K8T8AS/K8T8A

USER'S MANUAL

M/B For Socket 754 AMD Athlon64 Processor

TABLE OF CONTENT

USER'S NOTICE

Manual Revision Information

Reversion	Revision History	Date
1.0	First Edition	November 2004

Item Checklist

- ☑ K8T8AS/K8T8A motherboard
- ☑ Cable for IDE/Floppy
- ☑ CD for motherboard utilities
- ☐ Cable for USB Port 3/4 (Option)
- ☑ Cable for Serial ATA IDE Port
- ☑ K8T8AS/K8T8A 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-A processors by AMD. In addition, this collection is not intended to be a comprehensive listing of all heatsinks that support Socket-754 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 K8T8AS/K8T8A Motherboard

1-1 Feature of motherboard

The K8T8AS/K8T8A motherboard is design for use 64bit AMD Athlon64 (K8) Processor in 754 Pin HyperTrnsport Processor with the VIA K8T800 Chipset delivers a high performance and professional desktop platform solution. Which utilize the Socket 754 design and the memory size expandable to 2.0GB.

These motherboards use the newest VIA K8T800 Chipset, supports 800MHz System Bus in data transfer rate. These motherboards provided 133MHz/166MHz/200MHz Memory clock frequency, support DDR266/DDR333/DDR400 DDR Module. The motherboard embedded VIA VT8237 V-Link LPC South Bridge offer ULTRA **ATA 133** and **Serial ATA RAID 0, 1** functions to provide speedier HDD throughout that boosts overall system performance.

The K8T8AS used the RealTek RT8100C LAN controller chip supports 10/100Mbps data transfer rate full duplex, half duplex operation.

These motherboards also has an integrated 6-channel AC'97 CODEC on board which is fully compatible with Sound Blaster Pro® that gives you the best sound quality and compatibility.

For those wanting even greater graphic performance. K8T8AS/K8T8A provided an AGP slot supports AGP 8X/4X capability and Fast write Transaction.

With USB control as well as capability of expanding to 8x USB2.0 function ports delivering 480Mb/s bandwidth and rich connectivity, these motherboards meet future USB demand also has built-in hardware monitor function to monitor and protect your computer.

A useful software tool "Magic BIOS" examines the BIOS version automatically with the correct version available on the web, links the site for users to download the latest version of BIOS and updates the BIOS. Use "Magic BIOS", users can download and update BIOS automatically and completed under the OS easily.

These motherboards provide high performance & meets future specification demand. It is really wise choice for your computer.

1-2 Specification

Spec	Description
Design	* ATX form factor 4 layers PCB size: 30.4x19.0cm
Chipset	* VIA K8T800 North Bridge Chipset * VIA VT8237 South Bridge Chipset
CPU Socket 754	* Support 64bit AMD Athlon64 754-Pin package utilizes Flip-Chip Pin Grid Array package processor * Support CPU Frequency 800MHz * Support up to 3200+ ~ 3400+ processor * Reserves support for future AMD Athlon64 754-pin processors
Memory Socket	* 184-pin DDR Module socket x 2 * Support 2pcs DDR266/DDR33/DDR400 DDR Modules Expandable to 2.0GB
Expansion Slot	* AGP slot x1 support AGP 2.0 & AGP 3.0 for 4X/8X mode * 32-bit PCI slot x5
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; Two Serial ATA ports provide 150 MB/sec data transfer rate for two Serial ATA Devices and offer RAID 0, 1 functions
LAN (for K8T8AS)	* Integrated RealTek RT8100C PCI LAN chip * Support Fast Ethernet LAN function provide 10/100 Mb/s data transfer rate
Audio	* AC'97 Digital Audio controller integrated * 6-channel AC'97 Audio CODEC on board * Audio driver and utility included
BIOS	* Award 2MB Flash ROM
Multi I/O	* PS/2 keyboard and PS/2 mouse connectors * Floppy disk drive connector x1 * Parallel port x1 * Serial port x2 * USB2.0 port x 4 and headers x 4 (connecting cable option) * Audio connector (Line-in, Line-out, MIC)

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 ATHLON 64 3400+ Support
DRAM: TwinMOS Hynix HY5DU56822CT 512MB DDR400 X 2 (1Gbyte) Memory
VGA Card : ATI RADEON 9800 PRO 256M (1024X768X32BIT Color)
Hard Disk Driver: Seagate Barracude 7200.7 SATA150
BIOS: Award Optimal default
OS: Windows XP Professional (SERVICE PACK 2)

		200/200
3D Mark 2001SE		18335
3D Mark 2003		5508
3D Mark 2005		2515
AQUAMRK3		40759
PCMark2004		
System / CPU / Memory		4394 / 4118 / 3774
Graph / HDD		4185 / 4511
Content Creation Winstone 2004		32.4
Business Winstone 2004		25.3
Winbench 99 V2.0:		
Business/Hi-end Disk Winmark99		9400 / 21400
Business/Hi-end Graphic Winmark		1210 / 2020
SISMark 2004: SISMark Rating(Internet Content Creation / Office Productivity)		
SISMark 2004		177 (192 / 160)
3D Creation / 2D Creation		188 / 236
/ Web publication		159
Communication / Document Creation		139 / 189
/ Data Analysis		157
SISOFT Sandra 2004 : 1.CPU Arithmetic Benchmark 2.Memory bandwidth Benchmark 3.CPU Multi-Media Benchmark		
1.Dhrystone ALU	MIPS	9128
Whetstone FPU iSSE2	FLOPS	3470 / 4523
2.Int/Float Buffered iSSE2	MB/S	3025 / 3026
3.Integer/Floating-Point SSE2	IT/S	16408 / 21666
UT2003 Benchmark (flyby/botmatch)		269.68 / 95.36
Quake3 DEMO1 / DEMO2	FPS	322.6 / 319.7
Return to Castle Wolfenstein	FPS	172.6
Super Pi (1M)	Second	40s
CPUZ System / CPU Clock		200 / 2199.9

1-4 Layout Diagram & Jumper Setting

PS/2 Mouse

PS/2 Keyboard

PRINT

COM1　　COM2　　USB1　　USB

(for K8T8AS)
LAN

MIC

LINE-IN

LINE-OUT

PS2 KB/Mouse Port

PC99 Back Panel

CPU FAN
KBMS/USB Power On Jumper
(JP1)
USB Port

ATX 12V Power Connector

USB Port/ LAN Connector

Audio Connector

ITE IT8705 I/O chip

SFAN1

RealTek RTL8100C LAN Chip

LAN Function Jumper **(JP2)**

2MBit Flash ROM BIOS

6-CH AC'97 Audio Codec

PCI Slot

Front Panel Audio

CD Audio In

USB Power On Jumper **(JP3)**

USB Port
(USB2, USB3)

DDR Socket X2

CPU Socket

ATX Power Connector

ATA 133 IDE Connector
(IDE1, IDE2)

VIA K8T800 Chipset

AGP Slot

Serial-ATA Connector
(SATA1, 2)

VIA VT8237 Chip

Clear CMOS **(JBAT)**

SFAN2

Front Panel Connector

Speaker/Power LED Connector

Floppy Connector

4

Jumpers

Jumper	Name	Description	Page
JBAT	CMOS RAM Clear	3-pin Block	P.6
JP1	Keyboard/USB Power On Enabled/Disabled	3-pin Block	P.7
JP2	On board LAN Enabled/Disabled	3-pin Block	P.7
JP3	USB Power On Enabled/Disabled	3-pin Block	P.7

Connectors

Connector	Name	Description	Page
ATXPWR	ATX Power Connector	20-pin Block	P.12
ATX12V	ATX 12V Power Connector	4-pin Block	P.12
PS2KBMS	PS/2 Mouse & PS/2 Keyboard Connector	6-pin Female	P.12
USB/USB1	USB Port Connector	4-pin Connector	P.12
LAN (for K8T8AS)	**LAN Port Connector**	**RJ-45 Connector**	**P.13**
PARALLEL	Parallel Port Connector	25-pin Female	P.13
CN1	Audio Connector	3 phone jack Connector	P.13
COM1/COM2	Serial Port COM1/COM2 Connector	9-pin Connector	P.13
FDD	Floppy Driver Connector	34-pin Block	P.13
IDE1/IDE2	Primary/Secondary IDE Connector	40-pin Block	P.13
SATA1/SATA2	Serial ATA IDE Connector	7-pin Connector	P.14

Headers

Header	Name	Description	Page
AUDIO	SPEAKER, MIC header	9-pin Block	P.15
USB2, USB3	USB Port Headers	9-pin Block	P.15
SPEAK	PC Speaker connector	4-pin Block	P.15
PWR LED	Power LED	3-pin Block	P.15
JW_FP (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.16
SFAN1, SFAN2 CPUFAN	FAN Headers	3-pin Block	P.16
CDIN	CD Audio-In Headers	4-pin Block	P.17

Expansion Sockets

Socket/Slot	Name	Description	Page
ZIF Socket 754	CPU Socket	754-pin mPGAB Athlon64 CPU Socket	P.8
DIMM1, DIMM2	DDR Module Socket	184-pin DDR Module Socket	P.9
PCI1~ PCI5	PCI Slot	32-bit PCI Local Bus Expansion slots	P.10
AGP	AGP 4X/8X Mode Slot	AGP Expansion Slot	P.11

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

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

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

CMOS RAM Clear Setting
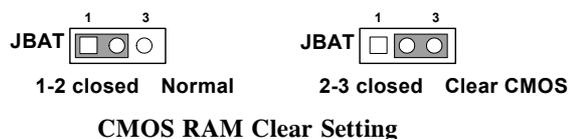
(2) On Board LAN function Enabled/Disabled: JP2

JP2   1-2 closed   On Board LAN Enabled
(Default)

JP2   2-3 closed   On Board LAN Disabled

On Board LAN Setting
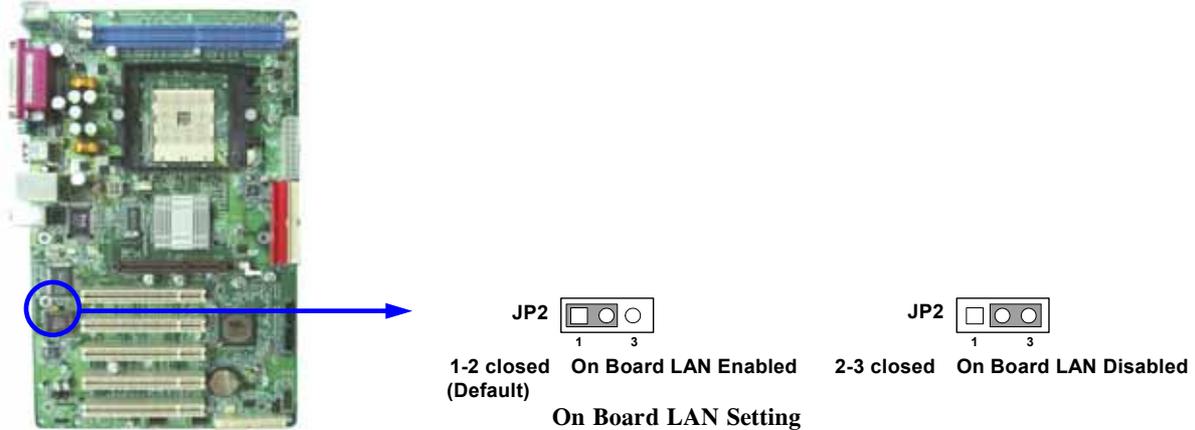
(3) Keyboard/USB Power On function Enabled/Disabled: JP1, JP3

JP1   1-2 closed   KB/USB Power ON Disable
(Default)

JP1   2-3 closed   KB/USB Power ON Enabled

Keyboard/USB Power On Setting

JP3   1-2 closed   USB Power On Disable
(Default)

JP3   2-3 closed   USB Power On Enabled

USB2/USB3 Power On Setting
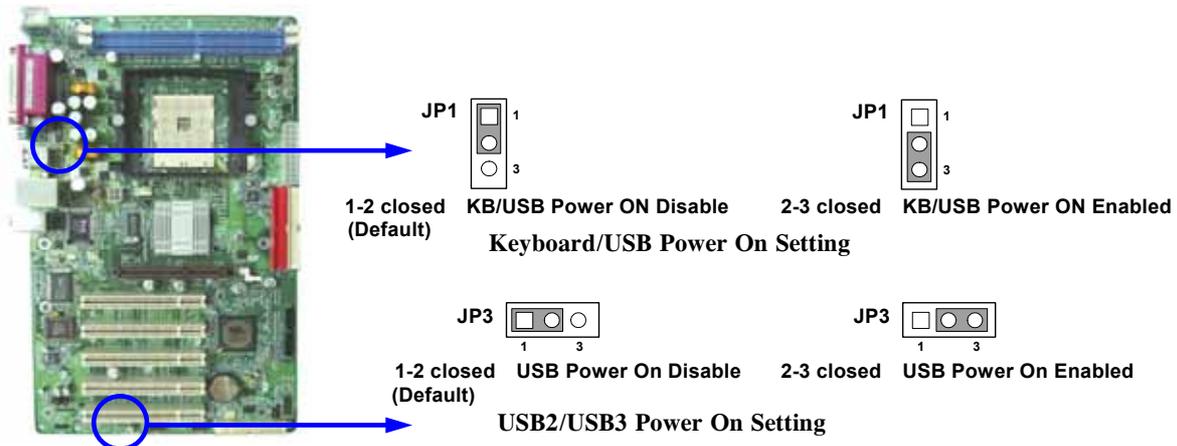
2-3 Install CPU
2-3-1 Glossary

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

AGP - **A**ccelerated **G**raphics **P**ort - a high speed 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.

ISA - **I**ndustry **S**tandard **A**rchitecture - a relatively low speed interface primarily used for sound cards and modems; runs at approx. 8MHz.

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.

Colden Arrow

Socket 754

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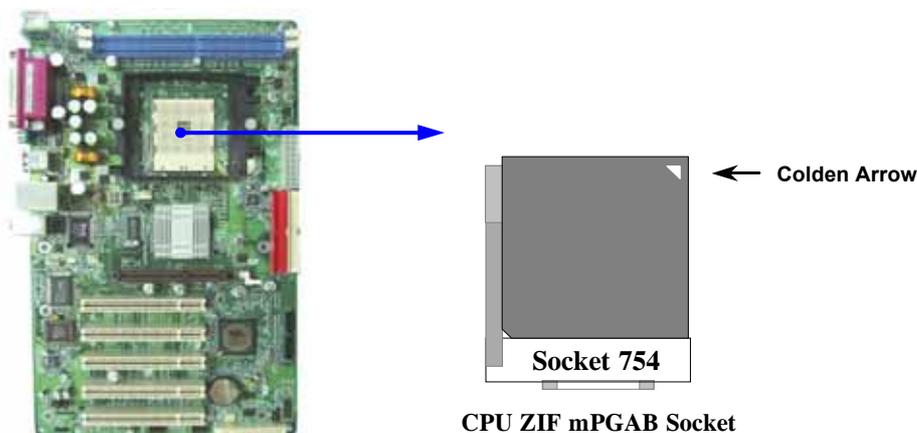
When you put the CPU into the ZIF socket. No force require to insert of the CPU, then press the level to Locate position slightly without any extra force.

2-4 Install Memory

This motherboard provides two 184-pin DDR DUAL INLINE MEMORY MODULES (DIMM) sites for DDR memory expansion available from minimum memory size of 64MB to maximum memory size of 2.0GB DDR SDRAM.

Valid Memory Configurations

Bank	184-pin DDR DIMM	PCS	Total Memory
Bank 0, 1 (DIMM1)	DDR266/DDR333/DDR400 DDR DRAM Module	X1	64MB~1.0GB
Bank 2, 3 (DIMM)	DDR266/DDR333/DDR400 DDR DRAM Module	X1	64MB~1.0GB
Total	System Memory (Max. 2.0GB)	X2	64MB~2.0GB

Generally, installing DDR SDRAM modules to your motherboard is very easy, you can refer to figure 2-4 to see what a 184-pin DDR SDRAM module looks like.

DIMM2 (BANK2+BANK3)
DIMM1 (BANK0+BANK1)
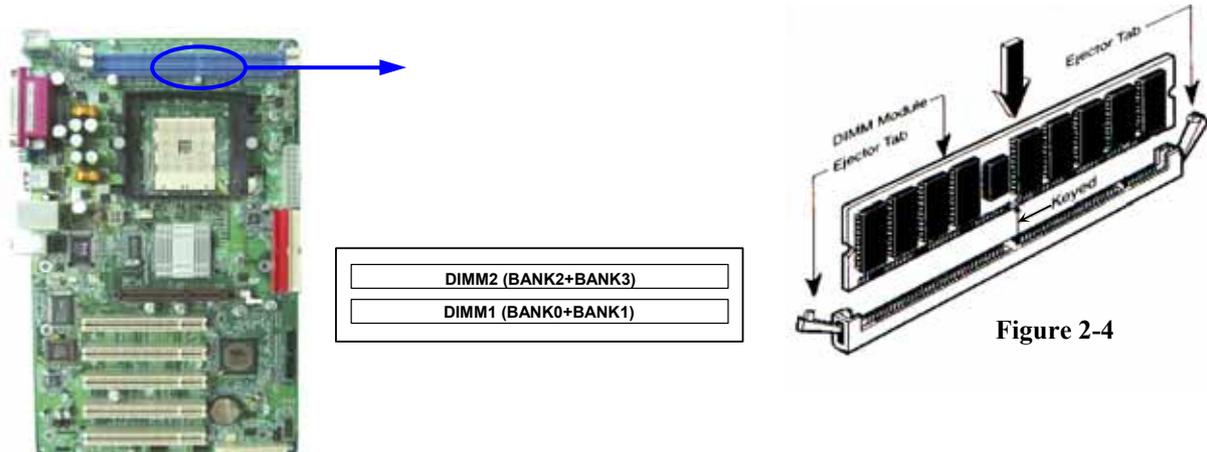
Figure 2-4

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			√					
Slot 4				√				
Slot 5					√			
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 AGP Slot

This motherboard provides an AGP Slot, support the 8X/4X AGP VGA card.

2x notch   4x notch

AGP SLOT
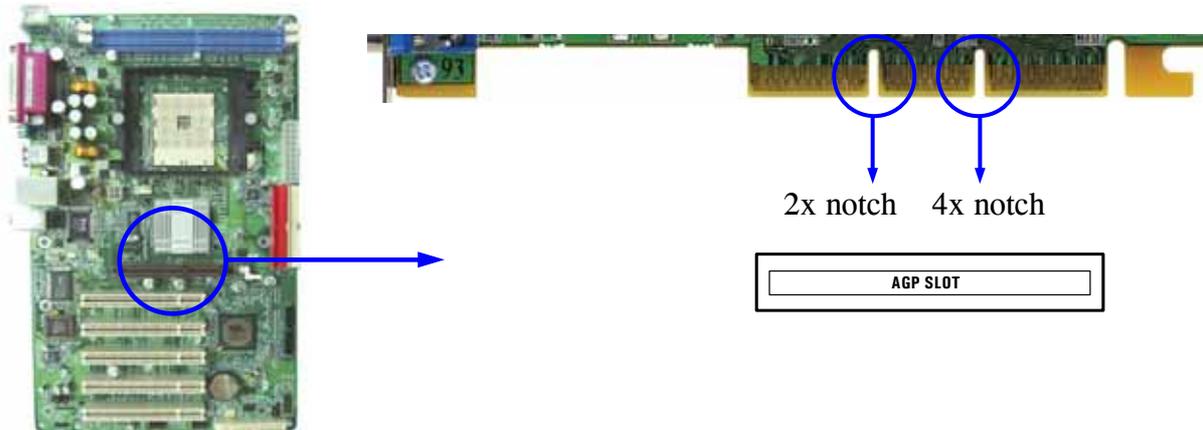
2-6 Connectors, Headers

2-6-1 Connectors

(1) Power Connector (20-pin block) : ATXPWR

ATX Power Supply connector. This is a new defined 20-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.

Pin 1

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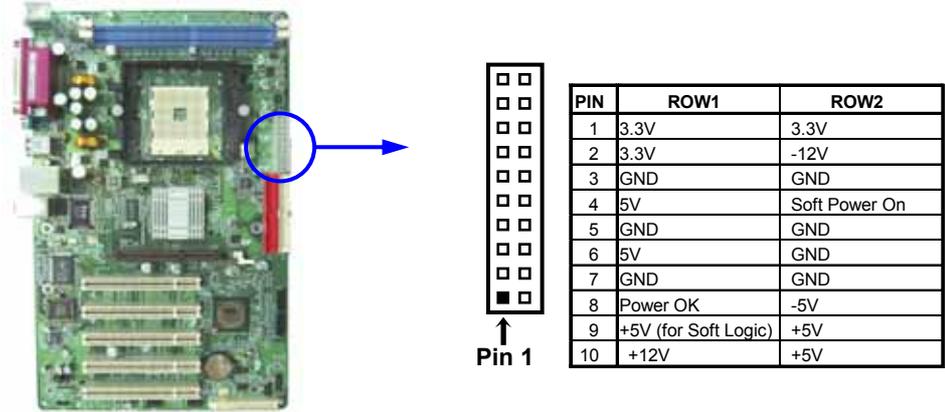
(2) ATX 12V Power Connector (4-pin block) : ATX12V

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.

Pin 1
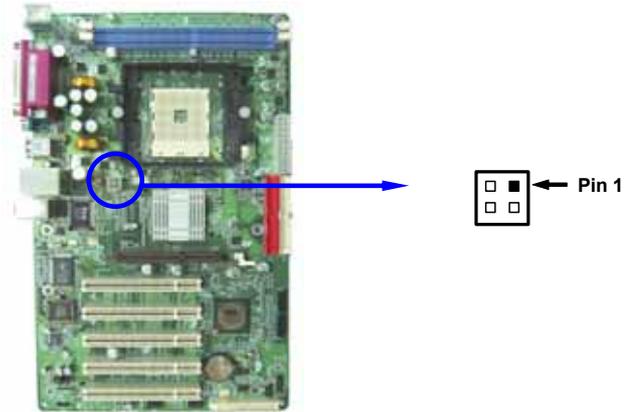
(3) PS/2 Mouse & PS/2 Keyboard Connector: PS2KBMS

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

(4) USB Port connector: USB

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

(5) LAN Port connector: LAN (for K8T8AS only)
This connector is standard RJ45 connector for Network

(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 and Game Connector : AUDIO (LINE-OUT/ LINE_IN/MIC)
This Connector are 3 phone Jack for LINE-OUT, LINE-IN, MIC.
Line-out :   Audio output to speaker
Line-in :   Audio input to sound chip
MIC :   Microphone Connector

(8) Serial Port COM1/COM2 : COM1/COM2
COM1 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.
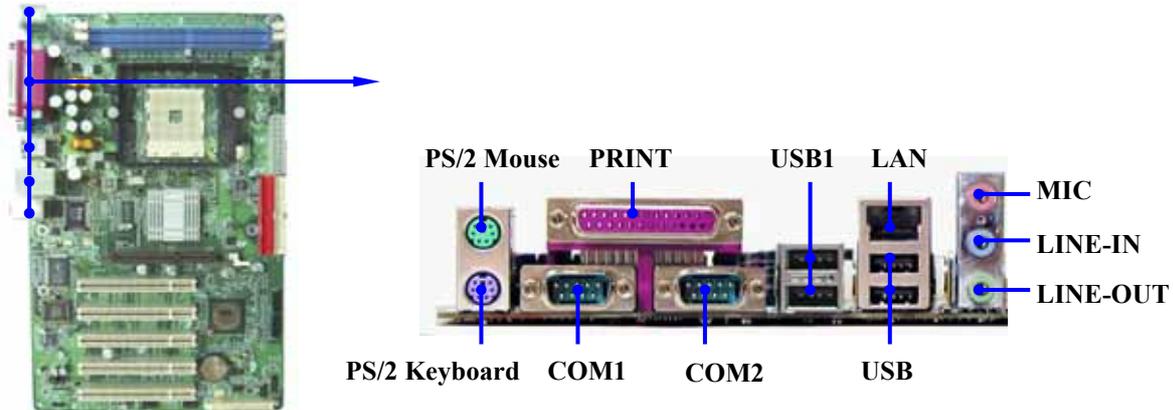
(9) Floppy drive Connector (34-pin block): FDD
This connector supports the provided floppy drive ribbon cable. After connecting the single plug end to motherboard, connect the two plugs at other end to the floppy drives.

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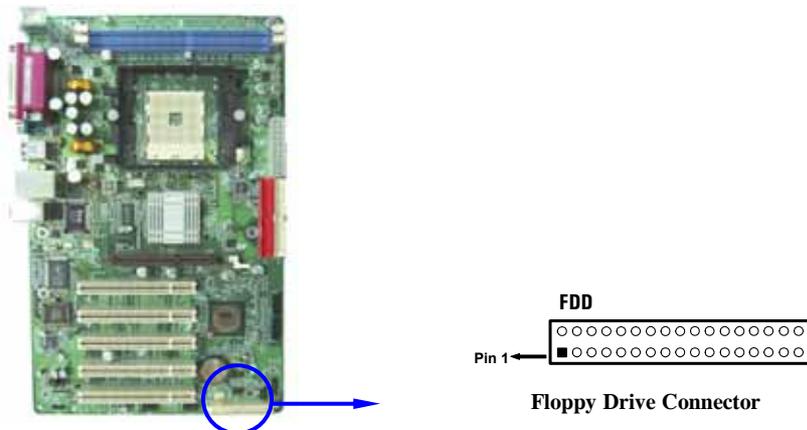
(10) Primary IDE Connector (40-pin block): IDE1

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.

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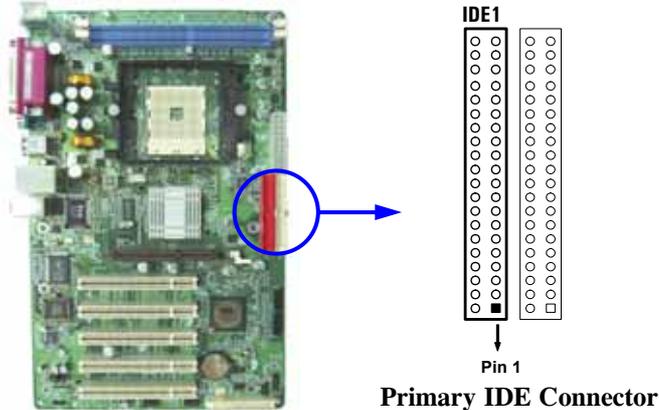
(11) Secondary IDE Connector (40-pin block): IDE2

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.

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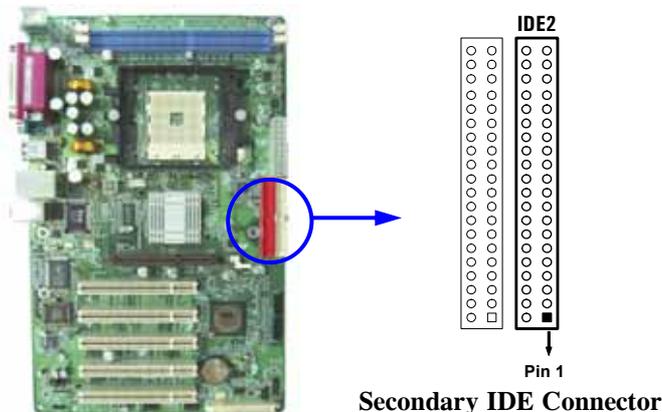
- Two hard disks can be connected to each connector. The first HDD is referred to as the "Master" and the second HDD is referred to as the "Slave".
- For performance issues, we strongly suggest you don't install a CD-ROM or DVD-ROM drive on the same IDE channel as a hard disk. Otherwise, the system performance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

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

This connector support the provided Serial ATA IDE hard disk cable to connecting the motherboard and serial ATA hard disk.

SATA2 → Pin 1

SATA1 → Pin 1

Serial-ATA Port Connector
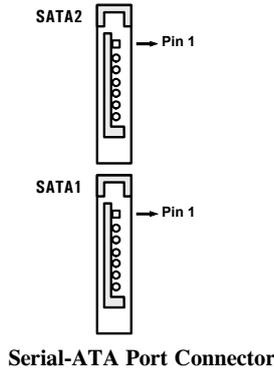
2-6-2 Headers

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

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.

AUD_GND
AUD_VCC
AUD_RET_R
AUD_RET_L

AUDIO   2 ☐ 10
Pin 1 → ■ 9

AUD_MIC
AUD_MIC_BIAS
AUD_FPOUT_R
HP_ON
AUD_FPOUT_L
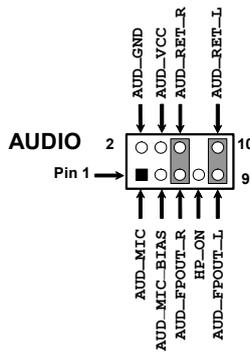
Line-Out, MIC Headers

(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   VCC −DATA +DATA GND OC

Pin 1 → ■

VCC −DATA +DATA GND

USB3   VCC −DATA +DATA GND OC

Pin 1 → ■

VCC −DATA +DATA GND
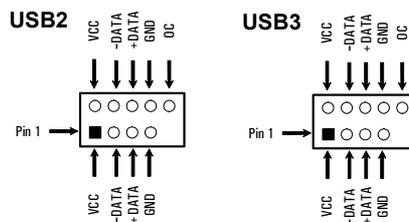
USB Port Headers

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

(4)   Power LED: PWR LED
The Power LED is light on while the system power is on. Connect the Power LED from the system case to this pin.

(5)   IDE Activity LED: HD LED
This connector connects to the hard disk activity indicator light on the case.

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

(7)   Power switch: PWR BTN
This 2-pin connector connects to the case-mounted power switch to power ON/OFF the system.

System Case Connections
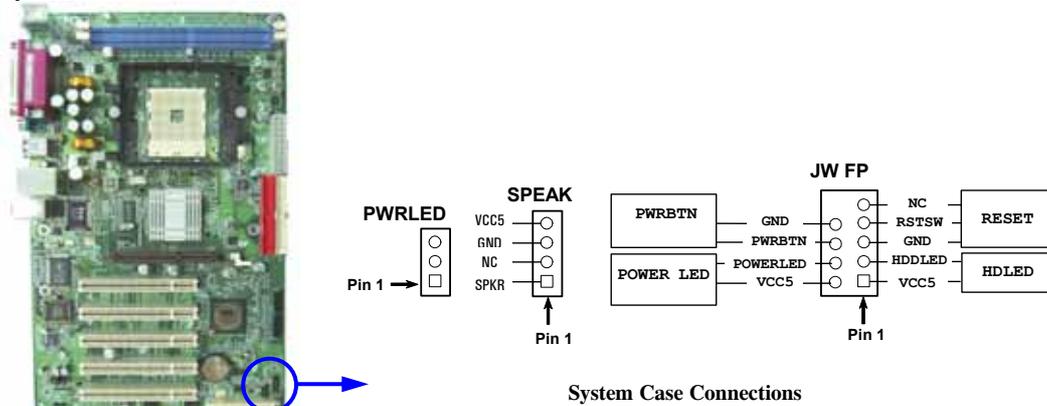
(8)   FAN Headers (3-pin) : SFAN1, SFAN2, CPUFAN
These connectors support cooling fans of 350mA (4.2 Watts) or less, depending on the fan manufacturer, the wire and plug may be different. The red wire should be positive, while the black should be ground. Connect the fan's plug to the board taking into consideration the polarity of connector.
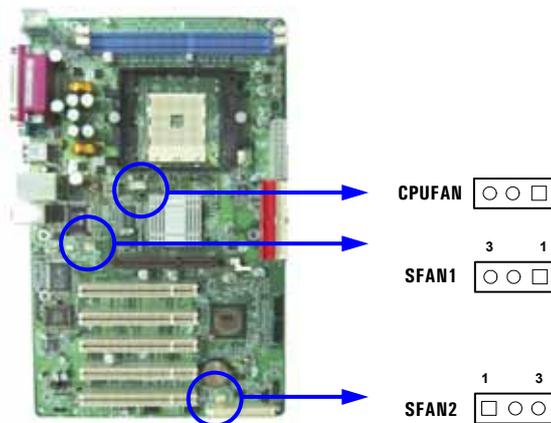
(9)   CD Audio-In Headers (4-pin) : CDIN

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

CDIN □ ○ ○ ○
      1   4
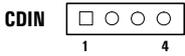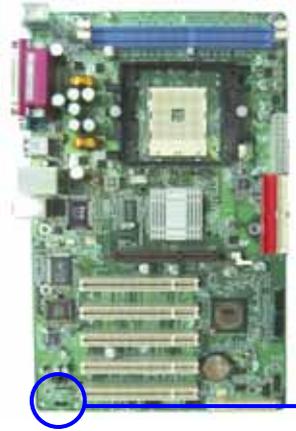
CD Audio-In Headers

2-7 Starting Up Your Computer

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

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

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

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

5. The power LED on the front panel of the system case will light. The LED on the monitor may light up or switch between orange and green after the system is on. If it complies with green standards or if it is has a power standby feature. The system will then run power-on test. While the test 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             │ Miscellaneous Control              │
 │ Advanced BIOS Features             │ Load Optimized Defaults            │
 │ Advanced Chipset Features          │ Load Standard Defaults             │
 │ Integrated Peripherals             │ Set Supervisor Password            │
 │ Power Management Setup             │ Set User Password                  │
 │ PnP/PCI Configurations             │ Save & Exit Setup                  │
 │ PC Health Status                   │ Exit Without Saving                │
 ├────────────────────────────────────┴────────────────────────────────────┤
 │ Esc : Quit                              ↑↓→← : Select Item               │
 │ F10 : Save & Exit Setup                                                  │
 ├──────────────────────────────────────────────────────────────────────────┤
 │                  Time, Date, Hard Disk Type...                           │
 └──────────────────────────────────────────────────────────────────────────┘
```

                              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.

PnP/PCI configurations
This entry appears if your system supports PnP/PCI.

PC Health Status
This entry shows your PC health status.

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

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.

Set Supervisor/User Password

Use this menu to set User and Supervisor Passwords.

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)          Mon, Nov, 29 2004   │       Item Help        │
│   Time (hh:mm:ss)          16 : 48 : 35        │                        │
│ > IDE Primary Master       None                ├────────────────────────┤
│ > IDE Primary Slave        None                │  Menu Level >          │
│ > IDE Secondary Master     None                │                        │
│ > IDE Secondary Slave      None                │  Change the day, month,│
│                                                │  year and century      │
│   Drive A                  1.44M, 3.5 in.      │                        │
│   Drive B                  None                │                        │
│                                                │                        │
│   Video                    EGA/VGA             │                        │
│   Halt On                  All Errors          │                        │
│                                                │                        │
│   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>.

Primary Master/Primary Slave

Secondary Master/Secondary Slave

Press PgUp/<+> or PgDn/<–> to select Manual, None, Auto type. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information for this category. If your hard disk drive type 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
 ┌──────────────────────────────────────────┬─────────────────────────┐
 │  Anti-Virus Protection      Disabled      │                         │
 │  L1 Cache                   Enabled       │      Item Help          │
 │  L2 Cache                   Enabled       │                         │
 │  Quick Power On Self Test   Enabled       ├─────────────────────────┤
 │  SATA &SCSI Boot Order      SATA, SCSI    │   Menu Level >          │
 │  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            │                         │
 │  Gate A20 Option            Fast          │                         │
 │  Typematic Rate Setting     Disabled      │                         │
 │  Typematic Rate (Chars/Sec) 6             │                         │
 │  Typematic Delay (Msec)     250           │                         │
 │  Security Option            Setup         │                         │
 │  APIC Mode                  Enabled       │                         │
 │  MPS Version Control For OS  1.4          │                         │
 │  OS Select For DRAM > 64MB  Non-OS2       │                         │
 │  HDD S.M.A.R.T. Capability  Disabled      │                         │
 │  Report No FDD For Windows  Yes           │                         │
 │  Video BIOS Shadow          Enabled       │                         │
 │  Small Logo<EPA> Show       Enabled       │                         │
 ├──────────────────────────────────────────┴─────────────────────────┤
 │   ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
 │       F5:Previous Values   F6:Optimized Defaults    F7:Standard Defaults │
 └─────────────────────────────────────────────────────────────────────┘
```

Anti-Virus Protection

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
 ┌───────────────────────────────────────────────────────────────────────┐
 │  > DRAM Timing Settings        Press Enter  │                          │
 │  > AGP Timing Settings         Press Enter  │       Item Help          │
 │  > PCI Timing Settings         Press Enter  │                          │
 │    System BIOS Cacheable       Enabled      │──────────────────────────│
 │    Memory Hole                 Disabled     │   Menu Level >           │
 │                                             │                          │
 │                                             │                          │
 │                                             │                          │
 │                                             │                          │
 │                                             │                          │
 │                                             │                          │
 │───────────────────────────────────────────────────────────────────────│
 │  ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
 │      F5:Previous Values   F6:Optimized Defaults   F7:Standard Defaults  │
 └───────────────────────────────────────────────────────────────────────┘
```

DRAM Timing Settings
Please refer to section 3-6-1

AGP Timing Settings
Please refer to section 3-6-2

PCI Timing Settings
Please refer to section 3-6-3

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.

Video RAM Cacheable

Select Enabled allows caching of the video BIOS, 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.

Memory Hole

You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it cannot be cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements. The settings are: Enabled and Disabled.

3-6-1   DRAM Timing Settings

```
                   Phoenix – AwardBIOS CMOS Setup Utility

                            DRAM Timing Settings

┌──────────────────────────────────────────────┬───────────────────────────┐
│    Hypertransport Link Frequency   800 MHz    │         Item Help         │
│    HYpertransport Link Width in    16 bit     │                           │
│    Hypertransport Link Width Out   16 bit     ├───────────────────────────┤
│    Auto Configuration              Auto       │    Menu Level >>          │
│  x DRAM CAS Latency                CL=2.5     │                           │
│  x RAS Active Time                 8 Bus Clocks│                          │
│  x RAS Precharge Time              3 Bus Clocks│                          │
│  x RAS to CAS Delay                3 Bus Clocks│                          │
│  x Bank Interleave                 Enabled    │                           │
│    DRAM Command Rate               1T(By CPU)  │                          │
│                                                │                          │
│                                                │                          │
│                                                │                          │
│                                                │                          │
│                                                │                          │
├────────────────────────────────────────────────────────────────────────┤
│  ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help│
│      F5:Previous Values    F6:Optimized Defaults   F7:Standard Defaults   │
└──────────────────────────────────────────────────────────────────────────┘
```

RAS Active Time

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: 2T 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.

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.

3-6-2 AGP Timing Settings

```
                    Phoenix – AwardBIOS CMOS Setup Utility
                             AGP Timing Settings
 ┌──────────────────────────────────────────────┬─────────────────────────┐
 │   AGP Aperture Size          128M             │       Item Help         │
 │   AGP Transfer Mode          8X               │                         │
 │   AGP Driving Control        Auto             ├─────────────────────────┤
 │ X AGP Driving Value          9A               │   Menu Level >>         │
 │   AGP Fast Write             Disabled         │                         │
 │   AGP Master 1 WS Write      Disabled         │                         │
 │   AGP Master 1 WS Read       Disabled         │                         │
 │   CPU to AGP Post Write      Enabled          │                         │
 │   AGP Delay Transaction      Disabled         │                         │
 │   AGP 3.0 Calibration Cycle  Enabled          │                         │
 │                                               │                         │
 │                                               │                         │
 │                                               │                         │
 │                                               │                         │
 │                                               │                         │
 │                                               │                         │
 ├──────────────────────────────────────────────┴─────────────────────────┤
 │ ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help│
 │      F5:Previous Values   F6:Optimized Defaults    F7:Standard Defaults  │
 └─────────────────────────────────────────────────────────────────────────┘
```

Note: Change these settings only if you are familiar with the chipset.

3-6-3 PCI Timing Settings

```
                    Phoenix – AwardBIOS CMOS Setup Utility
                             PCI Timing Settings
 ┌──────────────────────────────────────────────┬─────────────────────────┐
 │   PCI Master 1 WS Write      Disabled         │       Item Help         │
 │   PCI Master 1 WS Read       Disabled         │                         │
 │   CPU to PCI Post Write      Enabled          ├─────────────────────────┤
 │   PCI Delay Transaction      Disabled         │   Menu Level >>         │
 │   VLink Data Rate            8X               │                         │
 │                                               │                         │
 │                                               │                         │
 │                                               │                         │
 │                                               │                         │
 │                                               │                         │
 │                                               │                         │
 │                                               │                         │
 │                                               │                         │
 │                                               │                         │
 │                                               │                         │
 │                                               │                         │
 ├──────────────────────────────────────────────┴─────────────────────────┤
 │ ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help│
 │      F5:Previous Values   F6:Optimized Defaults    F7:Standard Defaults  │
 └─────────────────────────────────────────────────────────────────────────┘
```

PCI Delay Transaction
The chipset has an embedded 32-bit posted write buffer to support delay transactions cycles.
Select Enabled to support compliance with PCI specification version 2.1. The settings are:
Enabled and Disabled.

3-7 Integrated Peripherals

```
                      Phoenix – AwardBIOS CMOS Setup Utility
                             Integrated Peripherals
┌─────────────────────────────────────────────────┬───────────────────────┐
│  > OnChip IDE Function          Press Enter       │                       │
│  > OnChip Device Function       Press Enter       │      Item Help        │
│  > Onboard 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

Onboard 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
┌─────────────────────────────────────────────────┬───────────────────────┐
│   SATA Function                 Enabled           │                       │
│   OnChip IDE Channel0           Enabled           │      Item Help        │
│   OnChip IDE Channel1           Enabled           │                       │
│   Primary Master   PIO          Auto              │   Menu Level >>       │
│   Primary Slave    PIO          Auto              │                       │
│   Secondary Master PIO          Auto              │                       │
│   Secondary Slave  PIO          Auto              │                       │
│   Primary Master   UDMA         Auto              │                       │
│   Primary Slave    UDMA         Auto              │                       │
│   Secondary Master UDMA         Auto              │                       │
│   Secondary Slave  UDMA         Auto              │                       │
│   IDE HDD Block Mode            Enabled           │                       │
│   IDE Prefetch Mode             Disabled          │                       │
│   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 four IDE PIO (Programmed Input/Output) fields let you set a PIO mode (0-4) for each of the four IDE devices that the onboard IDE interface supports. 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 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.

3-7-2 OnChip Device Function

```
                    Phoenix – AwardBIOS CMOS Setup Utility
                            OnChip Device Function

  Onboard LAN Device              Enabled  ⎫
  Onboard LAN Boot ROM            Disabled ⎬  Only for K8T8AS
                                           ⎭
  Onboard AC97 Audio Device       Auto
                                                  Menu Level >>
  ==== USB Controller System ====
  OnChip USB Controller           Enabled
  USB 2.0 Support                 Enabled
  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.

Game Port Address/Midi Port Address

This will determine which Address the Game Port/Midi Port will use.

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
                           OnChip Super IO Function

    Onboard FDC Controller        Enabled            Item Help
    Onboard Serial Port 1         3F8/IRQ4
    Onboard Serial Port 2         2F8/IRQ3
    UART Mode Select              Normal         Menu Level >>
  x UR2 Duplex Mode              Half
    Onboard Parallel Port         378/IRQ7
    Parallel Mode                 SPP
  x 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
┌─────────────────────────────────────────────────────────────────────┐
│   ACPI Function              Enabled                                  │
│   ACPI Suspend Type          S1(POS)              Item Help           │
│   Power Management Option     User Define                             │
│   HDD Power Down             Disabled      ┌─────────────────────────┐│
│   Suspend Mode               Disabled      │ Menu Level >            ││
│   Video Off Option           Suspend -> off                          │
│   Video off Method           V/H SYNC+Blank                          │
│   MODEM Use IRQ              3                                        │
│   Power Button Function      Instant-Off                             │
│   AC Loss Auto Restart       Always-Off                              │
│   AMD K8 Cool'n'Quiet Control Auto                                   │
│ > Wake Up Events             Press Enter                             │
│                                                                       │
│                                                                       │
├─────────────────────────────────────────────────────────────────────┤
│   ↑↓→← 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 → off, All Modes → 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 Events
Please refer to section 3-8-1

3-8-1 Wake up Events

```
                    Phoenix – AwardBIOS CMOS Setup Utility
                              Wake Up Events
┌────────────────────────────────────────────────────────────────────────┐
│                                                                          │
│    VGA                          OFF                                      │
│    LPT & COM                    LPT/COM           Item Help              │
│    HDD & FDD                    ON                                       │
│    PCI Master                   OFF          ┌───────────────────────┐   │
│    Wake-Up on Ring              Disabled      Menu Level >>            │
│    Wake-Up on PCI PME           Disabled                              │
│    PS2 KB Wake up Selection     Hot Key                               │
│    Wake-Up on Hot Key (PS2 KB)  Disabled                              │
│    Wake-Up on USB Device        Disabled                              │
│    Wake-Up on RTC Alarm         Disabled                              │
│  x Date of Month Alarm           0                                    │
│  x Time (hh:mm:ss) Alarm          0 : 0 : 0                           │
│  > IRQs Activities              Press Enter                           │
│                                              └───────────────────────┘   │
├──────────────────────────────────────────────────────────────────────────┤
│   ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help│
│       F5:Previous Values    F6:Optimized Defaults   F7:Standard Defaults   │
└──────────────────────────────────────────────────────────────────────────┘
```

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 on RTC 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.

IRQs Activities
Please refer to section 3-8-1.1

3-8-1.1 IRQs Activities

```
                    Phoenix – AwardBIOS CMOS Setup Utility
                               IRQs Activities
┌──────────────────────────────────────────────────┬───────────────────────────┐
│   Primary INTR              ON                     │                           │
│   IRQ3   (COM 2)            Disabled               │        Item Help          │
│   IRQ4   (COM 1)            Enabled                │                           │
│   IRQ5   (LPT 2)            Enabled                ├───────────────────────────┤
│   IRQ6   (Floppy Disk)      Enabled                │   Menu Level >>>          │
│   IRQ7   (LPT 1)            Enabled                │                           │
│   IRQ8   (RTC Alarm)        Disabled               │                           │
│   IRQ9   (IRQ2 Redir)       Disabled               │                           │
│   IRQ10  (Reserved)         Disabled               │                           │
│   IRQ11  (Reserved)         Disabled               │                           │
│   IRQ12  (PS/2 Mouse)       Enabled                │                           │
│   IRQ13  (Coprocessor)      Enabled                │                           │
│   IRQ14  (Hard Disk)        Enabled                │                           │
│   IRQ15  (Reserved)         Disabled               │                           │
├──────────────────────────────────────────────────┴───────────────────────────┤
│  ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help     │
│       F5:Previous Values    F6:Optimized Defaults   F7:Standard Defaults       │
└───────────────────────────────────────────────────────────────────────────────┘
```

3-9 PnP/PCI Configuration Setup

This section describes configuring the PCI bus system. PCI, or **P**ersonal **C**omputer **I**nterconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.

```
                    Phoenix – AwardBIOS CMOS Setup Utility
                             PnP/PCI Configurations
┌──────────────────────────────────────────────────┬───────────────────────────┐
│   PnP OS Installed          No                     │                           │
│   Reset Configuration Data  Disabled               │        Item Help          │
│                                                    │                           │
│   Resources Controlled By   Manual                 │                           │
│ x IRQ Resources             Press Enter            │                           │
│   PCI/VGA Palette Snoop      Disabled              │                           │
│                                                    ├───────────────────────────┤
│                                                    │   Menu Level >            │
│                                                    │                           │
│                                                    │                           │
│                                                    │                           │
│                                                    │                           │
├──────────────────────────────────────────────────┴───────────────────────────┤
│  ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help     │
│       F5:Previous Values    F6:Optimized Defaults   F7:Standard Defaults       │
└───────────────────────────────────────────────────────────────────────────────┘
```

Reset Configuration Data

Normally, you leave this field Disabled. Select Enabled to reset Extended System Configuration Data (ESCD) when you exit Setup if you have installed a new add-on and the system reconfiguration has caused such a serious conflict that the operating system can not boot. The settings are: Enabled and Disabled.

Resource Controlled By

The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®95/98. If you set this field to "manual" choose specific resources by going into each of the sub menu that follows this field (a sub menu is preceded by a ">").

The settings are: Auto(ESCD), Manual.

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

PCI/VGA Palette Snoop
Leave this field at *Disabled*. The settings are Enabled, Disabled.

3-9-1 IRQ Resources

```
                    Phoenix – AwardBIOS CMOS Setup Utility
                                IRQ Resources

    IRQ5    assigned to            PCI Device          Item Help
    IRQ7    assigned to            PCI Device
    IRQ9    assigned to            PCI Device
    IRQ10   assigned to            PCI Device        Menu Level >>
    IRQ11   assigned to            PCI Device
    IRQ12   assigned to            PCI Device
    IRQ14   assigned to            PCI Device
    IRQ15   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
┌──────────────────────────────────────────┬──────────────────────┐
│  Shutdown Temperature        Disabled     │                      │
│  Show PC Health in Post      Enabled      │      Item Help       │
│  Vcore                       1.51V        ├──────────────────────┤
│  VDIMM                       2.51V        │                      │
│  +3.3     <V>                3.44V        │   Menu Level >       │
│  +5       <V>                5.22V        │                      │
│  +12      <V>                12.02V       │                      │
│  +3.3VUS <V>                 3.40V        │                      │
│  VBAT     <V>                3.29V        │                      │
│  +V5SUS  <V>                 5.17V        │                      │
│  CPUFAN Temperature          49°C/120°F   │                      │
│  SFAN1 Temperature           28°C/82°F    │                      │
│  CPUFAN Speed                3060 RPM     │                      │
│  SFAN1 Speed                 0 RPM        │                      │
│  SFAN2 Speed                 0 RPM        │                      │
│  ====== SmartGuardian Control System =====│                      │
│   CPUFAN Smart Mode          Disabled     │                      │
│ x CPUFAN Smart Control Temp    20°C       │                      │
├──────────────────────────────────────────┴──────────────────────┤
│   ↑↓→← Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit  F1:General Help │
│        F5:Previous Values    F6:Optimized Defaults   F7:Standard Defaults   │
└──────────────────────────────────────────────────────────────────┘
```

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

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

Current CPU Temperature/Current System Temp/Current FAN1, FAN2 Speed/Vcore/ Vdd/3.3V/+5V/+12V/-12V/VBAT(V)/5VSB(V)
This will show the CPU/FAN/System voltage chart and FAN Speed.

3-11 Miscellaneous Control

This section is for setting CPU Frequency/Voltage Control.

```
                  Phoenix – AwardBIOS CMOS Setup Utility
                           Miscellaneous Control
 ┌────────────────────────────────────────────────┬──────────────────────┐
 │  CPU Ratio                        Default       │                      │
 │  Auto Detect PCI Clk              Enabled       │     Item Help        │
 │  Spread Spectrum                  Disabled      │                      │
 │  *** Current Host Frequency is 200MHz ***       │                      │
 │  CPU Clock at Next Boot is        200MHz        │   Menu Level >       │
 │  *** Current DRAM Frequency is 133MHz ***       │                      │
 │  DRAM Clock at next Boot is       200MHz(By SPD)│                      │
 │  CPU Vcore                        Default       │                      │
 │  Over Voltage                     Disabled      │                      │
 │  VRAM Output                      2.5V(Default) │                      │
 │  VAGP Output                      1.6V          │                      │
 │  VCC1.2V Voltage                  1.2V          │                      │
 │  VCC2.5V Voltage Select           2.5V          │                      │
 │                                                 │                      │
 │                                                 │                      │
 │                                                 │                      │
 │                                                 │                      │
 ├────────────────────────────────────────────────┴──────────────────────┤
 │  ↑↓→←  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 Clk
This item allows you to enable/disable auto detect PCI Clock.

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

Host Clock at next Boot is
This item allows you to select CPU frequency step by step increasing.
The choice are: 200MHz~300MHz.

DRAM Clock at next Boot is
This field displays the capability of the memory modules that you can use

VRAM Output
This item allows you to select 2.5V of the DDR Module. The choice are: 2.5V, 2.6V, 2.7V, 2.8V.

VAGP Output

This item allows you to select 1.5V of the AGP 4X/8X VGA card. The choice are: 1.5V, 1.6V, 1.7V, 1.8V.

VCC2.5V Voltage Select
This item allows you to select 2.5V of the VCC2.5V Voltage. The choice are: 2.5V, 2.6V.

3-12 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.

3-13 Set Supervisor/User Password

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

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

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

    ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

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

    PASSWORD DISABLED.

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

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

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

Chapter 4

DRIVER & FREE PROGRAM INSTALLATION

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

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

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

From MAGIC INSTALL MENU you may make 9 selections:

1. VIA 4 IN 1   install VIA Service Pack 4 IN 1 driver
2. SOUND   install AC97 Audio Codec Installing driver
3. LAN   install VIA LAN Controller driver **(for K8T8AS only)**
4. USB2.0   install USB 2.0 driver
5. SATA   install VIA Serial ATA driver
6. DIRECTX9   install Microsoft DirectX 9 driver
7. PC-CILLIN   install PC-CILLIN2004 anti-virus program
8. BROWSE CD   to browse the contents of the CD
9. EXIT   to exit from MAGIC INSTALL menu

4-1 VIA 4IN1 Install VIA Service Pack 4 IN 1 Driver

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

IDE : VIA ATAPI VENDOR SUPPORT DRIVER IS USED TO FIXED COMPATIBILITY ISSUE FOR IDE DEVICES

AGPVXD : VIA AGPVXD DRIVER IS TO BE INSTALLED, IF YOU ARE USING AN AGP VGA CARD, VIAGART.VXD WILL PROVIDE SERVICE ROUTINES TO YOUR VGA DRIVER AND INTERFACE DIRECTLY TO HARDWARE, PROVIDING FAST GRAPHIC ACCESS

IRQ ROUTING : VIA PCI IRQ MINIPORT DRIVER IS TO BE INSTALLED UNDER WIN98 ONLY, IT WILL FIX PCI IRQ ROUTING SEQUENCE

INF : VIA REGISTRY DRIVER IS TO BE INSTALLED UNDER WINDOWS THE DRIVER WILL ENABLE VIA POWER MANAGERMENT CONTROLLER

1. Click IDE when MAGIC INSTALL MENU appears	2. Click NEXT when VIA Service Pack Wizard appears
3. This is to announce the Copy Write, click Yes	4. Click NEXT to choose all driver
5. Click NEXT to Install ATAPI Vender Support Driver	6. Click NEXT to choose enabled DMA Mode
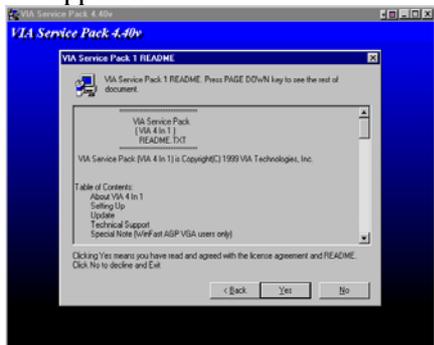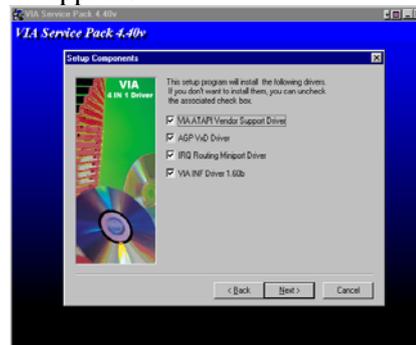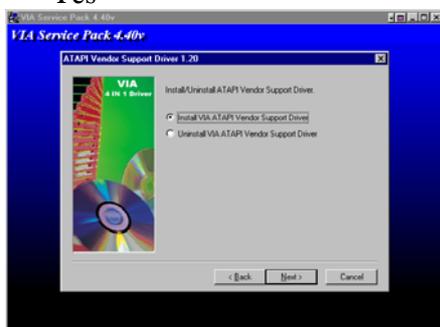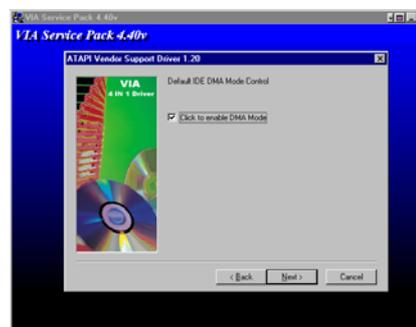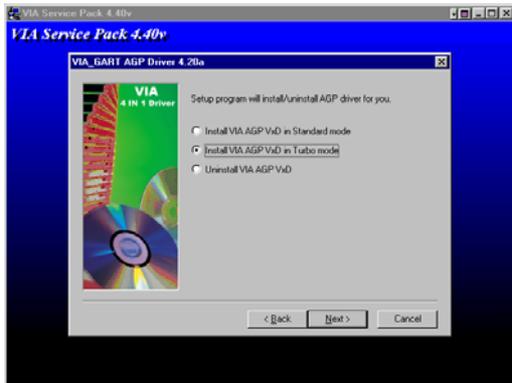
7. Click NEXT to Install VIA AGP VXD Driver

8. Click NEXT to Install VIA IRQ Routing Mini port Driver
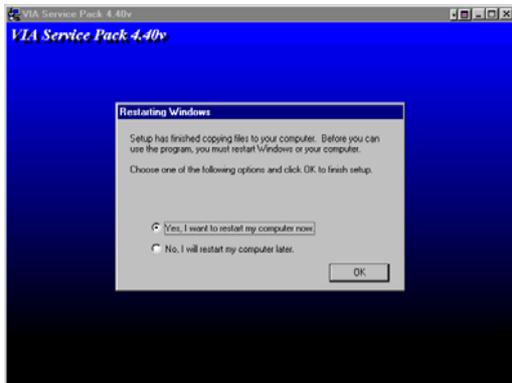
9. Click Finish to restart computer

4-2 SOUND   Install Realtek Audio Codec Driver

1. Click SOUND when MAGIC INSTALL MENU appears

2. Click NEXT when the realtek AC97 Audio Setup windows appear
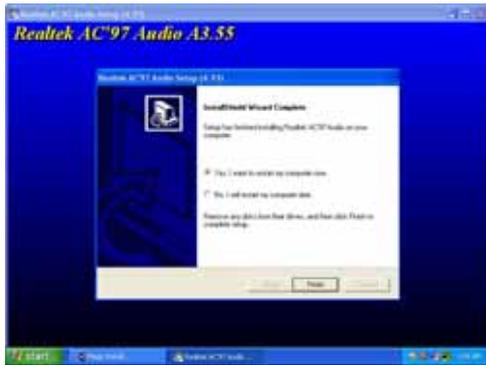
3. Click Finish and Restart Windows

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 Install Realtek LAN Controller Driver (for K8T8AS)

WINDOWS 98SE/98ME/2000/XP Setup
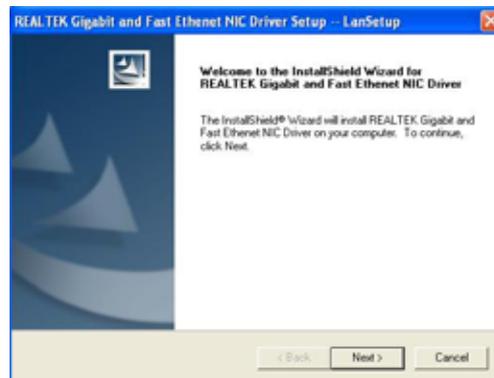
1. Click LAN when Magic Install Menu appear

2. Click NEXT, install REALTEK Gigabit and Fast Ethernet NIC Driver

3. After driver installation completed, Click Finish

4-4 USB2.0 Install VIA USB2.0 DEVICE DRIVER

1. Click USB2.0 when MAGIC INSTALL MENU Appear

2. When USB2.0 Setup Program Appear, Click NEXT

Note: Please Install Microsoft Service Pack 1 in Windows XP OS Before you Install VIA USB2.0 Device Driver.

3. Select Install USB Driver and Click NEXT

4. Select FINISH and Restart your Computer

5. Check device working properly in Device Manager

The Path of the file is X:\VIA\VIAUSB20\SETUP.EXE

4-5 SATA Install VIA Serial ATA

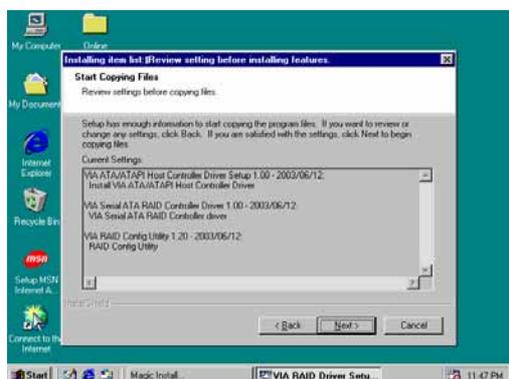1. Click SATA when MAGIC INSTALL MENU appears

2. Start install VIA serial ATA driver , then click NEXT
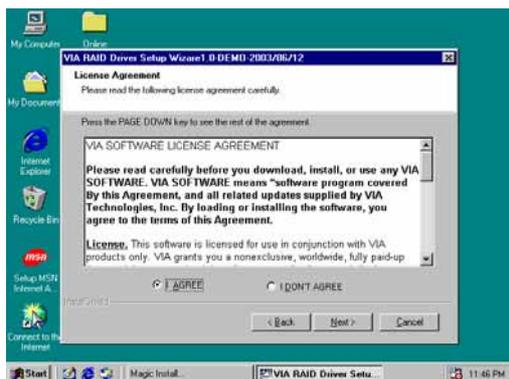
3. When license agreement appear, choose I agree and click NEXT
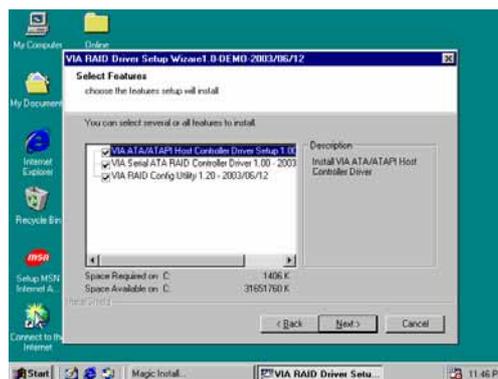
4. Select you want to install driver

5. Review install driver and utility component, then click NEXT

6. Click FINISH and restart your computer

Making SATA HDD driver diskette before Install WindowsXP/2000

If you only have Serial ATA HDDs on your system, before you install the Windows XP or Windows 2000, you will need to make a SATA HDD driver diskette before you start to install the Operating System.

How to make a SATA HDD driver diskette?

STEP 1: Insert the diskette which be formatted in floppy drive on a system which can start OS.
STEP 2: After booting OS insert the bundle CD in your CD-ROM
STEP 3: Copy all the files from \VIA\VIASATA\DriverDisk 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.

4-6 PC-CILLIN Install PC-CILLIN 2004 Anti-virus program

1. Click PC-CILLIN when MAGIC INSTALL MENU appear

2. Click NEXT when the "Trend Micro internet security" installshield wizard windows appear

3. This is license agreement, select "I Accept the terms" and Click NEXT

4. Click NEXT and Enter your Customer Information, Click NEXT or choose Change to change the path for the file to be stored

5. Click INSTALL, Start to install the software

6. Setup Complete and click FINISH

7. After PC-CILLIN 2004 complete, Please
    register your information and we recommend
    select update item to download newest engine
    code and virus code

Note : **Please install ACROBAT READER, Before you read PC-CILLIN 2004 User Manual, the path at X:\acrobat\adberdr6_enu_full.exe**

4-7 HOW TO DISABLE ON-BOARD SOUND

Enter BIOS SETUP choose INTEGRATE PERIPHERALS choose ON-CHIP DEVICE FUNCTION choose AC97 SOUND DEVICE

Disable on-board sound function by press PAGE DOWN KEY to Disable

4-8 HOW TO UPDATE BIOS

Method 1.   In DOS Mode

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. Copy latest BIOS for K8T8AS/K8T8A from our web site to your boot disc.
STEP 4. Insert your boot disc into A:,
start the computer, type "Awdflash A:\K8T8ASAxxx.BIN /SN/PY/CC/R"
K8T8ASAxxx.BIN is the file name of latest BIOS it can be K8T8ASA3.BIN or K8T8ASB2.BIN

| SN | means | don't save existing BIOS data |
| CC | means | clear existing CMOS data |

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 and the BIOS will be updated, computer will be restarted automatically.