

# Preface

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

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

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

## Declaration of Conformity

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

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

## Canadian Department of Communications

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

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

## About the Manual

The manual consists of the following:

### ***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 25

### ***Chapter 4*** **Using the Mainboard Software**

Describes the mainboard software.

Go to ➞ page 50

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## *Chapter 1*

# Introducing the Mainboard

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### Introduction

Thank you for choosing the L7VTA2 mainboard. The L7VTA2 is designed to fit the advanced AMD processors in the 462-pin package. Based on the ATX form factor, this mainboard incorporates one of the following chipset: VIA KT400/KT400A Northbridge and VT8235 Southbridge chipsets. This mainboard provides the standard 200/266/333 MHz front side bus with extra capability.

The KT400/KT400A Northbridge provides superior performance between the CPU, DRAM, AGP bus, and 8X V-Link bus with pipelined, burst, and concurrent operation. It supports four banks of DDR Synchronous DRAMs up to 2 GB and full AGP 3.0 capability bus utilization including 2x, 4x, and 8x mode transfers, SideBand Addressing, Flush/Fence commands and pipelined grants.

The VT8235 Southbridge supports standard intelligent 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 AC97 link compatible sound system and full System Management Bus (SMBus) interface.

Sufficient expansion is provided for with one AGP slot, five 32-bit PCI slot and an optional CNR slot. It also comes with a built-in Enhanced PCI Bus Master PCI IDE controller that provides high-speed connections to full range of IDE devices such as HDD and CD-ROM. This mainboard is designed in a standard ATX form factor using a 4-layer printed circuit board and measures 305 mm x 190 mm.

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### Checklist

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

#### Standard Items

- One mainboard
- One diskette drive ribbon cable (optional)
- One IDE drive ribbon cable
- One auto-install software support CD
- One I/O panel
- This user's manual

## Features

Processor	The mainboard uses an AMD 462-pin Socket A that has the following features: <ul style="list-style-type: none"><li>• Supports 200/266/333 MHz frontside bus (FSB)</li><li>• Accommodates AMD Duron, Athlon, and Athlon XP processors</li></ul>					
Chipset	<p>The chipset on L7VTA2 includes the <b>KT400/KT400A</b> Northbridge and <b>VT8235</b> Southbridge which are based on an innovative and scalable architecture with proven reliability and performance. A few of the chipset's advanced features are:</p> <ul style="list-style-type: none"><li>• Support independent address, data, and snoop interfaces</li><li>• Support 533 MHz 8x, 266 MHz 4x, and 133 MHz 2x transfer modes for Ad and SBA AGP signaling</li><li>• AGP v3.0 compliant with 8x transfer mode</li><li>• Supports 66 MHz V-Link Host interface with peak bandwidth of 533 MB/sec</li><li>• Integrated Fast Ethernet Controller with 1/10/100 Mbit capability</li><li>• Dual channel UltraDMA-33/66/100/133 master mode EIDE controller</li><li>• Transfer rate up to 133MB/sec to cover PIO mode 4, multi-word DMA mode 2 drivers, and UltraDMA-33 interface</li><li>• USB v2.0 and Enhanced Host Controller Interface (EHCI) v1.0 compatible</li><li>• Supports both ACPI (Advanced Configuration and Power Interface) and legacy (APM) power management</li></ul> <p>Additional features include support for six USB ports, an AC 97 link for audio and modem, hardware monitoring, and ACPI/OnNow power management.</p>					
Graphics	This mainboard includes an AGP slot that provides eight times the bandwidth of the original AGP specification. The AGP 3.0 (8xAGP) offers a significant increase in performance along with feature enhancements to AGP2.0. This interface represents the natural evolution from the existing AGP to meet the ever-increasing demands placed on the graphic interfaces within the workstation and desktop environments.					
Memory	<ul style="list-style-type: none"><li>• Accommodates two unbuffered 2.5V 184-pin slots</li><li>• Each slot supports up to 1 GB with a total maximum capacity of 2 GB</li></ul> <table><tr><th>KT400 NB chipset</th><th>KT400A NB chipset</th></tr><tr><td>Supports DDR up to 200/266/333/400 (over-clock) MHz DDR SDRAM memory module.</td><td>Supports DDR up to 200/266/333/400 MHz DDR SDRAM memory module.</td></tr></table>		KT400 NB chipset	KT400A NB chipset	Supports DDR up to 200/266/333/400 (over-clock) MHz DDR SDRAM memory module.	Supports DDR up to 200/266/333/400 MHz DDR SDRAM memory module.
KT400 NB chipset	KT400A NB chipset					
Supports DDR up to 200/266/333/400 (over-clock) MHz DDR SDRAM memory module.	Supports DDR up to 200/266/333/400 MHz DDR SDRAM memory module.					

<b>Audio</b>	<p>The VIA VT1612A Audio Codec conforms to the AC'97 2.2 specification providing 18-bit resolution performance. With 2 channel outputs the VIA VT1612A provides high-performance stereo quality for headphones or speaker connections.</p> <ul style="list-style-type: none"> <li>• AC'97 2.2 extension compliant codec</li> <li>• 18-bit stereo full duplex</li> <li>• 3D stereo expansion for simulated surround</li> <li>• 2 stereo, 2 mono analog line-level inputs</li> </ul>
<b>Onboard LAN (optional)</b>	<p>The VT6103 is a Physical Layer device for Ethernet 10BASE-T and 100BASE-TX using category 5 Unshielded and Type 1 Shielded.</p> <ul style="list-style-type: none"> <li>• Dual Speed – 100/10 Mbps</li> <li>• Half And Full Duplex</li> <li>• Meet All Applicable IEEE 802.3, 10Base-T and 100Base-Tx Standards</li> <li>• Adaptive Equalizer</li> </ul>
<b>Integrated I/O</b>	<p>The mainboard has a full set of I/O ports and connectors:</p> <ul style="list-style-type: none"> <li>• Two PS/2 ports for mouse and keyboard</li> <li>• One serial port</li> <li>• One parallel port</li> <li>• Four USB ports</li> <li>• One LAN port (optional)</li> <li>• Audio jacks for microphone, line-in and line-out</li> </ul>
<b>BIOS Firmware</b>	<p>This mainboard uses Award BIOS that enables users to configure many system features including the following:</p> <ul style="list-style-type: none"> <li>• Power management</li> <li>• Wake-up alarms</li> <li>• CPU parameters</li> <li>• CPU and memory timing</li> </ul> <p>The firmware can also be used to set parameters for different processor clock speeds.</p>



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

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## Choosing a Computer Case

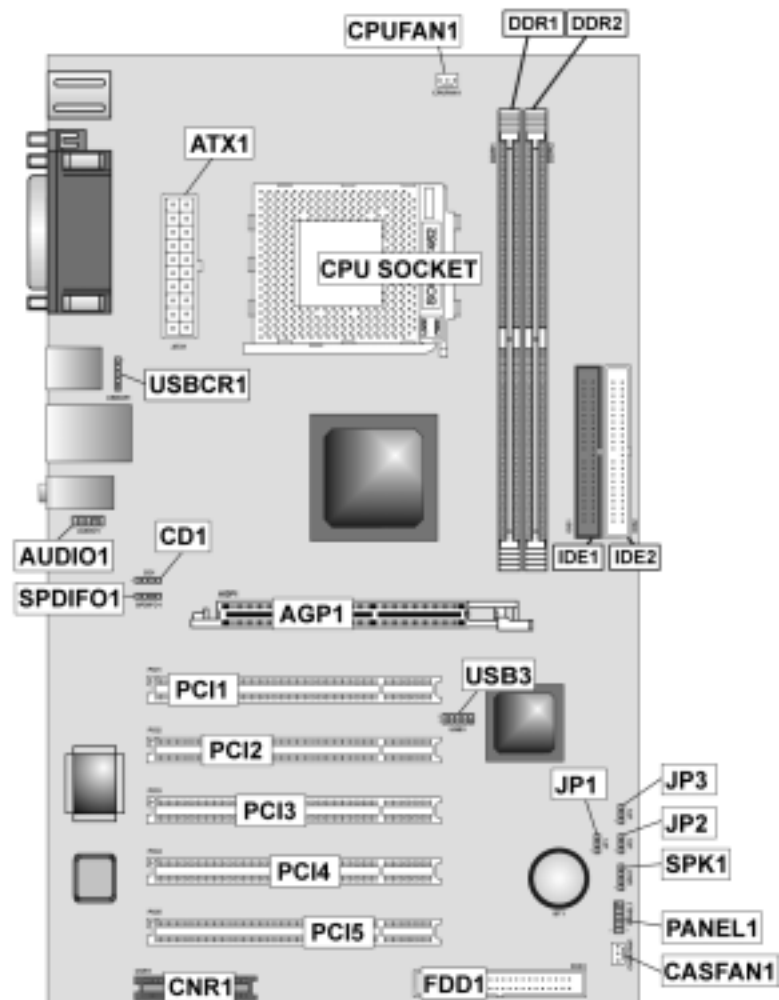
There are many types of computer cases on the market. The mainboard complies with the specifications for the ATX system case. Some features on the mainboard are implemented by cabling connectors on the mainboard to indicators and switches on the system case. Ensure that your case supports all the features 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 an ATX form factor of 305 x 190 mm. Choose a case that accommodates this form factor.



## Mainboard Components



## Table of Mainboard Components

Label	Component
AGP1	Accelerated Graphics Port
ATX1	Power connector
AUDIO1	Front-oriented microphone/line-out port header
BT1	Three volt realtime clock battery
CASFAN1	Auxiliary case cooling fan
CD1	CD-in connector
CNR1	Communications Networking Riser slot
CPUFAN1	Cooling fan for CPU
CPU Socket	Socket A for AMD Athlon processor
DDR1~DDR2	Two 184 pin DDR SDRAM sockets
FDD1	Floppy disk drive connector
IDE 1	Primary IDE channel
IDE 2	Secondary IDE channel
JP1	Clear CMOS jumper
JP2 & JP3	CPU Frequency jumpers
PANEL1	Connector for case front panel switches and LED indicators
PCI1 ~ PCI5	Five 32-bit add-in card slots
SPDIFO1*	SPDIF out header
SPK1	Speaker connector
USB3	Front panel USB headers
USBCR1	USB card reader connector

\* Optional component

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

## *Chapter 2*

# Installing the Mainboard

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### 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.

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### 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:

<b>Locating Mainboard Components</b>	Go to page 5
<b>Installing the Mainboard in a Case</b>	Go to page 8
<b>Setting Jumpers</b>	Go to page 8
<b>Installing Case Components</b>	Go to page 10
<b>Installing the CPU</b>	Go to page 12
<b>Installing Memory</b>	Go to page 15
<b>Installing an HDD and CD-ROM Drive</b>	Go to page 16
<b>Installing an FDD</b>	Go to page 18
<b>Installing Add-on Cards</b>	Go to page 19
<b>Connecting Options</b>	Go to page 21
<b>Connecting Peripheral (I/O) Devices</b>	Go to page 23

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## Installing the Mainboard in a Case

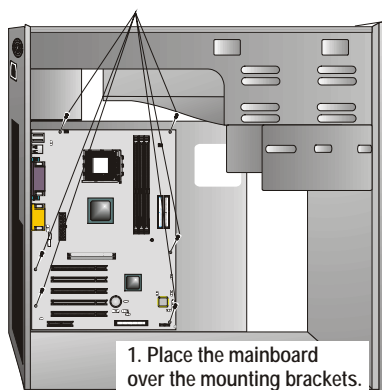
Refer to the following illustration and instructions for installing the mainboard in a case:

This illustration shows an example of a mainboard being installed in a tower-type case:

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

Most system cases have mounting brackets installed in the case, which correspond to the holes in the mainboard. Place the mainboard over the mounting brackets and secure the mainboard onto the mounting brackets with screws.

2. Secure the mainboard with screws where appropriate.



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

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## Checking Jumper Settings

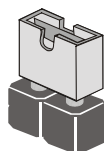
This section explains how to set jumpers for correct configuration of the mainboard.

### Setting Jumpers

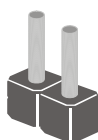
Use the mainboard jumpers to set system configuration options. Jumpers with more than one pin are numbered. When setting the jumpers, ensure that the jumper caps are placed on the correct pins.

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**.

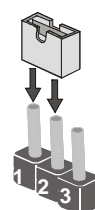
This illustration shows a 3-pin jumper. Pins 1 and 2 are **SHORT**.



**Short**

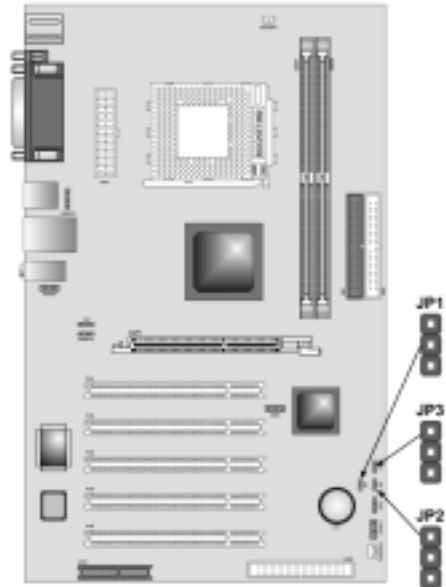


**Open**


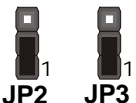


## Checking Jumper Settings

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



## Jumper Settings

Jumper	Type	Description	Setting (default)
JP1	3 pin	Clear CMOS	1-2: Normal 2-3: Clear CMOS 
JP2 & JP3	3-pin	CPU Frequency select jumper	See table on following page for settings. 

**Jumper 1** – enables you to clear the BIOS. Follow these instructions:

1. Turn the system off.
2. Short pins 2 and 3 on JP1.
3. Return the jumper to the normal setting.
4. Turn the system on. The BIOS is returned to the default settings.

**JP2 & JP3** – This jumper enables you to set the CPU frequency.

JP2	JP3	CPU Frequency
Short 1-2	Short 1-2	100MHz
Short 2-3	Short 1-2	133MHz
Short 1-2	Short 2-3	Not Applicable
Short 2-3	Short 2-3	166MHz

## 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 **ATX1**.
2. Connect the CPU cooling fan cable to **CPUFAN1**.
3. Connect the case cooling fan connector to **CASFAN1**.
4. Connect the case speaker cable to **SPK1**.
5. Connect the case switches and indicator to **PANEL1**.

### 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

### CPUFAN1/CASFAN1: FAN Power Connectors

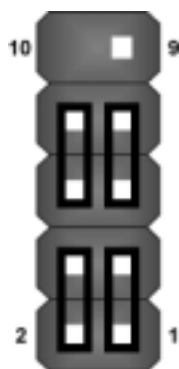
Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor

### SPK1: Internal speaker

Pin	Signal Name
1	Signal
2	NC
3	Ground
4	VCC

## Front Panel Connector

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	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

### 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.

### Power / Sleep 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.

S0	S1	S4/S5
Green	Green blinking	Dark

### **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.

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## **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.

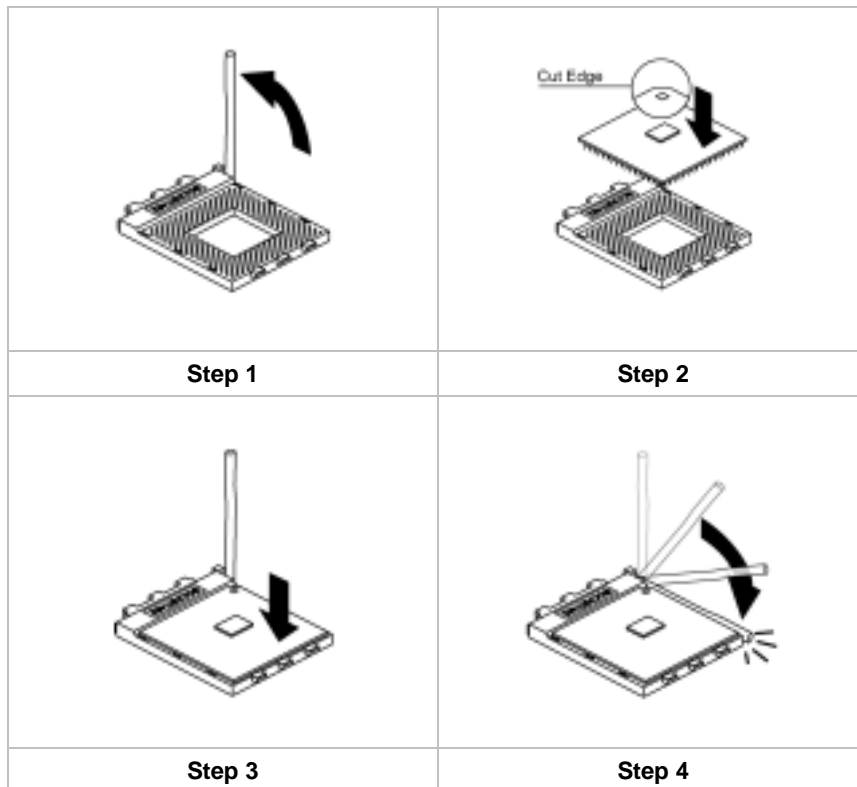
**Warning:** Overclocking components can adversely affect the reliability of the system and introduce errors into your system. Overclocking can permanently damage the mainboard by generating excess heat in components that are run beyond the rated limits.

This mainboard has a Socket 462 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

This mainboard is built with Socket 462 processor socket. When choosing a processor, consider the performance requirements of the system. The following illustration shows CPU installation components:



Orient the CPU so the odd corner matches the odd corner of the socket. With the lever in an upright position, gently place the CPU on the socket; make sure that all pins line up with the socket holes. When pins are aligned, the CPU should seat itself in the socket. Apply very light pressure to ensure the CPU is evenly seated. Push the lever down and ensure it latches firmly.

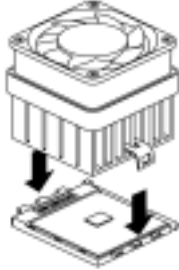

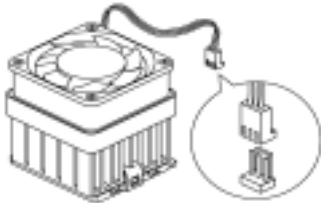
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**Note:** Remember to apply thermal grease on top of the CPU.

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## Installing CPU Fan and Fan Connector

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. Without an effective cooling fan, the CPU can overheat and cause damage to both CPU and the mainboard.

<p>1. Lower the CPU cooling fan/heatsink assembly onto the CPU.</p>	
<p>2. Secure the two retention clips on either side of the fan/heatsink unit onto the Socket 462 base.</p>	
<p>3. Connect the CPU Cooling Fan power cable connector to the CPUFAN connector.</p>	

## Installing Memory Modules

This mainboard accommodates two 184-pin 2.5V unbuffered Double Data Rate (DDR) SDRAM memory modules. Each module can be installed with 128 MB to 1 GB of memory; total memory capacity is 2GB.

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**Note:** DDR SDRAM uses additional power and ground lines and requires 184-pin DIMM modules rather than the 168-pin DIMMs used by SDRAM.

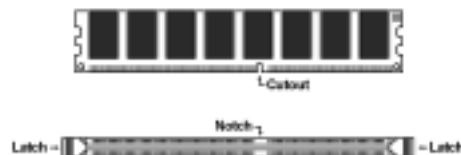
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Do not remove any memory module from its antistatic packaging until you are ready to install it on the mainboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the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

Refer to the following to install the memory modules.

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



2. Push the latches on each side of the DIMM slot down.
3. Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.



4. Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.
5. Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the DIMM.



6. Install any remaining DIMM modules.

## Installing a Hard Disk Drive/CD-ROM

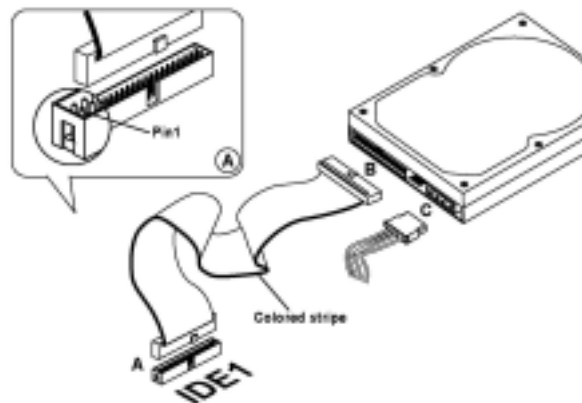
This section describes how to install IDE devices such as a hard disk drive and a CD-ROM drive.

Your 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.

### IDE1: Primary IDE Connector

The first hard drive should always be connected to IDE1.



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.

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

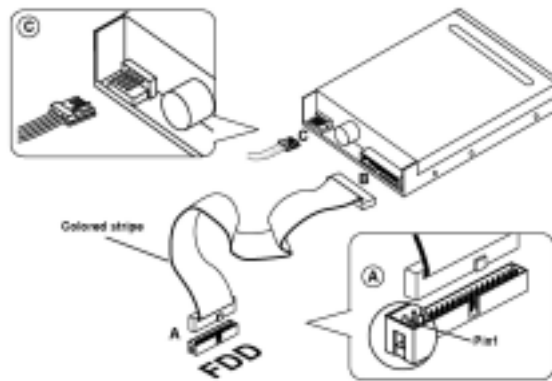
This mainboard supports UltraDMA 66/100/133. UDMA is a technology that accelerates the performance of devices in the IDE channel. To maximize performance, install IDE devices that support UDMA and use 80-pin IDE cables that support UDMA 66/100/133.

## Installing a Floppy Diskette Drive

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

### FDD1: Floppy Disk Connector

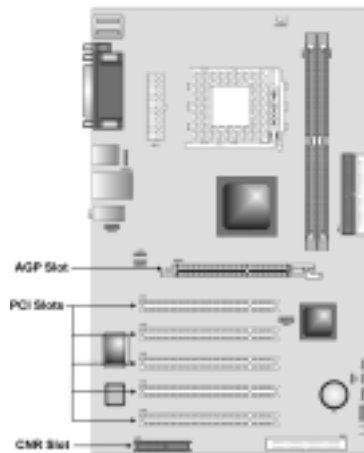
This connector supports the provided floppy drive ribbon cable. After connecting the single end to the onboard floppy connector, connect the remaining plugs on the other end to the floppy drives correspondingly.



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 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.



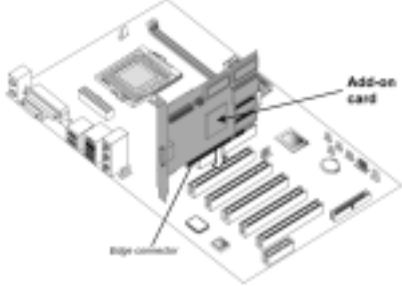
<b>PCI Slots</b>	PCI slots are used to install expansion cards that have the 32-bit PCI interface.
<b>AGP Slot</b>	The AGP slot is used to install a graphics adapter that supports AGP 1.5V and AGP 3.0 signaling.
<b>CNR Slot</b>	This slot is used to insert CNR cards with Modem functionality.

---

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

---

Follow these instructions to install an add-on card:

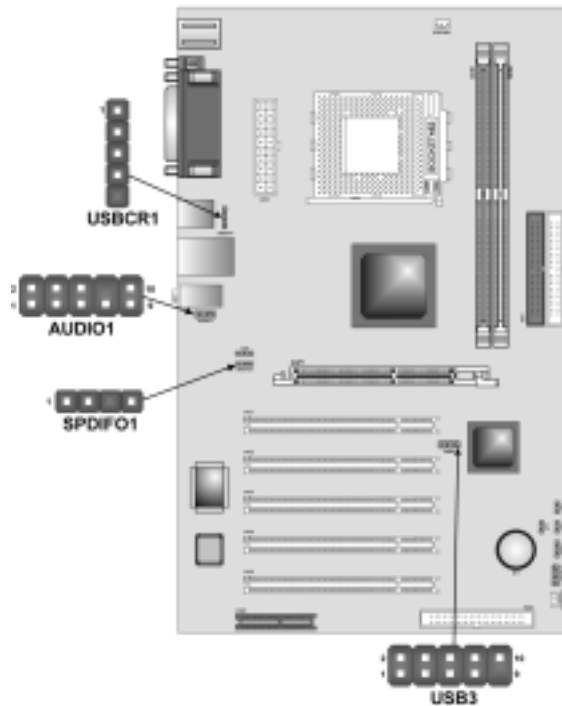
1. Remove a blanking plate from the system case corresponding to the slot you are going to use.	
2. Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.	
3. Secure the metal bracket of the card to the system case with a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

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



## Connecting Optional Devices

Refer to the following for information on connecting the mainboard's optional devices:



### 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	NC	Not connected
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 connectors

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 connectors USB3 to connect the front-mounted ports to the mainboard.

Pin	Signal Name	Function
1	USBVCC	+5V
2	USBVCC	+5V
3	USBP4-	Data signal port 4 -
4	USBP5-	Data signal port 5 -
5	USBP4+	Data signal port 4 +
6	USBP5+	Data signal port 5 +
7	GND	Ground
8	GND	Ground
9	Key	Cut away
10	NC	No connection

**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.

## USBCR1: USB Card Reader connector

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

Pin	Signal Name	Function
1	USBVCC	+5V
2	USB1-	Data signal port 1-
3	USB1+	Data signal port 1+
4	GND	Ground
5	Key	No pin

**Note:** The USBCR1 is shared with one of the USB ports of the I/O back panel. See “Connecting I/O Devices” for more information.



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

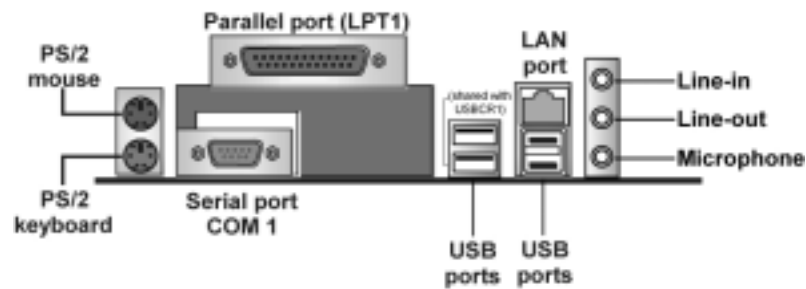
## SPDIF01: SPDIF out header (optional)

You can purchase an optional 24-bit digital audio extension bracket from a third-party vendor. You can use the audio RCA jacks to connect to digital audio devices. If your CD-ROM/DVD drive has digital audio output, you can connect it to the input pins of the SPDIF connector.

Pin	Signal Name	Function
1	SPDIF	SPDIF digital output
2	+5V	5V power
3	NC	Not connected
4	GND	Ground

## Connecting I/O Devices

The backplane of the mainboard has the following I/O ports:



<b>PS/2 Mouse</b>	Use the upper PS/2 port to connect a PS/2 pointing device.
<b>PS/2 Keyboard</b>	Use the lower PS/2 port to connect a PS/2 keyboard.
<b>LPT1</b>	Use LPT1 to connect printers or other parallel communications devices.
<b>COM1</b>	Use the COM ports to connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM1/3.
<b>Audio Ports</b>	Use the three audio ports to connect audio devices. The first jack is for stereo line-in signal. The second jack is for stereo line-out signal. The third jack is for microphone.
<b>LAN Port (optional)</b>	Connect an RJ-45 jack to the LAN port to connect your computer to the Network.
<b>USB Ports</b>	Use the USB ports to connect USB devices.

## External Connector Color Coding

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

Connector	Color
Audio line-in	Light blue
Audio line-out	Lime
Microphone	Pink
Parallel	Burgundy
PS/2-compatible keyboard	Purple
PS/2-compatible mouse	Green
Serial	Teal or Turquoise
USB	Black

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

## *Chapter 3*

# Using 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

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).

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

- TO ENTER SETUP BEFORE BOOT PRESS DEL KEY

PRESS F1 TO CONTINUE, DEL TO ENTER SETUP

<ul style="list-style-type: none"> <li>▶ <b>Standard CMOS Features</b></li> <li>▶ Advanced BIOS Features</li> <li>▶ Advanced Chipset Features</li> <li>▶ Integrated Peripherals</li> <li>▶ Power Management Setup</li> <li>▶ PnP/PCI Configurations</li> <li>▶ PC Health Status</li> </ul>	<ul style="list-style-type: none"> <li>▶ Frequency/Voltage Control</li> <li>Load Fail-Safe Defaults</li> <li>Load Optimized Defaults</li> <li>Set Supervisor Password</li> <li>Set User Password</li> <li>Save &amp; Exit Setup</li> <li>Exit Without Saving</li> </ul>
<p>Esc : Quit</p> <p>F10 : Save &amp; Exit Setup</p>	
<p style="text-align: center;">Time, Date, Hard Disk Type . . .</p>	

## 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 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 : <input type="text"/>	
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, 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)	Tue, July 11 2001	Item Help
Time (hh:mm:ss)	12 : 8 : 59	
► 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, But keyboard]	
Base Memory	640K	
Extended Memory	31744K	
Total Memory	32768K	

↑↓→← : 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:

CMOS Setup Utility – Copyright © 1984 – 2001 Award Software  
IDE Primary Master

IDE HDD Auto-Detection	[Press Enter]	Item Help
IDE Primary Master	[Auto]	Menu Level ►► To auto-detect the HDD's size, head ... on this channel
Access Mode	[Auto]	
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 Features screen.

### Drive A/Drive B (1.44M, 3.5 in./None)

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; you must leave this item at the default value.

### Halt On (All, But keyboard)

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 Setup

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

Phoenix – AwardBIOS CMOS Setup Utility  
Advanced BIOS Setup

		Item Help
Virus Warning	[Disabled]	<b>Menu Level ▶</b> Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempts to write data into this area, BIOS will show a warning message on screen and alarm beep
CPU Internal Cache	[Enabled]	
External Cache	[Enabled]	
CPU L2 Cache ECC Checking	[Enabled]	
Processor Number Feature	[Enabled]	
Quick Power On Self Test	[Enabled]	
First Boot Device	[Floppy]	
Second Boot Device	[HDD-0]	
Third Boot Device	[CD-ROM]	
Boot Other Device	[Enabled]	
Swap Floppy Drive	[Disabled]	
Boot Up Floppy Seek	[Enabled]	
Boot Up NumLock Status	[On]	
Gate A20 Option	[Fast]	
ATA 66/100 IDE Cable Msg	[Enabled]	
Typematic Rate Setting	[Disabled]	
x Typematic Rate (Chars/Sec)	6	
x Typematic Delay (Msec)	250	
Security Option	[Setup]	
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

### Virus Warning (Disabled)

When enabled, this item provides protection against viruses that try to write to the boot sector and partition table of your hard disk drive. You need to disable this item when installing an operating system. We recommend that you enable this item as soon as you have installed an operating system.

---

**Note:** For complete protection against viruses, install virus software in your operating system and update the virus definitions regularly.

---

**CPU Internal Cache (Enabled)**

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

**External Cache (Enabled)**

Most processors that can be installed in this system use external level 2 (L2) cache memory to improve performance. Leave this item at the default value for better performance.

**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.

**Processor Number Feature (Enabled)**

Some new processors are installed with a unique processor number. This number may be used for verification in Internet transactions and e-commerce. If you prefer not to use or distribute the unique processor number, disable this item to suppress the processor number.

**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)**

When enabled, the system searches all other possible locations for an operating system if it fails to find one in the devices specified under the First, Second, and Third boot devices.

**Swap Floppy Drive (Disabled)**

If you have two floppy diskette drives in your system, this item allows you to swap the assigned drive letters so that drive A becomes drive B, and drive B becomes drive A.

**Boot Up Floppy Seek (Enabled)**

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.

### **Gate A20 Option (Fast)**

This item defines how the system handles legacy software that was written for an earlier generation of processors. Leave this item at the default value.

### **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.

### **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 (Chars/Sec):** Use this item to define how many characters per second are generated by a held-down key.
- **Typematic Delay (Msec):** 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.

### **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 function, when enabled allows VGA BIOS to be copied to the system DRAM for enhanced performance.

### **Small Logo (EPA) Show (Disabled)**

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

## 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

<ul style="list-style-type: none"><li>▶ DRAM Clock/Drive Control [Press Enter]</li><li>▶ AGP &amp; P2P Bridge Control [Press Enter]</li><li>▶ CPU &amp; PCI Bus Control [Press Enter]</li><li>System BIOS Cacheable [Disabled]</li><li>Video RAM Cacheable [Disabled]</li><li>BIOS Flash PROTECT [Disabled]</li></ul>	Item Help
	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

### ▶ 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 Current DRAM Frequency DRAM Clock [By SPD] DRAM Timing [Auto By SPD] x DRAM CAS Latency 2.5 x Bank Interleave Disabled x Precharge to Active (Trp) 3T x Tras Non-DDR400/DDR 400 7T/10T x Active to CMD (Trcd) 3T DRAM Burst Length [4] DRAM Command Rate [2T Command]	Item Help
	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

### 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 (100 MHz)

This item enables you to manually set the DRAM Clock. We recommend that

you leave this item at the default value.

**DRAM Timing (Manual)**

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

**DRAM CAS Latency (2.5)**

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 "2.5" 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 (3T/4T)**

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.

**Tras Non-DDR400/DDR400 (7T/10T)**

This item specifies the minimum required timing delay for Non-DDR400 and DDR400.

**Active to CMD (3T)**

This item specifies the minimum required delay between activation of different rows.

**DRAM Burst Length (4)**

This item describes which burst lengths are supported by the devices on the mainboard. 1 level can provide faster performance but may result in instability whereas 8 level gives the most stable but slowest performance.

**DRAM Queue Depth (4 level)**

This item sets the depth of the DRAM queue used for CPU's cache.

**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.

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

		Item Help
		Menu Level ▶
	AGP Aperture Size [128M]	
	AGP Mode [2X]	
	AGP Driving Control [Auto]	
x	AGP Driving Value DA	
	AGP 3.0 Calibration Cycle [Enabled]	

↑↓→← : 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 (2X)**

This item allows you to enable or disable the caching of display data for the processor video memory. Enabling AGP-2X 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 operate. 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 3.0 Calibration Cycle (Enabled)**

This item is used to implement dynamic compensation to recalibrate the AGP bus over time for AGP 3.0 compatible chipset.

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

## ► 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 Bridge Control

PCI1 Master 0 WS Write	[Enabled]	Item Help
PCI2 Master 0 WS Write	[Enabled]	Menu Level ►
PCI1 Post Write	[Enabled]	
PCI2 Post Write	[Enabled]	
PCI 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

### **PCI 1/2 Master 0 WS Write (Enabled)**

When enabled, writes to the PCI bus are executed with zero wait states, providing faster data transfer.

### **PCI 1/2 Post Write (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 Delay Transaction (Enabled)**

The mainboard'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.

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

### **System BIOS/Video RAM Cacheable (Disabled)**

These items allow the video and system to be cached in memory for faster execution. Leave these items at the default value for better performance.

### **BIOS Write Protect (Disabled)**

Use this item to enable or disable the BIOS Write Protect.



## 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

<ul style="list-style-type: none"> <li>▶ VIA OnChip IDE Device [Press Enter]</li> <li>▶ VIA OnChip PCI Device [Press Enter]</li> <li>▶ Super I/O Device [Press Enter]</li> <li>Init Display First [PCI Slot]</li> </ul>	Item Help
	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:

CMOS Setup Utility – Copyright (C) 1984 – 2001 Award Software  
VIA OnChip IDE Device

OnChip IDE Channel0 [Enabled] OnChip IDE Channel1 [Enabled] IDE Prefetch Mode [Enabled] 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]	Item Help
	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

### On-Chip IDE Channel 0/1 (Enabled)

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

#### **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.

#### **IDE 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.

#### **IDE Primary/Secondary Master/Slave UDMA (Auto)**

Each IDE channel supports a master device and a slave device. This mainboard 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 mainboard 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:

CMOS Setup Utility – Copyright (C) 1984 – 2001 Award Software  
VIA OnChip PCI Device

AC97 Audio	[Auto]	Item Help
MC97 Modem	[Auto]	
OnChip LAN	[Enabled]	Menu Level ►►
Onboard LAN Boot ROM	[Auto]	
On chip USB Controller	[Enabled]	
USB Keyboard 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.

#### **OnChip LAN (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 (Enabled)**

Enable this item if you plan to use the Universal Serial Bus ports on this main-board.

#### **USB Keyboard/Mouse Support (Disabled)**

Enable this item if you plan to use a keyboard/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:

CMOS Setup Utility – Copyright (C) 1984 – 2001 Award Software  
SuperIO Device

Onboard FDC Controller	[Enabled]	Item Help
Onboard Serial Port 1	[3F8/IRQ4]	
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 interrupt request (IRQ) for the 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.

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

**Init Display First (PCI Slot)**

Use this item to specify whether your graphics adapter is installed in one of the PCI slots or is integrated on the mainboard.

## 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]	Item Help
Power Management Option	[User Define]	Menu Level ►
HDD Power Down	[Disable]	
Suspend Mode	[Disable]	
Video Off Option	[Suspend --> Off]	
Video Off Method	[DPMS Support]	
MODEM Use IRQ	[3]	
Soft-Off by PWRBTN	[Instant-Off]	
PWRON After Power Failure	[Off]	
► 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 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 PC to be turned on and off by external devices, so that mouse or keyboard activity wakes up the computer.

### **Power Management Option (User Define)**

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.

### **HDD Power Down (Disable)**

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)**

The CPU clock will be stopped and the video signal will be suspended if no Power Management events occur for a specified length of time. Full power function will return when a Power Management event is detected. Options are from 1 Min to 1 Hour and Disable.

### **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 Support)**

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 mainboard 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 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.

### **PWRON After PWR-Fail (Off)**

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

### ► 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

VGA	[OFF]	Item Help
LPT & COM	[LPT/COM]	
HDD & FDD	[ON]	Menu Level ►►
PCI Master	[OFF]	
PowerOn by PCI Card	[Enabled]	
Modem Ring Resume	[Disabled]	
RTC Alarm Resume	[Disabled]	
x Date (of Month)	0	
x Resume Time (hh:mm:ss)	0 0 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

This item opens a submenu that enables you to set events that will resume the system from a power saving mode.

#### **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.

#### **Modem Ring Resume (Disabled)**

Enable Modem Ring-in to resume the system.

#### **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:

### Phoenix – AwardBIOS CMOS Setup Utility IRQs Activity Monitoring

		Item Help
Primary INTR	[ON]	Menu Level ►►►
IRQ 3 (COM2)	[Enabled]	
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 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

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

### 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))

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 and Memory Resources sub-menus.

In the IRQ Resources sub-menu, if you change any of the IRQ assignments to Legacy ISA, then that Interrupt Request Line is reserved for a legacy ISA expansion card. Press <Esc> to close the IRQ Resources sub-menu.

In the Memory Resources sub menu, use the first item Reserved Memory Base to set the start address of the memory you want to reserve for the ISA

expansion card. Use the second item Reserved Memory Length to set the amount of reserved memory. Press <Esc> to close the Memory Resources sub-menu.

#### PCI/VGA Palette Snoop (Disabled)

This item is designed to overcome some 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 VGA/USB (Enabled)

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

### 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

Shutdown Temperature CPU Vcore + 2.5V Current CPU Temp CPU FAN speed CAS FAN Speed	[Disabled]	Item Help
		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

#### 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 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 DIMM/PCI Clk	[Enabled]	Item Help
Spread Spectrum	[Enabled]	Menu Level ►
CPU Clock	[Default]	

↑↓→← : 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 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 (Default)

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 Password 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.

## Chapter 4

# Using the Mainboard Software

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### About the Software CD-ROM

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

---

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

---

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

---

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

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

---

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

---

The support software CD-ROM disc loads automatically under Windows 98/ME/2000/XP. When you insert the CD-ROM disc in the CD-ROM drive, the autorun feature will automatically bring up the install screen. The screen has three buttons on it, Setup, Browse CD and Exit.



---

**Note:** If the opening screen doesn't appear, double-click the file "setup.exe" in the root directory.

---

## Setup Tab

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

## Application Tab

Lists the software utilities that are available on the CD.

## Read Me Tab

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

## Running Setup

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

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



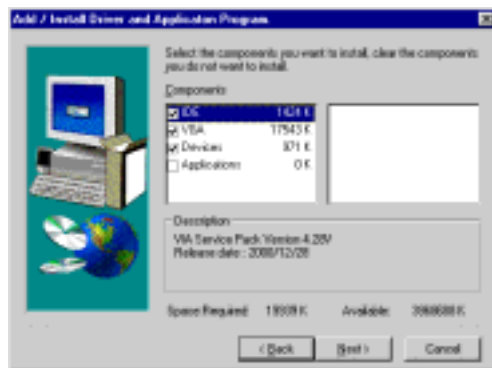
---

**Note:** The following screens are examples only. The screens and driver lists will be different according to the mainboard you are installing.

---

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

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



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

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

---

### 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.