

# Preface

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Version 7.3

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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:

<b>Chapter 1</b> <b>Introducing the Mainboard</b>	Describes features of the mainboard, and provides a shipping checklist.  Go to ⇒ page 1
<b>Chapter 2</b> <b>Installing the Mainboard</b>	Describes installation of mainboard components.  Go to ⇒ page 7
<b>Chapter 3</b> <b>Using BIOS</b>	Provides information on using the BIOS Setup Utility.  Go to ⇒ page 21
<b>Chapter 4</b> <b>Using the Mainboard Software</b>	Describes the mainboard software.  Go to ⇒ page 32

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## TABLE OF CONTENTS

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<b>Preface</b>	<b>i</b>
<b>CHAPTER 1</b>	<b>1</b>
<b>Introducing the Mainboard</b>	<b>1</b>
<i>Introduction</i> .....	1
<i>Checklist</i> .....	1
Standard Items .....	1
<i>Features</i> .....	1
<i>Choosing a Computer Case</i> .....	4
<i>Mainboard Components</i> .....	5
<b>CHAPTER 2</b>	<b>7</b>
<b>Installing the Mainboard</b>	<b>7</b>
<i>Mainboard Installation</i> .....	7
<i>Installing the Processor</i> .....	8
<i>Installing Memory Modules</i> .....	9
<i>Checking Jumper Settings</i> .....	11
<i>Connecting Case Components</i> .....	13
The Panel Connectors .....	14
Floppy Diskette Drive Installation .....	15
IDE Devices .....	15
Installing Add-on Cards .....	16
Connecting Optional Devices .....	17
<i>Connecting I/O Devices</i> .....	19
External Connector Color Coding .....	20
<b>CHAPTER 3</b>	<b>21</b>
<b>Using BIOS</b>	<b>21</b>
<i>About the Setup Utility</i> .....	21
The Standard Configuration .....	21
Entering the Setup Utility .....	22
<i>Using BIOS</i> .....	22
Standard CMOS Features .....	23
Advanced Setup Page .....	24
Power Management Setup Page .....	26
PCI / Plug and Play Setup Page .....	27
Load Optimal Settings .....	28
Load Best Performance Settings .....	28
Features Setup Page .....	28
CPU PnP Setup Page .....	30
Hardware Monitor Page .....	30

<b>CHAPTER 4</b>	<b>31</b>
<b>Using the Mainboard Software</b>	<b>32</b>
<i>About the Software CD-ROM</i> .....	32
<i>Auto-installing under Windows 98/ME/2000/XP</i> .....	32
Running Setup .....	33
<i>Manual Installation</i> .....	35
<i>Utility Software Reference</i> .....	35

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## *Chapter 1*

# Introducing the Mainboard

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### **Introduction**

Thank you for choosing the P4VMM2 mainboard. This mainboard has a Socket 478 for the Intel Pentium 4 type of processors supporting front side bus (FSB) speeds up to 533/400 MHz.

This mainboard incorporates the VIA P4M266/A Northbridge and VT8235 Southbridge chipsets that support AC 97 audio codec, and provide Ultra DMA 133/100/66/33 function. It supports built-in USB 2.0 providing higher bandwidth. It implements Universal Serial Bus Specification Revision 2.0 and is compliant with UHCI 1.1 and EHCI 0.95. This mainboard has two 32-bit PCI slots, one 4xAGP slot, one CNR (Communications and Networking Riser) slot, and an onboard 10BaseT/100BaseTX Network interface (optional). In addition, this mainboard has a full set of I/O ports including two PS/2 ports for mouse and keyboard, one serial port, one VGA port, one parallel port and six USB2.0 ports— four back-panel ports and onboard USB header USB2 providing two extra ports by connecting the Extended USB Module to the mainboard.

This mainboard is a Micro ATX size mainboard and has power connectors for an ATX power supply.

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### **Checklist**

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

#### **Standard Items**

- One mainboard
- One diskette drive ribbon cable
- One IDE drive ribbon cable
- Retention Module
- Software support CD
- This user's manual

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### **Features**

<b>Processor</b>	<p>The P4VMM2 mainboard uses a mPGA478 Socket that has the following features:</p> <ul style="list-style-type: none"> <li>• Accommodates Intel Pentium 4 478-pins CPU</li> <li>• Supports a front-side bus (FSB) of 400/533 MHz</li> </ul>
<b>Chipset</b>	<p>The P4M266/A Northbridge and VT8235 Southbridge in this chipset in accordance with 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>• An advanced V-Link memory controller architecture that provides the bandwidth up to 533 MB/s and performance necessary for even the most demanding Internet and 3D graphics</li> <li>• Support for an 4xAGP interface providing vivid 3D graphics and video performance</li> <li>• An ATA 133 interface on the chipset, which helps boost system performance by providing a high-speed connection to ATA 133 Hard Disk Drives, delivering maximum sustained data transfer rates of 133 MB/sec</li> </ul> <p>Additional key features include support for six USB ports, an AC 97 link for audio and modem, hardware monitoring, and ACPI/OnNow power management.</p>
<b>Memory</b>	<ul style="list-style-type: none"> <li>• The mainboard accommodates two 184-pin, 2.5V DDR DIMM sockets with a total capacity of 2 GB system memory</li> <li>• Supports DDR up to 200/266MHz memory bus</li> </ul>
<b>Built-in Graphics System</b>	<ul style="list-style-type: none"> <li>• P4M266/A integrates S3<sup>®</sup>'s Savag4<sup>™</sup> graphics accelerator into a single chip. P4M266/A brings mainstream graphics performance to the Value PC with leading-edge 2D, 3D and DVD video acceleration into a cost effective package. Based on its capabilities, P4M266/A is an ideal solution for the consumer, corporate mobile users and entry-level professionals</li> <li>• Maximum-shared memory size is 32 MB</li> </ul>
<b>Graphics</b>	<p>This mainboard includes an AGP slot that provides four times the bandwidth of the original AGP specification. AGP technology provides a direct connection between the graphics subsystem and memory so that the graphics do not have to compete for processor time with other devices on the PCI bus.</p>
<b>AC'97 Audio Codec</b>	<ul style="list-style-type: none"> <li>• Compliant with AC'97 2.1 specification</li> <li>• 16-bit stereo full-duplex CODEC with fixed 48KHz sampling rate</li> <li>• 3 analog line-level stereo inputs with 5-bit volume control: LINE-IN, CD-IN, AUX-IN</li> <li>• 1 analog line-level mono input: PHONE-IN</li> <li>• Three Audio Jacks – Line-Out, Line-In and Microphone-In</li> <li>• Sound Blaster, Sound Blaster Pro Compatible</li> <li>• Digital I/O compatible with consumer mode S/PDIF</li> <li>• Advanced power management support</li> </ul>

<b>Expansion Options</b>	<p>The mainboard comes with the following expansion options:</p> <ul style="list-style-type: none"> <li>• Two 32-bit PCI slots capable of Ultra DMA bus mastering</li> </ul>
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	<p>with transfer rates of 33/66/100/133 MB/sec</p> <ul style="list-style-type: none"> <li>• An AGP slot</li> <li>• One CNR (Communications and Networking Riser) slot</li> </ul>
<b>Integrated I/O</b>	<p>The mainboard has a full set of I/O ports and connectors:</p> <ul style="list-style-type: none"> <li>• Two PS/2 ports for mouse and keyboard</li> <li>• One serial port</li> <li>• One VGA port</li> <li>• One parallel port</li> <li>• Six USB2.0 ports (four back-panel ports, onboard USB header providing two extra ports)</li> <li>• Audio jacks for microphone, line-in and line-out</li> </ul>
<b>USB 2.0</b>	<ul style="list-style-type: none"> <li>• Compliant with Universal Serial Bus Specification Revision 2.0</li> <li>• Compliant with Intel's Enhanced Host Controller Interface Specification Revision 0.95</li> <li>• Compliant with Universal Host Controller Interface Specification Revision 1.1</li> <li>• PCI multi-function device consists of two UHCI Host Controller cores for full-/low-speed signaling and one EHCI Host Controller core for high-speed signaling</li> <li>• Root hub consists 4 downstream facing ports with integrated physical layer transceivers shared by UHCI and EHCI Host Controller</li> <li>• Support PCI-Bus Power Management Interface Specification release 1.1</li> <li>• Legacy support for all downstream facing ports</li> </ul>
<b>Built-in Ethernet LAN (optional)</b>	<ul style="list-style-type: none"> <li>• 100Base-TX/10Base-T Physical Layer Solution</li> <li>• Dual Speed – 100/10 Mbps</li> <li>• MII Interface to Ethernet Controller/Configuration &amp; Status</li> <li>• Auto Negotiation: 10/100, Full/Half Duplex</li> <li>• Meet All Applicable IEEE802.3, 10Base-T and 100Base-TX Standards</li> </ul>
<b>BIOS Firmware</b>	<p>This mainboard uses AMI BIOS that enables users to configure many system features including the following:</p> <ul style="list-style-type: none"> <li>• Power management</li> <li>• Wake-up alarms</li> <li>• CPU parameters and memory timing</li> <li>• CPU and memory timing</li> </ul> <p>The firmware can also be used to set parameters for different processor clock speeds.</p>



Some hardware specifications and software items are subject to change without prior notice.

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## **Choosing a Computer Case**

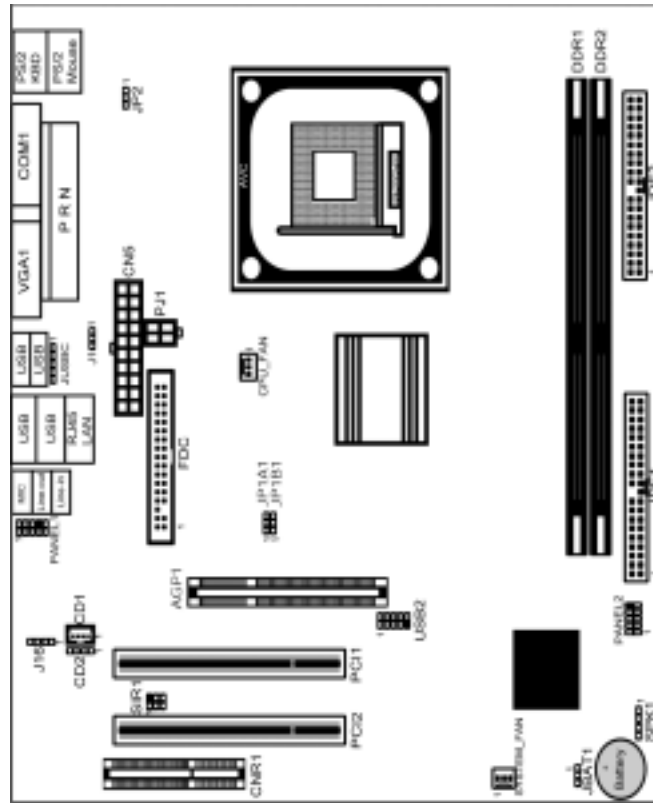
There are many types of computer cases on the market. The mainboard complies with the specifications for the Micro-ATX system case. Some features on the mainboard are implemented by cabling connectors on the mainboard to indicators and switches on the system case. Ensure that your case supports all the features required. The mainboard can support one or two floppy diskette drives 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 244 mm x 200 mm. Choose a case that accommodates this form factor.



## Mainboard Components



## Table of Mainboard Components

Label	Component
AGP1	Accelerated Graphics Port
BAT1	Three volt realtime clock battery
CD1	Primary CD-in connector
CD2	Secondary CD-in connector
CN5	Standard power connector
CNR1	Communications Networking Riser slot
CPU SOCKET	Micro PGA 478-pin socket for Pentium 4 CPUs
CPU_FAN	Cooling fan for CPU
DDR1 ~ DDR2	Two 184-pin DDR memory modules
FDC	Floppy disk drive connector
IDE 1	Primary IDE channel
IDE 2	Secondary IDE channel
J1	USB Card Reader Voltage Selector (VCC)
J16	Onboard LAN LED connector
JBAT1	Clear CMOS jumper
JP1A1/JP1B1	CPU Clock jumper
JP2	Keyboard Power On jumper
JUSBC	USB Card Reader Connector
PANEL1	Connector for headphone or microphone jack front panel
PANEL2	Connector for case front panel switches and LED indicators
PCI1 ~ PCI2	Two 32-bit add-on card slots
PJ1	Auxiliary power connector for Pentium 4 CPUs
SIR1	Serial Infrared cable header
SPK1	Internal speaker connector
SYSTEM_FAN	System fan connector
USB2	Front Panel USB headers

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

## Chapter 2

# Installing the Mainboard

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### Mainboard Installation

To install this mainboard in a system, please follow these instructions in this chapter:

- Identify the mainboard components
- Install a CPU
- Install one or more system memory modules
- Make sure all jumpers and switches are set correctly
- Install this mainboard in a system chassis (case)
- Connect any extension brackets or cables to connecting headers on the mainboard
- Install other devices and make the appropriate connections to the mainboard connecting headers.

**Note:**

1. *Before installing this mainboard, make sure jumper JBAT1 is under Normal setting. See this chapter for information about locating JBAT1 and the setting options.*
2. *Never connect power to the system during installation; otherwise, it may damage the mainboard.*

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## Installing the Processor

This mainboard has a Socket 478 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

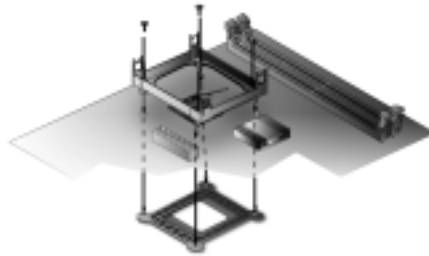
Follow these instructions to install the Retention Module and CPU:

1. Remove the existing retention module (if applicable).
2. Position the backplate against the underside of the mainboard, secure the 4 screws firmly on the retention module.

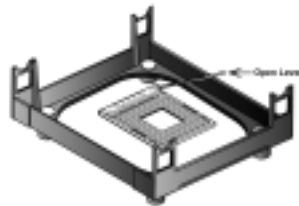
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**Note:** Do not over tighten the screws.

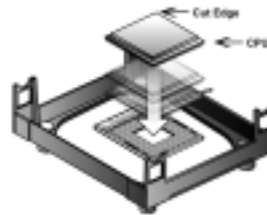
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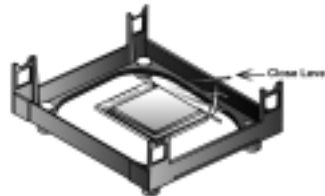
3. Install your CPU. Pull up the lever away from the socket and lift up to 90-degree angle.



4. Locate the CPU cut edge (the corner with the pinhole noticeably missing). Align and insert the CPU correctly.



5. Press the lever down.



6. Apply thermal grease on top of the CPU.

7. Put the CPU Fan down on the retention module and snap the four retention legs of the cooling fan into place.



8. Flip the levers over to lock the heat sink in place.

9. Connect the CPU Cooling Fan power cable to the CPUFAN1 connector. This completes the installation.



- Notes:**
- To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 4800 rpm at least.
  - CPU fan and heatsink installation procedures may vary with the type of CPU fan/heatsink supplied. The form and size of fan/heatsink may also vary.

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## Installing Memory Modules

This mainboard accommodates two 184-pin 2.5V unbuffered Double Data Rate SDRAM (DDR SDRAM) Dual Inline Memory Module (DIMM) sockets, and supports up to 2.0 GB of 200/266 MHz DDR SDRAM.

DDR SDRAM is a type of SDRAM that supports data transfers on both edges of each clock cycle (the rising and falling edges), effectively doubling the memory chip's data throughput. DDR DIMMs can synchronously work with 100 MHz or 133 MHz memory bus.

DDR SDRAM provides 1.6 GB/s or 2.1 GB/s data transfer rate depending on whether the bus is 100 MHz or 133 MHz. DDR SDRAM uses additional power and ground lines and requires 184-pin 2.5V unbuffered DIMM module.



Do not remove any memory module from its antistatic packaging until you are ready to install it on the mainboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.

## Installation Procedure

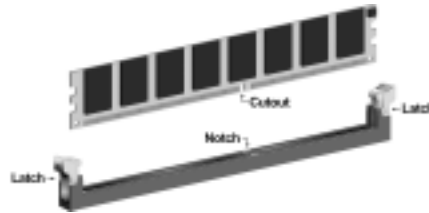
Refer to the following to install the memory modules.

1. This mainboard supports unbuffered DDR SDRAM only. Do not attempt to insert any other type of DDR SDRAM into the slots.

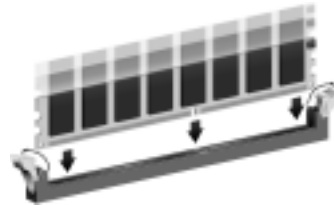


2. Push the latches on each side of the DIMM slot down.

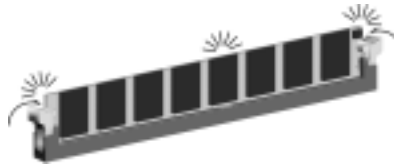
3. Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.



4. Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.



5. 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.



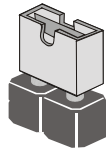
6. Install any remaining DIMM modules.

## Checking Jumper Settings

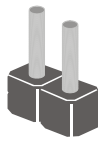
Use the mainboard jumpers to set system configuration options. Jumpers with more than one pin are numbered. When setting the jumpers, ensure that the jumper caps are placed on the correct pins.

The illustrations below show 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**.

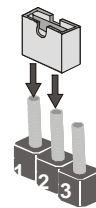
This illustration shows a 3-pin jumper. Pins 1 and 2 are **SHORT**.



Short

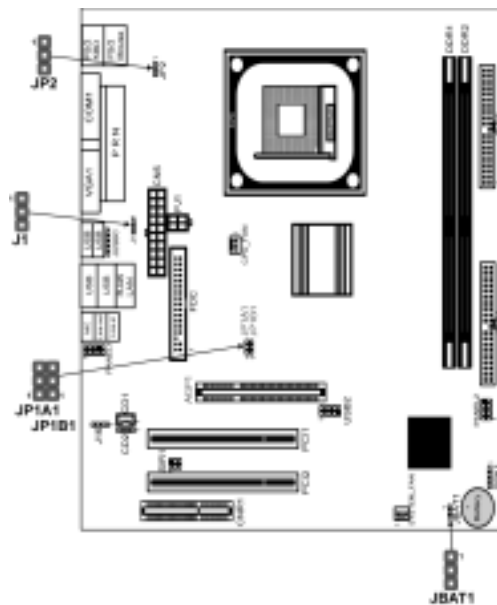


Open



## Setting Jumpers

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



#### **JBAT1: Clear CMOS Jumper**

This jumper is to clear the contents of CMOS memory. You may need to clear the CMOS memory if the settings in the Setup Utility are incorrect that prevents your mainboard from operating. To clear the CMOS memory, disconnect all the power cables from the mainboard and then move the jumper cap into the CLEAR setting for a few seconds.

<b>Function</b>	<b>Jumper Setting</b>
Normal	Short Pins 1-2
Clear CMOS	Short Pins 2-3

#### **JP1A1, JP1B1: CPU Clock**

This jumper enables to select CPU frequency.

<b>CPU Clock</b>	<b>JP1A1</b>	<b>JP1B1</b>
100M	Short Pins 1-2	Short Pins 2-3
133M	Short Pins 2-3	Short Pins 1-2

#### **JP2: Keyboard Power On**

This jumper enables any keyboard activity to power up a system previously in a standby or sleep state.

<b>Function</b>	<b>Jumper Setting</b>
5V	Short Pins 1-2
5VSB	Short Pins 2-3

#### **J1: USB Card Reader Voltage Selector (VCC)**

This jumper enables to select voltage of the USB Card Reader.

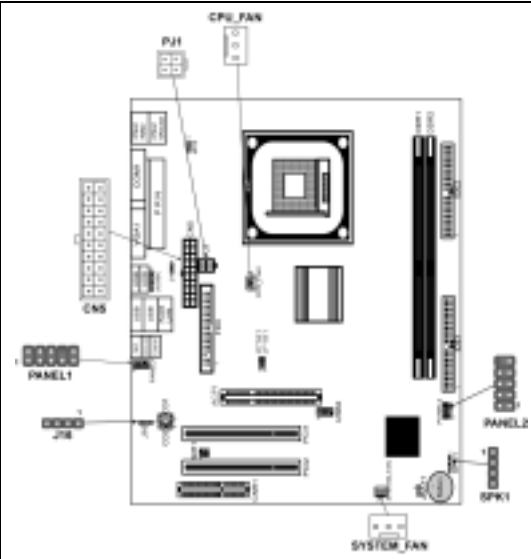
<b>Function</b>	<b>Jumper Setting</b>
5V	Short Pins 1-2
5VSB	Short Pins 2-3



## 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 Pentium 4 processor auxiliary case power supply connector to **PJ1**.
2. Connect the standard power supply connector to **CN5**.
3. Connect the CPU cooling fan cable to **CPU\_FAN**.
4. Connect the case cooling fan connector to **SYSTEM\_FAN**.
5. Connect the case speaker cable to **SPK1**.
6. Connect the case LAN LED cable to **J16**.
7. Connect the case switches and indicator to **PANEL1/PANEL2**.



### PJ1: ATX 12V Power Connector

Pin	Signal Name
1	+12V
2	+12V
3	Ground
4	Ground

### CN5: ATX 20-pin Power Connector

Pin	Signal Name	Pin	Signal Name
1	+3.3V	11	+3.3V
2	+3.3V	12	-12V
3	Ground	13	Ground
4	+5V	14	PS ON#
5	Ground	15	Ground
6	+5V	16	Ground
7	Ground	17	Ground
8	PWRGD	18	+5V
9	+5VSB	19	+5V
10	+12V	20	+5V

### CPU\_FAN1/SYSTEM\_FAN: FAN Power Connectors

Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor

### SPK1: Internal speaker

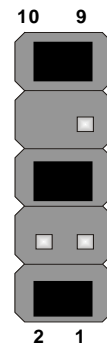
Pin	Signal Name
1	SPKR
2	NC
3	GND
4	+5V

## The Panel Connectors

### PANEL1

If there is a headphone jack or a microphone jack on the front panel, connect the cables to the PANEL1 on the mainboard.

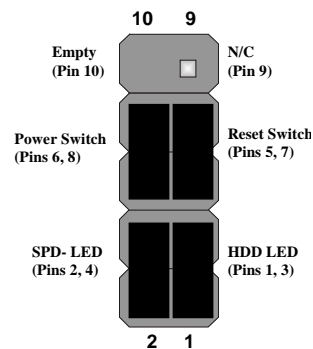
Pin	Signal Name	Pin	Signal Name
1	MIC IN	2	GND
3	VCCMIC	4	+5V AUDIO
5	LINE OUT (R)	6	LINE OUT (R)
7	NC	8	EMPTY
9	LINE OUT (L)	10	LINE OUT (L)



### PANEL2

This panel connector provides a set of switch and LED connectors found on ATX case. Refer to the table below for information.

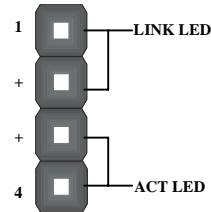
Pin	Signal Name	Pin	Signal Name
+1	HDD LED	+2	SPD-LED Indicator
-3	HDD LED	4	SPD-LED Indicator
5	Reset Switch	6	POWER ON/OFF
7	Reset Switch	8	POWER ON/OFF
9	NC	10	EMPTY



### J16: LAN LED Indicator

This connector is attached to LAN device that needs a LED indicator.

Device	Pins
Link LED	1, +2
ACT LED	+3, 4



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

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## Floppy Diskette Drive Installation

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.

## 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 to set the IDE device as MASTER or SLAVE. When installing two IDE devices on one cable, ensure that one device is set to MASTER and the other one to SLAVE.

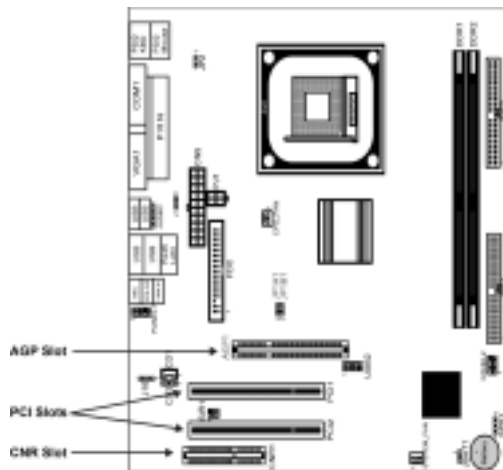
This mainboard supports Ultra DMA 66/100/133. UDMA is a technology to accelerate devices' performance in the IDE channel. To maximize performance, install IDE devices that support UDMA and use 80-pin IDE cables supporting UDMA 66/100/133.

## About UltraDMA

This mainboard supports UltraDMA 66/100/133. UDMA is a technology that accelerates the performance of devices in the IDE channel. To maximize performance, install IDE devices that support UDMA and use 80-pin IDE cables that support UDMA 66/100/133.

## Installing Add-on Cards

The slots in this mainboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the mainboard's features and capabilities. With these efficient facilities, you can increase the mainboard's capabilities by adding hardware which performs tasks that are not part of the basic system.



- PCI Slots** PCI slots are used to install expansion cards that have the 32-bit PCI interface.
- AGP Slot** The AGP slot is used to install a graphics adapter that supports the 4xAGP specification and has a 4xAGP edge connector.
- 
- Note:** The above layout is for reference only. The AGP slot may be different from your mainboard. Please refer to actual shipment.
- 
- CNR Slot** This slot is used to insert CNR cards with Modem and Audio functionality.
- 
- 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.
- 

Follow these instructions to install an add-on card:

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.

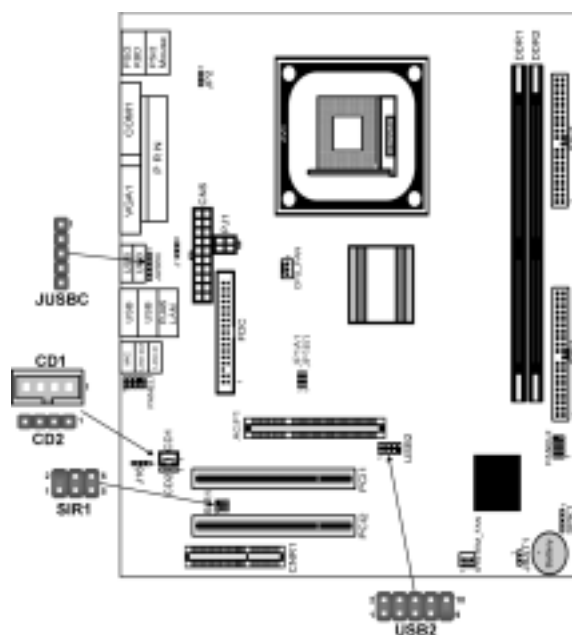
---

**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 mainboard's optional devices:



### USB2: Front panel USB ports

The mainboard has USB ports installed on the rear edge I/O port array. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB connectors USB2 to connect the front-mounted ports to the mainboard.

Pin	Signal Name	Function
1	VREG_FP_USBPWR0	Front Panel USB Power
2	VREG_FP_USBPWR0	Front Panel USB Power
3	USB_FP_P0-	USB Port 0 Negative Signal
4	USB_FP_P1-	USB Port 1 Negative Signal
5	USB_FP_P0+	USB Port 0 Positive Signal
6	USB_FP_P1+	USB Port 1 Positive Signal
7	GND	Ground
8	GND	Ground
9	KEY	No pin
10	USB_FP_OC0	Overcurrent signal

**Note:** Please make sure that the USB cable has the same pin assignment as indicated above. A different pin assignment may cause damage or system hang-up.

## SIR1: Serial infrared port

The mainboard supports a Serial Infrared (IR1) data port. Infrared ports allow the wireless exchange of information between your computer and similarly equipped devices such as printers, laptops, Personal Digital Assistants (PDAs), and other computers.

Pin	Signal Name	Function
1	Not assigned	Not assigned
2	KEY	No pin
3	+5V	IR Power
4	GND	Ground
5	IRTX	IrDA serial output
6	IRRX	IrDA serial input

## JUSBC: USB Card Reader Connector

This connector is for connecting internal USB card reader. You can use a card reader to read or transfer files and digital images to your computer.

Pin	Signal Name
1	VCC
2	USB-
3	USB+
4	GND
5	KEY

---

**Note:** The JUSBC is shared with one of the USB ports of the I/O back panel. The USB port is located beside the serial port connectors. See "I/O Ports" for more information.

---



Please check the pin assignment of the cable and the USB header on the mainboard. Make sure the pin assignment will match before plugging in. Any incorrect usage may cause unexpected damage to the system.

## CD1/CD2: CD-ROM/DVD Audio Input Connector

If you have installed a CD-ROM drive or DVD-ROM drive, you can connect the drive audio cable to the onboard sound system.

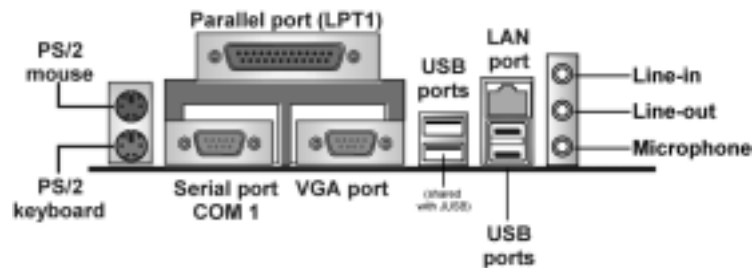
On the mainboard, locate the two 4-pin connectors **CD1** and **CD2**.

There are two kinds of connector because different brands of CD-ROM drive have different kinds of audio cable connectors. Connect the cable to the appropriate connector.

CD1		CD2	
Pin	Signal Name	Pin	Signal Name
1	GND	1	CD IN L
2	CD IN L	2	GND
3	GND	3	GND
4	CD IN R	4	CD IN R

## 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>LPT1</b>	Use LPT1 to connect printers or other parallel communications devices.
<b>COM1 Port</b>	Use the COM ports to connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM1.
<b>VGA Port</b>	Use the VGA port to connect VGA devices.
<b>Audio Ports</b>	Use the three audio ports to connect audio devices. The first jack is for stereo line-in signal. The second jack is for stereo line-out signal. The third jack is for microphone.
<b>LAN Port (optional)</b>	Connect an RJ-45 jack to the LAN port to connect your computer to the Network.
<b>USB Ports</b>	Use the USB ports to connect USB devices.

**Note:** The lower USB port located beside the VGA port is shared with the JUSBC connector.

## External Connector Color Coding

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

<b>Connector</b>	<b>Color</b>
Audio line-in	Light blue
Audio line-out	Lime
Digital monitor/flat panel	White
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
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 AMI 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 BIOS Setup Utility:

AMBIOS SIMPLE SETUP UTILITY – VERSION 1.21.06  
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Standard CMOS Setup	Features Setup
Advanced Setup	CPU PnP Setup
Power Management Setup	Hardware Monitor
PCI / Plug and Play Setup	Change Password
Load Optimal Settings	Exit
Load Best Performance Settings	
Esc : Quit    ↑ ↓ ← →: Select Item (Shift)F2 : Change Color    F5 : Old Values F6 : Optimal values    F7 : Best performance values    F10 : Save&Exit	
Standards COMOS setup for changing time, date, hard disk type, etc.	

## 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

## 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.

AMIBIOS SETUP – STANDARD CMOS SETUP										
©2000 American Megatrends, Inc. All Rights Reserved										
Date (mm/dd/yy) : Mon Nov 04, 2002										
Time (hh/mm/ss) : 15:28:50										
	Type	Size	Cyln	Head	WPcom	Sec	LBA Mode	Blk Mode	PIO Mode	32Bit Mode
Pri Master	: Auto									On
Pri Slave	: Auto									On
Sec Master	: Auto									On
Sec Slave	: Auto									On
Floppy Drive A : 1.44 MB 31/2										
Floppy Drive B : Not Installed										
Month : Jan – Dec					ESC : Exit					
Day : 01 – 31					↑↓ : Select Item					
Year : 1901 – 2099					PU/PD/+/- : Modify					
					(Shift)F2 : Color					
					F3 : Detect All HDD					

### 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 Pri Master/Pri Slave/Sec Master/Sec Slave

Use these items to configure devices connected to the Primary and Secondary IDE channels. To configure an IDE hard disk drive, choose *Auto*. If the *Auto* setting fails to find a hard disk drive, set it to *User*, and then fill in the hard disk characteristics (Size, Cyls, etc.) manually. If you have a CD-ROM drive, select the setting *CDROM*. If you have an ATAPI device with removable media (e.g. a ZIP drive or an LS-120), select *Floptical*.

### Floppy Drive A/Floppy Drive B

Use these items to set up size and capacity of the floppy diskette drive(s) installed in the system.

## Advanced Setup Page

This option defines advanced information about your system.

AMBIOS SETUP – ADVANCED SETUP  
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Quick Boot	Enabled	AGP Aperture Size	64MB
1 <sup>st</sup> Boot Device	IDE-0	Auto detect DIMM/PCI Clk	Enabled
2 <sup>nd</sup> Boot Device	Floppy	CLK Gen Spread Spectrum	Disabled
3 <sup>rd</sup> Boot Device	CDROM	Hyper Threading Function	Disabled
Try Other Boot Devices	Yes		
S.M.A.R.T. for Hard Disks	Disabled		
BootUp Num-Lock	On		
Floppy Drive Swap	Disabled		
Floppy Drive Seek	Disabled		
Password Check	Setup		
Boot To OS/2	No	ESC : Quit	↑↓←→ : Select Item
L2 Cache	Enabled	F1 : Help	PU/PD/+/- : Modify
System BIOS Cacheable	Enabled	F5 : Old Values (Shift)	F2 : Color
SDRAM Timing by SPD	Disables	F6 : Load BIOS Defaults	
SDRAM Frequency	100MHz	F7 : Load Setup Defaults	
SDRAM CAS# Latency	2.5		
SDRAM Bank Interleave	Disabled		
AGP Mode	4X		
AGP Comp. Driving	Auto		
Manual AGP Comp. Driving	CB		

### Quick Boot

If you enable this item, the system starts up more quickly by elimination of some of the power on test routines.

### 1<sup>st</sup> Boot Device/2<sup>nd</sup> Boot Device/3<sup>rd</sup> Boot Device

Use these items to determine the device order the computer uses to look for an operating system to load at start-up time.

### Try Other Boot Device

If you enable this item, the system will also search for other boot devices if it fails to find an operating system from the first two locations.

### S.M.A.R.T. for Hard Disks

Enable this item if any IDE hard disks support the S.M.A.R.T. (Self-Monitoring, Analysis and Reporting Technology) feature.

### BootUp Num-Lock

This item determines if the Num Lock key is active or inactive at system start-up time.

### Floppy Drive Swap

If you have two diskette drives installed and you enable this item, drive A becomes drive B and drive B becomes drive A.

### Floppy Drive Seek

If you enable this item, your system will check all floppy disk drives at start up. Disable this item unless you are using an old 360KB drive.

### **Password Check**

If you have entered a password for the system, use this item to determine, if the password is required to enter the Setup Utility (*Setup*) or required both at start-up and to enter the Setup Utility (*Always*).

### **Boot to OS/2 > 64MB**

Enable this item if you are booting the OS/2 operating system and you have more than 64MB of system memory installed.

### **L2 Cache**

Leave these items enabled since all the processors that can be installed on this board have internal L2 cache memory.

### **System BIOS Cacheable**

If you enable this item, a segment of the system BIOS will be copied to main memory for faster execution.

### **DOS Flat Mode**

This item enables BIOS to enter the DOS protected mode without other software supporting under the DOS operating system. We recommend you leave this item at the default value.

### **SDRAM Timing By SPD**

This item allows you to enable or disable the SDRAM timing defined by the Serial Presence Detect electrical.

### **SDRAM Frequency**

This item determines frequency of SDRAM memory.

### **SDRAM CAS# Latency**

This item determines the operation of SDRAM memory CAS (column address strobe). It is recommended that you leave this item at the default value. The 2T setting requires faster memory that specifically supports this mode.

### **SDRAM Bank Interleave**

Enable this item to increase SDRAM memory speed. When enabled, separate memory banks are set for odd and even addresses and the next byte of memory can be accessed while the current byte is being refreshed.

### **AGP Comp. Driving**

Use this item to signal driving current on AGP cards to auto or manual. Some AGP cards need stronger than normal driving current in order to operate. We recommend that you set this item to the default.

### **Manual AGP Comp. Driving**

When AGP Driving is set to Manual, use this item to set the AGP current driving value.

### **AGP Mode**

This item provides the OnBoard VGA mode with three options of 1,2, 4 multiplied frequency.

### AGP Aperture Size

This item defines an AGP for the graphics. Leave this item at the default value 64MB.

### Auto detect DIMM/PCI Clock

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

### CLK GEN Spread Spectrum

Use this item to set the system bus spread spectrum for the installed processor.

### Hyper Threading Function

This item is dependent when your system supports the Hyper-Threading technology. If your system does not have the Hyper-Threading technology installed, this item is hidden.

## Power Management Setup Page

This page sets up some parameters of system power management operation.

AMIBIOS SETUP – POWER MANAGEMENT SETUP  
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ACPI Aware O/S	Yes	
Power Management	Enabled	
Suspend Time Out	Disabled	
Hard Disk Time Out	Standby	
Resume On RTC Alarm	Disabled	
RTC Alarm Date	15	
RTC Alarm Hour	12	
RTC Alarm Minute	30	
RTC Alarm Second	30	
LAN/Ring Power On	Disabled	
Keyboard Power On	Disabled	
Wake-Up Key	Any key	
Wake-Up Password	N/A	
		ESC : Quit      ↑↓←→ : Select Item
		F1 : Help      PU/PD/+/- : Modify
		F5 : Old Values (Shift)F2 : Color
		F6 : Load BIOS Defaults
		F7 : Load Setup Defaults

### ACPI Aware O/S

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

### Power Management

Use this item to enable or disable a power management scheme. If you enable power management, you can use the items below to set the power management operation. Both APM and ACPI are supported.

### Suspend Time Out

This sets the timeout for Suspend mode in minutes. If the time selected passes without any system activity, the computer will enter power-saving Suspend mode.

### Hard Disk Time Out

This item sets up the timeout to power down the hard disk drive, if there is no hard disk activity after passing the preset period of time.

### Resume On RTC Alarm / Date / Hour / Minute / Second

The system can be turned off with a software command. If you enable this item, the system can automatically resume at a fixed time based on the system's RTC (realtime clock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.

### LAN/Ring Power On

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the Modem. You must use an ATX power supply in order to use this feature.

### Keyboard Power On /Wake-Up Key/Wake-Up/ Password

If you enable this item, system can automatically resume by pressing hot keys on the keyboard or typing in the password. You must enable the Keyboard Power On jumper and use an ATX power supply in order to use this feature.

## PCI / Plug and Play Setup Page

This page sets up some parameters for devices installed on the PCI bus and those utilizing the system plug and play capability.

AMIBIOS SETUP – PCI / PLUG AND PLAY SETUP  
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Plug and Play Aware O/S	Yes	
Share Memory Size	32MB	
Primary Graphics Adapter	PCI	
Allocate IRQ for PCI VGA	Yes	
PCI IDE BusMaster	Disabled	
		ESC : Quit      ↑↓←→ : Select Item
		F1 : Help      PU/PD/+/- : Modify
		F5 : Old Values (Shift)F2 : Color
		F6 : Load BIOS Defaults
		F7 : Load Setup Defaults

### Plug and Play Aware O/S

Enable this item if you are using an O/S that supports Plug and Play such as Windows 95 or 98.

### Share Memory Size

This item lets you allocate a portion of the main memory for the onboard VGA display application with three options of 8/16/32MB.

### Primary Graphics Adapter

This item indicates if the primary graphics adapter uses the PCI or the AGP bus. The default PCI setting still lets the onboard display work and allows the

use of a second display card installed in a PCI slot.

### Allocate IRQ for PCI VGA

If this item is enabled, an IRQ will be assigned to the PCI VGA graphics system. You set this value to No to free up an IRQ.

### PCI IDE BusMaster

This item enables or disables the DMA under DOS mode. We recommend you to leave this item at the default value.

## Load Optimal Settings

If you select this item and press **Enter** a dialog box appears. If you press **Y**, and then **Enter**, the Setup Utility loads a set of fail-safe default values. These default values are not very demanding and they should allow your system to function with most kinds of hardware and memory chips.

Note: It is highly recommended that users enter this option to load optimal values for accessing the best performance.

## Load Best Performance Settings

If you select this item and press **Enter** a dialog box appears. If you press **Y**, and then **Enter**, the Setup Utility loads a set of best-performance default values. These default values are quite demanding and your system might not function properly if you are using slower memory chips or other low-performance components.

## Features Setup Page

This page sets up some parameters for those peripheral devices connected to the system.

AMIBIOS SETUP – FEATURES SETUP  
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OnBoard FDC	Enabled	
OnBoard Serial PortA	3F8h/COM1	
OnBoard IR Port	Disabled	
OnBoard Parallel Port	378h	
Parallel Port Mode	SPP	
Parallel Port IRQ	7	
Parallel Port DMA	N/A	
OnBoard Game Port	201h	
OnBoard MIDI Port	300h	ESC : Quit    ↑↓←→ : Select Item
MIDI Port IRQ	10	F1 : Help    PU/PD/+/- : Modify
OnBoard IDE	Both	F5 : Old Values (Shift)F2 : Color
Audio Device	Enabled	F6 : Load BIOS Defaults
Modem Device	Auto	F7 : Load Setup Defaults
Ethernet Device	Enabled	
USB Controller	Enabled	
USB Device Legacy Support	Disabled	
ThumbDrive Support for DOS	Disabled	



**OnBoard FDC**

Use this item to enable or disable the onboard floppy disk drive interface.

**OnBoard Serial PortA**

Use this item to enable or disable the onboard COM1 serial port, and to assign a port address.

**OnBoard IR Port**

Use this item to enable or disable the onboard infrared port, and to assign a port address.

**Parallel Port Mode**

Use this item to set the parallel port mode. You can select SPP (Standard Parallel Port), ECP (Extended Capabilities Port), EPP (Enhanced Parallel Port), or ECP + EPP.

**Parallel Port IRQ**

Use this item to assign IRQ to the parallel port.

**Parallel Port DMA**

Use this item to assign a DMA channel to the parallel port.

**OnBoard Game Port**

This item enables or disables the I/O address for the game port.

**OnBoard MIDI Port**

Use this item to enable or disable the onboard MIDI port, and to assign a port address.

**MIDI Port IRQ**

Use this item to assign IRQ 7 to the parallel port.

**OnBoard IDE**

Use this item to enable or disable the onboard IDE channel.

**Audio Device**

This item enables or disables the AC'97 audio chip.

**Modem Device**

This item enables or disables the MC'97 modem chip.

**Ethernet Device**

This item enables or disables the onboard Ethernet LAN.

**USB Controller**

Use this item to select the USB ports or disabled.

**USB Device Legacy Support**

This item allows you to enable the USB device, if you have installed a USB device on the system board.

### ThumbDrive Support For DOS

Enable this item to make a small portion of memory storage device for the USB ports.

## CPU PnP Setup Page

This page helps you manually configure the mainboard for the CPU. The system will automatically detect the type of installed CPU and make the appropriate adjustments to the items on this page.

AMIBIOS SETUP – CPU PnP SETUP  
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CPU BRAND	INTEL	
CPU Type	Pentium 4	
CPU Ratio	8.0x	
CPU Frequency	100 MHz	
		ESC : Quit      ↑↓←→ : Select Item
		F1 : Help      PU/PD/+/- : Modify
		F5 : Old Values (Shift)F2 : Color
		F6 : Load BIOS Defaults
		F7 : Load Setup Defaults

### CPU BRAND/Type/ Core Voltage/Ratio /Frequency

These items show the type, core voltage, ratio and frequency of CPU installed in your system.

## Hardware Monitor Page

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

AMIBIOS SETUP – HARDWARE MONITOR  
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*** System Hardware ***		
Vcore	1.632V	
Vcc 2.5V	2.496V	
Vcc 3.3V	3.392V	
Vcc 5V	4.945V	
+12V	12.032V	
-12V	-11.968V	
SB5V	5.026V	
VBAT	3.488V	ESC : Quit      ↑↓←→ : Select Item
SYSTEM Fan Speed	0 RPM	F1 : Help      PU/PD/+/- : Modify
CPU Fan Speed	1308 RPM	F5 : Old Values (Shift)F2 : Color
Power Temperature	33°C/91°F	F6 : Load BIOS Defaults
SYSTEM Temperature	39°C/102°F	F7 : Load Setup Defaults
CPU Temperature	62°C/143°F	

### **CPU / System Temperature**

These items display CPU and system temperature measurement.

### **FANS & Voltage Measurements**

These items indicate cooling fan speeds in RPM and the various system voltage measurements.

### **Change Password**

If you highlight this item and press Enter, a dialog box appears that you can enter a Supervisor password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. There will be the second dialog box asking you to retype the password for confirmation. Press Enter after you have retyped it correctly. Then, the password is required for the access to the Setup Utility or for it at start-up, depending on the setting of the Password Check item in Advanced Setup.

### **Exit**

Highlight this item and press Enter to save the changes that you have made in the Setup Utility configuration and exit the program. When the Save and Exit dialog box appears, press Y to save and exit, or press N to exit without saving.

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/ME/2000/XP

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/ME/2000/XP. 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 Tab

<b>Setup</b>	Click the <b>Setup</b> button to run the software installation program. Select from the menu which software you want to install.
<b>Browse CD</b>	<p>The <b>Browse CD</b> button is the standard Windows command that allows you to open Windows Explorer and show the contents of the support CD.</p> <p>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.</p> <p>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.</p> <p>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.</p>
<b>Exit</b>	The <b>Exit</b> button closes the Auto Setup window.

## Application Tab

Lists the software utilities that are available on the CD.

## Read Me Tab

Displays the path for all software and drivers available on the CD.

## Running Setup

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

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



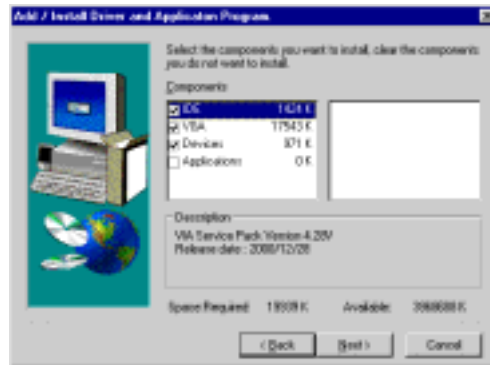
---

**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 box next to the items you want to install. The default options are recommended.
4. Click **Next** 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 on-screen instructions, confirm commands and allow the computer to restart a few times to complete the installation.

---

## Manual Installation

Insert the CD in the CD-ROM drive and locate the PATH.DOC file in the root directory. This file contains the information needed to locate the drivers for your mainboard.

Look for the chipset and mainboard model; then browse to the directory and path to begin installing the drivers. Most drivers have a setup program (SETUP.EXE) that automatically detects your operating system before installation. Other drivers have the setup program located in the operating system subfolder.

If the driver you want to install does not have a setup program, browse to the operating system subfolder and locate the readme text file (README.TXT or README.DOC) for information on installing the driver or software for your operating system.

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## Utility Software Reference

All the utility software available from this page is Windows compliant. They are provided only for the convenience of the customer. The following software is furnished under license and may only be used or copied in accordance with the terms of the license.

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**Note:** These software(s) are subject to change at anytime without prior notice.  
Please refer to the support CD for available software.

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### 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 version of the BIOS to the chip. Proceed with caution when using 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. Refer to Chapter 3, *Using BIOS* for more information.

### WinFlash Utility

The Award WinFlash utility is a Windows version of the DOS Award BIOS flash writer utility. The utility enables you to flash the system BIOS stored on a Flash Memory chip on the mainboard while in a Windows environment. This utility is currently available for WINXP\ME\2000\98SE. To install the WinFlash utility, run WINFLASH.EXE from the following directory:

UTILITY\WINFLASH 1.51

### PC-CILLIN 2002

The PC-CILLIN 2002 software program provides anti-virus protection for your system. This program is available for Windows 2000/ME/98SE/XP and Windows NT. Be sure to check the readme.txt and install the appropriate anti-virus software for your operating system.

We strongly recommend users to install this free anti-virus software to help protect your system against viruses.

### **MediaRing Talk – Telephony Software**

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 – Fax/Modem Software**

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

### **PageABC**

The PageABC application software enables you to create your very own home page. To install the PageABC, go to the directory \UTILITYPageABC, and then run SETUP.EXE to install the application software.

This concludes Chapter 4.