⚠ WARNING! **Electronic Emission Notices**

Federal Communications Commission (FCC) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with instructions contained in this manual, may cause harmful interference to radio and television communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- REORIENT OR RELOCATE THE RECEIVING ANTENNA
- INCREASE THE SEPARATION BETWEEN THE EQUIPMENT AND THE RECEIVER
- CONNECT THE EQUIPMENT INTO AN OUTLET ON A CIRCUIT DIFFERENT FROM THAT OF THE RECEIVER
- CONSULT THE DEALER OR AN EXPERIENCED AUDIO/TELEVISION TECHNICIAN

NOTE: Connecting this device to peripheral devices that do not comply with Class B requirements, or using an unshielded peripheral data cable, could also result in harmful interference to radio or television reception.

The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

To ensure that the use of this product does not contribute to interference, it is necessary to use shielded I/O cables.

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Trademarks

All brand names, logos and registered trademarks mentioned are property of their respective owners.

Table of Contents

HARDWARE CONFIGURATION

Key Features :
Chipset
- VIA K8T800Pro+VT8237 chipset.

Processor
- Support for AMD™ K8 Processor in a Socket939 package.
- Support Hypertransport interface bus.

VRM (Voltage Regulator Modules) on Board
- Flexible motherboard design with on board VRM, easy to upgrade with future AMD™ K8 processors.
- 0.800V to 1.55V in 25mV steps.

System Memory
- A total of four 184-pin DDR SDRAM sockets.
- Support Dual Channel 128-bit Wide Memory Interface
- Support DDR 266/333/400 DDR SDRAM memory type.
- 2.5V DRAM interface for DDR SDRAM.

System BIOS
- PnP, APM, ATAPI and Windows® 98/2000/XP.
- Full support of ACPI & DMI.
- Auto detects and supports LBA harddisks with capacities over 160GB.
- Easy to upgrade BIOS by end-user.

On-board I/O
- On board two PCI fast IDE ports supporting up to 4 ATA, ATA2 , Ultra ATA33/ 66/100/133 IDE HDDs, CD-ROMs, ZIP drives and LS-120 drives as boot drive.
- One ECP/EPP parallel port.
- Two 16550 Compatible UART serial ports.(One port via a header)
- One floppy port supports two FDD of 360KB, 720KB, 1.2MB , 1.44MB and 2.88MB capacity.
- Eight USB2.0 ports.
- PS/2 keyboard connector.
- PS/2 mouse is supported.
- One Front Panel Sound Connector.
- Infrared (IrDA) is supported via a header.

Expanded USB Support
- Includes 4 UHCI host controllers,increasing the number of external ports to eight.
- Includes 1 EHCI USB2.0 Host Controller that supports eight ports (Bandwidth shared between eight ports).

Full Featured Accelerated Graphics Port (AGP)
- Supports AGP3.0 including 4X/8X AGP card.
- AGP 1.5V connector support only.
- High priority access support.

Plug-and-Play
- Supports Plug and Play specification 1.1.
- Plug and Play for Windows® 98, Windows® 2000 as well as Windows® XP.
- Fully steerable PCI interrupts.

On-board AC97 Sound (optional)
- Integrated AC97 controller with standard AC97 Codec.
- Direct Sound and Sound Blaster compatible.
- Full-Duplex 16-bit record and play back.
- PnP and APM 1.2 support.
- Windows® 98/2000/XP drivers ready.
- Line-in, Line-out, Mic-in and MIDI/Game port.
- Supports ALC650/655 AC97 Code for six sound channel output (optional).

Integrated serial ATA/RAID Controller (optional)
- Independent DMA operation on two ports.
- Data transfer rate 150Mb/s.
- SATA devices can be configured in multiple RAID configurations-supports RAID Level0,RAID Level1 and JBOD.

On-board VT6103 LAN (optional)
- High performance PCI master interface with scatter / gather and bursting capability.
- Standard MII interface to external PHYceiver.
- 10/100MHz full and half duplex operation.

Power Management
- Supports SMM, APM and ACPI.
- Break switch for instant suspend/resume on system operations.
- Energy star "Green PC" compliant.
- Hardware monitoring circuit is supported, provide voltage, temperature, fan speed, etc. monitoring (optional).
- WOL (Wake-On-Lan) header support.
- Supports suspend-to-RAM(STR)(optional).

On-board IEEE1394 (optional)
- Compliant with 1394 open HCI specifications v1.0 and v1.1.
- Integrated 400Mbit 2 port PHY.

Expansion Slots
- 1 AGP slot (support AGP 3.0-8X).
- 5 PCI bus master slots - ver. 2.1 compliant.

⚠ **CAUTION!** Static electricity can harm delicate components of the motherboard. To prevent damage caused by static electricity, discharge the static electricity from your body before you touch any of the computers electronic components.

Motherboard Layout

The following diagrams show the relative positions of the jumpers, connectors, major components and memory banks on the motherboard.
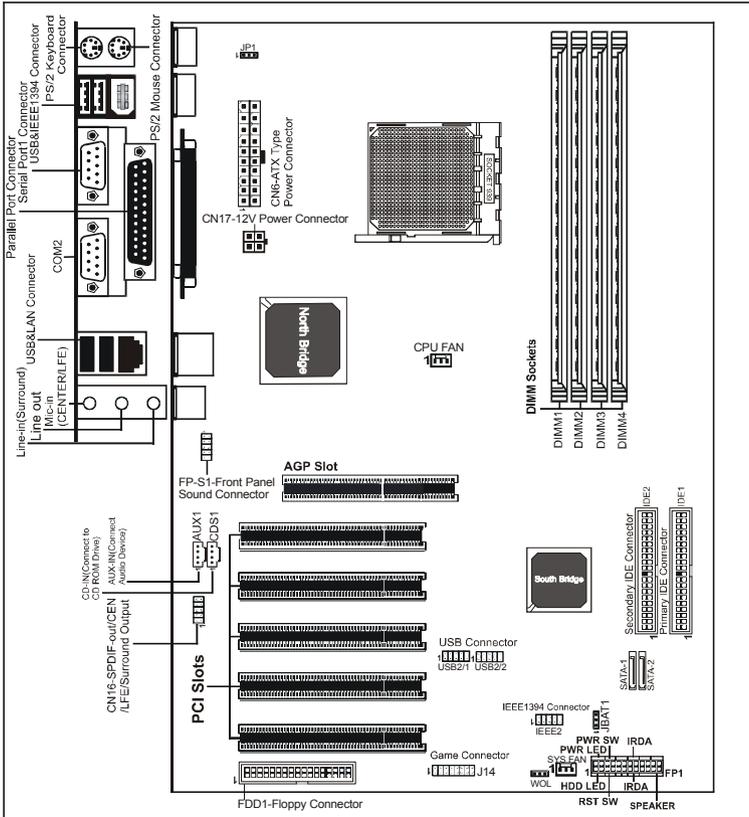
The LAN, AUX1&IEEE1394 Connectors are optional.
The ALC650/655 embeds an internal analog switch (by driver software) to share LINE input with Surround output, and share MIC input with CENTER/LFE output.

NOTE
1) Be sure to check the cable orientation in order to match the colored strip to the pin 1 end of the connector.
2) When you start up the system, please wait for 5 seconds after you power on AC.
3) It is not recommended to add a metal spacer plate on the back of the Socket939. Otherwise, some components will be short and damaged.

Rear Panel

The back panel provides the following connectors:
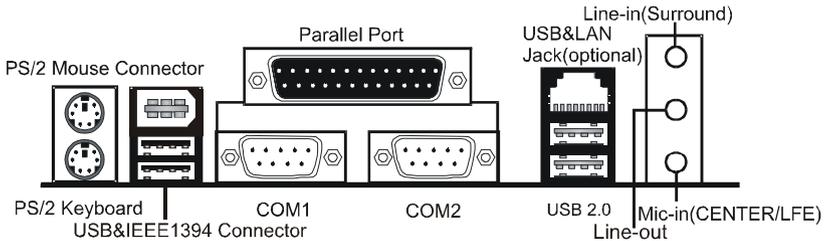
Mouse Connector

The mainboard provides a standard PS/2® mouse mini DIN connector for attaching a PS/2® mouse.You can plug a PS/2® mouse directly into this connector.

Keyboard Connector

The mainboard provides a standard PS/2® keyboard mini DIN connector for attaching a PS/2® keyboard.You can plug a PS/2® keyboard directly into this connector.

USB 2.0 Connector

The mainboard provides a UHCI (Universal Host Controller Interface) Universal Serial Bus root for attaching USB devices such as keyboard, mouse or other USB-compatible devices.You can plug the USB device directly into the connector.

USB 2.0 Connector
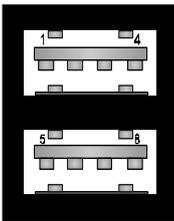
USB 2.0 Connector Description

PIN	SIGNAL	DESCRIPTION
1	VCC	+5V/5VSB (optional)
2	-Data 0	Negative Data Channel 0
3	+Data0	Positive Data Channel 0
4	GND	Ground
5	VCC	+5V/5VSB (optional)
6	-Data 1	Negative Data Channel 1
7	+Data 1	Positive Data Channel 1
8	GND	Ground

VIA VT6307 IEEE 1394 Connector (Optional)

The mainboard provides a IEEE 1394 Connector and allows you to connect a IEEE 1394 device directly to the connector.

Serial Port Connectors: COM1&COM2

The Port is 16550A high speed communication ports that send/receive 16bytes FIFOs. You can attach a serial mouse or other serial devices directly to the connectors.

LAN Jack (Optional)

The mainboard provides one standard RJ-45 jack for connection to Local Area Network(LAN).You can connect a network cable to the LAN jack.

Parallel Port Connector:LPT1

The mainboard provides a 25-pin female centronic connector as LPT. A parallel port is a standard printer port that supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP) mode.

Audio Port Connector

**Line_Out** is a connector for Speakers or Headphones. **Line In** is used for external CD player, Tape player, or other audio devices. **Mic In** is a connector for microphones. The ALC650/655 embeds an internal analog switch (by driver software) to share LINE input with Surround output, and share MIC input with CENTER/LFE output.

The ALC655 embeds the jack sensing function.When you plug an audio device into the corresponding connector, the system will show you what you pluged into the motherboard.

Audio Configuration

After installing the audio driver, you can select 4/6 channel surround audio output in software utility and then connect surround speakers to appropriate audio ports.

There are two ways to obtain 4/6 channel surround audio output:

1. 4/6 surround audio output of back panel only. All surround speaker connect to audio connector.

2. S-Bracket (optional cable). You have installed S-Bracket into the computer, and then connect two front speakers to back panel's "Line-out" port, and the rest of speakers to S-Bracket. Detail connection is refer to Page 23.

Speaker Configuration

Method 1: 4/6 Surround audio output of back panel only.

After installing the audio drivers, you can attach the speakers for 2-/4-/6-channel audio output. Always connect the speakers to the LINE OUT connectors. Different connector configurations for 2-/4-/6-channel operations are listed below:

○ —Line In	● —Rear Speaker Out	● —Rear Speaker Out
● —Line Out	● —Front Speaker Out	● —Front Speaker Out
○ —Mic	○ —Mic	● —Center/Subwoofer Speaker Out
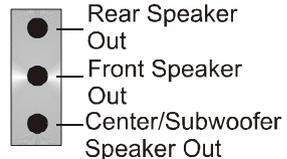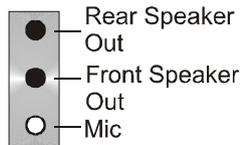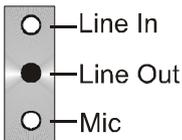
| **2-Channel** | **4-Channel** | **6-Channel** |
| In 2-channel configuration, Line Out, Line In and MIC functions all exist. | When set to 4-channel configuration, Line In is replaced by Rear Speaker Out. Line in function does not exist. | When set to 6-channel configuration, Line In is replaced by Rear Speaker Out. Mic is replaced by Center/Subwoofer Speaker Out. Line in and Mic do not exist function. |

In utility, double click "AC97 Audio configuration" icon from the window tray on the right bottom.

Then the "AC97 Audio Configuration" will appear. Click on the **Speaker Configuration** tab to select the audio mode.

A. When you choose 4-channel mode for 4 speaker output, the selected item is showed as below (Figure1)

(Figure1)

B. When you choose 6-channel mode for 5.1 speaker output, the selected item is showed as below (Figure2)

(Figure2)

Method 2: Using S-BRACKET connectors:

   S-Bracket (The S-Bracket is showed in page 23) is an optional accessory. It gives access to analog and digital audio output by integrating both SPDIF and analog LINE OUT connectors. To use the S-Bracket, you should select correct setting in the software utility. For information about the setting, refer to selecting 4- or 6- Channel Setting later in the section.
   Connector configurations for 4- and 6- channel using S-Bracket are described below:

4-Channel Analog Audio Output
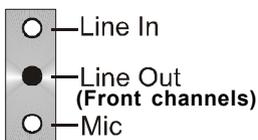
Back Panel

S-Bracket

$\boxed{1}$ SPDIF jack (coaxial)

$\boxed{2}$ Rear Speaker Out

$\boxed{3}$ No function

Description:

   *Connect two speakers to back panel's Line Out connector and two speakers to one Line Out connector of S-Bracket, or four speaker to connector of S-Bracket. If you want to use **Line In** function, please click the **Rear Speaker Out** button (showed as below)*

6-Channel Analog Audio Output

Back Panel

S-Bracket

Line In

Line Out
(Front channels)

Mic

+
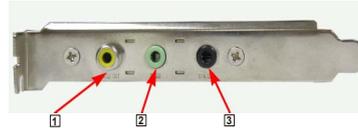
1 SPDIF jack (coaxial)

2 Rear Speaker Out

3 Center and Subwoofer Out

Description:

*Connect two speakers to back panel's Line Out connector and four speakers to both Line Out connectors of S-Bracket, If you want to use **Line In** and **MIC** function at the same time, please click the **Rear Speaker Out** and **Center/Subwoofer Speaker Out** buttons. (showed as below)*

Jack-Sensing Instrouction

Jack-Sensing provides audio connectors error-detection function.

⚠️ **CAUTION!** Install Microsoft DirectX8.1 before to enable Jack-Sensing support for Windows 98/98SE/2000/ME.

Jack-Sensing includes 2 parts:AUTO and MANUAL. Following is an example for 2 channels (Windows XP):

Introduction of audio connectors

You may connect CDROM, Walkman or others audio input devices to Line In jack. speakers, earphone or others output devices to Line Out jack. and microphone to MIC In jack.

Audio Connector

Line Out   Line In   Mic In

Auto-detecting:

Please connect the devices to the right jacks as above. A window will appear as below picture if you setup the devices properly.

If you set wrong with the connectors, the warning message will come out as following picture.

Manual setting:

If the device picture shows different from what you set, please press "Correction..." to set.
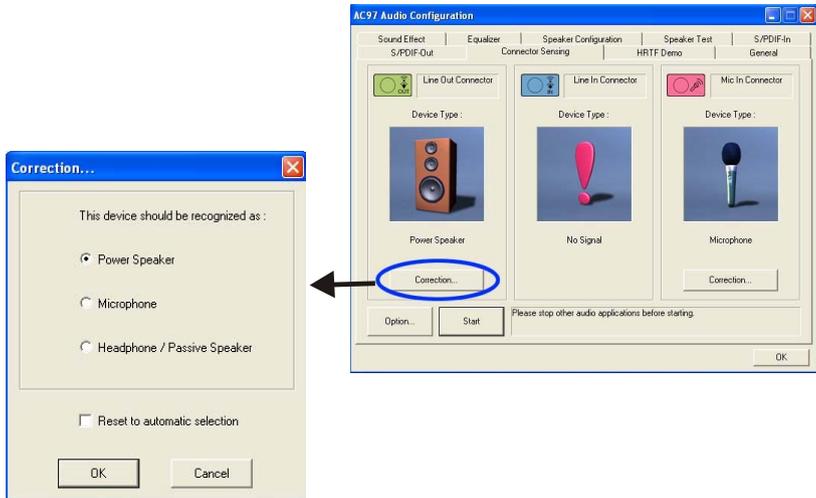
Jumper Settings

This chapter explains how to configure the motherboard's hardware. Before using your computer, make sure all jumpers and DRAM modules are set correctly. Refer to this chapter whenever in doubt.
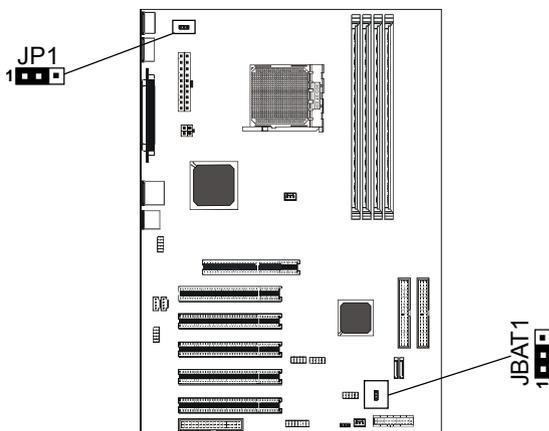
Notice:
1. Be sure to save the CMOS setting when exit the CMOS.
2. If the CPU is frequency multiplier locked, no CPU speed change will be seen even if the frequency multiplier setting in CMOS setup is changed.

JBAT1 - CMOS Clear

JBAT1		Selection
1	1-2*	Normal*
1	2-3	CMOS Clear

JP1-Keyboard Power Select Jumper

JP1		Select
1	1-2*	Powered by +5V*
1	2-3	Powered by +5V Standby(Allows Keyboard Power On)

Close Open * = *Default setting.*

Connectors

The mainboard provides connectors to connect to FDD, IDE HDD, Serial ATA Hard Disk,USB devices, CPU/SYS FAN/WOL ,etc.

Floppy Disk Drive Connector:FDD1

The mainboard provides a standard floppy disk drive connector that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types.

Hard Disk Connectors:IDE1/IDE2

The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA 33/66/100/133controller that provides PIO mode 0~4, Bus Master, and Ultra DMA 33/66/100/133function. You can connect up to four hard disk drives, CD-ROM, 120MB Floppy (reserved for future BIOS) and other devices.

IDE1 (Primary IDE Connector)

The first hard drive should always be connected to IDE1.IDE1 can connect a Master and a Slave drive.You must configure second hard drive to Slave mode by setting the jumper accordingly.

IDE2 (Secondary IDE Connector)

IDE2 can also connect a Master and a Slave drive.
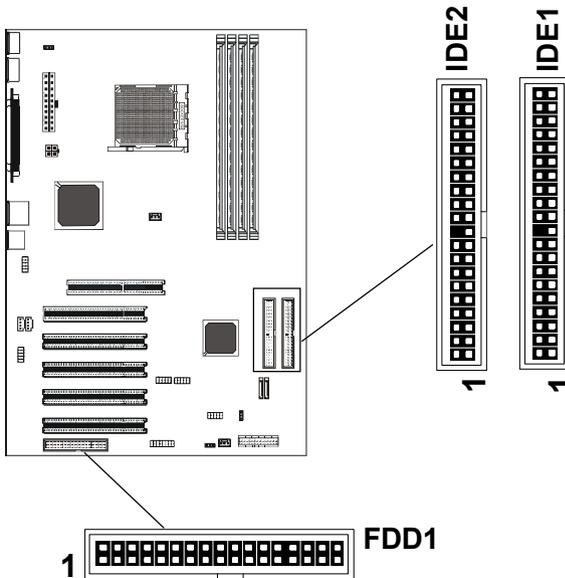
Serial ATA Hard Disk Connectors: SATA-1&SATA-2 (Optional)

The mainboard has 2 SATA connectors. The mainboard provides optional dual high-speed Serial ATA interface ports, SATA-1,SATA-2 Each supports 1st generation serial ATA data rates of 150 MB/s. Both connectors are fully compliant with Serial ATA 1.0 specifications. Each Serial ATA connector can connect to 1 hard disk device. Please refer to Serial ATA Raid manual for detail software installation procedure.
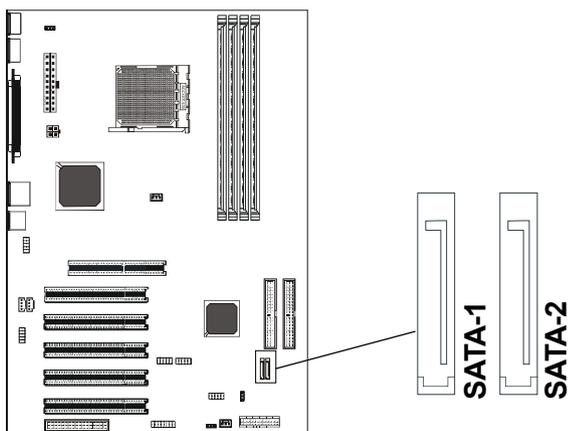
SATA-1&SATA-2

PIN	SIGNAL
1	GND
2	TXP
3	TXN
4	GND
5	RXN
6	RXP
7	GND

Serial ATA Cable

Connect one port of the SATA cable to the mainboard, and connect another port to the SATA Hard Disk.

> ⚠️ CAUTION! Please do not fold the serial ATA cable in a 90-degree angle, which will cause the loss of data during the transmission.

Serial ATA Hard Disk Devices Power Cable(optional)
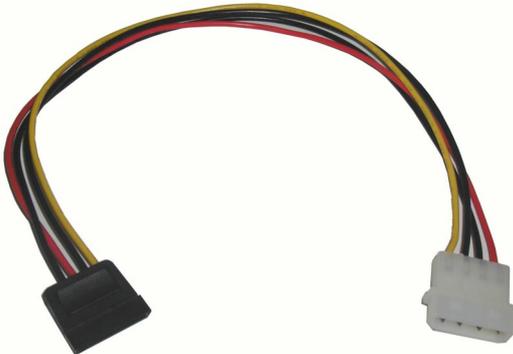
USB Connectors: USB2/1&USB2/2

This mainboard has USB ports. Some computer cases have a special module that mounts USB ports at the front of the case. If you have this kind of case, use auxiliary USB connector USB2/1&USB2/2 to connect the front mounted ports to the mainboard.

USB2/1

```
2 ■ ■ ■ ■ ■ 10
1 ■ ■ ■ ■ □ 9
```

USB2/2

```
2 ■ ■ ■ ■ ■ 10
1 ■ ■ ■ ■ □ 9
```
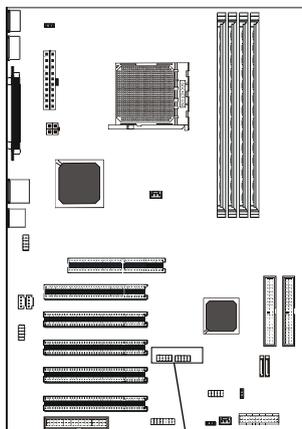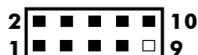
USB Connector

PIN	Assignment
1	VCC
2	VCC
3	USBP0-
4	USBP1-
5	USBP0+
6	USBP1+
7	GND
8	GND
9	KEY
10	OC#

Fan Power Connectors:CPU FAN&SYS FAN

The FAN1 (processor fan), FAN2 (system fan) support system cool-ing fan with +12V.It supports three-pin head connector. When connecting the wire to the connectors, always take note that the red wire is the positive and should be connected to the +12V, the black wire is Ground and should be connected to GND. If the mainboard has a System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.
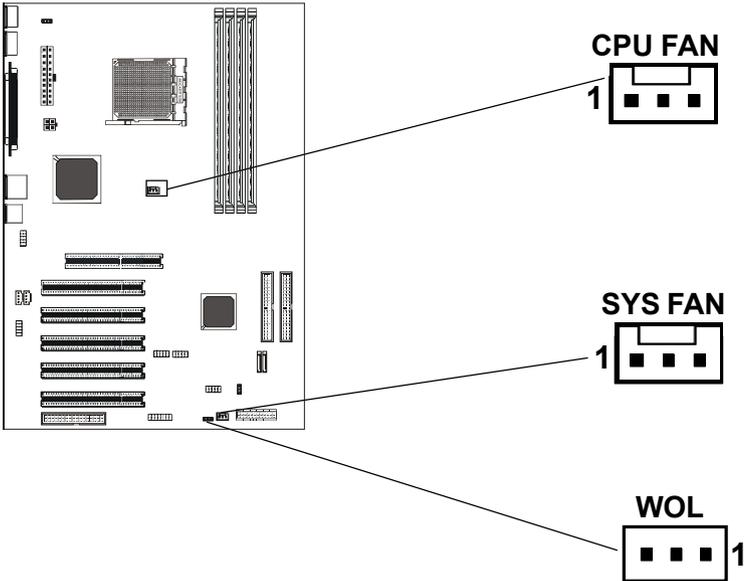
WOL: Wake On LAN

If you have installed a LAN card, use the cable provied with the card to plug into the mainboard WOL connector. This enables ables the Wake On LAN (WOL) feature. When your system is in a power-saving mode, any LAN signal automatically resumes the system.You must enable this item in the Power Mannagement page of the Award BIOS CMOS Setup Utility.

AUX-IN Connector:AUX1(optional)

The connector is for Audio Device.

CD-IN Connector:CDS1

The connector is for CD-ROM Drive.
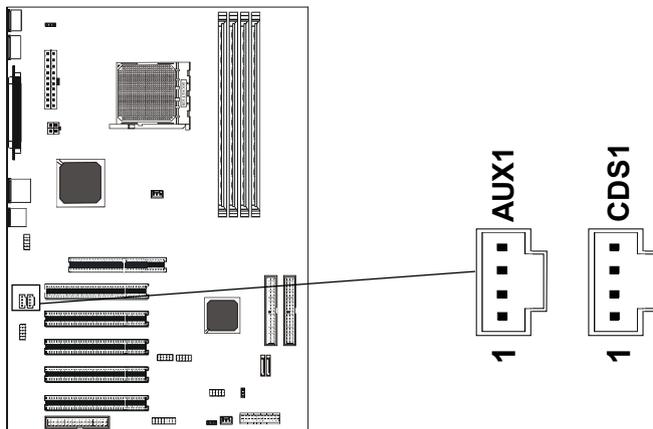
CDS1 : CDS1

PIN	Assignment
1	CD-L
2	GND
3	GND
4	CD-R

AUX1 : AUX1

PIN	Assignment
1	AUX-L
2	GND
3	GND
4	AUX-R

S-Bracket(SPDIF)/**CEN/LFE/Surround Output** Connector: CN16 (optional)

The connector allows you to connect a S-Bracket for a Digital Interface (SPDIF). The S-Bracket offers 1 SPDIF jacks for digital audio transmission and 2 analog Line-Out jacks for other 4-channel audio output. So you can use Line in, Mic in and 6 channel audio output features at the same time.
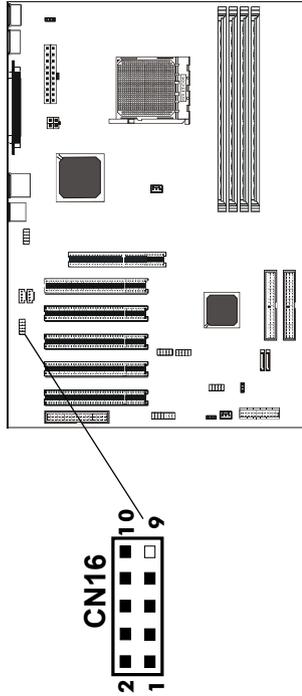
CN16-S-Bracket

PIN	SIGNAL	DESCRIPTION
1	SOUT-L	Audio left surrounding output
2	SOUT-R	Audio right surrounding output
3	GND	Ground
4	GND	Ground
5	CET-OUT	Audio center output
6	LFE-OUT	Audio bass output
7	GND	Ground
8	SPDIF	S/PDIF input
9	(No Pin)	Key
10	SPDFO	S/PDIF output

S-Bracket Cable (optional)

Connect to CN16

Center and Subwoofer Out

Rear Speaker Out

SPDIF jack (coaxial)
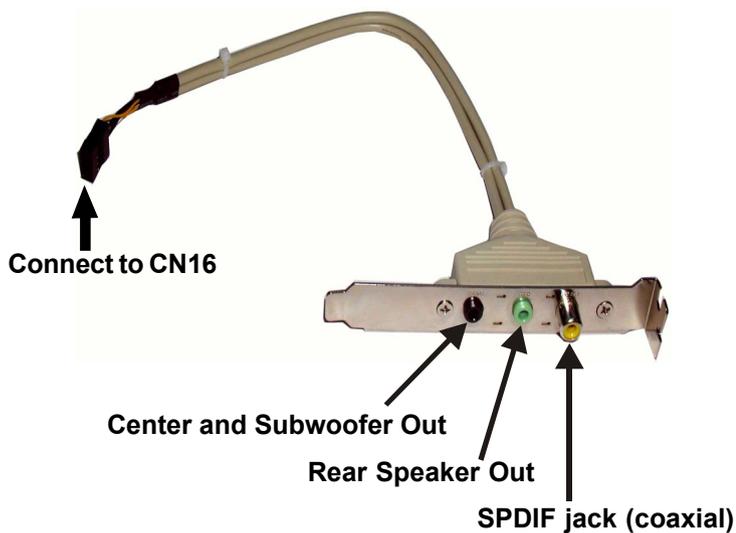
Front Panel Audio Header: FP-S1

   This mainboard supports front panel microphone and speaker out ports. If your computer case has these ports,connect them to FP-S1.
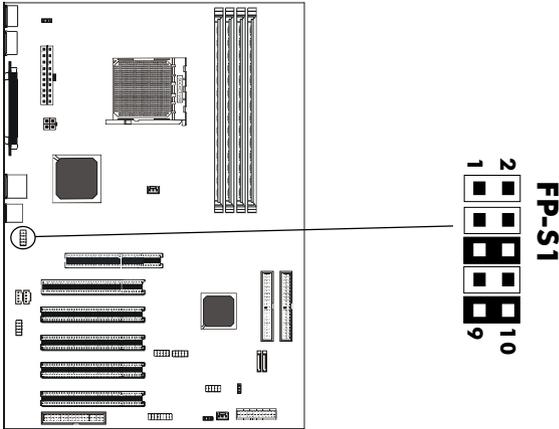
FP-S1

PIN	Assignment
1	MIC
2	GND
3	REF
4	POWER
5	Front Audio(R)
6	Rear Audio(R)
7	Reserved
8	Key(No pin)
9	Front Audio(L)
10	Rear Audio(L)

Note:

   If you want to use "Front Audio" connector, you must remove 5-6,9-10 jumper. In order to utilize the front audio header, your chassis must have front audio connector. Also please make sure the pin assignment on the cable is the same as the pin assignment on the MB header. To find out if the chassis you are buying support front audio connector, please contract your dealer.

IEEE 1394 Connector: IEEE2 (optional)

The mainboard provides one 1394 header that allow you to connect IEEE 1394 ports.

IEEE2

2 ■ ■ ■ ■ ■ 10
1 ■ ■ ■ ■ □ 9
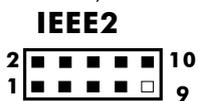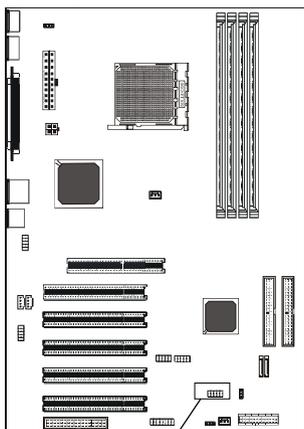
IEEE2 Pin Definition

PIN	SIGNAL
1	TPA+
2	TPA-
3	Ground
4	Ground
5	TPB+
6	TPB-
7	Cable power
8	Cable power
9	Key (no pin)
10	Ground

IEEE 1394 Cable (optional)

Game Connector: J14

The mainboard provides a game port to connect a joystick or a MIDI device.

J14

```
2  ■ ■ ■ ■ ■ ■ ■ □  16
1  ■ ■ ■ ■ ■ ■ ■ ■  15
```

Game Cable (optional)
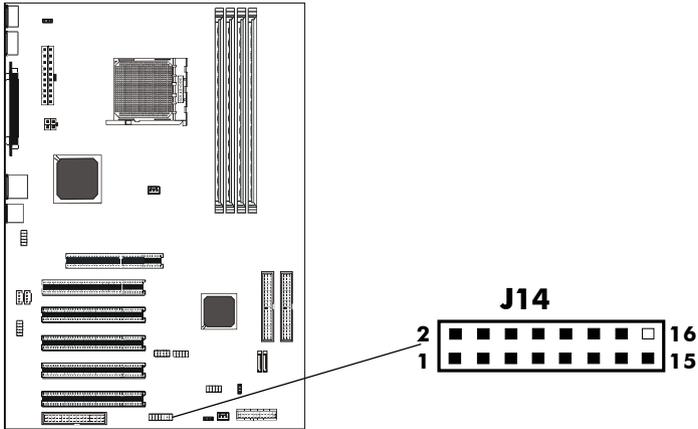
Connect to the Game Connector
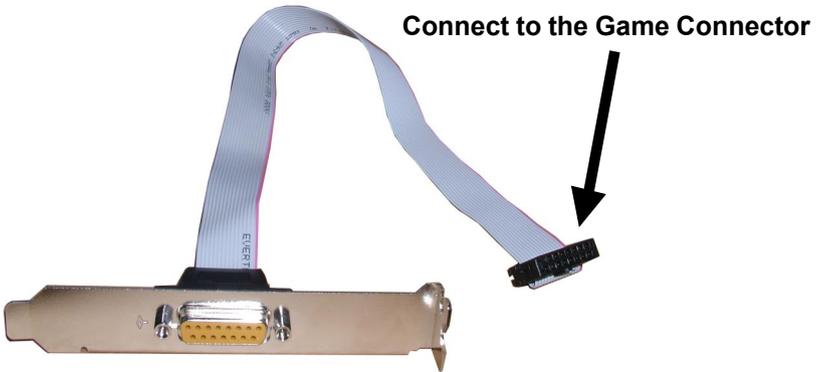
Front Panel Header: FP1

The mainboard provides one front panel connector for electrical connection to the front panel switches and LEDs.
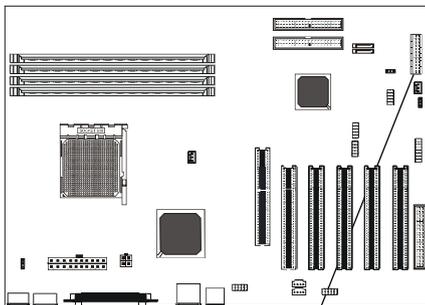
FP1

GND	24 ■ ■ 23	VCC
NC	22 ■ ■ 21	GND
KEY	20 □ ■ 19	NC
KEY	18 □ ■ 17	SPEAKER
IRRX	16 ■ ■ 15	IRTX
GND	14 ■ ■ 13	VCC
KEY	12 □ ■ 11	NC
KEY	10 □ ■ 9	NC
GND	8 ■ ■ 7	RESET
PWR_SW	6 ■ ■ 5	GND
PW_LED-	4 ■ ■ 3	HDD_LED-
PW_LED+	2 ■ ■ 1	HDD_LED+

Slots

The motherboard provides one AGP slot,five 32-bit PCI bus slots.

AGP Slot

PCI Slots
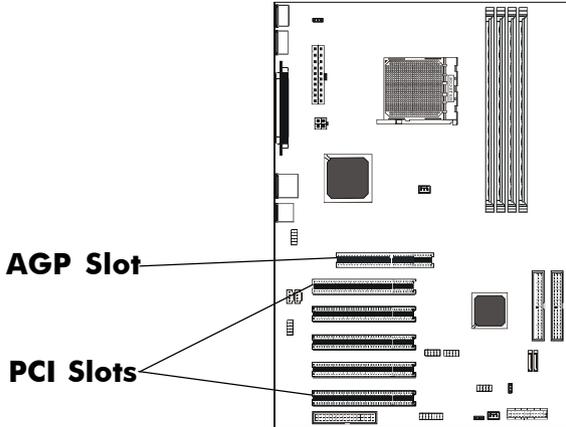
AGP (Accelerated Graphics Port) Slot

The AGP slot allows you to insert the AGP graphics card. AGP is an inter-face specification designed for the throughput demands of 3D graphics. It introduces a 66MHz, 32-bit channel for the graphics controller.

PCI (Peripheral Component Interconnect) Slots

The PCI slots allow you to insert the expansion cards to meet your needs. When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile,read the documentation for the expansion card to make any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.

CPU Installation

Please refer to the following steps to install the CPU.

1. Please turn off the power and unplug the power cord before installing the
   CPU. Pull the lever sideways away from the socket. Make sure to raise the
lever up to a 90 degree angle.
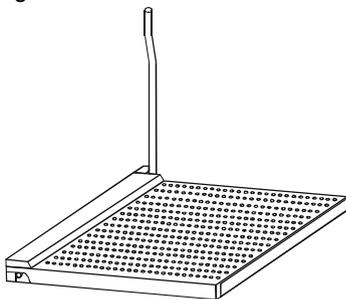
2. Look for the gold arrow. The gold arrow should point towards the lever pivot.
The CPU can only fit in the correct orientation.
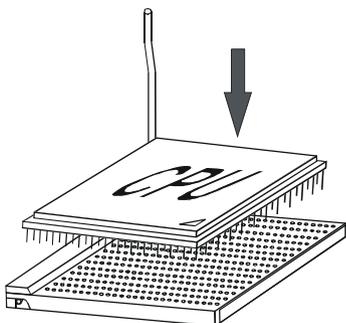
2. If the CPU is correctly installed, the pins should be completely embedded
into the socket and can not be seen. Please note that any violation of the
correct installation procedures may cause permanent damages to your
mainboard.
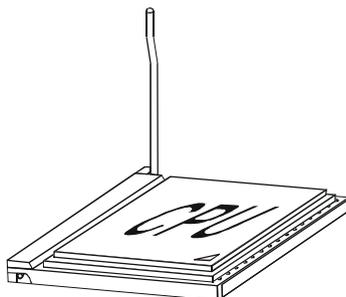
4. Press the CPU down firmly into the socket and close the lever. As the CPU is likely to move while the lever is being closed, always close the lever with your fingers pressing tightly on top of the CPU to make sure the CPU is properly and completely embedded into the socket.
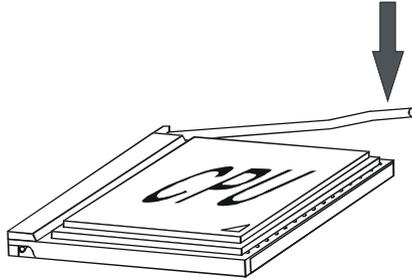
5. When you are installing the CPU,make sure the CPU has a heat sink and a cooling fan attached on the top to prevent overheating. If you do not have the heat sink and cooling fan, contact your dealer to purchase and install them before turning on the computer. please follow below steps to install the CPU cooler.

Step1. Position the cooling set onto the retention mechanism. Hook one end of the clip to hook first, and then press down the other end of the clip to fasten the cooling set on the top of the retention mechanism.

Step2. Locate the Fix lever, Safety Hook and the Fixed Bolt. Lift up the intensive fixed lever.

Fixed Lever

Step3. Fasten down the lever.

Step4. Make sure the safety hook completely clasps the fixed bolt of the retention mechanism.

Memory Configurations
1.DDR DIMM Sockets Location
Please refer to the following figure for the location of the DDR DIMM Sockets.
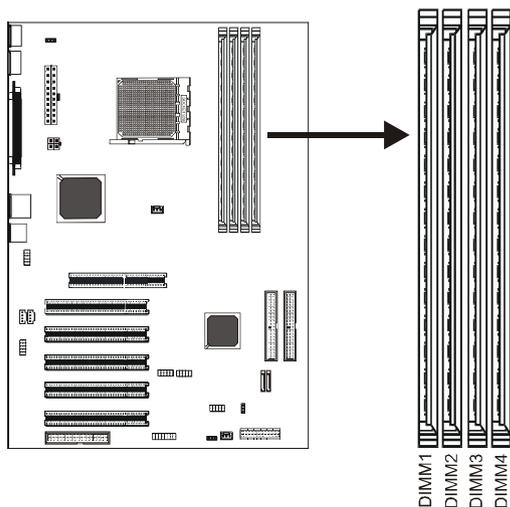
2.Install DDR DIMMs
Please follow the following steps to install DDR DIMMs.
a. Locate the DDR DIMM sockets.
b. Holding the DDR DIMM by the edges, remove it from its antistatic package.
c. Make sure the clips at either end of the socket are pushed away from the socket.
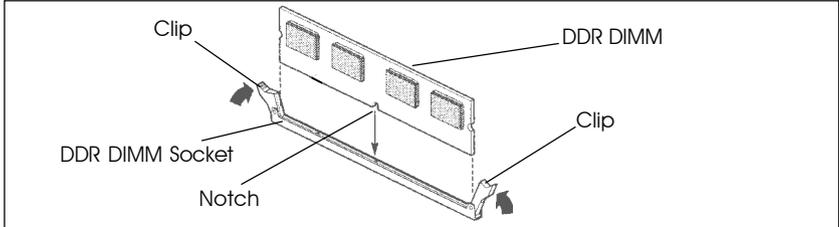
d. Position the DDR DIMM above the socket. Align the two small notches in the bottom edge of the DDR DIMM with the keys in the socket.
e. Insert the bottom edge of the DDR DIMM into the socket.
f. When the DDR DIMM is seated, push down on the top edge of the DDR DIMM until the retaining clips at the ends of the socket snap into place. Make sure the clips are firmly in place.

Note: **Please unplug the power supply before installing and removing any device, otherwise you'll cause the system damage.**

3. Memory Configurations
Please refer to the following recommended memory configurations.

Mode/(DIMM Type)	Case	Sockets -	DIMM1	DIMM2	DIMM3	DIMM4
Single-channel/ (DDR400/DDR333/DDR266)	1 2 ① 3 ②		Populated ---- Populated	---- ---- ----	---- Populated Populated	---- ---- ----
Dual-channel/ (DDR400/DDR333/DDR266)	1 2 ③ 3		Populated ---- Populated	Populated ---- Populated	---- Populated Populated	---- Populated Populated

① When using only one DDR DIMM, Insert the DDR DIMM into DIMM1 or DIMM3 socket.
② When using two double rank DDR400 DIMMs and insert DDR DIMM into DIMM1 and DIMM3 socket, the frequency is DDR333.
③ You can install identical DIMMs in DIMM1 and DIMM2 and identical DIMMs in DIMM3 and DIMM4.

Note:
- **In dual channel mode, always install an identical (the same type and size) DDR DIMM pair in sockets.**
- **It is not recommended to use the three DIMMs configuration.**
- **Memory channel speed is determined by slowest DIMM populated in system.**

BIOS Setup

This chapter discusses Award's Setup Program built into the ROM BIOS. The Setup Program allows users to modify the basic system configuration. This special information is then stored in battery-backed RAM, which retains the setup information when the power is turned off.

Starting Setup

The Award BIOS is immediately activated when you turn on the computer. The BIOS reads the system information contained in the CMOS and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup Program can be activated :

1. By pressing <Del> immediately after switching the system on, or
2. By pressing the <Del> key when the following message appears briefly at the bottom of the screen during the POST (Power On Self Test)

Press DEL to enter SETUP

If the message disappears before you can 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 the <Ctrl>, <Alt>, and <Delete> keys. If you do not press the keys at the correct time and the system does not reset, an error message will be displayed and you will again be asked to ...

PRESS F1 TO CONTINUE, DEL TO ENTER SETUP

Getting Help

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> or the F1 key again.

In Case of Problems

If, after making and saving system changes with the Setup Program, you discover that your computer does not reset, use the Award BIOS defaults to override the CMOS settings.

Main Menu

Once you enter the Award BIOS CMOS Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from various setup functions and two exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.
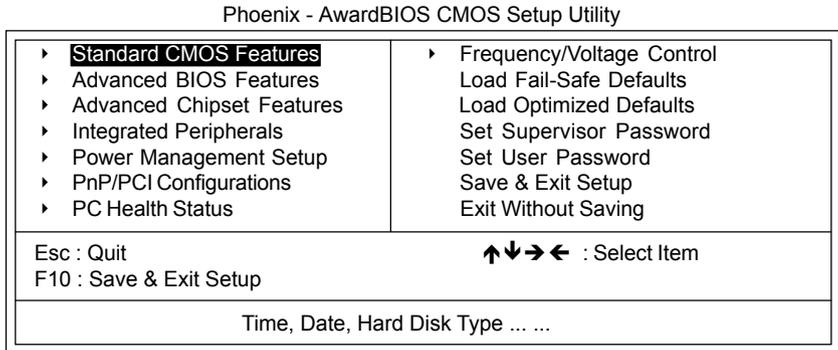
Phoenix - AwardBIOS CMOS Setup Utility

‣ Standard CMOS Features	‣ Frequency/Voltage Control
‣ Advanced BIOS Features	Load Fail-Safe Defaults
‣ Advanced Chipset Features	Load Optimized 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 ... ...

(Note : The figures of BIOS Setup Menu included here only show a typical case, and may not be exactly the same as the one on your unit.)

Note that a brief description of each highlighted item will appear at the bottom of the screen.

Standard CMOS Features This setup page includes all the items of Award™ special standard features.

Advanced BIOS Features This setup page includes all the items of Award™ special enhanced features.

Advanced Chipset Features This setup page includes all the items of chipset special features.

Integrated Peripherals This section page includes all the items of IDE hard drive and Programmed Input / Output features.

Power Management Setup This entry only appears if your system supports Power Management "Green PC" standards.

PnP/PCI Configurations This entry appears if your system supports PNP/PCI.

PC Health Status Display CPU and Case Fan Speed,etc.

Frequency/ Voltage Control CPU speed setting are settings of CPU speed. You should refer to your CPU marking.

Load Fail-Safe Defaults The BIOS defaults have been set by the manufacturer and represent settings which provide the minimum requirements for your system to operate.

Load Optimized Defaults	The chipset defaults are settings which provide for maximum system performance. While Award has designed the custom BIOS to maximize performance, the manufacturer has the right to change these defaults to meet its needs.
Set Supervisor/ User Password	Changes, sets, or disables password. It allows you to limit access to the system and the Setup Program.
Save & Exit Setup	Saves value changes to CMOS and exits setup.
Exit Without Saving	Abandons all CMOS value changes and exits setup.

Standard CMOS Features

The items in Standard CMOS Setup Menu are divided into 10 categories. Each category includes one or more setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> key to select the desired value in each item.

Phoenix - Award BIOS CMOS Setup Utility
Standard CMOS Features

		Item Help
Date (mm :dd :yy)	Thu. Jan 01 2004	
Time (hh :mm:ss)	11 : 1 : 35	Menu Level ▸
▸ IDE Channel 0 Master	[Press Enter 4303 MB]	
▸ IDE Channel 0 Slave	[None]	Change the day, month,
▸ IDE Channel 1 Master	[None]	year and century
▸ IDE Channel 1 Slave	[None]	
Drive A	[1.44M, 3.5 in.]	
Drive B	[None]	
Video	[EGA/VGA]	
Halt on	[All,But Keyboard]	
Base Memory	640K	
Extended Memory	30720K	
Total Memory	31744K	

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

(Note : The figures of BIOS Setup Menu included here only show a typical case, and may not be exactly the same as the one on your unit.)

| Date | The date format is <day-of-the-week>. <month> <day> <year>. |
| Time | The time format is <hour> <Minute> <second> displayed in 24-hour military-time clock. For example, 1 p. m. is displayed as 13:00:00. |

IDE Channel 0/1/2/3	These categories identify the types of the four channels that have been installed in the computer.
	If the controller of the HDD interface is SCSI, the selection shall be "None".
Drive A / Drive B	This category identifies the types of floppy disk drive A or drive B that has been installed in the computer.
Video	The default setting is EGA/VGA.
Halt on	You can select which type of error will cause the system to halt.

Advanced BIOS Features

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security.

Advanced Chipset Features

The 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.

This section allows you to configure the system based on the specific features of the installed chipset. This chipset manages bus speeds and access to system memory resources, such as DRAM and the external cache. It must be stated that these items should not be altered. The default settings have been chosen because they provide the best operating conditions for your system.

Integrated Peripherals

The Integrated Peripherals Setup allows the user to configure the onboard IDE controller, floppy disk controller, the printer port and the serial ports.

Power Management Setup

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

PnP/PCI Configurations

This section describes how to configure the PCI bus system. This section covers some very technical items and it is recommended that only experienced users should make any changes to the default settings.

PC Health Status

The PC Health Status display CPU and Case Fan Speed, etc.

Frequency/Voltage Control

This section allows you to set CPU Speed.

Set Supervisor/User Password

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

Supervisor Password :   You can enter the Setup Program and change the options of the setup menus.

User Password :   You can enter the Setup Program but can not 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 new password will clear the previously entered password from the 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 operate without a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will be displayed to confirm that the password is disabled.

PASSWORD DISABLED.

Once the password is disabled, the system will reset and you can enter the Setup Program freely.

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

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

The password requirement is defined by the Security Option of the BIOS Features Setup Menu. If the Security Option is set to "System", the password will be required both at resetting and at entering setup. If the option is set to "Setup", the prompt only appears when you try to enter setup.

Flash Update Procedure

A program AWDFLASH.EXE is included in the utility diskette or CD (X:\Utility\ AWDFLASH.EXE). The user is recommended to follow the procedure below to update the flash BIOS.

(X: your CD driver letter).

1. Create a DOS-bootable floppy diskette. Copy the new BIOS file (just obtained or downloaded) and the utility program AWDFLASH.EXE to the diskette.
2. Allow the PC system to boot from the DOS diskette.
3. At the DOS prompt, key in

    ### *AWDFLASH*
    ### *and hit <ENTER>*

4. Enter the file name of the new BIOS.
5. The question: "Do you want to save BIOS (Y/N)?" is displayed.

    Key in "N" if there is no need to save the existing BIOS content..
    Key in "Y" if a backup copy of the existing BIOS is needed.
    (A file name has to be assigned to the existing BIOS binary file.)

6. The message:press **"Y"** to program or **"N"** to exit is displayed.

    ### *Key in "Y"*

7. Wait until the flash-update is completed.
8. Power down the PC system.
9. Restart the PC.

Warning:

DO not turn off or RESET the computer during the flash process.
If you are unsure how to upgrade the BIOS, it is best to take your computer to an Authorized Service Center and have a trained technician do the work for you.

VT8237 SATA RAID User Guide

Enter BIOS Configuration Utility

When the system powers on, the following information will appear on screen. Press the 'Tab' key to enter BIOS configuration utility.

```
VIA Technologies,Inc.VIA Serial ATA RAID BIOS Setting Utility v1.00
Copyright  (C)  VIA Technologies,Inc.All Right reserved.

Scan Devices,Please wait . . .
Press < Tab > Key into User Window!
Channel 0 Master:   IC35L040AVVA07-0
Channel 1 Master:   IC35L040AVVA07-0
```

The main interface of BIOS configuration utility is as below:

```
                    VIA Tech.  RAID BIOS Ver  1.00

    ▸   Create Array                    Create a RAID array with
    ▸   Delete Array                    the hard disks attached to
    ▸   Create/Delete Spare             VIA IDE controller
    ▸   Select Boot Array
    ▸   Serial Number View              F1     :  View Array/disk Status
                                        ↑↓     :  Move to next item
                                        Enter  :  Confirm the selection
                                        ESC    :  Exit

     Channel          Drive Name      Array Name    Mode   Size(GB)   Status

   Channel0  Master   IC35L040AVVA07-0              ATA 100  38.34      Hdd
   Channel1  Master   IC35L040AVVA07-0              ATA 100  38.34      Hdd
```

Create Disk Array

1. Use the arrow keys to navigate the main menu. Use the up and down arrow keys to select the **Create Array** command and press <Enter> to call out the list of creation steps.

```
                    VIA Tech.  RAID BIOS Ver  1.00

    ‣ Auto Setup For Data Security        Create a RAID array with
    ‣ Array Mode RAID 1  (Mirroring)      the hard disks attached to
    ‣ Select Disk Drives                  VIA IDE controller
    ‣ Start Create Process
                                          F1    :  View Array/disk Status
                                          ↑↓   :  Move to next item
                                          Enter :  Confirm the selection
                                          ESC   :  Exit

       Channel         Drive Name     Array Name    Mode   Size(GB)   Status

    Channel0  Master   IC35L040AVVA07-0              ATA 100  38.34     Hdd
    Channel1  Master   IC35L040AVVA07-0              ATA 100  38.34     Hdd
```

2. Highlight the **Array Mode** and press <Enter>, then a list of array modes will appear. Just highlight the target array mode that you want to create, and press <Enter> to confirm the selection.

```
                    VIA Tech.  RAID BIOS Ver  1.00

    ‣ RAID 0 for performance              Create a RAID array with
    ▷ RAID 1 for data protection          the hard disks attached to
                                          VIA IDE controller
    ‣ RAID SPAN for capacity
                                          F1    :  View Array/disk Status
                                          ↑↓   :  Move to next item
                                          Enter :  Confirm the selection
                                          ESC   :  Exit

       Channel         Drive Name     Array Name    Mode   Size(GB)   Status

    Channel0  Master   IC35L040AVVA07-0              ATA 100  38.34     Hdd
    Channel1  Master   IC35L040AVVA07-0              ATA 100  38.34     Hdd
```

3. After selected array mode, there are two methods to create a disk array. One method is "**Auto Setup**" another is "**Select Disk Drives**". **Auto Setup** let BIOS select the disk drives and create array automatically. **Select Disk Drives** let user select the array drives by required. When using **Select Disk Drives** method, the channel column will be activated. Just highlight the target drives that you want to use and press <Enter> to select them respectively. After all drives have been selected, press <Esc> to go back to the creation steps menu.

```
VIA Tech.  RAID BIOS Ver  1.00

  ‣  Auto Setup For Performance        Create a RAID array with
  ‣  Array Mode RAID 0 (Striping)      the hard disks attached to
  ‣  Select Disk Drives                VIA IDE controller
  ‣  Block Size 64K
  ‣  Start Create Process              F1   :   View Array/disk Status
                                       ↑↓   :   Move to next item
                                       Enter :  Confirm the selection
                                       ESC  :   Exit


     Channel          Drive Name      Array Name    Mode   Size(GB)   Status

  [ * ]Channel0  Master   IC35L040AVVA07-0         ATA  100  38.34    Stripe0
  [   ]Channel1  Master   IC35L040AVVA07-0         ATA  100  38.34    Hdd
```

4. If user selected a RAID 0 array in step 2, user also can select a block size for the array. Use the arrow key to highlight the Block Size and press <Enter>, then select a block size from will popup. The block size can be selected from 4K to 64K Bytes.

```
VIA Tech.  RAID BIOS Ver  1.00

  ‣  Auto Setup For      4K           Create a RAID array with
  ‣  Array Mode RAID     8K           the hard disks attached to
  ‣  Select Disk Dri     16K          VIA IDE controller
  ‣  Block Size 64K      32K
  ‣  Start Create Pr     64K          F1   :   View Array/disk Status
                                      ↑↓   :   Move to next item
                                      Enter :  Confirm the selection
                                      ESC  :   Exit


     Channel          Drive Name      Array Name    Mode   Size(GB)   Status

  [ * ]Channel0  Master   IC35L040AVVA07-0         ATA  100  38.34    Stripe0
  [ * ]Channel1  Master   IC35L040AVVA07-0         ATA  100  38.34    Stripe1
```

5. Use the arrow key to highlight **Start Create Process** and press <Enter>. A warning message will appear, press **Y** to finish the creation, or press **N** to cancel the creation.
6. Please note that all existing content in the hard drive will be destroyed after the array creation.

Delete Disk Array

A specific RAID can be deleted after it has been created. To delete a created RAID, please use the following steps:
1. Select **Delete Array** in the main menu and press <Enter>. The channel column will be activated.
2. Select the member of an array that is to be deleted and press <Enter>. A warning message will show up, press **Y** to delete or press **N** to cancel.

```
                    VIA Tech.  RAID BIOS Ver  1.00

  ‣  Create  Array                    Delete a RAID array contain
  ‣  Delete  Array                    the hard disks attached to
  ‣  Create/Delete  Spare             VIA IDE controller
  ‣  Select  Boot  Array
  ‣  Serial  Number  View             F1    :  View  Array/disk  Status
                                      ↑↓    :  Move to next item
  The selected array will be destoried  Enter  :  Confirm the selection
  Are you sure? Conlinue? Press Y/N   ESC   :  Exit


      Channel         Drive Name       Array Name    Mode   Size(GB)   Status

  [*] Channel0  Master  IC35L040AVVA07-0  ARRAY  0  ATA  100  38.34    Stripe0
  [*] Channel1  Master  IC35L040AVVA07-0  ARRAY  0  ATA  100  38.34    Stripe1
```

Deleting a disk array will destroy all the data on the disk array except RAID 1 arrays. When a RAID 1 is deleted, the data on these two hard disk drives will be reserved and become two normal disk drives.

Select Boot Array

User can select a disk array as boot device if user wants to boot operating system from an array. Boot disk array can be not selected if user does not boot operating system from disk array. Use the arrow key to highlight the Select Boot Disk item then press <Enter>. The channel column will be activated. Just use arrow key to highlight the target disk array then press <Enter>. If user select a disk array that has a boot mark and press <Enter>, then its boot setting will be canceled.

```
                    VIA Tech.  RAID BIOS Ver  1.00
┌──────────────────────────────────┬───────────────────────────────┐
│                                   │                               │
│  ‣  Create  Array                 │   Sct/Clear bootable array     │
│  ‣  Delete  Array                 │                               │
│  ‣  Create/Delete Spare           │                               │
│  ‣  Select  Boot  Array           │                               │
│  ‣  Serial Number View            │   F1   :  View Array/disk Status│
│                                   │   ↑↓   :  Move to next item    │
│                                   │   Enter :  Confirm the selection│
│                                   │   ESC  :  Exit                 │
│                                   │                               │
├───────────────────────────────────────────────────────────────────┤
│                                                                   │
│    Channel        Drive Name      Array Name    Mode  Size(GB)  Status│
│                                                                   │
│ [*] Channel0  Master  IC35L040AVVA07-0  ARRAY  0  ATA  100  38.34   Boot │
│ [*] Channel1  Master  IC35L040AVVA07-0  ARRAY  0  ATA  100  38.34   Boot │
└───────────────────────────────────────────────────────────────────┘
```

Duplicate Critical RAID 1 Array

When booting up the system, BIOS will detect if the RAID 1 array has any inconsistencies between user data and backup data. If BIOS detects any inconsistencies, the status of the disk array will be marked as critical, and BIOS will prompt the user to duplicate the RAID 1 in order to ensure the backup data consistency with the user data.

```
┌═══ Critical RAID 1 ═══════════════┬═══════ Critical Status ═══┐
│                                   │                               │
│  ┌──────────────────┐             │   the RAID 1 array needs to    │
│  │ Duplicate  now   │             │   be duplicated to ensure      │
│  └──────────────────┘             │   data  consistancy.           │
│    Continue to boot               │                               │
│                                   │                               │
│                                   │   Fault Hdd Found:             │
│                                   │   Channel  1 Device  0  Fault  │
│                                   │                               │
├═══ Remaining members of the failed array ═══════════════════════════┤
│                                                                   │
│    Channel         Drive Name       Array Name    Mode   Size(GB) Status│
│  Channel1  Device0   IC35L040AVVA07-0   Array0       ATA  100  38.34   Mirror│
│  Channel0  Device0   IC35L040AVVA07-0   Array0       ATA  100  38.34   Source│
│                                                                   │
│  Note:                                                            │
│  1)Press <ESC> to Exit.                                          │
│  2)After  Execute,Press  <TAB>  immediately can into Utility Window!│
└───────────────────────────────────────────────────────────────────┘
```

If user selects Continue to boot, it will enable duplicating the array after booting into OS.

Rebuild Broken RAID 1 Array

When booting up the system, BIOS will detect if any member disk drives of RAID has failed or is absent. If BIOS detects any disk drive failures or missing disk drives, the status of the array will be marked as broken.

If BIOS detects a broken RAID 1 array but there is a spare hard drive available for rebuilding the broken array, the spare hard drive will automatically become the mirroring drive. BIOS will show a main interface just like a duplicated RAID 1. Selecting **Continue to boot** enables the user to duplicate the array after booting into operating system.

```
┌──── Broken RAID 1 ──────────────┬──── Critical Status ────┐
│ ┌──────────────────────────────┐│                         │
│ │ Power off and check the failed drive          A disk member of a mirroring
│ │ Destroy the Mirroring Relationship            array has failed or is not
│ │ Choose replacement drive and rebuild          responding.The array is
│ │ Continue to boot                              stilling functional,but fault
│ │                                               tolerance is disabled.
│ └──────────────────────────────┘│                         │
└─────────────────────────────────┴─────────────────────────┘
```

```
┌──────── Remaining members of the failed array ──────────┐
│                                                          │
│    Channel        Drive Name       Array Name   Mode   Size(GB)   Status
│ Channel0 Device0  IC35L040AVVA07-0  Array0  ATA 100   38.34    Broken
│                                                          │
│                                                          │
│  Note:                                                   │
│  1)Press <ESC> to Exit.                                  │
│  2)After  Execute,Press  <TAB>  immediately can into Utility Window!
└──────────────────────────────────────────────────────────┘
```

1. Power off and Check the Failed Drive:

This item enables users to turn off the computer and replace the failed hard drive with a good one. If users' computer does not support APM, the computer would need to be turned off manually. After the replacement, users can boot into BIOS and select **3 Choose replacement drive and rebuild** to rebuild the broken array.

2. Destroy the Mirroring Relationship:

This item enables users to cancel the data mirroring relationship of the broken array. For broken RAID 1 array, the data on the surviving disk will remain after the destroy operation. However, **Destroy the Mirroring Relationship** is not recommend because the data on the remaining disk will be lost when the hard drive is used to create another RAID 1 array.

3. Choose Replacement Drive and Rebuild:

This item enables users to select an already-connected hard drive to rebuild the broken array and replace the data to that particular hard drive. After choosing the item, the channel column will be activated.

```
══════ Broken RAID 1 ═══════          ═══════ Critical Status ═══════

   Power off and check the failed drive      The contents on the disk
   Destroy the Mirroring Relationship        you have selected will be
   Choose replacement drive and rebuild      deleted.
   Continue to boot



═════ Remaining members of the failed array ═════

     Channel        Drive Name      Array Name    Mode   Size(GB)   Status
( )  Channel1  Device0  IC35L040AVVA07-0          ATA 100  38.34     Hdd



   Note:
   1)Press <ESC> to Exit.
   2)After  Execute,Press  <TAB>  immediately can into Utility Window!
```

Highlight the target hard drive and press <Enter>, a warning message will appear. Press **Y** to use that hard drive to rebuild, or press **N** to cancel. Please note by selecting option **Y**, all the data on the selected hard drive will be destroyed.

4. Continue to boot:

This item enables BIOS to skip the problem and continue booting into OS.

DRIVER AND RAID SOFTWARE INSTALLATION

Microsoft Windows Driver Installation

1. After Windows has finished booting up, the system will automatically find the newly installed adapter and prompt the **Found New Hardware Wizard** window. Click **Cancel** to skip it.

2. Insert the bundled driver CD DISC into your CD-ROM drive,select "**Serial ATA RAID Driver**"installation bar on the dialogue Window to begin the driver and software installation.
3. Confirm the follow-up dialogue windows to finish the installation.

4. When installation is completed, click **Finish** to restart the system.

Install Operating System into SATA HDD of VT8237

Install Windows 98SE or Me

    1.Make sure the HDD wanted for installing the OS is in the first hard disk drive(C:\).

    2.Install OS.

    3.Install driver after OS is installed.

Install Windows NT 4.0,2000,XP

    1.Insert the bundled driver CD DISC into CD-ROM(G:).Copy all files and directories of G:\VIA chipset\SATA_Raid\DriverDisk\SATA folder to a floppy disk.Make sure following directoties and files are copied into floppy disk.

    A:\

    \Win2000

        VIAsraid.inf

        VIAsraid.sys

        VIAsraid.cat

    \Winnt40

        VIAsraid.inf

        VIAsraid.sys

    \WinXP

        VIAsraid.inf

        VIAsraid.sys

        VIAsraid.cat

    Txtsetup.oem

    VT8237

    2.Install OS from CD-ROM.

    3.Press "**F6**" when display "Press **F6** if you need to install a third party SCSI or RAID driver..."

    4.Insert floppy disk.

    5.Choose the OS device driver wanted for loading.

    6.Install OS.

    7.Install driver after OS is installed.

APPENDIX

Note to User:

1.The bundled driver CD attached an Auto-Run feature for all the drivers that the motherboard need. Please select the drivers that you want to install and click the button on the installation panel.

2.This motherboard support USB2.0 feature only on Windows® 2000/ XP OS.