Preface

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Version 1.1L

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- 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 Réglement sur le matériel brouilieur 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 5
Chapter 3 **Using BIOS**	Provides information on using the BIOS Setup Utility. Go to ⟹ page 24
Chapter 4 **Using the Mainboard Software**	Describes the mainboard software. Go to ⟹ page 36

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Introducing the Mainboard

Introduction

Congratulations on purchasing the P4IBASD mainboard. This mainboard has a **Socket-478** support for **Intel Pentium4** processors with system bus (FSB) speeds up to **400 MHz.**

This mainboard has the **Intel 845D** chipset that contains Intel 82845 Memory Controller Hub and Intel 82801BA I/O Controller Hub. It supports **AC 97 audio codec** and provides **Ultra DMA** 33/66/**100** function. This mainboard has five 32-bit PCI, one 4x**AGP** and one **CNR** (Communications and Networking Riser) slot. There is an onboard **10BaseT/100BaseTX Network** interface.

This mainboard also has a chipset **VIA VT6202** supporting the auxiliary **USB 2.0**, which provides higher bandwidth and is backward compatible with USB1.1. It implements **Universal Serial Bus Specification Revision 2.0** and is compliant with **UHCI 1.1** and **EHCI 0.95**. There is a full set of I/O ports including two PS/2 ports for mouse and keyboard, two serial ports, one parallel port, one MIDI/game port and maximum six USB ports (**two back-panel USB 2.0** ports, onboard USB headers providing maximum four extra ports: header **JUSB2 for USB 2.0** and header **USB2 for USB 1.1**). By means of the Extended USB Module connected to the mainboard, you can make maximum six extra USB ports.

This mainboard is an **ATX** mainboard that uses a 4-layer printed circuit board and measures 305 x 244mm.

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
- Software support CD
- One Retention module
- The User's Manual

Features

Processor	• The mPGA Socket 478 • Supports **Intel Pentium 4 series** CPUs • Supports up to 400 MHz system Bus
Memory	• Two 168-pin DIMM slots for SDRA M memory modules • Two 184-pin DIMM slots for DDR SDRAM memory modules • Support SDRAM up to 133 MHz/DDR up to 266 MHz memory bus • Maximum installed memory is 2GB **Note:** You cannot use SDRAM and DDR simultaneously.
Expansion Slots	• Four 32-bit PCI Master slots (PCI 2~5) and one Slave slot (PCI 1) • Supports IDE Ultra DMA bus mastering with transfer rates of 33/66/100 MB/sec • One 4xAGP slot • One CNR (Communications and Networking Riser) slot
Onboard IDE channels	• Primary and Secondary PCI IDE channels • Support for PIO (programmable input/output) modes • Support for Multiword DMA modes • Support for Bus Mastering and Ultra DMA 33/**66**/**100** modes
AC' 97 Audio Codec	The AC 97 Audio codec is compliant with the AC 97 2.2 specification, and 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.
Built-in Ethernet LAN (optional)	• Built-in 10BaseT/100BaseTX Ethernet LAN • Integrated Fast Ethernet MAC and full compliance with IEEE 802.3u 100 Base-T specifications and IEEE 802.3x Full Duplex Flow Control • In compliance with ACPI 1.0 and the Network Device Class Power Management 1.0 • High Performance achieved by 100Mbps clock generator and data recovery circuit for 100Mbps receiver
Onboard I/O Ports	• Two PS/2 ports for mouse and keyboard • Two serial ports • One parallel port • One MIDI/game port • Six USB ports (two back-panel USB 2.0 ports, onboard USB headers providing maximum four extra ports: header JUSB2 for USB 2.0 and header USB2 for USB 1.1) • Audio jacks for microphone, line-in and line-out
USB 2.0	• Compliant with Universal Serial Bus Specification Revision 2.0 • Compliant with Intel's Enhanced Host Controller Interface Specification Revision 0.95 • Compliant with Universal Host Controller Interface Specification Revision 1.1

	• 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 • Root hub consists 4 downstream facing ports with integrated physical layer transceivers shared by **UHCI** and **EHCI** Host Controller • Support PCI-Bus Power Management Interface Specification release 1.1 • Legacy support for all downstream facing ports
BIOS Firmware	This mainboard uses AMI BIOS that enables users to config-ure many system features including the following: • Power management • Wake-up alarms • CPU parameters and memory timing • CPU and memory timing The firmware can also be used to set parameters for different processor clock speeds.
Dimensions	ATX form factor of 305 x 244mm

Choosing a Computer Case

There are many types of computer cases on the market. The mainboard com-plies with the specifications for the ATX system case. Some features on the mainboard are implemented by cabling connectors on the mainboard to indi-cators 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 an ATX form factor of 305 x 244 mm. Choose a case that accommodates this form factor.

This concludes Chapter 1. The next chapter explains how to install the main-board.

Mainboard Components
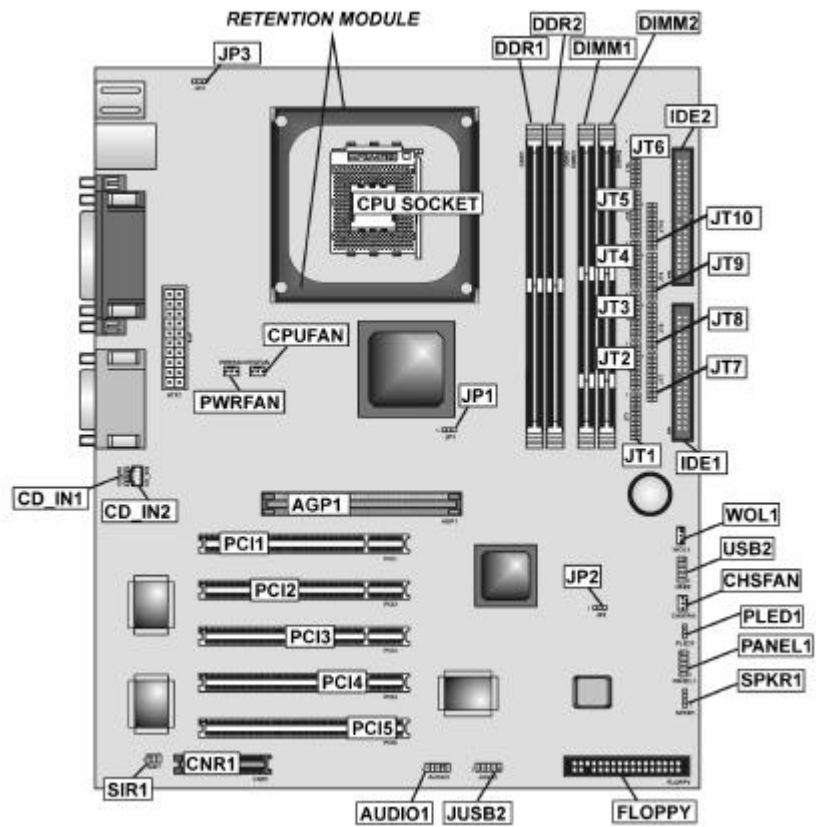
Safety Precautions

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.

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:

Installing the Mainboard in a Case

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

This illustration shows an example of a mainboard being installed in a tower-type case: **Note:** Do not overtighten the screws as this can stress the mainboard. 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.	2. Secure the mainboard with screws where appropriate. 1. Place the mainboard over the mounting brackets.

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

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.

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**

6
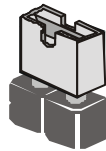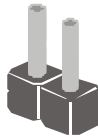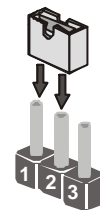
Checking Jumper Settings

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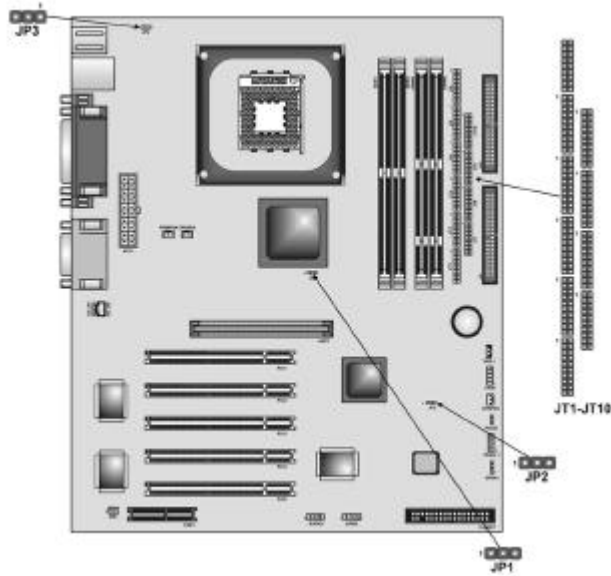
Jumper Settings

Jumper	Type	Description	Setting (*default*)	
JP1	3-pin	DDR/SDR DRAM Type Selector	*Short 1-2: SDRAM* Short 2-3: DDR	**JP1**
JP2	3-pin	Clear CMOS jumper	*Short 1-2: Normal* Short 2-3: Clear CMOS	**JP2**
JP3	3-pin	Keyboard Power On	*Short 1-2: Disabled* Short 2-3: Enabled	**JP3**

			JT1 ~ JT10
JT1 ~ JT10	20-pin	DDR/SDR DRAM Type Selector	*Open all JT1~JT10 pins: SDRAM* Short all JT1~JT10 pins: DDR

JP1: DDR/SDR DRAM Type Selector

This jumper enables to select DDR or SDR DRAM type.

JP2: 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. This jumper enables you to reset BIOS.

JP3: Keyboard Power On

This jumper enables any keyboard activity to power up a system previously in a standby or sleep state.
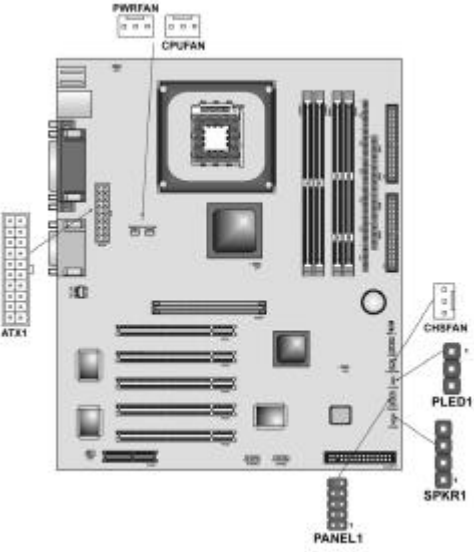
Note: The system must supply at least 1A on the +5VSB (+5V Standby) signal before enabling the Keyboard Power On function.

JT1~JT10: DDR/SDR DRAM Type Selector

This jumper enables to select DDR or SDR DRAM type.

Connecting Case Components

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

<table>
<tr>
<td>
1. Connect the power connector from the power supply to the **ATX1** connector on the mainboard.
2. Connect the CPU cooling fan cable to **CPUFAN**.
3. If there is a cooling fan installed in the system chassis, connect the cable from the cooling fan to the **CHSFAN** fan power connector on the mainboard.
4. Connect the auxiliary power supply cooling fan connector to **PWRFAN**.
</td>
<td></td>
</tr>
<tr>
<td colspan="2">
5. Connect the case switches and indicator LEDs to the **PANEL1** and **PLED1**.
6. Connect the case speaker cable to **SPKR1**.
</td>
</tr>
</table>

SPKR1: Speaker Connector

Connect the cable from the PC speaker to the SPK1 header on the mainboard.

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

PLED1: Onboard LAN LED Connections

If you have a set indicator LEDs for the onboard LAN communication, you can connect the LED cable to the header **PLED1**.

The PANEL1 Connector

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

Device	Pins
HDD_LED_P	1
ACPI_ LED	2, 4
HDD_LED_N	3
RESET_SW_N	5
POWER_BT	6
RESET_SW_P	7
POWER_BT	8
KEY	9
KEY	10

1   2

9   10

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 or its components.**
>
> **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 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 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.
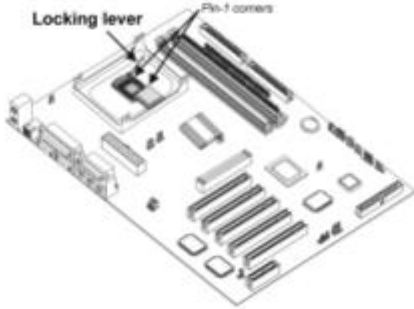
CPU Installation Procedure
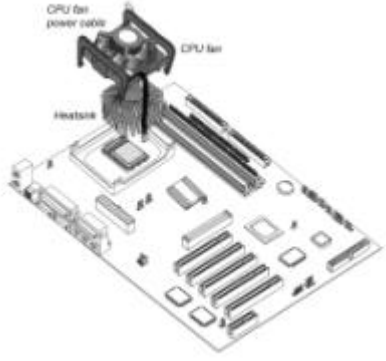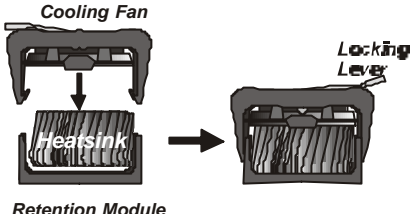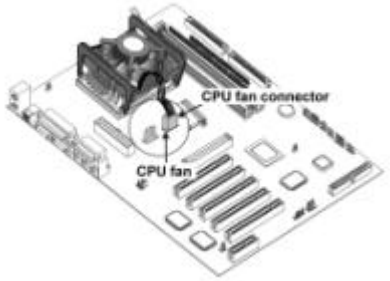
The following illustration shows CPU installation components:

Pin-1 corner

Retention Module

Locking lever

CPU Fan

mPGA478 Socket
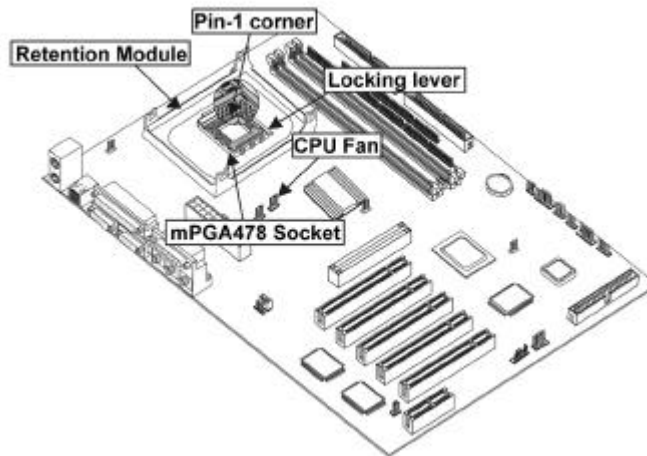
Note: The pin-1 corner is marked with an arrow ▶

Follow these instructions to install the CPU:

1.	Install and secure the Retention Module on the mainboard.
2.	Pull the CPU socket locking lever away from the socket to unhook it and raise the locking lever to the upright position.
3.	Match the corner on the CPU marked with an arrow with pin-1 on the CPU socket (the corner with the pinhole noticeably missing). Insert the processor into the socket. Do not use force.
4.	Lower the heatsink over the CPU.
5.	Lower the CPU cooling fan onto the heatsink.
6.	Apply thermal grease to the top of the CPU.

7.	Swing the locking lever down and hook it under the latch on the edge of the socket.	CPU fan power cable, CPU fan, Heatsink
8.	Snap the four retention legs of the cooling fan into place.	Cooling Fan, Locking Lever, Heatsink, Retention Module
9.	Swing both lock levers on top of the cooling fan to their opposite sides to secure the cooling fan on top of the heatsink.	
10.	Connect the CPU Cooling Fan power cable to the CPUFAN connector.	CPU fan connector, CPU fan

Note: 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.

Installing Memory Modules
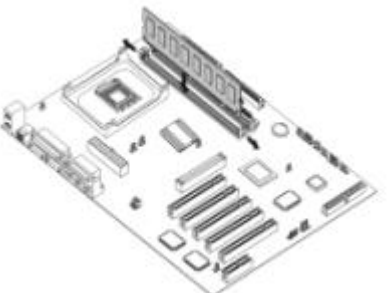
The mainboard has two 168-pin and 184-pin DIMM sockets for SDRAM/DDR (Double Data Rate) SDRAM system memory modules.

The CPU supports 400MHz system bus. The SDRAM DIMMs can synchronously work with 133 MHZ memory bus and DDRs can operate over a 266 MHz memory bus.

> **Note:** Please set the correct jumper settings for JP1 and JT1~JT10 first as described on page 7 of this chapter.

SDRAM provides 800 MB/s or 1 GB/s data transfer rate corres ponding with the bus 100 MHz or 133 MHz. It doubles the rate to 1.6 GB/s and 2.1 GB/s by transferring data on both the rising and falling edges of the clock. DDR SDRAM uses additional power and ground lines and requires 184-pin 2.5V unbuffered DIMM module rather than the 168-pin 3.3V unbuffered DIMMs used by SDRAM.

Installation Procedure

You must install at least one memory module in order to use the mainboard.

> **Note**: You cannot use DDR SDRAM and SDRAM simultaneously.

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:

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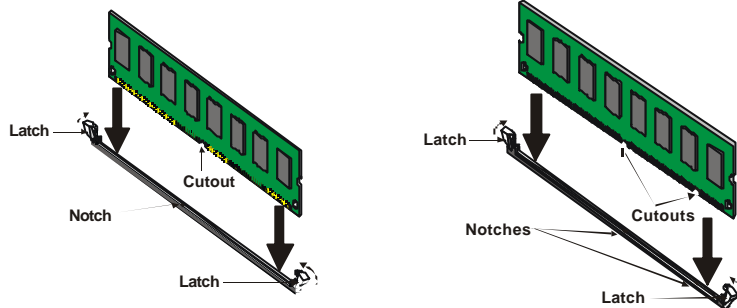
DDR SDRAM Module   **SDRAM Module**

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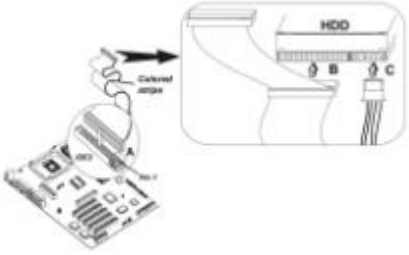
If you want to install more than two IDE devices, get a second IDE cable and you can add two more devices to the secondary IDE channel.

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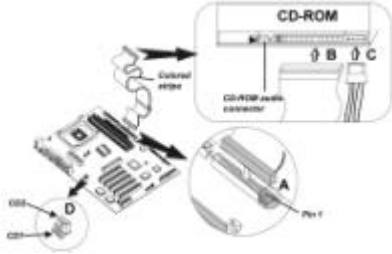
This mainboard supports UltraDMA 66/100. UDMA is a technology that accelerates the performance of devices in the IDE channel. To maximize performance, install IDE devices that support UDMA and use 80-pin IDE cables that support UDMA 66/100.

Installing a Hard Disk Drive

1.	Install the hard disk drive into the drive cage in your system case.
2. Plug the IDE cable into IDE1 (**A**): **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.	
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.
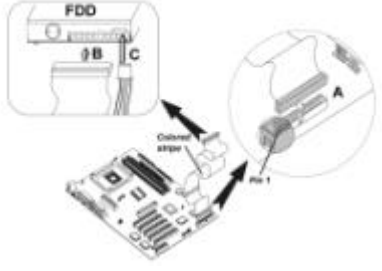
Installing a CD-ROM/DVD Drive

1.	Install the CD-ROM/DVD drive into the drive cage in your 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. **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.	
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 CDIN1 or CDIN2 (**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.

Installing a Floppy Diskette Drive

The mainboard has a floppy diskette drive (FLOPPY) 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 system case.	
2. Plug the FDD cable into FLOPPY (**A**): **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.	
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.

Installing Add-on Cards
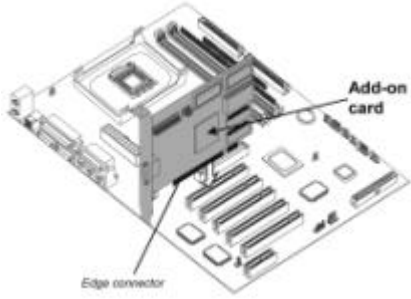
This mainboard has five 32-bit PCI (Peripheral Components Interconnect) expansion slots, one 4xAGP slot, and one CNR (Communications and Networking Riser) slot.
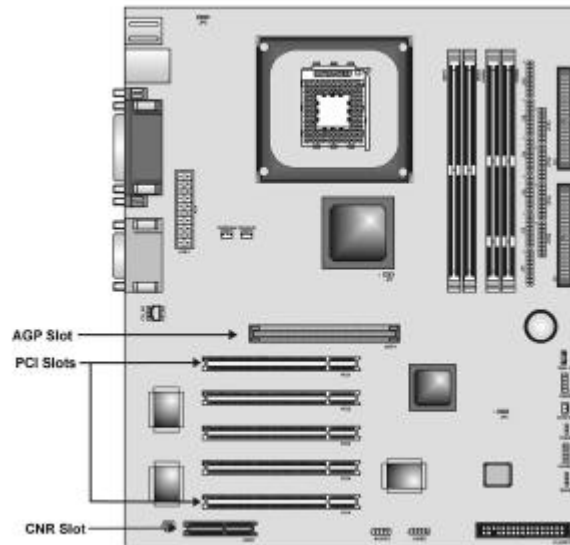
AGP Slot	The 4x AGP slot is used to install a graphics adapter that supports the 4xAGP specification and has a 4x AGP edge connector.
	The 4x AGP slot only supports 1.5V 4x AGP and 2x AGP cards.
PCI Slots	You can install 32-bit PCI interface expansion cards in PCI slots. Slot1 only supports PC2 Slave mode. It is recommended you give first priority to PCI 2~5 slots while inserting cards.
CNR Slot	This slot is used to insert CNR (Communications and Networking Riser) cards including LAN, Modem, and Audio functions.

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.

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Connecting Optional Devices

Refer to the following for information on connecting the mainboard's optional devices:
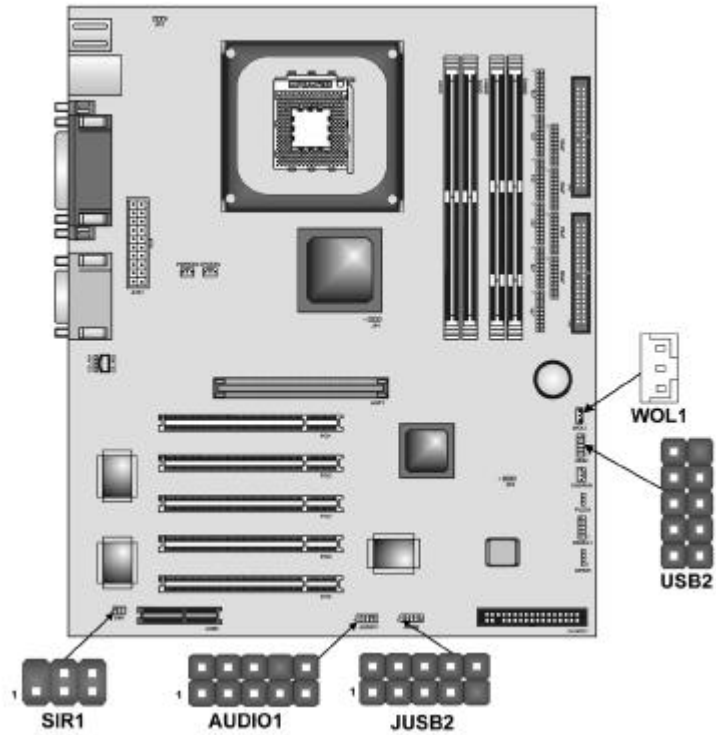
AUD1O1: Front panel MIC/Speaker Out header

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	GND
7	HP_ON	8	KEY
9	AUD_FPOUT_L	10	GND

USB2/JUSB2: Extended USB module

This module bracket has four USB ports for more USB devices.

Pin	Signal Name	Pin	Signal Name
1	VERG_FP_USBPWR0	2	VERG_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	USN_FP_OC0

SIR1: Serial Infrared port

The mainboard supports an Infrared (SIR1) 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	Pin	Signal Name
1	NC	4	Ground
2	Key	5	IRTX
3	+5V	6	IRRX

WOL1: Wake On LAN

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 (WOL1) 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

Connecting I/O Devices

The backplane of the mainboard has the following I/O ports:
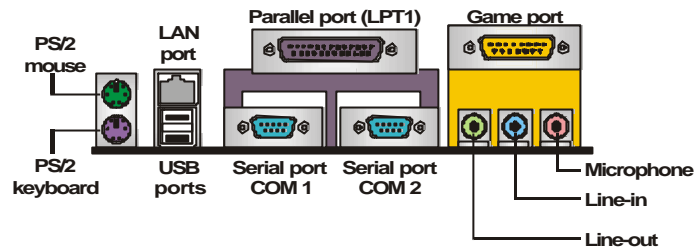
PS/2 Mouse	Use the upper PS/2 port to connect a PS/2 pointing device.
PS/2 Keyboard	Use the lower PS/2 port to connect a PS/2 keyboard.
LAN Port (optional)	Use the LAN port to connect to the network.
USB Ports	Use the USB ports to connect USB devices.
LPT1	Use LPT1 to connect printers or other parallel communications devices.
COM1/2	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.
Game Port	Use the game port to connect a joystick or a MIDI device.
Audio Ports	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.

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External Connector Color Coding

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

Connector	Color
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.

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

Running the Setup Utility

Each time your computer starts, before the operating system loads, a message appears on the screen that prompts you to "*Hit <DEL> if you want to run SETUP*". When you see this message, press the **Delete** key and the Main menu page of the Setup Utility appears on your monitor.

```
                AMIBIOS SIMPLE SETUP UTILITY – VERSION  1.21.06
                 (C) 2000  American Megatrends, Inc. All Rights Reserved

  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

           Standard CMOS 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

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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 Setup Page

Use this page to set basic information such as the date, the time, the IDE devices, and the diskette drives. If you press the F3 key, the system will automatically detect and configure the hard disks on the IDE channels.

```
┌──────────────────────────────────────────────────────────────────────────┐
│              AMIBIOS SETUP – STANDARD CMOS SETUP                           │
│         (C) 2000 American Megatrends, Inc. All Rights Reserved             │
├──────────────────────────────────────────────────────────────────────────┤
│ Date  (mm/dd/yy) :  Wed Feb 06, 2002                                       │
│ Time  (hh/mm/ss) :  16:36:43                                               │
│                                                     LBA   Blk   PIO   32Bit│
│            Type         Size Cyln Head WPcom  Sec  Mode  Mode  Mode  Mode  │
│ Pri Master  :  Auto                                       On               │
│ Pri Slave   :  Auto                                                        │
│ Sec Master :  Auto                                                    On    │
│ Sec Slave   :  Auto                                                        │
│                                                                            │
│ Floppy Drive A :  1.44 MB 3 1/2                                            │
│ 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 & Time

Use these items to set the system date and time

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 the size and capacity of the floppy diskette drive(s) installed in the system.

Advanced Setup Page

Use this page to set more advanced information about your system. Take some care with this page. Making changes can affect the operation of your computer.

```
┌─────────────────────────────────────────────────────────────────────┐
│              AMIBIOS SETUP – ADVANCED SETUP                          │
│       (C) 2000 American Megatrends, Inc. All Rights Reserved         │
├────────────────────────────────────┬────────────────────────────────┤
│ Quick Boot              Enabled     │                                │
│ 1st Boot Device         IDE-0       │                                │
│ 2nd Boot Device         Floppy      │                                │
│ 3rd Boot Device         CDROM       │                                │
│ Try Other Boot Devices  Yes         │                                │
│ S.M.A.R.T. for Hard Disks Disabled  │                                │
│ Floppy Drive Swap       Disabled    │                                │
│ Floppy Drive Seek       Disabled    │                                │
│ PS/2 Mouse Support      Enabled     ├────────────────────────────────┤
│ Password Check          Setup       │                                │
│ L2 Cache                Enabled     │                                │
│ System BIOS Cacheable   Enabled     │ ESC : Quit      - ¯ ¬ ® : Select Item│
│ SDRAM Timing by SPD     Enables     │                                │
│   SDRAM CAS# Latency    3 Clocks    │ F1  : Help      PU/PD/+/- : Modify│
│   SDRAM RAS# Precharge  3 Clocks    │                                │
│   SDRAM RAS# to CAS# Delay 3 Clocks │ F5  : Old Values (Shift)F2 : Color│
│   SDRAM Precharge Delay 7 Clocks    │ F6  : Load BIOS Defaults       │
│ Auto detect DIMM/PCI Clk Enabled    │                                │
│ CLK Gen Spread Spectrum Disabled    │ F7  : Load Setup Defaults      │
│                                    │                                │
└────────────────────────────────────┴────────────────────────────────┘
```

Quick Boot

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

1st Boot Device / 2nd Boot Device / 3rd 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.

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.

PS/2 Mouse Support

Enable this item if you plan to use a PS/2 mouse.

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*).

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.

SDRAM Timing By SPD

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

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 RAS# Precharge

Select the number of CPU clocks allocated for the Row Address Strobe (RAS#) signal to accumulate its charge before the SDRAM is refreshed. If insufficient time is allowed, refresh may be incomplete and data lost.

SDRAM RAS# to CAS# Delay

This field lets you insert a timing delay between the CAS and RAS strobe signals, used when SDRAM is written to, read from, or refreshed. Disabled gives faster performance; and Enabled gives more stable performance.

SDRAM RAS# Precharge Delay

The precharge time is the number of cycles it takes for SDRAM to accumulate its charge before refresh.

Auto detect DIMM/PCI Clock

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

CLK Spread Spectrum

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

Power Management Setup Page

This page sets some of the parameters for system power management operation.

```
┌─────────────────────────────────────────────────────────────────────┐
│           AMIBIOS SETUP – POWER MANAGEMENT SETUP                    │
│       (C) 2000 American Megatrends, Inc. All Rights Reserved        │
├───────────────────────────────────┬─────────────────────────────────┤
│ Keyboard Power On Function  Disabled│                               │
│ Specific Key for PowerOn    N/A     │                               │
│ Mouse PowerOn Function      Disabled│                               │
│ ACPI Aware O/S              Yes      ├───────────────────────────────┤
│ Power Management/APM        Enabled  │                               │
│ Hard Disk Time Out (Minute) Disabled │ ESC : Quit      -‾¬® : Select Item│
│ Suspend Time Out (Minute)   Disabled │ F1  : Help      PU/PD/+/- : Modify│
│ LAN/Ring Power On           Disabled │ F5  : Old Values (Shift)F2 : Color│
│ Resume On RTC Alarm         Disabled │                               │
│ RTC Alarm Date              15       │ F6  : Load Optimal values      │
│ RTC Alarm Hour              12       │ F7  : Load Best performance values│
│ RTC Alarm Minute            30       │                               │
│ RTC Alarm Second            30       │                               │
└───────────────────────────────────┴─────────────────────────────────┘
```

Keyboard Power On Function

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

Specific Key for PowerOn

When the Power On function is set to Password, use this item to set the password.

Mouse PowerOn Function

Enable this item if you plan to use a keyboard connected through the USB port in a legacy operating system.

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.

Hard Disk Time Out (Minute)

This sets the timeout to power down the hard disk drive, if the time selected passes without any hard disk activity.

Suspend Time Out (Minute)

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.

LAN/Ring PowerOn

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.

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.

PCI / Plug and Play Setup

This page sets some of the parameters for devices installed on the PCI bus and devices that use the system plug and play capability.

```
┌──────────────────────────────────────────────────────────────────────────┐
│              AMIBIOS SETUP – PCI / PLUG AND PLAY SETUP                      │
│          (C) 2000 American Megatrends, Inc. All Rights Reserved             │
├──────────────────────────────────────┬─────────────────────────────────────┤
│ Plug and Play Aware O/S      Yes      │                                     │
│ Primary Graphics Adapter     PCI      │                                     │
│ Allocate IRQ for PCI VGA     Yes      │                                     │
│                                       ├─────────────────────────────────────┤
│                                       │ 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 95/98/ME.

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 to 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.

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 some of the parameters for peripheral devices connected to the system.

```
               AMIBIOS SETUP – FEATURES SETUP
      (C) 2000 American Megatrends, Inc. All Rights Reserved

USB Function Support        Enabled
USB Function For DOS        Disabled
ThumbDrive Support For DOS  Disabled
OnBoard IDE                 Both
OnBoard AC' 97 Audio        Auto
OnBoard MC' 97 Modem        Auto
OnBoard FDC                 Enabled
OnBoard Serial PortA        3F8/COM1      ESC : Quit        - ‾ ¬ ® : Select Item
OnBoard Serial PortB        2F8/COM2
   Serial Port B Mode       Normal        F1   : Help        PU/PD/+/- : Modify
    IR Duplex Mode          Half Duplex
    IR Pin Select           IRRX/IRTX     F5   : Old Values  (Shift)F2  : Color
OnBoard Parallel Port       378
  Parallel Port Mode        ECP           F6   : Load BIOS Defaults
  EPP Version               N/A
  Parallel Port IRQ         7             F7   : Load Setup Defaults
  Parallel Port DMA         3
OnBoard MIDI Port           300
  MIDI IRQ Select           5
OnBoard Game Port           201
```

USB Function Support

Enable this item if you plan to use the USB ports on this mainboard.

USB Function For DOS

Enable this item if you plan to use the USB ports on this mainboard in a DOS environment.

ThumbDrive Support For DOS

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

OnBoard IDE

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

OnBoard AC' 97 Audio

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

OnBoard MC' 97 Modem

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

OnBoard FDC

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

OnBoard Serial PortA/B

Use these items to enable or disable the onboard COM1/2 serial port, and to assign a port address.

Onboard Parallel Port

Use this item to enable or disable the onboard LPT1 parallel port, and to assign a port address. The Auto setting will detect and available 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 MIDI Port

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

MIDI IRQ Select

Use this item to assign IRQ 5 to the parallel port.

OnBoard Game Port

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

CPU PnP Setup Page

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

```
                    AMIBIOS SETUP – CPU PnP SETUP
          (C) 2000 American Megatrends, Inc. All Rights Reserved

CPU Type              INTEL P4
CPU/DRAM Speed        100/133 MHz
CPU Core Voltage      1.728 V
CPU Ratio             Locked
CPU Frequency         100 MHz
DRAM Frequency        133 MHz


                                  ESC  : Quit          - ¯ ¬ ® : Select Item
                                  F1   : Help        PU/PD/+/- : Modify
                                  F5   : Old Values  (Shift)F2  : Color
                                  F6   : Load Optimal values
                                  F7   : Load Best performance values
```

CPU Type/ Core Voltage/Ratio /Frequency

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

DRAM Speed/ Frequency

These items decide DRAM speed /frequency installed in your system.

Hardware Monitor Page

This page sets some of the parameters for the hardware monitoring function of this mainboard.

```
┌─────────────────────────────────────────────────────────────────┐
│                 AMIBIOS SETUP – HARDWARE MONITOR                  │
│       (C) 2000 American Megatrends, Inc. All Rights Reserved      │
├───────────────────────────────────┬─────────────────────────────┤
│ *** System  Hardware  ***         │                             │
│ CPU Temperature        59°C/138°F  │                             │
│ SYSTEM Temperature     28°C/82°F   │                             │
│ CPU Fan Speed          3629 RPM    │                             │
│ SYSTEM Fan Speed       0 RPM       │                             │
│ Power Fan Speed        0 RPM       │                             │
│ Vcore                  1.728 V     │                             │
│ Vcc 3.3V               3.312 V     ├─────────────────────────────┤
│ Vcc                    5.030 V     │                             │
│ +12V                   12.045V     │ ESC : Quit      – ‾¬ ® : Select Item │
│ -12V                   -12.071V    │ F1  : Help     PU/PD/+/- : Modify │
│ -Vcc                   -5.026V     │ F5  : Old Values  (Shift)F2  : Color │
│ SB5V                   4.800 V     │ F6  : Load Optimal values   │
│                                    │ F7  : Load Best Performance Values │
│                                    │                             │
└───────────────────────────────────┴─────────────────────────────┘
```

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.

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Change Password

If you highlight this item and press **Enter**, a dialog box appears which lets you enter a Supervisor password. You can enter no more than six letters or num-bers. Press **Enter** after you have typed in the password. A second dialog box asks you to retype the password for confirmation. Press **Enter** after you have retyped it correctly. The password is then required to access the Setup Utility or for that and at start-up, depending on the setting of the Password Check item in Advanced Setup.

Change or Remove the Password

Highlight this item, press Enter and type in the current password. At the next dialog box, type in the new password, or jus t press Enter to disable password protection.

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 p ress **N** to exit without

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 RE-ADME.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 Tab

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 oper-ating 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.

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

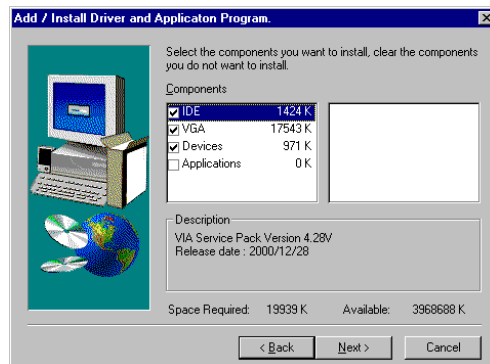Follow these instructions to install device drivers and software for the main-board:

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 ap-pears:
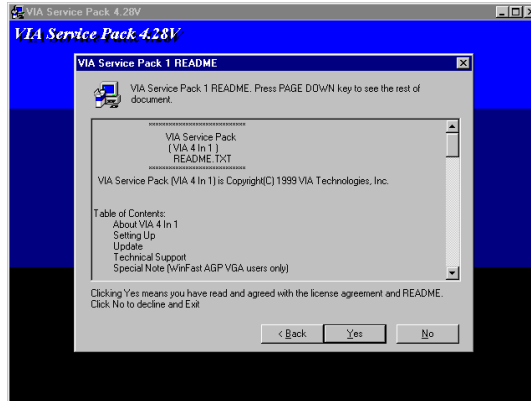
5. Follow the instructions on the screen to install the items.

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.

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.

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

AMI 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

The PC-CILLIN software program provides anti-virus protection for your system. This program is available for Windows 2000/ME/98SE 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.

CD Ghost

The CD Ghost software enables you to create a virtual cabinet of CD-ROM drives on your system to help you categorize and organize your CD collection. A user-friendly interface assists you in quickly creating images of both CDs and DVDs onto your system. To install the software, run SETUP.EXE from the following directory:

\UTILITY\CDGHOST\ENG\CDGHOST

Recovery Genius

The Recovery Genius software program is an innovative windows application system that protects your Hard Disk Drive from virus intrusion, accidental deletions and from system corruption. To install the Recovery Genius software program run SETUP.EXE from the following directory:

\UTILITY\RECOVERY GENIUS\ENG\RECOVERYGENIUS

Language Genius

The Language Genius is a software –based product that helps you to learn new languages.   To install the Language Genius software program run SETUP.EXE from the following directory:

\UTILITY\LANGUAGE GENIUS\ENG\LANGUAGEGENIUS

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.