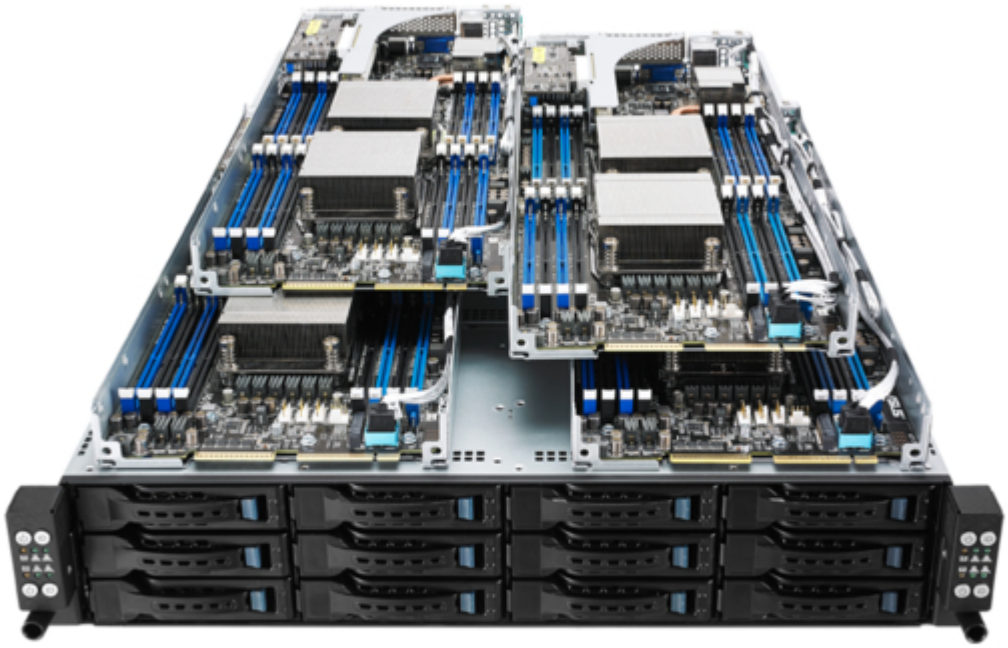


Asus RS720Q-E8-RS12 User Manual

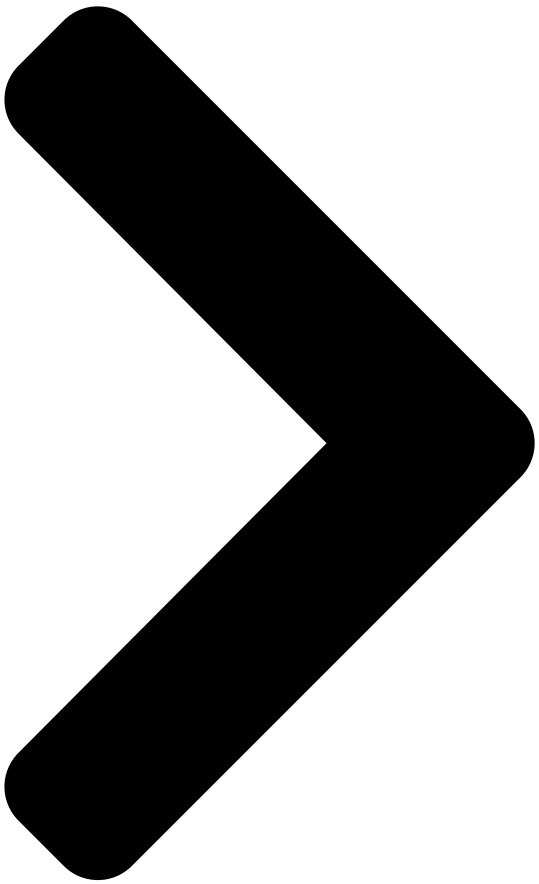
2u rackmount server

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18

-

Table of Contents

Bookmarks



RS720Q-E8-RS12

2U Rackmount Server User Guide

Table of Contents

Next Page

1
2
3
4
5

Chapters

Related Manuals for Asus RS720Q-E8-RS12

Server Asus RS720Q-E7 RS12 Compatibility Chart

Z9ph-d16 series (1 page)

Server Asus RS720QA-E6/RS12 User Manual

2u rackmount server (150 pages)

Server Asus RS720Q-E6 RS12 User Manual

2u rackmount server (166 pages)

Server Asus RS720Q-E7/RS12 User Manual

2u rackmount server (202 pages)

Server Asus RS720Q-E9-RS8 User Manual

2u rackmount server (154 pages)

Server Asus RS720Q-E9-RS8-S User Manual

2u rackmount server (152 pages)

Server Asus RS720Q-E9-RS24-S User Manual

2u rackmount server (150 pages)

Server Asus RS720-E7/RS12-E User Manual

2u rackmount server (190 pages)

Server Asus RS720-E7-RS24-EG User Manual

2u rackmount server (202 pages)

Server Asus RS720-E8-RS24-ECP User Manual

2u rackmount server (192 pages)

Server Asus RS720-E9-RS8 User Manual

2u rackmount server (200 pages)

Server Asus RS720-E9-RS12-E User Manual

2u rackmount servers (194 pages)

Server Asus RS720-E9-RS24-E User Manual

2u rackmount server (180 pages)

Server Asus RS720A-E9-RS12V2 User Manual

(160 pages)

Server Asus RS720A-E12 Series User Manual

2u rackmount server (186 pages)

Server Asus RS720A-E9-RS24V2 User Manual

2u rackmount server (156 pages)

Summary of Contents for Asus RS720Q-E8-RS12

Page 1 RS720Q-E8-RS12 2U Rackmount Server User Guide...

Page 2 ASUSTeK COMPUTER INC. (“ASUS”). ASUS provides this manual “as is” without warranty of any kind, either express or implied, including but not limited to the implied

warranties or conditions of merchantability or fitness for a particular purpose. In no...

Page 3: Table Of Contents

System package contents ..... 1-2 Serial number label .....1-3 System specifications .....1-4 Front panel features ..... 1-7 Rear panel features .....1-8 RS720Q-E8-RS12.....1-8 Internal features .....1-11 LED information .....1-12 1.7.1 Front panel LEDs .....1-12 1.7.2...

Page 4 Internal LEDs ..... 4-17 Z10PH-D16 Golden Finger .....4-21 Chapter 5: BIOS setup Managing and updating your BIOS .....5-2 5.1.1 ASUS CrashFree BIOS 3 utility..... 5-2 5.1.2 ASUS EZ Flash Utility .....5-3 5.1.3 BUPDATER utility ..... 5-4 BIOS setup program ..... 5-6 5.2.1...

Page 5 Contents 5.4.8 Network Stack Configuration..... 5-19 5.4.9 CSM Configuration .....5-20 5.4.10 Trusted Computing.....5-21 5.4.11 USB Configuration .....5-22 5.4.12 iSCSI Configuration.....5-23 IntelRCSetup menu ..... 5-24 5.5.1 Processor Configuration.....5-25 5.5.2 Advanced Power Management Configuration.....5-27 5.5.3 Common RefCode Configuration .....5-28 5.5.4 QPI Configuration.....

Page 6 ® Intel chipset device software installation .....7-17 ® Installing the Intel I350-AM1/I350-AM2/I210 X540-BT2 Gigabit Adapters driver .....7-19 VGA driver installation .....7-22 ® Intel Rapid Storage Technology enterprise 4.0 installation ....7-24 Appendices ASUS contact information .....A-2...

Page 7: Notices

Radio Interference Regulations of the Canadian Department of Communications. This Class A digital apparatus complies with Canadian ICES-003. REACH Complying with the REACH (Registration, Evaluation, Authorization, and Restriction of Chemicals) regulatory framework, we publish the chemical substances in our products at ASUS REACH website at http://csr.asus.com/english/REACH.htm.

Page 8: Safety Information

Safety information Electrical Safety • Before installing or removing signal cables, ensure that the power cables for the system unit and all attached devices are unplugged. • To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.

Page 9: Australia Statement Notice

If you require assistance please call ASUS Customer Service 1300 2787 88 or visit us at http://support.asus.com...

Page 10: About This Guide

About this guide Audience This user guide is intended for system integrators, and experienced users with at least basic knowledge of configuring a server. Contents This guide contains the following parts: Chapter 1: Product introduction This chapter describes the general features of the server, including sections on front panel and rear panel specifications.

Page 11 Refer to the following sources for additional information, and for product and software updates. ASUS Server Web-based Management (ASWM) user guide This manual tells how to set up and use the proprietary ASUS server management utility. ASUS websites The ASUS websites worldwide provide updated information for all ASUS hardware and...

Page 13: Chapter 1: Product Introduction

Chapter 1: Product Introduction Product introduction This chapter describes the general features of the chassis kit. It includes sections on front panel and rear panel specifications.

Page 14: System Package Contents

1 x Backplane Board (BP12LX-R21A) 1 x Midplane Board (MP8LX-R21A-M/E8) 4 x System Fans (80mm x 38mm) 12 x Hot-swappable 3.5” HDD trays* 1 x ASUS RS720Q-E8-RS12 Support DVD (includes User Guide) 1 x ASWM Enterprise SDVD 1 x ASMB8-iKVM Support DVD Accessories...

Page 15: Serial Number Label

Please take note of the product’s serial number. The Serial number contains 14 characters such as xxS0xxxxxxxxx similar to the figure shown below. You need to provide the correct serial number to the ASUS Technical Support team member if you need assistance or, when requesting support.

Page 16: System Specifications

System specifications The ASUS RS720Q-E8-RS12 is a 2U server system featuring the ASUS Z10PH-D16 Server ® ® ® Board. The server supports Intel LGA 2011-3 Intel Xeon E5-2600 v3 product family plus other latest technologies through the chipsets onboard. Model Name...

Page 17

Model Name ASUS RS720Q-E8-RS12 I = internal 12 x Hot-swap 3.5" HDD Bays HDD Bays A or S will be (3 x Hot-swap 3.5" HDD Bays per node) hot-swappable Per node: ® 2 x Intel I210AT Networking 1 x Management Port...

Page 18

Model Name ASUS RS720Q-E8-RS12 Regulatory Compliance BSMI, CE, C-TICK, FCC (Class A) Dimension 750 mm x 444 mm x 88 mm (2U) Net Weight Kg (CPU, DRAM, 30 Kg and HDD not included) 1 + 1 Redundant 1620W 80Plus Platinum PSU...

Page 19: Front Panel Features

The Asset tag is a small polyester film located on the bottom side of the server’s front panel. It provides information about the server such as asset barcode or serial number and is useful PORT80 PORT80 in asset tracking and inventory management. RS720Q-E8-RS12...

Page 20: Rear Panel Features

PORT80 When installing only two nodes, install the nodes to node slot number 1 and 3 or number 2 and 4. RS720Q-E8-RS12 RJ-45 port for iKVM PORT80 The ports for the USB, VGA, and Gigabit LANs do not appear on the rear panel if the motherboard is not present.

Page 21: For More Information

MRC Progress Memory Init. MRC Progress Memory Init. Done MRC Progress Other config. After RC end Progress Memory already installed. Progress CPU Init. Progress CPU Init. Progress CPU Init. Progress DXE Initial Program Load(IPL) (continued on the next page) RS720Q-E8-RS12...

Page 22

Q-Code table Action PHASE POST CODE TYPE DESCRIPTION Progress DXE Core Started Progress DXE NVRAM Init. Progress SB run-time init. Progress DXE CPU Init Progress NB Init. D X E (D r i v e r Progress NB Init. E x e c u t i o n Progress NB Init.

Page 23: Internal Features

Internal features The barebone server includes the basic components as shown. 2 x Power supply and power fan ASUS Z10PH-D16 Server Board System fans SATA/SAS backplane (hidden) Hot-swap HDD trays (SAS and SATA) Front LED Boards Ensure that the air duct is positioned on the gaps between the memory slots.

Page 24: Led Information

LED information 1.7.1 Front panel LEDs LAN1 LED Location button with LED Power button with LED Message LED LAN2 LED LAN2 LED Message LED Power button with LED Location button with LED LAN1 LED PORT80 PORT80 PORT80 PORT80 Display Icon Description status PORT80...

Page 25: Hdd Status Leds

2. Locating (blinking with the HDD status LED) PORT80 PORT80 HDD not present HDD has failed and should be swapped immediately HDD Status LED (Red) 1. RAID rebuilding PORT80 PORT80 Blinking 2. Locating (blinking with the HDD activity LED) PORT80 PORT80 RS720Q-E8-RS12 1-13...

Page 26

1-14 Chapter 1: Product introduction...

Page 27: Chapter 2: Hardware Information

Chapter 2: Hardware Information Hardware Information This chapter lists the hardware setup

procedures that you have to perform when installing or removing system components.

Page 28: Removing The Server Node

Removing the server node Remove the screw located on the node latch. Hold the server node lever and press the green node latch. Firmly pull the server node out of the server chassis. When installing only two nodes, install the nodes to node slot number 1 and 3 or number 2 and 4.

Page 29: Air Duct

Air Duct The RS720Q-E8-RS12 server system comes with a motherboard fan air duct to enable better air flow inside the motherboard while the system is running. Removing the air duct Remove the screws securing the air duct in place Carefully lift the air duct out of the chassis.

Page 30: Central Processing Unit (Cpu)

Contact your retailer immediately if the PnP cap is missing, or if you see any damage to the PnP cap/socket contacts/motherboard components. ASUS shoulders the repair cost only if the damage is shipment/transit- related.

Page 31: Installing The Cpu

To prevent damage to the socket pins, do not remove the PnP cap unless you are installing a CPU. • Before installing the CPU, ensure that the socket box is facing toward you and the triangle mark is on the lower-left position. triangle mark RS720Q-E8-RS12...

Page 32

Press the right load lever with your thumb (A), then slide it to the left (B) Load plate until it is released from the retention tab. DO NOT force to lift the load lever completely. Load lever Press the left load lever with your thumb (C), slide it to the right (D) until it is released from the retention tab, then lift it completely (E) as shown.

Page 33

The PnP cap pops out of the load plate when the left load lever is inserted into the retention tab. Keep the PnP cap. ASUS will process Return Merchandise Authorization (RMA) requests only if the motherboard comes with the PnP cap on the LGA 2011-3 socket.

Page 34

Push down the right load lever (K) then insert it under the retention tab (L). Load lever retention tab Apply some Thermal Interface Material to the exposed area of the CPU that the heatsink will be in contact with, ensuring that it is spread in an even thin layer.

Page 35: Installing The Cpu Heatsink

Twist each of the four screws with a Philips (cross) screwdriver just enough to attach the heatsink to the motherboard. When the four screws are attached, tighten them one by one to completely secure the heatsink. Tighten the four heatsink screws in a diagonal sequence. RS720Q-E8-RS12...

Page 36: System Memory

NVDIMM into the DIMM sockets using the memory configurations in this section. • Refer to ASUS Server AVL for the updated list of compatible DIMMs. • When installing only one DIMM in a single CPU configuration, install the DIMM on either A1 or B1.

Page 37: Single Cpu Configuration

4 DIMMs 8 DIMMs Dual CPU configuration You can refer to the following recommended memory population for a dual CPU configuration. Dual CPU configuration DIMM (CPU1) DIMM (CPU2) 2 DIMMs 4 DIMMs 8 DIMMs 12 DIMMs 16 DIMMs RS720Q-E8-RS12 2-11...

Page 38: Installing A Dimm On A Single Clip Dimm Socket

2.4.3 Installing a DIMM on a single clip DIMM socket Unlock a DIMM socket by pressing the DIMM notch retaining clip outward. Align a DIMM on the socket such that the notch on the DIMM matches the DIMM slot key on the socket. DIMM slot key Unlocked retaining clip A DIMM is keyed with a notch so that it fits in only one direction.

Page 39: Hard Disk Drives

The system supports three hot-swap SATA/SAS hard disk drives per node (available only when

an optional ASUS PIKE SAS RAID card is installed) or three hot-swap SATA hard disk drives per node. The hard disk drive installed on the drive tray connects to the motherboard SATA/SAS ports via the SATA/SAS backplane.

Page 40 Carefully insert the drive tray and push it all the way to the depth of the bay until just a small fraction of the tray edge protrudes. When installed, the SATAII/SAS connector on the drive connects to the SATAII/SAS interface on the backplane. Push the tray lever until it clicks, and secures the drive tray in place.

Page 41: Expansion Slots

PCI-E x16 slot low-profile* PCI-E x8 slot proprietary* * Supports the following ASUS add-on cards: PEM-FDR (56Gb/s FDR InfiniBand card) PEB-10G/57840-2S (Dual Port 10 Gigabit/s Ethernet card) PEB-10G/57811-1S (Single Port 10 Gigabit/s Ethernet card) RS720Q-E8-RS12 2-15...

Page 42: Removing The Riser Card

2.6.2 Removing the riser card To remove the riser card: Locate the PCI-E x24 slot in the motherboard, then loosen the three screws securing the riser card in place. Gently pull out the riser card from the motherboard. 2-16 Chapter 2: Hardware information...

Page 43: Installing An Expansion Card

The default riser card provides two PCI-E slots . One PCI-E x8 slot and one PCI-E x16 slot. You can install an expansion card on either of the PCIE slot or both. PCI-E x16 slot low-profile* PCI-E x8 slot proprietary* notch on riser card Riser card RS720Q-E8-RS12 2-17...

Page 44 Align and insert the riser card and expansion card assembly into the PCI-E slot on the motherboard. The expansion card fits in one orientation only. If it does not fit, try reversing it. riser card and expansion card assembly PCI-E slot 2-18 Chapter 2: Hardware information...

Page 45: Configuring An Expansion Card

ACPI Mode when used IRQ Holder for PCI Steering IRQ Holder for PCI Steering PS/2 Compatible Mouse Port Numeric Data Processor Primary IDE Channel Secondary IDE Channel * These IRQs are usually available for ISA or PCI devices. RS720Q-E8-RS12 2-19...

Page 46: Removable/Optional Components

Removable/optional components You may need to remove previously installed system components when installing or removing system devices. Or you may need to install the optional components into the system. This section tells how to remove/install the following components: System fans Power supply module M.2 card Ensure that the system is turned off before removing any components.

Page 47 Prepare a replacement fan of the same type and size. Disconnect the system fan cable from the fan connector on the HDD backplane. Lift the fan then set aside. Repeat steps 4 to 5 to uninstall the other system fans. RS720Q-E8-RS12 2-21...

Page 48: Power Supply Module

2.7.2 Power supply module To install a second power supply module Press and hold the latch on the dummy cover and pull out the cover from the server chassis. Ensure to remove the plastic cover before installing the module. Take out the second power supply module from its package.

Page 49: Installing An M.2 Card

If you install the M.2 card in a node, its corresponding HDD3 front panel node becomes invalid. This is because the M.2 slot occupies each node on the SATA port of HDD3. Refer to page 1-7 for the location of each node's HDD3. . RS720Q-E8-RS12 2-23...

Page 50 2-24 Chapter 2: Hardware information...

Page 51: Chapter 3: Installation Options

Chapter 3: Installation options Installation options This chapter describes how to install the optional components and devices into the barebone server.

Page 52: Tool-Less Friction Rail Kit

Tool-less Friction Rail Kit The tool less design of the rail kit allows you to easily install the rack rails into the server rack without the need for additional tools. The kit also comes with a metal stopping bracket that can be installed to provide additonal support and stability to the server.

Page 53

(Optional) Use the rail screw and rail washer that comes with the kit to secure the rack rail to the rack post. Perform steps 3 to 5 for the other rack rail. Ensure that the installed rack rails (left and right) are aligned, secured, and stable in place. RS720Q-E8-RS12...

Page 54

Lift the server chassis and insert into the rack rail. • Ensure that the rack rail cabinet and the rack posts are stable and standing firmly on a level surface. • We strongly recommend that at least two able-bodied persons perform the steps described in this guide.

Page 55: Chapter 4: Motherboard Information

Chapter 4: Motherboard information Motherboard information This chapter includes the motherboard layout and brief descriptions of the jumpers and internal connectors.

Page 56: Motherboard Layout

Motherboard layout Chapter 4: Motherboard information...

Page 57: Layout Contents

Internal connectors Page 1. Serial ATA 6.0 Gb/s connectors (7-pin SATA1-6 [Light blue]) 4-11 2. USB connector (5-1 pin USB3; A-Type USB10) 4-12 3. Front fan connectors (4-pin FRNT_FAN1-4) 4-12 4. Thermal sensor cable connectors (3-pin TR1) 4-13 5. Trusted Platform Module connector (20-1 pin TPM1) 4-13 6. M.2 (NGFF) connector (NGFF1) 4-14 7. Proprietary power connectors (20-pin PWR1, 4-pin PWR2) 4-15 8. System panel connector (16-pin PANEL1 [White]) 4-16 RS720Q-E8-RS12...

Page 58

Internal LEDs Page 1. CPU warning LED (ERRCPU1, ERRCPU2) 4-17 2. BMC LED (BMCLED1) 4-17 3. Standby Power LED (SBPWR1) 4-18 4. CATT ERR LED (CATTERR1) 4-18 5. Hard disk activity LED (HDDLED1) 4-19 6. Message LED (MESLED1) 4-19 7. Location LED (LOCLED1) 4-20 Golden Finger Page 1. Golden Finger 4-21 2. Golder Finger Power connector 4-22 3. FP Serial ATA connectors (7-pin FP_SATA5-6 [Light blue], 4-22 FP_SATA7 [light gray]) Chapter 4: Motherboard information...

Page 59: Jumpers

Jumpers Clear RTC RAM (CLRTC1) This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords. To erase the RTC RAM: Turn OFF the computer and unplug the power cord. Move the jumper cap from pins 1–2 (default) to pins 2–3. Keep the cap on pins 2–3 for about 5–10 seconds, then move the cap back to pins 1–2. Plug the power cord and turn ON the computer. Hold down the <Del> key during the boot process and enter BIOS setup to re- enter data. Except when clearing the RTC RAM, never remove the cap on CLRTC jumper default position. Removing the cap will cause system boot failure! If the steps above do not help, remove the onboard battery and move the jumper again to clear the CMOS RTC RAM data. After the CMOS clearance, reinstall the battery. RS720Q-E8-RS12...

Page 60: Vga Controller Setting (3-Pin Vga_Sw1)

VGA controller setting (3-pin VGA_SW1) This jumper allows you to enable or disable the onboard VGA controller. Set to pins 1–2 to activate the VGA feature. LAN controller setting (3-pin LAN_SW1, LAN_SW2) ® These jumpers allow you to enable or disable the onboard Intel Intel I210AT Gigabit LAN controllers. Set to pins 1–2 to activate the Gigabit LAN feature. Chapter 4: Motherboard information...

Page 61: Raid Configuration Utility Selection (3-Pin Raid_Sel1)

RAID configuration utility selection (3-pin RAID_SEL1) This jumper allows you to select the RAID configuration utility to use when you create disk arrays. Place the jumper caps over pins 1–2 to use the third party software LSI MegaRAID software RAID Configuration Utility; otherwise, place the jumper caps to ® pins 2–3 to use the Intel Rapid Storage Technology enterprise SATA Option ROM Utility. ME firmware force recovery setting (3-pin ME_RCVR1) This jumper allows

you to quickly recover the Intel Management Engine (ME) firmware when it becomes corrupted. RS720Q-E8-RS12...

Page 62: Ddr4 Thermal Event Setting (3-Pin Dimmtrip1)

DDR4 thermal event setting (3-pin DIMMTRIP1) This jumper allows you to enable or disable DDR4 DIMM thermal sensing event pin. Serial General Purpose Input/Output setting (3-pin SGPIO_SEL1) This jumper allows you to select a storage device. Set to pin 1-2 to enable onboard C612 chipset SATA SGPIO function (default) or set to pin 2-3 to enable Add-on RAID card. Chapter 4: Motherboard information...

Page 63: Bmc Setting (3-Pin Bmc_En)

BMC Setting (3-pin BMC_EN) This jumper allows you to enable or disable the ASMB8. PMBus 1.2 PSU select jumper (3-pin SMART_PSU1) This jumper allows you to select PSU PMBus version. Set to pins 1–2 for PMBus, set to pins 2–3 for others. RS720Q-E8-RS12...

Page 64: Chassis Intrusion (2-Pin Intrusion1)

Chassis Intrusion (2-pin INTRUSION1) These leads are for the intrusion detection feature for chassis with intrusion sensor or microswitch. When you remove any chassis component, the sensor triggers and sends a high level signal to these leads to record a chassis intrusion event. The default setting is short CHASSIS# and GND pin by jumper cap to disable the function. 4-10 Chapter 4: Motherboard information...

Page 65: Internal Connectors

If you installed Serial ATA hard disk drives, you can use a software RAID solution to create a RAID 0, RAID 1, RAID 5, or a RAID 10 configuration. For more information on the SATA RAID solutions supported on this motherboard, refer to the RAID Configuration chapter of this user guide. The actual data transfer rate depends on the speed of Serial ATA hard disks installed. RS720Q-E8-RS12 4-11...

Page 66: Usb Connector (5-1 Pin Usb3; A-Type Usb10)

USB connector (5-1 pin USB3; A-Type USB10) These connectors are for USB 2.0 ports. Connect the USB module cables to connectors USB3, then install the modules to a slot opening at the back of the system chassis. These USB connectors comply with USB 2.0 specification that supports up to 480 Mbps connection speed. Front fan connectors (4-pin FRNT_FAN1-4) The fan connectors support cooling fans of 350 mA–740 mA (8.88 W max.) or a total of 3.15 A–6.66 A (53.28 W max.) at +12V. Connect the fan cables to the fan connectors on the motherboard, ensuring that the black wire of each cable matches the ground pin of the connector. • DO NOT forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components. • These are not jumpers! DO NOT place jumper caps on the fan connectors! • All fans feature the ASUS Smart Fan technology. 4-12 Chapter 4: Motherboard information...

Page 67: Thermal Sensor Cable Connectors (3-Pin Tr1)

Thermal sensor cable connectors (3-pin TR1) This connector is for temperature monitoring. Connect the thermal sensor cables to these connectors and place the other ends to the devices, which you want to monitor temperature. Go to BIOS setup to change the default setting of TR1 from “Disabled“ to “Enabled“ before using the thermal sensor cable. Trusted Platform Module connector (20-1 pin TPM1) This connector supports a 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. RS720Q-E8-RS12 4-13...

Page 68: Ngff) Connector (Ngff1)

M.2 (NGFF) connector (NGFF1) This connector allows you to install an M.2 device. • This connector supports type 2242 devices on both SATA and PCI-E interface. • Please refer to the following guidelines in installing an M.2 device: For SATA Interface: Connect the FP_SATA7 (light gray) port to any of the onboard SATA ports (SATA 1-6) or any SATA port from the add-on storage card using a SATA cable. For PCIE Interface: You need to install a second CPU (on CPU2) to support this function. The M.2 (NGFF) device is purchased separately 4-14 Chapter 4: Motherboard information...

Page 69: Proprietary Power Connectors (20-Pin Pwr1, 4-Pin Pwr2)

Proprietary power connectors (20-pin PWR1, 4-pin PWR2) These connectors are for Proprietary power supply plugs. The power supply plugs are designed to fit these connectors in only one orientation. Orient the connectors and push down firmly until they completely fit. The 4-pin PWR2 is designed for hard disk drives power supply. DO NOT connect other 4-pin power connectors of the power supply unit (PSU) to this connector. • Use of a PSU with a higher power output is recommended when configuring a system with more power-consuming devices. The system may become unstable or may not boot up if the power is inadequate. • USE ONLY THE PROPRIETARY POWER SUPPLY and ensure that your PSU can provide at least the minimum power required by your system. RS720Q-E8-RS12 4-15...

Page 70: System Panel Connector (16-Pin Panel1 [White])

System panel connector (16-pin PANEL1 [White]) This connector supports several chassis-mounted functions. System power LED (2-pin PLED) This 2-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode. Message LED (2-pin MLED) This 2-pin connector is for the message LED cable that connects to the front message LED. The message LED is controlled by Hardware monitor to indicate an abnormal event occurance. Hard disk drive activity LED (2-pin HDDLED) This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The IDE LED lights up or flashes when data is read from or written to the HDD. Proprietary power button/soft-off button (2-pin PWRSW) This connector is for the system power button. Pressing the power button turns the system on or puts the system in sleep or soft-off mode depending on the BIOS settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.

Page 71: Internal Leds

Internal LEDs CPU warning LED (ERRCPU1, ERRCPU2) The CPU warning LEDs light up to indicate an impending failure of the corresponding CPU. BMC LED (BMCLED1) The green heartbeat LED blinks per second to indicate that the ASMB8 is working normally. • The heartbeat LED functions only when you enable the ASUS ASMB8. • Everytime after the AC power is replugged, you have to wait for about 30 seconds for the system to power up. RS720Q-E8-RS12 4-17...

Page 72: Standby Power Led (Sbpwr1)

Standby Power LED (SBPWR1) The motherboard comes with a standby power LED. The green LED lights up to indicate that the system is ON, in sleep mode, or in soft-off mode. This is a reminder that you should shut down the system and unplug the power cable before removing or plugging in any motherboard component. The illustration below shows the location of the onboard LED. CATT ERR LED (CATTERR1) The CATT ERR LED indicates that the system has experienced a fatal or catastrophic error and cannot continue to operate. 4-18 Chapter 4: Motherboard information...

Page 73: Hard Disk Activity Led (Hddled1)

Hard disk activity LED (HDDLED1) This LED is for the storage add-on card cable connected to the SATA or SAS add-on card. The read or write activities of any device connected to the SATA or SAS add-on card causes the front panel LED to light up. Message LED (MESLED1) This onboard LED lights up to red when there is temperature warning or a BMC event log is generated. RS720Q-E8-RS12 4-19...

Page 74: Location Led (Locled1)

Location LED (LOCLED1) This onboard LED lights up when the Location button on the server is pressed or when triggered by a system management software. The Location LED helps visually locate and quickly identify the server in error on a server rack. 4-20 Chapter 4: Motherboard information...

Page 75: Z10Ph-D16 Golden Finger

Z10PH-D16 Golden Finger Golden Finger The Z10PH-D16 golden finger is a proprietary connector that integrates most of the functions of the motherboard's onboard connectors and switches. Refer to the following illustration for the golden finger's pin definitions. The golden finger of Z10PH-D16 ships with a cap to protect the pins. Ensure to remove the cap before using the golden finger. RS720Q-E8-RS12 4-21...

Page 76: Golder Finger Power Connector

Golden Finger Power connector Refer to the following illustration for the golden finger's power pin definition. FP Serial ATA connectors (7-pin FP_SATA5-6 [Light blue], FP_SATA7 [light gray]) These connectors switches to Golden finger for system design when you connect the FP_SATA5-7 to any of the onboard SATA ports (SATA1-6) or from any SATA port from the add-on storage cards. 4-22 Chapter 4: Motherboard information...

Page 77: Chapter 5: Bios Setup

Chapter 5: BIOS setup BIOS setup This chapter tells how to change the system settings through the BIOS Setup menus. Detailed descriptions of the BIOS parameters are also provided.

Page 78: Managing And Updating Your Bios

BIOS in the future. Copy the original motherboard BIOS using the BUPDATER utility. 5.1.1 ASUS CrashFree BIOS 3 utility The ASUS CrashFree BIOS 3 is an auto recovery tool that allows you to restore the BIOS file when it fails or gets corrupted during the updating process. You can update a corrupted BIOS file using a USB flash drive that contains the updated BIOS file.

Page 79: Asus Ez Flash Utility

5.1.2 ASUS EZ Flash Utility The ASUS EZ Flash Utility feature allows you to update the BIOS without having to use a DOS-based utility. Before you start using this utility, download the latest BIOS from the ASUS website at www.asus.com. To update the BIOS using EZ Flash Utility: Insert the USB flash disk that contains the latest BIOS file into the USB port. Enter the BIOS setup program. Go to the Tool menu then select ASUS EZ Flash Utility.

Page 80: Bupdater Utility

The BUPDATER utility allows you to update the BIOS file in the DOS environment using a bootable USB flash disk drive with the updated BIOS file. Updating the BIOS file To update the BIOS file using the BUPDATER utility: Visit the ASUS website at www.asus.com and download the latest BIOS file for the motherboard. Save the BIOS file to a bootable USB flash disk drive. Copy the BUPDATER utility (BUPDATER.exe) from the ASUS support website at support.asus.com to the bootable USB flash disk drive you created earlier. Boot the system in DOS mode, then at the prompt, type: BUPDATER /i[filename].CAP where [filename] is the latest or the original BIOS file on the bootable USB flash disk drive, then press <Enter>. A:\>BUPDATER /i[file name].CAP Chapter 4: Motherboard information...

Page 81

The utility verifies the file, then starts updating the BIOS file. ASUS Tek. EzFlash Utility Current Platform New Platform Platform : Z10PH-D16 Platform : Z10PH-016 Version : 0301 Version : 0301 Build date: 05/13/2014 Build date: 05/13/2014 Start Programming Flash. DO NOT SHUTDOWN THE SYSTEM!!! Write DO NOT shut down or reset the system while updating the BIOS to prevent system boot failure! The utility returns to the DOS prompt after the BIOS update process is completed.

Page 82: Bios Setup Program

<F5> and select Yes to load the BIOS default settings. • The BIOS setup screens shown in this section are for reference purposes only, and may not exactly match what you see on your screen. • Visit the ASUS website (www.asus.com) to download the latest BIOS file for this motherboard. The system then runs the power-on self-test or POST. While the tests are running, the BIOS beeps or additional messages appear on the screen. If you do not see anything within 30 seconds from the time you turned on the power, the system may have failed a power-on test.

Page 83: Bios Menu Screen

For changing the Server Mgmt settings For changing the event log settings Event Logs Monitor F or displaying the system temperature, power status, and changing the fan settings Security For changing the security settings Boot For changing the system boot configuration Tool For configuring options for special functions Exit For selecting the exit options To select an item on the menu bar, press the right or left arrow key on the keyboard until the desired item is highlighted. RS720Q-E8-RS12...

Page 84: Menu Items

5.2.3 Menu items The highlighted item on the menu bar displays the specific items for that menu. For example, selecting Main shows the Main menu items. The other items (Event Logs, Advanced, Monitor, Boot, Tool, and Exit) on the menu bar have their respective menu items.

5.2.4 Submenu items A solid triangle before each item on any menu screen means that the item has a submenu. To display the submenu, select the item then press <Enter>. 5.2.5 Navigation keys At the bottom right corner of a menu screen are the navigation keys for the BIOS setup program. Use the navigation keys to select items in the menu and change the settings.

Page 85: Main Menu

Main menu When you enter the BIOS Setup program, the Main menu screen appears. The Main menu provides you an overview of the basic system information, and allows you to set the system date, time, language, and security settings. 5.3.1 System Date [Day xx/xx/xxxx] Allows you to set the system date. 5.3.2 System Time [xx:xx:xx] Allows you to set the system time. RS720Q-E8-RS12...

Page 86: Advanced Menu

Advanced menu The Advanced menu items allow you to change the settings for the CPU and other system devices. Take caution when changing the settings of the Advanced menu items. Incorrect field values can cause the system to malfunction. 5-10 Chapter 4: Motherboard information...

Page 87: Acpi Settings

Allows you to enable or disable the ability of the system to hibernate (OS/Sleep State). Configuration options: [Disabled] [Enabled] This option may be not effective with some OS. 5.4.2 Smart Settings SMART Self Test [Disabled] Allows you to run SMART Self Test on all HDDs during POST. Configuration options: [Disabled] [Enabled] RS720Q-E8-RS12 5-11...

Page 88: Nct6779D Super Io Configuration

5.4.3 NCT6779D Super IO Configuration Serial Port 1 / Serial Port 2 Configuration Allows you to set the parameters of Serial Port 1/ Serial Port 2. Serial Port [Enabled] Allows you to enable or disable Serial Port. Configuration options: [Disabled] [Enabled] Change Settings [Auto] Allows you to choose the setting for Super IO device.

Page 89: Onboard Lan I210 Configuration

The following items appear only when Intel LAN I210 LAN1 / LAN2 Enable is set to [Enabled]. LAN1/ LAN2 Option ROM Support [Enabled] Allows you to load the Intel LAN ROM. Configuration options: [Disabled] [Enabled] Intel LAN ROM Type [PXE] Allows you to select the Intel LAN ROM type. Configuration options: [PXE] [iSCSI] RS720Q-E8-RS12 5-13...

Page 90: Serial Port Console Redirection

5.4.5 Serial Port Console Redirection COM1/COM2 Console Redirection [Enabled] Allows you to enable or disable the console redirection feature. Configuration options: [Disabled] [Enabled] The following item appears only when you set Console Redirection to [Enabled]. Console Redirection Settings This item becomes configurable only when you enable the Console Redirection item. The settings specify how the host computer and the remote computer (which the user is using) will exchange data.

Page 91

VT -UTF8 Combo Key Support [Enabled] This allows you to enable the VT -UTF8 Combination Key Support for ANSI/VT100 terminals. Configuration options: [Disabled] [Enabled] Recorder Mode [Disabled] With this mode enabled only text will be sent. This is to capture Terminal data. Configuration options: [Disabled] [Enabled] Legacy OS Redirection Resolution [80x24] This allows you to set the number of rows and columns supported on the Legacy OS. Configuration options: [80x24] [80x25] Putty Keypad [VT100] This allows you to select the FunctionKey and Keypad on Putty. Configuration options: [VT100] [LINUX] [XTERMR6] [SCO] [ESCN] [VT400] RS720Q-E8-RS12 5-15...

Page 92: Console Redirection Settings

Redirection After BIOS POST [Always Enable] This setting allows you to specify if Bootloader is selected than Legacy console redirection. Configuration options: [Always Enable] [Bootloader] Serial Port for Out-of-Band Management/ Windows Emergency Management Services (EMS) Console Redirection [Disabled] Allows you to enable or disable the console redirection feature. Configuration options: [Disabled] [Enabled] The following item appears only when you set Console Redirection to [Enabled].

Page 93: Apm

When set to [Power Off], the system goes into off state after an AC power loss. When set to [Power On], the system will reboot after an AC power loss. When set to [Last State], the system goes into either off or on state, whatever the system state was before the AC power loss. Configuration options: [Power Off] [Power On] [Last State] Power On By PCIE [Disabled] [Disabled] Disables the PCIE devices to generate a wake event. [Enabled] Enables the PCIE devices to generate a wake event. Power On By Ring [Disabled] [Disabled] Disables the PCIE devices to generate a wake event. [Enabled] Enables the PCIE devices to generate a wake event. Power On By RTC [Disabled] [Disabled] Disables RTC to generate a wake event. [Enabled] When set to [Enabled], the items RTC Alarm Date (Days) and Hour/ Minute/Second will become user-configurable with set values. RS720Q-E8-RS12 5-17...

Page 94: Pci Subsystem Settings

5.4.7 PCI Subsystem Settings Allows you to configure PCI, PCI-X, and PCI Express Settings. Load RT32 Image [Enabled] Allows you to enable or disable RT32 Image Loading. Configuration options: [Disabled] [Enabled] Above 4G Decoding [Disabled] Allows you to enable or disable 64-bit capable devices to be decoded in above 4G address space. It only works if the system supports 64-bit PCI decoding. Configuration options: [Disabled] [Enabled] SR-IOV Support [Disabled] This option enables or disables SIngle Root IO Virtualization Support if the system has SR-...

Page 95: Network Stack Configuration

Network stack [Disabled] Enables or disables the network stack feature. Configuration options: [Disable] [Enable] The following item appears only when Network stack is set to [Enabled]. Ipv4 PXE Support [Enabled] Enables or disables the Ipv4 PXE Boot Support. If disabled, Ipv4 PXE boot option will not be created. Configuration options: [Disabled] [Enabled]. Ipv6 PXE Support [Enabled] Enables or disables the Ipv6 PXE Boot Support. If disabled, Ipv6 PXE boot option will not be created. Configuration options: [Disabled] [Enabled]. PXE boot wait time [0] Wait time to press ESC key to abort the PXE boot. Media detect time [0] Wait time (in seconds) to detect media. RS720Q-E8-RS12 5-19...

Page 96: Csm Configuration

5.4.9 CSM Configuration CSM Support [Enabled] This option allows you to enable or disable CSM Support. Configuration options: [Disabled] [Enabled] GateA20 Active [Upon Request] This allows you to set the GA20 option. Configuration options: [Upon Request] [Always] Option ROM Messages [Force BIOS] This allows you to set the display mode for option ROM. Configuration options: [Force BIOS] [Keep Current] Boot Option filter [Legacy only] This option allows you to control the Legacy/UEFI ROMs priority.

Page 97: Trusted Computing

5.4.10 Trusted Computing Configuration Security Device Support [Disabled] Allows you to enable or disable the BIOS support for security device. Configuration options: [Disabled] [Enabled] RS720Q-E8-RS12 5-21...

Page 98: Usb Configuration

5.4.11 USB Configuration Legacy USB Support [Enabled] Allows you to enable or disable Legacy USB device support. Configuration options: [Enabled] [Disabled] [Auto] XHCI Hand-off [Enabled] This is a workaround for 0Ses without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver. Configuration options: [Disabled] [Enabled] EHCI Hand-off [Disabled] This is a workaround for 0Ses without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver. Configuration options: [Disabled] [Enabled] USB Mass Storage Driver Support [Enabled] Allows you to enable or disable the USB Mass Storage drvier support.

Page 99: Iscsi Configuration

This is the maximum time the device will take before it properly reports itself to the host controller. Configuration options: [Auto] [Manual] Mass Storage Devices Generic 8.07 [Auto] Allows you to select the mass storage device emulation type. Configuration options: [Auto] [Floppy] [Forced FDD] [Hard Disk] [CD-ROM] 5.4.12 iSCSI Configuration Allows you to configure the iSCSi parameters. RS720Q-E8-RS12 5-23...

Page 100: Intelrcsetup Menu

IntelRCSetup menu The IntelRCSetup menu items allow you to change the processor and

chipset settings. 5-24 Chapter 4: Motherboard information...

Page 101: Processor Configuration

Hyper Threading [Enabled] Allows you to enable or disable the Intel Hyper-Threading Technology function. When ® disabled, only one thread per activated core is enabled. Configuration options: [Disabled] [Enabled] Execute Disable Bit [Enabled] XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, Redhat Enterprise 3 Update 3). Configuration options: [Disabled] [Enabled] Enable Intel TXT Support [Disabled] Forces the XD feature log to always return 0 when disabled. Configuration options: [Disabled] [Enabled] VMX [Enabled] Enables the Vanderpool Technology. Takes effect after reboot. Configuration options: [Disabled] [Enabled] RS720Q-E8-RS12 5-25...

Page 102 Enable SMX [Disabled] Enables the Safer Mode Extensions Configuration options: [Disabled] [Enabled] Hardware Prefetcher [Enabled] This Item allows you to turn on/off the mid level cache(L2) streamer prefetcher. Configuration options: [Disabled] [Enabled] Adjacent Cache Prefetch [Enabled] T h i s I t e m a l l o w s y o u t o t u r n o n / o f f p r e f e t c h i n g o f a d j a c e n t c a c h e l i n e s . Configuration options: [Disabled] [Enabled] DCU Streamer Prefetcher [Enabled] T h i s I t e m a l l o w s y o u t o e n a b l e o r d i s a b l e p r e f e t c h e r o f n e x t L 1 d a t a l i n e .

Page 103: Advanced Power Management Configuration

Allows your system to select from BIOS or operating system to choose enable energy performance bias tuning. Configuration options: [Disabled] [Enabled] Energy Performance Bias setting [Balanced Performance] Allows you to set the Energy Performance Bias which overrides the OS setting. Configuration options: [Performance] [Balanced Performance] [Balanced Power] [Power] RS720Q-E8-RS12 5-27...

Page 104: Common Refcode Configuration

Power/Performance Switch [Enabled] Allows you to switch between Power or performance. Configuration options: [Disabled] [Enabled] Workload Configuration [Balanced] Optimization for the workload characterization. Configuration options: [Balanced] [I/O sensitive] Averaging Time Window [23] This is used to control the effective window of the average for CO and PO time. PO TotalTimeThreshold Low [35] The HW switching mechanism disables the performance setting (0) when the total PO time is less than this threshold.

Page 105: Qpi Configuration

5.5.4 QPI Configuration QPI General Configuration QPI Status This item displays information about the QPI status. Link Speed Mode [Fast] This item allows you to select the QPI link speed as either the fast mode or slow mode. Configuration options: [Slow] [Fast] Link Frequency Select [Auto] This item allows you for selecting the QPI link frequency Configuration options: [Auto] [6.4 GT/s] [8.0 GT/s] [9.6 GT/s] QPI Link0p Enable [Enable] Configuration options: [Disable] [Enable] QPI Link1 Enable [Enable] Configuration options: [Disable] [Enable] QPI Status RS720Q-E8-RS12 5-29...

Page 106: Memory Configuration

5.5.5 Memory Configuration Enforce POR [Auto] Allows you to enforce POR restrictions for DDR4 frequency adn voltage programming. Configuration options: [Auto] [Enforce POR] [Disabled] [Enforce Stretch Goals] Memory Frequency [Auto] Allows you to select the memory frequency setting. Configuration options: [Auto] [1333] [1600] [1866] [2133] Halt on mem Training Error [Enabled] Allows you to enable or disable halt on mem Training Error. Configuration options: [Disabled] [Enabled] ECC Support [Auto] Allows you to enable or disable the ECC support.

Page 107: Memory Topology

Configuration options: [Auto] [Disabled] [APD On] [User Defined] [Reserve] [Reserved] Memory Power Savings Advanced Options CK in SR [Auto] Configuration options: [Auto] [Driven] [Tri-State] [Pulled Low] Pulled High] MDLL Off [Auto] Allows you to shutdown MDLL during SR when enabled. Configuration options: [Auto] [Disabled] [Enabled] MEMHOT Throttling Mode [Input-only] Allows you to shutdown MDLL during SR when enabled. Configuration options: [Disabled] [Input-only] [Output-only] RS720Q-E8-RS12 5-31...

Page 108: Memory Map

Mem Electrical Throttling [Disabled] Allows you to configure Memory Electical throttling.

Configuration options: [Disabled] [Enabled] [Auto] Memory Map Channel Interleaving [Auto] Select different channel interleaving setting. Configuration options: [Auto] [1-way Interleave] [2-way Interleave] [3-way Interleave] [4- way Interleave] Rank Interleaving [Auto] Select different rank interleaving setting. Configuration options: [Auto] [1-way Interleave] [2-way Interleave] [4-way Interleave] [8- way Interleave] Memory RAS Configuration RAS Mode [Disabled] Allows you to enable or disable RAS Modes. Enabling Sparing and Mirroring is not supported. In case enabled, Sparing will be selected.

Page 109: Iio Configuration

Configuration options: [Disabled] [Enabled] Intel VT for Directed I/O (VT-d) Intel VT for Directed I/O (VT-d) [Enabled] Allows you to enable or disable the Intel Virtualization Technology for Directed I/O. Configuration options: [Disabled] [Enabled] PCI Express Global Options TX EQ WA [Enabled] Use special table for TX_EQ and vendor specific cards. Configuration options: [Disabled] [Enabled] RS720Q-E8-RS12 5-33...

Page 110: Pch Configuration

PCI-E ASPM Support (Global) [L1 Only] This option enables or disables the ASPM support for all downstream devices. Configuration options: [Disabled] [L1 Only] 5.5.7 PCH Configuration PCH Devices DeepSx Power Policies [Disabled] Allows you to configure the DeepSx Mode configuration. Configuration options: [Disabled] [Enabled in S5] [Enabled in S4 and S5] PCI Express Configuration PCH DMI ASPM [Enabled] Allows you to configure the PCH DMI ASPM. Configuration options: [Disabled] [Enabled] 5-34 Chapter 4: Motherboard information...

Page 111 Configure SATA as [AHCI] Allows you to identify the SATA port is connected to Solid State Drive or Hard Disk Drive. Configuration options: [IDE] [AHCI] [RAID] Support Aggressive Link Power Management [Enabled] Allows you to enable or disable the Suport Aggressive Link Power (SALP) Management. Configuration options: [Disabled] [Enabled] SATA Port 1~6 Port 1/ Port 2/ Port 3/ Port 4/ Port 5/ Port 6 [Enabled] Allows you to enable or disable the SATA port Configuration options: [Disabled] [Enabled] RS720Q-E8-RS12 5-35...

Page 112 USB Configuration xHCI Mode [Auto] Allows you to enable or disable the mode of operation of xHCI controller. Configuration options: [Auto] [Disabled] [Enabled] USB Ports Per-Port Disable Control [Disabled] Allows you to control each of the USB ports 1 to 8 disabling. Configuration options: [Disabled] [Enabled] The following items appears only when the USB Ports Per-Port Disable Control is set to [Enabled].

Page 113: Miscellaneous Configuration

Allows you to select the video type. Configuration options: [Onboard Device] [Offboard Device] 5.5.9 Server ME Configuration Displays the Server ME Technology parameters on your system. 5.5.10 Runtime Error Logging Support Runtime Error Logging S/W Error Injection Support [Disabled] When enabled, S/W Error Injection is supported by unlocking MSR 0x790. Configuration options: [Disabled] [Enabled] Whea Settings Whea Support [Enabled] This item allows you to enable or disable the WHEA support. Configuration options: [Disabled] [Enabled] RS720Q-E8-RS12 5-37...

Page 114: Server Mgmt Menu

Server Mgmt menu The Server Management menu displays the server management status and allows you to change the settings. OS Watchdog Timer [Disabled] This item allows you to start a BIOS timer which can only be shut off by Intel Management Software after the OS loads.

Page 115: System Event Log

Erase SEL [No] Allows you to choose options for erasing SEL. Configuration options: [No] [Yes, On next reset] [Yes, On every reset] When SEL is Full [Do Nothing] Allows you to choose options for reactions to a full SEL. Configuration options: [Do Nothing] [Erase Immediately] Log EFI Status Codes [Error code] Disable the logging of EFI Status Codes, or log only error code, or only progress code or, both. Configuration options: [Disabled] [Both] [Error code] [Progress code] RS720Q-E8-RS12 5-39...

Page 116: Bmc Network Configuration

Bmc network configuration The sub-items in this configuration allow you to configure the BMC network parameters. Configuration Address source DM_LAN1/LAN1 [Previous State] This item allows you to configure LAN channel parameters statistically or dynamically (by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase. Configuration options: [Previous State] [Unspecified] [Static] [DynamicBmcDhcp] View System

Event Log This item allows you to view the system event log records. IPv6 BMC Network Configuration This item allows you to configure the parameter settings of IPv6 BMC network. 5-40 Chapter 4: Motherboard information...

Page 117 IPv6 BMC LAN Link IP Address Allows you to enter IPv6 BMC LAN Link IP address. IPv6 BMC LAN Link IP Prefix Length Allows you to input IPv6 BMC Lan Link IP Prefix Length. IPv6 BMC Lan Option [Enable] This item allows you to enavle IPv6 BMC LAN channel function. Disabling this option will not modify any BMC network during BIOS phase. RS720Q-E8-RS12 5-41...

Page 118 The following item appears only when you set IP BMC Lan Option to [Enable]. IPv6 BMC LAN IP Address Source [Previous State] Select to configure LAN channel parameters statically or dynamically(by BIOS or BMC). Configuration options: [Previous State] [Static] [Dynamic-Obtained by BMC running DHCP] The following items appear only when you set IP BMC Lan IP Address Source to [Static]. IPv6 BMC LAN IP Address Allows you to input IPv6 BMC Lan IP address.

Page 119: Event Logs Menu

Change this to enable or disable all features of Smbios Event Logging during boot. Configuration options: [Disabled] [Enabled] Erasing Settings Erase Event Log [No] Choose options for erasing Smbios Event Log. Erasing is done prior to any logging activation during reset. Configuration options: [No] [Yes, Next reset] [Yes, Every reset] When Log is Full [Do Nothing] Allows you to choose options for reactions to a full Smbios Event Log. Configuration options: [Do Nothing] [Erase Immediately] RS720Q-E8-RS12 5-43...

Page 120: View Smbios Event Log

Smbios Event Log Standard Settings Log System Boot Event [Disabled] Allows you to choose options to enable/disable logging of System boot event. Configuration options: [Enabled] [Disabled] MECI [1] Mutiple Event Count Increment (MECI). The number of occurrences of a duplicate event that must pass before the multiplt-event counter associated with the log entry is updated, specified as a numeric value in the range 1 to 255. METW [60] Mutiple Event Time Windows (METW). The number of minutes which must pass between duplicate log entries which utilize a multiple-event counter.

Page 121: Monitor Menu

+VCCIO, VCORE1/2 Voltage, +VDDQ_AB, +VDDQ_CD, +VDDQ_EF, +VDDQ_ GH Voltage, +5VSB Voltage, +5V Voltage, +12V Voltage, +3.3V Voltage, VBAT Voltage, +3.3VSB Voltage The onboard hardware monitor automatically detects the voltage output through the onboard voltage regulators. FAN Speed Control [Generic Mode] Allows you to configure the fan speed control. Configuration options: [Generic Speed] [High Speed] [Full Speed] [Manual Mode] RS720Q-E8-RS12 5-45...

Page 122: Security Menu

Security menu This menu allows a new password to be created or a current password to be cchanged. The menu also enables or disables the Secure Boot state and lets the user configure the System Mode state. Administrator Password To set an administrator password: Select the Administrator Password item and press <Enter>. From the Create New Password box, key in a password, then press <Enter>. Confirm the password when prompted. To change an administrator password: Select the Administrator Password item and press <Enter>.

Page 123: User Password

Secure Boot can be enabled if the system is running in User mode with enrolled platform Key (EPK) or if the CSM function is disabled. Configuration options: [Disabled] [Enabled] Secure Boot Mode [Custom] Allows you to set the Secure Boot selector. Configuration options: [Custom] [Standard] RS720Q-E8-RS12 5-47...

Page 124 Key Management This item only appears when the item Secure Boot Mode is set to [Custom]. The Key Management item allows you to modify Secure Boot variables and set Key Management page. Default Key Provision [Disabled] Configuration options: [Disabled] [Enabled] Enroll All Factory Default Keys This item will ask you if you want to Install Factory Default secure keys. Select Yes if you want to load the default secure keys, otherwise select No. Save All Secure Boot Variables This item will ask you if you want to save all secure boot variables. Select Yes if you want to save all secure boot variables, otherwise select No. Platform Key (PK)/ Key Exchange Key (KEK)/ Authorized Signatures (DB)/ Authorized TimeStamps (DBT)/ Forbidden

Signatures (DBX) Configuration options: [Delete] [Set New] [Append] Configuration options: [Set New] [Delete] [Append]...

Page 125: Boot Menu

Allows you to set an action when chassis intrusion has occured. Configuration options: [Warning] [Halt] Boot Option Priorities These items specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system. RS720Q-E8-RS12 5-49...

Page 126: Tool Menu

Tool menu The Tool menu items allow you to configure options for special functions. Select an item then press <Enter> to display the submenu. ASUS EZ Flash Allows you to run ASUS EZ Flash BIOS ROM Utility when you press <Enter>. Refer to the ASUS EZ Flash Utility section for details. 5-50 Chapter 4: Motherboard information...

Page 127: Exit Menu

Discard Changes & Reset Reset system setup without saving any changes. Save Options Save Changes Save changes done so far to any of the setup options. Discard Changes Discard changes done so far to any of the setup options. RS720Q-E8-RS12 5-51...

Page 128: Restore Defaults

Restore Defaults Restore/load default values for all the setup options. Save as User Defaults Save the changes done so far as User Defaults. Restore User Defaults Restore the User Defaults to all the setup options. Boot Override These items displays the available devices. The device items that appears on the screen depends on the number of devices installed in the system. Click an item to start booting from the selected device.

Page 129: Chapter 6: Raid Configuration

Chapter 6: RAID Configuration RAID Configuration This chapter provides instructions for setting up, creating, and configuring RAID sets using the available utilities.

Page 130: Setting Up Raid

Setting up RAID The motherboard supports the following SATA RAID solutions: • LSI MegaRAID software RAID Configuration Utility with RAID 0, RAID 1, and RAID 10 support (for both Linux and Windows OS). ® • Rapid Storage Technology enterprise Option ROM Utility with RAID 0, RAID 1, Intel RAID 10, and RAID 5 support (for Windows OS only).

Page 131: Installing Hard Disk Drives

Rapid Storage Technology if you installed Serial ATA ® hard disk drives on the Serial ATA connectors supported by the Intel C612 chipset. ® Refer to the succeeding section for details on how to use the RAID configuration utility. RS720Q-E8-RS12...

Page 132: Lsi Software Raid Configuration Utility

LSI Software RAID Configuration Utility The LSI MegaRAID software RAID configuration utility allows you to create RAID 0, RAID 1, or RAID 10 set(s) from SATA hard disk drives connected to the SATA connectors supported by the motherboard's chip. To enter the LSI MegaRAID software RAID configuration utility: Turn on the system after installing all the SATA hard disk drives.

Page 133: Creating A Raid Set

New Configuration Configure View/Add Configuration Initialize Clear Configuration Objects Select Boot Drive Rebuild Check Consistency Defines Physical Arrays. An Array Will Automatically Become A VD Use Cursor Keys to Navigate Between Items And Press Enter To Select An Option RS720Q-E8-RS12...

Page 134

The ARRAY SELECTION MENU displays the available drives connected to the SATA ports. Use the up/down arrow keys to select the drives you want to include in the RAID set, and then press <Space>. When selected, the drive indicator changes from READY to ONLIN A[X]-[Y], where X is the array number, and Y is the drive number.

Page 135

RAID = 1 RAID 0 READY Units= MB RAID 1 Size = 152146MB = OFF = On Accept SPAN = NO Choose RAID Level For This VD Use Cursor Keys To Navigate Between Items And

Press Enter To Select An Option RS720Q-E8-RS12...

Page 136 Select Units from the Virtual Drive sub-menu, and then press <Enter>. Select the units for virtual drive size from the menu, and then press <Enter>. LSI Software RAID Configuration Utility Ver C.05 Sep 17,2010 BIOS Version A.10.09231523R Virtual Drive(s) Configured Easy Configuration - ARRAY SELECTION MENU RAID Size...

Page 137 Clear Configuration Initialize Select Boot Drive Objects Virtual Drive(s) Configured Rebuild Check Consistency RAID Size #Stripes StripSz Status 148.580GB 64KB ONLINE Select Yes Or No Use Cursor Keys To Navigate Between Items And Press Enter To Select An Option RS720Q-E8-RS12...

Page 138: Using New Configuration

Using New Configuration When a RAID set already exists, using the New Configuration command erases the existing RAID configuration data. If you do not want to delete the existing RAID set, use the View/Add Configuration command to view or create another RAID configuration. To create a RAID set using the New Configuration option From the Management Menu, select Configure >...

Page 139: Adding Or Viewing A Raid Configuration

SPACE-Sel,ENTER-EndArray,F10-Configure,F2-Drive Info,F3-Virtual Drives,F4-HSP The information of the selected hard disk drive displays at the bottom of the screen. Follow step 3 to 12 of section 5.2.1 Creating a RAID set: Using Easy Configuration to add a new RAID set. RS720Q-E8-RS12 6-11...

Page 140: Initializing The Virtual Drives

6.2.3 Initializing the virtual drives After creating the RAID set(s), you must initialize the virtual drives. You may initialize the virtual drives of a RAID set(s) using the Initialize or Objects command on the Management Menu. Using the Initialize command To initialize the virtual drive using the Initialize command From the Management Menu, select Initialize, and then press <Enter>.

Page 141 Virtual Drive(s) Configured RAID Size #Stripes StripSz Status Management Menu Configure Init of VD Is In Process 148.580GB 64KB ONLINE Initialize VD 0 Initialization Complete. Press Esc.. Objects Rebuild Check Consistency 100% Completed Virtual Drives Virtual Drive 0 SPACE-(De)Select, F10-Initialize RS720Q-E8-RS12 6-13...

Page 142 Using the Objects command To initialize the virtual drives using the Objects command From the Management Menu, select Objects > Virtual Drive, and then press <Enter>. LSI Software RAID Configuration Utility Ver C.05 Sep 17,2010 BIOS Version A.10.09231523R Objects Management Menu Adapter Configure Virtual Drive...

Page 143 Init Will Destroy Data On Selected VD(s) Use Cursor Keys To Navigate Between Items And Press Enter To Select An Option A progress bar appears on screen. If desired, press <Esc> to abort initialization. When initialization is completed, press <Esc>. RS720Q-E8-RS12 6-15...

Page 144: Rebuilding Failed Drives

6.2.4 Rebuilding failed drives You can manually rebuild failed hard disk drives using the Rebuild command in the Management Menu. To rebuild a failed hard disk drive From the Management Menu, select Rebuild, and then press <Enter>. LSI Software RAID Configuration Utility Ver C.05 Sep 17,2010 BIOS Version A.10.09231523R Management Menu...

Page 145 Rebuild FAIL A00-01 Rebuilding of Drive Will Take A Few Minutes. Start Rebuilding Drive (Y/N)? Check Consistency Port # 1 DISK 77247MB HDS72808PLA380 PF20A60A SPACE-(De)Select,F10-Start Rebuild,F2-Drive Information,F3-View Virtual Drives When rebuild is complete, press any key to continue. RS720Q-E8-RS12 6-17...

Page 146: Checking The Drives For Data Consistency

6.2.5 Checking the drives for data consistency You can check and verify the accuracy of data redundancy in the selected virtual drive. The utility can automatically detect and/or detect and correct any differences in data redundancy depending on the selected option in the Objects > Adapter menu. The Check Consistency command is available only for virtual drives included in a

RAID 1 or RAID 10 set.

Page 147 • Continue - Continues the consistency check. - Aborts the consistency check. When you restart checking, it • Abort continues from zero percent. When checking is complete, press any key to continue. RS720Q-E8-RS12 6-19...

Page 148 Using the Objects command To check data consistency using the Objects command From the Management Menu, select Objects, and then select Virtual Drive from the sub-menu. Use the arrow keys to select the virtual drive you want to check, and then press <Enter>.

Page 149: Deleting A Raid Configuration

Clear Configuration Objects Select Boot Drive Rebuild Check Consistency Clear Existing Configuration Use Cursor Keys To Navigate Between Items And Press Enter To Select An Option The utility clears all the current array(s). Press any key to continue. RS720Q-E8-RS12 6-21...

Page 150: Selecting The Boot Drive From A Raid Set

6.2.7 Selecting the boot drive from a RAID set You must have created a new RAID configuration before you can select the boot drive from a RAID set. See section 5.2.1 Creating a RAID set: Using New Configuration for details. To select the boot drive from a RAID set From the Management Menu, select Configure >...

Page 151: Enabling Writecache

Rebuild Disk WC = On Check Consistency Read Ahead = On Disk Write Cache Setting of VD Use Cursor Keys To Navigate Between Items And Press Enter To Select An Option When finished, press any key to continue. RS720Q-E8-RS12 6-23...

Page 152: Intel ® Rapid Storage Technology Enterprise

® Intel Rapid Storage Technology enterprise SATA Option ROM Utility The Intel Rapid Storage Technology enterprise SATA Option ROM utility allows you to ® create RAID 0, RAID 1, RAID 10 (RAID 1+0), and RAID 5 set from Serial ATA hard disk drives that are connected to the Serial ATA connectors supported by the Southbridge.

Page 153: Creating A Raid Set

]-Prev/Next [TAB]-(M)aster [SPACE]-(R)ecovery [ENTER]-Done Use the up/down arrow keys to move the selection bar then press <Space> to select a disk. A small triangle before the Port number marks the selected drive. Press <Enter> when you are done. RS720Q-E8-RS12 6-25...

Page 154 Use the up/down arrow keys to select the stripe size for the RAID array (for RAID 0, 10 and 5 only) then press <Enter>. The available stripe size values range from 4 KB to 128 KB. The following are typical values: RAID 0: 128KB RAID 10: 64KB RAID 5: 64KB...

Page 155: Deleting A Raid Set

<N> to return to the DELETE VOLUME menu. DELETE VOLUME VERIFICATION ALL DATA IN THE VOLUME WILL BE LOST! (This does not apply to Recovery volumes) Are you sure you want to delete volume “Volume0”? (Y/N): RS720Q-E8-RS12 6-27...

Page 156: Resetting Disks To Non-Raid

6.3.3 Resetting disks to Non-RAID Take caution before you reset a RAID volume hard disk drive to non-RAID. Resetting a RAID volume hard disk drive deletes all internal RAID structure on the drive. To reset a RAID set: From the utility main menu, select 3. Reset Disks to Non-RAID and press <Enter>. Press the up/down arrow keys to select the drive(s) or disks of the RAID set you want to reset, then press <Space>.

Page 157: Exiting The Intel Rapid Storage Technology Enterprise Sata Option Rom Utility

Rebuild completes in the operating system. Select the port of destination disk for rebuilding (ESC to exit): Port Drive Model Serial # Size XXXXXXXXXXX XXXXXXXX XXX.GB]-Previous/Next [ENTER]-Select [ESC]-Exit Select a destination disk with the same size as the original hard disk. RS720Q-E8-RS12 6-29...

Page 158 The utility immediately starts rebuilding after the disk is selected. When done, the status of the degraded RAID volume is changed to “Rebuild”. Intel(R) Rapid Storage Technology enterprise - SATA Option ROM - 3.6.0.1023 Copyright(C) 2003-12 Intel Corporation. All Rights Reserved. MAIN MENU 1.

Page 159: Setting The Boot Array In The Bios Setup Utility

Use up/down arrow keys to select the boot priority and press <Enter>. See the Boot menu section of Chapter 4 for more details. From the Exit menu, select Save Changes & Exit, then press <Enter>. When the confirmation window appears, select Yes, then press <Enter>. RS720Q-E8-RS12 6-31...

Page 160: Intel ® Rapid Storage Technology Enterprise (Windows)

® Intel Rapid Storage Technology enterprise (Windows) The Intel Rapid Storage Technology enterprise allows you to create RAID 0, RAID 1, RAID ® 10 (RAID 1+0), and RAID 5 set(s) from Serial ATA hard disk drives that are connected to the Serial ATA connectors.

Page 161: Creating A Raid Set

Select Volume Size tab, you can drag the bar to decide the volume size. Click Next. • If you do not want to keep the data on one of the selected disks, select NO when prompted. • If you want to Enable volume write-back cache or Initialize volume, click Advanced. RS720Q-E8-RS12 6-33...

Page 162 Confirm the volume creation, than click Create Volume to continue. This process could take a while depending on the number and size of the disks. You can continue using other applications during this time. Wait until the process is completed, then click OK when prompted. You still need to partition your new volume using Windows Disk Management before adding any data.

Page 163: Changing A Volume Type

OK. The available stripe size values range from 4 KB to 128 KB. The following are typical values: RAID 0: 128KB RAID 10: 64KB RAID 5: 64KB We recommend a lower stripe size for server systems, and a higher stripe size for multimedia computer systems used mainly for audio and video editing. RS720Q-E8-RS12 6-35...

Page 164: Deleting A Volume

6.4.3 Deleting a volume Be cautious when deleting a volume. You will lose all data on the hard disk drives.Before you proceed, ensure that you back up all your important data from your hard drives. To delete a volume: From the utility main menu, select the volume (exp. Volume_0000) in Volumes field you want to delete.

Page 165: Preferences

Allow you to set to show the notification area icon and show system information, warning, or errors here. E-Mail Preferences Allow you to set to sent e-mail of the following events: • Storage system information • Storage system warnings • Storage system errors RS720Q-E8-RS12 6-37...

Page 166 6-38 Chapter 6: RAID configuration...

Page 167: Chapter 7: Driver Installation

Chapter 7: Driver installation Driver installation This chapter provides the instructions for installing the necessary drivers for different system components in both ® ® Linux and Windows Operating Systems.

Page 168: Raid Driver Installation

RAID driver installation After creating the RAID sets for your server system, you are now ready to install an operating system to the independent hard disk drive or bootable array. This part provides the instructions on how to install the RAID controller drivers during OS installation. 7.1.1 Creating a RAID driver disk The system does not include a floppy drive.

Page 169: Installing The Raid Controller Driver

Boot the computer using the Windows Server 2008 R2 OS installation disc. Follow the ® screen instructions to start installing Windows Server 2008 R2. When prompted to choose a type of

installation, click Custom (advanced). Click Load Driver. ASUS RS700-E8-RS4 Series...

Page 170 A message appears, reminding you to insert the installation media containing the driver of the RAID controller driver. If you have only one optical drive installed in your system, eject the Windows OS installation disc and replace with the motherboard Support DVD into the optical drive.

Page 171 Enterprise RAID driver disk to the USB floppy disk drive, select ® OK, then press <Enter>. Insert Driver Disk Insert your driver disk into /dev/fd0 and press “OK” to continue. Back The drivers for the RAID card are installed to the system. ASUS RS700-E8-RS4 Series...

Page 172 When asked if you will load additional RAID controller drivers, select No, then press <Enter>. More Driver Disks? Do you wish to load any more driver disks? Follow the onscreen instructions to finish the OS installation. When the installation is completed, DO NOT click Reboot. Press <Ctrl> + <Alt> + <F2> to switch to the command-line interface from graphic user interface.

Page 173 Boot the system from the Red Hat OS installation CD. Press <Tab> to edit options. While booting from DVD, press <ESC> to give the third party driver. Enter the following command at the boot: Linux dd blacklist=isci blacklist=ahci nodmraid, then press <ENTER>. ASUS RS700-E8-RS4 Series...

Page 174 Select Yes using the <Tab> key when asked if you have the driver disk, then press <Enter>. Main Menu Do you have a driver disk? You have multiple devices which could serve as source for a driver disk. Choose one you like to use and select OK, then press <Enter>.

Page 175 The drivers for the RAID card are installed to the system. When asked if you will load additional RAID controller drivers, select No, then press <Enter>. More Driver Disks? Do you wish to load any more driver disks? Follow the onscreen instructions to finish the OS installation. ASUS RS700-E8-RS4 Series...

Page 176 Preparing the Linux Driver Ensure that there is another computer with a Linux-based OS to create the RAID driver. When creating the RAID driver, you may refer to the examples below which uses a 64bit SUSE Linux system to create a 64bit RAID driver for SUSE11 sp1. Copy the image file into the Linux system.

Page 177 To install the LSI MegaRAID controller driver when installing SUSE Linux Enterprise Server OS: Boot the system from the SUSE OS installation CD. Use the arrow keys to select Installation from the Boot Options menu. Press <F6>, then select Yes from the menu. Press <Enter>. ASUS RS700-E8-RS4 Series 7-11...

Page 178 Use the USB drive to provide the third-party driver during the OS installation. Type the command brokenmodules=ahci in Boot Options field, and press <Enter>. When below screen appears, select the USB floppy disk drive (sda) as the driver update medium. Select OK, then press <Enter>. Please choose the Driver Update medium.

Page 179: Management Applications And Utilities Installation

The contents of the support DVD are subject to change at any time without notice. Visit the ASUS website (www.asus.com) for the latest updates on software and utilities. The support DVD is supported on Windows Server 2008 R2 and Windows ®...

Page 180 7.3.1 Drivers menu tab The Drivers Menu shows the available device drivers if the system detects installed devices. Install the necessary drivers to activate the devices. 7.3.2 Utilities menu tab The Utilities menu displays the software applications and utilities that the motherboard supports.

Page 181 Press the arrow down button in the lower part of the menu to view more items. 7.3.4 Manual menu The Manual menu provides the link to the Broadcom NetXtreme II Network Adapter user guide. You need an internet browser installed in your OS to view the User Guide. ASUS RS700-E8-RS4 Series 7-15...

Page 182 7.3.5 Contact information menu The Contact menu displays the ASUS contact information, e-mail addresses, and useful links if you need more information or technical

support for your motherboard. 7-16 Chapter 7: Driver installation...

Page 183: Intel ® Chipset Device Software Installation

ASSETUP.EXE from the BIN folder. Double-click the ASSETUP.EXE to run the support DVD. Click the item Intel Chipset Device Software from the menu. The Intel(R) Chipset Device Software window appears. Click Next to start installation. ASUS RS700-E8-RS4 Series 7-17...

Page 184 Select Yes to accept the terms of the License Agreement and continue the process. Read the Readme File Information and press Next to continue the installation. Toggle Yes, I want to restart the computer npw and click Finish to complete the setup process.

Page 185: Installing The Intel

ASSETUP.EXE from the BIN folder. Double-click the ASSETUP.EXE to run the support DVD. Click Intel I350-AM1/I350-AM2/I210/X540-BT2 Gigabit Adapters Drivers in the ® Drivers menu of the main screen to start the installation. Click Install Drivers and Software option to begin installation. ASUS RS700-E8-RS4 Series 7-19...

Page 186 Click Next when the Intel(R) Network Connections–InstallShield Wizard window appears. Tick I accept the terms in the license agreement and click Next to continue. From the Setup Options window, click Next to start the installation. By default, Intel(R) PROSet for Windows Device Manager and Windows PowerShell Module are ticked.

Page 187 Click Install to start the installation. When the installation is done, press Finish to complete the installation. ASUS RS700-E8-RS4 Series 7-21...

Page 188: Vga Driver Installation

VGA driver installation This section provides the instructions on how to install the ASPEED Video Graphics Adapter (VGA) driver. You need to manually install the ASPEED VGA driver on a Windows operating system. ® To install the ASPEED VGA driver: Restart the computer, and then log on with Administrator privileges.

Page 189 Click Install to proceed with the installation. Click Finish to complete the installation. ASUS RS700-E8-RS4 Series 7-23...

Page 190: Intel ® Rapid Storage Technology Enterprise 4.0 Installation

® Intel Rapid Storage Technology enterprise 4.0 installation ® This section provides the instructions on how to install the Intel Rapid Storage Technology enterprise 4.0 on the system. ® You need to manually install the Intel Rapid Storage Technology enterprise 4.0 utility on a ®...

Page 191 Read the Warning message and click Next to continue. Read the License Agreement and click Yes to continue. Read the Readme File Information and click Next to continue. ASUS RS700-E8-RS4 Series 7-25...

Page 192 After completing the installation, click Next to complete the setup process. Select Yes, I want to restart my computer now and click Finish to restart your computer before using the program. 7-26 Chapter 7: Driver installation...

Page 193: Appendices

Appendices Contact Information...

Page 194: Asus Contact Information

ASUS contact information ASUSTeK COMPUTER INC. Address 15 Li-Te Road, Peitou, Taipei, Taiwan 11259 Telephone +886-2-2894-3447 +886-2-2890-7798 E-mail info@asus.com.tw Web site http://www.asus.com.tw Technical Support Telephone +86-21-38429911 +86-21-58668722 ext: 9101 Online Support http://support.asus.com/techserv/techserv.aspx ASUSTeK COMPUTER INC. (Taiwan) Address 15 Li-Te Road, Peitou, Taipei, Taiwan 11259...

Page 195 800 Corporate Way, Fremont, CA 94539, USA +1-510-608-4555 Web site http://usa.asus.com Technical Support Support fax +1-812-284-0883 General support +1-812-282-2787 Online support http://support.asus.com/techserv/techserv.aspx ASUS

COMPUTER GmbH (Germany and Austria) Address Harkort Str. 21-23, D-40880 Ratingen, Germany +49-2102-959911 Web site http://www.asus.de Online contact http://www.asus.de/sales Technical Support Telephone +49-1805-010923...

Page 196 Web site http://www.asus.com Technical Support Telephone +31-(0)591-5-70292 +31-(0)591-666853 E-mail advance.rma.eu@asus.com Online Support http://support.asus.com/techserv/techserv.aspx ASUS Polska Sp. z o.o. (Poland) Address Ul. Postępu 6, 02-676 Warszawa, Poland Web site http://pl.asus.com Technical Support Telephone +48-225718033 Online Support http://support.asus.com/techserv/techserv.aspx ASK-Service (Russia and CIS) Address , .10,...