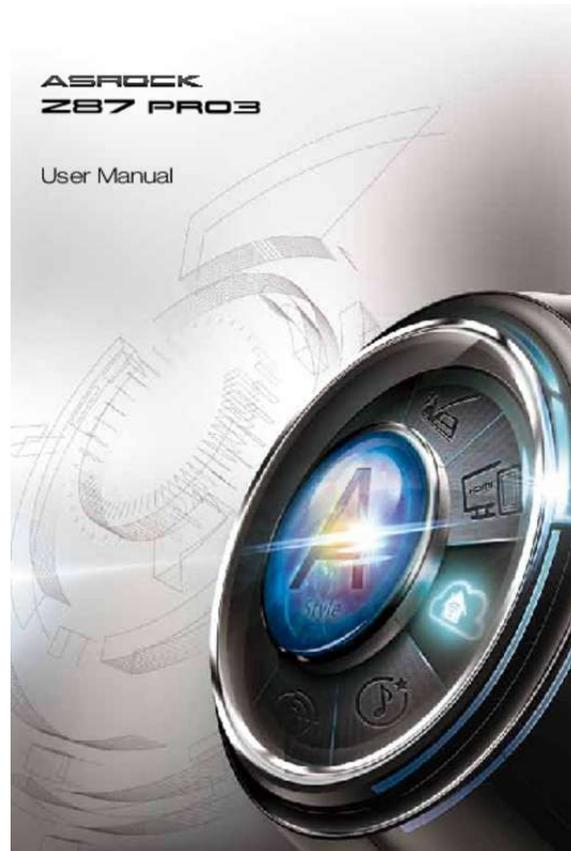




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You can read the recommendations in the user guide, the technical guide or the installation guide for ASROCK Z87 PRO3. You'll find the answers to all your questions on the ASROCK Z87 PRO3 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual ASROCK Z87 PRO3
User guide ASROCK Z87 PRO3
Operating instructions ASROCK Z87 PRO3
Instructions for use ASROCK Z87 PRO3
Instruction manual ASROCK Z87 PRO3



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Manual abstract:

In no event shall ASRock, its directors, officers, employees, or agents be liable for any indirect, special, incidental, or consequential damages (including damages for loss of profits, loss of business, loss of data, interruption of business and the like), even if ASRock has been advised of the possibility of such damages arising from any defect or error in the documentation or product. The terms HDMI™ and HDMI High-Definition Multimedia Interface, and the HDMI logo are trademarks or registered trademarks of HDMI Licensing LLC in the United States and other countries. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. CALIFORNIA, USA ONLY The Lithium battery adopted on this motherboard contains Perchlorate, a toxic substance controlled in Perchlorate Best Management Practices (BMP) regulations passed by the California Legislature. When you discard the Lithium battery in California, USA, please follow the related regulations in advance. Perchlorate Material-special handling may apply, see www. 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 documentation will be subject to change without notice. In case any modifications of this documentation 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. 0 x1 slots 2 x PCI slots Intel® HD Graphics Built-in Visuals and the VGA outputs can be supported only with processors which are GPU integrated.

Shared memory 1792MB 3 VGA Output options: D-Sub, DVI-D and HDMI Supports Triple Monitors Expansion Slot Graphics English 2 Z87 Pro3 Supports HDMI Technology 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 ALC892 Audio Codec) Premium Blu-ray audio support Gigabit LAN 10/100/1000 Mb/s Giga PHY Intel® I217V Supports Intel® Remote Wake Technology Supports Wake-On-LAN Supports Energy Efficient Ethernet 802.0 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 Hot Plug panel audio connector 1 x SPDIF Out connector 2 x USB 2.0 ports 64Mb AMI UEFI Legal BIOS with Multilingual GUI support ACPI 1.3V, CPU Vcore Microsoft® Windows® 8 / 8 64-bit / 7 / 7 64-bit compliant Hardware Monitor English 4 OS Z87 Pro3 Certifications 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 overclocking, including adjusting the setting in the BIOS, applying Untied Overclocking Technology, or using thirdparty overclocking tools. It should be done at your own risk and expense. We are not responsible for possible damage caused by overclocking. 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 Pro3 ASRock XFast RAM ASRock XFast RAM is included in A-Tuning.



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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. ASRock OMG (Online Management Guard) Administrators are able to establish an internet curfew or restrict internet access at specified times via OMG. You may schedule the starting and ending hours of internet access granted to other users. In order to prevent users from bypassing OMG, guest accounts without permission to modify the system time are required. 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 UEFI 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 aSRock 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 aSRock SATA Mode to aSRock 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 amusement. 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 On/Off Play Technology ASRock On/Off Play Technology allows users to enjoy the great audio experience from the portable audio devices, such like MP3 player or mobile phone to your PC, even when the PC is turned off (or in ACPI S5 mode)! This motherboard also provides a free 3.5mm audio cable (optional) that ensures users the most convenient computing environment. 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! English 8 Z87 Pro3 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. 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 downloading 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 and PCI2 slots are used to install expansion cards that have 32-bit PCI interface. 5 Jumpers Setup The illustration shows how jumpers are setup. When the jumper cap is placed on the pins, the jumper is aSRock Short. If no jumper cap is placed on the pins, the jumper is aSRock Open. The illustration shows a 3-pin jumper whose pin1 and pin2 are aSRock Short when a jumper cap is placed on these 2 pins. 20) Default Clear CMOS CLR CMOS1 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 CLR CMOS1 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. Placing jumper caps over the headers and connectors will cause permanent damage to the motherboard.

14) 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.



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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. 15) 1 PLED+ PLED- 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 ports on the I/O panel, there are two headers on this motherboard. each USB 2.0 header can support two ports. 0 ports on the I/O panel, there is one header on this motherboard. each USB 3.0 header can support two ports. 23) 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 AC97 audio panel, please install it to the front panel audio header by the steps below: A. MIC_RET and OUT_RET are for the HD audio panel only. You don't need to connect them for the AC97 audio panel. e. To activate the front mic, go to the FrontMic Tab in the Realtek Control panel and adjust Recording Volume. 22) 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.

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 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. 2 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. 1 Installing A-Tuning When you install the all-in-one driver to your system from ASRock's support CD, A-Tuning will be auto-installed as well. After the installation, you will find the icon A-Tuning on your desktop. Double-click the A-Tuning icon, A-Tuning main menu will pop up. XFast RAM Boost the system's performance and extend the HDD or SSD'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 @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. 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. 29 English 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. OC Tweaker Configurations for overclocking the system.

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.

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.

Double click on the value Start and change the value from 3 into 0. 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. 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 SSDs installed into your system, it is recommended to create the partition on the SSD. 33 English 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 English 34 Z87 Pro3 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.



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Click on Windows Start > the arrow next to Shut down, and click on Sleep. According to your settings in Rapid Start Technology Manager, the system will automatically wake up and enable Rapid Start mode after entering sleep 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. english 36 Z87 Pro3 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. 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.

Double click on the value Start and change the value from 3 into 0. 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. english 38 Z87 Pro3 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 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. 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.

Before configuring this feature, verify the following. If you have not created a MeshCentral account, go to MeshCentral. Com and create a new account. english 42 Step 2 Click the "My Account" tab. Then click on "New" to create a new mesh. Z87 Pro3 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. Step 2 Step 3 Right-click on the MeshAgent. exe and select Run as administrator. 43 English Select the mesh and download both files.

Make sure both files are in the same directory. step 4 Click Install / Update. Then enter your Splashtop Account. If you have not created a Splashtop account, create one. Step 2 Tap "Wake up this computer".

Step 2 Start remotely accessing your home computer. It should be done at your own risk and expense. System Monitoring Screen: Provides a graph for you to track CPU usage, memory usage, and CPU temperature. English 50 Z87 Pro3 System Information Displays the major information of your system. Manual Tuning Manual Tuning shows the major readings of your system and allows you to tune the parameters, including voltage for the CPU core, GPU, and TurboBoost functions. Stress Test Stress Test allows maximum load testing on both CPU and memory. specify the duration and click Start Testing. Benchmarking With Benchmarking, you can share and compare the scores online with other users in the HWBot community. Profiles Profiles shows a list of profiles for your overclocking settings and Benchmark results, which can be exported to share with other overclockers. 51 English 3.

7 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. 1 Installing Start8 Install Start8, which is located in the folder at the following path of the Support CD: \ASRock Utility > Start8. Then select the theme of the Start Menu and customize the style of the Start icon. English 52 Z87 Pro3 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 53 English 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. 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 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 <Ctrl> + <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. 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 Security Exit 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 55 English 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.



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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> English 56 Z87 Pro3 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". 57 English 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.

BCLK/PCIE Frequency 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. english 58 Z87 Pro3 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. 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. 59 English 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 English 60 Z87 Pro3 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. 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. 61 English 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. 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. TWRRD Configure between module write to read delay.

TWRDDR Configure between module write to read delay from different ranks. Configure between module write to read delay from different DIMMs.

TWRWR Configure between module write to write delay. English 62 Z87 Pro3 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.

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. 63 English ODT NOM (CHB) 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. 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.



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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 Configure the voltage for the CPU Cache. Setting the voltage higher may increase system stability when overclocking. English 64 Z87 Pro3 System Agent Voltage Offset Configure the voltage for the System Agent. Setting the voltage higher may increase system stability when overclocking. 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. 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. Use default settings for best performance. 65 English 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. 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. Enable C6 deep sleep state for lower power consumption. CPU C7 State Support Enable C7 deep sleep state for lower power consumption.

67 English CPU C6 State Support 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. Adjacent Cache Line Prefetch Automatically prefetch the subsequent cache line while retrieving the currently requested cache line. 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 English 69 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.

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. 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. 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 a monitoring system for computer hard disk drives to detect and report on various 71 English indicators of reliability. 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.

While the computer is in sleep mode. Serial Port Address Select the address of the Serial port. 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. English 76 Wake From Onboard LAN Allow the system to be waked up by the Onboard Intel I217V LAN. z87 Pro3 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. Select UEFI Setup Only to support USB devices under the UEFI setup and Windows/Linux operating systems only. 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. You may schedule the starting and ending hours of internet access granted to other users. In order to prevent users from bypassing OMG, guest accounts without permission to modify the system time are required. UEFI Tech Service Contact ASRock Tech Service if you are having trouble with your PC. please setup network configuration before using UEFI Tech Service. Easy RAID Installer Easy RAID Installer helps you to copy the RAID driver from the support CD to your USB storage device.



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After copying the drivers please change the SATA mode to RAID, then you can start installing the operating system in RAID mode. 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 79 English required drivers automatically. Instant Flash Save UEFI files in your USB storage device and run Instant Flash to update your UEFI. Internet Flash ASRock Internet Flash downloads and updates the latest UEFI firmware version from our servers for you.

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 80 Z87 Pro3 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. 81 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 82 Z87 Pro3 4. @@ fast Boot Fast Boot minimizes your computer's boot time.

In fast mode you may not boot from an USB storage device. @@@@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. 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 84 Z87 Pro3 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. 85 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. 9 Exit Screen Save Changes and Exit When you select this option the following message, âSave configuration changes and exit setup? â will pop out. Select [OK] to save changes and exit the UEFI SETUP Utility. Discard Changes and Exit When you select this option the following message, âDiscard changes and exit setup? â will pop out. Select [OK] to exit the UEFI SETUP Utility without saving any changes.

Discard Changes When you select this option the following message, âDiscard changes? Load UEFI Defaults Load UEFI default values for all options. The F9 key can be used for this operation. Contact Information If you need to contact ASRock or want to know more about ASRock, you're welcome to visit ASRock's website at <http://www.asrock.com>; or you may contact your dealer for further information. For technical questions, please submit a support request form at <http://www.>



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