Personal Computer
User's Guide

May 1999

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Copyright Notice

Trademark Acknowledgement

Federal Communications Commission (FCC) Statement
FCC Notice - Part 15

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

- ◆ Reorient or relocate the receiving antenna.
- ◆ Increase the separation between the equipment and the receiver.
- ◆ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ◆ Consult the dealer or an experienced radio/TV technician for help.

Use only shielded cables to connect I/O devices to this equipment.

You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

THIS DEVICE COMPLIES WITH PART 15 OF FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE. AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED. INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

Safety and Maintenance Precautions

1. Read and follow all instructions carefully.
2. Save these instructions for future use.
3. Follow all warnings and instructions marked on the products.
4. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
5. Do not use this product near water.
6. Do not place this product on an unstable surface. If the product should fall, it may become seriously damaged and, more importantly, may cause injuries to the user.
7. There should be slots and openings at the back or bottom of the cabinet for ventilation. This is also to ensure reliable operation of the product and to protect it from overheating. The openings should never be blocked. Do not place the product on a bed, sofa, rug or other similar surfaces. This product should never be placed near any object that produces heat. This product should not be placed in a built-in installation unless proper ventilation is provided.
8. This product should be operated from the type of power source indicated on the label. If you are not sure of the type of power available, consult your dealer or local power company.
9. Do not allow anything to rest on the power cord. Do not put this product where the cord could be stepped on.
10. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or cause short circuits, risking the possibility of a fire or electric shock. Never spill liquid of any kind onto this product.
11. Please turn off power of all equipment when it is not used for a long time.
12. For pluggable equipment, the socket-outlet should be installed near the equipment and should be easily accessible.
13. **CAUTION:** (English)
    Danger of explosion if battery is incorrectly replaced.
    Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

ATTENTION: (French)

II y a danger d'explosion s'il y a remplacement incorrect de la batterie.
Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

VORSICHT! (German)

Explosionsgefahr bei unsachgemäßen Austausch der Batterie Ersetz nur durch denselben oder einem vom Hersteller empfehlenem ähnlichen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

14. Do not attempt to service this product yourself. If you have the suspicion that the product is not in proper working order, unplug the unit and seek assistance from qualified service personnel, especially under the following conditions:

a. When the power cord or plug is damaged or frayed.

b. If liquid has been spilled onto the product, or if the product has been exposed to rain or water.

c. If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in further damage or complications.

d. If the product has been dropped or the cabinet has been damaged.

e. If the product exhibits a distinct deterioration in performance, indicating a need for service.

Canadian Department of Communication Radio Frequency Interference Statement

(English)
This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

(French)
Cet appareil numérique de la classe B respecte toutes les exigences du Réglement sur le materiel brouilleur du Canada.

Wichtege Sicherheitshinweise

1. Bitte lesen Sie Sich diese Hinweise sorgfältig durch.
2. Heben Sie diese Anleitung für den späteren Gebrauch auf.
3. Vor jedem Reinigen ist das Gerät vom Stromnetz zu trennen Verwenden Sie Keine Flüssig-oder Aerosolreiniger Am besten dient ein angefeuchtetes Tuch zur Reinigung.
4. Das Gerät ist vor Feuchtigkeit zu schützen.
5. Bei der aufstellung des Gerätes ist auf sicheren Stand zu achten. Ein kippen oder Fallen Könnte Verletzungen bervorrufen.
6. Die Belüftungsöf fnungen dienen zur Luftzirkulation die das Gerät vor Überhitzung schützt. Sorgen Sie dafür, daß diese öffnungen nicht adbedeckt werden.
7. Beachten Sie beim Anschluß an das Stromnetz die Anschlußwerte.
8. Verlegen Sie die Netzanschlübleitung so, daß niemand darüber fallen Kann. Es sollte auch nichts auf der leitung abgestellt werden.
9. Alle Hinweise and Warnungen die sich am Geräten befinden sind zu beachten.
10. Wird das Gerät über einen längeren Zeitraum nicht benutzt, sollten Sie es vom Stromnetz trennen. Somit wird im Falle einer Überspannung eine Beschädigung vermieden.
11. Durch die Lüftungsöffnungen dürfen niemals Gegenstände oder Flüssigkeiten in das Gerät gelangen. Dies Könnte einen Brand bzw, elektrischen Schlag auslösen.
12. Wenn folgende Situationen auftreten ist das Gerät vom Stromnetz zu trennen und von einer qualifizierten Servicestelle zu überprüfen:
a. Netzkable oder Netzstecker sind beschädigt.
b. Flüssigkeit ist in das Gerät eingedrungen.
c. Das Gerät war Feuchtigkeit ausgesetzt.
d. Wenn das Gerät nicht der Bedienungsanleitung entsprechend funktioniert oder Sie mit Hilfe dieser Anleitung Keine Verbesserung erzielen.
e. Das Gerät ist gefallen und/oder das Gehäuse ist beschädigt.
f. Wenn das Gerät deutliche Anzeichen eines Defektes aufweist.
13. Der arbeitsplatzbezogene Schalldruckpegel nach DIN 45 645 beträgt 70dB(A) oder weniger.
14. Zum Netzanschluß dieses Gerätes ist eine geprüfte Leitung zu Verwenden. Für einen Nennstrom bis 6A und einen Gerätegewicht größer 3kg ist eine Leitung nicht leichter als H05VV-F, 3G, 0.75mm^2 einzusetzen.
15. Das CD-ROM Laufwerk ist ein Laserklasse 1 Gerät.

Sicherheitshinweise

1. Die Steckdose muß sich in der Nähe des Gerätes befinden und leicht zugänglich sein.
2. Zum Reinigen den Stecker aus der Steckdose ziehen.
   Beim Reinigen keine Flüssigreiniger oder Sprays verwenden, sondern ein angefeuchtetes Tuch.
3. Das PC gerät nicht in Naßräume oder in der Nähe von Wasser benutzen, wie z.B. Badezimmer, Schwimmbad, Spülbecken usw..
   Das Eindringen von Wasser kann zur Zerstörung des Gerätes führen.
4. Das PC gerät nicht auf einer unstabilen Unterlage, wie z.B. Rollwagen, Gestell usw., aufstellen. Es könnte herunterfallen und Verletzungen oder Beschädigungen von Mensch und Gerät verursachen.
5. Die Belüftungsöffnungen nicht blockieren oder auf falscher Ober-fläche, wie Bett, Sofa usw., stellen. Durch die Blockierung kann es zur Zerstörung des Gerätes durch Überhitzung kommen.
6. Versuchen Sie niemals dieses Gerät selbst zu warten, da beim Öfnen oderAbnehmen des Gehäuses die Gefahr eines elektrischen Schlages besteht.
7. Keine Gegenstände auf das Anschlußkabel stellen, damit es nicht durch scharfe Kanten zerstört werden kann.
8. Keinerlei Gegenstände durch die Öfungen in das Gerät stecken, da es dadurch sonst zu Kurzchlüssen kommen kann.
9. Bei Störungen des Gerätes den Wartungsdienst verständigen.
10. Bei Reperaturen dürfen nur Orginalersatzteile oder Bauteile mit gleichen Eigenschaften verwendet werden. Andere Bauteile können Feuer, elektrischen Schlag oder andere Gefahren verursachen.
11. Nach Beendigung von Wartungsarbeiten oder Reperaturen durch den Kundendienst sollte die Sicherheitsprüfung durchgeführt werden.
12. Bei längerem Stillstand des Gerätes, ist diese von der Versorgungs-spannung zu trennen. Dies verhindert eine Beschädigung des Gerätes durch eine Überspannung in der Zuleitung.
13. Der arbeitsplatzbezogene Lärmschutzpegel nach DIN 45 635 ist kleiner 70dB(A).

About This Guide

Congratulations on your purchase of this new computer system. This user's guide provides information on the installation and setup procedures for your new motherboard or computer system.

Chapter 1: Getting Started gives you information on what is provided with your computer system and the available functions and locations of controls. If you are a first-time computer user, this chapter also introduces you to the basics of computing.

Chapter 2: Specifications lists the standard features and technical specifications of the motherboard.

You can find the motherboard layout in *Chapter 3: Connectors and Jumpers*. Through this chapter, you can acquaint yourself with the functions and locations of different connectors and jumpers on your motherboard.

For information on BIOS Setup Utility, please refer to *Chapter 4: BIOS Setup*. You may need to look into this chapter if you are installing new peripherals into your system, or would like to change system settings such as power management, ...etc.

If you need to install or replace CPU, memory, and other internal devices, refer to *Chapter 5: Installation*.

You can find information on device drivers and utility in *Chapter 6:Installing Device Drivers & Utility.* This chapter provides procedures on how to install audio driver and hardware monitor.

You can find suggestions for problems you may encounter with your personal computer in *Chapter 7: Troubleshooting*. This chapter contains information to help you to solve most common problems when using your personal computer.

Table of Contents

CHAPTER 1
Getting Started

This chapter introduces you to your computer system. If this is the first time you are using a computer, this chapter provides information on the basics of computing.

Choosing a Location

Before you start, you need to find a place for your computer. Like any other delicate electronic device, your PC should be placed in a suitable location.

⌨ Your PC should be placed on a flat, sturdy surface where you plan to work. Dropping it may cause serious damages.

⌨ There must be enough ventilation for proper heat dissipation. Make sure there is enough spaces (at least two to three inches) on all sides except the bottom.

⌨ The main unit, keyboard, mouse, and all other peripheral devices should be located in a relatively dry and cool place.   These should be kept away from direct sunlight or any other sources of extreme heat. Exposing to high temperature may cause internal overheating, and may blemish the exterior of your computer system.

⌨ Do not place your PC near water. Accidentally pouring liquid onto your system may damage it.

⌨ Keep your PC away from devices that generate radio frequency interference such as stereo equipment. This

should also be kept at least three feet from sources of strong magnetic fields since these may destroy information stored on your diskette and hard disk.

Unpacking Your System

After finding a suitable location, you can remove your PC from the box. Please check to see if there is anything missing. Main items in your package should include:

☑ Main Unit
   Depending on your order, your system may include floppy disk drive, hard disk drive, and CD-ROM drive.
☑ Windows 95 Enhanced PS/2 Keyboard
☑ PS/2 Mouse
☑ Device Drivers and Utility Disk/s
☑ Windows 98 Software Package
   This includes Windows 98 operating system on CD-ROM disc, a 3.5" boot disk, and a user's guide.
☑ This User's Guide
☑ AC Power Cord

There may be some optional devices or items included in the package. These shall depend on the model and the configuration that you have ordered. If there is anything missing, contact your dealer immediately.

Keep the original carton and packing materials. If you need to move your PC to another location in the future, the original packaging materials protect your PC.

Locations and Functions of Controls

Front Panel

CD-ROM Drive

Floppy Disk
Drive

Power Button

HDD LED

Power On LED

Rear Panel

PS/2 Keyboard Jack

PS/2 Mouse Port

USB Ports

AC Power In

Serial Port

AC Voltage Switch

VGA Port

Parallel Port

Line Out Jack

Line In Jack

Game Port

MIc In Jack

Expansion Slots
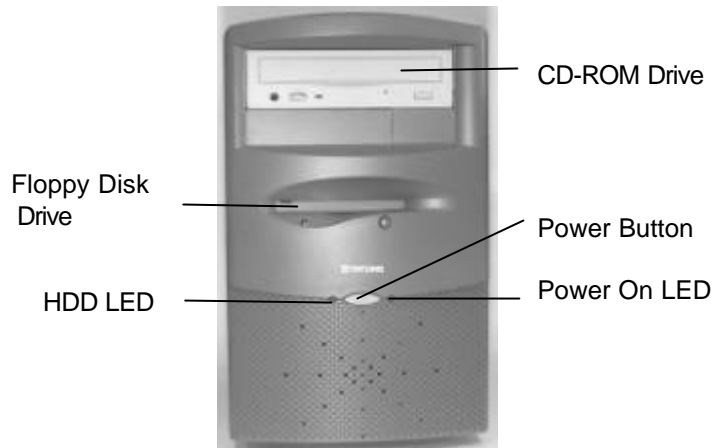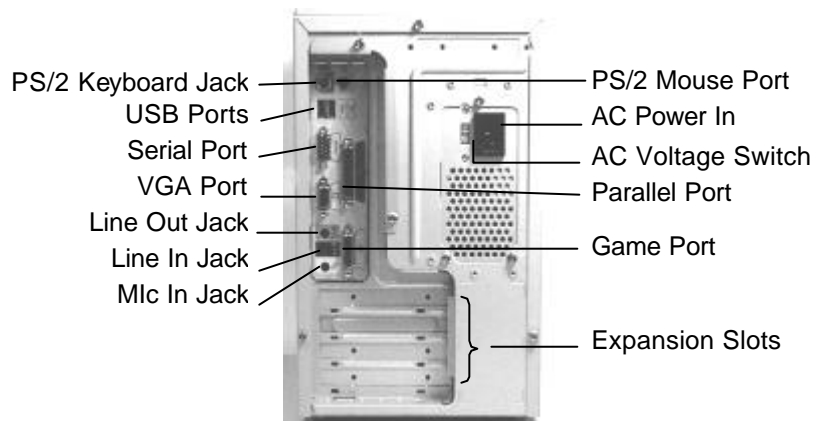
Making the Connections

You are now ready to connect the devices to get the system working. For installation of devices that are not covered in this section, please refer to their respective manuals.

--- **WARNING:** **Before You Start Connecting** ---

Make sure that your computer is turned **OFF** *before connecting any devices. Connecting devices with the power on may result in severe damages!*

Keyboard

The keyboard is an input device. You use this to enter your commands or data to the computer. Connect the keyboard to your system by inserting the connector of its cable to the *PS/2 Keyboard Jack* found at the rear of your system. The connector is designed to fit into the keyboard jack in only one way. Do not forcibly insert the connector. Be sure to align the pins into the holes accordingly before inserting.

Mouse

The mouse is another input device. This is also known as a pointing device. You use this to point to the required items, confirm or cancel your commands, or select items from a given list. Connect the mouse to your system by inserting the connector of its cable to the PS/2 Mouse Port at the rear of your system. The connector is designed to fit into the PS/2 mouse port in only one way. Do not forcibly insert the connector. Be sure to align the pins into the holes accordingly before inserting.

SVGA/VGA Monitor

The monitor is an output device. This is also known as the screen display. You need this to see the results of the computer operations and other information required from the system. You will need a video cable to connect a monitor to your system. This is usually supplied with the monitor.

There are monitors that come with video cable attached to the monitor. In such case, just align the connector from the video cable to the *VGA Port* of your system. You can recognize VGA port easily as only this type of connector can be fit into it.

Other monitors bundle a separate video cable. After inserting an end of the video cable to the *VGA Port*, connect the other end to the monitor.

Printer

The printer is another output device. You use this to provide hardcopies of the documentation required. This is also called an LPT device, or, a parallel printer. Parallel refers to the type of communication method used to transmit the signals between your system and the printer. This type of transmission is faster, but is limited by the distance of communicating devices.

To connect a parallel printer to your system, you shall need a printer cable. This type of cable is supplied with your printer. Connect an end of this cable to the *Parallel Port* at the rear of your system.

Check the printer's manual for any driver installation required to maximize its performance. Then, make sure that you have

designated your print destination properly in your applications program before issuing a print command.

AC Power

Now, get the AC power cord and insert the female end (with holes) into the *AC Power In* at the rear of your system. The other end of the power cord is plugged into an AC wall outlet. Next, check if the power cords of all other devices (monitor, printer, etc) are all plugged to the AC wall outlet.

We strongly suggest that you use a multiple-outlet surge protector (sometimes called a "power strip") so as to prevent damage to your system and its peripherals caused by electrical surges in the power line. Connect the power of all other devices or peripherals to this, too. Be sure to have the surge protector plugged to a wall outlet all to itself.

It is also greatly recommended that your computer and its peripherals be plugged into a grounded outlet. Do not use any device to convert the three-prong (grounded) plug of your power cord for use with a two-prong (non-grounded) outlet.

Turning the System On/Off

By now, everything is already connected and you are ready to turn on your PC.   Press *Power Button* and your computer will boot and automatically enter Windows 98 operating system. The *Power On LED* of your computer will be lit.

WARNING: Before You Turn On Your   ─

*Before turning on your system and all other peripherals connected to this, check first if they are switched to the right **AC voltage**. Turning the system on with improper voltage setting may result in severe damages.*

If you would like to turn off your system, perform Windows 98 shut down operations first:

1   Press 🪟 (Windows) key.
2   Click "Sh<u>u</u>t Down...".
3   Confirm by clicking "Yes" button.

Using the Keyboard

Keyboard works like a
typewriter. There are,
however, a number of
keys specific to a
computer keyboard that
you won' t find on a
typewriter. These are
shown and listed below:
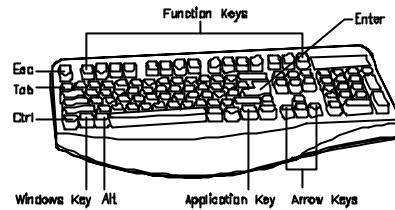
Tells the PC you have finished entering a command and you want
the PC to execute it.

¿ Enter   Confirms your selection and tells the PC to proceed.

Esc   This usually returns you to the previous screen.
Also used to exit a program.

Tab   Usually used to move the cursor to the next field or menu
item.

↑ ↓ → ←   Moves the cursor in the direction
of the arrow.

Windows key -> Displays the Microsoft Windows 98 Start
menu. Pressing this has the same effect as clicking Start
button at the bottom left of the screen.

Application key -> Opens a shortcut menu for the current
program. Pressing this has the same results as
pressing the right button of the mouse.

F1 ~ F12   Function keys -> They are shortcut keys for
various operations, depending on the
instructions set by the applications program.

Special Key Combinations
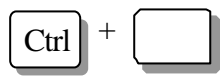
Ctrl + [ ]	Holding down this key with another key at the same time gives a command to the current program. The commands are dependent on the preset settings of an application program.
Alt + [ ]	Pressing this key with an ASCII code returns the ASCII character. Some application programs also assign preset settings to this key.
Ctrl + Alt + Del	Displays the close program. This allows you to select a specific program to be terminated. Pressing this combination two times consecutively resets your computer without performing shut down operations. Doing so may result to data loss.
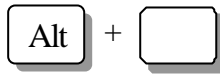
Using the Mouse

With most software programs, you use a mouse to select options and move around the screen.

You may want to place a mouse pad under your mouse to make it move more smoothly. You can buy mouse pads at computer and office supply stores.
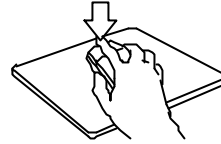
Pointing with the Mouse

Slide the mouse on a flat surface and watch the pointer on your screen move in the same direction. You point to an item by positioning the pointer over the item. If you run out of space on the mouse pad, lift the mouse to reposition it.

Clicking the Mouse

The mouse has either two or three buttons: a left and a right button, and sometimes a middle button. You will use the left button most often. Press the left button to highlight items, to select items, or to run your software programs. The right button has different uses depending on the software. In most software programs, pressing the right button will display a shortcut menu. The center button is rarely used.

To "click" an item, point to the item on the screen, and press the left mouse button. To "double-click" an item, press the left button twice quickly.   Pressing the middle button once is the same as ' double-click' the left button.

Using the Floppy Disk Drive

Your floppy disk drive reads from and/or writes to 3.5" floppy disks. Maximum capacity of a floppy disk is 1.44MB.

Inserting a Disk

Hold the disk with the label and the arrow facing up. Then, slide the disk into the drive until it snaps into place.
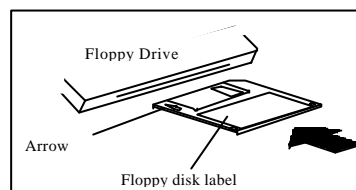
WARNING

If you remove a disk while the indicator light is on, you may damage the information on the disk.

Removing a Disk

First, make sure the drive indicator light is *off*. Then, press the Eject button located at the lower right corner of the drive.

Floppy drive is designated by your operating system as drive A. It is represented by **A:**. Presence of floppy disk drive is automatically detected by your system and the operating system.

Using the Hard Disk

Hard disk drive is a storage medium that allows you to store programs and data. Aside from the Windows operating system, your PC is supplied with a number of system programs installed on the hard disk. Like any other types of disks, it is essential that you make backup copies of your hard disk data periodically.

─────── **WARNING:** **Before You Reset or Turn Off** ───────

*W*hen the Hard Disk Access LED is flashing, do not reset or turn
off your system. Doing so may cause loss of, or damage to, hard
disk data.

Hard disk drive is designated as drive C, symbol is **C:**.   Your
system BIOS and Windows operating system automatically
detects your hard disk drive. If it is not detected, enter your
BIOS Setup Utility to see if it is properly registered.

Using the CD-ROM Drive

Before you insert a CD, check for dust or fingerprints on the
face of the CD without the title. Dust or smudges may cause
the drive to read the CD incorrectly. You can use a clean,
dry, non-abrasive cloth to wipe it clean.

CD-ROM Drive

Eject Button

Inserting a Disc

Turn on your PC.
Press the Eject button
(usually found at the
lower right side of the
CD-ROM drive) to open
the CD drawer. Hold the
CD by the edge with the
title facing up and place
it into the CD drawer.
Press the Eject button
again, or gently push
the front of the CD
drawer, to close it.
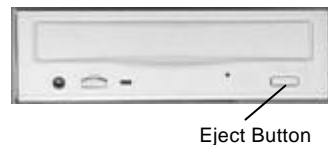
Removing a Disc

Press the Eject button to open
the CD drawer. Then, lift the
CD by its edge and place it in its
protective sleeve or case.
Press the Eject button again, or
gently push the front of the CD
drawer, to close it.

CD-ROM is short for Compact Disc - Read Only Memory. As the name implies, it is "read-only". You cannot save information on CD-ROM discs.

CD-ROM drive is designated as **D:**. Windows operating system can automatically detect most CD-ROM drives. If your drive is not detected, you need to install the device drivers that come with that drive. Refer to the drive's manual for the procedures.

Handling CD-ROM Discs With Care

☆ Dust and smudges on the face of the CD without the title or label may cause the drive to read the CD incorrectly. Use a clean, dry, non-abrasive cloth to wipe it clean.

☆ Do not force the CD drawer open by hand.

☆ Do not place objects (other than CD-ROM disc) in the CD-ROM drawer.

☆ Do not touch the pickup lens of the CD-ROM drive module.

☆ To prevent accidents or collection of dusts, be sure to close the CD drawer when not in use.

☆ Do not scratch or write on discs. Also, do not put tape on discs.

☆ Keep the discs away from direct sunlight or sources of extreme heat.

☆ Keep the discs away from water or liquid.

CHAPTER 2
Specifications

This chapter lists the standard features and technical specifications of your motherboard.

Standard Features

☆ Single Pentium II Deschutes processor/ Pentium III processor.

☆ Designed using Intel 440 BX Chipset: Intel 82443BX PCI/A.G.P controller (PAC) and Intel 82371EB PCI/ISA/IDE Xcelerator (PIIX4E);
Or using VIA Apollo Pro Plus Chipset: VIA VT82C693 PCI/A.G.P. controller (PAC) and VIA VT82C596A PCI/ISA/IDE Xcelerator

☆ Two 168-pin 3.3 V DIMM sockets, for total of 512MB using 66MHz EDO or up to256MB using 100MHz SDRAM, or 512MB using 100MHz Registered DIMM

☆ Integrated Winbond W83977EF Super I/O controller

☆ ATI Rage Pro Turbo 2X AGP controller; VGA memory 4MB/8MB SGRAM

☆ Integrated Creative ES1373 PCI Audio-AC97compliant

☆ Built-in ports: serial port, parallel port, PS/2 keyboard, PS/2 mouse, USB ports x2, VGA DB15 port, Game/MIDI port, microphone in jack, audio line in jack, and audio line out jack

☆ 2MB Flash EEPROM with AMI BIOS

☆ Micro-ATX form factor

☆ PC health monitoring and ACPI/PC98 features
☆ Expansion slots: PCI slots x2, PCI/ISA combo slot x1
☆ Runs under Windows 98, Windows NT operating
    systems or Windows family future products
☆ Power supply: 100/120/150 watts

Technical Specifications

CPU (Central Processing Unit)

● Single Pentium II (350/400/450)/ Pentium III (450/500/550 MHz) processor, at 100 MHz FSB

● Built-in L2 cache: *512KB located on the substrate of the S.E.C. (Single Edge Contract) cartridge*.

● Slot 1 connector

Intel 440BX Chipset

● Intel 82443BX PCI/A.G.P. controller (PAC)

   ◇ Integrated PCI bus mastering controller

   ◇ Integrated Accelerated Graphics Port (A.G.P.) controller.

● Intel 82371EB PCI/ISA/IDE Xcelerator (PIIX4E)

   ◇ Supports up to four IDE drives or devices

   ◇ Supports PIO mode 1-4, Bus Master Mode and Ultra DMA 33 hard disks

   ◇ Multifunction PCI-to-ISA bridge

✦   USB and DMA controllers

✦   Power management logic

✦   Real-time clock

<u>VIA Apollo Pro Plus Chipset</u>

● VIA VT82C693 PCI/A.G.P. controller (PAC)

✦   Integrated PCI bus mastering controller

✦   Integrated Accelerated Graphics Port (A.G.P.)
     controller

● VIA VT82C596A PCI/ISA/IDE Xcelerator (PIIX4E)

✦   Supports up to four IDE drives or devices

✦   Supports PIO mode 1-4, Bus Master Mode and Ultra
     DMA 33 hard disks

✦   Multifunction PCI–to-ISA bridge

✦   USB and DMA controllers

✦   Power management logic

✦   Real-time clock

NOTE
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*If you are using Windows 95 operating system, be sure to
install the proper chipset' s device driver. For Windows 98
operating system, you do not need to install device driver for
chipset.*

Power Interface (ACPI/PC 98 Features)

ACPI (Advanced Configuration and Power Interface) and PC 98 Features are supported.

● Support WOL (Wake-on-LAN): *This feature enables a management application to remotely power up your system, perform remote PC setup, update and perform asset tracking after office hours and on weekends so that daily LAN traffic is kept to a minimum and users are not interrupted.*

● Slow blinking LED for sleep-state indicator

● BIOS support for USB keyboard

● Real time clock wake-up alarm

● Main switch override mechanism

● Self power-on by incoming modem signal

Memory

● Two 168-pin 3.3V DIMM sockets, support up to:

   ✧   512MB using 66MHz EDO

   ✧   256MB using 100MHz SDRAM

   ✧   512MB using 100MHz registered DIMM

Graphics

● ATI Rage Pro Turbo 2X AGP controller

● VGA memory 4MB/8MB SGRAM

Audio/Sound

● Integrated Creative ES1373 PCI Audio-AC97 compliant

Built-in I/Os

- Winbond W83977EF Super I/O controller

- One floppy interface

- Two fast UART 16550 serial ports (one optional for header)

- One parallel port, support EPP (Enhanced Parallel Port) and ECP (Enhanced Capabilities Port)

- PS/2 mouse and PS/2 keyboard

PC Health Monitoring Features

- Six on-board voltage monitors for 1 CPU voltages core, +3.3V, +/- 5V and +/- 12V

- Two fan-status monitors with firmware/software to control on/off

- Environment temperature monitor and control: *The thermal control sensor of the system will turn on the back-up fan whenever CPU temperature goes over the user-defined threshold. This prevents CPU from overheating, and is available even if the system is put in the suspend mode.*

- CPU fan auto-off in sleep mode: *For power saving purposes, CPU fan will shut down if the system is in sleep mode (Normally, CPU fan is turned on if the power is on). This option is available in the BIOS Setup Utility.*

- System resource alert: *The system will alert you of potential resource problems (i.e., not enough hard disk space, low virtual memory,..). This feature is available only if you are running Intel' s LANDesk Client Manager.*

- Hardware BIOS virus protection: *The contents of BIOS can be changed only through the flash utility. This*

prevents viruses from infecting the BIOS area that may cause loss of valuable data.

● Supports Intel LandDesk Client Manager (LDCM) (Optional): *Support for this enables both administrators and clients to review system inventory, view DMI-compliant component information, back-up and restore system configuration files, troubleshoot, receive notifications and alerts for system events, transfer files to and from client workstations, and remotely reboot client workstations.*

Environmental Specifications

Ambient Temperature

Operating: 50 °F to 104 °F (10 °C to 40 °C)
Non-operating: 5 °F to 140 °F (- 15 °C to 60 °C)

NOTE: Safety regulations for operating temperature are set at 25°C ±5°C.

Humidity

Operating: 15% to 80%, no condensation
Non-operating: 10% to 90%, no condensation

Unit Dimensions

Motherboard: 244 x 244 mm

Tower System: 192.6 (W) x 304.8 (D) x 290.3 (H)

mm

Power Input Requirement

100 watts at least; 100-125/200-240 V (AC), 3/1.5 A,
60/50 Hz

─────────── **REMARK** ───────────
Specifications are subject to change without prior notice.

CHAPTER 3

Connectors & Jumpers

This chapter provides the layout, descriptions and functions of the connectors and jumpers of your motherboard.

There are a number of connectors and jumpers on the motherboard.   Connectors allow you to connect to different peripherals and/or devices.   Jumpers, on the other hand, provide you flexibility and different functions when set to different values.

These jumpers were set to factory default before shipping, which gives you the best performance.   You should not alter these settings unless you are sure of what you are doing.   If you want to change any setting, please make sure that the computer has been turned OFF and make a note of what the original settings are. In this way, you can always revert to the original settings if the new settings do not work.

Intel 440BX MOTHERBOARD

CPU Slot
AMC Connector
PCI Slots
Super I/O Controller
ISA Slot
Sound Chip

Power Supply Connector
PS/2 Keyboard/Mouse Connector
USB Ports x2
Printer Port
VGA Port/ Serial Port
Game Port
Mic In/Line In/Line Out Jacks

BIOS
FDD Connector
Front Panel Connectors
CMOS Battery
South Bridge (Intel 440BX Chipset)

IDE Connectors
DIMM Slots
Video RAMs
VGA Chip
North Bridge (Intel 440BX Chipset)

VIA APOLLO PRO PLUS MOTHERBOARD

Power Supply Connector
PS/2 Keyboard/Mouse Connector
USB Ports x2
Printer Port
VGA Port/ Serial Port
Game Port
Mic In/Line In/Line Out Jacks

CPU Slot
AMC Connector
PCI Slots
Super I/O Controller
ISA Slot
Sound Chip

BAR CODE

BIOS
FDD Connector
Front Panel Connectors
CMOS Battery
South Bridge (VIA Apollo Pro Plus Chipset)

IDE Connectors
DIMM Slots
Video RAMs
VGA Chip

North Bridge (VIA Apollo Pro Plus Chipset)

Motherboard Layout

Quick Reference

Item	Description	Function	Page
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2	JPCI3	PCI Slot Connector	3-15
3	JPCI2	PCI Slot Connector	3-15
4	JPCI1	PCI Slot Connector	3-15
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6	JSPDIF	S/PDIF Connector (Optional)	3-14
7	JCD1	CD In Connector	3-11
8	J6	Modem Voice Connector	3-10
9	JCD2	CD In Connector	3-11
10	JGAME1	Game/MIDI Port Connector	3-9
11	JMIC1	MIC In Jack	3-9
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14	JVGA1	VGA Port Connector	3-7
15	JCOM1	Serial Port Connector	3-13
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17	JCOM2	Serial Port Connector	3-13
18	JUSB1	USB Ports x2	3-18
19	JKBMS1	PS/2 Keyboard/Mouse connector	3-8
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21	JATX1	Power Supply Connector	3-9

Item	Description	Function	Page
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25	JFREQ	Front Side Bus Frequency Selection	3-15
26	JFP2	Front Panel Connector	3-15
27	JFP1	Front Panel Connector 1	3-15
28	JRTC	CMOS Clear Header	3-18
29	J7	FDD Connector (Black)	3-8
30	JDIMM1	DRAM DIMM Connector	3-11
31	JDIMM2	DRAM DIMM Connector	3-11
32	JCPUF1	CPU Frequency Selection	3-13
33	JIDE1	HDD Connector (Black)	3-12
34	JIDE2	CDROM Connector(White)	3-12
35	JSPK	Chassis Speaker Header	3-14
36	J4	System Cooling Fan Connector	3-10
37	JWOR1	Wake On Ring Connector	3-7

Description on Connectors & Jumpers

✧ **Wake On Lan Connector (JWAKE1)**
Wake-on-Lan is a key feature for corporate systems.
JWAKE1 connector allows a management
application to remotely power on a computer that is
originally turned off.

✧ **Wake On Ring Connector (JWOR1)**
JWOR1 wakes up the system if a ring from the
modem is detected.

✧ **VGA Port Connector (JVGA1)**

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	R	6	GND	11	NC	16	GND
2	G	7	GND	12	MONID1	17	GND
3	B	8	GND	13	HSYNC		
4	NC	9	NC	14	VSYNC		
5	GND	10	GND	15	MONID2		

VGA interface is built-in.   Video cable of a
VGA/SVGA monitor is connected to **JVGA1**.

✧ **PS/2 KB & PS/2 MS connector (JKBMS1)**

The PS/2 enhanced keyboard and mouse is connected to the computer via female mini-hole connectors **JKBMS1** mounted on the motherboard.

✧ **FDD Connector (J7-Black)**

Pin	Signal	Pin	Signal
1	GND	2	-RED_WR
3	GND	4	NC
5	NC	6	-DNSEL1
7	GND	8	-Index
9	GND	10	-MOT_A
11	GND	12	-DRV_B
13	GND	14	-DRV_A
15	GND	16	-MOT_B
17	GND	18	-DIR
19	GND	20	-STEP
21	GND	22	-WT_DT
23	GND	24	-WT_EN
25	GND	26	-Track 0
27	GND	28	-WRPROT
29	NC	30	-RDATA
31	GND	32	-HDSEL
33	GND	34	-DSKCHG

Floppy disk drive is connected to the motherboard through a 34-pin data cable attached to **J7**.   The types of floppy drives supported include 360KB, 720KB, 1.2MB, 1.44MB, or 2.88MB floppy disk drives.

✧ **Game Port & Audio Port (JGAME1)**
JGAME1 is a connector mounted on the motherboard for connection of Joystick or Audio devices.

Game Port →

Speaker   Audio   Mic
Out   In   In
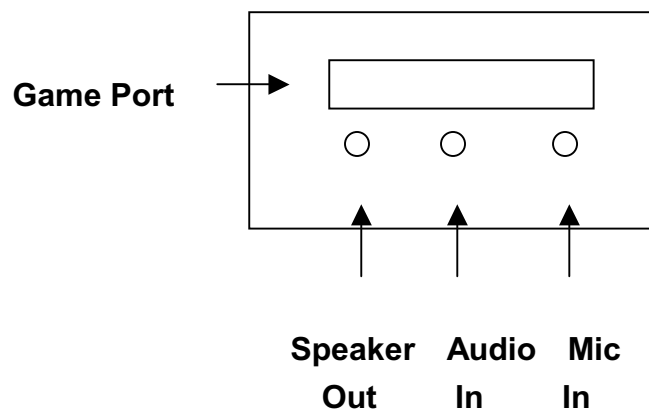
✧ **Standard ATX power connector (JATX1)**
The 20-pin connector from the switching power supply is connected to **JATX1.**   Since the switching power supply used is an ATX-compliant power supply, remote power on/off is supported and the system's power can be turned off through software control.   This feature is called soft-off control.

Soft-off control allows your computer to automatically go back to the power state (on, off, or suspend) after being interrupted by power outage or by disconnection of power core.   To enable this feature, your system's advanced power management must be enabled both in the BIOS Setup Utility and in the operating system.

✧ **Modem Voice connector (J6)**
Modem's voice output is connected to **J6**.

✧ **CPU Cooling Fan Connector (J2)**
CPU fan is connected to **J2**.

✧ **System Cooling Fan Connector (J4)**
System cooling fan is connected to **J4**.

✧ **AMC Connector (J8)**
This connector is for connecting **J8** compatible peripherals.   J8 devices are those devices that conform to ATI Multimedia Channel (AMC) specification.   Some of these devices are MPEG-2 decoder, TV tuners, etc.

✧ **Keyboard Voltage (JKBSP)**

Keyboard voltage
is connected
through **JKBSP**. If

Pin	Signal
1-2	+5V
2-3	Stanby 5V

you want Wake-Up system from keyboard, please
set the jumpers on 2-3.

✧ **CD In Connector (JCD1/JCD2)**
JCD1 and **JCD2** are connected to the audio output
signal of the CD-ROM drive.

✧ **DRAM DIMM connector (JDIMM1, JDIMM2)**
These two connectors or sockets, **JDIMM1** and
JDIMM2, allowed memory expansion of up to 512
MB.

✧ **Parallel Port (JPRT1)**

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	-LP_STB	2	LP_D0	15	-LP_ERR	16	-LP_INIT
3	LP_D1	4	LP_D2	17	-LP_SLIN	18	GND
5	LP_D3	6	LP_D4	19	GND	20	GND
7	LP_D5	8	LP_D6	21	GND	22	GND
9	LP_D7	10	LP_ACK	23	GND	24	GND
11	LP_BUSY	12	LP_PE	25	GND		
13	LP_SLCT	14	-LP_AFD				

JPRT1 is a female DB25 (25-hole) parallel port built-in on the motherboard. You can select the mode of parallel port through BIOS Setup Utility.

✧ **IDE1/IDE2 connectors (HDD/ CDROM)**

IDE devices are connected to the motherboard through 40-pin Daisy-chained cable to **HDD (BLACK)** or **CDROM (White)**.   **HDD** is for primary IDE devices while **CDROM** is for secondary IDE devices.   Usually, these drives are automatically detected by system BIOS.   However, you can enter BIOS Setup Utility to alter settings of these drives.

Pin	Signal	Pin	Signal
1	-IDERST	2	GND
3	PDD7	4	PDD8
5	PDD6	6	PDD9
7	PDD5	8	PDD10
9	PDD4	10	PDD11
11	PDD3	12	PDD12
13	PDD2	14	PDD13
15	PDD1	16	PDD14
17	PDD0	18	PDD15
19	GND	20	Key

21	DDRQA	22	GND
23	-DIOWA	24	GND
25	-DIORA	26	GND
27	-DRDYA	28	NC
29	-DDACKA	30	GND
31	IRQ14	32	NC
33	PDA1	34	NC
35	PDA0	36	PDA2
37	-DCS1A	38	-DCS3A
39	-DASP0	40	GND

✧ **Serial 1 Port/Serial 2 Header (JCOM1/JCOM2)**
JCOM1 and **JCOM2** jumpers are male DB9 (9-pin) serial port connectors mounted on the motherboard. You can enable or disable these ports through BIOS setup utility.

✧ **CPU Frequency Multiple Selection (JCPUF1)**

These jumpers are used to set CPU frequency.

Bus Freq.	7-8	5-6	3-4	1-2
3	IN	IN	OUT	IN
3.5	IN	OUT	OUT	IN
4	IN	IN	IN	OUT
4.5	IN	OUT	IN	OUT

5	IN	IN	OUT	OUT
5.5	IN	OUT	OUT	OUT
6	OUT	IN	IN	IN
6.5	OUT	OUT	IN	IN
7	OUT	IN	OUT	IN
7.5	OUT	OUT	OUT	IN
8	OUT	IN	IN	OUT

✧ **S/PDIF Connector (JSPDIF)**

Sony/Philips Digital Interface Form (Optional)

Pin	Signal
1	Digital Audio Out
2	GND
3	NC

✧ **Chassis Speaker Header (JSPK)**

Chassis speaker header
is connected to **JSPK**.

Pin	Signal
1	VCC 5V
2	NC
3	NC
4	Beep Signal

✧ **Keyboard Wake_Up (JKBWK)**

This keyboard
wake_up is
located in
JKBWK.

Pin	Signal
1-2	KB_Wake by Password
2-3	Normal

✧ **PCI Slot Connectors (JPCI1, JPCI2, JPCI3)**

Install PCI cards through these slots.
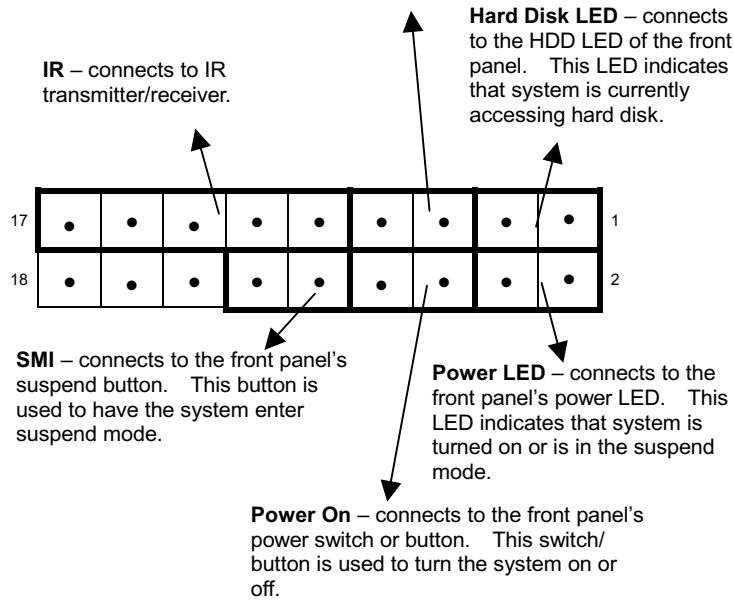
✧ **Front Side Bus Frequency Selection (JFREQ)**

Front side bus frequency is connected through
JFREQ.

✧ **Front Panel Connectors (JFP1, JFP2)**

Connects to the different functions on the front panel.
JFP1, **JFP2** connect motherboard I/O controls to the
front panel. **JFP1** is for Standard Micro ATX Front
Panel used by your chassis, while **JFP2** is reserved
for connection to other types of chassis.

JFP1:

Reset – connects to the front panel's reset button or switch. This switch/button is used to reboot system as required.

Hard Disk LED – connects to the HDD LED of the front panel.   This LED indicates that system is currently accessing hard disk.

IR – connects to IR transmitter/receiver.

17 · · · · · · · · · 1

18 · · · · · · · · · 2

SMI – connects to the front panel's suspend button.   This button is used to have the system enter suspend mode.

Power LED – connects to the front panel's power LED.   This LED indicates that system is turned on or is in the suspend mode.

Power On – connects to the front panel's power switch or button.   This switch/ button is used to turn the system on or off.

Function	Pin	Signal	Function	Pin	Signal
Hard Disk LED	1	HD Active	Power LED	2	VCC +5V
	3	GND		4	GND
Reset	5	GND	Power On	6	Power On
	7	Reset Button		8	GND
IR	9	VCC	SMI	10	SMI
	11	IRRX		12	GND
	13	GND		14	NC
	15	IRTX		16	5VSB
	17	NC		18	NC

JFP2:

Hard Disk LED – connects to the HDD LED of the front panel. This LED indicates that system is currently accessing hard disk.

Power LED – connects to the front panel's power LED.   This LED indicates that system is turned on or is in suspend mode.

Power On– connects to the front panel's power switch or button. This switch/button is used to turn the system on or off.
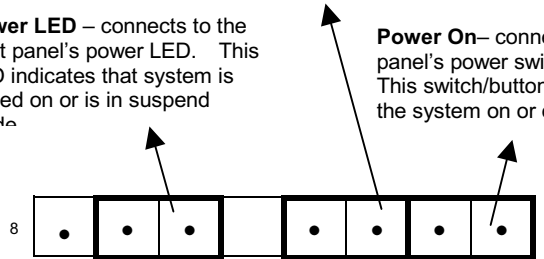
Function	Pin	Signal	Function	Pin	Signal
Power On	1	Power On		5	NC
	2	GND	Power LED	6	VCC +5V
Hard Disk LED	3	HD Active		7	GND
	4	GND		8	GND

◇ **ISA Slot Connector (JISA1)**

Install ISA card through this slot.

◇ **USB Port Connector (JUSB1)**

The USB (Universal Serial Bus) connector, **JUSB1**, is a 2-layered connector mounted on the motherboard for connecting up to two USB devices.

Pin	Signal	Pin	Signal
1	VCC	2	USBDAT0-
3	USBDAT0+	4	GND
5	VCC	6	USBDAT1-
7	USBDAT1+	8	GND
9	GND	10	GND

◇ **CMOS Clear Jumper (JRTC)**

Pin	Description
1-2	Normal
2-3	Clear CMOS

Set this jumper to clear CMOS data.   When CMOS data is cleared, system configuration has to be entered during boot.   For ATX power supply, you need to completely shut down the system and Unplug Cord before setting **JRTC** to clear CMOS.

CHAPTER 4
BIOS Setup

The AMI BIOS Setup Utility of your system is discussed in this chapter.

The system Basic Input and Output System (BIOS) is the interface between the hardware and the operating system software.   Its function is to provide a series of software interrupts and functions that control operations on certain devices connected to your system.   Aside from this, it performs a series of Power On Self Test (POST) every time you boot the system.   POST checks your actual system configuration with the system configuration data stored in a non-volatile memory known as CMOS RAM. These tests are to ensure that your system is properly configured to recognize the devices such as memory, FDD, HDD, etc.

Usually, you may need to perform setup due to the following circumstances:

- Adding or removing devices to or from the system, such as FDD, HDD, adapter cards, or memory
- Changing the type of video display
- Setting the built-in clock/calendar to the correct time and/or date
- Enabling or disabling special features such as power management functions, system passwords, etc.
- Setting or resetting configuration data if these were accidentally lost or if the on-board battery was replaced.

Entering System Setup

When you turn on your system, hit <DEL> if you want to run SETUP. You have to press <DEL> key fast enough before it starts up the operating system in order to enter Setup Utility.

If you are not able to enter the Setup Utility through this, reboot your computer and repeat the above procedure.

If the computer detects discrepancies between your CMOS data and actual system configuration, it will prompt you with an error message and request you to run setup.   Just the same, you can enter setup by pressing <DEL> key.

The following main menu appears upon entering Setup Utility:

Use the cursor keys to move to the required item and press
<Enter> to select.   <PgUp>, <PgDn>, < ↑ > or < ↓ > keys
are used to modify configuration data.   An online help
message is provided at the bottom of the screen.   Each
item and corresponding options are discussed in the
succeeding sections.

Standard CMOS Setup Sub-Menu

This sub-menu allows you to configure system setting such
as current date and time, type of storage devices installed
in the system, and type of display monitor connected to the
system.

Use the cursor keys to select an item and press <PgUp>,
<PgDn>, < ↑ > or < ↓ > keys to modify its options.

Item	Options	Description
Date	month:day:year	Sets system date and time to current date and time.
Time	hour:min:sec	
Drive A	360KB, 5.25 in. 1.2MB, 5.25 in. 720KB, 3.5 in.	Selects the type of floppy drives installed in the system.
Drive B	1.44MB, 3.5 in. 2.88MB, 3.5 in. None	

You can let your system automatically detect the IDE devices installed by setting Primary Master, Primary Slave, Secondary Master, and Secondary Slave to Auto.   In this case, you do not have to perform setup if an IDE device is added or changed in your system.

System memory size is automatically detected by the BIOS, and is displayed at the bottom right of the screen.

Advanced CMOS Setup Sub-Menu

Advanced Setup Menu allows you to configure basic system performance parameters.
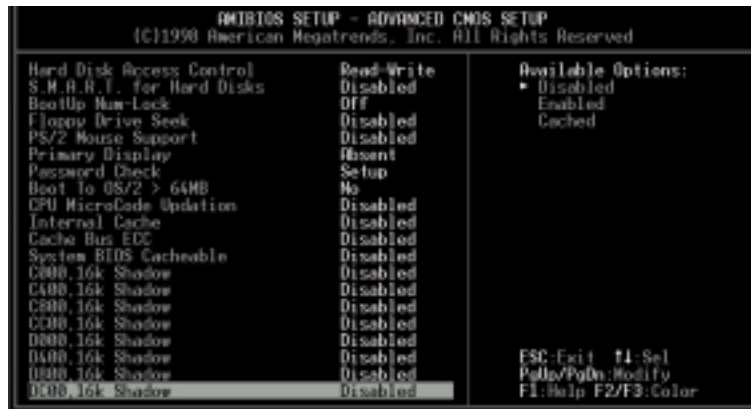
Use the cursor keys to select an item and press <PgUp>, <PgDn>, < ↑ > or < ↓ > keys to modify its options.

Options and descriptions of each item as follows:

Item	Options	Description
Quick Boot	Disabled Enabled	*Enabled* allows the BIOS to skip certain tests to speed up boot process. If enabled, the message "Hit <DEL> if you want to run SETUP" will not appear on screen during boot.

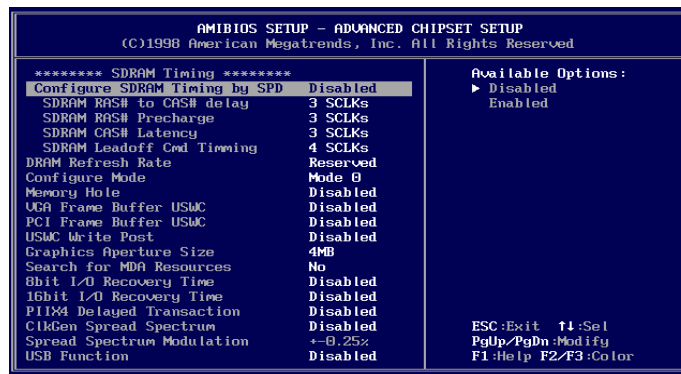| Item	Options	Description
1st Boot Device 2nd Boot Device 3rd Boot Device	Disabled	BIOS will attempt to read the boot record from first, second, then third device in the selected order until it is successful in reading the boot record.
Try Other Boot Device	Yes No	If all selected boot devices failed to boot, *Yes* allows BIOS to boot from other boot devices present but not selected in the setup.
Floppy Access Control Hard Disk Access Control	Read-Write Read-Only	Specifies the read/write access that is set when booting from a floppy/hard disk drive.
S.M.A.R.T. for Hard Disks	Disabled Enabled	S.M.A.R.T. is Self-Monitoring, Analysis and Reporting Technology → developed to manage the reliability of hard disk by predicting future device failures. Hard disk has to have this capability before you enable this feature. Note: S.M.A.R.T. cannot predict all future device failures. This should be used as a warning tool only.
Boot Up Num-Lock	On Off	*On* turns the Num Lock key off when system is powered on.
Floppy Drive Seek	Disabled Enabled	*Enabled* specifies that drive A: will perform a Seek operation at system boot.
PS/2 Mouse Support	Enabled Disabled	Enables or disables the support for PS/2 type mouse.

Primary Display	Absent VGA/EGA CGA40x25 CGA80x25 Mono	Configures the type of monitor attached to the computer.
Password Check	Always Setup	Enables password checking: *Always* - every time the system boots *Setup* - if BIOS Setup Utility is executed
Boot to OS/2 over 64MB	No Yes	*Yes* allows BIOS to run with OS/2 and use more than 64MB of system memory.
CPU Microcode Updation	Disabled Enabled	*Enabled* permits the CPU to be updated online at any time.
Internal Cache	Disabled WriteThru Write Back	Disables or enables internal cache memory.
Cache Bus ECC	Disabled Enabled	*Enables* allows the ECC to test the accuracy of cache memory
System BIOS Cacheable	Disabled Enabled	*Enabled* allows the contents of F0000h system memory segment to be read from or written to cache memory for faster execution.
C000, 16K Shadow	Disabled Enabled Cached	Specifies how the 32KB of video ROM at C0000h is treated. *Disabled* - contents of video ROM are not copied to RAM. *Enabled* - contents of video ROM area from C0000h-C7fffh are copied (shadowed) from ROM to RAM for faster execution.
C400, 16K Shadow		*Cached* - contents of video ROM area from C0000h - C7fffh are copied from ROM to RAM and can be written to or read from cache memory.
C800, 16K Shadow	Disabled Enabled	Enables the shadowing of the contents of selected ROM area. The ROM area not used by ISA

CC00, 16K Shadow	Cached	The ROM area not used by ISA adapter cards is allocated to PCI adapter cards.
D000, 16K Shadow		*Disabled* - contents of video ROM are not copied to RAM.
D400, 16K Shadow		*Enabled* - contents of video ROM area from C0000h-C7fffh are copied (shadowed) from ROM to RAM for faster execution.
D800, 16K Shadow		*Cached* - contents of video ROM area from C0000h - C7fffh are copied from ROM to RAM and can be written to or read from cache memory.
DC00, 16K Shadow		

Advanced Chipset Setup Sub-Menu

Configures the features of the chipset used.   Be sure you are familiar with the chipset before you attempt to make any changes on these.

Use the cursor keys to select an item and press <PgUp>, <PgDn>, < ↑ > or < ↓ > keys to modify its option.
Options and descriptions of each item as follows:

Item	Options	Description
Configure SDRAM Timing by SPD	Enabled Disabled	Specifies the timing of the SDRAM installed.
SDRAM RAS # To CAS # Delay	3 SClks 2 SClks	Specifies the timings of the corresponding items.
SDRAM RAS Precharge		
SDRAM CAS # Latency		
SDRAM Leadoff Cmd Timming	4 SClks 3 SClks	Specifies the timing for leadoff commands involving SDRAM
DRAM Refresh Rate	15.6 us 31.2 us 62.4 us 124.8 us 249.6 us	Specifies the interval between Refresh signals to DRAM system memory.
Configure Mode	Mode 0 Mode 1	Specifies the configure mode to mode 0 or mode 1
Memory Hole	Disabled 15MB-16MB	Specifies the location of an area of memory that cannot be applied on the ISA bus
VGA Frame Buffer USWC*	Enabled Disabled	Enables or disables VGA video frame buffer using USWC. Note that older ISA card drivers may not behave correctly if this option is not set to *Disabled*.
PCI Frame Buffer USWC	Enabled Disabled	Enables or disables USWC memory attribute. Enabling this improves video performance when a PCI video adapter is installed.
USWC Write Post	Disabled Enabled	Enables or disables USWC posted writes to I/O.

* USWC - Uncacheable, Speculatable, Write-Combined

Graphics Aperture Size	4 MB 8 MB 16MB 32MB 64MB 128MB 256MB	Specifies the amount of memory that can be used by AGP (Accelerated Graphics Port).
Search for MDA Resources	Yes No	Selects AMIBIOS search for MDA resources
8 bit I/O Recovery Time	Disabled 8 Sysclk 1 Sysclk 2 Sysclk 3 Sysclk 4 Sysclk 5 Sysclk 6 Sysclk 7 Sysclk	Specifies the length of a delay inserted between successive 8-bit I/O operations
16 bit I/O Recovery Time	Disabled 4 Sysclk 1 Sysclk 2 Sysclk 3 Sysclk	Specifies the length of a delay inserted between successive 16-bit I/O operations
PIIX4 Delayed Transaction	Disabled Enabled	Enables or disabled the corresponding items.
ClkGen Spread Spectrum	Disabled Enabled	
Spread Spectrum Modulation	+- 0.25% +- 0.5%	Specifies type if 'Clk Gen Spread Spectrum' Is enabled.
USB Function	Yes No	Enables or disabled the USB support.
USB Keybd/ Mouse Legacy Support	Disabled Enabled	Enables or disables the system BIOS support for USB Keybd/ Mouse in legacy mode.

Power Management Setup Sub-Menu

This sub-menu configures the power conservation features. Use the cursor keys to select an item and press <PgUp>, <PgDn>, < ↑ > or < ↓ > keys to modify its option.

```
              AMIBIOS SETUP - POWER MANAGEMENT SETUP
           (C)1998 American Megatrends, Inc. All Rights Reserved

 Suspend Time Out (Minute)        Disabled      Available Options:
 Throttle Slow Clock Ratio        0-12.5%        ► Disabled
 Modem Use IRQ                    N/A               1
 Display Activity                 Ignore            2
 Device 6 (Serial port 1)         Ignore            4
 Device 7 (Serial port 2)         Ignore            8
 Device 8 (Parallel port)         Ignore           10
 Device 5 (Floppy disk)           Ignore           20
 Device 0 (Primary master IDE)    Ignore           30
 Device 1 (Primary slave IDE)     Ignore           40
 Device 2 (Secondary master IDE)  Ignore           50
 Device 3 (Secondary slave IDE)   Ignore           60
 Power Button Function            Suspend
 Ring Resume From Soft Off        Disabled
 LAN Resume From Soft Off         Disabled
 RTC Alarm Resume From Soft Off   Enabled
 RTC Alarm Date                   Every Day
 RTC Alarm Hour                   00            ESC:Exit  ↑↓:Sel
 RTC Alarm Minute                 00            PgUp/PgDn:Modify
 RTC Alarm Second                 00            F1:Help F2/F3:Color
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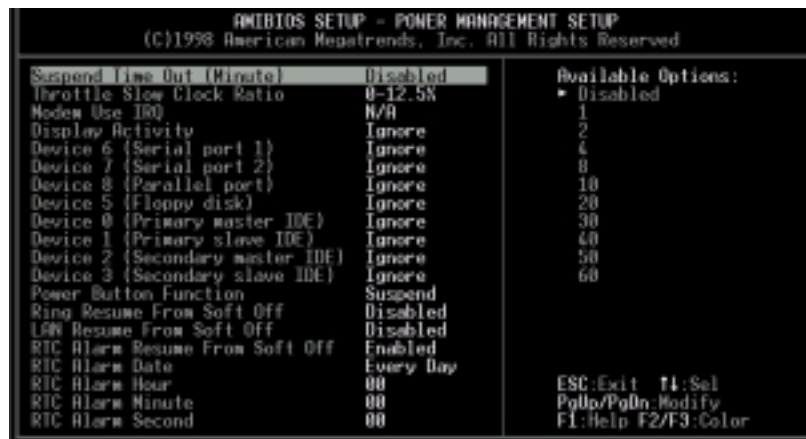
Use the cursor keys to select an item and press <PgUp>,
<PgDn>, < ↑ > or < ↓ > keys to modify its options.

Options and descriptions of each item as follows:

Item	Options	Description
Power Management/ APM	Disabled Enabled	*Enabled* lets the BIOS control the power conservation features.
Green PC Monitor Power State	Standby Suspend Off	Specifies the power state that the selected item enters after the specified period of inactivity has expired.
Video Power Down Mode	Disabled Standby Suspend	
Hard Disk Power Down Mode		

Hard Disk Time Out (Minute)	Disabled	Specifies the length of specified period of hard disk drive inactivity. When the length of period expires, the computer enters power state that is specified in the Hard Disk Power Down Mode.
Standby Time Out (Minute)

Suspend Time Out (Minute) | Disabled | Specifies the length of period of system inactivity while in full power/standby state before it enters standby/suspend power state. |
| Throttle Slow Clock Ratio | 0-12.5%
12.5-25%
25-37.5%
37.5-50%
50-62.5%
62.5-75%
75-87.5% | Specifies the speed at which the system clock runs in the standby mode power saving state.   The settings are expressed as a percentage between the normal CPU clock speed and the CPU clock speed when the computer is in the power-conserving state. |
| Modem Use IRQ | N/A
3
4
5
7
9
10
11 | Sets the IRQ address used by modem. |

Display Activity	Ignore Monitor	Enables event monitoring on the selected item. *Monitor* allows BIOS to enter Full On state if any activity occurs on that specific item when the computer is in a power saving state.
Device 6 (Serial port 1)	Monitor Ignore	Enables event monitoring on the setting. If set to *Monitor*, the computer will return to Full On state if any activity occurs.
Device 7 (Serial port 2)	Ignore Monitor	Enables event monitoring on the setting. If set to *Monitor*, the computer will return to Full On state if any activity occurs.
Device 8 (Parallel port)	Ignore Monitor	
Device 5 (Floppy disk)	Ignore Monitor	
Device 0 (Primary master IDE)		
Device 1 (Primary slave IDE)		
Device 2 (Secondary master IDE)		
Device 3 (Secondary slave IDE)		
Power Button Function	On/Off Suspend	When power button is pressed: *On/Off* turns the computer on or off. *Suspend* places the computer in suspend mode or full power mode.

Ring Resume From Soft Off	Disabled Enabled	If a modem is attached and this item is enabled, system will wake up upon detection of ringing tone during power saving state.
LAN Resume From Soft Off	Disabled Enabled	Enables allows you to wake up the system through LAN alarm
RTC Alarm Resume From Soft Off	Disabled Enabled	Sets the RTC alarm to wake up the system on a specified period
RTC Alarm Date	Every Day 01 ⋮ 31	Specifies the date and time to wake up the system.

RTC Alarm Hour	00 ⋮ 23	Specifies the date and time to wake up the system.
RTC Alarm Minute	00 ⋮ 59	
RTC Alarm Second	00 ⋮ 59	

PCI/Plug and Play Setup Sub-Menu

Configures PCI and Plug-and-Play features.

Use the cursor keys to select an item and press <PgUp>,
<PgDn>, < ↑ > or < ↓ > keys to modify its options.
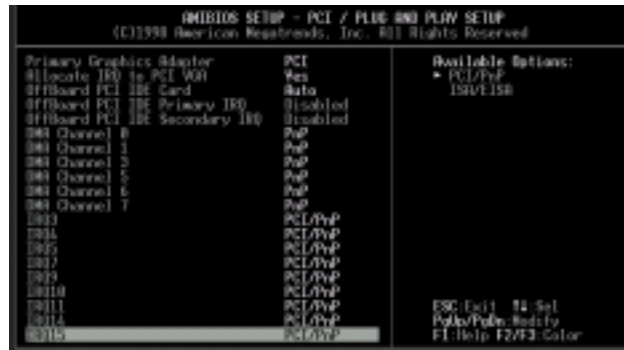
Options and descriptions of each item as follows:

Item	Options	Description
Plug and Play-Aware OS	No Yes	Set this to *Yes* if your operating system is aware of and follows the Plug and Play specification.
PCI Latency Timer (PCI Clocks)	32 64 96 128 160 192 224 248	Specifies the latency timings in PCI clocks for all PCI devices.
Primary Graphics Adapter	PCI AGP	Specifies the primary graphics adapter from PCI bus or AGP. The system usually detects PCI bus as primary if PCI bus is installed. Otherwise, the system will choose onboard AGP as graphics adapter.
Allocate IRQ to PCI VGA	Yes No	Assigns an interrupt signal to the PCI VGA card.

Offboard PCI IDE Card	Auto Slot 1 Slot 2 Slot 3 Slot 4 Slot 5 Slot 6	Specifies if an offboard PCI IDE controller adapter card is installed. If it is installed, the onboard IDE controller is automatically disabled. This option forces IRQ14 and IRQ15 to a PCI slot on the PCI local bus, in order to support non-compliant ISA IDE controller adapter cards. If this is installed, 'Offboard PCI IDE Primary IRQ' and 'Offboard PCI IDE Secondary IRQ' must be set.

Offboard PCI IDE Primary IRQ Offboard PCI IDE Secondary IRQ	Disabled INTA INTB INTC INTD Hardwired	Specifies PCI interrupt used by the primary/secondary IDE channel on the offboard PCI IDE controller.
DMA Channel 0 DMA Channel 1 DMA Channel 3 DMA Channel 5 DMA Channel 6 DMA Channel 7	PnP ISA/EISA	Specifies which channels to control the data transfers between I/O devices and system memory.
IRQ3 IRQ4 IRQ5 IRQ7 IRQ9 IRQ10 IRQ11	PCI/PnP	Specifies which bus the specified IRQ line is used on and allows you to reserve interrupts for legacy ISA adapter cards. If more interrupts must be removed from the pool, you can use these options to reserve the IRQ by assigning an ISA/EISA setting to it. Onboard I/O is configured by the BIOS and is configured as PCI/PnP. IRQ14 and 15 will not be available if onboard PCI IDE is enabled. If

IRQ14		all IRQs are set to ISA/EISA IRQ14 and 15 are allocated to the
IRQ15		onboard IDE, IRQ 9 will still be available for PCI and PnP devices.

Peripheral Setup Sub-Menu

Use the cursor keys to select an item and press <PgUp>, <PgDn>, < ↑ > or < ↓ > keys to modify its options.

Options and descriptions of each item as follows:

Item	Options	Description

OnBoard FDC	Auto Disabled Enabled	Enables the floppy drive controller on the motherboard.
OnBoard Serial PortA	Auto Disabled 3F8h/COM1	Specifies the base I/O port address of serial port 1/2.
OnBoard Serial PortB	2F8h/COM2 3E8h/COM3 2E8h/COM4	
IR I/O Pin Location Select	SINB/SOUTB IRRX/IRTX	Option available if 'OnBoard Serial PortB Mode' is not set to *Disabled*
Serial PortB Mode	Normal IrDA ASK-IR	Specifies the operating mode of serial port B. Available for selection only if 'OnBoard Serial PortB' is not set to *Disabled*.
IrDA Protocol	N/A 1.6 us 3/16	Option available if 'Serial PortB Mode' is not set to *Normal*
OnBoard Parallel Port	Auto Disabled 378h 278h 3BCh	Specifies the base I/O port address of the parallel port on the motherboard.
Parallel Port Mode	Normal Bi-Dir EPP ECP	*Normal* → normal parallel mode Bi-Dir→ support bidirectional transfers *EPP* (Enhanced Parallel Port) → provide asymmetric bidirectional data transfer driven by the host device. *ECP* (Extended Capabilities Port) → achieve data transfer rates of up to 2.5 Mbps. Uses DMA protocal and provides symmetric bidirectional communication.
EPP Version	1.7 1.9	Options available only if 'Parallel Port Mode' is *EPP*.
Parallel Port IRQ	5 7	Specifies IRQ to be used by the parallel port.

Parallel Port DMA Channel	0 1 3	Options available only if 'Parallel Port Mode' is *ECP*.
PowerLoss Control	Off On Keep Last State	Specifies under an AC power failure, whether the system will be placed in the power on state, power off state, or keep last state.
K/B Wake-Up function	Disabled Specific Key Any Key	Specifies the keyboard to determine the system placed in power on state
Mouse Wake-Up function	Disabled Left-button Right-button	Specifies the mouse to determine the system placed in power on state
On-Board IDE	Disabled Primary Secondary Both	Specifies the onboard IDE controller channels to be used.

Hardware Monitor Setup

Hardware monitor setup screen monitors several critical hardware parameters of the system on your computer, including CPU temperature, system temperature, system fan speed, CPU fan speed and power supply voltages.

Auto-Detect Hard Disks

Your system automatically detects and configures the IDE devices installed in your system.   This sub-menu provides you with details on such configurations.   Selecting "**Auto Detect Hard Disk**" from the main menu will have the following displayed on screen:

If IDE devices are detected, details such as the size, number of cylinders, head, etc, of the devices will be displayed correspondingly

Change User Password, Change Supervisor Password

Two levels of passwords are supported by your system.   If you use both, the Supervisor password must be set first. Note that you can configure your system such that all users must enter a password every time the system boots or when BIOS is executed.   (Refer to 'Password Check' item under Advanced Setup of Setup Function Menu).

When you select Supervisor or User icon, you are prompted with the screen as shown.   Type a 1-6 character password.   Asterisks appear in place of the password typed.   You have to retype the password when prompted, then press <Enter>.   The password is encrypted and stored in CMOS RAM.   A confirmation message will be displayed on screen if the password was successfully entered.

Make sure you do not forget the password; otherwise, you need to drain CMOS RAM and reconfigure your system. If you do not want to use a password, just press <Enter> when the password prompt appears.

Change Language Setting

This option allows you to select a different language for the text messages displayed on screen. Currently, the only option and default setting is *English*.

Auto Configuration with Optimal

Settings

Choose this icon to
load the optimal
default settings for
BIOS.   Optimal
default settings are
best-case values
that should
optimize system
performance.   If
CMOS data is
corrupt, the
Optimal settings
are loaded automatically.

Auto Configuration with Fail Safe Settings

Choose this icon
to load the
fail-safe default
settings for BIOS.
Fail-Safe settings
offer the most
stable settings but
are far from
optimal system
performance.
Use this option as
a diagnostic aid if
the system is
behaving erratically.

Exiting System Setup

Pressing < ↑ > or < ↓ >
from the main menu of
Setup Utility to select the
exiting options as shown:

Type "**Y**" to save all changes made into CMOS RAM before
leaving Setup mode.   If you do not want to quit setup yet,
type "**N**."

If you would like to quit setup without saving the
modifications you have just made, choose this item from
the main menu and type "**Y**" to leave setup mode. Type "**N**"
if you would like to continue with your setup operations.

CHAPTER 5
Installation

This chapter provides the installation procedures for CPU, system memory, and storage devices.

Before proceeding with the installation procedure, read through some safety tips and precautions first:

- Use a grounded wrist strap designed for static discharge.

- Discharge static electricity from your hands by touching a grounded metal object before removing the motherboard from its anti-static packaging.

- Avoid touching pins of chips or modules.

- Do not put the system on an unstable surface, near water, nor near sources of extreme heat.

- Ensure that power of the system is turned off and power cord is disconnected from the power source before disassembling your system.

- Remove all cable connections from the system by pulling out the connector, not the cables. Pulling the cables may cause lead wires to break.

- Put disassembled/removed parts, including screws, in a safe and easily accessible place and make sure none of these drop or are left inside the main unit.

• Before installing back the cover, check if all parts, including internal cables, are properly installed.

The succeeding sections provide installation procedures for different storage devices. Your system chassis provides drive bays for:

Exposed 5.25" Drive   x 1
Exposed 3.5" Drives   x 2
Enclosed 3.5" Drive   x 1

Removing System Cover

—— **WARNING: Before Removing System** ——

*T*urn off the main power switch. Disconnect all power cords and signal cables attached to the system. Connecting devices with the power on may result in severe damages!

1. Unscrew the three screws on the rear panel of your chassis.

Screws x 3
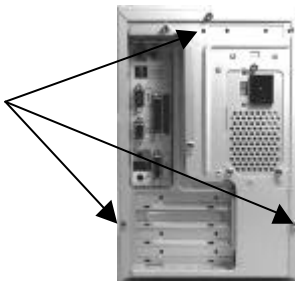
2. Slide the cover towards the
    back then lift it outward until
    it clears the unit as shown.
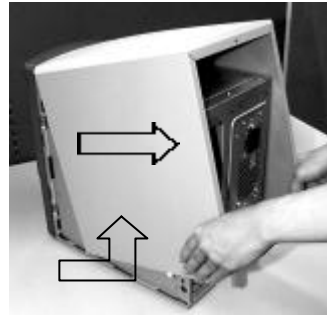
3. Find a suitable location to
    place screws and the cover.

Installing the Motherboard

1. Remove system cover, then locate motherboard
    plate.

2. Unscrew two screws on the rear panel.
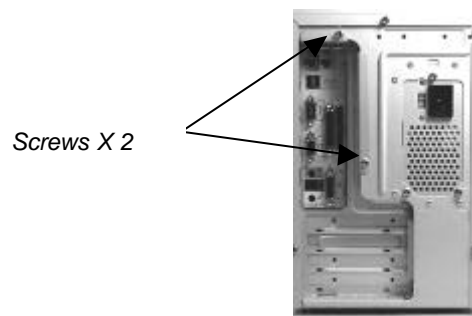
Screws X 2

3. Unscrew two motherboard plate screws on the side of the chassis.

Motherboard plate

Motherboard plate screws x2
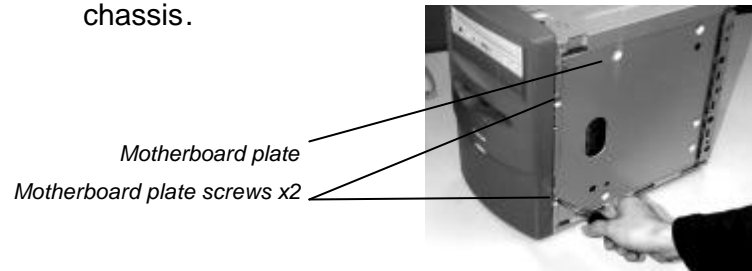
4. Pull the motherboard plate outward gently and carefully.
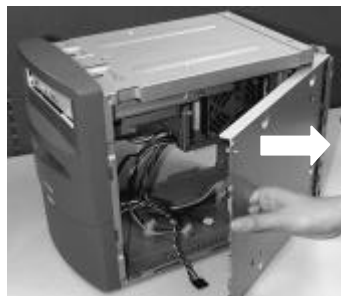
5. If you are performing motherboard replacement and cables are connected to the motherboard, remove these cables first.

6. Gently remove the motherboard plate from the chassis.

7. If you are replacing the motherboard, remove the seven screws of the motherboard.

8. Put the motherboard onto the motherboard plate.
    Make sure all mounting holes or clips of the
    motherboard fit well into the plate.

9. Secure properly the screw holes into the tooling holes
    with seven motherboard mounting screws.

10. Put back the motherboard into the chassis as shown.

Two screws

*This portion should
be aligned properly.*
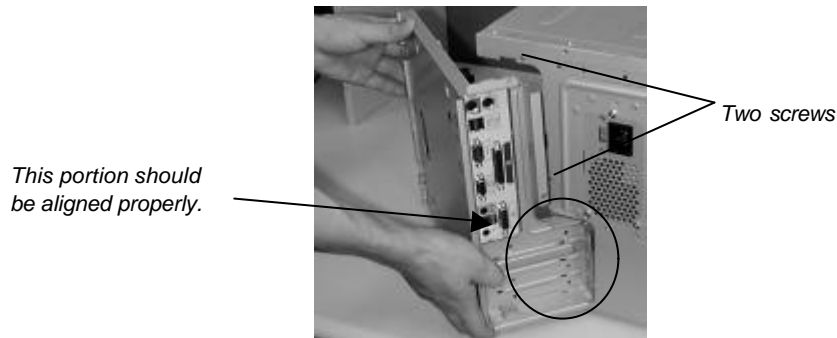
11. Move the plate towards the
    chassis and connect
    necessary cables to the
    motherboard before entirely
    closing this.

12. Secure the two motherboard
    plate screws on the side and
    two screws in the rear.

13. Secure back system cover.

Pentium II CPU Installation

NOTES
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1. Figures provided are for purposes of illustration and easy

installation only. Motherboard used may not be the same as

your system' s motherboard.

2. Before installing or replacing CPU, please refer to " Installing the

Motherboard" section.

You have to install retention mechanism onto your
motherboard. There are two options in installing retention,
depending on if the retention mechanism already installed in
your motherboard. If yes, please refer to section A; if not,
please refer to section B.

Section A

1   Locate Pentium II
    processor (CPU).

2. Locate CPU slot on the motherboard. You can see the
    retention mechanism on it.

**Retention
Mechanism**
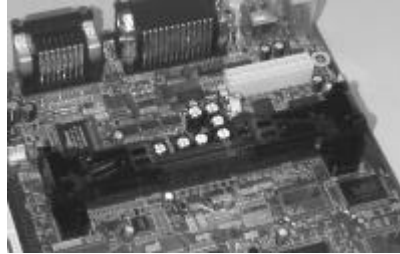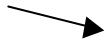
3. Pull up the sides of retention mechanism until it is
    perpendicular
    with the
    motherboard.
    Then, push to
    lock it securely in
    place.
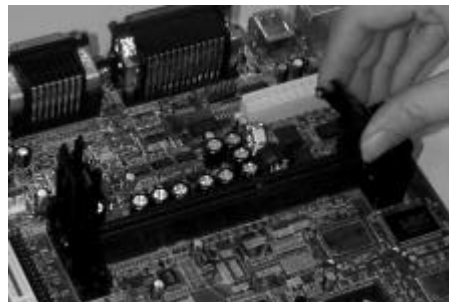
4. Push the latches inward on the top of the processor.

Latch
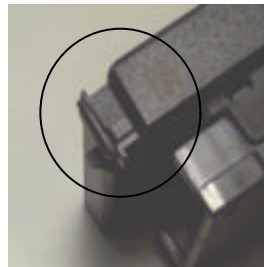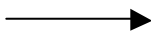
5.   Vertically insert the CPU
     with fan assembly into the
     retention mechanism, until
     they click into the
     appropriate location.
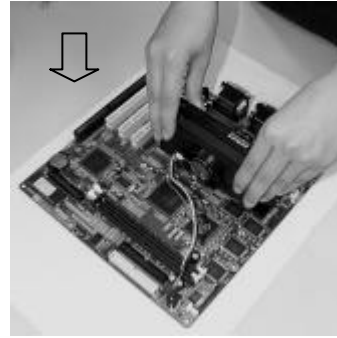
6.   Pull the latches outward until they click into place in the
     retention mechanism. The latches must be secured for
     proper electrical connection of the processor.

7.   Connect the power cable to the power supply.
8.   Connect the fan' s power cable to the connector on the
      motherboard.

Section B.

1.   Locate Pentium II processor.

2. Install two retention mechanism modules on each side.
    Find two holes and attach the modules to the
    motherboard.

    Retention
    Mechanism
    Module

    Two Screws
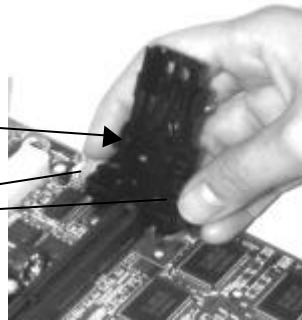
3. Push two black plastic
    pegs firmly into the holds
    on each side of retention
    mechanism. Make sure
    four pegs are firmly
    attached to the
    motherboard.

    Plastic Pegs
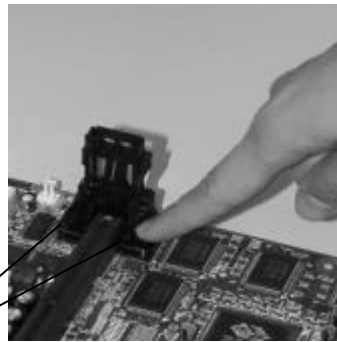
4. Pull up the sides of retention mechanism until they are
    perpendicular with the motherboard. Then, push the
    retention mechanism until lock securely in place (See
    Section A for reference).

5. Push the latches on the top of the processor. Vertically
    insert the CPU and fan assembly into the retention

mechanism, until it clicks into space.

6.   Pull the latches outward until they click into place in the retention mechanism. The latches must be secured for proper electrical connection of the processor.

7.   Connect the power cable to the power supply.

8.   Connect the fan's power cable to connector on the motherboard.

Memory Installation

There are several types of memory that can be installed in the two 168-pin 3.3V DIMM sockets of your motherboard. You can install maximum of 512MB SDRAM (Synchronous DRAM) memory onto your system through these slots.

NOTES

1. Figures provided are for purposes of illustration and easy installation only. Motherboard used may not be the same as your system's motherboard.

2. Before Installing or replacing DIMM, please refer to "Installing the Motherboard" section.

Installation procedures as follows:

1.   Locate the DIMM slot on the motherboard.

2. Align the two notches of the DIMM with the receptive points on the DIMM socket. You cannot insert the DIMM into its socket if it is not aligned properly.
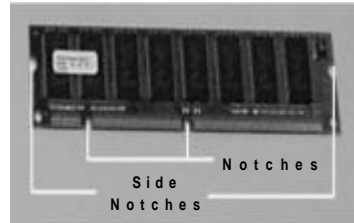
3. Press the clips on both sides of the DIMM socket outward to release it.
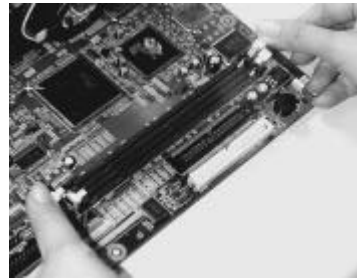
4. Insert the DIMM vertically with its metal fingers aligned with the socket's grooved slot.
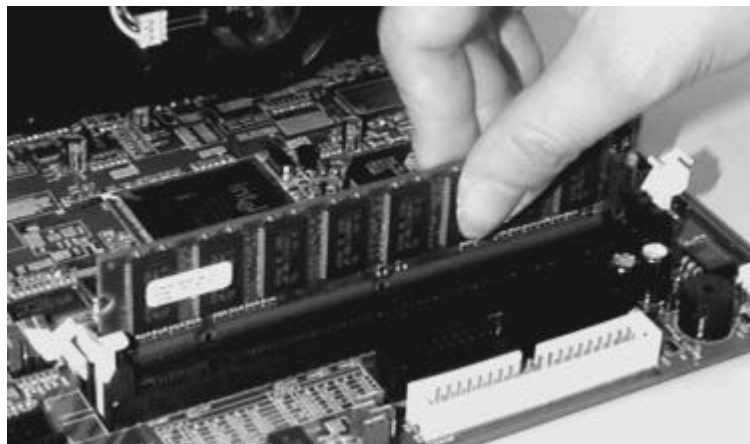
5.   Press until the DIMM is locked onto
     the socket. (The clips will return to
     its original standing position when
     the DIMM is properly inserted into
     the socket, as shown.)
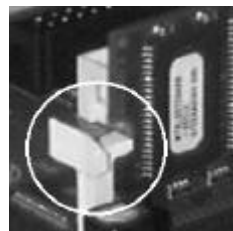
6.   To ensure proper operation,
     check if the clip is properly
     locked onto the side notches
     of the DIMM module. If not,
     press slightly to lock it.

7.   Your system automatically
     detects the size and type of memory installed.

Installing Floppy Disk Drive

1.   Remove system cover and locate FDD bracket.

2.   Put the chassis with the motherboard plate on its side for
     easier installation.

FDD bracket screw location
Locking mechanism
FDD bracket
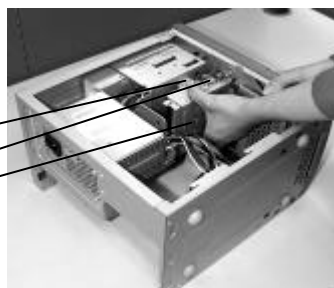
3. Unscrew the FDD bracket screw.

4. Push the locking mechanism firmly then pull the FDD bracket to separate it from the chassis.

5. If you are replacing a FDD, first remove the connected cables to the FDD, unscrew two screws on each side of the bracket and remove the FDD out of its bracket.

6. Slide a FDD into the bracket, then fasten with two screws on each side (The front and rear of FDD and bracket).
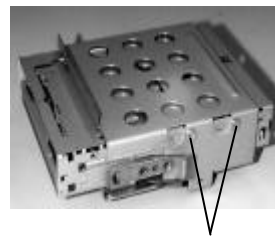
2 screws on each side

7. Install the FDD bracket into the chassis (You may need to slant the bracket slightly to fit in).

8. Make sure the four hooks are installed into chassis
    properly.
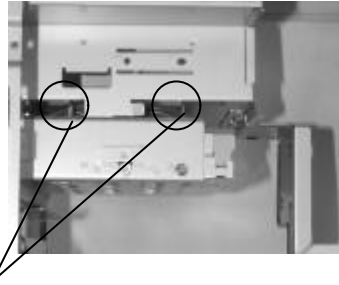
4 Hooks

9. Connect power cable and data cable.

FDD bracket screw
Power cable
Data cable
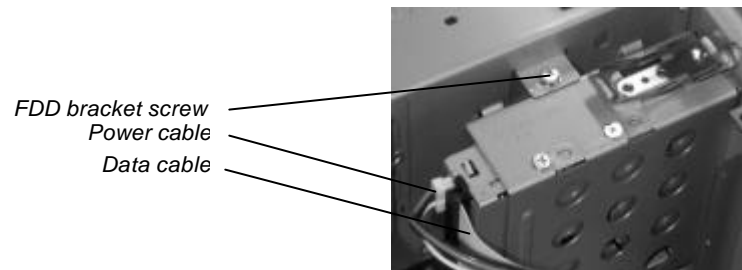
10.   Fasten FDD bracket screw.

11.   Secure back system cover.

Installing 3.5" HDD

1.   Remove system cover and locate HDD bracket.

2.   Put the chassis with the motherboard plate on its side for easier installation.

3.   Unscrew two HDD bracket screws.

4.   Remove the HDD bracket by moving it in the direction of the arrow as shown.

HDD bracket screws
HDD bracket
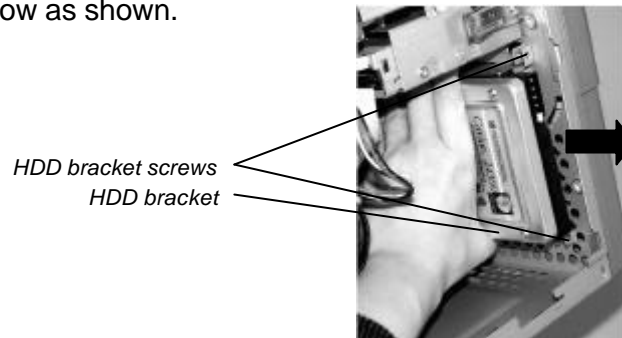
5.   If you are replacing a HDD, first remove the cables connected to it, unscrew two screws on each side and remove the HDD out of its bracket.

6.   Attach the HDD and secure with two screws on each side.
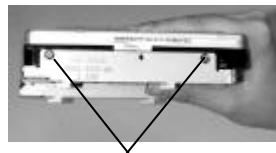
2 screws on each side

7.   Install back the HDD bracket into the chassis until it is latched into place.

8. Connect power cable and data cable to the HDD. (Note that you can use either of the two power cable connectors provided with your power supply.)
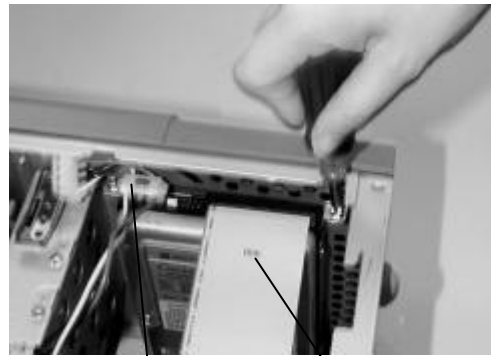
Power cable   Data cable

9. Fasten two HDD bracket screws.

10. Secure back system cover.

Installing Storage Devices

1. Remove system cover.

2. Remove motherboard plate out of the chassis. Refer to steps 1-6 of ' *Installing the Motherboard'* section above.

3. Locate CD-ROM bracket. You can install a 5.25" drive on the upper portion and a 3.5" drive on the lower portion of this bracket.

4.   If you are replacing a 5.25" drive, remove two CD-ROM
     bracket screws on each side. Pull the drive out a little
     and remove the cables attached to the drive before
     completely removing the drive out of the bracket.
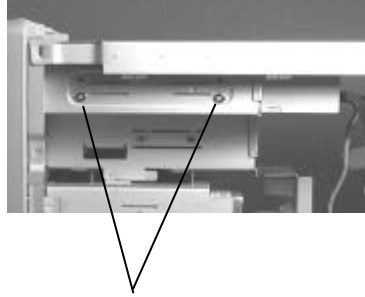
Two Screws on each side

5. Slide the drive into the upper or lower portion of the
    CD-ROM bracket

6.   When the drive is inserted halfway into the CD-ROM
     bracket, connect the necessary cables: power cable, data
     cable and audio cable.

7.   Move the drive until it is
     completely inserted into
     the bracket.

8.   Secure with two bracket
     screws on each side.

Audio   Data   Power
Cable   Cable   Cable

9.   Reinstall the motherboard plate. Refer to steps 10-12 of
      'installing the motherboard' section above.

10.   Secure back the system cover.

Chapter 6

Installing Device Drivers & Utility

In most cases, your system comes with the required device driver(s) and utility already pre-installed. You may need to install or reinstall these device driver(s) and utility due to the following circumstances:

- When you re-install your operating system

- When you format or reformat your HDD

This chapter provides you with step-by-step procedures on how to install the following device drivers and utility:

- Creative ES1373 SB PCIAudio Driver

- Winbond W83781D Hardware-Monitor Utility

- ATI Rage Pro Turbo 2X VGA Driver

Creative ES1373 SB PCIAudio 64V Driver

Your system has built-in Creative ES1373 PCIAudio-AC97 Compliant feature.

Follow the procedures below:

1. Complete the installation of Windows 98 operating system. If you are not familiar with the installation procedures, please refer to the user's guide of the Microsoft Windows 98 software package.

2. Insert the "Device Drivers and Utility" CD in your CD-ROM drive. Click the "**Start**" icon, then choose the "**Programs**" icon. Afterwards, select "**Windows Explorer**" by clicking on it. The window displayed is divided into three parts: top, left, and right. Find the "**Driver (D:)**" (CD-ROM drive) on the left part, then click on "**Audio_Driver**". Three sub-directories appear: **AUDIO**, **CTRUN**, and **DIRECTX**. Click "**CTRUN**," then find "**CTRUN.EXE**" on the right part of the window and double click on it. The following screen is displayed:
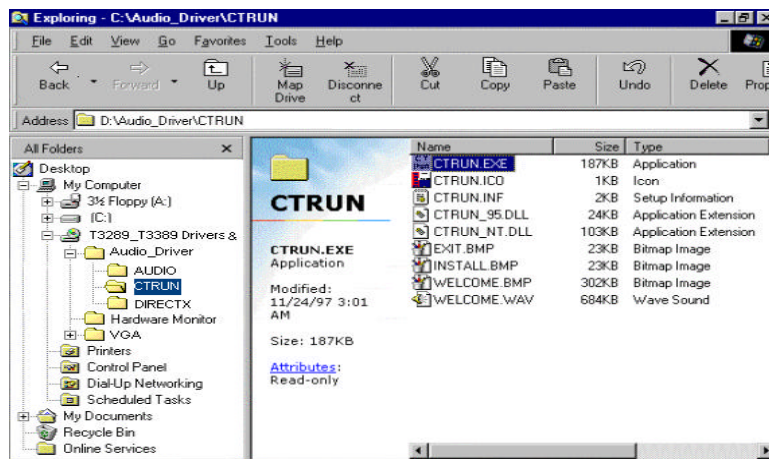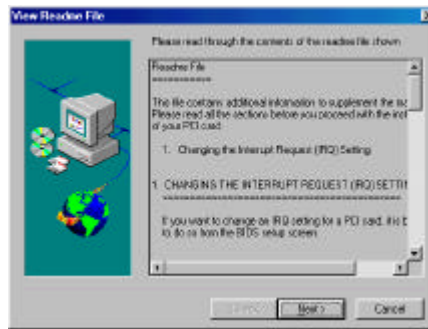
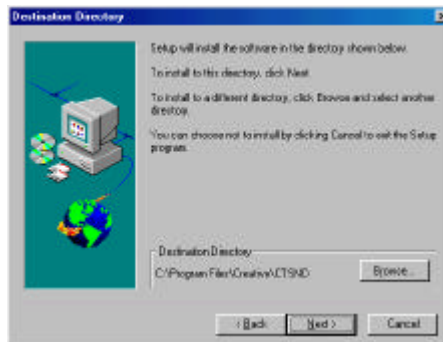3. The main screen appears as shown. Click "**Install**" button.

4. A window appears for you to read and agree to the license agreement. Click "**Yes**" to accept the license. Click "**No**" to terminate this installation program.
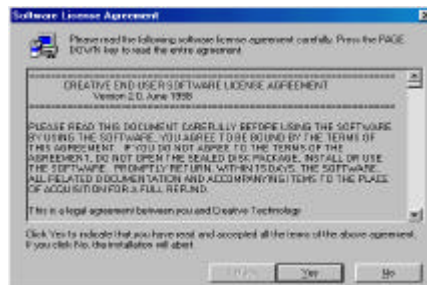
5. When readme file
    appears, click " **Next**"
    after you finished
   reading the contents.

6. Choose a directory
    where you want to
    install your
    software.   Click
    " **Next**" if you want
    to specify your
    destination directory
    as shown.   If not,
    you can choose your own destination by clicking
    " **Browse**."   You can also choose not to install by clicking
    " **Cancel**" to exit the setup program.
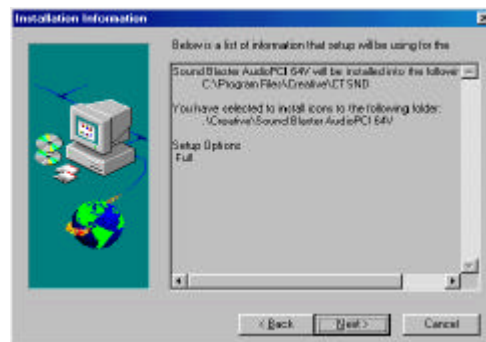
7. Select the setup
    type.   You can
    choose either Full
    Installation option or
    Custom Installation
   option depending on
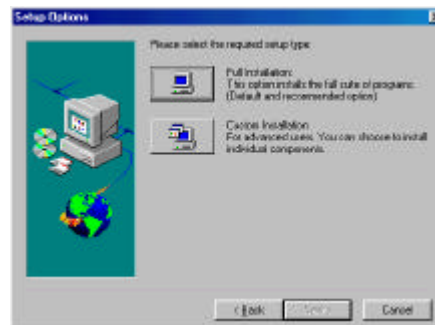
your needs.

8. This screen
   indicates your
   destination
   directory and
   setup option you
   have chosen
   earlier.   Click
   "**Next**" to start
   copying files.

9. This screen indicates the
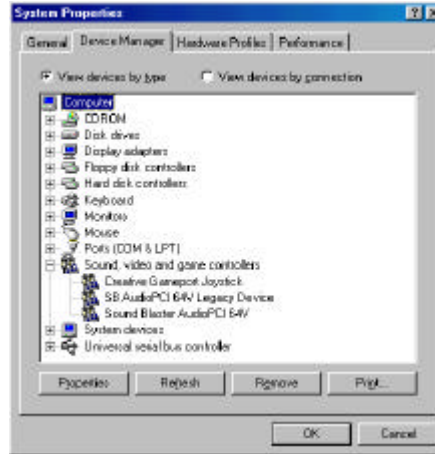   start of the installation
   process.

10. The screen asks you if
    you want to restart
    Windows 98 after the
    setup is done.   Click
    on "**Yes, I want..**"
    when this message is
    shown, then click
    "**Finish**" to exit the
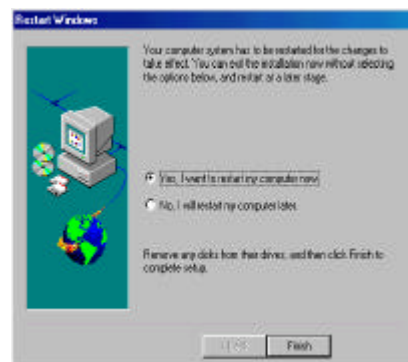
setup.   If you do not want to restart your computer, click
"**No**."

11. Your Audio driver now
    is properly installed.
    To check your Device
    Manager entries for
    the newly installed
    driver, follow the
    procedures below:

    a. Double click on
       "**My Computer**"
       icon.
    b. Select "**Control Panel**."
    c. Click "**System**."
    d. Select "**Device Manager**" tab.
    e. Double click on "**Sound, video and game controller**."

Winbond W83781 Hardware Monitor Utility

Hardware monitoring utility allows you to set the limits of the
voltages, fan speed, and temperature conditions.

Follow the procedures below:

1. Complete the installation of Windows 98 operating
    system. If you are not familiar with the installation
    procedures, please refer to the user' s guide of the
    Microsoft Windows 98 software package.

2. Insert the " Device Drivers and Utility" CD in your
    CD-ROM drive. Click the " **Start**" icon, then choose the
    " **Programs**" icon.   Afterwards, select " **Windows
    Explorer**" by clicking on it.   The window displayed is
    divided into three parts: top, left, and right. Find
    the " **Driver (D:)**" (CD-ROM drive) on the left part, then
    click on " **Hardware Monitor**" . Then find " **Setup.exe**" on
    the right part of the window and double click on it. The
    following screen is displayed:
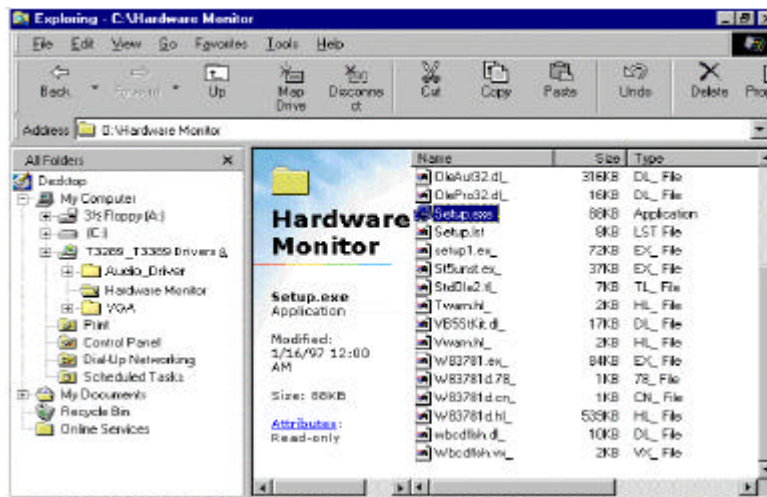
3. When this
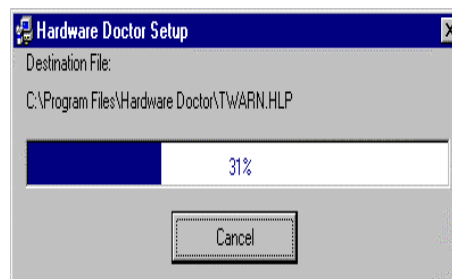   welcome screen
    appears, click
    "**OK**" button.

4. If you want to
    specify your
    destination
    directory, click
    "**Change
    Directory**" and
    specify the
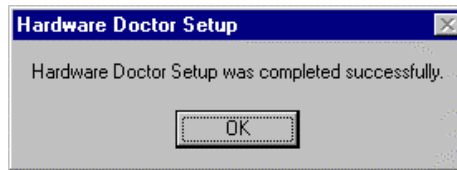   directory name.
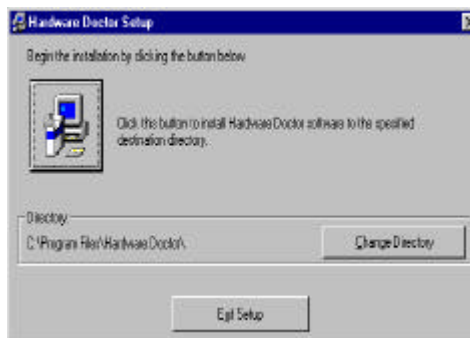
5. Click on the big icon beside " **Click this ..**." to start
    installing this utility.

6. Your system will
    start copying files
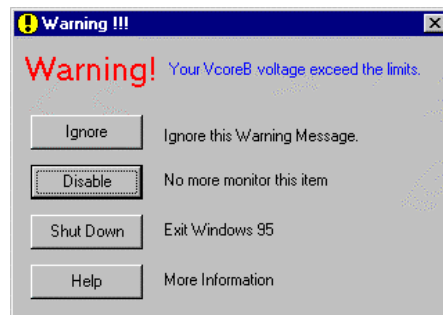   from the CD to the
    hard disk.

7. When this dialog
    box appears, click
    "**OK**".

Hardware Doctor Setup   ☒

Hardware Doctor Setup was completed successfully.

OK

8. The utility is now properly installed. This hardware
    monitor utility is a general purpose utility which include
    some items not supported by your system. These items
    therefore, have to be disabled before you proceed to set
    the high and low limits of your system's hardware
    monitoring features.

9. Click "**Start**", select "**Programs**", then click "**Winbond
    Hardware Doctor**".

10. If unsupported items are not yet disabled, warning
    screens for each will be displayed, as follows:

    a. Click "**Disable**"
        to disable
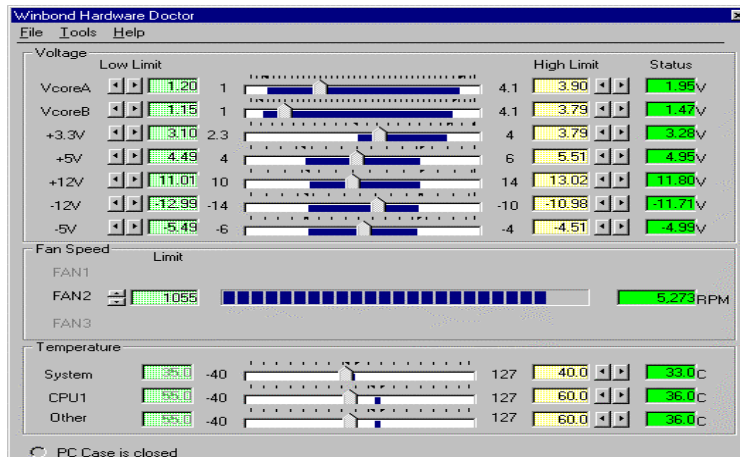   VcoreB voltage
        monitoring.

Warning !!!   ☒

Warning! Your VcoreB voltage exceed the limits.

Ignore	Ignore this Warning Message.
Disable	No more monitor this item
Shut Down	Exit Windows 95
Help	More Information

b. Click " **Disable**"
    to disable fan 1
    speed
    monitoring:

c. Click " **Disable**"
    to disable fan 3
    speed
    monitoring:

11. You can start
    setting the high and
    low limits:

ATI Rage Pro Turbo 2X VGA Driver

Your system has built-in ATI Rage Pro Turbo 2X VGA Chip feature.

Follow the procedures below:

1. Complete the installation of Windows 98 operating system. If you are not familiar with the installation procedures, please refer to the user's guide of the Microsoft Windows 98 software package.

2. Insert the "Device Drivers and Utility" CD in your CD-ROM drive. Click the "**Start**" icon, then choose the "**Programs**" icon.   Afterwards, select "**Windows Explorer**" by clicking on it.   The window displayed is divided into three parts: top, left, and right. Find the "**Driver (D:)**" (CD-ROM drive) on the left part, then click on "**VGA.**"   Then click on "**Disk 1**" then find "**SETUP.EXE**" on the right part of the window and double click on it.   The following screen is displayed:
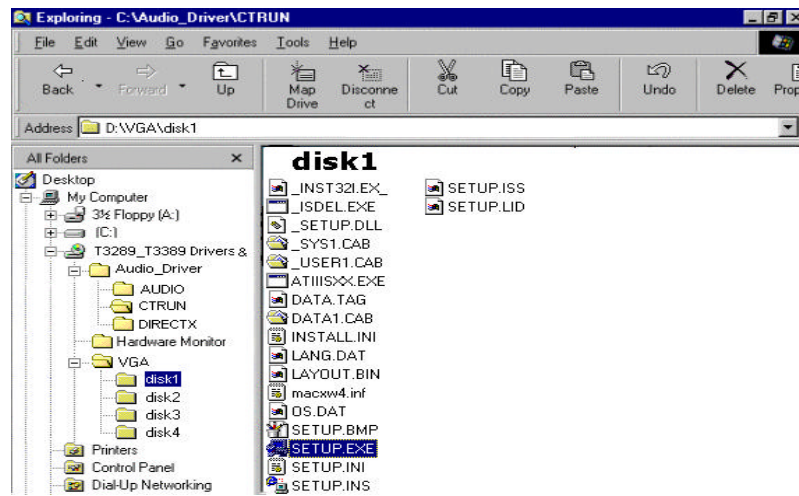
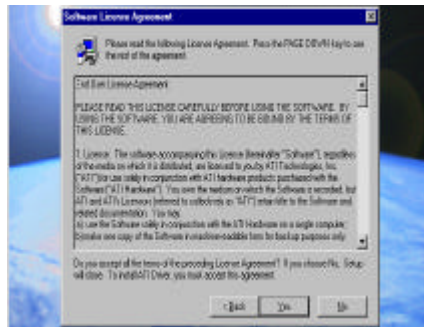3. This window apprears to tell you VGA driver starts installation.

4. Click "**Next**" to continue the setup program.
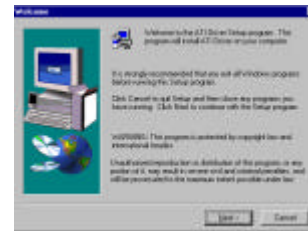
5. A window appears to read and agree to the license agreement. Click " **Yes**" to accept the license. Click " **No**" to terminate this installation program.
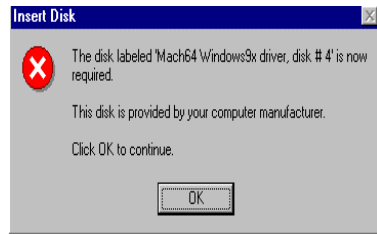
6. Click " **OK**" to continue the setup, and type " **D:\VGA\disk2**" then click " **OK**."

7. Click " **OK**" to continue the setup, and type " **D:\VGA\disk3**" then click " **OK**."

8. Click " **OK**" to continue the setup, and type
   " **D:\VGA\disk4**" then click " **OK.**"

9. The screen asks you if you want to restart Windows 98
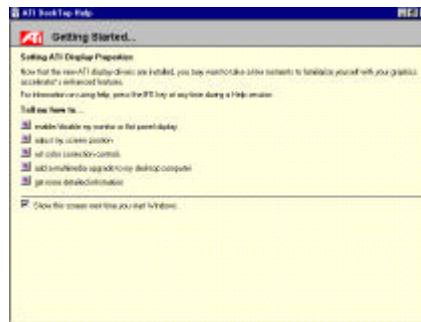   after the setup is
   done. Click on " **Yes,**
   I want..". when this
   message is shown,
   then click " **Finish**" to
   exit the setup. If you
   do not want to restart
   your computer, click
   " **No**."
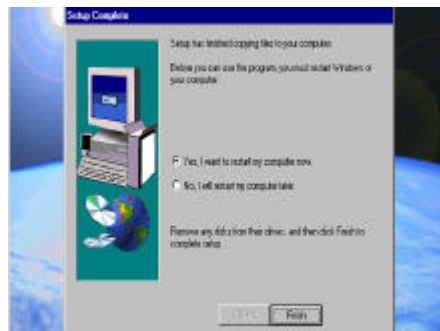
10. This screen provides information to help you to be familiar with graphics accelerator's enhanced features.

11. Your VGA driver now is properly installed. To check your Device Manager entries for the newly installed driver, follow the procedures below:

   a. Double click on "**My Computer**" icon.

   b. Select "**Control Panel**."

   c. Click "**System**."

   d. Select "**Device Manger**" tab.

   e. Double click on "**Display Adapters**."
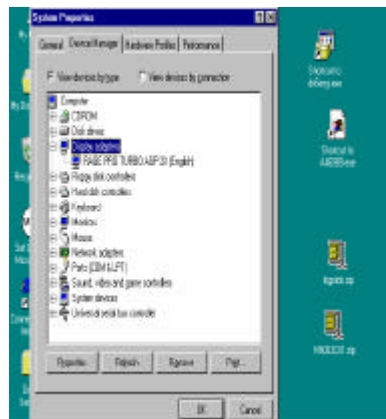
Chapter 7
Troubleshooting

Useful tips and handy solutions you may need for your troubleshooting are provided in this chapter. If you are having trouble with the operating system, check the User's Guide that comes with your Windows 95 software package.

No Display

Computer isn't getting power.

Check connection of power.

Check connection of surge protector (if available) and AC power outlet.

Check if AC outlet has power.

VGA monitor not properly connected.

Check video cable connection. Consult monitor's manual if necessary.

Computer is in sleep or suspend mode.

Press a key on the keyboard to wake it up.

Monitor's brightness control is not adjusted properly.

Adjust monitor's brightness control to the desired level.

A screen saver program is turned on.

Press a key or move the mouse to turn off the screen saver program.

Keyboard or Mouse Doesn't Work

Cables are not properly connected.

Turn off your system and check if the cable is properly connected to the right jack/port at the rear of your system.

Keyboard or Mouse is defective.

Contact your dealer to replace it.

Floppy Disk Drive Doesn't Work

Floppy disk drive LED indicator is not lit.

LED indicator might be defective.

Enter Setup Utility and check if floppy disk drive is detected.

Floppy disk drive might be defective. Contact your dealer for replacement.

Floppy disk drive LED indicator is lit.

Check the type of disk and if the disk is properly inserted into the drive.

Floppy disk is defective.

Non-system Disk Error Message

A floppy disk is inserted into the floppy disk drive when the computer is turned on.

There is no operating system found in the floppy disk. Just remove the disk from the drive and press any key to continue the boot procedure.

CD-ROM Errors

CD-ROM disc not detected.

Check if the disc is inserted properly into the CD drawer with its label facing up.

CD drawer is closed all the way.

CD-ROM disc ejected without any error message.

Check if the disc is inserted properly into the CD drawer with its label facing up.

If there are visible scratches or dirt on the shiny side of the disk, your disc need to be cleaned. You may clean this with a CD polishing kit. If the scratches or dirt can't be removed, you have to replace the disc.

Check if other discs can be read. Your CD-ROM drive might be damaged.

Can't open a document/file on the disc.

Some files or documents require specific software installed before it can be opened. Check the manual that came with the disc.

Printer Doesn't Work
Wrong Characters Printed

Incorrect printer settings.   Check Print Manager and select
                                       the correct printer destination.

Updated device driver   Check your printer device driver.
required.
                                       If your printer is of an older
                                       model, use the updated drivers
                                       provided with the Windows
                                       operating system.

                                       If you are using a latest model,
                                       you can install its device driver
                                       into your system. Consult the
                                       printer manual.

Cable is not properly   Turn off your system and check
connected.   printer cable connections.

Inaccurate System Clock

System clock is not   Enter BIOS Setup Utility and set
properly set.   system clock to current time and
                                       date.

On-board Lithium battery is   Contact your dealer to replace
used up or exhausted.   it.