USER'S MANUAL

Of

AMD 780V & AMD SB700 Based

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

AMD Processor

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.

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Manual Revision Information

Reversion	Revision History	Date
1.0	First Edition	Aug, 2008

Item Checklist

- ☑ AMD 780V Chipset based motherboard
- ☑ AMD 780V Chipset motherboard User's Manual
- ☑ CD for Motherboard Utilities
- ☑ I/O Back Panel Shield
- ☑ SATA Cable
- ☑ HDD Cable

AMD K10 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.

For vendor list of heatsinks and Active cooling fans, please visit：
http://www.amd.com/us-en/Processors/DevelopWithAMD/0,,30_2252_869_9460^9515,00.html

Chapter 1

Introduction of AMD 780V Motherboards

1-1   Features of motherboard

The AMD 780V chipset motherboard series are based on the latest AMD 780V Chipset and the SB700 chipset which supports the innovative 64-bit dual core and quad core multi-tasking Socket AM2+ AMD Phenom™ processors. With an integrated low-latency high-bandwidth DDRII memory controller and a highly-scalable Hyper Transport technology-based system bus up to HT3.0. AMD 780V Platform Processor Chipset motherboard series deliver the outstanding system performance and professional desktop platform solution with the advantages of 64-bit AMD Socket AM2+ AMD Phenom™, and Socket AM2 Athlon64 FX, Athlon64 X2，Athlon64 & Sempron processors.

The AMD 780V Series motherboards support new generation Socket AM2+ processors with an integrated DDRII memory controller for Dual channel DDRII533 /DDRII667 /DDRII800/DDRII1066(AM2 Sempron processors only support up to DDRII667 memory) DDRII Module up to 4 GB. The motherboard is embedded with SB700 chipset of providing ULTRA ATA 133 connector and Serial ATA2 with RAID 0 ,1 , 10 and JBOD functions which support up to one IDE and six Serial ATA2 devices to accelerate hard disk drives and guarantee the data security without failure in advanced computing performance.

The AMD 780V motherboards provide 10/100/1000 LAN function with RealTek RTL8111CVC PCI-E Gigabit LAN which supports optional 10/100/1000Mbps data transfer rate. And the embedded HD 6-channel ALC662 HD Audio CODEC is fully compatible with Sound Blaster Pro standards that offer you with the home cinema quality and satisfying software compatibility.

The AMD 780V Series motherboards deliver outstanding value and performance for gamers, with a true bandwidth design for Multi-GPU configurations. This high bandwidth architecture in the AMD 780V chipset is combined with the flexibility for single or dual card configurations. The AMD 780V chipset provide one x16@16 lane PCI Express 2.0 slots to support simultaneous operation of graphics cards for astonishing performance with brilliant and intense 3D graphics.

AMD 780V Series motherboard series offer one PCI-Express2.0 x16@ 16 lane graphics slots deliver up to 8 Gbyte/sec data transfer rate at each relative direction and up 16 Gbyte/sec concurrently. The AMD 780V motherboards also carry two 32-bit PCI slots guarantee the rich connectivity for the I/O peripheral devices. Besides AMD 780V Series motherboard series offer one PCI-Express2.0 x16@ 4 lane graphics slots deliver up to2 Gbyte/sec data transfer rate at each relative direction and up 4 Gbyte/sec concurrently and one PCI-Express2.0 x1 graphics slots deliver up to 1Gb/sec data transfer rate concurrently.

Embedded USB controllers as well as capability of expanding to 8 of USB2.0 functional ports delivering 480Mb/s bandwidth of 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 X-shift / CPU Smart Fan / DeBug Port/ OC-CON /Power On Button/Reset Button/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 causes 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 X-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.

Debug Port --- (The Professional Hardware Diagnosis System)

Being bugged of abnormal system failure through the tossed and turned nights no more, the embedded Hardware Debug Port offers you the real-time visual system healthy for the demanding usage of computing. No more bugging by unknown system failure and no more time wasted in the first moment of 24-hour nonstop ping business computing, the embedded Debug Port will turn you into a well training hardware professional with the seeing system situation. (The Post Code please refer to appendix)

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.

Power on Button

You can easily start the computer by pressing down this button for a few seconds, without troubling yourself to locate the front panel jumpers to find the Power on jumper.

Reset Button

You can easily restart the computer by pressing down this button for a few seconds, without troubling yourself to locate the front panel jumpers to find the reset jumper.

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:

WI-FI Technology
WIFI--Full name is wireless Fidelity. It has been used in notebook, mobile phone, PDA, digital cameras and Mobile Terminals widely. With WIFI. We do not need to worry about the speed and high spending when we are dialing long-distance calls, browsing web pages, receiving and sending E-mails, loading music, delivering digital photos.

1-2   Specification

Spec	Description
Design	∗ ATX form factor 4 layers PCB size: 29.5cm x20cm
Chipset	∗ AMD 780V North Bridge Chipset ∗ AMD SB700 South Bridge Chipset
CPU Socket AM2+	∗ Support 64bit AMD Socket AM2+ processor utilizing Flip-Chip Pin Grid Array package ∗ Support AMD Athlon64 Athlon 64x2 processor, Athlon 64 & Sempron Processors ∗ Support AMD Phenom™ processors ∗ Support HT3.0
Memory Socket	∗ 240-pin DDRII Module socket x 2 ∗ Support 2pcs DDRII533/DDRII667/DDRII800/DDRII1066 Modules Expandable to 4 GB ∗ Dual channel supported
Expansion Slot	∗ PCI-Express2.0 x16 by16 slot 1pcs deliver up to 16GB/s concurrent bandwidth. ∗ 32-bit PCI slot x 2pcs ∗ PCI-Express2.0 x16 by4 slot 1pcs deliver up to4GB/s concurrent bandwidth. ∗ PCI-Express2.0 x1 slot 1pcs deliver up to1GB/s concurrent bandwidth.
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 for 2 IDE Devices and for 6 Serial ATA2 ports providing 300 MB/sec data transfer rate with RAID 0, 1, 10 and JBOD functions
Gigabit LAN	∗ Integrated RealTek RTL8111CVC PCI-E 10 / 100 / 1000 LAN. ∗ Support Fast Ethernet LAN function of providing 10Mb/100Mb/1000 Mb/s data transfer rate
6 CH-Audio	∗ Realtek ALC662 HD 6-channel Audio Codec integrated ∗ Support 6-channel 3D surround & Positioning Audio ∗ Audio driver and utility included
BIOS	∗ Award 8MB Flash ROM BIOS
Multi I/O	∗ PS/2 keyboard and PS/2 mouse connectors ∗ Floppy disk drive connector x1/ Hard disk drive connector x1 ∗ IR Connector x1 ∗ USB2.0 port x 4 and headers x 2 ∗ RJ45 LAN Connector x1 ∗ Audio connector x1 (Line-in, Line-out, MIC/6CH Audio) ∗ Parallel port header x1 ∗ Serial port header x1 ∗ HDMI-SPDIF header x1

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 5000+
DRAM: PNY DDR2-800 1G Memory x2
VGA Card :   X2600XT
Hard Disk Driver: Seagate 250 GB

BIOS: A01
OS: Windows XP Professional (SERVICE PACK 2)

	AMD 780V Chipset Based Motherboard
3D Mark 2001SE	20993
3D Mark 2003	11820
3D Mark 2005	8490
PCMark2005	
System / CPU / Memory	1017/4069/2867
Graph / HDD	4884/NG
Content Creation Winstone 2004	33.7
Business Winstone 2004	22.5
Winbench 99 V2.0:	
Business/Hi-end GraphicWinmark99	243002.3
Business/Hi-end Graphic Winmark	N/A
SISMark 2004: SISMark Rating(Internet Content Creation / Office Productivity)	
SISMark 2007	269/165
3D Creation	238/331
Web publication E-learning	248
Communication/Document Creation	133/203
Data Analysis	166
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	12245
2.Int/Float Buffered iSSE2 MB/S	7102/6837
3.Integer/Floating-Point IT/S	33475/41391
UT2003 Benchmark (flyby/botmatch)	175.667618/58.704014
Quake3 DEMO1 /DEMO2 FPS	376.6/365.8
DOOM 3 FPS	N/A
Super Pi (1M) Second	43.6211
CPUZ System / CPU Clock	2.0GHz/200

1-4   Layout Diagram

PS/2 Mouse

PS/2 Keyboard

HDMI Connector

VGA Connector

RJ45 LAN

Line-IN

Line-OUT

MIC-IN

USB

ATX 12V Power Connector

KBMB/USB Power on (JP1)

CPU Socket AM2+

CPUFAN

PS2 KB/Mouse Port (KB)

HDMI Connector

DDR2 Socket x 2

VGA Connector

ATX Power Conn.

USB Port (CN1)

RJ45 Over USB Connector (UL1)

Audio Connector (CN3, CN4)

SYSFAN2

ATA 133 IDE Conn.(**IDE1**)

4-pin PWR Connector
PCI Express2.0 x16 by 16-lane

AMD 780V Chipset

Power
Reset Button

RTL 8111CVC Gigabit LAN

PCI Express2.0 x1

AMD 700 SB chipset

PCI Express2.0 x16 by 4-lane

CDIN

8MBit Flash ROM BIOS

PCI Slot
Realtek ALC662
HD Audio Decode

Serial-ATAII Connectors (D-SATA1, D-SATA2, D-SATA3)

WI-FI Connector

Speaker Connector
Power LED Connector

Front Audio

HDMI-SPDIF

IR Connector

USB Port (USB1, USB23)

Floppy Connector

SYSFAN1

Front Panel Connector

Jumpers

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

Connectors

Connector	Name	Description	Page
ATXPWR1	ATX Power Connector	24-pin Block	P.14
ATX12V1	ATX 12V Power Connector	8-pin Block	P.14
KB	PS/2 Mouse & PS/2 Keyboard Connector	6-pin Female	P.14
USB from CN1	USB2.0 Port Connector	4-pin Connector	P.14
RJ45LAN from UL1	Gigabit LAN Port Connector	RJ-45 Connector	P.14
J2	CrossFire Power Connector	4-Pin Block	P.14
AUDIO：CN2	6-CH HD Audio Connector	3- phone jack Conn.	P.14
FDD	Floppy Driver Connector	34-pin Block	P.15
IDE1	Primary/Secondary IDE Connector	40-pin Block	P.153
D-SATA1, D-SATA2,D-SATA3,	Serial ATAII IDE Connectors	7-pin Connector	P.16

Headers

Header	Name	Description	Page
AUDIO1	SPEAKER, MIC header	9-pin Block	P.17
USB1, USB2 ,USB3	USB Port Headers	9-pin Block	P.17
SPEAK1	PC Speaker connector	4-pin Block	P.17
PWR LED1/ PWR LED	Power LED	3-pin Block	P.17
JW_FP1 (Reset/HDLED/Power Button/PWR LED)	Front Panel Header (including IDE activity LED/Reset switch / Power On Button lead)	9-pin Block	P.17
SYSFAN1/2	FAN Headers	3-pin Block	P.18
CPUFAN	FAN Header	4-pin Block	P.18
CDIN1	CD Audio-In Header	4-pin Block	P.18
IR	IR infrared module Headers	5-pin Block	P.18
HDMI-SPDIF	SPDIF Out header	2-pin Block	9

Expansion Sockets

Socket/Slot	Name	Description	Page
ZIF Socket AM2+	CPU Socket	940-pin mPGAB Athlon64 CPU Socket	P.10
DIMM1~2	DDRII Module Socket	240-pin DDRII Module Socket	P.10
PCI1~ PCI2	PCI Slots	32-bit PCI Local Bus Expansion slots	P.12
PE2	PCI-Express2.0 x1Slot	PCI-Express2.0 x1 Expansion Slots	P.12
PE1，PE4	PCI-Express2.0 x16 Slot	PCI-Express2.0 x16 Expansion Slots	P.12

Chapter 2
Hardware Installation

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.

2-1 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)   Keyboard/USB function Enabled/Disabled: JP1

JP1

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

JP1

2-3 Closed KB/USB Power ON Enabled

Keyboard/Mouse & USB Power On Setting
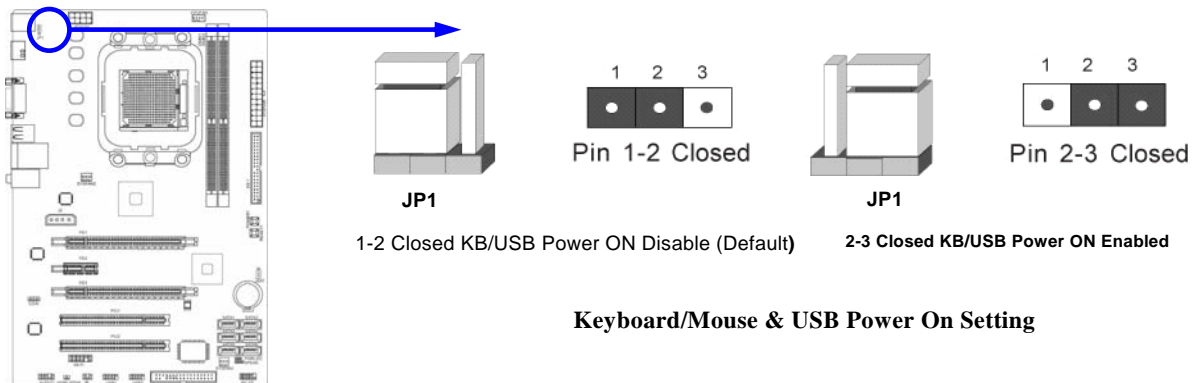
(2)   CMOS RAM Clear (3-pin) : JBAT
   A battery must be used to retain the motherboard configuration in CMOS RAM short 1-2 pins of JBAT to store the CMOS data.

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   JBAT

1-2 Closed   Normal   2-3 Closed   Clear CMOS

CMOS RAM Clear Setting
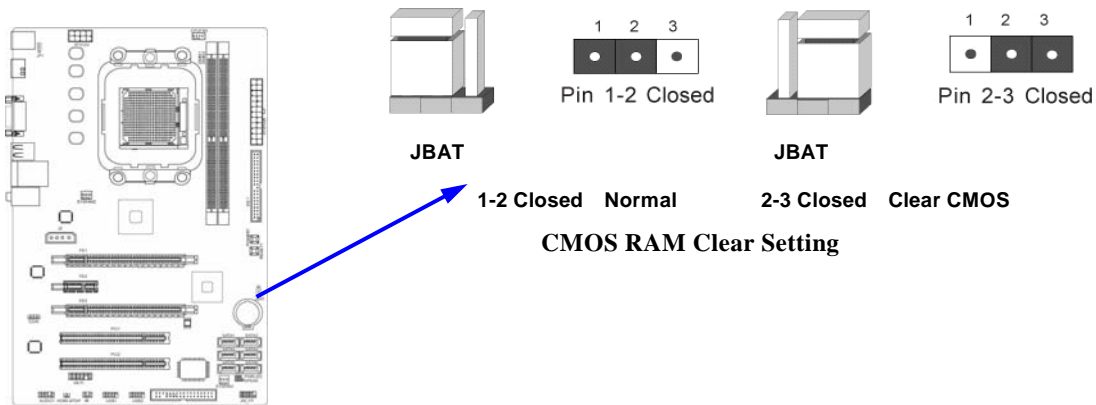
2-3   Install CPU

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.

PCI Express2.0- Peripheral Component Interconnect Express2.0, developed in 2003, the speed of each line doubled from the previous PCI-E of 2.5Gbps to 5 Gbps.

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 surface mount, Zero Insertion Force (ZIF) socket, referred to as the mPGA940 socket supports AMD Athlon64 processor in the 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+
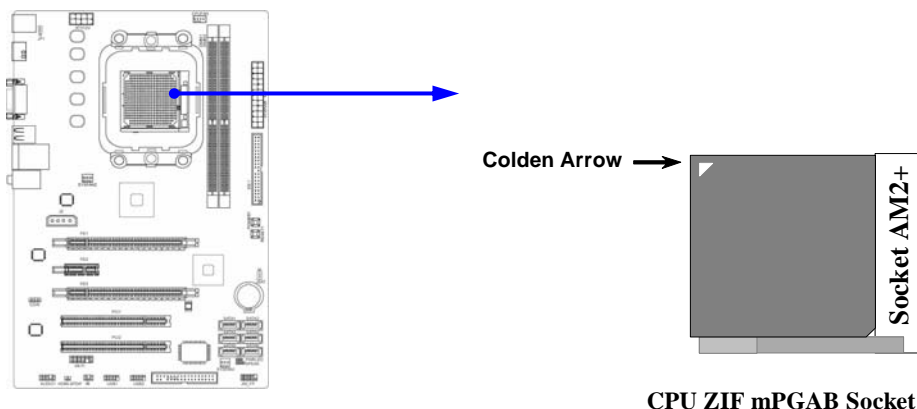
CPU ZIF mPGAB Socket

When you put the CPU into the ZIF socket, No force required to insert of the CPU, and then press the level to locate position slightly without any extra force.

2-4   Install Memory

This motherboard provides two 240-pin DDR2 DUAL INLINE MEMORY MODULES (DIMM) socket for DDR2 memory expansion available from minimum memory volume of 128MB to maximum memory volume of 4 GB DDR SDRAM.

Valid Memory Configurations

Bank	240-Pin DIMM	PCS	Total Memory
Bank 0, 1 (DIMM1)	DDR2 667/DDR2 800/ DDR2 1066 *	X1	128MB~2 GB
Bank 2, 3 (DIMM2)	DDR2 667/DDR2 800/ DDR2 1066*	X1	128MB~2 GB
Total	System Memory (Max 4 GB)	2	128MB~4 GB

*DDR2 1066 could only be reached in the case of overclocking.

Recommend DIMM Module Combination
1. One DIMM Module ----Plug in DIMM1
2. Two DIMM Modules---Plug in DIMM1 and DIMM2 or DIMM3 and DIMM4 for Dual channel function

Dual channel Limited!
1. Dual channel function only supports when 2 DIMM Modules plug in either both DIMM1 & DIMM2or DIMM3 &DIMM4, or four DIMM Modules plug in DIMM1~DIMM4.
2. Memory modules plugged in DIMM1 & DIMM2, or DIMM3& DIMM4 must be of the same type, same size, and same frequency for dual channel function.

Install DDR II modules to your motherboard is not difficult, you can refer to figure below to see how to install a 240-Pin DDR2 667/DDR2 800/DDRII1066 module.

DIMM1 & DIMM2: Dual Channel 1
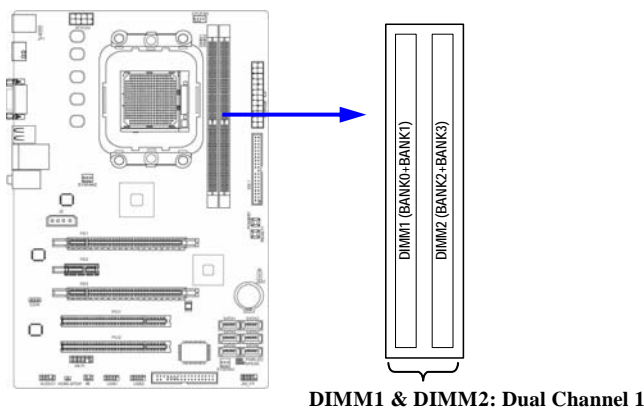
NOTE!   When you install DIMM module fully into the DIMM socket the eject tab should be locked into the DIMM module very firmly and fit into its indention on both sides.

2-5   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			√					
Slot 3				√				
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

AMD 780V Series motherboard series offer one PCI-Express2.0 x16@ 16 lane graphics slots and one PCI-Express2.0 x16 by 4lane. Fully compliant to the PCI Express Base Specification revision 2.0, support PCI Express VGA card, and other PCI Express device. Each PCI-Express2.0 x16by 16 slots deliver up to 8Gbyte/sec data transfer rate at each relative direction and up 16 Gbyte/sec concurrently. One PCI Express2.0 x1 I/O slot offers 1 Gbyte/sec concurrently, over 7 times more bandwidth than PCI at 133Mbye/sec, tackling the most demanding multimedia tasks nowadays. The AMD 780V motherboards also carry two 32-bit PCI slots guarantee the rich connectivity for the I/O peripheral devices.

PCI-E 2.0x16 Slot@16-lane

PCI-E2.0 x1 Slot

32-bit PCI Slot

PCI-E 2.0x16 Slot@4-lane
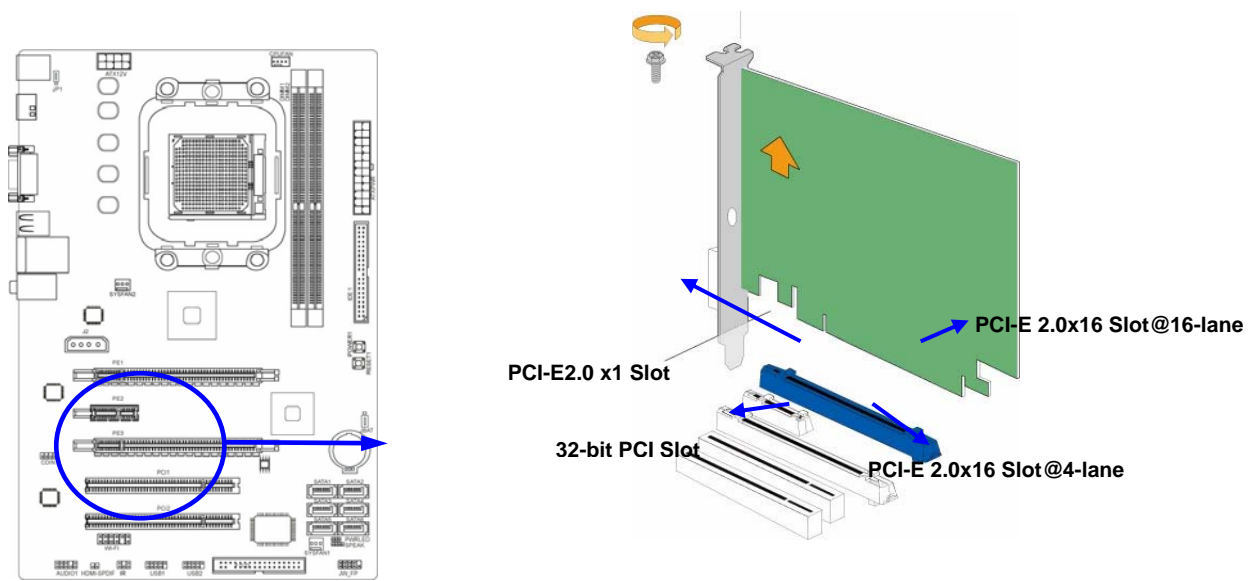
2-6 Connectors, Headers
2-6-1 Connectors
(1) Power Connector (24-pin block) : ATXPWR1

ATX Power Supply connector: This is a new defined 24-pins connector that usually comes with ATX case. The ATX Power Supply allows using 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

ROW1 ROW2

ROW1 ROW2

Pin 1

Pin 1

20-Pin **24-Pin**
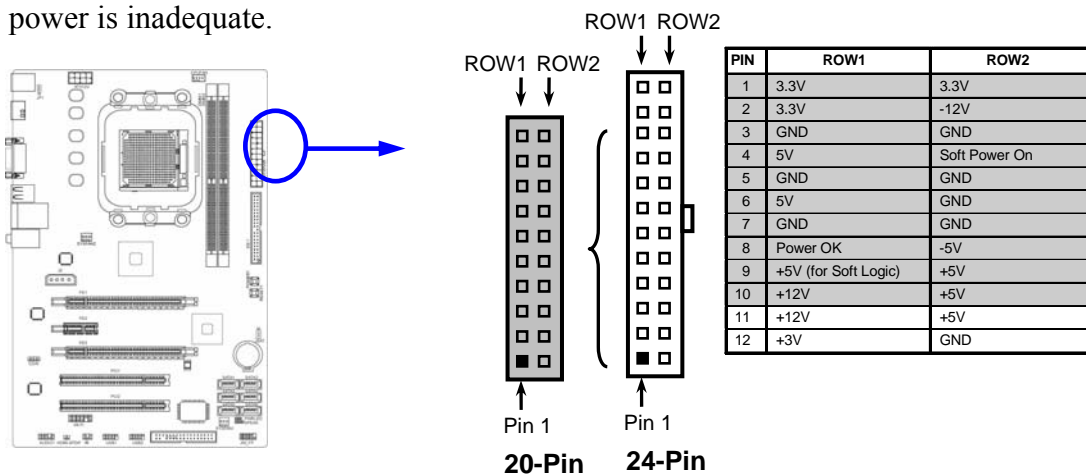
(2) ATX 12V Power Connector (8-pin block) : ATX12V1

This is a new defined 8-pins connector that usually comes with ATX Power Supply. The ATX Power Supply which fully supports Socket AM2+ 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.
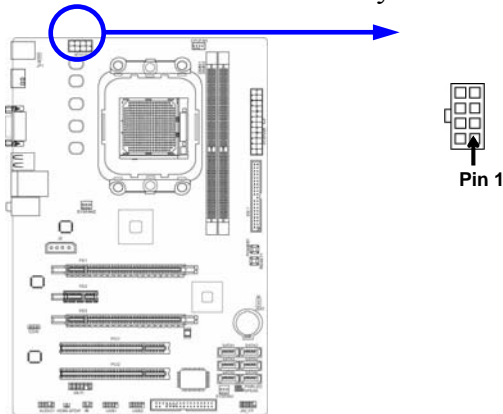
(3) PS/2 Mouse & PS/2 Keyboard Connector: KB

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

(4) USB Port connector: CN1

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

(5) LAN Port connector: UL1 for RJ45 LAN

This connector is standard RJ45 connector for Network. It supports 10M/100Mb/1000Mb s data transfer rate

(6) Large 4-Pin Power Connector: J2 Power Connector

The connectors are 4-pin connector that supports extra 12V / 5V power to your system
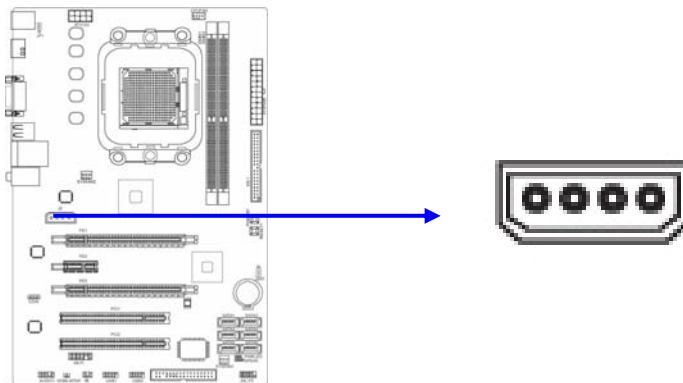
(7) Audio Line-In, Lin-Out, MIC Connector : CN2 for Audio

These Connectors are 3 Phone-Jack for LINE-OUT, LINE-IN, MIC audio connections.

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

PS/2 Mouse

HDMI Connector

PS/2 Keyboard

VGA Connector

USB

RJ45 LAN

Line-IN

Line-OU

MIC-IN
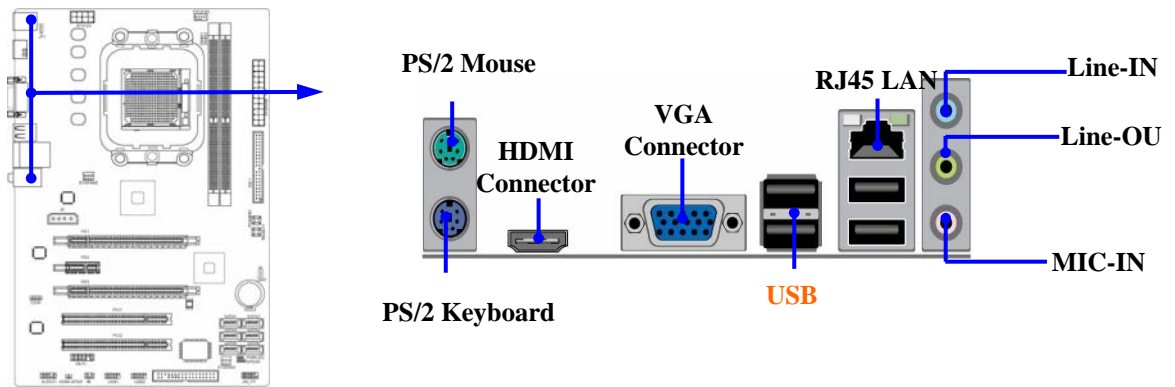
(8) Floppy drive Connector (34-pin block): FDD

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.

FDD

Pin 1

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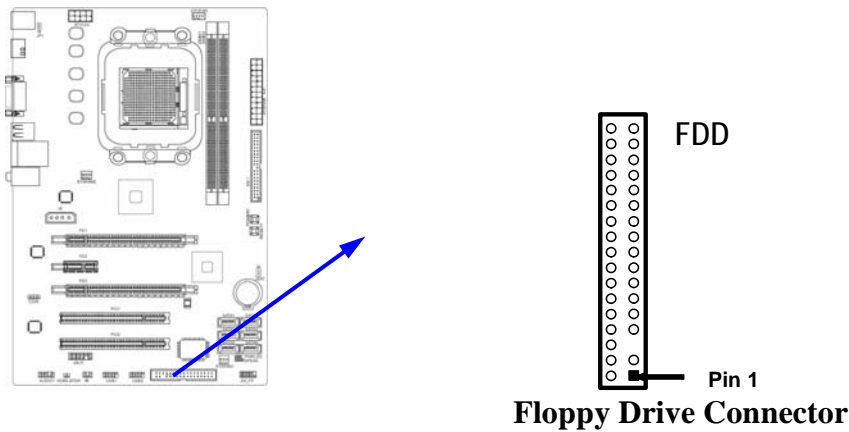
(9) Primary IDE Connector (40-pin block): IDE1

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.

IDE1

Pin 1

Primary IDE Connector
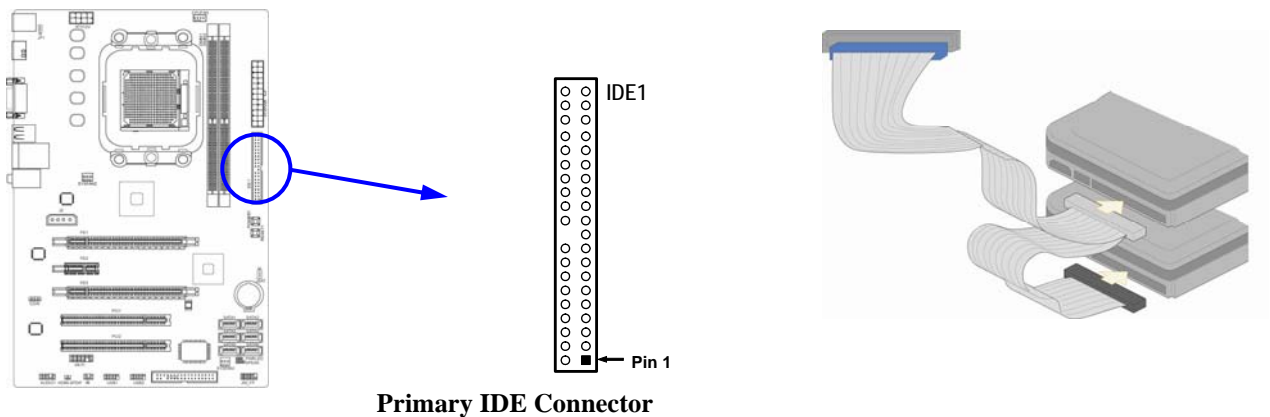
- Two hard disks can be connected to each connector. The first HDD is referred to as the "Master" and the second HDD is referred to as the "Slave".
- For performance issues, we strongly suggest you don't install a CD-ROM or DVD-ROM drive on the same IDE channel as a hard disk. Otherwise, the system performance on this channel may drop.

(10) Serial-ATAII Port connector: D-SATA 1, D-SATA 2, D-SATA 3

These connectors support the provided Serial ATA2 hard disk cables to connecting the motherboard with serial ATAII hard disks. E-SATA1 is not for SATA hard drive, it is only for connecting to a SATA connector of the D-SATA1, D-SATA2 or D-SATA3 to let the ESATA port work.

Serial-ATA2 Port Connector
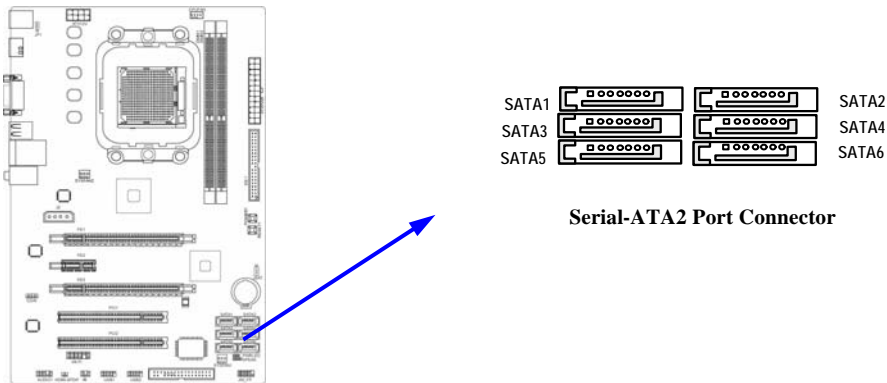
2-6-2 Headers

(1) Line-Out/MIC Header for Front Panel (9-pin): AUDIO1

These headers connect to Front Panel Line-out, MIC connector with cable.

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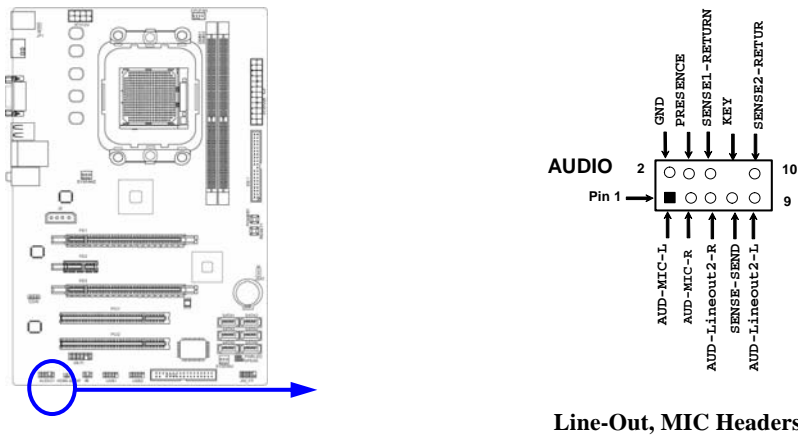
(2) USB Port Headers (9-pin): USB1/USB2

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
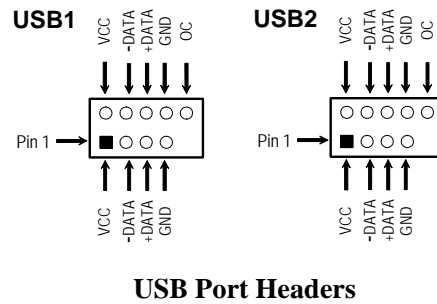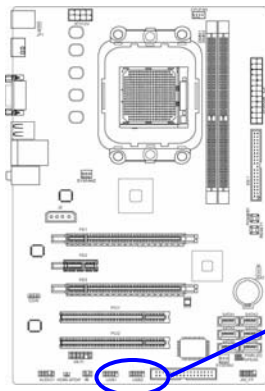
(3) Speaker connector: SPEAK1
This 4-pin connector connects to the case-mounted speaker. See the figure below.

(4) Power LED: PWR LED1/ 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
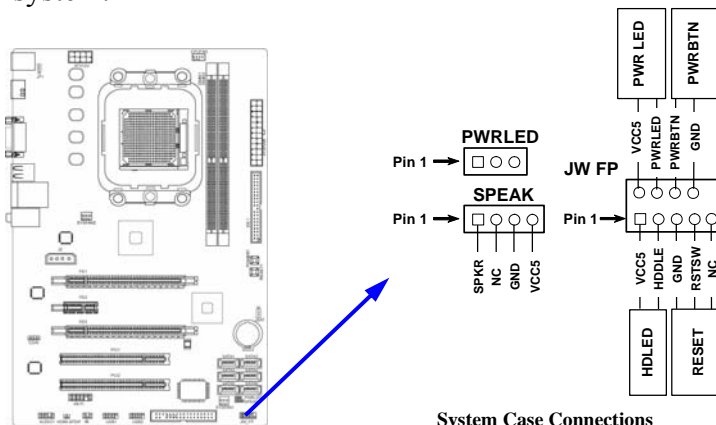
(8) FAN Power Headers: SYSFAN1, SYSFAN2, CPUFAN (4-pin)

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 Headers
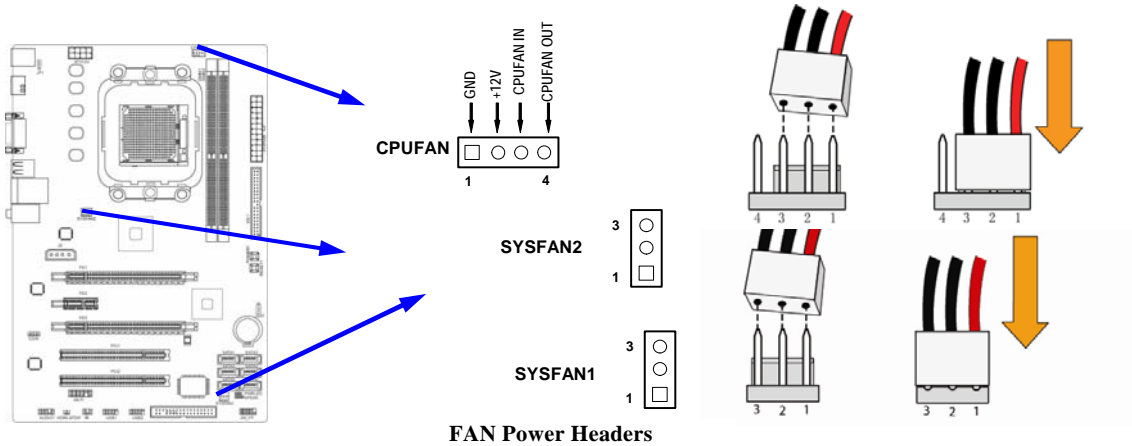
(9) CD Audio-In Headers (4-pin): CDIN1

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

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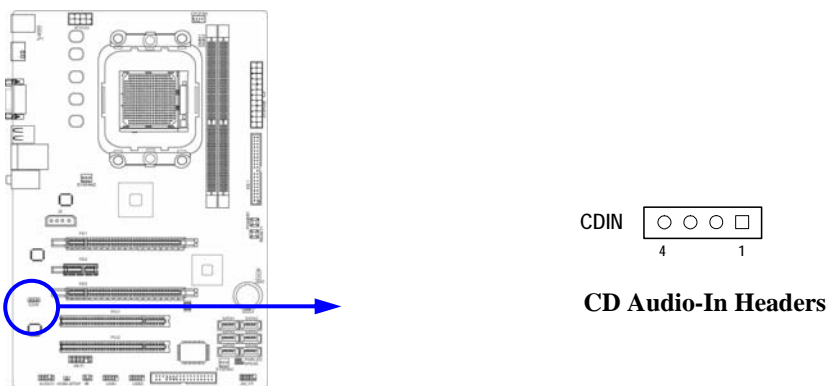
(10)   IR infrared module Headers (5-pin): IR

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
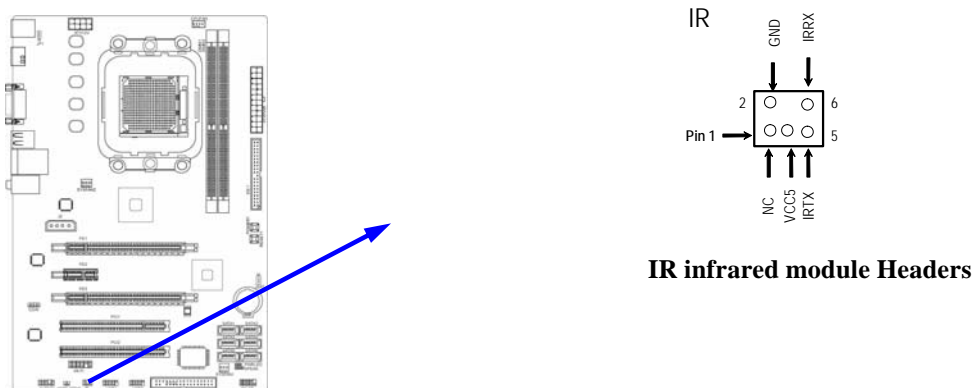
(11)   HDMI-SPDIF Out header: SPDIF Out

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.
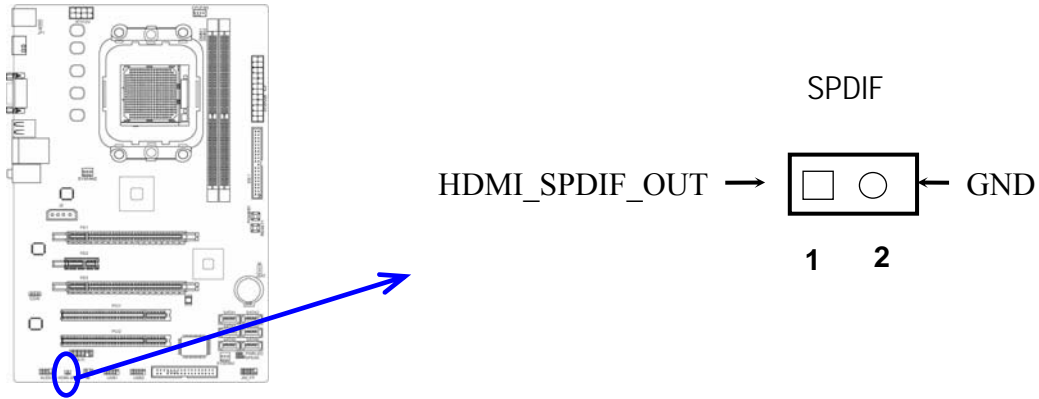
(12) WI-FI Header:

  This header supports WI-FI Function. Connect the wireless local area network adapter to this header. It allows you to create a wireless environment and enjoy the convenience of wireless network connectivity.

ADAPTER   **WI-FI Headers**
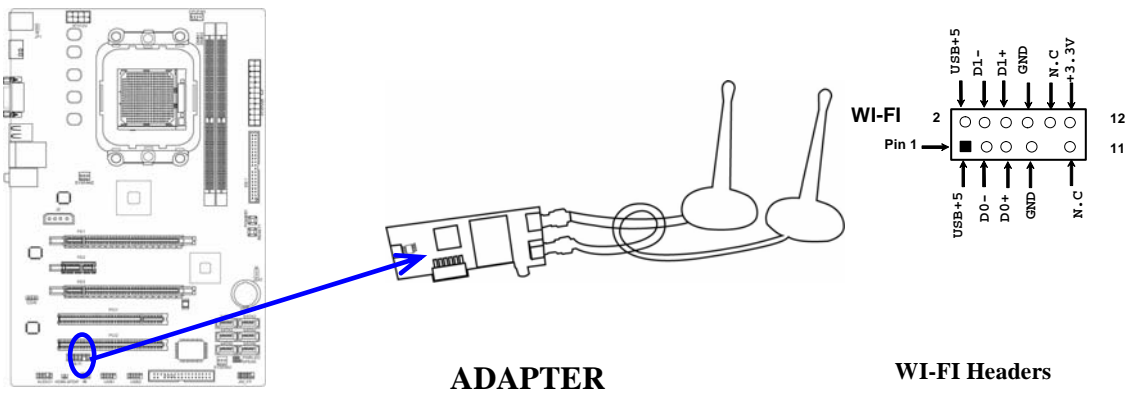
2-7   Starting Up Your Computer

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 is 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 will 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.

Miscellaneous Control
Use this menu to specify your settings for **Miscellaneous Control**.

PC Health Status
This entry shows your PC health status.

Power User Overclock Settings
Use this menu to specify your settings (frequency, Voltage) for overclocking demand

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 Settings

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)         Tue* Jan 1 * 2008   │                     │
│                                              │     Item Help       │
│  Time (hh:mm:ss)         1 : 39 : 8          │                     │
│                                              ├─────────────────────┤
│ > IDE Channel 0 Master    None               │                     │
│ > IDE Channel 0 Slave     None               │ Menu Level >        │
│   SATA Channel   5        None               │                     │
│   SATA Channel   6        None               │ Change the day, month,│
│   SATA Channel   1        None               │ year and century    │
│   SATA Channel   3        None               │                     │
│   SATA Channel   2        None               │                     │
│   SATA Channel   4        None               │                     │
│                                              │                     │
│   Drive A                 1.44M,3.5in        │                     │
│   Halt on                 All Errors         │                     │
│   Base Memory               640K             │                     │
│   Extended Memory         392194K            │                     │
│   Total Memory            393216K            │                     │
├─────────────────────────────────────────────┴─────────────────────┤
│    ↑↓→←  Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
│        F5:Previous Values    F6:Optimized Defaults   F7:Standard Defaults │
└────────────────────────────────────────────────────────────────────┘
```

Date

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 – AwardBIOS 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        │                       │
│  Quick power On Self Test  Enabled       │  Menu Level >         │
│  First Boot Device        Hard Disk      │                       │
│  Second Boot Device       CDROM          │                       │
│  Third Boot Device        Floppy         │                       │
│  Boot other  Device       Enabled        │                       │
│  Boot Up Floppy Seek      Disable        │                       │
│  Boot Up NumLock Status   On             │                       │
│  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     │                       │
│  Full Screen LOGO Show      Disabled     │                       │
├─────────────────────────────────────────┴───────────────────────┤
│  ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
│       F5:Previous Values  F6:Optimized Defaults   F7:Standard Defaults │
└──────────────────────────────────────────────────────────────────┘
```

3-5-1 CPU FEATURE

```
              Phoenix – AwardBIOS CMOS Setup Utility
                           CPU Feature
┌─────────────────────────────────────────┬───────────────────────┐
│  Virtualization                Enabled   │                       │
│  TLB Check                     Enabled   │      Item Help        │
│                                          ├───────────────────────┤
│                                          │  Menu Level >         │
├─────────────────────────────────────────┴───────────────────────┤
│  ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
│       F5:Previous Values  F6:Optimized Defaults   F7:Standard Defaults │
└──────────────────────────────────────────────────────────────────┘
```

Hard Disk Boot Priority
The selection is for you to choose the hard disk drives priorities to boot from.
Virus Warning

The selection Allow 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   beginning 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.

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.

Full Screen Logo (EPA) Show

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

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®.

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   │  Menu Level >         │
│  IGX Configuration               Press Enter   │                       │
│  HDMI Audio                      Enabled       │                       │
│  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:Optimized Defaults   F7:Standard 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 PCIE Configuration

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

3-6-2   DRAM Configuration

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                             DRAM Configuration
┌─────────────────────────────────────────────────┬──────────────────────┐
│    DRAM Latency(tcl)                    Auto      │                      │
│    RAS to CAS R/W Delay (Trtc)          Auto      │     Item Help        │
│    Row precharge Time(Trp)              Auto      │                      │
│    Minimum RAS Active Time(Tras)        Auto      │                      │
│    DRAM Command Rate                    2T        │                      │
│    CKE base Power dowe mode             Disabled  │                      │
│    CKE BASED Powerdown                  per channel                      │
│    Memclock tri-slating                 Disabled  │                      │
│    Momery Hole Remapping                Enabled   │                      │
│    Auto optimize Bottom IO              Enabled   │                      │
│    Bottom of [31:24] IO Space           D8        │                      │
│    Bottom of UMA DRAM [31:24]           FC        │                      │
│    DDRII Timing Item                    Disabled  │                      │
│    TwTr Command Delay                    3 bus clock                     │
│    Trfc 0 for DIMM0                     75ns      │                      │
│     * Trfc 1 for DIMM 1                 75ns      │                      │
│    * Trfc 2 for DIMM 2                  75ns      │                      │
│    * Trfc 2 for DIMM 3                  75ns      │                      │
│    Write Recovery Time(Twr)              6 bus clocks──────────────────── │
│    Precharge Time                        3 clocks │                      │
│    Row Cycle Time                       26 bus clocks   Menu Level >>     │
│    RAS to RAS Delay(Trrd)                5 clocks │                      │
│                                                   │                      │
├─────────────────────────────────────────────────┴──────────────────────┤
│   ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help│
│         F5:Previous Values    F6:Optimized Defaults   F7:Standard Defaults│
└─────────────────────────────────────────────────────────────────────────┘
```

3-7 Integrated Peripherals

```
                    Phoenix - AwardBIOS CMOS Setup Utility
                             Integrated Peripherals
┌───────────────────────────────────────────────┬─────────────────────────┐
│   CMIX-SB700 Revision             2.5.0        │                         │
│                                                │      Item Help          │
│   Superio  Function  Setup        Press Enter  │                         │
│                                                ├─────────────────────────┤
│   onchip PCI Device               Press Enter  │                         │
│                                                │   Menu Level >          │
│   Onchip IDE Device               Press Enter  │                         │
│   Onchip SATA Device              Press Enter  │                         │
│                                                │                         │
├───────────────────────────────────────────────┴─────────────────────────┤
│  ↑↓→← Move Enter: Select +/-/PU/PD: Value F10:Save ESC: Exit  F1:General Help│
│        F5:Previous Values  F6:Optimized Defaults   F7:Standard Defaults   │
└──────────────────────────────────────────────────────────────────────────┘
```

Super IO Device
Please refer to section 3-7-1

OnChip IDE Device
Please refer to section 3-7-2

OnChip PCI Device
Please refer to section 3-7-3

3-7-1 Super IO Device

```
              Phoenix – AwardBIOS CMOS Setup Utility
                    Super IO Function Setup
┌─────────────────────────────────────────────┬──────────────────────┐
│ Onboard FDC Controller      Enabled          │      Item Help       │
│ UART Mode Select            IrDA             ├──────────────────────┤
│ * IRDA Duplex Mode          Half             │                      │
│ PWROM After PWR-Fail        [OFF]            │   Menu Level >>      │
│                                              │                      │
├─────────────────────────────────────────────┴──────────────────────┤
│  ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help │
│       F5:Previous Values  F6:Optimized Defaults   F7:Standard 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 Port1
Select an address and corresponding interrupt for the first and the second serial ports.   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.

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

3-7-2   Onchip IDE Function

```
               Phoenix – AwardBIOS CMOS Setup Utility
                         OnChip IDE Function
┌────────────────────────────────────────┬──────────────────────────┐
│  IDE HDD Block Mode        Enabled      │                          │
│  IDE DMA transfer          Enabled      │        Item Help         │
│  Onchip IDE Channel 0       Enabled     │                          │
│                                         ├──────────────────────────┤
│  Primary Master   PIO      Auto         │   Menu Level >>          │
│  Primary Slave    PIO      Auto         │                          │
│  Primary Master   UDMA     Auto         │                          │
│  Primary Slave    UDMA     Auto         │                          │
│                                         │                          │
├────────────────────────────────────────┴──────────────────────────┤
│   ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help │
│       F5:Previous Values   F6:Optimized Defaults    F7:Standard Defaults   │
└────────────────────────────────────────────────────────────────────┘
```

IDE DMA transfer access
The integrated peripheral controller contains an IDE interface with support for one IDE channels. Select Enabled to activate each channel separately. The settings are: Enabled and Disabled.

Primary Master/Slave PIO
The two IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-2) for each of the two IDE devices that the onboard IDE interface supports. Modes 0 through 2 provide successively increased performance. In Auto mode, the system automatically determines the best mode for each device. The settings are: Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4.

Primary Master/Slave UDMA
Ultra DMA/33 implementation is possible only if your IDE hard drive supports it and the operating environment includes a DMA driver (Windows 95 OSR2 or a third-party IDE bus master driver). If your hard drive and your system software both support Ultra DMA/33 and Ultra DMA/66, select Auto to enable BIOS support. The settings are: Auto, Disabled.

IDE HDD Block Mode
Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support. The settings are: Enabled, Disabled.

Onchip SATA Controller
This item allows you to control Serial ATA controller.

3-7-3   Onchip PCI Device

```
              Phoenix – AwardBIOS CMOS Setup Utility
                         OnChip PCI  Device
┌─────────────────────────────────────────────┬──────────────────────┐
│ Onboard PCIE LAN  Device           Enabled   │                      │
│ Onboard PCIE Lan BootRom           Disabled  │      Item Help       │
│ HD Audio                           Enable    │                      │
│ 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:Optimized Defaults   F7:Standard 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

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                SI(POS)     │      Item Help       │
│ C2 Disabled /Enabled              Disabled   │                      │
│ Power Management Option          User Define ├──────────────────────┤
│ HDD Power Down                    Disabled   │                      │
│ Video Off Option                  suspend - off │   Menu Level >    │
│ Video off Method                 V/H SyNC + BlANK │                 │
│ Modem  Use IRQ                   3           │                      │
│ Soft-OFF by PWRBTN                Instant off│                      │
│ Power On by PCI Card             Disabled    │                      │
│ Modem Ring Resume                 Disabled   │                      │
│ ACPI XSDT Table                  Enabled     │                      │
│ HPET  Support                    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:Optimized Defaults   F7:Standard 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.

ACPI XSDT Table   This table is for 64 Bits OS using, Don't use for win2k or winxp 32 bits Mode.

3-9 Miscellaneous Configuration

```
               Phoenix – AwardBIOS CMOS Setup Utility
                        Miscellaneous Control
┌──────────────────────────────────────────────┬──────────────────────────┐
│ Init Display First              PCIEx          │                          │
│ Reset Configuration Date        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:Optimized Defaults   F7:Standard 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.

Resources Controlled By   BIOS can automatically configure all the boot and plug and play compatible devices. If you choose Auto, you cannot select IRQ DMA and memory base address fields, since BIOS automatically assigns them.

3-10 PC Health Status

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

```
              Phoenix – AwardBIOS CMOS Setup Utility

                        PC Health Status

   Show PC  Health in Past        Enabled
   Shutdown Temperature           Disabled          Item Help
   Smart FAN Configuration        Press Enter
    VLDT                          1.26V
    VDIMM                         1.95V         Menu Level >
    VCORE                         1.35V
    NBVCC                         1.16V
   CPU Temperature                 38°C
   SYS  Temperature                80°C
   CPUFAN Speed                   2525 RPM
   SYS FAN1                       0 RPM
   SYS FAN2                       0 RPM



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

Current CPU Temperature/Current System Temp/Current FAN1, 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 Power User Overclock Setting

Phoenix – AwardBIOS CMOS Setup Utility

Power User Overclock Setting

```
CPU Clock At Next Boot          200
PCIE Reference clock            100                Item Help
SB Reference clock              100
Spread Spectrum                 Enabled
AMD K8 Cool&Quiet Control       Disabled
VDIMM Select                    1.95v
NB 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:Optimized Defaults   F7:Standard Defaults
```

Phoenix – AwardBIOS CMOS Setup Utility

CPU Clock at NEXT BOOT

```
CPU Clock At Next Boot          200
 PCIE Reference clock           100                Item Help
 SB Reference clock             100
 Spread Spectrum                Enabled
 AMD K8 Cool&Quiet Control      Disabled    CPU Clock  at Next Boot
 VDIMM Select                   1.95v
 NB Voltage setting             1.15v          Min=194
 Memory Clock Mode              Auto           Max=600
 DRAM CLOCK at Next Boot        DDR533      ↑↓:Move ENTER:Accept
                                            ESC:Abort


                                             Menu Level >


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

Phoenix – AwardBIOS CMOS Setup Utility

NB Voltage Setting

```
 CPU Clock At Next Boot          200
PCIE Reference clock             100               Item Help
SB Reference clock               100
Spread Spectrum                  Enabled
AMD K8 Cool&Quiet Control        Disabled
VDIMM Select                     1.95v         Menu Level >
NB Voltage setting               1.15v
Memory Clock Mode                Auto
DRAM CLOCK at Next Boot          DDR533
                                             NB Voltage setting

                                               Normal              [  ]
                                               1.10v               [  ]
                                               1.15v               [  ]
                                               1.20v               [  ]


                                             ↑↓:Move ENTER:Accept
                                             ESC:Abort
```

```
              Phoenix – AwardBIOS CMOS Setup Utility
                         VDIMM  SELECT
 ┌─────────────────────────────────────────┬──────────────────────────┐
 │ CPU Clock At Next Boot      200          │                          │
 │ PCIE Reference clock        100          │        Item Help         │
 │ SB Reference clock          100          │                          │
 │ Spread Spectrum             Enabled      ├──────────────────────────┤
 │ AMD K8 Cool&Quiet Control   Disabled     │                          │
 │ VDIMM Select                1.95v        │   Menu Level >           │
 │ NB Voltage setting          1.15v        │                          │
 │ Memory Clock Mode           Auto         │                          │
 │ DRAM CLOCK at Next Boot     DDR533       ├──────────────────────────┤
 │                                          │ VDIMM Select             │
 │                                          │                          │
 │                                          │   1.85v         [ ]      │
 │                                          │   1.90v         [ ]      │
 │                                          │       ........           │
 │                                          │   2.00v         [ ]      │
 │                                          │                          │
 │                                          │ ↑↓:Move ENTER:Accept ESC:Abort │
 ├──────────────────────────────────────────┴──────────────────────────┤
 │   ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help │
 │        F5:Previous Values   F6:Optimized Defaults   F7:Standard Defaults │
 └──────────────────────────────────────────────────────────────────────┘
```

CPU/HT Reference Clock   Immediately press F12 key to load defaults after pressing the power button or reset button.

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.

IH Flow-Control Mode:

Isochronous (ISOC) Flow Control Mode enable will make the HT Link communication have the complex ordering rules for Isochronous source to make sure it can get service from the system with deterministic worst-case latency. However, the latency time cost of ISOC flow control mode is an important consideration. Normal flow control mode will be a simpler solution for most system.

HT Link Tristate:

Disabled mode will make the link transmitter is driven but in and under fined state during the disconnect sequence. And the PHY (transmitter) is placed in LS0. LS0 state keeps all lanes active to maintain DLL and phase recovery lock.

Enabled mode will make the link transmitter is placed into high impedance states during the disconnect sequence. And the PHY (transmitter) is placed in LS1, LS2 or LS3. LS1, LS2 and LS3 are each states that shut down parts of the PHY to save power.

LS1 state: CLK running, CAD/CTL sending TxIdle.

LS2 state: CLK/CAD/CTL sending TxIdle.

LS3 state: CLK/CAD/CTL sending either HiZ or TxGndTrm.

UnitID Clumping:

Originally, a single UnitID only allow 32 outstanding nonposted transactions within the chain. If a device uses more than one UnitID to achieve greater concurrency, the transactions in different UnitIDs are not required to be ordered together.

But if UnitID clumping enable on a chain, after/during UnitID assignment, software will check each node for the presence of a Clumping capability block, indicating full clumping support. Software will OR together the result of all the reads to create a combined Clumping "Mask". If all the nodes on the chain have indicated Full support, the Clumping Support register of the host can also be read and Ored into the Clumping Mask. The Mask will then be written into the Clumping Enable register of all nodes on the chain.

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.

3-12 Thermal Throttling Options

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

```
              Phoenix – AwardBIOS CMOS Setup Utility
                        Password Settings
┌────────────────────────────────────────────────────────────────────┐
│                                                                      │
│   Set Supervisor Password        Press Enter  │      Item Help       │
│    Set User Password             Press Enter  │                      │
│                                               ├──────────────────────┤
│                                               │  Menu Level >        │
├────────────────────────────────────────────────────────────────────┤
│   ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
│        F5:Previous Values    F6:Optimized Defaults   F7:Standard Defaults   │
└────────────────────────────────────────────────────────────────────┘
```

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).
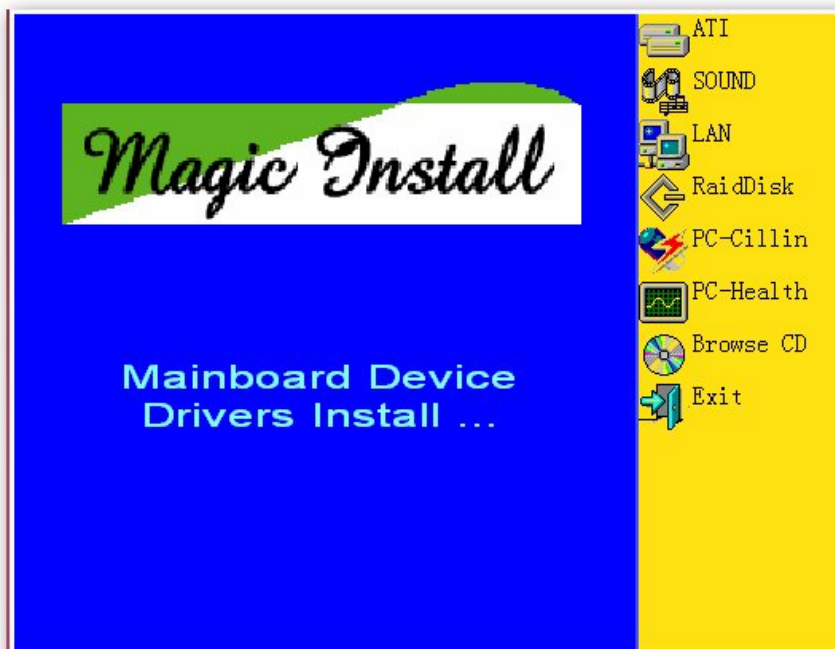
From MAGIC INSTALL MENU you may take 8 selections:
1. ATI   install ATI driver pack
2. SOUND   install ALC 662 HD Audio driver
3. LAN   install RealTek LAN Controller Driver
4. RaidDisk   install SATA RAID Driver and Utility
5. PC-CILLIN   install PC-CILLIN 2008 anti-virus program
6. PC-HEALTH   install My Guard 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 Driver Pack
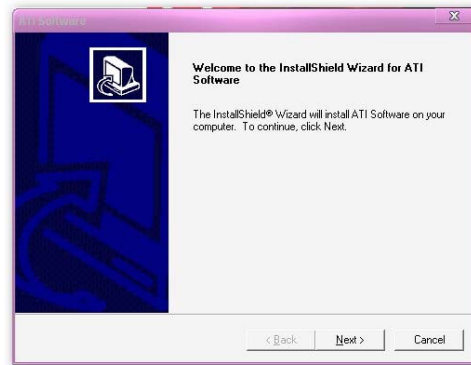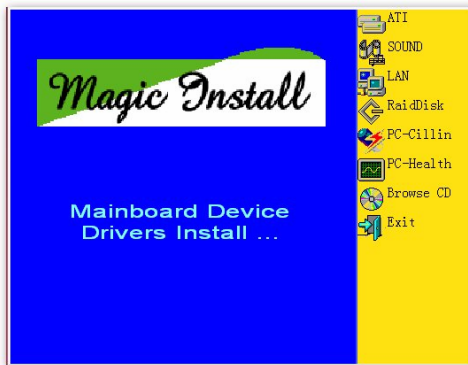
1. Click ATI appears on the MAGIC INSTALL MENU.

2. Click NEXT when ATI software driver pack appears.
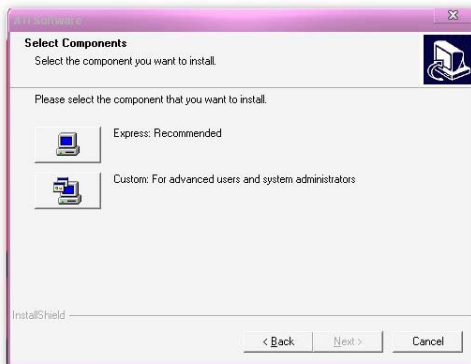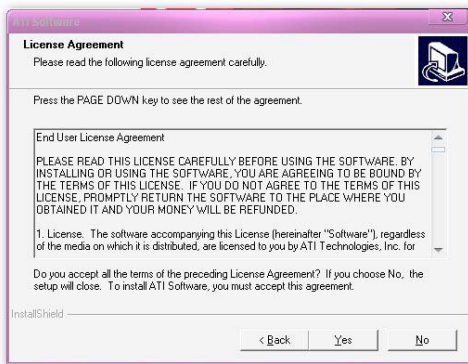
3. Click "Yes" to accept the license agreement and start installation.

4. Choose whether you would like to restart and click Finish to restart your computer.

5. Click Continue anyway.

6. Choose Finish , do not restart your computer.

4-2 SOUND Install ALC662 HD Audio Driver

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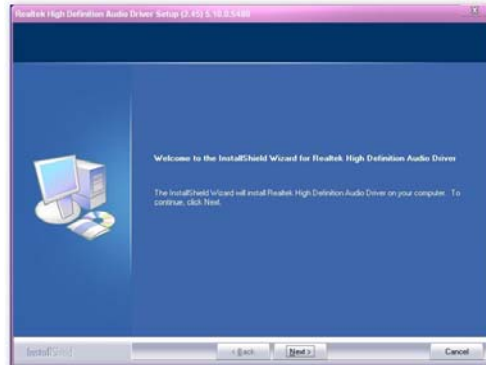
2. Click NEXT When Realtek High Definition Audio driver windows appear
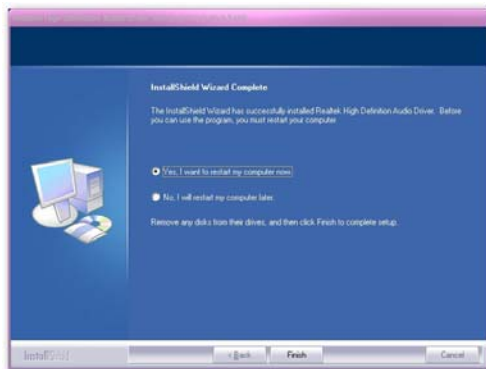
3. Click FINISH and restart your computer

4. Manual Sound Effect Setting

5. Devices and mixer setting

6. Audio input and output setting.

7. Microphone effect setting.

8. 3D demo setting.

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
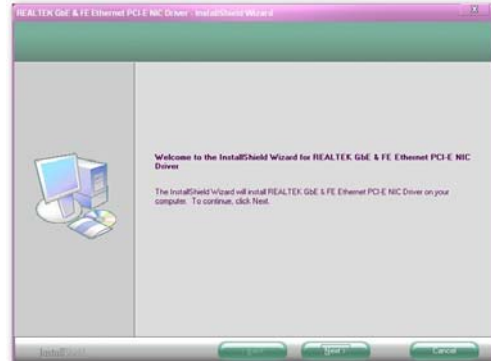
1. Click LAN when Magic Install Menu appears.

2. Click Next to install RealTek LAN Driver.
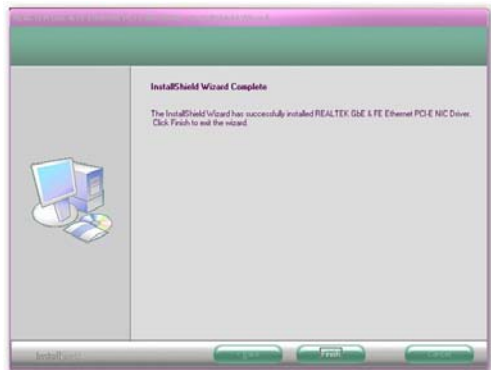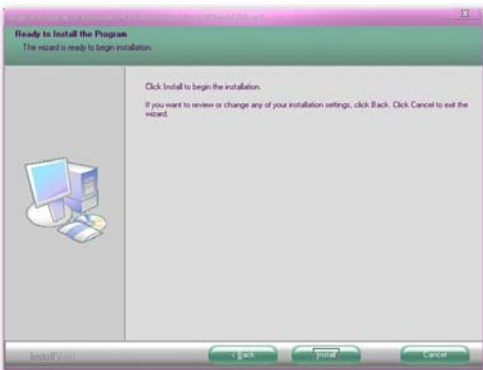
3.   Click Install to begin the installation.

4. After driver installation completed, Click Finish.

4-4   RAID   Install   SATA   RAID   Driver   and   Utility
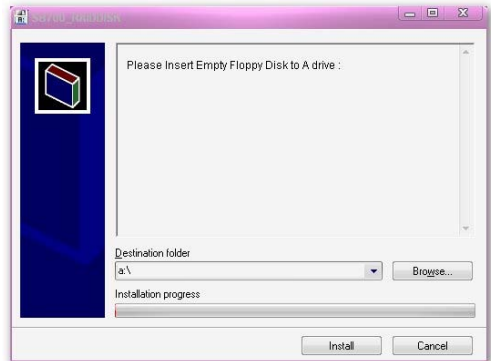
1 Click RAIDDisk when MAGIC INSTALL MENU appears

2.   Install RAID Disk.

4-5 PC-CILLIN Install PC-CILLIN 2008 Anti-virus Program

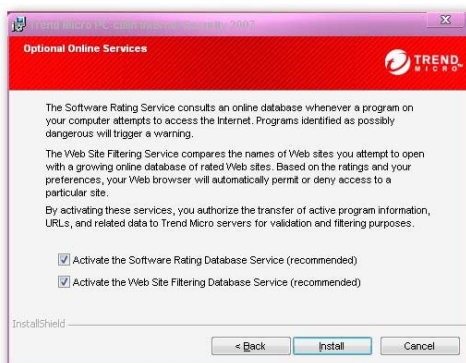1 Click PC-CILLIN when MAGIC INSTALL MENU appears

2. Please select Next when the "Trend Micro internet security" install shield wizard windows appears

3. This is license agreement, select "I accept the terms in the license agreement" and Click NEXT.
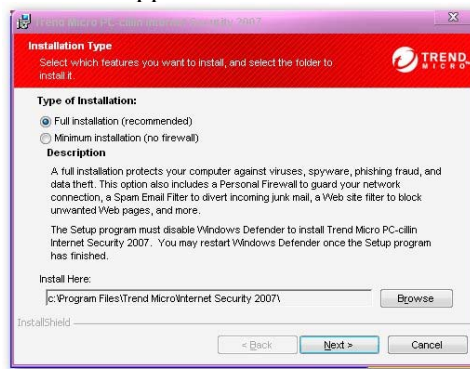
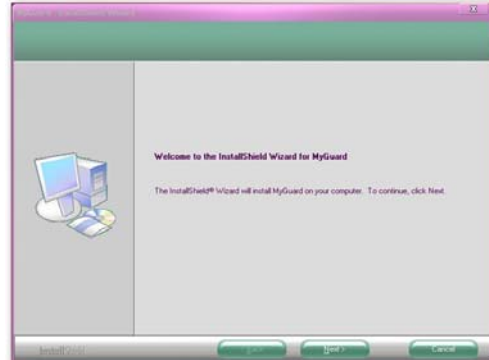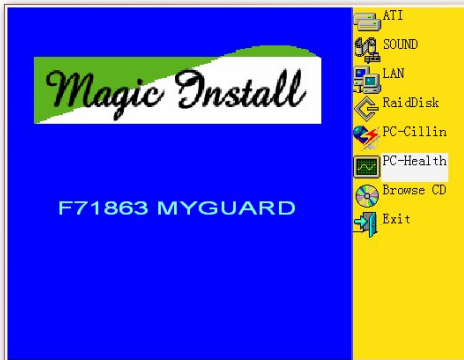4. The preinstallation checkup process

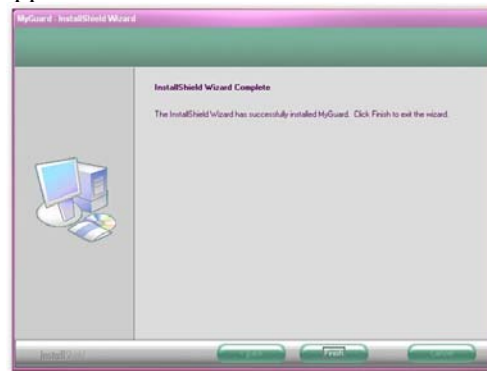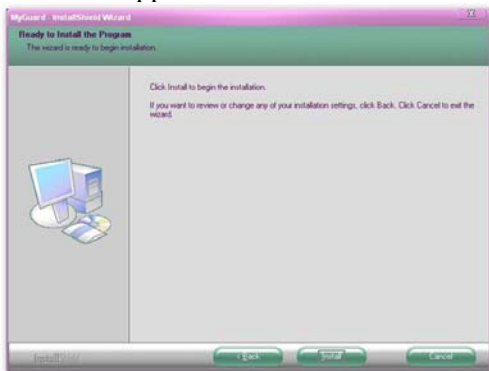5. Click Next after you select the features you want to install and the folder to install it.

6. Click Install after you select to install the optional online services.

4-6 PC-HEALTH Install MyGuard Hardware Monitor Utility

1. Click PC-HEALTH when MAGIC INSTALL MENU appears

2. Click Next on Install shield wizard Window appears。

3. Click Install to begin the installation.

4. Click Finish to complete the installation.

4-7 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 the 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 790X 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

CH   means   update HOLE
WB   means   always programming BootBlock
CC   means   clear existing CMOS data
R   means   restart computer

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

4-8   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

[figure1]

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.
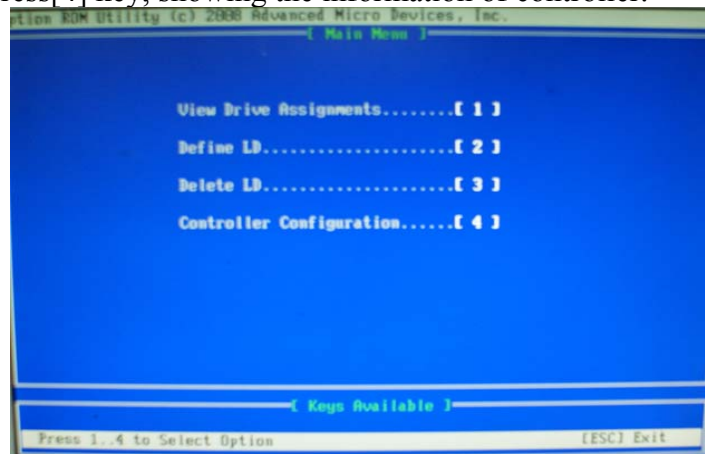
[figure2]

press[1] key，showing the RAID，as the below figure
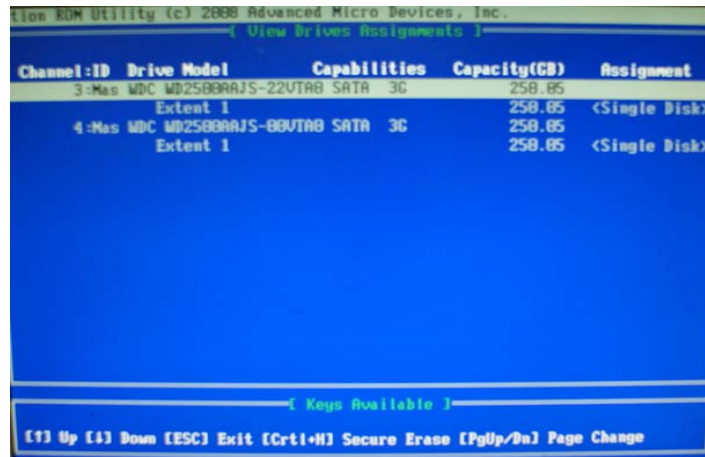
[figure3]

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

RAID function:

    1.RAID 1   2. RAID 0   3. RAID 10   4. RAID 5   5. JBOD
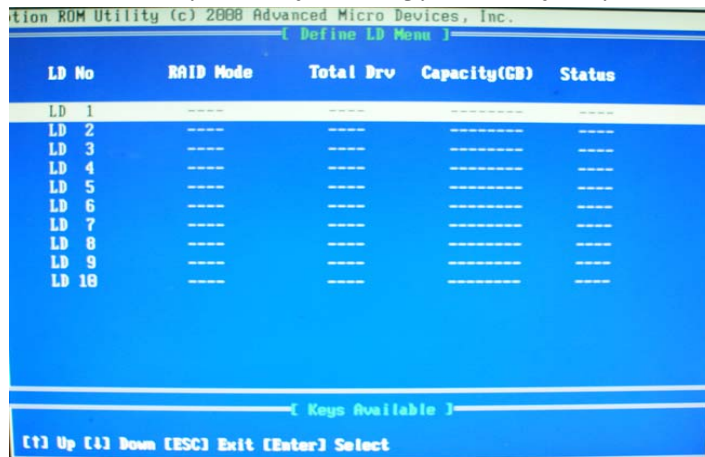
[figure4]

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.
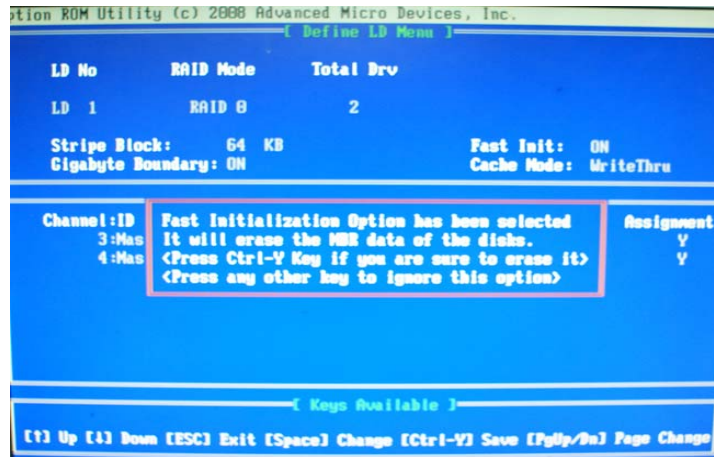
[figure5]
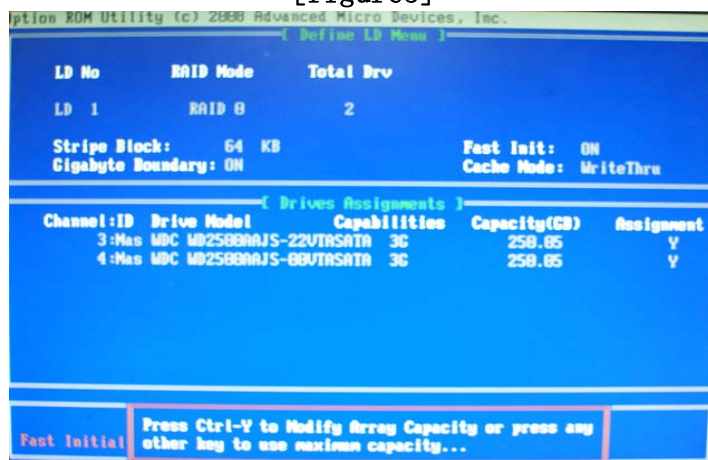
[figure6]

Press [3], delete the RAID mode, as figure 7.press [Delete] will delete the array. As figure 7 .
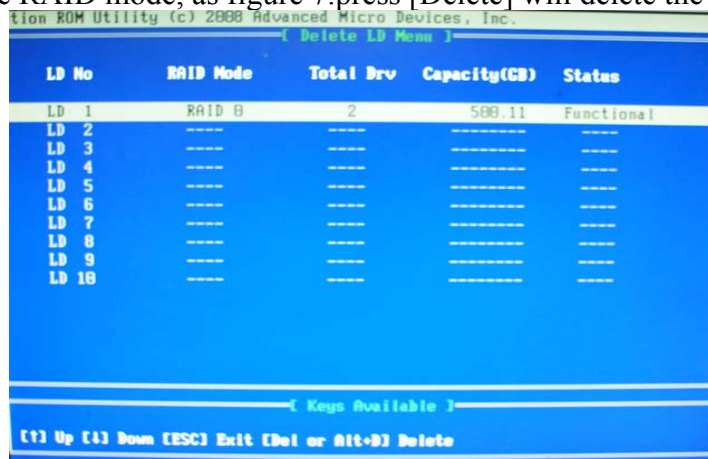
[figure7]

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

4-9 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 – AwardBIOS 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         CDROM                │                      │
 │  Third Boot Device          Floppy               │                      │
 │  Boot other  Device         Enabled              │                      │
 │  Boot Up Floppy Seek        Disable              │                      │
 │  Boot Up NumLock Status     On                   │                      │
 │  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            │                      │
 │  Full Screen LOGO Show       Disabled            │                      │
 ├──────────────────────────────────────────────────┴──────────────────────┤
 │   ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit              │
 │                    F1:General Help                                      │
 │ F5:Previous Values   F6:Optimized Defaults    F7:Standard Defaults      │
 └─────────────────────────────────────────────────────────────────────────┘
```

[2]

```
         Phoenix – AwardBIOS CMOS Setup Utility
                      VDIMM   SELECT
┌─────────────────────────────────────────┬─────────────────────┐
│  CPU Clock At Next Boot          200     │                     │
│  PCIE Reference clock            100     │     Item Help       │
│  SB Reference clock              100     │                     │
│  Spread Spectrum              Enabled    │                     │
│  AMD K8 Cool&Quiet Control    Disabled   │  Menu Level >       │
│  VDIMM Select                  1.95v     │                     │
│  NB 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:Optimized Defaults   F7:Standard 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.
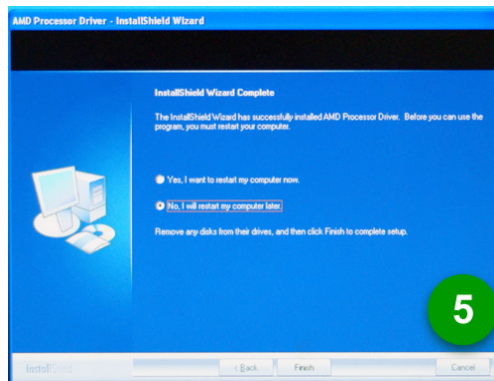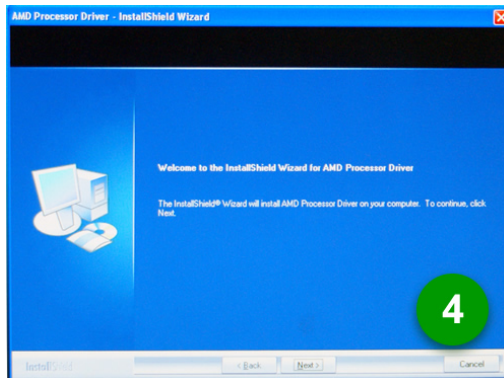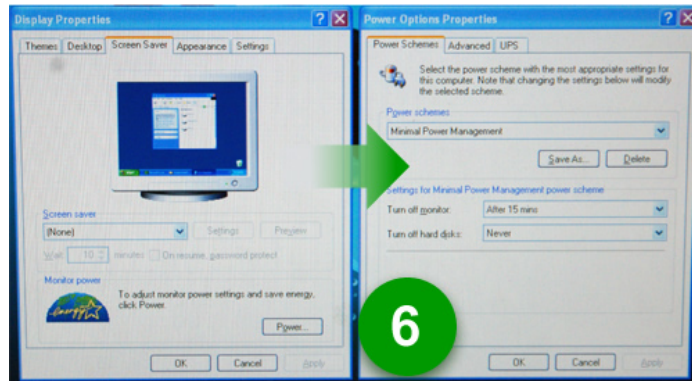
With OS Windows Vista series, there is no need for to take more steps. If needed, please enter Power Settings to make corresponding changes