Preface

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Version 2.0

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Federal Communications Commission (FCC)

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

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

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

Declaration of Conformity

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

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

Canadian Department of Communications

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

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

About the Manual

The manual consists of the following:

Chapter 1
Introducing the Motherboard

Describes features of the motherboard.

Go to ⇨ page 1

Chapter 2
Installing the Motherboard

Describes installation of motherboard components.

Go to ⇨ page 7

Chapter 3
Using BIOS

Provides information on using the BIOS Setup Utility.

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Chapter 4
Using the Motherboard Software

Describes the motherboard software

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Chapter 1
Introducing the Motherboard

Introduction

Thank you for choosing the NFORCE6M-A motherboard. This motherboard is a high performance, enhanced function motherboard that supports Socket AM2 AMD Athlon 64 FX/Athlon 64 X2 Dual-Core/Athlon 64/Sempron CPUs for high-end business or personal desktop markets.

This motherboard is based on NVIDIA®MCP65S/MCP61D media and communications processor (MCP) for best desktop platform solution. MCP65S/MCP61D is a single-chip, highly integrated, high performance HyperTransport peripheral controller, unmatched by any other single chip-device controller. This motherboard supports up to 32 GB of system memory with DDR2 800/667/533/400. It supports high resolution graphics via an PCI Express x16 slot, and it also integrates native Gigabit Ethernet LAN controller, USB 2.0, and Serial ATA host controller with maximum transfer rate up to 3.0 Gb/s.

There is an advanced full set of I/O ports in the rear panel, including PS/2 mouse and keyboard connectors, COM1, four USB ports, one optional LAN port, one optional ESATA port and audio jacks for microphone, line-in, and 6/8-channel (optional) line-out.

Feature

Processor

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

- Accommodates Athlon 64 FX/Athlon 64 X2 Dual-Core/Athlon 64/Sempron processors
- Supports up to 2000 MT/s HyperTransport™ (HT) interface Speeds

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

Chipset

The NVIDIA® nForce™MCP65S/MCP61D is a single-chip with proven reliability and performance.

- HyperTransport x16 up and down links at up to 1.0 GHz to the AM2 CPUs
- PCI Express x16 for external graphics
- PCI 2.3 interface at 33 MHz
- MCP65S: four-port SATA II 3.0 Gb/s controllers;
  MCP61D: two-port SATA II 3.0 Gb/s controllers
- MCP65S: ten USB 2.0 ports;
  MCP61D: eight USB 2.0 ports
- Fast ATA-133 IDE controllermc

Memory

- DDR2 800/667/533/400 DDR SDRAM with Dual Channel supported
- Accommodates four unbuffered DIMMs
- Up to 8 GB per DIMM with maximum memory size up to 32 GB

Audio (Optional)

- High performance HD Audio CODEC
- 24-bit resolution with up to 192 KHz sample rates
- Supports Jack Retasking and Universal Jacks™
- +5V Analog Power Supply

- High performance HD Audio CODEC
- Eight Channel (4 DAC pairs and 2 stereo ADCs) with 24-bit resolustion
- Sample Rates Up to 192 KHz
- +5V Analog Power Supply

Onboard LAN (Optional)

The onboard LAN provides the following features:

- Integrated Gigabit Ethernet Controller for PCI Express™ Applications
- Integrated 10/100/1000 transceiver
- Wake-on-LAN and remote wake-up support

Expansion Options

The motherboard comes with the following expansion options:

- One PCI Express x16 for Graphics Interface
- One PCI Express x1 slots
- Three 32-bit PCI v2.3 compliant slots
- One IDE connector supporting up to two IDE devices
- One floppy disk drive interface
- Two 7-pin SATA connectors (MCP65S: Four 7-pin SATA connectors)

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

Integrated I/O

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

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

BIOS Firmware

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

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

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

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

Motherboard Components

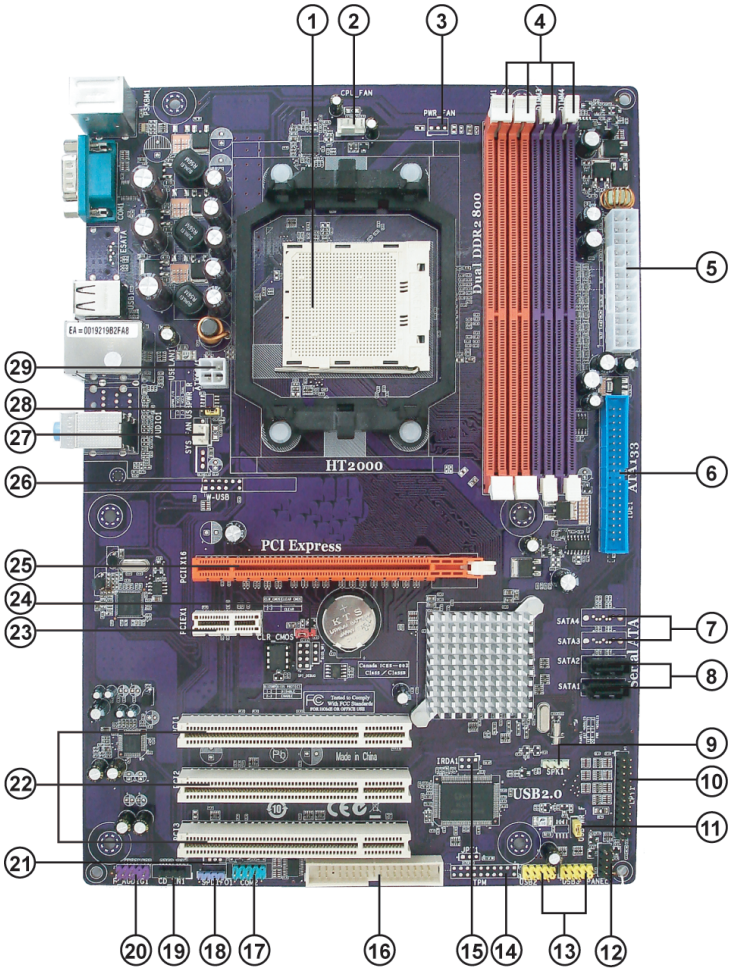


Table of Motherboard Components

LABEL	COMPONENTS
1.CPU Socket	Socket AM2 for AMD Athlon 64 FX /Athlon 64 X2 Dual-Core/Althlon 64/Sempron processors
2.CPU_FAN	CPU cooling fan connector
3.PWR_FAN*	Power Fan connector
4.DIMM1~4	240-pin DDR2 SDRAM slots
5.ATX_POWER1	Standard 24-pin ATX power connector
6.IDE1	Primary IDE connector
7.SATA3~4*	Serial ATA connectors
8.SATA1~2	Serial ATA connectors
9.SPK1	Speaker header
10.LPT1	Onboard Parallel Port header
11.USBPWR_F	Front USB Power Select jumper
12.PANEL1	Front panel switch/LED header
13.USB2~3	Front Panel USB headers
14.TPM*	TPM Module header
15.IRDA1*	Infrared header
16.FDD1	Floppy disk drive connector
17.COM2	Onboard serial port header
18.SPDIFO1	SPDIF out header
19.CD_IN1	Analog audio input connector
20.F_AUDIO1	Front panel audio header
21.WOL1*	Wake On LAN Connector
22.PCI1~3	32-bit add-on card slots
23.PCIEX1	PCI Express x1 slot
24.CLR_CMOS	Clear CMOS jumper
25.PCIEX16	PCI Express x16 slot for graphics interface
26.W-USB*	USB Wireless Card header
27.SYS_FAN	System cooling fan connector
28.USBPWR_R	Rear USB Power Select jumper
29.ATX12V1	Standard 4-Pin ATX Power connector

* Stands for optional components

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

Memo

Chapter 2
Installing the Motherboard

Safety Precautions

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

Choosing a Computer Case

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

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

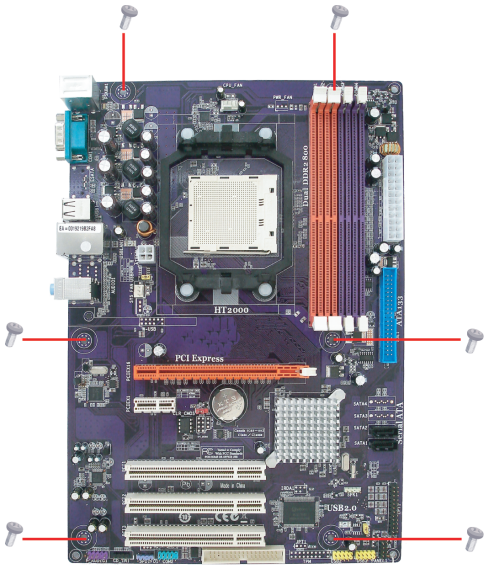
This motherboard carries an ATX form factor of 305 X 210 mm. Choose a case that accommodates this form factor.

Installing the Motherboard in a Case

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

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

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



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

Checking Jumper Settings

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

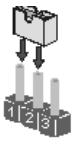
Setting Jumpers

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

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

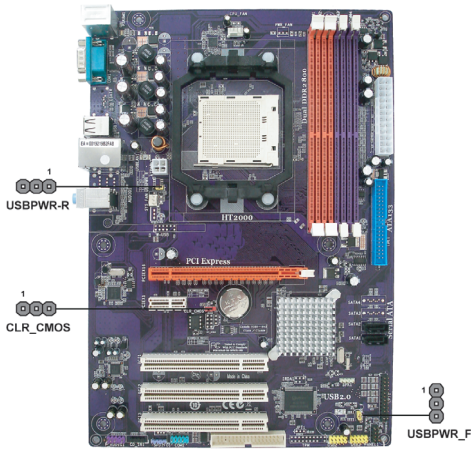
SHORT OPEN

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



Checking Jumper Settings

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



Jumper Settings

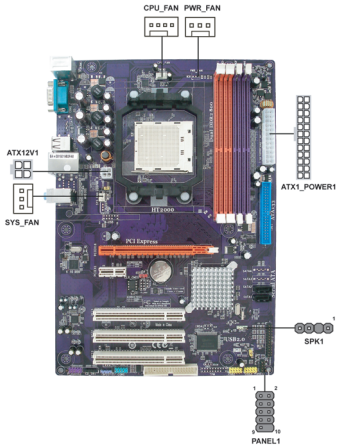
Jumper	Type	Description	Setting (default)	
CLR_CMOS	3-pin	CLEAR CMOS	1-2: NORMAL 2-3: CLEAR Before clearing the CMOS, make sure to turn the system off.	 1 **CLR_CMOS**
USBPWR_R	3-pin	USB Power Select Jumper	1-2: VCC5 2-3: VCC5_DUAL	 1 **USBPWR_R**
USBPWR_F	3-pin	USB Power Select Jumper	1-2: VCC5 2-3: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

1. *To avoid the system instability after clearing CMOS, we recommend users to enter the main BIOS setting page to "Load Optimized Defaults" and then "Save & Exit Setup".*
2. *Make sure the power supply provides enough VCC5_DUAL voltage before selecting the VCC5_DUAL function.*
3. *It is required that users place the USBPWR_F & USBPWR_R cap onto 2-3 pin rather than 1-2 pin as default if you want to wake up the computer by USB/PS2 KB/Mouse.*

Connecting Case Components

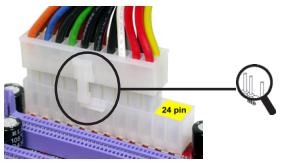
After you have installed the motherboard into a case, you can begin connecting the motherboard components. Refer to the following:

1 Connect the CPU cooling fan cable to **CPU_FAN**.
2 Connect the power cooling fan connector to **PWR_FAN** (optional).
3 Connect the system cooling fan connector to **SYS_FAN**.
4 Connect the case speaker cable to **SPK1**.
5 Connect the standard power supply connector to **ATX_POWER1**.
6 Connect the auxiliary case power supply connector to **ATX12V1**.
7 Connect the case switches and indicator LEDs to the **PANEL1**.



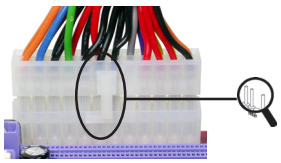
Connecting 20/24-pin power cable

Users please note that the 20-pin and 24-pin power cables can both be connected to the ATX_POWER1 connector. With the 20-pin power cable, just align the 20-pin power cable with the pin 1 of the ATX_POWER1 connector. However, using 20-pin power cable may cause the system to become unbootable or unstable because of insufficient electricity. A minimum power of 300W is recommended for a fully-configured system.



20-pin power cable

With ATX v1.x power supply, users please note that when installing 20-pin power cable, the latche of power cable clings to the left side of the ATX_POWER1 connector latch, just as the picture shows.



24-pin power cable

With ATX v2.x power supply, users please note that when installing 24-pin power cable, the latches of power cable clings to the right side of the ATX_POWER1 connector latch.

CPU_FAN: CPU Cooling FAN Power Connector

Pin	Signal Name	Function
1	Ground	System Ground
2	+12V	Power +12V
3	SENSE	Sensor
4	CONTROL	CPU FAN control

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

PWR_FAN (optional)/SYS_FAN: Cooling FAN Power Connectors

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

SPK1: Internal speaker

Pin	Signal Name
1	VCC
2	Key
3	GND
4	Signal

ATX_POWER1: ATX 24-pin Power Connector

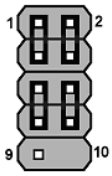
Pin	Signal Name	Pin	Signal Name
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	COM	15	COM
4	+5V	16	PS_ON
5	COM	17	COM
6	+5V	18	COM
7	COM	19	COM
8	PWR OK	20	-5V
9	5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	COM

ATX12V1: ATX 12V Power Connector

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

Front Panel Header

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



PANEL1

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

** MSG LED (dual color or single color)*

Hard Drive Activity LED

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

Power/Sleep/Message waiting LED

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

Reset Switch

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

Power Switch

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

Installing Hardware

Installing the Processor

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

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

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

Before installing the Processor

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

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

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

CPU Installation Procedure

The following illustration shows CPU installation components.

1 Install your CPU. Pull up the lever away from the socket and lift up to 90-degree angle.
2 Locate the CPU cut edge (the corner with the pin hold noticeably missing). Align and insert the CPU correctly.
3 Press the lever down and apply thermal grease on top of the CPU.
4 Put the CPU Fan down on the retention module and snap the four retention legs of the cooling fan into place.
5 Flip the levers over to lock the heat sink in place and connect the CPU cooling Fan power cable to the CPUFAN connector. This completes the installation.

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

Installing Memory Modules

This motherboard accommodates four 240-pin unbuffered DIMMs and supports DDR2 800 /667/533/400 DDR2 SDRAM. You must install at least one module in any of the four slots. Each module can be installed with 8 GB of memory; the total memory capacity is 32 GB.

DDR2 SDRAM memory module table

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

You must install at least one module in any of the two or four slots. Each module can be installed with 8 GB of memory.

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

Installation Procedure

Refer to the following to install the memory modules.

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

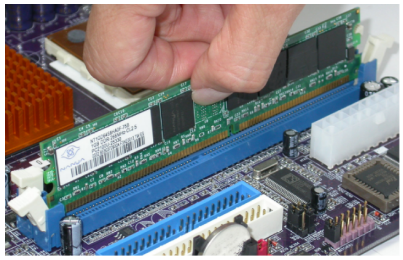


Table A: DDR2 (memory module) QVL (Qualified Vendor List)

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

Type	Size	Vendor	Module Name
DDR2 400	256 MB	SAMSUNG	K4T5163QB-ZCCC
	512 MB	TwinMos	SAMSUNG K4T51083QB-GCCC
DDR2 533	256 MB	CORSAIR	VC256MB533D2 4PB11D9CHM
		CORSAIR	AENEON AET94F-370
		ELPIDA	E2508AA-DF-E
		ELPIDA	E2508AA-T7F-E
		Hynix	HY5PS121621
		Kingmax	Hynix HY5PS121621
		Kingston	Infineon HYB18T512260AF-3.7
		Kingston	ELPIDA E5116AF-5C-E
		Nanya	NT5TU32M16AG-37B
		Ramaxel	5PB42 D9DCD
		TwinMOS	ELPIDA 8D22IB-ED
	512 MB	A-DATA	M2GXX2F3H4140A1B0E
		AENEON	AET93F370A98Z
		AENEON	AET94F370A98U
		CORSAIR	SAMSUNG K4T510830B-GCD5
		Infineon	HY818T512800AF373346778
		Kingston	Hynix HY5PS12821
		Kingston	Hynix HYB18T512800AF37
		Kingston	Nanya NT5TU64M8AE-37B
		PQI	PQB2648D38R
		Ramaxel	ELPIDA E5108AG-5C-E
		Ramaxel	5PB42 D9DCD
		Ramaxel	ELPIDA E5116AF-5C-E
		TwinMOS	ELPIDA E5108AB-5C-E
	1 GB	APACER	ELPIDA E5108AB-5C-E
		GEIL	A016E2864T2AG8AKT5H120001
		Hynix	HY5P512821 F-C4
		Infineon	HY818T512800AF3733344539
		Kingmax	KKEA88E4AAKKG-37
		PQI	PQB2648D38R
		UMAX	U2S12D30TP-5C
		Ramaxel	6AD11 D9GCT
		SAMSUNG	K4T51083QC
		SAMSUNG	K4T56083QF-ZCE6
		SyncMAX	04400WB01 R050008A
		Transcend	K4T5108AE-6E-E
		Transcend	Jet Ram J12Q3AB-6
		Transcend	SAMSUNG K4T51083QC
		TwinMOS	TMM6208G8M30B

Type	Size	Vendor	Module Name
DDR2 667	256 MB	Infineon	HYS64T325001HU-3-A
		Ramaxel	5NB31 D9DCG
	512 MB	A-DATA	Eipida E5108AE-6E-E
		A-DATA	AD29608A88-3EG
		CORSAIR	VALUESELECT 32M8CEC
		CORSAIR	64M8CFEPS1000545
		GEIL	GL2L64MO88BA18W
		GEIL	GL2L64M088BA30AW
		Infinity	0547W64M8
		Ramaxel	6AD11 D9GCT
		SAMSUNG	K4T51083QC
		SAMSUNG	K4T56083QF-ZCE6
		SyncMAX	04400WB01 R050008A
		Transcend	K4T5108AE-6E-E
		Transcend	Jet Ram J12Q3AB-6
		Transcend	SAMSUNG K4T51083QC
		TwinMOS	TMM6208G8M30B
	1 GB	APACER	AM4B5708GQJS7E0631F
		APACER	AM4B5708GEWS7E-0637F
		Infineon	HYB18T512800AF3S
		PQI	PQC2648D3R
		SAMSUNG	K4T51083QC
		UMAX	U2S12D30TP-6E
DDR2 800	1 GB	APACER	AM4B5708BPJS8E0634E
		Kingbox	EPD264082200-3P
		Kingbox	DDR264082200-3
		Kintell	KTL5PS12821B FP-S5
		SyncMAX	R050075B
		UMAX	U2S12D30TP-8E

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

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

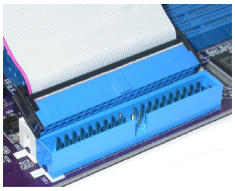
About IDE Devices

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

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

IDE1: IDE Connector

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



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

About SATA Connectors

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

Installing Serial ATA Hard Drives

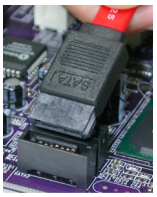
To install the Serial ATA (SATA) hard drives, use the SATA cable that supports the Serial ATA protocol. This SATA cable comes with an SATA power cable. You can connect either end of the SATA cable to the SATA hard drive or the connector on the motherboard.

SATA cable (optional)

SATA power cable (optional)

Refer to the illustration below for proper installation:

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



This motherboard supports the "Hot-Plug" function.

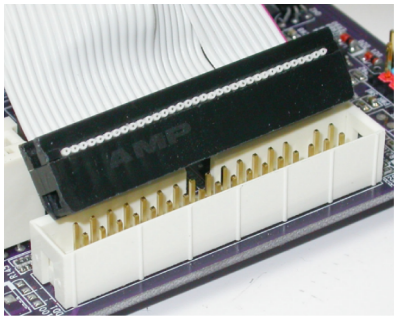
Installing a Floppy Diskette Drive

The motherboard has a floppy diskette drive (FDD1) interface and ships with a diskette drive ribbon cable that supports one or two floppy diskette drives. You can install a 5.25-inch drive and a 3.5-inch drive with various capacities. The floppy diskette drive cable has one type of connector for a 5.25-inch drive and another type of connector for a 3.5-inch drive.

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

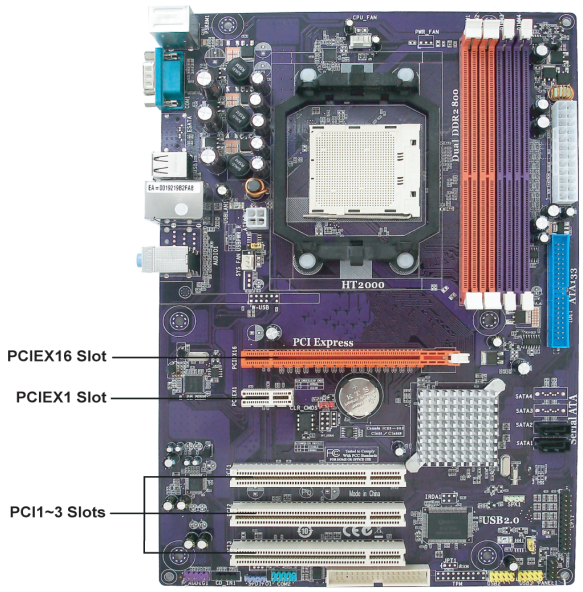
FDD1: Floppy Disk Connector

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



Installing Add-on Cards

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



PCIEX16 Slot The PCI Express x16 slot is used to install an external PCI Express graphics card that is fully compliant to the PCI Express Base Specification revision 1.1.

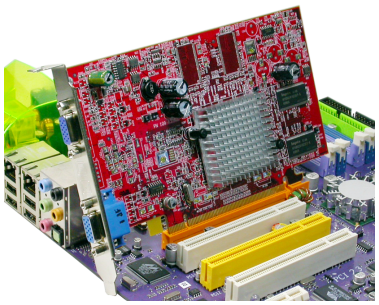
PCIEX1 Slot The PCI Express x1 slot is fully compliant to the PCI Express Base Specification revision 1.1 as well.

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

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

Follow these instructions to install an add-on card:

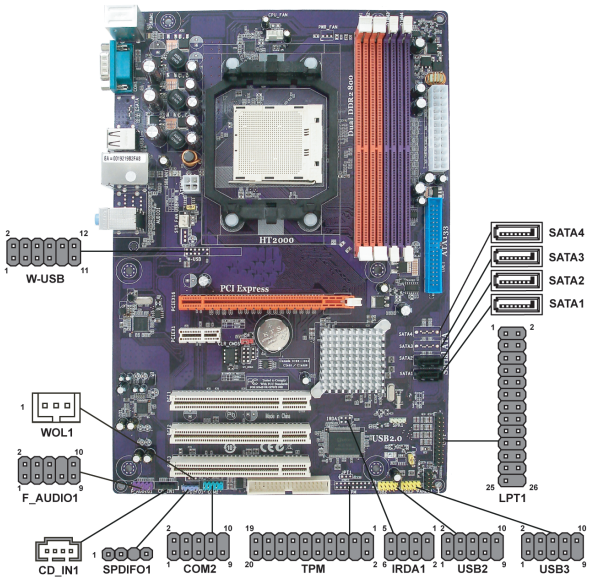
1 Remove a blanking plate from the system case corresponding to the slot you are going to use.
2 Install the edge connector of the add-on card into the expansion slot. Ensure that the edge connector is correctly seated in the slot.
3 Secure the metal bracket of the card to the system case with a screw.



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

Connecting Optional Devices

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



F_AUDIO1: Front Panel Audio header (Optional)

This header allows the user to install auxiliary front-oriented microphone and 6/8-channel (optional) line-out ports for easier access.

Pin	Signal Name	Function
1	AUD_MIC	Front Panel Microphone input signal
2	AUD_GND	Ground used by Analog Audio Circuits
3	MIC_BIAS	Microphone Power
4	AUD_VCC	Filtered +5V used by Analog Audio Circuits
5	AUD_F_R	Right Channel audio signal to Front Panel
6	AUD_RET_R	Right Channel Audio signal to Return from Front Panel
7	REVD	Reserved
8	Key	No Pin
9	AUD_F_L	Left Channel Audio signal to Front Panel
10	AUD_RET_L	Left Channel Audio signal to Return from Front Panel

Pin	Signal Name	Pin	Signal Name
1	PORT 1L	2	AUD_GND
3	PORT 1R	4	PRESENCE#
5	PORT 2R	6	SENSE1_RETURN
7	SENSE_SEND	8	KEY
9	PORT 2L	10	SENSE2_RETURN

SATA1~4: Serial ATA connectors

These connectors are used to support the new Serial ATA devices (SATA 3 and 4 are optional) for the highest date transfer rates (3.0 Gb/s), simpler disk drive cabling and easier PC assembly. It eliminates limitations of the current Parallel ATA interface. But maintains register compatibility and software compatibility with Parallel ATA.

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

USB2~3: Front Panel USB headers

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

Pin	Signal Name	Function
1	USBPWR	Front Panel USB Power
2	USBPWR	Front Panel USB Power
3	USB_FP_P0-	USB Port 0 Negative Signal
4	USB_FP_P1-	USB Port 1 Negative Signal
5	USB_FP_P0+	USB Port 0 Positive Signal
6	USB_FP_P1+	USB Port 1 Positive Signal
7	GND	Ground
8	GND	Ground
9	Key	No pin
10	NC	Not connected

Please make sure that the USB cable has the same pin assignment as indicated above. A different pin assignment may cause damage or system hang-up.

IRDA1: Infrared port (Optional)

The motherboard supports an Infrared (IRDA1) data port. Infrared ports allow the wireless exchange of information between your computer and similarly equipped devices such as printers, laptops, Personal Digital Assistants (PDAs), and other computers.

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

CD_IN1: Analog Audio Input header

Pin	Signal Name	Function
1	CD_Right	CD In right channel
2	CD_GND	Ground
3	CD_GND	Ground
4	CD _Left	CD In left channel

TPM: TPM Module Header (Optional)

Trusted Platform Module (TPM) is a published specification detailing a microcontroller that can store secured information, and implementations of that specification.

Pin	Signal Name	Pin	Signal Name
1	TPM_CLK	11	LAD0
2	GND	12	GND
3	LFRAME#	13	RESERVE0
4	KEY	14	RESERVE1
5	LREST#	15	VCC3_DUAL
6	VCC5	16	SERIRQ
7	LAD3	17	GND
8	LAD2	18	CLKRUN#
9	VCC3	19	LPCPD#
10	LAD1	20	RESERVE2

W-USB: USB Wireless Card Header (Optional)

This is a header that will preserve the functionality of wired USB while also unwiring the cable connection and providing enhanced support for streaming media CE devices and peripherals.

Pin	Signal Name	Pin	Signal Name
1	USB Power	7	GND
2	USB Power	8	GND
3	USBPA-	9	KEY
4	USBPB-	10	USBOC#
5	USBPA+	11	PME#
6	USBPB+	12	VCC3_DUAL

SPDIFO1: SPDIF out header

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

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

LPT1: Onboard parallel port header

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

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

COM2: Onboard serial port header

Connect a serial port extension bracket to this header to add a second serial port to your system.

Pin	Signal Name	Function
1	DCDB	Data carry detect
2	NSINB	Serial Data In
3	NSOUTB	Serial Data Out
4	DTRB	Data terminal ready
5	GND	Ground
6	DSRB	Date set ready
7	RTSB	Request to send
8	CTSB	Clear to send
9	RI	Ring Indicator
10	Key	No pin

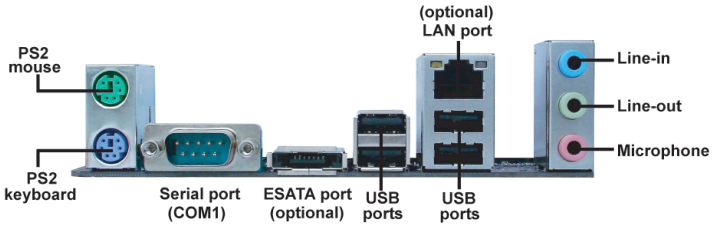
WOL1: Wake On LAN connector (Optional)

If you have installed a LAN card, use the cable provided with the card to plug into the WOL1 connector onboard. This enables the Wake On LAN (WOL) feature. When your system is in a power-saving mode, any LAN signal automatically resumes the system. You must enable this item using the Power Management page of the Setup Utility in the BIOS. See Chapter 3 for more information.

Pin	Signal Name	Function
1	5VSB	+5V stand by power
2	GND	Ground
3	Wake_up	Wake up signal (low active)

Connecting I/O Devices

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



PS2 Mouse — Use the upper PS/2 port to connect a PS/2 pointing device.

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

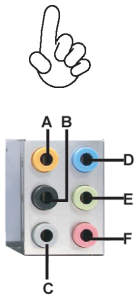
ESATA Port (Optional) — Use this port to connect to an external SATA box or a Serial ATA portmultiplier.

Serial Port (COM1) — Use the COM port to connect serial devices such as mice or fax/modems. COM1 is identified by the system as COM1/3.

LAN Port (Optional) — Connect an RJ-45 jack to the LAN port to connect your computer to the Network.

USB Ports — Use the USB ports to connect USB devices.

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



This motherboard may adopt 8-channel audio ports that correspond to the A,B, C, and E port respectively. In addition, all of the 3 ports, B, C, and E provide users with both right & left channels individually. Users please refer to the following note for specific port function definition.

A: Center & Woofer	D: Line-in
B: Back Surround	E: Front Out
C: Side Surround	F: Mic_in Rear

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

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

Chapter 3
Using BIOS

About the Setup Utility

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

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

The BIOS Setup Utility enables you to configure:

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

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

This chapter provides explanations for Setup Utility options.

The Standard Configuration

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

This Setup Utility should be used:

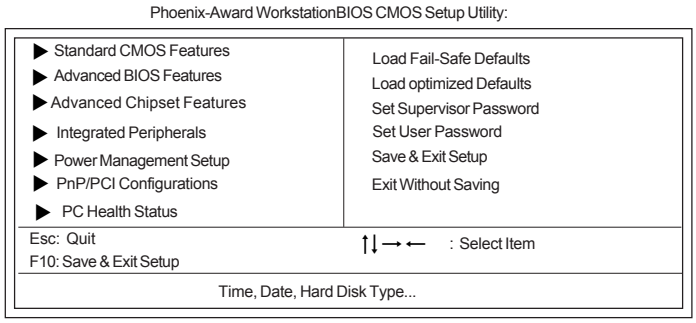
- when changing the system configuration
- when a configuration error is detected and you are prompted to make changes to the Setup Utility
- when trying to resolve IRQ conflicts
- when making changes to the Power Management configuration
- when changing the password or making other changes to the Security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

Entering the Setup Utility

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

Press DEL to enter SETUP

Pressing the delete key accesses the BIOS Setup Utility:



BIOS Navigation Keys

The BIOS navigation keys are listed below:

KEY	FUNCTION
←↑↓→	Move
Enter	Select
+/-/PU/PD	Value
ESC	Exits the current menu
F1	General Help
F5	Previous Values
F7	Optimized Defaults
F6	Fail-Safe Defaults
F10	Save

Updating the BIOS

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

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

Using BIOS

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

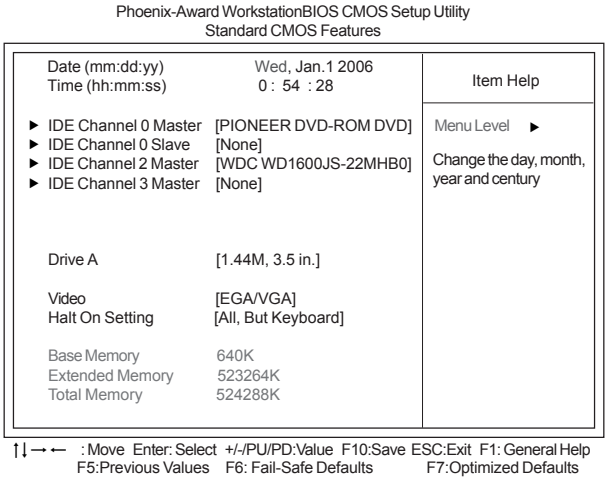
Some options lead to pop-up dialog boxes that prompt you to verify that you wish to execute that option. Other options lead to dialog boxes that prompt you for information.

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

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

Standard CMOS Features

This option displays basic information about your system.



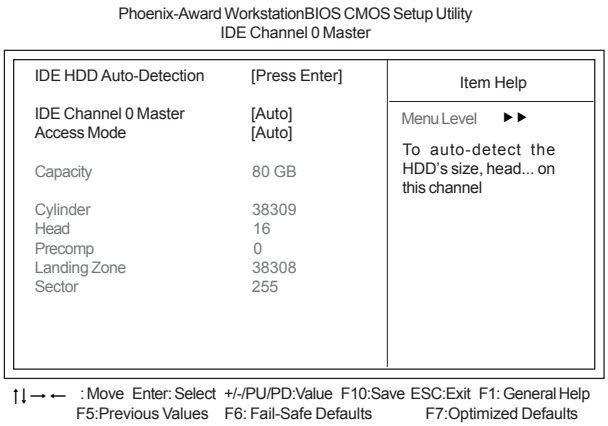
Date and Time

The Date and Time items show the current date and time on the computer. If you are running a Windows OS, these items are automatically updated whenever you make changes to the Windows Date and Time Properties utility.

►IDE Devices (None)

Your computer has two IDE channels (Primary and Secondary) and each channel can be installed with one or two devices (Master and Slave). Use these items to configure each device on the IDE channel.

Press <Enter> to display the IDE submenu:



IDE HDD Auto-Detection

Press <Enter> while this item is highlighted to prompt the Setup Utility to automatically detect and configure an IDE device on the IDE channel.

If you are setting up a new hard disk drive that supports LBA mode, more than one line will appear in the parameter box. Choose the line that lists LBA for an LBA drive.

IDE Channel 0/2/3 Master & IDE Channel 0 Slave

Leave this item at Auto to enable the system to automatically detect and configure IDE devices on the channel. If it fails to find a device, change the value to Manual and then manually configure the drive by entering the characteristics of the drive in the items described below.

Before attempting to configure a hard disk drive, ensure that you have the configuration information supplied by the manufacturer of your hard drive. Incorrect settings can result in your system not recognizing the installed hard disk.

Access Mode (Auto)

This item defines ways that can be used to access IDE hard disks such as LBA (Large Block Addressing). Leave this value at Auto and the system will automatically decide the fastest way to access the hard disk drive.

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

Drive A (1.44M, 3.5 in.)

This item defines the characteristics of any diskette drive attached to the system.

Video (EGA/VGA)

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

Halt On (All, But Keyboard)

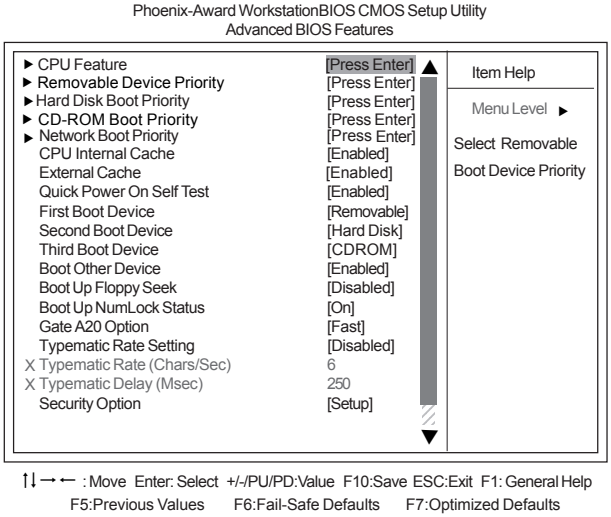
This item defines the operation of the system POST (Power On Self Test) routine. You can use this item to select which types of errors in the POST are sufficient to halt the system.

Base Memory, Extended Memory, and Total Memory

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

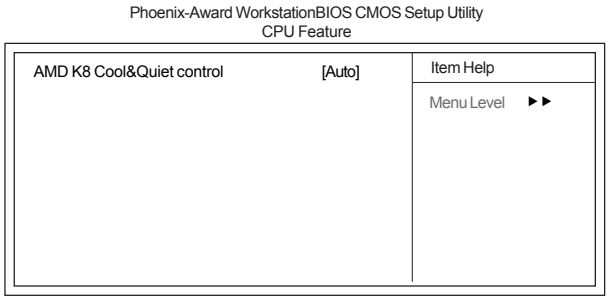
Advanced BIOS Features

This option defines advanced information about your system.



▶ CPU Feature (Press Enter)

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



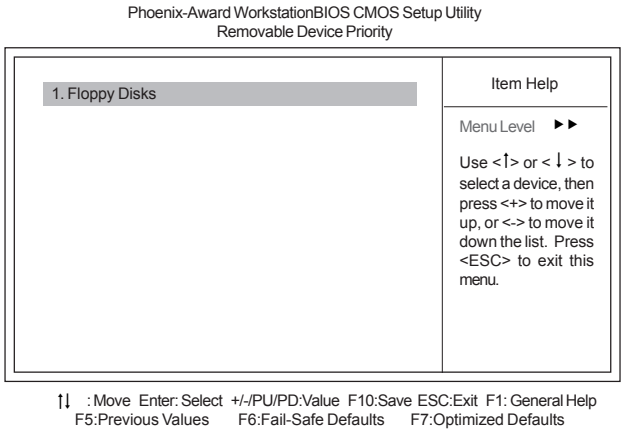
AMD K8 Cool&Quiet control (Auto)

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

Press <Esc> to return to Advanced BIOS Features page.

▸ Removable Device Priority (Press Enter)

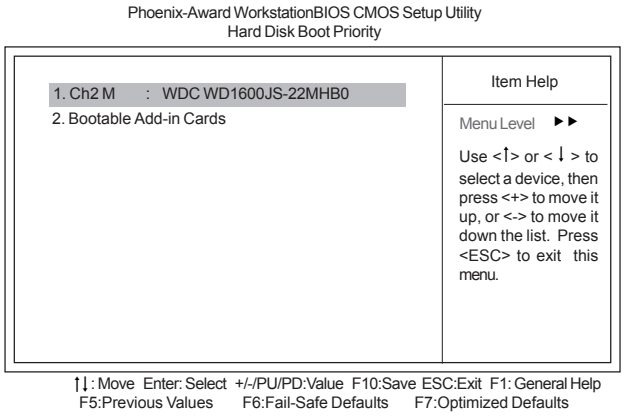
Scroll to this item and press <Enter> to view the following screen:



Press <Esc> to return to Advanced BIOS Features page.

▸ Hard Disk Boot Priority (Press Enter)

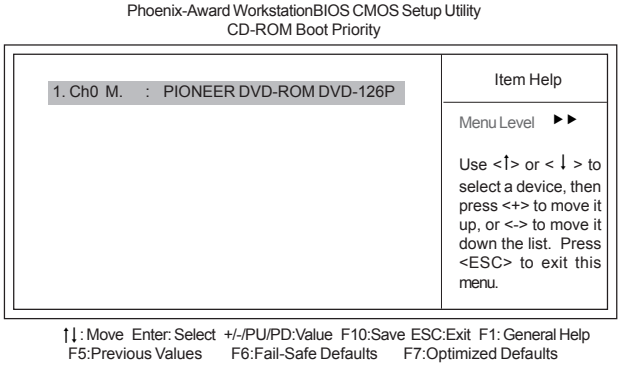
Scroll to this item and press <Enter> to view the following screen:



Press <Esc> to return to Advanced BIOS Features page.

▸ CD-ROM Boot Priority (Press Enter)

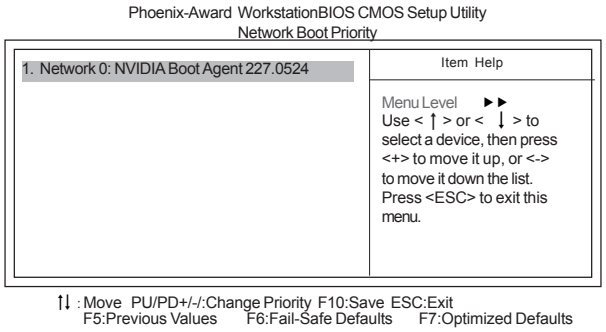
Scroll to this item and press <Enter> to view the following screen:



Press <Esc> to return to Advanced BIOS Features page.

▶ Network Boot Prioritiy (Press Enter)

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



CPU Internal Cache (Enabled)

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

External Cache (Enabled)

Most processors that can be installed in this system use external level 2 (L2) cache memory to improve performance. Leave this item at the default value for better performance.

Quick Power On Self Test (Enabled)

Enable this item to shorten the power on testing (POST) and have your system start up faster. You might like to enable this item after you are confident that your system hardware is operating smoothly.

First/Second/Third Boot Device (Floppy/Hard Disk/CDROM)

Use these three items to select the priority and order of the devices that your system searches for an operating system at start-up time.

Boot Other Device (Enabled)

When enabled, the system searches all other possible locations for an operating system if it fails to find one in the devices specified under the First, Second, and Third boot devices.

Boot Up Floppy Seek (Disabled)

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

Boot Up NumLock Status (On)

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

Gate A20 Option (Fast)

This item defines how the sytem handles legacy software that was written for an earlier generation of processors. Leave this item at the default value.

Typematic Rate Setting (Disabled)

If this item is enabled, you can use the following two items to set the typematic rate and the typematic delay settings for your keyboard.

- **Typematic Rate (Chars/Sec)**: Use this item to define how many characters per second are generated by a held-down key.
- **Typematic Delay (Msec):** Use this item to define how many milliseconds must elapse before a held-down key begins generating repeat characters.

Security Option (Setup)

If you have installed password protection, this item defines if the password is required at system start up, or if it is only required when a user tries to enter the Setup Utility.

APIC Mode (Enabled)

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

MPS Version Control For OS (1.4)

This item displays MPS version control for OS.

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

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

Small Logo (EPA) Show (Disabled)

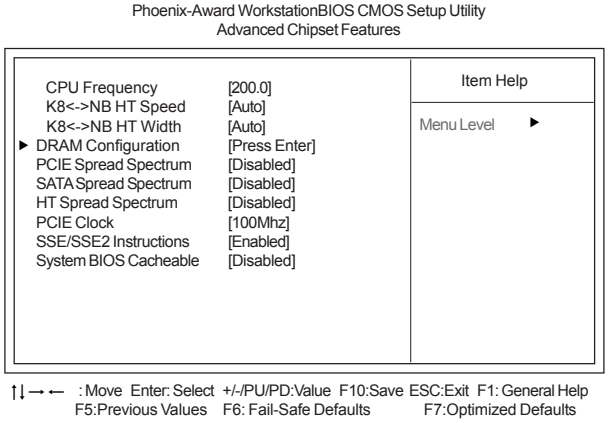
Enables or disables the display of the EPA logo during boot.

ATA 66/100 IDE Cable Msg. (Enabled)

This item enables or disables the display of the ATA 66/100 Cable MSG.

Advanced Chipset Features

These items define critical timing parameters of the motherboard. You should leave the items on this page at their default values unless you are very familiar with the technical specifications of your system hardware. If you change the values incorrectly, you may introduce fatal errors or recurring instability into your system.



CPU Frequency (200.0)

This item enables users to manually over-clock the CPU frequency, ranging from 200.0 to 300.0.

K8 <-> NB HT Speed (Auto)

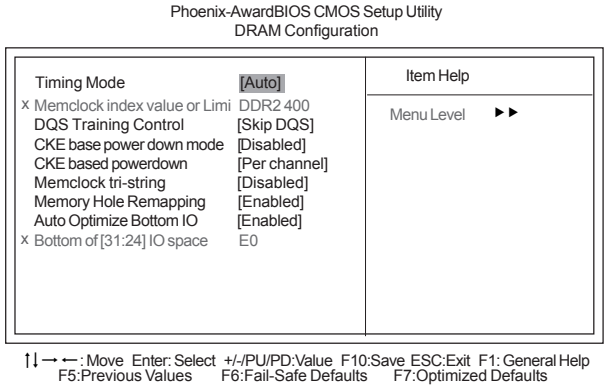
This item enables users to set the speed of HyperTransport between the CPU and Northbridge.

K8 <-> NB HT Width (Auto)

This item enables users to set the HyperTransport width between CPU and the Northbridge.

►DRAM Configuration (Press Enter)

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



Timing Mode (Auto)

This item allows you to set up the DRAM timing nanually or automatically.

Memory Clock value or Limi (DDR2 400)

When DDR2 Timing Setting by is set to Manual, use this item to set the DRAM frequency.

DQS Training Control (Skip DQS)

DQS training is used to place the DQS strobe in the center of the data eye.

CKE base power down mode (Enabled)

When in power down mode, if all pages of the DRAMs associated with a CKE pin are closed, then these parts are placed in power down mode. Only pre-charge power down mode is supported, not active power down mode.

CKE based powerdown (Per Channel)

The DRAM channel is placed in power down when all chip selects associated with the channel are idle.

Memclock tri-stating (Disabled)

This item enables or disables memclock tri-stating function.

Memory Hole Remapping (Enabled)

This item allows users to enable or disable memory hole remapping.

Auto Optimize Bottom IO (Enabled)

This item is used to set the Auto Optimized Bottom IO.

Bottom of [31:24] IO space (E0)

This item is used to select the memory that will be remapped higher than 00E0.

Press <Esc> to return to Advanced Chipset Features page.

PCIE Spread Spectrum (Disabled)

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

SATA Spread Spectrum (Disabled)

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

HT Spread Spectrum (Disabled)

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

PCIE Clock (100Mhz)

This item is used to set the frequency of PCIE clock.

SSE/SSE2 Instructions (Enabled)

This item enables or disables SSE/SSE2 instructions.

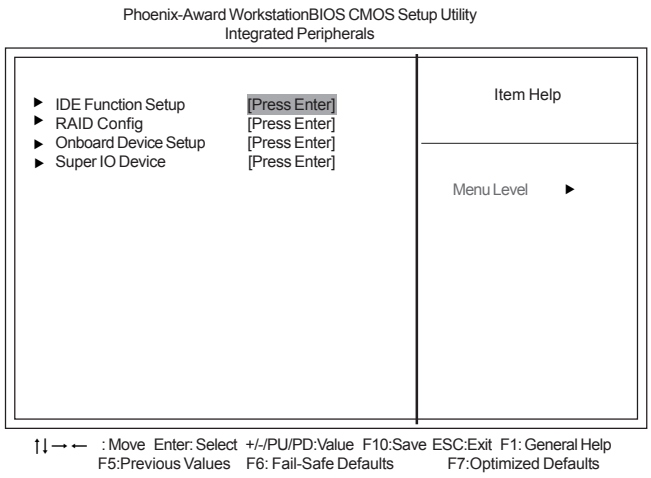
System BIOS Cacheable (Disabled)

This item enables users to enable or disable the system BIOS cache.

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

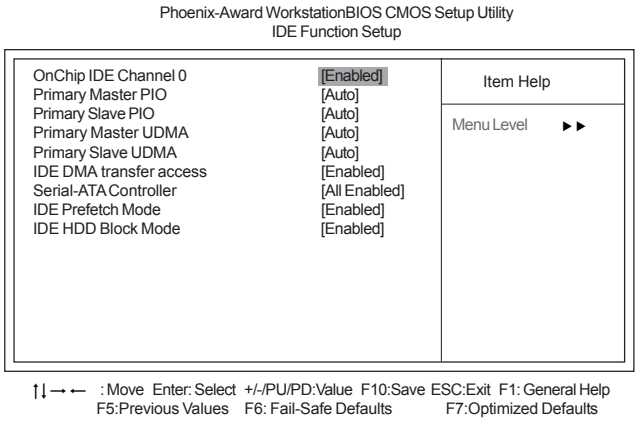
Integrated Peripherals

These options display items that define the operation of peripheral components on the system's input/output ports.



►IDE Function Setup (Press Enter)

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



On-Chip IDE Channel 0 (Enabled)

Use these items to enable or disable the PCI IDE channels that are integrated on the motherboard.

Primary Master/Slave PIO (Auto)

Each IDE channel supports a master device and a slave device. These four items let you assign the kind of PIO (Programmed Input/Output) was used by the IDE devices. Choose Auto to let the system auto detect which PIO mode is best, or select a PIO mode from 0-4.

Primary Master/Slave UDMA (Auto)

Each IDE channel supports a master device and a slave device. This motherboard supports UltraDMA technology, which provides faster access to IDE devices.

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

IDE DMA transfer access (Enabled)

This item allows you to enable the transfer access of the IDE DMA then burst onto the PCI bus and nonburstable transactions do not.

Serial-ATA Controller (All Enabled)

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

IDE Prefetch Mode (Enabled)

The onboard IDE drive interface supports IDE prefetching, for faster drive access. If you install a primary and secondary add-in IDE interface, set this field to Disabled if the interface does not support prefetching.

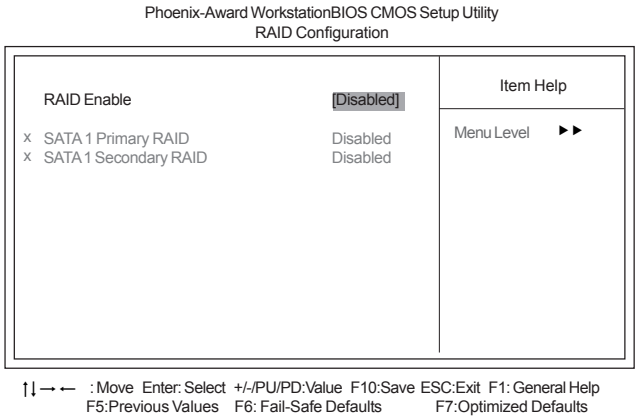
IDE HDD Block Mode (Enabled)

Enables this field if your IDE hard drive supports block mode. Block mode enables BIOS to automatically detect the optimal number of block read and writes per sector that the drive can support and improves the speed of access to IDE devices.

Press <Esc> to return to the Integrated Peripherals page.

►RAID Config (Press Enter)

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



RAID Enable (Disabled)

This item allows you to enable or disable the onboard RAID function of RAID function of RAID supporting devices.

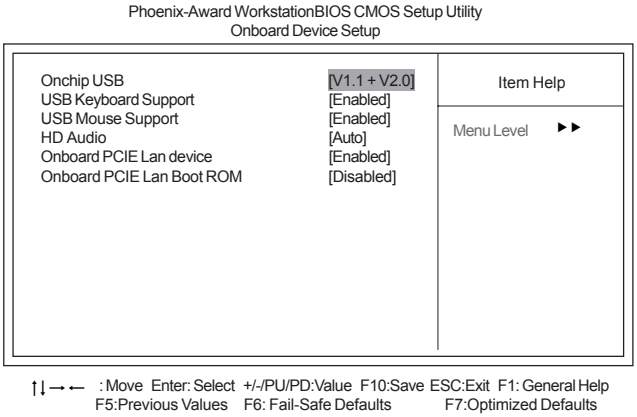
- ***SATA 1 Primary/Secondary RAID (Disabled)***

  These two items enable or disable SATA 1 Primary/ Secondary RAID.

Press <Esc> to return to the Integrated Peripherals page.

►Onboard Device Setup (Press Enter)

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



Onchip USB (V1.1+V2.0)

This item enables users to enable or disable the onchip USB function, setting it to be USB1.1 or USB2.0 compatible.

USB Keyboard Support (Enabled)

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

USB Mouse Support (Enabled)

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

HD Audio(Auto)

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

Onboard PCIE Lan device (Enabled)

Enables or disables the Onboard PCIE Lan device.

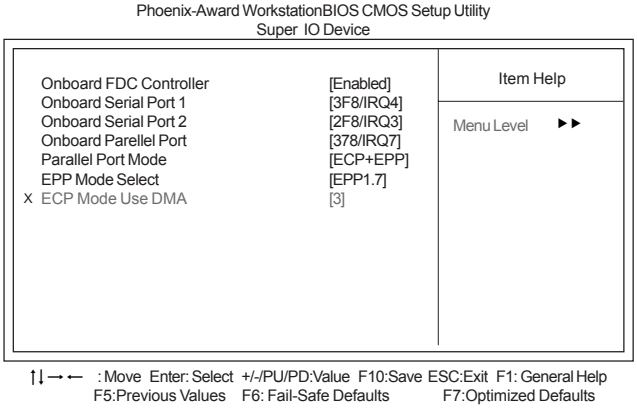
Onboard PCIE Lan Boot ROM (Disabled)

This item enables or disables onboard PCIE LAN Boot ROM.

Press <Esc> to return to the Integrated Peripherals page.

►SuperIO Device (Press Enter)

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



Onboard FDC Controller (Enabled)

This option enables the onboard floppy disk drive controller.

Onboard Serial Port 1/2 (3F8/IRQ4/2F8/IRQ3)

This option is used to assign the I/O address and interrupt request (IRQ) for onboard serial port 1.

Onboard Parallel Port (378/IRQ7)

This option is used to assign the I/O address and interrupt request (IRQ) for the onboard parallel port.

Parallel Port Mode (ECP+EPP)

Enables you to set the data transfer protocol for your parallel port. There are four options: SPP (Standard Parallel Port), EPP (Enhanced Parallel Port), ECP (Extended Capabilities Port) and ECP+EPP.

SPP allows data output only. Extended Capabilities Port (ECP) and Enhanced Parallel Port (EPP) are bi-directional modes, allowing both data input and output. ECP and EPP modes are only supported with EPP- and ECP-aware peripherals.

EPP Mode Select (EPP1.7)

This field allows the user to select the EPP mode for parallel port mode.

Options: EPP 1.9, EPP 1.7

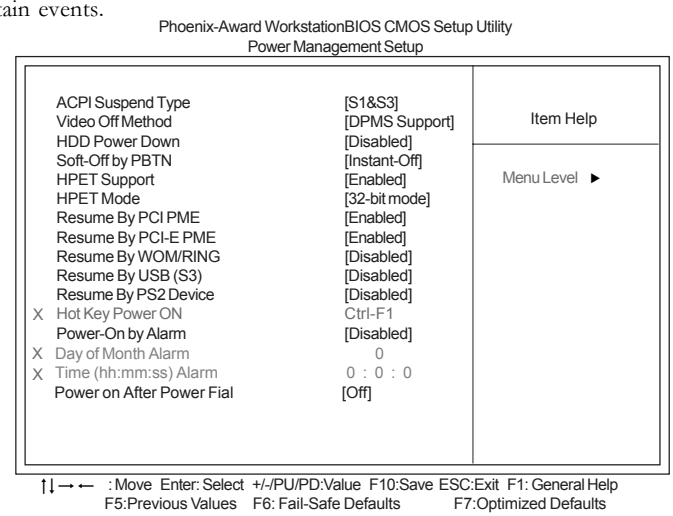
ECP Mode Use DMA (3)

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

Press <Esc> to return to the Integrated Peripherals page.

Power Management Setup

This option lets you control system power management. The system has various power-saving modes including powering down the hard disk, turning off the video, suspending to RAM, and software power down that allows the system to be automatically resumed by certain events.



ACPI Suspend Type (S1&S3)

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

Video Off Method (DPMS Support)

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

HDD Power Down (Disabled)

The IDE hard drive will spin down if it is not accessed within a specified length of time.

Soft-Off by PBTN (Instant-Off)

Under ACPI (Advanced Configuration and Power management Interface) you can create a software power down. In a software power down, the system can be resumed by Wake Up Alarms. This item lets you install a software power down that is controlled by the power button on your system. If the item is set to Instant-Off, then the power button causes a software power down. If the item is set to Delay 4 Sec. then you have
to hold the power button down for four seconds to cause a software power down.

HPET Support (Disabled)

This item enables or disables HPET support.

HPET Mode (32-bit mode)

Use this item to set the HPET (Hign Precision Event Timer) mode. There are two options: 32-bit mode or 64-bit mode.

Resume by PCI PME (Disabled)

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

Resume by PCI-E PME (Disabled)

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

Resume by WOM/Ring (Disabled)

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

Resume By USB (S3)(Disabled)

This item allows users to enable or disable the USB device Walk-up from S3 mode.

Resume By PS2 Device (S3) (Disabled)

These items enable or disable you to allow mouse or keyboard activity to awaken the system from power saving mode.

Hot Key Power ON (Ctrl+F1)

Use this item to allocate the hot key to wake up the system.

Power-On by Alarm (Disabled)

This item allows users to enable or disable the alarm to wake up the system. If set to Enabled, users can specify the specific day of month and the exact time to power up the system.

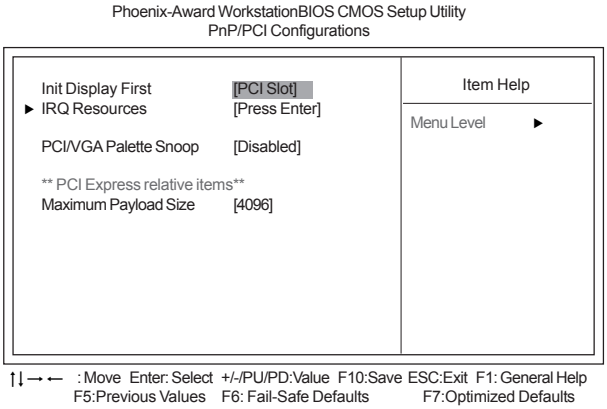
Power On After Power Fail (Off)

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

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

PNP/PCI Configurations

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



Init Display First (PCI Slot)

This item allows you to choose the primary display card.

IRQ Resources (Press Enter)

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

PCI/VGA Palette Snoop (Disabled)

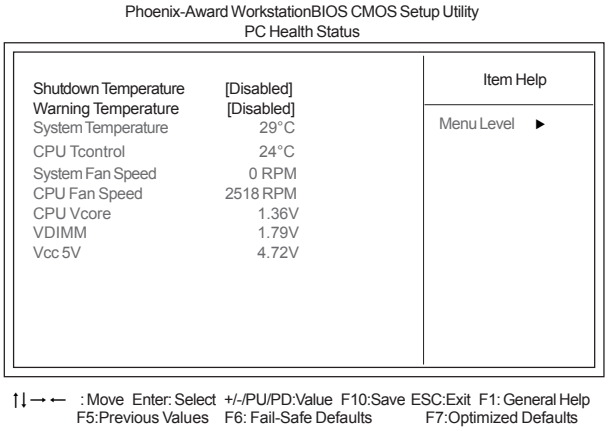
This item is designed to overcome problems that can be caused by some nonstandard VGA cards. This board includes a built-in VGA system that does not require palette snooping so you must leave this item disabled.

Maximum Payload Size (4096)

This item specifies the maximum payload size for the PCI Express function.

PC Health Status

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



Shutdown Temperature

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

Warning Temperature

Enables you to set the warning temperature before powering down.

System Component Characteristics

These fields provide you with information about the systems current operating status. You cannot make changes to these fields.

- System Temperature
- CPU Tcontrol
- System Fan Speed
- CPU Fan Speed
- CPU Vcore
- Vdimm
- Vcc 5V

Load Fail-Safe Defaults

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

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

Load Optimized Defaults

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

User please remain the factory BIOS default setting of "Load Optimized Defaults" When install Operation System onto your system.

Set Supervisor/User Password

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

ENTER PASSWORD

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

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

PASSWORD DISABLED

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

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

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

Save & Exit Setup

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

Exit Without Saving

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

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

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

Chapter 4
Using the Motherboard Software

About the Software CD-ROM

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

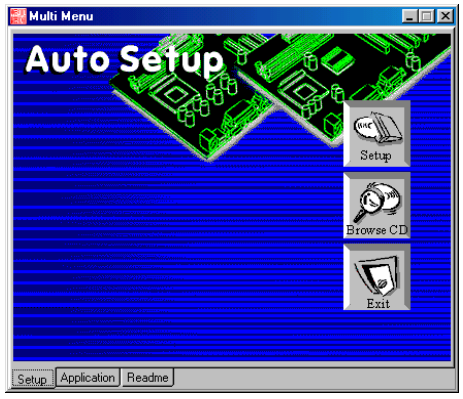
1. *Never try to install all software from folder that is not specified for use with your motherboard.*
2. *The notice of Intel HD audio installation (optional): The Intel High Definition audio functionality unexpectedly quits working in Windows Server 2003 Service Pack 1 or Windows XP Professional x64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

Auto-installing under Windows 2000/XP

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

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

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



If the opening screen does not appear; double-click the file "setup.exe" in the root directory.

Setup Tab

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

Application Tab

Lists the software utilities that are available on the CD.

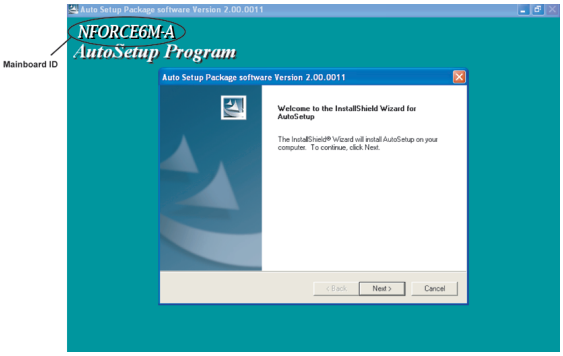
Read Me Tab

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

Running Setup

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

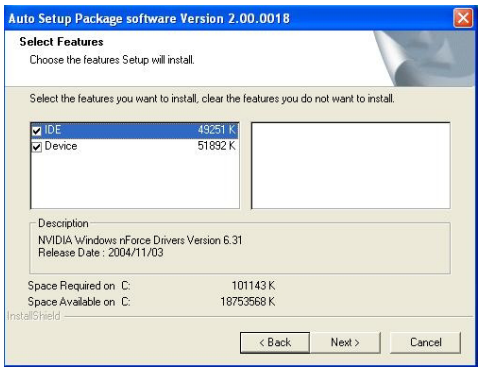
1. *Click **Setup**. The installation program begins:*



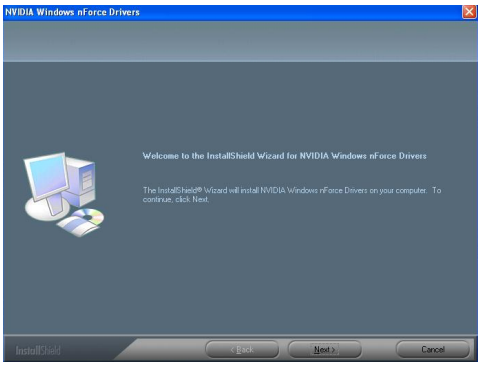
The following screens are examples only. The screens and driver lists will be different according to the motherboard you are installing.

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

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



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



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

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

Manual Installation

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

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

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

Utility Software Reference

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

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

This concludes Chapter 4.