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● ●

Item Checkup

- Mainboard
- User Manual (Mainboard)
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- Bundled Bonus Pack Manual
- Cables
  ATA 133/100/66 IDE Cable
  FDD Cable
  USB Cable (optional)
  2 x Serial ATA Cable
  1x SATA Power Cable

Chapter 1 Specification

Introduction

This mainboard features an integration of the powerful AMD processors Athlon/Athlon XP/Duron and the North Bridge VIA Apollo KT600 plus South Bridge VT8237/VT8235, with which the whole system performance supports 400/333/266 MHz system bus.

VIA Apollo KT600 plus VT8237/ VT8325 supports on-board AMD processors to implement the 400/333/266MHz Front Side Bus, the AGP 8X/4X interface, the LPC Super I/O, the DDR *400/333/266 MHz SDRAM, the 6-channel AC'97 Audio interface, the USB 2.0 interface, and ATA 133/100/66 data transfer rate etc., while VT8237 supports SATA and SATA RAID 150Mb interface, but VT8235 does not. 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
1-5 Mainboard Specifications**

** If any difference is found between the manual description and the Mainboard you are using, please look up the <u>Errata/ Update Slip</u> 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 Series KT600-RL Layout (PCB Ver.MA and Later)

RJ45 } for KT600-L/RL only
LAN Controller }

Mouse (on top)   JKB1
PS/2 K/B (underside)

RJ45 (on top)
USB0 (middle)
USB1 (underside)

VT 6103

COM1
COM2
LPT1

Line In
Line Out
Mic
Game/MIDI Port

+12V Power

ATX Main Power

Clock Generator

CD-In1

VT 1616
AC'97 Codec

IT8705
LPC I/O

Flash BIOS

CN20

SCR1
WOL1
Fan4

Fan2   Fan1

Jp1

SOCKET 462
RT1

DDR 333/266MHz
(DDR 400MHz conditionally supported)

DIM1
DIM2
DIM3

VIA KT600

LED1

AGP 4X/8X

PCI1
PCI2
PCI3
PCI4
PCI5
PCI6

VIA VT8237 or VT8235

JFSB1

IDE2   IDE1   FD1

SATA2
SATA1

RT2

JBAT1

Li Battery

USB2   USB3   USB4   Fan3

VT8235 for KT600 / KT600-L without SATA support

VT8237 for KT600-R / KT600-RL with SATA/SATA RAID support

USB4, SATA1 & SATA2 for KT600-R / KT600-RL only

1-2 Mainboard Specification Table

Series KT600-RL Specifications and Features			
CPU	Socket 462 for AMD Athlon, Athlon XP, Duron CPU		
North Bridge	VIA KT600, supporting 400/333/266 MHz FSB		
South Bridge	VT8237(SATA/SATA RAID controller) or 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 support		
AGP interface	AGP 8X/4X mode only		
Audio	VIA VT1616 AudioCodec, 6-channel compliant		
IDE Interface	2 ATA 133/100/66 IDE		
VGA	Not integrated on board		
PCI Slots	6 PCI Master slots on board		
I/O Connectors	6/8 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; USB, PS/2 Keyboard/ Mouse Power On/Wake Up; ATX Power Supply V2.03; ATX form factor		
Optional Feature	KT600	KT600-L	KT600-R	KT600-RL
LAN Controller	No	Yes	No	Yes
SATA/SATA RAID (VT8237)	No	No	Yes	Yes
VT8235 on board (no SATA)	Yes	Yes	No	No
USB Support	6 USB ports	6 USB ports	8 USB ports	8 USB ports

1-3 KT600-R/KT600-RL Chipset System Block Diagram

Socket 462
for AMD CPUs

System Bus 400/333/266 MHz

VIA KT600
North Bridge

AGP Slot — **AGP 8X/4X**

DDR memory Interface

DDR 266/ 333/400* SDRAM

System Memory

Ultra V-Link

6 PCI Slots

PCI Bus

2 IDE Connectors — **ATA 133/100/66**

VT8237

Audio Codec (6-channel)

5.1 audio output

Mouse Keyboard

8 USB Ports

USB Bus V2.0

RJ45 — PHY VT6103 (KT600-RL only)

SATA RAID/SATA

2 SATA Connectors

IR
FDD
Serial Ports
Printer Port
Game/MIDI
H/Monitor
Smart Card Reader

LPC I/O IT8705

BIOS

Socket 462 + VIA KT600 + VIA VT8237 Diagram

11

1-4 KT600/KT600-L Chipset System Block Diagram

```
                    ┌──────────────────┐
                    │   Socket 462     │
                    │  for AMD CPUs    │
                    └──────────────────┘
                            ↕ System Bus 400/333/266 MHz

  ┌──────────┐  AGP 8X/4X  ┌──────────────┐  DDR memory   ┌──────────┐
  │ AGP Slot │─────────────│  VIA KT600   │  Interface    │  System  │
  └──────────┘             │ North Bridge │  DDR 266/     │  Memory  │
                           └──────────────┘  333/400*     └──────────┘
                                             SDRAM
                                ↕ V-Link

  ┌─────────────┐  ATA 133/100/66  ┌─────────┐  PCI Bus    ┌────────────┐
  │ 2 IDE       │──────────────────│         │─────────────│ 6 PCI Slots│
  │ Connectors  │                  │ VT8235  │             └────────────┘
  └─────────────┘                  │         │  ┌────────────┐ ┌──────────┐
  ┌─────────────┐                  │         │──│ Audio Codec│ │ 5.1 audio│
  │ Mouse       │──────────────────│         │  │ (6-channel)│ │ output   │
  │ Keyboard    │                  │         │  └────────────┘ └──────────┘
  └─────────────┘                  │         │              ┌──────────┐
  ┌────────┐  ┌──────────┐         │         │  USB Bus V2.0 │ 6 USB    │
  │ RJ45   │──│ PHY      │─────────│         │───────────────│ Ports    │
  └────────┘  │ VT6103   │         └─────────┘              └──────────┘
              └──────────┘
            (KT600-L only)

  ┌──────────────────┐
  │             IR   │   ┌──────────┐           ┌──────────┐
  │            FDD   │   │ LPC I/O  │           │          │
  │    Serial Ports  │───│ IT8705   │───────────│  BIOS    │
  │    Printer Port  │   └──────────┘           │          │
  │    Game/MIDI     │                          └──────────┘
  │    H/Monitor     │
  │ Smart Card Reader│
  └──────────────────┘
```

Socket 462 + VIA KT600 + VIA VT8235 Diagram

1-5 Mainboard Specifications

1-5.1 CPU Socket

CPU Socket 462 (Socket A) on board, supporting AMD Athlon, Athlon XP and Duron processors and implementing 400/333/266 MHz system bus

1-5.2 System Chipsets

- North Bridge VIA KT600 for managing and supporting 400/333/266MHz system Bus, AGP 8X/4X interface and DDR333/266MHz Memory Interface *with an enhanced support of DDR 400MHz Memory Module.
- For mainboard Model KT600/KT600-L, South Bridge VIA VT8235 working with North Bridge KT600 to support Ultra V-Link, LPC Super I/O, PCI interface, ATA133 interface, USB V2.0 interface, as well as AC'97 Audio 6-channel interface.
- For mainboard Model KT600-R/KT600-RL, South Bridge VIA VT8237 working with North Bridge KT600 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 and SATA RAID interface.

1-5.3 Memory

3 DDR DIMM 184-pin slots on board :
- Supporting *DDR 400/333/266 SDRAM up to 3 GBs
- Supporting installation of mixed volumes yet same type of DDR SDRAM Modules

*DDR 400 module should be compliant with the official DDR 400 memory module specifications.

1-5.4 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

1-5.5 Expansion Slots

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

1-5.6 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.)

1-5.7 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; 2/3 more USB pin-headers which require 2/3
      additional USB cables to provide 4/6 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

1-5.8 SATA & SATA RAID Interface (KT600-R/RL only)

Serial ATA and SATA RAID Interface supported by VT8237:
• Supporting 2 SATA connectors for 2 SATA / SATA RAID Hard Disk with 150Mb/s transfer rate
• Serial ATA / SATA RAID Drivers enclosed in Support CD/Floppy Diskette for user's installation

1-5.9 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

1-5.10 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

1-5.11 LAN on board (KT600-L/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

1-5.12 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.

1-5.13 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

1-5.14 Form Factor

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

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
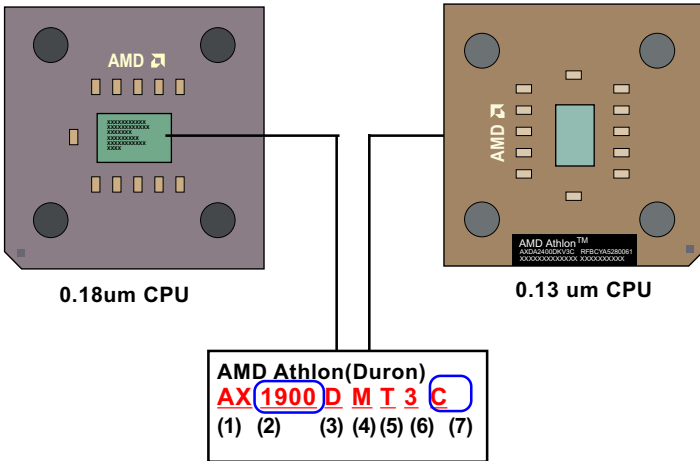**2-5 Floppy Drive Connector (FDC) Installation**
2-6 ATX Power Supply Installation
2-7 Jumper Settings
2-8 Other Connectors Configuration

## 2-1 CPU Identification and Installation

2-1.1 CPU Identification

0.18um CPU

0.13 um CPU

AMD Athlon(Duron)
AX 1900 D M T 3 C
(1) (2)   (3) (4)(5) (6) (7)

| (1)	**Family / Architecture:**
	            A, AX, AXDA=AMD Athlon Processor
	            D, DHD, DHM, DHL=AMD Duron Processor

(2)	**Speed: 1000=1000MHz, 1600=1400MHz, 1700=1467MHz,** **1800=1533Mhz, 1900=1600MHz, 2000=1667MHz,** **2100=1733MHz, 2200=1800MHz, 2400=2000MHz,** **2600=2133MHz, 2700=2167MHz, 2500=1833MHz(Barton),** **2800=2083MHz(Barton), 3000=2250MHz(Barton),** **3200=2332MHz(Barton)**
(3)	**Package Type: A=CPGA, D=OPGA**
(4)	**Voltage: L=1.5V, U=1.6V, K=1.65V, P=1.7V, M=1.75V, N=1.8V**
(5)	**Maximum Temperature: R=70˚C, Y=75˚C,V=85˚C** **T=90˚C, S=95˚C, Q=100˚C**
(6)	**Size of L2 Cache: 1=64Kb, 2=128Kb, 3=256Kb, 4=512Kb**
(7)	**Max FSB: A=B=200MHz, C=266MHz, D=333MHz, E=400MHz** **Note: Get the Host CPU Clock by dividing FSB by 2.**

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 90^0 so as to raise the upper layer of the socket from the lower platform.
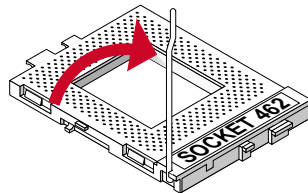
2. Configure Pin 1 of CPU to Pin 1 of the Socket, just as the way shown in the diagram on the right. Adjust the position of CPU until you can feel all CPU pins get into the pin holes of the socket.

Pin 1
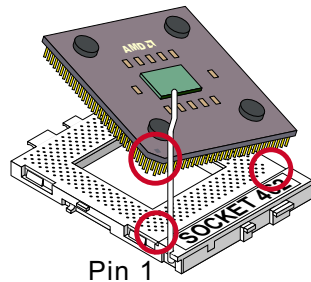
3. Make sure that all CPU pins have completely entered the socket and then lower down the lever to lock up CPU to socket.

Pin 1
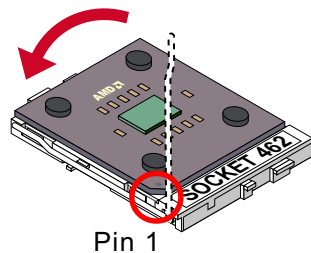
2-2 Memory Installation

2-2.1 To Install DDR SDRAM Module

• This series supports up to 3GB *DDR 400/333/266 SDRAM, with 3 DDR DIMM slots on board. <u>Do not insert other type of modules into these slots.</u>

 *DDR 400 Module is supported on condition that the moduleis compliant with the official DDR 400 memory module specifications.

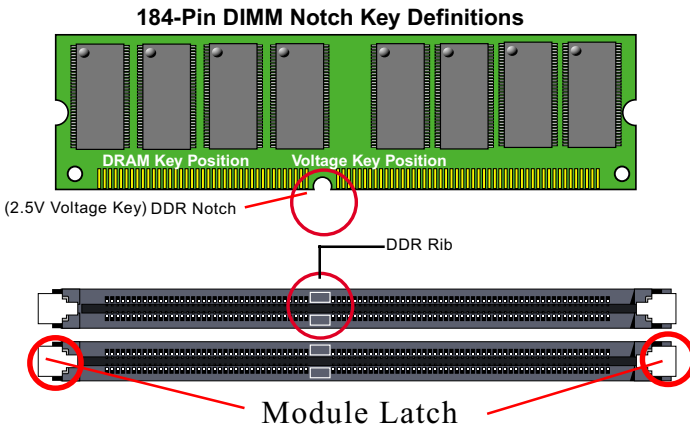• DDR DIMM slot has 184-pins and one notch. Insert a DDR SDRAM vertically into the 184-pin slot with the notch-to-rib matching.
• Make sure to unplug your power supply before adding or removing memory module. Failure to do so may cause severe damage to both your mainboard and the memory module.
• Pay attention to the orientation of the DIMM slots. Forcing a DIMM into a slot improperly will damage the memory module and slot itself.

184-Pin DIMM Notch Key Definitions

DRAM Key Position   Voltage Key Position

(2.5V Voltage Key) DDR Notch

DDR Rib

Module Latch

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 the optional 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)

LED1
DIMM Slots Powered
On Indicator
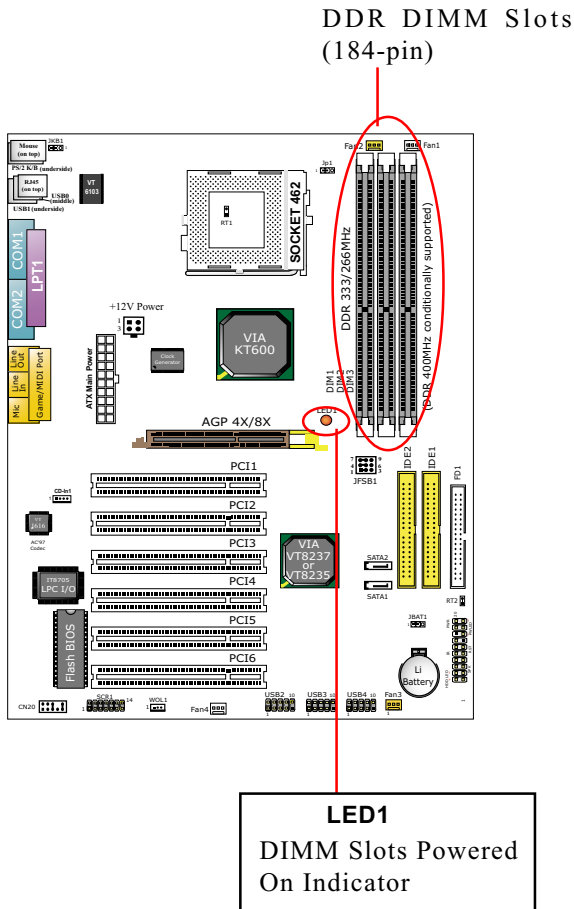
2-3 AGP Slot Installation

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.

AGP Accelerator

notch

AGP 8X/4X Slot
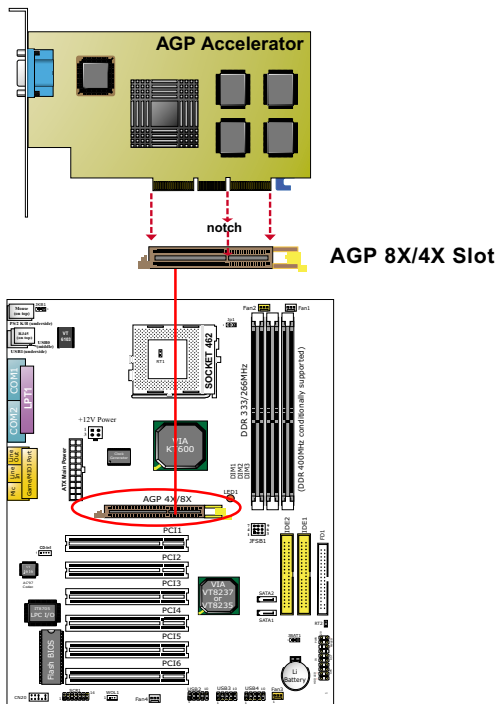
2-4 IDE Connector Installation

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.

IDE2
IDE1

ATA IDE connectors:
Orient the red line on the IDE Flat Cable to Pin1.
IDE RAID is not supported in this series.

Pin 1 (to Red Line)

Gray Connector
(To Slave Device)

80-conductor Cable

Black Connector
(To Master Device)

Red Line

Blue Connector
(To Mainboard)

IDE Flat Cable
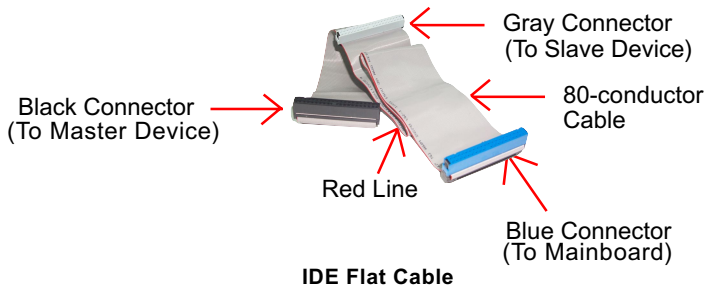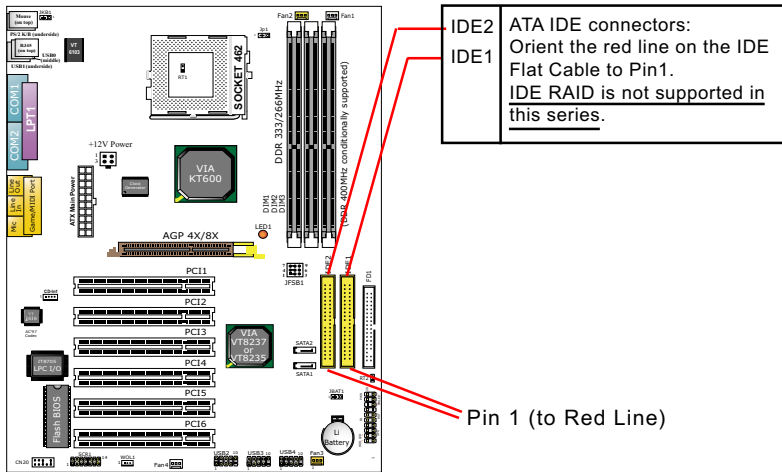
2-5 Floppy Drive Connector (FDC) Installation

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.
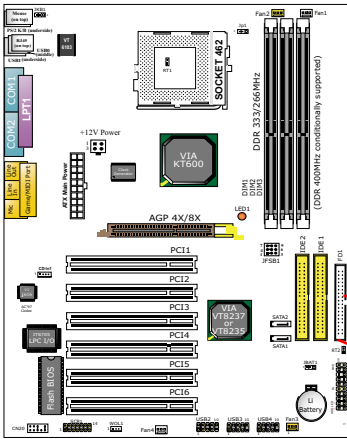
Floppy Drive Connector:

Orient the red line of the Floppy Flat Cable to Pin1.

Pin 1 (to Red Line)

To 2nd Floppy Drive

Red line

To mainboard

To 1st Floppy Drive

FDD Cable
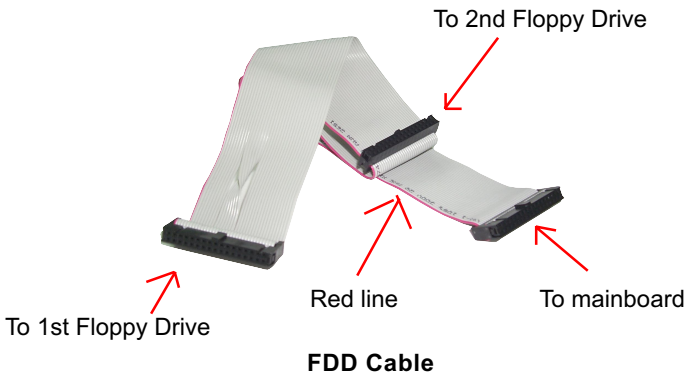
2-6 SATA Connector Installation (KT600-R/RL only)

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

Both SATA and SATA RAID drivers are already incorporated into Support CD and Floppy Diskette for user's installation. Please refer to Chapter 3 and 5 for SATA /SATA RAID Driver Installation.
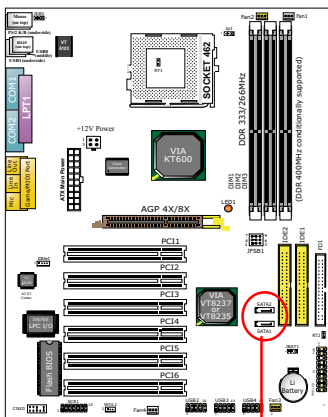
Serial ATA Connector SATA1 and SATA2

Serial ATA Cable

To Power Supply

Serial ATA Hard Disk
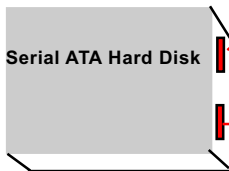
SATA Power Connectors

SATA Power Cable

2-7 ATX Power Supply Installation

+12V Power Connector

1	2
GND	GND
+12V	+12V
3	4

Main Power Connector (20-pin)

Pin1		Pin11
+12V		+5V
5SB		+5V
PWR OK		-5V
GND		GND
+5V		GND
GND		GND
+5V		PS ON#
GND		GND
+3.3V		-12V
+3.3V		+3.3V
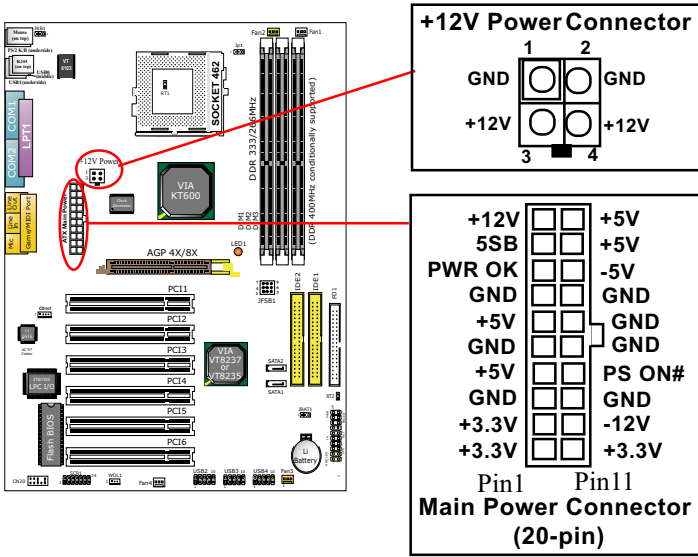
To set up Power Supply on this mainboard:

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:
USB & PS/2 KB/Mouse Wakeup

1	**1-2 closed** **Enabled**
1	**2-3 closed** **Disabled** **(Default)**

JP1:
Anti-burn Shield (ABSII)
(Overheated CPU Shutdown)
(only for Athlon XP/ Duron Morgan)

1	**1-2 closed (default)** **Enable overheated CPU (85°C) shutdown function**
1	**2-3 closed** **Disable overheated CPU shutdown function**

JFSB1:
CPU Clock Select

7	**8-9**	**100MHz selected**
4	**4-5**	
1	**2-3**	
7	**7-8**	**133MHz selected**
4	**4-5**	
1	**2-3**	
7	**7-8**	**166MHz selected**
4	**5-6**	
1	**2-3**	
7	**8-9**	**200MHz Selected**
4	**5-6**	
1	**2-3**	

(Default Setting)

7	**7-8**	**Auto-detect**
4	**4-5**	**133 / 166MHz/**
1	**1-2**	**200MHz**

JBAT1
Clear CMOS

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

2-8.1 How to tackle the Jumpers:

1 | 2 | 3

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, <u>this header is called a jumper in this manual.</u>

A 2-pin Jumper Cap

The conductor inside the cap links two header-pins together.
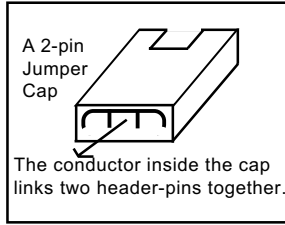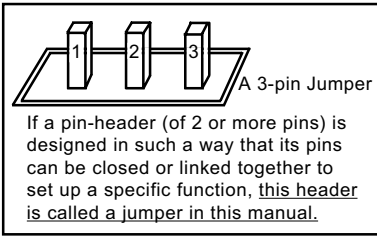
• A Jumper is usually but not necessarily denoted by "Jp( )" .
• In the Jumper setting diagram, all jumper pins covered with black marks stand for closed pins with jumper cap.

Jp (X)   **1** 3
Jumper with Pin 2-3 closed

1 3
Jumper with all pins open

1 3
Jumper with Pin 1-2 closed

• 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 JFSB1: Bootable CPU Clock Select

JFSB1 is designed on board as a jumper for Bootable CPU clock select.

1. Before setting the CPU clock, read the Identification Legends on the CPU, find the Max FSB and divide it by two. The result is the default CPU clock. (FSB=CPU clk x 2)

2. Normally, user should select the JFSB1 default setting to match the CPU on board. Please note that this series is designed for CPUs higher than 100MHz. Therefore the default bootable setting is set at "Auto-detect 133/166/200MHz. If a 100MHz CPU is used on this series, the JFSB1 setting must be changed to 2-3, 4-5 and 8-9 closed.

3. If you select a JFSB1 setting which is higher than your default CPU clock, it means that an overclock is desired. However, if an overclok fails to boot system, you should resort to "Clearing CMOS" to restart your system. (See Clear CMOS in next paragraph.)

| JFSB1: Bootable CPU Clock Select	
7 **8-9** 4 **4-5** 1 **2-3**	**100MHz selected**
7 **7-8** 4 **4-5** 1 **2-3**	**133MHz selected**
7 **7-8** 4 **5-6** 1 **2-3**	**166MHz selected**
7 **8-9** 4 **5-6** 1 **2-3**	**200MHz Selected**
(Default Setting)	
7 **7-8** 4 **4-5** 1 **1-2**	**Auto-detect 133 / 166MHz/ 200MHz**

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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.
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.

JBAT1 Clear CMOS
1 [⊙⊙○] **1-2 closed** **(default)** **To hold data**
1 [○⊙⊙] **2-3 closed** **To clear CMOS**
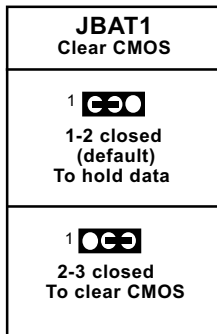
2-8.4 Jp1: Anti-burn Shield (ABSII)

JP1:
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**

JP1 is designed to enable the overheat safeguard for some CPUs which are incorporated with a protective thermal diode. <u>The latest AMD Athlon XP and Duron Morgan CPUs are incorporated with such thermal diode and can be protected by this function.</u> 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 to restart your system.
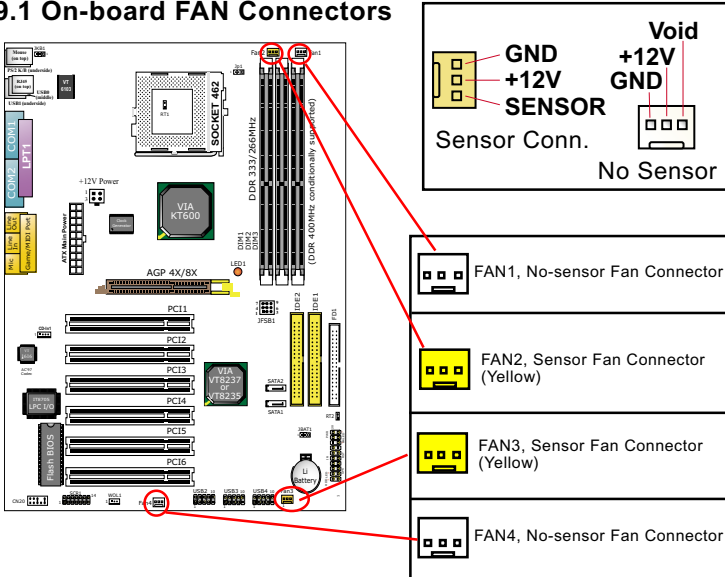
2-8.5 JKB1: USB & PS/2 KB/Mouse Wake-up

JKB1 is designed on board as a jumper to wake up system from suspend mode either with the USB keyboard/Mouse or 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.

JKB1:
USB & PS/2 KB/Mouse Wakeup
1-2 closed **Enabled**
2-3 closed **Disabled** **(Default)**

2-9 Other Connectors Configuration

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

2-9.1 On-board FAN Connectors

Sensor Conn.
GND
+12V
SENSOR

No Sensor
Void
+12V
GND

FAN1, No-sensor Fan Connector

FAN2, Sensor Fan Connector (Yellow)

FAN3, Sensor Fan Connector (Yellow)

FAN4, No-sensor Fan Connector

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.
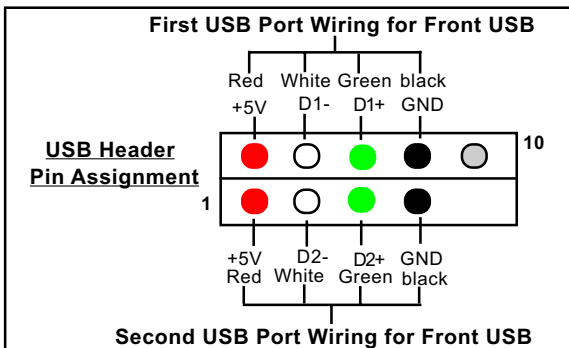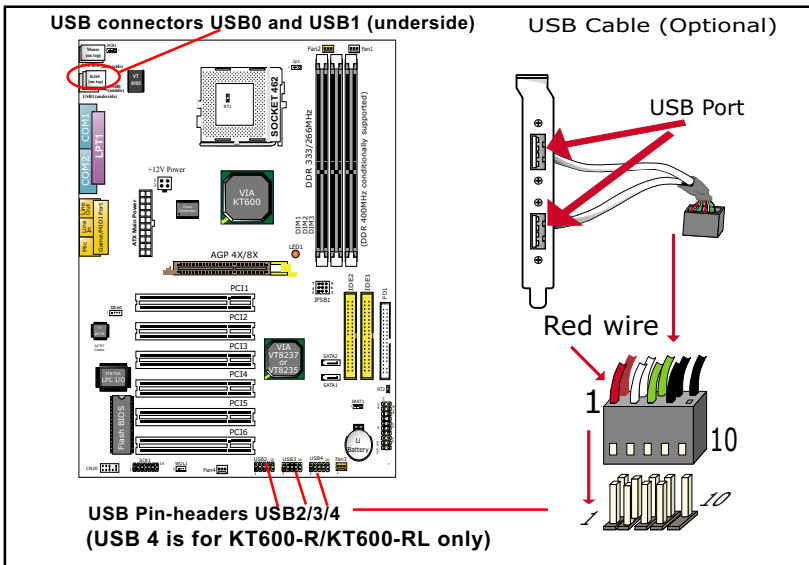
A running fan will send out 2 electric pulses per rotation of its fan blade to a Sensor Fan Connector which in turn will count the electric pulses and send the information to the System Hardware Monitor. The hardware Monitor Program will work out the fan rotation speed and display it on screen.
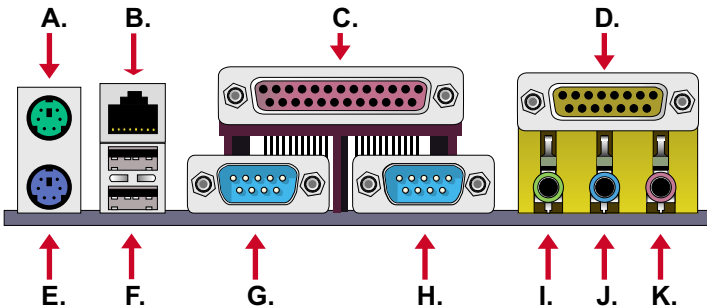
2-9.2 USB Ports and USB Pin-headers

This series provides two USB ports USB0 and USB1 on board supporting various USB devices. In addition, 2/3 USB pin-headers are added on board to provide expansion of 4/6 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.

USB connectors USB0 and USB1 (underside)

USB Cable (Optional)

USB Port

Red wire

**USB Pin-headers USB2/3/4
(USB 4 is for KT600-R/KT600-RL only)**

First USB Port Wiring for Front USB

Red   White Green black
+5V   D1-   D1+   GND

**USB Header
Pin Assignment**

+5V   D2-   D2+   GND
Red   White Green black

Second USB Port Wiring for Front USB

2-9.3 Chassis Panel Connectors

A.   B.   C.   D.

E.   F.   G.   H.   I.   J.   K.

A : PS/2 MOUSE
B : RJ45 (KT600-L/RL)
C : LPT1 PORT
D : Game/MIDI
E : PS/2 KEYBOARD
F : USB 1/0

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

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

PS/2 Mouse Connector   (green, on top)

6 Void   5 Mouse Clock

4 VCC   3 GND

2 Void   1 Mouse Data

6 Void   5 Keyboard Clock

4 VCC   3 GND

2 Void   1 Keyboard Data
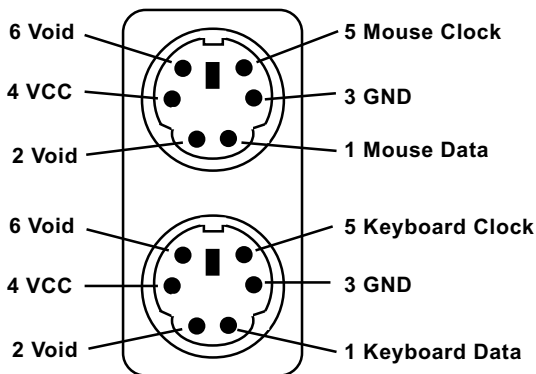
PS/2 Keyboard Connector   (purple, underside)

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

CD-In1 is an audio connector connecting CD-ROM audio to mainboard.
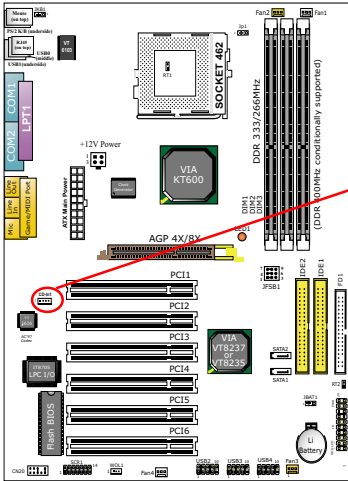
CD-ROM Audio Connector	
CD-In1	**Pin Signal**
Pin 1	**Left Channel**
Pin 2	**GND**
Pin 3	**GND**
Pin 4	**Right Channel**

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
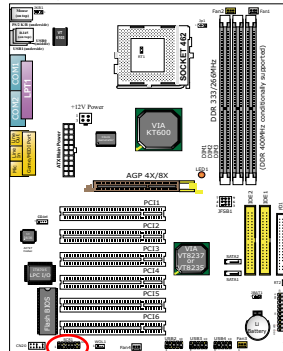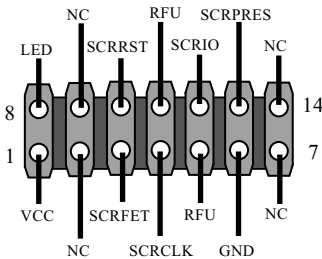
2-9.7 Connector WOL1: Wake On LAN

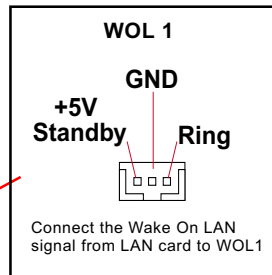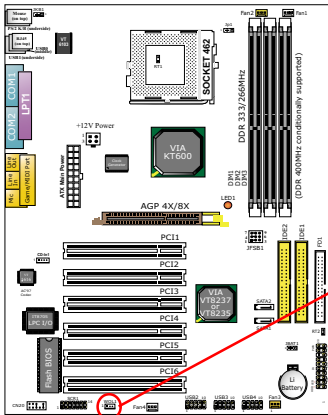1. This connector is connected to a LAN card with a Ring signal output. The connector powers up the system when it receives a wake-up packet or signal through the LAN card.
2. This feature requires that Resume On Ring feature is enabled in the BIOS setting "Power Management Setup" and that your system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

WOL 1

GND

+5V Standby   **Ring**

Connect the Wake On LAN signal from LAN card to WOL1

2-9.8 Thermal Resistors

RT1 / RT2

RT1 & RT2 are mounted with Thermal Resistor by default.
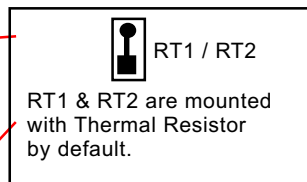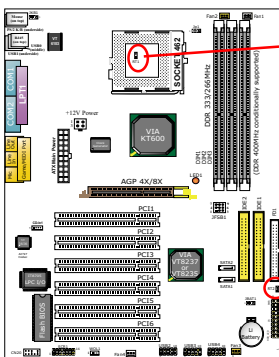
Thermal Resistors RT1 and RT2: A thermal resistor is mounted by default to connector RT1 and RT2 so as to detect the temperature of the CPU and chassis. What RT1/ RT2 does is to transmit the thermal signal to Hardware Monitor.

2-9.9 CN20: Front Audio Connector

This Mainboard is designed with a Front Audio connector "CN20" which provides connection to your Audio connectors on the Front Panel of the PC case.

1. When CN20 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 Front Panel Audio Connector, please open all pins of CN20 and connect it to the Front Panel Audio Connector.

CN20: Front Audio Connector

Pin 1 Mic In	Pin 2 Aud GND
Pin 3 Mic VREF	Pin 4 Aud Vcc
Pin 5 FPOUT R	Pin 6 RET R
Pin 7 (Key)	Pin 8 (Void)
Pin 9 FPOUT L	Pin10 RET L
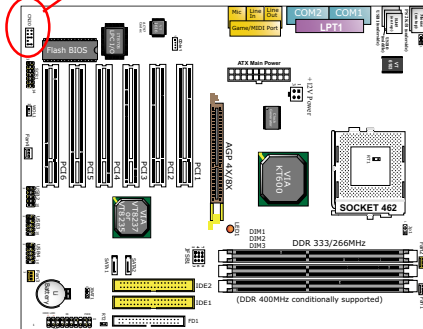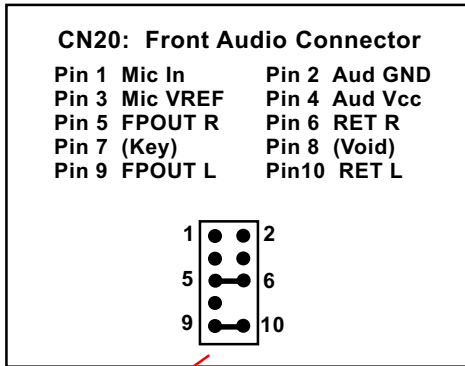
2-9.10 Complex Pin-header (Front Panel Connectors)

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.

Case
Front Panel

(1)Power Switch — PWRBT#   PLED-
PWRBT   NC — Power LED (4)
PLED+

(2)Infrared(IR) — IR_VCC
NC   RSTGND — Reset Switch (5)
IRRX   RST1
IRGND   SP1
IRTX   NC — Speaker (6)

(3)HDD LED — HDLED-   SP3
HDLED+   SPVCC
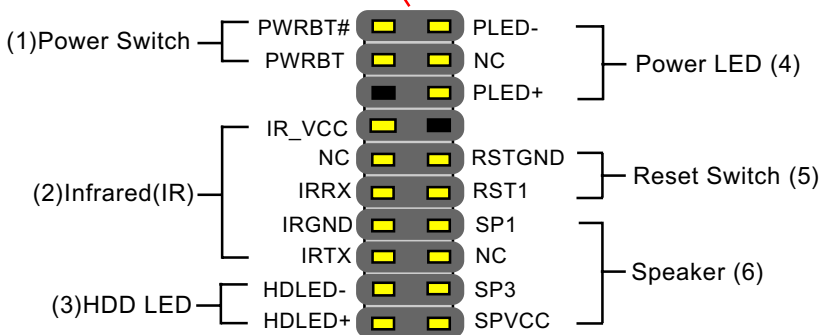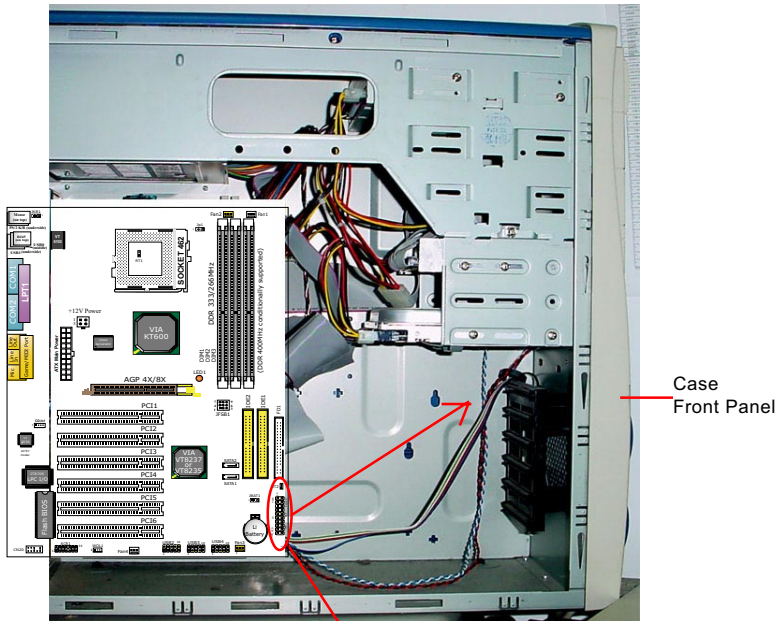
(1) Power Switch Connector:
Connection**:** Connected to a momentary button or switch.
Function: Manually switching the system between "On" and "Soft Off". Pressing the momentary button for more than 4 seconds will also turn the system off.

(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.

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 KT600-L/KT600-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:
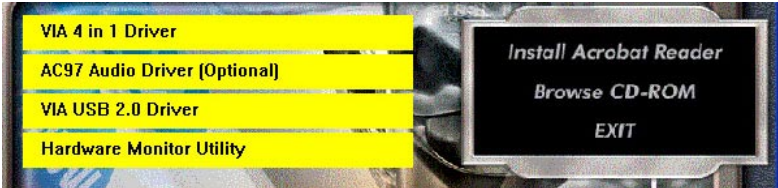
2. In case your system does not open the Support CD automatically, please click to the following path to enter the Main Installation Menu:

   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.
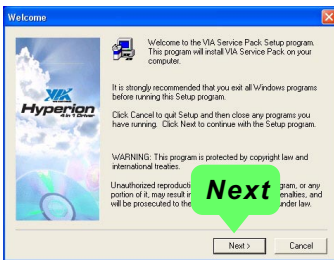
3. "VIA Service Pack README" screen will appear, please click the "Yes" button to agree with the Licence Agreement and continue.
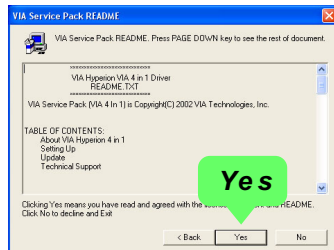
4. On the screen below, check "Normally Install" and click "Next" to continue. (If you check "Quick Install", you will skip the detailed procedures of the VIA 4-in-1 Setup.)
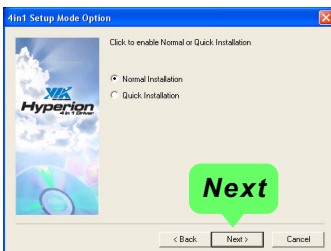
5. Select the checkbox as below and click "Next" to continue:

☑ VIA PCI IDE Bus Driver
☑ AGP Driver (AGP 3.0 Supported)
☑ VIA INF Driver 1.70a
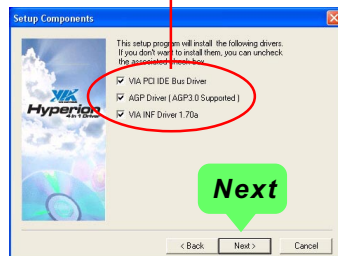
6. Select "Install VIA PCI IDE Driver" checkbox, then click the "Next" button to continue.
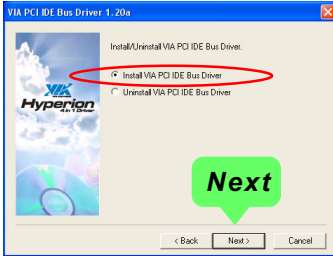
7. Select "Install VIA AGP Driver" in turbo mode and press "Next" button to continue.
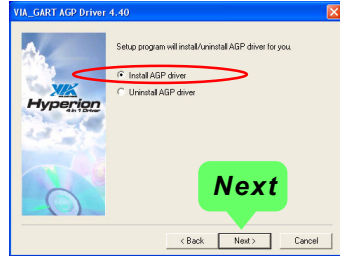
8. After all these setup procedures have finished, you should restart your computer by clicking on **"OK"** so as to put VIA 4-in-1drivers into effect and proceed to next driver installation.

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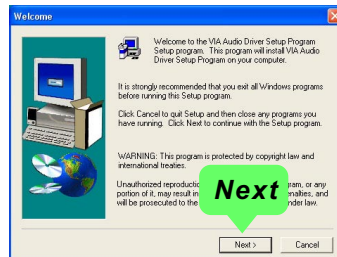
3. Instantly, check " Install Driver" and click "Next" to continue. (If you want to stop setup, click the "Cancel" button.)

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.
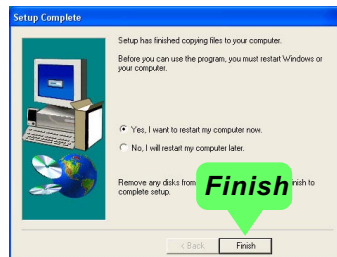
3-3.2 To verify 6-channel Audio

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:

Pale Green Connector to Front Speaker

Pale Pink Connector to Center/Subwoofer Speaker

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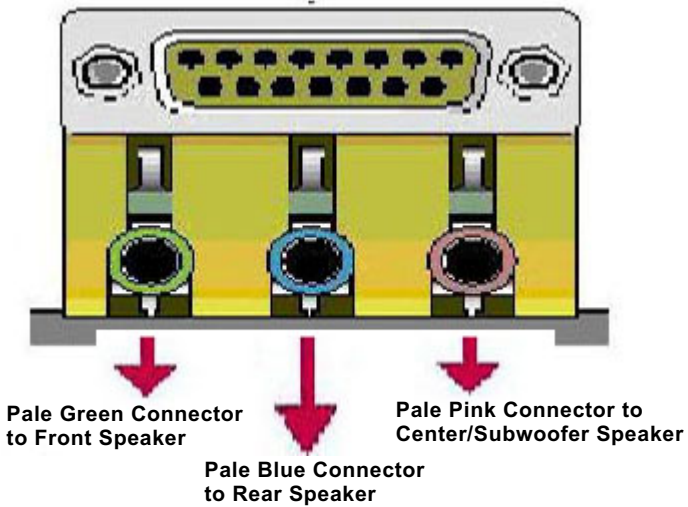
2. After Connection is done, start your Windows system and double click "volume" icon at the taskbar to enter 6-channel configuration:

"Volume" icon
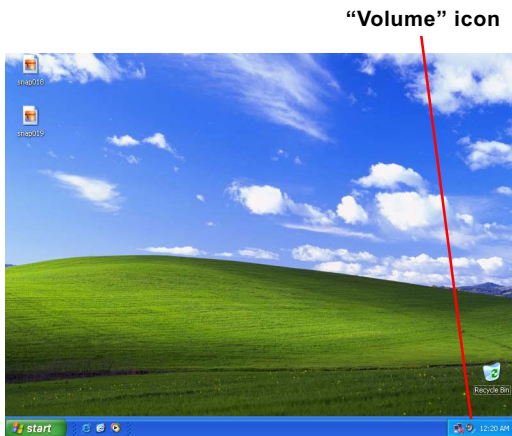
3. Again click "Advanced" button to enter 6 channel configuration.
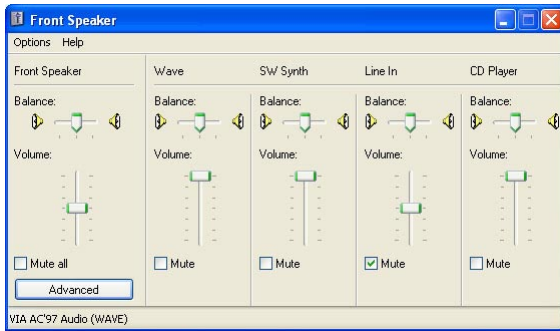
4. At the "Other Controls", pick the item "Smart 5.1 Enable" to activiate 6 channel configuration. Then click "Close" to finish configuration.

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. <u>Before installing VIA USB V2.0 Driver on Windows XP, users should install the latest Service Pack for Windows XP.</u> 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.
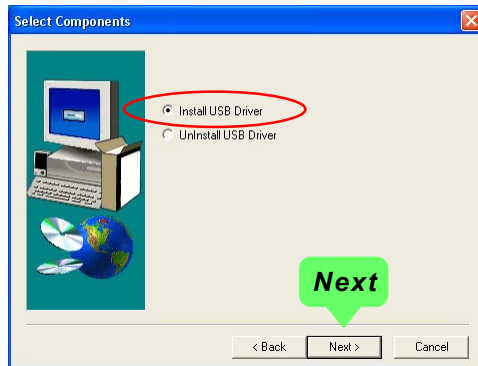
4. The USB 2.0 Setup Program will then guide you through the whole driver setup until the "Finish" screen appears to prompt you to restart your system. Please click "Finish" button to restart system to put the new driver into effect.
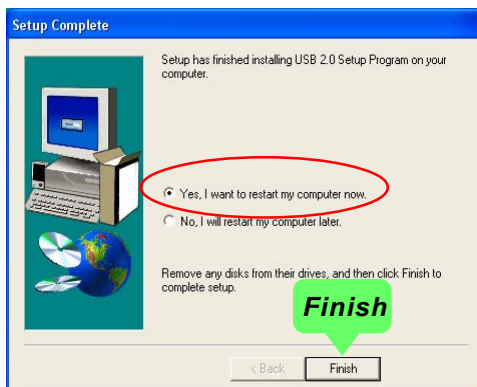
3-5 To Install Hardware Monitor Utility

3-5.1 Installation

Hardware Monitor is built on this mainboard. Its installation is pro-
grammed 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.
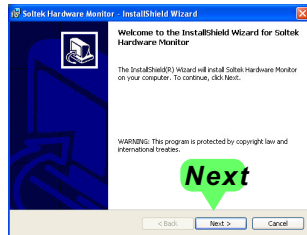
3. The **InstallShield Wizard**
screen will show the current
setting, please click the
"Install" button to continue.

4. After all the setup process
is finished, click "Finish" to
exit the wizard.
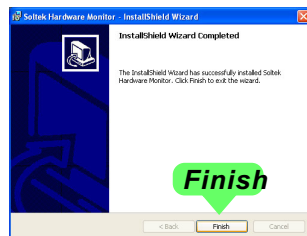
3-5.2 Verification

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

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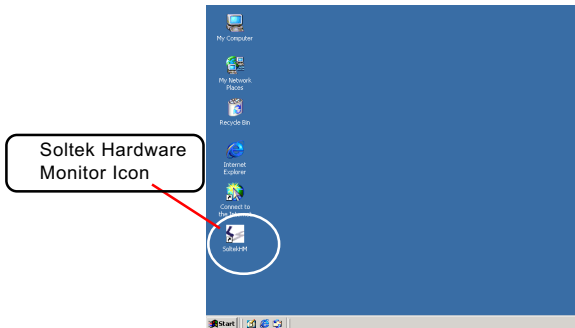
2. Instantly, the pop-up screen will show all information about CPU Temperature, Fan Speed and various Voltages.

Showing the Fan Speed(s) that is supported by the mainboard.

Showing the temperature(s), the function of which is supported by the mainboard.

Click on "Soltek" button to display the function menu.

Showing the Voltage(s) that is supported by the mainboard.

Status Warning LED

*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 KT600-L/KT600-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".
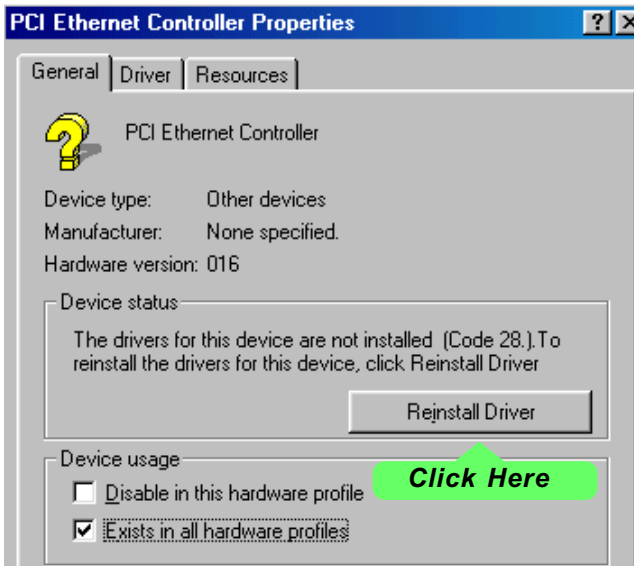
5. In the "Update device Driver Wizard" screen, click "Next" to continue until you see a dialog box asking you to "Specify a location" for the driver. <u>You should **now** insert the Support CD into your CD-ROM.</u>

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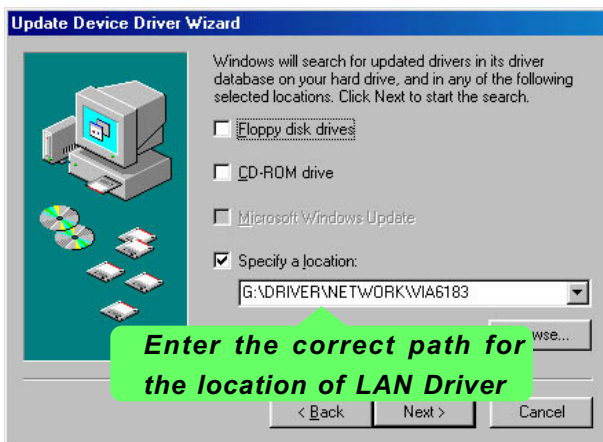
until the "Insert Disk" dialog box shows up. Please withdraw your Support CD and insert the Windows 98 CD-ROM into the CD-ROM drive for updating system and click "OK" to continue.

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 syustem 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 / SATA RAID Driver (KT600-R/KT600-RL only)

1. VIA SATA and SATA RAID Driver are incorporated into 1 driver for installation. Whenever VIA SATA -IDE is used either for SATA or SATA RAID, the respective Driver should be installed into system.
2. To install SATA/SATA RAID Driver, please refer to Chapter 5 of this manual " VIA SATA/ SATA RAID Driver Installation".
3. <u>For Win 98se/Me user of SATA interface (not RAID)</u>, 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".

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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 PATA-IDE	Enabled	
Onboard IDEs Operate Mode (For VT8237)	PATA is Pri. IDE/S	
OnBoard SATA-IDE (for VT8237 only)	RAID	
OnBoard LAN (optional)	Enabled	
OnBoard LAN PME(optional)	Disabled	
OnBoard AC'97 Audio	Enabled	

(FOR VT8237 ONLY) OnBoard SATA-IDE To enable/disable the onboard Serial ATA or RAID interface. Choices:

1.Disabled: SATA-IDE controller is disabled;

2.SATA: To enable SATA interface for Win 2K/XP installation(not Win98se/Me);

3.RAID: To enable RAID interface for Win98se/Me/2K/XP installation, <u>as well as to enable SATA inter-face for Win98se/Me installation;</u>

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

(1) Boot KT600/KT600-L system (with VT8235 of no SATA support) and press < Delete > key before " POST " is complete (before OS is loaded). Normally, the message: Del: Setup will appear before the BIOS setup Utility pops out for your configuration. In this VT8235 system, you will not see any SATA-RAID Setup message on the boot-screen.

(2) If you boot with the KT600-R/KT600-RL system (with VT8237 of SATA Interface support), watch for the following initial screen 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

Then, press < Delete > key to enter CMOS BIOS 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 by CMOS Setup Utility

4-6.1 Main Menu in CMOS Setup Utility

1. Enter CMOS Setup Utility during booting system and the main program screen will appear as follows.

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▶ Standard CMOS Features   ▶ System Information

▶ Advanced BIOS Features   Set Supervisor Password

▶ Advanced Chipset Features   Load Optimal Defaults

▶ Power Management Features   Save & Exit Setup

▶ PNP/PCI Configurations   Exit Without Saving

▶ Integrated Peripherals

▶ SmartDoc Anti-burn Shield

▶ Frequency/Voltage Control

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

Set Time, Date, Hard Disk Type ...

2. 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.
3. You may return to the Main Menu anytime by pressing <ESC>.
4. 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.
5. In entering the Main option of the Main Menu, please use the functions in the Function List to configure the setting:

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

Use [Enter], [Tab] or [Shift-Tab] to select a field.
Use [+] or [-] to choose the options.
Press <Esc>: To return to previous values .
Press <Enter>: To select sub-menu.
<F9>: To load Setup Default default value.
<10>: To save changes and exit.

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

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   +/- : Change Values   F9: Setup Defaults
Esc: Previous Menu   Enter: Select ▶ Sub-Menu   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:

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

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

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.
Choises: Disabled; Device(s) installed

Try Other Boot Devices Allows you to enable/disable system to try to boot with other boot devices.
Choises: 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:
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
DRAM Timing		
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	Enabled	
USB Controller	8 USB Ports	
USB 1.1 Device Legacy Support	Disabled	
USB 1.1 Port 64/60 Emulation	Disabled	

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

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; 266MHz; 333MHz; 400MHz

SDRAM CAS# Latency With SDRAM Timing by SPD disabled, you can select the SDRAM CAS# (Column Address Strode)latency manually.
Choices: 2; 2.5; 1.5; 3.0

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/8X AGP 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 Synchroni-zation Allows you to enabled / disabled (default) the AGP Read Synchronization function.

APIC Interrupt Mode Allows you to enable / disable the APIC function for selecting the APIC interrupt Mode.

USB Controller Allows you to set the USB Controller on the USB port(s).
Choices: 8 USB Ports; 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 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:

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 (optional)	Enabled	
Call VGA BIOS at S3 Resume (optional)	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	Last State	
Resume On Ring/WOL	Disabled	
Resume On PME#	Disabled	
Resume On PS/2 KB (optional)	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

ACPI Standby State This item allows you to select the ACPI Suspend type. You can select the optional S3(STR) for suspending to DRAM only 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. Choices: S1/POS; S3/STR (optional); Auto

(optional)USB Device If ACPI Standby state is set to S3, use this item to **Wakeup Function** enable / disable the USB device Wakeup function.

(optional)Call If the ACPI Standy State is set to "S3(STR)" or "Auto", **VGABIOS at S3** use this item to enable / disable the Call VGABIOS **Resume** at S3 function.

Power Management/ Allows you to enable / disable the Power manage- **APM** ment / Advanced Power Management function.

Video Power Down Allows you to select the Video Power Down Mode. **Mode** Choices: Disabled; Standby; Suspend

Hard Disk Power Allows you to select the Hard Disk Power Down **Down Mode** Mode. Choices; Disabled; Standby; Suspend

Standby Time Out To set the duration of Standby Time Out. **(Minute)** Choices: Disabled; 1; 2; 4; 8; 10; 20; 30; 40; 50; 60

Suspend Time Out To set the duration of Suspend Time Out. **(Minute)** Choices: Disabled; 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 Allows you to set the restore state from AC/Power **Loss** 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.

(Optional) 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.

(optional) 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:

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

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:
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 PATA-IDE	Enabled	
Onboard IDE Operate Mode (For VT8237)	PATA is Pri. IDE/S	
OnBoard SATA-IDE (for VT8237 only)	RAID	
OnBoard LAN (optional)	Enabled	
OnBoard LAN PME(optional)	Disabled	
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

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 Tthis item is a sub-memu of Onboard Parallel Port.
It allows you to configure parallel port mode.
Choices: ECP; EPP + ECP; Normal; EPP

Parallel Port IRQ This item is a sub-menu of Parallel Port Mode. It
allows you to set the Parallel Port IRQ.
Choices: 5; 7

Parallel Port DMA Channel This item is a sub-menu of Parallel Port Mode. It
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.
Choices: 5; 10; 11

OnBoard Game Port Allows you to configure Onboard Game port
address.
The choices: Disabled; 200h; 208h

OnBoard PATA-IDE To enable/disable the Onboard PATA-IDE function.
Choices: Enabled; Disabled

(FOR VT8237 ONLY) To set the IDE Operate Mode for the PATA and the
OnBoard IDEs Operate SATA interface (not for the RAID interface).
Mode Choices: PATA is Pri. IDE/SATA is Sec(ondary) IDE;
SATA is Pri. IDE/PATA is sec. IDE

(FOR VT8237 ONLY) To enable/disable the onboard Serial ATA or RAID
OnBoard SATA-IDE interface. Choices:
1.Disabled: SATA-IDE controller is disabled;
2.SATA: To enable SATA interface for Win 2K/XP
installation(not Win98se/Me);
3.RAID: To enable RAID interface for Win98se/Me/
2K/XP installation, as well as to enable SATA inter-
face for Win98se/Me installation;

(Optional) Onboard If LAN is on board, this item allows you to enable/
LAN disable the on-board LAN controller.
Choices: Enabled; Disabled

(Optional) Onboard If LAN is on board, this item allows you to enable/
LAN PME disable the on-board LAN PME signal (for LAN
Wake-up) function.
Choices: Enabled; Disabled

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

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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.

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 ^{0}C/127^{0}F)	
(ABSII)CPU Shutdown Temperature	(85 ^{0}C/185 ^{0}F)	
Temperature 1	(36 ^{0}C/96 ^{0}F)	
Temperature 2	(31 ^{0}C/87 ^{0})	
Fan 2 Speed	(0 RPM)	
Fan 3 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

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 ^{0}C~71^{0}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 is a sub-menu of "CPU Fan Low Speed Warning". It allows you to enable/disable the CPU Fan Low Speed Shutdown function.
Choices: Disabled; Enabled

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 2 / 3 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:

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	100 MHz	
Spread Spectrum	Disabled	
Auto Detect PCI slot	Disabled	
CPU Voltage Control	Auto	
AGP Voltage Control	Default	
DIMM Voltage Control	Default	
CPU Ratio Selection	Default	

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

(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 valueis reached. Then BIOS will restart your systemwith 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 Speectrum 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

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

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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

System Information		Setup Help
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	(None)	
Memory Bank 1	(None)	
Memory Bank 2	Fastpage	

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 6 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.

Chapter 5 VIA SATA/SATA RAID

THE VIA SATA/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/SATA RAID Configurations :
5-0 About Disk Array
5-1 To Enable VIA SATA/SATA RAID in System BIOS
5-2 Select SATA/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 / SATA RAID
    Interface
5-6 To Install SATA / 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 Enable SATA/SATA RAID in System BIOS (VT8237)

Chipset VT8237 supporting PATA/SATA/SATA RAID Interfaces, (but not for PATA-RAID).

2 SATA connectors supporting 2 SATA /SATARAID Hard Disks
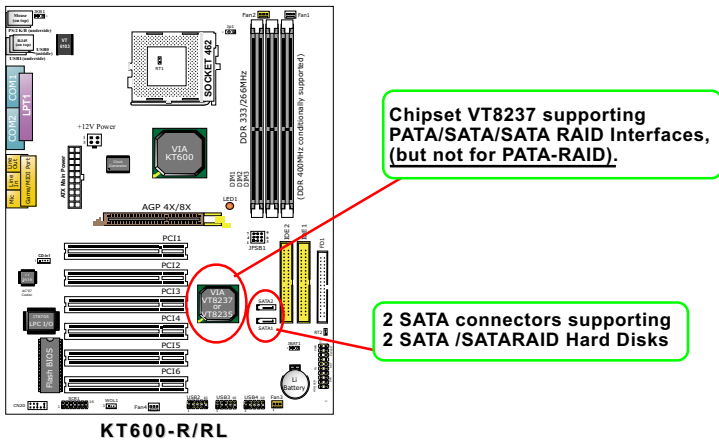
KT600-R/RL

To enable SATA/SATA RAID controller, boot the KT600-R/KT600-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.)

As soon as the above screen appears, press < Delete > key **(not the <Tab> key)** to enter CMOS BIOS Setup. Choose "Integrated Peripheral" and "Onboard SATA-IDE". Choose either "RAID" or "SATA" to enable the Onboard Serial ATA-IDE. (Also see SATA/SATA-RAID Driver Installation).

5-2 Select SATA/SATA-RAID Interface in System BIOS

Enter CMOS BIOS Setup and choose "Integrated Peripheral" and "Onboard SATA-IDE". Choose either "RAID" or "SATA" to enable the Onboard SATA-IDE interface.

(FOR VT8237 ONLY) To enable/disable the onboard Serial ATA or RAID **OnBoard SATA-IDE** interface. Choices:

1. Disabled: SATA-IDE controller is disabled;

2. SATA: To enable SATA interface for Win 2K/XP installation(not Win98se/Me);

3. RAID: To enable RAID interface for Win98se/Me/ 2K/XP installation, as well as to enable SATA inter- face for Win98se/Me installation;

Pay attention to the extraordinary setting for Windows 98se/Me: 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".

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 PATA-IDE	Enabled	
Onboard IDEs Operate Mode (For VT8237)	PATA is Pri. IDE/S	
OnBoard SATA-IDE (for VT8237 only)	RAID	
OnBoard LAN (optional)	Enabled	
OnBoard LAN PME(optional)	Disabled	
OnBoard AC'97 Audio	Enabled	

5-3 To Enter VIA Tech. RAID BIOS Setup

Boot the KT600-R/KT600-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.

The Hard Disks connected to SATA connectors are detected by RAID BIOS.
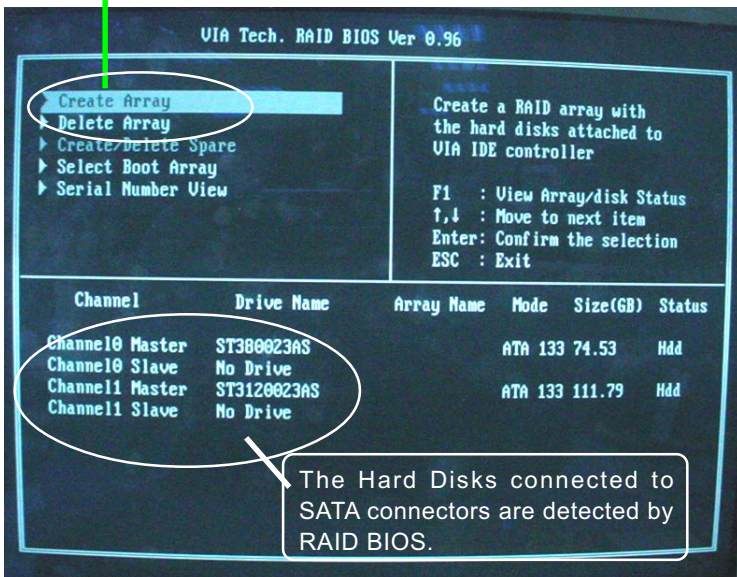
5-4 Using VIA RAID BIOS Setup to Create Disk Array

(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.
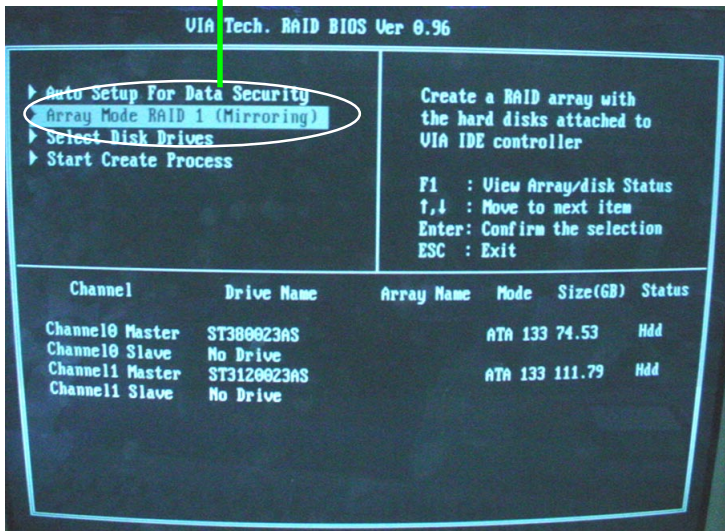
(5-4-2) When you press <Enter> on the "Create Array" bar, the following screen shows up. Press <Enter>on either RAID0 or RAID1 bar to select the RAID mode.
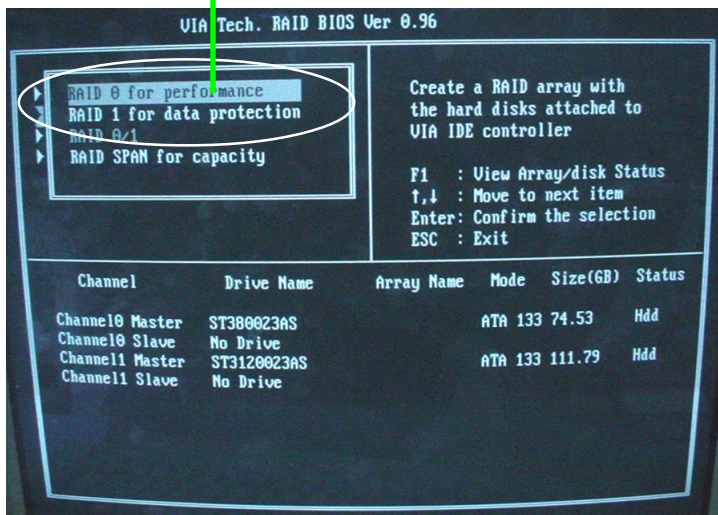
(5-4-3) The following screen shows that RAID 0 (Striping) is selected. Now, use the "Arrow" key to mark up the "Auto Setup For Performance" bar.
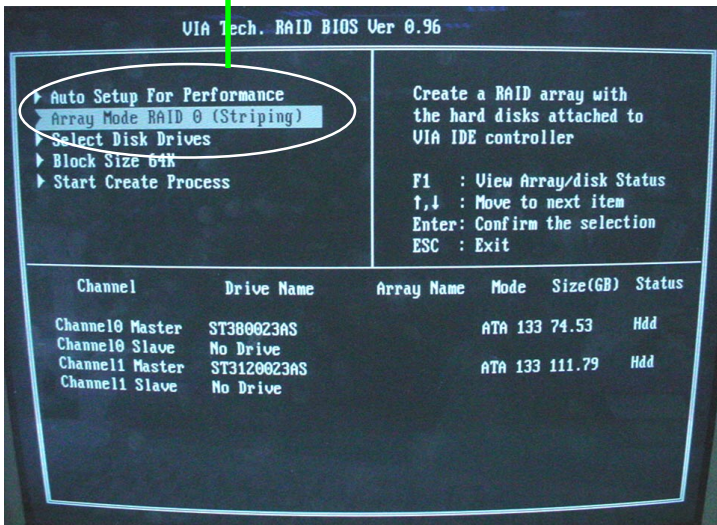
(5-4-4) Press <Enter> on the "Auto Setup for Performance" bar, and the following screen shows up to ask you to confirm the RAID Creation. Press <Y> key to continue.

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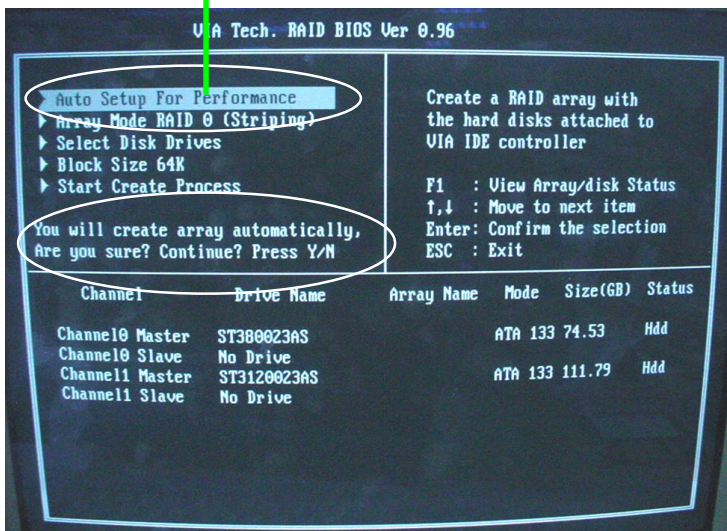
(5-4-5) Instantly, the RAID0 Striping mode is set up and shown on the screen. Then press <Escape> key to exit the screen.
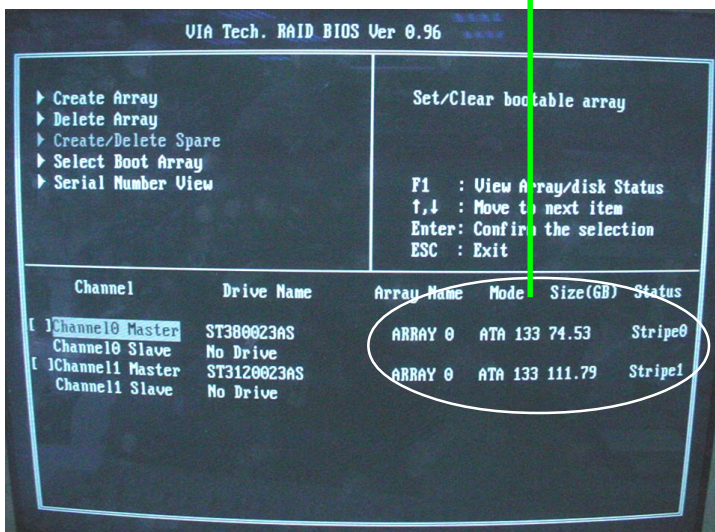
(5-4-6) On the next screen, press the "Arrow" key to mark up the "Select Boot Array" bar and press <Enter> key to set up "Boot Disk" for the system.
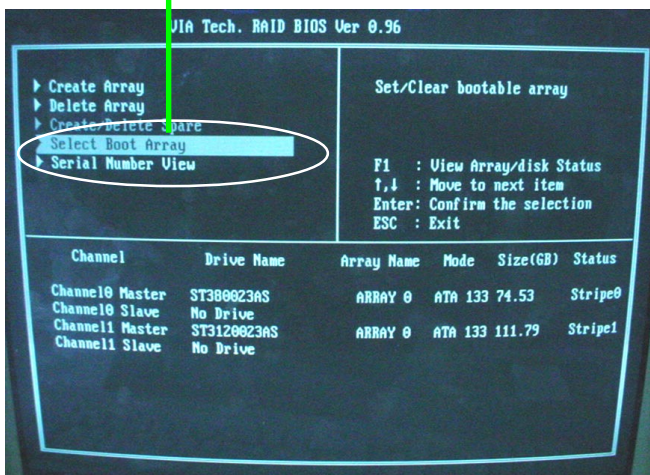
(5-4-7) Instantly, the Master Hard Disk is marked up. Press <Enter> on the screen to set up the "Boot Disk".
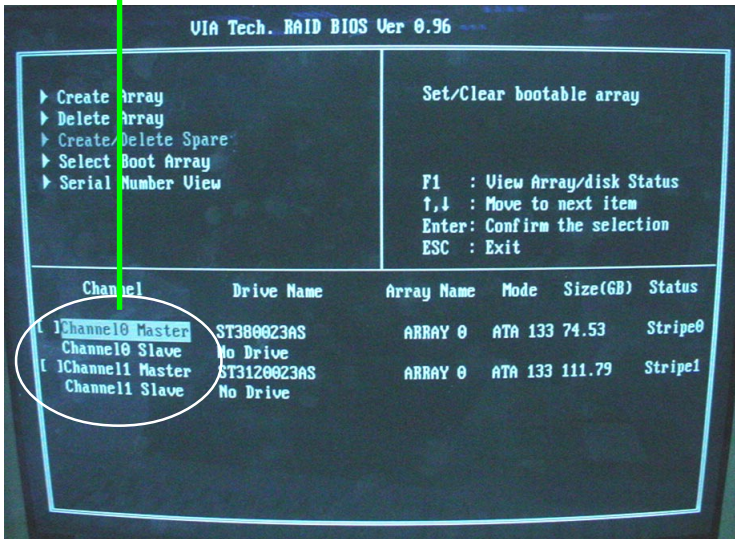
(5-4-8) Instantly, the bootable hard disks are marked with an "asterisk (star)" , indicating that those hard disks are bootable. You can exit from this screen by pressing the "Escape" key now.
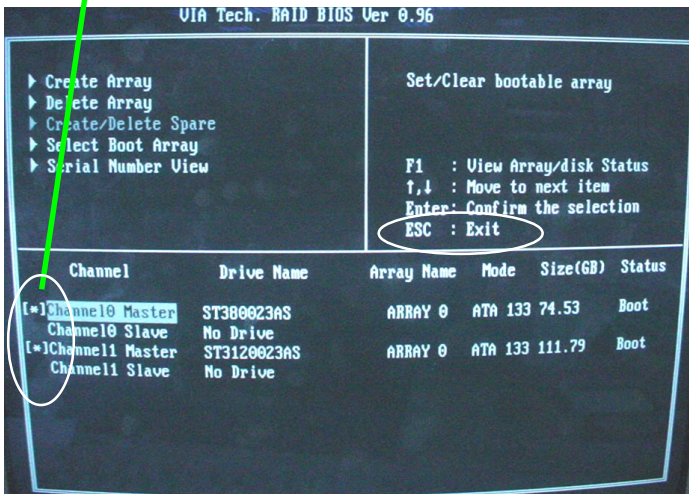
5-5 Using VIA RAID BIOS Setup to change Array mode

(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>.
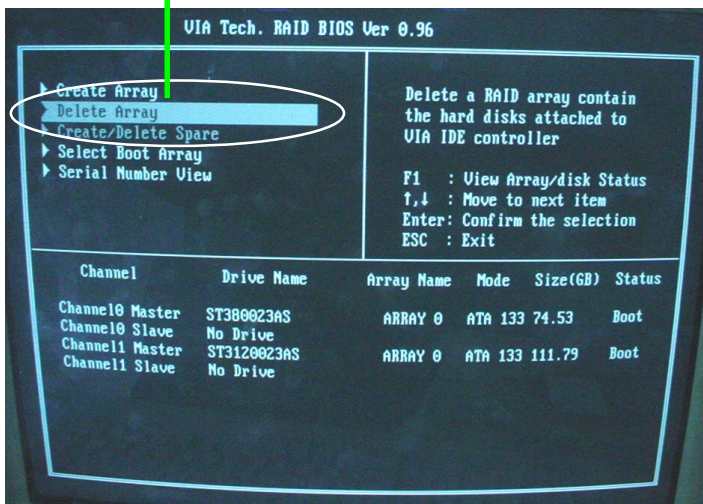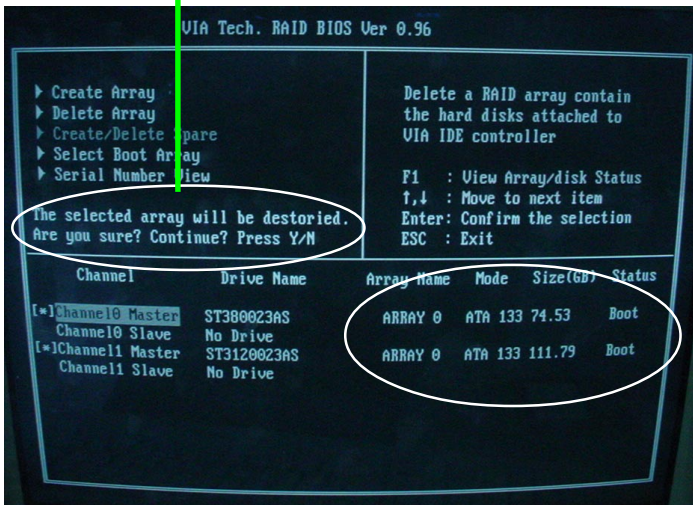

(5-5-2) Instantly, the Bootable Hard Disk(s) is marked up for deletion. Press <Enter> key on this screen to delete the set-up array.
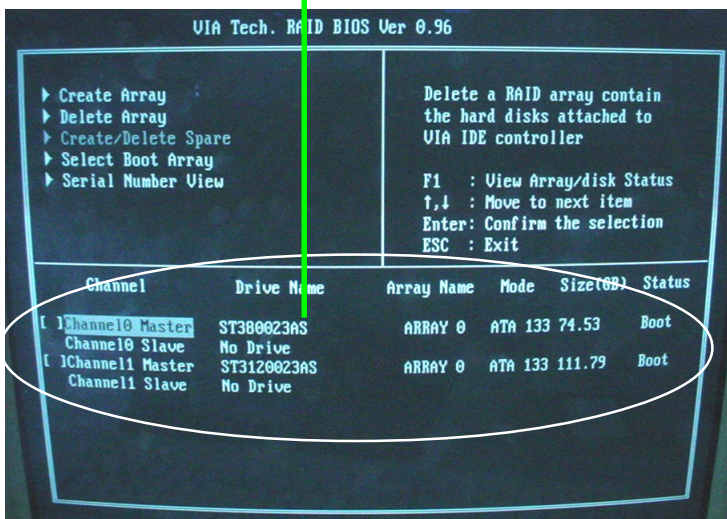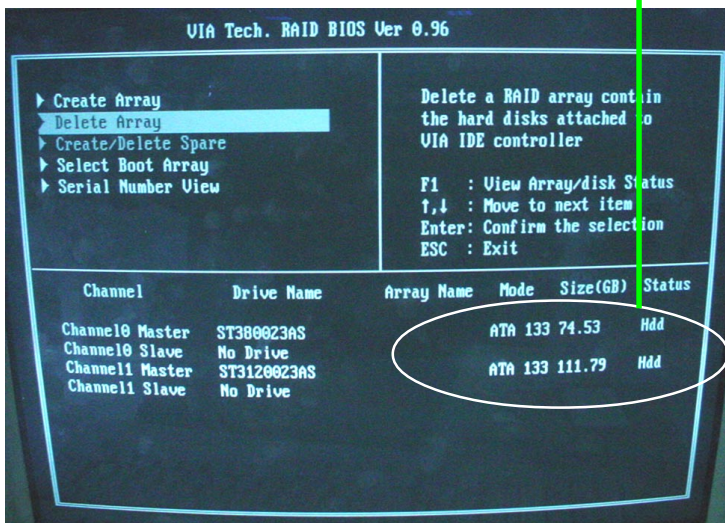
(5-5-3) When the message "The selected array will be destroied....." appears on screen, press <Y> key to continue.

(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.
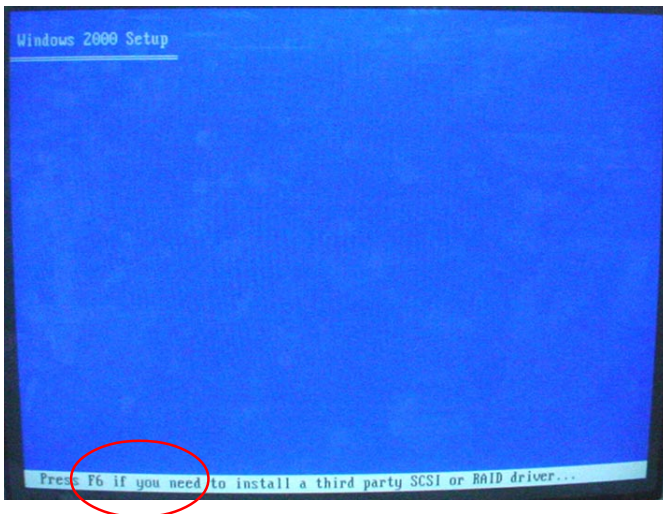
5-6 To Install SATA/SATA-RAID Driver

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:

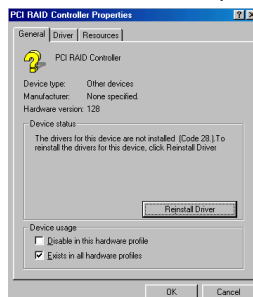   \My Computer\properties\Device manager
(8) In the "Device manager" screen, you can see the item " PCI RAID Controller" with a yellow question mark on its left side, which indicates that the RAID controller is already detected by system but the driver is not installed yet. Please point to this item with 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.
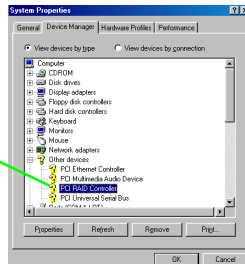
(9) Instantly, the "PCI RAID Controller Properties" screen shows up. Please click the "General" bar to continue.

(10) 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".

(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. <u>You should **now** insert the SATA/SATARAID Driver CD/ Diskette into CD-ROM/Drive A.</u>

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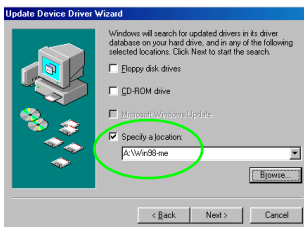
(13) The Update Device Driver Wizard will then go on installing the driver. In a few seconds, installation completes. Please click the "Finish" button on the screen to complete the installation.