Chapter 4

BIOS Setup Information

BIOS Introduction

The Award BIOS (Basic Input/Output System) installed in your computer system's ROM supports Intel Pentium II/III processors. The BIOS provides critical low-level support for a standard device such as disk drives, serial ports and parallel ports. It also adds virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

BIOS Setup

The Award BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn on the computer, the Award BIOS is immediately activated. Pressing the $\langle Del \rangle$ key immediately allows you to enter the Setup utility. If you are a little bit late pressing the $\langle Del \rangle$ key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the $\langle Ctrl \rangle$, $\langle Alt \rangle$ and $\langle Delete \rangle$ keys. You can also restart by turning the system Off and back On again. The following message will appear on the screen:

Press to Enter Setup

In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.

Cinico detap builty - copyright @ 1964-2001 Award Contware		
Standard CMOS Features	Frequency/Voltage Control	
Advanced BIOS Features	Load Fail-Safe Defaults	
Advanced Chipset Features	Load Optimized Defaults	
Integrated Peripherals	Set Supervisor Password	
Power Management Setup	Set User Password	
PnP/PCI Configurations	Save & Exit Setup	
PC Health Status	Exit Without Saving	
ESC : Quit	$\uparrow \rightarrow \leftarrow$: Select Item	
F10 : Save & Exit Setup		
Time, Date, Hard Disk Type		

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The section below the setup items of the Main Menu displays the control keys for this menu. At the bottom of the Main Menu just below the control keys section, there is another section, which displays information on the currently highlighted item in the list.

- *Note:* If the system cannot boot after making and saving system changes with Setup, the Award BIOS supports an override to the CMOS settings that resets your system to its default.
- Warnin It is strongly recommended that you avoid making
 g: any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your system manufacturer to provide the absolute maximum performance and reliability. Changing the defaults could cause the system to become unstable and crash in some cases.

Standard CMOS Setup

"Standard CMOS Setup" choice allows you to record some basic hardware configurations in your computer system and set the system clock and error handling. If the CPU card is already installed in a working system, you will not need to select this option. You will need to run the Standard CMOS option, however, if you change your system hardware configurations, the onboard battery fails, or the configuration stored in the CMOS memory was lost or damaged.

Standard CMOS Features			
Date (mm:dd:yy)	Tue, Mar 26 2001	Item Help	
Time (hh:mm:ss)	00:00:00	Menu Level	
IDE Primary Master	Press Enter 13020 MB	Change the day, month,	
IDE Primary Slave	Press Enter None	Year and century	
IDE Secondary Master	Press Enter None	-	
IDE Secondary Slave	Press Enter None		
	1.44M 3.5 in		
Drive B	None		
Video	EGA/VGA		
Halt On	All Errors		
Base Memory	640K		
Extended Memory	129024K		
Total Memory	130048K		

At the bottom of the menu are the control keys for use on this menu. If you need any help in each item field, you can press the $\langle F1 \rangle$ key. It will display the relevant information to help you. The memory display at the lower right-hand side of the menu is read-only. It will adjust automatically according to the memory changed. The following describes each item of this menu.

Date

The date format is: Day : Sun to Sat Month : 1 to 12 1 to 31 Date : 1994 to 2079 Year :

To set the date, highlight the "Date" field and use the PageUp/ PageDown or +/- keys to set the current time.

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Time

The time format is:

Hour : 00 to 23 Minute : 00 to 59 Second : 00 to 59

To set the time, highlight the "Time" field and use the $\langle PgUp \rangle / \langle PgDn \rangle$ or +/- keys to set the current time.

IDE Primary HDDs / IDE Secondary HDDs

The onboard PCI IDE connectors provide Primary and Secondary channels for connecting up to four IDE hard disks or other IDE devices. Each channel can support up to two hard disks; the first is the "Master" and the second is the "Slave".

Press <Enter> to configure the hard disk. The selections include Auto, Manual, and None. Select 'Manual' to define the drive information manually. You will be asked to enter the following items.

CYLS :	Number of cylinders
HEAD :	Number of read/write heads
PRECOMP :	Write precompensation
LANDZ:	Landing zone
SECTOR :	Number of sectors

The Access Mode selections are as follows:

Auto Normal (HD < 528MB) Large (for MS-DOS only) LBA (HD > 528MB and supports Logical Block Addressing)

Drive A / Drive B

These fields identify the types of floppy disk drive A or drive B that has been installed in the computer. The available specifications are:

360KB	1.2MB	720KB	1.44MB	2.88MB
5.25 in.	5.25 in.	3.5 in.	3.5 in.	3.5 in.

Video

This field selects the type of video display card installed in your system. You can choose the following video display cards:

For EGA, VGA, SEGA, SVGA
or PGA monitor adapters. (default)
Power up in 40 column mode.
Power up in 80 column mode.
For Hercules or MDA adapters.

Halt On

This field determines w	hether or not the system will halt if an error is detected during power up.	
No errors	The system boot will not be halted for any	
	error that may be detected.	
All errors	Whenever the BIOS detects a non-fatal error,	
	the system will stop and you will be	
	prompted.	
All, But Keyboard	The system boot will not be halted for a	
	keyboard error; it will stop for all other errors	
All, But Diskette	The system boot will not be halted for a disk	
	error; it will stop for all other errors.	
All, But Disk/Key	The system boot will not be halted for a key-	
	board or disk error; it will stop for all others.	

Advanced BIOS Features

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

Advanced BIOS Features			
Virus Warning CPU L1 and L2 Cache Quick Power On Self Test First Boot Device Second Boot Device	Ádvanced BIOS Feat Disabled Enabled Enabled Floppy HDD-0	ITEM HELP Menu Level Allows you choose the VIRUS warning feature for IDE Hard	
Boot Other Device Swap Floppy Drive Boot Up Floppy Seek Boot Up Numlock Status Gate A20 Option Typematic Rate Setting Typematic Rate (chars/Sec) Typematic Delay (Msec) Security Option	Enabled Disabled Disabled On Fast Disabled 6 250 Sotup	Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep	
APIC Mode MPS Version Control for OS OS Select For DRAM>64MB Report No FDD For WIN 95 Small Logo (EPA) Show	Enabled 1.4 Non-OS2 No Enabled		

CMOS Setup Utility – Copyright © 1984-2001 Award Software Advanced BIOS Features

Virus Warning

This item protects the boot sector and partition table of your hard disk against accidental modifications. If an attempt is made, the BIOS will halt the system and display a warning message. If this occurs, you can either allow the operation to continue or run an anti-virus program to locate and remove the problem.

CPU L1 and L2 Cache

Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type on 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 even faster access by the CPU. These items allow you to enable (speed up memory access) or disable the cache function. By default, these items are *Enabled*.

Quick Power On Self Test

When enabled, this field speeds up the Power On Self Test (POST) after the system is turned on. If it is set to *Enabled*, BIOS will skip some items.

First/Second/Third Boot Device

These fields determine the drive that the system searches first for an operating system. The options available include *Floppy*, *LS/ZIP*, *HDD-0*, *SCSI*, *CDROM*, *HDD-1*, *HDD-2*, *HDD-3*, *LAN* and *Disable*.

Boot Other Device

These fields allow the system to search for an operating system from other devices other than the ones selected in the First/Second/Third Boot Device.

Swap Floppy Drive

This item allows you to determine whether or not to enable Swap Floppy Drive. When enabled, the BIOS swaps floppy drive assignments so that Drive A becomes Drive B, and Drive B becomes Drive A. By default, this field is set to *Disabled*.

Boot Up Floppy Seek

This feature controls whether the BIOS checks for a floppy drive while booting up. If it cannot detect one (either due to improper configuration or its absence), it will flash an error message.

Boot Up NumLock Status

This allows you to activate the NumLock function after you power up the system.

Gate A20 Option

This field allows you to select how Gate A20 is worked. Gate A20 is a device used to address memory above 1 MB.

Typematic Rate Setting

When disabled, continually holding down a key on your keyboard will generate only one instance. When enabled, you can set the two typematic controls listed next. By default, this field is set to *Disabled*.

Typematic Rate (Chars/Sec)

When the typematic rate is enabled, the system registers repeated keystrokes speeds. Settings are from 6 to 30 characters per second.

Typematic Delay (Msec)

When the typematic rate is enabled, this item allows you to set the time interval for displaying the first and second characters. By default, this item is set to **250msec**.

Security Option

This field allows you to limit access to the System and Setup. The default value is *Setup*. When you select *System*, the system prompts for the User Password every time you boot up. When you select *Setup*, the system always boots up and prompts for the Supervisor Password only when the Setup utility is called up.

APIC Mode

APIC stands for Advanced Programmable Interrupt Controller. The default setting is *Enabled*.

MPS Version Control for OS

This option is specifies the MPS (Multiprocessor Specification) version for your operating system. MPS version 1.4 added extended configuration tables to improve support for multiple PCI bus configurations and improve future expandability. The default setting is *1.4*.

OS Select for DRAM > 64MB

This option allows the system to access greater than 64MB of DRAM memory when used with OS/2 that depends on certain BIOS calls to access memory. The default setting is *Non-OS/2*.

Report No FDD For WIN 95

If you are using Windows 95/98 without a floppy disk drive, select Enabled to release IRQ6. This is required to pass Windows 95/98's SCT test. You should also disable the Onboard FDC Controller in the Integrated Peripherals screen when there's no floppy drive in the system. If you set this feature to Disabled, the BIOS will not report the missing floppy drive to Win95/98.

Small Logo (EPA) Show

The EPA logo appears at the right side of the monitor screen when the system is boot up. The default setting is *Enabled*.

Advanced Chipset Features

This Setup menu controls the configuration of the chipset.

DRAM Timing Selectable

This option refers to the method by which the DRAM timing is selected. The default is By SPD.

CAS Latency Time

You can select CAS latency time in HCLKs of 2/2 or 3/3. The system board designer should set the values in this field, depending on the DRAM installed. Do not change the values in this field unless you change specifications of the installed DRAM or the installed CPU. The choices are 2 and 3.

Active to Precharge Delay

The default setting for the Active to Precharge Delay is 6.

DRAM RAS# to CAS# Delay

This option allows you to insert a delay between the RAS (Row Address Strobe) and CAS (Column Address Strobe) signals. This delay occurs when the SDRAM is written to, read from or refreshed. Reducing the delay improves the performance of the SDRAM.

DRAM RAS# Precharge

This option sets the number of cycles required for the RAS to accumulate its charge before the SDRAM refreshes. The default setting for the Active to Precharge Delay is *3*.

DRAM Data Integrity Mode

This BIOS setting is used to configure your RAM's data integrity mode. ECC stands for Error Checking and Correction and it should only be used if you are using 72-bit ECC RAM. This will enable the system to detect and correct single-bit errors. It will also detect double-bit errors though it will not correct them. This provides increased data integrity and system stability at the expense of a little speed.

Memory Frequency For

This field sets the frequency of the DRAM memory installed. The default setting is Auto. The other options are *PC100* and *PC133*.

DRAM Read Thermal Mgmt

This option enables or disables the DRAM Read thermal management function.

System BIOS Cacheable

The setting of *Enabled* allows caching of the system BIOS ROM at F000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Video BIOS Cacheable

The Setting *Enabled* allows caching of the video BIOS ROM at C0000h-F7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result.

Video RAM Cacheable

This feature enables or disables the caching of the video RAM at A0000h-AFFFFh via the L2 cache.

Memory Hole At 15M-16M

In order to improve performance, certain space in memory can be reserved for ISA cards. This memory must be mapped into the memory space below 16 MB. The choices are *Enabled* and *Disabled*.

Delayed Transaction

The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles. Select *Enabled* to support compliance with PCI specification version 2.1.

Power Supply Type

The default setting for the Power Supply Type field is *ATX*. Other settings are *AT* and *Auto*.

AGP Aperture Size

The field sets aperture size of the graphics. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. The default setting is 64M.

Delay Prior to Thermal

This field activates the CPU thermal function after the systems boots for the set number of minutes. The options are *16Min* and *64Min*.

ICH2 ISA Enable

The default of the ICH2 ISA Enable field is *Enabled*.

Integrated Peripherals

This section sets configurations for your hard disk and other integrated peripherals.

ITEM HELP On-Chip Primary PCLIDE Enabled Menu Level IDE Primary Master PIO Auto IDE Primary Slave PIO Auto IDE Primary Master UDMA Auto IDE Primary Slave UDMA Auto Enabled On-Chip Secondary PCI IDE Auto IDE Secondary Master PIO IDE Secondary Master PIO IDE Secondary Master UDMA Auto Auto IDE Secondary Slave UDMA Auto Enabled USB Controller Disabled USB Keyboard Support AC97 Audio Auto Init Display First PCI Slot IDE HDD Block Mode Enabled POWER ON Function **BUTTON Only** Onboard FDC Controller Enabled 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 PWRON After PWR-Fail Off Midi Port Address 330 Midi Port IRQ 10

CMOS Setup Utility – Copyright © 1984-2001 Award Software Integrated Peripherals

OnChip Primary/Secondary PCI IDE

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select *Enabled* to activate each channel separately.

IDE Primary/Secondary Master/Slave PIO

These fields allow your system hard disk controller to work faster. Rather than have the BIOS issue a series of commands that transfer to or from the disk drive, PIO (Programmed Input/Output) allows the BIOS to communicate with the controller and CPU directly.

The system supports five modes, numbered from 0 (default) to 4, which primarily differ in timing. When Auto is selected, the BIOS will select the best available mode.

IDE Primary/Secondary Master/Slave UDMA

These fields allow your system to improve disk I/O throughput to 33Mb/sec with the Ultra DMA/33 feature. The options are *Auto* and *Disabled*.

USB Controller

The options for this field are *Enabled* and *Disabled*. By default, this field is set to *Enabled*.

USB Keyboard Support

The options for this field are *Enabled* and *Disabled*. By default, this field is set to *Disabled*.

AC97 Audio

The default setting of the AC97 Audio is Auto.

Init Display First

This field allows the system to initialize first the VGA card on chip or the display on the PCI Slot. By default, the *PCI Slot* VGA is initialized first.

IDE HDD Block Mode

This field allows your hard disk controller to use the fast block mode to transfer data to and from your hard disk drive.

Power On Function

This field sets how the system can be powered on from a system off state. The default setting is *Button Only*.

Onboard FDC Controller

Select *Enabled* if your system has a floppy disk controller (FDC) installed on the CPU card and you wish to use it. If you install an add-in FDC or the system has no floppy drive, select Disabled in this field. This option allows you to select the onboard FDD port.

Onboard Serial/Parallel Port

These fields allow you to select the onboard serial and parallel ports and their addresses. The default values for these ports are:

Serial Port 13F8/IRQ4Serial Port 22F8/IRQ3Parallel Port378H/IRQ7

UART Mode Select

This field determines the UART 2 mode in your computer. The default value is *Normal*. Other options include *IrDA* and *ASKIR*.

UR2 Duplex Mode

This field allows you to choose between Half Duplex and Full Duplex mode.

Parallel Port Mode

This field allows you to determine parallel port mode function.

SPP	Standard Printer Port
EPP	Enhanced Parallel Port
ECP	Extended Capabilities Port

PWRON After PWR-Fail

This field sets the system power status whether on or off when power returns from a power failure situation.

Midi Port Address

The option settings for this field are 330, 400 and Disabled. The default setting is 330.

Midi Port IRQ

The default Midi Port IRQ is 10.

Power Management Setup

The Power Management Setup allows you to save energy of your system effectively.

Power Management Setup			
ACPI Function	Enabled	ITEM HELP	
ACPI Suspend Type	SI (POS)	Menu Level	
Power Management	User Define		
Video Off Method	V/H Sync+Blank		
Video Off In Suspend	Yes		
Suspend Type	Stop Grant		
Modem Use IRQ	3		
Suspend Mode	Disabled		
HDD Power Down	Disabled		
Soft-Off by PWR-BTTN	Instant-Off		
Wake-Up by PCI Card	Disabled		
Power On by Ring	Disabled		
Date (of Month) Alarm	0		
Time (hh:mm:ss) Alarm	0:0:0		
** Reload Global Timer Events **			
Primary IDE 0	Enabled		
Primary IDE 1	Enabled		
Secondary IDE 0	Enabled		
Secondary IDE 1	Enabled		
FDD, COM, LPT Port	Enabled		
PCI PIRQ[A-D] #	Enabled		

CMOS Setup Utility – Copyright © 1984-2001 Award Software Power Management Setup

ACPI Function

Enable this function to support ACPI (Advance Configuration and Power Interface).

ACPI Suspend Type

This field sets the ACPI Power Management standby state. The default setting is S1 (POS).

Power Management

This field allows you to select the type of power saving management modes. There are four selections for Power Management.

Min. Power Saving	Minimum power management	
Max. Power Saving	Maximum power management.	
User Define	Each of the ranges is from 1 min. to	
	1hr. Except for HDD Power Down	
	which ranges from 1 min. to 15 min.	

Video Off Method

This field defines the Video Off features. There are three options.

V/H SYNC + BlankDefault setting, blank the screen and turn off vertical and horizontal
scanning.DPMSAllows BIOS to control the video display.Blank ScreenWrites blanks to the video buffer.

Video Off In Suspend

When enabled, the video is off in suspend mode. The default setting is Yes.

Suspend Type

The default setting for the Suspend Type field is Stop Grant.

Modem Use IRQ

This field sets the IRQ used by the Modem. By default, the setting is **3**.

Suspend Mode

When enabled, and after the set time of system inactivity, all devices except the CPU will be shut off.

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.

Soft-Off by PWRBTN

This field defines the power-off mode when using an ATX power supply. The *Instant Off* mode allows powering off immediately upon pressing the power button. In the *Delay 4 Sec* mode, the system powers off when the power button is pressed for more than four seconds or enters the suspend mode when pressed for less than 4 seconds.

Wake-Up by PCI Cards

Enable this field to allow wake up function through a PCI card.

Power On by Ring

This field enables or disables the power on of the system through the modem connected to the serial port or LAN.

Resume by Alarm

This field enables or disables the resumption of the system operation. When enabled, the user is allowed to set the *Date* and *Time*.

Reload Global Timer Events

The HDD, FDD, COM, LPT Ports, and PCI PIRQ are I/O events which can prevent the system from entering a power saving mode or can awaken the system from such a mode. 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.

PNP/PCI Configurations

This option configures the PCI bus system. All PCI bus systems on the system use INT#, thus all installed PCI cards must be set to this value.

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PNP OS Install Reset Configuration Data	No Disabled	ITEM HELP Menu Level
Resources Controlled By IRQ Resources DMA Resources PCI/VGA Palette Snoop	Auto (ESCD) Press Enter Press Enter Disabled	Default is 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 OS cannot boot

PNP OS Install

Enable the PNP OS Install option if it is supported by the operating system installed. The default value is *No*.

Reset Configuration Data

This field allows you to determine whether to reset the configuration data or not. The default value is *Disabled*.

Resources Controlled by

This PnP BIOS can configure all of the boot and compatible devices automatically with the use of a use a PnP operating system such as Windows 95.

PCI/VGA Palette Snoop

Some non-standard VGA display cards may not show colors properly. This field allows you to set whether or not MPEG ISA/VESA VGA cards can work with PCI/VGA. When this field is enabled, a PCI/VGA can work with an MPEG ISA/VESA VGA card. When this field is disabled, a PCI/VGA cannot work with an MPEG ISA/VESA card.

PC Health Status

This section shows the parameters in determining the PC Health Status. These parameters include temperatures, fan speeds and voltages.

Shutdown Temperature	Disabled	ITEM HELP
Vcore (V)	1.63V	
+1.8(V)	1.79V	
VCC3(V)	3.37V	
+5(V)	5.05V	
+12(V)	12.09V	
-12(V)	(-)12.03V	
5VSB(V)	5.05V	
Voltage Battery	3.24V	
System Temp.	44°C	
CPU Temp.	43°C	
System Temp.	41°C	
CPU Fan Speed	4166 RPM	
System Fan Speed	0 RPM	
System Fan Speed	0 RPM	

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Shutdown Temperature

This field allows the user to set the temperature by which the system automatically shuts down once the threshold temperature is reached. This function can help prevent damage to the system that is caused by overheating.

Temperatures/Fan Speeds/Voltages

These fields are the parameters of the hardware monitoring function feature of the CPU card. The values are read-only values as monitored by the system and show the PC health status.

Frequency/Voltage Control

This section shows the user how to configure the processor frequency.

CMOS Setup Utility – Copyright © 1984-2001 Award Software Frequency/Voltage Control				
CPU Clock Ratio	X8	ITEM HELP		
Auto Detect PCI Clk	Disabled	Menu Level		
Spread Spectrum	Disabled			

CPU Clock Ratio

The CPU Ratio, also known as the CPU bus speed multiplier, can be configured through this field. The default setting is X8. This parameter can be used in conjunction with the above field to change the processor's speed.

Auto Detect PCI Clk

This field enables or disables the auto detection of the PCI clock. The default setting is Disabled.

Spread Spectrum

This field sets the value of the spread spectrum. The default setting is *Disabled*. This field is for CE testing use only.

Load Fail-Safe Defaults

This option allows you to load the troubleshooting default values permanently stored in the BIOS ROM. These default settings are non-optimal and disable all high-performance features.

Load Setup Defaults

This option allows you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.

Set Supervisor/User Password

These two options set the system password. Supervisor Password sets a password that will be used to protect the system and Setup utility. User Password sets a password that will be used exclusively on the system. To specify a password, highlight the type you want and press <Enter>. The Enter Password: message prompts on the screen. Type the password, up to eight characters in length, and press <Enter>. The system confirms your password by asking you to type it again. After setting a password, the screen automatically returns to the main screen.

To disable a password, just press the <Enter> key when you are prompted to enter the password. A message will confirm the password to be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

Save & Exit Setup

This option allows you to determine whether or not to accept the modifications. If you type "Y", you will quit the setup utility and save all changes into the CMOS memory. If you type "N", you will return to Setup utility.

Exit Without Saving

Select this option to exit the Setup utility without saving the changes you have made in this session. Typing "Y" will quit the Setup utility without saving the modifications. Typing "N" will return you to Setup utility.