MAINBOARD

BIOS, Driver & Utility Guide

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MAINBOARD BIOS SETUP

About the BIOS

The Mainboard BIOS (Basic Input/Output System) acts as the bridge between your Hardware (CPU, Disk Drives, Video, etc.) and Operating System Software (Windows 95, OS/2 and so on…) The BIOS Setup (also called CMOS Setup) is where many hardware configuration options are set and stored. This configuration information will remain in the BIOS until it is changed, or cleared by removing the battery for a while then reinstalling it back.

CMOS (Complementary Metal Oxide Semiconductor) refers to the chip in which the BIOS information is stored.

This mainboard features Award BIOS, which provides an easy to use Setup program to aid in hardware configuration. In this section we will look at the various menus and options contained in the Award BIOS Setup Program. This mainboard also features a "Flash" BIOS. A Flash BIOS can be upgraded via software, thereby eliminating the need to actually replace the "BIOS Chip" on the mainboard. Procedures for updating the BIOS follow this section.

The Award BIOS installed in your computer system's ROM (Read Only Memory) is a custom version of an industry standard BIOS. This means that it supports Intel processor in a standard IBM-AT compatible input/output system.

Using Setup

In general, you use the arrow keys to highlight items, press <**Enter**> to select or display the possible selections, use the <**PageUp**> and <**PageDown**> keys to change entries, press <**F1**> for general help and press <**Esc**> to quit.

An item marked with a ▶ indicates that there is a submenu for this item. A gray-out item marked with an x indicates that the item is not available. The item may be associated with another item and its availability is dependent on that associated item. Gray-out items are for information display only and contain no selectable fields.

MAINBOARD BIOS SETUP

Getting Help

Pressing <F1> will display a help window that describes the appropriate keys to use. Pressing <Enter> will display a small help window that describes the possible selections for the highlighted item. To exit the Help Window press <Esc>.

A brief description of some highlighted selection may appear at the right frame (titled Item Help) of the setup screen.

A Final Note about Setup

Not all systems have the same Setup. While the basic look and function of the Setup program remains the same for all systems, individual motherboard and chipset combinations require custom configurations. For example, you may find that your Setup main menu has a different number of entries from the main menu displayed in this manual. These are simply features not supported (or not user configurable) on your system.

The final appearance of the Setup program also depends on the Original Equipment Manufacturer (OEM) who built your system. If your OEM has decided that certain items should only be available to their technicians, those items may very well be removed from the Setup program.

Main Menu

Shortly after the system is powered on, provided a CPU and sufficient RAM are installed, you will see the message:

Press DEL to enter SETUP

- Press the **DEL** key to enter the Award BIOS Setup program.

Once you enter the Award BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

CMOS Setup Utility – Copyright (C) 1984-1999 Award Software

▶ 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 F10 : Save & Exit Setup	↑ ↓ → ← : Select Item

Note that a brief description of each highlighted selection appears at the bottom of the screen.

Standard CMOS Features

This first menu is where the most basic hardware options are set. Information regarding the system clock, IDE hard disks and floppy drives is stored and configured in this section. To enter the Standard CMOS Features setup screen, press the [ENTER] key with this menu highlighted.

Upon entering the Standard CMOS Setup screen, you will see a screen like that below:

```
   Date (mm:dd:yy)          Sat, Dec 18 1999        Item Help
   Time (hh:mm:ss)          00 : 00 : 00
                                                 Menu Level    ►
 ►  IDE Primary Master       Press Enter 8455 MB
 ►  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 Errors

   Base Memory                   640K
   Extended Memory             15360K
   Total Memory                16384K
```

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

Date and **Time -** Use the arrow keys to move to and highlight the "Date" option. Select the Month by using the PgDn and PgUp keys. This is how most settings will be configured. Then, move to the day, year and time via the arrow keys to finish setting the system date and time.

Keep in mind that the system time is set in 24-hour time. With this method, 1PM is represented as 13:00, 2PM as 14:00 and so on, with 00:00 corresponding to Midnight.

IDE Primary Master, IDE Primary Slave, IDE Secondary Master, IDE Secondary Slave - These four options relate to the (4) IDE hard drives, CD-ROMs or other ATAPI devices that can be controlled via the on-board IDE controller

(review IDE Hard Drives and CD-ROMs in the Installation Guide). The "IDE Primary Master" setting specifies the first device on the primary IDE channel, "IDE Primary Slave" - the second. IDE Secondary Master and IDE Secondary Slave specify the devices on the secondary channel.

Pressing <Enter> at each of the four selections brings up a submenu such as one shown below:

IDE HDD Auto-Detection	Press Enter	Item Help
IDE Primary Master	Auto	Menu Level ▸▸
Capacity	0 MB	
Access Mode	Auto	
Cylinder	0	
Head	16	
Precomp	0	
Landing Zone	4091	
Sector	63	

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

- **IDE HDD Auto-Detection** – Automatically detects and configures hard disk parameters. The Award BIOS includes this ability in the event you are uncertain of your hard disk's parameters.

- **IDE Primary/Secondary Master/Slave** – This is where you will specify the type of device and how it is represented in the BIOS Setup. If the device is a hard disk or CD-ROM, generally the *Auto* option is the best choice for fast and easy setup of the hard disk parameters. Let's take a look at the difference between the Auto and Manual options:

  - **Auto** - This option instructs the BIOS to automatically configure the hard disk by reading the parameters (cylinders, sectors, etc.) directly from the hard disk's firmware. Use this option if you are configuring a new hard drive, or one that has already been formatted using the *Auto* option. Keep

in mind that a hard drive is configured using a certain set of parameters, those same parameters must be used for the life of the drive, unless the drive is re-FDISKed using a different parameter set. (This procedure deletes the old partition(s) on the drive and creates a new one, using the new parameters).

- **Manual** - This option allows you to manually enter in the parameters (cylinder, head, precomp, landing zone and sector) of the hard drive. Generally, this option would be used only if the hard drive has already been formatted with a certain set of parameters, and assured consistency between the old and new parameters is desired.

- **Capacity –** Displays the capacity of the device.

- **Access Mode** - One of Enhanced IDE's most important features is *LBA* (Logical Block Addressing) Mode. This feature allows the use of larger hard drives by providing a way to bypass the cylinder limitations imposed by many Operating Systems. LBA Mode is used to extend a hard drive's useable capacity by "remapping" the cylinders in a way that is acceptable to these operating systems. For instance, a hard drive with the parameters of 2100 Cylinders, 16 Heads and 63 Sectors would be represented by LBA Mode as 525 Cylinders, 64 Heads and 63 Sectors. (Notice that the Cylinders have been divided, and the Heads have been multiplied, by a factor of 4.)

On hard drives smaller in capacity than 528MB, LBA support is not needed. The option on these devices is ignored, even if enabled. For hard drives greater than 528MB, LBA mode should be enabled. The following rules apply:

- Operating Systems that do not use the FAT file system do not need LBA Mode, and can use the Normal or Large Modes. Examples would be NetWare and Unix.

- When configuring a new hard drive greater than 528MB in capacity, always make sure LBA mode is enabled.

- If you are using a hard drive that is over 528MB in capacity, but was already formatted without using LBA mode, LBA support will be ignored even if it is enabled. This assures correct access to the drive's data.

- *SCSI Hard Drives* are <u>NOT</u> entered into the Mainboard BIOS Setup in any way. The hard drive settings in the Standard CMOS Setup are only for drives connected to the IDE Controller. So, if only SCSI drives were

installed, all these settings would be set to *None*. SCSI Devices are configured via the SCSI controller's BIOS.

Floppy Drives A: and B: - Select the Type for the A: and/or B: floppy drives. Remember, floppy drive A: is the first drive, hooked to the END of the floppy ribbon cable. Floppy drive B: is hooked up after the twist. Available settings are listed below:

None	No floppy drive installed
360K, 5.25 in	5-1/4 inch PC-type standard drive; 360 kilobyte capacity
1.2M, 5.25 in	5-1/4 inch AT-type high-density drive; 1.2 megabyte capacity
720K, 3.5 in	3-1/2 inch double-sided drive; 720 kilobyte capacity
1.44M, 3.5 in	3-1/2 inch double-sided drive; 1.44 megabyte capacity
2.88M, 3.5 in	3-1/2 inch double-sided drive; 2.88 megabyte capacity

Video - This category selects the type of video adapter used for the primary system monitor. Although secondary monitors are supported, you do not have to select their type in Setup.

EGA/VGA	Enhanced Graphics Adapter/Video Graphics Array. For EGA, VGA, SEGA, SVGA or PGA monitor adapters.
CGA 40	Color Graphics Adapter, power up in 40 column mode
CGA 80	Color Graphics Adapter, power up in 80 column mode
MONO	Monochrome adapter, includes high resolution monochrome adapters

Halt On - Determines whether or not the system will prompt you if an error is detected during POST.

All Errors	Whenever the BIOS detects a non-fatal error the system will be stopped and you will be prompted.
No Errors	The system boot will not be stopped for any error that may be detected.
All, But Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors.
All, But Diskette	The system boot will not stop for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

Memory - This category is display-only. All memory detected by the POST (Power On Self Test) of the BIOS is shown as the following types:

Base Memory is the amount of conventional memory installed in the system. This value is typically 640K for systems with 640K or more memory installed on the motherboard. The **Extended Memory** is the amount of memory located above 1MB in the CPU's memory address map. **Other Memory** refers to the memory located in the region between 640K and 1MB. This region can be used for *shadowing* as well as *expanded memory* in DOS.

Advanced BIOS Features

This menu provides access to more advanced BIOS configuration settings that deal with overall performance of the system and peripheral setup. This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation and security.

Anti-Virus Protection	Enabled	Item Help
CPU Internal Cache	Enabled	
External Cache	Enabled	Menu Level ▶
CPU L2 Cache ECC Checking	Enabled	
Quick Power On Self Test	Disabled	
First Boot Device	Floppy	
Second Boot Device	HDD-0	
Third Boot Device	LS/ZIP	
Boot Other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Disabled	
Boot Up NumLock Status	Off	
Gate A20 Option	Normal	
Typematic Rate Setting	Disabled	
Typematic Rate (Chars/Sec)	6	
Typematic Delay (Msec)	250	
Security Option	Setup	
OS Select For DRAM > 64MB	Non-OS2	
Report No FDD For WIN 95	No	

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

Anti-Virus Protection – Enables/Disables the built-in anti-virus for protection against **boot virus** infection. Unlike traditional BIOS protection which generally consists of simply write protecting the hard disk partition table, this Anti-Virus protection provides more complete virus protection by taking control early in the boot process, detecting boot viruses before they have a chance to load.

CPU Internal Cache - Enables or Disables the Level-1 Internal Cache memory. Generally, this would only be *Disabled* for troubleshooting purposes.

External Cache - Enables or Disables the Level-2 External Cache memory. Generally, this would only be *Disabled* for troubleshooting purposes.

CPU L2 Cache ECC Checking - Enables or Disables ECC (Error Checking and Correcting) for the CPU's Level 2 built-in cache.

Quick Power on Self Test - Speeds up Power On Self Test (POST) after the computer is powered on. When set to *Enabled*, the BIOS will shorten or skip some checks during POST.

First/Second/Third/Other Boot Device - When your system is powered on, the BIOS performs a variety of operations, then attempts to boot an Operating System from either a hard drive (IDE or SCSI), floppy drive, CD-ROM, LS-120/ZIP or LAN. This setting determines the sequence that the BIOS will follow when searching devices for a bootable disk.

Swap Floppy Drive - The hardware connections determine which floppy is configured as drive A: and drive B: "Swapping" the floppy drives can be useful if your system has two floppy drives, and you want the ability to boot from both. For example: Since a PC cannot boot from the B: Floppy, you would need to "Swap" floppy drives A: and B: in order to set the second floppy drive to drive A:, thereby making it bootable.

Boot Up Floppy Seek - When enabled, BIOS will attempt to move the head of the floppy disk drive forth and back once during POST to see if the drive is working properly.

Boot Up NumLock Status - When *On*, the NumLock key will be automatically enabled when the system boots.

Gate A20 Option - This entry allows you to select how the gate A20 is handled. The gate A20 is a device used to address memory above 1 Mbytes. Initially, the gate A20 was handled via a pin on the keyboard (Normal). Today, while keyboards still provide this support, it is more common, and much faster, for the system chipset (Fast; default) to provide support for gate A20.

Typematic Rate Setting - Determines if the typematic rate is to be used. When disabled, continually holding down a key on your keyboard will generate only one instance. In other words, the BIOS will only report that the key is down. When the typematic rate is enabled, the BIOS will report as before, but it will then wait a moment, and, if the key is still down, it will begin to report that the key has been depressed repeatedly. This feature is used to accelerate cursor movements with the arrow keys.

Typematic Rate (Chars/Sec) - When the typematic rate is enabled, this selection allows you to select the rate at which the keys are accelerated: Options are 6 (default), 8, 10, 12, 15, 20, 24 and 30.

Typematic Delay (Msec) - When the typematic rate is enabled, this selection allows you to select the delay (in msec) between when the key was first depressed and when the acceleration begins. Options are 250 (default), 500, 750 and 1000.

Security Option - This option enables password checking every time the computer is powered on or every time BIOS Setup is executed. If *System* is chosen, a user password prompt appears every time the computer is turned on. If *Setup* is chosen, the password prompt appears only when the BIOS Setup program is executed. Refer to the section Supervisor Password for more information.

OS Select For DRAM > 64MB - This should be set to *OS2* if you are running IBM OS/2 with more than 64MB of RAM in the system. Otherwise, the setting should be *Non-OS2*.

Report No FDD For WIN95 – When no floppy disk drive is installed, set this option to No to release IRQ6 for passing Win95 logo. This option is irrelevant under normal operation.

Advanced Chipset Features

This setup menu contains advanced configuration options relating to the mainboard chipset. These options are rarely changed by the user.

		Item Help
SDRAM CAS latency Time	3	
SDRAM Cycle Time Tras/Trc	6/8	Menu Level ▶
SDRAM RAS-to-CAS Delay	3	
SDRAM RAS Precharge Time	3	
System BIOS Cacheable	Disabled	
Video BIOS Cacheable	Disabled	
Memory Hole At 15M-16M	Disabled	
Delayed Transaction	Enabled	
On-Chip video Window Size	64MB	
* Onboard Display Cache Setting *		
CAS# Latency	3	
Paging Mode Control	Close	
RAS-to-CAS Override	By CAS# LT	
RAS# Timing	Slow	
RAS# Precharge Timing	Slow	

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

SDRAM CAS Latency Time - This item allows you to select the CAS# latency for all SDRAM cycles. Options are 3 or 2 Clocks.

SDRAM Cycle Time Tras/Trc – Selects the Row Active Time and Row Cycle Time for an access cycle. Options are 6/8 and 5/7.

SDRAM RAS-to-CAS Delay – This option allows you to determine the number of clocks allocated between the assertion of RAS to CAS. Do not change the value in this field unless you change to different DRAM or CPU with different specifications.

SDRAM RAS Precharge Time – Defines the length of time that **R**ow **A**ddress **S**trobe is allowed to precharge. If insufficient time is allowed, refresh may be incomplete and data will be lost.

System BIOS Cacheable - When Enabled, the contents of the F0000h system memory segment can be cached to the Level-2 cache memory. The contents of the

F0000h memory segment are always copied from the BIOS ROM to system RAM for faster execution and PCI compliance.

Video BIOS Cacheable - When Enabled, C0000h to C7FFH become cacheable memory.

Memory Hole At 15M-16M - In order to improve compatibility, certain space in memory can be reserved for old style ISA cards that map memory between 15M-16M. Do not enable this feature unless you use the old style ISA card, otherwise the memory size may be reduced to 15 MB for some O.S.

Delayed Transaction - When enabled, the delay transaction mechanism will be in effect when PIIX4 is the target of a PCI transaction.

On-Chip Video Window Size – Determines the maximum image area on screen for the on-chip VGA.

* Onboard Display Cache Setting *

The following options are only for mainboards with onboard display cache.

CAS# Latency - This item allows you to select the CAS# latency for all onboard display cache clock cycles. Options are 3 or 2 Clocks.

Paging Mode Control – Selects the paging mode. *Open* or *Close*.

RAS-to-CAS Override - Selects the display cache clock period control. *By CAS# LT* or *Override(2)*.

RAS# Timing - This item controls RAS# active to Protegra, and refresh to RAS# active delay (in local memory clocks).

RAS# Precharge Timing – This item controls RAS# precharge (in local memory clocks).

Integrated Peripherals

This menu is used to configure the integrated IDE subsystem and other peripherals.

On-Chip Primary PCI IDE	Enabled	Item Help
On-Chip Secondary PCI IDE	Enabled	
IDE Primary Master PIO	Auto	Menu Level ▶
IDE Primary Slave PIO	Auto	
IDE Secondary Master PIO	Auto	
IDE Secondary Slave PIO	Auto	
IDE Primary Master UDMA	Auto	
IDE Primary Slave UDMA	Auto	
IDE Secondary Master UDMA	Auto	
IDE Secondary Slave UDMA	Auto	
USB Controller	Enabled	
USB Keyboard Support	Disabled	
Init Display First	PCI Slot	
AC97 Audio	Enabled	
AC97 Modem	Disabled	
IDE HDD Block Mode	Enabled	
POWER ON Function	Button ONLY	
x KB Power ON Password	Enter	
x Hot Key Power ON	Ctrl-F1	

AC97 Modem	Disabled	Item Help
IDE HDD Block Mode	Enabled	
POWER ON Function	Button ONLY	Menu Level ▶
x KB Power ON Password	Enter	
x Hot Key Power ON	Ctrl-F1	
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	3F8/IRQ4	
Onboard Serial Port 2	2F8/IRQ3	
UART Mode Select	Normal	
RxD, TxD Active	Hi, Lo	
IR Transmission delay	Enabled	
Onboard Parallel Port	378/IRQ7	
Parallel Port Mode	SPP	
EPP Mode Select	EPP 1.7	
ECP Mode Use DMA	3	
PWRON After PWR-Fail	Off	
Game Port Address	201	
Midi Port Address	330	
Midi Port IRQ	5	

On-Chip Primary PCI IDE - Enables or Disables the primary controller. Situations where this controller would be disabled are: *a) You are not using any IDE Drives* or *b) You are using an add-on IDE controller in a PCI Slot*.

On-Chip Secondary PCI IDE - Enables or Disables the secondary controller. Situations where this controller would be disabled are: *a) You are not using any IDE Drives* or *b) You are using IDE Drives ONLY on the primary controller* or *c) You are using an add-on IDE controller in a PCI Slot*.

- **IDE PIO Mode -** IDE Programmed I/O Mode - This setting relates to the speed at which the hard drive is able to transfer data, up to 16.6MB/second for Mode 4 drives. Available settings are *Auto*, *0*, *1*, *2*, *3*, or *4*. As with the **Type** setting, *Auto* is the preferred choice, in that the supported PIO Mode is read directly from the hard drive. Be sure not to use a PIO Mode higher than what the drive actually supports. This could result in loss of data.

PIO Mode	Timing
0	600 ns
1	383 ns
2	240 ns
3	180 ns
4	120 ns

- **IDE UDMA (Ultra DMA) Mode -** The chipset used for this mainboard improves the IDE performance by implementing UltraDMA/66 Bus Mastering IDE which can handle data transfer up to 66 Mbyte/sec. This UDMA technology is downward compatible with existing ATA-2 IDE. So there is no upgrade required for current hard drives and cabling.

USB Controller – If you are using USB peripherals, set this option to *Enabled*.

USB Keyboard Support - This item allows you to enable or disable the USB keyboard driver within the onboard BIOS. The keyboard driver simulates legacy keyboard command and let you use USB keyboard during POST or after boot if you don't have USB driver in the operating system.

Init Display First - This option allows you to select the onboard VGA or other PCI display cards your system will use initially.

AC97 Audio – Enabling this option allows the system to use the on-chip AC97 audio support. If you want to use the Sound Blaster compatible mode or an add-on audio card instead, set this option to *Disabled* to avoid possible conflict.

AC97 Modem – Enabling this option allows the system to use the on-chip AC97 modem support. If you want to use the legacy modem compatible mode or an add-on modem card instead, set this option to *Disabled* to avoid possible conflict.

IDE HDD Block Mode - This allows your hard disk controller to use fast block mode to transfer data to and from your hard disk drive (HDD).

POWER ON Function - This option allows you select one of the various methods to power on your system:

Option	How to Power on your System
Any Key	By pressing any key on the keyboard (JP1 must be set to *Enabled*)
Button Only	By your conventional power button
Keyboard 98	By pressing the *Wakeup* button on your PC98 keyboard
Password	By typing the password on your keyboard (See below)
Hot Key	By pressing the hot key combination on your keyboard (See below)
Mouse Left	By left-clicking the mouse (for PS/2 mouse only)
Mouse Right	By right-clicking the mouse (for PS/2 mouse only)

KB Power ON Password – Available when the **Power ON Function** above is set to *Password*. Press [Enter] at this option then a dialog box will appear to prompt you to enter a password. Once a password is stored in the system, you can power on the system by typing the password, provided that JP1 is set to *Enabled* (Refer to the Installation Guide). **Note:** If you forget the password, clear the CMOS by removing the mainboard's battery AND disconnecting the mainboard's power supply. Wait a couple of seconds before re-installing them back. This is the only way you can power on your system again.

Hot Key Power ON– Available when the **Power ON Function** above is set to *Hot Key*. You can power on the system by pressing the hot key specified here, provided that JP1 is set to *Enabled* (Refer to the Installation Guide).

Onboard FDC Controller - Set to *Enabled* if you have a floppy disk drive installed on the system board and you wish to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature.

Onboard Serial Port 1 - With this option, the on-board Serial Port 1 can be Disabled, or set to Auto, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4 or 2E8/IRQ3.

Onboard Serial Port 2 - With this option, the on-board Serial Port 2 can be Disabled, or set to Auto, 3F8/IRQ4, 2F8/IRQ3, 3E8/IRQ4 or 2E8/IRQ3.

UART Mode Select - By default, this field is set to *Normal*, which directs the second serial port UART to support the COM2 serial port. Choosing *ASKIR* (SHARP IR) or *IrDA* (HPSIR) will activate the on-board infrared feature and redirect the second serial port UART to support the infrared module connector on the mainboard.

RxD, TxD Active – Determines the Infrared Receiving and Transmission active mode.

IR Transmission Delay – Available when the above *UART Mode Select* option is set to *IrDA*. Enabling this option to allow transmission delay when SIR is changed from receiving mode to transmission mode, ensuring data integrity.

Onboard Parallel Port - With this option, the on-board Parallel Port can be Disabled, or set to 378/IRQ7, 3BC/IRQ7 or 278/IRQ5.

Parallel Port Mode - Sets the operating mode of the parallel port. Options are: *SPP, EPP, ECP* and *ECP+EPP*.

SPP: Standard Parallel Port, EPP: Enhanced Parallel Port, ECP: Extended Capability Port.

EPP Mode Select - Options are 1.7 and 1.9 (default ; IEEE 1284 compliant).

ECP Mode Use DMA - Options are 1 and 3. This field is available only when one of the two following options in **Parallel Port Mode** is selected: *ECP* or *ECP+EPP*.

PWRON After PWR-Fail – This feature will power-on the PC when power returns after a power failure. The following table lists the options available and the corresponding "System State" when power returns.

Options Available	System State When Power Failure Occurred	System State When Power Returns
Former-State	On	On
	Off	Off
Off	On	Off
	Off	Off
On	On	On
	Off	On

Game Port Address – Selects the address that the game port will occupy.

Midi Port Address – Selects the address that the Midi port will occupy.

Midi Port IRQ – Selects the interrupt that the Midi port will occupy.

Power Management Setup

Power Management allows you to configure you system to use energy most efficiently, and still in a manner consistent with your own style of computer use.

ACPI Function	Enabled	Item Help
ACPI Suspend Type	S1 (POS)	
Power Management	User Define	Menu Level ▸
Video Off Method	DPMS	
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	
Power On by Ring	Enabled	
CPU Thermal-Throttling	50.0%	
Resume by Alarm	Disabled	
x Date (of Month) Alarm	0	
x Time (hh:mm:ss) Alarm	0 0 0	
** Reload Global Timer Events **		
Primary IDE 0	Disabled	
Primary IDE 1	Disabled	

Video Off In Suspend	Yes	Item Help
Suspend Type	Stop Grant	
MODEM Use IRQ	3	Menu Level ▸
Suspend Mode	Disabled	
HDD Power Down	Disabled	
Soft-Off by PWR-BTTN	Instant-Off	
Power On by Ring	Enabled	
CPU Thermal-Throttling	50.0%	
Resume by Alarm	Disabled	
x Date (of Month) Alarm	0	
x Time (hh:mm:ss) Alarm	0 0 0	
** Reload Global Timer Events **		
Primary IDE 0	Disabled	
Primary IDE 1	Disabled	
Secondary IDE 0	Disabled	
Secondary IDE 1	Disabled	
FDD, COM, LPT Port	Disabled	
PCI PIRQ [A-D] #	Disabled	

ACPI function – This option allows you to enable/disable the **A**dvanced **C**onfiguration and **P**ower **I**nterface, which makes hardware status information available to the operating system and offers improved power management. To make an ACPI system, you must use an ACPI OS such as Windows 98.

ACPI Suspend Type – Determines the ACPI defined suspend type.

Suspend Type	Power Consumption
S1 (POS)	State 1 (Power On Suspend) - below 30W CPU stops working through STPCLK#, while the power is still provided for the whole system.
S3 (STR)	State 3 (Suspend to RAM) - Less than 10W Power is provided only to DRAM and wake-up devices circuit, while the rest of the system is powered off.

Power Management - This category allows you to select the type (or degree) of Green PC power saving and is directly related to the **Suspend Mode** and **HDD Power Down**. There are three selections for Power Management, two of which have fixed mode settings:

Min Saving	Minimum power management. Suspend Mode = 1 hr., and HDD Power Down = 15 min.
Max Saving	Maximum power management -- **ONLY AVAILABLE FOR SL CPUs**. Suspend Mode = 1 min., and HDD Power Down = 1 min.
User Defined	Set each mode individually. When Enabled, each range is from 1 min. to 1 hr., except for HDD Power Down which ranges from 1 min. to 15 min.

Video Off Method - This determines the manner in which the monitor is blanked.

V/H SYNC+Blank	This selection will cause the system to turn off the vertical and horizontal synchronization ports, writing blanks to the video buffer.
Blank Screen	This option only writes blanks to the video buffer.
DPMS	Initial display power management signaling.

Video Off In Suspend - This is to determine whether to activate the video off function in suspend mode.

Suspend Type – In *Stop Grant* (or Quick Start) state, the processor disables clocks to portions of its internal logic, but is able to snoop host bus cycles in order to

maintain cache coherency. In the *Power On Suspend* state, the host clock stops running altogether, resulting in more power saving but longer resume time.

MODEM Use IRQ - This item tells the Power Management BIOS which IRQ is assigned to the installed MODEM. Options are NA, 3, 4, 5, 7, 9, 10, and 11.

The following modes are Green PC power saving functions which are only user configurable when *User Defined* Power Management has been selected. See below for available selections.

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 PWR-BTTN - With *Instant-Off* selected, the ATX switch functions like a normal system power off button. With *Delay 4 Sec.* selected, you must hold down the ATX switch for more than 4 seconds to power off the system.

Power On by Ring – An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem power on the system or return it to full power out of suspend mode.

CPU Thermal-Throttling - This item determines the clock control thermal throttling mode. The rate indicates the percentage of time the STPCLK# (stop clock) signal is asserted to prevent CPU from accepting clocks. This will effectively reduce CPU speed as well as CPU power in power management mode.

Resume by Alarm - When enabled, the system will automatically power on or returns to full power out of suspend mode at the time and date of the month (0 for daily) specified.

** Reload Global Timer Events **

Reload Global Timer Events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything which occurs to a device which is configured as *Enabled* , even when the system is in a power down mode.

PnP/PCI Configurations

The PCI **P**ersonal **C**omponent **I**nterconnect Bus was developed to address two important issues: a) How to allow peripheral devices to take the fullest advantage of the power of Pentium and Pentium Pro chip technology, and b) Provide a simpler installation process for peripheral devices, such as Network cards, EIDE or SCSI controllers.

PCI accomplishes these goals with its 32-bit Data path Local Bus design, and support for Plug & Play. Unlike older expansion bus architectures, PCI provides peripherals with a direct connection to the CPU and memory. The PCI bus runs at 33Mhz and has a maximum transfer capability of 132MBps. With Plug & Play, the system BIOS automatically determines hardware resources for new peripherals, simplifying installation of multiple interface cards.

This Setup Menu provides configuration options for the PCI Bus and its assigned resources.

		Item Help
Reset Configuration Data	Disabled	
Resources Controlled by	Auto (ESCD)	Menu Level ▶
x IRQ Resources	Press Enter	
x Memory Resources	Press Enter	
PCI/VGA Palette Snoop	Disabled	
SYMBIOS SCSI BIOS	Auto	

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

Reset Configuration Data - Reset Configuration Data: When set to Enabled, ESCD (Extended System Configuration Data) is cleared. This setting will automatically be set back to Disabled when the system reboots.

Resources Controlled By - The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. This capability is specifically designed for a Plug and Play operating system such as Windows® 95.

When set to *Manual*, you are able to configure the **IRQ Resources**. Pressing <Enter> at the selection field brings up a submenu like the one shown below:

IRQ-3	assigned to	PCI/ISA PnP	Item Help
IRQ-4	assigned to	PCI/ISA PnP	
IRQ-5	assigned to	PCI/ISA PnP	Menu Level ▸▸
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 Value   F6:Fail-Safe Defaults   F7:Optimized Defaults

- **IRQ3/4/5/7/9/10/11/12/14/15 assigned to –**By default, all resources are assigned to the PCI Bus. If an ISA card requires a particular IRQ or DMA channel, those resources should be set to Legacy ISA so that the PCI Bus will not try to use them. Choices are *Legacy ISA* and *PCI/ISA PnP*.

Pressing <Enter> at **Memory Resources** brings up a submenu that gives you the following options:

- **Reserved Memory Base -** This item allows you to determine which basic addresses are not to be occupied by PCI Card and leave these addresses for some special ISA Card used only.

Choices are C800, CC00, D000, D400, D800, DC00 and N/A.

- **Reserved Memory Length -** Select a length for the memory area specified in the previous field. This field does not appear if no base address is specified. Options are 8K, 16K, 32K, 64K.

PCI/VGA Palette Snoop – This option must be set to *Enabled* if any ISA MPEG card installed requires VGA palette snooping.

SYMBIOS SCSI BIOS - When set to *Auto* (Default), the system will automatically sense the presence of any SCSI adapter that uses a Symbios SYM53C8XX SCSI chip:

If the SCSI adapter installed **has** its own BIOS on board:	The on-board SCSI BIOS will not be loaded. The adapter's own SCSI BIOS will be used.
If the SCSI adapter installed **doesn't have** its own BIOS and the card uses or is compatible with the SYM53C8XX chip:	The on-board SCSI BIOS will load and control the SCSI adapter.

*Disabling the onboard SCSI BIOS prevents it from being active in any way.

PC Health Status

The onboard hardware monitor allows you to observe the current temperatures of the system and CPU, current speeds (in RPM, rotation per minute) of the system and CPU fans, as well as the various operating voltages. (If the fan is not installed, 0 RPM will be shown.)

		Item Help
CPU Warning Temperature	Disabled	
Current System Temp.	30°C/ 86°F	
Current CPU1 Temperature	35°C/ 95°F	Menu Level ▶
Current CPUFAN1 Speed	5400 RPM	
Current CPUFAN2 Speed	0 RPM	
IN0(V)	2.04 V	
IN1(V)	2.33 V	
IN2(V)	2.34 V	
+ 5 V	4.97 V	
+12 V	11.85 V	
- 12 V -	12.11 V	
- 5 V -	5.04 V	
VBAT(V)	3.21 V	
5VSB V)	5.51 V	
Shutdown Temperature	70°C/ 158°F	

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

CPU Warning Temperature - Once the CPU temperature exceeds the temperature specified, a warning will be issued via the speaker and the operating CPU speed will be slowed down to ease the situation.

Shutdown Temperature - Once the system or CPU temperature exceeds the temperature specified, the CPU will shutdown automatically to avoid damaging. This function only works for an ACPI OS such as Windows 98 with ACPI activated.

Frequency / Voltage Control

Use this menu to specify your settings for frequency/voltage control.

Auto Detect DIMM/PCI Clk	Enabled	Item Help
Spread Spectrum	Disabled	
CPU Host Clock	Default	Menu Level ▸
CPU Ratio	X 3	

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

Auto Detect DIMM/PCI Clk – When *enabled*, any DIMM/PCI clock not in use will be disabled to reduce EMI radiation.

Spread Spectrum – The default is the optimal value determined by the system designer to reduce EMI radiation peak. Users should not attempt to change it.

CPU Host Clock – This option lets you select the CPU/PCI Bus clock. The chipset supports only the 66 and 100 MHz CPU bus clock. With this option, the bus clock can be extended from 66 MHz to 75 or 83.3 MHz, or from 100 MHz to 103 up to 140 MHz for internal test. *Over-clocking may cause serious system damage.*

CPU Ratio - This option allows you select the CPU ratio.

- The CPU Bus Clock when multiplied with the Ratio gives the CPU Clock.

- If you are uncertain about the speed requirements of your particular CPU, you should obtain Technical Documentation from the CPU manufacturer. Such information is available via the Intel WWW site.

Load Fail-Safe Defaults

Loads "Fail Safe" settings into the BIOS Setup program. These options are designed to slow the system down for troubleshooting purposes. To load the default values, highlight this option and press [ENTER]. Enter "Y" in the confirmation screen and press [ENTER] again. User-defined options in the **Standard CMOS Setup** are not affected.

Load Optimized Defaults

Loads the default values for best system performance into the BIOS Setup program. To load the default values, highlight this option and press [ENTER]. Enter "Y" in the confirmation screen and press [ENTER] again. User-defined options in the **Standard CMOS Setup** are not affected.

Supervisor Password and User Password Setting

Passwords can be set to provide protection for the BIOS configuration options, or to restrict access to the computer itself.

When enabled, User Password will require all users to enter a password in order to use the system, and/or enter the BIOS setup (but can't change its contents). A Supervisor Password is used to protect the stored CMOS options from being changed by unauthorized users.

Keep in mind that when set, a password is required only when booting the system. It will not provide protection to a system that is already booted.

The password check option is set in **Advanced BIOS Features** by choosing either System (the password prompt appears every time the system is powered on) or Setup (the password prompt appears only when the user enters the BIOS Setup). The password is stored in CMOS RAM, and can be cleared by the Clear CMOS jumper (Refer to the Installation Guide).

To set a password:

1. You must first set the *Supervisor* password by choosing *Supervisor Password* and pressing [ENTER]. Setup prompts for a password.

2. Enter a 1-8 character password using letters, numbers, or a combination of both. The specific characters are not shown as you enter them. Press [ENTER].

3. A confirmation box appears asking you to re-enter the password. Enter the password again. Press [ENTER]. Follow the same procedure to set the *User Password*.

Changing a Password:

Select the appropriate password option (Supervisor or User) from the main menu and press [ENTER]. Enter the current password and press [Enter]. The screen does not display the characters entered. Enter in the new password, then the confirmation. You cannot change the current password unless you know it.

Erasing a Password:

1. If you know the current password, but want to disable password checking, follow the procedure for changing the password. When Setup prompts for the new password, simply press [ENTER]. You will see a message indicating that the password is disabled.

2. If you do not know the current password, the CMOS must be cleared by cleared by the Clear CMOS jumper (Refer to the Installation Guide). *This will clear all user-defined BIOS Setup options.

Save & Exit Setup / Exit Without Saving

Select *Save & Exit Setup* to save into the CMOS memory all modifications specified during the current session. To save the configuration changes, highlight this option in the main menu and press [ENTER]. The system displays a confirmation message on the screen. Press the "Y" key and then [Enter]. Press the "N" key and then the [Enter] key to abort. The *Exit Without Saving* option allows the user to exit the BIOS Setup without updating any changes made during the current session.

PCI Device Listing

This list of installed PCI devices appears after the **System Configuration** screen:

PCI device listing						
Bus No.	Device No.	Func No.	Vendor ID	Device ID	Device Class	IRQ
0	7	1	1106	0571	IDE Controller	14/15
0	7	2	8086	8829	Serial bus controller	11
0	9	0	1013	7333	Display controller	11

Bus No.   Encoded value indicating 1 of 256 possible buses in a system.

Device No.   Encoded value indicating 1 of 32 possible devices on a given bus.

Func No.   Encoded value indicating 1 of 8 possible functions on a multifunction device.

Vendor ID   Identifies the manufacturer of the device. Valid vendor identifiers are allocated by the PCI SIG (Special Interest Group) to ensure uniqueness.

Device ID   Identifies the particular device. This identifier is allocated by the vendor.

Device Class   Specifies one of the following device classes: Mass storage controller, Network controller, Display controller, Multimedia device, Bridge device, Simple communication controller, Base system peripherals, Input device, Docking station, Processor and Serial bus controller.

The PCI device listing is useful for troubleshooting purposes. More detailed information for each field may be obtained through the PCI specification documentation.

BUILT-IN SYMBIOS SCSI BIOS

To provide easy to use and cost effective support for adapters using or compatible with the Symbios Logic 53C8XX SCSI chips, this mainboard features built-in Symbios SCSI BIOS.

In most cases you should not need to change the default configuration of your host adapter. You may decide to alter these default values if there is a conflict between device settings, or if you need to optimize system performance. A message appears on your computer monitor (for about 5 seconds) during boot that looks like this:

Press Crtl-C to start Symbios Configuration Utility

If you decide to press Ctrl-C during boot, the following message appears:

Please wait, invoking Symbios Configuration Utility …

After a brief pause, your computer will display the Main Menu of the utility.

The Symbios SCSI Configuration Utility

This menu driven utility allows you to view and change the default configuration settings for host adapters using Symbios 53C8XX chips.

Note: Pressing **Ctrl-A** after memory count during re-boot allows you to recover the default settings and reconfigure.

The following tables list the configuration settings you can change:

- Global: Affects both the adapter and all SCSI devices
- Device: Affects only the individual SCSI devices

Global Default Settings	
Settings	**Default**
SCAM Support	On
Parity Checking	On
Host Adapter SCSI ID	7
Scan Order	Low to High (0-Max)

Device Default Settings	
Settings	**Default**
Synchronous Transfer Rate (MB/sec)	20
Data Width	8
Disconnect	On
Read Write I/O Timeout (secs)	10
Scan for Devices at Boot Time	Yes
Scan for SCSI LUNs	Yes
Queue Tags	No

Main Menu

```
┌─ MAIN MENU ──────────────────────────────────────────────────┐
│                                                              │
│                  Port      Irq    ----------Status---------   NvRAM   │
│                  Num      Level   Current    Next-Boot    Found   │
│   SYM53C860      FC00       9      On          On         Yes     │
│   SYM53C820        0        0      Off         Off         ?      │
│   SYM53C825      FD00       9      On          On         Yes     │
│   SYM53C815      FE00      10      On          On         No      │
│   Change Adapter Status                                       │
│   Adapter Boot Order                                         │
│   Additional Adapter Configuration                          │
│   Display Mode = Verbose                                     │
│   Mono/Color                                                │
│   Language                                                  │
│   Help                                                      │
│   Quit                                                      │
│                                                              │
└──────────────────────────────────────────────────────────────┘
```

You can select an adapter only if the current status is "On". ***Changes are only possible with SCSI adapters that support NVRAM (non-volatile memory).*** Check the "NvRAM Found" column to see if NVRAM is present on your adapter. If you choose to alter any of these settings, exit via the **Quit** option and the system will reboot.

Change Adapter Status - Allows you to activate or deactivate a host adapter and all SCSI devices attached to it. The change takes place after a reboot, which is automatic upon exit from the utility when this option is changed.

Adapter Boot Order - Allows you to set the order in which host adapters will boot when more than one Symbios host adapter is present in the system. To change an adapter's boot order, select it and press <Enter>. You are then prompted to enter the new boot sequence number. When the adapters are ordered properly, press the <Esc> key to exit this menu.

```
 Boot Order ─────────────────────────────────────────────────
                   Port       Irq      ----------Status---------      NvRAM
                   Num       Level     Current      Next-Boot        Found
       SYM53C860   FC00        9         On            On             Yes
       SYM53C820    0          0         Off           Off             ?
       SYM53C825   FD00        9         On            On             Yes
       SYM53C815   FE00       10         On            On             No
```

Display Mode - Determines how much information about your host adapters and SCSI devices is displayed on your computer monitor during boot:

- *verbose:* for more complete information
- *terse*: for a faster boot

Mono/Color - Allows you to choose between a black and white or color display for the SCSI Configuration utility.

Language - English mode only.

Help - Brings up a help screen with information about the Main menu.

Quit - Exits the SCSI Configuration utility.

Adapter Utilities Menu

When you select a host adapter from the main menu, the following screen is displayed:

```
 SYM53C860 ──────────────────────────────────────────────────


                  Adapter Setup
                  Device Selections
                  Help
                  Exit this menu


```

- **Adapter Setup**: Adapter settings are viewed and changed.

```
SYM53C860
Adapter Setup

                SCAM Support              On
                Parity                    On
                Host SCSI ID              7
                Scan Order                Low to High (0..Max)
                Removable Media Support   Boot Drive Only
                CHS Mapping               SCSI Plug and Play Mapping
                Spinup Delay (Secs)       2
                Help
                Restore Default Setup
                Exit this menu
```

SCAM Support - SCAM (SCSI Configured AutoMatically) is the SCSI Plug and Play protocol supported by Symbios BIOS version 4.X.

Parity - The Symbios host adapters always generate parity, but some SCSI devices do not. Therefore, you are offered the option of disabling parity checking.

*Note***:** When disabling parity checking, it is also necessary to disable disconnect for all devices, as parity checking for the reselection phase will not be disabled. If a device does not supporting parity disconnects, the I/O will never complete because the reselection phase will halt.

Host SCSI ID - The host adapter SCSI ID should remain on 7 (default), as this setting gives the adapter the highest priority on the SCSI bus. However, if you have two adapters on the same SCSI bus, you should give one of them an unassigned ID to avoid duplication of SCSI IDs.

Scan Order - This option allows you to tell the host adapter BIOS and your device drivers to scan the SCSI bus from low to high (0 to max) SCSI IDs, or from high to low (max to 0) SCSI IDs. If you have more than one device on the SCSI bus, changing the scan order changes the order in which drive letters are assigned by the system.

Removable Media Support - Determine if the removable media will be used as BIOS device. A BIOS device here is a device that can be controlled via BIOS INT 13H, i.e. it does not need a device driver and can be bootable. However, when used as a BIOS device, the full removability of removable media devices is not preserved. The following constraints apply:
a) The device can only work as a fixed disk, i.e. media change is not allowed.

b) The media must be inserted before the system boot-up.

c) Only media with 512Bytes/sector is supported.

None	The removable media devices will not be used as BIOS devices.
Boot Drive Only	Allows only the removable media installed as Drive C: to work as a BIOS device.
With Media Installed	Enables all removable disk drives to work as BIOS devices.

CHS Mapping – Cylinder, Head, Sector mapping. Options are "SCSI Plug and Play Mapping" (default) and "Alternate CHS Mapping".

Spinup Delay – 1-10 seconds. The default is a 2-second delay before the BIOS starts to scan for SCSI devices during initialization. This amount of time is enough for most devices to get ready for proper operation. Since some older hard drives may need more time to spin up, you may need to extend the delay for those devices.

- **Device Selections**: Settings for the devices attached to the selected adapter are viewed and changed.

```
     SYM53C860
     Devices 0 to 7
                          Sync    Data    Disc    Time         Scan        Queue    Init
                          Rate    Width           Out     Bus     LUNS     Tags     Boot

     Dev0 N/A             20      8       On      10      Yes     Yes      On       No
     Dev1 N/A             20      8       On      10      Yes     Yes      On       No
     Dev2 N/A             20      8       On      10      Yes     Yes      On       No
     Dev3 N/A             20      8       On      10      Yes     Yes      On       No
     Dev4 N/A             20      8       On      10      Yes     Yes      On       No
     Dev5 N/A             20      8       On      10      Yes     Yes      On       No
     Dev6 N/A             20      8       On      10      Yes     Yes      On       No
     SYM53C860            20      8       On      10      Yes     Yes      On       No
     Devices 8 to15
     Help
     Exit this menu
```

The above menu provides information about individual SCSI devices attached to the selected host adapter, as well as the adapter itself. To make changes to these settings select a device from this display and press <Enter> to bring up the individual **Device Setup** menu.

Device Setup Menu

When you select a specific device from the Device Selection menu, your computer displays the following Device Setup menu. The settings in this menu effect individual SCSI devices attached to the selected host adapter. Changes made from this menu will require a system reboot upon exit from the SCSI Configuration utility.

```
 ┌──── SYM53C860 Setup for All devices on this adapter ────┐
 │                                                         │
 │              Sync Rate (MBytes/sec)        20           │
 │              Width (bits)                  8            │
 │              Disconnect                    On           │
 │              Read Write I/O Timeout (secs) 10           │
 │              Scan for Device at Boot Time  Yes          │
 │              Scan for SCSI LUNS            Yes          │
 │              Queue Tags                    On           │
 │              Initial Boot Device           No           │
 │              Format                                     │
 │              Verify                                     │
 │              Help                                       │
 │              Restore Default Setup                      │
 │              Exit this menu                             │
 │                                                         │
 └─────────────────────────────────────────────────────────┘
```

Sync Rate (Mega Bytes/sec) - Defines the maximum transfer rate the host adapter attempts to negotiate. The host adapter and a SCSI device must agree to a rate they can both handle.

Width (bits) - Sets the maximum data width the host adapter will attempt to negotiate. The host adapter and a SCSI device must agree to a width they can both handle. Only those host adapters that support 16 bit data transfers will show this option as enabled.

Disconnect - SCSI devices have the ability to disconnect from the bus during an I/O transfer. This option tells the host adapter whether or not to allow a device to disconnect. Some devices run faster with disconnect enabled (mostly newer devices), while some run faster with disconnect disabled (mostly older devices).

Read Write I/O Timeout (secs) - This option sets the time the host adapter waits for a read, write, verify, or seek command to complete before trying the I/O transfer again. Since this provides a safeguard allowing the system to recover if an I/O operation fails, it is recommended that you always set the time-out to a value greater than zero (no time-out).

Scan for Device at Boot Time - When there is a device you do not wish to make available to the system, set this option to No for that device. Also, on a bus with only a few devices attached, you can speed up boot time by changing this setting to No for unused SCSI IDs.

Scan for SCSI LUNs - You can set this option to No if you have problems with a device that responds to all LUNs whether they are occupied or not.

Queue Tags - If your device driver can issue queue tags, this option allows you to enable or disable the issuing of queue tags during I/O requests.

Format - Low level format the selected device. All information on the drive will be erased.

Verify – This command is used to detect bad blocks on the chosen disk. With your confirmation, the bad blocks detected can be reassigned for future operations. This command is non-destructive, and therefore won't destroy the data on the drive.

Since some changes only take effect after your system reboots, it is important that you quit this Configuration utility properly. You should return to the Main Menu and exit via the **Quit** option. If you reboot the system without properly exiting the utility, some changes may not be saved.
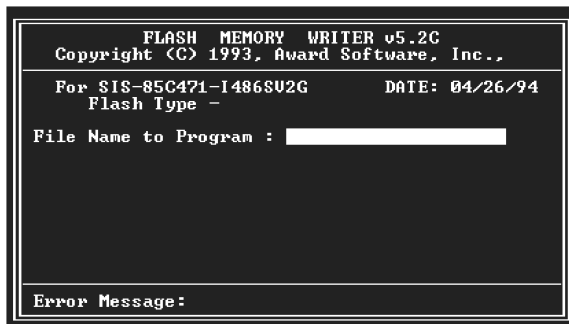
Device Drivers

To function properly with different SCSI devices under different operating systems you'll need to install **device drivers**. The device driver information should be available in your SCSI adapter's package.

FLASH BIOS PROGRAMMING UTILITY

Updating the Award BIOS Code is made easy with the AWDFLASH Utility found under the "Utilities" folder of the supplied CD-ROM. Since this mainboard features FLASH BIOS, it is not necessary to change the actual BIOS chip in order to upgrade the System BIOS. The user can simply re-program the old BIOS using the AWDFLASH Utility as follows:

1. First, boot the system with DOS or to "Safe Mode" under Windows 95. If you are booting DOS from a hard drive or floppy disk, press [F5] when the message "Starting MS-DOS…" appears on the screen. If you are booting Windows 95, press the [F8] key, and select the "Safe mode command prompt" option. This will assure that the system is running in **"*real mode*"** with **no device drivers loaded**. *This is the only correct way to run the AWDFLASH Utility program.*

2. There are (2) important files needed to re-program the BIOS. The first is "AWDFLASH.EXE" which is the FLASH BIOS Programming Utility. The second file needed is the updated "BIN" file which contains the actual BIOS code. This file will have the extension [.bin], such as "P598GH.BIN". Make sure these files are on the diskette or hard drive in the same directory.

3. Start the AWDFLASH Utility by changing to the directory where the two required files exist and typing: AWDFLASH and pressing [ENTER].

```
        FLASH  MEMORY  WRITER v5.2C
     Copyright (C) 1993, Award Software, Inc.,

   For SIS-85C471-I486SV2G       DATE: 04/26/94
        Flash Type -
 File Name to Program : ▮






 Error Message:
```

4. The AWDFLASH Utility Screen appears. You will be asked for the file name to program. Type in the name of the new BIOS (.bin) file and hit [ENTER].
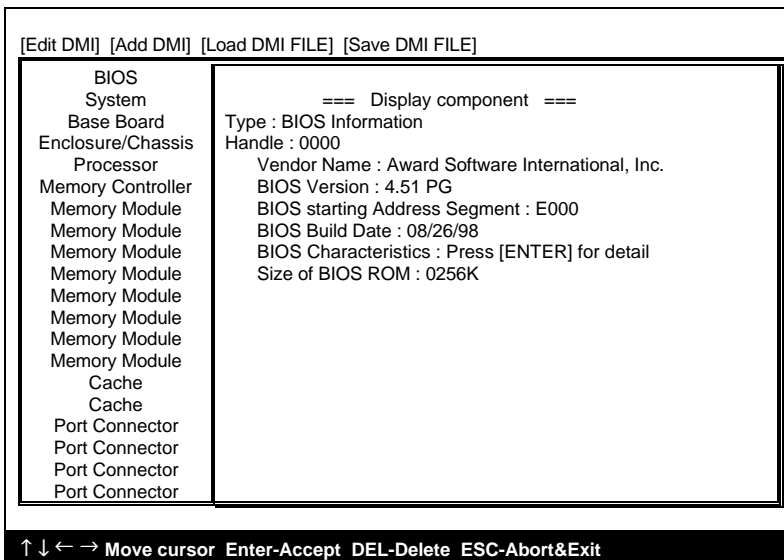
5. The program will then ask if you want to backup the old BIOS. This is recommended in case there are any problems with the new ".bin" file. Enter the name of the new backup file (such as "backup.bin") and press [ENTER].

6. At this time the system will prompt you for final confirmation before beginning programming. The Utility can be aborted at this time by hitting "n". To begin programming, hit "y"…

7. When the Flash programming starts, a bar indicator will show the progress of the programming operation. After successful completion, hit the reset button or power off the computer.

Be sure to perform "**Load Optimized Defaults**" for your new BIOS to synchronize the previous BIOS with the updated BIOS.

DMI UTILITY

This mainboard supports the **Desktop Management Interface (DMI)**, which is a new method of providing enterprise management for personal computers. The main component of DMI is the Management Information Format Database (MIF), which contains information about the computer system and its components, such as BIOS version/vendor, CPU speed/type, memory size/type, L1/L2 cache, port connectors (IDE, floppy, 2S/1P, USB, keyboard, mouse,), slots … etc. Using DMI, remote PC management software is able to obtain various information about the system, including hardware profiles, capabilities, operational status, installation dates, and other information about the system and its components.

This DMI utility, DMICFG.EXE found under the "Utilities" folder of the supplied CD-ROM, allows you to add additional information, such as serial numbers, vendor information, and enclosure/chassis configurations, into the MIF.

```
[Edit DMI]  [Add DMI]  [Load DMI FILE]  [Save DMI FILE]

        BIOS
       System              ===  Display component  ===
     Base Board       Type : BIOS Information
  Enclosure/Chassis   Handle : 0000
     Processor            Vendor Name : Award Software International, Inc.
  Memory Controller       BIOS Version : 4.51 PG
   Memory Module          BIOS starting Address Segment : E000
   Memory Module          BIOS Build Date : 08/26/98
   Memory Module          BIOS Characteristics : Press [ENTER] for detail
   Memory Module          Size of BIOS ROM : 0256K
   Memory Module
   Memory Module
   Memory Module
   Memory Module
       Cache
       Cache
   Port Connector
   Port Connector
   Port Connector
   Port Connector

↑ ↓ ← →  Move cursor  Enter-Accept  DEL-Delete  ESC-Abort&Exit
```

Note: The DMI utility must be run in real mode without the EMM386 memory manager loaded.

27-0M0370-08