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User manual ASROCK FATAL1TY H87 PERFORMANCE
User guide ASROCK FATAL1TY H87 PERFORMANCE
Operating instructions ASROCK FATAL1TY H87 PERFORMANCE
Instructions for use ASROCK FATAL1TY H87 PERFORMANCE
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Manual abstract:

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, All Rights Reserved. Fatal1ty Story Who knew that at age 19, I would be a World Champion PC gamer. When I was 13, I actually played competitive billiards in professional tournaments and won four or five games off guys who played at the highest level. I actually thought of making a career of it, but at that young age situations change rapidly. Because I've been blessed with great hand-eye coordination and a grasp of mathematics (an important element in video gaming) I gravitated to that activity. GOING PRO I started professional gaming in 1999 when I entered the CPL (Cyberathlete Professional League) tournament in Dallas and won $4,000 for coming in third place. Emerging as one of the top players in the United States, a company interested in sponsoring me flew me to Sweden to compete against the top 12 players in the world. I won 18 straight games, lost none, and took first place, becoming the number one ranked Quake III player in the world in the process. Two months later I followed that success by traveling to Dallas and defending my title as the world's best Quake III player, winning the $40,000 grand prize. From there I entered competitions all over the world, including Singapore, Korea, Germany, Australia, Holland and Brazil in addition to Los Angeles, New York and St.

Louis. WINNING STREAK I was excited to showcase my true gaming skills when defending my title as CPL Champion of the year at the CPL Winter 2001 because I would be competing in a totally different first person shooter (fps) game, Alien vs. Predator II. I won that competition and walked away with a new car. The next year I won the same title playing Unreal Tournament 2003, becoming the only three-time CPL champion of the year. And I did it playing a different game each year, something no one else has ever done and a feat of which I am extremely proud. At QuakeCon 2002, I faced off against my rival ZeRo4 in one of the most highly anticipated matches of the year, winning in a 14 to (-1) killer victory. Competing at Quakecon 2004, I became the World's 1st Doom3 Champion by defeating Daler in a series of very challenging matches and earning $25,000 for the victory. Since then Fatal1ty has traveled the globe to compete against the best in the world, winning prizes and acclaim, including the 2005 CPL World Tour Championship in New York City for a $150,000 first place triumph. In August 2007, Johnathan was awarded the first ever Lifetime Achievement Award in the four year history of the eSports-Award for "showing exceptional sportsmanship, taking part in shaping eSports into what it is today and for being the prime representative of this young sport.

He has become the figurehead for eSports worldwide". LIVIN' LARGE Since my first big tournament wins, I have been a "Professional Cyberathlete", traveling the world and livin' large with lots of International media coverage on outlets such as MTV, ESPN and a 60 Minutes segment on CBS to name only a few. It's unreal - it's crazy. I'm living a dream by playing video games for a living. I've always been athletic and took sports like hockey and football very seriously, working out and training hard.

This discipline helps me become a better gamer and my drive to be the best has opened the doors necessary to become a professional. A DREAM Now, another dream is being realized – building the ultimate gaming computer, made up of the best parts under my own brand. Quality hardware makes a huge difference in competitions…a couple more frames per second and everything gets really nice. It's all about getting the computer processing faster and allowing more fluid movement around the maps. My vision for Fatal1ty hardware is to allow gamers to focus on the game without worrying about their equipment, something I've preached since I began competing.

I don't want to worry about my equipment. I want to be there – over and done with - so I can focus on the game. I want it to be the fastest and most stable computer equipment on the face of the planet, so quality is what Fatal1ty Brand products represent. Johnathan "Fatal1ty" Wendel The Fatal1ty name, Fatal1ty logos and the Fatal1ty likeness are registered trademarks of Fatal1ty, Inc., and are used under license. © 2013 Fatal1ty, Inc. All rights reserved. All other trademarks are the property of their respective owners. Contents Chapter 1 Introduction 1.1 Package Contents 1 1 2 6 10 12 1.

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Fatal1ty H87 Performance Series Chapter 1 Introduction Thank you for purchasing ASRock Fatal1ty H87 Performance Series motherboard, a reliable motherboard produced under ASRock's consistently stringent quality control.

It delivers excellent performance with robust design conforming to ASRock's commitment to quality and endurance. In this manual, Chapter 1 and 2 contains the introduction of the motherboard and step-by-step installation guides. Chapter 3 contains the operation guide of the software and utilities. Chapter 4 contains the configuration guide of the BIOS setup. Because the motherboard specifications and the BIOS software might be updated, the content of this manual will be subject to change without notice. In case any modifications of this manual occur, the updated version will be available on ASRock's website without further notice. If you require technical support related to this motherboard, please visit our website for specific information about the model you are using. You may find the latest VGA cards and CPU support list on ASRock's website as well. ASRock website http://www.asrock.

com. 1.1 Package Contents • • • • •ASRock Fatal1ty H87 Performance Series Motherboard (ATX Form Factor) ASRock Fatal1ty H87 Performance Series Quick Installation Guide ASRock Fatal1ty H87 Performance Series Support CD 2 x Serial ATA (SATA) Data Cables (Optional) 1 x I/O Panel Shield 1 English

1.2 Specifications Platform • ATX Form Factor • ASRock DuraCap (2.5 x longer life time) (100% Japan-made high-quality Conductive Polymer Capacitors) • Home Cloud TM • Purity Sound • HDMI-In CPU Power • Hi-Density Power Connector VGA Card • 15μGold Finger in VGA PCIe Slot (PCIE2) Internet • Intel® LAN th TM • Supports 4 Generation Intel® Core i7 / i5 / i3 / Xeon® / Pentium® / Celeron® in LGA1150 Package • Digi Power Design • 8 Power Phase Design • Supports Intel® Turbo Boost 2.

0 Technology A-Style Gaming Armor CPU Chipset • Intel® H87 • Supports Intel® Small Business Advantage 2.0 • Dual Channel DDR3 Memory Technology • 4 x DDR3 DIMM slots • Supports DDR3 1600/1333/1066 non-ECC, un-buffered memory • Max. capacity of system memory: 32GB (see CAUTION) • Supports Intel® Extreme Memory Profile (XMP)1.3/1.2 • Distortion-Free Slot Memory English 2 Expansion Slot • 1 x PCI Express 3.

0 x16 slot (PCIE2: x16 mode) • 1 x PCI Express 2.0 x16 slot (PCIE4: x4 mode) • If PCIE1 or PCIE3 slot is occupied, PCIE4 slot will run at x2 mode. Fatal1ty H87 Performance Series • 2 x PCI Express 2.0 x1 slots • 3 x PCI slots TM TM • Supports AMD Quad CrossFireX and CrossFireX Graphics • Intel® HD Graphics Built-in Visuals and the VGA outputs can be supported only with processors which are GPU integrated • Supports Intel® HD Graphics Built-in Visuals : Intel® Quick Sync Video with AVC, MVC (S3D) and MPEG-2 Full HW Encode1, Intel® InTruTM 3D, Intel® Clear Video HD Technology, Intel® InsiderTM, Intel® HD Graphics 4600 • Pixel Shader 5.0, DirectX 11.1 • Max. shared memory 1792MB • Three VGA Output options: D-Sub, DVI-D and HDMI • Supports Triple Monitors • Supports HDMI Technology with max. resolution up to 4K × 2K (4096x2304) @ 24Hz • Supports DVI-D with max. resolution up to 1920x1200 @ 60Hz • Supports D-Sub with max. resolution up to 1920x1200 @ 60Hz • Supports Auto Lip Sync, Deep Color (12bpc), xvYCC and HBR (High Bit Rate Audio) with HDMI (Compliant HDMI monitor is required) • Supports HDCP function with DVI-D and HDMI ports • Supports Full HD 1080p Blu-ray (BD) playback with DVI-D and HDMI ports Audio • 7.

1 CH HD Audio with Content Protection (Realtek ALC1150 Aility. Just save the new BIOS file to your USB storage and launch this tool by pressing <F6> or <F2> during POST to enter the BIOS setup menu to access ASRock Instant Flash. Please be noted that the USB flash drive or hard drive must use FAT32/16/12 file system. ASRock APP Charger Simply by installing the ASRock APP Charger makes your iPhone/iPad/iPod Touch charge up to 40% faster than before on your computer. ASRock APP Charger allows you to quickly charge many Apple devices simultaneously and even supports continuous charging when your PC enters into Standby mode (S1), Suspend to RAM (S3), hibernation mode (S4) or power off (S5). ASRock XFast USB ASRock XFast USB can boost the performance of your USB storage devices. The performance may depend on the properties of the device. ASRock XFast LAN ASRock XFast LAN provides faster internet access, which includes the benefits listed below. LAN Application Prioritization: You can configure your application's priority ideally and add new programs to the list. Lower Latency in Game: After setting online game's priority higher, it can lower the latency in games. Traffic Shaping: You can watch Youtube HD videos and download simultaneously. RealTime Analysis of Your Data: With the status window, you can easily recognize which data streams you are currently transferring. English 6 Fatal1ty H87 Performance Series ASRock XFast RAM ASRock XFast RAM is included in F-Stream. It fully utilizes the memory space that cannot be used under Windows® 32-bit operating systems. ASRock XFast RAM shortens the loading time of previously visited websites, making web surfing faster than ever.

And it also boosts the speed of Adobe Photoshop 5 times faster. Another advantage of ASRock XFast RAM is that it reduces the frequency of accessing your SSDs or HDDs in order to extend their lifespan. ASRock Crashless BIOS ASRock Crashless BIOS allows users to update their BIOS without fear of failing. If power loss occurs during the BIOS updating process, ASRock Crashless BIOS will automatically finish the BIOS update procedure after regaining power. Please note that BIOS files need to be placed in the root directory of your USB disk.

Only USB 2.0 ports support this feature. ASRock OMG (Online Management Guard) Administrators are able to establish an internet curfew or restrict internet access at specified times via OMG.

ASRock Internet Flash ASRock Internet Flash downloads and updates the latest UEFI firmware version from our servers for you without entering Windows® OS. Please setup network configuration before using Internet Flash. ASRock System Browser ASRock System Browser shows the overview of your current PC and the devices connected. ASRock Dehumidifier Function Users may prevent motherboard damages due to dampness by enabling "Dehumidifier Function". When enabling Dehumidifier Function, the computer will power on automatically to dehumidify the system after entering S4/S5 state. ASRock Easy RAID Installer ASRock Easy RAID Installer can help you to copy the RAID driver from the support CD to your USB storage device.

After copying the RAID driver to your USB storage device, please change "SATA Mode" to "RAID", then you can start installing the OS in RAID mode. 7 English ASRock Interactive UEFI ASRock Interactive UEFI is a blend of system configuration tools, cool sound effects and stunning visuals. The unprecedented UEFI provides a more attractive interface and more amusment. ASRock Fast Boot With ASRock's exclusive Fast Boot technology, it takes less than 1.5 seconds to logon to Windows 8 from a cold boot. No more waiting! The speedy boot will completely change your user experience and behavior. ASRock Restart to UEFI Windows® 8 brings the ultimate boot up experience. The lightning boot up speed makes it hard to access the UEFI setup. ASRock Restart to UEFI allows users to enter the UEFI automatically when turning on the PC. By enabling this function, the PC will enter the UEFI directly after you restart.

ASRock Good Night LED ASRock Good Night LED technology offers you a better sleeping environment by extinguishing the unessential LEDs. By enabling Good Night LED in the BIOS, the Power/HDD LEDs will be switched off when the system is powered on. Good Night LED will automatically switch off the Power and Keyboard LEDs when the system enters into Standby/Hibernation mode as well. ASRock USB Key In a world where time is money, why waste precious time everyday typing usernames to log in to Windows? Why should we even bother memorizing those foot long passwords? Just plug in the USB Key and let your computer log in to windows automatically! ASRock Key Master What good is a weapon if you are unable to wield it proficiently? Key Master enhances your mouse and keyboard with customizable macros, sniper modes, scroll speed, key repeat rates and repeat delay, turning your boring old keyboard and mouse into lethal weapons. ASRock Home Cloud This motherboard supports remote wake with the onboard Intel LAN, so you can connect with your PC from anywhere in the world.

You will be able to power your PC on or turn it off, monitor and take control of it remotely with another smartphone, tablet or computer. English 8 Fatal1ty H87 Performance Series ASRock FAN-Tastic Tuning ASRock FAN-Tastic Tuning is included in F-Stream. Configure up to five different fan speeds using the graph. The fans will automatically shift to the next speed level when the assigned temperature is met. ASRock Distortion-Free Slot ASRock's new pin design for the memory slots and PCIe slots may appear to be the same as former designs, but actually effectively reduces distortion and promotes performance, because we strive for perfection even in the most trivial details.

ASRock Easy Driver Installer For users that don't have an optical disk drive to install the drivers from our support CD, Easy Driver Installer is a handy tool in the UEFI that installs the LAN driver to your system via an USB storage device, then downloads and installs the other required drivers automatically. 9 English 1.4 Motherboard Layout DDR3_A1 (64 bit, 240-pin module) DDR3_A2 (64 bit, 240-pin module) DDR3_B1 (64 bit, 240-pin module) DDR3_B2 (64 bit, 240-pin module) USB 3.0 T: USB2 B: USB3 Top: RJ-45 LAN CHA_FAN3 CHA_FAN2 FATAL H87 PERFORMANCE Purity Sound TM USB3_4_5 PCIE1 1 TY ATXPWR1 PWR_FAN1 PLED1 SPEAKER1 PCIE2 CMOS Battery PCIE3 RoHS Super I/O PCI1 BIOS_B_LED BIOS_A_LED 1 BIOS_SEL1 Intel H87 1 PCIE4 PCI2 64Mb BIOS BIOS_A 1 PLED PWRBTN 64Mb BIOS BIOS_B 1 HDLED RESET PANEL1 PCI3 COM1 HD_AUDIO1 SATA3_4 SATA3_2 SATA3_0 IR1 USB6_7 USB4_5 CHA_FAN1 CLRCMOS1 1 1 1 1 1 SATA3_5 SATA3_3 SATA3_1 1 10 1 PS2 Keyboard USB 2.0 T: USB0 B: USB1 ATX12V1 CPU_FAN2 CPU_FAN1 DVI1 USB 2.0 T: USB2 B: USB3 USB 3.0 T: USB0 B: USB1 Top: Central/Bass VGA1 HDMI1 HDMI_IN1 Bottom: Optical SPDIF Bottom: MIC IN Center: REAR SPK Center: FRONT Top: LINE IN English Fatal1ty H87 Performance Series No. Description 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 27 ATX 12V Power Connector (ATX12V1) CPU Fan Connector (CPU_FAN2) CPU Fan Connector (CPU_FAN1) 2 x 240-pin DDR3 DIMM Slots (DDR3_A1, DDR3_B1) 2 x 240-pin DDR3 DIMM Slots (DDR3_A2, DDR3_B2) ATX Power Connector (ATXPWR1) Power Fan Connector (PWR_FAN1) USB 3.0 Header (USB3_4_5) Power LED Header (PLED1) Chassis Speaker Header (SPEAKER1) System Panel Header (PANEL1) SATA3 Connector (SATA3_0) SATA3 Connector (SATA3_1) SATA3 Connector (SATA3_3) SATA3 Connector (SATA3_2) Clear CMOS Jumper (CLRCMOS1) Chassis Fan Connector (CHA_FAN1) SATA3 Connector (SATA3_5) SATA3 Connector (SATA3_4) USB 2.0 Header (USB4_5) USB 2.

0 Header (USB6_7) Infrared Module Header (IR1) COM Port Header (COM1) Front Panel Audio Header (HD_AUDIO1) BIOS Selection Jumper (BIOS_SEL1) Chassis Fan Connector (CHA_FAN3) Chassis Fan Connector (CHA_FAN2) 11 English 1.5 I/O Panel 1 2 3 4 5 6 7 8 9 10 17 No. Description 1 2 3 4 5 6 7 8 9 16 15 14 No. Description 10 11 12 13 14 15 16 17 13 12 11 USB 2.0 Ports (USB01) D-Sub Port Fatal1ty Mouse Port (USB2) USB 2.0 Port (USB3) USB 3.0 Ports (USB3_01) LAN RJ-45 Port* Central / Bass (Orange) Rear Speaker (Black) Line In (Light Blue) Front Speaker (Lime)** Microphone (Pink) Optical SPDIF Out Port USB 3.0 Ports (USB3_23) HDMI-In Port HDMI-Out Port DVI-D Port PS/2 Keyboard Port English 12 Fatal1ty H87 Performance Series * There are two LEDs on each LAN port. Please refer to the table below for the LAN port LED indications. ACT/LINK LED SPEED LED LAN Port Activity / Link LED Status Off Blinking On Description No Link Data Activity Link Speed LED Status Off Orange Green Description 10Mbps connection 100Mbps connection 1Gbps connection ** If you use a 2-channel speaker, please connect the speaker's plug into "Front Speaker Jack".

See the table below for connection details in accordance with the type of speaker you use. Audio Output Channels 2 4 6 8 Front Speaker (No. 10) V V V V Rear Speaker (No. 8) -V V V Central / Bass (No. 7) --V V Line In (No.

9) ---V To enable Multi-Streaming, you need to connect a front panel audio cable to the front panel audio header. After restarting your computer, you will find the "Mixer" tool on your system.

Please select "Mixer ToolBox", click "Enable playback multistreaming", and click "ok". Choose "2CH", "4CH", "6CH", or "8CH" and then you are allowed to select "Realtek HDA Primary output" to use the Rear Speaker, Central/ Bass, and Front Speaker, or select "Realtek HDA Audio 2nd output" to use the front panel audio. 13 English Chapter 2 Installation This is an ATX form factor motherboard.

Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it. Pre-installation Precautions Take note of the following precautions before you install motherboard components or change any motherboard settings. • Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so may cause physical injuries to you and damages to motherboard components. • In order to avoid damage from static electricity to the motherboard's components, NEVER place your motherboard directly on a carpet. Also remember to use a grounded wrist strap or touch a safety grounded object before you handle the components. • Hold components by the edges and do not touch the ICs. • Whenever you uninstall any components, place them on a grounded anti-static pad or in the bag that comes with the components. • When placing screws to secure the motherboard to the chassis, please do not overtighten the screws! Doing so may damage the motherboard. Fatal1ty H87 Performance Series 2.

1 Installing the CPU 1. Before you insert the 1150-Pin CPU into the socket, please check if the PnP cap is on the socket, if the CPU surface is unclean, or if there are any bent pins in the socket. Do not force to insert the CPU into the socket if above situation is found. Otherwise, the CPU will be seriously damaged. 2. Unplug all power cables before installing the CPU. 1 A B 2 15 English 4 3 5 English 16 Fatal1ty H87 Performance Series Please save and replace the cover if the processor is removed. The cover must be placed if you wish to return the motherboard for after service. 17 English 2.2 Installing the CPU Fan and Heatsink 1 2 18 CP U_ FA N English Fatal1ty H87 Performance Series 2.

3 Installing Memory Modules (DIMM) This motherboard provides four 240-pin DDR3 (Double Data Rate 3) DIMM slots, and supports Dual Channel Memory Technology. 1. For dual channel configuration, you always need to install identical (the same brand, speed, size and chip-type) DDR3 DIMM pairs. 2. It is unable to activate Dual Channel Memory Technology with only one or three memory module installed. 3. It is not allowed to install a DDR or DDR2 memory module into a DDR3 slot; otherwise, this motherboard and DIMM may be damaged. Dual Channel Memory Configuration Priority 1 2 3 DDR3_A1 Populated Populated DDR3_A2 Populated Populated Populated Populated DDR3_B1 DDR3_B2 Populated Populated The DIMM only fits in one correct orientation. It will cause permanent damage to the motherboard and the DIMM if you force the DIMM into the slot at incorrect orientation. 19 English 1 2 3 English 20 Fatal1ty H87 Performance Series 2.

4 Expansion Slots (PCI and PCI Express Slots) There are 3 PCI slots and 4 PCI Express slots on the motherboard. Before installing an expansion card, please make sure that the power supply is switched off or the power cord is unplugged. Please read the documentation of the expansion card and make necessary hardware settings for the card before you start the installation. PCI slot: The PCI1, PCI2 and PCI3 slots are used to install expansion cards that have 32-bit PCI interface. PCIe slots: PCIE1 (PCIe 2.0 x1 slots) is used for PCI Express x1 lane width cards. PCIE2 (PCIe 3.0 x16 slot) is used for PCI Express x16 lane width graphics cards. PCIE3 (PCIe 2.0 x1 slots) is used for PCI Express x1 lane width cards.

PCIE4 (PCIe 2.0 x16 slot) is used for PCI Express x4 lane width graphics cards PCIe Slot Configurations PCIE2 Single Graphics Card Two Graphics Cards in CrossFireXTM Mode x16 PCIE4 N/A x16 x4 For a better thermal environment, please connect a chassis fan to the motherboard's chassis fan connector (CHA_FAN1, CHA_FAN2 or CHA_FAN3) when using multiple graphics cards. 21 English 2.5 Jumpers Setup The illustration shows how jumpers are setup. When the jumper cap is placed on the pins, the jumper is "Short". If no jumper cap is placed on the pins, the jumper is "Open". The illustration shows a 3-pin jumper whose pin1 and pin2 are "Short" when a jumper cap is placed on these 2 pins. Clear CMOS Jumper (CLRCMOS1) (see p.10, No. 16) Default Clear CMOS CLRCMOS1 allows you to clear the data in CMOS.

To clear and reset the system parameters to default setup, please turn off the computer and unplug the power cord from the power supply. After waiting for 15 seconds, use a jumper cap to short pin2 and pin3 on CLRCMOS1 for 5 seconds. However, please do not clear the CMOS right after you update the BIOS. If you need to clear the CMOS when you just finish updating the BIOS, you must boot up the system first, and then shut it down before you do the clear-CMOS action. Please be noted that the password, date, time, and user default profile will be cleared only if the CMOS battery is removed.

English 22 Fatal1ty H87 Performance Series BIOS Selection Jumper (BIOS_SEL1) (see p.10, No. 25) Default Backup BIOS (Main BIOS) This motherboard has two BIOS onboard, a main BIOS (BIOS_A) and a backup BIOS (BIOS_B), which enhances protection for the safety and stability of your system. Normally, the system works on the main BIOS. However, if the main BIOS is corrupted or damaged, please use a jumper cap to short pin2 and pin3, then the backup BIOS will take over on the next system boot.

After that, short pin1 and pin2 again, then use "Secure Backup UEFI" in BIOS setup utility to copy the BIOS file to the main BIOS to ensure normal system operation. For the sake of system safety, users cannot update the backup BIOS manually. Users may refer to the BIOS LED (BIOS_A_LED or BIOS_B_LED) to identify which BIOS is activated currently. 23 English 2.6 Onboard Headers and Connectors Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage to the motherboard. System Panel Header (9-pin PANEL1) (see p.10, No. 11) 1 PLED+ PLEDPWRBTN# GND GND RESET# GND HDLEDHDLED+ 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. PWRBTN (Power Switch): Connect to the power switch on the chassis front panel. You may configure the way to turn off your system using the power switch. RESET (Reset Switch): Connect 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.

PLED (System Power LED): Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating. The LED keeps blinking when the system is in S1/S3 sleep state. The LED is off when the system is in S4 sleep state or powered off (S5). HDLED (Hard Drive Activity LED): Connect to the hard drive activity LED on the chassis front panel.

The LED is on when the hard drive is reading or writing data. 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. English 24 Fatal1ty H87 Performance Series Power LED Header (3-pin PLED1) (see p. 10, No. 9) 1 PLEDPLED+ PLED+ Please connect the chassis power LED to this header to indicate the system's power status. These six SATA3 connectors support SATA data cables for internal storage devices with up to 6.0 Gb/s data transfer rate. Serial ATA3 Connectors (SATA3_0: see p. 10, No. 12) SATA3_4 (SATA3_1: see p.10, No. 13) (SATA3_2: SATA3_5 see p.10, No. 15) (SATA3_3: see p.10, No. 14) (SATA3_4: see p.10, No. 19) (SATA3_5: see p.

10, No. 18) SATA3_2 SATA3_0 SATA3_3 SATA3_1 USB 2.0 Headers (9-pin USB4_5) (see p.10, No. 20) (9-pin USB6_7) (see p.10, No. 21) USB_PWR PP+ GND DUMMY 1 GND P+ PUSB_PWR Besides four USB 2.0 ports on the I/O panel, there are two headers on this motherboard. Each USB 2.0 header can support two ports.

Besides four USB 3.0 ports on the I/O panel, there is one header on this motherboard. Each USB 3.0 header can support two ports. USB 3. 0 Headers (19-pin USB3_4_5) (see p.10, No. 8) Vbus Vbus IntA_PA_SSRXIntA_PA_SSRX+ GND IntA_PA_SSTXIntA_PA_SSTX+ GND IntA_PA_DIntA_PA_D+ 1 IntA_PB_SSRXIntA_PB_SSRX+ GND IntA_PB_SSTXIntA_PB_SSTX+ GND IntA_PB_DIntA_PB_D+ Dummy 25 English Front Panel Audio Header (9-pin HD_AUDIO1) (see p.10, No. 24) 1 GND PRESENCE# MIC_RET OUT_RET This header is for connecting audio devices to the front audio panel.

OUT2_L J_SENSE OUT2_R MIC2_R MIC2_L 1. High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly. Please follow the instructions in our manual and chassis manual to install your system. 2. If you use an AC'97 audio panel, please install it to the front panel audio header by the steps below: A. Connect Mic_IN (MIC) to MIC2_L. B. Connect Audio_R (RIN) to OUT2_R and Audio_L (LIN) to OUT2_L. C. Connect Ground (GND) to Ground (GND).

D. MIC_RET and OUT_RET are for the HD audio panel only. You don't need to connect them for the AC'97 audio panel. E. To activate the front mic, go to the "FrontMic" Tab in the Realtek Control panel and adjust "Recording Volume". Chassis Speaker Header (4-pin SPEAKER1) (see p.10, No. 10) Chassis and Power Fan Connectors (4-pin CHA_FAN1) (see p.10, No. 17) (3-pin CHA_FAN2) (see p. 10, No. 27) (3-pin CHA_FAN3) (see p.10, No. 26) DUMMY SPEAKER 1 +5V DUMMY Please connect the chassis speaker to this header. GND +12V FAN_SPEED FAN_SPEED_CONTROL Please connect fan cables to the fan connectors and match the black wire to the ground pin.

GND +12V FAN_SPEED English 26 (3-pin PWR_FAN1) (see p.10, No. 7) Fatal1ty H87 Performance Series CPU Fan Connectors (4-pin CPU_FAN1) (see p.10, No. 3) (3-pin CPU_FAN2) (see p. 10, No. 2) ATX Power Connector (24-pin ATXPWR1) (see p.10, No. 6) GND +12V CPU_FAN_SPEED FAN_SPEED_CONTROL This motherboard provides a 4-Pin CPU fan (Quiet Fan) connector. If you plan to connect a 3-Pin CPU fan, please connect it to Pin 1-3. This motherboard provides a 24-pin ATX power connector. To use a 20-pin ATX power supply, please plug it along Pin 1 and Pin 13. This motherboard provides an 8-pin ATX 12V power connector. To use a 4-pin ATX power supply, please plug it along Pin 1 and Pin 5. @@1) 8 5 4 1 Infrared Module Header (5-pin IR1) (see p.

10, No. @@@@@@@@@@@@@@@@@@@@@@@@@@It is recommended to use a AMD certified PSU. Please refer to the AMD's website for details. @@@@@@@@@@@@@@@@@@@@Please check AMD's website for details. Step 4 AMD Catalyst Control Center Double-click the AMD Catalyst Control Center icon in the Windows® system tray. Step 5 In the left pane, click Performance and then AMD CrossFireXTM . Then select Enable AMD CrossFireX and click Apply. Select the GPU number according to your graphics card and click Apply. 33 English Chapter 3 Software and Utilities Operation 3.1 Installing Drivers The Support CD that comes with the motherboard contains necessary drivers and useful utilities that enhance the motherboard's features.

Running The Support CD To begin using the support CD, insert the CD into your CD-ROM drive. The CD automatically displays the Main Menu if "AUTORUN" is enabled in your computer. If the Main Menu does not appear automatically, locate and double click on the file "ASRSETUP.EXE" in the Support CD to display the menu. Drivers Menu The drivers compatible to your system will be auto-detected and listed on the support CD driver page. Please click Install All or follow the order from top to bottom to install those required drivers. Therefore, the drivers you install can work properly. Utilities Menu The Utilities Menu shows the application software that the motherboard supports. Click on a specific item then follow the installation wizard to install it. To improve Windows 7 compatibility, please download and install the following hot fix provided by Microsoft.

"KB2720599": http://support.microsoft.com/kb/2720599/en-us English 34 Fatal1ty H87 Performance Series 3.2 F-Stream F-Stream is ASRock's multi purpose software suite with a new interface, more new features and improved utilities, including XFast RAM, Dehumidifier, Good Night LED, FAN-Tastic Tuning, OC Tweaker and a whole lot more. 3.2.1 Installing F-Stream When you install the all-in-one driver to your system from ASRock's support CD, F-Stream will be auto-installed as well. After the installation, you will find the icon "F-Stream" on your desktop. Double-click the "F-Stream" icon, F-Stream main menu will pop up. 3.

2.2 Using F-Stream There are five sections in F-Stream main menu: Operation Mode, Tools, OC Tweaker, System Info and Tech Service. Operation Mode Choose an operation mode for your computer. 35 English Tools Various tools and utilities. XFast RAM Boost the system's performance and extend the HDD's or SDD's lifespan! Create a hidden partition, then assign which files should be stored in the RAM drive. Fast Boot Fast Boot minimizes your computer's boot time. Please note that Ultra Fast mode is only supported by Windows 8 and the VBIOS must support UEFI GOP if you are using an external graphics card. OMG Schedule the starting and ending hours of Internet access granted to other users. Place X marks on the time table to disable the Internet. Good Night LED Switch off the Power/HDD/LAN LEDs when the system is on, and automatically switch off the Power and Keyboard LEDs when the system enters into Standby/ Hibernation mode.

English 36 FAN-Tastic Tuning Configure up to five different fan speeds using the graph. The fans will automatically shift to the next speed level when the assigned temperature is met. Fatal1ty H87 Performance Series Dehumidifier Prevent motherboard damages due to dampness. Enable this function and configure the period of time until the computer powers on, and the duration of the dehumidifying process. HDMI-IN Connect two different devices to one monitor and toggle between the primary and secondary screen without replugging the connectors every time.

Please set a hotkey for switching between the two devices. Mouse Polling You are installing the mouse into Fata1ty Mouse Port. After applying your mouse polling rate, move your mouse to feel it! OC Tweaker Configurations for overclocking the system. System Info View information about the system. 37 English Tech Service Contact Tech Service.

English 38 Fatal1ty H87 Performance Series 3.3 Intel® Rapid Start Technology Intel® Rapid Start Technology enables your system to wake up faster from deep sleep, saving time and power consumption. Feel secure to know that your system will resume to working condition even if an unexpected power loss happens while the PC is in sleep mode. 3.3.1 System Requirements • • •Confirm whether your motherboard supports this feature. Operating system: Microsoft Windows 8/7 (32- or 64-bit edition) Set the SATA mode to AHCI. If Windows 8/7 is already installed under IDE mode, directly changing the SATA mode to AHCI may cause Windows 8/7 to crash while booting. If your system is not in AHCI mode, please follow the instructions below. There are certain risks.

Please backup any important data before operating to avoid loss. 1. Press Win + R simultaneously in Windows 8/7, type "Regedit" into the word box then click OK. 2. Enter into HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\ msahci in Windows Registry Editor. Double click on the value Start and change the value from 3 into 0. Click on OK. 39 English 3. 4. 5.

Exit the Registry Editor window and restart the computer. Press F2 to enter BIOS, then go to Advanced -> Storage Configuration and change SATA Mode to AHCI. Press F10 to save changes and exit. Enter Windows 8/7. Windows will discover the new device and install AHCI drivers automatically.

3.3.2 Setup Guide Configuring Rapid Start Step 1 Run ASRock Rapid Start utility from Start -> All Programs -> ASRock Utility. Step 2 If you have more than one hard drives in your system, you must select one, then choose the Partition Size desired for your hidden partition and click on Create. The system will automatically create a hidden partition according to your settings.

If there are SSD's installed into your system, it is recommended to create the partition on the SSD. English 40 Fatal1ty H87 Performance Series Step 3 When prompted to restart after the setup, click Yes to reboot. Step 4 Double-click the Intel® Rapid Start Technology Manager icon system tray. in the Windows 41 English Step 5 Make sure Rapid Start is on. Drag the slider to configure the time. For example, if the timer value is set to ten minutes, the system will enable Rapid Start mode after entering sleep state for ten minutes. If the timer is set to 0 minutes, Windows will immediately enable Rapid Start mode as it enters sleep state. Using Rapid Start 1. You may shut down the computer without terminating the applications or files you are executing currently. Click on Windows Start -> the arrow next to Shut down, and click on Sleep.

English 42 2. 3. Windows system will enter sleep state. According to your settings in Rapid Start Technology Manager, the system will automatically wake up and enable Rapid Start mode after entering sleep Fatal1ty H87 Performance Series state for a period of time. The power of the computer in Rapid Start mode can be cut off, it will not cause data loss of the programs or files you were executing before entering sleep state. 4. When you wish to continue to use the computer just hit the power button, the system will rapidly return to Windows, the programs and files which you were using before entering sleep state will be accessible immediately. 43 English 3.4 Intel® Smart Connect Technology Intel® Smart Connect Technology is a feature that periodically wakes your computer from Windows® sleep state to refresh email or social networking applications. It saves your waiting time and keeps the content always up-to-date. 3.4.1 System Requirements • • •Confirm whether your motherboard supports this feature. Operating system: Microsoft Windows 8/7 (32- or 64-bit edition) Set the SATA mode to AHCI. If Windows 8/7 is already installed under IDE mode, directly changing the SATA mode to AHCI may cause Windows 8/7 to crash while booting.

If your system is not in AHCI mode, please follow the instructions below. There are certain risks. Please backup any important data before operating to avoid loss. 1. Press Win + R simultaneously in Windows 8/7, type "Regedit" into the word box then click OK.

2. Enter into HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\ msahci in Windows Registry Editor. Double click on the value Start and change the value from 3 into 0. Click on OK. English 44 Fatal1ty H87 Performance Series 3.4.2 Setup Guide Installing ASRock Smart Connect Utility Step 1 Install ASRock Smart Connect Utility, which is located in the folder at the following path of the Support CD: \ ASRock Utility > Smart Connect. Step 2 Once installed, run ASRock Smart Connect from your desktop or go to Windows Start -> All Programs -> ASRock Utility. 45 English Step 3 Click the Add button. Take Foxmail as an example, add Foxmail to the Application list.

Step 4 Select Foxmail from the Application List, then click the arrow pointing right to add this application to the Smart Connect List. Step 5 Click Apply to enable Smart Connect. English 46 Fatal1ty H87 Performance Series Step 6 Double-click the Intel® Smart Connect Technology Manager icon Windows system tray. Step 7 Drag the slider to configure how often the system will connect to the network to download updates. Shorter durations will provide more frequent updates, but may cause more power consumption. in the Using Smart Connect 1. Keep the applications which you wish to connect to the internet and receive updates while the system is in sleep state running. Foxmail for instance, keep Foxmail running. Click on Windows Start -> the arrow next to Shut down, and click on Sleep. 2.

3. Windows system will enter sleep state. 47 English 4. The system will wake up from sleep state periodically, and then start to update Foxmail. The screen will not display anything so the computer can maintain minimum power usage.

Afterwards, the system will automatically return to sleep state again. Upon waking up the system, you will find the new mail that were sent to you during sleep state are already updated and ready to be read in Foxmail.

5. English 48 Fatal1ty H87 Performance Series 3.5 Intel® Remote Wake Technology Intel® Remote Wake Technology allows you to use programs or services over the Internet to wake up your home computer from energy efficient sleep mode.

Before configuring this feature, verify the following. • • Remote Wake has been enabled in "Intel® Smart Connect Technology Manager". Make sure that the "PCI Device Power On" is enabled in UEFI SETUP UTILITY > Advanced > ACPI Configuration. 3.5.1 Configuring and Using MeshCentral MeshCentral allows you to remotely wake up a PC from any network using a single web site. Just download and install the mesh agent on your computers and your computers will show up in the "My Devices" section of MeshCentral.com. Creating a Mesh Step 1 Login to Meshcentral.com.

If you have not created a MeshCentral acount, go to MeshCentral.com and create a new account. Step 2 Click the "My Account" tab. Then click on "New" to create a new mesh. 49 English Step 3 A new mesh window will pop up. Enter a mesh name and password. Step 4 Select all the checkboxes and click Create Mesh. Downloading and Installing Mesh Agent Step 1 Click Install on the My Account page. Step 2 Select the mesh and download both files. Make sure both files are in the same directory.

Step 3 Right-click on MeshAgent.exe and select Run as administrator. English 50 Fatal1ty H87 Performance Series Step 4 Click Install / Update. Step 5 Wait a minute for the New Machine to appear in "My Device". 51 English Step 6 Check whether "Intel Remote Wake" appeared or not.

Waking up Your PC using PC Step 1 On the "My Devices" page, click on Power Actions. Step 2 Click on Wake or Sleep. English 52 Fatal1ty H87 Performance Series Waking up Your PC Using Mobile Device Before waking up your home computer using a mobile device, please log out of MeshCentral on other previously used computers or devices. Step 1 Login to meshcentral.com/m.

Step 2 Select a Machine. Step 3 Click on Wake or Sleep. Tutorial Video 53 English 3.5.2 Configuring and Using Splashtop Splashtop is a remote desktop access software that lets you remotely access your home computer from your mobile device. Before configuring this feature, verify that "Remote Wake" has been enabled in "Intel® Smart Connect Technology Manager". Setup Guide Step 1 Download and install the Streamer on your home computer, which is located in the folder at the following path of the Support CD: \ ASRock Utility > Splashtop Streamer. Then enter your Splashtop Account. If you have not created a Splashtop acount, create one. Step 2 Download and install "Splashtop 2" on your mobile device and log into the app.

Using Remote Wakeup Step 1 In "Splashtop 2", tap the edit button next to an offline machine from the list. Step 2 Tap "Wake up this computer". English 54 Fatal1ty H87 Performance Series Using Remote Control Step 1 In "Splashtop 2", tap an online machine from the list to connect to your home computer. Step 2 Start remotely accessing your home computer. The functionality and price of the Splashtop APP and subscription fee is subject to change. Please check www.splashtop.com for for details. 55 English Accessing Data Playing Video English 56 Fatal1ty H87 Performance Series 3.6 Start8 For those Windows 8 users who miss the Start Menu, Start8 is an ideal solution that brings back the familiar Start Menu along with added customizations for greater efficiency. 3.6.1 Installing Start8 Install Start8, which is located in the folder at the following path of the Support CD: \ ASRock Utility > Start8. 3.6. 2 Configuring Start8 Style Select between the Windows 7 style and Windows 8 style Start Menu. Then select the theme of the Start Menu and customize the style of the Start icon. 57 English Configure Configure provides configuration options, including icon sizes, which shortcuts you want Start Menu to display, quick access to recently used apps, the functionality of the power button, and more. Control English 58 Fatal1ty H87 Performance Series Control lets you configure what a click on the start button or a press on the Windows key does. Desktop Desktop allows you to disable the hot corners when you are working on the desktop.

It also lets you choose whether or not the system boots directly into desktop mode and bypass the Metro user interface. About Displays information about Start8. 59 English 3.7 XSplit Broadcaster XSplit Broadcaster is a desktop application designed to make your multimedia broadcasting, live-streaming and recording a lot easier and more fun to do, we are giving away the 3 months premium license which is worth US$24.95 for free! 3.7.1 Live Streaming Your Gameplay Step 1 Go to Start > All Programs > XSplit > XSplit Broadcaster to launch it. Step 2 Log in with your own username and password. (If you do not have an XSplit account, click No XSplit account? to register.) English 60 Fatal1ty H87 Performance Series Step 3 Go to Broadcast > Add Channels....

Step 4 Click Add.... Step 5 Select a platform for live streaming. *Before you start streaming, you need to register an account for the streaming service website, such as Twitch.tv, USTREAM, or other livestreaming services. 61 English Step 6 Fill in your platform's Username and Password. Based on your needs, configure the Video and Audio Encoding settings. Click OK.

Step 7 The channel then appears in your broadcast list. Click Apply and OK to save the settings. English 62 Fatal1ty H87 Performance Series Step 8 Go to Broadcast and select the platform to enable live streaming. A link to view your live Broadcast has been copied for you automatically. Simply press CTRL-V or right click and choose Paste to paste the link into the browser, and you can see your broadcast.

To disable live streaming, go to Broadcast again and deselect the platform. 3.7.2 Recording Your Gameplay Step 1 Go to Broadcast > Local recording to start recording. Step 2 To stop recording, Go to Broadcast again and deselect Local recording.

Step 3 Go to Tools > My Recordings...to access your recordings 63 English Chapter 4 UEFI SETUP UTILITY 4.1 Introduction ASRock Interactive UEFI is a blend of system configuration tools, cool sound effects and stunning visuals. Not only will it make BIOS setup less difficult but also a lot more amusing. This section explains how to use the UEFI SETUP UTILITY to configure your system. You may run the UEFI SETUP UTILITY by pressing <F2> or <Del> right after you power on the computer, otherwise, the Power-On-Self-Test (POST) will continue with its test routines. If you wish to enter the UEFI SETUP UTILITY after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on.

Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen.

4.1.1 UEFI Menu Bar The top of the screen has a menu bar with the following selections: Main OC Tweaker Advanced Tool H/W Monitor Boot For setting system time/date information For overclocking configurations For advanced system configurations Useful tools Displays current hardware status For configuring boot settings and boot priority For security settings Exit the current screen or the UEFI Setup Utility English 64 Security Exit Fatal1ty H87 Performance Series 4.1.2 Navigation Keys Use < > key or < > key to choose among the selections on the menu bar, and use < > key or < > key to move the cursor up or down to select items, then press <Enter> to get into the sub screen. You can also use the mouse to click your required item. Please check the following table for the descriptions of each navigation key. Navigation Key(s) Description To change option for the selected items Switch to next function Go to the previous page Go to the next page Go to the top of the screen Go to the bottom of the screen To display the General Help Screen Toggle sound on/off Discard changes and exit the SETUP UTILITY Load optimal default values for all the settings Save changes and exit the SETUP UTILITY Print screen Jump to the Exit Screen or exit the current screen + / <Tab> <PGUP> <PGDN> <HOME> <END> <F1> <F4> <F7> <F9> <F10> <F12> <ESC> 65 English 4.2 Main Screen When you enter the UEFI SETUP UTILITY, the Main screen will appear and display the system overview.

Active Page on Entry Select the default page when entering the UEFI setup utility. UEFI Guide UEFI Guide is a quick tutorial for ASRock's UEFI setup Utility. You may abort the tutorial by pressing "esc". English 66 Fatal1ty H87 Performance Series 4.3 OC Tweaker Screen In the OC Tweaker screen, you can set up overclocking features.

Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen. CPU Configuration CPU Ratio The CPU speed is determined by the CPU Ratio multiplied with the BCLK. Increasing the CPU Ratio will increase the internal CPU clock speed without affecting the clock speed of other components. Intel SpeedStep Technology Intel SpeedStep technology allows processors to switch between multiple frequencies and voltage points for better power saving and heat dissipation. Intel Turbo Boost Technology enables the processor to run above its base operating frequency when the operating system requests the highest performance state. 67 English Intel Turbo Boost Technology Filter PLL Frequency CPU BCLK Filter Frequency. Choose 1.6 for better overclocking capabilities. Long Duration Power Limit Configure Package Power Limit 1 in watts. When the limit is exceeded, the CPU ratio will be lowered after a period of time. A lower limit can protect the CPU and save power, while a higher limit may improve performance. Long Duration Maintained Configure the period of time until the CPU ratio is lowered when the Long Duration Power Limit is exceeded. Short Duration Power Limit Configure Package Power Limit 2 in watts. When the limit is exceeded, the CPU ratio will be lowered immediately. A lower limit can protect the CPU and save power, while a higher limit may improve performance.

Primary Plane Current Limit Configure the current limit of the CPU under Turbo Mode in ampere. A lower limit can protect the CPU and save power, while a higher limit may improve performance. GT Frequency Configure the frequency of the integrated GPU. GT Voltage Mode Auto: For optimized settings. Adaptive: Add voltage to the integrated GPU when the system is under heavy load. Override: The voltage is fixed. GT Adaptive Voltage Configure the fixed voltage added to the integrated GPU. GT Voltage Offset Configure the voltage added to the integrated GPU when the system is under heavy English 68 load. DRAM Timing Configuration Fatal1ty H87 Performance Series Load XMP Setting Load XMP settings to overclock the DDR3 memory and perform beyond standard specifications. DRAM Reference Clock Select Auto for optimized settings.

DRAM Frequency If [Auto] is selected, the motherboard will detect the memory module(s) inserted and assign the appropriate frequency automatically. DRAM Configuration DRAM Tweaker Fine tune the DRAM settings by leaving marks in checkboxes. Click OK to confirm and apply your new settings. CAS# Latency (tCL) English 69 The time between sending a column address to the memory and the beginning of the data in response. RAS# to CAS# Delay (tRCD) The number of clock cycles required between the opening of a row of memory and accessing columns within it. Row Precharge Time (tRP) The number of clock cycles required between the issuing of the precharge command and opening the next row. RAS# Active Time (tRAS) The number of clock cycles required between a bank active command and issuing the precharge command. Command Rate (CR) The delay between when a memory chip is selected and when the first active command can be issued. Write Recovery Time (tWR) The amount of delay that must elapse after the completion of a valid write operation, before an active bank can be precharged. Refresh Cycle Time (tRFC) The number of clocks from a Refresh command until the first Activate command to the same rank.

RAS to RAS Delay (tRRD) The number of clocks between two rows activated in different banks of the same rank. Write to Read Delay (tWTR) The number of clocks between the last valid write operation and the next read command to the same internal bank. Read to Precharge (tRTP) The number of clocks that are inserted between a read command to a row precharge command to the same rank. Four Activate Window (tFAW) The time window in which four activates are allowed the same rank. English 70 CAS Write Latency (tCWL) Configure CAS Write Latency. Fatal1ty H87 Performance Series tREFI Configure refresh cycles at an average periodic interval. tCKE Configure the period of time the DDR3 initiates a minimum of one refresh command internally once it enters Self-Refresh mode. tRDRD Configure between module read to read delay. tRDRDDR Configure between module read to read delay from different ranks. tRDRDDD Use this to change DRAM tRWSR Auto/Manual settings.

The default is [Auto]. tWRRD Configure between module write to read delay. tWRRDDR Configure between module write to read delay from different ranks. tWRRDDD Use this to change DRAM tRRSR Auto/Manual settings. The default is [Auto]. Configure between module write to read delay from different DIMMs. tWRWR Configure between module write to write delay. tWRWRDR Configure between module write to write delay from different ranks. tWRWRDD Configure between module write to write delay from different DIMMs. tRDWR tRDWRDR Configure between module read to write delay from different ranks. 71 English Configure between module read to write delay.

tRDWRDD Configure between module read to write delay from different DIMMs. RTL (CHA) Configure round trip latency for channel A. RTL (CHB) Configure round trip latency for channel B. IO-L (CHA) Configure IO latency for channel A.

IO-L (CHB) Configure IO latency for channel B. ODT WR (CHA) Configure the memory on die termination resistors' WR for channel A. ODT WR (CHB) Configure the memory on die termination resistors' WR for channel B. ODT NOM (CHA) Use this to change ODT (CHA) Auto/Manual settings. The default is [Auto].

ODT NOM (CHB) Use this to change ODT (CHB) Auto/Manual settings. The default is [Auto]. Command Tri State Enable for DRAM power saving. MRC Fast Boot Enable Memory Fast Boot to skip DRAM memory training for booting faster. FIVR Configuration FIVR Switch Frequency Signature Select whether to boost or lower the FIVR Switch Frequency. English 72 Fatal1ty H87 Performance Series FIVR Switch Frequency Offset Configure the percentage of frequency boost or deduction. CPU Voltage Mode Auto: For optimized settings. Adaptive: Add voltage to the CPU when the system is under heavy load. Override: The voltage is fixed. CPU Override Voltage Configure the voltage added to the CPU when the system is under heavy load.

CPU Voltage Offset Configure the dynamic CPU voltage added to the CPU. CPU Cache Override Voltage Add voltage to the CPU Cache when the system is under heavy load. CPU Cache Voltage Offset Configure the voltage for the CPU Cache. Setting the voltage higher may increase system stability when overclocking. System Agent Voltage Offset Configure the voltage for the System Agent. Setting the voltage higher may increase system stability when overclocking. CPU Analog IO Voltage Offset CPU I/O Analog Voltage. CPU Digital IO Voltage Offset CPU I/O Digital Voltage. CPU Integrated VR Faults Disable FIVR Faults to raise the threshold to trigger CPU over current protection and over voltage protection for better overclocking capabilities. Enable FIVR Efficiency Management for power saving.

Disable for better performance and overclocking capabilities. 73 English CPU Integrated VR Efficiency Mode Voltage Configuration CPU Input Voltage Configure the voltage for the CPU. CPU Load-Line Calibration CPU Load-Line Calibration helps prevent CPU voltage droop when the system is under heavy load. DRAM Voltage Use this to configure DRAM Voltage. The default value is [Auto].

PCH 1.05V Voltage Chipset 1.05V Voltage. Use default settings for best performance. PCH 1.

5V Voltage I/O 1.5V Voltage. Use default settings for best performance. English 74 Fatal1ty H87 Performance Series 4.4 Advanced Screen In this section, you may set the configurations for the following items: CPU Configuration, Chipset Configuration, Storage Configuration, Intel® Rapid Start Technology, Intel® Smart Connect Technology, Super IO Configuration, ACPI Configuration and USB Configuration. Setting wrong values in this section may cause the system to malfunction. 75 English 4.4.1 CPU Configuration Intel Hyper Threading Technology Intel Hyper Threading Technology allows multiple threads to run on each core, so that the overall performance on threaded software is improved. Active Processor Cores Select the number of cores to enable in each processor package.

CPU C States Support Enable CPU C States Support for power saving. It is recommended to keep C3, C6 and C7 all enabled for better power saving. Enhanced Halt State (C1E) Enable Enhanced Halt State (C1E) for lower power consumption. CPU C3 State Support Enable C3 sleep state for lower power consumption. CPU C6 State Support Enable C6 deep sleep state for lower power consumption. English 76 CPU C7 State Support Enable C7 deep sleep state for lower power consumption. Fatal1ty H87 Performance Series Package C State Support Enable CPU, PCIe, Memory, Graphics C State Support for power saving. CPU Thermal Throttling Enable CPU internal thermal control mechanisms to keep the CPU from overheating. No-Execute Memory Protection Processors with No-Execution Memory Protection Technology may prevent certain classes of malicious buffer overflow attacks. Intel Virtualization Technology Intel Virtualization Technology allows a platform to run multiple operating systems and applications in independent partitions, so that one computer system can function as multiple virtual systems.

Hardware Prefetcher Automatically prefetch data and code for the processor. Enable for better performance. Adjacent Cache Line Prefetch Automatically prefetch the subsequent cache line while retrieving the currently requested cache line. Enable for better performance. 77 English 4.

4.2 Chipset Configuration Primary Graphics Adapter Select a primary VGA. VT-d Intel® Virtualization Technology for Directed I/O helps your virtual machine monitor better utilize hardware by improving application compatibility and reliability, and providing additional levels of manageability, security, isolation, and I/O performance. PCIE2 Link Speed Select the link speed for PCIE2. Share Memory Configure the size of memory that is allocated to the integrated graphics processor when the system boots up.

IGPU Multi-Monitor Select disable to disable the integrated graphics when an external graphics card is installed. Select enable to keep the integrated graphics enabled at all times. English 78 Fatal1ty H87 Performance Series Render Standby Power down the render unit when the GPU is idle for lower power consumption. Onboard HD Audio Enable/disable onboard HD audio. Set to Auto to enable onboard HD audio and automatically disable it when a sound card is installed. Front Panel Enable/disable front panel HD audio. Onboard HDMI HD Audio Enable audio for the onboard digital outputs. Onboard LAN Enable or disable the onboard network interface controller. Deep Sleep Configure deep sleep mode for power saving when the computer is shut down. Restore on AC/Power Loss Select the power state after a power failure.

If [Power Off] is selected, the power will remain off when the power recovers. If [Power On] is selected, the system will start to boot up when the power recovers. Good Night LED By enabling Good Night LED, the Power/HDD LEDs will be switched off when the system is on. It will also automatically switch off the Power and Keyboard LEDs when the system enters into Standby/Hibernation mode. 79 English 4.4.3 Storage Configuration SATA Controller(s) Enable/disable the SATA controllers. SATA Mode Selection IDE: For better compatibility. AHCI: Supports new features that improve performance. RAID: Combine multiple disk drives into a logical unit.

AHCI (Advanced Host Controller Interface) supports NCQ and other new features that will improve SATA disk performance but IDE mode does not have these advantages. SATA Aggressive Link Power Management SATA Aggressive Link Power Management allows SATA devices to enter a low power state during periods of inactivity to save power. It is only supported by AHCI mode. English 80 Dynamic Storage Accelerator Keep this option enabled for higher HDD and SDD I/O performance, lower latency and increased system responsiveness.