Preface

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Version 8.1

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Federal Communications Commission (FCC)

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

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

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

Declaration of Conformity

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

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

Canadian Department of Communications

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

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

About the Manual

The manual consists of the following:

Chapter 1 **Introducing the Motherboard**	Describes features of the motherboard, and provides a shipping checklist. Go to ⟹ page 1
Chapter 2 **Installing the Motherboard**	Describes installation of motherboard components. Go to ⟹ page 7
Chapter 3 **Using BIOS**	Provides information on using the BIOS Setup Utility. Go to ⟹ page 24
Chapter 4 **Using the Motherboard Software**	Describes the motherboard software. Go to ⟹ page 50

TABLE OF CONTENTS

Introducing the Motherboard

Introduction

Thank you for choosing the P4VMM2 motherboard. This micro-ATX mother-board which measures 244 x 244 mm is based on VIA P4M266A Northbridge chipset and VT8235CD Southbridge chipset and is designed for use with Socket 478 Intel® Pentium®/Northwood/Willamette/Prescott processors sup-porting 133/100 MHz CPU clock and 533/400 MHz Front Side Bus.

Taking advantage of the highly integrated chipsets, the P4M266A chipset is a high performance SMA Northbridge with CPU bus extensions to support Pen-tium 4, S3 Graphics' 128-bit ProSavage8 2D/3D graphics accelerator with equivalent 8x AGP performance and supports 64-bit Advanced ECC Memory controller DDR266/200. While the VT8235 Southbridge connects through a 4X V-Link connection to the Northbridge transferring data at 266MB/s which is double the speed of the convention PCI bus. It also supports standard intelli-gent peripheral controllers such as USB v2.0/1.1 and Universal HCI v2.0/1.1 compliant, real time clock with 256 byte extended CMOS, integrated bus-mastering dual full-duplex direct-sound AC'97 link compatible sound system and full System Management Bus (SMBus) interface.

Supporting 6 USB2.0 ports, ATA 133 (the fastest available IDE interface), 10/100Mbps Fast Ethernet, AGP 4X slot and 6-channel audio features, the P4VMM2 motherboard is an ideal solution for consumer and entry-level pro-fessionals.

Features

Processor	This motherboard supports Intel® mPGA Socket 478 processors that has the following features: • Supports up to a 533/400 MHz front side bus (FSB) • Supports Intel® Pentium®/Northwood/Willamette/Prescott CPUs with speeds up to 3.06 GHz • Supports Intel® Hyper-Threading technology "Hyper-Threading" technology enables the operating system into thinking it's hooked up to two processors, allowing two threads to be run in parallel, both on separate 'logical' processors within the same physical processor.
Chipset	The VIA P4M266A Northbridge (NB) and VT8235CD Southbridge (SB) chipsets are based on an innovative and scalable architecture with proven reliability and performance. A few of the chipset's advanced features are:

Chipset	Features
VIA P4M266A NB	Support for Intel Pentium 4 processors with 533 MHz (133 MHz QDR) CPU Front Side Bus (FSB).
	Support Hyper-Threading technology
	AGP v2.0 compliant with 4x transfer mode compliant.
	DRAM interface synchronous with host CPU (133 / 100 MHz) for most flexible configuration.
	Optimized Shared Memory Architecture (SMA).
	32/16/8 MB frame buffer using system memory.
	Supports 266 MHz 4x and 133 MHz 2x transfer modes for AD and SBA signaling.
VT8235CD SB	Supports 66 MHz V-Link Client interface with peak bandwidth of 266 MB/sec
	Integrated Fast Ethernet Controller 1/10/100 Mbit capability.
	Integrated USB 2.0 Controller with three root hubs and six function ports.
	Dual channel UltraDMA 133/100/66/33 master mode EIDE controller
	PCI 2.2 compliant, 32-bit 3.3V PCI interface with 5V tolerant inputs.
	Universal Serial Bus (USB) controller that is USB v2.0 and Enhanced Host Controller Interface (EHCI) v1.0 compatible.
	Supports both Advanced Configuration and Power Interface (ACPI) and legacy (APM) power management.

Memory	This motherboard accommodates two 184-pin DDR DIMM sockets for up to 1GB memory. Supports PC2100/PC1600 unbuffered non-ECC DDR DIMMs.
Audio	The ALC655 is compliant with the AC'97 2.3 specification and supports multiple CODEC extensions with independent variable sampling rates and built-in 3D effects. It incorporates proprietary converter technology to achieve a high SNR, greater than 90 dB. The digital interface circuitry operates from a 5V/3.3V power supply and supports an AC'97 2.3 compliant SPDIF out function which allows easy connection from the PC to other electronic products. Further features include support for six analog line-level stereo inputs.
VT6103 Fast Ethernet 1-Port PHY / Transceiver	• Dual Speed – 100/10 Mbps • Half and Full Duplex • Meet All Applicable IEEE 802.3, 10Base-T and 100Base-Tx Standards • Adaptive Equalizer
Expansion Options	The motherboard comes with the following expansion options: • Three 32-bit PCI slots • Two IDE connectors which support four IDE channels and a floppy disk drive interface • One onboard LAN (optional) chip and LAN port on top of the USB port • One CNR (Communications Network Riser) slot This motherboard supports Ultra DMA bus mastering with transfer rates of 33/66/100/133 MB/sec.
Integrated I/O	The motherboard has a full set of I/O ports and connectors: • Two PS/2 ports for mouse and keyboard • One serial port • One VGA port • One parallel port • One LAN port • Four USB ports • Audio jacks for microphone, line-in and line-out
BIOS Firmware	This motherboard uses Award BIOS that enables users to configure many system features including the following: • Power management • Wake-up alarms • CPU parameters • CPU and memory timing The firmware can also be used to set parameters for different processor clock speeds.

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

Choosing a Computer Case

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

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

This motherboard has a micro-ATX form factor of 244 x 244 mm. Choose a case that accommodates this form factor.

Motherboard Components
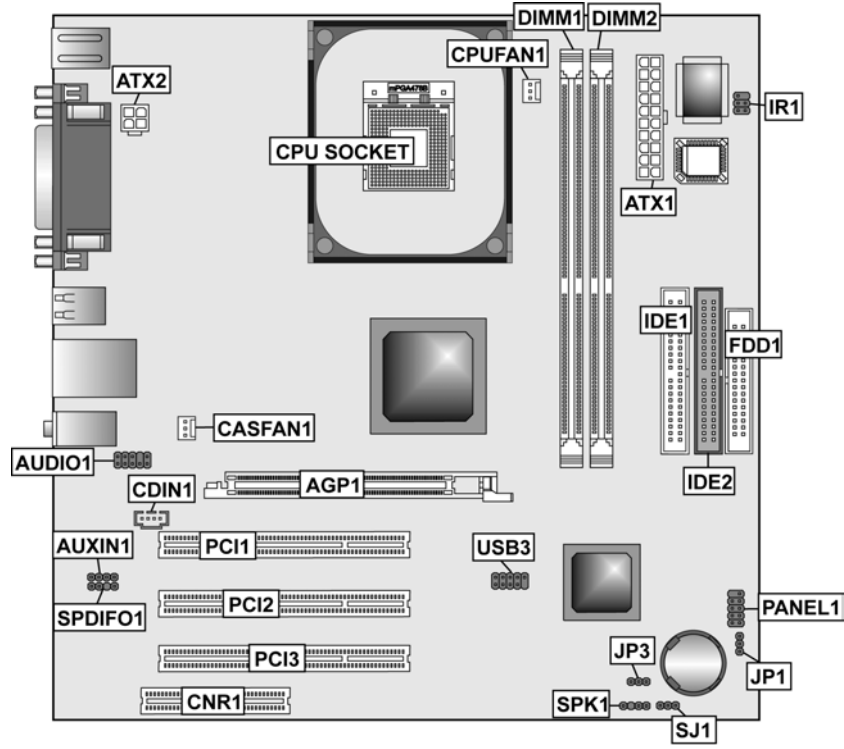
Table of Motherboard Components

Label	Component
AGP1	Accelerated Graphics Port
ATX1	Standard 20-pin ATX power connector
ATX2	Auxiliary power connector for Pentium 4 CPUs
AUDIO1	Front audio header
AUXIN1	Auxiliary-in header
CASFAN1	Case fan connector
CDIN1	Primary CD-in connector
CNR 1	Communications Network Riser (CNR) slot
CPU SOCKET	Micro PGA 478-pin socket for Pentium 4 CPUs
CPUFAN1	CPU fan connector
DIMM1 ~ DIMM2	Two 184-pin DDR DIMM sockets
FDD1	Floppy disk drive connector
IDE1	Primary IDE channel
IDE2	Secondary IDE channel
IR1	Infrared port
JP1	Clear CMOS jumper
JP3	BIOS Protect jumper
PANEL1	Header for case front panel switches and LED indicators
PCI1 ~ PCI3	Three 32-bit add-on card slots
SJ1	Single color LED header
SPDIFO1	SPDIF out header
SPK1	Speaker connector
USB3	Front panel USB ports header

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

Chapter 2
Installing the Motherboard

Safety Precautions

Follow these safety precautions when installing the motherboard:

- 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 motherboard.
- 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 motherboards.

The following table provides a reference for installing specific components:

Installing the Motherboard in a Case

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

This illustration shows an example of a motherboard being installed in a tower-type case: **Note:** Do not overtighten the screws as this can stress the motherboard. Most system cases have mounting brackets installed in the case, which correspond to the holes in the motherboard. Place the motherboard over the mounting brackets and secure the motherboard onto the mounting brackets with screws.	2. Secure the mainboard with screws where appropriate. 1. Place the mainboard over the mounting brackets.
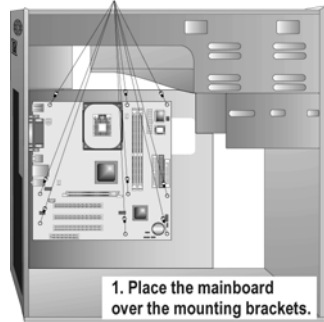
Ensure that your case has an I/O template that supports the I/O ports and expansion slots on your motherboard.

Checking Jumper Settings

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

Setting Jumpers

Use the motherboard 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**

8
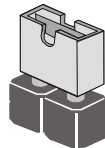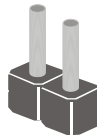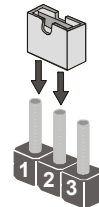
Checking Jumper Settings

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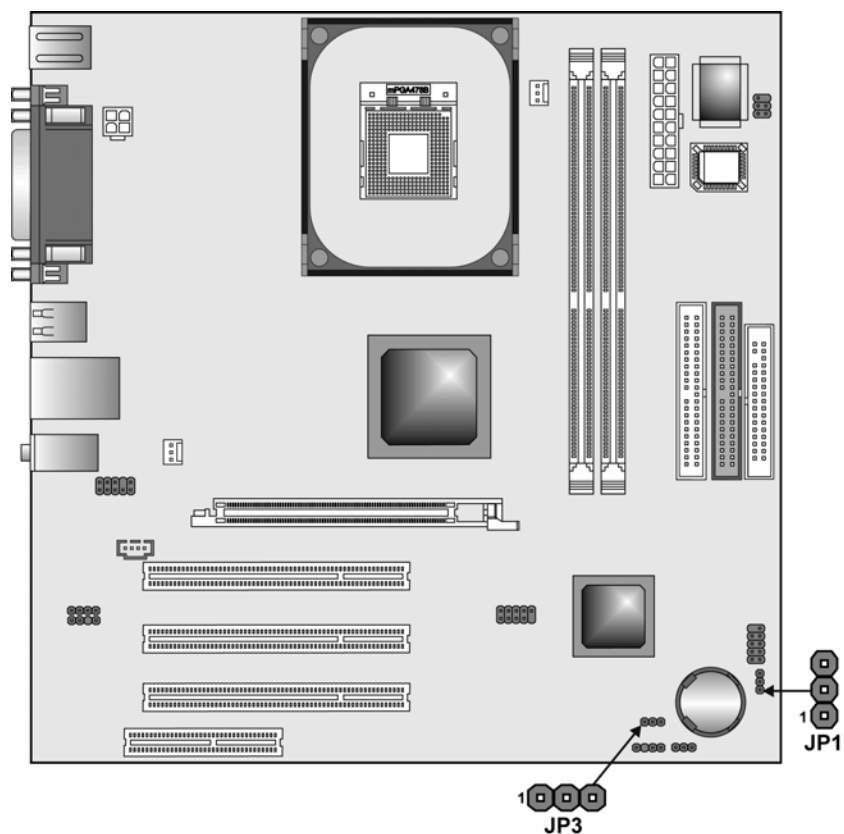
Jumper Settings

Jumper	Type	Description	Setting (*default*)	
JP1	3-pin	Clear CMOS	1-2: Normal *2-3: Clear CMOS* Before clearing the CMOS, make sure to turn off the system	**JP1**
JP3	3-pin	BIOS Flash protect	1-2: Disable *2-3: Enable*	**JP3**

Connecting Case Components

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

1. Connect the case cooling fan connector to **CPUFAN1**.
2. Connect the case cooling fan connector to **CASFAN1**.
3. Connect the case switches and indicator to **PANEL1**.
4. Connect the case LED cable to **SJ1**.
5. Connect the case speaker cable to **SPK1**
6. Connect the standard power supply connector to **ATX1**.
7. Connect the auxiliary case power supply connector to **ATX2**.

CPUFAN1/CASFAN1: FAN Power Connectors

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

SJ1: Single color LED header

Pin	Signal Name	Function
1	ACPI LED	MSG LED (-) green
2	ACPI LED	MSG LED (-) green
3	SB5V	Power LED (+)

ACPI LED function:

SJ1	S0	S1	S3	S4/S5
1	Light	Blinking	Blinking	Dark

10

SPK1: Internal speaker

Pin	Signal Name
1	Signal
2	Key
3	GND
4	VCC

ATX1: ATX 20-pin Power Connector

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

ATX2: ATX 12V Power Connector

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

Front Panel Connectors

The front panel connector (PANEL1) provides a standard set of switch and LED connectors commonly found on ATX or micro-ATX cases. Refer to the table below for information:
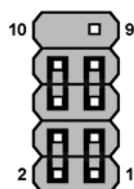
PANEL1

Pin	Signal	Function	Pin	Signal	Function
1	HD_LED_P	Hard disk LED (positive)	2	FP PWR/SLP	MSG LED [dual color or single color (+)]
3	HD_LED_N	Hard disk active LED (negative)	4	FP PWR/SLP	MSG LED [dual color or single color (-)]
5	RST_SW_N	Reset Switch	6	PWR_SW_P	Power Switch
7	RST_SW_P	Reset Switch	8	PWR_SW_N	Power Switch
9	RSVD	Reserved	10	NC	No pin

Hard Drive Activity LED

Connecting pins 1 and 3 to a front panel mounted LED provides visual indication that data is being read from or written to the hard drive. For the LED to function properly, an IDE drive should be connected to the onboard IDE interface. The LED will also show activity for devices connected to the SCSI (hard drive activity LED) connector.

Power / Sleep / Message Waiting LED

Connecting pins 2 and 4 to a single- or dual-color, front panel mounted LED provides power on/off, sleep, and message waiting indication.

Reset Switch

Supporting the reset function requires connecting pins 5 and 7 to a momentary-contact switch that is normally open. When the switch is closed, the board resets and runs POST.

Power Switch

Supporting the power on/off function requires connecting pins 6 and 8 to a momentary-contact switch that is normally open. The switch should maintain contact for at least 50 ms to signal the power supply to switch on or off. The time requirement is due to internal debounce circuitry. After receiving a power on/off signal, at least two seconds elapses before the power supply recognizes another on/off signal.

Installing Hardware

Installing the Processor

> **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 the motherboard or its components.**
>
> **On most motherboards, 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 motherboard and processor socket.**

Before installing the Processor

This motherboard 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 motherboard, 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 motherboard by generating excess heat in components that are run beyond the rated limits.**

This motherboard 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:
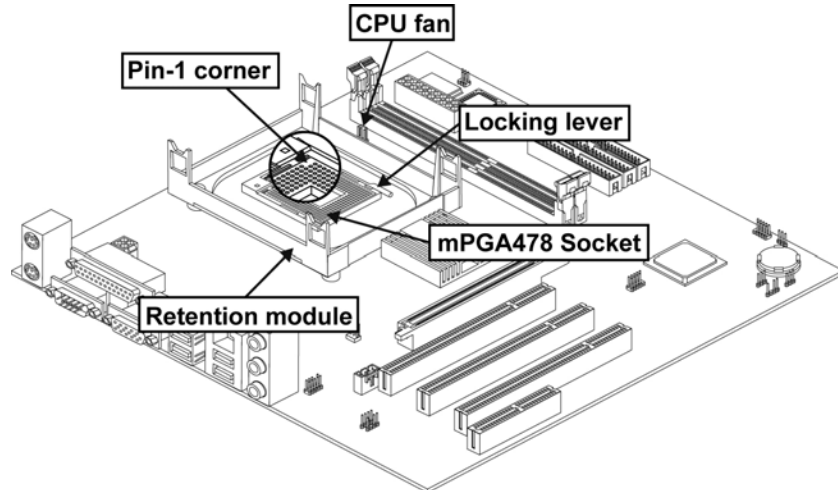
Note: The pin-1 corner is marked with an arrow ▶

Follow these instructions to install the Retention Module and CPU:

1. Install your CPU. Pull up the lever away from the socket and lift up to 90-degree angle.
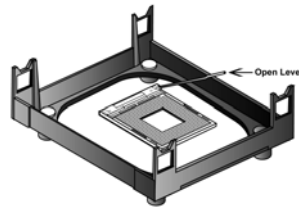
2. Locate the CPU cut edge (the corner with the pinhole noticeably missing). Align and insert the CPU correctly.
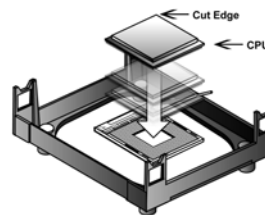
3.   Press the lever down.
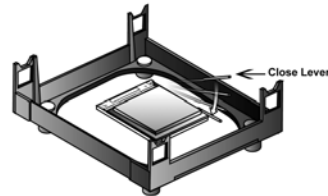
4.   Apply thermal grease on top of the CPU.

5.   Put the CPU Fan down
     on the retention module
     and snap the four reten-
     tion legs of the cooling
     fan into place.
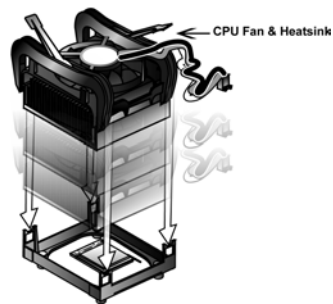
6.   Flip the levers over to lock the heat sink in place.

7.   Connect the CPU Cool-
     ing Fan power cable to
     the CPUFAN1 connec-
     tor. This completes the
     installation.
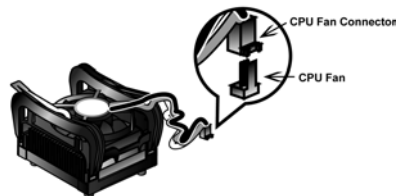
Notes: •   To achieve better airflow rates and heat dissipation, we suggest that
              you use a high quality fan with 4800 rpm at least.
          •   CPU fan and heatsink installation procedures may vary with the type of
              CPU fan/heatsink supplied. The form and size of fan/heatsink may also
              vary.

Installing Memory Modules

This motherboard accommodates two Double Data Rate (DDR) SDRAM
memory modules. These sockets support up to 1GB system memory using
184-pin unbuffered non-ECC PC2100/PC1600 DDR DIMMs.

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

Installation Procedure

Refer to the following to install the memory modules.

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

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

3. Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.
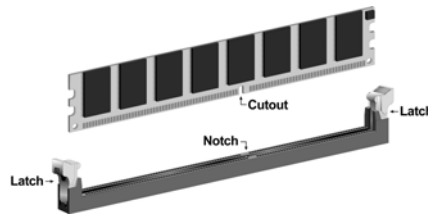
4. Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.
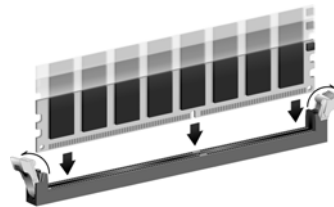
5. Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the DIMM.
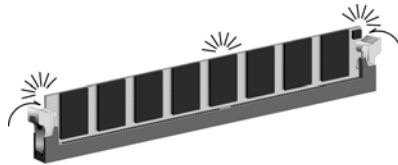
6. Install any remaining DIMM modules.

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.

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

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.

> You must orient the cable connector so that the pin 1 (color) edge of the cable corresponds to the pin 1 of the I/O port connector.

IDE1: Primary IDE Connector

The first hard drive should always be connected to IDE1.
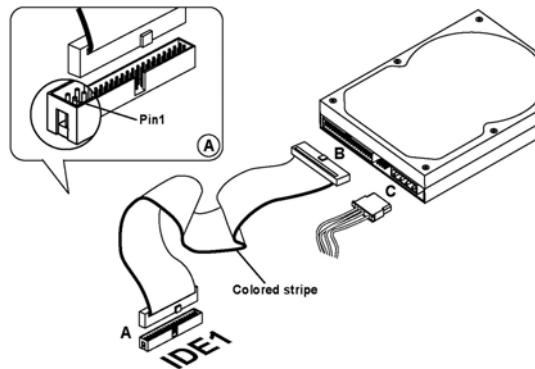
IDE2: Secondary IDE

The second drive on this controller must be set to slave mode. The configuration is the same as IDE1.
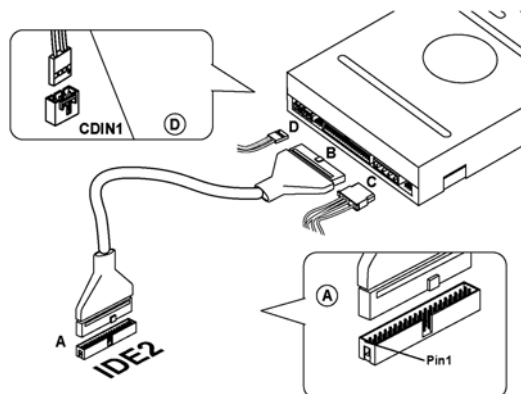
IDE devices have jumpers or switches that are used to set the IDE device as

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 motherboard supports UltraDMA 133/100/66. 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 133/100/66.

Installing a Floppy Diskette Drive

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

FDD1: Floppy Disk Connector

This connector supports the provided floppy drive ribbon cable. After connecting the single end to the onboard floppy connector, connect the remaining plugs on the other end to the floppy drives correspondingly.
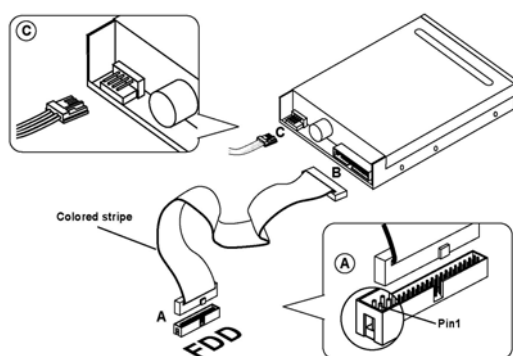
You must orient the cable connector so that the pin 1 (color) edge of the cable corresponds to the pin 1 of the I/O port connector.

Installing Add-on Cards
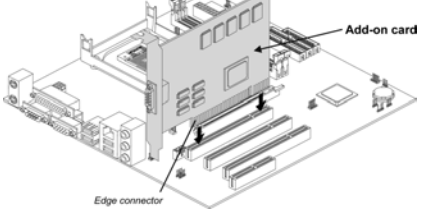
The slots in this motherboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the motherboard's features and capabilities. With these efficient facilities, you can increase the motherboard's capabilities by adding hardware which performs tasks that are not part of the basic system.
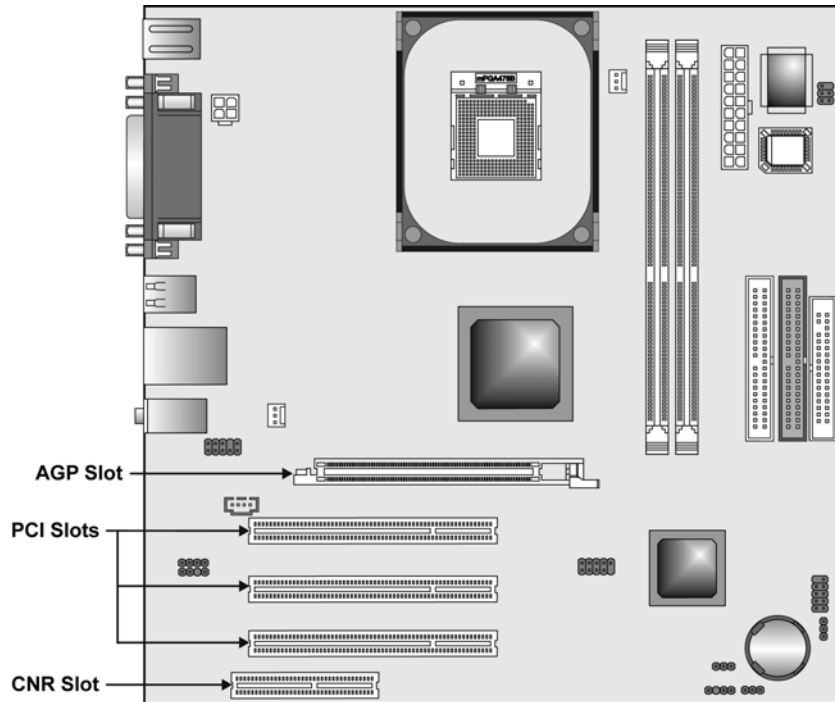
AGP Slot	The AGP slot is used to install 3D graphics adapter that supports the AGP 4X card which is also backward compatible with AGP 2X card.
PCI Slots	This motherboard is equipped with 3 standard PCI slots. PCI stands for peripheral Component Interconnect and is a bus standard for expansion cards, which for the most part, is a supplement of the older ISA bus standard. This PCI slot is designated as 32-bit.
CNR Slot	This slot is used to insert CNR cards with Modem and Audio functionality.

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

Follow these instructions to install an add-on card:

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

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

Connecting Optional Devices

Refer to the following for information on connecting the motherboard's optional devices:
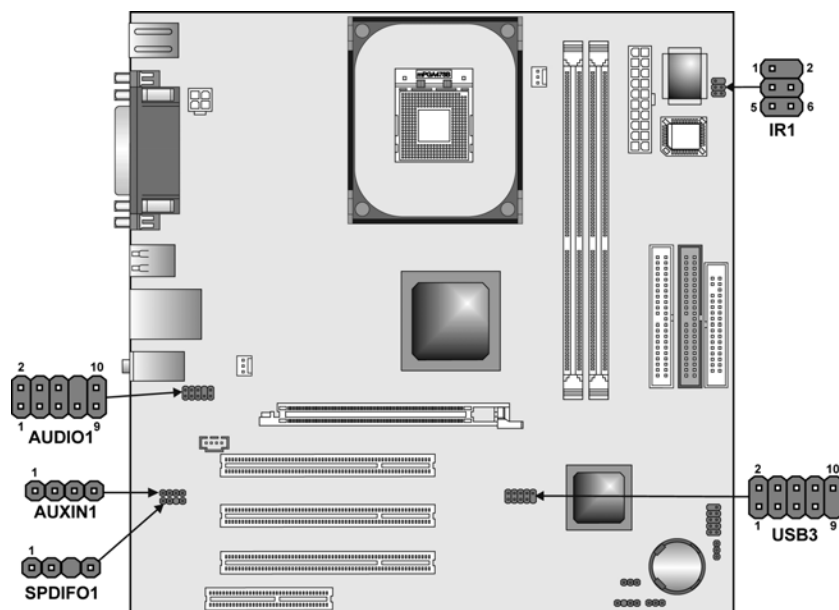
AUDIO1: Front Panel Audio header

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

Pin	Signal Name	Function
1	AUD_MIC	Front Panel Microphone input signal
2	AUD_GND	Ground used by Analog Audio Circuits
3	AUD_MIC_BIAS	Microphone Power
4	AUD_VCC	Filtered +5 V used by Analog Audio Circuits
5	AUD_FPOUT_R	Right Channel Audio signal to Front Panel
6	AUD_RET_R	Right Channel Audio signal to Return from Front Panel
7	HP_ON	Reserved for future use to control Headphone Amplifier
8	KEY	No Pin
9	AUD_FPOUT_L	Left Channel Audio signal to Front Panel
10	AUD_RET_L	Left Channel Audio signal Return from Front Panel

USB3: Front panel USB ports

The motherboard has one USB port installed on the rear edge I/O port array. Additionally, some computer cases have USB ports at the front of the case. If

you have this kind of case, use auxiliary USB connector USB3 to connect the front-mounted ports to the motherboard.

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

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

SPDIFO1: SPDIF out header

This is an optional header that provides an S/PDIF (Sony/Philips Digital Interface) output to digital multimedia device through optical fiber or coaxial connector.

Pin	Signal Name
1	SPDIF Out
2	VCC
3	KEY
4	GND

AUXIN1: Auxiliary-in header

This connector is an additional line-in audio connector. It allows you to attach a line-in cable when your rear line-in jack is set as line out port for 4-channel function.

Pin	Signal Name	Function
1	AUX_L	AUX In left channel
2	GND	Ground
3	GND	Ground
4	AUX_R	AUX In right channel

CD-in: CD Audio Input header

Pin	Signal Name	Function
1	CD in_L	CD In left channel
2	GND	Ground
3	GND	Ground
4	CD in_R	CD In right channel

IR1: Serial infrared port

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

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

Connecting I/O Devices

The backplane of the motherboard has the following I/O ports:
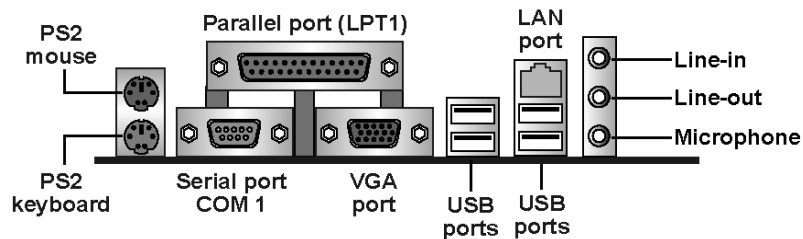
PS/2 Mouse	Use the upper PS/2 port to connect a PS/2 pointing device.
PS/2 Keyboard	Use the lower PS/2 port to connect a PS/2 keyboard.
LPT1	Use LPT1 to connect printers or other parallel communications devices.
COM1	Use the COM ports to connect serial devices such as mice or fax/modems.
VGA Port	Connect your monitor to the VGA port.
Audio Ports	Use the three audio ports to connect audio devices. The first jack is for stereo line-in signal. The second jack is for stereo line-out signal. The third jack is for microphone.
LAN Port (optional)	Connect an RJ-45 jack to the LAN port to connect your computer to the Network.
USB Ports	Use the USB ports to connect USB devices.

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

About the Setup Utility

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

Starting Setup

The BIOS is immediately activated when you first turn on the computer. The BIOS reads system configuration in CMOS RAM and begins the process of checking out the system and configuring it through the power-on self test (POST).

When these preliminaries are finished, the BIOS seeks an operating system on one of the data storage devices (hard drive, floppy drive, etc.). The BIOS launches the operating system and hands control of system operations to it.

During POST, you can start the Setup program in one on two ways:

1. By pressing Del immediately after switching the system on, or
2. By pressing Del or pressing Ctrl+Alt+Esc when the following message appears briefly at the bottom of the screen during POST:

> TO ENTER SETUP BEFORE BOOT PRESS DEL KEY

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the RESET button on the system case. You may also restart by simultaneously pressing Ctrl+Alt+Del. If you do not press the keys at the correct time and the system does not boot, an error message appears and you are again asked to:

> PRESS F1 TO CONTINUE, DEL TO ENTER SETUP

> PRESS F1 TO CONTINUE, DEL TO ENTER SETUP

Phoenix – AwardBIOS CMOS Setup Utility

►Standard CMOS Features	►Frequency/Voltage Control
►Advanced BIOS Features	Load Fail-Safe Defaults
►Advanced Chipset Features	Load Optimized Defaults
►Integrated Peripherals	Set Supervisor Password
►Power Management Setup	Set User Password
►PnP/PCI Configurations	Save & Exit Setup
►PC Health Status	Exit Without Saving

Esc : Quit	↑ ↓ → ← : Select Item
F10 : Save & Exit Setup	

Time, Date, Hard Disk Type . . .

BIOS Navigation Keys

The BIOS navigation keys are listed below:

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

Updating the BIOS

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

1. If your motherboard has a BIOS protection jumper, change the setting to allow BIOS flashing.
2. If your motherboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten.)
3. Create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)
4. Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the system diskette you created in Step 3.
5. Turn off your computer and insert the system diskette in your computer's diskette drive. (You might need to run the Setup Utility and change the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the floppy diskette drive first.)
6. At the A:\ prompt, type the Flash Utility program name and press <Enter>. Type the filename of the new BIOS in the "File Name to Program" text box. Follow the onscreen directions to update the motherboard BIOS.
7. When the installation is complete, remove the floppy diskette from the diskette drive and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten.

Using BIOS

When you start the Setup Utility, the main menu appears. The main menu of the Setup Utility displays a list of the options that are available. A highlight indicates which option is currently selected. Use the cursor arrow keys to

move the highlight to other options. When an option is highlighted, execute the option by pressing <Enter>.

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

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

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

Standard CMOS Features

In the Standard CMOS menu you can set the system clock and calendar, record disk drive parameters and the video subsystem type, and select the type of errors that stop the BIOS POST.

Phoenix – AwardBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Wed, Nov 26 2003	**Item Help**
Time (hh:mm:ss)	12 : 8 : 59	
		Menu Level ▶
▶ IDE Primary Master		
▶ IDE Primary Slave		Change the day, month,
▶ IDE Secondary Master		year and century.
▶ IDE Secondary Slave		
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Video	[EGA/VGA]	
Halt On	[All Errors]	
Base Memory	640K	
Extended Memory	65535K	
Total Memory	1024K	

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

Date and Time

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

▶ **IDE Devices (None)**

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

Press <Enter> to display the IDE submenu:

Phoenix – AwardBIOS CMOS Setup Utility
IDE Primary Master

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

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

IDE HDD Auto-Detection

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

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

IDE Primary/Secondary Master/Slave (Auto)

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

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

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

Access Mode

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

Press <Esc> to return to the Standard CMOS Setup screen.

Drive A/Drive B (1.44M, 3.5 in.)

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

Video (EGA/VGA)

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

Halt On (All Errors)

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

Base Memory, Extended Memory, and Total Memory

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

Advanced BIOS Features

This screen contains industry-standard options additional to the core PC AT BIOS.

Phoenix – AwardBIOS CMOS Setup Utility
Advanced BIOS Setup

ATA 66/100 Cable MSG	[Enabled]	**Item Help**
► CPU Feature	[Press Enter]	
CPU L1 & L2 Cache	[Enabled]	Menu Level ►
Hyper-Threading Technology	[Enabled]	
CPU L2 Cache ECC Checking	[Enabled]	
Quick Power On Self Test	[Enabled]	
First Boot Device	[Floppy]	
Second Boot Device	[HDD-0]	
Third Boot Device	[CDROM]	
Boot Other Device	[Enabled]	
Swap Floppy Drive	[Disabled]	
Boot Up Floppy Seek	[Disabled]	
Boot Up NumLock Status	[On]	
Typematic Rate Setting	[Disabled]	
x Typematic Rate (Chars/Sec)	6	
x Typematic Delay (Msec)	250	
Security Option	[Setup]	
APIC Mode	[Enabled]	
OS Select For DRAM > 64MB	[Non-OS2]	
HDD S.M.A.R.T Capability	[Disabled]	

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

ATA 66/100 IDE Cable Msg. (Enabled)

Enables or disables the ATA 66/100 IDE Cable Msg. This message will appear during reboot when you use 40-pin cable on your 66/100 hard disks.

▶ CPU Feature (Press Enter)

Scroll to this item and press <Enter> to view the following screen, and the following items are only available when the motherboard supports Prescott CPU, but not every Prescott CPU has Thermal Monitor 2 function:

Phoenix – AwardBIOS CMOS Setup Utility
CPU Feature

Thermal Management	[Thermal Monitor 1]	Item Help
TM2 Bus Ratio	[0 X]	
TM2 Bus VID	[0.8375V]	Menu Level ▶▶
Limit CPUID MaxVal	[Disabled]	
		Thermal Monitor 1 (On die throtting)
		Thermal Monitor 2 Ratio & VID transition

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

Thermal Management (Thermal Monitor 1)

This item sets CPU's thermal control rule to protect CPU from overheat.   This feature is only available when CPU supports Thermal Monitor 2.

TM2 Bus Ratio (0 X)

This item helps you to set the frequency (bus ratio) of the throttled perform-ance that will be initiated when the on die sensor goes from not hot to hot. You may set the bus ration number from 0 to 255.

TM2 Bus VID (0.8375V)

This item helps you to set the voltage of the throttled performance that will be initiated when the on die sensor goes from not hot to hot.

Limit CPUID MaxVal (Disabled)

This item limits the CPUID maximum value. Enable this item to install WinNT. Leave this item at the default value for other OS.

Press <Esc> to return to the Advanced BIOS Features screen.

CPU L1 and L2 Cache (Enabled)

All processors that can be installed in this motherboard use internal level 1 (L1) and external level 2 (L2) cache memory to improve performance. Leave this item at the default value for better performance.

Hyper-Threading Technology (Enabled)

This item allows you to control the functionality of the Intel Hyper-Threading

Technology.

CPU L2 Cache ECC Checking (Enabled)

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

Quick Power On Self Test (Enabled)

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

First/Second/Third Boot Device (Floppy/HDD-0/CD-ROM)

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

Boot Other Device (Enabled)

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.

Swap Floppy Drive (Disabled)

This item allows you to swap the logical arrangement of the floppy drives. Instead of opening up the motherboard case to do it physically, you can set this item to Enabled. Then the first drive will be mapped as drive B: and the second drive, mapped as drive A:, which is the opposite of the usual convention.

Boot Up Floppy Seek (Disabled)

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

Boot Up NumLock Status (On)

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

Typematic Rate Setting (Disabled)

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

- **Typematic Rate (6):** Use this item to define how many characters per second are generated by a held-down key.
- **Typematic Delay (250):** Use this item to define how many milliseconds must elapse before a held-down key begins generating repeat characters.

Security Option (Setup)

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

APIC Mode (Enabled)

This item allows you to enable APIC (Advanced Programmable Interrupt Controller) functionality. APIC is an Intel chip that provides symmetric multiprocessing (SMP) for its Pentium systems.

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

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

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

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

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

Video BIOS Shadow (Enabled)

This item determines whether the BIOS will be copied to RAM for faster execution.

Small Logo (EPA) Show (Disabled)

Enables or disables the display of the EPA logo during boot.

Advanced Chipset Setup

The parameters in this screen are for system designers, service personnel, and technically competent users only. Do not reset these values unless you understand the consequences of your changes.

Phoenix – AwardBIOS CMOS Setup Utility
Advanced Chipset Setup

► DRAM Clock/Drive Control	[Press Enter]	**Item Help**
► AGP & P2P Bridge Control	[Press Enter]	
► CPU & PCI Bus Control	[Press Enter]	Menu Level ►
System BIOS Cacheable	[Disabled]	
VGA Share Memory Size	[32M]	
Init Display First	[PCI Slot]	

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

►DRAM Clock/Drive Control

Scroll to this item and press <Enter> to view the following screen:

CMOS Setup Utility – Copyright (C) 1984 – 2001 Award Software
DRAM Clock/Drive Control

	Current FSB Frequency		**Item Help**
	Current DRAM Frequency		
	DRAM Clock	[By SPD]	Menu Level ►
	DRAM Timing	[By SPD]	
X	SDRAM CAS Latency	2	
X	Bank Interleave	Disabled	
X	Precharge to Active (Trp)	3T	
X	Active to Precharge (Tras)	6T	
X	Active to CMD (Trcd)	3T	
X	DRAM Command Rate	2T Command	
	DRAM Burst Len	[4]	

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

Current FSB Frequency

This item displays the frontside bus (FSB) frequency. This is a display-only item. You cannot make changes to this field.

Current DRAM Frequency

This item displays the memory (DRAM) frequency. This is a display-only item. You cannot make changes to this field.

DRAM Clock (By SPD)

This item enables you to manually set the DRAM Clock. We recommend that you leave this item at the default value.

DRAM Timing (By SPD)

Set this to the default value to enable the system to automatically set the SDRAM timing by SPD (Serial Presence Detect). SPD is an EEPROM chip on the DIMM module that stores information about the memory chips it contains, including size, speed, voltage, row and column addresses, and manufacturer. If you disable this item, you can use the following three items to manually set the timing parameters for the system memory.

- **SDRAM CAS Latency (2):** Enables you to select the CAS latency time in HCLKs of 2/2 or 3/3. The value is set at the factory depending on the DRAM installed. Do not change the values in this field unless you change specifications of the installed DRAM or the installed CPU. The options are "2" and "3" default.
- **Bank Interleave (Disabled):** Enable this item to increase memory speed. When enabled, separate memory banks are set for odd and even addresses and the next byte of memory can be accessed while the current byte is being refreshed.
- **Precharge to Active (Trp) (3T):** This item is used to designate the minimum Row Precharge time of the SDRAM devices on the module. DRAM must continually be refreshed or it will lose its data.

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

- **Active to Precharge (Tras) (6T) :** This item specifies the number of clock cycles needed after a bank active command before a precharge can occur.
- **Active to CMD (Trcd) (3T) :** This item specifies the minimum required delay between activation of different rows.
- **DRAM Command Rate (2T Command):** This item enables you to specify the waiting time for the CPU to issue the next command after issuing the command to the DDR memory. We recommend that you leave this item at the default value.

DRAM Burst Len (4)

This item describes which burst lengths are supported by the devices on the motherboard.

Press <Esc> to return to the Advanced Chipset Setup screen.

►AGP & P2P Bridge Control

Scroll to this item and press <Enter> to view the following screen:

```
                 CMOS Setup Utility – Copyright (C) 1984 – 2001 Award Software
                                  AGP & P2P Bridge Control

        AGP Aperture Size          [128M]
        AGP Mode                   [4X]                        Item Help
        AGP Driving Control        [Auto]
   X    AGP Driving Value          DA                   Menu Level    ►
        AGP Fast Write             [Disabled]
        AGP Master 1 WS Write      [Disabled]
        AGP Master 1 WS Read       [Disabled]




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

AGP Aperture Size (128 MB)

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

AGP Mode (4X)

This item allows you to enable or disable the caching of display data for the processor video memory. Enabling AGP-4X Mode can greatly improve the display speed. Disable this item if your graphics display card does not support this feature.

AGP Driving Control (Auto)

This item is used to signal driving current on AGP cards to auto or manual. Some AGP cards need stronger than normal driving current in order to oper-ate. We recommend that you set this item to the default.

- **AGP Driving Value:** When AGP Driving Control is set to Manual, use this item to set the AGP current driving value.

AGP Fast Write (Disabled)

This item lets you enable or disable the caching of display data for the video memory of the processor. Enabling this item can greatly improve the display speed. Disable this item if your graphics display card does not support this feature.

AGP Master 1 WS Write (Disabled)

This implements a single delay when writing to the AGP Bus. By default, two-wait states are used by the system, providing greater stability.

AGP Master 1 WS Read (Disabled)

This implements a single delay when reading to the AGP Bus. By default, two-wait states are used by the system, allowing for greater stability.

►CPU & PCI Bus Control

Scroll to this item and press <Enter> to view the following screen:

CMOS Setup Utility – Copyright (C) 1984 – 2001 Award Software
CPU & PCI Bus Control

CPU to PCI Write Buffer	**[Enabled]**	**Item Help**
PCI Master 0 WS Write	**[Enabled]**	
PCI Delay Transaction	**[Disabled]**	**Menu Level ►**

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

CPU to PCI Write Buffer (Enabled)

When enabled, writes from the CPU to PCU bus are buffered, to compensate for the speed differences between the CPU and PCI bus. When disabled, the writes are not buffered and the CPU must wait until the write is complete before starting another write cycle.

PCI Master 0 WS Write (Enabled)

When enabled, writes to the PCI bus are executed with zero wait states.

PCI Delay Transaction (Disabled)

The motherboard's chipset has an embedded 32-bit post write buffer to support delay transactions cycles. Select Enabled to support compliance with PCI specification version 2.1.

System BIOS Cacheable (Disabled)

This item allows the system to be cached in memory for faster execution. Leave these items at the default value for better performance.

VGA Share Memory Size (32M)

This item enables you to specify the system memory size to allocate to the video memory.

Init Display First (PCI Slot)

Use this item to define if your graphics adapter is installed in one of the PCI slots or select onboard if you have a graphics system integrated on the motherboard.

Integrated Peripherals

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

Phoenix – AwardBIOS CMOS Setup Utility
Integrated Peripherals

► **VIA OnChip IDE Device**	[Press Enter]	**Item Help**
► **VIA OnChip PCI Device**	[Press Enter]	
► **Super IO Device**	[Press Enter]	**Menu Level ►**

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

► VIA OnChip IDE Device

Scroll to this item and press <Enter> to view the following screen:

Phoenix – AwardBIOS CMOS Setup Utility
VIA OnChip IDE Device

OnChip IDE Channel0		[Enabled]	**Item Help**
OnChip IDE Channel1		[Enabled]	
IDE Prefetch Mode		[Enabled]	**Menu Level ►►**
Primary Master	PIO	[Auto]	
Primary Slave	PIO	[Auto]	
Secondary Master	PIO	[Auto]	
Secondary Slave	PIO	[Auto]	
Primary Master	UDMA	[Auto]	
Primary Slave	UDMA	[Auto]	
Secondary Master	UDMA	[Auto]	
Secondary Slave	UDMA	[Auto]	
IDE HDD Block Mode		[Enabled]	

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

On-Chip IDE Channel 0/1 (Enabled)

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

IDE Prefetch Mode (Enabled)

The onboard IDE drive interfaces supports IDE prefetching, for faster drive access. If you install a primary and secondary add-in IDE interface, set this

field to Disabled if the interface does not support prefetching.

Primary/Secondary Master/Slave PIO (Auto)

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

Primary/Secondary Master/Slave UDMA (Auto)

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

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

IDE HDD Block Mode (Enabled)

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

Press <Esc> to return to the Integrated Peripherals screen.

► **VIA OnChip PCI Device**

Scroll to this item and press <Enter> to view the following screen:

Phoenix – AwardBIOS CMOS Setup Utility
VIA OnChip PCI Device

AC97 Audio	**[Auto]**	**Item Help**
MC97 Modem	**[Auto]**	
Onboard LAN Device	**[Enabled]**	**Menu Level ►►**
Onboard Lan Boot ROM	**[Disabled]**	
OnChip USB Controller	**[All Enabled]**	
USB 2.0 Support	**[Enabled]**	
USB Legacy Support	**[Disabled]**	
USB Mouse Support	**[Disabled]**	

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

AC97 Audio (Auto)

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

MC97 Modem (Auto)

Enables and disables the onboard modem. Disable this item if you are going to install an external modem.

Onboard LAN Device (Enabled)

Enables and disables the onboard LAN chip.

Onboard LAN Boot ROM (Disabled)

Use this item to enable and disable the booting from the onboard LAN or a network add-in card with a remote boot ROM installed.

OnChip USB Controller (All Enabled)

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

USB 2.0 Support (Enabled)

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

USB Legacy Support (Enabled)

Use this item to enable or disable support for legacy USB devices. Setting to Auto allows the system to detect the presence of USB devices at startup. If detected, the USB controller legacy mode is enabled. If no USB device is detected, the legacy USB support is disabled.

USB Mouse Support (Disabled)

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

Press <Esc> to return to the Integrated Peripherals screen.

► **SuperIO Device**

Scroll to this item and press <Enter> to view the following screen:

Phoenix – AwardBIOS CMOS Setup Utility
Onboard SuperIO Device

		Item Help
Onboard FDC Controller	**[Enabled]**	
Onboard Serial Port 1	**[3F8/IRQ4]**	Menu Level ►►
Onboard Parallel Port	**[378/IRQ7]**	
Parallel Port Mode	**[ECP]**	
ECP Mode Use DMA	**[3]**	

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

Onboard FDC Controller (Enabled)

This option enables the onboard floppy disk drive controller.

Onboard Serial Port 1 (3F8/IRQ4)

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

Onboard Parallel Port (378/IRQ7)

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

Parallel Port Mode (ECP)

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

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

ECP Mode Use DMA (3)

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

Power Management Setup

The Power Management Setup Menu option is used to change the values of the chipset registers for system power management.

Power Management Timeouts

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

Wake Up Calls

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

```
                 Phoenix – AwardBIOS CMOS Setup Utility
                        Power Management Setup
┌─────────────────────────────────────────────┬─────────────────────┐
│  ACPI function                  [Enabled]    │                     │
│  ACPI Suspend Type              [S3(STR)     │     Item Help       │
│  HDD Power Down                 [Disable]    ├─────────────────────┤
│  Suspend Mode                   [Disable]    │  Menu Level    ►    │
│  Video Off Option               [Susp, Stby --> Off]               │
│  Video Off Method               [DPMS Supported]                   │
│  MODEM Use IRQ                  [Auto]       │                     │
│  Soft-Off by PWRBTN             [Instant-Off]│                     │
│  Run VGABIOS if S3 Resume       [Auto]       │                     │
│  Power on After Power fail      [Off]        │                     │
│  5 VSB for PS2/USB in S4-S5     [Enabled]    │                     │
│► IRQ/Event Activity Detect      [Press Enter]│                     │
│                                              │                     │
│                                              │                     │
└─────────────────────────────────────────────┴─────────────────────┘
↑↓→← : Move   Enter : Select    +/-/PU/PD:Value:  F10: Save  ESC: Exit  F1:General
Help    F5:Previous Values      F6:Fail-Safe Defaults      F7:Optimized Defaults
```

ACPI Function (Enabled)

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

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

ACPI Suspend Type (S3(STR))

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

41

the exception of a refresh current to the system memory.

HDD Power Down (Disabled)

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

Suspend Mode (Disable)

After the selected period of system inactivity, all devices except for the CPU shut off.

Video Off Option (Suspend → Off)

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

Video Off Method (DPMS Supported)

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

MODEM Use IRQ (3)

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

Soft-Off by PWRBTN (Instant-Off)

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

Run VGABIOS if S3 Resume (Auto)

This determines whether or not to enable the system to run the VGA BIOS when resuming from STR/S3.

Power on After Power Fail (Off)

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

5 VSB for PS2/USB in S4-S5 (Enabled)

When this item is enabled, your computer can have 5V stand-by power for PS2/USB devices in S4-S5 state.

► IRQ/Event Activity Detect

Scroll to this item and press <Enter> to view the following screen:

Phoenix – AwardBIOS CMOS Setup Utility
IRQ/Event Activity Detect

PS2KB Wakeup Select for S3	**[Hot key]**	**Item Help**
PS2KB Wakeup Hot key	**[Ctrl+F12]**	
Power Button Lock for S3	**[Disabled]**	**Menu Level** ►
PS2MS Wakeup from S3	**[Disabled]**	
USB Resume from S3	**[Disabled]**	
VGA	**[Off]**	
LPT & COM	**[LPT/COM]**	
HDD & FDD	**[ON]**	
PCI Master	**[OFF]**	
Resume By PCI PME	**[Enabled]**	
Modem Ring Resume	**[Disabled]**	
RTC Alarm Resume	**[Disabled]**	
X Date (of Month)	0	
X Resume Time (hh:mm:ss)	0: 22: 0	
► **IRQs Activity Monitoring**	**[Press Enter]**	

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

PS2KB Wakeup Select for S3 (Hot Key)

Enables you to choose either to press a keyboard hot key to awaken the system from power saving mode.

PS2KB Wakeup Hot key (Ctrl+F12)

This option allows you to set hot key combination to turn on the system by keyboard.

Power Button Lock for S3 (Disabled)

When this item is enabled, you can set the password to lock the system.

PS2MS Wakeup from S3 (Disabled)

This option enables you to allow mouse activity to awaken the system from power saving mode.

USB Resume from S3 (Disabled)

When set to "Enabled," the system power will resume the system from a power saving mode if there is any USB port activity.

VGA (OFF)

When set to On, the system power will resume the system from a power saving mode if there is any VGA activity.

LPT & COM (LPT/COM)

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

HDD & FDD (ON)

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

43

diskette drive.

PCI Master (OFF)

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

Resume by PCI PME (Enabled)

This item specifies whether the system will be awakened from power saving modes when activity or input signal of the specified hardware peripheral or component is detected.

Modem Ring Resume (Disabled)

Enable Modem Ring-in to resume the system.

RTC Alarm Resume (Disabled)

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

Press <Esc> to return to the Power Management Setup screen.

► IRQs Activity Monitoring

Scroll to this item and press <Enter> to view the following screen:

Phoenix – AwardBIOS CMOS Setup Utility
IRQs Activity Monitoring

		Item Help
Primary INTR	**[ON]**	
IRQ3 (COM2)	[Disabled]	
IRQ4 (COM1)	[Enabled]	**Menu Level ►**
IRQ5 (LPT2)	[Enabled]	
IRQ6 (Floppy Disk)	[Enabled]	
IRQ7 (LPT1)	[Enabled]	
IRQ8 (RTC Alarm)	[Disabled]	
IRQ9 (IRQ2 Redir)	[Disabled]	
IRQ10 (Reserved)	[Disabled]	
IRQ11 (Reserved)	[Disabled]	
IRQ12 (PS/2 Mouse)	[Enabled]	
IRQ13 (Coprocessor)	[Enabled]]	
IRQ14 (Hard Disk)	[Enabled]	
IRQ15 (Reserved)	[Disabled]	

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

This screen enables you to set IRQs that will resume the system from a power saving mode.

Set any IRQ to Enabled to allow activity at the IRQ to wake up the system from a power saving mode

Press <Esc> to return to the Power Management Setup screen.

44

PNP/PCI Configurations

This section describes configuring the PCI bus system. PCI (Peripheral Component Interconnect) is a system, which allows I/O devices to operate at speeds nearing CPU's when they communicate with own special components.

All the options describes in this section are important and technical and it is strongly recommended that only experienced users should make any changes to the default settings.

Phoenix – AwardBIOS CMOS Setup Utility
PnP/PCI Configurations

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

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

Reset Configuration Data (Disabled)

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

Resources Controlled By (Auto(ESCD))

You should leave this item at the default Auto(ESCD). Under this setting, the system dynamically allocates resources to Plug and Play devices as they are required. If you select the "Manual" option, the prompt on the following line, "IRQ Resources" will become available to you.

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

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

► IRQ Resources

The submenu allows you to individually assign an interrupt type for interrupts IRQ-3 to IRQ-15.

PCI/VGA Palette Snoop (Disabled)

This item is designed to overcome problems that can be caused by some non-

standard VGA cards. This board includes a built-in VGA system that does not require palette snooping so you must leave this item disabled.

Assign IRQ for USB (Enabled)

Names the interrupt request (IRQ) line assigned to the USB (if any) on your system. Activity of the selected IRQ always awakens the system.

PC Health Status

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

<div align="center">

Phoenix – AwardBIOS CMOS Setup Utility
PC Health Status

</div>

Shutdown Temperature [Disabled]		**Item Help**
CPU Vcore		
2.50 V		**Menu Level** ▶
3.30 V		
5.0 V		
Voltage Battery		
Current System Temp		
Current CPU Temp		
CPU FAN Speed		
CASE FAN Speed		

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

Shutdown Temperature (Disabled)

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

System Component Characteristics

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

Frequency/Voltage Control

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

Phoenix – AwardBIOS CMOS Setup Utility
Frequency/Voltage Control

CPU Clock Ratio	[8 X]	**Item Help**
CPU Voltage Adjust	[Normal]	
DIMM Voltage Adjust	[2.50]	**Menu Level** ►
Auto Detect DIMM/PCI Clk	[Enabled]	
Spread Spectrum	[Enabled]	
CPU Clock	[100MHz]	

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

CPU Clock Ratio (8 X)

Use the CPU Host/SDRAM/PCI Clock to set the frontside bus frequency for the installed processor (usually 133 MHz, 100 MHz or 66 MHz). Then use *CPU Clock Ratio Jumpless* to set a multiple. The multiple times the frontside bus must equal the core speed of the installed processor e.g., **3.5 (multiple) x 100 MHz (frontside bus) = 350 MHz (installed processor clock speed)**.

CPU Voltage Adjust (Normal)

This item allows you to adjust the CPU voltage.

DIMM Voltage Adjust (2.50)

This item allows you to adjust the DIMM voltage, and its range is adjustable from 2.50 to 2.90volts.

Auto Detect DIMM/PCI Clk (Enabled)

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

Spread Spectrum (Enabled)

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

CPU Host Clock (100 MHz)

This item is used for overclocking only.

Load Fail-Safe Defaults Option

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

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

Load Optimized Defaults Option

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

Set Supervisor/User Password

When this function is selected, the following message appears at the center of the screen to assist you in creating a password.

ENTER PASSWORD

Type the password, up to eight characters, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection.

To disable password, just press <Enter> when you are prompted to enter password. A message will confirm the password being disabled. Once the password is disabled, the system will boot and you can enter BIOS Setup freely.

PASSWORD DISABLED

If you have selected "**System**" in "Security Option" of "BIOS Features Setup" menu, you will be prompted for the password every time the system reboots or any time you try to enter BIOS Setup.

If you have selected "**Setup**" at "Security Option" from "BIOS Features Setup" menu, you will be prompted for the password only when you enter BIOS Setup.

Supervisor Password has higher priority than User Password. You can use Supervisor Password when booting the system or entering BIOS Setup to modify all settings. Also you can use User Password when booting the system or entering BIOS Setup but can not modify any setting if Supervisor Password is enabled.

Save & Exit Setup Option

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

Exit Without Saving

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

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

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

About the Software CD-ROM

The support software CD-ROM that is included in the motherboard 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 motherboard 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 motherboard.

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

Auto-installing under Windows 98/ME/2000/XP

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

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

The support software CD-ROM disc loads automatically under Windows 98/ME/2000/XP. When you insert the CD-ROM disc in the CD-ROM drive, the autorun feature will automatically bring up the install screen. The screen has three buttons on it, Setup, Browse CD and Exit.
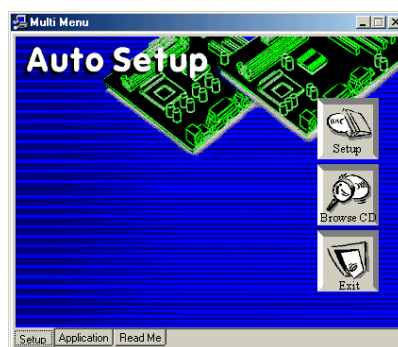
Note:	If the opening screen doesn't appear, double-click the file "setup.exe" in the root directory.

Setup Tab

Setup	Click the **Setup** button to run the software installation program. Select from the menu which software you want to install.
Browse CD	The **Browse CD** button is the standard Windows command that allows you to open Windows Explorer and show the contents of the support CD.
	Before installing the software from Windows Explorer, look for a file named README.TXT, INSTALL.TXT or something similar. This file may contain important information to help you install the software correctly.
	Some software is installed in separate folders for different operating systems, such as DOS, WIN NT, or WIN98/95. Always go to the correct folder for the kind of OS you are using.
	To install the software, execute a file named SETUP.EXE or INSTALL.EXE by double-clicking the file and then following the instructions on the screen.
Exit	The **Exit** button closes the Auto Setup window.

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

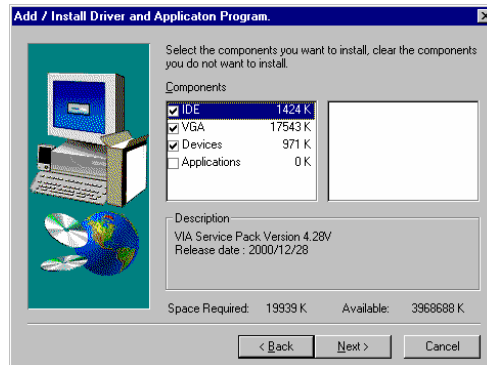Follow these instructions to install device drivers and software for the motherboard:

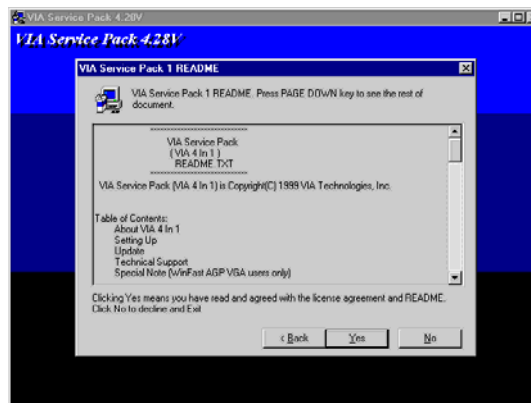1. Click **Setup**. The installation program begins:

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

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

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

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

Drivers and software are automatically installed in sequence. Follow the on-screen instructions, confirm commands and allow the computer to restart a few times to complete the installation.

Manual Installation

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

Look for the chipset and motherboard 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.

AWARD Flash Memory Utility

This utility lets you erase the system BIOS stored on a Flash Memory chip on the motherboard, 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 motherboard while in a Windows environment. This utility is currently available for WINXP\ME\2000\98SE. To install the WinFlash utility, run WINFLASH.EXE from the following directory:

\UTILITY\WINFLASH 1.51

PC-CILLIN 2002

The PC-CILLIN 2002 software program provides anti-virus protection for your system. This program is available for Windows 2000/ME/98SE/XP and Windows NT. Be sure to check the readme.txt and install the appropriate anti-virus software for your operating system. We strongly recommend users to install this free anti-virus software to help protect your system against viruses.

This concludes Chapter 4.