



P4VT8+

# User Manual

Version 1.0

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# Chapter 1 Introduction

Thank you for purchasing ASRock P4VT8+ motherboard, a reliable motherboard produced under ASRock's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock's commitment to quality and endurance.

Chapter 1 and 2 of this manual contain introduction of the motherboard and step-by-step installation guide for new DIY system builders. Chapter 3 and 4 contain basic BIOS setup and support CD information. For advanced users' reference, the Appendix appearing on page 26 offers more advanced BIOS setup information.



Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRock website without further notice. You may find the latest memory and CPU support lists on ASRock website as well.

ASRock website <http://www.asrock.com>

## 1.1 Package Contents

ASRock P4VT8+ Motherboard (ATX Form Factor: 12.0-in x 7.5-in, 30.5 cm x 19.1 cm)

ASRock P4VT8+ Quick Installation Guide

ASRock P4VT8+ Support CD

One 80-conductor Ultra ATA 66/100/133 IDE Ribbon Cable

One Ribbon Cable for a 3.5-in Floppy Drive

One Serial ATA (SATA) Cables

One Serial ATA (SATA) HDD Power Cable (Optional)

One ASRock I/O Plus™ Shield

One Game Port Bracket (Optional)

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## 1.2 Specifications

<b>Platform:</b>	ATX Form Factor (12.0-in x 7.5-in, 30.5-cm x 19.1-cm)
<b>CPU:</b>	Socket 478 for Intel® Pentium® 4 (Prescott, Northwood, Willamette) / Celeron® processor
<b>Chipsets:</b>	North Bridge: VIA PT800, FSB @ 800/533/400 MHz, with Hyper-Threading Technology ready South Bridge: VIA VT8237, supports USB 2.0, ATA 133, SATA 1.5Gb/s
<b>Memory:</b>	3 DDR DIMM slots: DDR1, DDR2, and DDR3 PC2100 (DDR266) for 3 DDR DIMM slots, Max. 3GB; PC2700 (DDR333) for 2 DDR DIMM slots, Max. 2GB; PC3200 (DDR400) for 1 DDR DIMM slots, Max. 1GB
<b>IDE:</b>	IDE1: ATA 133 / Ultra DMA Mode 6; IDE2: ATA 133 / Ultra DMA Mode 6; Supports up to 4 IDE devices
<b>Serial ATA:</b>	2 SATA connectors, support up to 1.5Gb/s data transfer rate
<b>Floppy Port:</b>	Supports up to 2 floppy disk drives
<b>Audio:</b>	5.1 channels AC'97 Audio
<b>LAN:</b>	Speed: 802.3u (10/100 Ethernet), supports Wake-On-LAN
<b>Hardware Monitor:</b>	CPU temperature sensing (ASRock U-COP); Chassis temperature sensing; CPU overheat shutdown to protect CPU life (ASRock U-COP)(see <b>CAUTION 1</b> ); CPU fan tachometer; Chassis fan tachometer; Voltage monitoring: +12V, +5V, +3V, Vcore
<b>PCI slots:</b>	5 slots with PCI Specification 2.2
<b>AGP slot:</b>	1 AGP slot, supports 1.5V, 8X/4X AGP card (see <b>CAUTION 2</b> )
<b>USB 2.0:</b>	8 USB 2.0 ports: includes 6 default USB 2.0 ports on the rear panel, plus one header to support 2 additional USB 2.0 ports (see <b>CAUTION 3</b> )
<b>ASRock I/O Plus™:</b>	1 PS/2 keyboard port, 1 PS/2 mouse port; 1 serial port: COM1; 1 parallel port: ECP/EPP support; 1 RJ 45 port; 6 default USB 2.0 ports; Audio Jack: Line Out / Line In / Microphone

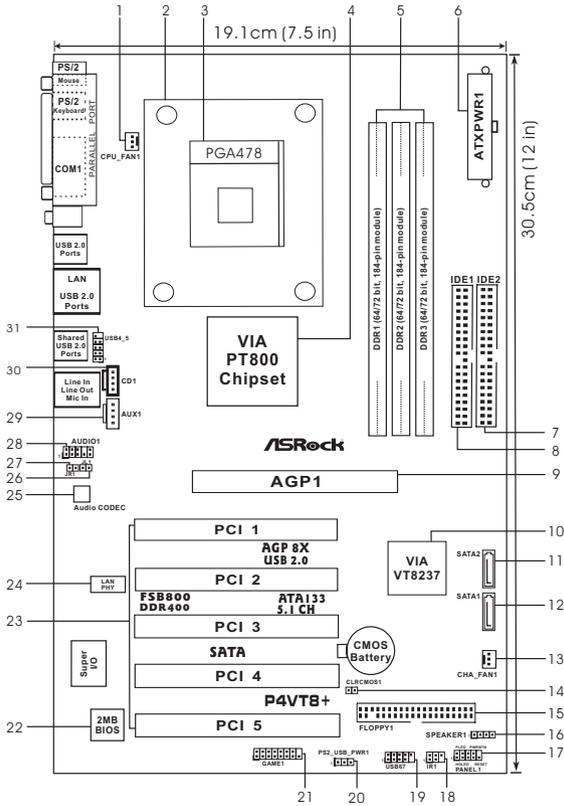
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<b>BIOS:</b>	AMI BIOS; Supports "Plug and Play"; ACPI 1.1 compliance wake up events; Supports jumperfree; SMBIOS 2.3.1 support; CPU frequency stepless control (only for advanced users' reference, see <b>CAUTION 4</b> )
<b>OS:</b>	Microsoft® Windows® 98SE / ME / 2000 / XP compliant

### ***CAUTION!***

1. If the CPU is overheated, please check if the CPU fan on the motherboard functions properly before you resume the system. To improve heat dissipation, remember to spray thermal grease between the CPU and the heatsink when you install the PC system.
2. Do NOT use a 3.3V AGP card on the AGP slot of P4VT8+ motherboard! It may cause permanent damage!
3. Power Management for USB 2.0 works fine under Microsoft® Windows® XP SP1/2000 SP4. It may not work properly under Microsoft® Windows® 98/ME. Please refer to Microsoft® official document at <http://www.microsoft.com/whdc/hwdev/bus/USB/USB2support.mspx>
4. Although P4VT8+ offers stepless control, it is not recommended to perform over clocking. When the CPU frequency of P4VT8+ is set to perform over clocking, other clocks, such as PCI clock, AGP clock, and Memory clock will also be overclocked proportionally. Frequencies other than the recommended CPU bus frequencies may cause the instability of the system or damage the CPU and the motherboard.

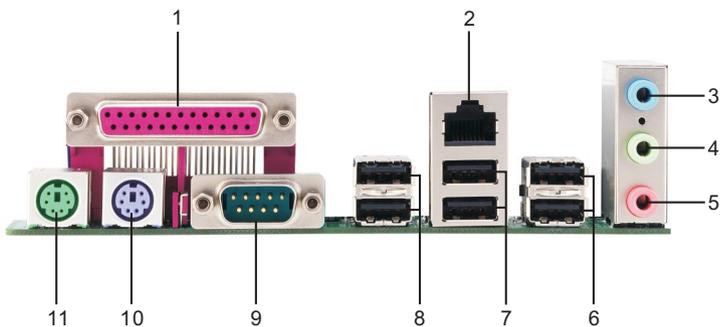
### 1.3 Motherboard Layout



- |    |  |    |  |
|----|--|----|--|
| 1  | CPU Fan Connector (CPU_FAN1)           | 17 | System Panel Connector (PANEL1)        |
| 2  | CPU Heatsink Retention Module          | 18 | Infrared Module Connector (IR1)        |
| 3  | CPU Socket                             | 19 | USB 2.0 Header (USB67, Blue)           |
| 4  | North Bridge Controller                | 20 | PS2_USB_PWR1 Jumper                    |
| 5  | 184-pin DDR DIMM Slots (DDR1-3)        | 21 | Game Module Connector (GAME1)          |
| 6  | ATX Power Connector (ATXPWR1)          | 22 | Flash Memory                           |
| 7  | Secondary IDE Connector (IDE2, Black)  | 23 | PCI Slots (PCI1-5)                     |
| 8  | Primary IDE Connector (IDE1, Blue)     | 24 | LAN PHY                                |
| 9  | AGP Slot (AGP1)                        | 25 | AUDIO CODEC                            |
| 10 | South Bridge Controller                | 26 | JL1 Jumper                             |
| 11 | Secondary Serial ATA Connector (SATA2) | 27 | JR1 Jumper                             |
| 12 | Primary Serial ATA Connector (SATA1)   | 28 | Front Panel Audio Connector (AUDIO1)   |
| 13 | Chassis Fan Connector (CHA_FAN1)       | 29 | Internal Audio Connector: AUX1 (White) |
| 14 | Clear CMOS Jumper (CLRCMOS1)           | 30 | Internal Audio Connector: CD1 (Black)  |
| 15 | Floppy Connector (FLOPPY1)             | 31 | Shared USB 2.0 Header (USB4_5, Blue)   |
| 16 | Chassis Speaker Connector (SPEAKER 1)  |    |  |

---

## 1.4 ASRock I/O Plus™



- |   |                              |    |                             |
|---|------------------------------|----|-----------------------------|
| 1 | Parallel Port                | 7  | USB 2.0 Ports (USB01)       |
| 2 | RJ-45 Port                   | 8  | USB 2.0 Ports (USB23)       |
| 3 | Line In (Light Blue)         | 9  | Serial Port: COM1           |
| 4 | Line Out (Lime)              | 10 | PS/2 Keyboard Port (Purple) |
| 5 | Microphone (Pink)            | 11 | PS/2 Mouse Port (Green)     |
| 6 | Shared USB 2.0 Ports (USB45) |    |                             |

---

## Chapter 2 Installation

P4VT8+ is an ATX form factor (12.0-in x 7.5-in, 30.5 cm x 19.1 cm) motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.



Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injuries to you and damages to motherboard components.

### 2.1 Screw Holes

Place screws into the holes indicated by circles to secure the motherboard to the chassis.



Do not over-tighten the screws! Doing so may damage the motherboard.

### 2.2 Pre-installation Precautions

Take note of the following precautions before you install motherboard components or change any motherboard settings.

1. Unplug the power cord from the wall socket before touching any component.
2. To avoid damaging the motherboard components due to static electricity, NEVER place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle components.
3. Hold components by the edges and do not touch the ICs.
4. Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that comes with the component.

**Before you install or remove any component, ensure that the power is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.**

---

## 2.3 CPU Installation

- Step 1. Unlock the socket by lifting the lever up to a 90° angle.
- Step 2. Position the CPU directly above the socket such that its marked corner matches the base of the socket lever.
- Step 3. Carefully insert the CPU into the socket until it fits in place.



The CPU fits only in one correct orientation. DO NOT force the CPU into the socket to avoid bending of the pins.

- Step 4. When the CPU is in place, press it firmly on the socket while you push down the socket lever to secure the CPU. The lever clicks on the side tab to indicate that it is locked.



Step 1



Step 2, 3



Step 4

## 2.4 Installation of CPU Fan and Heatsink

Intel® Pentium®4 CPU requires larger heatsink and cooling fan. Thermal grease between the CPU and the heatsink is also needed to improve heat dissipation. Make sure that the CPU and the heatsink are securely fastened and in good contact with each other. Then connect the CPU fan to the CPU\_FAN connector (CPU\_FAN1, see page 7, No. 1). For proper installation, please kindly refer to the instruction manuals of the CPU fan and heatsink vendors.

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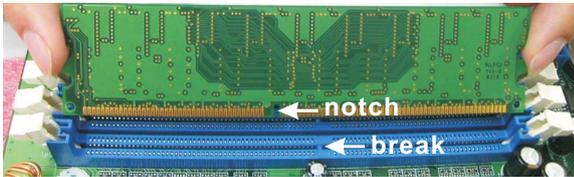
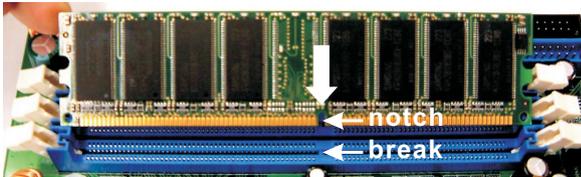
## 2.5 Installation of Memory Modules (DIMM)

P4VT8+ motherboard provides three 184-pin DDR (Double Data Rate) DIMM slots.



Please make sure to disconnect power supply before adding or removing DIMMs or the system components.

- Step 1. Unlock a DIMM slot by pressing the retaining clips outward.
- Step 2. Align a DIMM on the slot such that the notch on the DIMM matches the break on the slot.



The DIMM only fits in one correct orientation.  
It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation.

- Step 3. Firmly insert the DIMM into the slot until the retaining clips at both ends fully snap back in place and the DIMM is properly seated.

---

## 2.6 Expansion Slots (PCI and AGP Slots)

There are 5 PCI slots and 1 AGP slot on P4VT8+ motherboard.

**PCI slots:** PCI slots are used to install expansion cards that have the 32-bit PCI interface.

**AGP slot:** The AGP slot is used to install a graphics card.

The ASRock AGP slot has a special locking mechanism which can securely fasten the graphics card inserted.



Do NOT use a 3.3V AGP card on the AGP slot of this motherboard. It may cause permanent damage! If you install Prescott 2.8G/533 CPU with Xabre600 VGA card, it is recommend to install ONLY ONE DDR333 or DDR400 DIMM for the best compatibility and reliability

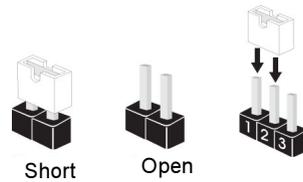
### Installing an expansion card

- Step 1. Before installing the expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation.
- Step 2. Remove the system unit cover (if your motherboard is already installed in a chassis).
- Step 3. Remove the bracket facing the slot that you intend to use. Keep the screws for later use.
- Step 4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.
- Step 5. Fasten the card to the chassis with screws.
- Step 6. Replace the system cover.

---

## 2.7 Jumpers Setup

The illustration shows how jumpers are setup. When the jumper cap is placed on pins, the jumper is “Short”. If no jumper cap is placed on pins, the jumper is “Open”. The illustration shows a 3-pin jumper whose pin1 and pin2 are “Short” when jumper cap is placed on these 2 pins.



Jumper	Setting							
PS2_USB_PWR1 (see p.7 item 20)	<table border="0"><tr><td>1_2</td><td>2_3</td></tr><tr><td></td><td></td></tr><tr><td>+5V</td><td>+5VSB</td></tr></table>	1_2	2_3			+5V	+5VSB	Short pin2, pin3 to enable +5VSB (standby) for PS/2 or USB wake up events.
1_2	2_3							
+5V	+5VSB							

Note: To select +5VSB, it requires 2 Amp and higher standby current provided by power supply.

---

JR1 (see p.7 item 27)	
JL1 (see p.7 item 26)	

Note: If the jumpers JL1 and JR1 are short, both the front panel and the rear panel audio connectors can work.

---

### Clear CMOS

CLRCMOS1 (see p.7 item 14)	
-------------------------------	--

Note: CLRCMOS1 allows you to clear the data in CMOS. The data in CMOS includes system setup information such as system password, date, time, and system setup parameters. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord, then use a jumper cap to short the pins on CLRCMOS1 for 3 seconds. Please remember to remove the jumper cap after clearing the CMOS.

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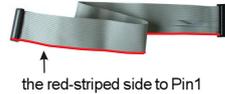
## 2.8 Connectors



Connectors are NOT jumpers. DO NOT place jumper caps over these connectors.

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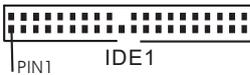
FDD Connector  
(33-pin FLOPPY1)  
(see p.7 item 15)



Note: Make sure the red-striped side of the cable is plugged into Pin1 side of the connector.

---

Primary IDE Connector (Blue)  
(39-pin IDE1, see p.7 item 8)



Secondary IDE Connector (Black)  
(39-pin IDE2, see p.7 item 7)



connect the blue end  
to the motherboard



connect the black end  
to the IDE devices

80-conductor ATA 66/100/133 cable

Note: If you use only one IDE device on this motherboard, please set the IDE device as "Master". Please refer to the instruction of your IDE device vendor for the details. Besides, to optimize compatibility and performance, please connect your hard disk drive to the primary IDE connector (IDE1, blue) and CD-ROM to the secondary IDE connector (IDE2, black).

---

Serial ATA Connectors  
(SATA1: see p.7 item 12)  
(SATA2: see p.7 item 11)



These two Serial ATA (SATA) connectors support SATA data cables for internal storage devices. The current SATA interface allows up to 1.5 Gb/s data transfer rate.

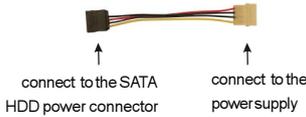
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Serial ATA (SATA)  
Data Cable



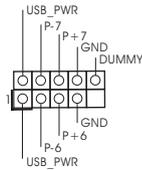
Either end of the SATA data cable can be connected to the SATA hard disk or the SATA connector on the motherboard.

Serial ATA (SATA)  
Power Cable  
(4-conductor)  
(Optional)



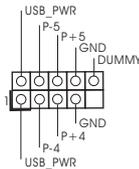
Please connect the black end of SATA power cable to the power connector on each drive. Then connect the white end of SATA power cable to the power connector of the power supply.

USB 2.0 Header  
(9-pin USB67)  
(see p.7 item 19)



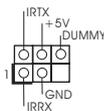
ASRock I/O Plus™ provides you 6 default USB 2.0 ports on the rear panel. If the rear USB ports are not sufficient, this USB 2.0 header (USB67) is available to support 2 additional USB 2.0 ports.

Shared USB 2.0 Header  
(9-pin USB4\_5)  
(see p.7 item 31)



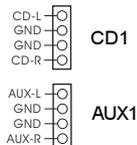
This USB4\_5 header is shared with the USB 2.0 ports 4,5 on the rear panel. When using the front panel USB ports by attaching the front panel USB cable to this header (USB4\_5), the rear panel USB ports 4,5 will not be able to function.

Infrared Module Connector  
(5-pin IR1)  
(see p.7 item 18)



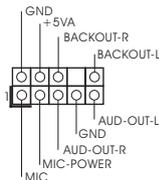
This connector supports an optional wireless transmitting and receiving infrared module.

Internal Audio Connectors  
(4-pin CD1, 4-pin AUX1)  
(CD1: see p.7 item 30)  
(AUX1: see p.7 item 29)



These connectors allow you to receive stereo audio input from sound sources such as a CD-ROM, DVD-ROM, TV tuner card, or MPEG card.

Front Panel Audio Connector  
(9-pin AUDIO1)  
(see p.7 item 28)



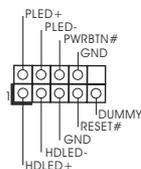
This is an interface for front panel audio cable that allows convenient connection and control of audio devices.

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### System Panel Connector

(9-pin PANEL1)

(see p.7 item 17)



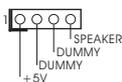
This connector accommodates several system front panel functions.

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### Chassis Speaker Connector

(4-pin SPEAKER 1)

(see p.7 item 16)



This connector allows you to attach to an external speaker.

---

### Chassis Fan Connector

(3-pin CHA\_FAN1)

(see p.7 item 13)



Connect the fan cable to the connector matching the black wire to the ground pin.

---

### CPU Fan Connector

(3-pin CPU\_FAN1)

(see p.7 item 2)



Connect the fan cable to the connector matching the black wire to the ground pin.

---

### ATX Power Connector

(20-pin ATXPWR1)

(see p.7 item 6)



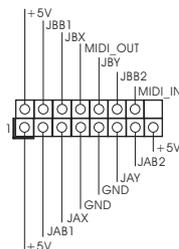
Connect an ATX power supply to the connector.

---

### Game Connector

(15-pin GAME1)

(see p.7 item 21)



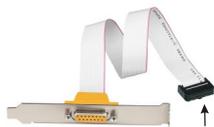
Connect a Game cable to this connector if the Game port bracket is installed.

---

### Game cable with the

Game port bracket

(Optional)



connect to the Game connector

---

## 2.9 Serial ATA (SATA) Hard Disks Installation

This motherboard adopts VIA VT8237 southbridge chipset that supports Serial ATA (SATA) hard disks. You may install SATA hard disks on this motherboard for internal storage devices. This section will guide you to install the SATA hard disks.

### Installing SATA Hard Disks

- STEP 1: Install the SATA hard disks into the drive bays.
- STEP 2: Connect one end of the SATA data cable to the motherboard's primary SATA connector (SATA1).
- STEP 3: Connect the other end of the SATA data cable to the master SATA hard disk.
- STEP 4: Connect one end of the second SATA data cable to the motherboard's secondary SATA connector (SATA2).
- STEP 5: Connect the other end of SATA data cable to the secondary SATA hard disk.



### Making an SATA HDD driver diskette...

If you want to install Windows 2000 or Windows XP on your system while you only have SATA HDDs on your system, you will need to make an SATA HDD driver diskette before you start the OS installation.

#### How to make an SATA HDD driver diskette?

- STEP 1: Insert the ASRock Support CD into your optical drive to boot your system. (Do NOT insert any floppy diskette into the floppy drive at this moment!)
- STEP 2: During POST at the beginning of system boot-up, press <F11> key, and then a window for boot devices selection appears. Please select CD-ROM as the boot device.
- STEP 3: When you see the message on the screen, "Do you want to generate Serial ATA driver diskette [Y/N]?", press <Y>.
- STEP 4: Then you will see these messages:

Please insert a diskette into the floppy drive  
WARNING! Formatting the floppy diskette will  
lose ALL data in it!  
Start to format and copy files [Y/N]?

Please insert a floppy diskette into the floppy drive, and press <Y>.

- STEP 5: The system will start to format the floppy diskette and copy SATA HDD drivers.

Once you have the SATA driver diskette ready, you may start to install Windows 2000 / Windows XP on your system directly without setting the RAID configuration on your system, or you may start to use VIA Tech RAID BIOS Utility to set RAID 0 / RAID 1 configuration before you install the OS.

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### 2.9.1 Installation of Windows 2000 / Windows XP

For the installation of Windows 2000 or Windows XP, please insert Windows 2000 or Windows XP CD into the optical drive. Then remove the floppy diskette, and reboot the system. At the very beginning, you will see the message at the bottom of the screen, "Press F6 if you need to install a third party SCSI or Raid driver...." At this moment, please press <F6> key and follow the instructions of Windows 2000 or Windows XP for the proper installation.

### 2.9.2 RAID 0 / RAID 1 Configurations

This motherboard adopts VIA VT8237 southbridge chipset that integrates RAID controller supporting RAID 0 and RAID 1 with two independent Serial ATA (SATA) channels. This section will introduce RAID 0, RAID 1, and the guide to configure RAID 0 and RAID 1.

For optimal performance, please install identical drives of the same model and capacity when creating a RAID set.

#### RAID 0

RAID 0 is called data striping that optimizes two identical hard disk drives to read and write data in parallel, interleaved stacks. It will improve data access and storage since it will double the data transfer rate of a single disk alone while the two hard disks perform the same work as a single drive but at a sustained data transfer rate.

#### RAID 1

RAID 1 is called data mirroring that copies and maintains an identical image of data from one drive to a second drive. It provides data protection and increases fault tolerance to the entire system since the disk array management software will direct all applications to the surviving drive as it contains a complete copy of the data in the other drive if one drive fails.

#### Pre-installation Precautions

1. Please use two new drives if you are creating a **RAID 0 (striping)** array for performance.
2. You may use two new drives or use an existing drive and a new drive if you are creating a **RAID 1 (mirroring)** array for protection (the new drive must be of the same size or larger than the existing drive). If you use two drives of different sizes, the smaller capacity hard disk will be the base storage size. For example, if one hard disk has an 80GB storage capacity and the other hard disk has 60GB, the maximum storage capacity for the RAID 1 set is 60GB.
3. Please verify the status of your hard disks.

---

### 2.9.2.1 Guide to Configure RAID 0

Please enter "VIA Tech RAID BIOS Utility" to set RAID 0 configuration.

STEP 1: Boot-up your computer.

STEP 2: During POST press <Tab> key to enter "VIA Tech RAID BIOS Utility".

STEP 3: Start the configuration from the option **Create Array**. Select the option **Create Array**, then press <Enter> key.

STEP 4: Select the option **Array Mode**, then press <Enter> key to display the pop-up menu of RAID system setting.

STEP 5: Select **RAID 0 for performance** from the menu and press <Enter>.

From this point, you may choose to auto-configure the RAID array by selecting **Auto Setup for Performance** or manually configure the RAID array for striped sets. Please continue with the next step if you want to manually configure the RAID array, otherwise, proceed to step #5.3.

5.1

Select the option **Select Disk Drives**, then press <Enter>. Use arrow keys to select disk drive(s), then press <Enter> to mark selected drive. An asterisk is placed before the selected drive.

5.2

Select the option **Block Size**, then press <Enter> to set array block size. A list of valid array block sizes are displayed on a pop-up menu. Use arrow keys to move selection bar on items and press <Enter> to select.

5.3

Select the option **Start Create Process** and press <Enter> to setup hard disk for RAID system. Then the confirmation message appears: **The data on the selected disks will be destroyed. Continue? (Y/N)**

Press <Y> to confirm or <N> to return to the configuration options.

---

## 2.9.2.2 Guide to Configure RAID 1

Please enter "VIA Tech RAID BIOS Utility" to set RAID 1 configuration.

STEP 1: Boot-up your computer.

STEP 2: During POST press <Tab> key to enter "VIA Tech RAID BIOS Utility".

STEP 3: Start the configuration from the option **Create Array**. Select the option **Create Array**, then press <Enter> key.

STEP 4: Select the option **Array Mode**, then press <Enter> key to display the pop-up menu of RAID system setting.

STEP 5: Select **RAID 1 for data protection** from the menu and press <Enter>.

5.1

Select the option **Select Disk Drives**, then press <Enter>. Use arrow keys to select disk drive(s), then press <Enter> to mark selected drive. An asterisk is placed before the selected drive.

5.2

Select the option **Start Create Process** and press <Enter> to setup hard disk for RAID system. Then the confirmation message appears: **Save the data on source disk to mirror after creation? (Y/N)**

Press <Y> to confirm or <N> to return to the configuration options.



You can find more configuration details in the Support CD. There are three instruction files to illustrate the three types of configurations step by step.

1. If you wish to install the SATA hard disks alone without making RAID setup, please refer to the file in the support CD:

.. \ RAID SETUP \ SATA.PDF

2. If you wish to install the SATA hard disks and set the array mode as RAID 0, please refer to the file in the support CD:

.. \ RAID SETUP \ RAID 0.PDF

3. If you wish to install the SATA hard disks and set the array mode as RAID 1, please refer to the file in the support CD:

.. \ RAID SETUP \ RAID 1.PDF

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## Chapter 3 BIOS Setup

### 3.1 BIOS Setup Utility

This section explains how to use the BIOS Setup Utility to configure your system. The Flash Memory on the motherboard stores the BIOS Setup Utility. You may run the BIOS Setup Utility when you start up the computer. Please press <F2> during the Power-On-Self-Test (POST) to enter the BIOS Setup Utility, otherwise, POST continues with its test routines.

If you wish to enter the BIOS Setup after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.

The BIOS Setup Utility is designed to be user-friendly. It is a menu-driven program, which allows you to scroll through its various sub-menus and select among the predetermined choices.



Because the BIOS software is constantly being updated, the following BIOS setup screens and descriptions are for reference purpose only, and may not exactly match what you see on your screen.

#### 3.1.1 BIOS Menu Bar

The top of the screen has a menu bar with the following selections:

<b>MAIN</b>	Sets up the basic system configuration
<b>ADVANCED</b>	Sets up the advanced features
<b>SECURITY</b>	Sets up the security features
<b>POWER</b>	Configures Power Management features
<b>BOOT</b>	Configures the default system device that is used to locate and load the Operating System
<b>EXIT</b>	Exits the current menu or the BIOS Setup

To access the menu bar items, press the right or left arrow key on the keyboard until the desired item is highlighted.

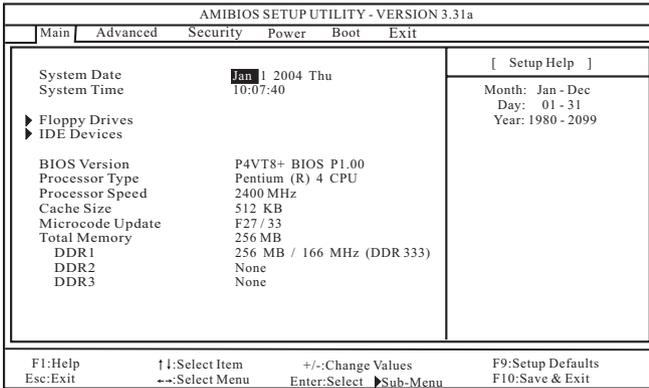
#### 3.1.2 Legend Bar

At the bottom of the Setup Screen is a legend bar. The following table lists the keys in the legend bar with their corresponding functions.

Navigation Key(s)	Function Description
<F1>	Displays the General Help Screen
<ESC>	Jumps to the Exit menu or returns to the upper menu from the current menu
↑ / ↓	Moves cursor up or down between fields
← / →	Selects menu to the left or right
+ / -	Increases or decreases values
<Enter>	Brings up a selected menu for a highlighted field
<F9>	Loads all the setup items to default value
<F10>	Saves changes and exits Setup

### 3.2 Main Menu

When you enter the BIOS Setup Utility, the following screen appears.



#### System Date [Month/Day/Year]

Set the system date that you specify. Valid values for month, day, and year are Month: (Jan to Dec), Day: (1 to 31), Year: (up to 2099). Use ↑ ↓ keys to move between the Month, Day and Year fields.

#### System Time [Hour:Minute:Second]

Set the system to the time that you specify. Use ↑ ↓ keys to move between the Hour, Minute and Second fields.

#### Floppy Drives

Use this to set the type of floppy drives installed.

#### IDE Devices

Use this to configure IDE devices.

## TYPE

To set the type of the IDE device, first, please select “IDE Devices” on Main menu and press <Enter> to get into the sub-menu. Then, select among “Primary IDE Master”, “Primary IDE Slave”, “Secondary IDE Master”, and “Secondary IDE Slave” to make configuration of its type. After making your selections on this sub-menu, press <ESC> key to return to the upper menu, in which the hard disk drive field will display the size of the hard disk drive that you configured. Below are the configuration options.

AMIBIOS SETUP UTILITY - VERSION 3.31a	
Main	
Primary IDE Master: [ Setup Help ]	
Type	Auto
Cylinders	
Heads	
Write Precompensation	
Sectors	
Maximum Capacity	0Mb
LBA Mode	Off
Block Mode	Off
Fast Programmed I/O Modes	Auto
32 Bit Transfer Mode	On
Ultra DMA Mode	Auto
Select how to set the parameters of drive, Or Select [AUTO] to set all HDD parameters automatically.	
F1:Help	F11:Select Item
Esc:Previous Menu	+/-:Change Values
	Enter:Select
	▶Sub-Menu
	F9:Setup Defaults
	F10:Save & Exit

**[USER]:** It allows user to manually enter the number of cylinders, heads, and sectors per track for the drive.



Before attempting to configure a hard disk drive, make sure you have the correct configuration information supplied by the drive manufacturer. Incorrect settings may cause the system to fail to recognize the installed hard disk.

**[Auto]:** Select [Auto] to automatically detect hard disk drive. If auto-detection is successful, the BIOS Setup automatically fills in the correct values for the remaining fields on this sub-menu. If the auto-detection fails, it may be due to that the hard disk is too old or too new. If the hard disk was already formatted on an older system, the BIOS Setup may detect incorrect parameters. In these cases, select [User] to manually enter the IDE hard disk drive parameters.



After entering the hard disk information into BIOS, use a disk utility, such as FDISK, to partition and format new IDE hard disk drives. This is necessary so that you can write or read data from the hard disk. Make sure to set the partition of the Primary IDE hard disk drives to active.

---

**[CD/DVD]:** This is used for IDE CD/DVD drives.

**[ARMD]:** This is used for IDE ARMD (ATAPI Removable Media Device), such as MO.

### **Cylinders**

This is used to configure the number of cylinders. Refer to the drive documentation to determine the correct value.

### **Heads**

This is used to configure the number of read/write heads. Refer to the drive documentation to determine the correct values.

### **Write Pre-compensation**

Enter Write Pre-compensation sector. Refer to the drive documentation to determine the correct value.

### **Sectors**

This is used to configure the number of sectors per track. Refer to the drive documentation to determine the correct value.

### **Maximum Capacity**

This field shows the drive's maximum capacity as calculated by the BIOS based on the drive information you entered.

### **LBA Mode**

This allows user to select the LBA mode for a hard disk > 512 MB under DOS and Windows; for Netware and UNIX user, select [Off] to disable the LBA mode.

### **Block Mode**

Set the block mode to [On] will enhance hard disk performance by reading or writing more data during each transfer.

### **Fast Programmed I/O Modes**

This allows user to set the PIO mode to enhance hard disk performance by optimizing the hard disk timing.

### **32 Bit Transfer Mode**

It allows user to enable 32-bit access to maximize the IDE hard disk data transfer rate.

### **Ultra DMA Mode**

Ultra DMA capability allows improved transfer speeds and data integrity for compatible IDE devices. Set to [Disabled] to suppress Ultra DMA capability.

## **3.3 Advanced, Security, Power, Boot, and Exit Menus**

Detailed descriptions of these menus are listed in the Appendix. See page 26.

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# Chapter 4 Software Support

## 4.1 Install Operating System

This motherboard supports various Microsoft® Windows® operating systems: 98 SE / ME / 2000 / XP. Because motherboard settings and hardware options vary, use the setup procedures in this chapter for general reference only. Refer to your OS documentation for more information.

## 4.2 Support CD Information

The Support CD that came with the motherboard contains necessary drivers and useful utilities that enhance the motherboard features.

### 4.2.1 Running The Support CD

To begin using the support CD, insert the CD into your CD-ROM drive. The CD automatically displays the Main Menu if "AUTORUN" is enabled in your computer. If the Main Menu did not appear automatically, locate and double click on the file ASSETUP.EXE from the BIN folder in the Support CD to display the menus.

### 4.2.2 Drivers Menu

The Drivers Menu shows the available devices drivers if the system detects installed devices. Install the necessary drivers to activate the devices.

### 4.2.3 Utilities Menu

The Utilities Menu shows the applications software that the motherboard supports. Click on a specific item then follow the installation wizard to install it.

### 4.2.4 ASRock PC-DIY Live Demo Program

ASRock presents you a multimedia PC-DIY live demo, which shows you how to install your own PC system step by step. You can find the file through the following path:

```
..\MPEGAV\AVSEQ01.DAT
```

To see this demo program, you can run Microsoft® Media Player® to play the file.

### 4.2.5 Contact Information

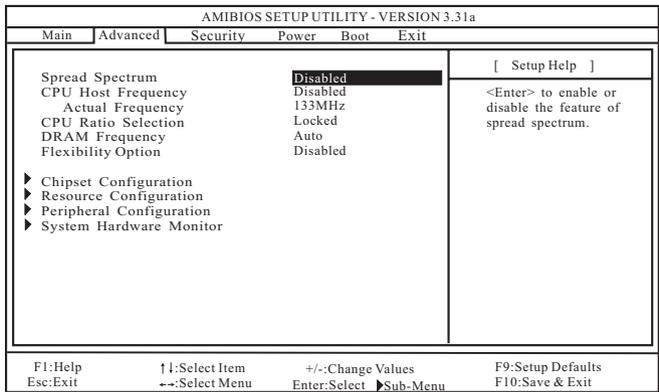
If you need to contact ASRock or want to know more about ASRock, welcome to visit ASRock's website at <http://www.asrock.com>; or you may contact your dealer for further information.

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# Appendix: Advanced BIOS Setup

This section will introduce you the following BIOS Setup menus: “Advanced,” “Security,” “Power,” “Boot,” and “Exit.”

## 1. Advanced BIOS Setup Menu



### Spread Spectrum:

This field should always set to [Disabled] for better system stability.

### CPU Host Frequency:

This shows current CPU host frequency of the installed motherboard.

### CPU Ratio Selection:

CPU Ratio is the multiple that times the frontside bus frequency will equal the core speed of the installed processor. Whether the option is open or locked is determined by the installed processor.

### DRAM Frequency:

If [Auto] is selected, the motherboard will detect the memory module(s) inserted and assigns appropriate frequency automatically. You may also select other value as operating frequency: [100MHz (DDR 200)], [133MHz (DDR 266)], [166MHz (DDR 333)], [200MHz (DDR 400)].

### Flexibility Option:

Default is [Disabled], When it's Enabled, it will allow better tolerance for memory compatibility. There is a Hot-Key also, it will automatic to [Enabled] when you press [Home] during the POST.

## Chipset Configuration:

AMIBIOS SETUP UTILITY - VERSION 3.31a		
Advanced		[ Setup Help ]
Chipset Configuration		
AGP Mode	Auto	<Enter> to select AGP mode.
AGP Aperture Size	128MB	
AGP Fast Write	Disabled	
PCI Delay Transaction	Disabled	
USB Controller	Enabled	
USB Device Legacy Support	Disabled	
DRAM CAS# Latency	Auto	
Hyper-Threading Technology	Auto	
DRAM Voltage	Normal	
AGP Voltage	High	
F1:Help Esc:Previous Menu	F11:Select Item	+/-:Change Values Enter:Select   ▶Sub-Menu
		F9:Setup Defaults F10:Save & Exit

**AGP Mode:** The default value of this feature is set to [Auto]. If you install an 8X-AGP card on this motherboard, you may select [Auto], [8X] or [4X] as the AGP mode. If the installed AGP card is a 4X-AGP card, then you may set the AGP mode as [Auto], [4X], [2X], or [1X].

**AGP Aperture Size:** It refers to a section of the PCI memory address range used for graphics memory. It is recommended to leave this field at the default value unless the installed AGP card's specifications requires other sizes.

**AGP Fast Write:** This allows you to enable or disable the feature of AGP fast write protocol support.

**PCI Delay Transaction:** Enable PCI Delay Transaction feature will free the PCI Bus when the CPU is accessing 8-bit ISA cards. Disable this feature when using ISA cards that are not PCI 2.1 compliant.

**USB Controller:** Use this to enable or disable the use of USB controller.

**USB Device Legacy Support:** Use this to enable or disable the support to emulate legacy I/O devices such as mouse, keyboard,... etc.

### DRAM CAS# Latency:

This is used to adjust the means of memory accessing. Configuration options: [Auto], [2T], [2.5T], [3T]. Please note that not all the DDR DIMMs can support CAS latency=3T.

### Hyper-Threading Technology:

To enable this feature, it requires a computer system with an Intel Pentium®4 processor that supports Hyper-Threading technology and an operating system that includes optimization for this technology, such as Microsoft® Windows® XP. Set to [Auto] if using Microsoft® Windows® XP, or Linux kernel version 2.4.18 or higher. This option will be hidden if the current CPU does not support Hyper-Threading technology.

---

### DRAM Voltage:

This allows you to adjust the DRAM Voltage to [Normal] or [High]

### AGP Voltage:

This allows you to adjust the AGP Voltage to [Normal] or [High]

### Resource Configuration:

AMIBIOS SETUP UTILITY - VERSION 3.31a	
Advanced	
Resource Configuration	[ Setup Help ]
PCI Latency Timer (PCI Clocks) <b>32</b> Primary Graphics Adapter PCI	<Enter> to select PCI clocks. Leave on default setting for the best PCI performance.
F1:Help      ↑:Select Item      +/-:Change Values      F9:Setup Defaults Esc:Previous Menu      Enter:Select      ▶Sub-Menu      F10:Save & Exit	

**PCI Latency Timer (PCI Clocks):** The default is 32. It is recommended to keep the default value unless the inserted PCI expansion cards' specifications require other settings.

**Primary Graphics Adapter:** This allows you to select [AGP] or [PCI] as the primary graphics adapter.

### Peripheral Configuration:

AMIBIOS SETUP UTILITY - VERSION 3.31a	
Advanced	
Peripheral Configuration	[ Setup Help ]
OnBoard FDC <b>Auto</b> OnBoard Serial Port Auto OnBoard Infrared Port Disabled OnBoard Parallel Port Auto Parallel Port Mode ECP+ EPP EPP Version 1.9 Parallel Port IRQ Auto Parallel Port DMA Channel Auto OnBoard Midi Port Disabled Midi IRQ Select 5 OnBoard Game Port 200h OnBoard PATA-IDE Enabled OnBoard LAN Enabled OnBoard AC'97 Audio Auto	<Enter> to enable or disable the floppy drive controller.
F1:Help      ↑:Select Item      +/-:Change Values      F9:Setup Defaults Esc:Previous Menu      Enter:Select      ▶Sub-Menu      F10:Save & Exit	

**OnBoard FDC:** Use this to enable or disable floppy drive controller.

**OnBoard Serial Port:** Use this to set addresses for the onboard serial ports or disable serial ports. Configuration options: [Auto], [Disabled], [3F8 / IRQ4 / COM1], [2F8 / IRQ3 / COM2], [3E8 / IRQ4 / COM3], [2E8 / IRQ3 / COM4].

**OnBoard Infrared Port:** You may select [Enable] or [Disabled] for this onboard infrared port feature.

**OnBoard Parallel Port:** Select Parallel Port address or disable Parallel Port. Configuration options: [Auto], [Disabled], [378], [278].

**Parallel Port Mode:** Set the operation mode of the parallel port. The default value is [ECP+CPP]. If this option is set to [ECP+EPP], it will show the EPP version in the following item, "EPP Version".

**OnBoard Midi Port:** Select address for Midi Port or disable Midi Port. Configuration options: [Disabled], [330], [300], [290], [292].

**Midi IRQ Select:** Use this to select Midi IRQ.

**OnBoard Game Port:** Select address for Game Port or disable Game Port. Configuration options: [Disabled], [200h], [208h].

**OnBoard PATA-IDE:** This allows you to enable or disable the onboard Parallel IDE controller.

**OnBoard LAN:** This allows you to enable or disable the onboard LAN feature.

**OnBoard AC'97 Audio:** Select [Disabled], [Auto] or [Enabled] for the onboard AC'97 Audio feature.

**System Hardware Monitor:** You can check the status of the hardware on your system. It allows you to monitor the parameters for CPU temperature, Motherboard temperature, CPU fan speed, and critical voltage.

AMIBIOS SETUP UTILITY - VERSION 3.31a	
Advanced	
System Hardware Monitor	
	[ Setup Help ]
CPU Temperature	35°C / 95°F
M/B Temperature	27°C / 82°F
CPU Fan Speed	3110 RPM
Chassis Fan Speed	0 RPM
Vcore	1.60 V
+ 3.30V	3.31 V
+ 5.00V	4.97 V
+ 12.00V	12.16 V

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

## 2. Security Setup Menu

AMIBIOS SETUP UTILITY - VERSION 3.31a			
Main	Advanced	Security	Power Boot Exit
Supervisor Password	Clear		[ Setup Help ]
User Password	Clear		<Enter> to set the supervisor password.
Set Supervisor Password	[ Enter ]		
Set User Password	[ Enter ]		
Password Check	Setup		
F1:Help Esc:Exit	↑↓:Select Item ←→:Select Menu	+/-:Change Values Enter:Select	F9:Setup Defaults F10:Save & Exit

**Supervisor Password:** This field shows the status of the Supervisor Password.

**[Clear]:** No password has been set.

**[Set]:** Supervisor password has been set.

**User Password:** This field shows the status of the User Password.

**[Clear]:** No password has been set.

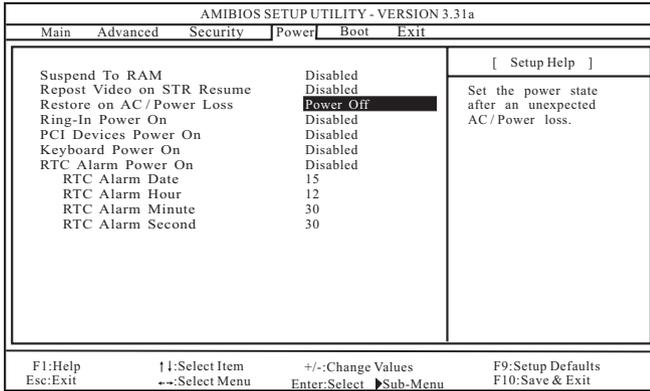
**[Set]:** User password has been set.

**Set Supervisor Password:** Press <Enter> to set Supervisor Password. Valid password can be a 1 to 6 alphanumeric characters combination. If you already have a password, you must enter your current password first in order to create a new password.

**Set User Password:** Press <Enter> to set User Password. Valid password can be a 1 to 6 alphanumeric characters combination. If you already have a password, you must enter your current password first in order to create a new password.

**Password Check:** Select the check point for "Password Check". Configuration options: [Setup], [Always]. If [Setup] option is selected, the "Password Check" is performed before BIOS setup. If [Always] option is selected, the "Password Check" is performed before both boot-up and BIOS setup.

### 3. Power Setup Menu



**Suspend to RAM:** This field allows you to select whether to auto-detect or disable the Suspend-to-RAM feature. Select [Auto] will enable this feature if the system supports it.

**Repost Video on STR Resume:** This feature allows you to repost video on STR resume. It is recommended to enable this feature under Microsoft® Windows® 98 / ME.

**Restore on AC/Power Loss:** This allows you to set the power state after an unexpected AC/power loss. If [Power Off] is selected, the AC/power remains off when the power recovers. If [Power On] is selected, the AC/power resumes and the system starts to boot up when the power recovers.

**Ring-In Power On:** Use this to enable or disable Ring-in signals to turn on the system from the power-soft-off mode.

**PCI Devices Power On:** Use this to enable or disable PCI devices to turn on the system from the power-soft-off mode.

**Keyboard Power On:** Use this to enable or disable PS/2 keyboard to turn on the system from the power-soft-off mode.

**RTC Alarm Power On:** Use this to enable or disable RTC (Real Time Clock) to power on the system. If [Enable] is selected, you will need to fill the RTC Alarm Date / Hour / Minute / Second sub-fields with the actual wake up time you desire.

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## 4. Boot Setup Menu

AMIBIOS SETUP UTILITY - VERSION 3.31a					
Main	Advanced	Security	Power	Boot	Exit
Quick Boot Mode		Enabled	[ Setup Help ]		
Boot Up Num-Lock		On	<Enter> to enable or disable the quick boot mode.		
Boot To OS/2		No			
Boot From Network		Disabled			
▶ Boot Device Priority					
F1:Help		↑↓:Select Item	+/-:Change Values		F9:Setup Defaults
Esc:Exit		←→:Select Menu	Enter:Select ▶Sub-Menu		F10:Save & Exit

**Quick Boot Mode:** Enable this mode will speed up the boot-up routine by skipping memory retestings. The default value is [Enabled].

**Boot Up Num-Lock:** If this is enabled, it will automatically activate the Numeric Lock function after boot-up. The default value is [On].

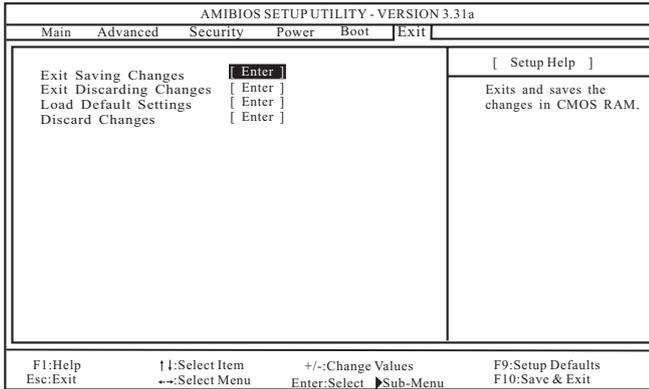
**Boot To OS/2:** This enables boot-up to OS/2 operating system.  
The default value is [No].

**Boot From Network:** Use this to enable or disable “boot from network” feature.  
The default value is [Disabled].

**Boot Device Priority:** This allows you to set the boot device priority.

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## 5. Exit Menu



**Exit Saving Changes:** After you enter the sub-menu, the message “Save current settings and exit” will appear. If you press <ENTER>, it will save the current settings and exit the BIOS SETUP Utility.

**Exit Discarding Changes:** After you enter the submenu, the message “Quit without saving changes” will appear. If you press <ENTER>, you will exit the BIOS Setup Utility without making any changes to the settings.

**Load Default Settings:** After you enter the submenu, the message “Load default settings” will appear. If you press <Enter>, it will load the default values for all the setup configurations.

**Discard Changes:** After you enter the sub-menu, the message “Load setup original values” will appear. If you press <ENTER>, original values will be restored and all changes are discarded.