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You can read the recommendations in the user guide, the technical guide or the installation guide for ASROCK 960GM-VGS3 FX. You'll find the answers to all your questions on the ASROCK 960GM-VGS3 FX in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

**User manual ASROCK 960GM-VGS3 FX**  
**User guide ASROCK 960GM-VGS3 FX**  
**Operating instructions ASROCK 960GM-VGS3 FX**  
**Instructions for use ASROCK 960GM-VGS3 FX**  
**Instruction manual ASROCK 960GM-VGS3 FX**

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**ASRock**

**960GM-VGS3 FX**

**960GM-VS3 FX**

User Manual

Version 1.0  
Published November 2012  
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**Manual abstract:**

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

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... 53 4 1. Introduction Thank you for purchasing ASRock 960GM-VGS3 FX / 960GM-VS3 FX motherboard, a reliable motherboard produced under ASRock's consistently stringent quality control. It delivers excellent performance with robust design conforming to ASRock's commitment to quality and endurance. In this manual, chapter 1 and 2 contain introduction of the motherboard and step-by-step guide to the hardware installation. Chapter 3 and 4 contain the configuration guide to BIOS setup and information of the Support CD. Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRock website without further notice.

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

1.1 Package Contents ASRock 960GM-VGS3 FX / 960GM-VS3 FX Motherboard (Micro ATX Form Factor) ASRock 960GM-VGS3 FX / 960GM-VS3 FX Quick Installation Guide ASRock 960GM-VGS3 FX / 960GM-VS3 FX 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® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit, it is recommended to set the BIOS option in Storage Configuration to AHCI mode. 5 1.2 Specifications Platform CPU Chipset Memory Expansion Slot Graphics Audio LAN Rear Panel I/O - Micro ATX Form Factor - Solid Capacitor for CPU power - Support for Socket AM3+ processors - Support for Socket AM3 processors: AMD Phenom™ II X6 / X4 / X3 / X2 (except 920 / 940) / Athlon™ II X4 / X3 / X2 / Sempron processors - Supports 8-Core CPU - Supports AMD OverDrive™ with ACC feature (Advanced Clock Calibration) - AMD LIVE!™ Ready - Supports AMD's Cool 'n' Quiet™ Technology - FSB 2600 MHz (5.2 GT/s) - Supports Untied Overclocking Technology - Supports Hyper-Transport 3.0 (HT 3.0) Technology - Northbridge: AMD 760G - Southbridge: AMD SB710 - Dual Channel DDR3 Memory

*Technology - 2 x DDR3 DIMM slots - Support DDR3 1866(OC)/1600(OC)/1333/1066 non-ECC, un-buffered memory (see CAUTION 1) - Max. capacity of system memory: 16GB (see CAUTION 2) - 1 x PCI Express 2.0 x16 slot (PCI-E @ x16 mode) - 1 x PCI slot - Integrated AMD Radeon 3000 graphics - DX10 class iGPU, Pixel Shader 4.0 - Max.*

*shared memory 512MB - Supports D-Sub with max. resolution up to 2048x1536 @ 60Hz - 5.1 CH HD Audio (Realtek ALC662 Audio Codec) - 960GM-VGS3 FX Atheros® PCIE x1 Gigabit LAN AR8151, speed 10/100/1000 Mb/s - 960GM-VS3 FX Atheros® PCIE x1 LAN AR8152, speed 10/100 Mb/s - Supports Wake-On-LAN - Supports PXE I/O Panel - 1 x PS/2 Mouse Port - 1 x PS/2 Keyboard Port 6 Connector BIOS Feature Support CD Hardware Monitor OS Certifications - 1 x VGA Port - 4 x Ready-to-Use USB 2.0 Ports - 1 x RJ-45 LAN Port with LED (ACT/LINK LED and SPEED LED) - HD Audio Jack: Line in / Front Speaker / Microphone - 4 x SATA2 3.0 Gb/s connectors, support RAID (RAID 0, RAID 1, RAID 10 and JBOD), NCQ, AHCI and "Hot Plug" functions - 1 x Chassis Intrusion header - 1 x CPU Fan connector (4-pin) - 1 x Chassis Fan connector (4-pin) - 24 pin ATX power connector - 4 pin 12V power connector - Front panel audio connector - 2 x USB 2.*



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0 headers (support 4 USB 2.0 ports) - 8Mb AMI Legal BIOS - Supports "Plug and Play" - ACPI 1.1 Compliance Wake Up Events - Supports jumperfree - SMBIOS 2.3.1 Support - CPU, VCCM, NB Voltage Multi-adjustment - Drivers, Utilities, AntiVirus Software (Trial Version), CyberLink MediaEspresso 6.5 Trial, Google Chrome Browser and Toolbar - CPU Temperature Sensing - Chassis Temperature Sensing - CPU Fan Tachometer - Chassis Fan Tachometer - CPU Quiet Fan - CPU Fan Multi-Speed Control - CASE OPEN detection - Voltage Monitoring: +12V, +5V, +3.3V, Vcore - Microsoft® Windows® 8 / 8.1 / 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP Media Center / XP 64-bit compliant - FCC, CE, WHQL - ErP/EuP Ready (ErP/EuP ready power supply is required) \* For detailed product information, please visit our website: <http://www.asrock.com> 7 WARNING Please realize that there is a certain risk involved with overclocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using third-party overclocking tools.

Overclocking may affect your system's stability, or even cause damage to the components and devices of your system.

It should be done at your own risk and expense. We are not responsible for possible damage caused by overclocking. CAUTION! 1. Whether 1866/1600MHz memory speed is supported depends on the AM3/AM3+ CPU you adopt. If you want to adopt DDR3 1866/1600 memory module on this motherboard, please refer to the memory support list on our website for the compatible memory modules.

ASRock website: <http://www.asrock.com> 2. Due to the operating system limitation, the actual memory size may be less than 4GB for the resty 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 10 simultaneously. Real-Time Analysis of Your Data: With the status window, you can easily recognize which data streams you are transferring currently. ASRock XFast RAM ASRock XFast RAM fully utilizes the memory space that cannot be used under Windows® OS 32-bit CPU.

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. ASRock X-Boost

ASRock's X-Boost Technology is a smart auto-overclocking function and is brilliantly designed to unlock the hidden power of your CPUs. Simply press "X" when turning on the PC, X-Boost will automatically overclock the relative components to get up to 15.77% performance boost! With the smart X-Boost, overclocking CPU can become a near one-button process. \* The functionality of "Unlock CPU Cores" feature might vary by different processors. 11 1.4 Motherboard Layout (960GM-VGS3 FX / 960GM-VS3 FX) 1 2 3 4 USB 2.0 T: USB0 B: USB1 Top: RJ-45 X Fast RAM USB 2.0 T: USB2 B: USB3 Support 8-Core CPU DDR3 1866 LAN DDR3\_A1 (64 bit, 240-pin module) DDR3\_B1 (64 bit, 240-pin module) X Fast LAN FSB800 ATXPWR1 PS2 Keyboard PS2 Mouse ATX12V1 5 CPU\_FAN1 SOCKET AM3b VGA1 HD\_AUDIO1 6 22 Bottom: MIC IN 1 SATAII\_4 (PORT 6) AMD 760G Chipset Top: LINE IN Center: FRONT 21 AUDIO CODEC 7 8 9 CMOS BATTERY PCIE1 20 Super I/O 1 C11 1 CLRCMOS1 8Mb BIOS 19 18 17 16 SATAII\_2 (PORT 2) SATAII\_3 (PORT 5) USB6\_7 USB8\_9 PLED PWRBTN 1 1 PANEL 1 1 HDLED AMD SB710 Chipset CHA\_FAN1 10 RESET 11 12 PC11 SATAII\_1 (PORT 1) X Fast USB ErP/EuP Ready 15 RoHS 14 13 1 2 3 4 5 6 7 8 9 10 11 ATX 12V Power Connector (ATX12V1) CPU Heatsink Retention Module AM3+ CPU Socket 2 x 240-pin DDR3 DIMM Slots (Dual Channel: DDR3\_A1, DDR3\_B1) CPU Fan Connector (CPU\_FAN1) ATX Power Connector (ATXPWR1) SATA2 Connector (SATAII\_4 (PORT 6)) Northbridge Controller Chassis Fan Connector (CHA\_FAN1) SATA2 Connector (SATAII\_3 (PORT 5)) System Panel Header (PANEL1) 12 13 14 15 16 17 18 19 20 21 22 SATA2 Connector (SATAII\_2 (PORT 2)) SATA2 Connector (SATAII\_1 (PORT 1)) Southbridge Controller PCI Slot (PC11) USB 2.0 Header (USB8\_9) USB 2.

0 Header (USB6\_7) Clear CMOS Jumper (CLRCMOS1) Chassis Intrusion Header (C11) SPI Flash Memory (8Mb) PCI Express 2.0 x16 Slot (PCIE1) Front Panel Audio Header (HD\_AUDIO1) 12 1.5 I/O Panel (960GM-VGS3 FX) 1 2 3 4 5 9 8 7 6 1 \* 2 3 \*\* 4 5 PS/2 Mouse Port (Green) 6 LAN RJ-45 Port 7 Line In (Light Blue) 8 Front Speaker (Lime) 9 Microphone (Pink) VGA Port (VGA1) USB 2.0 Port (USB23) USB 2.0 Ports (USB01) PS/2 Keyboard Port (Purple)

\* There are two LED next to the LAN port.

Please refer to the table below for the LAN port LED indications. LAN Port LED Indications Status SPEED LED Description Activity/Link LED Status Description ACT/LINK SPEED LED LED Off No Link Blinking Data Activity On Link Off Orange 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® 8 / 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. 13 1.6 I/O Panel (960GM-VS3 FX) 1 2 3 4 5 9 8 7 6 1 \* 2 3 \*\* 4 5 PS/2 Mouse Port (Green) 6 LAN RJ-45 Port 7 Line In (Light Blue) 8 Front Speaker (Lime) 9 Microphone (Pink) VGA Port (VGA1) USB 2.0 Port (USB23) USB 2.0 Ports (USB01) PS/2 Keyboard Port (Purple) \* There are two LED next to the LAN port.

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Then reboot your system. 14 2. Installation This is a Micro ATX form factor motherboard. Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it. Pre-installation Precautions Take note of the following precautions before you install motherboard components or change any motherboard settings.

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. 1. 2. 3.

4. 5. Unplug the power cord from the wall socket before touching any component. To avoid damaging the motherboard components due to static electricity, NEVER place your motherboard directly on the carpet or the like. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle components. 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. 15 2.1 CPU Installation Step 1.

Unlock the socket by lifting the lever up to a 90 angle. Step 2. Position the CPU directly above the socket such that the CPU corner with the golden triangle matches the socket corner with a small triangle. Step 3. Carefully insert the CPU into the socket until it fits in place. The CPU fits only in one correct orientation. DO NOT force the CPU into the socket to avoid bending of the pins. Step 4. When the CPU is in place, press it firmly on the socket while you push down the socket lever to secure the CPU. The lever clicks on the side tab to indicate that it is locked.

Lever 90° Up CPU Golden Triangle Socket Corner Small Triangle STEP 1: Lift Up The Socket Lever STEP 2 / STEP 3: STEP 4: Match The CPU Golden Triangle Push Down And Lock To The Socket Corner Small The Socket Lever Triangle 2.2 Installation of CPU Fan and Heatsink After you install the CPU into this motherboard, it is necessary to install a larger heatsink and cooling fan to dissipate heat. You also need to spray thermal grease between the CPU and the heatsink to improve heat dissipation. Make sure that the CPU and the heatsink are securely fastened and in good contact with each other. Then connect the CPU fan to the CPU FAN connector (CPU\_FAN1, see Page 12, No.

5). For proper installation, please kindly refer to the instruction manuals of the CPU fan and the heatsink. 16 2.3 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. It is not allowed to install a DDR or DDR2 memory module into 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 the Dual Channel Memory Technology. Installing a DIMM Please make sure to disconnect power supply before adding or removing DIMMs or the system components. Step 1. Unlock a DIMM slot by pressing the retaining clips outward. Step 2. Align a DIMM on the slot such that the notch on the DIMM matches the break on the slot.

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. 17 2.4 Expansion Slots (PCI and PCI Express Slots) There is 1 PCI slot and 1 PCI Express slot on this motherboard. PCI Slot: PCI slot is used to install expansion cards that have the 32-bit PCI interface. PCIE Slot: PCIE1 (PCIE x16 slot) is used for PCI Express x16 lane width graphics cards. Installing an expansion card Step 1. Before installing the expansion card, please make sure that the power supply is switched off or the power cord is unplugged.

Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation. 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. Step 2. Step 3. Step 4.

Step 5. Step 6. 18 2.5 Multi Monitor Feature This motherboard supports multi monitor feature. With the internal VGA output support and the external add-on PCI Express VGA card, you can easily enjoy the benefits of multi monitor feature. Please refer to the following steps to set up a surround display environment: 1. Install the PCI Express VGA cards on PCIE1 slot. Please refer to page 18 for proper expansion card installation procedures for details. 2. Connect D-Sub monitor cable to VGA port on the I/O panel.

And connect other monitor cables to the corresponding connectors of the add-on PCI Express VGA cards on PCIE1 slot. VGA port 3. Boot your system. Press <F2> or <Del> to enter BIOS setup. Enter “Share Memory” option to adjust the memory capability to [32MB], [64MB], [128MB] [256MB] or [512MB] to enable the function of VGA. Please make sure that the value you select is less than the total capability of the system memory. If you do not adjust the BIOS setup, the default value of “Share Memory”, [Auto], will disable VGA function when the add-on VGA card is inserted to this motherboard.



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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.

19 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 number one, two and three. For Windows® 8 / 8 64-bit / 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". C. Click "OK" to save your change. D. Repeat steps A through C for the display icon identified by the number three. 6. Use multi monitor feature.

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. 20 2.6 Jumpers Setup The illustration shows how jumpers are setup. When the jumper cap is placed on pins, the jumper is "Short".

If no jumper cap is placed on pins, the jumper is "Open". The illustration shows a 3-pin jumper whose pin1 and pin2 are "Short" when jumper cap is placed on these 2 pins. Jumper Setting Clear CMOS Jumper (CLRCMOS1) (see p.12, No. 18) Description Note: CLRCMOS1 allows you to clear the data in CMOS. To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short pin2 and pin3 on CLRCMOS1 for 5 seconds. However, please do not clear the CMOS right after you update the BIOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action. Please be noted that the password, date, time, user default profile, 1394 GUID and MAC address will be cleared only if the CMOS battery is removed.

Default Clear CMOS If you clear the CMOS, the case open may be detected. Please adjust the BIOS option "Clear Status" to clear the record of previous chassis intrusion status. 21 2.7 Onboard Headers and Connectors Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors.

Placing jumper caps over the headers and connectors will cause permanent damage of the motherboard! (SATAII\_1 (PORT 1): see p.12, No. 13) (SATAII\_2 (PORT 2): see p.12, No. 12) (SATAII\_3 (PORT 5): see p.12, No. 10) SATAII\_2 (PORT 2) (SATAII\_4 (PORT 6): see p.12, No. 7) SATAII\_1 (PORT 1) Serial ATA (SATA) Data Cable (Optional) SATAII\_3 (PORT 5) SATAII\_4 (PORT 6) Serial ATA2 Connectors These four 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. Either end of the SATA data cable can be connected to the SATA2 hard disk or the SATA2 connector on this motherboard. USB 2.0 Headers (9-pin USB6\_7) (see p.12 No.

17) (9-pin USB8\_9) (see p.12 No. 16) USB\_PWR P-9 P+9 GND DUMMY 1 GND P+8 P-8 USB\_PWR 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. 22 Front Panel Audio Header (9-pin HD\_AUDIO1) (see p.12 No. 22) GND PRESENCE# MIC\_RET OUT\_RET 1 OUT2\_L J\_SENSE OUT2\_R MIC2\_R MIC2\_L This is an interface for the front panel audio cable that allows convenient connection and control of audio devices. 1. High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instruction in our manual and chassis manual to install your system. 2.

If you use AC'97 audio panel, please install it to the front panel audio header as below: A. Connect Mic\_IN (MIC) to MIC2\_L. B. Connect Audio\_R (RIN) to OUT2\_R and Audio\_L (LIN) to OUT2\_L. C. Connect Ground (GND) to Ground (GND). D. MIC\_RET and OUT\_RET are for HD audio panel only. You don't need to connect them for AC'97 audio panel. E.

To activate the front mic. For Windows® XP / XP 64-bit OS: Select "Mixer". Select "Recorder". Then click "FrontMic". For Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS: Go to the "FrontMic" Tab in the Realtek Control panel.

Adjust "Recording Volume". System Panel Header (9-pin PANEL1) (see p.12 No. @@@@Note the positive and negative pins before connecting the cables. @@@@The 23 LED is on when the system is operating.

The LED keeps blinking when the sys-tem is in S1 sleep state. @@@@The LED is on when the hard drive is reading or writing data. The front panel design may differ by chassis. @@@@This section will guide you to install the SATA2 hard disks. @@STEP 2: Connect the SATA power cable to the SATA2 hard disk. @@@@AMD SB710 chipset provides hardware support for Advanced Host controller Interface (AHCI), a new programming interface for SATA host controllers developed thru a joint industry effort. NOTE What is Hot Plug Function? If the SATA2 HDDs are NOT set for RAID configuration, it is called "Hot Plug" for the action to insert and remove the 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 SATA2 HDD. What is Hot Swap Function? If SATA2 HDDs are built as RAID 1 then it is called "Hot Swap" for the action to insert and remove the SATA2 HDDs while the system is still power-on and in working condition. 26 2.

10 SATA2 HDD Hot Plug Feature and Operation Guide This motherboard supports Hot Plug feature for SATA2 HDD in RAID / AHCI mode.



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Please read below operation guide of Hot Plug feature carefully. Before you process the SATA2 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 SATA2 HDD Caution 1x4-pin conventional power connector (White) connect to power supply 1. Without SATA 15-pin power connector interface, the SATA2 Hot Plug cannot be processed. 2.

Even some SATA2 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 SATA2 HDD Hot Plug. \* The SATA2 Hot Plug feature might not be supported by the chipset because of its limitation, the SATA2 Hot Plug support information of our motherboard is indicated in the product spec on our website: [www.asrock.com](http://www.asrock.com).

2. Make sure your SATA2 HDD can support Hot Plug function from your dealer or HDD user manual. The SATA2 HDD, which cannot support Hot Plug function, will be damaged under the Hot Plug operation. 3. Please make sure the SATA2 driver is installed into system properly.

The latest SATA2 driver is available on our support website: [www.asrock.com](http://www.asrock.com). 4. Make sure to use the SATA power cable & data cable, which are from our motherboard package. 5. Please follow below instructions step by step to reduce the risk of HDD crash or data loss. 27 How to Hot Plug a SATA2 HDD: Points of attention, before you process the Hot Plug: Please do follow below instruction sequence to process the Hot Plug, improper procedure will cause the SATA2 HDD damage and data loss. Step 1 Please connect SATA power cable 1x4-pin Step 2 Connect SATA data cable to end (White) to the power supply 1x4-pin the motherboard's SATA2 cable. connector. SATA power cable 1x4-pin power connector (White) Step 3 Connect SATA 15-pin power cable connector (Black) end to SATA2 HDD.

Step 4 Connect SATA data cable to the SATA2 HDD. How to Hot Unplug a SATA2 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 SATA2 HDD damage and data loss. Step 1 Unplug SATA data cable from SATA2 HDD side. Step 2 Unplug SATA 15-pin power cable connector (Black) from SATA2 HDD side. 28 2.11 Driver Installation Guide To install the drivers to your system, please insert the support CD to your optical drive first. Then, the drivers compatible to your system can be auto-detected and listed on the support CD driver page. Please follow the order from up to bottom side to install those required drivers. Therefore, the drivers you install can work properly. 2.

12 Installing Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit With RAID Functions If you want to install Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit on a RAID disk composed of 2 or more SATA / SATA2 HDDs with RAID functions, please follow below procedures according to the OS you install. 2.12.1 Installing Windows® XP / XP 64-bit With RAID Functions If you want to install Windows® XP / XP 64-bit on a RAID disk composed of 2 or more SATA / SATA2 HDDs with RAID functions, please follow below steps. STEP 1: Set up BIOS.

A. Enter BIOS SETUP UTILITY Advanced screen Storage Configuration. B. Set the "SATA Operation Mode" option to [RAID]. STEP 2: Make a SATA / SATA2 Driver Diskette. A. Insert the ASRock Support CD into your optical drive to boot your system. B. During POST at the beginning of system boot-up, press <F11> key, and then a window for boot devices selection appears. Please select CD-ROM as the boot device. C. When you see the message on the screen, "Generate Serial ATA driver diskette [YN]?", press <Y>. D. Then you will see these messages, Please insert a diskette into the floppy drive. WARNING! Formatting the floppy diskette will lose ALL data in it! Start to format and copy files [YN]? Please insert a floppy diskette into the floppy drive, and press any key.

E. The system will start to format the floppy diskette and copy SATA / SATA2 drivers into the floppy diskette. 29 STEP 3: Use "RAID Installation Guide" to set RAID configuration. Before you start to configure RAID function, you need to check the RAID installation guide in the Support CD for proper configuration. Please refer to the BIOS RAID installation guide part of the document in the following path in the Support CD: .. \ RAID Installation Guide STEP 4: Install Windows® XP / XP 64-bit OS on your system. After step 1, 2, 3, you can start to install Windows® XP / XP 64-bit OS on your system. At the beginning of Windows® setup, press F6 to install a third-party RAID driver. When prompted, insert the SSATA / SATA2 driver diskette containing the AMD RAID driver. After reading the floppy disk, the driver will be presented. Select the driver to install according to the OS you install. 2.12.2 Installing Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit With RAID Functions If you want to install Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit on a RAID disk composed of 2 or more SATA / SATA2 HDDs with RAID functions, please follow below steps.

STEP 1: Set up BIOS. A. Enter BIOS SETUP UTILITY Advanced screen Storage Configuration. B. Set the "SATA Operation Mode" option to [RAID]. STEP 2: Use "RAID Installation Guide" to set RAID configuration. Before you start to configure RAID function, you need to check the RAID installation guide in the Support CD for proper configuration. Please refer to the BIOS RAID installation guide part of the document in the following path in the Support CD: .. \ RAID Installation Guide STEP 3: Install Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS on your system. 30 2.13 Installing Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit Without RAID Functions If you want to install Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit / XP / XP 64-bit OS on your SATA / SATA2 HDDs without RAID functions, please follow below procedures according to the OS you install. 2.13.1 Installing Windows® XP / XP 64-bit Without RAID Functions If you want to install Windows® XP / XP 64-bit on your SATA / SATA2 HDDs without RAID functions, please follow below steps.

Using SATA / SATA2 HDDs with NCQ and Hot Plug functions (AHCI mode) STEP 1: Set up BIOS. A. Enter BIOS SETUP UTILITY Advanced screen Storage Configuration. B. Set the "SATA Operation Mode" option to [AHCI]. STEP 2: Install Windows® XP / XP 64-bit OS on your system.



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You can start to install Windows® XP / XP 64-bit OS on your system. At the beginning of Windows® setup, press F6 to install a third-party AHCI driver. When prompted, insert the SATA / SATA2 driver diskette containing the AMD AHCI driver. After reading the floppy disk, the driver will be presented. Select the driver to install according to the OS you install. Using SATA / SATA2 HDDs without NCQ and Hot Plug functions (IDE mode) STEP 1: Set up BIOS. A. Enter BIOS SETUP UTILITY Advanced screen Storage Configuration. B.

Set the "SATA Operation Mode" option to [IDE]. STEP 2: Install Windows® XP / XP 64-bit OS on your system. 31 2.13.2 Installing Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit Without RAID Functions If you want to install Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit on your SATA / SATA2 HDDs without RAID functions, please follow below steps.

Using SATA / SATA2 HDDs with NCQ and Hot Plug functions (AHCI mode) STEP 1: Set up BIOS. A. Enter BIOS SETUP UTILITY Advanced screen Storage Configuration. B. Set the "SATA Operation Mode" option to [AHCI]. STEP 2: Install Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS on your system. Using SATA / SATA2 HDDs without NCQ and Hot Plug functions (IDE mode) STEP 1: Set up BIOS. A. Enter BIOS SETUP UTILITY Advanced screen Storage Configuration. B.

Set the "SATA Operation Mode" option to [IDE]. STEP 2: Install Windows® 8 / 8 64-bit / 7 / 7 64-bit / Vista™ / Vista™ 64-bit OS on your system. 2.14 Untied Overclocking Technology This motherboard supports Untied Overclocking Technology, which means during overclocking, FSB enjoys better margin due to fixed PCI / PCIE buses. Before you enable Untied Overclocking function, please enter "Overclock Mode" option of BIOS setup to set the selection from [Auto] to [Manual]. Therefore, CPU FSB is untied during overclocking, but PCI / PCIE buses are in the fixed mode so that FSB can operate under a more stable overclocking environment. Please refer to the warning on page 8 for the possible overclocking risk before you apply Untied Overclocking Technology.

32 3. BIOS SETUP UTILITY 3.1 Introduction This section explains how to use the BIOS SETUP UTILITY to configure your system.

The SPI Memory on the motherboard stores the BIOS SETUP UTILITY. You may run the BIOS SETUP UTILITY when you start up the computer. Please press <F2> or <Del> during the Power-On-Self-Test (POST) to enter the BIOS SETUP UTILITY, otherwise, POST will continue with its test routines. If you wish to enter the BIOS SETUP UTILITY after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.

Because the BIOS software is constantly being updated, the following BIOS setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen. 3.1.1 BIOS Menu Bar The top of the screen has a menu bar with the following selections: Main To set up the system time/date information OC Tweaker To set up overclocking features Advanced To set up the advanced BIOS 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 BIOS SETUP UTILITY Use < > key or < > key to choose among the selections on the menu bar, and then press <Enter> to get into the sub screen. 33 3.

1.2 Navigation Keys Please check the following table for the function description of each navigation key. Navigation Key(s) // + / - <Enter> <F1> <F9> <F10> <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 To bring up the selected screen To display the General Help Screen To load optimal default values for all the settings To save changes and exit the BIOS SETUP UTILITY To jump to the Exit Screen or exit the current screen 3.2 Main Screen When you enter the BIOS SETUP UTILITY, the Main screen will appear and display the system overview. 960GM-VGS3 FX Main OC Tweaker BIOS SETUP UTILITY Advanced H/W Monitor Boot Security Exit System Overview System Time System Date BIOS Version Processor Type [17:00:09] [Wed 11/14/2012] Use [Enter], [TAB] or [SHIFT-TAB] to select a field. Use [+] or [-] to configure system Time. : 960GM-VGS3 FX P1.00 : AMD FX(tm)-8100 Eight-Core Processor (64bit) Processor Speed : 2800MHz Microcode Update : 600F12/6000626 : 384KB L1 Cache Size : 8192KB L2 Cache Size : 8192KB L3 Cache Size Total Memory DDR3\_A1 DDR3\_B1 : 2048MB with 256MB shared memory Single-Channel Memory Mode : None : 2048MB/667MHz DDR3\_1333 +Tab F1 F9 F10 ESC Select Screen Select Item Change Field Select Field General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2005, American Megatrends, Inc. System Time [Hour:Minute:Second] Use this item to specify the system time.

System Date [Day Month/Date/Year] Use this item to specify the system date. 34 960GM-VS3 FX Main OC Tweaker BIOS SETUP UTILITY Advanced H/W Monitor Boot Security Exit System Overview System Time System Date BIOS Version Processor Type [17:00:09] [Wed 11/14/2012] Use [Enter], [TAB] or [SHIFT-TAB] to select a field. Use [+] or [-] to configure system Time. : 960GM-VS3 FX P1.00 : AMD FX(tm)-8100 Eight-Core Processor (64bit) Processor Speed : 2800MHz Microcode Update : 600F12/6000626 : 384KB L1 Cache Size : 8192KB L2 Cache Size : 8192KB L3 Cache Size Total Memory DDR3\_A1 DDR3\_B1 : 2048MB with 256MB shared memory Single-Channel Memory Mode : None : 2048MB/667MHz DDR3\_1333 +Tab F1 F9 F10 ESC Select Screen Select Item Change Field Select Field General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2005, American Megatrends, Inc. System Time [Hour:Minute:Second] Use this item to specify the system time. System Date [Day Month/Date/Year] Use this item to specify the system date. 35 3.3 OC Tweaker Screen In the OC Tweaker screen, you can set up overclocking features.

Main OC Tweaker CPU Configuration Overclock Mode CPU Frequency (MHz) PCIE Frequency (MHz) Spread Spectrum Boot Failure Guard Boot Failure Guard Count CPU Active Core Control AMD Turbo Core Technology AMD C-State Support AMD APM Processor Maximum Frequency North Bridge Maximum Frequency Processor Maximum Voltage Multiplier/Voltage Change HT Bus Speed HT Bus Width [Auto] [200] [100] [Auto] [Enabled] [3] [All Cores] [Auto] [Enabled] [Auto] x31.5 6300 MHZ x31.0 62 00 MHZ 1.5500 V [Auto] [Auto] [Auto] BIOS SETUP UTILITY Advanced H/W Monitor Boot Security Exit Overclocking may cause damage to your CPU and motherboard. It should be done at your own risk and expense. Enter F1 F9 F10 ESC Select Screen Select Item Go to Sub Screen General Help Load Defaults Save and Exit Exit v02.



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54 (C) Copyright 1985-2005, American Megatrends, Inc. CPU Configuration Overclock Mode Use this to select Overclock Mode. Configuration options: [Auto] and [Manual]. The default value is [Auto].

CPU Frequency (MHz) Use this option to adjust CPU frequency. PCIE Frequency (MHz) Use this option to adjust PCIE frequency. Spread Spectrum This item should always be [Auto] for better system stability. Boot Failure Guard Enable or disable the feature of Boot Failure Guard. Boot Failure Guard Count Use this item to configure Boot Failure Guard Count. CPU Active Core Control This allows you to adjust CPU Active Core Control feature. The configuration options depend on the CPU core you adopt. The default value is [All Cores]. AMD Turbo Core Technology This item appears only when the processor you adopt supports this feature. Use this to select enable or disable AMD Turbo Core Technology.

Configuration options: [Auto] and [Disabled]. The default value is [Auto]. AMD C-State Support This allows you to enable or disable AMD C-State Support. The default value is [Enabled]. 36 Processor Maximum Frequency It will display Processor Maximum Frequency for reference. North Bridge Maximum Frequency It will display North Bridge Maximum Frequency for reference. Processor Maximum Voltage It will display Processor Maximum Voltage for reference. Multiplier/Voltage Change This item is set to [Auto] by default. If it is set to [Manual], you may adjust the value of Processor Frequency and Processor Voltage. However, it is recommended to keep the default value for system stability.

BIOS SETUP UTILITY Advanced H/W Monitor Boot Main OC Tweaker CPU Configuration Security Exit Overclock Mode CPU Frequency (MHz) PCIE Frequency (MHz) Spread Spectrum Boot Failure Guard Boot Failure Guard Count CPU Active Core Control AMD Turbo Core Technology AMD C-State Support AMD APM Processor Maximum Frequency North Bridge Maximum Frequency Processor Maximum Voltage Multiplier/Voltage Change [Auto] [200] [100] [Auto] [Enabled] [3] [All Cores] [Auto] [Enabled] [Auto] x31.5 6300 MHz x31.0 62 00 MHz 1.5500 V [Manual] Overclocking may cause damage to your CPU and motherboard. It should be done at your own risk and expense.

Enter F1 F9 F10 ESC Select Screen Select Item Go to Sub Screen General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2005, American Megatrends, Inc. CPU Frequency Multiplier For safety and system stability, it is not recommended to adjust the value of this item. CPU Voltage It allows you to adjust the value of CPU voltage. However, for safety and system stability, it is not recommended to adjust the value of this item.

NB Frequency Multiplier For safety and system stability, it is not recommended to adjust the value of this item. CPU NB Voltage It allows you to adjust the value of CPU NB voltage. However, for safety and system stability, it is not recommended to adjust the value of this item. HT Bus Speed This feature allows you selecting Hyper-Transport bus speed. The default value is [Auto]. HT Bus Width This feature allows you selecting Hyper-Transport bus width. The default value is [Auto]. 37 Memory Configuration Memory Clock This item can be set by the code using [Auto]. You can set one of the standard values as listed: [400MHz DDR3\_800], [533MHz DDR3\_1066], [667MHz DDR3\_1333] and [800MHz DDR3\_1600]. DRAM Frequency If [Auto] is selected, the motherboard will detect the memory module(s) inserted and assigns appropriate frequency automatically.

Memory Timing BIOS SETUP UTILITY OC Tweaker Memory Timing Power Down Enable Bank Interleaving Channel Interleaving CAS Latency (CL) TRCD TRP TRAS Command Rate TRC TWR TRFC TRRD TWTR TRTP TFAW TCWL [Enabled] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [Auto] +F1 F9 F10 ESC Select Screen Select Item Change Option General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2003, American Megatrends, Inc. Power Down Enable Use this item to enable or disable DDR power down mode. Bank Interleaving Interleaving allows memory accesses to be spread out over banks on the same node, or accross nodes, decreasing access contention. Channel Interleaving It allows you to enable Channel Memory Interleaving. Configuration options: [Disabled], [Auto]. The default value is [Auto]. CAS Latency (CL) Use this item to change CAS Latency (CL) Auto/Manual setting. The default is [Auto]. TRCD Use this item to change TRCD Auto/Manual setting. The default is [Auto]. TRP Use this item to change TRP Auto/Manual setting. The default is [Auto]. TRAS Use this item to change TRAS Auto/Manual setting. The default is [Auto].

38 Command Rate Use this item to change Command Rate Auto/Manual setting. The default is [Auto]. TRC Use this item to change TRC Auto/Manual setting. The default is [Auto]. TWR Use this item to change TWR Auto/Manual setting. The default is [Auto]. TRFC Use this item to change TRFC Auto/Manual setting. The default is [Auto]. TRRD Use this item to change TRRD Auto/Manual setting. The default is [Auto]. TWTR Use this item to change TWTR Auto/Manual setting. The default is [Auto]. TRTP Use this item to change TRTP Auto/Manual setting. The default is [Auto]. TFAW Use this item to change TFAW Auto/Manual setting.

The default is [Auto]. TCWL Use this item to change TCWL Auto/Manual setting. The default is [Auto]. Chipset Settings Onboard GPU Clock Override This allows you to enable or disable the Onboard GPU Clock Override feature. Onboard GPU Clock This option only appears when you enable "Onboard GPU ClockOverride". The default value is [500]. mGPU Voltage Use this to select mGPU voltage. The default value is [Auto]. Would you like to save current setting user defaults? In this option, you are allowed to load and save three user defaults according to your own requirements. 39 3.

4 Advanced Screen In this section, you may set the configurations for the following items: CPU Configuration, Chipset Configuration, ACPI Configuration, Storage Configuration, PCIPnP Configuration, Super IO Configuration and USB Configuration. Main BIOS SETUP UTILITY Boot OC Tweaker Advanced H/W Monitor Security Exit Advanced Settings WARNING : Setting wrong values in below sections may cause system to malfunction. CPU Configuration Chipset Configuration ACPI Configuration Storage Configuration PCIPnP Configuration SuperIO Configuration USB Configuration BIOS Update Utility Instant Flash Options for CPU Enter F1 F9 F10 ESC Select Screen Select Item Go to Sub Screen General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2005, American Megatrends, Inc. Setting wrong values in this section may cause the system to malfunction.

Instant Flash 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®.



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Just launch this tool and save the new BIOS file to your USB flash drive, floppy disk or hard drive, then you can update your BIOS only in a few clicks without preparing an additional floppy diskette or other complicated flash utility. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system. If you execute Instant Flash utility, the utility will show the BIOS files and their respective information.

Select the proper UEFI file to update your BIOS, and reboot your system after BIOS update process completes. 40 3.4.1 CPU Configuration BIOS SETUP UTILITY Advanced CPU Configuration Cool 'n' Quiet Secure Virtual Machine Enhanced Halt State(C1E) CPU Thermal Throttle [Enabled] [Enabled] [Disabled] [Auto] +F1 F9 F10 ESC Select Screen Select Item Change Option General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2003, American Megatrends, Inc. Cool 'n' Quiet Use this item to enable or disable AMD's Cool 'n' Quiet™ technology. The default value is [Enabled]. Configuration options: [Enabled] and [Disabled]. If you install Windows® 8 / 7 / Vista™ and want to enable this function, please set this item to [Enabled]. Please note that enabling this function may reduce CPU voltage and memory frequency, and lead to system stability or compatibility issue with some memory modules or power supplies.

Please set this item to [Disable] if above issue occurs. Secure Virtual Machine When this option is set to [Enabled], a VMM (Virtual Machine Architecture) can utilize the additional hardware capabilities provided by AMD-V. The default value is [Enabled]. Configuration options: [Enabled] and [Disabled]. 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 Thermal Throttle Use this item to enable CPU internal thermal control mechanism to keep the CPU from overheated. The default value is [Auto]. 41 3.

4.2 Chipset Configuration BIOS SETUP UTILITY Advanced Chipset Settings Onboard HD Audio Front Panel Onboard Lan Primary Graphics Adapter Internal Graphics Mode Share Memory Surround View [Auto] [Auto] [Enabled] [PCI] [UMA] [Auto] [Auto] +F1 F9 F10 ESC Select Screen Select Item Change Option General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2003, American Megatrends, Inc. Onboard HD Audio Select [Auto], [Enabled] or [Disabled] for the onboard HD Audio feature. If you select [Auto], the onboard HD Audio will be disabled when PCI Sound Card is plugged.

Front Panel Select [Auto] or [Disabled] for the onboard HD Audio Front Panel. Onboard Lan This allows you to enable or disable the onboard Lan feature. Primary Graphics Adapter This item will switch the PCI Bus scanning order while searching for video card. It allows you to select the type of Primary VGA in case of multiple video controllers. The default value of this feature is [PCI].

Configuration options: [Onboard], [PCI] and [PCI Express]. Internal Graphics Mode This allows you to adjust internal graphics mode. The default value is [UMA]. Configuration options: [UMA] and [Disabled]. Share Memory This allows you to set share memory feature. The default value is [Auto].

Configuration options: [Auto], [32MB], [64MB], [128MB], [256MB] and [512MB]. This option only appears when you set "Internal Graphics Mode" to [UMA]. Surround View This allows you to enable or disable the Surround View feature. 42 3.

4.3 ACPI Configuration BIOS SETUP UTILITY Advanced ACPI Settings Suspend To RAM Check Ready Bit Away Mode Support Restore on AC / Power Loss Ring-In Power On PCI Devices Power On PS / 2 Keyboard Power On RTC Alarm Power On ACPI HPET Table [Auto] [Auto] [Disabled] [Power Off] [Disabled] [Disabled] [Disabled] [By OS] [Enabled] +F1 F9 F10 ESC Select auto-detect or disable the STR feature. Select Screen Select Item Change Option General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2003, American Megatrends, Inc. Suspend to RAM Use this item to select whether to auto-detect or disable the Suspend-toRAM feature. Select [Auto] will enable this feature if the OS supports it. Check Ready Bit Use this item to enable or disable the feature Check Ready Bit. Away Mode Support Use this item to enable or disable Away Mode support under Windows® XP Media Center OS. The default value is [Disabled]. Restore on AC/Power Loss This allows you to set the power state after an unexpected AC/power loss.

If [Power Off] is selected, the AC/power remains off when the power recovers. If [Power On] is selected, the AC/power resumes and the system starts to boot up when the power recovers. Ring-In Power On Use this item to enable or disable Ring-In signals to turn on the system from the power-soft-off mode. PCI Devices Power On Use this item to enable or disable PCI devices to turn on the system from the power-soft-off mode. PS/2 Keyboard Power On Use this item to enable or disable PS/2 keyboard to turn on the system from the power-soft-off mode.

RTC Alarm Power On Use this item to enable or disable RTC (Real Time Clock) to power on the system. 43 ACPI HPET table Use this item to enable or disable ACPI HPET Table. The default value is [Enabled]. Please set this option to [Enabled] if you plan to use this motherboard to submit Windows® certification. 44 3.

4.4 Storage Configuration BIOS SETUP UTILITY Advanced Storage Configuration Onboard SATA Controller SATA Operation Mode SATA IDE Combined Mode SATAII\_1 SATAII\_2 SATAII\_3 SATAII\_4 [Enabled] [AHCI] [Enabled] [Hard Disk] [Not Detected] [Not Detected] [Not Detected] Select Screen Select Item Change Option General Help Load Defaults Save and Exit Exit Configure onboard serial ATA controller. +F1 F9 F10 ESC v02.54 (C) Copyright 1985-2003, American Megatrends, Inc. Onboard SATA Controller Use this item to enable or disable the "Onboard SATA Controller" feature. SATA Operation Mode Use this item to adjust Onboard SATA Operation Mode. The default value of this option is [AHCI]. Configuration options: [AHCI], [IDE] and [RAID]. If you set this item to RAID mode, it is suggested to install SATA ODD driver on SATAII\_3 (PORT 5) and SATAII\_4 (PORT 6) ports. SATA IDE Combined Mode This item is for SATAII\_3 (PORT 5) and SATAII\_4 (PORT 6) ports.

Use this item to enable or disable SATA IDE combined mode. The default value is [Enabled]. If you want to build RAID on SATAII\_3 (PORT 5) and SATAII\_4 (PORT 6) ports, please disable this item. 45 3.4.5 PCIPnP Configuration BIOS SETUP UTILITY Advanced Advanced PCI / PnP Settings PCI Latency Timer PCI IDE BusMaster [32] [Enabled] Value in units of PCI clocks for PCI device latency timer register. +F1 F9 F10 ESC Select Screen Select Item Change Option General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2003, American Megatrends, Inc.



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Setting wrong values in this section may cause the system to malfunction. PCI Latency Timer The default value is 32.

It is recommended to keep the default value unless the installed PCI expansion cards?specifications require other settings. PCI IDE BusMaster Use this item to enable or disable the PCI IDE BusMaster feature. 46 3.4.6 Super IO Configuration BIOS SETUP UTILITY Advanced Configure Super IO Chipset Serial Port Address Infrared Port Address Parallel Port Address EPP Version ECP Mode UMA Channel Parallel Port IRQ [3F8 / IRQ4] [Disabled] [378] [ECP+EPP] [1.

9] [DMA3] [IRQ7] Allow BIOS to Enable or Disable Floppy Controller. +F1 F9 F10 ESC Select Screen Select Item Change Option General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2003, American Megatrends, Inc. Serial Port Address Use this item to set the address for the onboard serial port. Configuration options: [3F8 / IRQ4] and [3E8 / IRQ4].

Infrared Port Use this item to enable or disable the onboard infrared port. Infrared Port Address Use this item to set the address for the onboard infrared port. Configuration options: [2F8 / IRQ3] and [2E8 / IRQ3]. Parallel Port Address Use this item to set the address for the onboard parallel port. Configuration options: [378] and [278]. Parallel Port Mode Use this item to set the operation mode of the parallel port. The default value is [ECP+EPP]. If this option is set to [ECP+EPP], it will show the EPP version in the following item, "EPP Version". Configuration options: [Normal], [Bi-Directional] and [ECP+EPP]. EPP Version Use this item to set the EPP version.

Configuration options: [1.9] and [1.7]. ECP Mode DMA Channel Use this item to set the ECP mode DMA channel. Configuration options: [DMA0], [DMA1] and [DMA3]. Parallel Port IRQ Use this item to set the IRQ for the parallel port. Configuration options: [IRQ5] and [IRQ7]. 47 3.4.7 USB Configuration BIOS SETUP UTILITY Advanced USB Configuration USB Controller USB 2.

0 Support Legacy USB Support USB Keyboard/Remote Power On USB Mouse Power On [Enabled] [Enabled] [Enabled] [Disabled] [Disabled] To enable or disable the onboard USB controllers. +F1 F9 F10 ESC Select Screen Select Item Change Option General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2005, American Megatrends, Inc. USB Controller Use this item to enable or disable the use of USB controller. USB 2.

0 Support Use this option to enable or disable support for USB 2.0 devices. The default value is [Enabled]. Legacy USB Support Use this option to select legacy support for USB devices. There are four configuration options: [Enabled], [Auto], [Disabled] and [BIOS Setup Only]. The default value is [Enabled]. Please refer to below descriptions for the details of these four options: [Enabled] - Enables support for legacy USB. [Auto] - Enables legacy support if USB devices are connected. [Disabled] - USB devices are not allowed to use under legacy OS and BIOS setup when [Disabled] is selected. If you have USB compatibility issue, it is recommended to select [Disabled] to enter OS. [BIOS Setup Only] - USB devices are allowed to use only under BIOS setup and Windows / Linux OS. USB Keyboard/Remote Power On Use this item to enable or disable the system to wake from S5 using USB Keyboard/Remote. @@ Configuration options: [Full On] and [Automatic Mode]. The default is value [Full On]. @@@@The default is value [Full On].

@@The default is value [Disabled]. Clear Status This option appears only when the case open has been detected. Use this option to keep or clear the record of previous chassis intrusion status. 49 3.6 Boot Screen In this section, it will display the available devices on your system for you to configure the boot settings and the boot priority. Main OC Tweaker BIOS SETUP UTILITY Advanced H/W Monitor Boot Security Exit Boot Settings Boot Settings Configuration 1st Boot Device 2nd Boot Device Hard Disk Drives Removable Drives [1st Floppy Device] [HDD: PM - HDS722580VL] Configure Settings during System Boot. Enter F1 F9 F10 ESC Select Screen Select Item Go to Sub Screen General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2005, American Megatrends, Inc. 3.6.

1 Boot Settings Configuration BIOS SETUP UTILITY Boot Boot Settings Configuration Full Screen Logo AddOn ROM Display Boot From Onboard LAN Bootup Num-Lock [Enabled] [Enabled] [Disabled] [ON] Disabled: Displays normal POST messages. Enabled: Displays OEM Logo instead of POST messages. +F1 F9 F10 ESC Select Screen Select Item Change Option General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2003, American Megatrends, Inc. Full Screen Logo Use this item to enable or disable OEM Logo.

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

Boot From Onboard LAN Use this item to enable or disable the Boot From Onboard LAN feature. Bootup Num-Lock If this item is set to [On], it will automatically activate the Numeric Lock function after boot-up. 50 3.7 Security Screen In this section, you may set or change the supervisor/user password for the system. For the user password, you may also clear it. Main OC Tweaker BIOS SETUP UTILITY Advanced H/W Monitor Boot Security Exit Security Settings Supervisor Password User Password : Not Installed Install or Change the password. Change Supervisor Password Change User Password Enter F1 F9 F10 ESC Select Screen Select Item Change General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2005, American Megatrends, Inc. 51 3.8 Exit Screen Main OC Tweaker BIOS SETUP UTILITY Advanced H/W Monitor Boot Security Exit Exit system setup after saving the changes.

F10 key can be used for this operation. Exit Options Save Changes and Exit Discard Changes and Exit Discard Changes Load BIOS Defaults Load Performance Setup Default Load Power Saving Setup Default Enter F1 F9 F10 ESC Select Screen Select Item Go to Sub Screen General Help Load Defaults Save and Exit Exit v02.54 (C) Copyright 1985-2005, American Megatrends, Inc. Save Changes and Exit When you select this option, it will pop-out the following message, "Save configuration changes and exit setup?" Select [OK] to save the changes and exit the BIOS SETUP UTILITY. Discard Changes and Exit When you select this option, it will pop-out the following message, "Discard changes and exit setup?" Select [OK] to exit the BIOS SETUP UTILITY without saving any changes. Discard Changes When you select this option, it will pop-out the following message, "Discard changes?" Select [OK] to discard all changes. Load BIOS Defaults Load BIOS default values for all the setup questions.



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