

**Manual**

**Motherboard P4M800Pro-M**

# Preface

## Copyright

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

Version 1.0a

## Disclaimer

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

## Trademark Recognition

Microsoft, MS-DOS and Windows are registered trademarks of Microsoft Corp.

MMX, Pentium, Pentium-II, Pentium-III, Pentium-4, Celeron are registered trademarks of Intel Corporation.

Other product names used in this manual are the properties of their respective owners and are acknowledged.

## 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.

## Preface

## **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 Motherboard**

Describes features of the motherboard.

Go to  page 1

### **Chapter 2**

#### **Installing the Motherboard**

Describes installation of motherboard components.

Go to  page 7

### **Chapter 3**

#### **Using BIOS**

Provides information on using the BIOS Setup Utility.

Go to  page 27

# TABLE OF CONTENTS

<b>Preface</b>	<b>i</b>
<b>Chapter 1</b>	<b>1</b>
<b>Introducing the Motherboard</b>	<b>1</b>
Introduction.....	1
Feature.....	2
Motherboard Components.....	4
<b>Chapter 2</b>	<b>7</b>
<b>Installing the Motherboard</b>	<b>7</b>
Safety Precautions.....	7
Choosing a Computer Case.....	7
Installing the Motherboard in a Case.....	7
Checking Jumper Settings.....	8
<i>Setting Jumpers.....</i>	8
<i>Checking Jumper Settings.....</i>	9
<i>Jumper Settings.....</i>	9
Connecting Case Components.....	10
<i>Front Panel Connector.....</i>	12
Installing Hardware.....	13
<i>Installing the Processor.....</i>	13
<i>Installing Memory Modules.....</i>	15
<i>Installing a Hard Disk Drive/CD-ROM/SATA Hard Drive.....</i>	18
<i>Installing a Floppy Diskette Drive.....</i>	20
<i>Installing Add-on Cards.....</i>	21
<i>Connecting Optional Devices.....</i>	23
Connecting I/O Devices.....	26
<b>Chapter 3</b>	<b>27</b>
<b>Using BIOS</b>	<b>27</b>
About the Setup Utility.....	27
<i>The Standard Configuration.....</i>	27
<i>Entering the Setup Utility.....</i>	27
<i>Updating the BIOS.....</i>	29
Using BIOS.....	29
<i>Standard CMOS Setup.....</i>	30
<i>Advanced Setup.....</i>	30
<i>Features Setup.....</i>	32

<i>Power Management Setup</i> .....	33
<i>PCI/Plug and Play Setup</i> .....	34
<i>BIOS Security Features</i> .....	35
<i>Hardware Monitor</i> .....	36
<i>Load Optimal Defaults</i> .....	37
<i>Save Changes and Exit</i> .....	37
<i>Discard Changes and Exit</i> .....	37

# Chapter 1

## ***Introducing the Motherboard***

---

### **Introduction**

Thank you for choosing the P4M800PRO-M motherboard. This motherboard is a high performance, enhanced function motherboard that supports LGA775 Pentium 4/Celeron D/Pentium D processors for high-end business or personal desktop markets.

The motherboard incorporates the P4M800PRO Northbridge (NB) and VT8237 Southbridge (SB) chipsets. The Northbridge supports a Front Side Bus (FSB) frequency of 1066/ 800/533 MHz FSB and Hyper-Threading technology. The memory controller supports DDR memory DIMM frequencies of 400/333/266 MHz or DDR2 memory DIMM frequencies of 533/400 MHz. It supports four DDR Sockets with up to maximum memory of 2 GB. Aside from the integrated UniChrome Pro 3D/2D Graphics & Video Controller, one AGP 8X/4X slot provides users with high-performance along with superior image and video quality.

The VT8237 Southbridge is a highly integrated peripheral controller, it includes an integrated keyboard controller with PS2 mouse support, two-channel Serial ATA/RAID hard disk controller, master mode enhanced Parallel IDE controller with full scatter/gather capability and extension to UltraDMA-133/100/66 for 133/100/66 MB/sec transfer rate, integrated USB 2.0 interface, supporting up to eight functional ports, and OnNow/ACPI compliant advanced configuration and power management interface. The VT8237 integrated networking MAC controller with standard MII interface to an external PHY for 100/10/1Mb Base-T Ethernet.

This motherboard is equipped with advanced full set of I/O ports in the rear panel, including PS/2 mouse and keyboard connectors, COM1, LPT1, one VGA port, four USB ports, one optional LAN port, and audio jacks for microphone, line-in and line out.

## Feature

### Processor

This motherboard uses an LGA775 type of Pentium 4 that carries the following features:

- Accommodates Intel Pentium 4/Celeron D/Pentium D processors
- Supports a system bus (FSB) of 1066/ 800/533 MHz
- Supports “Hyper-Threading” technology CPU

“Hyper-Threading” technology enables the operating system into thinking it’s hooked up to two processors, allowing two threads to be run in parallel, both on separate “logical” processors within the same physical processor.

### Chipset

The P4M800PRO Northbridge (NB) and VT8237 Southbridge (SB) chipset is based on an innovative and scalable architecture with proven reliability and performance.

#### **P4M800PRO (NB)**

- High performance Northbridge with 1066 /800/533 MHz FSB for Pentium 4/Celeron D/Pentium D processors
- V-Link 533 MB/s high bandwidth North/South Bridge interconnect
- Integrated UniChrome Pro 3D/2D Graphics & Video Controller, Microsoft DirectX 9.0 compatible, OpenGL supported
- Supports for AGP 8X/4X, AGP v3.0 compliant with 1.5V
- Advanced 64-bit DDR2 and DDR400 SDRAM controller



*P4M800PRO chipset can only support mixed 1024/512/256/128/64Mb x8/16 DDR2 SDRAMs or mixed 1024/512/256/128/64Mb x8/16 DDR SDRAMs.*

#### **VT8237(SB)**

- Supports 16-bit 66 MHz V-Link Host interface with total bandwidth of 1066 MB/s
- Compliant with PCI 2.2 specification at 33 MHz, supporting up to 6 PCI masters
- Integrated Serial ATA Host Controllers, supporting data transfer rates up to 1.5Gb/s
- Integrated Dual channel UltraDMA 133/100/66 Master Mode EIDE Controller
- USB 2.0 Controller, supporting up to 8 USB 2.0 ports
- Integrated keyboard Controller with PS2 mouse support

### Memory

- Supports DDR 400/333/266 MHz or DDR2 533/400 DDR SDRAM DIMMs
- Accommodates four unbuffered DIMMs
- Up to 1 GB per DIMM with maximum memory size up to 2 GB



*Users please note that DDR & DDR2 can't both be applied at the same time on this motherboard. Users can use either DDR or DDR2 memory modules only!*

## Introducing the Motherboard

## Audio

- Compliant with AC'97 2.3 specification
- 16-bit Stereo full-duplex CODEC with 48KHz sampling rate
- Supports double sampling rate (96KHz) of DVD audio playback
- Direct Sound 3D™ compatible

## Onboard LAN (Optional)

The onboard LAN controller provides either of the following features:

<ul style="list-style-type: none"> <li>• Supports 10 Mb/s and 100 Mb/s N-way Auto-negotiation operation</li> <li>• Supports Wake-on-LAN function and remote wake-up</li> <li>• Half/Full Duplex capability</li> </ul>
<ul style="list-style-type: none"> <li>• Integrated 10/100/1000 transceiver</li> <li>• Supports PCI rev.2.3,32-bit,33/66 MHz</li> <li>• Crossover Detection &amp; Auto-Correction</li> <li>• Wake-on-LAN and remote wake-up support</li> </ul>

## Expansion Options

The motherboard comes with the following expansion options:

- One AGP slot
- Three 32-bit PCI v2.2 compliant slots
- Two 40-pin IDE connectors supporting up to 4 IDE devices
- One floppy disk drive interface
- Two 7-pin SATA connectors

This motherboard supports UltraDMA bus mastering with transfer rates of 133/100/66 MB/s.

## Integrated I/O

The motherboard has a full set of I/O ports and connectors:

- Two PS/2 ports for mouse and keyboard
- One serial port
- One parallel port
- One VGA port
- Four USB ports
- One LAN port (optional)
- Audio jacks for microphone, line-in and line-out

## BIOS Firmware

This motherboard uses AMI BIOS that enables users to configure system features including the following:

- Power management
- Wake-up alarms
- CPU parameters
- CPU and memory timing

The firmware can also be used to set parameters for different processor clock speeds.



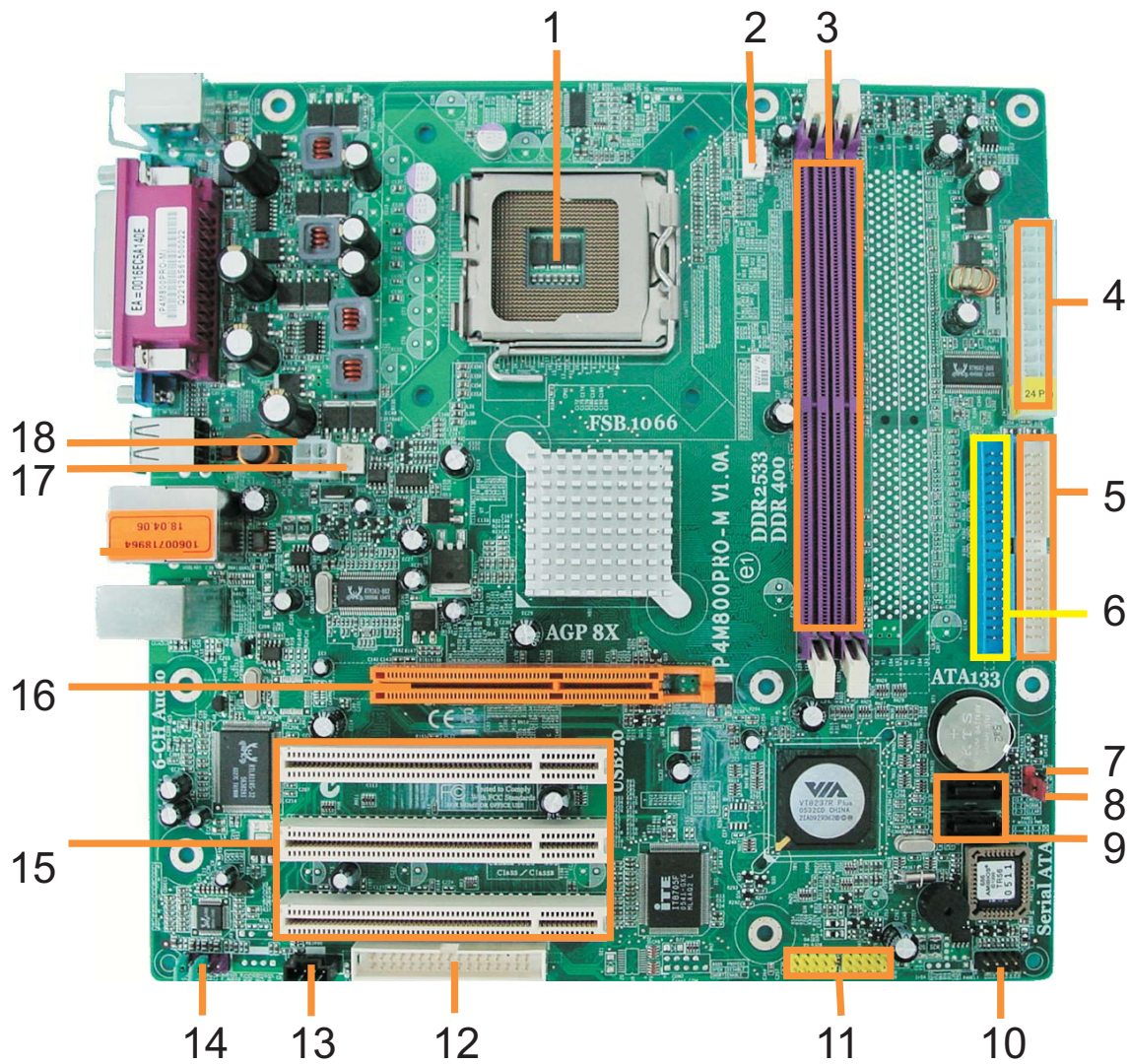
*Some hardware specifications and software items are subject to change without prior notice.*

## Introducing the Motherboard



# Motherboard Components

Floppy diskette drive connector



Introducing the Motherboard

## Table of Motherboard Components

LABEL	COMPONENT
1 CPU Socket	LGA775 socket for P4/Celeron D CPUs
2 CPU_FAN	CPU cooling fan connector
3 DDRII1~2	240-pin DDR2 SDRAM slots
4 ATX1	Standard 24-pin ATX power connector
6 IDE1	Primary IDE channel
6 IDE2	Secondary IDE channel
7 CLR_CMOS	Clear CMOS jumper
8 BIOS_WP *	BIOS protect jumper
9 SATA1~2	Serial ATA connectors
10 PANEL1	Front Panel switch/LED header
11 USB 3/4	Front Panel USB headers
12 FDD	Flloppy diskette drive connector
13 AUX IN	audio input
14 AUX_OUT	Auxiliary audio output header
15 PCI1~3	32-bit add-on card slots
16 AGP	Accelerated Graphics Port slot
17 SYS_FAN	System cooling fan connector
18 ATX12V	Auxiliary 4-pin power connector

\* Stands for optional components



*Users please note that DDR & DDR2 can't both be applied at the same time on this motherboard. Users can use DDR2 memory modules only!*

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

## ***Memo***

## **Chapter 2**

### ***Installing the Motherboard***

---

#### **Safety Precautions**

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

#### **Choosing a Computer Case**

There are many types of computer cases on the market. The motherboard complies with the specifications for the Micro ATX system case. First, some features on the motherboard are implemented by cabling connectors on the motherboard to indicators and switches on the system case. Make sure that your case supports all the features required. Secondly, this motherboard supports one or two floppy diskette drives and four enhanced IDE drives. Make sure that your case has sufficient power and space for all drives that you intend to install.

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

This motherboard carries a Micro ATX form factor of 244 x 244 mm. Choose a case that accommodates this form factor.

#### **Installing the Motherboard in a Case**

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

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

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



*Do not over-tighten the screws as this can stress the motherboard.*

## Checking Jumper Settings

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

### Setting Jumpers

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

The illustrations 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**.

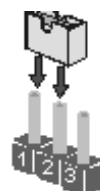


**SHORT**



**OPEN**

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





## Installing the Motherboard

## Checking Jumper Settings

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



## Jumper Settings

Jumper	Type	Description	Setting (default)	
CLR_CMOS	3-pin	Clear CMOS	1-2: NORMAL 2-3: CMOS CLEAR Before clearing the CMOS, make sure to turn off the system.	 1 CLR_CMOS
BIOS_WP	2-pin	BIOS_WP	OPEN: FLASH WRITE UNPROTECTED SHORT: FLASH WRITE PROTECTED	 BIOS_WP



To avoid the system instability after clearing CMOS, we recommend users to enter the main BIOS setting page to “Load Optimal Defaults” and then “Save Changes and Exit”.

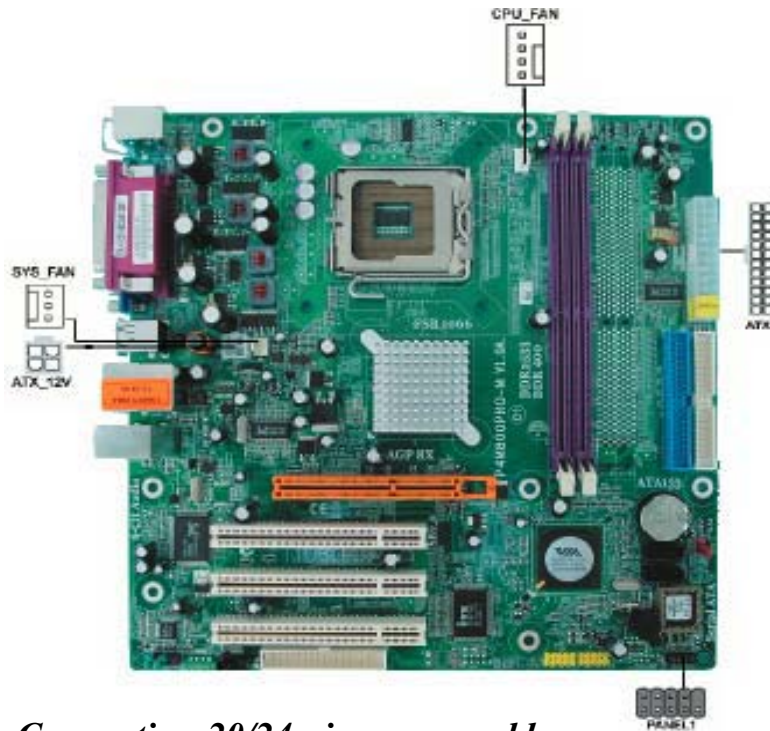
## Installing the Motherboard



## Connecting Case Components

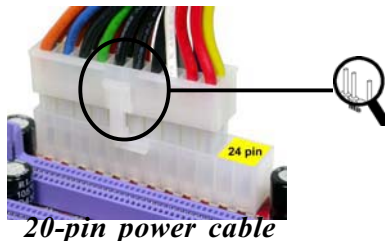
After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:

- 1 Connect the CPU cooling fan cable to **CPU\_FAN**.
- 2 Connect the system cooling fan connector to **SYS\_FAN**.
- 3 Connect the case switches and indicator LEDs to the **PANEL1**.
- 4 Connect the standard power supply connector to **ATX1**.
- 5 Connect the auxiliary case power supply connector to **ATX\_12V**.



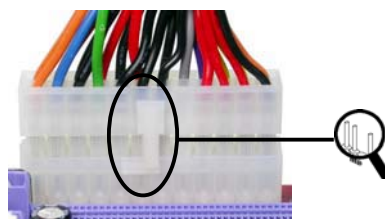
### Connecting 20/24-pin power cable

Users please note that the 20-pin and 24-pin power cables can both be connected to the ATX1 connector. With the 20-pin power cable, just align the 20-pin power cable with the pin 1 of the ATX1 connector. However, using 20-pin power cable may cause the system to become unbootable or unstable because of insufficient electricity. A minimum power of 300W is recommended for a fully-configured system.



20-pin power cable

With ATX v1.x power supply, users please note that when installing 20-pin power cable, the latch of power cable clings to the left side of the ATX\_POWER connector latch, just as the picture shows.



24-pin power cable

With ATX v2.x power supply, users please note that when installing 24-pin power cable, the latches of power cable clings to the right side of the ATX\_POWER connector latch.

### CPU\_FAN: CPU FAN Power Connector

Pin	Signal Name	Function
1	GND	System Ground
2	+12V	Power +12V
3	Sense	Sensor
4	PWM	CPU FAN control



*Users please note that the fan connector supports the CPU cooling fan of 1.1A~2.2A (26.4W max.) at +12V.*

### SYS\_FAN: System cooling FAN Power Connector

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

### ATX\_12V: ATX 12V Power Connector

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

### ATX1: ATX 24-pin Power Connector

Pin	Signal Name	Pin	Signal Name
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	Ground	15	Ground
4	+5V	16	PS_ON
5	Ground	17	Ground
6	+5V	18	Ground
7	Ground	19	Ground
8	PWRGD	20	-5V
9	+5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	Ground



## 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	Signal	Function	Pin	Signal	Function
1	HD_LED_P	Hard disk LED(+)	2	FP PWR/SLP	*MSG LED(+)
3	HD_LED_N	Hard disk LED(-)	4	FP PWR/SLP	*MSG LED(-)
5	RST_SW_N	Reset Switch(-)	6	PWR_SW_P	Power Switch(+)
7	RST_SW_P	Reset Switch(+)	8	PWR_SW_N	Power Switch(-)
9	RSVD	Reserved	10	Key	No pin

\* MSG LED (dual color or single color)

### Hard Drive Activity LED

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

### Power/Sleep/Message waiting LED

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

### Reset Switch

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

### Power Switch

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

## Installing Hardware

### *Installing the Processor*



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

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

*Avoid using cooling fans with sharp edges on the fan casing and the clips. Also, install the cooling fan in a well-lit work area so that you can clearly see the motherboard and processor socket.*

### **Before installing the Processor**

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



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

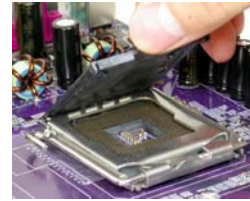
This motherboard has a LGA 775 socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

## **Installing the Motherboard**

## CPU Installation Procedure

The following illustration shows CPU installation components.

- A. Unload the cap
  - Use thumb & forefinger to hold the lifting tab of the cap.
  - Lift the cap up and remove the cap completely from the socket.
- B. Open the load plate
  - Use thumb & forefinger to hold the hook of the lever, pushing down and pulling aside unlock it.
  - Lift up the lever.
  - Use thumb to open the load plate. Be careful not to touch the contacts.
- C. Install the CPU on the socket
  - Orientate CPU package to the socket. Make sure you match triangle marker to pin 1 location.
- D. Close the load plate
  - Slightly push down the load plate onto the tongue side, and hook the lever.
  - CPU is locked completely.
- E. Apply thermal grease on top of the CPU.
- F. Fasten the cooling fan supporting base onto the CPU socket on the motherboard.
- G. Make sure the CPU fan is plugged to the CPU fan connector. Please refer to the CPU cooling fan user's manual for more detail installation procedure.



*1. To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 3800 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.*

*2. DO NOT remove the CPU cap from the socket before installing a CPU.*

## Installing Memory Modules

This motherboard accommodates four memory modules. It can support two 184-pin unbuffered DIMM, DDR 400/333/266 or two 240-pin DDR2 533/400. The total memory support capacity is 2 GB.



*Users please note that DDR & DDR2 can't both be applied at the same time on this motherboard. Users can use either DDR or DDR2 memory modules only!*

### DDR SDRAM memory module table

Memory module	Memory Bus
<b><i>DDR 266</i></b>	<b><i>133MHz</i></b>
<b><i>DDR 333</i></b>	<b><i>166MHz</i></b>
<b><i>DDR 400</i></b>	<b><i>200MHz</i></b>

### DDR2 SDRAM memory module table

Memory module	Memory Bus
<b><i>DDR2 400</i></b>	<b><i>200MHz</i></b>
<b><i>DDR2 533</i></b>	<b><i>266MHz</i></b>

You must install at least one module in any of the four slots. Each module can be installed with 256 MB to 1 GB of memory; total support memory capacity is 2 GB.



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

## Installation Procedure

Refer to the following to install the memory modules.

- 1 This motherboard supports unbuffered DDR and DDR2 SDRAM .
- 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 the Motherboard

**Table B: Supported DDR2 QVL (Qualified Vendor List)**

Type	Size	Vendor	Module Name
<b>DDR2 400</b>	<b>256 MB</b>	Hynix	HYMP532U646-E3 AA
		Nanya	NT256T64UH4A0F-5A CL3
		Samsung	M378T3253FG0-CCC
	<b>512 MB</b>	Hynix	HYMP564U648-E3 AA
<b>DDR2 533</b>	<b>256 MB</b>	Corsair	4PB11D9CHM
		Eipida	B04180WB00
	<b>512 MB</b>	Corsair	4PB11D9CHM
		Eipida	04180WB01
		Kingston	HY5PS56821
		Twinmos Elpida	8D22JB-ED
		Twinmos Hynix	8D22JB-HX
		Samsung	K4T56083QF-ZCD5
	<b>1 GB</b>	Apacer ELPIDA	E5108AB-5C-E
		Kingston Infineon	HYB18T51260AF-E

## ***Installing a Hard Disk Drive/CD-ROM/SATA Hard Drive***

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

### **About IDE Devices**

Your motherboard has two IDE channels interface. An IDE ribbon cable supporting two IDE devices is bundled with the motherboard.



*You must orient the cable connector so that the pin1 (color) edge of the cable corresponds to the pin 1 of the I/O port connector.*

### **IDE1: IDE Connector**

This motherboard supports two high data transfer SATA ports with each runs up to 150 MB/s. To get better system performance, we recommend users connect the CD-ROM to the IDE channel, and set up the hard drives on the SATA ports.



### **IDE2: Secondary IDE Connector**

The second drive on this controller must be set to slave mode. The configuration is the same as IDE1.



IDE devices enclose jumpers or switches used to set the IDE device as MASTER or SLAVE. Refer to the IDE device user's manual. 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.

## **Installing the Motherboard**

## About SATA Connectors

Your motherboard features two SATA connectors supporting a total of two drives. SATA , or Serial ATA (Advanced Technology Attachment) is the standard interface for the IDE hard drives which are currently used in most PCs. These connectors are well designed and will only fit in one orientation. Locate the SATA connectors on the motherboard and follow the illustration below to install the SATA hard drives.

## Installing Serial ATA Hard Drives

To install the Serial ATA (SATA) hard drives, use the SATA cable that supports the Serial ATA protocol. This SATA cable comes with an SATA power cable. You can connect either end of the SATA cable to the SATA hard drive or the connector on the motherboard (not contained in the scope of supply).



**SATA cable** (optional)



**SATA power cable** (optional)

Refer to the illustration below for proper installation:

- 1 Attach either cable end to the connector on the motherboard.
- 2 Attach the other cable end to the SATA hard drive.
- 3 Attach the SATA power cable to the SATA hard drive and connect the other end to the power supply.



*This motherboard does not support the “Hot-Plug” function.*

## ***Installing a Floppy Diskette Drive***

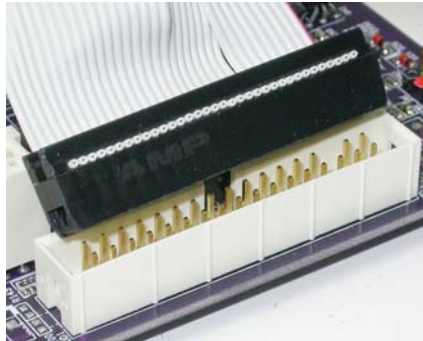
The motherboard has a floppy diskette drive (FDD) interface and ships with a diskette drive ribbon cable that supports one or two floppy diskette drives. You can install a 5.25-inch drive and a 3.5-inch drive with various capacities. The floppy diskette drive cable has one type of connector for a 5.25-inch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



*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.*

### **FDD: Floppy Disk Connector**

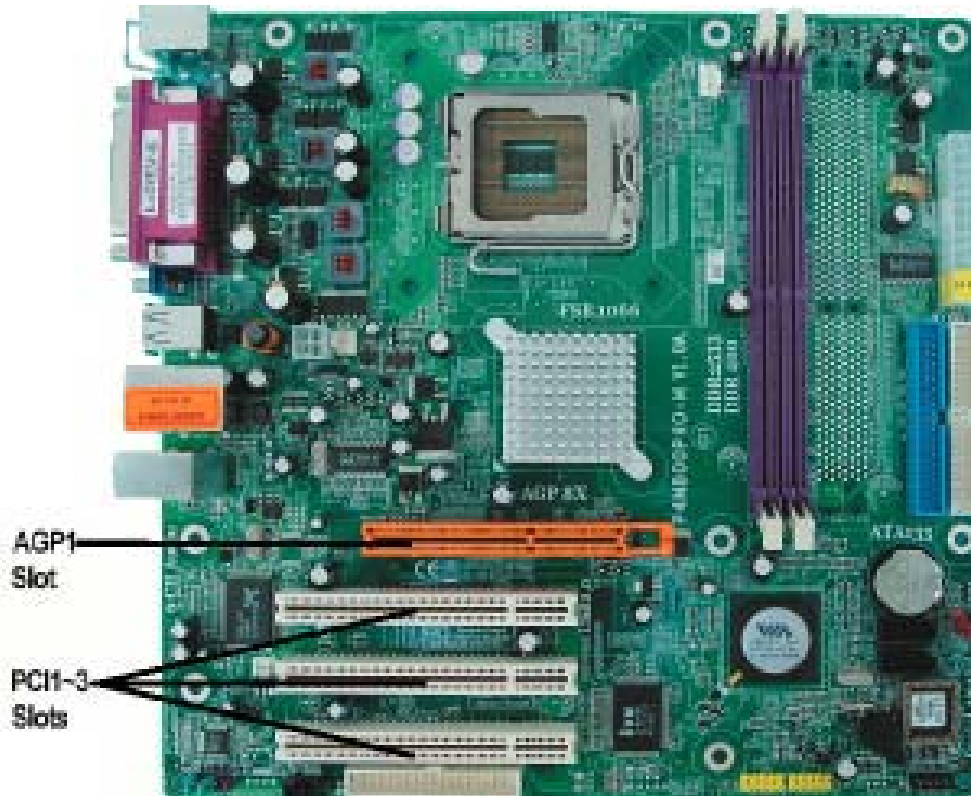
This connector supports the provided floppy drive ribbon cable. After connecting the single end to the onboard floppy connector, connect the remaining plugs on the other end to the floppy drives correspondingly.





## Installing Add-on Cards

The slots on this motherboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the motherboard's features and capabilities. With these efficient facilities, you can increase the motherboard's capabilities by adding hardware that performs tasks that are not part of the basic system.



### **AGP Slot**

The AGP slot is used to install a graphics adapter that supports the 8X/4X AGP specification. It is AGP 3.0 compliant.

### **PCI 1~3 Slots**

This motherboard is equipped with three 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. The PCI slots on this board are PCI v2.2 compliant.



*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.*

## Installing the Motherboard

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.



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

*Connecting Optional Devices*

Refer to the following for information on connecting the motherboard’s optional devices:



**USB3/4: Front Panel USB header**

The motherboard 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 to connect the front-mounted ports to the motherboard.

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

### 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 +5V used by Analog Audio Circuits
5	AUD_F_R	Right Channel audio signal to Front Panel
6	AUD_RET_R	Right Channel Audio signal to Return from Front Panel
7	REVD	Reserved
8	Key	No Pin
9	AUD_F_L	Left Channel Audio signal to Front Panel
10	AUD_RET_L	Left Channel Audio signal to Return from Front Panel



*If your front panel cable is separated, please connect it to pin1 and pin3 or pin5 and pin7 to activate the MIC function.*

### AUX\_IN: Auxiliary-in connector

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

Pin	Signal Name	Function
1	AUXIN_L	AUX In left channel
2	AGND	Ground
3	AGND	Ground
4	AUXIN_R	AUX In right channel

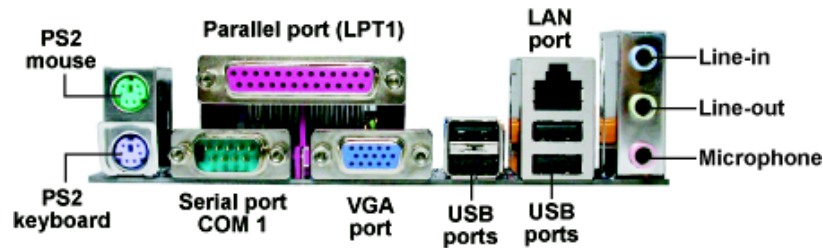
**SATA1~2: Serial ATA connectors**

These connectors are used to support the new Serial ATA devices for the highest data transfer rates (150 MB/s), simpler disk drive cabling and easier PC assembly. It eliminates limitations of the current Parallel ATA interface. But maintains register compatibility and software compatibility with Parallel ATA.

Pin	Signal Name	Pin	Signal Name
1	Ground	2	TX+
3	TX-	4	Ground
5	RX-	6	RX+
7	Ground	-	-

## Connecting I/O Devices

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



- |                             |   |
|-----------------------------|---|
| <b>PS2 Mouse</b>            | Use the upper PS/2 port to connect a PS/2 pointing device.  |
| <b>PS2 Keyboard</b>         | Use the lower PS/2 port to connect a PS/2 keyboard.   |
| <b>Parallel Port (LPT1)</b> | Use LPT1 to connect printers or other parallel communications devices.  |
| <b>Serial Port (COM1)</b>   | Use the COM port to connect serial devices such as mice or fax/modems.  |
| <b>LAN Port (optional)</b>  | Connect an RJ-45 jack to the LAN port to connect your computer to the Network.  |
| <b>VGA Port</b>             | Connect the monitor cable to the VGA port.  |
| <b>USB Ports</b>            | Use the USB ports to connect USB devices.   |
| <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. |

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

## ***Memo***

## Chapter 3

### *Using BIOS*

---

#### About the Setup Utility

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

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

The BIOS Setup Utility enables you to configure:

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

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

This chapter provides explanations for Setup Utility options.

#### *The Standard Configuration*

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

This Setup Utility should be used:

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

#### *Entering the Setup Utility*

When you power on the system, BIOS enters the Power-On Self Test (POST) routines. POST is a series of built-in diagnostics performed by the BIOS. After the POST routines are completed, the following message appears:



**Press DEL/F1 to enter SETUP**

Press the delete key or F1 to access the BIOS Setup Utility.

CMOS Setup Utility -- Copyright (C) 1985-2003, American Megatrends, Inc.

<div>▶ Standard CMOS Setup</div> <div>▶ Advanced Setup</div> <div>▶ Features Setup</div> <div>▶ Power Management Setup</div> <div>▶ PCI / Plug and Play Setup</div> <div>▶ BIOS Security Features</div>	<div>▶ Hardware monitor</div> <div>Load Optimal Defaults</div> <div>Save Changes and Exit</div> <div>Discard Changes and Exit</div>
<div>↑↓↔ : Move    Enter : Select    +/-: Value    F10: Save    ESC: Exit</div> <div>F1: General Help                      F9: Optimized Defaults</div>	
<div>Standard CMOS setup for changing time, date, hard disk type, etc.</div> <div>v02.54 (C)Copyright 1985-2003, American Mega trends, Inc.</div>	

***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
F1	Displays a screen that describes all key functions
F9	Loads an optimized setting for better performance
F10	Saves the current configuration and exits setup
ESC	Exits the current menu

## ***Updating the BIOS***

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

- 1 If your motherboard has a BIOS protection jumper, change the setting to allow BIOS flashing.
- 2 If your motherboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten.
- 3 Create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)
- 4 Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the system diskette you created in Step 3.
- 5 Turn off your computer and insert the system diskette in your computer's diskette drive. (You might need to run the Setup Utility and change the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the floppy diskette drive first.)
- 6 At the A:\ prompt, type the Flash Utility program name and the filename of the new bios and then press <Enter>. Example: AMINF340.EXE 040706.ROM
- 7 When the installation is complete, remove the floppy diskette from the diskette drive and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten. The computer will restart automatically.

## **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 Setup

This option displays basic information about your system.

CMOS Setup Utility - Copyright (C) 1985-2003, American Megatrends, Inc.  
Standard CMOS Setup

System Time	00: 01: 16	Help Item
System Date	Fri 09/02/2005	
▶ Primary IDE Master	Not Detected	Use [ENTER], [TAB] or [SHIFT-TAB] TO select a field.
▶ Primary IDE Slave	Not Detected	
▶ Secondary IDE Master	Not Detected	
▶ Secondary IDE Slave	CD/DVD ROM	
▶ SATA-1	Not Detected	Use [+] or [-] to configure system Time.
▶ SATA-2	Not Detected	
Floppy A	144 MB 3 1/2 "	

↑↓<> :Move    Enter : Select    +/-: Value    F10: Save    ESC: Exit  
F1:General Help                      F9: Optimized Defaults

System 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.

▶ Primary/Secondary IDE Master/Slave, SATA-1~2

Your computer has one IDE channel and each channel can be installed with one or two devices (Master and Slave). In addition, this motherboard supports two SATA channels and each channel allows one SATA device to be installed. Use these items to configure each device on the IDE channel.

Press <Esc> to return to the main menu setting page.

Advanced Setup

This page sets up more advanced information about your system. Handle this page with caution. Any changes can affect the operation of your computer.

CMOS Setup Utility - Copyright (C) 1985-2003, American Megatrends, Inc.  
Advanced Setup

Quick Boot	Enabled	Help Item
1st Boot Device	Disabled	
2nd Boot Device	LITE-ON DVD SOHD-	Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.
Try Other Boot Device	Yes	
Bootup num-Luck	On	
Aperture Size Select	64MB	
DRAM timing	Auto	
Auto Detect DIMM/PCI Clk	Enabled	
Spread Spectrum	Enabled	
Max CPUID Value Limit	Disabled	
CPU TM function	Disabled	
BIOS Protect	Disabled	

↑↓ <> :Move    Enter : Select    +/-: Value    F10: Save    ESC: Exit  
F1:General Help                      F9: Optimized Defaults

**Quick Boot (Enabled)**

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

**1st/2nd Boot Device**

Use this item to determine the device order the computer used to look for an operating system to load at start-up time. The devices showed here will be different depending on the exact devices installed on your motherboard.

**Try Other Boot Device (Yes)**

If you enable this item, the system will also search for other boot devices if it fails to find an operating system from the first boot device.

**BootUp Num-Lock (On)**

This item determines if the Num Lock key is active or inactive at system start-up time.

**Aperture Size Select (128MB)**

This item defines the size of aperture if you use a graphic adapter.

**DRAM Timing (Auto)**

This item allows you to enable or disable the DRAM timing defined by the Serial Presence Detect electrical. Users please note that if setting this item to auto, the following two items are not available.

**Auto Detect DIMM/PCI Clk (Enabled)**

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

**Spread Spectrum (Enabled)**

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

**Max CPUID Value Limit (Disabled)**

This item enables or disables the Max CPU ID value limit. When Prescott with LGA775 CPU is installed, enable this item to prevent the system from “rebooting” when trying to install Windows NT4.0.

**CPU TM function (Disabled)**

This item displays CPU’s temperature and enables you to set a safe temperature to Prescott CPU.

**BIOS Protect (Disabled)**

This item enables or disables the BIOS protection function.

Press <Esc> to return to the main menu setting page.

Features Setup

This page sets up some parameters for peripheral devices connected to the system.

CMOS Setup Utility - Copyright (C) 1985-2003, American Megatrends, Inc.  
Features Setup

OnBoard Floppy Controller	Enabled	Help Item
Serial Port1 Address	3F8/IRQ4	
Parallel Port Address	378	Allow BIOS to Enable or Disable Floppy Controller.
Parallel Port Mode	ECP	
ECP Mode DMA Channel	DMA3	
Parallel Port IRQ	IRQ7	
OnBoard PCI IDE Controller	Both	
OnBoard SATA-IDE	IDE	
Audio Device	Enabled	
Modem Device	Auto	
Onboard LAN	Enabled	
Onboard LAN Boot ROM	Disabled	
Onboard USB Function	Enabled	
USB Function For DOS	Enabled	

↑↓ ↔ : Move    Enter : Select    +/-/: Value    F10: Save    ESC: Exit  
F1: General Help    F9: Optimized Defaults

OnBoard Floppy Controller (Enabled)

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

Serial Port1/2 Address (3F8/IRQ4/Disabled)

Use this item to enable or disable the onboard COM1 serial port, and to assign a port address.

Parallel Port Address (378)

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

Parallel Port Mode (ECP)

Use this item to select the parallel port mode. You can select Normal (Standard Parallel Port), ECP (Extended Capabilities Port), EPP (Enhanced Parallel Port), or BPP (Bi-Directional Parallel Port).

ECP Mode DMA Channel (DMA3)

Use this item to assign the DMA Channel under ECP Mode function.

Parallel Port IRQ (IRQ7)

Use this item to assign IRQ to the parallel port.

OnBoard PCI IDE Controller (Both)

Use this item to enable or disable either or both of the onboard Primary and Secondary IDE channels.

OnBoard SATA-IDE (IDE)

Use this item to set the onboard SATA-IDE channel to be disabled, IDE, or RAID.

### Audio Device (Enabled)

Use this item to enable or disable the onboard audio device.

### Modem Device (Auto)

Use this item to enable or disable the onboard MC'97 modem device.

### Onboard LAN (Enabled)

Use this item to enable or disable the onboard LAN.

### Onboard LAN Boot ROM (Disabled)

Use this item to enable or disable the boot function using the onboard LAN boot rom.

### Onboard USB Function (Enabled)

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

### USB Function For DOS (Enabled)

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

Press <Esc> to return to the main menu setting page.

## Power Management Setup

This page sets up some parameters for system power management operation.

CMOS Setup Utility - Copyright (C) 1985-2003, American Megatrends, Inc.  
Power Management Setup

ACPI Aware O/S	Yes	Help Item  Enable/Disable ACPI support for Operating System.  ENABLE: If OS supports ACPI.  DISABLE: If OS does not support ACPI.
Power Management	Enabled	
Suspend mode	S1	
Suspend Time Out	Disabled	
Resume on RTC Alarm	Disabled	
Resume on Ring	Disabled	
Resume on PME#	Disabled	
Resume on PS/2 Mouse	Disabled	
Restore on AC/Power Loss	Power Off	
USB resume from S3	Disabled	
PS2 KB resume from S3	Disabled	
Wake-Up Key	Any Key	

↑↓↔ : Move    Enter : Select    +/- : Value    F10: Save    ESC: Exit  
 F1: General Help    F9: Optimized Defaults

### ACPI Aware O/S (Yes)

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

### Power Management (Enabled)

Use this item to enable or disable a power management scheme. If you enable power management, you can use this item below to set the power management operation. Both APM and ACPI are supported.

### Suspend Time Out (Disabled)

This item sets up the timeout for Suspend mode in minutes. If the time selected passes without any system activity, the computer will enter power-saving Suspend mode.

## Using BIOS

**Resume on RTC Alarm (Disabled)**

The system can be turned off with a software command. If you enable this item, the system can automatically resume at a fixed time based on the system's RTC (realtime clock). Use the items below this one to set the date and time of the wake-up alarm. You must use an ATX power supply in order to use this feature.

**Resume On Ring (Disabled)**

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the Modem. You must use an ATX power supply in order to use this feature.

**Resume On PME# (Disabled)**

The system can be turned off with a software command. If you enable this item, the system can automatically resume if there is an incoming call on the PCI Modem or PCI LAN card. You must use an ATX power supply in order to use this feature. Use this item to do wake-up action if inserting the PCI card.

**Resume On PS/2 Mouse (Disabled)**

This item enable or disable you to allow mouse activity to awaken the system from power saving mode.

**Restore on AC/Power Loss (Power Off)**

This item defines how the system will act after AC power loss during system operation. When you set to Off, it will keep the system in Off state until the power button is pressed.

**USB resume from S3 (Disabled)**

This item allows you to enable or disable the USB device Wakeup function from S3 mode.

**PS2 KB resume from S3 (Disabled)**

This item enable or disable you to allow keyboard activity to awaken the system from S3 mode.

**Wake-Up Key (Any Key)**

When Keyboard Power On is set to Enable, this item is available and users can enter any key, or hot key on the keyboard or type in the password.

Press <Esc> to return to the main menu setting page.

***PCI / Plug and Play Setup***

This page sets up some parameters for devices installed on the PCI bus and those utilizing the system plug and play capability.

CMOS Setup Utility - Copyright (C) 1985-2003, American Megatrends, Inc.  
PCI / Plug and Play Setup

CMOS SETUP UTILITY – Copyright (C) 1985-2003, American Megatrends, Inc.  
PCI / Plug and Play Setup

Primary Graphics Adapter	PCI	Help Item
Share Memory Size	32 MB	
Allocate IRQ to PCI VGA	Yes	
PCI IDE BusMaster	Enabled	
		Options
		PCI
		AGP

↑↓↔ :Move    Enter : Select    +/-: Value    F10: Save    ESC: Exit  
F1:General Help                      F9: Optimized Defaults

**Primary Graphics Adapter (PCI)**

This item indicates if the primary graphics adapter uses the PCI-E Lite VGA, PCI VGA, or AGP.

**Share Memory Size (32MB)**

This item lets you allocate a portion of the main memory for the onboard VGA display.

**Allocate IRQ to PCI VGA (Yes)**

If this item is enabled, an IRQ will be assigned to the PCI VGA graphics system. You set this value to No to free up an IRQ.

**PCI IDE BusMaster (Enabled)**

This item enables or disabled the DMA under DOS mode. We recommend you to leave this

Press <Esc> to return to the main menu setting page.

***BIOS Security Features***

This page helps you install or change a password.

CMOS Setup Utility - Copyright (C) 1985-2003, American Megatrends, Inc.  
BIOS Security Features

Security Settings	Help item
Supervisor Password : Not Installed	Install or Change the password.
Change Supervisor Password <span>Press Enter</span>	

↑↓↔ : Move    Enter : Select    +/- : Value    F10: Save    ESC: Exit  
F1: General Help    F9: Optimized Defaults

**Supervisor Password (Not Installed)**

This item indicates whether a supervisor password has been set. If the password has been installed, *Installed* displays. If not, *Not Installed* displays.

**Change Supervisor Password (Press Enter)**

You can select this option and press <Enter> to access the sub menu. You can use the sub menu to change the supervisor password.

Press <Esc> to return to the main menu setting page.



Hardware Monitor

This page helps you set up some parameters for the hardware monitoring function of this motherboard.

CMOS Setup Utility - Copyright (C) 1985-2003, American Megatrends, Inc.  
Hardware Monitor

-- System Hardware Monitor --		Help Item
SYSTEM Temperature	: 39°C/102°F	<div>Options</div> <div>Disabled</div> <div>Enabled</div>
CPU Temperature	: 40°C/104°F	
SYSTEM FAN Speed	: N/A	
CPU FAN Speed	: 2481 RPM	
Vcore	: 1.312 V	
Vdimm	: 1.776 V	
Vcc3V	: 3.216 V	
Vcc5V	: 4.892 V	
SB3V	: 3.248 V	
VBAT	: 3.200 V	
Smart Fan Control	Disabled	
Shutdown Temp.	Disabled	

↑↓ ↔ : Move    Enter : Select    +/- : Value    F10: Save    ESC: Exit  
F1: General Help    F9: Optimized Defaults

System Hardware Monitor

These items display the monitoring of the overall inboard hardware health events, such as system&CPU temperature, CPU & DIMM voltage, CPU & system fan speed,...etc.

Smart Fan Control (Disabled)

This item enables users to enable or disable smart fan function.

Shutdown Temperature( Disabled)

This item enables users to set the maximum temperature the system can reach before powering down.

Press <Esc> to return to the main menu setting page.

### ***Load Optimal Defaults***

This option opens a dialog box that lets you install stability-oriented defaults for all appropriate items in the Setup Utility. Select [OK] and then press <Enter> to install the defaults. Select [Cancel] and then press <Enter> to not install the defaults.

### ***Save Changes and Exit***

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, select [OK] to save and exit, or select [Cancel] to return to the main menu.

### ***Discard Changes and Exit***

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, select [OK] to discard changes and exit, or select [Cancel] to return to the main menu.



*If you have made settings that you do not want to save, use the “Discard Changes and Exit” item and select [OK] to discard any changes you have made.*