USER'S MANUAL
Of
AMD 790GX Chipset
&
AMD SB750 Chipset Based

M/B For Socket AM2+ 64-bit AMD Quad Core Processor

Trademark:

* **Specifications and information contained in this documentation are furnished for information use only, and are subject to change at any time without notice, and should not be construed as a commitment by manufacturer.**

Environmental Protection Announcement

Do not dispose this electronic device into the trash while discarding. To minimize pollution and ensure environment protection of mother earth, please recycle.

TABLE OF CONTENT

USER'S NOTICE

COPYRIGHT OF THIS MANUAL BELONGS TO THE MANUFACTURER.   NO PART OF THIS MANUAL, INCLUDING THE PRODUCTS AND SOFTWARE DESCRIBED IN IT MAY BE REPRODUCED, TRANSMITTED OR TRANSLATED INTO ANY LANGUAGE IN ANY FORM OR BY ANY MEANS WITHOUT WRITTEN PERMISSION OF THE MANUFACTURER.

THIS MANUAL CONTAINS ALL INFORMATION REQUIRED TO USE NF6100-400 / 405 PPC MOTHERBOARD AND WE DO ASSURE THIS MANUAL MEETS USER'S REQUIREMENT BUT WILL CHANGE, CORRECT ANY TIME WITHOUT NOTICE. MANUFACTURER PROVIDES THIS MANUAL "AS IS" WITHOUT WARRANTY OF ANY KIND, AND WILL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTIAL OR CONSEQUENTIAL DAMAGES (INCLUDING DAMANGES FOR LOSS OF PROFIT, LOSS OF BUSINESS, LOSS OF USE OF DATA, INTERRUPTION OF BUSINESS AND THE LIKE).

PRODUCTS AND CORPORATE NAMES APPEARING IN THIS MANUAL   MAY OR MAY NOT.2 BE REGISTERED TRADEMARKS OR COPYRIGHTS OF THEIR RESPECTIVE COMPANIES, AND THEY ARE USED ONLY FOR IDENTIFICATION OR EXPLANATION AND TO THE OWNER'S BENEFIT, WITHOUT INTENT TO INFRINGE.

Manual Revision Information

Reversion	Revision History	Date
1.0	First Edition	August. 2008

Item Checklist

- ☑ AMD 790GX Platform Processor Chipset based motherboard
- ☑ Cable for IDE
- ☑ CD for motherboard utilities
- ☑ Cable for Serial ATA Port
- ☑ AMD 790GX   Platform Processor Chipset motherboard User's Manual
- ☑ Kuroshio Promotion Card
- ☑ Back panel
- ☑ I/O Stick
- ☑ HDMI to DVI Connector

AMD K8 Processor Family
Cooling Solutions

As processor technology pushes to faster speeds and higher performance with increasing operation clock, thermal management becomes increasingly crucial while building computer systems. Maintaining the proper computing environment without thermal increasing is the key to reliable, stable, and 24 hours system operation. The overall goal is keeping the processor below its specified maximum case temperature. Heatsinks induce improved processor heat dissipation through increasing surface area and concentrated airflow from attached active cooling fans. In addition, interface materials allow effective transfers of heat from the processor to the heatsink. For optimum heat transfer, AMD recommends the use of thermal grease and mounting clips to attach the heatsink to the processor.

Please refer to the website below for collection of heatsinks evaluated and recommended for Socket-AM2+ processors by AMD. In addition, this collection is not intended to be a comprehensive listing of all heatsinks that support Socket-AM2+ processors.

Chapter 1

Introduction of AMD790GX Series Motherboards

1-1　　Features of motherboard

The AMD790GX motherboards Series are based on the latest AMD 790GX Chipset and the SB750 chipset which supports Socket AM2+ dual core and quad core AMD Phenom™ processors and 64-bit AMDSocket AM2+/AM2 multi-tasking Socket AM2 Athlon64 X2 processors and SempronProcessors. With an integrated low-latency high-bandwidth DDRII memory controller and a highly-scalable Hyper Transport technology-based system bus up to HT3.0. AMD790GX Platform Processor Chipset motherboard series deliver the outstanding system performance and professional desktop platform solution with the advantages of 64-bit AMD SocketAM2+/AM2 AMD Phenom™ processors, Athlon64 X2 processors and the fully compatibility of the next generation operation system.

The AMD790GX motherboards Series support new generation Socket AM2+ processors with an integrated DDRII memory controller which provides with 333MHz/400MHz/533MHz memory clock frequency for Dual channel DDRII667/DDRII800/DDRII1066DDRII Module up to 8GB ，also provide a 128Mb GPU Memory. The motherboard is embedded with SB750 chipset of providing ULTRA ATA 133 connectors and Serial ATA2 with RAID 0,1, 0+1,5,10,JBOD functions which support up one IDE and six Serial ATA2 devices to accelerate hard disk drives and guarantee the data security without failure in advanced computing performance.

The AMD790GX motherboards Series provide gigabit LAN function with RTL8111CVC PCI-E LAN which supports10/100/1000Mbps data transfer rate. And the embedded HD 8-channel Audio CODEC is fully compatible with Sound Blaster Pro®standards that offers you with the home cinema quality and satisfying software compatibility.

The motherboards offer one PCI-Express 2.0 x16 by 8 lane graphics slot providing 4Gbyte/sec data transfer rate at each relative direction which gets 7 times of bandwidth more than AGP8X and it's up to a peak concurrent bandwidth of 8Gbyte/sec at full speed to guarantee the ultimate GPU computing performance. One 32-bit PCI slots guarantee the rich connectivity for the I/O of peripherals. Two PCI Express 2.0 x1 I/O slots offer 1Gbyte/sec concurrently bandwidth; the motherboards are designed of tackling the profuse multimedia requirements nowadays.

Embedded USB controller as well as capability of expanding to 10 of USB2.0 functional ports delivering 480Mb/s bandwidth and rich connectivity, these motherboards meet the future USB demands which are also equipped with hardware monitor function on system to monitor and protect your system and maintain your non-stop business computing.

Some special features---***CPU Thermal Throttling/ CPU Vcore 7-shift/ CPU Smart Fan ／ OC-CON/G.P.I Function*** in this motherboard are designed for power user to use the over-clocking function in more flexible ways. But please be caution that the over-clocking maybe cause the fails in system reliabilities. This motherboard provides the guaranteed performance and meets the demands of the next generation computing. But if you insist to gain more system performance with variety possibilities of the components you choose, please be careful and make sure to read the detailed descriptions of these value added product features, please get them in the coming section.

1-1.1 Special Features of Motherboard

CPU Thermal Throttling Technology---(The CPU Overheat Protection Technology)
To prevent the increasing heat from damage of CPU or accidental shutdown while at high workload, the CPU Thermal Throttling Technology will force CPU to enter partially idle mode from 87.5% to 12.5% according to preset CPU operating temperature in BIOS (from 40 ℃ to 90℃). When the system senses the CPU operating temperature reaching the preset value, the CPU operating bandwidth will be decreased to the preset idle percentage to cool down the processor. When at throttling mode the beeper sound can be optionally selected to indicate it is in working. *(For detail operating please read Section 3-11 Bi-turbo Configuration)*

CPU Smart Fan---(The Noise Management System)
It's never been a good idea to gain the performance of your system by sacrificing its acoustics. CPU Smart Fan Noise Management System is the answer to control the noise level needed for now-a-day's high performance computing system. The system will automatically increase the fan speed when CPU operating loading is high, after the CPU is in normal operating condition, the system will low down the fan speed for the silent operating environment. The system can provide the much longer life cycle for both CPU and the system fans for game use and business requirements.

CPU Vcore 7-Shift--- (Shift to Higher Performance)
The CPU voltage can be adjusted up by 31 steps for the precisely over-clocking of extra demanding computing performance.

OC-CON ---（High-polymer Solid Electrolysis Aluminum Capacitors）
The working temperature is from 55 degrees Centigrade below zero to 125 degrees Centigrade, OC-CON capacitors possess superior physical characteristics that can be while reducing the working temperature between 20 degrees Centigrade each time, intact extension 10 times of effective product operation lives, at not rising degrees Centigrade of working temperatures each time a relative one, life of product decline 10% only too.

G.P.I Function—(Green power indicator function)
The full name of G.P.I technology is Green Power Indicator technology, obviously technology utilized to low power consumption. G.P.I is a technology with remarkable power saving function:

1-2   Specification

Spec	Description
Design	* ATX form factor 4 layers PCB size: 30.5mm*20.0mm
Chipset	* AMD 790GX North Bridge Chipset * AMD SB750 South Bridge Chipset
CPU Socket AM2+	* Support 64bit AMD Athlon64 940-Pin package utilizes Flip-Chip Pin Grid Array package processor * Support for future AMD Athlon64 940-pin Dual –Core Athlon 64x2 processor, Athlon 64 & Sempron Processors and the latest quad core AMD Phenom™ processors with HT 3.0
Memory Socket	* 240-pin DDRII Module socket x 4 * Support 4pcs DDRII667/DDRII800/DDTII1066 Modules Expandable to 8GB * Onboard DDR2 128M Side Port
Expansion Slot	* PCI-Express x16(8lane) 2pcs delivers up to 8GB/s of concurrent bandwidth * PCI-Express x1 slot 2pcs delivers up to 1GB/s of concurrent bandwidth * 32-bit PCI slot x 1pcs at 133MHz
Integrate IDE and Serial ATA2 RAID	* One IDE controllers support PCI Bus Mastering, ATA PIO/DMA and the ULTRA DMA 33/66/100/133 functions that deliver the data transfer rate up to 133 MB/s. * Four Serial ATA2 ports provide 300 MB/sec data transfer rate with RAID 0, 1, 0+1,5,10,JBOD functions.
LAN	* Integrated RTL8111CVCPCI-E gigabit LAN * Support Fast Ethernet LAN function providing 10/100/1000Mbps data transfer rate
8 CH-Audio	* Realtek ALC883 HD 8-channel Audio Codec integrated * Support 8-channel 3D surround & Positioning Audio * Audio driver and utility included
BIOS	* Award 8MB Flash SPI ROM
Multi I/O	* PS/2 keyboard and PS/2 mouse connectors * Floppy disk drive connector x1 * Serial port header x1 * 1 * HDMI-SPDIF 2-pin * IR connecter with 5-pin block x1 * USB2.0 port x 4 and headers x 4 * Audio connector (Line-in, Line-out, MIC/ 8CH Audio)

1-3   Performance List

The following performance data list is the testing result of some popular benchmark testing programs. These data are just referred by users, and there is no responsibility for different testing data values gotten by users (the different Hardware & Software configuration will result in different benchmark testing results.)

Performance Test Report

CPU: AMD Athlon 64 x 2 Dual core3600+
DRAM: KINGSTEK512667X2
VGA Card :   ATI Radeon HD3300Graphics
Hard Disk Driver: ST3250310AS
BIOS: T01
OS: Windows XP

VGA DRIVER: 8.510.0.0

	AMD90GX SERIES
3D Mark 2003	2946
3D Mark 2005	2427
3D Mark 2001SE	
AQUAMRK3	
PCMark2004	
System / CPU / Memory	1541/4073/3082
Graph / HDD	1801/NA
Content Creation Winstone 2004	34.4
Business Winstone 2004	22
Winbench 99 V2.0:	
Business/Hi-end Disk Winmark99	28200
Business/Hi-end Graphic Winmark	27200
SISMark 2004: SISMark Rating(Internet Content Creation / Office Productivity)	
SYSMark 2004	270/172
3D Creation / 2D Creation	237/332
/ Web publication	249
Communication / Document Creation	163/185
/ Data Analysis	168
SISOFT Sandra 2004 : 1.CPU Arithmetic Benchmark 2.Memory bandwidth Benchmark 3.CPU Multi-Media Benchmark	
1.Dhrystone ALU MIPS	14506
Whetstone FPU iSSE2 FLOPS	12251
2.Int/Float Buffered iSSE2 MB/S	6114/6124
3.Integer/Floating-Point IT/S	37630 it/s/41481 it/s
UT2003 Benchmark (flyby/botmatch)	126.109840/67.301697
Quake3 DEMO1 /DEMO2 FPS	275.8/276.2
Super pi (1M) Second	N/A
Super Pi (1M) Second	43.703s
CPUZ System / CPU Clock	

1-4　Layout Diagram & Jumper Setting

PS/2 Mouse

PS/2 Keyboard

HDMI Connector

VGA Connector　**USB**

RJ45 LAN

Line-IN

Surrback

Line-OUT

CEN/BASS

Surround

MIC-IN

PS2 KB/Mouse Port

KB/MS Power On Jumper (JP1)

HDMI Connector

Com Connector

USB Port

RJ45 Over USB Connector

Audio Connector

SYSFAN2

RTL 8111CVC

PCI Express x16by8lane

IR Connector

PCI Express x1

CD Audio In

HDMI-SPDIF

Realtek ALC883HD Audio Decode

PCI Slots

Front Panel Audio

Com Connector

Floppy Connector

ATX 12V Power Connector

CPU Socket AM2+

CPU FAN

SYSFAN2

AMD 790GX Chipset

DDR2 128M Side Port

AMD SB750

8MBit Flash SPI ROM BIOS

JBAT

ATA 133 IDE Conn.(IDE1)

DDR2 Socket x 4

ATX Power Conn.

Clear CMOS (**JBAT**)

Serial-ATAII Connector (SATA II5,6)

USB headers

Speaker Connector

Power LED Connector

SYSFAN1

Serial-ATAII Connector (SATA II5,6)

Front Panel Connector

Jumpers

Jumper	Name	Description	Page
JBAT	CMOS RAM Clear	3-pin Block	P.7
JP1	Keyboard/USB Power On Enabled/Disabled	3-pin Block	P.8

Connectors

Connector	Name	Description	Page
ATXPWR	ATX Power Connector	24-pin Block	P.13
ATX12V	ATX 12V Power Connector	8-pin Block	P.13
PS2 KB/MS	PS/2 Mouse & PS/2 Keyboard Connector	6-pin Female	P.13
CN5 for USB	USB2.0 Port Connector	4-pin Connector	P.13
UL1 for LAN	LAN Port Connector	RJ-45 Connector	P.13
CN1 for USB	USB2.0 Port Connector	4-pin Connector	P.13
J1 for Audio Connector	6-CH HD Audio Connector	3-pin	P.13
FDD	Floppy Driver Connector	34-pin Block	P.14
IDE1	Primary IDE Connector	40-pin Block	P.14
SATA1~6	Serial ATAII IDE Connector	7-pin Connector	P.15

Headers

Header	Name	Description	Page
AUDIO	SPEAKER, MIC header	9-pin Block	P.15
USB1, USB2,USB3	USB Port Headers	9-pin Block	P.16
SPEAK	PC Speaker connector	4-pin Block	P.16
PWR LED	Power LED	3-pin Block	P.16
JW_FP (Reset/IDE LED/Power Button)	Front Panel Header (including IDE activity LED/Reset switch / Power On Button lead)	9-pin Block	P.16
SYSFAN1, SYSFAN2,	FAN Headers	3-pin Block	P.17
CPUFAN	FAN Header	4-pin Block	P.17
CDIN	CD Audio-In Header	4-pin Block	P.17
IR	IR infrared module Headers	5-pin Block	P.17
HDMI-SPDIF	HDMI-SPDI header	2-pin	P.18

Expansion Sockets

Socket/Slot	Name	Description	Page
ZIF Socket AM2+	CPU Socket	940-pin mPGAB Athlon64 CPU Socket	P10
DIMM1~4	DDRII Module Socket	240-pin DDRII Module Socket	P.10
PCI1	PCI Slots	32-bit PCI Local Bus Expansion slots	P.12
PE1,PE4	PCI-Express2.0 x16 Slot	PCI-Express2.0 x16 Expansion Slot	P.12
PE2,PE3	PCI-Express2.0 x1 Slot	PCI-Express2.0 x1 Expansion Slot	P.12

Chapter 2
Hardware Installation

2-1 Hardware installation Steps

Before using your computer, you had better complete the following steps:
1. Check motherboard jumper setting
2. Install CPU and Fan
3. Install System Memory (DIMM)
4. Install Expansion cards
5. Connect IDE and Front Panel /Back Panel cable
6. Connect ATX Power cable
7. Power-On and Load Standard Default
8. Reboot
9. Install Operating System
10. Install Driver and Utility

2-2 Checking Motherboard's Jumper Setting

(1) CMOS RAM Clear (3-pin) : JBAT
   A battery must be used to retain the motherboard configuration in CMOS RAM short 1-2 pins of JBAT to store the CMOS data.

To clear the CMOS, follow the procedure below:
1. Turn off the system and unplug the AC power
2. Remove ATX power cable from ATX power connector
3. Locate JBAT and short pins 2-3 for a few seconds
4. Return JBAT to its normal setting by shorting pins 1-2
5. Connect ATX power cable back to ATX power connector

Note: When should clear CMOS
1. Troubleshooting
2. Forget password
3. After over clocking system boot fail

JBAT   Pin 1-2 Closed   JBAT   Pin 2-3 Closed

1-2 Closed Normal   **2-3 Closed Clear CMOS**

CMOS RAM Clear Setting
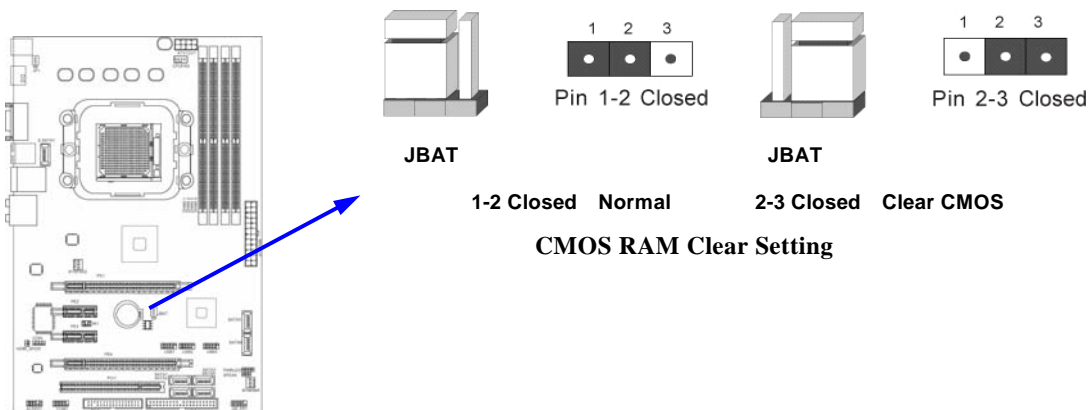
(2) Keyboard function Enabled/Disabled: JP1

JP1

1-2 Closed KB/USB Power ON Disable (Default)

JP1

2-3 Closed KB/USB Power ON Enabled

Pin 1-2 Closed

Pin 2-3 Closed

Keyboard/Mouse & USB Power On Setting
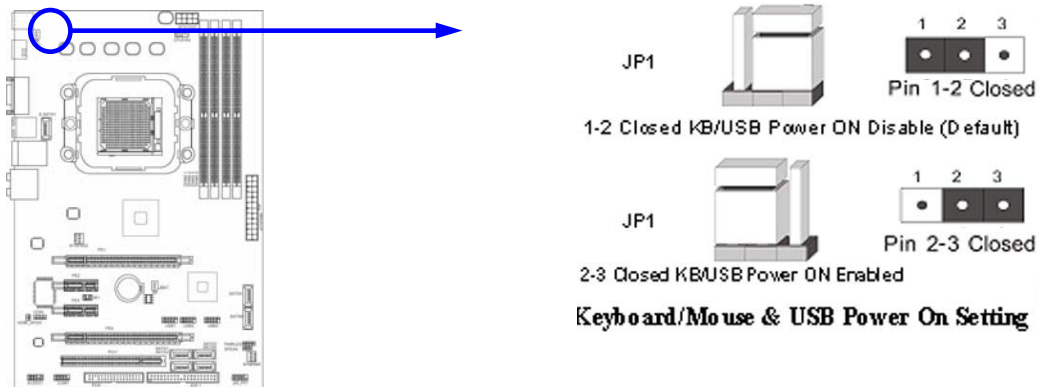
2-3   Install CPU
2-3-1   Glossary

Chipset (or core logic) - two or more integrated circuits which control the interfaces between the system processor, RAM, I/O devises, and adapter cards.

Processor slot/socket - the slot or socket used to mount the system processor on the motherboard.

Slot (PCI-E, PCI, RAM) - the slots used to mount adapter cards and system RAM.

PCI - **P**eripheral **C**omponent **I**nterconnect - a high speed interface for video cards, sound cards, network interface cards, and modems; runs at 33MHz.

PCI Express- Peripheral Component Interconnect Express- a high speed interface for video cards, sound cards, network interface cards, and modems.

Serial Port - a low speed interface typically used for mouse and external modems.

Parallel Port - a low speed interface typically used for printers.

PS/2 - a low speed interface used for mouse and keyboards.

USB - **U**niversal **S**erial **B**us - a medium speed interface typically used for mouse, keyboards, scanners, and some digital cameras.

Sound (interface) - the interface between the sound card or integrated sound connectors and speakers, MIC, game controllers, and MIDI sound devices.

LAN (interface) - **L**ocal **A**rea **N**etwork - the interface to your local area network.

BIOS (**B**asic **I**nput/**O**utput **S**ystem) - the program logic used to boot up a computer and establish the relationship between the various components.

Driver - software, which defines the characteristics of a device for use by another device or other software.

Processor - the "central processing unit" (CPU); the principal integrated circuit used for doing the "computing" in "personal computer"

Front Side Bus Frequency - the working frequency of the motherboard, which is generated by the clock generator for CPU, DRAM and PCI BUS.

CPU L2 Cache - the flash memory inside the CPU, normal it depend on CPU type.

2-3-2 About AMD Athlon64 Socket AM2+ CPU

This motherboard provides a 940-pin surface mount, Zero Insertion Force (ZIF) socket, referred to as the mPGA940 socket supports AMD Athlon64 processor in the 940 Pin package utilizes Flip-Chip Pin Grid Array package technology.

The CPU that comes with the motherboard should have a cooling FAN attached to prevent overheating. If this is not the case, then purchase a correct cooling FAN before you turn on your system.

WARNING!	Be sure that there is sufficient air circulation across the processor's heatsink and CPU cooling FAN is working correctly, otherwise it may cause the processor and motherboard overheat and damage, you may install an auxiliary cooling FAN, if necessary.

To install a CPU, first turn off your system and remove its cover. Locate the ZIF socket and open it by first pulling the level sideways away from the socket then upward to a 90-degree angle. Insert the CPU with the correct orientation as shown below. The notched corner should point toward the end of the level. Because the CPU has a corner pin for two of the four corners, the CPU will only fit in the orientation as shown.

Colden Arrow →

Socket AM2+

CPU ZIF mPGAB Socket
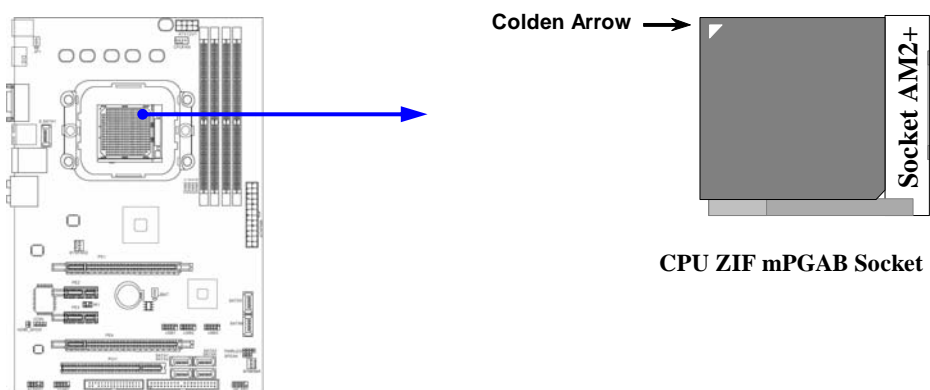
When you put the CPU into the ZIF socket, No force require to insert of the CPU, then press the level to Locate position slightly without any extra force.

2-4   Install Memory

This motherboard provides four 240-pin DDR2 DUAL INLINE MEMORY MODULES (DIMM) sockets for DDR2 memory expansion available from minimum memory volume of 128MB to maximum memory volume of 8GB DDR SDRAM.

Valid Memory Configurations

Bank	240-Pin DIMM	PCS	Total Memory
Bank 1, 2 (DIMM3)	DDR2 667/DDR2 800/DDR2 1066	X1	128MB~2GB
Bank 3, 4 (DIMM3)	DDR2 667/DDR2 800/DDR2 1066	X1	128MB~2GB
Bank 5, 6 (DIMM3)	DDR2 667/DDR2 800/DDR2 1066	X1	128MB~2GB
Bank 7,8 (DIMM3)	DDR2 667/DDR2 800/DDR2 1066	X1	128MB~2GB
Total	System Memory (Max 4GB)	4	128MB~8GB

Recommend DIMM Module Combination
1. *One DIMM Module ----Plug in DIMM1*
2. *Two DIMM Modules---Plug in DIMM1 and DIMM2 for Dual channel function*
For Dual channel Limited!
3. Dual channel function only supports when 2 DIMM Modules plug in either both DIMM1 & DIMM2.
4. DIMM1 & DIMM2 must be the same type, same size, same frequency for dual channel function.

Install DDR SDRAM modules to your motherboard is not difficult, you can refer to figure below to see how to install a 240-PinDDR2 667/DDR2 800/ DDR2 1066 SDRAM module.
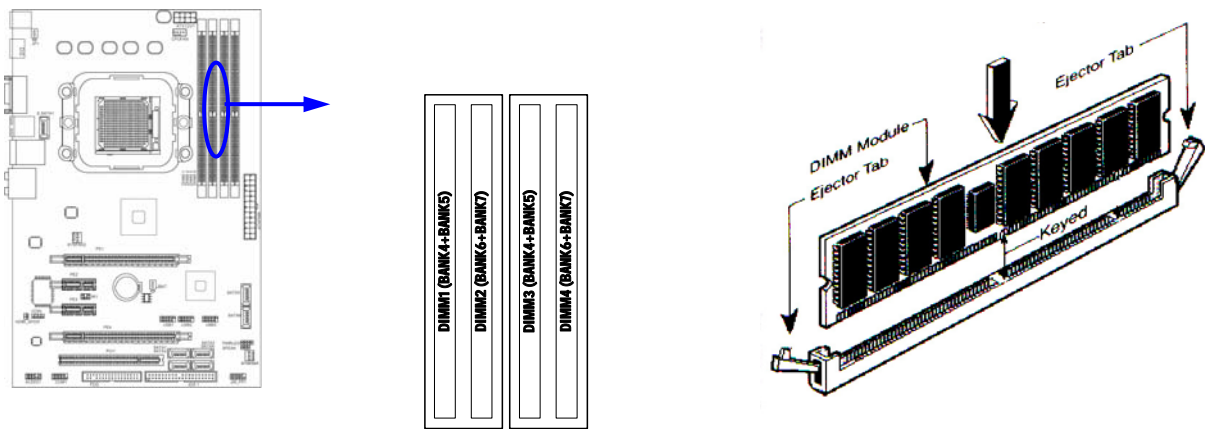
DIMM1 & DIMM3: Dual Channel 1

NOTE!	When you install DIMM module fully into the DIMM socket the eject tab should be locked into the DIMM module very firmly and fit into its indention on both sides.
WARNING!	For the DDR SDRAM CLOCK is set at 400MHz, use only DDR2 800- compliant DDR2 Modules. When this motherboard operate at 400Mhz, most system will not even boot if non-compliant modules are used because of the strict timing issues, if your DDR Modules are not DDR2 800-compliant, set the SDRAM clock to 200MHz to ensure system stability.

2-5   Expansion Cards

WARNING!	Turn off your power when adding or removing expansion cards or other system components. Failure to do so may cause severe damage to both your motherboard and expansion cards.

2-5-1 Procedure For Expansion Card Installation

1. Read the documentation for your expansion card and make any necessary hardware or software setting for your expansion card such as jumpers.
2. Remove your computer's cover and the bracket plate on the slot you intend to use.
3. Align the card's connectors and press firmly.
4. Secure the card on the slot with the screen you remove above.
5. Replace the computer system's cover.
6. Set up the BIOS if necessary.
7. Install the necessary software driver for your expansion card.

2-5-2 Assigning IRQs For Expansion Card

Some expansion cards need an IRQ to operate.   Generally, an IRQ must exclusively assign to one use.   In a standard design, there are 16 IRQs available but most of them are already in use.

Standard Interrupt Assignments

IRQ	Priority	Standard function
0	N/A	System Timer
1	N/A	Keyboard Controller
2	N/A	Programmable Interrupt
3 *	8	Communications Port (COM2)
4 *	9	Communications Port (COM1)
5 *	6	Sound Card (sometimes LPT2)
6 *	11	Floppy Disk Controller
7 *	7	Printer Port (LPT1)
8	N/A	System CMOS/Real Time Clock
9 *	10	ACPI Mode when enabled
10 *	3	IRQ Holder for PCI Steering
11 *	2	IRQ Holder for PCI Steering
12 *	4	PS/2 Compatible Mouse Port
13	N/A	Numeric Data Processor
14 *	5	Primary IDE Channel
15 *	1	Secondary IDE Channel

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

2-5-3   Interrupt Request Table For This Motherboard

Interrupt request are shared as shown the table below:

	INT A	INT B	INT C	INT D	INT E	INT F	INT G	INT H
Slot 1		√						
Slot 2			√					
Onboard USB 2		√						
Onboard USB 3			√					
HD Audio/MC97			√					

IMPORTANT!	If using PCI cards on shared slots, make sure that the drivers support "Shared IRQ" or that the cards don't need IRQ assignments. Conflicts will arise between the two PCI groups that will make the system unstable or cards inoperable.

2-5-4 PCI Express Slot

Two PCI-Express2.0 x16 by 8 lane graphics slot offers 4Gbyte/sec data transfer rate at each relative direction. One 32-bit PCI slots guarantee the rich connectivity for the I/O of peripherals. Two PCI Express 2.0 x1 I/O slots offer 1Gbyte/sec concurrently bandwidth, support PCI Express VGA card, and other PCI Express device.

PCI-E x1 Slot

PCI-E x16 by 8lane

PCI-E x16 by 8lane

32-bit PCI Slot
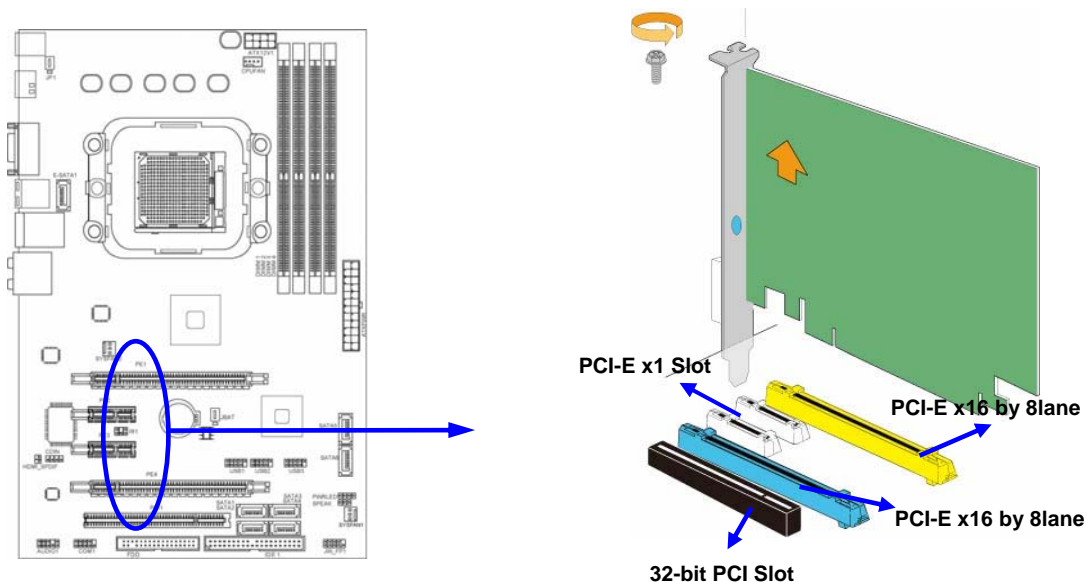
2-6   Connectors, Headers
2-6-1   Connectors

(1)   Power Connector (24-pin block) : ATXPWR

ATX Power Supply connector.   This is a new defined 24-pins connector that usually comes with ATX case. The ATX Power Supply allows to use soft power on momentary switch that connect from the front panel switch to 2-pins Power On jumper pole on the motherboard.   When the power switch on the back of the ATX power supply turned on, the full power will not come into the system board until the front panel switch is momentarily pressed.   Press this switch again will turn off the power to the system board.

**   We recommend that you use an ATX 12V Specification 2.0-compliant power supply unit (PSU) with a minimum of 350W power rating. This type has 24-pin and 4-pin power plugs.

**   If you intend to use a PSU with 20-pin and 4-pin power plugs, make sure that the 20-pin power plug can provide at least 15A on +12V and the power supply unit has a minimum power rating of 350W. The system may become unstable or may not boot up if the power is inadequate.

PIN	ROW1	ROW2
1	3.3V	3.3V
2	3.3V	-12V
3	GND	GND
4	5V	Soft Power On
5	GND	GND
6	5V	GND
7	GND	GND
8	Power OK	-5V
9	+5V (for Soft Logic)	+5V
10	+12V	+5V
11	+12V	+5V
12	+3V	GND

20-Pin   24-Pin
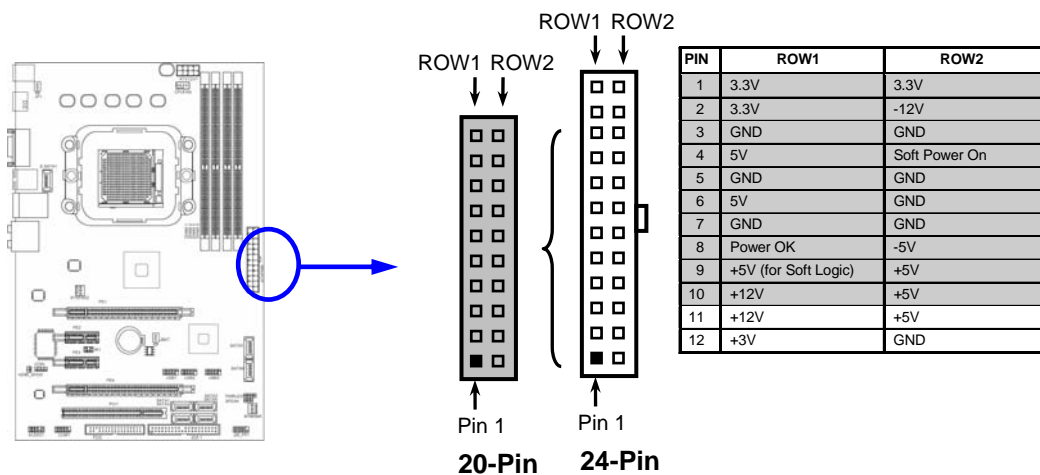
(2) ATX 12V Power Connector (8-pin block) : ATX12V

This is a new defined 8-pins connector that usually comes with ATX Power Supply. The ATX Power Supply which fully support Pentium 4 processor must including this connector for support extra 12V voltage to maintain system power consumption. Without this connector might cause system unstable because the power supply can not provide sufficient current for system.

Pin 1
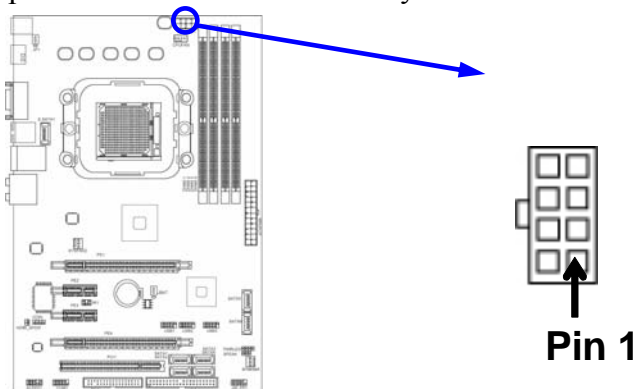
(3) PS/2 Mouse & PS/2 Keyboard Connector: KB

The connectors are for PS/2 keyboard and PS/2 Mouse.

(4) USB Port connector: CN5

The connectors are 4-pin connectors that connect USB devices to the system board.

(5) LAN Port connector: UL1

This connector is standard RJ45 connector for Network
The USBLAN1 support 10M/100Mb/1000Mb s data transfer rate

(6) Audio Line-In, Lin-Out, MIC, Surrback, Surround, CEN/BASS Connector : J1 for Audio

These Connectors are 6 Phone-Jack for LINE-OUT, LINE-IN, MIC, Surrback, Surround, CEN/BASS audio connections.

Line-in : (BLUE)   Audio input to sound chip
Line-out : (GREEN)   Audio output to speaker

MIC : (PINK)   Microphone Connector
Surrback : (ORANGE)   Audio output to speaker-Rear speaker out
CEN/BASS : (BLACKNESS) Audio output to speaker-Center/Subwoofer speaker out
Surround: (GRAY)   Audio output to speaker-Side speaker out
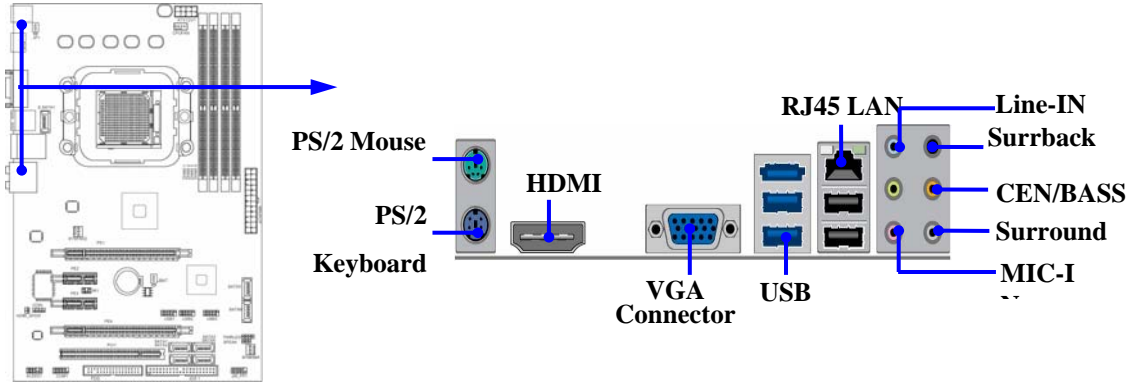
(7) Floppy drive Connector (34-pin block): FDD

This connector supports the provided floppy drive ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to the floppy drives.

Floppy Drive Connector
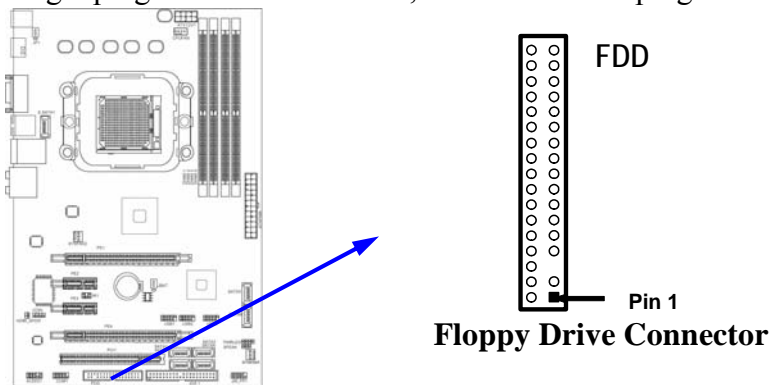
(8) Primary IDE Connector (40-pin block): IDE1

This connector supports the provided IDE hard disk ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to your hard disk(s). If you install two hard disks, you must configure the second drive to Slave mode by setting its jumpers accordingly. Please refer to the documentation of your hard disk for the jumper settings.

Primary IDE Connector
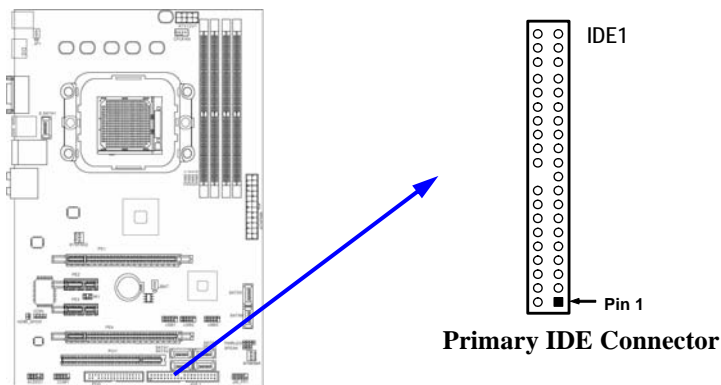
Two hard disks can be connected to each connector.   The first HDD is referred to as the "Master" and the second HDD is referred to as the "Slave".

● For performance issues, we strongly suggest you don't install a CD-ROM or DVD-ROM drive on the same IDE channel as a hard disk.   Otherwise, the system performance on this channel may drop.

(9)Serial-ATAII Portconnector:SATAII1/SATAII2/ SATAII3/SATAII4/SATAII5/SATAII6
This connector supports the provided Serial ATA2 IDE hard disk cable to connecting the motherboard and serial ATAII hard disk.

Serial-ATA2 Port Connector
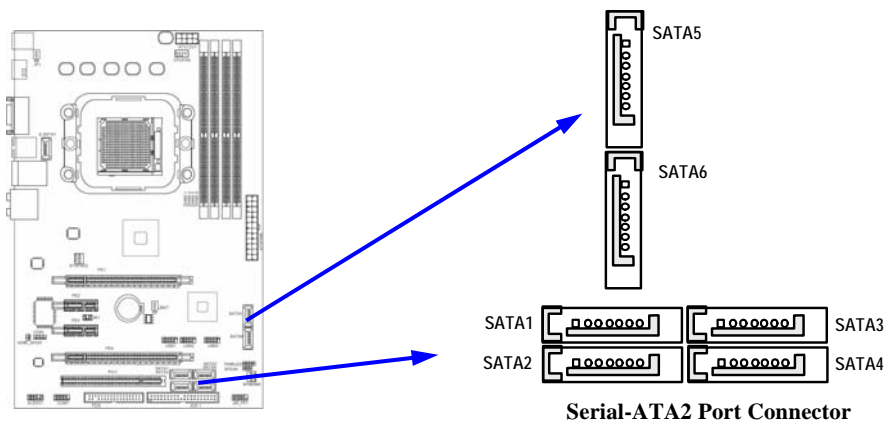
2-6-2 Headers

(1) Line-Out/MIC Header for Front Panel (9-pin): AUDIO
This header connects to Front Panel Line-out, MIC connector with cable.

Line-Out, MIC Headers
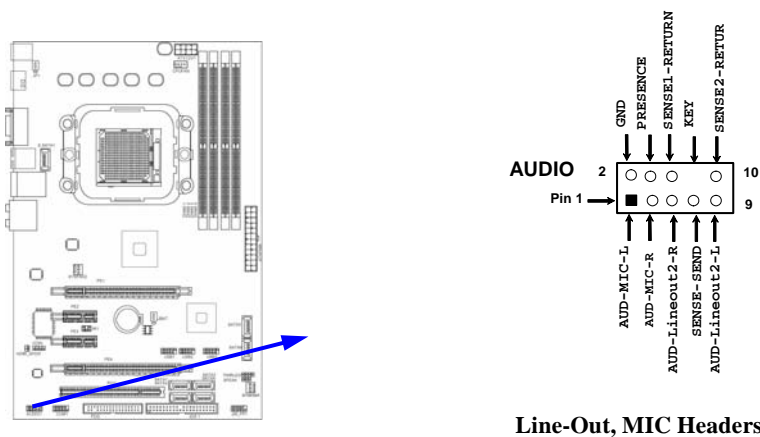
(2) USB Port Headers (9-pin) :   USB1/USB2/USB3

These headers are used for connecting the additional USB port plug. By attaching an option USB cable, your can be provided with two additional USB plugs affixed to the back panel.

USB Port Headers
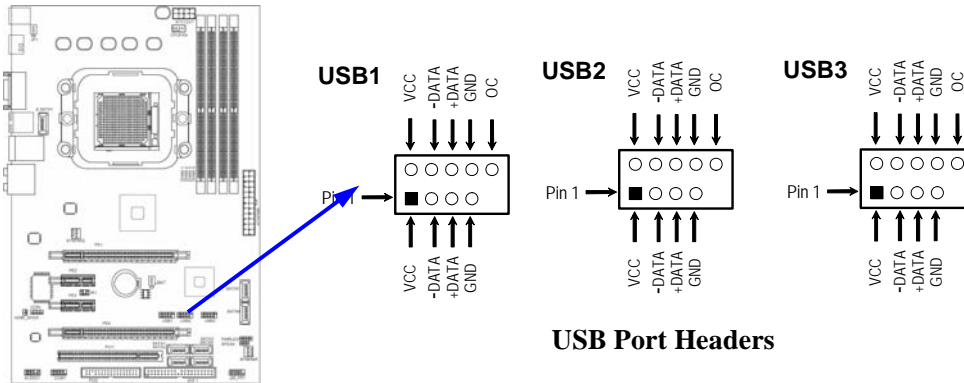
(3) Speaker connector: SPEAK

This 4-pin connector connects to the case-mounted speaker. See the figure below.

(4) Power LED: PWR LED

The Power LED is light on while the system power is on.   Connect the Power LED from the system case to this pin.

(5) IDE Activity LED: HD LED

This connector connects to the hard disk activity indicator light on the case.

(6) Reset switch lead: RESET

This 2-pin connector connects to the case-mounted reset switch for rebooting your computer without having to turn off your power switch.   This is a preferred method of rebooting in order to prolong the lift of the system's power supply.   See the figure below.

(7) Power switch: PWR BTN

This 2-pin connector connects to the case-mounted power switch to power ON/OFF the system.

System Case Connections
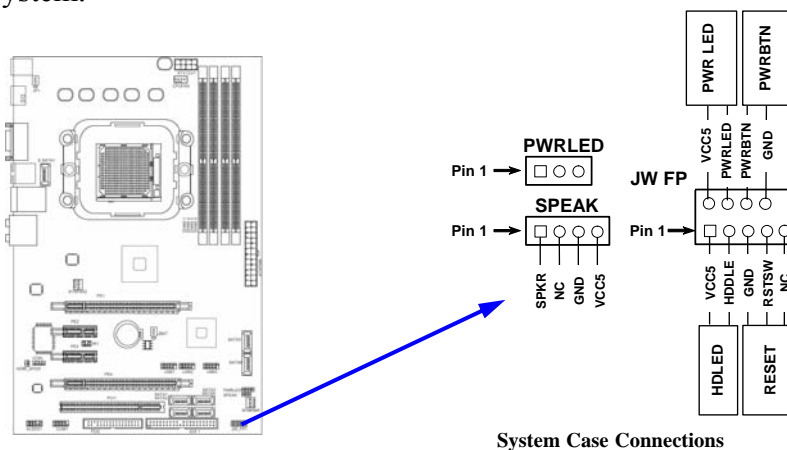
(8) FAN Power Headers: SYSFAN1, SYSFAN2, CPUFAN (4-pin)

These connectors support cooling fans of 350mA (4.2 Watts) or less, depending on the fan manufacturer, the wire and plug may be different.   The red wire should be positive, while the black should be ground. Connect the fan's plug to the board taking into consideration the polarity of connector.

FAN Power Header
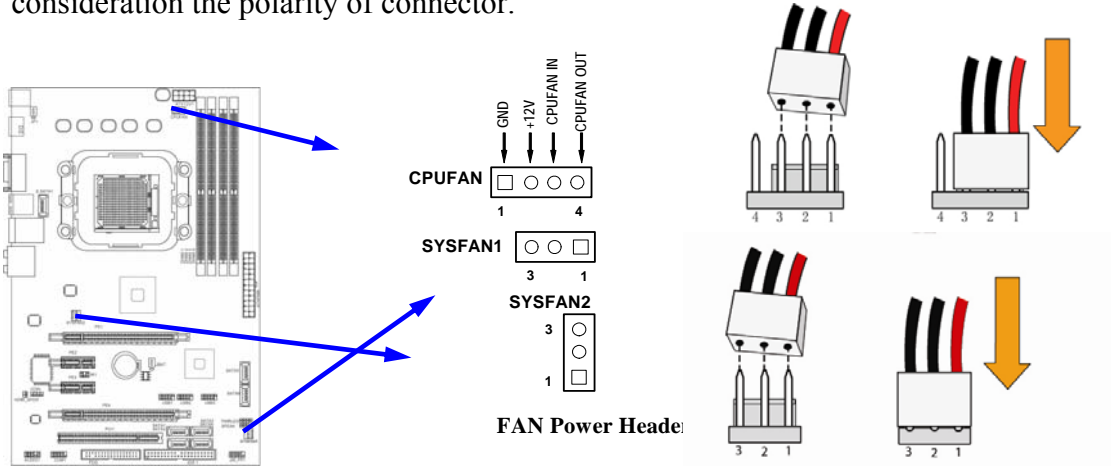
(9) CD Audio-In Headers (4-pin) : CDIN

CDIN are the connectors for CD-Audio Input signal.   Please connect it to CD-ROM CD-Audio output connector.

CD Audio-In Headers
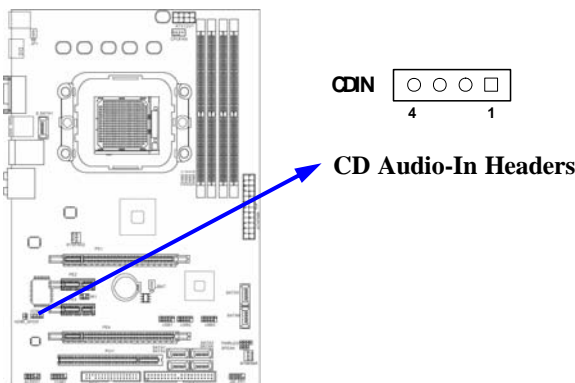
(10)   IR infrared module Headers (5-pin) : IR

This connector supports the optional wireless transmitting and receiving infrared module. You must configure the setting through the BIOS setup to use the IR function.

IR infrared module Headers
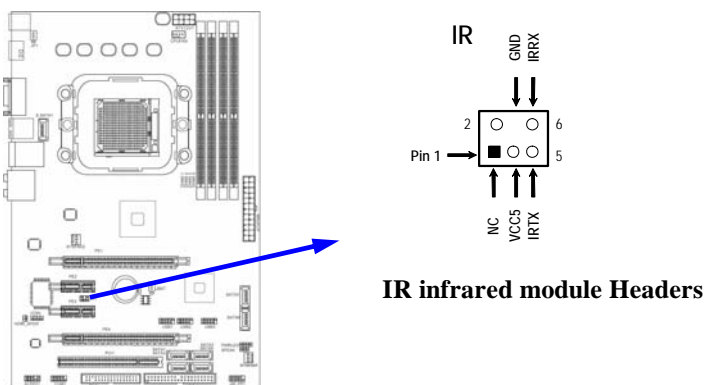
(11) HDMI-SPDIF

The SPDIF output is capable of providing digital audio to external speakers or compressed AC3 data to an external Dolby digital decoder. Use this feature only when your stereo system has digital input function. Use SPDIF IN feature only when your device has digital output function.

2-7   Starting Up Your Computer

1. After all connection are made, close your computer case cover.

2. Be sure all the switch are off, and check that the power supply input voltage is set to proper position, usually in-put voltage is 220V~240V or 110V~120V depending on your country's voltage used.

3. Connect the power supply cord into the power supply located on the back of your system case according to your system user's manual.

4. Turn on your peripheral as following order:
   a. Your monitor.
   b. Other external peripheral (Printer, Scanner, External Modem etc…)
   c. Your system power.   For ATX power supplies, you need to turn on the power supply and press the ATX power switch on the front side of the case.

5. The power LED on the front panel of the system case will light.   The LED on the monitor may light up or switch between orange and green after the system is on.   If it complies with green standards or if it is has a power standby feature.   The system will then run power-on test.   While the test are running, the BIOS will alarm beeps or additional message will appear on the screen.

   If you do not see any thing within 30 seconds from the time you turn on the power.   The system may have failed on power-on test. Recheck your jumper settings and connections or call your retailer for assistance.

Beep	Meaning
One short beep when displaying logo	No error during POST
Long beeps in an endless loop	No DRAM install or detected
One long beep followed by three short beeps	Video card not found or video card memory bad
High frequency beeps when system is working	CPU overheated
System running at a lower frequency

6. During power-on, press <Delete> key to enter BIOS setup.   Follow the instructions in BIOS SETUP.

7. **Power off your computer:** You must first exit or shut down your operating system before switch off the power switch.   For ATX power supply, you can press ATX power switching after exiting or shutting down your operating system.   If you use Windows 9X, click **"Start"** button, click **"Shut down"** and then click **"Shut down the computer?"** The power supply should turn off after windows shut down.

Chapter 3

Introducing BIOS

The BIOS is a program located on a Flash Memory on the motherboard.   This program is a bridge between motherboard and operating system.   When you start the computer, the BIOS program gain control.   The BIOS first operates an auto-diagnostic test called POST (power on self test) for all the necessary hardware, it detects the entire hardware device and configures the parameters of the hardware synchronization.   Only when these tasks are completed done it gives up control of the computer to operating system (OS).   Since the BIOS is the only channel for hardware and software to communicate, it is the key factor for system stability, and in ensuring that your system performance as its best.

In the BIOS Setup main menu of Figure 3-1, you can see several options.   We will explain these options step by step in the following pages of this chapter, but let us first see a short description of the function keys you may use here:

- Press <Esc> to quit the BIOS Setup.

- Press ↑↓←→ (up, down, left, right) to choose, in the main menu, the option you want to confirm or to modify.

- Press <F10> when you have completed the setup of BIOS parameters to save these parameters and to exit the BIOS Setup menu.

- Press Page Up/Page Down or +/– keys when you want to modify the BIOS parameters for the active option.

3-1   Entering Setup

Power on the computer and by pressing <Del> immediately allows you to enter Setup.
If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys.   If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to

    Press <F1> to continue, <Ctrl-Alt-Esc> or <Del> to enter Setup

3-2   Getting Help

Main Menu
The on-line description of the highlighted setup function is displayed at the bottom of the screen.

Status Page Setup Menu/Option Page Setup Menu
Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item.   To exit the Help Window, press <Esc>.

3-3 The Main Menu

Once you enter Award® BIOS CMOS Setup Utility, the Main Menu (Figure 3-1) will appear on the screen.   The Main Menu allows you to select from fourteen setup functions and two exit choices.   Use arrow keys to select among the items and press <Enter> to accept or enter the sub-menu.

```
          Phoenix – AwardBIOS CMOS Setup Utility
┌─────────────────────────────────────────────────────────────────┐
│                                  ║                                │
│  Standard CMOS Features          ║   Thermal Throttling Option    │
│  Advanced BIOS Features          ║   Power User Overclock settings│
│  Advanced Chipset Features       ║   Password Settings            │
│  Integrated Peripherals          ║   Load Optimized Defaults      │
│  Power Management Setup           ║   Load Fail-Safe Defaults      │
│  Miscellaneous control            ║     Save & Exit Setup          │
│  PC Health Status                 ║     Exit Without Saving        │
├─────────────────────────────────────────────────────────────────┤
│  Esc : Quit   F9 : Menu in BIOS    ↑↓→← : Select Item             │
│  F10 : Save & Exit Setup                                          │
└─────────────────────────────────────────────────────────────────┘
```

                          Figure 3-1

Standard CMOS Features

Use this Menu for basic system configurations.

Advanced BIOS Features

Use this menu to set the Advanced Features available on your system.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Setup

Use this menu to specify your settings for power management.

PC Health Status

This entry shows your PC health status.

CPU Thermal Throttling Setting

The selection is set for activating the active CPU Thermal Protection by flexible CPU loading adjustment in the arrange of temperature you define.

Load Fail-Safe Defaults

This menu uses a minimal performance setting, but the system would run in a stable way.

Load Optimized Defaults

Use this menu to load the BIOS default values these are setting for optimal performances system operations for performance use.

Password Setting

This entry for setting Supervisor password and User password

Save & Exit Setup

Save CMOS value changes to CMOS and exit setup.

Exit Without Saving

Abandon all CMOS value changes and exit setup.

3-4   Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into several categories.   Each category includes no, one or more than one setup items.   Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

```
              Phoenix – AwardBIOS CMOS Setup Utility
                      Standard CMOS Features
┌──────────────────────────────────────────────┬──────────────────────┐
│                                               │                      │
│  Date (mm.dd.yy)        Sun* Jan *13 * 2007   │      Item Help       │
│                                               │                      │
│  Time (hh:mm:ss)        2 : 54 : 28           ├──────────────────────┤
│ > IDE Channel 0 Master  WDC WD800BB-00JHC     │                      │
│ > IDE Channel 0 Slave   Asus DVD-E818         │  Menu Level >        │
│                                               │                      │
│   SATA Channel  5       None                  │  Change the day, month,│
│   SATA Channel  6       None                  │  year and century    │
│   SATA Channel  1       None                  │                      │
│   SATA Channel  3       None                  │                      │
│   SATA Channel  2       None                  │                      │
│   SATA Channel  4       None                  │                      │
│                                               │                      │
│                                               │                      │
│   Drive A               1.44M, 3.5 in.        │                      │
│   Halt On               All Errors            │                      │
│                                               │                      │
│   Base Memory              640K               │                      │
│   Extended Memory          523264K            │                      │
│   Total Memory             524288K            │                      │
├──────────────────────────────────────────────┴──────────────────────┤
│   ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help│
│       F5:Previous Values   F6:Fail-safe Defaults   F7:Optimized  Defaults │
└──────────────────────────────────────────────────────────────────────┘
```

Date

The date format is <day><month><date><year>.

Day   Day of the week, from Sun to Sat, determined by BIOS. Read-only.

Month   The month from Jan. through Dec.

Date   The date from 1 to 31 can be keyed by numeric function keys.

Year   The year depends on the year of the BIOS.

Time

The time format is <hour><minute><second>.

IDE Channel 0 Master / Channel 0 Slave

SATA Channel 1, 2, 3, 4

Press PgUp/<+> or PgDn/<–> to select Manual, None, Auto type.   Note that the specifications of your drive must match with the drive table.   The hard disk will not work properly if you enter improper information for this category.   If the type of hard disk drives is not matched or listed, you can use Manual to define your own drive type manually.

If you select Manual, related information is asked to be entered to the following items. Enter the information directly from the keyboard. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.

If the controller of HDD interface is SCSI, the selection shall be "None".

If the controller of HDD interface is CD-ROM, the selection shall be "None"

Access Mode   The settings are Auto Normal, Large, and LBA.

Cylinder   number of cylinders

Head   number of heads

Precomp   write precomp

Landing Zone   landing zone

Sector   number of sectors

3-5   Advanced BIOS Features

```
                  Phoenix – Award BIOS CMOS Setup Utility
                          Advanced BIOS Features

    CPU Feature                Press Enter
    Hard Disk Boot Priority    Press Enter           Item Help
    Virus Warning              Disabled
    CPU Internal Cache         Enabled
    External Cache             Enabled          Menu Level >
    Quick Power On Self Test   Enabled
    First Boot Device          Hard Disk
    Second Boot Device         CD-ROM
    Third Boot Device          Floppy
    Boot other Device          Enabled
    Boot up floppy seek        Disabled
    Boot Up NumLock Status     On
    Gate A20 Option            Fast
    Typematic Rate Setting     Disabled
    * Typematic Rate (Chars/Sec) 6
    *Typematic Delay (Msec)    250
    Security Option            Setup
    APIC Mode                  Enabled
    MPS Version Control For OS  1.4
    OS Select For DRAM > 64MB   Non-OS2
    HDD S.M.A.R.T. Capability   Disabled
    Small LOGO Show(EPA)        Enabled


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

3-5-1 CPU Feature

```
               Phoenix – AwardBIOS CMOS Setup Utility
                            CPU Feature
┌─────────────────────────────────────────────┬──────────────────────┐
│ Virtualization                      Enabled  │                      │
│ AMD K8 COOL&Quiet control           Disabled │      Item Help       │
│ TLB Check                           Enabled  │                      │
│ Advanced Clock calibration Disabled Disabled ├──────────────────────┤
│ Value(All cores)                    0%       │    Menu Level >      │
│ Value(cores 0)                      0%       │                      │
│ Value(cores 1)                      0%       │                      │
│ Value(cores 2)                      0%       │                      │
│ Value(cores 3)                      0%       │                      │
│                                              │                      │
│                                              │                      │
├──────────────────────────────────────────────┴─────────────────────┤
│   ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help │
│      F5:Previous Values   F6:Fail-safe Defaults  F7:Optimized Defaults │
└────────────────────────────────────────────────────────────────────┘
```

Hard Disk Boot Priority
The selection is for you to choose the hard disk drives priorities to boot from.
Virus Warning
Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

Disabled (default) No warning message to appear when anything attempts to access the boot sector or hard disk partition table.
Enabled Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector of hard disk partition table.

CPU Internal Cache
The default value is Enabled.

Enabled (default) Enable cache
Disabled Disable cache

Note: The internal cache is built in the processor.
External Cache
Choose Enabled or Disabled. This option enables the Level 2 cache memory.
Quick Power On Self-Test
This category speeds up Power On Self Test (POST) after you power on the computer. If this is set to Enabled. BIOS will shorten or skip some check items during POST.

Enabled (default) Enable quick POST
Disabled Normal POST

First/Second/Third/Fourth Boot Device
The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The settings are Floppy, LS/ZIP, HDD-0/HDD-1/HDD-3, SCSI, CDROM, LAD and Disabled.
Boot Up Floppy Seek
During POST, BIOS will determine if the floppy disk drive installed is 40 or 80 tracks. 360K type is 40 tracks while 760K, 1.2M and 1.44M are all 80 tracks.
Boot Up NumLock Status
The default value is On.

On (default) Keypad is numeric keys.

Off   Keypad is arrow keys.

Gate A20 Option

    Normal   The A20 signal is controlled by keyboard controller or chipset hardware.

    Fast (default)   The A20 signal is controlled by port 92 or chipset specific method.

Typematic Rate Setting

Keystrokes repeat at a rate determined by the keyboard controller. When enabled, the typematic rate and typematic delay can be selected.　The settings are: Enabled/Disabled.

Typematic Rate (Chars/Sec)

Sets the number of times a second to repeat a keystroke when you hold the key down.　The settings are: 6, 8, 10, 12, 15, 20, 24, and 30.

Typematic Delay (Msec)

Sets the delay time after the key is held down before is begins to repeat the keystroke.　The settings are 250, 500, 750, and 1000.

Security Option

This category allows you to limit access to the system and Setup, or just to Setup.

    System   The system will not boot and access to Setup will be denied if the correct password is not entered at the prompt.

    Setup (default) The system will boot, but access to Setup will be denied if the correct password is not entered prompt.

ACPI Mode

This option allow you to enable the ACPI Mode (Advanced Configuration and Power Interface). You can choose from Enabled and Disabled.

HDD S.M.A.R.T Capability

This option allow you to enable the HDD S.M.A.R.T Capability (Self-Monitoring, Analysis and Reporting Technology) . You can choose from Enabled and Disabled.

MPS Version Control For OS   **1.4**

This option is only valid for multiprocessor motherboards as it specifies the version of the Multiprocessor Specification (MPS) that the motherboard will use.

OS Select For DRAM > 64MB

Allows OS2® to be used with >64MB or DRAM. Settings are Non-OS/2 (default) and OS2. Set to OS/2 if using more than 64MB and running OS/2®.

Small Logo (EPA) Show

The selection is for you to choose the EPA small logo to show or not.

3-6   Advanced Chipset Features

The Advanced Chipset Features Setup option is used to change the values of the chipset registers.   These registers control most of the system options in the computer.

```
              Phoenix – AwardBIOS CMOS Setup Utility
                      Advanced Chipset Features
┌──────────────────────────────────────────────────────────────────────┐
│  DRAM Configuration              press enter   │                      │
│  HT Link Control                 press enter   │      Item Help        │
│  PCIE Configuration              press enter   │                      │
│  IGX Configuration               press enter   ├──────────────────────┤
│  HDMI Audio                      Disabled      │  Menu Level >         │
│  NB Power Management             Auto          │                      │
│  Memory Hole                     Disabled      │                      │
│  System BIOS Cacheable           Disabled      │                      │
├──────────────────────────────────────────────────────────────────────┤
│   ↑↓→←  Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
│      F5:Previous Values    F6:Fail-safe Defaults    F7:Optimized  Defaults   │
└──────────────────────────────────────────────────────────────────────┘
```

System BIOS Cacheable

Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance.   However, if any program writes to this memory area, a system error may result.   The settings are: Enabled and Disabled.

3-6-1   DRAM Configuration

```
              Phoenix – AwardBIOS CMOS Setup Utility
                        DRAM Configuration
┌──────────────────────────────────────────────────────────────────────┐
│  DRAM Latency(tcl)                   Auto        │                    │
│  (Trcd)RAS to CAS R/W Delay          6 clock     │     Item Help      │
│  (Trp)Row precharge Time             6 clocks    │                    │
│  (tras)Minimum RAS Active Time       18 bus clocks├───────────────────┤
│  DRAM Command Rate                   2T          │  Menu Level >>     │
│  CKE base Power down Mode            Disabled     │                    │
│  CKE based powerdom                  per channel  │                    │
│  Memclock tri-stating                Disabled     │                    │
│  Memory Hole Remapping               Enabled      │                    │
│  Auto Optimize Bottom IO             Enabled      │                    │
│  Bottom of [31:24] IO Space          DO           │                    │
│  Bottom of UMA DRAM[31:24]           FC           │                    │
│  DDRII Timing Item                   Disabled     │                    │
│  TwTr Command Delay                  3 bus clock  │                    │
│     Trfc 0 for DIMM 0                75ns         │                    │
│   * Trfc 1 for DIMM 1                75ns         │                    │
│   * Trfc 2 for DIMM 2                75ns         │                    │
│   * Trfc 3 for DIMM 3                75ns         │                    │
│  (twr)Write Recovery Time            6 bus clocks │                    │
│  (Trtp)Precharge Time                3 bus clocks │                    │
│  (trc) Row Cycle Time                26 bus clocks│                    │
│  (trd) RAS TO RAS Delay              5 bus clocks │                    │
├──────────────────────────────────────────────────────────────────────┤
│   ↑↓→←  Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
│      F5:Previous Values    F6:Fail-safe Defaults    F7:Optimized  Defaults   │
└──────────────────────────────────────────────────────────────────────┘
```

CAS # Latency
When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing.   The settings are: Auto,3, 4 and 5.

RAS-to-CAS Delay
This field let's you insert a timing delay between the CAS and RAS strobe signals, used when DRAM is written to, read from, or refreshed.   *Fast* gives faster performance; and *Slow* gives more stable performance.   This field applies only when synchronous DRAM is installed in the system.

Row Precharge Time
If an insufficient number of cycles is allowed for the RAS to accumulate its charge before DRAM refresh, the refresh may be incomplete and the DRAM may fail to retain date.   *Fast* gives faster performance; and *Slow* gives more stable performance.   This field applies only when synchronous DRAM is installed in the system.

3-6-2 HT Link Control

```
                 Phoenix – AwardBIOS CMOS Setup Utility
                            HT link Control
 ┌─────────────────────────────────────────┬──────────────────────────┐
 │  HT link Width              Auto         │                          │
 │  HT link Frequency          Auto         │        Item Help         │
 │  HT link Trislate           Auto         ├──────────────────────────┤
 │  Unit ID Clumping           Disabled     │                          │
 │  2X LCLK Mode               Disabled     │   Menu Level >           │
 │                                          │                          │
 ├─────────────────────────────────────────┴──────────────────────────┤
 │  ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
 │      F5:Previous Values   F6:Fail-safe Defaults   F7:Optimized Defaults │
 └─────────────────────────────────────────────────────────────────────┘
```

3-6-3 PCIE Configuration

```
                 Phoenix – AwardBIOS CMOS Setup Utility
                            PCIE Configuration
 ┌─────────────────────────────────────────┬──────────────────────────┐
 │  Primary Dual Slot Config      Auto      │                          │
 │  >GFX  Port 1                  press Enter│        Item Help        │
 │  >GPP  Port 2                  Press Enter├──────────────────────────┤
 │  >GPP1                         Press Enter│                          │
 │  >GPP2                         Press Enter│   Menu Level >           │
 │  >GPP3                         Press Enter│                          │
 │  >NB-SB Port Features          Press Enter│                          │
 │                                          │                          │
 ├─────────────────────────────────────────┴──────────────────────────┤
 │  ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
 │      F5:Previous Values   F6:Fail-safe Defaults   F7:Optimized Defaults │
 └─────────────────────────────────────────────────────────────────────┘
```

3-7   Integrated Peripherals

Integrated Peripherals

```
┌─────────────────────────────────────────────────────┬──────────────────────┐
│ CIMX-SB750 Revision            3.1.3                 │      Item Help        │
│                                                      │                       │
│ Superio Function Setup         Press Enter           ├──────────────────────┤
│                                                      │                       │
│ Onchip IDE Device              Press Enter           │  Menu Level >         │
│                                                      │                       │
│ Onchip SATA Device             Press Enter           │                       │
│                                                      │                       │
│ Onchip PCI Device              Press Enter           │                       │
│                                                      │                       │
├─────────────────────────────────────────────────────┴──────────────────────┤
│  ↑↓→←  Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help   │
│      F5:Previous Values   F6:Fail-safe Defaults   F7:Optimized  Defaults      │
└─────────────────────────────────────────────────────────────────────────────┘
```

3-7-1   Super IO Function Setup

Phoenix – AwardBIOS CMOS Setup Utility

Super IO Function Setup

```
┌─────────────────────────────────────────────────────┬──────────────────────┐
│   Onboard FDC Controller           Enabled           │                       │
│   Onboard Serial Port 1            3F8/IRQ4           │                       │
│   UART Mode Select                 IrDA              │                       │
│   IRDA Duplex Mode                 Half              ├──────────────────────┤
│   PWRON After-Fail                 Always off        │  Menu Level >>        │
│                                                      │                       │
├─────────────────────────────────────────────────────┴──────────────────────┤
│   ↑↓→←  Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help  │
│       F5:Previous Values   F6:Fail-safe Defaults   F7:Optimized  Defaults     │
└─────────────────────────────────────────────────────────────────────────────┘
```

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

Onboard Serial Port
Select an address and corresponding interrupt for the serial port.   The settings are: 3F8/IRQ4, 2E8/IRQ3, 3E8/IRQ4, 2F8/IRQ3, Disabled, Auto.

UART Mode Select
This item allows you to determine which InfraRed(IR) function of the onboard I/O chip, this functions uses.

IrDA Duplex Mode
This field is available when UART Mode is set to either ASKIR or IrDA. This item enables you to determine the infrared function of the onboard infrared chip. The options are Full and Half (default). Full-duplex means that you can transmit and send information simultaneously. Half-duplex is the transmission of data in both directions , but only one direction at a time.

Onboard Parallel Port
There is a built-in parallel port on the on-board Super I/O chipset that Provides Standard, ECP, and EPP features. It has the following option:

Disabled
(3BCH/IRQ7)/   Line Printer port 0
(278H/IRQ5)/   Line Printer port 2
(378H/IRQ7)   Line Printer port 1

Parallel Port Mode
SPP   : Standard Parallel Port
EPP   : Enhanced Parallel Port
ECP: Extended Capability Port

SPP/EPP/ECP/ECP+EPP

To operate the onboard parallel port as Standard Parallel Port only, choose "SPP."   To operate the onboard parallel port in the EPP modes simultaneously, choose "EPP."   By choosing "ECP", the onboard parallel port will operate in ECP mode only.   Choosing "ECP+EPP" will allow the onboard parallel port to support both the ECP and EPP modes simultaneously.   The ECP mode has to use the DMA channel, so choose the onboard parallel port with the ECP feature.   After selecting it, the following message will appear: "ECP Mode Use DMA" at this time, the user can choose between DMA channels 3 to 1.   The onboard parallel port is EPP Spec. compliant, so after the user chooses the onboard parallel port with the EPP function, the following message will be displayed on the screen: "EPP Mode Select."   At this time either EPP 1.7 spec. or EPP 1.9 spec. can be chosen.

Power on After Power Failure
This determines the manner when the power recovery after power failure. The setting are: Off, On.

3-7-2   Onchip PCI Device

```
            Phoenix – AwardBIOS CMOS Setup Utility

                      OnChip PCI Device
┌──────────────────────────────────────────────┬──────────────────────────┐
│ Onboard PCIE Lan Device          Enabled      │                          │
│ Onboard PCIE LAN  BootRom        Enabled      │        Item Help         │
│  HD Audio                        Auto         │                          │
│ Onchip USB Controller            Enabled      │                          │
│ USB EHCI Controller              Enabled      │    Menu Level >>         │
│ USB Keyboard Support             Enabled      │                          │
│                                               │                          │
├──────────────────────────────────────────────┴──────────────────────────┤
│   ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
│       F5:Previous Values   F6:Fail-safe Defaults   F7:Optimized  Defaults │
└──────────────────────────────────────────────────────────────────────────┘
```

Onboard LAN device   (Enabled)
This option allows you to control the onboard LAN device.

HD Audio
This item allows you to decide to enable/disable the chipset family to support HD Audio. The settings are: Enabled, Disabled.

Onchip USB Controller System
Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB peripherals.   The settings are: Enabled, Disabled.

USB Device Support

Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB device.   The settings are: Enabled, Disabled.

3-8   Power Management Setup

The Power Management Setup allows you to configure your system to most effectively save energy saving while operating in a manner consistent with your own style of computer use.

```
              Phoenix – AwardBIOS CMOS Setup Utility
                       Power Management Setup
┌─────────────────────────────────────────────┬──────────────────────────┐
│   ACPI function             Enabled          │                          │
│   ACPI Suspend Type         S1               │       Item Help          │
│   C2 Disabled /Enabled      Disabled         │                          │
│   Power Management Option   User Define      ├──────────────────────────┤
│   HDD Power Down            Disabled         │   Menu Level >           │
│   Video Off Option          [suspend -> off] │                          │
│   Video off Method          V/H SyNC + BlANK │                          │
│   Modem  Use IRQ                3            │                          │
│   Soft-OFF by PWRBTN        Instant off      │                          │
│   Power On by PCI Card      Disabled         │                          │
│   ACPI XSDT Table           Enabled          │                          │
│   Power on By Keyboard      Disabled         │                          │
│   Power on by mouse          Disabled        │                          │
│   RTC Alarm Resume          Disabled         │                          │
│  *Date(of Month)                0            │                          │
│  *Resume Time (hh:mm:ss)       0:0:0         │                          │
├─────────────────────────────────────────────┴──────────────────────────┤
│    ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
│        F5:Previous Values   F6:Fail-safe Defaults   F7:Optimized  Defaults   │
└─────────────────────────────────────────────────────────────────────────┘
```

ACPI Function
This item allows you to Enabled/Disabled the Advanced Configuration and Power Management (ACPI).   The settings are Enabled and Disabled.
HDD Power Down (Disabled)
The IDE hard drive will spin down if it is not accessed within a specified length of time.Options are from 1 Min to 15 Min and Disable.
Video Off Method
This determines the manner in which the monitor is blanked.
    DPMS (default)   Initial display power management signaling.
    Blank Screen   This option only writes blanks to the video buffer.
    V/H SYNC+Blank   This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.
.**MODEM Use IRQ**
If you want an incoming call on a modem to automatically resume the system from a power-saving mode, use this item to specify the interrupt request line (IRQ) that is used by the modem. You might have to connect the fax/modem to the motherboard Wake On Modem connector for this feature to work.
Soft-Off by PWRBTN
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.

RTC Alarm Resume

When set to Enabled, additional fields become available and you can set the date (day of the month), hour, minute and second to turn on your system. When set to 0 (zero) for the day of the month, the alarm will power on your system every day at the specified time .

Date (of month)

You can choose which month the system will boot up.   Set to 0, to boot every day.

Time (hh:mm:ss)

You can choose what hour, minute and second the system will boot up.

Note: If you have change the setting, you must let the system boot up until it goes to the operating system, before this function will work.

3-9 MISCELLANEOUS CONFIGURATION

```
                 Phoenix – AwardBIOS CMOS Setup Utility
                          Miscellaneous Control
┌──────────────────────────────────────────────┬──────────────────────────┐
│  Init Display First            PCI Ex         │                          │
│  Reset Configuration Data      Disabled       │       Item Help          │
│  Resource Controlled by        Auto [ESCD]    │                          │
│  * IRQ Resource                Press Enter    ├──────────────────────────┤
│  PCI/VGA Palette Snoop         Disabled       │   Menu Level >           │
│  Assign IRQ for VGA             Enabled       │                          │
│  Assign IRQ for USB             Enabled       │                          │
│ PCI Latency Timer (CLK)        [64]           │                          │
│ * PCI Express Relative Items                  │                          │
│  Maximum Payload Size          4096           │                          │
│                                               │                          │
├──────────────────────────────────────────────┴──────────────────────────┤
│    ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
│        F5:Previous Values   F6:Fail-safe Defaults   F7:Optimized  Defaults │
└──────────────────────────────────────────────────────────────────────────┘
```

Reset Configuration Data

If you enable this item and restart the system, any Plug and Play configuration data stored in the BIOS Setup is cleared from memory.

Init Display First

Use this item to specify whether your graphics adapter is installed in one of the PCI E slots or is integrated on the motherboard. If a PCI E graphics card is installed, the onboard VGA will be disabled.

PCI/VGA Palette Snoop

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

Assign IRQ For USB

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

IRQ Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.

3-10 PC Health Status

This section shows the Status of you CPU, Fan, Warning for overall system status.   This is only available if there is Hardware Monitor onboard.

Show PC Health in Post	Enabled	
Shutdown Temperature	Disabled	Item Help
SMART FAN Configuration	Press enter	
VCC 3.3	3.40V	
VCORE	2.04V	Menu Level >
NBVCC	1.20V	
+5V	10.96V	
+12V	15.31V	
5VSB	7.22V	
VDIMM	2.24V	
CPU Temperature	39°C	
System Temperature	47°C	
CPUFAN Speed	2725RPM	
SYSFAN1 Speed	0 RPM	
SYSFAN2 Speed	0 RPM	

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

Show PC Health in Post

During Enabled, it displays information list below.   The choice is either Enabled or Disabled

Shutdown Temperature

This item can let users setting the Shutdown temperature, when CPU temperature over this setting the system will auto shutdown to protect CPU.

PS CPU Smart FAN Configurations

CPU Full-Speed Temp

This item allows you setting the FAN works in full speed when the temperature over the value which out set.   If the temperature below the value but over the Idle Temperature, the FAN will works over 60% of full speed, and the higher temperature will gain higher FAN speed, after over the temperature which this item setting, the FAN works in full speed.

CPU Idle Temp

This item allows you setting the FAN works in 60% of full speed, when the temperature lower than the temperature which you setting.

CPU Temperature/ System Temperature / NBTemperature /SYSFAN1, FAN2 Speed/Vcore/ Vdd/3.3V/+5V/+12V/-12V/VBAT(V)/5VSB(V)

This will show the CPU/FAN/System voltage chart and FAN Speed.

3-11 Frequency /Voltge Control

```
            Phoenix – AwardBIOS CMOS Setup Utility
                  Power User Overclock Settings
┌─────────────────────────────────────────┬─────────────────────────────────┐
│  CPU Clock AT next boot      200         │                                 │
│  PCIE Reference Clock        100         │          Item Help              │
│  SB Reference Clock          100         │                                 │
│  Spread Specture            Enable       │ ┌─────────────────────────────┐ │
│  CPU Ratio AT Next Boot      Auto        │ │ CPU Clock at next boot       │ │
│  AMD K8 COOL&Quiet Control   Disabled    │ │   Min=190                    │ │
│  AOD Compatibility          Disabled     │ │   Max=600                    │ │
│  CPU Voltage at Next boot    Default     │ │                              │ │
│  CPU Vcore 7-shift          Normal       │ │   Key in a DEC number :[ ]   │ │
│  VDIMM Select               1.95v        │ │                              │ │
│  NB-Core Voltage Setting    1.25v        │ │ ↑↓:Move ENTER:Accept ESC:Abort│ │
│  NB-PCIE Voltage Setting    1.15v        │ └─────────────────────────────┘ │
│  Memory Clock Mode          Auto         │  Menu Level >                   │
│  DRAM Clock at Next Boot      DDR533     │                                 │
│                                          │                                 │
├─────────────────────────────────────────┴─────────────────────────────────┤
│  ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help  │
│      F5:Previous Values   F6:Fail-safe Defaults   F7:Optimized  Defaults    │
└────────────────────────────────────────────────────────────────────────────┘
```

```
            Phoenix – AwardBIOS CMOS Setup Utility
                  Power User Overclock Settings
┌─────────────────────────────────────────┬─────────────────────────────────┐
│  CPU Clock AT next boot      200         │                                 │
│  PCIE Reference Clock        100         │          Item Help              │
│  SB Reference Clock          100         │                                 │
│  Spread Specture            Enable       │ ┌─────────────────────────────┐ │
│  CPU Ratio AT Next Boot      Auto        │ │ VDIMM Select                 │ │
│  AMD K8 COOL&Quiet Control   Disabled    │ │                              │ │
│  AOD Compatibility          Disabled     │ │   1.70v            [  ]      │ │
│  CPU Voltage at Next boot    Default     │ │ ·····················..      │ │
│  CPU Vcore 7-shift          Normal       │ │   1.95v            [  ]      │ │
│  VDIMM Select               1.95v        │ │   2.85v ·······    [  ]      │ │
│  NB-Core Voltage Setting    1.25v        │ │                              │ │
│  NB-PCIE Voltage Setting    1.15v        │ │ ↑↓:Move ENTER:Accept ESC:Abort│ │
│  Memory Clock Mode          Auto         │ └─────────────────────────────┘ │
│  DRAM Clock at Next Boot      DDR533     │                                 │
│                                          │  Menu Level >                   │
│                                          │                                 │
├─────────────────────────────────────────┴─────────────────────────────────┤
│  ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help  │
│      F5:Previous Values   F6:Fail-safe Defaults   F7:Optimized  Defaults    │
└────────────────────────────────────────────────────────────────────────────┘
```

CPU Vcore
This item allows you select the CPU Vcore Voltage xx% more than the standard value, by this function for the precise over-clocking for extra demanding of performance.

NB Voltage

This item allows you to select value of Voltage for North Bridge Chipset.

```
                  Phoenix – AwardBIOS CMOS Setup Utility
                       Power User Overclock Settings
┌───────────────────────────────────────────┬──────────────────────────────┐
│                                             │                              │
│   CPU Clock AT next boot      200           │         Item Help            │
│   PCIE Reference Clock        100           │                              │
│   SB Reference Clock          100           ├──────────────────────────────┤
│   Spread Specture            Enable         │                              │
│   CPU Ratio AT Next Boot      Auto          │   Menu Level >               │
│   AMD K8 COOL&Quiet Control   Disabled      ├──────────────────────────────┤
│   AOD Compatibility           Disabled      │  PCIE Reference Clock        │
│   CPU Voltage at Next boot     Default      │                              │
│   CPU Vcore 7-shift           Normal        │   Min = 90                   │
│   VDIMM Select                1.95v         │   Max =250                   │
│   NB-Core Voltage Setting     1.25v         │    Key in a DEC Number :     │
│   NB-PCIE Voltage Setting     1.15v         │                              │
│   Memory Clock Mode           Auto          ├──────────────────────────────┤
│   DRAM Clock at Next Boot      DDR533        │  ↑↓:Move ENTER:Accept        │
│                                             │  ESC:Abort                   │
│                                             │                              │
├───────────────────────────────────────────┴──────────────────────────────┤
│    ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help│
│        F5:Previous Values   F6:Fail-safe Defaults   F7:Optimized  Defaults │
└───────────────────────────────────────────────────────────────────────────┘
```

3-12 CPU Thermal –throttling

```
                  Phoenix – AwardBIOS CMOS Setup Utility
                          CPU Themal-Throttling
┌───────────────────────────────────────────┬──────────────────────────────┐
│   CPU Thermal –Throttling       Disabled    │                              │
│   *CPU Throttling Temp          70          │         Item Help            │
│   CPU Throttling Duty           50%         ├──────────────────────────────┤
│                                             │   Menu Level >               │
├───────────────────────────────────────────┴──────────────────────────────┤
│    ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help│
│        F5:Previous Values   F6:Fail-safe Defaults   F7:Optimized  Defaults │
└───────────────────────────────────────────────────────────────────────────┘
```

3-13 Load Fail-Safe Defaults

Load Fail-Safe Defaults

When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Load Fail-Safe Defaults (Y/N)? N

Pressing <Y> loads the default values that are factory settings for stable performance system operations.

3-14 Load Optimized Defaults

Load Optimized Defaults
When you press <Enter> on this item, you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N)? N

Pressing <Y> loads the default values that are factory settings for optimal performance system operations.

3-15　Password Settings

You can set either supervisor or user password, or both of them.　The differences are:

Supervisor password: Can enter and change the options of the setup menus.

User password: Can only enter but do not have the right to change the options of the setup menus.　When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, 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 and not enter a password.

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

PASSWORD DISABLED.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require the BIOS to request a password every time your system is rebooted.　This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option.　If the Security option is set to "System", the password will be required both at boot and at entry to Setup.　If set to "Setup", prompting only occurs when trying to enter Setup.

Chapter 4
DRIVER & FREE PROGRAM INSTALLATION

Check your package and there is A MAGIC INSTALL CD included. This CD consists of all DRIVERS you need and some free application programs and utility programs. In addition, this CD also include an auto detect software which can tell you which hardware is installed, and which DRIVERS needed so that your system can function properly. We call this auto detect software MAGIC INSTALL.

MAGIC INSTALL supports WINDOWS 9X/NT/2K/XP

Insert CD into your CD-ROM drive and the MAGIC INSTALL Menu should appear as below. If the menu does not appear, double-click MY COMPUTER / double-click CD-ROM drive or

click START / click RUN / type X:\SETUP.EXE (assuming X is your CD-ROM drive).

From MAGIC INSTALL MENU you may take 9 selections:

1. ATI   install ATI integrated driver pack
2. SOUND   install ALC883 HD Audio driver
3. LAN   install Realtek LAN Controller driver
4. RAIDDISK   install RAID SATA driver and utility
5. PC-CILLIN   install PC-CILLIN 2007 anti-virus program
6. PC-HEALTH   install MyGuard Hardware Monitor Utility
7. BROWSE CD   to browse the contents of the CD
8. EXIT   to exit from MAGIC INSTALL menu

4-1 ATI   Install ATI Intergrated Driver Pack

1. Click ATI when the MAGIC INSTALL MENU appears.
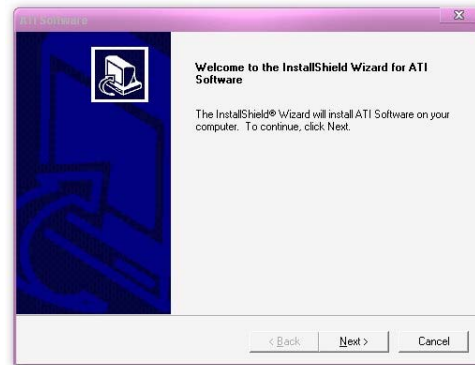
2. Click Next when `ATI software` driver pack appears.
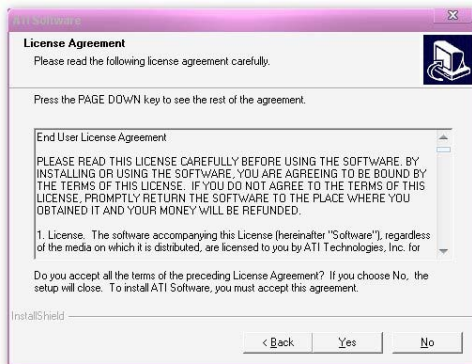
3. Click "Yes" to accept the license agreement and start installation..
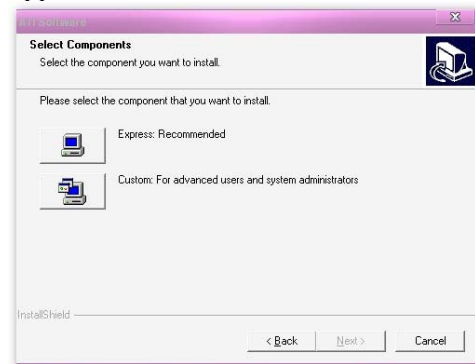
4. Choose the components and click next then finished.

4. Click "Continue anyway"
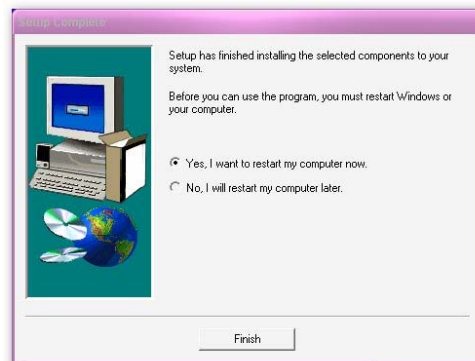
4. Choos finished.

* **The path of the file is X:\ATI \DRIVER\SETUP.EXE**

4-2 SOUND Install ALC883 HD Audio Driver

1. Click SOUND when MAGIC INSTALL MENU appears
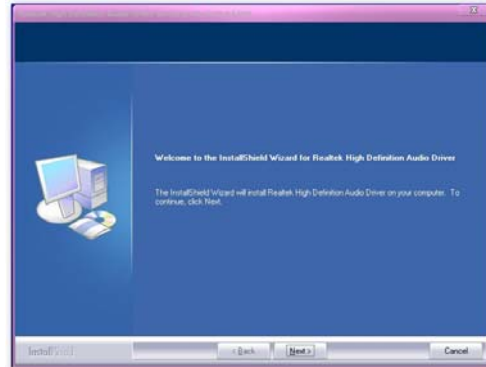
2. Click Next when Realtek High Definition Audio driver windows appear
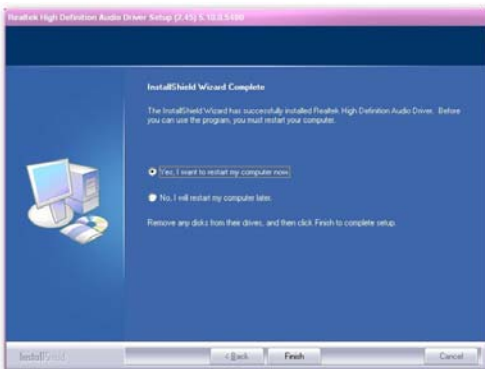
3. Click FINISH and restart your computer

4. Manual Sound Effect Setting

5. Drivers and mixer.

6. Audio input and output settings

7. Microphone effect.

8. 3D Audio

NOTE: Please upgrade your Windows XP to Service Pack 1 / Windows 2000 to Service Pack 4 or later before you the HD Audio CODEC driver.

4-3   LAN   Install Realtek LAN Controller Driver
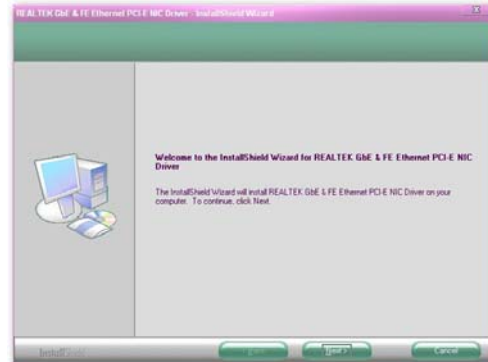
1. Click LAN when Magic Install Menu appears

2. Click Install to install REALTEK LAN and Fast Ethernet NIC Driver
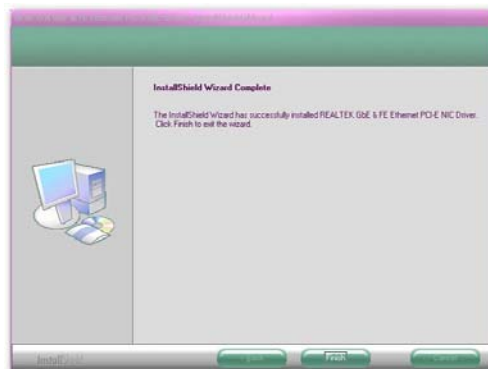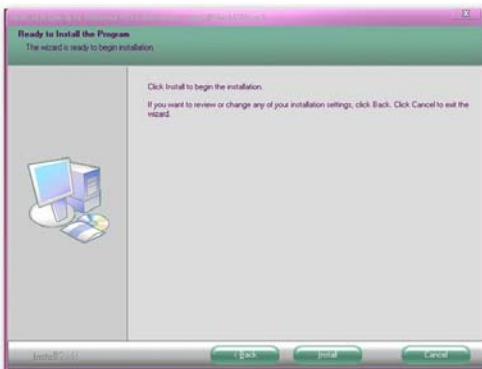
3. Click install begin the installation

4.Finished the installation
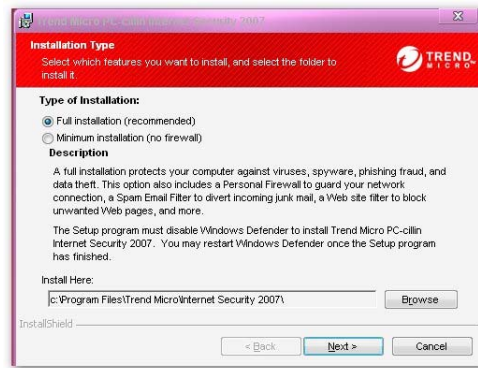
4-4 RAID   Install RAID SATA Driver and Utility
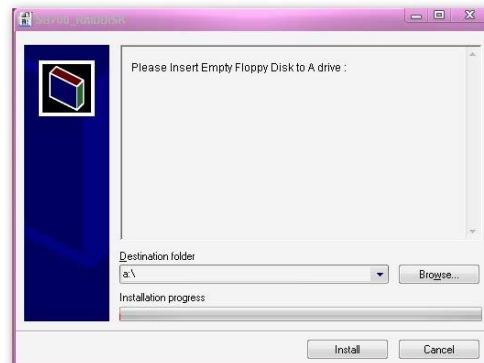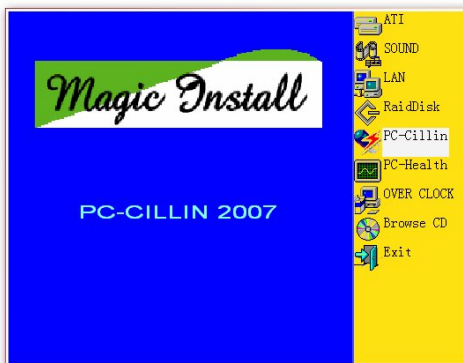
1 Click RAID Disk when MAGIC INSTALL MENU appears

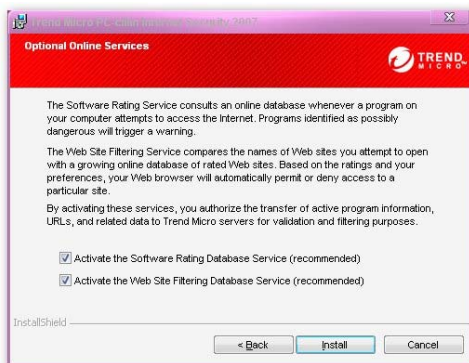2. Install RAID Disk.

4-5 PC-CILLIN   Install PC-CILLIN 2007 Anti-virus program

1. Click PC-CILLIN when MAGIC INSTALL MENU appears

2. Click next

3. This is license agreement, select "I accept the terms in the license agreement" and Click NEXT
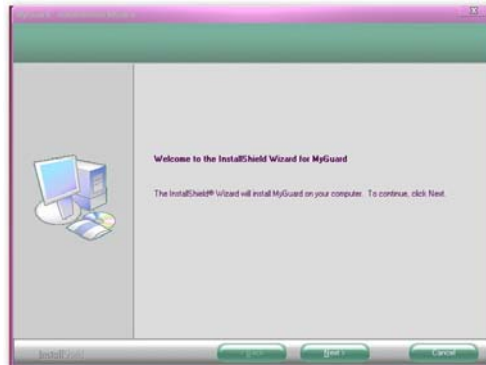
4. Choose "full installation" then click "next"

5. Click Next after you select the features you want to install and the folder to install it
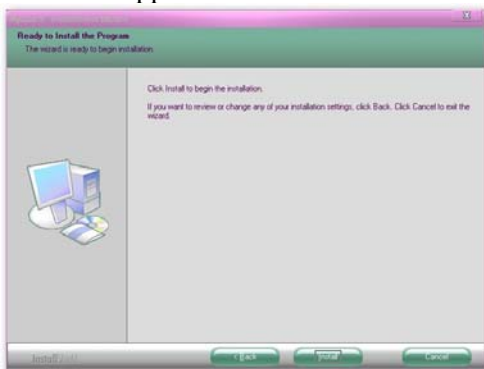
6. Finished the insatallation.

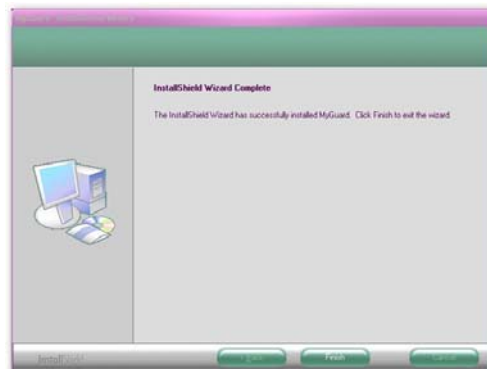## 4-6 PC-HEALTH Install MyGuard Hardware monitor Utility

1. Click PC-health when MAGIC INSTALL MENU appears

2. Click Next on My Guard Install Shield Wizard Window

3. Click Install to begin the installation.

4. Click Finish to complete the installation.

4-8 HOW TO UPDATE BIOS

Before updating the BIOS, users have to check if the "Miscellaneous Control" of BIOS SETUP has the "Flash Part Write Protect" selection.　If there is one, users have to "Disable" the "Flash Part Write Protect" selection of the "Miscellaneous Control" in BIOS SETUP. Otherwise the system will not allow you to upgrade BIOS by Award Flash Utility. If there is no such selection, users can follow the 4 steps directly to update BIOS.

STEP 1. Prepare a boot disc. (you may make one by click START click RUN type SYS A: click　OK)

STEP 2. Copy utility program to your boot disc. You may copy from DRIVER CD X:\FLASH\AWDFLASH.EXE or download from our web site.

STEP 3. Download and make a copy of the latest BIOS for 770 SERIES motherboard series from the web site to your boot disc.

STEP 4. Insert your boot disc into A:,
start the computer, type "Awdflash A:\xxxxxx.BIN /SN/PY/CD/CH/WB/CC/R"
xxxxxx.BIN is the file name of latest BIOS
SN　　means　　don't save existing BIOS data
PY　　means　　renew existing BIOS data
CD　　means　　clear DMI data after programming

<div align="center">CH   means   update HOLE</div>
<div align="center">WB   means   always programming BootBlock</div>
<div align="center">CC   means   clear existing CMOS data</div>
<div align="center">R   means   restart computer</div>

**STEP 5.** Push ENTER to update and flash the BIOS, then the system will restart automatically.

4-9   AMD Platform RAID Function Installation

Please set these choice in the BIOS as RAID：BIOS setup \Integrated Peripherals \Onchip SATA Device \ Onchip SATA Type. When the below figures appeared, please press [Ctrl-F] into figure 2
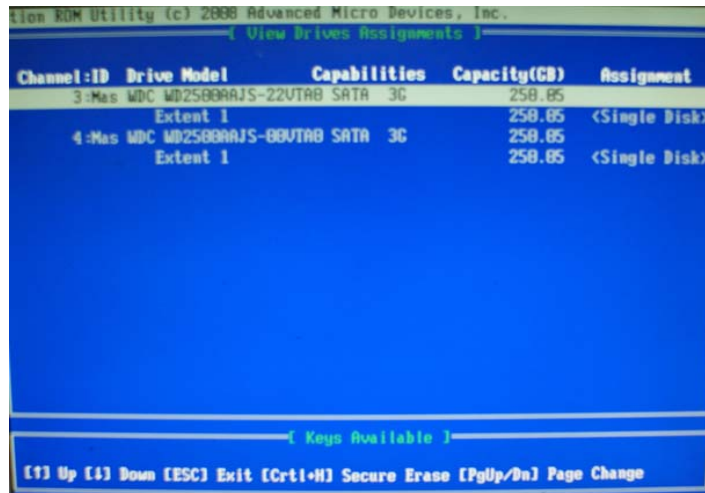

<div align="center">[figure1]</div>

Function: press[1] key, showing the RAID; press [2] key，building RAID; press [3] key, delete the RAID; press[4] key, showing the information of controller.
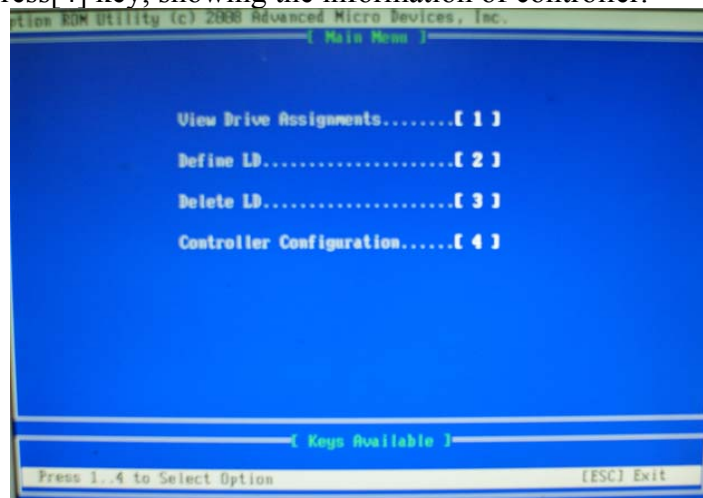
<div align="center">[figure2]</div>

press[1] key，showing the RAID，as the below figure

[figure3]

Press [2] key, the interface of RAID, as figure 4.

RAID function:

1.RAID 1   2. RAID 0   3. RAID 10   4. JBOD
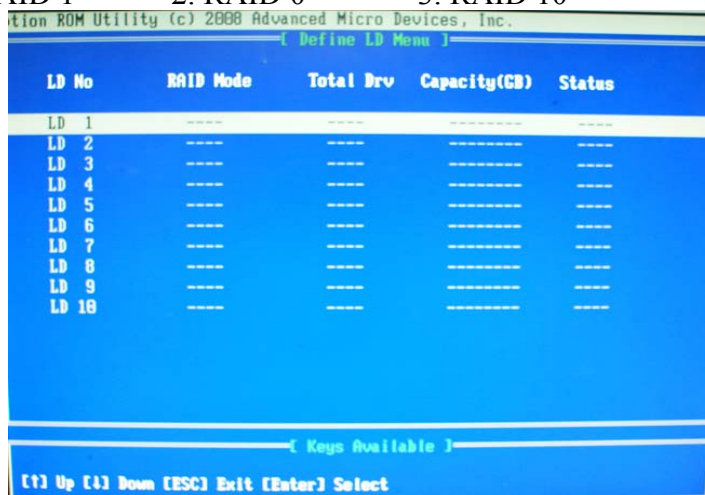
[figure4]

Choose LD 1 then press Enter.

Take Raid0 for example, use [↑] [↓] to shift the cursor, press space key to change the choice, press [Ctrl-Y] to keep.

Set Assignment mode as [Y], press [Ctrl-Y] to keep , then figure 5 appeared, erase the MBR. choose [Ctrl-Y],figure 6 appeared. Press any key, finished the RAID.
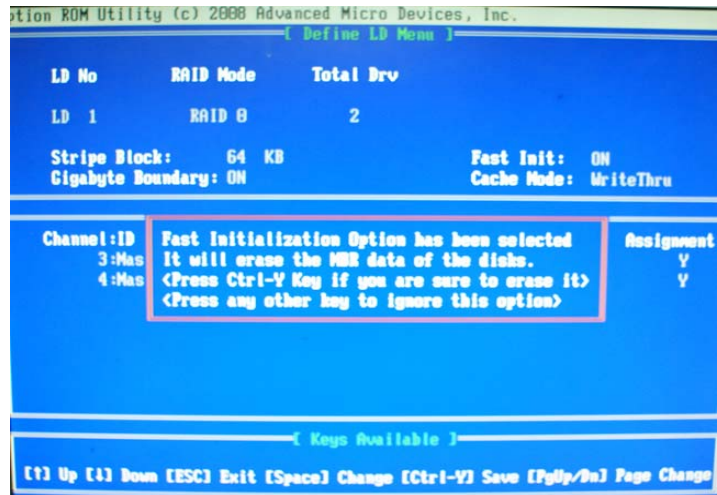
[figure5]

[figure6]

Press [3], delete the RAID mode, as figure 7.press [Delete] will delete the array. As figure 7 .

[figure7]

Press [4], showing the information of controller, as figure 8.

[figure8]

Making RAID driver diskette before Install WindowsXP/2000

Before you install the Windows XP or Windows 2000, you will need to make a RAID driver diskette before you start to install the Operating System.

How to make a RAID driver diskette?

1: Insert the diskette which is being formatted in floppy drive on a system which can start OS.

2: After booting OS insert the bundle CD in your CD-ROM

3: Copy all the files from \NF-orce4\RAIDDisk to floppy diskette

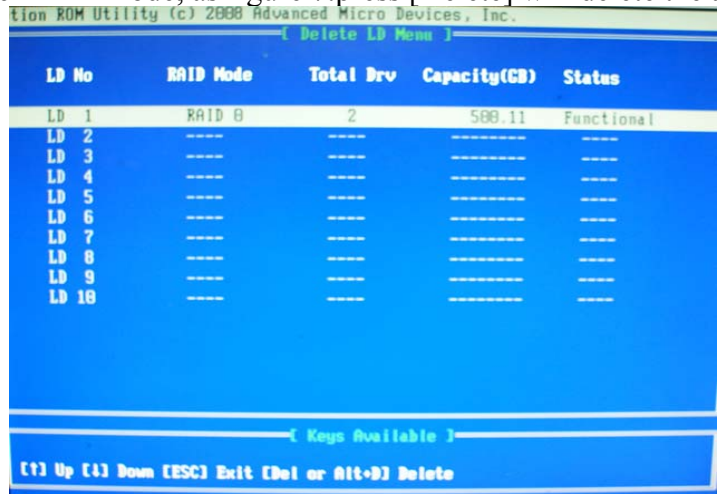Once you have the SATA driver diskette ready, you may start to install Windows XP or Windows 2000 on your System.

Installation of Windows XP/ Windows 2000

For installation of Windows XP or Windows 2000, please insert Windows XP or Windows 2000 CD into the CD-ROM drive. Then remove the floppy diskette, and boot the system. At the very beginning, you will see the message at the bottom of screen, "Press F6 if you need to install a third party SCSI or RAID driver…."

At this moment, please press <F6> key and follow the instructions of Windows XP or Windows 2000 for the proper installation.

Execute Start → programs → NVIDIA corporation → RAID manager , you can view RAID function status or rebuild RAID function from Windows OS
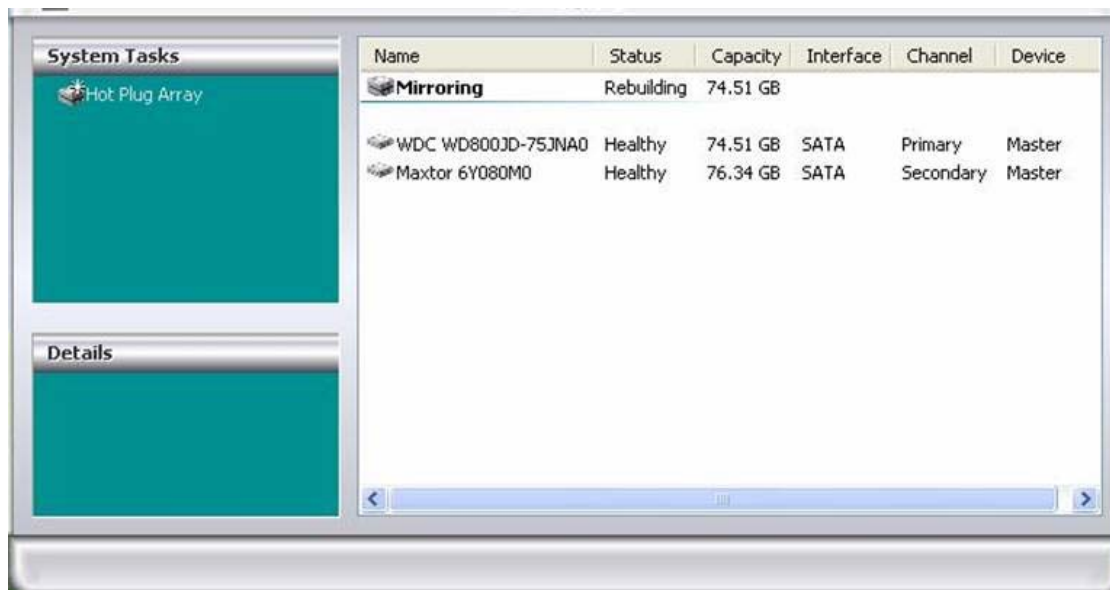
◇
4-11 G.P.I Function Steps

Operating Steps:
The Default setting in BIOS has already enabled this function. If you wish to change the settings, please enter BIOS and take the following steps:

Select: Advanced BIOS Features→CPU Feature→AMD K8 Cool&Quiet Control: AUTO/Disable(This function control the POWER SAVING MODE: Auto/Disabled)

```
              Phoenix – AwardBIOS CMOS Setup Utility

   ┌────────────────────────────────────────────────────────────┐
   │  Standard CMOS Features         Thermal Throttling Option    │
   │                                                              │
   │  Advanced BIOS Features         Power User Overclock settings│
   │                                                              │
   │  Advanced Chipset Features      Password Settings            │
   │                                                              │
   │  Integrated Peripherals         Load Fail-Safe Defaults      │
   │                                                              │
   │  Power Management Setup         Load Optimized Defaults      │
   │                                                              │
   │  Miscellaneous control            Save & Exit Setup          │
   │                                                              │
   │  PC Health Status                 Exit Without Saving        │
   ├────────────────────────────────────────────────────────────┤
   │  Esc : Quit   F9 : Menu in BIOS    ↑↓→← : Select Item       │
   │  F10 : Save & Exit Setup                                     │
   └────────────────────────────────────────────────────────────┘
```

[1]

```
         Phoenix – Award BIOS CMOS Setup Utility
                  Advanced BIOS Features
┌─────────────────────────────────────────┬───────────────────┐
│  CPU Feature              Press Enter     │                   │
│  Hard Disk Boot Priority  Press Enter     │     Item Help     │
│  Virus Warning            Disabled        │                   │
│  CPU Internal Cache       Enabled         ├───────────────────┤
│  External Cache           Enabled         │  Menu Level >     │
│  Quick Power On Self Test Enabled         │                   │
│  First Boot Device        Hard Disk       │                   │
│  Second Boot Device       CD-ROM          │                   │
│  Third Boot Device        Floppy          │                   │
│  Boot other Device        Enabled         │                   │
│  Boot up floppy seek      Disabled        │                   │
│  Boot Up NumLock Status   On              │                   │
│  Gate A20 Option          Fast            │                   │
│  Typematic Rate Setting   Disabled        │                   │
│  * Typematic Rate (Chars/Sec) 6           │                   │
│  *Typematic Delay (Msec)  250             │                   │
│  Security Option          Setup           │                   │
│  APIC Mode                Enabled         │                   │
│  MPS Version Control For OS  1.4          │                   │
│  OS Select For DRAM > 64MB   Non-OS2      │                   │
│  HDD S.M.A.R.T. Capability   Disabled     │                   │
│  Small LOGO Show(EPA)     Enabled         │                   │
│                                           │                   │
├───────────────────────────────────────────┴───────────────────┤
│↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General│
│                          Help                                  │
│ F5:Previous Values   F6:Fail-safe Defaults   F7:Optimized Defaults│
└────────────────────────────────────────────────────────────────┘
```

[2]

```
         Phoenix – AwardBIOS CMOS Setup Utility
               Power User Overclock Settings
┌─────────────────────────────────────────┬───────────────────┐
│  CPU Clock AT next boot      200          │     Item Help     │
│  PCIE Reference Clock        100          │                   │
│  SB Reference Clock          100          ├───────────────────┤
│  Spread Specture          Enable          │  Menu Level >     │
│  CPU Ratio AT Next Boot      Auto         │                   │
│  AMD K8 COOL&Quiet Control   Disabled     │                   │
│  AOD Compatibility           Disabled     │                   │
│  CPU Voltage at Next boot    Default      │                   │
│  CPU Vcore 7-shift           Normal       │                   │
│  VDIMM Select                1.95v        │                   │
│  NB-Core Voltage Setting     1.25v        │                   │
│  NB-PCIE Voltage Setting     1.15v        │                   │
│  Memory Clock Mode           Auto         │                   │
│  DRAM Clock at Next Boot     DDR533        │                   │
│                                           │                   │
├───────────────────────────────────────────┴───────────────────┤
│↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General│
│                          Help                                  │
│ F5:Previous Values   F6:Fail-safe Defaults   F7:Optimized Defaults│
└────────────────────────────────────────────────────────────────┘
```
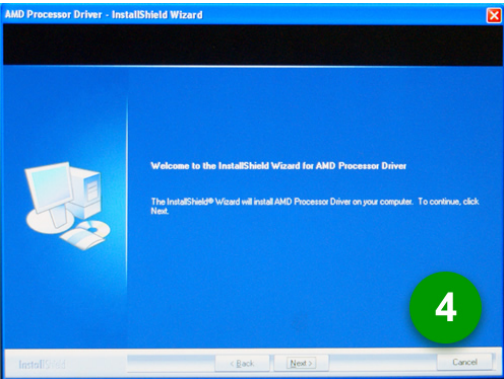
[3]

Compatible with OS: Windows XP/ 64 series. Users must install CPU driver program(AMD Processor Driver) and select the "Minimal"item in Power Setting.
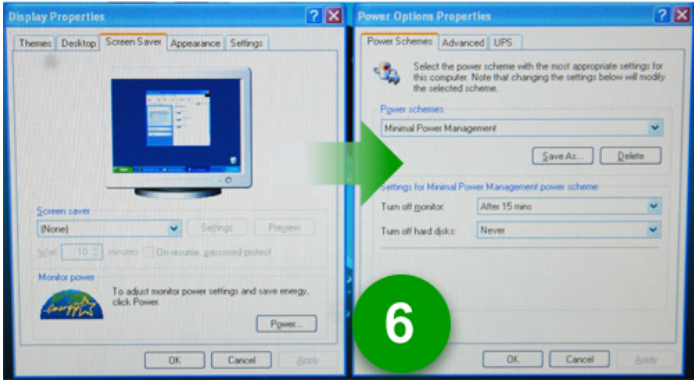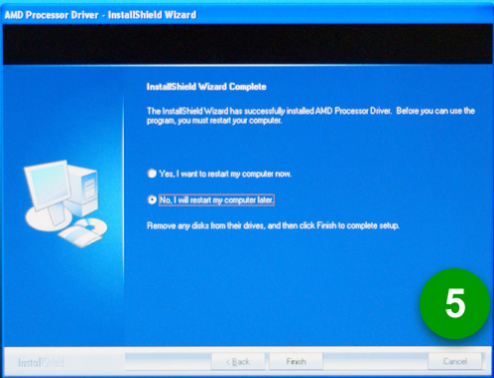
With OS Windows Vista series, there is no need for to take more steps. If needed, please enter Power Settings to make corresponding changes