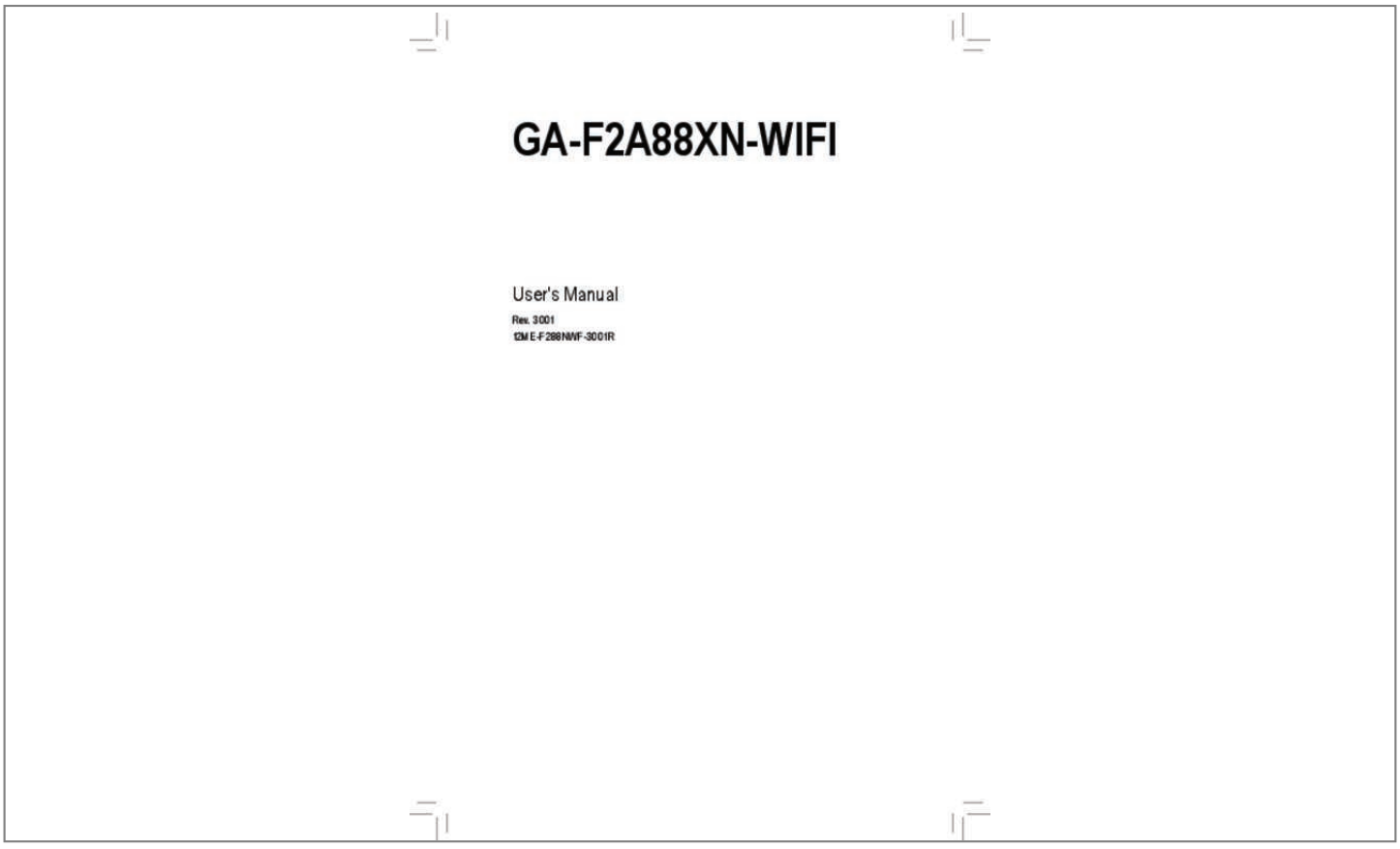

Manual abstract:

@@26, 2013 Aug. @@All rights reserved. @@@@No part of this manual may be reproduced, copied, translated, transmitted, or published in any form or by any means without GIGABYTE's prior written permission. Documentation Classifications In order to assist in the use of this product, GIGABYTE provides the following types of documentations: □□ For quick set-up of the product, read the Quick Installation Guide included with the product. □□ For detailed product information, carefully read the User's Manual. For product-related information, check on our website at: http://www.gigabyte.com Identifying Your Motherboard Revision The revision number on your motherboard looks like this: "REV: X.X." For example, "REV: 1.
0" means the revision of the motherboard is 1.0. Check your motherboard revision before updating motherboard BIOS, drivers, or when looking for technical information. Example: Table of Contents Box Contents..

*product package you The obtain. The box contents are subject to change without notice. Optional Items □□ 2-port USB 2.0 bracket (Part No. 12CR1-1UB030-6*R) □□ eSATA bracket (Part No. 12CF1-3SATPW-4*R) □□ 3.*
*5" Front Panel with 2 USB 3.0/2.0 ports (Part No. 12CR1-FPX582-2*R) □□ HDMI-to-DVI adapter (Part No. 12CT2-HDMI01-1*R) -6- GA-F2A88XN-WIFI Motherboard Layout F_USB30 2 3 SATA3 0 1 ATX KB_MS_USB F_USB1 F_PANEL DOUBLE_HDMI AMD A88X M_BIOS B_BIOS CPU_FAN CLR_CMOS WIFI Module ANTENNA_BRACKET CI Socket FM2+ DVI iTE® Super I/O R_USB30 SYS_FAN Realtek® GbE LAN SPDIF_O BAT USB_LAN AUDIO F_AUDIO ATX_12V DDR3_2 CODEC -7- DDR3_1 PCIEX16 GA-F2A88XN-WIFI GA-F2A88XN-WIFI Motherboard Block Diagram 1 PCI Express x16 APU CLK+/- (100 MHz) DISP CLK+/- (100 MHz) PCIe CLK (100 MHz) LAN RJ45 Realtek® GbE LAN x16 PCI Express Bus DDR3 2133/1866/1600/1333 MHz AMD APU Dual Channel Memory HDMI DVI-D x1 UMI 4 USB 3.*
0/2.0 Dual BIOS 4 SATA 6Gb/s 6 USB 2.0/1.1 AMD A88X LPC iTE® Bus Super I/O PCI Express Bus x1 (for WiFi Module only) PS/2 KB/Mouse Mini PCIe CODEC Center/Subwoofer Speaker Out Rear Speaker Out Side Speaker Out MIC Line Out Line In -8- For detailed product information/limitation(s), refer to "1-2 Product Specifications." S/PDIF Out Chapter 1 Hardware Installation 1-1 Installation Precautions The motherboard contains numerous delicate electronic circuits and components which can become damaged as a result of electrostatic discharge (ESD).
Prior to installation, carefully read the user's manual and follow these procedures: •• Prior to installation, make sure the chassis is suitable for the motherboard. •• Prior to installation, do not remove or break motherboard S/N (Serial Number) sticker or warranty sticker provided by your dealer. These stickers are required for warranty validation. •• Always remove the AC power by unplugging the power cord from the power outlet before installing or removing the motherboard or other hardware components. •• When connecting hardware components to the internal connectors on the motherboard, make sure they are connected tightly and securely. •• When handling the motherboard, avoid touching any metal leads or connectors. •• It is best to wear an electrostatic discharge (ESD) wrist strap when handling electronic components such as a motherboard, CPU or memory. If you do not have an ESD wrist strap, keep your hands dry and first touch a metal object to eliminate static electricity. •• Prior to installing the motherboard, please have it on top of an antistatic pad or within an electrostatic shielding container. •• Before unplugging the power supply cable from the motherboard, make sure the power supply has been turned off.

•• Before turning on the power, make sure the power supply voltage has been set according to the local voltage standard. •• Before using the product, please verify that all cables and power connectors of your hardware components are connected. •• To prevent damage to the motherboard, do not allow screws to come in contact with the motherboard circuit or its components. •• Make sure there are no leftover screws or metal components placed on the motherboard or within the computer casing. •• Do not place the computer system on an uneven surface. •• Do not place the computer system in a high-temperature environment. •• Turning on the computer power during the installation process can lead to damage to system components as well as physical harm to the user. •• If you are uncertain about any installation steps or have a problem related to the use of the product, please consult a certified computer technician. -9- Hardware Installation 1-2 Product Specifications APU □□ FM2+ Socket: - AMD A series processors - AMD Athlon™ series processors (Go to GIGABYTE's website for the latest CPU support list.

) □□ AMD A88X □□ 2 x 1.
*5V DDR3 DIMM sockets supporting up to 64 GB of system memory * □ ue to a Windows 32-bit operating system limitation, when more than 4 GB of physical D memory is installed, the actual memory size displayed will be less than the size of the physical memory installed. * □ he maximum 64 GB of system memory can be supported using 16 GB (or above) T memory modules. GIGABYTE will update the memory support list on the official website when the memory modules are available on the market. Chipset Memory Onboard Graphics □□ Dual channel mem FM2 Trinity APU. T Form Factor □□ Mini-ITX Form Factor; 17.*
*0cm x 17.0cm * □ IGABYTE reserves the right to make any changes to the product specifications and product-related information without G prior notice. * □ lease visit the Support & Downloads\Utility page on GIGABYTE's website to check the supported operating system(s) P for the software listed in the "Unique Features" and "Bundled Software" columns. Hardware Installation - 12 - 1-3 Installing the APU and APU Cooler Read the following guidelines before you begin to install the APU: •• Make sure that the motherboard supports the APU. (Go to GIGABYTE's website for the latest APU support list.*
) •• Always turn off the computer and unplug the power cord from the power outlet before installing the APU to prevent hardware damage. •• Locate the pin one of the APU. The APU cannot be inserted if oriented incorrectly. •• Apply an even and thin layer of thermal grease on the surface of the APU. •• Do not turn on the computer if the APU cooler is not installed, otherwise overheating and damage of the APU may occur. •• Set the APU host frequency in accordance with the APU specifications. It is not recommended that the system bus frequency be set beyond hardware specifications since it does not meet the standard requirements for the peripherals. If you wish to set the frequency beyond the standard specifications, please do so according to your hardware specifications including the APU, graphics card, memory, hard drive, etc. 1-3-1 Installing the APU A. Locate the alignment keys on the motherboard APU socket and the notches on the APU.

A Small Triangle Marking Denotes Pin One of the Socket FM2+ Socket A Small Triangle Marking Denotes APU Pin One APU - 13 - Hardware Installation B. Follow the steps below to correctly install the APU into the motherboard APU socket. •• Before installing the APU, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the APU. •• Do not force the APU into the APU socket. The APU cannot fit in if oriented incorrectly. Adjust the APU orientation if this occurs. Step 1: Completely lift up the APU socket locking lever. APU Socket Locking Lever Step 2: Align the APU pin one (small triangle marking) with the triangle mark on the APU socket and gently insert the APU into the socket. Make sure that the APU pins fit perfectly into their holes. Once the APU is positioned into its socket, place one finger down on the middle of the APU, lowering the locking lever and latching it into the fully locked position.
Hardware Installation - 14 - 1-3-2 Installing the APU Cooler Follow the steps below to correctly install the APU cooler on the motherboard. Step 1: Apply an even and thin layer of thermal grease on the surface of the installed APU. Step 2: Hook the APU cooler clip to the mounting lug on one side of the retention frame. On the other side, push straight down on the APU cooler clip to hook it to the mounting lug on the retention frame. Step 3: Turn the cam handle from the left side to the right side (as the picture above shows) to lock into place.
(Refer to your APU cooler installation manual for instructions on installing the cooler.) Step 4: Finally, attach the power connector of the APU cooler to the APU fan header (CPU_FAN) on the motherboard. Use extreme care when removing the APU cooler because the thermal grease/tape between the APU cooler and APU may adhere to the APU. Inadequately removing the APU cooler may damage the APU. - 15 Hardware Installation 1-4 Installing the Memory Read the following guidelines before you begin to install the memory: •• Make sure that the motherboard supports the memory.
It is recommended that memory of the same capacity, brand, speed, and chips be used. (Go to GIGABYTE's website for the latest supported memory speeds and memory modules.) •• Always turn off the computer and unplug the power cord from the power outlet before installing the memory to prevent hardware damage. •• Memory modules have a foolproof design. A memory module can be installed in only one direction. If you are unable to insert the memory, switch the direction. 1-4-1 Dual Channel Memory Configuration This motherboard provides two DDR3 memory sockets and supports Dual Channel Technology. After the memory is installed, the BIOS will automatically detect the specifications and capacity of the memory. Enabling Dual Channel memory mode will double the original memory bandwidth. The two DDR3 memory sockets are divided into two channels: □Channel A: DDR3_1 □ □Channel B: DDR3_2 □ Due to APU limitations, read the following guidelines before installing the memory in Dual Channel mode.

1. Dual Channel mode cannot be enabled if only one DDR3 memory module is installed. 2. □ hen enabling Dual Channel mode with two memory modules, it is recommended that memory of W the same capacity, brand, speed, and chips be used for optimum performance. Hardware Installation DDR3_2 DDR3_1 - 16 - 1-4-2 Installing a Memory Before installing a memory module, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the memory module. DDR3 and DDR2 DIMMs are not compatible to each other or DDR DIMMs. Be sure to install DDR3 DIMMs on this motherboard. Notch DDR3 DIMM A DDR3 memory module has a notch, so it can only fit in one direction. Follow the steps below to correctly install your memory modules in the memory sockets. Step 1: Note the orientation of the memory module.
Spread the retaining clips at both ends of the memory socket. Place the memory module on the socket. As indicated in the picture on the left, place your fingers on the top edge of the memory, push down on the memory and insert it vertically into the memory socket. Step 2: The clips at both ends of the socket will snap into place when the memory module is securely inserted. - 17 - Hardware Installation 1-5 Installing an Expansion Card Read the following guidelines before you begin to install an expansion card: •• Make sure the motherboard supports the expansion card.
Carefully read the manual that came with your expansion card. •• Always turn off the computer and unplug the power cord from the power outlet before installing an expansion card to prevent hardware damage.

PCI Express x16 Slot Follow the steps below to correctly install your expansion card in the expansion slot. 1. Locate an expansion slot that supports your card.
Remove the metal slot cover from the chassis back panel. 2. Align the card with the slot, and press down on the card until it is fully seated in the slot. 3. Make sure the metal contacts on the card are completely inserted into the slot. 4. Secure the card's metal bracket to the chassis back panel with a screw. 5. After installing all expansion cards, replace the chassis cover(s). 6.

Turn on your computer. If necessary, go to BIOS Setup to make any required BIOS changes for your expansion card(s). 7. Install the driver provided with the expansion card in your operating system. Example: Installing and Removing a PCI Express Graphics Card: •• Installing a Graphics Card: Gently push down on the top edge of the card until it is fully inserted into the PCI Express slot. Make sure the card is securely seated in the slot and does not rock. •• Removing the Card: Gently push back on the lever on the slot and then lift the card straight out from the slot. Hardware Installation - 18 - 1-6 Setup of the AMD Dual Graphics Configuration Combining the onboard GPU with a discrete graphics card, AMD's Dual Graphics technology can provide significantly advanced display performance for AMD platform. Read the following instructions on configuring a Dual Graphics system. A.
System Requirements -- AMD A series processor -- Windows 8/7 operating system -- An AMD Dual Graphics technology-supported motherboard (with the BIOS updated to the latest version) and correct driver (make sure the onboard graphics driver version is Rev. 8.982 or above) -- An AMD Radeon™ HD 6000 series graphics card that supports AMD Dual Graphics technology (for more details, please visit AMD's official website) and correct driver B. Installing the Graphics Cards and Configuring BIOS Setup Step 1: Observe the steps in "1-5 Installing an Expansion Card" and install an AMD Dual Graphics technology-supported graphics card on the PCIEX16 slot. Plug the monitor cable into the graphics card and start up your computer.
Step 2: Enter BIOS Setup to set the following items under the Peripherals\GFX Configuration menu: -- Set Integrated Graphics to Force. -- Set UMA Frame Buffer Size to 512M or above. Save the settings and exit BIOS Setup. Restart your computer. C.
Configuring the Graphics Card Driver After installing the graphics card driver in the operating system, go to the AMD VISION Engine Control Center. Browse to Performance\AMD Radeon™ Dual Graphics and ensure the Enable AMD Radeon Dual Graphics check box is selected. (Note) Make sure the drivers for the Chipset, onboard graphics, and external graphics card are properly installed. Procedure and driver screen for enabling the AMD Dual Graphics technology may differ by graphics card and driver version. Refer to the manual that came with your graphics card for more information. - 19 Hardware Installation 1-7 Back Panel Connectors USB 2.0/1.1 Port The USB port supports the USB 2.0/1.1 specification.

Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc. PS/2 Keyboard/Mouse Port HDMI Port Use this port to connect a PS/2 mouse or keyboard. The HDMI port is HDCP compliant and supports Dolby True HD and DTS HD Master Audio formats. It also supports up to 192KHz/24bit 8-channel LPCM audio output. You can use this port to connect your HDMI-supported monitor. The maximum supported resolution is 4096x2160 (Note), but the actual resolutions supported are dependent on the monitor being used. After installing the HDMI device, make sure to set the default sound playback device to HDMI. (The item name may differ depending on your operating system. The screenshot below is from Windows 8.) In Windows 8, select All apps>Control Panel>Hardware and Sound>Sound>Playback, set AMD High Definition Audio Device to the default playback device. Antenna Connector Use this connector to connect an antenna. Tighten the antenna cables to the antenna connectors and then move the antenna to a place where the signal is good. (Note) The resolution of 4096x2160 can be supported when using an FM2+ APU; the maximum resolution supported is 1920x1200 when using an FM2 APU. - 20 - Hardware Installation DVI-D Port (Note) The DVI-D port conforms to the DVI-D specification and supports a maximum resolution of 2560x1600. Connect a monitor that supports DVI-D connection to this port.
Please note that the actual resolutions supported are dependent on the monitor being used and support for 2560x1600 resolution requires both a monitor and cable that support Dual Link DVI. A. Dual Display Configurations for the Onboard Graphics: Dual display configurations are supported after you install motherboard drivers in OS. B. Playback of Blu-ray™ Discs: In order to get better playback quality, when playing the Blu-ray™ discs, refer to the recommended system requirements (or better) below.
•• AMD A series processors •• Memory: Two 1 GB DDR3 1333 MHz memory modules with dual channel mode enabled •• BIOS Setup: At least 512 MB of UMA Frame Buffer Size (refer to Chapter 2, "BIOS Setup," "Peripherals\ GFX Configuration," for more information) •• Playback software: CyberLink PowerDVD 10.0 or later (Note: Please ensure Hardware Acceleration is enabled. Whether Hardware Acceleration can be enabled for 3D Blu-ray discs is dependent on the APU being used.) •• HDCP compliant monitor(s) USB 3.0/2.0 Port RJ-45 LAN Port The USB 3.0 port supports the USB 3.0 specification and is compatible to the USB 2.0/1.1 specification.

Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc. The Gigabit Ethernet LAN port provides Internet connection at up to 1 Gbps data rate. The following describes the states of the LAN port LEDs. Connection/ Speed LED Activity LED Connection/Speed LED: State Orange Green Off Description 1 Gbps data rate 100 Mbps data rate 10 Mbps data rate Activity LED: State Blinking Off Description Data transmission or receiving is occurring No data transmission or receiving is occurring LAN Port (Note) The DVI-D port does not support D-Sub connection by adapter. - 21 Hardware Installation Center/Subwoofer Speaker Out Jack (Orange) Rear Speaker Out Jack (Black) Optical S/PDIF Out Connector Line In Jack (Blue) Use this audio jack to connect center/subwoofer speakers in a 5.1/7.1-channel audio configuration. This jack can be used to connect front speakers in a 4/5.1/7.1-channel audio configuration.
This connector provides digital audio out to an external audio system that supports digital optical audio. Before using this feature, ensure that your audio system provides an optical digital audio in connector. The line out jack. Use this audio jack for line in devices such as an optical drive, walkman, etc.

Line Out Jack (Green) Mic In Jack (Pink) The line out jack.
Use this audio jack for a headphone or 2-channel speaker. This jack can be used to connect front speakers in a 4/5.1/7.1-channel audio configuration. The default Mic in jack.
Microphones must be connected to this jack. The audio jacks can be reconfigured to perform different functions via the audio software (supported functions for each jack may vary based on hardware specification). If you install a Side Speaker, you need to retask other audio jack to be Side Speaker out. Only microphones still MUST be connected to the default Mic in jack. Refer to the instructions on setting up a 2/4/5.1/7.1-channel audio configuration in Chapter 6, "Configuring 2/4/5.1/7.1-Channel Audio." •• When removing the cable connected to a back panel connector, first remove the cable from your device and then remove it from the motherboard.

•• When removing the cable, pull it straight out from the connector. Do not rock it side to side to prevent an electrical short inside the cable connector. Hardware Installation - 22 - 1-8 Internal Connectors 12 11 8 6 2 7 3 13 4 5 10 9 1 1) 2) 3) 4) 5) 6) 7) ATX_12V ATX CPU_FAN SYS_FAN BAT SATA3 0/1/2/3 CLR_CMOS 8) 9) 10) 11) 12) 13) F_PANEL F_AUDIO SPDIF_O F_USB30 F_USB1 CI Read the following guidelines before connecting external devices: •• First make sure your devices are compliant with the connectors you wish to connect. •• Before installing the devices, be sure to turn off the devices and your computer. Unplug the power cord from the power outlet to prevent damage to the devices. •• After installing the device and before turning on the computer, make sure the device cable has been securely attached to the connector on the motherboard. - 23 Hardware Installation 1/2) ATX_12V/ATX (2x2 12V Power Connector and 2x12 Main Power Connector) With the use of the power connector, the power supply can supply enough stable power to all the components on the motherboard. Before connecting the power connector, first make sure the power supply is turned off and all devices are properly installed. The power connector possesses a foolproof design. Connect the power supply cable to the power connector in the correct orientation.
The 12V power connector mainly supplies power to the APU. If the 12V power connector is not connected, the computer will not start. To meet expansion requirements, it is recommended that a power supply that can withstand high power consumption be used (300W or greater). If a power supply is used that does not provide the required power, the result can lead to an unstable or unbootable system. ATX_12V: 3 1 ATX_12V 4 2 Pin No.
1 2 3 4 Definition GND GND +12V +12V 24 ATX 12 ATX: 13 1 Pin No. 1 2 3 4 5 6 7 8 9 10 11 12 Definition Pin No. 3.3V 13 3.3V 14 GND 15 +5V 16 GND 17 +5V 18 GND 19 Power Good 20 5VSB (stand by +5V) 21 +12V 22 +12V (Only for 2x12-pin 23 ATX) 3.
3V (Only for 2x12-pin 24 ATX) Definition 3.3V -12V GND PS_ON (soft On/Off) GND GND GND -5V +5V +5V +5V (Only for 2x12-pin ATX) GND (Only for 2x12-pin ATX) Hardware Installation - 24 - 3/4) CPU_FAN/SYS_FAN (Fan Headers) All fan headers on this motherboard are 4-pin. Most fan headers possess a foolproof insertion design. When connecting a fan cable, be sure to connect it in the correct orientation (the black connector wire is the ground wire). The speed control function requires the use of a fan with fan speed control design. For optimum heat dissipation, it is recommended that a system fan be installed inside the chassis. CPU_FAN/SYS_FAN: 1 CPU_FAN 1 SYS_FAN Pin No. 1 2 3 4 Definition GND +12V Sense Speed Control •• Be sure to connect fan cables to the fan headers to prevent your APU and system from overheating. Overheating may result in damage to the APU or the system may hang. •• These fan headers are not configuration jumper blocks.

Do not place a jumper cap on the headers. 5) BAT (Battery) The battery provides power to keep the values (such as BIOS configurations, date, and time information) in the CMOS when the computer is turned off. Replace the battery when the battery voltage drops to a low level, or the CMOS values may not be accurate or may be lost. You may clear the CMOS values by removing the battery: 1. Turn off your computer and unplug the power cord. 2. Gently remove the battery from the battery holder and wait for one minute. (Or use a metal object like a screwdriver to touch the positive and negative terminals of the battery holder, making them short for 5 seconds.) 3. Replace the battery.
4. Plug in the power cord and restart your computer. •• Always turn off your computer and unplug the power cord before replacing the battery. •• Replace the battery with an equivalent one. Danger of explosion if the battery is replaced with an incorrect model.
•• Contact the place of purchase or local dealer if you are not able to replace the battery by yourself or uncertain about the battery model. •• When installing the battery, note the orientation of the positive side (+) and the negative side (-) of the battery (the positive side should face up). •• Used batteries must be handled in accordance with local environmental regulations. - 25 Hardware Installation DEBUG PORT DEBUG PORT DEBUG PORT 6) SATA3 0/1/2/3 (SATA 6Gb/s Connectors) The SATA connectors conform to SATA 6Gb/s standard and are compatible with SATA 3Gb/s and SATA 1.5Gb/s standard.
Each SATA connector supports a single SATA device. The AMD A88X Chipset supports RAID 0, RAID 1, RAID 5, RAID 10, and JBOD. Refer to Chapter 3, "Configuring SATA Hard Drive(s)," for instructions on configuring a RAID array. SATA3 1 1 2 3 0 1 7 7 Pin No. 1 2 3 4 5 6 7 Definition GND TXP TXN GND RXN RXP GND •• A RAID 0 or RAID 1 configuration requires at least two hard drives. If more than two hard drives are to be used, the total number of hard drives must be an even number. •• A RAID 5 configuration requires at least three hard drives. (The total number of hard drives does not have to be an even number.) •• A RAID 10 configuration requires four hard drives. 7) CLR_CMOS (Clear CMOS Jumper) Use this jumper to clear the BIOS configuration and reset the CMOS values to factory defaults.

To clear the CMOS values, use a metal object like a screwdriver to touch the two pins for a few seconds. Open: Normal Short: Clear CMOS Values •• Always turn off your computer before clearing the CMOS values. •• After system restart, go to BIOS Setup to load factory defaults (select Load Optimized Defaults) or manually configure the BIOS settings (refer to Chapter 2, "BIOS Setup," for BIOS configurations). Hardware Installation - 26 - 8) F_PANEL (Front Panel Header) 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.

Power LED Power Switch 2 1 HD+ HDRESRES+ NC Hard Drive Activity LED PLED+ PLEDPW+ PW10 9 Reset Switch •• PLED (Power LED, Yellow): System Status LED S0 On S3/S4/S5 Off Connects to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED is off when the system is in S3/ S4 sleep state or powered off (S5). •• PW (Power Switch, Red): Connects to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch (refer to Chapter 2, "BIOS Setup," "Power Management," for more information). •• HD (Hard Drive Activity LED, Blue): Connects to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data. •• RES (Reset Switch, Green): Connects 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. •• NC (Purple): No connection.

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 and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly. - 27 Hardware Installation 9) F_AUDIO (Front Panel Audio Header) The front panel audio header supports Intel High Definition audio (HD) and AC'97 audio. You may connect your chassis front panel audio module to this header.

Make sure the wire assignments of the module connector match the pin assignments of the motherboard header. Incorrect connection between the module connector and the motherboard header will make the device unable to work or even damage it. For HD Front Panel Audio: Pin No. Definition 1 MIC2_L 2 GND 3 MIC2_R 4 -ACZ_DET 5 LINE2_R 6 GND 7 FAUDIO_JD 8 No Pin 9 LINE2_L 10 GND For AC'97 Front Panel Audio: Pin No. Definition 1 MIC 2 GND 3 MIC Power 4 NC 5 Line Out (R) 6 NC 7 NC 8 No Pin 9 Line Out (L) 10 NC 1 2 9 10 •• The front panel audio header supports HD audio by default. If your chassis provides an AC'97 front panel audio module, refer to the instructions on how to activate AC'97 functionality via the audio software in Chapter 6, "Configuring 2/4/5.1/7.1-Channel Audio." •• Audio signals will be present on both of the front and back panel audio connections simultaneously. If you want to mute the back panel audio (only supported when using an HD front panel audio module), refer to Chapter 6, "Configuring 2/4/5.

1/7.1-Channel Audio." •• Some chassis provide a front panel audio module that has separated connectors on each wire instead of a single plug. For information about connecting the front panel audio module that has different wire assignments, please contact the chassis manufacturer. 10) SPDIF_O (S/PDIF Out Header) This header supports digital S/PDIF Out and connects a S/PDIF digital audio cable (provided by expansion cards) for digital audio output from your motherboard to certain expansion cards like graphics cards and sound cards. For example, some graphics cards may require you to use a S/PDIF digital audio cable for digital audio output from your motherboard to your graphics card if you wish to connect an HDMI display to the graphics card and have digital audio output from the HDMI display at the same time. For information about connecting the S/PDIF digital audio cable, carefully read the manual for your expansion card. Pin No. 1 2 Definition SPDIFO GND 1 Hardware Installation - 28 - 11) F_USB30 (USB 3.0/2.

0 Header) The header conforms to USB 3.0/2.0 specification and can provide two USB ports. For purchasing the optional 3.5" front panel that provides two USB 3.

0/2.0 ports, please contact the local dealer. 1 F_USB30 20 11 10 F_AUDIO(H) TPM w/housing Voltage measurement module(X58A-OC) DIP PWM Switc 12) F_USB1 (USB 2.0/1.1 Header) DIP 1 2 3 The header conforms to USB 2.

0/1.1 specification. Each USB header can provide two USB ports via an PCIe power connector (SATA)(X58A-OC) optional USB bracket. For purchasing the optional USB bracket, please contact the local dealer. 9 10 Pin No. 1 2 3 4 5 6 7 Voltage measurement points(G1.Sniper 3) 8 9 10 1 2 Definition Power (5V) Power (5V) USB DXUSB DYUSB DX+ USB DY+ GND BIOS Switcher (SW4) GND No Pin NC PCIe Con •• Do not plug the IEEE 1394 bracket (2x5-pin) cable into the USB 2.0/1.1 header. •• Prior to installing the USB bracket, be sure to turn off your computer and unplug the power cord from the power outlet to prevent damage to the USB bracket.

- 29 Hardware Installation 1 2 3 1 Pin No. 1 2 3 4 5 6 7 8 9 10 Definition VBUS SSRX1SSRX1+ GND SSTX1SSTX1+ GND D1D1+ NC Pin No. Definition 11 D2+ 12 D213 GND 14 SSTX2+ 15 SSTX216 GND DB_PORT 17 SSRX2+ 18 SSRX219 VBUS 20 No Pin BIOS Switch 1 1 13) CI (Chassis Intrusion Header) This motherboard provides a chassis detection feature that detects if the chassis cover has been removed. This function requires a chassis with chassis intrusion detection design. Pin No. Definition 1 Signal 2 GND 1 Hardware Installation - 30 - Chapter 2 BIOS Setup BIOS (Basic Input and Output System) records hardware parameters of the system in the CMOS on the motherboard. Its major functions include conducting the Power-On Self-Test (POST) during system startup, saving system parameters and loading operating system, etc. BIOS includes a BIOS Setup program that allows the user to modify basic system configuration settings or to activate certain system features. When the power is turned off, the battery on the motherboard supplies the necessary power to the CMOS to keep the configuration values in the CMOS. To access the BIOS Setup program, press the <Delete> key during the POST when the power is turned on.

To upgrade the BIOS, use either the GIGABYTE Q-Flash or @BIOS utility. •• Q-Flash allows the user to quickly and easily upgrade or back up BIOS without entering the operating system. •• @BIOS is a Windows-based utility that searches and downloads the latest version of BIOS from the Internet and updates the BIOS. For instructions on using the Q-Flash and @BIOS utilities, refer to Chapter 5, "BIOS Update Utilities." •• Because BIOS flashing is potentially risky, if you do not encounter problems using the current version of BIOS, it is recommended that you not flash the BIOS.

To flash the BIOS, do it with caution. Inadequate BIOS flashing may result in system malfunction. •• It is recommended that you not alter the default settings (unless you need to) to prevent system instability or other unexpected results. Inadequately altering the settings may result in system's failure to boot. If this occurs, try to clear the CMOS values and reset the board to default values.

(Refer to the "Load Optimized Defaults" section in this chapter or introductions of the battery/clear CMOS jumper in Chapter 1 for how to clear the CMOS values.

) - 31 - BIOS Setup 2-1 Startup Screen The following startup Logo screen will appear when the computer boots. Function Keys Function Keys: <DEL>: BIOS SETUP\Q-FLASH Press the <Delete> key to enter BIOS Setup or to access the Q-Flash utility in BIOS Setup. <F9>: SYSTEM INFORMATION Press the <F9> key to display your system information. <F12>: BOOT MENU Boot Menu allows you to set the first boot device without entering BIOS Setup. In Boot Menu, use the up arrow key <h> or the down arrow key <i> to select the first boot device, then press <Enter> to accept. The system will boot from the device immediately. Note: The setting in Boot Menu is effective for one time only. After system restart, the device boot order will still be based on BIOS Setup settings. <END>: Q-FLASH Press the <End> key to access the Q-Flash utility directly without having to enter BIOS Setup first.

BIOS Setup - 32 - 2-2 The Main Menu On the main menu of the BIOS Setup program, press arrow keys to move among the items and press <Enter> to accept or enter a sub-menu. Or you can use your mouse to select the item you want. (Sample BIOS Version: F1a) Setup Menus Enter Q-Flash Select Default Language Help Function Keys Configuration Items Current Settings BIOS Setup Program Function Keys <f><g> <h><i> <Enter> <+>/<Page Up> <->/<Page Down> <F5> <F7> <F8> <F9> <F10> <F12> <Esc> Move the selection bar to select a setup menu Move the selection bar to select an configuration item on a menu Execute command or enter a menu Increase the numeric value or make changes Decrease the numeric value or make changes Restore the previous BIOS settings for the current submenus Load the Optimized BIOS default settings for the current submenus Access the Q-Flash utility Display system information Save all the changes and exit the BIOS Setup program Capture the current screen as an image and save it to your USB drive Main Menu: Exit the BIOS Setup program Submenus: Exit current submenu - 33 - BIOS Setup BIOS Setup Menus □□ M.I.T. Use this menu to configure the clock, frequency, and voltages of your CPU and memory, etc. Or check the system/CPU temperatures, voltages, and fan speeds. Use this menu to configure the default language used by the BIOS and system time and date. □□ System Information □□ BIOS Features □□ Peripherals Use this menu to configure the device boot order, advanced features available on the CPU, and the primary display adapter. Use this menu to configure all peripheral devices, such as SATA, USB, integrated audio, and integrated LAN, etc.

Use this menu to configure all the power-saving functions. □□ Power Management □□ Save & Exit Save all the changes made in the BIOS Setup program to the CMOS and exit BIOS Setup. You can save the current BIOS settings to a profile or load optimized defaults for optimal-performance system operations. •• When the system is not stable as usual, select the Load Optimized Defaults item to set your system to its defaults. •• The BIOS Setup menus described in this chapter are for reference only and may differ by BIOS version.

BIOS Setup - 34 - 2-3 M.I.T. Whether the system will work stably with the overclock/overvoltage settings you made is dependent on your overall system configurations. Incorrectly doing overclock/overvoltage may result in damage to CPU, chipset, or memory and reduce the useful life of these components. This page is for advanced users only and we recommend you not to alter the default settings to prevent system instability or other unexpected results. (Inadequately altering the settings may result in system's failure to boot. If this occurs, clear the CMOS values and reset the board to default values.) This section provides information on the BIOS version, CPU base clock, CPU frequency, memory frequency, total memory size, CPU temperature, Vcore, and memory voltage. - 35 - BIOS Setup ``M.I.T. Current Status This screen provides information on CPU/memory frequencies/parameters. ``Advanced Frequency Settings && BCLK/PCIe Clock Control Allows you to manually set the CPU base clock and PCIe bus frequency in 1 MHz increments. (Default: Auto) Important: It is highly recommended that the CPU frequency be set in accordance with the CPU specifications.

Allows you to manually set the CPU North Bridge frequency. The adjustable range is from 800 MHz to 6000 MHz. Allows you to set the onboard graphics clock. The adjustable range is from 300 MHz to 2000 MHz. && NB Clock(Mhz) && Processor Graphics Clock && CPU Clock Ratio Allows you to alter the clock ratio for the installed CPU. The adjustable range is dependent on the CPU being installed. Displays the current operating CPU frequency. && CPU Frequency BIOS Setup - 36 - ``Advanced CPU Core Features && CPU Clock Ratio, CPU Frequency The settings above are synchronous to those under the same items on the Advanced Frequency Settings menu. Allows you to determine whether to enable the Core Performance Boost (CPB) technology, a CPU performance-boost technology. (Default: Auto) Allows you to determine whether to improve CPU performance.
(Default: Disabled) && Core Performance Boost (Note) && Turbo CPB (Note) && CPB Ratio (Note) Allows you alter the ratio for the CPB. The adjustable range is dependent on the CPU being installed. (Default: Auto) □Enabled □ □ Lets the AMD Cool'n'Quiet driver dynamically adjust the CPU clock and VID to reduce heat output from your computer and its power consumption. (Default) □Disabled □ Disables this function. Virtualization enhanced by Virtualization Technology will allow a platform to run multiple operating systems and applications in independent partitions.
With virtualization, one computer system can function as multiple virtual systems. (Default: Enabled) Allows you to determine whether to let the CPU enter C6 mode in system halt state. When enabled, the CPU core frequency will be reduced during system halt state to decrease power consumption. The C6 state is a more enhanced power-saving state than C1. (Default: Enabled) && Cool&Quiet && SVM Mode && C6 Mode (Note) This item is present only when you install a CPU that supports this feature.
- 37 BIOS Setup && CPU Core Control Allows you to determine whether to manually enable/disable CPU cores. Automatic mode allows the BIOS to enable all CPU cores (number of cores available depends on the CPU being used). (Default: Automatic mode) Enables or disables Application Power Management. (Default: Enabled) && APM && Extreme Memory Profile (X.M.P.) (Note) Allows the BIOS to read the SPD data on XMP memory module(s) to enhance memory performance when enabled. □Disabled □ Disables this function.

(Default) □Profile1 □ Uses Profile 1 settings. □Profile2 (Note) Uses Profile 2 settings.

□ Allows the BIOS to read the SPD data on AMP memory module(s) to enhance memory performance when enabled. (Default: Disabled) Allows you to set the system memory multiplier. Auto sets memory multiplier according to memory SPD data. (Default: Auto) This value is automatically adjusted according to the BCLK/PCIe Clock Control and System Memory Multiplier settings. && AMD Memory Profile (A.M.P.) (Note) && System Memory Multiplier && Memory Frequency (MHz) (Note) This item is present only when you install a memory module that supports this feature. - 38 - BIOS Setup ``Advanced Memory Settings && Extreme Memory Profile (X.M.
P.) (Note), System Memory Multiplier, Memory Frequency(MHz) The settings above are synchronous to those under the same items on the Advanced Frequency Settings menu. && DRAM Timing Selectable && Profile DDR Voltage Quick and Expert allows the memory timing settings below to be configurable. Options are: Auto (default), Quick, Expert. When using a non-XMP memory module or Extreme Memory Profile (X.
M.P.) is set to Disabled, this item will display as 1.50V. When Extreme Memory Profile (X.
M.P.) is set to Profile1 or Profile2, this item will display the value based on the SPD data on the XMP memory. The value displayed here is dependent on the CPU being used. && Profile VTT Voltage && Rank Interleaving && Channel Interleaving Enables or disables memory rank interleaving. Enabled allows the system to simultaneously access different ranks of the memory to increase memory performance and stability. (Default: Enabled) Enables or disables memory channel interleaving. Enabled allows the system to simultaneously access different channels of the memory to increase memory performance and stability. (Default: Enabled) (Note) This item is present only when you install a memory module that supports this feature. - 39 BIOS Setup ``Channel A/B Timing Settings This sub-menu provides memory timing settings for each channel of memory.

The respective timing setting screens are configurable only when DRAM Timing Selectable is set to Quick or Expert. Note: Your system may become unstable or fail to boot after you make changes on the memory timings. If this occurs, please reset the board to default values by loading optimized defaults or clearing the CMOS values. ``Advanced Voltage Settings This sub-menu allows you to set CPU, chipset and memory voltages. BIOS Setup - 40 - ``PC Health Status && Reset Case Open Status □Disabled Keeps or clears the record of previous chassis intrusion status. (Default) □ □Enabled □ □ Clears the record of previous chassis intrusion status and the Case Open field will show "No" at next boot. Displays the detection status of the chassis intrusion detection device attached to the motherboard CI header. If the system chassis cover is removed, this field will show "Yes", otherwise it will show "No". To clear the chassis intrusion status record, set Reset Case Open Status to Enabled, save the settings to the CMOS, and then restart your system. Displays the current system voltages.
&& Case Open && CPU Vcore/Dram Voltage/+3.3V/+5V/+12V && CPU/System Temperature && CPU/System Fan Speed && CPU Fan Speed Control Displays current CPU/system temperature. Displays current CPU/system fan speed. Allows you to determine whether to enable the fan speed control function and adjust the fan speed. □Normal □ □ Allows the fan to run at different speeds according to the CPU temperature.
You can adjust the fan speed with EasyTune based on your system requirements. (Default) □Silent □ Allows the fan to run at slow speeds. □Manual Allows you to control the fan speed under the Slope PWM item. □ □Disabled Allows the fan to run at full speeds. □ Allows you to control the CPU fan speed.
This item is configurable only when CPU Fan Speed Control is set to Manual. Options are: 0.75 PWM value /oC ~ 2.50 PWM value /oC. && Slope PWM - 41 - BIOS Setup && System Fan Speed Control Allows you to determine whether to enable the fan speed control function and adjust the fan speed. □Normal □Allows the fan to run at different speeds according to the system temperature. You can adjust □ the fan speed with EasyTune based on your system requirements. (Default) □Silent □ Allows the fan to run at slow speeds. □Manual Allows you to control the fan speed under the Slope PWM item. □ □Disabled Allows the fan to run at full speeds.

□ Allows you to control the system fan speed. This item is configurable only when System Fan Speed Control is set to Manual. Options are: 0.75 PWM value /oC ~ 2.50 PWM value /oC. && Slope PWM BIOS Setup - 42 - 2-4 System Information This section provides information on your motherboard model and BIOS version. You can also select the default language used by the BIOS and manually set the system time. && System Language && System Date Selects the default language used by the BIOS. && System Time Sets the system date. The date format is week (read-only), month, date, and year.
Use <Enter> to switch between the Month, Date, and Year fields and use the <Page Up> or <Page Down> key to set the desired value. Sets the system time. The time format is hour, minute, and second. For example, 1 p.m.
is 13:0:0. Use <Enter> to switch between the Hour, Minute, and Second fields and use the <Page Up> or <Page Down> key to set the desired value. Displays the current access level depending on the type of password protection used. (If no password is set, the default will display as Administrator.) The Administrator level allows you to make changes to all BIOS settings; the User level only allows you to make changes to certain BIOS settings but not all. && Access Level - 43 - BIOS Setup 2-5 BIOS Features && Boot Option Priorities Specifies the overall boot order from the available devices. For example, you can set hard drive as the first priority (Boot Option #1) and DVD ROM drive as the second priority (Boot Option #2). The list only displays the device with the highest priority for a specific type. For example, only hard drive defined as the first priority on the Hard Drive BBS Priorities submenu will be presented here. Removable storage devices that support GPT format will be prefixed with "UEFI:" string on the boot device list. To boot from an operating system that supports GPT partitioning, select the device prefixed with "UEFI:" string. Or if you want to install an operating system that supports GPT partitioning such as Windows 7 64-bit, select the optical drive that contains the Windows 7 64-bit installation disk and is prefixed with "UEFI:" string. - 44 - BIOS Setup && Hard Drive/CD/DVD ROM Drive/Floppy Drive/Network Device BBS Priorities Specifies the boot order for a specific device type, such as hard drives, optical drives, floppy disk drives, and devices that support Boot from LAN function, etc.

Press <Enter> on this item to enter the submenu that presents the devices of the same type that are connected. This item is present only if at least one device for this type is installed.

Enables or disables Numlock feature on the numeric keypad of the keyboard after the POST. (Default: Enabled) Specifies whether a password is required every time the system boots, or only when you enter BIOS Setup. After configuring this item, set the password(s) under the Administrator Password/User Password item. □Setup □ password is only required for entering the BIOS Setup program. □ A □System □ password is required for booting the system and for entering the BIOS Setup □ A program. (Default) Allows you to determine whether to display the GIGABYTE Logo at system startup. Disabled skips the GIGABYTE Logo when the system starts up. (Default: Enabled) Allows you to select the operating system to be installed. (Default: Other OS) && Bootup NumLock State && Security Option && Full Screen LOGO Show && OS Type && CSM Support Enables or disables UEFI CSM (Compatibility Support Module) to support a legacy PC boot process. □Always □ Enables UEFI CSM.
(Default) □Never □ Disables UEFI CSM and supports UEFI BIOS boot process only. This item is configurable only when OS Type is set to Windows 8. Allows you to select which type of operating system to boot. □UEFI and Legacy □ □ Allows booting from operating systems that support legacy option ROM or UEFI option ROM. (Default) □Legacy Only □ □ Allows booting from operating systems that only support legacy Option ROM.
□UEFI Only □ □ Allows booting from operating systems that only support UEFI Option ROM. This item is configurable only when CSM Support is set to Always. Allows you to select whether to enable the legacy option ROM for the LAN controller. (Default: Disabled) This item is configurable only when CSM Support is set to Always. && Boot Mode Selection && LAN PXE Boot Option ROM && Storage Boot Option Control Allows you to select whether to enable the UEFI or legacy option ROM for the storage device controller.
□Disabled □ Disables option ROM. □Legacy Only □ Enables legacy option ROM only. (Default) □UEFI Only □ Enables UEFI option ROM only. □Legacy First □ Enables legacy option ROM first. □UEFI First □ Enables UEFI option ROM first. This item is configurable only when CSM Support is set to Always. - 45 - BIOS Setup && Other PCI Device ROM Priority Allows you to select whether to enable the UEFI or Legacy option ROM for the PCI device controller other than the LAN, storage device, and graphics controllers. □Legacy OpROM □ Enables legacy option ROM only. □UEFI OpROM □ Enables UEFI option ROM only. (Default) Disables or enables booting from the network to install a GPT format OS, such as installing the OS from the Windows Deployment Services server.

(Default: Disable Link) Enables or disables IPv4 PXE Support. This item is configurable only when Network stack is enabled. Enables or disables IPv6 PXE Support. This item is configurable only when Network stack is enabled. && Network stack && Ipv4 PXE Support && Ipv6 PXE Support && Administrator Password Allows you to configure an administrator password. Press <Enter> on this item, type the password, and then press <Enter>. You will be requested to confirm the password. Type the password again and press <Enter>. You must enter the administrator password (or user password) at system startup and when entering BIOS Setup. Differing from the user password, the administrator password allows you to make changes to all BIOS settings.
Allows you to configure a user password. Press <Enter> on this item, type the password, and then press <Enter>. You will be requested to confirm the password. Type the password again and press <Enter>. You must enter the administrator password (or user password) at system startup and when entering BIOS Setup.
However, the user password only allows you to make changes to certain BIOS settings but not all. To cancel the password, press <Enter> on the password item and when requested for the password, enter the correct one first. When prompted for a new password, press <Enter> without entering any password. Press <Enter> again when prompted to confirm. && User Password BIOS Setup - 46 - 2-6 Peripherals && IOMMU Enables or disables AMD IOMMU support.
(Default: Disabled) Enables or disables the integrated SATA controllers. (Default: Enabled) && OnChip SATA Channel && OnChip SATA Type Enables or disables RAID for the SATA controllers integrated in the Chipset or configures the SATA controllers to AHCI mode. □Native IDE □ Configures the SATA controller to IDE mode. □RAID □ Enables RAID for the SATA controller. □AHCI □ C □ onfigures the SATA controllers to AHCI mode. Advanced Host Controller Interface (AHCI) is an interface specification that allows the storage driver to enable advanced Serial ATA features such as Native Command Queuing and hot plug. (Default) Enables or disables the integrated USB controller. (Default: Enabled) && OnChip USB Controller && HD Audio Azalia Device Enables or disables the onboard audio function. (Default: Enabled) If you wish to install a 3rd party add-in audio card instead of using the onboard audio, set this item to Disabled. Enables or disables the onboard LAN function.

(Default: Enabled) If you wish to install a 3rd party add-in network card instead of using the onboard LAN, set this item to Disabled. Allows USB keyboard/mouse to be used in MS-DOS. (Default: Enabled) && Onboard LAN Controller && Legacy USB Support - 47 - BIOS Setup && XHCI Hand-off Determines whether to enable XHCI Hand-off feature for an operating system without XHCI Hand-off support. (Default: Enabled) Determines whether to enable EHCI Hand-off feature for an operating system without EHCI Hand-off support. (Default: Disabled) Enables or disables emulation of I/O ports 64h and 60h. This should be enabled for full legacy support for USB keyboards/mice in MS-DOS or in operating system that does not natively support USB devices. (Default: Disabled) Displays a list of connected USB mass storage devices. This item appears only when a USB storage device is installed. && EHCI Hand-off && Port 60/64 Emulation && USB Storage Devices ``GFX Configuration && Primary Video Device Specifies the first initiation of the monitor display from the installed PCI Express graphics card or the onboard graphics. □IGD Video □ Sets the onboard graphics as the first display.
□NB PCIe Slot Video □ □ Sets the PCI Express graphics card on the PCI Express slot controlled by the North Bridge as the first display. (Default) Enables or disables the onboard graphics function.

□Auto □The BIOS will automatically enable or disable the onboard graphics depending on □ the graphics card being installed. (Default) □Disabled □ Disables the onboard graphics. □Force □ □ Always activates the onboard graphics, whether or not a PCI Express card is installed.

- 48 - && Integrated Graphics BIOS Setup && UMA Frame Buffer Size This item is configurable only when Integrated Graphics is set to Force. Frame buffer size is the total amount of system memory allocated solely for the onboard graphics controller. MS-DOS, for example, will use only this memory for display. Options are: Auto (default), 256M, 512M, 1G, 2G. ``ATA Port Information This section provides information on the device connected to each SATA port controlled by AMD Chipset.

``SATA Configuration && SATA Hot Plug on PORT0~SATA Hot Plug on PORT3 Enables or disable the hot plug capability for each SATA port. (Default: Disabled) Enables or disables each SATA port. (Default: Enabled) && SATA Power on PORT0~SATA Power on PORT3 - 49 - BIOS Setup 2-7 Power Management && Resume by Alarm Determines whether to power on the system at a desired time. (Default: Disabled) If enabled, set the date and time as following: □Wake up day: Turn on the system at a specific time on each day or on a specific day in a month. □ □Wake up hour/minute/second: Set the time at which the system will be powered on automatically. □ Note: When using this function, avoid inadequate shutdown from the operating system or removal of the AC power, or the settings may not be effective. Enables or disables High Precision Event Timer (HPET) for Windows 8/7 operating system.

@@@@@@@@@@@@@@@@@@@@@@@@@@@@□Disabled □ Disables this function. @@@@□Any key □ Press any key to turn on the system. Set the password when Power On By Keyboard is set to Password.

@@To turn on the system, enter the password and press <Enter>. Note: To cancel the password, press <Enter> on this item. @@Allows the system to be turned on by a PS/2 mouse wake-up event. @@□Disabled □ Disables this function. (Default) □Move □ Move the mouse to turn on the system.

@@@@@@This saves the changes to the CMOS and exits the BIOS Setup program. Select No or press <Esc> to return to the BIOS Setup Main Menu. Press <Enter> on this item and select Yes. @@Select No or press <Esc> to return to the BIOS Setup Main Menu. @@@@Always load the Optimized defaults after updating the BIOS or after clearing the CMOS values.

Allows you to select a device to boot immediately. Press <Enter> on the device you select and select Yes to confirm. Your system will restart automatically and boot from that device. This function allows you to save the current BIOS settings to a profile. You can create up to 8 profiles and save as Setup Profile 1~ Setup Profile 8.

Press <Enter> to complete. Or you can select Select File in HDD/USB/FDD to save the profile to your storage device. If your system becomes unstable and you have loaded the BIOS default settings, you can use this function to load the BIOS settings from a profile created before, without the hassles of reconfiguring the BIOS settings. First select the profile you wish to load and then press <Enter> to complete. You can select Select File in HDD/USB/FDD to input the profile previously created from your storage device or load the profile automatically created by the BIOS, such as reverting the BIOS settings to the last settings that worked properly (last known good record).

*&& Exit Without Saving && Load Optimized Defaults && Boot Override && Save Profiles && Load Profiles BIOS Setup - 52 - Chapter 3 Configuring SATA Hard Drive(s) RAID Levels RAID 0 Minimum ≥2 Number of Hard Drives Array Capacity Number of hard drives * Size of the smallest drive Fault Tolerance No RAID 1 2 Size of the smallest drive Yes RAID 5 ≥3 (Number of hard drives -1) * Size of the smallest drive Yes RAID 10 ≥4 (Number of hard drives/2) * Size of the smallest drive Yes To configure SATA hard drive(s), follow the steps below: A. B. C. D. Install SATA hard drive(s) in your computer. Configure SATA controller mode in BIOS Setup. Configure a RAID array in RAID BIOS (Note 1) Install the SATA RAID/AHCI driver and operating system (Note 2) Before you begin •• At least two SATA hard drives (to ensure optimal performance, it is recommended that you use two hard drives with identical model and capacity). If you do not want to create RAID, you may prepare only one hard drive. •• Windows 8/7/XP (32-bit) setup disk. •• Motherboard driver disk.*

•• A USB flash drive. •• A USB floppy disk drive (needed during Windows XP installation). •• An empty formatted floppy disk (needed during Windows XP installation). 3-1 Configuring SATA Controllers A. Installing SATA hard drive(s) in your computer Attach one end of the SATA signal cable to the rear of the SATA hard drive and the other end to available SATA port on the motherboard. Then connect the power connector from your power supply to the hard drive. (Note 1) Skip this step if you do not want to create RAID array on the SATA controller. (Note 2) Required when the SATA controller is set to AHCI or RAID mode. - 53 Configuring SATA Hard Drive(s) B. Configuring SATA controller mode in BIOS Setup Make sure to configure the SATA controller mode correctly in system BIOS Setup.

Step 1: Turn on your computer and press <Delete> to enter BIOS Setup during the POST (Power-On Self-Test). Ensure OnChip SATA Channel is enabled under Peripherals. Set OnChip SATA Type to RAID (Figure 1). Figure 1 Step 2: If you want to configure UEFI RAID, follow the steps in "C-1." To enter the legacy RAID ROM, save the settings and exit BIOS Setup.

Refer to "C-2" for more information. The BIOS Setup menus described in this section may differ from the exact settings for your motherboard. The actual BIOS Setup menu options you will see shall depend on the motherboard you have and the BIOS version. Configuring SATA Hard Drive(s) - 54 - C-1. UEFI RAID Configuration This mode supports Windows 8 64-bit installation only.

To configure UEFI RAID, you need to prepare a USB flash drive using FAT 32 file format and copy all files (including the UEFI RAID utility rcadm.efi) in the \BootDrv\UEFI RAID Utility folder in your motherboard driver disk to the flash drive. Then follow the steps below. Steps: In BIOS Setup, go to BIOS Features and set OS Type to Windows 8 and CSM Support to Never (Figure 2). Save the changes and exit BIOS Setup. Figure 2 Running the UEFI RAID Utility Restart your computer and press <F12> to enter the boot device configuration menu. Use the up or down arrow key to select your USB flash drive which is prefixed with "UEFI:" string. Then press <Enter> to access the screen as shown in Figure 3. To run the UEFI RAID utility, enter the following commands.