Personal Computer
User's Guide

October 1998

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Copyright Notice

Trademark Acknowledgement

Federal Communications Commission (FCC) Statement

FCC Notice - Part 15

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

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

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

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

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

Safety and Maintenance Precautions

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

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

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

14. Do not attempt to service this product yourself. If you have the suspicion that the product is not in proper working order, unplug the unit and seek assistance from qualified service personnel, especially under the following conditions:
    a. When the power cord or plug is damaged or frayed.
    b. If liquid has been spilled onto the product, or if the product has been exposed to rain or water.
    c. If the product does not operate normally when the operating instructions are followed. Adjust only those controls that are covered by the operating instructions since improper adjustment of other controls may result in further damage or complications.
    d. If the product has been dropped or the cabinet has been damaged.
    e. If the product exhibits a distinct deterioration in performance, indicating a need for service.

Canadian Department of Communication Radio Frequency Interference Statement

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

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

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, ...

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

Finally, some basic troubleshooting techniques are provided in ***Chapter 6: Troubleshooting***.

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 gives you 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 into 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:

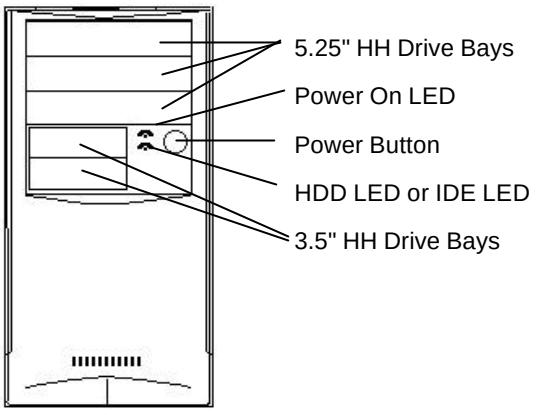
- ☑ Main Unit
  Depending on your order, your system may include floppy disk drive, hard disk drive, and CD-ROM drive.
- ☑ Windows 95 Enhanced PS/2 Keyboard
- ☑ PS/2 Mouse
- ☑ Device Drivers and Utility Disks
- ☑ Windows 95 Software Package
  This includes the Windows 95 operating system on CD-ROM disc, 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.

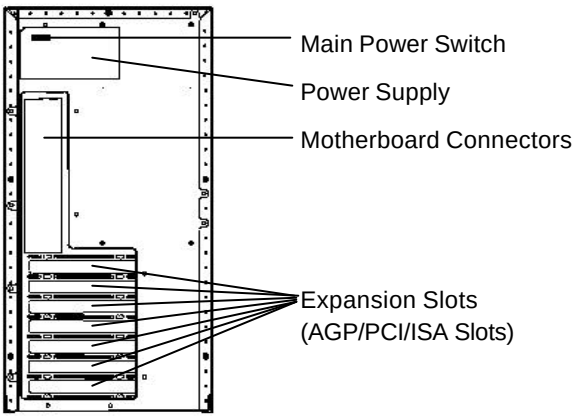
Keep the original carton and packing materials. If you need to move your PC to another location in the future, the original packaging materials best protect your PC.

Locations and Functions of Controls

Front Panel



Rear Panel



Making the Connections

You are now ready to connect the devices to get the system working. You can refer to the User's Guide for the locations of the connectors mentioned herein. For installation of devices that are not covered in this section, please refer to their respective manuals.

WARNING: Before You Start Connecting

M*ake 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. Locate the VGA port at the back of your system. Since VGA is not a built-in feature, find this port at the graphics card inserted on one of your expansion slots. You can recognize this port easily as only this type of connector can be fit into it.

Other monitors bundle a separate video cable. After inserting a connector to the VGA port, connect the other end of the video cable to the monitor. Refer to the user's guide of the monitor for more information.

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 the 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 of your system. This port is located at the rear panel.

Check the printer's manual for any driver installation required to maximize its performance. Then, make sure that you have designated your print destination properly in your applications program before issuing a print command.

AC Power

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

WARNING: Before You Plug Into an AC Outlet

*Check if your system is switched to the right **AC voltage**. Power supplies that do not have automatic voltage switching feature have to be set to the AC voltage of your power outlet. You can check the system simply by looking at the rear panel. Usually, non-automatic switching power supply has a switch near the AC Power In socket of your system. Set this switch to the correct voltage.*

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 this time, everything is already connected and you are ready to power on your PC. Your computer has a main power switch at the rear panel, open this switch first. Then, press power button to turn it on. Your computer will boot and will automatically enter Windows 95 operating system. The Power On LED of your computer will be lit.

WARNING: Before You Turn On Your Computer

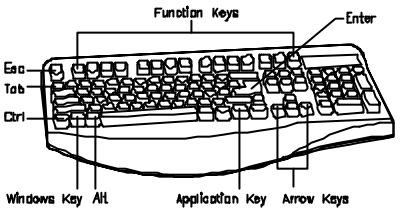
*Check if your system is switched to the right **AC voltage**. Power supplies that do not have automatic voltage switching feature has to be set to the AC voltage of your power outlet. You can check the system simply by looking at the rear panel. Usually, non-automatic switching power supply has a switch near the AC Power In socket of your system. If these do not match, set the switch to the correct voltage.*

If you would like to turn off your system, perform Windows 95 shut down operations first:

1. Press (Windows) key.
2. Click "Shut Down..."
3. Confirm by clicking "Yes" button.
4. Press main power switch, if necessary.

Using the Keyboard

Keyboard works like a typewriter. There are, however, a number of keys that are 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.

Confirms your selection and tells the PC to go ahead.

This usually returns you to the previous screen.

Also used to exit a program.

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

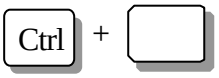
Moves the cursor in the direction of the arrow.

Windows key -> Displays the Microsoft Windows 95 Start menu. Pressing this has the same effect as clicking Start button on the bottom left of the screen.

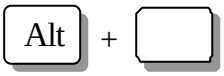
Application key -> Opens a shortcut menu for the current program. Pressing this has the same results as pressing the right button of the mouse.

Function keys -> These are shortcut keys for various operations, depending on the instructions set by the applications program.

Special Key Combinations



Holding down this key and another key at the same time gives a command to the current program. The commands are dependent on the preset values of that application program.



Pressing this key with an ASCII code returns the ASCII character. Some application programs also assign preset commands to this key.

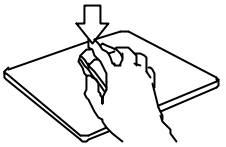
Ctrl + Alt + Del

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.

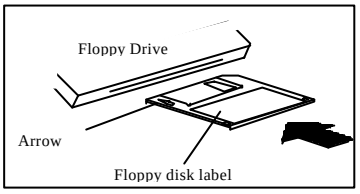
To “click” an item, point to the item on the screen, and press the left mouse button. To “double-click” an item, press the left button twice quickly.

Using the Floppy Disk Drive

Your floppy disk drive uses 3.5” floppy disks. Maximum capacity of each disk is 1.44MB.

Inserting a Disk

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



WARNING

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

Removing a Disk

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

Floppy disks are designated by your operating system as drive A. Often, it is represented by **A:**. Some systems can accommodate two floppy disk drives. In such case, the other floppy disk is designated as drive B, and represented by **B:**.

Presence of floppy disk drives are automatically detected by your system and the operating system.

Using the Hard Disk

Hard disk 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.

WARNING: Before You Reset or Turn Off

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

Like any other types of disks, it is essential that you make backup copies of your hard disk data periodically.

First hard disk drive in a system is designated as drive C, symbol is **C:**. Next hard disk drive is drive D, and so on.

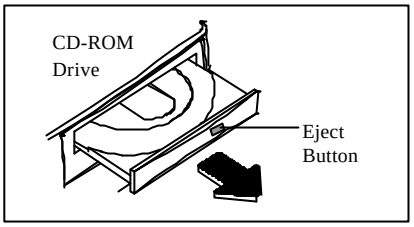
Your system and Windows operating system automatically detects your hard disk drives. If a hard disk is not detected, enter your BIOS Setup Utility to see if it is properly registered.

Using the CD-ROM Drive

Before you insert a CD, check for dust or fingerprints on the side 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.

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.

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.

CD-ROM drives are assigned a drive letter next to the last assigned hard disk drive of the system. For example, if your system has one hard disk, hard disk drive is C: and CD-ROM drive becomes D:.

Handling CD-ROM Discs With Care

- ☆ Dust and smudges on the side 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 standard features and technical specifications of your motherboard.

Standard Features

- ☆ High performance system using single Intel Pentium II Deschutes CPU
- ☆ Designed using 440BX Intel chipset
- ☆ 256/512KB second-level cache (depends on CPU model)
- ☆ Integrated EIDE, AGP (Accelerated Graphics Port), USB and DMA controllers
- ☆ ATX form-factor providing 3 PCI slots, 2 ISA slots, 1 PCI/ISA Combo slot and 1 AGP connector
- ☆ Three 168-pin 3.3V DIMM sockets, for total of 768MB memory using 66MHz EDO DRAM or 100MHz registered SDRAM; or total of 384MB using 100MHz SDRAM
- ☆ 2MB Flash ROM with AMI BIOS
- ☆ Supports APM 1.1, DMI 2.01, Plug and Play (PnP)
- ☆ Integrated Winbond W83977TF Super I/O Controller
- ☆ Built-in ports: serial ports x2, parallel port, PS/2 keyboard jack, PS/2 mouse port, USB ports x2

- ☆ PC 98-ready and supports ACPI (Advanced Configuration and Power Interface), WOL (Wake-on-LAN) feature and PC Health Monitoring feature.
- ☆ Runs under Windows 95 OSR2.1 and Windows 98. Note that only these versions support USB functions.

IMPORTANT NOTICE

D*evice drivers and their installation procedures are provided on CD disc. You need to install USB device driver first before you can install 440BX device driver and the optional BusMaster device driver.*

Technical Specifications

CPU (Central Processing Unit)

- Single Pentium II Deschutes processor*: 350/400/450 MHz at 100MHz bus speed*
- Built-in L2 cache*: 256KB or 512KB (depends on CPU model) located on the substrate of the S.E.C. (Single Edge Contact) cartridge.*
- Slot 1 connector

440BX Intel Chipset

- Integrated System-to-PCI bridge with optimized DRAM controller and data path
- Integrated AGP[1] (Accelerated Graphics Port) interface based on AGP Specification Rev 1.0
- PIIX4 PCI-to-ISA bridge I/O subsystem

Power Interface (ACPI/PC 98 Features)

ACPI[2] (Advanced Configuration and Power Interface) and PC 98 Features are supported.

- Microsoft OnNow: *A system and device power control such that the system stays on but appears off, and responds immediately to user or other requests when prompted.*
- Slow blinking Power ON LED to indicate system 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 as suspend button[3] when ATX power supply is used

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[1] AGP is for connection to a special high performance graphics card targeted at 3D applications and is based on a set of performance enhancements to PCI. AGP reduces contention with the CPU and I/O devices by broadening the bandwidth of graphics to memory. It delivers a maximum of 532 MB/s 2x transfer mode.

[2] ACPI is a specification defining flexible and abstract hardware interface to integrate power management features of the hardware, operating system and application software in a PC system.

- External modem ring-on wakes the system up when a call is detected

Memory

- 2MB Flash ROM with AMI BIOS
- Three 168-pin DIMM sockets provided
- 768MB maximum memory using 66MHz EDO or 100MHz registered SDRAM; or, 384MB maximum using 100MHz SDRAM
- ECC[4] (Error Checking and Correction) and Error Checking support

Built-in I/Os

Winbond W83977TF Super I/O Controller functions complies with ACPI and PC97's requirement in power management.

- Integrated FDC (Floppy Disk Controller)
- PS/2 Keyboard and mouse controller
- Two EIDE Bus Master interfaces supporting Ultra DMA/33 and Mode 4
- Two high speed serial communication ports (UARTs)
- One parallel port supporting the following modes: SPP (PC-compatible printer port), BPP (Bi-directional Printer

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[3] When ATX power supply is connected, pressing the power button toggles between putting the system in suspend (SoftOff) state or waking up the system. However, pressing the power button for 4 seconds turns the system off.

[4] ECC (Error Checking and Correction) memory detects multiple-bit errors and corrects single-bit errors.

Port), EPP (Enhanced Parallel Port), and ECP (Extended Capabilities Port)

- Real-time clock/calendar
- CMOS RAM to maintain system configuration
- Two USB (Universal Serial Bus) ports
- Expansion slots: PCI slots x3, ISA slots x2, PCI/ISA Combo slot x1, AGP slot x1

PC Health Monitoring Features

- Six 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: *For power saving purposes, you can shut down CPU fan if the system is in sleep mode. (Normally, CPU fan is turned on if the power is on.) This option is available in the BIOS Setup Utility.*
- Chassis intrusion detection: *A chassis intrusion circuitry is built-in to alert the user with a warning message when the system is turned on and the chassis has been opened. This feature is available only if your system case has a microswitch attached to JL1 of this board, and if you are running Intel's LANDesk Client Manager.*
- System resource alert: *The system will alert you of potential resource problems (i.e., not enough hard disk space, low virtual memory, ...) This feature is available only if you are running Intel's LANDesk Client Manager.*
- Hardware BIOS virus protection: *The contents of BIOS can be changed only through the flash utility. This prevents viruses from infecting the BIOS area which may cause loss of valuable data.*
- 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.*

Wake-on-LAN (WOL) feature

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

Environmental Specifications

Ambient Temperature

Operating: *50 ¢ K to 104 ¢ K (10 ¢ J to 40 ¢ J)*
Non-operating: *5 ¢ K to 140 ¢ K (- 15 ¢ J to 60 ¢ J)*

Humidity

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

Unit Dimensions

Motherboard: *305 x* 178 mm
Tower System: *180 (W) x 334 (D) x 375 (H) mm*

REMARK

Specifications are subject to change without prior notice.

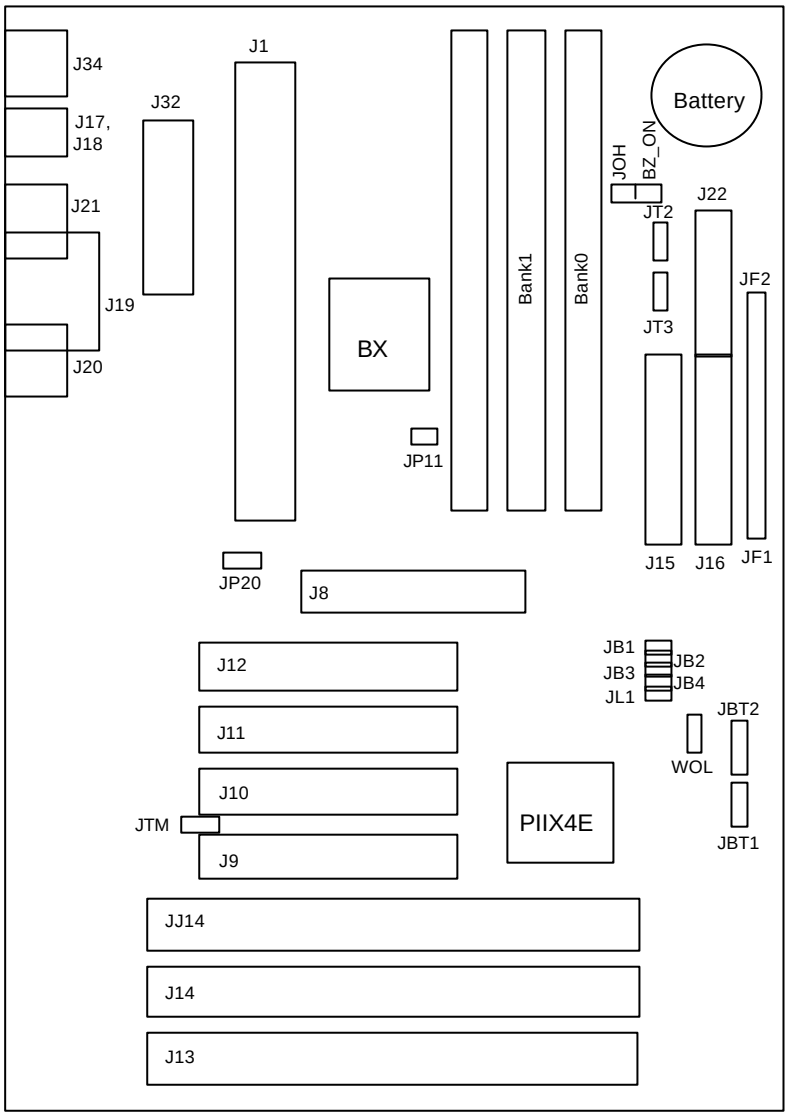
CHAPTER 3:
Connectors & Jumpers

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. This way, you can always revert to the original settings if the new settings do not work.

Motherboard Layout



Quick Reference

Jumpers/ Connectors	Function	Page
J1	PXII CPU SLOT1 Connector	3-9
J13, J14, JJ14	ISA Slot Connectors	3-9
J15, J16	IDE1/2 Connectors	3-11
J17, J18	USB1/2 Port Connectors	3-4
J19	LPT Port Connector	3-5
J20, J21	COM1/2 Port Connectors	3-4
J22	Floppy Drive Connector	3-12
J32	Power Supply Connector	3-5
J34	PS/2 Keyboard/Mouse Port Connector	3-4
J8	AGP Port	3-10
J9, J10, J11, J12	PCI Slot Connectors	3-9
JB1, JB2, JB3, JB4	CPU Speed Multiplier	3-7
JBT1	CMOS Clear	3-8
JBT2	External Battery	3-8
JF1, JF2	Front Panel Connectors	3-9
JL1	Chassis Intrusion	3-8
JOH	Overheat LED Connector	3-8
JP11	CPU Bus Clock	3-6
JP20	Power On/Off State	3-6
JT1, JT2	CPU1/2 Fan Connectors	3-7
JT3	Thermal/Overheat Fan Connector	3-7
JTM	Temperature Measurer Connector	3-6
WOL	Wake-on-LAN	3-8

Description on Connectors & Jumpers

1 PS/2 Keyboard/Mouse Port Connector (J34)

The PS/2 enhanced keyboard is connected to J34's bottom connector while PS/2 mouse is connected to the upper connector.

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

2 COM1, COM2 Port Connectors (J20, J21)

J20 and J21 jumpers are male DB9 (9-pin) serial port connectors mounted on the motherboard. You can enable or disable these ports through BIOS Setup Utility.

Pin	Signal	Pin	Signal
1	NRLSD1	6	NDSR1
2	NRX1	7	NRTS1
3	NTX1	8	NCTS1
4	NDTR1	9	NR11
5	GND		

3 USB 1/2 Port Connectors (J17, J18)

The two USB (Universal Serial Bus) connectors, J17 and J18, are mounted on the motherboard for connecting up to two USB devices. You can enable or disable this port through BIOS Setup Utility.

Pin	J17	Pin	J18
1	+5V	1	+5V
2	P0-	2	P0-
3	P0+	3	P0+
4	GND	4	GND
5	N/A	5	Key

NOTE

USB features are supported only in Windows 95 OSR2.1 version and Windows 98.

4 LPT Port Connector (J19)

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	STB*	7	PPD<5>	13	SLCT	19	GND
2	PPD<0>	8	PPD<6>	14	AFD*	20	GND
3	PPD<1>	9	PPD<7>	15	ERR*	21	GND
4	PPD<2>	10	ACK*	16	INT*	22	GND
5	PPD<3>	11	BUSY	17	SLCTIN*	23	GND
6	PPD<4>	12	PE	18	GND	24	GND
						25	GND

J19 is a female DB25 (25-hole) parallel port mounted on the motherboard. You can enable, disable or select the mode of parallel port through BIOS Setup utility.

5 Power Supply Connector (J32)

Pin	Wire Color	Signal	Pin	Wire Color	Signal
1	Orange	+3.3V	11	Orange	+3.3V
2	Orange	+3.3V	12	Blue	-12V
3	Black	GND	13	Black	GND
4	Red	+5V	14	Green	PS-ON
5	Black	GND	15	Black	GND
6	Red	+5V	16	Black	GND
7	Black	GND	17	Black	GND
8	Gray	PW-OK	18	White	-5V
9	Purple	+5VSB	19	Red	+5V
10	Yellow	+12V	20	Red	+5V

The 20-pin connector from the switching power supply is connected to J32.

If the switching power supply used is an ATX-compliant power supply, remote power on/off is supported and the system's power can be turned off through software control.

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

6 Power On/Off State (JP20)

This jumper determines whether the system will be placed in power on state (PIIX4 Ctrl) or off state (Save PD State) when power is applied to the system for the first time or when power returns after an AC power failure.

Pin	Function
1-2 ON	PIIX4 Ctrl
2-3 ON	Save PD State (Default)

7 Temperature Measurer Connector (JTM)

Temperature sensors are connected to JTM.

Pin	Signal	Pin	Signal
1	VTIN1	3	GND
2	GND	4	VTIN3

8 CPU Bus Clock (JP11)

Sets the bus clock of the motherboard. **Always set to 100MHz for Pentium II Deschutes 350/400/450MHz.**

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

* If all pins are off, CPU bus clock is set at 100MHz.

9 CPU Speed Multiplier (JB1, JB2, JB3, JB4)

These jumpers are used to set CPU speed.

CPU Core/Bus Ratio	JB4	JB3	JB2	JB1
X3.0	ON	ON	OFF	ON
X3.5	ON	ON	OFF	OFF
X4.0	ON	OFF	ON	ON
X4.5	ON	OFF	ON	OFF
X5.0	ON	OFF	OFF	ON
X5.5	ON	OFF	OFF	OFF
X6.0	OFF	ON	ON	ON

Your system supports Pentium II Deschutes 350/400/450 MHz, set the jumpers according to the correct CPU Core/Bus Ratio:

Pentium II **350** MHz → CPU Core/Bus Ratio is **3.5**
Pentium II **400** MHz → CPU Core/Bus Ratio is **4.0**
Pentium II **450** MHz → CPU Core/Bus Ratio is **4.5**

10 CPU1/2 Fan Connectors (JT1, JT2)

The two CPU fans are connected to JT1 and JT2.

Pin	Signals
1	JGND
2	+12V
3	Tachometer1/2

11 Thermal/Overheat Fan Connector (JT3)

The thermal fan is connected to JT3.

Pin	Signals
1	JOH_GND
2	+12 V
3	Tachometer3

12 Overheat LED Connector (JOH)

Pins 1 and 2 of this connector connects to the LED that indicates overheat status.

13 Wake-on-LAN (WOL)

Wake-on-LAN is connected to WOL.

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

14 CMOS Clear (JBT1)

Set this jumper to clear CMOS data. When CMOS data is cleared, system configuration has to be entered during boot.

Pin	Function
1-2 ON	Normal (Default)
2-3 ON	CMOS Clear

For ATX power supply, you need to completely shut down the system before setting JBT1 to clear CMOS. Do not use the PW_ON connector (of JF2) to clear CMOS data. Another way to clear CMOS data is by pressing <Ins> key while turning on system power. Release when the system is on.

15 External Battery (JBT2)

External battery is connected through JBT2.

Pin	Signal	Pin	Signal
1	+3V	3	NC
2	NC	4	GND

16 Chassis Intrusion (JL1)

The chassis intrusion detector is located in JL1.

Pin	Signal
1	Intrusion Input
2	GND

17 Front Panel Connectors (JF1, JF2)

JF1			JF2		
Function	**Pin**	**Signal**	**Function**	**Pin**	**Signal**
IDE LED (Hard disk 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	+Speaker data		10	GND
	11	NC		11	NC
	12	Key	Reset Connector	12	GND
	13	Speaker data		13	Reset

Connects to the different functions on the front panel.

18 PXII CPU SLOT1 Connector (J1)

This is where you install Pentium II CPU. Refer to Chapter 4 for the installation procedures.

19 PCI Slot Connectors (J9, J10, J11, J12)

Install PCI cards through these slots.

20 ISA Slot Connectors (J13, J14, JJ14)

Install ISA cards through these slots.

21 AGP Port Connector (J8)

Pin	B	A	Pin	B	A
1	Spare	12V	34	Vddq3.3	Vddq3.3
2	5.0V	Spare	35	AD21	AD22
3	5.0V	Reserved*	36	AD19	AD20
4	USB+	USB-	37	GND	GND
5	GND	GND	38	AD17	AD18
6	INTB#	INTA#	39	C/BE2#	AD16
7	CLK	RST#	40	Vddq3.3	Vddq3.3
8	REQ#	GNT#	41	IRDY#	Frame#
9	VCC3.3	VCC3.3	42		
10	ST0	ST1	43	GND	GND
11	ST2	Reserved	44		
12	RBF#	PIPE#	45	VCC3.3	VCC3.3
13	GND	GND	46	DEVSEL#	TRDY#
14	Spare	Spare	47	Vddq3.3	STOP#
15	SBA0	SBA1	48	PERR#	Spare
16	VCC3.3	VCC3.3	49	GND	GND
17	SBA2	SBA3	50	SERR#	PAR
18	SB_STB	Reserved	51	C/BE1#	AD15
19	GND	GND	52	Vddq3.3	Vddq3.3
20	SBA4	SBA5	53	AD14	AD13
21	SBA6	SBA7	54	AD12	AD11
22	Key	Key	55	GND	GND
23	Key	Key	56	AD10	AD9
24	Key	Key	57	AD8	C/BE0#
25	Key	Key	58	Vddq3.3	Vddq3.3
26	AD31	AD30	59	AD_STB0	Reserved
27	AD29	AD28	60	AD7	AD6
28	VCC3.3	VCC3.3	61	GND	GND
29	AD27	AD26	62	AD5	AD4
30	AD25	AD24	63	AD3	AD2
31	GND	GND	64	Vddq3.3	Vddq3.3
32	AD_STB1	Reserved	65	AD1	AD0
33	AD23	C/BE3#	66	SMB0	SMB1

There are no jumpers required to configure the AGP port.

22 HDD1/2 Flat Cable Connectors (J15, J16)

These are for connection to hard disk drives or other IDE devices. There are no jumpers required to configure these drives.

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	Addr 2
37	Chip Select 0	38	Chip Select 1#
39	Activity	40	GND

23 FDD Flat Cable Connector (J22)

The floppy disk drive is connected to J22 through the FDD cable.

Pin	Signal	Pin	Signal
1	GND	2	FDHDIN
3	GND	4	Reserved
5	Key	6	FDEIN
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

CHAPTER 4: *BIOS Setup*

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

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

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

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

Entering System Setup

When you turn on your system, the following message is shown while your system is executing POST:

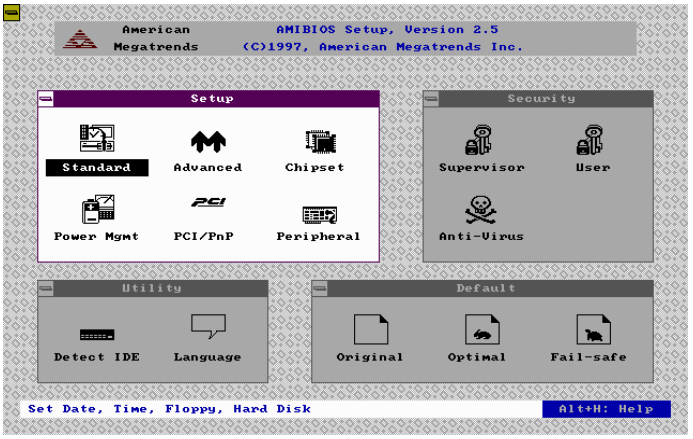
Hit <DEL> if you want to run SETUP

You have to press <DEL> key fast enough before it starts up the operating system in order to enter Setup Utility.

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

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

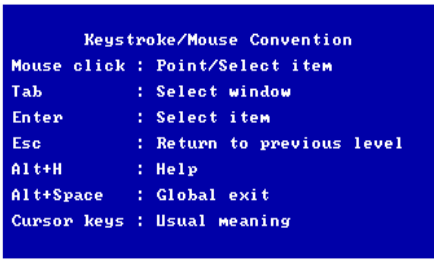
The following screen appears upon entering Setup Utility:



This Setup Main Menu is organized into four windows, or function menus:

1. Setup → Permits you to set system configuration options such as date, time, hard disk type, floppy type, power management features and many others.
2. Utility → Allows you to choose the BIOS language and to detect IDE devices connected to your system.
3. Security → Controls BIOS security features.
4. Default → Provides you a way to select and revert back to a set of default settings.

You can use your mouse or keyboard to select an option or open a sub-menu. The keystroke/ mouse convention is as shown. Options available for each item in each function menu are discussed in the succeeding sections.

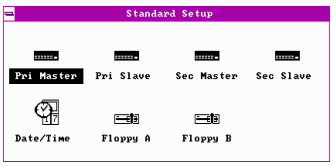


Setup Function Menu

There are six sub-menus found in the Setup Function Menu. Different types of system configuration parameters are set on each sub-menu.

1 Standard Setup

Seven icons appear on screen. This sub-menu allows you to set system time and date, and configure disk drives.



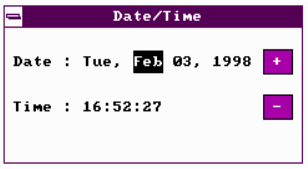
Pri Master, Pri Slave, Sec Master, Sec Slave

Allows configuration of hard disk drives installed.

Item	Options	Description
Type	Not Installed 1 ⋮ 46 User Auto CD-ROM Floptical	Select type of IDE devices installed. *Auto* - BIOS automatically detects hard disk parameters. *User* - You enter hard disk parameters. *1~46* - Select parameters from a pre-determined set of values. *Floptical* refers to removable devices.
LBA/Large Mode	Off On	Select *On* if the drive has a capacity greater than 540MB.
Block Mode	Off On	*On* allows block mode data transfers. Check if your hard disk supports this mode. If it does not support this mode, data may be destroyed when turned On.
32Bit Mode	Off On	On allows 32-bit data transfers.
PIO Mode	Auto 0 1 2 3 4 5	Select PIO Mode of the IDE device. It is best to select *Auto* to let the BIOS select the mode. If you selected a mode that is not supported by the IDE drive, that drive will not work properly.

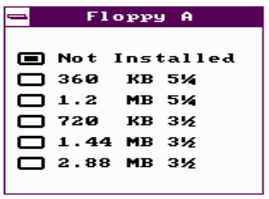
Date/Time

Press <**+**> or <**-**> keys on your keypad or use your mouse to click on the "**+**" or "**-**" icons on the screen to set the current date and time.



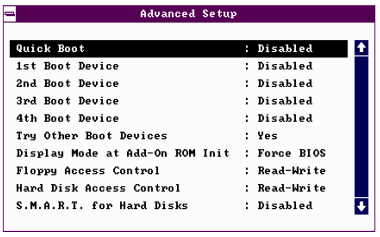
Floppy A, Floppy B

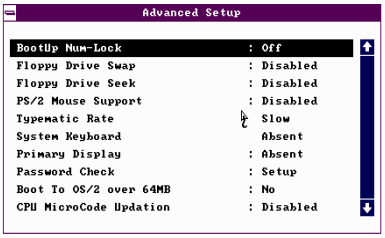
Select the type of floppy drive. Note that default settings are ***1.44MB 3½***for *Floppy A* and ***Not Installed*** for *Floppy B*.

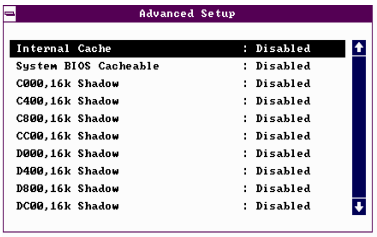


2 Advanced Setup

Advanced Setup Menu allows you to configure basic system performance parameters.







Options and descriptions of each item as follows:

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

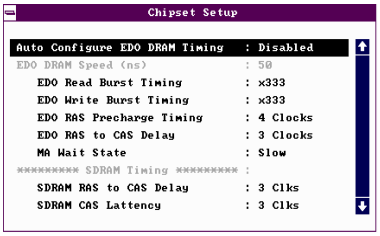
1st Boot Device 2nd Boot Device 3rd Boot Device 4th Boot Device	Disabled	BIOS will attempt to read the boot record from first, second, then third device in the selected order until it is successful in reading the boot record.
Try Other Boot Device	Yes No	If all selected boot devices failed to boot, *Yes* allows BIOS to boot from other boot devices present but not selected in the setup.
Display Mode at Add-on ROM Init	Force BIOS Keep Current	*Force BIOS* forces the display to be changed to BIOS mode before giving control to any add-on ROM. If no add-on ROM is found, then the current display mode will remain unchanged. *Keep Current* retains the current display mode.
Floppy Access Control Hard Disk Access Control	Read-Write Read-Only	Specifies the read/write access that is set when booting from a floppy/hard disk drive.
S.M.A.R.T. for Hard Disks	Disabled Enabled	S.M.A.R.T. is Self-Monitoring, Analysis and Reporting Technology → developed to manage the reliability of hard disk by predicting future device failures. Hard disk has to have this capability before you enable this feature. Note: S.M.A.R.T. cannot predict all future device failures. This should be used as a warning tool only.
Boot Up Num-Lock	On Off	*On* turns the Num Lock key off when system is powered on.

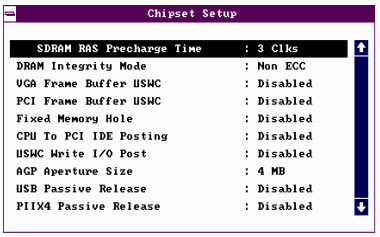
Floppy Drive Swap	Disabled Enabled	*Enabled* allows drive A: and B: to be swapped.
Floppy Drive Seek	Disabled Enabled	*Enabled* specifies that drive A: will perform a Seek operation at system boot.
PS/2 Mouse Support	Enabled Disabled	Enables or disables the support for PS/2 type mouse.
Typematic Rate	Slow Fast	This option sets the rate at which characters on the screen repeat when a key is pressed and held down.
System Keyboard	Absent Present	Specifies if error messages are displayed if keyboard is not attached: *Present* displays an error message when a keyboard is not attached. *Absent* allows you to configure workstations with no keyboards, no error message is displayed in such situation.
Primary Display	Absent VGA/EGA CGA40x25 CGA80x25 Mono	Configures the type of monitor attached to the computer.
Password Check	Always Setup	Enables password checking: *Always* - every time the system boots *Setup* - if BIOS Setup Utility is executed
Boot to OS/2 over 64MB	No Yes	*Yes* allows BIOS to run with OS/2 and use more than 64MB of system memory.
CPU Microcode Updation	Disabled Enabled	*Enabled* permits the CPU to be updated online at any time.
Internal Cache	Disabled Writeback	Disables or enables internal cache memory.

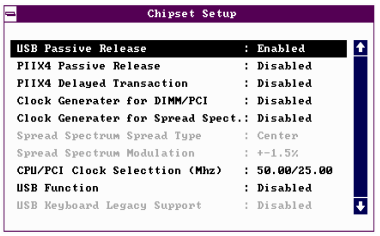
System BIOS Cacheable	Disabled Enabled	*Enabled* allows the contents of F0000h system memory segment to be read from or written to cache memory for faster execution.
C000, 16K Shadow	Disabled Enabled Cached	Specifies how the 32KB of video ROM at C0000h is treated. *Disabled* - contents of video ROM are not copied to RAM. *Enabled* - contents of video ROM area from C0000h-C7fffh are copied (shadowed) from ROM to RAM for faster execution. *Cached* - contents of video ROM area from C0000h - C7fffh are copied from ROM to RAM and can be written to or read from cache memory.
C400, 16K Shadow		
C800, 16K Shadow	Disabled Enabled Cached	Enables the shadowing of the contents of selected ROM area. The ROM area not used by ISA adapter cards is allocated to PCI adapter cards. *Disabled* - contents of video ROM are not copied to RAM. *Enabled* - contents of video ROM area from C0000h-C7fffh are copied (shadowed) from ROM to RAM for faster execution. *Cached* - contents of video ROM area from C0000h - C7fffh are copied from ROM to RAM and can be written to or read from cache memory.
CC00, 16K Shadow		
D000, 16K Shadow		
D400, 16K Shadow		
D800, 16K Shadow		
DC00, 16K Shadow		

3 Chipset Setup

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







Options and descriptions of each item as follows:

Item	Options	Description
Auto Configure EDO DRAM Timing	Enabled Disabled	Enables or disables automatic configuration of EDO DRAM timing.
EDO DRAM Speed (ns)	50 60 70	If 'Auto Configure EDO DRAM Timing' is enabled, this option specifies the RAS Access Time for the EDO DRAM installed.
EDO Read Burst Timing	x333 x222	Specifies the timings for EDO DRAM for read/write operations in burst mode. Selectable only if 'Auto Configure EDO DRAM Timing' is disabled.
EDO Write Burst Timing		
EDO RAS Precharge Timing	4 Clocks 3 Clocks	Specifies the timings of the corresponding items.
EDO RAS to CAS Delay	3 Clocks 2 Clocks	

MA Wait State	Slow Fast	This option specifies the length of the delay inserted between MA signals.
SDRAM RAS To CAS Delay	3 Clks 2 Clks	Specifies the timings of the corresponding items.
SDRAM CAS Latency		
SDRAM RAS Precharge Timing		
DRAM Integrity Mode	Non-ECC EC Only ECC	Sets the type of system memory checking: *Non-ECC* - No error checking or reporting done. *EC only* - Multibit errors are detected and reported as parity errors. Single-bit errors are corrected by the chipset. Corrected bits are not written back to DRAM. *ECC* - Multibit errors are detected and reported as parity errors. Single-bit errors are corrected by the chipset and written back to DRAM.
VGA Frame Buffer USWC*	Enabled Disabled	Enables or disables VGA video frame buffer using USWC. Note that older ISA card drivers may not behave correctly if this options is not set to *Disabled*.
PCI Frame Buffer USWC	Enabled Disabled	Enables or disables USWC memory attribute. Enabling this improves video performance when a PCI video adapter is installed.

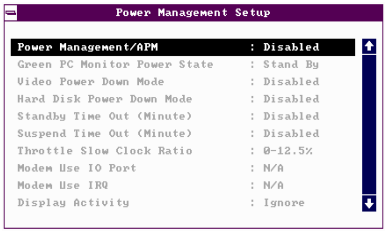
* USWC - Uncacheable, Speculatable, Write-Combined

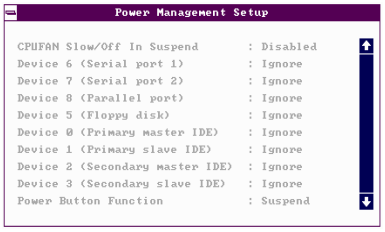
Fixed Memory Hole	Disabled 512KB-640KB 15 MB-16 MB	Specifies the location of an area of memory that cannot be addressed on the ISA bus.
CPU To PCI IDE Posting	Disabled Enabled	
USWC Write I/O Post	Disabled Enabled	Enables or disables USWC posted writes to I/O.
AGP Aperture Size	4 MB 8 MB 16MB 32MB 64MB 128MB 256MB	Specifies the amount of memory that can be used by AGP (Accelerated Graphics Port).
USB Passive Release	Enabled Disabled	Enables or disables the corresponding items.
PIIX4 Passive Release		
PIIX4 Delayed Transaction		
Clock Generater for DIMM/PCI		
Clock Generater for Spread Spect.		
Spread Spectrum for Spread Type	Center Down	Specifies type if 'Clock Generater for Spread Spect.' Is enabled.
Spread Spectrum Modulation	+-1.5% +-0.6%	Specifies modulation if 'Clock Generater for Spread Spect.' Is enabled.
CPU/PCI Clock Selection (MHz)	50.00/25.00 75.00/32.00 83.30/41.65 68.50/34.25 83.30/33.30 75.00/37.50 60.00/30.00 66.80/33.40	Selects the CPU and PCI clock frequency.

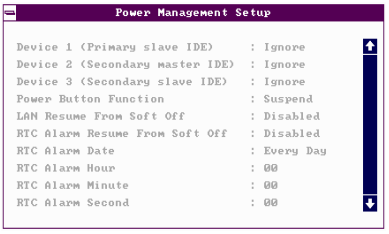
USB Function	Disabled Enabled	Enables or disables USB functions.
USB Keyboard Legacy Support	Disabled Enabled	Enables or disables USB keyboard and mouse.

4 Power Management Setup

Configures power conservation features.







Options and descriptions of each item as follows:

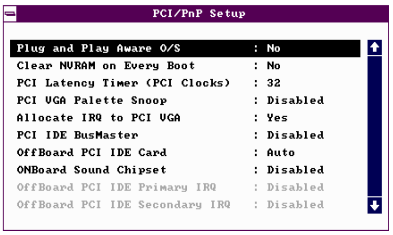
Item	Options	Description
Power Management/ APM	Disabled Enabled	*Enabled* lets the BIOS control the power conservation features.
Green PC Monitor Power State	Standby Suspend Off	Specifies the power state that the selected item enters after the specified period of inactivity has expired.
Video Power Down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

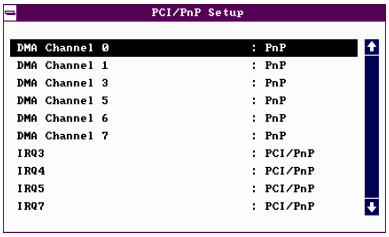
Standby Time Out (Minute)	Disabled	Specifies the length of period of system inactivity while in full power/standby state before it enters standby/suspend power state.
Suspend Time Out (Minute)		
Throttle Slow Clock Ratio	0-12.5% 12.5-25% 25-37.5% 37.5-50% 50-62.5% 62.5-75% 75-87.5%	Indicates the percentage of time the STPCLK# signal is asserted while in the thermal throttle mode.
Modem Use IO Port	N/A 3F8h/COM1 2F8h/COM2 3E8h/COM3 2E8h/COM4	Sets the I/O port address of modem.
Modem Use IRQ	N/A 3 4 5 7 9 10 11	Sets the IRQ address used by modem.
Display Activity	Ignore Monitor	Enables event monitoring on the video display. *Monitor* allows BIOS to enter Full On state if any activity occurs on the video display when the computer is in a power saving state.
CPUFAN Slow/Off In Suspend	Disabled Enabled	*Enabled* stops the operation of CPU fan if the system is put in suspend mode.

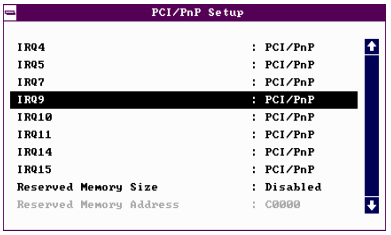
Device 6 (Serial port 1)	Monitor	Enables event monitoring on the selected item. *Monitor* allows BIOS to enter Full On state if any activity occurs on that specific item when the computer is in a power saving state.
Device 7 (Serial port 2)		
Device 8 (Parallel port)		
Device 5 (Floppy disk)		
Device 0 (Primary master IDE)		
Device 1 (Primary slave IDE)		
Device 2 (Secondary master IDE)		
Device 3 (Secondary slave IDE)		
Power Button Function	On/Off Suspend	When power button is pressed: *On/Off* turns the computer on or of. *Suspend* places the computer in suspend mode or full power mode.
LAN Resume From Soft-Off	Disabled Enabled	*Enabled* allows you to wake up the system through LAN.
RTC Alarm Resume From Soft-Off	Disabled Enabled	Sets the RTC alarm to wake up the system on a specified period.
RTC Alarm Date	Every Day 01 ⋮ 31	Specifies the date and time to wake up the system.
RTC Alarm Hour	00 ⋮ 23	
RTC Alarm Minute	00 ⋮ 59	
RTC Alarm Second		

5 PCI/PnP Setup

Configures PCI and Plug-and-Play features.







Options and descriptions of each item as follows:

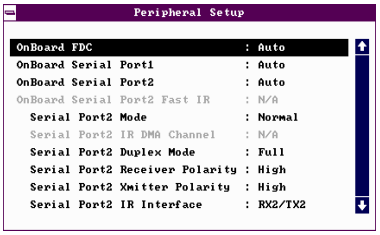
Item	Options	Description
Plug and Play-Aware OS	No Yes	Set this to *Yes* if your operating system is aware of and follows the Plug and Play specification.
Clear NVRAM on Every boot	No Yes	Clears (*Yes*) or maintains (*No*) the contents of NVRAM during boot.
PCI Latency time (PCI Clocks)	32 64 96 128 160 192 224 248	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.
Allocate IRQ to PCI VGA	Yes No	Assigns an interrupt signal to the PCI VGA card.

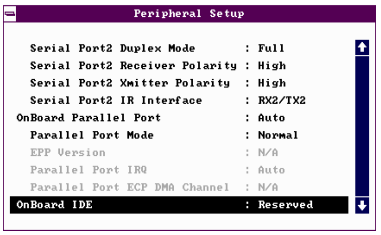
PCI IDE Busmaster	Disabled Enabled	Specifies if the IDE controller on the PCI bus has bus mastering capabilities.
Offboard PCI IDE Card	Auto Slot 1 Slot 2 Slot 3 Slot 4 Slot 5 Slot 6	Specifies if an offboard PCI IDE controller adapter card is installed. If it is installed, the onboard IDE controller 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' must be set.
ONBoard Sound Chipset	Disabled Enabled	Enables or disables system's onboard sound feature.
Offboard PCI IDE Primary IRQ	Disabled INTA INTB INTC INTD Hardwired	Specifies PCI interrupt used by the primary/secondary IDE channel on the offboard PCI IDE controller.
Offboard PCI IDE Secondary IRQ		
DMA Channel 0	PnP ISA/EISA	Specifies which channels to control the data transfers between I/O devices and system memory.
DMA Channel 1		
DMA Channel 3		
DMA Channel 5		
DMA Channel 6		
DMA Channel 7		

IRQ3 IRQ4 IRQ5 IRQ7 IRQ9 IRQ10 IRQ11 IRQ14 IRQ15	PCI/PnP	Specifies which bus the specified IRQ line is used on and allows you to reserve interrupts for legacy ISA adapter cards. If more interrupts must be removed from the pool, you can use these options to reserve the IRQ by assigning an ISA/EISA setting to it. Onboard I/O is configured by the BIOS and are configured as PCI/PnP.
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.

6 Peripheral Setup

Configures system I/O support.





Options and descriptions of each item as follows:

Item	Options	Description
OnBoard FDC	Auto Disabled Enabled	Enables the floppy drive controller on the motherboard.
OnBoard Serial Port1 OnBoard Serial Port2	Auto Disabled 3F8h 2F8h 3E8h 2E8h	Specifies the base I/O port address of serial port 1/2.
OnBoard Serial Port2 Fast IR	0100h ⋮ 0FF8h	Option available if 'Serial Port2 Mode' is not set to *Normal*, *IrDA SIR-A*, or *ASK-IR*.
Serial Port2 Mode	Normal IrDA SIR-A ASK-IR IrDA SIR-B IrDA HDLC IrDA 4PPM Consumer Raw IR	Specifies the operating mode of serial port 2. Available for selection only if 'OnBoard Serial Port2' is not set to *Auto* or *Disabled*.
Serial Port2 IR DMA Channel	None 1 2 3	Option available if 'Serial Port2 Mode' is not set to *Normal*, *IrDA SIR-A*, *ASK-IR* or *IrDA SIR-B*.

Serial Port2 Duplex Mode	Full Half	Sets the mode of communication.
Serial Port2 Receiver Polarity	High Low	
Serial Port 2 Transmitter Polarity		
Serial Port2 IR Interface	RX2/TX2 IRRX/IRTX	Configure Super I/O Chipset's IR pins.
OnBoard Parallel Port	Auto Disabled 378 278 3BC	Specifies the base I/O port address of the parallel port on the motherboard.
Parallel Port Mode	Normal EPP ECP	*Normal* → normal parallel mode *EPP* (Enhanced Parallel Port) → provide asymmetric bidirectional data transfer driven by the host device. *ECP* (Extended Capabilities Port) → achieve data transfer rates of up to 2.5 Mbps. Uses DMA protocal and provides symmetric bidirectional communication.
EPP Version	1.7 1.9	Options available only if 'Parallel Port Mode' is *EPP*.
Parallel Port IRQ	5 7	Specifies IRQ to be used by the parallel port.
Parallel Port ECP DMA Channel	1 3	Options available only if 'Parallel Port Mode' is *ECP*.
On-Board IDE	Disabled Primary Secondary Both	Specifies the onboard IDE controller channels to be used.

Utility Function Menu

There are two icons found in the Utility Function Menu.

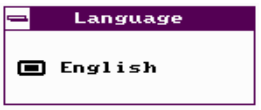
1. **Detect IDE Utility**

   Choose this option to let BIOS automatically configure the drive parameters for all IDE drives connected to the primary and secondary IDE channels installed in the system.

   Details are then listed on screen.

2. **Language Utility**

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



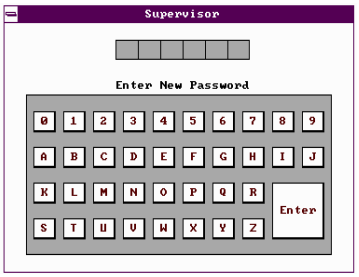
Security Function Menu

There are three icons shown in the Security Function Menu. Set these to control BIOS security features.

1. **Supervisor Security,**
2. **User Security**

   Two levels of passwords are supported by your system. If you use both, the Supervisor password must be set first. Note that you can configure your system such that all users must enter a password every time the system boots or when BIOS is executed. (Refer to 'Password Check' item under Advanced Setup of Setup Function Menu.)
   When you select Supervisor or User icon, you are prompted with the screen as shown on the right. 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, or else, you need to drain CMOS RAM and reconfigure your system.

If you do not want to use a password, just press <Enter> when the password prompt appears.

3 Anti-Virus Security

When this icon is selected, BIOS issues a warning when any program (or virus) issues a Disk Format command or attempts to write to the boot sector of the hard disk drive. Options are *Enabled* or *Disabled*.

If enabled, the following appears when a write is attempted to the boot sector:

```
Boot Sector Write!!!
Possible Virus:  Continue (Y/N)? _
```

You may have to type N several times to prevent the boot sector write.

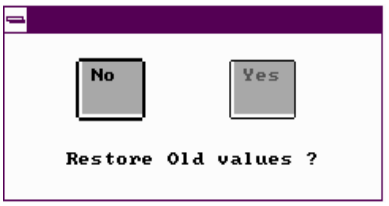
If enabled, the following appears when a write is attempted to format any cylinder, head, or sector of any hard disk drive via the BIOS INT 13 Disk Drive Service:

```
Format!!!
Possible Virus:  Continue (Y/N)? _
```

Default Function Menu

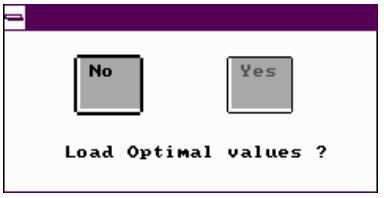
There are two icons shown in the Default Function Menu. This menu allows you to select a group of settings for all Setup options.

1 Original Default



Choose this icon to restore the values in CMOS data before current changes are made. Restoring these values is equivalent to discarding the changes you have just made.

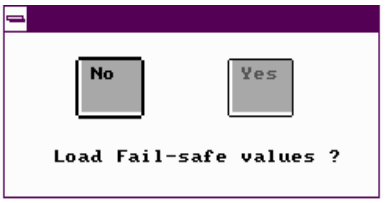
2 Optimal Default



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

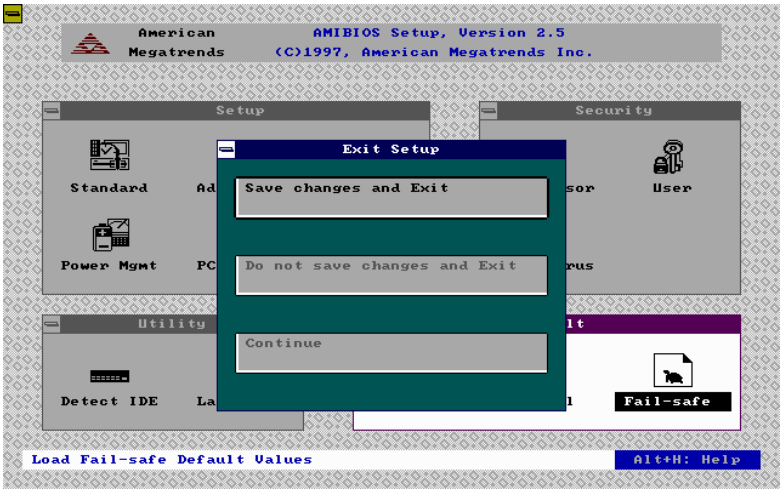
3 Fail-Safe Default

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



Exiting System Setup

Pressing <ESC> from the main menu of Setup Utility displays the following screen:



Select the option as required.

CHAPTER 5: *Installation*

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

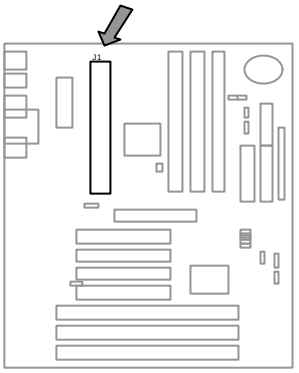
Before proceeding with the installation procedure, read through some safety tips and precautions first:

- Use a grounded wrist strap designed for static discharge.
- Discharge static electricity from your hands by touching a grounded metal object before removing the motherboard from its anti-static packaging.
- Hold the motherboard by its edges only. Do not touch its components, peripheral chips, memory modules, or gold contacts.
- Avoid touching pins of chips or modules.
- Put the motherboard back into its anti-static bag when not in use.
- Do not put the motherboard 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.

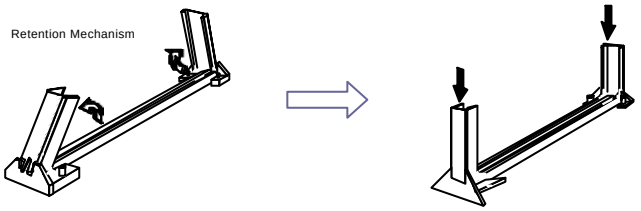
- Remove all cable connections from the system by pulling out the connector, not the cables. Pulling the cables may cause lead wires to break.
- Put disassembled/removed parts, including screws, in a safe and easily accessible place and make sure none of these drop or are left inside the main unit.
- 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.

Pentium II CPU Installation

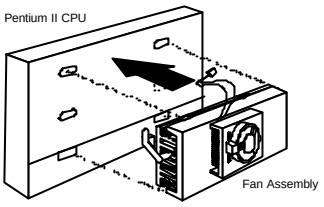
1 Locate Slot 1 (J1) on the motherboard. You can see the retention mechanism on it.



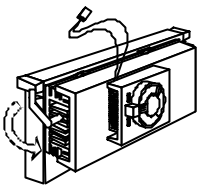
2 Pull up the sides of the retention mechanism until it is perpendicular with the motherboard. Then, push to lock it securely in place. As shown:



3 Attach the fan assembly to Pentium II processor by aligning and inserting the two clips near the bottom of the assembly into the two bottom notches found on the CPU. (Note that the fan's power cable should be on top.)

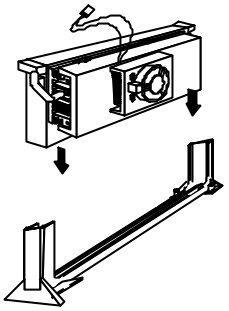


4 Then, push the two clips near the top of the assembly to snap these into the CPU's top notches.



5 Move the lever of the fan assembly in the direction of the arrow shown to lock the assembly into the CPU.

6 Afterwards, vertically insert the CPU and fan assembly into the retention mechanism, until it clicks into place.



7 Then, connect the fan's power cable to JT1 connector on the motherboard.

NOTE

T*here are different kinds of fan assembly that can fit into the Pentium II processor. This section shows one type of such fan assembly. You can consult your dealer for the installation of fan assembly that is different from what is shown here.*

Memory Installation

There are several types of memory that can be installed in the three 168-pin 3.3V DIMM sockets of your motherboard. These are: EDO (Extended Data Out) memory, SDRAM (Synchronous DRAM), or Registered DIM modules. Registered DIM module is also known as SPD (Serial Present Detection) SDRAM.

Before purchasing or installing DIMMs, note of the following:

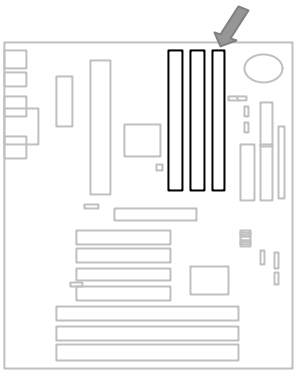
- ☞ Use 168-pin 3.3V DIM modules. Do not mix memory types, the results are unpredictable. (EDO and SDRAM cannot be mixed.) Maximum configuration using different types of memory:

  66MHz EDO DRAM → 768MB
  100MHz Registered SDRAM → 768MB
  100MHz SDRAM → 384MB

- ☞ Your system supports ECC only if all memory are 72-bit wide. Mixing ECC and non-ECC memory will result in non-ECC operation and in such case, ECC mode should be disabled in BIOS.
- ☞ Frequency of the DIM modules used must all be the same. Mixing 66MHz and 100MHz will result in unexpected memory count or system errors. When running the CPU bus speed at 100MHz, PC-100 DIMM is required to guarantee a stable system.
- ☞ Install DIMMs in the order starting from Bank 0, Bank 1, then, Bank 2.
- ☞ For EDO memory type, memory timing requires 70 ns or faster.

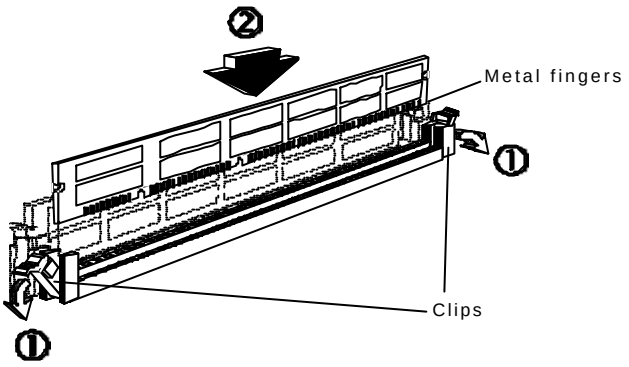
Installation procedures as follows:

1 Locate the DIMM sockets on the motherboard.



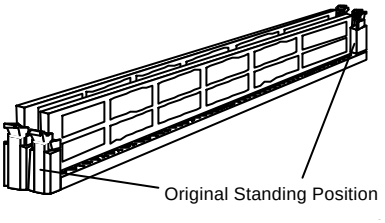
2 If you are installing single-sided DIMM, the component side of the DIM module must face the CPU socket.

3 Press the clips on both sides of the DIMM socket outward to release it.



4 Insert the DIMM vertically with its metal fingers aligned with the socket's grooved slot.

5 Press until the DIMM is locked onto the socket. (The clips will return to its original standing position when the DIMM is properly inserted into the socket, as shown.)



6 To ensure proper operation,

check if the clip is properly locked onto the hollow of the DIM module. If not, press slightly to lock it.

7 You do not have to change jumpers nor BIOS setting. Your system automatically detects the size and type of memory installed.

Removing System Cover

WARNING: Before Removing System Cover

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

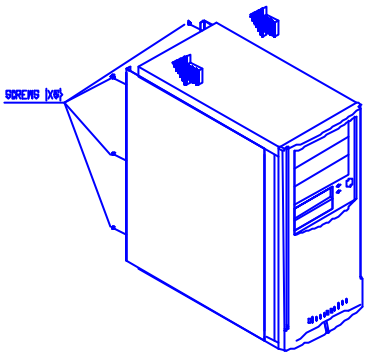
Your system cover is divided into three parts: left cover, right cover, and top cover. For ease of installing storage devices, remove both left and right covers. There is no need to remove top cover.

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

2 Slide the left cover towards the back and lift it outward until it clears the unit.

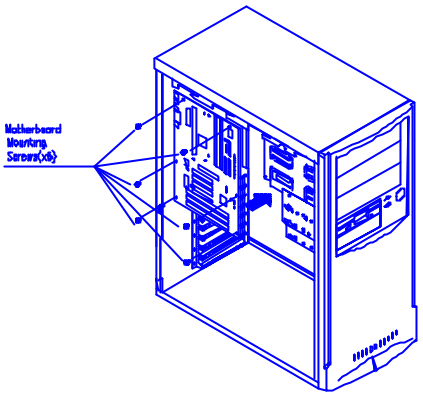
3 Find a suitable position to place your left cover.

4 Repeat the above procedures for the removal of the right cover.



Installing the Motherboard

1. Remove system cover.
2. Align the six screw holes of the motherboard to the six tooling holes on the chassis.
3. Secure properly the screw holes into the tooling holes with six motherboard mounting screws.



4. Attach the 20-line power cable from the power supply to J32 connector on the motherboard.
5. If your chassis comes with the optional chassis intrusion microswitch, connect the microswitch cable to JL1 connector of your motherboard.

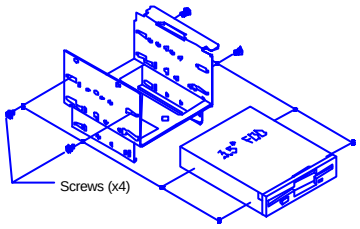
Installing Add-On Cards

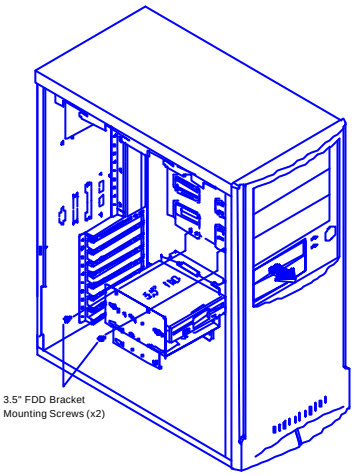
Several kinds of add-on or adapter cards can be added into your system for additional or enhanced features. These may include VGA card (or AGP card), modem card, and many others. Add-on cards may come in PCI bus type, or ISA bus type, and are installed in PCI slot, or ISA slot, respectively. As for AGP card, it has its own proprietary slot and should therefore be installed in that slot.

1. Remove system cover (left cover only is enough).
2. Choose the slot in which you want to install the adapter card. Note that the type of adapter card should correspond to the type of expansion slot. If you are going to install an AGP card, choose the first or topmost slot.
3. Unscrew the expansion slot cover screw found on its top 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 user's guide 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 the user's guide.
9. Restore system cover and secure with the cover mounting screws.

Installing 3.5" Floppy Drive

1. Remove system cover.
2. Locate the **3.5" FDD bracket** inside the chassis for installing 3.5" devices.
3. Unscrew two mounting screws of the 3.5" FDD bracket to remove this from the chassis.
4. If there is a metal plate attached to the front of the bracket, unscrew first its screws, one on each side, to remove it.





5. Install the 3.5" FDD into the bracket (upper portion) and secure with four bundled screws from both sides.
6. If the FDD cover (on the front panel) is still attached, you can remove this easily by gently pushing it out of the panel from the inside.
7. Reinstall the bracket into the chassis and secure with the two mounting screws.

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

NOTE

Floppy disk drive cable has 34 wires and connectors for connection to two floppy drives. The connector with twisted wires always connects to drive A. Note that the red mark on a wire typically designates pin 1. One end of the connector is connected to J22 on the motherboard.

9 Connect an end of the 34-pin data cable to the 3.5" FDD and the other end to J22 on the motherboard.

10 Re-install system cover.

11 BIOS of most systems automatically detect type of floppy drive installed.

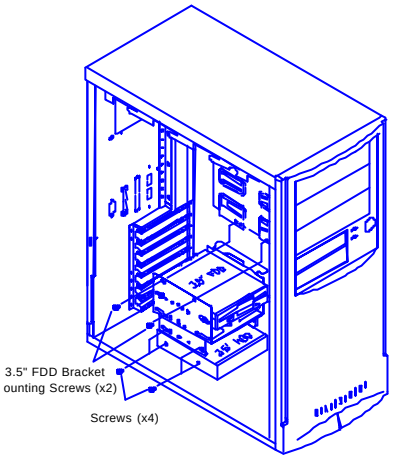
Installing 3.5" HDD

1 Remove system cover.

2 Locate the **3.5" FDD bracket** inside the chassis for installing 3.5" devices.

3 Unscrew two mounting screws of the 3.5" FDD bracket to remove this from the chassis.

4 If there is a metal plate attached to the front of the bracket, remove the screws, one on each side, to remove the plate.



5 Install the 3.5" HDD into the lower portion of the bracket and secure with four bundled screws from both sides.

6 Reinstall the bracket into the chassis and secure with the two mounting screws.

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

8 Connect an end of the 40-pin data cable to the HDD drive and the other end to J15 or J16 on the motherboard. If this is your first HDD, set the HDD to master.

9 Re-install the system cover.

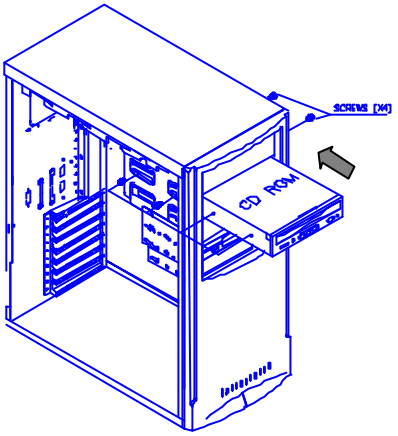
Installing 5.25" IDE Devices

1 Remove system cover.

2 If there is a metal plate attached to the front of the bracket, remove the screws attached in order to remove the metal plate out of the bracket.

3 Remove the drive cover on the front panel. Do this by gently pushing it out of the panel from the inside.

4 Slide the 5.25" IDE drive into the drive bracket, in the direction of the arrow shown.



5 Secure with four screws from both sides.

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

7 Connect an end of the 40-pin data cable to the IDE drive and the other end to J15 or J16 on the motherboard.

NOTE

M*ake 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. Primary drives are connected to the J15 connector on the motherboard. Secondary drives are connected to J16. Jumper on the device itself has to be set properly as master or slave to ensure proper operations.*

8 Re-install the system cover.

CHAPTER 6: *Troubleshooting*

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

No Display

Computer isn't getting power.	Check connection of power. Check connection of surge protector (if available) and AC power outlet. Check if AC outlet has power.
VGA monitor not properly connected.	Check video cable connection. Consult monitor's manual if necessary.
Computer is in sleep or suspend mode.	Press a key on the keyboard to wake it up.
Monitor's brightness control is not adjusted properly.	Adjust monitor's brightness control to the desired level.
A screen saver program is turned on.	Press a key or move the mouse to turn off the screen saver program.

Keyboard or Mouse Doesn't Work

Cables are not properly connected.	Turn off your system and check if the cable is properly connected to the right jack/port at the rear of your system.
Keyboard or Mouse is defective.	Contact your dealer to replace it.

Floppy Disk Drive Doesn't Work

Floppy disk drive LED indicator is not lit.	LED indicator might be defective. Enter Setup Utility and check if floppy disk drive is detected. Floppy disk drive might be defective. Contact your dealer for replacement.
Floppy disk drive LED indicator is lit.	Check the type of disk and if the disk is properly inserted into the drive. Floppy disk is defective.

Non-system Disk Error Message

A floppy disk is inserted into the floppy disk drive when the computer is turned on.	There is no operating system found in the floppy disk. Just remove the disk from the drive and press any key to continue the boot procedure.

CD-ROM Errors

CD-ROM disc not detected.	Check if the disc is inserted properly into the CD drawer with its label facing up. CD drawer is closed all the way.
CD-ROM disc ejected without any error message.	Check if the disc is inserted properly into the CD drawer with its label facing up. If there are visible scratches or dirt on the shiny side of the disk, your disc need to be cleaned. You may clean this with a CD polishing kit. If the scratches or dirt can't be removed, you have to replace the disc. Check if other discs can be read. Your CD-ROM drive might be damaged.
Can't open a document/file on the disc.	Some files or documents require specific software installed before it can be opened. Check the manual that came with the disc.

Printer Doesn't Work
Wrong Characters Printed

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