



P43DE3L

## User Manual

Version 1.0

Published May 2010

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- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

### **CALIFORNIA, USA ONLY**

The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance.

"Perchlorate Material-special handling may apply, see [www.dtsc.ca.gov/hazardouswaste/perchlorate](http://www.dtsc.ca.gov/hazardouswaste/perchlorate)"

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## ***Contents***

<b>1 Introduction .....</b>	<b>5</b>
1.1 Package Contents .....	5
1.2 Specifications .....	6
1.3 Motherboard Layout .....	10
1.4 I/O Panel .....	11
<b>2 Installation .....</b>	<b>12</b>
2.1 Screw Holes .....	12
2.2 Pre-installation Precautions .....	12
2.3 CPU Installation .....	13
2.4 Installation of Heatsink and CPU fan .....	15
2.5 Installation of Memory Modules (DIMM) .....	16
2.6 Expansion Slots (PCI and PCI Express Slots) .....	17
2.7 Jumpers Setup .....	18
2.8 Onboard Headers and Connectors .....	19
2.9 SATAII Hard Disk Setup Guide .....	23
2.10 Serial ATA (SATA) / Serial ATAII (SATAII) Hard Disks Installation .....	24
2.11 Hot Plug Function for SATA / SATAII HDDs .....	24
2.12 SATA / SATAII HDD Hot Plug Feature and Operation Guide .....	25
2.13 Driver Installation Guide .....	27
2.14 Installing Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit Without RAID Functions .....	27
2.14.1 Installing Windows® XP / XP 64-bit Without RAID Functions .....	27
2.14.2 Installing Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit Without RAID Functions .....	28
2.15 Untied Overclocking Technology .....	28
<b>3 BIOS SETUP UTILITY .....</b>	<b>29</b>
<b>3.1 Introduction .....</b>	<b>29</b>
3.1.1 BIOS Menu Bar .....	29
3.1.2 Navigation Keys .....	30
3.2 Main Screen .....	30
3.3 OC Tweaker Screen .....	31
3.4 Advanced Screen .....	35
3.4.1 CPU Configuration .....	36
3.4.2 Chipset Configuration .....	39
3.4.3 ACPI Configuration .....	43
3.4.4 Storage Configuration .....	44

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3.4.5 PCI/PnP Configuration .....	46
3.4.6 Super IO Configuration .....	46
3.4.7 USB Configuration .....	47
3.5 Hardware Health Event Monitoring Screen .....	48
3.6 Boot Screen .....	49
3.6.1 Boot Settings Configuration .....	49
3.7 Security Screen .....	50
3.8 Exit Screen .....	51
<b>4 Software Support .....</b>	<b>52</b>
4.1 Install Operating System .....	52
4.2 Support CD Information .....	52
4.2.1 Running Support CD .....	52
4.2.2 Drivers Menu .....	52
4.2.3 Utilities Menu .....	52
4.2.4 Contact Information .....	52

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## Chapter 1: Introduction

Thank you for purchasing ASRock **P43DE3L** 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 VGA cards and CPU support lists on ASRock website as well. ASRock website <http://www.asrock.com>  
If you require technical support related to this motherboard, please visit our website for specific information about the model you are using.  
[www.asrock.com/support/index.asp](http://www.asrock.com/support/index.asp)

### 1.1 Package Contents

ASRock **P43DE3L** Motherboard

(ATX Form Factor: 12.0-in x 7.5-in, 30.5 cm x 19.1 cm)

ASRock **P43DE3L** Quick Installation Guide

ASRock **P43DE3L** Support CD

2 x Serial ATA (SATA) Data Cables (Optional)

1 x I/O Panel Shield

## 1.2 Specifications

<b>Platform</b>	<ul style="list-style-type: none"><li>- ATX Form Factor: 12.0-in x 7.5-in, 30.5 cm x 19.1 cm</li><li>- Solid Capacitor for CPU power</li></ul>
<b>CPU</b>	<ul style="list-style-type: none"><li>- LGA 775 for Intel® Core™ 2 Extreme / Core™ 2 Quad / Core™ 2 Duo / Pentium® Dual Core / Celeron® Dual Core / Celeron®, supporting Penryn Quad Core Yorkfield and Dual Core Wolfdale processors</li><li>- Supports FSB1600/1333/1066/800 MHz</li><li>- Supports Hyper-Threading Technology (see <b>CAUTION 1</b>)</li><li>- Supports Untied Overclocking Technology (see <b>CAUTION 2</b>)</li><li>- Supports EM64T CPU</li></ul>
<b>Chipset</b>	<ul style="list-style-type: none"><li>- Northbridge: Intel® P43</li><li>- Southbridge: Intel® ICH10</li></ul>
<b>Memory</b>	<ul style="list-style-type: none"><li>- Dual Channel DDR3 Memory Technology (see <b>CAUTION 3</b>)</li><li>- 2 x DDR3 DIMM slots</li><li>- Support DDR3 1600/1333/1066/800 non-ECC, un-buffered memory (see <b>CAUTION 4</b>)</li><li>- Max. capacity of system memory: 8GB (see <b>CAUTION 5</b>)</li><li>- Supports Intel® Extreme Memory Profile (XMP)</li></ul>
<b>Expansion Slot</b>	<ul style="list-style-type: none"><li>- 1 x PCI Express 2.0 x16 slot (blue @ x16 mode)</li><li>- 3 x PCI Express x1 slots</li><li>- 2 x PCI slots</li></ul>
<b>Audio</b>	<ul style="list-style-type: none"><li>- 5.1 CH HD Audio (VIA® VT1705 Audio Codec)</li></ul>
<b>LAN</b>	<ul style="list-style-type: none"><li>- PCIe x1 Gigabit LAN 10/100/1000 Mb/s</li><li>- Realtek RTL8111DL</li><li>- Supports Wake-On-LAN</li></ul>
<b>Rear Panel I/O</b>	<p>I/O Panel</p> <ul style="list-style-type: none"><li>- 1 x PS/2 Mouse Port</li><li>- 1 x PS/2 Keyboard Port</li><li>- 1 x Serial Port: COM1</li><li>- 6 x Ready-to-Use USB 2.0 Ports</li><li>- 1 x RJ-45 LAN Port with LED (ACT/LINK LED and SPEED LED)</li><li>- HD Audio Jack: Line in/Front Speaker/Microphone</li></ul>
<b>Connector</b>	<ul style="list-style-type: none"><li>- 6 x SATAII 3.0Gb/s connectors, support NCQ, AHCI and “Hot Plug” functions (see <b>CAUTION 6</b>)</li><li>- 1 x ATA133 IDE connector (supports 2 x IDE devices)</li><li>- 1 x IR header</li><li>- 1 x Power LED header</li><li>- CPU/Chassis/Power FAN connector</li><li>- 24 pin ATX power connector</li></ul>

	<ul style="list-style-type: none"> <li>- 8 pin 12V power connector</li> <li>- CD in header</li> <li>- Front panel audio connector</li> <li>- 2 x USB 2.0 headers (support 4 USB 2.0 ports)</li> </ul>
<b>BIOS Feature</b>	<ul style="list-style-type: none"> <li>- 8Mb AMI BIOS</li> <li>- AMI Legal BIOS</li> <li>- Supports "Plug and Play"</li> <li>- ACPI 1.1 Compliance Wake Up Events</li> <li>- Supports jumperfree</li> <li>- SMBIOS 2.3.1 Support</li> <li>- CPU, DRAM, GTL REF, NB, NB GTL REF, SB Core, SB 1.1V, VTT, PLL Voltage Multi-adjustment</li> <li>- Supports I. O. T. (Intelligent Overclocking Technology)</li> </ul>
<b>Support CD</b>	<ul style="list-style-type: none"> <li>- Drivers, Utilities, AntiVirus Software (Trial Version), ASRock Software Suite (CyberLink DVD Suite - OEM and Trial; Creative Sound Blaster X-Fi MB - Trial)</li> </ul>
<b>Unique Feature</b>	<ul style="list-style-type: none"> <li>- ASRock OC Tuner (see <b>CAUTION 7</b>)</li> <li>- Intelligent Energy Saver (see <b>CAUTION 8</b>)</li> <li>- Instant Boot</li> <li>- ASRock Instant Flash (see <b>CAUTION 9</b>)</li> <li>- ASRock OC DNA (see <b>CAUTION 10</b>)</li> <li>- Hybrid Booster: <ul style="list-style-type: none"> <li>- CPU Frequency Stepless Control (see <b>CAUTION 11</b>)</li> <li>- ASRock U-COP (see <b>CAUTION 12</b>)</li> <li>- Boot Failure Guard (B.F.G.)</li> </ul> </li> </ul>
<b>Hardware Monitor</b>	<ul style="list-style-type: none"> <li>- CPU Temperature Sensing</li> <li>- Chassis Temperature Sensing</li> <li>- CPU/Chassis/Power Fan Tachometer</li> <li>- CPU Quiet Fan</li> <li>- CPU/Chassis Fan Multi-Speed Control</li> <li>- Voltage Monitoring: +12V, +5V, +3.3V, CPU Vcore</li> </ul>
<b>OS</b>	<ul style="list-style-type: none"> <li>- Microsoft® Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit compliant</li> </ul>
<b>Certifications</b>	<ul style="list-style-type: none"> <li>- FCC, CE, WHQL</li> <li>- ErP/EuP Ready (ErP/EuP ready power supply is required) (see <b>CAUTION 13</b>)</li> </ul>

\* For detailed product information, please visit our website: <http://www.asrock.com>

#### WARNING

Please realize that there is a certain risk involved with overclocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using the third-party overclocking tools. Overclocking may affect your system stability, or even cause damage to the components and devices of your system. It should be done at your own risk and expense. We are not responsible for possible damage caused by overclocking.

#### CAUTION!

1. About the setting of "Hyper Threading Technology", please check page 37.
2. This motherboard supports Untied Overclocking Technology. Please read "Untied Overclocking Technology" on page 28 for details.
3. This motherboard supports Dual Channel Memory Technology. Before you implement Dual Channel Memory Technology, make sure to read the installation guide of memory modules on page 16 for proper installation.
4. Please check the table below for the CPU FSB frequency and its corresponding memory support frequency.

CPU FSB Frequency	Memory Support Frequency
1600	DDR3 800, DDR3 1066, DDR3 1333, DDR3 1600
1333	DDR3 800, DDR3 1066, DDR3 1333
1066	DDR3 800, DDR3 1066
800	DDR3 800

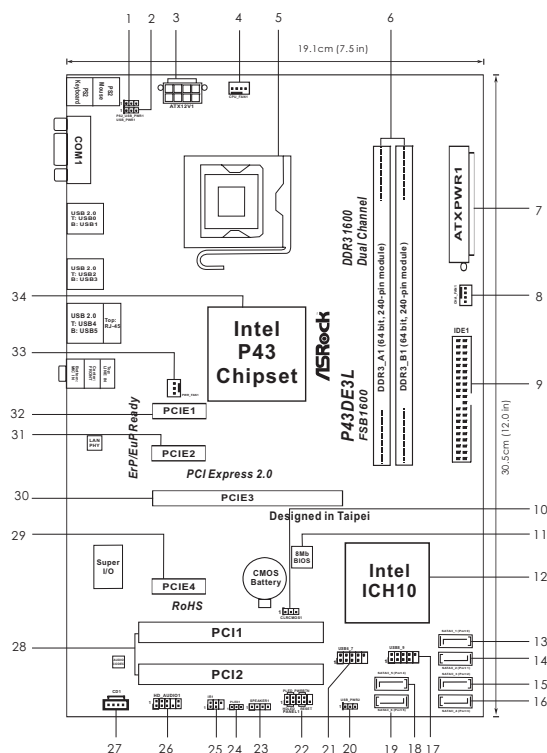
5. Due to the operating system limitation, the actual memory size may be less than 4GB for the reservation for system usage under Windows® 7 / Vista™ / XP. For Windows® OS with 64-bit CPU, there is no such limitation.
6. Before installing SATAII hard disk to SATAII connector, please read the "SATAII Hard Disk Setup Guide" on page 23 to adjust your SATAII hard disk drive to SATAII mode. You can also connect SATA hard disk to SATAII connector directly.
7. It is a user-friendly ASRock overclocking tool which allows you to surveil your system by hardware monitor function and overclock your hardware devices to get the best system performance under Windows® environment. Please visit our website for the operation procedures of ASRock OC Tuner. ASRock website: <http://www.asrock.com>
8. Featuring an advanced proprietary hardware and software design, Intelligent Energy Saver is a revolutionary technology that delivers unparalleled power savings. In other words, it is able to provide exceptional power saving and improve power efficiency without sacrificing computing performance. Please visit our website for the operation procedures of Intelligent Energy Saver.

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



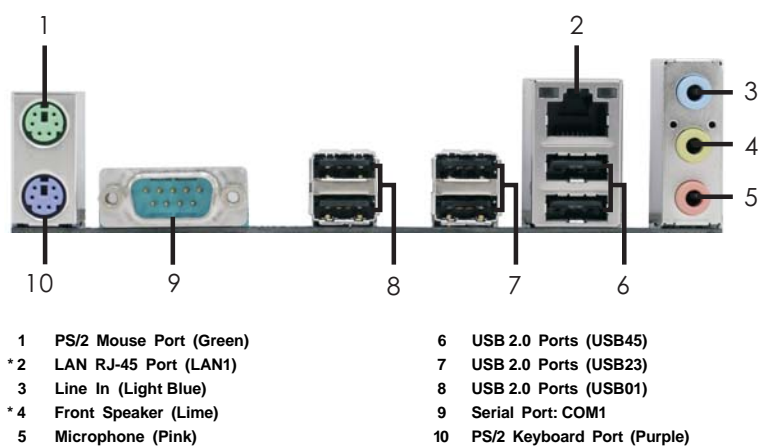
- 
9. ASRock Instant Flash is a BIOS flash utility embedded in Flash ROM. This convenient BIOS update tool allows you to update system BIOS without entering operating systems first like MS-DOS or Windows®. With this utility, you can press <F6> key during the POST or press <F2> key to BIOS setup menu to access ASRock Instant Flash. Just launch this tool and save the new BIOS file to your USB flash drive, floppy disk or hard drive, then you can update your BIOS only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system.
  10. The software name itself – OC DNA literally tells you what it is capable of. OC DNA, an exclusive utility developed by ASRock, provides a convenient way for the user to record the OC settings and share with others. It helps you to save your overclocking record under the operating system and simplifies the complicated recording process of overclocking settings. With OC DNA, you can save your OC settings as a profile and share with your friends! Your friends then can load the OC profile to their own system to get the same OC settings as yours! Please be noticed that the OC profile can only be shared and worked on the same motherboard.
  11. 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.
  12. 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.
  13. EuP, stands for Energy Using Product, was a provision regulated by European Union to define the power consumption for the completed system. According to EuP, the total AC power of the completed system shall be under 1.00W in off mode condition. To meet EuP standard, an EuP ready motherboard and an EuP ready power supply are required. According to Intel's suggestion, the EuP ready power supply must meet the standard of 5v standby power efficiency is higher than 50% under 100 mA current consumption. For EuP ready power supply selection, we recommend you checking with the power supply manufacturer for more details.

## 1.3 Motherboard Layout



- |  |   |
|--|---|
| 1 PS2_USB_PWR1 Jumper  | 19 Sixth SATAII Connector (SATAII_6 (Port 5), Blue) |
| 2 USB_PWR1 Jumper  | 20 USB_PWR2 Jumper                                  |
| 3 ATX 12V Connector (ATX12V1)  | 21 USB 2.0 Header (USB6_7, Blue)                    |
| 4 CPU Fan Connector (CPU_FAN1)                                       | 22 System Panel Header (PANEL1, White)              |
| 5 775-Pin CPU Socket   | 23 Chassis Speaker Header (SPEAKER 1, White)        |
| 6 2 x 240-pin DDR3 DIMM Slots (Dual Channel: DDR3_A1, DDR3_B1; Blue) | 24 Power LED Header (PLED1)                         |
| 7 ATX Power Connector (ATXPWR1)                                      | 25 Infrared Module Header (IR1)                     |
| 8 Chassis Fan Connector (CHA_FAN1)                                   | 26 Front Panel Audio Header (HD_AUDIO1, White)      |
| 9 IDE1 Connector (IDE1, Blue)  | 27 Internal Audio Connector: CD1 (Black)            |
| 10 Clear CMOS Jumper (CLRCMOS1)                                      | 28 PCI Slots (PCI1 - 2)                             |
| 11 SPI BIOS Chip   | 29 PCI Express x1 Slot (PCIE4, White)               |
| 12 South Bridge Controller   | 30 PCI Express 2.0 x16 Slot (PCIE3, Blue)           |
| 13 Primary SATAII Connector (SATAII_1 (Port 0), Blue)                | 31 PCI Express x1 Slot (PCIE2, White)               |
| 14 Secondary SATAII Connector (SATAII_2 (Port 1), Blue)              | 32 PCI Express x1 Slot (PCIE1, White)               |
| 15 Third SATAII Connector (SATAII_3 (Port 2), Blue)                  | 33 Power Fan Connector (PWR_FAN1)                   |
| 16 Fourth SATAII Connector (SATAII_4 (Port 3), Blue)                 | 34 North Bridge Controller                          |
| 17 USB 2.0 Header (USB8_9, Blue)                                     |   |
| 18 Fifth SATAII Connector (SATAII_5 (Port 4), Blue)                  |   |

## 1.4 I/O Panel




\* There are two LED next to the LAN port. Please refer to the table below for the LAN port LED indications.

### LAN Port LED Indications


Activity/Link LED		SPEED LED		<div> <div>ACT/LINK LED</div> <div>SPEED LED</div> </div> <div>LAN Port</div>
Status	Description	Status	Description	
Off	No Link	Off	10Mbps connection	
Blinking	Data Activity	Orange	100Mbps connection	
On	Link	Green	1Gbps connection	

To enable Multi-Streaming function, you need to connect a front panel audio cable to the front panel audio header. After restarting your computer, you will find "VIA HD Audio Deck" tool on your system. Please follow below instructions according to the OS you install.

#### For Windows® XP / XP 64-bit OS:

Please click "VIA HD Audio Deck" icon , and click "Speaker". Then you are allowed to select "2 Channel" or "4 Channel". Click "Power" to save your change.

#### For Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS:

Please click "VIA HD Audio Deck" icon , and click "Advanced Options" on the left side on the bottom. In "Advanced Options" screen, select "Independent Headphone", and click "OK" to save your change.

If you enable Multi-Streaming function, Side Speaker function will be disabled. You can only choose to enable either Multi-Streaming function or Side Speaker function.

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## Chapter 2: Installation

This is an ATX form factor (12.0" x 7.5", 30.5 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.

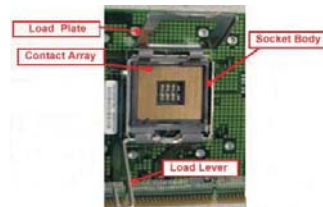
1. Unplug the power cord from the wall socket before touching any component.
2. To avoid damaging the motherboard components due to static electricity, **NEVER** place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before 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

For the installation of Intel 775-LAND CPU, please follow the steps below.



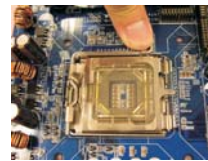
775-Pin Socket Overview



Before you insert the 775-LAND CPU into the socket, please check if the CPU surface is unclean or if there is any bent pin on the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged.

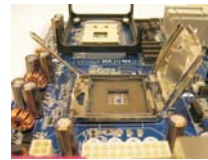
Step 1. Open the socket:

Step 1-1. Disengaging the lever by depressing down and out on the hook to clear retention tab.



Step 1-2. Rotate the load lever to fully open position at approximately 135 degrees.

Step 1-3. Rotate the load plate to fully open position at approximately 100 degrees.

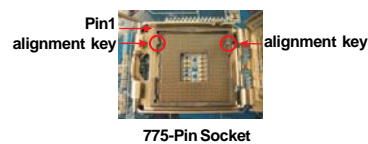
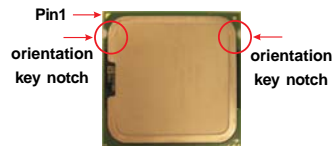


Step 2. Insert the 775-LAND CPU:

Step 2-1. Hold the CPU by the edges where are marked with black lines.



Step 2-2. Orient the CPU with IHS (Integrated Heat Sink) up. Locate Pin1 and the two orientation key notches.





For proper inserting, please ensure to match the two orientation key notches of the CPU with the two alignment keys of the socket.

Step 2-3. Carefully place the CPU into the socket by using a purely vertical motion.

Step 2-4. Verify that the CPU is within the socket and properly mated to the orient keys.



Step 3. Remove PnP Cap (Pick and Place Cap):

Use your left hand index finger and thumb to support the load plate edge, engage PnP cap with right hand thumb and peel the cap from the socket while pressing on center of PnP cap to assist in removal.



1. It is recommended to use the cap tab to handle and avoid kicking off the PnP cap.
2. This cap must be placed if returning the motherboard for after service.

Step 4. Close the socket:

Step 4-1. Rotate the load plate onto the IHS.

Step 4-2. While pressing down lightly on load plate, engage the load lever.

Step 4-3. Secure load lever with load plate tab under retention tab of load lever.



## 2.4 Installation of CPU Fan and Heatsink

This motherboard is equipped with 775-Pin socket that supports Intel 775-LAND CPU. Please adopt the type of heatsink and cooling fan compliant with Intel 775-LAND CPU to dissipate heat. Before you installed the heatsink, you need to spray thermal interface material between the CPU and the heatsink to improve heat dissipation. Ensure 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 10, No. 4).

**For proper installation, please kindly refer to the instruction manuals of your CPU fan and heatsink.**

Below is an example to illustrate the installation of the heatsink for 775-LAND CPU.

- Step 1. Apply thermal interface material onto center of IHS on the socket surface.



- Step 2. Place the heatsink onto the socket. Ensure fan cables are oriented on side closest to the CPU fan connector on the motherboard (CPU\_FAN1, see page 10, No. 4).



- Step 3. Align fasteners with the motherboard throughholes.

- Step 4. Rotate the fastener clockwise, then press down on fastener caps with thumb to install and lock. Repeat with remaining fasteners.



If you press down the fasteners without rotating them clockwise, the heatsink cannot be secured on the motherboard.

- Step 5. Connect fan header with the CPU fan connector on the motherboard.
- Step 6. Secure excess cable with tie-wrap to ensure cable does not interfere with fan operation or contact other components.

## 2.5 Installation of Memory Modules (DIMM)

**P43DE3L** motherboard provides two 240-pin DDR3 (Double Data Rate 3) DIMM slots, and supports Dual Channel Memory Technology. For dual channel configuration, you always need to install two **identical** (the same brand, speed, size and chip-type) memory modules in the DDR3 DIMM slots to activate Dual Channel Memory Technology. Otherwise, it will operate at single channel mode.



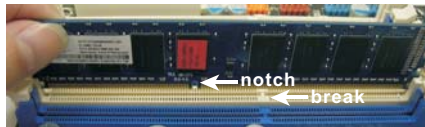
1. It is not allowed to install a DDR or DDR2 memory module into DDR3 slot; otherwise, this motherboard and DIMM may be damaged.
2. If you install only one memory module or two non-identical memory modules, it is unable to activate the Dual Channel Memory Technology.

### Installing a DIMM



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.



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## 2.6 Expansion Slots (PCI and PCI Express Slots)

There are 2 PCI slots and 4 PCI Express slots on this motherboard.

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

**PCIe Slots:**

PCIe1 / PCIe2 / PCIe4 (PCIe x1 slot; White) is used for PCI Express cards with x1 lane width cards, such as Gigabit LAN card, SATA2 card, etc.

PCIe3 (PCIe x16 slot; Blue) is used for PCI Express x16 lane width graphics cards.

### 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.10, No. 1)	<div>1_2</div> <div>+5V</div> <div>2_3</div> <div>+5VSB</div>	Short pin2, pin3 to enable +5VSB (standby) for PS/2 or USB01 wake up events.

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

USB_PWR1 (see p.10, No. 2)	<div>1_2</div> <div>+5V</div> <div>2_3</div> <div>+5V_DUAL</div>	Short pin2, pin3 to enable +5V_DUAL for USB2/3/4/5 wake up events.
-------------------------------	--	--

Note: To select +5V\_DUAL, it requires 2 Amp and higher standby current provided by power supply. When you select +5V\_DUAL, USB devices can wake up the system under S3 (Suspend to RAM) state.

USB_PWR2 (see p.10, No. 20)	<div>1_2</div> <div>+5V</div> <div>2_3</div> <div>+5VSB</div>	Short pin2, pin3 to enable +5VSB (standby) for USB6_7/8_9 wake up events.
--------------------------------	---	---

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

Clear CMOS Jumper (CLR CMOS1) (see p.10, No. 10)	<div>1_2</div> <div>Default</div> <div>2_3</div> <div>Clear CMOS</div>
--	--

Note: CLR CMOS1 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 from the power supply. After waiting for 15 seconds, use a jumper cap to short pin2 and pin3 on CLR CMOS1 for 5 seconds. However, please do not clear the CMOS right after you update the BIOS. 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.

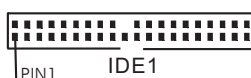
## 2.8 Onboard Headers and Connectors



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!

### Primary IDE connector (Blue)

(39-pin IDE1, see p.10 No. 9)



connect the blue end to the motherboard connect the black end to the IDE devices

80-conductor ATA 66/100/133 cable

Note: Please refer to the instruction of your IDE device vendor for the details.

### Serial ATAII Connectors

(SATAII\_1 (Port 0):

see p.10, No. 13)

(SATAII\_2 (Port 1):

see p.10, No. 14)

(SATAII\_3 (Port 2):

see p.10, No. 15)

(SATAII\_4 (Port 3):

see p.10, No. 16)

(SATAII\_5 (Port 4):

see p.10, No. 18)

(SATAII\_6 (Port 5):

see p.10, No. 19)

SATAII\_1 (Port 0)



SATAII\_2 (Port 1)

SATAII\_5 (Port 4)



SATAII\_3 (Port 2)



SATAII\_6 (Port 5)



SATAII\_4 (Port 3)

These six Serial ATAII (SATAII) connectors support SATA data cables for internal storage devices. The current SATAII interface allows up to 3.0 Gb/s data transfer rate.

### Serial ATA (SATA)

Data Cable

(Optional)

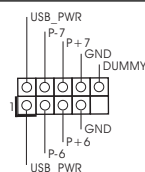


Either end of the SATA data cable can be connected to the SATA / SATAII hard disk or the SATAII connector on this motherboard.

### USB 2.0 Headers

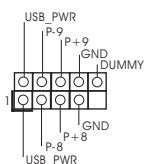
(9-pin USB6\_7)

(see p.10 No. 21)



(9-pin USB8\_9)

(see p.10 No. 17)

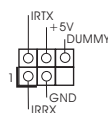


Besides six default USB 2.0 ports on the I/O panel, there are two USB 2.0 headers on this motherboard. Each USB 2.0 header can support two USB 2.0 ports.

### Infrared Module Header

(5-pin IR1)

(see p.10 No. 25)

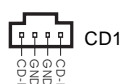


This header supports an optional wireless transmitting and receiving infrared module.

### Internal Audio Connectors

(4-pin CD1)

(CD1: see p.10 No. 27)

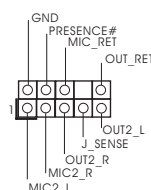


This connector allows you to receive stereo audio input from sound sources such as a CD-ROM, DVD-ROM, TV tuner card, or MPEG card.

### Front Panel Audio Header

(9-pin HD\_AUDIO1)

(see p.10 No. 26)



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

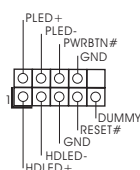


1. High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instruction in our manual and chassis manual to install your system.
2. If you use AC'97 audio panel, please install it to the front panel audio header as below:
  - A. Connect Mic\_IN (MIC) to MIC2\_L.
  - B. Connect Audio\_R (RIN) to OUT2\_R and Audio\_L (LIN) to OUT2\_L.
  - C. Connect Ground (GND) to Ground (GND).
  - D. MIC\_RET and OUT\_RET are for HD audio panel only. You don't need to connect them for AC'97 audio panel.

### System Panel Header

(9-pin PANEL1)

(see p.10 No. 22)



This header accommodates several system front panel functions.

### Power LED Header

(3-pin PLED1)

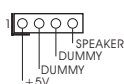
(see p.10 No. 24)



Please connect the chassis power LED to this header to indicate system power status. The LED is on when the system is operating. The LED keeps blinking in S1 state. The LED is off in S3/S4 state or S5 state (power off).

### Chassis Speaker Header

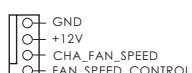
(4-pin SPEAKER 1)  
(see p.10 No. 23)



Please connect the chassis speaker to this header.

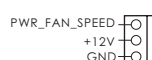
### Chassis and Power Fan Connectors

(4-pin CHA\_FAN1)  
(see p.10 No. 8)



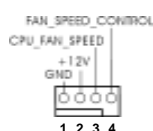
Please connect the fan cables to the fan connectors and match the black wire to the ground pin.

(3-pin PWR\_FAN1)  
(see p.10 No. 33)



### CPU Fan Connector

(4-pin CPU\_FAN1)  
(see p.10, No. 4)



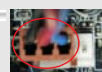
Please connect a CPU fan cable to this connector and match the black wire to the ground pin.



Though this motherboard provides 4-Pin CPU fan (Quiet Fan) support, the 3-Pin CPU fan still can work successfully even without the fan speed control function. If you plan to connect the 3-Pin CPU fan to the CPU fan connector on this motherboard, please connect it to Pin 1-3.

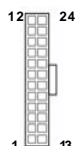
Pin 1-3 Connected

3-Pin Fan Installation



### ATX Power Connector

(24-pin ATXPWR1)  
(see p.10 No. 7)

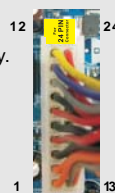


Please connect an ATX power supply to this connector.



Though this motherboard provides 24-pin ATX power connector, it can still work if you adopt a traditional 20-pin ATX power supply. To use the 20-pin ATX power supply, please plug your power supply along with Pin 1 and Pin 13.

20-Pin ATX Power Supply Installation



### ATX 12V Power Connector

(8-pin ATX12V1)  
(see p.10 No. 3)

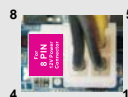


Please connect an ATX 12V power supply to this connector.



Though this motherboard provides 8-pin ATX 12V power connector, it can still work if you adopt a traditional 4-pin ATX 12V power supply. To use the 4-pin ATX power supply, please plug your power supply along with Pin 1 and Pin 5.

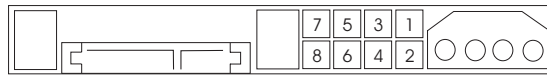
4-Pin ATX 12V Power Supply Installation



## 2.9 SATAII Hard Disk Setup Guide

Before installing SATAII hard disk to your computer, please carefully read below SATAII hard disk setup guide. Some default setting of SATAII hard disks may not be at SATAII mode, which operate with the best performance. In order to enable SATAII function, please follow the below instruction with different vendors to correctly adjust your SATAII hard disk to SATAII mode in advance; otherwise, your SATAII hard disk may fail to run at SATAII mode.

### Western Digital



If pin 5 and pin 6 are shorted, SATA 1.5Gb/s will be enabled.

On the other hand, if you want to enable SATAII 3.0Gb/s, please remove the jumpers from pin 5 and pin 6.

### SAMSUNG



If pin 3 and pin 4 are shorted, SATA 1.5Gb/s will be enabled.

On the other hand, if you want to enable SATAII 3.0Gb/s, please remove the jumpers from pin 3 and pin 4.

### HITACHI

Please use the Feature Tool, a DOS-bootable tool, for changing various ATA features. Please visit HITACHI's website for details:

<http://www.hitachigst.com/hdd/support/download.htm>



The above examples are just for your reference. For different SATAII hard disk products of different vendors, the jumper pin setting methods may not be the same. Please visit the vendors' website for the updates.

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## 2.10 Serial ATA (SATA) / Serial ATAII (SATAII) Hard Disks Installation

**P43DE3L** adopts Intel® ICH10 south bridge chipset that supports Serial ATA (SATA) / Serial ATAII (SATAII) hard disks. You may install SATA / SATAII hard disks on this motherboard for internal storage devices. This section will guide you to install the SATA / SATAII hard disks.

- STEP 1: Install the SATA / SATAII hard disks into the drive bays of your chassis.
- STEP 2: Connect the SATA power cable to the SATA / SATAII hard disk.
- STEP 3: Connect one end of the SATA data cable to the motherboard's SATAII connector.
- STEP 4: Connect the other end of the SATA data cable to the SATA / SATAII hard disk.



It is not recommended to switch the "Configure SATAII as" setting after OS installation.

## 2.11 Hot Plug Function for SATA / SATAII HDDs

**P43DE3L** supports Hot Plug function for SATA / SATAII Devices in AHCI mode. Intel® ICH10 south bridge chipset provides hardware support for Advanced Host controller Interface (AHCI), a new programming interface for SATA host controllers developed thru a joint industry effort.



### NOTE

#### What is Hot Plug Function?

If the SATA / SATAII HDDs are NOT set for RAID configuration, it is called "Hot Plug" for the action to insert and remove the SATA / SATAII HDDs while the system is still power-on and in working condition. However, please note that it cannot perform Hot Plug if the OS has been installed into the SATA / SATAII HDD.



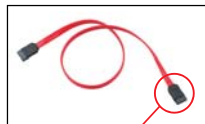
## 2.12 SATA / SATAII HDD Hot Plug Feature and Operation Guide

This motherboard supports Hot Plug feature for SATA / SATAII HDD in AHCI mode. Please read below operation guide of SATA / SATAII HDD Hot Plug feature carefully. Before you process the SATA / SATAII HDD Hot Plug, please check below cable accessories from the motherboard gift box pack.

A. 7-pin SATA data cable

B. SATA power cable with SATA 15-pin power connector interface

A. SATA data cable (Red)



SATA 7-pin connector

B. SATA power cable



The SATA 15-pin power connector (Black) connect to SATA / SATAII HDD

1x4-pin conventional power connector (White) connect to power supply

### Caution

1. Without SATA 15-pin power connector interface, the SATA / SATAII Hot Plug cannot be processed.
2. Even some SATA / SATAII HDDs provide both SATA 15-pin power connector and IDE 1x4-pin conventional power connector interfaces, the IDE 1x4-pin conventional power connector interface is definitely not able to support Hot Plug and will cause the HDD damage and data loss.

### Points of attention, before you process the Hot Plug:

1. Below operation procedure is designed only for our motherboard, which supports SATA / SATAII HDD Hot Plug.
  - \* The SATA / SATAII Hot Plug feature might not be supported by the chipset because of its limitation, the SATA / SATAII Hot Plug support information of our motherboard is indicated in the product spec on our website:  
[www.asrock.com](http://www.asrock.com)
2. Make sure your SATA / SATAII HDD can support Hot Plug function from your dealer or HDD user manual. The SATA / SATAII HDD, which cannot support Hot Plug function, will be damaged under the Hot Plug operation.
3. Please make sure the SATA / SATAII driver is installed into system properly. The latest SATA / SATAII driver is available on our support website:  
[www.asrock.com](http://www.asrock.com)
4. Make sure to use the SATA power cable & data cable, which are from our motherboard package.
5. Please follow below instructions step by step to reduce the risk of HDD crash or data loss.

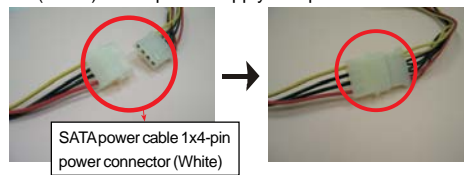
---

### How to Hot Plug a SATA / SATAII HDD:

Points of attention, before you process the Hot Plug:

Please do follow below instruction sequence to process the Hot Plug, improper procedure will cause the SATA / SATAII HDD damage and data loss.

**Step 1** Please connect SATA power cable 1x4-pin end (White) to the power supply 1x4-pin cable.



**Step 2** Connect SATA data cable to the motherboard's SATAII connector.



**Step 3** Connect SATA 15-pin power cable connector (Black) end to SATA / SATAII HDD.



**Step 4** Connect SATA data cable to the SATA / SATAII HDD.



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## 2.13 Driver Installation Guide

To install the drivers to your system, please insert the support CD to your optical drive first. Then, the drivers compatible to your system can be auto-detected and listed on the support CD driver page. Please follow the order from up to bottom side to install those required drivers. Therefore, the drivers you install can work properly.

## 2.14 Installing Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit Without RAID Functions

If you want to install Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit OS on your SATA / SATAII HDDs without RAID functions, please follow below procedures according to the OS you install.

### 2.14.1 Installing Windows® XP / XP 64-bit Without RAID Functions

If you want to install Windows® XP / XP 64-bit OS on your SATA / SATAII HDDs without RAID functions, please follow below steps.



AHCI mode is not supported under Windows® XP / XP 64-bit OS.

#### Using SATA / SATAII HDDs without NCQ function (IDE mode)

##### STEP 1: Set up BIOS.

- A. Enter BIOS SETUP UTILITY → Advanced screen → Storage Configuration.
- B. Set "SATAII Configuration" to [Enhanced], and then in the option "Configure SATAII as", please set the option to [IDE].

##### STEP 2: Install Windows® XP / XP 64-bit OS on your system.

### 2.14.2 Installing Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit Without RAID Functions

If you want to install Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS on your SATA / SATAII HDDs without RAID functions, please follow below steps.

#### Using SATA / SATAII HDDs with NCQ function (AHCI mode)

##### STEP 1: Set Up BIOS.

- A. Enter BIOS SETUP UTILITY → Advanced screen → Storage Configuration.
- B. Set "SATAII Configuration" to [Enhanced], and then in the option "Configure SATAII as", please set the option to [AHCI].

##### STEP 2: Install Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS on your system.

#### Using SATA / SATAII HDDs without NCQ function (IDE mode)

##### STEP 1: Set up BIOS.

- A. Enter BIOS SETUP UTILITY → Advanced screen → Storage Configuration.
- B. Set "SATAII Configuration" to [Enhanced], and then in the option "Configure SATAII as", please set the option to [IDE].

##### STEP 2: Install Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS on your system.

## 2.15 Untied Overclocking Technology

This motherboard supports Untied Overclocking Technology, which means during overclocking, FSB enjoys better margin due to fixed PCI / PCIE buses. Before you enable Untied Overclocking function, please enter "Overclock Mode" option of BIOS setup to set the selection from [Auto] to [Manual]. Therefore, CPU FSB is untied during overclocking, but PCI / PCIE buses are in the fixed mode so that FSB can operate under a more stable overclocking environment.



Please refer to the warning on page 8 for the possible overclocking risk before you apply Untied Overclocking Technology.

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## 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> or <Del> 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:

<b>Main</b>	To set up the system time/date information
<b>OC Tweaker</b>	To set up overclocking features
<b>Advanced</b>	To set up the advanced BIOS features
<b>H/W Monitor</b>	To display current hardware status
<b>Boot</b>	To set up the default system device to locate and load the Operating System
<b>Security</b>	To set up the security features
<b>Exit</b>	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.

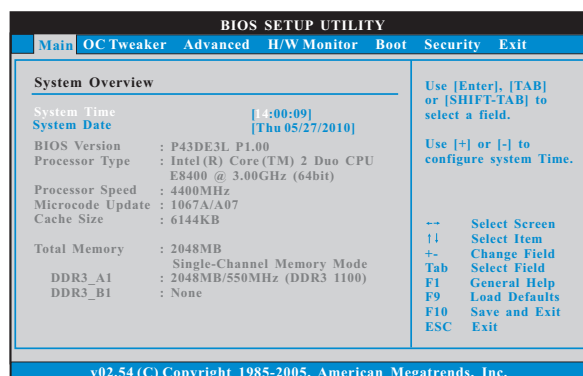
### 3.1.2 Navigation Keys

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]

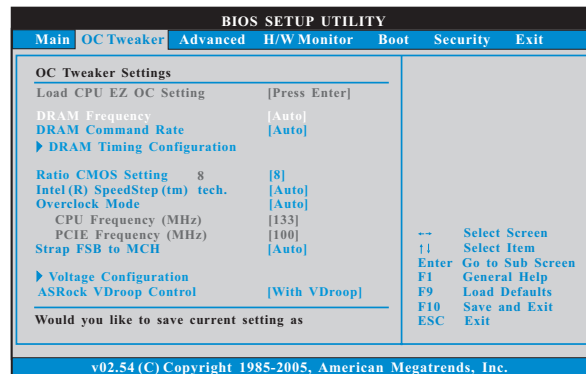
Use this item to specify the system time.

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

Use this item to specify the system date.

### 3.3 OC Tweaker Screen

In the OC Tweaker screen, you can set up overclocking features.



#### Load CPU EZ OC Setting

You can use this option to load CPU EZ overclocking setting. Please note that overclocking may cause damage to your CPU and motherboard. It should be done at your own risk and expense.

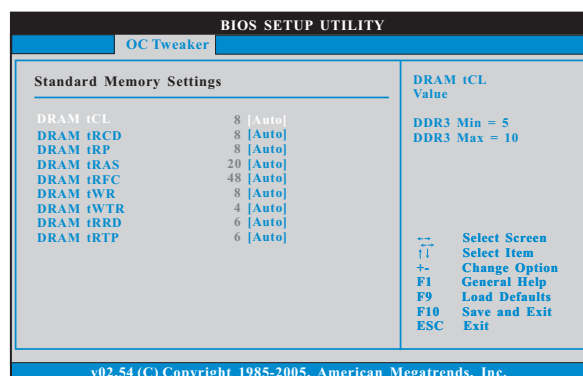
#### DRAM Frequency

If [Auto] is selected, the motherboard will detect the memory module(s) inserted and assigns appropriate frequency automatically. You may select [Auto], [400MHz\_DDR3 800], [533MHz\_DDR3 1066], [667MHz\_DDR3 1333] or [800MHz\_DDR3 1600].

#### DRAM Command Rate

Use this item to adjust DRAM Command Rate. Configuration options : [1N], [2N] and [Auto].

#### DRAM Timing Configuration



#### **DRAM tCL**

This controls the number of DRAM clocks for TCL. Min: 5. Max: 10. The default value is [Auto].

#### **DRAM tRCD**

This controls the number of DRAM clocks for TRCD. Min: 3. Max: 10. The default value is [Auto].

#### **DRAM tRP**

This controls the number of DRAM clocks for TRP. Min: 3. Max: 10. The default value is [Auto].

#### **DRAM tRAS**

This controls the number of DRAM clocks for TRAS. Min: 9. Max: 28. The default value is [Auto].

#### **DRAM tRFC**

This controls the number of DRAM clocks for TRFC. Min: 15. Max: 78. The default value is [Auto].

#### **DRAM tWR**

This controls the number of DRAM clocks for TWR. Min: 3. Max: 15. The default value is [Auto].

#### **DRAM tWTR**

This controls the number of DRAM clocks for TWTR. Min: 2. Max: 15. The default value is [Auto].

#### **DRAM tRRD**

This controls the number of DRAM clocks for TRRD. Min: 2. Max: 15. The default value is [Auto].

#### **DRAM tRTP**

This controls the number of DRAM clocks for TRTP. Min: 2. Max: 13. The default value is [Auto].

#### **Ratio CMOS Setting**

If the ratio status is unlocked, you will find this item appear to allow you changing the ratio value of this motherboard.

#### **Intel (R) SpeedStep(tm) tech.**

Intel (R) SpeedStep(tm) tech. is Intel's new power saving technology. Processor can switch between multiple frequency and voltage points to enable power savings. The default value is [Auto]. Configuration options: [Auto], [Enabled] and [Disabled]. If you install Windows® XP and select [Auto], you need to set the "Power Schemes" as "Portable/Laptop" to enable this function. If you install Windows® Vista™ / 7 and want to enable this function, please set this item to [Enabled]. This item will be hidden if the current CPU does not support Intel (R) SpeedStep(tm) tech..





Please note that enabling this function may reduce CPU voltage and lead to system stability or compatibility issue with some power supplies. Please set this item to [Disable] if above issue occurs.

### Overclock Mode

Use this to select Overclock Mode. Configuration options: [Auto], [Manual], [I.O.T.] and [Optimized]. The default value is [Auto]. If you select [Manual], Untied Overclocking function is enabled. Please refer to page 28 for the details of Untied Overclocking Technology. Therefore, you are allowed to adjust the Host frequency and PCIE frequency in the following two items. If you select [I.O.T.] (Intelligent Overclocking Technology), the system will automatically enable the overclocking function when your CPU is heavy loaded.

### CPU Frequency (MHz)

Use this option to adjust CPU frequency.

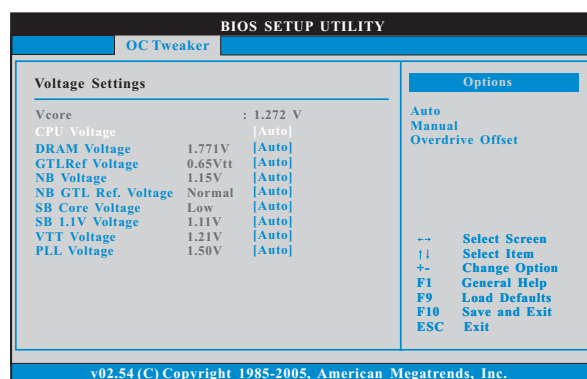
### PCIE Frequency (MHz)

Use this option to adjust PCIE frequency.

### Strap FSB to MCH

Use this item to strap FSB to MCH. Configuration options: [Auto], [800], [1066], [1333] and [1600].

## Voltage Settings



### CPU Voltage

Use this to select CPU Voltage. Configuration options: [Auto], [Manual] and [Overdrive Offset]. The default value is [Auto].

### DRAM Voltage

Use this to select DRAM Voltage. Configuration options: [Auto], [1.561V] to [2.429V]. The default value is [Auto].

---

**GLTRef Voltage**

Use this to select GLTRef Voltage. Configuration options: [Auto], [0.67 x Vtt], [0.65 x Vtt], [0.63 x Vtt] and [0.615 x Vtt]. The default value of this feature is [Auto].

**NB Voltage**

Use this to select NB Voltage. Configuration options: [Auto], [1.15V] to [1.55V]. The default value is [Auto].

**NB GTL Ref. Voltage**

Use this to select NB GTL Ref. Voltage. Configuration options: [Auto], [Normal] and [Low]. The default value is [Auto].

**SB Core Voltage**

Use this to select SB core Voltage. Configuration options: [Auto], [Low], [Middle], [High] and [Highest]. The default value is [Auto].

**SB 1.1V Voltage**

Use this to select SB 1.1V Voltage. Configuration options: [Auto], [1.11V] to [1.51V]. The default value is [Auto].

**VTT Voltage**

Use this to select VTT Voltage. Configuration options: [Auto], [1.21V] to [1.51V]. The default value is [Auto].

**PLL Voltage**

Use this to select PLL Voltage. Configuration options: [Auto], [1.50V] to [2.50V]. The default value is [Auto].

**ASRock VDroop Control**

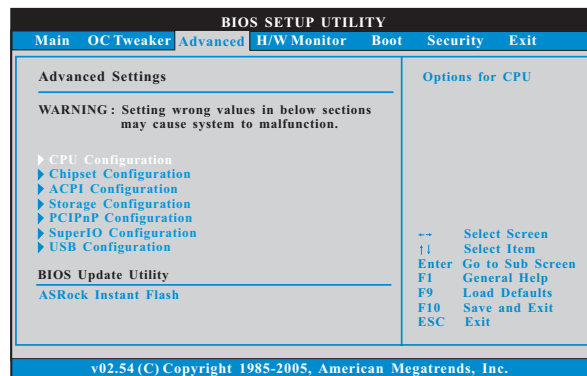
Use this to enable or disable ASRock VDroop control. Configuration options: [With VDroop] and [Without VDroop]. The default value is [With VDroop].

**Would you like to save current setting user defaults?**

In this option, you are allowed to load and save three user defaults according to your own requirements.

### 3.4 Advanced Screen

In this section, you may set the configurations for the following items: CPU Configuration, Chipset Configuration, ACPI Configuration, Storage Configuration, PCIPnP Configuration, SuperIO Configuration, and USB Configuration.

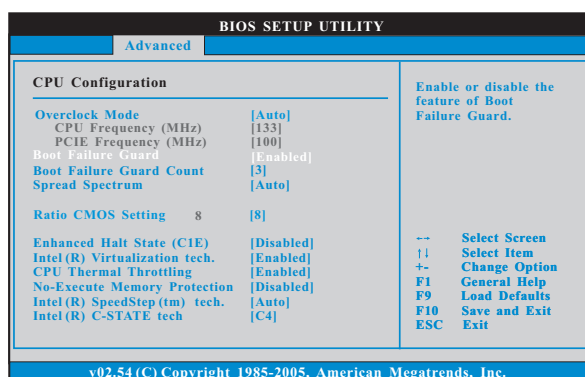


Setting wrong values in this section may cause the system to malfunction.

#### ASRock Instant Flash

ASRock Instant Flash is a BIOS flash utility embedded in Flash ROM. This convenient BIOS update tool allows you to update system BIOS without entering operating systems first like MS-DOS or Windows®. Just launch this tool and save the new BIOS file to your USB flash drive, floppy disk or hard drive, then you can update your BIOS only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system. If you execute ASRock Instant Flash utility, the utility will show the BIOS files and their respective information. Select the proper BIOS file to update your BIOS, and reboot your system after BIOS update process completes.

### 3.4.1 CPU Configuration



#### Overclock Mode

Use this to select Overclock Mode. Configuration options: [Auto], [Manual], [I.O.T.] and [Optimized]. The default value is [Auto]. If you select [Manual], Untied Overclocking function is enabled. Please refer to page 28 for the details of Untied Overclocking Technology. Therefore, you are allowed to adjust the Host frequency and PCIE frequency in the following two items. If you select [I.O.T.] (Intelligent Overclocking Technology), the system will automatically enable the overclocking function when your CPU is heavy loaded.

#### CPU Frequency (MHz)

Use this option to adjust CPU frequency.

#### PCIE Frequency (MHz)

Use this option to adjust PCIE frequency.

#### Boot Failure Guard

Enable or disable the feature of Boot Failure Guard.

#### Boot Failure Guard Count

Enable or disable the feature of Boot Failure Guard Count.

#### Spread Spectrum

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

#### Ratio CMOS Setting

If the ratio status is unlocked, you will find this item appear to allow you changing the ratio value of this motherboard.

#### Enhance Halt State (C1E)

All processors support the Halt State (C1). The C1 state is supported through the native processor instructions HLT and MWAIT and requires no hardware support from the chipset. In the C1 power state, the processor maintains the context of the system caches.

---

**Intel (R) Virtualization tech.**

When this option is set to [Enabled], a VMM (Virtual Machine Architecture) can utilize the additional hardware capabilities provided by Vanderpool Technology. This option will be hidden if the installed CPU does not support Intel (R) Virtualization Technology.

**CPU Thermal Throttling**

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

**No-Execute Memory Protection**

No-Execution (NX) Memory Protection Technology is an enhancement to the IA-32 Intel Architecture. An IA-32 processor with "No Execute (NX) Memory Protection" can prevent data pages from being used by malicious software to execute code. This option will be hidden if the current CPU does not support No-Execute Memory Protection.

**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 / Vista™ / 7. Set to [Enabled] if using Microsoft® Windows® XP, Vista™, 7 or Linux kernel version 2.4.18 or higher. This option will be hidden if the installed CPU does not support Hyper-Threading technology.

**Intel (R) SpeedStep(tm) tech.**

Intel (R) SpeedStep(tm) tech. is Intel's new power saving technology. Processor can switch between multiple frequency and voltage points to enable power savings. The default value is [Auto]. Configuration options: [Auto], [Enabled] and [Disabled]. If you install Windows® XP and select [Auto], you need to set the "Power Schemes" as "Portable/Laptop" to enable this function. If you install Windows® Vista™ / 7 and want to enable this function, please set this item to [Enabled]. This item will be hidden if the current CPU does not support Intel (R) SpeedStep(tm) tech..



Please note that enabling this function may reduce CPU voltage and lead to system stability or compatibility issue with some power supplies. Please set this item to [Disable] if above issue occurs.

---

**Intel (R) C-STATE tech.**

Intel (R) C-STATE tech. is achieved by making the power and thermal control unit part of the core logic and not part of the chipset as before. Migration of the power and thermal management flow into the processor allows us to use a hardware coordination mechanism in which each core can request any C-state it wishes, thus allowing for individual core savings to be maximized. The CPU C-state is determined and entered based on the lowest common denominator of both cores' requests, portraying a single CPU entity to the chipset power management hardware and flows. Thus, software can manage each core independently, while the actual power management adheres to the platform and CPU shared resource restrictions. Configuration options are: [C2], [C3], [C4] and [Disabled]. The default value is [Disabled].

### 3.4.2 Chipset Configuration

BIOS SETUP UTILITY	
Advanced	
<b>Chipset Settings</b>	
▶ DRAM RCOMP and tRD Configuration	
▶ DRAM DLL SKEW Configuration	
Intelligent Energy Saver	[Disabled]
Primary Graphics Adapter	[PCI]
Onboard HD Audio	[Auto]
Front Panel	[Auto]
OnBoard Lan	[Enabled]
CIR10 Field 1	[Enabled]
-- Select Screen ↑↓ Select Item +~ Change Option F1 General Help F9 Load Defaults F10 Save and Exit ESC Exit	
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#### DRAM RCOMP and tRD Configuration

BIOS SETUP UTILITY	
OC Tweaker	
<b>DRAM RCOMP Settings</b>	
DRAM CH0 RCOMP Settings: 54-0-11-6-6-6-6	
DRAM CH0 RCOMP ODT	[Auto]
DRAM CH0 G0 (Data)	[Auto]
DRAM CH0 G1 (Command)	[Auto]
DRAM CH0 G2 (Control1)	[Auto]
DRAM CH0 G3 (Control2)	[Auto]
DRAM CH0 G4 (Clocks1)	[Auto]
DRAM CH0 G5 (Clocks2)	[Auto]
DRAM CH1 RCOMP Settings: 54-0-8-8-0-8-0	
DRAM CH1 RCOMP ODT	[Auto]
DRAM CH1 G0 (Data)	[Auto]
DRAM CH1 G1 (Command)	[Auto]
DRAM CH1 G2 (Control1)	[Auto]
DRAM CH1 G3 (Control2)	[Auto]
DRAM CH1 G4 (Clocks1)	[Auto]
DRAM CH1 G5 (Clocks2)	[Auto]
DRAM CH0 RCOMP ODT Value Min = 1 Max = 63	
-- Select Screen ↑↓ Select Item +~ Change Option F1 General Help F9 Load Defaults F10 Save and Exit ESC Exit	
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#### DRAM CH0 RCOMP ODT

This controls the number of DRAM CH0 RCOMP ODT. Min: 1. Max: 63. The default value is [Auto].

#### DRAM CH0 G0 (Data)

This controls the number of DRAM CH0 G0 (Data). Min: 1. Max: 15. The default value is [Auto].

#### DRAM CH0 G1 (Command)

This controls the number of DRAM CH0 G1 (Command). Min: 1. Max: 15. The default value is [Auto].

#### DRAM CH0 G2 (Control1)

This controls the number of DRAM CH0 G2 (Control1). Min: 1. Max: 15. The default value is [Auto].

#### DRAM CH0 G3 (Control2)

This controls the number of DRAM CH0 G3 (Control2). Min: 1. Max: 15. The default value is [Auto].

---

**DRAM CH0 G4 (Clocks1)**

This controls the number of DRAM CH0 G4 (Clocks1). Min: 1. Max: 15. The default value is [Auto].

**DRAM CH0 G5 (Clocks2)**

This controls the number of DRAM CH0 G5 (Clocks2). Min: 1. Max: 15. The default value is [Auto].

**DRAM CH1 RCOMP ODT**

This controls the number of DRAM CH1 RCOMP ODT. Min: 1. Max: 63. The default value is [Auto].

**DRAM CH1 G0 (Data)**

This controls the number of DRAM CH1 G0 (Data). Min: 1. Max: 15. The default value is [Auto].

**DRAM CH1 G1 (Command)**

This controls the number of DRAM CH1 G1 (Command). Min: 1. Max: 15. The default value is [Auto].

**DRAM CH1 G2 (Control1)**

This controls the number of DRAM CH1 G2 (Control1). Min: 1. Max: 15. The default value is [Auto].

**DRAM CH1 G3 (Control2)**

This controls the number of DRAM CH1 G3 (Control2). Min: 1. Max: 15. The default value is [Auto].

**DRAM CH1 G4 (Clocks1)**

This controls the number of DRAM CH1 G4 (Clocks1). Min: 1. Max: 15. The default value is [Auto].

**DRAM CH1 G5 (Clocks2)**

This controls the number of DRAM CH1 G5 (Clocks2). Min: 1. Max: 15. The default value is [Auto].

**DRAM tRD Settings****DRAM CH0 tRD**

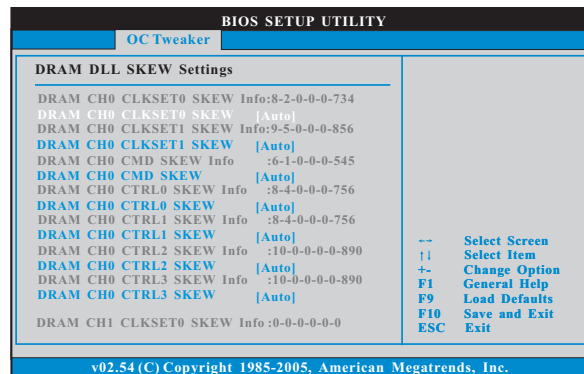
This controls the number of DRAM CH0 tRD. Min: 0. Max: 30. The default value is [Auto].

**DRAM CH1 tRD**

This controls the number of DRAM CH1 tRD. Min: 0. Max: 30. The default value is [Auto].



## DRAM DLL SKEW Settings



### DRAM CH0 CLKSET0 SKEW

This controls the number of DRAM CH0 CLKSET0 SKEW. Configuration options: [Auto], [8] to [827]. The default value is [Auto].

### DRAM CH0 CLKSET1 SKEW

This controls the number of DRAM CH0 CLKSET1 SKEW. Configuration options: [Auto], [8] to [827]. The default value is [Auto].

### DRAM CH0 CMD SKEW

This controls the number of DRAM CH0 CMD SKEW. Configuration options: [Auto], [8] to [827]. The default value is [Auto].

### DRAM CH0 CTRL0 SKEW

This controls the number of DRAM CH0 CTRL0 SKEW. Configuration options: [Auto], [8] to [827]. The default value is [Auto].

### DRAM CH0 CTRL1 SKEW

This controls the number of DRAM CH0 CTRL1 SKEW. Configuration options: [Auto], [8] to [827]. The default value is [Auto].

### DRAM CH0 CTRL2 SKEW

This controls the number of DRAM CH0 CTRL2 SKEW. Configuration options: [Auto], [8] to [827]. The default value is [Auto].

### DRAM CH0 CTRL3 SKEW

This controls the number of DRAM CH0 CTRL3 SKEW. Configuration options: [Auto], [8] to [827]. The default value is [Auto].

### DRAM CH1 CLKSET0 SKEW

This controls the number of DRAM CH1 CLKSET0 SKEW. Configuration options: [Auto], [8] to [827]. The default value is [Auto].

### DRAM CH1 CLKSET1 SKEW

This controls the number of DRAM CH1 CLKSET1 SKEW. Configuration options: [Auto], [8] to [827]. The default value is [Auto].

---

#### **DRAM CH1 CMD SKEW**

This controls the number of DRAM CH1 CMD SKEW. Configuration options: [Auto], [8] to [827]. The default value is [Auto].

#### **DRAM CH1 CTRL0 SKEW**

This controls the number of DRAM CH1 CTRL0 SKEW. Configuration options: [Auto], [8] to [827]. The default value is [Auto].

#### **DRAM CH1 CTRL1 SKEW**

This controls the number of DRAM CH1 CTRL1 SKEW. Configuration options: [Auto], [8] to [827]. The default value is [Auto].

#### **DRAM CH1 CTRL2 SKEW**

This controls the number of DRAM CH1 CTRL2 SKEW. Configuration options: [Auto], [8] to [827]. The default value is [Auto].

#### **DRAM CH1 CTRL3 SKEW**

This controls the number of DRAM CH1 CTRL3 SKEW. Configuration options: [Auto], [8] to [827]. The default value is [Auto].

#### **Intelligent Energy Saver**

Intelligent Energy Saver is a revolutionary technology that delivers unparalleled power savings. The default value is [Disabled]. Configuration options: [Auto], [Enabled] and [Disabled]. If you want to enable this function, please set this item to [Enabled]. Besides the BIOS option, you can also choose our Intelligent Energy Saver utility to enable this function.

#### **Primary Graphics Adapter**

This allows you to select [PCI] or [PCI Express] as the boot graphic adapter priority. The default value is [PCI].

#### **Onboard HD Audio**

Select [Auto], [Enabled] or [Disabled] for the onboard HD Audio feature. If you select [Auto], the onboard HD Audio will be disabled when PCI Sound Card is plugged.

##### **Front Panel**

Select [Auto] or [Disabled] for the onboard HD Audio Front Panel.

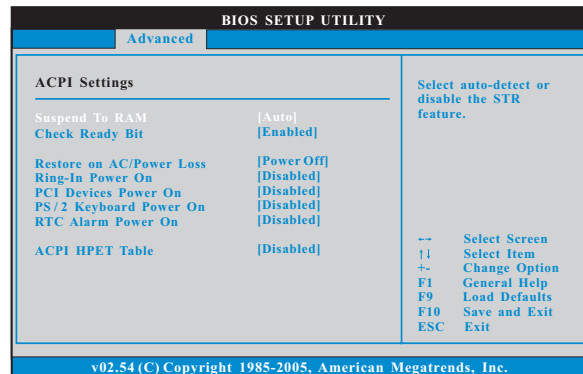
#### **OnBoard Lan**

This allows you to enable or disable the "OnBoard Lan" feature.

#### **CIR10 Field 1**

Use this to enable or disable CIR10 Field 1. The default value of this feature is [Enabled].

### 3.4.3 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.

#### Check Ready Bit

Use this item to enable or disable the feature Check Ready Bit.

#### 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 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.

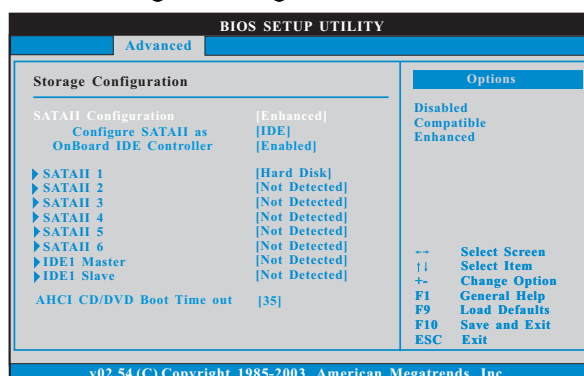
#### RTC Alarm Power On

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

#### ACPI HPET Table

Use this item to enable or disable ACPI HPET Table. The default value is [Disabled]. Please set this option to [Enabled] if you plan to use this motherboard to submit Windows® Vista™ certification.

### 3.4.4 Storage Configuration



#### SATAII Configuration

Please select **[Compatible]** when you install legacy OS. If native OS (Windows® XP / Vista™ / 7) is installed, please select **[Enhanced]**. Then in the option “Configure SATAII as”, you are allowed to set the selection to **[IDE]** or **[AHCI]**. The default value is **[IDE]**.

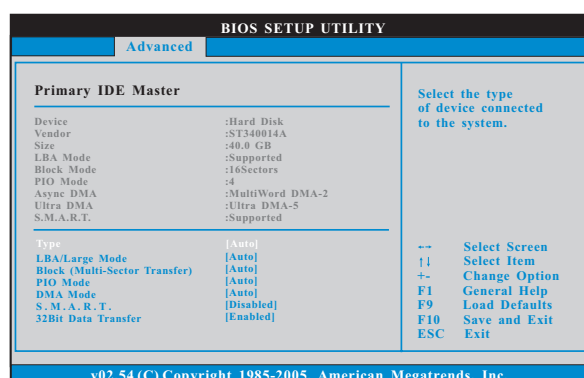
If you select **[AHCI]** mode, the options “Hot Plug” and “SATA Link Power Management” will appear. Configuration options: **[Enabled]** and **[Disabled]**. The default value is **[Enabled]**.

#### OnBoard IDE Controller

Use this item to enable or disable the “OnBoard IDE Controller” feature.



AHCI (Advanced Host Controller Interface) supports NCQ and other new features that will improve SATA disk performance but IDE mode does not have these advantages.



## 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.

## AHCI CD/DVD Boot Time Out

Some SATA CD / DVD in AHCI mode need to wait ready longer. Configuration options: [0], [5], [10], [15], [20], [25], [30] and [35]. The default value is [35].

### 3.4.5 PCIPnP Configuration

BIOS SETUP UTILITY	
Advanced	
Advanced PCI / PnP Settings	
PCI Latency Timer	[32]
PCI IDE BusMaster	[Enabled]
Value in units of PCI clocks for PCI device latency timer register.	
-- Select Screen	
↑↓ Select Item	
+- Change Option	
F1 General Help	
F9 Load Defaults	
F10 Save and Exit	
ESC Exit	
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#### PCI Latency Timer

The default value is 32. 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.

### 3.4.6 Super IO Configuration

BIOS SETUP UTILITY	
Advanced	
Configure Super IO Chipset	
Serial Port Address	[3F8 / IRQ4]
Infrared Port Address	[Disabled]
Allow BIOS to Enable or Disable Floppy Controller.	
-- Select Screen	
↑↓ Select Item	
+- Change Option	
F1 General Help	
F9 Load Defaults	
F10 Save and Exit	
ESC Exit	
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#### Serial Port Address

Use this item to set the address for the onboard serial port or disable it.

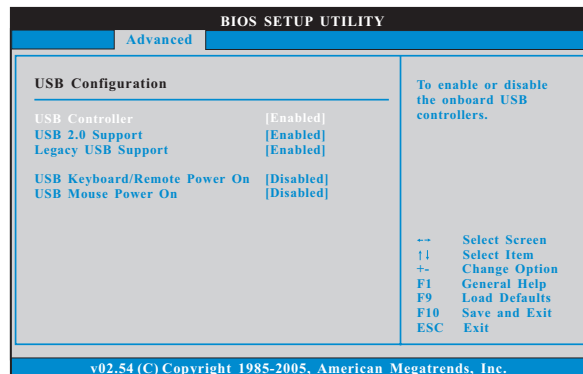
Configuration options: [Disabled], [3F8 / IRQ4], [2F8 / IRQ3], [3E8 / IRQ4], [2E8 / IRQ3].

#### 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].

### 3.4.7 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 option to select legacy support for USB devices. There are four configuration options: [Enabled], [Auto], [Disabled] and [BIOS Setup Only]. The default value is [Enabled]. Please refer to below descriptions for the details of these four options:

[Enabled] - Enables support for legacy USB.

[Auto] - Enables legacy support if USB devices are connected.

[Disabled] - USB devices are not allowed to use under legacy OS and BIOS setup when [Disabled] is selected. If you have USB compatibility issue, it is recommended to select [Disabled] to enter OS.

[BIOS Setup Only] - USB devices are allowed to use only under BIOS setup and Windows / Linux OS.

#### USB Keyboard/Remote Power On

Use this item to enable or disable USB Keyboard/Remote Power On on the system.

#### USB Mouse Power On

Use this item to enable or disable USB Mouse Power On on the system.

### 3.5 Hardware Health Event Monitoring Screen

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.

BIOS SETUP UTILITY						
Main	OC Tweaker	Advanced	H/W Monitor	Boot	Security	Exit
Hardware Health Event Monitoring					Enable/Disable CPU Quiet Fan Function.	
CPU Temperature			: 37°C / 98°F			
M/B Temperature			: 31°C / 87°F			
CPU Fan Speed			: 3400 RPM			
Chassis Fan Speed			: N/A			
Power Fan Speed			: N/A			
Vcore			: 1.629V			
+ 3.30V			: 3.306V		-- Select Screen	
+ 5.00V			: 5.067V		↑ Select Item	
+ 12.00V			: 11.890V		F1 General Help	
CPU Quiet Fan			[Full On]		F9 Load Defaults	
Chassis Quiet Fan			[Full On]		F10 Save and Exit	
					ESC Exit	
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#### CPU Quiet Fan

This allows you to set the CPU fan speed. Configuration options: [Full On] and [Automatic mode]. The default is value [Full On].

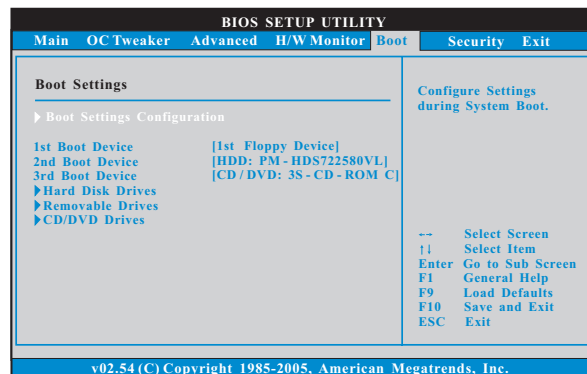
#### Chassis Quiet Fan

This allows you to set the chassis fan speed. Configuration options: [Full On] and [Automatic mode]. The default is value [Full On].

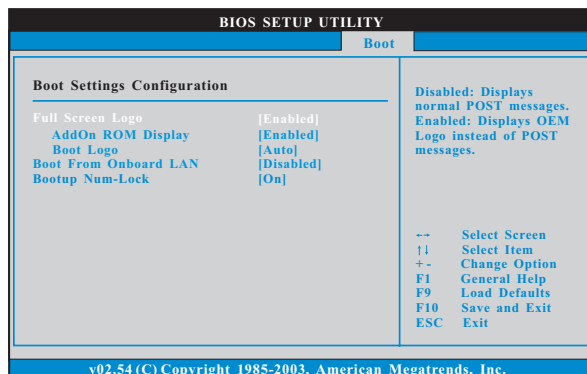


### 3.6 Boot Screen

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



#### 3.6.1 Boot Settings Configuration



##### Full Screen Logo

Use this item to enable or disable OEM Logo. The default value is [Enabled].

##### AddOn ROM Display

Use this option to adjust AddOn ROM Display. If you enable the option "Full Screen Logo" but you want to see the AddOn ROM information when the system boots, please select [Enabled]. Configuration options: [Enabled] and [Disabled]. The default value is [Enabled].

### Boot Logo

Use this option to select logo in POST screen. This option only appears when you enable the option "Full Screen Logo". Configuration options: [Auto], [EuP], [Scenery] and [ASRock]. The default value is [Auto].

### Boot From Onboard LAN

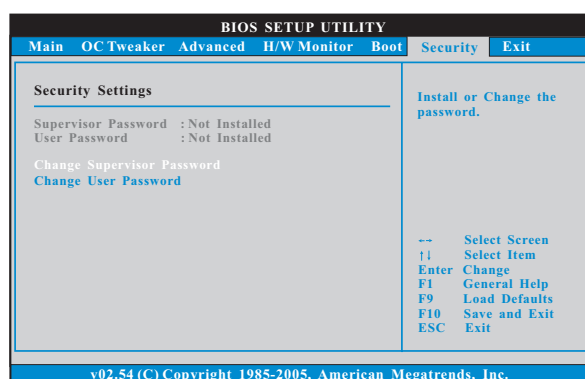
Use this item to enable or disable the Boot From Onboard LAN feature.

### Boot Up Num-Lock

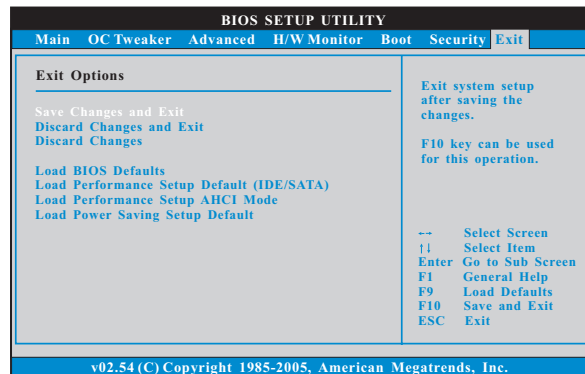
If this item is set to [On], it will automatically activate the Numeric Lock function after boot-up.

## 3.7 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.



### 3.8 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 BIOS Defaults

Load BIOS default values for all the setup questions. F9 key can be used for this operation.

#### Load Performance Setup Default (IDE/SATA)

This performance setup default may not be compatible with all system configurations. If system boot failure occurs after loading, please resume optimal default settings. F5 key can be used for this operation.

#### Load Performance Setup AHCI Mode

This performance setup AHCI mode may not be compatible with all system configurations. If system boot failure occurs after loading, please resume optimal default settings. F3 key can be used for this operation.

#### Load Power Saving Setup Default

Load power saving setup default. F6 key can be used for this operation.

---

## ***Chapter 4: Software Support***

### **4.1 Install Operating System**

This motherboard supports various Microsoft® Windows® operating systems: 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit. 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 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.