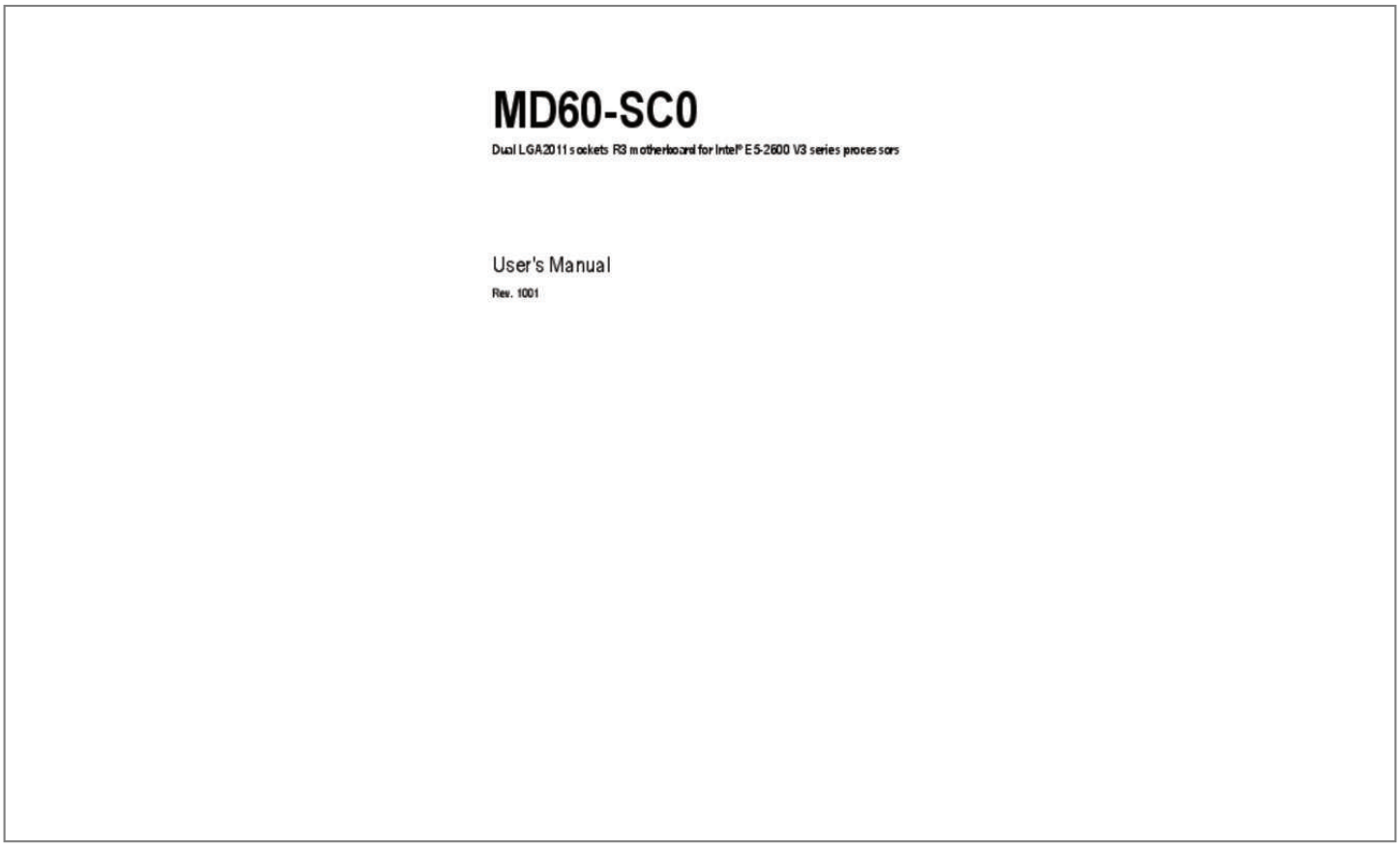
MD60-SC0

Dual LGA2011 sockets R3 motherboard for Intel® E5-2600 V3 series processors

User's Manual

Rev. 1001

Manual abstract:

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) Step 1: Step 2: Apply an even and thin layer of thermal grease on the Place the cooler atop the CPU, aligning the four surface of the installed CPU. mounting screws with the mounting holes on the ILM. (If your cooler has a fan grill which may cause interference when you tighten the screws, remove it first and replace it after tightening the screws.) Step 3: Use one hand to hold the cooler and the other to tighten the screws in a diagonal sequence with a screw driver. Begin tightening a screw with a few turns and repeat with the screw diagonally opposite the one you just tightened. Then do the same to the other pair. Next, fully tighten the four screws. Step 4: Finally, attach the power connector of the CPU cooler to the CPU fan header (CPU_FAN) on the motherboard. Please pay more attention when removing the CPU cooler because the thermal grease/tape between the CPU cooler and CPU may adhere to the CPU. Inadequately removing the CPU cooler may damage the CPU. - 16 Hardware Installation 1-4 Installing the Memory Read the following guidelines before you begin to install the memory: • Make sure that the motherboard supports the memory.

It is recommended that memory of the same capacity, brand, speed, and chips be used. • Always turn off the computer and unplug the power cord from the power outlet before installing the memory to prevent hardware damage. • Memory modules have a foolproof design. A memory module can be installed in only one direction. If you are unable to insert the memory, switch the direction. 1-4-1 Four Channel Memory Configuration This motherboard provides sixteen DDR4 memory sockets and supports Four Channel Technology. After the memory is installed, the BIOS will automatically detect the specifications and capacity of the memory. Enabling Four Channel memory mode will be four times of the original memory bandwidth. The four DDR4 memory sockets are divided into four channels each channel has two memory sockets as following: Channel 1: DIMM_P0_A0/DIMM_P0_A1 (For pimary CPU)/ DIMM_P1_E0/DIMM_P1_E1 (For secondary CPU) Channel 2: DIMM_P0_B0/DIMM_P0_B1 (For pimary CPU) DIMM_P1_F0/DIMM_P1_F1 (For secondary CPU) Channel 3: DIMM_P0_C0/DIMM_P0_C1 (For pimary CPU) DIMM_P1_G0/DIMM_P1_G1 (For secondary CPU) Channel 4: DIMM_P0_D0/DIMM_P0_D1 (For pimary CPU) DIMM_P1_H0/DIMM_P1_H1 (For secondary CPU) When only one DIMM is used, it must be populated in memory slot0 first. Memory populated sequence must be followed with slot0/slot1.

System will not boot normally with incorrect populated sequence. DIMM_P0_B1 DIMM_P0_B0 DIMM_P0_A1 DIMM_P0_A0 DIMM_P1_G0 DIMM_P1_G1 DIMM_P1_H0 DIMM_P1_H1 DIMM_P0_C0 DIMM_P0_C1 DIMM_P0_D0 DIMM_P0_D1 Due to CPU limitations, read the following guidelines before installing the memory in Four Channel mode. 1. Four Channel mode cannot be enabled if only one DDR4 memory module is installed. 2. When enabling Four Channel mode with two or four memory modules, it is recommended that memory of the same capacity, brand, speed, and chips be used for optimum performance. Hardware Installation - 17 - DIMM_P1_F1 DIMM_P1_F0 DIMM_P1_E1 DIMM_P1_E0 1-4-2 Installing a Memory Before installing a memory module, make sure to turn off the computer and unplug the power cord from the power outlet to prevent damage to the memory module. Be sure to install DDR4 DIMMs on this motherboard. Installation Step: Step 1. Insert the DIMM memory module vertically into the DIMM slot, and push it down. Step 2. Close the plastic clip at both edges of the DIMM slots to lock the DIMM module. Note: For dual-channel operation, DIMMs must be installed in matched pairs. Step 3. Reverse the installation steps when you wish to remove the DIMM module.

2 1 2 1-4-3 DIMM Population Table Two Slots Channel RDIMM Population Configuration Within a Channel Type Ranks Per DIMM and Data Width Speed (MT/s); Slot Per Channel (SPC) and DIMM Per Channel (DPC) 1 Slot Per Channel 1DPC 2 Slot Per Channel 1DPC 2133 2DPC 1866 RDIMM SRx4 2133 RDIMM SRx8 2133 2133 1866 RDIMM DRx8 2133 2133 1866 RDIMM DRx4 2133 2133 1866 LRDIMM QRx4 2133 2133 2133 - 18 - Hardware Installation 1-5 Back Panel Connectors PS/2 Keyboard/Mouse Port USB 3.0 Port Coonnect a PS/2 keyboard or mouse to this port. The USB port supports the USB 3.0 specification. Use this port for USB devices such as a USB keyboard/mouse, USB printer, USB flash drive and etc.

Serial Port Video Port Connects to serial-based mouse or data processing devices. The video in port allows connect to video in, which can also apply to video loop thru function. QSFP LAN Port The QSFP LAN port provides Internet connection at up to 40 Gbps data rate (based on the LAN chipset). The following describes the states of the LAN port LEDs. RJ-45 LAN Ports (Gigabit Ethernet LAN Ports) 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. KVM Server Management 10/100/1000 MbpsLAN Port (Dedicated LAN Port) The LAN port provides Internet connection with data transfer speeds of 10/100/1000Mbps. This port is the decated LAN port for server management. ID Switch Button This button provide the selected unit idenfication function. Hardware Installation - 19 - Speed LED Link Activity LED Speed LED: State Yellow On Green On Off Description 1 Gbps data rate 100 Mbps data rate 10 Mbps data rate Link/Activity LED: State On Description Link bet ween system and net work or no access Blinking Data transmission or receiving is occurring Off No data transmission or receiving is occurring 10/100/1000 LAN Port Speed LED Link/ Activity LED QSFP Speed LED: State Green On Yellow On Description 40 Gbps data rate 10 Gbps data rate Link/Activity LED: State On Description Link bet ween system and net work or no access Blinking Data transmission or receiving is occurring Off No data transmission or receiving is occurring QSFP LAN Port 10G/40G LAN Port (With Intel XL710 LAN Chipset) Port 1 Link/ Activity LED Port 0 Link/ Activity LED Link/Activity LED: State On Description Link bet ween system and net work or no access Blinking Data transmission or receiving is occurring Off No data transmission or receiving is occurring QSFP LAN Port 1000/10G LAN Port (With Intel 82599ES LAN Chipset) • When removing the cable connected to a back panel connector, first remove the cable from your device and then remove it from the motherboard.

• When removing the cable, pull it straight out from the connector. Do not rock it side to side to prevent an electrical short inside the cable connector. Hardware Installation - 20 - 1-6 Internal Connectors 26 19 27 28 29 16 15 17 23 4 1 24 25 22 11 5 13 12 30 20 21 2 6 184 14 7 1) 2) 3) 4) 5) 6) 7) 8) 9) 10) 11) 12) 13) 14) 15) ATX1 P12V_AUX2 P12V_AUX1 PMBUS CPU0_FAN (for primary CPU) CPU1_FAN (for seconary CPU) SYS_FAN1 (System Fan) SYS_FAN2 (System Fan) SYS_FAN3 (System Fan) SYS_FAN4 (System Fan) SYS_FAN5 (System Fan) SATA4 SATA5 SAS0/1/2/3/4/5/6/7 MINI_CN1 8 16) 17) 18) 19) 20) 21) 22) 23) 24) 25) 26) 27) 28) 29) 30) - 21 - 3 MINI_CN2 SAS_SGP1 SAS_SGP2 F_USB3 FP_1 BP_1 COM2 TPM LAN4_ACT LAN3_ACT MLAN_LINK MLAN_ACT IPMB LED_BMC BAT 9 10 Hardware Installation 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. - 22 - Hardware Installation 1/2/3) ATX1/P12V_AUX2/P12V_AUX1 (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. P12V_AUX2 5 ATX1 1 P12V_AUX2 8 4 P12V_AUX1 1 4 Pin No.

1 2 3 4 5 6 7 8 Definition GND GND GND GND +12V +12V +12V +12V 5 8 P12V_AUX1 ATX ATX1 13 1 ATX1 24 12 Pin No. 1 2 3 4 5 6 7 8 9 10 11 12 Definition 3.3V 3.3V GND +5V GND +5V GND Power Good 5VSB (stand by +5V) +12V +12V 3.3V Pin No.

13 14 15 16 17 18 19 20 21 22 23 24 Definition 3.3V -12V GND PS_ON GND GND GND -5V +5V +5V +5V GND Hardware Installation ATX_12V - 23 - 4) PMBUS (PMBus connector) 1 5 Pin No. 1 2 3 4 5 Definition PMBus CLK PMBus DATA PMBus Alert GND 3.3V Sense 5/6/7/8/9/10/11) CPU_FAN0/CPU_FAN1/SYS_FAN1/SYS_FAN2/SYS_FAN3/SYS_FAN4/ SYS_FAN5 (CPU Fan/System Fan Headers) The motherboard has two 4-pin CPU fan headers, and five 4-pin system fan headers. 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 motherboard supports CPU fan speed control, which requires the use of a CPU fan with fan speed control design. For optimum heat dissipation, it is recommended that a system fan be installed inside the chassis. CPU0_FAN SYS_FAN5 CPU1_FAN CPU0_FAN SYS_FAN1 CPU1_FAN SYS_FAN2 SYS_FAN3 1 SYS_FAN4 1 1 SYS_FAN5 Pin No. 1 2 3 4 SYS_FAN1 SYS_FAN2 SYS_FAN3 SYS_FAN4 Definition GND +12V Sense Speed Control • Be sure to connect fan cables to the fan headers to prevent your CPU and system from overheating.

Overheating may result in damage to the CPU or the system may hang. • These fan headers are not configuration jumper blocks. Do not place a jumper cap on the headers. - 24 Hardware Installation 12/13) SATA4/SATA5 (SATA 6Gb/s Connectors/Support SATA DOM Function) The SATA connectors conform to SATA 6Gb/s standard and are compatible with SATA 3Gb/s and 1.5Gb/s standard. Each SATA connector supports a single SATA device. Please see page 35 for SATA DOM jumper setting. 7 1 Normal Mode: SATA5 SATA4 SATA DOM Mode: Pin No. 1 2 3 4 5 6 7 Definition GND TXP TXN GND RXN RXP GND Pin No. 1 2 3 4 5 6 7 Definition GND TXP TXN GND RXN RXP P5V DEBUG PORT • A RAID 0 or RAID 1 configuration requires at least two hard drives. If more than two hard drives are configured, the total number of hard drives must be an even number. • RAID 10 configuration requires four hard drives. A (Note) 14) SAS0/SAS1/SAS2/SAS3/SAS4/SAS5/SAS6/SAS7 (SAS cable connectors) When a RAID configuration is built across the SATA 6Gb/s channels, the system performance of the RAID configuration may vary depends on the devices are connected. The SAS connectors conform to SAS 6Gb/s standard. The SAS0/1/2/3/4/5/6/7 ports can be activated by using Gigabyte extension card.

7 1 SAS0 SAS1 SAS2 SAS3 SAS4 SAS5 SAS6 SAS7 Pin No. 1 2 3 4 5 6 7 Definition GND TXP TXN GND RXN RXP GND Hardware Installation - 25 - 15/16) MINI_CN2/MINI_CN1 (Mini SAS cable connectors) The Mini SAS connectors conform to SATA 6Gb/s standard. Each Mini SAS connector supports four SATA device. B1 A1 A18 B18 MINI_CN2 MINI_CN1 Pin No. A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11 A12 A13 A14 A15 A16 A17 A18 Definition GND RX0+ RX0GND RX1+ RX1GND SIB7 SIB3 SIB4 SIB5 GND RX2+ RX2GND RX3+ RX3GND Pin No.

B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11 B12 B13 B14 B15 B16 B17 A18 Definition GND TX0+ TX0GND TX1+ TX1GND SIB0 SIB1 SIB2 SIB6 GND TX2+ TX2GND TX3+ TX3GND Hardware Installation - 26 - 17/18) SAS_SGP1/SAS_SGP2 (SAS SGPIO Headers) SGPIO stands for Serial General Purpose Input/Output which is a 4-signal (or 4-wire) bus used between a Host Bus Adapter (HBA) and a backplane. Out of the 4 signals, 3 are driven by the HBA and 1 is driven by the backplane. Typically, the HBA is a storage controller located inside a server, desktop, rack or workstation computer that interfaces with Hard disk drives (HDDs) to store and retrieve data. 2 1 SAS_SGP1 8 7 SAS_SGP2 Pin No. 1 2 3 4 5 6 7 8 Definition DATAIN No Pin DATAOUT GND GND LOAD NC CLOCK 19) F_USB3 (USB 3.0 Header) The headers conform to USB 3.0 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 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 Definition Power IntA_P1_SSRXIntA_P1_SSRX+ GND IntA_P1_SSTXIntA_P1_SSTX+ GND IntA_P1_DIntA_P1_D+ NC IntA_P2_D+ IntA_P2_DGND IntA_P2_SSTX+ IntA_P2_SSTXGND IntA_P2_SSRX+ IntA_P2_SSRXPower No Pin 20 1 11 10 Hardware Installation - 27 - 20) FP_1 (Front Panel Header) Connect the power switch, reset switch, chassis intrusion switch/sensor 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. 1 2 23 24 Pin No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 Signal Name PWR_LED+ 5VSB KEY ID_LED+ PWR_LED- ID_LED- HDD_LED+ SYS_STATUS+ HDD_LED- SYS_STATUS- PWR_BTN LAN1_LED+ PWR_BTN (GND) LAN1_LED- RST_BTN SDA RST_BTN (GND) SCL ID_BTN CASE_OPEN ID_BTN (GND) LAN2_LED+ NMI_BTN LAN2_LED- Definition Power LED Anode Front Panel Power Key System ID LED Anode Power LED Cathode System ID LED Cathode HDD Activity LED Anode System Fault LED Anode HDD Activity LED Cathode System Fault LED Cathode Power Switch NIC#1 Activity LED Anode Power Switch (GND) NIC#1 Activity LED Cathode Reset Switch SMBus SDA Reset Switch (GND) SMBus SCL System ID Switch Chassis Intrusion System ID Switch (GND) NIC#2 Activity LED Anode NMI to CPU Switch NIC#2 Activity LED Cathode 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, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly. Hardware Installation - 28 - 21) BP_1 (HDD Back Plane Board Hearders) Pin No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 Definition BP_SGP_CLK NC BP_SGP_GLD FAN_GATE_N BP_SGP_DOUT GND KEY Rreset GND BP_LED_A_N BP_LED_G_N GND BP_SGP_DIN NC GND SMB_BP_DATA GND SMB_BP_CLK P_3V3_AUX BMC_ACK P_3V3_AUX BMC_REQ GND KEY BP_PRESENSE GND 1 2 25 26 Hardware Installation - 29 - 22) COM2 (Serial Port Header) The COM header provides 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 6 7 8 9 10 Definition NDCDNSIN NSOUT NDTRGND NDSRNRTSNCTSNRINo Pin 1 2 9 10 23) TPM (TPM Module Connector) 2 1 14 13 Pin No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 Definition CLK_33M_TPM P_3V3_AUX LPC_RST P3V3 LPC_LAD0 IRQ_SERIAL LPC_LAD1 TPM_DET_N LPC_LAD2 NC LPC_LAD3 GND LPC_FRAME_N GND - 30 - Hardware Installation 24/25) LAN4_ACT/LAN3_ACT(LAN4/LAN3 Active LED Header) 1 LAN4_ACT LAN3_ACT 2 Pin No. Definition 1 LED+ 2 LED- 26) MLAN_LINK (Management LAN Port Link LED Header) MLAN_LINK 1 2 Pin No. Definition 1 Link 1G 2 Link 100 Mbps Hardware Installation - 31 - 27) MLAN_ACT (Management LAN Port Active LED Header) MLAN_ACT 1 2 Pin No. Definition 1 Active 2 GND 28) IPMB (IPMB Connector) 3 1 Pin No.

1 2 3 Definition Clock GND Data Hardware Installation - 32 - 29) LED_BMC (BMC Firmware Readiness LED) State On Blinking Off Description BMC firmware is initial BMC firmware is ready AC loss 30) 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. • 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. - 33 - Hardware Installation 1-7 Jumper Settings 10 9 6 5 7 8 11 4 3 2 1 1) 2) 3) 4) 5) 6) SATA_DOM4 SATA_DOM5 CLR_CMOS CASE_OPEN ME_UPDATE BIOS_PWD 7) 8) 9) 10) 11) BIOS_RCVR ME_RCVR S3_MASK SW_RAID BMC_FRB - 34 - Hardware Installation 1/2) SATA_DOM4/SATA_DOM5 (SATA port 4 and port 5 DOM Jumpers) CAUTION! • If the SATA DOM power is supplied by the motherboard, set the jumper to pin 1-2. • If the SATA DOM power is supplied by external power, set the jumper to pin 2-3. • If a SATA type hard drive is connected to the motherboard, please ensure the jumper is closed and set to 2-3 pins (Default setting), in order to reduce any risk of hard disk damage. Please refer to the pin definition table in the following. For SATA_DOM4 1 1 SATA_DOM5 SATA_DOM4 Pin No. 1 2 3 Definition P5V SATA4 Pin7 GND For SATA_DOM5 1 1 Pin No. 1 2 3 Definition P5V SATA5 Pin7 GND 3) CLR_CMOS (Clearing CMOS Jumper) Use this jumper to clear the CMOS values (e.

g. date information and BIOS configurations) and reset the CMOS values to factory defaults. To clear the CMOS values, place a jumper cap on the two pins to temporarily short the two pins or use a metal object like a screwdriver to touch the two pins for a few seconds. 1 1-2 Close: Normal operation (Default setting) 1 2-3 Close: Clear CMOS data. • Always turn off your computer and unplug the power cord from the power outlet before clearing the CMOS values. • After clearing the CMOS values and before turning on your computer, be sure to remove the jumper cap from the jumper. Failure to do so may cause damage to the motherboard. Hardware Installation - 35 - 4) CASE_OPEN (Chassis intrusion Header) CASE_OPEN Open: Normal operation (Default setting) Closed: Enable chassis intrusion alter. 5) ME_UPDATE (ME Update Jumper) ME_UPDATE 1 1-2 Close: Normal operation (Default setting) 1 2-3 Close: ME recovery mode. Hardware Installation - 36 - 6) BIOS_PWD (Clearing Supervisor Password Jumper) BIOS_PWD 1 1-2 Close: Normal operation. (Default setting) 1 2-3 Close: Skip supervisor password. 7) BIOS_RCVR (BIOS Recovery Jumper) BIOS_RCVR 1 1-2 Close: Normal operation. (Default setting) 1 2-3 Close: BIOS recovery mode. Hardware Installation - 37 - 8) ME_RCVR (ME Recovery Jumper) ME_RCVR 1 1-2 Close: Normal operation.(Default setting) 1 2-3 Close: ME recovery mode.

9) S3_MASK (S3 Power On Select Jumper) S3_MASK 1 1-2 Close: Stop an initial power on when BMC is not ready. 2-3 Close: Keep initial power on. (Default setting) 1 - 38 - Hardware Installation 10) SW_RAID (Intel/LSI Software RAID Key Header) SW_RAID 11) BMC_FRB (Force to Stop FRB Timer Jumper) 1 1-2 Close: Normal operation. (Default setting) 1 2-3 Close: Force to Stop FRB Timer. Hardware Installation - 39 - Chapter 2 BIOS Setup BIOS (Basic Input and Output System) records hardware parameters of the system in the EFI 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 <F2> key during the POST when the power is turned on. • BIOS flashing is potentially risky, if you do not encounter problems of using the current BIOS version, it is recommended that you don't 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 Exit section in this chapter or introductions of the battery/clearing CMOS jumper in Chapter 1 for how to clear the CMOS values.

) BIOS Setup Program Function Keys <f><g> Move the selection bar to select the screen <h><i> Move the selection bar to select an item <+> Increase the numeric value or make changes <-> Decrease the numeric value or make changes <Enter> Execute command or enter the submenu <Esc> Main Menu: Exit the BIOS Setup program Submenus: Exit current submenu <F1> Show descriptions of general help <F3> Restore the previous BIOS settings for the current submenus <F9> Load the Optimized BIOS default settings for the current submenus <F10> Save all the changes and exit the BIOS Setup program BIOS Setup - 40 - □ Main This setup page includes all the items in standard compatible BIOS. This setup page includes all the items of AMI BIOS special enhanced features. (ex: Auto detect fan and temperature status, automatically configure hard disk parameters.) □ Advanced □ Intel RC Setup □ Server Management This setup page includes all the submenu options for configuring the function of processor, network, North Bridge, South Bridge, and System event logs. Server additional features enabled/disabled setup menus. □ Security Change, set, or disable supervisor and user password. Configuration supervisor password allows you to restrict access to the system and BIOS Setup. A supervisor password allows you to make changes in BIOS Setup. A user password only allows you to view the BIOS settings but not to make changes.

This setup page provides items for configuration of boot sequence. Save all the changes made in the BIOS Setup program to the CMOS and exit BIOS Setup. (Pressing <F10> can also carry out this task.) Abandon all changes and the previous settings remain in effect. Pressing <Y> to the confirmation message will exit BIOS Setup.

(Pressing <Esc> can also carry out this task.) □ Boot □ Exit - 41 - BIOS Setup 2-1 The Main Menu Once you enter the BIOS Setup program, the Main Menu (as shown below) appears on the screen. Use arrow keys to move among the items and press <Enter> to accept or enter other sub-menu. Main Menu Help The on-screen description of a highlighted setup option is displayed on the bottom line of the Main Menu. Submenu Help While in a submenu, press <F1> to display a help screen (General Help) of function keys available for the menu.

Press <Esc> to exit the help screen. Help for each item is in the Item Help block on the right side of the submenu. • When the system is not stable as usual, select the Restore Defaults item to set your system to its defaults. • The BIOS Setup menus described in this chapter are for reference only and may differ by BIOS version. BIOS Setup - 42 - BIOS Information Porject Name Porject Version Display the project name information. Display version number of the BIOS setup utility. BIOS Build Date and Time BMC Information BMC Firmware Version SDR Reversion FRU Version Displays the date and time when the BIOS setup utility was created. Display BMC firmware version information. Display the SDR version information. Display the FRU version information.

Processor Information CPU Brand String/Max CPU Speed/CPU Signature/Processors Core/Microcode Patch Memory Information Total Memory Memory Frequency Displays the technical specifications for the installed processor. Display the total memory size of the installed memory. Display the frequency information of the installed memory. - 43 BIOS Setup Onboard LAN Information LAN1/LAN2/LAN3/LAN4 MAC Address System Date Display LAN1/LAN2/LAN/LAN4 MAC address information. Set the date following the weekday-month-day- year format. Set the system time following the hour-minute- second format. System Time BIOS Setup - 44 - 2-2 Advanced Menu The Advanced menu display submenu options for configuring the function of various hardware components. Select a submenu item, then press Enter to access the related submenu screen. - 45 - BIOS Setup 2-2-1 Serial Port Console Redirection BIOS Setup - 46 - - 47 - BIOS Setup COM1/COM2/Serial Over LAN Console Redirection Settings Console Redirection (Note) Select whether to enable console redirection for specified device. Console redirection enables users to manage the system from a remote location.

Options available: Enabled/Disabled. Default setting is Disabled. Console Redirection Settings Terminal Type Bits per second Select a terminal type to be used for console redirection. Options available: VT100/VT100+/ANSI /VT-UTF8. Default setting is ANSI.

Select the baud rate for console redirection. Options available: 9600/19200/38400/57600/115200. Default setting is 115200. Select the data bits for console redirection. Options available: 7/8.

Default setting is 8. @@Even: parity bi is 0 if the num of 1's in the data bits is even. Odd: parity bit is 0 if num of 1's in the data bits is odd. Mark: parity bit is always 1. Space: Parity bit is always 0. Mark and Space Parity do not allow for error detection. Options available: None/Even/Odd/Mark/Space. Default setting is None. Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning).

The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit. Options available: 1/2. Default setting is 1. Flow control can prevent data loss from buffer overflow. @@@@Hardware flow control uses two wires to send start/stop signals. Options available: None/Hardware RTS/CTS. Default setting is None. Enable/Disable VT-UTF8 Combo Key Support. Options available: Enabled/Disabled.

Default setting is Enabled. When this mode enabled, only text will be send. This is to capture Terminal data. Options available: Enabled/Disabled. @@Default setting is Enabled.

@@@@Options available: 80x24/80X25. @@Options available: VT100/LINUX/XTERMR6/SCO/ESCN/VT400. @@Options available: Always Enable/Boot Loader. Default setting is Always Enable. @@Options available: COM1/COM2.

@@@@Options available: Enabled/Disabled. Default setting is Enabled. Enable/Disable onboard LAN devices. Options available: Enabled/Disabled. Default setting is Enabled. Enable/Disable onboard LAN devices and initialize device expansion ROM. Options available: Enabled/Disabled. Default setting is Enabled. Onboard LAN#1/#2/#3/#4 Controller Onboard LAN #1/#2/#3/#4 I/O ROM PCI Devices Common Settings PCI Latency Timer VGA Palette Snoop Value to be programmed into PCI Latency Timer Register. Options available: 32 PCI Bus Clocks/64 PCI Bus Clocks/96 PCI Bus Clocks/128 PCI Bus Clocks/160 PCI Bus Clocks/192 PCI Bus Clocks/224 PCI Bus Clocks/248 PCI Bus Clocks/.

Default setting is 32 PCI Bus Clocks. Enable/Disable VGA Palette Tegisters Snooping. Options available: Enabled/Disabled. Default setting is Disabled. Enable/Disable Above 4G Decoding. Options available: Enabled/Disabled.

Default setting is Disabled. Above 4G Decoding BIOS Setup - 50 - SR-IOV Support If system has SR-IOV capable PCIe Devices, this option enables or disables Single Root IO Virtualization Support. Options available: Enabled/Disabled. Default setting is Disabled.

Press [Enter] for configuration of advanced items. PCI Express Settings - 51 - BIOS Setup 2-2-2-1 PCI Express Settings PCI Express Device Register Settings Relaxed Ordering Enable/DIsable PCI Express Device Relaxed Ordering feature. Options available: Enabled/Disabled. Default setting is Disabled. Wnen this feature is enabled, the system will allow device to use 8-bit Tag field as a requester.

Options available: Enabled/Disabled. Default setting is Disabled. Enable/Disable PCI Express Device No Snoop option. Options available: Enabled/Disabled. Default setting is Enabled.

@@@@@@Options available: Enabled/Disabled. Default setting is Disabled. @@Options available: Disabled/2/3/5.Default setting is 5. @@@@Value rang is from 10 to 10000 us. @@Options available: Keep Link ON/ Disable Link. @@Options available: Enabled/DIsabled. Default setting is Disabled. Enable/Disable Ipv4 PXE feature. Options available: Enabled/DIsabled.

Default setting is Enabled. Enable/Disable Ipv6 PXE feature. Options available: Enabled/DIsabled. Default setting is Enabled. @@ Ipv4 PXE Support(Note) Ipv6 PXE Support(Note) PXE boot wait time(Note) Media detect time(Note) (Note) This item appears when Network Stack is set to Enabled. @@Options available: Enabled/Disabled. Default setting is Enabled. Display CSM Module version information. Upon Request: GA20 can be disabled using BIOS services. @@Options available: Upon Request/Always.

Default setting is Upon Request. Option ROM Messages. Options available: Force BIOS/Keep Current. Default setting is Force BIOS. @@Default setting is Enabled.

Determines which devices system will boot to. Options available: UEFI and Legacy/Legacy only/UEFI only. @@Options available: Do not launch/UEFI/Legacy. @@Options available: Do not launch/UEFI/Legacy. @@Options available: Do not launch/UEFI/Legacy. @@Options available: UEFI/Legacy. @@Options available: Enabled/Disabled. @@Options available: Enabled/Disabled. Default setting is Disabled. @@Enable/Disable XHCI (USB 3.0) Hand-off support. Options available: Enabled/Disabled. Default setting is Enabled. Enable/Disable EHCI (USB 2.0) Hand-off function.

Options available: Enabled/Disabled. Default setting is Disabled. Enable/Disable USB Mass Storage Driver Support. Options available: Enabled/Disabled. Default setting is Enabled. Enable I/O port 60h/64h emulation support. @@Options available: Enabled/Disabled. @@- 59 BIOS Setup 2-2-8 Chipset Configuration Restore on AC Power Loss (Note) Defines the power state to resume to after a system shutdown that is due to an interruption in AC power. When set to Last State, the system will return to the active power state prior to shutdown. When set to Stay Off, the system remains off after power shutdown. Options available: Last State/Stay Off/Power On. The default setting depends on the BMC setting. Enable/Disable Deep Sleep mode. Options available: Enabled/Disabled. Default setting is Disabled.

Configure ystem fan curve mode Options available: Full Dpeed Mode/Performance ModeBalanced mode/Energy Saving Mode. Default setting is Performance Mode. Enable/Disable Chassis intrusion alter funtion. Options available: Enabled/Disabled. Default setting is Disabled.

*Deep Sleep (EuP) Fan Curve Mode Chassis Opened Warning (Note) When the power policy is controlled by BMC, please wait for 15-20 seconds for BMC to save the last power state. BIOS Setup - 60 - 2-9 SIO Configuration - 61 - BIOS Setup BIOS Setup - 62 - AMI SIO Driver Version Super IO Chip Logical Device(s) Configuration [*Active*] Serial Port 1/2 [*Active*] PS2 Keyboard [*Active*] PS2 Mouse Press [Enter] for confuguration of advanced items. Press [Enter] for confuguration of advanced items. Press [Enter] for confuguration of advanced items. Display the AMI SIO driver version information. Serial Port 1 Configuration Use This Device Logical Device Settings: Current: Possible: When enabled allows you to configure the serial port 1 settings. When set to Disabled, displays no configuration for the serial port. Options available: Enabled/Disabled. Default setting is Enabled. Display the Serial Port 1 base I/O addressand IRQ.*

Configure Serial Port 1 base I/O addressand IRQ. Option available: Use Automatic Settings IO=3F8h; IRQ=4; DMA;/ IO=3F8h; IRQ=3,4,5,7,9,10,11,12; DMA;/ IO=2F8h; IRQ=3,4,5,7,9,10,11,12; DMA;/ IO=3E8h; IRQ=3,4,5,7,9,10,11,12; DMA;/ - 63 - BIOS Setup Serial Port 2 Configuration Use This Device IO=2E8h; IRQ=3,4,5,7,9,10,11,12; DMA; Default setting is Use Automatic Settings. Logical Device Settings: Current: Possible: When enabled allows you to configure the serial port 2 settings. When set to Disabled, displays no configuration for the serial port. Options available: Enabled/Disabled. Default setting is Enabled. Display the Serial Port 2 base I/O addressand IRQ. Configure Serial Port 2 base I/O addressand IRQ. Option available: Use Automatic Settings/ IO=2F8h; IRQ=3; DMA;/ IO=3F8h; IRQ=3,4,5,7,9,10,11,12; DMA;/ IO=2F8h; IRQ=3,4,5,7,9,10,11,12; DMA;/ IO=3E8h; IRQ=3,4,5,7,9,10,11,12; DMA;/ IO=2E8h; IRQ=3,4,5,7,9,10,11,12; DMA;/ Default setting is Use Automatic Settings. PS2 Keyboard Configuration Logical Device Settings: Current: Possible: Display the PS2 keyboard base I/O addressand IRQ.

Configure PS2 keyboard base I/O addressand IRQ. Option available: Use Automatic Settings/IO=60h; IO=64h; IRQ=1. Default setting is Use Automatic Settings. PS2 Mouse Configuration Logical Device Settings: Current: Possible: Display the PS2 mouse base I/O addressand IRQ. Configure PS2 nouse base I/O addressand IRQ.

Option available: Use Automatic Settings/IRQ=12;. Default setting is Use Automatic Settings. BIOS Setup - 64 - 2-2-10 iSCSI Configuration iSCSI Initiator Name Add an Attempts Delete Attempts Press [Enter] for configuration of advanced items. Press [Enter] for configuration of advanced items. Press [Enter] for configuration of advanced items.

Change Attempt Order - 65 - BIOS Setup 2-3 Intel RC Setup Menu Intel RC Setup menu displays submenu options for configuring the function of North Bridge and South Bridge. Select a submenu item, then press Enter to access the related submenu screen. RC Revision Display Intel RC version information. BIOS Setup - 66 - 2-3-1 Processor Configuration - 67 - BIOS Setup Processor Configuration Pre-Socket Configuration Press [Enter] for configuration of advanced items. Processor Socket/Processor ID/Processor Frequency/Processor Max Raito/ Processor Min Raio/Microcode Revision/L1 Cache RAM/L2 Cache RAM/L3 Cache RAM/ Processor 0/1Version Hyper-Threading [All] Displays the technical specifications for the installed processor.

The Hyper Threading Technology allows a single processor to execute two or more separate threads concurrently. @@Options available: Enabled/Disabled. Default setting is Enabled. @@This provides some protection against buffer overflow attacks. @@This makes the processor more vulnerable to buffer overflow attacks.

Options available: Enabled/Disabled. Default setting is Enabled. Enable/Disable Intel Trusted Execution Technology support function. Options available: Enabled/Disabled. Default setting is Disabled. Enable/Disable Vanderpool Technology. This will take effect after rebooting the system. Options available: Enabled/Disabled. Default setting is Enabled. Enable/Disblae Intel Safer Mode Extensions (SMX) support function.
Options available: Enabled/Disabled. Default setting is Disabled. @@Options available: Enabled/Disabled. Default setting is Enabled. When enabled, cache lines are fetched in pairs.
When disabled, only the required cache line is fetched. Options available: Enabled/Disabled. Default setting is Enabled. @@Options available: Enabled/Disabled. Default setting is Enabled.
@@Options available: Enabled/Disabled. Default setting is Enabled. Configure DCU mode. Options available: 32KB 8Way Without ECC/16KB 4Way With ECC. Default setting is 32KB 8Way Without ECCC. @@Default setting is Auto. @@Default setting is 32. Options available: Enabled/Disabled. @@Options available: Enabled/Disabled. @@Number of Cores to enable.

0 means all cores. 14 Cores is available. @@Default setting is Energy Efficient. Options available: Enabled/Disabled. Default setting is Disabled. Press [Enter] for configuration of advanced items. Press [Enter] for configuration of advanced items. Press [Enter] for configuration of advanced items. CPU P State Control CPU C State Control CPU T State Control BIOS Setup - 72 - 2-3-2-1 CPU P State Control EIST (P-State) Conventional Intel SpeedStep Technology switches both voltage and frequency in tandem between high and low levels in response to processor load. Options available: Enabled/Disabled. Default setting is Enabled. When this item is enabled, tje processor will automatically ramp up the clock speed of 1-2 of its processing cores to improve its performance. When this item is disabled, the processor will not overclock any of its core. Options available: Enabled/Disabled. Default setting is Enabled. In HW_ALL mode, the processor hardware is responsible for coordinating the P-state among logical processors dependencies. The OS is responsible for keeping the P-state request up to date on all logical processors. In SW_ALL mode, the OS Power Manager is responsible for coordinating the P-state among logical processors with dependencies and must initiate the transition on all of those Logical Processors. In SW_ANY mode, the OS Power Manager is responsible for coordinating the P-state among logical processors with dependencies and may initiate the transition on any of those Logical Processors. Options available: HW_ALL/SW_ALL/SW_ANY.
Default setting is HW_ALL. Turbo Mode P-state coordination - 73 - BIOS Setup 2-3-2-2 CPU C State Control Package C State Limit Configure state for the C-State package limit. Options available: C0/C1 state/C2 state/C6(non Retention) state/C6(Retention) state. Default setting is C6(non Retention) state. Allows you to determine whether to let the CPU enter C3/C6 mode in system halt state. When enabled, the CPU core frequency and voltage will be reduced during system halt state to decrease power consumption. The C3/C6 state is a more enhanced power-saving state than C1. Options available: Enabled/Disabled. Default setting for C3 is Disabled; default setting for C6 is Enabled. CPU C3/C6 Report BIOS Setup - 74 - 2-3-2-3 CPU T State Control ACPI T-States Enable/Disable CPU throttling by OS.

Thorttling reduces power comsumption. Options available: Enabled/Disabled. Default setting is Enabled. - 75 - BIOS Setup 2-3-3 Common RefCode Configuration Common RefCode Configuration Isoc Mode Numa (Non-Uniform Memory Access) Options available: Auto/Enabled/Disabled. Default setting is Auto. Options available: Enabled/Disabled. Default setting is Enabled. BIOS Setup - 76 - 2-3-4 QPI Configuration - 77 - BIOS Setup QPI General Configuration QPI Status Press [Enter] for configuration of advanced items. Press [Enter] to view QPI status. Options available: Slow/Fast.
Default setting is Fast. Options available: 6.4GB/s/8.0GB/s/9.6GB/s/Auto/Auto Limited.
Default setting is Auto. Link Speed Mode Link Frequency Select BIOS Setup - 78 - 2-3-5 Memory Configuration Integrated Memory Controller (iMC) Enforce POR Enable to enforce POR restrictions for DDR4 frequency and voltage programming. Options available: Enforce POR/Disabled/Enforce Stretch Goals. Default setting is Enforce POR. Configure memory frequency.
Options available: Auto/1333/1400/1600/1800/1867/2000/2133. Default setting is Auto. Options available: Auto/Disabled/Enabled. Default setting is Auto. Options available: Auto/Disabled/Enabled. Default setting is Auto. Display RMT Pattern Length. Options available: Enabled/Disabled. Default setting is Enabled. Press [Enter] for configuration of advanced items.

Press [Enter] for configuration of advanced items. Memory Frequency ECC Support Rank Margin Tool RMT Pattern Length SPD Write Lock Memory Topology Memory Thermal - 79 - BIOS Setup Memory Map Memory RAS Configuration Press [Enter] for configuration of advanced items. Press [Enter] for configuration of advanced items. BIOS Setup - 80 - 2-3-5-1 Memory Topology - 81 - BIOS Setup 2-3-5-2 Memory Thermal Set Throttling Mode Configure Thermal Throttling Mode. Select OLTT or CLTT mode. Options available: Disabled/CLTT Mode. Default setting is CLTT Mode. Options available: Disabled/Output-only/Input-only. Default setting is Input-only. MEMHOT Throttling Mode BIOS Setup - 82 - 2-3-5-3 Memory Map Socket Interleave Below 4GB Splits the 0-4GB address space between two sockets, so that both sockets get a chunk of local memory below 4GB.
Options available: Disabled/Enabled. Default setting is Disabled. Options available: Auto/1-way Interleave/2-way Interleave/3-way Interleave/4-way Interleave. Default setting is Auto. Options available: Auto/1-way Interleave/2-way Interleave/4-way Interleave/8-way Interleave.
Default setting is Auto. Channel Interleaving Rank Interleaving - 83 - BIOS Setup 2-3-5-4 Memory RAS Configuration RAS Mode Enable/Disable RAS modes. Enabling Sparing and Mirroring is not supported. When this item is set to enabled, Sparing will be selected. Options available: Disable/Mirror/Lockstep Mode.
Default setting is Disabled. Options available: Auto/Disabled/Enabled. Default setting is Auto. Options available: Disabled/Enabled. Default setting is Disabled. Lockstep x4 DIMMs Memory Rank Sparing Correctable Error Threshold BIOS Setup - 84 - 2-3-6 IIO Configuration IIO Configuration EV DFX Features Set this option to allow DFX Lock Bits to remain clear.

Options available: Enabled/Disabled. Default setting is Disabled. Press [Enter] for configuration of advanced items. Press [Enter] for configuration of advanced items.

IOAT Configuration Intel VT for Directed I/O (VT-d) - 85 - BIOS Setup 2-3-6-1 IOAT Configuration IOAT Configuration Enable IOAT Control to enable/disable IOAT (Intel I/O Acceleration Technology) device. Options available: Enabled/Disabled. Default setting is Disabled. Enable/Disable PCI Express Device No Snoop option. Options available: Enabled/Disabled. Default setting is Disabled. No Snoop BIOS Setup - 86 - 2-3-6-2 Intel VT for Directed I/O (VT-d) Intel VT for Directed I/O (VT-d) VT-d Azalea VCp Optimizations Enable/Disable Azalea VCp optimizations. Options available: Enabled/Disabled. Default setting is Disabled. Enable/Disable Intel VT for Directed I/O (VT-d) support function.
Options available: Enabled/Disabled. Default setting is Enabled. Enable/Disable interrupt remapping support function. Options available: Enabled/Disabled. Default setting is Enabled.
Options available: Enabled/Disabled. Default setting is Enabled. Options available: Enabled/Disabled. Default setting is Enabled. Intel VT for Directed I/O (VT-d) Interrupt Remapping Coherency Suuport (Non-Isoch) Coherency Suuport (Isoch) - 87 - BIOS Setup 2-3-7 PCH Configuration PCH Configuration PCH Devices PCH sSATA Configuration PCH SATA Configuration USB Configuration Press [Enter] for configuration of advanced items.
Press [Enter] for configuration of advanced items. Press [Enter] for configuration of advanced items. Press [Enter] for configuration of advanced items. BIOS Setup - 88 - 2-3-7-1 PCH Devices PCH CRID Enable/Disable Intel Compatible Revision ID. Options available: Enabled/Disabled. Default setting is Disabled. - 89 - BIOS Setup 2-3-7-2 PCH sSATA Configuration BIOS Setup - 90 - When SATA Type is set to IDE PCH sSATA Configuration sSATA Controller(s) Enable/Disable sSATA controller. Options available: Enabled/Disabled. Default setting is Enabled. Coonfigure on chip SATA type.

IDE Mode: When set to IDE, the SATA controller disables its RAID and AHCI functions and runs in the IDE emulation mode. This is not allowed to access RAID setup utility. RAID Mode: When set to RAID, the SATA controllerenables both its RAID and AHCI functions. You will be allows access the RAID setup utility at boot time. ACHI Mode: When set to AHCI,the SATA controller enables its AHCI functionality. Then the RAID function is disabled and cannot be access the RAID setup utility at boot time. Options available: IDE/RAID/ACHI/Disabled. Default setting is ACHI. Enable/Disable SATA Test Mode. Options available: Enabled/Disabled.
Default setting is Disabled. Press [Enter] for configuration of advanced items. Configure sSATA as SATA Test Mode SATA Mode options(Note) Support Aggressive Link Power Mana(Note) Enable PCH to aggressively enter link power state. Options available: Enabled/Disabled. Default setting is Enabled. Only Supported When HDD is in AHCI or RAID Mode. - 91 - (Note) BIOS Setup Alternate Device ID on RAID Enable /Disable Alternate Device ID on RAID mode. Options available: Enabled/Disabled. Default setting is Disabled. Please note that this option appears when HDD is in RAID Mode.
The category identifies sSATA type of hard disk that are installed in the computer. System will automatically detect HDD type. Enable/Disable Port 0/1/2/3 device. Options available: Enabled/Disabled. Default setting is Enabled. Enable/Disable HDD Hot-Plug function. Options available: Enabled/Disabled. Default setting is Disabled. Display Hot-Plug supported information. sSATA Port 0/1/2/3 Port 0/1/2/3 Hot Plug (for Port 0/1/2/3)(Note) Configured as eSATA(Note) Spin Up Device (for Port 0/1/2/3)(Note) On an edge detect from 0 to 1, the PCH starts a COM reset initialization to the device.

Options available: Enabled/Disabled. Default setting is Disabled. Select sSATA device type. Options available: Hard Disk Drive/Solid State Drive. Default setting is Hard Disk Drive. sSATA Device Type (Note) Only Supported When HDD is in AHCI or RAID Mode. BIOS Setup - 92 - 2-3-7-2-1 SATA Mode Options When SATA Type is set to IDE/AHCI Mode SATA LED locate When this option is enabled, LED/SGPIO hardware is attached. Options available: Enabled/Disabled. Default setting is Enabled. - 93 - BIOS Setup When SATA Type is set to RAID Mode SATA LED locate When this option is enabled, LED/SGPIO hardware is attached.
Options available: Enabled/Disabled. Default setting is Enabled. Enable/Disable Intel Rapid Recovery Technology support function. Options available: Enabled/Disabled. Default setting is Enabled.
Options available: Enabled/Disabled. Default setting is Enabled. Options available: Enabled/Disabled. Default setting is Enabled. Enable/Disable Intel Smart Response Technology support function.
Options available: Enabled/Disabled. Default setting is Enabled. Options available: 2 Seconds/4 Seconds/6 Seconds/8 Seconds. Default setting is 2 Seconds. Intel Rapid Recovery Technology RAID Option ROM UI banner IRRT Only on ESATA Smart Response Technology RAID OROM prompt delay BIOS Setup - 94 - 2-3-7-3 PCH SATA Configuration - 95 - BIOS Setup When SATA Type is set to IDE PCH SATA Configuration SATA Controller(s) Enable/Disable sSATA controller. Options available: Enabled/Disabled. Default setting is Enabled. Coonfigure on chip SATA type. IDE Mode: When set to IDE, the SATA controller disables its RAID and AHCI functions and runs in the IDE emulation mode. This is not allowed to access RAID setup utility.

RAID Mode: When set to RAID, the SATA controllerenables both its RAID and AHCI functions. You will be allows access the RAID setup utility at boot time. ACHI Mode: When set to AHCI,the SATA controller enables its AHCI functionality. Then the RAID function is disabled and cannot be access the RAID setup utility at boot time. Options available: IDE/RAID/ACHI/Disabled. Default setting is ACHI. Enable/Disable SATA Test Mode. Options available: Enabled/Disabled. Default setting is Disabled. Enable/Disable SATA RSTe Boot Information.
Options available: Enabled/Disabled. Default setting is Enabled. Configure sSATA as SATA Test Mode SATA RSTe Boot Info(Note 1) SATA Mode options(Note 2) Press [Enter] for configuration of advanced items. (Note 1) Only Supported When HDD is in RAID Mode. (Note 2) Only Supported When HDD is in AHCI or RAID Mode.
BIOS Setup - 96 - Support Aggressive Link Power Mana(Note) Enable PCH to aggressively enter link power state. Options available: Enabled/Disabled. Default setting is Enabled. Alternate Device ID on RAID sSATA Port 0/1/2/3/4/5 Enable /Disable Alternate Device ID on RAID mode. Options available: Enabled/Disabled.
Default setting is Disabled. Please note that this option appears when HDD is in RAID Mode.

The category identifies sSATA type of hard disk that are installed in the computer. System will automatically detect HDD type. Enable/Disable Port 0/1/2/3 device. Options available: Enabled/Disabled. Default setting is Enabled. Enable/Disable HDD Hot-Plug function. Options available: Enabled/Disabled. Default setting is Disabled.

Display Hot-Plug supported information. Port 0/1/2/3/4/5 Hot Plug (for Port 0/1/2/3/4/5)(Note) Configured as eSATA(Note) Spin Up Device (for Port 0/1/2/3/4/5)(Note) On an edge detect from 0 to 1, the PCH starts a COM reset initialization to the device. Options available: Enabled/Disabled. Default setting is Disabled. Select sSATA device type. Options available: Hard Disk Drive/Solid State Drive. Default setting is Hard Disk Drive. sSATA Device Type (Note) Only Supported When HDD is in AHCI or RAID Mode. - 97 - BIOS Setup 2-3-7-3-1 SATA Mode Options When SATA Type is set to IDE/AHCI Mode SATA LED locate When this option is enabled, LED/SGPIO hardware is attached. Options available: Enabled/Disabled.
Default setting is Enabled. BIOS Setup - 98 - When SATA Type is set to RAID Mode SATA LED locate When this option is enabled, LED/SGPIO hardware is attached. Options available: Enabled/Disabled. Default setting is Enabled. Enable/Disable Intel Rapid Recovery Technology support function.
Options available: Enabled/Disabled. Default setting is Enabled. Options available: Enabled/Disabled. Default setting is Enabled. Enable/Disable Intel Smart Response Technology support function.
Options available: Enabled/Disabled. Default setting is Enabled. Options available: 2 Seconds/4 Seconds/6 Seconds/8 Seconds. Default setting is 2 Seconds. Intel Rapid Recovery Technology RAID Option ROM UI banner Smart Response Technology RAID OROM prompt delay - 99 - BIOS Setup 2-3-7-4 USB Configuration USB Precondition Precondition work on USB host conteoller and root ports for faster enumeration. Options available: Enabled/Disabled. Default setting is Disabled. Enable/Disable xHCI (USB 3.0) support function. Options available: Smart Auto/Enabled/Disabled.

Default setting is Smart Auto. xHCI Mode BIOS Setup - 100 - 2-3-8 Miscellaneous Configuration Miscellaneous Configuration Active Video Select active Video type. Options available: Onboard Device/Offboard Device. Default setting is Offboard Device. - 101 - BIOS Setup 2-3-9 Server ME Configuration Greneral ME Configuration Operational Firmware Version Recovery Firmware Version ME Firmware Features Display Operational Firmware Version information. Display Recovery Firmware Version information. Display ME Firmware features information. Display ME Firmware status information. Display ME Firmware current status information. Display ME Firmware status error code.
Configure MCTP Bus Owner. ME Firmware Status #1/#2 Current State (for ME Firmware) Error Code (for ME Firmware) MCTP Bus Owner BIOS Setup - 102 - 2-3-10 Runtime Error Logging Runtime Error Logging System Errors Enable/Disable system error logging function. Options available: Enabled/Disabled. Default setting is Enabled. Enable/Disable software injection error logging function.
Options available: Enabled/Disabled. Default setting is Disabled. Press [Enter] for configuration of advanced items. Press [Enter] for configuration of advanced items. Press [Enter] for configuration of advanced items.
S/W Error Injection Support Whea Settings Memory Error Enabling PCI/PCI Error Enabling - 103 - BIOS Setup 2-3-10-1 Whea Setting WHEA Support (Windows Hardware Error Architecture) Enable/Disable WHEA Support. Options available: Enabled/Disabled. Default setting is Enabled. BIOS Setup - 104 - 2-3-10-2 Memory Error Enabling Memory Error Enabling Un-Correctable Errors disable Memory Memory corrected Errors enabling Options available: Enabled/Disabled. Default setting is Disabled. Options available: Enabled/Disabled. Default setting is Disabled. - 105 - BIOS Setup 2-3-10-3 PCI/PCI Error Enabling PCI-Ex Error Enable (Note) Corrected Error Enable Options available: Yes/No. Default setting is No. Options available: Enabled/Disabled.

Default setting is Disabled. Options available: Enabled/Disabled. Default setting is Enabled. Options available: Enabled/Disabled. Default setting is Enabled. When this item is set to enabled, PCI bus system error (SERR) is generated and is routed to NMI. Options available: Yes/No. Default setting is Yes. When this item is set to Yes, PCI bus parity error (PERR) is generated and is routed to NMI. Options available: Yes/No.
Default setting is Yes. Uncorrected Error Enable Fatal Error Enable Enable SERR propagation Enable PERR propagation (Note) Advanced items prompt when this item is set to Yes. BIOS Setup - 106 - 2-4 Server Management Menu FRB-2 Timer Enable/Disable FRB-2 timer (POST timer). Options available: Enabled/Disabled. Default setting is Disabled.
FRB2 Timer timeout FRB2 Timer Policy Configure the FRB2 Timer timeout. Options available: 3 minutes/4 minutes/5 minutes/6 minutes. Default setting is 6 minutes. Please note that this item is configurable when FRB-2 Timer is set to Enabled. Configure the FRB2 Timer policy.
Options available: Do Nothing/Reset/Power Down. Default setting is Do Nothing. Please note that this item is configurable when FRB-2 Timer is set to Enabled. Enable/Disable OS Watchdog Timer function. Options available: Enabled/Disabled. Default setting is Disabled. Configure OS Watchdog Timer. Options available: 5 minutes/10 minutes/15 minutes/20 minutes. Default setting is 10 minutes. Please note that this item is configurable when OS Watchdog Timer is set to Enabled.

OS Watchdog Timer OS Wtd Timer Timeout OS Wtd Timer Policy Configure OS Watchdog Timer Policy. Options available: Reset/Do Nothing/Power Down. Default setting is Reset. Please note that this item is configurable when OS Watchdog Timer is set to Enabled. - 107 BIOS Setup System Event Log View FRU Information Press [Enter] for configuration of advanced items. Press [Enter] to view the advanced items. Press [Enter] for configuration of advanced items. BMC network configuration BIOS Setup - 108 - 2-4-1 System Event Log Enabling/Disabling Options SEL Components Change this to enable or disable all features of System Event Logging during boot. Options available: Enabled/Disabled. Default setting is Enabled.
Erasing Settings Erasing SEL When SEL is Full Choose options for erasing SEL. Options available: No/Yes, On next reset/Yes, On every reset. Default setting is No. Choose options for reactions to a full SEL. Options available: Do Nothing/Erase Immediately.
Default setting is Do Nothing. Custom EFI Logging Options Log EFI Status Codes Enable/Disable the logging of EFI Status Codes (if not already converted to legacy). Options available: Disabled/Both/Error code/Progress code.