



Certificate HK07/01191.00

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Design and Manufacturing of Mainboards and Peripheral Cards;**  
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This certificate is valid from 16 March 2007 until 15 March 2010  
Issue 1. Certified with SGS since March 2007

Multiple certificates have been issued for this scope  
The main certificate is numbered HK07/01191.00

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Certificate No.  
**PRC-HSPM-1172**

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**IECQ Certificate of Hazardous Substance Process Management (HSPM)  
applicable to the European Directive 2002/95/EC ("RoHS") requirements.**

The Supervising Inspectorate (SGS-CSTC Standards Technical Services Co., Ltd.), sponsored by the United States National Authorized Institution, ECCB certify that

**ECS Manufacturing (Shenzhen) Co., Ltd.**

No. 20 & 26 (except 1F, 2F & 3F),  
Free Trade Zone, Shatoujiao,  
Shenzhen, Guangdong Province, P.R. China

Has developed and implemented Hazardous Substances Process Management, procedures, and related processes in compliance with the applicable requirements for HSPM organization approval which is in accordance with the Basic Rules IECQ-01 and Rules of Procedure QC 001002-3 "IECQ Hazardous Substance Process Management" of the IEC Quality Assessment System for Electronic Components (IECQ), and with respect to the Specification QC 080000 IECQ HSPM.

**This certification is applicable to all electronic components and related materials and processes for the**

Design and manufacture of Mainboards and Peripheral Cards.

Issued by Certification Authorities:



Electronic Component Certification Board

Signed:

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# Preface

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Version 2.0A

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

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

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

## Declaration of Conformity

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

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






## Canadian Department of Communications

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

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

## About the Manual

The manual consists of the following:

<b>Chapter 1</b> <b>Introducing the Motherboard</b>	Describes features of the motherboard. Go to  page 1
<b>Chapter 2</b> <b>Installing the Motherboard</b>	Describes installation of motherboard components. Go to  page 7
<b>Chapter 3</b> <b>Using BIOS</b>	Provides information on using the BIOS Setup Utility. Go to  page 27
<b>Chapter 4</b> <b>Using the Motherboard Software</b>	Describes the motherboard software Go to  page 45
<b>Chapter 5</b> <b>Setting Up NVIDIA RAID Configuration</b>	Provides information about SATA RAID Setup Go to  page 51

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## Chapter 1

### *Introducing the Motherboard*

---

#### **Introduction**

Thank you for choosing the GeForce7050M-M motherboard. This motherboard is a high performance, enhanced function motherboard that supports socket for AMD Phenom™ processor (socket AM2+)/AMD Athlon™ 64 X2 Dual-Core/Athlon™ 64/Sempron™ processors for high-end business or personal desktop markets.

This motherboard is based on NVIDIA® GeForce7050PV/GeForce7025 for best desktop platform solution. GeForce7050PV/GeForce7025 is a single-chip, highly integrated, high performance HyperTransport peripheral controller, unmatched by any other single chip-device controller. This motherboard supports up to 16 GB of system memory with Dual Channel DDR2 800/667/533/400 MHz. High resolution graphics via one PCI Express x16 slot, 12 USB 2.0 ports (4 USB ports and 4 USB 2.0 headers support additional 8 USB ports) and SATA support with RAID function.

There is an advanced full set of I/O ports in the rear panel, including PS/2 mouse and keyboard connectors, COM1, VGA1, four USB ports, one LAN port and audio jacks for microphone, line-in, and 6/8-channel (optional) line-out. This motherboard is designed in a Micro ATX form factor using a four-layer printed circuit board and measures 244 mm x 214 mm.



*Due to the DRAM maximum size is 2 GB at present, the memory maximum size we have tested is 4 GB.*

## Feature

### Processor

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

- Accommodates AMD Phenom™ processor (socket AM2+)  
AMD Athlon™ 64 X2 Dual-Core/Athlon™ 64/Sempron™ processors
- Supports up to 2000 MT/s HyperTransport™ (HT) 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 NVIDIA® GeForce7050PV/GeForce7025 is a single-chip with proven reliability and performance.

- 1 GHz HyperTransport x16 up and down links to the AM2+/AM2 CPUs
- PCI Express 16-lane link interface for external graphics processors
- PCI 2.3 interface at 33 MHz
- Integrated SATA 3.0 Gb/s Host Controller
- USB 2.0 ports supported
- Fast ATA-133 IDE controller

### Memory

- DDR2 800/667/533/400 DDR2 SDRAM with Dual Channel supported
- Accommodates two unbuffered DIMMs
- Up to 8 GB per DIMM with maximum memory size up to 16 GB

### Audio (Optional)

The onboard Audio provides the following features:

<ul style="list-style-type: none"> <li>• 7.1+2 Channel High Definition Audio Codec</li> <li>• All DACs support 192K/96K/48K/44.1KHz DAC sample rate</li> <li>• Software selectable 2.5V/3.75V VREPOUT</li> <li>• Meets Microsoft WHQL/WLP 2.x audio requirements</li> <li>• Direct Sound 3D™ compatible</li> </ul>
<ul style="list-style-type: none"> <li>• 7.1 Channel High Definition Audio Codec</li> <li>• ADC support 148K/96K sample rate</li> <li>• High quality differential CD input</li> <li>• Power Support: Digital: 3.3V; Analog: 5.0V</li> <li>• Meets Microsoft WHQL/WLP 2.0 audio requirements</li> <li>• Direct Sound 3D™ compatible</li> </ul>
<ul style="list-style-type: none"> <li>• 5.1 Channel High Definition Audio Codec</li> <li>• ADCs support 44.1/48k/96k sample rate</li> <li>• Meets Microsoft WHQL/WLP 3.0x audio requirements</li> <li>• Direct Sound 3D™ compatible</li> </ul>
<ul style="list-style-type: none"> <li>• 5.1 Channel High Definition Audio Codec</li> <li>• ADCs support 44.1/48k/96k sample rate</li> <li>• Meets Microsoft WLP 3.08 Vista premium and mobile PCs audio requirements</li> <li>• Direct Sound 3D™ compatible</li> </ul>

Introducing the Motherboard



## Onboard LAN

The onboard LAN provides the following features:

- 10BASE-T/100BASE-TX IEEE 802.3u fast Ethernet transceiver
- Low-power mode
- MII and 7-wire serial interface

## 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
- One floppy disk drive interface
- Four 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
- 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

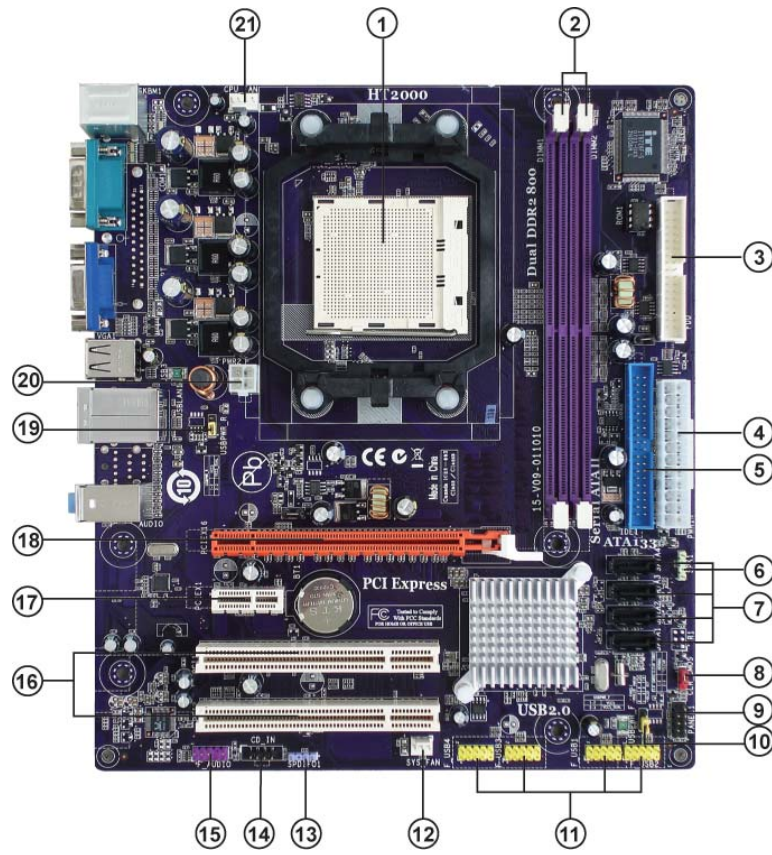
The firmware can also be used to set parameters for different processor clock speeds.



*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 ambience between 0 to 50 °C.*

## Motherboard Components



Introducing the Motherboard

**Table of Motherboard Components**

<b>LABEL</b>	<b>COMPONENTS</b>
1. CPU Socket	Socket for AMD Phenom™ processor (socket AM2+)/AMD Athlon™ 64 X2 Dual-Core/Athlon™ 64/Sempron™ processors
2. DIMM1~2	240-pin DDR2 SDRAM slots
3. FDD	Floppy disk drive connector
4. PWR1	Standard 24-Pin ATX Power connector
5. IDE1	Primary IDE connector
6. SPK1	Speaker header
7. SATA1~4	Serial ATA connectors
8. CLR_CMOS	Clear CMOS jumper
9. PANEL1	Front Panel Switch/LED header
10. USBPWR_F	Front Panel USB Power Select jumper
11. F_USB1~4*	Front Panel USB headers
12. SYS_FAN	System cooling fan connector
13. SPDIF01	SPDIF out header
14. CD_IN	Analog Audio Input header
15. F_AUDIO	Front Panel Audio header
16. PCI1~2	32-bit add-on card slots
17. PCIEX1	PCI Express x1 slot
18. PCIEX16	PCI Express x16 graphics card slot
19. USBPWR_R	Rear USB/PS2 Power Select jumper
20. PWR2	4-pin +12V power connector
21. CPU_FAN	CPU cooling fan connector

*\*" stands for optional components.*

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

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*Memo*

Introducing the Motherboard

## Chapter 2

### *Installing the Motherboard*

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#### **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 one floppy diskette drive and 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.

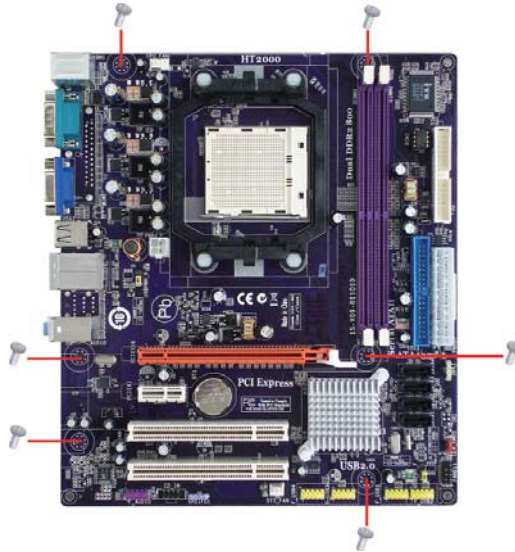
This motherboard carries an Micro ATX form factor of 244 x 214 mm. Choose a case that accommodates this form factor.

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

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

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

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



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

## Checking Jumper Settings

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

### *Setting Jumpers*

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

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

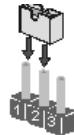


**SHORT**



**OPEN**

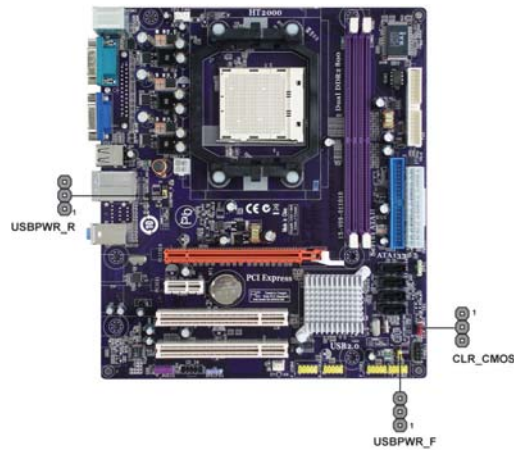
This illustration shows a 3-pin jumper. Pins 1 and 2 are **SHORT**.






## Installing the Motherboard

### Checking Jumper Settings

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



### Jumper Settings

Jumper	Type	Description	Setting (default)	
CLR_CMOS	3-pin	CLEAR CMOS	1-2: NORMAL 2-3: CLEAR Before clearing the CMOS, make sure to turn the system off.	1  CLR_CMOS
USBPWR_R	3-pin	USB Power Select Jumper	1-2: VCC5 2-3: VCC5_DUAL	1  USBPWR_R
USBPWR_F	3-pin	USB Power Select Jumper	1-2: VCC5 2-3: VCC5_DUAL	1  USBPWR_F



1. To avoid the system instability after clearing CMOS, we recommend users to enter the main BIOS setting page to "Load Default Settings" and then "Save & Exit Setup".
2. Make sure the power supply provides enough VCC5\_DUAL voltage before selecting the VCC5\_DUAL 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 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.*

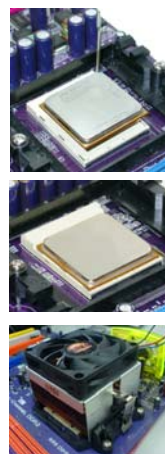
This motherboard has a Socket AM2+/AM2 processor socket. When choosing a processor, consider the performance requirements of the system. Performance is based on the processor design, the clock speed and system bus frequency of the processor, and the quantity of internal cache memory and external cache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

This motherboard accommodates two 240-pin unbuffered DIMMs and supports DDR2 800/667/533/400 DDR2 SDRAM. You must install at least one module in any of the two slots. Each module can be installed with 8 GB of memory; the total memory capacity is 16 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

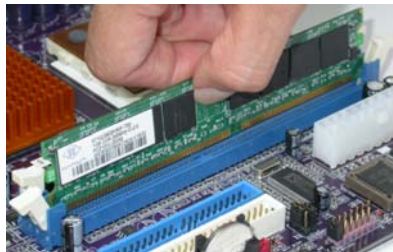


*Do not remove any memory module from its antistatic packaging until you are ready to install it on the motherboard. Handle the modules only by their edges. Do not touch the components or metal parts. Always wear a grounding strap when you handle the modules.*

### **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: Unbuffered DIMM Support for Socket AM2 CPU**

DRAM Speed	DIMM1 <sup>1</sup>	DIMM2 <sup>1</sup>	Timing Mode	Address Timing Control Register	Output Driver Compensation Control Register
DDR2-400	-	Any	1T	002F_2F2Fh	X011_1222h
DDR2-400	Any	Any	2T	002F_2F2Fh	X011_1322h
DDR2-533	-	Any	1T	002F_2F2Fh	X011_1222h
DDR2-533	SRx16	SRx16	2T	002F_2F2Fh	X011_1322h
	SRx16	SRx8			
	SRx8	SRx16			
DDR2-533	SRx8	SRx8	2T	0000_2F2Fh	X011_1322h
DDR2-533	DRx8	DRx8	2T	0034_2F2Fh	X011_1322h
DDR2-533	DRx8	SRx16	2T	0038_2F2Fh	X011_1322h
	SRx16	DRx8			
DDR2-533	DRx8	SRx8	2T	0037_2F2Fh	X011_1322h
	SRx8	DRx8			
DDR2-667	-	Any	1T	0020_2020h	X011_1222h
DDR2-667	SRx16	SRx16	2T	0020_2020h	X011_1322h
	SRx16	SRx8			
	SRx8	SRx16			
DDR2-667	SRx8	SRx8	2T	0030_2020h	X011_1322h
DDR2-667	DRx8	DRx8	2T	002B_2020h	X011_1322h
DDR2-667	DRx8	SRx16	2T	002C_2020h	X011_1322h
	SRx16	DRx8			
DDR2-667	DRx8	SRx8	2T	002A_2020h	X011_1322h
	SRx8	DRx8			
DDR2-800	-	Any	2T	0020_2520h	X011_3222h
DDR2-800	Any	Any	2T	0020_2520h	X011_3222h
1. SRx16=Single Rank x16 DIMM SRx8=Single Rank x8 DIMM DRx16=Dual Rank x16 DIMM DRx8=Dual Rank x8 DIMM					

**Table B: DDR2 (memory module) QVL (Qualified Vendor List)**

The following DDR2 memory modules have been tested and qualified for use with this motherboard.

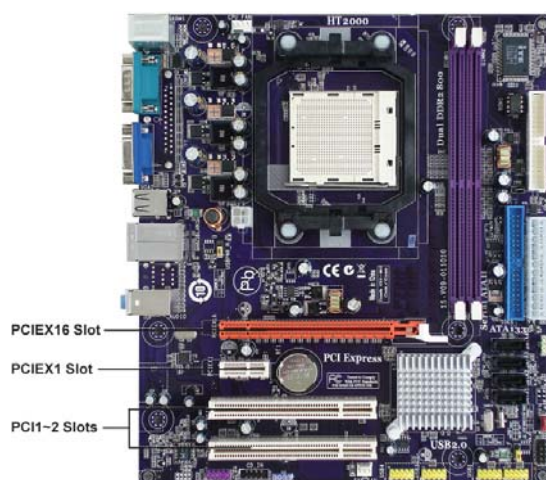
Type	Size	Vendor	Module Name
DDR2 400	256 MB	Samsung	M378T3354BZ0-CCC K4T51163QB-ZCCC
	512 MB	Samsung	M378T3354BZ0-CCC K4T51083QB-GCCC
		TwinMos	msung K4T51083QB-GCCC
DDR2 533	256 MB	Corsair	Aeneon AET94F-370
		Corsair	VC256MB533D2 4PB11D9CHM
		Elpida	E2508AA-DF-E
		Hynix	HY5PS121621
		Kingmax	Hynix HY5PS121621
		Kingston	Elpida E5116F-5C-E
		Nanya	NT5TU32M16AG-37B
		Ramaxel	Elpida D5116AF-5C-E
		Aeneon	Aeneon AET93F370 DS
	512 MB	Corsair	Samsung K4T51083QB-ZCD5
		Elpida	04180WB01
		Hynix	Hynix HY5PS12821
		Infineon	HY818T512800AF37 33346778
		Kingston	Hynix HY5PS12821
		PQI	PQI PQB2648D38R0701
		Ramaxel	PC2-4200U-444 LF 6AD11 D9GCT
		Samsung	K4T51083QF-ZCD5
		Twinmos	Elpida E5108AB-5C-E
	1 GB	Apacer	Elpida E5108AB-5C-E
		Geil	A016E2864T2AG8AKT5H120001
		Infineon	HY818T512800AF37 33344539
		Kingmax	KKEA88E4AAKG-37
		PQI	PQI PQB2648D38R0701
		UMAX	U2S12D30TP-5C
DDR2 667	256 MB	Infineon	HYS64T325001HU-3-A HYB18T256
		Ramxel	5NB31 D9DCG
	512 MB	A-DATA	AD29608A88-3EG
		Apacer	AU51GE667C5KBGY
		APOGEE	AU51082-667P005
		Corsair	VALUESELECT 32M8CEC
		PSC	AL6E8E63B-6E1T
		GEIL	GL2L64M088BA18W
		Ramxel	5LB31 D9DCL
		Sync	MAX 04400WB01 R050008A
		Samsung	PC35300U-25331-Z K4T56083QF-ZCE6
		Twinmos	TMM6208G8M30B
	Transcend	JetRam J12Q3AB-6	
	1 GB	Apacer	AU01GE667C5KBGY
		APOGEE	AU51082-667P005
		PQI	PQI PQB2648D38R0648
		PSC	AL7E8E63B-6E1T
		Samsung	K4T51083QC
UMAX		U2S12030TP-6E TBF614-L93G	
DDR2 800	512 MB	APOGEE	AU51082-800P505
		Infineon	Infineon HYB18T256 800AF25
		PSC	AL7E8E63H-8E1
	1 GB	Apacer	Apacer AM4B5708BPJS8E0634E
		APOGEE	AU51082-800P505

Installing the Motherboard

## 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.

**PCIEX1 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.

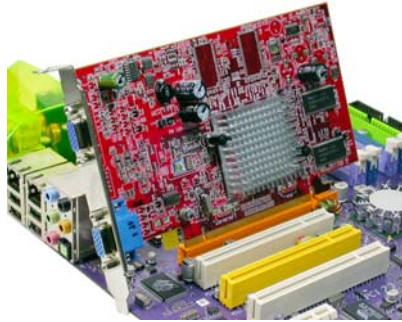


*Before installing an add-on card, check the documentation for the card carefully. If the card is not Plug and Play, you may have to manually configure the card before installation.*

## Installing the Motherboard

Follow these instructions to install an add-on card:

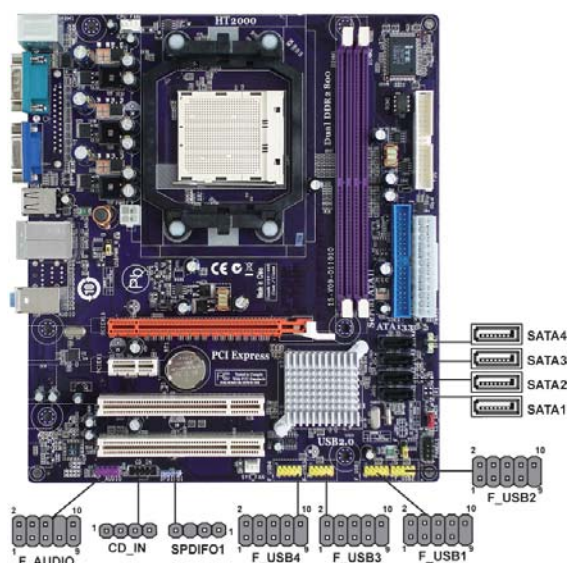
- 1 Remove a blanking plate from the system case corresponding to the slot you are going to use.
- 2 Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
- 3 Secure the metal bracket of the card to the system case with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

### Connecting Optional Devices

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



#### F\_AUDIO: Front Panel Audio header (Optional)

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

#### SATA1~4: 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

**F\_USB1~4: Front Panel USB headers (optional)**

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	NC	Not connected



*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.*

**SPDIF01: 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

**CD\_IN: Analog Audio Input header**

Pin	Signal Name	Function
1	CD_R	CD In right channel
2	GND	Ground
3	GND	Ground
4	CD_L	CD In left channel



### ***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 four 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 drives 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 four SATA connectors supporting a total of four 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)**

## Installing the Motherboard

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 supports the “Hot-Plug” function.*

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

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

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

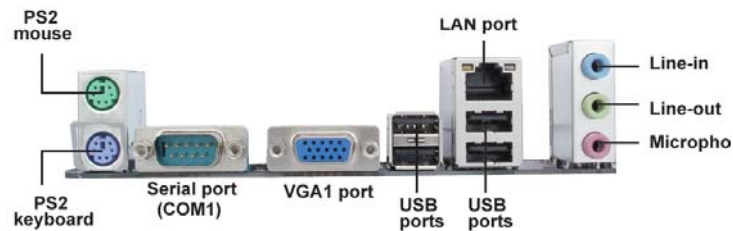
 *You must orient the cable connector so that the pin 1 (color) edge of the cable corresponds to the pin 1 of the I/O port connector.*



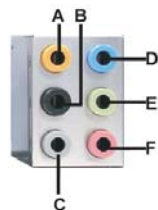
## Installing the Motherboard

## Connecting I/O Devices

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



<b>PS2 Mouse</b>	Use the upper PS/2 port to connect a PS/2 pointing device.
<b>PS2 Keyboard</b>	Use the lower PS/2 port to connect a PS/2 keyboard.
<b>Serial Port (COM1)</b>	Use the COM port to connect serial devices such as mice or fax/modems.
<b>VGA1 Port</b>	Connect your monitor to the VGA port.
<b>USB Ports</b>	Use the USB ports to connect USB devices.
<b>LAN Port</b>	Connect an RJ-45 jack to the LAN port to connect your computer to the Network.
<b>Audio Ports (optional)</b>	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 addition, 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

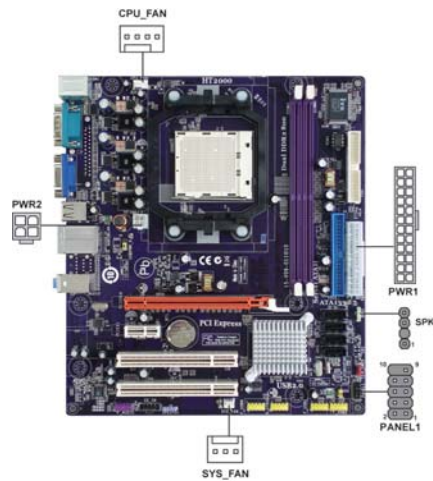
*The above port definition can be changed to audio input or audio output by changing the driver utility setting.*

## Installing the Motherboard

## Connecting Case Components

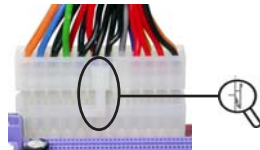
After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:

- 1 Connect the CPU cooling fan cable to **CPU\_FAN**.
- 2 Connect the system cooling fan connector to **SYS\_FAN**.
- 3 Connect the standard power supply connector to **PWR1**.
- 4 Connect the auxiliary case power supply connector to **PWR2**.
- 5 Connect the case switches and indicator LEDs to the **PANEL1**.
- 6 Connect the case speaker cable to **SPK1**.



### 1. Connecting 24-pin power cable

The ATX 24-pin connector allows you to connect to ATX v2.x power supply.



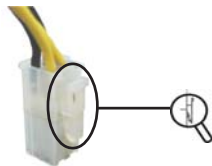
24-pin power cable

With ATX v2.x power supply, users please note that when installing 24-pin power cable, the latches of power cable and the PWR1 match perfectly.



### 2. Connecting 4-pin power cable

The PWR2 power connector is used to provide power to the CPU.



4-pin power cable

When installing 4-pin power cable, the latches of power cable and the PWR2 match perfectly.

**CPU\_FAN: FAN Power Connector**

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



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

**SYS\_FAN: System Cooling FAN Power Connector**

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

**PWR1: ATX 24-pin Power Connector**

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

**PWR2: ATX 12V Power Connector**

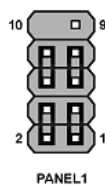
Pin	Signal Name
1	Ground
2	Ground
3	+12V
4	+12V

**SPK1: Internal speaker header**

Pin	Signal Name
1	VCC
2	Key
3	GND
4	Signal

**Front Panel Header**

The front panel header (PANEL1) provides a standard set of switch and LED headers commonly found on ATX or Micro ATX cases. Refer to the table below for information:



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*

Installing the Motherboard



## 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

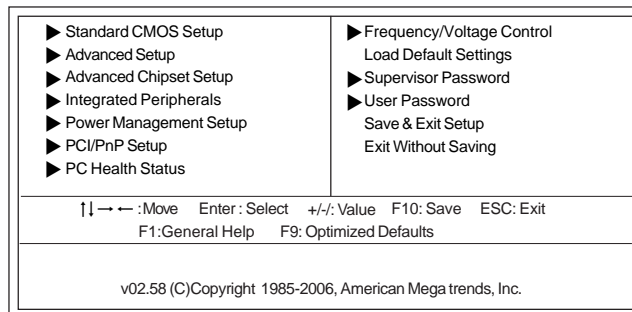
#### ***Entering the Setup Utility***

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) 1985-2005, American Megatrends, Inc.



## 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 ►.



*The default BIOS setting for this motherboard apply for most conditions with optimum performance. We do not suggest users change the default values in the BIOS setup and take no responsibility to any damage caused by changing the BIOS settings.*

### BIOS Navigation Keys

The BIOS navigation keys are listed below:

KEY	FUNCTION
<b>ESC</b>	Exits the current menu
↑↓ → ←	Scrolls through the items on a menu
<b>+/-/PU/PD</b>	Modifies the selected field's values
<b>Enter</b>	Select
<b>F9</b>	Loads an optimized setting for better performance
<b>F10</b>	Saves the current configuration and exits setup
<b>F1</b>	Displays a screen that describes all key functions

## Using BIOS



For the purpose of better product maintenances, we reserve the right to change the BIOS items presented in the manual. The BIOS setup screens shown in this chapter are for reference only. Please visit our website for updated manual.

### Standard CMOS Setup

This option displays basic information about your system.

CMOS Setup Utility -- Copyright (C) 1985-2005, American Megatrends, Inc.  
Standard CMOS Setup

Date	Fri 08/10/2007	Help Item
Time	00 : 02 : 16	
▶ Primary IDE Master	Not Detected	User [Enter], [TAB] or [SHIFT-TAB] to select a field.
▶ Primary IDE Slave	Not Detected	
▶ SATA 1	Not Detected	Use [+] or [-] to configure system Date.
▶ SATA 2	Not Detected	
▶ SATA 3	Not Detected	
▶ SATA 4	Not Detected	
IDE BusMaster	Enabled	
Drive A	1.44 MB 3 1/2"	
ATA (PI) 80Pin Cable Detect	Host	

↑↓ → ←: 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.

► **Primary IDE Master/Slave, SATA 1~4 (Not Detected)**

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

CMOS SETUP UTILITY – Copyright (C) 1985-2005, American Megatrends, Inc.  
Primary IDE Master

Primary IDE Master		Help Item
Device : Not Detected		Select the type of device connected to the system.
Type	Auto	
LBA/Large Mode	Auto	
Block (Multi-Sector Transfer)	Auto	
PIO Mode	Auto	
DMA Mode	Auto	
S.M.A.R.T	Auto	
32Bit Data Transfer	Enabled	

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

**Type (Auto)**

Use this item to configure the type of the IDE device that you specify. If the feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer.

**LBA/Large Mode (Auto)**

Use this item to set the LBA/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.

**Drive A (1.44 MB 3 $\frac{1}{2}$ " )**

This item defines the characteristics of any diskette drive attached to the system. You can connect one or two diskette drives.

**ATA(PI) 80Pin Cable Detect (Host)**

Select the mechanism for detecting 80Pin ATA(PI) cable. The 80Pin cable is required for UDMA-66 and above.

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

### Advanced Setup

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

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.  
Advanced Setup

HT Frequency	Auto	Help Item
AMD C&Q	Enabled	
Quick Power on Self Test	Enabled	
APIC Mode	Enabled	
1st Boot Device	Hard Drive	SouthBridge to K8(CPU)
2nd Boot Device	CD/DVD	frequency selection
3rd Boot Device	1st FLOPPY DRIVE	by CPU capability
► Removable Drives	Press Enter	
Boot Other Device	Yes	
Boot Up Numlock Status	On	
Display Logo	Enabled	

↑↓ → ←: 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 (Enabled)

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.

#### 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/2nd/3rd Boot Device (Hard Drive/CD/DVD/1st FLOPPY DRIVE)

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.

### ► Removable Drives (Press Enter)

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

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.  
Removable Drives

Removable Drives	Help Item
1st Drive      1st FLOPPY DRIVE	Specifies the boot sequence from the available devices.

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

Press <Esc> to return to the Advanced setup page.

### 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.

### Boot Up Numlock Status (On)

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

### Display Logo (Enabled)

When enabled, this will show a full screen company logo on the boot up screen. Select disabled when you want to show POST messages during boot up.

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) 1985-2005, American Megatrends, Inc.  
Advanced Chipset Setup

		Help Item
Dram Frequency	Auto	Select the DRAM Frequency programming method. If Auto, the DRAM speed will be based on SPDs. If limit, the DRAM spe will not exceed the specified value. If Manual, the the DRAM s specified will be programmed regardless of SPD.
Dram Timing	Auto	
VGA Share Memory	Auto	
VGA Share Memory Value	64MB	

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

#### Dram Frequency (Auto)

This item enables users to adjust the DRAM frequency. The default setting is auto and we recommend users leave the setting unchanged. Modify it at will may cause the system to be unstable.

#### DRAM Timing (Auto)

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

#### VGA Share Memory (Auto)

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

#### VGA Share Memory Value (64MB)

This item displays the VGA Share Memory Value.

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



### Integrated Peripherals

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

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.  
Integrated Peripherals

Onboard IDE Controller	Enabled	Help Item
OnChip S-ATA Controller	Enabled	
SATA Mode Select	SATA Mode	Options
▶ nVidia RAID Setup	Press Enter	
Legacy USB Support	Enabled	Disabled
USB Controller	Enabled	Enabled
Onboard AUDIO Function	Auto	
Onboard LAN Function	Auto	
Onboard LAN Boot ROM	Disabled	
Onboard Floppy Controller	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.

#### Onboard S-ATA Controller (Enabled)

This item allows you to enable or disable the onboard SATA controller.

#### SATA Mode select (SATA Mode)

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

#### ▶ nVidia RAID Setup (Press Enter)

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

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.  
nVidia RAID Setup

RAID Setup	Help Item

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

**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.

**USB Controller (Enabled)**

This item enables the USB controller. Leave this at the default “Enabled” if you want to connect USB devices to your computer.

**Onboard AUDIO Function (Auto)**

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

**OnBoard LAN Function (Auto)**

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.

**OnBoard Floppy Controller (Enabled)**

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

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) 1985-2005, American Megatrends, Inc.  
Power Management Setup

AC Power Loss by IO	Power Off	Help Item
ACPI Suspend Type	S3 (STR)	
Soft-off by PWR-BTTN	Instant Off	
Resume By PCI/PCI-E/Lan PME	Enabled	Power Off
Resume By USB	Enabled	Power On
Resume By PS2 KB (S3)	Disabled	Last State
Resume By PS2 MS (S3)	Enabled	
Resume By RTC Alarm	Disabled	

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

**AC Power Loss by IO (Power Off)**

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

**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.

**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 PCI/PCI-E/Lan PME (Enabled)**

These items specify 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 USB (Enabled)**

This item allows you to enable/disable the USB device wakeup function from S3/S4 mode.

**Resume By PS2 KB (S3) (Disabled)**

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

**Resume By PS2 MS (S3) (Enabled)**

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

**Resume By 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.

### 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) 1985-2005, American Megatrends, Inc.  
PCI / PnP Configuration

		Help Item
Allocate IRQ to PCI VGA	Yes	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.
Init Display First	PCI	

↑↓ → ←: 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.

### 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) 1985-2005, American Megatrends, Inc.  
PC Health Status

		Help Item
-- System Hardware Monitor --		
▶ Smart Fan Function	Press Enter	
Shutdown Temperature	Disabled	
Warning Temperature	Disabled	
CPU Core	:1.344V	
VDIMM	:1.872V	
CPU Fan Speed	:3358 RPM	
CPU Tcontrol	:40°C/104°F	
System Temperature	:35°C/95°F	

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

Using BIOS

### ► Smart Fan Function

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

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.  
Smart Fan Function

SMART Fan Control	Enabled	Help Item
SMART Fan Start PWM value	40	
SMART Fan start TEMP. (°C)	50	
DeltaT	+3	
SMART Fan Slope PWM value	4 PWM value/°C	
		Options
		Disabled
		Enabled

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

#### **SMART Fan Control (Enabled)**

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

#### **SMART Fan start PWM value (40)**

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

#### **SMART Fan start TEMP. (50)**

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

#### **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 (4 PWM value)**

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)**

This item enables 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 Core
- VDIMM
- CPU Fan Speed
- CPU Tcontrol
- System Temperature

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

### 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) 1985-2005, American Megatrends, Inc.  
Frequency/Voltage Control

Auto Detect DIMM/PCI Clk	Enabled	Help item
CPU/LDT Spread Spectrum	0.50% H. Kiss Down	
PCIE Spread Spectrum	Linear Down	
SATA Spread Spectrum	Linear Down	
iGUP Spread Spectrum	3.00% Triangular Ce	
		Options
		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.

#### CPU/LDT Spread Spectrum (0.5% H. Kiss Down)

This item, when enabled, can significantly reduce the EMI (Electromagnetic Interference) generated by the CPU/LDT.

#### PCIE Spread Spectrum (Linear Down)

This item, when enabled, can significantly reduce the EMI (Electromagnetic Interference) generated by the PCIE.

#### SATA Spread Spectrum (Linear Down)

This item, when enabled, can significantly reduce the EMI (Electromagnetic Interference) generated by SATA.

**iGPU Spread Spectrum (3.00% Triangular Ce)**

This item, when enabled, can significantly reduce the EMI (Electromagnetic Interference) generated by the iGPU.

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 <Enter>, the Setup Utility loads all default values; or select [Cancel], and then <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) 1985-2005, American Megatrends, Inc.  
Supervisor Password

Supervisor Password :Not Installed	Help item
Change Supervisor Password <b>Press Enter</b>	Install or Change the 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.

### ***User Password***

This page helps you install or change a password.

CMOS Setup Utility - Copyright (C) 1985-2005, American Megatrends, Inc.  
User Password

User Password : Not Installed	Help item
Change User Password <span style="float: right;">Press Enter</span>	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.*



### ***Updating the BIOS***

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

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

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

*Memo*

Using BIOS

## Chapter 4

### Using the Motherboard Software

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#### 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#apliesto> for more information.*

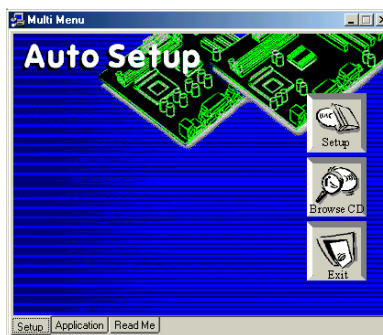
#### Auto-installing under Windows 2000/XP/Vista

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 2000/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.*

Using the Motherboard Software

### Setup Tab

<b>Setup</b>	Click the <b>Setup</b> button to run the software installation program. Select from the menu which software you want to install.
<b>Browse CD</b>	<p>The <b>Browse CD</b> button is the standard Windows command that allows you to open Windows Explorer and show the contents of the support CD.</p> <p>Before installing the software from Windows Explorer, look for a file named README.TXT, INSTALL.TXT or something similar. This file may contain important information to help you install the software correctly.</p> <p>Some software is installed in separate folders for different operating systems, such as Windows 2000/XP/Vista. Always go to the correct folder for the kind of OS you are using.</p> <p>In install the software, execute a file named SETUP.EXE or INSTALL.EXE by double-clicking the file and then following the instructions on the screen.</p>
<b>Exit</b>	The <b>EXIT</b> button closes the Auto Setup window.

### Application Tab

Lists the software utilities that are available on the CD.

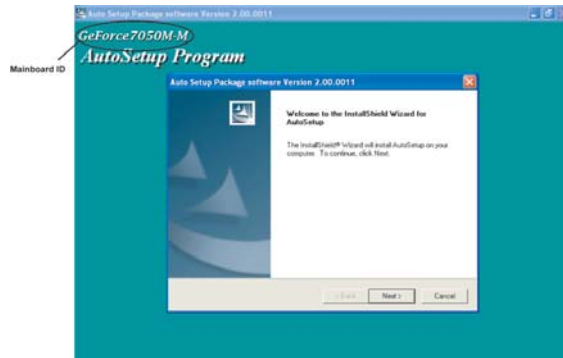
### Read Me Tab


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

### Running Setup

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

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

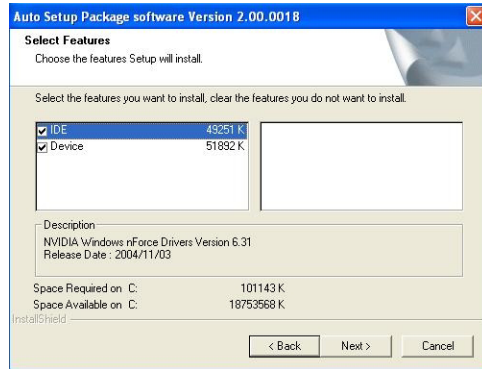


 The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.

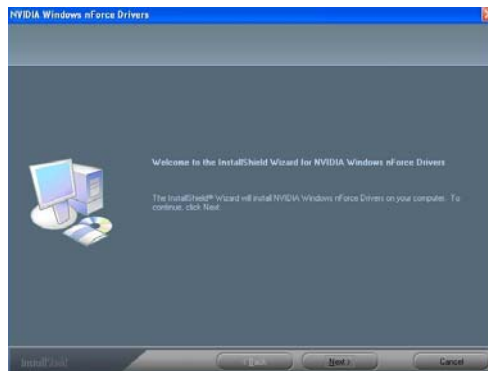
The motherboard identification is located in the upper left-hand corner.

## Using the Motherboard Software

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.



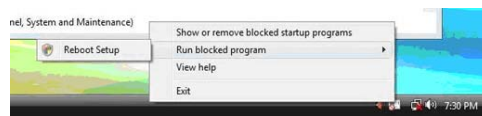
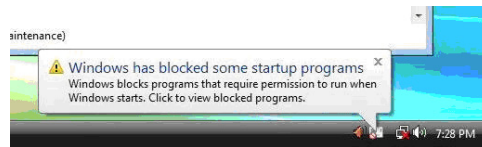
1. Drivers and software are automatically installed in sequence. Follow the onscreen instructions, confirm commands and allow the computer to restart a few times to complete the installation.

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.



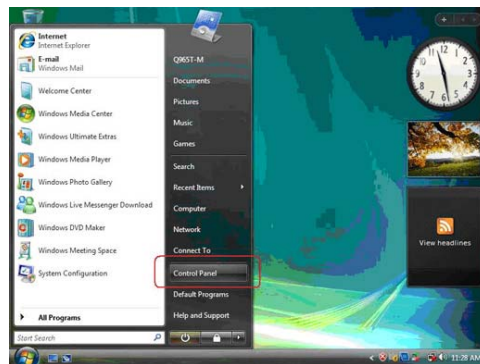
### Method 2. Disable UAC (User Account Control)

\* 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.

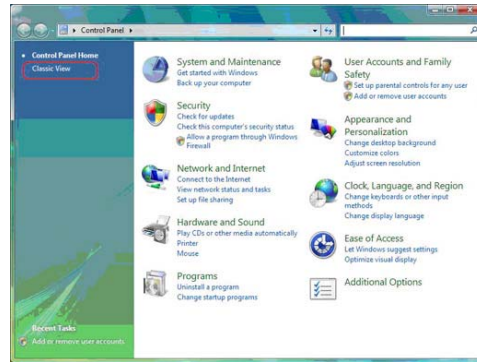
Follow these instructions to Disable Vista UAC function:

1. Go to **Control Panel**.

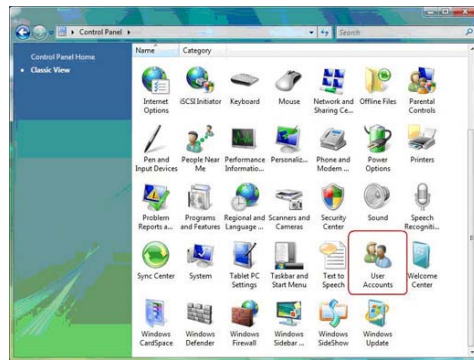


Using the Motherboard Software

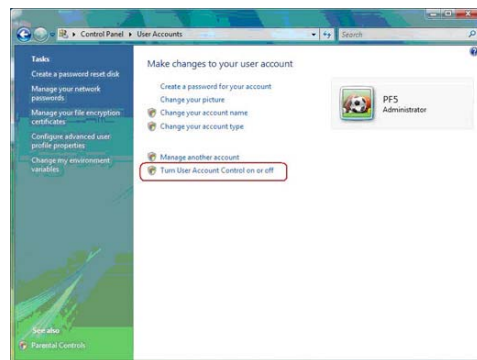
2. Select **Classic View**.



3. Set **User Account**.

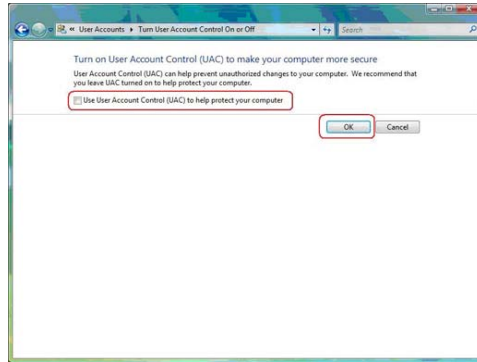


4. Select **Turn User Account Control on or off** and press **Continue**.



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 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.



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

This concludes Chapter 4.



## Chapter 5

### Setting Up NVIDIA RAID Configuration

There are two ways to setup NVIDIA RAID Configuration: one is to create a RAID 1 Array for backup or a RAID 0 Array for increased performance just by adding additional disk array without changing the original OS (Non-Bootable RAID Array); while the other is to configure the RAID Array disks when reinstalling the OS (Bootable RAID Array).

#### Setting Up a Non-Bootable RAID Array

RAID arrays can be created/deleted using both MediaShield RAID BIOS and the MediaShield RAID Manager from Windows. This section only covers basic BIOS setup required for non-bootable array. See the section "Setting Up a Bootable RAID Array" for instructions on configuring the RAID array in BIOS. See sections on using the MediaShield RAID Manager for details on configuring non-bootable RAID from Windows.

#### Setting Up the BIOS

- 1 Start your computer, then press Delete to enter the BIOS setup.

The BIOS CMOS Setup Utility window appears.



Figure 1.1 BIOS CMOS Setup Utility Main Window

- 2 Use the arrow keys to select Integrated Peripherals (see Figure 1.1), then press Enter.

The Integrated Peripherals window appears.

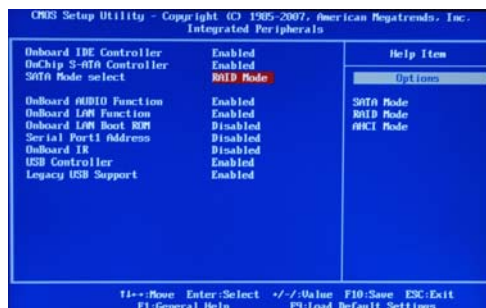


Figure 1.2 Integrated Peripherals Window

### NVIDIA RAID Configuration

- 3 From the Integrated Peripherals Window, globally set SATA Mode select to RAID Mode (see Figure 1.2).
- 4 Press F10 to save the configuration and exit (F10 is the navigation key to save the current configuration and exit setup in BIOS setting).

The PC reboots.

### ***Installing the NVIDIA RAID Software Under Windows***

This section describes how to run the setup application and install the RAID software.

- 1 Start the nForce Setup program to open the NVIDIA Windows nForce Drivers page.

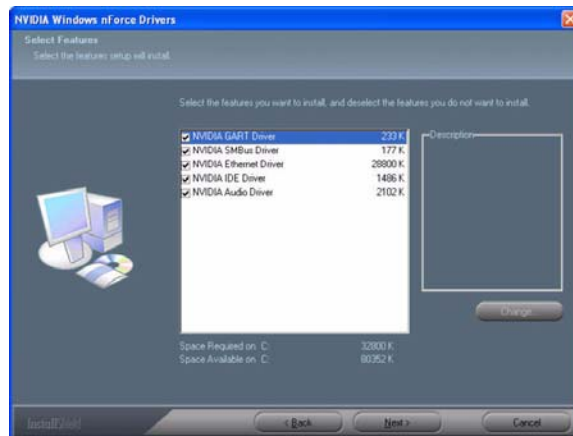


Figure 1.3 nForce Driver Installation Window

- 2 Select the modules that you want to install. Make sure that the “NVIDIA IDE Driver” is selected.
- 3 You must install the NVIDIA IDE driver in order to enable NVIDIA RAID. If you do not install the NVIDIA IDE driver, NVIDIA RAID will not be enabled.
- 4 Click Next and then follow the instructions. After the installation is completed, be sure to reboot the PC.
- 5 After the reboot, initialize the newly created array.

## Setting Up a Bootable RAID Array

This section explains how to configure a bootable NVIDIA RAID array.

### Setting Up the BIOS

- 1 Start your computer, then press Delete to enter the BIOS setup. The BIOS CMOS Setup Utility screen appears.



Figure 1.4 BIOS CMOS Setup Utility Main Screen

- 2 Use the arrow keys to select Integrated Peripherals (see Figure 1.4), then press Enter.

The Integrated Peripherals screen (or a screen similar to it) appears.

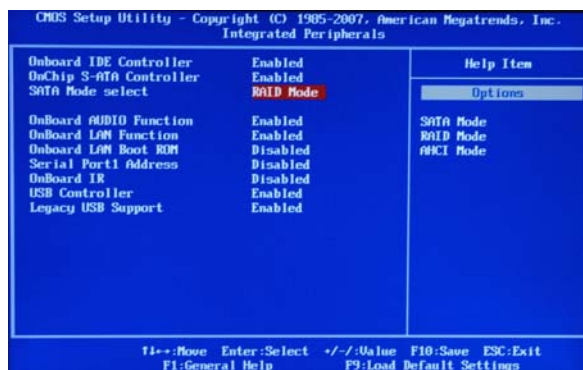


Figure 1.5 Integrated Peripherals Screen

- 3 From the Integrated Peripherals Window, globally set SATA Mode select to RAID Mode (see Figure 1.5).

- 4 Press F10 to save the configuration and exit.  
The PC reboots.
- 5 Enter the RAID BIOS Setup by pressing F10 when prompted, and proceed to set up the NVIDIA RAID BIOS as described in the next section.

### ***Configuring the NVIDIA RAID BIOS***

The NVIDIA RAID BIOS set up lets you choose the RAID type and which hard drives you want to make part of the array.

#### **Entering the RAID BIOS Setup:**

- 1 Wait until you see the RAID software prompting you to press F10.

The RAID prompt appears as part of the system POST and boot process prior to loading of the OS. You have a few seconds to press F10 before the screen disappears (see Figure 1.6).

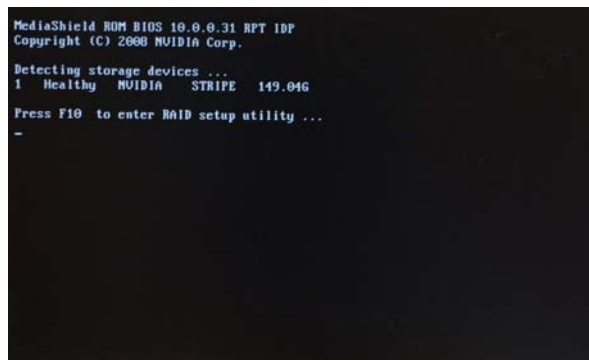


Figure 1.6

- 2 Press F10 to enter Define a New Array page.

The NVIDIA RAID Utility—Define a New Array screen appears (Figure 1.7).

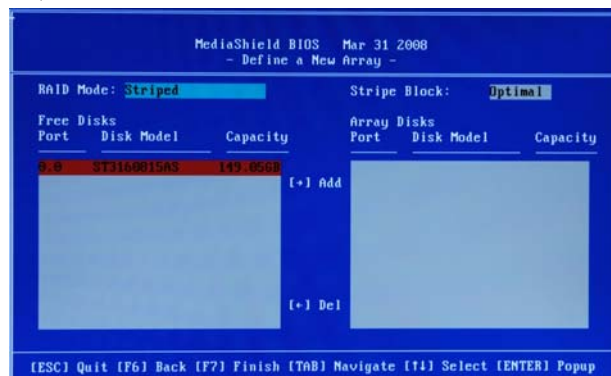


Figure 1.7 MediaShield BIOS

By default, RAID Mode is set to Mirroring and Striping Block is set to Optimal.

### ***Using the Define a New Array Screen***

If necessary, press the tab key to move from field to field until the appropriate field is highlighted.

- **Selecting the RAID Mode**

By default, this is set to Mirroring. To change to a different RAID mode, press the down arrow key until the mode that you want appears in the RAID Mode box—either Mirroring, Striping, Spanning, Stripe Mirroring or RAID 5.

Note: Not all RAID levels are supported on all platforms. And enough Hard disks are required to complete the RAID configuration.

- **Selecting the Striping Block Size**

Striping block size is given in kilobytes, and affects how data is arranged on the disk. It is recommended to leave this value at the default Optimal, which is 64KB, but the values can be between 4 KB and 128 KB (4, 8, 16, 32, 64, and 128 KB)

### ***Assigning the Disks***

The disks that you enabled from the RAID Config BIOS setup page appear in the Free Disks block. These are the drives that are available for use as RAID array disks.

To designate a free disk to be used as a RAID array disk,

- 1 Tab to the Free Disks section.  
The first disk in the list is selected
- 2 Move it from the Free Disks block to the Array Disks block by pressing the right-arrow key (→).  
The first disk in the list is moved, and the next disk in the list is selected and ready to be moved.
- 3 Continue pressing the right-arrow key (→) until all the disks that you want to use as RAID array disks appear in the Array Disks block.

## NVIDIA RAID Configuration

Figure 1.8 illustrates the Define a New Array screen after one disk have been assigned as RAID 0 array disk.

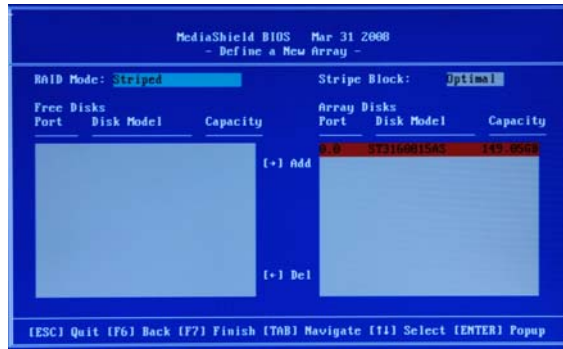


Figure 1.8 MediaShield BIOS—Array Disks Assigned

### *Completing the RAID BIOS Setup*

- 1 After assigning your RAID array disk, press F7.  
The Clear disk array prompt appears.

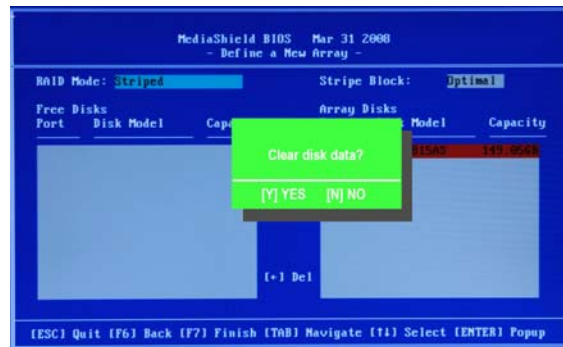


Figure 1.9 Clear Disk Data Prompt

- 2 Press Y to clear the disk data.  
The Array List screen appears, where you can review the RAID arrays that you have set up.

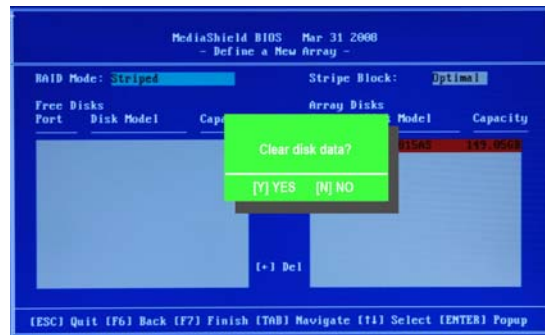


Figure 1.10 Array List Window

- 3 Use the arrow keys to select the array that you want to set up, then press B to specify the array as bootable.
- 4 Press Enter to view and verify details.  
The Array Detail screen shows various information about the array that you selected, such as Striping Block used, RAID Mode, Striping Width, Disk Model Name, and disk capacity.
- 5 If you want to mark this disk as empty and wipe out all its contents, press C.
- 6 At the prompt, press Y to wipe out all the data, otherwise press N.
- 7 Press Enter again to go back to the previous screen and then press F10 to exit the RAID setup.

### ***Installing the RAID Drivers***

Your system may come with a Windows install CD that already includes NVIDIA RAID drivers. If so, then this section is not relevant.

If that is not the case (or you are trying to install a new version of Windows), then you will need an NVIDIA RAID driver F6 install floppy. Check to see if one came with your system. If not, you can create one by downloading the appropriate driver package and following the steps in this section.

- 1 Copy all files in "...\\IDE\\WinXP\\sataraid" to a floppy disk. (For Windows 2000, substitute "Win2K" in the path.)
- 2 After you complete the RAID BIOS setup, boot from the Windows CD. The Windows Setup program starts.
- 3 Press F6 and wait a few moments for the Windows Setup screen to appear.

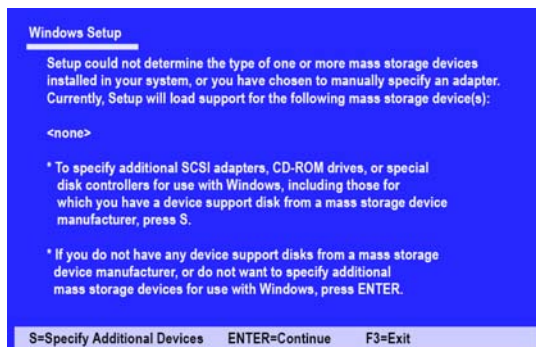


Figure 1.11 Windows Setup—Specify Devices

- 4 Specify the NVIDIA drivers.
  - a Insert the floppy that has the RAID driver, press S, then press Enter.

The following Windows Setup screen appears:

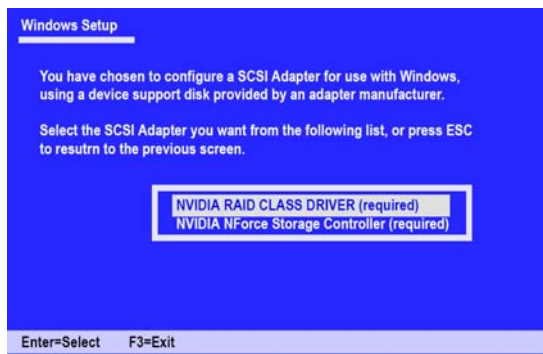


Figure 1.12 Windows Setup—Selected SCSI Adapter  
NVIDIA RAID Configuration



- b Select “NVIDIA RAID CLASS DRIVER (required)” and then press Enter.
- c Press S again at the Specify Devices screen, then press Enter.
- d Select “NVIDIA NForce Storage Controller (required)” and then press Enter.

The following Windows Setup screen appears listing both drivers:



Figure 1.13 Windows Setup—NVIDIA drives listed

- 5 Press Enter to continue with Windows XP Installation.  
Be sure to leave the floppy disk inserted in the floppy drive until the blue screen portion of Windows XP installation is completed, then take out the floppy.
- 6 Follow the instructions on how to install Windows XP.  
After Windows XP is completely installed, it is recommended that you install the ForceWare software in order to access the MediaShield RAID Management tool.

**Note:** Each time you add a new hard drive to a RAID array, the RAID driver will have to be installed under Windows once for that hard drive. After that, the driver will not have to be installed.

This concludes chapter 5.

*Memo*