M2N-TE

ASUS

Motherboard

E2658

First Edition
September 2006

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Notices

Federal Communications Commission Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

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

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 manufacturer's 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 receiver.
- Connect the equipment to 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.

> The use of shielded cables for connection of the monitor to the graphics card is required to assure compliance with FCC regulations. Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Canadian Department of Communications Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

This class B digital apparatus complies with Canadian ICES-003.

Safety information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.

- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.

- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.

- Seek professional assistance before using an adpater or extension cord. These devices could interrupt the grounding circuit.

- Make sure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.

- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.

- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.

- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.

- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.

- Place the product on a stable surface.

- If you encounter technical problems with the product, contact a qualified service technician or your retailer.

This symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

About this guide

This user guide contains the information you need when installing and configuring the motherboard.

How this guide is organized

This guide contains the following parts:

- **Chapter 1: Product introduction**

  This chapter describes the features of the motherboard and the new technology it supports.

- **Chapter 2: Hardware information**

  This chapter lists the hardware setup procedures that you have to perform when installing system components. It includes description of the switches, jumpers, and connectors on the motherboard.

- **Chapter 3: BIOS setup**

  This chapter tells how to change system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

Where to find more information

Refer to the following sources for additional information and for product and software updates.

1. **Websites**

   Visit the TARGA® website (www.targa-online.com) to download the latest BIOS for this motherboard. Use ONLY the TARGA® OEM BIOS when updating the motherboard BIOS. Other BIOS updates may corrupt the BIOS ROM.

2. **Optional documentation**

   Your product package may include optional documentation, such as warranty flyers, that may have been added by your dealer. These documents are not part of the standard package.

Conventions used in this guide

To make sure that you perform certain tasks properly, take note of the following symbols used throughout this manual.

DANGER/WARNING: Information to prevent injury to yourself when trying to complete a task.

CAUTION: Information to prevent damage to the components when trying to complete a task.

IMPORTANT: Instructions that you MUST follow to complete a task.

NOTE: Tips and additional information to help you complete a task.

Typography

Bold text	Indicates a menu or an item to select.
Italics	Used to emphasize a word or a phrase.
<Key>	Keys enclosed in the less-than and greater-than sign means that you must press the enclosed key.
	Example: <Enter> means that you must press the Enter or Return key.
<Key1>+<Key2>+<Key3>	If you must press two or more keys simultaneously, the key names are connected with a plus sign (+).
	Example: <Ctrl>+<Alt>+<D>
Command	Means that you must type the command exactly as shown.
	Example: At the DOS prompt, type the command line:
	format a:

M2N-TE specifications summary

CPU	Socket AM2 for AMD Athlon™ 64 X2 /AMD Athlon™ 64 /AMD Athlon™ 64 FX/AMD Sempron™ processors Supports AMD Cool 'n' Quiet™ Technology AMD64 architecture enables simultaneous 32-bit and 64-bit computing
Chipset	NVIDIA® nForce® MCP 55S
System bus	2000 / 1600 MT/s
Memory	Dual-channel memory architecture 4 x 240-pin DIMM sockets support unbuffered/non-ECC DDR2 800/667/533 MHz memory modules Supports up to 8 GB system memory
Expansion slots	1 x PCI Express™ x16 slots at x16, x8 speed 3 x PCI Express™ x1 slots 3 x PCI slots

Storage	MCP55S supports:
	  - 1 x IDE connector for up to two Ultra DMA 133/100 devices
	  - 4 x Serial ATA 3.0 Gb/s connectors
	  - RAID 0, RAID1, and JBOD configurations spanning across Serial ATA drives via the onboard NVIDIA® MediaShield™ RAID controller

Audio	- SoundMAX® ADI AD1988B 8-channel CODEC - Supports Jack-Sensing, Enumeration, Multi-Streaming and Jack-Retasking Technology - Optical and Coaxial S/PDIF In/Out interface
USB	Supports up to 10 USB 2.0/1.1 ports (six at mid-board, four on the rear panel)
IEEE 1394	VIA 6308 1394 controller supports: - 2 x IEEE 1394a connectors (one at mid-board, one at the rear panel)
LAN	Gigabit LAN controllers NVIDIA® nForce® MCP55S built-in Gigabit LAN with external Marvell® PHY

(continued on the next page)

M2N-TE specifications summary

Internal connectors	3 x USB 2.0 connectors support six additional USB 2.0 ports 1 x Floppy disk drive connector 1 x IDE connector for two devices 4 x Serial ATA connectors 1 x CPU / 2 x Chassis fan connectors 1 x IEEE 1394a connector 1 x COM port connector 1 x E-SATA connector Chassis intrusion connector Front panel audio connector CD audio in connector 24-pin EATX power connector 4-pin ATX 12 V power connector 1 x Instant on header
Rear panel	1 x PS/2 keyboard port (purple) 1 x PS/2 mouse port (green) 1 x IEEE 1394a port 1 x External Serial ATA port 2 x Optical S/PDIF In/Out port 2 x Coaxial S/PDIF In/Out port 1 x LAN (RJ-45) ports 4 x USB 2.0/1.1 ports 8-channel audio ports 1 x Parallel connector
BIOS features	4 Mb AWARD BIOS, PnP, DMI 2.0, WfM2.0, SM BIOS 2.3
Manageability	WOL by PME, WOR by PME, Chassis intrusion, PXE
Power requirement	ATX power supply with 24-pin and 4-pin 12V plugs ATX 12V 2.0 compliant
Form factor	ATX form factor: 12 in x 9.6 in (30.5 cm x 24.5 cm)

*Specifications are subject to change without notice.

This chapter describes the motherboard features and the new technologies it supports.

Product introduction

1.1 Special features

Product highlights

Latest processor technology

The motherboard comes with a 940-pin AM2 socket that supports AMD Athlon™ 64 X2/AMD Athlon™ 64/AMD Athlon™ 64 FX/AMD Sempron™ processors. With an integrated low-latency high-bandwidth memory controller and a highly scalable HyperTransport™ technology-based system bus, the motherboard provides a powerful platform for your diverse computing needs, increased office productivity, and enhanced digital media experience. See page 2-7 for details.

DDR2 memory support

The motherboard supports DDR2 memory that features data transfer rates of 800/667/533 MHz to meet the higher bandwidth requirements of the latest 3D graphics, multimedia, and Internet applications. The dual-channel DDR2 architecture doubles the bandwidth of your system memory to boost system performance, eliminating bottlenecks with peak bandwidths of up to 12.8 GB/s.

PCI Express™ interface

The motherboard fully supports PCI Express, the latest I/O interconnect technology that speeds up the PCI bus. PCI Express features point-to-point serial interconnections between devices and allows higher clockspeeds by carrying data in packets. This high speed interface is software compatible with existing PCI specifications.

Dual RAID solution

Onboard RAID controllers provide the motherboard with dual-RAID functionality that allows you to select the best RAID solution using IDE or Serial ATA devices.

The NVIDIA® nForce® 550 MCP chipset allows RAID 0, RAID 1, and JBOD configuration for four SATA 3.0 Gb/s connectors.

The JMicron JMB363 controller supports two additional Serial ATA 3.0 Gb/s connectors (one at mid-board and one on the rear panel).

Serial ATA I/II technology and SATA-On-The-Go

The motherboard fully supports the Serial ATA II 3.0 Gb/s technology through the Serial ATA interfaces and the NVIDIA® nForce® 550 MCP chipset. The Serial ATA 3 Gb/s specification provides twice the bandwidth of the current Serial ATA products with a host of new features, including Nativa Command Queueing (NCQ), and Power Management (PM) Implementation Algorithm. Serial ATA allows for thinner, more flexible cables with lower pin count and reduced voltage required. Leveraging these Serial ATA 3.0 Gb/s features is the SATA-On-The-Go. Supported by the JMicron Serial ATA RAID controller, two Serial ATA 3.0 Gb/s connectors (one at mid-board and one on the rear panel) provide smart setup, and hot-plug function. See pages 2-24 and 2-25 for details.

IEEE 1394a support

The IEEE 1394a interface provides high-speed and flexible PC connectivity to a wide range of peripherals and devices compliant to the IEEE 1394a standard. The IEEE 1394a interface allows up to 400 Mbps transfer rates through simple, low-cost, high-bandwidth asynchronous (real-time) data interfacing between computers, peripherals, and consumer electronic devices such as camcorders, VCRs, printers, TVs, and digital cameras. See page 2-26 for details.

S/PDIF digital sound ready

The motherboard supports the S/PDIF technology through the S/PDIF interfaces on the rear panel. The S/PDIF technology turns your computer into a high-end entertainment system with digital connectivity to powerful audio and speaker systems.

USB 2.0 technology

The motherboard implements the Universal Serial Bus (USB) 2.0 specification, dramatically increasing the connection speed from the 12 Mbps bandwidth on USB 1.1 to a fast 480 Mbps on USB 2.0. USB 2.0 is backward compatible with USB 1.1. See page 2-26 for details.

This chapter tells how to change
the system settings through the BIOS
Setup menus. Detailed descriptions
of the BIOS parameters are also
provided.

2
Hardware information

2.1 Before you proceed

Take note of the following precautions before you install motherboard components or change any motherboard settings.

⚠

- Unplug the power cord from the wall socket before touching any component.

- Use a grounded wrist strap or touch a safely grounded object or to a metal object, such as the power supply case, before handling components to avoid damaging them due to static electricity.

- Hold components by the edges to avoid touching the ICs on them.

- Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.

- Before you install or remove any component, ensure that the ATX power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

Onboard LED

The motherboard comes with a standby power LED. The green LED lights up to indicate that the system is ON, in sleep mode, or in soft-off mode. This is a reminder that you should shut down the system and unplug the power cable before removing or plugging in any motherboard component. The illustration below shows the location of the onboard LED.
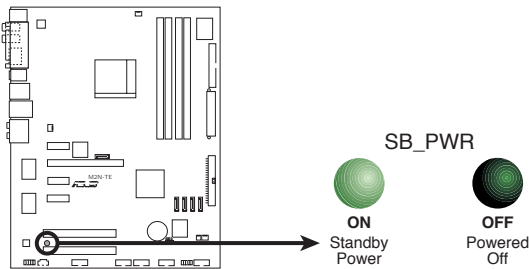
M2N-TE Onboard LED

2.2 Motherboard overview

Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

> Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so can cause you physical injury and damage motherboard components.

2.2.1 Placement direction

When installing the motherboard, make sure that you place it into the chassis in the correct orientation. The edge with external ports goes to the rear part of the chassis as indicated in the image below.

2.2.2 Screw holes

Place nine (9) screws into the holes indicated by circles to secure the motherboard to the chassis.

> Do not overtighten the screws! Doing so can damage the motherboard.

Place this side towards the rear of the chassis

M2N-TE
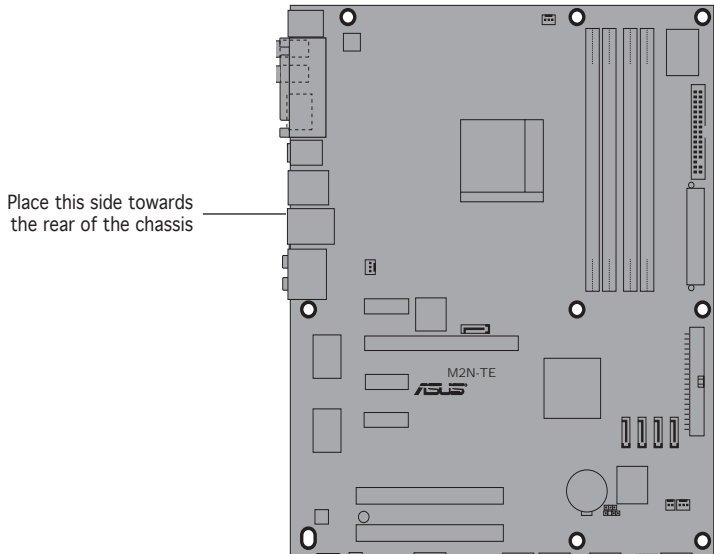
2.2.3   Motherboard layout
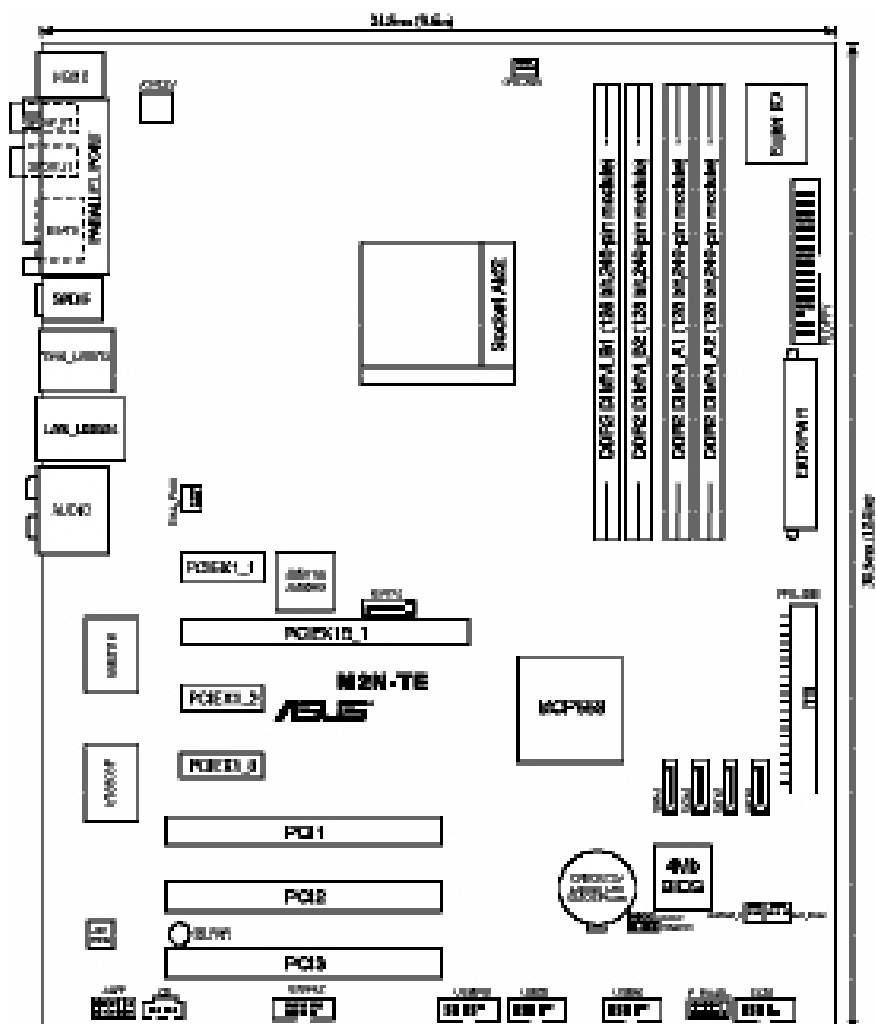
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2.3 Central Processing Unit (CPU)

The motherboard comes with a 940-pin AM2 socket designed for the AMD Athlon™ 64/AMD Athlon™ 64 FX/AMD Athlon™ 64 X2 and AMD Sempron™ processors.

> Make sure you use a CPU is designed for the AM2 socket. The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU!

2.3.1 Installing the CPU

To install a CPU:

1. Locate the CPU socket on the motherboard.
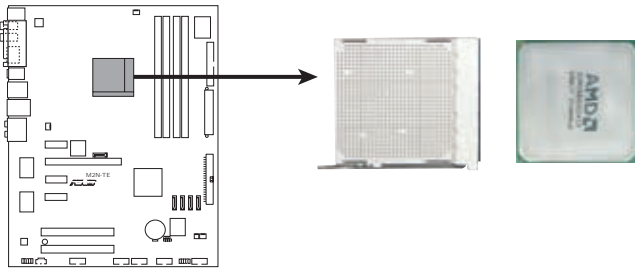
M2N-TE CPU Socket AM2

2. Unlock the socket by pressing the lever sideways, then lift it up to a 90º angle.
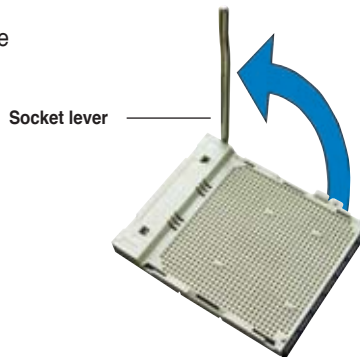
Socket lever

> Make sure that the socket lever is lifted up to a 90º angle; otherwise, the CPU will not fit in completely.

3. Position the CPU above the socket such that the CPU corner with the gold triangle matches the socket corner with a small triangle.

4. Carefully insert the CPU into the socket until it fits in place.

Gold triangle

Small triangle
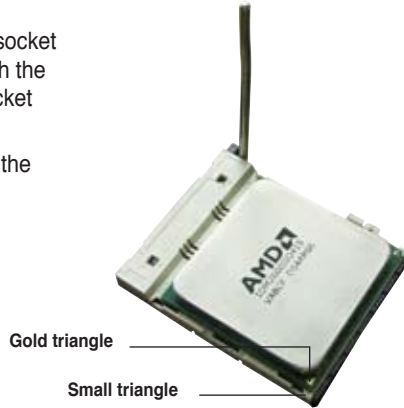
5. When the CPU is in place, push down the socket lever to secure the CPU. The lever clicks on the side tab to indicate that it is locked.

6. Install a CPU heatsink and fan following the instructions that came with the heatsink package.

2.3.2 Installing the heatsink and fan

The AMD Athlon™ 64/AMD Athlon™ 64 FX/AMD Athlon™ 64 X2 and
AMD Sempron™ processors require a specially designed heatsink and fan
assembly to ensure optimum thermal condition and performance.

> Make sure that you use only AMD-certified heatsink and fan assembly.

To install the CPU heatsink and fan:

1. Place the heatsink on top of the installed CPU, making sure that the heatsink
   fits properly on the retention module base.

> • The retention module base is already installed on the motherboard
>   upon purchase.
>
> • You do not have to remove the retention module base when
>   installing the CPU or installing other motherboard components.
>
> • If you purchased a separate CPU heatsink and fan assembly, make
>   sure that a Thermal Interface Material is properly applied to the CPU
>   heatsink or CPU before you install the heatsink and fan assembly.

CPU fan

CPU heatsink

Retention module base

Retention bracket

Retention bracket lock
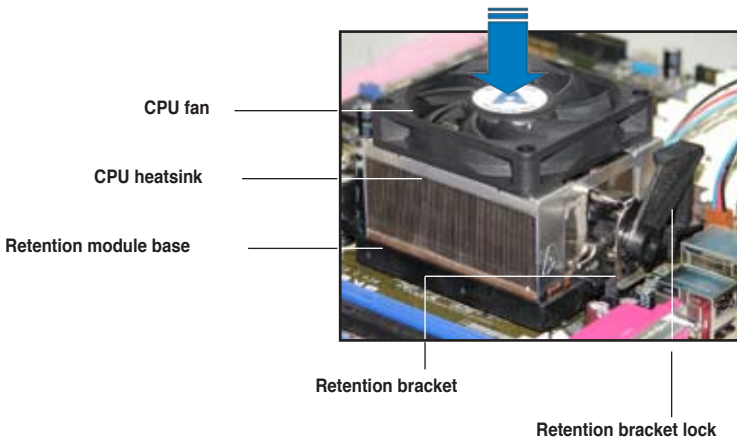
> Your boxed CPU heatsink and fan assembly should come with installation
> instructions for the CPU, heatsink, and the retention mechanism. If the
> instructions in this section do not match the CPU documentation, follow the
> latter.

2. Attach one end of the retention bracket to the retention module base.
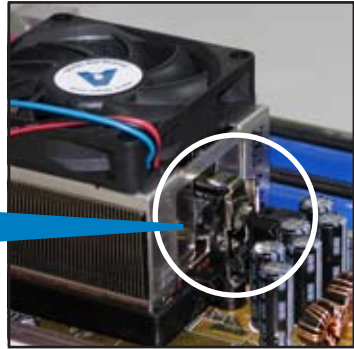
3. Align the other end of the retention bracket (near the retention bracket lock) to the retention module base. A clicking sound denotes that the retention bracket is in place.

   Make sure that the fan and heatsink assembly perfectly fits the retention mechanism module base, otherwise you cannot snap the retention bracket in place.
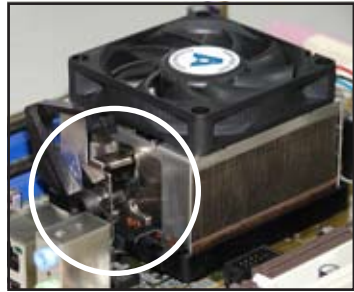
4. Push down the retention bracket lock on the retention mechanism to secure the heatsink and fan to the module base.
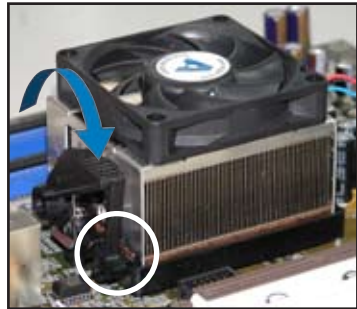
5. When the fan and heatsink assembly is in place, connect the CPU fan cable to the connector on the motherboard labeled CPU_FAN.

CPU_FAN

Tachometer
+12V
GND
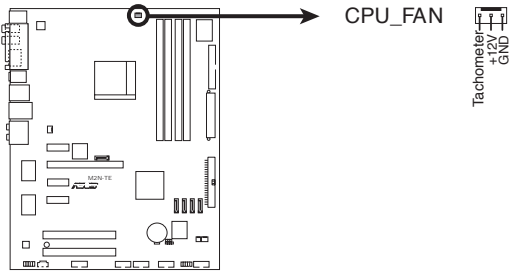
M2N-TE CPU Fan Connector

- Do not forget to connect the CPU fan connector! Hardware monitoring errors can occur if you fail to plug this connector.

- This connector is backward compatible to the 3-pin CPU fan connector..

2.4 System memory

2.4.1 Overview

The motherboard comes with four Double Data Rate 2 (DDR2) Dual Inline Memory Modules (DIMM) sockets.

A DDR2 module has the same physical dimensions as a DDR DIMM but has a 240-pin footprint compared to the 184-pin DDR DIMM. DDR2 DIMMs are notched differently to prevent installation on a DDR DIMM socket.

The figure illustrates the location of the DDR2 DIMM sockets:
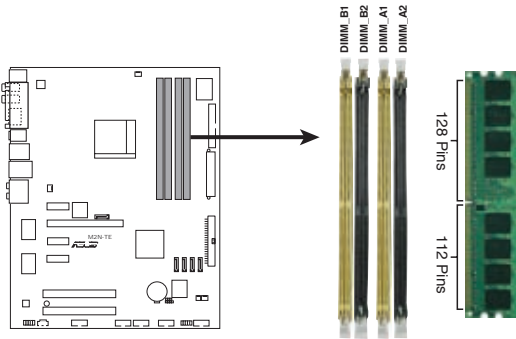
M2N-TE 240-pin DDR2 DIMM Sockets

Channel	Sockets
Channel A	DIMM_A1 and DIMM_A2
Channel B	DIMM_B1 and DIMM_B2

2.4.2 Memory configurations

You may install 256 MB, 512 MB, 1 GB, and 2GB unbuffered non-ECC DDR2 DIMMs into the DIMM sockets.

Recommended Memory Configurations

Mode	Sockets			
	DIMM_A1	DIMM_A2	DIMM_B1	DIMM_B2
Single Channel	Populated	–	–	–
	–	Populated	–	–
	–	–	Populated	–
	–	–	–	Populated
Dual-channel (1)	Populated	–	Populated	–
	–	Populated	–	Populated
Dual-channel (2)	Populated	Populated	Populated	Populated

* For dual-channel memory configuration (2), you may:
    * install identical DIMMs in all four sockets OR
    * install an identical DIMM pair in DIMM_A1 and DIMM_B1 (yellow sockets) and another identical DIMM pair in DIMM_A2 and DIMM_B2 (black sockets)

* Always use identical DDR2 DIMM pairs for dual-channel model. For optimum compatibility, we recommend that you obtain memory modules from the same vendor.

Important notice on installing Windows® XP 32-bit version

If you install Windows® XP 32-bit version Operating System (OS), the limitation of this OS version is that it may reserve a certain amount of memory space for system devices. We recommend that you install less than 3 GB system memory if you would like to work under Windows® XP 32-bit version OS. The excess memory installation will not cause any usage problem, but it will not give users the benefit of manipulating this excess memory space.

This motherboard can support 8 GB physical memory on the operating systems listed below. You may install a maximum of 2 GB DIMMs on each slot.

32-bit	64-bit
Windows® 2000 Advanced Server Windows® Server 2003 Enterprise Edition	Windows® Server 2003 Standard x64 Edition Windows® XP Professional x64 Edition Windows® Server 2003 Enterprise x64 Edition

Qualified Vendors List
DDR2-667

DDR2 Size	Vendor	Model	Side(s)	Component	DIMM socket support		
					A*	B*	C*
512MB	KINGSTON	E5108AE-6E-E	SS	KVR667D2N5/512	•	•	•
1024MB	KINGSTON	E5108AE-6E-E	DS	KVR667D2N5/1G	•		•
512MB	KINGSTON	E5108AE-6E-E	SS	KVR667D2E5/512	•		
256MB	KINGSTON	HYB18T256800AF3	SS	KVR667D2N5/256	•	•	•
256MB	SAMSUNG	K4T56083QF-ZCE6	SS	M378T3253FZ0-CE6	•	•	•
256MB	SAMSUNG	K4T51163QC-ZCE6	SS	M378T3354CZ0-CE6	•	•	•
512MB	SAMSUNG	ZCE6K4T51083QC	SS	M378T6553CZ0-CE6	•	•	•
1024MB	SAMSUNG	ZCE6K4T51083QC	DS	M378T2953CZ0-CE6	•	•	•
512MB	MICRON	4VB41D9CZM	DS	MT16HTF6464AY-667B4	•		•
256MB	Infineon	HYB18T512160AF-3S	SS	HYS64T32000HU-3S-A	•	•	•
512MB	Infineon	HYB18T512800AF3S	SS	HYS64T64000HU-3S-A	•	•	•
512MB	Hynix	HY5PS12821AFP-Y5	SS	HYMP564U64AP8-Y5	•	•	•
1024MB	Hynix	HY5PS12821AFP-Y5	DS	HYMP512U64AP8-Y5	•	•	•
512MB	Hynix	HY5PS12821AFP-Y4	SS	HYMP564U64AP8-Y4	•	•	•
256MB	ELPIDA	E2508AB-6E-E	SS	EBE25UC8ABFA-6E-E	•	•	•
512MB	ELPIDA	E5108AE-6E-E	SS	EBE51UD8AEFA-6E-E	•	•	•
1024MB	ELPIDA	Engineering Sample	DS	EBE11UD8AEFA-6E-E	•	•	•
512MB	crucial	Heat-Sink Package	DS	BL6464AA664.16FB	•	•	•
1024MB	crucial	Heat-Sink Package	DS	BL12864AA664.16FA	•	•	•
512MB	crucial	Heat-Sink Package	DS	BL6464AL664.16FB	•	•	
1024MB	crucial	Heat-Sink Package	DS	BL12864AL664.16FA	•	•	•
1024MB	Apacer	E5108AE-6E-E	DS	78.01092.420			•
512MB	A-DATA	E5108AE-6E-E	SS	M20EL5G3H3160B1C0Z			•

Qualified Vendors List
DDR2-800

DDR2 Size	Vendor	Model	Side(s)	Component	DIMM socket support		
					A*	B*	C*
512MB	KINGSTON	K4T51083QC	SS	KVR800D2N5/512	•	•	•
1024MB	KINGSTON	K4T51083QC	DS	KVR800D2N5/1G	•	•	•
512MB	Infineon	HYB18T256800AF25F	DS	HYS64T64020HU-25F-A	•	•	•
512MB	Hynix	HY5PS12821BFP-S5	SS	HYMP564U64BP8-S5	•	•	
512MB	MICRON	5JAIIZ9DQQ	SS	MT8HTF6464AY-80EA3	•	•	
512MB	MICRON	5ZD22D9GKX	SS	MT8HTF6464AY-80ED4	•	•	•
512MB	MICRON	6CD22D9GKX	SS	MT8HTF6464AY-80ED4	•	•	
256MB	A-DATA	E2508AB-GE-E	SS	M20EL6F3G3160A1D0Z		•	•

Side(s): SS - Single-sided   DS - Double-sided

DIMM Support:

A - Supports one module inserted in any slot for a single-channel memory configuration.

B - Supports one pair of modules inserted into either the yellow slots or the black slots as one pair of dual-channel memory configuration.

C - Supports two pairs of modules inserted into the yellow and black slots as two pairs of dual-channel memory configuration.

2.4.3 Installing a DIMM

![warning icon] Unplug the power supply before adding or removing DIMMs or other system components. Failure to do so can cause severe damage to both the motherboard and the components.

To install a DIMM:

1. Unlock a DIMM socket by pressing the retaining clips outward.

2. Align a DIMM on the socket such that the notch on the DIMM matches the break on the socket.

3. Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM is properly seated.
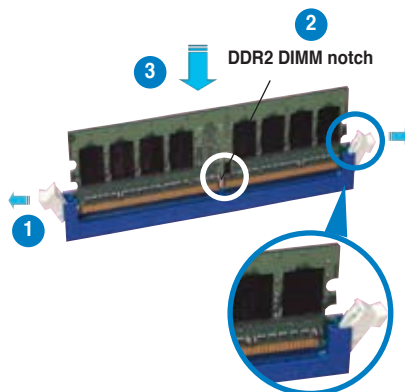
DDR2 DIMM notch

Unlocked retaining clip

![note icon]
- A DDR2 DIMM is keyed with a notch so that it fits in only one direction. Do not force a DIMM into a socket to avoid damaging the DIMM.

- The DDR2 DIMM sockets do not support DDR DIMMs. DO not install DDR DIMMs to the DDR2 DIMM sockets.

2.4.4 Removing a DIMM

To remove a DIMM:

1. Simultaneously press the retaining clips outward to unlock the DIMM.

![note icon] Support the DIMM lightly with your fingers when pressing the retaining clips. The DIMM might get damaged when it flips out with extra force.

DDR2 DIMM notch
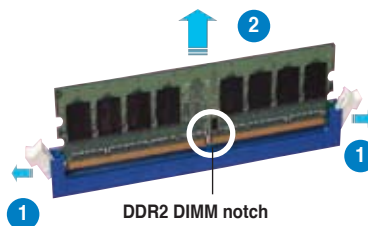
2. Remove the DIMM from the socket.

2.5 Expansion slots

In the future, you may need to install expansion cards. The following sub-sections describe the slots and the expansion cards that they support.

Make sure to unplug the power cord before adding or removing expansion cards. Failure to do so may cause you physical injury and damage motherboard components.

2.5.1 Installing an expansion card

To install an expansion card:

1. Before installing the expansion card, read the documentation that came with it and make the necessary hardware settings for the card.
2. Remove the system unit cover (if your motherboard is already installed in a chassis).
3. Remove the bracket opposite the slot that you intend to use. Keep the screw for later use.
4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.
5. Secure the card to the chassis with the screw you removed earlier.
6. Replace the system cover.

2.5.2 Configuring an expansion card

After installing the expansion card, configure the it by adjusting the software settings.

1. Turn on the system and change the necessary BIOS settings, if any. See Chapter 4 for information on BIOS setup.
2. Assign an IRQ to the card. Refer to the tables on the next page.
3. Install the software drivers for the expansion card.

When using PCI cards on shared slots, ensure that the drivers support "Share IRQ" or that the cards do not need IRQ assignments; otherwise, conflicts will arise between the two PCI groups, making the system unstable and the card inoperable.

2.5.3   Interrupt assignments

Standard interrupt assignments

IRQ	Priority	Standard function
0	1	System Timer
1	2	Keyboard Controller
2	–	Redirect to IRQ#9
4	12	Communications Port (COM1)*
5	13	IRQ Holder for PCI Steering*
6	14	Floppy Disk Controller
7	15	Printer Port (LPT1)*
8	3	System CMOS/Real Time Clock
9	4	IRQ Holder for PCI Steering*
10	5	IRQ Holder for PCI Steering*
11	6	IRQ Holder for PCI Steering*
12	7	PS/2 Compatible Mouse Port*
13	8	Numeric Data Processor
14	9	Primary IDE Channel

* These IRQs are usually available for ISA or PCI devices.

IRQ assignments for this motherboard

	A	B	C	D	E	F	G	H
PCI Slot 1		shared						
PCI Slot 2			shared					
PCI Slot 3				shared				
Onboard 1394	shared							
PCIe x16 slot 1	shared							
PCIe x16 slot 2						shared		
PCIe x1 slot 1							shared	
PCIe x1 slot 2					shared			

2.5.4   PCI slots

The PCI slots support cards such as a LAN card, SCSI card, USB card, and other cards that comply with PCI specifications. Refer to the figure below for the location of the slots.

We recommend that you use PCI3 slot for long PCI cards.

2.5.5   PCI Express x1 slot

This motherboard supports PCI Express x1 network cards, SCSI cards and other cards that comply with the PCI Express specifications. Refer to the figure below for the location of the slot.

2.5.6   PCI Express x16 slots

This motherboard supports PCI Express x16 graphics cards that comply with the PCI Express specifications.

2.6 Jumper

Clear RTC RAM (CLRTC)

This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords.

To erase the RTC RAM:

1.   Turn OFF the computer and unplug the power cord.

2.   Remove the onboard battery.

3.   Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5~10 seconds, then move the cap back to pins 1-2.

4.   Reinstall the battery.

5.   Plug the power cord and turn ON the computer.

6.   Hold down the <Del> key during the boot process and enter BIOS setup to re-enter data.

Except when clearing the RTC RAM, never remove the cap on CLRTC jumper default position. Removing the cap will cause system boot failure!

M2N-TE Clear RTC RAM

CLRTC

1 2   Normal (Default)

2 3   Clear CMOS
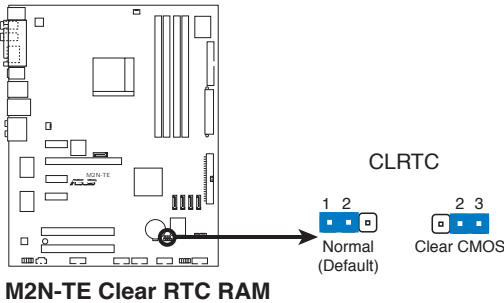
Make sure to re-enter your previous BIOS settings after you clear the CMOS.

2.7 Connectors

2.7.1 Rear panel connectors
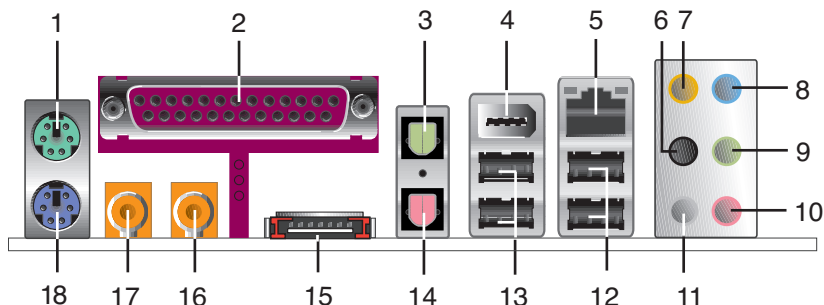
1. **PS/2 mouse port (green).** This port is for a PS/2 mouse.

2. **Parallel port.** This 25-pin port connects a parallel printer, scanner, or other devices.

3. **Optical S/PDIF In port(green)**. This port connects an external audio input device via an optical S/PDIF cable.

4. **IEEE 1394a port.** This 6-pin IEEE 1394 port provides high-speed connectivity for audio/video devices, storage peripherals, PCs, or portable devices.

5. **LAN 2 (RJ-45) port.** Supported by the Marvell® 88E1116 Gigabit LAN controller, this port allows Gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications.

6. **Rear Speaker Out port (black).** This port connects the rear speakers in a 4-channel, 6-channel, or 8-channel audio configuration.

7. **Center/Sub Out port (orange).** This port connects the center/sub speakers.

8. **Line In port (light blue).** This port connects the tape, CD, DVD player, or other audio sources.

LAN port LED indications

Activity/Link Speed LED			
Status	Description	Status	Description
OFF	No link	OFF	10 Mbps connection
ORANGE	Linked	ORANGE	100 Mbps connection
BLINKING	Data activity	GREEN	1 Gbps connection

ACT/LINK LED   SPEED LED

LAN port
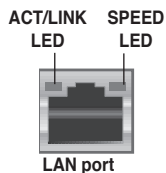
9. **Line Out port (lime).** This port connects a headphone or a speaker. In 4-channel, 6-channel, and 8-channel configuration, the function of this port becomes Front Speaker Out.

10. **Microphone port (pink).** This port connects a microphone.

11. **Side Speaker Out port (gray).** This port connects the side speakers in an 8-channel audio configuration.

Refer to the audio configuration table below for the function of the audio ports in 2, 4, 6, or 8-channel configuration.

Audio 2, 4, 6, or 8-channel configuration

Port	Headset 2-channel	4-channel	6-channel	8-channel
Light Blue	Line In	Line In	Line In	Line In
Lime	Line Out	Front Speaker Out	Front Speaker Out	Front Speaker Out
Pink	Mic In	Mic In	Mic In	Mic In
Gray	–	–	–	Side Speaker Out
Black	–	Rear Speaker Out	Rear Speaker Out	Rear Speaker Out
Orange	–	–	Center/Subwoofer	Center/Subwoofer

12. **USB 2.0 ports 3 and 4.** These 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.

13. **USB 2.0 ports 1 and 2.** These 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.

14. **Optical S/PDIF Out port(pink).** This port connects an external audio output device via an optical S/PDIF cable

15. **External SATA port**. This port connects to an external SATA box or a Serial ATA port multiplier. This port supports a Serial ATA hard disk drive that you can combine with an external Serial ATA 3.0 Gb/s device to configure a RAID 0, RAID 1, or JBOD set through the onboard JMicron® SATA RAID controller.

The external SATA port supports external Serial ATA 3.0 Gb/s devices. Longer cables support higher power requirements to deliver signal up to two meters away, and enables improved hot-swap function.

The Serial ATA port multiplier and external Serial ATA box are purchased separately.

DO NOT insert a different connector to this port.

16. **Coaxial S/PDIF In port**. This port connects an external audio input device via an coaxial S/PDIF cable.

17. **Coaxial S/PDIF Out port.** This port connects an external audio output device via an coaxial S/PDIF cable.

18. **PS/2 keyboard port (purple)**. This port is for a PS/2 keyboard.

2.7.2 Internal connectors

1. Floppy disk drive connector (34-1 pin FLOPPY)

This connector is for the provided floppy disk drive (FDD) signal cable. Insert one end of the cable to this connector, then connect the other end to the signal connector at the back of the floppy disk drive.

Pin 5 on the connector is removed to prevent incorrect cable connection when using a FDD cable with a covered Pin 5.

PIN 1

FLOPPY

NOTE: Orient the red markings on the floppy ribbon cable to PIN 1.
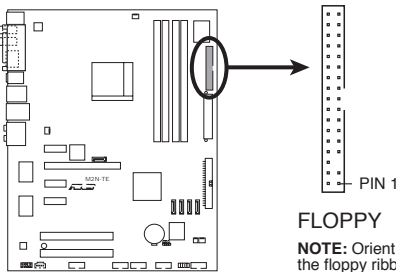
M2N-TE Floppy Disk Drive Connector

2. IDE connector (40-1 pin PRI_IDE)

The onboard IDE connector is for the Ultra DMA 133/100/66 signal cable. There are three connectors on each Ultra DMA 133/100/66 signal cable: blue, black, and gray. Connect the blue connector to the motherboard's IDE connector, then select one of the following modes to configure your device.

	Drive jumper setting	Mode of device(s)	Cable connector
Single device	Cable-Select or Master	-	Black
Two devices	Cable-Select	Master	Black
		Slave	Gray
	Master	Master	Black or gray
	Slave	Slave	

- Pin 20 on the IDE connector is removed to match the covered hole on the Ultra DMA cable connector. This prevents incorrect insertion when you connect the IDE cable.
- Use the 80-conductor IDE cable for Ultra DMA 100/66 IDE devices.

> If any device jumper is set as "Cable-Select," make sure all other device jumpers have the same setting.
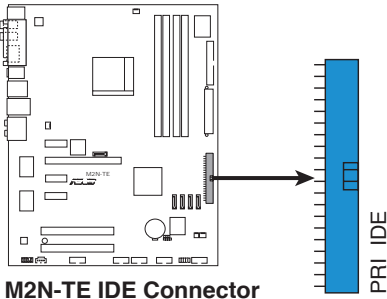
M2N-TE IDE Connector

PRI_IDE

3. **NVIDIA® nForce® 550 MCP Serial ATA connectors (7-pin SATA1 [red], SATA2 [red], SATA3 [red], SATA4 [red])**

These connectors are for the Serial ATA signal cables for Serial ATA 3.0 Gb/s hard disk and optical disk drives. The Serial ATA 3.0 Gb/s is backward compatible with Serial ATA 1.5 Gb/s specification.

If you installed Serial ATA hard disk drives, you can create a RAID 0, RAID 1, RAID 0+1, or JBOD configuration through the onboard NVIDIA® MediaShield™ controller.

> The RAID function of these connectors is set to [Disabled] by default. If you intend to create a Serial ATA RAID set using these connectors, enable the **RAID Enabled** item in the SATA Configuration sub-menu in the BIOS. See section "3.4.7 Onboard Device Configuration" for details.

SATA1

GND
RSATA_RXN1
RSATA_RXP1
GND
RSATA_TXN1
RSATA_TXP1
GND

SATA2

GND
RSATA_RXN2
RSATA_RXP2
GND
RSATA_TXN2
RSATA_TXP2
GND

SATA3

GND
RSATA_RXN3
RSATA_RXP3
GND
RSATA_TXN3
RSATA_TXP3
GND

SATA4

GND
RSATA_RXN4
RSATA_RXP4
GND
RSATA_TXN4
RSATA_TXP4
GND

M2N-TE SATA Connectors

right angle side

• Connect the right-angle side of the SATA signal cable to the SATA device or you may connect the right-angle side of the SATA cable to the onboard SATA port to avoid placement conflict with huge graphics cards.

• The Serial ATA signal cable is purchased separately.

4. JMicron JMB363® E Serial ATA connector (7-pin ESATA2)

This connector is for a Serial ATA signal cable. This connector supports a Serial ATA hard disk drive.

The JMicron JMB363 controller item in the BIOS is set to [IDE] by default, allowing you to enable the hot-plug function for the external device.

Use only a Serial ATA cable with the totally length of not more than 1 meter.

ESATA2

GND
RSATA_RXN1
RSATA_RXP1
GND
RSATA_TXN1
RSATA_TXP1
GND

M2N-TE ESATA Connector

5. USB connectors (10-1 pin USB56, USB78, USB910)

These connectors are for USB 2.0 ports. Connect the USB module cable to any of these connectors, then install the module to a slot opening at the back of the system chassis. These USB connectors comply with USB 2.0 specification that supports up to 480 Mbps connection speed.

USB910   USB78   USB56
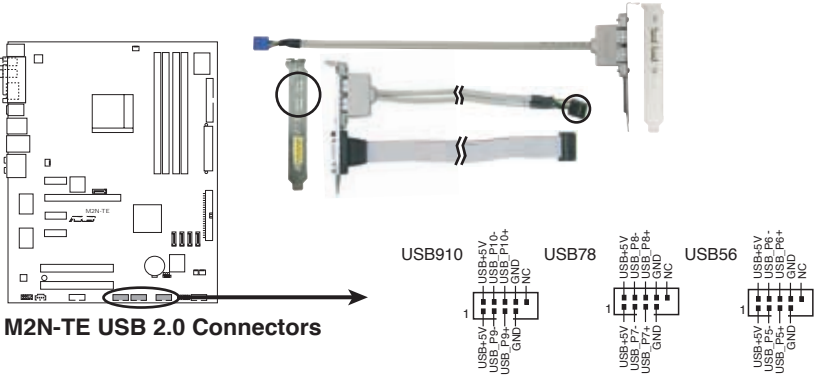
M2N-TE USB 2.0 Connectors

> Never connect a 1394 cable to the USB connectors. Doing so will damage the motherboard!

> The USB cable module is purchased separately.

6. IEEE 1394a port connector (10-1 pin IE1394_2)

This connector is for a IEEE 1394a port. Connect the IEEE 1394a module cable to this connector, then install the module to a slot opening at the back of the system chassis.

IE1394_2
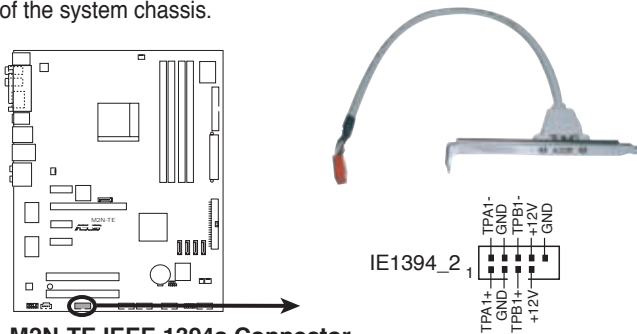
M2N-TE IEEE 1394a Connector

> Never connect a USB cable to the IEEE 1394a connector. Doing so will damage the motherboard!

> The IEEE 1394 cable module is purchased separately.

7. **CPU and chassis fan connectors**
   (3-pin CPU_FAN, 3-pin CHA_FAN1, and 3-pin CHA_FAN2)

   The fan connectors support cooling fans of 350 mA ~ 2000 mA (24 W max.) or a total of 1 A ~ 3.48 A (41.76 W max.) at +12V. Connect the fan cables to the fan connectors on the motherboard, making sure that the black wire of each cable matches the ground pin of the connector.

   Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. These are not jumpers! Do not place jumper caps on the fan connectors!
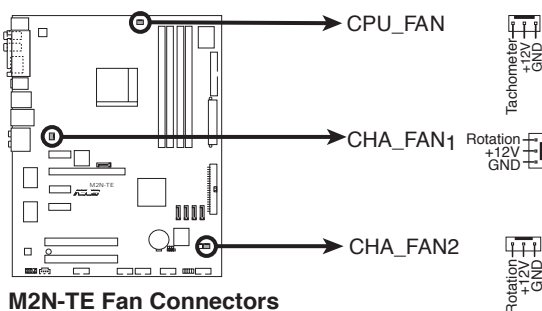
   M2N-TE Fan Connectors

   - Only the CPU_FAN, CHA_FAN1, and CHA_FAN2 connectors support the ASUS Q-Fan2 feature.

   - If you install two graphics cards, we recommend that you plug the rear chassis fan cable to the motherboard connector labeled CHA_FAN1 or CHA_FAN2 for better thermal environment.

8. **Chassis intrusion connector (4-1 pin CHASSIS)**

This connector is for a chassis-mounted intrusion detection sensor or switch. Connect one end of the chassis intrusion sensor or switch cable to this connector. The chassis intrusion sensor or switch sends a high-level signal to this connector when a chassis component is removed or replaced. The signal is then generated as a chassis intrusion event.

By default, the pins labeled "Chassis Signal" and "Ground" are shorted with a jumper cap. Remove the jumper caps only when you intend to use the chassis intrusion detection feature.
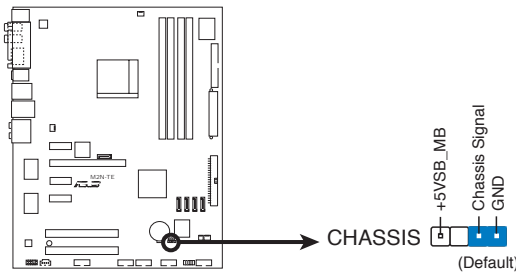
M2N-TE Chassis Intrusion Connector

9. **ATX power connectors (24-pin ATXPWR, 4-pin EATX12V)**

These connectors are for ATX power supply plugs. The power supply plugs are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.
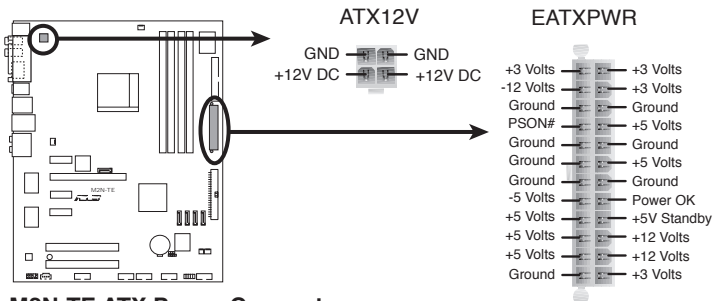
M2N-TE ATX Power Connector

- For a fully configured system, we recommend that you use a power supply unit (PSU) that complies with ATX 12 V Specification 2.0 (or later version) and provides a minimum power of 600 W.

- Do not forget to connect the 4-pin ATX +12 V power plug; otherwise, the system will not boot.

- Use of a PSU with a higher power output is recommended when configuring a system with more power-consuming devices. The system may become unstable or may not boot up if the power is inadequate.

10. Front panel audio connector (10-1 pin AAFP)

This connector is for a chassis-mounted front panel audio I/O module that supports either HD Audio or legacy AC`97 audio standard. Connect one end of the front panel audio I/O module cable to this connector.

AAFP

AGND
PRESENSE#
MIC2_JD
HP_HD

MIC2_L
MIC2_R
HP_R
Jack_Sense
HP_L
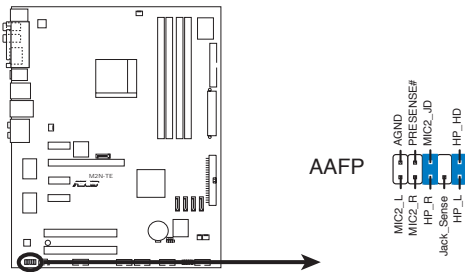
M2N-TE Azalia Analog Front Panel Connector

- We recommend that you connect a high-definition front panel audio module to this connector to avail of the motherboard's high-definition audio capability.

- By default, this connector is set to AC97 Audio. If you want to connect a High Definition front panel audio module to this connector, set the **Front Panel Support Type** item in the BIOS to [HD Audio]. See section "3.4.7 Onboard Device Configuration" for details..

11. Optical drive audio connector (4-pin CD)

This connector allows you to receive stereo audio input from an optical drive such as DVD or CD-ROM..

M2N-TE Internal Audio Connector
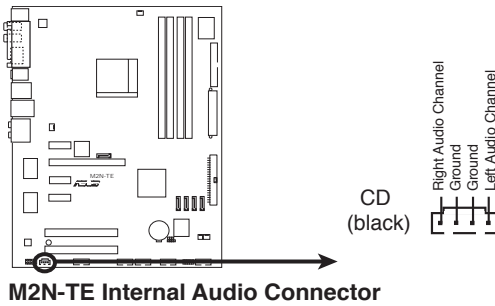
10. System panel connector (20-1 pin PANEL)

This connector supports several chassis-mounted functions.

M2N-TE System Panel Connector
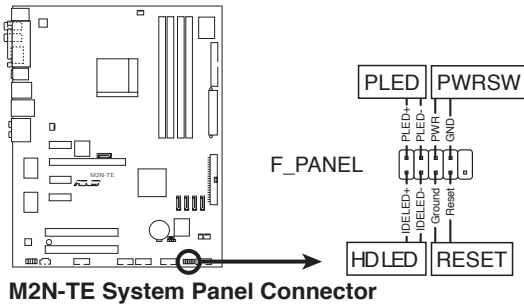
- **System power LED**
  This 3-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.

- **Hard disk drive activity LED**
  This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The IDE LED lights up or flashes when data is read from or written to the HDD.

- **System warning speaker**
  This 4-pin connector is for the chassis-mounted system warning speaker. The speaker allows you to hear system beeps and warnings.

- **Power/Soft-off button**
  This connector is for the system power button. Pressing the power button turns the system ON or puts the system in SLEEP or SOFT-OFF mode depending on the BIOS settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.

- **Reset button**
  This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

This chapter tells how to change the
system settings through the BIOS setup
menus. Detailed descriptions of the BIOS
parameters are also provided.

BIOS setup

3

3.1 Managing and updating your BIOS

The following utilities allow you to manage and update the motherboard Basic Input/Output System (BIOS) setup.

Award BIOS Flash Utility (Updates the BIOS in DOS mode using a bootable floppy disk.)

Refer to the corresponding sections for details on these utilities.

Save a copy of the original motherboard BIOS file to a bootable floppy disk in case you need to restore the BIOS in the future. Copy the original motherboard BIOS using the Award BIOS Flash utilities.

3.1.1 Creating a bootable floppy disk

1. Do either one of the following to create a bootable floppy disk.

   DOS environment

   a. Insert a 1.44MB floppy disk into the drive.

   b. At the DOS prompt, type `format` **A:/S** then press <Enter>.

   Windows® XP environment

   a. Insert a 1.44 MB floppy disk to the floppy disk drive.

   b. Click **Start** from the Windows® desktop, then select **My Computer**.

   c. Select the 3 1/2 Floppy Drive icon.

   d. Click File from the menu, then select **Format**. A **Format 3 1/2 Floppy Disk** window appears.

   e. Select **Create an MS-DOS startup disk** from the format options field, then click **Start**.

2. Copy the original or the latest motherboard BIOS file to the bootable floppy disk.

3.1.2   Updating the BIOS

The Basic Input/Output System (BIOS) can be updated using the AwardBIOS Flash Utility. Follow these instructions to update the BIOS using this utility.

1.   Download the latest BIOS file from the system builder web site. Rename the file to `m2n-te.bin` and save it to a floppy disk CD ROM or a USB flash disk in **FAT 16/12 format**.

> Save only the updated BIOS file in the floppy disk to avoid loading the wrong BIOS file.

2.   Copy the AwardBIOS Flash Utility (awdflash.exe) from the Software folder of the support CD to the floppy disk, CD-ROM, or USB flash disk with the latest BIOS file.

3.   Boot the system in DOS mode using the bootable floppy disk, CD-ROM, or USB flash disk you created earlier.

4.   When the A:> appears, replace the bootable floppy disk with the floppy disk containing the new BIOS file and the Award BIOS Flash Utility.

5.   At the prompt, type awdflash then press <Enter>. The Award BIOS Flash Utility screen appears.

```
        AwardBIOS Flash Utility for ASUS V1.14
   (C) Phoenix Technologies Ltd. All Rights Reserved

For NF570-SLI-M2N-TE              DATE:03/30/2006
Flash Type - PMC Pm49FL004T LPC/FWH

File Name to Program:




Message: Please input File Name!
```

6.   Type the BIOS file name in the File Name to Program field, then press <Enter>.

```
        AwardBIOS Flash Utility for ASUS V1.14
   (C) Phoenix Technologies Ltd. All Rights Reserved

For NF570-SLI-M2N-te              DATE:03/30/2006
Flash Type - PMC Pm49FL004T LPC/FWH

File Name to Program:




Message: Do You Want To Save Bios (Y/N)
```

7. Press <N> when the utility prompts you to save the current BIOS file. The following screen appears.

8. The utility verifies the BIOS file in the floppy disk, CD-ROM, or USB flash disk and starts flashing the BIOS file.

```
       AwardBIOS Flash Utility for ASUS V1.14
   (C) Phoenix Technologies Ltd. All Rights Reserved

For NF570-SLI-M2N-TE              DATE:03/30/2006
Flash Type - PMC Pm49FL004T LPC/FWH

File Name to Program:  m2nte.bin

Programming Flash Memory - 0FE00 OK

     Write OK        No Update        Write Fail

 Warning: Don't Turn Off Power Or Reset System!
```
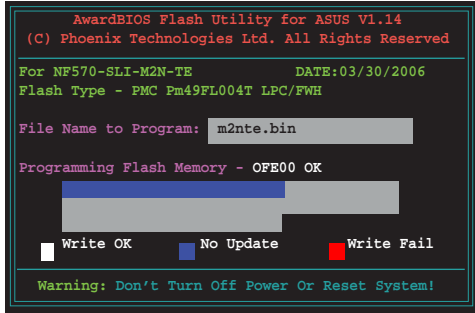
Do not turn off or reset the system during the flashing process!

9. The utility displays a Flashing Complete message indicating that you have successfully flashed the BIOS file. Remove the disk then press <F1> to restart the system.

```
       AwardBIOS Flash Utility for ASUS V1.14
   (C) Phoenix Technologies Ltd. All Rights Reserved

For NF570-SLI-M2N-TE              DATE:03/30/2006
Flash Type - PMC Pm49FL004T LPC/FWH

File Name to Program:  m2nte.bin
                    Flashing Complete
                    Press <F1> to Continue

     Write OK        No Update        Write Fail

 F1 Reset
```
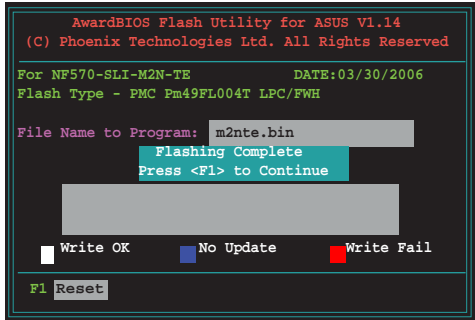
3.1.3 Saving the current BIOS file

You can use the AwardBIOS Flash Utility to save the current BIOS file. You can load the current BIOS file when the BIOS file gets corrupted during the flashing process.

Make sure that the disk has enough space to save the file.

To save the current BIOS file using the AwardBIOS Flash Utility:

1. Follow steps 1 to 6 of the previous section.

2. Press <Y> when the utility prompts you to save the current BIOS file. The following screen appears.

```
     AwardBIOS Flash Utility for ASUS V1.14
 (C) Phoenix Technologies Ltd. All Rights Reserved

For NF570-SLI-M2N-TE           DATE:03/30/2006
Flash Type - PMC Pm49FL004T LPC/FWH

File Name to Program: m2nte.bin

Save current BIOS as:


 Message:
```

3. Type a filename for the current BIOS file in the **Save current BIOS as** field, then press <Enter>.

```
     AwardBIOS Flash Utility for ASUS V1.14
 (C) Phoenix Technologies Ltd. All Rights Reserved

For NF570-SLI-M2N-TE           DATE:03/30/2006
Flash Type - PMC Pm49FL004T LPC/FWH

File Name to Program:  m2nte.bin
           Checksum: 810DH
Save current BIOS as: m2nte2.bin


 Message: Please Wait!
```

4. The utility saves the current BIOS file to the disk, then returns to the BIOS flashing process.

```
     AwardBIOS Flash Utility for ASUS V1.14
 (C) Phoenix Technologies Ltd. All Rights Reserved

For NF570-SLI-M2N-TE           DATE:03/30/2006
Flash Type - PMC Pm49FL004T LPC/FWH

File Name to Program:  m2nte2.bin
           Now Backup System BIOS to
                     File!




 Message: Please Wait!
```

3.2 BIOS setup program

This motherboard supports a programmable Low-Pin Count (LPC) chip that you can update using the provided utility described in section "4.1 Managing and updating your BIOS."

Use the BIOS Setup program when you are installing a motherboard, reconfiguring your system, or prompted to"Run Setup." This section explains how to configure your system using this utility.

Even if you are not prompted to use the Setup program, you can change the configuration of your computer in the future. For example, you can enable the security password feature or change the power management settings. This requires you to reconfigure your system using the BIOS Setup program so that the computer can recognize these changes and record them in the CMOS RAM of the LPC chip.

The LPC chip on the motherboard stores the Setup utility. When you start up the computer, the system provides you with the opportunity to run this program. Press <Del> during the Power-On Self-Test (POST) to enter the Setup utility; otherwise, POST continues with its test routines.

If you wish to enter Setup after POST, reboot the system by doing any of the following procedures:

- Restart using the OS standard shut-down procedure.
- Press <Ctrl>+<Alt>+<Del> simultaneously.
- Press the reset button on the system chassis.
- Press the power button to turn the system off then back on.

> Using the **power button**, **reset button**, or the **<Ctrl>+<Alt>+<Del>** keys to force reset from a running operating system can cause damage to your data or system. We recommend to always shut-down the system properly from the operating system.

The Setup program is designed to make it as easy to use as possible. Being a menu-driven program, it lets you scroll through the various sub-menus and make your selections from the available options using the navigation keys.

> - The default BIOS settings for this motherboard apply for most conditions to ensure optimum performance. If the system becomes unstable after changing any BIOS settings, load the default settings to ensure system compatibility and stability. Select the **Load Default Settings** item under the Exit Menu. See section "3.7 Exit Menu."
>
> - The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen.
>
> - Visit the system builder website to download the latest BIOS file for this motherboard.

3.2.1   BIOS menu screen

Menu items   Menu bar   Configuration fields   General help

```
                     Phoenix-Award BIOS CMOS Setup Utility
    Main   Advanced   Power   Boot   Tools   Exit
   System Time                    15 : 30 : 36                     Select Menu
   System Date                    Thu, Apr 6  2006
                                                          Item Specific Help▶

   Legacy Diskette A:             [1.44M, 3.5 in.]        Change the day, month,
                                                          year and century.
 ▶  Primary IDE Master            [ST321122A]
 ▶  Primary IDE Slave             [ASUS CDS520/A]
 ▶  First SATA Master             [None]
 ▶  Second SATA Master            [None]
 ▶  Third SATA Master             [None]
 ▶  Fourth SATA Master            [None]
    HDD SMART Monitoring          [Disabled]

    Installed Memory              512MB
    Usable Memory                 511MB


   F1:Help         ↑↓ : Select Item      -/+: Change Value   F5: Setup Defaults
   ESC: Exit       →←: Select Menu     Enter: Select SubMenu    F10: Save and Exit
```

Sub-menu items   Legend bar

3.2.2   Menu bar

The menu bar on top of the screen has the following main items:

Main   Select to change basic system configurations

Advanced   Select to configure advanced system settings

Power   Select for advanced power management (APM) configurations

Boot   Select to change system boot configuration

Exit   Select for the exit options and to load default BIOS settings

To select an item on the menu bar, press the right or left arrow key on the keyboard until the desired item is highlighted.

- The BIOS setup screens shown in this chapter are for reference purposes only, and may not exactly match what you see on your screen.

- Visit the TARGA® website (www.targa-online.com) to download the latest BIOS for this motherboard. Use only the TARGA® OEM BIOS when updating the motherboard; other BIOS updates may corrupt the BIOS ROM.

3.2.3   Legend bar

At the bottom of the Setup screen is a legend bar. The keys in the legend bar allow you to navigate through the various setup menus. The following table lists the keys found in the legend bar with their corresponding functions.

Navigation Key	Function
<F1>	Displays the General Help screen
<F5>	Loads setup default values
<Esc>	Exits the BIOS setup or returns to the main menu from a sub-menu
Left or Right arrow	Selects the menu item to the left or right
Up or Down arrow	Moves the highlight up or down between fields
Page Down or - (minus) field	Scrolls backward through the values for the highlighted
Page Up or + (plus)	Scrolls forward through the values for the highlighted field

3.2.4   Menu items

The highlighted item on the menu bar displays the specific items for that menu. For example, selecting **Main** shows the Main menu items.

The other items (Advanced, Power, Boot, and Exit) on the menu bar have their respective menu items.

3.2.5   Sub-menu items

A solid triangle before each item on any menu screen means that the item has a sub-menu. To display the sub-menu, select the item and press <Enter>.

3.2.6   Configuration fields

These fields show the values for the menu items. If an item is user-configurable, you can change the value of the field opposite the item. You cannot select an item that is not user-configurable.

A configurable field is enclosed in brackets, and is highlighted when selected. To change the value of a field, select it then press <Enter> to display a list of options. Refer to "3.2.7 Pop-up window."

3.2.7   Pop-up window

Select a menu item then press <Enter> to display a pop-up window with the configuration options for that item.

```
                    Phoenix-Award BIOS CMOS Setup Utility
    Main    Advanced   Power   Boot      Tools    Exit

  System Time                    15 : 30 : 36
  System Date                    Thu, Apr 6  2006
                                                            Select Menu

  Legacy Diskette A:                                     m Specific Help▶
   ▶   Primary IDE Mast     Legacy Diskette A:                cifies the capacity and
   ▶   Primary IDE Slav                                       sical size of diskette
   ▶   First SATA Mast      None         ..... [ ]            ve A.
   ▶   First SATA Mast      360K , 5.25 in.  ..... [ ]
   ▶   First SATA Mast      1.2M, 5.25 in.   ..... [ ]
   ▶   First SATA Mast      720K, 3.5 in.    ..... [ ]
       HDD SMART Monito      1.44M, 3.5 in.   ..... [ ]

       Installed Memory
       Usable Memory
                            ↑↓ :Move   ENTER:Accept   ESC:Abort


  F1:Help          ↑↓ : Select Item      -/+: Change Value   F :: Setup Defaults
  ESC: Exit        →←: Select Menu     Enter: Select SubMenu      F10: Save and Exit
```

Pop-up menu

3.2.8   General help

At the top right corner of the menu screen is a brief description of the selected item.

3.3 Main menu

When you enter the BIOS Setup program, the Main menu screen appears, giving you an overview of the basic system information.

Refer to section "3.2.1 BIOS menu screen" for information on the menu screen items and how to navigate through them.

```
                     Phoenix-Award BIOS CMOS Setup Utility
   Main   Advanced   Power   Boot   Tools   Exit

   System Time                    15 : 30 : 36            Select Menu
   System Date                    Thu, Apr 6  2006
                                                      Item Specific Help
   Legacy Diskette A:             [1.44M, 3.5 in.]    Change the day, month,
                                                      year and century.
►   Primary IDE Master           [ST321122A]
►   Primary IDE Slave            [ASUS CDS520/A]
►   First SATA Master            [None]
►   Second SATA Master           [None]
►   Third SATA Master            [None]
►   Fourth SATA Master           [None]
    HDD SMART Monitoring         [Disabled]

    Installed Memory             512MB
    Usable Memory                511MB


   F1:Help         ↑↓ : Select Item    -/+: Change Value   F5: Setup Defaults
   ESC: Exit       →←: Select Menu      Enter: Select SubMenu     F10: Save and Exit
```

3.3.1 System Time [xx:xx:xx]

Allows you to set the system time.

3.3.2 System Date [Day xx/xx/xxxx]

Allows you to set the system date.

3.3.3 Legacy Diskette A [1.44M, 3.5 in.]

Sets the type of floppy drive installed.
Configuration options: [None] [360K, 5.25 in.] [1.2M, 5.25 in.] [720K , 3.5 in.]
[1.44M, 3.5 in.]

3.3.4 Primary IDE Master/Slave

While entering Setup, the BIOS automatically detects the presence of IDE devices. There is a separate sub-menu for each IDE device. Select a device item then press <Enter> to display the IDE device information.

```
                Phoenix-Award BIOS CMOS Setup Utility

   Main

            Primary IDE Master                          Select Menu

    PIO Mode                    [Auto]          Item Specific Help
    UDMA Mode                   [Auto]
                                                Set a PIO mode for IDE
    Primary IDE Master          [Auto]          device. Mode0 through 4
    Access Mode                 [Auto]          for successive increase in
                                                performance.
    Capacity                    82 GB

    Cylinder                    39420
    Head                        16
    Sector                      255
    Transfer Mode               UDMA2



 F1:Help          ↑↓ : Select Item     -/+: Change Value   F5: Setup Defaults
 ESC: Exit        →←: Select Menu     Enter: Select SubMenu    F10: Save and Exit
```

The BIOS automatically detects the values opposite the dimmed items (Capacity, Cylinder, Head, Sector and Transfer Mode). These values are not user-configurable. These items show N/A if no IDE device is installed in the system.

PIO Mode [Auto]

Sets the PIO mode for the IDE device.
Configuration options: [Auto] [Mode 0] [Mode 1] [Mode 2] [Mode 3] [Mode 4]

UDMA Mode [Auto]

Disables or sets the UDMA mode. Configuration options: [Disabled] [Auto]

Primary IDE Master/Slave [Auto]

Select [Auto] to automatically detect an IDE hard disk drive. If automatic detection is successful, the BIOS automatically fills in the correct values for the remaining fields on this sub-menu. If the hard disk was already formatted on a previous system, the setup BIOS may detect incorrect parameters. Select [Manual] to manually enter the IDE hard disk drive parameters. If no drive is installed select [None]. Configuration options: [None] [Auto] [Manual]

Access Mode [Auto]

Sets the sector addressing mode.
Configuration options: [CHS] [LBA] [Large] [Auto]z

Access Mode [Auto]

The default [Auto] allows automatic detection of an IDE hard disk drive.
Select [CHS] for this item if you set the IDE Primary Master/Slave to [Manual].
Configuration options: [CHS] [LBA] [Large] [Auto]

> Before attempting to configure a hard disk drive, make sure you have the correct configuration information supplied by the drive manufacturer. Incorrect settings may cause the system to fail to recognize the installed hard disk.

Capacity

Displays the auto-detected hard disk capacity. This item is not configurable.

Cylinder

Shows the number of the hard disk cylinders. This item is not configurable.

Head

Shows the number of the hard disk read/write heads. This item is not configurable.

Sector

Shows the number of sectors per track. This item is not configurable.

Transfer Mode

Shows the Transfer mode. This item is not configurable.

> After entering the IDE hard disk drive information into BIOS, use a disk utility, such as FDISK, to partition and format new IDE hard disk drives. This is necessary so that you can write or read data from the hard disk. Make sure to set the partition of the Primary IDE hard disk drives to active.

3.3.5 First, Second, Third, Fourth SATA Master

While entering Setup, the BIOS automatically detects the presence of Serial ATA devices. There is a separate sub-menu for each SATA device. Select a device item then press <Enter> to display the SATA device information.

```
                    Phoenix-Award BIOS CMOS Setup Utility
    Main

                First SATA Master                      Select Menu

    Extended IDE Drive           [Auto]          Item Specific Help▶▶
    Access Mode                  [Auto]
                                                 Selects the type of fixed
    Capacity                     0 MB            disk connected to the
                                                 system.
    Cylinder                     0
    Head                         0
    Landing Zone                 0
    Sector                       0




    F1:Help        ↑↓ : Select Item     -/+: Change Value      F5: Setup Defaults
    ESC: Exit      →←: Select Menu     Enter: Select SubMenu    F10: Save and Exit
```

The BIOS automatically detects the values opposite the dimmed items (Capacity, Cylinder, Head, Landing Zone and Sector). These values are not user-configurable. These items show 0 if no SATA device is installed in the system.

Extended IDE Drive [Auto]

Selects the type of fixed disk connected to the system.
Configuration options: [None] [Auto]

Access Mode [Auto]

Sets the sector addressing mode. Configuration options: [Large] [Auto]

> Before attempting to configure a hard disk drive, make sure you have the correct configuration information supplied by the drive manufacturer. Incorrect settings may cause the system to fail to recognize the installed hard disk.

Capacity

Displays the auto-detected hard disk capacity. This item is not configurable.

Cylinder

Shows the number of the hard disk cylinders. This item is not configurable.

Head

Shows the number of the hard disk read/write heads. This item is not configurable.

Landing Zone

Shows the number of landing zone per track. This item is not configurable.

Sector

Shows the number of sectors per track. This item is not configurable.

> After entering the IDE hard disk drive information into BIOS, use a disk utility, such as FDISK, to partition and format new IDE hard disk drives. This is necessary so that you can write or read data from the hard disk. Make sure to set the partition of the Primary IDE hard disk drives to active.

3.3.6   HDD SMART Monitoring [Disabled]

Allows you to enable or disable the HDD Self-Monitoring Analysis and Reporting Technology (SMART) feature. Configuration options: [Disabled] [Enabled]

3.3.7   Installed Memory [xxx MB]

Shows the size of installed memory.

3.3.8   Usable Memory [XXX MB]

Shows the size of usable memory.

3.4 Advanced menu

The Advanced menu items allow you to change the settings for the CPU and other system devices.

⚠ Take caution when changing the settings of the Advanced menu items. Incorrect field values can cause the system to malfunction.

```
              Phoenix-Award BIOS CMOS Setup Utility
   Main   Advanced   Power   Boot   Tools   Exit
 ┌──────────────────────────────────────┬──────────────────────────┐
 │ ▶   CPU Configuration                │     Select Menu          │
 │ ▶   Chipset                          │                          │
 │ ▶   PCIPnP                           │  Item Specific Help▶      │
 │ ▶   Onboard Device Configuration     │                          │
 │                                      │  Press [Enter] to set.    │
 │                                      │                          │
 │                                      │                          │
 │                                      │                          │
 │                                      │                          │
 │                                      │                          │
 │                                      │                          │
 │                                      │                          │
 │                                      │                          │
 │                                      │                          │
 └──────────────────────────────────────┴──────────────────────────┘
  F1:Help     ↑↓: Select Item      -/+: Change Value    F5: Setup Defaults
  ESC: Exit   →←: Select Menu      Enter: Select SubMenu  F10: Save and Exit
```

3.4.1 CPU Configuration

```
              Phoenix-Award BIOS CMOS Setup Utility
      Advanced
 ┌──────────────────────────────────────┬──────────────────────────┐
 │         CPU Configuration            │     Select Menu          │
 │                                      │                          │
 │   CPU Type      AMD Engineering Sample│  Item Specific Help▶▶     │
 │                                      │                          │
 │   CPU Speed     2600 MHz             │  DRAM timing and control. │
 │   Cache RAM     1024K                │                          │
 │ ▶ DRAM Configuration                 │                          │
 │   AMD Cool'n'Quiet Function  [isabled]│                          │
 │                                      │                          │
 │                                      │                          │
 │                                      │                          │
 │                                      │                          │
 │                                      │                          │
 │                                      │                          │
 └──────────────────────────────────────┴──────────────────────────┘
  F1:Help     ↑↓: Select Item      -/+: Change Value    F5: Setup Defaults
  ESC: Exit   →←: Select Menu      Enter: Select Sub-menu  F10: Save and Exit
```

DRAM Configuration

The items in the sub-menu show the DRAM-related information auto-detected by the BIOS.

```
                    Phoenix-Award BIOS CMOS Setup Utility
     ┌──────────┐
     │ Advanced │
─────┴──────────┴───────────────────────────────────────────────────────────
 ┌─────────────────────────────────────────────┬─────────────────────────────┐
 │              DRAM Configuration             │       Select Menu           │
 ├─────────────────────────────────────────────┼─────────────────────────────┤
 │ Memory Clock Frequency           [Auto]     │  Item Specific Help▶▶▶      │
 │ Tcl                              [Auto]     │                             │
 │ Trcd                             [Auto]     │  Setting platform Memclock  │
 │ Trp                              [Auto]     │  or limit value.            │
 │ Tras                             [Auto]     │                             │
 │ 1T/2T Memory Timing              [Auto]     │                             │
 │                                             │                             │
 │                                             │                             │
 │                                             │                             │
 │                                             │                             │
 │                                             │                             │
 ├─────────────────────────────────────────────┴─────────────────────────────┤
 │ F1:Help        ↑↓ : Select Item      -/+: Change Value    F5: Setup Defaults│
 │ ESC: Exit      →←: Select Menu       Enter: Select Sub-menu F10: Save and Exit│
 └────────────────────────────────────────────────────────────────────────────┘
```

Memory Clock Frequency [Auto]
Sets the memory clock frequency.
Configuration options: [Auto] [DDR2 400] [DDR2 533] [DDR2 667] [DDR2 800]

Tcl [Auto]
Configuration options: [Auto] [3] [4] [5] [6]

Trcd [Auto]
Configuration options: [Auto] [3] [4] [5] [6]

Trp [Auto]
Configuration options: [Auto] [3] [4] [5] [6]

Tras [Auto]
Configuration options: [Auto] [5] [6] [7] ~ [18]

1T/2T Memory Timing [Auto]
Configuration options: [Auto] [1T] [2T]

AMD Cool 'n' Quiet Function [Enabled]

Enables or disables the AMD Cool 'n' Quiet technology.
Configuration options: [Disabled] [Enabled]

3.4.2   Chipset

```
                    Phoenix-Award BIOS CMOS Setup Utility
          Advanced

                              Chipset                          Select Menu

   CPU<->MCP55 HT Speed        [5x]                         Item Specific Help
   CPU<->MCP55 HT Width        [↓16 ↑16]
   CPU Frequency               [200.0]
   PCIE Spread Spectrum        [Disabled]
   SATA Spread Spectrum        [Disabled]
   HT Spread Spectrum          [Disabled]




    F1:Help          ↑↓ : Select Item     -/+: Change Value      F5: Setup Defaults
    ESC: Exit        →←: Select Menu       Enter: Select Sub-menu  F10: Save and Exit
```
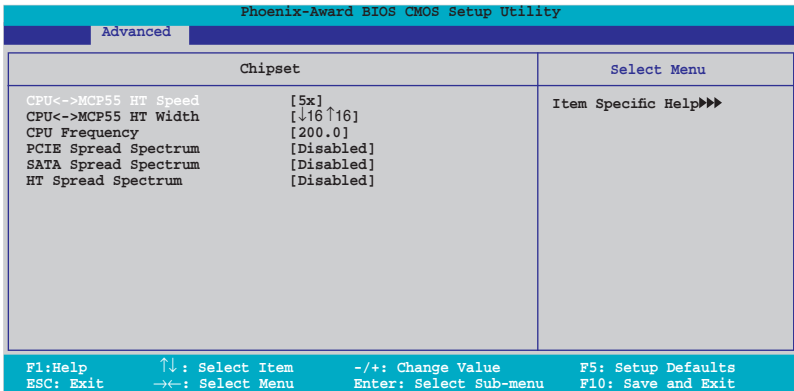
CPU<->MCP55 HT Speed [5x]

Sets the processor and MCP55 HyperTransport speed.
Configuration options: [1x] [2x] [3x] [4x] [5x]

CPU<->MCP55 HT Width [↓16 ↑16]

Allows you to set processor and MCP55 HyperTransport speed.
Configuration options: [↓8 ↑8] [↓16 ↑16]

CPU Frequency
Allows you to set CPU Frequencies..
Configuration options: [200.0] [201.0] [202.0] ~ [400.0]

CPU Frequency
Allows you to set CPU Frequencies..
Configuration options: [200.0] [201.0] [202.0] ~ [400.0]

3.4.3 PCIPnP

```
                    Phoenix-Award BIOS CMOS Setup Utility
        Advanced

                            Chipset                      Select Menu

    Plug & Play O/S             [Yes]               Item Specific Help▶▶

    Resources Controlled By     [Auto]
  x IRQ Resources




    F1:Help        ↑↓ : Select Item      -/+: Change Value     F5: Setup Defaults
    ESC: Exit      →←: Select Menu       Enter: Select Sub-menu F10: Save and Exit
```

Plug & Play O/S [No]

When set to [No], the BIOS configures all the devices in the system. When set to [Yes] and if you install a Plug and Play operating system, the operating system configures the Plug and Play devices not required for boot.
Configuration options: [No] [Yes]

Resources Controlled By [Auto]

When set to [Auto], the BIOS automatically configures all the boot and Plug and Play compatible devices. Set to [Manual] if you want to assign the IRQ DMA and memory base address fields. Configuration options: [Auto] [Manual]

> The item **IRQ Resources** becomes user-configurable when you set **Resources Controlled By** to [Manual].

IRQ Resources

```
                    Phoenix-Award BIOS CMOS Setup Utility
        Advanced

                        IRQ Resources                    Select Menu

    IRQ-5 assigned to              [PCI Device]       Item Specific Help▶▶
    IRQ-7 assigned to              [PCI Device]
    IRQ-9 assigned to              [PCI Device]       Press [Enter] to set
    IRQ-10 assigned to             [PCI Device]
    IRQ-11 assigned to             [PCI Device]
    IRQ-14 assigned to             [PCI Device]
    IRQ-15 assigned to             [PCI Device]




    F1:Help        ↑↓ : Select Item      -/+: Change Value     F5: Setup Defaults
    ESC: Exit      →←: Select Menu       Enter: Select Sub-menu F10: Save and Exit
```

IRQ-xx assigned to
When set to [PCI Device], the specific IRQ is free for use of PCI/PnP
devices. When set to [Reserved], the IRQ is reserved for legacy ISA devices.
Configuration options: [PCI Device] [Reserved]

3.4.4 Onboard Device Configuration

```
                    Phoenix-Award BIOS CMOS Setup Utility
        Advanced

            Onboard Device Configuration             Select Menu

    ▶   IDE Function Setup                        Item Specific Help▶
    ▶   Serial-ATA Configuration
    ▶   USB Configuration                         Press [Enter] to set
        Onboard nVidia LAN           [Enabled]
        Onboard LAN Boot ROM         [Disabled]
        Primary Display Adapter      [PCI slot]
        HD Audio                     [Auto]
        Front Panel Support Type     [AC97]
        Onboard 1394                 [Enabled]
        JMicron SATAII Controller    [IDE]
        Serial Port1 Address         [3F8/IRQ4]
        Parallel Port Address        [378/IRQ7]
        Parallel Port Mode           [EPP]
    x   ECP Mode Use DMA                3


    F1:Help        ↑↓ : Select Item     -/+: Change Value     F5: Setup Defaults
    ESC: Exit      →←: Select Menu      Enter: Select Sub-menu  F10: Save and Exit
```

IDE Function Setup

This sub-menu contains IDE function-related items. Select an item then press
<Enter> to edit.

```
                    Phoenix-Award BIOS CMOS Setup Utility
        Advanced

                IDE Function Setup                   Select Menu

        OnChip IDE Channel0          [Enabled]    Item Specific Help▶▶
        IDE DMA transfer access      [Enabled]
        IDE Prefetch Mode            [Enabled]
```

OnChip IDE Channel0 [Enabled]
Allows you to enable or disable the onchip IDE channel 0 controller .
Configuration options: [Disabled] [Enabled]

IDE DMA transfer access [Enabled]
Allows you to enable or disable the IDE DMA transfer access.
Configuration options: [Disabled] [Enabled]

IDE Prefetch Mode [Enabled]
Allows you to enable or disable the IDE PIO read prefetch mode.
Configuration options: [Disabled] [Enabled]

Serial-ATA Configuration

This sub-menu allows you to change Serial ATA settings. Select an item then press <Enter> to edit.

```
                    Phoenix-Award BIOS CMOS Setup Utility
        Advanced

              Serial-ATA Configuration                      Select Menu

    Serial-ATA Controller            [Enabled]      Item Specific Help▶▶
    RAID Enabled                     [Disabled]
  x SATA 1                    RAID   Disabled
  x SATA 2                    RAID   Disabled
  x SATA 3                    RAID   Disabled
  x SATA 4                    RAID   Disabled
```

Serial-ATA Controller [Enabled]
Enables or disables the Serial ATA controller.
Configuration options: [Disabled] [Enabled]

RAID Enabled [Disabled]

Enables or disables the onboard RAID controller. When set to [Enabled], the succeeding items become user-configurable.
Configuration options: [Disabled] [Enabled]

SATA 1~6 RAID [Disabled]

Enables or disables the RAID function of the SATA 1~6 drives.
Configuration options: [Disabled] [Enabled]

USB Configuration

The items in this menu allows you to change the USB-related features. Select an item then press <Enter> to display the configuration options.

```
                    Phoenix-Award BIOS CMOS Setup Utility
        Advanced

              USB Configuration                            Select Menu

  USB Controller                   [Enabled]      Item Specific Help▶▶
  USB2.0 Controller                [Enabled]
  USB Legacy support               [Enabled]      Enable or Disable the USB
                                                  Controller.
```

USB Controller [Enabled]
Allows you to enable or disable the onchip USB controller.
Configuration options: [Disabled] [Enabled]

USB 2.0 Controller [Enabled]
Allows you to enable or disable the USB 2.0 controller.
Configuration options: [Disabled] [Enabled]

USB Legacy Support [Enabled]
Allows you to enable or disable support for USB devices on legacy operating systems (OS). Configuration options: [Disabled] [Enabled]

Onboard Nvidia LAN [Enabled]

Enables or disables the onboard NVIDIA® LAN controller.
Configuration options: [Disabled] [Enabled]

OnBoard LAN Boot ROM [Disabled]

Allows you to enable or disable the onboard LAN boot ROM.
Configuration options: [Enabled] [Disabled]

Primary Display Adapter [PCI-E Slot]

Allows you to select the graphics controller to use as the primary boot device.
Configuration options: [PCI Slot] [PCI-E slot]

HD Audio [Auto]

Allows you to disable or set the High-Definition audio function.
Configuration options: [Auto] [Disabled]

Front Panel Support Type [AC97]

Allows you to set the front panel audio support type.
Configuration options: [AC97] [HD Audio]

Onboard 1394 [Enabled]

Allows you to disable or enable the onboard 1394 device support.
Configuration options: [Disabled] [Enabled]

JMicron SATAII Controller [IDE]

Allows you to disable or set the function of the extended SATA II controller.
Configuration options: [Disabled] [IDE]

Serial Port1 Address [3F8/IRQ4]

Allows you to select the Serial Port1 base address. Configuration options:
[Disabled] [3F8/IRQ4] [2F8/IRQ3] [3E8/IRQ4] [2E8/IRQ3] [Auto]

Parallel Port Address [378/IRQ7]

Allows you to select the Parallel Port address.
Configuration options: [Disabled] [378/IRQ7] [278/IRQ5] [3BC/IRQ7]

Parallel Port Mode [EPP]

Allows you to select the Parallel Port mode.
Configuration options: [Normal] [EPP] [ECP] [Bi-Directional]

> The "ECP Mode Use DMA" item becomes user-configurable when the " Parallel
> Port Mode" item is set to [ECP] or [Bi-Directional]

ECP Mode Use DMA [3]

Allows selection of ECP Mode. Configuration options: [1] [3]

3.5 Power menu

The Power menu items allow you to change the settings for the Advanced Configuration and Power Interface (ACPI) and the Advanced Power Management (APM). Select an item then press <Enter> to display the configuration options.

```
              Phoenix-Award BIOS CMOS Setup Utility
   Main   Advanced   Power   Boot   Tools   Exit
┌────────────────────────────────────────────┬──────────────────────────┐
│                                             │      Select Menu         │
│    ACPI Suspend Type        [S1&S3]         ├──────────────────────────┤
│    ACPI APIC support        [Enabled]       │  Item Specific Help▶▶     │
│ ▶  APM Configuration                        │                          │
│ ▶  Hardware Monitor                         │  Press [Enter] to select │
│                                             │  whether or not to restart│
│                                             │  the system after AC power│
│                                             │  loss.                   │
│                                             │                          │
│                                             │                          │
│                                             │                          │
│                                             │                          │
│                                             │                          │
│                                             │                          │
│                                             │                          │
├─────────────────────────────────────────────┴──────────────────────────┤
│  F1:Help         ↑↓: Select Item      -/+: Change Value    F5: Setup Defaults │
│  ESC: Exit       →←: Select Menu     Enter: Select SubMenu  F10: Save and Exit │
└─────────────────────────────────────────────────────────────────────────┘
```
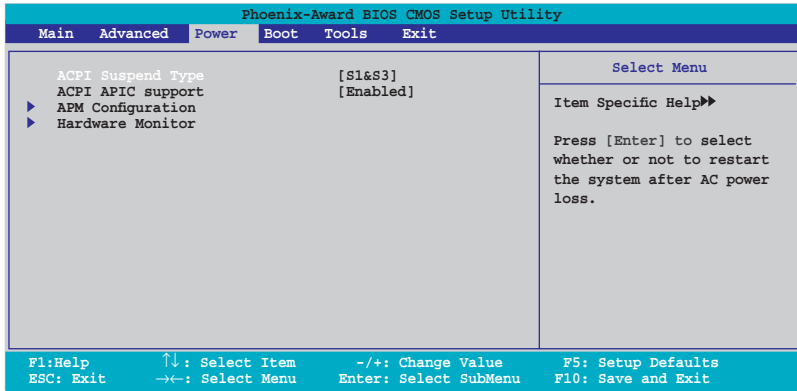
3.5.1 ACPI Suspend Type [S1&S3]

Allows you to select the Advanced Configuration and Power Interface (ACPI) state to be used for system suspend.
Configuration options: [S1 (POS)] [S3(STR)] [S1&S3]

3.5.2 ACPI APIC Support [Enabled]

Allows you to enable or disable the Advanced Configuration and Power Interface (ACPI) support in the Application-Specific Integrated Circuit (ASIC). When set to Enabled, the ACPI APIC table pointer is included in the RSDT pointer list.
Configuration options: [Disabled] [Enabled]

3.5.3   APM Configuration

```
              Phoenix-Award BIOS CMOS Setup Utility
         Power

                  APM Configuration                      Select Menu

        Restore on AC Power Loss     [Power-Off]       Item Specific Help
        PWR Button < 4 secs          [Instant-Off]
        Power On By PCI/PCIE Devices [Disabled]        Press [Enter] to select
        Power On By External Modems  [Disabled]        whether or not to restart
        Power On by RTC Alarm        [Disabled]        the system after AC power
     x  Date (of Month) Alarm             0            loss.
     x  Time (hh:mm:ss) Alarm         0 : 0 : 0




     F1:Help        ↑↓ : Select Item      -/+: Change Value      F5: Setup Defaults
     ESC: Exit      →←: Select Menu     Enter: Select SubMenu    F10: Save and Exit
```

Restore on AC Power Loss [Power-Off]

Allows you to enable or disable the Restore on AC Power Loss function.
Configuration options: [Power-Off] [Power-On]

PWR Button < 4 secs [Instant-Off]

Allows you to set the event after the power button is pressed for more than 4
seconds. Configuration options: [Suspend] [Instant-Off]

Power On By PCI/PCIE Devices [Disabled]

Allows you to enable or disable the PME to wake up from S5 by PCI or PCI
Express devices and NV Onboard LAN. Configuration options: [Disabled]
[Enabled]

Power On By External Modems [Disabled]

This allows either settings of [Enabled] or [Disabled] for powering up the computer
when the external modem receives a call while the computer is in Soft-off mode.
Configuration options: [Disabled] [Enabled]

The computer cannot receive or transmit data until the computer and
applications are fully running. Thus, connection cannot be made on the first
try. Turning an external modem off and then back on while the computer is
off causes an initialization string that turns the system power on.

Power On By RTC Alarm [Disabled]

Allows you to enable or disable RTC to generate a wake event. When this item is set to Enabled, the items Date of Month Alarm and Time (hh:mm:ss) Alarm items become user-configurable with set values.
Configuration options: [Disabled] [Enabled]

Date of Month Alarm [Disabled]

To set the date of alarm, highlight this item and press <Enter> to display the Date of Month Alarm pop-up menu. Key-in a value within the specified range then press <Enter>. Configuration options: [Min=0] [Max=31]

Time (hh:mm:ss) Alarm [Disabled]

To set the time of alarm:

1.	Highlight this item and press <Enter> to display a pop-up menu for the hour field.
2.	Key-in a value (Min=0, Max=23), then press <Enter>.
3.	Press <TAB> to move to the minutes field then press <Enter>.
4.	Key-in a minute value (Min=0, Max=59), then press <Enter>.
5.	Press <TAB> to move to the seconds field then press <Enter>.
6.	Key-in a value (Min=0, Max=59), then press <Enter>.

Power On By PS/2 Mouse [Disabled]

When set to [Enabled], this parameter allows you to use the PS/2 mouse to turn on the system. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Enabled]

Power On By PS/2 Keyboard [Disabled]

Allows you to disable the Power On by PS/2 keyboard function or set specific keys on the PS/2 keyboard to turn on the system. This feature requires an ATX power supply that provides at least 1A on the +5VSB lead. Configuration options: [Disabled] [Space Bar] [Ctrl-ESC] [Power Key]

3.5.4 Hardware Monitor

The items in this sub-menu displays the hardware monitor values automatically detected by the BIOS. It also allows you to change CPU Q-Fan feature-related parameters. Select an item then press <Enter> to display the configuration options.

```
                    Phoenix-Award BIOS CMOS Setup Utility
            Power

              Hardware Monitor                          Select Menu

    CPU Q-Fan Control            [Disabled]       Item Specific Help▶▶
    Vcore Voltage               [   1.47V]
    3.3V Voltage                [   3.15V]        Press [Enter] to enable or
    5V Voltage                  [   5.05V]        disable.
    12V Voltage                 [  11.58V]

    CPU Temperature                  48ºC
    M/B Temperature                  41ºC
    CPU FAN Speed                3068 RPM
    CHA_FAN1 Speed                  0 RPM
    CHA_FAN2 Speed                  0 RPM
    CPU Fan Speed warning       [ 800 RPM]




    F1:Help          ↑↓ : Select Item      -/+: Change Value     F5: Setup Defaults
    ESC: Exit        →←: Select Menu        Enter: Select SubMenu  F10: Save and Exit
```

CPU Q-Fan Control [Disabled]

Allows you to enable or disable the CPU Q-Fan controller.
Configuration options: [Disabled] [Enabled]

> The CPU Q-Fan Profile item becomes user-configurable when you set the **CPU Q-Fan Control** item to [Enabled].

Chassis Q-Fan Control [Disabled]

Allows you to enable or disable the chassis Q-Fan controller.
Configuration options: [Disabled] [Enabled]

> The Chassis Q-Fan Profile item becomes user-configurable when you set the **Chassis Q-Fan Control** item to [Enabled].

Vcore Voltage, 3.3V Voltage, 5V Voltage, 12V Voltage

The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators.

CPU Temperature, M/B Temperature

The onboard hardware monitor automatically detects and displays the motherboard and CPU temperatures. These items are not user-configurable.

CPU Fan Speed
CHA_FAN1/2 Speed

The onboard hardware monitor automatically detects and displays the CPU, Chassis, power, and Southbridge chip fan speeds in rotations per minute (RPM). If any of the fans is not connected to the motherboard, the field shows 0. These items are not user-configurable.
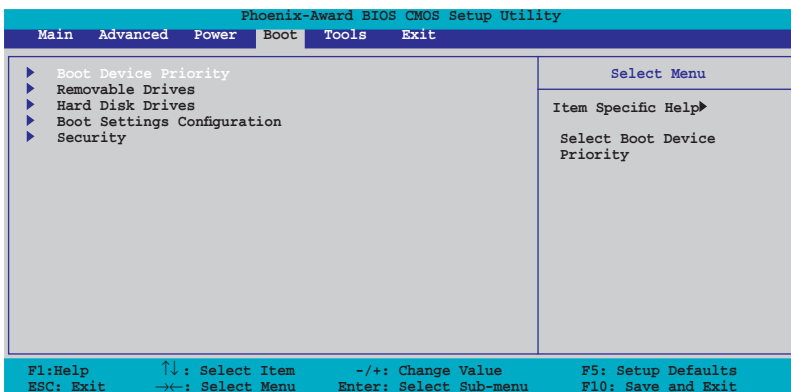
CPU Fan Speed warning [800 RPM]

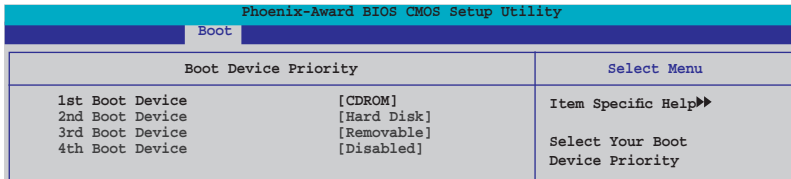Allows you to disable or set the CPU fan warning speed.
Configuration options: [Disabled] [800 RPM] [1200 RPM] [1600 RPM]

3.6 Boot menu

The Boot menu items allow you to change the system boot options. Select an item then press <Enter> to display the sub-menu.

```
                    Phoenix-Award BIOS CMOS Setup Utility
   ┌──────────────────────────────────────────────────────────────────────┐
     Main   Advanced   Power   Boot   Tools   Exit
   ├──────────────────────────────────────────────┬───────────────────────┤
   │  ▶  Boot Device Priority                       Select Menu            │
   │  ▶  Removable Drives                                                  │
   │  ▶  Hard Disk Drives                          Item Specific Help▶     │
   │  ▶  Boot Settings Configuration                                       │
   │  ▶  Security                                    Select Boot Device    │
   │                                                 Priority              │
   │                                                                       │
   │                                                                       │
   │                                                                       │
   │                                                                       │
   │                                                                       │
   ├──────────────────────────────────────────────┴───────────────────────┤
   │  F1:Help        ↑↓ : Select Item     -/+: Change Value   F5: Setup Defaults │
   │  ESC: Exit      →←: Select Menu     Enter: Select Sub-menu  F10: Save and Exit │
   └──────────────────────────────────────────────────────────────────────┘
```

3.6.1 Boot Device Priority

```
                    Phoenix-Award BIOS CMOS Setup Utility
   ┌───────────────────┐
            Boot
   ┌────────────────────────────────────────────────┬──────────────────────┐
   │           Boot Device Priority                    Select Menu          │
   ├────────────────────────────────────────────────┼──────────────────────┤
   │    1st  Boot Device          [CDROM]            Item Specific Help▶▶    │
   │    2nd  Boot Device          [Hard Disk]                                │
   │    3rd  Boot Device          [Removable]        Select Your Boot       │
   │    4th  Boot Device          [Disabled]         Device Priority        │
   └────────────────────────────────────────────────┴──────────────────────┘
```

1st ~ 4th Boot Device [CDROM]

These items specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system.
Configuration options: [Removable] [Hard Disk] [CDROM] [Disabled]

3.6.2 Removable Drives

```
              Phoenix-Award BIOS CMOS Setup Utility
                           Boot

         Removable Drives                      Select Menu

    1. Floppy Disks                          Item Specific Help▶▶
```

1. Floppy Disks

Allows you to assign a removable drive attached to the system.

3.6.3 Hard Disk Drives

```
              Phoenix-Award BIOS CMOS Setup Utility
                           Boot

         Hard Disk Drives                       Select Menu

    1. 1st Master: XXXXXXXXX                  Item Specific Help▶▶
```

1. 1st Master: XXXXXXXXX

Allows you to assign hard disk drives attached to the system.

3.6.4 Boot Settings Configuration

```
                    Phoenix-Award BIOS CMOS Setup Utility
                                    Boot

        Boot Settings Configuration                    Select Menu

   Case Open Warning                [Enabled]        Item Specific Help
   Quick Boot                       [Enabled]
   Boot Up Floppy Seek              [Disabled]       Press [Enter] to
   Bootup Num-Lock                  [On]             enable or disable.
   Typematic Rate Setting           [Disabled]
 x Typematic Rate (Chars/Sec)        6
 x Typematic Delay (Msec)            250
   OS Select For DRAM > 64MB        [Non-OS2]
   Full Screen LOGO                 [Enabled]
   Halt On                          [All Errors]




   F1:Help         ↑↓: Select Item     -/+: Change Value      F5: Setup Defaults
   ESC: Exit       →←: Select Menu     Enter: Select Sub-menu  F10: Save and Exit
```

Case Open Warning [Enabled]

Enables or disables the chassis open status feature. Setting to Enabled, clears the chassis open status. Refer to section "2.7.2 Internal connectors" for setting details. Configuration options: [Disabled] [Enabled]

Quick Boot [Enabled]

Allows you to enable or disable the system quick boot feature. When Enabled, the system skips certain tests while booting.
Configuration options: [Disabled] [Enabled]

Boot Up Floppy Seek [Disabled]

Enables or disables the floppy seek feature while booting. Setting to Enabled, clears the chassis open status. Configuration options: [Disabled] [Enabled]

Bootup Num-Lock [On]

Allows you to select the power-on state for the NumLock.
Configuration options: [Off] [On]

Typematic Rate Setting [Disabled]

Allows you to set the keystroke rate. Enable this item to configure the Typematic Rate (Chars/Sec) and the Typematic Delay (Msec).
Configuration options: [Disabled] [Enabled]

The items **Typematic Rate (Chars/Sec)** and **Typematic Delay (Msec)** become user-configurable only when the item **Typematic Rate Setting** is enabled.

Typematic Rate (Chars/Sec) [6]

Allows you to select the rate at which a character repeats when you hold a key. Configuration options: [6] [8] [10] [12] [15] [20] [24] [30]

Typematic Delay (Msec) [250]

Allows you to set the delay before keystrokes begin to repeat. Configuration options: [250] [500] [750] [1000]

OS Select for DRAM > 64MB [Non-OS2]

Set this item to OS2 only when you are running on an OS/2 operating system with an installed RAM of greater than 64 KB. Configuration options: [Non-OS2] [OS2]

Full Screen LOGO [Enabled]

Allows you to enable or disable the full screen logo display feature. Configuration options: [Disabled] [Enabled]
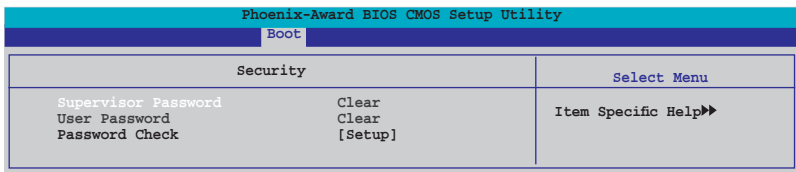
Make sure that the above item is set to [Enabled] if you want to use the ASUS MyLogo2™ feature.

Halt On [All Errors]

Allows you to error report type.
Configuration options: [All Errors] [No Errors] [All, But Keyboard] [All, But Diskette] [All, But Disk/Key]

3.6.5   Security

```
              Phoenix-Award BIOS CMOS Setup Utility
                  Boot

         Security                              Select Menu

    Supervisor Password      Clear
    User Password            Clear            Item Specific Help▶▶
    Password Check           [Setup]
```

Supervisor Password
User Password

These fields allow you to set passwords:

To set a password:

1.   Select an item then press <Enter>.
2.   Type in a password using a combination of a maximum of eight (8) alpha-numeric characters, then press <Enter>.

3.	When prompted, confirm the password by typing the exact characters again, then press <Enter>. The password field setting is changed to Set.

To clear the password:

1.	Select the password field and press <Enter> twice. The following message appears:

```
PASSWORD DISABLED !!!
Press any key to continue...
```
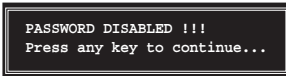
2.	Press any key to continue. The password field setting is changed to Clear.

A note about passwords

The Supervisor password is required to enter the BIOS Setup program preventing unauthorized access. The User password is required to boot the system preventing unauthorized use.
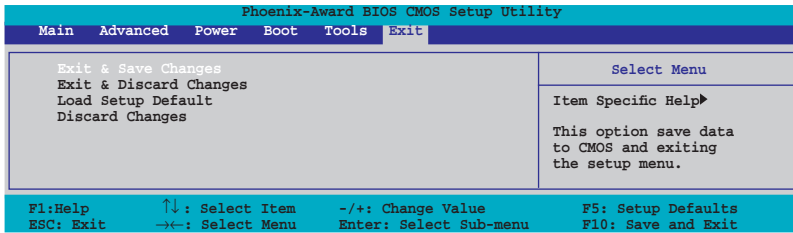
Forgot your password?

If you forget your password, you can clear it by erasing the CMOS Real Time Clock (RTC) RAM. The RAM data containing the password information is powered by the onboard button cell battery. If you need to erase the CMOS RAM, refer to section "2.6 Jumper" for instructions.

Password Check

This field requires you to enter the password before entering the BIOS setup or the system. Select [Setup] to require the password before entering the BIOS Setup. Select [System] to require the password before entering the system. Configuration options: [Setup] [System]

3.7 Exit menu

The Exit menu items allow you to load the optimal or failsafe default values for the BIOS items, and save or discard your changes to the BIOS items.

```
                    Phoenix-Award BIOS CMOS Setup Utility
    Main   Advanced   Power   Boot   Tools   Exit

    Exit & Save Changes                              Select Menu
    Exit & Discard Changes
    Load Setup Default                       Item Specific Help▶
    Discard Changes
                                             This option save data
                                             to CMOS and exiting
                                             the setup menu.


    F1:Help        ↑↓: Select Item    -/+: Change Value      F5: Setup Defaults
    ESC: Exit      →←: Select Menu     Enter: Select Sub-menu  F10: Save and Exit
```

Pressing <Esc> does not immediately exit this menu. Select one of the options from this menu or <F10> from the legend bar to exit.

Exit & Save Changes

Once you are finished making your selections, choose this option from the Exit menu to ensure the values you selected are saved to the CMOS RAM. An onboard backup battery sustains the CMOS RAM so it stays on even when the PC is turned off. When you select this option, a confirmation window appears. Select YES to save changes and exit.

If you attempt to exit the Setup program without saving your changes, the program prompts you with a message asking if you want to save your changes before exiting. Press <Enter> to save the changes while exiting.

Exit & Discard Changes

Select this option only if you do not want to save the changes that you made to the Setup program. If you made changes to fields other than System Date, System Time, and Password, the BIOS asks for a confirmation before exiting.

Load Setup Defaults

This option allows you to load the default values for each of the parameters on the Setup menus. When you select this option or if you press <F5>, a confirmation window appears. Select YES to load default values. Select Exit & Save Changes or make other changes before saving the values to the non-volatile RAM.

Discard Changes

This option allows you to discard the selections you made and restore the previously saved values. After selecting this option, a confirmation appears. Select YES to discard any changes and load the previously saved values.