

# Chapter 4 BIOS Setup

## THE BIOS

BIOS stands for Basic Input and Output System. It was once called ROM BIOS when it was stored in a Read-Only Memory(ROM) chip. Now manufacturers would like to store BIOS in EEPROM which means Electrically Erasable Programmable Memory. BIOS used in this series of mainboard is stored in EEPROM, and 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 manage your PC hardware by means of a set of routines called BIOS Run-Time Service.

**This Chapter includes the following topics :**

**4-1 About BIOS Setup**

**4-2 To run BIOS Setup**

**4-3 About CMOS**

**4-4 The POST (Power On Self Test)**

**4-5 To upgrade BIOS**

**4-6 BIOS Setup**

## **4-1 About 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 To Run BIOS Setup**

First access BIOS setup menu by pressing < DEL > key after "POST" is complete ( before OS is loaded ). BIOS will then display the following message:

Press "DEL" to enter "SETUP"

## **4-3 About CMOS**

CMOS is the memory maintained by a battery. CMOS is used to store the BIOS settings you have selected in BIOS Setup. 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 runs 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 BIOS Setup.

## **4-4 The POST ( Power On Self Test )**

POST is an acronym for Power On Self Test. This program 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 To Upgrade BIOS

- System BIOS is incorporated into a Flash memory component. 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 to execute saving, verifying, and updating the system BIOS. The Upgrade Utility can also 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 so that you can reinstall the BIOS when needed.

### 4-5.2 Upgrade Process

- Normally, to upgrade BIOS is unnecessary if the system is working fine. Users should only upgrade the BIOS when you experience incompatible problems or need to create new features.
- “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, the utility can not be executed in win95/98, ME, NT WINDOWS 2000 or Windows XP environment.***
- Please follow the steps below for 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 BIOS 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 from 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.

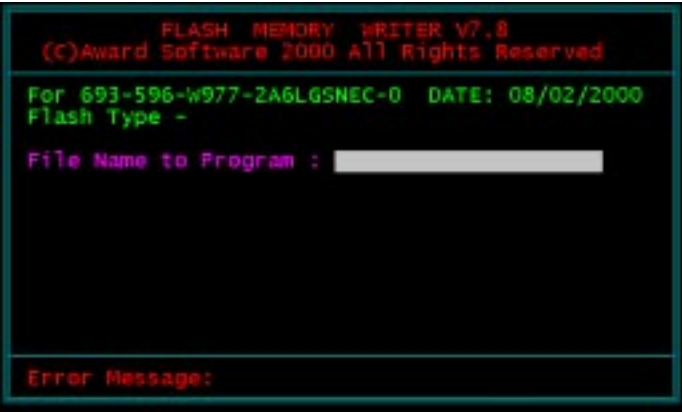
The parameters of AWDFLASH.EXE

/sn: No original BIOS backup

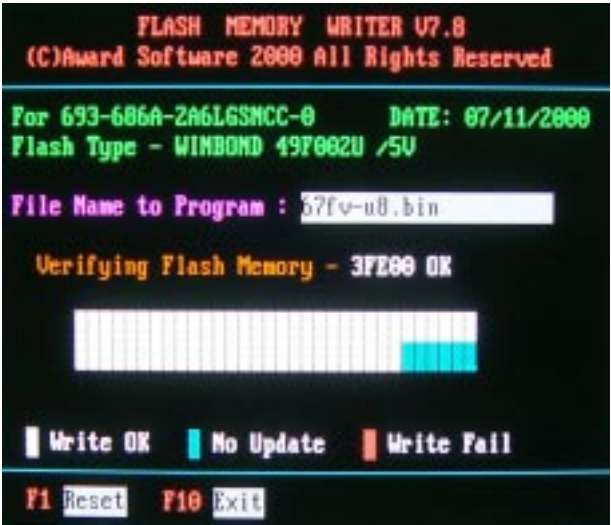
/py: Program flash memory

/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.



Award Flash Memory Writer Start Screen



Award Flash Memory Writer Complete Screen

## 4-6 BIOS SETUP --- CMOS Setup Utility

**Warning and Tips:** If changing CMOS Configuration causes difficulty in rebooting system, you can take the following measures:

1. At pressing the power button to reboot, press the "Insert" key at the same time. As soon as the screen displays the booting message, release the "Insert" key and press "Delete" key to enter CMOS Setup Utility. Then choose the "Load Optimized (Optimal) Defaults" menu to restore the default values for a new start. Or,
2. Open your machine cabinet and clear CMOS with jumper setting. Please refer to the Jumper Setting Section of this User manual.

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

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

<ul style="list-style-type: none"> <li>▶ Standard CMOS Features</li> <li>▶ Advanced BIOS Features</li> <li>▶ Advanced Chipset Features</li> <li>▶ Integrated Peripherals</li> <li>▶ Power Management Setup</li> <li>▶ PnP/PCI Configurations</li> <li>▶ SmartDoc Anti-Burn Shield</li> </ul>	<ul style="list-style-type: none"> <li>▶ Frequency/Voltage Control</li> <li>Load Optimized Defaults</li> <li>Set Supervisor Password</li> <li>Set User Password</li> <li>Save &amp; Exit Setup</li> <li>Exit without Saving</li> </ul>
Esc : Quit 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)	Wed, Aug 22 2001	Item Help
Time (hh:mm:ss)	9 : 52 : 15	Menu Level ▶
▶ IDE Primary Master	Press Enter 13022 MB	Change the date month, year and century
▶ IDE Primary Slave	Press Enter None	
▶ IDE Secondary Master	Press Enter None	
▶ IDE Secondary Slave	Press Enter None	
Drive A	1.44M, 3.5 in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All, but Keyboard	
Base Memory	640K	
Extended Memory	65472K	
Total Memory	66112K	

↑↓→←: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.
3. Press <ESC> to return to the Main Menu when you finish setting up all items. The following item descriptions are provided as a quick guide to your setup.

**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
IDE Primary Master	Auto	Menu Level ▶▶
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, 5.25 in.  
1.2MB, 5.25 in.  
720KB, 3.5 in.  
1.44MB, 3.5 in.  
2.88MB, 3.5 in.  
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.

### 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

		Item Help
Virus Warning	Disabled	Menu Level ▶
CPU L1 & L2 Cache	Enabled	
CPU L2 Cache ECC Checking	Enabled	
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	HDD-0	
Third Boot Device	CDROM	
Boot Other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Enabled	
Boot Up NumLock Status	On	
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 Shadows	Enabled	
Small Logo (EPA) Show	Disabled	

↑ ↓ → ←: 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.

3. Press <ESC> to return to the Main Menu when you finish setting up all items. The following item descriptions are provided as a quick guide to your setup.

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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 L1 & L2 Cache** Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type up contain internal cache memory (L1), and most, but not all, modern PCs have additional (external) cache memory (L2). 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 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.

**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.

**Small Logo(EPA) Show** Enable this item to display the EPA logo (Environmental Protection Association) on the boot up screen.  
Default: Disabled

## 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:

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software  
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	
Delay Prior to Thermal	16 Min	
VGA Share memory Size	32M	
FB Address Conversion	Disabled	
FB Page Close Prediction	Disabled	

↑ ↓ → ←: 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.

3. Press <ESC> to return to the Main Menu when you finish setting up all items. The following item descriptions are provided as a quick guide to your setup.

## DRAM Clock/Drive Control

When this option is chosen, the following item appears for user's configuration.

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

		Item Help
Current FSB Frequency		Menu Level ▶
Current DRAM Frequency		
DRAM Clock	By SPD	
DRAM Timing	By SPD	
× SDRAM CAS Latency	2	
× Bank interleave	Disabled	
× Precharge to Active(Trp)	3T	
× Active to Precharge	6T	
× Active to CMD(Trcd)	3T	
× DRAM Command Rate	2T Command	
DRAM Burst Len	4	
CPU read DRAM Mode	Medium	

↑ ↓ → ← : 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 / DRAM Frequency** This item is to show the current FSB / SDRAM Frequency.

**\*DRAM Clock** This item allows you to set the DRAM clock.  
SPD (Serial Presence Detect) is located on the memory modules, BIOS reads information coded in SPD during system boot up.  
Choices: By SPD; 100MHz; 133MHz

**\* DRAM Timing** this item allows you to set the DRAM Timing  
SPD (Serial Presence Detect) is located on the memory modules, BIOS reads information coded in SPD during system boot up.  
Choices: By SPD; Manual  
When Manual" is chosen, the following 6 subitems will reveal themselves for setting.

- \* **SDRAM CAS Latency** The choices: 2; 2.5.
  - \* **Bank Interleave** The choices: Disabled; 2 Bank; 4 Bank
  - \* **Precharge to Active (Trp)** The choices: 2T; 3T
  - \* **Active to Precharge (Tras)** The choices: 5T; 6T
  - \* **Active to CMD (Trcd)** The choices: 2T; 3T
  - \* **DRAM Command Rate** The choices: 1T Command; 2T Command.
- 
- \***DRAM Burst Len** Allows you to set the number of DRAM Burst Len.  
The choices: 4; 8
  - \***CPU Read DRAM Mode** Allows you to set CPU read DRAM mode.  
The choices: slow; Medium; Fast



## AGP & P2P Bridge Control

When this option is chosen, the following item appears for user's configuration.

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software  
AGP & P2P Bridge Control

AGP Aperture Size	64M	Item Help
AGP Mode	2X	Menu Level ▶
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 choices: 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 choices: Manual; Auto

**\* AGP Driving Value** This item allows you to adjust the AGP driving force.  
The choices: 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 write** Leave this field at default.

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

## CPU & PCI Bus Control

When this option is chosen, the following item appears for user's configuration.

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

CPU to PCI Write Buffer	Enabled	Item Help
PCI Master 0 WS Write	Enabled	Menu Level ▶
PCI Delay Transaction	Enabled	

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

**\* CPU to PCI Write Buffer** When this field is Enabled, writes from the CPU to the PCI bus are buffered, to compensate for the speed differences between the CPU and the PCI bus. When Disabled, the writes are not buffered and the CPU must wait until the write is complete before starting another write cycle.  
The choices: Enabled; Disabled

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

**\* PCI Delay Transaction** The Chipset has an embedded 32 bit posted write buffer to support delay transactions cycles.  
Choices: Disabled (default); Enabled

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**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.

**Delay Prior to Thermal** This item is to set the delay time before the function of CPU Therm-Throttling is to be executed.  
Choices: 4min.; 8min.; 16min. (default); 32min.

**VGA Share Memory Size** This item is to specify the system memory to be allocated for Video memory.  
Choices: 32M (default); Disabled.

**FB Address Conversion** This item is to enable / disable (default) the address conversion function of the video memory Frame block.

**FB Page Close Prediction** This item is to enable / disable (default) the prediction function of the video Frame block page.

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## 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 ▶
▶ 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<sup>®</sup>

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.

3. Press <ESC> to return to the Main Menu when you finish setting up all items. The following item descriptions are provided as a quick guide to your setup.

## VIA Onchip IDE Device

When this option is chosen, the following item appears for user's configuration.

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

OnChip IDE Channel0	Enabled	Item Help
OnChip IDE Channel1	Enabled	Menu Level ▶
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** Choose Auto or Mode 0~4. The BIOS will detect the  
**Master / Slave PIO** HDD mode type automatically when you choose  
**Secondary** Auto. You need to set to a lower mode than Auto  
**Master / Slave PIO** when your hard disk becomes unstable.  
 The choices: Auto; Mode 0; Mode 1; Mode 2; Mode  
 3; Mode 4

**\* Primary** Ultra DMA33/66/100/133 implementation is possible  
**Master / Slave UDMA** only if your IDE hard drive supports it, if the operat-  
**Secondary** ing environment includes a DMA drive, and if your  
**Master / Slave UDMA** system software supports Ultra DMA33/66/100/133.  
 Select "Auto" to enable BIOS support.  
 The choices: Auto; Disabled

## VIA Onchip PCI Device

When this option is chosen, the following item appears for user's configuration.

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

VIA-3058 AC'97 Audio	Auto	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** Select "Disabled" to use the on-chip audio capability of  
**Audio** 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 item must be disabled.

**\* VIA-3068 MC97** This option allows you to decide to enable/disable  
**Modem** the Onchip Modem.  
 The choices: Auto; Disabled

## VIA Super IO Device

When this option is chosen, the following item appears for user's configuration.

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

Onboard FDC Controller	Enabled	Item Help
Onboard Serial Port 1	Auto	Menu Level ►
Onboard Serial Port 2	Auto	
UART Mode Select	Normal	
X UR2 Duplex Mode	Half	
Onboard Parallel Port	378/IRQ7	
Parallel Port Mode	SPP	
X ECP Mode Use DMA	3	
Game Port Address	201	
Midi Port Address	330	
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.

Choices: Disabled; Auto;

3F8/IRQ4;

2F8/IRQ3;

3E8/IRQ4;

2E8/IRQ3

- \* 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 Port 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.  
Choices: SPP; EPP; ECP; ECP+EPP
  - \* ECP Mode Use DMA** Select a DMA channel for the port when you choose ECP or ECP+EPP mode for the Parallel Port Mode.  
Choices: 1; 3
  - \* Game Port Address** This item allows you to select the Game Port Address.  
The choices: Disabled, 201, 209
  - \* MIDI Port Address** Select a DMA channel for the parallel port for use during ECP mode.  
The choices: Disabled, 330, 300
  - \* MIDI Port IRQ** This item allows you to select the MIDI Port IRQ.  
The choices: 5, 10
-



- 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
-

## 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	
Run VGABIOS if S3 Resume	Auto	
PWRON After PWR-Fail	Off	
▶ 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.

3. Press <ESC> to return to the Main Menu when you finish setting up all items. The following item descriptions are provided as a quick guide to your setup.

**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 supports ACPI.

**ACPI Suspend Type** This item fixes the ACPI suspend type to S1, Power On Suspend Mode.

**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. When the Power management Option is "User Define", the choices of this item are: Disabled; 1 min; 2 min; 4 min; 8 min; 10 min; 20 min; 40 min; 1 hour

**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.

**Run VGABIOS If S3 Resume** This item is to set the mode to run the VGA BIOS when S3 (Suspend to RAM) resumes.  
Choices: Auto (default); Yes; No

**PWRON After PWR-Fail** This item is to set the mode to power on when power resumes after power fails.  
Choices: Off (default); On; Former Sts

## IRQ/Event Activity Detect

When this option is chosen, the following item appears for user's configuration.

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software  
IRQ/Event Activity Detect

VGA	OFF	Item Help
LPT & COM	LPT/COM	Menu Level ▶
HDD & FDD	ON	
PCI Master	OFF	
PowerOn by PCI Card	Disabled	
Modem Ring Resume	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

\* **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.
  - \* **Modem Ring Resume** 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.
  - \* **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

When this option is chosen, the following item appears for user's configuration.

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)	Disabled	
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.

## 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:

CMOS Setup Utility - Copyright (C) 1984-2001 Award Software  
PnP/PCI Configurations

PNP OS Installed	No	Item Help
Reset Configuration Data	Disabled	Menu Level ▶
Resources Controlled By × IRQ Resources	Auto(ESCD) Press Enter	
PCI/VGA Palette Snoop	Disabled	
Assign IRQ For VGA	Enabled	
Assign IRQ For USB	Enabled	
PCI Slot1 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.

3. Press <ESC> to return to the Main Menu when you finish setting up all items. The following item descriptions are provided as a quick guide to your setup.



**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 Award BIOS 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 will not appear, as the BIOS automatically assigns them. If you select *Manual*, the IRQ Resources item will appear for your configuration (see below).

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

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IRQ Resources

IRQ-3 assigned to	PCI Device	Item Help
IRQ-4 assigned to	PCI Device	Menu Level ▶
IRQ-5 assigned to	PCI Device	
IRQ-7 assigned to	PCI Device	
IRQ-9 assigned to	PCI Device	
IRQ-10 assigned to	PCI Device	
IRQ-11 assigned to	PCI Device	
IRQ-12 assigned to	PCI Device	
IRQ-14 assigned to	PCI Device	
IRQ-15 assigned to	PCI Device	

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

**PCI/VGA Palette Snoop** This option allows the BIOS to preview VGA status, and to modify the information delivered from 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 I slot1/2/3/4 IRQ Assigned** This item is to set the IRQ for PCI Slot1/2/3/4. Default is "Auto".  
Choices: Auto (default); 3;4;5;7;9;10;11;12;14;15

---

#### 4-6.8 SmartDoc Anti-burn Shield (PC Health status)

This section helps you to get more information about your system including CPU temperature, FAN speed and voltage. It is recommended that you contact 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:

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SmartDOC Anti-Burn shield

Shutdown Temperature	Disabled	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		
Temperature 3		
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.

3. Press <ESC> to return to the Main Menu when you finish setting up all items. The following item descriptions are provided as a quick guide to your setup.

**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.

**3.3V, +5V, +12V, -12V, -5V, 5VSB** Shows actual voltage value of all these default voltage value on board.

**Voltage Battery** Shows voltage value of the battery on board.

**Temperature 1/2/3** Shows current system and CPU temperatures.

**FAN 1/2 Speed** These fields display the current speed of the CPU / System fan.

## 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

CPU Clock Ratio		10 X	Item Help
Auto Detect DIMM/PCI CLK		Enabled	Menu Level ▶
Spread Spectrum		Disabled	
X CPU Clock		100 MHz	
Use CPU Linear Freq		Default	

↑↓→←: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.

3. Press <ESC> to return to the Main Menu when you finish setting up all items. The following item descriptions are provided as a quick guide to your setup.

**CPU ClockRatio** This items allows users to adjust CPU clock ration (if the CPU on board is not a clock-locked type). The available clock ration range is 10 ~ 24 in one unit stepping.

**Auto Detect** To reduce the occurrence of electromagnetic interference (EMI), the BIOS detects the presence or absence of components in DIMM and PCI slots and turns off system clock generator pulses to empty slots.

**Spread Spectrum** When the system clock generator pulses, the extreme values of the pulse generate excess EMI. Enabling pulse spectrum spread modulation changes the extreme values from spikes to flat curves, thus reducing EMI. This benefit may in some cases be outweighed by problems with timing-critical devices, such as a clock-sensitive SCSI device.

**CPU Clock** This items allows users to adjust CPU frequency by Linear Mode(in 1 unit Stepping) only.

**Use CPU Linear Freq** This item is to set the mode to adjust the CPU Clock by BIOS.  
Choices: Default; Use Linear

---

#### 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 "**

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▶ Standard CMOS Features ▶ Advanced BIOS Features ▶ Advanced Chipset Features ▶ Integrated Peripherals ▶ Power Management Setup ▶ PnP/PCI Configuration ▶ SmartDoc Anti-Burn Shield	▶ Frequency/Voltage Control <b>Load Optimized Defaults</b> Set Supervisor Password Set User Password Save and Exit Setup Load Optimized Defaults (Y/N) Y Saving
Esc: Quit    F9 : Menu in BIOS    ↑↓→← : Select Item F10: Save & Exit Setup	
Time, Date, Hard Disk Type...	

"Y" is for "Yes", and "N" is for "No".

Pressing "Y" loads the BIOS Optimized default values to restore the BIOS to its original status.

#### **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 .