Your PDF Guides

You can read the recommendations in the user guide, the technical guide or the installation guide for GIGABYTE GA-F2A88XM-HD3. You'll find the answers to all your questions on the GIGABYTE GA-F2A88XM-HD3 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual GIGABYTE GA-F2A88XM-HD3
User guide GIGABYTE GA-F2A88XM-HD3
Operating instructions GIGABYTE GA-F2A88XM-HD3
Instructions for use GIGABYTE GA-F2A88XM-HD3
Instruction manual GIGABYTE GA-F2A88XM-HD3

GA-F2A88XM-HD3

User's Manual
Rev. 3001
12ME-F288HD3-3001R

Manual abstract:

@@23, 2013 Aug. 23, 2013 Copyright © 2013 GIGA-BYTE TECHNOLOGY CO., LTD. All rights reserved. @@@@@@□□ In order to assist in the use of this product, 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 GA-F2A88XM-HD3 Motherboard Layout..

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GA-F2A88XM-HD3 Motherboard Layout

KB_MS_USB VGA ATX_12V Socket FM2+ ATX DVI USB_HDMI CPU_FAN USB30_LAN CI DDR3_2 Realtek® GbE LAN PCIEX16 GA-F2A88XM-HD3 M_BIOS B_BIOS AMD A88X PCI CODEC SPDIF_O PCIEX4 SATA3 1 CLR_CMOS SATA3 0 F_AUDIO COM LPT F_USB2 F_USB1 F_PANEL F_USB30

Box Contents
☐ GA-F2A88XM-HD3 motherboard
☐ Motherboard driver disk
☐ User's Manual
☐ Two SATA cables
☐ I/O Shield

The box contents above are for reference only and the actual items shall depend on the product package you obtain. The box contents are subject to change without notice.

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SATA3 2 3 SATA3 4 5 iTE® Super I/O PCIEX1 SATA3 AUDIO BAT DDR3_1 6 7 SYS_FAN

GA-F2A88XM-HD3 Motherboard Block Diagram

1 PCI Express x16 1 PCI Express x4 APU CLK+/- (100 MHz) DISP CLK+/- (100 MHz) DDR3 2133/1866/1600/1333 MHz PCIe CLK (100 MHz) AMD APU Dual Channel Memory HDMI x4 PCI Express Bus x16 DVI-D D-Sub UMI LAN 1 PCI Express x1 PCIe CLK (100 MHz) RJ45 Realtek® GbE LAN Dual BIOS 8 SATA 6Gb/s 4 USB 3.0/2.0 8 USB 2.0/1.1 x1 PCI Express Bus x1 AMD A88X PCI Bus LPC Bus CODEC COM iTE® Super I/O LPT PS/2 KB/Mouse MIC (Center/Subwoofer Speaker Out) Line Out (Front Speaker Out) Line In (Rear Speaker Out)

-5- 1 PCI PCI CLK (33 MHz) 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.

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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
* Due to a Windows 32-bit operating system limitation, when more than 4 GB of physical memory is installed, the actual memory size displayed will be less than the size of the physical memory installed.
* The maximum 64 GB of system memory can be supported using 16 GB (or above) 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 memory architecture Support for DDR3 2133/1866/1600/1333 MHz memory modules Support for AMD Memory Profile (AMP)/Extreme Memory Profile (XMP) memory modules (Go to GIGABYTE's website for the latest supported memory speeds and memory modules.)

APU with integrated AMD Radeon™ HD 8000/7000 series graphics:
- 1 x D-Sub port, supporting a maximum resolution of 1920x1200
- 1 x DVI-D port, supporting a maximum resolution of 2560x1600
* To use the onboard graphics ports, you must install an AMD APU with integrated graphics.
- * Support for 2560x1600 resolution requires both a monitor and cable that support Dual Link DVI.
* The DVI-D port does not support D-Sub connection by adapter.
* The resolution of 4096x2160 can be supported when using an FM2+ APU; the maximum resolution supported is 1920x1200 when using an FM2 APU.
* Support for HDMI 1.4a version.
- 1 x HDMI port, supporting a maximum resolution of 4096x2160

Audio ☐ ☐ ☐ ☐ - Maximum shared memory of 2 GB Realtek® ALC887 codec High Definition Audio 2/4/5.1/7.1-channel Support for S/PDIF Out
* To configure 7.

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1-channel audio, you have to use an HD front panel audio module and enable the multi-channel audio feature through the audio driver. LAN □ Realtek® GbE LAN chip (10/100/1000 Mbit) * □ optimum performance, if only one PCI Express graphics card is to be installed, For be sure to install it in the PCIEX16 slot. * To support PCI Express 3.0, you must install an FM2+ APU. Expansion Slots □□ 1 x PCI Express x16 slot, running at x16 (PCIEX16) □ □ Multi-Graphics Technology □ □ (The PCIEX16 slot conforms to PCI Express 3.0 standard.

) 1 x PCI Express x16 slot, running at x4 (PCIEX4) 1 x PCI Express x1 slot (The PCIEX4 and PCI Express x1 slots conform to PCI Express 2.0 standard.) 1 x PCI slot Support for AMD Dual Graphics technology * Only A series APUs support AMD Dual Graphics. -7- Storage Interface □ USB □ Internal Connectors Back Panel Connectors □ Chipset: 8 x SATA 6Gb/s connectors - Support for RAID 0, RAID 1, RAID 5, RAID 10, and JBOD Chipset: - 4 USB 3.0/2.

0 ports (2 ports on the back panel, 2 ports available through the internal USB header) - 8 USB 2.0/1.1 ports (4 ports on the back panel, 4 ports available through the internal USB headers) 1 x 24-pin ATX main power connector 1 x 8-pin ATX 12V power connector 8 x SATA 6Gb/s connectors 1 x APU fan header 1 x system fan header 1 x front panel header 1 x front panel audio header 1 x S/PDIF Out header 1 x USB 3.0/2.0 header 2 x USB 2.

0/1.1 headers 1 x serial port header 1 x parallel port header 1 x chassis intrusion header 1 x Clear CMOS jumper 1 x PS/2 keyboard/mouse port 1 x D-Sub port 1 x DVI-D port 1 x HDMI port 2 x USB 3.0/2.0 ports 4 x USB 2.0/1.1 ports 1 x RJ-45 port 3 x audio jacks (Line In, Line Out, Mic In) iTE® I/O Controller Chip System voltage detection APU/System temperature detection APU/System fan speed detection APU/System fan speed control * Whether the fan speed control function is supported will depend on the cooler you install. 2 x 64 Mbit flash Use of licensed AMI EFI BIOS Support for DualBIOS™ PnP 1.0a, DMI 2.0, SM BIOS 2.6, ACPI 2.

0a I/O Controller Hardware Monitor BIOS □ □ □ □ -8- Unique Features □ □ □ □ □ Bundled Software Operating System □ □ □ Form Factor □ Support for @BIOS Support for Q-Flash Support for Xpress Install Support for EasyTune * Available functions in EasyTune may differ by motherboard model. Support for Smart Recovery 2 Support for ON/OFF Charge Norton® Internet Security (OEM version) Support for Windows 8.1/8/7 32-bit/64-bit Support for Windows XP-32bit * If you plan to install Windows 8.1, please download the latest drivers from GIGABYTE's website. * To support Windows XP 32-bit, you must install an AMD FM2 Trinity APU. Micro ATX Form Factor; 24.4cm x 17.4cm * □ GIGABYTE reserves the right to make any changes to the product specifications and product-related information without prior notice. * Please visit the Support & Downloads\Utility page on GIGABYTE's website to check the supported operating system(s) for the software listed in the "Unique Features" and "Bundled Software" columns. 1-3 Installing the APU ReaS 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. - 10 - 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. 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 D-Sub Port Use this port to connect a PS/2 mouse or keyboard. The D-Sub port supports a 15-pin D-Sub connector and supports a maximum resolution of 1920x1200 (the actual resolutions supported depend on the monitor being used). Connect a monitor that supports D-Sub connection to this port. DVI-D Port (Note 1) 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. HDMI Port 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 2), 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. A. Triple Display Configurations: Triple-display configurations are supported after you install motherboard drivers in OS. Only dual-display configurations are supported during the BIOS Setup or POST process. (Note 1) The DVI-D port does not support D-Sub connection by adapter. (Note 2) The resolution of 4096x2160 can be supported when using an FM2+ APU; the maximum resolution supported is 1920x1200 when using an FM2 APU. - 11 - B.

Playback of Blu-ray Disc™: In order to get better playback quality, when playing the Blu-ray Disc™, 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) RJ-45 LAN Port 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 USB 3.0/2.0 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. Line In Jack (Blue) The default line in 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 default 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. To configure 7.1-channel audio, you have to use an HD front panel audio module and enable the multi-channel audio feature through the audio driver. - 12 - 1-8 Internal Connectors 1 4 2 14 3 13 5 8 7 11 12 10 6 15 9 1) 2) 3) 4) 5) 6) 7) 8) ATX_12V ATX CPU_FAN SYS_FAN SATA3 0/1/2/3/4/5/6/7 F_PANEL F_AUDIO SPDIF_O 9) 10) 11) 12) 13) 14) 15) F_USB30 F_USB1/F_USB2 COM LPT BAT CI CLR_CMOS 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. - 13 - 1/2) ATX_12V/ATX (2x4 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 CPU. 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 (500W 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. 1 5 ATX_12V: 4 8 ATX_12V Pin No. 1 2 3 4 Definition Pin No. GND (Only for 2x4-pin 12V) 5 GND (Only for 2x4-pin 12V) 6 GND 7 GND 8 Definition +12V (Only for 2x4-pin 12V) +12V (Only for 2x4-pin 12V) +12V +12V 12 24 ATX: 1 ATX 13 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 ATX) 23 3.3V (Only for 2x12-pin ATX) 24 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) 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.

1 CPU_FAN: CPU_FAN 1 SYS_FAN Pin No. 1 2 3 4 Definition GND +12V/Speed Control Sense Speed Control SYS_FAN: Pin No. 1 2 3 4 Definition GND Speed Control Sense Reserve •• 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. - 14 - 5) SATA3 0/1/2/3/4/5/6/7 (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. DEBUG 1 PORT DEBUG SATA3 7 PORT SATA3 6 7 4 SATA3 5 7 7 SATA3 1 1 7 7 7 2 SATA3 3 Pin No. 1 2 3 4 5 6 7 Definition GND TXP TXN GND RXN RXP GND 1 1 1 1 1 SATA3 0 7 •• 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. DEBUG PORT DEBUG PORT 6) 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/ Sleep LED Power Switch •• PLED (Power/Sleep LED): Connects to the power status indicator on the System Status LED chassis front panel.

The LED is on when the S0 On system is operating. The LED is off when the sysS3/S4/S5 Off tem is in S3/S4 sleep state or powered off (S5). •• PW (Power Switch): 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): 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): 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: No connection. 2 1 HD+ HDRESRES+ NC PLED+ PLEDPW+ PW10 9 Hard Drive Reset Switch Activity LED 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. - 15 - 7) 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. 1 2 9 10 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 •• The front panel audio header supports HD audio by default. •• Audio signals will be present on both of the front and back panel audio connections simultaneously.

•• 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. 8) 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.

1 Pin No. 1 2 Definition SPDIFO GND 9) 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. Pin No. Definition 1 VBUS 2 SSRX13 SSRX1+ F_AUDIO(H) 4 GND 5 SSTX16 SSTX1+ 7 GND Pin No. 11 12 13 14 15 16 17 Definition D2+ D2GND SSTX2+ SSTX2GND SSRX2+ 1 10 F_USB30 20 11 F_PANEL(NH) 8 D118 SSRX29 D1+ 19 VBUS 10 NC 20 No Pin Prior to installing the USB front panel, be sure to turn off your computer and unplug the power cord from the power outlet to prevent damage to the USB front panel. DB_PORT - 16 - BIOS Switcher (X58A-OC) 1 1 M_SATA Voltage measurement module(X58A-OC) 1 1 10) F_USB1/F_USB2 (USB 2.0/1.

1 Headers) The headers conform to USB 2.0/1.1 specification. Each USB header can provide two USB ports via an optional USB bracket. For purchasing the optional USB bracket, please contact the local dealer. Pin No. 1 2 3 4 5 Definition Power (5V) Power (5V) USB DXUSB DYUSB DX+ Pin No. 6 7 8 9 10 Definition USB DY+ GND GND No Pin NC 9 10 1 2 •• Do not plug the IEEE 1394 bracket (2x5-pin) cable into the USB 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. 11) COM (Serial Port Header) The COM header can provide one serial port via an optional COM port cable.

For purchasing the optional COM port cable, please contact the local dealer. Pin No. 1 2 3 4 5 Definition NDCDNSIN NSOUT NDTRGND Pin No. 6 7 8 9 10 Definition NDSRNRTSNCTSNRINo Pin 9 10 1 2 DEBUG PORT 12) LPT (Parallel Port Header) The LPT header can provide one parallel port via an optional LPT port cable. For purchasing the optional LPT port cable, please contact the local dealer.

Pin No. 1 2 3 4 5 6 7 8 9 Definition STBAFDPD0 ERRPD1 INITPD2 SLINPD3 Pin No. 10 11 12 13 14 15 16 17 18 Definition GND PD4 GND PD5 GND PD6 GND PD7 GND Pin No. 19 20 21 22 23 24 25 26 Definition ACKGND BUSY GND PE No Pin SLCT GND 25 26 1 2 - 17 - 13) 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. 14) 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. 1 2 Definition Signal GND 1 15) 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). - 18 - 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.

•• 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.) 2-1 Startup Screen The following startup Logo screen will appear when the computer boots.

(Sample BIOS Version: F1b) Function Keys 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.

•• 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. - 19 - 2-2 M.I.T. This section provides information on the BIOS version, CPU base clock, CPU frequency, memory frequency, total memory size, CPU temperature, Vcore, and memory voltage. ``M.I.T. Current Status 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.) ``Advanced Frequency Settings && BCLK/PCIe Clock Control This screen provides information on CPU/memory frequencies/parameters.

&& NB Clock (Mhz) 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. && Processor Graphics Clock && CPU Clock Ratio && CPU Frequency 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. ``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. - 20 - && Core Performance Boost (Note 1) && Turbo CPB (Note 1) 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) && CPB Ratio (Note 1) && Cool&Quiet 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. && SVM Mode ꢀ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) && C6 Mode ꢀ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) && 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) && APM ꢀ Enables or disables Application Power Management. (Default: Enabled) && Extreme Memory Profile (X.

M.P.) (Note 2) 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 2) 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 2) && System Memory Multiplier && Memory Frequency (MHz) The settings above are synchronous to those under the same items on the Advanced Frequency Settings menu. (Note 1) This item is present only when you install a CPU that supports this feature. (Note 2) This item is present only when you install a CPU and a memory module that support this feature. - 21 - ``Advanced Memory Settings && ꢀxtreme Memory Profile (X.M.P.) (Note 2), System Memory Multiplier, Memory Frequency(MHz) E && 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. 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) && Profile VTT Voltage && Rank Interleaving && Channel Interleaving 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. @@@@@@@@@@@@@@@@@@@@(Default) ꢀSilent ꢀ Allows the fan to run at slow speeds. @@ꢀ ꢀDisabled Allows the fan to run at full speeds. @@@@Options are: 0.

75 PWM value /oC ~ 2.50 PWM value /oC. @@@@@@(Default) ꢀSilent ꢀ Allows the fan to run at slow speeds. @@ꢀ ꢀDisabled Allows the fan to run at full speeds. ꢀ Allows you to control the fan speed. @@@@@@The date format is week (read-only), month, date, and year. @@Sets the system time. The time format is hour, minute, and second. For example, 1 p.m.

is 13:0:0. @@- 23 - && Access Level 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.

2-4 BIOS Features && Boot Option Priorities && ⬚ ard Drive/CD/DVD ROM Drive/Floppy Drive/Network Device BBS Priorities H 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. 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) && Bootup NumLock State - 24 - && Security Option && Full Screen LOGO Show 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) && OS Type && CSM Support && Boot Mode Selection 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. && LAN PXE Boot Option ROM && Storage Boot Option Control && Other PCI Device ROM Priority 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. 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 - 25 - && Administrator Password && User 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. 2-5 Peripherals && IOMMU && OnChip SATA Channel && OnChip SATA Type Enables or disables AMD IOMMU support. (Default: Enabled) Enables or disables the integrated SATA controllers. (Default: Enabled) 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 ⬚ ⬚ Configures 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) - 26 - && OnChip SATA Port4-7 Type (SATA3 4~SATA3 7 connectors) && OnChip USB Controller This option is configurable only when OnChip SATA Type is set to RAID or AHCI. Configures the operating mode of the integrated SATA3 4~SATA3 5 connectors. ⬚As SATA Type ⬚ The mode depends on the OnChip SATA Type settings. (Default) ⬚IDE ⬚ Configures the SATA3 4~SATA3 7 connectors to PATA mode. Enables or disables the integrated USB controller.
(Default: Enabled) && HD Audio Azalia Device && Onboard LAN Controller 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) && Legacy USB Support && XHCI Hand-off && EHCI 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. && Port 60/64 Emulation && USB Storage Devices ``GFX Configuration && Primary Video Device && Integrated Graphics 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) ▫SB PCIe Slot Video ▫ ▫ Sets the PCI Express graphics card on the PCI Express slot controlled by the South Bridge as the first display.

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. - 27 - && 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 && PORT0 Hot Plug~PORT7 Hot Plug && SATA Power on PORT0~SATA Power on PORT7 Enables or disables each SATA port.

(Default: Enabled) Enables or disable the hot plug capability for each SATA port. (Default: Disabled) ``Super IO Configuration && Serial Port A This section provides information on the super I/O chip and allows you to configure the serial port and parallel port. Enables or disables the onboard serial port. (Default: Enabled) Enables or disables the onboard parallel port. (Default: Enabled) && Parallel Port && Device Mode This item is configurable only when Parallel Port is set to Enabled.

It allows you to select an operating mode for the onboard parallel (LPT) port. Options are: Standard Parallel Port Mode (Default), EPP Mode (Enhanced Parallel Port), ECP Mode (Extended Capabilities Port), EPP Mode & ECP Mode. 2-6 Power Management - 28 - && Resume by Alarm && HPET Timer (Note) 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. (Default: Enabled) Configures the way to turn off the computer in MS-DOS mode using the power button. ▫Instant-Off ▫ Press the power button and then the system will be turned off instantly. (Default) ▫Delay 4 Sec. ▫ ▫ Press and hold the power button for 4 seconds to turn off the system. If the power button is pressed for less than 4 seconds, the system will enter suspend mode. Determines the state of the system after the return of power from an AC power loss. ▫Memory ▫ The system returns to its last known awake state upon the return of the AC power. ▫Always On ▫ The system is turned on upon the return of the AC power.

▫Always Off ▫ system stays off upon the return of the AC power. (Default) ▫ The Note: To cancel the password, press <Enter> on this item. When prompted for the password, press <Enter> again without entering the password to clear the password settings. Allows the system to be turned on by a PS/2 keyboard wake-up event. Note: To use this function, you need an ATX power supply providing at least 1A on the +5VSB lead. ▫Disabled ▫ Disables this function. (Default) ▫Password ▫ Set a password with 1~5 characters to turn on the system. ▫Keyboard 98 Press POWER button on the Windows 98 keyboard to turn on the system. ▫ ▫Any key ▫ Press any key to turn on the system. Set the password when Power On By Keyboard is set to Password.

Press <Enter> on this item and set a password with up to 5 characters and then press <Enter> to accept. To turn on the system, enter the password and press <Enter>. Note: To cancel the password, press <Enter> on this item. When prompted for the password, press <Enter> again without entering the password to clear the password settings. Allows the system to be turned on by a PS/2 mouse wake-up event.

Note: To use this function, you need an ATX power supply providing at least 1A on the +5VSB lead. ▫Disabled ▫ Disables this function. (Default) ▫Move ▫ Move the mouse to turn on the system. ▫Double Click Double click on left button on the mouse to turn on the system. ▫ Determines whether to let the system consume least power in S5 (shutdown) state.

(Default: Disabled) Note: When this item is set to Enabled, the following functions will become unavailable: PME event wake up, power on by mouse, power on by keyboard, and wake on LAN. && Soft-Off by PWR-BTTN && AC BACK && Power On By Keyboard && Power On Password && Power On By Mouse && ErP (Note) Supported on Windows 8/7 operating system only. - 29 - 2-7 Save & Exit && Save & Exit Setup && Exit Without Saving Press <Enter> on this item and select Yes. 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. This exits the BIOS Setup without saving the changes made in BIOS Setup to the CMOS. Select No or press <Esc> to return to the BIOS Setup Main Menu. Press <Enter> on this item and select Yes to load the optimal BIOS default settings.

The BIOS defaults settings help the system to operate in optimum state.

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). && Load Optimized Defaults && Boot Override && Save Profiles && Load Profiles - 30 - Chapter 3 Appendix 3-1 Configuring SATA Hard Drive(s) 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). 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. B. Configuring SATA controller mode in BIOS Setup Make sure to configure the SATA controller mode correctly in system BIOS Setup. For the BIOS Setup menus, refer to Chapter 2, "BIOS Setup," "Integrated Peripherals." Steps: 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. 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. 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. Step: In BIOS Setup, go to BIOS Features and set OS Type to Windows 8 and CSM Support to Never.

Save the changes and exit BIOS Setup. 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. To run the UEFI RAID utility, enter the following commands.

You can enter the commands at Shell or fsx: level (x represents the disk number for your USB flash drive). Checking Disk Information To see the hard drive information, enter the following commands and press <Enter>. You will see CONTROLLER LIST and DISK LIST displayed on the screen rcadm -M -qa Creating a RAID Array To create a RAID array, refer to the following examples to enter the commands and press <Enter>. When succeeded, the message which says "created sucessfully" will appear. - 31 - Example 1: Create a RAID 0 array with Drive 0 and Drive 1 and the array size is 40 GB.

*rcadm -C -r0 -d 0 1 -s 40000 ("C"=Create a array, "r0"=RAID 0, d 0 1=Drive 0 and Drive 1, "s 40000"=Size of 40 GB; to use the maximum size allowed, do not enter "s x0000") Example 2: Create a RAID 5 array with Drive 1~4 and the array size is 75GB. rcadm -C -r5 -d 1 2 3 4 -s 75000 ("C"=Create a array, "r5"=RAID 5, d 1 2 3 4=Drive 1~4, "s 75000"=Size of 75 GB) After you create the array, you can enter the "rcadm -M -qa" commands to see the array information. In addition to the CONTROLLER LIST and DISK LIST information, you will see ARRAY LIST information displayed on the screen, too. Deleting an Array To delete an array, enter the following commands and press <Enter>. rcadm -D -a 1 ("D"=Delete a array, "a 1"=Array 1, to delete all arrays, enter "a *") When prompted to confirm, enter YES to delete or NO to cancel, and then press <Enter> To exit the UEFI RAID utility, enter "exit" and press <Enter>. C-2. Configuring Legacy RAID ROM Enter the legacy RAID BIOS setup utility to configure a RAID array. Skip this step and proceed with the installation of Windows operating system for a non-RAID configuration. Steps: After the POST memory test begins and before the operating system boot begins. Press <Ctrl> + <R> to enter the RAID BIOS setup utility.*

Creating a RAID Array 1. To create a new array, press <Enter> on the Create Array option. 2. ☐ he selection bar will move to the Disks section on the right of the screen. Select the hard drives to be T included in the RAID array. Use the up or down arrow key to select a hard drive and press <Insert>. The selected hard drive will be shown in green. To use all of the hard drives, simply press <A> to select all. Then press <Enter> and the selection bar will move to the User Input section on the left bottom of the screen. 3.

☐ irst, select a RAID mode and press <Enter>. The selections available depend on the number of the hard F drives being installed. Then follow the on-screen instructions to specify the array size. You can select All available space to use the maximum size allowed or use the up or down arrow key to adjust the size and press <Enter> 4. Select a caching mode.

Options include Read/Write, Read Only, and None. Then press <Enter> to proceed. 5. ☐ inally, a message which says "Confirm Creation of Array" will appear. Press <C> to confirm or <Esc> to F return to the previous screen.

When completed, you will see the new array on the main screen. To exit the RAID BIOS utility, press <Esc> and then press <C> to confirm. Deleting an Array The Delete Array(s) menu option allows for deletion of disk array assignments. 1. Select Delete Array(s) in the Main Menu and press <Enter>. 2. In the Arrays section, press the <Insert> key on the array you want to delete and then press <Enter> to proceed. 3. When prompted to confirm, press <C> to continue the deletion or <Esc> to cancel. Deleting an existing disk array could result in loss of data.

Record all array information including the array type, the disk members, and stripe block size in case you wish to undo a deletion. - 32 - Installing the SATA RAID/AHCI Driver and Operating System With the correct BIOS settings, you are ready to install the operating system. A. Installing Windows 8/7 (The following instructions use Windows 8 as the example operating system.) Step 1: You need to install the SATA RAID/AHCI driver during the OS installation. Use an alternative system to copy the SATA RAID/AHCI driver from the motherboard driver disk to a USB flash drive. Copy the Hw8_A88 folder under BootDrv in the driver disk. Step 2: Boot from the Windows 8 setup disk and perform standard OS installation steps. When the screen requesting you to load the driver appears, select Browse. Step 3: Then browse to the USB flash drive and select the location of the driver.

The locations of the drivers are as follows: RAID driver for Windows 8 32-bit: Hw8_A88\RAID\x86 RAID driver for Windows 8 64-bit: Hw8_A88\RAID\x64□ AHCI driver for Windows 8 32-bit: Hw8_A88\AHCI\W8 AHCI driver for Windows 8 64-bit: Hw8_A88\AHCI\W864A□ For Windows 7, browse to the Hw7_A88 folder. Step 4: Select AMD-RAID Controller and click Next to load the driver and continue the OS installation. B. Installing Windows XP (32-bit) Before installing Windows XP, connect a USB floppy disk drive to your computer first because you need to install the SATA RAID/AHCI driver from a floppy disk that contains the driver during the OS installation. Without the driver, the hard drive(s) may not be recognized during the Windows setup process. First, copy the driver from the motherboard driver disk to a floppy disk. Refer to the methods below. Method A: •• For the AMD A88X, copy all files in the \BootDrv\Hxp folder to your floppy disk. Method B: Steps: 1. Use an alternative system and insert the motherboard driver disk. 2. □ rom your optical drive folder, double click the Menu.exe file in the BootDrv folder. A Command Prompt F window will open. 3. □nsert the blank formatted disk (if you're using a USB floppy disk drive, make sure it is designated as drive I A). Select the controller driver by pressing the corresponding letter from the menu and press <Enter>. For example, for the AMD A88X, select 6) hseries AHCI/RAID for XP. Your system will then automatically copy the driver files to the floppy disk. Press any key to exit when finished.

Refer to the following for installing the driver during the Windows setup process. Step 1: Restart your system to boot from the Windows XP setup disk and press <F6> as soon as you see the message "Press F6 if you need to install a 3rd party SCSI or RAID driver." A screen will then appear asking you to specify an additional SCSI adapter. Press <S>. Step 2: Insert the floppy disk containing the SATA RAID/AHCI driver and press <Enter>. Select AMD AHCI Compatible RAID Controller-x86 platform and press <Enter>. @@@@@@@Click on the message "Tap to choose what happens with this disc" on the top-right corner of the screen and select "Run Run.exe." (Or go to My Computer, double-click the optical drive and execute the Run.exe program.) After inserting the driver disk, "Xpress Install" will automatically scan your system and then list all the drivers that are recommended to install. You can click the Install All button and "Xpress Install" will install all the recommended drivers. Or click Install Single Items to manually select the drivers you wish to install. - 34 - Regulatory Statements Regulatory Notices This document must not be copied without our written permission, and the contents there of must not be imparted to a third party nor be used for any unauthorized purpose. Contravention will be prosecuted.

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□□ When your electrical or electronic equipment is no longer useful to you, "take it back" to your local or regional waste collection administration for recycling.