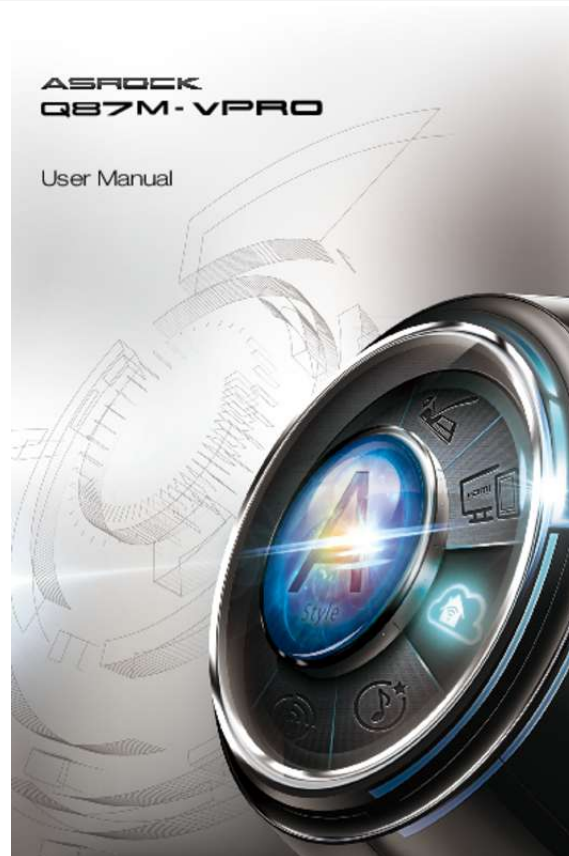




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You can read the recommendations in the user guide, the technical guide or the installation guide for ASROCK Q87M VPRO. You'll find the answers to all your questions on the ASROCK Q87M VPRO in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual ASROCK Q87M VPRO
User guide ASROCK Q87M VPRO
Operating instructions ASROCK Q87M VPRO
Instructions for use ASROCK Q87M VPRO
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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.
- 13 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 English 14 Q87M vPro 3 4 5 15 English 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. English 16 Q87M vPro 2.2 Installing the CPU Fan and Heatsink 1 2 CP U_ FA N 17 English 2.3 Installing Memory Modules (DIMM) This motherboard provides two 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 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. 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. English 18 Q87M vPro 1 2 3 19 English 2.4 Expansion Slots (PCI and PCI Express Slots) There is 3 PCI Express slots and 1 PCI slot on this 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 PCII is 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 and 3 (PCIe 2.

0 x1 slot) are used for PCI Express x1 lane width cards. English 20 Q87M vPro 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 (CLR_CMOS1) (see p.9, No. 12) 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. If you clear the CMOS, the case open may be detected.

Please adjust the BIOS option "Clear Status" to clear the record of previous chassis intrusion status. 21 English 2.6 Onboard Headers and Connectors Onboard headers and connectors are NOT jumpers. Do NOT place jumper caps over these headers and connectors. Placing jumper caps over the headers and connectors will cause permanent damage to the motherboard. System Panel Header (9-pin PANEL1) (see p.9, 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. Note the positive and negative pins before connecting the cables. PWRBTN (Power Switch): Connect to the power switch on the chassis front panel.

You may configure the way to turn off your system using the power switch. RESET (Reset Switch): Connect to the reset switch on the chassis front panel. Press the reset switch to restart the computer if the computer freezes and fails to perform a normal restart. PLED (System Power LED): Connect to the power status indicator on the chassis front panel. The LED is on when the system is operating.

The LED keeps blinking when the system is in S1/S3 sleep state. The LED is off when the system is in S4 sleep state or powered off (S5). HDLED (Hard Drive Activity LED): Connect to the hard drive activity LED on the chassis front panel. The LED is on when the hard drive is reading or writing data. The front panel design may differ by chassis.

A front panel module mainly consists of power switch, reset switch, power LED, hard drive activity LED, speaker and etc. When connecting your chassis front panel module to this header, make sure the wire assignments and the pin assignments are matched correctly. English 22 Q87M vPro Serial ATA3 Connectors (SATA_0: see p.9, No. 15) (SATA_1: see p.9, No. 18) (SATA_2: see p.9, No. 14) (SATA_3: see p.9, No.

19) (SATA_4: see p.9, No. 11) (SATA_5: see p.9, No. 20) USB 2.0 Headers (9-pin USB_4_5) (see p.9, No. 23) (9-pin USB_6_7) (see p.9, No. 24) SATA_5 SATA_3 SATA_1 SATA_4 SATA_2 SATA_0 These six SATA3 connectors support SATA data cables for internal storage devices with up to 6.0 Gb/s data transfer rate. USB_PWR PP+ GND DUMMY 1 GND P+ PUSB_PWR Besides two USB 2.0 ports on the I/O panel, there are two headers on this motherboard. Each USB 2.0 header can support two ports.

Besides four USB 3.0 ports on the I/O panel, there are one header on this motherboard. Each USB 3.0 header can support two ports. USB 3.0 Headers (19-pin USB3_4_5) (see p.9, No. 21) 1 IntA_P_D+ IntA_P_DGND IntA_P_SSTX+ IntA_P_SSTXGND IntA_P_SSRX+ IntA_P_SSRXVbus ID Vbus IntA_P_SSRXIntA_P_SSRX+ GND IntA_P_SSTXIntA_P_SSTX+ GND IntA_P_DIntA_P_D+ 23 English Front Panel Audio Header (9-pin HD_AUDIO1) (see p.9, No. 27) GND PRESENCE# MIC_RET OUT_RET 1 OUT2_L J_SENSE OUT2_R MIC2_R MIC2_L This header is for connecting audio devices to the front audio panel. 1. High Definition Audio supports Jack Sensing, but the panel wire on the chassis must support HDA to function correctly.



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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.9, No. 13) Chassis and Power Fan Connectors (4-pin CHA_FAN1) (see p.9, No. 10) (4-pin CHA_FAN2) (see p.

9, No. 9) (3-pin PWR_FAN1) (see p.9, No. 2) DUMMY SPEAKER 1 +5V DUMMY Please connect the chassis speaker to this header. GND +12V CHA_FAN_SPEED FAN_SPEED_CONTROL Please connect fan cables to the fan connectors and match the black wire to the ground pin.

GND + 12V CHA_FAN_SPEED English 24 Q87M vPro CPU Fan Connectors (4-pin CPU_FAN1) (see p.9, No. 4) (4-pin CPU_FAN2) (see p.9, No. 5) GND +12V CPU_FAN_SPEED FAN_SPEED_CONTROL GND +12V CPU_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.9, No. 8) 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 COM1 header supports a serial port module. ATX 12V Power Connector (8-pin ATX12V1) (see p.9, No. 3) 5 1 8 4 Serial Port Header (9-pin COM1) (see p.9, No. 26) RRXD1 DDTR#1 DDSR#1 CCTS#1 1 RRI#1 RRTS#1 GND TTXD1 DDCD#1 Chassis Intrusion Header (2-pin CII) (see p.9, No. 22) 1 GND Signal 25 English This motherboard supports CASE OPEN detection feature that detects if the chassis cover has been removed.

This feature requires a chassis with chassis intrusion detection design. LAD3_L +3V LAD0_L +3VSB GND Print Port Header (25-pin LPT1) (see p.9, No. 25) AFD# ERROR# PINIT# SLIN# 1 SPD7 SPD6 ACK# SPD5 BUSY SPD4 PE SPD3 SLCT SPD2 SPD1 SPD0 STB# 26 T TPM Header (17-pin TPMS1) (see p.9, No.

1) 1 CK_33M_TPM LFRAME#_L PM_RST# GND SMB_CLK_MAIN SMB_DATA_MAIN LAD2_L LAD1_L GND S_PWRDWN# SERIRQ# F_CLKRUN# 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. This is an interface for print port cable that allows convenient connection of printer devices. GND English Q87M vPro Chapter 3 Software and Utilities Operation 3.1 Installing Drivers The Support CD that comes with the motherboard contains necessary drivers and useful utilities that enhance the motherboard's features.

Running The Support CD To begin using the support CD, insert the CD into your CD-ROM drive. The CD automatically displays the Main Menu if "AUTORUN" is enabled in your computer. If the Main Menu does not appear automatically, locate and double click on the file "ASRSETUP.EXE" in the Support CD to display the menu. Drivers Menu The drivers compatible to your system will be auto-detected and listed on the support CD driver page. @@@@Double click on the value Start and change the value from 3 into 0. @@@@Press F10 to save changes and exit. Enter Windows 8/7. @@@@If there are SSD's 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 Q87M vPro 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. 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 35 English 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 Q87M vPro 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. @@@@Double click on the value Start and change the value from 3 into 0. Click on OK. 37 English 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. English 38 Q87M vPro 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.

Click Apply to enable Smart Connect. 39 English Step 5 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. English 3.

Windows system will enter sleep state. 40 Q87M vPro 4. The system will wake up from sleep state periodically, and then start to update Foxmail. The screen will not display anything so the computer can maintain minimum power usage.



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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. 41 English 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. English 42 Step 2 Click the "My Account" tab. Then click on "New" to create a new mesh. Q87M vPro 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 Step 3 Right-click on 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. Step 5 Wait a minute for the New Machine to appear in "My Device". English 44 Q87M vPro Step 6 Check whether "Intel Remote Wake" appeared or not. Waking up Your PC using PC Step 1 On the "My Devices" page, click on Power Actions.

Step 2 Click on Wake or Sleep. 45 English Waking up Your PC Using Mobile Device Before waking up your home computer using a mobile device, please log out of MeshCentral on other previously used computers or devices. Step 1 Login to meshcentral.com/m. Step 2 Select a Machine.

Step 3 Click on Wake or Sleep. English 46 Tutorial Video Q87M vPro 3.5.2 Configuring and Using Splashtop Splashtop is a remote desktop access software that lets you remotely access your home computer from your mobile device. Before configuring this feature, verify that "Remote Wake" has been enabled in "Intel® Smart Connect Technology Manager". Setup Guide Step 1 Download and install the Streamer on your home computer, which is located in the folder at the following path of the Support CD: \ASRock Utility > Splashtop Streamer. Then enter your Splashtop Account. If you have not created a Splashtop 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". 47 English 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. English 48 Q87M vPro Accessing Data Playing Video 49 English 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. English 50 Q87M vPro 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 51 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.

About Displays information about Start8. English 52 Q87M vPro 3.7 Intel® vPro Configuration and Management If you would like to configure and manage Intel vPro Technology, please install "Intel Open Manageability Developer Tool Kit", which is located in the folder at the following path of the Support CD: ..\Utilities\ManageabilityToolKit\v1.21\ManageabilityDeveloperToolKit.msi. You can download the latest version of the tool kit from <http://opentools.homeip.net/open-manageability>.

53 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 right after you power on the computer, otherwise, the Power-On-Self-Test (POST) will continue with its test routines. If you wish to enter the UEFI Setup Utility after POST, restart the system by pressing <Ctl> + <Alt> + <Delete>, or by pressing the reset button on the system chassis. You may also restart by turning the system off and then back on. Because the UEFI software is constantly being updated, the following UEFI setup screens and descriptions are for reference purpose only, and they may not exactly match what you see on your screen. 4.1.

1 UEFI Menu Bar The top of the screen has a menu bar with the following selections: Main OC Tweaker Advanced Tool H/W Monitor Boot For setting system time/date information For overclocking configurations For advanced system configurations Useful tools Displays current hardware status For configuring boot settings and boot priority For security settings Exit the current screen or the UEFI Setup Utility English 54 Security Exit Q87M vPro 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 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> <F7> <F9> <F10> <F12> <ESC> 55 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. English 56 Q87M vPro 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 Ratio The CPU speed is determined by the CPU Ratio multiplied with the BCLK. Increasing the CPU Ratio will increase the internal CPU clock speed without affecting the clock speed of other components. Intel SpeedStep Technology Intel SpeedStep technology allows processors to switch between multiple frequencies and voltage points for better power saving and heat dissipation. Intel Turbo Boost Technology English 57 Intel Turbo Boost Technology enables the processor to run above its base operating frequency when the operating system requests the highest performance state. Long Duration Power Limit Configure Package Power Limit 1 in watts. When the limit is exceeded, the CPU ratio will be lowered after a period of time. A lower limit can protect the CPU and save power, while a higher limit may improve performance. Long Duration Maintained Configure the period of time until the CPU ratio is lowered when the Long Duration Power Limit is exceeded. Short Duration Power Limit Configure Package Power Limit 2 in watts. When the limit is exceeded, the CPU ratio will be lowered immediately.

A lower limit can protect the CPU and save power, while a higher limit may improve performance. Primary Plane Current Limit Configure the current limit of the CPU under Turbo Mode in ampere. A lower limit can protect the CPU and save power, while a higher limit may improve performance. GT Frequency Configure the frequency of the integrated GPU. GT Voltage Mode Auto: For optimized settings. Adaptive: Add voltage to the integrated GPU when the system is under heavy load. Override: The voltage is fixed. GT Adaptive Voltage Configure the fixed voltage added to the integrated GPU. GT Voltage Offset Configure the voltage added to the integrated GPU when the system is under heavy load. English 58 Q87M vPro DRAM Timing Configuration DRAM Frequency If [Auto] is selected, the motherboard will detect the memory module(s) inserted and assign the appropriate frequency automatically.

DRAM Configuration 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. 59 English Command Rate (CR) The delay between when a memory chip is selected and when the first active command can be issued.

Write Recovery Time (tWR) The amount of delay that must elapse after the completion of a valid write operation, before an active bank can be precharged. Refresh Cycle Time (tRFC) The number of clocks from a Refresh command until the first Activate command to the same rank. RAS to RAS Delay (tRRD) The number of clocks between two rows activated in different banks of the same rank. Write to Read Delay (tWTR) The number of clocks between the last valid write operation and the next read command to the same internal bank. Read to Precharge (tRTP) The number of clocks that are inserted between a read command to a row precharge command to the same rank.

Four Activate Window (tFAW) The time window in which four activates are allowed the same rank. 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. English 60 tRDRD Configure between module read to read delay. Q87M vPro tRDRDDR Configure between module read to read delay from different ranks. tRDRDDD Use this to change DRAM tRWSR Auto/Manual settings. The default is [Auto]. tWRRD Configure between module write to read delay. tWRRDDR Configure between module write to read delay from different ranks.

tWRRDDD Use this to change DRAM tRRSR Auto/Manual settings. The default is [Auto]. Configure between module write to read delay from different DIMMs. tWRWR Configure between module write to write delay. tWRWRDR Configure between module write to write delay from different ranks. tWRWRDD Configure between module write to write delay from different DIMMs. tRDWR 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. 61 English IO-L (CHA) Configure IO latency for channel A. IO-L (CHB) Configure IO latency for channel B. ODT WR (CHA) Configure the memory on die termination resistors' WR for channel A. ODT WR (CHB) Configure the memory on die termination resistors' WR for channel B.

ODT NOM (CHA) Use this to change ODT (CHA) Auto/Manual settings. The default is [Auto]. ODT NOM (CHB) Use this to change ODT (CHB) Auto/Manual settings. The default is [Auto]. Command Tri State Enable for DRAM power saving.

MRC Fast Boot Enable Memory Fast Boot to skip DRAM memory training for booting faster. DIMM Exit Mode Use this to configure DIMM Exit Mode. The default is [Fast Exit]. English 62 Q87M vPro 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. Adaptive: Add voltage to the CPU when the system is under heavy load. Override: The voltage is fixed. CPU Adaptive 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 Voltage Mode Auto: For optimized settings. Adaptive: Add voltage to the CPU Cache when the system is under heavy load. Override: The voltage is fixed. 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. System Agent Voltage Offset English 63 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.



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CPU Integrated VR Efficiency Mode Enable FIVR Efficiency Management for power saving. Disable for better performance and overclocking capabilities. Voltage Configuration 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 64 Q87M vPro 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, AMT Configuration, Super IO Configuration, ACPI Configuration, USB Configuration, Trusted Computing and Serial Port Console Redirection. Setting wrong values in this section may cause the system to malfunction. 65 English 4.4.1 CPU Configuration Intel TXT(LT) Support Use this option to enable or disable Intel(R) TXT(LT) support. The default value is [Disabled].

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. English 66 CPU C3 State Support Enable C3 sleep state for lower power consumption. Q87M vPro CPU C6 State Support Enable C6 deep sleep state for lower power consumption. CPU C7 State Support Enable C7 deep sleep state for lower power consumption. 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. 67 English 4.4.2 Chipset Configuration 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. Primary Graphics Adapter Select a primary VGA.

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. English 68 Q87M vPro Render Standby Power down the render unit when the GPU is idle for lower power consumption. Onboard HD Audio Enable/disable onboard HD audio. Set to Auto to enable onboard HD audio and automatically disable it when a sound card is installed. Front Panel Enable/disable front panel HD audio. Onboard HDMI HD Audio Enable audio for the onboard digital outputs. 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. 69 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 70 Dynamic Storage Accelerator Keep this option enabled for higher HDD and SSD I/O performance, lower latency and increased system responsiveness. Q87M vPro 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 indicators of reliability. 71 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 72 Q87M vPro 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. @@@@ 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. 79 English 4.4.10 Trusted Computing Security Device Support Enable or disable BIOS support for security device. English 80 Q87M vPro 4.

4.11 Serial Port Console Redirection Console Redirection Use this option to enable or disable Console Redirection. Console Redirection Settings Use this option to configure Console Redirection Settings. 81 English 4.5 Tools 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. English 82 Q87M vPro 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. 83 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.



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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&2 Setting Select a fan mode for Chassis Fan 1&2, or choose Customize to set 5 CPU temperatures and assign a respective fan speed for each temperature. Case Open Feature Enable or disable Case Open Feature to detect whether the chassis cover has been removed. English 84 Q87M vPro 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. 85 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 86 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. Do not launch? Q87M vPro 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. Do not launch? 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. Do not launch? 87 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 88 Q87M vPro 4.9 Exit Screen Save Changes and Exit When you select this option the following message, "Save configuration changes and exit setup?" 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, "Discard changes and exit setup?" 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, "Discard changes?" will pop out. Select [OK] to discard all changes. Load UEFI Defaults Load UEFI default values for all options. The F9 key can be used for this operation.

Launch EFI Shell from filesystem device English 89 Copy shellx64.efi to the root directory to launch EFI Shell. 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.asrock.com/support/tsd.asp> ASRock Incorporation 2F., No. 37, Sec. 2, Zhongyang S. Rd., Beitou District, Taipei City 112, Taiwan (R.O.C.) ASRock EUROPE B.V. Bijsterhuizen 3151 6604 LV Wijchen The Netherlands Phone: +31-24-345-44-33 Fax: +31-24-345-44-38 ASRock America, Inc. 13848 Magnolia Ave, Chino, CA91710 U.

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