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Item Checkup

- Mainboard
- User Manual (Mainboard)
- Multi-lingual Quick Installation Guide
- Support CD
- Bundled Bonus Pack CD
- Floppy Diskette with SATA RAID Drivers
- Bundled Bonus Pack Manual
- Cables
 - ATA 133/100/66 IDE Cable
 - FDD Cable
 - USB Cable (optional)
 - 2 x Serial ATA Cable
 - 1xSATA Power Cable

Chapter 1 Specification

Introduction

This mainboard features an integration of the powerful AMD Athlon 64 processors and the North Bridge VIA K8T800 plus South Bridge VT8237, with which the whole system performance supports Hyper Transport Speed up to 800MHz.

VIA K8T800 plus VT8237 supports on-board AMD Athlon 64 CPU to implement the 800MHz Front Side Bus, the AGP 8X/4X interface, LPC Super I/O, the DDR 400/333/266 MHz SDRAM, the 6-channel AC'97 Audio interface, the USB 2.0 interface, ATA 133/100/66 data transfer rate etc.and the SATA RAID 150Mb interface. This chapter is to introduce to users every advanced function of these high performance integrations.

Topics included in this chapter are:

1-1 Mainboard Layout

1-2 Mainboard Specification Table

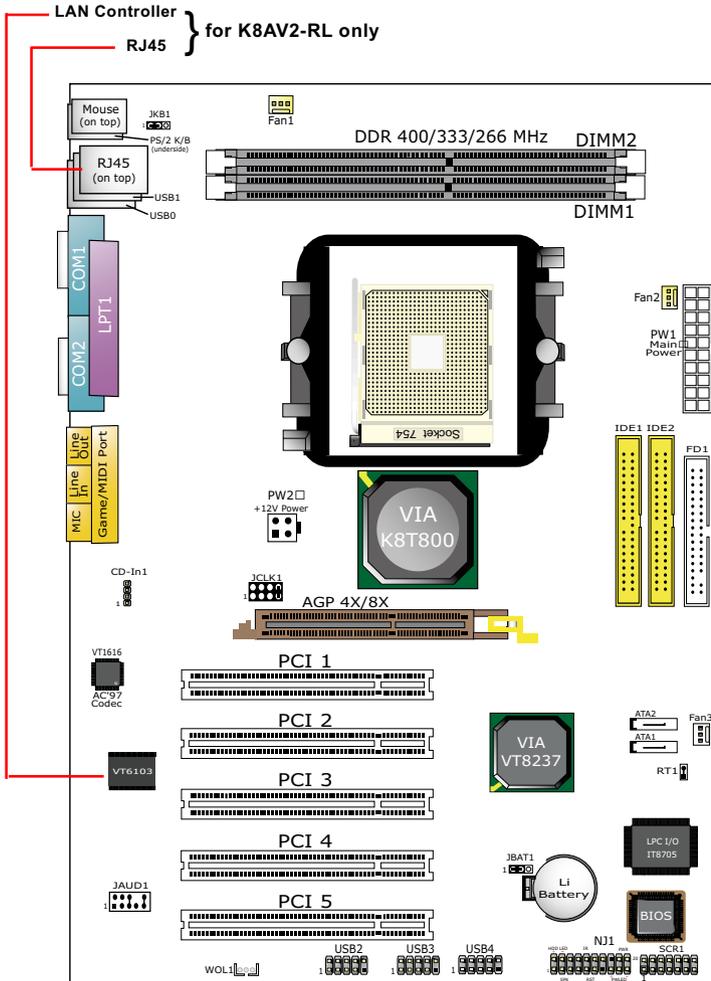
1-3 VT8237 System Block Diagram

1-4 VT8235 System Block Diagram

1-4 Mainboard Specifications**

**** If any difference is found between the manual description and the Mainboard you are using, please look up the Errata/Update Slip enclosed inside for the correction or updated information, or else contact the Mainboard Dealer or visit our Web Site for the latest manual update.**

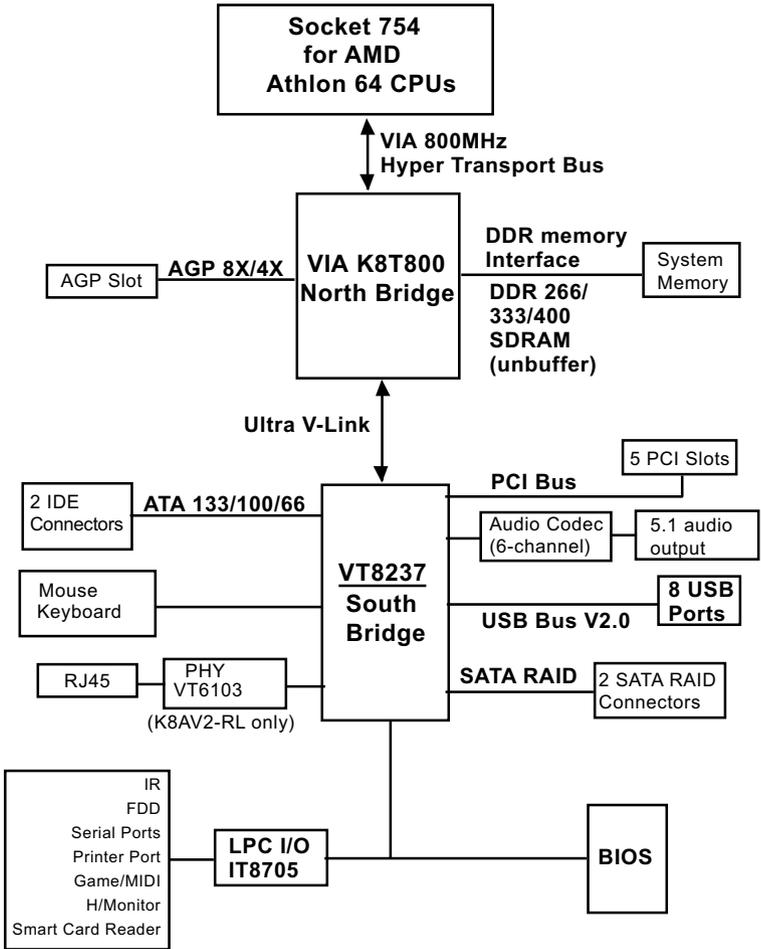
1-1 K8AV2-R / K8AV2-RL Mainboard Layout



1-2 Mainboard Specification Table

K8AV2-R / K8AV2-RL Specifications and Features		
CPU	Socket 754 for AMD Athlon 64 CPUs	
North Bridge	K8T800, supporting up to 800MHz FSB	
South Bridge	VT8237, SATA RAID controller	
BIOS	AWARD BIOS	
Memory	Supporting unbuffer DDR 400/333/266 SDRAM, up to 2GBin 2 DDR SDIMM slots	
I/O Chip	ITE IT8705F with Hardware Monitor support	
AGP interface	AGP 8X/4X mode only	
Audio	VIA VT1616 Audio Codec, 6-channel compliant	
IDE Interface	2 ATA 133/100/66 IDE	
Serial ATA RAID	2 SATA RAID ports supported by VT8237	
PCI Slots	5 PCI Master slots on board	
I/O Connectors	8 USB V2.0, 1 FDD port, 2 COM ports, 1 LPT, 1 IrDA, 1 PS/2 K/B, 1 PS/2 Mouse,	
Other common features	BIOS Writing Protection; USB, PS/2 Keyboard/ Mouse Power On/Wake Up; ATX Power Supply V2.03; ATX form factor	
Optional Feature	K8AV2-R	K8AV2-RL
LAN Controller	No	Yes

1-3 Chipset System Block Diagram



Socket 754 + VIA K8T800 + VIA VT8237 Diagram

1-4 Mainboard Specifications

1-4.1 CPU Socket

CPU Socket 754 on board, supporting AMD Athlon 64 processors and implementing up to 800MHz Hyper Transport Speed (System Bus).

1-4.2 System Chipsets

- North Bridge VIA K8T800 for managing and supporting up to 800MHz Hyper Transport speed(System Bus), AGP 8X/4X interface and DDR400/333/266MHz Memory Interface *with an enhanced support of DDR 400MHz Memory Module.
- South Bridge VIA VT8237 working with North Bridge K8T800 to support V-Link, LPC Super I/O, PCI interface, ATA133 interface, USB V2.0 interface, AC'97 Audio 6-channel interface as well as SATA RAID interface.

1-4.3 Memory

2 DDR DIMM 184-pin slots on board :

- Supporting unbuffer DDR 400/333/266 SDRAM up to 2 GBs
- Supporting installation of different volume yet same type of DDR SDRAM Modules

1-4.4 Accelerated Graphics Port (AGP) Interface

AGP Controller embedded on board, supporting:

- 1.5V(8X/4X) power mode only, 1 AGP Slot supported
- 8 x 66MHz AD and SBA signaling; AGP pipelined split-transaction longburst transfers up to 2GB/sec.
- AGP 8X/4X supported, AGP V3.0 compliant

1-4.5 Expansion Slots

- 5 PCI Bus Master slots
- 1 AGP 8X/4X slot
- 2 DDR DIMM slots

1-4.6 BIOS (Basic Input Output System)

Flash Memory for easy upgrade, supporting BIOS Writing Protection, Year 2000 compliant, and supporting various hardware configuration during booting system (See Chapter 4 BIOS Setup):

- Standard CMOS Features (Times, Date, Hard Disk Type etc.)
- Advanced BIOS Features (Virus Protection, Boot Sequence etc.)
- Advanced Chipset Features (AT Clock, DRAM Timing etc.)
- Power Management Features (Sleep timer, Suspend Timer etc.)
- PNP/PCI Configurations (IRQ Settings, Latency Timers etc.)
- Integrated Peripherals (Onboard IO,IRQ, DMA Assign. etc.)
- SmartDoc Anti-Burn Shield (CPU/System Temp.,Fan speed etc.)
- Frequency/Voltage (CPU clock, Voltage of CPU, DIMM, AGP etc.)

1-4.7 Multi-I/O Functions

- PCI EIDE Controller, supporting:
 - 2 ATA 133 / 100 / 66 IDE connectors supporting up to 4 IDE devices
- Dedicated IR Functions:
 - 1x5 IR connector dedicated to IR function with Infrared-IrDA (HPSIR) and ASK (Amplitude Shift Keyed) IR
- Multi-mode parallel data transfer:
 - Standard mode, high speed mode ECP and enhanced mode EPP
- Floppy Drive Connector:
 - 1 FDD connector supporting 2 floppy drives with drive swap support
- Universal Serial Bus Transfer Mode:
 - USB V2.0 compliant, 480 Mb/s USB Bus, supporting Win 98se and later operating systems; USB drivers provided in Support CD for installation
 - 2 built-in USB connectors; 3 more USB pin-headers which require 3 additional USB cables to provide 6 more USB ports
 - USB Wake-up function supported by USB ports
- PS/2 Keyboard and PS/2 Mouse
- UARTs (Universal Asynchronous Receiver / Transmitter):
 - 2 serial ports (COM1 & COM2) on board

1-4.8 SATA RAID Interface

Serial ATA RAID Interface supported by VT8237:

- Supporting 2 SATA connectors for 2 SATA RAID Hard Disks with 150Mb/s transfer rate
- SATA RAID Drivers enclosed in Support CD/Floppy Diskette for user's installation

1-4.9 Advanced System Power Management

Advanced Configuration and Power Interface incorporated in BIOS for reducing power consumption :

- ACPI 1.0 compliant (Advanced Configuration and Power Interface)
- APM V1.2 compliant (Legacy Power Management)
- ACPI Suspend function supported
- USB and PS/2 Keyboard & Mouse Power On/Wake Up
- Supporting Ring Signal Power Up Control for Wake-on-LAN
- Real Time Clock (RTC) with date alarm, month alarm, and century field

1-4.10 Audio Codec on board

VIA VT1616 Audio Codec on board

- 18-bit 6 channel DAC performance
- Fully supporting surround sound applications, along with 5 stereo and 2 mono inputs
- Audio Codec Driver enclosed in Support CD for user's installation

1-4.11 LAN on board (K8AV2-RL only)

Fast Ethernet Controller V6103 PHY on board:

- Supporting 10/100Mb Fast Ethernet Base T LAN
- Supporting Wake On LAN through on-board WOL1 connector
- LAN Driver enclosed in Support CD for user's installation

1-4.12 Hardware Monitor on board

- Hardware Monitor supported by LPC I/O IT8705F, to provide monitoring and desktop management of hardware voltage, temperatures and fan speeds
- Utility Software Soltek HM for displaying monitoring status is enclosed in Support CD for user's installation.

1-4.13 Smart Card Reader On Board

Connector "SCR 1" on board supports Smart Card Reader via LPC I/O ITE8705, compliant with Personal Computer Smart Card (PC/SC) working group standard and smart card (ISO 7816) protocols

1-4.14 Form Factor

- ATX PCB, ATX power supply V2.03 (20-pin Main Power Connector and 4-pin +12V Power Connector)
- PCB size: 305mm x 220mm

Memo

Chapter 2 Hardware Setup

To Get Things Ready for Hardware Setup !

1. We recommend to install your CPU before any other components. For detailed installation instructions of processor, you can also refer to the pamphlet enclosed in your CPU package.
2. Installing a cooling fan with a good heatsink is a must for proper heat dissipation for your CPU. Get ready an appropriate fan with heatsink for proper installation. Improper fan and installation will damage your CPU.
3. In case CPU Vcore, CPU clock or Frequency Ratio is adjustable on board, please follow the instructions described in the User Manual for proper setup. Incorrect setting will cause damage to your CPU.

The following topics are included in this chapter:

2-1 CPU Identification and Installation

2-2 Memory Installation

2-3 AGP Slot Installation

2-4 IDE Connector Installation

2-5 Floppy Drive Connector (FDC) Installation

2-6 ATX Power Supply Installation

2-7 Jumper Settings

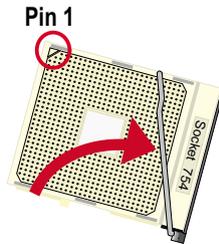
2-8 Other Connectors Configuration

2-1. CPU Installation with Socket 754

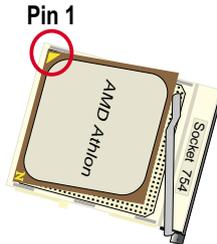
This series is built with CPU Socket 754 supporting the AMD CPUs Athlon 64:

- Follow the steps described in this section to install CPU into the on-board Socket 754.
- After installation of CPU, you must also install a proper cooling fan on top of the CPU and connect the Fan cable to the CPU fan connector.

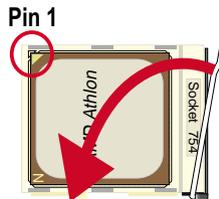
1. First pull sideways the lever of Socket 754, and then turn it up 90° so as to raise the upper layer of the socket from the lower platform.



2. Configure Pin 1 of CPU to Pin 1 of the Socket, just as the way shown in the diagram on the right. Adjust the position of CPU until you can feel all CPU pins get into the pin holes of the socket.



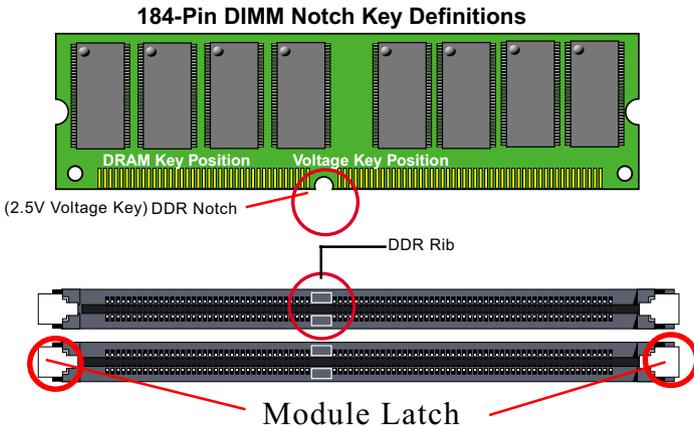
3. Make sure that all CPU pins have completely entered the socket and then lower down the lever to lock up CPU to socket.



2-2 Memory Installation

2-2.1 To Install DDR SDRAM Module

- This series supports up to 2GB DDR 400/333/266 SDRAM, with 2 DDR DIMM slots on board. Do not insert other type of modules into these slots.
- DDR DIMM slot has 184-pins and one notch. Insert a DDR SDRAM vertically into the 184-pin slot with the notch-to-rib matching.
- Make sure to unplug your power supply before adding or removing memory module. Failure to do so may cause severe damage to both your mainboard and the memory module.
- Pay attention to the orientation of the DIMM slots. Forcing a DIMM into a slot improperly will damage the memory module and slot itself.

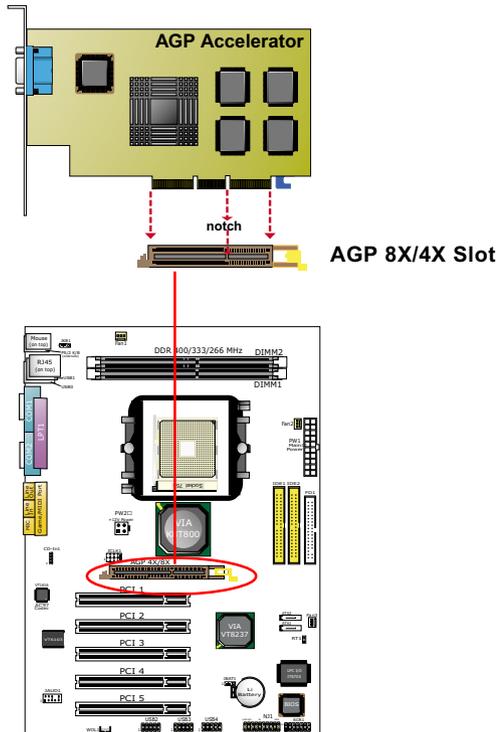


2-2.2 To Remove a DIMM

Power off system and press down the holding latches on both sides of slot to release the module from the DIMM slot.

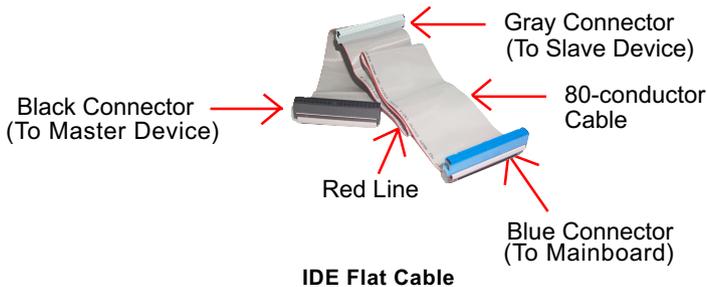
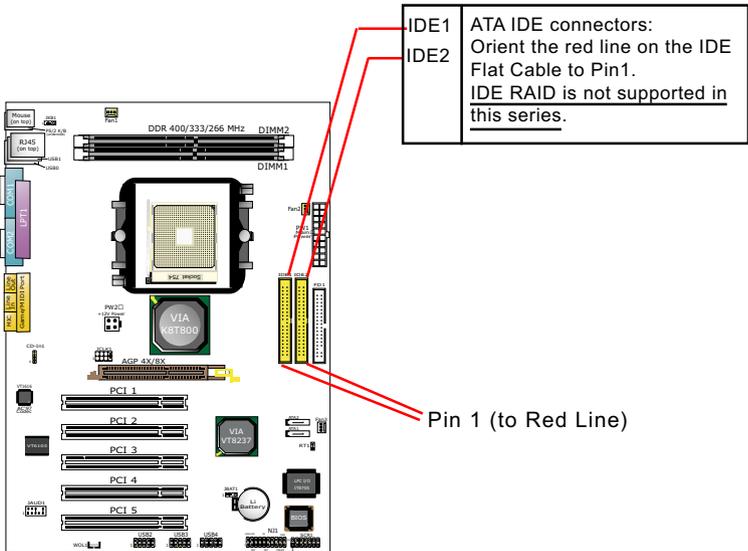
2-3 AGP Slot Installation

The AGP slot on board supports 1.5V AGP 8X/4X card only. A Rib is specifically added to the 8X/4X slot so as to match the AGP 8X/4X card. To insert a 3.3V AGP 2X card into the AGP 4X slot will damage the system chip and burn the 1.5V circuitry. An AGP 8X card will support a data transfer rate up to 2GB/sec., while an AGP 4X card will provide 1GB/sec transfer rate.



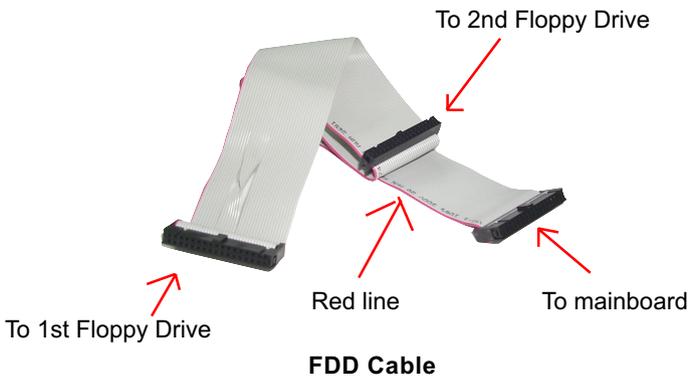
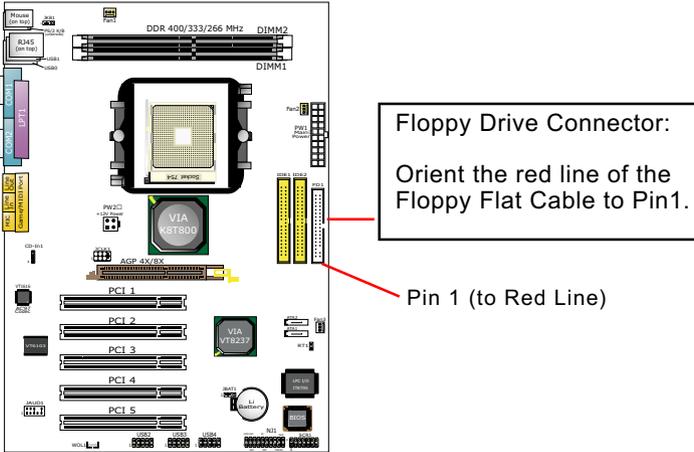
2-4 IDE Connector Installation

To install IDE Connector, you may connect the blue connector of IDE cable to the primary (IDE1) or secondary (IDE2) connector on board, and then connect the gray connector to your slave device and the black connector to your master device. If you install two hard disks, you must configure the second drive to Slave mode by setting its jumpers correctly. Please refer to your hard disk documentation for the jumper settings.



2-5 Floppy Drive Connector (FDC) Installation

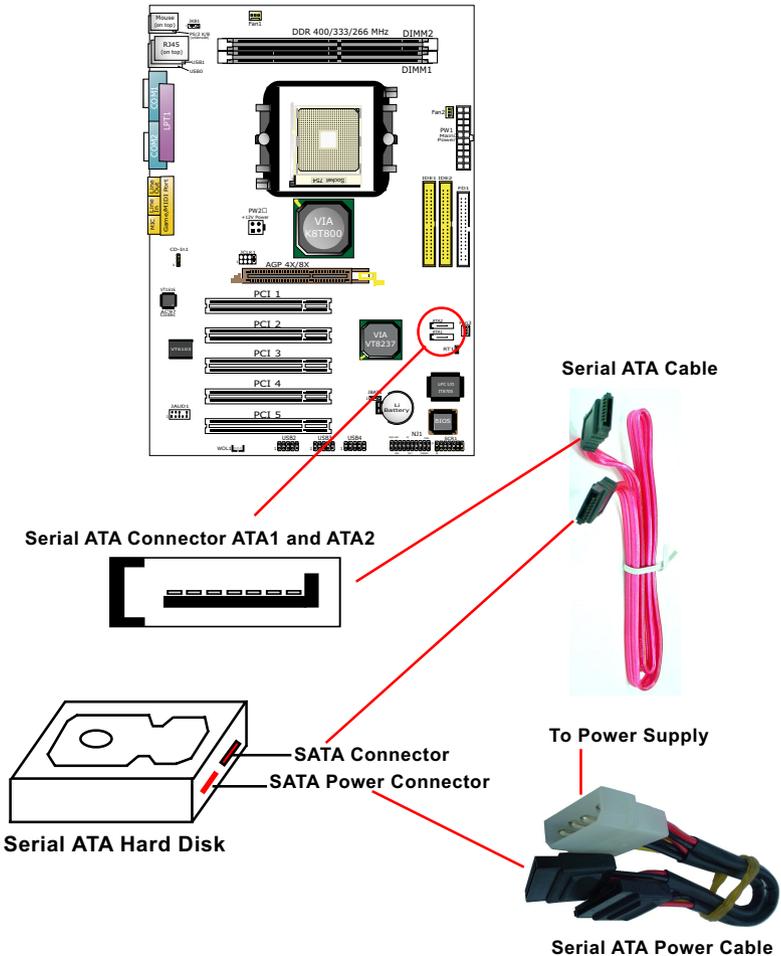
To install FDC, you should connect the end of FDC cable with single connector to the board, and connect the other end with two connectors to the floppy drives.



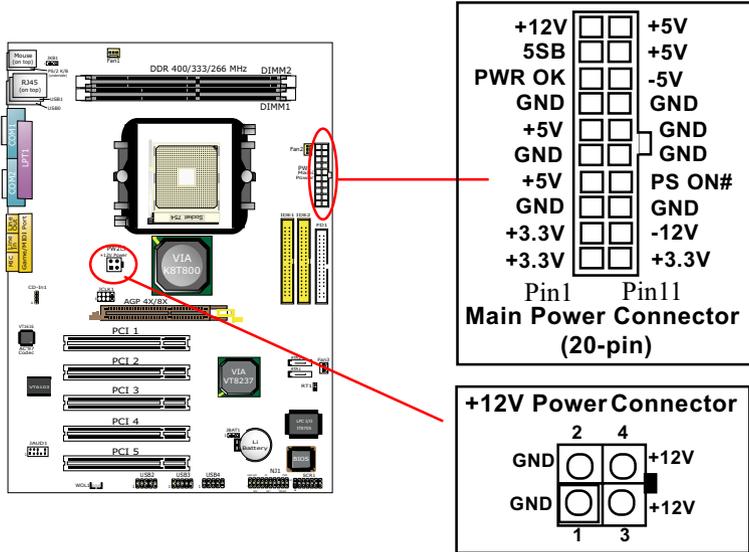
2-6 SATA RAID Connector Installation

2 Serial ATA connectors are built on board, supported by the South Bridge VT8237 with SATA RAID interface. We can connect these two connectors to SATA Hard Disks and then configure these Hard Disks into SATA RAID Disks.

SATA RAID drivers are already incorporated into Support CD and Floppy Diskette for user's installation. Please refer to Chapter 5 for SATA RAID Driver Installation.



2-7 ATX Power Supply Installation



To set up Power Supply on this mainboard:

1. Connect the on-board Main Power Connector (20-pin) to the Main Power Connector (20-pin) of an ATX Power Supply which should be of the latest version 2.03 model, and then connect the square-shaped +12V Power Connector on board to the square-shaped +12V Power Connector of the Power Supply.

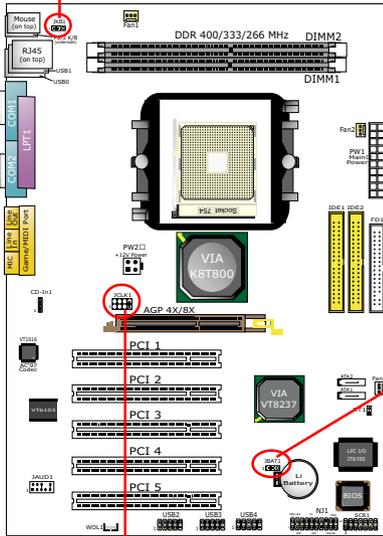
Warning: Both Main Power Connector and +12 Power Connector should be connected to power supply; otherwise, system may either not start or be damaged.

2. This ATX power supply should be able to provide at least 720mA / +5V standby power for Wake On LAN and Wake On function.

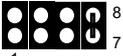
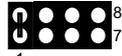
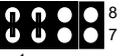
2-8 Jumper Settings

The following diagrams show the locations and settings of jumper blocks on the mainboard.

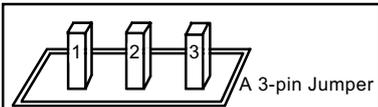
JKB1:	
KB/Mouse Wakeup	
1 	1-2 closed Enabled (default)
1 	2-3 closed Disabled



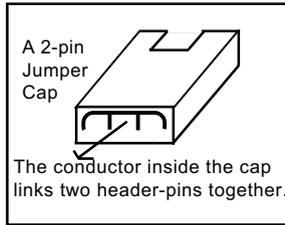
JBAT1	
Clear CMOS	
1 	1-2 closed (default) To hold data
1 	2-3 closed To clear CMOS

JCLK1: CPU Clock Select			
(default) 200MHz	233MHz	266MHz	270MHz
			
1 8	1 8	1 8	1 8
7	7	7	7

2-8.1 How to tackle the Jumpers:



A 3-pin Jumper
If a pin-header (of 2 or more pins) is designed in such a way that its pins can be closed or linked together to set up a specific function, this header is called a jumper in this manual.



A 2-pin Jumper Cap
The conductor inside the cap links two header-pins together.

- A Jumper is usually but not necessarily denoted by “Jp()” .
- In the Jumper setting diagram, all jumper pins covered with black marks stand for closed pins with jumper cap.



- Do not remove any jumper cap when power is on. Always make sure the power is off before changing any jumper settings. Otherwise, mainboard could be damaged.

2-8.2 JCLK1: CPU Clock Select

JCLK1 is designed on board as an 8-pin jumper for CPU clock select.

1. Select the CPU clock you want from 200/233/266/270MHz and set JCLK1 to match your choice.
2. If you select a CPU clock which is higher than your default CPU clock, it may fail to boot system. You should restore the default setting and then clear CMOS to reboot your system. (See Clear CMOS in next paragraph.)

JCLK1: CPU Clock Select			
(default) 200MHz 7-8 closed	233MHz 3-4 closed	266MHz 1-2 closed	270MHz 1-2 closed 3-4 closed
1 3 5 7	1 3 5 7	1 3 5 7	1 3 5 7

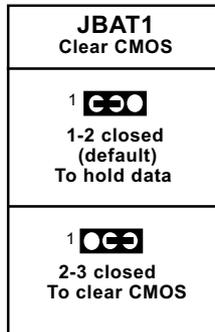
Note on CPU Overclocking:

1. If you have successfully booted system with or without CPU overclock, you still can do another CPU overclock in BIOS Setup. Please enter BIOS Setup, choose “Frequency/Voltage Control” menu, and enable the “Use CPU Linear Frequency”. Then configure the “CPU Clock” item to raise your CPU clock.
2. CPU overclocking should take all components on board into account. If you fail in BIOS overclocking, you will not be able to restart system. In such case, power off system and clear CMOS by JBAT1 as stated below and then restart your system.
3. If your system is already fixed in a cabinet or case, you may not like to take the trouble to clear CMOS. Then power on your system with the power button of the PC cabinet and simultaneously press down the “Insert” key of the keyboard until you see the initial bootup screen appear. And remember you should also enter CMOS BIOS Setup and choose “Load Optimized Defaults” to restore default BIOS .

2-8.3 JBAT1: Clear CMOS

When you have problem with rebooting your system, you can clear CMOS data and restore it to default value. To clear CMOS with Jumper JBAT1, please follow the steps below:

1. Power off system and take away the onboard battery.
2. Set JBAT1 to Pin 2-3 closed.
3. After 2 or 3 seconds, return the JBAT1 setting to Pin1-2 closed and return the battery to the battery base.
4. CMOS data are restored to default. Remember never clear CMOS when system power is on.



2-8.4 JKB1: KB/Mouse Wake-up

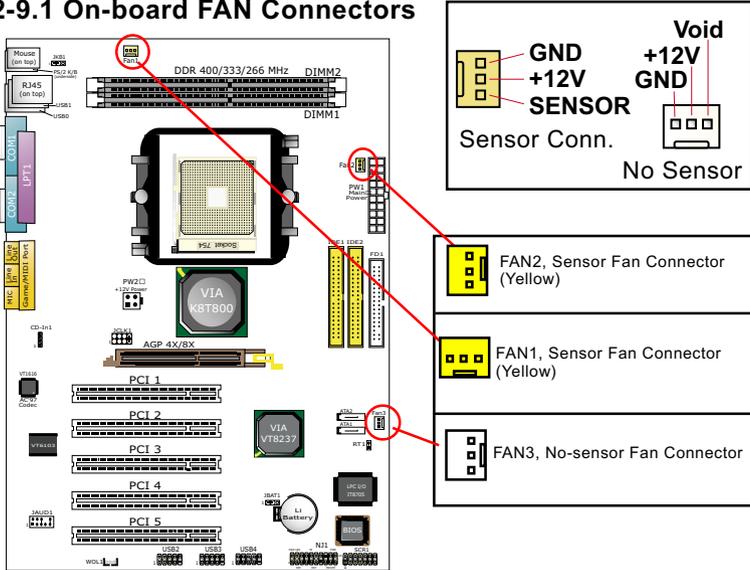
JKB1 is designed on board as a jumper to wake up system from suspend mode either with the the PS/2 keyboard/mouse. In addition, PS/2 Keyboard/Mouse Power-on function is also controlled by this jumper. Yet user should still enter “BIOS Setup” to choose the Wake-up/Power-on mode. USB Keyboard/Mouse Wake-up is an optional function on this series of mainboard.

JKB1: KB/Mouse Wakeup	
1 	1-2 closed Enabled (default)
1 	2-3 closed Disabled

2-9 Other Connectors Configuration

This section lists out all connectors configurations for users' reference.

2-9.1 On-board FAN Connectors



Both Sensor and No-sensor Fan Connectors support CPU/AGP/System/Case cooling fan with +12V mode. A Hardware Monitor chipset is on board, with which user can install a Hardware Monitor Utility and read the fan speed transmitted from the sensor fan connector. Otherwise, user can read the fan speed from the “Hardware Monitor Status” via CMOS BIOS.

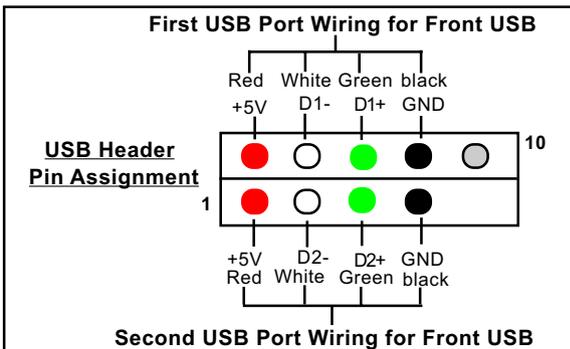
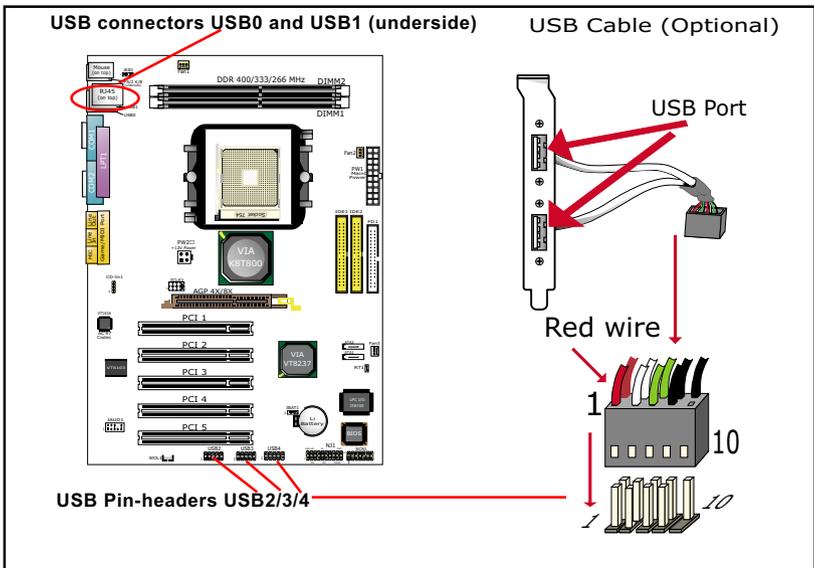
A running fan will send out 2 electric pulses per rotation of its fan blade to a Sensor Fan Connector which in turn will count the electric pulses and send the information to the System Hardware Monitor. The hardware Monitor Program will work out the fan rotation speed and display it on screen.

2-9.2 USB Ports and USB Pin-headers

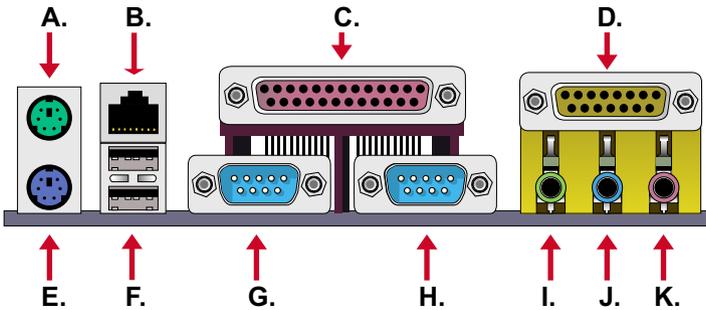
This series provides two USB ports USB0 and USB1 on board supporting various USB devices. In addition, 3 USB pin-headers are added on board to provide expansion of 6 more USB ports by using 3 additional USB Cables. The optional USB cables can be available from the mainboard dealer or vender.

When plugging the USB cable to USB Header, user must make sure the red wire is connected to Pin 1.

All 8 USB ports are compliant with USB 2.0 Bus. VIA USB 2.0 supports Win 98se and up . USB 2.0 drivers are provided in Support CD for user's installation.



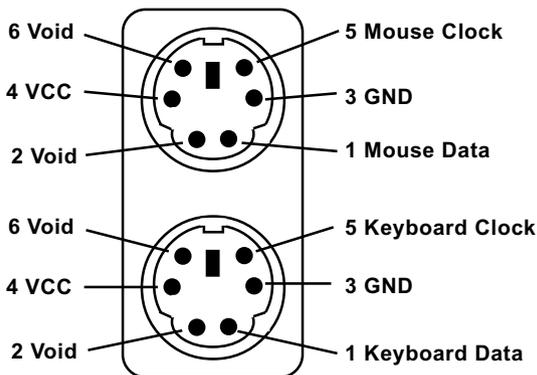
2-9.3 Chassis Panel Connectors



- | | |
|---------------------|--|
| A : PS/2 MOUSE | G : COM 1 |
| B : RJ45 (K8AV2-RL) | H : COM 2 |
| C : LPT1 PORT | I : Line Out /
Front Speaker OUT |
| D : Game/MIDI | J : Line In /
Rear Speaker Out |
| E : PS/2 KEYBOARD | K : Microphone Input /
Center Subwoofer Out |
| F : USB 1/0 | |

2-9.4 PS/2 Mouse And PS/2 Keyboard

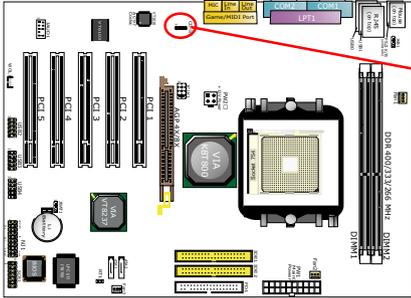
PS/2 Mouse Connector (green, on top)



PS/2 Keyboard Connector (purple, underside)

2-9.5 CD-ROM Audio Connectors (CD-In1)

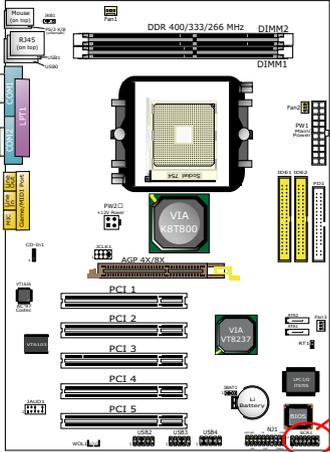
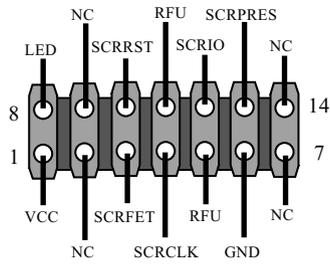
CD-In1 is an audio connector connecting CD-ROM audio to mainboard.



CD-ROM Audio Connector	
CD-In1	Pin Signal
1	Left Channel
Pin 1	Left Channel
Pin 2	GND
Pin 3	GND
Pin 4	Right Channel

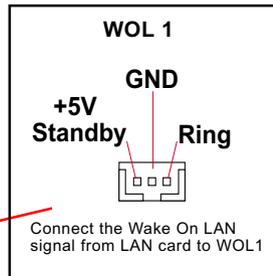
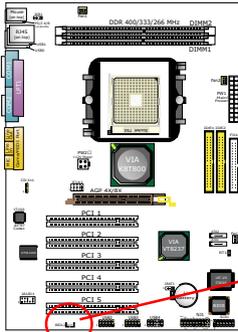
2-9.6 Smart Card Reader Connector: SCR1

Connector “SCR 1” on board supports Smart Card Reader via LPC I/O ITE8705, compliant with Personal Computer Smart Card (PC/SC) working group standard and smart card (ISO 7816) protocols

2-9.7 Connector WOL1: Wake On LAN

1. This connector is connected to a LAN card with a Ring signal output. The connector powers up the system when it receives a wake-up packet or signal through the LAN card.
2. This feature requires that Resume On Ring feature is enabled in the BIOS setting “Power Management Setup” and that your system must be on ATX power supply with at least 720mA / +5V standby power.

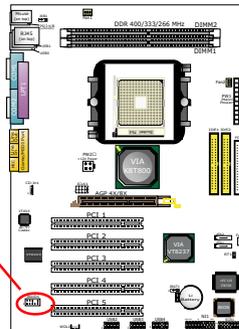
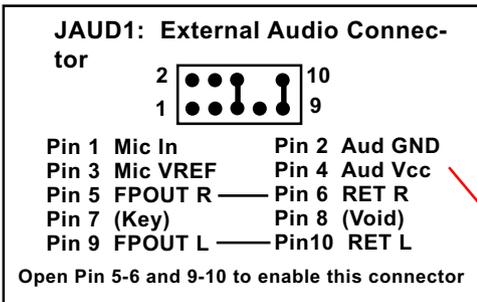


2-9.8 External Audio Connector

This Mainboard is designed with a External Audio connector “JAUD1” which provides connection with Audio connector on the Front I/O Panel.

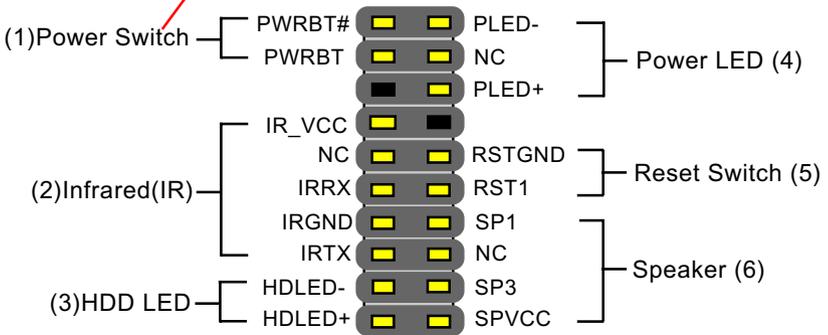
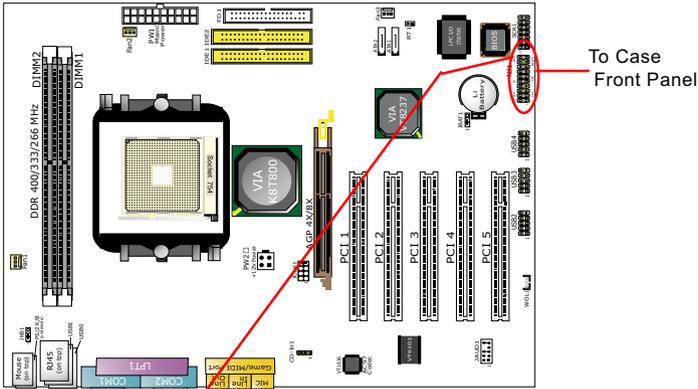
1. When JAUD1 is set to 5-6 closed and 9-10 closed, this default setting disables this connector and leaves the Back Panel Audio enabled.
2. To use this External Audio Connector, please open all pins of JAUD1 and connect it to the Front I/O Panel.

(Front I/O Panel is an optional panel. It is available in Soltek Barebone system.)



2-9.9. Complex Pin-header (Front Panel Connectors)

This complex Pin-header consists of the following connectors for various front panel supports. When you have fixed the mainboard to the case, join the connectors of this Complex Pin-header to the case Front Panel.



(1) Power Switch Connector:

Connection: Connected to a momentary button or switch.
 Function: Manually switching the system between “On” and “Soft Off”. Pressing the momentary button for more than 4 seconds will also turn the system off.

(2) IR Connector (Infrared Connector):

Connection: Connected to Connector IR on board.

Function: Supporting wireless transmitting and receiving module on board.

(3) HDD LED Connector:

Connection: Connected to HDD LED.

Function: To supply power to HDD LED.

(4) Power LED Connector:

Connection: Connected to System Power LED.

Function: To supply power to “System Power LED”.

(5) Reset Switch Connector:

Connection: Connected to case-mounted “Reset Switch”.

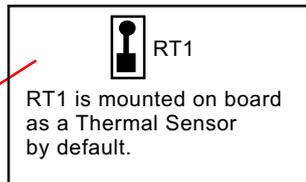
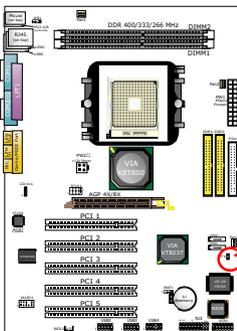
Function: To supply power to “Reset Switch” and support system reboot function.

(6) Speaker Connector:

Connection: Connected to the case-mounted Speaker.

Function: To supply power to the case-mounted Speaker.

2-9.10. Thermal Sensor



Thermal Detector RT1: A thermal Detector RT1 is mounted by default on board so as to detect the temperature of the chassis. What RT1 does is to transmit the thermal signal to Hardware Monitor.

Chapter 3 Software Setup

Drivers, Utilities and Software Installation

Support CD:

This mainboard will be shipped with a Support CD which contains those necessary driver files, Application Softwares and some helpful utilities. It is a user-friendly, auto-run CD which will open itself up in a CD-ROM automatically.

This chapter is devoted to describing the installations of all these essential drivers and utilities on Windows 98SE, Windows ME, Windows 2000 and Windows XP. The installation procedures for all these operating systems are programed into an auto-run mode. What users have to do is read and follow the pop-up instructions. We therefore take the installation on Windows XP as the general illustration hereby.

The priority of driver installation should also be noted. Users are recommended to take the following installation order:

3-1 To Open Support CD

3-2 VIA 4-in-1 Drivers Installation

3-3 AC'97 Audio Driver Installation

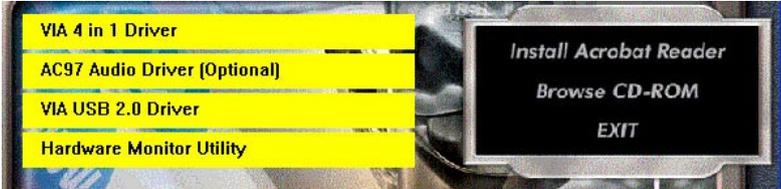
3-4 USB 2.0 Driver Installation

3-5 Hardware Monitor Utility Installation

3-6 Installing LAN Driver (for K8AV2-RL only)

3-1 To Open Up Support CD:

1. Please put the Support CD enclosed in your mainboard package into the CD-ROM drive. In a few seconds, the Main Menu will automatically appear, displaying the contents to be installed for this series:

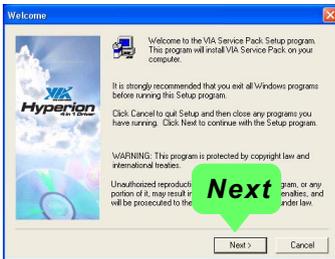


2. In case your system does not open the Support CD automatically, please click to the following path to enter the Main Installation Menu:
`D:\Autorun.exe` (assuming that your CD-ROM Drive is Drive D)
3. Users are recommended to install all the drivers and utilities at a time, though they can be installed separately. Also, we should take "VIA 4-in-1 Drivers" as first installation priority to optimize the VIA system. From next section, we provide detailed descriptions of all these installations with graphical illustrations.

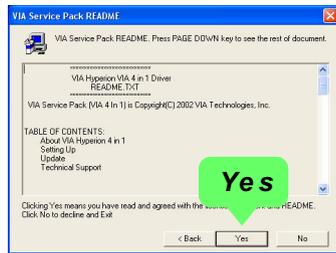
3-2 To Install VIA 4-IN-1 Drivers

1. Following the procedures of opening the Support CD, click to “VIA 4-in-1 Drivers” to proceed.

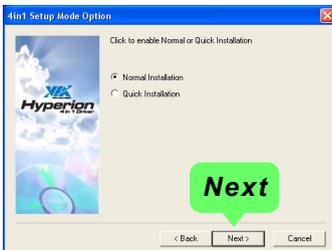
2. The VIA Service Pack InstallShield Wizard will pop up to guide you to the VIA Service pack installation. Click “Next” button to continue.



3. “VIA Service Pack README” screen will appear, please click the “Yes” button to agree with the Licence Agreement and continue.

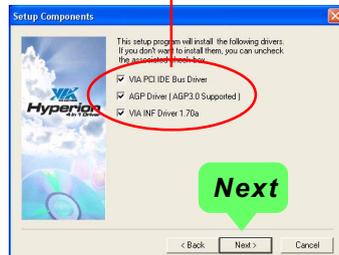


4. On the screen below, check “Normally Install” and click “Next” to continue. (If you check “Quick Install”, you will skip the detailed procedures of the VIA 4-in-1 Setup.)



5. Select the checkbox as below and click “Next” to continue:

- VIA PCI IDE Bus Driver
- AGP Driver (AGP 3.0 Supported)
- VIA INF Driver 1.70a



6. Select “Install VIA PCI IDE Driver” checkbox, then click the “Next” button to continue.



7. Select “Install VIA AGP Driver” checkbox in turbo mode and press “Next” button to continue.



8. After all these setup procedures have finished, you should restart your computer by clicking on “OK” so as to put VIA 4-in-1 drivers into effect and proceed to next driver installation.



3-3 To Install AC'97 Audio Driver

VIA AC'97 Audio Codec VT1616 on board, AC'97 2.2 compatible, supporting 6 channel audio codec for PC multimedia systems. VIA AC'97 Audio Codec Driver is provided in Support CD for user's installation.

3-3.1 Installation

1. Following the procedures of opening the Support CD, click to "AC'97 Audio Driver" to proceed.

2. Instantly, the "VIA Audio Driver Setup Program" screen appears to guide you through the "VIA Audio Driver" Setup, please press "Next" button to continue.



3. Instantly, check "Install Driver" and click "Next" to continue. (If you want to stop setup, click the "Cancel" button.)



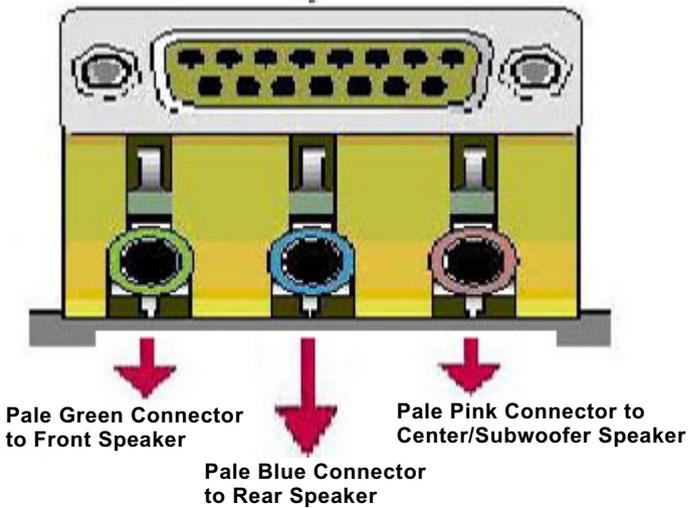
4. After the setup process is finished, please check the radial button "Yes, I want to restart my computer now." And click "Finish" to restart your system.



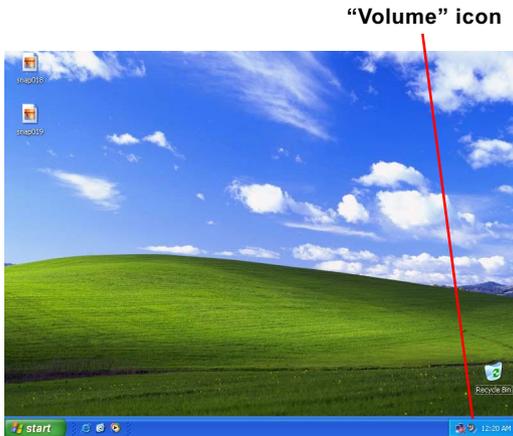
3-3.2 To verify 6-channel Audio

After installation of AC'97 6-channel Codec, you must configure the 5.1 Speaker connection to enable the 6-channel audio.

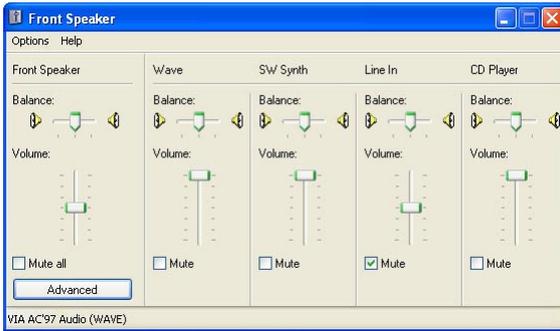
1. Connect your on-board Audio Connector to your 6-channel speakers as depicted in the figure below:



2. After Connection is done, start your Windows system and double click "volume" icon at the taskbar to enter 6-channel configuration:



3. Again click “Advanced” button to enter 6 channel configuration.



4. At the “Other Controls”, pick the item “Smart 5.1 Enable” to activate 6 channel configuration. Then click “Close” to finish configuration.



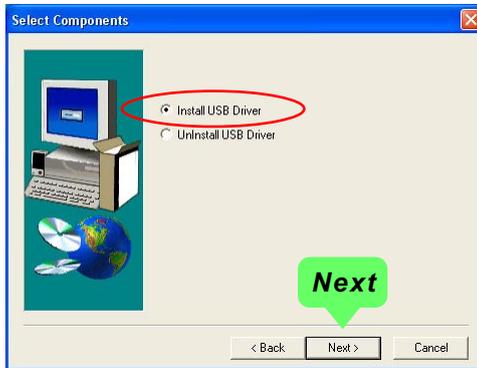
3-4 To Install USB 2.0 Driver

VIA USB V2.0 is already integrated on board. Its 480Mb/s transfer rate supports operating systems Windows 98SE/Me/2000/XP. USB Driver installation procedures are of similar steps in these systems. Before installing VIA USB V2.0 Driver on Windows XP, users should install the latest Service Pack for Windows XP. Please take the following illustrations from Windows XP as the USB driver installation guide:

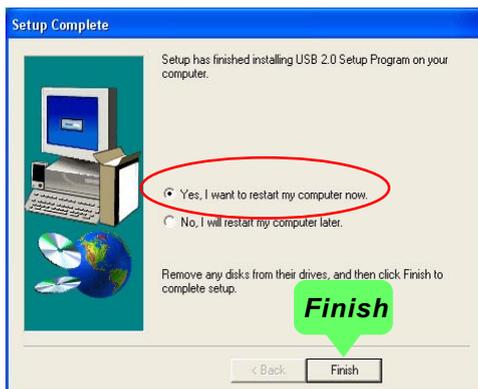
1. Update Windows XP with the latest service pack before installing VIA USB V2.0 Driver.
2. Following the procedures of opening the Support CD, click to choose “VIA USB 2.0 Driver” to proceed. Please notice that the USB card driver is different from the USB 2.0 driver typically for the on-board USB. Do not use the USB card driver here.
3. Instantly the “USB 2.0 Setup Program” will pop up on screen. Click “Next” to continue.



3. Instantly, next screen will pop up to prompt you to select component. Select "Install USB Driver" and click "Next" button to continue.



4. The USB 2.0 Setup Program will then guide you through the whole driver setup until the "Finish" screen appears to prompt you to restart your system. Please click "Finish" button to restart system to put the new driver into effect.



3-5 To Install Hardware Monitor Utility

3-5.1 Installation

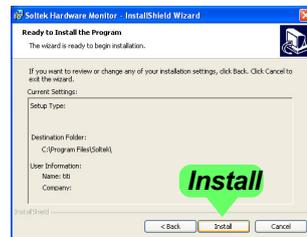
Hardware Monitor is built on this mainboard. Its installation is programmed to a fully automated mode on Windows 9X/Me/NT4/2000/XP. Users can follow the model installation below for its installation on various Windows System.

1. Following the procedures of opening the Support CD, click to “Hardware Monitor Utility” to proceed.

2. The Soltek Hardware Monitor InstallShield Wizard will pop up to guide you to the Intel Service pack installation. Press “**Next**” button to continue.



3. The **InstallShield Wizard** screen will show the current setting, please click the “**Install**” button to continue.

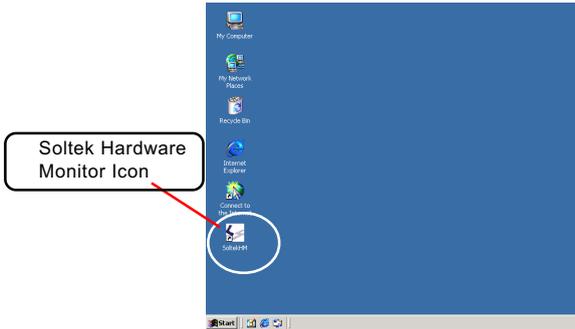


4. After all the setup process is finished, click “**Finish**” to exit the wizard.

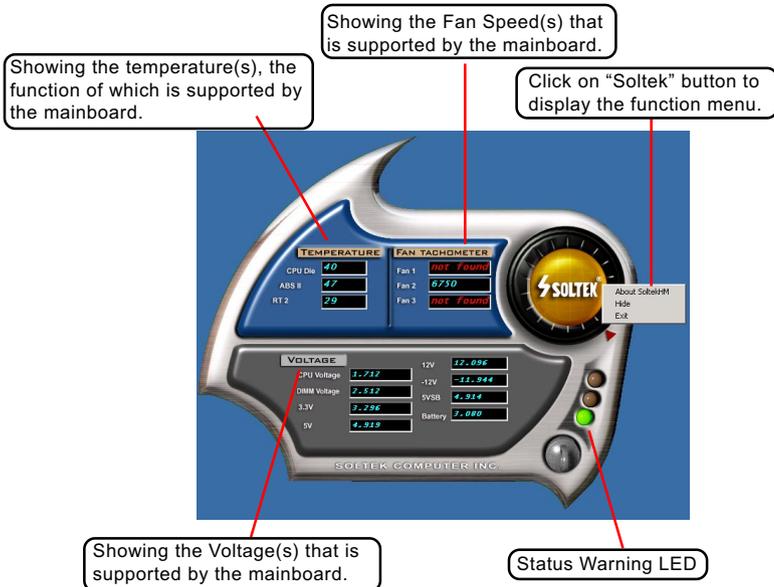


3-5.2 Verification

1. After installing Soltek Hardware Monitor, double click “SoltekHM” icon on the desktop to open the main window of the Soltek HM.



2. Instantly, the pop-up screen will show all information about CPU Temperature, Fan Speed and various Voltages.



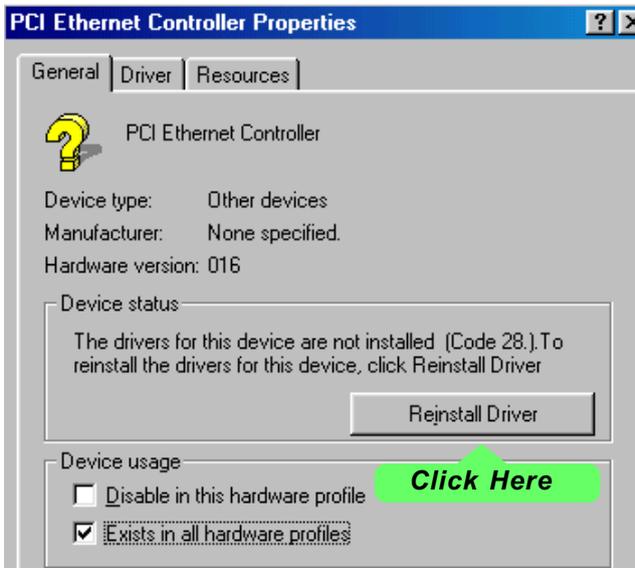
*Note: Not all items or functions showing in the above picture will show up. Only those items or functions that are supported by the mainboard will reveal themselves in the above screen.

3-6 To Install LAN Driver (for K8AV2-RL only)

3-6.1 VIA6183 LAN driver on Windows 98SE

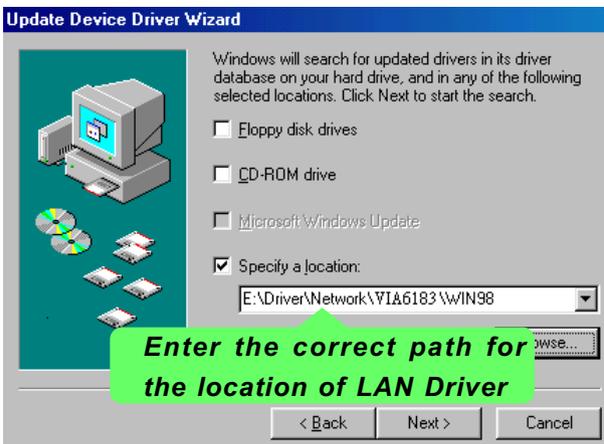
The VIA 6183 LAN driver contained in the Support CD supports VIA 6103 LAN chip. Yet it is not included in the Autorun Menu. To install VIA LAN driver on Windows 98SE, please follow the steps shown below:

1. On the “Start” screen of your system, please click to the following path:
 \My Computer\properties\Device manager
2. In the “Device manager” screen, you can see the item “ PCI Ethernet Controller” with a yellow question mark on its left side, which indicates that the LAN controller is already detected by system but the driver for the on-board LAN Ethernet Controller is not installed yet. Please point to this item with your mouse and double click on it (or click the “Properties” button).
3. Instantly, the “PCI Ethernet Controller Properties” screen shows up. Please click the “General” bar to continue.
4. In the “General” screen, click “Reinstall Driver” button to continue. Please note that the status of “Device Usage” should stay at “Exists in all hardware profiles”.



5. In the “Update device Driver Wizard” screen, click “Next” to continue until you see a dialog box asking you to “Specify a location” for the driver. You should **now** insert the Support CD into your CD-ROM.
6. As illustrated in the picture below, check the item “Specify a location” and click the “Browse” button to find out the correct path for the driver. Supposing your CD-ROM drive is Drive E, please type: E:\Driver\Network\VIA6183 into the blank bar. Then click the “Next” button to continue.

7. The Update Device Driver Wizard will then go on installing the driver,



until the “Insert Disk” dialog box shows up. Please withdraw your Support CD and insert the Windows 98 CD-ROM into the CD-ROM drive for updating system and click “OK” to continue.

8. The Update Device Driver Wizard will then proceed to update the system with the LAN driver. When the “Finish” screen shows up, click “Finish” to continue.
9. Final Dialog box will appear to remind you that you must restart your computer to finish updating the new hardware. Please click “Yes” to restart system and finish the LAN driver installation.

3-6.2 VIA6183 LAN driver on Windows NT4.0

1. When you newly install Win NT4, the Setup program will ask you whether your computer will participate on a network. please check "Do not connect this computer to a network at this time" and continue with your installation. That means, you are going to install the LAN Adapter and driver after you have finished system installation. By this way, you will set up your LAN Adapter and driver more surely.
2. If you have now installed Win NT4 in your computer, please boot your system and in the "Start" screen click the following path to install your computer networking:
 \Start\Settings\Control Panel\Network (double click)
3. Instantly, a dialog box pops up, asking you, "Windows NT Networking is not installed. Do you want to install it now?" Please click "Yes" to continue.
4. The Network Setup Wizard will then proceed to guide you to the installation of LAN Adapter and Driver, until the "Select Network Adapter" screen pops up, on which you should click "Have Disk" to install the on-board VIA LAN Controller.
5. Instantly, the "Insert Disk" dialog box pops up. You should **now** insert the Support CD into your CD-ROM drive, and then type to the white bar the correct path for the location of the LAN driver. Supposing your CD-ROM drive is drive D, please type the following path:
 D:\Driver\Network\VIA6183\Winnt4 and click "OK" button to continue.
6. Instantly, the Setup program detects the "VIA PCI 10/100MbFast Ethernet Adapter" and shows it on the "Select OEM Option" screen. Please click "OK" to continue.
7. The Setup program will then proceed to install the VIA PCI LAN Adapter and then other networking components such as TCP/IP protocol.
8. During the setup process, if "Windows NT Setup" needs to copy some Windows files, you should then withdraw the Support CD and insert back the Windows NT4 CD-ROM into your CD-ROM drive to continue.
9. After you have finished other networking components setup, you should restart your syystem to put all the new setups into effect.

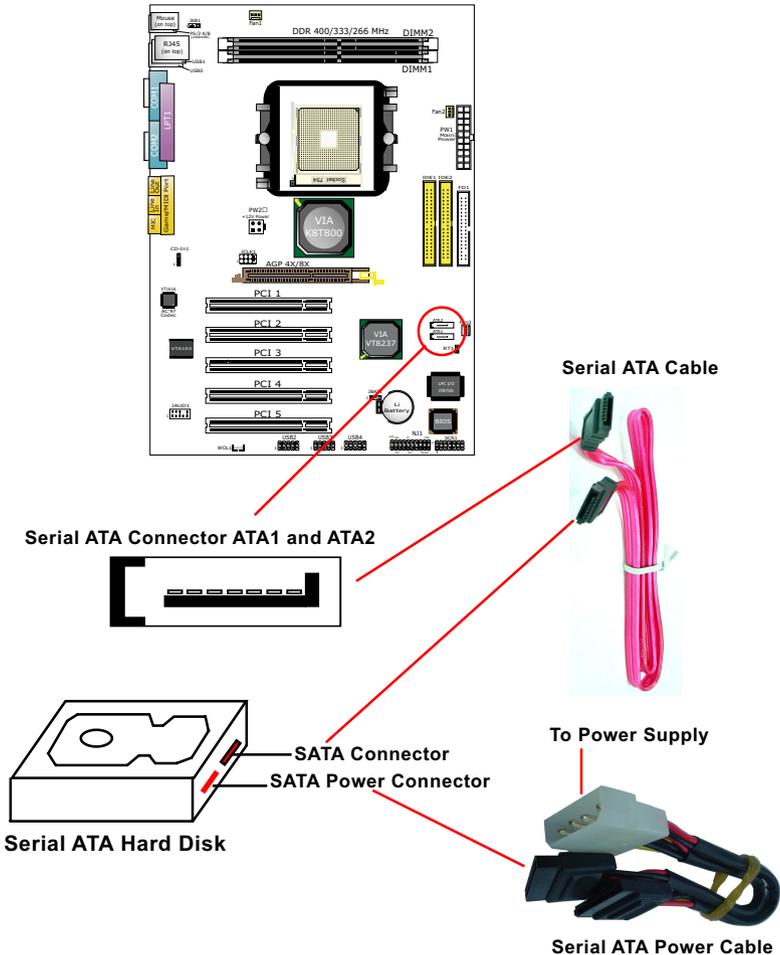
10. To verify that the onboard VIA LAN Controller has been set up in system, please click “Start”, then “Control Panel”, then “Network”.
11. In the “Network” screen, click the “Adapter” bar. You can now see the “VIA PCI 10/100Mb Fast Ethernet Adapter is already installed in system.

3-6.3 VIA6183 LAN driver on Windows ME / 2000 / XP

1. When you newly install Windows ME, Windows 2000 or Windows XP, the system will detect the LAN Controller on board and configure it automatically into system. Therefore, user needs not bother to install the LAN controller into these operating systems.
2. To verify the existence of VIA6183 LAN Controller and Driver, please enter the “Control Panel” of your system and click “Network” to open the “Configuration” screen. You can then see the “VIA PCI 10/100Mb Fast Ethernet Adapter” is already installed in your system.

3-7 SATA RAID Driver Setup

1. 2 Serial ATA connectors are built on board, supported by the South Bridge VT8237 with SATA RAID interface. We can connect these two connectors to SATA Hard Disks and then configure these Hard Disks into SATA RAID Disks.



2. Refer to Chapter 5 of this Manual to install the RAID Driver into a RAID system.

Chapter 4 BIOS Setup

THE BIOS

BIOS stands for Basic Input and Output System. It was once called ROM BIOS when it was stored in a Read-Only Memory (ROM) chip. Now manufacturers would like to store BIOS in EEPROM which means Electrically Erasable Programmable Memory. BIOS used in this series of mainboard is stored in EEPROM, and is the first program to run when you turn on your computer.

BIOS performs the following functions:

1. Initializing and testing hardware in your computer (a process called "POST", for Power On Self Test).
2. Loading and running your operating system.
3. Helping your operating system and application programs manage your PC hardware by means of a set of routines called BIOS Run-Time Service.

This Chapter includes the following topics :

4-1 About BIOS Setup

4-2 To run BIOS Setup

4-3 About CMOS

4-4 The POST (Power On Self Test)

4-5 To upgrade BIOS

4-6 BIOS Setup

4-1 About BIOS Setup

BIOS setup is an interactive BIOS program that you need to run when:

1. Changing the hardware of your system. (For example: installing a new Hard Disk etc.)
2. Modifying the behavior of your computer. (For example: changing the system time or date, or turning special features on or off etc.)
3. Enhancing your computer's behavior. (For example: speeding up performance by turning on shadowing or cache)

4-2 To Run BIOS Setup

First access BIOS setup menu by pressing < DEL > key after "POST" is complete (before OS is loaded). BIOS will then display the following message:

```
Press "DEL" to enter "SETUP"
```

4-3 About CMOS

CMOS is the memory maintained by a battery. CMOS is used to store the BIOS settings you have selected in BIOS Setup. CMOS also maintains the internal clock. Every time you turn on your computer, the BIOS Looks into CMOS for the settings you have selected and configures your computer accordingly. If the battery runs out of power, the CMOS data will be lost and POST will issue a "CMOS invalid" or "CMOS checksum invalid" message. If this happens, you have to replace the battery and do some proper settings in BIOS Setup.

4-4 The POST (Power On Self Test)

POST is an acronym for Power On Self Test. This program will test all things the BIOS does before the operating system is started. Each of POST routines is assigned a POST code, a unique number which is sent to I/O port 080h before the routine is executed.

4-5 To Upgrade BIOS

- System BIOS is incorporated into a Flash memory component. Flash BIOS allows user to upgrade BIOS without the need to replace an EPROM component.
- The Upgrade Utility can be loaded on a floppy diskette to execute saving, verifying, and updating the system BIOS. The Upgrade Utility can also be run from a hard disk drive or a network drive.

4-5.1 Before Upgrading BIOS

- It is highly recommended that you save a copy of the original mainboard BIOS along with a Flash EPROM Programming utility (AWDFLASH.EXE) to a bootable floppy disk so that you can reinstall the BIOS when needed.

4-5.2 Upgrade Process

- Normally, to upgrade BIOS is unnecessary if the system is working fine. Users should only upgrade the BIOS when you experience incompatible problems or need to create new features.
- “AWDFLASH.EXE” is a Flash EPROM Programming utility that updates the BIOS by uploading a new BIOS file to the programmable flash ROM on the mainboard. This program only works in **DOS environment, the utility can not be executed in Windows 95/98, ME, NT, WINDOWS 2000 or Windows XP environment.**
- Please follow the steps below for upgrading the system BIOS:

Step 1. Please visit the board maker’s website, download the zip file which contains the latest BIOS file and Award Flash Utility “AWDFLASH.EXE”. After unzipping, the BIOS file format will be *.bin, of which “*” stands for the specific BIOS file name.

Step 2. Create a bootable diskette. Then copy the BIOS file and Award Flash Utility “AWDFLASH.EXE” into the diskette.

Step 3. Insert the diskette into drive A, reboot your system and boot from the diskette.

Step 4. Type **awdf flash *.bin /sn/py/cc** and then press <Enter> to run BIOS upgrade program. (*.bin depends on your mainboard model and version code. Instead of typing “*”, you should type specific file name for your specific mainboard).

Step 5. Please press <F1> or <F10> to exit or reset your system.

Warning ! If the message “**Write Fail**” appears while AWARD “FLASH MEMORY WRITER” is verifying Flash memory, please retry the process. Please DO NOT turn off the system before updating the BIOS successfully.

Step 6. At rebooting system, press to run CMOS setup utility, then reload “LOAD SETUP DEFAULTS” or “**Load Optimized Defaults**” and save this change.

The parameters of AWDFLASH.EXE

/sn: No original BIOS backup

/py: Program flash memory

/cc: Clear CMOS data (and update data automatically) after programming

NOTE: Users can type AWDFLASH /? to get further details about the parameters. Incorrect usage of the parameter will damage the BIOS information, so we strongly recommend users to leave parameters alone unless you fully understand their function.

BIOS Update Illustration:

- (1) Executing the “awdf flash.exe k8AV2008.bin” in DOS system, Award Flash Memory Writer Start Screen appears: To input BIOS file name.

AwardBIOS Flash Utility V8.24F (C)Phoenix Technologies Ltd. All Rights Reserved
For K8T800-8237-6A7L0SAAC-00 Date: 09/18/2003 File Name to Program : K8AV2008.BIN
Message: Input the (BIOS) file name

- (2) Press Y if you want to back up your old BIOS,. Otherwise, press N to go on without saving.

AwardBIOS Flash Utility V8.24F (C)Phoenix Technologies Ltd. All Rights Reserved
For K8T800-8237-6A7L0SAAC-00 Date: 09/18/2003 File Name to Program : K8AV2008.BIN
Message: Do You Want To Save BIOS (Y/N)

- (3) Press Y to write the latest BIOS into system.

AwardBIOS Flash Utility V8.24F (C)Phoenix Technologies Ltd. All Rights Reserved
For K8T800-8237-6A7L0SAAC-00 Date: 09/18/2003 File Name to Program : K8AV2008.BIN
Message: Press “Y” to Program or “N” to Exit

(4) Updating is in progress. Do not turn off power at this moment.

AwardBIOS Flash Utility V8.24F (C)Phoenix Technologies Ltd. All Rights Reserved
For K8T800-8237-6A7L0SAAC-00 Date: 09/18/2003 Flash Type - SST 39SF020 /5V File Name to Program : k8av2008.bin Writing Flash Memory - 0FE00 OK 
<input type="checkbox"/> Write OK <input checked="" type="checkbox"/> No Update <input type="checkbox"/> Write Fail
Warning: Don't Turn Off Power Or Reset System !

(5) When the process is complete, remove the Floppy Diskette and press F1 to restart the system to put the new BIOS into effect.

AwardBIOS Flash Utility V8.24F (C)Phoenix Technologies Ltd. All Rights Reserved
For K8T800-8237-6A7L0SAAC-00 Date: 09/18/2003 Flash Type - SST 39SF020 /5V File Name to Program : k8av2008.bin Flashing Complete Remove Floppy Diskette & Hit <F1> to Continue 
<input type="checkbox"/> Write OK <input checked="" type="checkbox"/> No Update <input type="checkbox"/> Write Fail
F1 Reset

4-6 BIOS SETUP --- CMOS Setup Utility

Warning and Tips: If changing CMOS Configuration causes difficulty in rebooting system, you can take the following measures:

1. At pressing the power button to reboot, press the “Insert” key at the same time. As soon as the screen displays the booting message, release the “Insert” key and press “Delete” key to enter CMOS Setup Utility . Then choose the “Load Optimized (Optimal) Defaults” menu to restore the default values for a new start. Or,
2. Open your machine cabinet and clear CMOS with jumper setting. Please refer to the Jumper Setting Section of this User manual.

4-6.1 CMOS Setup Utility

This mainboard comes with the AWARD BIOS from AWARD Software Inc. Enter the CMOS Setup Utility Main Menu by:

1. Turn on or reboot your system. After a series of diagnostic checks, the following message will appear:

PRESS TO ENTER SETUP

2. Press key and the main program screen will appear as follows.

Phoenix - AwardBIOS CMOS Setup Utility

<ul style="list-style-type: none">▶ Standard CMOS Features▶ Advanced BIOS Features▶ Advanced Chipset Features▶ Integrated Peripherals▶ Power Management Setup▶ PnP/PCI Configurations▶ SmartDoc Anti-Burn Shield	<ul style="list-style-type: none">▶ Frequency/Voltage ControlLoad Optimized DefaultsSet Supervisor PasswordSet User PasswordSave & Exit SetupExit Without Saving
Esc: Quit	
F10: Save & Exit Setup	
↑↓←→ : Select Item	
Time, Date, Hard Disk Type...	

3. When one main item of the Main Menu is chosen and clicked on, its submenu will appear to display the related items and options. On the other hand, a list of operation guide will appear at the end of the submenu as below:

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

- (1) Use the arrow keys on your keyboard to select an option, and press <Enter>. Modify the system parameters to reflect the options installed in your system.
 - (2) Press <Enter> to select item or option.
 - (3) +/- /PU/PD: To adjust or select value.
 - (4) F10: Save configuration.
 - (5) Esc: Press <Esc> key to get out of the menu on screen.
 - (6) F1: Press F1 to display General Help List.
 - (7) F5: Press F5 to restore the Previous Value.
 - (8) F6: Press F6 to load the Fail-Safe default values.
 - (9) F7: Press F7 to load the Optimized Default Values.
4. You may return to the Main Menu anytime by pressing <ESC>.
5. In the Main Menu, "SAVE AND EXIT SETUP" saves your changes and reboots the system, and "EXIT WITHOUT SAVING" ignores your changes and exits the program.

4-6.2 Standard CMOS Setup

Standard CMOS Setup records some basic system hardware configuration and sets the system clock and error handling. You only need to modify the configuration values of this option if you want to change your system hardware configuration or when the data stored in the CMOS memory gets lost or damaged.

Run the Standard CMOS Setup as follows:

Choose "Standard CMOS Setup" from the Main Menu. A screen with a list of options will appear:

Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features

Date (mm:dd:yy)	Fri, Sep 5 2003	Item Help
Time (hh:mm:ss)	9 : 41 : 11	
IDE Channel 0 Master	WDC WD400BB-00DEA0	Menu Level ▶
IDE Channel 0 Slave	None	Change the day, month, year and century
IDE Channel 1 Master	None	
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	252928K	
Total Memory	253952K	

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

Date (mm:dd:yy) The BIOS determines the day of the week from the other date information. This field is for information only.
 Press the left or right arrow key to move to the desired field (date, month, year). Press the PgUp or PgDn key to increment the setting, or type the desired value into the field.

Time (hh:mm:ss) The time format is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Press the left or right arrow key to move to desired field. Press the PgUp or PgDn key to increment the setting, or type the desired value into the field.

Channel 0 / Channel 1 Master / Slave This field records the specifications for all non-SCSI hard disk drives installed in your system. Refer to the respective documentation on how to install the drives.

**Phoenix - AwardBIOS CMOS Setup Utility
 IDE Primary Master**

IDE HDD Auto-Detection	Press Enter	Item Help
IDE Channel 0 Master Access Mode	Auto Auto	Menu Level ► To auto-detect the HDD's size, head... on this channel
Capacity	40022MB	
Cylinder	19158	
Head	16	
Precomp	0	
Landing Zone	19157	
Sector	255	

Drive A / Drive B Select this field to the type(s) of floppy disk drive(s) installed in your system. The choices are:
360KB, 5.25 in.
1.2MB, 5.25 in.
720KB, 3.5 in.
1.44MB, 3.5 in.
2.88MB, 3.5 in.
None

Video Select the type of primary video subsystem in your computer. The BIOS usually detects the correct video type automatically. The BIOS supports a secondary video subsystem, but you do not select it in setup.

Halt On During the power-on self-test (POST), the computer stops if the BIOS detects a hardware error. You can tell the BIOS to ignore certain errors during POST and continue the boot-up process.

Base Memory Typically 640KB. Also called conventional memory. The DOS operating system and conventional applications use this area.

Extended Memory Above the 1MB boundary. Early IBM personal computers could not use memory above 1MB, but current PCs and their software can use extended memory.

Total Memory This option shows system memory capacity.

4-6.3 Advanced BIOS Features

Advanced BIOS Features improves your system performance or sets up system features according to your preference.

Run the Advanced BIOS Features as follows:

Choose “Advanced BIOS Features” from the Main Menu and a screen with a list of options will appear:

Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features

▶ Hard Disk Boot Priority	Press Enter	Item Help
CPU Internal Cache	Enabled	
External Cache	Enabled	
CPU L2 Cache ECC Checking	Enabled	Menu Level ▶
Quick Power On Self Test	Enabled	
First Boot Device	Floppy	
Second Boot Device	Hard Disk	
Third Boot Device	CDROM	
Boot Other Device	Enabled	
Swap Floppy Drive	Disabled	
Boot Up Floppy Seek	Disabled	
Boot Up NumLock Status	On	
Typematic Rate Setting	Disabled	
x Typematic Rate (Chars/Sec)	6	
x Typematic Delay (Msec)	250	
Security Option	Setup	
OS Select For DRAM > 64MB	Non-OS2	
Video BIOS Shadow	Enabled	

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

Hard Disk Boot Priority Press <Enter> key to select Hard Disk Boot Device Priority. The hard disks installed on board will appear in the menu for priority choice.

▶ Hard Disk Boot Priority	Press Enter	Item Help
1. Ch1 M. : ST340810A		
2. Ch1 S. : Maxtor 90340D2		
		Menu Level ▶

CPU Internal / External Cache Cache memory is additional memory that is much faster than conventional DRAM (system memory). CPUs from 486-type up contain internal cache memory (L1), and most, but not all, modern PCs have additional (external) cache memory (L2). When the CPU requests data, the system transfers the requested data from the main DRAM into cache memory, for faster access by the CPU.

CPU L2 Cache ECC Checking To enable/disable CPU L2 Cache Error Correcting Code Checking .

Quick Power On Self Test Select Enabled to reduce the amount of time required to run the power-on self-test (POST). A quick POST skips certain steps. We recommend that you normally enable quick POST.

First/Second/Third/Boot Other Device The BIOS attempts to load the operating system from the devices in the sequence selected in these items. The choices: Floppy; LS120; ZIP100; HDD; CDROM; USB-FDD; USB-ZIP; USB-CDROM; LAN; Disabled

Swap Floppy Drive When enabled, floppy drives A and B will be exchanging without any physical connection and modification on the cables.

Boot Up Floppy Seek When enabled, the BIOS tests (seeks) floppy drives to determine whether they have 40 or 80 tracks. Only 360-KB floppy drives have 40 tracks; drives with 270KB, 1.2MB, and 1.44MB capacity all have 80 tracks. Because very few modern PCs have 40-track floppy drives, we recommend that you set this field to disabled to save time.

- Boot Up NumLock Status** Toggle between On or Off to control the state of the NumLock key when the system boots. If On, the numeric keypad is in numeric mode. If off, the numeric keypad is in cursor control mode.
- Typematic Rate Setting** When *Disabled*, the following two items (Typematic Rate and Typematic Delay) are irrelevant. Keystroke repeats at a rate determined by the keyboard controller in your system.
When *Enabled*, you can select a typematic rate and typematic delay.
- X Typematic Rate (Chars / Sec)** When the typematic rate setting is enabled, you can select a typematic rate (the rate at which character repeats when you hold down a key) of 6, 8, 10, 12, 15, 20, 24, or 30 characters per second.
- X Typematic Delay (Msec)** Choices: 250; 500; 750; 1000. This option sets the time interval for displaying the first and the second characters. If enabled, the time interval is optional.
- Security Option** If you have set a password, select whether the password is required every time the System boots, or only when you enter setup.
Choices: System; Setup(default)
- OS Select For DRAM > 64MB** Select OS2 only if you are running OS/2 operating system with greater than 64MB of RAM on your system.
- Video BIOS Shadow** To enable / disable Video BIOS Shadow function. To enable the function will copy Video BIOS to shadow RAM to improve performance.

4-6.4 Advanced Chipset Features

Advanced Chipset Features is used to modify the values of chipset buffers. These buffers control the system options.

Run the Advanced Chipset Features as follows:

Choose “Advanced Chipset Features” from the Main Menu and a list of option will appear:

**Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features**

		Item Help
<ul style="list-style-type: none"> ▶ DRAM Configuration ▶ AGP & P2P Bridge Control ▶ LDT & PCI Bus Control Memory Hole VLink DATA Rate Init Display First System BIOS Cacheable 	<ul style="list-style-type: none"> Press Enter Press Enter Press Enter Disabled 8X PCI Slot Disabled 	<ul style="list-style-type: none"> Menu Level ▶ DRAM timing and control

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

▶ DRAM Configuration:

To press< Enter > on DRAM Configuration will reveal the following item (s).

Current FSB Frequency BIOS shows the actual Front Side Bus frequency.

Current DRAM Frequency BIOS shows the actual DRAM frequency.

DDR Timing Setting by To manually/ automatically set the DDR Timing.

Max Memclock (Mhz) To manually set the memory clock if you have set “by manual” in above option.
Choice: 100; 133; 166; 200

► **AGP & P2P Bridge Control:**

To press < Enter > on AGP & P2P Bridge will reveal the following item (s).

AGP Aperture Size Options: 32; 64; 128; 256M. Memory mapped and graphics data structures can reside in a Graphics Aperture. This area is like a linear buffer. BIOS will automatically report the starting address of this buffer to the O.S.

AGP Driving Control To automatically/manually set AGP Driving Control.

AGP Driving Value To input AGP Driving Value if you have set "Manual" in above item.
Choices: 00~FF in 01 stepping

AGP Fast Write This item will enable the AGP mode into fast write mode. If your graphics card does not support this function, please do not enable this function.

AGP Master 1 WS Write To enable / disable the support of AGP Master 1 Waite State Write.

AGP Master 1 WS Read To enable / disable the support of AGP Master 1 Waite State Read.

► **LDT & PCI Bus Control:**

To press < Enter > on LDT & PCI Bus Control will reveal the following item(s).

Upstream LDT Bus Width To set Upstream LDT BUS Width.
Choices: 8 bit; 16 bit

Downstream LDT Bus Width To set Downstream LDT BUS Width.
Choices: 8 bit; 16 bit

LDT Bus Frequency To set LDT Bus Frequency.
Choices: Auto; 200MHz; 400MHz; 600MHz; 800MHz

PCI1 Master 0 WS Write To enable / disable the support of PCI1 Master 0 Wait State Write.

PCI2 Master 0 WS Write To enable / disable (default) the support of PCI2 Master 0 Wait State Write.

PCI1 Post Write To enable / disable (default) the support of PCI1 Post Write.

PCI2 Post Write To enable / disable (default) the support of PCI2 Post Write.

Memory Hole To enabled / disabled (default) the support of Memory Hole which is reserved for ISA card.
Choices: Disabled; 15MB-16MB

VLink Data Rate To set VLink Data Rate.
Choices: 8X; 4X

Init Display First Initialize the AGP video display before initializing any other display device on the system. Thus the AGP display becomes the primary display.

System BIOS Cacheable Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFFh, resulting in better system performance.

4-6.5 Integrated Peripherals

Integrated Peripherals option allows you to get some information inside your system when it is working.

Run the Integrated Peripherals as follows:

Choose “Integrated peripherals” from the Main Menu and a list of options will appear:

**Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals**

	Item Help
<ul style="list-style-type: none"> ▶ VIA onChip IDE Device Press Enter ▶ VIA onChip PCI Device Press Enter ▶ Super IO Device Press Enter 	

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

4-6.5.1. VIA OnChip IDE Device

To press < Enter > on VIA OnChip IDE Device will reveal the following item(s).

	Item Help
<ul style="list-style-type: none"> ▶ VIA onChip IDE Device Press Enter OnChip SATA Enabled SATA Mode RAID OnChip IDE Channel10 Enabled OnChip IDE Channel11 Enabled IDE Prefetch Mode Enabled Primary Master PIO Auto 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 	

VIA OnChip IDE Device:

To press < Enter > on VIA OnChip IDE Device will reveal the following item(s).

OnChip SATA To enable/disable the on-chip SATA interface.

SATA Mode Supporting RAID mode only (SATA mode not supported).

Choice: RAID

On-Chip IDE Channel 10/11 The chipset contains a PCI IDE interface with support from two IDE channels. Select Enabled to activate the first and/or the second IDE interface. Select Disabled to inactivate an interface if you install a primary and/or second add-on IDE interface.

Choices: Enabled; Disabled

IDE Prefetch Mode The on-board IDE drive supports IDE prefetching for faster drive accesses. If the IDE device doesn't support prefetching, set this field to Disabled.

The choices: Enabled; Disabled

Primary Master / Slave PIO Choose Auto or Mode 0~4. The BIOS will detect the HDD mode type automatically when you choose Auto. You need to set to a lower mode than Auto when your hard disk becomes unstable.

Secondary Master / Slave PIO

Choices: Auto(default); Mode 0; Mode 1; Mode 2; Mode 3; Mode 4

Primary Master / Slave UDMA Ultra DMA33/66/100/133 implementation is possible only if your IDE hard drive supports it, if the operating environment includes a DMA drive, and if your system software supports Ultra DMA33/66/100/133.

Secondary Master / Slave UDMA

Select "Auto" to enable BIOS support.

Choices: Auto(default); 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/write per sector the drive can support.

4-6.5.2. VIA OnChip PCI Device:

To press < Enter > on VIA OnChip PCI Device will reveal the following item(s).

▶ VIA OnChip PCI Device	Press Enter	Item Help
VIA-3058 AC97 Audio	Auto	
VIA-3043 OnChip LAN(K8AV2-RL)	Enabled	
Onboard LAN Boot ROM (K8AV2-RL)	Enabled	
OnChip USB Controller	All Enabled	
OnChip EHCI Controller	Enabled	
USB Device Function	Disabled	
USB Keyboard Support	Disabled	
USB Mouse Support	Disabled	

VIA OnChip PCI Device:

To press < Enter > on VIA OnChip PCI Device will reveal the following item(s).

VIA-3058 AC97 Audio Select “Auto” to use the on-chip audio of your system. If user wants to use add-on sound card, this item must be disabled.

(Optional)VIA-3043 OnChip LAN If VIA LAN chip is on board, enable/disable LAN interface with this item.
Choices: Enabled; Disabled

(Optional)Onboard LAN Boot ROM If Onchip LAN is enabled, to boot ROM by LAN can be enabled with this item.
Choices: Enabled; Disabled

OnChip USB Controller To enable/disable the onchip USB controller.
Choices: All Enabled; All Disabled

OnChip EHCI Controller To enable/disable the onchip EHCI controller.

USB Device Support To enable/disable the onboard USB device.

USB Keyboard Support Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

USB Mouse Support Select Enabled if your system contains a Universal Serial Bus (USB) controller and you have a USB mouse.

4-6.5.3. Super IO Device:

To press < Enter > on Super IO Device will reveal the following items.

▶ Super IO Device	Press Enter	Item Help
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	Auto	
Onboard Serial Port 2	Auto	
UART Mode Select	Normal	
x UR2 Duplex Mode	Half	
Onboard Parallel Port	378/IRQ7	
Parallel Port Mode	SPP	
x ECP Mode Use DMA	3	
Game Port Address	201	
MIDI Port Address	330	
MIDI Port IRQ	10	

SuperIO Device:

To press < Enter > on SuperIO Device will reveal the following item(s).

- Onboard FDC Controller** To enable/disable the onboard Floppy Disk Drive Controller.
- Onboard Serial Port 1 / Port 2** Select an address and corresponding interrupt for the first/second serial port.
Choices: Disabled; Auto;
3F8/IRQ4; 2F8/IRQ3;
3E8/IRQ4; 2E8/IRQ3
- UART Mode Select** The serial port on your system may offer a variety of infrared port modes. Click here for a description of various modes.
The choices: Normal; IrDA; ASKIR; SCR
- x UR2 Duplex Mode** This options controls the operating mode between receiving and transmitting of IrDA or ASKIR or SCR.
Choices: Half (asynchronous); Full (synchronous)
- Onboard Parallel Port** This item allows you to determine onboard parallel port controller I/O address setting.
Choices: 378H/IRQ7; 278H/IRQ5; 3BC/IRQ7; Disabled
- Parallel Port Mode** Select an operating mode for the on-board parallel (printer) port.
Choices: SPP; EPP; ECP; ECP+EPP
- x ECP mode Use DMA** Select a DMA channel for the port when you choose ECP or ECP+EPP mode for the Parallel Port Mode.
Choices: 1; 3
- Game Port Address** Allows you to select the Game Port Address.
Choices: Disabled, 201, 209
- Midi Port Address** To configure the onboard Midi port address.
Choices: Disabled, 330, 300
- Midi Port IRQ** This item allows you to select the Midi Port IRQ.
Choices: 5, 10

4-6.6 Power Management Setup

Power Management Setup allows you to set the system's power saving functions.

Run the Power Management Setup as follows:

Choose "Power Management Setup" from the Main Menu and a list of options will appear:

Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup

		Item Help
ACPI function	Enabled	
ACPI Suspend Type	S1(POS)	
Power Management Option	User Define	
HDD Power Down	Disabled	
Suspend Mode	Disabled	
Video Off Option	Suspend -> Off	
Video Off Method	V/H SYNC+Blank	
MODEM Use IRQ	3	
Soft-off by PBTN	Instant-off	
Run VGABIOS if S3 Resume	Auto	
AC Loss Auto Restart	Off	
▶ IRQ/Event Activity Detect	Press Enter	

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

ACPI Function Select Enabled(default) only if your computer's operating system supports the Advanced Configuration and Power Interface (ACPI) specification. Currently, Windows 98SE/ME, Windows 2000 and Windows XP supports ACPI.

ACPI Suspend Type This item allows you to select the ACPI Suspend type. You can select S3(STR) for Suspending To RAM if your system supports this mode. Or you can select S1(POS) for Power On Suspend under ACPI mode.
Choices: S1(POS)(default);S3(STR); S1&S3

Power Management Option To select the type (or degree) of power saving for Doze, Standby, and Suspend modes.
Choices: User Define:- Time length defined by user;
Min Saving:- Minimum power saving mode;
Max Saving: Maximum power saving mode;

- HDD Power Down** When enabled after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.
- Suspend Mode** When enabled after the set time of system inactivity, the whole system will be suspended.
- Video Off Option** To set Video Off mode of the system.
Choices: Always On; Suspend -> Off
- Video Off Method** This determines the manner by which the monitor is blanked.
Choices:
Blank Screen:- Blank signal to the Video buffer;
V/H sync+Blank:- Blank signal to Video buffer, with Vertical and Horizontal ports off;
DPMS Support:- To select video power management values with Display Power management Signaling support;
- MODEM Use IRQ** To set IRQ Modem should use. If users do not have a modem, please set NA.
- Soft-Off by PWRBTN** To turn off the system instantly or after 4 seconds by power button.
- Run VGABIOS if S3 Resume** To enable/disable to run VGABIOS if S3 Resume.
Choices: Auto; Yes; No
- AC Loss Auto restart** To enable/disable to run VGABIOS if S3 Resume.
Choices: Auto; Yes; No

IRQ/Event Activity Detect:

To press < Enter > on IRQ/Event Activity Detect will reveal the following item(s).

- PS2KB Wakeup Select** To select the PS/2 KB Wake-up mode.
Choices: Hot key; Password
- PS2KB/Ms Wakeup from S3/S4/S5** To set the hot key to wake up the system by PS/2 KB/Ms from S3/S4/S5.
Choices: Disabled; Power; Wake; Any Key; Ctrl-F1~12
- x Power Button Lock** If the above item is not "Disabled", this item can be set enabled/disabled.
- PS2Ms Wakeup from S3/S4/S5** This item allows you to enable / disable the PS/2 Mouse Wake-up from S3/S4/S5.
- VGA** To enable/disable VGA Wakeup function.
- LPT & COM** To enable/disable LPT & COM Wakeup function.
- HDD & FDD** To enable/disable HDD & FDD Wakeup function.
- PCI Master** To enable/disable PCI Master Wakeup function.
- Power On by PCI Card** To enable / disable(default) the Power On by PCI Card.
- Wake Up On LAN/Ring** To enable / disable the wake on ring signal function. An input signal on the serial Ring Indicator (RI) Line (in other words, an incoming call on the modem) awakens the system from a soft off state.
- RTC Alarm Resume** To enable / disable the RTC Alarm Resume function.
- x Date (of Month)** If RTC Alarm Resume is enabled, this field allows you to set the Alarm Date, Hour, Minute and Second.
Date Choices: 01 ~ 31; Hour : 00 ~ 23
Minute Choices: 00 ~ 59; Second: 00 ~ 59

IRQs Activity Monitoring:

To press < Enter > on IRQs Activity Monitoring will reveal following items.

- Primary Intr.** To turn on/off the Interrupt configuration.
- IRQ3,4,5,7,9,10,11,12,13,14,15** To enable/disable IRQ Assignment.

4-6.7 PnP / PCI Configuration

PnP/PCI Configuration allows you to modify the system's power saving functions.

Run the PnP/PCI Configuration as follows:

Choose "PnP/PCI Configuration" from the Main Menu and a screen with a list of options will appear:

Phoenix - AwardBIOS CMOS Setup Utility
PnP PCI Configurations

		Item Help
PNP OS Installed	No	
Reset Configuration Data	Disabled	
Resources Controlled by	Auto(ESCD)	
x IRQ Resources	Press Enter	
PCI/VGA Palette Snoop	Disabled	
Assign IRQ For VGA	Enabled	
Assign IRQ For USB	Enabled	

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

PNP OS Installed Allows you to configure the PNP devices by BIOS or O/S.

Choices: No(by BIOS); Yes(by O/S)

Reset Configuration Data Normally, you leave this Disabled(default). 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 cannot boot.

Resource Controlled By The Plug and Play Award BIOS can automatically configure all the boot and Plug and Play compatible devices. If you select *Auto*, all the interrupt request (IRQ) and DMA assignment fields will not appear, as the BIOS automatically assigns them. If you select *Manual*, the IRQ Resources item will appear for your configuration (see below).

IRQ Resources Press Enter. Please refer to the list below:

Phoenix - AwardBIOS CMOS Setup Utility
IRQ Resources

IRQ-3 assigned to	PCI Device	Item Help
IRQ-4 assigned to	PCI Device	
IRQ-5 assigned to	PCI Device	
IRQ-7 assigned to	PCI Device	
IRQ-9 assigned to	PCI Device	
IRQ-10 assigned to	PCI Device	
IRQ-11 assigned to	PCI Device	
IRQ-12 assigned to	PCI Device	
IRQ-14 assigned to	PCI Device	
IRQ-15 assigned to	PCI Device	

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

PCI/VGA Palette Snoop This option allows the BIOS to preview VGA status, and to modify the information delivered from the feature Connector of the VGA card to MPEG card. This option can solve the display inversion to black after you have used a MPEG card.

Assign IRQ For VGA To enable/disable to assign IRQ for VGA.

Assign IRQ For USB To enable/disable to assign IRQ for USB.

4-6.8 SmartDoc Anti-Burn Shield

This section helps you to get more information about your system including CPU temperature, FAN speed and voltage. It is recommended that you contact your mainboard supplier to get proper values about the setting of the CPU temperature.

Run the “SmartDoc Anti-Burn Shield” as follows:

Choose “SmartDoc Anti-Burn Shield” from the Main Menu and a screen with a list of options will appear:

**Phoenix - AwardBIOS CMOS Setup Utility
SmartDoc Anti-Burn Shield**

		Item Help
Vcore	1.56V	
VDD	2.51V	
3.3V	3.26 V	
+5V	5.02V	
+12V	11.75V	
-12V	-11.74V	
+1.5V	1.53V	
+5VSB	5.05V	
Voltage Battery	3.24V	
CPU Internal Temp.	60°C	
System Temp.	33°C	
CPU FAN Speed	5232 RPM	
System FAN Speed	0 RPM	

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

Vcore Shows CPU core actual voltage value.

VDD Shows North Bridge actual voltage value.

3.3V, +5V, +12V, -12V, +1.5V, 5VSB Shows actual voltage value of all these default voltage value on board.

Voltage Battery Shows voltage value of the battery on board.

CPU Internal Temp. Shows current CPU internal temperature.

System Temp. Shows current system temperature.

CPU FAN Speed These fields display the current speed of the CPU fan.

System FAN Speed These fields display the current speed of the System fan.

4-6.9 Frequency/Voltage Control

Run the “Frequency/Voltage Control” as following:

1. Choose “Frequency/Voltage Control” from the Main Menu and a screen with a list of options will appear:

Phoenix - AwardBIOS CMOS Setup Utility
Frequency/Voltage Control

	Item Help
Auto Detect PCI Clk	Enabled
Spread Spectrum	Disabled
CPU Clock	200MHz
CPU Vcore Select	Default
AGP Voltage Select	1.5V
DIMM Voltage Select	2.6V
2.5V Select	2.5V

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

PCI Clock Auto Detection To enable / disable this auto detection function on PCI clock.

Spread Spectrum This function will reduce the EMI (Electromagnetic Interference) in your system. If you do not have an EMI problem, leave this item disabled.

CPU Clock This item allows you to set CPU Clock.
Choices: 200MHz ~233MHz in 1MHz stepping.

CPU Vcore Select To configure the CPU Voltage. Usually, to raise CPU voltage will raise the chance of CPU overclocking and yet risk damage of CPU.
Choices: Default; 0.800V ~1.700V in 0.05V stepping

AGP Voltage Select To configure the AGP Voltage.
Choices: 1.5V; 1.6V; 1.7V; 1.8V

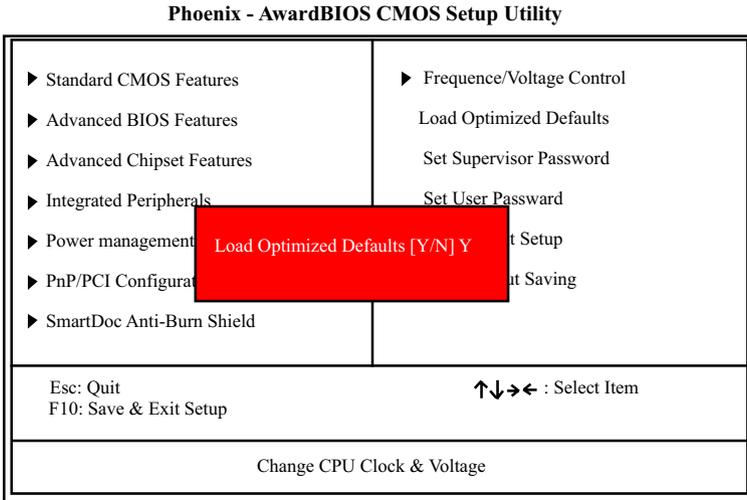
DIMM Voltage Select To configure the DIMM Voltage.
Choices: 2.6V; 2.7V; 2.8V; 2.9V

2.5V Voltage Select To configure the VDD Voltage.
Choices: 2.5V; 2.6V; 2.7V; 2.8V

4-6.10 Load Optimized Defaults

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

“ Load Optimized Defaults (Y / N) ? N ”



“Y” is for “Yes”, and “N” is for “No”.

Pressing “Y” loads the BIOS Optimized default values to restore the BIOS to its original status.

4-6.11 SET SUPERVISOR / USER PASSWORD

These two options allow you to set your system passwords. Normally, the supervisor has a higher priority to change the CMOS setup option than the users. The way to set up the passwords for both Supervisor and Users are as follows:

1. Choose "Change Password" in the Main Menu and press <Enter>. Then following message appears:

"Enter Password : "

2. The first time you run this option, enter your password up to 8 characters and press <Enter>. (The screen does not display the entered characters.)
3. After you enter the password, the following message appears prompting you to confirm the password:

"Confirm Password : "

4. Enter the same password "exactly" the same as you have just typed to confirm the password and press <Enter>.
5. Move the cursor to Save & Exit Setup to save the password.
6. If you need to delete the password entered before, choose the Supervisor Password and press <Enter>. It will delete the password that you have entered before.
7. Move the cursor to Save & Exit Setup to save the option you have just configured; otherwise the old password will still be there the next time you turn your system on.
8. Press <Enter> to exit to the Main Menu.

RxD , TxD Active The option controls the speed between receiving and transmitting of IrDA or ASKIR when using.
Choices: Hi,Hi; Hi,Lo; Lo,Hi; Lo,Lo

IR Transmission Delay When UART Mode is selected in IrDA or ASKIR mode, it allows you to enable / disable IR Transmission Delay.

EPP Mode Select Select EPP Mode when you choose EPP or ECP+EPP mode in the Parallel Port Mode.
Choices: EPP1.7; EPP1.9

4-6.12 SAVE & EXIT SETUP

SAVE & EXIT SETUP allows you to save all modifications you have specified into the CMOS memory. Highlight this option on the Main Menu and the following message appears:

```
  "SAVE to CMOS and EXIT (Y/N) ?  Y  "
```

"Y" is for "Yes", and "N" is for "No".

Press <Enter> key to save the configuration changes.

4-6.13 EXIT WITHOUT SAVING

EXIT WITHOUT SAVING option allows you to exit the Setup Utility without saving the modifications that you have specified. Highlight this option on the Main Menu and the following message appears:

```
  "Quit Without Saving (Y/N) ?  N  "
```

"Y" is for "Yes", and "N" is for "No".

You may change the prompt to "Y" and press <Enter> key to leave this option .

Chapter 5 SATA RAID Setup

THE VIA SATA RAID Controller VT8237 & RAID BIOS

VIA RAID (Redundant Array of Independent Disks) Controller is built in the South Bridge VT8237. With this RAID Controller, the VIA SATA RAID BIOS is built into the system to help configure the Redundant Disk Array. VT8237 supports RAID 0 and RAID 1 configuration.

This Chapter is to introduce the SATA RAID Configurations :

5-0 About Disk Array

5-1 To Enable SATA RAID in System BIOS

5-2 Select SATA RAID Interface in System BIOS

5-3 To Enter VIA Tech. RAID BIOS Setup

5-4 Using VIA RAID BIOS To Create Disk Array

5-5 To Install Operating System in SATA RAID Infrastructure

5-6 To Install SATA RAID Driver

5-0 About Disk Array

5-0-1 Disk Array Interpretation

A “Disk Array” is formed from a group of 2 or more disk drives with the RAID (Redundent Array of Independent Disks) technology. The aim of a Disk Array is to provide better performance and/or data fault tolerance.

5-0-2 Disk Array Member

The individual disk drive in an array is called a “member”. Each member of a specific disk array is coded in their “reserved sector” with configuration information that identifies the drive as a member. All disk members in a formed disk aarray are recognized as a single physical drive to the system.

5-0-3 Disk Array Types Supported by VT8237

Different type or mode of Disk Array has different formation model and function. The South Bridge on this mainboard supports only two types of Disk Arrays: RAID 0 and RAID 1, but not RAID 0+1.

1. RAID 0 (or Striping mode):

RAID 0 is a group of 2 to 4 Disk Drives configured together with RAID technology to provide better data transfer performance than a single drive since the workload is balanced between the array members. Reads and Writes of RAID 0 data are interleaved between multiple drives. When any disk member fails, it affects the entire array. The disk array size is equal to the number of drive members times the smallest member capacity. For example, one 1GB and three 1.2GB drives will form a 4GB (4x1GB) disk array.

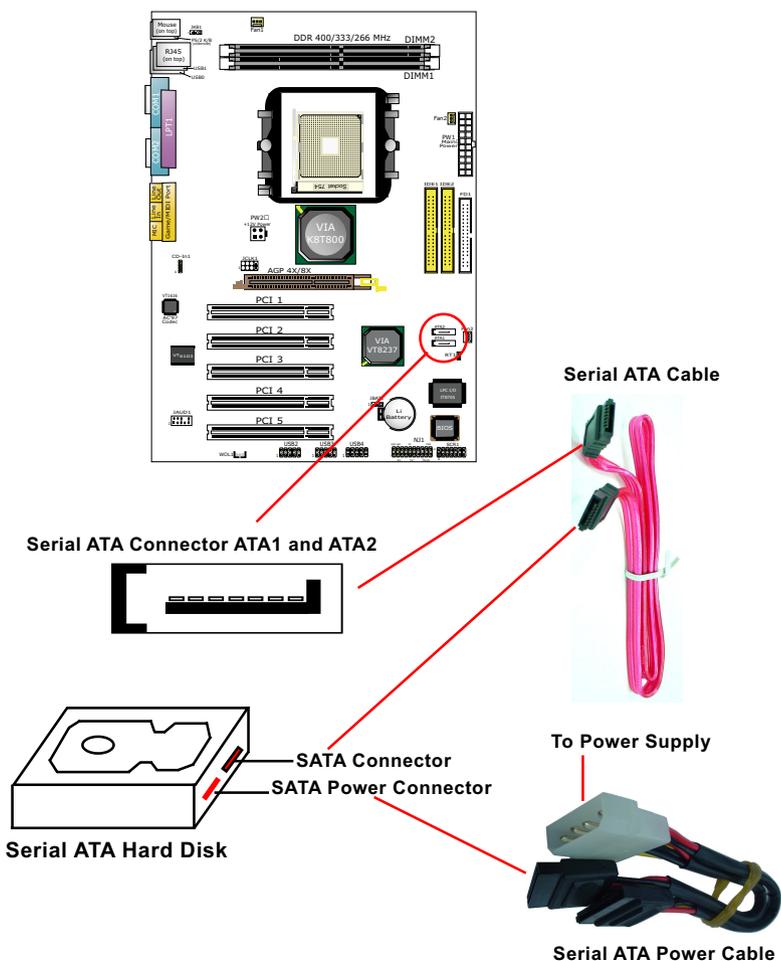
2. RAID 1 (or Mirroring mode):

RAID 1 is a group of 2 Disk Drives configured together with RAID Technology to provide the fault tolerance function. Writes duplicate data on to RAID 1 while reads are performed in parallel. If one of the mirrored drives suffers a mechanical failure (e.g. spindle failure) or does not respond , the remaining drive will continue to function. This is called Fault Tolerance.

The drive capacity of RAID 1 is half the total drive capacity of two equal-size drive.

5-1 First Step to Set Up SATA RAID System

2 Serial ATA connectors are built on board, supported by the South Bridge VT8237 with SATA RAID interface. We can connect these two connectors to SATA Hard Disks and then configure these Hard Disks into SATA RAID Disks.



5-2 Enable SATA-RAID Interface with System BIOS

- (1) Boot the K8AV2-R/K8AV2-RL system and watch for the following initial screen to appear:

VIA Technologies, Inc. VIA VT6420 RAID BIOS Setting Utility v (xxx)
Copyright (C) VIA Technologies, Inc. All right reserved.

Scan Devices, please wait
Press < Tab > key into User Windows!
Channel 0 Master: ST3120023AS
Channel 1 Master: ST380023AS

(The above message indicates that the SATA hard disks on board are detected by the RAID BIOS.)

- (2) As soon as the above screen appears, press < Delete > key (not the < Tab > key) to enter CMOS BIOS Setup. Choose “Integrated Peripheral” and “VIA OnChip IDE Device”. As soon as you click on the “VIA OnChip IDE Device”, a list of events appears for you to configure their values. Choose “Enabled” for the “OnChip SATA” so as to enable the SATA RAID interface.

VIA OnChip IDE Device:

To press < Enter > on VIA OnChip IDE Device will reveal the following item(s).

OnChip SATA To enable/disable the on-chip SATA interface.

SATA Mode If OnChip SATA is enabled, this item is also enabled to support RAID mode only (SATA mode not supported).
Choice: RAID

On-Chip IDE Channel -----
10/11

5-3 To Enter VIA Tech. RAID BIOS Setup

Reboot the K8AV2-R/K8AV2-RL system with “RAID Interface” enabled in system BIOS Setup and watch for the following initial screen to appear:

VIA Technologies, Inc. VIA VT6420 RAID BIOS Setting Utility v (xxx)
Copyright (C) VIA Technologies, Inc. All right reserved.

Press < Tab > key into User Windows!

Scan Devices, please wait

Channel 0 Master: ST3120023AS

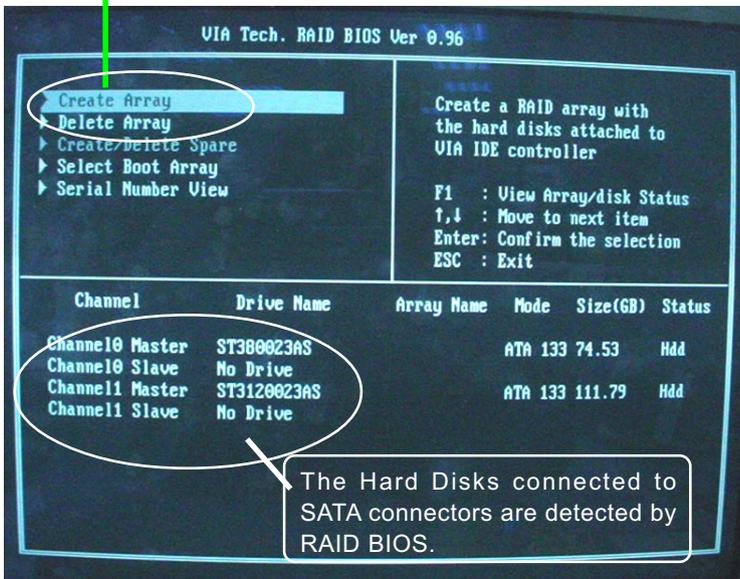
Channel 1 Master: ST380023AS

(The above message indicates that the SATA hard disks on board are detected by the RAID BIOS.)

As soon as the above screen appears, press < Tab > key to enter VIA Tech. RAID BIOS Setup.

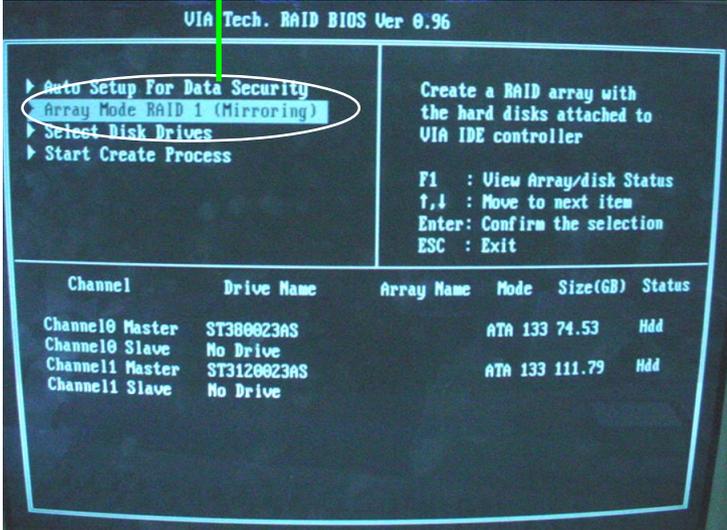
In a few seconds, the VIA Tech. RAID BIOS Setup Utility appears as shown below:

Press <Enter> to create Array.

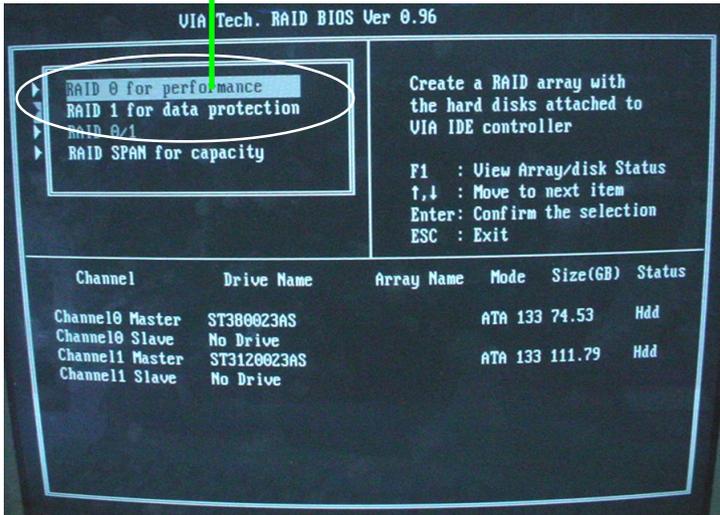


5-4 Using VIA RAID BIOS Setup to Create Disk Array

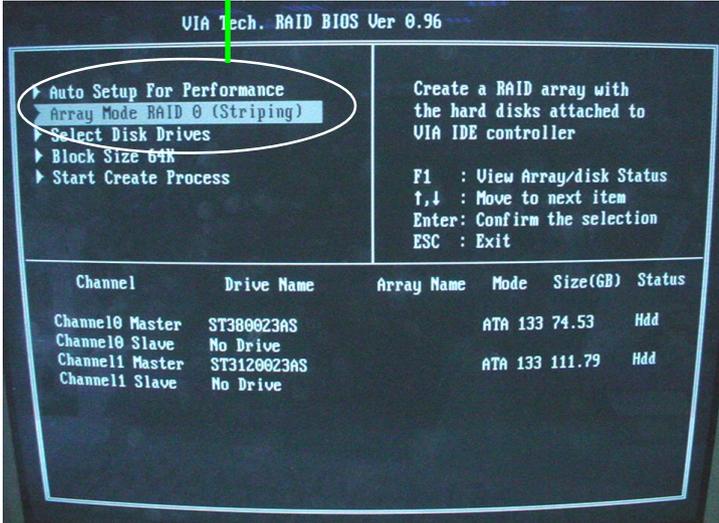
(5-4-1) When you press <Enter> on the “Create Array” bar, the following screen shows up. Press <Enter> on this bar to select the RAID mode.



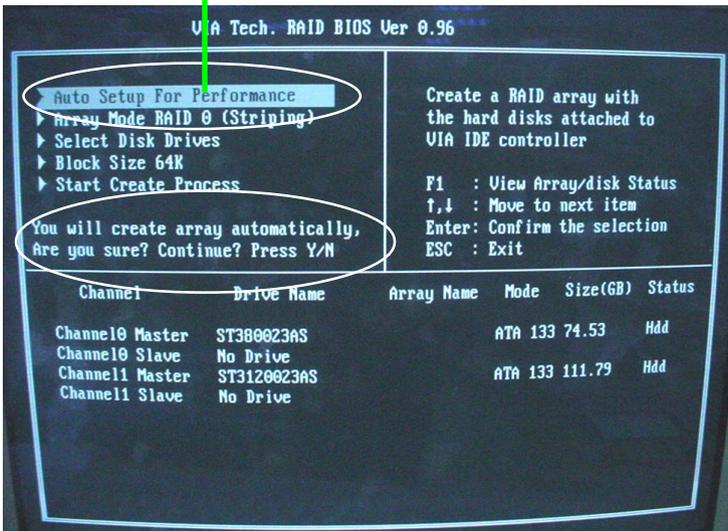
(5-4-2) When you press <Enter> on the “Create Array” bar, the following screen shows up. Press <Enter> on either RAID0 or RAID1 bar to select the RAID mode.



(5-4-3) The following screen shows that RAID 0 (Striping) is selected. Now, use the “Arrow” key to mark up the “Auto Setup For Performance” bar.

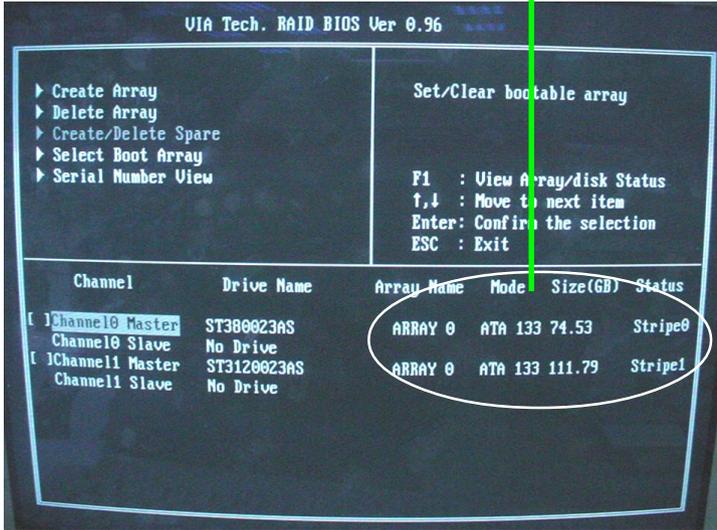


(5-4-4) Press <Enter> on the “Auto Setup for Performance” bar, and the following screen shows up to ask you to confirm the RAID Creation. Press <Y> key to continue.

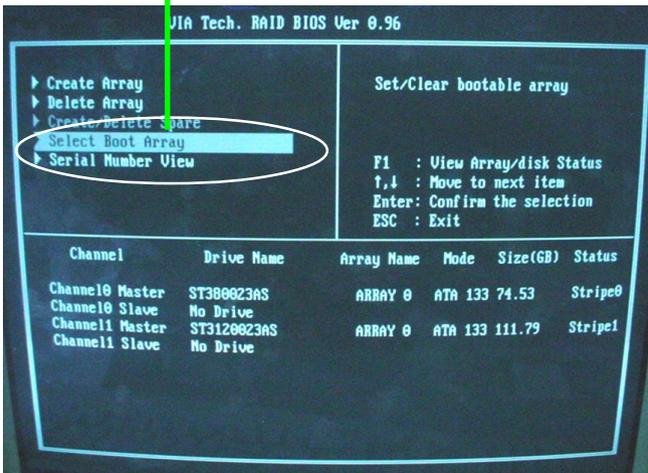


K8AV2-R / K8AV2-RL

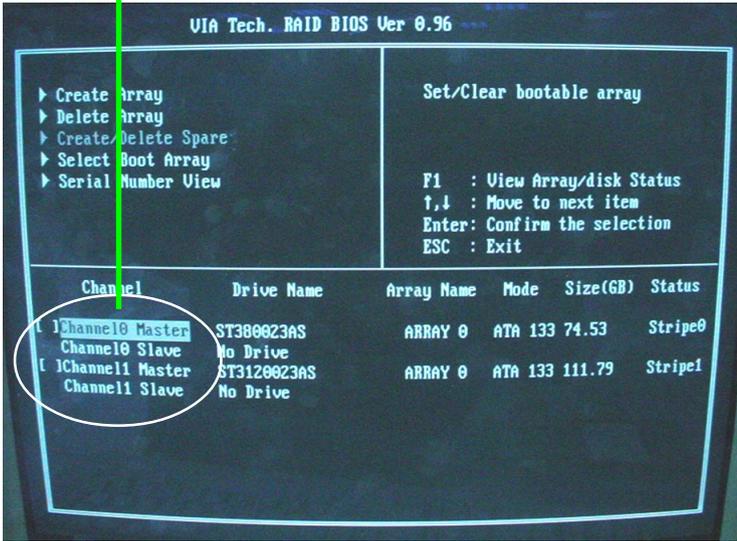
(5-4-5) Instantly, the RAID0 Striping mode is set up and shown on the screen. Then press <Escape> key to exit the screen.



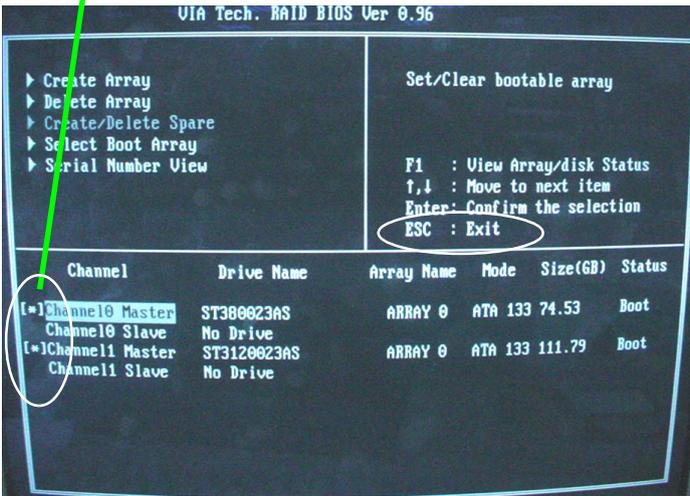
(5-4-6) On the next screen, press the “Arrow” key to mark up the “Select Boot Array” bar and press <Enter> key to set up “Boot Disk” for the system.



(5-4-7) Instantly, the Master Hard Disk is marked up. Press <Enter> on the screen to set up the “Boot Disk”.

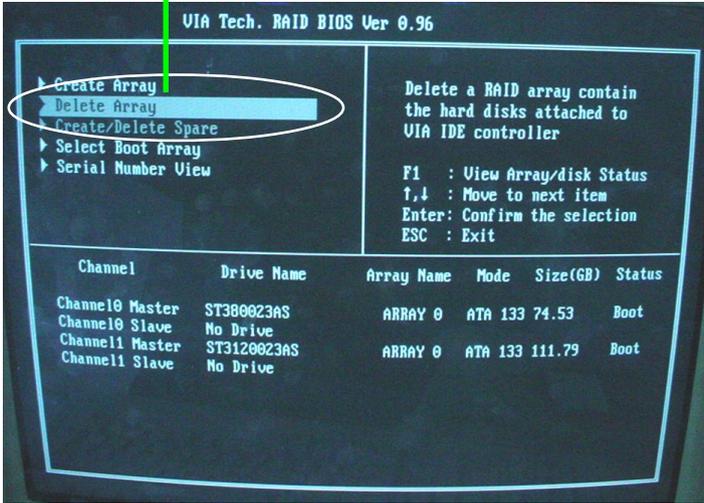


(5-4-8) Instantly, the bootable hard disks are marked with an “asterisk (star)”, indicating that those hard disks are bootable. You can exit from this screen by pressing the “Escape” key now.

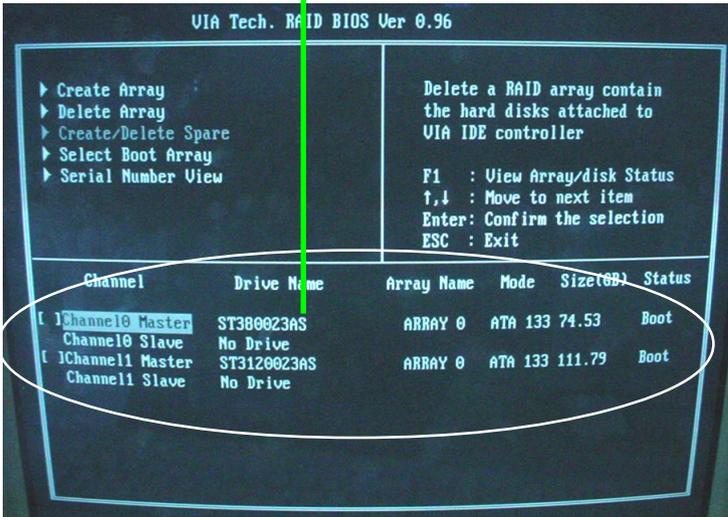


5-5 Using VIA RAID BIOS Setup to change Array mode

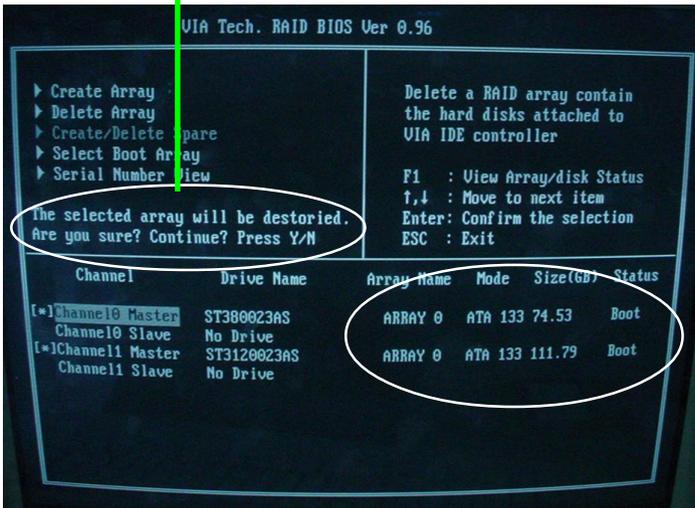
(5-5-1) If you wants to change the RAID mode, say, from RAID0 to RAID1, you must return to the Initial RAID BIOS Setup screen. Then, press the “Arrow” key to mark the “Delete Array” bar and press <Enter>.



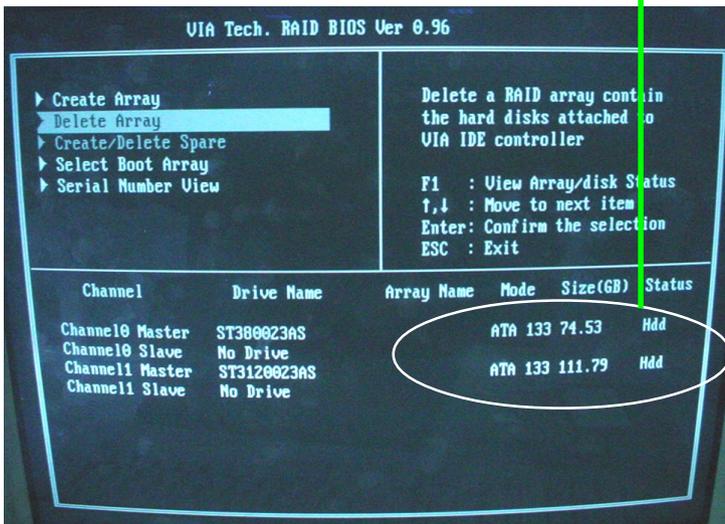
(5-5-2) Instantly, the Bootable Hard Disk(s) is marked up for deletion. Press <Enter> key on this screen to delete the set-up array.



(5-5-3) When the message “The selected array will be destroyed.....” appears on screen, press <Y> key to continue.



(5-5-4) Instantly, the selected array is deleted. You can see that the “Boot” marking on the Hard Disk is changed to HDD (Hard Disk Drive). Only after you have deleted the selected array, are you able to set up a new array mode.

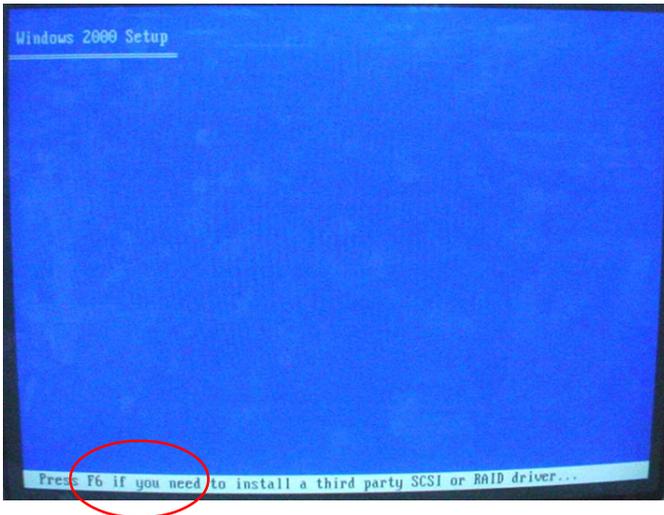


5-6 To Install SATA/SATA-RAID Driver

SATA/SATA-RAID Driver is incorporated in Support CD/Floppy Diskette for user's installation. This driver is intended for both SATA and SATA RAID installation.

5-6-1 To Install SATA/SATA RAID Driver on Win 2K/XP

- (1) Get ready the Floppy Diskette holding the RAID Driver.
(This Driver Diskette should have been enclosed in the mainboard Package.)
- (2) Check that SATA Hard Disks are connected properly to the SATA Connectors.
- (3) Start your PC system and use RAID BIOS Setup Utility to configure RAID 0 or RAID 1 to the hard disks. (For SATA Interface, skip the RAID configuration.)
- (4) Restart System and format the bootable hard disks.
- (5) Now, apply the Windows 2K/XP CD to CD-ROM for operating system installation.
- (6) On the Windows 2000 Setup screen, press "F6" key to set up RAID driver for Win 2K/XP.



- (7) On next screen when you are instructed to insert the RAID Driver Diskette into Floppy drive, follow the instruction to continue and complete the installation.

5-6-2 To Install SATA/SATA RAID Driver on Win 98se/Me

For Win 98se/Me user of SATA interface (not RAID), please pay attention to the following extraordinary configuration in BIOS Setup:

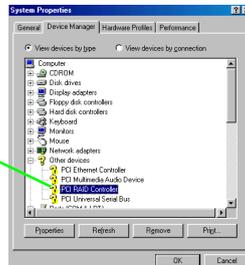
When Win98se/Me system is to be installed on SATA interface (not RAID), the configuration of “OnBoard SATA-IDE (for VT8237)” in “Integrated Peripheral” should be set to “RAID”.

- (1) Get ready the Floppy Diskette holding the SATA/RAID Driver.
- (2) Check that SATA Hard Disks are connected properly to the SATA Connectors.
- (3) Start your system and use RAID BIOS Setup Utility to configure RAID 0 or RAID 1 to the hard disks. (For SATA Interface, skip the RAID configuration.)
- (4) Restart System and format the bootable hard disks.
- (5) Now, apply the Windows 98se/Me CD to CD-ROM for operating system installation.
- (6) Start the Win98se/Me system.
- (7) On the “Start” screen of your system, please click to the following path:

My Computer\properties\Device manager

- (8) In the “Device manager” screen, you can see the item “PCI RAID Controller” with a yellow question mark on its left side, which indicates that the RAID controller is already detected by system but the driver is not installed yet. Please point to this item with your mouse and double click on it (or click the “Properties” button).

The question mark here indicates that RAID Controller Driver is not installed yet.



(9) Instantly, the “PCI RAID Controller Properties” screen shows up. Please click the “General” bar to continue.



(11) In the “Update device Driver Wizard” screen, click “Next” to continue until you see a dialog box asking you to “Specify a location” for the driver. You should now insert the SATA/SATARAID Driver CD/Diskette into CD-ROM/Drive A.

(12) As illustrated in the picture below, check the item “Specify a location” and click the “Browse” button to find out the correct path for the driver. As the RAID Driver is in Drive A, please type into the blank bar the correct path and click “Next” to continue:

D:\Driver\VIA\VIA_serial\SATA\Win98-me
or
A:\Win98-me



(13) The Update Device Driver Wizard will then go on installing the driver. In a few seconds, installation completes. Please click the “Finish” button on the screen to complete the installation.

