Preface

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Version 3.0

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Federal Communications Commission (FCC)

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

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

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

Declaration of Conformity

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

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

Canadian Department of Communications

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

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

About the Manual

The manual consists of the following:

Chapter 1 **Introducing the Mainboard**	Describes features of the mainboard, and provides a shipping checklist. Go to ⟹ page 1
Chapter 2 **Installing the Mainboard**	Describes installation of mainboard components. Go to ⟹ page 7
Chapter 3 **Using BIOS**	Provides information on using the BIOS Setup Utility. Go to ⟹ page 27
Chapter 4 **Using the Mainboard Software**	Describes the mainboard software. Go to ⟹ page 48

TABLE OF CONTENTS

CHAPTER 4   48

Using the Mainboard Software   **48**

Introducing the Mainboard

Introduction

Thank you for choosing the P6VEMT mainboard. Based on the highly inte-grated VIA Apollo PLE133T, this mainboard incorporates the VIA VT8601T Northbridge and VT82C686B Southbrige chipset. It is designed to take advan-tage of the latest technology to provide you with the ultimate solution in data processing. In the tradition of its predecessors, the P6VEMT continues a commitment to reliability and performance and strives for full compliance and compatibility with industry software and hardware standards.

The Apollo PLE133T chipset is a high performance, cost-effective and energy efficient solution for the implementation of integrated 2D/3D Graphics – PCI – ISA desktop systems from 66 MHz to 133MHz based on 64-bit Socket 370 VIA C3 and Intel Celeron, Pentium III, and Pentium-M (Tualatin) processors. The VT82C686B Southbridge chipset enhances the functionality of the stan-dard ISA peripherals.

The P6VEMT is a micro-ATX board measuring 244 X 200 mm and using 4-layer printed circuit board. It also comes with a full set of I/O ports which in-cludes one serial port, a parallel port, a monitor port, a PS/2 mouse port, a PS/2 keyboard port, audio ports, USB ports and a game port. Moreover, it contains on board IDE facilities for IDE devices such as hard disks and CD-ROM.

Checklist

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

Standard Items

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

Features

Processor	The mainboard supports the Socket 370 which has the following features: • Accomodates Intel Pentium !!! processor, Tualatin processor and VIA C3 processor • Supports 66/100/133 MHz CPU front-side bus (FSB)
Chipset	The VT8601T Northbridge and VT82C686B Southbridge chipsets are based on a high compatibility and power efficient with proven reliability and performance. • Built-in PLL (Phase Lock Loop) circuitry for optimal skew control within and between clocking regions • Supports full AGP v1.0 capability with the internal 2D/3D Graphics Engine for maximum software compatibility • PCI bus is synchronous / pseudo-synchronous to host CPU bus • DRAM interface synchronous or pseudosynchronous with CPU FSB speed of 133 / 100 / 66 MHz • Support high performance rCADE3D™ accelerator • Hardware-Assisted MPEG-2 Architecture for DVD with AC-3 • Integrated ISA Bus Controller with integrated DMA, timer, and interrupt controller • Dual channel master mode PCI supporting four Enhanced IDE devices • Dual full-duplex Direct Sound channels between system memory and AC97 link • Five positive voltage (one internal), two temperature (one internal) and two fan-speed monitoring • USB v.1.1 and Intel Universal HCI v.1.1 compatible Additional features include support for four USB ports, an AC 97 link for audio and modem, hardware monitoring, and ACPI/OnNow power management.
Memory	• Supports two 64/128/256/512 MB DIMM module sockets • Supports Synchronous DRAM (3.3V) • Supports a maximum memory size of 1 GB with SDRAM • 100/133 MHz Bus frequency
Graphic Capabilities	• 64-bit Single Cycle 2D/3D Graphics Engine • Supports 2 to 8 Mbytes of Frame Buffer located in System Memory • Real Time DVD MPEG-2 and AC-3 Playback • Video Processor • Integrated 24-bit 230 MHz True Color DAC • Extended Screen Resolutions up to 1600 x 1200 • Extended Text Modes 80 or 132 columns by 25/30/43/60 rows • DirectX 6 and OpenGL ICD API
High Performance rCADE3D™ Accelerator	• 32 entry command queue, 32 entry data queue • 4Kbyte texture cache with over 90% hit rates • Pipelined Single Cycle Setup/Texturing/Rendering Engines • DirectDraw™ acceleration • Multiple buffering and page flipping

DVD	• Hardware-Assisted MPEG-2 Architecture for DVD with AC-3 • Simultaneous motion compensation and front-end processing (parsing, decryption and decode) • Supports full DVD 1.0 VCD 2.0 and CD-Karaoke • Microsoft DirectShow 2.x native support, backward compatible to MCI • No additional frame buffer requirements • Dynamic frame and field de-interface filtering for high quality playback on VGA monitors • Tamper-proof software CSS implementation • Freeze, Fast-Forward, Slow Motion, Reverse • Pan-and-Scan support for 16.9 Sequence
Power Management	• Supports both ACPI (Advanced and Configuration and Power Interface) and legacy (APM) power management • ACPI v1.0 compliant • APM v1.2 compliant • S3 (Suspend to RAM) support
AC 97 Audio Codec	• Compliant with AC'97 2.2 specification • 4 analog line-level stereo input with 5-bit volume control: Line_In CD, Video, AUX • MC'97 chained in allowed for multi-channel application • External amplifier power down capability • Advanced power management support
Expansion Options	The mainboard comes with the following expansion options: • Three 32-bit PCI slots • One ISA (Industry Standard Architecture) slot (optional) • 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 The P6VEMT supports Ultra DMA bus mastering with transfer rates of 33/66/100 MB/sec.
Onboard LAN (optional)	The Realtek RTL8100B is a highly integrated and cost-effective single-chip 10/100Mbps Fast Ethernet controller. It is enhanced with an ACPI (Advanced Configuration Power Interface) management function for PCI in order to provide efficient power management for advanced operating systems with OSPM (Operating System Directed Power Management).
Integrated I/O	The mainboard 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 MIDI/game port • One LAN port • Two USB ports • Audio jacks for microphone, line-in and line-out

BIOS Firmware	This mainboard uses Award BIOS that enables users to configure many system features including the following:
	• Power management • Wake-up alarms • CPU parameters and memory timing • CPU and memory timing
	The firmware can also be used to set parameters for different processor clock speeds.

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

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

This mainboard has a micro-ATX form factor of 244 x 200 mm. Choose a case that accommodates this form factor.
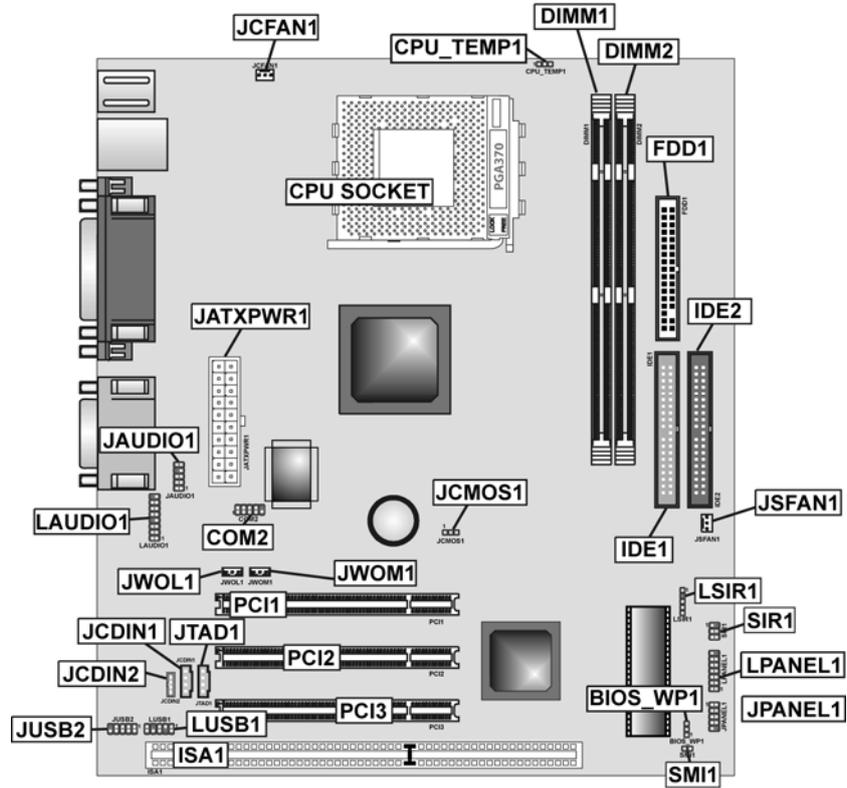
Mainboard Components

Table of Mainboard Components

Label	Component
BAT1	Three volt realtime clock battery
BIOS_WP1	BIOS Flash protect
COM2	Onboard serial port connectors
CPU Socket	Socket 370 for PIII/C3
CPU_TEMP1*	CPU Temperature Header
DIMM1 ~ DIMM2	Two 184-pin DDR sockets
FDD1	Floppy disk drive connector
IDE1	Primary IDE channel
IDE2	Secondary IDE channel
ISA1	Industry Standard Architecture slot (optional)
JATXPWR1	ATX 20-pin power connector
JAUDIO1	Front panel MIC/Speaker Out header
JCDIN1	Primary CD-in connector
JCDIN2	Secondary CD-in connector
JCFAN1	Case fan connector
JCMOS1	Clear CMOS jumper
JPANEL1	Connector for case front panel switches and LED indicators
JSFAN1	System fan connector
JTAD1	Telephony audio header
JUSB2	Connector for front panel USB ports
JWOL1	Wake On LAN wakeup connector
JWOM1	Wake On Modem wakeup connector
LAUDIO1*	Front panel MIC/Speaker Out header
LSIR1*	Serial Infrared port
LPANEL1*	Connector for case front panel switches and LED indicators
LUSB1*	Front panel USB headers
PCI1 ~ PCI3	Three 32-bit add-on card slots
SIR1	Serial Infrared port
SMI1	System Management Interrupt

Reserved for OEM use only

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

Safety Precautions

Follow these safety precautions when installing the mainboard:

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

Quick Guide

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

The following table provides a reference for installing specific components:

Installing the Mainboard in a Case

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

<table>
<tr>
<td>
This illustration shows an example of a mainboard being installed in a tower-type case:

Note: Do not overtighten the screws as this can stress the mainboard.

Most system cases have mounting brackets installed in the case, which correspond to the holes in the mainboard. Place the mainboard over the mounting brackets and secure the mainboard onto the mounting brackets with screws.
</td>
<td>
2. Secure the mainboard with screws where appropriate.

1. Place the mainboard over the mounting brackets.
</td>
</tr>
</table>
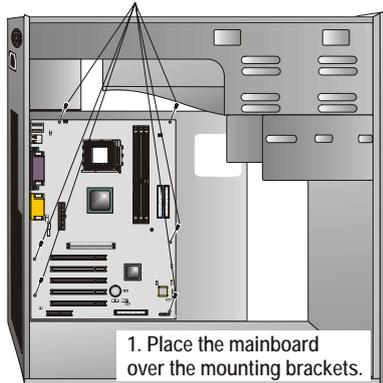
Ensure that your case has an I/O template that supports the I/O ports and expansion slots on your mainboard.

Checking Jumper Settings

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

Setting Jumpers

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

The illustrations below show a 2-pin jumper. When the jumper cap is placed on both pins, the jumper is SHORT. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is OPEN.

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

Short   **Open**

8
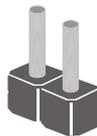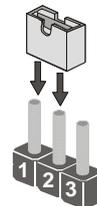
Checking Jumper Settings

The following illustration shows the location of the mainboard jumpers. Pin 1 is labeled.
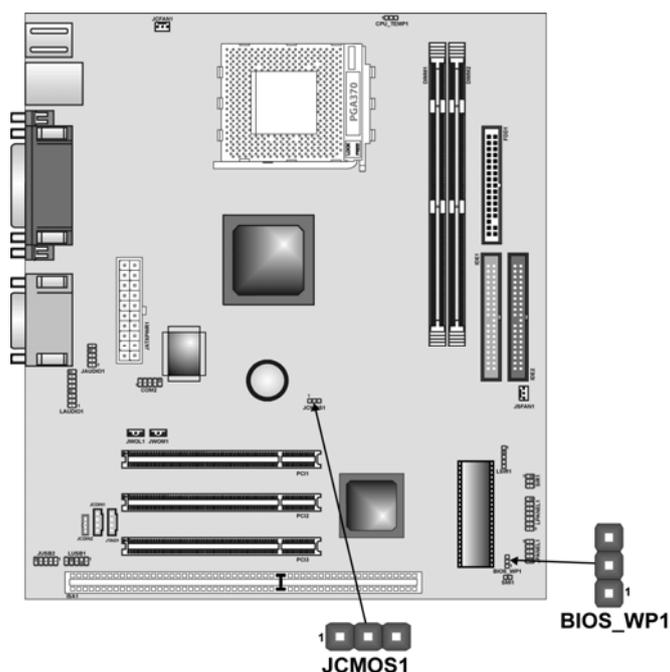
BIOS_WP1

JCMOS1

Jumper Settings

Jumper	Description	Setting (*default*)	
JCMOS1	Clear CMOS jumper	*1-2: Clear CMOS* 2-3: Normal	**JCMOS1**
BIOS_WP1	BIOS Flash protect	1-2: Write Enabled *2-3: Write Disabled*	**BIOS_WP1**

JCMOS1 –   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.

BIOS_WP1 –   This jumper enables you to prevent the BIOS from being updated (flashed). Short pin 1-2 if you want to update your BIOS. After updating, short pin 2-3 to protect the BIOS from being flashed.

Connecting Case Components

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

1. Connect the case power supply connector to **JATXPWR1**.
2. Connect the CPU cooling fan cable to **JCFAN1**.
3. Connect the case cooling fan connector to **JSFAN1**.
4. The pin 1 & 2 of **CPU_TEMP1** header should be connected to CPU thermal Diode directly.
5. Connect the case switches and indicator LEDs to the **JPANEL1/LPANEL1**.

JATXPWR1: 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	PW_OK	18	-5V
9	+5VSB	19	+5V
10	+12V	20	+5V

JCFAN1/JSFAN1: FAN Power Connectors

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

10

CPUTEMP1: CPU Temperature Header *(for OEM customers only)*

Pin	Signal Name
1	TempP+
2	TempN-
3	Ground

Note: Please use 0-ohm resistance to connect the pin 1 & 2 to the temperature reader chip.

Front Panel Connector

The panel connector (JPANEL1 and LPANEL1) provides a standard set of switch and LED connectors commonly found on ATX or micro-ATX cases. The LPANEL1 connector is designed specially for OEM customers that comply with the OEM specifications. Refer to the table below for information:

JPANEL1
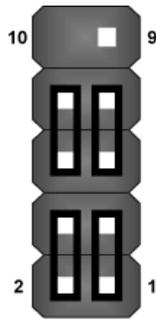
Pin	Function	Pin	Function
1	Hard disk LED (positive)	2	MSG LED [dual color or single color (+)]
3	Hard disk active LED (negative)	4	MSG LED [dual color or single color (-)]
5	Reset Switch	6	Power Switch
7	Reset Switch	8	Power Switch
9	Reserved	10	No pin

LPANEL1 *(for OEM customers only)*
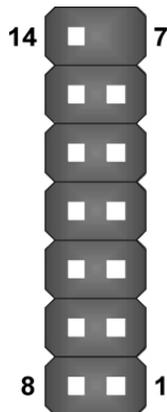
Pin	Function	Pin	Function
1	HDD LED (+)	8	HDD LED (-)
2	Power LED (-) yellow	9	VCC
3	Power LED (-) green	10	Ground
4	Power LED (+)	11	Ground
5	Power Switch	12	CSSPK
6	Ground	13	Reset
7	No pin	14	Ground

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

Speaker Connector

An offboard speaker can be installed on the mainboard as a manufacturing option. An offboard speaker can be connected to the mainboard at the front panel connector. The speaker (onboard or offboard) provides error beep code information during the Power On Self-Test when the computer cannot use the video interface. The speaker is not connected to the audio subsystem and does not receive output from the audio subsystem.

Reset Button

This connector can be attached to a momentary SPST switch. This switch is usually open and when close will cause the mainboard to reset and run the POST (Power On Self Test).

Power LED Connector

This connector can be attached to an LED on the front panel of a computer case. The LED will illuminate while the computer is powered on.

HDD LED (Hard Drive LED Connector)

This connector can be attached to a LED on the front panel of a computer case. The LED will flicker during disk activity. This disk activity only applies to those IDE drives directly attached to the system board.

Sleep Button (Green Button)

This connector is used to conserve energy by powering down the monitor and the hard disk when not in use.

Power Button

This connector can be attached to a front panel power switch. The switch must pull the Power Button pin to ground for at least 50 ms to signal the power supply to switch on or off. (The time required is due to internal de-bounce circuitry on the system board). At least two seconds must pass before the power supply will recognize 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 mainboard or any of the surface-mount resistors with the clip of the cooling fan. If the clip of the cooling fan scrapes across the mainboard, you may cause serious damage to the mainboard or its components.**
>
> **On most mainboards, there are small surface-mount resistors near the processor socket, which may be damaged if the cooling fan is carelessly installed.**
>
> **Avoid using cooling fans with sharp edges on the fan casing and the clips. Also, install the cooling fan in a well-lit work area so that you can clearly see the mainboard and processor socket.**

Before installing the Processor

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

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

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

CPU Installation Procedure

The following illustration shows CPU installation components:
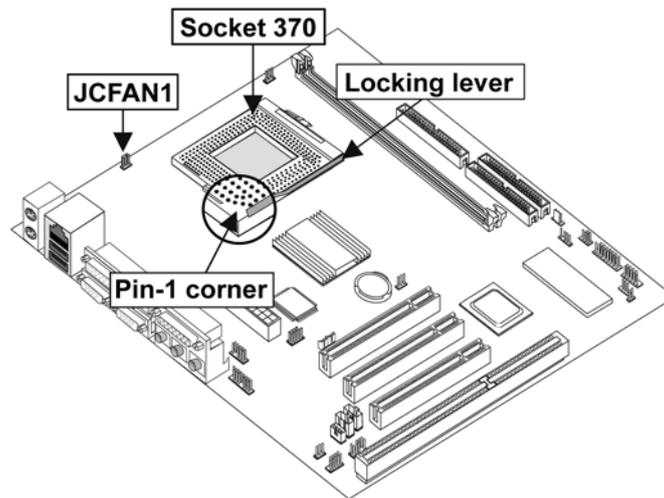
Note:	The pin-1 corner is marked with an arrow

Follow these instructions to install the CPU:

1.	Pull the lever sideways away from the socket then raise the lever up to a 90-degree angle.
2.	Locate Pin-1 in the socket and look for the cut edge in the CPU. Match Pin-1 with the cut edge then insert the CPU.
3.	Swing the locking lever down and hook it under the latch on the edge of the socket.
4.	Plug the fan on the CPU and buckle it and plug the fan's power-port into the JCFAN1 to complet the installation.

Notes:	• To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan witn 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 mainboard accommodates two 168-pin 3.3V unbuffered SDRAM memory modules. You must install at least one module in any of the slots. Each module can be installed with 32 MB to 512 MB of memory; total memory capacity is 1GB.

> **Note:** SDRAM provides 800 MBps or 1 GBps data transfer depending on whether the bus is 100MHz or 133MHz.

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

Installation Procedure

Refer to the following to install the memory modules.

1. This mainboard supports unbuffered SDRAM only. Do not attempt to insert any other type of 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.
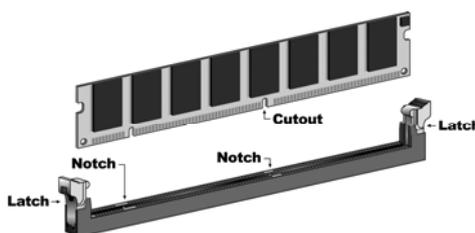
4. Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.
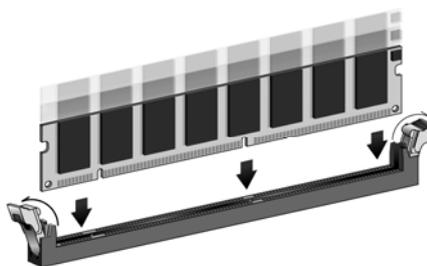
5. Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the DIMM.
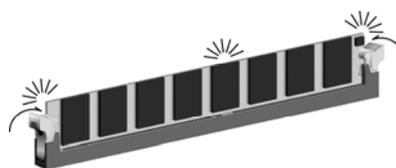
6. Install any remaining DIMM modules.

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.

About IDE Devices

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

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

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

About UltraDMA

This mainboard supports UltraDMA 33/66/100. UDMA is a technology that accelerates the performance of devices in the IDE channel. To maximize performance, install IDE devices that support UDMA and use 80-pin IDE cables that support UDMA 33/66/100.

Installing a Hard Disk Drive

1. Install the hard disk drive into the drive cage in your system case.	
2. Plug the IDE cable into IDE1 (**A**): **Note:** Ribbon cable connectors are usually keyed so that they can only be installed correctly on the device connector. If the connector is not keyed, make sure that you match the pin-1 side of the cable connector with the pin-1 side of the device connector. Each connector has the pin-1 side clearly marked. The pin-1 side of each ribbon cable is always marked with a colored stripe on the cable.	
3. Plug an IDE cable connector into the hard disk drive IDE connector (**B**). It doesn't matter which connector on the cable you use.	
4. Plug a power cable from the case power supply into the power connector on the hard disk drive (**C**).	
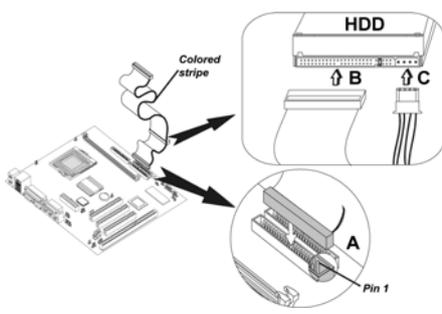
When you first start up your system, the BIOS should automatically detect your hard disk drive. If it doesn't, enter the Setup Utility and use the IDE Hard Disk Auto Detect feature to configure the hard disk drive that you have installed.

Installing a CD-ROM/DVD Drive

1.	Install the CD-ROM/DVD drive into the drive cage in your system case.

2. Plug the IDE cable into IDE1 (**A**). If you have already installed an HDD, use the other connector on the IDE cable. **Note:** Ribbon cable connectors are usually keyed so that they can only be installed correctly on the device connector. If the connector is not keyed, make sure that you match the pin-1 side of the cable connector with the pin-1 side of the device connector. Each connector has the pin-1 side clearly marked. The pin-1 side of each ribbon cable is always marked with a colored stripe on the cable.	
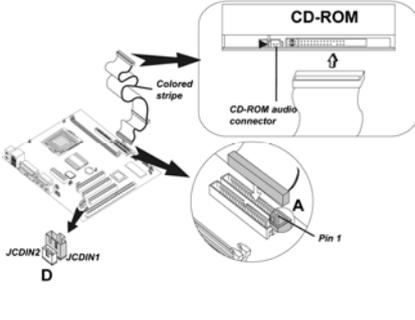
3.	Plug an IDE cable connector into the CD-ROM/DVD drive IDE connector (**B**). It doesn't matter which connector on the cable you use.
4.	Plug a power cable from the case power supply into the power connector on the CD-ROM/DVD drive (**C**).
5.	Use the audio cable provided with the CD-ROM/DVD drive to connect to the mainboard CD-in connector JCDIN1 or JCDIN2 (**D**).

When you first start up your system, the BIOS should automatically detect your CD-ROM/DVD drive. If it doesn't, enter the Setup Utility and configure the CD-ROM/DVD drive that you have installed.

Installing a Floppy Diskette Drive

The mainboard has a floppy diskette drive (FDD1) interface and ships with a diskette drive ribbon cable that supports one or two floppy diskette drives. You can install a 5.25-inch drive and a 3.5-inch drive with various capacities. The floppy diskette drive cable has one type of connector for a 5.25-inch drive and another type of connector for a 3.5-inch drive.

1.	Install the FDD into the drive cage in your system case.

2. Plug the FDD cable into FDD1 (**A**): **Note:** Ribbon cable connectors are usually keyed so that they can only be installed correctly on the device connector. If the connector is not keyed, make sure that you match the pin-1 side of the cable connector with the pin-1 side of the device connector. Each connector has the pin-1 side clearly marked. The pin-1 side of each ribbon cable is always marked with a colored stripe on the cable.	
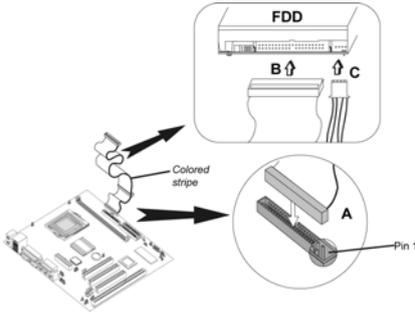
3.	Plug the correct connector on the FDD cable for the 5.25-inch or 3.5-inch drive into the FDD connector (**B**).
4.	Plug a power cable from the case power supply into the power connector on the FDD (**C**).

When you first start up your system, go immediately to the Setup Utility to configure the floppy diskette drives that you have installed.

Installing Add-on Cards

The slots in this mainboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the mainboard's features and capabilities. With these efficient facilities, you can increase the mainboard's capabilities by adding hardware which performs tasks that are not part of the basic system
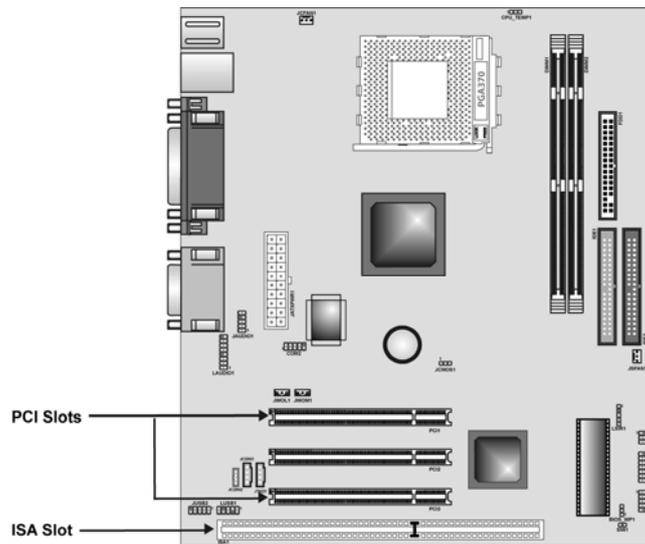
PCI Slots	This mainboard is equipped with 3 standard PCI slots. PCI stands for peripheral Component Interconnect and is a bus standard for expansion cards, which for the most part, is a supplement of the older ISA bus standard. This PCI slot is designated as 32-bit.
ISA Slot (optional)	The mainboard is equipped with one standard ISA slot. ISA stands for Industry Standard Architecture and was designed as a bus standard for expansion cards in the early 90's for PC XT/AT machines. This mainboard retains backward compatibility with this order and slower bus architecture.

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.

18

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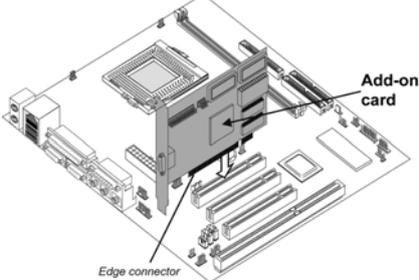
Note: For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.

Audio Subsystem

Refer to the following for information on connecting the mainboard's audio devices:
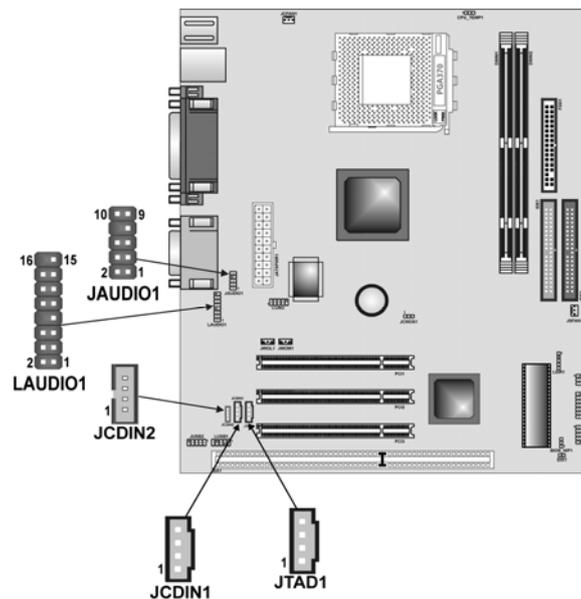
JCDIN1: CD-ROM Audio-In Header

Pin	Signal Name
1	Right Channel Input
2	Ground
3	Ground
4	Left Channel Input

JCDIN2: CD-ROM Audio-In Header

Pin	Signal Name
1	Left Channel Input
2	Ground
3	Right Channel Input
4	Ground

JTAD1: Telephony Audio Header

Pin	Signal Name
1	MONO_OUT
2	Ground
3	Ground
4	MONO_IN

JAUDIO1: Front Audio Header

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

Pin	Signal Name	Pin	Signal Name
1	Mic In	2	Ground
3	Mic Power	4	Audio Power
5	RT Line Out	6	RT Line Out
7	Reserved	8	Key
9	LFT Line Out	10	LFT Line Out

LAUDIO1: Front Audio Header *(for OEM customers only)*

Pin	Signal Name	Pin	Signal Name
1	Active Line-Out (R)	2	Active Line-Out (L)
3	GND (aLO)	4	GND (aLO)
5	GND (+12)	6	GND (+12)
7	+12V (1A)	8	Empty
9	MIC	10	GND (MIC)
11	Front Line-Out (R)	12	Line Next (R)
13	Front Line-Out (L)	14	Line Next (L)
15	GND (fLO)	16	Empty

Connecting Optional Devices

Refer to the following for information on connecting the mainboard's optional devices:
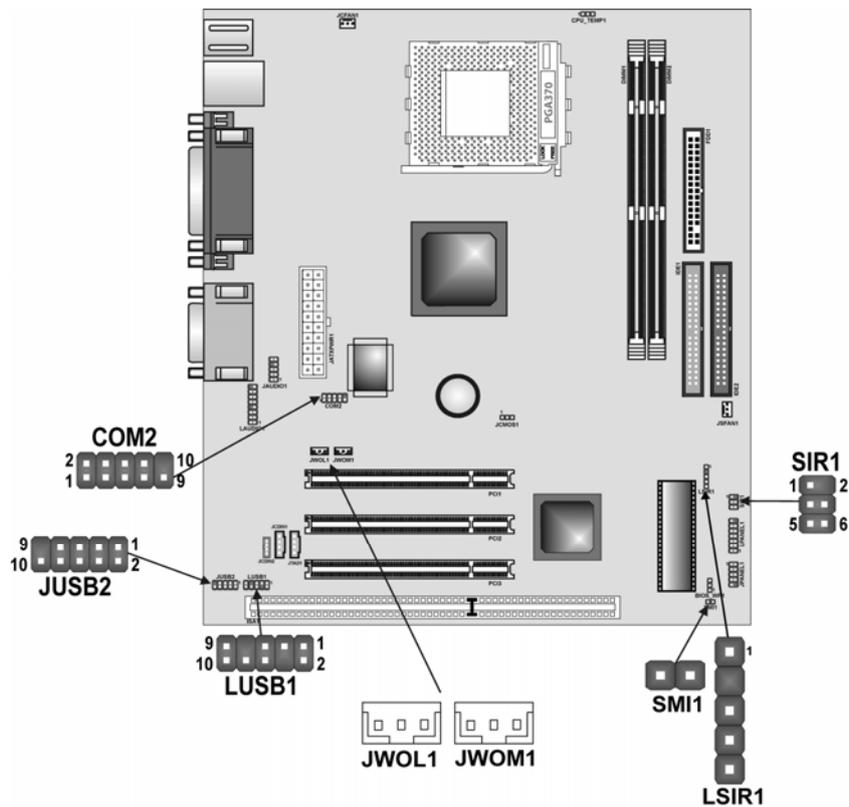
COM2: Onboard serial port connector

Connect a serial port extension bracket to this header to add a second serial port to your system.

Pin	Signal Name	Function
1	NDCDB	Data carry detect
2	NSINB	Serial Data In
3	NSOUTB	Serial Date Out
4	NDTRB	Data terminal ready
5	GND	Ground
6	NDSRB	Date set ready
7	NRTSB	Request to send
8	NCTSB	Clear to send
9	NRIB	Ring Indicator
10	Key	Key

WOL1: Wake On LAN

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

Pin	Signal Name	Function
1	5VSB	+5V stand by power
2	GND	Ground
3	Ring#	Wake up signal (high active)

WOM1: Wake On Modem

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

Pin	Signal Name	Function
1	5VSB	+5V stand by power
2	GND	Ground
3	Ring#	Wake up signal (low active)

JUSB2: Front USB Headers

The mainboard has four USB ports installed on the rear edge I/O port array. Additionally, some computer cases have USB ports at the front of the case. If you have this kind of case, use auxiliary USB connector JUSB2 to connect the front-mounted ports to the mainboard.

Pin	Signal Name	Pin	Signal Name
1	+5V	2	+5V
3	USB1 Data (-)	4	USB2 Data (-)
5	USB1 Data (+)	6	USB2 Data (+)
7	Ground	8	Ground
9	Key	10	Na

LUSB1: Front USB Headers *(for OEM customers only)*

Pin	Signal Name	Pin	Signal Name
1	+5V	2	Ground
3	USB0-	4	Empty
5	USB0+	6	USB1+
7	Empty	8	USB1+
9	Ground	10	+5V

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

SIR1: Serial infrared port

The mainboard supports a Serial Infrared 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

LSIR1: Serial infrared port *(for OEM customers only)*

Pin	Signal Name	Function
1	VCC	IR Power
2	Empty	No pin
3	IRRX	IrDA serial input
4	GND	Ground
5	IRTX	IrDA serial output

SMI1: System Management Interrupt

This connector is for use with SMI hardware interrupt power management.

Pin	Signal Name	Function
1	-EXTSMI	Sleep button
2	GND	Ground

Connecting I/O Devices

The backplane of the mainboard has the following I/O ports:
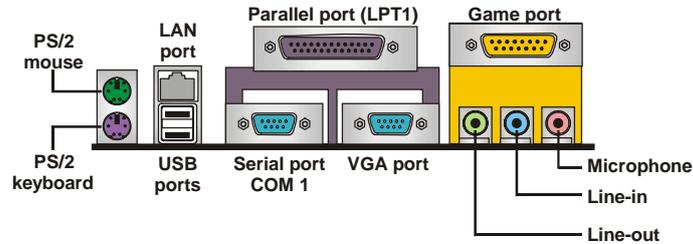
PS/2 Mouse	Use the upper PS/2 port to connect a PS/2 pointing device.
PS/2 Keyboard	Use the lower PS/2 port to connect a PS/2 keyboard.
USB Ports	Use the USB ports to connect USB devices.
LPT1	Use LPT1 to connect printers or other parallel communications devices.
COM1	Use the COM ports to connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM1/3.
VGA	Connect your monitor to the VGA port.
Game Port	Use the game port to connect a joystick or a MIDI device.
Audio Ports	Use the three audio ports to connect audio devices. The left side jack is for a stereo line-out signal. The middle jack is for a stereo line-in signal. The right side jack is for a microphone.
PS/2 Mouse	Use the upper PS/2 port to connect a PS/2 pointing device.

External Connector Color Coding

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

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

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

About the Setup Utility

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

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

The BIOS Setup Utility enables you to configure:

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

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

This chapter provides explanations for Setup Utility options.

The Standard Configuration

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

This Setup Utility should be used:

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

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:

<div align="center">TO ENTER SETUP BEFORE BOOT PRESS DEL KEY</div>

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:

<div align="center">PRES F1 TO CONTINUE, DEL TO ENTER SETUP</div>

<div align="center">Phoenix – AwardBIOS CMOS Setup Utility</div>

►Standard CMOS Features	►Frequency Control
►Advanced BIOS Features	Load Optimized Defaults
►Advanced Chipset Features	Set Supervisor Password
►Integrated Peripherals	Set User Password
►Power Management Setup	Save & Exit Setup
►PnP/PCI Configurations	Exit Without Saving
►PC Health Status	
Esc : Quit F9 : Menu in BIOS ↑ ↓ → ← : Select Item F10 : Save & Exit Setup	
Time, Date, Hard Disk Type . . .	

BIOS Navigation Keys

The BIOS navigation keys are listed below:

Key	Function
Up arrow	Move to previous item.
Down arrow	Move to next item.
Left arrow	Move to the item on the left (menu bar)
Right arrow	Move to the item on the right (menu bar)
Move enter	Move to the item you desired
PgUp key	Increase the numeric value or make changes
PgDn key	Decrease the numeric value or make changes
+ Key	Increase the numeric value or make changes
- Key	Decrease the numeric value or make changes
Esc Key	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu – Exit Current page and return to Main Menu
F1	General help on Setup navigation keys
F5	Load previous values from CMOS
F6	Load the fail-safe defaults from BIOS default table
F7	Load the optimized defaults
F10	Save all the CMOs changes and exit

Updating the BIOS

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

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

6. At the A:\ prompt, type the Flash Utility program name and press <Enter>. You see a screen similar to the following:

```
            FLASH MEMORY WRITER V7.33
     (C) Award Software 1999 All Rights Reserved

For (MAINBOARD NAME)          DATE: 10/26/2000
Flash Type
File Name to Program :


Error Message
```

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

Using BIOS

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

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

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

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

Standard CMOS Features

In the Standard CMOS menu you can set the system clock and calendar, re-cord 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)	Tue, Sep 25 2001	Item Help
Time (hh:mm:ss)	15 : 6 : 23	
► IDE Primary Master		Menu Level ►
► IDE Primary Slave		Change the day, month, year and century.
► IDE Secondary Master		
► IDE Secondary Slave		
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Video	[EGA/VGA]	
Halt On	[All Errors]	
Base Memory	640K	
Extended Memory	65472K	
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

Item	Options	Description
Date	MM DD YYYY	Set the system date. Note that the 'Day' automatically changes when you set the date.
IDE Primary Master	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
IDE Primary Slave	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
IDE Secondary Master	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
IDE Secondary IDE	Options are in its sub menu.	Press <Enter> to enter the sub menu of detailed options.
Drive A	360K, 5.25 in 1.2M, 5.25 in 720K, 3.5 in 1.44M, 3.5 in 2.88M, 3.5 in	Select the type of floppy disk drive installed in your system.
Drive B	None	
Video	EGA/VGA CGA 40 CGA 80 MONO	Select the default video device.

Halt On	All Errors No Errors All, but Keyboard All, but Diskette All, but Disk/Key	Select the situation in which you want the BIOS to stop the POST process and notify you.
Base Memory	N/A	Displays the amount of conventional memory detected during boot up.
Extended Memory	N/A	Displays the amount of extended memory detected during boot up.
Total Memory	N/A	Displays the total memory available in the system.

Advanced BIOS Setup

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

Phoenix – AwardBIOS CMOS Setup Utility
Advanced BIOS Setup

		Item Help
► Boot Device select	[Press Enter]	
► Shadow Control	[Press Enter]	
CPU Internal Cache	[Enabled]	Menu Level ►
External Cache	[Enabled]	
CPU L2 Cache ECC Checking	[Enabled]	
Quick Power On Self Test	[Enabled]	
Swap Floppy Drive	[Disabled]	
Boot Up Floppy Seek	[Enabled]	
Boot Up NumLock Status	[On]	
Gate A20 Option	[Normal]	
Typematic Rate Setting	[Disabled]	
x Typematic Rate (Chars/Sec)	6	
x Typematic Delay (Msec)	250	
Security Option	[Setup]	
HD S.M.A.R.T Capcbility	[Disabled]	
Small Logo (EPA) Show	[Disabled]	
OS Select For DRAM > 64MB	[Non-OS2]	

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

Boot Device select

This BIOS attempts to load the operating system from the devices in the sequence selected in these items.

First/Second/Third Boot Devices

Settings: Floppy, LS120, HDD-0, SCSI, CDROM, HDD-1, HDD-2, HDD-3, ZIP100, LAN, Disabled

Boot Other Device

Settings: Enabled (default), Disabled

Shadow Control

If you highlight the literal "Press Enter" next to the "Shadow Control" label and then press the enter key, it will take you to a submenu with the following options:

Video BIOS Shadow

Determines whether video BIOS will be copied to RAM for faster execution.

C8000 – CFFFF Shadow/D0000 – DFFFF Shadow

Determines whether the optional ROM will be copied to RAM for faster execution.

Note: For C8000 – DFFFF option – ROM on PCI BIOS, BIOS will automatically enable the shadow RAM. You don't have to select this item.

CPU Internal Cache (Enabled)

This option allows you to Enabled or Disabled the CPU Internal Cache. Caching allows better performance.

External Cache (Enabled)

This option allows you to Enabled or Disabled the CPU's "Level 2" secondary cache. Caching allows better performance.

CPU L2 Cache ECC Checking (Enabled)

This item allows you to Enabled/Disabled CPU L2 Cache ECC checking.

Quick Power On Self Test (Enabled)

Enabling this option will cause an abridged version of the Power On Self-Test (POST) to execute after you power up the computer.

Swap Floppy Drive (Disabled)

For systems with two floppy drives, this option allows you to swap logical drive.

Boot Up Floppy Seek (Enabled)

Enabling this option will test the floppy drives to determine if they have 40 or 80 tracks. Disabling this option reduces the time it takes to boot-up.

Boot Up NumLock Status (On)

Selects the NumLock. State after power on.

Gate A20 Option (Fast)

Select if chipset or keyboard controller should control GateA20.

Typematic Rate Setting (Disabled)

When a key is held down, the keystroke will repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be configured.

Typematic Rate (Chars/Sec) (6)

Sets the delay time after the key is held down before it begins to repeat the keystroke.

Typematic Delay (Msec) (250)

This option will enable only individuals with passwords to bring the system online and/or to use the CMOS Setup Utility.

System	A password is required for the system to boot and is also required to access the Setup Utility.
Setup	A password is required to access the Setup Utility only.

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.

Small Logo (EPA) Show (Disabled)

Determines whether or not the EPA logo appears during boot up.

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

A choice other than Non-OS2 is only used for OS2 systems with memory exceeding 64MB.

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

Bank Interleave	[Disabled]	Item Help
DRAM Clock	[Host Clk]	
Memory Hole	[Disabled]	Menu Level ►
System BIOS Cacheable	[Disabled]	
Video RAM Cacheable	[Disabled]	
Frame Buffer Size	[8M]	
AGP Aperture Size	[64M]	
OnChip USB	[Enabled]	
USB Keyboard Support	[Disabled]	
USB Mouse Support	[Disabled]	
OnChip Sound	[Auto]	
OnChip Modem	[Auto]	
Delay Transaction	[Enabled]	

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

Bank Interleave

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.

DRAM Clock (By SPD)

When synchronous DRAM is installed, the number of the clock cycles of CAS latency depends on the DRAM timing

Memory Hole (Disabled)

When enabled, you can reserve an area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. Refer to the user documentation of the peripheral you are installing for more information.

Video RAM Cacheable (Disabled)

Enabling this option allows caching of the video RAM, resulting in better system performance. However, if any program writes to this memory area, a system error may result.

Frame Buffer Size (8M)

This item allows you to control the VGA frame buffer size.

AGP Aperture Size (64M)

Select the size of the Accelerated Graphics Port (AGP) aperture. The aperture is a portion of the PCI memory address range dedicated for graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translations.

35

OnChipUSB (Enabled)

This should be enabled if your system has a USB installed on the system board and you wish to use it. Even when so equipped, if you add a higher performance controller, you will need to disable this feature.

USB Keyboard/Mouse Support (Disabled)

Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have an USB keyboard/mouse.

OnChip Sound (Auto)

The default setting of this item utilizes an onboard sound chip for audio output. There is no need to buy and insert a sound card. If sound card is installed, disable this item.

OnChip Modem (Auto)

This item allows you to control the onboard MC97 Modem controller.

Delay Transaction (Enabled)

Enabling this item complies with the PCI v2.1. Set this item to disable if you are having problems with non-compliant PCI 2.1 devices.

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

		Item Help
► OnChip IDE Control	[Press Enter]	
► Multi-Media Setting	[Press Enter]	
Init Display First	[PCI Slot]	Menu Level ►
IDE HDD Block Mode	[Enabled]	
Onboard LAN Boot ROM	[Disabled]	
Onboard PCI LAN	[Enabled]	
Onboard FDD Controller	[Enabled]	
Onboard Serial Port 1	[Auto]	
Onboard Serial Port 2	[Auto]	
x UART 2 Mode	Standard	
x IR Function Duplex	Half	
x TX, RX inverting enable	No, Yes	
Onboard Parallel Port	[378/IRQ7]	
Onboard Parallel Mode	[ECP/EPP]	
ECP Mode Use DMA	[3]	
Parallel Port EPP Type	[EPP1.7]	

↑↓→← : 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 Control

The chipset contains a PCI IDE interface with support for two IDE channels. Select "Enabled" to activate the first and / or second IDE interface. Select "Disabled" to deactivate an interface, if you install a primary and / or secondary add-in IDE interface. If you have highlight the literal "Press Enter" next to

the "Onchip IDE Control" label and then press the enter key, it will take you a submenu with the following options.

OnChip IDE Channel0/1 (Enabled)

The integrated peripheral controller contains an IDE interface with support for two IDE channels. Select Enabled to activate each channel separately.

IDE Prefetch (Enabled)

The onboard IDE drive interface supports IDE prefetching, for faster drive access. If you install a primary and/or secondary add-in IDE interface, set this field to Disabled if the interface does not support prefetching.

IDE Primary/Secondary Master/Slave PIO (Auto)

The IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0~4) for each of the IDE devices that the onboard IDE interface supports. Modes 0 through 4 provide successively increased performance. In Auto mode, they system automatically determines the best mode for each device.

IDE Primary/Secondary Master/Slave UDMA (Auto)

Ultra DMA / 33 implementation is possible only if your IDE hard drive supports Modes 0 through 4 provide successively increased performance. In Auto mode, they system automatically determines the best mode for each device.

Multi-Media Setting

The multimedia-setting submenu is used to configure various multimedia peripherals such as audio and game equipment. If you highlight the literal "Press Enter" nest to the "Multi-media setting" label and then press the enter key, it will take you a submenu with the following options.

Onboard Legacy Audio (Enabled)

This option controls the onboard legacy audio.

Sound Blaster (Disabled)

Hardware SoundBlaster Pro for Windows DOS box and real-mode DOS legacy compatibility.

SB I/O Base Address (220H)

Change the SounBlaster Pro Base I/O Address settings.

SB IRQ Select (IRQ5)

Change the SoundBlaster Pro interrupt signal.

SB DMA Select (DMA1)

Change the SoundBlaster Pro direct memory access setting.

MPU-401 (Enabled)

Enable or Disable the MOU-401 function.

MPU-401 I/O Address (330-333H)

Change the SoundBlaster Pro MPU-401 I/O address.

Game Port (200-207H) (Enabled)

Change the joystick connect port addresses.

Init Display First (PCI Slot)

This item allows you to decide to activate the PCI slot or on-chip VGA first.

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.

Onboard LAN BOOT ROM (Disabled)

This item allows you to enable or disable the onboard LAN Boot ROM function.

Onboard PCI LAN (Enabled)

Select Enabled if your system contains a built-in PCI LAN controller.

Onboard FDD Controller (Enabled)

Select Enabled if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it. If install and FDC or the system has no floppy drive, select Disabled in this field.

Onboard Serial Port 1/2 (Auto)

Select an address and corresponding interrupt for the first and second serial ports.

Onboard IR Port (Disabled)

Select the IR address.

UART 2 Mode (Standard)

This item allows you to determine which Infrared (IR) function onboard I/O chip.

IR Function Duplex (Half)

This item allows you to decide to active IR transmission delay.

TX, RX inverting enable (No/Yes)

This item allows you to determine the active of Rx, Tx.

IR Transmission Delay (Enabled)

This item allows you to enable or disable IR transmission delay.

UR2 Duplex Mode (Enabled)

Select the value required by the IR device connected to the IR port. Full-

duplex mode permits simultaneous two-direction transmission. Half-duplex mode permits transmission in one direction only at a time.

Onboard Parallel Port (378/IRQ7)

This item allows you to determine access onboard parallel port controller with which I/O address.

Parallel Port Mode (SPP)

EPP	Using Parallel Port as Enhanced Parallel Port.
ECP	Using the Parallel Port as Extended Capabilities Port.
ECP+EPP	Using Parallel Port as ECP & EPP mode.
Normal	Supports EPP or ECP mode.

ECP Mode Use DMA (3)

Select a DMA Channel for the port.

Parallel Port EPP Type (EPP1.7)

This option allows you to select a DMA Channel for the parallel port.

Power Management Setup

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

Phoenix – AwardBIOS CMOS Setup Utility
Power Management Setup

```
┌──────────────────────────────────────────────────┬──────────────────┐
│  ACPI function              [Enabled]             │   Item Help      │
│► Power Management           [Press Enter]         │                  │
│  ACPI Suspend Type          [S1(POS)]             │  Menu Level   ►  │
│  PM Control by APM          [Yes]                 │                  │
│  Video Off Option           [Suspend --> Off]     │                  │
│  Video Off Method           [V/H Sync+Blank]      │                  │
│  MODEM Use IRQ              [3]                    │                  │
│  Soft-Off by PWRBTN         [Instant-Off]         │                  │
│  State After Power Failure  [Off]                 │                  │
│► Wake Up Events             [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 mainboard supports ACPI (Advanced Configuration and Power management Interface). Use this item to enable or disable the ACPI feature.

Note: ACPI is a power management specification that makes hardware status information available to the operating system. ACPI enables a PC to turn its peripherals on and off for improved power management. It also allows the

---

Power Management

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

ACPI Suspend Type (S1(POS))

This item allows you to select the suspend type under ACPI operating system.

PM Control by APM

No	System BIOS will ignore APM when Power Management is on.
Yes	System BIOS will wait for ROM's prompt before it enters any PM mode.

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 (V/H SYNC+Blank)

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)

This determines the IRQ, which the MODEM can use.

Soft-Off PWR-BTTN (Instant-Off)

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state when the system has "hung."

State After Power Failure (Off)

This field determines the action the system will automatically take when the power is restored to a system that had lost power previously without any subsequent manual intervention. There are 3 sources that provide current to the CMOS are that retains these Power-On instructions; the mainboard battery (3V), the Power Supply (5VSB), and the Power Supply (3.3V). While AC is not supplying power, the mainboard uses the mainboard battery (3V). If AC power is supplied and the Power Supply is turned on, 5VSB from the Power Supply is used. When the Power Supply is eventually turned on 3.3V from the Power Supply will be used.

Wake Up Events

If you highlight the literal "Press Enter" next to the "Wake Up Events" label and then press the enter key, it will take you to a submenu with the following options:

> ### *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 diskette drive.

PCI Master (OFF)

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

PowerOn by PCI Card (Enabled)

Use this item to enable PCI activity to wakeup the system from a power saving mode.

Wake Up On LAN/Ring (Disabled)

Use this item to enable LAN or modem activity to wakeup the system from a power saving mode.

RTC Alarm Resume (Disabled)

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

►► **IRQs Activity Monitoring**

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

			Item Help
Primary INTR		[ON]	
IRQ 3	(COM2)	[Enabled]	Menu Level ►►►
IRQ 4	(COM1)	[Enabled]	
IRQ 5	(LPT2)	[Enabled]	
IRQ 6	(Floppy Disk)	[Enabled]	
IRQ 7	(LPT1)	[Enabled]	
IRQ 8	(RTC Alarm)	[Disabled]	
IRQ 9	(IRQ2 Redir)	[Disabled]	
IRQ 10	(Reserved)	[Disabled]	
IRQ 11	(Reserved)	[Disabled]	
IRQ 12	(PS/2 Mouse)	[Enabled]	
IRQ 13	(Coprocessor)	[Enabled]	
IRQ 14	(Hard Disk)	[Enabled]	
IRQ 15	(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.

PNP/PCI Configurations

This section describes configuring the PCI bus system. PCI (Peripheral Com-

ponent 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

PNP OS Installed	[No]	Item Help
Reset Configuration Data	[Disabled]	
		Menu Level ▶
Resources Controlled by	[Auto(ESCD)]	
x IRQ Resources	Press Enter	Default is Disabled.
x DMA Resources	Press Enter	Select Enabled to reset
		Extended System Con-
PCI/VGA Palette Snoop	[Disabled]	figuration Data (ESCD)
Assign IRQ For VGA	[Enabled]	when you exit Setup if you
Assign IRQ For USB	[Enabled]	have installed a new add-
		on and the system recon-
		figuration has caused
		such a serious conflict
		that the OS cannot boot

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

PNP OS Installed (No)

Setting this option to Yes allows the PnP OS (instead of BIOS) to assign the system resources such as IRQ and I/O address to the ISA PnP device. The default setting is No.

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))

The system BIOS will detect the system resources and automatically assign the relative IRQ and DMA channel for each peripheral. Choose Manual and you can assign the IRQ and DMA for add-on cards. Make sure that there are no conflicts between IRQ/DMA and I/O port.

IRQ Resources

When you press "Enter", you will be directed to a submenu that will allow you to configure the system interrupts. This is only configurable when "Resources Controlled By" is set to "Manual".

DMA Resources

When you press "Enter", you will be directed to a submenu that will allow you to configure the system DMA channels. This is only configurable when "Resources Controlled By" is set to "Manual".

PCI/VGA Palette Snoop (Disabled)

Some graphic controllers which are not VGA compatible take the output from a VGA controller and map it to their display as a way to provide boot information and VGA compatibility.

However, the color information coming from the VGA controller is drawn from the palette table inside the VGA controller to generate the proper colors, and the graphic controller needs to know what is in the palette of the VGA controller. To do this, the non-VGA graphic controller looks for the Write access to the VGA palette and registers the snoop data. In PCI based systems, where the VGA controller is on the PCI bus and a non-VGA graphic controller is on an ISA bus, the Write Access to the palette will not show up on the ISA bus if the PCI VGA controller responds to the Write.

In this case, the PCI VGA controller should not respond to the Write, it should only snoop the data and permit the access to be forwarded to the ISA bus. The non-VGA ISA graphic controller can then snoop the data on the ISA bus. Unless you have the above situation, you should disable this option.

Assign IRQ For USB

This option allows you to choose which IRQ to assign for the USB.

Assign IRQ for VGA

This option allows you to choose which IRQ to assign for the VGA.

PC Health Status

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

Phoenix – AwardBIOS CMOS Setup Utility
PC Health Status

Current CPU Temp.	Item Help
Current System Temp.	
Current CPU FAN Speed	Menu Level ▶
Vcore	
2.5V	
3.3V	
5V	
12V	

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

Current CPU/System Temp.

This option displays the current CPU/System temperature.

Current SYSFAN Speed

This option displays the current SYSFAN speed.

CPU Vcore/+2.5V/+3.3V/+5V/+12V

Detects the system's voltage status automatically.

Frequency 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 Control

Auto Detect PCI/DIMM Clk	[Enabled]	Item Help
Spread Spectrum	[Enabled]	
CPU Host/PCI Clock	[66]	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

Auto Detect PCI/DIMM 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/PCI Clock (66)

This item allows you to select CPU Host/PCI clock.

Load Optimized Defaults Option

This option opens a dialog box that lets you install optimized defaults for all

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

Set Supervisor and User Passwords Option

This item can be used to install a password. To install a password, follow these steps:

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

    Enter Password:

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

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

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

    Confirm Password:

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

Save & Exit Setup Option

Highlight this item and press <Enter> to save the changes that you have

made in the Setup Utility and exit the Setup Utility. When the Save and Exit dialog box appears, press <Y> to save and exit, or press <N> to return to the main menu:

Exit Without Saving

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

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

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

Using the Mainboard Software

About the Software CD-ROM

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

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

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

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

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

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

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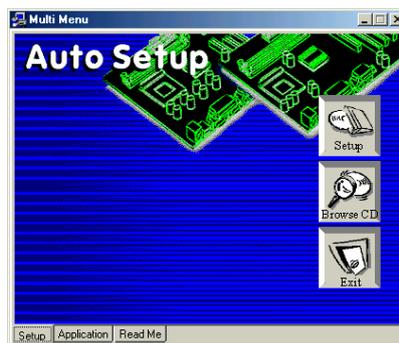
Note: If the opening screen doesn't appear, double-click the file "setup.exe" in the root directory.

Setup Tab

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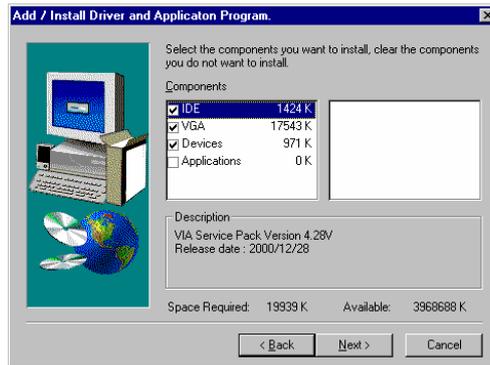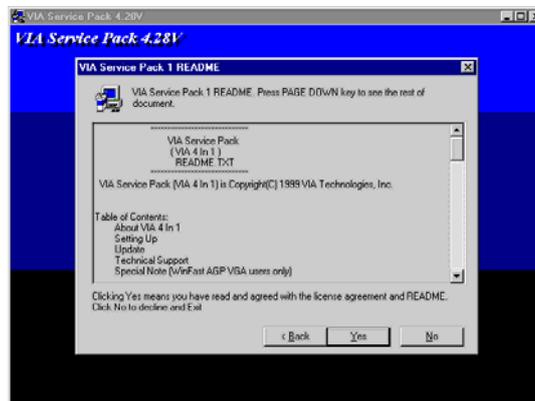
1. Click **Setup**. The installation program begins:

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

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

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

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

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

Manual Installation

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

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

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

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 mainboard, and lets you copy an updated version of the BIOS to the chip. Proceed with caution when using this program. If you erase the current BIOS and fail to write a new BIOS, or write a new BIOS that is incorrect, your system will malfunction. Refer to Chapter 3, *Using BIOS* for more information.

WinFlash Utility

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

\UTILITY\WINFLASH 1.51

PC-CILLIN 2002

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

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

MediaRing Talk – Telephony Software

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

Super Voice – Fax/Modem Software

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

PageABC

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

This concludes Chapter 4.