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Chapter 1 Specification

Introduction

This mainboard features an integration of the powerful processors AMD Athlon 64 939 and the North Bridge VIA K8T890 plus South Bridge VT8237, with which the whole system performance supports HyperTransport Bus up to 1GHz.

VIA K8T890 supports on-board AMD processor to implement HyperTransport link running at up to 8GB/s and provides the PCI Express interface x16 for various PCI Express cards (including the PCI Express x16 Graphics card).

South Bridge VIA VT8237 supports the LPC Super I/O, PCI interface (including 8-channel AC'97 Audio interface, IEEE 1394A interface, and LAN interface), USB 2.0 interface, ATA 133/100/66 data transfer rate, PCI Express x1 interface and Serial ATA / RAID interface. This chapter is to introduce to users every advanced function of this high performance integration.

Topics included in this chapter are:

1-1 Mainboard Layout
1-2 Specification Table
1-3 Chipset System Block Diagram
1-4 Mainboard Specifications and Features

**** If any difference is found between this manual 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 K890Pro-939 Mainboard Layout

1-2 Mainboard Specification Table

K890Pro-939 Specifications and Features	
CPU	Socket 939 for AMD Athlon 64 CPUs
North Bridge	VIA K8T890, supporting up to 1GHz Hyper Transport
South Bridge	VIA VT8237
Memory	Supported by Athlon 64 CPU for Dual Channel DDR 400/333 SDRAM, up to 4GB in 4 DIMM slots
I/O Chip	ITE IT8705F
PCI Express	1 PCI Express-x16 slot; 3 PCI Express-x1 slots
Audio	AC'97 Audio 2.3 compliant, 8-channel audio
IDE Interface	2 ATA 133/100/66 IDE Connector and 1 PATA RAID IDE Connector supported by PDC20579
Serial ATA RAID Interface	2 SATA / SATA RAID connectors supported by VT8237; another 2 supported by SATA RAID Controller PDC20579
VGA	Not integrated on board
Network	RTL8110SB Gigabit Ethernet Controller
IEEE 1394 Interface	VIA VT6307 IEEE1394A Controller on board supporting 2 IEEE1394A ports.
PCI Slots	2 PCI Master slots on board
I/O Connectors	8 USB V2.0, 1 FDD port, 1 COM port, 1 LPT,1 IrDA, 1 PS/2 K/B, 1 PS/2 Mouse, 1 SPDIF-in, 1 SPDIF-out
Other Common Feature	PS/2 Keyboard/ Mouse Wake up; Debug LED

1-3 Chipset System Block Diagram

Socket 939 + VIA K8T890 + VIA VT8237 Diagram

1-4 Mainboard Specifications and Features

1-4.1 CPU Socket

CPU Socket 939 on board, supporting AMD Athlon 64 processors, implementing up to 1GHz Hyper Transport Speed (System Bus) designed to be capable of operating up to 2000MT/s with a resulting bandwidth of up to 8 Gbytes/s and integrated Memory Controller which supports dual-channel DDR 400/333MHz SDRAM.

1-4.2 System Chipsets

North Bridge K8T890Pro:

- 8-bit / 200 MHz operation with speed up to 16-bit, 1GHz operation (8 GB/s total bandwidth)
- supporting PCI Express interface up to X16for PCI Express device cards

South Bridge VIA VT8237

- Working with North Bridge, VIA VT8237 supporting the 8X V-Link, LPC Super I/O, PCI interface (including 8-channel Audio interface, IEE 1394A interface, LAN interface and SATA RAID interface), ATA133 interface, as well as USB V2.0 interface

1-4.3 Memory

4 DDR DIMM 184-pin slots on board for non-ECC Dual Channel DDR 400/333 SDRAMs:

- DIMMs to be populated in identical pairs for Dual Channel operation
- Installation of mixed volumes yet same type of DDR SDRAM modules supported .

1-4.4 BIOS

Flash Memory for easy upgrade, 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.)

1-3.5 PCI Express-x16 Interface

1PCI Express-x16 slot integrated, supporting:

- a raw bit-rate of 2.5 Gb.s on the data pins, resulting in a real bandwidth per pair of 250MB/s.
- Enhanced Addressing Machanism
- PCIE Graphics / LAN card etc. (not supporting AGP card)

3 PCI Express-x1 slots integrated supporting PCIE LAN card etc.

1-4.6 AC'97 Audio Codec on board

AC'97 Audio Codec Realtek ALC850 on board

- Supporting 8-channel display of PCM audio output
- 8 channel audio consists of Front-Out, Surround-Out, Center-Out, Surround-Back-Out, MIC-In, Line-In, and Front-MIC-In for complete surround sound effect
- SPDIF In/Out connector integrated in Back Panel supported by ALC850 for digital format input/output.
- AC'97 Audio Codec Driver enclosed in Support CD for user's installation.

1-4.7 Advanced System Power Management

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

- ACPI 1.0 compliant (Advanced Configuration and Power Interface)
- APM V1.2 compliant (Legacy Power Management)
- ACPI Suspend function supported
- PS/2 Keyboard & Mouse Wake-up
- Real Time Clock (RTC) with date alarm, month alarm, and century field

1-4.8 IEEE 1394A Interface

The IEEE 1394A Controller, VIA VT6307 chipset on board, providing enhanced PC connectivity for a wide range of devices, including consumer audio/video components, storage periperals, and other portable devices.

- PCI-bus based open host controller, compliant with IEEE 1394A-2000 standard for high performance serial bus
- Supporting two fully compliant ports with Plug and Play-compatible expansion interface. IEEE 1394A controller provides up to 400MB/sec transfer rate to fulfill various requirments of any multimedia devices.

1-4.9 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 Windows 98 and later operating systems; USB drivers provided in Support CD for installation
  -- 4 built-in USB connectors and 2 more USB pin-headers which require 2 optional USB cables to provide 4 more USB ports
- PS/2 Keyboard and PS/2 Mouse
- UARTs (Universal Asynchronous Receiver / Transmitter):
  -- 1 serial port (COM1) on board.

1-4.10 SATA RAID Interface

Serial ATA RAID Interface supported by VT8237:

- Supporting 2 Serial ATA RAID connectors for 2 SATA Hard Disks with 150Mb/s transfer rate
- VT8237 Serial ATA RAID Drivers enclosed in Support CD for user's installation

Serial ATA RAID Interface supported by PDC20579:

- Supporting 2 Serial ATA RAID connectors for 2 serial ATA RAID hard disks with up to 150MB/s transfer rate and an additional Parallel ATA RAID connector for two IDE hard disks with up to 133MB/s transfer rate
- Supporting RAID 0, 1, 0+1 configuration
- PDC20579 SATA RAID Controller Driver enclosed in Support CD / Floppy Disk for user's installation.

1-4.11 Hardware Monitor integrated

- Hardware Monitor integrated, providing monitoring functions on hardware voltage, temperatures and fan speeds.
- Utility Software Soltek Hardware Monitor for displaying monitor status is enclosed in Support CD for user's installation.

1-4.12 Gigabit Ethernet on board

PCI local bus single-chip Gigabit Ethernet Controller RTL8110SB on board:

- Supporting 10/100/1000Mb data transfer
- Supporting Wake On LAN function through the on-board RJ45 LAN Connector

1-4.13 Debug LED on Board

- A Debug LED is built on board to display various digital messages which stand for the running status of the mainboard.
- A Debug LED is built on board to display various digital messages which stand for the running status of the mainboard. The CheckPoint and Beep Code List is enclosed in Appendices of this manual. For further information, please refer to the tables in Appendix describing the type of checkpoints.

1-4.14 Form Factor

- ATX Form Factor, ATX Power Supply
- Mainboard size: 305mm x 245mm

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:

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2-2 Memory Installation 18
2-2.1 To Install DDR SDRAM Module 18
2-2.2 Dual Channel Memory Features 18
2-2.3 DIMM Powered on 19
2-3 PCI Express Slot Installation 19
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2-9.4 LJP1: On-board LAN Controller Select 27
2-10 Other Connectors Configuration 28

2-1 CPU Installation with Socket 939

This series is built with CPU Socket 939 supporting the AMD CPUs Athlon 64:

1. Socket 939 supported by a cooling Fan Base.

2. Pull up the lever to release socket lock.

3. Insert CPU into Socket 939, CPU Pin1 to Socket Pin1.

4. Pull down Lever to fix CPU to Socket 939

5. Install cooling fan into Fan Base.

2-2 Memory Installation

2-2.1 To Install DDR SDRAM Module

- 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 in a socket improperly will damage the memory module and slot.
- Make sure you have the right type of memory module for your mainboard.

2-2.2 Dual Channel Memory Features

- Dual Channel Memory Configuration is formed by couple of identical DDR SDRAMs.
- Matched DIMMs need to have identical density, DRAM technology, DRAM bus width, and equal number of memory banks.
- This series supports up to 4GB unbuffered Dual Channel DDR 400/ 333 SDRAM, with 4 DDR DIMM slots on board. Do not insert other type of modules into these slots.
- The dual memory controller can double the DDR memory bandwidth up to 6.4GB/s with DDR400, 5.4GB/s with DDR333 and 4.2GB/s with DDR266.

184-Pin DIMM Notch Key Definition

To Boot PC with Dual Channel Memory Configuration
Populate Bank A / Bank B / Bank A+Bank B with identical DIMMs

To Boot PC with Single Channel Memory Configuration
Populate DIMM1 / DIMM3 / DIMM1 + DIMM3 with identical DIMMs
(Note: DIMM2 / DIMM4 / DIMM2 + DIMM4 cannot boot PC.)

2-2.3 DIMM Powered on

- LED2 is designed on board to light up as soon as DIMM slots are powered on
- When ever LED2 lights up, it indicats that DIMMs are powered on and no memory module should be removed from or inserted into the DIMM slot.
- To remove or insert a memory module, LED2 should not be on.

LED2 on to indicate that DIMM slots onboard are powered on.

2-3 PCI Express Slot Installation

1) X16 PCI Express Slot is built on board for PCI Express Graphics card attachment, supporting a raw bit-rate of 2.5Gb/s on the data pins. It does not support AGP 1X/2X/4X/8X card

2) 3 slots of PCI Express-x1 are built on board, compliant with PCI Express Base Specification, Revision 1.0a for PCI Express cards (including LAN).

X16 PCI Express Slot

3 PCI Express-x1 slots

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.

IDE Flat Cable

2-5 SATA RAID / Parallel ATA RAID Connectors

2 Serial ATA connectors for 2 SATA Hard Disks with RAID mode are supported by the South Bridge VIA VT8237. Please see Chapter 5 Disk Array Installation for detail RAID installaion.

2 Serial ATA RAID and 1 Parallel ATA RAID connectors are built on board, supported by the RAID Controller PDC20579.
Please see Chapter 6 Promise RAID Setup for detail RAID installaion.

2-6 Floppy Drive Installation

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

FDD Cable

2-7 ATX Power Supply Installation

ATX V2.03 Power Supply is strongly recommended for mainboard running with this mainboard.

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 can 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 the Main Power Connector and the +12V Power Connector should be connected to Power Supply; otherwise, the 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 function.

2-8 Debug LED

A Debug LED is built on board to display various digital messages which stand for the running status of the mainboard. The CheckPoint and Beep Code List is enclosed below for reference.

Code	Post Routine Description
C0	Turn off chipset and CPU test
C1	First block memory detect
03h	Early initialize the Super I/O
Ah	Initialize Mouse
Bh	Initialize onboard audio controller
12h	Check CMOS circuitry and reset CMOS
2Dh	Video memory test
33h	Setup PS/2 Mouse and reset KB
50h	Initialize USB controller
52h	Test memory of above 1MB, using Virtual 8086 mode, page mode and clear memory
5Dh	Initialize onboard super I/O
67h	Initialize ACPI sub-system
6Dh	Initialize floppy disk drive controller and any drive
73h	Initialize hard drive controller and any drive
75h	Detect and install IDE device
77h	Detect and initialize Serial / parallel
85h	Initialize Option ROMs
FFh	Boot

2-9 Jumper Setting

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

JKB1:
Keyboard/Mouse Wake Up

1 **1-2 closed (default)**
Keyboard/Mouse Wake Up
Disabled

1 **2-3 closed**
Keyboard/Mouse Wake Up
Enabled

LJP1:
On-board LAN Select

(default)
1-2 closed
Onboard LAN
Enabled

1-2 closed
Onboard LAN
Disabled

JBAT1:
Clear CMOS

1 **1-2 closed (default)**
To hold data

1 **2-3 closed**
To clear CMOS

SJP1:
Promise RAID Controller Select

1 **1-2 closed (default)**
Promise RAID Enabled

1 **2-3 closed**
Promise RAID Disabled

2-9.0 How to tackle the Jumpers:

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

The conductor inside the cap links two header-pins together.

- A Jumper is usually but not necessarily given a "JpX" legend.
- In the Jumper setting diagram, all jumper pins covered with black marks stand for closed pins with jumper cap.

Jp X

Jumper with Pin 2-3 closed | **Jumper with all pins open** | **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.

2-9.1 JKB1: Keyboard/Mouse Wake-up

JKB1 is designed to enable / disable the PS/2 Keyboard or PS/2 Mouse Wake-up (from suspend mode). Setting JKB1 to 1-2 closed will disable this function while setting JKB1 to 2-3 closed will enable this function. Users still have to choose the KB/Mouse Wake-up mode on BIOS. USB KB/Mouse Wake-up is optionally supported on this mainboard.

JKB1: Keyboard/Mouse Wake Up	
1	**1-2 closed (default)** Keyboard/Mouse Wake Up Disabled
1	**2-3 closed** Keyboard/Mouse Wake Up Enabled

2-9.2 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

2-9.3 SJP1: Promise RAID Controller Select

SJP1 is designed on board to enable / disable the on-board RAID Controller Promise PDC20597.

SJP1: Promise RAID Controller Select	
1	**1-2 closed (default)** Promise RAID Enabled
1	**2-3 closed** Promise RAID Disabled

2-9.4 LJP1: On-board LAN Controller Select

LJP1 is designed on board to enable / disable the on-board LAN Controller VT8110SB.

LJP1: On-board LAN Select	
	(default) **1-2 closed** Onboard LAN Enabled
	1-2 closed Onboard LAN Disabled

2-10 Other Connectors Configuration

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

2-10.1 On-board FAN Connectors

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

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

2-10.2 USB Ports and USB Pin-headers

This Mainboard provides 4 USB ports on board supporting various USB devices. In addition, 2 USB pin-headers are added on board to provide expansion of 4 more optional USB ports by using 2 additional USB Cables. User can order the optional USB cables from your mainboard dealer or vender.

All 8 USB ports are compliant with 1.0 / 2.0 USB Bus. USB 2.0 supports Windows 98 and above. USB 1.0 / 2.0 drivers are provided in Support CD for user's installation.

2-10.3 Chassis Back Panel Connectors

A : PS/2 Mouse
B : COM1 Connector
C : S/PDIF In
D : S/PDIF Out
E : 1394A port
F : RJ45 Connector
G : Line In
H : PS/2 Keyboard
I : 2 USB ports
J : 2 USB ports
K : Line Out /Front Speaker Out
L : Microphone Input
M : Rear Speaker Out
N : Center/Subwoofer Out
O : Side Speaker Out

2-10.4 PS/2 Mouse , PS/2 Keyboard, SPDIF In/Out connector

A - PS/2 Mouse Connector (green, on top)

H - PS/2 Keyboard Connector (purple, underside)

SPDIF- in/out port for Digital Interface Format Input / Output

C - C is SPDIF-In port with pale purple Protective Swing Plate.

D - D is SPDIF-Out port with a gray Protective Swing Plate.

Connect C / D to digital audio device for digital audio signal input / output.

2-10.5 RJ45 Connector

One RJ45 connector is on board for LAN connection, supporting 10/100/1000Mb data transfer.

Orange LED blinks to indicate that data transmission is undergoing in 1000 Base T mode.

Yellow LED "On" to indicate Network hub is in connection with the system.

F (in Back Panel):

Green LED blinks to indicate that data transmission is undergoing in 10/100 Base T mode.

2-10.6 CD-ROM Audio Connectors (CD_In)

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

CD-ROM Audio Connector	
CD-In 1 ●●●■	Pin Signal
Pin 1	Left Channel
Pin 2	GND
Pin 3	GND
Pin 4	Right Channel

2-10.7 Thermal Detector

RT3

RT3 is mounted with Thermal Detector by default for detecting system temperature.

2-10.8 JAUD1: External Audio Connector

This Mainboard is designed with an External Audio connector "JAUD1" which provides connection to your audio connectors on the Front Panel of the PC case.

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

JAUD1: External 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**

2-10.9 Complex Pin-header (Front Panel Connectors)

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

Connect these connectors to PC Front Panel

2-10.10 IEEE 1394a Port/Pin-header

Two IEEE1394a Ports are built on board for Digital Video Cameras and other devices with 1394a interface. Another IEEE 1394a Pin-header is built on board providing one more 1394a channel on the front Panel.

IEEE 1394a Port

VIA
K8T890
VIA
VT8237
RTL
8100B
Dual Channel DDR 400/333MHz
COM1
LPT1
PS/2 KB
PS/2 MS
USB1
USB2
USB3
USB4
PCI1
PCI2
PCI3
PCIE1
PCIE2
PCIE3
IDE1
IDE2
IDE3
FDD1
CMOS
BIOS
CLR CMOS
CPU FAN
SYS FAN
PWR FAN
CPU Socket 939
DIMM1
DIMM2
DIMM3
DIMM4
LED1
LED2
ATX 12V Power
ATX Power
Front Panel
Front Panel Audio
Line Out
Line In
Mic In
Game Port
Audio Port
Rear Panel
Rear Panel Audio
Rear Panel USB
Rear Panel LAN
Rear Panel 1394
Rear Panel Audio
Rear Panel Game Port
Rear Panel Mouse
Rear Panel Keyboard
Rear Panel Parallel
Rear Panel Serial
Rear Panel VGA
Rear Panel Video

2-10.11 Printer Port: LTP1

LTP1 is a parallel printer port.

LTP1: Printer Port

Pin Assignment

Pin 1	STROBE#	Pin 14	AUTOFD#
Pin 2	LPTDD0	Pin 15	ERROR#
Pin 3	LPTDD1	Pin 16	INITA#
Pin 4	LPTDD2	Pin 17	SLCTIN#
Pin 5	LPTDD3	Pin 18	GND
Pin 6	LPTDD4	Pin 19	GND
Pin 7	LPTDD5	Pin 20	GND
Pin 8	LPTDD6	Pin 21	GND
Pin 9	LPTDD7	Pin 22	GND
Pin 10	ACK#	Pin 23	GND
Pin 11	BUSY	Pin 24	GND
Pin 12	PE	Pin 25	GND
Pin 13	SLCT	Pin 26	Key

To Printer Connector on board

To Printer

Printer Cable (optional)

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:

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3-4.1 Installing AC'97 6-channel Audio Driver 42
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3-6.1 Installation 46
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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. We recommand that drivers installation should be started from top to bottom of main menu.

4. Drivers may be updated from time to time in our web site. If you are installing a newer driver than the one illustrated in this chapter, please be aware that the illustration pictures might be different.

3-2 VIA 4-IN-1 Drivers Installation

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

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

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

4. On the screen below, check "Normally Install" and click "Next" to continue. (If you check "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 1.90b

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 USB 2.0 Driver installation

VIA USB V2.0 is already integrated on board. Its 480Mb/s transfer rate supports operating systems Windows 98SE/ME/2000/XP. USB2.0 Driver is typically for Windows 98SE/ME. For Windows 2000/XP, users can install their latest Service Pack instead of the USB2.0 driver to gain the USB2.0 support. For the Windows system which is not installed with its latest Service Pack, users must install the USB2.0 driver to activate the USB2.0 support:

1. 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.

2. Instantly the "USB 2.0 Setup Program" will pop up on screen. Click "Next" to continue.

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

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

3-4 AC'97 Audio Driver Installation

RTL ALC850 8-channel AC97 Audio Codec on board, AC'97 2.3 compatible stereo audio code for PC multimedia systems. AC'97 Audio Codec Driver is provided in Support CD for user's installation.

3-4.1 Installing AC'97 8-channel Audio Driver

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

2. Instantly, the "installShield Wizard" screen appears to guide you through the "AC'97 Audio Setup"".

3. instantly, the Setup program proceeds to install the softwares. (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.

3-4.2 Verifying 8-channel Audio

After installation of AC'97 8-channel Codec, you must configure the 7.1 Speaker connection to enable the 8-channel audio.

1. Connect your on-board Audio Connector to your 8-channel speakers as depicted in the figure below:

Back Panel Audio Connectors

2. After Connection is done, start your Windows system and double click the Sound manager icon to enter 8-channel configuration:

3. The AC'97 Audio Configuration" screen will pop out. Clikc the "Speaker Configuration" bar with your mouse.

4. Instantly, the "Speaker Configuration" screen will pop out. Pick the items "8-channelSpeaker" and then click on the Auto Test button. Instantly, the Speaker Auto-test starts until all speakers installed are tested.

3-5 LAN Driver Installation

1. Following the procedures of opening the Support CD, click to " Onboard LAN Driver" to proceed.

2. Instantly, the InstallShield Wizard for Realtek Gigabit and Fast Ethernet NIC Driver pops out to start driver setup. Click NEXT to continue.

2. Instantly, installation proceeds.

3. In a few seconds, installation completes. Click FINISH tocomplete setup.

3-6 To Install Hardware Monitor Utility

3-6.1 Installation

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

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

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

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

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

3-6.2 Verification

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

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

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

3-7 RAID Driver Installation

For SATA RAID Driver Setup, please refer to Chapter 5/6 for detailed installation guide.

Chapter 4 BIOS Setup

THE BIOS

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 49
4-2 To Run BIOS Setup 49
4-3 About CMOS 49
4-4 The POST (Power On Self Test) 49
4-5 To Upgrade BIOS 50
4-5.1 Before Upgrading BIOS 50
4-5.2 Upgrade Process 50
4-6 BIOS SETUP --- CMOS Setup Utility 54

Attention: The BIOS Setup is subject to constant update without further notice to users. It is necessary for users themselves to update onboard BIOS with the latest BIOS version provided in our web site: http://www.soltek.com.tw

4-1 About BIOS Setup

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

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

4-2 To Run BIOS Setup

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

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

4-3 About CMOS

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

4-4 The POST(PowerOn SelfTest)

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 update BIOS without the need to replace an EPROM component.
- The Update Utility should be loaded on a floppy diskette for updating, saving, and verifying the system BIOS.

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

Step 1. Please visit Soltek website: www.soltek.com.tw, download the .zip files of the latest BIOS and BIOS-update utility into your hard disk for your mainboard.

Choose the Model you want to update here.

Click on "Go" to download the BIOS and BIOS-update Utility to your hard disk first.

Step 2. Create a bootable diskette. Then copy the BIOS file and BIOS-Update utility (an execution file) into the diskette.

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

Step 4. Under " A " prompt, type on the DOS screen the BIOS-Update Execution file name and the BIOS file name with a space between them and then press <Enter> to run BIOS update program.

A:\> **BIOS-update Execution file name** [ ] **BIOS file name.Extension**

Should type a space here

Step 5. When the message "Flash ROM Update Completed - Pass." appears, please restart your system.You have now updated the system BIOS successfully.

BIOS Update Illustration:

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

```
AwardBIOS Flash Utility V8.24F
(C)Phoenix Technologies Ltd. All Rights Reserved

For K8T800-8237-6A7L0SAAC-00     Date: 09/18/2003

File Name to Program : K8AV2008.BIN

Message: Input the (BIOS) file name
```

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

```
AwardBIOS Flash Utility V8.24F
(C)Phoenix Technologies Ltd. All Rights Reserved

For K8T800-8237-6A7L0SAAC-00     Date: 09/18/2003

File Name to Program : K8AV2008.BIN

Message:  Do You Want To Save BIOS (Y/N)
```

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

```
AwardBIOS Flash Utility V8.24F
(C)Phoenix Technologies Ltd. All Rights Reserved

For K8T800-8237-6A7L0SAAC-00     Date: 09/18/2003

File Name to Program : K8AV2008.BIN

Message:  Press “Y” to Program or “N” to Exit
```

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

```
AwardBIOS Flash Utility V8.24F
(C)Phoenix Technologies Ltd. All Rights Reserved

For K8T800-8237-6A7L0SAAC-00      Date: 09/18/2003
Flash Type - SST 39SF020 /5V

File Name to Program : k8av2008.bin

        Writing Flash Memory - 0FE00 OK
        ▇▇▇▇▇▇▇▇▯▯▯▯▯▯▯▯▯▯
▯ Write OK    ▌ No Update    ▌ Write Fail

Warning: Don't Turn Off Power Or Reset System !
```

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

```
AwardBIOS Flash Utility V8.24F
(C)Phoenix Technologies Ltd. All Rights Reserved

For K8T800-8237-6A7L0SAAC-00      Date: 09/18/2003
Flash Type - SST 39SF020 /5V

File Name to Program : k8av2008.bin

                Flashing Complete
    Remove Floppy Diskette & Hit <F1> to Continue
    ▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇
    ▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▯▯▯▯▯▯▯▯▯▯
▯ Write OK    ▌ No Update    ▌ Write Fail

F1 Reset
```

4-6 BIOS SETUP --- CMOS Setup Utility

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

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

4-6.1 CMOS Setup Utility

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

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

   PRESS <DEL> TO ENTER SETUP

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

Phoenix - AwardBIOS CMOS Setup Utility

▶ Standard CMOS Features	▶ CPU Ratio/Voltage Control
▶ Advanced BIOS Features	Load Optimized Defaults
▶ Advanced Chipset Features	Set Supervisor Password
▶ Integrated Peripherals	Set User Password
▶ Power Management Setup	Save & Exit Setup
▶ PnP/PCI Configurations	Exit Without Saving
▶ SmartDoc Anti-Burn Shield	
Esc: Quit F10: Save & Exit Setup	↑↓←→ : Select Item
Time, Date, Hard Disk Type...	

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

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

(1) Use the arrow keys on your keyboard to select an option, and press <Enter>. Modify the system parameters to reflect the options installed in your system.

(2) Press <Enter> to select item or option.

(3) +/- /PU/PD: To adjust or select value.

(4) F10: Save configuration.

(5) Esc: Press <Esc> key to get out of the menu on screen.

(6) F1: Press F1 to display General Help List.

(7) F5: Press F5 to restore the Previous Value.

(8) F6: Press F6 to load the Fail-Safe default values.

(9) F7: Press F7 to load the Optimized Default Values.

4. You may return to the Main Menu anytime by pressing <ESC>.
5. In the Main Menu, “SAVE AND EXIT SETUP” saves your changes and reboots the system, and “EXIT WITHOUT SAVING” ignores your changes and exits the program.

Attention: The BIOS Setup is subject to constant update without further notice to users. It is necessary for users themselves to update onboard BIOS with the latest BIOS version provided in our web site: http://www.soltek.com.tw

4-6.2 Standard CMOS Setup

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

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

Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features

		Item Help
Date (mm:dd:yy)	Fri, Sep 5 2003	Menu Level ▶
Time (hh:mm:ss)	9 : 41 : 11	Change the day, month, year and century
IDE Channel 0 Master	WDC WD400BB-00DEA0	
IDE Channel 0 Slave	None	
IDE Channel 1 Master	None	
IDE Channel 1 Slave	None	
Drive A	1.44M, 3.5 in.	
Drive B	None	
Video	EGA/VGA	
Halt On	All Errors	
Base Memory	640K	
Extended Memory	252928K	
Total Memory	253952K	

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

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

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

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

Phoenix - AwardBIOS CMOS Setup Utility
IDE Primary Master

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

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

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

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

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

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

Total Memory This option shows system memory capacity.

4-6.3 Advanced BIOS Features

Advanced BIOS Features improves your system performance or sets up system features according to your preference.
Choose “Advanced BIOS Features” from the Main Menu and a screen with a list of options will appear:

Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features

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

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

Hard Disk Boot Priority

Press <Enter> to reveal the hard disk list. Then press Up/Down Arrow key to select a hard disk, and then press<+>/<-> key to move it up or down the list so as to set up the boot priority.

1. Ch1 M. : Maxtor xxxxxxx 2. Chi S. : STxxxxxxxxxxx 3. Bootable Add-in Cards	Item Help Menu Level ▶

Virus Warning If enabled, BIOS will show a warning message on screen whenever anyone attempts to write data into HDD boot sector.

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

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

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

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

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

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

Boot Up NumLock Status Toggle between On or Off to control the state of the NumLock key when the system boots. If On, the numeric keypad is in numeric mode. If off, the numeric keypad is in cursor control mode.

Typematic Rate Setting When *Disabled*, the following two items (Typematic Rate and Typematic Delay) are irrelevant. Keystroke repeats at a rate determined by the keyboard controller in your system.
When *Enabled*, you can select a typematic rate and typematic delay.

X Typematic Rate (Chars / Sec) When the typematic rate setting is enabled, you can select a typematic rate (the rate at which character repeats when you hold down a key) of 6, 8, 10, 12, 15, 20, 24, or 30 characters per second.

X Typematic Delay (Msec) Choices: 250; 500; 750; 1000. This option sets the time interval for displaying the first and the second characters. If enabled, the time interval is optional.

Security Option If you have set a password, select whether the password is required every time the System boots, or only when you enter setup.
Choices: System; Setup(default)

APIC Mode To enable / disable the APIC mode.

OS Select For DRAM > 64MB Select OS2 only if you are running OS/2 operating system with greater than 64MB of RAM on your system.

Video BIOS Shadow To enable / disable Video BIOS Shadow function. To enable the function will copy Video BIOS to shadow RAM to improve performance.

4-6.4 Advanced Chipset Features

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

Run the Advanced Chipset Features as follows:

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

Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features

		Item Help
▶ DRAM Configuration	Press Enter	Menu Level ▶
▶ LDT & PCI Bus Control	Press Enter	DRAM timing and control
Memory Hole	Disabled	
VLink Mode Selection	Mode 4	
PCIE Land Width	Auto	
System BIOS Cacheable	Disabled	
Top Performance	Disabled	

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

▸ DRAM Configuration:

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

Current FSB Frequency	BIOS shows the actual Front Side Bus frequency.
Current DRAM Frequency	BIOS shows the actual DRAM frequency.
Max Memclock (Mhz)	Choose the max. memory clock. Choice: 100; 133; 166; Auto
1T/2T Memory Timing	Choose the memory timing. Choices: Auto; 1T; 2T
CAS# latency (Tcl)	Choose the CAS# latency feature. Choices: Auto; 2.0; 2.5; 3.0
RAS# to CAS# delay (Trcd)	Choose the RAS to CAS delay time. Choices: Auto; 2; 3; 4; 5; 6; 7
Min RAS# active time	Choose the minimum RAS active time. Choices: Auto; 5; 6; 7; 8; 9; 10; 11; 12; 13; 14; 15
Row Precharge Time (Trp)	Choose the Row Precharge time. Choices: Auto; 2; 3; 4; 5; 6

▸ LDT & PCI Bus Control:

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

Upstream LDT Bus Width	To set Upstream LDT BUS Width. Choices: 8 bit; 16 bit
Downstream LDT Bus Width	To set Downstream LDT BUS Width. Choices: 8 bit; 16 bit
LDT Bus Frequency	To set LDT Bus Frequency. Choices: 200MHz; 400MHz; 600MHz; 800MHz; 1GHz
PCI1 Master 0 WS Write	To enable / disable the support of PCI1 Master 0 Wait State Write.
PCI2 Master 0 WS Write	To enable / disable the support of PCI2 Master 0 Wait State Write.
PCI1 Post Write	To enable / disable the support of PCI1 Post Write.
PCI2 Post Write	To enable / disable the support of PCI2 Post Write.
PCI Delay Transaction	To enable / disable the PCI Delay Transaction function.

Memory Hole	To enabled / disabled (default) the support of Memory Hole which is reserved for ISA card. Choices: Disabled; 15MB-16MB
VLink Mode Selection	To select VLINK mode. Choices: Mode0; Mode1; Mode2; Mode3; Mode4
PCIE Land width	To select PCIE Land width. Choices: Auto; 8X; 16X
System BIOS Cacheable	Selecting Enabled allows caching of the system BIOS ROM at F0000h-FFFFFh, resulting in better system performance.
Performance Mode	To select Performance mode. Choices: Normal; Fast; Ultra

4-6.5 Integrated Peripherals

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

Run the Integrated Peripherals as follows:

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

Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals

		Item Help
▶ VIA onChip IDE Device	Press Enter	
▶ VIA onChip PCI Device	Press Enter	
▶ Super IO Device	Press Enter	

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

4-6.5.1. VIA OnChip IDE Device

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

VIA OnChip IDE Device

		Item Help
OnChip SATA/RAID	Enabled	
SATA Mode	IDE	
Promise 579 Mode	SATA	
IDE DMA transfer access	Enabled	
OnChip IDE Channel10	Enabled	
OnChip IDE Channel11	Enabled	
IDE Prefetch Mode	Enabled	
Primary Master PIO	Auto	
Primary Slave PIO	Auto	
Secondary Master PIO	Auto	
Secondary Slave PIO	Auto	
Primary Master UDMA	Auto	
Primary Slave UDMA	Auto	
Secondary Master UDMA	Auto	
Secondary Slave UDMA	Auto	
IDE HDD Block Mode	Enabled	

VIA OnChip IDE Device:

To press< Enter > on VIA OnChip IDE Device will reveal following items.

OnChip SATA/RAID	To enable/disable the SATA/RAID interface.
SATA Mode	To select the SATA Mode. Choices: IDE; RAID
Promise 579 Mode	To select the SATA mode of the Promise 579 chip. Choices: SATA; RAID; Disabled
IDE DMA transfer access	To enable/disable the IDE direct memory access transfer function.
On-Chip IDE Channel 10/11	The chipset contains a PCI IDE interface with support from two IDE channels. Select Enabled to activate the first and/or the second IDE interface. Select Disabled to inactivate an interface if you install a primary and/or second add-on IDE interface. Choices: Enabled; Disabled
IDE Prefetch Mode	The on-board IDE drive supports IDE prefetching for faster drive accesses. If the IDE device doesn't support prefetching, set this field to Disabled. The choices: Enabled; Disabled
Primary Master / Slave PIO **Secondary Master / Slave PIO**	Choose Auto or Mode 0~4. The BIOS will detect the HDD mode type automatically when you choose Auto. You need to set to a lower mode than Auto when your hard disk becomes unstable. Choices: Auto(default); Mode 0; Mode 1; Mode 2; Mode 3; Mode 4
Primary Master / Slave UDMA **Secondary Master / Slave UDMA**	Ultra DMA33/66/100/133 implementation is possible only if your IDE hard drive supports it, if the operating environment includes a DMA drive, and if your system software supports Ultra DMA33/66/100/133. Select "Auto" to enable BIOS support. Choices: Auto(default); Disabled
IDE HDD Block Mode	Block mode is also called block transfer, multiple commands, or multiple sector read/write. If your IDE hard drive supports block mode (most new drives do), select Enabled for automatic detection of the optimal number of block read/write per sector the drive can support.

4-6.5.2. VIA OnChip PCI Device:

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

		Item Help
AC97 Audio	Enabled	
OnChip USB Controller	All Enabled	
OnChip EHCI Controller	Enabled	
USB Device Function	Disabled	
USB Emulation	Off	
x USB Keyboard Support	Disabled	
x USB Mouse Support	Disabled	

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

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

OnChip EHCI Controller To enable/disable the onchip EHCI (USB2.0) controller.

USB Device Function To enable/disable the USB Device Function

USB Emulation To enable/disable the USB emulation on DOS. Choices: off; K/B/Ms; On

x USB Keyboard/ Mouse Support If USB Emulation is set at K/B / Mouse, this item allows you to enable/disable the USB keyboard / Mouse support.

4-6.5.3. Super IO Device:

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

		Item Help
Onboard FDC Controller	Enabled	
Onboard Serial Port 1	Auto	
Onboard Serial Port 2	Auto	
UART Mode Select	Normal	
x UR2 Duplex Mode	Half	
Onboard Parallel Port	378/IRQ7	
Parallel Port Mode	SPP	
x ECP Mode Use DMA	3	

Onboard FDC Controller To enable/disable the onboard Floppy Disk Drive Controller.

Onboard Serial Port 1 / Port 2 Select an address and corresponding interrupt for the first/second serial port.
Choices: Disabled; Auto;
3F8/IRQ4; 2F8/IRQ3;
3E8/IRQ4; 2E8/IRQ3

UART Mode Select The serial port on your system may offer a variety of infrared port modes. Click here for a description of various modes.
The choices: Normal; IrDA; ASKIR; SCR

x UR2 Duplex Mode This options controls the operating mode between receiving and transmitting of IrDA or ASKIR or SCR.
Choices: Half (asynchronous); Full (synchronous)

Onboard Parallel Port This item allows you to determine onboard parallel port controller I/O address setting.
Choices: 378H/IRQ7; 278H/IRQ5; 3BC/
IRQ7; Disabled

Parallel Port Mode Select an operating mode for the on-board parallel (printer) port.
Choices: SPP; EPP; ECP; ECP+EPP

x ECP mode Use DMA Select a DMA channel for the port when you choose ECP or ECP+EPP mode for the Parallel Port Mode.
Choices: 1; 3

4-6.6 Power Management Setup

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

Run the Power Management Setup as follows:

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

Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup

		Item Help
ACPI function	Enabled	
ACPI Suspend Type	S1(POS)	
Power Management Option	User Define	
HDD Power Down	Disabled	
Suspend Mode	Disabled	
Video Off Option	Suspend -> Off	
Video Off Method	V/H SYNC+Blank	
MODEM Use IRQ	3	
Soft-off by PBTN	Instant-off	
Run VGABIOS if S3 Resume	Auto	
AC Loss Auto Restart	Off	
AMD K8 Cool'n'Quiet control	Auto	
▶ IRQ/Event Activity Detect	Press Enter	

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

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

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

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

HDD Power Down When enabled after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

Suspend Mode When enabled after the set time of system inactivity, the whole system will be suspended.

Video Off Option To set Video Off mode of the system.
Choices: Always On; Suspend -> Off

Video Off Method This determines the manner by which the monitor is blanked.
Choices:
Blank Screen:- Blank signal to the Video buffer;
V/H sync+Blank:- Blank signal to Video buffer, with Vertical and Horizontal ports off;
DPMS Support:- To select video power management values with Display Power management Signaling support;

MODEM Use IRQ To set IRQ Modem should use. If users do not have a modem, please set NA.

Soft-Off by PBTN To turn off the system instantly or after 4 seconds by power button.

Run VGABIOS if S3 Resume To enable/disable to run VGABIOS if S3 Resume.
Choices: Auto; Yes; No

AC Loss Auto Restart To select Restart mode after AC loss.
Choices: Off; On; Former Status

AMD K8 Cool 'n' Quiet Control To disable /Autorun the AMD K8 CPU cool and quiet control.

IRQ/Event Activity Detect:

To press< Enter > on IRQ/Event Activity Detect will reveal following items.

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

IRQs Activity Monitoring:

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

Primary Intr.	To turn on/off the Interrupt configuration.
IRQ3,4,5,6,7,9,10,11,12, 13,14,15	To enable/disable IRQ Assignment.

4-6.7 PnP / PCI Configuration

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

Run the PnP/PCI Configuration as follows:

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

Phoenix - AwardBIOS CMOS Setup Utility
PnP PCI Configurations

		Item Help
PNP OS Installed	No	
Reset Configuration Data	Disabled	
Resources Controlled by	Auto(ESCD)	
x IRQ Resources	Press Enter	
PCI/VGA Palette Snoop	Disabled	
Assign IRQ For VGA	Enabled	
Assign IRQ For USB	Enabled	
** PCI Express relative items **		
Maximum Payload Size	4096	

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

↑↓←→

PNP OS Installed Allows you to configure the PNP devices by BIOS or O/S.
Choices: No(by BIOS); Yes(by O/S)

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

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

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

Phoenix - AwardBIOS CMOS Setup Utility
IRQ Resources

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

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

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

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

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

Maximum Payload Size To set the maximum TLP payload size (unit in byte) for the PCI Express devices.
Choices: 128; 256; 512; 1024; 2048; 4096

4-6.8 SmartDoc Anti-Burn Shield

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

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

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

Phoenix - AwardBIOS CMOS Setup Utility
SmartDoc Anti-Burn Shield

		Item Help
Vcore	1.56V	
VDIMM	2.51V	
+3.3V	3.26 V	
+5V	5.02V	
+12V	11.75V	
-12V	-11.74V	
-5V	-5.10V	
+5Vsb	5.05V	
Voltage Battery	3.24V	
System Temp.	33˚C	
CPU Internal Temp.	27˚C	
CPU FAN Speed	5232 RPM	
System FAN Speed	0 RPM	

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

Vcore Shows CPU core actual voltage value.

VDIMM Shows DIMM actual voltage value.

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

Voltage Battery Shows voltage value of the battery on board.

System Temp. Shows current system temperature.

CPU Internal Temp. Shows current CPU internal temperature.

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

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

4-6.9 CPU Ratio/Voltage Control

Choose "CPU Ratio/Voltage Control" from the Main Menu and a screen with a list of options will appear:

Phoenix - AwardBIOS CMOS Setup Utility
CPU Ratio/Voltage Control

		Item Help
CPU Ratio Control	StartUp	
CPU Vcore Select	Default	
DIMM Voltage Select	Default	
Auto Detect PCI Clk	Enabled	
Spread Spectrum	Disabled	
CPU Clock	200MHz	
Async AGP/PCI clock	Enabled	
Async PCIEX Clock	Disabled	
x Linear PCIEX clock	100MHz	

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

CPU Ratio Control To select the CPU clock ratio.
Choices: Startup; 200MHz x4~x9;

CPU Vcore Select To configure the CPU Voltage. Usually, to raise CPU voltage will raise the chance of CPU overclocking and yet risk damage of CPU.
Choices: Default;
0.800V ~1.550V in 0.25V stepping

DIMM Voltage Select To configure the DIMM Voltage.
Choices: 2.6V; 2.65V; 2.7V; 2.75V

Auto Detect PCI Clk To enable / disablethis auto detection function on PCI clock.

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

CPU Clock This item allows you to set CPU Clock.
Choices: 200MHz ~300MHz in 1MHz stepping.
(Key in a decimal number to select CPU clock.)

Async AGP/PCI clock To enable / disablethis Asynchronous AGP/PCI clock.

Async PCIEX Clock To enable/disable the Asynchronous PCIEX Clock.
Choices: Enabled; Disabled

x Linear PCIEX clock If Async PCIEX clock is enabled, this item allows you to adjust the PCIEX clock.
Choices: Min.=100; Max=150 (key in a dec. no.)

4-6.10 Load Optimized Defaults

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

" Load Optimized Defaults (Y / N) ? N "

Phoenix - AwardBIOS CMOS Setup Utility

▶ Standard CMOS Features	▶ Frequence/Voltage Control
▶ Advanced BIOS Features	Load Optimized Defaults
▶ Advanced Chipset Features	Set Supervisor Password
▶ Integrated Peripherals	Set User Passward
▶ Power management	t Setup
▶ PnP/PCI Configurat	ut Saving
▶ SmartDoc Anti-Burn Shield	
Esc: Quit F10: Save & Exit Setup	↑↓→← : Select Item
Load Optimized Defaults	

Load Optimized Defaults [Y/N] Y

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

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

4-6.11 Set Supervisor / User Password

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

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

"Enter Password : "

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

"Confirm Password : "

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

4-6.12 Save & Exit Setup

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

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

"Y" is for "Yes", and "N" is for "No".
Press <Enter> key to save the configuration changes.

4-6.13 Exit Without Saving

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

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

"Y" is for "Yes", and "N" is for "No".
You may change the prompt to "Y" and press <Enter> key to leave this option .

Memo

Chapter 5 VT8237 SATA RAID

THE VIA SATA RAID Controller VT8237 & RAID Driver

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 mainboard is integrated with VT8237 SATA RAID as well as Promise PDC20378 SATA RAID interface. But they cannot be configured into one RAID system. They should be configured separately as two RAID systems.

This Chapter is to introduce the VT8237 SATA RAID Configurations :

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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 perfornance 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 array are recognized as a single physical drive to the system.

5-0-3 Disk Array Types Supported by VT8237

Different types or modes of Disk Array have different formation models and functions. The South Bridge on this mainboard supports only two types of Disk Arrays: RAID 0 and RAID 1, but not RAID 0+1.

1. RAID 0 (or Striping mode):
   RAID 0 is a group of 2 to 4 Disk Drives configured together with RAID technology to provide better data transfer performance than a single drive since the workload is balanced between the array members. Reads and Writes of RAID 0 data are interleaved between multiple drives. When any disk member fails, it affects the entire array. The disk array size is equal to the number of drive members times the smallest member capacity. For example, one 1GB and three 1. 2GB drives will form a 4GB (4x1GB) disk array.
2. RAID 1 (or Mirroring mode):
   RAID 1 is a group of 2 Disk Drives configured together with RAID Technology to provide the fault tolerance function. Writes duplicate data on to RAID 1 while reads are performed in parallel. If one of the mirrored drives suffers a mechanical failure (e.g. spindle failure) or does not respond , the remaining drive will continue to function. This is called Fault Tolerance.
   The drive capacity of RAID 1 is half the total drive capacity of two equal-size drive.

5-1 First Step to Set Up SATA RAID System

2 Serial ATA connectors for 2 SATA Hard Disks with RAID mode are supported by the South Bridge VIA VT8237. Please see Chapter 5 Disk Array Installation for detail RAID installaion.

5-2 Enable SATA-RAID Interface with System BIOS

(1) Boot system and watch for the following initial screen to appear:

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

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

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

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

VIA OnChip IDE Device

		Item Help
OnChip SATA/RAID	Enabled	
SATA Mode	RAID	
Promise 579 Mode	SATA	
IDE DMA transfer access	Enabled	
OnChip IDE Channel10	Enabled	
OnChip IDE Channel11	Enabled	
IDE Prefetch Mode	Enabled	
Primary Master PIO	Auto	
Primary Slave PIO	Auto	
Secondary Master PIO	Auto	
Secondary Slave PIO	Auto	
Primary Master UDMA	Auto	
Primary Slave UDMA	Auto	
Secondary Master UDMA	Auto	
Secondary Slave UDMA	Auto	
IDE HDD Block Mode	Enabled	

OnChip SATA/RAID To enable/disable the South Bridge SATA interface.

SATA Mode To select RAID mode for RAID setup.

5-3 To Enter VIA Tech. RAID BIOS Setup

Reboot the system with “OnChip SATA” enabled in system BIOS Setup and watch for the following initial screen to appear:

VIA Technologies, Inc. VIA VT8237 Serial RAID BIOS Setting Utility V2.10 Copyright (C) VIA Technologies, Inc. All right reserved.

Scan Devices, Please wait ....
Press < Tab > key into User Window!
Channel 0 Master: ST380023AS
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.

VIA Tech. VT8237 SATA RAID BIOS Ver 2.10

- Create Array
- Delete Array
- Create/Delete
- Spare
- Select Boot Array
- Serial Number View

Create A RAID array with the hard disks attatched to VIA RAID controller

F1 : View Array/disk Status
↓ ↑ : Move to next item
Enter : Confirm the selection
ESC : Exit

Channel	Drive Name	Array Name	Mode	Size(GB)	Status
Channel0 Master	ST380023AS		ATA 133	74.53	Hdd
Channel0 Slave	No Drive				
Channel1 Master	ST380023AS		ATA 133	74.53	Hdd
Channel1 Slave	No Drive				

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.

VIA Tech. VT8237 SATA RAID BIOS Ver 2.10

- Auto Setup For Data Security
- Array Mode RAID 1 (Mirroring)
- Select Disk Drives
- Start Create Process

Create A RAID array with the hard disks attatched to VIA RAID controller

F1 : View Array/disk Status
↓ ↑ : Move to next item
Enter : Confirm the selection
ESC : Exit

Channel	Drive Name	Array Name	Mode	Size(GB)	Status
Channel0 Master	ST380023AS		ATA 133	74.53	Hdd
Channel0 Slave	No Drive				
Channel1 Master	ST380023AS		ATA 133	74.53	Hdd
Channel1 Slave	No Drive				

(5-4-2) When you press <Enter> on the “Array Mode RAID 1 (Mirroring) ” bar, the following screen shows up. Press <Enter>on either RAID0 or RAID1 bar to select the RAID mode.

VIA Tech. VT8237 SATA RAID BIOS Ver 2.10

- RAID 0 for performance
- RAID 1 for data protection
- RAID 0/1
- RAID SPAM for capacity

Create A RAID array with the hard disks attatched to VIA RAID controller

F1 : View Array/disk Status
↓ ↑ : Move to next item
Enter : Confirm the selection
ESC : Exit

Channel	Drive Name	Array Name	Mode	Size(GB)	Status
Channel0 Master	ST380023AS		ATA 133	74.53	Hdd
Channel0 Slave	No Drive				
Channel1 Master	ST380023AS		ATA 133	74.53	Hdd
Channel1 Slave	No Drive				

(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.

VIA Tech. VT8237 SATA RAID BIOS Ver 2.10

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

Channel	Drive Name	Array Name	Mode	Size(GB)	Status
Channel0 Master	ST380023AS		ATA 133	74.53	Hdd
Channel0 Slave	No Drive				
Channel1 Master	ST380023AS		ATA 133	74.53	Hdd
Channel1 Slave	No Drive				

(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.

VIA Tech. VT8237 SATA RAID BIOS Ver 2.10

▶ Auto Setup For Performance ▶ Array Mode RAID 0 (Striping) ▶ Select Disk Drives ▶ Block Size 64K ▶ Start Create Process You will create array automatically, Are you sure? Continue? Press Y/N	Create A RAID array with the hard disks attatched to VIA RAID controller F1 : View Array/disk Status ↓ ↑ : Move to next item Enter : Confirm the selection ESC : Exit

Channel	Drive Name	Array Name	Mode	Size(GB)	Status
Channel0 Master	ST380023AS		ATA 133	74.53	Hdd
Channel0 Slave	No Drive				
Channel1 Master	ST380023AS		ATA 133	74.53	Hdd
Channel1 Slave	No Drive				

(5-4-5) Instantly, the RAID 0 Striping mode is set up and shown on the screen. Then press <Escape> key to exit the screen.

VIA Tech. VT8237 SATA RAID BIOS Ver 2.10

- ▶ Create Array
- ▶ Delete Array
- ▶ Create/Delete Spare
- ▶ Select Boot Array
- ▶ Serial Number View

Set/Clear bootable array

F1 : View Array/disk Status
↓ ↑ : Move to next item
Enter : Confirm the selection
ESC : Exit

Channel	Drive Name	Array Name	Mode	Size(GB)	Status
[ ]Channel0 Master	ST380023AS	ARRAY 0	ATA 133	74.53	Stripe 0
Channel0 Slave	No Drive				
[ ]Channel1 Master	ST380023AS	ARRAY 0	ATA 133	74.53	Stripe 1
Channel1 Slave	No Drive				

(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.

VIA Tech. VT8237 SATA RAID BIOS Ver 2.10

- ▶ Create Array
- ▶ Delete Array
- ▶ Create/Delete Spare
- ▶ Select Boot Array
- ▶ Serial Number View

Set/Clear bootable array

F1 : View Array/disk Status
↓ ↑ : Move to next item
Enter : Confirm the selection
ESC : Exit

Channel	Drive Name	Array Name	Mode	Size(GB)	Status
Channel0 Master	ST380023AS	ARRAY 0	ATA 133	74.53	Stripe 0
Channel0 Slave	No Drive				
Channel1 Master	ST380023AS	ARRAY 0	ATA 133	74.53	Stripe 1
Channel1 Slave	No Drive				

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

VIA Tech. VT8237 SATA RAID BIOS Ver 2.10

▶ Create Array ▶ Delete Array ▶ Create/Delete ▶ Spare ▶ Select Boot Array ▶ Serial Number View	Set/Clear bootable array F1 : View Array/disk Status ↓ ↑ : Move to next item Enter : Confirm the selection ESC : Exit

Channel	Drive Name	Array Name	Mode	Size(GB)	Status
[ ]Channel0 Master	ST380023AS	ARRAY 0	ATA 133	74.53	Stripe 0
Channel0 Slave	No Drive				
[ ]Channel1 Master	ST380023AS	ARRAY 0	ATA 133	74.53	Stripe 1
Channel1 Slave	No Drive				

(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.

VIA Tech. VT8237 SATA RAID BIOS Ver 2.10

▶ Create Array ▶ Delete Array ▶ Create/Delete Spare ▶ Select Boot Array ▶ Serial Number View	Set/Clear bootable array F1 : View Array/disk Status ↓ ↑ : Move to next item Enter : Confirm the selection ESC : Exit

Channel	Drive Name	Array Name	Mode	Size(GB)	Status
[*] Channel0 Master	ST380023AS	ARRAY 0	ATA 133	74.53	Boot
Channel0 Slave	No Drive				
[*]Channel1 Master	ST380023AS	ARRAY 0	ATA 133	74.53	Boot
Channel1 Slave	No Drive				

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

(5-5-1) If you wants to change the RAID mode, say, from RAID 0 to RAID 1, you must return to the Initial RAID BIOS Setup screen. Then, press the “Arrow” key to mark the “Delete Array” bar and press <Enter>.

VIA Tech. VT8237 SATA RAID BIOS Ver 2.10

- Create Array
- Delete Array
- Create/Delete Spare
- Select Boot Array
- Serial Number View

Delete a RAID array contain the hard disks attatched to VIA RAID controller

F1 : View Array/disk Status
↓ ↑ : Move to next item
Enter : Confirm the selection
ESC : Exit

Channel	Drive Name	Array Name	Mode	Size(GB)	Status
Channel0 Master	ST380023AS	ARRAY 0	ATA 133	74.53	Boot
Channel0 Slave	No Drive				
Channel1 Master	ST380023AS	ARRAY 0	ATA 133	74.53	Boot
Channel1 Slave	No Drive				

(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.

VIA Tech. VT8237 SATA RAID BIOS Ver 2.10

- Create Array
- Delete Array
- Create/Delete Spare
- Select Boot Array
- Serial Number View

Delete a RAID array contain the hard disks attatched to VIA RAID controller

F1 : View Array/disk Status
↓ ↑ : Move to next item
Enter : Confirm the selection
ESC : Exit

Channel	Drive Name	Array Name	Mode	Size(GB)	Status
[ ] Channel0 Master	ST380023AS	ARRAY 0	ATA 133	74.53	Boot
Channel0 Slave	No Drive				
[ ]Channel1 Master	ST380023AS	ARRAY 0	ATA 133	74.53	Boot
Channel1 Slave	No Drive				

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

VIA Tech. VT8237 SATA RAID BIOS Ver 2.10

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

Channel	Drive Name	Array Name	Mode	Size(GB)	Status
[*] Channel0 Master	ST380023AS	ARRAY 0	ATA 133	74.53	Boot
Channel0 Slave	No Drive				
[*]Channel1 Master	ST380023AS	ARRAY 0	ATA 133	74.53	Boot
Channel1 Slave	No Drive				

(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.

VIA Tech. VT8237 SATA RAID BIOS Ver 2.10

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

Channel	Drive Name	Array Name	Mode	Size(GB)	Status
Channel0 Master	ST380023AS		ATA 133	74.53	Hdd
Channel0 Slave	No Drive				
Channel1 Master	ST380023AS		ATA 133	74.53	Hdd
Channel1 Slave	No Drive				

5-6 To Install SATA RAID Driver

SATA-RAID Driver is incorporated in Support CD/Floppy Disk for user's installation. The Driver Floppy Disk is needed for SATA RAID installation on Windows 2K/XP. If you cannot find this Driver Floppy Disk in the mainboard package, you can make one by copying the driver from the Driver CD into a Floppy Disk.

5-6-1 To Install SATA RAID Driver on Windows 2000/XP

(1) Get ready the Floppy Diskette holding the RAID Driver.
(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 2000/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 Windows 2000/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 RAID Driver on Windows 98SE/ME

(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 Windows 98SE/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. You should **now** insert the SATARAID Driver CD/Diskette into CD-ROM/Drive A.

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

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

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

Chapter 6 PDC20579 RAID

Promise RAID Controller PDC20579

Promise RAID (Redundant Array of Independent Disks) Controller PDC 20579 is to provide RAID configuration of RAID 0, RAID 1, and RAID 0+1 modes, while it also support. RAID Drivers are enclosed in a Driver CD as well as a Floppy diskette to support various RAID systems (Windows 98SE/Me/2000/XP) setup.

This Chapter is to introduce the PDC20579 RAID system setup :

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6-0 About Disk Array

6-0-1 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 perfornance and/or data fault tolerance.

6-0-2 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 array are recognized as a single physical drive to the system.

6-0-3 Disk Array Types Supported by PDC20579

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.

3. RAID 0+1 (Mirror/Stripe):
   RAID 0+1 is formed by a RAID 0 member mirrored to another RAID member to establish a RAID 0+1 Array. RAID 0+1 requires at least 4 disk drive to set up the RAID 0+1 configuration.

6-1. SATA RAID and PATA RAID with PDC20579

2 Serial ATA RAID and 1 Parallel ATA RAID connectors are built on board, supported by the RAID Controller PDC20579.

6-2. First Step to Set up RAID - Populate Disk Drives

1. Connect 1 SATA Disk Drive to ATA1 and 1 SATA Disk Drive to ATA2.
2. Connect 1 or 2 PATA Disk Drives to IDE3.

6-3. To Enter RAID BIOS

(1) Boot system and watch for the following initial screen to appear:

FastTrak 579 (tm) BIOS Version xxxxxxxxx

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

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

(2) As soon as the above screen appears, press < Delete > key (not the <Tab> key) to enter CMOS BIOS Setup. Choose “Integrated Peripheral” and “VIA OnChip IDE Device”. As soon as you click on the “VIA OnChip IDE Device”, a list of events appears for you to configure their values. Choose “RAID” for the “Promise 579 Mode” so as to enable the PDC20579 SATA RAID interface.

VIA OnChip IDE Device

		Item Help
OnChip SATA/RAID	Enabled	
SATA Mode	RAID	
Promise 579 Mode	RAID	
IDE DMA transfer access	Enabled	
OnChip IDE Channel10	Enabled	
OnChip IDE Channel11	Enabled	
IDE Prefetch Mode	Enabled	
Primary Master PIO	Auto	
Primary Slave PIO	Auto	
Secondary Master PIO	Auto	
Secondary Slave PIO	Auto	
Primary Master UDMA	Auto	
Primary Slave UDMA	Auto	
Secondary Master UDMA	Auto	
Secondary Slave UDMA	Auto	
IDE HDD Block Mode	Enabled	

Promise 579 Mode To select RAID mode for RAID Setup.

(3)Now reboot system, and the following screen will appear after “POST”.

```
FastTrak 579 (tm) BIOS Version xxxxxxx
(c) 2003-2005 Promise Technology. Inc. All rights reserved.


No Array is defined..................

Press <Ctrl-F> to enter FastBuild (tm) Utility or
Press <ESC> to continue booting...
```

Following the instruction on the screen, press <Ctrl-F> to enter the FastBuild (tm) Utility.

6-4. To Enter the Main Menu of FastBuild Utility

The Main Menu will pop out as below:

FastBuild (tm) Utility 2.01 (c) 2002-2005 Promise Technology, Inc.

```
[ Main Menu ]

Auto Setup..............................[1]
View Drive Assignemnts..........[2]
Define Array............................[3]
Delete Array............................[4]
Rebuild Array..........................[5]

[ Keys Available ]

Press 1~5 to Select Option                    [Esc] Exit
```

1. Auto Setup.....[1]
   Press figure “1” on keyboard to enter Auto Setup of RAID.”Auto Setup” is available only if there are free disk drive detected in system.
2. View Drive Assignment.....[2]
   Press figure “2” on keyboard to view the drive assignment detected.
3. Define Array.....[3]
   Press figure “3” on keyboard to view defined Array already set up.
4. Delete Array.....[4]
   Press figure “4” on keyboard to enter the “Delete Array” field for deleting Array already set up in system.
5. Rebuild Array.....[5]
   Press figure “5” on keyboard to enter the “Rebuild Array” field for rebuilding a defective array or RAID member. “Rebuild Array” is available for “RAID 1 (Mirror)” or “RAIA 0+1 (Mirror/Stripe)” mode.

6-5. View Drive Assignment before RAID Setup

Press "2" to enter "View Drive Assignment" so that you can see the status of all disk drives detected by RAID BIOS.

FastBuild (tm) Utility 2.02 (c) 2003-2005 Promise Technology, Inc.

[View Drives Assignments]

Channel:ID	Drive Model	Capacity (MB)	Assignment	Mode
1:	Mas ST380023AS	80026	Free	U5
2:	Mas ST380023AS	80026	Free	U5
3:	Mas QUANTUM FIREBALLP AS3	30020	Free	U2
3:	Mas ST330620A	30020	Free	U2

[Keys Available]

[Esc] Exit MODE (D = DMA, U = UDMA)

Press Esc key to return to Main Menu

Two drives are detected in one channel 3 as free drives (available for RAID setup)

Totally 4 drives are detected by RAID BIOS

Two drives are detected in channel 1 and 2 as free drives (available for RAID setup)

6-6. Enter "Auto Setup" for RAID Setup

On the Main Menu press "1" to enter "Auto Setup" and choose your RAID mode. If you choose "Performance" and save your choice now, your RAID is Stripe mode. Since 4 drives are installed, you can also choose "Security" for your RAID mode.

[Auto Setup Options Menu]

Optimize Array for: Performance

Press " <--- " key to change RAID option.

[Array Setup Configuration]

Mode .....Stripe

Spare Drive 0

Drive(s) Used in Array.....4

Array Disk Capacity (size in MB).....120080

[Keys Available]

[←, → ,Space] Change Option [ESC] Exit [Ctrl-Y] Save

6-7. Choose " Security" for RAID 0+1 (Stripe/Mirror)

Inside Auto Setup menu Press "← " key to choose "Security" mode for your RAID.

6-8. Press <Ctrl-Y> to Save the Choice

When a RAID mode is chosen, press < Ctrl-Y> to save the choice. Then select Y for "Create and Quick Initialize; or select N for "Create only".

6-9. Create RAID Only / Create and Quick Initialize

"Create Only" is for creating RAID without changing the disk data.
"Create and Quick Initialize" will create the RAID with clearing disk data.

6-10. Array Created and View Drives Assignments

After choosing "Create Only" or Create and Quick Initialize", next screen will return to the Main Menu. You can now press "2" to view drives assignments. You can see that all drives have already been set to RAID 1.

6-11. Enter [Define Array] to see the RAID Mode

You can also press “3” on the Main Menu to enter the [Define Array}] so that you can see the RAID mode just set up by yourself.

FastBuild (tm) Utility 2.02 (c) 2003-2005 Promise Technology, Inc.

[Define Array Menu]

Array No	RAID Mode	Total Drv	Capacity(MB)	Status
Array 1	Mirror/Stripe	4	120080	Functional
Array 2				
Array 3				
Array 4				

Halt On Error : Disable

6-12. After Array creation, Press [Esc] to exit

After Array creation, you can now press “Esc” on the Main Mrenu and exit RAID setup.

Congratulation!

Your system is now ready for operating system installation and RAID Driver Setup.

FastBuild (tm) Utility 2.01 (c) 2002-2005 Promise Technology, Inc.

[Main Menu]

Auto Setup.....[1]
View Drive Assignemnts.....[2]
Define Array.....[3]
Delete A
Rebuild

This will EXIT FastBuild!
Are You Sure?
Y - Yes / Any key - Back

[Keys Available]

Press 1~5 to Select Option [Esc] Exit

6-13. To Install Promise RAID Driver

Promise RAID Driver is incorporated in Support CD/Floppy Diskette for user's installation. This driver is intended for Windows 2000/XP/2003.

To Install RAID Driver on Windows 2000/XP/2003

(1) Get ready the Floppy Diskette holding the RAID Driver.
(This Driver Diskette should have been enclosed in the mainboard Package.)
(2) Check that Hard Disks are connected properly to the RAID conn-tors.
(3) Start your PC system and use RAID BIOS Setup Utility to configure RAID 0 / 1/ 0+1 to the hard disks.
(4) Restart System and apply the Windows 2000/XP/2003 CD to CD-ROM for operating system installation.
(5) On the Windows 2000/XP/2003 Setup screen, press "F6" key for RAID driver setup.

(6) On next screen press “S” to confirm the mass storage device setup.

Windows Setup

Setup could not determine the type of one or more mass storage devices installed in your system, or you have chosen to manually specify an adapter. Currently, Setup will load support for the following mass storage devices(s):

<none>

*** To specify additional SCSI adapters, CD-ROM drives, or special disk controllers for use with Windows, including those for which you have a device support disk from a mass storage device manufacturer, press S.**

*** If you do not have any device support disks from a mass storage device manufacturer, or do not want to specify additional mass storage devices for use with Windows, press ENTER.**

S=Specify Additional Device Enter=Continue F3=Exit

(7) On next screen apearing, insert the RAID Driver Diskette to Drive “A” and then press <Enter>.

Windows Setup

Please insert the disk labeled

Manufacturer-supplied hardware support disk

into Drive A:

*** Press ENTER when ready.**

Enter=Continue ESC=Cancel F3=Exit

(8) On next screen, choose the driver suitable for your operating system and press <Enter> to continue.

Choose the 579 Controller driver for your system and press<Enter>

After selecting the proper driver for your system, the Installation Program will then guide you through the rest of system setup. The RAID driver will then be installed into your system.

6-14. To Install Promise Array Management (PAM)

Promise Array Management utility is incorporated in Support CD for user's installation. This utility is intended for disk array management in Windows 98se/Me/2000/XP/2003.

(1) Get ready the Support CD for PAM installation.

(2) Open the Support CD and take the following path to start PAM setup:

(Support CD) Driver\Promise\PDC20579\PAM 400\Setup.exe

(3) Mouse click on Setup.exe to start PAM setup.
Instantly, the Install wizard for Promise Array Management pops out. ClickNext button to continue.

(4) If your system prompts you to create a User account and a password for it, you should follow the instructions to do so.

(5) After creating a User Account for PAM, click Next to continue setup. Follow the instructions on the subsequent screens and get on the PAM setup until you see the InstallShield Wizard Complete screen appear. You can create the PAM Program shortcut on your desktop before clicking on the Finish button.

6-15. To manage Array System by PAM

(1) If you have installed PAM and created a shortcut on your desktop, click on the PAM icon on your desktop to start PAM.

(2) After you have entered your account password, you would be able to enter Fastrak 579 and then enter Disk View and Array View.

(3) If you have added an additional hard disk into your system, you can also click on Array View to create a new array.