Copyright and Warranty Notice

SL6 Motherboard User's Manual

TABLE OF CONTENTS

Chapter 1.   Introduction of SL6 Features

1-1. Features of This Motherboard

The SL6 Motherboard is designed for use with Intel's new generation of Pentium Processors which utilise the FC-PGA (Flip Chip Pin Grid Array), 370-pin design.   Up to 512MB of memory can be supported.

The SL6 uses the new Intel 815 chipset. Its' 133 MHz capable memory interface supports the wide range of PC 133 memory devices now on the market. Its 133MHz capable front-side bus delivers a clear upgrade path to the future generation of 133MHz processors. The SL6 has built-in Ultra ATA/66. This provides speedier HDD throughput that boosts overall system performance. Up to four IDE devices can be supported by your system. These can be either Ultra ATA/33 IDE devices or Ultra ATA/66 IDE devices.

A Digital Video Out Interface supporting digital display and TV Out are options. The SL6 also has an integrated AC '97 2.1 CODEC onboard. This CODEC is complete with a H/W Sound Blaster Pro® AC '97 digital audio controller that gives you the best sound quality and compatibility. The chipset includes integrated 2X 3D Graphics Acceleration. For those wanting even greater graphics performance, an AGP slot is included on the board. The AGP Slot will support a 4MB display cache AGP In-line Memory Module (AIMM). AIMM is a lower cost alternative to a video card.

A Communication / Network Riser Slot (CNR Slot) is found on the SL6. The CNR Slot provides audio, modem connectivity. The specification's main objective is to reduce the cost of audio and modem functionality.

The SL6 has built-in hardware monitoring functions (refer to *Appendix N* for detailed information). This will monitor and protect your computer, ensuring a safe computing environment.

This mobo provides high performance for servers while also meeting the requirements for desktop systems; both now and into the future.

1-2. Specifications

1.CPU

- Supports Intel Pentium® III FC-PGA based on 100 & 133 MHz FSB.
- Supports Intel Celeron® based on 66 MHz FSB
- Reserves support for future Intel Pentium® III processors.

2. Chipset

- Intel 815 chipset
- Supports 66/100/133MHz (Front Side Bus)
- Supports AGP 1X/2X/4X (Sideband) 1.5V/3.3V device
- Supports Advanced Configuration and Power Management Interface (ACPI)
- Supports UDMA 33/66 and feature specification devices

3. Graphics

- Chipset integrated 2X 3D graphics acceleration
- Support 4MB display Cache AIMM (AGP In-line Memory Module)

4. Memory

- Three 168-pin DIMM sockets support SDRAM module
- Supports up to 512MB MAX. (64, 128, 256MB SDRAM)
- Support 100MHz , 133MHz SDRAM interface (No 66Mhz support)

5. Audio

- AC'97 Digital Audio controller integrated
- AC'97 Audio CODEC on board.
- Audio driver included

6. System BIOS

- SOFT MENU™ II eliminates the need for jumpers or DIP switches to set CPU parameters
- Award Plug and Play BIOS supports APM and ACPI
- Write-Protect Anti-Virus function by AWARD BIOS

7. Multi I/O Functions

- 2 Channels of Bus Master IDE Ports supporting Ultra DMA 33/66 and future specification devices
- PS/2 Keyboard and PS/2 Mouse Connectors
- 1x Floppy Port (up to 2.88MB)
- 1x Parallel Port (EPP/ECP)
- 2x Serial Ports
- 2x USB Connectors
- Audio connector (Line-in, Line-out, Mic-in, and Game Port)

8. Miscellaneous

- Support STR(Suspend to DRAM)
- ATX form factor
- 1 Universal AGP slot, 6 PCI slots and 1CNR slot
- Hardware Monitoring – Including Fan speed, Voltages, CPU and System temperature and one thermal header for other devices temperature monitoring
- Keyboard and Mouse Power On
- Built-in Wake on LAN/Open Chassis header
- Built-in IrDA TX/RX header
- Digital Video out interface adds support digital display or TV out (Option)
- PC99 Compliant

✸ **Supports Wake On LAN, Modem, but your ATX power supply 5V standby power must be able to provide at least a 720mA current capacity. Otherwise, the functions may not work normally.**

✸ **Specifications and information contained in this manual are subject to change without notice.**

Note
All brand names and trademarks are the property of their respective owners.

1-3. Layout Diagram
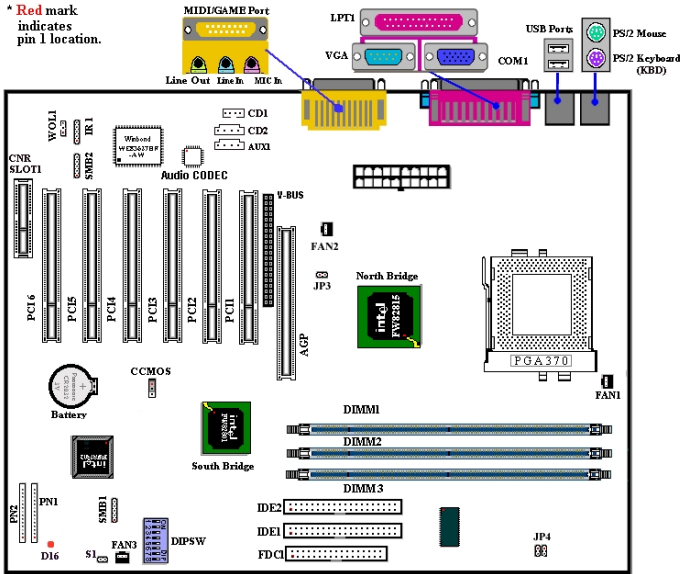
Figure 1-2. SL6 Motherboard component location

1-4. The System Block Diagram
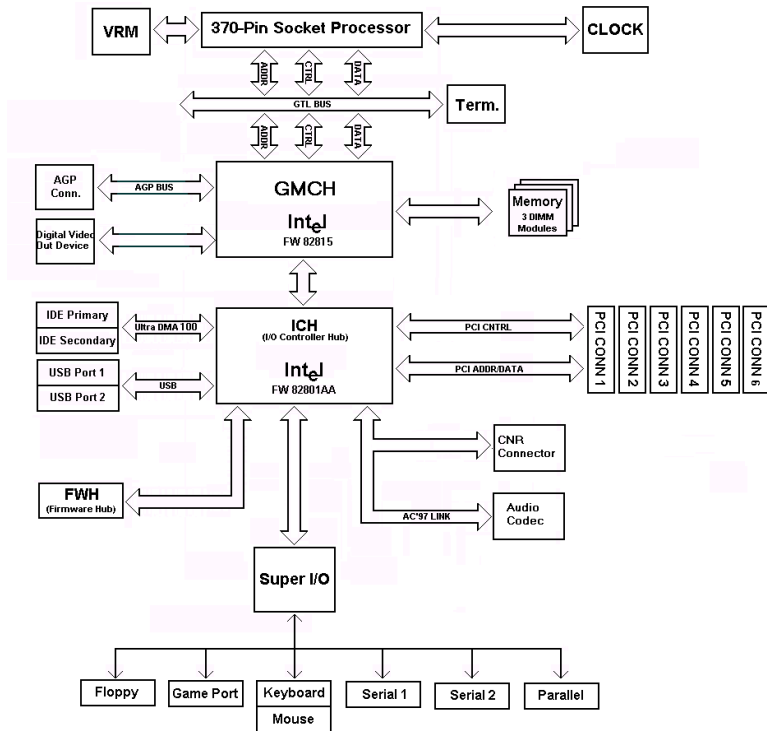
Figure 1-3. System diagram of the INTEL 815 Chipset

MEMO

Chapter 2.   Installing the Motherboard

This SL6 motherboard not only provides all standard equipment for classic personal computers, but also provides great flexibility for meeting future upgrade demands. This chapter will introduce step by step all of the standard equipment and will also present, as completely as possible, future upgrade capabilities. This motherboard is able to support Intel® Pentium® III and Celeron processors now on the market. (For details, see specifications in Chapter 1.)

This chapter is organized according the following features:

2-1 Installing the Motherboard to the Chassis
2-2 Installation of the Pentium® III / Celeron CPU
2-3 Installing System Memory
2-4 Connectors, Headers and Switches

☠☠☠☠   **Before Proceeding with the Installation**   ☠☠☠☠

Before you install or unplug any connectors or add-on cards, please remember to turn the ATX power supply switch off (fully turn the +5V standby power off), or disconnect the power cord. Otherwise, you may cause the motherboard components or add-on cards to malfunction or be damaged.

User Friendly Instructions

Our objective is to enable the novice computer user to perform the installation by him or herself. We have attempted to write this document in a very clear, concise and descriptive manner to help overcome any obstacles you may face during installation. Please read our instructions carefully and follow them step-by-step.

2-1. Installing the Motherboard to the Chassis

Most computer chassis will have a base on which there will be many mounting holes that allows the motherboard to be securely attached and at the same time, prevents short circuits. There are two ways to attach the motherboard to the base of chassis:

● with studs
● or with spacers

Please refer to figure 2-1, which shows the studs and spacers. There may be several types, but all look similar to the figures below:

In principle, the best way to attach the motherboard is with studs. Only if you are unable to do this should you attach the board with spacers. Take a careful look at the motherboard and you will see many mounting holes on it. Line these holes up with the mounting holes on the base. If the holes line up and there are screw holes
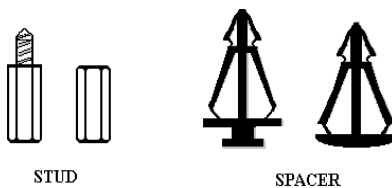
Figure 2-1. The outline of stub and spacer

this means you can attach the motherboard with studs. If the holes line up and there are only slots, this means you can only attach the motherboard with spacers. Take the tip of the spacers and insert them into the slots. After doing this to all the slots, you can slide the motherboard into position aligned with the slots. After the motherboard has been positioned, check to make sure everything is OK before putting the casing back on.

Figure 2-2 shows you the way to affix the motherboard using studs or spacers:
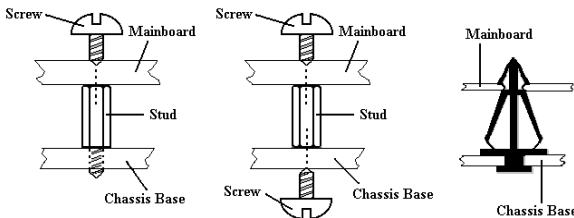
Figure 2-2. The way we fixed the motherboard

Note

If the motherboard has mounting holes, but they don't line up with the holes on the base and there are no slots to attach the spacers, do not despair, you can still attach the spacers to the mounting holes. Just cut the bottom portion of the spacers (the spacers may be a little hard to cut , so mind your fingers). In this way, you can still attach the motherboard to the base without worrying about short circuits. Sometimes you may need to use the plastic springs to isolate the screw from the motherboard PCB surface as the circuit wire may be too near the hole. Be careful. Do not let the screw contact the printed circuit wire or parts on the PCB that are near the fixing hole. Otherwise it may damage the board or cause board malfunctioning.

2-2.   Installation of the Pentium® III CPU

The installation method for the CPU is printed on the package of the retention mechanism that comes with the motherboard. You can refer to it while you install the CPU.

Note:

- Installing a heat sink and cooling fan is necessary for proper heat dissipation from your CPU. Failing to install these items may result in overheating and damage of your CPU.
- Please refer to your boxed processor installation or other documentation attached with your CPU for detailed installing instructions.

2-4   Chapter2

2-3.   Installing System Memory

This motherboard provides three 168-pin DIMM sites for memory expansion. The DIMM sockets support 8Mx64 (64MB), 16Mx64 (128MB), 32Mx64 and (256MB) DIMM modules. Minimum memory size is 64MB and maximum memory size is 512MB SDRAM. In order to create a memory array, certain rules must be followed. The following set of rules allows for optimum configurations.

● The memory array is 64 or 72 bits wide. (depending on with or without parity)
● Those modules can be populated in any order.
● Supports single and double density DIMMS.

Table 2-1. Valid Memory Configurations

Bank	Memory Module	Total Memory
Bank 0, 1 (DIMM1)	8MB, 16MB, 32MB, 64MB, 128MB	8MB ~ 512MB
Bank 2, 3 (DIMM2)	8MB, 16MB, 32MB, 64MB, 128MB	8MB ~ 512MB
Bank 4, 5 (DIMM3)	8MB, 16MB, 32MB, 64MB, 128MB	8MB ~ 512MB
Total System Memory		8MB ~ 512MB

Generally, installing SDRAM modules to your motherboard is an easy thing to do. You can refer to figure 2-3 to see what a 168-pin PC100 & PC133 SDRAM module looks like.
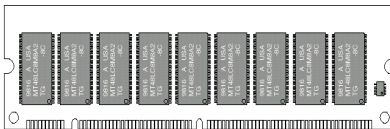
Figure 2-3 PC100/PC133/VCM Module and Component Mark

DIMMs may be "snapped" directly into the socket. Note: Certain DIMM sockets have minor physical differences. If your module doesn't seem to fit, please do not force it into the socket as you may damaged your memory module or DIMM socket.

The following procedure will show you how to install a DIMM module into a DIMM socket.

Step 1. Before you install the memory module, please place the computer power switch in the *off* position and disconnect the AC power cord.

Step 2. Remove the computer's chassis cover.

SL6
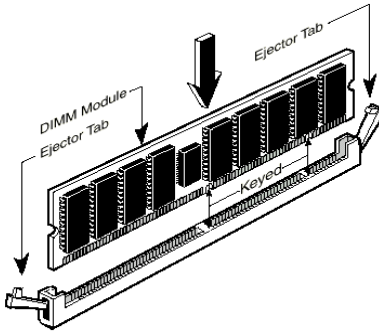
Figure 2-4. Memory module installation

Step 3. Before touching any electronic components, make sure you first touch an unpainted, grounded metal object to discharge any static electricity stored on your clothing or body.

Step 4. Locate your computer's 168-pin memory expansion DIMM socket.

Step 5. Insert the DIMM module into the expansion socket as shown in the illustration. Note how the module is keyed to the socket. You can refer to figure 2-4 for the details. ***This insures the DIMM module will be plugged into the socket in one way only***. Firmly press the DIMM module into the DIMM socket, making certain the module is completely seated in the DIMM socket.

Step 6. Once the DIMM module has been installed, the installation is complete and the computer's cover can be replaced. Or you can continue to install other devices and add-on cards that are mentioned in the following section.

Note

When you install a DIMM module fully into the DIMM socket, the eject tab should be locked into the DIMM module very firmly and fit into its indention on both sides.

It is difficult to differentiate between the PC100, PC133 SDRAM and VCM DRAM modules from the exterior. The only way to identify them is through the sticker on the RAM module.

2-4. Connectors, Headers and Switches

Inside the case of any computer several cables and plugs have to be connected. These cables and plugs are usually connected one-by-one to connectors located on the motherboard. You need to carefully pay attention to any connection orientation the cables may have and, if any, notice the position of the first pin of the connector. In the explanations that follow, we will describe the significance of the first pin.

We will show you all of the connectors, headers and switches here, and tell you how to connect them. Please pay attention and read the entire section for necessary information before attempting to finish all of the hardware installation inside the computer chassis.

Figure 2-5 shows you all of the connectors and headers that we'll discuss in the next section, you can use this diagram to visually locate each connector and header we describe.

All connectors, headers and switches mentioned here will depend upon your system configuration. Some features you may (or may not) have and need to connect or configure depending on the peripheral. If your system doesn't have such add-on cards or switches you can ignore some special feature connectors.
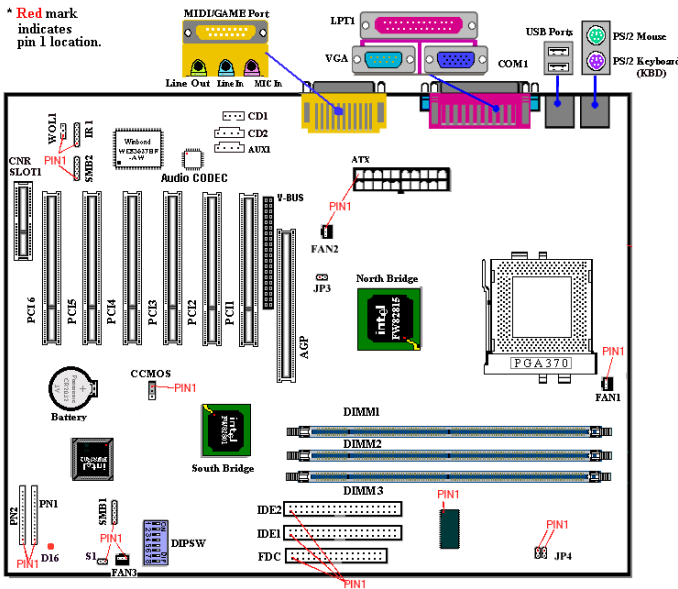
Figure 2-5. All Connectors and Headers for the SL6

First, Let's look at the headers that the SL6 uses, and what their functions are.

(1) ATXPWR1: ATX Power Input Connector

Caution

> If the power supply connectors are not properly attached to the ATXPR1 power supply, the power supply or add-on cards may be damaged.
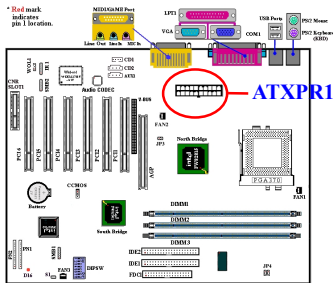
Attach the connector from the power supply to the ATXPR1 connector here. Remember you have to push the connector from the ATX power supply firmly into the ATXPR1 connector, ensuring that you have a good connection.

Note: *Watch the pin position and the orientation*

(2A)/(2B)/(2C): FAN1, FAN2 & FAN3 header
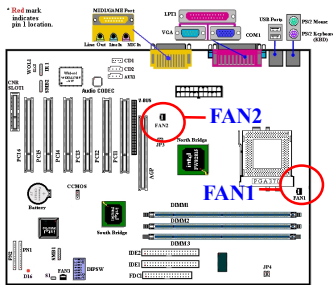
Attach the connector from the individual CPU fan to the header named FAN1. The connector from the chassis fan should be attached to the header FAN3 and the connector from the power fan to FAN2.

You must attach the CPU fan to the processor or your processor will work abnormally or may be damaged by overheating. To keep the computer's internal temperature steady and not too high, connecting the chassis fan is imperative.

Note: *Watch the pin position and the orientation*

(3) IR1: IR Header (Infrared)
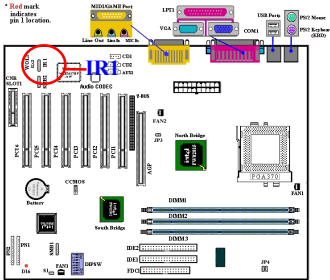
There is a specific orientation for pins 1 through 5, attach the connector from the IR KIT or IR device to the IR1 header (left row only). This motherboard supports standard IR transfer rates.

Note: Watch the pin position and the orientation

(4) WOL1: Wake on LAN Header
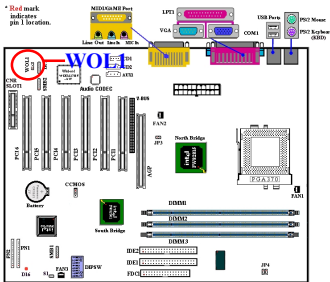
If you have a network adapter that supports this feature, then you can connect the specific cable from the network adapter to this header. This feature lets you wake up your computer via remote control through a local area network. You may need a specific utility to control the wake up event, such as the PCnet Magic Packet utility or other similar utilities.

Note: Watch the pin position and the orientation

(5) SMB1: System Management Bus Connector
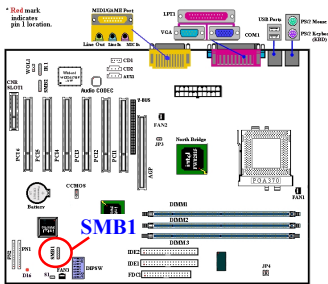
This connector is reserved for system management bus (SM bus). The SM bus is a specific implementation of an I^2C bus. I^2C is a multi-master bus, which means that multiple chips can be connected to the same bus and each one can act as a master by initiating a data transfer. If more than one master simultaneously tries to control the bus, an arbitration procedure decides which master gets priority.

Note: Watch the pin position and the orientation

(6) RT2 Thermister:
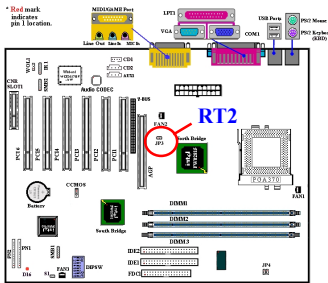
The RT2 is a thermistor used to detect the system environmental temperature. It may also be called a system temperature detector. You can attach one end of the two-threaded thermal cable that comes with the motherboard to the RT2 header, then tape the other end of the thermal cable on the CPU's heat sink. Generally speaking, the location you tape the thermistor should be as near the CPU chipset as possible and avoid having it near the CPU fan.

(7) CDIN1: Internal CD-ROM Drive Audio Cable Header
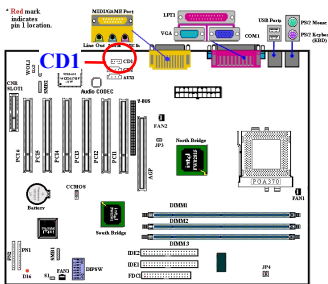
This header is for the internal CD-ROM drive audio cable connection. Please check your audio cable attached with the CD-ROM drive to see which type of connector you have and then plug it into this header.

(8) DIPSW: Front Side Bus Speed Setting DIP Switch
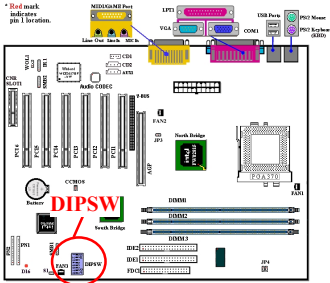
This switch allows you to manually setting the front side bus speed.

(1) SW1 - SW2 on, SW3 - SW4 off: This is to use the CPU default value (66 / 100 / 133MHz).

(2) SW1 - SW2 off, SW8 on: This enables you to adjust CPU clock manually by SW3 - SW4.

   SW3 - SW4 on: 66MHz
   SW3 off, SW4 on: 100MHz
   SW3 - SW4 off: 133MHz

(3) SW5 on, SW6 off: This is the default setting.
(4) SW7: This is to enable or disable the On Board Codec. Set on to disable.
(5) SW8: This is to set the SoftMenu or None SoftMenu. Set on to None SoftMenu.

(9) CCMOS1: CMOS Discharge Jumper
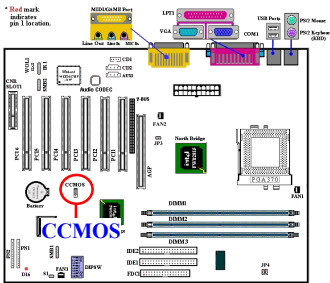
The jumper CCMOS discharges CMOS memory. When you install the motherboard, make sure this jumper is set for normal operation (pin 1 and 2 shorted). See figure 2-6.

Pin 1-2   Pin 2-3

3 2 1   3 2 1

Normal Operation   **Discharge CMOS**
(Default)
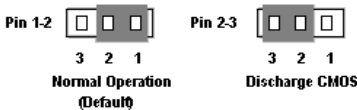
Figure 2-6. CCMOS1 jumper setting

Note

Before you clear the CMOS, you have to first turn the power off (including the +5V standby power). Otherwise, your system may work abnormally or malfunction.

(10) PN1 and PN2 Headers
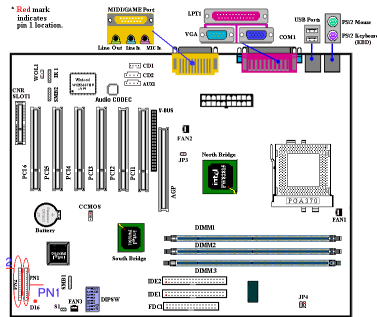
PN1 and PN2 are for switches and indicators of the chassis' front panel. There are several functions that come from these two headers. You have to watch the pin position and the orientation, or you may cause system malfunctions.   Figure 2-7 shows you the functions of PN1 and PN2.
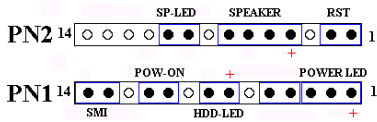
Figure 2-7. The definition of PN1 and PN2 pins

PN1 (Pin 1-2-3-4-5): Power LED Headers
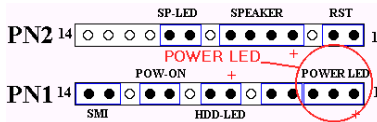
There is a specific orientation for pins 1 through 3. Insert the three-threaded power LED cable to pins 1~3. Check to make sure the correct pins go to the correct connectors on the motherboard. If you install them in the wrong direction, the power LED light will not illuminate correctly.

Note: Watch the power LED pin position and orientation.

PN1 (Pin 7 - 8): HDD LED Header
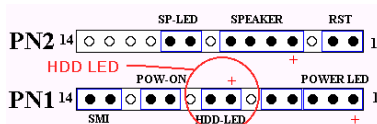
Attach the cable from the case's front panel HDD LED to this header. If you install it in the wrong direction, the LED light will not illuminate correctly.

Note: *Watch the HDD LED pin position and the orientation.*

<u>PN1 (Pin 10 - 11): Power on Switch Header</u>
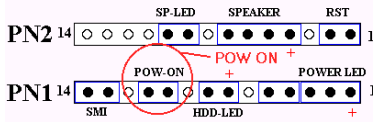
Attach the cable from the case's front panel power switch to this header.

<u>PN1 (Pin 13-14): Hardware Suspend Switch (SMI Switch) Header</u>
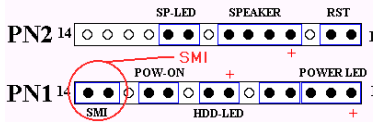
Attach the cable from the case's front panel suspend switch (if there is one) to this header. Use this switch to enable/disable the power management function through hardware.

Note: *If the* *ACPI function in the BIOS setup is enabled, this function will not work.*

<u>PN2 (Pin 1-2): Hardware Reset Switch Header</u>
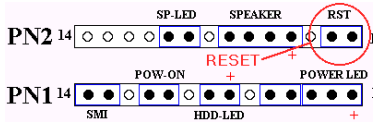
Attach the cable from the case's front panel reset switch to this header. Press and hold the reset button for at least one second to reset the system.

<u>PN2 (Pin 4-5-6-7): Speaker Header</u>
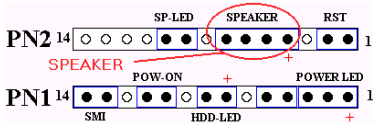
Attach the cable from the system speaker to this header.

<u>PN2 (Pin 9-10): Suspend LED Header</u>
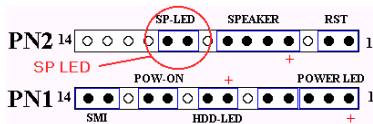
Insert the two-threaded suspend LED cable into pin 9 and pin 10. If you install it in the wrong direction, the LED light will not illuminate correctly.

Note: Watch the Suspend LED pin position and the orientation.

Table 2-3. PN1 and PN2 pin count name list

PIN Name		Significance of signal	PIN Name		Significance of signal
PN1	PIN 1	+5VDC	PN2	PIN 1	Ground
	PIN 2	No connection		PIN 2	Reset input
	PIN 3	Ground		PIN 3	Empty Pin
	PIN 4	No Connection		PIN 4	No Connection
	PIN 5	No Connection		PIN 5	+5 VDC
	PIN6	Empty Pin		PIN6	Ground
	PIN 7	LED Power		PIN 7	Ground
	PIN 8	HDD active		PIN 8	Empty Pin
	PIN 9	Empty Pin		PIN 9	Speaker Data
	PIN 10	Ground		PIN 10	No Connection
	PIN 11	Power On/Off		PIN 11	Empty Pin
	PIN 12	Empty Pin		PIN 12	No connection
	PIN 13	Ground		PIN 13	No connection
	PIN 14	Suspend signal		PIN 14	No connection

Let's now see the I/O connectors that the SL6 uses, and what their functions are.

(11) FDC1 Connector
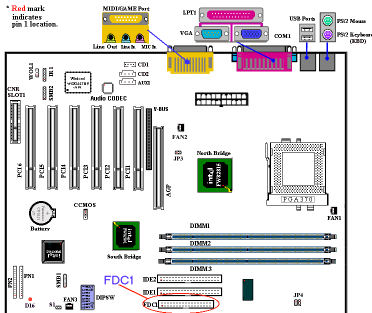
This 34-pin connector is called the "*floppy disk drive connector*". You can connect a 360K, 5.25", 1.2M, 5.25", 720K, 3.5'', 1.44M, 3.5" or 2.88M, 3.5" floppy disk drive. You can even connect a 3 Mode floppy disk drive (a 3 1/2" drive used in Japanese computer systems).

A floppy disk drive ribbon cable has 34 wires and two connectors to provide the connection of two floppy disk drives. After connecting the single end to the FDC1, connect the two connectors on the other end to the floppy disk drives. In general, people only install one floppy disk drive on their computer system. The end attached to the longer length of ribbon should be attached to the motherboard connector.

Note

A red mark on a wire typically designates the location of pin 1. You need to align pin 1 of the wire to pin 1 of the FDC1 connector and then insert.

(12) IDE1 and IDE2 Connectors
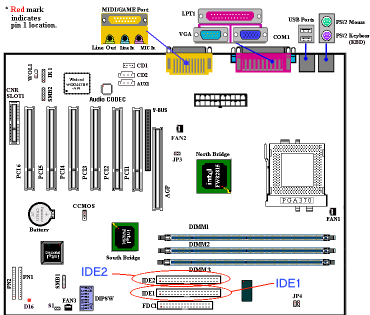
An IDE hard disk drive ribbon cable has 40 wires and two connectors to provide a connection for two IDE hard disk drives. After connecting the single end to the IDE1 (or IDE2), connect the two connectors on the other end to the IDE hard disk drives (or CD-ROM drive, LS-120, etc.). Again the connector attached to the longer ribbon length should be attached to the mobo.

Before you install a hard disk, there are some things you need to be aware of:

♦ "Primary" refers to the first connector on the motherboard; that is, the IDE1 connector on the motherboard.

♦ "Secondary" refers to the second connector on the motherboard; that is, the IDE2 connector on the motherboard.

♦ Two hard disks can be connected to each connector:

The first HDD is referred to as the "Master" and the second HDD is referred to as the "Slave".

♦ For performance issues, we strongly suggest you don't install a CD-ROM drive on the same IDE channel as a hard disk. Otherwise, the system performance on this channel may drop. (how much depends on your CD-ROM drive performance)

Note

●The Master or Slave status of the hard disk drive is set on the hard disk itself. Please refer to the hard disk drive user's manual.
●A red mark on a wire typically designates the location of pin 1. You need to align the wire pin 1 to the FDC1 connector pin 1, then insert the wire connector into the FDC1 connector.

The SL6 supports the Ultra ATA/66 (Also known as Ultra DMA/66) specification. It enhances existing Ultra ATA/33 technology by increasing both performance and data integrity. This new high-speed interface doubles the Ultra ATA/33 burst data transfer rate to 66.6 Mbytes/sec. The result is maximum disc performance using the current PCI local bus environment. Figure 2-8 shows you the different between the Ultra ATA/33 and Ultra ATA/66 Conductor Cable.
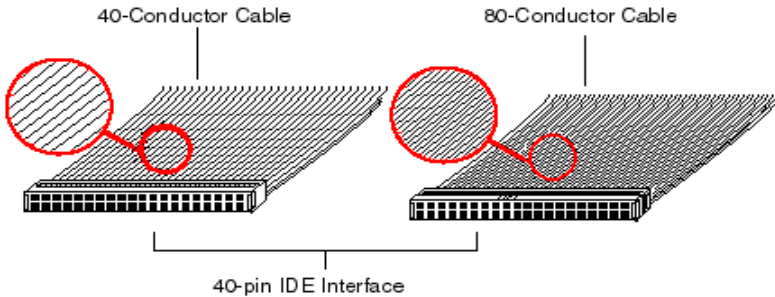
Figure 2-8. The difference between Ultra ATA/33 and Ultra ATA/66 Conductor Cables

Figure 2-9 shows you a photo of an Ultra ATA/66 Conductor Cable. An Ultra ATA/66-capable cable is a 40-pin, 80-conductor cable with a black connector on one end, a blue connector on the other end and a gray connector in the middle. In addition, line 34 on the cable should be notched or cut (this may be difficult to see).

Ultra ATA/66 is backwards compatible with all Ultra ATA/33 systems, but it will be limited in its transfer mode to the Ultra ATA/33 (Ultra DMA Mode 2 - 33 Mbytes/sec) or PIO Mode 4 (16.6 Mbytes/sec). Ultra ATA/66 hard drives are 100 percent backward compatible with

Figure 2-9. Photo of an Ultra ATA/66 Conductor Cable

both Ultra ATA/33 and DMA and with existing ATA (IDE) hard drives, CD-ROM drives, and host systems. The Ultra ATA/66 protocol and commands are designed to be compatible with existing ATA (IDE) devices and systems. Although a new 40-pin, 80-conductor cable is required for Ultra ATA/66, the chip set pin connector remains the same at 40. Hard drives that support Ultra ATA/66 also support Ultra ATA/33 and legacy ATA (IDE) specifications.

There are four requirements for attaining Ultra ATA/66:

*The drive must support Ultra ATA/66.

*The motherboard and system BIOS (or an add-in controller) must support Ultra ATA/66.

*The operating system must support Direct Memory Access (DMA); Microsoft Windows 98 and Windows 95B (OSR2) support DMA.

*The cable must be an 80-pin conductor. The length should not exceed 18 inches. If all of the above requirements are met, you can enjoy the Ultra ATA/66 features of your computer system.

How to install the Ultra ATA/66 Cable Assembly:
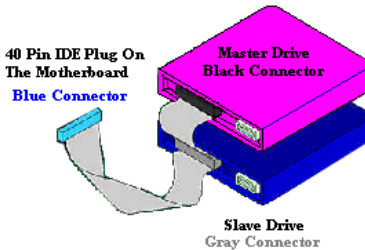
Figure 2-10. How to connect an ATA/66 Cable to the Motherboard

■ The **BLUE** connector **MUST** be plugged into the motherboard or your system will not work.

■ Each connector on the Ultra ATA/66 cable assembly has a small polarization tab centrally located on the body of the plastic. This fits into the matching slot on the mating plugs on the motherboard and the drives, thus assuring positive mating (pin #1 to pin #1)

■ The red line on the cable should be aligned with pin #1. On the drives this will result in the red line facing the power connector. Attach the BLUE connector to the appropriate 40 pin IDE plug on the motherboard.

■ Attach the BLACK connector to the mating plug on the master hard drive. Attach the GREY connector to the mating plug on the slave drive (secondary hard drive, CD ROM, or tape drive). Please refer figure 2-10.
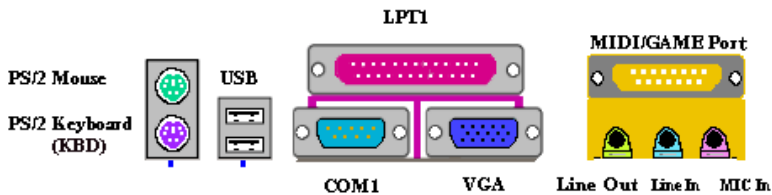
Figure 2-11. SL6 back panel connectors

Figure 2-11 shows the SL6 back panel connectors. These connectors are for connection to outside devices to the motherboard. We will describe which devices will attach to these connectors below.

KM1 Lower: PS/2 Keyboard Connector
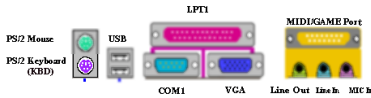
Attach a PS/2 keyboard connector to this 6-pin Din-connector. If you use an AT keyboard, you can go to a computer store to purchase an AT to ATX converter adapter. You can then connect your AT keyboard to this connector. We suggest you use a PS/2 keyboard for best compatibility.

KM1 Upper: PS/2 Mouse Connector
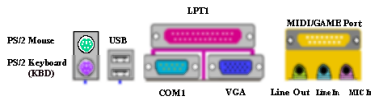
Attach a PS/2 mouse to this 6-pin Din-connector.

USB Port Connectors
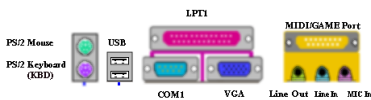
This motherboard provides two USB ports. Attach the USB connector from the individual device to these connectors.

You can attach USB devices such as a scanner, digital speakers, monitor, mouse, keyboard, hub, digital camera, joystick etc. to one of each of the USB connectors. You must make sure your operating system supports this feature and you may need to install an additional driver for individual devices. Please refer to your device user's manual for detailed information.

Serial Port COM1 Connector
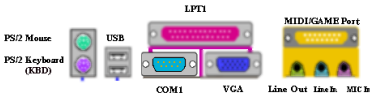
This motherboard provides one COM port.

You can connect an external modem, mouse or other devices that support this communication protocol to this connector.

You can decide which external device you want to connect to COM1. The COM port can only have one device connected at a time.
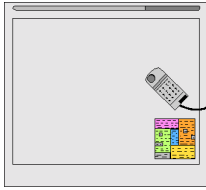
Digital Tablet

Digital Camera   **External FAX/Modem**

Parallel Port Connector
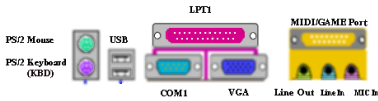
This parallel port is also called an "LPT" port because it usually connects to the printer. You can connect other devices that support this communication protocol, like an EPP/ECP scanner, etc.

Laser Printer   **Inkjet Printer**   **EPP/ECP Scanner**

Line Out, Line In and Mic In Connector
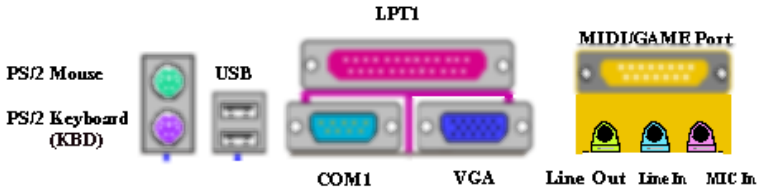
 Line Out connector: You can connect an external stereo speaker signal input plug to this connector, or you can connect the plug from here to the stereo audio equipment AUX signal input socket. Remember, the motherboard does not have a built in amplifier to drive the speaker. You must use a speaker that has a built in amplifier. Otherwise, you may not be able to hear any sound or only a small volume of sound from the speaker.

Line In Connector: You can connect the TV adapter audio output signal, or external audio sources, like a CD walkman, video camcorder, VHS recorder audio output signal plug to this connector. Your audio software can control the input level for the line-in signal.

CD Player   **CAM Recoder**   **VHS Recoder**

Mic In Connector: You can connect the plug from the microphone to this connector. Do not connect other audio (or signal) sources to this connector.

MIDI/GAME Port Connector
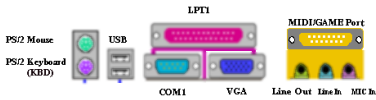
You can connect your joystick, game pad, or other simulation hardware device DIN 15-pin plugs to this connector. Please refer to the further connection notes of the device's user's manual for further detailed information.
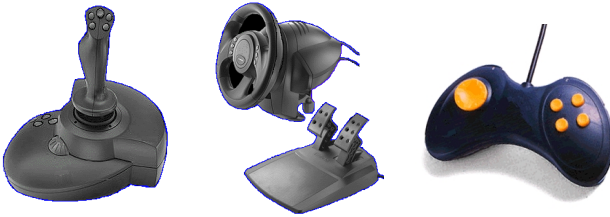
Note

This chapter contains many color drawing diagram and photos, we strongly recommend you to read this chapter using the PDF file that is included on the CD. It will provide you with greater clarity.

Chapter 3.   Introducing the BIOS

The BIOS is a program located on a Flash Memory chip on the motherboard. This program will not be lost when you turn the computer off. This program is also referred to as the boot program. It is the only channel the hardware circuit has to communicate with the operating system. Its main function is to manage the setup of the motherboard and interface card parameters, including simple parameters such as time, date, hard disk drive, as well as more complex parameters such as hardware synchronization, device operating mode, **CPU SOFT MENU™ II** features and setup of CPU speed. The computer will operate normally, or will operate at its best, only if all of these parameters are correctly configured through the BIOS.

> 💣 **Don't change the parameters inside the BIOS unless you fully understand their meanings and consequences**

> The parameters inside the BIOS are used to setup the hardware synchronization or the device-operating mode. If the parameters are not correct, they will produce errors, the computer will crash, and sometimes you will not even be able to boot the computer after it has crashed. We recommend that you do not change the parameters inside the BIOS unless you are very familiar with them. If you are not able to boot your computer anymore, please refer to the section "Erase CMOS data" in Chapter 2.

When you start the computer, the BIOS program controls it. The BIOS first operates an auto-diagnostic test called POST (Power On Self Test) for all of the necessary hardware. It then configures the parameters of the hardware synchronization, and detects all of the hardware. Only when these tasks are completed does it give up control of the computer to the next level, which is the operating system (OS). Since the BIOS is the only channel for hardware and software to communicate, it is the key factor for system stability, and in ensuring that your system performs at its best. After the BIOS has achieved the auto-diagnostic and auto-detection operations, it will display the following message:

PRESS DEL TO ENTER SETUP

The message will be displayed for three to five seconds, if you press the **Del** key, you will access the BIOS Setup menu. At that moment, the BIOS will display the following message:
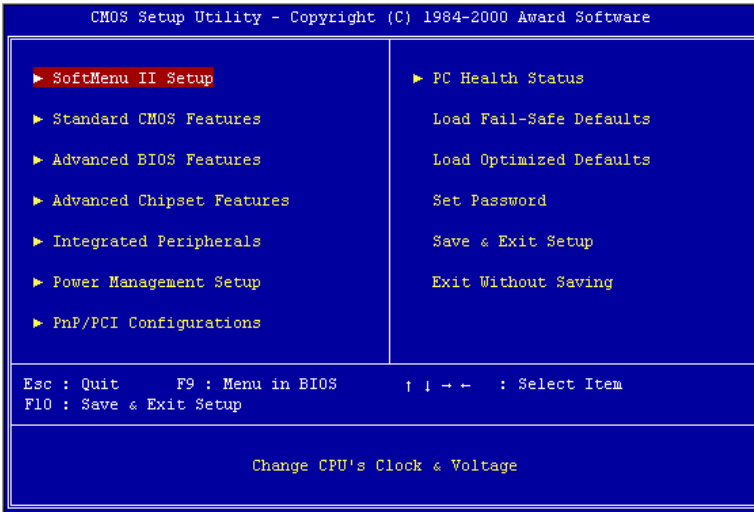
Figure 3-1. CMOS Setup Utility

In the BIOS Setup main menu of Figure 3-1, you can see several options. We will explain these options step by step in the following pages of this chapter, but let us first see a short description of the function keys you may use here:

● Press **Esc** to quit the BIOS Setup.

● Press ↑ ↓ ←→ (up, down, left, right) to choose, in the main menu, the option you want to confirm or to modify.

● Press **F10** when you have completed the setup of BIOS parameters to save these parameters and to exit the BIOS Setup menu.

● Press Page Up/Page Down or +/- keys when you want to modify the BIOS parameters for the active option.

Computer Knowledge: CMOS Data

Maybe you have heard somebody saying that his or her CMOS DATA was lost. What is the CMOS? Is it important? The CMOS is the memory used to store the BIOS parameters that you have configured. This memory is passive. You can read its data, and you can also store data in it. But this memory has to be powered by a battery in order to avoid any loss of its data when the computer is turned off. Since you may have to change the CMOS battery when it is out of power, and if doing so you will lose all CMOS data, we recommend that you write down all the parameters of your hardware, or to put a label with these parameters on your hard disk.

3-1.   CPU Setup [SOFT MENU™ II]

The CPU can be setup through a programmable switch (**CPU SOFT MENU™ II**), that replaces the traditional manual hardware configuration. This feature allows the user to more easily complete the installation procedures. You can install the CPU without configuring any jumpers or switches. The CPU must be setup according to its specifications.

You can press <F1> at any time for help.
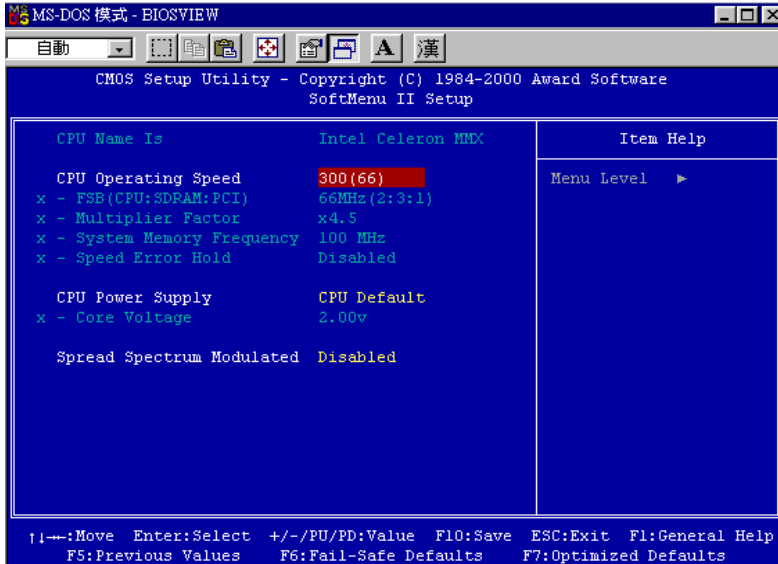
Figure 3-2. CPU SOFT MENU™ II

CPU Name Is:

➤ Intel Celeron MMX
➤ Intel Pentium III MMX

CPU Operating Speed:

This option sets the CPU speed. In this field, the CPU speed is indicated like this: <u>CPU speed = External clock * Multiplier factor</u>, select the CPU speed according the type and the speed of your CPU. For Intel Pentium® III and Celeron™ MMX processors, you can choose the following settings:

➤300 (66)   ➤333 (66)   ➤366 (66)   ➤400 (66)   ➤433 (66)
➤466(66)   ➤500 (66)   ➤500 (100)   ➤533 (66)   ➤550 (100)
➤500 (100)   ➤533 (66)   ➤550 (100)   ➤566 (66)   ➤600 (66)
➤600 (100)   ➤600 (133)   ➤633 (66)   ➤650 (100)   ➤667 (133)
➤700 (100)   ➤733 (133)   ➤750 (100)   ➤800 (100)   ➤800 (133)
➤800 (133)   ➤850 (100)   ➤866 (133)   ➤933 (133)   ➤1G
➤User Define

User defined external clock and multiplier factor:

➤ **User Defined**

☠☠☠☠ **Warning** ☠☠☠☠
The wrong settings of the multiplier and external clock in certain circumstances may cause CPU damage. Setting the working frequency higher than the PCI chipset or processor specs, may cause abnormal memory module functioning, system hangs, hard disk drive data lose, abnormal functioning of the VGA card, or abnormal functioning with other add-on cards. Using non-specification settings for your CPU is not the intention of this explanation. These should be used for engineering testing, not for normal applications.
If you use non-specification settings for normal operation, your system may not be stable, and may effect system reliability. Also, we do not guarantee the stability and compatibility for settings that are not within specification, and any damage of any elements on the motherboard or peripherals, is not our responsibility.

   ═ *Ext. Clock (PCI):*
      ➤66MHz (2:3:1) ☞ **default**   ➤100MHz(3:3:1)   ➤133MHz (4:3:1)
      ➤68MHz (2:3:1)*   ➤70MHz (2:3:1)*   ➤72MHz (2:3:1)*
      ➤75MHz (2:3:1)*   ➤77MHz (2:3:1)*   ➤83MHz (3:3:1)*
      ➤90MHz (3:3:1)*   ➤103MHz (3:3:1)*   ➤112MHz (3:3:1)*
      ➤115MHz (3:3:1)*   ➤120MHz (3:3:1)*   ➤125MHz (4:3:1)*
      ➤125MHz (3:3:1)*   ➤128MHz (4:4:1)*   ➤130MHz (4:3:1)*
      ➤130MHz (4:4:1)*   ➤133MHz (4:4:1)*   ➤137MHz (4:3:1)*
      ➤137MHz (4:4:1)*   ➤140MHz (4:3:1)*   ➤140MHz (4:4:1)*
      ➤145MHz (4:3:1)*   ➤145MHz (4:4:1)*   ➤150MHz (4:3:1)*
      ➤150MHz (4:4:1)*   ➤153MHz (4:3:1)*   ➤153MHz (4:4:1)*

      How is each component's working frequency calculated? For starters, everything is derived from the clock generator on the motherboard. Upon boot up the CPU will give the clock generator the default value for the **Front Side Bus** (FSB). Once the

FSB has been set, all of the other components will be able derive their proper operating frequencies.

For example: If you have a CPU rated for a 100MHz FSB, the operating frequencies for the proper values for the **FSB : SDRAM : PCI** for your CPU would be calculated thusly:

Pentium III® CPU with 100MHz FSB running at 500MHz:

100MHz (3:3:1) (each divided by 3) (FSB) 100MHz : (SDRAM) 100MHz : (PCI) 33MHz

CPU FSB value = 100MHz x 1 = 100MHz (proper FSB value for this CPU)

SDRAM value = FSB 100MHz x 1 = 100MHz (proper value for PC100 RAM)

PCI value = FSB 100MHz x 1/3 = 33MHz (proper value for PCI bus)

So that for this example above you can see that the x1, x1, x 1/3 values in relation to the FSB can be written as 100MHz (1: 1: 1/3)

Additionally, for the working value of the CPU (in this case a Pentium® III 500MHz you calculate it like this:

CPU working value = FSB 100MHz x 5 = 500MHz (proper value for this CPU)

Also, the AGP value is derived from the PCI value so that:

AGP value = PCI value (33MHz) x 2 or (4) = 66MHz or (132MHz) (proper value for AGP bus) For a 2x AGP it works at double the speed of the PCI bus, and four times for 4x AGP.

When the FSB is above 100MHz, such as 133MHz, you can choose a PCI divider of 4, again giving you the proper 33MHz value.

Now, in the BIOS they do not write dividers in fractions but rather in whole integers, so that again for the 100MHz FSB example, **100MHz (1: 1: 1/3),** in the table above it looks like this:

100MHz (3:3:1)

But you need to remember that each value is also divided by 3

you can look at it as if it were:

100MHz (3:3:1) each divided by 3

but you can also look at it as if it were:

100MHz (1: 1: 1/3) each multiplied times 3 then (divided by 3)

or

100MHz (3/3: 3/3: 1/3) each multiplied times 3 then (divided by 3)

which both equal:

100MHz (3:3:1) (divided by 3)

Now the final point about this table is that it does not show the necessary divider, i.e. for the **100MHz (3:3:1)** example you still need to divide each by 3, even though it does not show that in the table.

Accordingly, for the **66MHz (2:3:1)** you will divide each by 2 and for the **138MHz (4:3:1**) example you would divide each by 4. The first value in the parenthesis is the value for the CPU's FSB, and because everything derives its working frequency from the FSB, that value must always equal 1. So for (3:3:1) you need to divide by 3, for (2:3:1) you need to divide by 2 and for (4:3:1) you need to divide by 4.

So for the 100MHz (3:3:1) example in the table above, to get the working values you are taking the (3:3:1) numbers and multiplying by 3 then dividing by 3.

For another example, in the table you have 138MHz (4:3:1) (divided by 4). You can look at it like this: 138MHz (1: 3/4: 1/4). Each multiplied times 4 will give you the same value as 138MHz (4:3:1). (needing to be divided by 4 again). So that for the FSB you have 4 divided by 4 giving you a value of 1, so that 138MHz will come out to 138MHz.

CPU FSB value =138MHz x1=138MHz (approximate proper FSB value for this CPU)

SDRAM value = FSB 138MHz x 3/4 = 103.5MHz (approximate proper value for PC100 RAM)

PCI value = FSB 138MHz x 1/4 = 34.5MHz (approximate proper value for PCI bus)

Giving you all the proper values **(within a few MHz or so, its never exactly precise)**

Another way to look at it would be that for the 138MHz (4:3:1) example, you could use this "maximum number" value of 4, and then you could divide FSB value of 138MHz by 4 which equals 34.5MHz. You could then use 34.5MHz as the base number to be multiplied by the number for the components. So that:

CPU FSB frequency will be 34.5MHz x 4 =138MHz.

The SDRAM working frequency will be 34.5MHz x 3 =103.5MHz.

And the PCI bus working frequency will be 34.5MHz x 1 = 34.5MHz.

Giving you all the proper values **(within a few MHz or so, its never exactly precise.)**

ABIT patented technology, SoftMenu™ allows you to adjust the FSB working frequency, when you adjust the working frequency, please choose the proper values for the FSB : SDRAM : PCI for your CPU. For example:

A CPU rated for 66MHz FSB (such as Celeron™)

66MHz (2:3:1) (each divided by 2): 66MHz : 100MHz : 33MHz

or a CPU rated for 100MHz FSB (such as Pentium® III Coppermine using FC-PGA)

100MHz (3:3:1) (each divided by 3) 100MHz : 100MHz : 33MHz

or a CPU rated for 133MHz FSB (such as a Pentium® III Coppermine using FC-PGA)

133MHz (4:3:1) (each divided by 4) 133MHz : 100MHz : 33MHz

Note: the various components and their corresponding "bus speeds" should still work fine, nonetheless going too far "out of spec" may cause system damage or malfunction. System performance will depend mainly on the quality of the components used.

Note

CPU bus speed above 66MHz/100MHz/133MHz supported but not guaranteed due to the PCI and chipset specs.

━ *Multiplier Factor:*
You can choose from the following multiplier factors:
➤ 2.0   ➤ 2.5   ➤ 3.0   ➤ 3.5   ➤ 4.0   ➤ 4.5   ➤ 5.0   ➤ 5.5   ➤ 6.0
➤ 6.5   ➤ 7.0   ➤ 7.5   ➤ 8.0   ➤ 8.5   ➤ 9.0   ➤ 9.5   ➤10.0   ➤ 10.5
➤ 11.0

However, differences will exist because of the various brands and types available.

Note

According to Celeron™ PPGA MMX processor types, some Celeron™ PPGA MMX processors will have the multiplier factor locked and the signal disabled. In this situation, there is no way to choose a higher multiplier factor.

— *Speed Error Hold:*

> The default setting is "Disabled". If you change the setting to "Enabled" when the CPU speed setting is wrong, the system will hold.

> Normally, we do not recommend that you use the "User Define" option to setup CPU speed and multiplier factors. This option is for setup of future CPUs whose specifications are still unknown. The specifications of all present CPUs are included in the default settings. Unless you are very familiar with all CPU parameters, it is very easy to make mistakes when you define the external clock and the multiplier factor by yourself.

Solution in case of booting problem due to invalid clock setup:

Normally, if the CPU clock setup is wrong, you will not be able to boot. In this case, turn the system off then on again. The CPU will automatically use its standard parameters to boot. You can then enter the BIOS Setup again and set up the CPU clock. If you can't enter the BIOS setup, you must try turning the system on a few times (3~4 times) or press "INSERT" when turning on, and the system will automatically use its standard parameters to boot. You can then enter BIOS SETUP again and set up the new parameters.

When you change your CPU:

This motherboard has been designed in such a way that you can turn the system on after having inserted a CPU in the socket without having to configure any jumpers or DIP switches. If you change your CPU, normally you just have to turn off the power supply, change the CPU and then set up the CPU parameters through **SOFT MENU™ II**. However, if the new CPU is slower than the old one (and is the same brand and type), we offer you two methods to successfully complete the CPU change operation.

Method 1: Setup up the CPU for the lowest speed for its brand. Turn the power supply off and change the CPU. Then turn the system on again, and set up the CPU parameters through **SOFT MENU™ II**.

Method 2: Since you have to open the computer case when you change the CPU, it could be a good idea to use the CCMOS jumper to erase the parameters of the original

CPU and to enter BIOS Setup to set up CPU parameters again.

Attention

After setting up the parameters and leaving the BIOS SETUP, and having verified that the system can be booted, do not press the Reset button or turn off the power supply. Otherwise the BIOS will not read correctly, the parameters will fail and you must enter **SOFT MENU™ II** again to set up the parameters all over again.

CPU Power Supply:

This option allows you to switch between CPU default and user-defined voltages.

➤**CPU Default:** The system will detect the CPU type and select the proper voltage automatically. When it is enabled, the option "**Core Voltage**" will show the current voltage setting that is defined by the CPU and this will not be changeable. We recommend using this CPU default setting and not changing it unless the current CPU type and voltage setting can not be detected or is not correct.

➤**User Define:** This option lets the user select the voltage manually. You can change values of the "**Core Voltage**" option lists by using the Page Up and Page Down keys.

Spread Spectrum:

Two options are available: Disabled ➔ Enabled. The default setting is *Disabled*. For EMC (**E**lectro-**M**agnetic **C**ompatibility) testing, you may need to adjust these options for optimal results. We do not recommend you change the default, except for special reasons. Some values you select may cause system instability under some situations. Please be careful.

3-2. Standard CMOS Features Setup Menu

This section contains the basic configuration parameters of the BIOS. These parameters include date, hour, VGA card, FDD and HDD settings.
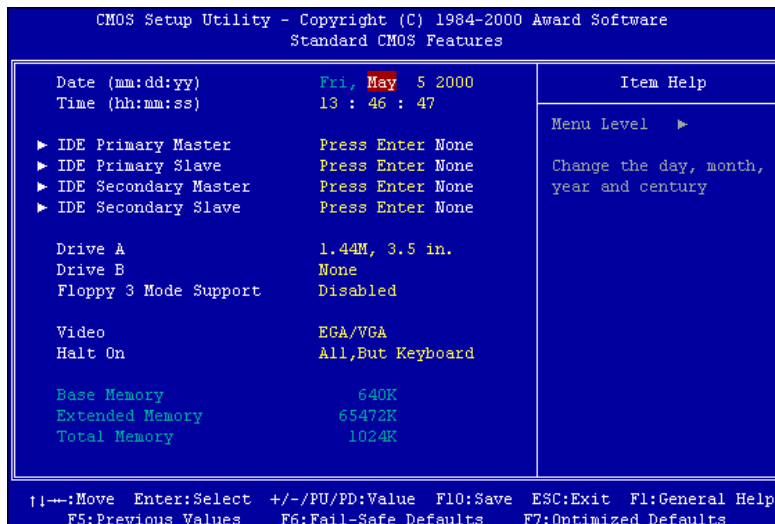
Figure 3-3A. Standard CMOS Setup Screen Shot

Date (mm:dd:yy):

You can set the date in this item: month (mm), date (dd) and year (yy).

Time (hh:mm:ss):

You can set the time in this item: hour (hh), minute (mm) and second (ss).

IDE Primary Master / Slave and IDE Secondary Master / Slave:

These items have a sub-menu to let you choose further options. You can refer to figure 3-4 to check what options are available.

```
        CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
                            IDE Primary Master

   IDE HDD Auto-Detection      Press Enter    │        Item Help

   IDE Primary Master          Auto          │  Menu Level    ▶▶
 - Access Mode                 Auto          │
                                             │  To auto-detect the
   Capacity                    0 MB          │  HDD's size, head... on
                                             │  this channel
   Cylinder                    0             │
   Head                        0             │
   Precomp                     0             │
   Landing Zone                0             │
   Sector                      0             │




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

Figure 3-3B. IDE Primary Master Setup Screen Shot

IDE HDD Auto-Detection:

Press the *Enter* key for the BIOS to auto detect all detailed parameters of the hard disk drivers (HDD). If auto detection is successful, the correct values will be shown in the remaining items of this menu.

Note

❶ A new IDE HDD must be first formatted, otherwise it can not read/write. The basic step in using a HDD is to make a **HDD low-level format**, then run FDISK, and then FORMAT the drive. Most current HDDs have already been subjected to low-level format at the factory, so you can probably skip this operation. Remember though, the primary IDE HDD must have its partition set to active within the FDISK procedure.
❷ If you are using an old HDD that is already formatted, auto detection can not detect the correct parameters. You may need to do a low-level format or set the parameters manually, and then check if the HDD is working.

IDE Primary Master:

Three settings are available: *Auto, Manual and None.* If you choose Auto, the BIOS will automatically check what kind of hard disk you are using. If you want to set the HDD parameters yourself, make sure you fully understand the meaning of the parameters, and be sure to refer to the manual provided by the HDD manufacture to get the settings right.

Access Mode:

Since old operating systems were only able to support HDDs with capacities no bigger than 528MB, any hard disk with more than 528MB was unusable. AWARD BIOS features a solution to this problem: you can, according to your operating system, choose four operating modes: NORMAL ➔ LBA ➔ LARGE ➔Auto.

The HDD auto detection option in the sub-menu will automatically detect the parameters of your hard disk and the mode supported.

➤ **Auto:**
   Lets the BIOS detect your HDD access mode and make the decisions.

➤ **Normal mode:**
   Standard normal mode supports hard disks of up to 528MB or less. This mode directly uses positions indicated by Cylinders (CYLS), Heads, and Sectors to access data.

➤ **LBA (Logical Block Addressing) mode:**
   The earlier LBA mode can support HDD capacities of up to 8.4GB, and this mode uses a different method to calculate the position of disk data to be accessed. It translates Cylinders (CYLS), Heads and Sectors into a logical address where data is located. The Cylinders, Heads, and Sectors displayed in this menu do not reflect the actual structure of the hard disk. They are just reference values used to calculate actual positions. Currently, all high capacity hard disks support this mode and that is why **we recommend you use this mode**. Currently, the BIOS can support the INT 13h extension function, enabling the LBA mode to support hard disk drive capacities exceeding 8.4GB.

➤ **Large Mode:**
   When the number of cylinders (CYLs) of the hard disk exceeds 1024 and DOS is not able to support it, or if your operating system does not support LBA mode, you should select this mode.

Capacity:

This item auto displays your HDD size. Note that this size is usually slightly greater than the

size given by a disk checking program of a formatted disk.

Note

All the items below are available when you set the item *Primary IDE Master* to *Manual*.

Cylinder:

When disks are placed directly above one another along the shaft, the circular vertical "slice" consisting of all the tracks located in a particular position is called a cylinder. You can set the number of cylinders for a HDD. The minimum number you can enter is 0, the maximum number you can enter is 65536.

Head:

This is the tiny electromagnetic coil and metal pole used to create and read back the magnetic patterns on the disk (also called the read/write head). You can configure the number of read/write heads. The minimum number you can enter is 0, the maximum number you can enter is 255.

Precomp:

The minimum number you can enter is 0, the maximum number you can enter is 65536.

Warning

Setting a value of 65536 means no hard disk exists.

Landing Zone:

This is a non-data area on the disk's inner cylinder where the heads can rest when the power is turned off. The minimum number you can enter is 0, the maximum number you can enter is 65536.

Sector:

The minimum segment of track length that can be assigned to stored data. Sectors usually are grouped into blocks or logical blocks that function as the smallest units of data permit. You can configure this item to sectors per track. The minimum number you can enter is 0, the maximum number you can enter is 255.

Drive A & Drive B:

If you have installed the floppy disk drive here, then you can select the type of floppy drive it can support. Six options are available: None➔360K, 5.25 in. ➔ 1.2M, 5.25in. ➔ 720K, 3.5 in. ➔ 1.44M, 3.5 in. ➔ 2.88M, 3.5 in.

Floppy 3 Mode Support:

Four options are available: Disabled ➔ Driver A ➔ Driver B ➔ Both. The default setting is *Disabled*. 3 Mode floppy disk drives (FDD) are 3 1/2" drives used in Japanese computer systems. If you need to access data stored in this kind of floppy, you must select this mode, and of course you must have a 3 Mode floppy drive.

Video:

You can select the VGA modes for your video adapter, four options are available: EGA/VGA ➔ CGA 40 ➔ CGA 80 ➔ MONO. The default setting is EGA/VGA.

Halt On:

You can select which type of error will cause the system to halt. Five options are available: All Errors ➔ No Errors ➔ All, But Keyboard ➔ All, But Diskette ➔ All, But Disk/Key.

You can see your system memory list in the lower right box, it shows the *Base Memory*, *Extended Memory* and *total Memory size* configurations in your system. It is detected by the system during boot-up procedure.

3-3. Advanced BIOS Features Setup Menu

With each item, you can press <Enter> at any time to display all the options for that item.

Attention

Advanced BIOS Features Setup Menu has already been set for maximum operation. If you do not really understand each of the options in this menu, we recommend you use the default values.
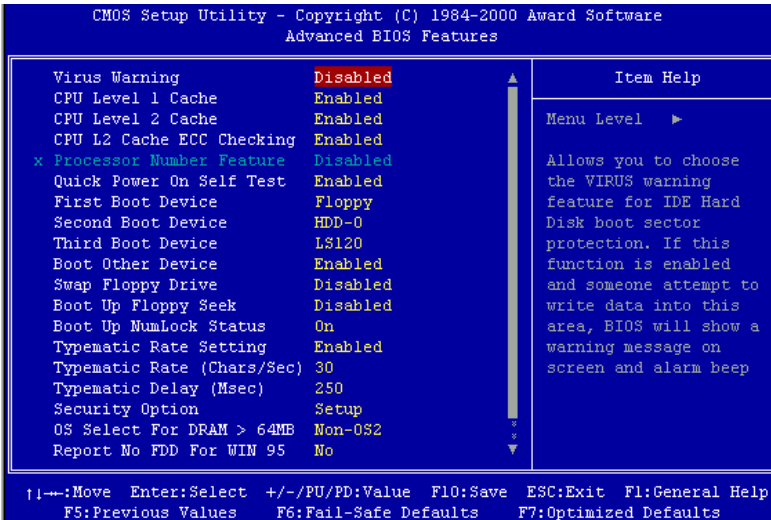
Figure 3-4A. Advanced BIOS Features Setup Upper Screen
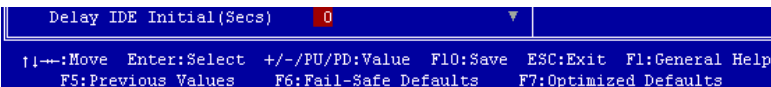
Figure 3-4B. Advanced BIOS Features Setup Lower Screen

Virus Warning:

This item can be set to Enabled or Disabled, the default setting being *Disabled*.

When this feature is enabled, if there is any attempt from a software or an application to access the boot sector or the partition table, the BIOS will warn you that a boot virus is attempting to access the hard disk.

CPU Level 1 Cache:

This item is used to enable or to disable the CPU level 1 cache. When the cache is set to *Disabled* it is much slower, so the default setting for this item is *Enabled* since it will speed up memory access. Some old and very poorly written programs will make the computer malfunction or crash if the system speed is too high. In this case, you should disable this feature. The default setting is *Enabled*.

CPU Level 2 Cache:

This item is used to enable or to disable the CPU level 2 cache. When the external cache is e*nabled*, it will speed up memory access, and the system will work faster. The default setting is *Enabled*.

CPU L2 Cache ECC Checking:

This item is used to enable or to disable the CPU level 2 cache ECC checking function. The default setting is *Enabled*.

Quick Power On Self Test:

After the computer has been powered on, the BIOS of the motherboard will run a series of tests in order to check the system and its peripherals. If the Quick Power on Self-Test feature is enabled, the BIOS will simplify the test procedures in order to speed up the boot process. The default setting is *Enabled*.

First Boot Device:

When the computer boots up, the BIOS attempts to load the operating system from the devices in the sequence selected in these items: floppy disk drive A, LS/ZIP devices, hard drive C, SCSI hard disk drive or CD-ROM. There are eleven options for the boot sequence that you can choose (The default setting is *Floppy*.):

Floppy ➔ LS120 ➔ HDD-0 ➔ SCSI ➔ CDROM ➔ HDD-1 ➔ HDD-2 ➔ HDD-3 ➔ ZIP100 ➔ LAN ➔ Disabled.

Second Boot Device:

Description is the same as the *First Boot Device,* the default setting is *HDD-0*.

Third Boot Device:

Description is same as the *First Boot Device,* the default setting is *LS/ZIP*

Boot Other Device:

Two options are available: Enabled or Disabled. The default setting is *Enabled*. This setting allows the BIOS to try three kinds of boot devices that are set from the above three items.

Swap Floppy Drive:

This item can be set as Enabled or Disabled. The default setting is *Disabled.* When this feature is enabled, you don't need to open the computer case to swap the position of floppy disk drive connectors. Drive A can be set as drive B and drive B can be set as drive A.

Boot Up Floppy Seek:

When the computer boots up, the BIOS detects if the system has an FDD or not. When this item is enabled, if the BIOS detects no floppy drive, it will display a floppy disk drive error message. If this item is disabled, the BIOS will skip this test. The default setting is *Disabled*.

Boot Up NumLock Status:
➤ On: At boot up, the Numeric Keypad is in numeric mode. (Default Settings)
➤ Off: At boot up, the Numeric Keypad is in cursor control mode.

Typematic Rate Setting:

This item allows you to adjust the keystroke repeat rate. When set to *Enabled*, you can set the two keyboard typematic controls that follow (*Typematic Rate* and T*ypematic Rate Delay*). If this item is set to *Disabled,* the BIOS will use the default setting. The default setting is *Enabled*.

Typematic Rate (Chars/Sec):

When you press a key continuously, the keyboard will repeat the keystroke according to the rate you have set (Unit: characters/second）. Eight options are available: 6 ➔ 8 ➔ 10 ➔ 12 ➔ 15 ➔ 20 ➔ 24 ➔ 30 ➔ Back to 6. The default setting is *30*.

Typematic Delay (Msec):

When you press a key continuously, if you exceed the delay you have set here, the keyboard will automatically repeat the keystroke according to a certain rate (Unit: milliseconds). Four options are available: 250 ➔ 500 ➔ 750 ➔ 1000 ➔ Back to 250. The default setting is *250*.

Security Option:

This option can be set to System or Setup. The default setting is *Setup*. After you have created a password through PASSWORD SETTING, this option will deny access to your system (System) or modification of computer setup (BIOS Setup) by unauthorized users.

➤**SYSTEM:** When you choose System, a password is required each time the computer boots up. If the correct password is not given, the system will not start.

➤**SETUP:** When you choose Setup, a password is required only when accessing the BIOS Setup. If you have not set a password in the PASSWORD SETTING option, this option is not available.

To disable security, select *Set Supervisor Password* at main menu and then you will be asked to enter the password. Do not type anything and just press the *Enter* key and it will disable security. Once security is disabled, the system will boot and you can enter the *BIOS setup menu* freely

Notice

Don't forget your password. If you forget the password, you will have to open the computer case and clear all information in the CMOS before you can start up the system. But by doing this, you will have to reset all previously set options.

OS Select For DRAM > 64MB:

When the system memory is bigger than 64MB, the communication method between the BIOS and the operating system will differ from one operating system to another. If you use OS/2, select *OS2*; if you are using another operating system, select *Non-OS2*. The default setting is *Non-OS2*.

Report No FDD For WIN 95:

When using Windows® 95 without a floppy drive, please set this item to *Yes*. Otherwise, set it to *No*. The default setting is *No*.

Delay IDE Initial (Secs):

This item is used to support some old models or special types of hard disks or CD-ROMs. They may need a longer amount of time to initialize and prepare for activation. Since the BIOS may not detect those kinds of devices during system booting. You can adjust the value to fit such devices. Larger values will give more delay time to the device. The minimum number you can enter is 0, the maximum number you can enter is 15. The default setting is *0*. For best system performance, we strongly suggest you to set it to 0.

3-4. Advanced Chipset Features Setup Menu

The Chipset Features Setup Menu is used to modify the contents of the buffers in the chipset on the motherboard. Since the parameters of the buffers are closely related to hardware, if the setup is not correct or is false, the motherboard will become unstable or you will not be able to boot up. If you don't know the hardware very well, use default values (i.e. use the LOAD SETUP DEFAULTS option).   The only time you might consider making any changes is if you discover that data is being lost while using your system.
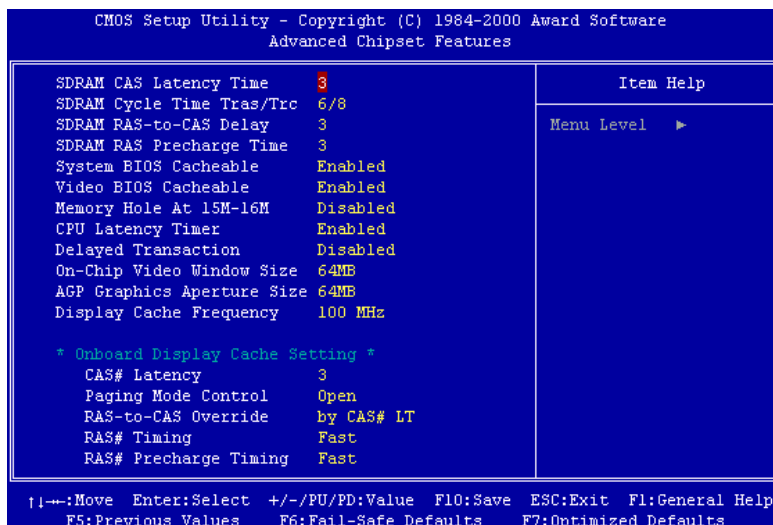
Figure 3-5A. Chipset Features Setup Screen

You can use the arrow keys to move between the items. Use ⬆ , ⬇ and Enter key to change the values. When you have finished setting up the chipset, press **Esc** to go back to the main menu.

Note

The parameters in this screen are for system designers, service personnel, and technically competent users only. Do not reset these values unless you understand the consequences of your changes.

The first chipset settings deal with CPU access to DRAM. The default timings have been carefully chosen and should only be altered if data is being lost. Such a scenario might well occur if your system has mixed speed DRAM chips installed. In such a case, greater delays may be required to preserve the integrity of the data held in the slower memory chips.

SDRAM CAS Latency Time:

Two options are available: 2 and 3. The default setting is *3*. You can select SDRAM CAS (Column Address Strobe) latency time according your SDRAM specification.

SDRAM Cycle Time Tras/Trc:

Two options are available: 5/7 and 6/8. The default setting is *6/8*. This item controls the number of SDRAM clocks (SCLKs) used per access cycle.

SDRAM RAS-to-CAS Delay

Two options are available: 2 and 3. The default setting is *3*. This item lets you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. *Fast (2)* gives faster performance; and *Slow(3)* gives more stable performance. This item applies only when synchronous DRAM is installed in the system.

SDRAM RAS Precharge Time:

Two options are available: 2 and 3. The default setting is *3*. This option lets you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. *Fast (2)* gives faster performance; and *Slow (3)* gives more stable performance. This item applies only when synchronous DRAM is installed in the system.

System BIOS Cacheable:

You can select Enabled or Disabled. The default setting is *Enabled*. When you select *Enabled* 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.

Video BIOS Cacheable:

You can select Enabled or Disabled. The default setting is *Enabled*. *Enabled* allows

caching of the video BIOS, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Memory Hole At 15M-16M:

Two options are available: Enabled and Disabled. The default setting is *Disabled*. This option is used to reserve the memory block 15M-16M for ISA adapter ROM. Some special peripherals need to use a memory block located between 15M and 16M, and this memory block has a size of 1M. We recommend that you disable this option.

Delayed Transaction:

Two options are available: Enabled and Disabled. The default setting is *Enabled*. Set the option to enabled or disabled PCI 2.1 features including passive release and delayed transaction for the chipset. This function is used to meet the latency of PCI cycles to or from the ISA bus. This option must be enabled to provide PCI 2.1 compliance. If you have an ISA card compatibility problem, you can try to enable or disable this option for optimal results.

On-Chip Video Window Size:

Three options are available: 64MB ➔ 32MB ➔ Disabled. The default setting is *64MB*. This option specifies the amount of system memory that can be used by the AGP graphic data.

AGP Graphics Aperture Size:

Two options are available: 32M ➔ 64M. The default setting is *64M*. This option specifies the amount of system memory that can be used by the AGP device. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. See www.agpforum.org for AGP information.

Display Cache Frequency

Two options are available: 100 Mhz and 133 Mhz. The default setting is *100 Mhz*. You can choose the running speed for local memory, but if your memory module does not support the speed you choose, it may cause a system boot failure or data loss problem.

Onboard Display Cache Setting:

When using the onboard VGA function, you had best use the default setting.

CAS# Latency:
Two options are available: 2 and 3. The default setting is *3*. You can select the local memory clock periods.

Paging Mode Control:
Two options are available: Close and Open. The default setting is *Open*. You can select the paging mode control to open or close.

RAS-to-CAS Override:
Two options are available: by CAS# LT and Override (2). The default setting is *by CAS# LT*. This is the display cache clock period control.

RAS# Timing:
Two options are available: Slow and Fast. The default setting is *Fast*. This item controls RAS# active to Protegra, and refresh to RAS# active delay (in local memory area).

RAS# Precharge Timing:
Two options are available: Slow and Fast. The default setting is *Fast*. This item controls RAS# precharge (in local memory area).

3-5. Integrated Peripherals

In this menu, you can change the onboard I/O device, I/O port address and other hardware settings.
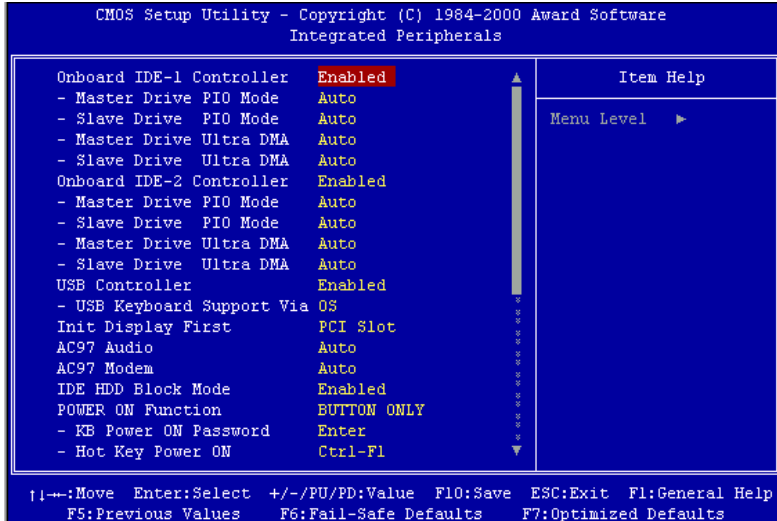
```
           CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
                              Integrated Peripherals

   Onboard IDE-1 Controller    Enabled          ▲          Item Help
    - Master Drive PIO Mode      Auto
    - Slave Drive  PIO Mode      Auto              Menu Level    ►
    - Master Drive Ultra DMA     Auto
    - Slave Drive  Ultra DMA     Auto
   Onboard IDE-2 Controller     Enabled
    - Master Drive PIO Mode      Auto
    - Slave Drive  PIO Mode      Auto
    - Master Drive Ultra DMA     Auto
    - Slave Drive  Ultra DMA     Auto
   USB Controller               Enabled
    - USB Keyboard Support Via   OS
   Init Display First           PCI Slot
   AC97 Audio                   Auto
   AC97 Modem                   Auto
   IDE HDD Block Mode           Enabled
   POWER ON Function            BUTTON ONLY
    - KB Power ON Password       Enter
    - Hot Key Power ON           Ctrl-F1          ▼

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

Figure 3-6A. Integrated Peripherals Menu Default Screen

```
 Onboard FDC Controller      Enabled      ░
 Onboard Serial Port 1       3F8/IRQ4     ░
 Onboard Serial Port 2       2F8/IRQ3     ░
 - Onboard IR Function       Disabled     ░
 - RxD , TxD Active          Hi,Lo        ░
 - IR Transmission Delay     Enabled
 - UR2 Duplex Mode           Half
 - Use IR Pins               IR-Rx2Tx2
 Onboard Parallel Port       378/IRQ7
 - Parallel Port Mode        SPP
 - EPP Mode Select           EPP1.7
 - ECP Mode Use DMA          3
 PWRON After PWR-Fail        Off
 Game Port Address           201
 Midi Port Address           330
 - Midi Port IRQ             10           ▼

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

Figure 3-6B. Integrated Peripherals Menu Full Items Screen

Onboard IDE-1 Controller:

The onboard IDE 1 controller can be set as Enabled or Disabled. The default setting is *Enabled*. The integrated peripheral controller contains an IDE interface with support for two IDE channels. If you choose *Disabled*, it will effect the settings of four items not available. For example, if you disabled the *Onboard IDE-1 Controller*, you will also disable the *Master/Slave Drive PIO Mode* and *Master/Slave Drive Ultra DMA*.

Master/Slave Drive PIO Mode:

Six options are available: Auto ➔ Mode 0 ➔ Mode 1 ➔ Mode 2 ➔ Mode 3 ➔ Mode 4. The four IDE PIO (Programmed Input/Output) items let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode (default setting), the system automatically determines the best mode for each device.

Master/Slave Drive Ultra DMA:

Two options are available: Auto and Disabled. The default setting is *Auto*. 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 33 MB/sec.

Ultra DMA/33 or Ultra DMA/66 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows® 95 OSR2 or a

third-party IDE bus master driver).

➤Auto: If your hard drive and your system software both support Ultra DMA/33, select *Auto* to enable BIOS support. For Ultra DMA/66 devices, please refer the requirements mentioned in page 2-18. (Default setting)

➤Disabled: If you encounter a problem in using Ultra DMA devices, you can try to disable this item.

Onboard IDE-2 Controller:

Description is same as the *Onboard IDE-1 Controller*.

USB Controller:

Two options are available: Enabled and Disabled. The default setting is *Enabled*. This motherboard provides two Universal Serial Bus (USB) ports, thus supporting USB devices. If you don't want to use USB devices, set it to *Disabled*, then the item *USB Keyboard Support* will also be disabled.

➖ **USB Keyboard Support:**

Two options are available: OS and BIOS. The default setting is *OS*. If you want USB keyboard use in a DOS environment, please set it to BIOS.

Init Display First:

Two options are available: PCI Slot and Onboard. The default setting is *PCI Slot*. When you install additional PCI display cards, you can choose either a PCI display card or an onboard VGA chip to activate the display boot-up screen.

AC97 Audio:

Two options are available: Auto and Disabled. The default setting is *Auto*. If you set it to *Enabled*, it will allow the BIOS to detect the audio device you use. If an audio device is detected, the onboard audio controller (815E chipset family) will be able to support it. If you want to use another audio adapter card to connect the audio connectors, please set this item to *Disabled*.

AC97 Modem:

Two options are available: Auto and Disabled. The default setting is *Auto*. If you set it to *Enabled*, it will allow the BIOS to detect the modem device you use. If a modem device is detected, the onboard modem controller (Intel® 815E chipset family) will be able to support it. If you want to use another modem adapter card to connect the modem signal connectors, please set this item to *Disabled*.

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. The default setting is *Enabled.*

Power On Function:

This item allows you to select which way you want your system to power on. Five items are available: Button Only ➔ Keyboard 98 ➔ Hot Key ➔ Mouse Left ➔ Mouse Right. Default setting is *Button Only.*

Note
The mouse wake up function can only be used with the PS/2 mouse, not with a mouse that uses the COM port and USB connection. *Mouse Left* (*Mouse Right*) means you need to double click the mouse *left* (*right*) button, for the computer to power on. You also need to note the compatibility issue with your PS/2 mouse. Some PS/2 mice cannot wake up the system because of compatibility problems. Also, if the specs of your keyboard are too old, it may fail to power on.

➖ **KB Power ON Password:**

   This option allows you to set a password required in order to Power ON your computer. You will be asked to enter your password and then to confirm it. Do not forget your password. Should you forget your password, you will have to open your computer case, clear the CMOS and reset all parameters again in order to be able to utilise this function.

➖ **Hot Key Power On:**

   There are twelve options are available, Ctrl-F1 to Ctrl-F12. You can select this item and using the Ctrl plus the one of each function key (F1 to F12) to power on the computer.

The default setting is *Ctrl-F1*.

Onboard FDC Controller:

Two options are available: Enabled and Disabled. The default setting is *Enabled*. You can enable or disable the onboard FDD controller.

Onboard Serial Port 1:

This is used to specify the I/O address and IRQ of Serial Port 1. Six options are available: Disabled ➔ 3F8/IRQ4 ➔ 2F8/IRQ3 ➔ 3E8/IRQ4 ➔ 2E8/IRQ3 ➔ AUTO. The default setting is *3F8/IRQ4*.

Onboard Serial Port 2:

This is used to specify the I/O address and IRQ of Serial Port 1. Six options are available: Disabled ➔ 3F8/IRQ4 ➔ 2F8/IRQ3 ➔ 3E8/IRQ4 ➔ 2E8/IRQ3 ➔ AUTO. The default setting is *2F8/IRQ3*.

- **Onboard IR Function:**

  Three options are available: IrDA (HPSIR) mode ➔ ASK IR (Amplitude Shift Keyed IR) mode ➔ Normal. The default setting is *Normal*.

- **RxD , TxD Active:**

  Four options are available: Hi, Hi ➔ Hi, Lo ➔ Lo, Hi ➔ Lo, Lo. The default setting is *Hi, Lo*. Set IR transmission/reception polarity as High or Low.

- **IR Transmission Delay:**

  Two options are available: Enabled and Disabled. The default setting is *Enabled*. Set IR transmission delays 4 character-time (40 bit-time) when SIR is changed from RX mode to TX mode.

- **UR2 Duplex Mode:**

  Two options are available: Full and Half. The default setting is *Full*. This item is lets you choose the operation mode for your IR KIT. Some IR device only can work at half duplex mode. Refer to your IR KIT user's guide to find out which setting is correct.

- **Use IR Pins:**

  Two options are available: RxD2, TxD2 and IR-Rx2Tx2. The default setting is *IR-*

Rx2Tx2. If you choose *RxD2, TxD2*, your motherboard must support a COM port IR KIT connection. Otherwise, you can only choose the *IR-Rx2Tx2* to use the IR header on your motherboard to connect your IR KIT. Please use the default setting.

Onboard Parallel Port:

Sets the I/O address and IRQ of the onboard parallel port. Four options are available: Disable ➔ 3BC/IRQ7 ➔ 378/IRQ7 ➔ 278/IRQ5. Default setting is *378/IRQ7*.

ᴗ **Parallel Port Mode:**

Four options are available: SPP ➔ EPP ➔ ECP ➔ ECP+EPP. The default setting is *SPP* mode.

ᴗ **EPP Mode Select:**

Two options are available: EPP1.7 ➔ EPP1.9. The default setting is *EPP 1.7*. When the mode selected for the parallel port mode is EPP, the two EPP version options are available.

ᴗ **ECP Mode Use DMA:**

Two options are available: 1 ➔ 3. The default setting is *3*. When the mode selected for the parallel port mode is ECP, the DMA channel selected can be Channel 1 or Channel 3.

PWRON After PWR-Fail:

This setting lets you set the system action after a power failure. Three options are available: On ➔ Former-Sts ➔ Off. The default setting is *Off*.

Game Port Address:

Three options are available: Disabled ➔ 201 ➔ 209. The default setting is *201*. This item sets the address of the onboard game port connector.

Midi Port Address:

Four options are available: Disabled ➔ 330 ➔ 300 ➔ 290. The default setting is *330*. This item sets the address of the onboard midi port connector.

Midi Port IRQ:

Two options are available: 5 ➜ 10. The default setting is *10*. This item sets the IRQ of the onboard midi port connector. If you choose disable the *Midi Port Address*, then this field is not available.

Note

If you buy the audio adapter and want to replace the use of onboard audio solution, you have to disable three items in BIOS. Otherwise, your audio adapter may not work well. These three items are: **AC 97 Audio** set to *Disabled* **Game Port Address** set to *Disabled* **Midi Port Address** set to *Disabled*

3-6. Power Management Setup Menu

The difference between Green PCs and traditional computers is that Green PCs have a power management feature. With this feature, when the computer is powered on but inactive, the power consumption is reduced in order to save energy. When the computer operates normally, it is in Normal mode. In this mode, the Power Management Program will control the access to video, parallel ports, serial ports and drives, and the operating status of the keyboard, mouse and other device. These are referred to as Power Management Events. In cases where none of these events occur, the system enters the power saving mode. When one of the controlled events occurs, the system immediately returns to normal mode and operates at its maximum speed. Power saving modes can be divided into three modes according to their power consumption: Doze Mode, Standby Mode, and Suspend Mode. The four modes proceed in the following sequence:

Normal Mode ===> Doze Mode ===> Standby Mode ===> Suspend Mode

The system consumption is reduced according the following sequence:

Normal   >   Doze   >   Standby   >   Suspend

1. In the Main Menu, select "Power Management Setup" and press "Enter". The following screen is displayed:

```
          CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
                             Power Management Setup
    ┌──────────────────────────────────────────────────┬─────────────────┐
    │  ACPI Function               Enabled           ▲  │    Item Help    │
    │  - ACPI Suspend Type         S1(POS)              │                 │
    │  Power Management            User Define          │ Menu Level   ►  │
    │  Video Off Method            DPMS                 │                 │
    │  Video Off In Suspend        Yes                  │                 │
    │  Suspend Type                Stop Grant           │                 │
    │  MODEM Use IRQ               NA                   │                 │
    │  Suspend Mode                Disabled             │                 │
    │  HDD Power Down              Disabled             │                 │
    │  Soft-Off by PWR-BTTN        Instant-Off          │                 │
    │  Wake-Up by PCI card         Disabled             │                 │
    │  Power On by Ring            Disabled             │                 │
    │  USB KB Wake-Up From S3      Disabled             │                 │
    │  CPU Thermal-Throttling      62.5%                │                 │
    │  Resume by Alarm             Disabled          ▒  │                 │
    │ x - Date(of Month) Alarm        0              ▒  │                 │
    │ x - Time(hh:mm:ss) Alarm      0 : 0 : 0        ▒  │                 │
    │                                                ▒  │                 │
    │    ** Reload Global Timer Events **            ▼  │                 │
    ├──────────────────────────────────────────────────┴─────────────────┤
    │ ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
    │    F5:Previous Values    F6:Fail-Safe Defaults    F7:Optimized Defaults      │
    └──────────────────────────────────────────────────────────────────────┘
```

Figure 3-7A. Power Management Setup Main Menu

```
    ┌──────────────────────────────────────────────────┬─────────────────┐
    │    ** Reload Global Timer Events **               │                 │
    │  Primary IDE 0               Disabled             │                 │
    │  Primary IDE 1               Disabled             │                 │
    │  Secondary IDE 0             Disabled             │                 │
    │  Secondary IDE 1             Disabled             │                 │
    │  FDD,COM,LPT Port            Disabled             │                 │
    │  PCI PIRQ[A-D]#              Disabled          ▼  │                 │
    ├──────────────────────────────────────────────────┴─────────────────┤
    │ ↑↓→←:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help │
    │    F5:Previous Values    F6:Fail-Safe Defaults    F7:Optimized Defaults      │
    └──────────────────────────────────────────────────────────────────────┘
```
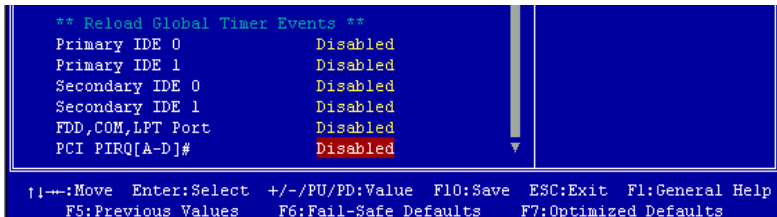
Figure 3-10. Power Management Setup Lower Screen Shot

2. Use the arrow keys to go to the item you want to configure. To change the settings, use ↑,↓ and Enter key.

3. After you have configured the power management feature, press **Esc** to go back to the Main Menu.

We are now going to briefly explain the options in this menu:

ACPI Function (Advanced Configuration and Power Interface):

ACPI gives the operating system direct control over the power management and Plug and Play functions of a computer.

There are two options that can be selected, "Enabled" and "Disabled". You can select "Enabled" to enable ACPI functions. If you want ACPI functions to work normally, you should notice two things. One is your operating system must support ACPI, as of now only Microsoft® Windows® 98 supports these functions. The second thing is that all devices and add-on cards in your system must fully support ACPI, both hardware and software (drivers). If you want to know if your devices or add-on cards support ACPI or not, please contact the device or add-on card manufacture for more information. If you want to know more about ACPI specifications, please go to the address below for more detailed information:

http://www.teleport.com/~acpi/acpihtml/home.htm

Note: If you enable the ACPI function in the BIOS setup, the SMI function will not work.

ACPI requires an ACPI-aware operating system. ACPI features include:

- Plug and Play (including bus and device enumeration) and APM functionality normally contained in the BIOS.
- Power management control of individual devices, add-in cards (some add-in cards may require an ACPI-aware driver), video displays, and hard disk drives.
- A Soft-off feature that enables the operating system to power off the computer.
- Support for multiple wake-up events (see Table 3-6-1).
- Support for a front panel power and sleep mode switch. Table 3-6-2 describes the system states based on how long the power switch is pressed, depending on how ACPI is configured with an ACPI-aware operating system.

Note

If you enable the ACPI function in the BIOS setup, the SMI switch function will not work.

System States and Power States

Under ACPI, the operating system directs all system and device power state transitions. The operating system puts devices in and out of low-power states based on user preferences and knowledge of how devices are being used by applications. Devices that are not being used can be turned off. The operating system uses information from applications and user settings to put the system as a whole into a low-power state.

Table 3-6-1: Wake Up Device and Events

The table below describes which devices or specific events can wake the computer from specific states.

These device/events can wake up the computer……	……from this state
Power switch	Sleeping mode or power off mode
RTC alarm	Sleeping mode or power off mode
LAN	Sleeping mode or power off mode
Modem	Sleeping mode or power off mode
IR command	Sleeping mode
USB	Sleeping mode
PS/2 keyboard	Sleeping mode
PS/2 mouse	Sleeping mode

Table 3-6-2: Effect of Pressing the Power Switch

If the system is in this state……	……and the power switch is pressed for	……the system enters this state
Off	Less than four seconds	Power on
On	More than four seconds	Soft off/Suspend
On	Less than four seconds	Fail safe power off
Sleep	Less than four seconds	Wake up

ACPI Suspend Type:

Two options are available: S1(POS) and S3(STR). The default setting is *S1(POS)*. Generally, ACPI has six states: System S0 state, S1, S2, S3, S4, S5. S1 and S3 states are described below:

The S1 (POS) State (POS means Power On Suspend):

While the system is in the S1 sleeping state, its behavior is as described below:

● The processor is not executing instructions. The processor's complex context is maintained.

● Dynamic RAM context is maintained.

● Power Resources are in a state compatible with the system S1 state. All Power Resources that supply a System Level reference of S0 are in the OFF state.

● Devices states are compatible with the current Power Resource states. Only devices which solely reference Power Resources which are in the ON state for a given device state can be in that device state. In all other cases, the device is in the D3 (off) state.

● Devices that are enabled to wake the system and that can do so from their current device state can initiate a hardware event which transitions the system state to S0. This transition causes the processor to continue execution where it left off.

To transition into the S1 state, the operating software does not have to flush the processor's cache.

The S3 (STR) State (STR means Suspend to RAM):

The S3 state is logically lower then the S2 state and is assumed to conserve more power. The behavior of this state is defined as follows:

● Processor is not executing instructions. The processor complex context is not maintained.
● Dynamic RAM context is maintained.
● Power Resources are in a state compatible with the system S3 state. All Power Resources that supply a System Level reference of S0, S1, or S2 are in the OFF state.
● Devices states are compatible with the current Power Resource states. Only devices which solely reference Power Resources which are in the ON state for a given device state can be in that device state. In all other cases, the device is in the D3 (off) state.
● Devices that are enabled to wake the system and that can do so from their current device state can initiate a hardware event which transitions the system state to S0. This transition causes the processor to begin execution at its boot location. The BIOS performs initialization of core functions as required to exit an S3 state and passes control to the firmware resume vector. Please see the ACPI Specification Rev. 1.0 book section 9.3.2 for more details on BIOS initialization.

From the software point of view, this state is functionally the same as the S2 state. The operational difference can be that some Power Resources that could be left ON in the S2 state might not be available to the S3 state. As such, additional devices can be required to be in logically lower D0, D1, D2, or D3 state for S3 than S2. Similarly, some device wake events can function in S2 but not S3.

Because the processor context can be lost while in the S3 state, the transition to the S3 state requires that the operating software flush all dirty cache to DRAM.

✚ *Above information for system S0 & S3 were refer to ACPI Specification Rev. 1.0.*

Power Management:

This item allows you to select the type (or degree) of power saving and is directly related to the following modes:

1. Suspend Mode
2. HDD Power Down

There are three options for power management, three of which have fixed mode settings:

➤ User Define

   "User Define" defines the delay for accessing the power modes.

   Suspend Mode: Disabled ➔ 1 Min ➔ 2 Min ➔ 4 Min ➔ 8 Min ➔ 12 Min ➔ 20
                        Min ➔ 30 Min ➔ 40 Min ➔ 1 Hour. The default setting is
                        Disabled.

   HDD Power Down: Disabled ➔ 1 Min ➔ 2 Min ➔ 3 Min ➔ 4 Min ➔ 5 Min ➔ 6
                        Min ➔ 7 Min ➔ 8 Min ➔ 9 Hour ➔ 10 Min ➔ 11 Min ➔ 12
                        Min ➔ 13 Min ➔ 14 Min ➔ 15 Min. The default setting is
                        Disabled.

➤ Min Saving

   When these two saving modes are enabled, the system is set up for minimum power
   savings.
   Suspend Mode = 1 Hour
   HDD Power Down = 15 Min

➤ Max Saving

   When the two saving modes are enabled, the system is set up for maximum power
   savings.
   Suspend Mode = 1 Min
   HDD Power Down = 1 Min

Video Off Method:

Three video off methods are available: "Blank Screen", "V/H SYNC + Blank" and "DPMS".
The default is " *V/H SYNC + Blank* ".

If this setting does not shut off the screen, select "Blank Screen". If your monitor and video
card support DMPS standard, select "DPMS".

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

Video Off In Suspend:

Two options are available: Yes or No. The default setting is *Yes*. This item determines the
manner in which the monitor is blanked.

Suspend Type:

Two options are available: Stop Grant and PwrOn Suspend. The default setting is *Stop Grant*.

Modem Use IRQ:

You can specify the IRQ for modem use. Eight options are available: N/A ➜ 3 ➜ 4 ➜ 5 ➜ 7 ➜ 9 ➜ 10 ➜ 11. The default setting is *N/A*.

Suspend Mode/HDD Power Down:

These two items will be enable to change setting when item *Power Management* is set to *User Define,* theses two item will also changes as table 3-6-3 below.

Table 3-6-3: Power Management Settings

Items	Power Management Settings		
	User Define	**Min Saving**	**Max Saving**
Suspend Mode	Disabled ➜ 1 Min ➜ 2 Min ➜ 4 Min ➜ 8 Min ➜ 12 Min ➜ 20 Min ➜ 30 Min ➜ 40 Min ➜ 1 Hour. The default setting is *Disabled*.	1 Hour	1 Min
HDD Power Down	Disabled ➜ 1 Min ➜ 2 Min ➜ 3 Min ➜ 4 Min ➜ 5 Min ➜ 6 Min ➜ 7 Min ➜ 8 Min ➜ 9 Hour ➜ 10 Min ➜ 11 Min ➜ 12 Min ➜ 13 Min ➜ 14 Min ➜ 15 Min. The default setting is *Disabled*.	15 Min	1 Min

Soft-Off by PWR-BTTN:

Two options are available: Instant-Off and Delay 4 Sec.. The default setting is *Instant-Off*. Pressing the power button for more than four seconds forces the system to enter the Soft-Off state when the system has "hung".

Wake-Up by PCI card:

Two options are available: Enabled and Disabled. Default setting is *Disabled*. This item can let you wake-up your computer by PCI devices. For instance, if you had installed a PCI LAN card with Wake-Up on LAN capability, then you could wake-up your computer from

another computer via a network by sending a wake-up frame signal. This feature also allows the PCI card built-in hardware function to support the wake up function without special cables connected to the motherboard.

Note

This feature needs a specific network interface which is optional. Also your ATX power supply +5V standby power must be at least 720mA compatible.

Power On by Ring:

Two options are available: Enabled and Disabled. Default setting is *Disabled*. If you connect an external modem to the onboard serial port, the system will be turned on when a telephone ring-up occurs.

USB KB Wake-Up From S3:

Two options are available: Enabled and Disabled. Default setting is Disabled.

CPU Thermal-Throttling

This option is used during Suspend To RAM (STR) mode. It controls the CPU speed as a percentage of regular power. Options include 87.5%, 75.0%, 62.5%, 50.0%, 37.5%, 25.0%, 12.5%. The default setting is set at 62.5%.

Resume by Alarm:

Two options are available: Enabled and Disabled. Default setting is *Disabled*. The RTC alarm can turn on the system. You can set Date (of month) and Time (hour, minute, and second) when you set this item to *Enabled*.

Reload Global Timer Events

When one of the specified events occur, the count down made for entry in power saving mode goes back to zero. Since the computer will enter a power saving mode only after an inactivity delay specified (time specific for Doze, Standby and Suspend modes) and after it has no activity, during this time period, any event will cause the computer to re-count the time elapsed. Resume events are operations or signals that cause the computer to resume time counting.

➤ *IDE Primary Master / IDE Primary Slave:*

Two options are available: Enabled and Disabled. The default setting is *Disabled*. If any primary IDE master/slave I/O activity occurs, it will cause the computer to re-count the time elapsed.

➤ *IDE Secondary Master / **IDE** Secondary Slave:*

Two options are available: Enabled and Disabled. Default setting is *Disabled*. If any secondary IDE master/slave I/O activity occurs, it will cause the computer to re-count the time elapsed.

➤ **FDD, COM, LPT Port:**

Two options are available: Enabled and Disabled. Default setting is *Enabled*. If any floppy disk, COM ports and Parallel port I/O activity occurs, it will cause the computer to re-count the time elapsed.

➤ **PCI PIRQ[A-D]#:**

Two options are available: Enabled and Disabled. Default setting is *Disabled*. If any INTA~INTD signal activity occurs, it will cause the computer to re-count the time elapsed.

3-7. PnP/PCI Configurations

This section describes configuring the PCI bus system. PCI, or **P**ersonal **C**omputer **I**nterconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

```
      CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
                        PnP/PCI Configurations
 ┌─────────────────────────────────────────────┬──────────────────────┐
 │  Force Update ESCD       Disabled            │      Item Help       │
 │                                              │                      │
 │  Resources Controlled By Auto(ESCD)          │  Menu Level    ▶     │
 │ x IRQ Resources          Press Enter         │                      │
 │                                              │  Default is Disabled.│
 │  PCI/VGA Palette Snoop    Disabled           │  Select Enabled to   │
 │  Assign IRQ For VGA       Enabled            │  reset Extended System│
 │  Assign IRQ For USB       Enabled            │  Configuration Data  │
 │  PIRQ_0 Use IRQ No.       Auto               │  ESCD) when you exit │
 │  PIRQ_1 Use IRQ No.       Auto               │  Setup if you have   │
 │  PIRQ_2 Use IRQ No.       Auto               │  installed a new add-on│
 │  PIRQ_3 Use IRQ No.       Auto               │  and the system      │
 │                                              │  reconfiguration has │
 │                                              │  caused such a serious│
 │                                              │  conflict that the OS│
 │                                              │  cannot boot         │
 │                                              │                      │
 ├──────────────────────────────────────────────┴──────────────────────┤
 │ ↑↓←→:Move  Enter:Select  +/-/PU/PD:Value  F10:Save  ESC:Exit  F1:General Help│
 │     F5:Previous Values     F6:Fail-Safe Defaults    F7:Optimized Defaults │
 └──────────────────────────────────────────────────────────────────────┘
```

Figure 3-11. PnP/PCI Configurations Setup Screen Shot

PNP OS Installed:

Two options are available: No and Yes. Default setting is *No*. Device resource assigned by PnP OS or BIOS.

Force Update ESCD:

If you want to clear ESCD data next time you boot up, and ask the BIOS to reset the settings for the Plug & Play ISA Card and the PCI Card, select Enabled. But the next time you boot up, this option will automatically be set as Disabled.

Computer Knowledge: ESCD (Extended System Configuration Data)

The ESCD contains the IRQ, DMA, I/O port, memory information of the system. This is a specification and a feature specific to the Plug & Play BIOS.

Resources Controlled By:

Two options are available: Auto(ESCD) and Manual. Default setting is *Auto(ESCD)*. When the setting is Auto(ESCD), the *IRQ Resources* and *Memory Resources* can not be changed. When resources are controlled manually, the *IRQ Resources* and *Memory Resources* can then be changed.

Legacy ISA devices compliant with the original PC AT bus specification, requiring a specific interrupt (such as IRQ4 for serial port 1).

PCI/ISA PnP devices compliant with the Plug and Play standard, whether designed for the PCI or ISA bus architecture.

The Award Plug and Play BIOS has the capability to automatically configure all of the boot and Plug and Play compatible devices. If you select *Auto (ESCD)*, The IRQ Resources item will be disabled, as the BIOS automatically assigns them. But if you have trouble in assigning the interrupt resources automatically, you can select *Manual* to set which IRQ and DMA are assigned to PCI/ISA PnP or legacy ISA cards.

Figure 3-12 shows you the screen of IRQ resources. Each item has two options: PCI Device and Reserved. The default setting is *PCI Device*.

PCI /VGA Palette Snoop:

This option allows the BIOS to preview VGA Status, and to modify the information delivered from the Feature Connector of the VGA card to the MPEG Card. This option can solve the display inversion to black after you have used the MPEG card.

PIRQ_0~PIRQ3:

Eleven options are available: Auto, 3, 4, 5, 7, 9, 10, 11, 12, 14, 15. Default setting is *Auto*. This item allows the system to automatically specify the IRQ number for the device installed on PCI slots. Which means, the system can specify the fixed IRQ number for the device installed on the PCI slots (PCI slot 1 to PCI slot 5). This is a useful function when you want to fix the IRQ for a specific device.

For example, if you want to move your hard disk to another computer and don't want to re-install Windows® NT, then you can specify the IRQ for the device installed on the new computer to fit the original computer settings.

Note

If you specify the IRQ in this item, then you cannot specify the same IRQ to the ISA bus, otherwise, it will cause a hardware conflict.

This feature is for the operating system which will record and fix the PCI configuration status, if you want to change it.

For the relations between the hardware layout of PIRQ (the signals from the 810E chipset), INT# (means PCI slot IRQ signals) and devices, please refer to the table below:

Signals	PCI slot 1 PCI slot 6	PCI slot 2	PCI slot 3	PCI slot 4 PCI slot 5
PIRQ_0	INT A	INT B	INT C	INT D
PIRQ_1	INT B	INT C	INT D	INT A
PIRQ_2	INT C	INT D	INT A	INT B
PIRQ_3	INT D	INT A	INT B	INT C

● Each PCI slot has four INT#s (INT A~INT D).

3-8. PC Health Status

You can set the warning temperature for your computer system, and you can check the fan speeds and power supply voltages of your computer system. The features are useful for monitoring all the important parameters within your computer system. We call it the *PC Health Status*.

```
        CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
                          PC Health Status

    FAN Fail Alarm Selectable  Disabled            Item Help
    CPU Warning Temperature    75°C/167°F
    System1 Temperature        60°C/140°F       Menu Level    ►
    CPU Temperature            60°C/140°F
    System2 (RT2) Temperature   0°C/ 32°F
    Chassis FAN (FAN 3) Speed   0 RPM
    CPU FAN    (FAN 1) Speed  4500 RPM
    Power FAN  (FAN 2) Speed    0 RPM
    CPU Core Voltage           1.98 V
    VTT (+1.5V)                1.53 V
    I/O Voltage (+3.3V)        3.39 V
    + 5 V                      5.05 V
    +12 V                     12.16 V
    -12 V                    -12.28 V
    - 5 V                    - 4.99 V
    Battery Voltage (+3V)      1.29 V
    Standby Voltage (+5V)      4.84 V


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

Figure 3-13. PC Health Status Screen Shot

Temperature Warning:

This item lets you select the temperature at which you want the system to send out a warning message to the PC speakers of when the temperature goes beyond either limit. You can select the temperatures you want. The ranges are from 30°C / 86°F to 120°C / 248°F, default setting is *75°C / 167°F*.

All Voltages, Fans Speed and Thermal Monitoring:

These items list the current states of the CPU and environment (using RT1 and RT2 to detect them.) temperatures as well as fan speeds (CPU fan and chassis fan). It can not be changed by the user.

The following items list the voltage states of the system power. It is also unchangeable.

Note

The hardware monitoring features for temperatures, fans and voltages will occupy the I/O address from 294H to 297H. If you have a network adapter, sound card or other add-on cards that might use those I/O addresses, please adjust your add-on card I/O address, to avoid the use of those addresses.

3-9.   Load Fail-Safe Defaults
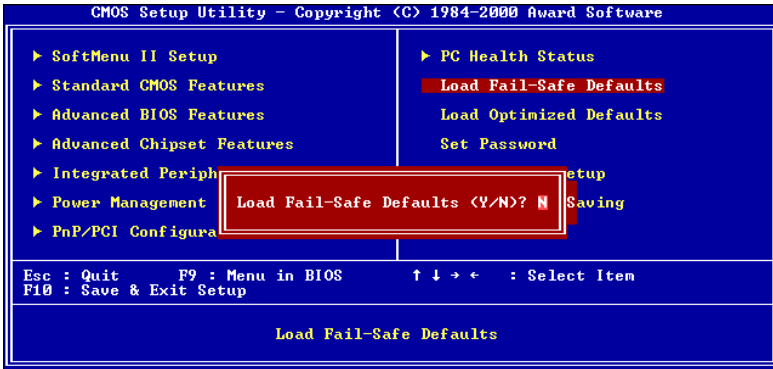
Figure 3-14. Load Fail-Safe Defaults Screen Shot

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Fail-Safe Defaults (Y/N) ? N

Pressing 'Y' loads the BIOS default values for the most stable, minimal-performance system operations.

3-10. Load Optimized Defaults
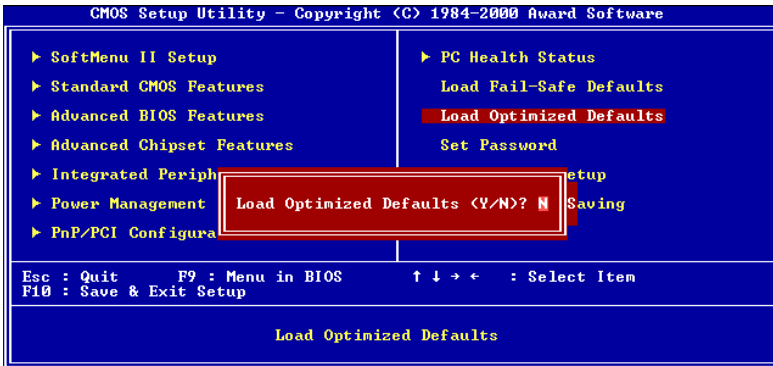
Figure 3-15. Load Optimized Defaults Screen Shot

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N) ? N

Pressing 'Y' loads the default values that are factory settings for optimal performance system operations.

3-11. Set Password
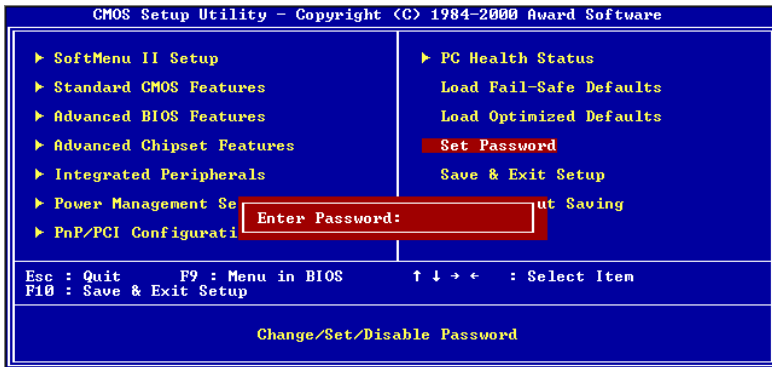
Figure 3-16. Set Password Screen Shot

Set Password: Can enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A

message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

<p align="center">**PASSWORD DISABLED.**</p>

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted. This would prevent unauthorized use of your computer.
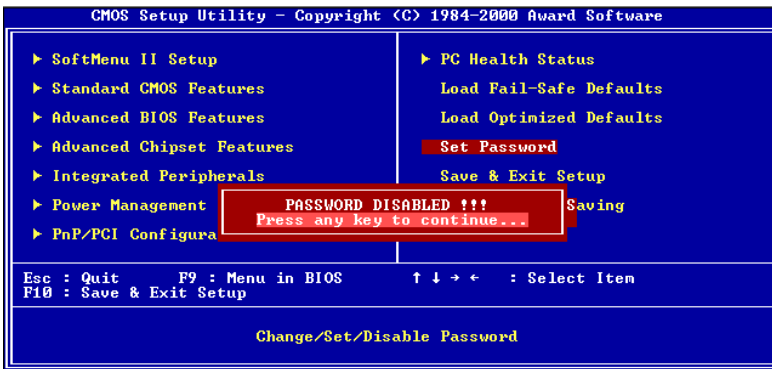
<p align="center">**Figure 3-17. Password Disabled Screen Shot**</p>

You determine when the password is required within the BIOS Features Setup Menu and its Security option. If the Security option is set to "System", the password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

3-12. Save & Exit Setup

```
        CMOS Setup Utility - Copyright (C) 1984-2000 Award Software

    ▶ SoftMenu II Setup              ▶ PC Health Status
    ▶ Standard CMOS Features            Load Fail-Safe Defaults
    ▶ Advanced BIOS Features            Load Optimized Defaults
    ▶ Advanced Chipset Features         Set Password
    ▶ Integrated Periph┌─────────────────────────────etup
    ▶ Power Management  │ SAVE to CMOS and EXIT (Y/N)? Y │Saving
    ▶ PnP/PCI Configura└─────────────────────────────┘

    Esc : Quit      F9 : Menu in BIOS        ↑ ↓ → ←  : Select Item
    F10 : Save & Exit Setup

                        Save Data to CMOS
```

Figure 3-18. Save & Exit Setup Screen Shot

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? Y

Pressing "Y" stores the selections made in the menus in CMOS - a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

3-13. Exit Without Saving

```
        CMOS Setup Utility - Copyright (C) 1984-2000 Award Software
    ▶ SoftMenu II Setup                    ▶ PC Health Status
    ▶ Standard CMOS Features               Load Fail-Safe Defaults
    ▶ Advanced BIOS Features               Load Optimized Defaults
    ▶ Advanced Chipset Features            Set Password
    ▶ Integrated Periph┌──────────────────────────────┐etup
    ▶ Power Management  │ Quit Without Saving (Y/N)? N │Saving
    ▶ PnP/PCI Configura └──────────────────────────────┘

    Esc : Quit      F9 : Menu in BIOS      ↑ ↓ → ←   : Select Item
    F10 : Save & Exit Setup
                        Abandon all Datas
```

Figure 3-19. Exit Without Saving Screen Shot

Pressing <Enter> on this item asks for confirmation:

Quit without saving (Y/N)? Y

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your computer.

Appendix A INF Installation Utility for Windows® 98 SE

After you've installed Windows® 98, you need to install the drivers for your IDE & USB devices. We will tell you step by step in the following section how to do this.

Note A-1

You have to install the INF Installation Utility before you install the VGA and audio drivers. After installing Windows the quality of your display will be poor because it will be set to 640*480 and 16 color. For the best screen capture quality, install the VGA drivers and set the desktop to 800*600 using True Color.

Note A-2

Details of the Windows® 98 SE operating system will not be mentioned in this manual. If you have any problems with Windows® 98 SE installation, operations and settings, please refer to your Windows® 98 SE user's manual or other resources provided by Microsoft® Corporation.

First, check **System Properties ➔ Device Manager ➔ System Devices**, you will see that the Intel 82815 Processor to I/O Controller as well as the Intel 82802 Firmware Hub Device are not listed.

Exit the Device manager and insert the SL6 CD-Title into your CD-ROM drive. It should execute the program automatically. If not, you can go to the CD location and execute the execution file from the main directory of this CD-Title. After it is executed, the screen below will appear.

Move the cursor to "**Drivers**" and click on it. You will go to the next screen.

Move the cursor to "**INF Installation Utility**" and click on it. Go to the next screen.

The "**Welcome**" screen and its dialogue box will appear. Click "Next" to go on.

The License screen will appear. Read it and click "**Yes**" to go on.

This screen will show you the Readme.txt information of this INF installation utility. When you have read it all, click "**Next**".

When installation is complete please choose the item: "**Yes, I want to restart my computer now**". Then click the "**Finish**" button to restart your computer to finish the system INF updating.
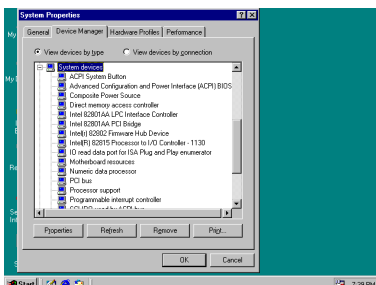
When your computer system restarts, will see Windows® 98 SE start the updating process and several new hardware devices will be found and updated. When restarting Windows® 98 SE, the CD-ROM drives will fail to be found in the updating process. If the prompt dialogue box asks you to put the Windows® 98 SE CD into the CD-ROM drive, just ignore this message and let it go to the next process.

MEMO

Appendix B: Installing the VGA Driver for Windows® 98 SE

Now we will show you how to install the VGA drive to your Windows® 98 SE operating system in this section.
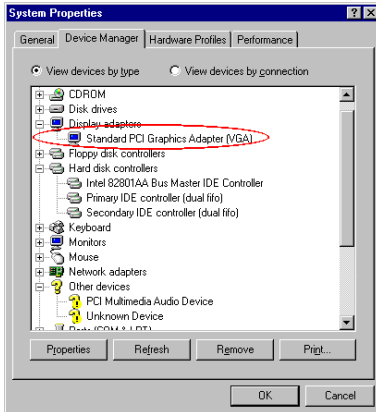
First, go to check the **System Properties ➔ Device Manager ➔ Display Adapters**,. Your system now shows the "**Standard Display Adapter [VGA]**".

Exit the device manager and insert the SL6 CD-Title into your CD-ROM drive, it should execute the program automatically. If not, you can go to the CD location and execute the execution file at the main directory of this CD-Title. After it has been executed you will see the screen below. Move the cursor to the "Drivers" and click on it. This will take you to the next screen.

Move the cursor to "**Drivers**" and click on it. You will go to the next screen.
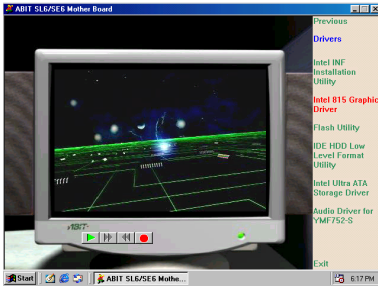
Move the cursor to "I**ntel 815 Graphics Driver**" and click on it. Go to the next screen.
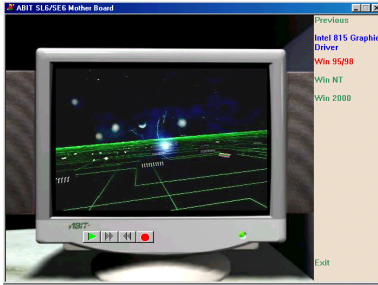
Move the cursor to "**For Windows 95/98**" and click on it. Go to the next screen.

You will now see the welcome screen and its dialogue box. Click "**Next**" to go on.
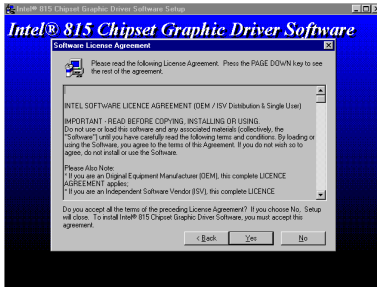
The License screen will appear. Click the "**Yes**" button to go on.

Now you can choose the folder for the destination location you want to install the driver.   We suggest you use the default folder as the destination location. When you have made sure of the folder, click "**Next**".
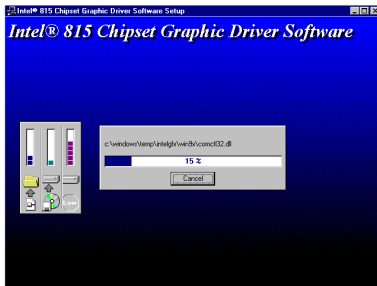
Now the system will install the Graphic driver. While doing so, the percentage of the driver installed will be displayed on the screen.
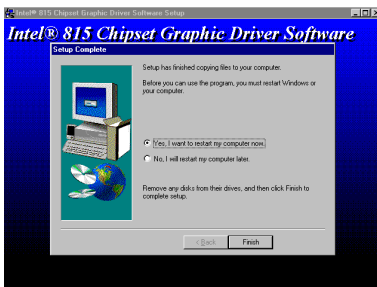
When the installation is complete, please choose the item: "**Yes, I want to restart my computer now**" and then click the "Finish" button.
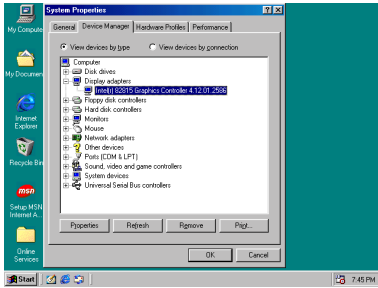
When the computer restarts and enters Windows, check **System Properties →**
Device Manager → Display Adapters. You should see the device has changed to "
Intel [R] 82815 Graphics Controller 4.12.01.2586". After you confirm this change, the update process is now fully complete. You can now choose the desktop size and resolution you want now.

Appendix C   Installing the Audio Driver for Windows® 98 SE

We will show you how to install the audio drivers for Windows® 98 SE operating system.
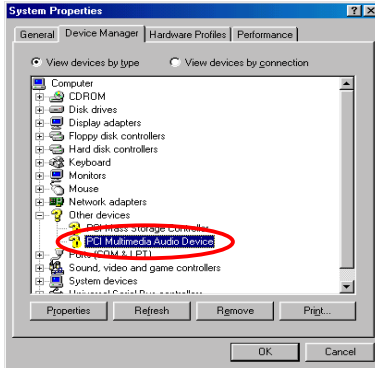
Please enter Control Panel, then check System Properties ➔ Device Manager ➔ Other Devices. Your system should now show "**? PCI Multimedia Audio Device**". Select it and then click "**Properties.**"
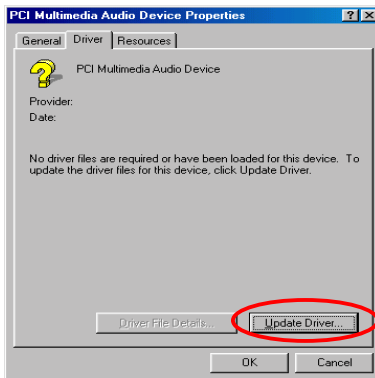
Select "Driver" and then click "Update Driver."
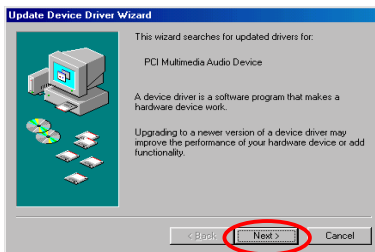
Click "Next."
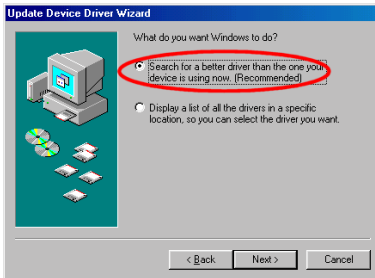
Select "Search for a better driver than the one your device is using now. (Recommended)", and then click "Next."
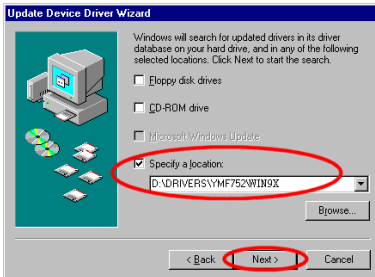
Select "Specify a Location" and then type "D:\Drivers\YMF752\WIN9X" in the text box. (**D** is your CD-ROM drive letter)

Click "Next."
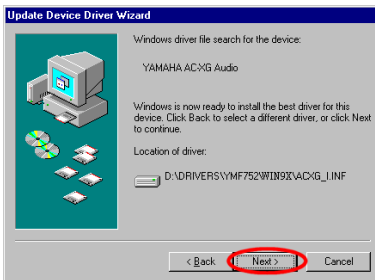
Click "Next."
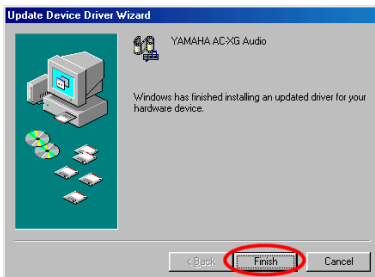
Click "Finish."
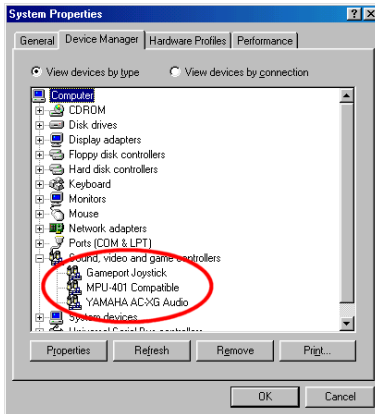
Once Windows has restarted, go to "System Properties" to double check. You should find the " ? PCI Multimedia Audio Device" has disappeared, and Yamaha AC-XG audio Codec is there instead.

MEMO

Appendix D   ATA Installation Utility for Windows® 98 SE

In this section we will detail the Ultra ATA installation procedure
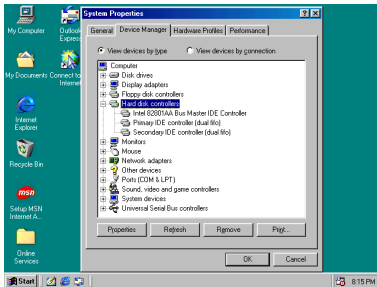
First, enter into: **System Properties ➔ Device Manager ➔ Hard Disk Controllers.**

Currently these devices are not Ultra ATA devices.

Exit the Device manager and insert the SL6 CD-Title into your CD-ROM drive. It should execute the program automatically. If not, you can go to the CD location and execute the execution file from the main directory of this CD-Title. After it is executed, the screen below will appear.

Move the cursor to **"Drivers"** and click on it. You will go to the next screen.

Move the cursor to "**Intel Ultra ATA Storage Driver - Install**" and click on it. Go to the next screen.

The "**Welcome**" screen and its dialogue box will appear. Click "Next" to go on.

The License screen will appear. Read it and click "**Yes**" to go on.

Now you can choose the folder for the destination location you want to install the driver. We suggest you use the default folder as the destination. When you have decided on the destination, click "**Next**".

Now you can choose the program folder. Setup will add program icons to those program folders listed. Click "**Next**" to go on.

When installation is complete please choose the item: "**Yes, I want to restart my computer now**". Then click the "**Finish**" button to restart your computer to finish the system Ultra ATA updating.
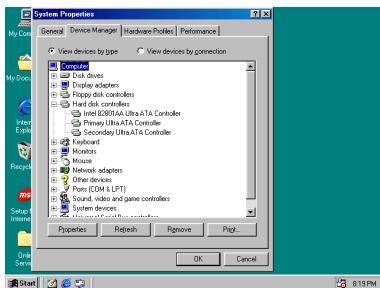
When your computer system restarts, will see Windows® 98 SE start the updating process and several new hardware devices will be found and updated. When restarting Windows® 98 SE, the CD-ROM drives will fail to be found in the updating process. If the prompt dialogue box asks you to put the Windows® 98 SE CD into the CD-ROM drive, just ignore this message and let it go to the next process.
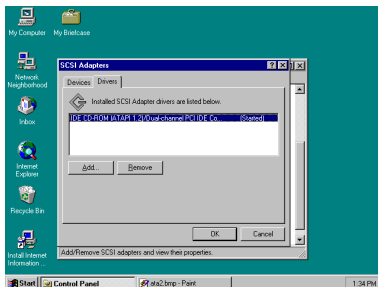
Appendix E   Installing the VGA Drivers for the Windows® NT 4.0 Server / Workstation

In this section we will show you how to install the VGA drives to your Windows® NT 4.0 Server/Workstation operating system. All screen shots a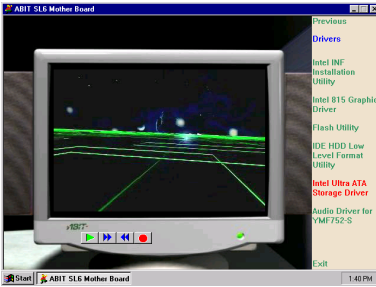re from Windows® NT 4.0 server version. Before you install the VGA drivers, please install Windows® NT 4.0 Service Pack 4 (or latest version) first. Then you can install the VGA drivers.

Note E-1

Details of the Windows® NT 4.0 Server/Workstation operating system are not mentioned in this manual. If you have any problems with the settings, operating or installing Windows® NT 4.0 Server/Workstation, please refer to your Windows® NT 4.0 Server/Workstation user's manual or other databases provided by Microsoft® Corporation.

Note E-2

For Windows® NT 4.0 Server/Workstation operating system, you don't need to install the INF Installation Utility. But you have to install the Windows® NT 4.0 Service Pack 4 (or latest version) first.
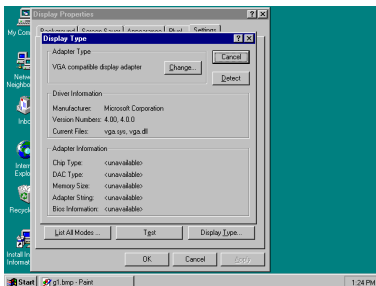
Go to check your "**Display Properties**". You will see that the graphics information is unavailable.

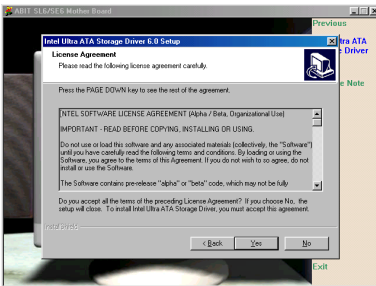Leave "Display Properties" and insert the SL6 CD-Title into your CD-ROM drive. It should execute the program automatically. If not, you can go to the CD location and execute the execution file from the main directory of this CD-Title. After it is executed, you will see the screen below.
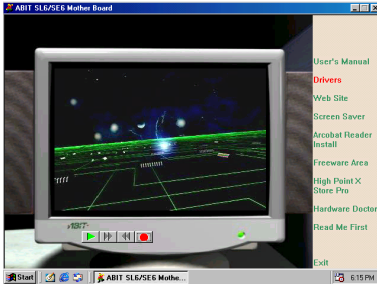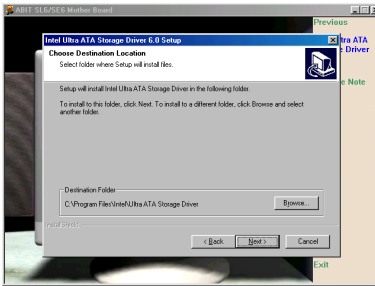

Move the cursor to "**Drivers**" and click on it. This will bring you to the next screen.

Move the cursor to "**Intel 815 Graphic Driver**" and click on it. Go to the next screen.
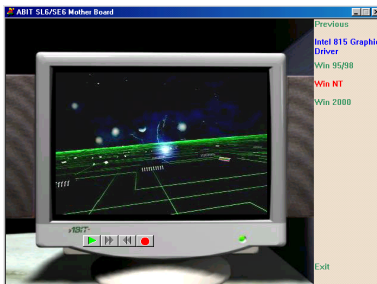
Move the cursor to "**For Windows NT**" and click on it. Go to the next screen.

The "**Welcome**" screen and its dialogue box will appear. Click the "**Next**" button to go on.
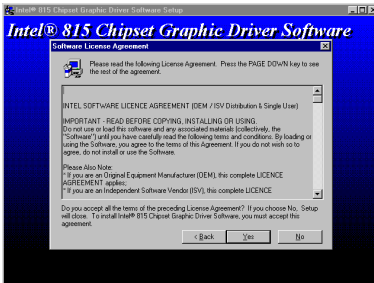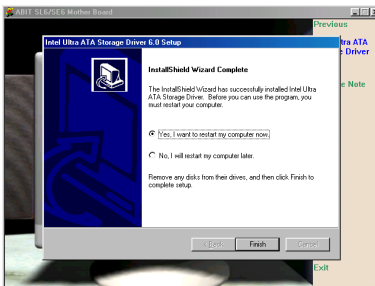
The License screen will appear next. Click the "**Yes**" button to continue.

Now you can choose the folder for the destination location you want. We suggest you use the default folder as the destination location. When you are sure of the folder, click "**Next**".
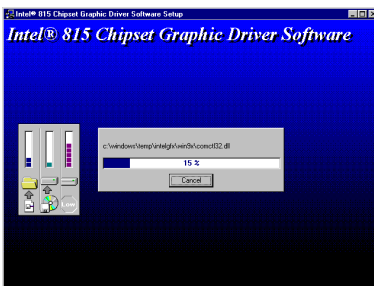
The system will now start to install the VGA drivers. While doing so, it will display the percentage installed on the screen.

When installation is complete please choose the item: "**Yes, I want to restart my computer now**". Then click the "**Finish**" button to restart your computer.
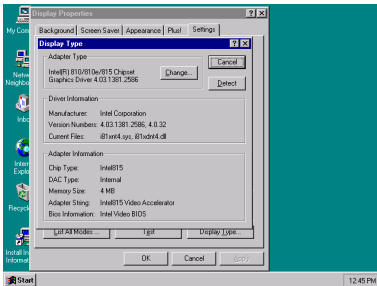
Go to check your "**Display Properties**" again. You will see that the graphics driver is now recognized and all pertinent information is displayed.

Appendix F   Installing the Audio Drivers for the Windows® NT 4.0 Server / Workstation

In this section we will show you how to install the audio drives to your Windows® NT 4.0 Server/Workstation operating system. All screen shot are from Windows® NT 4.0 server version. Before you install the audio drivers, please install Windows® NT 4.0 Service Pack 4 (or the latest version) first. Then you can install the audio drivers.

Note F-1

Details of the Windows® NT 4.0 Server/Workstation operating system are not mentioned in this manual. If you have any problems with the settings, operating or installing Windows® NT 4.0 Server/Workstation, please refer to your Windows® NT 4.0 Server/Workstation user's manual or other databases provided by Microsoft® Corporation.

Note F-2

For Windows® NT 4.0 Server/Workstation operating system, you don't need to install the INF Installation Utility. But you have to install the Windows® NT 4.0 Service Pack 4 (or latest version) first.
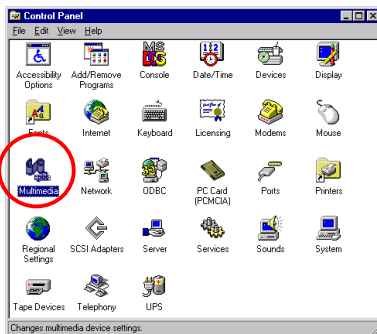
First you need go to the "Control Panel" and double click the item "Multimedia".
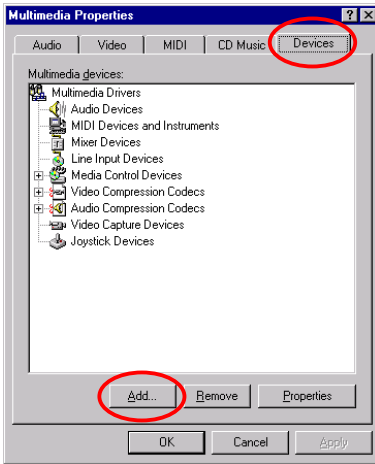
Choose the "Devices" folder then click the "Add…" button.
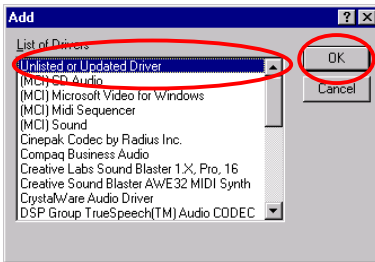
Then choose the "Unlisted or Updated Driver" and click the "OK" button.

NOTE

If you want to play a MIDI file in Windows NT, you have to install Soft Synthesizer S-YXG50. You can find this software in the SL6 CD-ROM.
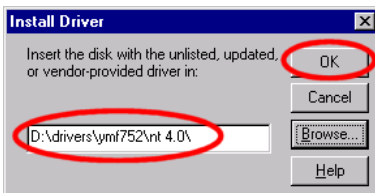
You have to specify and manually type the path of driver location. We've put the audio drivers under the "DRIVERS\YMF752\NT4.0". The code name of the CD-ROM drive will depend on how many devices installed on your computer system. Here it is shown as D:\.
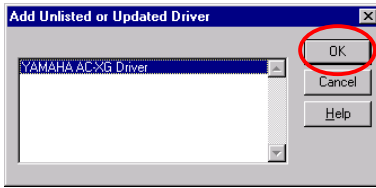
When Windows finds the driver you can choose the item "YAMAHA AC-XG Driver" and click "OK" button.
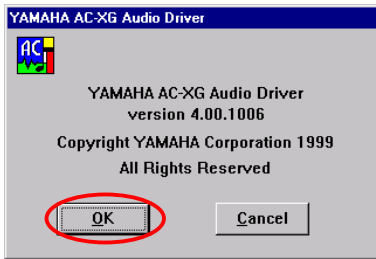
Click "OK."
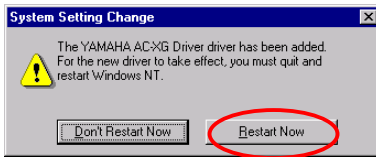
The screen shows the "System Setting Change" message. You need to restart your computer to complete the updating process. Click the "Restart Now" button to restart your computer.
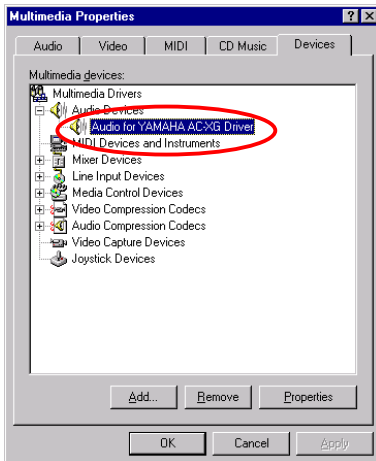
After Windows NT restarts, check the "Multimedia Properties" again. You will see the Yamaha AC-XG had been identify.

MEMO

Appendix G ATA Installation Utility for the Windows® NT 4.0 Server / Workstation

In this section we will show you how to install the ATA Utility to your Windows® NT 4.0 Server/Workstation operating system. All screen shot are from Windows® NT 4.0 server version.
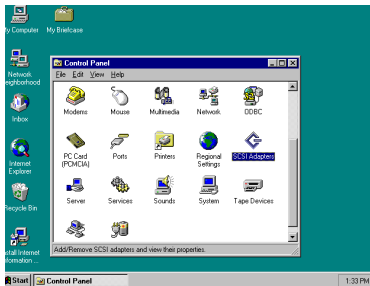
First enter into **"Control Panel"** and then **"SCSI Adapters"**.

You will note that no Intel ATA devices are recognized by the system.

Exit the Device Manager and insert the SL6 CD-Title into your CD-ROM drive. It should execute the program automatically. If not, you can go to the CD location and execute the execution file from the main directory of this CD-Title. After it is executed, the screen below will appear.

Move the cursor to **"Drivers"** and click on it. Move the cursor to **"Intel Ultra ATA Storage Driver – Install"** and click on it. Go to the next screen.

A screen notifying you that the InstallShield Wizard is setting up will appear. Click **"Next"** to go on.

The license screen will appear. Read it and click **"Yes"** to go on.

Now you can choose the folder for the destination location you want to install the driver. We suggest you use the default folder as the destination. When you have decided on the destination, click **"Next"**.

Now you can choose the program folder. Setup will add program icons to those program folders listed. Click **"Next"** to go on.

The system will now start to install the drivers. While doing so, it will display the percentage installed on the screen.

When installation is complete, please choose the item: "Yes, I want to restart my computer now". Then click the "Finish" button to restart your computer to finish the system Ultra ATA updating.

Now, going back to the "Control Panel" and "SCSI ADAPTERS", you will see that the Intel ATA devices are now recognized.

Appendix H   INF Installation Utility for the Windows® 2000 Server / Workstation

In this section we will show you how to install the ATA Utility to your Windows® 2000 Server/Workstation operating system. All screen shot are from Windows® 2000 server version.

Note H-1

Details of the Windows® 2000 Server/Workstation operating system are not mentioned in this manual. If you have any problems with the settings, operating or installing Windows® 2000 Server/Workstation, please refer to your Windows® 2000 Server/Workstation user's manual or other resources provided by Microsoft® Corporation.
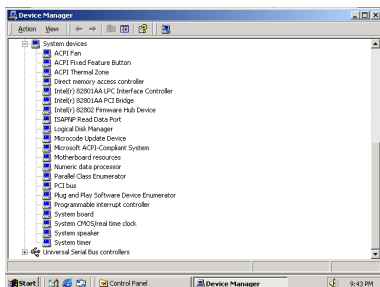
First enter into **"Control Panel"** and then **"Device Manager"** and finally "System Devices".   You will note that Intel Controller devices are not present.

Exit the Device Manager and insert the SL6 CD-Title into your CD-ROM drive. It should execute the program automatically. If not, you can go to the CD location and execute the execution file from the main directory of this CD-Title. After it is executed, the screen below will appear.


Move the cursor to **"Drivers"** and click on it. Move the cursor to **"INF Installation Utility"** and click on it. Go to the next screen.

The "Welcome" screen and its dialogue box will appear. Click **"Next"** to go on.

The license screen will appear. Read it and click **"Yes"** to go on.

This screen will show you the Readme.txt information of this INF installation utility. When you have read it all, click **"Next"**.

When the installation is complete, please choose the item: "Yes, I want to restart my computer now". Then click the "Finish" button to restart your computer to finish the driver updating.
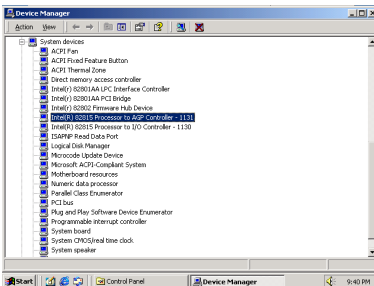
Now, going back to the **"Control Panel"** and **"Device Manager"** and **"System Devices".** You will see that the Intel Controller devices are now recognized.

Appendix I: Installing the VGA Drivers for the Windows® 2000 Server / Workstation

In this section we will show you how to install the VGA Drivers to your Windows® 2000 Server/Workstation operating system. All screen shot are from Windows® 2000 server version.

Note I-1

Details of the Windows® 2000 Server/Workstation operating system are not mentioned in this manual. If you have any problems with the settings, operating or installing Windows® 2000 Server/Workstation, please refer to your Windows® 2000 Server/Workstation user's manual or other resources provided by Microsoft® Corporation.
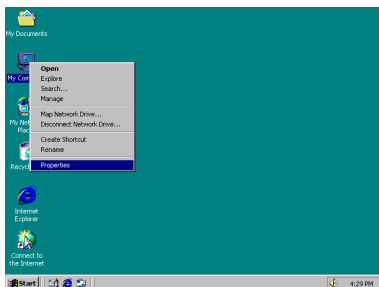
First enter into **"Properties"** .
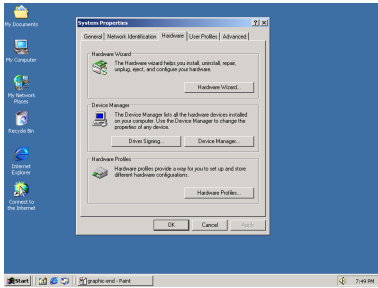
Under **"System Properties"** select "Hardware" and then **"Device Manager" .**
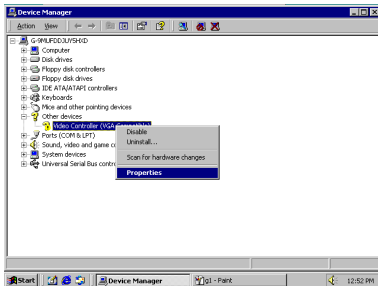
Under **"Other Devices-Video Controller"**, click the right button of your mouse and choose **"Properties"**.
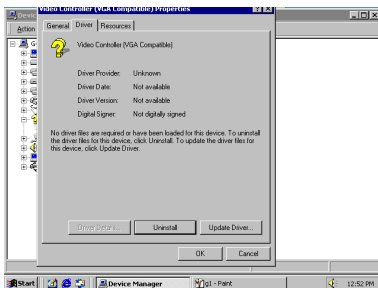
Then choose **"Driver"**. You will see that the VGA Devices are not recognized.

Exit the Device Manager and insert the SL6 CD-Title into your CD-ROM drive. It should execute the program automatically. If not, you can go to the CD location and execute the execution file from the main directory of this CD-Title. After it is executed, the screen below will appear.

The Upgrade Device Driver Wizard screen will appear. Enter "Next" to go on.
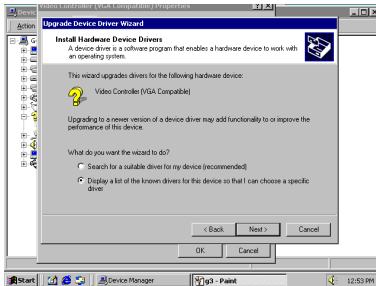
The Wizard will ask you if you would like the computer to select a suitable driver for you or if you would like to manually select one. Here we show you how to manually select the driver.
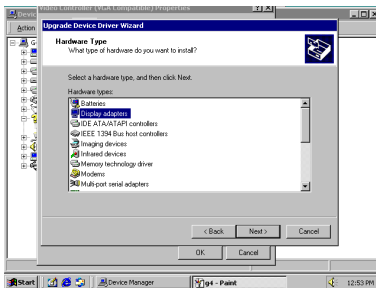
The Wizard will ask you which Hardware type you wish to install. Choose **"Display Adapters"** and press **"Next"** to continue.
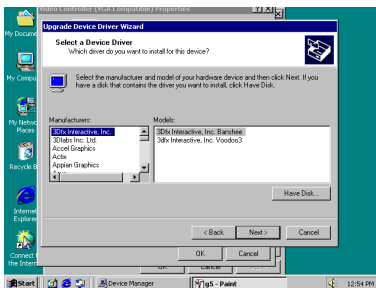
Select **"Have disk"**.
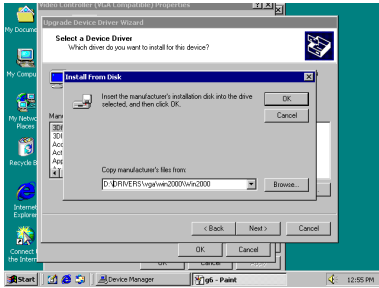
Insert the Manufacturers Disk and press **"OK"**
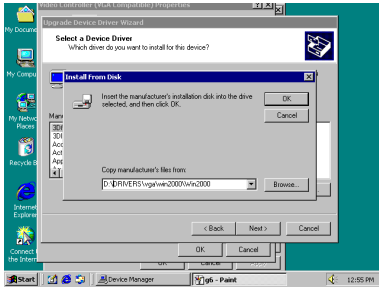
You will be asked which device driver you would like to install. Here, be sure to choose the Intel 82815 Graphics Controller.
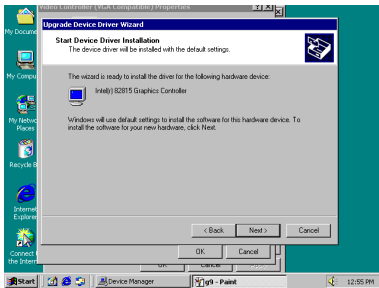
You will be told that the Wizard is ready to install the driver. Enter **"Next"** to go on..
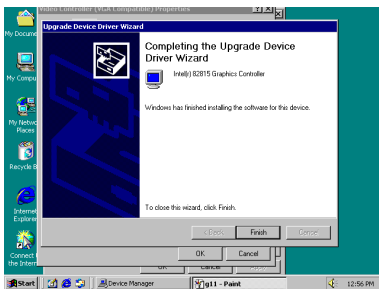
You will be told that the Wizard is finished installing the driver. Enter **"Finish"**.
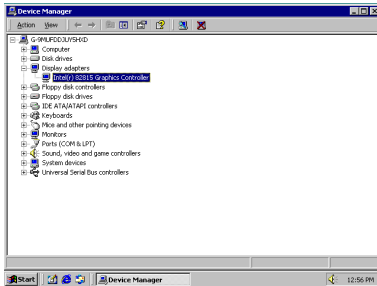
Going back to the **"Device Manager"** and **"Display Adapters"**, you will see that the VGA Driver has been installed successfully.

MEMO

Appendix J: Installing the Audio Drivers for the Windows® 2000 Server / Workstation

In this section we will show you how to install the Audio Drivers to your Windows® 2000 Server/Workstation operating system. All screen shot are from Windows® 2000 server version.

Note J-1

Details of the Windows® 2000 Server/Workstation operating system are not mentioned in this manual. If you have any problems with the settings, operating or installing Windows® 2000 Server/Workstation, please refer to your Windows® 2000 Server/Workstation user's manual or other resources provided by Microsoft® Corporation.
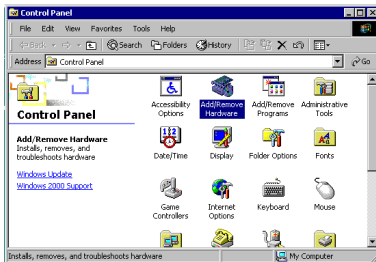
First enter into **"Control Panel"** and then **"Add/Remove Hardware".**

The Add/Remove Hardware Wizard will begin. Press **"Next"** to go on.
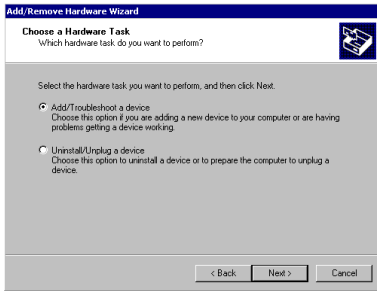
You will be asked to choose a hardware device.   Choose **"Add/Troubleshoot a device"** and then **"Next"** to go on.
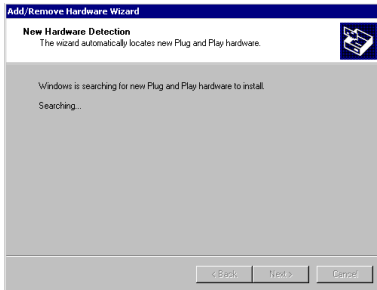
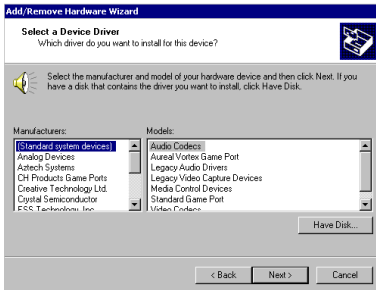Windows will search for new hardware.
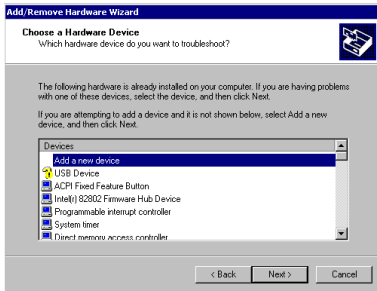
Choose **"Add a new Device"**.   Then press **"Next"** to go on.
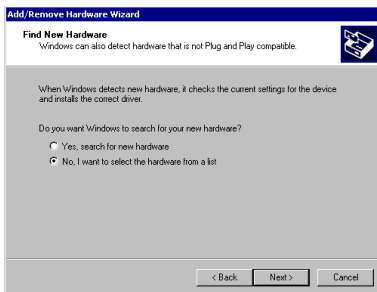
When asked if you want Windows to search for hardware, choose **"No, I want to select the hardware from a list"**   Then press **"Next"**
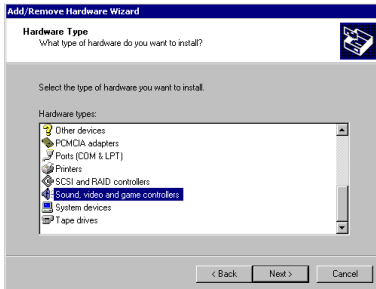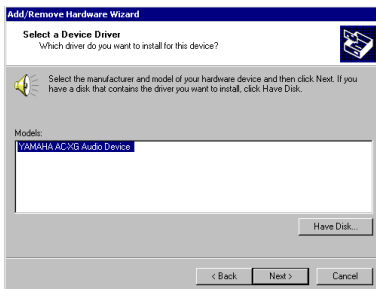
You will be asked the type of hardware you want to install. Select "Sound, video and game controllers" and then "Next" to go on.

When Selecting a Device Driver, choose **"(Standard system devices)"** and **"Audio Codecs"** and then **"Next"** to go on.
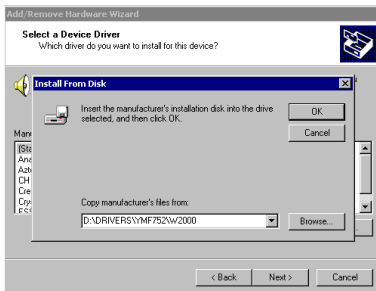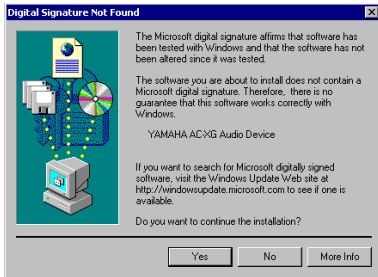
You will be asked to install the driver from disk. Insert the SL6 CD-Title into your CD-ROM drive. Press **"Next"** to go on.
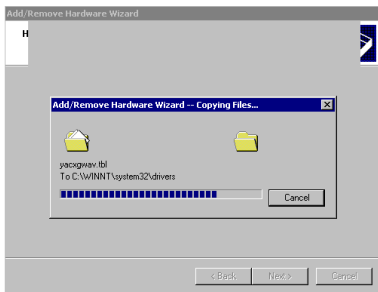
Under Select a Device Driver, the **"Yamaha Ac-XG Audio Device"** driver must be copied from the CD-ROM onto your computer. Press **"Next"** to go on.

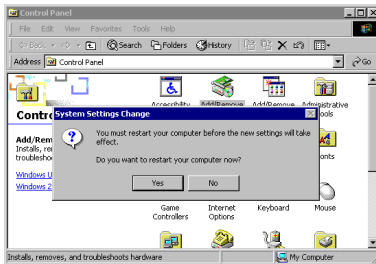Press **"Next"** to begin installation of the Yamaha AC-XG Audio Device.

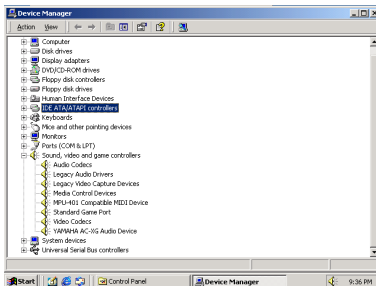When asked if you wish to continue with installation, press **"Next"** to go on.

You will see that the installation is proceeding without problem.

You will be informed that the installation is complete. Press **"Finish"**

When asked if you want to restart your computer in order for the changes to take effect, press **"Yes".**

Going back to the **"Device Manager"** and **"Sound, video and game controller"**, you will see that the Audio Driver has been installed successfully.

MEMO

Appendix K: ATA Installation Utility for the Windows® 2000 Server / Workstation

In this section we will show you how to install the ATA Utility to your Windows® 2000 Server/Workstation operating system. All screen shot are from Windows® 2000 server version.
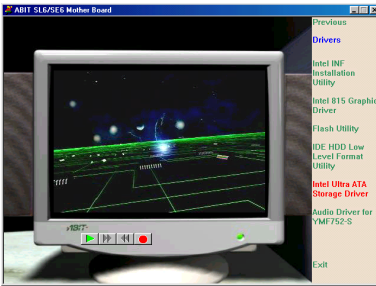
Note K-1

Details of the Windows® 2000 Server/Workstation operating system are not mentioned in this manual. If you have any problems with the settings, operating or installing Windows® 2000 Server/Workstation, please refer to your Windows® 2000 Server/Workstation user's manual or other resources provided by Microsoft® Corporation.
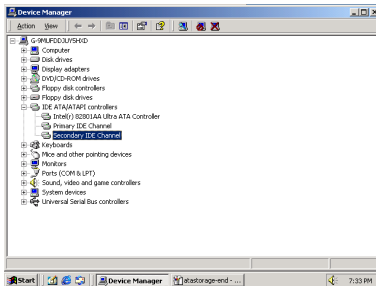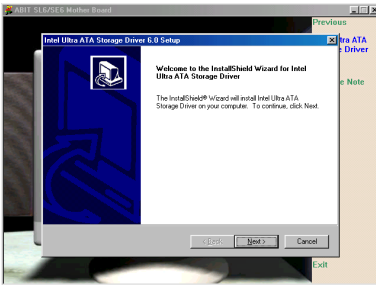

First enter into **"Device Manager"** and then **"IDE ATA/ATAPI controllers"**. You will note that no Intel ATA devices are recognized by the system.
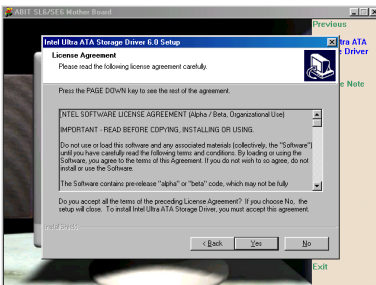
Exit the Device Manager and insert the SL6 CD-Title into your CD-ROM drive. It should execute the program automatically. If not, you can go to the CD location and execute the execution file from the main directory of this CD-Title. After it is executed, the screen below will appear.

Move the cursor to **"Drivers"** and click on it. Move the cursor to **"Intel Ultra ATA Storage Driver – Install"** and click on it. Go to the next screen.

A screen notifying you that the InstallShield Wizard is setting up will appear. Click **"Next"** to go on.

The license screen will appear. Read it and click **"Yes"** to go on.

Now you can choose the folder for the destination location you want to install the driver. We suggest you use the default folder as the destination. When you have decided on the destination, click **"Next"**.

Now you can choose the program folder. Setup will add program icons to those program folders listed. Click **"Next"** to go on.
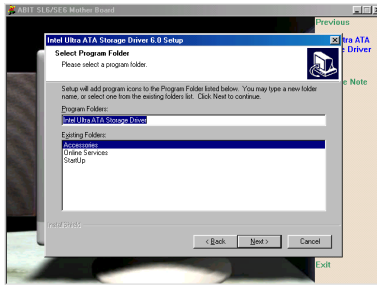
The system will now start to install the drivers. While doing so, it will display the percentage installed on the screen.

When installation is complete, please choose the item: "Yes, I want to restart my computer now". Then click the "Finish" button to restart your computer to finish the system Ultra ATA updating.

Now, going back to the **"Device Manager"** and **"IDE ATA/ATAPI controllers"**, you will see that the Intel ATA devices are now recognized.

MEMO

Appendix L   BIOS Flashing User Instructions

When your motherboard needs to be upgraded with new features or some compatibility problems in the BIOS need to be fixed, you will need to use this BIOS flash utility. This utility is provided by Award Software makes it easy to flash by yourself. However, please read all the information in this section before flashing.

Before you can flash the BIOS you need to go into the **pure DOS environment** by rebooting your system and going directly into DOS. Basically, there are two ways to flash your BIOS. One is to directly type the full line commands that are described in this section. The utility will then flash your BIOS. When you finish the flash operation, you will see the screen as in Figure M-2 [Note M-1].

The other method is to just type *awdflash* (under Award flash BIOS utility directory) then press enter. The Flash Memory Writer V7.52C screen will appear. Please refer to Figure M-1 [Note M-1]. You need to type "NEWBIOS" (the file name or you can use another name if you choose) into the "File Name to Program", then press enter.

```
        FLASH  MEMORY  WRITER V7.52
   (C)Award Software 1999 All Rights Reserved

 For i815-W83627HF-6A69MA1AC-0 DATE: 03/08/2000
 Flash Type - Intel E82802AB /3.3V(4MB)

 File Name to Program : SL6_rz.b01









 Error Message
```

Figure M-1. Award Flash Memory Writer V7.52C Start Screen

When you have finished updating your BIOS, you will see the screen as in Figure M-2. You then need to press the *F1* key to reset the system, or press the *F10* key to exit the writer.
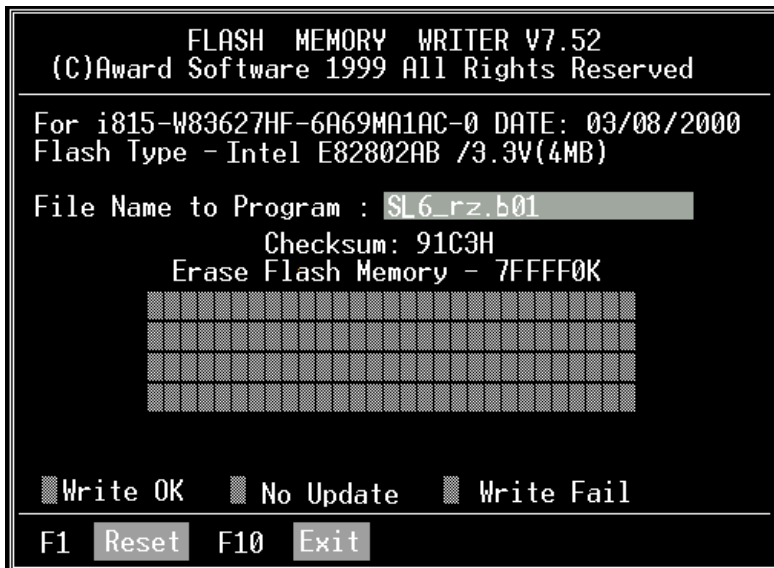
Figure M-2. Award Flash Memory Writer V7.52C Complete Screen

Figure M-3 shows you what commands you can use for the flashing program. You need to go into the pure DOS environment and type *awdflash*. Figure M-3 will then appear.

```
Awdflash V7.52C(C)Award Software 1999 All Rights Reserved

Usage:  AWDFLASH [FileName1] [FileName2] [/<sw>[/<sw>...]]
       FileName1 : New BIOS Name For Flash Programming
       FileName2 : BIOS File For Backing-up the Original BIOS
 <Swtches>
   ?: Show Help Messages
   py: Program Flash Memory          pn: No Flash Programming
   sy: Backup Original BIOS To Disk File  sn: No Original BIOS Backup
   Sb: Skip BootBlock programming     sd: Save DMI data to file
   cp: Clear PnP(ESCD) Data After Programming
   cd: Clear DMI Data After Programming
   cc: Clear CMOS Data After Programming
    R: RESET System After Programming   cks: Show update Binfile checksum
 Tiny: Occupy lesser memory
    E: Return to DOS When Programming is done
    F: Use Flash Routines in Original BIOS For Flash Programming
   LD: Destroy CMOS Checksum And No System Halt For First Reboot
       After Programming
 cksXXXX: Compare Binfile CheckSum with XXXX

Example: AWDFLASH 2a59i000.bin /py/sn/cd/cp/cks2635
```

Figure M-3. Award Flash Memory Writer V7.52C Flash Commands Screen

Note L-1

> The BIOS file name in the figure shown is only an example. You should check which .bin file is to be used with your motherboard. Don't flash with the wrong .bin file otherwise you may cause system malfunctions. Even the same model BIOS, according to their release dates and which problems have been fixed, have different .bin names. Please read the BIOS file description before you download it.

For example, if you want to update the SL6 BIOS, please follow the procedures described below.

Step 1. Please visit our website (www.abit.com.tw) and download the following files: ABITFAE.BAT, AWDFLASH.EXE and the SL6's newest BIOS file— SL6_MJ.EXE for example. After you download these three files, please execute the "SL6_MJ.EXE." Then you will get a file "SL6_MJ.BIN."

Step 2. Create a bootable floppy without any resident programs, and then copy the files ABITFAE.BAT, AWDFLASH and SL6_MJ.BIN to the floppy.

Step 3. Reboot your computer and enter the BIOS setup. Set your system to boot from "***Floppy***" (refer to section 3-3) and then insert the floppy you created into drive A.

Step 4. After you boot from floppy successfully, at the "A:\>" prompt, execute the following command:

ABITFAE SL6_MJ.BIN (Enter)

The BIOS will be updated automatically with all parameters.

Step 5. After the flash update is completed, reboot your system, and then go into the BIOS setup to configure the CPU parameter and other peripheral settings (refer to chapter 3).

Note L-2

> ● The Award flash utility can not be completed under a Windows® 95/98 or Windows NT environment, you must be in a pure DOS environment.
> ● You should check which BIOS file is to be used with your motherboard, don't flash with the wrong BIOS file. Otherwise, you may cause system malfunctions.

Note L-3

Please do not use the Award flash memory writer version earlier than Version 7.52C to flash your SL6 motherboard BIOS. Otherwise, it may cause flash fail or anticipate problems.

Appendix M Hardware Monitoring Function (Installing the Winbond Hardware Doctor Utility)

Winbond Hardware Doctor is a self-diagnostic system for PCs and must be used with the Winbond chipset: W83627HF IC series products.

It protects PC hardware by monitoring several critical items including power supply voltages, CPU & system fan speeds and CPU and system temperatures. These items are important for the operation of the system. Errors may result in permanent damage to the PC. Once any item is out of its normal range, a warning message will pop up and remind the user to take the proper measures.

The following description will tell you how to install and use the Hardware Doctor. You should have the Winbond Hardware Doctor utility on a CD-ROM or floppy diskette. If you have a floppy diskette, just insert diskette 1 and execute the **Setup.exe** file to start installation. Setup is required only for Windows 95/98.
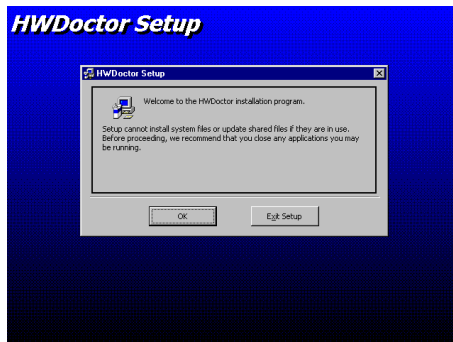

Step 1. In Windows® 95/98, place the CD-ROM into the computer. The main menu will appear. Click the **Hardware Doctor Install** button. The *HWDoctor Setup* screen will show up. Please refer the to figure below.
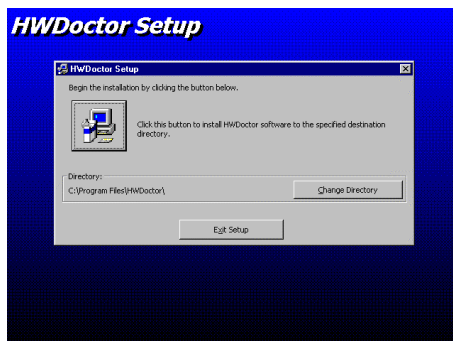
Step 2. Click the "OK" button and the screen below will appear.
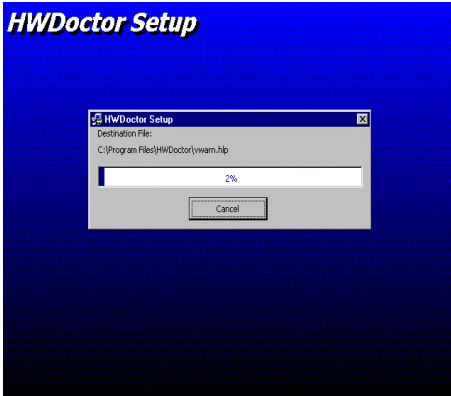
Step 3. You can specify the program install path by clicking the "Change Directory" button. Or if you want to use the default path, click the icon to continue the install process. Now the screen will show you the percentage of installation progress.
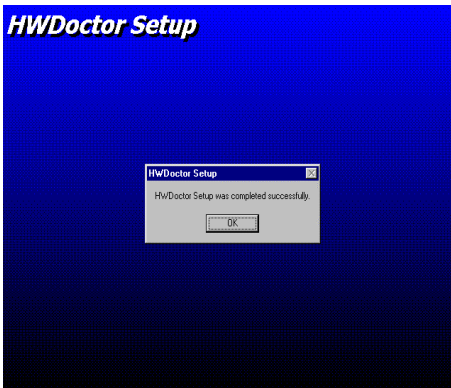
Step 4. When the process is finished, click the "OK" button.
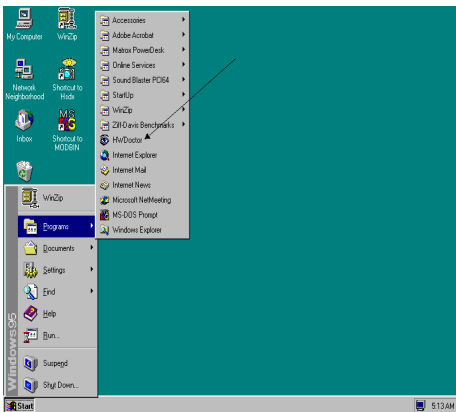
Step 5. Go to the Windows toolbar and click the "Start" button. Then choose the "program" ➔ "HWDoctor" (See the arrow mark on figure below).
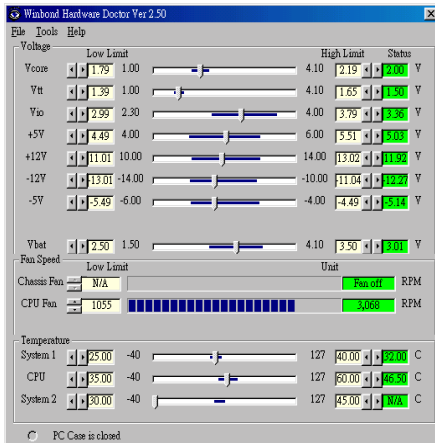
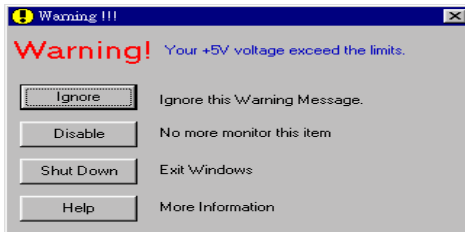**Step 6.** This screen will appear. You will see voltages, fan speeds and temperature readings as well. If any item readings are critical or over their limitations, the reading will turn red. Also, a pop-up window will appear to warn you the system has a problem!

The figure below shows the warning message window.

Ignore: You can ignore the warning message of the item, but it will pop up again when an error of the same item reoccurs.

Disable: The chosen item will be no longer monitored thereafter, unless you activate it in the "Configuration" page.

Shutdown: Choosing this button will shutdown the computer.

Help: You can read more information and self-diagnose simple problems.

If the warning message pops up due to the wrong warning limit, you can adjust it in the "Configuration" option. For example if you set the temperature high limit to 40°C, you will easily exceed the "proper" temperature.

Please pay attention to two things when you want to make any changes to the "Configuration" option. Firstly, you have to make sure your new setting is in the proper range. Secondly, after you finished the configuration, you have to save it. Otherwise, the program will start with the default value the next time.

If you encounter any problems or have any questions about the software settings and adjustments, please use the Winbond hardware doctor on-line help. It should give you enough information to answer your questions.

Appendix N Installation Guide for Suspend to RAM

Suspend To RAM (STR) is a cost-effective, optimal implementation of the ACPI 1.0 specification. The ACPI specification defines the S3 sleep state, in which all system context is lost except system memory. CPU, cache, and chip set context are lost in this state. Hardware maintains memory context and restores some CPU and L2 configuration context.

The STR function enables a PC to achieve the S3 state during idle periods, then quick "wake up" and retrieve the last "state" of the system before it went to sleep. When idle, STR-enabled systems consume only a small fraction of the power used for full operation. Instead of shutting down the system to save power when not in use and then having to reboot later, users can let the STR function take over and not have to worry about using power to run all the electronics, fans and disks. When needed, a PC with STR function can restore all applications and features to an operational state within a few seconds.

The following description will tell you how to install the STR function and use it.

Note

To get Windows® 98 to enable the ACPI BIOS function, you have to type the parameter after the setup command, for example, setup /p j. This command will let Windows® 98 automatically install the necessary elements for the ACPI BIOS. If you have already installed Windows® 98 without using this command, you have to re-install Windows® 98 and use the /p j command. Otherwise, your Windows® 98 ACPI function may not work.

As above note mentioned, you have to use the parameter come with the setup command to install your Windows® 98. After you complete Windows® 98 installation and reboot your computer, you can see these items show up in the *System Properties* ➔ *Device Manager*:

◆ ACPI System Button
◆ Advance Configuration and Power Interface (ACPI) BIOS
◆ SCI IRQ use by ACPI bus
◆ System board extension for ACPI BIOS
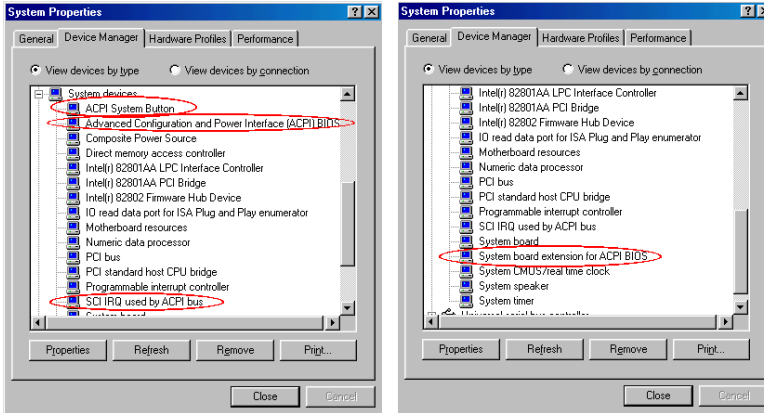
After these items show up, you can go to the next step for the STR function setting.

✏ **How to use the STR function:**

There are two ways to put your system into STR mode:

Method 1: Select "Stand by" in the "Shut Down Windows" area.
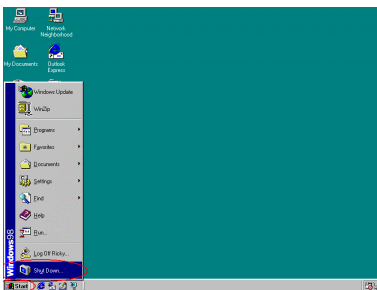
Step 1: Click "Star" in the Windows Tools Bar, and then select "Shut Down…"
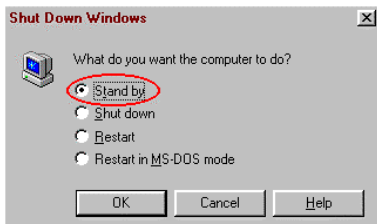
Step 2: Select "Stand by", and then click "OK".

Method 2: Define the case "Power" button to initiate STR sleep Mode
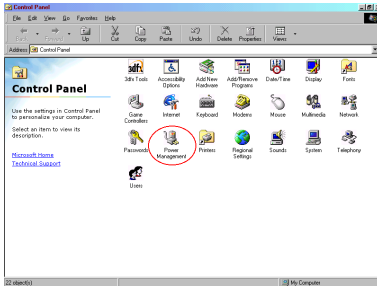
Step 1: Open "Control Panel", and then enter "Power Management".
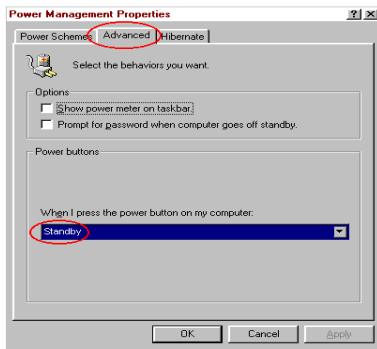
Step 2: Select "Advanced", and then set the "Power Buttons" to "Standby".

Step 3: Restart your computer to put these settings into effect. Now you will only need to press the "Power" button on the front panel of the chassis when you want to put your computer into STR sleep mode.

MEMO

Appendix O Troubleshooting (Need Assistance?)

If you have a problem during operation and in order to help our technical support personnel to quickly find out what the problem of your motherboard is and to give you the answers you need, before filling in the technical support form, eliminate any peripheral that is not related to the problem, and indicate on the form, the system's peripherals. Fax this form to your dealer or to the company where you bought the hardware or your nearest ABIT branch office in order to benefit from our technical support. (You can refer to the examples given below)

📄

Example 1: With a system including: motherboard (with CPU, DRAM, COAST...) HDD, CD-ROM, FDD, MPEG CARD, SCSI CARD, SOUND CARD, etc. After the system is assembled, if you cannot boot up, check the key components of the system using the procedure described below. First remove all interface cards and try to reboot.

☞ If you still cannot boot up:

If it still does not start, note the motherboard model, BIOS identification number, CPU on the technical support form (refer to main instructions), and describe the problem in the problem description space provided.

☞ If you can boot up:

Reinsert the interface cards you have removed one by one and try to start the system each time you insert a card, until the system doesn't start anymore. Keep the interface card that causes the problem inserted on the motherboard, remove any other card or peripheral, and start again. If you still cannot start, note down the information related to both cards in the add-on Card space provided, and don't forget to indicate the motherboard model, version, BIOS identification number, CPU (refer to main instructions), and give a description of the problem.

📄

Example 2: With a system including the motherboard (with CPU, DRAM, COAST...) HDD, CD-ROM, FDD, LAN CARD, MPEG CARD, SCSI CARD, SOUND CARD, after assembly and after having installed the Sound Card Driver, when you restart the system, when it runs the Sound Card Driver, it resets automatically. This problem may be due to the Sound Card Driver. During the Starting DOS… procedure, press SHIFT (BY-PASS) key, to skip CONFIG.SYS and AUTOEXEC.BAT; edit CONFIG.SYS with a text editor, and in function the

line that loads the Sound Card Driver, add a remark REM, in order to disable the Sound Card Driver. See the example below.

CONFIG.SYS:
DEVICE=C:\DOS\HIMEM.SYS
DEVICE=C:\DOS\EMM386.EXE HIGHSCAN
DOS=HIGH, UMB
FILES=40
BUFFERS=36
REM DEVICEHIGH=C:\PLUGPLAY\DWCFGMG.SYS
LASTDRIVE=Z

Restart the system. If the system starts and does not reset, you can be sure that the problem is due to the Sound Card Driver. Note down the Sound Card model, motherboard model, BIOS identification number on the technical support file (refer to main instructions), and describe the problem in the space provided.

☺☺☺

✍✍ **Main instructions...**

To fill in this "Technical Support Form", refer to the step-by-step instructions given below:

1*. **MODEL:** Note the model number given in your user's manual.

Example: WX6e, BX6, BH6, etc…

2*. **Motherboard model number (REV):** Note the motherboard model number labeled on the motherboard as "REV:*.**".

Example: REV: 1.01

3*. **BIOS ID and Part Number**: See next page example.

```
 Award Modular BIOS v6.00PG, An Energy Star Ally
 Copyright (C) 1984-99  Award Software, Inc.

GREEN AGP/PCI SYSTEM

Memory Test :  32768K OK

Award Plug and Play BIOS Extension v1.0A
Copyright (C) 1998, Award Software, Inc

Detecting IDE Primary Master ...... None




Press DEL to enter SEIUP
12/03/99-i815-W83627HF-6A69MA1AC-00
```
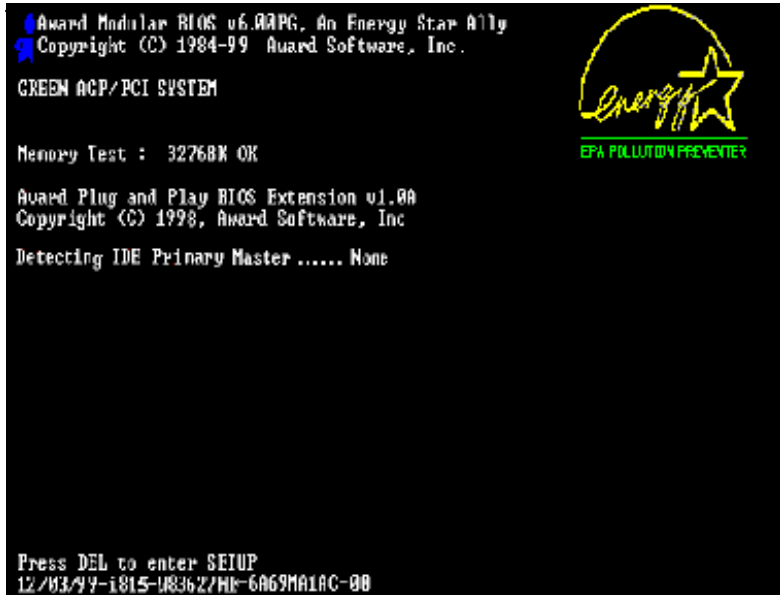
"00" is the BIOS ID number

" 1A69MA1AC " is the BIOS part number

4. **DRIVER REV:** Note the driver version number indicated on the DEVICE DRIVER disk (if have) as "Release *.**". For example:

CD-Title Rev. No.

BX-154E

IDE Device Driver
Drivers Diskette Release 1.09A

Floppy Disk Driver Rev. No.
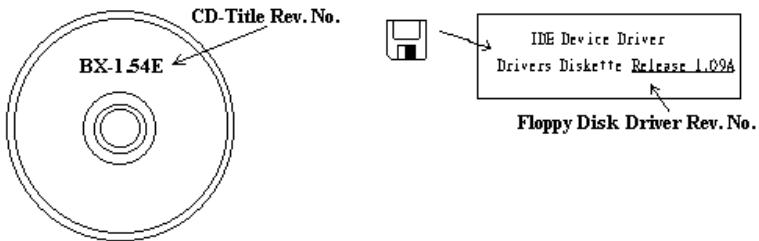
5[*]. **OS/APPLICATION:** Indicate the operating system and applications your are running on the system.

Example: MS-DOS® 6.22, Windows® 95, Windows® NT....

6[*]. **CPU:** Indicate the brand and the speed (MHz) of your CPU.

Example:(A) In the "Brand" space, write "Intel", in the "Specifications" space, write " Pentium® II MMX 300MHz"。

7. **HDD:** Indicate the brand and specifications of your HDD(s), specify if the HDD is using ☐IDE1 or ☐IDE2. If you know the disk capacity, indicate it and check ("✓") "☐"; in case you give no indication, we will consider that your HDD is "☑IDE1" Master.

Example: In the "HDD" space, check the box, in the Brand space, write "Seagate", in the Specifications space, write "ST31621A (1.6GB)".

8. **CD-ROM Drive:** Indicate the brand and specifications of your CD-ROM drive. Specify if it uses ☐ IDE1 or ☐IDE2, and check ("✓") "☐"; in case you give no indication, we will consider that your CD-ROM is "☑IDE2" Master.

Example: In the "CD-ROM drive" space, check the box, in the Brand space, write "Mitsumi", in the Specifications space, write "FX-400D".

9. **System Memory (DRAM):** Indicate the brand and specifications (SIMM / DIMM) of your system memory. For example:

In the Brand space, write "Panasonic", in the Specifications space, write "SIMM-FP DRAM 4MB-06".

Or, in the Brand, write "NPNX", in the Specifications space, write "SIMM-EDO DRAM 8MB-06".

Or, in the Brand space, write "SEC", in the Specifications space, write "DIMM-S DRAM 8MB-G12".

10. **ADD-ON CARD:** Indicate which add-on cards you are *absolutely sure* are related to the problem.

If you cannot identify the problem's origin, indicate all the add-on cards inserted into your system.

Note
Items between the "*" are absolutely necessary.

📖 **Technical Support Form**

🏭 **Company Name:**   🐚 **Phone Number:**

🐦 **Contact Person:**   📠 **Fax Number:**

📬 **E-mail Address:**

Model	*	BIOS ID #	*
Motherboard Model No.		DRIVER REV	
OS/Application	*		

Hardware name	Brand	Specifications	
CPU	*		
HDD ☐IDE1 ☐IDE2			
CD-ROM Drive ☐IDE1 ☐IDE2			
System Memory (DRAM)			
ADD-ON CARD			

✍

Problem Description:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

MEMO

Appendix P   How to Get Technical Support

(From our website) **http://www.abit.com.tw**
(In North America) **http://www.abit-usa.com**
(In Europe) **http://www.abit.nl**

Thank you for choosing ABIT products. ABIT sells all our products through distributors, resellers and system integrators, we have no direct sales to end-users. Before sending email for tech support please check with your resellers or integrators if you need any services, they are the ones who sold you your system and they should know best as to what can be done, how they serve you is a good reference for future purchases.

We appreciate every customer and would like to provide the best service to you. Providing fast service to our customers is our top priority. However we receive many phone calls and a huge amount of email from all over the world. At the present time it is impossible for us to respond to every single inquiry. Therefore it is quite possible that if you send an email to us that you may not receive a response.

We have done many compatibility tests and reliability tests to make sure our products have the best quality and compatibility. In case you need service or technical support, please understand the constraint we have and **always check with the reseller who sold the product to you first.**

To expedite service, we recommend that you follow the procedures outlined below before contacting us. With your help, we can meet our commitment to provide the best service to the **greatest number of ABIT customers:**

1. **Check the Manual.** It sounds simple but we have taken a lot of care in making a well written and thorough manual. It is full of information that doesn't only pertain to motherboards. The CD-ROM included with your board will have the manual as well as drivers. If you don't have either one go to our Program Download Area of the website or FTP server at: **http://www.abit.com.tw/download/index.htm**

2. **Download latest BIOS, software or drivers.** Please go to our Program Download area on our website to check to see if you have the latest BIOS. They are developed over periods of time to fixes bugs or incompatibilities. **Also please make sure you have the latest drivers from your peripheral cards makers!**

3. **Check the ABIT Technical Terms Guide and FAQ on our website.** We are trying to expand and make the FAQs more helpful and information rich. Let us know if you have any suggestions. For hot topics check out our HOT FAQ!

4. **Internet Newsgroups.** They are a great source of information and many people there can offer help. ABIT's Internet News group, **alt.comp.periphs.mainboard.abit**, is an ideal forum for the public to exchange information and discuss experiences they have had with ABIT products. Many times you will see that your question has already been asked before. This is a public Internet news group and it is reserved for free discussions, Here is a list of some of the more popular ones:

   alt.comp.periphs.mainboard.abit
   alt.comp.periphs.mainboard
   comp.sys.ibm.pc.hardware.chips
   alt.comp.hardware.overclocking
   alt.comp.hardware.homebuilt
   alt.comp.hardware.pc-homebuilt

5. **Ask your reseller.** Your ABIT authorized distributor should be able to provide the fastest solution to your technical problem. We sell our products through distributors who sell to resellers and stores. Your reseller should be very familiar with your system configuration and should be able to solve your problem much more efficiently than we could. After all, your reseller regards you as an important customer who may purchase more products and who can urge your friends to buy from him or her as well. They integrated and sold the system to you. They should know best what your system configuration is and your problem. They should have reasonable return or refund policies. How they serve you is also a good reference for your next purchase.

6. **Contacting ABIT.** If you feel that you need to contact ABIT directly you can send email to the ABIT technical support department. First, please contact the support team for the branch office closest to you. They will be more familiar with local conditions and problems and will have better insight as to which resellers offer what products and services. Due to the huge number of emails coming in every day and other reasons, such as the time required for problem reproduction, we will not be able to reply to every email. Please understand that we are selling through distribution channels and don't have the resources to serve every end-user. However, we will try to do our best to help every customer. Please also remember that for many of our technical support team English is a second language, you will have a better chance of getting a helpful answer if your question can be understood in the first place. Be sure to use very, simple, concise language that clearly states the problem, avoid rambling or flowery language and always list your system components. Here is the contact information for our branch offices:

In North America and South America please contact:
ABIT Computer (USA) Corporation
46808 Lakeview Blvd.
Fremont, California 94538 U.S.A.
sales@abit-usa.com
technical@abit-usa.com
Tel: 1-510-623-0500
Fax: 1-510-623-1092

In the UK and Ireland:
ABIT Computer Corporation Ltd.
Caxton Place, Caxton Way,
Stevenage, Herts SG1 2UG, UK
abituksales@compuserve.com
abituktech@compuserve.com
Tel: 44-1438-741 999
Fax: 44-1438-742 899

In Germany and Benelux (Belgium, Netherlands, Luxembourg) countries:
AMOR Computer B.V. (ABIT's European Office)
Van Coehoornstraat 5a,
5916 PH Venlo, The Netherlands
sales@abit.nl
technical@abit.nl
Tel: 31-77-3204428
Fax: 31-77-3204420

All other territories not covered above please contact:

Taiwan Head Office
When contacting our headquarters please note we are located in Taiwan and we are 8+ GMT time. In addition, we have holidays that may be different from those in your country.

ABIT Computer Corporation
3F-7, No. 79, Sec. 1, Hsin Tai Wu Rd.
Hsi Chi, Taipei Hsien
Taiwan, R.O.C.

sales@abit.com.tw
market@abit.com.tw
technical@abit.com.tw
Tel: 886-2-2698-1888
Fax: 886-2-2698-1811

7. **RMA Service.** If your system has been working but it just stopped, but you have not installed any new software or hardware recently, it is likely that you have a defective component. Please contact the reseller from whom you bought the product. You should be able to get RMA service there.

8. **Reporting Compatibility Problems to ABIT**. Because of tremendous number of email messages we receive every day, we are forced to give greater weight to certain types of messages than to others. For this reason, any compatibility problem that is reported to us, giving detailed system configuration information and error symptoms, will receive the highest priority. For the other questions, we regret that we may not be able to reply directly. But your questions may be posted to the internet news group in order that a larger number of users can have the benefit of the information. Please check the news group from time to time.

Thank you, ABIT Computer Corporation
http://www.abit.com.tw