



# ConRoe1333-DVI/H

## User Manual

Version 2.0

Published April 2007

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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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## Chapter 1 Introduction

Thank you for purchasing ASRock **ConRoe1333-DVI/H** 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>

### 1.1 Package Contents

ASRock **ConRoe1333-DVI/H** Motherboard

(Micro ATX Form Factor: 9.6-in x 9.6-in, 24.4 cm x 24.4 cm)

ASRock **ConRoe1333-DVI/H** Quick Installation Guide

ASRock **ConRoe1333-DVI/H** Support CD

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

One Ribbon Cable for a 3.5-in Floppy Drive

One Serial ATA (SATA) Data Cable (Optional)

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

One HD 8CH I/O Shield

One COM Port Bracket

One DVI Graphics-HDCP Card

## 1.2 Specifications

<b>Platform</b>	- Micro ATX Form Factor: 9.6-in x 9.6-in, 24.4 cm x 24.4 cm
<b>CPU</b>	<ul style="list-style-type: none"> <li>- LGA 775 for Intel® Dual Core Core™ 2 Extreme / Core™ 2 Duo / Pentium® D / Pentium® Dual Core / Pentium® 4 / Celeron® / Celeron® D</li> <li>- Compatible with all FSB1333/1066/800/533MHz CPUs except Quad Core (see <b>CAUTION 1</b>)</li> <li>- Supports Hyper-Threading Technology (see <b>CAUTION 2</b>)</li> <li>- Supports Untied Overclocking Technology (see <b>CAUTION 3</b>)</li> <li>- Supports EM64T CPU</li> </ul>
<b>Chipset</b>	<ul style="list-style-type: none"> <li>- Northbridge: Intel® 945G/945GC A2</li> <li>- Southbridge: Intel® ICH7</li> </ul>
<b>Memory</b>	<ul style="list-style-type: none"> <li>- Dual Channel DDRII Memory Technology (see <b>CAUTION 4</b>)</li> <li>- 4 x DDRII DIMM slots (see <b>CAUTION 5</b>)</li> <li>- Support DDRII667/533 (see <b>CAUTION 6</b>)</li> <li>- Max. capacity: 4GB (see <b>CAUTION 7</b>)</li> </ul>
<b>Hybrid Booster</b>	<ul style="list-style-type: none"> <li>- CPU Frequency Stepless Control (see <b>CAUTION 8</b>)</li> <li>- ASRock U-COP (see <b>CAUTION 9</b>)</li> <li>- Boot Failure Guard (B.F.G.)</li> </ul>
<b>Expansion Slot</b>	<ul style="list-style-type: none"> <li>- 1 x PCI Express x16 slot</li> <li>- 1 x PCI Express x1 slot</li> <li>- 2 x PCI slots</li> <li>- 1 x HDMR slot</li> </ul>
<b>Graphics</b>	<ul style="list-style-type: none"> <li>- Intel® Graphics Media Accelerator 950</li> <li>- Pixel Shader 2.0, DirectX 9.0</li> <li>- Max. shared memory 224MB (see <b>CAUTION 10</b>)</li> <li>- Dual VGA Output: support DVI-D and D-Sub ports with DVI Graphics-HDCP card by independent display controllers</li> <li>- Supports HDCP function with DVI Graphics-HDCP card</li> </ul>
<b>Audio</b>	- 7.1 CH Windows® Vista™ Premium Level HD Audio (ALC888 Audio Codec)
<b>LAN</b>	<ul style="list-style-type: none"> <li>- PCIE x1 Gigabit LAN 10/100/1000 Mb/s</li> <li>- Realtek RTL8111B</li> <li>- Supports Wake-On-LAN</li> </ul>
<b>Rear Panel I/O</b>	<ul style="list-style-type: none"> <li>HD8CH I/O</li> <li>- 1 x PS/2 Mouse Port</li> <li>- 1 x PS/2 Keyboard Port</li> <li>- 1 x VGA Port</li> <li>- 1 x Parallel Port (ECP/EPP Support)</li> <li>- 4 x Ready-to-Use USB 2.0 Ports</li> </ul>

	<ul style="list-style-type: none"> <li>- 1 x RJ-45 LAN Port</li> <li>- HD Audio Jack: Side Speaker/Rear Speaker/Central/Bass/Line in/Front Speaker/Microphone (see <b>CAUTION 11</b>)</li> </ul>
<b>Connector</b>	<ul style="list-style-type: none"> <li>- 4 x SATAII 3.0 Gb/s connectors (No Support for RAID and "Hot Plug" functions) (see <b>CAUTION 12</b>)</li> <li>- 1 x ATA100 IDE connector (supports 2 x IDE devices)</li> <li>- 1 x Floppy connector</li> <li>- 1 x IR header</li> <li>- 1 x COM port header</li> <li>- CPU/Chassis FAN connector</li> <li>- 20 pin ATX power connector</li> <li>- 4 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) (see <b>CAUTION 13</b>)</li> </ul>
<b>BIOS Feature</b>	<ul style="list-style-type: none"> <li>- 4Mb 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>- AMBIOS 2.3.1 Support</li> </ul>
<b>Support CD</b>	<ul style="list-style-type: none"> <li>- Drivers, Utilities, AntiVirus Software (Trial Version)</li> </ul>
<b>Hardware Monitor</b>	<ul style="list-style-type: none"> <li>- CPU Temperature Sensing</li> <li>- Chassis Temperature Sensing</li> <li>- CPU Fan Tachometer</li> <li>- Chassis Fan Tachometer</li> <li>- CPU Quiet Fan</li> <li>- Voltage Monitoring: +12V, +5V, +3.3V, Vcore</li> </ul>
<b>OS</b>	<ul style="list-style-type: none"> <li>- Microsoft® Windows® 2000/XP/XP 64-bit/Vista™/Vista™ 64-bit compliant (see <b>CAUTION 14</b>)</li> </ul>
<b>Certifications</b>	<ul style="list-style-type: none"> <li>- FCC, CE, WHQL</li> </ul>

**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. FSB1333-CPU will operate in overclocking mode. Under this situation, PCIE frequency will also be overclocked to 115MHz.
2. About the setting of "Hyper Threading Technology", please check page 31.
3. This motherboard supports Untied Overclocking Technology. Please read "Untied Overclocking Technology" on page 27 for details.
4. 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.
5. There are memory module installation limitations on this motherboard, please read "Installation of Memory Modules (DIMM)" on page 16 for details.
6. Please check the table below for the CPU FSB frequency and its corresponding memory support frequency.

CPU FSB Frequency	Memory Support Frequency
1333	DDRII533*, DDRII667
1066	DDRII533, DDRII667
800	DDRII400, DDRII533, DDRII667
533	DDRII400, DDRII533

\* When you use a FSB1333-CPU on this motherboard, it will run at DDRII500 if you adopt a DDRII533 memory module.

7. Due to the chipset limitation, the actual memory size may be less than 4GB for the reservation for system usage under Windows® XP, Windows® XP 64-bit, Windows® Vista™ and Windows® Vista™ 64-bit.
8. 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.
9. 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.
10. The maximum shared memory size is defined by the chipset vendor and is subject to change. Please check Intel® website for the latest information.
11. 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 11 for proper connection.
12. Before installing SATAII hard disk to SATAII connector, please read the "SATAII Hard Disk Setup Guide" on page 26 to adjust your SATAII hard disk drive to SATAII mode. You can also connect SATA hard disk to SATAII connector directly.
13. Power Management for USB 2.0 works fine under Microsoft® Windows® Vista™ 64-bit / Vista™ / XP 64-bit / XP SP1 or SP2 / 2000 SP4.

14. Microsoft® Windows® Vista™ / Vista™ 64-bit driver keeps on updating now. As long as we have the latest driver, we will update it to our website in the future. Please visit our website for Microsoft® Windows® Vista™ / Vista™ 64-bit driver and related information.  
ASRock website <http://www.asrock.com>

### 1.3 Minimum Hardware Requirement Table for Windows® Vista™ Premium 2007 and Basic Logo

For system integrators and users who purchase this motherboard and plan to submit Windows® Vista™ Premium 2007 and Basic logo, please follow below table for minimum hardware requirements.

CPU	Celeron D 326
Memory	512MB x 2 Dual Channel (Premium)
	512MB Single Channel (Basic)
	256MB x 2 Dual Channel (Basic)
VGA	DX9.0 with WDDM Driver
	DVI with HDCP

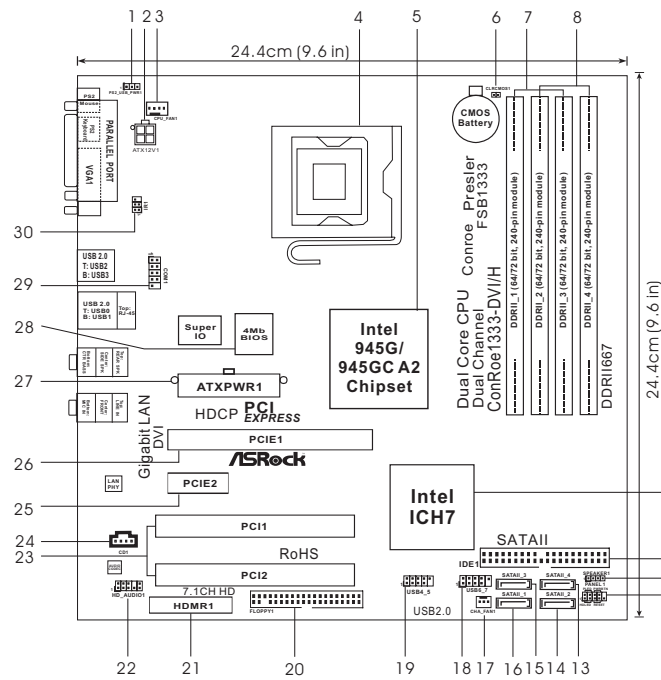
\* If you plan to use onboard VGA to submit Windows® Vista™ logo, please keep the default setting of "DVMT Mode Select" option under BIOS.

\* If you plan to use external graphics card on this motherboard, please refer to Premium Discrete requirement at <http://www.asrock.com>

\* If the onboard VGA supports DVI, it must also support HDCP function to qualify for Windows® Vista™ Premium 2007 logo.

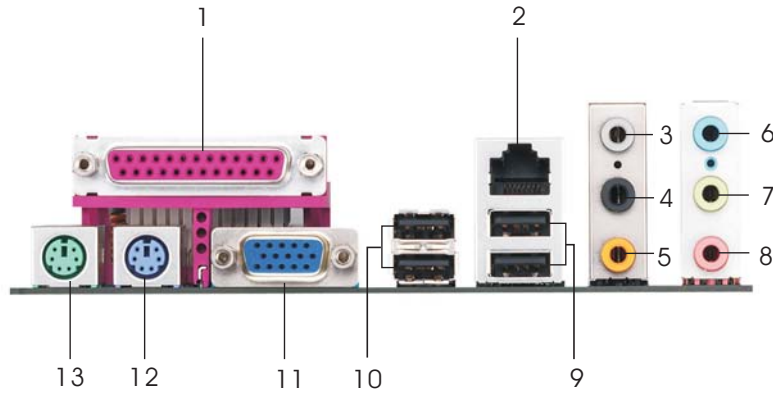
\* After June 1, 2007, all Windows® Vista™ systems are required to meet above minimum hardware requirements in order to qualify for Windows® Vista™ Premium 2007 logo.

## 1.4 Motherboard Layout



- |    |   |    |   |
|----|---|----|---|
| 1  | PS2_USB_PWR1 Jumper   | 15 | Third SATAII Connector (SATAII_3; Orange) |
| 2  | ATX 12V Connector (ATX12V1)   | 16 | Primary SATAII Connector (SATAII_1; Red)  |
| 3  | CPU Fan Connector (CPU_FAN1)  | 17 | Chassis Fan Connector (CHA_FAN1)          |
| 4  | 775-Pin CPU Socket  | 18 | USB 2.0 Header (USB6_7, Blue)             |
| 5  | North Bridge Controller   | 19 | USB 2.0 Header (USB4_5, Blue)             |
| 6  | Clear CMOS Jumper (CLRCMOS1)  | 20 | Floppy Connector (FLOPPY1)                |
| 7  | 2 x 240-pin DDR2 DIMM Slots<br>(Dual Channel A: DDR2_1, DDR2_3; Yellow) | 21 | HDMR Slot (HDMR1)                         |
| 8  | 2 x 240-pin DDR2 DIMM Slots<br>(Dual Channel B: DDR2_2, DDR2_4; Orange) | 22 | Front Panel Audio Header (HD_AUDIO1)      |
| 9  | South Bridge Controller   | 23 | PCI Slots (PCI1-2)                        |
| 10 | IDE1 Connector (IDE1, Blue)   | 24 | Internal Audio Connector: CD1 (Black)     |
| 11 | Chassis Speaker Header (SPEAKER 1)                                      | 25 | PCI Express x1 Slot (PCIE2)               |
| 12 | System Panel Header (PANEL1)  | 26 | PCI Express x16 Slot (PCIE1)              |
| 13 | Fourth SATAII Connector (SATAII_4; Orange)                              | 27 | ATX Power Connector (ATXPWR1)             |
| 14 | Secondary SATAII Connector (SATAII_2; Red)                              | 28 | BIOS FWH Chip                             |
|    |   | 29 | Serial Port Connector (COM1)              |
|    |   | 30 | Infrared Module Header (IR1)              |

## 1.5 HD 8CH I/O




- |                           |                                |
|---------------------------|--------------------------------|
| 1 Parallel Port           | 8 Microphone (Pink)            |
| 2 RJ-45 Port              | 9 USB 2.0 Ports (USB01)        |
| 3 Side Speaker (Gray)     | 10 USB 2.0 Ports (USB23)       |
| 4 Rear Speaker (Black)    | 11 VGA Port                    |
| 5 Central / Bass (Orange) | 12 PS/2 Keyboard Port (Purple) |
| 6 Line In (Light Blue)    | 13 PS/2 Mouse Port (Green)     |
| *7 Front Speaker (Lime)   |                                |

\* 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. 7)	Rear Speaker (No. 4)	Central / Bass (No. 5)	Side Speaker (No. 3)
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.

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## Chapter 2 Installation

**ConRoe1333-DVI/H** is a Micro ATX form factor (9.6" x 9.6", 24.4 x 24.4 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.

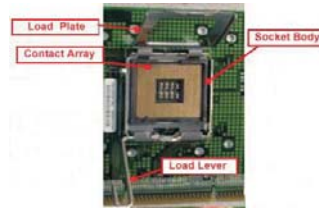
1. Unplug the power cord from the wall socket before touching any component.
2. To avoid damaging the motherboard components due to static electricity, **NEVER** place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before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



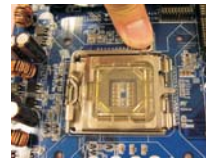
775-Pin Socket Overview



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.

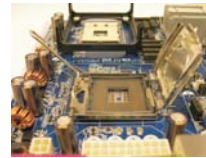
### Step 1. Open the socket:

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:

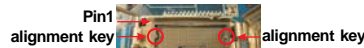
Step 2-1. Hold the CPU by the edges where are marked with black lines.



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



775-LAND CPU



775-Pin Socket



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. 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 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. 3).



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)

**ConRoe1333-DV/H** motherboard provides four 240-pin DDRII (Double Data Rate II) DIMM slots, and supports Dual Channel Memory Technology. For dual channel configuration, you always need to install **identical** (the same brand, speed, size and chip-type) DDRII DIMM pair in the slots of the same color. In other words, you have to install **identical** DDRII DIMM pair in **Dual Channel A** (DDRII\_1 and DDRII\_3; Yellow slots; see p.10 No.7) or **identical** DDRII DIMM pair in **Dual Channel B** (DDRII\_2 and DDRII\_4; Orange slots; see p.10 No.8), so that Dual Channel Memory Technology can be activated. This motherboard also allows you to install four DDRII DIMMs for dual channel configuration, and please install **identical** DDRII DIMMs in all four slots. You may refer to the Dual Channel Memory Configuration Table below.

**Dual Channel Memory Configurations**  
(DS: Double Side, SS: Single Side)

	DDRII_1 (Yellow Slot)	DDRII_2 (Orange Slot)	DDRII_3 (Yellow Slot)	DDRII_4 (Orange Slot)
2 memory modules	SS	X	SS	X
2 memory modules	DS	X	DS	X
2 memory modules	X	SS	X	SS
2 memory modules	X	DS	X	DS
4 memory modules	SS	SS	SS	SS



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 yellow slots (DDRII\_1 and DDRII\_3), or in the set of orange slots (DDRII\_2 and DDRII\_4).
2. If only one memory module or three memory modules are installed in the DDRII DIMM slots on this motherboard, it is unable to activate the Dual Channel Memory Technology.
3. If a pair of memory modules is NOT installed in the same Dual Channel, for example, installing a pair of memory modules in DDRII\_1 and DDRII\_2, it is unable to activate the Dual Channel Memory Technology .
4. It is not allowed to install a DDR memory module into DDRII slot; otherwise, this motherboard and DIMM may be damaged.

**Recommended Memory Configurations**  
(DS: Double Side, SS: Single Side)

	DDRII_1 (Yellow Slot)	DDRII_2 (Orange Slot)	DDRII_3 (Yellow Slot)	DDRII_4 (Orange Slot)
1 memory module	DS/SS*	X	X	X
2 memory modules	DS/SS	X	DS/SS	X
2 memory modules	X	DS/SS	X	DS/SS
3 memory modules	SS	SS	DS/SS	X
4 memory modules	SS	SS	SS	SS

\* If you only install one memory module, you can install it to any one of the four slots.

These two TRANSCEND memory modules can only be supported under the following conditions:

DRAM VENDOR	SIZE (MB)	TYPE	CELL VENDOR	CELL NO.	SINGLE SIDE / DOUBLE SIDE
TRANSCEND	256	DDRII533	SAMSUNG	K4T56083QF-ZCD5	SINGLE SIDE
TRANSCEND	512	DDRII533	INFINEON	HYB18T512800AF37	SINGLE SIDE

1. If you plan to install one above memory module, you can install it to any DDRII slot of this motherboard.
2. If you plan to install two above memory modules, it is recommended to install them either in the set of yellow slots (DDRII\_1 and DDRII\_3), or in the set of orange slots (DDRII\_2 and DDRII\_4).
3. This motherboard does not support three or four above memory modules.

### 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, HDMR and PCI Express Slots)

There are 2 PCI slots, 1 HDMR slot and 2 PCI Express slots on this motherboard.

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

**HDMR slot:** HDMR slot is used to insert a HDMR card with v.92 Modem functionality. The HDMR slot is shared with PCI2 slot.

**PCIE Slots:** PCIE1 (PCIE x16 slot) is used for PCI Express cards with x16 lane width graphics cards or ASRock DVI Graphics-HDCP card.

PCIE2 (PCIE x1 slot) is used for PCI Express cards with x1 lane width cards, such as Gigabit LAN card, SATA2 card, etc.



1. If you install the add-on PCI Express VGA card to PCIE1 (PCIE x16 slot), the onboard VGA will be disabled. If you install the add-on PCI Express VGA card to PCIE1 (PCIE x16 slot) and adjust the "Internal Graphics Mode Select" BIOS option to [Enabled], the onboard VGA will be enabled, and the primary screen will be onboard VGA.
2. You can only choose either PCI Express VGA card or DVI Graphics-HDCP card to install to PCIE1 (PCIE x16 slot).

### 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 bracket facing the slot that you intend to use. Keep the screws for later use.
- Step 3. Align the card connector with the slot and press firmly until the card is completely seated on the slot.
- Step 4. Fasten the card to the chassis with screws.

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## 2.7 DVI Graphics-HDCP Card Installation Guide

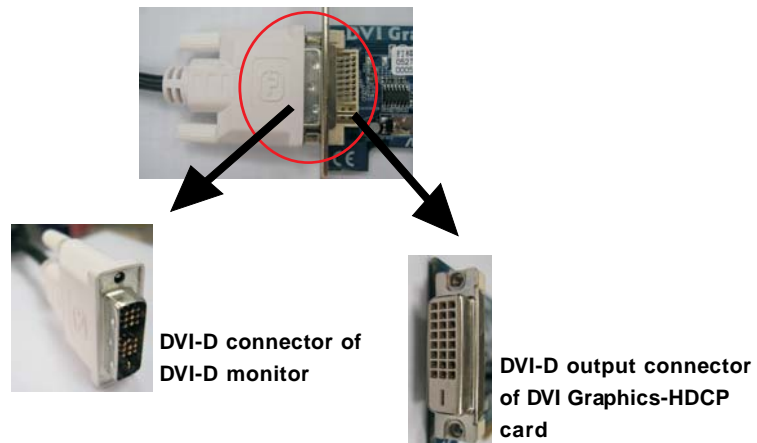
With the onboard VGA/D-Sub output and the external installation of our DVI Graphics-HDCP card, this motherboard provides users with dual VGA output support: DVI-D and D-Sub. You can easily enjoy the benefits of dual VGA output support by connecting the D-Sub monitor to the VGA/D-Sub port on the I/O panel and connecting the DVI-D monitor to our DVI Graphics-HDCP card inserted to PCIE1 (PCIE x16 slot) on this motherboard. Please refer to below procedures for proper installation of DVI Graphics-HDCP card.

- Step 1. Install the DVI Graphics-HDCP card to PCIE1 (PCIE x16 slot). Please refer to the expansion card installation procedures on page 18 for details.



**DVI Graphics-HDCP card**

- Step 2. Connect the DVI-D monitor to the DVI-D output connector of DVI Graphics-HDCP card which is inserted to PCIE1 (PCIE x16 slot) on this motherboard.



- 
- Step 3. Connect the D-Sub monitor to the VGA/D-Sub port on the I/O panel of this motherboard.
- Step 4. If you have installed Intel® VGA driver from our support CD to your system already, you can freely enjoy the benefits of DVI-D output function with this motherboard after your system boots. If you haven't installed Intel® VGA driver yet, please install Intel® VGA driver from our support CD to your system and restart your computer. Then you can start to use DVI-D output function with this motherboard.



#### **HDCP Function with DVI Graphics-HDCP Card**

HDCP function is supported with DVI Graphics-HDCP card. With the installation of DVI Graphics-HDCP card, this motherboard is equipped with HDCP function. To use HDCP function with this motherboard, you need to adopt the monitor that supports HDCP function as well. Therefore, you can enjoy the superior display quantity with high-definition HDCP encryption contents. Please refer to below instruction for more details about HDCP function.

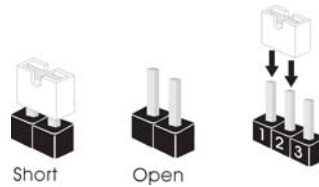
#### **What is HDCP?**

HDCP stands for High-Bandwidth Digital Content Protection, a specification developed by Intel® for protecting digital entertainment content that uses the DVI interface. HDCP is a copy protection scheme to eliminate the possibility of intercepting digital data midstream between the video source, or transmitter - such as a computer, DVD player or set-top box - and the digital display, or receiver - such as a monitor, television or projector. In other words, HDCP specification is designed to protect the integrity of content as it is being transmitted.

Products compatible with the HDCP scheme such as DVD players, satellite and cable HDTV set-top-boxes, as well as few entertainment PCs requires a secure connection to a compliant display. Due to the increase in manufacturers employing HDCP in their equipment, it is highly recommended that the HDTV you purchase is compatible.

## 2.8 Jumpers Setup

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



Jumper	Setting	Description
PS2_USB_PWR1 (see p.10 No. 1)	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>1_2</p> <p>+5V</p> </div> <div style="text-align: center;"> <p>2_3</p> <p>+5VSB</p> </div> </div>	Short pin2, pin3 to enable +5VSB (standby) for PS/2 or USB wake up events.

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

Clear CMOS  
(CLR CMOS1, 2-pin jumper)  
(see p.10 No. 6)



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 2 pins on CLR CMOS1 for 5 seconds.

## 2.9 Onboard Headers and Connectors



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

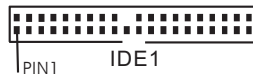
**FDD connector**  
(33-pin FLOPPY1)  
(see p.10 No. 20)



↑  
the red-striped side to Pin1

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

**Primary IDE connector (Blue)**  
(39-pin IDE1, see p.10 No. 10)



connect the blue end to the motherboard

connect the black end to the IDE devices

80-conductor ATA 66/100 cable

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

**Serial ATAII Connectors**

(SATAII\_1: see p.10, No. 16)



(SATAII\_2: see p.10, No. 14)



(SATAII\_3: see p.10, No. 15)



(SATAII\_4: see p.10, No. 13)



These Serial ATAII (SATAII) connectors support SATAII or SATA hard disk 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 the motherboard.

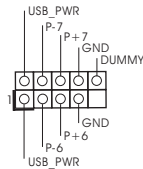
**Serial ATA (SATA) Power Cable**  
(Optional)



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

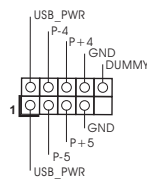
### USB 2.0 Headers

(9-pin USB6\_7)  
(see p.10 No. 18)



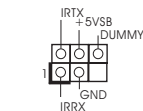
Besides four default USB 2.0 ports on the I/O panel, there are two USB 2.0 headers on this motherboard. Each USB 2.0 header can support two USB 2.0 ports.

(9-pin USB4\_5)  
(see p.10 No. 19)



### Infrared Module Header

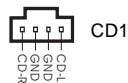
(5-pin IR1)  
(see p.10 No. 30)



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

### Internal Audio Connector

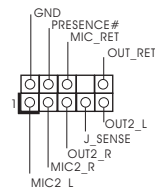
(4-pin CD1)  
(CD1: see p.10 No. 24)



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. 22)



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

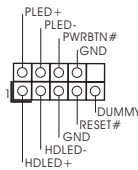


1. High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instruction in our manual and chassis manual to install your system.
2. If you use AC'97 audio panel, please install it to the front panel audio header as below:
  - 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. Enter BIOS Setup Utility. Enter Advanced Settings, and then select Chipset Configuration. Set the Front Panel Control option from [Auto] to [Enabled].

F. Enter Windows system. Click the icon on the lower right hand taskbar to enter Realtek HD Audio Manager. Click "Audio I/O", select "Connector Settings" , choose "Disable front panel jack detection", and save the change by clicking "OK".

#### System Panel Header

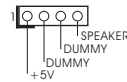
(9-pin PANEL1)  
(see p.10 No. 12)



This header accommodates several system front panel functions.

#### Chassis Speaker Header

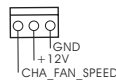
(4-pin SPEAKER 1)  
(see p.10 No. 11)



Please connect the chassis speaker to this header.

#### Chassis Fan Connector

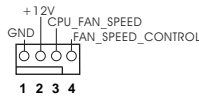
(3-pin CHA\_FAN1)  
(see p.10 No. 17)



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

#### CPU Fan Connector

(4-pin CPU\_FAN1)  
(see p.10 No. 3)

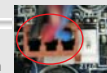


Please connect a CPU fan cable to this connector and match the black wire to the ground pin.



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

(20-pin ATXPWR1)  
(see p.10 No. 27)



Please connect an ATX power supply to this connector.

#### ATX 12V Connector

(4-pin ATX12V1)  
(see p.10 No. 2)

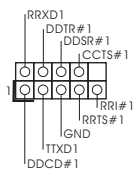


Please note that it is necessary to connect a power supply with ATX 12V plug to this connector so that it can provides sufficient power. Failing to do so will cause the failure to power up.



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**Serial port Header**  
(9-pin COM1)  
(see p.10 No. 29)



This COM1 header supports  
a serial port module.



## 2.10 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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## 2.11 Serial ATA (SATA) / Serial ATAII (SATAII) Hard Disks Installation

This motherboard adopts Intel® ICH7 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.

## 2.12 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.

## 2.13 HDMR Card and Driver Installation

If you do not insert HDMR card to this motherboard, and you finish installing all drivers to your system now, but in the future, you plan to use HDMR card function on this motherboard, please follow the steps below then.

1. Insert HDMR card to HDMR slot on this motherboard. Please make sure that the HDMR card is completely seated on the slot.
2. Install HDMR card driver from our support CD to your system.
3. Reboot your system.

## 2.14 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 [CPU, PCIE, Async.]. 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 7 for the possible overclocking risk before you apply Untied Overclocking Technology.



































