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You can read the recommendations in the user guide, the technical guide or the installation guide for ASROCK B75 PRO3-M. You'll find the answers to all your questions on the ASROCK B75 PRO3-M in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual ASROCK B75 PRO3-M
User guide ASROCK B75 PRO3-M
Operating instructions ASROCK B75 PRO3-M
Instructions for use ASROCK B75 PRO3-M
Instruction manual ASROCK B75 PRO3-M

ASRock

B75 Pro3-M

User Manual

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Manual abstract:

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.. 4 Chapter 1: Introduction Thank you for purchasing ASRock B75 Pro3-M 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 contains introduction of the motherboard and stepby-step guide to the hardware installation.

Chapter 3 and 4 contains 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 1.1 Package Contents ASRock B75 Pro3-M Motherboard (Micro ATX Form Factor: 9.6-in x 9.6-in, 24.4 cm x 24.4 cm)

4 cm) ASRock B75 Pro3-M Quick Installation Guide ASRock B75 Pro3-M 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™ 64bit, 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. 5 1.2 Specifications Platform CPU Chipset Memory Expansion Slot Graphics - Micro ATX Form Factor: 9.6-in x 9.6-in, 24.4 cm x 24.4 cm

4 cm - All Solid Capacitor design - Supports 3rd and 2nd Generation Intel® Core™ i7 / i5 / i3 in LGA1155 Package - 4 + 2 Power Phase Design - Supports Intel® Turbo Boost 2.0 Technology - Supports Intel® K-Series unlocked CPU (see CAUTION 1) - Supports Hyper-Threading Technology (see CAUTION 2) - Supports Intel® Rapid Start Technology and Smart Connect Technology with Intel® Ivy Bridge CPU - Intel® B75 - Supports Intel® Small Business Advantage (see CAUTION 3) - Dual Channel DDR3 Memory Technology (see CAUTION 4) - 4 x DDR3 DIMM slots - Supports DDR3 1600/1333/1066 non-ECC, un-buffered memory (DDR3 1600 with Intel® Ivy Bridge CPU, DDR3 1333 with Intel® Sandy Bridge CPU) - Max. capacity of system memory: 32GB (see CAUTION 5) - Supports Intel® Extreme Memory Profile (XMP) 1.3/1.2 - 1 x PCI Express 3.0

0 x16 slot (PCI-E1: x16 mode) (see CAUTION 6) * PCI-E 3.0 is only supported with Intel® Ivy Bridge CPU. With Intel® Sandy Bridge CPU, it only supports PCI-E 2.0. - 1 x PCI Express 2.0

0 x16 slot (PCI-E2: x4 mode) - 2 x PCI slots - Supports AMD Quad CrossFireXTM and CrossFireXTM * Intel® HD Graphics Built-in Visuals and the VGA outputs can be supported only with processors which are GPU integrated. - Supports Intel® HD Graphics Built-in Visuals: Intel® Quick Sync Video 2.0, Intel® InTru™ 3D, Intel® Clear Video HD Technology, Intel® Insider™, Intel® HD Graphics 2500/4000 - Pixel Shader 5.0, DirectX 11 with Intel® Ivy Bridge CPU. Pixel Shader 4.1, DirectX 10.1 with Intel® Sandy Bridge CPU - Max. shared memory 1760MB (see CAUTION 7) - Three VGA Output options: D-Sub, DVI-D and HDMI (see CAUTION 8) - Supports HDMI 1.4a Technology with max. resolution up to 1920x1200 @ 60Hz 6 Audio LAN Rear Panel I/O SATA3 USB3.

0 Connector - Supports DVI with max. resolution up to 1920x1200 @ 60Hz - Supports D-Sub with max. resolution up to 2048x1536 @ 75Hz - Supports Auto Lip Sync, Deep Color (12bpc), xvYCC and HBR (High Bit Rate Audio) with HDMI (Compliant HDMI monitor is required) (see CAUTION 9) - Supports HDCP function with DVI and HDMI ports - Supports Full HD 1080p Blu-ray (BD) / HD-DVD playback with DVI and HDMI ports - 7.



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1 CH HD Audio with Content Protection (Realtek ALC892 Audio Codec) - Premium Blu-ray audio support - PCIE x1 Gigabit LAN 10/100/1000 Mb/s - Realtek RTL8111E - Supports Wake-On-LAN - Supports LAN Cable Detection - Supports Energy Efficient Ethernet 802.3az - Supports PXE I/O Panel - 1 x PS/2 Keyboard Port - 1 x D-Sub Port - 1 x DVI-D Port - 1 x HDMI Port - 1 x Optical SPDIF Out Port - 4 x Ready-to-Use USB 2.0 Ports - 2 x Ready-to-Use USB 3.0 Ports - 1 x RJ-45 LAN Port with LED (ACT/LINK LED and SPEED LED) - HD Audio Jack: Rear Speaker/Central/Bass/Line in/Front Speaker/Microphone (see CAUTION 10) - 1 x SATA3 6.0 Gb/s connector by Intel® B75, supports NCQ, AHCI and Hot Plug functions - 2 x SATA3 6.0 Gb/s connectors by ASMedia ASM1061, support NCQ, AHCI and Hot Plug functions - 2 x Rear USB 3.0 ports, support USB 1.0/2.0/3.0 up to 5Gb/s - 1 x Front USB 3.0 header (supports 2 USB 3.0 ports), supports USB 1.0/2.0/3.0 up to 5Gb/s - 5 x SATA2 3.0 Gb/s connectors, support NCQ, AHCI and Hot Plug functions - 3 x SATA3 6.0Gb/s connectors 7 BIOS Feature Support CD Unique Feature Hardware Monitor - 1 x IR header - 1 x CIR header - 1 x Print port header - 1 x COM port header - 1 x HDMI_SPDIF header - CPU/Chassis/Power FAN connector - 24 pin ATX power connector - 8 pin 12V power connector - Front panel audio connector - 2 x USB 2.0 headers (support 4 USB 2.0 ports) - 1 x USB 3.0 header (supports 2 USB 3.0 ports) - 64Mb 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 - CPU Core, IGPU, DRAM, 1.8V PLL, VTT, VCCSA Voltage Multi-adjustment - Drivers, Utilities, AntiVirus Software (Trial Version), CyberLink MediaEspresso 6.5 Trial, ASRock MAGIX Multimedia Suite - OEM - ASRock Extreme Tuning Utility (AXTU) (see CAUTION 11) - ASRock Instant Boot - ASRock Instant Flash (see CAUTION 12) - ASRock APP Charger (see CAUTION 13) - ASRock SmartView (see CAUTION 14) - ASRock XFast USB (see CAUTION 15) - ASRock XFast LAN (see CAUTION 16) - ASRock XFast RAM (see CAUTION 17) - ASRock Crashless BIOS (see CAUTI 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> 12. 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 the <F6> key during the POST or the <F2> key to enter into the 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. 13.

If you desire a faster, less restricted way of charging your Apple devices, such as iPhone/iPad/iPod Touch, ASRock has prepared a wonderful solution for you - ASRock APP Charger. Simply install the APP Charger driver, it makes your iPhone charge much quickly from your computer 10 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. ASRock website: <http://www.asrock.com/Feature/AppCharger/index.asp> 14. ASRock SmartView, a new function for internet browsers, 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 ASRock SmartView utility that helps you keep in touch with friends on-the-go. To use ASRock 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> 15. ASRock XFast USB can boost USB storage device performance. The performance may depend on the properties of the device. 16. ASRock XFast LAN provides a faster internet access, which includes the benefits listed below. LAN Application Prioritization: You can configure your application's priority ideally and/or add new programs.

Lower Latency in Game: After setting online game's priority higher, it can lower the latency in games. Traffic Shaping: You can watch Youtube HD videos and download simultaneously. Real-Time Analysis of Your Data: With the status window, you can easily recognize which data streams you are transferring currently. 17. ASRock XFast RAM is a new function that is included into ASRock Extreme Tuning Utility (AXTU). It fully utilizes the memory space that cannot be used under Windows® 32-bit OS. ASRock XFast RAM shortens the loading time of previously visited websites, making web surfing faster than ever. And it also boosts the speed of Adobe Photoshop 5 times faster. Another advantage of ASRock XFast RAM is that it reduces the frequency of accessing your SSDs or HDDs in order to extend their lifespan. 18.

ASRock Crashless BIOS allows users to update their BIOS without fear of failing. If power loss occurs during the BIOS update process, ASRock Crashless BIOS will automatically finish the BIOS update procedure after regaining power. Please note that BIOS files need to be placed in the root directory of your USB disk. Only USB2.0 ports support this feature.

19. ASRock On/Off Play Technology allows users to enjoy the great audio experience from portable audio devices, such as MP3 players or mobile phones to your PC, even when the PC is turned off (or in ACPI S5 mode)! This motherboard also provides a free 3.5mm audio cable (optional) that ensures users the most convenient computing environment. 20. Administrators are able to establish an internet curfew or restrict internet access at specified times via OMG. You may choose from [Everyday], [Day 11 of the week] or [Weekdays and weekends], then schedule the starting and ending hours of internet access granted to other users. In order to prevent users from bypassing OMG, guest accounts without permission to modify the system time are required. 21. Internet Flash searches for available UEFI firmware updates from our servers. In other words, the system can auto-detect the latest UEFI from our servers and flash them without entering Windows OS. Please note that you must be running on a DHCP configured computer in order to enable this function.



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22. 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.

23. Combo Cooler Option (C.C.O.) provides the flexible option to adopt three different CPU cooler types, Socket LGA 775, LGA 1155 and LGA 1156. Please be noticed that not all the 775 and 1156 CPU Fan can be used. 24. ASRock XFast RAM is not supported by Microsoft® Windows® XP / XP 64-bit. Intel® Smart Connect Technology and Intel® USB 3.0 ports are not supported by Microsoft® Windows® Vista™ / Vista™ 64-bit / XP / XP 64bit.

25. EuP stands for Energy Using Product, was a provision regulated by the European Union to define the power consumption for the completed system. According to EuP, the total AC power of the completed system should be under 1.00W in off mode condition. To meet EuP standards, 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, and the standby power efficiency should be higher than 50% under 100 mA current consumption. For EuP ready power supply selection, we recommend you to check with the power supply manufacturer for more details. 12

1.3 Motherboard Layout 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 Power Fan Connector (PWR_FAN1) ATX 12V Power Connector (ATX12V1) 1155-Pin CPU Socket CPU Fan Connector (CPU_FAN1) CPU Fan Connector (CPU_FAN2) 2 x 240-pin DDR3 DIMM Slots (DDR3_A1, DDR3_B1, Black) 2 x 240-pin DDR3 DIMM Slots (DDR3_A2, DDR3_B2, Black) ATX Power Connector (ATXPWR1) SATA3 Connector (SATA3_A1, Gray) SATA3 Connector (SATA3_A0, Gray) USB 3.0 Header (USB3_2_3, Black) Intel B75 Chipset SPI Flash Memory (64Mb) SATA3 Connector (SATA3_0, Gray) SATA2 Connector (SATA2_2, Black) SATA2 Connector (SATA2_4, Black) SATA2 Connector (SATA2_5, Black) Chassis Fan Connector (CHA_FAN1) 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 Chassis Speaker Header (SPEAKER1, Black) System Panel Header (PANEL1, Black) SATA2 Connector (SATA2_3, Black) USB 2.0 Header (USB10_11, Black) SATA2 Connector (SATA2_1, Black) Consumer Infrared Module Header (CIR1, Gray) USB 2.0 Header (USB8_9, Black) Clear CMOS Jumper (CLRCMOS1) Infrared Module Header (IR1) Print Port Header (LPT1) COM Port Header (COM1) HDMI_SPDIF Header (HDMI_SPDIF1, Black) Front Panel Audio Header (HD_AUDIO1, Black) PCI Express 2.0 x16 Slot (PCIE2, Black) PCI Slot (PCI2, Black) PCI Slot (PCI1, Black) PCI Express 3.0 x16 Slot (PCIE1, Black) 13 1.4 I/O Panel 1 2 * 3 4 5 6 ** 7 USB 2.0 Ports (USB01) D-Sub Port (VGA1) LAN RJ-45 Port Central / Bass (Orange) Rear Speaker (Black) Line In (Light Blue) Front Speaker (Lime) 8 9 10 11 12 13 14 Microphone (Pink) Optical SPDIF Out Port USB 2.0 Ports (USB45) USB 3.0 Ports (USB3_01) HDMI Port (HDMI1) DVI-D Port (DVI1) PS/2 Keyboard Port (Purple) * There is one LED next to the LAN port. Please refer to the table below for the LAN port LED indications. LAN Port LED Indications Status SPEED LED Description Activity/Link LED Status Description ACT/LINK LED SPEED LED Off No Link Blinking Data Activity On Link Off Orange Green 10Mbps connection 100Mbps connection 1Gbps connection LAN Port ** 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 Rear Speaker Central / Bass Line in (No. 7) (No. 5) (No. 4) (No. 6) 2 V -- -- -4 V V -- -6 V V V -8 V V V V 14 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. 15 Chapter 2: Installation This 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 components. 2. To avoid damaging the motherboard's 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 the 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. 5. When placing screws into the screw holes to secure the motherboard to the chassis, please do not over-tighten the screws! Doing so may damage the motherboard. 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. 16 2.3 CPU Installation For the installation of Intel 1155-Pin CPU, please follow the steps below. 1155-Pin Socket Overview Before you insert the 1155-Pin CPU into the socket, please check if the CPU surface is unclean or if there are any bent pins in 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. Disengage the lever by pressing it down and sliding it out of the hook. Step 1-2. Keep the lever positioned at about 135 degrees in order to flip up the load plate.

Step 2. Remove the 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. 17 Step 3. Insert the 1155-Pin CPU: Step 3-1.



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Hold the CPU by the edge which is marked with a black line. black line Step 3-2. Orient the CPU with the IHS (Integrated Heat Sink) up. Locate Pin1 and the two orientation key notches. orientation key notch Pin1 alignment key Pin1 alignment key orientation key notch 1155-Pin CPU 1155-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 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. Flip the load plate onto the IHS.

Step 4-2. Press down the load lever, and secure it with the load plate tab under the retention tab. 18 2.4 Installation of CPU Fan and Heatsink This motherboard is equipped with 1155-Pin socket that supports Intel 1155-Pin CPUs. Please adopt the type of heatsink and cooling fan compliant with Intel 1155Pin CPU to dissipate heat.

Before you install 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 13, No. 4 or CPU_FAN2, see page 13, No. 5).

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 1155-Pin CPUs. Step 1. Apply thermal interface material onto the center of the IHS on the socket's surface. Step 2.

Place the heatsink onto the socket. Ensure that the fan cables are oriented on side closest to the CPU fan connector on the motherboard (CPU_FAN1, see page 13, No. 4 or CPU_FAN2, see page 13, No. 5). 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 redundant cable with tie-wrap to ensure the 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 flexible options to adopt three different CPU cooler types, Socket LGA 775, LGA 1155 and LGA 1156. The white throughholes are for Socket LGA 1155/1156 CPU fan. 19 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 chip-type) DDR3 DIMM pair in the slots: You have to install identical DDR3 DIMMs in Dual Channel A (DDR3_A1 and DDR3_B1; Black slots; see p.13 No. 6) or identical DDR3 DIMMs in Dual Channel B (DDR3_A2 and DDR3_B2; Black slots; see p.13 No.

7), so that Dual Channel Memory Technology can be activated. This motherboard also allows you to install four DDR3 DIMMs for dual channel configuration, please install identical DDR3 DIMMs in all four slots. You may refer to the Dual Channel Memory Configuration Table below. Dual Channel Memory Configuration (1) (2) (3)* DDR3_A1 (Black Slot) Populated - Populated DDR3_A2 (Black Slot) - Populated Populated DDR3_B1 DDR3_B2 (Black Slot) (Black Slot) Populated Populated Populated Populated * For configuration (3), 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: DDR3_A1 and DDR3_B1, or DDR3_A2 and DDR3_B2. 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 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 DDR3_A1 and DDR3_A2, it is unable to activate Dual Channel Memory Technology. 4. It is not allowed to install a DDR or DDR2 memory module into DDR3 slot; otherwise, this motherboard and DIMM may be damaged. 5. Some DDR3 1GB double-sided DIMMs with 16 chips may not work on this motherboard. It is not recommended to install them on this motherboard.

20 Installing a DIMM Please make sure to disconnect the power supply before adding or removing DIMMs or 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 in 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. 21 2.

6 Expansion Slots (PCI and PCI Express Slots) There are 2 PCI slots 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. PCIE slots: PCIE1 (PCIE 3.0 x16 slot) is used for PCI Express x16 lane width graphics cards, or used to install PCI Express graphics cards to support CrossFireXTM. PCIE2 (PCIE 2.

0 x16 slot) is used for PCI Express x4 lane width graphics cards, or used to install PCI Express graphics cards to support CrossFireXTM. 1. In single VGA card mode, it is recommended to install a PCI Express x16 graphics card on PCIE1 slot. 2. In CrossFireXTM mode, please install the PCI Express x16 graphics cards on PCIE1 and PCIE2 slots.

Therefore, PCIE1 will work at x16 bandwidth, while PCIE2 works at x4 bandwidth. 3. Please connect a chassis fan to the motherboard's chassis fan connector (CHA_FAN1) when using multiple graphics cards for better thermal environment. 4. Only PCIE1 slot supports Gen 3 speed. To run the PCI Express in Gen 3 speed, please install an Ivy Bridge CPU. If you install a Sandy Bridge CPU, the PCI Express will run only at PCI Express Gen 2 speed.

Installing an expansion card Step 1. Step 2. Step 3.

Step 4. Step 5. Step 6. Before installing an 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. Remove the system unit cover (if your motherboard is already installed in a chassis). Remove the bracket facing the slot that you intend to use. Keep the screws for later use. Align the card connector with the slot and press firmly until the card is completely seated on the slot. Fasten the card to the chassis with screws.

Replace the system cover 22 2.



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7 *CrossFireXTM and Quad CrossFireXTM Operation Guide* This motherboard supports CrossFireXTM and Quad CrossFireXTM. CrossFireXTM technology offers the most advantageous means available of combining multiple high performance Graphics Processing Units (GPU) in a single PC. Combining a range of different operating modes with intelligent software design and an innovative interconnect mechanism, CrossFireXTM enables the highest possible level of performance and image quality in any 3D application. Currently CrossFireXTM is supported by Windows® XP with Service Pack 2 / Vista™ / 7 OS. Quad CrossFireXTM is supported by Windows® Vista™ / 7 OS only. Please check AMD's website for AMD CrossFireXTM driver updates. 1. If a customer incorrectly configures their system they will not see the performance benefits of CrossFireXTM. All three CrossFireXTM components, a CrossFireXTM Ready graphics card, a CrossFireXTM Ready motherboard and a CrossFireXTM Edition co-processor graphics card, must be installed correctly to benefit from the CrossFireXTM multi-GPU platform.

2. If you pair a 12-pipe CrossFireXTM Edition card with a 16-pipe card, both cards will operate as 12-pipe cards while in CrossFireXTM mode. 2.7.1 *Installing Two CrossFireXTM-Ready Graphics Cards* Different CrossFireXTM cards may require different methods to enable CrossFireXTM feature. For other CrossFireXTM cards that AMD has released or will release in the future, please refer to AMD graphics card manuals for detailed installation guide. Step 1. Insert one Radeon graphics card into PCIE1 slot and the other Radeon graphics card to PCIE2 slot. Make sure that the cards are properly seated on the slots. 23 Step 2.

Connect two Radeon graphics cards by installing a CrossFire Bridge on the CrossFire Bridge Interconnects on the top of the Radeon graphics cards. (The CrossFire Bridge is provided with the graphics card you purchase, not bundled with this motherboard. Please refer to your graphics card vendor for details.) CrossFire Bridge or Step 3. Connect the DVI monitor cable to the DVI connector on the Radeon graphics card on PCIE1 slot. (You may use the DVI to D-Sub adapter to convert the DVI connector to D-Sub interface, and then connect the D-Sub monitor cable to the DVI to D-Sub adapter.) 24 2.7.2 *Driver Installation and Setup* Step 1. Power on your computer and boot into OS.

Step 2. Remove the AMD drivers if you have any VGA drivers installed in your system. The Catalyst Uninstaller is an optional download. We recommend using this utility to uninstall any previously installed Catalyst drivers prior to installation. Please check AMD's website for AMD driver updates. Step 3. Install the required drivers to your system. For Windows® XP OS: A. AMD recommends Windows® XP Service Pack 2 or higher to be installed (If you have Windows® XP Service Pack 2 or higher installed in your system, there is no need to download it again): <http://www.microsoft.com/windowsxp/sp2/default.mspx> B. You must have Microsoft .NET Framework installed prior to downloading and installing the CATALYST Control Center. Please check Microsoft's website for details. For Windows® 7 / Vista™ OS: Install the CATALYST Control Center. Please check AMD's website for details. Step 4. Restart your computer. Step 5.

Install the VGA card drivers to your system, and restart your computer. You will find "AMD Catalyst Control Center" on your Windows® taskbar. AMD Catalyst Control Center Step 6. Double-click "AMD Catalyst Control Center". Click "View", select "CrossFireXTM", and then check the item "Enable CrossFireXTM". Select "2 GPUs" and click "Apply" (if you install two Radeon graphics cards). 25 Although you have selected the option "Enable CrossFireXTM", the CrossFireXTM function may not work actually. Your computer will automatically reboot. After restarting your computer, please confirm whether the option "Enable CrossFireXTM" in "AMD Catalyst Control Center" is selected or not; if not, please select it again, and then you are able to enjoy the benefits of CrossFireXTM. Step 7.

You can freely enjoy the benefits of CrossFireXTM or Quad CrossFireXTM. * CrossFireXTM appearing here is a registered trademark of AMD Technologies Inc., and is used only for identification or explanation and to the owners' benefit, without intent to infringe. * For further information of AMD CrossFireXTM technology, please check AMD's website for updates and details. 26 2.

8 *Dual Monitor and Surround Display Features* Dual Monitor Feature This motherboard supports dual monitor feature. With the internal VGA output support (DVI-D, D-Sub and HDMI), you can easily enjoy the benefits of dual monitor feature without installing any add-on VGA cards to this motherboard. This motherboard also provides independent display controllers for DVI-D, D-Sub and HDMI to support dual VGA output so that DVI-D, D-Sub and HDMI can drive the same or different display contents. To enable dual monitor, please follow the steps below: 1. Connect a DVI-D monitor cable to the DVI-D port on the I/O panel, connect a D-Sub monitor cable to the D-Sub port on the I/O panel or connect a HDMI monitor cable to the HDMI port on the I/O panel. D-Sub port DVI-D port HDMI port 2. If you have already installed the onboard VGA driver from our support CD to your system, you can freely enjoy the benefits of dual monitor function after your system boots. If you haven't installed the onboard VGA driver yet, please install the onboard VGA driver from our support CD to your system and restart your computer. D-Sub, DVI-D and HDMI monitors cannot be enabled at the same time. You can only choose two of them. 27 *Surround Display Feature* This motherboard supports surround display upgrade. With the internal VGA output support (DVI-D, D-Sub and HDMI) and external add-on PCI Express VGA cards, you can easily enjoy the benefits of surround display. Please refer to the following steps to set up a surround display environment: 1. Install the PCI Express VGA cards on PCIE1 and PCIE2 slots. Please refer to page 22 for proper expansion card installation procedures.

2. Connect a DVI-D monitor cable to the DVI-D port on the I/O panel, connect a D-Sub monitor cable to the D-Sub port on the I/O panel, or connect an HDMI monitor cable to the HDMI port on the I/O panel. Then connect other monitor cables to the corresponding connectors of the add-on PCI Express VGA cards on PCIE1 and PCIE2 slots. 3. Boot your system. Press <F2> or to enter UEFI setup. Enter "Share Memory" option to adjust the memory capability to [32MB], [64MB], [128MB], [256MB] or [512MB] to enable the function of D-sub. Please make sure that the value you select is less than the total capability of the system memory. If you do not adjust the UEFI setup, the default value of "Share Memory", [Auto], will disable D-Sub function when an add-on VGA card is inserted to this motherboard.



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34 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.13, No. 19) Please connect the chassis speaker to this header. Chassis and Power Fan Connectors (4-pin CHA_FAN1) (see p.13, No. 18) (3-pin PWR_FAN1) (see p.13, No. 1) Please connect the fan cables to the fan connectors and match the black wire to the ground pin. CHA_FAN1 supports Fan Control. CPU Fan Connectors (4-pin CPU_FAN1) (see p.

13, No. 4) 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 (3-pin CPU_FAN2) (see p.

13, No. 5) 35 ATX Power Connector (24-pin ATXPWR1) (see p.13, No. 8) 12 24 Please connect an ATX power supply to this connector. 1 13 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 12 24 1 13 ATX 12V Power Connector (8-pin ATX12V1) (see p.13, No. 2) 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. 8 5 4-Pin ATX 12V Power Supply Installation 4 1 Serial port Header (9-pin COM1) (see p.13, No. 29) This COM1 header supports a serial port module. HDMI_SPDIF Header (2-pin HDMI_SPDIF1) (see p.

13, No. 30) 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. 36 2.12 Serial ATA (SATA) / Serial ATA2 (SATA2) Hard Disks Installation This motherboard adopts Intel® B75 chipset that supports Serial ATA (SATA) / Serial ATA2 (SATA2) hard disks. You may install SATA / SATA2 hard disks on this motherboard for internal storage devices. This section will guide you to install the SATA / SATA2 hard disks. STEP 1: Install the SATA / SATA2 hard disks into the drive bays of your chassis. STEP 2: Connect the SATA power cable to the SATA / SATA2 hard disk. STEP 3: Connect one end of the SATA data cable to the motherboard's SATA2 connector.

STEP 4: Connect the other end of the SATA data cable to the SATA / SATA2 hard disk. 2.13 Serial ATA3 (SATA3) Hard Disks Installation This motherboard adopts Intel® B75 chipset that supports Serial ATA3 (SATA3) hard disks for SATA3_0 connector. It also adopts ASMedia ASM1061 chipset that supports Serial ATA3 (SATA3) hard disks for SATA3_A0 and SATA3_A1 connectors. 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.

37 2.14 Hot Plug for SATA / SATA2 HDDs This motherboard supports Hot Plug for SATA / SATA2 in AHCI mode. Intel® B75 chipset provides hardware support for Advanced Host controller Interface (AHCI), a new programming interface for SATA host controllers developed through a joint industry effort.

NOTE What is Hot Plug Function? If the SATA / SATA2 HDDs are NOT set for RAID configuration, it is called "Hot Plug" for the action to insert and remove the SATA / SATA2 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 / SATA2 HDD. 2.15 Hot Plug for SATA3 HDDs This motherboard supports Hot Plug for SATA3 in AHCI mode. Intel® B75 and ASMedia ASM1061 chipsets provide hardware support for Advanced Host controller Interface (AHCI), a new programming interface for SATA host controllers developed through 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.

38 2.16 SATA / SATA2 / SATA3 HDD Hot Plug Feature and Operation Guide This motherboard supports Hot Plug feature for SATA / SATA2 / SATA3 HDD in AHCI mode. Please read below operation guide of Hot Plug feature carefully. Before you process the SATA / SATA2 / 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 A.

SATA data cable (Red) B. SATA power cable SATA 7-pin connector The SATA 15-pin power connector (Black) connect to SATA / SATA2 / SATA3 HDD 1x4-pin conventional power connector (White) connect to power supply Caution 1. Without SATA 15-pin power connector interface, the SATA / SATA2 / SATA3 Hot Plug cannot be processed.

2. Even some SATA / SATA2 / 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 / SATA2 / SATA3 HDD Hot Plug.

* The SATA / SATA2 / SATA3 Hot Plug feature might not be supported by the chipset because of its limitation, the SATA / SATA2 / SATA3 Hot Plug support information of our motherboard is indicated in the product spec on our website: www.asrock.com

2. Make sure your SATA / SATA2 / SATA3 HDD can support Hot Plug function from your dealer or HDD user manual. The SATA / SATA2 / SATA3 HDD, which cannot support Hot Plug function, will be damaged under the Hot Plug operation. 3.

Please make sure the SATA / SATA2 / SATA3 driver is installed into system properly. The latest SATA / SATA2 / SATA3 driver is available on our support website: www.asrock.com 4. Make sure to use the SATA power cable & data cable, which are from our motherboard package.



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5. Please follow below instructions step by step to reduce the risk of HDD crash or data loss. 39 How to Hot Plug a SATA / SATA2 / SATA3 HDD: Points of attention, before you process Hot Plug: Please follow the instructions below to process Hot Plug, improper procedure will cause the SATA / SATA2 / SATA3 HDD damage and data loss. Step 1 Please connect a SATA power cable's 1x4-pin end (White) to the power supply's 1x4-pin cable. Step 2 Connect SATA data cable to the motherboard's SATA2 / SATA3 connector.

SATA power cable 1x4-pin power connector (White) Step 3 Connect SATA 15-pin power cable connector (Black) end to SATA / SATA2 / SATA3 HDD. Step 4 Connect SATA data cable to the SATA / SATA2 / SATA3 HDD. How to Hot Unplug a SATA / SATA2 / 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 / SATA2 / SATA3 HDD damage and data loss. Step 1 Unplug SATA data cable from SATA / SATA2 / SATA3 HDD side. Step 2 Unplug SATA 15-pin power cable connector (Black) from SATA / SATA2 / SATA3 HDD side. 40 2.17 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 top to bottom to install those required drivers. Therefore, the drivers you install can work properly.

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 / SATA2 / SATA3 HDDs without RAID functions, please follow the procedures below 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 / SATA2 / SATA3 HDDs without RAID functions, please follow the steps below.

AHCI mode is not supported under Windows® XP / XP 64-bit. Using SATA / SATA2 / 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 Selection" to [IDE]. (For SATA2_1 to SATA2_5 and SATA3_0 ports.) Set the option "ASMedia SATA3 Mode" to [IDE]. (For SATA3_A0 and SATA3_A1 ports.) STEP 2: Install Windows® XP / XP 64-bit OS on your system. 41 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 / SATA2 / SATA3 HDDs without RAID functions, please follow the steps below. Using SATA / SATA2 / 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 Selection" to [AHCI]. (For SATA2_1 to SATA2_5 and SATA3_0 ports.) Set the option "ASMedia SATA3 Mode" to [AHCI]. (For SATA3_A0 and SATA3_A1 ports.) STEP 2: Install Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS on your system. Using SATA / SATA2 / 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 Selection" to [IDE]. (For SATA2_1 to SATA2_5 and SATA3_0 ports.) Set the option "ASMedia SATA3 Mode" to [IDE]. (For SATA3_A0 and SATA3_A1 ports.)

) STEP 2: Install Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS on your system. 42 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 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: Main To set up the system time/date information OC Tweaker To set up overclocking features Advanced To set up the advanced UEFI features H/W Monitor To display current hardware status Boot To set up the default system device to locate and load the Operating System Security To set up the security features Exit 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. 43 3.1.

2 Navigation Keys Please check the following table for the function description of each navigation key. Navigation Key(s) // + / - <Tab> <Enter> <PGUP> <PGDN> <HOME> <END> <F1> <F7> <F9> <F10> <F12> <ESC> 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 Switch to next function To bring up the selected screen Go to the previous page Go to the next page Go to the top of the screen Go to the bottom of the screen To display the General Help Screen Discard changes and exit the UEFI SETUP UTILITY Load optimal default values for all the settings Save changes and exit the UEFI SETUP UTILITY Print screen 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. System Browser System Browser can let you easily check your current system configuration in UEFI setup. 44 3.3 OC Tweaker Screen In the OC Tweaker screen, you can set up overclocking features. CPU Configuration CPU Ratio Use this item to change the ratio value of this motherboard. Intel SpeedStep Technology Intel SpeedStep technology is Intel's new power saving technology. Processors can switch between multiple frequencies and voltage points to enable power saving. The default value is [Enabled].

Configuration options: [Enabled] and [Disabled]. 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 issues with some power supplies.



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Please set this item to [Disabled] if above issues occur.

Intel Turbo Boost Technology Use this item to enable or disable Intel Turbo Boost Mode Technology. Turbo Boost Mode allows processor cores to run faster than marked frequency in specific conditions. The default value is [Enabled]. **Long Duration Power Limit** Use this item to configure long duration power limit in watts. The default value is [Auto].

Long Duration Maintained Use this item to configure time window which the long duration power is maintained. The default value is [Auto]. **Short Duration Power Limit** Use this item to configure short duration power limit in watts. The default value is [Auto]. **Primary Plane Current Limit** Use this item to configure the maximum instantaneous current allowed for the primary plane. The default value is [Auto]. **Secondary Plane Current Limit** Use this item to configure the maximum instantaneous current allowed for the secondary plane. The default value is [Auto]. **GT OverClocking Support** Use this item to enable or disable GT OverClocking Support. The default value is [Disabled].

DRAM Timing Configuration Load XMP Setting Use this to load XMP setting. Configuration options: [Auto], [Default], [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 the appropriate frequency automatically. **DRAM Configuration DRAM tCL** Use this item to change CAS# Latency (tCL) Auto/Manual setting. The default is [Auto]. **DRAM tRCD** Use this item to change RAS# to CAS# Delay (tRCD) Auto/Manual setting. The default is [Auto]. **DRAM tRP** Use this item to change Row Precharge Time (tRP) Auto/Manual setting. The default is [Auto].

46 DRAM tRAS Use this item to change RAS# Active Time (tRAS) Auto/Manual setting. The default is [Auto]. **Command Rate (CR)** Use this item to change Command Rate (CR) Auto/Manual setting. The default is [Auto]. **DRAM tWR** Use this item to change Write Recovery Time (tWR) Auto/Manual setting. The default is [Auto]. **DRAM tRFC** Use this item to change Refresh Cycle Time (tRFC) Auto/Manual setting. The default is [Auto]. **DRAM tRRD** Use this item to change RAS to RAS Delay (tRRD) Auto/Manual setting. The default is [Auto].

DRAM tWTR Use this item to change Write to Read Delay (tWTR) Auto/Manual setting. The default is [Auto]. **DRAM tRTP** Use this item to change Read to Precharge (tRTP) Auto/Manual setting. The default is [Auto]. **DRAM tFAW** Use this item to change Four Activate Window (tFAW) Auto/Manual setting. The default is [Auto]. **DRAM tCWL** Use this item to change CAS# Write Latency (tCWL) Auto/Manual setting. The default is [Auto]. **ODT WR (CH A)** Use this item to change ODT WR (CH A) setting. The default is [Auto].

ODT WR (CH B) Use this item to change ODT WR (CH B) setting. The default is [Auto]. **ODT NOM (CH A)** Use this item to change ODT NOM (CH A) setting. The default is [Auto]. **ODT NOM (CH B)** Use this item to change ODT NOM (CH B) setting. The default is [Auto]. **MRC Fast Boot** Use this item to enable or disable MRC Fast Boot. The default is [Enabled]. **47 Voltage Configuration CPU Core Voltage Offset** Use this to select CPU Core Voltage. The default value is [Auto].

IGPU Voltage Offset Use this to select IGPU Voltage. The default value is [Auto]. **DRAM Voltage** Use this to select DRAM Voltage. The default value is [Auto]. **VTT Voltage** Use this to select VTT Voltage. The default value is [Auto]. **PCH Voltage** Use this to select PCH Voltage. The default value is [Auto]. **CPU PLL Voltage** Use this to select CPU PLL Voltage. The default value is [Auto].

VCCSA Voltage Use this to select VCCSA Voltage. The default value is [Auto]. **User Defaults** In this option, you are allowed to load and save three user defaults according to your own requirements. **48 3.4 Advanced Screen** In this section, you may set the configurations for the following items: CPU Configuration, North Bridge Configuration, South Bridge Configuration, Storage Configuration, Intel(R) Rapid Start Technology, Intel(R) Smart Connect Technology, Super IO Configuration, ACPI Configuration and USB Configuration. Setting wrong values in this section may cause the system to malfunction. **Instant Flash 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 save the new UEFI file to your USB flash drive, floppy disk or hard drive and launch this tool, 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 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 the UEFI update process is completed. **Internet Flash** Internet Flash searches for available UEFI firmware updates from our servers.

In other words, the system can auto-detect the latest UEFI from our servers and flash them without entering Windows OS. Please note that you must be running on a DHCP configured computer in order to enable this function. **49 3.4.1 CPU Configuration Intel Hyper Threading Technology** To enable this feature, 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 is required. 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]. **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 overheating. **No-Execute Memory Protection No-Execution (NX) Memory Protection Technology** is an enhancement 50 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 codes. This option will be hidden if the current CPU does not support No-Execute Memory Protection. **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.



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