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User manual ASROCK B75M-GL R2.0
User guide ASROCK B75M-GL R2.0
Operating instructions ASROCK B75M-GL R2.0
Instructions for use ASROCK B75M-GL R2.0
Instruction manual ASROCK B75M-GL R2.0

B75M-GL R2.0

User Manual

Version 1.0
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Manual abstract:

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

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0 Gb/s connectors, support NCQ, AHCI and Hot Plug functions - 1 x SATA3 6.0Gb/s connector - 1 x IR header - 1 x CIR header - 1 x Print port header - 1 x COM port header - 1 x Chassis Intrusion header - 1 x CPU Fan connector (4-pin) - 1 x Chassis Fan connector (4-pin) - 1 x Power Fan connector (3-pin) - 24 pin ATX power connector - 4 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) 7 BIOS Feature Support CD Unique Feature Hardware Monitor OS - 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 7) - ASRock Instant Boot - ASRock Instant Flash (see CAUTION 8) - ASRock APP Charger (see CAUTION 9) - ASRock SmartView (see CAUTION 10) - ASRock XFast USB (see CAUTION 11) - ASRock XFast LAN (see CAUTION 12) - ASRock XFast RAM (see CAUTION 13) - ASRock Crashless BIOS (see CAUTION 14) - ASRock OMG (Online Management Guard) (see CAUTION 15) - ASRock Internet Flash (see CAUTION 16) - ASRock UEFI System Browser - ASRock Dehumidifier Function (see CAUTION 17) - Hybrid Booster: - ASRock U-COP (see CAUTION 18) - Boot Failure Guard (B.F.G.) - Combo Cooler Option (C.C.O.) (see CAUTION 19) - Good Night LED - CPU Temperature Sensing - Chassis Temperature Sensing - CPU/Chassis/Power Fan Tachometer - CPU/Chassis Quiet Fan (Allows Chassis Fan Speed AutoAdjust by CPU Temperature) - CPU/Chassis Fan Multi-Speed Control - CASE OPEN detection - from your computer and up to 40% faster than before. ASRock APP Charger allows you to quickly charge many Apple devices simultaneously and even supports continuous charging when your PC enters into Standby mode (S1), Suspend to RAM (S3), hibernation mode (S4) or power off (S5). With APP Charger driver installed, you can easily enjoy the marvelous charging experience. ASRock website: <http://www.asrock.com/Feature/AppCharger/index.asp>

10. 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>

ASRock XFast USB can boost USB storage device performance. The performance may depend on the properties of the device. 12. 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. 13. 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. 14. 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.

15. Administrators are able to establish an internet curfew or restrict internet access at specified times via OMG. You may 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. 16. 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. 17. Users may prevent motherboard damages due to dampness by enabling "Dehumidifier Function".

When enabling Dehumidifier Function, the computer will power on automatically to dehumidify the system after entering S4/S5 state. 18. 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.

19. 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. 20. 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 64-bit. 21. 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.



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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 8.4cm (21.3 in) 24.4cm (9.6 in) PS2 Keyboard PS2 Mouse CPU_FAN1 PWR_FAN1 ATX12V1 RoHS DDR3_A1 (64 bit, 240-pin module) DDR3_B1 (64 bit, 240-pin module) ATXPWR1 DDR3 USB 2.0 T: USB2 B: USB3 SATA3_0 USB 3.0 T: USB0 B: USB1 ErP/EuP Ready VGA1 DVII 6 31 USB 2.

0 Top: T: USB4 RJ-45 B: USB5 LAN PHY 7 8 30 CMOS Battery CHA_FAN1 9 PCI Express 3.0 USB3_2_3 HD_AUDIO1 Top: Line In Center: Front Bottom: Mic In 1 CLRCMOS1 1 29 PCIE1 B75M-GL AUDIO CODEC PC11 Front USB 3.0 28 27 26 Super I/O PCI2 Intel B75 COM1 IRI 1 1 10 64Mb BIOS SATA2_1 SATA2_3 11 12 13 14 X Fast USB X Fast RAM X Fast LAN PCIE2 USB8_9 USB6_7 PLED PWRBTN SATA2_2 SATA2_4 1 SPEAKER1 15 16 LPT1 CII 1 1 1 CIR1 1 1 HDLED RESET SATA2_5 PANEL1 25 24 23 22 21 20 19 18 17 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 Power Fan Connector (PWR_FAN1) ATX 12V Power Connector (ATX12V1) 1155-Pin CPU Socket CPU Fan Connector (CPU_FAN1) 2 x 240-pin DDR3 DIMM Slots (DDR3_A1, DDR3_B1, Black) ATX Power Connector (ATXPWR1) SATA3 Connector (SATA3_0, Gray) Chassis Fan Connector (CHA_FAN1) USB 3.0 Header (USB3_2_3, Black) Intel B75 Chipset SPI Flash Memory (64Mb) SATA2 Connector (SATA2_1, Black) SATA2 Connector (SATA2_3, Black) SATA2 Connector (SATA2_4, Black) Chassis Speaker Header (SPEAKER1, Black) SATA2 Connector (SATA2_5, Black) 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 SATA2 Connector (SATA2_2, Black) System Panel Header (PANEL1, Black) USB 2.0 Header (USB6_7, Black) USB 2.0 Header (USB8_9, Black) Consumer Infrared Module Header (CIR1, Gray) Infrared Module Header (IR1) COM Port Header (COM1) Print Port Header (LPT1) Chassis Intrusion Header (CII) PCI Express 2.0 x16 Slot (PCIE2, Black) PCI Slot (PCI2, Black) PCI Slot (PCI1, Black) PCI Express 3.0 x16 Slot (PCIE1, Black) Front Panel Audio Header (HD_AUDIO1, Black) Clear CMOS Jumper (CLRCMOS1) 13 1.4 I/O Panel 1 2 3 4 5 6 11 10 9 8 7 1 2 * 3 4 ** 5 6 PS/2 Mouse Port (Green) D-Sub Port (VGA1) LAN RJ-45 Port Line In (Light Blue) Front Speaker (Lime) Microphone (Pink) 7 8 9 10 11 USB 2.0 Ports (USB4_5) USB 3.

0 Ports (USB3_0_1) USB 3.0 Ports (USB_2_3) DVI-D Port (DVII) 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 ** To enable Multi-Streaming function, you need to connect a front panel audio cable to the front panel audio header. Please refer to below steps for the software setting of Multi-Streaming. For Windows® XP: 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" or "4CH" and then you are allowed to select "Realtek HDA Primary output" to use Rear Speaker and Front Speaker, or select "Realtek HDA Audio 2nd output" to use front panel audio. Then reboot your system. For Windows® 7 / Vista™: After restarting your computer, please double-click "Realtek HD Audio Manager" on the system tray.

Set "Speaker Configuration" to "Quadraphonic" or "Stereo". Click "Device advanced settings", choose "Make front and rear output devices playbacks two different audio streams simultaneously", and click "ok". Then reboot your system. 14 Chapter 2: Installation This is a Micro ATX form factor (9.6" x 8.4", 24.4 x 21.3 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. 2. Unplug the power cord from the wall socket before touching any components. 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. Hold components by the edges and do not touch the ICs. Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that comes with the component. 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. 3. 4. 5. 15 2.

3 CPU Installation For the installation of Intel 1155-Pin CPU, please follow the steps below. Load Plate Load Lever Contact Array Socket Body 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.

16 Step 3. Insert the 1155-Pin CPU: Step 3-1. 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.



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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. 17 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). 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. Apply Thermal Interface Material 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). 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. Fan cables on side closest to MB header Fastener slots pointing straight out Press Down (4 Places) 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. 18 2.5 Installation of Memory Modules (DIMM) This motherboard provides two 240-pin DDR3 (Double Data Rate 3) DIMM slots, and supports Dual Channel Memory Technology. For dual channel configuration, you always need to install two identical (the same brand, speed, size and chiptype) memory modules in the DDR3 DIMM slots to activate Dual Channel Memory Technology. Otherwise, it will operate at single channel mode. 1. 2. 3. It is not allowed to install a DDR or DDR2 memory module into a DDR3 slot; otherwise, this motherboard and DIMM may be damaged. If you install only one memory module or two non-identical memory modules, it is unable to activate Dual Channel Memory Technology.

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. 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. notch break notch break 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. 19 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 20 2.7 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 / VistaTM / 7 OS. Quad CrossFireXTM is supported by Windows® VistaTM / 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.



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Make sure that the cards are properly seated on the slots. 21 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.) 22 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.msp> 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 "ATI Catalyst Control Center". Click "View", select "CrossFireXTM", and then check the item "Enable CrossFireXTM". Select "2 GPUs" and click "Apply". 23 Although you have selected the option "Enable CrossFireTM", the CrossFireXTM function may not work actually. Your computer will automatically reboot.

After restarting your computer, please confirm whether the option "Enable CrossFireTM" 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. 24 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 and D-Sub), you can easily enjoy the benefits of dual monitor feature without installing any add-on VGA card to this motherboard. This motherboard also provides independent display controllers for DVI-D and D-Sub to support dual VGA output so that DVI-D and D-sub can drive same or different display contents.

To enable dual monitor feature, please follow the below steps: 1. Connect DVI-D monitor cable to DVI-D port on the I/O panel, and connect D-Sub monitor cable to D-Sub port on the I/O panel. D-Sub port DVI-D port 2. If you have installed onboard VGA driver from our support CD to your system already, you can freely enjoy the benefits of dual monitor function after your system boots. If you haven't installed onboard VGA driver yet, please install onboard VGA driver from our support CD to your system and restart your computer. 25 Surround Display Feature This motherboard supports surround display upgrade. With the internal VGA output support (DVI-D and D-Sub) and external add-on PCI Express VGA cards, you can easily enjoy the benefits of surround display feature. Please refer to the following steps to set up a surround display environment: 1. Install the PCI Express VGA card on PCIE1 and PCIE2 slots. Please refer to page 20 for proper expansion card installation procedures for details.

2. Connect DVI-D monitor cable to DVI-D port on the I/O panel, and connect D-Sub monitor cable to D-Sub port on the I/O panel. Then connect other monitor cables to the corresponding connectors of the add-on PCI Express VGA card on PCIE1 and PCIE2 slots. 3. Boot your system.

Press <F2> or to enter UEFI setup. Enter "Onboard VGA 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 "Onboard VGA Share Memory", [Auto], will disable D-Sub function when the add-on VGA card is inserted to this motherboard. 4.

Install the onboard VGA driver and the add-on PCI Express VGA card driver to your system. If you have installed the drivers already, there is no need to install them again. 5. Set up a multi-monitor display. For Windows® XP / XP 64-bit OS: Right click the desktop, choose "Properties", and select the "Settings" tab so that you can adjust the parameters of the multi-monitor according to the steps below. A. Click the "Identify" button to display a large number on each monitor. B. Right-click the display icon in the Display Properties dialog that you wish to be your primary monitor, and then select "Primary". When you use multiple monitors with your card, one monitor will always be Primary, and all additional monitors will be designated as Secondary.

C. Select the display icon identified by the number 2. D. Click "Extend my Windows desktop onto this monitor". E. Right-click the display icon and select "Attached", if necessary. F. Set the "Screen Resolution" and "Color Quality" as appropriate for the second monitor. Click "Apply" or "OK" to apply these new values. G.

Repeat steps C through E for the display icon identified by the numbers three to six. 26 For Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS: Right click the desktop, choose "Personalize", and select the "Display Settings" tab so that you can adjust the parameters of the multi-monitor according to the steps below. A. Click the number "2" icon. B.

Click the items "This is my main monitor" and "Extend the desktop onto this monitor".



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C. Click "OK" to save your change. D. Repeat steps A through C for the display icon identified by the number three to six.

6. Use Surround Display. Click and drag the display icons to positions representing the physical setup of your monitors that you would like to use. The placement of display icons determines how you move items from one monitor to another. HDCP Function HDCP function is supported on this motherboard. 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 quality 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.

@@@ Install Multi-Angle CIR Receiver to the front USB port. Boot up your system. Press <F2> or to enter BIOS Setup Utility. @@@ Execute ASRock support CD and install CIR Driver. @@@ Multi-Angle CIR Receiver is used for front USB only. @@@ The Multi-Angle CIR Receiver does not support Hot-Plug function. @@@ If no jumper cap is placed on pins, the jumper is "Open". @@@ Jumper Clear CMOS Jumper (CLR_CMOS1) (see p.13, No. @@@ 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! Serial ATA2 Connectors (SATA2_1: see p.13, No. 12) (SATA2_2: see p.13, No. 17) (SATA2_3: see p.

13, No. 13) (SATA2_4: see p.13, No. 14) (SATA2_5: see p.13, No.

16) SATA2_1 SATA2_3 SATA2_2 SATA2_4 These five Serial ATA2 (SATA2) connectors support SATA data cables for internal storage devices. The current SATA2 interface allows up to 3.0 Gb/s data transfer rate. SATA2_5 Serial ATA3 Connector (SATA3_0: see p.13, No. 7) This Serial ATA3 (SATA3) connector supports SATA data cables for internal storage devices. The current SATA3 interface allows up to 6.0 Gb/s data transfer rate. Serial ATA (SATA) Data Cable (Optional) SATA3_0 Either end of the SATA data cable can be connected to the SATA / SATA2 / SATA3 hard disk or the SATA2 / SATA3 connector on this motherboard. Print Port Header (25-pin LPT1) (see p.

13, No. 24) 1 AFD# ERROR# PINIT# SLIN# GND This is an interface for print port cable that allows convenient connection of printer devices. SPD7 SPD6 ACK# SPD5 BUSY SPD4 PE SPD3 SLCT SPD2 SPD1 SPD0 STB# 31 USB 2.0 Headers (9-pin USB6_7) (see p.13, No. 19) (9-pin USB8_9) (see p.13, No. 20) 1 GND P+8 P-8 USB_PWR USB_PWR P-9 P+9 GND DUMMY 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. USB 3.0 Header (19-pin USB3_2_3) (see p.

13, No. 9) IntA_P0_D+ IntA_P0_DGND IntA_P0_SSTX+ IntA_P0_SSTXGND IntA_P0_SSRX+ IntA_P0_SSRXVbus 1 Vbus IntA_P1_SSRX IntA_P1_SSRX+ GND IntA_P1_SSTX IntA_P1_SSTX+ GND IntA_P1_D+ IntA_P1_D+ DUMMY Besides two default USB 3.0 ports on the I/O panel, there is one USB 3.0 header on this motherboard. This USB 3.

0 header can support two USB 3.0 ports. Infrared Module Header (5-pin IR1) (see p.13, No. 22) IRTX +5VSB DUMMY 1 GND IRRX This header supports an optional wireless transmitting and receiving infrared module. Consumer Infrared Module Header (4-pin CIR1) (see p.13, No. 21) Front Panel Audio Header (9-pin HD_AUDIO1) (see p.13, No. 30) 1 GND IRTX IRRX ATX+5VSB This header can be used to connect the remote controller receiver.

This is an interface for front panel audio cable that allows convenient connection and control of audio devices. GND PRESENCE# MIC_RET OUT_RET 1 OUT2_L J_SENSE OUT2_R MIC2_R MIC2_L 32 1. High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instruction in our manual and chassis manual to install your system. 2. If you use AC'97 audio panel, please install it to the front panel audio header as below: A. Connect Mic_IN (MIC) to MIC2_L. B. Connect Audio_R (RIN) to OUT2_R and Audio_L (LIN) to OUT2_L. C. Connect Ground (GND) to Ground (GND). D. MIC_RET and OUT_RET are for HD audio panel only. You don't need to connect them for AC'97 audio panel.

E.

To activate the front mic. For Windows® XP / XP 64-bit OS: Select "Mixer". Select "Recorder". Then click "FrontMic". For Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS: Go to the "FrontMic" Tab in the Realtek Control panel.

Adjust "Recording Volume". System Panel Header (9-pin PANEL1) (see p.13, No. 18) This header accommodates several system front panel functions. Connect the power switch, reset switch and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables. PWRBTN (Power Switch): Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch. RESET (Reset Switch): Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart.

PLED (System Power LED): Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the system is in S1/S3 sleep state. The LED is off when the system is in S4 sleep state or powered off (S5). HDLED (Hard Drive Activity LED): Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data. 33 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. 15) 1 SPEAKER DUMMY +5V DUMMY Please connect the chassis speaker to this header. Chassis and Power Fan Connectors (4-pin CHA_FAN1) GND +12V (see p.13, No. 8) CHA_FAN_SPEED FAN_SPEED_CONTROL (3-pin PWR_FAN1) PWR_FAN_SPEED (see p.

13, No. 1) +12V GND 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) FAN_SPEED_CONTROL CPU_FAN_SPEED +12V GND 1 2 3 4 Please connect the CPU fan cable to the connector and match the black wire to the ground pin.



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Though this motherboard provides 4-Pin CPU fan (Quiet Fan) support, the 3-Pin CPU fan still can work successfully even without the fan speed control function. If you plan to connect the 3-Pin CPU fan to the CPU fan connector on this motherboard, please connect it to Pin 1-3. Pin 1-3 Connected 3-Pin Fan Installation ATX Power Connector (24-pin ATXPWR1) (see p.13, No. 6) 12 24 Please connect an ATX power supply to this connector. 1 13 12 24 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 1 13 34 ATX 12V Power Connector (4-pin ATX12V1) (see p.13, No.

2) Please connect an ATX 12V power supply to this connector. Serial port Header (9-pin COM1) (see p.13, No. 23) This COM1 header supports a serial port module. Chassis Intrusion Header (2-pin C11) (see p.13, No. 25) 1 GND Signal This motherboard supports CASE OPEN detection feature that detects if the chassis cover has been removed. This feature requires a chassis with chassis intrusion detection design. 35 2.12 Serial ATA (SATA) / Serial ATA2 (SATA2) / Serial ATA3 (SATA3) Hard Disks Installation This motherboard adopts Intel® B75 chipset that supports Serial ATA (SATA) / Serial ATA2 (SATA2) / Serial ATA3 (SATA3) hard disks.

You may install SATA / SATA2 / SATA3 hard disks on this motherboard for internal storage devices. This section will guide you to install the SATA / SATA2 / SATA3 hard disks. STEP 1: Install the SATA / SATA2 / SATA3 hard disks into the drive bays of your chassis. STEP 2: Connect the SATA power cable to the SATA / SATA2 / SATA3 hard disk. STEP 3: Connect one end of the SATA data cable to the motherboard's SATA2 / SATA3 connector.

STEP 4: Connect the other end of the SATA data cable to the SATA / SATA2 / SATA3 hard disk. 36 2.13 Hot Plug for SATA / SATA2 / SATA3 HDDs This motherboard supports Hot Plug for SATA / SATA2 / SATA3 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 / SATA3 HDDs are NOT set for RAID configuration, it is called "Hot Plug" for the action to insert and remove the SATA / SATA2 / 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 SATA / SATA2 / SATA3 HDD. 37 2.14 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. 5. Please follow below instructions step by step to reduce the risk of HDD crash or data loss. 38 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. 39 2.15 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. 2.16 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. 2.16.1 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]. STEP 2: Install Windows® XP / XP 64-bit OS on your system.



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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]. 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]. STEP 2: Install Windows® 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS on your system. 41 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.

42 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 43 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. OMG (Online Management Guard) Administrators are able to establish an internet curfew or restrict internet access at specified times via OMG. You may 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. 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. 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 45 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].



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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 (CHA) Use this item to change ODT WR (CHA) setting. The default is [Auto].

ODT WR (CHB) Use this item to change ODT WR (CHB) setting. The default is [Auto]. ODT NOM (CHA) Use this item to change ODT NOM (CHA) setting. The default is [Auto]. ODT NOM (CHB) Use this item to change ODT NOM (CHB) 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, USB Configuration and Network 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. This option will be hidden if the installed CPU does not support Intel Virtualization Technology. Hardware Prefetcher Use this item to turn on/off the MLC streamer prefetcher. Adjacent Cache Line Prefetch Use this item to turn on/off prefetching of adjacent cache lines. 51 3.4.2 North Bridge Configuration Primary Graphics Adapter This allows you to select [Onboard], [PCI] or [PCI Express] as the boot graphic adapter priority. The default value is [PCI Express]. VT-d Use this item to enable/disable Intel(R) Virtualization Technology for Directed I/O. PCIE1 Link Speed This allows you to select PCIE1 Link Speed. The default value is [Auto]. Share Memory This allows you to set onboard VGA share memory feature. The default value is [Auto]. IGPU Multi-Monitor This allows you to enable or disable IGPU Multi-Monitor. The default value is [Disabled]. If you wish to install a PCI Express card under Windows® XP / Vista™ OS, please disable this option. Render Standby Use this to enable or disable Render Standby by Internal Graphics Device. The default value is [Enabled]. Deep Render Standby This allows you to enable or disable Deep Render Standby. The default value is [Enabled].

52 3.4.3 South Bridge Configuration Onboard HD Audio Select [Auto], [Enabled] or [Disabled] for the onboard HD Audio feature. If you select [Auto], the onboard HD Audio will be disabled when PCI Sound Card is plugged. Front Panel Select [Auto] or [Disabled] for the onboard HD Audio Front Panel. Onboard HDMI HD Audio This allows you to enable or disable the Onboard HDMI HD Audio feature. Onboard LAN This allows you to enable or disable the Onboard LAN feature. Deep Sleep Mobile platforms support Deep S4/S5 in DC only and desktop platforms support Deep S4/S5 in AC only. The default value is [Enabled in S5]. Restore on AC/Power Loss This allows you to set the power state after an unexpected AC/power loss. If [Power Off] is selected, the AC/power remains off when the power recovers. If [Power On] is selected, the AC/power resumes and the system starts to boot up when the power recovers. Good Night LED Use this item to enable or disable LAN LED. 53 3.4.4 Storage Configuration SATA Controller(s) Use this item to enable or disable the SATA Controller feature.



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