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You can read the recommendations in the user guide, the technical guide or the installation guide for GIGABYTE GA-F2A68HM-HD2. You'll find the answers to all your questions on the GIGABYTE GA-F2A68HM-HD2 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-F2A68HM-HD2
User guide GIGABYTE GA-F2A68HM-HD2
Operating instructions GIGABYTE GA-F2A68HM-HD2
Instructions for use GIGABYTE GA-F2A68HM-HD2
Instruction manual GIGABYTE GA-F2A68HM-HD2

GA-F2A68HM-HD2

User's Manual
Rev. 1001
12ME-F268HD2-100 1R



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Manual abstract:

© 2014 Nov. 19, 2014 Copyright © 2014 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-F2A68HM-HD2 Motherboard Layout..

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enable the multi-channel audio feature through the audio driver. LAN □□ Realtek® GbE LAN chip (10/100/1000 Mbit) Expansion Slots □□ 1 x PCI Express x16 slot, running at x16 (The PCI Express x16 slot conforms to PCI Express 3.



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•• When removing the cable, pull it straight out from the connector. Do not rock it side to side to prevent an electrical short inside the cable connector.
- 11 - Mic In Jack (Pink) The 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. 1-8 Internal Connectors 1 4 2 14 3 6 5 10 9 13 12 7 8 11 4 5 1) 2) 3) 4) 5) 6) 7) ATX_12V ATX CPU_FAN SYS_FAN1/2 SATA3 0/1/2/3 BAT CLR_CMOS 8) 9) 10) 11) 12) 13) 14) F_PANEL F_AUDIO SPDIF_O SPEAKER F_USB1/F_USB2 COM CI Read the following guidelines before connecting external devices: •• First make sure your devices are compliant with the connectors you wish to connect.

•• Before installing the devices, be sure to turn off the devices and your computer. Unplug the power cord from the power outlet to prevent damage to the devices. •• After installing the device and before turning on the computer, make sure the device cable has been securely attached to the connector on the motherboard. - 12 - 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. 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 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 +12V (Only for 2x4-pin 12V) +12V (Only for 2x4-pin 12V) +12V +12V 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) 12 24 Pin No. 1 2 3 4 5 6 7 8 9 10 11 12 1 ATX 13 3/4) CPU_FAN/SYS_FAN1/SYS_FAN2 (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/SYS_FAN1/SYS_FAN2: CPU_FAN 1 SYS_FAN1/2 Pin No. 1

1 2 3 4 Definition GND +12V Sense Speed Control •• Be sure to connect fan cables to the fan headers to prevent your APU and system from overheating. Overheating may result in damage to the APU or the system may hang. •• These fan headers are not configuration jumper blocks. Do not place a jumper cap on the headers. - 13 - PORT PORT 5) SATA3 0/1/2/3 (SATA 6Gb/s/PORT Connectors) DEBUG DEBUG 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 Chipset supports RAID 0, RAID 1, RAID 10, and JBOD. Refer to Chapter 3, "Configuring SATA Hard Drive(s)," for instructions on configuring a RAID array. 1 SATA3 2 3 SATA3 0 1 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 10 configuration requires four hard drives. •• To enable hot-plugging for the SATA ports, refer to Chapter 2, "BIOS Setup," "Peripherals/SATA Configuration," for more information. 6) 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. 7) CLR_CMOS (Clear CMOS Jumper) Use this jumper to clear the BIOS configuration and reset the CMOS values to factory defaults. To clear the CMOS values, use a metal object like a screwdriver to touch the two pins for a few seconds. Open: Normal Short: Clear CMOS Values •• Always turn off your computer before clearing the CMOS values. •• After system restart, go to BIOS Setup to load factory defaults (select Load Optimized Defaults) or manually configure the BIOS settings (refer to Chapter 2, "BIOS Setup," for BIOS configurations).

- 14 - 8) F_PANEL (Front Panel Header) Connect the power switch, reset switch, and system status indicator on the chassis to this header according to the pin assignments below. Note the positive and negative pins before connecting the cables. Power LED Power Switch •• PLED (Power LED): System Status LED S0 On S3/S4/S5 Off 2 1 HD+ 10 9 RESRES+ NC Hard Drive Activity LED Reset Switch •• 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.



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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). •• 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. The front panel design may differ by chassis. A front panel module mainly consists of power switch, reset switch, 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.

9) F_AUDIO (Front Panel Audio Header) The front panel audio header supports Intel High Definition audio (HD) and AC'97 audio. You may connect your chassis front panel audio module to this header. Make sure the wire assignments of the module connector match the pin assignments of the motherboard header. Incorrect connection between the module connector and the motherboard header will make the device unable to work or even damage it. For HD Front Panel Audio: Pin No. Definition 1 MIC2_L 2 GND 3 MIC2_R 4 -ACZ_DET 5 LINE2_R 6 Sense 7 FAUDIO_JD 8 No Pin 9 LINE2_L 10 Sense 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 HD- •• 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.

PLED+ PLEDPW+ PW1 2 - 15 - 10) SPDIF_O (S/PDIF Out Header) This header supports digital S/PDIF Out and connects a S/PDIF digital audio cable (provided by expansion cards) for digital audio output from your motherboard to certain expansion cards like graphics cards and sound cards. For example, some graphics cards may require you to use a S/PDIF digital audio cable for digital audio output from your motherboard to your graphics card if you wish to connect an HDMI display to the graphics card and have digital audio output from the HDMI display at the same time. For information about connecting the S/PDIF digital audio cable, carefully read the manual for your expansion card. Pin No. 1 2 Definition SPDIFO GND 1 11) SPEAKER (Speaker Header)

Connects to the speaker on the chassis front panel.

The system reports system startup status by issuing a beep code. One single short beep will be heard if no problem is detected at system startup. 1 Pin No. 1 2 3 4 Definition SPK+ NC NC SPK- 12) 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. 9 10 1 2 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 •• 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. 13) 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. 9 10 1 2 Pin No. 1 2 3 4 5 Definition NDCDNSIN NSOUT NDTRGND Pin No. 6 7 8 9 10 Definition NDSRNRTSNCTSNRINo Pin - 16 - 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 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.) - 17 - 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. 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.

- 18 - ``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.



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(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 & CPU Clock Control This screen provides information on CPU/memory frequencies/parameters. & Processor Graphics
 Allows you to manually set the CPU base clock 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 set the onboard
 graphics clock. The adjustable range is from 300 MHz to 2000 MHz. & CPU NorthBridge Frequency & CPU Clock Ratio Allows you to manually set the
 CPU North Bridge frequency. The adjustable range is from 800 MHz to 6000 MHz.
 Allows you to alter the clock ratio for the installed CPU. The adjustable range is dependent on the CPU being installed. Displays the current operating CPU
 frequency. & CPU Frequency ``**Advanced CPU Core Features & CPU Clock Ratio, CPU Frequency & Core Performance Boost (Note)** The settings
 above are synchronous to those under the same items on the Advanced Frequency Settings menu. Allows you to determine whether to enable the Core
 Performance Boost (CPB) technology, a CPU performance-boost technology.
 (Default: Auto) Allows you to determine whether to improve CPU performance. (Default: Disabled) & Turbo Performance Boost Ratio & Core
 Performance Boost Ratio & AMD Cool&Quiet function 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. Allows you to set the TDP consumption. Options are Disabled, 45W,
 60W. (Default: Disabled) & cTDP function & SVM Mode & C6 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) 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) This item is present only when you install a CPU that supports this feature. - 19 - (Note) & CPU core Control &
 APM Allows you to determine whether to manually enable/disable CPU cores. Automatic mode allows the BIOS to enable all CPU cores (number of cores
 available depends on the CPU being used). (Default: Automatic mode) Enables or disables Application Power Management. (Default: Enabled) & Extreme
 Memory Profile (X.M.P.) (Note) & AMD Memory Profile (A.
 M.P.) (Note) Allows the BIOS to read the SPD data on XMP memory module(s) to enhance memory performance when enabled. Disabled Disables this
 function. (Default) Profile1 Uses Profile 1 settings.
Profile2 (Note) Uses Profile 2 settings. Allows the BIOS to read the SPD data on AMP memory module(s) to enhance memory performance when enabled.
 (Default: Disabled) Allows you to set the system memory multiplier. Auto sets memory multiplier according to memory SPD data. (Default: Auto) This value
 is automatically adjusted according to the BCLK/PCIe Clock Control and System Memory Multiplier settings.
 & System Memory Multiplier & Memory Frequency (MHz) ``**Advanced Memory Settings & Xtreme Memory Profile (X.M.P.) (Note), System Memory
 Multiplier, Memory Frequency(MHz) E & Memory Timing Mode** The settings above are synchronous to those under the same items on the Advanced
 Frequency Settings menu. Manual and Advanced Manual allows the Channel Interleaving, Rank Interleaving, and memory timing settings below to be
 configurable. Options are: Auto (default), Manual, Advanced Manual. When using a non-XMP memory module or Extreme Memory Profile (X.M.P.) is set to
 Disabled, the value is displayed according to your memory specification.
 When Extreme Memory Profile (X.M.P.) is set to Profile1 or Profile2, the value is displayed according to the SPD data on the XMP memory. 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: Auto) 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: Auto) & Profile DDR Voltage & Channel Interleaving & Rank Interleaving ``**Channel
 A/B Memory Sub Timings** This sub-menu provides memory timing settings for each channel of memory. This sub-menu provides memory timing settings for
 each channel of memory.
 The respective timing setting screens are configurable only when Memory Timing Mode is set to Manual or Advanced Manual. Note: Your system may
 become unstable or fail to boot after you make changes on the memory timings. If this occurs, please reset the board to default values by loading optimized
 defaults or clearing the CMOS values. ``**Advanced Voltage Settings (Note)** This sub-menu allows you to set CPU, chipset and memory voltages. This item is
 present only when you install a CPU and a memory module that support this feature.
 - 20 - ``**PC Health Status & Reset Case Open Status & Case Open** Disabled Keeps or clears the record of previous chassis intrusion status. (Default)
Enabled Clears the record of previous chassis intrusion status and the Case Open field will show "No" at next boot. Displays the detection status of the
 chassis intrusion detection device attached to the motherboard CI header. If the system chassis cover is removed, this field will show "Yes", otherwise it will
 show "No". To clear the chassis intrusion status record, set Reset Case Open Status to Enabled, save the settings to the CMOS, and then restart your system.
 Displays the current system voltages. & CPU Vcore/DRAM Voltage/+3.3V/+5V/+12V & CPU/System Temperature & CPU/System Fan Speed Displays
 current CPU/system temperature. Displays current CPU/system fan speeds. & CPU Temperature Warning & CPU/System Fan Fail Warning Sets the
 warning threshold for CPU temperature. When temperature exceeds the threshold, BIOS will emit warning sound. Options are: Disabled (default),
 60oC/140oF, 70oC/158oF, 80oC/176oF, 90oC/194oF. Allows the system to emit warning sound if the fan is not connected or fails. Check the fan condition or
 fan connection when this occurs.



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(Default: Disabled) Normal Allows the fan to run at different speeds according to the CPU temperature.

You can adjust the fan speed with EasyTune based on your system requirements. (Default) Silent Allows the fan to run at slow speeds. Full Speed Allows the fan to run at full speeds. Allows you to control the fan speed. Options are: 0.75 PWM value /oC ~ 2.50 PWM value /oC.

Silent Allows the fan to run at slow speeds. Full Speed Allows the fan to run at full speeds. Allows you to control the fan speed.

Options are: 0.75 PWM value /oC ~ 2.50 PWM value /oC. (Default) Silent Allows the fan to run at slow speeds. Full Speed Allows the fan to run at full speeds.

Auto lets the BIOS automatically configure this setting. 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. 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) 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 A password is only required for entering the BIOS Setup program. System A password is required for booting the system and for entering the BIOS Setup 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) Enables or disables Fast Boot to shorten the OS boot process. Ultra Fast provides the fastest bootup speed.

(Default: Disabled) - 23 - && Bootup NumLock State && Security Option && Full Screen LOGO Show && Fast Boot && VGA Support && USB Support Allows you to select which type of operating system to boot. Auto Enables legacy option ROM only. EFI Driver Enables EFI option ROM. (Default) This item is configurable only when Fast Boot is set to Enabled or Ultra Fast. Disabled All USB devices are disabled before the OS boot process completes.

Full Initial All USB devices are functional in the operating system and during the POST. Partial Initial of the USB devices are disabled before the OS boot process completes. (Default) Part This item is configurable only when Fast Boot is set to Enabled. This function is disabled when Fast Boot is set to Ultra Fast. && PS2 Devices Support && NetWork Stack Driver Support Disabled All PS/2 devices are disabled before the OS boot process completes.

Enabled PS/2 devices are functional in the operating system and during the POST. (Default) All This item is configurable only when Fast Boot is set to Enabled. This function is disabled when Fast Boot is set to Ultra Fast. Disabled Disables booting from the network. (Default) Enabled Enables booting from the network. This item is configurable only when Fast Boot is set to Enabled or Ultra Fast. Allows you to select the operating system to be installed. (Default: Other OS) && Windows 8 Features && 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 Windows 8 Features is set to Windows 8 or Windows 8 WHQL. 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 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.

- 24 - && Other PCI Device ROM Priority Allows you to select whether to enable the UEFI or Legacy option ROM for the PCI device controller other than the LAN, storage device, and graphics controllers. Legacy OpROM Enables legacy option ROM only. UEFI OpROM Enables UEFI option ROM only. (Default) Disables or enables booting from the network to install a GPT format OS, such as installing the OS from the Windows Deployment Services server. (Default: Disabled) 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 && PXE boot wait time Allows you to configure how long to wait before you can press <Esc> to abort the PXE boot. This item is configurable only when Network stack is enabled. 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>.



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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.

NOTE: Before setting the User Password, be sure to set the Administrator Password first. && Administrator Password && User Password - 25 - 2-5 Peripherals && IOMMU && OnChip USB Controller Enables or disables AMD IOMMU support. (Default: Enabled) Enables or disables the integrated USB controller. (Default: Enabled) && HD Audio Azalia Device && Legacy USB Support && XHCI Hand-off 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.

Allows USB keyboard/mouse to be used in MS-DOS. (Default: Enabled) && 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. 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. && Port 60/64 Emulation && USB Storage Devices && Onboard LAN Controller - 26 - ``GFX Configuration && Primary Video Device &&

Integrated Graphics Specifies the first initiation of the monitor display from the installed PCI graphics card, PCI Express graphics card or the onboard graphics. IGD Video Sets the onboard graphics as the first display. NB PCIe Slot Video Sets the graphics card on the PCIe slot controlled by the CPU as the first display. (Default) PCI Slot Video Sets the graphics card on the PCI slot 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.

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. && UMA Frame Buffer Size ``SATA Configuration && OnChip SATA Channel && OnChip SATA Type Enables or disables the integrated SATA controllers. (Default: Enabled) && PORT0 Hot Plug~PORT3 Hot Plug 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. (Default) 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. Enables or disable the hot plug capability for each SATA port. (Default: Disabled) Enables or disables each SATA port. (Default: Enabled) && SATA Power on PORT0~SATA Power on PORT3 ``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) - 27 - 2-6 Power Management && Resume by Alarm && HPET Timer 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 8.1/7 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 - 28 - && 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.



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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: Resume by Alarm, 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 default settings help the system to operate in optimum state. Always load the Optimized defaults after updating the BIOS or after clearing the CMOS values. - 29 - && Load Optimized Defaults && 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 Chapter 3 Appendix 3-1 Configuring SATA Hard Drive(s) Before you begin, please prepare the following items: •• 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 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.

- 30 - C-1. UEFI RAID Configuration This mode supports Windows 8.1 64-bit installation only. To configure UEFI RAID, you need to prepare a USB flash drive using FAT 32 file format and copy all files (including the UEFI RAID utility rcadm.efi) in the \BootDrv\UEFI RAID Utility folder in your motherboard driver disk to the flash drive. Then follow the steps below. Steps: In BIOS Setup, go to BIOS Features and set Windows 8 Features 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 run the UEFI RAID utility, enter the following commands. You can enter the commands at Shell or fxx: 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. 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 75 GB. 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.



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Steps: After the POST memory test begins and before the operating system boot begins, look for a message which says "Press <Ctrl-F> to enter RAID Option ROM Utility". 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. - 31 - 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 return to the previous 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. 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 8.1/7 (The following instructions use Windows 8.1 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 8.1 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 8.1 32-bit: Hw8_A88\RAID\x86 RAID driver for Windows 8.1 64-bit: Hw8_A88\RAID\x64 AHCI driver for Windows 8.1 32-bit: Hw8_A88\AHCI\W8 AHCI driver for Windows 8.1 64-bit: Hw8_A88\AHCI\W864A For Windows 7, browse to the Hw7_A88 folder.

Step 4: When a screen appears, 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 A68H, 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: From your optical drive folder, double click the Menu.exe file in the BootDrv folder. A Command Prompt window will open. 3: Insert the blank formatted disk (if you're using a USB floppy disk drive, make sure it is designated as drive A). Select the controller driver by pressing the corresponding letter from the menu and press <Enter>. For example, for the AMD A68H, select 6) hseries AHCI/RAID<A85>for XP. Your system will then automatically copy the driver files to the floppy disk.

Press any key to exit when finished. - 32 - 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>. Then a controller menu will appear. Select AMD AHCI Compatible RAID Controller-x86 platform and press <Enter>. Step 3: On the next screen, press <Enter> to continue the driver installation. After the driver installation, you can proceed with the Windows XP installation.

3-2 Drivers Installation • Before installing the drivers, first install the operating system. (The following instructions use Windows 8.1 as the example operating system.) • After installing the operating system, insert the motherboard driver disk into your optical drive. 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. For more software information, please visit GIGABYTE's website. - 33 - Regulatory Statements Regulatory Notices This document must not be copied without our written permission, and the contents thereof 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. GIGABYTE cannot, however, assume any responsibility for errors or omissions in this text. Also note that the information in this document is subject to change without notice and should not be construed as a commitment by GIGABYTE. Our Commitment to Preserving the Environment In addition to high-efficiency performance, all GIGABYTE motherboards fulfill European Union regulations for RoHS (Restriction of Certain Hazardous Substances in Electrical and Electronic Equipment) and WEEE (Waste Electrical and Electronic Equipment) environmental directives, as well as most major worldwide safety requirements. @@@@ Under the Directive, used equipment must be marked, collected separately, and disposed of properly. WEEE Symbol Statement The symbol shown below is on the product or on its packaging, which indicates that this product must not be disposed of with other waste.



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