This publication, including all photographs, illustrations and software, is protected under international copyright laws, with all rights reserved. Neither this manual, nor any of the material contained herein, may be reproduced without the express written consent of the manufacturer.

The information in this document is subject to change without notice. The manufacturer makes no representations or warranties with respect to the contents hereof and specifically disclaims any implied warranties of merchantability or fitness for any particular purpose. Further, the manufacturer reserves the right to revise this publication and to make changes from time to time in the content hereof without obligation of the manufacturer to notify any person of such revision or changes.

Trademarks

IBM, VGA, and PS/2 are registered trademarks of International Business Machines.

Intel, Pentium, Pentium-II, Pentium-III, MMX, and Celeron are registered trademarks of Intel Corporation.

Microsoft, MS-DOS and Windows 95/98/NT/2000 are registered trademarks of Microsoft Corporation.

Sound Blaster is a trademark of Creative Technology Ltd.

PC-cillin and ChipAwayVirus are trademarks of Trend Micro Inc.

AMI is a trademark of American Megatrends Inc.

A3D is a registered trademark of Aureal Inc.

Gamut is a registered trademark of Formosoft International Inc.

SuperVoice is a registered trademark of Pacific Image Communications Inc.

MediaRing Talk is a registered trademark of MediaRing Inc.

3Deep is a registered trademark of E-Color Inc.

Other names used in this publication may be trademarks and are acknowledged.

Mainboard User's Manual

Table of Contents

Chapter 1

Introduction

This mainboard is a versatile high-end and workstation class product with an ATX form factor. The mainboard features **dual Socket 370 CPU** sockets which uses an Intel Celeron™ PPGA/FC-PGA series processors, or dual FC-PGA Pentium® III series processors, or a Cyrix III series processors at 66/100/**133MHz FSB**.

The mainboard incorporates the **VIA 82C694X** and **VT82C686B** chipsets, features an **AC97 audio codec** built-in. The mainboard delivers high-level performance with a **4xAGP** (Accelerated Graphics Port) slot and two Bus Master Ultra DMA (UDMA) ports that support four ATAPI (AT Attachment Packet Interface) devices. The IDE also supports PIO Mode 3 and 4, **UDMA**33/**66/100** IDE, and an ATAPI CD-ROM.

The mainboard also has a full set of ATX I/O ports, such as two serial port connectors, a parallel port connector, a dual USB (Universal Serial Bus) connector, and PS/2 keyboard and mouse connectors. An extra USB header gives you the option of connecting two more USB ports.

One AGP slot, four PCI local bus slots, and one AMR riser slot provide expandability for add-on peripheral cards.

Key Features

The key features of this mainboard include:

Socket-370 Processor Support

♦ Supports **PPGA/FCPGA Celeron** CPUs (using a single processor only)
♦ **FCPGA Pentium III** CPUs are supported (using single or dual processors)
♦ Supports **Cyrix MIII** CPUs (using a single processor only)
♦ Supports 66MHz, 100MHz or 133MHz Front-Side Bus

All processors are automatically configured using firmware and a synchronous/asynchronous Host/DRAM Clock Scheme.

Memory Support

♦ Three DIMM slots for 168-pin SDRAM or VCM SDRAM memory modules
♦ Support for 66MHz, 100MHz, & 133MHz memory bus
♦ Maximum installed memory is 3 x 512 MB = 1.5 GB

Expansion Slots

♦ One 4xAGP slot
♦ Four 32-bit PCI slots
♦ AMR slot for a special audio/modem riser card

Onboard IDE channels

♦ Primary and Secondary PCI IDE channels
♦ Support for PIO (programmable input/output) modes
♦ Support for Multiword DMA modes, Bus Mastering and Ultra DMA 33/**66/100** modes

Power Supply and Power Management

♦ ATX power supply connector
♦ ACPI and previous PMU support, suspend switch, keyboard power on/off
♦ Supports Wake on Modem, Wake on LAN and Wake on Alarm

2

AC97 Codec
♦ Compliant PC97 2.1 specification
♦ Supports 18-bit ADC (Analog Digital Converter) and DAC (Digital Analog Converter) as well as 18-bit stereo full-duplex codec

Onboard I/O Ports
♦ Provides PC99 Color Connectors for easy peripheral device connections
♦ Floppy disk drive connector with 1Mb/s transfer rate
♦ Two serial ports with 16550-compatible fast UART
♦ One parallel port with ECP and EPP support
♦ Four USB ports (two for option)
♦ Two PS/2 ports for keyboard and mouse
♦ One infrared header for optional module

Hardware Monitoring
♦ Built-in hardware monitoring for CPU & System temperatures, fan speeds and mainboard voltages

Onboard Flash ROM
♦ Automatic CPU and board configuration
♦ Supports Plug and Play configuration of peripheral devices and expansion cards
♦ Built-in virus protection using **Trend's ChipAwayVirus** provides boot process virus protection.

Bundled Software
♦ **PC-Cillin2000** provides automatic virus protection under Windows 95/98/NT/2000
♦ **SuperVoice** is data, fax and voice communication software
♦ **Gamut2000** provides professional audio features included MP3 encoding/playback
♦ **MediaRing Talk** provides PC to PC or PC to Phone internet phone communication
♦ **3Deep** delivers the precise imagery and displays accurate color in your monitor

3

♦ **Corel WordPerfect Suite 8** is an office application suite under Windows® (optional)
♦ **WinDVD2000** is a DVD playback application (optional)

Dimensions
♦ ATX form factor (30.5cm x 24.4cm)

Package Contents

Attention: This mainboard series includes two different models. They are M790MR (Modem Ready) and M790 (without Modem). Please contact your local supplier for your purchase model. Each model will support different specification, list as below:

Model	Specification
M790MR	Support an AMR v.90 56K Fax/Modem card
M790	---

Your mainboard package ships with the following items:
❑ The mainboard
❑ This User's Guide
❑ 1 UDMA/66 IDE cable
❑ Floppy disk drive cable
❑ Support software on CD-ROM disk

Optional Accessories
You can purchase the following optional accessories for this mainboard.
❑ Extended USB module

Static Electricity Precautions

Components on this mainboard can be damaged by static electricity. Take the following precautions when unpacking the mainboard and installing it in a system.

1. Keep the mainboard and other components in their original static-proof packaging until you are ready to install them.
2. During installation, wear a grounded wrist strap if possible. If you don't have a wrist strap, discharge static electricity by touching the bare metal of the system chassis.
3. Handle the mainboard carefully by the edges. Avoid touching the components unless it is absolutely necessary. During installation put the mainboard on top of the static-protection packaging it came in with the component side facing up.

Pre-Installation Inspection

1. Inspect the mainboard for damage to the components and connectors on the board.
2. If you suspect that the mainboard has been damaged, do not connect power to the system. Contact your mainboard vendor and report the damage.

Chapter 2

Mainboard Installation

To install this mainboard in a system, follow the procedures in this chapter:

❑ Identify the mainboard components
❑ Install CPU
❑ Verify that any jumpers or switches are set correctly
❑ Install the mainboard in a system chassis (case)
❑ Connect any extension brackets or cables to the mainboard connector headers
❑ Install any other devices and make the appropriate connections to the mainboard connector headers.

Note:
1. Before installing this mainboard, make sure jumper JP1 is set to Normal, the default setting is set to Clear CMOS. See this chapter for information on locating JP1 and the setting options.
2. Never connect power to the system during installation. Doing so may damage the mainboard.

Mainboard Components

Use the diagram below to identify the major components on the mainboard.
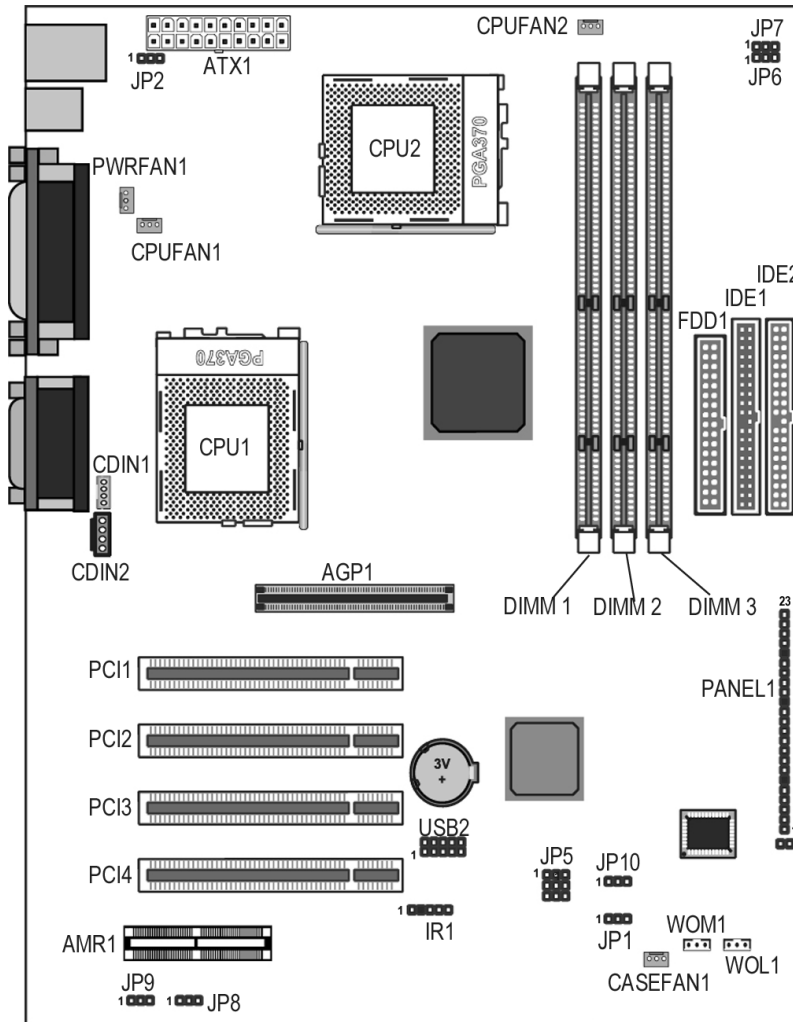
Note: Any jumpers on your mainboard that do not appear in this illustration are for testing only.

I/O Ports

The illustration below shows a side view of the built-in I/O ports on the mainboard.
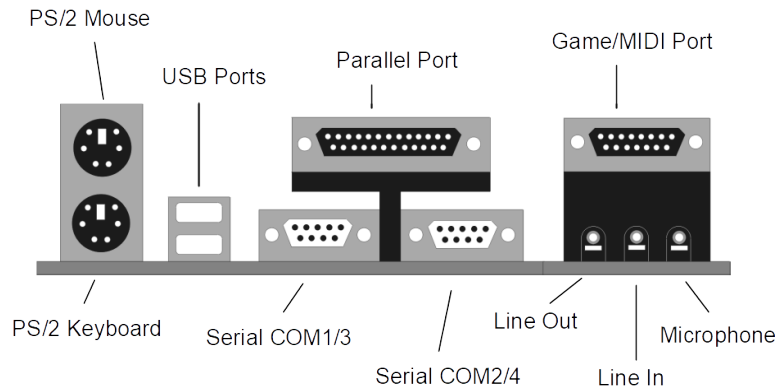
Caution:

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

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

When choosing a cooling fan you should try to avoid using fans with sharp edges on the clips and fans on which the clip is larger than average. Also try applying the cooling fan in a well-lit work area so that you can clearly see the motherboard and processor socket.

9
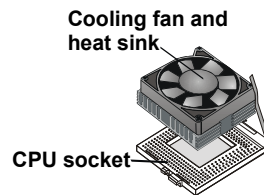
Install CPU

This mainboard has dual Socket-370 which support a Celeron PPGA/FCPGA, a Cyrix MIII, or a/dual FCPGA Pentium III processors.

Do not try to install a Socket 7 processor in the Socket-370. A Socket 7 processor such as the Pentium-MMX, or the AMD K5/K6 does not fit in the Socket 370.

The following list notes the processors that are currently supported by this mainboard.

FCPGA Pentium III: 500~1130MHz, FSB: 100MHz, 133MHz (using single or dual processors)

PPGA Celeron: 300~700MHz, FSB: 66 MHz (using a single processor only)

Cyrix MIII: 500~667MHz, FSB: 100MHz, 133MHz (using a single processor only)

IMPORTANT: The following instructions must be followed or the machine may crash.

- When installing only one processor: a single Intel processor must be installed in the CPU1 socket; a single Cyrix processor must be installed in the CPU2 socket.
- Do not use different processors with different core speeds and frontside bus speeds in dual processor configurations.

Installing Socket-370 Processor

Follow the steps below to install a processor on your mainboard.

1. Locate the CPU1/2 and CPUFAN1/2. Pull the locking lever out slightly from the socket and raise it to the upright position.
2. On the processor, identify the Pin-1 corner by its beveled edge.
3. On the Socket-370, identify the Pin-1 corner. The Pin-1 corner is at the end of the locking lever when it is locked.
4. Match the Pin-1 corners and insert the processor into the socket. No force is required and the processor should drop into place freely.
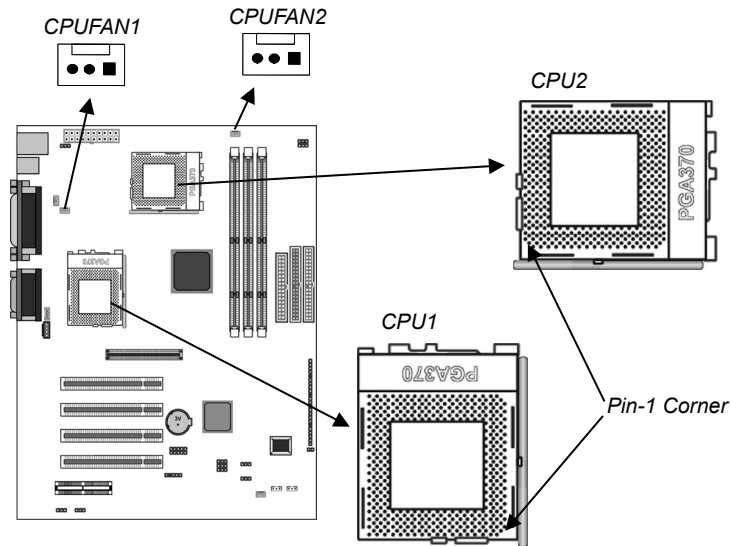
5. Swing the locking lever down and hook it under the catch on the side of the socket. This secures the CPU in the socket.
6. All processors should be installed with a combination heatsink/ cooling fan, connect the cable from the fan to the CPU fan power connector CPUFAN1/2.
7. Repeat the steps above to install a second processor.

Install Memory

The mainboard has three DIMM sockets for system memory modules. You must install at least one memory module in order to use the mainboard.
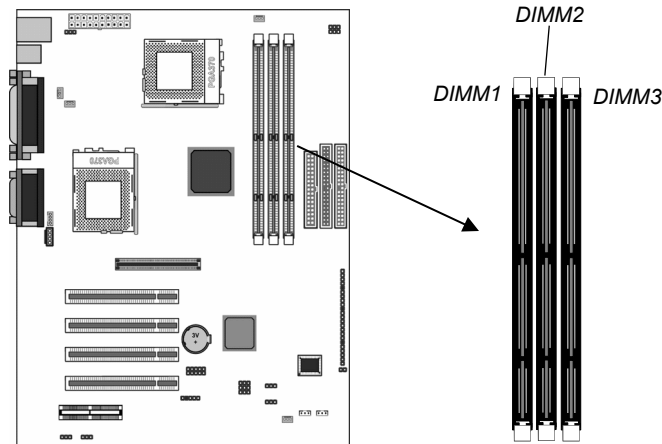
For this mainboard, you must use 168-pin, 3.3V unbuffered SDRAM/VCM SDRAM memory modules. If the installed CPU uses a 100MHz system bus, you must use PC100 or PC133 memory. If the installed CPU uses a 133MHz system bus, you must use PC133 memory. You can install any size memory module from 16 MB to 512MB, so the maximum memory size is 3 x 512MB = 1.5GB.

The edge connectors on the memory modules have cut outs, which coincide with spacers in the DIMM sockets so that memory modules can only be installed in the correct orientation.

To install a module, push the retaining latches at either end of the socket outwards. Position the memory module correctly and insert it into the DIMM socket. Press the module down into the socket so that the retaining latches rotate up and secure the module in place by fitting into notches on the edge of the module.

Setting Jumper Switches

Jumpers are sets of pins which can be connected together with jumper caps. The jumper caps change the way the mainboard operates by changing the electronic circuits on the mainboard. If a jumper cap connects two pins, we say the pins are SHORT. If a jumper cap is removed from two pins, the pins are OPEN.
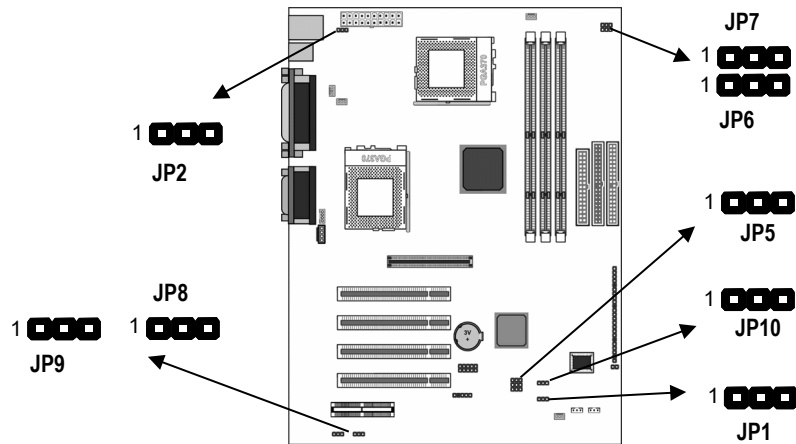
Jumper JP1: Clear CMOS Memory

Use this jumper to clear the contents of the CMOS memory. You may need to clear the CMOS memory if the settings in the Setup Utility are incorrect and prevent 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.

Function	Jumper Setting
Normal Operation	Short Pins 1-2
Clear CMOS Memory	Short Pins 2-3

Jumper JP2: USB/Keyboard Wake up Selector

Use this jumper to enable a signal to the USB ports (located on the I/O port panel) or to enable keyboard activity to wake up the system from power saving mode.

Note: The system must provide 1A on the +5VSB (+5V Standby) signal before using the function.

Function	Jumper Setting
Enable	Short Pins 1-2
Disable	Short Pins 2-3

Jumper JP5: BIOS Flash Protect Selector

Use this jumper to enable or disable the BIOS flash protection on the mainboard. You should disable this jumper when you want to flash the BIOS.

Function	Jumper Setting
Disable	Short Pins 1-2
Enable (read only)	Short Pins 2-3

Jumper JP6, JP7: Set System Bus 100/133 MHz Forced

Use these jumpers to set the system bus frequency. In the normal setting, the system will automatically select the correct frequency according to the kind of processor installed. In the Force 100/133 MHz setting, if you want over drive a CPU to 100/133 MHz system bus even if the CPU is designed to operate with the 60/100 MHz bus.

Function	JP6 Setting	JP7 Setting
Normal Operation	Short pins 1-2	Short pins 1-2
Force 100 MHz	Short pins 2-3	Short pins 1-2
Force 133 MHz	Short pins 1-2	Short pins 2-3

Jumper JP8: Onboard Audio Codec Selector

Use this jumper to enable or disable the onboard audio codec.

Function	Jumper Setting
Enable	Short Pins 1-2
Disable	Short Pins 2-3

Jumper JP9: Onboard Audio Codec Priority Selector

Use this jumper to define the onboard codec mode function.

Function	Jumper Setting
Primary codec	Short Pins 1-2
Secondary codec	Short Pins 2-3

Jumper JP10: AC Resume Selector

Use this jumper to enable or disable the AC resume function.

Function	Jumper Setting
Disable	Short Pins 1-2
Enable	Short Pins 2-3

Install the Mainboard

Install the mainboard in a system chassis (case). The board is an ATX size mainboard with a twin-tier of I/O ports. You can install this mainboard in an ATX case. Ensure that your case has an I/O cover plate that matches the ports on this mainboard.

Install the mainboard in a case. Follow the instructions provided by the case manufacturer using the hardware and internal mounting points on the chassis.
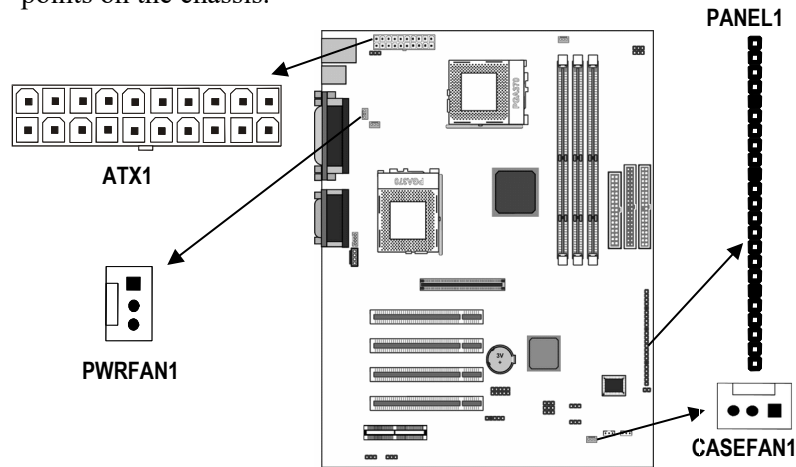
1. Connect the power connector from the power supply to the **ATX1** connector on the mainboard.
2. Connect the power supply fan to the **PWRFAN1** connector on the mainboard.
3. If there is a cooling fan installed in the system chassis, connect the cable from the cooling fan to the **CASEFAN1** fan power connector on the mainboard.
4. Connect the case switches and indicator LEDs to the **PANEL1** switch and LED connector header.
   See the illustration and table for a guide to the header pin assignments.

Function	Pins	Function	Pins
Power LED	1+, 2+, 3	Reset Switch	12, 13
Sleep Switch	4, 5	Speaker	15+, 16, 17, 18
Green LED	7+, 8+, 9	Hard Disk LED	20+, 21
Keylock	10, 11	Power Switch	22+, 23

15

Optional Extension Brackets

For this mainboard, you can also obtain an USB module extension bracket. Install them by following the steps below.

Note: All the ribbon cables used on the extension brackets have a red stripe on the Pin-1 side of the cable.

Extended USB Module

This module bracket has two USB ports for more USB devices (USB port 3-4).
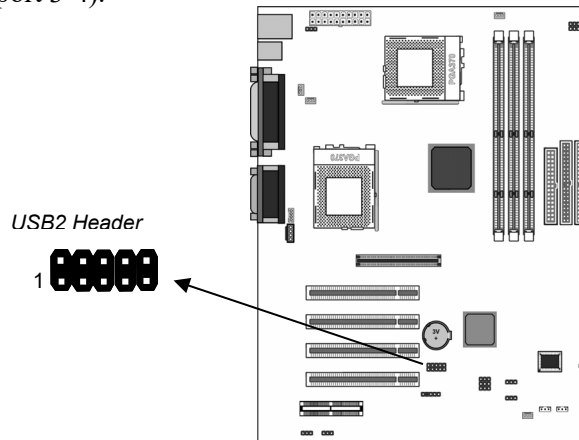
USB2 Header

1. Locate the USB2 header on the mainboard.
2. Plug the bracket cable onto the USB2 header.
3. In the system chassis, remove a slot cover from one of the expansion slots and install the extension bracket in the opening. Use the screw that held the slot cover in place to secure the extension bracket to the chassis.

Install Other Devices

Install and connect any other devices in the system following the steps below.
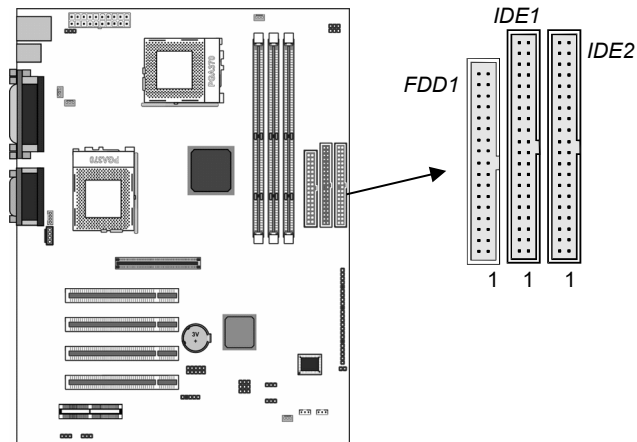
Floppy Disk Drive

The mainboard ships with a floppy disk drive cable that can support one or two drives. Drives can be 3.5" or 5.25" wide, with capacities of 360K, 720K, 1.2MB, 1.44MB, or 2.88MB.
Install your drives and connect power from the system power supply. Use the cable provided to connect the drives to the floppy disk drive header **FDD1**.

About UDMA

This board supports UltraDMA 33/66100. UDMA is a technology that speeds the performance of devices in the IDE channel. We recommend that you install IDE devices that support UDMA, and use IDE cables that support UDMA.

IDE Devices

IDE devices include hard disk drives, high-density diskette drives, and CD-ROM or DVD-ROM drives, among others.
The mainboard ships with an IDE cable that can support one or two IDE devices. If you connect two devices to a single cable, you must configure one of the drives as Master and one of the drives as Slave. The documentation of the IDE device will tell you how to

configure the device as a Master or Slave device. The Master device connects to the end of the cable.
Install the device(s) and connect power from the system power supply. Use the cable provided to connect the device(s) to the Primary IDE channel connector **IDE1** on the mainboard.
If you want to install more IDE devices, you can purchase a second IDE cable and connect one or two devices to the Secondary IDE channel connector **IDE2** on the mainboard. If you have two devices on the cable, one must be Master and one must be Slave.

Internal Sound Connections

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 **CDIN1/2**. 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.
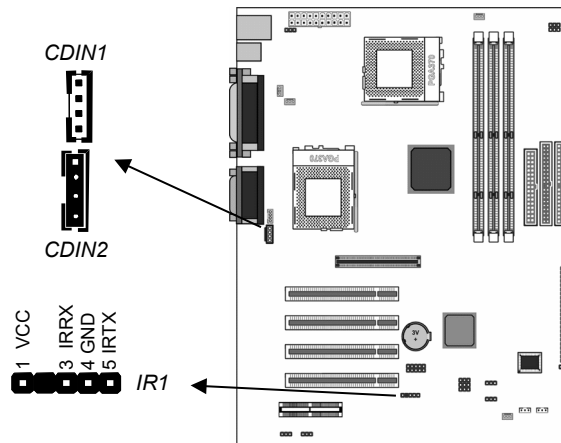
Infrared Port

You can connect an infrared port to the mainboard. You can purchase this option from third-party vendors.
1. Locate the infrared port **IR1** header on the mainboard.
2. If you are adding an infrared port, connect the ribbon cable from the port to the IR1 header and then secure the port to an appropriate place in your system chassis.

18

Expansion Slots

This mainboard has one AGP slot, four 32-bit PCI expansion slots and one AMR slot.
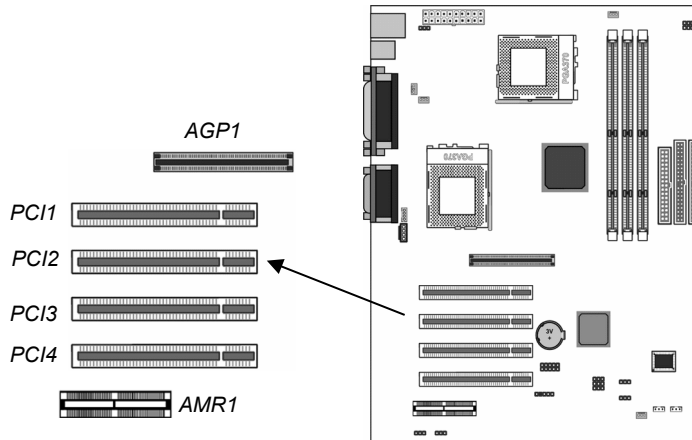
Follow the steps below to install an add-in card to one of the slots.

1. Determine which slot you need to use. The table below shows the functions of the slots.

AGP	AGP stands for Accelerated Graphics Port. Use this slot to install a graphics adapter which has an AGP edge connector.
PCI	PCI stands for Peripheral Components Interconnect. Use this slot to install current add-in cards which have a 32-bit PCI edge connector.
AMR	AMR (Audio Modem Riser) is an industry standard that allows for the installation of a special audio/modem riser card. Different territories have different regulations regarding the specifications of a modem card.

2. Locate the AMR, PCI or AGP slot on the mainboard.
3. Remove the blanking plate from the appropriate expansion slot on the system chassis.
4. Install the edge connector of the expansion card into the slot and press it quite firmly down so that it is seated correctly.

5. Secure the bracket of the card into the expansion slot in the system chassis using the screw that held the blanking plate in place.

Add-In Card Options

This mainboard has a Wake On LAN and a Wake On Modem connectors that can be used by an installed network adapter and an installed modem adapter. It also has a SB-Link connector that can be used by an installed PCI Sound Blaster audio card.
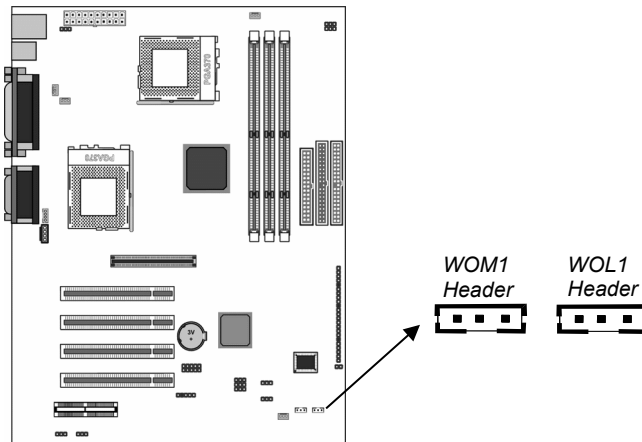
Wake On LAN (WOL)

You can configure your system so that it powers down by software and can be resumed by alarms. If you have installed a LAN adapter expansion card, connect the card to the Wake On LAN header WOL1. This allows incoming traffic to resume the system from a software power down. You need to enable this feature in the system setup utility.

Wake On Modem (WOM)

If you have installed a fax/modem card, connect the fax/modem to the Wake On Modem header WOM1. You can then use the setup utility to program your computer to resume from a power saving mode whenever there is an incoming call to the fax/modem.

20

Chapter 3

BIOS Setup Utility

Introduction

The BIOS Setup Utility records settings and information about your computer such as the date and time, the kind of hardware installed, and various configuration settings. Your computer uses this information to initialize all the components when booting up and functions as the basis for coordination between system components.

If the Setup Utility configuration is incorrect, it may cause the system to malfunction. It can even stop your computer from booting properly. If this happens, you can use the clear CMOS jumper to clear the CMOS memory used to store the configuration information, or you can hold down the **Page Up** key while you reboot your computer. Holding down the **Page Up** key also clears the CPU PnP Setup information, you may need to set the CPU speed again.

You can run the setup utility and manually make changes to the configuration. You might need to do this to configure some of the hardware that you install on or connect to the mainboard, such as the CPU, system memory, disk drives, etc.

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 1.21.01        │
│           ©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 │
└─────────────────────────────────────────────────────────────────┘
```

You can use the cursor arrow keys to highlight any of the options on the main menu page. Press **Enter** to select the highlighted option. To leave the setup utility, press the **Escape** key. To cycle through the Setup Utility's optional color schemes hold down the **Shift** key and press **F2**.

Some of the options on the main menu page lead to tables of items with installed values. In these pages, use the cursor arrow keys to highlight the items, and then use the **PgUp** and **PgDn** keys to cycle through the alternate values for each of the items. Other options on the main menu page lead to dialog boxes which require you to answer Yes or No by hitting the **Y** or **N** keys.

If you have already made changes to the setup utility, press **F10** to save those changes and exit the utility. Press **F5** to reset the changes to the original values. Press **F6** to install the setup utility with a set of default values. Press **F7** to install the setup utility with a set of high-performance values.

22

Standard CMOS Setup Page

Use this page to set basic information such as the date and 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
                ©1998 American Megatrends, Inc. All Rights Reserved

 Date  (mm/dd/yy) :  Tue Nov 21, 2000
 Time  (hh/mm/ss) :  14:26:53
                                                     LBA   Blk   PIO   32Bit
             Type            Size  Cyln  Head WPcom Sec Mode Mode  Mode  Mode
 Pri Master  : Auto                                                      On
 Pri Slave   : Auto                                                      On
 Sec Master : Auto                                                       On
 Sec Slave   : Auto                                                      On

 Floppy Drive A :  1.44MB 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           │
├───────────────────────────────────────┬───────────────────────────────────┤
│ Trend ChipAway Virus      Enabled      │                                   │
│ 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     │                                   │
│ BootUp Num-Lock           On           │                                   │
│ Floppy Drive Swap         Disabled     │                                   │
│ Floppy Drive Seek         Disabled     │                                   │
│ Boot To OS/2              No           │                                   │
│ L2 Cache                  Enabled      │                                   │
│ System BIOS Cacheable     Enabled      ├───────────────────────────────────┤
│ DRAM Frequency            100Mhz       │ ESC  : Quit       ↑↓←→ : Select Item│
│ SDRAM CAS# Latency        3            │ F1   : Help      PU/PD/+/- : Modify│
│ DRAM Integrity Mode       Disabled     │ F5   : Old Values (Shift)F2 : Color│
│ AGP Mode                  2x           │ F6   : Load Optimal values         │
│ AGP Aperture Size         64MB         │ F7   : Load Best performance values│
└───────────────────────────────────────┴───────────────────────────────────┘
```

Trend ChipAway Virus	This mainboard has built-in virus protection in the firmware. Use this item to enable or disable the built-in virus protection.
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 three items to determine the order and priority that your computer follows to load an operating system 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 three locations.
S.M.A.R.T. Capability	Enable this item if your hard disk(s) supports SMART (Self-Monitoring, Analysis and Reporting Technology).
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 the diskette drives at start up time. Disable this item unless you are using an old 360K diskette drive.
Password Check	If you have installed a password on your system, use this item to determine if the password is required to enter the setup utility (*Setup*) or required at start-up time and to enter the setup utility (*Always*).
Boot To OS/2	Enable this item if you are booting the OS/2 operating system and you have more than 64MB of memory installed.
L2 Cache	Leave this item enabled since all the processors that can be installed on this board have internal cache memory.
System BIOS Cacheable	If you enable this item, a segment of the system BIOS will be cached to main memory for faster execution.
DRAM Frequency	Use this item to define the frequency for the installed memory.
SDRAM CAS# Latency	This item determines the operation of the main memory CAS (column address strobe). We recommend that you leave this item at the default value.
DRAM Integrity Mode	Use this item to define the kind of error correction supported by the memory that you have installed.
AGP Mode	Use this item defines the AGP mode for the installed AGP card.
AGP Aperture Size	This item defines an aperture for the AGP graphics. Leave this item at the default value 64 MB.

Power Management Setup Page

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

```
┌─────────────────────────────────────────────────────────────────────┐
│              AMIBIOS SETUP – POWER MANAGEMENT SETUP                  │
│        (C) 2000 American Megatrends, Inc. All Rights Reserved        │
├─────────────────────────────────┬───────────────────────────────────┤
│ Power Management/APM    Disabled │                                   │
│ ACPI Standby State      S1/POS   │                                   │
│ USB Wakeup From S3-S5   Disabled │                                   │
│ Standby Time Out        Disabled │                                   │
│ Suspend Time Out        Disabled │                                   │
│ Modem Ring Power On     Disabled │                                   │
│ Lan Card Power On       Disabled │                                   │
│ Resume On RTC Alarm     Disabled │                                   │
│ RTC Alarm Date          15       │                                   │
│ RTC Alarm Hour          12       │ ESC : Quit       ↑↓←→ : Select Item│
│ RTC Alarm Minute        30       │ F1  : Help     PU/PD/+/- : Modify │
│ RTC Alarm Second        30       │ F5  : Old Values (Shift)F2 : Color │
│                                  │ F6  : Load Optimal values         │
│                                  │ F7  : Load Best performance values│
└─────────────────────────────────┴───────────────────────────────────┘
```

Power Management/APM	Use this item to enable or disable the power management routines. If you enable the power management, you can use the items below to set the power management operation.
ACPI Standby State	This item defines which standby mode for the ACPI feature.
USB Wakeup From S3-S5	Use this item to enable or disable the USB device wakeup function.
Standby Time Out (Minute)	This sets the timeout for standby mode in minutes. If the time selected passes without any system activity, the computer will enter the power-saving standby mode.
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 the power-saving suspend mode.
Modem Ring Power On	If you enable this item, incoming calls to the fax/modem can resume the system from a power-saving mode or a software power down.

LAN Card Power On	If you enable this item, network traffic to the LAN adapter can resume the system from a power-saving mode or a software power down.
Resume On RTC Alarm	If you enable this item, you can set an alarm on the system realtime clock that will resume the system from a power-saving mode or a software power down.
RTC Alarm Date / Hour / Minute / Second	If you have enabled the RTC Alarm Power on, use these items to set the time and date of the alarm.

PCI / Plug and Play Setup Page

This page sets some of the parameters for devices installed on the system 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 to PCI VGA      Yes      │                                    │
│ IRQ3                         PCI/PnP  │                                    │
│ IRQ4                         PCI/PnP  │                                    │
│ IRQ5                         PCI/PnP  │                                    │
│ IRQ7                         PCI/PnP  │                                    │
│ IRQ9                         PCI/PnP  │                                    │
│ IRQ10                        PCI/PnP  │                                    │
│ IRQ11                        PCI/PnP  │                                    │
│ IRQ14                        PCI/PnP  ├────────────────────────────────────┤
│ IRQ15                        PCI/PnP  │ ESC  : Quit        ↑↓←→ : Select Item│
│                                       │ F1   : Help     PU/PD/+/- : Modify  │
│                                       │ F5   : Old Values  (Shift)F2 : Color│
│                                       │ F6   : Load Optimal values          │
│                                       ├────────────────────────────────────┤
│                                       │ F7   : Load Best performance values │
└──────────────────────────────────────┴────────────────────────────────────┘
```

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.
Primary Graphics Adapter	Use this item to define if your primary graphics adapter is installed in a PCI slot or on an AGP bus.
Allocate IRQ to PCI VGA	If this item is enabled, an IRQ will be assigned to the VGA graphics system.
IRQ X	If you set this to PCI/PnP, the system will dynamically allocate IRQs as they are required. If you set an IRQ to ISA/EISA, it will be reserved for a non-plug and play ISA or EISA device.

28

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 is loaded with a set of optimal default values. The optimal default values are not very demanding and they should allow your system to function with most kinds of hardware and memory chips.

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 is loaded with a set of best-performance default values. The optimal default values are quite demanding and your system might not function properly if you are using slower memory chips or other kinds of low-performance components.

Features Setup Page

This page sets some of the parameters for peripheral devices installed on the system.

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

OnBoard FDC              Enabled    │ USB Controller          USB Port0&1
OnBoard Serial Port1     3F8h/COM1  │ USB Function for DOS    Disabled
OnBoard Serial Port2     2F8h/COM2  │ Ultra DMA Support       Enabled
   Serial Port2 Mode     Normal     │
      Duplex Mode        N/A        │
OnBoard Parallel Port    378h       │
   Parallel Port Mode    Normal     │
   EPP Version           N/A        │
   Parallel Port DMA     N/A        │
   Parallel Port IRQ     7          │
OnChip Audio             Enabled    │
OnChip Modem             Auto       │
OnBoard Legacy Audio     Enabled    │
   Sound Blaster         Disabled   │
      SB I/O Base Address 220h-22Fh │ ESC : Quit        ↑↓←→ : Select Item
      SB IRQ Select      5          │ F1  : Help        PU/PD/+/- : Modify
      SB DMA Select      1          │ F5  : Old Values  (Shift)F2 : Color
   MPU-401               Enabled    │ F6  : Load Optimal values
MPU-401 I/O Address      300h-303h  │ F7  : Load Best performance values
      Game Port (200h-207h) Enabled │
```

Onboard FDC	Use this item to enable or disable the onboard floppy disk drive interface.
Onboard Serial Port1	Use this item to enable or disable the onboard serial port COM1/3, and to assign a port address
Onboard Serial Port2	Use this item to enable or disable the onboard serial port COM2/4, and to assign a port address
Serial Port2 Mode	Use this item to allocate the resources of the second serial port. Under Normal, the resources are allocated to the onboard serial port. Under ASKIR or IrDA, the resources are allocated to the onboard IR port,
Duplex Mode	Use this item to define if the optional infrared port is full-duplex or half-duplex.
Onboard Parallel Port	Use this item to enable or disable the onboard parallel port LPT1, and to assign a port address

30

Parallel Port Mode	Use this item to determine the parallel port mode. You can select Normal, ECP (Extended Capabilities Port), EPP (Enhanced Parallel Port), or Bi-Dir.
EPP Version	Use this item to define the EPP version if the parallel port is EPP mode.
Parallel Port DMA	Use this item to assign a DMA channel to the parallel port.
Parallel Port IRQ	Use this item to assign an IRQ to the parallel port.
OnChip Audio/ Modem	Use these items to enable or disable the onboard audio/modem chip.
Sound Blaster .... Game Port	Use these items to enable or disable Sound Blaster, MPU-401 and Game port, and to define the resources for them.
USB Controller	Use this item to enable or disable USB ports 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.
Ultra DMA Support	Use this item to enable or disable the Ultra DMA function to support the IDE devices.

CPU PnP Setup Page

This page lets you manually or automatically to configure the mainboard for the CPU.

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

CPU Type                    Intel
CPU Speed                   Manual
CPU Ratio                   3x
CPU Base Freq.              100 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	This item shows the type of CPU that has installed in your system.
CPU Speed	Use this item to set the clock speed of your CPU. When set to Manual, the CPU speed will based on the next two items.
CPU Ratio	When CPU Speed item set to Manual. Use this item to set a multiplier for the CPU speed that is equal Frequency (CPU Base Freq.) x Multiplier (CPU Ratio).
CPU Base Freq.	This item shows the installed CPU's base frequency that has detected by BIOS.

Note: If you manually set the wrong speed and the system won't run properly, press the **Page Up** key while the system is booting and a default setting will replace the incorrect CPU setting.

Hardware Monitor Page

This page lets you set the parameters for hardware monitoring and manually or automatically configure the mainboard for the CPU.

```
                  AMIBIOS SETUP – HARDWARE MONITOR
            (C) 2000 American Megatrends, Inc. All Rights Reserved
 --- System Hardware Monitor ---
CPU1 Temperature              30°C/86°F
CPU2 Temperature
CPU1 Fan Speed
CPU2 Fan Speed
CPU1 Vcore
CPU2 Vcore
    + 3.300 V
    + 5.000V
    +12.000V
                                        ESC : Quit        ↑↓←→ : Select Item
                                        F1   : Help       PU/PD/+/- : Modify
                                        F5   : Old Values  (Shift)F2  : Color
                                        F6   : Load Optimal values
                                        F7   : Load Best performance values
```

CPU1 / CPU2 Temperature	Use these items to monitor the threshold temperature for the CPU1 and CPU2.
FAN Speeds, voltages	Use these items to monitor the parameters for the fan speeds and the mainboard voltages.

Change Password

If you highlight this item and press **Enter**, a dialog box appears which lets you enter a password. You can enter no more than six letters or numbers. 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 required at boot time, or when the user enters the setup utility.

Change or Remove the Password

Highlight the Change Password item and type in the current password. At the next dialog box, type in the new password, or just 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 press **N** to exit without saving.

Chapter 4

Software & Applications

Introduction

The support software CD-ROM that is included in the mainboard package contains all the drivers and utility programs needed to properly run our 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.
If the operating system used in your system is Windows 98, it will automatically install all the drivers and utilities for your board. See the Auto-Installing under Windows 98 section.

Installing Support Software

The software on the support CD-ROM is for Windows 95/NT/2000 and Windows 98. The installation procedure differs depending on which Operating System you have, but the automatic installation is now for Win98 only.

Installing under Windows 95/NT/2000

To install support software for Windows 95/NT/2000 follow this general procedure:
1.   Insert the support CD-ROM disc in the CD-ROM drive.
(The system might get an error message from the PnP function. Don't care the message. You don't really need that file to install the drivers)
2.   Use My Computer or Windows Explorer to look at the directory structure. You must use the Open command in the right-button menu. Double-clicking on the drive icon will result in an error message because the disc's AutoRun feature doesn't work in Windows 95/NT/2000.
3.   Execute the EXE file name given in the description below.

35

*Note: The correct path name for each software driver is provided, where **D:** identifies the CD-ROM drive letter – modify if necessary.*

Bus Master IDE Driver
The IDE Bus Master Drivers allows the system to properly manage the IDE channels on the mainboard. You need to install an IDE driver if you are running Windows 95/NT 4.0.
- ♦ D:\IDE\

Audio Driver
The Sound driver allows the system to generate optimal sound effects. Find the driver and Audio applications here:
- ♦ D:\SOUND\Driver\VIA\
- ♦ D:\SOUND\Gamut\

AMR Modem Drivers and Software
Find the AMR modem drivers and software here:
- ♦ D:\Modem\Driver\AMR\PCtel\
- ♦ D:\Modem\SuperVoice\ [Telecom management software]
- ♦ D:\Modem\MediaRing Talk

USB Driver
The USB Driver allows the system to recognize the USB ports on the mainboard. You need to install this driver if you are running Windows 95. Windows 95 OSR2 does not require this driver.
This driver is available for:
- ♦ Win95 – D:\USB\EUSBSUPP\USBSUPP.EXE
- ♦ Win95 (Chinese) – D:\USB\CUSBSUPP\CUSBSUPP.EXE

3Deep Software
Find the software here:
- ♦ D:\3Deep\3Deep 3.3\Setup.EXE

BIOS Update Utility
The BIOS Update utility allows you to update the BIOS file on the mainboard to a newer version. You can download the latest version of the BIOS setup available for your mainboard from the website.
- ♦ D:\UTILITY\AMINF323.EXE

PC-Cillin Software
The PC-cillin software program provides anti-virus protection for your system.
This program is available for:
♦   DOS – D:\PC-CILLIN\DOS\PCSCAN.EXE
♦   Win9x – D:\PC-CILLIN\WIN98\SETUP.EXE

Auto-installing under Windows 98

The support software CD-ROM disc loads automatically under Windows 98. When you insert the CD-ROM disc in the system 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. See the following screen illustration.
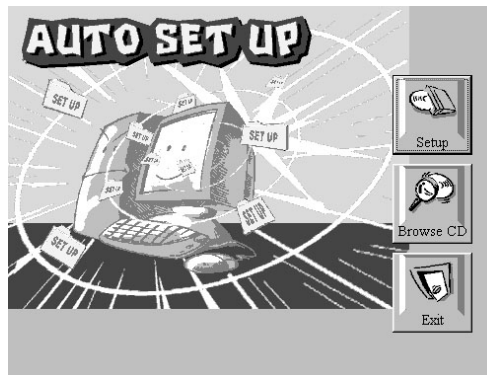
When you click on the **Setup** button the software installation program will run and you can select what kind of installation you want to do, as explained later in this section.
The **Browse CD** button is the standard Windows command that allows you to examine the contents of the disc using the Windows 98 file browsing interface.
The **Exit** button closes the Auto Setup window. To run the program again, reinsert the CD-ROM disc in the drive or click on AutoRun in the context sensitive menu for the CD-ROM drive icon in a file browser window.

Mainboard User's Manual

Installing Software with Auto Setup

To install support software for the system board follow this procedure:

1. Click on the **Setup** button. The install program will load and display the following screen. Click the **Next** button.

2. Select the items that you want to setup by clicking on it (the default options are recommended). Click the **Next** button to proceed.
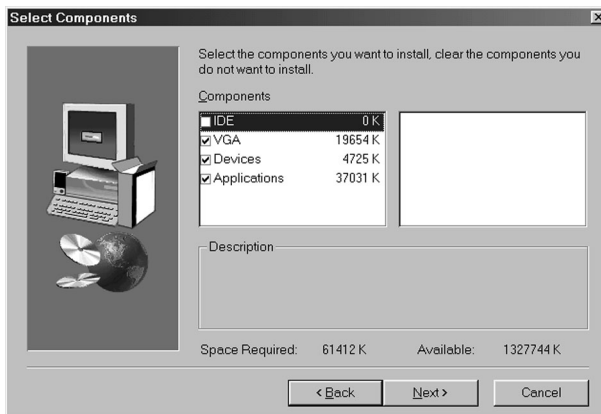
3. The support software will automatically install.

Once any of the installation procedures start, software is automatically installed in sequence. You will need to follow the onscreen instructions, confirm commands and allow the computer

to restart as few times as is needed to complete installing whatever software you selected to install. When the process is finished, all the support software will be installed and working.

There are some utilities that you have to manually install if you need, check to the above section.