

# Contents

- Chapter 1 Specification ..... 8**
  - 1-1 KT400 Mainboard Layout ..... 9
  - 1-2 Mainboard Specifications ..... 10
    - 1-2.1 CPU Socket ..... 10
    - 1-2.2 System Chipsets ..... 10
    - 1-2.3 Memory ..... 10
    - 1-2.4 BIOS ..... 10
    - 1-2.5 Accelerated Graphics Port (AGP) Interface ..... 10
    - 1-2.6 Advanced System Power Management ..... 11
    - 1-2.7 Multi-I/O Functions ..... 11
    - 1-2.8 Expansion Slots ..... 11
    - 1-2.9 AC'97 Audio Codec on board ..... 12
    - 1-2.10 Hardware Monitor on board ..... 12
    - 1-2.11 Smart Card Reader Support ..... 12
    - 1-2.12 Form Factor ..... 12
  - 1-3 Mainboard Specification Table ..... 13
  - 1-4 Chipset System Block Diagram ..... 14
- Chapter 2 Hardware Setup ..... 16**
  - 2-1 CPU Identification and Installation ..... 17
    - 2-1.1 CPU Identification Legends ..... 17
    - 2-1.2 CPU Installation with Socket 462 ..... 18
  - 2-2 Memory Installation ..... 19
    - 2-2.1 To Install DDR SDRAM Module ..... 19
    - 2-2.2 To Remove a DIMM ..... 19
    - 2-2.3 Warning Indicator LED1: DIMM Slots Powered On ..... 20
  - 2-3 AGP Slot Installation ..... 21
  - 2-4 IDE Connector Installation ..... 22

<b>2-5 Floppy Drive Connector ( FDC ) Installation</b> .....	23
<b>2-6 ATX Power Supply Installation</b> .....	24
<b>2-7 Jumper Settings</b> .....	25
2-7.1 How to tackle the Jumpers: .....	26
2-7.2 JCLK1: CPU Clock/Overclock Select.....	26
2-7.3 JBAT1: Clear CMOS .....	27
2-7.4 Jp1: Anti-burn Shield (ABSII) .....	28
2-7.5 Jp3: PS2 KB/Mouse Wake-up .....	29
2-7.6 Jp4: USB KB/Mouse Wake-up .....	29
<b>2-8 Other Connectors Configuration</b> .....	30
2-8.1 On-board FAN Connectors .....	30
2-8.2 USB Ports and USB Pin-headers .....	31
2-8.3 Chassis Panel Connectors .....	32
2-8.4 PS/2 Mouse And PS/2 Keyboard .....	32
2-8.5 CD-ROM Audio Connectors (CD-In1) .....	33
2-8.6 Smart Card Reader Connector: SCR1 .....	33
2-8.7 Connector WOL1: Wake On LAN.....	34
2-8.8 Thermal Connectors.....	35
2-8.9 Complex Pin-header (Front Panel Connectors) .....	36
2-8.10 Audio 1: 6-channel Sound Output Connector (optional) ...	38
<b>2-9 IRQ Description</b> .....	39
<b>Chapter 3 Software Setup</b> .....	40
<b>3-1 Open Up Support CD:</b> .....	41
<b>3-2 Proceed to VIA 4-IN-1 Drivers Installation</b> .....	42
<b>3-3 AC'97 Audio Driver Installation</b> .....	44
3-3.1 AC'97 Driver Installation .....	44
3-3.2 6-channel Verification .....	45
<b>3-4 Install USB 2.0 Driver for Win98 / Me / 2000 / XP</b> .....	48
<b>3-5 Install Hardware Monitor Utility</b> .....	50
3-5.1 Installation .....	50
3-5.2 Verification .....	51

<b>Chapter 4 AMI BIOS Setup .....</b>	<b>52</b>
4-1 About BIOS Setup .....	53
4-2 To Run BIOS Setup .....	53
4-3 About CMOS .....	53
4-4 The POST ( Power On Self Test ) .....	53
4-5 To Update BIOS .....	54
4-6 BIOS SETUP --- CMOS Setup Utility .....	56
4-6.1 CMOS Setup Utility .....	56
4-6.2 Standard CMOS Setup .....	57
4-6.3 Advanced BIOS Features .....	60
4-6.4 Advanced Chipset Features .....	63
4-6.5 Power Management Features .....	66
4-6.6 PNP / PCI Configurations .....	69
4-6.7 Integrated Peripherals .....	71
4-6.8 SmartDoc Anti-Burn Shield .....	74
4-6.9 Frequency/Voltage Control .....	76
4-6.10 System Information .....	78
4-6.11 Set Supervisor Password .....	79
4-6.12 Load Optimized Defaults .....	81
4-6.13 Save & Exit Setup .....	81
4-6.14 Exit Without Saving .....	81
<b>APPENDICES .....</b>	<b>82</b>
Appendix-1 Identify Mainboard Model Number .....	83
Appendix-2 Technical Terms .....	84

## ITEM CHECKUP

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- Mainboard
- Support CD
- Bundled Bonus Pack CD
- Bundled Bonus Pack Manual
- Thermal Cable (Optional)
- ATA66/100/133 IDE Cable
- FDD Cable
- User Manual
- Multi-lingual Quick Installation Guide
- RS232 Cable (Optional)

# Chapter 1 Specification

## Introduction

This mainboard features an integration of the powerful AMD processors Athlon/Athlon XP/Duron and the North Bridge VIA Apollo KT400 plus South Bridge VT8235, with which the whole system performance supports 333/266/200 MHz system bus.

VIA Apollo KT400 plus VT8235 supports on-board AMD processors to implement the 333/266/200MHz Front Side Bus, the AGP 8X/4X interface, the LPC Super I/O, the DDR \*400/333 MHz SDRAM, the 6-channel AC'97 Audio interface, the USB 2.0 interface and ATA 133/100/66 data transfer rate. This chapter is to introduce to users every advanced function of this high performance integration.

**Topics included in this chapter are:**

**1-1 Mainboard Layout**

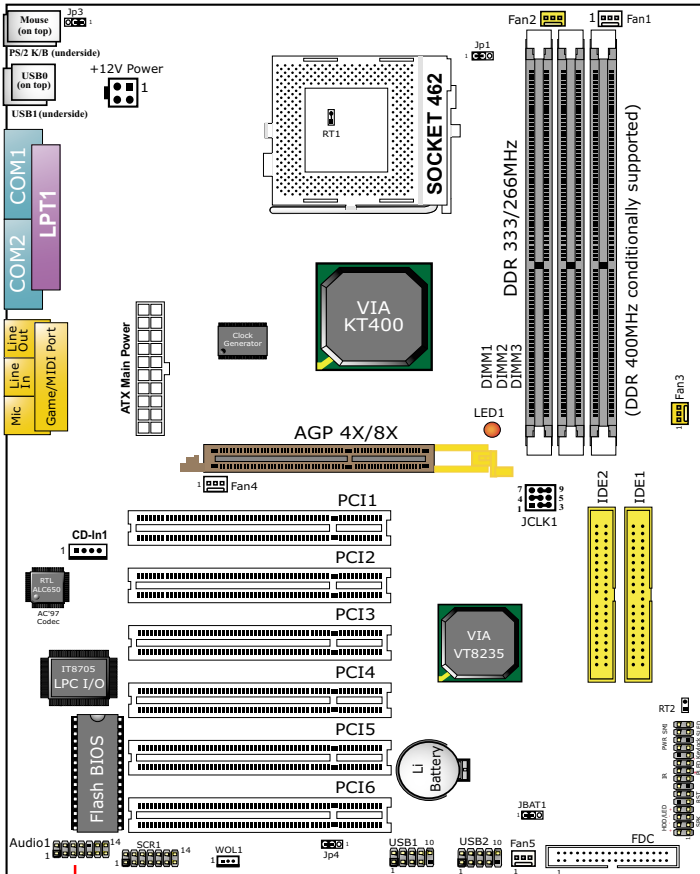
**1-2 Mainboard Specifications\*\***

**1-3 Mainboard Specification Table**

**1-4 Chipset System Block Diagram**

**\*\* 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 KT400 Mainboard Layout



Optional 6-channel Audio-out Connector

## **1-2 Mainboard Specifications**

### **1-2.1 CPU Socket**

CPU Socket 462 (Socket A) on board, supporting AMD Athlon, Athlon XP and Duron processors and implementing 333/266/200MHz system bus

### **1-2.2 System Chipsets**

- North Bridge VIA KT400 for managing and supporting 333/266/200MHz system Bus, AGP 8X/4X interface and DDR 333/266MHz Memory Interface \*with an enhanced support of DDR 400MHz Memory Module which should have passed Soltek DDR 400 Memory Module Validation.
- South Bridge VIA VT8235 working with North Bridge KT400 supporting the V-Link, LPC Super I/O, PCI interface, ATA133 interface, LAN interface, USB V2.0 interface, as well as AC'97 Audio 6-channel interface.

### **1-2.3 Memory**

3 DDR DIMM 184-pin slots on board :

- Supporting unregistered, non-ECC \*DDR 400/333/266/200 SDRAM up to 3 GBs (DDR 400 Module supported conditionally)
- Supporting installation of mixed volumes yet same type of DDR SDRAM modules

\*Soltek Computer Inc. typically runs a DDR 400 Memory Module Validation Program for Chipset VIA KT400/P4X400A. Detailed information is available in Soltek Web Site: [www.soltek.com.tw](http://www.soltek.com.tw)

### **1-2.4 BIOS**

- Supporting Plug & Play V1.0
- Flash Memory for easy upgrade
- Supporting BIOS Writing Protection and Year 2000 compliant
- Supporting BIOS Setup (See Chapter 4 BIOS Setup)

### **1-2.5 Accelerated Graphics Port (AGP) Interface**

AGP Controller embedded on board, supporting:

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

### **1-2.6 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
- PS/2 Keyboard & Mouse Power On
- Supporting Ring Signal Power Up Control for Wake-on-LAN (with Connector WOL1)
- Real Time Clock (RTC) with date alarm, month alarm, and century field

### **1-2.7 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 98 and later operating systems; USB drivers provided in Support CD for installation
  - 2 built-in USB connectors and 2 more USB pin-headers which require 2 optional USB cables to provide 4 more USB ports
  - USB Wake-up function supported by USB ports with BIOS Setup and Jumper setting
- PS/2 Keyboard and PS/2 Mouse
- UARTs (Universal Asynchronous Receiver / Transmitter):
  - 2 complete serial ports (COM1 & COM2) on board

### **1-2.8 Expansion Slots**

- 6 PCI Bus Master slots
- 1 AGP 8X/4X slot
- 3 DDR DIMM slots



### **1-2.9 AC'97 Audio Codec on board**

AC'97 Audio Codec 2.2 compliant on board

- Supporting up to 6 channels of PCM audio output
- 6 channel audio consists of Front Left, Front Right, Back Left, Back Right, Center and Sub-woofer for complete surround sound effect
- AC'97 Audio Codec Driver enclosed in Support CD for user's installation

### **1-2.10 Hardware Monitor on board**

- Hardware Monitor integrated in LPC I/O IT8705F, provides monitoring and alarm for flexible desktop management of hardware voltage, temperatures and fan speeds.
- Utility Software SmartGuardian for displaying monitoring status is enclosed in Support CD for user's installation.

### **1-2.11 Smart Card Reader Support**

- Connector "SCR 1" on board to support Smart Card Reader, compliant with Personal Computer Smart Card (PC/SC) working group standard and smart card (ISO 7816) protocols

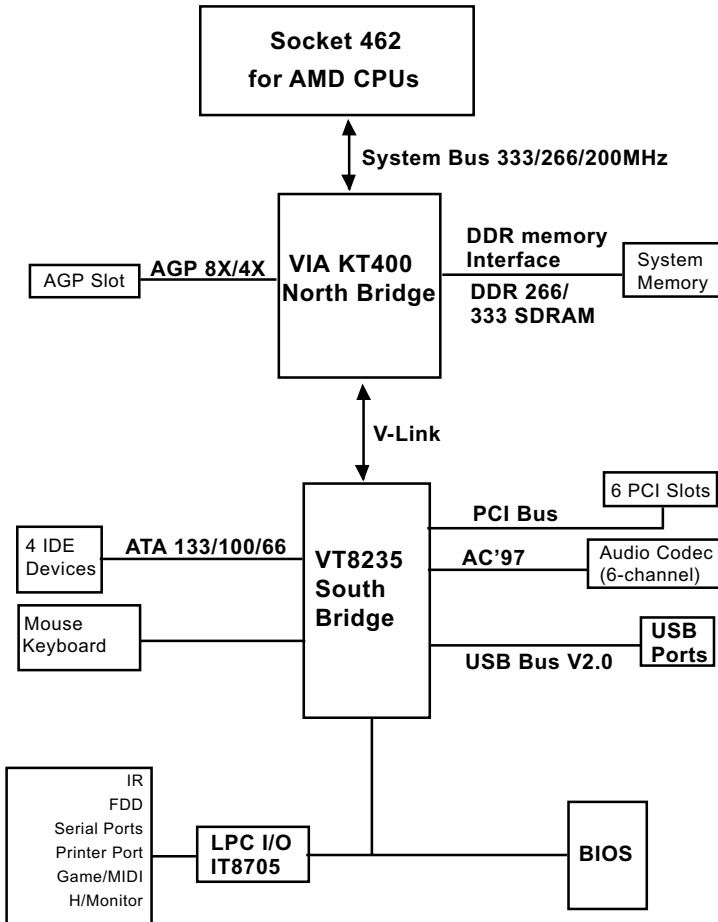
### **1-2.12 Form Factor**

- ATX form factor, ATX power supply V2.03 (20-pin Main Power Connector and 4-pin +12V Power Connector)
- Mainboard size: 305mm x 225mm

### 1-3 Mainboard Specification Table

<b>KT400 Specifications and Features</b>	
CPU	Socket 462 for AMD Athlon, Athlon XP, Duron CPU
North Bridge	VIA KT400, supporting 333/266/200 MHz FSB
South Bridge	VT8235
BIOS	AMI BIOS
Memory	Supporting DDR *400/333/266 SDRAM, up to 3GB in 3 DDR SDIMM slots
I/O Chip	ITE IT8705F with Hardware Monitor
AGP interface	AGP 8X/4X mode only
Audio	AC'97 Audio 2.2 compliant, 6 channel audio
IDE Interface	2 ATA 133/100/66 IDE
VGA	Not integrated on board
PCI Slots	6 PCI Master slots on board
I/O Connectors	6 USB V2.0, 1 FDD port, 2 COM ports, 1 LPT, 1 IrDA, 1 PS/2 K/B, 1 PS/2 Mouse, 1 SCR slot
Other common features	BIOS Writing Protection; Keyboard/ Mouse Power On; ATX Power Supply V2.03; ATX form factor
Optional Feature	6-channel Audio Out external connectors

### 1-4 Chipset System Block Diagram



Socket 462 + VIA KT400 + VIA VT8235 Diagram

# Chapter 2 Hardware Setup

## To Get Things Ready for Hardware Setup !

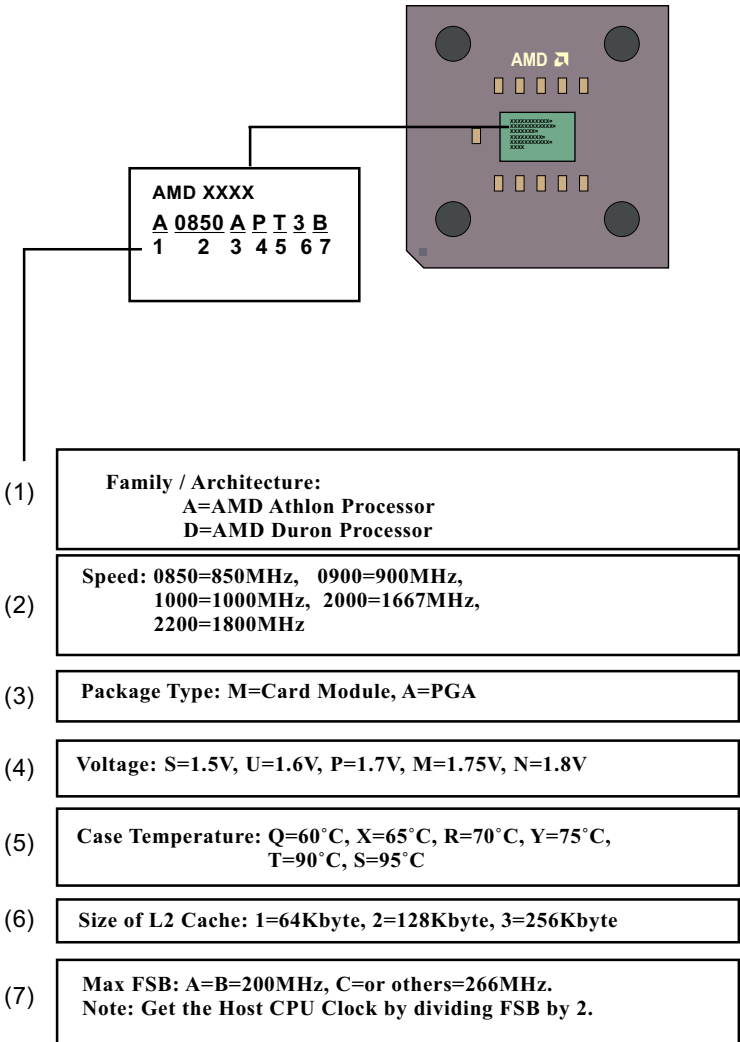
1. We recommend to install your CPU before any other components. For detailed installation instructions of processor, you can also refer to the pamphlet enclosed in your CPU package.
2. Installing a cooling fan with a good heatsink is a must for proper heat dissipation for your CPU. Get ready an appropriate 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**
- 2-9 IRQ Description**

## 2-1 CPU Identification and Installation

### 2-1.1 CPU Identification Legends

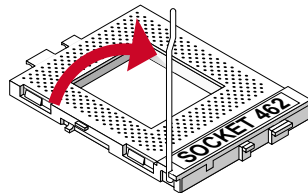


## 2-1.2 CPU Installation with Socket 462

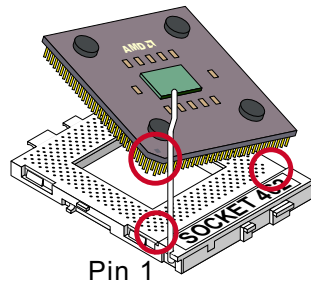
This series is built with CPU Socket 462 supporting the AMD CPUs Athlon, Athlon XP and Duron:

- Follow the steps described in this section to install CPU into the on-board Socket 462.
- 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.

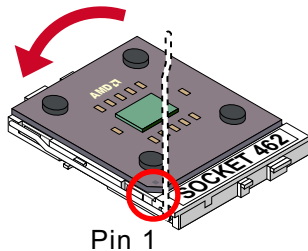
1. First pull sideways the lever of Socket 462, and then turn it up 90° so as to raise the upper layer of the socket from the lower platform.



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.



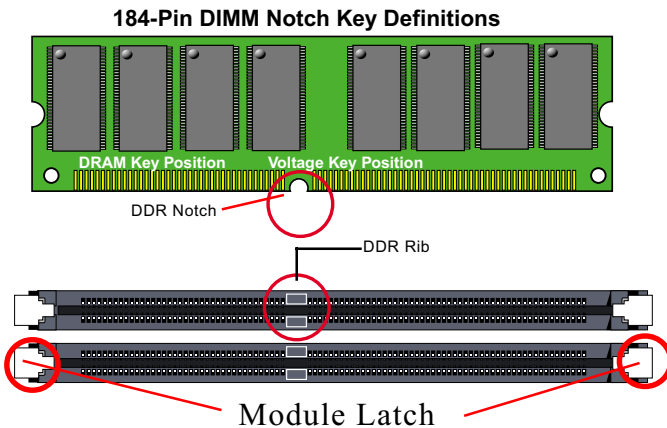
3. Make sure that all CPU pins have completely entered the socket and then lower down the lever to lock up CPU to socket.



## 2-2 Memory Installation

### 2-2.1 To Install DDR SDRAM Module

- This series supports up to 3GB unbuffered \*DDR 400/333/266 SDRAM, with 3 DDR DIMM slots on board. Do not insert other type of modules into these slots. Memory support is upgradable to DDR 400 without guarantee of success in BIOS Setup.
- \*DDR 400 Module is supported on condition that the module has passed Soltek DDR 400 Memory Module Validation Test. Soltek Computer Inc. typically runs a DDR 400 Memory Module Validation Program for Chipset VIA KT400/P4X400A. Detailed information is available in Soltek Web Site: [WWW.soltek.com.tw](http://WWW.soltek.com.tw)
- 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.



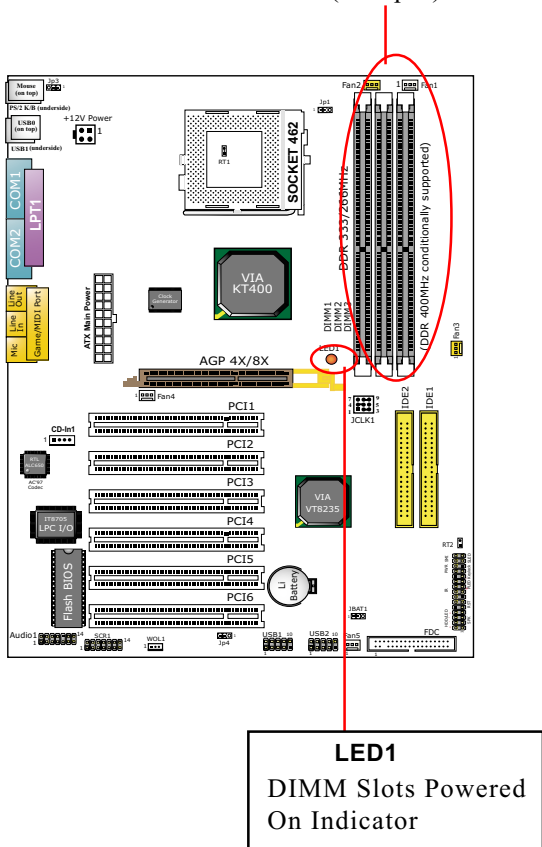
### 2-2.2 To Remove a DIMM

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

### 2-2.3 Warning Indicator LED1: DIMM Slots Powered On

An indicator LED1 is designed on board. Whenever system is started or is in STR status (Suspend to RAM), all the DIMM slots on board will also get powered on with the set voltage, resulting in LED1 lighting up. This indicator LED1 is to warn users that, whenever DIMM slot is powered on, no memory module should be removed from or added into it.

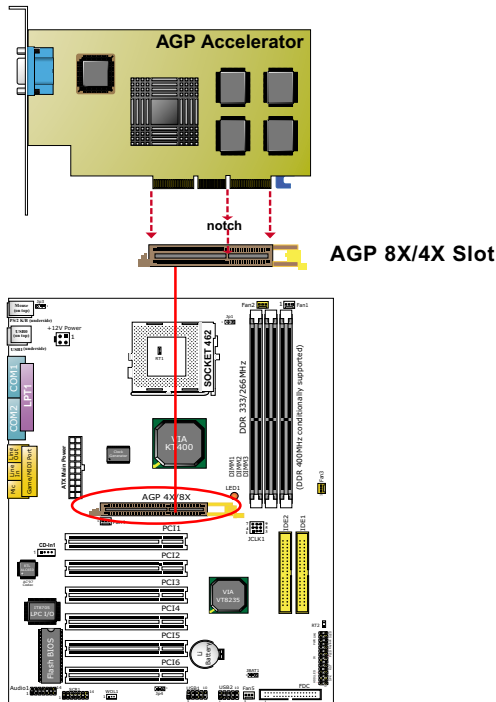
DDR DIMM Slots  
(184-pin)





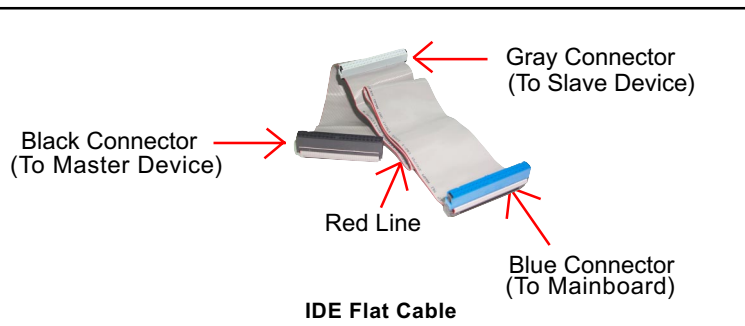
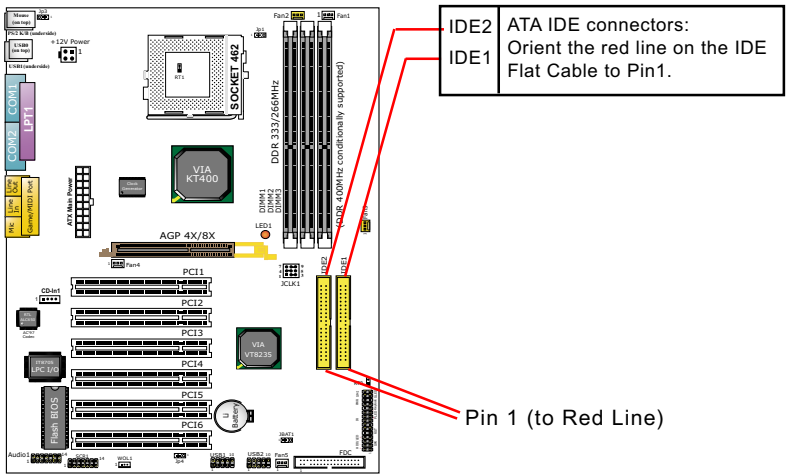
### 2-3 AGP Slot Installation

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.



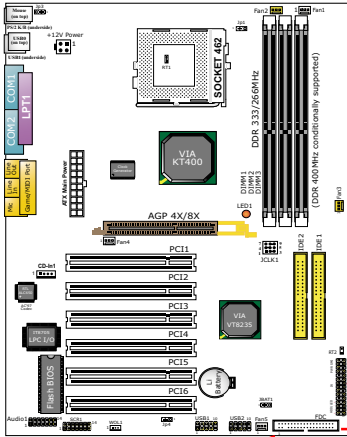
## 2-4 IDE Connector Installation

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

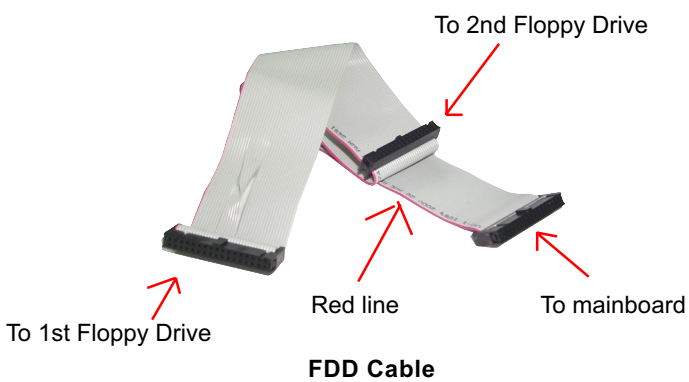
To install FDC, you should connect the end of FDC cable with single connector to the board, and connect the other end with two connectors to the floppy drives.



Floppy Drive Connector:

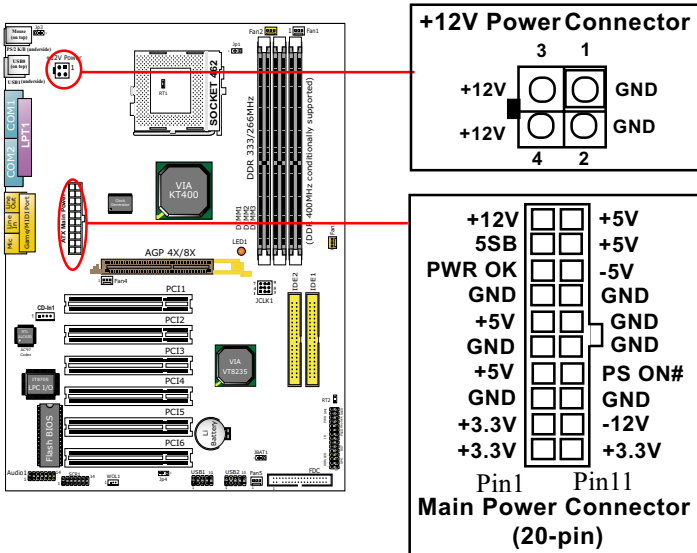
Orient the red line of the Floppy Flat Cable to Pin 1.

Pin 1 (to Red Line)



FDD Cable

## 2-6 ATX Power Supply Installation







To set up Power Supply on this mainboard:

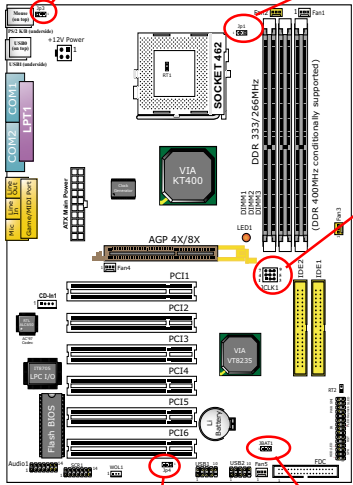
1. Connect the on-board Main Power Connector (20-pin) to the Main Power Connector (20-pin) of an ATX Power Supplier which should be of the latest version 2.03 model, and then connect the square-shaped +12V Power Connector on board to the square-shaped +12V Power Connector of the Power Supplier.  
Warning: 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 supplier should be able to provide at least 720mA / +5V standby power for Wake On LAN and Wake On Modem function.








## 2-7 Jumper Settings



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



<b>Jp3:</b> PS/2 KB/Mouse Wakeup	
	1-2 closed Enabled (Default)
	2-3 closed Disabled

<b>JP1:</b> Anti-burn Shield (ABSII) (Overheated CPU Shutdown) (only for Athlon XP/ Duron Morgan)	
	1-2 closed (default) Enable overheated CPU (85°C) shutdown function
	2-3 closed Disable overheated CPU shutdown function

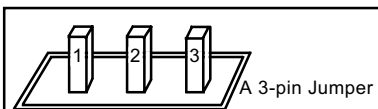


<b>JCLK1:</b> CPU Clock Select	
(Default Setting)	
	8-9 100MHz selected
	7-8 133MHz selected
	7-8 166MHz selected
	8-9 200MHz selected
	7-8 Auto-detect
	4-5 133 / latest
	1-2 166MHz CPU Type

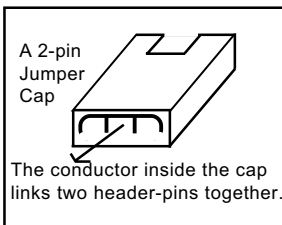
<b>Jp4:</b> USB KB/Mouse Wakeup	
	1-2 closed Enabled
	2-3 closed Disabled (Default)

<b>JBAT1</b> Clear CMOS	
	1-2 closed (default) To hold data
	2-3 closed To clear CMOS

### 2-7.1 How to tackle the Jumpers:



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 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.

### 2-7.2 JCLK1: CPU Clock/Overclock Select

JCLK1 is designed on board as a jumper for CPU clock select. With JCLK1, user can choose the way for a 100MHz CPU to run an overclock on board.

1. Before setting the CPU clock, read the Identification Legend on the CPU, find the Max FSB and divide it by two. The result is the default CPU clock.
2. Select the CPU clock you want from 100/133/166/200MHz and set JCLK1 to match your choice. Note that the 1-2, 4-5, 7-8 setting of JCLK1 is for auto-detection of either 133 or latest 166MHz CPU only.
3. If you select a CPU clock which is higher than your default CPU clock, it means that an overclock is desired. However, if an overlock fails to boot system, you should resort to “Clearing CMOS” to rebooting your system. (See Clear CMOS in next paragraph.)

<b>JCLK1: CPU Clock Select</b>			
<b>(Default Setting)</b>			
7		8-9	<b>100MHz selected</b>
4		4-5	
1		2-3	
7		7-8	<b>133MHz selected</b>
4		4-5	
1		2-3	
7		7-8	<b>166MHz selected</b>
4		5-6	
1		2-3	
7		8-9	<b>200MHz selected</b>
4		5-6	
1		2-3	
7		7-8	<b>Auto-detect 133/Latest 166MHz CPU Type</b>
4		4-5	
1		1-2	

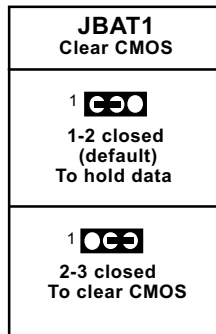
Note on CPU Overclocking:

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 take the “Use Linear” option of 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. And remember to reconfigure whatever should be reconfigured.
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 on the case 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 .



### 2-7.3 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.
2. Set JBAT1 to Pin 2-3 closed.
3. After 2 or 3 seconds, return the JBAT1 setting to Pin1-2 closed.
4. CMOS data are restored to default. Remember never clear CMOS when system power is on.



### 2-7.4 Jp1: Anti-burn Shield (ABSII)

<b>JP1:</b> <b>Anti-burn Shield (ABSII)</b> <b>(Overheated CPU Shutdown)</b> <b>(only for Athlon XP/ Duron Morgan)</b>	
 1	<b>1-2 closed (default)</b> Enable overheated CPU (85°C) shutdown function
 1	<b>2-3 closed</b> Disable overheated CPU shutdown function

JP1 is designed to enable the overheat safeguard for some CPUs which are incorporated with a protective thermal diode. The latest AMD Athlon XP and Duron Morgan CPUs are incorporated with such thermal diode and can be protected by this function. Setting JP1 1-2 closed (default setting) will get system shutdown when the above-mentioned CPUs get to 85°C (the default protection temperature.) Only when the CPU returns to a cooler state can you restart your system.



For other CPUs that are not incorporated with a protective thermal diode, please set JP1 2-3 closed to disable the function because it is a vain design now.

Reminder: If a sudden shutdown happens to your system which has been running well for a while with an AMD Athlon XP/Duron Morgan CPU, this might be caused by the “Overheated CPU Shutdown” design. Please use a better CPU cooling fan and restart your system.





### 2-7.5 Jp3: PS2 KB/Mouse Wake-up

Jp3 is designed on board as a jumper to wake up system from suspend mode either with the PS/2 keyboard or the PS/2 mouse.

<b>Jp3:</b> PS/2 KB/Mouse Wakeup	
 1	1-2 closed Enabled (Default)
 1	2-3 closed Disabled

### 2-7.6 Jp4: USB KB/Mouse Wake-up

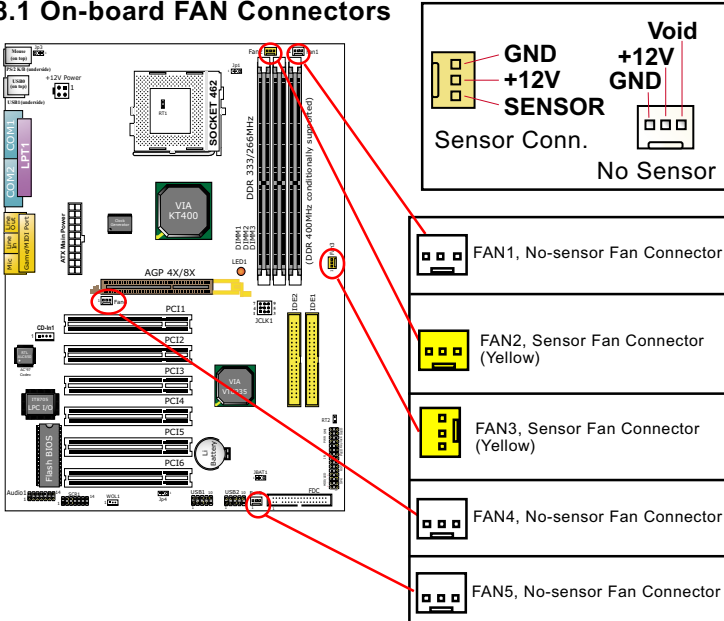
Jp4 is designed on board as a jumper to wake up system from suspend mode either with the USB keyboard or the USB mouse.

<b>Jp4:</b> USB KB/Mouse Wakeup	
 1	1-2 closed Enabled
 1	2-3 closed Disabled (Default)

## 2-8 Other Connectors Configuration

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

### 2-8.1 On-board FAN Connectors



Both Sensor and No-sensor Fan Connectors support CPU/AGP/System/Case cooling fan with +12V mode. When connecting the wire to any Fan Connector, user should make sure that the red wire is for the positive current and should be connected to pin +12V, and the black wire is Ground and should be connected to pin GND. 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” in 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.

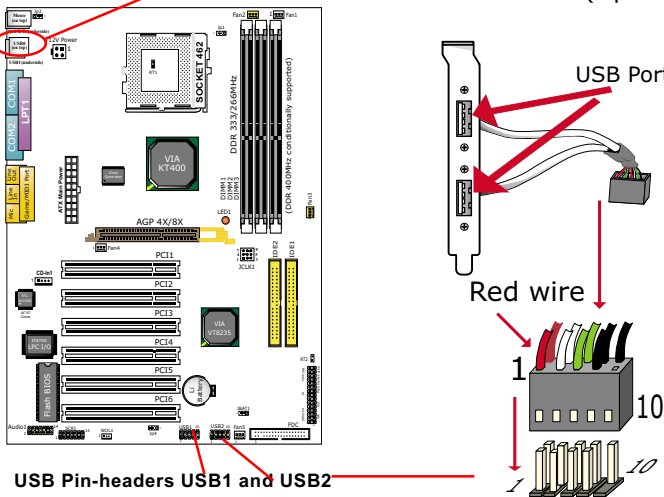
### 2-8.2 USB Ports and USB Pin-headers

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

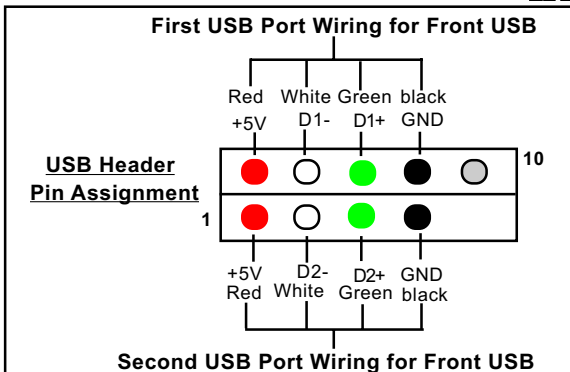
When plugging the USB cable to USB Header, user must make sure the red wire is connected to Pin 1.

All 6 USB ports are compliant with 1.0 / 2.0 USB Bus. USB 2.0 supports Win 98 and up . USB 1.0 / 2.0 drivers are provided in Support CD for user's installation.

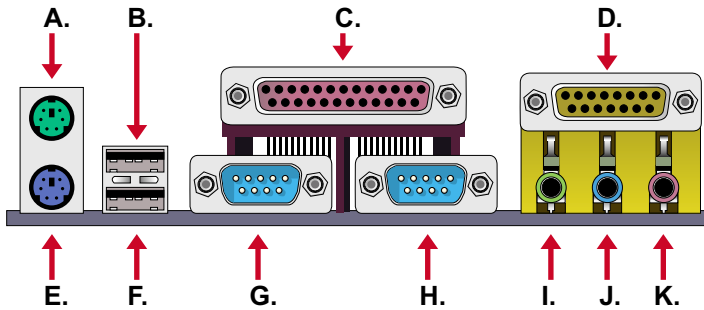
USB connectors USB0 and USB1 (underside)      USB Cable (Optional)



USB Pin-headers USB1 and USB2



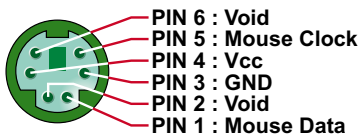
### 2-8.3 Chassis Panel Connectors



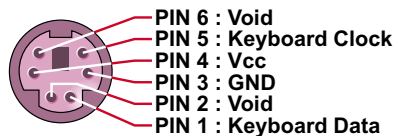
- A : PS/2 MOUSE
- B : USB0
- C : LPT1 PORT
- D : Game/MIDI
- E : PS/2 KEYBOARD
- F : USB 1 (Underside)

- G : COM 1
- H : COM 2
- I : Line Out /  
Front Speaker OUT
- J : Line In /  
Rear Speaker Out
- K : Microphone Input /  
Center Subwoofer Out

### 2-8.4 PS/2 Mouse And PS/2 Keyboard



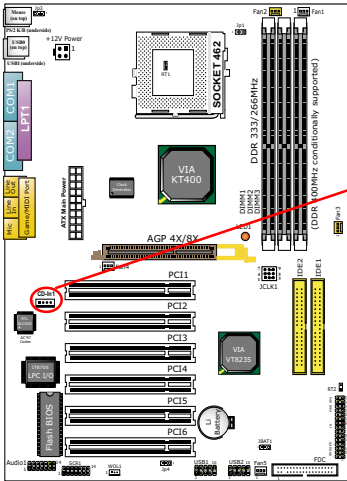
**PS/2 MOUSE**  
(On top)



**PS/2 KEYBOARD**  
(Underside)

### 2-8.5 CD-ROM Audio Connectors (CD-In1)

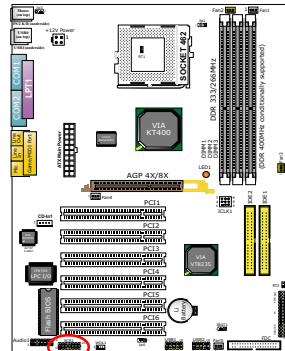
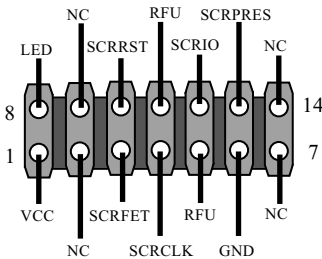
CD-In1 is an audio connector connecting CD-ROM audio to mainboard.



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

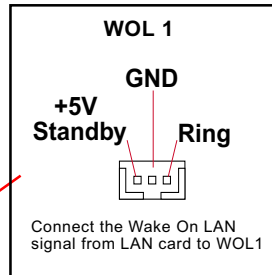
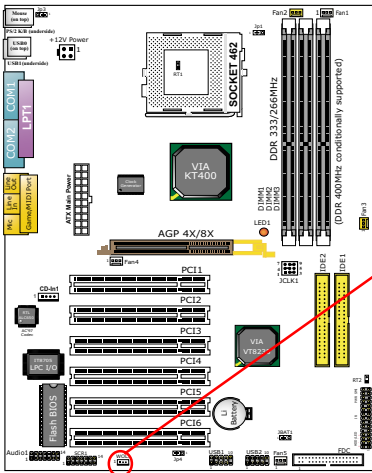
### 2-8.6 Smart Card Reader Connector: SCR1

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

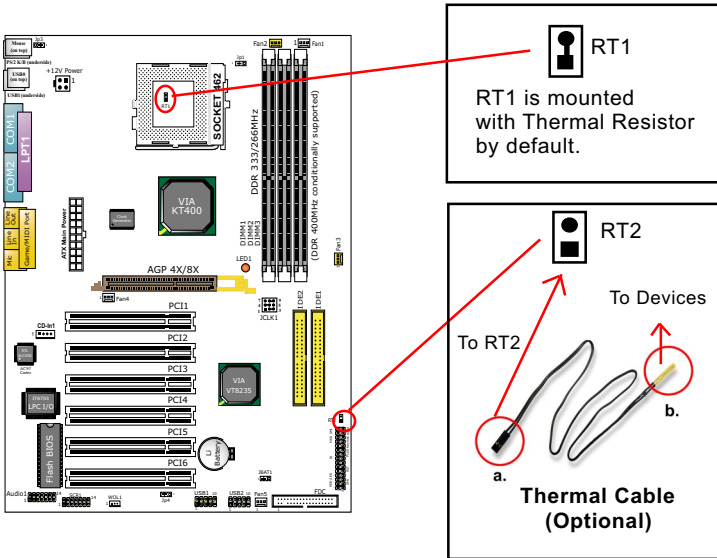


### 2-8.7 Connector WOL1: Wake On LAN

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.



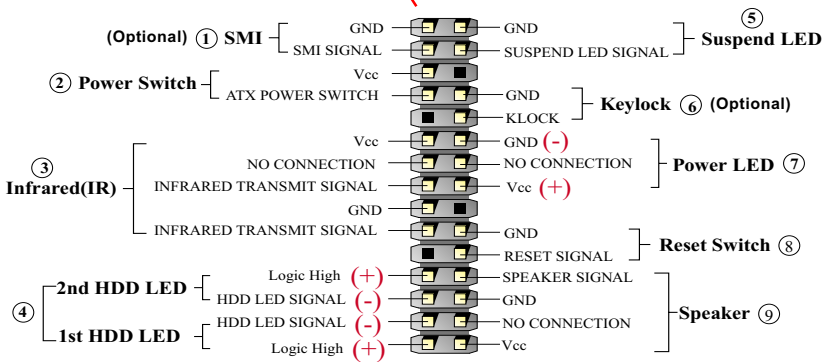
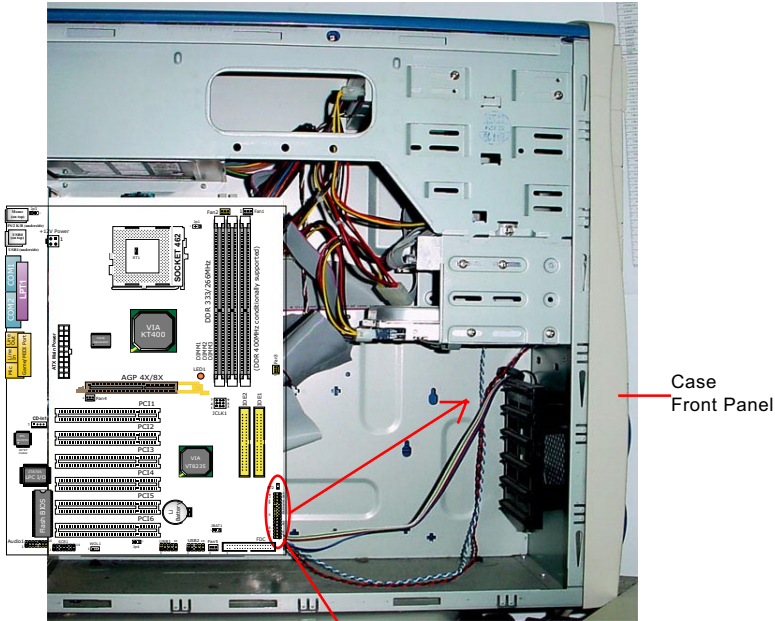
## 2-8.8 Thermal Connectors



1. Connector RT1: A thermal resistor is mounted by default to connector RT1 so as to detect the temperature of the CPU. What RT1 does is to transmit the thermal signal to BIOS or Hardware Monitor.
2. Connector RT2: A thermal cable is needed to connect RT2 to on-board devices such as HDD, Graphics card etc., so as to detect the temperature generated therein. Please connect the end (a) of the thermal cable to RT2, and tape another end (b) of the thermal cable on to the device which you want to monitor. After you have finished the thermal cable installation, you will **see the detected temperature in BIOS setup or Hardware Monitor utility.**

### 2-8.9 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) SMI Connector (Optional):**

Connection: Connected to the Suspend Switch.

Function: Manually selecting DOS system into the Suspend Mode or “Green Mode” by System Mangement Interupt.

**(2) 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.

**(3) IR Connector (Infrared Connector):**

Connection: Connected to Connector IR on board.

Function: To support wireless transmitting and receiving module on board.

**(4) 1st HDD LED Connector/2nd HDD LED Connector:**

Connection: Connected to HDD LED.

Function: To supply power to HDD LED.

**(5) Suspend LED Connector:**

Connection: Connected to Suspend Indicator.

Function: To supply power to “Suspend Indicator”.

**(6) Keylock Connector (Optional):**

Connection: Connected to keyboard.

Function: To lock keyboard and disable keyboard function.

**(7) Power LED Connector:**

Connection: Connected to System Power LED.

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

**(8) Reset Switch Connector:**

Connection: Connected to “Reset Switch”.

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

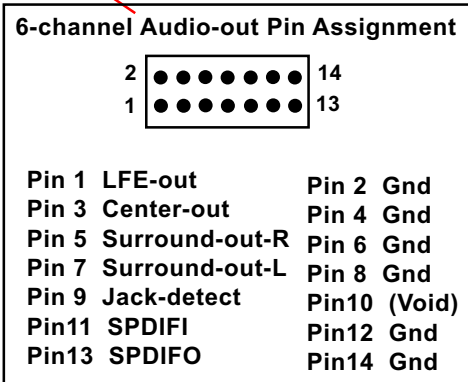
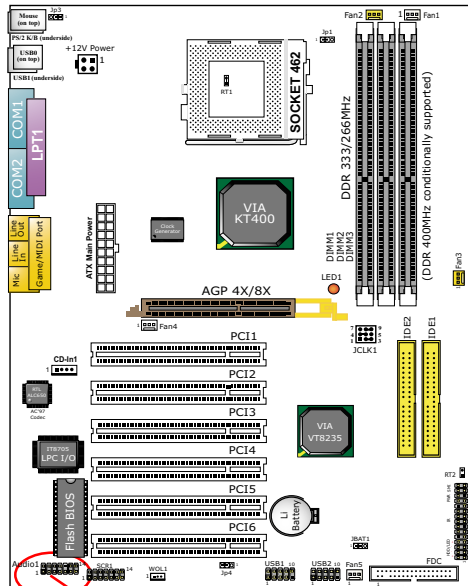
**(9) Speaker Connector:**

Connection: Connected to the case-mounted Speaker.

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

### 2-8.10 Audio 1: 6-channel Sound Output Connector (optional)

This series is designed with an optional 6-channel Audio-out connector “Audio1”. If this option is chosen, this connector will support a 6-channel Audio-out card which is designed to provide 3 additional audio-out ports for the 6-channel sound.



## 2-9 IRQ Description

IRQ	Function Description	Priority
IRQ 0	System Timer	1
IRQ 1	Keyboard Controller	2
IRQ 2	Programmable Interrupt	N/A
IRQ 3	Serial Port (COM 2)	11
IRQ 4	Serial Port (COM 1)	12
IRQ 5	Free	13
IRQ 6	Floppy Disk Controller	14
IRQ 7	Parallel Port (LPT1)	15
IRQ 8	Real Time Clock (RTC)	3
IRQ 9	Free	4
IRQ 10	Free	5
IRQ 11	Free	6
IRQ 12	PS/2 Mouse Port	7
IRQ 13	Coprocessor	8
IRQ 14	Primary IDE Channel	9
IRQ 15	Secondary IDE Channel	10

- Both ISA and PCI expansion cards may require IRQs. System IRQs are available to cards installed in the ISA expansion bus first, then any remaining IRQs are available to PCI cards. Currently, there are two types of ISA cards.
- The original ISA expansion card design, now referred to as “Legacy” ISA card, requires you to configure the card’s jumpers manually and then install it in any available slot on the ISA bus. To see a map of your used and free IRQs in Windows 98, the **Control Panel** in **My Computer**, contains a **System** icon, which gives you a **Device Manager** tab. Double-Clicking on a specific hardware device gives you a **Resources** tab which shows the Interrupt number and address. Double-Clicking **Computers** to see all the interrupts and addresses for your system. Make sure that each ISA device should be assigned to one IRQ respectively. If ISA device share IRQ with any other device, your computer will easily get into trouble.

# 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.

Contents of Support CD:

For this mainboard, user will be able to find in the Support CD the following drivers and utilities:

1. VIA 4-in-1 Drivers
2. AC'97 Audio Drivers
3. VIA USB 2.0 Drivers
4. Hardware Monitor Utility
5. Other drivers

This chapter is devoted to describing the installations of all these essential drivers and utilities on Windows 9X, Windows ME , Windows 2000 and Windows XP. The installation procedures for all these operating systems are programmed 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 98 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 Open Support CD and choose your drivers**

### **3-2 VIA 4-in-1 Drivers Installation**

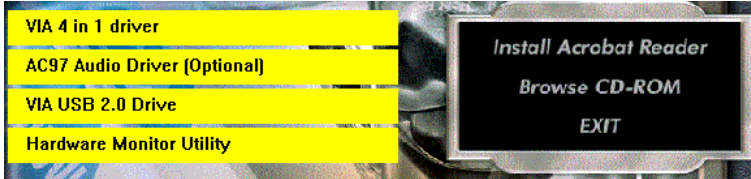
### **3-3 AC'97 Audio Drivers Installation**

### **3-4 USB 2.0 Drivers Installation**

### **3-5 Hardware Monitor Utility Installation**

### 3-1 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:



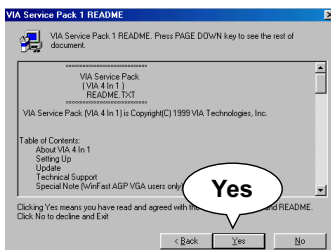
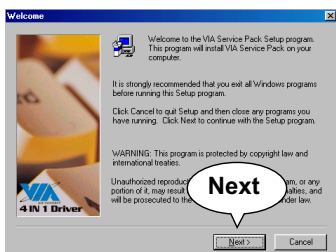
2. In case your system does not open the Support CD automatically, please click to the following path to enter the Main Installation Menu:  
D:\Autorun.exe (assuming that your CD-ROM Drive is Drive D)
3. Users are recommended to install all the drivers and utilities at a time, though they can be installed 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 Proceed to VIA 4-IN-1 Drivers Installation

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.

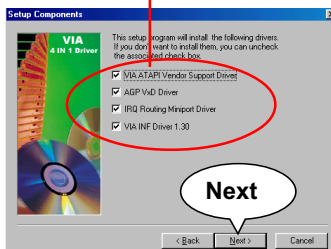
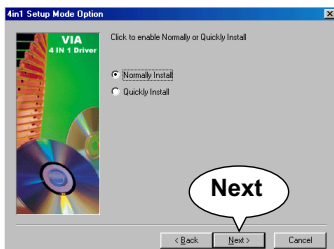
3. “VIA Service Pack README” screen will appear, please click the “Yes” button to agree with the Licence Agreement and continue.



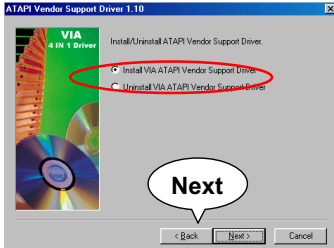
4. On the screen below, check “Normally Install” and click “Next” to continue. (If you check “Quickly Install”, you will skip the detailed procedures of the VIA 4-in-1 Setup.)

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

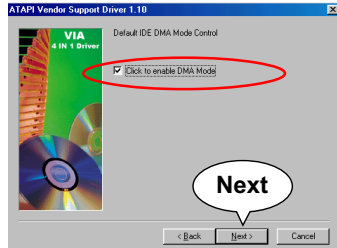
- VIA ATAPI Vendor Support Driver
- AGP VxD Driver
- IRQ Routing Miniport Driver
- VIA Chipset Function's Registry



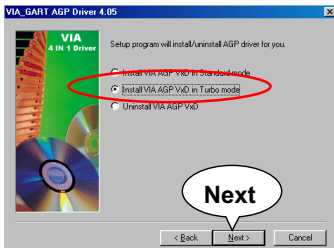
6. Select “Install VIA ATAPI Vendor Support Driver” checkbox, then click the “Next” button to continue.



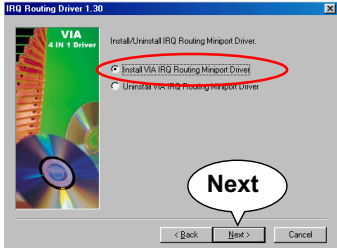
7. Click on “Click to enable DMA Mode” checkbox to enable DMA function, then click the “Next” button to continue.



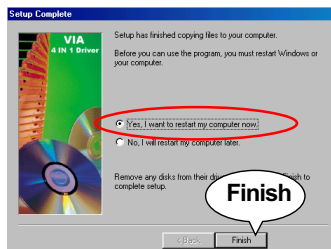
8. Select “Install VIA AGP VxD” in turbo mode and press “Next” button to continue.



9. Select “Install VIA IRQ Routing Miniport Driver” checkbox, then click the “Next” button to continue.



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

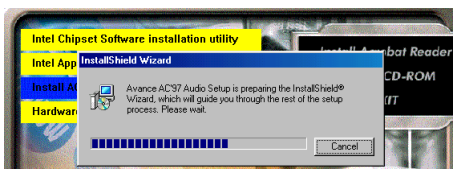


### 3-3 AC'97 Audio Driver Installation

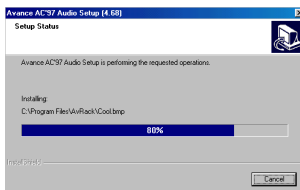
Avance AC97 Audio Codec on board, AC'97 2.2 compatible stereo audio codec for 6-channel audio systems. Avance AC'97 Audio Codec Driver is provided in Support CD for user's installation.

#### 3-3.1 AC'97 Driver Installation

1. Following the procedures of opening the Support CD, click to “AC'97 Audio Driver” to proceed.
2. Instantly, the “installShield Wizard” screen appears to guide you through the “Avance AC'97 Audio Setup”.



3. Instantly, the Setup program proceeds to install the softwares which include AC'97 driver and AVRack. (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 “OK” to restart your system.

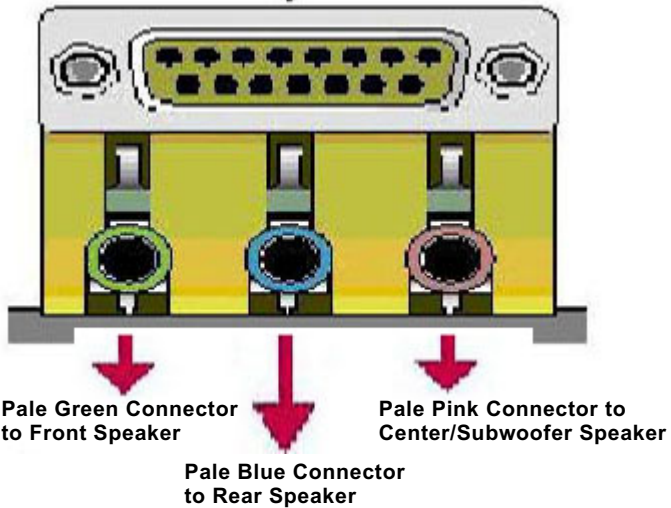




### 3-3.2 6-channel Verification

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

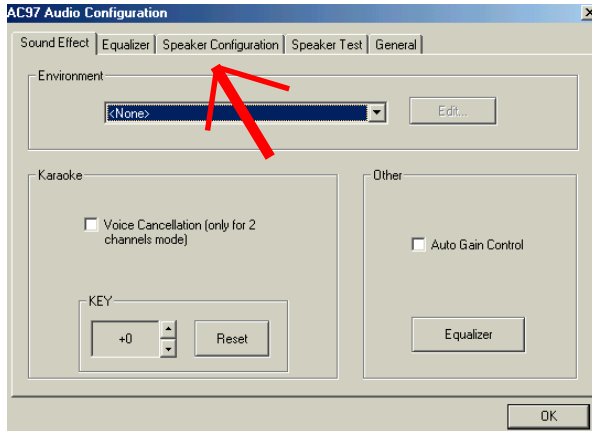
1. Connect your on-board Audio Connector to your 6-channel speakers as depicted in the figure below:



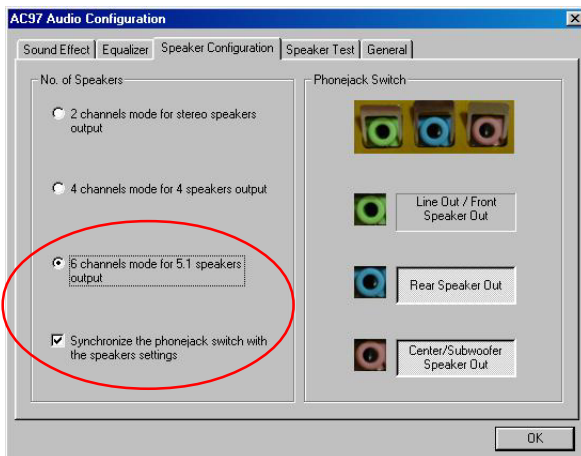
2. After Connection is done, start your Windows system and double click the Avance Sound Effect manager icon to enter 6-channel configuration:



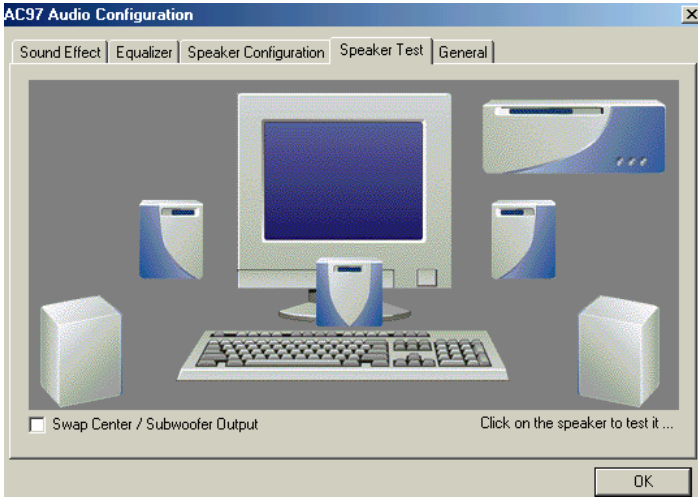
3. The “AC’97 Audio Configuration” screen will pop out. Click the “Speaker Configuration” bar with your mouse.



4. Instantly, the “Speaker Configuration” screen will pop out. Pick the items “6-channel mode for 5.1 speakers output” and “ Synchronize the phonejack switch with the speakers settings” and then click “OK” to finish configuration.



- At finishing the Speakers Configuration, you can also click the "Speaker Test" bar on the screen to test the 6-channel performance. The figure below is the "Speaker Test" screen with testing instructions enclosed on it. Follow the instructions to perform the Speakers Test.



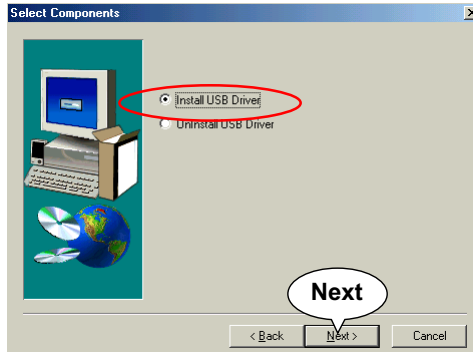
### 3-4 Install USB 2.0 Driver for Win98 / Me / 2000 / XP

VIA USB V2.0 is already integrated on board. Its 480Mb/s transfer rate supports operating system Win98/Me/2000/XP. USB Driver installation procedures are of similar steps in these systems. Please take the following illustrations from Win XP as the USB driver installation guide:

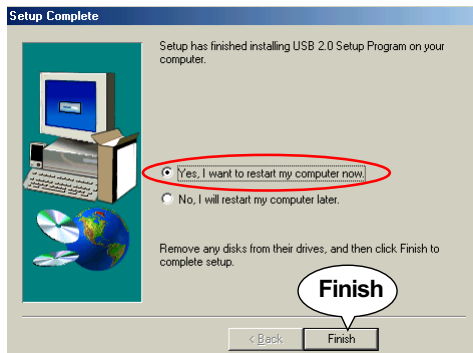
1. Following the procedures of opening the Support CD, click to “Motherboard Drivers” and then choose “VIA USB 2.0 Driver” to proceed. Please notice that the USB card driver is different from the USB 2.0 driver typically for the on-board USB. Do not use the USB card driver here.
2. Instantly the “USB 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 Install Hardware Monitor Utility

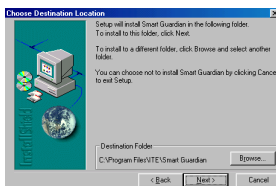
#### 3-5.1 Installation

Hardware Monitor is built in chip IT8705F of this series. Its installation is programmed to a fully automated mode on Windows 9X/Me/NT4/2000/XP. User can follow the model installation below for its installation on various Windows System.

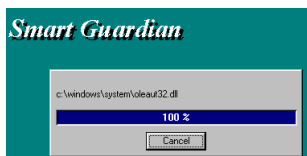
1. Following the procedures of opening the Support CD, click to “Hardware Monitor Utility” to proceed.

2. Instantly the “Smart Guardian Setup” screen appears to announce the setup of Hardware Monitor software “Smart Guardian”.

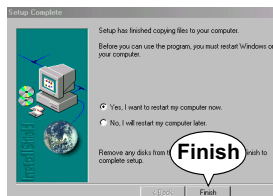
3. Next, the Setup Program will suggest to you the destination directory where the “Smart Guardian” will be installed. Select the Program folder and click “Next” to continue.



4. Instantly, Setup Program starts to copy files and install the software.

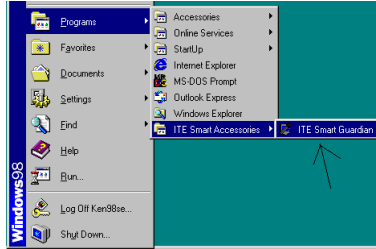


4. In one or two second, the “Setup complete” screen appears. Click “Finish” to restart your computer so that the Utility can be put into effect.

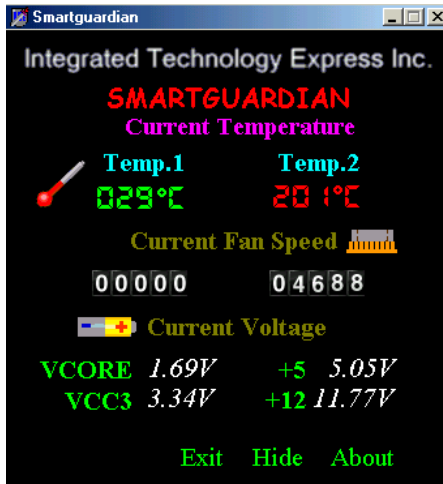


### 3-5.2 Verification

1. After restarting your computer, click "Start" and choose the path \Programs \ITE Smart Accessories\ITE Smart Guardian to open the main window of the Hardware Doctor.



2. Instantly, the Smartguardian Main Panel appears, telling you the CPU current temperature, CPU current Voltage and Current fan speed.



# Chapter 4 AMI 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 Update 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:

DEL: 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 check and configure the BIOS Setup for the new start.

## **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 Update 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 for upgrading saving, and verifying the system BIOS. The Update Utility can also be run from a hard disk drive or a network drive.
- It is highly recommended that you save a copy of the original mainboard BIOS along with a Flash EPROM Programming utility (AMIXXX.EXE) to a bootable floppy disk so that you can reinstall the BIOS when in need.
- Normally, to update BIOS is unnecessary if the system is working fine. Users should only update BIOS when incompatible problems are encountered or new features have to be added to system.
- “AMIFLASH.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 win95/98, ME, NT WINDOWS 2000 or Windows XP environment.***

### • **Please follow the steps below for updating the system BIOS:**

Step 1. Please visit the board maker’s website, download latest BIOS file and AMI update utility. The file name of AMI update utility will be “AMIXXX.EXE” of which “XXX” stands for the version number of the file. The BIOS file format will be \*.ROM, of which “\*” stands for the specific BIOS file name.

Step 2. Create a bootable diskette. Then copy the BIOS file and AMI flash utility “AMIXXX.EXE” into the diskette.

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

Step 4. Under “ A “ prompt, type “ **AMIXXX.EXE \*.ROM** “ and then press <Enter> to run BIOS update program. Please note that there should be a space between AMIXXX.EXE and \*.ROM. (\*.ROM depends on your mainboard model and version code. Instead of typing “\*“, you should type the specific file name for your specific mainboard).

Example: AMIXXX.EXE(1 space)75KAV03.ROM

Step 5. When the message “Flash ROM Update Completed - Pass.” appears, please restart your system.

Step 6. You will see a message “CMOS Memory Size Wrong” during booting the system. Press <Del> or <F1> to run CMOS setup utility, then reload “LOAD SETUP DEFAULTS” or “**Load Optimal Defaults**” and save this change.

## 4-6 BIOS SETUP --- CMOS Setup Utility

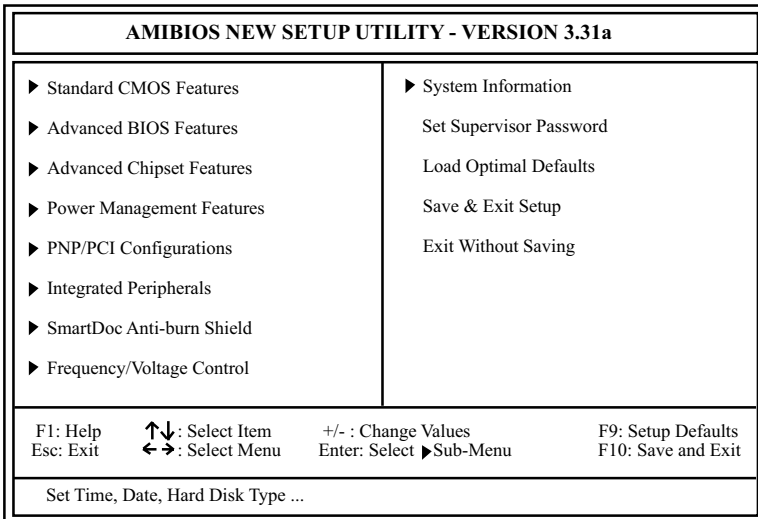
### 4-6.1 CMOS Setup Utility

This mainboard comes with the AMI BIOS from American Megatrends 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 <Del> TO RUN SETUP**

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



3. 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.
4. You may return to the Main Menu anytime by pressing <ESC>.
5. In the Main Menu, "Save & 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. Modify the configuration values of this option if you want to change your system hardware configuration or after you clear CMOS data.

Run the Standard CMOS Setup as follows:

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

Standard CMOS Features	Setup Help
System Time                      00 19 29 System Date                        Dec 05 2001 Wed ▶ Floppy options. ▶ IDE Devices Config	

F1: Help            ↑↓: Select Item  
 Esc: Previous Menu

+/- : Change Values  
 Enter: Select ▶ Sub-Menu

F9: Setup Defaults  
 F10: Save and Exit

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: "Help" gives options available for each item.

<F9>: Setup BIOS default values.

<F10>: Save and Exit Setup.

3. Press <ESC> to return to the Main Menu when you finish setting up all items. The following item descriptions are provided as a quick guide to your setup.

**System Time** The BIOS shows the time of the day in the format: hh:mm:ss. Choose the field with the Arrow keys and change the time with the Page Up/Page Down +/- keys.

**System Date** The BIOS shows the date of the day in the format: mm:dd:yy :day of the Week. Choose the field with the Arrow keys and change the value with the Page Up/Page Down +/- keys.

**Floppy options** Press Enter on “Floppy options” will let you select this field to the type(s) of floppy disk drive(s) installed in your system. The choices are:  
 1.2MB, 5.25 in.  
 720KB, 3.5 in.  
 1.44MB, 3.5 in.  
 2.88MB, 3.5 in.  
 Not Installed

**IDE Device Config** Press Enter on IDE Device Config will let you configure the IDE devices on board and the following menu will reveal the following submenu for your configuration of the hard Disk you have installed:

Primary IDE Master : Not Installed	Setup Help
Type Auto Cylinders Heads Write Precompensation Sectors Maxium Capacity 0 Mb LBA Mode Off Black Mode Off Fast Programmed I/O Modes 0 32 Bit Transfer Mode Off	

F1: Help      ↑↓: Select Item  
 Esc: Previous Menu

+/- : Change Values  
 Enter: Select ►Sub-Menu

F9: Setup Defaults  
 F10: Save and Exit

**Type** This option shows the types of configuration for the IDE devices:

1-50: Predefined types

USER: set Parameters by User

Auto: Set parameters automatically

CD-ROM: Use for ATAPI CD-ROM drives

Double click [Auto] to set all HDD parameters automatically, including “Cylinders, Heads, Write Precompensation, Sectors, Maximum Capacity and 32 Bit Transfer Mode.

### 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:

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

**AMIBIOS NEW SETUP UTILITY - VERSION 3.31a**

Advanced BIOS Features	Setup Help
Quick Boot Delay for Hard Drive (Sec.) Boot Device Priority 1st Floppy: 1.44 MB 3.5 2nd CD-ROM 3rd IDE-0 :Maxtor 20560 A4 Try Other Boot Devices Initial Display Mode Display Mode at Add-On ROM Init S.M.A.R.T. for Hard Disks Bootup Num-lock Floppy Drive Swap Floppy Drive Seek Primary Display Password Check Boot To OS/2 L1 Cache L2 Cache System BIOS Cacheable C000,32K Shadow C800,16K Shadow CC00,16K Shadow D000,16K Shadow D400,16K Shadow D800,16K Shadow DC00,16K Shadow	Enabled 2     Yes Silent Force BIOS Disabled On Disabled Disabled VGA/EGA Setup No Writeback Enabled Enabled Cached Disabled Disabled Disabled Disabled Disabled Disabled Disabled

F1: Help      ↑↓: Select Item      +/- : Change Values      F9: Setup Defaults  
 Esc: Previous Menu      Enter: Select ► Sub-Menu      F10: Save and Exit



2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: "Help" gives options available for each item.

<F9>: Setup BIOS default values.

<F10>: Save and Exit Setup.

3. Press <ESC> to return to the Main Menu when you finish setting up all items. The following item descriptions are provided as a quick guide.
- 

- Quick Boot** Allows you to enable / disable quick boot of your system.
- Delay for Hard Drive (Sec.)** Allows you to adjust the time of detecting hard disk on board at booting system.  
Choices: Disabled; 1~10 sec. in 1 sec. stepping.
- 1st/2nd/3rd Boot Device** Allows you to set floppy or IDE devices already installed on board to be the 1st/2nd/3rd boot device.  
Choices: Disabled; Device(s) installed
- Try Other Boot Devices** Allows you to enable/disable system to try to boot with other boot devices.  
Choices: Yes; No
- Initial Display Mode** If option is "Silent", the initial display mode is set to one with Soltek logo. If option is "BIOS", initial display will hide logo.  
Choices: silent (default); BIOS
- Display Mode at Add-On ROM Init** If the item "Initial Display Mode" is set to "Silent", two other sub-modes are provided for this item. If "Force BIOS" is chosen, the vendor's logo screen will be followed by the "Add-on ROM" initial screen (the screen showing the add-on card BIOS message). If "Keep Current" is chosen, no "Add-On ROM" screen is followed.
- S.M.A.R.T. for Hard Disks** Allows you to enable / disable the Self Monitoring Analysis and Reporting Technology for the hard disk.  
Choices: Enabled; Disabled

- Bootup Num-lock** Allows you to toggle between On or Off to control the state of the NumLock keys when the system boots. If On, the numeric keypad is in numeric mode. If off, the numeric keypad is in cursor control mode.
- Floppy Drive Swap** Disabled (default), Floppy Drive A will not be changed to B, nor B to A. Enabled, Floppy Drive A and B will change position.
- Floppy Drive Seek** Disabled (default), Floppy Drives will not be checked and diagnosed at system bootup; Enabled, Floppy Drives will be checked and diagnosed at system bootup.
- Primary Display** Allows you to choose the primary display for the system. Choices: VGA/EGA (default); CGA40x25; CGA80x25; Mono; Absent
- Password Check** Allows you to set BIOS to check up password with a password prompt at BIOS Setup or whenever re-starting system.  
Choices: Setup; Always
- Boot to OS/2** Allows you to set your system to OS/2 operating system.  
Choices: Yes; No (default)
- L1 Cache** Allows you to set the Internal/External Cache Mode.  
Choices: WriteBack; Disabled
- L2 Cache** Allows you to set the Internal/External Cache Mode.  
Choices: Enabled; Disabled
- System BIOS Cacheable** Allows you to enable / disable the System BIOS Cacheable function.
- C000, 32K Shadow** Allows you to set these addresses cached, Enabled or Disabled. Default: Cached
- C800,CC00,D000,D400, D800,DC00 16K Shadow** Allows you to set these addresses cached, Enabled or Disabled. Default: Disabled

### 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:

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

AMIBIOS NEW SETUP UTILITY - VERSION 3.31a

Advanced Chipset Features	Setup Help
<p style="text-align: center;">DRAM Timing</p> Configure SDRAM timing by SPD      Enabled SDRAM Frequency                          Auto SDRAM CAS# Latency                      2.5 SDRAM Bank Interleave                  Disabled  SDRAM Burst Length                      4 QW SDRAM Command Rate                    2T Fast Command                              Normal AGP Mode                                    8X AGP Fast Write                             Disabled AGP Aperture Size                        64MB AGP Master 1 W/S Write                  Disabled AGP Master 1 W/S Read                  Disabled AGP Read Synchronization              Disabled APIC Interrupt Mode                      Disabled USB Controller                             6 USB Ports USB 1.1 Device Legacy Support        Disabled USB 1.1 Port 64/60 Emulation         Disabled	

F1: Help      ↑↓: Select Item  
 Esc: Previous Menu

+/- : Change Values  
 Enter: Select ► Sub-Menu

F9: Setup Defaults  
 F10: Save and Exit

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: “Help” gives options available for each item.

<F9>: Setup BIOS default values.

<F10>: Save and Exit Setup.

3. Press <ESC> to return to the Main Menu when you finish setting up all items. The following item descriptions are provided as a quick guide to your setup.

- Configure SDRAM Timing by SPD** SPD (Serial presence detect) is a device in memory module for storing the module information such as DRAM timing and chip parameters. If this option is enabled, BIOS will access SPD automatically to configure module timing. If disabled, DRAM timing can be configured manually.
- SDRAM Frequency** Allows you to set the SDRAM frequency.  
Choices: Auto; 200MHz; 266MHz; 333MHz; 400MHz
- SDRAM CAS# Latency** With SDRAM Timing by SPD disabled, you can select the SDRAM CAS# (Column Address Strode)l-  
latency manually.  
Choices: 2Clocks; 2.5 Clocks; 1.5 Clocks; 3.0 Clocks
- SDRAM Bank Interleave** This item allows you to enable / disable SDRAM Bank Interleave function.  
Choices: Disabled (default); 2-way; 4-way
- SDRAM Burst Length** With SDRAM Timing by SPD disabled, you can select the SDRAM Burst length manually.  
Choices: 8 QW; 4 QW
- SDRAM Command Rate** Allows you to set the SDRAM Command Rate.  
Choices: 1T; 2T
- Fast Command** Allows you to select the Fast Command Mode.  
Choices: Normal; Fast; Ultra
- AGP Mode** Allows you to see the AGP Mode on board. The default setting is Auto. This item supports 4X/8XAGP Mode. 2X and 1X modes are included in options for attempt to lower the AGP speed.
- AGP Fast Write** Allows you to enable / disable the AGP Fast Write function

- AGP Aperture Size** Allows you to set the AGP Aperture Size.  
Choices: 4MB; 8MB; 16MB; 32MB; 64MB; 128MB;  
256MB;
- AGP Master 1 W/S Write** Allows you to enable / disable (default) the support of AGP Master 1 Waite State Write.
- AGP Master 1 W/S Read** Allows you to enable / disable (default) the support of AGP Master 1 Waite State Read.
- AGP Read Synchronization** Allows you to enabled / disabled (default) the AGP Read Synchronization function.
- APIC Interrupt Mode** Allows you to enable / disable (default) the APIC function for selecting the APIC interrupt Mode.
- USB Controller** Allows you to set the USB Controller on the USB port(s).  
Choices: 6 USB Ports; 4 USB Ports;  
2 USB Ports; disabled
- USB 1.1 Device Legacy Support** Allows you to select the USB Device Legacy support.  
Choices: No Mice; all Devices; Disabled
- USB 1.1 Port 64/60 Emulation** Allows you to enable / disable (default) the Port 64/60 Emulation.

### 4-6.5 Power Management Features

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

Run the Power Management Features as follows:

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

**AMIBIOS NEW SETUP UTILITY - VERSION 3.31a**

Power Management Features		Setup Help
ACPI Standby State	S1/POS	
USB Device Wakeup Function	Enabled	
Call VGABIOS at S3 Resume	Enabled	
Power Management/APM	Enabled	
Video Power Down Mode	Suspend	
Hard Disk Power Down Mode	Stand by	
Standby Time Out (Minute)	Disabled	
Suspend Time Out (Minute)	Disabled	
Power Button Function	On/Off	
Restore on AC/Power Loss	Power Off	
Resume On Ring/WOL	Disabled	
Resume On PME#	Disabled	
Resume On PS/2 KB	Disabled	
Wake-Up Key	Any Key	
Resume On PS/2 Mouse	Disabled	
Resume On RTC Alarm	Disabled	
RTC Alarm Date	15	
RTC Alarm Hour	12	
RTC Alarm Minute	30	
RTC Alarm Second	30	

F1: Help    ↑↓: Select Item    +/- : Change Values    F9: Setup Defaults  
 Esc: Previous Menu    Enter: Select ► Sub-Menu    F10: Save and Exit

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

- <F1>: "Help" gives options available for each item.
- <F9>: Setup BIOS default values.
- <F10>: Save and Exit Setup.

3. Press <ESC> to return to the Main Menu when you finish setting up all items. The following item descriptions are provided as a quick guide to your setup.

- ACPI Standby State** This item allows you to select the ACPI Suspend type. You can select S3(STR) for suspending to DRAM if your system supports this mode. Or you can select S1 (POS) for Power on Suspend under Windows 98 or later O/S ACPI mode..
- USB Device Wakeup Function** Allows you to enable / disable the USB device Wakeup function.
- Call VGABIOS at S3 Resume** If the ACPI Standby State is set to "S3(STR)", this item allows you to enable / disable the Call VGABIOS at S3 function.
- Power Management/ APM** Allows you to enable / disable the Power management / Advanced Power Management function.
- Video Power Down Mode** Allows you to select the Video Power Down Mode. Choices: Disabled; Standby; Suspend
- Hard Disk Power Down Mode** Allows you to select the Hard Disk Power Down Mode. Choices; Disabled; Standby; Suspend
- Standby Time Out (Minute)** To set the duration of Standby Time Out. Choices: 1; 2; 4; 8; 10; 20; 30; 40; 50; 60
- Suspend Time Out (Minute)** To set the duration of Suspend Time Out. Choices: 1; 2; 4; 8; 10; 20; 30; 40; 50; 60
- Power Button Function** allows you to set power Button function. Choices: On/Off; Suspend
- Restore on AC/Power Loss** Allows you to set the restore state from AC/Power Loss. Choices: Last State; Power Off; Power On
- Resume on Ring/WOL** Allows you to enable / disable the Resume on Ring /Wake on LAN 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.

- Resume on PME#** Allows you to enable / disable the Resume on PME function.
- Resume on PS/2 KB** Allows you to select S3/S4/S5 mode or disable the Resume on Keyboard clock function.  
Choices: Disabled; S3; S3/S4/S5
- Wake Up Key** If Resume On KBC is not disabled, this item allows you to select any key to wake up system.
- Resume on PS/2 Mouse** Allows you to S4/S5 mode or disable the Resume on PS/2 Mouse function.  
Choices: Disabled; S3; S3/S4/S5
- Resume On RTC Alarm** Allows you to enable / disable the Resume On RTC Alarm function.
- RTC Alarm Date / Hour / Minute / Second** If resume On RTC Alarm is enabled, this field allows you to set the Alarm date Hour, Minute and second.  
Date Choices: Every Day; 01 ~ 31  
Hour Choices: 00 ~ 23  
Minute Choices: 00 ~ 59  
Second Choices: 00 ~ 59



### 4-6.6 PNP / PCI Configurations

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

Run the PNP/PCI Configurations as follows:

1. Choose "PNP/PCI Configurations" from the Main Menu and a screen with a list of options will appear:

**AMIBIOS NEW SETUP UTILITY - VERSION 3.31a**

PNP/PCI Configurations	Setup Help
Plug and Play Aware O/S	No
Clear NVRAM	No
PCI Latency Timer (PCI Clocks)	32
Primary Graphics Adapter	PCI
PCI IDE Busmaster	Enabled
PCI Slot1 IRQ Priority	Auto
PCI Slot2 IRQ Priority	Auto
PCI Slot3 IRQ Priority	Auto
PCI Slot4 IRQ Priority	Auto
PCI Slot5 IRQ Priority	Auto
PCI Slot6 IRQ Priority	Auto

F1: Help      ↑↓: Select Item  
Esc: Previous Menu

+/- : Change Values  
Enter: Select ▶ Sub-Menu

F9: Setup Defaults  
F10: Save and Exit

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: "Help" gives options available for each item.

<F9>: Setup BIOS default values.

<F10>: Save and Exit Setup.

3. Press <ESC> to return to the Main Menu when you finish setting up all items. The following item descriptions are provided as a quick guide to your setup.

**Plug and Play Aware O/S** Allows BIOS to recognize the Plug and Play Aware Operating System.  
Choices: No (default); Yes

**Clear NVRAM** Allows BIOS to clear the NVRAM data.  
Choices: No (default); Yes

**PCI Latency Timer (PCI Clocks)** Allows you to set the PCI Latency Time.  
Choices: 32; 64; 96; 128; 160; 192; 224; 248;

**Primary Graphics Adapter** Allows you to select the primary Graphics Adapter.  
Choices: PCI; AGP

**PCI IDE BusMaster** Allows you to enable / disable the PCI IDE Bus Master function.

**PCI Slot 1/2/3/4/5/6 IRQ Priority** Allows you to specify the IRQ for the PCI slots.  
Choices: Auto; 3; 4; 5; 7; 9; 10; 11

### 4-6.7 Integrated Peripherals

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

Run the Integrated Peripherals as follows:

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

**AMIBIOS NEW SETUP UTILITY - VERSION 3.31a**

Integrated Peripherals	Setup Help
OnBoard FDC	Auto
OnBoard Serial Port 1	Auto
OnBoard Serial Port 2	Auto
Serial Port 2 Mode	Normal
OnBoard Parallel Port	Auto
Parallel Port Mode	ECP
Parallel Port IRQ	Auto
Parallel Port DMA Channel	Auto
OnBoard MIDI Port	Disabled
MIDI Port IRQ	5
OnBoard Game Port	200
OnBoard IDE	Both
OnBoard AC'97 Audio	Enabled

F1: Help      ↑↓: Select Item      +/- : Change Values      F9: Setup Defaults  
 Esc: Previous Menu      Enter: Select ▶ Sub-Menu      F10: Save and Exit

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: “Help” gives options available for each item.

<F9>: Setup BIOS default values.

<F10>: Save and Exit Setup.

3. Press <ESC> to return to the Main Menu when you finish setting up all items. The following item descriptions are provided as a quick guide to your setup.

- OnBoard FDC** Allows you to enable / disable the Onboard FDC.  
Choices: Auto; Enabled; disabled
  
- Onboard Serial Port 1** Allows you to set the Onboard Serial Port A.  
Choices; auto; Disabled; 3F8/COM1; 2F8/COM2;  
3E8/COM3; 2E8/COM4;
  
- Onboard Serial Port 2** Allows you to set the Onboard Serial Port B.  
Choices; auto; Disabled; 3F8/COM1; 2F8/COM2;  
3E8/COM3; 2E8/COM4;
  
- Serial Port 2 Mode** Allows you to set the Serial Port B Mode.  
Choices: Normal; IrDA; ASKIR;
  
- OnBoard Parallel Port** Allows you to configure onboard Parallel port .  
Choices: Auto; Disabled; 378; 278; 3BC;
  
- Parallel Port Mode** If Parallel Port is not disabled, this item allows you  
to configure parallel port mode.  
Choices: ECP; EPP + ECP; Normal; EPP
  
- Parallel Port IRQ** If Parallel Port Mode is set at EPP, this item allows  
you to set the Parallel Port IRQ.  
Choices: 5; 7
  
- Parallel Port DMA Channel** If Parallel Port Mode is set at ECP, this item allows  
you to set the DMA Channel.  
Choices: 0; 1; 3
  
- OnBoard MIDI Port** Allows you to configure onboard MIDI port address.  
The choices: Disabled; 300h; 310h;320h;330h
  
- MIDI IRQ** If the onboard MIDI port is set at 300h or 330h, this  
item shows up to allow you to configure the MIDI  
Port IRQ to IRQ 5.  
Choices: 5; 10; 11
  
- OnBoard Game Port** Allows you to configure Onboard Game port  
address.  
The choices: Disabled; 200h; 208h

**OnBoard IDE** Allows you to choose the Onboard IDE Mode.  
Choices: Disabled; Primary; Secondary; Both

**Onboard AC'97 Audio** Allows you to disable AC' 97 Audio.  
Choices: Enabled; Disabled

### 4-6.8 SmartDoc Anti-Burn Shield

This menu helps you to read only and get more information on the working CPU temperature, FAN speed and voltage.

1. Choose “SmartDoc Anti-Burn Shield” from the Main Menu and a screen with a list of current status of your working system will appear:

**AMIBIOS NEW SETUP UTILITY - VERSION 3.31a**

SmartDoc Anti-Burn Shield	Setup Help
CPU Warning Temperature	Disabled
CPU Shut Down Temperature	Disabled
CPU Fan Low speed Warning	Disabled
CPU Fan Low Speed Shutdown	(Disabled)
(ABSII)CPU Current Temperature	(53 °C/127°F)
(ABSII)CPU Shutdown Temperature	85 °C/185 °F
Temperature 1	(0 °C/32 °F)
Temperature 2	(31 °C/87 °)
Fan 1 Speed	(0 RPM)
Fan 2 Speed	(4905 RPM)
CPU Vcore	(+1.680 V)
+2.5V	(+2.504 V)
+3.3V	(+3.408 V)
+5.0V	(+5.126 V)
+12.0V	(+11.187V)
-12.0V	(-11.972V)
VDIMM	(2,480V)
5V SB	(+5.164V)
Battery	(+3.296V)

F1: Help      ↑↓: Select Item      +/- : Change Values      F9: Setup Defaults  
 Esc: Previous Menu      Enter: Select ► Sub-Menu      F10: Save and Exit

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: “Help” gives options available for each item.

<F9>: Setup BIOS default values.

<F10>: Save and Exit Setup.

3. Press <ESC> to return to the Main Menu when you finish setting up all items. The following item descriptions are provided as a quick guide to your setup.

**CPU Warning Temperature** Select a upper limits for the CPU temperature. If the CPU temperature extends beyond the limit, any warning mechanism programmed into your system will activate the warning.  
 Choices: Disabled; 50°C~71°C in 3°C stepping

- CPU Shutdown Temperature** This feature allows you to set the shutdown temperature to the running CPU.  
Choices: Disabled; 50 °C~71°C in 3° C stepping
- CPU Fan Low Speed Warning** This feature allows you to set up the CPU Fan Low Speed warning function.  
Choices: Disabled; Stop/0RPM; 1000~6000RPM
- CPU Fan Low Speed Shutdown** This feature allows you to enable/disable the CPU Fan Low Speed Shutdown function.  
Choices: Disabled; Stop/0RPM; 1000~6000RPM
- ABS II CPU Current Temperature(for AMD XP/Duron Morgan)** This item will appear if AMD XP or Duron Morgan CPU is running on board. This item is to show the current temperature inside the running CPU.
- ABS II CPU Shutdown Temperature(for AMD XP/Duron Morgan)** This item will appear if AMD XP or Duron Morgan CPU is running on board. ABS II (Anti-burn Shield II) allows user to set up the safeguard temperature for the CPU designed with a protective thermal diode inside the CPU itself. Default Safeguard temperature is 85°C, at which the XP or Duron Morgan CPU will shut down. Usually, a jumper is also designed on board for enabling/disabling ABS II function.  
Choices: 75°C / 167°F; 80°C / 176°F  
85°C / 185°F(default); 90°C / 194°F  
95°C / 203°F; 100°C / 212°F
- Temperature 1** Shows current CPU external temperature (by RT1).
- Temperature 2** Shows current system temperature (by RT2).
- Fan 1 / 2** Displays the current speed of CPU Fan, and other onboard device which user has connected to the onboard Fan Connectors.
- CPU Vcore** Shows CPU core actual voltage value.
- +2.5V/+3.3V/+5.0V/  
+12V/-12V/+5.V SB/** Shows current voltage against the respective power supply.
- VDIMM** Shows current voltage against VDIMM.
- Battery** Shows current voltage against battery power supply.

### 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:

AMIBIOS NEW SETUP UTILITY - VERSION 3.31a

Frequency/Voltage Control		Setup Help
RedStorm Overclocking Tech (optional)	Press Enter	
CPU Linear Frequency	Disabled	
CPU Clock	133 MHz	
Spread Spectrum Selection	Disabled	
Auto Detect PCI slot	Disabled	
CPU Voltage Control	Auto	
AGP Voltage Control	1.5V	
DIMM Voltage Control	2.5V	
VCC2.5 Voltage Control	2.5V	
CPU Ratio Selection	Default	

F1: Help    ↑↓: Select Item    +/- : Change Values    F9: Setup Defaults  
Esc: Previous Menu    Enter: Select ▶ Sub-Menu    F10: Save and Exit

2. Use one of the arrow keys to move between options and modify the selected options by using PgUp / PgDn / + / - keys. An explanation of the <F> keys follows:

<F1>: “Help” gives options available for each item.

<F9>: Setup BIOS default values.

<F10>: Save and Exit Setup.

3. Press <ESC> to return to the Main Menu when you finish setting up all items. The following item descriptions are provided as a quick guide to your setup.



**(Optional) Redstorm Overclocking Tech** If this option is chosen in BIOS, press <Enter> to start *RED STORM OVERCLOCKING TECH*. This option helps user to raise CPU clock automatically until an unacceptable value is reached. Then BIOS will restart your system with a highest acceptable CPU clock.

**CPU Linear Frequency** This item allows you to enable / disable this setting function.

**CPU Clock** If CPU Linear Frequency is set at Enabled, this item allows you to set CPU Clock.  
Choices: 100MHz ~200MHz in 1MHz stepping.

**Spread Spectrum** Allows you to enable / disable this Spread Spectrum function. If enabled, this function will reduce the EMI (Electromagnetic Interference) in your system. If you do not have an EMI problem, leave this item disabled.

**Auto Detect PCI Slot** Allows you to enable / disable the Auto Detect PCI Slot function.

**CPU Voltage Control** allows you to configure the CPU Voltage. Usually, to raise CPU voltage will raise the chance of CPU overclocking and yet risk damage of CPU.  
Choices: Auto; 1.100V ~1.850V in 0.025 stepping

**AGP Voltage Control** allows you to configure the AGP Voltage.  
Choices: 1.5V; 1.6V; 1.7V; 1.8V

**DIMM Voltage Control** allows you to configure the DIMM Voltage.  
Choices: 2.5V; 2.6V; 2.7V; 2.8V

**VCC2.5 Voltage Control** allows you to configure the VCC2.5 Voltage.  
Choices: 2.5V; 2.6V; 2.7V; 2.8V

**CPU Ratio Selection** If CPU onboard is one with an adjustable or unlocked CPU ratio, this item allows you user to adjust the CPU Ratio. If your CPU is one with the CPU Ratio locked, this item will be invalid.

### 4-6.10 System Information

This menu helps you to read only and get more information on the system.

1. Choose “System Information” from the Main Menu and a screen with a list of current status of your working system will appear:

**AMIBIOS NEW SETUP UTILITY - VERSION 3.31a**

<b>System Information</b>		<b>Setup Help</b>
BIOS Version	(10/21/02)	
Processor Type	(AMD Athlon(tm) XP	
Processor Speed	(1550MHz)	
Base Memory	(640KB)	
Extended Memory	(255MB)	
Total Memory	(256MB)	
Cache Size	(384KB)	
Memory Bank 0	(SDRAM)	
Memory Bank 1	(SDRAM)	
Memory Bank 2	(None)	

F1: Help      ↑↓: Select Item      +/-: Change Values      F9: Setup Defaults  
Esc: Previous Menu      Enter: Select ► Sub-Menu      F10: Save and Exit

2. Press <ESC> to return to the Main Menu. In case any irregular reading appears about your system, it indicates that a problem exists therein. To solve the problem, a hardware engineer or your dealer is recommended.

## 4-6.11 Set Supervisor Password

This option allows you to set a Supervisor password for the system:

1. Choose “Set Supervisor Password” in the Main Menu and press <Enter>. Then the following message appears:

[ Enter new supervisor 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:

[ Retype new supervisor Password ]

4. Enter the same password “exactly” the same as you have just typed to confirm the password and press <Enter>.
5. The following message appears to confirm the new password setup.

[ New supervisor password installed ]

Any Key to Continue

6. Then press any key to continue your CMOS Setup. To save the password setup, you should press “Save & Exit Setup” and choose “yes” to exit and save setup.
7. After the Supervisor password is set, you have to choose whether the password is for entering the system or only for entering BIOS Setup program. To make the choice, please enter BIOS Setup and choose “Advanced BIOS Features” in the main menu. (At entering BIOS Setup, you have to enter the password now.) In “Advanced BIOS Features”, choose “Password Check” and change the option. The “Setup” option is to set the password only for entering BIOS Setup. The “Always” option is to set the password for entering the system.

8. To change or remove a current supervisor password, choose “Set Supervisor Password” and press <Enter>. An instruction box appears on the screen, prompting you to enter the current password first:

[ Enter current supervisor password ]

9. Type the current password with keyboard and then press <Enter>. An instruction box appears, prompting you to enter new supervisor password:

[ Enter new supervisor password ]

10. If you enter a new password into the box, you will be using this new password after you have finished and saved this new setup. Instead, if you press <Enter> before you enter any new password into the instruction box, another message box appears, telling you that you have disabled the Supervisor password. That means, no password is set for either entering BIOS Setup or system:

[ Supervisor password disabled ]

Any Key to Continue

**NOTE:** If you forget or lose a supervisor password, the only way to access the system is to clear the CMOS. All setup informations will then be cleared including the password and you need to run the BIOS setup program again so as to reconfigure BIOS.

#### 4-6.12 Load Optimized Defaults

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

[ Load Optimized Settings ]  
Press [Enter] to continue  
or [ESC] to abort

Press <Enter> now to load Optimal values for all the Setup options.

#### 4-6.13 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 press <Enter>. The following message appears:

[ Saving current settings and exit ]  
Press [Enter] to continue  
or [ESC] to abort

Press <Enter> key to save the configuration changes and exit CMOS Setup to restart your system.

#### 4-6.14 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 Changes ]  
Press [Enter] to continue  
or [ESC] to abort

Follow the message and press <Enter> key to exit CMOS Setup and restart system.