

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 1.2a

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, 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.

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, and provides a shipping checklist. Go to ⇒ page 1
Chapter 2 Installing the Motherboard	Describes installation of motherboard components. Go to ⇒ page 12
Chapter 3 Using BIOS	Provides information on using the BIOS Setup Utility. Go to ⇒ page 34
Chapter 4 Using the Motherboard Software	Describes the motherboard software. Go to ⇒ page 55

TABLE OF CONTENTS

Preface	i
CHAPTER 1	1
Introducing the Motherboard	1
<i>Introduction</i>	1
<i>Checklist</i>	2
Standard Items	2
Optional Items	2
<i>Features</i>	3
<i>Specifications</i>	7
<i>Choosing a Computer Case</i>	9
<i>Motherboard Components</i>	10
CHAPTER 2	12
Installing the Motherboard	12
<i>Safety Precautions</i>	12
<i>Quick Guide</i>	12
<i>Installing the Motherboard in a Case</i>	13
<i>Checking Jumper Settings</i>	13
Setting Jumpers	13
Checking Jumper Settings	14
Jumper Settings	14
<i>Connecting Case Components</i>	15
Front Panel Connector	17
<i>Installing Hardware</i>	18
Installing the Processor	18
Installing Memory Modules	21
Installing a Hard Disk Drive/SATA Hard Drive/ CD-ROM	23
Installing a Floppy Diskette Drive	25
Installing Add-on Cards	26
Connecting Optional Devices	28
<i>Connecting I/O Devices</i>	32
External Connector Color Coding	33
CHAPTER 3	34
Using BIOS	34
<i>About the Setup Utility</i>	34
The Standard Configuration	34
Entering the Setup Utility	35
Updating the BIOS	35
<i>Using BIOS</i>	36
Standard CMOS Features	37
Advanced BIOS Features	39

Advanced Chipset Features	41
Integrated Peripherals	43
Power Management Setup	48
PNP/PCI Configurations.....	50
PC Health Status.....	51
Frequency Control.....	52
Load Fail-Safe Defaults Option.....	53
Load Optimized Defaults Option.....	53
Set Supervisor/User Password.....	53
Save & Exit Setup Option	54
Exit Without Saving	54

CHAPTER 4 **55**

Using the Motherboard Software	55
<i>About the Software CD-ROM</i>	55
<i>Auto-installing under Windows 98/ME/2000/XP</i>	55
Running Setup	56
<i>Manual Installation</i>	58
<i>Utility Software Reference</i>	58

Chapter 1

Introducing the Motherboard

Introduction

Congratulations on purchasing this motherboard. This motherboard has an ATX form factor that uses a 4-layer printed circuit board and measures 305 mm x 244 mm. The motherboard is designed to support the mPGA Socket 478 Intel P4 processors.

With system bus speeds up to 400/533/800MHz, this motherboard represents the most powerful desktop and cost-effective integrated solution available today.

The motherboard incorporates the 865PE (MCH)/865G (GMCH) and 82801EB (ICH5)/82801ER (ICH5R) chipsets. It provides an advanced full set of I/O ports, such as dual channel SATA/IDE interfaces, a floppy controller, a high-speed serial port, a VGA port, an EPP/ECP capable bi-directional parallel port connector, an optional LAN port, four USB (Universal Serial Bus) connector, a PS/2 keyboard, mouse and 1394a connectors. One AGP slot and six PCI local bus slots provide expandability for add-on peripheral cards.

In addition to its excellent performance and stability, the motherboard is highly suited for Internet and rich multimedia applications, including streaming video download and are ideal for workstations and high-end home use.

Notice to user:

This manual is provided to accommodate the PF1 and PF2 series motherboards. To identify the type of motherboard you have, please refer below:

- **PF1** motherboard incorporates the Intel 865PE (MCH) and Intel 82801EB (ICH5) chipsets. It supports DDR-SDRAM at 266/333/400Mhz operation.
- **PF2** motherboard incorporates the Intel 865G (GMCH) and Intel 82801EB (ICH5) chipsets. It supports DDR-SDRAM at 266/333/400Mhz operation.
- **PF1 Lite** motherboard incorporates the Intel 865PE (MCH) and Intel 82801EB (ICH5) chipsets. It supports DDR-SDRAM at 266/333/400Mhz operation.
- **PF2 Lite** motherboard incorporates the Intel 865G (GMCH) and Intel 82801EB (ICH5) chipsets. It supports DDR-SDRAM at 266/333/400Mhz operation.

For **Lite** version motherboard – IEEE 1394 related features are not supported.

- **PF1 Deluxe** motherboard incorporates the Intel 865PE (MCH) and Intel 82801ER (ICH5R) chipsets. It supports DDR-SDRAM at 266/333/400Mhz operation.
- **PF2 Deluxe** motherboard incorporates the Intel 865G (GMCH) and Intel 82801ER (ICH5R) chipsets. It supports DDR-SDRAM at 266/333/400Mhz operation.

Checklist

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

Standard Items

- One motherboard
- One diskette drive ribbon cable
- Two stream line IDE cable
- One auto-install software support CD
- One I/O shield
- This user's manual

Optional Items

- One USB + 1394 PCI bracket
- One USB + 1394 housing
- One SPDIF Out bracket
- Two SATA cable
- One SATA power cable
- One Top hat Flash kit with instruction booklet
- One EZ-Watcher

For PF1/PF2 Lite

- One USB PCI bracket
- One USB housing
- One SPDIF Out bracket
- Two SATA cable
- One SATA power cable
- One Top hat Flash kit with instruction booklet
- One EZ-Watcher

Features

Upgrade your PC to Server-grade power now!



Supports Intel Hyper Threading technology: Doubles Pentium 4 power to the equivalent of a dual CPU platform.

Awesome overclocking!



Supports Intel's latest FSB 800 MHz CPU with super overclocking capability. Pumps up CPU from 800 MHz up to an incredible 1+ GHz FSB.

Slash memory access time!



4DDR DIMMs support dual channel DDR400, expanding memory bandwidth to 6.4GB/s and supporting up to 4GB of memory. Dramatically shortens memory access time leads for extremely quick results. Needs up to 30% less computing time than a single channel DDR400 platform.

Photon Acceleration Technology!



PAT optimized the Intel 865 series chipsets to deliver the highest performance by shortening the data transferred time between the CPU and memory.

Play complex 3D games without compromise!



AGP 8X AGP 3.0 interface and backward compatibility with AGP 4X. Fully supports cutting edge nVidia Geforce FX 5900 and ATI Radeon 9900 pro AGP 8X GPU.

One-key boot device selection!



F11 Hot key to boot from different devices. Users do not need to enter time-consuming BIOS setup screen to select the boot device.

Device plug with USB-like ease!



Supports 2-ports S-ATA running at 150 MB/s. Fully compatible with soon-to-be-released serial ATA HDD, CDROM and other cutting edge devices.

Uncompromising DVD audio quality!



Onboard 6-CH C-media 9739A Audio Chip supports uncompromising DVD audio quality, bringing a more vivid sound experience. Users can also choose SPDIF output by using an extended cable from RCA or optical coaxial jack.

Memory module alert!



Memory Anti-Burn LED indicator provides users a second chance warning when inserting or removing a memory module.

PC 'health' monitor!



AP hardware monitors system health, delivering a quick reading of CPU and system temperature, CPU FAN speed, CPU type, memory size and on-board voltages. It will show a warning message when potential problems occur.

Auto restart after power loss!



This convenient function keeps PC power always on.

PC protection toolkit!



This amazing software not only provides users with convenient and instant restoration of your computer, but also restores within seconds important data back to the preferred state at a specific point in time. Pro Magic also combines several other functions including anti-virus, backup, uninstall software and multi-booting to satisfy all your system protection needs.

A 'time machine' to protect and restore files!



Specially designed for file protection, security and management this DPU or data processing utility insures the safety of important data through complete file restoration, eliminating file damage even in case of improper operation. User can freely edit original files after a set restore time point. The DPU can even restore even deleted files.

Become your own BIOS 'doctor!'



A handy external dual BIOS recovery system using Top Hat tool. With this ECS patented kit, you can cure all BIOS ills.

Add peripherals and consumer electronics devices!



Dual IEEE 1394 slot supports transfer rates up to 400Mb/s. IEEE 1394 is the most popular interface for PC peripherals and customer electronics including digital video, CD-RW, DVD, music synthesizers...

All the USB 2.0 connectivity you'll ever need!



Eight high-speed USB 2.0 ports delivering a 480 Mb/s transfer rate mean no worries about port availability. And USB is the most common interface for linking multiple devices.

Industrial-strength LAN power!



Features the outstanding commercial quality 3COM LAN, supporting a high transfer rate up to 1 Gigabit. Link your PC to the network in the fastest, most stable way.

Smartly detect your LAN!



Detect the status of LAN network link and report the quality of LAN cable.

Auto-negotiate your 10/100M LAN!



Features the outstanding commercial quality 3COM LAN, supporting 10Mbps & 100Mbps N-way auto-negotiation networking.

Intel RAID!



Excellent high bandwidth solution for general fileserver that needs fast data access as in RAID0 & fault tolerance of RAID1.

More port options!



Bundled cable with a 1394 port and 2 USB ports can be swapped with rear side PCI bracket or front side 3.5-inche external bay – An easy, user-friendly way to plug-in or remove digital devices.

PCI 2.3 support!



Supports the newest SMBus supported PCI 2.3 compliant cards giving users' systems the ability to 'talk' with new-tech PCI cards.

Color-coding for easy connections!



Color-coded pin headers and slots make it easy to match plug plugs with cables without checking the silk screen for installation instructions.

Rounded corners for strength and safety!



Rounded corners make the PCB plate stronger and this smart design element prevents user injury from hard PCB corners.

Ultra sound quality!



OS-con quality capacitor implanted on a yellow PCI slot accommodates special audio and video-related cards. This slot can provide ultra signal quality for outstanding audio and video card performance.

Cool operations, cool appearance!



Improved airflow cable makes your system run at a lower temperature and look great too.

Flash BIOS from Windows!



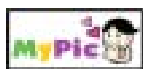
It's easy to flash your BIOS using this user-friendly Windows application.

Eliminate data highway roadblocks!



Golden flush memory sockets make the DDR eliminate data highway quality issues and support increased overclocking.

Customize your start-up screen!



Want to individualize your PC? My Picture boots the PC with the photo of your choice, requiring just one touch to import a picture through a convenient Windows-based application.

Specifications

Processor	<p>The motherboard uses a mPGA 478-pin socket that has the following features:</p> <ul style="list-style-type: none"> • Accommodates Intel/P4 Celeron/Northwood/Prescott 478-pins CPU (compliant with Intel VRM 10.0 spec. 0.8375V ~ 1.6V) • Supports a system bus (FSB) of 400/533/800 MHz • Supports System Bus Dynamic Bus Inversion (DBI) • Supports “Hyper-Threading” technology CPU <p>“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.</p>
Chipset	<p>Intel’s innovative 865PE (MCH)/865G (GMCH) and 82801EB (ICH5)/82801 ER (ICH5R) chipsets are based on an innovative and scalable architecture with proven reliability and performance. A few of the advanced features of the chipsets are:</p> <ul style="list-style-type: none"> • Support a single processor with a data transfer-rate of 400/533/800MHz • Support Dual Channel DDR-SDRAM at 266/333/400MHz operation • 1.5V AGP Interface With 8X SBA/Data Transfer and 1X/4X/8X Fast Write Capability • 3D Setup and Render Engine (865G only) • USB Controller 2.0 (expanded capabilities for 8 Ports) • 2 Channel Ultra ATA/100 bus master IDE controllers • 2 serial ATA host controllers • Support Intel SATA RAID0, RAID1 (ICH5R only) • Eight USB 2.0 Ports for serial transfers at 480Mbps/sec Max • PCI Rev. 2.3, 3.3V (5V Tolerant), 33 MHz interface Compliant • PCI to System Memory Data Streaming up to 132 MB/sec <p>Additional key features include support for an AC’97 (2.3) interface for audio and modem, hardware monitoring, and ACPI/OnNow power management.</p>
Memory	<p>The motherboard can accommodate 2.5V DDR SDRAM. It accommodates four unbuffered 2.5V 184 pin slots with a total maximum capacity of 4 GB.</p>
AC’ 97 Audio Codec	<p>The AC’ 97 Audio codec is compliant with the AC 97 2.2 specification that meets the PC2001 requirements and supports S/PDIF Out. It also has a built-in buffer and internal PLL. Features include support for analog switch for rear-out (share), the line-in jack (share), center/bass (share), and MIC jack to output 6 channels audio.</p>
Expansion Options	<p>The motherboard comes with the following expansion options:</p> <ul style="list-style-type: none"> • Six 32-bit PCI slots • One AGP slot (support 1.5V only) • Two IDE connectors which support four IDE channels and a floppy disk drive interface • Two SATA connectors with data transfer rate up to 150 MB/s

	<ul style="list-style-type: none"> One onboard LAN (optional) chip and LAN port on top of the USB port <p>The motherboard supports Ultra DMA bus mastering with transfer rates of 33/66/100 MB/sec.</p>
Graphics (865G chipset only)	<ul style="list-style-type: none"> Built-in Intel extreme graphics II 3D setup and render engine 2D/3D graphics enhancement Video DVD/PV-VCR High quality texture engine
Integrated I/O	<p>The motherboard has a full set of I/O ports and connectors:</p> <ul style="list-style-type: none"> Two PS/2 ports for mouse and keyboard One serial port One VGA port (PF2 motherboard only) One parallel port Four USB ports One LAN port (optional) One 1394a port (optional) Audio jacks for microphone, line-in and line-out
Onboard LAN (optional)	<p>The motherboard supports Gigabit LAN by integrating the 3Com® 3C940-32 device which is optimized for 32-bit PCI clients. It is fully compliant with IEEE 802.3 and provides the motherboard with 10/100/1000 Mbps Full/Half-Duplex triple speed operation. This 128 KB on chip RAM buffer enables efficient PCI Bus cycles and data buffering and eliminates the need for external memory. It incorporated the Marvell Virtual Cable Tester™ (VCT) technology for advanced cable diagnostics.</p>
Onboard LAN (for PF1/PF2 Lite motherboard only)	<p>The "Lite" version motherboard integrates the 3Com® 3C920 Mbps PCI Ethernet Controller. It is fully compliant with IEEE 802.3 and operates as a PCI bus master for transmit and receive packet transfers to/from the host system.</p>
1394 FireWire - VT6307 (optional)	<ul style="list-style-type: none"> Low power 2-port IEEE 1394 host controller providing PC systems with high speed, flexible connectivity to a wide range of peripherals and consumer electronics Compliant with the latest IEEE 1394 standards with full 1394a P2000 support Detect connected device types and automatically configure data speeds to 100, 200, or 400 Mbps Equipped with 32-bit PCI bus interface that features advanced power management, and cardbus support
BIOS Firmware	<p>This motherboard uses Award BIOS that enables users to configure many system features including the following:</p> <ul style="list-style-type: none"> Power management Wake-up alarms CPU parameters and memory timing CPU and memory timing <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.

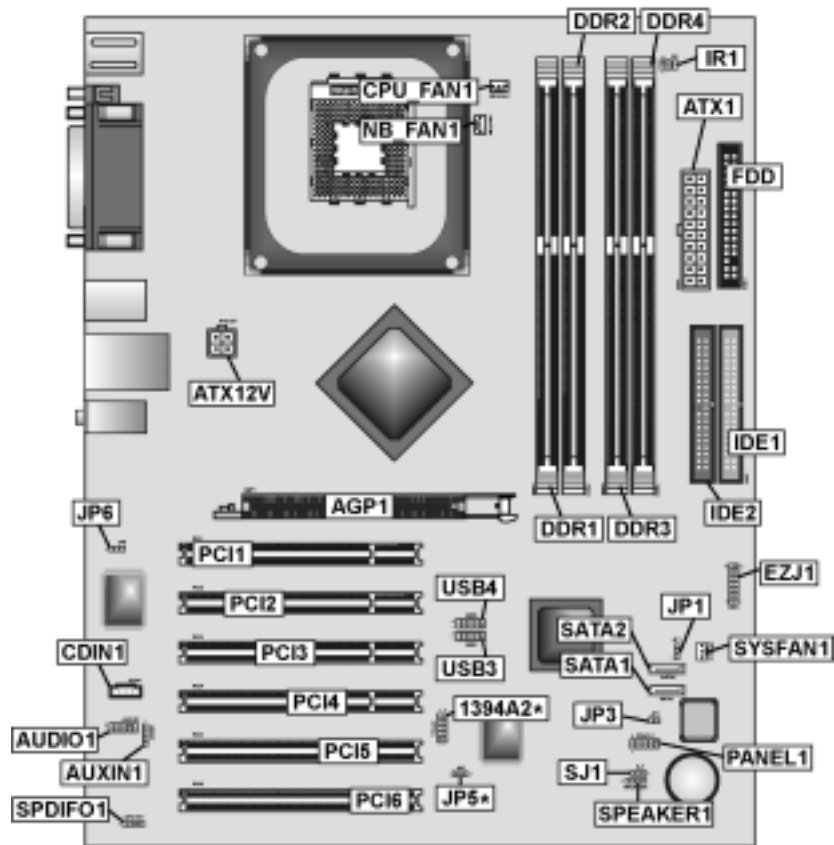
Choosing a Computer Case

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

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

This motherboard has an ATX form factor of 305 mm x 244 mm. Choose a case that accommodates this form factor.

Motherboard Components



* This component is not available on PF1/PF2 Lite motherboard.

Table of Motherboard Components

Label	Component
1394A2*	IEEE 1394a header
AGP1	Accelerated Graphics Port
ATX1	Standard 20-pin ATX power connector
ATX12V	Power connector
AUDIO1	Front panel MIC/Speaker Out header
AUXIN1	Auxilliary In header
BAT1	Three volt realtime clock battery
CDIN1	CD-in connector
CPU_FAN1	CPU cooling fan
CPU Socket	CPU socket (mPGA478)
DIMM1 ~ DIMM4	Four 184-pin DDR sockets
EZJ1	EZ-Watcher interface header
FDD1	Floppy disk drive connector
IDE1	Primary IDE channel
IDE2	Secondary IDE channel
IR1	Infrared cable header
JP1	Clear CMOS jumper
JP3	BIOS flash protect jumper
JP5*	1394 Function
JP6	LAN Function
LED1	LED status indicator connector
NB_FAN1	Northbridge fan connector
PANEL1	Panel connector for case switches and LEDs
PCI1 ~ PCI6	Six 32-bit add-on card slots
SATA1 ~ SATA2	Serial ATA header
SJ1	Single-color LED header
SPDIFO1	SPDIF out header
SPEAKER1	Speaker connector
SYSFAN1	System cooling fan
USB3 ~ USB4	Connector for front panel USB ports

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

Chapter 2

Installing the Motherboard

Safety Precautions

Follow these safety precautions when installing the motherboard:

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

Quick Guide

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

The following table provides a reference for installing specific components:

Locating Motherboard Components	Go to page 10
Installing the Motherboard in a Case	Go to page 13
Setting Jumpers	Go to page 13
Installing Case Components	Go to page 15
Installing the CPU	Go to page 18
Installing Memory	Go to page 21
Installing an HDD/SATA Hard Drive/CD-ROM Drive	Go to page 23
Installing an FDD	Go to page 25
Installing Add-on Cards	Go to page 26
Connecting Options	Go to page 28
Connecting Peripheral (I/O) Devices	Go to page 32

Installing the Motherboard in a Case

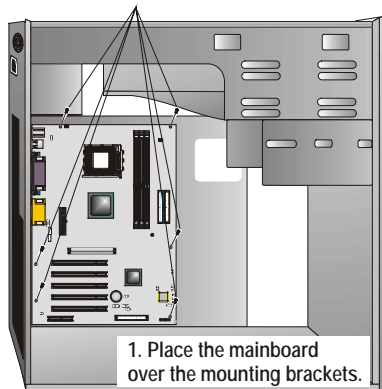
Refer to the following illustration and instructions for installing the motherboard in a case:

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

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

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

2. Secure the mainboard with screws where appropriate.



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

Checking Jumper Settings

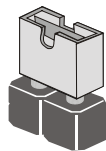
This section explains how to set jumpers for correct configuration of the motherboard.

Setting Jumpers

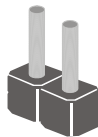
Use the motherboard jumpers to set system configuration options. Jumpers with more than one pin are numbered. When setting the jumpers, ensure that the jumper caps are placed on the correct pins.

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

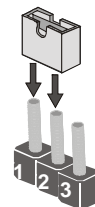
This illustration shows a 3-pin jumper. Pins 1 and 2 are **SHORT**.



Short

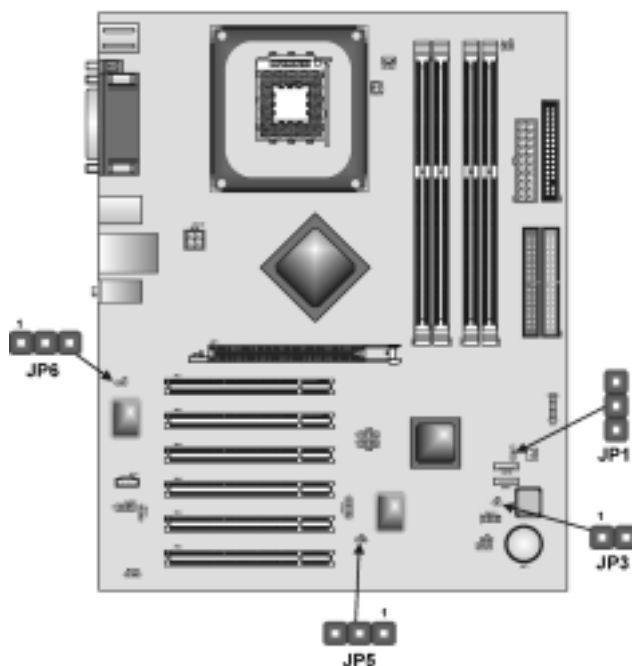


Open



Checking Jumper Settings

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



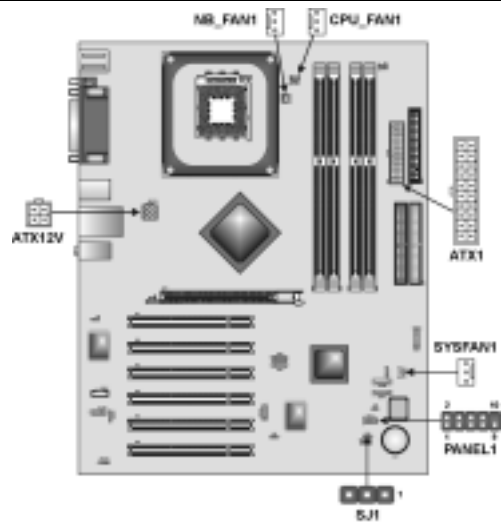
Jumper Settings

Jumper	Description	Setting
JP1	Clear CMOS	1-2: Normal (default) 2-3: Clear CMOS <i>Before clearing the CMOS, make sure to turn the system off.</i>
JP3	BIOS Flash Protect	Open: Enable Flash (default) Short: Flash Protect
JP5	1394 Function	1-2: Enabled 2-3: Disabled
JP6	LAN Function	1-2: Enabled 2-3: Disabled

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 Pentium 4 processor auxiliary case power supply connector to **ATX12V**.
2. Connect the standard power supply connector to **ATX1**.
3. Connect the CPU cooling fan cable to **CPU_FAN1**.
4. The Northbridge cooling fan is connected to **NB_FAN1**.
5. Connect the system cooling fan connector to either **SYS_FAN1**.
6. Connect the case speaker cable to **SPEAKER1**.
7. Connect the case switches and indicator to **PANEL1**.
8. Connect the case LED cable to **SJ1**.



Note: When the system is heavily loaded, you should install, at a minimum, an ATX12V power supply with a 300W capacity.

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

ATX12V: ATX 12V Power Connector

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

CPU_FAN1/NB_FAN1/CAS_FAN1: FAN Power Connectors

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


SPEAKER1: Internal speaker

Pin	Signal Name
1	Signal
2	Buzzer
3	Key
4	VCC

SJ1: Single-color LED header


Pin	Signal Name
1	ACPI LED
2	ACPI LED
3	5VSB

ACPI LED function:

SJ1	S0	S1	S3	S4/S5
	Light	Blinking	Blinking	Dark

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:



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

PANEL1

Hard Drive Activity LED

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

Power / Sleep / Message Waiting LED

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

Reset Switch

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

Power Switch

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

Installing Hardware

Installing the Processor

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

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

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

Before installing the Processor

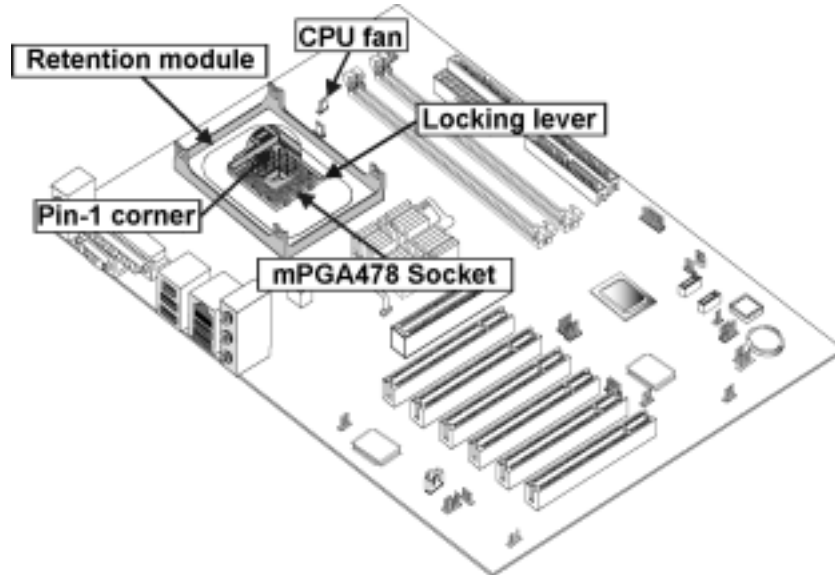
This motherboard automatically determines the CPU clock frequency and system bus frequency for the processor. You may be able to change these settings by making changes to jumpers on the motherboard, or changing the settings in the system Setup Utility. We strongly recommend that you do not overclock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

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

This motherboard has an mPGA478 socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

CPU Installation Procedure

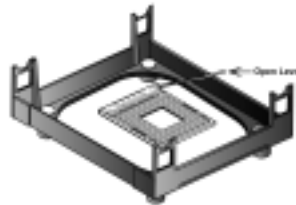
The following illustration shows CPU installation components:



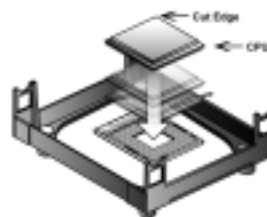
Note: The pin-1 corner is marked with an arrow ▼

Follow these instructions to install the CPU:

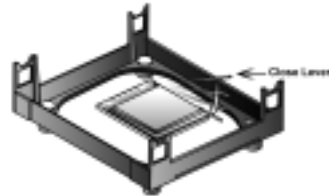
1. Install your CPU. Pull up the lever away from the socket and lift up to 90-degree angle.



2. Locate the CPU cut edge (the corner with the pinhole noticeably missing). Align and insert the CPU correctly.



3. Press the lever down.



4. Apply thermal grease on top of the CPU.

5. Put the CPU Fan down on the retention module and snap the four retention legs of the cooling fan into place.



6. Flip the levers over to lock the heat sink in place.

7. Connect the CPU Cooling Fan power cable to the CPUFAN1 connector. This completes the installation.



- Notes:**
- To achieve better airflow rates and heat dissipation, we suggest that you use a high quality fan with 4800 rpm at least.
 - CPU fan and heatsink installation procedures may vary with the type of CPU fan/heatsink supplied. The form and size of fan/heatsink may also vary.

Installing Memory Modules

This motherboard accommodates four 184-pin 2.5V unbuffered non-ECC Double Data Rate (DDR) SDRAM memory modules.

This motherboard can support DDR266/DDR333/DDR400 memory modules and allow up to 6.4 GB/s data transfer rate. Utilizing the dual-channel DDR memory architecture, this motherboard provides a solution which doubles the system memory bandwidth of your system memory and boost the system performance. Please refer to page 22 for suggested dual-channel DDR combinations.

You must install at least one module in any of the four slots. Each module can be installed with 128 MB to 1 GB of memory. Total capacity is 4GB.



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

Installation Procedure

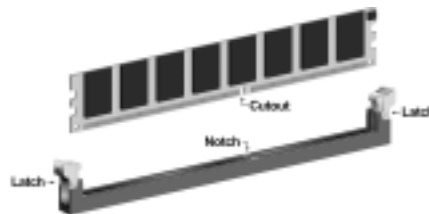
Refer to the following to install the memory modules.

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

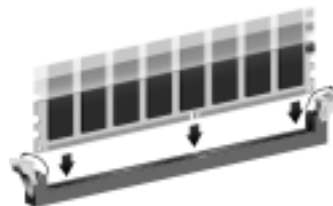


2. Push the latches on each side of the DIMM slot down.

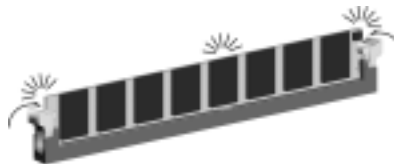
3. Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.



4. Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.



5. Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the DIMM.



6. Install any remaining DIMM modules.

Table A: Recommended dual-channel DDR configurations

DDR1	DDR2	DDR3	DDR4	Dual Channel
√		√		√
	√		√	√
√	√	√	√	√

Notes:

1. When using dual channel mode, install only similar (same density, DRAM technology and DRAM bus width) module for each channel.
2. Memory module install in to one or any three sockets will function in single channel mode.

Table B: CPU FSB and Memory Frequency

CPU FSB	DDR Module support
800 MHz	DDR 400/333/266
533 MHz	DDR 333/266
400 MHz	DDR 266

Note: Due to chipset limitation, using 800 MHz CPU FSB can run at 320 MHz only.

Table C: DDR (memory module) QVL (Qualified Vendor List)

The following DDR400 memory modules have been tested and qualified for use with this motherboard.

Size	Vendor	Brand	Part Number
128MB	SAMSUNG	SAMSUNG	K4H280838D-TCC4
	Micron	Micron	MT46V16M8-5 ESB
	NANYA	NANYA	NT5DS16M16BT-5
	Infineon	Infineon	HYB25D256160BT-5
256MB	SAMSUNG	SAMSUNG	K4H560838D-TCC4
	Micron	Micron	MT46V16M8-5 ESB
	Infineon	Infineon	HYB25D256800BT-5
	KINGMAX	KINGMAX	
	Hynix	Hynix	HY5DU56822AT-D43
512MB	SAMSUNG	SAMSUNG	K4H560838D-TCC4
	Winbond	Winbond	W942508BH-5
	NANYA	NANYA	NT5D32M8BT-5
	KINGMAX	KINGMAX	

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

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

About IDE Devices

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

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

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

About SATA Connectors

Your motherboard features two SATA connectors supporting a total of two drives. SATA refers to 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 (see page 28) 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 which 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.



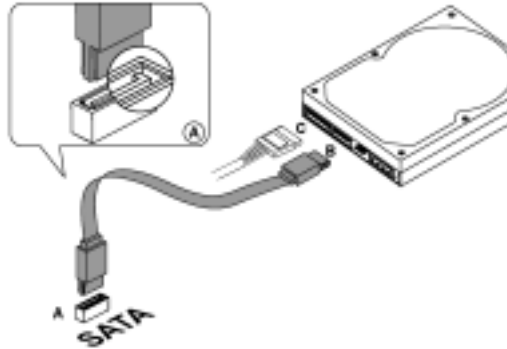
SATA cable



SATA power cable

Refer to the illustration below for proper installation:

1. Attach either cable end to the connector **(A)** on the motherboard.
2. Attach the other cable end **(B)** to the SATA hard drive.
3. Attach the SATA power cable to the SATA hard drive **(C)** and connect the other end to the power supply.



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

About UltraDMA

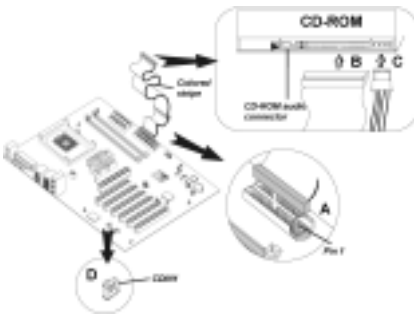
This motherboard supports UltraDMA 66/100. UDMA is a technology that accelerates the performance of devices in the IDE channel. To maximize performance, install IDE devices that support UDMA and use 80-pin IDE cables that support UDMA 66/100.

Installing a Hard Disk Drive

1. Install the hard disk drive into the drive cage in your system case.	
<p>2. Plug the IDE cable into IDE1 (A):</p> <p>Note: Ribbon cable connectors are usually keyed so that they can only be installed correctly on the device connector. If the connector is not keyed, make sure that you match the pin-1 side of the cable connector with the pin-1 side of the device connector. Each connector has the pin-1 side clearly marked. The pin-1 side of each ribbon cable is always marked with a colored stripe on the cable.</p>	
3. Plug an IDE cable connector into the hard disk drive IDE connector (B). It doesn't matter which connector on the cable you use.	
4. Plug a power cable from the case power supply into the power connector on the hard disk drive (C).	

When you first start up your system, the BIOS should automatically detect your hard disk drive. If it doesn't, enter the Setup Utility and use the IDE Hard Disk Auto Detect feature to configure the hard disk drive that you have installed. See IDE HDD Auto-Detection on page 38 for more information.

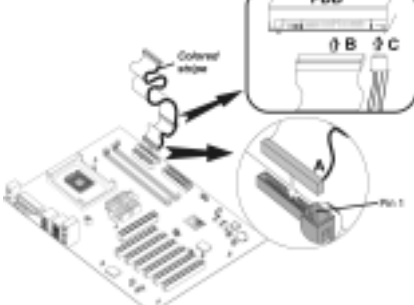
Installing a CD-ROM/DVD Drive

1. Install the CD-ROM/DVD drive into the drive cage in your system case.	
<p>2. Plug the IDE cable into IDE1 (A). If you have already installed an HDD, use the other connector on the IDE cable.</p> <p>Note: Ribbon cable connectors are usually keyed so that they can only be installed correctly on the device connector. If the connector is not keyed, make sure that you match the pin-1 side of the cable connector with the pin-1 side of the device connector. Each connector has the pin-1 side clearly marked. The pin-1 side of each ribbon cable is always marked with a colored stripe on the cable.</p>	
3. Plug an IDE cable connector into the CD-ROM/DVD drive IDE connector (B). It doesn't matter which connector on the cable you use.	
4. Plug a power cable from the case power supply into the power connector on the CD-ROM/DVD drive (C).	
5. Use the audio cable provided with the CD-ROM/DVD drive to connect to the motherboard CD-in connector CDIN1 (D).	

When you first start up your system, the BIOS should automatically detect your CD-ROM/DVD drive. If it doesn't, enter the Setup Utility and configure the CD-ROM/DVD drive that you have installed. See IDE Primary/Secondary Master/Slave (Auto) on page 38 for more information.

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.

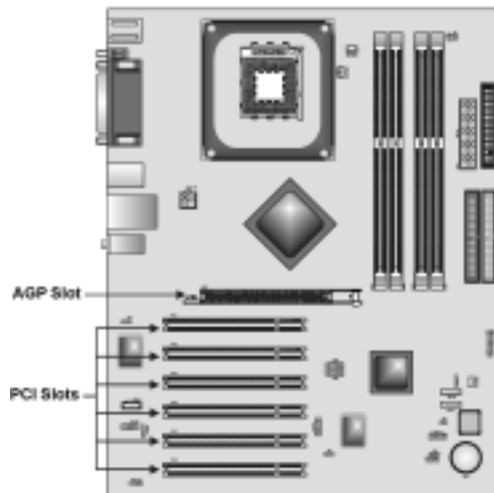
1. Install the FDD into the drive cage in your system case.	
<p>2. Plug the FDD cable into FDD1 (A):</p> <p>Note: Ribbon cable connectors are usually keyed so that they can only be installed correctly on the device connector. If the connector is not keyed, make sure that you match the pin-1 side of the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

4. Plug a power cable from the case power supply into the power connector on the FDD (C).

When you first start up your system, go immediately to the Setup Utility to configure the floppy diskette drives that you have installed. See Standard CMOS Features on page 37 for more information.

Installing Add-on Cards

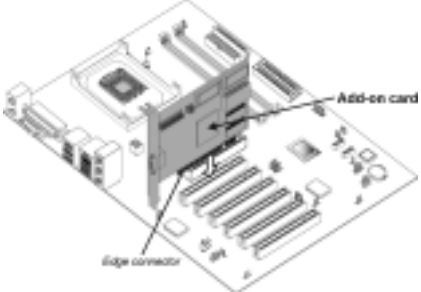
The slots in this motherboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the motherboard's features and capabilities. With these efficient facilities, you can increase the motherboard's capabilities by adding hardware which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



PCI Slots	PCI slots are used to install expansion cards that have the 32-bit PCI interface.
AGP Slot	The motherboard comes with an Accelerated Graphics Port slot that supports AGP cards for high performance, component level interconnect targeted at 3D graphical applications using a 4x/8x mode bus. For PF2 motherboard, this slot can also support upgradeable external AGP card and Intel ADD (AGP Digital Display) Card which allows configuration for TV-out, LDVS and TMDS output.

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

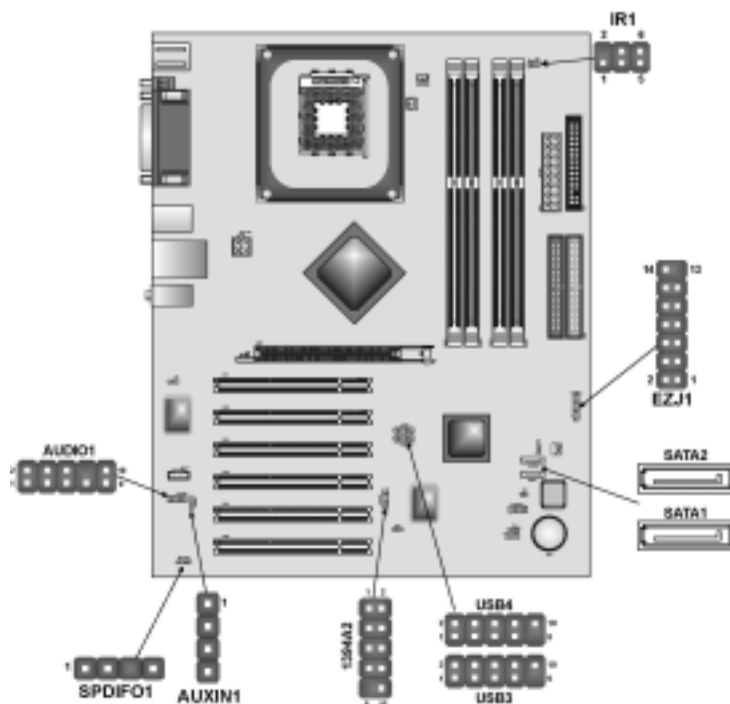
Follow these instructions to install an add-on card:

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

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

Connecting Optional Devices

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



AUDIO1: Front Panel Audio header

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

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

USB3/USB4: Front panel USB connectors

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 connectors USB3 or USB4 to connect the front-mounted ports to the motherboard.

Pin	Signal Name	Function
1	VREG_FP_USBPWR0	Front Panel USB Power
2	VREG_FP_USBPWR0	Front Panel USB Power
3	USB_FP_P0-	USB Port 0 Negative Signal
4	USB_FP_P1-	USB Port 1 Negative Signal
5	USB_FP_P0+	USB Port 0 Positive Signal
6	USB_FP_P1+	USB Port 1 Positive Signal
7	GND	Ground
8	GND	Ground
9	KEY	No pin
10	USB_FP_OC0/NC	Overcurrent signal/Not Connected

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.

IR1: Serial infrared port

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

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

1394A2: IEEE 1394a header

Use this header to connect to any IEEE 1394a interface.

Pin	Signal Name	Pin	Signal Name
1	TPA+	2	TPA-
3	GND	4	GND
5	TPB+	6	TPB-
7	Cable-power	8	Cable-power
9	NC	10	GND

SPDIF01: SPDIF out header

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	+5VA	5V analog power
3	NC	Not connected
4	GND	Ground

EZJ1: EZ-Watcher interface header

This connector is for use with EZ-Watcher interface only. The EZ-Watcher allows you to adjust the CPU frequency according to your desire.

Pin	Signal Name	Pin	Signal Name
1	PCDAT	2	PCREQ
3	SCI#	4	PCIRST#
5	GND	6	VCC
7	GND	8	VCC
9	GND	10	VCC
11	HDDN	12	CDROM
13	Key	14	RSVD

AUXIN1: Auxiliary In header

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

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

SATA1/SATA2: Serial ATA connector

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	GND	2	TX+
3	TX-	4	GND
5	RX+	6	RX-
7	GND	-	-

Serial ATA and Parallel ATA Configurations

Enhanced mode	<ul style="list-style-type: none"> New OS that support switch to native OS (WinXP or Windows .Net Server) can set Serial ATA and Parallel ATA to enhanced mode Comprehend both legacy OS (MS-DOS, Windows 98/Me/NT 4.0) and/or native OS (Windows 2000/XP) Maximum 6 ATA devices (4 for Parallel ATA and 2 for Serial ATA)
Compatible mode	<ul style="list-style-type: none"> Older OS doesn't support switch to native OS (DOS, Win2K, Win98/ME) should set Serial ATA and Parallel ATA to compatible mode Maximum 4 ATA devices Combine mode and Non-Combine mode*

**Serial ATA Combined and Non-Combined mode*

Mode	Option 1	Option 2	Option 3
Combined	<ul style="list-style-type: none"> Serial ATA devices Parallel ATA devices Maximum of 2 each 	X	X
Non-Combined	X	<ul style="list-style-type: none"> Parallel ATA devices only Maximum of 4 	<ul style="list-style-type: none"> Serial ATA devices only Maximum of 2

Serial ATA RAID connectors controlled by ICH5R

Intel ICH5R supports striping (RAID 0) and mirroring (RAID 1), separately.

With striping, identical drives can read and write data in parallel to increase performance. Mirroring increases read performance through load balancing and elevator sorting while creating a complete backup of your files.

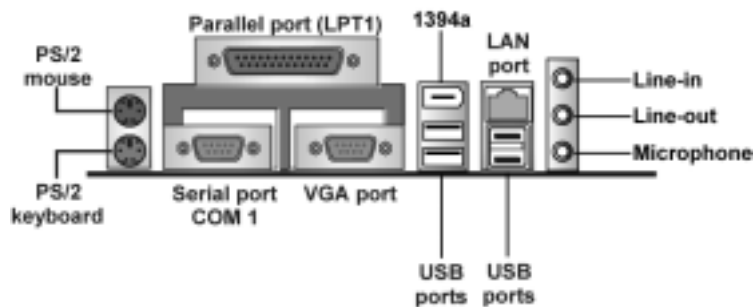
It offers RAID 1 mirroring (for two drives) to protect data. Should a drive that is part of a mirrored array fail, Intel ICH5R uses the mirrored drive (which contains identical data) to assume all data handling. When a new replacement drive is later installed, Intel ICH5R rebuilds data to the new drive from the mirrored drive to restore fault tolerance.

RAID 0 (Striping)	RAID 1 (Mirroring)
<p>Configures multiple drives so that sectors of data are interleaved within an array. When a disk member fails, it affects the entire array. Performance is better than a single drive since the workload is balanced between array members. This array mode is designed for high performance systems. Identical drives are recommended for performance as well as data storage efficiency. The disk array data capacity is equal to the number of drive members times the smallest member capacity.</p>	<p>Configures an array of 2 drives to write duplicate data and read in parallel. It performs reads using advanced data handling techniques that distribute the workload in a more efficient manner than using a single drive. When a read request is made, it selects the drive positioned closest to the requested data, and then looks to the idle drive to perform the next read access.</p>

Intel ICH5R striped arrays can double the sustained data transfer rate of SATA/150 drives. Intel ICH5R fully supports SATA / 150 specification of up to 150 MB/sec per drive, depending on individual drive specifications.

Connecting I/O Devices

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



- PS/2 Mouse** Use the upper PS/2 port to connect a PS/2 pointing device.
- PS/2 Keyboard** Use the lower PS/2 port to connect a PS/2 keyboard.
- LPT1** Use LPT1 to connect printers or other parallel communications devices.
- COM1** Use the COM ports to connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM1/3. COM2 is identified by the system as COM2/4.
- VGA Port** Connect your VGA monitor to this port (PF2 motherboard only)
- 1394a Port (optional)** Use the 1394a port to connect any Firewire device.
- Audio Ports** Use the three audio ports to connect audio devices. The first jack is for stereo line-in signal. The second jack is for stereo line-out signal. The third jack is for microphone.
- LAN Port (optional)** Connect an RJ-45 jack to the LAN port to connect your computer to the Network.
- USB Ports** Use the USB ports to connect USB devices.

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
Digital monitor/flat panel	Blue
Microphone	Pink
Parallel	Burgundy
PS/2-compatible keyboard	Purple
PS/2-compatible mouse	Green
COM Port	Teal or Turquoise
USB	Black
SCSI, network, telephone, modem	None

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 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 to enter SETUP

Pressing the delete key  accesses the BIOS Setup Utility:

Phoenix – AwardBIOS CMOS Setup Utility

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

BIOS Navigation Keys

The BIOS navigation keys are listed below:

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

Updating the BIOS

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

1. If your motherboard has a BIOS protection jumper, change the setting to allow BIOS flashing.

2. If your motherboard has an item called Firmware Write Protect in Advanced BIOS features, disable it. (Firmware Write Protect prevents BIOS from being overwritten.)
3. Create a bootable system disk. (Refer to Windows online help for information on creating a bootable system disk.)
4. Download the Flash Utility and new BIOS file from the manufacturer's Web site. Copy these files to the system diskette you created in Step 3.
5. Turn off your computer and insert the system diskette in your computer's diskette drive. (You might need to run the Setup Utility and change the boot priority items on the Advanced BIOS Features Setup page, to force your computer to boot from the floppy diskette drive first.)
6. At the A:\ prompt, type the Flash Utility program name and press <Enter>. You see a screen similar to the following:

FLASH MEMORY WRITER V7.33	
(C) Award Software 1999 All Rights Reserved	
For (MOTHERBOARD 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 motherboard BIOS.
8. When the installation is complete, remove the floppy diskette from the diskette drive and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten.

Using BIOS

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

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

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

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

Standard CMOS Features

This option displays basic information about your system.

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]	
Floppy 3 Mode Support	[Disabled]	
Video	[EGA/VGA]	
Halt On	[All Errors]	
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:

Phoenix – AwardBIOS CMOS Setup Utility
IDE Primary Master

IDE HDD Auto-Detection	[Press Enter]	Item Help
IDE Primary Master	[Auto]	
Access Mode	[Auto]	Menu Level ▶▶
Capacity	0 MB	To auto-detect the HDD's size, head . . . on this channel
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 page.

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.

Floppy 3 Mode Support (Disabled)

Floppy 3 mode refers to a 3.5-inch diskette with a capacity of 1.2 MB. Floppy 3 mode is sometimes used in Japan.

Video (EGA/VGA)

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

Halt On (All Errors)

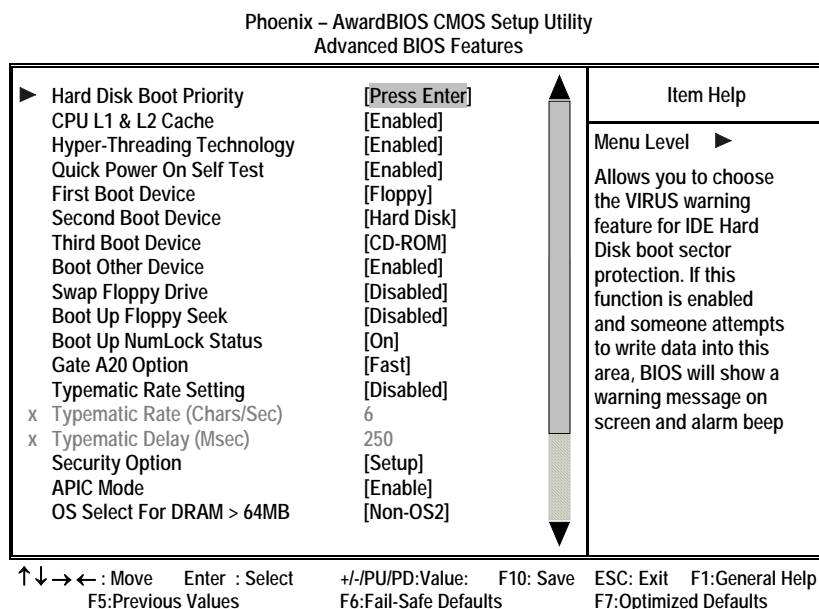
This item defines the operation of the system POST (Power On Self Test) routine. You can use this item to select which types of errors in the POST are sufficient to halt the system.

Base Memory, Extended Memory, and Total Memory

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

Advanced BIOS Features

This option defines advanced information about your system.



Hard Disk Boot Priority (Press Enter)

Use this option to select the hard disk boot priority.

CPU L1 & L2 Cache (Enabled)

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

Hyper-Threading Technology (Enabled)

This item is only available when the chipset supports Hyper-Threading and you are using a Hyper-Threading CPU.

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/Hard Disk/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 (Disabled)

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

Boot Up NumLock Status (On)

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

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.

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.

APIC Mode (Enable)

This option enables/disables APIC (Advanced Programmable Interrupt Controller) functionality. The APIC is an Intel chip that provides symmetric multiprocessing (SMP) for its Pentium systems.

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

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

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

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

Report No FDD For WIN 95 (Yes)

Set this item to the default if you are running a system with no floppy drive and using Windows 95; this ensures compatibility with the Windows 95 logo certification.

Active to Precharge Delay (7)

The precharge time is the number of cycles it takes for DRAM to accumulate its charge before refresh.

DRAM RAS# to CAS# Delay (3)

This field lets you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed. Disabled gives faster performance; and Enabled gives more stable performance.

DRAM RAS# Precharge (3)

Select the number of CPU clocks allocated for the Row Address Strobe (RAS#) signal to accumulate its charge before the DRAM is refreshed. If insufficient time is allowed, refresh may be incomplete and data lost.

Memory Frequency For (Auto)

This item sets the main memory frequency. When you use an external graphics card, you can adjust this to enable the best performance for your system.

System BIOS Cacheable (Disabled)

This item allows the system to be cached in memory for faster execution. Enable this item for better performance.

Video BIOS Cacheable (Disabled)

This item allows the video BIOS to be cached in memory for faster execution. Enable these items for better performance.

Delay Prior to Thermal (16 Min)

Enables you to set the delay time before the CPU enters auto thermal mode.

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.

Init Display First (PCI)

This item allows you to choose the primary display card.

DDR Voltage (Default)

This item allows you to set the DDR SDRAM operating voltage.

Fast Chip Select (Auto)

This item allows you to read the Data transfer from CPU to GMCH.

CPC Addr/Control (Auto)

This enables the DDR channel A and channel B memory access to reduce the loading for selective CPC (Clock Per Command).

Turbo Mode (Auto)

This item increases the performance of CPU L2 cache timing at high speed.

The following BIOS items below are available on PF2 motherboard only

On-chip VGA (Enabled)

Enables and disables the built-in on-chip VGA.

Boot Display (Auto)

This item is for Intel define ADD card only.

On-chip Frame Buffer Size (8M)

This allows you to set the VGA frame buffer size.

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

▶ OnChip IDE Device	[Press Enter]	Item Help
▶ Onboard Device	[Press Enter]	
▶ SuperIO Device	[Press Enter]	Menu Level ▶

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

► **OnChip IDE Device**

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

Phoenix – AwardBIOS CMOS Setup Utility
OnChip IDE Device

IDE HDD Block Mode	[Enabled]	Item Help
On-Chip Primary PCI IDE	[Enabled]	Menu Level ►
IDE Primary Master PIO	[Auto]	
IDE Primary Slave PIO	[Auto]	
IDE Primary Master UDMA	[Auto]	
IDE Primary Slave UDMA	[Auto]	
On-Chip Secondary PCI IDE	[Enabled]	
IDE Secondary Master PIO	[Auto]	
IDE Secondary Slave PIO	[Auto]	
IDE Secondary Master UDMA	[Auto]	
IDE Secondary Slave UDMA	[Auto]	
** On-Chip Serial ATA Setting **		
SATA Mode	[IDE]	
On-chip Serial ATA	[Disabled]	
Serial ATA Port0 Mode	[Primary Master]	
Serial ATA Port1 Mode	Primary Master	

↑↓ → ← : 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 Block Mode (Enabled)

Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support.

On-Chip Primary/Secondary PCI IDE (Enabled)

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

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 device. This motherboard supports UltraDMA technology, which provides faster access to IDE devices.

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

SATA Mode (IDE)

Use this item to select the mode of the Serial ATA.

On-chip Serial ATA (Disabled)

Enables and disables the built-in on-chip serial ATA.

Serial ATA Port0 Mode (Primary Master)

Use this item to select the SATA0 master or SATA1 master.

► Onboard Device

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

Phoenix – AwardBIOS CMOS Setup Utility
Onboard Device

		Item Help
USB Controller	[Enabled]	Menu Level ►
USB 2.0 Controller	[Enabled]	
USB Keyboard Support	[Disabled]	
USB Mouse Support	[Disabled]	
AC97 Audio	[Auto]	
Onboard LAN Device	[Enabled]	
Onboard LAN Boot ROM	[Disabled]	

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

USB Controller (Enabled)

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

USB 2.0 Controller (Enabled)

Enable this item if want to use the USB 2.0 controller.

USB Keyboard Support (Disabled)

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

USB Mouse Support (Disabled)

Enable this item if you plan to use a USB mouse.

AC97 Audio (Auto)

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

Onboard LAN Device (Enabled)

Enables and disables the onboard LAN.

Onboard LAN BOOT ROM (Disabled)

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

► **SuperIO Device**

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

Phoenix – AwardBIOS CMOS Setup Utility
SuperIO Device

		Item Help
POWER ON Function	[Hot KEY]	
KB Power ON Password	[Enter]	Menu Level ►
Hot Key Power On	[Ctrl-F12]	
Onboard FDC Controller	[Enabled]	
Onboard Serial Port 1	[3F8/IRQ4]	
UART Mode Select	[Normal]	
RxD, TxD Active	[Hi, Lo]	
IR Transmission Delay	[Enabled]	
UR2 Duplex Mode	[Half]	
Use IR Pins	[IR-Rx2Tx2]	
Onboard Parallel Port	[378/IRQ7]	
Parallel Port Mode	[ECP]	
EPP Model Select	[EPP1.7]	
ECP Mode Use DMA	[3]	
Power On After Power Fail	[Off]	

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

POWER ON Function (Hot KEY)

This feature allows you to set the method by which your system can be turned on.

KB Power ON Password (Enter)

When the POWER ON Function is set to Password, use this item to set the password.

HotKey Power On (Ctrl-F12)

When the POWER ON Function is set to Hot KEY, use this item to set the hot key combination that turns on the system.

Onboard FDC Controller (Enabled)

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

Onboard Serial Port 1 (3F8/IRQ4)

Select a logical COM port name and matching address for the first and second serial ports. Select an address and corresponding interrupt for the first and second serial ports.

UART Mode Select (Normal)

This field is available if the Onboard Serial Port 2 field is set to any option but Disabled. UART Mode Select enables you to select the infrared communication protocol-Normal (default), IrDA, or ASKIR. IrDA is an infrared communication protocol with a maximum baud rate up to 115.2K bps. ASKIR is Sharp's infrared communication protocol with a maximum baud rate up to

57.6K bps.

RxD, TxD Active (Hi, Lo)

This feature enables you to set the IR reception/transmission polarity as High or Low.

IR Transmission Delay (Enabled)

This field enables you to set the whether the IR transmission rate will be delayed while converting to receiving mode.

UR2 Duplex Mode (Half)

This field is available when UART 2 Mode is set to either ASKIR or IrDA. This item enables you to determine the infrared function of the onboard infrared chip. The options are Full and Half (default).

Full-duplex means that you can transmit and send information simultaneously. Half-duplex is the transmission of data in both directions, but only one direction at a time.

Use IR Pins (IR-Rx2Tx2)

Please consult your IR peripheral documentation to select the correct setting of the TxD and RxD signals.

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.

EPP Mode Select (EPP1.7)

The onboard parallel port is EPP spec. compliant, after you choose the onboard parallel port with EPP function. Set the EPP version to 1.7 spec or 1.9 spec.

ECP Mode Use DMA (3)

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

Power On After Power Fail (Off)

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

Video Off Method (DPMS)

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

Video Off In Suspend (Yes)

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

Suspend Type (Stop Grant)

If this item is set to the default Stop Grant, the CPU will go into Idle Mode during power saving mode.

MODEM Use IRQ (3)

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

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.

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.

Soft-Off by PWR-BTTN (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.

Resume by PME

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

Resume by Ring

An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.

Resume by USB (S3)

This option allows the activity of the USB devices (keyboard and mouse) to wake-up the system from S3 sleep state.

Resume by Alarm (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.

PNP/PCI Configurations

This option configures how PnP (Plug and Play) and PCI expansion cards operate in your system. Both the ISA and PCI buses on the Motherboard use system IRQs (Interrupt ReQuests) and DMAs (Direct Memory Access). You must set up the IRQ and DMA assignments correctly through the PnP/PCI Configurations Setup utility for the motherboard to work properly. Selecting PnP/PCI Configurations on the main program screen displays this menu:

Phoenix – AwardBIOS CMOS Setup Utility
PnP/PCI Configurations

		Item Help
Reset Configuration Data	[Disabled]	
Resources Controlled by	[Auto (ESCD)]	Menu Level ►
x IRQ Resources	Press Enter	Default is Disabled.
PCI/VGA Palette Snoop	[Disabled]	Select Enabled to reset
Assign IRQ For USB	[Enabled]	Extended System Con-
INT Pin 1 Assignment	[Auto]	figuration Data (ESCD)
INT Pin 2 Assignment	[Auto]	when you exit Setup if you
INT Pin 3 Assignment	[Auto]	have installed a new add-
INT Pin 4 Assignment	[Auto]	on and the system recon-
INT Pin 5 Assignment	[Auto]	figuration has caused
INT Pin 6 Assignment	[Auto]	such a serious conflict
INT Pin 7 Assignment	[Auto]	that the OS cannot boot
INT Pin 8 Assignment	[Auto]	

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

Reset Configuration Data (Disabled)

If enabled, this feature will reset the Extended System Configuration Data (ESCD) upon exiting Setup. This may correct hardware conflicts that prevent the Operating System from booting.

Resources Controlled By (Auto)

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 submenus.

In the IRQ Resources submenu, if you assign an IRQ to Legacy ISA, then that Interrupt Request Line is reserved for a legacy ISA expansion card. Press <Esc> to close the IRQ Resources submenu.

In the Memory Resources submenu, 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 submenu.

PCI/VGA Palette Snoop (Disabled)

This item is designed to overcome problems that can be caused by some non-standard VGA cards. This board includes a built-in VGA system that does not require palette snooping so you must leave this item disabled.

Assign IRQ For USB (Enabled)

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

INT Pin1~8 Assignment (Auto)

Names the interrupt request (IRQ) line assigned to a device connected to the PCI interface on your system.

PC Health Status

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

Phoenix – AwardBIOS CMOS Setup Utility
PC Health Status

Target Temperature	[Disabled]	Item Help
Shutdown Temperature	[Disabled]	
Current System Temperature		Menu Level ▶
Current CPU Temperature		
SYS FAN Speed		
CPU FAN Speed		
NB FAN Speed		
CPU Vcore		
1.50 V		
3.30 V		
5.00 V		
Battery Voltage		

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

Target Temperature

This item enables throttling when CPU targets the temperature.

Shutdown Temperature

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

System Component Characteristics

These items allow end users and technicians to monitor data provided by the BIOS on this motherboard. You cannot make changes to these fields.

- CPU Vcore (CPU core voltage)
- Voltage Battery (battery voltage)
- Current System Temp (degrees Fahrenheit and Celsius)
- Current CPU Temp (degrees Fahrenheit and Celsius)
- CPU fan speed (in RPMs)
- Chassis FAN Speed (in RPMs)
- NB FAN Speed (in RPMs)

Frequency Control

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

Phoenix – AwardBIOS CMOS Setup Utility
Frequency Control

Auto Detect PCI Clk	[Enabled]	Item Help
Spread Spectrum	[+0.25%]	
Async AGP/PCI/SATA CLK	[Sync AGP/PCI/SATA]	Menu Level ▶
CPU Clock	[by keyin]	

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

Auto Detect PCI Clk (Enabled)

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

Spread Spectrum (+0.25%)

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

Async AGP/PCI/SATA CLK (Sync AGP/PCI/SATA)

This item allows you to select the fixed clock to generate the output to AGP/PCI/SATA frequency.

CPU Clock (by keyin)

Use the CPU Host Clock to set the frontside bus frequency for the installed processor (usually 133 MHz, 100 MHz or 66 MHz).

Load Fail-Safe Defaults Option

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

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

Load Optimized Defaults Option

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

Set Supervisor/User Password

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

ENTER PASSWORD

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

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

PASSWORD DISABLED

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

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

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

Save & Exit Setup Option

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

Exit Without Saving

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

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

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

Using the Motherboard Software

About the Software CD-ROM

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

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

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

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

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

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

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



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

Setup Tab

Setup	Click the Setup button to run the software installation program. Select from the menu which software you want to install.
Browse CD	<p>The Browse CD 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>
Exit	The Exit button closes the Auto Setup window.

Application Tab

Lists the software utilities that are available on the CD.

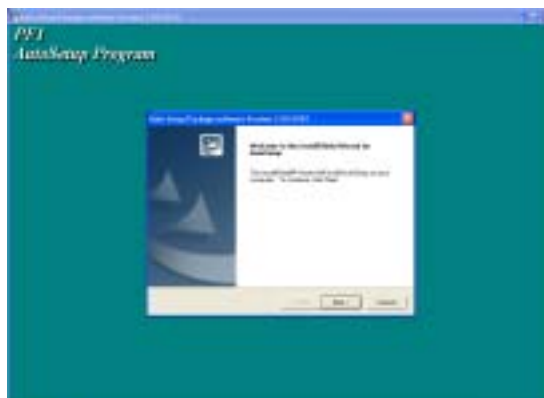
Read Me Tab

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

Running Setup

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

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



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

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

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



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



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

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

Manual Installation

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

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

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

Utility Software Reference

All the utility software available from this page is Windows compliant. They are provided only for the convenience of the customer. The following software is furnished under license and may only be used or copied in accordance with the terms of the license.

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

AWARD Flash Memory Utility

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

WinFlash Utility

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

UTILITY\WINFLASH 1.51

PC-CILLIN 2002

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

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

MediaRing Talk – Telephony Software

Go to \UTILITY\MEDIARING TALK and run MRTALK-SETUP72. EXE to install the MediaRing Talk voice modem software for the built-in modem.

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.

WinDVD Creator Plus

WinDVD Creator Plus is designed for people who want to make their own DVDs but who don't want to learn complicated programs. By taking you through 4 DVD-making steps, WinDVD Creator Plus walks you through capturing video, editing it, adding titles, transitions, effects, music, DVD menus and finally burning the finished product. User also can direct-burn to DVD when DVD burner is available.

WinDVD

WinDVD is the world's most popular DVD player and supports over 30 new features and enhancements such as improved picture quality, easier-to-use Time-Stretching, MP3 playback, and Video Desktop – which lets you watch movies under your desktop icons while you work or check email.

WinRIP

WinRip lets you record, store, organize, and enjoy you music collection - on your PC, CD player, and portable player. Organize your music in the Music Gallery and create your own playlists. You can switch between simple Player mode or full-featured Jukebox mode.

Pro Magic

This amazing software not only provides users with convenient and instant restoration of your computer, but also restores within seconds important data back to the preferred state at a specific point in time. Pro Magic also combines several other functions including anti-virus, backup, uninstall software and multi-booting to satisfy all your system protection needs.

DPU (Data Process Utility)

Specially designed for file protection, security and management this DPU or data processing utility insures the safety of important data through complete file restoration, eliminating file damage even in case of improper operation. User can freely edit original files after a set restore time point. The DPU can even restore even deleted files.

ECS Elite Castle 3D Desktop

Transform your 2D desktop into a more exciting intuitive and useful 3D Windows interface. You can easily organize files, folders and applications as well as enhancing the overall Windows enjoyment using built-in 3D games, cool picture walls, dynamic web content and amazing worlds to explore.

This concludes Chapter 4.