

# Preface

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Version 1.0

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## **Federal Communications Commission (FCC)**

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 off and on, 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 onto 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.

Shielded interconnect cables and a shielded AC power cable must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system's manufacturer could void the user's authority to operate the equipment.

## **Declaration of Conformity**

This device complies with part 15 of the FCC rules. Operation is subject to the following conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

## **Canadian Department of Communications**

This class B digital apparatus meets all requirements of the Canadian Interference-causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

## About the Manual

The manual consists of the following:

***Chapter 1***  
**Introducing the Mainboard**

Describes features of the mainboard, and provides a shipping checklist.

Go to ⇒ page 1

***Chapter 2***  
**Installing the Mainboard**

Describes installation of mainboard components.

Go to ⇒ page 7

***Chapter 3***  
**Using BIOS**

Provides information on using the BIOS Setup Utility.

Go to ⇒ page 31

***Chapter 4***  
**Using the Mainboard Software**

Describes the mainboard software.

Go to ⇒ page 61

***Appendix A***  
**Appendix A**  
**Setting Jumpers**

Provides a reference to the jumpers on the mainboard.

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## *Chapter 1*

# Introducing the Mainboard

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## Introduction

Congratulations on purchasing the P6IEMT mainboard. The P6IEMT mainboard is an Micro ATX mainboard that uses a 4-layer printed circuit board and measures 222 mm x 244 mm. The mainboard features a Socket 370 that accommodates the Intel Celeron 533A CPU and Intel Celeron CPUs at 566 MHz and above. It also supports Pentium III processors up to 133 MHz.

The P6IEMT incorporates the Intel 815E B-step chipset, which combines support for SDRAM, ATA-100, internal graphics, or external graphics with 4xAGP slot.

The 82801BA I/O controller hub makes a direct connection between the graphics system, the IDE controller, and the PCI bus and uses accelerated hub architecture to double the bandwidth between these components enabling more lifelike audio and video. The 82801BA I/O controller hub includes an integrated audio-codec controller that lets the processor more effectively decode sound generated by the integrated audio system.

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## Checklist

Compare the mainboard' s package contents with the following checklist:

### Standard Items

- One mainboard
- One VGA bracket
- One diskette drive ribbon cable and bracket
- One IDE drive ribbon cable and bracket
- One auto-install software support CD
- This user' s manual

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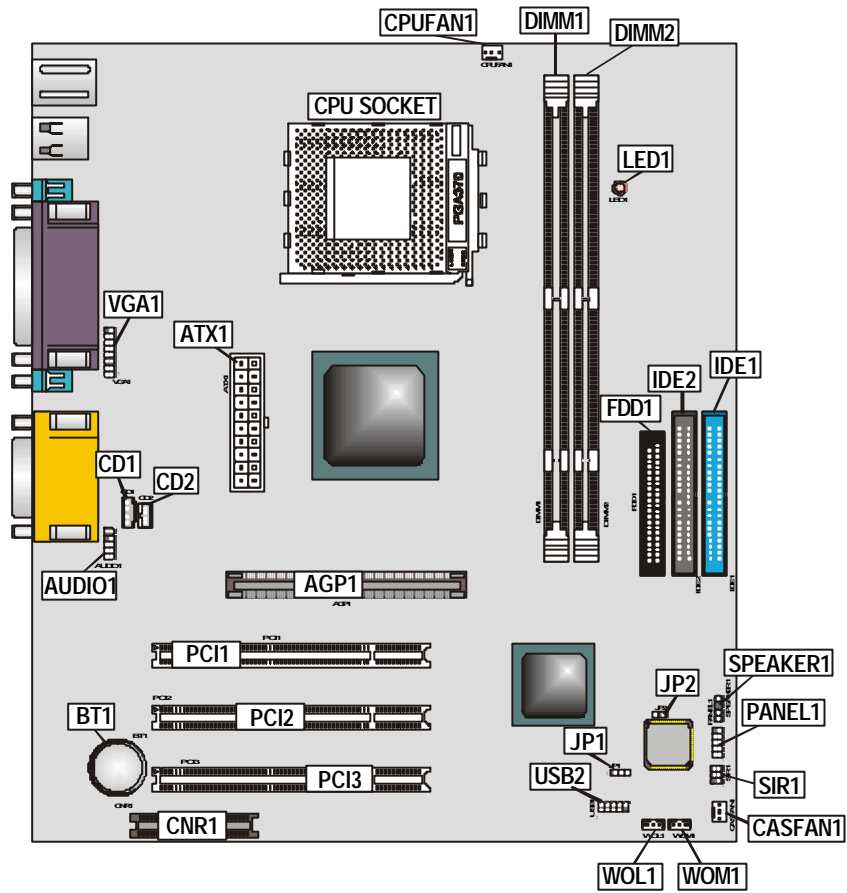
## Features

<b>Processor</b>	<p>The P6IEMT mainboard uses a Socket 370 that has the following features:</p> <ul style="list-style-type: none"><li>• Accommodates the Intel Celeron 533A CPU and Celeron CPUs at 566 MHz and above</li><li>• Accommodates Intel Pentium III/Tualatin CPUs that support an FSB of 100 or 133 MHz</li></ul>
<b>Chipset</b>	<p>The Intel 815E B-step chipset is based on an innovative and scalable architecture with proven reliability and performance. A few of the chipset's advanced features are:</p> <ul style="list-style-type: none"><li>• 82815 Graphic Memory Controller Hub (GMCH) built on Intel Graphics Technology, featuring a backwards compatible unified graphics driver</li><li>• 82801BA I/O Controller Hub (ICH2) which delivers twice the I/O bandwidth as traditional bridge architecture</li><li>• Two USB controllers double the bandwidth to 24 Mbps across four ports</li><li>• Integrated AC 97 audio that supports full surround sound with up to six channels</li><li>• An ATA 100 interface on the chipset, which helps boost system performance by providing a high-speed connection to ATA 100 Hard Disk Drives, delivering maximum sustained data transfer rates of 100 MB/sec</li></ul> <p>Additional key features include support for 4 USB ports, an AC 97 link for audio and modem, hardware monitoring, and ACPI/OnNow power management.</p>
<b>Memory</b>	<p>Supports SDRAM up to 512 MB, uses a 2 piece 3.3V unbuffered 168 pin socket, accommodates 2 double sided DIMMs at 100 MHz system memory bus, also supports 2 double sided or 2 single sided DIMMs at 133 MHz system memory bus</p>



<b>VGA</b>	The P6IEMT includes the onboard Accelerated Graphic Port (AGP) capability provided by the Intel 82815 graphic memory controller hub (GMCH). A 4xAGP slot provides four times the bandwidth of the original AGP specification. AGP technology provides a direct connection between the graphics sub-system and the processor so that the graphics do not have to compete for processor time with other devices on the PCI bus.
<b>AC 97 Audio Codec</b>	The AC 97 Audio codec is compliant with the AC 97 2.1 specification, supports 18-bit ADC (Analog Digital Converter) and DAC (Digital Analog Converter) resolution as well as 18-bit stereo full-duplex codec with independent and variable sampling rates. Further features include support for four analog line-level stereo inputs.
<b>Expansion Options</b>	The mainboard comes with the following expansion options: <ul style="list-style-type: none"> <li>• Three 32-bit PCI slots</li> <li>• One 4xAGP slot</li> <li>• One Communications Network Riser (CNR) slot</li> <li>• Two IDE channels and one floppy disk drive interface</li> </ul> The P6IEMT supports Ultra DMA bus mastering with transfer rates of 33/66/100 MB/sec.
<b>Integrated I/O</b>	The mainboard has a full set of I/O ports and connectors: <ul style="list-style-type: none"> <li>• Two PS/2 ports for mouse and keyboard</li> <li>• Two serial ports</li> <li>• One parallel port</li> <li>• One MIDI/game port</li> <li>• Two USB ports</li> <li>• Audio jacks for microphone, line-in and line-out</li> </ul>
<b>BIOS Firmware</b>	This mainboard uses Award BIOS that enables users to configure many system features including the following: <ul style="list-style-type: none"> <li>• Power management</li> <li>• Wake-up alarms</li> <li>• CPU parameters</li> <li>• CPU and memory timing</li> </ul> The firmware can also be used to set parameters for different processor clock speeds

# Mainboard Components



**Table of Mainboard Components**

<b>Label</b>	<b>Component</b>
AGP1	Accelerated Graphics Port
ATX1	Power connector
AUDIO1	Front panel MIC/line-out
BT1	Three volt realtime clock battery
CASFAN1	Auxiliary case cooling fan
CD1	Primary CD-in connector
CD2	Secondary CD-in connector
CNR1	Communications Networking Riser slot
CPU SOCKET	Socket 370 for Intel Celeron and Pentium III processors
CPUFAN1	Cooling fan for CPU
DIMM1 ~ DIMM2	Two 168-pin DIMM sockets
FDD1	Floppy disk drive connector
IDE 1	Primary IDE channel
IDE 2	Secondary IDE channel
JP1	Clear CMOS jumper
JP2	BIOS flash protection jumper
LED1 <sup>1</sup>	Red 3 VSB LED for SDRAM
PANEL1	Connector for case front panel switches and LED indicators
PCI1 ~ PCI3	Three 32-bit add-on card slots
SIR1	Serial infrared cable header
SPEAKER1	Speaker connector
USB2	Front panel USB headers
VGA1	Internal video graphic array header
WOL1	Wake On LAN wakeup connector
WOM1	Wake On Modem wakeup connector

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<sup>1</sup> The red indicator LED1 turns on if your system is still powered, at which time memory modules cannot be installed or uninstalled.

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## Choosing a Computer Case

There are many types of computer cases on the market. The mainboard complies with the specifications for the Micro ATX system case. Some features on the mainboard are implemented by cabling connectors on the mainboard to indicators and switches on the system case. Ensure that your case supports all the features required. The mainboard can support one floppy diskette drive and four enhanced IDE drives. Ensure that your case has sufficient power and space for all the drives that you intend to install.

Most cases have a choice of I/O templates in the rear panel. Make sure that the I/O template in the case matches the I/O ports installed on the rear edge of the mainboard.

This mainboard has a Micro ATX form factor of 222 mm x 244 mm. Choose a case that accommodates this form factor.

This concludes Chapter 1. The next chapter explains how to install the mainboard.

## *Chapter 2*

# Installing the Mainboard

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## **Safety Precautions**

Follow these safety precautions when installing the mainboard:

- Wear a grounding strap attached to a grounded device to avoid damage from static electricity.
- Discharge static electricity by touching the metal case of a safely grounded object before working on the mainboard.
- Leave components in the static-proof bags they came in.
- Hold all circuit boards by the edges. Do not bend circuit boards.

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## Quick Guide

This Quick Guide suggests the steps you can take to assemble your system with the mainboards.

The following table provides a reference for installing specific components:

<b>Locating Mainboard Components</b>	Go to page 4
<b>Setting Jumpers</b>	Go to page 9
<b>Installing the Mainboard in a Case</b>	Go to page 12
<b>Installing Case Components</b>	Go to page 13
<b>Installing the CPU</b>	Go to page 15
<b>Installing Memory</b>	Go to page 17
<b>Installing an HDD and CD-ROM Drive</b>	Go to page 18
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<b>Installing Add-on Cards</b>	Go to page 24
<b>Connecting Options</b>	Go to page 26
<b>Connecting Peripheral (I/O) Devices</b>	Go to page 29

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**Note:** The appendix provides a quick reference for jumper settings.

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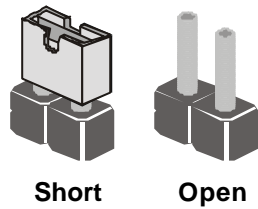
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## Checking Jumper Settings

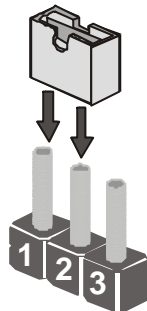
This section explains how to set jumpers for correct configuration of the mainboard.

### Setting Jumpers

Use the mainboard jumpers to set system configuration options. Jumpers with more than one pin are numbered. When setting the jumpers, ensure that the jumper caps are placed on the correct pins.



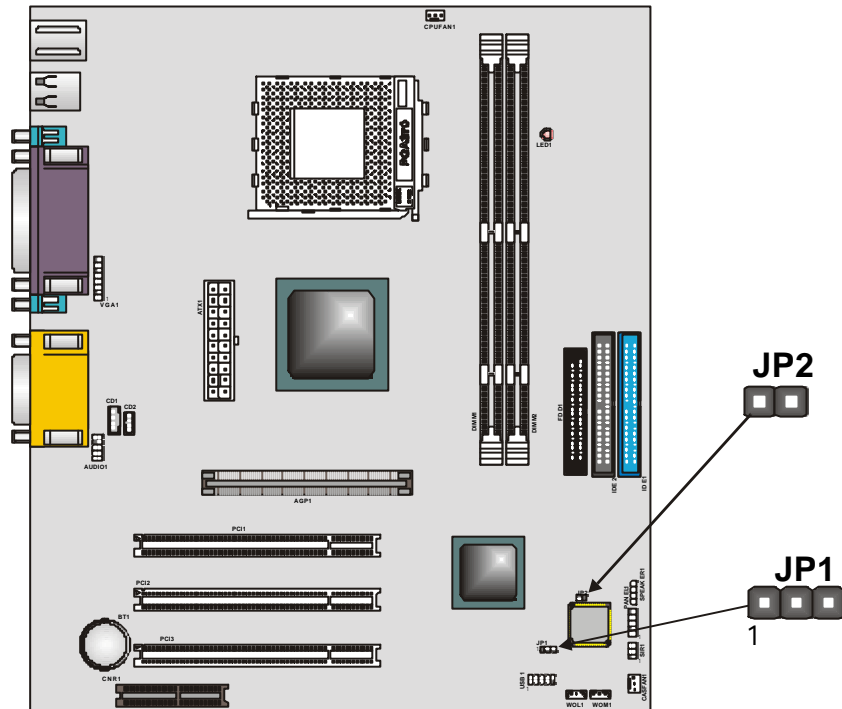
This illustration shows a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is **SHORT**. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is **OPEN**.



This illustration shows a 3-pin jumper. Pins 1 and 2 are **SHORT**.



## Checking Jumper Settings

The following illustration shows the location of the mainboard jumpers. Pin 1 is labeled.





## Jumper Settings

Jumper	Type	Description	Setting (default)
JP1	3-pin	Clear CMOS	1-2: Normal 2-3: Clear CMOS 
JP2	2-pin	BIOS flash protection	Open: Unlock Short: Lock 

**Jumper 1** – This jumper enables you to clear the BIOS. Refer to the following instructions:

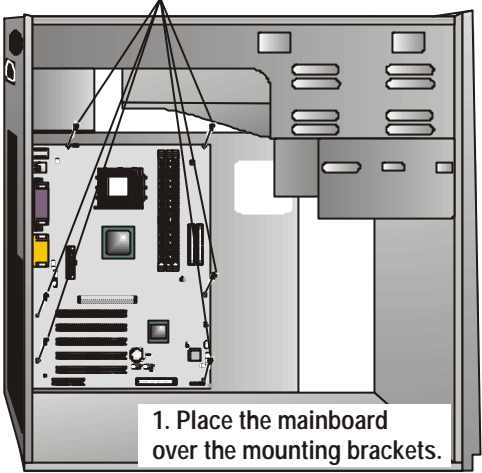
1. Turn the system off.
2. Short pins 2 and 3 on JP1.
3. Return the jumper to the normal setting.
4. Turn the system on. The BIOS is returned to the default settings.

**Jumper 2** – This jumper enables you to prevent the BIOS from being updated (flashed). Set the jumper to unlock to update your BIOS. After updating the BIOS, change it to the locked setting. For instructions on updating, the BIOS refer to Chapter 3.

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## Installing the Mainboard in a Case

Refer to the following illustration and instructions for installing the mainboard in a case:

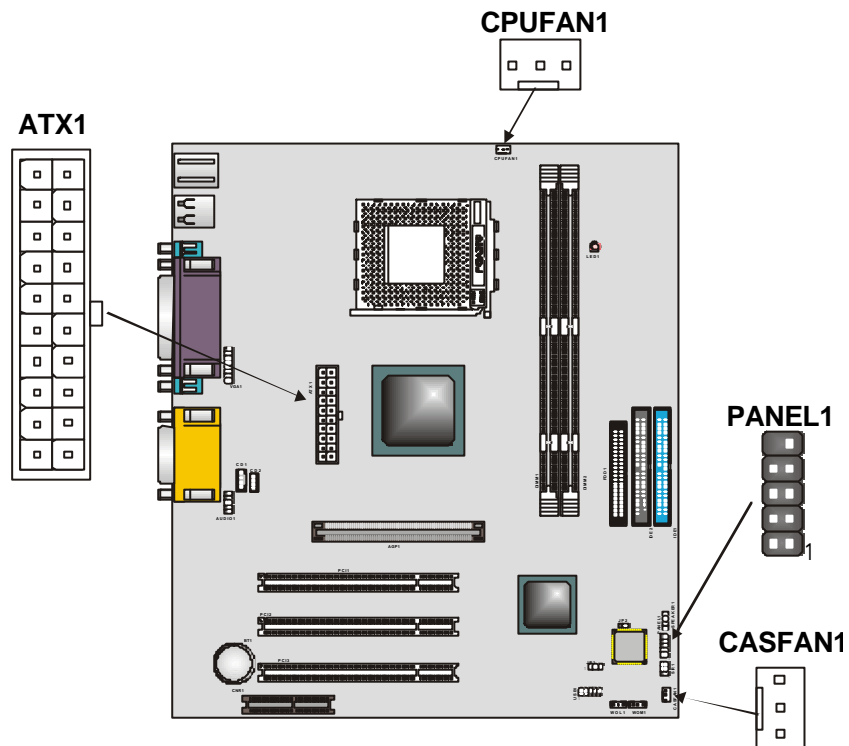
<p>This illustration shows an example of a mainboard being installed in a tower-type case:</p> <hr/> <p><b>Note:</b> Do not over-tighten the screws as this can stress the mainboard.</p> <hr/> <p>Most system cases have mounting brackets installed in the case, which correspond to the holes in the mainboard. Place the mainboard over the mounting brackets and secure the mainboard onto the mounting brackets with screws.</p>	<p>2. Secure the mainboard with screws where appropriate.</p>  <p>1. Place the mainboard over the mounting brackets.</p>
--	---

Ensure that your case has an I/O template that supports the I/O ports and expansion slots on your mainboard.

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## Connecting Case Components

After you have installed the mainboard into a case, you can begin connecting the mainboard components. Refer to the following:



1. Connect the case power supply connector to Micro ATX1.
2. Connect the CPU cooling fan cable to CPUFAN1.
3. Connect the case cooling fan connector to CASFAN1

The following page explains how to make panel connections.

## The Panel Connector

The panel connector provides a standard set of switch and LED connectors commonly found on ATX or micro-ATX cases. Refer to the table below for information:

Device	Pins
Empty	10
N/C	9
Power ON/OFF	6, 8
Reset Switch	5, 7
Green LED Indicator	+2, -4
HDD LED	+1, -3

**Note:** The plus sign (+) indicates a pin which must be connected to a positive voltage.

---

## Installing Hardware

### Installing the Processor

**Caution:** When installing a CPU heatsink and cooling fan make sure that you DO NOT scratch the mainboard or any of the surface-mount resistors with the clip of the cooling fan. If the clip of the cooling fan scrapes across the mainboard, you may cause serious damage to the mainboard and the processor.

On most mainboards, there are small surface-mount resistors near the processor socket, which may be damaged if the cooling fan is carelessly installed.

Avoid using cooling fans with sharp edges on the fan casing and the clips. Also, install the cooling fan in a well-lit work area so that you can clearly see the mainboard and processor socket.

### Before installing the Processor

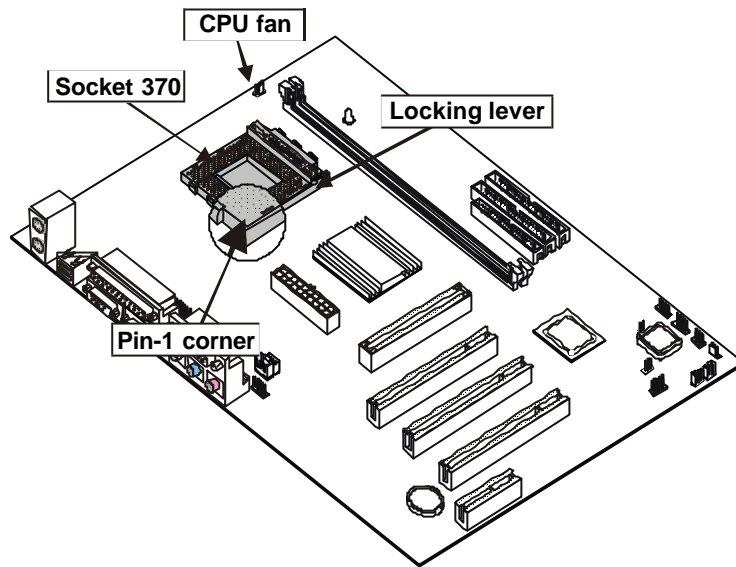
This mainboard automatically determines the CPU clock frequency and system bus frequency for the processor. You may be able to change these automatic settings by making changes to jumpers on the mainboard, or changing the settings in the system Setup Utility. We strongly recommend that you do not overclock processors or other components to run faster than their rated speed.

**Warning:** Overclocking components can adversely affect the reliability of the system and introduce errors into your system. Overclocking can permanently damage the mainboard by generating excess heat in components that are run beyond the rated limits.

This mainboard has a Socket 370 processor socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

## CPU Installation Procedure

The following illustration shows CPU installation components:



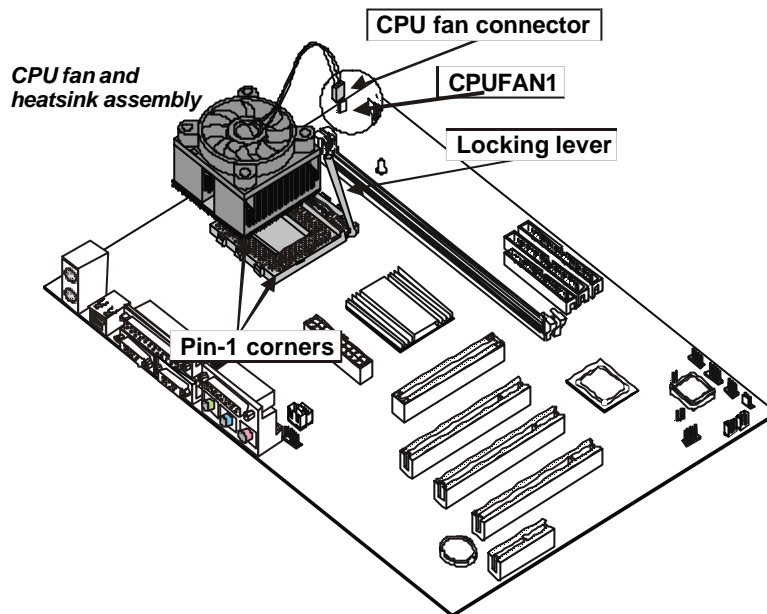
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**Note:** The pin-1 corner is empty on the socket and CPU.

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Follow these instructions to install the CPU:

1. Pull the CPU socket locking lever away from the socket to unhook it and raise the locking lever to the upright position.
2. Match the pin-1 corner on the CPU socket and the pin-1 corner on the processor and insert the processor into the socket. Do not use force.



3. Swing the locking lever down and hook it under the latch on the edge of the socket.
4. Plug the CPU fan power cable into the CPU cooling fan power supply on the mainboard (CPUFAN1).

---

**Note:** After you have assembled the system, you must set the correct clock speed and frontside bus (FSB) speed. Check the jumper section in Appendix A if your mainboard has jumpers that control the FSB, and refer to Frequency Voltage Control on page 57 for more information.

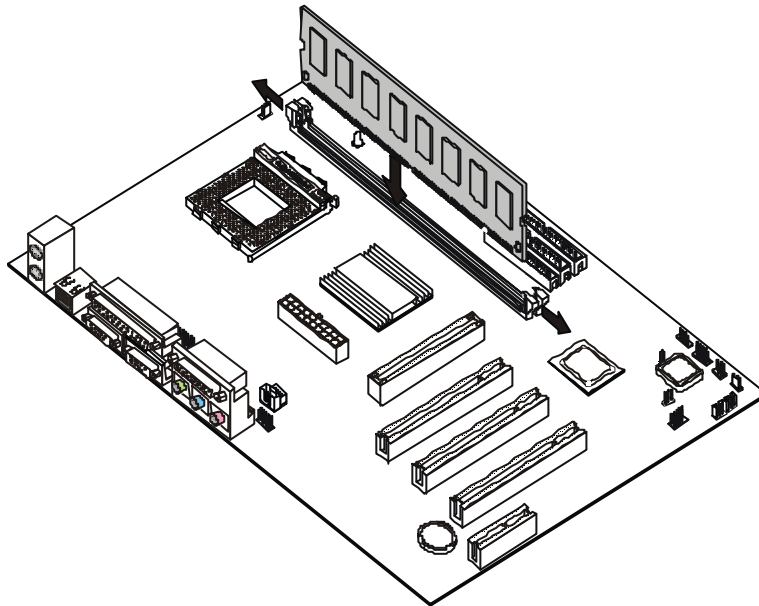
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## Installing Memory Modules

For this mainboard, you must use 168-pin 3.3V non-buffered Dual In-line Memory Modules (DIMMs). The memory chips are standard SDRAM (Synchronous Dynamic Random Access Memory). The table at the right shows the supported frequencies.	Frontside Bus (FSB) Frequency	System Memory Bus (SMB) Frequency
	66 MHz	100 MHz
	100 MHz	100 MHz
	133 MHz	100 MHz
	133 MHz	133 MHz
<b>Note:</b> The memory bus runs at either 100 MHz or 133 MHz independent of the system bus frequency.		

### Installation Procedure

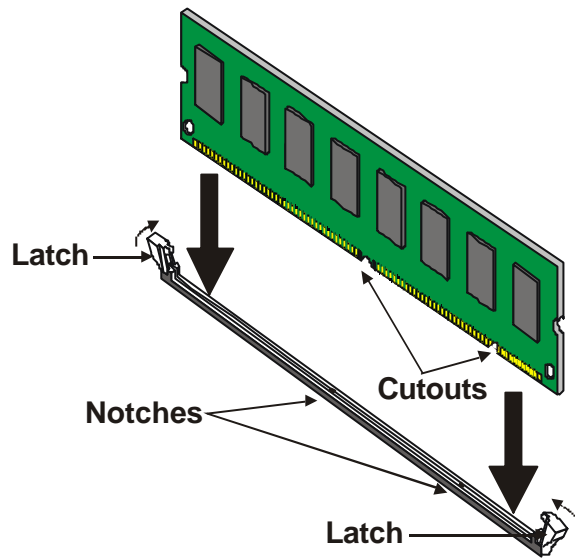
The mainboard accommodates three memory modules. You must install at least one module in any of the three slots. Each module can be installed with 32 MB to 512 MB of memory; total memory capacity is 512 MB.



Refer to the following to install the memory modules.



1. Push the latches on each side of the DIMM slot down.
2. Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.
3. Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot:



4. Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the DIMM.
5. Install any remaining DIMM modules.

## **Installing a Hard Disk Drive/CD-ROM**

This section describes how to install IDE devices such as a hard disk drive and a CD-ROM drive.

### **About IDE Devices**

Your mainboard has a primary and secondary IDE channel interface (IDE1 and IDE2). An IDE ribbon cable supporting two IDE devices is bundled with the mainboard.

If you want to install more than two IDE devices, get a second IDE cable and you can add two more devices to the secondary IDE channel.

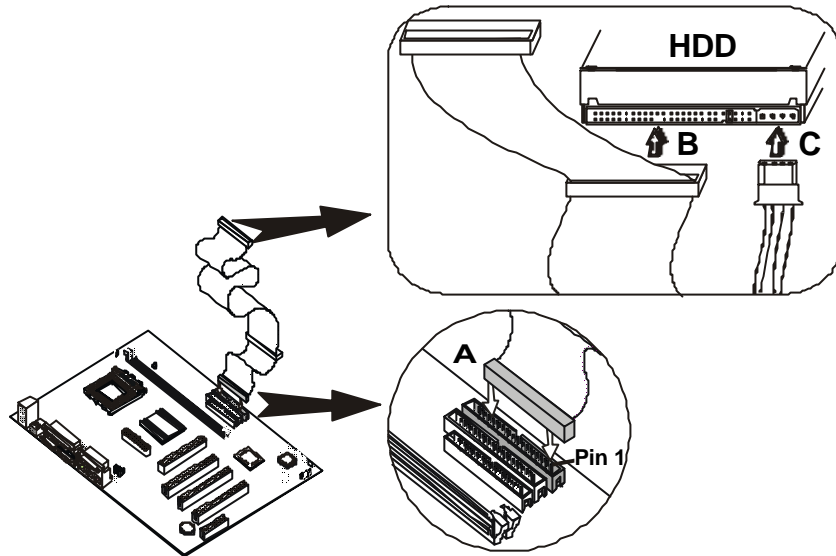
IDE devices have jumpers or switches that are used to set the IDE device as MASTER or SLAVE. Refer to the IDE device user's manual. When installing two IDE devices on one cable, ensure that one device is set to MASTER and the other device is set to SLAVE. The documentation of your IDE device explains how to do this.

### **About UltraDMA**

This mainboard supports UltraDMA 66/100. UDMA is a technology that accelerates the performance of devices in the IDE channel. Install IDE devices that support UDMA and use IDE cables that support UDMA for better performance.

## Installing a Hard Disk Drive

1. Install the hard disk drive into the drive cage in your Micro ATX system case.
2. Plug the IDE cable into IDE1 (A):



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**Note:** Ribbon cable connectors are usually keyed so that they can only be installed correctly on the device connector. If the connector is not keyed, make sure that you match the pin-1 side of the cable connector with the pin-1 side of the device connector. Each connector has the pin-1 side clearly marked. The pin-1 side of each ribbon cable is always marked with a colored stripe on the cable.

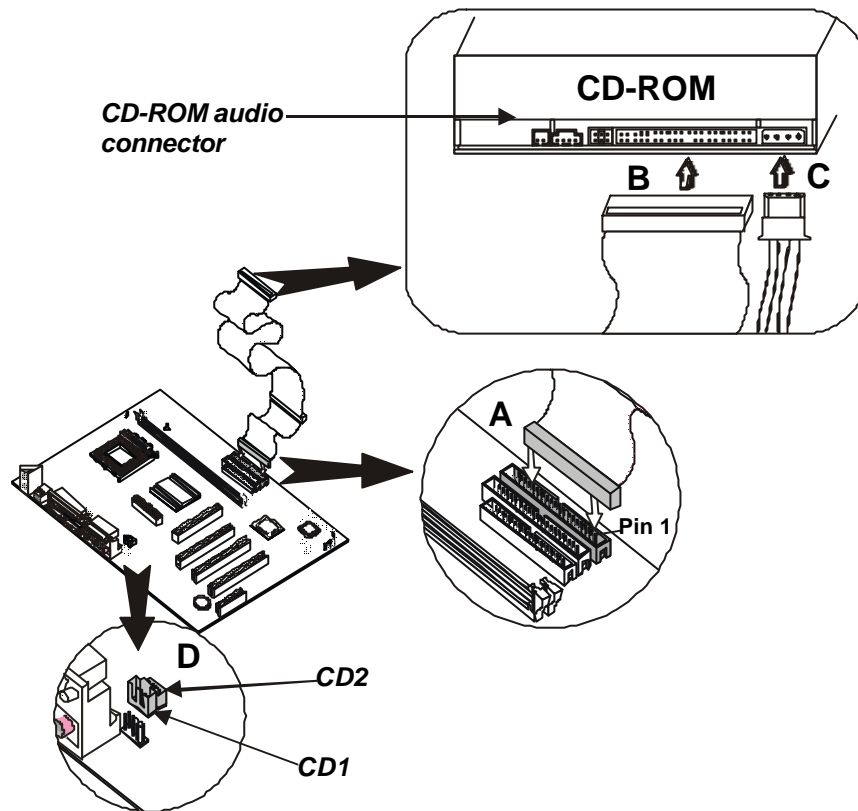
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3. Plug an IDE cable connector into the hard disk drive IDE connector (B). It doesn't matter which connector on the cable you use.
4. Plug a power cable from the case power supply into the power connector on the hard disk drive (C).

When you first start up your system, the BIOS should automatically detect your hard disk drive. If it doesn't, enter the Setup Utility and use the IDE Hard Disk Auto Detect feature to configure the hard disk drive that you have installed. See IDE HDD Auto-Detection on page 37 for more information.

## Installing a CD-ROM/DVD Drive

1. Install the CD-ROM/DVD drive into the drive cage in your Micro ATX system case.
2. Plug the IDE cable into IDE1 (A). If you have already installed an HDD, use the other connector on the IDE cable.



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**Note:** Ribbon cable connectors are usually keyed so that they can only be installed correctly on the device connector. If the connector is not keyed, make sure that you match the pin-1 side of the cable connector with the pin-1 side of the device connector. Each connector has the pin-1 side clearly marked. The pin-1 side of each ribbon cable is always marked with a colored stripe on the cable.

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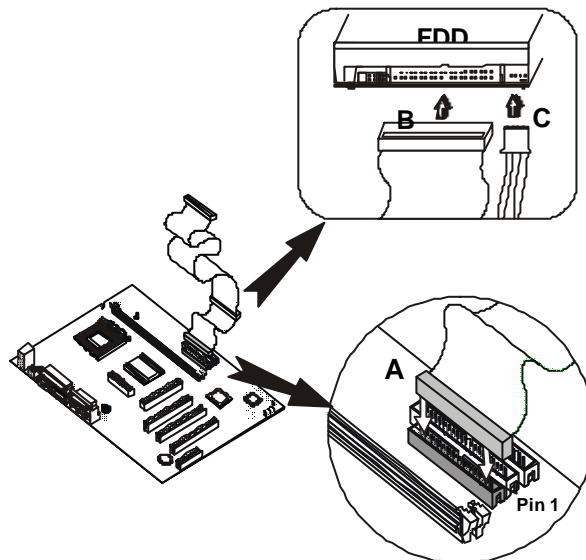
3. Plug an IDE cable connector into the CD-ROM/DVD drive IDE connector (B). It doesn't matter which connector on the cable you use.
4. Plug a power cable from the case power supply into the power connector on the CD-ROM/DVD drive (C).
5. Use the audio cable provided with the CD-ROM/DVD drive to connect to the mainboard CD-in connector CD1 or CD2 (D).

When you first start up your system, the BIOS should automatically detect your CD-ROM/DVD drive. If it doesn't, enter the Setup Utility and configure the CD-ROM/DVD drive that you have installed. See IDE Primary/Secondary Master/Slave (Auto) on page 37 for more information.

## Installing a Floppy Diskette Drive (FDD)

The mainboard has a floppy diskette drive (FDD) interface and ships with a diskette drive ribbon cable that supports one or two floppy diskette drives. You can install a 5.25-inch drive and a 3.5-inch drive with various capacities. The floppy diskette drive cable has one type of connector for a 5.25-inch drive and another type of connector for a 3.5-inch drive.

1. Install the FDD into the drive cage in your Micro ATX system case.
2. Plug the FDD cable into FDD1 (A):



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**Note:** Ribbon cable connectors are usually keyed so that they can only be installed correctly on the device connector. If the connector is not keyed, make sure that you match the pin-1 side of the cable connector with the pin-1 side of the device connector. Each connector has the pin-1 side clearly marked. The pin-1 side of each ribbon cable is always marked with a colored stripe on the cable.

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3. Plug the correct connector on the FDD cable for the 5.25-inch or 3.5-inch drive into the FDD connector (B).
4. Plug a power cable from the case power supply into the power connector on the FDD (C).

When you first start up your system, go immediately to the Setup Utility to configure the floppy diskette drives that you have installed. See Standard CMOS Features on page 36 for more information.

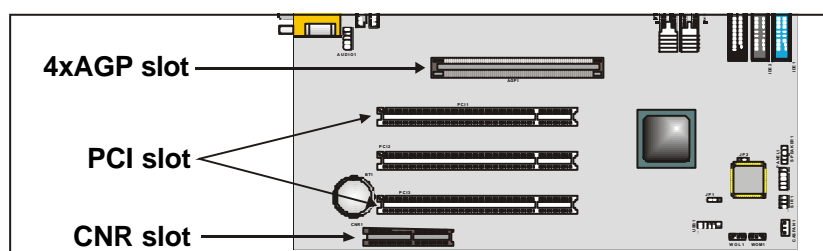
## Installing Add-On Cards

This mainboard has three 32-bit PCI (Peripheral Components Interconnect) expansion slots, one 4xAGP slot, and one Communications and Networking Riser (CNR) slot.

**4xAGP Slot** The 4xAGP slot is used to install a graphics adapter that supports the 4xAGP specification and has a 4xAGP edge connector.

**PCI Slots** PCI slots are used to install expansion cards that have the 32-bit PCI interface.

**CNR Slot** This slot is used to insert CNR cards including LAN, Modem, and Audio functions.

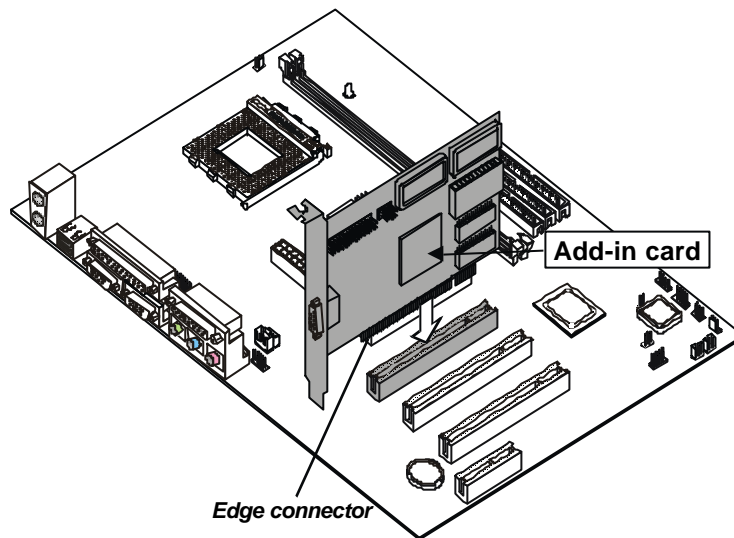


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**Note:** Before installing an add-on card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.

---

1. Remove a blanking plate from the system case corresponding to the slot you are going to use.
2. Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.



3. Secure the metal bracket of the card to the system case with a screw.

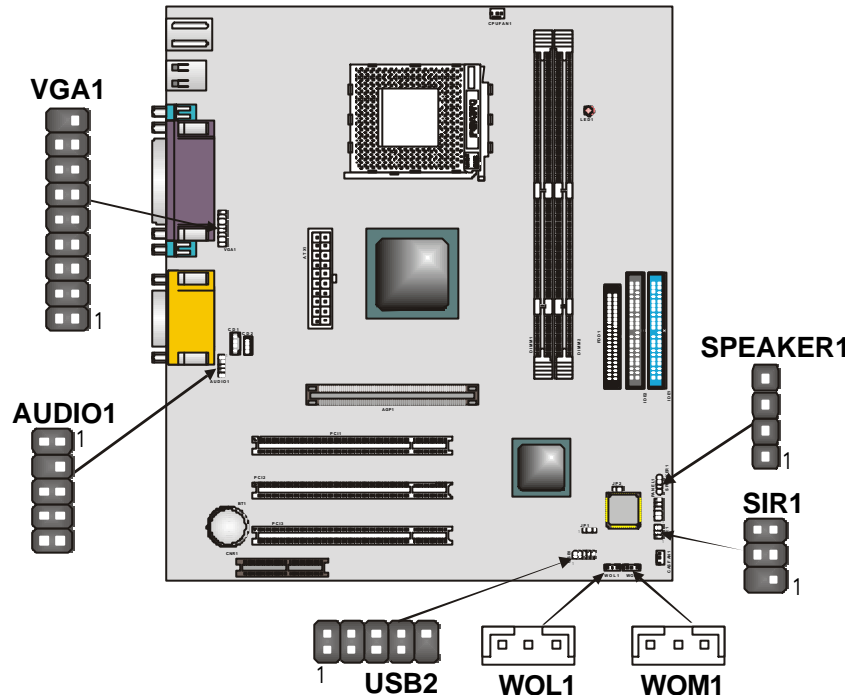
---

**Note:** For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.

---

## Connecting Optional Devices

Refer to the following for information on connecting the main-board's optional devices:



### AUDIO1: Front panel MIC/line-out

This header allows the user to install auxiliary front-oriented microphone and line-out ports for easier access.

Pin	Signal Name	Pin	Signal Name
1	AUD_MIC	2	AUD_GND
3	AUD_MIC_BIAS	4	AUD_VCC
5	AUD_FPOUT_R	6	AUD_RET_R
7	HP_ON	8	KEY
9	AUD_FPOUT_L	10	AUD_RET_L



### **SIR1: Serial infrared port**

The mainboard supports a Serial Infrared (SIR) data port. Infrared ports allow the wireless exchange of information between your computer and similarly equipped devices. These devices may include printers, laptops, Personal Digital Assistants (PDAs), and other computers.

Pin	Signal Name	Pin	Signal Name
1	Not assigned	2	(No Pin)
3	+5V	4	Ground
5	IRTX	6	IRRX

### **SPEAKER1: Internal speaker**

Connect the internal speaker connector to this header.

Pin	Signal Name
1	SPKR
2	NC
3	NC
4	+5V

### **WOL1/WOM: Wake On LAN/Wake On Modem**

If you have installed a LAN card, use the cable provided with the card to plug into the mainboard WOL1 connector. This enables the Wake On LAN (WOL) feature. When your system is in a power-saving mode, any LAN signal automatically resumes the system. You must enable this item using the Power Management page of the Setup Utility.

Pin	Signal Name
1	5VSB
2	Ground
3	SENSE

If you have installed a modem, use the cable provided with the modem to plug into the mainboard WOM1 connector. This enables the Wake On Modem (WOM) feature. When your system is in a power-saving mode, any modem signal automatically resumes the system. You must enable this item using the Power Management page of the Setup Utility. See Chapter 3 for more information.

## USB2: USB port 3, 4

The mainboard has two USB ports installed on the rear edge I/O port array. Some computer cases have a special module that mounts USB ports at the front of the case. If you have this kind of case, use auxiliary USB connectors USB2 and USB3 to connect the front-mounted ports to the mainboard.

Pin	Signal Name	Pin	Signal Name
1	VREG_FP_USBPWR0	2	VREG_FP_USBPWR0
3	USB_FP_P0-	4	USB_FP_P1-
5	USB_FP_P0+	6	USB_FP_P1+
7	Ground	8	Ground
9	Key	10	USB_FP-OC0

## VGA1: Onboard VGA

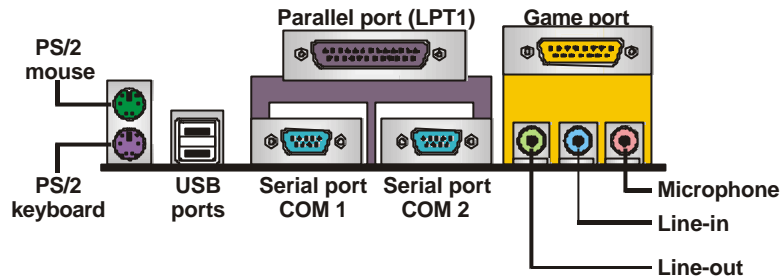
The mainboard provides onboard graphic support. This header allows the user to install an auxiliary VGA bracket for attaching a monitor.

Pin	Signal Name	Pin	Signal Name
1	RED	2	GREEN
3	BLUE	4	NOT USED
5	GND	6	GND
7	GND	8	GND
9	VCC	10	GND
11	NOT USED	12	SDA
13	HSYNC	14	VSYNC
15	SCL	16	Empty pin

---

## Connecting I/O Devices

The backplane of the mainboard has the following I/O ports:



- |                      |  |
|----------------------|--|
| <b>PS/2 Mouse</b>    | Use the upper PS/2 port to connect a PS/2 pointing device.   |
| <b>PS/2 Keyboard</b> | Use the lower PS/2 port to connect a PS/2 keyboard.  |
| <b>USB Ports</b>     | Use the USB ports to connect USB devices.  |
| <b>LPT1</b>          | Use LPT1 to connect printers or other parallel communications devices.   |
| <b>COM1/2</b>        | Use the COM ports to connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM1/3. COM2 is identified by the system as COM2/4.                                  |
| <b>Game Port</b>     | Use the game port to connect a joystick or a MIDI device.  |
| <b>Audio Ports</b>   | Use the three audio ports to connect audio devices. The left side jack is for a stereo line-out signal. The middle jack is for a stereo line-in signal. The right side jack is for a microphone. |

## External Connector Color Coding

Many connectors now use standard colors as shown in the table below.

<b>Connector</b>	<b>Color</b>
Analog VGA	Blue
Audio line-in	Light blue
Audio line-out	Lime
Digital monitor/flat panel	White
IEEE 1394	Grey
Microphone	Pink
MIDI/Game	Gold
Parallel	Burgundy
PS/2-compatible keyboard	Purple
PS/2-compatible mouse	Green
Serial	Teal or Turquoise
Speaker out/subwoofer	Orange
Right-to-left speaker	Brown
USB	Black
Video out	Yellow
SCSI, network, telephone, modem	None

This concludes Chapter 2. The next chapter covers the BIOS.

## *Chapter 3*

# Using BIOS

---

### About the Setup Utility

The computer uses the latest Award BIOS with support for Windows Plug and Play. The CMOS chip on the mainboard contains the ROM setup instructions for configuring the mainboard BIOS.

The BIOS (Basic Input and Output System) Setup Utility displays the system's configuration status and provides you with options to set system parameters. The parameters are stored in battery-backed-up CMOS RAM that saves this information when the power is turned off. When the system is turned back on, the system is configured with the values you stored in CMOS.

The BIOS Setup Utility enables you to configure:

- Hard drives, diskette drives, and peripherals
- Video display type and display options
- Password protection from unauthorized use
- Power management features

The settings made in the Setup Utility affect how the computer performs. Before using the Setup Utility, ensure that you understand the Setup Utility options.

This chapter provides explanations for Setup Utility options.

## **The Standard Configuration**

A standard configuration has already been set in the Setup Utility. However, we recommend that you read this chapter in case you need to make any changes in the future.


This Setup Utility should be used:

- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security Setup

## Entering the Setup Utility

When you power on the system, BIOS enters the Power-On Self Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, the following message appears:

### ***Press DEL to enter SETUP***

Pressing the delete key  accesses the Award BIOS Setup Utility:

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▶ <b>Standard CMOS Features</b>	▶ Frequency/Voltage Control
▶ Advanced BIOS Features	Load Fail-Safe Defaults
▶ Advanced Chipset Features	Load Optimized Defaults
▶ Integrated Peripherals	Set Supervisor Password
▶ Power Management Setup	Set User Password
▶ PnP/PCI Configurations	Save & Exit Setup
▶ PC Health Status	Exit Without Saving
Esc : Quit	- - ® - - : Select Item
F10 : Save & Exit Setup	
Time, Date, Hard Disk Type . . .	

## BIOS Navigation Keys

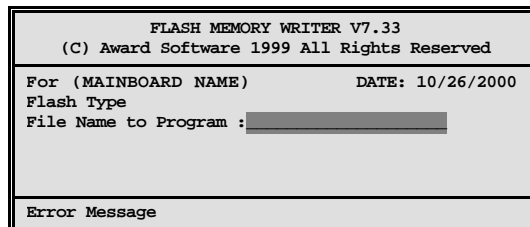
The BIOS navigation keys are listed below:

Key	Function
Esc	Exits the current menu
←↑↓→	Scrolls through the items on a menu
+/- /PU/PD	Modifies the selected field's values
F10	Saves the current configuration and exits setup
F1	Displays a screen that describes all key functions
F5	Loads previously saved values to CMOS
F6	Loads a minimum configuration for troubleshooting.
F7	Loads an optimum set of values for peak performance

## Updating the BIOS

You can download and install updated BIOS for this mainboard from the manufacturer's Web site. New BIOS provides support for new peripherals, improvements in performance, or fixes for known bugs. Install new BIOS as follows:

1. If your mainboard has a BIOS protection jumper, change the setting to allow BIOS flashing. (Refer to Appendix A for jumper settings.)
2. If your mainboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten.)
3. Create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)
4. Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the system diskette you created in Step 3.
5. Turn off your computer and insert the system diskette in your computer's diskette drive. (You might need to run the Setup Utility and change the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the floppy diskette drive first.)
6. At the A:\ prompt, type the Flash Utility program name and press <Enter>. You see a screen similar to the following:



7. Type the filename of the new BIOS in the "File Name to Program" text box. Follow the onscreen directions to update the mainboard BIOS.
8. When the installation is complete, remove the floppy diskette from the diskette drive and restart your computer. If your mainboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten.



---

## Using BIOS

When you start the Setup Utility, the main menu appears. The main menu of the Setup Utility displays a list of the options that are available. A highlight indicates which option is currently selected. Use the cursor arrow keys to move the highlight to other options. When an option is highlighted, execute the option by pressing <Enter>.

Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute that option. Other options lead to dialog boxes that prompt you for information.

Some options (marked with a triangle ►) lead to submenus that enable you to change the values for the option. Use the cursor arrow keys to scroll through the items in the submenu.

In this manual, default values are enclosed in parenthesis. Submenu items are denoted by a triangle ►.

## Standard CMOS Features

This option displays basic information about your system.

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Standard CMOS Features

Date (mm:dd:yy)	Tue, July 11 2001	Item Help
Time (hh:mm:ss)	12 : 8 : 59	
▶ IDE Primary Master		Menu Level ▶
▶ IDE Primary Slave		Change the day, month, year and century.
▶ IDE Secondary Master		
▶ IDE Secondary Slave		
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Floppy 3 Mode Support	[Disabled]	
Video	[EGA/VGA]	
Halt On	[All Errors]	
Base Memory	640K	
Extended Memory	31744K	
Total Memory	32768K	

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

### Date and Time

The Date and Time items show the current date and time on the computer. If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Date and Time Properties utility.

### ▶ IDE Devices (None)

Your computer has two IDE channels (Primary and Secondary) and each channel can be installed with one or two devices (Master and Slave). Use these items to configure each device on the IDE channel.

Press <Enter> to display the IDE submenu:

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IDE Primary Master

IDE HDD Auto-Detection	Press Enter	Item Help
IDE Primary Master	[Auto]	Menu Level ►► To auto-detect the HDD's size, head . . . on this channel
Access Mode	[Auto]	
Capacity	0 MB	
Cylinder	0	
Head	0	
Precomp	0	
Landing Zone	0	
Sector	0	

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

### **IDE HDD Auto-Detection**

Press <Enter> while this item is highlighted to prompt the Setup Utility to automatically detect and configure an IDE device on the IDE channel.

---

**Note:** If you are setting up a new hard disk drive that supports LBA mode, more than one line will appear in the parameter box. Choose the line that lists LBA for an LBA drive.

---

### **IDE Primary/Secondary Master/Slave (Auto)**

Leave this item at Auto to enable the system to automatically detect and configure IDE devices on the channel. If it fails to find a device, change the value to Manual and then manually configure the drive by entering the characteristics of the drive in the items described below.

Refer to your drive's documentation or look on the drive casing if you need to obtain this information. If no device is installed, change the value to None.

---

**Note:** Before attempting to configure a hard disk drive, ensure that you have the configuration information supplied by the manufacturer of your hard drive. Incorrect settings can result in your system not recognizing the installed hard disk.

---

### **Access Mode**

This item defines ways that can be used to access IDE hard disks such as LBA (Large Block Addressing). Leave this value at Auto and the system will automatically decide the fastest way to access the hard disk drive.

Press <Esc> to return to the Standard CMOS Features page.

### **Drive A/Drive B (1.44M, 3.5 in./None)**

These items define the characteristics of any diskette drive attached to the system. You can connect one or two diskette drives.

### **Floppy 3 Mode Support (Disabled)**

Floppy 3 mode refers to a 3.5-inch diskette with a capacity of 1.2 MB. Floppy 3 mode is sometimes used in Japan.

### **Video (EGA/VGA)**

This item defines the video mode of the system. This mainboard has a built-in VGA graphics system; you must leave this item at the default value.

### **Halt On (All Errors)**

This item defines the operation of the system POST (Power On Self Test) routine. You can use this item to select which types of errors in the POST are sufficient to halt the system.

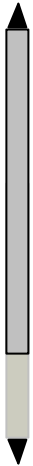
### **Base Memory, Extended Memory, and Total Memory**

These items are automatically detected by the system at start up time. These are display-only fields. You cannot make changes to these fields.

## Advanced BIOS Setup Option

This option displays advanced information about your system.

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Advanced BIOS Features

Anti-Virus Protection	[Disabled]		Item Help
CPU Internal Cache	[Enabled]		Menu Level ►
External Cache	[Enabled]		Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempts to write data into this area, BIOS will show a warning message on screen and alarm beep
CPU L2 Cache ECC Checking	[Enabled]		
Processor Number Feature	[Enabled]		
Quick Power On Self Test	[Enabled]		
First Boot Device	[Floppy]		
Second Boot Device	[HDD-0]		
Third Boot Device	[LS120]		
Boot Other Device	[Enabled]		
Swap Floppy Drive	[Disabled]		
Boot Up Floppy Seek	[Enabled]		
Boot Up NumLock Status	[On]		
Gate A20 Option	[Fast]		
Typematic Rate Setting	[Disabled]		
x Typematic Rate (Chars/Sec)	6		
x Typematic Delay (Msec)	250		
Security Option	[Setup]		
OS Select For DRAM > 64MB	[Non-OS2]		

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

### Anti-Virus Protection (Disabled)

When enabled, this item provides protection against viruses that try to write to the boot sector and partition table of your hard disk drive. You need to disable this item when installing an operating system. We recommend that you enable this item as soon as you have installed an operating system.

---

**Note:** For complete protection against viruses, install virus software in your operating system and update the virus definitions regularly.

---

### CPU Internal Cache CPU Internal Cache (Enabled)

All processors that can be installed in this mainboard use internal level 1 (L1) cache memory to improve performance. Leave this item at the default value for better performance.

### **External Cache (Enabled)**

Most processors that can be installed in this system use external level 2 (L2) cache memory to improve performance. Leave this item at the default value for better performance.

### **CPU L2 Cache ECC Checking (Enabled)**

This item enables or disables ECC (Error Correction Code) error checking on the CPU cache memory. We recommend that you leave this item at the default value.

### **Processor Number Feature (Enabled)**

Some new processors are installed with a unique processor number. This number may be used for verification in Internet transactions and e-commerce. If you prefer not to use or distribute the unique processor number, disable this item to suppress the processor number.

### **Quick Power On Self Test (Enabled)**

Enable this item to shorten the power on testing (POST) and have your system start up faster. You might like to enable this item after you are confident that your system hardware is operating smoothly.

### **First/Second/Third Boot Device (Floppy/HDD-0/LS120)**

Use these three items to select the priority and order of the devices that your system searches for an operating system at start-up time.

### **Boot Other Device (Enabled)**

When enabled, the system searches all other possible locations for an operating system if it fails to find one in the devices specified under the First, Second, and Third boot devices.

### **Swap Floppy Drive (Disabled)**

If you have two floppy diskette drives in your system, this item allows you to swap the assigned drive letters so that drive A becomes drive B, and drive B becomes drive A.

### **Boot Up Floppy Seek (Enabled)**

If this item is enabled, it checks the size of the floppy disk drives at start-up time. You don't need to enable this item unless you have a legacy diskette drive with 360K capacity.

### **Boot Up NumLock Status (On)**

This item defines if the keyboard Num Lock key is active when your system is started.

### **Gate A20 Option (Fast)**

This item defines how the system handles legacy software that was written for an earlier generation of processors. Leave this item at the default value.

### **Typematic Rate Setting (Disabled)**

If this item is enabled, you can use the following two items to set the typematic rate and the typematic delay settings for your keyboard.

- **Typematic Rate (Chars/Sec):** Use this item to define how many characters per second are generated by a held-down key.
- **Typematic Delay (Msec):** Use this item to define how many milliseconds must elapse before a held-down key begins generating repeat characters.

### **Security Option (Setup)**

If you have installed password protection, this item defines if the password is required at system start up, or if it is only required when a user tries to enter the Setup Utility.

### **OS Select For DRAM > 64 MB (Non-OS2)**

This item is only required if you have installed more than 64 MB of memory and you are running the OS/2 operating system. Otherwise, leave this item at the default.

### **HDD S.M.A.R.T Capability (Disabled)**

The S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) system is a diagnostics technology that monitors and predicts device performance. S.M.A.R.T. software resides on both the disk drive and the host computer.

The disk drive software monitors the internal performance of the motors, media, heads, and electronics of the drive. The host software monitors the overall reliability status of the drive. If a device failure is predicted, the host software, through the Client WORKS S.M.A.R.T applet, warns the user of the impending condition and advises appropriate action to protect the data.


### Report No FDD For WIN95 (Yes)

If you are running a system with no floppy drive and using Windows 95, select Yes for this item to ensure compatibility with the Windows 95 logo certification. Otherwise, select No.

## Advanced Chipset Features Option

These items define critical timing parameters of the main-board. You should leave the items on this page at their default values unless you are very familiar with the technical specifications of your system hardware. If you change the values incorrectly, you may introduce fatal errors or recurring instability into your system.

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Advanced Chipset Features

SDRAM CAS Latency Time	[3]		Item Help
SDRAM Cycle Time Tras/TRC	[7/9]		Menu Level ▶
SDRAM RAS-to-CAS Delay	[3]		
SDRAM RAS Precharge Time	[3]		
System BIOS Cacheable	[Enabled]		
Video BIOS Cacheable	[Enabled]		
Memory Hole At 15M-16M	[Disabled]		
CPU Latency Timer	[Enabled]		
Delayed Transaction	[Enabled]		
AGP Graphics Aperture Size	[64MB]		
AGP Device 4X Support	[Enabled]		
Use VGA BIOS in VBU Block	[Enabled]		
Display Cache Frequency	[100MHz]		
System Memory Frequency	[100MHz]		
On-Chip Video Window Size	[64MB]		
* Onboard Display Cache Setting *			
CAS# Latency	[3]		
Paging Mode Control	[Open]		

- : Move    ® : Select    +/-/PU/PD: Value    F10: Save    ESC: Exit    F1: General Help  
F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults



### **SDRAM CAS Latency Time (3)**

This item enables you to select the CAS latency time in HCLKs of 2/2 or 3/3. The value is set at the factory depending on the DRAM installed. Do not change the values in this field unless you change the specifications of the installed DRAM or the installed CPU.

### **SDRAM Cycle Time Tras/Trc (7/9)**

This item sets the minimum time from activation to activation of the same memory bank. When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. We recommend that you leave this item at the default value.

### **SDRAM RAS-to-CAS Delay (3)**

This sets the relative delay between the Row Address Strobe (RAS) and the Column Address Strobe (CAS). Select the RAS to CAS delay time in HCLKs of 2/2 or 3/3. The value is set at the factory depending on the DRAM installed. Do not change the values in this field unless you have changed the specifications of the installed DRAM or the installed CPU.

### **SDRAM RAS Precharge Time (3)**

DRAM must continually be refreshed or it will lose its data. This option allows you to determine the number of CPU clocks allocated for the Row Address Strobe (RAS) to accumulate its charge before the DRAM is refreshed. If insufficient time is allowed, refresh may be incomplete and data lost.

### **System BIOS/Video RAM Cacheable (Enabled)**

These items allow the video and system to be cached in memory for faster execution. Leave these items at the default value for better performance.

### **Memory Hole At 15M–16M(Disabled)**

This item is used to reserve memory space for ISA expansion cards that require it.

### **CPU Latency Timer (Enabled)**

This item sets a timing parameter for CPU access. Since the CPU timing is determined by the system hardware, leave this item at the default value.

### **Delayed Transaction (Enabled)**

If the chipset has an embedded 32-bit write buffer, to support delay transaction cycles, you can enable this item to provide compliance with PCI Ver. 2.1 specifications. We recommend that you leave this item at the default value.

### **AGP Graphics Aperture Size (64 MB)**

This item defines the size of the aperture if you use an AGP graphics adapter. The AGP aperture refers to a section of the PCI memory address range used for graphics memory. We recommend that you leave this item at the default value.

### **AGP Device 4X Support (Enabled)**

This item allows you to enable or disable the caching of display data for the video memory of the processor. Enabling can greatly improve the display speed. If your graphics display card does not support this feature, you need to disable this item.

### **Use VGA BIOS in VBU Block (Enabled)**

For the onboard VGA device, the VGA BIOS is combined with the SYSTEM BIOS. If you want to update the VGA BIOS, you must update the SYSTEM BIOS as well (you cannot update the VGA BIOS only). However, Intel chipsets support the "Video BIOS Update" specification, which provides two VGA BIOS in the SYSTEM BIOS. One is the original, and the other is a space for future (VBU Block) VGA BIOS; you can select one of them to be active.

### **Display Cache Frequency (100 MHz)**

This item enables you to set the display cache frequency. We recommend that you leave this item at the default value.

### **System Memory Frequency (100 MHz)**

This item sets the main memory frequency. When you use an external graphics card, you can adjust this to enable the best performance for your system.

### **On-Chip Video Window Size (64 MB)**

This item defines the size of the aperture if you use an on-board video adapter. It refers to a section of the PCI memory address range used for graphics memory. We recommend that you leave this item at the default value.

### **\*Onboard Display Cache Setting\***

The items under this heading are used to set the parameters for display cache memory that may be optionally installed on your mainboard. If you have display cache memory, we recommend that you leave these items at the default settings.

#### **CAS# Latency (3)**

This item sets a timing parameter for the Column Address Strobe memory access. Leave this item at the default setting.

#### **Paging Mode Control (Open)**

Enables and disables page open mode.

#### **RAS-CAS Override (by CAS#LT)**

This item sets the timing parameters for the system memory such as the CAS (Column Address Strobe) and RAS (Row Address Strobe). We recommend that you set RAS-to-CAS to the default.

#### **RAS# Timing (Fast)**

Sets the Row Address Strobe (RAS) timing. Leave this at the default setting.

#### **RAS# Precharge Timing (Fast)**


DRAM must continually be refreshed or it will lose its data. Normally, DRAM is refreshed entirely as the result of a single request. This option allows you to determine the number of CPU clocks allocated for the Row Address Strobe (RAS) to accumulate its charge before the DRAM is refreshed. If insufficient time is allowed, refresh may be incomplete and data lost.

Press <Esc> to return to the previous screen.

## Integrated Peripherals Option

These items define the operation of peripheral components on the system's input/output ports.

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Integrated Peripherals

On-Chip Primary	PCI IDE	[Enabled]		Item Help
On-Chip Secondary	PCI IDE	[Enabled]		Menu Level ▶
IDE Primary Master	PIO	[Auto]		
IDE Primary Slave	PIO	[Auto]		
IDE Secondary Master	PIO	[Auto]		
IDE Secondary Slave	PIO	[Auto]		
IDE Primary Master	UDMA	[Auto]		
IDE Primary Slave	UDMA	[Auto]		
IDE Secondary Master	UDMA	[Auto]		
IDE Secondary Slave	UDMA	[Auto]		
USB Controller		[Enabled]		
USB Keyboard Support		[Disabled]		
Init Display First		[PCI Slot]		
AC97 Audio		[Auto]		
AC97 Modem		[Auto]		
Hardware Reset Control		[Enabled]		
IDE HDD Block Mode		[Enabled]		
POWER ON Function		[Hot KEY]		
KB Power ON Password		[Enter]		

- : Move    ® : Select    +/-/PU/PD: Value:    F10: Save    ESC: Exit    F1: General Help  
 F5: Previous Values    F6: Fail-Safe Defaults    F7: Optimized Defaults

### On-Chip IDE Primary/Secondary PCI IDE (Enabled)

Use these items to enable or disable the PCI IDE channels that are integrated on the mainboard.

### IDE Primary/Secondary Master/Slave PIO (Auto)

Each IDE channel supports a master device and a slave device. These four items let you assign which kind of PIO (Programmed Input/Output) is used by IDE devices. Choose Auto to let the system auto detect which PIO mode is best, or select a PIO mode from 0-4.

### IDE Primary/Secondary Master/Slave UDMA (Auto)

Each IDE channel supports a master device and a slave device. This mainboard supports UltraDMA technology, which provides faster access to IDE devices.

If you install a device that supports UltraDMA, change the appropriate item on this list to Auto. You may have to install the UltraDMA driver supplied with this mainboard in order to use an UltraDMA device.

### **USB Controller (Enabled)**

Enable this item if you plan to use the Universal Serial Bus ports on this mainboard.

### **USB Keyboard Support (Disabled)**

Enable this item if you plan to use a keyboard connected through the USB port in a legacy operating system (such as DOS) that does not support Plug and Play.

### **Init Display First (PCI Slot)**

Use this item to specify whether your graphics adapter is installed in one of the PCI slots or is integrated on the mainboard.

### **AC97 Audio (Auto)**

Enables and disables the onboard audio chip. Disable this item if you are going to install a PCI audio add-on card.

### **AC97 Modem (Auto)**

Enables and disables the onboard modem support. Disable this item if you are using an external modem or are going to install a modem add-on card that doesn't support the AC 97 modem function.

### **Hardware Reset Control (Enabled)**

This item enables or disables the hardware reset button. When set to Disabled, pushing the hardware reset button will not reset the system.

### **IDE HDD Block Mode (Enabled)**

Enable this field if your IDE hard drive supports block mode. Block mode enables BIOS to automatically detect the optimal number of block read and writes per sector that the drive can support and improves the speed of access to IDE devices.

### **POWER ON Function (Hot KEY)**

Enables computer power on by keyboard, mouse, or hotkey activity.

### **KB Power ON Password**

Enables you to set a password to be entered when using the keyboard to power on the computer.

### **Hot Key Power ON (Ctrl-F12)**

Enables you to select a hot key to turn on the computer.

### **Onboard FDC Controller (Enabled)**

This option enables the onboard floppy disk drive controller.

### **Onboard Serial Port 1 (3F8/IRQ4)**

This option is used to assign the I/O address and interrupt request (IRQ) for the onboard serial port 1 (COM1).

### **Onboard Serial Port 2 (2F8/IRQ3)**

This option is used to assign the I/O address and interrupt request (IRQ) for the onboard serial port 2 (COM2).

### **UART Mode Select (Normal)**

This field is available if the Onboard Serial Port 2 field is set to any option but Disabled. UART Mode Select enables you to select the infrared communication protocol: Normal (default), IrDA, or ASKIR. IrDA is an infrared communication protocol with a maximum baud rate up to 115.2K bps. ASKIR is Sharp's infrared communication protocol with a maximum baud rate up to 57.6K bps.

### **UR2 Duplex Mode (Half)**

This field is available when UART 2 Mode is set to either ASKIR or IrDA. This item enables you to determine the infrared function of the onboard infrared chip. The options are Full and Half (default).

Full-duplex means that you can transmit and send information simultaneously. Half-duplex is the transmission of data in both directions, but only one direction at a time.

### **Onboard Parallel Port (378/IRQ7)**

This option is used to assign the I/O address and interrupt request (IRQ) for the onboard parallel port.

### **Parallel Port Mode (ECP)**

Enables you to set the data transfer protocol for your parallel port. There are four options: SPP (Standard Parallel Port), EPP (Enhanced Parallel Port), ECP (Extended Capabilities Port) and ECP+EPP.

SPP allows data output only. Extended Capabilities Port (ECP) and Enhanced Parallel Port (EPP) are bi-directional modes, allowing both data input and output. ECP and EPP modes are only supported with EPP- and ECP-aware peripherals.

### **ECP Mode Use DMA (3)**

When the onboard parallel port is set to ECP mode, the parallel port can use DMA 3 or DMA 1.

### **PWRON After PWR-Fail (Off)**

This item enables your computer to automatically restart or return to its last operating status after power returns from a power failure.

### **Game Port Address (201)**

This item sets the I/O address for the game port.

### **Midi Port Address (330)**

This item sets the I/O address for the Midi function.

### **Midi Port IRQ (10)**

This item sets the interrupt request for the Midi function.

Press <Esc> to return to the previous screen.


## Power Management Setup Option

This option lets you control system power management. The system has various power-saving modes including powering down the hard disk, turning off the video, suspending to RAM, and software power down that allows the system to be automatically resumed by certain events.

The power-saving modes can be controlled by timeouts. If the system is inactive for a time, the timeouts begin counting. If the inactivity continues so that the timeout period elapses, the system enters a power-saving mode. If any item in the list of Reload Global Timer Events is Enabled, then any activity on that item will reset the timeout counters to zero.

If the system is suspended or has been powered down by software, it can be resumed by a wake up call that is generated by incoming traffic to a modem, a LAN card, a PCI card, or a fixed alarm on the system realtime clock,

CMOS Setup Utility – Copyright (C) 1984 – 2001 Award Software  
Power Management Setup

ACPI function	[Enabled]		Item Help
ACPI Suspend Type	[S1(POS)]		
Power Management	[User Define]		
Video Off Method	[DPMS]		
Video Off In Suspend	[Yes]		
Suspend Type	[Stop Grant]		
MODEM Use IRQ	[3]		
Suspend Mode	[Disabled]		
HDD PwrDown in Suspend	[Enabled]		
HDD Power Down	[Disable]		
Soft-Off by PWRBTN	[Instant-Off]		
Wake-Up by PCI card	[Disabled]		
Power On by Ring	[Disabled]		
Wake Up On LAN	[Enabled]		
USB KB Wake-Up From S3	[Disabled]		
Resume by Alarm	[Disabled]		
x Date (of Month) Alarm	0		
x Time (hh:mm:ss) Alarm	0 0 0		
** Reload Global Timer Events **			
- ® - : Move Enter : Select +/-/PU/PD:Value: F10: Save ESC: Exit F1:General Help F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults			

### ACPI Function (Enabled)

This mainboard supports ACPI (Advanced Configuration and Power management Interface). Use this item to enable or disable the ACPI feature.



---

**Note:** ACPI is a power management specification that makes hardware status information available to the operating system. ACPI enables a PC to turn its peripherals on and off for improved power management. It also allows the PC to be turned on and off by external devices, so that mouse or keyboard activity wakes up the computer.

---

### **ACPI Suspend Type (S1(POS))**

Use this item to define how your system suspends. In the default, S1(POS), the suspend mode is equivalent to a software power down. If you select S3 (STR), the suspend mode is a suspend to RAM, i.e., the system shuts down with the exception of a refresh current to the system memory.

### **Power Management Option (User Define)**

This item acts like a master switch for the power-saving modes and hard disk timeouts. If this item is set to Max Saving, power-saving modes occur after a short timeout. If this item is set to Min Saving, power-saving modes occur after a longer timeout. If the item is set to User Define, you can insert your own timeouts for the power-saving modes.

### **Video Off Method (DPMS)**

This item defines how the video is powered down to save power. This item is set to DPMS (Display Power Management Software) by default.

### **Video Off In Suspend (Yes)**

This option defines if the video is powered down when the system is put into suspend mode.

### **Suspend Type (Stop Grant)**

If this item is set to the default Stop Grant, the CPU will go into Idle Mode during power saving mode.

### **MODEM Use IRQ (3)**

If you want an incoming call on a modem to automatically resume the system from a power-saving mode, use this item to specify the interrupt request line (IRQ) that is used by the modem. You might have to connect the fax/modem to the mainboard Wake On Modem connector for this feature to work.

### **Suspend Mode (Disable)**

The CPU clock will be stopped and the video signal will be suspended if no Power Management events occur for a specified length of time. Full power function will return when a Power Management event is detected. Options are from 1 Min to 1 Hour and Disable.

### **HDD PwrDown in Suspend (Enabled)**

When enabled, the HDD will spin down when the system enters suspend mode.

### **HDD Power Down (Disable)**

The IDE hard drive will spin down if it is not accessed within a specified length of time. Options are from 1 Min to 15 Min and Disable.

### **Soft-Off by PWRBTN (Instant-Off)**

Under ACPI (Advanced Configuration and Power management Interface) you can create a software power down. In a software power down, the system can be resumed by Wake Up Alarms. This item lets you install a software power down that is controlled by the power button on your system. If the item is set to Instant-Off, then the power button causes a software power down. If the item is set to Delay 4 Sec. then you have to hold the power button down for four seconds to cause a software power down.

### **Wake-Up by PCI Card (Disabled)**

When this item is enabled, the system power will be turned on if there is any PCI card activity.

### **Power On by Ring (Disabled)**

If this item is enabled, it allows the system to resume from a software power down or a power-saving mode whenever there is an incoming call to an installed fax/modem. You have to connect the fax/modem to a mainboard Wake On Modem connector for this feature to work.

### **Wake Up On LAN (Enabled)**

When set to Enabled, the system power will be turned on if the LAN port receives an incoming signal. You have to connect the fax/modem to a mainboard Wake On LAN connector for this feature to work.

### **USB KB Wake-Up S3 (Disabled)**

If you are using a USB keyboard, and the ACPI suspend type is set to S3, you can enable this item to allow a keystroke to wake up the system from power saving mode.

### **Resume by Alarm (Disabled)**

When set to Enabled, additional fields become available and you can set the date (day of the month), hour, minute and second to turn on your system. When set to 0 (zero) for the day of the month, the alarm will power on your system every day at the specified time.

### **\*\* Reload Global Timer Events \*\***

Global Timer (power management) events are I/O events whose occurrence can prevent the system from entering a power saving mode or can awaken the system from such a mode. In effect, the system remains alert for anything that occurs to a device that is configured as Enabled, even when the system is in a power-down mode.

### **Primary/Secondary IDE 1/0 (Disabled)**

When these items are enabled, the system will restart the power-saving timeout counters when any activity is detected on any of the drives or devices on the primary or secondary IDE channels.

### FDD, COM, LPT Port (Disabled)

When this item is enabled, the system will restart the power-saving timeout counters when any activity is detected on the floppy disk drive, serial ports, or the parallel port.

### PCI PIRQ[A-D]# (Disabled)

When disabled, any PCI device set as the Master will not power on the system.

## PNP/PCI Configuration Option

This option configures how PnP (Plug and Play) and PCI expansion cards operate in your system. Both the ISA and PCI buses on the Mainboard use system IRQs (Interrupt Requests) and DMAs (Direct Memory Access). You must set up the IRQ and DMA assignments correctly through the PnP/PCI Configurations Setup utility for the mainboard to work properly. Selecting PnP/PCI Configurations on the main program screen displays this menu:

CMOS Setup Utility – Copyright (C) 1984 – 2001 Award Software  
PnP/PCI Configurations

		Item Help
Reset Configuration Data	[Disabled]	
Resources Controlled by	[Auto(ESCD)]	
x IRQ Resources	[Press Enter]	Menu Level ▶
PCI/VGA Palette Snoop	[Disabled]	Default is Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the OS cannot boot.

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

### Reset Configuration Data (Disabled)

If you enable this item and restart the system, any Plug and Play configuration data stored in the BIOS Setup is cleared from memory.

### **Resources Controlled By (Auto(ESCD))**

You should leave this item at the default Auto(ESCD). Under this setting, the system dynamically allocates resources to Plug and Play devices as they are required.

If you cannot get a legacy ISA (Industry Standard Architecture) expansion card to work properly, you might be able to solve the problem by changing this item to Manual, and then opening up the IRQ Resources and Memory Resources submenus.

In the IRQ Resources submenu, if you assign an IRQ to Legacy ISA, then that Interrupt Request Line is reserved for a legacy ISA expansion card. Press <Esc> to close the IRQ Resources submenu.

In the Memory Resources submenu, use the first item Reserved Memory Base to set the start address of the memory you want to reserve for the ISA expansion card. Use the second item Reserved Memory Length to set the amount of reserved memory. Press <Esc> to close the Memory Resources submenu.

### **PCI/VGA Palette Snoop (Disabled)**

This item is designed to overcome problems that can be caused by some non-standard VGA cards. This board includes a built-in VGA system that does not require palette snooping so you must leave this item disabled.

## PCI Health Status Option

On mainboards that support hardware monitoring, this item lets you monitor the parameters for critical voltages, critical temperatures, and fan speeds:

CMOS Setup Utility – Copyright (C) 1984 – 2001 Award Software  
PC Health Status

Shutdown Temperature	[Disabled]	Item Help
Chassis Function	[Disabled]	Menu Level ▶
Vcore		
1.8V		
3.3V		
+5V		
+12V		
-12V		
Voltage Battery		
System Temp.		
CPU Temp		
CPU FAN		
Case FAN		

- - ® - : MoveEnter : Select +/-PU/PD:Value: F10: Save ESC: Exit F1:General Help  
F5:Previous Values F6:Fail-Safe Defaults F7:Optimized Defaults

### Shutdown Temperature (Disabled)

Enables you to set the maximum temperature the system can reach before powering down.

### Chassis Function (Disabled)

When enabled, alerts you if the computer case has been opened.

### System Component Characteristics

These fields provide you with information about the systems current operating status. You cannot make changes to these fields.

- Vcore (CPU core voltage)
- 1.8 V (2.5 NB core voltage)
- 3.3 V Vcc3 (onboard 3.3 volt)
- +5 V (power supply' s +5 volt)
- +12V (power supply' s +12 volt)
- -12V (power supply' s -12 volt)
- Voltage battery
- System temperature
- CPU temperature
- CPU FAN
- Case FAN

## Frequency/Voltage Control

This item enables you to set the clock speed and system bus for your system. The clock speed and system bus are determined by the kind of processor you have installed in your system.

CMOS Setup Utility – Copyright (C) 1984 – 2001 Award Software  
Frequency/Voltage Control

Auto Detect DIMM/PCI Clk	[Enabled]	Item Help
CPU Internal Core Speed	[Auto]	Menu Level ▶
Spread Spectrum Modulated	[Enabled]	
CPU Host/PCI Clock	Default	
CPU Clock Ratio	Auto	

- : Move    ® : Select    +/-/PU/PD:Value:    F10: Save    ESC: Exit    F1:General Help  
F5:Previous Values    F6:Fail-Safe Defaults    F7:Optimized Defaults

### Auto Detect DIMM/PCI Clk (Enabled)

When this item is enabled, BIOS will disable the clock signal of free DIMM and PCI slots.

### CPU Internal Core Speed (Auto)

The value for this item will be automatically detected by the system. If you set this value to Manual, the CPU Host/PCI Clock and CPU Clock Ratio items appear.

### Spread Spectrum (Enabled)

If you enable spread spectrum, it can significantly reduce the EMI (Electro-Magnetic Interference) generated by the system.

### CPU Host/PCI Clock & CPU Clock Ratio

These items appear if you have set the CPU Internal Core Speed to Manual. Use the CPU Host/PCI Clock to set the frontside bus frequency for the installed processor (usually 133 MHz, 100 MHz or 66 MHz). Then use *CPU Clock Ratio* to set a multiple. The multiple times the frontside bus must equal the core speed of the installed processor - e.g., 3.5 (multiple) x 100 MHz (frontside bus) = 350 MHz (installed processor clock speed).

## **Load Fail-Safe Defaults Option**

This option opens a dialog box that lets you install fail-safe defaults for all appropriate items in the Setup Utility:

Press <Y> and then <Enter> to install the defaults. Press <N> and then <Enter> to not install the defaults. The fail-safe defaults place no great demands on the system and are generally stable. If your system is not functioning correctly, try installing the fail-safe defaults as a first step in getting your system working properly again. If you only want to install fail-safe defaults for a specific option, select and display that option, and then press <F6>.

## **Load Optimized Defaults Option**

This option opens a dialog box that lets you install optimized defaults for all appropriate items in the Setup Utility. Press <Y> and then <Enter> to install the defaults. Press <N> and then <Enter> to not install the defaults. The optimized defaults place demands on the system that may be greater than the performance level of the components, such as the CPU and the memory. You can cause fatal errors or instability if you install the optimized defaults when your hardware does not support them. If you only want to install setup defaults for a specific option, select and display that option, and then press <F7>.



## Set Supervisor and User Passwords Options

These items can be used to install a password. A Supervisor password takes precedence over a User password, and the Supervisor can limit the activities of a User. To install a password, follow these steps:

1. Highlight the item Set Supervisor/User Password on the main menu and press <Enter>.
2. The password dialog box appears.

Enter Password:

3. If you are installing a new password, type in the password. You cannot use more than eight characters or numbers. The Set Supervisor/User Password item differentiates between upper and lower case characters. Press <Enter> after you have typed in the password. If you are deleting a password that is already installed press <Enter> when the password dialog box appears. You see a message that indicates that the password has been disabled.

PASSWORD DISABLED !!!  
Press any key to continue . . .

4. Press any key. You are prompted to confirm the password:

Confirm Password:

5. Type the password again and press <Enter>, or press <Enter> if you are deleting a password that is already installed.
6. If you typed the password correctly, the password will be installed.

## Save & Exit Setup Option

Highlight this item and press <Enter> to save the changes that you have made in the Setup Utility and exit the Setup Utility. When the Save and Exit dialog box appears, press <Y> to save and exit, or press <N> to return to the main menu:

## Exit Without Saving

Highlight this item and press <Enter> to discard any changes that you have made in the Setup Utility and exit the Setup Utility. When the Exit Without Saving dialog box appears, press <Y> to discard changes and exit, or press <N> to return to the main menu.

---

**Note:** If you have made settings that you do not want to save, use the "Exit Without Saving" item and press <Y> to discard any changes you have made.

---

This concludes Chapter 3. Refer to the next chapter for information on the software supplied with the mainboard.

## *Chapter 4*

# Using the Mainboard Software

---

## About the Software CD-ROM

The support software CD-ROM that is included in the mainboard package contains all the drivers and utility programs needed to properly run the bundled products. Below you can find a brief description of each software program, and the location for your mainboard version. More information on some programs is available in a README file, located in the same directory as the software.

---

**Note:** Never try to install software from a folder that is not specified for use with your mainboard.

---

Before installing any software, always inspect the folder for files named README.TXT, INSTALL.TXT, or something similar. These files may contain important information that is not included in this manual

---

## Auto-installing under Windows 98

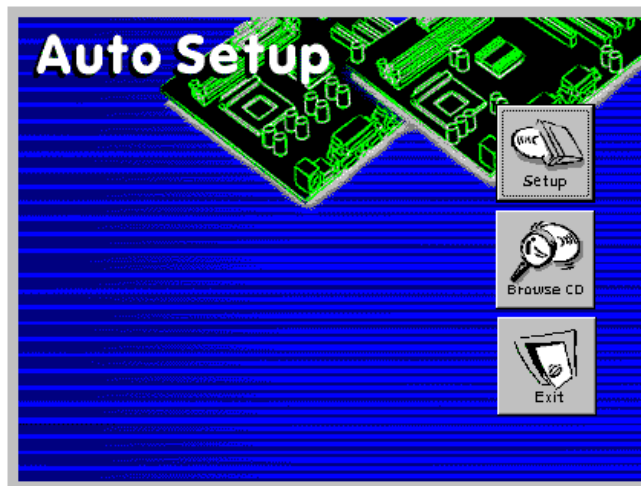
The Auto-install CD-ROM makes it easy for you to install the drivers and software for your mainboard.

---

**Note:** If the Auto-install CD-ROM does not work on your system, you can still install drivers through the file manager for your OS (for example, Windows Explorer). Refer to Utility Folder Installation Notes later in this chapter.

---

The support software CD-ROM disc loads automatically under Windows 98. When you insert the CD-ROM disc in the CD-ROM drive, the autorun feature will automatically bring up the install screen. The screen has three buttons on it, Setup, Browse CD and Exit.



---

**Note:** If the opening screen doesn't appear, double-click the file "setup.exe" in the root directory.

---

### Setup

Click the Setup button to run the software installation program. Select from the menu which software you want to install.

## Browse CD

The Browse CD button is the standard Windows command that allows you to open Windows Explorer and show the contents of the support CD.

Before installing the software from Windows Explorer, look for a file named README.TXT, INSTALL.TXT or something similar. This file may contain important information to help you install the software correctly.

Some software is installed in separate folders for different operating systems, such as DOS, WIN NT, or WIN98/95. Always go to the correct folder for the kind of OS you are using.

To install the software, execute a file named SETUP.EXE or INSTALL.EXE by double-clicking the file and then following the instructions on the screen.

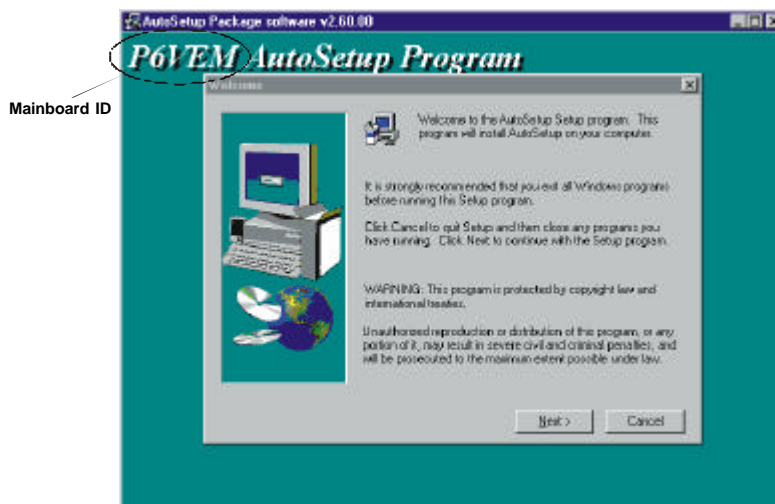
## Exit

The Exit button closes the Auto Setup window.

## Running Setup

Follow these instructions to install device drivers and software for the mainboard:

1. Click **Setup**. The installation program begins:



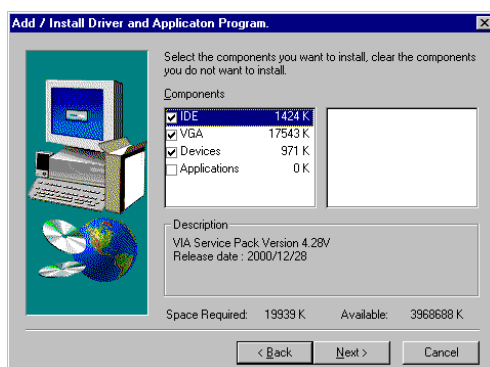
---

**Note:** The following screens are examples only. The screens and driver lists will be different according to the mainboard you are installing.

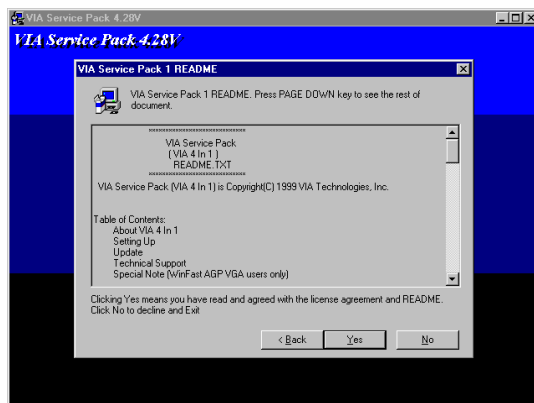
---

The mainboard identification is located in the upper left-hand corner.

2. Click **Next**. The following screen appears:



3. Check the items you want to install. The default options are recommended.
4. Click **Next** to run the Installation Wizard. An item installation screen appears:



5. Follow the instructions on the screen to install the items.

Drivers and software are automatically installed in sequence. Follow the onscreen instructions, confirm commands and allow the computer to restart after each installation.

---

## Folders for this Mainboard

For this board, you can install software from the following folders:

### Utility Folder

Some of the software in your support CD may not be listed here, refer to the readme.txt for further information.

**AWDFLASH**

Software to erase and install new revisions of the system BIOS (CMOS)

**MEDIARING  
TALK**

Telephony software

**SUPER VOICE**

Fax/modem software

### P6IEMT Folder

Use the software in the following sub-folders:

**AUDIO**

This folder contains a short README file giving directions to alternate folders for installing the audio software.

**IDE**

This folder contains a short README file giving directions to alternate folders for installing the IDE software.

**VGA**

This folder contains a short README file giving directions to alternate folders for installing the VGA software.

**INF**

This folder provides patches and upgrades for the mainboard.

---

## Utility Folder Installation Notes

### **Award Flash Memory Utility**

This utility lets you erase the system BIOS stored on a Flash Memory chip on the mainboard, and lets you copy an updated BIOS to the chip. Take care how you use this program. If you erase the current BIOS and fail to write a new BIOS, or write a new BIOS that is incorrect, your system will malfunction.

For this mainboard, use AWD8XX.EXE to flash the BIOS (where 8XX is the version number). You can use any version, but we suggest you use the latest version. To use the utility, you must be in real-mode DOS (not the DOS box that is available in Windows 95/98/NT). If you are using WINDOWS 95/98, shut down your computer and select the option Restart in DOS in the shutdown dialog box. If you are running Windows NT, shut down your computer and boot from a DOS diskette temporarily in order to run the flash memory utility.

### **MediaRing Talk**

To install the MediaRing Talk voice modem software for the built-in modem, go to the directory \UTILITY\MEDIARING TALK, then run MRTALK-SETUP72.EXE to install the application software.

### **Super Voice**

To install the Super Voice voice, fax, data communication application for use with the built-in fax/modem, go the directory \UTILITY\SUPERVOICE, then run PICSHELL.EXE to install the application software.



---

## **Mainboard (P6IEMT) Installation Notes**

### **Audio Drivers and Software**

Most of the sub-folders in the P6IEMT folder are empty, with a short README file giving directions to alternate folders for the appropriate software.

### **Installation for Windows 2000/98/98SE/ME/95**

To install the audio drivers, go the directory \INTEL\REALTEK-CODEC; then run SETUP.EXE.

### **Installation for Windows NT4.0**

1. Click Start.
2. Click Settings and then click Control Panel.
3. Double-click the Multimedia icon.
4. Select the Devices tab.
5. Click Add.
6. Select the item "Unlisted or Updated Driver" in the List of Drivers in the list box and then specify the path to the PCI audio NT drivers (\INTEL\REALTEK-CODEC\NT4).
7. Select "Avance Logic, Inc. AC'97 Audio" and click OK.
8. Choose the proper I/O or click OK for the default setting. Setup installs the drivers and software.
9. Restart the system when prompted.

### **IDE Software**

This folder has software and drivers for the IDE that is integrated on this mainboard. Drivers are provided for Windows 2000/98/98SE/ME/95 and Windows NT.

### **Installation for Windows 2000/98/98SE/ME/95/NT**

To install the IDE drivers, go to the directory \INTEL\IDE; then run SETUP.EXE to install the IDE driver for your operating system.

## **VGA Drivers and Software**

Most of the sub-folders in this folder are empty, with a short README file giving directions to alternate folders for the appropriate software.

### **Installation for Windows 2000**

To install the VGA drivers, browse to the directory \INTEL\81XVGA\WIN2000\GRAPHICS; then run SETUP.EXE.

### **Installation for Windows ME/98SE/98/95**

To install the VGA drivers, browse to the directory \INTEL\81XVGA\WIN9X1\GRAPHICS; then run SETUP.EXE.

### **Installation for Windows NT**

To install the VGA drivers, browse to the directory \INTEL\81XVGA\WINNT4\GRAPHICS; then run SETUP.EXE.

## **INF Files**

This folder has driver updates and patches for the chipset on this mainboard.

### **Installation for Windows 2000/98/98SE/ME/95/NT**



Go to the \INTEL\INST folder and run SETUP.EXE to install the INF driver for your operating system.

This concludes Chapter 4.

## Appendix A

# Setting Jumpers

### Jumper Settings

Jumper	Type	Description	Setting (default)
JP1	3-pin	Clear CMOS	1-2: <i>Normal</i> 2-3: Clear CMOS 
JP2	2-pin	BIOS flash protection	<i>Open: Unlock</i> Short: Lock 

**Jumper 1** – This jumper enables you to clear the BIOS. Refer to the following instructions:

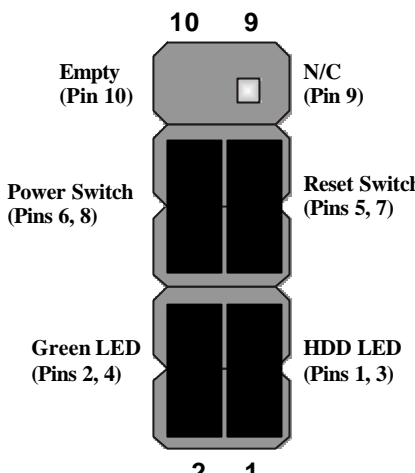
1. Turn the system off.
2. Short pins 2 and 3 on JP1.
3. Return the jumper to the normal setting.
4. Turn the system on. The BIOS is returned to the default settings.

**Jumper 2** – This jumper enables you to prevent the BIOS from being updated (flashed). Set the jumper to unlock to update your BIOS. After updating the BIOS, change it to the locked setting. For instructions on updating the BIOS refer to Chapter 3.

## The Panel Connector

The panel connector provides a standard set of switch and LED connectors usually found on ATX or Micro-ATX cases. Refer to the table below for information:

Device	Pins
Empty	10
N/C	9
Power ON/OFF	6, 8
Reset Switch	5, 7
Green LED Indicator	+2, -4
HDD LED	+1, -3



The diagram shows a 10-pin connector with the following labels:

- Pin 10: Empty (Pin 10)
- Pin 9: N/C (Pin 9)
- Pins 6, 8: Power Switch (Pins 6, 8)
- Pins 5, 7: Reset Switch (Pins 5, 7)
- Pins 2, 4: Green LED (Pins 2, 4)
- Pins 1, 3: HDD LED (Pins 1, 3)

**Note:** The plus sign (+) indicates a pin which must be connected to a positive voltage.