Introduction

1-1 Product Specifications

❏ **Processor**
 - Supports up to Slot-1 Intel processors up to750MHz
 - Universal Slot 1 socket with retention mechanism for SEPP, SECC and SECC2
 - High efficiency **Switching Power Module** (VRM v8.4 compliant)
 - Supports 66/100/133 MHz system clock speeds
 - Innovative *SeePU* technology (software CPU installation with no jumper settings)

 ⚠️ Advanced over-clocking capability with Vcore and frequency subtle tuning technology.

❏ **Chipset**
 - **VIA Pro Plus 82C694X+82C686A** two chip PCIset

❏ **DRAM Memory**
 - Three 3.3V 168-pin DIMM sockets support up to 768MB
 - Supports Sync. & Asyn. Host memory clock scheme
 - Provides single-bit ECC capability

❏ **Expansion Slots**
 - One AMR slot (Rev 1.0 compliant) for cost effective soft modem riser
 - One Universal-AGP slot for both 2XAGP and 4XAGP at 3.3v or 1.5v (Rev 2.0 compliant)
 - Five 32-bit PCI slots (Rev 2.2 compliant)
 - One 16-bit ISA slot (with sharing slot)

❏ **BIOS**
 - Award System BIOS, supports PnP, APM, DMI,ACPI & Multi-device booting features i.e. floppy, LS120, CD-ROM, HDD(IDE, SCSI), ZIP-ATAPI etc.
 - Includes Trend **ChipAway Virus** protection for virus-free boot and virus free operating system
 - Optional **TwinBIOS** Technology; 2Mbit Flash RAM

 ✎ The Trend ChipAway Virus is a rule-based anti-virus technology and does not require periodical updates of virus code

❏ **Embedded Ultra DMA-66 PCI IDE controller**
 - Supports two IDE ports up to 4 ATAPI devices
 - Supports up to PIO Mode 4 up to 16.6MBps, Multi Mode 4 up to 66MBps with bus mastering
 - Bus Master software drivers for all common multi-task operating systems

❑ **Embedded Super I/O Functions**
- Three UARTs support two serial ports and IR function for HPSIR and ASKIR
- One parallel supports SPP/ECP/EPP
- One floppy disk drive connector supports up to 2.88MB, Japanese 3- Mode and 1Mbps transfer rate

❑ **Double Stack Back-Panel I/O Connectors with PC99 Colored Codes**
- PC99 Compliant color connectors
- PS/2 Mini-DIN keyboard and mouse ports
- Two Channel USB ports
- Two D-Sub 9-pin male serial port
- One D-Sub 25-pin female Printer port
- One D-Sub 15-pin female Game/MIDI port
- Audio Line-out, Line-in, Mic-in jacks

❑ **Optional PCI Audio Subsystem**
- Built-in Sample Rate Converter to ensure all internal operation at 48KHz
- Full-duplex operation for simultaneous recording and playback
- Built-in FM-emulation music synthesizer
- With external high quality AC`97/98 CODEC provides 90dB+ SNR CD quality audio
- Using wavetable data on the system memory
- Hardware SoundBlaster Pro for Windows DOS box and real-mode DOS legacy compatibility
- Complete software driver support for Win95/98/NT

❑ **Optional PCI Audio Subsystem**
- Creative CT5880 audio chip
- Advanced 64-Voice Wavetable synthesizer
- Programmable independent sample rate form 4KHz to 48KHz for recording and playback
- Full-duplex operation for simultaneous recording and playback
- Supports MS DLS (Downloadable sample) level-1 technology with limitless variety of instrument samples using PC RAM
- Up to 8MB wavedata provides 128 GM, GS and WT-32 compatible instruments and 10 drum kits
- Supports HRTF 3D positional audio with MSDS, DS3D, DirectMusic, Aureal A3D and Creative EAX (Environment Audio Extensions) APIs
- 4-Channel speaker audio support is easy to build up a Home Theater environment
- Supports S/PDIF-out for digital audio (for example compressed AC3 data)
- PCI v2.1 compliant and full Legacy DOS software compatible

❒ **Embedded USB Controller**
   - USB host controller (UHCI v1.0 compliant) with Root Hub
   - Four USB ports with over-current protection
   - Optional USB riser with additional 2 USB ports

❒ **Board Dimensions**
   - Standard ATX form factor, 305mm x 200mm, 4 Layers
   - Six mounting holes

❒ **Product Features**
   - Innovative SeePU technology for jumperless CPU installation
   - Advanced over-clocking capability with Vcore and frequency subtle tuning technology
   - Embedded System Monitor Hardware
   - Poly-fuse protection for USB and keyboard circuitry
   - Hardware design meets Microsoft PC99 requirements

   ✍ **Advanced Management Features**
      - Power-on events: WOL (Wake On LAN) network card, Modem ring, RTC Alarm
      - Software power-off control for Win95/98
      - Over-ride power button
      - Enhanced Power failure recovery with three selectable states once the Vsb loose: Always On, Always Off and Last state
      - Blinking Power-LED in suspend
      - Hardware Reset Protect
   - Complete Data Security
      Flash BIOS write protection against unauthorized access with Trend ChipAway Virus and PC-cillin for a 100% virus-free system boot-up in one

❒ **Switching Power Supply Requirement**

Output Voltage	Max. Regulation Requirement	Min.Current Requirement(Amps)
+12V	+/- 5%	5.5
+5V	+/- 5%	15
+3.3V	+/- 5%	15
-5V	+/- 10%	0.5
-12V	+/- 10%	0.5
+5VSB	+/- 5%	0.75

Table 1-1

⚠ 3.3V at 15Amps is necessary to guarantee full loading operation because some AGP cards and memory modules have high current consumption.

1-2 Package Contents

This product comes with the following components:

❑ One mainboard

❑ One 40-pin Ultra DMA-66 IDE connector ribbon cable (Figure 1-1)
   * Color coded connection for UDMA/66 cable
   Blue to mainboard, Ground in blue, Gray to Master and Black to slave

❑ One 34-pin floppy disk drive ribbon cable (Figure 1-2a) or (Figure 1-2b)

❑ One User's Manual

❑ One CD-ROM that includes

   - Acrobat Reader
   - Award Flash Utility and Award DMI Utility for DOS
   - VIA Bus Master IDE drivers for Win95/NT
   - VIA AGP drivers for Win95/98/NT
   - VIA Sound Driver for DOS/Win95/98/NT
   - Trend **PC-cillin 98** with multilingual support
   - Optional AIRBAG software group including AntiVirus programs and other
   helpful utilities


Figure 1-1   UDMA66 IDE cable
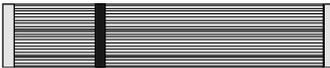
Figure 1-2a Standard Floppy cable

Figure 1-2b Optional 5.25 in. floppy cable

1-3 Motherboard layout

Labels (top): Top:Game/MIDI port / Bottom: MIC, Line-In, Line-out • Top:Parallel / Bottom: Serial • Top: USB1 / Bottom: USB

ISA slot • CREATIVE • 5 PCI slots • AGP • VGA • Serial COM1 • Top: / Botto

AMR
BIOS: Programmable Flash EEPROM
BIOS

Front Panel conn. • VIA VT82C686A • Battery • 2 IDE ports

Back Panel I/O Connector

PCB

Game • COM2 • COM1 • Printer • USB2 • USB1 • K/B • Mouse

Line-In • Mic-in • Line-out • COM2 • COM1 • USB x 2 • PS/2 Mouse & K/B Con

JP5 • JP4 • CT 5880 • ISA1 • CN1 • MONO-IN • AUX-IN • CN3 CN2 • JP6 • JP2 • CN13 • Game • Printer • CN8 • USB • CN8

PCI 5 • PCI 4 • PCI 3 • PCI 2 • PCI 1 • JP1 • Switching power module

AMR • W29C020 • CN11 • Slot1 CPU Socket • CPU-FAN • FAN1

W29C020 • PAL • AGP • VIA VT82C 694X • JP2B • JP2A

CN4 • CN5 WOL • VIA VT82C686A • Battery • DIMM1 • DIMM2 • DIMM3

SYSTEM-FAN • FAN2 • CN9 • JP7 • JP3 CLEAR CMOS • IDE #1 • IDE #2 • CN7 • Power supply conn. • FLOPPY • FAN3 CASE-FAN

1-4 Connector and Jumper Reference Chart

Jumper & Connector No.	Function	Page
JP1	VTT Voltage tuning jumper	14
JP2/JP6	Audio line out and speaker out jumpers	14
JP2A/JP2B	External clock frequency jumper	14
JP3	Clear CMOS data jumper	15
JP4	Onboard Audio jumper	15
JP5	Embedded CODEC Jumper	15
JP7	Optional TWIN BIOS Jumper	18
CN1	CD-ROM audio in connector	16
CN2	AUX audio in connector	16
CN3	Audio Mono in/out connector	17
CN4	Infrared connector	17
CN5	WOL(Wake On LAN) connector	17
CN7	ATX Power supply connector	11
CN9	Power indicator LED connector	12
	System reset switch connector	13
	Speaker connector	13
	Green switch / Green LED connector	13
	Turbo LED connector	13
	IDE activity LED connector	13
	Over-ride power button connector	12
FAN1/2/3	CPU/ System/Case cooling fan connector	15
Ports	PS/2 mouse and keyboard ports	18
CN11	USB (Universal Serial Bus) ports and connector	18

Chapter 2

Hardware Setup

If your mainboard has already been installed in your computer you may still need to refer to this chapter if you plan to upgrade your system's hardware.

> ⚠️ **Be sure to disconnect the power cable from the power source before performing any work on your mainboard, i. e. installing a CPU, memory module, changing a jumper setting, etc. Not doing so may result in electrical shock!**

2-1 Introduction to Jumpers

Jumpers are used to select between various operating modes. A jumper consists of a row of gold colored pins that protrude from the surface of the mainboard. It is important not to confuse jumpers with connectors or headers.

> ⚠️ **Putting jumper caps on anything that is not a jumper may result in damaging your mainboard. Please refer to Section 1-3, Mainboard Layout, for the location of jumpers on your mainboard.**

As indicated in Figure 2-1 below, a cap is used to cover the pins of a jumper, resulting in shorting those pins that it covers. If the cap is removed from the top of the pins, the jumper is left "open." The number 1 shown both in the diagram below and in all multiple pin jumper and header diagrams in this manual indicates the pin designated with the number 1. The numbering of the remaining pins follows in sequence.

Pins   Cap   Setting

A 3-pin jumper

A cap over pin 1 and pin 2 shorts these pins
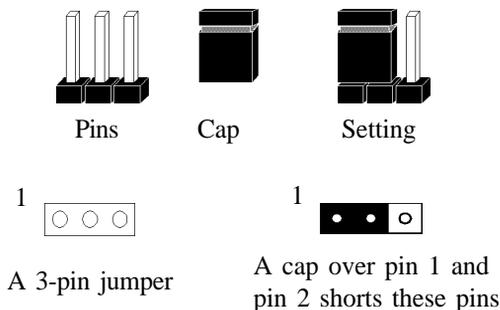
Figure 2-1

2-2 Installing an Intel Processor in Slot 1

1. Insert the Pentium II/Pentium III processor into the retention mechanism. Press evenly and gently until the snaps on the upper side of the processor have been inserted into the holes at the top of the retention mechanism.

2. Note that when removing the processor, these snaps should be clicked into a completely vertical position, leaving your hands free to stabilize the board. Pull the processor evenly and gently out of the retention mechanism.

3. Also note that like PCI and ISA slots, Slot 1 has a divider that prevents backwards insertion of the CPU.

    Installing a heat sink with cooling fan is necessary for proper heat dissipation from your CPU. Failing to install these items may result in overheating and possible burn-out of your CPU.

2-3 Setting Your CPU's Parameters(*SeePU* Technology)

SeePU is a new user friendly technology that enables the user to setup a mainboard's CPU parameters through an easy to use BIOS setup procedure. It is no longer necessary to make many jumper settings as on conventional mainboards.

1. After installing all your hardware into your PC system, turn on your system's power. Enter the CMOS Setup Utility by pressing the Delete key when your BIOS identification screen appears.

2. Move the cursor to Frequency/Voltage Control Setup menu and press Enter. Find the CPU Setup commands at the right hand side of the BIOS screen (Figure 2-2) Commands for operating the cursor in BIOS are found at the Bottom right of the BIOS screen.


ROM PCI / ISA BIOS (2A6LGC39)
Frequency/Voltage Control
AWARD SOFTWARE, INC.

```
*****      CPU Setup       ******
Frequency Ratio          3.5X
CPU BUS Frequency        Default
CPU Vcore                Default
```

```
ESC : Quit            ↑↓→←      : Select Item
F1  : Help            PU/PD/+/- : Modify
F5  : Old Values      (Shift) F2 : Color
F7  : Load Setup Defaults
```
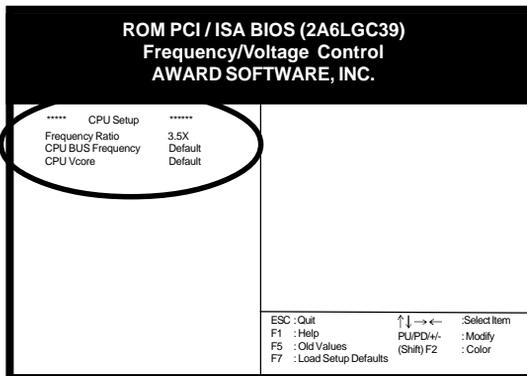
Figure 2-2

3. Change the CPU Type according to the speed of your Pentium II/III processor. See Figure 2-3 for frequency specifications.

CPU Type	CPU Speed		
	External Clock	Freq. Ratio	Internal Clock
Intel PentiumII/III Coppermine & Celeron Processors	1 0 0	3 . 5	3 5 0
		4	4 0 0
		4 . 5	4 5 0
		5	5 0 0
		5 . 5	5 5 0
		6	6 0 0
		6 . 5	6 5 0
		7	7 0 0
		7 . 5	7 5 0
	1 3 3	4	5 3 3
		4 . 5	6 0 0
		5	6 6 7
		5 . 5	7 3 3

Figure 2-3

4. Set your CPU's parameters. Set the frequency ratio (also known as external clock multiplier factor) and CPU bus frequency according to your processor's specifications. See Figure 2-4.

⚠ You do not need to make voltage settings because *SeePU* automatically sets your CPU voltage.
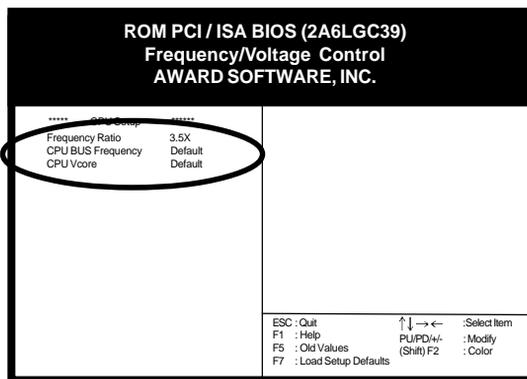

Figure 2-4

5. Press Esc to return to the CMOS Setup Utility, press F10 to Save and Exit Setup and choose 'Y' to confirm. The system will automatically reboot and during startup you will see the correct CPU type shown on the screen.

⚠ **Overclocking**

Operating a CPU at a higher frequency than it's specification allows is called overclocking. If the CPU frequency is set at a higher frequency than it's specification allows, it may or may not run at that freqency, depending on the quality of your CPU and the extent to which the frequency has been overset. The mainboard manufacturer highly discourages overclocking as it may result in data loss, CPU burn-out, system failure, etc.

Many Pentium processors are frequency locked processors and are not able to perform overclocking. Regardless of whether the processor is a frequency locked, overclocking may cause some processors to hang when turning on the system. When the processor hangs, the screen remains blank and the system does not boot. To solve this problem, do the following.

1. Turn off the computer and then press the Home key on your keyboard

2. Turn on your computer, wait for five seconds and then release the Home key. (Pressing the Home key allows the computer to boot at a low system speed.)

3. Enter BIOS and reconfigure your CPU parameters as described in this section.

Unique Frequency modulation features for Overclocking

1. Programable linear frequency output up to 150MHz.

2. Change CPU frequency without re-starting the system.

3. Optional DOS and Windows application for frequency on-line tuning.

   (SMD4.exe in DOS and CPUBOOST.exe for Windows)

⚠ **Note: All connectors and jumpers on Section 2-4 that are related to audio system will be applicable only if the mainboard is bought with an onboard (Optional) PCI audio subsystem.**

2-4 Connector and Jumper Settings

Connectors are used to link the system board with other parts of the system, including the power supply, the keyboard, and the various controllers on the front panel of the system case.

> **The power supply connector is the last connection to be made while installing a mainboard. Before connecting the power supply, please make sure it is not connected to the power source.**

ATX Power Supply Connector (CN7)
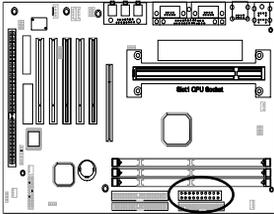
The power cord leading from the system's power supply to the external power source must be the very last part connected when assembling a system.

The ATX power supply provides a single 20-pin connector interface which incorporates standard +/-5V, +/-12V, optional 3.3V and Soft-power signals. The Soft-power signal, a 5V trickle supply is continuously supplied when AC power is available. When the system is in the Soft-Off mode, this trickle supply maintains the system in it's minimum power state.

Software Power-Off Control

This mainboard can be powered down using theWindows 95 Software Power-Off function. To power down your computer, click the START button on the Windows 95 task bar. Select "Shut Down The Computer" and the system turns off. The message "It is now safe to turn off your computer" will not be shown when using this function.

`Power-On By Modem`

While in Soft-off state, if an external modem ring-up signal occurs, the system wakes up and can be remotely accessed. You may enable this function in BIOS's Power Management Setup menu.

Front Panel Connector Set (CN9) A through G

1

Turbo LED — Power Indicator LED

Green Switch

Green LED

Speaker Header

Reset Switch

IDE Activity LED — Over-ride Power Button
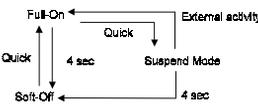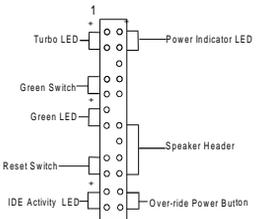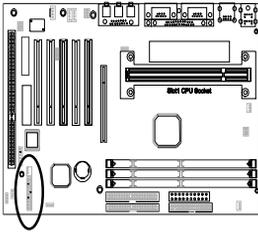
Over-ride Power Button Operation

A. Over-ride Power Button Connector

The power button on the ATX chassis can be used as a normal power switch as well as a device to activate Advanced Power Management Suspend mode. This mode is used for saving electricity when the computer is not in use for long periods of time. The Soft-OFF by PWR-BTTN function in BIOS's Power Management Setup menu must be set to "Delay 4 Sec." to activate this function.(See section 3-4)

When the Soft-OFF by PWR-BTTN function is enabled, pushing the power button rapidly will switch the system to Suspend mode. Any occurence of external activities such as pressing a key on the keyboard or moving the mouse will bring the system back to Full-On. Pushing the button while in Full-On mode for more than 4 seconds will switch the system completely off.   See Over-ride Power Button Operation diagram.

B. Power Indicator LED Connector

The power indicator LED shows the system's power status. It is important to pay attention to the correct cables and pin orientation (i.e., not to reverse the order of these two connectors.)

Pin	Definition
1	+5V DC
2	Not Connected
3	Ground

Blinking LED in Suspend Mode

While in Suspend mode, the LED light on the front panel of your computer will flash. Suspend mode is entered by pressing the Override Power Button, pushing the Green button on your ATX case, or enabling the Power Management and Suspend Mode options in BIOS's Power Management menu. (See section 3-4)
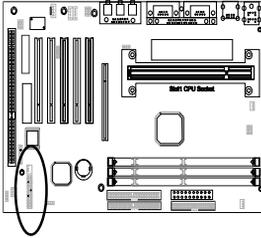
C. Green Switch/Green LED Connector

Some ATX cases provide a Green switch which is used to put the system in Suspend mode. In Suspend mode, the power supply to the system is reduced to a trickle, the CPU clock is stopped, and the CPU core is in it's minimum power state. The system is woken up whenever the keyboard or mouse is touched. The system resumes in different ways as defined by Power Management Setup screen in BIOS.
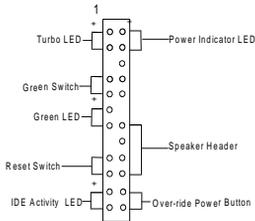
D. System Reset Switch Connector

This connector should be connected to the reset switch on the front panel of the system case. The reset switch allows you to restart the system without turning the power off.

Pin	Definition
1	System
2	GND

E. Speaker Connector

PIN	Definition
1	Speaker Signal
2	NC
3	NC
4	+5V DC

F. IDE Activity LED Connector

The IDE activity LED lights up whenever the system reads/writes to the IDE devices.

G. Turbo LED Connector

This mainboard does not have a Turbo/De-turbo speed modes. So the turbo LED will always light .

Poly-fuse Over Current Protection

The poly-fuse protects the system from dangerous voltages the system might be exposed to via the keyboard or USB connectors. In case of such exposure, the poly-fuse will immediately be disconnected from the circuit, just like a normal fuse. After being disconnected for a certain period of time, the poly-fuse will return to its normal state, after which the keyboard or USB can function properly again. Unlike conventional fuses, the poly-fuse does not have to be replaced, relieving the user wasted time and inconvenience.

VTT Voltage Tuning (JP1)
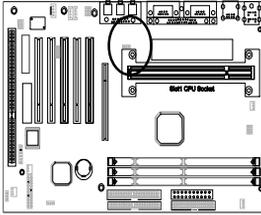
1 ▣▣▫ Auto (default)   1 ▫▣▣ manual

This feature supports +0.1V Vcore subtle tuning. Set the pin to 1-2 enable auto tuning. Set pin to 2-3 to enable manual tuning.

Audio Line out and Speaker out Jumpers(JP2/JP6)
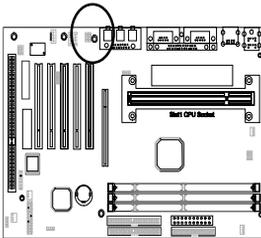
JP2 1 ▣▣▫   JP2 1 ▫▣▣

JP6   ▣▣▫   JP6   ▫▣▣

Line out   Speaker out

This jumper allows you to select between audio line-out or speaker out function. Set both JP2 and JP6 pins to 1-2 for line-out function or set both   JP2 and JP6 pins to 2-3 for speaker out function..

External Clock Frequency (JP2A/JP2B)
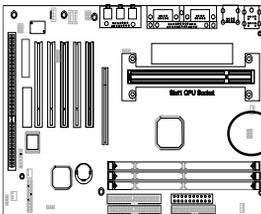
External Clock	AUTO	66 MHz	100 MHz	133 MHz
JP2A	1 ▣▣▫	1 ▫▣▣	1 ▫▫▫	1 ▫▫▫
JP2B	1 ▣▣▫	1 ▫▣▣	1 ▫▣▣	1 ▫▫▫

This jumper allows the system bus frequency to be determined either by CPU or the user. If set both JP2A/JP2B pins to 1-2, the CPU determines the system bus frequency speed. Set both JP2A/JP2B pins to 2-3 for 66MHz FSB, set only JP2B pins to 2-3 for 100MHz FSB and leave both JP2A/JP2B pins open for 133MHz FSB.

Clear CMOS Data Jumper (JP3)
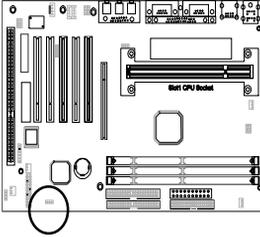
^{1} [•• ○] Normal (default) ^{1}|○ [••] Clear CMOS data

To clear the contents of the CMOS, please follow the steps below.

1. Disconnect the system power supply from the power source.
2. Set the jumper cap at location 2~3 for 5 seconds, then set it back to the default position.
3. Connect the system's power and then start the system.
4. Enter BIOS's CMOS Setup Utility and choose Load Setup Defaults. Type Y and press enter.
5. Set the system configuration in the Standard CMOS Setup menu.

Onboard Audio (JP4)
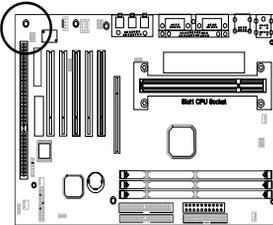
^{1} Enabled ^{1} Disabled

This function allows you to enable and disable the on board audio. You must set the jumper's cap to pins 1-2 to enable or set pins 2-3 to disable this function.

Embedded CODEC Jumper (JP5)
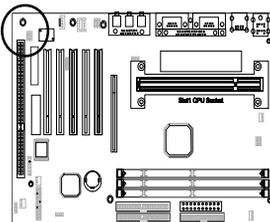
^{1} AC'97 CODEC enabled

^{1} Soft-Audio/Modem riser enabled

Short pin 1-2 to enable onboard AC`97 CODEC. Short pin 2-3 to enable Soft Audio/Modem riser.

CPU/System/Case Cooling Fan Connectors (FAN1/FAN2/FAN3)
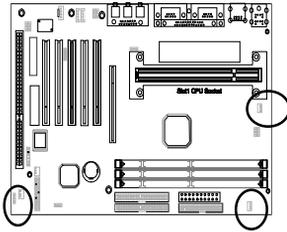
These added connectors allow the fan to draw their power from the mainboard instead of the disk drive connector. The board's management extension hardware is able to detect the CPU and system fan speed in rpm (revolutions per minute). These connectors supports 3-pin cooling fans with minimum of 3500 RPM. The wiring and plug may vary depending on the manufacturer. On standard fans, the red is positive (+12V), the black is ground, and the yellow wire is the rotation signal.

⚠️ FAN3 (Case Fan) is an independent power line that is not control by system health monitor and power management.

GND
+12V
Rotate
FAN1/2

GND
+12V
NC
FAN3
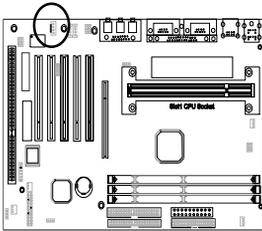
CD-ROM Audio-in (CN1)

Use the audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your mainboard. This will enable your CD-ROM's audio function.

GND
L R
1 | o o o o

Auxiliary CD-ROM Audio-in (CN2)
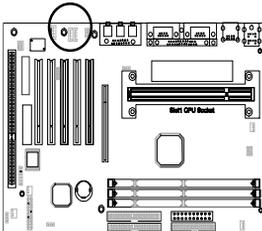
Use the auxiliary audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your mainboard. This will enable your CD-ROM's audio function.

GND
L R
1 | o o o o

Audio Mono -in/out (CN3)
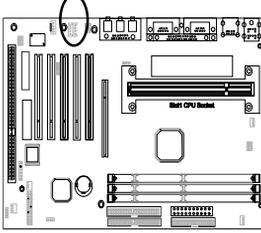
Use the mono audio cable enclosed with your CD-ROM disk drive to connect the CD-ROM to your mainboard. This will enable mono audio in/out function.

Mono-in   Mono-out
GND
1
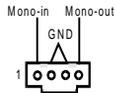
Infrared Connector (CN4)
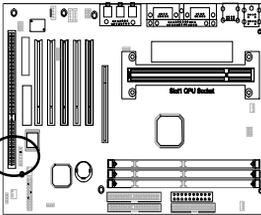
If you enable the COM2 Mode in BIOS's Integrated Peripherals menu the COM2 port will support IR functions. (See section 3-9)

Vcc
Ir-Rx
GND
Ir-Tx
Vcc
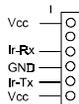
WOL (Wake-on-LAN) Connector (CN5)
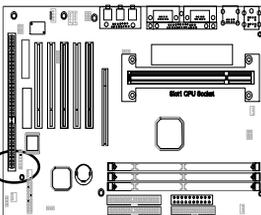
Enable the Wake Up On LAN selection in BIOS's Power Management Menu to use this function. The capability to remotely manage PCs on a network is a significant factor in reducing administrative and ownership costs. Magic Packet technology is designed to give WOL (Wake-on-LAN) capability to the LAN controller. When a PC capable of receiving wake up command goes to sleep, the Magic Packet mode in the LAN controller is enabled. When the LAN controller receives a Magic Packet frame, the LAN controller will wake up the PC. This header is used to connect an add-in NIC (Network Interface Card) which gives WOL capability to the mainboard.

1
5VSB
GND
Wakeup

To support this function, a switching power supply with a minimum of **750mA** 5VSB standby signal is required.

Optional TWIN BIOS Jumper (JP7)
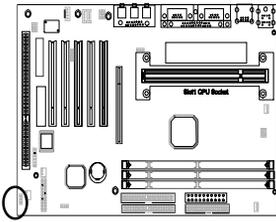
1 ▪▪▫ Hardware select 1 ▫▪▪ BIOS select

This feature enable you to manually shift to another BIOS once the the BIOS fail to boot. Set the pin to 2-3 to enable BIOS select in the Advance BIOS Features.(Boot BIOS) . Set pin to 1-2 to enable hardware select and then press the reset button together with the power on button to boot up.

PS/2 Mouse and Keyboard Ports
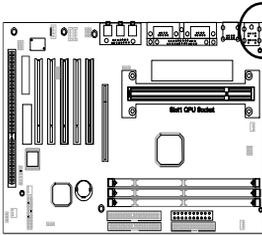
If a PS/2 mouse is used, BIOS will automatically detect and assign IRQ12 to the PS/2 mouse.

Pin	Definition
1	Data
2	No Connect
3	Ground
4	+5V (fused)
5	Clock
6	No Connect

USB(Universal Serial Bus) Ports and USB 3/4 Connector (CN11)
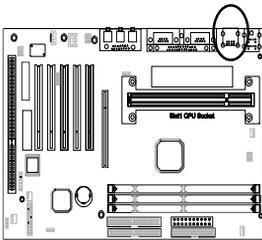
If you want to use a USB keyboard, you must enable the USB keyboard support function in BIOS's Integrated Peripherals menu (See Section 3-7). USB is an open industry standard, providing a simple and inexpensive way to connect up to 125 devices to a single computer port. Keyboards, mice, tablets, digitizers, scanners, bar-code readers, modems, printers and many more can all be used at the same time.

USB is a dynamically reconfigurable serial bus with an elementary data rate of 12Mbps. Based on off the shelf, low cost micro-controller technology, its modular layered software protocol supports sophisticated devices and application programs.

This board contains a USB Host controller and includes a root hub with two USB ports (meets USB Rev 1.0 spec.) and a connector for optional USB Adaptor (USB3/4). Four USB peripherals or hub devices are able to be connected.
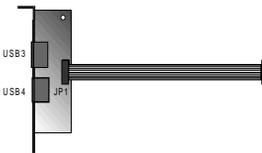
2-5 Main Memory Configuration

The DRAM memory system consists of three banks and the memory size ranges from **16~768 MBytes**. It does not matter which bank you want to install first.

DIMM 1	Bank0
DIMM 2	Bank1
DIMM 3	Bank**2**

1   128
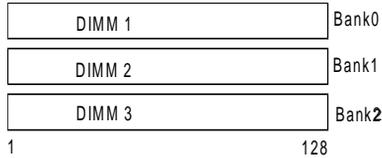
DRAM Specifications

FSB	SDRAM Type	SDRAM Type	Max Memory
66	FSB	12ns or faster	
	FSB+33	10ns or faster	
100	FSB-33	12ns or faster	768MB
	FSB	10ns or faster	
	FSB+33	7.5ns or faster	
133	FSB-33	10ns or faster	
	FSB	7.5ns or faster	

DIMM type   3.3V, unbuffered, registered, 64/72-bit SDRAM with SPD*

Module size: Single/double-side 16/32/64/128/256/512 MBytes

Parity: Either parity or non-parity

⚠ The compatibility with 512MB and Registered DIMM is still under testing and cannot be guaranteed.

⚠ This mainboard supports 3.3v, unbuffered, 4-clock, SDRAM DIMM only. Buffered, 5V, or 2-clock SDRAM DIMMs should not be used.

⚠ Due to loading anomalies, using DIMM with an 'n x 4' DRAM base on this mainboard is not recommended. For example, a DIMM that uses sixteen 16Mb x 4 devices should not be used.

SPD (Serial Presence Detect)

This is an EPROM that contains speed and design information about the memory module. The mainboard queries the module and makes adjustments to system operation based on what it finds.

ECC DRAM Capability

This mainboard can be configured to support ECC (Error Check and Correct) function when utilizing parity DIMM modules. To utilize the chipset's ECC features, you must use a 72-bit DIMM module. These modules are automatically detected during bootup. However, the user must configure the DRAM Data Integrity Mode to "ECC" in BIOS's SeePU&Chipset Features Setup menu to enable the ECC function. ECC detects double bit errors and detects and corrects single bit memory errors on the fly without user intervention. Errors may be generated by a defective memory module, conflicting memory speeds between different banks, DMA, etc.

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 restart the system, press the Delete 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.

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   ¡ô¡õ ¡õ¡ô   : Select Item
F10   : Save & Exit Setup

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.

CMOS Setup Utility- Copyright (C) 1984-1999 Award Software Standard CMOS Features		
Date (mm : dd : yy)	Thu, Dec 9 1999	Items Help
Time (hh : mm : ss)	17 : 14 : 44	
▶ IDE Primary Master	Press Enter None	Menu Level ▶
▶ 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	
Floppy 3 Mode Support	Disabled	
Video	EGA/VGA	
Halt On	All Errors	
Base Memory	640K	
Extended Memory	65472K	
Total Memory	1024K	

¡ô¡õ ¡õ¡ôMove Enter:Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:Genaral Help
F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Figure 3-2 Standard CMOS Features 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 boot up.

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 diagnosis 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 Advanced BIOS Features

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

```
╔══════════════════════════════════════════════════════════════╗
║      CMOS Setup Utility- Copyright (C) 1984-1999 Award Software ║
║                     Advanced BIOS Features                      ║
╠═══════════════════════════════════════════╦════════════════════╣
║  Boot BIOS                  ROM Master     ║      Items Help     ║
║  Anti-Virus Protection      Disabled       ║                     ║
║  CPU Internal Cache         Enabled        ║  Menu Level    ▶    ║
║  External Cache             Enabled        ║                     ║
║  CPU L2 Cache ECC Checking  Enabled        ║                     ║
║  Processor Number Feature   Enabled        ║                     ║
║  Quick Power On Self Test   Enabled        ║                     ║
║  First Boot Device          Floppy         ║                     ║
║  Second Boot Device         HDD-0          ║                     ║
║  Third Boot Device          CDROM          ║                     ║
║  Boot Other Device          Enabled        ║                     ║
║  Swap Floppy Drive          Disabled       ║                     ║
║  Boot Up Floppy Seek        Enabled        ║                     ║
║  Boot Up NumLock Status     On             ║                     ║
║  Typematic Rate Setting     Disabled       ║                     ║
║  X Typematic Rate (Chars/Sec)  6           ║                     ║
║  X Typematic Delay (Msec)   250            ║                     ║
║  Security Option            Setup          ║                     ║
║  OS Select (For DRAM > 64MB) Non-OS2       ║                     ║
╚═══════════════════════════════════════════╩════════════════════╝
```

¡ô¡õ ¡õ¡ôMove Enter:Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:Genaral Help
            F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Figure 3-3 Advanced BIOS Features 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.

C. Boot Up Features

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

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 boot up is better than loosing data during your work.

First/Second/Third/Boot Other Device

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 include 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 number pad 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 3-11 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. 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.

G. 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 Advance Chipset Features

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

```
┌─────────────────────────────────────────────────────────────────────────┐
│        CMOS Setup Utility- Copyright (C) 1984-1999 Award Software         │
│                        Advanced Chipset Features                          │
├───────────────────────────────────────────────────┬─────────────────────┤
│  Bank 0/1 DRAM Timing      SDRAM 10ns          ▲   │    Items Help        │
│  Bank 2/3 DRAM Timing      SDRAM 10ns              │                      │
│  Bank 4/5 DRAM Timing      SDRAM 10ns              │  Menu Level    ►     │
│  SDRAM  Cycle Length       3                       │                      │
│  DRAM Clock                Host CLK                │                      │
│  Memory Hole               Disabled                │                      │
│  P2C/C2P Concurrency       Enabled                 │                      │
│  Fast R-W Turn Around      Disabled                │                      │
│  System BIOS Cacheable     Disabled                │                      │
│  Video RAM Cacheable       Disabled                │                      │
│  AGP Aperture Size         64M                     │                      │
│  AGP-4X Mode               Disabled                │                      │
│  AGP Comp. Driving         Auto                    │                      │
│  AGP C.Driving Strength    00                      │                      │
│  Flash BIOS Protection     Disabled                │                      │
│  Hardware Reset Protect    Disabled                │                      │
│  OnChip Sound              Disabled                │                      │
│  OnChip Modem              Enabled                 │                      │
│  Spectrum Spread           Disabled            ▼   │                      │
└───────────────────────────────────────────────────┴─────────────────────┘
```

¡ô¡õ ¡õ¡ôMove Enter:Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:Genaral Help
　　　　　F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized 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. BANK 0/1, 2/3 & 4/5 DRAM Timing

This item allows youto select the value in this field, depending on whether the board has paged DRAM or EDO (Extended Data Output) DRAMs.

B. SDRAM Cycle Length

When synchronous DRAM is installed, the number of the clock cycles of CAS latency depends on the DRAM timing. Do not reset this setting from the default value specified by the system designer.

C. 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. The default setting is Disabled. If Auto Configuration is enabled, you must set the DRAM timing function to 60ns or 70ns, depending on the type of DRAM you install.

D. 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.

E. Video RAM Cacheable

Enabling this function will allows caching of the video RAM, resulting in better system performance. However, if any programs write to this memory area, a system error may occur.

F. AGP Aperture Size

This function determines the amount of system memory that is given to the AGP card. Options range from 4MB to 128MB. 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 is alloted to the AGP card and the card only needs 8MB, the remaining 8MB will be available for system use.

G. AGP-4X Mode

Enable this setting to utilize the4X mode (twice as fast as2X) offered by advanced AGP cards. Your VGA card must support 4X mode in order to take advantage of the faster speed.

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.

I. Hardware Reset Protect

When this function is enabled, your PC's hardware reset button will not function. This function is especially useful to prevent accidental resets for file servers and routers, etc., which should be available 24 hrs/day. When disabled, your PC's hardware reset button will function normally.

J. OnChip Sound

This function must be enabled in order to use the onboard audio function. To terminate this function set it to disabled.

K. OnChip Modem

This function must be enabled in order to use the soft modem riser card on AMR slot. To terminate this function set it to disabled. Be sure to set AMR/MR Setting jumpers (JP4A/B/C/D) as discussed in Section 2-4 of this manual to enable this function.

L. Spectrum Spread

When Enabled this function will cause lower EMI by spreading the system frequency spectrum. For normal operation, disable this function.

M. Memory Parity/ECC Check

If the DRAM chips in your system support parity/ECC check, select Enabled

3-4 Integrated Peripherals

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

```
┌─────────────────────────────────────────────────────────────────────────┐
│        CMOS Setup Utility- Copyright (C) 1984-1999 Award Software         │
│                          Integrated Peripherals                          │
├─────────────────────────────────────────────┬───────────────────────────┤
│   On-Chip IDE Channel0       Enabled      ▲ │        Items Help         │
│   On-Chip IDE Channel1       Enabled        │                           │
│   IDE Prefetch Mode          Enabled        │   Menu Level    ▶         │
│   Primary Master PIO          Auto          │                           │
│   Primary Slave PIO           Auto          │                           │
│   Secondary Master PIO        Auto          │                           │
│   Secondary Slave PIO         Auto          │                           │
│   Primary Master UDMA         Auto          │                           │
│   Primary Slave UDMA          Auto          │                           │
│   Secondary Master UDMA       Auto          │                           │
│   Secondary Slave UDMA        Auto          │                           │
│   Init Display First          PCI Slot      │                           │
│   OnChip USB                 Disabled       │                           │
│   USB Keyboard Support       Disabled       │                           │
│   IDE HDD Block Mode         Enabled        │                           │
│   Onboard FDD Controller     Enabled        │                           │
│   Onboard Serial Port 1       Auto          │                           │
│   Onboard Serial Port 2       Auto        ▼ │                           │
│   COM 2 Mode                 Standard        │                           │
├─────────────────────────────────────────────┴───────────────────────────┤
│ ¡ô¡õ ¡õ¡ôMove  Enter:Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:Genaral Help │
│        F5:Previous Values        F6:Fail-Safe Defaults      F7:Optimized Defaults │
└─────────────────────────────────────────────────────────────────────────┘
```

Figure 3-5 Integrated Peripherals Screen

A. On Board IDE Control

On-chip IDE channel 0/1
You can set this to disable the On-chip IDE controller if you are going to add a higher performance IDE board.

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.

B. Init Display First

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

C. OnChip USB

Enable the on-board Universal Serial Bus (USB) controller if you want to connect a USB keyboard to your system. Note that if this setting is disabled, you can still temporarily use a USB keyboard during bootup so that you can enter BIOS and enable this setting. If you pass the bootup stage without enabling this function, your PS/2 keyboard will no longer work.

D. USB Keyboard Support

Set to Button Only to control the system power via the button on your system case. Set to Mouse Left/Right Click to turn on the power via a PS/2 mouse, and set to Keyboard 98, Hot Key or Password to turn on the power via keyboard. With Hot Key and Password you must decide on which keys will turn on the power.

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 drives do), 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. COM2 Mode Select

This function allows you to select an operating mode for the second serial port. (**Normal** RS-232C serial port/**IrDA SIR** 1.0 specification/**ASKIR** 0.57-MB/sec infrared port)

H. Onboard Parallel Port

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

I. Parallel Port Mode

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

3-5 Power Management Setup

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

```
CMOS Setup Utility- Copyright (C) 1984-1999 Award Software
                    Power Management Setup

                                                   Items Help
   ACPI function            Enabled
 ► Power Management          Press Enter          Menu Level    ►
   ACPI Suspend Type         S1(POS)
   PM Control by APM         Yes
   Video Off Option          Suspend -> Off
   Video Off Method          DPMS Support
   MODEM Use IRQ             3
   Soft-Off by PWRBTN        Delay 4 Sec
   State After Power Failure Off
 ► Wake Up Events            Press Enter




¡ô¡õ¡õ¡ôMove  Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1:Genaral Help
        F5:Previous Values       F6:Fail-Safe Defaults    F7:Optimized Defaults
```
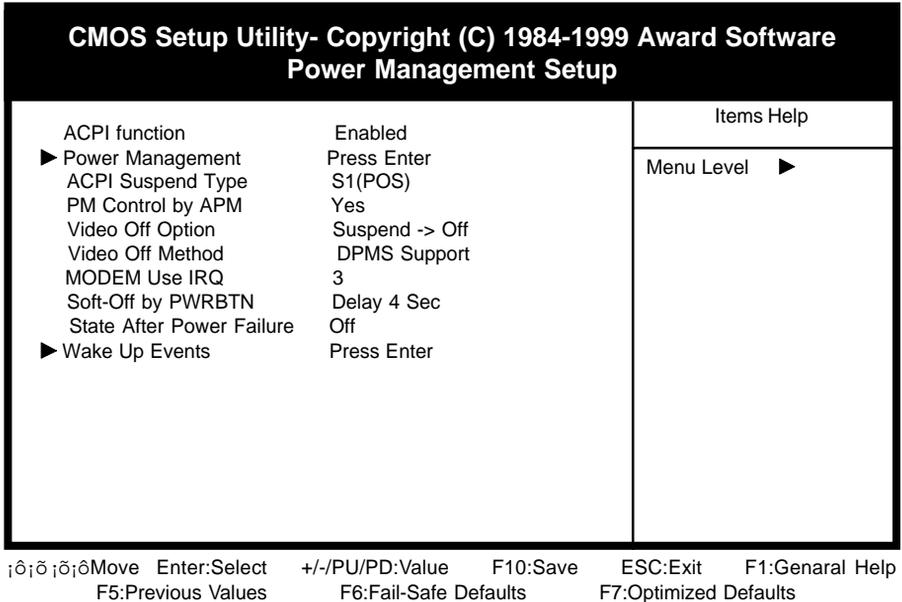
Figure 3-6 Power Management Setup Screen

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.

Normal ⟶ Doze ⟶ Standby ⟶ Suspend (Green Mode)
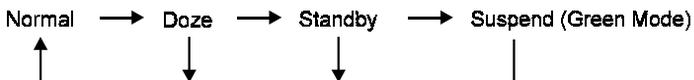
Figure 3-7 Power Saving Mode Flow Chart

C. Video Off Option

This setting allow you to selects the power-saving modes during which the monitor goes blank:

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 video subsystem to set video power management options.

E. 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.

F. Soft-Off by PWR-BTTN

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 override power button operation which puts the system in Suspend mode. When set to Instant-Off the Soft-Off by PWR-BTTN function is disabled and the computer turns completely off when the power button is pressed.

H. Power On By Modem

When enabled, a modem/LAN that receives a signal 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.

I. 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.

3-6 PNP/PCI Configuration

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

```
╔══════════════════════════════════════════════════════════════════════╗
║      CMOS Setup Utility- Copyright (C) 1984-1999 Award Software        ║
║                       PnP/PCI  Configurations                         ║
╠════════════════════════════════════════════╦═════════════════════════╣
║  PNP  OS Installed          No             ║      Items Help         ║
║  Reset  Configuration Data  Disabled       ║                         ║
║                                            ╟─────────────────────────╢
║    Resources Controlled By  Auto(ESCD)     ║  Menu Level    ▶        ║
║  X IRQ Resources            Press Enter    ║                         ║
║  X DMA- Resources           Press Enter    ║                         ║
║                                            ║                         ║
║    PCI/VGA Palette Snoop     Disabled      ║                         ║
║    Assign IRQ For VGA        Enabled       ║                         ║
║    Assign IRQ For USB        Enabled       ║                         ║
║    Slot 1/5 Use IRQ No.      Auto          ║                         ║
║    Slot 2   Use IRQ No.      Auto          ║                         ║
║    Slot 3   Use IRQ No.      Auto          ║                         ║
║    Slot 4   Use IRQ No.      Auto          ║                         ║
║    FDD IRQ Can Be Free       Yes           ║                         ║
║                                            ║                         ║
║                                            ║                         ║
╚════════════════════════════════════════════╩═════════════════════════╝
```
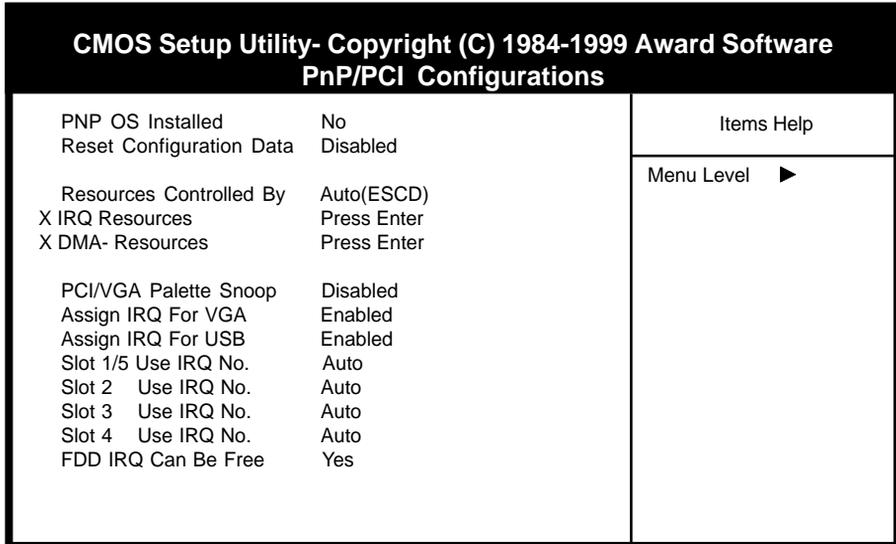
¡ô¡õ ¡õ¡ôMove Enter:Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:Genaral Help
F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults

Figure 3-7 PnP/PCI Configurations 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. 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.

3-7 PC Health Status

By choosing the PC Health Status option from the Standard CMOS Features menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard**.**

```
┌──────────────────────────────────────────────────────────────────────┐
│        CMOS Setup Utility- Copyright (C) 1984-1999 Award Software      │
│                          PC Health Status                             │
├───────────────────────────────────────────────┬──────────────────────┤
│  Current CPU Temp.              Disabled       │      Items Help       │
│  Current System Temp.           31 ºC/87 ºF    │                       │
│  Current CPU FAN Speed          3500 RPM       │  Menu Level      ►    │
│  Current SYS FAN Speed          3500 RPM       │                       │
│  VCore                          0.00V          │                       │
│  2.5V                           2.48V          │                       │
│  3.3V                           3.32V          │                       │
│  5 V                            5.05V          │                       │
│  12 V                           12.16V         │                       │
│                                                │                       │
│                                                │                       │
│                                                │                       │
│                                                │                       │
│                                                │                       │
│                                                │                       │
│                                                │                       │
│                                                │                       │
└───────────────────────────────────────────────┴──────────────────────┘
 ¡ô¡õ ¡õ¡ôMove  Enter:Select    +/-/PU/PD:Value    F10:Save    ESC:Exit    F1:Genaral Help
          F5:Previous Values        F6:Fail-Safe Defaults      F7:Optimized Defaults
```

Figure 3-8 PC Health Status Screen

A. CPU Warning Temperature

Set a limit for the CPU temperature. If the CPU temperature extends beyond the limit, any warning mechanism programmed into your system will be activated.

3-8 Frequency/Voltage Control

By choosing the **Frequency/Voltage Control** Setup option from the Standard CMOS Features menu (Figure 3-1), the screen below is displayed. This sample screen contains the manufacturer's default values for the mainboard**.**

CMOS Setup Utility- Copyright (C) 1984-1999 Award Software Frequency/Voltage Control	
***** CPU Setup ****** **Frequency Ratio** **3.5MHz** **CPU BUS Frequency** **Default** **CPU Vcore** **Default**	Items Help Menu Level ▶

¡ô¡õ¡õ¡ôMove   Enter:Select   +/-/PU/PD:Value   F10:Save   ESC:Exit   F1:Genaral Help
F5:Previous Values   F6:Fail-Safe Defaults   F7:Optimized Defaults
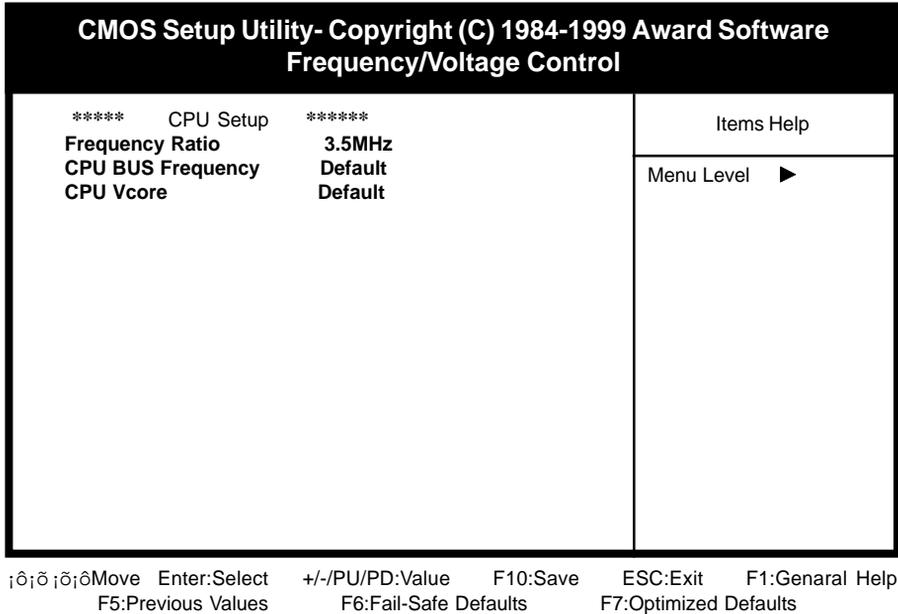
Figure 3-9 SeePU Setup Screen

A. CPU BUS Frequency

The CPU BUS frequency allows you to easily select your CPU's **external clock frequency** in BIOS. Refer to Section 2-3 for details.

3-9 Load Fail-Safe Defaults

Load Fail-Safe Defaults loads the default BIOS values directly from the Standard CMOS Features 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.

```
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 Configura  ┌──────────────────────────────────┐ Setup
                       │ Load Fail-Save Defaults (Y/N) ? N │
 ► PC Health Status   └──────────────────────────────────┘ Saving

 Esc  : Quit                    ¡ô¡õ¡õ¡ô  :  Select Item
 F10  : Save & Exit Setup

                     Load Fail-Safe Defaults
```
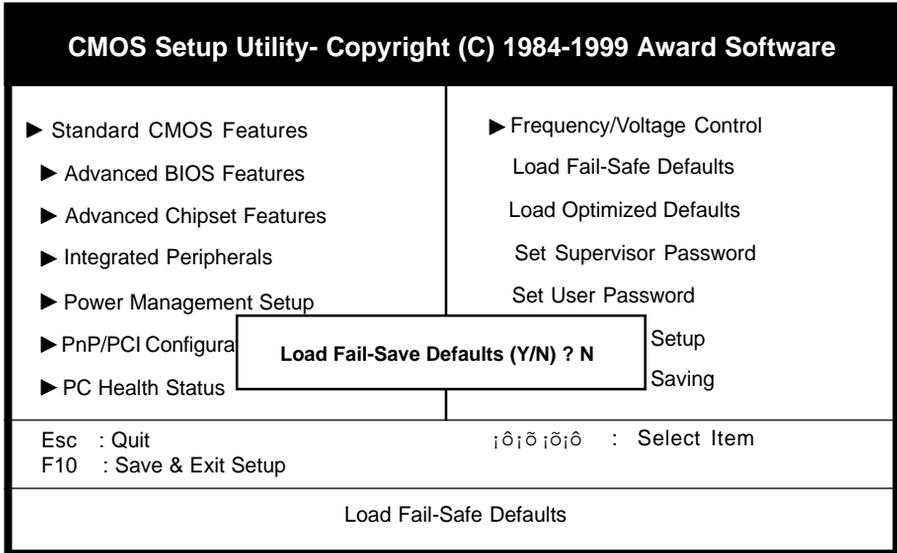
Figure 3-10 Load Fail-Safe Defaults Screen

3-10 Load Optimized Defaults

Load Optimized Defaults loads the default system values directly from the Standard CMOS Features 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.

```
╔══════════════════════════════════════════════════════════════╗
║       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 Configura   Load Optimized Defaults (Y/N) ? N  Setup ║
║  ▶ PC Health Status                                      Saving ║
╠══════════════════════════════════════════════════════════════╣
║  Esc   : Quit                   ¡ô¡õ¡õ¡ô   :  Select Item       ║
║  F10   : Save & Exit Setup                                     ║
╠══════════════════════════════════════════════════════════════╣
║                      Load Optimized Defaults                   ║
╚══════════════════════════════════════════════════════════════╝
```
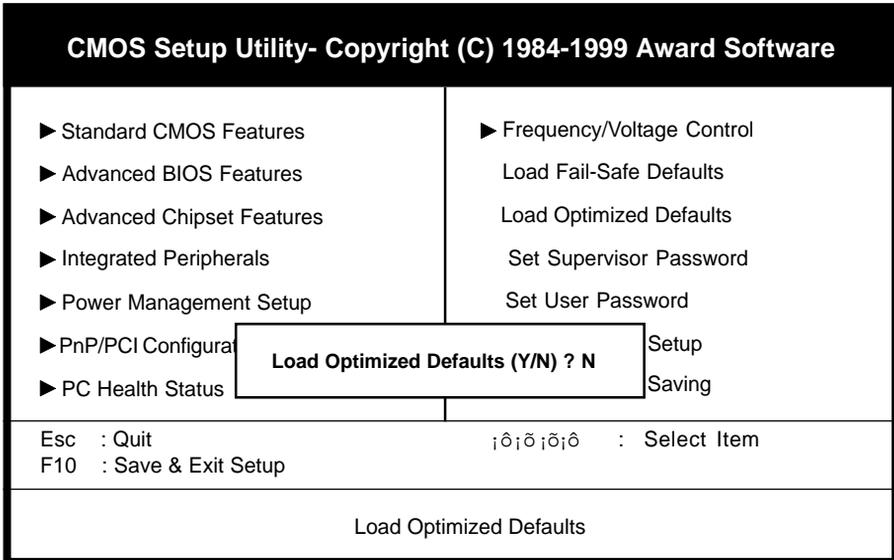
Figure 3-11 Load Optimized Defaults Screen

3-11 Supervisor Password & User Password Setting

There are four different variables that control password settings. The first two are located under the Security Option function in BIOS Features Setup Menu (Figure 3-1). When the Security Option function is set to Setup, a password is required to enter BIOS and change BIOS settings. When the Security Option function is set to System, a password is required to enter both BIOS and the computer's operating system (for example Windows 95) found on the boot drive. This is shown in Figures 3-12 and 3-13.

The third and fourth variables are user password and supervisor password selected in BIOS (Figure 3-1). The main purpose of separating user and supervisor is to allow only the supervisor to have control over the settings in BIOS. The user, on the other hand, is only allowed to access the computer's operating system and change the user password in BIOS (See Figure 3-13). Note that when there is no supervisor password set, the user password controls access to all BIOS settings (See Figure 3-12 below).

### *A. Set Either Supervisor Password or User Password*
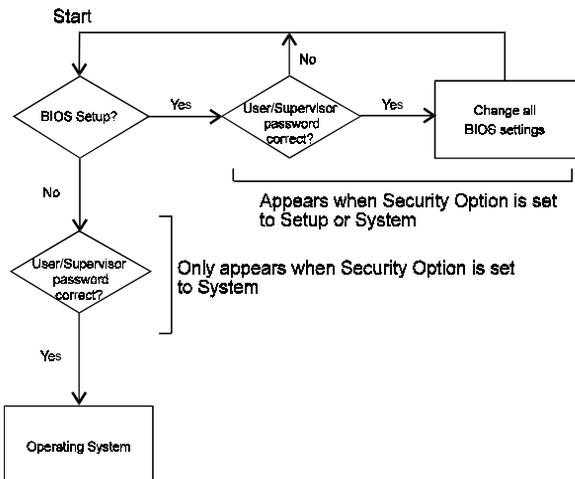
Figure 3-12   Set Either Supervisor or User Password

### B. Set Both Supervisor Password and User Password
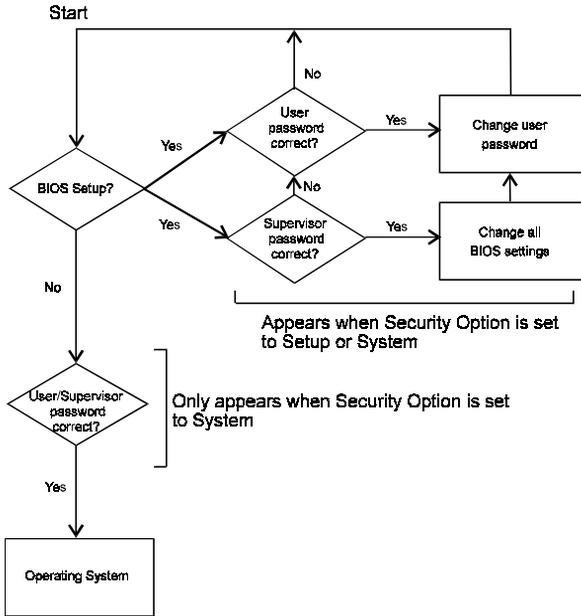
Figure 3-13   Set Both Supervisor and User Password

3-12 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.

3-13 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 ones.