Personal Computer
User's Guide

July 1999

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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 Öffnen 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: Device Driver Installation*.

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

5.25" HH Drive Bays x2
(CD-ROM Drive)

Floppy Disk Drive

Power Button

Power On LED

HDD LED

Reset

Rear Panel

Power Supply

PS/2 Keyboard

USB Ports

COM1 Port

Parallel Port

VGA Port

Line out

Line in

Mic

PS/2 Mouse

Game Port

AMR Expansion Slot

PCI Expansion Slots
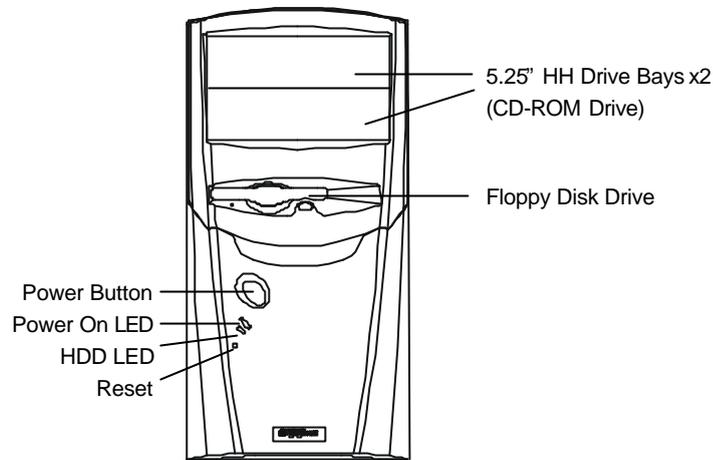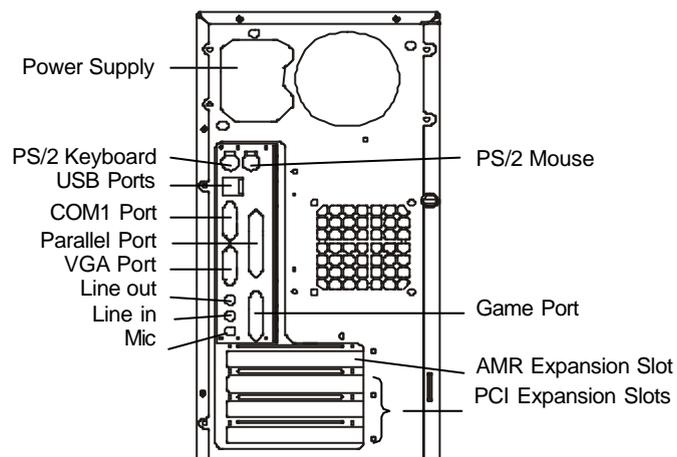
Making the Connections

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 Cord

Now, get the AC power cord and insert the female end (with holes) into the AC Power In of the *Power Supply* 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 Computer**

*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 "Shut 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:
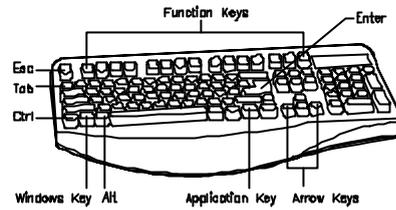
Tells the PC you have finished entering a command and you want the PC to execute it.

| ¿ 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 + ☐
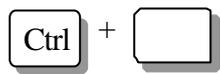
Holding down this key with another key at the same time gives a command to the current program. The commands are dependent on the preset settings of an application program.

Alt + ☐
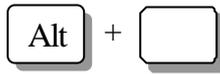
Pressing this key with an ASCII code returns the ASCII character.   Some application programs also assign preset settings to this key.

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.

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.

———— **WARNING** ————
If you remove a disk while the indicator light is on, you may damage the information on the disk.
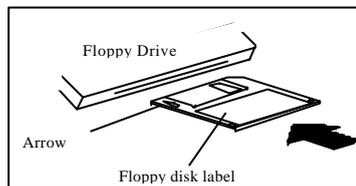
Floppy drive is designated by your operating system as drive A. It is represented by **A:**. Presence of floppy disk drive is automatically detected by your system and the operating system.

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** ——

When 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.
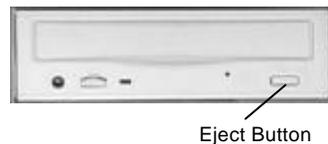
Removing a Disc

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

☆ PPGA Celeron 333-533 MHz processors at 66 or 100 MHz front side bus speed

☆ Designed using 810 Intel chipset

☆ 128KB second-level cache (depends on CPU model)

☆ Two 168-pin DIMM sockets supporting up to 512MB unbuffered 3.3V SDRAM

☆ Integrated EIDE, AGP (Accelerated Graphics Port), USB and DMA controllers

☆ 4Mb Firmware Hub with AMI Flash BIOS

☆ Supports APM 1.2, DMI 2.1, PCI 2.2 , ACPI 1.0, Plug and Play (PnP)

☆ Integrated Super I/O Controller

☆ Built-in ports: serial ports x2, parallel port, PS/2 keyboard jack, PS/2 mouse port, USB ports x2, Game/Midi port, line in/out, microphone in.

☆ Runs under Windows 98 operating system.

☆ Supports ACPI (Advanced Configuration and Power Interface), WOL (Wake-on-LAN) feature and PC Health Monitoring feature.

IMPORTANT NOTICE ——

*D*evice drivers and their installation procedures are provided
on CD disc.

Technical Specifications

CPU (Central Processing Unit)

- PPGA Celeron 333-533 MHz processors at 66 or 100MHz front side bus speed
- Built-in L2 cache*: 128KB (depends on CPU model)*

Intel 810 Chipset

- System-to-PCI bridge integrated with optimized DRAM controller and data path
- Integrated AGP (Accelerated Graphics Port) interface based on AGP Specification Rev 1.0
- PIIX4 PCI-to-ISA bridge I/O subsystem
- GMCH (Graphics Memory Controller Hub) provides the interconnect between the SDRAM and the rest of the system logic, which supports a 64-bit 100 MHz DRAM array and utilizes Direct AGP technology to create vivid 2D and 3D effects and images.
- ICH (I/O Controller Hub) provides the interface to the PCI Bus and communicates with the GMCH over a dedicated hub interface.

- AMR (Audio Modem Riser) integrates the audio/modem functions on the motherboard. This kind of integration enhances system capabilities while reducing costs. The AMR interface is based on an AC-link that is compliant with Intel s Audio CODEC' 97 version 2.1 specification.
- FMH (Firmware Hub) brings added security and managability to the PC platform infrastructure. FMH also

stores the system BIOS and video BIOS which eliminates a redundant nonvolatile memory component.
- STR (Suspend to RAM) enables all data in system memory stored in RAM when the system is suspended and system power is turned off. You must be running ACPI for this feature to take effect.
- Recovery from AC power loss helps you to determine how the system will respond when AC power is lost and restored to the system. See the BIOS chapter for the setting.

Power Interface (ACPI/PC 98 Features)

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

- Microsoft OnNow: a *system and device power control that makes the system stays on but appears off, and responds immediately to user or other requests when prompted.*
- Slow blinking Power ON LED to indicate that system is in suspend mode
- Support for USB keyboard during system boot-up if this is the only keyboard connected to the system
- Real-time clock wake-up alarm to respond to preset wake-up events
- Power button used as suspend button when ATX power supply is used
- External modem ring-on wakes the system up when a call is detected
- Wake-On-LAN (WOL) can allow remote PC setup, update and asset tracking after office hours and on weekends so the daily LAN traffic is kept to a minimum and users are not interrupted.

Memory

- Two 168-pin DIMM sockets provided

Built-in I/Os

- Integrated FDC (Floppy Disk Controller)
- PS/2 keyboard and mouse controller
- Two EIDE Bus Master interfaces supporting Ultra DMA/66
- Two Fast UART 16550A serial ports
- One parallel port that supports EPP (Enhanced Parallel Port) and ECP (Extended Capabilities Port)
- Two USB (Universal Serial Bus) ports
- One infrared port

CD Utilities

- BIOS flash upgrade utility
- SUPER Doctor utility
- Drivers for 810 chipset utilities and onboard audio and video

Others

- Selectable CPU and chassis fan speed control (set in BIOS)
- Keyboard wake-up
- Internal/external modem ring-on
- AC' 97 2.1 compliant link for audio and telephony CODECs
- Onboard graphics controller (GMCH)
- 4MB display cache
- Suspend to Ram (STR)
- Recovery from AC power loss control

PC Health Monitoring Features

- Seven on-board voltage monitors: *A warning or an error message is reported on screen if voltage of CPU Core(s), CPU I/O, +3.3V, +/- 5V, or +/- 12V supply becomes unstable. You can also determine the sensitivity of the voltage monitor by adjusting the threshold of the monitored voltage.*
- Three-fan status monitors: *Checks the RPM status of the cooling fans. The on-board CPU fans are controlled by the ACPI BIOS and the ACPI enabled operating system. The thermal fan is controlled by the overheat detection logic.*
- Environment temperature 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 the CPU from overheating. The on-board chassis thermal circuitry, on the other hand, monitors the overall system temperature and alert users when the chassis temperature is too high. These features are available even if the system is put in suspend mode.*
- CPU fan auto-off in sleep mode: *CPU fan is turned on if system power is turned on. If system is in sleep mode, CPU fan will not run at full power. For power saving purposes, you can shut down CPU fan if the system is in sleep mode. This option is available in BIOS Setup Utility.*
- CPU fan overheat LED and control: *This features enables user to define an overheat temperature. When the temperature is exceeded, both the overheat fan and the warning LED are triggered.*
- 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 Flash utility. This prevents viruses from infecting the BIOS area which may cause loss of valuable data.*

- Auto-switching voltage regulator for CPU core: *This allows the regulator to run cooler and make the system more stable. The regulator can support up to 20A current and with auto-sensing voltage ID ranging from 1.3V to 3.5V.*
- Intel LANDesk® Client Manager (LDCM) support: *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.*

Power Input Requirement

115/230 V~, 4/2A, 60/50 Hz

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 182 mm
Tower System: 181 (W) x 380 (D) x 395 (H) mm

──────────── **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.

Motherboard Layout
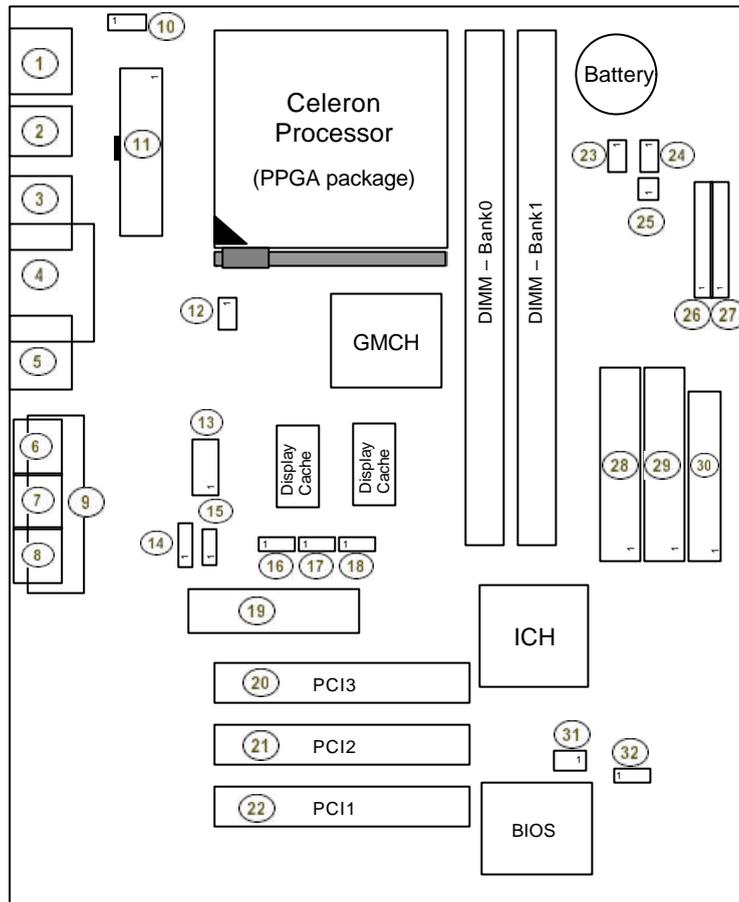
Quick Reference

Item	Jumper/Connector	Function	Page
1	J30	PS/2 Keyboard/Mouse Port Connectors	3-5
2	J32, J33	USB Port Connectors	3-9
3	J34	COM1 Serial Port Connector	3-6
4	J35	Parallel Printer Port Connector	3-8
5	J4	VGA (Monitor) Port	3-12
6	LINE OUT	Audio Out (Speaker) Connector	3-12
7	LINE IN	Audio In Connector	3-12
8	MIC	Microphone Input	3-12
9	GAME PORT	Game/MIDI Port	3-12
10	JPWAKE	Keyboard Wake-up	3-12
11	J29	ATX Power Connector	3-5
12	FAN1	CPU FAN Header	3-6
13	COM2	COM2 Serial Port Header	3-6
14	CD	Audio CD Input (Large Connector)	3-7
15	CD_1	Audio CD Input (Small Connector)	3-7
16	JP28	AC 97 Enable/Disable	3-8
17	JP11	Front Side Bus Speed	3-7
18	JP14	CPU Safe Mode	3-7
19	AMR	Audio Modem Riser	3-13
20, 21, 22	J13, J12, J11	PCI Slot Connectors	3-10
23	FAN2	Chassis Fan Header	3-6

Item	Jumper/Connector	Function	Page
24	FAN3	Thermal Control Fan Header	3-6
25	JOH	Overheat LED Header	3-8
26	JF1	Front Panel Connector 1	3-14
27	JF2	Front Panel Connector 2	3-14
28	J18	IDE HDD Connector 2	3-11
29	J19	IDE HDD Connector 1	3-11
30	JP26	Floppy Disk Drive Connector	3-10
31	WOL	Wake-on-LAN Header	3-6
32	JBT1	CMOS Clear	3-8

──────────────── **NOTE** ────────────────

Jumpers were set to factory default before shipping. You should not alter these settings unless you are sure of what you are doing. If you need to change jumper settings, MAKE SURE THAT THE COMPUTER HAS BEEN TURNED OFF. Also, you are highly recommended to take note of the original settings so that you can always revert to these settings if the new settings do not work.

Description on Connectors & Jumpers

✧ ATX Power Connector (J29)

The 20-pin connector from the switching power supply is connected to **J29.**

Pin	Signal	Pin	Signal
1	3.3V	2	3.3V
3	GND	4	5V
5	GND	6	5V
7	GND	8	PW-OK
9	5VSB	10	12V
11	3.3V	12	-12V
13	GND	14	PS-ON
15	GND	16	GND
17	GND	18	-5V
19	5V	20	5V

✧ ATX PS/2 KB & PS/2 MS connectors (J30)

The ATX PS/2 keyboard and the PS/2 mouse are connected to the computer via female mini-hole connectors **J30** mounted on the motherboard.   See page 3-12 for locations.

Pin	Signal
1	Data
2	NC
3	GND
4	VCC
5	Clock
6	NC

◇ **Serial Ports (J34/COM2)**

Serial port COM1 is
located on **J34**.   See
page 3-12 for
locations.   A header
for serial port COM2
is located behind
COM1.

Pin	Signal	Pin	Signal
1	DCD	2	DSR
3	Serial In	4	RTS
5	Serial Out	6	CTS
7	DTR	8	RI
9	GND	10	NC

◇ **Wake-On-LAN Connector (WOL)**

Wake-on-LAN is a key feature for corporate systems.
WOL connector allows
a management
application to remotely
power on a computer
that is originally turned
off.

Pin	Signal
1	+5V Standby
2	GND
3	Wake-up

◇ **Fan Connectors (FAN1, FAN2, FAN3)**

The thermal control fan is
located on **FAN3**. The
chassis fan is located on
FAN2 while **FAN1** is a CPU
Fan header.

Pin	Signal
1	GND (BLACK)
2	12V (RED)
3	Tachometer

****Caution**: These fan connectors are DC direct.

 ✧ **CD Headers (CD, CD_1)**

There are two CD headers
of different sizes on the
motherboard for audio CD
playback. You must
connect an audio cable from

Pin	Signal
1	Right Stereo Signal
2	GND
3	GND
4	Left Stereo Signal

your CD player to the header that fits your cable's
connector.

 ✧ **Front Side Bus Speed (JP11)**

Changing the CPU speed is
enabled by software control
in BIOS. See CPU speed
on page 4-12 and CPU clock

Pin	Signal
1-2	Auto
2-3	66MHz
OFF	100MHz

frequency on page 4-14. The CPU speed setting will
show you the actual CPU speed for each FSB speed
option selected. The FSB speed is set with **JP11**.

****Note**: The Auto setting allows the CPU to set the speed.
If the system does not reboot after changing the CPU
speed, enable the CPU Safe Mode (see below), change
to the correct speed, and then disable the CPU Safe
Mode again.

 ✧ **CPU Safe Mode (JP14)**

JP14 enables the CPU
"Safe Mode" setting.
When enabled, the CPU
Core/Bus ratio is set to run
at 2x.

Pin 1-2	Definition
On	Enabled
Off	Disabled

✧ CMOS Clear (JBT1)

Set this jumper to clear CMOS
data. When CMOS data is
cleared, system configuration
has to be entered during boot.
For an ATX power supply, you

Pin	Description
1-2	Normal
2-3	Clear CMOS

must completely shut down the system and then use
JBT1 to clear CMOS. Do not use the PW_ON of **JF2**
connector to clear CMOS.

✧ AC' 97 Enable/Disable (JP28)

AC' 97 brings high quality
audio to PCs. When
enabled with **JP28**, audio is
processed onboard and the

Pin	Definition
1-2	Enabled
2-3	Disabled

AMR slot will support modems only. The disabled setting
should be selected when you wish to use an add-on card
for audio either in the AMR or a PCI slot.

✧ Overheat LED (JOH)

The **JOH** provides
warning of chassis
overheating status.

Pin	Signal
1	12V
2	OH Active

✧ Parallel Printer Port (J35)

J35 is a parallel port built-in on the motherboard. You can
enable, disable, or select the mode of parallel port
through BIOS Setup Utility.

Pin	Signal	Pin	Signal
1	Strobe-	2	Auto Feed-
3	Data Bit 0	4	Error-
5	Data Bit 1	6	Init-
7	Data Bit 2	8	SLCT IN-
9	Data Bit 3	10	GND
11	Data Bit 4	12	GND
13	Data Bit 5	14	GND
15	Data Bit 6	16	GND
17	Data Bit 7	18	GND
19	ACK	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT	26	NC

✧ USB Port Connectors (J32, J33)

The two USB (Universal Serial Bus) connectors, **J32** and **J33**, are mounted on the motherboard for connecting up to two USB devices.   See page 3-12 for locations.

J32		J33	
Pin	**Signal**	**Pin**	**Signal**
1	+5V	1	+5V
2	P0-	2	P0-
3	P0+	3	P0+
4	GND	4	GND
5	N/A	5	Key

✧ **Floppy Disk Drive Connector (JP26)**

Pin	Signal	Pin	Signal
1	GND	2	FDHDIN
3	GND	4	Reserved
5	Key	6	FDEDIN
7	GND	8	Index -
9	GND	10	Motor Enable
11	GND	12	Drive Select B-
13	GND	14	Drive Select A-
15	GND	16	Motor Enable
17	GND	18	DIR-
19	GND	20	STEP-
21	GND	22	Write Data -
23	GND	24	Write Gate -
25	GND	26	Track 00-
27	GND	28	Write Protect -
29	GND	30	Read Data-
31	GND	32	Side 1 Select -
33	GND	34	Diskette

Floppy header is connected to the motherboard through a 34-pin data cable attached to **JP26**.

✧ **PCI Slot Connectors (J11,J12,J13)**

Install PCI cards through these slots.

✧ **IDE1/IDE2 HDD connectors (J18, J19)**

Pin	Signal	Pin	Signal
1	Reset IDE	2	GND
3	Host Data 7	4	Host Data 8
5	Host Data 6	6	Host Data 9
7	Host Data 5	8	Host Data 10
9	Host Data 4	10	Host Data 11
11	Host Data 3	12	Host Data 12
13	Host Data 2	14	Host Data 13
15	Host Data 1	16	Host Data 14
17	Host Data 0	18	Host Data 15
19	GND	20	Key
21	DRQ3	22	GND
23	I/O Write-	24	GND
25	I/O Read-	26	GND
27	IOCHRDY	28	BALE
29	DACK3-	30	GND
31	IRQ14	32	IOCS16-
33	Addr 1	34	GND
35	Addr 0	36	Addr2
37	Chip Select 0	38	Chip Select 1-
39	Activity	40	GND

There are no jumpers to configure the onboard IDE
interfaces **J18** and **J19**. These pins apply to both ATA33
and ATA66 use a 40-pin header. You must use the 80-
pin ATA66 cable included with your system to use the
ATA66 feature.

✧ **I/O Ports**

The I/O ports are color coded in conformance with the PC
99 specification. See below for the colors and locations
of the various I/O ports.

Mouse   Parallel Ports   Game Port
(Green)   (Burgundy)   (Gold)

USB
Ports
(Black)

Keyboard   COM1 Port   VGA(Monitor) Line Line Mic
(Purple)   (Turquoise)   Port (Blue)   Out In   (Pink)
                                                        (Lime)(Light Blue)
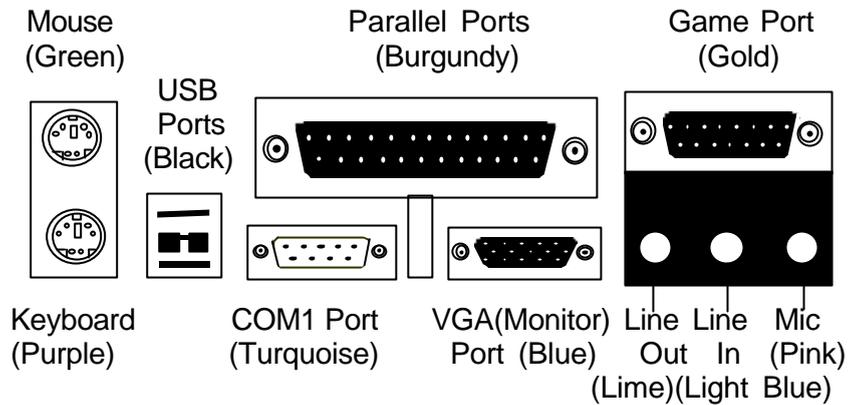
✧ **Keyboard Wake-Up (JPWAKE)**

This keyboard Wake-up is
located in **JPWAKE**.
Enable both the jumper and
the BIOS setting to configure
the system to be
woken up by depressing a key on the keyboard.

Pin	Definition
1-2	Disabled
2-3	Enabled

✧ **Audio Modem Riser Connectors (AMR)**

Pin	Signal	Pin	Signal
B1	AUDIO_MUTE#	A1	AUDIO_PWRDN
B2	GND	A2	MONO_PHONE
B3	MONO_OUT_/PC_BEEP	A3	NC
B4	NC	A4	NC
B5	NC	A5	NC
B6	PRIMARY_DN#	A6	GND
B7	-12V	A7	+5Vdual/+5VSB
B8	GND	A8	USB_OC#
B9	+12V	A9	GND
B10	GND	A10	USB+
B11	+5VD	A11	USB-
	(KEY)		(KEY)
	(KEY)		(KEY)
B12	GND	A12	GND
B13	NC	A13	S/P-DIF_IN
B14	NC	A14	GND
B15	+3.3VD	A15	+3.3Vdual/+3.3VSB
B16	GND	A16	GND
B17	AC97_SDATA_OUT	A17	AC97_SYNC
B18	AC97_RESET#	A18	GND
B19	AC97_SDATA_IN3	A19	AC97_SDATA_IN1
B20	GND	A20	GND
B21	AC97_SDATA_IN2	A21	AC97_SDATA_IN0
B22	GND	A22	GND
B23	AC97_MSTRCLK+ RST	A23	AC97_BITCLK

The AMR integrates the audio and modem functions on the motherboard which enhances system capabilities and reduces costs. The AMR interface is based on an AC-link that is compliant with Intel's Audio Codec' 97 version 2.1 specification.

✧ **Front Panel Connectors (JF1, JF2)**

Connects to the different functions on the front panel. **JF1**, **JF2** connect motherboard I/O controls to the front panel.

JF1			JF2		
Function	**Pin**	**Signal**	**Function**	**Pin**	**Signal**
Hard drive LED	1	+5V	Infrared Connector	1	+5V
	2	HD Active		2	Key
	3	HD Active		3	IRRX
	4	+5V		4	GND
Power LED	5	VCC +5V		5	IRTX
	6	VCC +5V		6	NC
	7	GND		7	NC
Keyboard Lock	8	Keyboard Inhibit		8	NC
	9	GND	PW_ON Connector	9	PW_ON
Speaker Connector	10	VCC + 5V		10	GND
	11	NC		11	NC
	12	Key	Reset Connector	12	GND
	13	Speaker data		13	Reset

CHAPTER 4
BIOS Setup

The AMI BIOS Setup Utility of your system is discussed in this chapter. This BIOS is stored in a Flash EEPROM and can be easily upgraded using a floppy disk-based program.

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:
• 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 onboard battery was replaced.

Entering System Setup

When you turn on your system, press <DEL> key immediately to enter BIOS Setup Utility.

You have to press <DEL> key fast enough before it starts up the operating system. 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:

```
           AMIBIOS HIFLEX SETUP UTILITY VERSION 1.18
        (C)1998 American Megatrends, Inc. All Rights Reserved.

                        Standard CMOS Setup
                        Advanced CMOS Setup
                       Advanced Chipset Setup
                       Power Management Setup
                       PCI / Plug and Play Setup
                          Peripheral Setup
                       Auto-Detect Hard Disks
                        Change User Password
                    Change Supervisor Password
                        Change Language Setting
              Auto Configuration With Optimal Settings
             Auto Configuration with Fail Safe Settings
                       Save Settings and Exit
                        Exit Without Saving

       Standard  CMOS setup for changing time, date, hard disk type, etc.
          ESC:Exit   Up/Down:Sel  F2/F3:Color  F10:Save & Exit
```

You can use up and down arrow keys to move to the desired option, then, press <Enter> on that option to select it or to open its sub-menu. Press <ESC> to return to the previous menu or to exit setup.

Standard CMOS Setup

Standard CMOS setup allows you to set the system date and time; to specify floppy disk drives installed in your system; to indicate up to four IDE type storage devices (HDDs or CD-ROM drive); to enable/disable virus protection; and/or to know the base and extended memory size. When this option is selected, the following appears on screen:

```
              AMIBIOS SETUP – STANDARD CMOS SETUP
         (C)1998 American Megatrends, Inc. All Rights Reserved.

 Date (mm/dd/yyyy): Fri Jul 02, 1999          Base Memory: 640 KE
 Time (hh/mm/ss)  : 16:05:13                  Extd Memory: 255 KB

 Floppy Drive A: 1.44 MB 3.5
 Floppy Drive B: Not Installed

                                          LBA   Blk   PIO   32Bit
              Type  Size  Cyln Head WPcom Sec  Mode  Mode  Mode  Mode
 Pri Master : Auto                                                On
 Pri Slave  : Auto                                                On
 Sec Master: Auto                                                 On
 Sec Slave  : Auto                                                On

 Boot Sector Virus Protection   Disabled

 Month: Jan -- Dec                    ESC:Exit  Up/Down:Sel
   Day: 01 -- 31                      PgUp/PgDn:Modify
   Year: 1901 -- 2099                 F2/F3:Color
```

The available options for each item or field is displayed at the bottom left of the screen.

Date, Time

To set your system date and time, use the up and down arrow keys to move the cursor to and highlight the field to be modified. Then, use <PgUp> and <PgDn> keys to change the field values to the current date and time.

Floppy Drive A, Floppy Drive B

You can specify the type of floppy drive that is installed in your system. Options include: *360KB 5.25, 1.2MB 5.25*, *720KB 3.5, 1.44MB 3.5,* or *2.88MB 3.5* or *Not Installed*.

Pri Master, Pri Slave, Sec Master, Sec Slave

Select these options to configure the corresponding drive. When you set these selections to *Auto*, your system automatically detects the storage devices that are installed in your system. If you want to manually select or enter the drive parameters, press <PgUp> and <PgDn> keys to select from a list of choices, then press <Enter> to select.

Choices available include:

   1-46:   These are predefined hard disk types
   User: Enter the parameters manually
   Auto: Set parameters automatically on each boot
   CDROM: Used for ATAPI CDROM drives
   ARMD: Used for LS120, MO, Iomega ZIP drives

Other items to be selected are:

LBA Mode: Select On if the drive has a capacity greater than 540MB.

Block Mode: Select On to allow block mode data transfers. Be sure that your hard disk supports this mode. Data may be destroyed if this mode is not supported.

PIO Mode: Select PIO mode 0-4 as appropriate, or select Auto to allow BIOS to determine PIO Mode. If you select a mode not supported by your drive, the drive will not work properly.

32-Bit Mode: Select On to allow 32-bit data transfers.

Boot Sector Virus Protection

This item provides you the option to protect the boot sector and partition table of the hard disk from virus intrusion. Set this to **Enabled** if virus protection is preferred. Note that if this is enabled, you may need to change information here when installing new programs.

Base Memory, Extd Memory

Your system automatically detects and displays the size of base memory and extended memory installed in your system. These items cannot be modified.

Advanced CMOS Setup

Advanced CMOS Setup allows you to configure basic system performance.

```
          AMIBIOS SETUP – ADVANCED CMOS SETUP
        (C)1998 American Megatrends, Inc. All Rights Reserved.

Quick Boot                    Enabled      Available Options:
Pri Master ARMD Emulated as   Auto            Disabled
Pri Slave ARMD Emulated as    Auto            Enabled
Sec Master ARMD Emulated as   Auto
Sec Slave ARMD Emulated as    Auto
1st Boot Device               Floppy
2nd Boot Device               1st IDE-HDD
3rd Boot Device               ATAPI CD ROM
Try Other Boot Devices        Yes
Initial Display Mode          Silent
Floppy Access Control         Read-Write
Hard Disk Access Control      Read-Write
S.M.A.R.T. for Hard Disks     Disabled
Boot Up Num-Lock              On
PS/2 Mouse Support            Enabled
Password Check                Setup
Boot to OS/2                  No
Internal Cache                WriteBack     ESC:Exit   Up/Down:Sel
External Cache                WriteBack     PgUP/PgDN: Modify
System BIOS Cacheable         Enabled       F2/F3: Color
```

```
          AMIBIOS SETUP – ADVANCED CMOS SETUP
        (C)1998 American Megatrends, Inc. All Rights Reserved.

Sec Slave ARMD Emulated       Auto         Available Options:
1st Boot Device               Floppy          Disabled
2nd Boot Device               1st IDE-HDD     Enabled
3rd Boot Device               ATAPI CD ROM    Cached
Try Other Boot Devices        Yes
Initial Display Mode          BIOS
Floppy Access Control         Read-Write
Hard Disk Access Control      Read-Write
S.M.A.R.T. for Hard Disks     Disabled
Boot Up Num-Lock              On
PS/2 Mouse Support            Enabled
Password Check                Setup
Boot to OS/2                  No
Internal Cache                WriteBack
External Cache                WriteBack
System BIOS Cacheable         Enabled
Processor Serial Number       N/A
Default Primary Video         External      ESC:Exit   Up/Down:Sel
C000 Shadow (64K)             Cached        PgUP/PgDN: Modify
D000 Shadow (64K)             Disabled      F2/F3: Color
```

The " **Available Options**" found at the right column of the screen list the choices available for the item or field that you have selected. Use <PgUp> or <PgDn> keys to select the required option, and press <Enter> to complete the setting.

Please refer to the table below for the options available for each item and the corresponding descriptions:

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.
Pri Master ARMD Emulated as Pri Slave ARMD Emulated as Sec Master ARMD Emulated as Sec Slave ARMD Emulated as	Auto Floppy Hard Disk	If IDE is an ATAPI removable drive, select whether the drive is to be emulated as a floppy drive or a hard drive. When set to *Auto*, the default emulation type is *Floppy* for LS120, Hard Disk for MO, Hard Disk for IOMEGA ZIP.
1st Boot Device 2nd Boot Device 3rd Boot Device	Disabled 1st IDE-HDD 2nd IDE-HDD 3rd IDE-HDD 4th IDE-HDD Floppy ARMD-FDD ARMD-HDD ATAPI CDROM SCSI ** Network* I_2O*	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. Note that BIOS will not attempt to boot from any device which is not selected as the boot device. ** Option available for 1st and 2nd boot device. * Options available only for 1st boot device.
Try Other Boot Devices	Yes No	If all selected boot devices failed to boot, *Yes* allows BIOS to boot from other boot devices present but not selected as boot device in the setup.
Initial Display	BIOS	Selecting *BIOS* lets the POST start

Mode	Silent	with the normal sign-on message screen, while *Silent* has it start with silent screen.
Floppy Access Control	Read-Write Read-Only	Specifies the read/write access that is set when booting from a floppy/hard disk drive. This option will be effective only if the device is accessed through BIOS.
Hard Disk Access Control		
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 reliability of hard disk by predicting future device failures. When *Enabled*, hard disk should have S.M.A.R.T. capability, too. Note: S.M.A.R.T. cannot predict all future device failures. This should be used as a warning tool only.
BootUp Num-Lock	On Off	*On* turns the Num Lock key off when system is powered on. This allows user to use the cursor keys on the numeric keypad.
PS/2 Mouse Support	Enabled Disabled	Enables or disables the support for PS/2 type mouse.
Password Check	Always Setup	Enables password checking: *Always* - every time the system boots *Setup* - if BIOS Setup Utility is executed
Boot to OS/2	No Yes	*Yes* allows BIOS to run with OS/2 and use more than 64MB of system memory.
Internal Cache	Disabled WriteThru WriteBack	Enables or disables internal/external cache memory.
External Cache		
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.

Processor Serial Number	Enabled Disabled N/A	Intel Pentium III processors have a serial number as a unique system identifier. For privacy reasons, disabling this setting prevents the release of this identifier.
Default Primary Video	External Internal	*External* means system is using a PCI video card while *Internal* means system is using onboard graphics. If no video card is detected when set to ' External' , onboard graphics will automatically be enabled.
C000 Shadow (64K)	Disabled Enabled Cached	Specifies how the 32KB of video ROM at C0000h-C7fffh is treated. *Disabled* - contents of video ROM are not copied to RAM. *Enabled* - contents of this area are copied (shadowed) from ROM to RAM for faster execution. *Cached* - contents of this area are copied from ROM to RAM and can be written to or read from cache.
D000 Shadow (64K)		

Advanced Chipset Setup

This setup menu configures the features of the chipset used.

```
          AMIBIOS SETUP – ADVANCED CHIPSET SETUP
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 USB Function                    Enabled      Available Options:
 USB KB/Mouse Legacy Support     Disabled       Enabled
 CPU Latency Timer               Disabled       Disabled
 DRAM Page Closing Policy        Closed
 CD Hole                         Disabled
 Memory Hole                     Disabled
 DRAM Refresh                    15.6 us
 DRAM Cycle Time (SCLKs)         Fast
 CAS# Latency (SCLKs)            Auto
 RAS to CAS delay (SCLKs)        Auto
 SDRAM RAS# Precharge (SCLKs)    Auto
 Display Cache Window Size       64MB
 CPU Speed at 100/66             2x 200/133
 Initialize Display Cache Memory Enabled
   Paging Mode Control           CLOSE
   RAS-to-CAS                    Default
   CAS Latency                   Slow
   RAS Timing                    Slow         ESC:Exit    Up/Down:Sel
   RAS Precharge Timing          Slow         PgUP/PgDN: Modify
 MIDI Decode                     Disabled     F2/F3: Color
```

```
          AMIBIOS SETUP – ADVANCED CHIPSET SETUP
         (C)1998 American Megatrends, Inc. All Rights Reserved.

   RAS-to-CAS                    Default      Available Options:
   CAS Latency                   Slow           Default
   RAS Timing                    Slow           Override
   RAS Precharge Timing          Slow
 MIDI Decode                     Disabled
 AC97 Modem Controller           Auto
 AC97 Audio Controller           Auto
 SMBus Controller                Enabled
 DMA-0 Type                      PC/PCI
 DMA-1 Type                      PC/PCI
 DMA-2 Type                      LPC DMA
 DMA-3 Type                      LPC DMA
 DMA-5 Type                      PC/PCI
 DMA-6 Type                      PC/PCI
 DMA-7 Type                      PC/PCI
 ICH Delayed Transaction         Disabled
 DMA Buffer Enable               Disabled
 Memory Detection Mode           Auto Only    ESC:Exit   Up/Down:Sel
 SDRAM Buffer Strength           Weak         PgUP/PgDN: Modify
 CPU Clock Frequency             Auto         F2/F3: Color
```

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

The "**Available Options**" found at the right column list the choices available for the item or field that you have selected. Use <PgUp> or <PgDn> keys to select the required option, and press <**Enter**> to complete the setting.

Please refer to the table below for the options available for each item and the corresponding descriptions:

Item	Options	Description
USB Function	Disabled Enabled	Enables or disables USB functions.
USB KB/Mouse Legacy Support	Keyboard Auto Keyb+Mouse Disabled	Enables or disables USB keyboard and mouse if 'USB Function' is enabled.
CPU Latency Timer	Enabled Disabled	Enables or disables the corresponding items. Refer to descriptions shown at the right column of the screen.
DRAM Page Closing Policy	Closed Open	
CD Hole	Enabled Disabled	
Memory Hole	Disabled 15M-16M	*15M-16M* makes this area reserved for ISA use. (Some ISA cards may require specific areas of memory in order to function.)
DRAM Refresh Rate	15.6 us 7.8 us FR128 CLKS Reserved	Specifies the timings of the corresponding items.
DRAM Cycle Time (SCLKs)	Fast Slow	
CAS# Latency (SCLKs)	Auto 3 2	This item regulates the column address strobe.

RAS to CAS Delay (SCLKs)	Auto 3 2	This item specifies the length of the delay inserted between RAS (Row Address Strobe) and CAS (Column Address Strobe) signals of the DRAM system memory access cycle.
SDRAM RAS# Precharge (SCLKs)	Auto 3 2	This item specifies the length of the RAS precharge[*] part of the DRAM system memory access cycle when Synchronous DRAM system memory is installed in the computer.
Display Cache Window Size	32MB 64MB	This item specifies the cache size to be used for display data.
CPU Speed at 100/66 MHz	2x 200/133 4x 400/266 3x 300/200 5x 500/333 2.5x 250/166 4.5x 450/300 3.5x 350/233 5.5x 550/366 6x 600/400 8x 800/533 7x 700/466 Reserved B 6.5x 650/433 Reserved D 7.5x 750/500 2x 200A/133A	This item allows the change of CPU speed. *Reserved* settings will cause no change. The other settings list the CPU speeds: the paired numbers list the CPU speed at 100 and 66 MHz FSB, respectively. The first number shows the resulting CPU Core/Bus ratio.
Initialize Display Cache Memory	Disabled Enabled	The onboard video includes a 4MB onboard display cache. *Enabled* utilizes the cache.

---

[*] Precharge time is the number of cycles it takes for the RAS to accumulate its charge before a DRAM refres h. If insufficient time is allowed, refresh may not complete and the DRAM may fail to retain data.

Paging Mode Control	CLOSE OPEN	Sets the paging mode control when 'Initialize Display Cache Memory' is enabled.
RAS-to-CAS	Default Override	Specifies the interval between Refresh signals to DRAM system memory, when 'Initialize Display Cache Memory' is enabled.
CAS Latency RAS Timing	Slow Fast	Regulates the speed of the column address strobe (CAS) or timing of row address strobe (RAS) when 'Initialize Display Cache Memory' is enabled.
RAS Precharge Timing	Slow Fast	Sets the precharge timing of row address strobe when 'Initialize Display Cache Memory' is enabled.
MIDI Decode	330h-331h 300h-301h Disabled	Enables or disables corresponding items.
AC97 Modem Controller	Auto Disabled	
AC97 Audio Controller		
SMBus Controller	Enabled Disabled	
DMA0 Type	LPC/DMA PC/PCI	Specifies the bus of which the specified DMA channel can be used on.
DMA1 Type		
DMA2 Type		
DMA3 Type		
DMA5 Type		
DMA6 Type		
DMA7 Type		
ICH Delayed Transaction	Enabled Disabled	Enables or disables the corresponding items.
DMA Buffer Strength		
Memory Detection Mode	Auto Only SPD	Indicates the specifications of the corresponding items.

SDRAM Buffer Strength	Weak Auto		
CPU Clock Frequency	JP11=66	JP11=100	Allows the increase of FSB speed over the normal 66 and 100 MHz settings controlled by jumper JP11. JP11=66 → options available when JP11 is set to 66MHz. JP11=100 → options available when JP11 is set to 100MHz or Auto.
	Auto 66.8 72 75 83.3	Auto 100.2 107 112 117 125 133	

Power Management Setup

This setup menu configures power conservation features.

```
                AMIBIOS SETUP – POWER MANAGEMENT SETUP
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Standby Time Out              Disabled       Available Options:
Suspend Power Saving Type     S1                Disabled
Suspend Time Out              Disabled          1 Min
Power Button Mode             On/Off            5 Min
CPU Sleep Pin Enable          Enabled           10 Min
Green PC Monitor Power State  Stand By
Video Power Down Mode         Suspend
Hard Disk Power Down Mode     Suspend
Hard Disk Time Out (Minute)   Disabled
Display Activity              Ignore
Manual Throttle Ratio         50%

ADVANCED SMI ENABLE CONTROLS
Timer Overflow Enable         Disabled
Thermal SMI Enable            Disabled
PME SMI Enable                Disabled
SW SMI Timer Enable           Disabled
TCO Logic SMI Enable          Enabled        ESC:Exit   Up/Down:Sel
                                             PgUP/PgDN: Modify
ADVANCED RESUME EVENT CONTROLS               F2/F3: Color
```

```
┌─────────────────────────────────────────────────────────────────┐
│              AMIBIOS SETUP – POWER MANAGEMENT SETUP               │
│         (C)1998 American Megatrends, Inc. All Rights Reserved.    │
├─────────────────────────────────────────────────────────────────┤
│ PME SMI Enable              Disabled      Available Options:      │
│ SW SMI Timer Enable         Disabled        Enabled              │
│ TCO Logic SMI Enable        Enabled         Disabled            │
│                                                                   │
│ ADVANCED RESUME EVENT CONTROLS                                    │
│ RTC Resume                  Disabled                              │
│ RTC Alarm Date              Reserved                              │
│ RTC Alarm Hour              I20                                   │
│ RTC Alarm Minute            Reserved                              │
│ RTC Alarm  Second           Reserved                              │
│ AC97 Logic Resume           Disabled                             │
│ USB Controller Resume       Disabled                             │
│ PME Resume                  Disabled                             │
│ Remote Ring On              Disabled                             │
│ SMBUS Resume                Disabled                             │
│ LAN Wake-Up                 Disabled                             │
│                                                                   │
│ Suspend to RAM Support      Disabled      ESC:Exit   Up/Down:Sel │
│ Post Video on S3 Resume     Enabled       PgUP/PgDN: Modify      │
│ Reset IDE on S3 Resume      Enabled       F2/F3: Color           │
└─────────────────────────────────────────────────────────────────┘
```

The "**Available Options**" found at the right column of the screen list the choices available for the item or field that you have selected. Use <PgUp> or <PgDn> keys to select the required option, and press <Enter> to complete the setting.

Please refer to the table below for the options available for each item and the corresponding descriptions:

Item	Options	Description
Standby Time Out	Disabled 1 Min 5 Min 10 Min	Specifies the length of system inactivity period while in full power on state before it enters standby power state.
Suspend Power Saving Type	S1 C2	Specifies type of suspend power saving.
Suspend Time Out	Disabled 1 Min 5 Min 10 Min	Specifies the length of system inactivity period while in full standby state before it enters suspend power state.

Power Button Mode	Standby Suspend On/Off	When power button is pushed: *Standby* places the computer in Standby mode or Full On power mode. *Suspend* places the computer in Suspend mode. *On/Off* turns the computer on or off.
CPU Sleep Pin Enable	Enabled Disabled	Enables or disables the corresponding items.
Green PC Monitor Power State	Stand By Suspend Off	Specifies the power state that the selected item enters after the specified period of inactivity has expired.
Video Power Down Mode	Disabled Stand By Suspend	
Hard Disk Power Down Mode		
Hard Disk Time Out (Minute)	Disabled 1 M (1 Min interval) 14	Specifies the length of hard disk drive inactivity period before computer enters the power-conserving state specified in the ' Hard Disk Power Down Mode' .
Display Activity	Monitor Ignore	Specifies if BIOS is to monitor display activity for power conservation purposes.
Manual Throttle Ratio	87.5% 75.0% 62.5% 50% 37.5% 25% 12.5%	Throttling is used to lower power consumption and reduce heat. This item allows the CPU to operate at a reduced average power and sacrifice performance.
Advanced SMI Enable Controls		
Timer Overflow Enable	Enabled Disabled	*Enabled* allows the system to generate a System Management Interrupt after specific amount of time has passed, specific temperature has been exceeded, or a Power Management Event has occurred.
Thermal SMI Enable		
PME SMI Enable		

SW SMI Timer Enable	Enabled Disabled	Enables or disables this item.
TCO Logic SMI Enable	Enabled Disabled	*Enabled* allows the TCO logic to generate a System Management Interrupt when a century rollover occurs.
Advanced Resume Event Controls		
RTC Resume	Disabled Enabled	Sets the RTC alarm to wake up the system on the specified period.
RTC Alarm Date	Every Day 01 M 31	Specifies the date and time to wake up the system if ' RTC Resume' is enabled.
RTC Alarm Hour	00 M 23	
RTC Alarm Minute	00 M 59	
RTC Alarm Second		
AC97 Logic Resume	Enabled Disabled	*Enabled* wakes up the system if the event occurs on the specific item.
USB Controller Resume		
PME Resume		
Remote Ring On		
SMBUS Resume		
LAN Wake-Up		
Suspend to RAM Support	Disabled Enabled	Enables or disables STR (Suspend to RAM) feature.
Post Video on S3 Resume	Disabled Enabled	Determines whether or not to invoke VGA BIOS POST when resume from STR.
Reset IDE on S3 Resume	Disabled Enabled	Determines whether or not to reset IDE when resume from STR.

PCI/Plug and Play Setup

This setup menu configures PCI and Plug-and-Play features.

```
AMIBIOS SETUP – PCI / PLUG AND PLAY SETUP
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Plug and Play-Aware OS           No           Available Options:
PCI Latency Timer (PCI Clocks)   64               No
PCI VGA Palette Snoop            Disabled         Yes
PCI IDE Busmaster               Disabled
Offboard PCI IDE Card            Auto
Offboard PCI IDE Primary IRQ     Disabled
Offboard PCI IDE Secondary IRQ Disabled
PCI Slot1 IRQ Priority           Auto
PCI Slot2 IRQ Priority           Auto
PCI Slot3 IRQ Priority           Auto
PCI Slot4 IRQ Priority           Auto
DMA Channel 0                    PnP
DMA Channel 1                    PnP
DMA Channel 3                    PnP
DMA Channel 5                    PnP
DMA Channel 6                    PnP
DMA Channel 7                    PnP
IRQ3                             PCI/PnP      ESC:Exit    Up/Down:Sel
IRQ4                             PCI/PnP      PgUP/PgDN: Modify
IRQ5                             PCI/PnP      F2/F3: Color
```

```
AMIBIOS SETUP – PCI / PLUG AND PLAY SETUP
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PCI Slot2 IRQ Priority           Auto         Available Options:
PCI Slot3 IRQ Priority           Auto             Auto
PCI Slot4 IRQ Priority           Auto             3
DMA Channel 0                    PnP              4
DMA Channel 1                    PnP              5
DMA Channel 3                    PnP              7
DMA Channel 5                    PnP              9
DMA Channel 6                    PnP              10
DMA Channel 7                    PnP              11
IRQ3                             PCI/PnP          12
IRQ4                             PCI/PnP          14
IRQ5                             PCI/PnP
IRQ7                             PCI/PnP
IRQ9                             PCI/PnP
IRQ10                            PCI/PnP
IRQ11                            PCI/PnP
IRQ14                            PCI/PnP
IRQ15                            PCI/PnP      ESC:Exit    Up/Down:Sel
Reserved Memory Size             Disabled     PgUP/PgDN: Modify
Reserved Memory Address          C8000        F2/F3: Color
```

The " **Available Options**" found at the right column of this screen list the choices available for the item or field that you have selected. Use <PgUp> or <PgDn> keys to select the required option, and press <Enter> to complete the setting.

Please refer to the table below for the options available for each item and the corresponding descriptions:

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.
PCI VGA Palette Snoop	Disabled Enabled	This option must be set to *Enabled* if any ISA adapter card installed in the system requires VGA palette snooping.
PCI IDE Busmaster	Disabled Enabled	Specifies if the IDE controller on the PCI bus has bus mastering capabilities.
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' items 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. This is available only if ' Offboard PCI IDE Card' is not set to *Auto.*
PCI Slot1 IRQ Priority PCI Slot2 IRQ Priority PCI Slot3 IRQ Priority PCI Slot4 IRQ Priority	Auto 3 4 5 7 9 10 11 12 14	Specifies the IRQ priority for PCI devices installed in the PCI expansion slots.
DMA Channel 0 DMA Channel 1 DMA Channel 3 DMA Channel 5 DMA Channel 6 DMA Channel 7	PnP ISA/EISA	Specifies which channels are used to control the data transfers between I/O devices and system memory.
IRQ3 IRQ4 IRQ5 IRQ7 IRQ9 IRQ10 IRQ11 IRQ14 IRQ15	PCI/PnP ISA/EISA	Specifies which bus the specified IRQ line is used on and allows reserving 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 are configured as PCI/PnP. IRQ14 and 15 will not be available if onboard PCI IDE is enabled. If all IRQs are set to ISA/EISA and IRQ14 and 15 are allocated to the onboard IDE, IRQ 9 will still be available for PCI and PnP devices.

Reserved Memory Size	Disabled 16K 32K 64K	Specifies the size of the memory area reserved for legacy ISA adapter cards.
Reserved Memory Address	C0000 C4000 C8000 CC000 D0000 D4000 D8000 DC000	Specifies the beginning address (in hex) of the reserved memory area. The specified ROM memory area is reserved for use by legacy ISA adapter cards. This option is available only if ' Reserved Memory Size' is not set to *Disabled*.

Peripheral Setup

This setup menu configures system I/O support.

```
          AMIBIOS SETUP – PERIPHERAL SETUP
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 Fan Speed Control            Full           Available Options:
 KBC Clock  Rate              8MHz              Full
 CPU Current Temperature      42 degree C      Medium
 CPU Overheat Warning         Disabled         Stop
 CPU Overheat Warning Temp.   N/A
 H/W Monitor IN0 (CPU1)       2.03
 H/W Monitor IN2 (+3.3V)      3.28
 H/W Monitor IN3 (+5V)        +5.05
 H/W Monitor IN4 (+12V)       +11.91
 H/W Monitor IN5 (-12V)       -11.52
 H/W Monitor IN6 (-5V)        N/A
 CPU Fan                      5273
 Chassis Fan                  0000
 Thermal Control Fan          0000
 Onboard FDC                  Enabled
 Onboard Serial Port 1        3F8h
 Onboard Serial Port 2        2F8h
  Serial Port 2 Mode          Normal        ESC:Exit   Up/Down:Sel
   IR Duplex Mode             N/A           PgUP/PgDN: Modify
 Onboard Parallel Port        378           F2/F3: Color
```

```
                    AMIBIOS SETUP – PERIPHERAL SETUP
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  CPU Fan                        5273         Available Options:
  Chassis Fan                    0000
  Thermal Control Fan            0000
  Onboard FDC                    Enabled
  Onboard Serial Port 1          3F8h
  Onboard Serial Port 2          2F8h
   Serial Port 2 Mode            Normal
    IR Duplex Mode               N/A
  Onboard Parallel Port          378
   Parallel Port Mode            ECP
    EPP Version                  N/A
   Parallel Port IRQ             7
   Parallel Port DMA Channel     3
  Power Loss Control             Always OFF
  Keyboard Wake-up Function      Disabled
  Onboard Game & Mini Port       Enabled
  Game Port Base Address         200h
  MIDI Port Base Address         330h        ESC:Exit    Up/Down:Sel
   MIDI IRQ                      9           PgUP/PgDN: Modify
  Onboard IDE                    Both         F1: Help  F2/F3: Color
```

The " **Available Options**" found at the right column of this
screen list the choices available for the item or field that you
have selected. Use <PgUp> or <PgDn> keys to select the
required option, and press <Enter> to complete the setting.

Please refer to the table below for the options available for each
item and the corresponding descriptions:

Item	Options	Description
Fan Speed Control	Full Medium Stop	Selects the fan speed.
Keyboard Clock Rate	6 MHz 8 MHz 12 MHz 16 MHz	Sets the clock rate of the keyboard.
CPU Current Temperature	NA	Current CPU temperature is displayed.
CPU Overheat Warning	Enabled Disabled	*Enabled* sets the CPU overheat warning temperature.

CPU Overheat Warning Temperature	25 degree C | (1 degree interval) 75 degree C	Sets the CPU overheat warning temperature.
H/w Monitor IN0 (CPU1)	NA	These are for PC Health Monitoring features. BIOS automatically displays the current status.
H/W Monitor IN2 (+3.3V)		
H/W Monitor IN3 (+5V)		
H/W Monitor IN4 (+12V)		
H/W Monitor IN5 (-12V)		
H/W Monitor IN6 (-5V)		
CPU Fan		
Chassis Fan		
Thermal Control Fan		
OnBoard FDC	Disabled Enabled	Enables the floppy drive controller (FDC) on the motherboard.
OnBoard Serial Port1 OnBoard Serial Port2	Disabled 3F8h 2F8h 3E8h 2E8h	Specifies the base I/O port address of serial ports 1 and 2, respectively.
Serial Port 2 Mode	Normal IrDA 1.6ms IrDA 3/16 ASKIR ASKIR500 ASKIRDem ASKIRD500	Specifies the operating mode of serial port 2. Available for selection only if 'OnBoard Serial Port2' is not set to *Disabled*.
IR Duplex Mode	Full Half	Sets the mode of communication if ' Serial Port 2 Mode' is set to ' Normal' .
OnBoard Parallel Port	Disabled 378 278 3BC Auto	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* supports bi-directional 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 protocol and provides symmetric bidirectional communication.
EPP Version	1.7 1.9	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 2 3 5 6 7	Available only if ' Parallel Port Mode' is *ECP.*
Power Loss Control	Always OFF Always ON Previous	Specifies what state the system returns to after losing power.
Keyboard Wake-up Function	Disabled Ctrl F1 Space Any Key	Specifies which key will wake up the system when pressed. JPWAKE jumper has to be enabled, too.
Onboard Game & Mini Port	Enabled Disabled	Enables or disables Game/Mini Port.
Game Port Base Address	200h 208h	Specifies the base address to be used for game port.
MIDI Port Base Address	330h 300h	Specifies the base address to be used for MIDI port.

| MIDI IRQ | 5
7
9
10 | Specifies the IRQ to be used for the parallel port. |
| On-Board IDE | Disabled
Primary
Secondary
Both | Specifies the onboard IDE controller channels to be used. |

Auto-Detect Hard Disks

Your system automatically detects and configures the IDE devices installed. This option provides you with details on such configurations.

After selecting this option, press <Enter> and wait while BIOS performs auto-detect. 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.

The password check option is enabled in the Advanced CMOS Setup by choosing either 'Always' or 'Setup'. Password is stored in CMOS RAM.

When you select 'Change User Password' or 'Change Supervisor Password', you are prompted with the screen as shown:

```
┌─────────────────────────────────────────────────────┐
│            AMIBIOS HIFLEX SETUP UTILITY VERSION 1.18  │
│       (C)1998 American Megatrends, Inc. All Rights Reserved.│
├─────────────────────────────────────────────────────┤
│                                                       │
│                 Standard CMOS Setup                   │
│                 Advanced CMOS Setup                   │
│                 Advanced Chipset Setup                │
│                 Power Management Setup                │
│                 PCI / Plug and Play Setup             │
│         ┌───────────────────────────────────┐         │
│         │  Enter new supervisor password:   │         │
│         │                                   │         │
│         └───────────────────────────────────┘         │
│                 Change Language Setting               │
│          Auto Configuration With Optimal Settings     │
│          Auto Configuration with Fail Safe Settings   │
│                 Save Settings and Exit                │
│                 Exit Without Saving                   │
├─────────────────────────────────────────────────────┤
│              Change the supervisor password           │
│     ESC:Exit  Up/Down:Sel  F2/F3:Color  F10:Save & Exit│
└─────────────────────────────────────────────────────┘
```

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
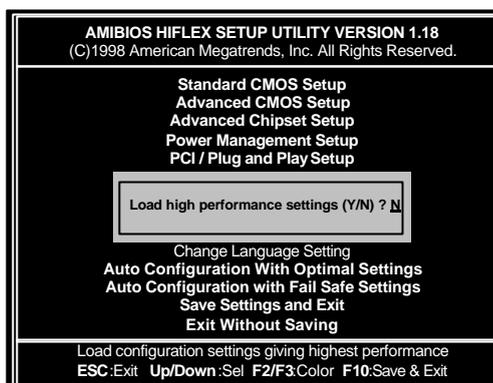displayed on screen if the password was successfully entered.

Make sure you do not forget the password; otherwise, you need
to clear CMOS RAM and reset the password.

Change Language Setting

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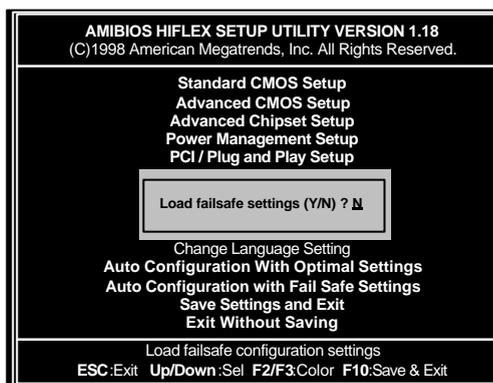default setting is *English*.

Auto Configuration with Optimal Settings

Choose this option 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.

```
┌─────────────────────────────────────────────────┐
│      AMIBIOS HIFLEX SETUP UTILITY VERSION 1.18    │
│  (C)1998 American Megatrends, Inc. All Rights Reserved. │
│                                                   │
│              Standard CMOS Setup                  │
│              Advanced CMOS Setup                  │
│             Advanced Chipset Setup                │
│            Power Management Setup                  │
│             PCI / Plug and Play Setup             │
│    ┌─────────────────────────────────────────┐    │
│    │  Load high performance settings (Y/N) ? N │    │
│    └─────────────────────────────────────────┘    │
│              Change Language Setting              │
│       Auto Configuration With Optimal Settings    │
│      Auto Configuration with Fail Safe Settings   │
│              Save Settings and Exit               │
│               Exit Without Saving                 │
│   Load configuration settings giving highest performance │
│  ESC:Exit  Up/Down:Sel  F2/F3:Color  F10:Save & Exit │
└─────────────────────────────────────────────────┘
```
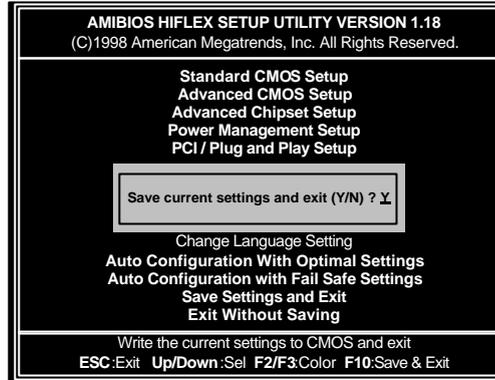
Auto Configuration with Fail Safe Settings

Choose this option 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
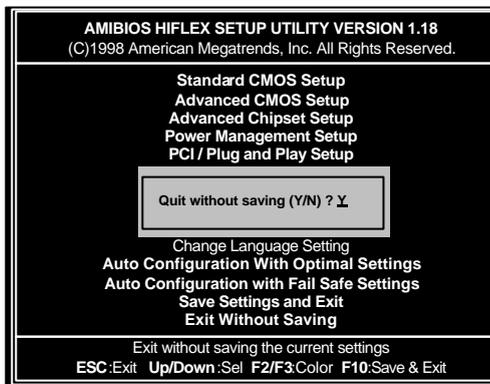diagnostic aid if the
system is behaving
erratically.

```
┌─────────────────────────────────────────────────┐
│      AMIBIOS HIFLEX SETUP UTILITY VERSION 1.18    │
│  (C)1998 American Megatrends, Inc. All Rights Reserved. │
│                                                   │
│              Standard CMOS Setup                  │
│              Advanced CMOS Setup                  │
│             Advanced Chipset Setup                │
│            Power Management Setup                  │
│             PCI / Plug and Play Setup             │
│    ┌─────────────────────────────────────────┐    │
│    │     Load failsafe settings (Y/N) ? N      │    │
│    └─────────────────────────────────────────┘    │
│              Change Language Setting              │
│       Auto Configuration With Optimal Settings    │
│      Auto Configuration with Fail Safe Settings   │
│              Save Settings and Exit               │
│               Exit Without Saving                 │
│        Load failsafe configuration settings        │
│  ESC:Exit  Up/Down:Sel  F2/F3:Color  F10:Save & Exit │
└─────────────────────────────────────────────────┘
```

Exiting System Setup

There are two ways of exiting BIOS Setup Utility.

Select ' Save Settings and Exit' if you want to save all changes made before exiting. Then, type "Y" when this dialog box appears on screen.

```
┌──────────────────────────────────────────────────┐
│  AMIBIOS HIFLEX SETUP UTILITY VERSION 1.18         │
│  (C)1998 American Megatrends, Inc. All Rights Reserved. │
│                                                    │
│          Standard CMOS Setup                       │
│          Advanced CMOS Setup                       │
│          Advanced Chipset Setup                    │
│          Power Management Setup                    │
│          PCI / Plug and Play Setup                 │
│                                                    │
│     Save current settings and exit (Y/N) ? Y       │
│                                                    │
│          Change Language Setting                   │
│    Auto Configuration With Optimal Settings        │
│    Auto Configuration with Fail Safe Settings      │
│          Save Settings and Exit                    │
│          Exit Without Saving                       │
│     Write the current settings to CMOS and exit    │
│  ESC:Exit  Up/Down:Sel  F2/F3:Color  F10:Save & Exit │
└──────────────────────────────────────────────────┘
```

If you would like to quit setup without saving the modifications you have just made, choose ' Exit Without Saving', then type "Y" to exit.

```
┌──────────────────────────────────────────────────┐
│  AMIBIOS HIFLEX SETUP UTILITY VERSION 1.18         │
│  (C)1998 American Megatrends, Inc. All Rights Reserved. │
│                                                    │
│          Standard CMOS Setup                       │
│          Advanced CMOS Setup                       │
│          Advanced Chipset Setup                    │
│          Power Management Setup                    │
│          PCI / Plug and Play Setup                 │
│                                                    │
│        Quit without saving (Y/N) ? Y               │
│                                                    │
│          Change Language Setting                   │
│    Auto Configuration With Optimal Settings        │
│    Auto Configuration with Fail Safe Settings      │
│          Save Settings and Exit                    │
│          Exit Without Saving                       │
│     Exit without saving the current settings       │
│  ESC:Exit  Up/Down:Sel  F2/F3:Color  F10:Save & Exit │
└──────────────────────────────────────────────────┘
```

────────── **REMARK** ──────────

Setup menus are subject to changes without prior notice.

CHAPTER 5
Installation

This chapter provides the installation procedures for internal devices.

Before proceeding with the installation procedures, 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 touching the internal components of your system.
- 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.
- Do not attempt to clean any part/s with liquid cleansers or aerosols. Use a damp cloth for cleaning, instead.
- Before installing back the cover, check if all parts, including internal cables, are properly mounted or installed.

Removing System Covers

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

Turn off the Power Button. Disconnect all power cords and signal cables attached to the system. Connecting devices with the power on may result in severe damages!

SCREWS(X4)

③

1   Remove screw of left cover.

2   Move the left cover backward to release.

①

SCREW

②

④

3   Unscrew four chassis cover screws as shown.

4   Lift up the top-right cover to remove.
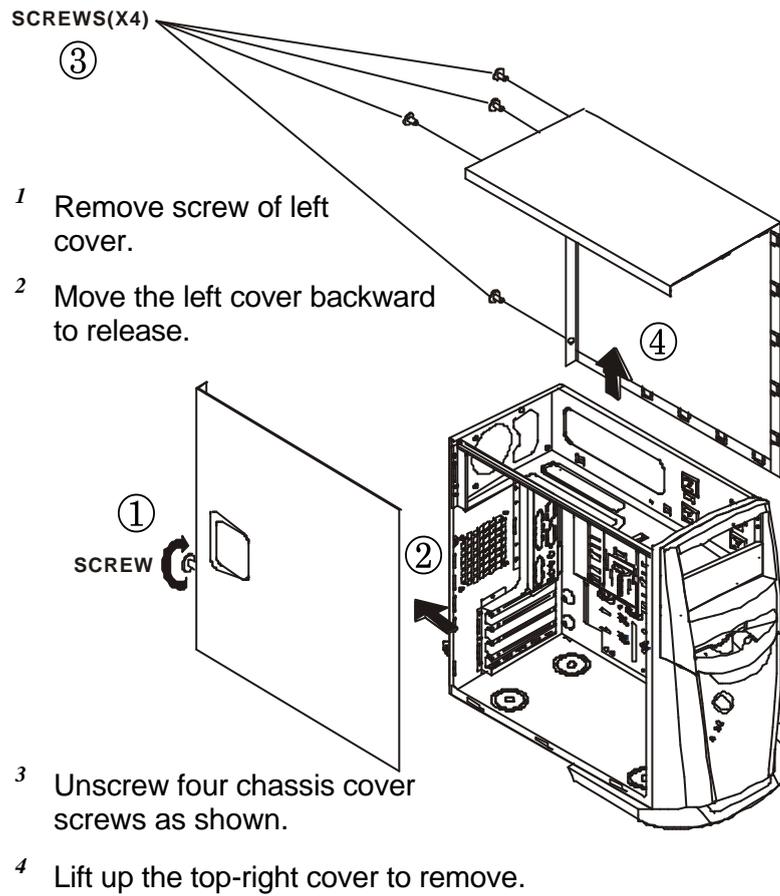
Installing the Motherboard

1   Remove system covers.

2   Align the seven screw holes of the motherboard to the seven tooling holes on the chassis.

3   Secure properly the screw holes into the tooling holes with seven motherboard mounting screws, as shown in the figure.
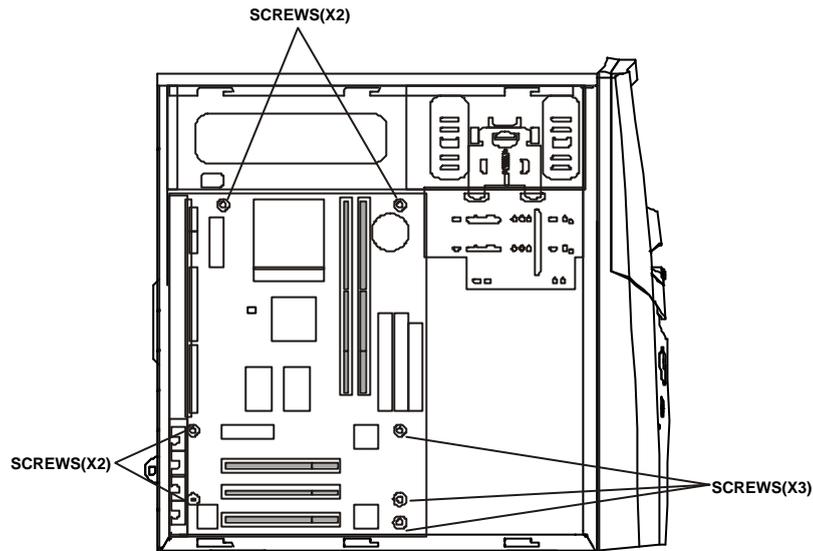
4   Connect power cable, FDD data and power cables, IDE data and power cables, front bezel connectors, add-on cards, etc.

5   Re-install back the system covers.

Installing CPU

1   Locate CPU socket on the
      motherboard.

2   Slightly move the lever away from
      the socket, then lift it up.

Lever
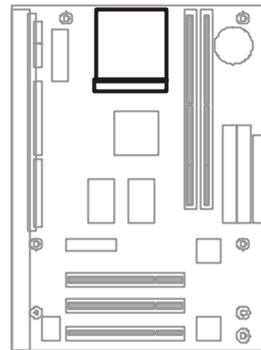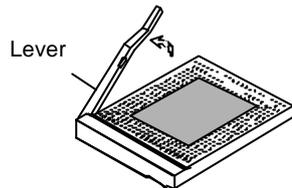
3   Insert the CPU gently but firmly into
      the CPU socket. Make sure that the
      CPU pins align with the socket
      pinholes. Do not insert it forcibly.
      (Your CPU fits into the socket in only
      one way. Note that the notched
      corner of the CPU should be aligned to
      pin 1 of the socket. Be careful not to
      bend any pins.)

Notched
Corner
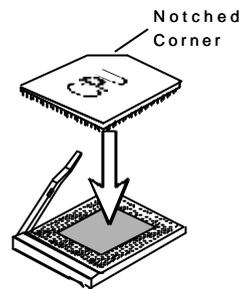
4   Pull down the lever back to its original position.

5   Set the jumpers to the right frequency and voltage.
      Refer to *Chapter 3: Connectors and Jumpers* for the
      required settings. You may also need to set the CPU
      speed and CPU clock frequency in BIOS. Refer to
      Advanced Chipset Setup of *Chapter 4: BIOS Setup.*

─────────── **Reminder: When Installing CPU** ───────────

*U*se only the types of CPU supported by your system. Refer to
Chapter 2: Specifications for more details.

Installing System Memory

Your system provides two DIMM slots for the installation of system memory.

1   Locate the DIMM socket.

2   Align the two notches of the DIMM
      with the receptive points on the
      DIMM socket, then insert the DIMM
      into the socket. (You cannot insert
      the DIMM into its socket if this is not
      aligned properly.)
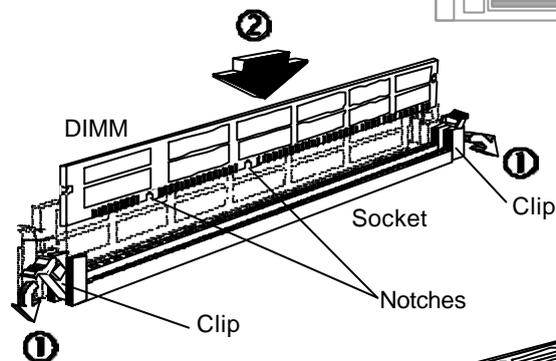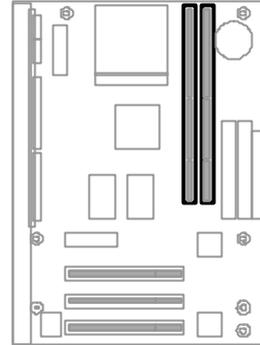
3   Check if the clips
      return to its original
      standing position and
      if these are properly
      locked onto the
      hollow of the DIMM. If not, press slightly to lock it.

4   You do not have to change jumpers or BIOS setting. Your
      system automatically detects the size and type of memory
      installed.
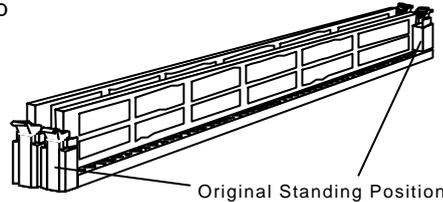
Installing Add-On Cards

Several kinds of PCI add-on or adapter cards can be added into your system for additional or enhanced features. These may include VGA card, modem card, and many others.

1 Remove system cover.

2 Choose the PCI slot in which you want to install the adapter card.

3 Unscrew the corresponding expansion slot cover screw and remove that cover.

4 Set the required jumpers on the adapter card, as required. Refer to its manual for more details.

5 Carefully, but firmly, press the adapter card into the expansion slot until it is fully installed.

6 Secure the expansion slot cover screw.

7 Save the expansion slot cover for future use.

8 Check the manual of the adapter card to see if there is any jumper on the motherboard that requires setting. Look for the corresponding location and function of that jumper in this user's guide.

9 Restore system cover.

Installing Devices

The succeeding sections provide installation procedures for
system chassis that is the same as described in this user's
guide. The number of drive bays provided by this chassis are:
> Internal Exposed 5.25" Drives   x2
> Internal Exposed 3.5" Drives   x1
> Internal Hidden 3.5" Drives x2

The following figure introduces the inside of the chassis:
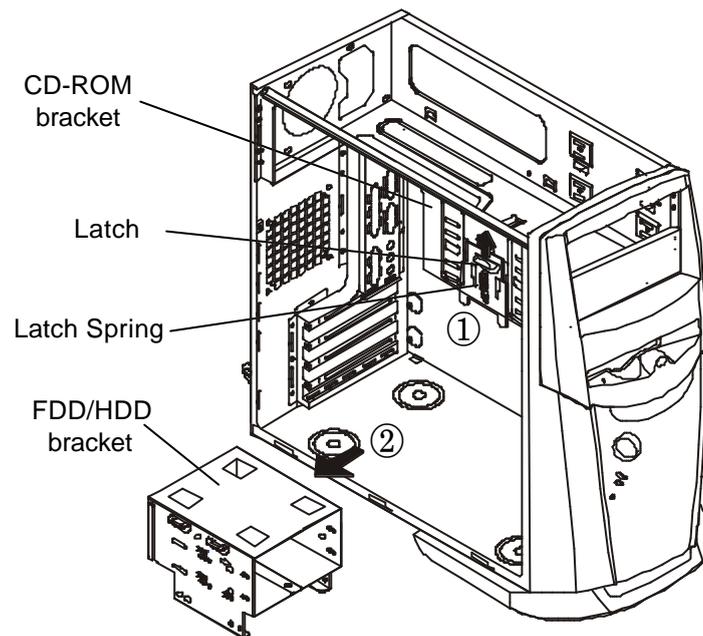
In order to remove the FDD/HDD bracket, ① lift the latch of the
latch spring with one hand and ② remove the FDD/HDD
bracket with the other hand.

Installing 3.5" Floppy Drive

1   Remove system covers.

2   Remove the **FDD/HDD bracket** inside the chassis.

3   Slide the 3.5' FDD into the
       second level of the bracket
       (as shown).

4   Secure with four screws.

5   Re-install the bracket back
       into the chassis by lifting the
       latch spring and releasing it
       after the bracket is properly positioned underneath.

6   Connect the mini-size four-line power cable from the switching
   power supply to the receptacle on the 3.5" FDD.
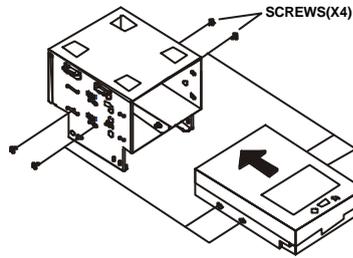
-------------------------- **NOTE** --------------------------

*F*loppy disk drive cable has 34 wires and connectors for connection
to the motherboard on one end and to floppy drive A on the other
end.

7   Connect an end of the 34-pin data cable to the 3.5" FDD and
       the other end to FDD connector on the motherboard.

8   Re-install system covers.

Installing 3.5" HDD

1   Remove system covers.

2   Remove the **FDD/HDD bracket** inside the chassis.

3   Slide the 3.5' HDD into the
      lower portion of the bracket
      (as shown).

4   Secure with four screws.

5   Re-install the bracket back
      into the chassis by lifting
      the latch spring and
      releasing it after the bracket is properly positioned
      underneath.

6   Connect the four-line power cable from the switching power
      supply to the receptacle on the 3.5" HDD.
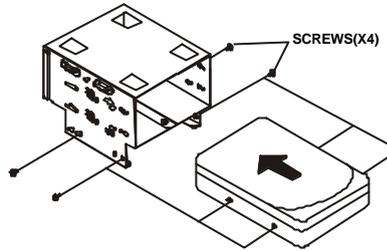
NOTE

*Hard disk drive cable has 40 wires and three connectors. The blue
connector is connected to the motherboard, black connector is
connected to the primary master device while the gray connector is
connected to the primary slave device.*

---

7   Connect an end of the 40-pin data cable (black) to the HDD
      drive and the other end (blue) to first IDE connector on the
      motherboard. Set the HDD to master.

8   Re-install the system covers.

Installing 5.25" IDE Devices

1   Remove system covers.

2   Slide the first 5.25" IDE drive into the first level (upper portion) of the CD-ROM bracket, in the direction of the arrow shown. (Second drive is installed into the second level (lower portion) of the CD-ROM bracket.)

3   Secure with four screws from both sides, as shown.

SCREWS(X4)

4   Connect the four-line power cable from the switching power supply to the receptacle on the IDE drive.

5   Connect an end of the 40-pin data cable to the IDE drive and the other end to the second IDE connector on the motherboard.
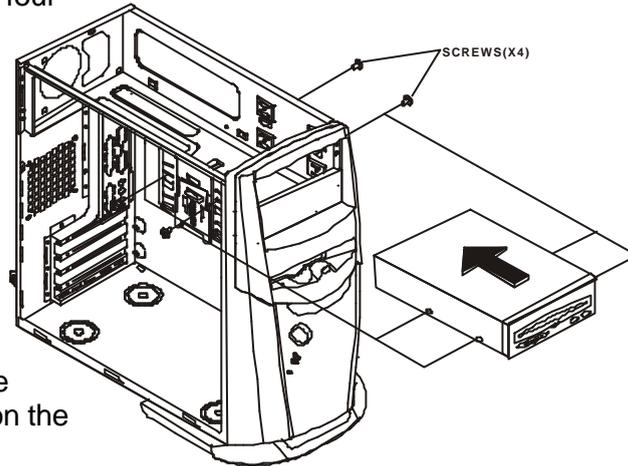
──── NOTE ────

Make sure that the setting on the IDE drives must be correct (master or slave) and must match with that on the motherboard. Drive designated as master is to the end of a daisy-chained data cable while slave is connected to the connector found in the middle of the daisy-chained data cable. Jumper on the device itself has to be set properly as master or slave to ensure proper operations.

6   Re-install the system covers.

CHAPTER 6
Device Driver Installation

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

- When you re-install your operating system
- When you format or reformat your HDD

Your system comes with the necessary drivers placed on a CD. This chapter informs you how to install required device driver(s).

To install these, insert this CD into your CD-ROM drive, this display should appear automatically:
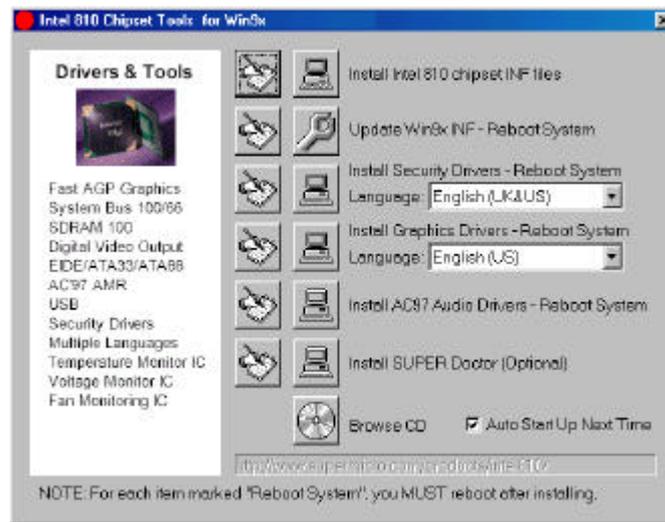
If the above display does not appear, click on *My Computer* icon, then double click on the icon representing your CD-ROM drive. Select *Setup* icon.

Click ⬚ beside an item to view its readme file. Then, click each item, one at a time, from top to bottom, to install. After installing each item, you must reboot the system before moving on to the next. Everything here should be installed except the optional 'SUPER Doctor' Utility. The 'Security' and 'Graphics Driver' support multiple languages. Click the arrows to pull down a menu of choices and select the language required. If you need to view the entire contents of the CD, click ⬚ at the bottom.

Note: The memory size reported in the device manager may be less than expected because some of it is used by the onboard graphics. Higher screen resolutions take up more memory.

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 98 software package.

Before Power On

1. Make sure no short circuits exist between the motherboard and chassis.

2. Disconnect all wire cables from the motherboard, including those for the keyboard and mouse.

3. Remove all add-on cards.

4. Install a CPU, the chassis speaker and the power LED to the motherboard.

5. Install a single memory module and make sure it is fully seated.

6. Check the power supply voltage 115V/230V switch.

Memory Error

1. Make sure the DIMM modules are properly and fully installed.

2. Determine if different speeds of DIMMs have been installed and verify that the BIOS setup is configured for the fastest speed of RAM used.   It is recommended to use the same

RAM speed for all DIMMs in the system.

3. Check for bad DIMM modules or slots by swapping a single DIMM module between both DIMM slots and noting the results.

Losing the System's Setup Configuration

1. Check the setting of jumper JBT1. Ensure that you are using a high quality power supply. A poor quality power supply may cause the system to lose the CMOS setup information.
2. If the above step does not fix the Setup configuration problem, contact your dealer for repair.

No Display

Computer isn't getting power.	Make sure no short circuits exist between the motherboard and chassis.
	Verify that all jumpers are set to their default positions.
	Turn the power switch on and off to test the system.
	Check that the 115V/230V switch of the power supply is properly set.
VGA monitor not properly connected.	If the power is on but you have no video, remove all the add-on cards, and cables.
	Set JP14 ON to enable the CPU Safe Mode and set all other jumpers to their default settings

(See Chapter 3 for reference)

Use the speaker to determine if any beep codes exist.

Consult monitor's manual if necessary.

Computer is in sleep or suspend mode.

Press a key on the keyboard or move the mouse 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 of your system.

Keyboard or Mouse is defective.

Contact your dealer to replace it.

Booting Up

System reports an error message that is not related to setup problems.

Your system may have a virus which has infected the master boot record.

Run a virus-checking software to remove the virus.

Write down the message and call your dealer.

System prompts for a password on boot.

Type in your password to continue. If you have lost the password or the password has been enabled by accident, call your dealer.

The computer provides a message indicating that the operating system is missing

The computer is not recognizing the hard drive as the boot drive. The hard drive type might not be properly specified. Run the **Setup** program and enter the "**Standard CMOS Setup**" menu. Check the hard drive information. If incorrect return to the initial Setup menu and select "**IDE HDD Auto Detection**." If the hard drive needs to be re-initialized, call your dealer first.

Try booting with the Windows 98 CD boot disk.

If the problem recurs or persists, contact your dealer.

Computer cannot locate the device for starting the computer	Run the Setup program. Make sure that both the A: drive and the C: drive are set for the appropriate drive in the "**Standard CMOS Setup**" menu of the **Setup** program.
Cannot boot from floppy disk	Boot sequence is set to access the C: drive first. Enter the **Setup** program. In the **Advanced CMOS Setup** menu, be certain that the Boot Device is set to either "Floppy" or " 1st IDE-HDD."
	Try another botable disk to properly boot.
	Floppy is defective. Throw it away.
No video, or system hangs-up	Be sure monitor is plugged into the outlet or surge protector.
	Check to be sure that connections between the monitor and the computer are secure.
	Open the case and check if the video card is properly seated in its slot.
	If you are an advanced user, you might check to see if any other cards are using the same addresses.

Computer does not come on when the power switch is turned on

Make sure the plug is firmly seated in the power strip or outlet.

Make sure the power strip is on.

Make sure that the outlet is working.

CMOS checksum error

This problem can be caused by a weak battery. Replace the battery if necessary.

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.

Floppy disk is not working correctly

Setup configuration is incorrect. Check the **Setup** program.   In the " S**tandard CMOS Setup**" menu, check to see if the Floppy Disk Drive is set for the proper drive type.

Be sure the disk is properly

	installed in the drive.
	Be sure the disk is properly formatted.
Disk can not eject from the drive	Label may be detached and is blocking the ejection. Visually inspect the slot to see if any obstruction by the label. Call your dealer if you see an obstruction.
	Metal cover on the disk has been bent. Call your dealer.

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 required.

Check your printer device driver.

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 connected.

Turn off your system and check printer cable connections.

Inaccurate System Clock

*System clock is not
properly set.*

Enter BIOS Setup Utility and set
system clock to current time and
date.

*On-board Lithium battery is
used up or exhausted.*

Contact your dealer to replace it.

Problems with Sound

No sound.

Make sure that the unit is
hooked up to an AC adapter and
the power button is ON.

Use only the AC adapter
provided.   Check the
connections between the
computer and the speakers.

Check if there is output from the
speaker.   Remove the plug
from the sound card, turn the
speaker to maximum volume
and touch the tip of the plug. If
you hear a humor buzz coming
from the speakers, the speakers
are working. Check the sound
card to locate the problem.

Headphones plugged into the
speaker's headphone jack will
block sound from the speakers.
Remove the headphones to
restore sound to the speakers.

Check volume controls on sound

	card, CD-ROM and speakers. Also check the software volume controls.
Sound coming from only one channel.	Check connections to the sound card and to the speakers. Make sure cables are plugged in completely and the connections are correctly hooked up. See your speaker documentation for more information on the connections.
Buzzing or humming sound	Check volume, tone and mixer controls on software. Follow the manual's setup instructions for these controls.

Problems with System Boards

Fax/Modem board will not send or receive data.	Check Device Manager in Window 98 to see if there is a problem with the board.
	Make sure the connections to the board via telephone lines are correct.
	Make sure the phones are working.
Fax does not automatically receive incoming faxes.	Check software to see if autoreceive option is enabled.
Fax/modem disconnects during transmission.	Be sure that you have disabled Call Waiting on your phone.
	Check for faulty connections and the noise in the line.

Modem does not connect properly to host system

Make sure connection type and protocol are properly set.

Be sure the receiving system is compatible with your modem.

Try connecting at a slower speed.

Be sure that all software for the connection is properly set.

Check fax/modem manual for further information.

Slow Fax/modem transmission time.

Make sure the software you are using is set at the maximum speed allowed by the connection.