# P4i48

# User Manual

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# Chapter 1 Introduction

Thank you for purchasing ASRock P4i48 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.

In this manual, chapter 1 and 2 contain introduction of the motherboard and step-by-step guide to the hardware installation. Chapter 3 and 4 contain the configuration guide to BIOS setup and information of the Support CD.

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 P4i48 Motherboard
(ATX Form Factor: 12.0-in x 7.0-in, 30.5 cm x 17.8 cm)
ASRock P4i48 Quick Installation Guide
ASRock P4i48 Support CD
One 80-conductor Ultra ATA 66/100 IDE Ribbon Cable
One Ribbon Cable for a 3.5-in Floppy Drive
One Serial ATA (SATA) Data Cable
One Serial ATA (SATA) HDD Power Cable (Optional)
One ASRock I/O Plus™ Shield

## 1.2 Specifications

| | |
|---|---|
| **Platform:** | ATX Form Factor: 12.0-in x 7.0-in, 30.5 cm x 17.8 cm |
| **CPU:** | Socket 478, supports Intel® Pentium® 4 (Prescott, Northwood, Willimate) / Celeron® processor |
| **Chipsets:** | North Bridge:<br>Intel® 848P chipset, FSB @ 800 / 533 / 400MHz,<br>supports Hyper-Threading Technology (see **CAUTION 1**)<br>South Bridge:<br>Intel® ICH5, supports SATA 1.5Gb/s |
| **Memory:** | 2 DDR DIMM slots: DDR1 and DDR2<br>supports PC3200 (DDR400) / PC2700 (DDR333) /<br>PC2100 (DDR266), Max. 2GB (see **CAUTION 2**) |
| **IDE:** | IDE1: ATA 100 / Ultra DMA Mode 5<br>IDE2: ATA 100 / Ultra DMA Mode 5<br>Supports up to 4 IDE devices |
| **Serial ATA:** | Supports up to 2 SATA devices at 1.5Gb/s data transfer rate<br>(Not Support "RAID and "Hot Plug" functions) |
| **Floppy Port:** | Supports up to 2 floppy disk drives |
| **Audio:** | 5.1 channels AC'97 Audio |
| **PCI LAN:** | Speed: 802.3u (10/100 Ethernet), supports Wake-On-LAN |
| **Hardware Monitor:** | CPU temperature sensing,<br>Chassis temperature sensing,<br>CPU overheat shutdown to protect CPU life<br>(ASRock U-COP)(see **CAUTION 3**),<br>CPU fan tachometer,<br>Chassis fan tachometer,<br>Voltage monitoring: +12V, +5V, +3V, Vcore |
| **PCI slots:** | 5 PCI slots with PCI Specification 2.2 |
| **AGP slot:** | 1 AGP slot, supports 1.5V, 8X/4X AGP card (see **CAUTION 4**) |
| **USB 2.0:** | 8 USB 2.0 ports:<br>includes 6 default USB 2.0 ports on the rear panel,<br>plus one header to support 2 additional USB 2.0 ports<br>(see **CAUTION 5**) |
| **ASRock I/O Plus™:** | 1 PS/2 mouse port,<br>1 PS/2 keyboard port,<br>1 serial port: COM1,<br>1 parallel port: ECP/EPP support,<br>6 default USB 2.0 ports,<br>1 RJ 45 port,<br>Audio Jack: Line In / Line Out / Microphone |

**BIOS:** AMI legal 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 **CAUTION 6**)

**OS:** Microsoft® Windows® 98 SE / ME / 2000 / XP compliant

## *CAUTION!*

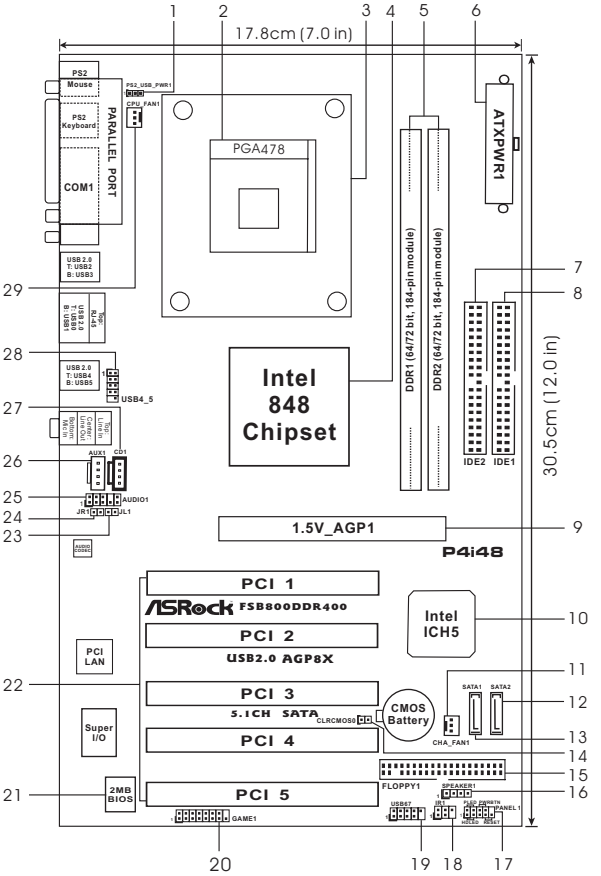
1. About the setting of “Hyper Threading Technology”, please check page 22.
2. Please check the table below for the memory support frequency and its corresponding CPU FSB frequency.

| CPU FSB Frequency | Memory Support Frequency |
|---|---|
| 800 | DDR266, DDR320*, DDR400 |
| 533 | DDR266, DDR333 |
| 400 | DDR266 |

* When you use an FSB800-CPU on this motherboard, it will run at DDR320 if you adopt a DDR333 memory module.

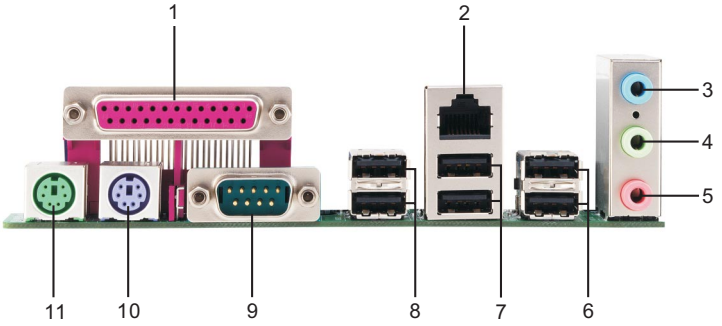
3. While CPU overheat is detected, the system will automatically shutdown. Before you resume the system, please check if the CPU fan on the motherboard functions properly and unplug the power cord, then plug it back again. To improve heat dissipation, remember to spray thermal grease between the CPU and the heatsink when you install the PC system.
4. Do NOT use a 3.3V AGP card on the AGP slot of this motherboard! It may cause permanent damage!
5. 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
6. Although this motherboard offers stepless control, it is not recommended to perform over-clocking. Frequencies other than the recommended CPU bus frequencies may cause the instability of the system or damage the CPU.

## 1.3 Motherboard Layout




| | |
|---|---|
| 1 | PS2_USB_PWR1 Jumper |
| 2 | CPU Socket |
| 3 | CPU Heatsink Retention Module |
| 4 | North Bridge Controller |
| 5 | 184-pin DDR DIMM Slots (DDR1- 2) |
| 6 | ATX Power Connector (ATXPWR1) |
| 7 | Secondary IDE Connector (IDE2, Black) |
| 8 | Primary IDE Connector (IDE1, Blue) |
| 9 | AGP Slot (1.5V_AGP1) |
| 10 | South Bridge Controller |
| 11 | Chassis Fan Connector (CHA_FAN1) |
| 12 | Secondary Serial ATA Connector (SATA2) |
| 13 | Primary Serial ATA Connector (SATA1) |
| 14 | Clear CMOS Jumper (CLRCMOS0) |
| 15 | Floppy Connector (FLOPPY1) |
| 16 | Chassis Speaker Header (SPEAKER 1) |
| 17 | System Panel Header (PANEL1) |
| 18 | Infrared Module Header (IR1) |
| 19 | USB 2.0 Header (USB67, Blue) |
| 20 | Game Port Connector (GAME1) |
| 21 | BIOS FWH Chip |
| 22 | PCI Slots (PCI1- 5) |
| 23 | JL1 Jumper |
| 24 | JR1 Jumper |
| 25 | Front Panel Audio Header (AUDIO1) |
| 26 | Internal Audio Connector: AUX1 (White) |
| 27 | Internal Audio Connector: CD1 (Black) |
| 28 | Shared USB 2.0 Header (USB4_5, Blue) |
| 29 | CPU Fan Connector (CPU_FAN1) |

## 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

P4i48 is an ATX form factor (12.0-in x 7.0-in, 30.5 cm x 17.8 cm) motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it.

## 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 anti-static 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.

## 2.1 CPU Installation

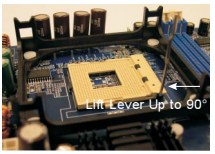
Step 1. Unlock the socket by lifting the lever up to a 90° angle.

Step 2. Position the CPU directly above the socket such that its marked corner matches the base of the socket lever.

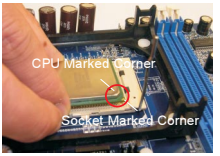
Step 3. Carefully insert the CPU into the socket until it fits in place.

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:
Lift The Socket Lever Up to 90°




STEP 2/STEP 3:
Match The CPU Marked Corner to The Socket Marked Corner

STEP 4:
Push Down And Lock The Socket Lever

## 2.2 Installation of CPU Fan and Heatsink

This motherboard adopts 478-pin CPU socket to support Intel® Pentium®4 CPU. It requires larger heatsink and cooling fan to dissipate heat. You also need to spray thermal grease between the CPU and the heatsink 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 8, No. 29). For proper installation, please kindly refer to the instruction manuals of the CPU fan and the heatsink.

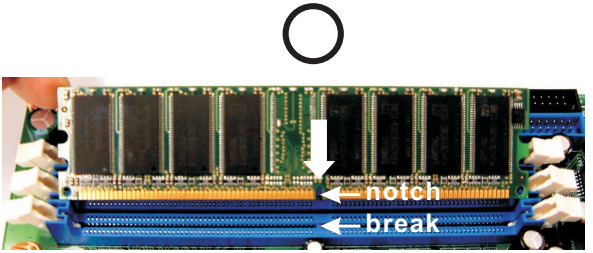
## 2.3 Installation of Memory Modules (DIMM)

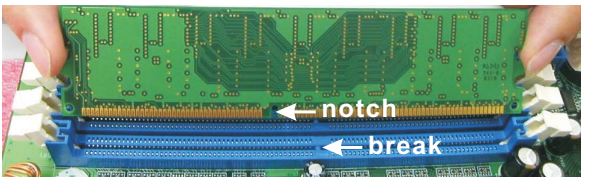
P4i48 motherboard provides two 184-pin DDR (Double Data Rate) DIMM slots.

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.

## 2.4 Expansion Slots (PCI and AGP Slots)

There are 5 PCI slots and 1 AGP slot on P4i48 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.

Please do NOT use a 3.3V AGP card on the AGP slot of this motherboard! It may cause permanent damage! For the voltage information of your graphics card, please check with the graphics card vendors.

### 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.

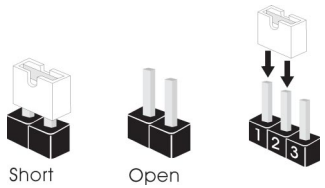
Step 4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.

Step 5. Fasten the card to the chassis with screws.

Step 6. Replace the system cover.

## 2.5 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 | Description |
|---|---|---|
| PS2_USB_PWR1 (see p.8 No. 1) | 1_2 +5V / 2_3 +5VSB | Short pin2, pin3 to enable +5VSB (standby) for PS/2 or USB wake up events. |

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

JR1 (see p.8 No. 24)
JL1 (see p.8 No. 23)

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

Clear CMOS
(CLRCMOS0, 2-pin jumper)
(see p.8 No. 14)

Note: CLRCMOS0 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 CLRCMOS0 for 3 seconds. Please remember to remove the jumper cap after clearing the CMOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action.

## 2.6 Onboard Headers and Connectors

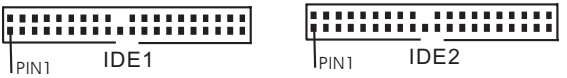
Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage of the motherboard!

FDD connector
(33-pin FLOPPY1)
(see p.8 No. 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.8 No. 8)

Secondary IDE connector (Black)
(39-pin IDE2, see p.8 No. 7)



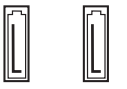

connect the blue end to the motherboard

connect the black end to the IDE devices

80-conductor ATA 66/100 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.8 No. 13)
(SATA2: see p.8 No. 12)

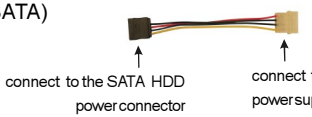



These two Serial ATA (SATA) connectors support SATA data cables for internal storage devices. The current SATA interface allows up to 1.5 Gb/s data transfer rate.

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 (Optional)

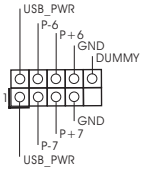



Please connect the black end of SATA power cable to the power connector on each drive. Then connect the white end of SATA power cable to the power connector of the power supply.

USB 2.0 Header

(9-pin USB67)

(see p.8 No. 19)

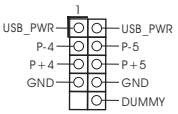



ASRock I/O Plus™ accommodates 6 default USB 2.0 ports. If those USB 2.0 ports on the I/O panel are not sufficient, this USB 2.0 header is available to support 2 additional USB 2.0 ports.

Shared USB 2.0 Header

(9-pin USB4_5)

(see p.8 No. 28)

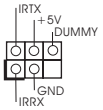



This USB45 connector is shared with the USB 2.0 ports 4,5 on ASRock I/O Plus™. When using the front panel USB ports by attaching the front panel USB cable to this connector (USB4_5), the USB ports 4,5 on ASRock I/O Plus™ will not be able to function.

Infrared Module Header

(5-pin IR1)

(see p.8 No. 18)



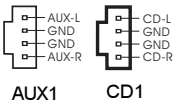

This header supports an optional wireless transmitting and receiving infrared module.

Internal Audio Connectors

(4-pin CD1, 4-pin AUX1)

(CD1: see p.8 No. 27)

(AUX1: see p.8 No. 26)

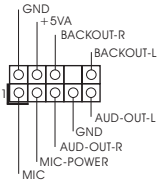



These connectors allow you to receive stereo audio input from sound sources such as a CD-ROM, DVD-ROM, TV tuner card, or MPEG card.

Front Panel Audio Header

(9-pin AUDIO1)

(see p.8 No. 25)

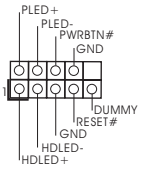



This is an interface for front panel audio cable that allows convenient connection and control of audio devices.

### System Panel Header

(9-pin PANEL1)

(see p.8 No. 17)

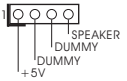



This header accommodates several system front panel functions.

### Chassis Speaker Header

(4-pin SPEAKER 1)

(see p.8 No. 16)

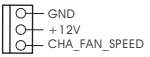



Please connect the chassis speaker to this header.

### Chassis Fan Connector

(3-pin CHA_FAN1)

(see p.8 No. 11)

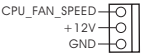



Please connect a chassis fan cable to this connector and match the black wire to the ground pin.

### CPU Fan Connector

(3-pin CPU_FAN1)

(see p.8 No. 29)




Please connect a CPU fan cable to this connector and match the black wire to the ground pin.

### ATX Power Connector

(20-pin ATXPWR1)

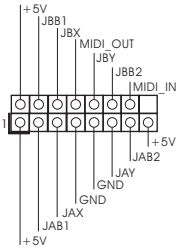
(see p.8 No. 6)

Please connect an ATX power supply to this connector.

### Game Port Connector

(15-pin GAME1)

(see p.8 No. 20)




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

## 2.7 Serial ATA (SATA) Hard Disks Installation

This motherboard adopts Intel ICH5 south bridge 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.

STEP 1: Install the SATA hard disks into the drive bays of your chassis.
STEP 2: Connect the SATA power cable to the SATA hard disk.
STEP 3: Connect one end of the SATA data cable to the motherboard's primary SATA connector (SATA1).
STEP 4: Connect the other end of the SATA data cable to the primary SATA hard disk. If you just want to install only one SATA HDD, the installation process is complete at this step. If you want to install two SATA HDDs, please continue to do the following steps.
STEP 5: Connect the SATA power cable to the SATA hard disk.
STEP 6: Connect one end of the second SATA data cable to the motherboard's secondary SATA connector (SATA2).
STEP 7: Connect the other end of the SATA data cable to the secondary SATA hard disk.

Before you install OS into the SATA hard disk, you need to check and ensure the configuration of the **OnBoard IDE Operate Mode** option in BIOS setup is correct according to the condition of your system. For the configuration details, please refer to the instruction on page 23.

# Chapter 3 BIOS SETUP UTILITY

## 3.1 Introduction

This section explains how to use the BIOS SETUP UTILITY to configure your system. The BIOS FWH chip 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 will continue with its test routines.

If you wish to enter the BIOS SETUP UTILITY 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.

Because the BIOS software is constantly being updated, the following BIOS setup screens and descriptions are for reference purpose only, and they 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:

| | |
|---|---|
| **Main** | To set up the system time/date information |
| **Advanced** | To set up the advanced BIOS features |
| **PCIPnP** | To set up the PCI features |
| **Boot** | To set up the default system device to locate and load the Operating System |
| **Security** | To set up the security features |
| **Chipset** | To set up the chipset features |
| **Exit** | To exit the current screen or the BIOS SETUP UTILITY |

Use < ← > key or < → > key to choose among the selections on the menu bar, and then press <Enter> to get into the sub screen.

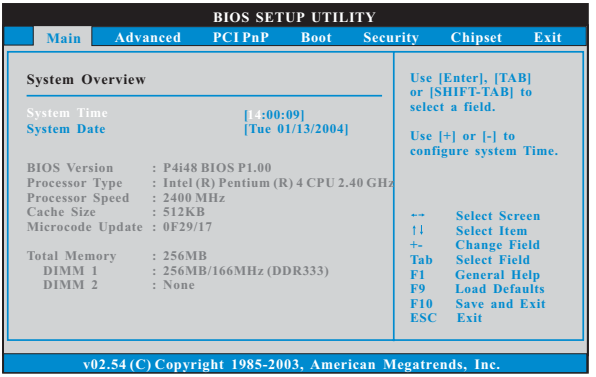
### 3.1.2 Navigation Keys

Please check the following table for the function description of each navigation key.

| Navigation Key(s) | Function Description |
|---|---|
| ↑ / ↓ | Moves cursor left or right to select Screens |
| ← / → | Moves cursor up or down to select items |
| + / - | To change option for the selected items |
| <Enter> | To bring up the selected screen |
| <F1> | To display the General Help Screen |
| <F9> | To load optimal default values for all the settings |
| <F10> | To save changes and exit the BIOS SETUP UTILITY |
| <ESC> | To jump to the Exit Screen or exit the current screen |

## 3.2 Main Screen

When you enter the BIOS SETUP UTILITY, the Main screen will appear and display the system overview




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

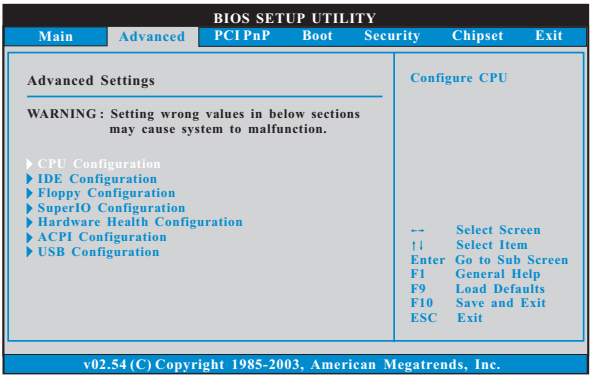
Use this item to specify the system time.

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

Use this item to specify the system date.

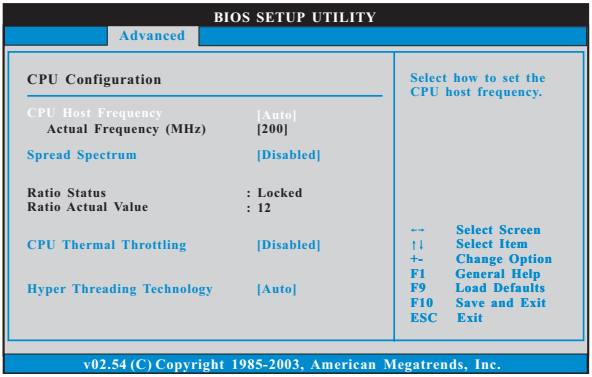
## 3.3 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, IDE Configuration, Floppy Configuration, SuperIO Configuration, Hardware Health Configuration, ACPI Configuration, and USB Configuration.




Setting wrong values in this section may cause the system to malfunction.

### 3.3.1 CPU Configuration




**CPU Host Frequency**

While entering setup, BIOS auto detects the present CPU host frequency of this motherboard. The actual CPU host frequency will show in the following item.

**Spread Spectrum**

This item should always be [Disabled] for better system stability.

**Ratio Status**

This is a read-only item, which displays whether the ratio status of this motherboard is “Locked” or “Unlocked”. If it shows “Unlocked”, you will find an item **Ratio CMOS Setting** appears to allow you changing the ratio value of this motherboard. If it shows “Locked”, then the item **Ratio CMOS Setting** will be hidden. If you use the ratio value to time the CPU frequency, it will be equal to the core speed of the installed processor.

**Ratio Actual Value**

This is a read-only item, which displays the ratio actual value of this motherboard.

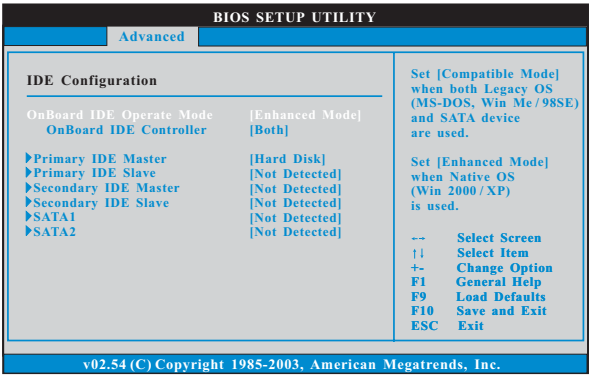
**CPU Thermal Throttling**

You may select [Enabled] to enable P4 CPU internal thermal control mechanism to keep the CPU from overheated.

**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 installed CPU does not support Hyper-Threading technology.

## 3.3.2 IDE Configuration




**OnBoard IDE Operate Mode**

Please select [**Compatible Mode**] when you install legacy OS (Windows ME / 98SE) into SATA device. If you install legacy OS into IDE HDD while SATA devices are used, you also need to select [**Compatible Mode**].

If native OS (Windows 2000 / XP) is installed into SATA device, please select [**Enhanced Mode**]. You also need to select [**Enhanced Mode**] while native OS is installed into IDE HDD and SATA devices are used.

If you do not install any SATA device, please also select [**Enhanced Mode**] no matter you use legacy OS or native OS for the system.

Please note that the following options will be varied depending on the **"OnBoard IDE Operate Mode"** ([**Compatible Mode**] or [**Enhanced Mode**]) that you selected.

When [**Enhanced Mode**] is selected:

**OnBoard IDE Controller**

You may enable either the primary IDE channel or the secondary IDE channel. Or you may enable both the primary and the secondary IDE channels by selecting [Both]. Set to [Disabled] will disable the both. Configuration options: [Disabled], [Primary], [Secondary], [Both].

When [**Compatible Mode**] is selected

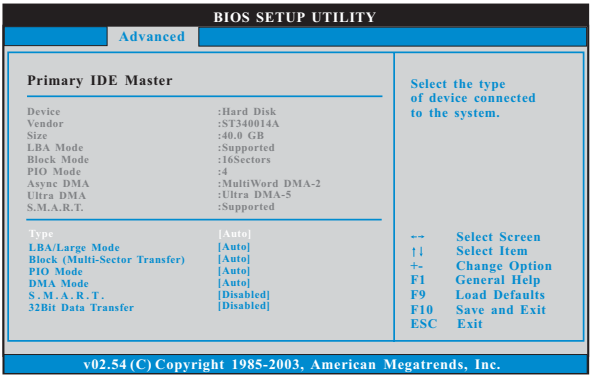
**Combined Mode Option**

It allows you to select between [**Pri IDE + SATA**] and [**SATA + Sec IDE**]. If it is set to [Pri IDE + SATA], then the secondary IDE will not work. Likewise, if it is set to [SATA + Sec IDE], then the primary IDE will not work.

Because legacy OS (Windows ME / 98SE) only supports four IDE devices, you have to choose either [**Pri IDE + SATA**] or [**SATA + Sec IDE**] when the installed SATA device is used with legacy OS.

### IDE Device Configuration

You may set the IDE configuration for the device that you specify. We will use the “Primary IDE Master” as the example in the following instruction, which can be applied to the configurations of “Primary IDE Slave”, “Secondary IDE Master”, “Secondary IDE Slave”, “SATA1” and “SATA2” as well.




**TYPE**

Use this item to configure the type of the IDE device that you specify. Configuration options: [Not Installed], [Auto], [CD/DVD], and [ARMD].

**[Not Installed]:** Select [Not Installed] to disable the use of IDE device.

**[Auto]:** Select [Auto] to automatically detect the hard disk drive.

After selecting the hard disk information into BIOS, use a disk utility, such as FDISK, to partition and format the 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.

**LBA/Large Mode**

Use this item to select the LBA/Large mode for a hard disk > 512 MB under DOS and Windows; for Netware and UNIX user, select [Disabled] to disable the LBA/Large mode.

**Block (Multi-Sector Transfer)**

The default value of this item is [Auto]. If this feature is enabled, it will enhance hard disk performance by reading or writing more data during each transfer.

**PIO Mode**

Use this item to set the PIO mode to enhance hard disk performance by optimizing the hard disk timing.

**DMA Mode**

DMA capability allows the improved transfer-speed and data-integrity for compatible IDE devices.

**S.M.A.R.T.**

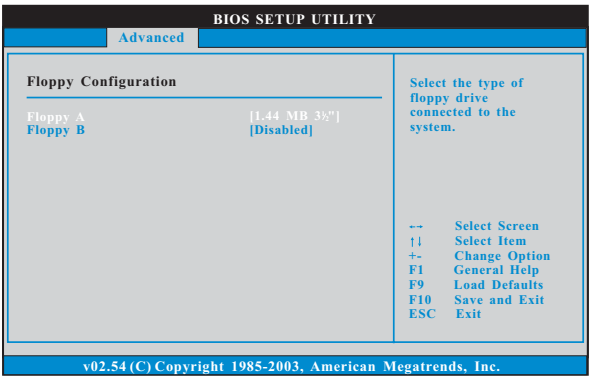
Use this item to enable or disable the S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology) feature. Configuration options: [Disabled], [Auto], [Enabled].

**32-Bit Data Transfer**

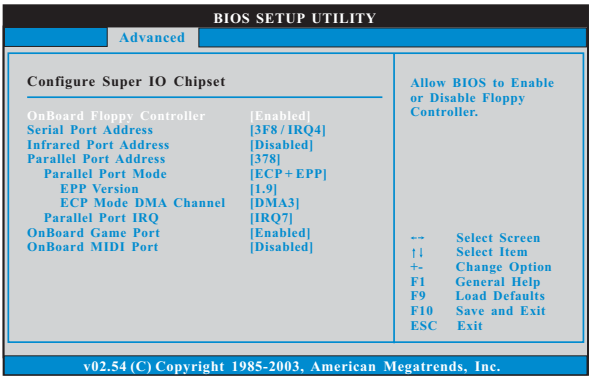
Use this item to enable 32-bit access to maximize the IDE hard disk data transfer rate.

## 3.3.3 Floppy Configuration

In this section, you may configure the type of your floppy drive.



## 3.3.4 Super IO Configuration




**OnBoard Floppy Controller**

Use this item to enable or disable floppy drive controller.

**Serial Port Address**

Use this item to set the address for the onboard serial port or disable it. Configuration options: [Disabled], [3F8 / IRQ4], [2F8 / IRQ3], [3E8 / IRQ4], [2E8 / IRQ3].

**Infrared Port Address**

Use this item to set the address for the onboard infrared port or disable it. Configuration options: [Disabled], [2F8 / IRQ3], and [2E8 / IRQ3].

**Parallel Port Address**

Use this item to set the address for the onboard parallel port or disable it. Configuration options: [Disabled], [378], and [278].

**Parallel Port Mode**

Use this item to set the operation mode of the parallel port. The default value is [ECP+EPP]. If this option is set to [ECP+EPP], it will show the EPP version in the following item, "EPP Version". Configuration options: [Normal], [Bi-Directional], and [ECP+EPP].

**EPP Version**

Use this item to set the EPP version. Configuration options: [1.9] and [1.7].

**ECP Mode DMA Channel**

Use this item to set the ECP mode DMA channel. Configuration options: [DMA0], [DMA1], and [DMA3].

**Parallel Port IRQ**

Use this item to set the IRQ for the parallel port. Configuration options: [IRQ5] and [IRQ7].

**OnBoard Game Port**

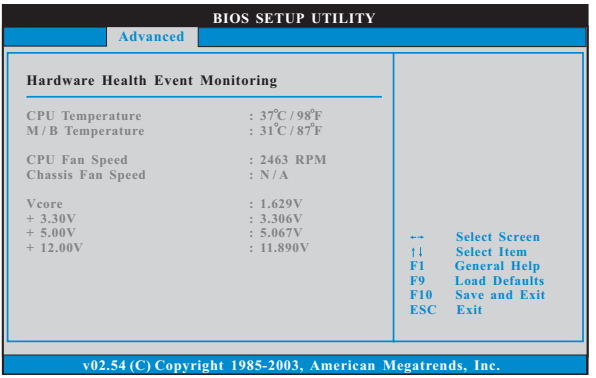
Use this item to enable the Game Port or disable it.

**OnBoard MIDI Port**

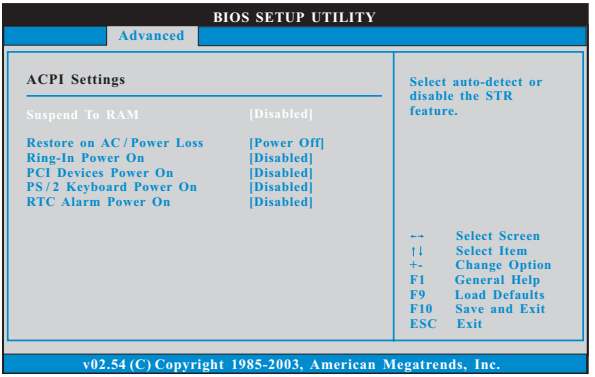
Use this itme to select the address for the MIDI Port or disable it. Configuration options: [Disabled], [300], and [330].

## 3.3.5 Hardware Health Configuration

In this section, it allows you to monitor the status of the hardware on your system, including the parameters of the CPU temperature, motherboard temperature, CPU fan speed, chassis fan speed, and the critical voltage.




## 3.3.6 ACPI Configuration



**Suspend to RAM**

Use this item to select whether to auto-detect or disable the Suspend-to-RAM feature. Select [Auto] will enable this feature if the OS supports it.

**Restore on AC/Power Loss**

Use this item 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 item to enable or disable Ring-In signals to turn on the system from the power-soft-off mode.

**PCI Devices Power On**

Use this item to enable or disable PCI devices to turn on the system from the power-soft-off mode.

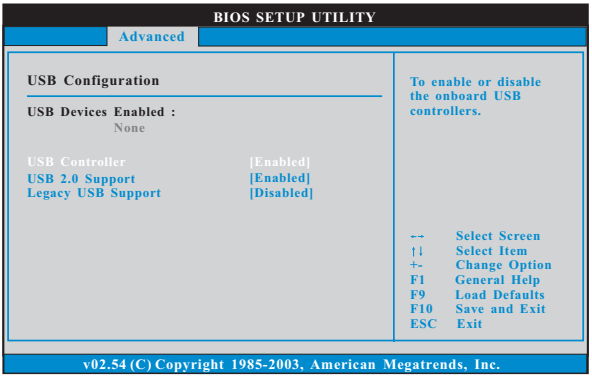
**PS/2 Keyboard Power On**

Use this item to enable or disable PS/2 keyboard to turn on the system from the power-soft-off mode.

**RTC Alarm Power On**

Use this item to enable or disable RTC (Real Time Clock) to power on the system.

## 3.3.7 USB Configuration




**USB Controller**

Use this item to enable or disable the use of USB controller.

**USB 2.0 Support**

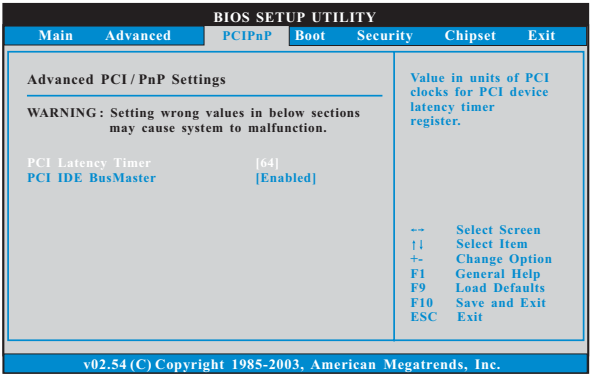
Use this item to enable or disable the USB 2.0 support.

**Legacy USB Support**

Use this item to enable or disable the support to emulate legacy I/O devices such as mouse, keyboard,... etc. Or you may select [Auto] so that the system will start to auto-detect; if there is no USB device connected, "Auto" option will disable the legacy USB support.

## 3.4 PCIPnP Screen

In this section, you may configure the PCI Latency Timer and the PCI IDE Bus Master.




Setting wrong values in this section may cause the system to malfunction.

**PCI Latency Timer**

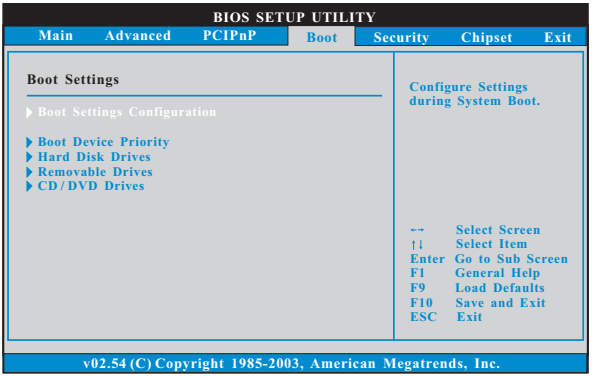
The default value is 64. It is recommended to keep the default value unless the installed PCI expansion cards' specifications require other settings.

**PCI IDE BusMaster**

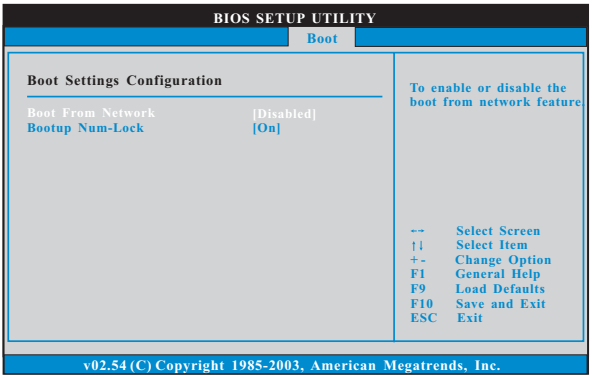
Use this item to enable or disable the PCI IDE BusMaster feature.

## 3.5 Boot Screen

In this section, it will display the available devices on your system for you to configure the boot settings and the boot priority.




### 3.5.1 Boot Settings Configuration




**Boot From Network**

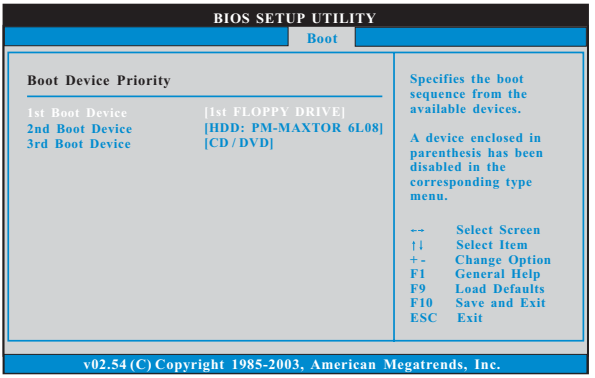
Use this item to enable or disable the Boot From Network feature.

**Boot Up Num-Lock**

If this item is set to [On], it will automatically activate the Numeric Lock function after boot-up.

### 3.5.2 Boot Device Priority

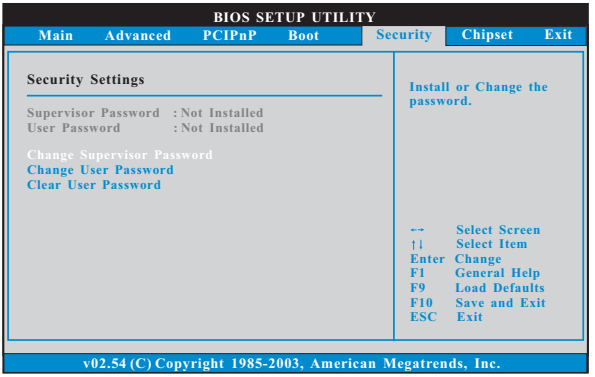
In this section, you may specify the boot sequence from the available devices in your system.




Likewise, you may also specify the boot sequence from the available devices for the hard disk drives, the removable drives, and the CD/DVD drives.

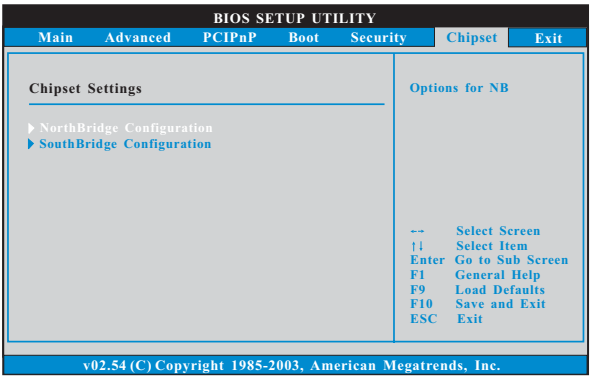
## 3.6 Security Screen

In this section, you may set or change the supervisor/user password for the system. For the user password, you may also clear it.

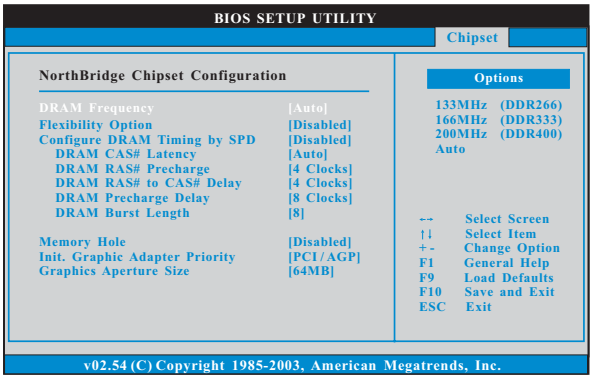


## 3.7 Chipset Screen

In this section, you may set the configurations for the north bridge Chipset and the south bridge Chipset.




### 3.7.1 NorthBridge Chipset Configuration




**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: [133MHz (DDR 266)], [166MHz (DDR 333)], [200MHz (DDR 400)].

**Flexibility Option**

The default value of this option is [Disabled]. It will allow better tolerance for memory compatibility when it is set to [Enabled].

**Configure DRAM Timing by SPD**

Select [Enabled] will configure the following items by the contents in the SPD (Serial Presence Detect) device.

**DRAM CAS# Latency**

Use this item to adjust the means of memory accessing. Configuration options: [Auto], [2.5], [2], and [3].

**DRAM RAS# Precharge**

This controls the idle clocks after a precharge command is issued. Configuration options: [4 Clocks], [3 Clocks], and [2 Clocks].

**DRAM RAS# to CAS# Delay**

This controls the latency between the DRAM active command and the read / write command. Configuration options: [4 Clocks], [3 Clocks], and [2 Clocks].

**DRAM Precharge Delay**

This controls the number of DRAM clocks for RAS minimum. Configuration options: [8 Clocks], [7 Clocks], [6 Clocks], and [5 Clocks].

**DRAM Burst Length**

DRAM Burst length can be set as [8] or [4].

**Memory Hole**

The default value of this item is [Disabled], or you may set the value of this item as [15MB-16MB].

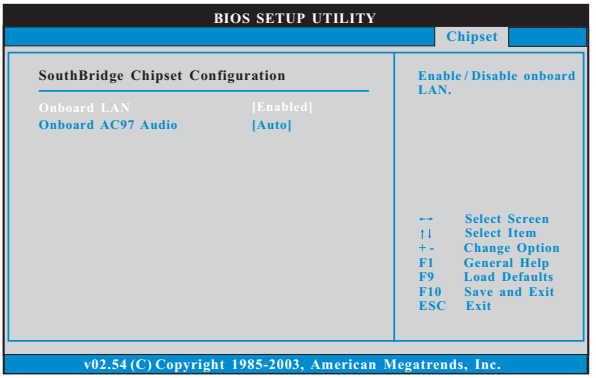
**Init. Graphic Adapter Priority**

This allows you to select [PCI/AGP] or [AGP/PCI] as the initial graphics adapter priority.

**Graphics 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.

## 3.7.2 SouthBridge Chipset Configuration



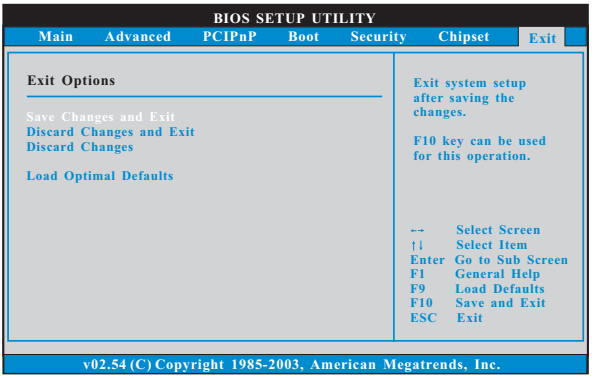

**OnBoard LAN**

Use this item to enable or disable the onboard LAN device.

**OnBoard AC'97 Audio**

Select [Disabled] or [Auto] for the onboard AC'97 Audio feature.

## 3.8 Exit Screen




**Save Changes and Exit**

When you select this option, it will pop-out the following message, "Save configuration changes and exit setup?" Select [OK] to save the changes and exit the BIOS SETUP UTILITY.

**Discard Changes and Exit**

When you select this option, it will pop-out the following message, "Discard changes and exit setup?" Select [OK] to exit the BIOS SETUP UTILITY without saving any changes.

**Discard Changes**

When you select this option, it will pop-out the following message, "Discard changes?" Select [OK] to discard all changes.

**Load Optimal Defaults**

When you select this option, it will pop-out the following message, "Load optimal defaults?" Select [OK] to load the default values for all the setup configurations.

# 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. Please 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.