Asus AAEON de next-V2K8 User Manual

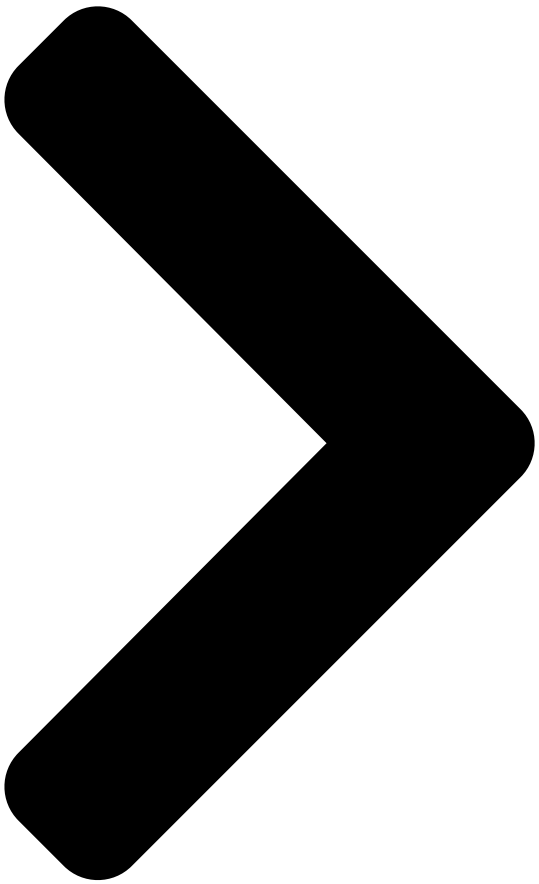
1
2
3
4
5
6
7
8
9
10
Table Of Contents
11
12
13
14
15
16
17

-

Table of Contents

-

Bookmarks



de next-V2K8

de next Board

User's Manual 2nd Ed

Last Updated: January 10, 2023

Table of Contents

Next Page

Related Manuals for Asus AAEON de next-V2K8

Single board computers Asus AAEON GENE-WHU6 User Manual

3.5” subcompact board (105 pages)

Single board computers Asus AAEON PICO-EHL4 User Manual

(108 pages)

Single board computers Asus AAEON PICO-IMX8PL User Manual

Pico-itx single board computer (85 pages)

Single board computers Asus E394S-IM-AA User Manual

(102 pages)

Single board computers Asus AAEON PICO-ADN4 User Manual

Pico-itx single board computer (117 pages)

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Single board computers Asus AAEON PICO-V2K4 User Manual

Pico-itx single board computer (101 pages)

Single board computers Asus Aaeon RICO-3288 User Manual

Rockchip rk3288 platform (36 pages)

Single board computers Asus Aaeon UP-CORE Quick Installation Manual

(14 pages)

Summary of Contents for Asus AAEON de next-V2K8

Page 1 de next-V2K8 de next Board User’s Manual 2 Last Updated: January 10, 2023...

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Page 3 Acknowledgement All other products’ name or trademarks are properties of their respective owners. Microsoft Windows® is a registered trademark of Microsoft Corp. ● AMD Ryzen™ and Radeon™ are trademarks of Advanced Micro Devices, Inc. ● Intel® is a registered trademark of Intel Corporation. ●...

Page 4 Packing List Before setting up your product, please make sure the following items have been shipped: Item Quantity de next-V2K8 Copper Stud.M2.5 If any of these items are missing or damaged, please contact your distributor or sales representative immediately. Preface...

Page 5 About this Document This User's Manual contains all the essential information, such as detailed descriptions and explanations on the product's hardware and software features (if any), its specifications, dimensions, jumper/connector settings/definitions, and driver installation instructions (if any), to facilitate users in setting up their product. Users may refer to the product page at AAEON.com for the latest version of this document.

Page 6 Safety Precautions Please read the following safety instructions carefully. It is advised that you keep this manual for future references All cautions and warnings on the device should be noted. Make sure the power source matches the power rating of the device. Position the power cord so that people cannot step on it.

Page 7 If any of the following situations arises, please the contact our service personnel: Damaged power cord or plug Liquid intrusion to the device iii. Exposure to moisture Device is not working as expected or in a manner as described in this manual The device is dropped or damaged Any obvious signs of damage displayed on the device...

Page 8 FCC Statement This device complies with Part 15 FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

Page 9 China RoHS Requirements (CN) 产品中有毒有害物质或元素名称及含量 AAEON Main Board/ Daughter Board/ Backplane 有毒有害物质或元素 部件名称 铅 汞 镉 六价铬 多溴联苯 多溴二苯醚 (Pb) (Hg) (Cd) (Cr(VI)) (PBB) (PBDE) 印刷电路板 ○ ○ ○ ○ 及其电子组件 外部信号 ○ ○ ○ ○ 连接器及线材 O: 表示该有毒有害物质在该部件所有均质材料中的含量均在 SJ/T 11363-2006 标准规定的限量要求以下。 X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出...

Page 10 China RoHS Requirement (EN) Poisonous or Hazardous Substances or Elements in Products AAEON Main Board/ Daughter Board/ Backplane Poisonous or Hazardous Substances or Elements Hexavalent Polybrominated Polybrominated Component Lead Mercury Cadmium Chromium Biphenyls Diphenyl Ethers (Pb) (Hg) (Cd) (Cr(VI)) (PBB) (PBDE) PCB &...

Page 11: Table Of Contents

Page 12 3.4.2 CPU Configuration .....33 3.4.2.1 CPU Common Options .....34 3.4.3 Memory Configuration .....35 3.4.4 Hardware Monitor .....36 3.4.4.1 Smart Fan Mode Configuration ..... 37 3.4.5 Power Management .....38 3.4.5.1 AC Power Loss Options .....39 3.4.6 AAEON BIOS Robot .....

Page 13 IRQ Mapping Chart .....64 Appendix B - Mating Connector & Cable List .....66 List of Mating Connectors and Cables ..... 67 Appendix C –Peripheral Device Installation ..... 68 PER-R41P (PER-R41P .PCIe[x4] Adapter Kit) Installation .....69 Preface XIII...

Page 14: Chapter 1 - Product Specifications

Chapter 1 Chapter 1 - Product Specifications...

Page 15: Specifications

Specifications System Form Factor 86mm x 55mm, Single board computer AMD Ryzen™ Embedded V2718 with Radeon™ Graphics AMD Ryzen™ Embedded V2516 with Radeon™ Graphics CPU TDP 10W, TDP up to 25W: V2718/V2516 Chipset Integrated with AMD Ryzen™ Embedded SoC Memory Type Onboard LPDDR4x 3200MHz, up to 16GB BIOS UEFI...

Page 16 Display Controller AMD Radeon™ Graphics LVDS/EDP eDP only, up to 3840 X 2160 Resolution Display Interface eDP x 1 HDMI 1.4b x 1 Multiple Display Up to 2 Simultaneous

Displays Audio Codec — Audio Interface — Speaker — External I/O Ethernet Realtek RTL8111H, 10/100/1000Base, RJ-45 x 1 Intel®...

Page 17

Internal I/O SMBus/I2C Optional Touch — Smart Fan x 1 — Front Panel HDD LED, PWR LED, Power Button, Buzzer, Reset Expansion Mini PCIe/MSATA — M.2 2280 M-Key x 1 (PCIe [x2]) Others — Environment & Certification Operating Temperature 32°F ~ 140°F (0°C ~ 60°C) Storage Temperature -40°F ~ 176°F (-40°C ~ 80°C) Operating Humidity...

Page 18: Block Diagram

Block Diagram Chapter 1 – Product Specifications...

Page 19: Chapter 2 - Hardware Information

Chapter 2 – Hardware Information Chapter 2...

Page 20: Dimensions

Dimensions Chapter 2 – Hardware Information...

Page 21

With CPU Cooler: Chapter 2 – Hardware Information...

Page 22: Jumpers And Connectors

Jumpers and Connectors Chapter 2 – Hardware Information...

Page 23: List Of Connectors

List of Connectors Please refer to the table below for all of the board’s connectors that you can configure for your application Label Function JCOM1 COM, USB 2.0, DIO JDCIN2 DC In JEDP1 JESPI1 I2C, SMBus JFAN1 JFP1 Front Panel JHDMI1 HDMI JLAN1...

Page 24: Com, Usb 2.0, Dio (Jcom1)

2.3.1 COM, USB 2.0, DIO (JCOM1) Pin Name Signal Type Signal Level DIO_7 DIO_6 DIO_5 DIO_4 DIO_3 DIO_2 DIO_1 DIO_0 USB7_DN_CM USB6_DN_CM USB7_DP_CM USB6_DP_CM +V5A_USB2367 Chapter 2 – Hardware Information...

Page 25

Pin Name Signal Type Signal Level +V5A_USB2367 USB3_DN_CM USB2_DN_CM USB3_DP_CM USB2_DP_CM RI_2_CON RI_1_CON CTS_2_CON CTS_1_CON RTS_2_CON RTS_1_CON DSR_2_CON DSR_1_CON DTR_2_CON DTR_1_CON TX_2_CON TX_1_CON RX_2_CON RX_1_CON DCD_2_CON DCD_1_CON +V5S Chapter 2 – Hardware Information...

Page 26: Dc In (Jdcin2)

2.3.2 DC In (JDCIN2) Pin Name Signal Type +VIN 2.3.3 eDP (JEDP1) Pin Name Signal Type +VDD_EDP +VDD_EDP DDI0_LANE2_DN_CH DDI0_LANE2_DP_CH DDI0_LANE1_DN_CH DDI0_LANE1_DP_CH DDI0_LANE0_DN_CH Chapter 2 – Hardware Information...

Page 27

Pin Name Signal Type DDI0_LANE0_DP_CH DDI0_LANE3_DN_CH DDI0_LANE3_DP_CH DDI0_AUX_DN_CH DDI0_AUX_DP_CH DDI0_BKLTCTL DDI0_BKLTEN DDI0_HPD +V12S +V12S +V12S +V12S Chapter 2 – Hardware Information...

Page 28: I2C, Smbus (Jespi1)

2.3.4 I2C, SMBus (JESPI1) Pin Name Signal Type LAD0_ESPI1_DATA0 LAD0_ESPI1_DATA1 LAD0_ESPI1_DATA2 LAD0_ESPI1_DATA3 +V3P3S LPC_FRAME# I2C0_DATA_3P3S I2C0_CLK_3P3S SMB_DATA SMB_CLK SMB_ALERT# Chapter 2 – Hardware Information...

Page 29: Fan (Jfan1)

2.3.5 FAN (JFAN1) Pin Name Signal Type +V12S FAN_1_TAC_CON FAN_1_CTL_CON 2.3.6 HDMI (JHDMI1) Pin Name Signal Type HDMI1_D2_DP_CM HDMI1_D2_DN_CM HDMI1_D1_DP_CM HDMI1_D1_DN_CM HDMI1_D0_DP_CM Chapter 2 – Hardware Information...

Page 30: Lan (Jlan1)

Pin Name Signal Type HDMI1_D0_DN_CM HDMI1_CLK_DP_CM HDMI1_CLK_DN_CM HDMI1_SCL HDMI1_SDA +V5S_HDMI HDMI1_HPD 2.3.7 LAN (JLAN1) Pin Name Signal Type LAN2_MDI0+

LAN2_MDI0- LAN2_MDI1+ LAN2_MDI1- Chapter 2 – Hardware Information...

Page 31 Pin Name Signal Type LAN2_CT LAN2_CT LAN2_MDI2+ LAN2_MDI2- LAN2_MDI3+ 1P10 LAN2_MDI3- LAN1_MDI0+ LAN1_MDI0- LAN1_MDI1+ LAN1_MDI1- LAN1_CT LAN1_CT LAN1_MDI2+ LAN1_MDI2- LAN1_MDI3+ 2P10 LAN1_MDI3- Chapter 2 – Hardware Information...

Page 32: 2280 M-Key (Jm2M1)

2.3.8 M.2 2280 M-Key (JM2M1) Pin Name Signal Type +V3P3S +V3P3S CARD_PWR_EN_R +V3P3S +V3P3S +V3P3S +V3P3S Chapter 2 – Hardware Information...

Page 33 Pin Name Signal Type GPP_RXN9_SATA3_RXN GPP_RXP9_SATA3_RXP GPP_TXN9_SATA3_TXN GPP_TXP9_SATA3_TXP M2M_SMB_CLK GPP_RXN8_SATA2_RXN M2M_SMB_DATA GPP_RXP8_SATA2_RXP Chapter 2 – Hardware Information...

Page 34 Pin Name Signal Type GPP_TXN8_SATA2_TXN GPP_TXP8_SATA2_TXP BUF_PLT_RST# M2M_CLKREQ# GPP_CLKN3_M2M PCIE_WAKE# GPP_CLKP3_M2M M2M_SSCLK +V3P3S +V3P3S +V3P3S +V3P3S Chapter 2 – Hardware Information...

Page 35: Pcie (Jpcie_Fpc1)

Pin Name Signal Type +V3P3S CARD_PWR_EN_R 2.3.9 PCIe (JPCIE_FPC1) Pin Name Signal Type Signal Level +V3P3S +3.3V +V3P3S +3.3V +V3P3S +3.3V SMB_DATA +3.3V SMB_CLK BUF_PLT_RST# +V3P3A FPC_PCIE_RXP5 FPC_PCIE_RXN5 FPC_PCIE_RXP7 FPC_PCIE_RXN7 Chapter 2 – Hardware Information...

Page 36 Pin Name Signal Type Signal Level FPC_PCIE_RXP6 FPC_PCIE_RXN6 FPC_PCIE_RXP4 FPC_PCIE_RXN4 FPC_PCIE_TXN7 FPC_PCIE_TXP7 FPC_PCIE_TXN6 FPC_PCIE_TXP6 FPC_PCIE_TXN5 FPC_PCIE_TXP5 GPP_CLKN2_FPC GPP_CLKP2_FPC FPC_PCIE_TXN4 FPC_PCIE_TXP4 +V12S +V12S +V12S +V12S +V12S Chapter 2 – Hardware Information...

Page 37: Rtc Battery (Jrtc1)

2.3.10 RTC Battery (JRTC1) Pin Name Signal Type +VRTC_BATT 2.3.11 SATA (JSATA1) Pin Name Signal Type SATA_0_TXP SATA_0_TXN SATA_0_RXN SATA_0_RXP Chapter 2 – Hardware Information...

Page 38: Sata Power (Jsatap1)

2.3.12 SATA Power (JSATAP1) Pin Name Signal Type +V5S 2.3.13 USB 3.2 (JUSB1) Pin Name Signal Type +V5A_USB_01 USBD0- USBD0+ USB3_RXN0_C USB3_RXNP_C Chapter 2 – Hardware Information...

Page 39 Pin Name Signal Type USB3_TXN0_C USB3_TXP0_C +V5A_USB_01 USBD1- USBD1+ USB3_RXN1_C USB3_RXP1_C USB3_TXN1_C USB3_TXP1_C Chapter 2 – Hardware Information...

Page 40: Chapter 3 - Ami Bios Setup

Chapter 3 Chapter 3 - AMI BIOS Setup...

Page 41: System Test And Initialization

System Test and Initialization The board uses certain routines to perform testing and initialization. If an error, fatal or non-fatal, is encountered, a few short beeps or an error message will be outputted. The board can usually continue the boot up sequence with non-fatal errors. The system configuration verification routines check the current system configuration against the values stored in the CMOS memory.

Page 42: Ami Bios Setup

AMI BIOS Setup The AMI BIOS ROM has a pre-installed Setup program that allows users to modify basic system configurations, which is stored in the battery-backed CMOS RAM and BIOS NVRAM so that the information is retained when the power is turned off. To enter BIOS Setup, press <Del>...

Page 43: Setup Submenu: Main

Setup Submenu: Main Chapter 3 – AMI BIOS Setup...

Page 44: Setup Submenu: Advanced

Setup Submenu: Advanced Chapter 3 – AMI BIOS Setup...

Page 45: Graphics Configuration

3.4.1 Graphics Configuration Chapter 3 – AMI BIOS Setup...

Page 46: Cpu Configuration

3.4.2 CPU Configuration Chapter 3 – AMI BIOS Setup...

Page 47: Cpu Common Options

3.4.2.1 CPU Common Options Options Summary Global C-state Control Disabled Enabled Auto Optimal Default Controls IO based C-state generation and DF C-states. There is another DF C-state option which will be synchronized with this option if DF C-state option is auto. Chapter 3 –...

Page 48: Memory Configuration

3.4.3 Memory Configuration Chapter 3 – AMI BIOS Setup...

Page 49: Hardware Monitor

3.4.4 Hardware Monitor Options Summary Smart Fan Disabled Enabled Optimal Default Enable or Disable Smart Fan. Chapter 3 – AMI BIOS Setup...

Page 50: Smart Fan Mode Configuration

3.4.4.1 Smart Fan Mode Configuration Chapter 3 – AMI BIOS Setup...

Page 51: Power Management

3.4.5 Power Management Options Summary Power Mode ATX Type Optimal Default, Failsafe Default AT Type Select system power mode System Wake On RTC Disabled Optimal Default By Date By Weekday Bypass By Date: System will wake on the day with hr: min: sec specified. By Weekday: System will wake on the enabled weekday with hr: min: sec specified.

Page 52: Ac Power Loss Options

Options Summary Wake up hour 0-23 Select 0-23. For example, enter 3 for 3am and 15 for 3pm. Wake up minute 0-59 Wake up second 0-59 3.4.5.1 AC Power Loss Options Options Summary Ac Loss Control Always Off Always On Optimal Default Last State Select Ac Loss Control Method.

Page 53: Aaeon Bios Robot

3.4.6 AAEON BIOS Robot Options Summary Sends watch dog before Disabled Optimal Default BIOS POST Enabled Robot set Watch Dog Timer (WDT) right after power on, before BIOS start POST process. And then Robot will clear WDT on completion of POST. WDT will reset system automatically if it is not cleared before its timer counts down to zero.

Page 54: Device Detecting Configuration

Options Summary Robot holds BIOS before POST completion. This allows BIOS POST to start with stable power or start after system is physically warmed-up. Reset system once Disabled Optimal Default Enabled Robot resets system for one time on each boot. This will send a soft or hard reset to onboard devices, thus puts devices to more stable state.

Page 55

Options Summary At time After show logo Optimal Default Before show logo Select robot action time 3.4.6.1.1 Device #1~5 Detecting Configuration Options Summary Robot detects device with Disabled Optimal Default Interface SMBUS Legacy I/O Super I/O MMIO Select interface robot should use to communication with device. Chapter 3 –...

Page 56: Setup Submenu: System I/O

Setup Submenu: System I/O Chapter 3 – AMI BIOS Setup...

Page 57: Pci Express Configuration

3.5.1 PCI Express Configuration Options summary Pcie Port Control Disabled Enabled Default Disabled: Use default CRB setting Device 1 Fun 1,2,3, Disabled Device 2 Fun 1,2 Enabled Auto Default Auto used board default setting ASPM Mode Disabled Default (Dev#1/Func#1,2,3), L0s Entry (Dev#2/Func#1,2) L1 Entry L0s And L1 Entry...

Page 58: Storage Configuration

Options summary Cont. Hotplug Enhanced Hotplug Inboard Auto Default NB Root Port Hotplug Mode Control. 3.5.2 Storage Configuration Chapter 3 – AMI BIOS Setup...

Page 59: Nvme Configuration

3.5.2.1 NVMe Configuration Chapter 3 – AMI BIOS Setup...

Page 60: Digital Io Port Configuration

3.5.3 Digital IO Port Configuration Options Summary DIO PORT x Input Output Set DIO as Input or Output Output Level High Set output level when DIO pin is output. Chapter 3 – AMI BIOS Setup...

Page 61: Legacy Logical Devices Configuration

3.5.4 Legacy Logical Devices Configuration Chapter 3 – AMI BIOS Setup...

Page 62: Serial Port X Configuration

3.5.4.1 Serial Port x Configuration Options Summary Use This Device Disabled Enabled Optimal Default Enable or Disable this Logical Device. Possible Use Automatic Settings Optimal Default IO=3E8h; IRQ=4; IO=2F8h; IRQ=3; Allows the user to change the device resource settings. New settings will be reflected on this setup page after system restarts.

Page 63: Serial Port Console Redirection

3.5.5 Serial Port Console Redirection Options Summary COM0/1/2 Console Disabled Default Redirection Enabled Console Redirection Enable or Disable. Console Redirection EMS Disabled Default Enabled Serial Port for Out-of-Band Management/ Windows Emergency Management Services (EMS) Console Redirection Enable or Disable. Chapter 3 – AMI BIOS Setup...

Page 64: Setup Submenu: Security

Setup Submenu: Security Change User/Supervisor Password You can install a Supervisor password, and if you install a supervisor password, you can then install a user password. A user password does not provide access to many of the features in the Setup utility. If you highlight these items and press Enter, a dialog box appears which lets you enter a password.

Page 65: Trusted Computing

3.6.1 Trusted Computing Options Summary Security Device Disabled Support Enabled Optimal Default, Failsafe Default Enable or Disable BIOS support for security device. SHA-1 PCR Bank Disabled Enabled Optimal Default, Failsafe Default Enable or Disable SHA-1 PCR Bank. SHA256 PCR Bank Disabled Enabled Optimal Default, Failsafe Default...

Page 66 Options Summary Storage Hierarchy Disabled Enabled Optimal Default, Failsafe Default Enable or Disable Storage Hierarchy. Endorsement Hierarchy Disabled Enabled Optimal Default, Failsafe Default Enable or Disable Endorsement Hierarchy. TPM2.0 UEFI Spec Version TCG_1_2 TCG_2 Optimal Default Select the TCG2 Select Version Support. Physical Presence Spec Version Optimal Default...

Page 67: Secure Boot

3.6.2 Secure Boot Options Summary Secure Boot Disabled Default Enabled Secure Boot feature is Active if Secure is Enabled, Platform Key (PK) is enrolled and the System is in User mode. The mode change requires platform reset. Secure Boot Mode Standard Custom Default...

Page 68: Key Management

3.6.2.1 Key Management Chapter 3 – AMI BIOS Setup...

Page 69: Setup Submenu: Boot

Setup Submenu: Boot Options Summary Quiet Boot Disabled Enabled Default Enable or Disable showing boot logo. Network Stack Disabled Default Enabled Enable/Disable UEFI Network Stack Boot Option #1 Hard Disk Default Boot Option #2 USB Device Default Boot Option #3 NVME Default Boot Option #4...

Page 70: Setup Submenu: Save & Exit

Setup Submenu: Save & Exit Chapter 3 – AMI BIOS Setup...

Page 71: Chapter 4 - Driver Installation

Chapter 4 Chapter 4 – Driver Installation...

Page 72: Driver Download/Installation

Driver Download/Installation Drivers for the de next-V2K8 can be downloaded from the product page on the AAEON website by following this link: https://www.aaeon.com/en/p/embedded-single-board-computers-denext-v2k8 Download the driver(s) you need and follow the steps below to install them. Step 1 – Install Chipset Driver Open the Chipset Driver folder Run the AMD_Chipset_Software.exe file in the folder Follow the instructions...

Page 73

Step 3.2 – Install LAN Driver (Intel®) Note: You must install Intel Ethernet device drivers before you can install Intel® PROSet. Step 3.2.1 Intel Ethernet Device Drivers Open the Intel LAN folder Run the Wired_driver_26.3_x64.exe file in the folder Follow the instructions Drivers will be installed automatically Step 3.2.2 Intel®...

Page 74: Appendix A - I/O Information

Appendix A Appendix A - I/O Information...

Page 75: I/O Address Map

I/O Address Map Appendix A – I/O Information...

Page 76: A.2 Memory Address Map

A.2 Memory Address Map Appendix A – I/O Information...

Page 77: A.3 Irq Mapping Chart

A.3 IRQ Mapping Chart Appendix A – I/O Information...

Page 78

Appendix A – I/O Information...

Page 79: Appendix B - Mating Connector & Cable List

Appendix B Appendix B - Mating Connector & Cable List...

Page 80: List Of Mating Connectors And Cables

List of Mating Connectors and Cables Mating Connector Con. Function Available Cable Cable P/N Label Vendor Model no Connector: Cable 40Pin, de next USB2.0 x 4 JCOM1 Aces 50246-04001-001 cable for USB2.0 x 4, 170X000512 DIO 8 bit COM Port x 2, DIO 8 bit COM x 2 Front Panel JFP1...

Page 81: Appendix C -Peripheral Device Installation

Appendix C Appendix C –Peripheral Device Installation...

Page 82: Per-R41P (Per-R41P .Pcie[X4] Adapter Kit) Installation

PER-R41P (PER-R41P .PCIe[x4] Adapter Kit) Installation Note: Please follow these instructions and ensure the direction of adaptor kit corresponds to the below pictures prior to powering up

de next-V2K8 board. Any installation error will cause critical damage to the de next-V2K8 board and/or adapter kit.

Page 83 Step 4: Check the FPC Installation again before powering up the board. (A) Top side: (B) Bottom Side: Appendix C – Peripheral Device Installation...