



# P67 Transformer

## User Manual

Version 1.0

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This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (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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## Chapter 1: Introduction

Thank you for purchasing ASRock **P67 Transformer** 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 **P67 Transformer** Motherboard

(ATX Form Factor: 12.0-in x 8.6-in, 30.5 cm x 21.8 cm)

ASRock **P67 Transformer** Quick Installation Guide

ASRock **P67 Transformer** Support CD

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

1 x I/O Panel Shield



#### **ASRock Reminds You...**

To get better performance in Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit, it is recommended to set the BIOS option in Storage Configuration to AHCI mode. For the BIOS setup, please refer to the "User Manual" in our support CD for details.

## 1.2 Specifications

<b>Platform</b>	<ul style="list-style-type: none"> <li>- ATX Form Factor: 12.0-in x 8.6-in, 30.5 cm x 21.8 cm</li> <li>- All Solid Capacitor design (100% Japan-made high-quality Conductive Polymer Capacitors)</li> </ul>
<b>CPU</b>	<ul style="list-style-type: none"> <li>- Supports Intel® Lynn eld Core™ i7 / i5 Processors in LGA1156 Package</li> <li>- Advanced V8 + 2 Power Phase Design</li> <li>- Supports Intel® Turbo Boost Technology</li> <li>- Supports Hyper-Threading Technology (see <b>CAUTION 1</b>)</li> <li>- Supports Untied Overclocking Technology (see <b>CAUTION 2</b>)</li> </ul>
<b>Chipset</b>	- Intel® P67
<b>Memory</b>	<ul style="list-style-type: none"> <li>- Dual Channel DDR3 Memory Technology (see <b>CAUTION 3</b>)</li> <li>- 4 x DDR3 DIMM slots</li> <li>- Supports DDR3 2600+(OC)/2133(OC)/1866(OC)/1600/1333/1066 non-ECC, un-buffered memory</li> <li>- Max. capacity of system memory: 16GB (see <b>CAUTION 4</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 2.0 x1 slots</li> <li>- 2 x PCI slots</li> </ul>
<b>Audio</b>	<ul style="list-style-type: none"> <li>- 7.1 CH HD Audio with Content Protection (Realtek ALC892 Audio Codec)</li> <li>- Premium Blu-ray audio support</li> </ul>
<b>LAN</b>	<ul style="list-style-type: none"> <li>- PCIE x1 Gigabit LAN 10/100/1000 Mb/s</li> <li>- Realtek RTL8111E</li> <li>- Supports Wake-On-LAN</li> <li>- Supports LAN Cable Detection</li> <li>- Supports Energy Efficient Ethernet 802.3az</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 Coaxial SPDIF Out Port</li> <li>- 1 x Optical SPDIF Out Port</li> <li>- 6 x Ready-to-Use USB 2.0 Ports</li> <li>- 1 x eSATA2 Connector</li> <li>- 2 x Ready-to-Use USB 3.0 Ports</li> <li>- 1 x RJ-45 LAN Port with LED (ACT/LINK LED and SPEED LED)</li> <li>- 1 x Clear CMOS Switch with LED</li> </ul>

	- HD Audio Jack: Side Speaker/Rear Speaker/Central/Bass/ Line in/Front Speaker/Microphone (see <b>CAUTION 5</b> )
<b>SATA3</b>	- 2 x SATA3 6.0 Gb/s connectors, support RAID (RAID 0, RAID 1, RAID 10, RAID 5 and Intel Rapid Storage), NCQ, AHCI and "Hot Plug" functions
<b>USB3.0</b>	- 2 x USB 3.0 ports by Etron EJ168A, support USB 1.0/2.0/3.0 up to 5Gb/s
<b>Connector</b>	- 5 x SATA2 3.0 Gb/s connectors, support RAID (RAID 0, RAID 1, RAID 10, RAID 5 and Intel Rapid Storage), NCQ, AHCI and Hot Plug functions * JMicron SATAII_6 does not support RAID function. - 2 x SATA3 6.0Gb/s connectors - 1 x ATA133 IDE connector (supports 2 x IDE devices) - 1 x IR header - 1 x COM port header - 1 x HDMI_SPDIF header - 1 x Power LED header - CPU/Chassis/Power FAN connector - 24 pin ATX power connector - 8 pin 12V power connector - CD in header - Front panel audio connector - 3 x USB 2.0 headers (support 6 USB 2.0 ports) - 1 x Dr. Debug (7-Segment Debug LED)
<b>Smart Switch</b>	- 1 x Clear CMOS Switch with LED - 1 x Power Switch with LED - 1 x Reset Switch with LED
<b>BIOS Feature</b>	- 64Mb AMI BIOS - AMI UEFI Legal BIOS with GUI support - Supports "Plug and Play" - ACPI 1.1 Compliance Wake Up Events - Supports jumperfree - SMBIOS 2.3.1 Support - DRAM, PCH, CPU PLL, VTT Voltage Multi-adjustment - Supports I. O. T. (Intelligent Overclocking Technology)
<b>Support CD</b>	- Drivers, Utilities, AntiVirus Software (Trial Version), ASRock Software Suite (CyberLink DVD Suite - OEM and Trial; Creative Sound Blaster X-Fi MB - Trial)
<b>Unique Feature</b>	- ASRock Extreme Tuning Utility (AXTU) (see <b>CAUTION 6</b> ) - Instant Boot - ASRock Instant Flash (see <b>CAUTION 7</b> ) - ASRock AIWI (see <b>CAUTION 8</b> )

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	<ul style="list-style-type: none"> <li>- ASRock APP Charger (see <b>CAUTION 9</b>)</li> <li>- SmartView (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> <li>- Combo Cooler Option (C.C.O.) (see <b>CAUTION 13</b>)</li> <li>- Good Night LED</li> <li>- Turbo 40 / Turbo 50 Technology</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/Chassis Quiet Fan (Allow Chassis Fan Speed Auto-Adjust by CPU or MB Temperature)</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 14</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.



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## **CAUTION!**

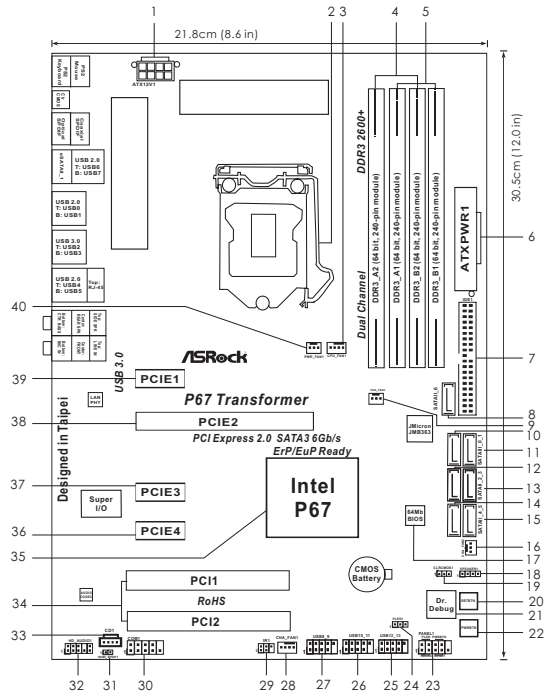
1. About the setting of "Hyper Threading Technology", please check page 46.
2. This motherboard supports Untied Overclocking Technology. Please read "Untied Overclocking Technology" on page 39 for details.
3. This motherboard supports Dual Channel Memory Technology. Before you implement Dual Channel Memory Technology, make sure to read the installation guide of memory modules on page 19 for proper installation.
4. 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.
5. For microphone input, this motherboard supports both stereo and mono modes. For audio output, this motherboard supports 2-channel, 4-channel, 6-channel, and 8-channel modes. Please check the table on page 13 for proper connection.
6. ASRock Extreme Tuning Utility (AXTU) is an all-in-one tool to re-tune different system functions in a user-friendly interface, which is including Hardware Monitor, Fan Control, Overclocking, OC DNA and IES. In Hardware Monitor, it shows the major readings of your system. In Fan Control, it shows the fan speed and temperature for you to adjust. In Overclocking, you are allowed to overclock CPU frequency for optimal system performance. In 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. In IES (Intelligent Energy Saver), the voltage regulator can reduce the number of output phases to improve efficiency when the CPU cores are idle without sacrificing computing performance. Please visit our website for the operation procedures of ASRock Extreme Tuning Utility (AXTU).  
ASRock website: <http://www.asrock.com>
7. 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.

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8. To experience intuitive motion controlled games is no longer only available at Wii. ASRock AIWI utility introduces a new way of PC gaming operation. ASRock AIWI is the world's first utility to turn your iPhone/iPod touch as a game joystick to control your PC games. All you have to do is just to install the ASRock AIWI utility either from ASRock of cial website or ASRock software support CD to your motherboard, and also download the free AIWI Lite from App store to your iPhone/iPod touch. Connecting your PC and apple devices via Bluetooth or WiFi networks, then you can start experiencing the exciting motion controlled games. Also, please do not forget to pay attention to ASRock of cial website regularly, we will continuously provide you the most up-do-date supported games!  
ASRock website: <http://www.asrock.com/Feature/Aiwi/index.asp>
  9. If you desire a faster, less restricted way of charging your Apple devices, such as iPhone/iPod/iPad Touch, ASRock has prepared a wonderful solution for you - ASRock APP Charger. Simply installing the APP Charger driver, it makes your iPhone charged much quickly from your computer and up to 40% faster than before. ASRock APP Charger allows you to quickly charge many Apple devices simultaneously and even supports continuous charging when your PC enters into Standby mode (S1), Suspend to RAM (S3), hibernation mode (S4) or power off (S5). With APP Charger driver installed, you can easily enjoy the marvelous charging experience than ever.  
ASRock website: <http://www.asrock.com/Feature/AppCharger/index.asp>
  10. SmartView, a new function of internet browser, is the smart start page for IE that combines your most visited web sites, your history, your Facebook friends and your real-time newsfeed into an enhanced view for a more personal Internet experience. ASRock motherboards are exclusively equipped with the SmartView utility that helps you keep in touch with friends on-the-go. To use SmartView feature, please make sure your OS version is Windows® 7 / 7 64 bit / Vista™ / Vista™ 64 bit, and your browser version is IE8. ASRock website: <http://www.asrock.com/Feature/SmartView/index.asp>
  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. Combo Cooler Option (C.C.O.) provides the flexible option to adopt two different CPU cooler types, Socket LGA 775 and LGA 1156. Please benoticed that not all the 775 CPU Fan can be used.

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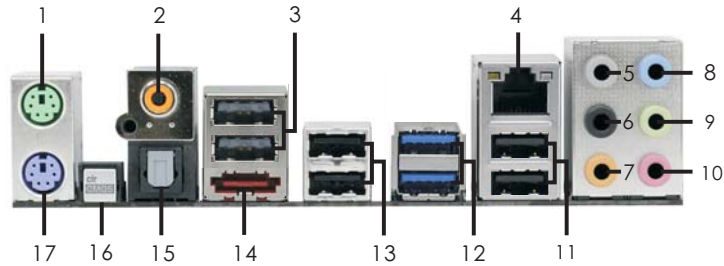
14. EuP, stands for Energy Using Product, was a provision regulated by European Union to define the power consumption for the completed system. According to EuP, the total AC power of the completed system shall be under 1.00W in off mode condition. To meet EuP standard, an EuP ready motherboard and an 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  | ATX 12V Power Connector (ATX12V1)                                      | 21 | Dr. Debug                                      |
| 2  | 1156-Pin CPU Socket  | 22 | Power Switch (PWRBTN)                          |
| 3  | CPU Fan Connector (CPU_FAN1)   | 23 | System Panel Header (PANEL1, White)            |
| 4  | 2 x 240-pin DDR3 DIMM Slots<br>(Dual Channel: DDR3_A2, DDR3_B2, Blue)  | 24 | Power LED Header (PLED1)                       |
| 5  | 2 x 240-pin DDR3 DIMM Slots<br>(Dual Channel: DDR3_A1, DDR3_B1, White) | 25 | USB 2.0 Header (USB12_13, Blue)                |
| 6  | ATX Power Connector (ATXPWR1)  | 26 | USB 2.0 Header (USB10_11, Blue)                |
| 7  | Primary IDE Connector (IDE1, Blue)                                     | 27 | USB 2.0 Header (USB8_9, Blue)                  |
| 8  | SATA2 Connector (SATAII_6, Blue)                                       | 28 | Chassis Fan Connector (CHA_FAN1)               |
| 9  | Chassis Fan Connector (CHA_FAN3)                                       | 29 | Infrared Module Header (IR1)                   |
| 10 | SATA3 Connector (SATAIII_1, White)                                     | 30 | COM Port Header (COM1)                         |
| 11 | SATA3 Connector (SATAIII_0, White)                                     | 31 | HDMI_SPDIF Header<br>(HDMI_SPDIF1, White)      |
| 12 | SATA2 Connector (SATAII_3, Blue)                                       | 32 | Front Panel Audio Header<br>(HD_AUDIO1, White) |
| 13 | SATA2 Connector (SATAII_2, Blue)                                       | 33 | Internal Audio Connector: CD1 (White)          |
| 14 | SATA2 Connector (SATAII_5, Blue)                                       | 34 | PCI Slots (PC11-2)                             |
| 15 | SATA2 Connector (SATAII_4, Blue)                                       | 35 | Intel P67 Chipset                              |
| 16 | Chassis Fan Connector (CHA_FAN2)                                       | 36 | PCI Express 2.0 x1 Slot (PCIE4, White)         |
| 17 | 64Mb SPI Flash   | 37 | PCI Express 2.0 x1 Slot (PCIE3, White)         |
| 18 | Chassis Speaker Header (SPEAKER 1, White)                              | 38 | PCI Express 2.0 x16 Slot (PCIE2, Blue)         |
| 19 | Clear CMOS Jumper (CLRCMOS1)   | 39 | PCI Express 2.0 x1 Slot (PCIE1, White)         |
| 20 | Reset Switch (RSTBTN)  | 40 | Power Fan Connector (PWR_FAN1)                 |

## 1.4 I/O Panel



- |                           |                                |
|---------------------------|--------------------------------|
| 1 PS/2 Mouse Port (Green) | 10 Microphone (Pink)           |
| 2 Coaxial SPDIF Out Port  | 11 USB 2.0 Ports (USB45)       |
| 3 USB 2.0 Port (USB67)    | 12 USB 3.0 Ports (USB23)       |
| * 4 LAN RJ-45 Port        | 13 USB 2.0 Ports (USB01)       |
| 5 Side Speaker (Gray)     | 14 eSATA2 Connector (eSATAI_1) |
| 6 Rear Speaker (Black)    | 15 Optical SPDIF Out Port      |
| 7 Central / Bass (Orange) | 16 Clear CMOS Switch (CLRCBTN) |
| 8 Line In (Light Blue)    | 17 PS/2 Keyboard Port (Purple) |
| **9 Front Speaker (Lime)  |                                |

\* 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		
Status	Description	Status	Description	
Off	No Link	Off	10Mbps connection	
Blinking	Data Activity	Orange	100Mbps connection	
On	Link	Green	1Gbps connection	


\*\* If you use 2-channel speaker, please connect the speaker's plug into "Front Speaker Jack".

See the table below for connection details in accordance with the type of speaker you use.

**TABLE for Audio Output Connection**

Audio Output Channels	Front Speaker (No. 9)	Rear Speaker (No. 6)	Central / Bass (No. 7)	Side Speaker (No. 5)
2	V	--	--	--
4	V	V	--	--
6	V	V	V	--
8	V	V	V	V

---

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 "Mixer" tool on your system. Please select "Mixer ToolBox" , click "Enable playback multi-streaming", and click "ok". Choose "2CH", "4CH", "6CH", or "8CH" and then you are allowed to select "Realtek HDA Primary output" to use Rear Speaker, Central/Bass, and Front Speaker, or select "Realtek HDA Audio 2nd output" to use front panel audio.

---

## Chapter 2: Installation

This is an ATX form factor (12.0" x 8.6", 30.5 x 21.8 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.

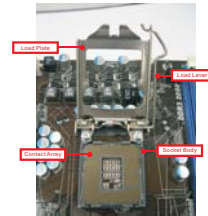


Before you install or remove any component, ensure that the power is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

---

## 2.3 CPU Installation

For the installation of Intel 1156-Pin CPU, please follow the steps below.



1156-Pin Socket Overview



Before you insert the 1156-Pin 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. Remove PnP Cap (Pick and Place Cap).



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.



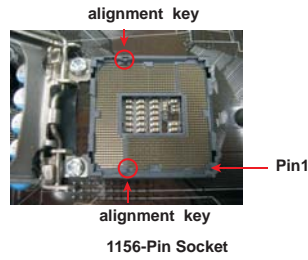
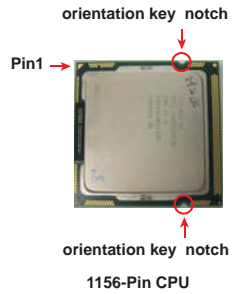
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Step 3. Insert the 1156-Pin CPU:

Step 3-1. Hold the CPU by the edge where is marked with black line.



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



Step 3-4. Verify that the CPU is within the socket and properly mated to the orient keys.

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.



---

## 2.4 Installation of CPU Fan and Heatsink

This motherboard is equipped with 1156-Pin socket that supports Intel 1156-Pin CPU. Please adopt the type of heatsink and cooling fan compliant with Intel 1156-Pin 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 12, No. 3).

**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 1156-Pin 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 12, No. 3).



Step 3. Align fasteners with the motherboard through-holes.

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.



Please be noticed that this motherboard supports Combo Cooler Option (C.C.O.), which provides the flexible option to adopt two different CPU cooler types, Socket LGA 775 and LGA 1156. The white throughholes are for Socket LGA 1156 CPU fan.



---

## 2.5 Installation of Memory Modules (DIMM)

This motherboard provides four 240-pin DDR3 (Double Data Rate 3) DIMM slots, and supports Dual Channel Memory Technology. For dual channel configuration, you always need to install **identical** (the same brand, speed, size and chiptype) DDR3 DIMM pair in the slots of the same color. In other words, you have to install **identical** DDR3 DIMM pair in **Dual Channel** (DDR3\_A1 and DDR3\_B1; white slots; see p.12 No.5), so that Dual Channel Memory Technology can be activated. This motherboard also allows you to install four DDR3 DIMMs for dual channel configuration, and please install **identical** DDR3 DIMMs in all four slots. You may refer to the Dual Channel Memory Configuration Table below.

**Dual Channel Memory Configurations**

	DDR3_A2 (Blue Slot)	DDR3_A1 (White Slot)	DDR3_B2 (Blue Slot)	DDR3_B1 (White Slot)
(1)	-	Populated	-	Populated
(2)*	Populated	Populated	Populated	Populated

\* For the configuration (2), please install **identical** DDR3 DIMMs in all four slots.



1. If you want to install two memory modules, for optimal compatibility and reliability, it is recommended to install them in the slots of the same color. In other words, install them either in the set of white slots (DDR3\_A1 and DDR3\_B1).
2. If only one memory module or three memory modules are installed in the DDR3 DIMM slots on this motherboard, it is unable to activate the Dual Channel Memory Technology.
3. It is not allowed to install a DDR or DDR2 memory module into DDR3 slot; otherwise, this motherboard and DIMM may be damaged.
4. Please install the memory module into the white slot (DDR3\_B1) for the first priority.

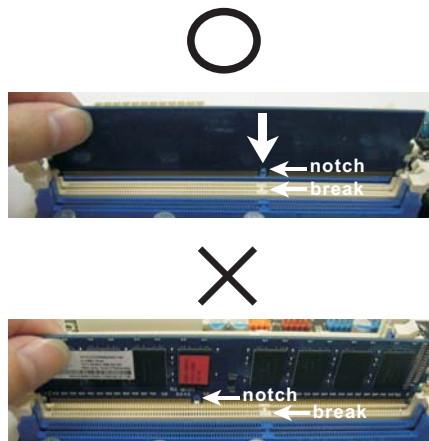
---

## 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.

---

## 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 / PCIe3 / PCIe4 (PCIe x1 slot; White) is used for PCI Express cards with x1 lane width cards, such as Gigabit LAN card, SATA2 card, etc.

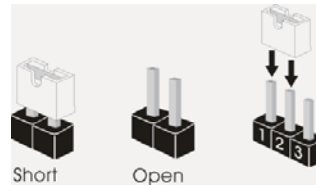
PCIe2 (PCIe x16 slot; Blue) is used for PCI Express x16 lane width graphics cards.



### 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	Description
Clear CMOS Jumper (CLR CMOS1) (see p.12, No. 19)	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <b>1_2</b>              Default         </div> <div style="text-align: center;"> <b>2_3</b>              Clear CMOS         </div> </div>	

Note: CLR CMOS1 allows you to clear the data in CMOS. 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. Please be noted that the password, date, time, user default profile, 1394 GUID and MAC address will be cleared only if the CMOS battery is removed.



The Clear CMOS Switch has the same function as the Clear CMOS jumper.

---

## 2.8 Onboard Headers and Connectors

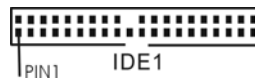


Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage of the motherboard!

---

### Primary IDE connector (Blue)

(39-pin IDE1, see p.12 No. 7)



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

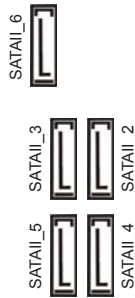
(SATAII\_2: see p.12, No. 13)

(SATAII\_3: see p.12, No. 12)

(SATAII\_4: see p.12, No. 15)

(SATAII\_5: see p.12, No. 14)

(SATAII\_6: see p.12, No. 8)



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 ATA3 Connectors

(SATAIII\_0: see p.12, No. 11)

(SATAIII\_1: see p.12, No. 10)



These two Serial ATA3 (SATA3) connectors support SATA data cables for internal storage devices. The current SATA3 interface allows up to 6.0 Gb/s data transfer rate.

---

### Serial ATA (SATA)

Data Cable

(Optional)



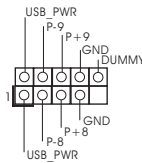
Either end of the SATA data cable can be connected to the SATA / SATAII / SATA3 hard disk or the SATAII / SATA3 connector on this motherboard.

---

### USB 2.0 Headers

(9-pin USB8\_9)

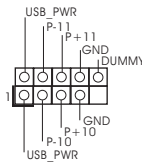
(see p.12 No. 27)



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

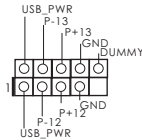
(9-pin USB10\_11)

(see p.12 No. 26)



(9-pin USB12\_13)

(see p.12 No. 25)

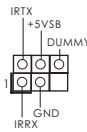


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### Infrared Module Header

(5-pin IR1)

(see p.12 No. 29)



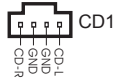
This header supports an optional wireless transmitting and receiving infrared module.

---

### Internal Audio Connectors

(4-pin CD1)

(CD1: see p.12 No. 33)



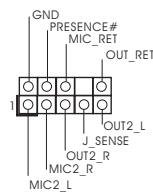
This connector allows you to receive stereo audio input from sound sources such as a CD-ROM, DVD-ROM, TV tuner card, or MPEG card.

---

### Front Panel Audio Header

(9-pin HD\_AUDIO1)

(see p.12 No. 32)



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



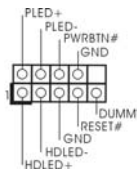


1. High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instruction in our manual and chassis manual to install your system.
2. If you use AC'97 audio panel, please install it to the front panel audio header as below:
  - 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.
  - E. To activate the front mic.  
For Windows® XP / XP 64-bit OS:  
Select "Mixer". Select "Recorder". Then click "FrontMic".  
For Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS:  
Go to the "FrontMic" Tab in the Realtek Control panel. Adjust "Recording Volume".

#### System Panel Header

(9-pin PANEL1)

(see p.12 No. 23)



This header accommodates several system front panel functions.



Connect the power switch, reset switch and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables.

#### **PWRBTN (Power Switch):**

Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch.

#### **RESET (Reset Switch):**

Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.

#### **PLED (System Power LED):**

Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the system is in S1 sleep state. The LED is off when the system is in S3/S4 sleep state or powered off (S5).

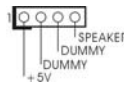
#### **HDLED (Hard Drive Activity LED):**

Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data.

The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly.

#### Chassis Speaker Header

(4-pin SPEAKER 1)  
(see p.12 No. 18)



Please connect the chassis speaker to this header.

#### Power LED Header

(3-pin PLED1)  
(see p.12 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).

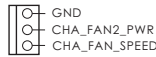
#### Chassis and Power Fan Connectors

(4-pin CHA\_FAN1)  
(see p.12 No. 28)

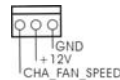


Please connect the fan cables to the fan connectors and match the black wire to the ground pin.

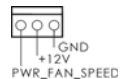
(3-pin CHA\_FAN2)  
(see p.12 No. 16)



(3-pin CHA\_FAN3)  
(see p.12 No. 9)

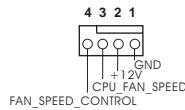


(3-pin PWR\_FAN1)  
(see p.12 No. 40)



#### CPU Fan Connectors

(4-pin CPU\_FAN1)  
(see p.12 No. 3)

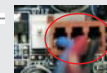


Please connect the CPU fan cable to the connector and match the black wire to the ground pin.



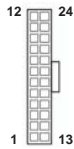
Though this motherboard provides 4-Pin CPU fan (Quiet Fan) support, the 3-Pin CPU fan still can work successfully even without the fan speed control function. If you plan to connect the 3-Pin CPU fan to the CPU fan connector on this motherboard, please connect it to Pin 1-3.

Pin 1-3 Connected ←



3-Pin Fan Installation

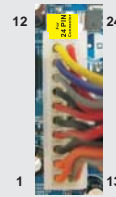
**ATX Power Connector**  
(24-pin ATXPWR1)  
(see p.12 No. 6)



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

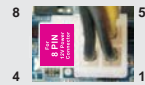
**ATX 12V Power Connector**  
(8-pin ATX12V1)  
(see p.12 No. 1)



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

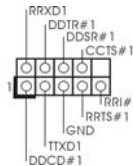


Though this motherboard provides 8-pin ATX 12V power connector, it can still work if you adopt a traditional 4-pin ATX 12V power supply. To use the 4-pin ATX power supply, please plug your power supply along with Pin 1 and Pin 5.



4-Pin ATX 12V Power Supply Installation

**Serial port Header**  
(9-pin COM1)  
(see p.12 No. 30)



This COM1 header supports a serial port module.

**HDMI\_SPDIF Header**  
(2-pin HDMI\_SPDIF1)  
(see p.12 No. 31)



HDMI\_SPDIF header, providing SPDIF audio output to HDMI VGA card, allows the system to connect HDMI Digital TV/ projector/LCD devices. Please connect the HDMI\_SPDIF connector of HDMI VGA card to this header.

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## 2.9 Smart Switches

The motherboard has three smart switches: power switch, reset switch and clear CMOS switch, allowing users to quickly turn on/off or reset the system clear the CMOS values.

---

Power Switch  
(PWRBTN)  
(see p.12 No. 22)



Power Switch is a smart switch, allowing users to quickly turn on/off the system.

---

Reset Switch  
(RSTBTN)  
(see p.12 No. 20)



Reset Switch is a smart switch, allowing users to quickly reset the system.

---

Clear CMOS Switch  
(CLRCBTN)  
(see p.13 No. 16)



Clear CMOS Switch is a smart switch, allowing users to quickly clear the CMOS values.

---

## 2.10 Dr. Debug

Dr. Debug is used to provide code information, which makes troubleshooting even easier. Please see the diagrams below for reading the Dr. Debug codes.

Status Code	Description
0x00	Not used
0x01	Power on. Reset type detection (soft/hard)
0x02	AP initialization before microcode loading
0x03	North Bridge initialization before microcode loading
0x04	South Bridge initialization before microcode loading
0x05	OEM initialization before microcode loading
0x06	Microcode loading
0x07	AP initialization after microcode loading
0x08	North Bridge initialization after microcode loading
0x09	South Bridge initialization after microcode loading
0x0A	OEM initialization after microcode loading
0x0B	Cache initialization
0x0C – 0x0D	Reserved for future AMI SEC error codes
0x0E	Microcode not found
0x0F	Microcode not loaded
0x10	PEI Core is started
0x11	Pre-memory CPU initialization is started
0x12	Pre-memory CPU initialization (CPU module specific)
0x13	Pre-memory CPU initialization (CPU module specific)
0x14	Pre-memory CPU initialization (CPU module specific)
0x15	Pre-memory North Bridge initialization is started
0x16	Pre-Memory North Bridge initialization (North Bridge module specific)
0x17	Pre-Memory North Bridge initialization (North Bridge module specific)
0x18	Pre-Memory North Bridge initialization (North Bridge module specific)
0x19	Pre-memory South Bridge initialization is started
0x1A	Pre-memory South Bridge initialization (South Bridge module specific)
0x1B	Pre-memory South Bridge initialization (South Bridge module specific)
0x1C	Pre-memory South Bridge initialization (South Bridge module specific)
0x1D – 0x2A	OEM pre-memory initialization codes
0x2B	Memory initialization. Serial Presence Detect (SPD) data reading
0x2C	Memory initialization. Memory presence detection
0x2D	Memory initialization. Programming memory timing information
0x2E	Memory initialization. Configuring memory
0x2F	Memory initialization (other)
0x30	Reserved for ASL (see ASL Status Codes section below)
0x31	Memory Installed
0x32	CPU post-memory initialization is started
0x33	CPU post-memory initialization. Cache initialization
0x34	CPU post-memory initialization. Application Processor(s) (AP) initialization
0x35	CPU post-memory initialization. Boot Strap Processor (BSP) selection
0x36	CPU post-memory initialization. System Management Mode (SMM) initialization

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0x37	Post-Memory North Bridge initialization is started
0x38	Post-Memory North Bridge initialization (North Bridge module specific)
0x39	Post-Memory North Bridge initialization (North Bridge module specific)
0x3A	Post-Memory North Bridge initialization (North Bridge module specific)
0x3B	Post-Memory South Bridge initialization is started
0x3C	Post-Memory South Bridge initialization (South Bridge module specific)
0x3D	Post-Memory South Bridge initialization (South Bridge module specific)
0x3E	Post-Memory South Bridge initialization (South Bridge module specific)
0x3F-0x4E	OEM post memory initialization codes
0x4F	DXE IPL is started
0x50	Memory initialization error. Invalid memory type or incompatible memory speed
0x51	Memory initialization error. SPD reading has failed
0x52	Memory initialization error. Invalid memory size or memory modules do not match
0x53	Memory initialization error. No usable memory detected
0x54	Unspecified memory initialization error
0x55	Memory not installed
0x56	Invalid CPU type or Speed
0x57	CPU mismatch
0x58	CPU self test failed or possible CPU cache error
0x59	CPU micro-code is not found or micro-code update is failed
0x5A	Internal CPU error
0x5B	reset PPI is not available
0x5C-0x5F	Reserved for future AMI error codes
0xE0	S3 Resume is started (S3 Resume PPI is called by the DXE IPL)
0xE1	S3 Boot Script execution
0xE2	Video repost
0xE3	OS S3 wake vector call
0xE4-0xE7	Reserved for future AMI progress codes
0xE8	S3 Resume Failed
0xE9	S3 Resume PPI not Found
0xEA	S3 Resume Boot Script Error
0xEB	S3 OS Wake Error
0xEC-0xEF	Reserved for future AMI error codes
0xF0	Recovery condition triggered by firmware (Auto recovery)
0xF1	Recovery condition triggered by user (Forced recovery)
0xF2	Recovery process started
0xF3	Recovery firmware image is found
0xF4	Recovery firmware image is loaded
0xF5-0xF7	Reserved for future AMI progress codes
0xF8	Recovery PPI is not available
0xF9	Recovery capsule is not found
0xFA	Invalid recovery capsule
0xFB – 0xFF	Reserved for future AMI error codes
0x60	DXE Core is started
0x61	NVRAM initialization

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0x62	Installation of the South Bridge Runtime Services
0x63	CPU DXE initialization is started
0x64	CPU DXE initialization (CPU module speci c)
0x65	CPU DXE initialization (CPU module speci c)
0x66	CPU DXE initialization (CPU module speci c)
0x67	CPU DXE initialization (CPU module speci c)
0x68	PCI host bridge initialization
0x69	North Bridge DXE initialization is started
0x6A	North Bridge DXE SMM initialization is started
0x6B	North Bridge DXE initialization (North Bridge module speci c)
0x6C	North Bridge DXE initialization (North Bridge module speci c)
0x6D	North Bridge DXE initialization (North Bridge module speci c)
0x6E	North Bridge DXE initialization (North Bridge module speci c)
0x6F	North Bridge DXE initialization (North Bridge module speci c)
0x70	South Bridge DXE initialization is started
0x71	South Bridge DXE SMM initialization is started
0x72	South Bridge devices initialization
0x73	South Bridge DXE Initialization (South Bridge module speci c)
0x74	South Bridge DXE Initialization (South Bridge module speci c)
0x75	South Bridge DXE Initialization (South Bridge module speci c)
0x76	South Bridge DXE Initialization (South Bridge module speci c)
0x77	South Bridge DXE Initialization (South Bridge module speci c)
0x78	ACPI module initialization
0x79	CSM initialization
0x7A – 0x7F	Reserved for future AMI DXE codes
0x80 – 0x8F	OEM DXE initialization codes
0x90	Boot Device Selection (BDS) phase is started
0x91	Driver connecting is started
0x92	PCI Bus initialization is started
0x93	PCI Bus Hot Plug Controller Initialization
0x94	PCI Bus Enumeration
0x95	PCI Bus Request Resources
0x96	PCI Bus Assign Resources
0x97	Console Output devices connect
0x98	Console input devices connect
0x99	Super IO Initialization
0x9A	USB initialization is started
0x9B	USB Reset
0x9C	USB Detect
0x9D	USB Enable
0x9E – 0x9F	Reserved for future AMI codes
0xA0	IDE initialization is started
0xA1	IDE Reset
0xA2	IDE Detect
0xA3	IDE Enable
0xA4	SCSI initialization is started
0xA5	SCSI Reset

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0xA6	SCSI Detect
0xA7	SCSI Enable
0xA8	Setup Verifying Password
0xA9	Start of Setup
0xAA	Reserved for ASL (see ASL Status Codes section below)
0xAB	Setup Input Wait
0xAC	Reserved for ASL (see ASL Status Codes section below)
0xAD	Ready To Boot event
0xAE	Legacy Boot event
0xAF	Exit Boot Services event
0xB0	Runtime Set Virtual Address MAP Begin
0xB1	Runtime Set Virtual Address MAP End
0xB2	Legacy Option ROM Initialization
0xB3	System Reset
0xB4	USB hot plug
0xB5	PCI bus hot plug
0xB6	Clean-up of NVRAM
0xB7	Configuration Reset (reset of NVRAM settings)
0xB8 – 0xBF	Reserved for future AMI codes
0xC0 – 0xCF	OEM BDS initialization codes
0xD0	CPU initialization error
0xD1	North Bridge initialization error
0xD2	South Bridge initialization error
0xD3	Some of the Architectural Protocols are not available
0xD4	PCI resource allocation error. Out of Resources
0xD5	No Space for Legacy Option ROM
0xD6	No Console Output Devices are found
0xD7	No Console Input Devices are found
0xD8	Invalid password
0xD9	Error loading Boot Option (LoadImage returned error)
0xDA	Boot Option is failed (StartImage returned error)
0xDB	Flash update is failed
0xDC	Reset protocol is not available



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

This motherboard adopts Intel® P67 chipset that supports Serial ATA (SATA) / Serial ATAII (SATAII) hard disks and RAID (RAID 0, RAID 1, RAID 10, RAID 5 and Intel Rapid Storage) functions. 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.



JMicron SATAII\_6 does not support RAID function.

## 2.12 Serial ATA3 (SATA3) Hard Disks Installation

This motherboard adopts Intel® P67 chipset that supports Serial ATA3 (SATA3) hard disks and RAID (RAID 0, RAID 1, RAID 10, RAID 5 and Intel Rapid Storage) functions. You may install SATA3 hard disks on this motherboard for internal storage devices. This section will guide you to install the SATA3 hard disks.

STEP 1: Install the SATA3 hard disks into the drive bays of your chassis.

STEP 2: Connect the SATA power cable to the SATA3 hard disk.

STEP 3: Connect one end of the SATA data cable to the motherboard's SATA3 connector.

STEP 4: Connect the other end of the SATA data cable to the SATA3 hard disk.

---

### 2.13 Hot Plug and Hot Swap Functions for SATA / SATAII HDDs

This motherboard supports Hot Plug and Hot Swap functions for SATA / SATAII in RAID / AHCI mode. Intel® P67 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.

##### **What is Hot Swap Function?**

If SATA / SATAII HDDs are built as RAID 1 or RAID 5 then it is called "Hot Swap" for the action to insert and remove the SATA / SATAII HDDs while the system is still power-on and in working condition.

### 2.14 Hot Plug and Hot Swap Functions for SATA3 HDDs

This motherboard supports Hot Plug and Hot Swap functions for SATA3 in RAID / AHCI mode. Intel® P67 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 SATA3 HDDs are NOT set for RAID configuration, it is called "Hot Plug" for the action to insert and remove the SATA3 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 SATA3 HDD.

##### **What is Hot Swap Function?**

If SATA3 HDDs are built as RAID 1 or RAID 5 then it is called "Hot Swap" for the action to insert and remove the SATA3 HDDs while the system is still power-on and in working condition.

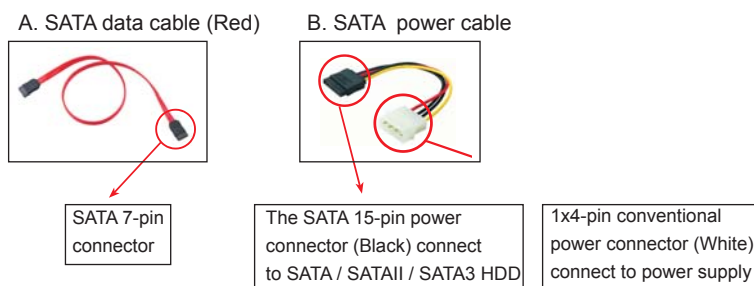
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## 2.15 SATA / SATAII / SATA3 HDD Hot Plug Feature and Operation Guide

This motherboard supports Hot Plug feature for SATA / SATAII / SATA3 HDD in RAID / AHCI mode. Please read below operation guide of Hot Plug feature carefully. Before you process the SATA / SATAII / SATA3 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



### Caution

1. Without SATA 15-pin power connector interface, the SATA / SATAII / SATA3 Hot Plug cannot be processed.
2. Even some SATA / SATAII / SATA3 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 / SATA3 HDD Hot Plug.
    - \* The SATA / SATAII / SATA3 Hot Plug feature might not be supported by the chipset because of its limitation, the SATA / SATAII / SATA3 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 / SATA3 HDD can support Hot Plug function from your dealer or HDD user manual. The SATA / SATAII / SATA3 HDD, which cannot support Hot Plug function, will be damaged under the Hot Plug operation.
  3. Please make sure the SATA / SATAII / SATA3 driver is installed into system properly. The latest SATA / SATAII / SATA3 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.
-

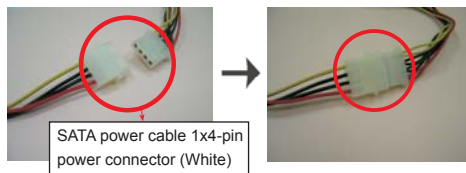
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## How to Hot Plug a SATA / SATAII / SATA3 HDD:

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 / SATA3 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 / SATA3 connector.



**Step 3** Connect SATA 15-pin power cable connector (Black) end to SATA / SATAII / SATA3 HDD.



**Step 4** Connect SATA data cable to the SATA / SATAII / SATA3 HDD.



## How to Hot Unplug a SATA / SATAII / SATA3 HDD:

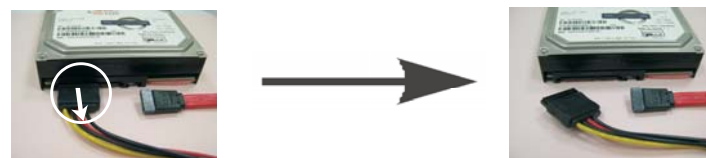
Points of attention, before you process the Hot Unplug:

Please do follow below instruction sequence to process the Hot Unplug, improper procedure will cause the SATA / SATAII / SATA3 HDD damage and data loss.

**Step 1** Unplug SATA data cable from SATA / SATAII / SATA3 HDD side.



**Step 2** Unplug SATA 15-pin power cable connector (Black) from SATA / SATAII / SATA3 HDD side.



---

## 2.16 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.

## 2.17 Installing Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit With RAID Functions

If you want to install Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS on your SATA / SATAII / SATA3 HDDs with RAID functions, please follow below procedures according to the OS you install.



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

### STEP 1: Set up UEFI.

- A. Enter UEFI SETUP UTILITY → Advanced screen → Storage Configuration.
- B. Set the option “SATA Mode” to [RAID].

### STEP 2: Use “RAID Installation Guide” to set RAID configuration.

Before you start to configure the RAID function, you need to check the installation guide in the Support CD for proper configuration. Please refer to the document in the Support CD, “Guide to SATA Hard Disks Installation and RAID Configuration”, which is located in the folder at the following path:

.. \ RAID Installation Guide

### STEP 3: Install Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS on your system.

After the installation of Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS, if you want to manage RAID functions, you are allowed to use both “RAID Installation Guide” and “Intel Rapid Storage Information” for RAID configuration. Please refer to the document in the Support CD, “Guide to SATA Hard Disks Installation and RAID Configuration”, which is located in the folder at the following path: .. \ RAID Installation Guide and the document in the support CD, “Guide to Intel Rapid Storage”, which is located in the folder at the following path: .. \ Intel Rapid Storage Information



If you want to use “Intel Rapid Storage” in Windows® environment, please install “SATAII driver” from the Support CD again so that “Intel Rapid Storage” will be installed to your system as well.

---

## 2.18 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 / SATA3 HDDs without RAID functions, please follow below procedures according to the OS you install.

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

If you want to install Windows® XP / XP 64-bit OS on your SATA / SATAII / SATA3 HDDs without RAID functions, please follow below steps.



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

#### Using SATA / SATAII / SATA3 HDDs without NCQ function

##### STEP 1: Set up UEFI.

- A. Enter UEFI SETUP UTILITY → Advanced screen → Storage Configuration.
- B. Set the option "SATA Mode" to [IDE].

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

### 2.18.2 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 / SATA3 HDDs without RAID functions, please follow below steps.

#### Using SATA / SATAII / SATA3 HDDs with NCQ function

##### STEP 1: Set up UEFI.

- A. Enter UEFI SETUP UTILITY → Advanced screen → Storage Configuration.
- B. Set the option "SATA Mode" to [AHCI].

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

#### Using SATA / SATAII / STA3 HDDs without NCQ function

##### STEP 1: Set up UEFI.

- A. Enter UEFI SETUP UTILITY → Advanced screen → Storage Configuration.
- B. Set the option "SATA Mode" to [IDE].

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

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## 2.19 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.

---

## Chapter 3: UEFI SETUP UTILITY

### 3.1 Introduction

This section explains how to use the UEFI SETUP UTILITY to configure your system. The UEFI chip on the motherboard stores the UEFI SETUP UTILITY. You may run the UEFI SETUP UTILITY when you start up the computer. Please press <F2> or <Del> during the Power-On-Self-Test (POST) to enter the UEFI SETUP UTILITY, otherwise, POST will continue with its test routines.

If you wish to enter the UEFI 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 UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

#### 3.1.1 UEFI 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 UEFI 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 UEFI 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. You can also use the mouse to click your required item.



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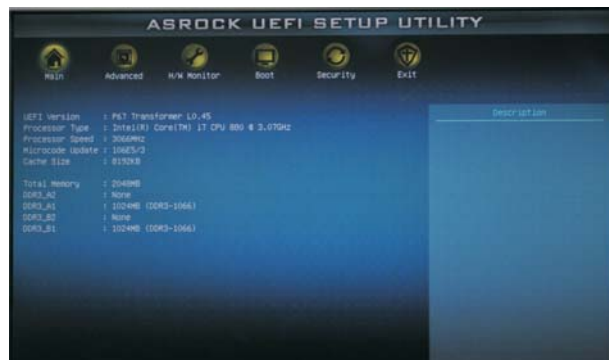
### 3.1.2 Navigation Keys

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 UEFI SETUP UTILITY
<ESC>	To jump to the Exit Screen or exit the current screen

### 3.2 Main Screen

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



---

### 3.3 OC Tweaker Screen

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



#### Load CPU EZ OC Setting

Use this item 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.

#### Load Memory EZ OC Setting

Use this item to load Memory EZ overclocking setting. Please note that overclocking may cause damage to your memory module and motherboard. It should be done at your own risk and expense.

#### CPU Ratio Setting

Use this item to change the ratio value of this motherboard.

#### 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 39 for the details of Untied Overclocking Technology. Therefore, you are allowed to adjust the BCLK 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 heavily loaded.

#### BCLK Frequency (MHz)

Use this option to adjust BCLK (Internal Base Clock) frequency.

#### Load XMP Setting

Use this to load XMP setting. Configuration options: [Auto], [Profile 1] and [Profile 2]. The default value is [Auto].

#### DRAM Frequency

If [Auto] is selected, the motherboard will detect the memory module(s) inserted and assign appropriate frequency automatically.

---

**CAS# Latency (tCL)**

Use this item to change CAS# Latency (tCL) Auto/Manual setting. The default is [Auto].

**RAS# to CAS# Delay (tRCD)**

Use this item to change RAS# to CAS# Delay (tRCD) Auto/Manual setting. The default is [Auto].

**Row Precharge Time (tRP)**

Use this item to change Row Precharge Time (tRP) Auto/Manual setting. The default is [Auto].

**RAS# Active Time (tRAS)**

Use this item to change RAS# Active Time (tRAS) Auto/Manual setting. The default is [Auto].

**Refresh Cycle Time (tRFC)**

Use this item to change Refresh Cycle Time (tRFC) Auto/Manual setting. The default is [Auto].

**Write Recovery Time (tWR)**

Use this item to change Write Recovery Time (tWR) Auto/Manual setting. The default is [Auto].

**Write to Read Delay (tWTR)**

Use this item to change Write to Read Delay (tWTR) Auto/Manual setting. The default is [Auto].

**RAS to RAS Delay (tRRD)**

Use this item to change RAS to RAS Delay (tRRD) Auto/Manual setting. The default is [Auto].

**Read to Precharge (tRTP)**

Use this item to change Read to Precharge (tRTP) Auto/Manual setting. The default is [Auto].

**Four Activate Window (tFAW)**

Use this item to change Four Activate Window (tFAW) Auto/Manual setting. The default is [Auto].

**DRAM Command Rate**

Use this item to change Command Rate Auto/Manual setting. Min: 1N. Max: 2N. The default is [Auto].

**Memory Power Down Mode**

Use this item to adjust DDR power down mode. Configuration options: [Auto], [Slow] and [Fast]. The default value is [Auto].

---

**CPU Voltage**

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

**DRAM Voltage**

Use this to select DRAM Voltage. Configuration options: [Auto], [1.196V] to [2.008V]. The default value is [Auto].

**PCH Voltage**

Use this to select PCH Voltage. Configuration options: [Auto], [1.066V] to [1.495V]. The default value is [Auto].

**CPU PLL Voltage**

Use this to select CPU PLL Voltage. Configuration options: [Auto], [1.812V] to [2.233V]. The default value is [Auto].

**VTT Voltage**

Use this to select VTT Voltage. Configuration options: [Auto], [1.114V] to [2.059V]. The default value is [Auto].

**ASRock Vdroop Control**

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

**Intelligent Energy Saver**

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

**User Default**

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, Clock Generator Configuration, North Bridge Configuration, South Bridge Configuration, Storage Configuration, Super IO Configuration, Voltage Configuration, ACPI Configuration and USB Configuration.



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

#### ASRock Instant Flash

ASRock Instant Flash is a UEFI flash utility embedded in Flash ROM. This convenient UEFI update tool allows you to update system UEFI without entering operating systems first like MS-DOS or Windows®. Just launch this tool and save the new UEFI file to your USB flash drive, floppy disk or hard drive, then you can update your UEFI 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 UEFI files and their respective information. Select the proper UEFI file to update your UEFI, and reboot your system after UEFI update process completes.

---

### 3.4.1 CPU Configuration



#### CPU Ratio Setting

Use this item to change the ratio value of this motherboard.

#### Intel SpeedStep Technology

Intel SpeedStep technology is Intel's new power saving technology. Processor can switch between multiple frequency and voltage points to enable power savings. The default value is [Enabled]. 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 SpeedStep technology.



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 Turbo Boost Technology

Use this item to enable or disable Intel Turbo Boost Technology. Turbo Boost allows processor cores to run faster than marked frequency in specific condition. The default value is [Enabled].

#### Intel Hyper Threading Technology

To enable this feature, it requires a computer system with an Intel 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.

#### Active Processor Cores

Use this item to select the number of cores to enable in each processor package. The default value is [All].

---

**Hardware Prefetcher**

Use this item to turn on/off the MLC streamer prefetcher.

**Adjacent Cache Line Prefetch**

Use this item to turn on/off prefetching of adjacent cache lines.

**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.

**CPU C3 State Support**

Use this to enable or disable CPU C3 (ACPI C2) report to OS.

**CPU C6 State Support**

Use this to enable or disable CPU C6 (ACPI C3) report to OS.

**Package C State Support**

Selected option will program into C State package limit register. The default value is [Auto].

**CPU Thermal Throttling**

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

**Intel Virtualization Technology**

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 Virtualization Technology.

**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.

---

### 3.4.2 Clock Generator 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 39 for the details of Untied Overclocking Technology. Therefore, you are allowed to adjust the BCLK 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.

#### BCLK Frequency (MHz)

Use this option to adjust BCLK (Internal Base Clock) frequency.

#### PCIE Frequency (MHz)

Use this option to adjust PCIE frequency.

#### Spread Spectrum

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



---

### 3.4.3 North Bridge Configuration



#### Primary Graphics Adapter

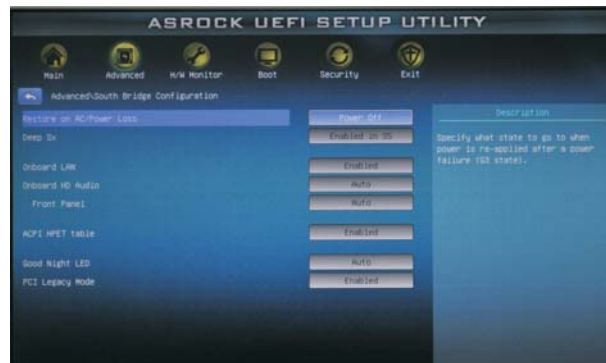
This allows you to select [PCI] or [PCI Express] as the boot graphic adapter priority. The default value is [PCI Express].

#### VT-d

Use this to enable or disable Intel® VT-d technology (Intel® Virtualization Technology for Directed I/O). The default value of this feature is [Disabled].

---

### 3.4.4 South Bridge Configuration



#### 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.

#### Deep Sx

Mobile platforms support Deep S4/S5 in DC only and desktop platforms support Deep S4/S5 in AC only. Configuration options: [Disabled], [Enabled in S5] and [S4 and S5]. The default value is [Enabled in S5].

#### Onboard LAN

This allows you to enable or disable the “Onboard LAN” feature.

#### 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.

#### ACPI HPET Table

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

#### Good Night LED

Enable this option to turn off Power LED and Lan LED when the system is power on. The default value is [Auto].

#### PCI Legacy Mode

Use this item to enable or disable PCI Legacy Mode. The default value is [Enabled].

---

### 3.4.5 Storage Configuration



#### SATA Mode

Use this to select SATA mode. Configuration options: [IDE Mode], [AHCI Mode] and [RAID Mode]. The default value is [IDE Mode].



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.

#### SATA Controller 0

Please select [**Compatible**] when you install legacy OS. If native OS (Windows® XP / Vista™ / 7) is installed, please select [**Enhanced**].

#### SATA Controller 1

Please select [**Compatible**] when you install legacy OS. If native OS (Windows® XP / Vista™ / 7) is installed, please select [**Enhanced**].

#### Hard Disk 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] and [Enabled].

#### JMicron eSATAII Operation Mode

Use this to select JMicron eSATAII operation mode. Configuration options: [IDE Mode] and [AHCI Mode]. The default value is [IDE Mode].

---

### 3.4.6 Super IO Configuration



#### **Serial Port**

Use this item to enable or disable the onboard serial port.

#### **Serial Port Address**

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

#### **Infrared Port**

Use this item to enable or disable the onboard infrared port.

#### **Infrared Port Address**

Use this item to set the address for the onboard infrared port.

---

### 3.4.7 Voltage Control



#### **CPU Voltage**

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

#### **DRAM Voltage**

Use this to select DRAM Voltage. Configuration options: [Auto], [1.196V] to [2.008V]. The default value is [Auto].

#### **PCH Voltage**

Use this to select PCH Voltage. Configuration options: [Auto], [1.066V] to [1.495V]. The default value is [Auto].

#### **CPU PLL Voltage**

Use this to select CPU PLL Voltage. Configuration options: [Auto], [1.812V] to [2.233V]. The default value is [Auto].

#### **VTT Voltage**

Use this to select VTT Voltage. Configuration options: [Auto], [1.114V] to [2.059V]. The default value is [Auto].

#### **ASRock Vdroop Control**

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

#### **Intelligent Energy Saver**

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

---

### 3.4.8 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.

#### **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.

#### **PCI Devices Power On**

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

#### **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.

#### **RTC Alarm Power On**

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

---

### 3.4.9 USB Configuration



#### **USB 2.0 Controller**

Use this item to enable or disable the use of USB 2.0 controller.

#### **USB 3.0 Controller**

Use this item to enable or disable the use of USB 3.0 controller.

#### **Legacy USB Support**

Use this option to select legacy support for USB devices. There are four configuration options: [Enabled], [Auto], [Disabled] and [UEFI 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 UEFI setup when [Disabled] is selected. If you have USB compatibility issue, it is recommended to select [Disabled] to enter OS.

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

#### **Legacy USB 3.0 Support**

Use this option to enable or disable legacy support for USB 3.0 devices.

The default value is [Enabled].

---

### 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.



#### CPU Fan Setting

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

#### Chassis Fan 1 Setting

This allows you to set the chassis fan 1 speed. Configuration options: [Full On] and [Manual Mode]. The default is value [Full On].

#### Chassis Fan 2 Setting

This allows you to set the chassis fan 2 speed. Configuration options: [Level 1] to [Level 4]. The default is value [Level 4].

#### Chassis Fan 3 Setting

This allows you to set the chassis fan 3 speed. Configuration options: [Full On] and [Manual Mode]. The default is value [Full On].



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### 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.



#### **Boot Option Priorities**

##### **Boot Option #1**

Set the first priority of the system boot device.

##### **Hard Drive BBS Priorities**

Set the order of the legacy devices in this group.

##### **Setup Prompt Timeout**

This shows the number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.

##### **Bootup Num-Lock**

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

##### **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 From Onboard LAN**

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

##### **Boot Failure Guard**

Enable or disable the feature of Boot Failure Guard.

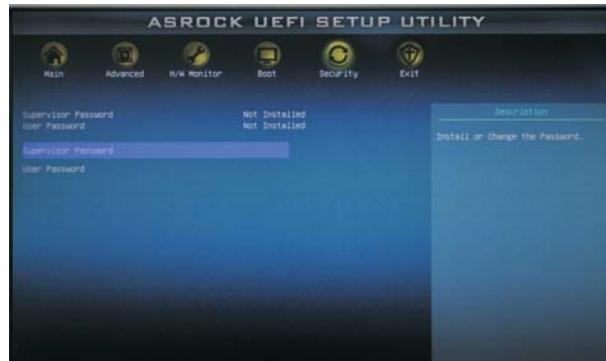
##### **Boot Failure Guard Count**

Enable or disable the feature of Boot Failure Guard Count.

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### 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.



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### 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 UEFI 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 UEFI 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 UEFI Defaults**

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

#### **Launch EFI Shell from filesystem device**

Attempts to Launch EFI Shell application (Shell64.efi) from one of the available filesystem devices.

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## 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.

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## Installing OS on a HDD Larger Than 2TB

This motherboard is adopting UEFI BIOS that allows Windows® OS to be installed on a large size HDD (>2TB). Please follow below procedure to install the operating system.

1. Please make sure to use **Windows® Vista™ 64-bit (with SP1 or above)** or **Windows® 7 64-bit**.
2. Set **AHCI Mode** in UEFI Setup Utility > Advanced > Storage Configuration > SATA Mode.
3. Press F11 to launch boot menu at system POST.
4. Choose the item “**UEFI:xxx**“ to boot. (“xxx” is the device which contains your Windows® installation files. Normally it is an optical drive.)
5. Start Windows® installation.