Preface

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Version 2.0A

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Federal Communications Commission (FCC)

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

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

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

Declaration of Conformity

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

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

Canadian Department of Communications

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

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

About the Manual

The manual consists of the following:

Chapter 1   Describes features of the motherboard.

Introducing the Motherboard   Go to ⇨ page 1

Chapter 2   Describes installation of motherboard components.

Installing the Motherboard   Go to ⇨ page 7

Chapter 3   Provides information on using the BIOS Setup Utility.

Using BIOS   Go to ⇨ page 27

Chapter 4   Describes the motherboard software

Using the Motherboard Software Go to ⇨ page 45

TABLE OF CONTENTS

Chapter 4   **45**
Using the Motherboard Software   **45**

Chapter 1
Introducing the Motherboard

Introduction

Thank you for choosing this motherboard. This motherboard is a high performance, enhanced function motherboard that supports AMD Phenom™ processor (socket AM2+)/AMD Athlon™ 64 X2 Dual-Core/Athlon™ 64/Sempron™ processors for high-end business or personal desktop markets.

The motherboard incorporates the AMD 740G (RS740) Northbridge (NB) and SB700 Southbridge (SB) chipsets. The Northbridge supports the HyperTransport™ 1.0 interface. It supports two DDR2 slots with maximum memory size of 8 GB. One PCI Express x16 slot, intended for Graphics Interface, is fully compliant to the PCI Express Base Specification Revision 1.1.

The SB700 Southbridge supports two PCI slots which are PCI 2.3 compliant. In addition, one PCI Express x1 slot is supported, fully compliant to the PCI Express Base Specification, Revision 1.1. It integrates USB 2.0 interface, supporting up to ten functional ports (four USB ports and three USB 2.0 headers support additional six USB ports). One onboard IDE connector supports two IDE devices in Ultra ATA 133/100/66/33 modes. The Southbridge integrates a Serial ATA host controller, supporting six SATA ports with maximum transfer rate up to 3.0 Gb/s each.

There is an advanced full set of I/O ports in the rear panel, including PS/2 mouse and keyboard connectors, one serial port, one VGA port, one optional DVI port , four USB ports, one LAN port and audio jacks for microphone, line-in and 6/8-channel (optional) line-out.

Feature

Processor

This motherboard uses a Socket AM2+ that carries the following features:

- Accommodates AMD Phenom™ processor (socket AM2+)
  AMD Athlon™ 64 X2 Dual-Core/Athlon™ 64/Sempron™ processors
- Supports HyperTransport™ (HT) 1.0 interface speeds

HyperTransport™ Technology is a point-to-point link between two devices, it enables integrated circuits to exchange information at much higher speeds than currently available interconnect technologies.

This board supports CPU up to 95W TDP only.

Chipset

The AMD 740G Northbridge (NB) and SB700 Southbridge (SB) chipsets are based on an innovative and scalable architecture with proven reliability and performance.

AMD 740G (NB)
- One x4 A-Link Express II interface (PCI Express 1.1 compliant) for connection to an AMD Southbridge
- Supports one PCI Express x16 for Graphics Interface, fully compliant to the PCI Express Base Specification revision 1.1
- Fully supports ACPI states S0, S1,S2, S3, S4, and S5
- Single chip solution in 80nm, 1.2 V CMOS technology

SB700 (SB)
- Compliant with PCI 2.3 specification at 33 MHz
- Supports six Serial ATA devices which speeds up to 3.0 Gb/s
- Integrated USB 2.0 Host Controller supporting up to ten USB 2.0 ports
- Integrated IDE controller supports Ultra ATA 133/100/66/33 modes

Memory

- Supports DDR2 800/667/533/400 DDR SDRAM with Dual-channel architecture
- Accommodates two unbuffered DIMMs
- Up to 4 GB per DIMM with maximum memory size up to 8 GB

Audio (Optional)

The onboard Audio provides the following features:

• 5.1 Channel High Definition Audio Codec • DACs Support 96K/48K/44.1KHz DAC sample rate • Power support: Digital:3.3V; Analog:5.0V • WOW™ and Tru Surround™ from SRS • Provides single ended CD input with DRM solutions and legacy OS issues
• 7.1 Channel High Definition Audio Codec • SPDIF In/Out supports 96K/48K/44.1KHz plus SPDIF OUT supports 88.2 KHz • Power support: Digital:3.3V; Analog:5.0V • MAxx Player™ from Waves • Provides single ended CD input with DRM solutions and legacy OS issues

Onboard LAN (Optional)

The onboard LAN provides the following features:

• Integrated 10/100/1000 Base-T Transceiver • Integrated 10/100/1000 Mbps IEEE 802.3 compliant • IEEE 802.3u Auto-Negotiation
• Integrated 10BASE-T/100BASE-TX Transceiver • Integrated IEEE802.3z compliant • IEEE 802.3u Auto-Negotiation

Expansion Options

The motherboard comes with the following expansion options:

- One PCI Express x16 for Graphics Interface
- One PCI Express x1 slot
- Two 32-bit PCI v2.3 compliant slots
- One IDE connector supporting up to two IDE devices
- Six 7-pin SATA connectors

This motherboard supports Ultra DMA bus mastering with transfer rates of 133/100/66/33 MB/s.

Integrated I/O

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

- Two PS/2 ports for mouse and keyboard
- One serial port
- One VGA port
- One DVI port (optional)
- Four USB ports
- One LAN port
- Audio jacks for microphone, line-in and 6/8-channel (optional) line-out

BIOS Firmware

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

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

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

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

2. Due to chipset limitation, we recommend that motherboard be operated in the ambiance between 0 and 50°C.

Introducing the Motherboard

Motherboard Components
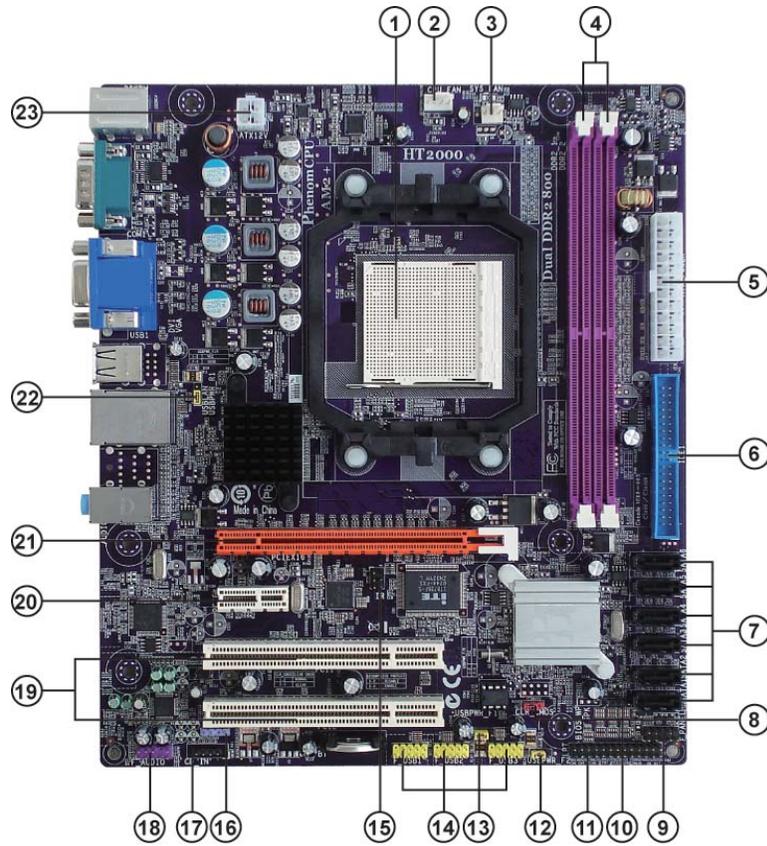
Table of Motherboard Components

LABEL	COMPONENTS
1. CPU Socket	AMD Phenom^{TM} processor (socket AM2+)/ AMD Athlon^{TM} 64 X2 Dual-Core/Athlon^{TM} 64/ Sempron**™** processors
2. CPU_FAN	CPU cooling fan connector
3. SYS_FAN	System cooling fan connector
4. DDR2_1~2	240-pin DDR2 SDRAM slots
5. ATX_POWER	Standard 24-pin ATX power connector
6. IDE1	Primary IDE connector
7. SATA1~6	Serial ATA connectors
8. CLR_CMOS	Clear CMOS jumper
9. F_PANEL	Front panel switch/LED header
10. SPK	Speaker header
11. LPT	Parallel port header
12. USBPWR_F2	Front Panel USB Power Select Jumper
13. USBPWR_F1	Front Panel USB Power Select Jumper
14. F_USB1~3	Front Panel USB headers
15. IR	Infrared header
16. SPDIFO	SPDIF out header
17. CD_IN	Analog audio input header
18. F_AUDIO	Front panel audio header
19. PCI1~2	32-bit add-on card slots
20. PCIEX	PCI Express x1 slot
21. PCIEX16	PCI Express x16 slot for graphics interface
22. USBPWR_R1	Rear USB/PS2 Power Select Jumper
23. ATX12V	4-pin +12V power connector

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

Introducing the Motherboard

Memo

Chapter 2
Installing the Motherboard

Safety Precautions

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

Choosing a Computer Case

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

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

This motherboard carries an Micro ATX form factor of 244 X 210 mm. Choose a case that accommodates this form factor.

Installing the Motherboard in a Case

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

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

Ensure that your case has an I/O template that supports the I/O ports and expansion slots on your motherboard.
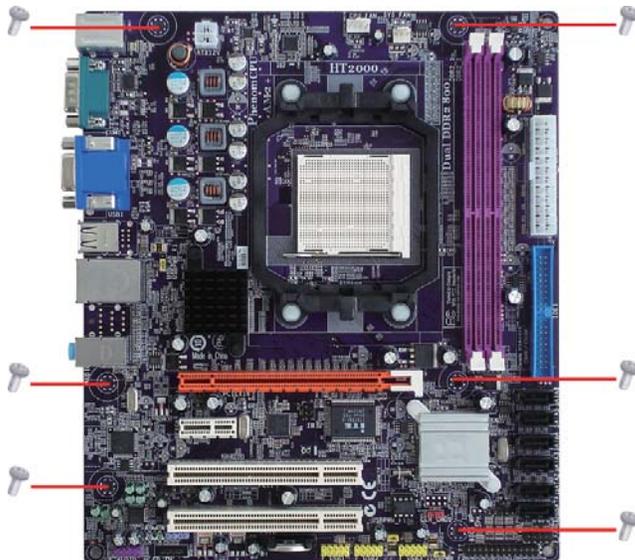
Do not over-tighten the screws as this can stress the motherboard.

Checking Jumper Settings

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

Setting Jumpers

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

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

SHORT   **OPEN**

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

Checking Jumper Settings

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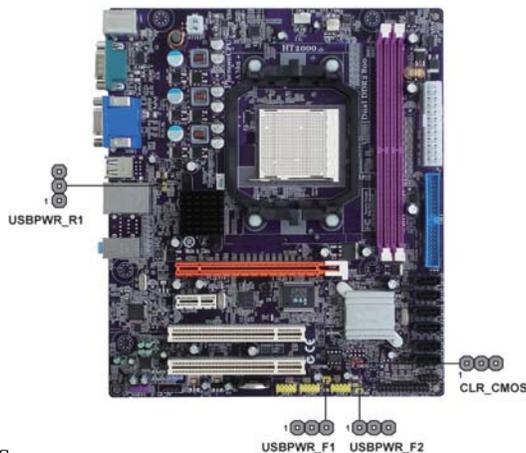
Jumper Settings

Jumper	Type	Description	Setting (default)	
CLR_CMOS	3-pin	Clear CMOS	1-2: NORMAL 2-3: CLEAR CMOS Before clearing the CMOS, make sure to turn off the system.	1 ▮▮▯ CLR_CMOS
USBPWR_F1	3-pin	Front Panel USB Power Select Jumper	1-2: VCC 2-3: 5VSB	1 ▮▮▯ USBPWR_F1
USBPWR_F2	3-pin	Front Panel USB Power Select Jumper	1-2: VCC 2-3: 5VSB	1 ▮▮▯ USBPWR_F2
USBPWR_R1	3-pin	Rear USB PS/2 Power Select Jumper	1-2: VCC 2-3: 5VSB	1 ▮ USBPWR_R1

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

2. Make sure the power supply provides enough 5VSB voltage before selecting the 5VSB function.

3. It is required that users place the USBPWR_F & USBPWR_R cap onto 2-3 pin rather than 1-2 pin as default if you want to wake up the computer by USB/PS2 KB/Mouse.

Installing the Motherboard

Installing Hardware

Installing the Processor

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

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

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

Before installing the Processor

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

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

2. Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components.

This motherboard has a Socket AM2+ processor socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache memory.

CPU Installation Procedure

The following illustration shows CPU installation components.

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 pin hold noticeably missing). Align and insert the CPU correctly.

3   Press the lever down and apply thermal grease on top of the CPU.

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

5   Flip the levers over to lock the heat sink in place and connect the CPU cooling Fan power cable to the CPUFAN connector. This completes the installation.

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 the Motherboard

Installing Memory Modules

This motherboard accommodates two memory modules. It can support two 240-pin DDR2 800/667/533/400. The total memory capacity is 8 GB.

DDR2 SDRAM memory module table

Memory module	Memory Bus
DDR2 400	*200 MHz*
DDR2 533	*266 MHz*
DDR2 667	*333 MHz*
DDR2 800	*400 MHz*

You must install at least one module in any of the two slots. Each module can be installed with 4 GB of memory.

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 DDR2 SDRAM only.
2   Push the latches on each side of the DIMM slot down.
3   Align the memory module with the slot. The DIMM slots are keyed with notches and the DIMMs are keyed with cutouts so that they can only be installed correctly.
4   Check that the cutouts on the DIMM module edge connector match the notches in the DIMM slot.
5   Install the DIMM module into the slot and press it firmly down until it seats correctly. The slot latches are levered upwards and latch on to the edges of the DIMM.
6   Install any remaining DIMM modules.

Installing the Motherboard

Table A: DDR2 (memory module) QVL (Qualified Vendor List)

The following DDR2 800/667/533/400 memory modules have been tested and qualified for use with this motherboard.

Type	Size	Vendor	Module Name
DDR2 400	256 MB	Hynix	HYMP532U646-E3 AA
	512 MB	Nanya	NT512T64U88A0F-5A
DDR2 533	256MB	Elixir	M2U25664TUH4A0F-37B
	512MB	Aeneon	AET660UD00-370A98Z
		Infineon	HYS64T64400HU-3.7-A
		Kingston	KVR533D2N4/512
		PQI	MEABR321LA01AA
		Samsung	M378T6553BGO-CD5
	1GB	Infineon	HYS64T128920HU-3.7-A
		PQI	MEABR421LA0106
DDR2 667	256MB	Infineon	HYS64T32400HU-3S-A
	512MB	A-DATA	M2OAD5G3H3166I1C52
		Apacer	AU512E667C5KBGY
		APOGEE	AU51082-667P005
		Cosair	VS512MB667D2
		Kingston	KVR667D2N5/512
		Nanya	NT512T64U88A0BY-3C
		PSC	AL6E8E63B-6E1T
		PSC	AL6E8E63J-6E1
		Ramaxel	RML1520HC38D6F-667
		Transcend	K4T51083QC ZCE6
		Twinmos	8D23JK-TT
	1GB	A-DATA	M2OAD5G314176I1C52
		APOGEE	AU1G082-667P005
		Infineon	HYS64T128920HU-3S-A
		PQI	MEABR421LA0107
		PSC	AL7E8E63B-6E1T
		PSC	AL7E8E63J-6E1
		Ramaxel	RML1320HC38D7F-667
		Twinmos	8D23KK-TT
	2GB	Hynix	HYMP125U64AP8-Y5-AB-A
		Kingston	KVR667D2N5/2G
		Nanya	NT2GT64U8HB0JY-3C
		PQI	MEA DR522PA0102-07B6
		Twinmos	8D-23MK-ED

Installing the Motherboard

Type	Size	Vendor	Module Name
DDR2 800	**256MB**	Infineon	HYS64T32000HU-25F-B
	512MB	A-DATA	M2OAD6G3H3160I1E53
		Aeneon	AET660UD00-25DB98X
		Apacer	AU512E800C5KBGC
		APOGEE	AU51082-800P505
		Infineon	HYS64T64000HU-25F-B
		Kingston	KHX6400D2ULK2/1G
		Nanya	NT512T64U88BOBY-25C
		PSC	AL6E8E63H-8E1
	1GB	APOGEE	AU1G082-800P000
		Infineon	HYS64T128020HU-25F-8
		Kingston	KHX6400D2ULK2/2G
		Nanya	NT1GT64U8HBOBY-25C
		PSC	AL7E8E63H-8E1
		UMAX	53016042-7100B

Expansion Slots

Installing Add-on Cards

The slots on this motherboard are designed to hold expansion cards and connect them to the system bus. Expansion slots are a means of adding or enhancing the motherboard's features and capabilities. With these efficient facilities, you can increase the motherboard's capabilities by adding hardware that performs tasks that are not part of the basic system.
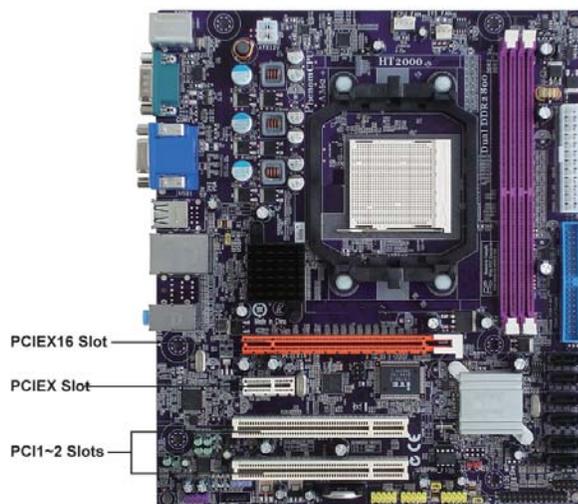
PCIEX16 Slot The PCI Express x16 slot is used to install an external PCI Express graphics card that is fully compliant to the PCI Express Base Specification revision 1.1.

PCIEX Slot The PCI Express x1 slot is fully compliant to the PCI Express Base Specification revision 1.1 as well.

PCI1~2 Slots This motherboard is equipped with two standard PCI slots. PCI stands for Peripheral Component Interconnect and is a bus standard for expansion cards, which for the most part, is a supplement of the older ISA bus standard. The PCI slots on this board are PCI v2.3 compliant.

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

Installing the Motherboard

Follow these instructions to install an add-on card:

1 Remove a blanking plate from the system case corresponding to the slot you are going to use.
2 Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
3 Secure the metal bracket of the card to the system case with a screw.
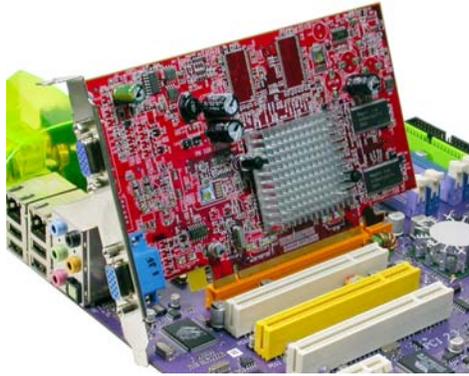
For some add-on cards, for example graphics adapters and network adapters, you have to install drivers and software before you can begin using the add-on card.

Installing the Motherboard

Connecting Optional Devices

Refer to the following for information on connecting the motherboard's optional devices:
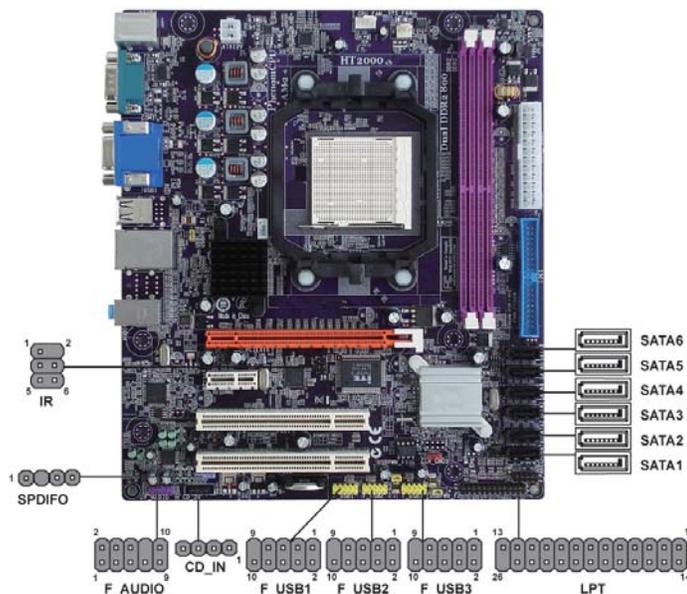
F_USB1~3: Front Panel USB headers

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

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

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.

Installing the Motherboard

LPT: Onboard parallel port header

This is a header that can ba used to connect to the printer, scanner or other devices.

Pin	Signal Name	Pin	Signal Name
1	STROBE	14	ALF
2	PD0	15	ERROR
3	PD1	16	INIT
4	PD2	17	SLCTIN
5	PD3	18	Ground
6	PD4	19	Ground
7	PD5	20	Ground
8	PD6	21	Ground
9	PD7	22	Ground
10	ACK	23	Ground
11	BUSK	24	Ground
12	PE	25	Ground
13	SLCT	26	Key

F_AUDIO: 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	Pin	Signal Name
1	PORT1L	2	AUD_GND
3	PORT1R	4	PRESENCE#
5	PORT2R	6	SENSE1_RETURN
7	SENSE_SEND	8	KEY
9	PORT2L	10	SENSE2_RETURN

SATA1~6: Serial ATA connectors

These connectors are used to support the new Serial ATA devices for the highest data transfer rates (3.0 Gb/s), simpler disk drive cabling and easier PC assembly. It eliminates limitations of the current Parallel ATA interface. But maintains register compatibility and software compatibility with Parallel ATA.

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

Installing the Motherboard

CD_IN: Analog audio input connector

Pin	Signal Name	Function
1	CD_L	Left CD-in signal
2	GND	Ground
3	GND	Ground
4	CD_R	Right CD-in signal

SPDIFO: SPDIF out header

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

Pin	Signal Name	Function
1	SPDIF	SPDIF digital output
2	+5VA	5V analog Power
3	Key	No pin
4	GND	Ground

IR: Infrared header

The motherboard supports an Infrared (IR) 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
1	NC
2	Key
3	+5V
4	GND
5	IRTX
6	IRRX

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

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

About IDE Devices

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

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

IDE1: IDE Connector

This motherboard supports six high data transfer SATA ports with each runs up to 3.0 Gb/s. To get better system performance, we recommend users connect the CD-ROM to the IDE channel, and set up the hard dives on the SATA ports.

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

About SATA Connectors

Your motherboard features six SATA connectors supporting a total of six 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 and follow the illustration below to install the SATA hard drives.

Installing Serial ATA Hard Drives

To install the Serial ATA (SATA) hard drives, use the SATA cable that supports the Serial ATA protocol. This SATA cable comes with an SATA power cable. You can connect either end of the SATA cable to the SATA hard drive or the connector on the motherboard.

SATA cable (optional)   **SATA power cable (optional)**

Refer to the illustration below for proper installation:

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

This motherboard does not support the "Hot-Plug" function.

Installing the Motherboard

Connecting I/O Devices

The backplane of the motherboard has the following I/O ports:
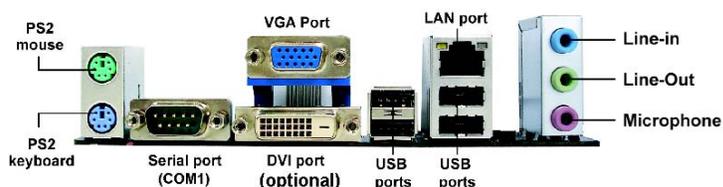
PS2 Mouse   Use the upper PS/2 port to connect a PS/2 pointing device.

PS2 Keyboard   Use the lower PS/2 port to connect a PS/2 keyboard.

Serial Port   Use the COM port to connect serial devices such as mice or
(COM1)   fax/modems.

VGA Port   Connect your monitor to the VGA port.

DVI Port (optional) Use the DVI port to connect the monitor.

LAN Port   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.

Audio Ports   Use the three audio jacks to connect audio devices. The first
                       jack is for stereo line-in signal. The second   jack is for
                       stereo line-out signal. The third jack is for microphone.

*This motherboard may adopt 8-channel audio ports that
correspond to the A, B, C, and E port respectively. In addi-
tion, all of the 3 ports, B, C, and E provide users with both
right & left channels individually. Users please refer to the
following note for specific port function definition.*
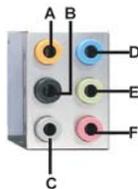
A: Center & Woofer	D: Line-in
B: Back Surround	E: Front Out
C: Side Surround	F: Mic_in Rear

*The above port definition can be changed to audio input or
audio output by changing the driver utility setting.*

Connecting Case Components

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

1   Connect the CPU cooling fan cable to **CPU_FAN**.
2   Connect the standard power supply connector to **ATX_POWER**.
3   Connect the case speaker cable to **SPK**.
4   Connect the case switches and indicator LEDs to the **F_PANEL**.
5   Connect the system cooling fan connector to **SYS_FAN**.
6   Connect the auxiliary case power supply connector to **ATX12V**.
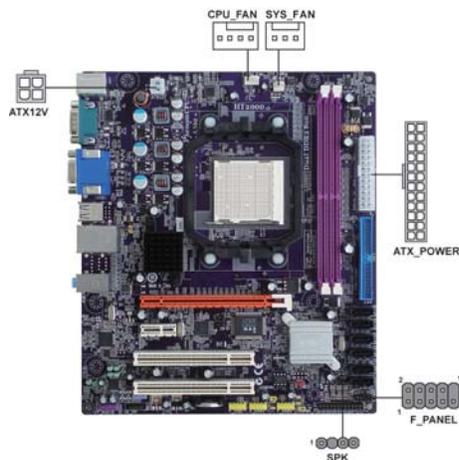
Connecting 24-pin power cable

Users please note that the 24-pin power cable can be connected to the ATX_POWER connector.
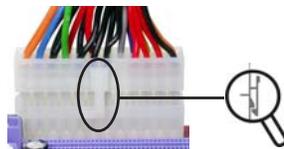
With ATX v2.x power supply, users please note that when installing 24-pin power cable, the latches of power cable and the ATX_POWER match perfectly.

24-pin power cable

Connecting 4-pin power cable

The ATX12V power connector is used to provide power to the CPU.
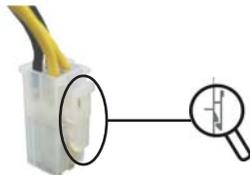
When installing 4-pin power cable, the latches of power cable and the ATX12V match perfectly.

4-pin power cable

Installing the Motherboard

CPU_FAN: Cooling FAN Power Connector

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

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

ATX_POWER: ATX 24-pin Power Connector

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

SYS_FAN: FAN Power Connector

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

SPK: Internal speaker

Pin	Signal Name
1	VCC
2	Key
3	NC
4	Signal

ATX12V: ATX 12V Power Connector

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

Installing the Motherboard

Front Panel Header

The front panel header (F_PANEL) provides a standard set of switch and LED headers commonly found on ATX or Micro ATX cases. Refer to the table below for information:

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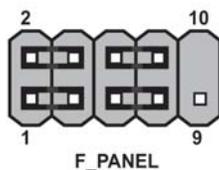
Pin	Signal	Function	Pin	Signal	Function
1	HD_LED_P	Hard disk LED (+)	2	FP PWR/SLP	*MSG LED (+)
3	HD_LED_N	Hard disk LED (-)	4	FP PWR/SLP	*MSG LED (-)
5	RST_SW_N	Reset Switch (-)	6	PWR_SW_P	Power Switch (+)
7	RST_SW_P	Reset Switch (+)	8	PWR_SW_N	Power Switch (-)
9	RSVD	Reserved	10	Key	No pin

* MSG LED (dual color or single color)

Hard Drive Activity LED

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

Power/Sleep/Message waiting LED

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

Reset Switch

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

Power Switch

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

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

Memo

Chapter 3
Using BIOS

About the Setup Utility

The computer uses the latest "American Megatrends Inc. " 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

Press the delete key to access the BIOS Setup Utility.

CMOS Setup Utility -- Copyright (C) 1985-2007, American Megatrends, Inc.

▶ Standard CMOS Setup	▶ Frequency/Voltage Control
▶ Advanced Setup	Load Default Settings
▶ Advanced Chipset Setup	▶ Supervisor Password
▶ Integrated Peripherals	▶ User Password
▶ Power Management Setup	Save & Exit Setup
▶ PCI/PnP Configuration	Exit Without Saving
▶ PC Health Status	

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

v02.61 (C)Copyright 1985-2007, American Mega trends, Inc.
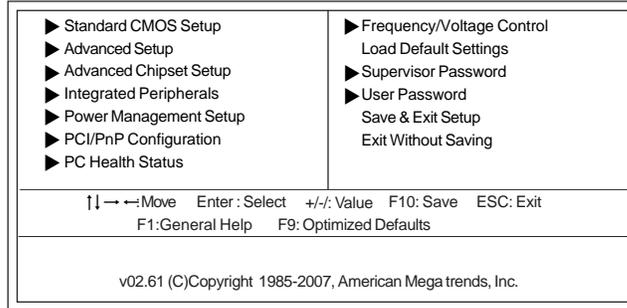
Resetting the Default CMOS Values

When powering on for the first time, the POST screen may show a "CMOS Settings Wrong" message. This standard message will appear following a clear CMOS data at factory by the manufacturer. You simply need to Load Default Settings to reset the default CMOS values.

Note: Changes to system hardware such as different CPU, memories, etc. may also trigger this message.
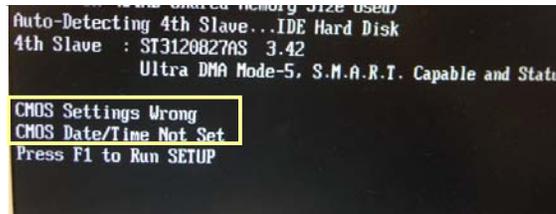
Using BIOS

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 sub menus that enable you to change the values for the option. Use the cursor arrow keys to scroll through the items in the sub menu.

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

> *The default BIOS setting for this motherboard applies for most conditions with optimum performance. It is not suggested to change the default values in the BIOS setup and the manufacture takes no responsibility to any damage caused by changing the BIOS settings.*

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

For the purpose of better product maintenance, the manufacture reserves the right to change the BIOS items presented in this manual. The BIOS setup screens shown in this chapter are for reference only and may differ from the actual BIOS. Please visit the manufacture's website for updated manual.

Standard CMOS Setup

This option displays basic information about your system.

```
        CMOS Setup Utility -- Copyright (C) 1985-2007, American Megatrends, Inc.
                            Standard CMOS Setup

    ┌─────────────────────────────────────────────────┬─────────────────────┐
    │  Date                    Fri 12/07/2007          │     Help Item       │
    │  Time                    00:11:10                │                     │
    │                                                  │  User [Enter], [TAB] │
    │       ► SATA1            Not Detected            │  or [SHIFT-TAB] to   │
    │       ► SATA 2           Not Detected            │  select a field.     │
    │       ► SATA 3           Not Detected            │                      │
    │       ► SATA4            Not Detected            │  Use [+] or [-] to   │
    │       ► SATA5            Not Detected            │  configure system Date.│
    │       ► SATA6            Not Detected            │                      │
    │       ► IDE Master       Not Detected            │                      │
    │       ► IDE Slave        Not Detected            │                      │
    │                                                  │                      │
    │         IDE BusMaster    Enabled                 │                      │
    │                                                  │                      │
    └─────────────────────────────────────────────────┴─────────────────────┘
        ↑↓ → ←:Move    Enter : Select   +/-/: Value   F10: Save   ESC: Exit
                   F1: General Help       F9: Optimized Defaults
```

Date & 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.

► SATA1

This motherboard supports six SATA channels and each channel allows one SATA device to be installed. Use these items to configure each device on the SATA channel.

```
         CMOS SETUP UTILITY – Copyright (C) 1985-2007, American Megatrends, Inc.
                                    SATA1

    ┌─────────────────────────────────────────────────┬─────────────────────┐
    │  SATA1                                           │     Help Item       │
    │  ─────────────────────────────                   │                     │
    │  Device :    Not Detected                        │  Disabled: Disables LBA│
    │                                                  │  Mode.               │
    │  LBA/Large Mode                    Auto          │  Auto: Enables LBA   │
    │  Block (Multi-Sector Transfer)     Auto          │  Mode if the device  │
    │  PIO Mode                          Auto          │  supports it and the │
    │  DMA Mode                          Auto          │  device is not already│
    │  S.M.A.R.T                         Auto          │  formatted with LBA  │
    │  32Bit Data Transfer               Enabled       │  Mode disabled.      │
    │                                                  │                      │
    │                                                  │                      │
    │                                                  │                      │
    │                                                  │                      │
    └─────────────────────────────────────────────────┴─────────────────────┘
        ↑↓ → ←:Move    Enter : Select   +/-/: Value   F10: Save   ESC: Exit
                   F1: General Help       F9: Optimized Defaults
```

Using BIOS

LBA/Large Mode (Auto)

Use this item to set the LAB/Large mode to enhance hard disk performance by optimizing the area the hard disk is visited each time.

Block (Multi-Sector Transfer) (Auto)

If the feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer.

PIO Mode (Auto)

Use this item to set the PIO mode to enhance hard disk performance by optimizing the hard disk timing.

DMA Mode (Auto)

DMA capability allows user to improve the transfer-speed and data-integrity for compatible IDE devices.

S.M.A.R.T. (Auto)

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.

32Bit Data Transfer (Enabled)

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

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

IDE BusMaster (Enabled)

This item enables or disables the DMA under DOS mode. We recommend you to leave this item at the default value.

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

Using BIOS

Advanced Setup

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

CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.
Advanced Setup

		Help Item
HT Frequency	Auto	
AMD C&Q	Enabled	The HyperTransport link
Quick Power on Self Test	Enabled	will run at this speed if it is
Boot Up Numlock Status	On	slower than or equal to the
APIC Mode	Enabled	system clock and the board
1st Boot Device	Hard Drive	is capable.
2nd Boot Device	CD/DVD	
3rd Boot Device	Removable Dev.	
Boot Other Device	Yes	

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

HT Frequency (Auto)

This item enables users to manually set up the HyperTransport frequency, ranging from Auto, 1x, to 5x.

AMD C&Q (Enaled)

This item helps the system to lower the frequency when CPU idles. When the frequency decreases, the temperature will drop automatically as well.

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.

Boot Up Numlock Status (On)

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

APIC Mode (Enabled)

This item allows you to enable or disable the APCI (Advanced Programmable Interrupt Controller) mode. APIC provides symmetric multi-processing (SMP) for systems, allowing support for up to 60 processors.

1st/2nd3rd Boot Device (Hard Drive/CD/DVD/Removable Dev.)

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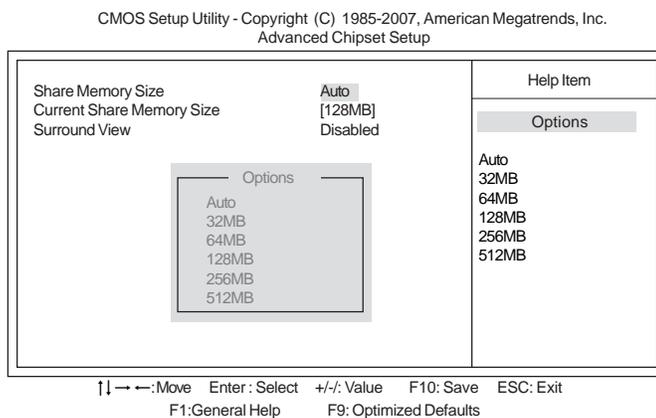
Using BIOS

Boot Other Device (Yes)

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.

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

Advanced Chipset Setup

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

```
            CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.
                                  Advanced Chipset Setup
┌─────────────────────────────────────────────────────┬──────────────────────┐
│                                                       │      Help Item       │
│  Share Memory Size                    Auto            │                      │
│  Current Share Memory Size            [128MB]         ├──────────────────────┤
│  Surround View                        Disabled        │       Options        │
│                                                       │                      │
│          ┌──────── Options ────────┐                  │  Auto                │
│          │   Auto                  │                  │  32MB                │
│          │   32MB                  │                  │  64MB                │
│          │   64MB                  │                  │  128MB               │
│          │   128MB                 │                  │  256MB               │
│          │   256MB                 │                  │  512MB               │
│          │   512MB                 │                  │                      │
│          └─────────────────────────┘                  │                      │
│                                                       │                      │
└───────────────────────────────────────────────────────────────────────────┘
       ↑↓ → ←:Move   Enter : Select   +/-/: Value   F10: Save   ESC: Exit
                 F1:General Help        F9: Optimized Defaults
```

Share Memory Size (Auto)

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

Current Share Memory Size (128MB)

This item is used to show the current Share Memory Size.

Surround View (Disabled)

ATI Surround view function only support when using ATI PCIE graphics card.

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

Using BIOS

Integrated Peripherals

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

```
          CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.
                                  Integrated Peripherals

    Onboard IDE Controller          Enabled            Help Item
    SATA Configuration              Enanled
    Onboard SATA Mode               IDE
    Onboard AUDIO Function          Enabled             Options
    Onboard LAN Function            Enabled
      Onboard LAN Boot ROM          Disabled        Disabled
    Serial Port1 Address            3F8&IRQ4        Enabled
    OnBoard IR                      Disabled
    Parallel Port Address           378
      Parallel Port Mode            ECP
        ECP Mode DMA Channel        DMA3
      Parallel Port IRQ             IRQ7
    USB Functions                   Enabled
    Legacy USB Support              Enabled



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

OnBoard IDE Controller (Enabled)

Use this item to enable or disable the onboard IDE interface.

SATA Configuration (Enabled)

Use this item to show the Serial ATA Configuration options: Disabled, Compatible, Enhanced.

OnBoard SATA Mode (IDE)

Use this item to enable or disable the onboard SATA mode.

OnBoard AUDIO Function (Enabled)

Use this item to enable or disable the onboard Audio function.

OnBoard LAN Function (Enabled)

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

OnBoard LAN Boot ROM (Disabled)

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

Serial Port1 Address (3F8/IRQ4)

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

OnBoard IR (Disabled)

This item is used to enable or disable the onboard infrared port, and to assign a port address.

Parallel Port Address (378)

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

Parallel Port Mode (ECP)

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

ECP Mode DMA Channel (DMA3)

Use this item to assign a DMA channel to the parallel port.

Parallel Port IRQ (IRQ7)

Use this item to assign IRQ to the parallel port.

USB Functions (Enabled)

Use this item to enable or disable the USB function.

Legacy USB Support (Enabled)

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

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

Power Management Setup

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

CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.
Power Management Setup

		Help Item
ACPI Suspend Type	S3 (STR)	
Soft-off by PWR-BTTN	Instant Off	Select the ACPI
PWRON After PWR-Fail	Power Off	state used for
Resume by Ring	Disabled	System Suspend.
Resume By PCI/PCI-E/Lan PME	Disabled	
Resume by USB (S3)	Disabled	
Resume By PS2 KB (S3)	Disabled	
Resume By PS2 MS (S3)	Disabled	
Resume on RTC Alarm	Disabled	

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

ACPI Suspend Type (S3(STR))

Use this item to define how your system suspends. In the default, S3, the suspend mode is a suspend to RAM, i.e, the system shuts down with the exception of a refresh current to the system memory.

Using BIOS

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.

PWRON After PWR-Fail (Power Off)

This item enables your computer to automatically restart or return to its operating status.

Resume By Ring (Disabled)

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

Resume By PCI/PCI-E/Lan PME (Disabled)

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

Resume By USB (S3) (Disabled)

This item allows you to enable/disable the USB device wakeup function from S3 mode.

Resume By PS2 KB (S3) (Disabled)

This item enables or disables you to allow keyboard activity to awaken the system from power saving mode.

Resume By PS2 MS (S3) (Disabled)

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

Resume on RTC Alarm (Disabled)

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

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

Using BIOS

PCI / PnP Configuration

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

CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.
PCI / PnP Setup

		Help Item
Allocate IRQ to PCI VGA	Yes	
Init Display First	PCI	YES: Assigns IRQ to PCI VGA card if card requests IRQ. NO: Does not assign IRQ to PCI VGA card even if card requests an IRQ.

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

Allocate IRQ to PCI VGA (Yes)

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

Init Display First (PCI)

Use this item to select which graphics controller to use as the primary boot devices.

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

Using BIOS

PC Health Status

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

```
CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.
                        PC Health Status

        -=- System Hardware Monitor-=-          Help Item
    ▶Smart Fan Function            Press Enter
    Shutdown Temperature           Disabled
    Warning Temperature            Disabled
    CPU Tcontrol                   : 64°C/147°F
    CPU FAN Speed                  : 2616 RPM
    CPU Vcore                      : 1.152V
    VDIMM                          : 1.872V




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

▶ Smart Fan Function

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

```
CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.
                        Smart Fan Function

    CPU SMART FAN Control          Enabled        Help Item
    SMART Fan start PWM value       28
    SMART Fan start TEMP.(°C)       43                Options
    DeltaT                          +3
    SMART Fan Slope PWM value      5 PWM value/°C   Disabled
                                                    Enabled




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

CPU SMART FAN Control (Enabled)

This item allows you to enable or disable the control of the CPU fan speed by changing the fan voltage.

SMART Fan start PWM value (28)

This item is used to set the start PWM value of the smart fan.

SMART Fan start TEMP. (°C) (43)

This item is used to set the start temperature of the smart fan.

Using BIOS

DeltaT (+3)

This item specifies the range that controls CPU temperature and keeps it from going so high or so low when smart fan works.

SMART Fan Slope PWM value (5 PWM value/°C)

This item is used to set the Slope Select PWM of the smart fan.

Press <Esc> to return to the PC Health Status page.

Shutdown Temperature (Disabled)

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

Warning Temperature (Disabled)

This item enables or disables the warning temperature.

System Component Characteristics

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

- CPU Tcontrol
- CPU FAN Speed
- CPU Vcore
- VDIMM

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

Using BIOS

Frequency/Voltage Control

This page 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.

```
          CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.
                              Frequency/Voltage Control

    ┌─────────────────────────────────────────────────┬────────────────────────┐
    │                                                  │       Help item        │
    │  Auto Detect DIMM/PCI CIK          Enabled       │                        │
    │  Memory Voltage                    1.9V           │                        │
    │  Spread Spectrum                   Enabled        │        Options         │
    │  CPU Over-clocking Function        Disabled       │                        │
    │                                                  │    Disabled            │
    │                                                  │    Enabled             │
    │                                                  │                        │
    │                                                  │                        │
    │                                                  │                        │
    │                                                  │                        │
    │                                                  │                        │
    └─────────────────────────────────────────────────┴────────────────────────┘
         ↑↓ → ←:Move   Enter : Select   +/-/: Value    F10: Save    ESC: Exit
                     F1:General Help          F9: Optimized Defaults
```

Auto Detect DIMM/PCI Clk (Enabled)

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

Memory Voltage (1.9V)

This item allows users to adjust the DDR memory voltage.

Spread Spectrum (Enabled)

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

CPU Over-clocking Function (Disabled)

This item decides the CPU over-clocking function/frequency installed in your system.

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

Load Default Settings

This option opens a dialog box to ask if you are sure to install optimized defaults or not. You select [OK], and then press <Enter>, the Setup Utility loads all default values; or select [Cancel], and then press <Enter>, the Setup Utility does not load default values.

Supervisor Password

This page helps you install or change a password.

```
              CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.
                                      Supervisor Password
  ┌──────────────────────────────────────────────────┬──────────────────────┐
  │                                                    │      Help item       │
  │  Supervisor Password          :Not Installed       │                      │
  │                                                    │  Install or Change the│
  │  Change Supervisor Password      Press Enter       │  password.           │
  │                                                    │                      │
  │                                                    │                      │
  │                                                    │                      │
  │                                                    │                      │
  │                                                    │                      │
  └──────────────────────────────────────────────────┴──────────────────────┘
         ↑↓ → ←:Move   Enter : Select   +/-/: Value   F10: Save    ESC: Exit
                   F1:General Help          F9: Optimized Defaults
```

Supervisor Password (Not Installed)

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

Change Supervisor Password (Press Enter)

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

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

Using BIOS

User Password

This page helps you install or change a password.

```
         CMOS Setup Utility - Copyright (C) 1985-2007, American Megatrends, Inc.
                                    User Password
┌─────────────────────────────────────────────────┬────────────────────────┐
│                                                   │                        │
│   User Password          : Not Installed          │      Help item         │
│   ─────────────────────────────────────────────   │                        │
│   Change User Password            Press Enter     │   Install or Change the│
│                                                   │   password.            │
│                                                   │                        │
│                                                   │                        │
│                                                   │                        │
│                                                   │                        │
│                                                   │                        │
│                                                   │                        │
│                                                   │                        │
│                                                   │                        │
│                                                   │                        │
└─────────────────────────────────────────────────┴────────────────────────┘
         ↑↓→←:Move   Enter : Select   +/-/: Value   F10: Save   ESC: Exit
                    F1:General Help        F9: Optimized Defaults
```

User Password (Not Installed)

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

Change User Password (Press Enter)

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

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

Save & Exit Setup

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

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

If you have made settings that you do not want to save, use the "Exit Without Saving" item and select [OK] to discard any changes you have made.

Using BIOS

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 bootable device.

5   Turn off your computer and insert the bootable device in your computer. (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 bootable device first.)

6   At the C:\ or A:\ prompt, type the Flash Utility program name and the file name of the new bios and then press <Enter>. Example: afudos 780D725.ROM /b /p /n /c /x

7   When the installation is complete, remove the bootable device from the computer and restart your computer. If your motherboard has a Flash BIOS jumper, reset the jumper to protect the newly installed BIOS from being overwritten. The computer will restart automatically.

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

Using BIOS

Memo

Chapter 4

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. 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.

> *1. Never try to install all software from folder that is not specified for use with your motherboard.*
> *2. The notice of Intel HD Audio Installation (optional): The Intel High Definition audio functionality unexpectedly quits working in Windows Server 2003 Service Pack 1 or Windows XP Professional x64 Edition. Users need to download and install the update packages from the Microsoft Download Center "before" installing HD audio driver bundled in the driver CD. Please log on to http://support.microsoft.com/default.aspx?scid=kb;en-us;901105#appliesto for more information.*

Auto-installing under Windows XP/Vista

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

> *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 the Utility Folder Installation Notes later in this chapter.*

The support software CD-ROM disc loads automatically under Windows XP/Vista. 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.
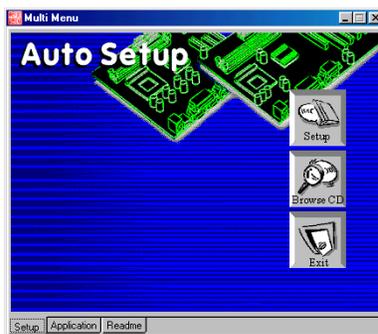
> *If the opening screen does not appear; double-click the file "setup.exe" in the root directory.*

Setup Tab

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

Application Tab

Lists the software utilities that are available on the CD.

Read Me Tab

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

Running Setup

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

1. Click **Setup**. The installation program begins:
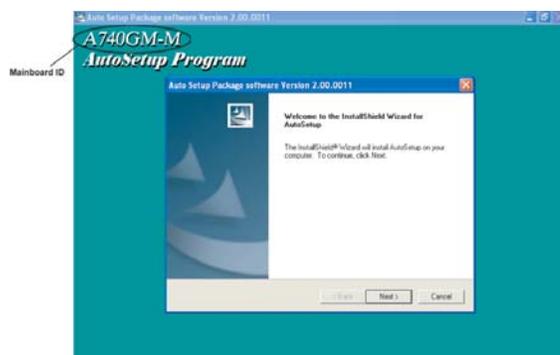
The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.

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

2. Click **Next.** *The following screen appears:*
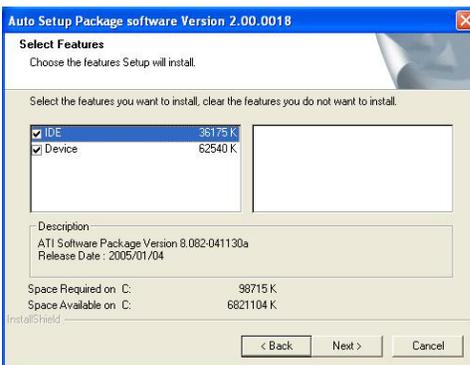
3. *Check the box next to the items you want to install. The default options are recommended.*

4. *Click* **Next** *run the Installation Wizard. An item installation screen appears:*
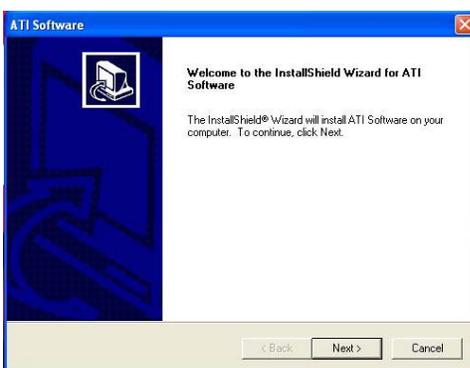
**5.** *Follow the instructions on the screen to install the items.*

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

2. During the Windows Vista Driver Auto Setup Procedure, users should use one of the following two methods to install the driver after the system restart.

Using the Motherboard Software

Method 1. Run Reboot Setup

Windows Vista will block startup programs by default when installing drivers after the system restart. You must select taskbar icon **Run Blocked Program** and run **Reboot Setup** to install the next driver, until you finish all drivers installation.
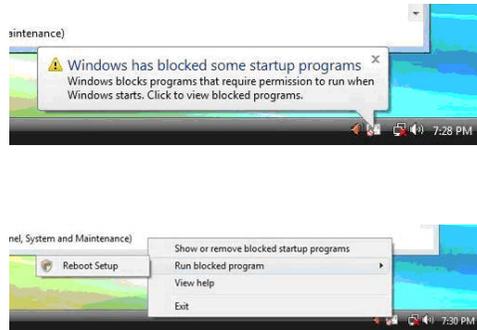
Method 2. Disable UAC (User Account Control)

* For administrator account only. Standard user account can only use Method 1.

Disable Vista UAC function before installing drivers, then use CD driver to install drivers, it will continue to install drivers after system restart without running blocked programs.

Follow these instructions to Disable Vista UAC function:
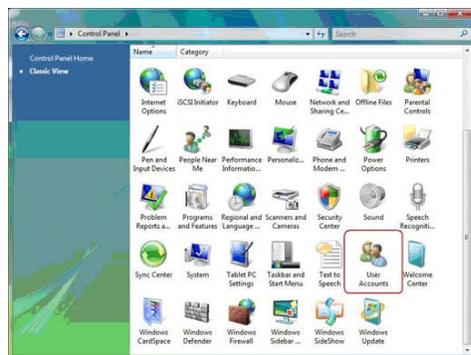
1. Go to **Control Panel**.
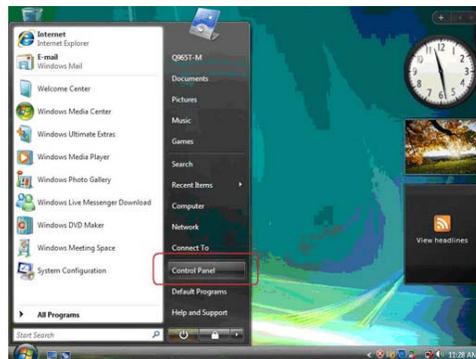
Using the Motherboard Software
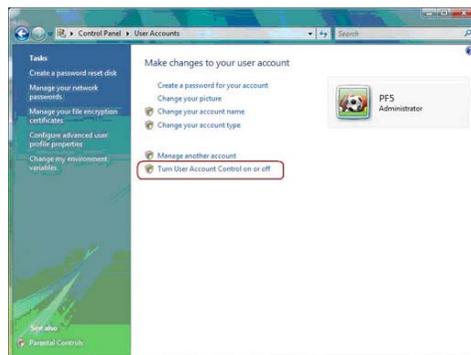
2.   Select **Classic View**.
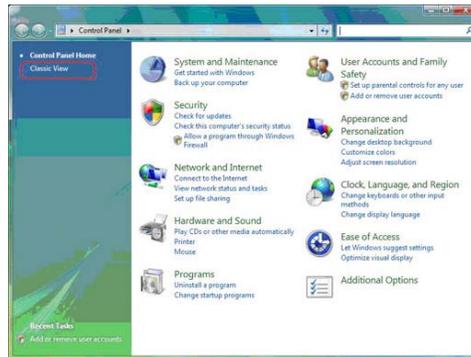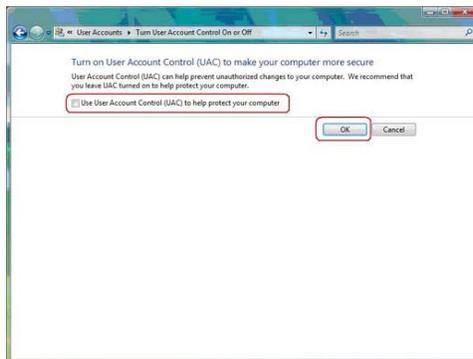

3.   Set **User Account**.

4.   Select **Turn User Account Control on or off** and press **Continue**.

Using the Motherboard Software

5. *Disable* **User Account Control (UAC) to help protect your computer** *item and press* **OK***, then press* **Restart Now***. Then you can restart your computer and continue to install drivers without running blocked programs.*

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 oper-ating 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 fur-nished under license and may only be used or copied in accordance with the terms of the license.

1. These software(s) are subject to change at anytime without prior no tice. Please refer to the support CD for available software.

2. Please go to ECS website to download AMD Cool "n" Quiet^{TM} technology.

This concludes chapter 4.

Using the Motherboard Software