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You can read the recommendations in the user guide, the technical guide or the installation guide for GIGABYTE GA-F2A88XM-DS2. You'll find the answers to all your questions on the GIGABYTE GA-F2A88XM-DS2 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-DS2
User guide GIGABYTE GA-F2A88XM-DS2
Operating instructions GIGABYTE GA-F2A88XM-DS2
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GA-F2A88XM-DS2

User's Manual
Rev. 3001
12ME-F288MS2-3001R



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Manual abstract:

© 2013 Aug. 30, 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 quick set-up of the product, read the Quick Installation Guide included with the product. 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. Installing an Expansion Card.

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DDR3_2 DDR3_1 BAT SATA3 0 1 SPDIF_O COM F_USB2 F_USB1 F_PANEL Box Contents 55 GA-F2A88XM-DS2 motherboard 55 Motherboard driver disk 55 User's Manual 55 Two SATA cables 55 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. -4- SATA3 3 2 SYS_FAN GA-F2A88XM-DS2 Motherboard Block Diagram 1 PCI Express x16 APU CLK+/- (100 MHz) DISP CLK+/- (100 MHz) DDR3 2133/1866/1600/1333 MHz PCIe CLK (100 MHz) AMD APU Dual Channel Memory x16 PCI Express Bus DVI-D D-Sub UMI LAN 1 PCI Express x1 PCIe CLK (100 MHz) RJ45 Realtek® GbE LAN Dual BIOS 4 SATA 6Gb/s AMD A88X 4 USB 3.0/2.0 8 USB 2.0/I.

1 x1 PCI Express Bus x1 PCI Bus LPC Bus CODEC iTE® Super I/O COM 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.

-6- 1-2 Product Specifications APU □ FM2+ Socket: - AMD A series processors - AMD Athlon™ series processors (Go to GIGABYTE's website for the latest APU 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 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. 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 * 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. * 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. LAN □ Realtek® GbE LAN chip (10/100/1000 Mbit) 1 x PCI Express x16 slot, running at x16 (PCIEX16) (The PCIEX16 slot conforms to PCI Express 3.0 standard.

) Expansion Slots □ □ □ Multi-Graphics □ Technology Storage Interface □ USB 1 x PCI Express x1 slot (The PCI Express x1 slot conforms to PCI Express 2.0 standard.) 1 x PCI slot Support for AMD Dual Graphics technology * Only A series APUs support AMD Dual Graphics.



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* To support PCI Express 3.0, you must install an FM2+ APU.

Chipset: - 4 x SATA 6Gb/s connectors - Support for RAID 0, RAID 1, RAID 5, RAID 10, and JBOD Chipset: - 4 x USB 3.0/2.0 ports (2 ports on the back panel, 2 ports available through the internal USB header) - 7- USB Internal Connectors Chipset: - 8 x 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 4 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 Clear CMOS jumper 1 x chassis intrusion header 1 x PS/2 keyboard/mouse port 1 x D-Sub port 1 x DVI-D port 2 x USB 3.0/2.0.

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 Back Panel Connectors I/O Controller Hardware Monitor * Whether the APU/system fan speed control function is supported will depend on the APU/system cooler you install. BIOS Support for @BIOS Support for Q-Flash Support for Xpress Install AMI EFI BIOS Support for DualBIOS™ PnP 1.0a, DMI 2.0, SM BIOS 2.6, ACPI 2.0a Support for @BIOS Support for Q-Flash Support for Xpress Install Support for EasyTune Unique Features Bundled Software Operating System Support for Smart Recovery 2 Support for ON/OFF Charge * Available functions in EasyTune may differ by motherboard model. Norton® Internet Security (OEM version) Support for Windows 8.1/8/7 32-bit/64-bit Support for Windows XP 32-bit -8* 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. Form Factor Micro ATX Form Factor; 22.5cm 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 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. 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 and PS/2 Mouse Port Use this port to connect a PS/2 mouse or keyboard.

- 10 - D-Sub Port The D-Sub port supports a 15-pin D-Sub connector. Connect a monitor that on. 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 (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. ATX_12V: 1 5 4 ATX_12V 8 Pin No. 1 2 3 4 ATX: 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 Pin No. 1 2 3 4 5 6 7 8 9 10 11 12 1 ATX 13 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) 3/4) CPU_FAN/SYS_FAN (Fan Headers) The 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: 1 CPU_FAN Pin No.

1 2 3 4 Definition GND +12V Sense Speed Control SYS_FAN: 1 SYS_FAN Pin No. 1 2 3 4 Definition GND Speed Control Sense VCC • 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. - 13 - 5) SATA3 0/1/2/3 (SATA 6Gb/s Connectors) DEBUG DEBUG The SATA connectors conform to SATA 6Gb/s standard and are compatible with SATA 3Gb/s and SATA PORT 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.

1 2 SATA3 3 SATA3 1 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. 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 LED Power Switch • PLED (Power LED): System Status LED S0 On S3/S4/S5 Off 2 1 HD+ 10 9 NC RES+ RESHD- 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). Hard Drive Reset Activity LED Switch 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.



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- 14 - PWPW+ PLEDPLED+ ••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. 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. 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 9 10 1 2 8) SPDIF_O (SPDIF Out Header) ••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. 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+ 4 F_AUDIO(H) GND 5 SSTX16 SSTX1+ 7 GND 8 9 10 D1D1+ NC Pin No. 11 12 13 14 15 16 17 18 19 20 Definition D2+ D2GND SSTX2+ SSTX2GND SSRX2+ SSRX2VBUS No Pin 1 10 F_USB30 20 11 F_PANEL(NH) 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 - 15 - BIOS Switcher (X58A-OC) 1 1 M_SATA TPM 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) Pin No. 1 2 3 4 5 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. Definition NDCDNSIN NSOUT NDRGND Pin No. 6 7 8 9 10 Definition NDSRNRTSNCNTSNRINo Pin 9 10 1 2 12) 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. 13) CLR_CMOS (Clear CMOS Jumper) Open: Normal Short: Clear CMOS Values 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. ••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). - 16 - 14) CI (Chassis Intrusion Header) Pin No. 1 2 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. Definition Signal GND 1 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.



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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) 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 - 22 - && 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. @@@@ 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. @ Legacy OpROM Enables legacy option ROM only. UEFI OpROM Enables UEFI option ROM only. @@ (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. @@@@ You will be requested to confirm the password. Type the password again and press <Enter>. @@@@ Allows you to configure a user password. @@ You will be requested to confirm the password. Type the password again and press <Enter>. @@ 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. - 23 - 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) && OnChip USB Controller 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) 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 Determines whether to enable XHCI Hand-off feature for an operating system without XHCI Hand-off support. (Default: Enabled) - 24 - && EHCI Hand-off && Port 60/64 Emulation 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. && 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. 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. && Integrated Graphics && UMA Frame Buffer Size ``ATA Port Information This section provides information on the device connected to each SATA port controlled by AMD Chipset. ``SATA Configuration && PORT0 Hot Plug~PORT3 Hot Plug && SATA Power on PORT0~SATA Power on PORT3 Enables or disables each SATA port. (Default: Enabled) Enables or disable the hot plug capability for each SATA port.



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(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. Enables or disables the onboard serial port. (Default: Enabled) - 25 - 2-6 **Power Management & 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 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. && Soft-Off by PWR-BTTN && AC BACK && Power On By Keyboard (Note) Supported on Windows 8/7 operating system only. - 26 - && Power On Password && Power On By Mouse 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. && ErP 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.

&& Load Optimized Defaults - 27 - && Boot Override && Save Profiles 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 Profiles - 28 - 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 the Onboard SATA Controller 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 readm.



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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 successfully" will appear. - 29 - Example 1: Create a RAID 0 array with Drive 0 and Drive 1 and the array size is 40 GB. rcdm -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 75 GB. rcdm -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>. rcdm -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. The selection bar will move to the Disks section on the right of the screen. Select the hard drives to be 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. First, select a RAID mode and press <Enter>.

The selections available depend on the number of the hard 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. Finally, 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. - 30 - 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\W864 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. A Command Prompt window will open. For example, for the AMD A88X, select hseries AHCI/RAID for XP. 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".



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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. - 32 - 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. We believe that the information contained herein was accurate in all respects at the time of printing.

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