754GT-8

USER'S MANUAL

M/B For Socket 754 AMD Athlon64 Processor

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Manual Revision Information

Reversion	Revision History	Date
1.0	First Edition	Dec 2005

Item Checklist

- ☑ 754GT8 motherboard
- ☑ Cable for IDE/Floppy
- ☑ CD for motherboard utilities
- ☑ Cable for Serial ATA IDE Port
- ☑ SPDIF-IN/SPDIF-OUT Adaptor
- ☑ 754GT8 User's Manual

AMD K8 Processor Family
Cooling Solutions

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

Please refer to the website below for collection of heatsinks evaluated and recommended for Socket-939 processors by AMD. In addition, this collection is not intended to be a comprehensive listing of all heatsinks that support Socket-939 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 754GT8 Motherboard Series

1-1 Features of motherboard

The 754GT-8 motherboard is based on NVIDIA nForce4-4X single chip technology which supports the 754-pin 64-bit AMD Athlon64 processors with HyperTransport Technology. The 754GT8 motherboard series deliver the Game-demanding performance and professional desktop platform solution with both of the benefits from 64-bit ready Athlon64 processors and NVIDIA Single Chipset Technology with the latest PCI Express x16 system interface for the latest announced graphics cards. Utilize the 754-pin 64-bit AMD Athlon64 processor solution and the PC3200 DDR system memory which are expandable to 3.0GB, the 754GT8 motherboard series meet the cost-effective Game-demanding usage of computing performance nowadays.

The motherboards implement the NVIDIA nForce4-4X single chip with 800 MHz HyperTransport technology bus of data transfer rate and provide with 133MHz / 166MHz / 200MHz memory clock frequency for DDR266/DDR333/DDR400 DDR Modules. NVIDIA nForce4-4X single chipset offers ULTRA **ATA 133** and **Serial ATA RAID 0, 1, 0+1,** functions to accelerate hard disk drives and guarantee the data security without failed in advanced computing performance.

The 754GT8 motherboard provides Giga LAN function by using the Marvell 88E1111 Giga-LAN PHY which supports 10M / 100M or 10M / 100M / 1Gbps data transfer rate. Embedded 8-channel AC'97 CODEC is fully compatible with Sound Blaster Pro® standards that offers you with the home cinema quality and absolutely software compatibility.

Colorful PCB and placement design offers one PCI-Express x16 graphics slot with 4Gbyte/sec data transfer rate at each relative direction and up to 8Gbyte/sec peak concurrent bandwidth at full speed to guarantee the fully operational GPU graphics power. Two PCI Express x1 I/O slot offers 512Mbyte/sec concurrently, over 3.5 times more bandwidth than PCI at 133Mbye/sec, tackling the most demanding multimedia tasks nowadays.

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

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

1-1.1 Special Features of motherboard

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

Debug Port (Option)--- (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 Appendix)

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

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

1-2 Specification

Spec	Description
Design	* ATX form factor 4 layers PCB size: 30.5x19.0cm
Chipset	* NVIDIA nForce4-4X Single Chip Technology
CPU Socket 754	* Support 64bit AMD Athlon64 754-Pin package utilizes Flip-Chip Pin Grid Array package processor * Support for future AMD Athlon64 754-pin processors up to 3800+ with HTT Frequency 800 MHz
Memory Socket	* 184-pin DDR Module socket x 3 * Support 3 pcs DDR266/DDR33/DDR400 DDR Modules which are Expandable to 3.0GB
Expansion Slot	* PCI-Express x16 slot 1pcs delivers up to 8GB/s concurrent bandwidth. * PCI-Express x1 slot 2pcs delivers up to 512MB/s concurrent bandwidth * 32-bit PCI slot x 3pcs for the most popular and cost-effective expansion cards for multimedia and communications.
Integrate IDE and Serial ATA RAID	* Two PCI IDE controllers support PCI Bus Mastering, ATA PIO/DMA and the ULTRA DMA 33/66/100/133 functions that deliver the data transfer rate up to 133 MB/s; Four Serial ATA / ports provide 150 MB/sec data transfer rate for Four Serial ATA Devices and offer RAID 0, 1, 0+1 functions
10M/100M/1000M LAN	* Integrated Marvel 88E1111 PCI-10/100 / 1000 LAN PHY for 754GT8 Motherboard Series * Supports Fast Ethernet LAN function provide 10Mb/100Mb/ 1Gb /s data transfer rate.
8CH-Audio	* AC'97 Digital Audio controller integrated * 8-channel AC'97 Audio CODEC on board * SPDIF-In/ SPDIF-Out Optical support (Cable optional) * Audio driver and utility included
BIOS	* Award 4MB Flash ROM
Multi I/O	* PS/2 keyboard and PS/2 mouse connectors * Floppy disk drive connector x1 * Parallel port x1 * Serial port x1 * SPDIF in x1 * SPDIF out x1 * USB2.0 port x 6 and headers x 4 (connecting cable option) * Audio connector (Line-in, Line-out, MIC/ 8CH Audio)

1-3 Performance List

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

Performance Test Report

CPU: AMD K8 Athlon64 3200+ Support (Socket 754, 512k L2 cache)
DRAM: KingMax MPTC220D-38HT 512MB DDR500 X 2 (1Gbyte) Memory
VGA Card : GeForce6600GT 128M PCI-E VGA CARD X 2 (1024X768X32BIT Color)
Hard Disk Driver: Seagate Barracude 7200.7 SATA150
BIOS: Award Optimal default
OS: Windows XP Professional (SERVICE PACK 2)

	Ultra / 200/200 Dual channel	STD / 200/200 Dual channel
3D Mark 2001SE	18286	18280
3D Mark 2003	8101	8137
3D Mark 2005	3532	3545
AQUAMRK3	53014 (7545 / 8912)	53336 (7569 / 9021)
PCMark2004		
System / CPU / Memory	4072 / 3846 / 4401	4089 / 3854 / 4427
Graph / HDD	4436 / 4663	4391 / 4619
Content Creation Winstone 2004	31.5	31.7
Business Winstone 2004	22.8	23
Winbench 99 V2.0:		
Business/Hi-end Disk Winmark99	18700 / 41000	20300 / 41900
Business/Hi-end Graphic Winmark	1240 / 1930	1170 / 1990
SISMark 2004: SISMark Rating(Internet Content Creation / Office Productivity)		
SISMark 2004	175 (184 / 167)	178 (184 / 172)
3D Creation / 2D Creation	169 / 255	170 / 228
/ Web publication	163	161
Communication / Document	179 / 175	191 / 175
/ Data Analysis	150	153
SISOFT Sandra 2004 : 1.CPU Arithmetic Benchmark 2.Memory bandwidth Benchmark 3.CPU Multi-Media Benchmark		
1.Dhrystone ALU MIPS	8576	8574
Whetstone FPU iSSE2 FLOPS	3293 / 4275	3279 / 4256
2.Int/Float Buffered MB/S	4828 / 4828	4640 / 4643
3.Integer/Floating-Point IT/S	19137 / 20650	19117 / 20669
UT2003 Benchmark	247.92 / 83.34	253.46 / 85.33
Quake3 DEMO1 / FPS	N / A	N / A
Return to Castle FPS	75.0	75.4
Super Pi (1M) Second	44s	43s
CPUZ System / CPU Clock	200.9 / 200.9 / **2009.3**	200.9 / 200.9 / **2009.3**

1-4 Layout Diagram & Jumper Setting

PS/2 Mouse

PS/2 Keyboard

PRINTER

RJ45 LAN

Line-IN

Surrback

Line-OUT

CEN/LFE

Surround

MIC-IN

SPDIF out **SPDIF in**

COM2

USB1 **USB**

ATX 12V Power Connector

PS2 KB/Mouse Port

COM1 Conn.

KBMS/USB
Power On Jumper **(JP1)**
PC99 Back Panel

USB Port Connector

USB Port/
Giga LAN Connector

Audio Connector
Marvel 88E1111 Gigabit LAN

PCI EXPRESS x1

FINTEK F71872F I/O chip

PCI EXPRESSx16

32-bit PCI Slots

8-CH AC'97
Audio Codec

Front Panel Audio

CD Audio In

IR Connector

Floppy Connector

USB Port
(USB2, USB3)

USB Power On Jumper **(JP2)**

CPU FAN

CPU Socket

DDR DIMM Sockets
Signal-Channel

ATX 24-pin Power
Connector

NVIDIA nForce4 Single Chip
Serial-ATA
Connector
(SATA1, 2, 3, 4)

ATA 133 IDE
Connector
(IDE1, IDE2)

CHAFAN1

4MBit Flash ROM BIOS

POWER1 Button

RESET1 Button

SYSFAN1

Speaker/Power
LED Connector

Front Panel Connector

SYSFAN2

Clear CMOS **(JBAT1)**

Jumpers

Jumper	Name	Description	Page
JBAT1	CMOS RAM Clear	3-pin Block	P.7
JP1	Keyboard/USB0,1 Power On Enabled/Disabled	3-pin Block	P.8
JP2	USB Power On Enabled/Disabled	3-pin Block	P.8

Connectors

Connector	Name	Description	Page
ATXPWR24P	ATX Power Connector	24-pin Block	P.13
ATX12V	ATX 12V Power Connector	4-pin Block	P.13
PS2KBMS	PS/2 Mouse & PS/2 Keyboard Connector	6-pin Female	P.14
USB1	USB Port Connector	4-pin Connector	P.14
UL1	10/100/1000 LAN Port Connector	RJ-45 Connector	P.14
PARALLEL	Parallel Port Connector	25-pin Female	P.14
AUDIO	8-CH Audio Connector	6 phone jack Connector	P.14
COM2	Serial Port COM2 Connector	9-pin Connector	P.14
FDD	Floppy Driver Connector	34-pin Block	P.14
IDE1/IDE2	Primary/Secondary IDE Connector	40-pin Block	P.15
SATA1~4	Serial ATA IDE Connector	7-pin Connector	P.16
SPDIF IN	SPDIF in Connector	1 jack Connector	P.16
SPDIF OUT	SPDIF out connector	1 jack Connector	P.16

Headers

Header	Name	Description	Page
AUDIO1	SPEAKER, MIC header	9-pin Block	P.16
USB2, USB3	USB Port Headers	9-pin Block	P.17
SPEAK1	PC Speaker connector	4-pin Block	P.17
PWR LED	Power LED	3-pin Block	P.17
JW_FP1 (Power LED/Reset/ IDE LED/Power Button)	Front Panel Header (including Power LED/ IDE activity LED/Reset switch / Power On Button lead)	9-pin Block	P.17
CHAFAN1,SYSFAN1, SYSFAN2,CPUFAN1	FAN Headers	3-pin Block	P.18
CDIN1	CD Audio-In Header	4-pin Block	P.18
IR1	IR1 Header	5-pin Block	P.18
COM1	COM1 Header	9-pin Block	P.18

Expansion Sockets

Socket/Slot	Name	Description	Page
ZIF Socket 754	CPU Socket	754-pin mPGAB Athlon64 CPU Socket	P.9
DIMM1~3	DDR Module Socket	184-pin DDR Module Socket	P.10
PCI1~ PCI3	PCI Slot	32-bit PCI Local Bus Expansion slots	P.12
PE1~2	PCI-Express x1 Slot	PCI-Express x1 Expansion Slot	P.12
PE3	PCI-Express x16 Slot	PCI-Express x16 Expansion Slot	P.12

Chapter 2
Hardware Installation

2-1 Hardware installation Steps

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

2-2 Checking Motherboard's Jumper Setting

(1) CMOS RAM Clear (3-pin) : JBAT1

A battery must be used to retain the motherboard configuration in CMOS RAM short 1-2 pins of JBAT1 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 JBAT1 and short pins 2-3 for a few seconds
4. Return JBAT1 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*

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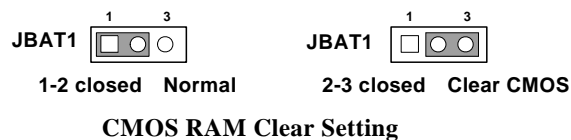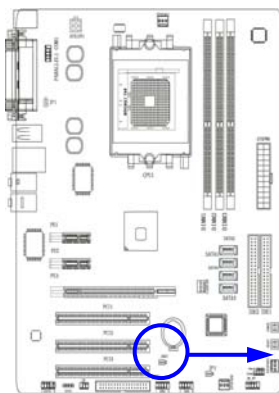
(2) Keyboard function Enabled/Disabled: JP1
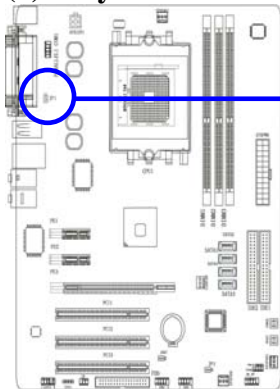
JP1

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

JP1

2-3 closed KB/USB Power ON Enabled

Keyboard/Mouse & USB Power On Setting

(3) USB Power On function Enabled/Disabled: JP2

JP2   **JP2**
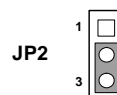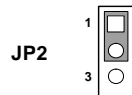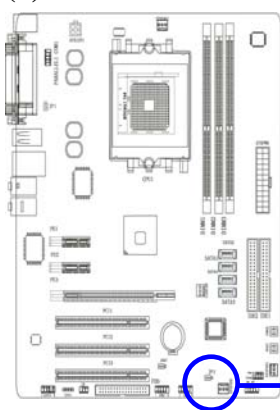
1-2 closed   USB Power On Disable   2-3 closed   USB Power On Enabled
(Default)

USB2/USB3 Power On Setting

2-3 Install CPU

2-3-1 Glossary

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

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

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

AGPC - **A**ccelerated **G**raphics **P**ort **C**ompatible Interface - a system interface for video cards; runs at 1X (66MHz), 2X (133MHz), or 4X (266MHz), or 8X (533MHz).

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

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

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

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

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

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

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

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

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

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

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

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

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

2-3-2 About AMD Athlon64 754-pin CPU

This motherboard provides a 754-pin surface mount, Zero Insertion Force (ZIF) socket, referred to as the mPGA754 socket supports AMD Athlon64 processor in the 754 Pin package utilizes Flip-Chip Pin Grid Array package technology.

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

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

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

Socket 754

Colden Arrow

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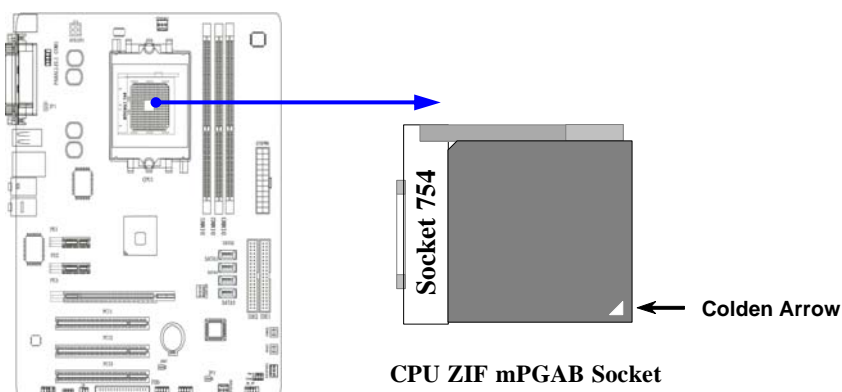
When you put the CPU into the ZIF socket. No force require to insert of the CPU, then press the level to Locate position slightly without any extra force.

2-4 Install Memory

This motherboard provides three 184-pin DDR DUAL INLINE MEMORY MODULES (DIMM) sites for DDR memory expansion available from minimum memory size of 128MB to maximum memory size of 3.0GB DDR SDRAM.

Valid Memory Configurations

Bank	184-Pin DIMM	PCS	Total Memory
Bank 0, 1 (DIMM1)	DDRDDR266/DDR333/DDR400 DDR SDRAM Module	X1	128MB~1.0GB
Bank 2, 3 (DIMM2)	DDRDDR266/DDR333/DDR400 DDR SDRAM Module	X1	128MB~1.0GB
Bank 4, 5 (DIMM2)	DDRDDR266/DDR333/DDR400 DDR SDRAM Module	X1	128MB~1.0GB
Total	System Memory (Max. 3.0GB)	X3	128MB~3.0GB

Generally, installing DDR SDRAM modules to your motherboard is very easy, you can refer to figure 2-4 to see what a 184-Pin DDR266/DDR333/DDR400 DDR SDRAM module looks like.
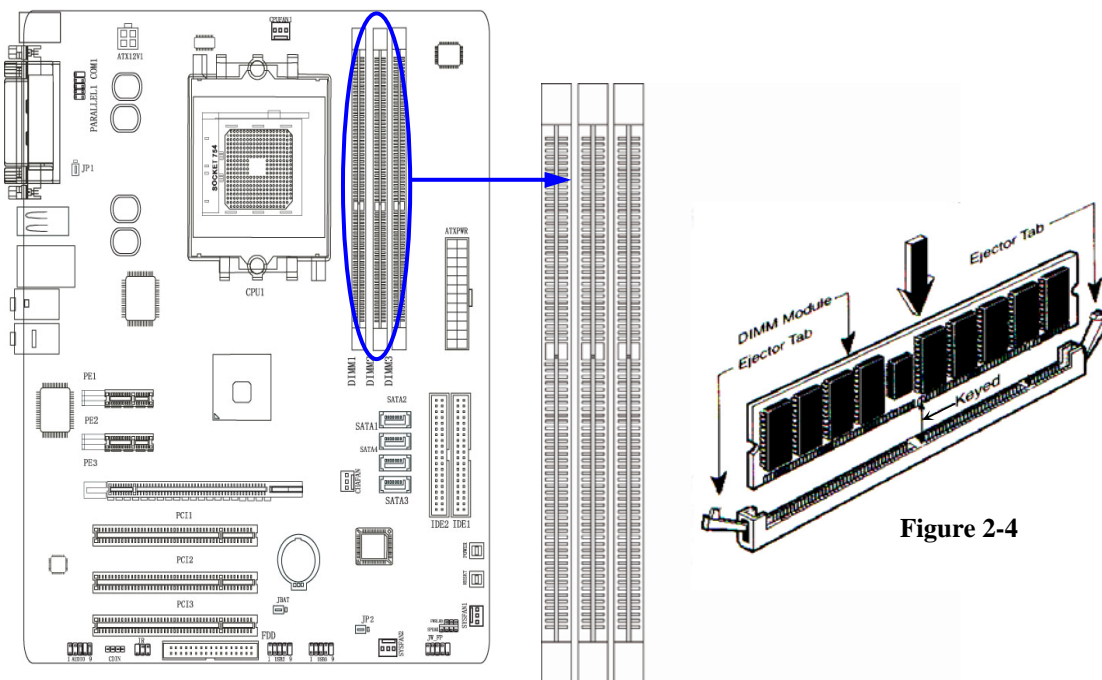
Figure 2-4

NOTE!	When you install DIMM module fully into the DIMM socket the eject tab should be locked into the DIMM module very firmly and fit into its indention on both sides.
WARNING!	For the DDR SDRAM CLOCK is set at 200MHz, use only DDR400- compliant DDR Modules. When this motherboard operate at 200Mhz, most system will not even boot if non-compliant modules are used because of the strict timing issues, if your DDR Modules are not DDR400-compliant, set the SDRAM clock to 133MHz to ensure system stability.

2-5 Expansion Cards

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

2-5-1 Procedure For Expansion Card Installation

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

2-5-2 Assigning IRQs For Expansion Card

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

Standard Interrupt Assignments

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

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

2-5-3 Interrupt Request Table For This Motherboard

Interrupt request are shared as shown the table below:

	INT A	INT B	INT C	INT D	INT E	INT F	INT G	INT H
Slot 1		√						
Slot 2			√					
Slot 3				√				
Onboard USB 1	√							
Onboard USB 2		√						
AC97/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

This motherboard provides one 16-lane PCI Express slot intended for Graphics Attach which offers 4Gbyte/sec data transfer rate at each relative direction., and one x1 PCI Express Slot. Fully compliant to the *PCI Express Base Specification revision 1.0a* , support PCI Express VGA card, and other PCI Express device.
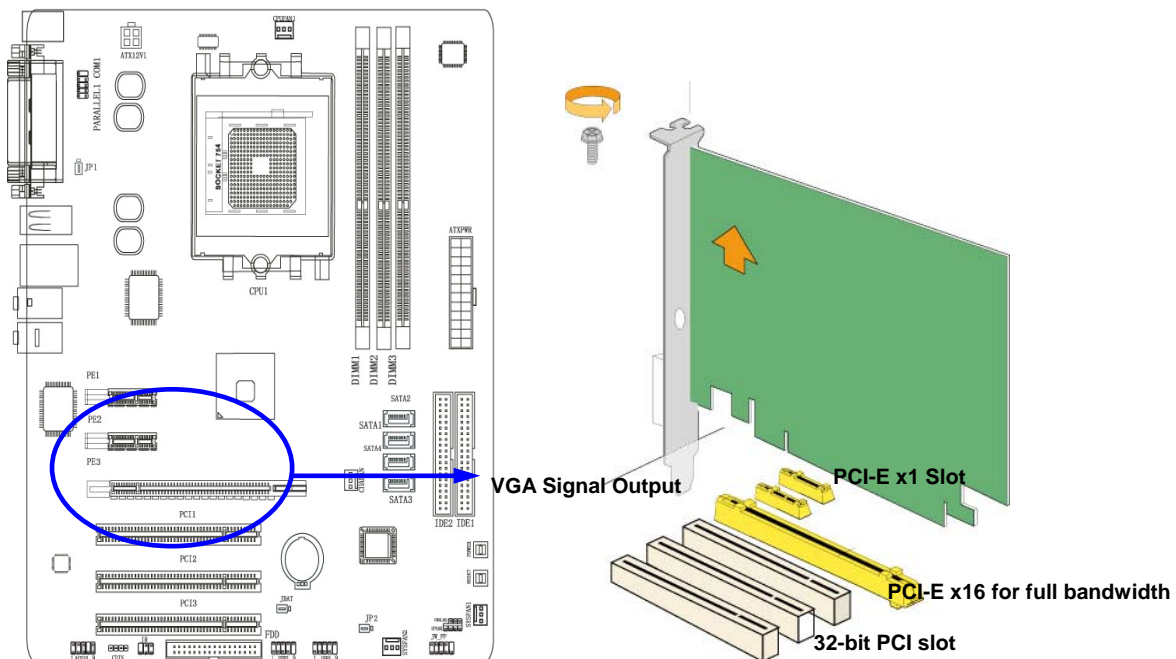
> **IMPORTANT!** The modification for chipset is not an option for end users. Or you may get no warranty for the motherboard you purchased.

2-6 Connectors, Headers
2-6-1 Connectors

(1)   Power Connector (24-pin block) : ATXPWR24P

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

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

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

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

20-Pin   24-Pin
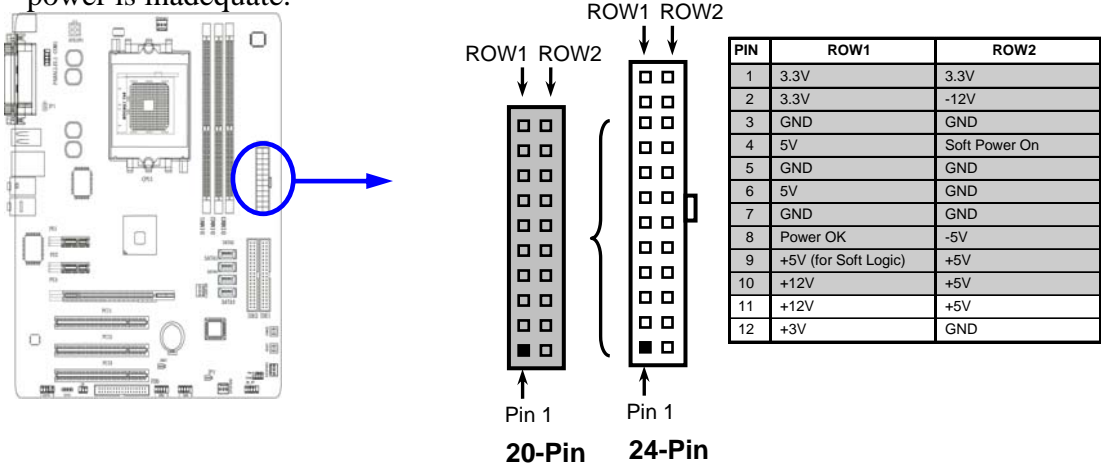
(2)   ATX 12V Power Connector (4-pin block) : ATX12V

This is a new defined 4-pins connector that usually comes with ATX Power Supply. The ATX Power Supply which fully support Pentium 4 processor must including this connector for support extra 12V voltage to maintain system power consumption. Without this connector might cause system unstable because the power supply can not provide sufficient current for system.
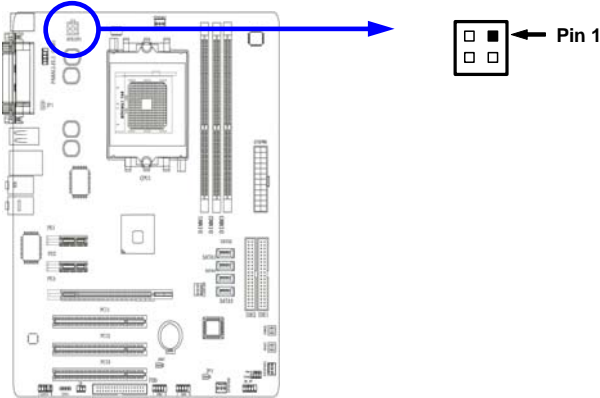
(3) PS/2 Mouse & PS/2 Keyboard Connector: PS2KBMS
The connectors for PS/2 keyboard and PS/2 Mouse.

(4) USB Port connector:USB1
The connectors are 4-pin connector that connect USB devices to the system board.

(5) LAN Port connector: UL1
This connector is standard RJ45 connector for Ethernet Compatible Network.
The USB/ LAN1 support 10M/100M/1G b/s data transfer rate

(6) Parallel Port Connector (25-pin female): PARALLEL
Parallel Port connector is a 25-pin D-Subminiature Receptacle connector. The On-board Parallel Port can be disabled through the BIOS SETUP. Please refer to Chapter 3 "INTEGRATED PERIPHERALS SETUP" section for more detail information.

(7) Audio Line-In, Lin-Out, MIC, Surrback, Surround, CEN/LEF Connector : AUDIO
This Connector are 6 phone Jack for LINE-OUT, LINE-IN, MIC, Surrback, Surround, CEN/LEF

Line-in : (BLUE)	Audio input to sound chip
Line-out : (GREEN)	Audio output to speaker
MIC : (PINK)	Microphone Connector
Surrback : (ORANGE)	Audio output to speaker-Rear speaker out
CEN/LEF : (BLACKNESS)	Audio output to speaker-Center/Subwoofer speaker out
Surround: (GRAY)	Audio output to speaker-Side speaker out

(8) Serial Port COM2 : COM2
COM2 is the 9-pin D-Subminiature male connector. The On-board serial port can be disabled through BIOS SETUP. Please refer to Chapter 3 "INTEGRATED PERIPHERALS SETUP" section for more detail information.
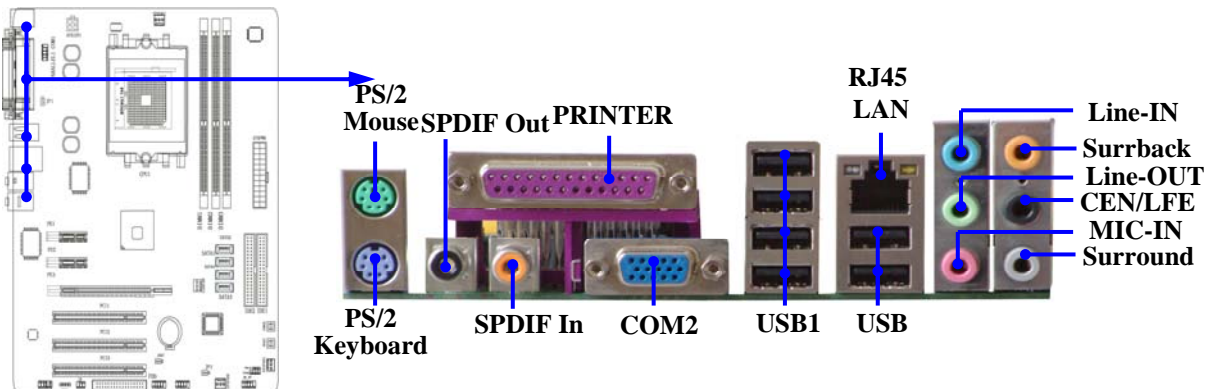
(9) Floppy drive Connector (34-pin block): FDD
This connector supports the provided floppy drive ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to the floppy drives.

FDD

Pin 1

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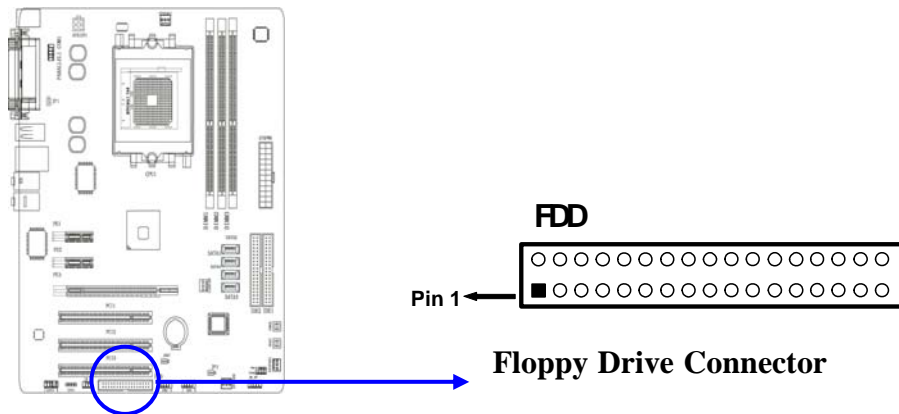
(10) Primary IDE Connector (40-pin block): IDE1

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
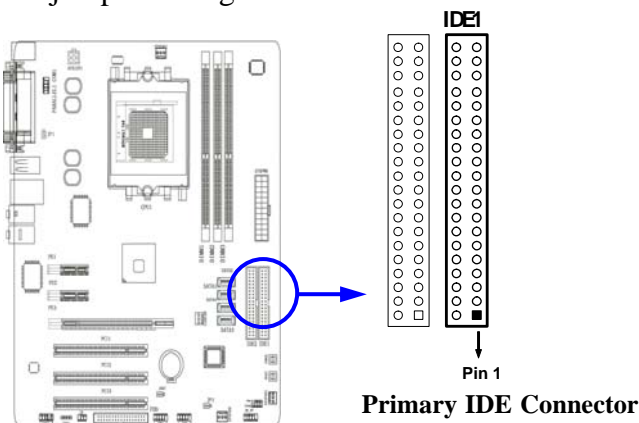
(11) Secondary IDE Connector (40-pin block): IDE2

This connector connects to the next set of Master and Slave hard disks. Follow the same procedure described for the primary IDE connector. You may also configure two hard disks to be both Masters using one ribbon cable on the primary IDE connector and another ribbon cable on the secondary IDE connector.

IDE2

Pin 1

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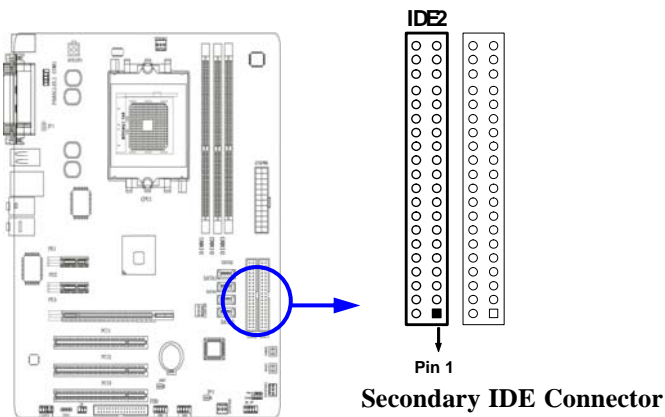
- Two hard disks can be connected to each connector. The first HDD is referred to as the "Master" and the second HDD is referred to as the "Slave".
- For performance issues, we strongly suggest you don't install a CD-ROM or DVD-ROM drive on the same IDE channel as a hard disk. Otherwise, the system performance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

(12) Serial-ATA Port connector: SATA1 / SATA2 / SATA3/ SATA4

This connector supports four Serial ATA connectors to connect to the motherboard and serial ATA hard disk. with 1.5Gb / sec data transfer rate.

Serial-ATA 1 & 2 Port Connector
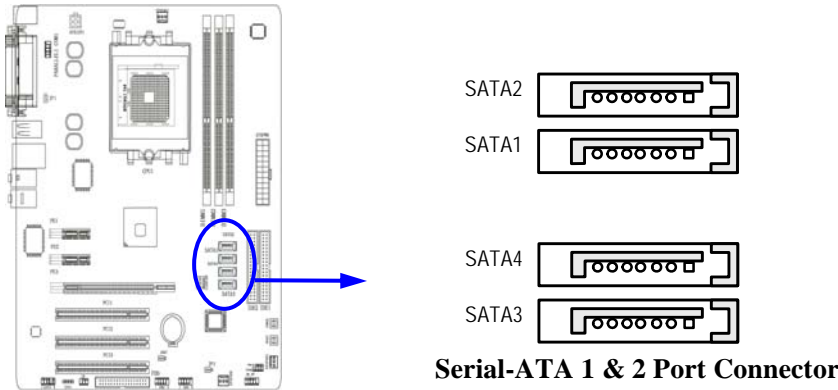
(13) SPDIF In/Out Connector

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

2-6-2 Headers

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

This header connect to Front Panel Line-out, MIC connector with cable.

Without install the cable, this header default setting is 5-6 short, 9-10 short. When you install the cable you have take off these jumpers.

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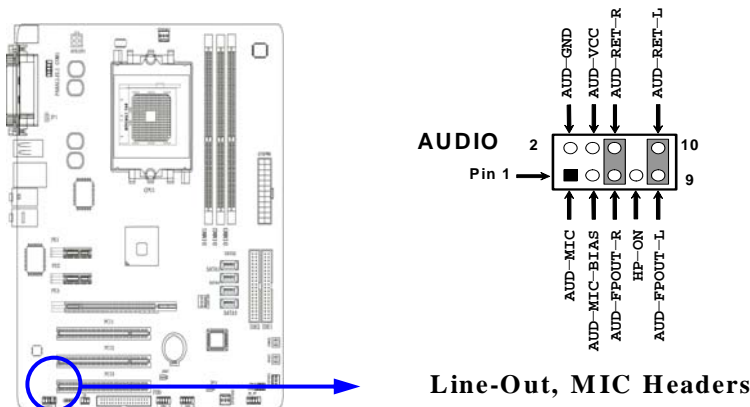
(2) USB Port Headers (9-pin) : USB2/USB3

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

USB2

USB3

Pin 1

Pin 1

USB Port Headers
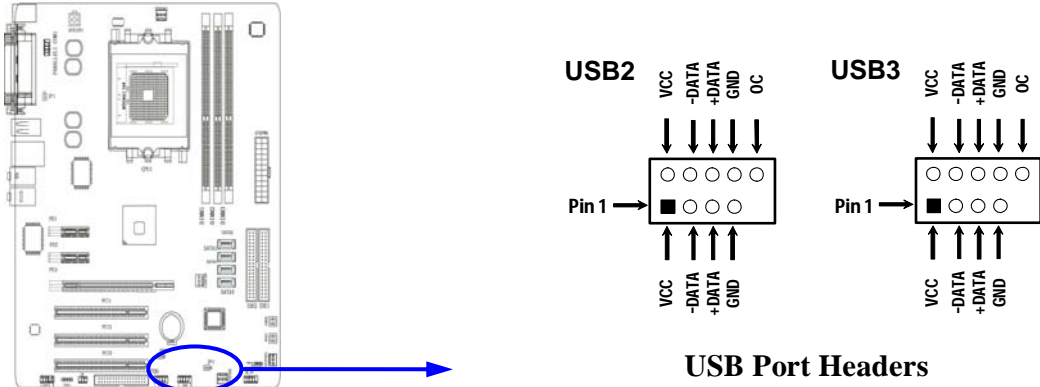
(3) Speaker connector: SPEAK1

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

(4) Power LED: PWR 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.

PWR LED

PWRBTN

PWRLED

Pin 1

JW FP

SPEAK

Pin 1

Pin 1

HDLED

RESET

System Case Connections
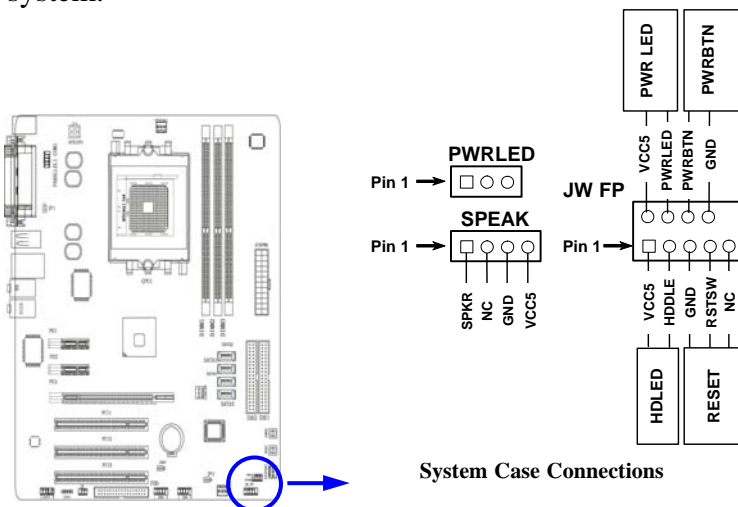
(8)   FAN Headers (3-pin) : CHAFAN1, SFAN1, SFAN2, CPUFAN1
These connectors support cooling fans of 350mA (4.2 Watts) or less, depending on the fan manufacturer, the wire and plug may be different. The red wire should be positive, while the black should be ground. Connect the fan's plug to the board taking into consideration the polarity of connector.

CPUFAN1 □ ○ ○
          1   3

CHAFAN1 □ 1
         ○
         ○ 3

SYSFAN1 □ 1
         ○
         ○ 3

          3   1
SYSFAN2 ○ ○ □
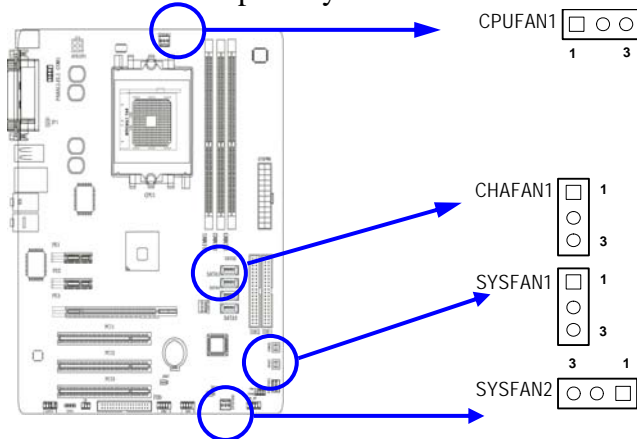
(9)   CD Audio-In Headers (4-pin) : CDIN1
CDIN1 are the connectors for CD-Audio Input signal. Please connect it to CD-ROM CD-Audio output connector.

CDIN1 ○ ○ ○ □
        4   1

CD Audio-In Headers
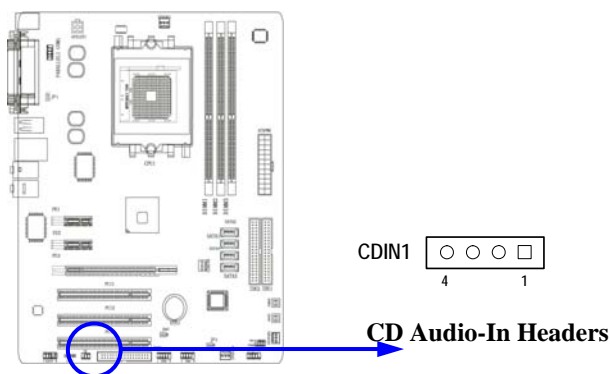
(10)   IR infrared module Headers (5-pin) : IR1
This connector supports the optional wireless transmitting and receiving infrared module. You must configure the setting through the BIOS setup to use the IR function.

IR1   GND IRRX
          ↓   ↓
    2   ○ ○ 6
Pin 1 → ■ ○ ○ 5
          ↑ ↑ ↑
        NC VCC5 IRTX
              IRTX

IR infrared module Headers
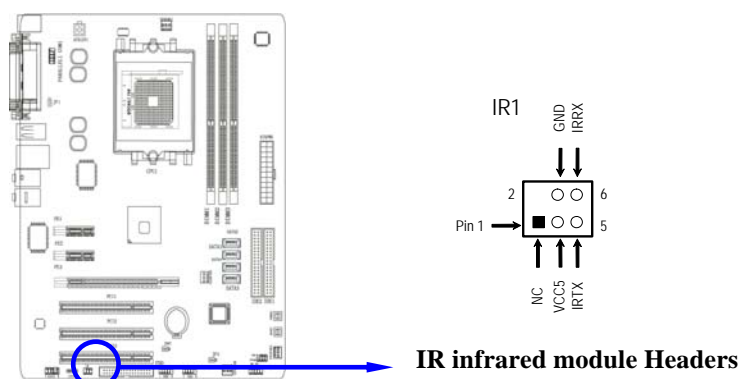
(11)   COM1 Port: COM1
COM2 is the 9-pin D-Subminiature male connector for the serial devices, such as the joystick, the scanner and so on.

2-7 Starting Up Your Computer

1. Make sure that all connections are connected firmly, close your computer chassis cover.

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

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

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

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

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

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

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

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

Chapter 3

Introducing BIOS

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

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

- Press <Esc> to quit the BIOS Setup.

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

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

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

3-1 Entering Setup

Power on the computer and by pressing <Del> immediately allows you to enter Setup.
If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt> and <Delete> keys. If you do not press the keys at the correct time and the system does not boot, an error message will be displayed and you will again be asked to
    Press <F1> to continue, <Ctrl-Alt-Esc> or <Del> to enter Setup

3-2 Getting Help

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

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

3-3 The Main Menu

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

```
             Phoenix – AwardBIOS CMOS Setup Utility
┌─────────────────────────────────────────────────────────────────────┐
│  Standard CMOS Features          Thermal Throttling Options           │
│                                                                       │
│  Advanced BIOS Features          Power User Overclock Settings        │
│                                                                       │
│  Advanced Chipset Features       Password Settings                    │
│                                                                       │
│  Integrated Peripherals          Load Optimized Defaults              │
│                                                                       │
│  Power Management Setup          Load Standard 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.

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

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

Password Settings
This entry for setting Supervisor password and User password

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

Load Standard Defaults
Use this menu to load the BIOS default values for the stable performance system operation that are factory settings for normal use.

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)            Wed, Mar, 09 2005   │                          │
│   Time (hh:mm:ss)            16 : 48 : 35        │        Item Help         │
│                                                  │                          │
│ > IDE Channel 0 Master      None                 ├──────────────────────────┤
│ > IDE Channel 0 Slave       None                 │                          │
│ > IDE Channel 1 Master      None                 │  Menu Level >            │
│ > IDE Channel 1 Slave       None                 │                          │
│ > SATA Channel 1            None                 │  Change the day, month,  │
│ > SATA Channel 2            None                 │  year and century        │
│ > SATA Channel 3            None                 │                          │
│ > SATA Channel 4            None                 │                          │
│                                                  │                          │
│   Drive A                   1.44M, 3.5 in.       │                          │
│   Drive B                   None                 │                          │
│   Halt On                   All, But Keyboard    │                          │
│                                                  │                          │
│   Base Memory                    640K            │                          │
│   Extended Memory             522240K            │                          │
│   Total Memory                523264K            │                          │
├────────────────────────────────────────────────┴──────────────────────────┤
│   ↑↓→←  Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help│
│        F5:Previous Values    F6:Optimized Defaults   F7:Standard Defaults   │
└────────────────────────────────────────────────────────────────────────────┘
```

Date
The date format is <day><month><date><year>.
> **Day**   Day of the week, from Sun to Sat, determined by BIOS. Read-only.
> **Month**   The month from Jan. through Dec.
> **Date**   The date from 1 to 31 can be keyed by numeric function keys.
> **Year**   The year depends on the year of the BIOS.

Time

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

IDE Channel 0 Master / Channel 0 Slave / Channel 1 Master / Channel 0 Slave
SATA Channel 1, 2, 3, 4

Press PgUp/<+> or PgDn/<–> to select Manual, None, or Auto type. Beware of the specifications of your drive has to match 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
┌──────────────────────────────────────────────────────────────────────┐
│   Removable Device Priority      Press Enter    │                      │
│   Hard Disk Boot Priority        Press Enter    │      Item Help       │
│   Virus Warning                  Disabled       │                      │
│   L1 Cache                       Enabled        ├──────────────────────┤
│   L2 Cache                       Enabled        │  Menu Level >        │
│   Quick Power On Self Test       Enabled        │                      │
│   SATA &SCSI Boot Order          SATA, SCSI     │                      │
│   First Boot Device              Floppy         │                      │
│   Second Boot Device             HDD-0          │                      │
│   Third Boot Device              CDROM          │                      │
│   Boot other Device              Enabled        │                      │
│   Swap Floppy Drive              Disabled       │                      │
│   Boot Up Floppy Seek            Enabled        │                      │
│   Boot Up NumLock Status         On             │                      │
│   Typematic Rate Setting         Disabled       │                      │
│ x Typematic Rate (Chars/Sec)     6              │                      │
│ x 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       │                      │
│   Report No FDD For Windows      Yes            │                      │
├──────────────────────────────────────────────────────────────────────┤
│    ↑↓→←  Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
│        F5:Previous Values   F6:Optimized Defaults    F7:Standard Defaults │
└──────────────────────────────────────────────────────────────────────┘
```

Removable Device Priority

The selection is for you to choose the removable devices (Such as USB floppy or other related accessories) priorities to boot from.

Hard Disk Boot Priority

The selection is for you to choose the hard disk drives priorities to boot from.

Virus Warning

Allows you to choose the VIRUS Warning feature for IDE Hard Disk boot sector protection. If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on screen and alarm beep.

Disabled (default) No warning message to appear when anything attempts to access the boot sector or hard disk partition table.

Enabled Activates automatically when the system boots up causing a warning message to appear when anything attempts to access the boot sector of hard disk partition table.

CPU Internal Cache

The default value is Enabled.

Enabled (default) Enable cache

Disabled Disable cache

Note: The internal cache is built in the processor.

External Cache

Choose Enabled or Disabled. This option enables the Level 2 cache memory.

Quick Power On Self-Test

This category speeds up Power On Self Test (POST) after you power on the computer. If this is set to Enabled. BIOS will shorten or skip some check items during POST.

Enabled (default) Enable quick POST

Disabled Normal POST

First/Second/Third/Fourth Boot Device

The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The settings are Floppy, LS/ZIP, HDD-0/HDD-1/HDD-3, SCSI, CDROM, LAD and Disabled.

Swap Floppy Drive

Switches the floppy disk drives between being designated as A and B. Default is 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.

Typematic Rate Setting

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

Typematic Rate (Chars/Sec)

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

Typematic Delay (Msec)

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

Security Option

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

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

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
┌──────────────────────────────────────────┬───────────────────────────┐
│ > Hyper Transport Frequency   Auto        │                           │
│                                           │         Item Help         │
│ > Hyper Transport Width       Auto        │                           │
│                                           ├───────────────────────────┤
│ > DRAM Timing Settings        Press Enter │                           │
│ > System BIOS Cacheable       Enabled     │    Menu Level >           │
│                                           │                           │
│                                           │                           │
│                                           │                           │
│                                           │                           │
│                                           │                           │
│                                           │                           │
│                                           │                           │
│                                           │                           │
├──────────────────────────────────────────┴───────────────────────────┤
│   ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
│        F5:Previous Values    F6:Optimized Defaults   F7:Standard Defaults │
└───────────────────────────────────────────────────────────────────────┘
```

HperTransport Frequency

The default setting is "Auto" for this selection, and it provides with the frequency from 200 to 1000MHz for you to select manually. The AMD Athlon64 FX processor supports 1GHz HyperTransport bus to access. We recommend you to use the frequency for both performance and reliabilities of your system.

HperTransport Width

The default setting is "Auto" for this selection, and it provides with the adjustable bandwidth selection for you to choose the combination of stream with x16 and x8 bandwidth of updoad and down between the processor and system chip.

DRAM Timing Settings

Please refer to section 3-6-1

System BIOS Cacheable

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

3-6-1   DRAM Timing Settings

```
                  Phoenix – AwardBIOS CMOS Setup Utility

                          DRAM Timing Settings

    Auto Configuartion        Auto
    DRAM CAS Latency          CL=2.5              Item Help
    RAS Active Time           8T
    RAS Precharge Time        2T
    RAS-to-CAS Delay          4T            Menu Level >>
    DRAM Bank Interleaving    Enabled
    DRAM Command Rate         2T
    MTRR Mapping Mode         Continuous




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

 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. The settings are: 4T and 3T.

RAS 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. The settings are: 2T and 3T.

DRAM CAS Latency

When synchronous DRAM is installed, the number of clock cycles of CAS latency depends on the DRAM timing. The settings are: 2T and 2.5T.

3-7 Integrated Peripherals

```
                    Phoenix – AwardBIOS CMOS Setup Utility

                             Integrated Peripherals

┌─────────────────────────────────────────────────┬──────────────────────────┐
│  > OnChip IDE Function          Press Enter       │                          │
│  > OnChip Device Function       Press Enter       │       Item Help          │
│  > OnChop Super IO Function     Press Enter       ├──────────────────────────┤
│    Init Display First           PCI Slot          │                          │
│                                                   │    Menu Level >          │
│                                                   │                          │
│                                                   │                          │
│                                                   │                          │
│                                                   │                          │
├─────────────────────────────────────────────────┴──────────────────────────┤
│    ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
│         F5:Previous Values   F6:Optimized Defaults    F7:Standard Defaults   │
└─────────────────────────────────────────────────────────────────────────────┘
```

OnChip IDE Function
Please refer to section 3-7-1

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

OnChip Super IO Function
Please refer to section 3-7-3

Init Display First
This item allows you to decide to activate whether PCI Slot or AGP VGA first. The settings are: PCI Slot, AGP Slot.

3-7-1 OnChip IDE Function

```
                    Phoenix – AwardBIOS CMOS Setup Utility

                             OnChip IDE Function

┌─────────────────────────────────────────────────┬──────────────────────────┐
│  RAID Configuration             Enter             │                          │
│  OnChip IDE Channel0            Enabled           │       Item Help          │
│  Primary Master   PIO           Auto              ├──────────────────────────┤
│  Primary Slave    PIO           Auto              │                          │
│  Primary Master   UDMA          Auto              │    Menu Level >>         │
│  Primary Slave    UDMA          Auto              │                          │
│  OnChip IDE Channel1            Enabled           │                          │
│  Secondary Master UDMA          Auto              │                          │
│  Secondary Slave  UDMA          Auto              │                          │
│  Secondary Master UDMA          Auto              │                          │
│  Secondary Slave  UDMA          Auto              │                          │
│  SATA Channel 1&2               Auto              │                          │
│  SATA Channel 3&4               Auto              │                          │
│  IDE DMA Transfer Access        Enabled           │                          │
│  IDE Prefactch                  Enabled           │                          │
│  IDE HDD Block Mode             Enabled           │                          │
│  Delay For HDD(Secs)            0                 │                          │
├─────────────────────────────────────────────────┴──────────────────────────┤
│    ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
│         F5:Previous Values   F6:Optimized Defaults    F7:Standard Defaults   │
└─────────────────────────────────────────────────────────────────────────────┘
```

OnChip IDE Channal0/Channel1

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

Primary/Secondary Master/Slave PIO

The onboard IDE interface supports four IDE PIO (Programmed Input/Output) devices for you to set PIO mode (0-4) for each IDE device. Modes 0 through 4 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/Secondary 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 Prefatch

The selection is for you to set the IDE device as the first priority to activate.

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.

Delay for HDD (Secs)

The selection is set for you to extend the time to search for the HDD which needs more time to activate.

3-7-2 OnChip Device Function

```
             Phoenix – AwardBIOS CMOS Setup Utility
                      OnChip Device Function
┌─────────────────────────────────────────────┬──────────────────────┐
│  On Board AC97 Audio Device        Auto      │      Item Help        │
│  On Board LAN Device               Auto      │                       │
│  On Board LAN Device Boot ROM      Disabled  ├──────────────────────┤
│  Machine MAC Address is   003018-xxxxxx      │  Menu Level >>        │
│  On Board MAC Address Input        Press Enter│                      │
│  = = = = = = USB Controller System  = = = = = =│                    │
│  On Chip USB                       V1.1+ V2.0 │                       │
│  USB Memory Type                   Shadow     │                       │
│  USB Keyboard Support              Disabled   │                       │
│                                               │                       │
│                                               │                       │
├─────────────────────────────────────────────┴──────────────────────┤
│   ↑↓→←  Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
│       F5:Previous Values   F6:Optimized Defaults    F7:Standard Defaults     │
└─────────────────────────────────────────────────────────────────────┘
```

AC97 Sound Device
This item allows you to decide to enable/disable the chipset family to support AC97 Audio.
The settings are: Enabled, Disabled.

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

3-7-3 OnChip Super IO Function

```
                     Phoenix – AwardBIOS CMOS Setup Utility
                           Onboard Super IO Function
┌─────────────────────────────────────────────────────────────────────────────┐
│                                                        │                      │
│   Onboard FDD Controller        Enabled                │     Item Help        │
│   Onboard Serial Port 1         3F8/IRQ4               │                      │
│   Onboard Serial Port 2         2F8/IRQ3               ├──────────────────────┤
│   UART Mode Select              Normal                 │                      │
│   IR Duplex Mode                Half                   │   Menu Level >>      │
│   Onboard Parallel Port         378/IRQ7              │                      │
│   Parallel Mode                 SPP                    │                      │
│   ECP Mode Use DMA              3                      │                      │
│                                                        │                      │
│                                                        │                      │
│                                                        │                      │
├────────────────────────────────────────────────────────┴──────────────────────┤
│   ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help   │
│       F5:Previous Values   F6:Optimized Defaults    F7:Standard Defaults       │
└─────────────────────────────────────────────────────────────────────────────┘
```

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

Onboard Serial Port 1/Port 2
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.

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.

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
┌─────────────────────────────────────────────┬──────────────────────┐
│   PS2 KB/MS Wake up by (S3/S4/S5) Disabled   │      Item Help       │
│   ACPI Function                   Enabled    │                      │
│   ACPI Suspend Type               S1(POS)    ├──────────────────────┤
│   Power Managerment               User Define│                      │
│   Video off Method                DPMS Support│   Menu Level >       │
│   HDDD Power Down                 Disabled   │                      │
│   Power Button Function           Instant-Off│                      │
│   Wake Up on PCI PME              Disabled   │                      │
│   Wake-Up on Ring                 Disabled   │                      │
│   Wake-Up by Alarm                Disabled   │                      │
│   AMD K8 Cool'n'Quiet Control     Auto       │                      │
├─────────────────────────────────────────────┴──────────────────────┤
│  ↑↓→←  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.

Video Off Option

This determines the manner in which the monitor is blanked. The choice are Suspend $\rightarrow$ off, All Modes $\rightarrow$ Off, and Always On.

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

This determines the IRQ in which the MODEM can use.
The settings are: 3, 4, 5, 7, 9, 10, 11, NA.

Power Button Function

Pressing the power button for more than 4 seconds forces the system to enter the Soft-Off state. The settings are: Delay 4 Sec, Instant-Off.

Wake Up On Ring/PME

During Disabled, the system will ignore any incoming call from the modem. During Enabled, the system will boot up if there's an incoming call from the modem.

Wake-Up by Alarm

This function is for setting date and time for your computer to boot up. During Disabled, you cannot use this function. During Enabled, choose the Date and Time Alarm:

Date(of month) Alarm

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

Time(hh:mm:ss) Alarm

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

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

3-9 Miscellaneous Control

This section is for setting CPU Frequency/Voltage Control.

```
            Phoenix – AwardBIOS CMOS Setup Utility
                       Miscellaneous Control
 ┌─────────────────────────────────────────────────┬──────────────────────┐
 │  CPU Spread Spectrum Clock        Enabled         │     Item Help        │
 │  SATA Spread Spectrum             Disabled        │                      │
 │  PCIE Spread Spectrum             Disabled        ├──────────────────────┤
 │  Flash Part Write Protect         Enabled         │  Menu Level >        │
 │                                                   │                      │
 │> IRQ Resources                    Press Enter     │                      │
 │  PCI/VGA Palette Snoop            Disabled        │                      │
 │                                                   │                      │
 │  *** PCIExpress 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 │
 └─────────────────────────────────────────────────────────────────────────┘
```

Auto Detect PCI Clock

This item allows you to enable/disable auto detect PCI Clock.

Spread Spectrum

This item allows you to set the CPU Host / SATA / PCI clock and Spread Spectrum. The settings are: Enabled, Disabled.

IRQ Resources

When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt. Please refer to section 3-9-1

3-9-1 IRQ Resources

```
                Phoenix – AwardBIOS CMOS Setup Utility
                            IRQ Resources
┌────────────────────────────────────────────────┬──────────────────────┐
│   IRQ-3    assigned to         PCI Device       │      Item Help       │
│   IRQ-4    assigned to         PCI Device       │                      │
│   IRQ-5    assigned to         PCI Device       ├──────────────────────┤
│   IRQ-7    assigned to         PCI Device       │                      │
│   IRQ-9    assigned to         PCI Device       │   Menu Level >>      │
│   IRQ-10   assigned to         PCI Device       │                      │
│   IRQ-11   assigned to         PCI Device       │                      │
│   IRQ-12   assigned to         PCI Device       │                      │
│   IRQ-14   assigned to         PCI Device       │                      │
│   IRQ-15   assigned to         PCI Device       │                      │
│                                                 │                      │
│                                                 │                      │
├─────────────────────────────────────────────────┴─────────────────────┤
│  ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
│      F5:Previous Values    F6:Optimized Defaults   F7:Standard Defaults  │
└────────────────────────────────────────────────────────────────────────┘
```

3-10 PC Health Status

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

```
                Phoenix – AwardBIOS CMOS Setup Utility
                            PC Health Status
┌────────────────────────────────────────────────┬──────────────────────┐
│   Show PCHealth in Post        Enabled          │      Item Help       │
│   Chipset Fan Warning          Enabled          │                      │
│ > Smart FAN Configurations     Press Enter      ├──────────────────────┤
│   Vcore                        1.39V            │                      │
│   NB                           2.53V            │   Menu Level >       │
│   +5V                          4.99V            │                      │
│   +12V                         11.9V            │                      │
│   5VSB                         4.89V            │                      │
│   VDIMM                        2.67V            │                      │
│   VBAT                         3.12V            │                      │
│   CPU Temperature              40°C/104°F       │                      │
│   System 1 Temperature         36°C/96°F        │                      │
│   System 1 Temperature         29°C/84°F        │                      │
│   CPUFAN                       4440 RPM         │                      │
│   SFAN1                        3375 RPM         │                      │
│   SFAN2                        3375 RPM         │                      │
├─────────────────────────────────────────────────┴─────────────────────┤
│  ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
│      F5:Previous Values    F6:Optimized Defaults   F7:Standard Defaults  │
└────────────────────────────────────────────────────────────────────────┘
```

Chipset Fan Warning
This item can let users get the warning of the Chipset active cooling system failure in activating to prevent the damage of motherboard while it's working at full speed .

Show PC Health in Post
During Enabled, it displays information list below. The choice is either Enabled or Disabled

Smart FAN Configurations
Please refer to section 3-10-1

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.

3-10-1 Smart FAN Configurations

```
                Phoenix – AwardBIOS CMOS Setup Utility

                        Smart FAN Configurations
┌──────────────────────────────────────────────┬──────────────────────────┐
│  CPUFAN Smart Mode              Enabled        │                          │
│  CPU SmartFAN Full-Speed        50             │        Item Help         │
│  CPU SmartFAN Idle Temp         30             ├──────────────────────────┤
│                                                │                          │
│  SFAN1 Smart Mode               Enabled        │    Menu Level >          │
│  SFAN1 SmartFAN Full-Speed Temp 50             │                          │
│  SFAN1 SmartFAN Idle Temp       30             │                          │
│                                                │                          │
│  SFAN2 Smart Mode               Enabled        │                          │
│  SFAN2 SmartFAN Full-Speed Temp 50             │                          │
│  SFAN2 SmartFAN Idle Temp       30             │                          │
│                                                │                          │
├────────────────────────────────────────────────┴────────────────────────┤
│   ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help│
│       F5:Previous Values    F6:Optimized Defaults   F7:Standard Defaults  │
└──────────────────────────────────────────────────────────────────────────┘
```

CPU/SFAN1/SFAN2 Smart FAN 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/SFAN1/SFAN2 Smart FAN 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.

3-11 Thermal Throttling Options

```
                Phoenix – AwardBIOS CMOS Setup Utility

                        Thermal Throttling Options
┌──────────────────────────────────────────────┬──────────────────────────┐
│  CPU Thermal-Throttling          Disabled      │                          │
│  CPU Thermal-Throttling Temp     70            │        Item Help         │
│  CPU Thermal-Throttli┌─────────────────────────┐                          │
│  CPU Thermal-Throttli│ CPU Thermal-Throttling  │                          │
│                      │  Disabled ·····[   ]    │u Level >                 │
│                      │  Enabled  ·····[   ]    │                          │
│                      │                         │                          │
│                      │                         │                          │
│                      │ ↑↓: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  │
└──────────────────────────────────────────────────────────────────────────┘

                Phoenix – AwardBIOS CMOS Setup Utility

                        Thermal Throttling Options
```

```
 CPU Thermal-Throttling          Disabled
 CPU Thermal-Throttlin┌─ CPU Thermal-Throttling Temp ─┐    Item Help
 CPU Thermal-Throttlin│                               │
 CPU Thermal-Throttlin│                               │   Level >
                       │   Min =    40                 │
                       │   Max =    90                 │
                       │                               │
                       │   Key in a Integral number:   │
                       │ ↑↓: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
```

Phoenix – AwardBIOS CMOS Setup Utility

Thermal Throttling Options

```
 CPU Thermal-Throttling          Disabled
 CPU Thermal-Throttlin┌─ CPU Thermal-Throttling Duty ─┐    Item Help
 CPU Thermal-Throttlin│  87.50% ·····[▓ ]             │
 CPU Thermal-Throttlin│  75.00% ·····[  ]             │   Level >
                       │  62.50% ·····[  ]             │
                       │  50.00% ·····[  ]             │
                       │  35.50% ·····[  ]             │
                       │  25.00% ·····[  ]             │
                       │  12.50% ·····[  ]             │
                       │ ↑↓: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 Thermal Throttling Temp

This item allows you to activate the CPU Thermal Throttling function when the CPU temperature is over the value which you set to low down the CPU temperature when at high workload to protect processor from damage or accidental shutdown.

Phoenix – AwardBIOS CMOS Setup Utility

Thermal Throttling Options

```
 CPU Thermal-Throttling          Disabled
 CPU Thermal-Throttl┌─ CPU Thermal-Throttling Beep ─┐
 CPU Thermal-Throttl│  Disabled ·····[  ]           │
 CPU Thermal-Throttl│  Enabled  ·····[▓ ]           │nu Level >
                     │                               │
                     │                               │
                     │                               │
                     │ ↑↓: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
```

3-12 Power User Overclock Settings

```
              Phoenix – AwardBIOS CMOS Setup Utility
                    Power User Overclock Settings

 ┌──────────────────────────────────────────────┬──────────────────────┐
 │  PCIE Clock                       100         │                      │
 │  ** Current Host Frequency is     200MHZ **   │      Item Help       │
 │  Current CPU at Next Boot is      200         ├──────────────────────┤
 │  *** Current DRAM Clock           200MHZ ***  │                      │
 │  DRAM Clock at Next Boot          200MHz(Auto)│   Menu Level >       │
 │  CPU Ratio Select                 Default     │                      │
 │  CPU Vcore Select                 Default     │                      │
 │  CPU Vcore 7-Shift                Normal(Default) │                  │
 │                                               │                      │
 │  Over Voltage                     Enabled     │                      │
 │  VRAM Output                      2.65V(Default)│                    │
 │  NB Voltage                       1.50V(Default)│                    │
 │  LDT Voltage                      1.25V(Default)│                    │
 │                                               │                      │
 ├──────────────────────────────────────────────┴──────────────────────┤
 │  ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
 │     F5:Previous Values    F6:Optimized Defaults   F7:Standard Defaults │
 └──────────────────────────────────────────────────────────────────────┘
```

} **Not support AMD Sempron Processor**

CPU/DRAM Clock at next Boot is

This item allows you change the CPU Host /DRAM clock for overclock demand. *When the CPU Host clock is over the CPU default value BIOS will auto disabled Bi-Turbo function.*

CPU Vcore 7-Shift

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.

VRAM Output

This item allows you to select 2.5V of the DDR Module. The choice are: 2.55V, 2.6V, 2.65V, 2.7V.

NB Voltage

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

LDT Voltage

This item allows you to select value of Voltage for LDT.

```
              Phoenix – AwardBIOS CMOS Setup Utility
                    Power User Overclock Settings

 ┌──────────────────────────────────────────────┬──────────────────────┐
 │  PCIE Clock                       100         │                      │
 │                                               │      Item Help       │
 │  ** Current CPU Clock       ┌──────────────────────────┐            │
 │  CPU Clock at Next Boot      │  PCIE Clock              │            │
 │  *** Current DRAM Clock      │                          │ evel >      │
 │  DRAM Clock at Next Boot     │                          │            │
 │  CPU Ratio Select            │    Min=   100            │            │
 │  CPU Vcore Select            │    Max=   145            │            │
 │  CPU Vcore 7-Shift           │                          │            │
 │                              │                          │            │
 │  Over Voltage                │  ↑↓:Move ENTER:Accept ESC:Abort │     │
 │  VRAM Output                 └──────────────────────────┘            │
 │  NB Voltage                       1.50V(Default)│                    │
 │  LDT Voltage                      1.25V(Default)│                    │
 ├──────────────────────────────────────────────┴──────────────────────┤
 │  ↑↓→← 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
                   Power User Overclock Settings
┌────────────────────────────────────────────────────┬──────────────────┐
│  PCIE Clock                          100            │    Item Help     │
│                      ┌─────────────────────────────┐├──────────────────┤
│  ** Current CPU Clock│ CPU Vcore 7-Shift           ││                  │
│  CPU Clock at Next Boo│  Normal  · · · · ·[ ▓ ]    ││                  │
│  *** Current DRAM Cloc│  +  5%   · · · · ·[   ]     ││  Level >         │
│  DRAM Clock at Next Bo│  + 10%   · · · · ·[   ]     ││                  │
│  CPU Ratio Select     │  + 15%   · · · · ·[   ]     ││                  │
│  CPU Vcore Select     │  + 20%   · · · · ·[   ]     ││                  │
│  CPU Vcore 7-Shift    │  + 25%   · · · · ·[   ]     ││                  │
│                       │  + 30%   · · · · ·[   ]     ││                  │
│  Over Voltage         │  + 35%   · · · · ·[   ]     ││                  │
│  VRAM Output          ├─────────────────────────────┤│                  │
│  NB Voltage           │ ↑↓:Move ENTER:Accept ESC:Abort││               │
│  LDT Voltage          └─────────1.25V(Default)──────┘│                  │
│                                                     │                  │
├────────────────────────────────────────────────────┴──────────────────┤
│  ↑↓→← 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
                   Power User Overclock Settings
┌────────────────────────────────────────────────────┬──────────────────┐
│  PCIE Clock                          100            │    Item Help     │
│                      ┌─────────────────────────────┐├──────────────────┤
│  ** Current CPU Clock│ VRAM Output                 ││                  │
│  CPU Clock at Next Boo│  2.55V(Default)· · · · ·[ ▓ ]│                  │
│  *** Current DRAM Cloc│  2.65V        · · · · ·[   ]││  Level >         │
│  DRAM Clock at Next Bo│  2.75V        · · · · ·[   ]││                  │
│  CPU Ratio Select     │  2.85V        · · · · ·[   ]││                  │
│  CPU Vcore Select     │  3.05V        · · · · ·[   ]││                  │
│  CPU Vcore 7-Shift    │  3.25V        · · · · ·[   ]││                  │
│                       │                             ││                  │
│  Over Voltage         │                             ││                  │
│  VRAM Output          ├─────────────────────────────┤│                  │
│  NB Voltage           │ ↑↓:Move ENTER:Accept ESC:Abort││               │
│  LDT Voltage          └─────────1.25V(Default)──────┘│                  │
│                                                     │                  │
├────────────────────────────────────────────────────┴──────────────────┤
│  ↑↓→← 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
                   Power User Overclock Settings
┌────────────────────────────────────────────────────┬──────────────────┐
│  PCIE Clock                          100            │    Item Help     │
│                      ┌─────────────────────────────┐├──────────────────┤
│  ** Current CPU Clock│ NB Voltage                  ││                  │
│  CPU Clock at Next Boo│  1.50V        · · · · ·[   ]││                  │
│  *** Current DRAM Cloc│  1.60V(Default)· · · · ·[ ▓ ]│  Level >         │
│  DRAM Clock at Next Bo│  1.70V        · · · · ·[   ]││                  │
│  CPU Ratio Select     │                             ││                  │
│  CPU Vcore Select     │                             ││                  │
│  CPU Vcore 7-Shift    │                             ││                  │
│                       │                             ││                  │
│  Over Voltage         │                             ││                  │
│  VRAM Output          ├─────────────────────────────┤│                  │
│  NB Voltage           │ ↑↓:Move ENTER:Accept ESC:Abort│               │
│  LDT Voltage          └──────────1.50V(Default)─────┘│                  │
│                                      1.25V(Default)  │                  │
├────────────────────────────────────────────────────┴──────────────────┤
│  ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help│
│      F5:Previous Values    F6:Optimized Defaults    F7:Standard Defaults│
└────────────────────────────────────────────────────────────────────────┘
```

3-13 Password Settings

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.

3-14 Load Standard/Optimized Defaults

Load Standard Defaults

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

Load Standard Defaults (Y/N)? N

Pressing <Y> loads the BIOS default values for the most stable, minimal-performance system operations.

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.

Chapter 4

DRIVER & FREE PROGRAM INSTALLATION

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

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

Insert CD into your CD-ROM drive and the MAGIC INSTALL Menu should appear as below. If the menu does not appear, double-click MY COMPUTER / double-click CD-ROM drive or click START / click RUN / type X:\SETUP.EXE (assuming X is your CD-ROM drive).

From MAGIC INSTALL MENU you may take 9 selections:
1. nFORCE   install nFORCE integrated driver
2. SOUND   install ALC655 AC97' Codec Audio driver
3. USB2.0   install USB 2.0 driver
4. LAN   install LAN driver
5. DirectX9   install Microsoft DirectX 9 driver
6. PC-CILLIN   install PC-CILLIN2005 anti-virus program
7. PC-HEALTH   install My Guard PC-Health utility
8. BROWSE CD   to browse the contents of the CD
9. EXIT   to exit from MAGIC INSTALL menu

4-1 nForce Install nForce Integrated Driver

* nForce Integrated driver pack include following device driver:

NVIDIA GART driver :   If you are using an AGP VGA Card, please install NVIDIA
                                AGP GART driver which provides service routines to your
                                VGA driver and interface directly to the hardware for speedy
                                graphic access.

NVIDIA SMBUS driver :   Install NVIDIA SMBUS driver

NVIDIA ETHERNET driver :   Install NVIDIA 10/100 Fast Ethernet device driver.
                                Install NVIDIA firewall and Forceware Network Access
                                Manager utility.

NVIDIA IDE driver :   Install NVIDIA IDE driver
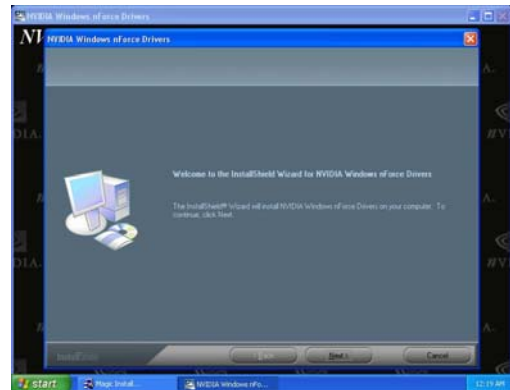
1. Click nForce in the MAGIC INSTALL
    MENU

2. Click NEXT when nForce Integrated driver
    Install windows appears
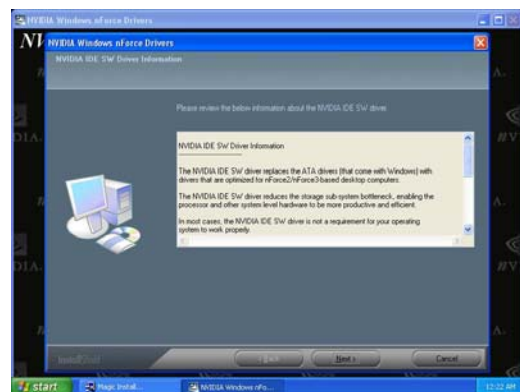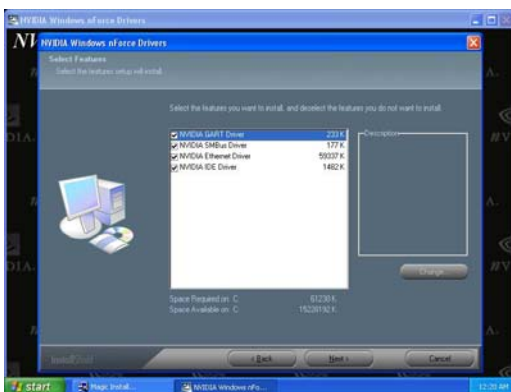
3. Please select the features you wish to install .

4. Click NEXT to install IDE driver and click
    "Yes" to proceed while system asking "Do you
    want to install the NVIDIA IDE SW Driver?"
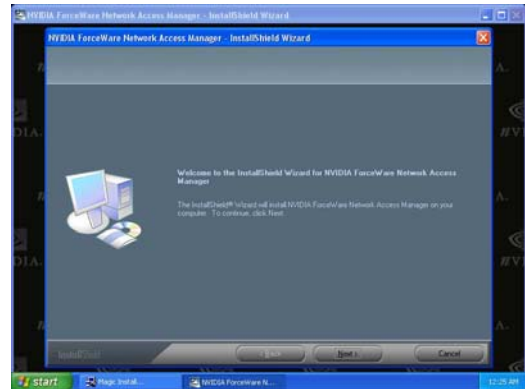
5. Please choose to install the NVIDIA firewall and Forceware Network Access Manager Utility Driver for demanding on you own.

6. If you want to install NVIDIA firewall and Forceware Network Access Manager utility
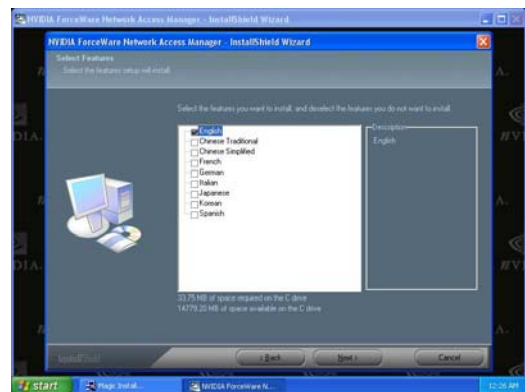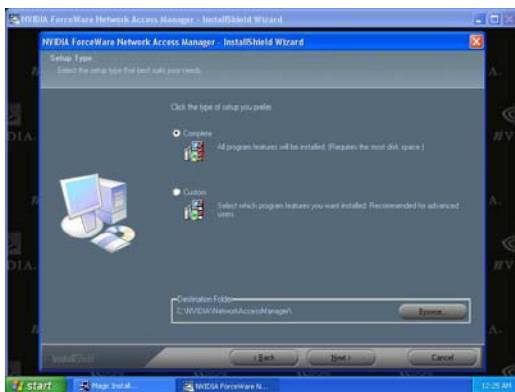
7. Select install complete software and Click NEXT

8. Select interface language and Click NEXT
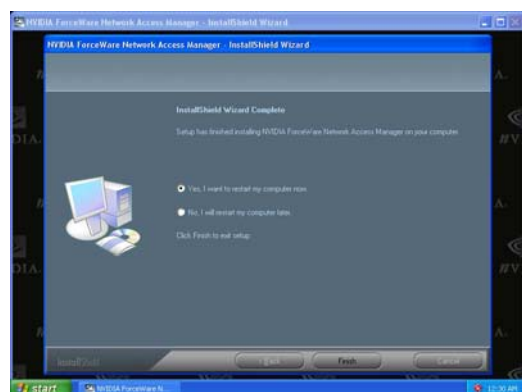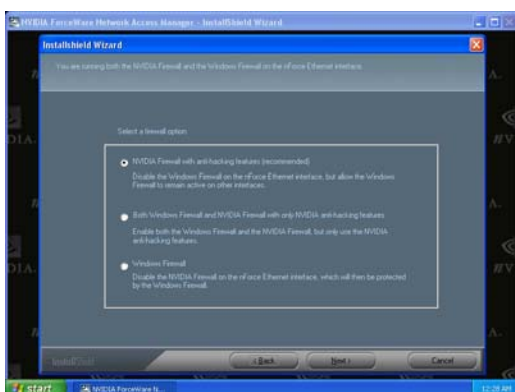
9. Please choose NVIDIA or Windows firewall for your system.

10. Select Finish and restart your computer

*   The path of the file is X:\NFORCE4\DRIVER\SETUP.EXE

4-2 SOUND   install ALC655 Codec Audio Driver

1. Click SOUND when MAGIC INSTALL MENU appears

2. Click NEXT when the realtek AC97 Audio Setup windows appear

3. Click Finish and Restart Windows

4. Realtek AVRACK utility
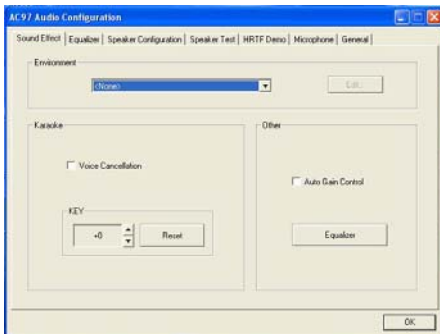
5. Sound Effect select and KaraOK Mode Function

6. Manual Sound Effect Setting

7. This is 2/4/6 channel speakers configuration setting

8. This is 2/4/6 channel speakers position test

Note: The path of the file: For WIN98/NT4.0/WIN2K/XP is X:\CODEC\ALC\SETUP.EXE

4-3 LAN Marvell Yukon Gigabit Ethernet NIC Driver
(for 754GT8 Motherboard Series Only)

1. Click LAN when Magic Install Menu appear
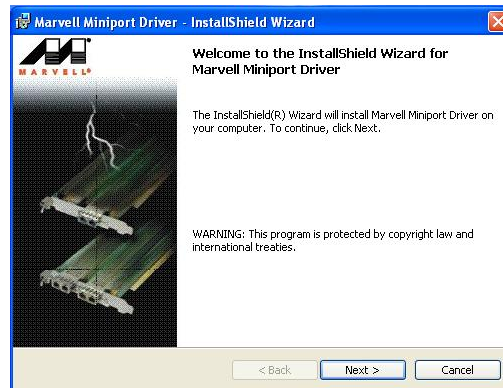
2. Click Next to install Marvell LAN driver

3. Please Accept the license agreement and read the "Readme" file for detailed information , then click Next to proceed.
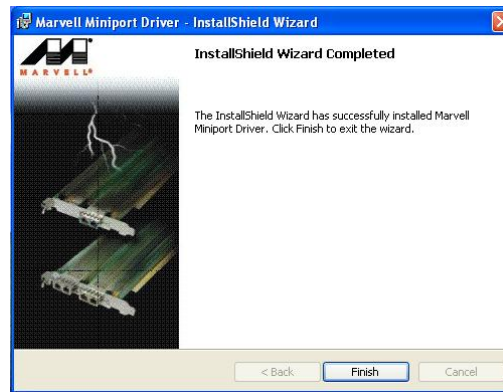
4. Click Install to install driver and Click Finish end the installation

4-4 USB2.0   Install Nvidia USB2.0 DRIVER

Windows 2000 OS

Please install Windows 2000 service pack 4 or later .

Windows XP OS

Please install Windows XP service pack 1 or later .

4-5 PC-CILLIN Install PC-CILLIN 2005 Anti-virus program

1. Click PC-CILLIN when MAGIC INSTALL MENU appears
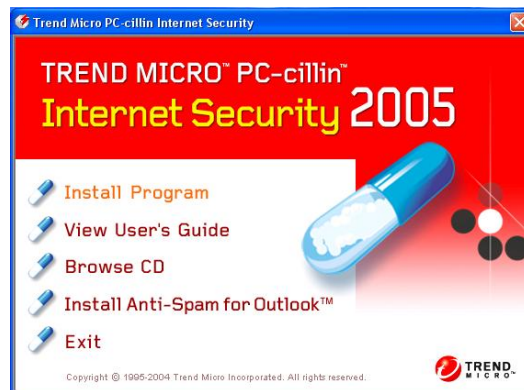
2. Please select "Install program" when the "Trend Micro internet security" installshield wizard windows appears
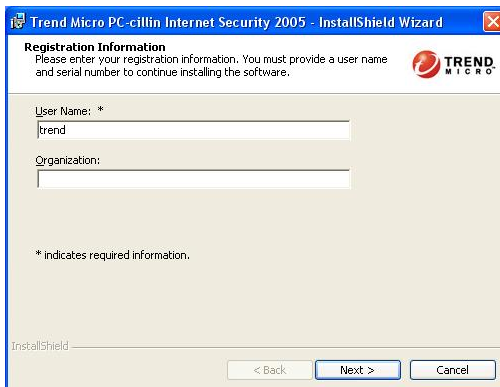
3. Click NEXT and Enter your Customer Information, Click NEXT or choose Change to change the path for the file to be stored
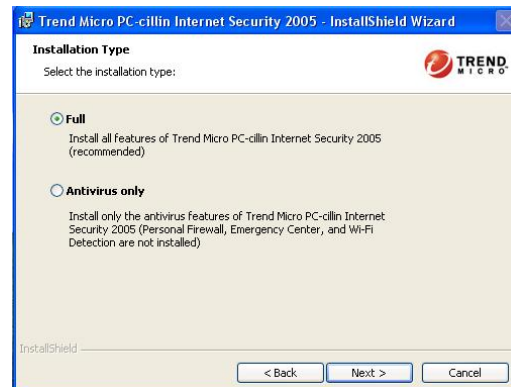
4. Please select install "FULL" function or install "Antivirus software" only


5. We suggest to use "Recommend configuration".
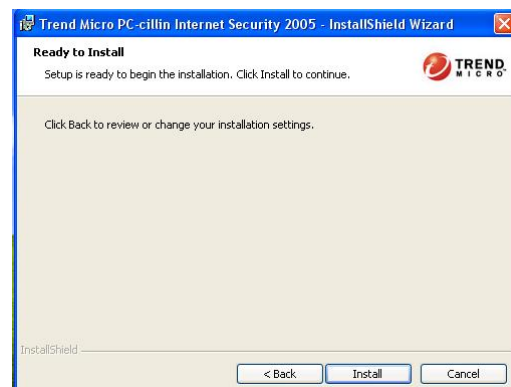
Click Install to install PCCILLIN 2005 internet security software , then select to restart your computer

Note : Please install ACROBAT READER for reading PC-CILLIN 2005 User Manual which locates at the path "X:\acrobat\adberdr6_enu_full.exe".

4-6 PC-HEALTH Install Myguard Hardware monitor Utility
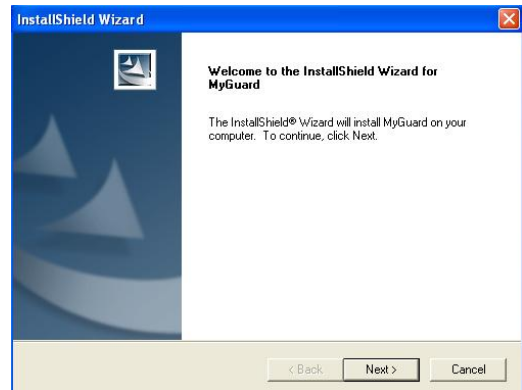
1. Click PC-HEALTH when MAGIC INSTALL MENU appears

2. Click Next when Install shield wizard Window appears, Choose destination location and click Next, when the start copy file windows appear, click next
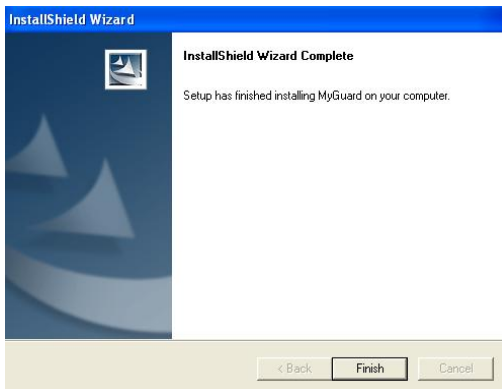
3. Select Finish after setup complete

4. Execute MY GUARD utility, On-time Monitoring your system health

NOTE:
MAGIC INSTALL will auto detect file path X:\NFORCE4\MYGUARD\SETUP.EXE

4-7 HOW TO UPDATE BIOS

Before updating the BIOS, users have to "Disable" the "Flash Part Write Protect" selection in "Miscellaneous Control" of BIOS SETUP. Otherwise the system the will not allow you to upgrade BIOS by Award Flash Utility.

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 754GT8 motherboard series from the web site to your boot disc.

STEP 4. Insert your boot disc into A:,
start the computer, type "Awdflash A:\754GTxxx.BIN /SN/PY/CC/R"
754GT xxx.BIN is the file name of latest BIOS it can be 754GT803.BIN or 754GT8 02.BIN
SN   means   don't save existing BIOS data
PY   means   renew existing BIOS data
CC   means   clear existing CMOS data
R   means   restart computer

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

4-8   Nforce4 Platform RAID Function Installation

Step 1.

Please get into the location: BIOS setup \ Integrated Peripherals \ Onchip IDE function \ RAID Configuration to enable the RAID function and choose the RAID hard drive channel.

```
              Phoenix – AwardBIOS CMOS Setup Utility
                          RAID Configuration
┌──────────────────────────────────────────────────────────────────────┐
│  RAID Enable                   Enabled     │                          │
│  IDE Primary Master    RAID    Disabled    │        Item Help         │
│  IDE Primary Slave     RAID    Disabled    │                          │
│  IDE Secondary Master RAID     Disabled    │                          │
│  IDE Secondary Slave  RAID     Disabled    │     Menu Level >>        │
│  SATA Channel 1        RAID    Enabled     │                          │
│  SATA Channel 2        RAID    Enabled     │                          │
│  SATA Channel 3        RAID    Enabled     │                          │
│  SATA Channel 4        RAID    Enabled     │                          │
│                                            │                          │
│                                            │                          │
│                                            │                          │
├──────────────────────────────────────────────────────────────────────┤
│   ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
│       F5:Previous Values   F6:Optimized Defaults    F7:Standard Defaults │
└──────────────────────────────────────────────────────────────────────┘
```

Step 2.

After the System boot up in the second page , you can find the NVIDIA RAID IDE ROM BIOS windows appear. It will ask you to "Press F10 to enter RAID setup utility …" ?

Please press "F10" key to RAID utility now , then you can select the RAID functions on your own with the optional RAID functions as below,

1. Mirroring 2. Striping 3. Striping Mirroring 4. Spanning
2.

<div align="center">Array 1 : NVIDIA MIRROR 74.50G</div>
<div align="center">- Array Detail -</div>

```
     RAID Mode : Mirroring
      Striping Width : 1              Striping Block: 64K

     Adapt   Channel   M/S      Index   Disk Model Name              Capacity
     ─────   ───────   ───      ─────   ───────────────              ────────
      1        0         Master   0      WDC    WD800JB-75JMA0     75.50GB
      1        0         Master   0      WDC    WD800JB-75JMA0     75.50GB




                   [R]  Rebuild   [D]  Delete   [C]  Clear Disk   [ENTER]   Return
```

Step 3.

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 \Nforce4\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
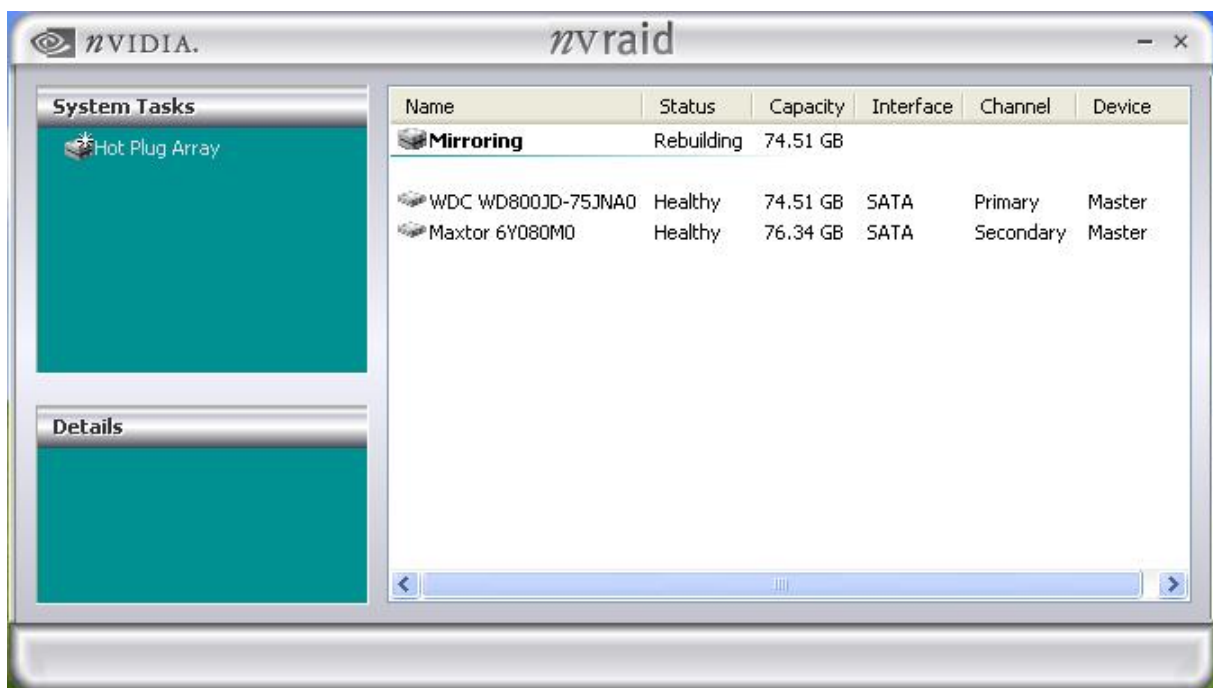
4-9 Pro Magic Plus Function Introduction

What's Pro Magic Plus?

Tired with reinstall OS each time when it doesn't work? Does your computer often crash down or unable to work after installed new software? Have you had great loses and troubles because of computer problems? Still using time-consuming backup software that occupies lots of HD space?

Pro Magic Plus- an instant system recovery software tailored to solve these problems for you. It combines various application tools (e.g. anti-virus, backup software, uninstall software, multi-boot software) to satisfy your needs of all sorts of system protections.

What functions does Pro Magic Plus have?

1. **Instant System Restoration** – Regardless of mis-operation or system crash, install Pro Magic Plus beforehand would allow you to instantly restore your system back by simply reboot your computer.

2. **Easy-to-use** – Auto installation from CD ROM; Supports Mouse

3. **System Uninstall** – Pro Magic provides a protection mode, which allows user to freely test any software. If user does not want to keep the software, just reboot the computer to restore back to the previous state, and Pro Magic will remove it completely from you computer.

4. **Password Security** – Pro Magic provides double password protection, including user password for entering each OS and manager password for managing 'Pro Magic', which can effectively prevent others from using your computer without permission or data from being stolen. (disable item for OEM version)

5. **Complete Protection** – Pro Magic not only protects the system disk, but also can protect your data disk, and does not require to reboot when backup or restore data disk.

6. **Multipoint Save/Restore** – You can backup your system whenever you need and restore them back to anytime you wish, 1 hour, 1 day or 1 month ago. Restore points are unlimited. (disable item for OEM version)

7. **Data Disk Protection** – Pro Magic Plus now comes with data disk protection, provides complete protection for your computer! (disable item for OEM version)

8. **You can choose to change the default path of 'My Document', 'My Favorite' and 'Outlook Express'**, so that when you are restoring the system, data in these folders will not be restored as well. (This is optional, you can leave it as it is).
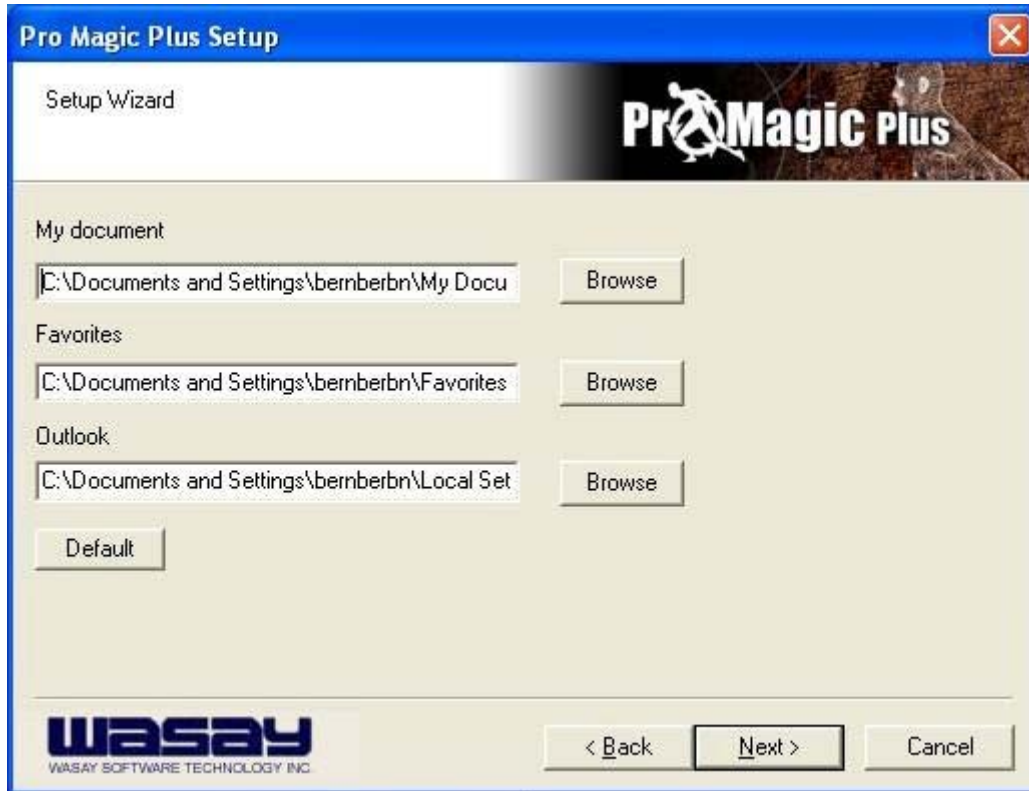
graph 4

☞**NOTE:** Functions of each version will differ from each other, and will be based on the function descriptions of each version.

System Requirements
◇ First OS must be Windows 98 SE/ME/2000/XP
◇ Support Only Windows OS (No Linux)
◇ Windows server OS and Windows NT not supported
◇ Minimum of Intel 486 or above, 16MB of memory or above
◇ Minimum of 500MB free/usable space or above
◇ Support for SCSI & SATA Hard disk

Pro Magic Plus only supports SCSI hard disk with Windows 2000 or OS above

Notice Before Installation
1. Before install Pro Magic Plus, turn off all anti-virus software. (Include BIOS anti-virus function)

2. Pro Magic Plus does not support multiple PRI partitions. If you have multiple PRI partitions, please repartition your HD before installation.

3. If your HDD is not fully partitioned (with un-partitioned/unused space at end of HDD), please repartition the HDD before install Pro Magic Plus.