you finish setting up all items.

## 4-6.3 ADVANCED BIOS FEATURES

• ADVANCED BIOS FEATURES improves your system performance or sets up system features according to your preference.

Run the ADVANCED BIOS FEATURES as follows:

1. Choose “ADVANCED BIOS FEATURES” from the Main Menu and a screen with a list of options will appear:

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
Advanced BIOS Features

| | | |
|---|---|---|
| Virus Warning | Disabled | Item Help |
| CPU Internal Cache | Enabled | Menu Level ▸ |
| External Cache | Enabled | |
| CPU L2 Cache ECC Checking | Enabled | |
| Quick Power On Self Test | Enabled | |
| First Boot Device | CDROM | |
| Second Boot Device | HDD-0 | |
| Third Boot Device | LS120 | |
| Boot Other Device | Enabled | |
| Swap Floppy Drive | Disabled | |
| Boot Up Floppy Seek | Disabled | |
| Boot Up NumLock Status | On | |
| Gate A20 Option | Fast | |
| Typematic Rate Setting | Disabled | |
| × Typematic Rate (Chars/Sec) | 6 | |
| × Typematic Delay (Msec) | 250 | |
| Security Option | Setup | |
| OS Select For DRAM > 64MB | Non-OS2 | |
| Video BIOS Shadow | Enabled | |

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: "Help" gives options available for each item.
<F5>: Get the previous values. These values are the values with which the user starts the current session.
<F6>: Load all options with the BIOS default values.
<F7>: Load all options with the Setup default values.

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**Virus Warning** When enabled, you receive a warning message if a program (specifically, a virus) attempts to write to the boot sector or the partition table of the hard disk drive. You should then run an antivirus program. Keep in mind that this feature protects only the boot sector, not the entire hard drive.

> ***NOTE:*** *Many disk diagnostic programs that access the boot sector table can trigger the virus warning message. If you plan to run such a program, we recommend that you disable the virus warning.*

**CPU Internal Cache/ External Cache** Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type up contain internal cache memory, and most, but not all, modern PCs have additional (external) cache memory. When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for faster access by the CPU.

**CPU L2 Cache ECC Checking** When you select *Enabled*, it will speed up memory checking when the external cache contains ECC SRAMs.
The choices: Enabled; Disabled.

**Quick Power On Self Test** Select Enabled to reduce the amount of time required to run the power-on self-test (POST). A quick POST skips certain steps. We recommend that you normally enable quick POST.

**First/Second/Third/ Other Boot Device** The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The choices: Floppy; LS/ZIP; HDD; SCSI; CDROM; Disabled.

**Swap Floppy Drive** When enabled, floppy drives A and B will be exchanging without any physical connection and modification on the cables.

**Boot Up Floppy Seek** When enabled, the BIOS tests (seeks) floppy drives to determine whether they have 40 or 80 tracks. Only 360-KB floppy drives have 40 tracks; drives with 270KB, 1.2MB, and 1.44MB capacity all have 80 tracks. Because very few modern PCs have 40-track floppy drives, we recommend that you set this field to a disabled to save time.

**Boot Up NumLock Status** Toggle between On or Off to control the state of the NumLock key when the system boots. If On, the numeric keypad is in numeric mode. If off, the numeric keypad is in cursor control mode.

**Gate A20 Option** Gate A20 refers to the way the system addresses memory above 1 MB (extended memory). When set to *Fast*, the system chipset controls Gate A20. When set to *Normal*, a pin in the keyboard controller controls Gate A20. Setting Gate A20 to Fast improves system speed, particularly with OS/2 and Windows.

**Typematic Rate Setting** When *Disabled*, the following two items (Typematic Rate and Typematic Delay) are irrelevant. Keystroke repeats at a rate determined by the keyboard controller in your system.
When *Enabled*, you can select a typematic rate and typematic delay.

**Typematic Rate (Chars / Sec)** When the typematic rate setting is enabled, you can select a typematic rate (the rate at which character repeats when you hold down a key) of 6, 8, 10, 12, 15, 20, 24, or 30 characters per second.

**Typematic Delay (Msec)** Choices: 250; 500; 750; 1000. This option sets the time interval for displaying the first and the second characters. If enabled, the time interval is optional.

**Security Option** If you have set a password, select whether the password is required every time the System boots, or only when you enter setup.
The choices: system; setup.

**OS Select For DRAM > 64MB** Select OS2 only if you are running OS/2 operating system with greater than 64MB of RAM on your system.

**Video BIOS Shadow** Performance will be improved by copying Video BIOS to Shadow RAM.

3. Press <ESC> to return to the Main Menu when you finish setting up all items.

## 4-6.4 ADVANCED CHIPSET FEATURES

• ADVANCED CHIPSET FEATURES is used to modify the values of chipset buffers. These buffers control the system options.

Run the ADVANCED CHIPSET FEATURES as follows:

1. Choose “ADVANCED CHIPSET FEATURES” from the Main Menu and a list of option will appear:

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: “Help” gives options available for each item.
<F5>: Get the previous values. These values are the values with which the user starts the current session.
<F6>: Load all options with the BIOS default values.
<F7>: Load all options with the Setup default values.

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Advanced Chipset Features

| | | |
|---|---|---|
| ▸ DRAM Colck/Drive Control | Press Enter | Item Help |
| ▸ AGP & P2P Bridge Control | Press Enter | Menu Level ▸ |
| ▸ CPU & PCI Bus Control | Press Enter | |
| Memory Hole | Disabled | |
| System BIOS Cacheable | Disabled | |
| Video RAM Cacheable | Disabled | |

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

## DRAM CLOCK/DRIVE CONTROL

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
DRAM Clock/Drive Control

| | | Item Help |
|---|---|---|
| Current FSB Frequency | 100MHz | Menu Level ▸ |
| DRAM Clock | 100MHz | |
| DRAM Timing | By SPD | |
| ×SDRAM Cycle Length | 2.5 | |
| ×Bank Interleave | Disabled | |
| DRAM Command Rate | 1T Command | |

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

*** Current FSB Frequency** This item allows you to control the FSB Frequency.

*** DRAM Clock** The value represents the performance parameters of the installed memory chips (DRAM). Do not change the value from the factory setting unless you install new memory that has a different performance rating.

*** DRAM Timing** When this item Enabled, DRAM Timing is set by SPD.
SPD (Serial Presence Detect) is located on the memory modules, BIOS reads information coded in SPD during system boot up.

*** SDRAM Cycle Length** Select CAS latency time in HCLKs of 2 or 3. The system designer already set the values. Do not change the default value unless you change specifications of the installed DRAM or the installed CPU.

*** Bank Interleave** The choices: Disabled; 2 Bank; 4 Bank.

*** DRAM Command Rate** The choices: Disabled; 2 Bank; 4 Bank.

## AGP & P2P BRIDGE CONTROL

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AGP & P2P Bridge Control

| | | Item Help |
|---|---|---|
| AGP Aperture Size | 64M | Menu Level ▸ |
| AGP Mode | 4X | |
| AGP Driving Control | Auto | |
| × AGP Driving Value | DA | |
| AGP Fast Write | Disabled | |
| AGP Master 1 WS Write | Disabled | |
| AGP Master 1 WS Read | Disabled | |

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

*** AGP Aperture Size** Series of options are available: 4, 8, 16, 32, 64, 128 or 256 MB. Memory mapped and graphics data structures can reside in a Graphics Aperture. This area is like a linear buffer. BIOS will automatically report the starting address of this buffer to the O.S. The default setting is 64MB.

*** AGP Mode** This item allows you to select AGP Mode.
The choice: 1x, 2x, 4x.

*** AGP Driving Control** This item allows you to adjust the AGP driving force. Choose Manual to key in a AGP Driving Value in the next selection. This field is recommended to set in Auto for avoiding any error in your system.
The choice: Manual, Auto.

*** AGP Driving Value** This item allows you to adjust the AGP driving force. The choice: Min=0000 ~ Max=00FF.

*** AGP Fast Write** This item will enable the AGP model into fast write mode. If your graphics card does not support this function, please do not enable this function.

*** AGP Master 1 ws write** Leave this field at default.

*** AGP Master 1 ws read** Leave this field at default.

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## CPU & PCI BUS CONTROL

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
CPU & PCI Bus Control

| | | |
|---|---|---|
| PCI1 Master 0 WS Writer | Enabled | Item Help |
| PCI2 Master 0 WS Write | Enabled | Menu Level ▸ |
| PCI1 Post Write | Enabled | |
| PCI2 Post Write | Enabled | |
| PCI Delay Transaction | Disabled | |

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

*** PCI1 Master 0 WS Write** When Enabled, writes to the PCI bus are executed with zero wait states.
The choice: Enabled, Disabled.

*** PCI2 Master 0 WS Write** Leave this field at default.

*** PCI1 Post Write** Leave this field at default.

*** PCI2 Post Write** Leave this field at default.

*** PCI Delay Transaction** Leave this field at default.

---

**Memory Hole** In order to improve performance, certain space in memory is reserved for ISA cards. This memory must be mapped into the memory space below 16MB. The choices: 15M-16M; Disabled.

**System BIOS Cacheable** Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance.

**Video RAM Cacheable** Selecting Enabled allows caching of the video memory (RAM) at A0000h-AFFFFh, resulting in better video performance. However, check your AGP manual to find out if any compatibility problem exists.

3. Press <ESC> to return to the Main Menu when you finish setting up all items.

## 4-6.5 INTEGRATED PERIPHERALS

• INTEGRATED PERIPHERALS option allows you to get some information inside your system when it is working.

Run the INTEGRATED PERIPHERALS as follows:

1. Choose “INTEGRATED PERIPHERALS” from the Main Menu and a list of options will appear:

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Integrated Peripherals

| | | |
|---|---|---|
| ▸VIA OnChip IDE Device | Press Enter | Item Help |
| ▸VIA OnChip PCI Device | Press Enter | Menu Level ▸ |
| ▸VIA SuperIO Device | Press Enter | |
| Init Display First | PCI Slot | |
| OnChip USB Controller | All Enabled | |
| USB keyboard Support | Disabled | |
| IDE HDD Block Mode | Enabled | |

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: “Help” gives options available for each item.
<F5>: Get the previous values. These values are the values with which the user starts the current session.
<F6>: Load all options with the BIOS default values.
<F7>: Load all options with the Setup default values.

## VIA ONCHIP IDE DEVICE

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
VIA OnChip IDE Device

| | | Item Help |
|---|---|---|
| OnChip IDE Channel0 | Enabled | Menu Level ▸ |
| OnChip IDE Channel1 | Enabled | |
| IDE Prefetch Mode | Enabled | |
| Primary Master PIO | Auto | |
| Primary Slave PIO | Auto | |
| Secondary Master PIO | Auto | |
| Secondary Slave PIO | Auto | |
| Primary Master UDMA | Auto | |
| Primary Slave UDMA | Auto | |
| Secondary Master UDMA | Auto | |
| Secondary Slave UDMA | Auto | |

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

*** On-Chip IDE channel 0/1** The chipset contains a PCI IDE interface with support from two IDE channels. Select Enabled to activate the first and/or the second IDE interface. Select Disabled to inactivate an interface if you install a primary and/or second add-on IDE interface.
The choices: Enabled; Disabled.

*** IDE Prefetch Mode** The on-board IDE drive supports IDE perfecting for faster drive accesses. If the IDE device doesn't support perfecting, set this field to Disabled.
The choices: Enabled; Disabled.

*** Primary Master / Slave PIO**
**Secondary Master / Slave PIO** Choose Auto or Mode 0~4. The BIOS will detect the HDD mode type automatically when you choose Auto. You need to set to a lower mode than Auto when your hard disk becomes unstable.
The choices: Auto; Mode 0; Mode 1; Mode 2; Mode 3; Mode 4.

*** Primary Master / Slave UDMA**
**Secondary Master / Slave UDMA**

Ultra DMA33/66/100 implementation is possible only if your IDE hard drive supports it, if the operating environment includes a DMA drive, and if your system software both support Ultra DMA33/66/100. Select "Auto" to enable BIOS support.
The choices: Auto; Disabled.

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## VIA ONCHIP PCI DEVICE

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VIA OnChip PCI Device

| | | |
|---|---|---|
| VIA-3058 AC'97 Audio | Disabled | Item Help |
| VIA-3068 MC97 Modem | Auto | Menu Level ▸ |

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

*** VIA-3058 AC'97 Audio**

Select *"Disabled"* to use the on-chip audio capability of your system. Most of the field do not appear when this field is "Disabled", for user who wants to use add-on sound card, this tiled must be disabled.

*** VIA-3068 MC97 Modem**

This option allows you to decide to enable/disable the Onchip Modem.
The choices: Auto; Disabled.

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## VIA SUPERIO DEVICE

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
VIA SuperIO Device

| | | Item Help |
|---|---|---|
| Onboard FDC Controller | Enabled | Menu Level ▸ |
| Onboard Serial Port 1 | 3F8/IRQ4 | |
| Onboard Serial Port 2 | 2F8/IRQ3 | |
| UART Mode Select | Normal | |
| ×UR2 Duplex Mode | Half | |
| Onboard Parallel Port | 378/IRQ7 | |
| Parallel Port Mode | SPP | |
| ×ECP Mode Use DMA | 3 | |
| Game Port Address | Disabled | |
| Midi Port Address | Disabled | |
| ×Midi Port IRQ | 10 | |

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

*** Onboard FDC Controller** Select Enabled if your system has a floppy drive controller (FDC) installing in the system board and you want to use it. If you install add-in FDC or the system has no floppy drive, select Disabled in this field.
The choices: Enabled; Disabled.

*** Onboard Serial Port 1 / Port 2** Select a logical COM port name and matching address for the first and second serial ports. Select an address and corresponding interrupt for the first and second serial ports.

*** UART Mode Select** The second serial port on your system may offer a variety of infrared port modes. Click here for a description of various modes. (Click your browser's Back button, or your right mouse button, to return to this page.)
The choices: Standard; HPSIR; ASKIR

*** UR2 Duplex Mode** This item allows you to select the IR half / full duplex function.
The choices: Half; Full.

*** Onboard Parallel Port** This item allows you to determine onboard parallel port controller I/O address setting.
The choices: 378H/IRQ7; 278H/IRQ5; 3BC/IRQ7; Disabled.

*** Parallel Mode** Select an operating mode for the on-board parallel (printer) port. Select Normal, Compatible, or SPP unless you are certain your hardware and software both support one of the other available modes.

*** ECP Mode Use DMA** Select a DMA channel for the port.

*** Game Port Address** This item allows you to select the onboard game port I/O address.

*** Midi Port Address** This item allows you to select the onboard Midi port I/O address.

*** Midi Port IRQ** This item allows you to select the Midi port IRQ.

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**Init Display First** Initialize the AGP video display before initializing any other display device on the system. Thus the AGP display becomes the primary display.

**OnChip USB Controller** Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have USB peripherals.

**USB Keyboard Support** Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

**IDE HDD Block Mode** Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/write per sector the drive can support.
The choices: Enabled; Disabled.

3. Press <ESC> to return to the Main Menu when you finish setting up all items.

## 4-6.6 POWER MANAGEMENT SETUP

• POWER MANAGEMENT SETUP allows you to set the system's power saving functions.

Run the POWER MANAGEMENT SETUP as follows:

1. Choose "POWER MANAGEMENT SETUP" from the Main Menu and a list of options will appear:

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Power Management Setup

| | | |
|---|---|---|
| ACPI Function | Enabled | Item Help |
| ACPI Suspend Type | S1(POS) | Menu Level ▸ |
| Power Management Option | User Define | |
| HDD Power Down | Disabled | |
| Suspend Mode | Disabled | |
| Video Off Option | Suspend->Off | |
| Video Off Method | V/H SYNC+Blank | |
| MODEM Use IRQ | 3 | |
| Soft-Off by PWRBTN | Instant-Off | |
| State After Power Failure | Auto | |
| ▸IRQ/Event Activity Detect | Press Enter | |

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: "Help" gives options available for each item.
<F5>: Get the previous values. These values are the values with which the user starts the current session.
<F6>: Load all options with the BIOS default values.
<F7>: Load all options with the Setup default values.

**ACPI Function** Select Enabled only if your computer's operating system supports the Advanced Configuration and Power Interface (ACPI) specification. Currently, Windows NT 5.0 support ACPI.

**ACPI Suspend Type** This item allows you to select the ACPI suspend type. You can select S3(STR) for suspending to DRAM or S1(POS) for power on suspend under Windows 98 ACPI mode.
The choice: S1(POS), S3(STR).

**Power Management Option** This option allows you to select the type (or degree) of power saving for Doze, Standby, and Suspend modes.
This table describes each power management mode:

| | |
|---|---|
| Max Saving | Maximum power savings. Only Available for SL CPUs. Inactivity period is 1 minute in each mode. |
| User Define | Set each mode individually. Select time-out period in the section for each mode stated below. |
| Min Saving | Minimum power savings. Inactivity period is 1 hour in each mode (except the hard drive). |

**HDD Power Down** When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

**Suspend Mode** After the selected period of system inactivity, the chipset enters a hardware suspend mode, stopping the CPU clock and possibly causing other system devices to enter power management modes.

**Video Off Option** When enabled, this feature allows the VGA adapter to operate in a power saving mode.

| | |
|---|---|
| Always On | Monitor will remain on during power saving modes. |
| Suspend -->Off | Monitor blanked when the systems enters the Suspend mode. |
| All Modes -->Off | Monitor blanked when the system enters either Suspend or Standby modes. |

**Video Off Method** This determines the manner by which the monitor is blanked.

| | |
|---|---|
| V/H SYNC + Blank | This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer. |
| Blank Screen | This option only writes blanks to the video buffer. |
| DPMS Supports | Select this option if you monitor supports the Display Power Management Signaling (DPMS) standard of the Video Electronics Standards to select video power management values. |

**MODEM Use IRQ** Name the interrupt request (IRQ) line assigned to the modem (if any) on your system. Activity of the selected IRQ always awakens the system.
The choices: 3; 4; 5; 7; 9; 10; 11; NA.

**Soft-Off by PWRBTN** When Enabled, turning the system off by pressing the on/off button places the system in a very low-power-usage state.

**State After Power Failure** This field lets you determine the state that your PC returns to after a power failure.
The choices: On; Off; Auto.

## IRQ/EVENT ACTIVITY DETECT

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IRQ/Event Activity Detect

| | | Item Help |
|---|---|---|
| USB Resume from S3 | Disabled | Menu Level ▸ |
| VGA | OFF | |
| LPT & COM | LPT/COM | |
| HDD & FDD | ON | |
| PCI Master | OFF | |
| PowerOn by PCI Card | Disabled | |
| Wake Up On LAN/Ring | Disabled | |
| RTC Alarm Resume | Disabled | |
| × Date (of Month) | 0 | |
| × Resume (hh:mm:ss) | 0 0 0 | |
| ▸ IRQs Activity Monitoring | Press Enter | |

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

*** USB Resume from S3** This item will enable you to wake-up the system by use keyboard when you shut down the computer in S3 mode.
The choices: Enabled, Disabled.

*** VGA** When Enabled, you can set the VGA awakens the system.

*** LPT & COM** When LPT & COM is ON, any activity from one of the listed system peripheral devices or IRQs wakes up the system.

*** HDD & FDD** When HDD & FDD is ON, any activity from one of the listed system peripheral devices wakes up the system.

*** PCI Master** When PCI Master is ON, any activity from one of the listed system peripheral devices wakes up the system.

*** PowerOn by PCI Card** This item allows system wake up by PCI Device.

*** Wake Up On LAN/ Ring** An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.
The choices: Enabled; Disabled.

*** RTC Alarm Resume** When Enabled, you can set the data and time at which the RTC (Real Time Clock) alarm awakens the system from suspend mode.
The choices: Disabled (default); Enabled.

*** Date (of Month)** Set a certain date when RTC Alarm Resume option is Enabled to awaken the system. This option is concurrent with Resume Time option.

*** Resume Time (hh: mm:ss)** Set a certain time when RTC Alarm Resume option is Enabled to awaken the system. This option is concurrent with Date option.

* IRQ ACTIVITY MONITORING

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
IRQ Activity Monitoring

| | | |
|---|---|---|
| Primary INTR | ON | Item Help |
| IRQ-3 (COM2) | Enabled | Menu Level ▸ |
| IRQ-4 (COM1) | Enabled | |
| IRQ-5 (LPT2) | Enabled | |
| IRQ-6 (Floppy Disk) | Enabled | |
| IRQ-7 (LPT1) | Enabled | |
| IRQ-8 (RTC Alarm) | Disabled | |
| IRQ-9 (IRQ2 Redir) | Disabled | |
| IRQ-10 (Reserved) | Disabled | |
| IRQ-11 (Reserved) | Disabled | |
| IRQ-12 (PS/2 Mouse) | Enabled | |
| IRQ 13 (Coprocessor) | Enabled | |
| IRQ 14 (Hard Disk) | Enabled | |
| IRQ 15 (Reserved) | Disabled | |

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

**IRQ Activity Monitoring** The following is a list of IRQ's (Interrupt Requests), which can be exempted much as the COM ports and LPT ports above can. When an I/O device wants to gain the attention of the operating system, it signals this by causing an IRQ to occur. When the operating system is ready to respond to the request, it interrupts itself and performs the service. When set On, activity will neither prevent the system from going into a power management mode nor awaken it.

3. Press <ESC> to return to the Main Menu when you finish setting up all items.

## 4-6.7 PNP / PCI CONFIGURATION

• PNP/PCI CONFIGURATION allows you to modify the system's power saving functions.

Run the PNP/PCI CONFIGURATION as follows:

1. Choose "PNP/PCI CONFIGURATION" from the Main Menu and a screen with a list of options will appear:

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PnP/PCI Configurations

| | | |
|---|---|---|
| PNP OS Installed | No | Item Help |
| Reset Configuration Data | Disabled | Menu Level ▸ |
| Resources Controlled By | Auto(ESCD) | |
| ×IRQ Resources | Press Enter | |
| PCI/VGA Palette Snoop | Disabled | |
| Assign IRQ For VGA | Enabled | |
| Assign IRQ For USB | Enabled | |
| PCI SLOT1/5 IRQ Assigned | Auto | |
| PCI SLOT2 IRQ Assigned | Auto | |
| PCI SLOT3 IRQ Assigned | Auto | |
| PCI SLOT4 IRQ Assigned | Auto | |

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: "Help" gives options available for each item.
<F5>: Get the previous values. These values are the values with which the user starts the current session.
<F6>: Load all options with the BIOS default values.
<F7>: Load all options with the Setup default values.

**PNP OS Installed** Select Yes if the system operating environment is Plug-and-Play aware (e.g., Windows95).

> ***NOTE:*** *BIOS will automatically disable all PnP resources except the boot device card when you select Yes on Non-PnP operating system.*

**Reset Configuration Data** Normally, you leave this Disabled. Select Enabled to reset Extended System Configuration Data (ESCD), when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system cannot boot.

**Resource Controlled By** The Plug and Play AwardBIOS can automatically configure all the boot and Plug and Play-compatible devices. If you select *Auto*, all the interrupt request (IRQ) and DMA assignment fields disappear, as the BIOS automatically assigns them.

**PCI/VGA Palette Snoop** This option allows the BIOS to preview VGA status, and to modify the information delivered form the feature Connector of the VGA card to MPEG card. This option can solve the display inversion to black after you have used MPEG card.

**Assign IRQ for VGA** Select *Enabled* if you system has a VGA controller and you have one or more VGA devices connected. If you are not using your system's VGA controller, select *Disabled* to free the IRQ resource.

**Assign IRQ for USB** Select *Enabled* if you system has a USB controller and you have one or more USB devices connected. If you are not using your system's USB controller, select *Disabled* to free the IRQ resource.

**PCI SLOT1/5, 2, 3, 4 IRQ Assigned** These options allow you to assign an IRQ for each PCI SLOT and this is a useful function when you want to clear the IRQ conflict for a specific device. The options are available : Auto; 3; 4; 7; 9; 10; 11.

**IRQ RESOURCES** Press Enter. Please refer to the list below:

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IRQ Resources

| | | |
|---|---|---|
| IRQ-3 assigned to | PCI/ISA PnP | Item Help |
| IRQ-4 assigned to | PCI/ISA PnP | Menu Level ▸ |
| IRQ-5 assigned to | PCI/ISA PnP | |
| IRQ-7 assigned to | PCI/ISA PnP | |
| IRQ-9 assigned to | PCI/ISA PnP | |
| IRQ-10 assigned to | PCI/ISA PnP | |
| IRQ-11 assigned to | PCI/ISA PnP | |
| IRQ-12 assigned to | PCI/ISA PnP | |
| IRQ-14 assigned to | PCI/ISA PnP | |
| IRQ-15 assigned to | PCI/ISA PnP | |

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

3. Press <ESC> to return to the Main Menu when you finish setting up all items.

## 4-6.8 SMARTDOC ANTI-BURN SHIELD

- This section helps you to get more information about your system including CPU temperature, FAN speed and voltage. It is recommended that you contact with your mainboard supplier to get proper values about the setting of the CPU temperature.

Run the "SMARTDOC ANTI-BURN SHIELD" as follows:

1. Choose "SMARTDOC ANTI-BURN SHIELD" from the Main Menu and a screen with a list of options will appear:

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
SmartDOC Anti-Burn shield

| | | | |
|---|---|---|---|
| Shutdown Temperature | | 60°C/140°F | Item Help |
| CPU Vcore | 0 | | Menu Level ▸ |
| DDR DIMM | 1 | | |
| 3.3V | 2 | | |
| +5V | 3 | | |
| +12V | 4 | | |
| -12V | 5 | | |
| -5V | 6 | | |
| 5VSB | 7 | | |
| Voltage Battery | | | |
| Temperature 1 | | | |
| Temperature 2 | | | |
| Fan 1 Speed | | | |
| Fan 2 Speed | | | |

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys.

<F1>: "Help" gives options available for each item.
<F5>: Get the previous values. These values are the values with which the user starts the current session.
<F6>: Load all options with the BIOS default values.
<F7>: Load all options with the Setup default values.

**Shutdown Temperature** This feature prevents your CPU from damage by over heat. If the CPU's temperature is higher than "CPU warning temperature" that you select in this field, the BIOS will shut down your system within 3 seconds.

**CPU Vcore** Shows CPU core actual voltage value.

**DDR DIMM** Shows DDR DIMM actual voltage value.

**Temperature 1/2/3** This field displays the current CPU temperature, if your computer contains a monitoring system.

**FAN 1/2 Speed** These fields display the current speed of up to three CPU fans, if your computer contains a monitoring system.

3. Press <ESC> to return to the Main Menu when you finish setting up all items.

## 4-6.9 FREQUENCY/VOLTAGE CONTROL

Run the “FREQUENCY/VOLTAGE CONTROL” as following:

1. Choose “FREQUENCY/VOLTAGE CONTROL” from the Main Menu and a screen with a list of options will appear:

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software
Frequency/Voltage Control

| | | Item Help |
|---|---|---|
| Red Storm Overclocking | Press Enter | Menu Level ▸ |
| CPU Vcore Select | Default | |
| Auto Detect DIMM/PCI CIK | Enabled | |
| Spread Spectrum | Disabled | |
| CPU Skew Adjust | Disabled | |
| CHIP Skew Adjust | Disabled | |
| PCI Skew Adjust | Disabled | |
| AGP Skew Adjust | Disabled | |
| Use CPU Linear Freq | Use Linear | |
| CPU Clock | 100 | |

↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys.

<F1>: “Help” gives options available for each item.
<F5>: Get the previous values. These values are the values with which the user starts the current session.
<F6>: Load all options with the BIOS default values.
<F7>: Load all options with the Setup default values.

**Redstorm Overclocking Tech** Please press <Enter> to start *RED STORM OVER-CLOCKING TECH*, this option helps user an easy way to overclocking, it will increase CPU external clock automatically, when CPU external clock increasing to unacceptable value, BIOS will restart your system, then running at acceptable CPU external clock.

**CPU Vcore Select** This item allows users to adjust the CPU Vcore voltage. The instant damage of CPU is due to the wrong Vcore voltage setting, so we highly recommend that user should leave this item to Default setting unless you fully understand it.

**Auto Detect DIMM/PCI CLK** This item allows you to enable/disable detect DIMM/ PCI Clock.
The choice: Enabled, Disabled.

**Spread Spectrum** This item allows you to enable/disable the spread spectrum modulate.
The choice: Enabled, Disabled.

**CPU Skew Adjust** Leave this field at default.

**CHIP Skew Adjust** Leave this field at default.

**PCI Skew Adjust** Leave this field at default.

**AGP Skew Adjust** Leave this field at default.

**Use CPU Linear Freq** If users would like to adjust CPU clock, this items must be “Linear”.
The choices: Default; Linear.

**CPU Clock** These items allows users to adjust CPU frequency.

3. Press <ESC> to return to the Main Menu when you finish setting up all items.

## 4-6.10 LOAD OPTIMIZED DEFAULTS

• When you press <Enter> on this item, you will get a confirmation dialog box with a message similar to:

**" Load Optimized Defaults (Y / N) ? N "**

Pressing "Y" loads the BIOS default values that are factor settings for optimal performance of system operations.

## 4-6.11 SET SUPERVISOR / USER PASSWORD

• These two options allow you to set your system passwords. Normally, the supervisor has a higher priority to change the CMOS setup option than the users. The way to set up the passwords for both Supervisor and Users are as follows:

1. Choose "Change Password" in the Main Menu and press <Enter>. Then following message appears:

**"Enter Password : "**

2. The first time you run this option, enter your password up to 8 characters and press <Enter>. (The screen does not display the entered characters.)
3. After you enter the password, the following message appears prompting you to confirm the password:

**"Confirm Password : "**

4. Enter the same password "exactly" the same as you have just typed to confirm the password and press <Enter>.
5. Move the cursor to Save & Exit Setup to save the password.
6. If you need to delete the password entered before, choose the Supervisor Password and press <Enter>. It will delete the password that you have entered before.

7. Move the cursor to Save & Exit Setup to save the option you have just configured; otherwise the old password will still be there the next time you turn your system on.
8. Press <Enter> to exit to the Main Menu.

> ***NOTE:*** *If you forget or lose the password, the only way to access the system is to clear the CMOS RAM. All setup informations will be lost and you need to run the BIOS setup program again.*

## 4-6.12 SAVE & EXIT SETUP

- SAVE & EXIT SETUP allows you to save all modifications you have specified into the CMOS memory. Highlight this option on the Main Menu and the following message appears:

```
"SAVE to CMOS and EXIT (Y/N) ?  Y "
```

"Y" is for "Yes", and "N" is for "No".
Press <Enter> key to save the configuration changes.

## 4-6.13 EXIT WITHOUT SAVING

- EXIT WITHOUT SAVING option allows you to exit the Setup Utility without saving the modifications that you have specified. Highlight this option on the Main Menu and the following message appears:

```
"Quit Without Saving (Y/N) ?  N "
```

"Y" is for "Yes", and "N" is for "No".
You may change the prompt to "Y" and press <Enter> key to leave this option .