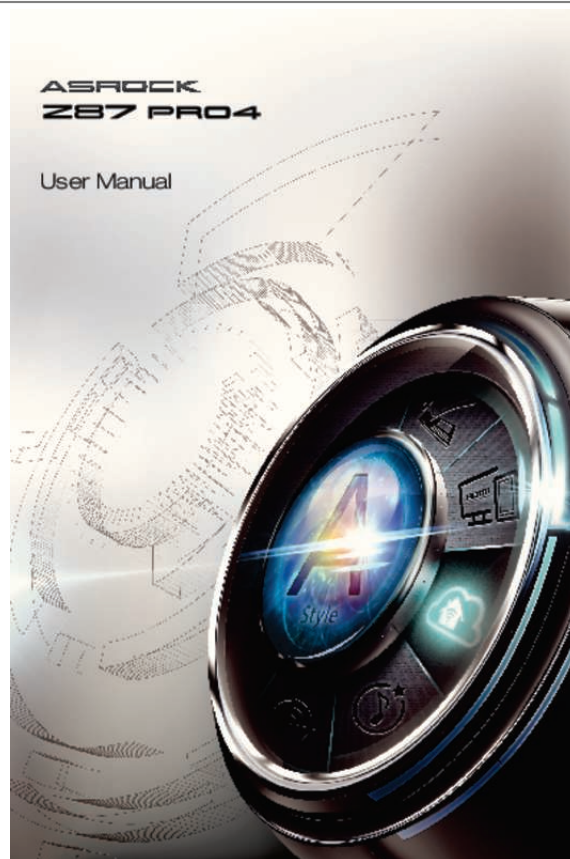




# Your PDF Guides

You can read the recommendations in the user guide, the technical guide or the installation guide for ASROCK Z87 PRO4. You'll find the answers to all your questions on the ASROCK Z87 PRO4 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

**User manual ASROCK Z87 PRO4**  
**User guide ASROCK Z87 PRO4**  
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0 Gb/s connectors, support RAID (RAID 0, RAID 1, RAID 5, RAID 10, Intel Rapid Storage Technology 12 and Intel Smart Response Technology), NCQ, AHCI and "Hot Plug" ..... 1 x IR header 1 x COM port header 1 x Power LED header 1 x TPM header 2 x CPU Fan connectors (1 x 4-pin, 1 x 3-pin) 2 x Chassis Fan connectors (1 x 4-pin, 1 x 3-pin) 1 x Power Fan connector (3-pin) 1 x 24 pin ATX power connector 1 x 8 pin 12V power connector 1 x Front panel audio connector 1 x SPDIF Out connector 2 x USB 2.0 headers (support 4 USB 2.0 ports)

0 ports) 1 x Vertical Type A USB 3.0 2 x USB 3.0 headers (support 4 USB 3.0 ports) (ASMedia Hub) 64Mb AMI UEFI Legal BIOS with Multilingual GUI support ACPI 1.1 Compliance Wake Up Events SMBIOS 2.

3.1 Support CPU, DRAM, PCH 1.05V, PCH 1.5V Voltage Multi-adjustment Connector BIOS Feature Support CD • Drivers, Utilities, AntiVirus Software (Trial Version), CyberLink MediaEspresso 6.5 Trial, Google Chrome Browser and Toolbar, Start8, MeshCentral, Splashtop Streamer • CPU/Chassis Temperature Sensing • CPU/Chassis/Power Fan Tachometer • CPU/Chassis Quiet Fan (Allow Chassis Fan Speed AutoAdjust by CPU Temperature) Hardware Monitor English 4 Z87 Pro4 • CPU/Chassis Fan Multi-Speed Control • Voltage Monitoring: +12V, +5V, +3.3V, CPU Vcore OS Certifications • Microsoft® Windows® 8 / 8 64-bit / 7 / 7 64-bit compliant • FCC, CE, WHQL • ErP/EuP Ready (ErP/EuP ready power supply is required) \* For detailed product information, please visit our website: <http://www.asrock.com> Please realize that there is a certain risk involved with overlocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using thirdparty overlocking tools. Overclocking may affect your system's stability, or even cause damage to the components and devices of your system. It should be done at your own risk and expense.

We are not responsible for possible damage caused by overlocking. Due to limitation, the actual memory size may be less than 4GB for the reservation for system usage under Windows® 32-bit operating systems. Windows® 64-bit operating systems do not have such limitations. You can use ASRock XFast RAM to utilize the memory that Windows® cannot use. 5 English 1.3 Unique Features ASRock A-Tuning A-Tuning 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. ASRock Instant Flash ASRock Instant Flash is a BIOS flash utility embedded in Flash ROM. This convenient BIOS update tool allows you to update the system BIOS in a few clicks without preparing an additional floppy diskette or other complicated flash utility. 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 Z87 Pro4 ASRock XFast RAM ASRock XFast RAM is included in A-Tuning.

It fully utilizes the memory space that cannot be used under Windows® 32-bit operating systems. ASRock XFast RAM shortens the loher smartphone, tablet or computer. ASRock FAN-Tastic Tuning ASRock FAN-Tastic Tuning is included in A-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. 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 a USB storage device, then downloads and installs the other required drivers automatically. 9 English 1.4 Motherboard Layout 1 2 3 4 5 6 DDR3\_A1 (64 bit, 240-pin module) USB 3.0 T: USB0 B: USB1 USB 3.0 T: USB2 B: USB3 DDR3\_A2 (64 bit, 240-pin module) DDR3\_B1 (64 bit, 240-pin module) DDR3\_B2 (64 bit, 240-pin module) USB 2.

0 T: USB2 B: USB3 ATXPWR1 CHA\_FAN2 Z87 Pro4 PCIE1 USB3\_8 Vertical Type A USB 3.0 29 1 LAN X Fast LAN X Fast USB X 1 USB3\_6\_7 PCI Express 3.0 USB3\_4\_5 Front USB 3.0 PS2 Keyboard USB 2.0 T: USB0 B: USB1 PWR\_FAN1 CPU\_FAN1 CPU\_FAN2 ATX12V1 DVII Top: RJ-45 VGA1 HDMI1 HDMI\_IN1 Bottom: Optical SPDIF Bottom: MIC IN Center: REAR SPK Center: FRONT 1 7 Super I/O Audio CODEC HD\_AUDIO1 SPDIF1\_OUT1 Top: Central/Bass Top: LINE IN TPMS1 8 9 Fast RAM 10 CMOS Battery PCIE2 PCIE3 RoHS Intel Z87 SATA3\_0 SATA3\_2 SATA3\_4 PCIE4 11 12 13 14 15 16 HDLED RESET PCII PC12 COM1 SATA3\_1 PLED1 SATA3\_3 SATA3\_5 PLED PWRBTN CHA\_FAN1 IRI USB6\_7 USB4\_5 1 SPEAKER1 1 1 PANEL1 1 1 CLRCMOS1 1 1 1 1 28 27 26 25 24 23 22 21 20 19 18 17 English 10 Z87 Pro4 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 28 29 Power Fan Connector (PWR\_FAN1) ATX 12V Power Connector (ATX12V1) CPU Fan Connector (CPU\_FAN1) CPU Fan Connector (CPU\_FAN2) 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) USB 3.0 Header (USB3\_6\_7) (ASMedia Hub) USB 3.0 Header (USB3\_4\_5) (ASMedia Hub) Vertical Type A USB 3.0 (USB3\_8) SATA3 Connector (SATA3\_0) SATA3 Connector (SATA3\_2) SATA3 Connector (SATA3\_4) SATA3 Connector (SATA3\_5) SATA3 Connector (SATA3\_3) System Panel Header (PANEL1) Power LED Header (PLED1) Chassis Speaker Header (SPEAKER1) Chassis Fan Connector (CHA\_FAN1) SATA3 Connector (SATA3\_1) USB 2.0 Header (USB4\_5) USB 2.

0 Header (USB6\_7) Clear CMOS Jumper (CLRCMOS1) Infrared Module Header (IR1) COM Port Header (COM1) TPM Header (TPMS1) SPDIF Out Connector (SPDIF\_OUT) Front Panel Audio Header (HD\_AUDIO1) Chassis Fan Connector (CHA\_FAN2) 11 English 1.



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5 I/O Panel 1 2 3 4 5 6 7 8 9 16 No. Description 1 2 3 4 5 6 7 8 15 14 13 No. Description 9 10 11 12 13 14 15 16 12 11 10 USB 2.0 Ports (USB01) D-Sub Port USB 3.

0 Ports (USB3\_01) USB 3.0 Ports (USB3\_23) LAN RJ-45 Port\* Central / Bass (Orange) Rear Speaker (Black) Line In (Light Blue) Front Speaker (Lime)\*\* Microphone (Pink) Optical SPDIF Out Port USB 2.0 Ports (USB23) HDMI-In Port HDMI-Out Port DVI-D Port PS/2 Keyboard Port English 12 Z87 Pro4 \* 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. 9) V V V V Rear Speaker (No. 7) -V V V Central / Bass (No. 6) --V V Line In (No. 8) ---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. Z87 Pro4 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 Z87 Pro4 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 Z87 Pro4 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 Z87 Pro4 2.

4 Expansion Slots (PCI and PCI Express Slots) There are 2 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 PC11 and PC12 slots are used to install expansion cards that have 32-bit PCI interface. PCIe slots: PCIE1 (PCIe 3.0 x16 slot) is used for PCI Express x16 lane width graphics cards. PCIE2 (PCIe 2.0 x1 slot) is used for PCI Express x1 lane width cards. PCIE3 (PCIe 2.0 x16 slot) is used for PCI Express x4 lane width graphics cards.

PCIE4 (PCIe 2.0 x1 slot) is used for PCI Express x1 lane width cards. PCIe Slot Configurations PCIE1 Single Graphics Card Two Graphics Cards in CrossFireXTM Mode x16 PCIE3 N/A x16 x4 For a better thermal environment, please connect a chassis fan to the motherboard's chassis fan connector (CHA\_FAN1 or CHA\_FAN2) 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. 23) 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 Z87 Pro4 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.

23) 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 Z87 Pro4 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. 16) 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.



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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. 23 English Power LED Header (3-pin PLED1) (see p.10, No. 17) 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: SATA3\_0 see p.10, No. 11) (SATA3\_1: see p.10, No. 20) SATA3\_1 (SATA3\_2: see p.10, No. 12) (SATA3\_3: see p.10, No.

15) (SATA3\_4: see p.10, No. 13) (SATA3\_5: see p.10, No. 14) SATA3\_2 SATA3\_4 SATA3\_3 SATA3\_5 USB 2.0 Headers (9-pin USB4\_5) (see p.10, No. 21) (9-pin USB6\_7) (see p.10, No. 22) 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. USB 3.0 Header (19-pin USB3\_4\_5) (see p.10, No. 9) (19-pin USB3\_6\_7) (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 Besides four USB 3.0 ports on the I/O panel, there are two headers and one port on this motherboard.

Each USB 3.0 header can support two ports. English 24 (USB3\_8) (see p.10, No. 10) Z87 Pro4 Front Panel Audio Header (9-pin HD\_AUDIO1) (see p.10, No. 28) 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. 18) SPDIF Out Connector (2-pin SPDIF\_OUT1) (see p.

10, No. 27) DUMMY SPEAKER 1 +5V DUMMY Please connect the chassis speaker to this header. 1 GND SPDIFOUT Please connect the SPDIF\_OUT connector of a HDMI VGA card to this header with a cable. Please connect fan cables to the fan connectors and match the black wire to the ground pin.

Chassis and Power Fan Connectors (4-pin CHA\_FAN1) (see p.

10, No. 19) (3-pin CHA\_FAN2) (see p.10, No. 29) GND +12V FAN\_SPEED FAN\_SPEED\_CONTROL GND +12V FAN\_SPEED 25 English (3-pin PWR\_FAN1) (see p.10, No. 1) CPU Fan Connectors (4-pin CPU\_FAN1) (see p.10, No. 3) (3-pin CPU\_FAN2) (see p.10, No. 4) GND +12V FAN\_SPEED FAN\_SPEED\_CONTROL GND +12V FAN\_SPEED 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. ATX Power Connector (24-pin ATXPWR1) (see p.10, No. 7) 12 24 1 13 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. This header supports an optional wireless transmitting and receiving infrared module. ATX 12V Power Connector (8-pin ATX12V1) (see p.10, No.

2) 8 5 4 1 Infrared Module Header (5-pin IRI) (see p.10, No. 24) IRTX +5VSB DUMMY 1 GND IRRX Serial Port Header (9-pin COM1) (see p.10, No. 25) RRXD1 DDTR#1 DDSR#1 CCTS#1 1 RRI#1 RRTS#1 GND TTXD1 DDCD#1 This COM1 header supports a serial port module.

English 26 Z87 Pro4 TPM Header (17-pin TPMS1) (see p.10, No. 26) 1 This connector supports Trusted Platform Module (TPM) system, which can securely store keys, digital certificates, passwords, and data. A TPM system also helps enhance network security, protects digital identities, and ensures platform integrity. 27 English 2.

7 Using the HDMI-In Port The HDMI-In port on this motherboard lets you easily switch between PC screen (on-board VGA) and external video source on the same monitor. This function saves you the hassle of switching cables back and forth when you want to display the screen of another device, such as smartphone, tablet, camcorder, DVD player, or another PC, onto the PC monitor. Another useful feature of this function is that external video source can be viewed even when your PC is in standby mode or powered off. For example, you can play smartphone games or watch tablet video on your PC screen. USB 3.0 USB 3.0 English 28 Z87 Pro4 USB 3.0 USB 3.0 Connection Diagram Power Source 29 English HDMI Adapter Step 1 Connect your monitor to the HDMI-Out port on the motherboard via an HDMI cable. Step 2 Connect an external devices with HDMI output to the HDMI-In port on the motherboard via an HDMI cable.

Step 3 Double-click the "A-Tuning" icon on the desktop and find "HDMI-IN" function in "Tools" tab. Drag the switch right or left to enable Onboard (on-board PC screen) or HDMI (HDMI-In Source). or Use the hotkey to switch between on-board PC screen or HDMI-In Source. To change the hotkey, click the textbox next to "Hotkey:" and enter the action for the key. 1. If there is no video displayed on your monitor, make sure that the cables are properly connected and make sure that "Deep S5" option in BIOS SETUP is set to [Disable]. 2. If required, connect a power source to the adapter that lets the smartphone/tablet output HDMI signal. English 30 Z87 Pro4 2.8 CrossFireXTM and Quad CrossFireXTM Operation Guide This motherboard supports CrossFireXTM and Quad CrossFireXTM that allows you to install up to two identical PCI Express x16 graphics cards.



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Currently CrossFireXTM and Quad CrossFireXTM are supported with Windows® 7 / 7 64-bit / 8 / 8 64-bit OS. 1. You should only use identical CrossFireXTM-ready graphics cards that are AMD certified. 2. Make sure that your graphics card driver supports AMD CrossFireXTM technology. Download the drivers from the AMD's website: [www.amd.com](http://www.amd.com) 3. Make sure that your power supply unit (PSU) can provide at least the minimum power your system requires. It is recommended to use a AMD certified PSU.

Please refer to the AMD's website for details. 4. If you pair a 12-pipe CrossFireXTM Edition card with a 16-pipe card, both cards will operate as 12-pipe cards while in CrossFireXTM mode. 5. Different CrossFireXTM cards may require different methods to enable CrossFireXTM. Please refer to AMD graphics card manuals for detailed installation guide. 2.8.1 Installing Two CrossFireXTM-Ready Graphics Cards Step 1 Insert one graphics card into PCIe1 slot and the other graphics card to PCIe3 slot. @@@@Please check AMD's website for details.

@@@Then select Enable AMD CrossFireX and click Apply. @@@@Please set a hotkey for switching between the two devices. OC Tweaker Configurations for overclocking the system. System Info View information about the system. 37 English Tech Service Contact Tech Service. English 38 Z87 Pro4 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 Z87 Pro4 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 Z87 Pro4 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 Z87 Pro4 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 Z87 Pro4 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.



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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 Z87 Pro4 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 account, 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 the MeshAgent.exe and select Run as administrator. English 50 Z87 Pro4 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.

Step 7 Click on Power Actions. Step 8 Click on Wake or Sleep. English 52 Z87 Pro4 Waking up a 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 the "Remote Wake" has been enabled in "Intel® Smart Connect Technology Manager". Setup Guide Step 1 Download and install 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 account, 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 Z87 Pro4 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 details. 55 English Accessing Data Playing Video English 56 Z87 Pro4 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 Z87 Pro4 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 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 overlocking 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 60 Security Exit Z87 Pro4 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> 61 English 4.



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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 62 Z87 Pro4 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. CPU Cache Ratio The CPU Internal Bus Speed Ratio. The maximum should be the same as the CPU Ratio. The CPU speed is determined by the CPU Ratio multiplied with the BCLK. Increasing the BCLK will increase the internal CPU clock speed but also affect the clock speed of other components. 63 English BCLK/PCIE Frequency Spread Spectrum Enable Spread Spectrum to reduce electromagnetic interference for passing EMI tests. Disable to achieve higher clock speeds when overclocking. 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 Intel Turbo Boost Technology enables the processor to run above its base operating frequency when the operating system requests the highest performance state. 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. English 64 GT Voltage Mode Auto: For optimized settings. Adaptive: Add voltage to the integrated GPU when the system is under heavy load. Z87 Pro4 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 load. DRAM Timing Configuration 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 65 English DRAM Tweaker Fine tune the DRAM settings by leaving marks in checkboxes. Click OK to confirm and apply your new settings. CAS# Latency (tCL) 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. English 66 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. Z87 Pro4 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.

CAS Write Latency (tCWL) Configure CAS Write Latency. 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. Configure between module write to write delay. 67 English tWRWR tWRWRDR Configure between module write to write delay from different ranks. tWRWRDD Configure between module write to write delay from different DIMMs.

tRDWR Configure between module read to write delay. tRDWRDR Configure between module read to write delay from different ranks. 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]. English 68 Z87 Pro4 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. FIVR Switch Frequency Offset Configure the percentage of frequency boost or deduction. CPU Voltage Mode Auto: For optimized settings.



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*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 Adaptive Voltage Configure the voltage added to the CPU Cache when the system is under heavy load. CPU Cache Voltage Offset English 69 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. CPU Integrated VR Efficiency Mode Enable FIVR Efficiency Management for power saving. Disable for better performance and overclocking capabilities. 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 70 Z87 Pro4 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, USB Configuration and Trusted Computing. Setting wrong values in this section may cause the system to malfunction. 71 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 72 CPU C7 State Support Enable C7 deep sleep state for lower power consumption. Z87 Pro4 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. 73 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.*

*PCIe1 Link Speed Select the link speed for PCIe1. 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 to support Lucid Virtu. English 74 Z87 Pro4 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. On/Off Play With ASRock On/Off Play users can connect their portable audio devices, such as an MP3 player or a mobile phone to the PC and listen to music through the computer's speakers even when the computer is turned off. 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. 75 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 76 Hard Disk S.M.A.R.*

*T. S.M.A.R.*

*T stands for Self-Monitoring, Analysis, and Reporting Technology. It is a monitoring system for computer hard disk drives to detect and report on various Z87 Pro4 indicators of reliability. 77 English 4.4.4 Intel® Rapid Start Technology Intel® Rapid Start Technology Intel® Rapid Start Technology is a new zero power hibernation mode which allows users to resume in just 5-6 seconds.*

*English 78 Z87 Pro4 4.4.5 Intel® Smart Connect Technology Intel® Smart Connect Technology Intel® Smart Connect Technology automatically updates your email and social networks, such as Twitter, Facebook, etc. while the computer is in sleep mode. 79 English 4.4.6 Super IO Configuration Serial Port Enable or disable the Serial port.*



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Serial Port Address Select the address of the Serial port. Infrared Port Enable or disable the Infrared port. English 80 Z87 Pro4 4.

4.7 ACPI Configuration Suspend to RAM Select disable for ACPI suspend type S1. It is recommended to select auto for ACPI S3 power saving. Check Ready Bit Enable to enter the operating system after S3 only when the hard disk is ready, this is recommended for better system stability. ACPI HPET Table Enable the High Precision Event Timer for better performance and to pass WHQL tests. PS/2 Keyboard Power On Allow the system to be waked up by a PS/2 Keyboard. PCI Devices Power On Allow the system to be waked up by a PCI device and enable wake on LAN. Wake From Onboard LAN Allow the system to be waked up by the Onboard Intel I217V LAN. 81 English Ring-In Power On Allow the system to be waked up by onboard COM port modem Ring-In signals.

RTC Alarm Power On Allow the system to be waked up by the real time clock alarm.

Set it to By OS to let it be handled by your operating system. USB Keyboard/Remote Power On Allow the system to be waked up by a USB keyboard or remote controller. USB Mouse Power On Allow the system to be waked up by a USB mouse. English 82 Z87 Pro4 4.4.

8 USB Configuration USB Controller Enable or disable all the USB 2.0 ports. USB 3.0 Controller Enable or disable all the USB 3.0 ports.

Legacy USB Support Enable or disable Legacy OS Support for USB 2.0 devices. If you encounter USB compatibility issues it is recommended to disable legacy USB support. Select UEFI Setup Only to support USB devices under the UEFI setup and Windows/Linux operating systems only. Legacy USB 3.0 Support Enable or disable Legacy OS Support for USB 3.0 devices. 83 English 4.4.9 Trusted Computing Security Device Support Enable to activate Trusted Platform Module (TPM) security for your hard disk drives.

English 84 Z87 Pro4 4.5 Tools System Browser ASRock System Browser shows the overview of your current PC and the devices connected. OMG (Online Management Guard) Administrators are able to establish an internet curfew or restrict internet access at specified times via OMG. @@@@ Please setup network configuration before using Internet Flash. \*For BIOS backup and recovery purpose, it is recommended to plug in your USB pen drive before using this function. Network Configuration Use this to configure internet connection settings for Internet Flash. Internet Setting Enable or disable sound effects in the setup utility. UEFI Download Server Select a server to download the UEFI firmware. English 86 Z87 Pro4 Dehumidifier Function If Dehumidifier Function is enabled, the computer will power on automatically to dehumidify the system after entering S4/S5 state. Dehumidifier Period Configure the period of time until the computer powers on and enables Dehumidifier after entering S4/S5 state.

Dehumidifier Duration Configure the duration of the dehumidifying process before it returns to S4/S5 state. Dehumidifier CPU Fan Setting Configure the speed of the CPU fan while Dehumidifier is enabled. The higher the value, the faster the fan speed. Max: 255 Min: 1 Save User Default Type a profile name and press enter to save your settings as user default. Load User Default Load previously saved user defaults.

87 English 4.6 Hardware Health Event Monitoring Screen This section allows you to monitor the status of the hardware on your system, including the parameters of the CPU temperature, motherboard temperature, fan speed and voltage. CPU Fan 1 & 2 Setting Select a fan mode for CPU Fans 1&2, or choose Customize to set 5 CPU temperatures and assign a respective fan speed for each temperature. Chassis Fan 1 Setting Select a fan mode for Chassis Fan 1, or choose Customize to set 5 CPU temperatures and assign a respective fan speed for each temperature. Chassis Fan 2 Setting Select a fan mode for Chassis Fan 2, or choose Customize to set 5 CPU temperatures and assign a respective fan speed for each temperature.

Over Temperature Protection When Over Temperature Protection is enabled, the system automatically shuts down when the motherboard is overheated.

English 88 Z87 Pro4 4.7 Boot Screen This section displays the available devices on your system for you to configure the boot settings and the boot priority. Fast Boot Fast Boot minimizes your computer's boot time. In fast mode you may not boot from an USB storage device. Ultra Fast mode is only supported by Windows 8 and the VBIOS must support UEFI GOP if you are using an external graphics card. Please notice that Ultra Fast mode will boot so fast that the only way to enter this UEFI Setup Utility is to Clear CMOS or run the Restart to UEFI utility in Windows. Boot From Onboard LAN Allow the system to be waked up by the onboard LAN. Setup Prompt Timeout Configure the number of seconds to wait for the setup hot key. Bootup Num-Lock Select whether Num Lock should be turned on or off when the system boots up.

Select whether the Boot Beep should be turned on or off when the system boots up. Please note that a buzzer is needed. 89 English Boot Beep Full Screen Logo Enable to display the boot logo or disable to show normal POST messages. AddOn ROM Display Enable AddOn ROM Display to see the AddOn ROM messages or configure the AddOn ROM if you've enabled Full Screen Logo. Disable for faster boot speed. Boot Failure Guard If the computer fails to boot for a number of times the system automatically restores the default settings. Boot Failure Guard Count Configure the number of attempts to boot until the system automatically restores the default settings. CSM (Compatibility Support Module) CSM Enable to launch the Compatibility Support Module. Please do not disable unless you're running a WHCK test. If you are using Windows 8 64-bit and all of your devices support UEFI, you may also disable CSM for faster boot speed.

English 90 Z87 Pro4 Launch PXE OpROM Policy Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Launch Storage OpROM Policy Select UEFI only to run those that support UEFI option ROM only. Select Legacy only to run those that support legacy option ROM only. Launch Video OpROM Policy Select UEFI only to run those that support UEFI option ROM only.

Select Legacy only to run those that support legacy option ROM only. 91 English 4.8 Security Screen In this section you may set or change the supervisor/user password for the system. You may also clear the user password. Supervisor Password Set or change the password for the administrator account. Only the administrator has authority to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password. User Password Set or change the password for the user account. Users are unable to change the settings in the UEFI Setup Utility. Leave it blank and press enter to remove the password. Secure Boot Enable to support Windows 8 Secure Boot. English 92 Z87 Pro4 4.



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