Chapter 3

Award BIOS Setup Program

Award's BIOS ROM has a built-in setup program that allows users to modify the basic system configuration. This information is stored in CMOS RAM so that it can retain the setup information, even when the power is turned off. When you turn on or reboot the system, press the F10 key to enter the Award BIOS setup program. The primary screen as shown in Figure 3-1 is a list of the menus and functions available in the setup program. Select the desired item and press enter to make changes. Operating commands are located at the bottom of this and all other BIOS screens. When a field is highlighted, on-line help information is displayed on the left bottom edge of the screen.

ROM PCI / ISA BIOS (2A5IMC39)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

STANDARD CMOS SETUP	HARDWARE MONITOR SETUP
BIOS FEATURES SETUP	INTEGRATED PERIPHERALS
CHIPSET FEATURES SETUP	PASSWORD SETTING
POWER MANAGEMENT SETUP	IDE HDD AUTO DETECTION
PNP/PCI CONFIGURATION	SAVE & EXIT SETUP
LOAD SETUP DEFAULTS	EXIT WITHOUT SAVING

ESC	: Quit	↑↓→←	: Select Item
F10	: Save & Exit Setup	(Shift) F2	: Change Color

Time, Date, Hard Disk Type...

Figure 3-1 Setup Program Initial Screen

3-1 Standard CMOS Setup

The Standard CMOS Setup allows users to configure system components such as hard disk drive, floppy disk drive and video display as well as date, time and boot-up error signaling. This configuration menu should be changed when installing a mainboard for the first time, changing hardware in your system such as the HDD, FDD, video display, or when the CMOS data has been lost or contaminated. Choose the Standard CMOS Setup option from the CMOS Setup Utility menu (Figure 3-1) to display the following screen. When a field is highlighted, on-line help information is displayed on the left bottom edge of the screen.

ROM PCI / ISA BIOS (2A5IMC39)
STANDARD CMOS SETUP
AWARD SOFTWARE, INC.

Date (mm : dd : yy : Fri, Sep 19 1998
Time (hh : mm : ss) : 9: 14: 43

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master :	Auto	0	0	0	0	0	0	Auto
Primary Slave :	Auto	0	0	0	0	0	0	Auto
Secondary Master :	Auto	0	0	0	0	0	0	Auto
Secondary Slave :	Auto	0	0	0	0	0	0	Auto

Drive A : 1.44M, 3.5 in.
Drive B : None
Floppy 3 Mode Support : Disabled

Video : EGA/VGA
Halt On : All Errors

Base Memory :	640K
Extended Memory :	64512K
Other Memory :	384K
Total Memory :	65536K

ESC	: Quit	↑↓→←	: Select Item	PU/PD/+/-	: Modify
F1	: Help	(Shift) F2	: Change Color		

Figure 3-2 Standard CMOS Setup Screen

Date/Time

Set the date and time. Do not skip this function as all of your timed events such as power management, saving files, etc. are based on this timer.

Hard Disk Setup (Primary/Secondary; Master/Slave)

This category identifies up to four IDE hard disk drives that have been installed in the computer. This section does not show information on other IDE devices such as CD-ROM drives or other hard drive types such as SCSI drives.

Type (Auto/User/None): Use the fields under the Type column to determine the method you will use to configure the IDE devices. If you choose Auto, BIOS will automatically detect and make optimal settings for most IDE hard drives.

The mainboard manufacturer recommends that you choose Auto for all drives.

Choose User to define your own drive type manually. You must enter values indicated in the table below into each drive parameter field. This information should be included in the documentation from your hard disk vendor or system manufacturer:

TYPE	Setting method
CYLS	Number of cylinders
HEAD	Number of heads
PRECOMP	Write precompensation cylinder
LANDZ	Landing zone
SECTOR	Number of sectors
MODE	Mode type

Table 3-1 Hard Disk Drive Parameters

Cyls/Head/Sector: The number of Cylinders, Heads, and Sectors can usually be found written on the top of the hard disk. If you have a relatively new hard drive, entering this information alone is usually sufficient for normal hard disk operation. The hard disk will not work properly if you enter improper information for these categories.

Precomp: Older hard drives (i.e., MFM or RLL drives) have the same number of sectors per track at the innermost tracks as at the outermost tracks. Thus, the data density at the innermost tracks is higher and the bits are lying closer together. Even though the physical size of a sector gets progressively smaller as the track diameter diminishes, each sector must still hold 512 bytes. Write precompensation circuitry compensates for the difference in sector size by boosting the write current for inner track sectors.

Landz: This defines the address of the landing zone and is only used for older hard drives which do not have an auto-parking feature.

Mode: If the Type value is not None for any device, you must set the Mode value for that device. There are four different Mode values: Auto, Normal, Large, and LBA.

Auto - BIOS detects and enters the IDE drive type during bootup.

Normal - for IDE drives that meet the old IDE specification which support a maximum capacity of 528MB (1024 cylinders, 16 heads, and 63 sectors).

Large - for IDE drives that do not support LBA and have more than 1024 cylinders. Try this setting if your hard disk does not operate properly with the LBA setting. Large mode is not supported by all operating systems, i.e., only certain versions of DOS support large mode.

LBA - (Large/Logical Block Addressing) With LBA, the IDE controller transforms the data address described by sector, head, and cylinder number into a physical block address, significantly improving data transfer rates. This mode is for drives with greater than 1024 cylinders and between 528MB and 8.4GB in size. This protocol is the current common standard.

Choose None for Type if there are no IDE HDD devices in your system.

✍ You can use the IDE HDD Auto Detection function to auto detect your hard drive parameters. Using this function will automatically insert the parameters discussed under Hard Disk Setup and will indicate User for the Field value. Please see Section 3-9 for more information.

Floppy Disk Drives

Choose the memory capacity and disk size that corresponds with that of your floppy disk drive(s).

Video

Select the type of video adapter present in your system. You can ignore this setting if you are using a VGA monitor since VGA BIOS automatically configures this setting.

Halt

When the system is powered on, BIOS performs a series of diagnotic tests called POST (Power On Self Test). This function stops the computer if BIOS detects a hardware error. You can tell BIOS to halt on all errors, no errors, or not to halt on specific errors.

3-2 BIOS Features Setup

By choosing the BIOS Features Setup option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard.

ROM PCI / ISA BIOS (2A5IMC39)
BIOS FEATURES SETUP
AWARD SOFTWARE, INC.

Anti-Virus Protection	: Disabled	Video BIOS Shadow	: Enabled
CPU Internal Cache	: Enabled	C8000 - CBFFF Shadow	: Disabled
External Cache	: Enabled	CC000 - CFFFF Shadow	: Disabled
Quick Power On Self Test	: Enabled	D0000 - D3FFF Shadow	: Disabled
Boot From LAN First	: Enabled	D4000 - D7FFF Shadow	: Disabled
Boot Sequence	: A,C,SCSI	D8000 - DBFFF Shadow	: Disabled
Swap Floppy Drive	: Disabled	DC000 - DFFFF Shadow	: 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		
PCI/VGA Palette Snoop	: Disabled		
OS Select (For DRAM>64MB)	: Non-OS2		

ESC	: Quit	↑↓→←	:Select Item
F1	: Help	PU/PD/+/-	: Modify
F5	: Old Values	(Shift) F2	: Color
F7	: Load Setup Defaults		

Figure 3-3 BIOS Feature Setup Screen

A. Anti-Virus Protection

Trend *ChipAway* Virus

Trend ChipAway Virus is a code incorporated in the mainboard's BIOS firmware. During the boot-up sequence, BIOS loads before loading of the partition table or boot sector. ChipAway Virus loads with BIOS and is able to detect boot-up viruses before they have a chance to infect the hard drive. ChipAway Virus employs rule-based logic that doesn't look for specific viruses but rather detects patterns found in every virus, eliminating the need to perform periodical version updates after new viruses have been found.

B. Cache Control

CPU Internal Cache/External Cache

Cache memory is much faster than conventional DRAM system memory. These fields allow you to enable or disable the CPUs Level 1 built-in cache and Level 2 external cache. Both settings are left enabled to significantly increase the performance of your computer.

CPU L2 Cache ECC Checking

Enable this function to perform ECC (Error Check and Correct) on the CPU's L2 SRAM. ECC detects and corrects single-bit errors while it only detects double bit errors. Certain SDRAM modules also have ECC capability. For more information on SDRAM, see section 2-5. If you are using a 333MHz or higher CPU, this function must be enabled.

C. Boot Up Features

After turning on the system, BIOS will perform a series of device initializations and diagnostic tests discussed below.

Boot From LAN First

Enabling this function the BIOS will attempts to boot from a LAN boot image before it attempts to boot from a local storage device.

Quick Power On Self Test (POST)

Enable this function to reduce the amount of time required to run the POST (Power On Self Test). BIOS saves time by skipping some items during POST. It is recommended that you disable this setting. Discovering a problem during bootup is better than loosing data during your work.

Boot Sequence

This option sets the sequence of drives BIOS attempts to boot from after POST completes. BIOS will search these drives for an operating system.

Swap Floppy Drive

Enabling this function will swap the floppy drive assignment so that drive A will function as drive B, and drive B will function as drive A. Note that the boot sequence assignment mentioned directly above does not inlcude booting from floppy drive B. This function is useful if floppy drives B and A are of a different format and you want to boot from floppy drive B.

Boot up Floppy Seek

During POST, BIOS will determine if the installed floppy disk drive has 40 or 80 tracks. A 360K drive has 40 tracks and 720K, 1.2M and 1.44M drives have 80 tracks. All modern floppy disk drives have 80 tracks.

Boot Up NumLock Status

This function defines the keyboard's numberpad as number keys or arrow keys.

D. Keyboard Interface

Typematic Rate Setting

When enabled, you can set the following two typematic control items. When disabled, keystrokes are determined arbitrarily by the keyboard controller in your system.

Typematic Rate (Chars/Sec)

The typematic rate sets the rate at which characters on the screen repeat when a key is pressed and held down.

Typematic Delay (Msec)

The typematic delay sets how long after you press a key that a character begins repeating.

E. Security Option

The Supervisor and/or User Password functions shown in Figure 3-1 must be set to take advantage of this function. See Section 3-8 for password setting information. When the Security Option is set to System, a password must be entered to boot the system or enter the BIOS setup program. When the Security Option is set to Setup, a password is required to enter the BIOS setup program.

F. PCI/VGA Palette Snoop

Some non-standard VGA cards or MPEG video cards may not show colors properly. Setting this function to Enabled can correct this problem.

G. OS Select (For DRAM > 64MB)

If your system's DRAM is larger than 64MB and you are running OS/2, select OS/2 as the item value. Otherwise, set the item value to Non-OS/2 for all other operating systems.

H. Shadow Memory

Software such as system BIOS, video BIOS, SCSI BIOS, etc that resides in ROM (Read Only Memory) chips is called firmware. Shadowing of firmware occurs when BIOS is copied to RAM address C0000h through DFFFFh. Video BIOS loads into the C0000-C7FFF memory area when video shadowing is enabled. If an expansion peripheral in your system contains ROM-based firmware, you need to know the address range the ROM occupies to shadow it into the correct area of RAM.

Shadowing improves the firmware's performance because the firmware can be read by the CPU through the 16- or 32-bit DRAM bus as opposed to the 8-bit XT bus. However, shadowing also results in reducing the amount of high memory (640 KB to 1 MB) for loading device drivers. Shadowing is used mostly for ROM chips on ISA cards and not for PCI cards. Shadowing and playing games at the same time may result in system instability as some games access the RAM memory area being shadowed.

3-3 Chipset Features Setup

By choosing the Chipset Features Setup option from the CMOS SETUP UTILITY menu(Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard.

ROM PCI / ISA BIOS (2A5IMC39)
CHIPSET FEATURES SETUP
AWARD SOFTWARE, INC.

Refresh Rate Control	: 15.6us
Ref/Act Command Delay	: 6T
Refresh Queue Depth	: 12
RAS Precharge Time	: 3T
RAS to CAS Delay	: 3T
ISA Bus Clock Frequency	: PCICLK/4
Starting Point of Paging	: 1T
NA# Enable	: Enabled
L2 Cache Burst RD Cycle	: Delay 1 T
IO Cycle NA#	: Enabled
Asyn/Sync ModeCPU/DRAM	: Asynchronous
SDRAM CAS Latency	: 3T
SDRAM WR Retire Rate	: X-1-1-1
PCI Peer Concurrency	: Enabled
Read Prefetch Memory RD	: Enabled
Assert TRDY After Prefet	: 2 QWs
CPU to PCI Burst Mem. WR	: Enabled
CPU to PCI Post Write	: Enabled
AGP Aperture Size	: 64MB

System BIOS Cacheable	: Enabled
Video BIOS Cacheable	: Disabled
Memory Hole at 15M-16M	: Disabled
DRAM Controller 1 T WR	: Disabled
DRAM Controller 1 T RD	: Enabled
PCI Post Write Buffer	: Disabled
PCI Delayed Transaction	: Disabled
Auto Detect DIMM/PCI Clk	: Disabled
Spectrum Spread	: Disabled
Flash BIOS Protection	: Disabled
Hardware Reset Protect	: Disabled

ESC	: Quit	↑↓→←	:Select Item
F1	: Help	PU/PD/+/-	: Modify
F5	: Old Values	(Shift) F2	: Color
F7	: Load Setup Defaults		

Figure 3-4 Chipset Features Setup Screen

All of the above settings have been determined by the mainboard manufacturer and should not be changed unless you are absolutely sure of what you are doing. Explanation of the DRAM timing and chipset features setup is lengthy, highly technical and beyond the scope of this manual. Below are abbreviated descriptions of the functions in this setup menu. You can look on the world wide web for helpful chipset and RAM configuration information including AWARD's web site at http://www.award.com.

A. SDRAM CAS Latency

When set to Auto this feature will use "default" option to read CAS Latency from the SPD of the DIMMs, with this mechanism the user's need only to reboot the system to get a set of proper value of CAS Latency.

B. AGP Aperture Size (MB)

This function determines the amount of system memory that is given to the AGP card. Options range from 4MB to 256MB. This is a dynamic memory allotment in that the AGP card will only use the amount of memory that it needs. The remaining memory not in use will be available for the system to use. For example, if 16MB are alloted to the AGP card and the card only needs 8MB, the remaining 8MB will be available for system use.

C. System BIOS Cacheable

Enabling this function allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance. However, if any program writes to this memory area, a system error may result. Caching the system BIOS results in better performance than shadowing the system BIOS as discussed in Section 3-2.

D. Video BIOS Cacheable

Enabling this function allows caching of the video BIOS ROM at C0000h-C7FFFh, resulting in better video performance. However, if any program writes to this memory area, a system error may result. Caching the video BIOS results in better performance than shadowing the video BIOS as discussed in Section 3-2.

E. Memory Hole at 15M-16M

Enabling this function will reserve the memory address space between 15MB and 16MB for ISA expansion cards. However, enabling this function will result in not allowing the system to have access to memory above 16MB. Please note that some expansion cards require this setting to be enabled.

F. PCI 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.

G. Spectrum Spread

When Enabled this function will cause lower EMI by spreading the system frequency spectrum. While this function decreases EMI, system stability may be slightly compromised. Choosing Smart Clock will turn off the AGP, PCI, and SDRAM clocks when not in use. Smart Clock does not perform a spectum spreading function.

H. Flash BIOS Protection

The mainboard manufacturer developed BIOS protection technology that protects the System BIOS from accidental corruption by unauthorized users or computer viruses. When enabled, the BIOS data cannot be changed when attempting to update BIOS with the the FLASH utility. When disabled, the BIOS data can be updated by using the FLASH utility.

To Pass the Windows 95 SCT testing, this item should be disabled.

Please note that when disabling this setting, the system BIOS is vulnerable by intrusion of computer viruses. It is recommended to disable this setting only temporarily while updating your system's BIOS.

The Flash utility that come with this CD is specially designed to this MB BIOS. Using others Flash utility might resulted to BIOS update failure and cause damage to the BIOS.

3-4 Power Management Setup

This section provides information on the Green PC power management funtcions. By choosing the Power Management Setup option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's defaultbvalues for the mainboard.

ROM PCI / ISA BIOS (2A5IMC39)
POWER MANAGEMENT SETUP
AWARD SOFTWARE, INC.

ACPI Function	: Enabled
Power Management	: User Define
Video Off Option	: Susp,Stby->Off
Video Off Method	: DPMS
Switch Function	: Break/Wake
Doze Speed (div by)	: 2/8
Stby Speed (div by)	: 1/8
MODEM Use IRQ	: 4
** PM Timers **	
HDDOff After	: Disabled
Doze Mode	: Disabled
Standby Mode	: Disabled
Suspend Mode	: Disabled
** PM Events **	
HDD Port A ctivity	: Enabled
COM Port A ctivity	: Enabled
LPT Port A ctivity	: Enabled

VGA Activity	: Disabled
IRQ 8 [3-7,9-15],NMI	: Enabled
IRQ 8 Break Suspend	: Disabled
Power Button Over Ride	: Delay 4 Sec
Wake Up On LAN	: Disabled
Power On ByKeyboard	: Disabled
Power On By Modem	: Disabled
Power On By Alarm	: Disabled

ESC	: Quit	↑↓→←	:Select Item
F1	: Help	PU/PD/+/-	: Modify
F5	: Old Values	(Shift) F2	: Color
F7	: Lo ad Setup Defaults		

Figure 3-5 Power Management Setup Screen

A. Advanced Configuration Power Interface (ACPI)

ACPI management enables the operating system to control the amount of power given to each device attached to the computer. With ACPI, the operating system can turn off peripherals devices, such as CD-ROM players, when they are not in use.

B. Power Management

Power management allows the computer to save electricity when it is not in use by entering increasingly deep power saving modes as shown by the diagram below.

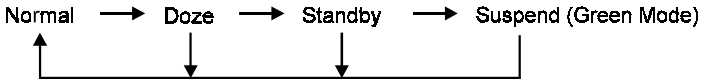

Figure 3-6 Power Saving Mode Flow Chart

The computer runs in Normal operation mode until the Doze timer expires, at which point the computer enters Doze mode. If no external activity occurs, the computer will go into Standby and Suspend modes when their respective timers expire. If external activity occurs, the computer will wake up from Power Management and return to Normal mode. To activate the function, set Power Management to Maximum Saving, User Define, or Minimum Saving described below. For a description of the power saving modes (Doze, Standby, and Suspend) see their descriptions below.

Disabled - Turns off the Power Management functions.

Max. Saving - All timers are set at the minimum value of one minute to maximize power saving.

Min. Saving - All timers are set at the maximum value of one hour for minimal power saving.

User Define - User can configure the timer to a desired time according to the values available.

✍ Note that enabling the Power Management function will result in enabling the HDD Power Down function (Max Saving = 15 min, Min Saving = 1 min). The HDD Power Down function is not part of the Power Management scheme as indicated in Figure 3-6 Refer to the Standby Mode, Suspend Mode, and HDD Power Down descriptions below for more informaiton on hard drive power management.

C. Video Off Option

This setting determines when the monitor enters power saving mode. As the function name indicates, the monitor enters the power saving mode after the chosen event expires. The Power Management function must be enabled to use this function.

D. Video Off Method

This function serves as both a screen saver and power saver for monitors. See the next function, Video Off After, for setting the video timer.

Blank - BIOS will only blank the monitor's screen. The electricity saved in this mode is negligible and this function is only used as a screen saver to prevent screen damage while the screen is on but not in use.

V/H SYNC+Blank - The system turns off the vertical and horizontal synchronization ports, writes blanks to the VGA buffer and the monitor's electron gun turns off. This function requires a monitor with Green features in order to take advantage of the power saving function. If you enable this function and do not have a Green monitor, the result will be the same as if you had selected Blank. This function serves as both a screen saver and an electricity saver.

DPMS Supported - Select this option if your video card supports the Display Power Management Signaling (DPMS) standard (i.e., you have a monitor that supports Green features). Use software supplied by your your video subsystem to set video power management options.

E. Switch Function

When this option is set to Break/Wake, the system enters the suspend mode; press the power button again to return to full power.

F. Modem Use IRQ

If your computer has an modem, use this function to tell BIOS which IRQ is being occupied by the modem card. When the system is in Green mode, the modem requires an IRQ assignment to wake up the system and perform tasks. This assignment is compliant with the APM 1.2 specification and is to be used in coordination with APM 1.2 compliant operating systems.

G. HDD Off After

After the selected period of drive inactivity, the hard disk drive powers down while all other devices remain active. Selecting Suspend tells the drive to power down immediately.

H. Doze Mode

The Power Management function must not be set to disabled to enable this function. If no interrupts have occured and the Doze timer expires, system will enter Doze mode. In Doze mode, the CPU clock runs at a lower speed while all other devices operate normaly.

✎ Power saving modes achieved in lower power saving states will either be maintained or enter higher power saving modes when switching to higher power saving states. For example, the CPU clock will not switch back to normal in Standby mode. It will maintain a decreased rate in Standby Mode and turn off in Suspend Mode.

I. Standby Mode

The Power Management function must not be set to disabled to enable this function. If the system runs in Doze mode and the Standby timer expires, the system will enter Standby mode. In Standby mode, the hard disk drive and the monitor shut off while all other devices still operate at full speed. Note that the Video Off and HDD Power Down functions in Figure 3-5 provide the same power saving options found in Standby mode. The priority for determining which function controls power saving for the monitor and hard drive is determined by which timer expires first.

J. Suspend Mode

The Power Management function must not be set to disabled to enable this function. If the system runs in Standby mode and the Suspend timer expires, all devices regulated by power management will shut off and the CPU speed will be 0 MHz.

K. PM Events

The HDD/COM/LPT/VGA Acitvity and IRQ[3-7,9-15], NMI. When Enabled any activity from one of the listed system peripheral or devices, IRQs wakes up the system.

✎ A power-management (PM) event awakens the system from, or resets activity timers for, Suspend mode. You can disable monitoring of common interrupt requests so they do not generate PM events.

L. IRQ8 Break Suspend

Enabling this setting turns the monitoring of IRQ8 (the Real Time Clock) On so it does not awaken the system from Suspend mode.

M. Power Button Over Ride

When set to Delay 4 Sec., this function allows the power button to put the system in Suspend, a power saving mode. See Section 2-4 for operation instructions of the over-ride power button operation wich puts the system in Suspend mode. When set to Instant-Off the Power Button Over Ride function is disabled and the computer turns completely off when the power button is pressed.

N. Wake Up On LAN

Enable this selection to use the Wake Up On LAN function discussed in Section 2-4 of this manual.

O. Power On By Keyboard

Set to Disabled to control your computer's power by the button on your system case. Set this function to Any Key to turn on the computer by touching any key on the keyboard. If you set this function to Hot Key or Password you must designate the keystrokes that will turn on the computer. Note that the power button is always able to turn on the computer regardless of how this function is set.

✍ If you have forgotten your passord, you must remove the power cable from the ATX power supply connector and clear the CMOS data as discussed in Section 2-4 to clear the password.

P. Power On By Modem

When enabled, a modem that receives a call will wake up the system from soft off and green mode. You should connect the modem to the COM port and turn on the resume event in green mode.

Q. Power On By Alarm

When enabled, this setting allows the system to turn back on at a designated time of the month. User must designate date of month and time of day.
This function is only available when using an ATX power supply and the Software Power-Off function to turn off the computer. See the Software Power-Off feature in Section 2-4 of this manual for instructions.

3-5 PnP/PCI Configuration

This section provides IRQ and DMA setting information. By choosing the PnP/PCI Configuration option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard.

ROM PCI / ISA BIOS (2A5IMC39)
PNP/PCI CONFIGURATION
AWARD SOFTWARE, INC.

PnP OS Installed	: No
Resources Controlled By	: Manual
Reset Configuration Data	: Disabled
IRQ-3 assigned to	: PCI/ISA PnP
IRQ-4 assigned to	: PCI/ISA PnP
IRQ-5 assigned to	: PCI/ISA PnP
IRQ-7 assigned to	: PCI/ISA PnP
IRQ-9 assigned to	: PCI/ISA PnP
IRQ-10 assigned to	: PCI/ISA PnP
IRQ-11 assigned to	: PCI/ISA PnP
IRQ-12 assigned to	: PCI/ISA PnP
IRQ-14 assigned to	: PCI/ISA PnP
IRQ-15 assigned to	: PCI/ISA PnP
DMA-0 assigned to	: PCI/ISA PnP
DMA-1 assigned to	: PCI/ISA PnP
DMA-3 assigned to	: PCI/ISA PnP
DMA-5 assigned to	: PCI/ISA PnP
DMA-6 assigned to	: PCI/ISA PnP
DMA-7 assigned to	: PCI/ISA PnP

PCI IRQ Actived By	: Level
Slot 1 Use IRQ No.	: Auto
Slot 2 Use IRQ No.	: Auto
Slot 3 Use IRQ No.	: Auto
Slot 4 Use IRQ No.	: Auto
Audio IRQ No.	: 5
Assign IRQ For VGA	: Disabled
FDD IRQ Can Be Free	: Yes
Used MEM base addr	: N/A

ESC	: Quit	↑↓→←	:Select Item
F1	: Help	PU/PD/+/-	: Modify
F5	: Old Values	(Shift) F2	: Color
F7	: Load Setup Defaults		

Figure 3-6 PCI & ONBOARD I/O Setup Screen

A. PnP OS Installed

If you want to install a PnP compatible OS (such as Windows 95) set to Yes.

B. Resources Controlled By

When set to Manual the system BIOS will not refer to the ESCD for IRQ & DMA information. Instead, it will refer to the items in the setup menu for assigning IRQ & DMA. When set to Auto the system BIOS will refer to the ESCD for all legacy information.

ESCD(Extended System Configuration Data) provides a detailed format of the configuration data structures stored in flash memory. Each data structure defines the resources used by a device or a card in the system. This includes legacy and PCI/ISA PnP devices.

C. Reset Configuration Data

When enabled the system BIOS will clear/reset the ESCD during POST. After clearing the ESCD, the BIOS will then change this item's value to Disabled. Otherwise, the ESCD data will become useless.

D. IRQ#/DMA# assign to

When resources are controlled manually, you can assign each system interrupt & DMA channel for "Legacy ISA" or "PCI/ISA PnP" card used.

While using **Legacy ISA Card**(non-PnP ISA card), please set it's necessary corresponding resources (INT#, DMA#) from "PCI/ISA PnP" to "Legacy ISA."

✍ All ISA non-PnP devices are legacy devices that select resources (I/O Addr., INT# or DMA#) by using hardware jumpers.

✍ IRQ-3/4/7/12/14/15 have been set as default for on board devices (COM2, COM1, Printer port, PS/2 mouse, IDE1 and IDE2).

E. PCI IRQ Actived By

Leave the IRQ trigger set at Level unless the PCI device assigned to the interrupt specifies Edge-triggered interrupts.

F. Assign IRQ For VGA

This function allows BIOS to make an IRQ available to VGA cards. Most current VGA card models do not require this function to be enabled.

G. FDD IRQ Can Be Free

This function allows user to choose if the FDD IRQ is able to be freed up. The default setting is Yes and this does not allow the IRQ to be free.

H. Used MEM base addr

This function devotes a space of memory (8K, 16K, 32K, 64K) for any peripheral that has a high memory requirement. This is also used to designate memory space for legacy ISA cards. The settings C800~DC00 are used to to designate point at which the memory will start being used. The default setting is N/A (disabled.)

3-6 Load Setup Defaults

Load Setup Defaults loads the default system values directly from the CMOS Setup Utility menu (Figure3-1). If the stored record created by the setup program becomes corrupted and therefore unusable, these defaults will be loaded automatically when you turn on the computer.

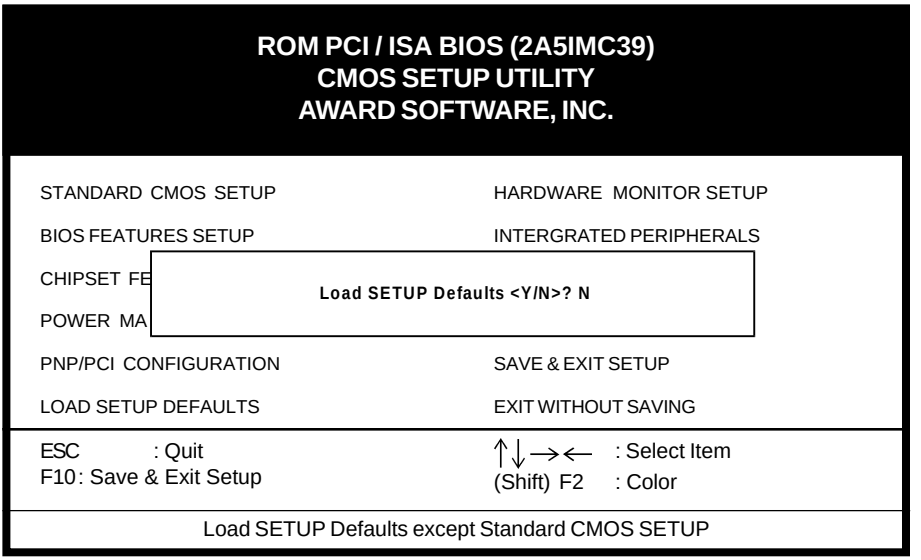

Figure 3-7 Load Setup Defaults Screen

3-7 Hardware Monitor Setup

By choosing the Hardware Monitor Setup option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard**.**

ROM PCI / ISA BIOS (2A5IMC39)
HARDWARE MONITOR SETUP
AWARD SOFTWARE, INC.

Current CPU Temperature	: 25 °C/77 °F
Current CPUFAN Speed	: 3600 RPM
Current SYSFAN Speed	: 3600 RPM
12V : 12.09V	5V : 5.19V
3.3V : 3.34V	Vcore : 2.08V

ESC	: Quit	↑↓→←	:Select Item
F1	: Help	PU/PD/+/-	: Modify
F5	: Old Values	(Shift) F2	: Color
F7	: Load Setup Defaults		

Figure 3-8 Hardware Monitor Setup Screen

3-8 Integrated Peripherals

This section provides information on setting peripheral devices. By choosing the Integrated Peripherals option from the CMOS Setup Utility menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard.

ROM PCI / ISA BIOS (2A5IMC39)
INTEGRATED PERIPHERALS
AWARD SOFTWARE, INC.

Internal PCI/IDE	: Both
IDE Primary Master PIO	: Auto
IDE Primary Slave PIO	: Auto
IDE Secondary Master PIO	: Auto
IDE Secondary Slave PIO	: Auto
Primary Master UDMA	: Auto
Primary Slave UDMA	: Auto
Secondary Master UDMA	: Auto
Secondary Slave UDMA	: Auto
IDE Burst Mode	: Enabled
IDE data Port Post Write	: Disabled
IDE HDD Block Mode	: Enabled
Onboard FDC Controller	: Enabled
Onboard Serial Port	: 3F8/IRQ4
IR Adress Select	: Disabled

Onboard Parallel Port	: 378/IRQ7
Parallel Port Mode	: SPP
PS/2 mouse function	: Enabled
USB Controller	: Enabled
USB Keyboard Support	: Disabled
Init Display First	: PCI Slot
VGA Shared Memory Size	: 4MB
VGA Memory Clock (MHz)	: 66
Onboard Sound Chip	: Enabled
Power Failure Recovery	: Disabled

ESC	: Quit	↑↓→←	:Select Item
F1	: Help	PU/PD/+/-	: Modify
F5	: Old Values	(Shift) F2	: Color
F7	: Load Setup Defaults		

Figure 3-9 Integrated Peripherals Setup Screen

A. Internal PCI/IDE

The chipset contains a PCI IDE interface that supports two IDE channels: Primary (IRQ 14) and Secondary (IRQ 15). Each channel supports two IDE devices, so the system is capable of supporting a total of four IDE devices. Select Primary, Secondary, or Both to activate chipset IDE interface(s) installed on your system board.

B. IDE Primary/Secondary Master/Slave PIO

The four IDE PIO (programmed Input/Output) fields let you set a PIO mode (0-4) for each IDE device that the internal PCI IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device.

C. Primary/Secondary/Master/Slave UltraDMA

UDMA (Ultra DMA) is a DMA data transfer protocol that utilizes ATA commands and the ATA bus to allow DMA commands to transfer data at a maximum burst rate of 66 MB/s. When you select Auto in the four IDE UDMA fields (for each of up to four IDE devices that the internal PCI IDE interface supports), the system automatically determines the optimal data transfer rate for each IDE device.

D. IDE Burst Mode

Selecting Enabled reduces latency between each drive read/write cycle, but may cause instability in IDE subsystems that cannot support such fast performance. If you are getting disk drive errors, try setting this value to Disabled. This field does not appear when the Internal PCI/IDE field is Disabled.

E. 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 drivesdo), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

F. Onboard FDC Controller

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board 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.

G. Onboard Serial Port 1 and 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.

H. IR Address Select

This function allows user to select the IR address/IR mode and IR IRQ.

I. Onboard Parallel Port

Select a logical LPT port address and corresponding interrupt for the physical parallel port.

J. Parallel Port Mode

Select an operating mode for the onboard parallel (printer) port. Select Normal, Compatible, or SPP unless you are certain your hardware and software support one of the other available modes.

K. PS/2 mouse function

If your system has a PS/2 mouse port and you install a serial pointing device, select Disabled.

L. USB Controller

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

M. Init Display First

This function allows user to choose between AGP slot or VGA slot to initialize Display first .

O. Power Failure Recovery

Computers using an ATX power supply do not turn back on after the power source to the computer unexpectedly fails (i.e. electricity outage). Enabling this setting will allow the system to always turn back on after a power failure. This is especially important for computers that must be on 24 hours per day.

3-9 Password Setting

There are three different variables that control password settings. The first two are located under the Security Option function in BIOS Features Setup Menu (Figure 3-3). When the Security Option function is set to Setup, a password is required to enter BIOS and change BIOS settings. When the Securitiy Option function is set to System, a password is required to to enter both BIOS and the the computer's operating system (for example Windows 95) found on the boot drive. This is shown in Figures 3-10.

The third variable is password setting selected in BIOS (Figure 3-1). The user is allowed to access the computer's operating system,change the user passorword and to have control over the settings in BIOS. (See Figure 3-10 below).

A. Setting Password

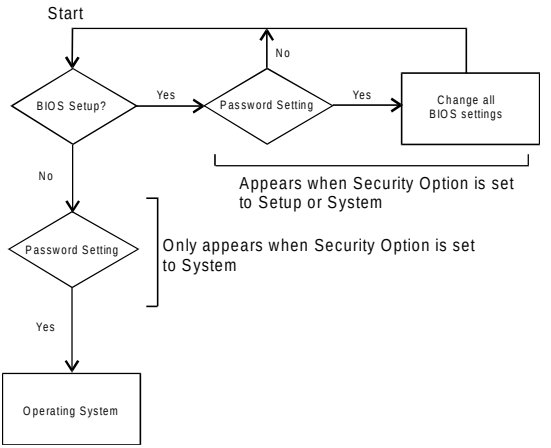

Figure 3-10 Set Either Supervisor or User Password

3-10 IDE HDD Auto Detection

This utility can automatically detect IDE hard disk type and parameters. The detection process take about 5 seconds for each physical drive. After the utility detects the disk drive, type Y and press [Enter] to automatically load the parameters in the Hard Disk section of the Standard CMOS Setup menu. Otherwise, leave the option set at N and press [Enter] or the [Esc] key to skip the detected drive. After detecting your hard drive(s), return to the Standard CMOS menu to check your settings.

ROM PCI / ISA BIOS (2A69KC39)
CMOS SETUP UTILITY
AWARD SOFTWARE, INC.

HARD DISKS	TYPE	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
Primary Master	:							

Select Primary Master Option (N=Skip) : N

OPTIONS	SIZE	CYLS	HEAD	PRECOMP	LANDZ	SECTOR	MODE
2 (Y)	547	530	32	0	1059	63	LBA
1	547	1060	16	65535	1059	63	NORMAL
3	547	530	32	65535	1059	63	LARGE

Note: Some OSes (like SCO-UNIX) must use "NORMAL" for installation

ESC: Skip

Figure 3-11 IDE HDD Auto Detection Screen

3-11 Save and Exit Setup

If you select this and type Y (for yes) followed by the [Enter] key, the values entered in the setup utilities will be recorded in the CMOS memory of the BIOS chip.

3-12 Exit Without Saving

Selecting this option and pressing Y followed by the [Enter] key lets you exit the Setup program without recording any new values or changing old values.