Asus AAEON FWS-7541 User Manual

1u rackmount network appliance

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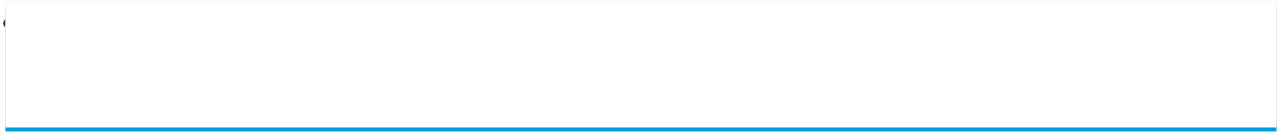

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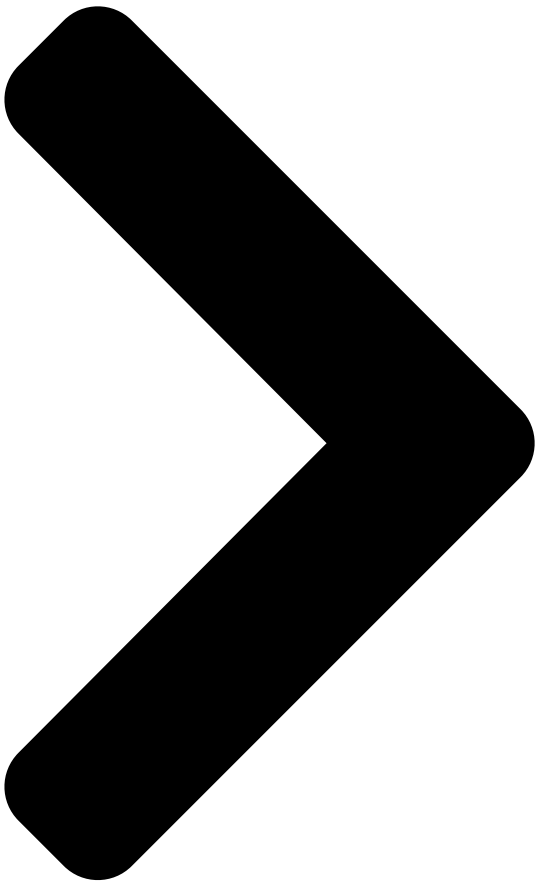

FWS-7541

1U Rackmount Network Appliance

User's Manual 1st Ed

Last Updated: July 6, 2022

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Related Manuals for Asus AAEON FWS-7541

Network Hardware Asus AAEON FWS-7821 User Manual

(126 pages)

Network Hardware Asus Aaeon FWS-7821 User Manual

(135 pages)

Network Hardware Asus AAEON FWS-7830 User Manual

(114 pages)

Network Hardware Asus AAEON FWS-8600 User Manual

Network appliance (111 pages)

Network Hardware Asus AAEON FWS-7831 User Manual

Network appliance (101 pages)

Network Hardware Asus Aaeon FWS-2273 User Manual

Desktop network appliance (101 pages)

Network Hardware Asus Aaeon FWS-2273E7-A10-A10-00 User Manual

Desktop network appliance (101 pages)

Network Hardware Asus AAEON FWS-7520 User Manual

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Rackmount network appliance (95 pages)

Network Hardware Asus WL-HDD2.5 Quick Manual

(98 pages)

Network Hardware Asus AAM6020VI-T4 User Manual

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(40 pages)

Network Hardware Asus AX200 Installation

Pcie wifi card/intel (2 pages)

Summary of Contents for Asus AAEON FWS-7541

Page 1 FWS-7541 1U Rackmount Network Appliance User’s Manual 1 Last Updated: July 6, 2022...

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the original manufacturer.

Page 3 Acknowledgement All other products' name or trademarks are properties of their respective owners. Microsoft Windows is a registered trademark of Microsoft Corp. • Intel, Pentium, Celeron, and Xeon are registered trademarks of Intel Corporation • Core, Atom are trademarks of Intel Corporation •...

Page 4 Packing List Before setting up your product, please make sure the following items have been shipped: Item Quantity FWS-7541 • Console cable • Ear bracket (pair) • SATA cable • SATA power cable • HDD kit • If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

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 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. All cables and adapters supplied by AAEON are certified and in accordance with the material safety laws and regulations of the country of sale.

Page 7 As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded containers. If any of the following situations arises, please the contact our service personnel: Damaged power cord or plug Liquid intrusion to the device iii.

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) □□□□□□□□□□□□□□□□□ AAEON Embedded Box PC/ Industrial System □□□□□□□□□ □□□□ □ □ □ □□□ □□□□ □□□□□ (Pb) (Hg) (Cd) (Cr(VI)) (PBB) (PBDE) □□□ □□ ○ ○ ○ ○ ○ ○ □□□□□□ □□□□ ○ ○ ○ ○ ○ ○ □□□□□□...

Page 10 China RoHS Requirement (EN) Poisonous or Hazardous Substances or Elements in Products AAEON Embedded Box PC/ Industrial System 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 &...

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Page 14: Chapter 1 - Product Specifications

Chapter 1 Chapter 1 – Product Specifications...

Page 15: Specifications

Specifications System 1U Rackmount Network Appliance Form Factor Intel® Xeon® ICE-Lake-D LCC Processors Processor DD4 SO-DIMM ECC DIMM slots x 2, up to System Memory 64GB

Chipset Intel® i350-AM4 Gigabit Ethernet x 12 Ethernet SFP+ x 4 from CPU 2 Pairs Bypass AMI BIOS ROM BIOS...

Page 16 System Internal RTC System Fan x 1 Black Color ATX with Auto Power Button Power Supply 16.93” x 7.87” x 1.73” (430mm x 200mm x Dimension 44mm) AC/DC 1U Flex ATX 220W Power Requirement MTBF (Hours) Display Chipset Ice-Lake-D LCC Interface VGA Port x 1 (via VGA module board) Power LED x 1...

Page 17 AC Power Input x 1 Rear I/O Panel Power Switch x 1 Rear Expansion Slot PCIe [x8 or x16] x 1 (Optional) Environmental Parameters and Dimensions 32°F ~ 104°F (0°C ~ 40°C) Operating Temperature -40°F ~ 185°F (-40°C ~ 85°C) Storage Temperature 10 ~ 80% Operating Humidity...

Page 18: Chapter 2 - Hardware Information

Chapter 2 Chapter 2 – Hardware Information...

Page 19: Dimensions

Dimensions System Chapter 2 – Hardware Information...

Page 20 Chapter 2 – Hardware Information...

Page 21 Board Component Side Chapter 2 – Hardware Information...

Page 22 Solder Side Chapter 2 – Hardware Information...

Page 23: Jumpers And Connectors

Jumpers and Connectors Component Side Chapter 2 – Hardware Information...

Page 24: List Of Jumpers

List of Jumpers Please refer to the table below for all of the board’s jumpers that you can configure for your application Label Function Clear CMOS 2.3.1 Clear CMOS (CN5) Setting Configuration Normal 1-3.2-4 Clear CMOS 3-5,4-6 Note: Normal is set as default. List of Connectors Please refer to the table below for all of the board’s connectors that you can configure for your application...

Page 25: Battery Holder (Cn4)

CN20 M.2 B-Key slot CN21 Micro SIM CN22 M.2 E-Key slot CN23 USB3.1 + RJ45 Connector (IPMI Ethernet) CN24 Serial Port CN25, CN27 FAN1/FAN2 CN26, CN28 CN30 Console CN31, CN32 ATX Power Connector M1, M2, M3, M4 10Gb SFP+ PCIe*8 Gold Finger (NIM riser card PER-R40X only) SATA1, SATA2, SATA3 SATA Connector Front Panel Header...

Page 26: Digital Io Pin Header (Cn10)

2.4.2 Digital IO Pin Header (CN10) Signal Signal Digital I/O bit1 Digital I/O bit2 Digital I/O bit3 Digital I/O bit4 Digital I/O bit5 Digital I/O bit6 Digital I/O bit7 Digital I/O bit8 2.4.3 Front Panel Header (FP1) Signal Signal Power Button SW+ Ground Hardware Reset SW+ Ground...

Page 27: B-Key Slot (Cn20)

2.4.5 M.2 B-Key Slot (CN20) Signal Signal CFG3 +3.3V +3.3V PWR_OFF USB2DN W_DISABLE USB2DP CFG0 PCIE1RXP UIMRST PCIE1RXN UIMCLK UIMDAT PCIE1TXN UIMPWR PCIE1TXP DEVSLP PCIE0RXP PCIE0RXN PCIE0TXN PCIE0TXP PLTRST# PCIECLKDN WAKE# PCIECLKDP Chapter 2 – Hardware Information...

Page 28: E-Key Slot (Cn22)

SIMDET 32K_SUSCLK CFG1 +3.3V +3.3V +3.3V CFG2 2.4.6 M.2 E-Key Slot (CN22) Signal Signal +3.3V +3.3V PCIE0TXP Chapter 2 – Hardware Information...

Page 29 PCIE0TXN PCIE0RXP PCIE0RXN PCIECLK0DP PCIECLK0DN 32K_SUSCLK PLTRST# CLKREQ# DIS2# WAKE# DIS1# PCIE1TXP PCIE1TXN PCIE0RXP PCIE0RXN PCIECLK1DP +3.3V

PCIECLK1DN +3.3V Chapter 2 – Hardware Information...

Page 30: Serial Port (Cn24)

2.4.7 Serial Port (CN24) Signal Signal DCD2 DSR2 RXD2 RTS2 TXD2 CTS2 DTR2 Chapter 2 – Hardware Information...

Page 31: Hardware Installation

Hardware Installation This section details the hardware assembly steps for the FWS-7541. Please read this section thoroughly before beginning installation and ensure you have all necessary components ready. A Phillips head screwdriver is required. 2.5.1 Hard Disk Drive (HDD) Installation Step 1: Unscrew the upper lid.

Page 32 Step 3: Lock HDD on the bottom cushions with four screws. Step 4: Connect the SATA cable and power cable to the main board. Chapter 2 – Hardware Information...

Page 33 Step 5: Connect the SATA cable and power cable into the Hard Disk and put hard drive bracket on the chassis. Chapter 2 – Hardware Information...

Page 34 Step 6: Connect the SATA cable and power cable into the Hard Disk and put hard drive bracket on the chassis. Chapter 2 – Hardware Information...

Page 35: Heat Sink Installation

2.5.2 Heat Sink Installation Step 1: Loosen the screw and remove the fan duct. Chapter 2 – Hardware Information...

Page 36 Step 2: Cover the Heatsink on the CPU and ensure the direction of the Heatsink does not obstruct the airflow. Chapter 2 – Hardware Information...

Page 37 Step 3: Fasten the screw to lock the air duct. Chapter 2 – Hardware Information...

Page 38: Nim Installation

2.5.3 NIM Installation Step 1: Loosen the screws on the bottom of chassis. Step 2: Remove the null Module cover or existing LAN module. Chapter 2 – Hardware Information...

Page 39 Step 3: Insert the LAN Module and fasten the screws. 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 These routines test and initialize board hardware. If the routines encounter an error during the tests, you will either hear a few short beeps or see an error message on the screen. There are two kinds of errors: fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors.

Page 42: Ami Bios Setup

AMI BIOS Setup AMI BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM and BIOS NVRAM so that it retains the Setup information when the power is turned off. Entering Setup Power on the computer and press <Del>or <ESC>...

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: Trusted Computing

3.4.1 Trusted Computing Options summary: Security Device Enable Optimal Default, Failsafe Default Support Disable Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available. SHA-1 PCR Bank Enabled Optimal Default, Failsafe Default Disabled...

Page 46 Platform Hierarchy Enabled Optimal Default, Failsafe Default Disabled Enable or Disable Platform Hierarchy Storage Hierarchy Enabled Optimal Default, Failsafe Default Disabled Enable or Disable Storage Hierarchy Endorsement Enabled Optimal Default, Failsafe Default Hierarchy Disabled Enable or Disable Endorsement Hierarchy TPM 2.0 UEFI Spec TCG_2 Optimal Default, Failsafe Default Version...

Page 47: Hardware Monitor

3.4.2 Hardware Monitor Chapter 3 - AMI BIOS Setup...

Page 48: System Fan Setting

3.4.3 System FAN Setting Options summary: Manual PWM Setting 127 Optimal Default, Failsafe Default Fan will work with this Manual PWM Value Chapter 3 - AMI BIOS Setup...

Page 49 Options summary: Smart Fan 1 Mode Automatic Mode Optimal Default, Failsafe Default Software Mode Smart Fan Mode Select Fan off temperature Optimal Default, Failsafe Default limit Fan will off when temperature lower then this limit Fan start Optimal Default, Failsafe Default temperature limit Fan will work when temperature higher then this limit Fan full speed...

Page 50: Sio Configuration

3.4.4 SIO Configuration Chapter 3 - AMI BIOS Setup...

Page 51: Serial Port 0 Configuration

3.4.5 Serial Port 0 Configuration Options summary Use This Device Enabled Optimal Default, Failsafe Default Disabled Enable or Disable this Logical Device Possible Use Automatic setting Optimal Default, Failsafe Default IO=3F8h; 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 Chapter 3 - AMI BIOS Setup...

Page 52: Serial Port 1 Configuration

3.4.6 Serial Port 1 Configuration Options summary Use This Device Enabled Optimal Default, Failsafe Default Disabled Enable or Disable this Logical Device Possible Use Automatic setting Optimal Default, Failsafe Default IO=3F8h; 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 Chapter 3 - AMI BIOS Setup...

Page 53: Parallel Port Configuration

3.4.7 Parallel Port Configuration Options summary: Use This Device Enabled Optimal Default, Failsafe Default Disabled Enable or Disable this Logical Device Possible Use Automatic setting Optimal Default, Failsafe Default IO=378h; IRQ=5 IO=378h; IRQ=5, 6, 7, 10, 11, IO=278h; IRQ=5, 6, 7, 10, 11, IO=3BCh;...

Page 54: Serial Port Console Redirection

Mode Standard Parallel Port mode Optimal Default, Failsafe Default (SPP) EPP Mode ECP Mode EPP mode & ECP mode Change Parallel Port mode. Some of the Modes require a DMA resource. After Mode changing, Reset the System to reflect actual device settings 3.4.8 Serial Port Console Redirection Options summary:...

Page 55: Console Redirection Settings

3.4.9 Console Redirection Settings Options summary: Terminal Type VT100 VT100Plus Optimal Default, Failsafe Default VT-UTF8 ANSI Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.

Page 56 Parity None Optimal Default, Failsafe Default Even Mark Space A parity bit can be sent with the data bits to detect some transmission errors. Even: parity bit is 0 if the num of 1's in the data bits is even. Odd: parity bit is 0 if num of 1's in the data bits is odd.

Page 57: Legacy Console Redirection Settings

3.4.10 Legacy Console Redirection Settings Options summary: Redirection COM COM0 Optimal Default, Failsafe Default Port Select a COM port to display redirection of Legacy OS and Legacy OPROM Message Resolution 80x24 Optimal Default, Failsafe Default 80x25 On Legacy OS, the Number of Rows and Columns supported redirection Chapter 3 - AMI BIOS Setup...

Page 58: Power Management

3.4.11 Power Management Options summary: Power Mode ATX Type Optimal Default, Failsafe Default AT Type Select system power mode. Restore AC Power Last State Optimal Default, Failsafe Default Loss Always On Always Off System Wake On Disabled Optimal Default, Failsafe Default By Date By Weekday Bypass...

Page 59: Digital Io Port Configuration

3.4.12 Digital IO Port Configuration Options summary: Input Output Set DIO as Input or Output Output Level High Optimal Default, Failsafe Default Set output level when DIO pin is output Chapter 3 - AMI BIOS Setup...

Page 60: Lan Bypass Configuration

3.4.13 LAN Bypass Configuration Options summary: Lan Bypass Status LED OFF Optimal Default, Failsafe Default RED LED ON RED LED BLINK RED LED FAST BLINK GREEN LED ON GREEN LED BLINK GREEN LED FAST BLINK Configure LAN Bypass status LED Mode for Power-on PassTru Optimal Default, Failsafe Default Bypass...

Page 61: Case Open Configuration

3.4.14 Case Open Configuration Options summary: Case Open Disabled Optimal Default, Failsafe Default Warning Enabled Clear Case Open detecting function Chapter 3 - AMI BIOS Setup...

Page 62: Setup Submenu: Platform Configuration

Setup Submenu: Platform Configuration Chapter 3 - AMI BIOS Setup...

Page 63: Pch-Io Configuration

3.5.1 PCH-IO Configuration Chapter 3 - AMI BIOS Setup...

Page 64: Sata Configuration

3.5.2 SATA Configuration Chapter 3 - AMI BIOS Setup...

Page 65: Controller 3 Sata Configuration

3.5.3 Controller 3 SATA Configuration Options summary: SATA Configuration Enabled Optimal Default, Failsafe Default Disabled SATA test setting Chapter 3 - AMI BIOS Setup...

Page 66: General Me Configuration

3.5.4 General ME Configuration Chapter 3 - AMI BIOS Setup...

Page 67: Socket Configuration

3.5.5 Socket Configuration Chapter 3 - AMI BIOS Setup...

Page 68: Processor Configuration

3.5.6 Processor Configuration Options summary: Hyper-Threading Enabled Optimal Default, Failsafe Default [ALL] Disabled Enables Hyper Threading (Software Method to Enable/Disable Logical Processor threads. Chapter 3 - AMI BIOS Setup...

Page 69: Memory Configuration

3.5.7 Memory Configuration Chapter 3 - AMI BIOS Setup...

Page 70: Memory Topology

3.5.8 Memory Topology Chapter 3 - AMI BIOS Setup...

Page 71: Iio Configuration

3.5.9 IIO Configuration Chapter 3 - AMI BIOS Setup...

Page 72: Socket0 Configuration

3.5.10 Socket0 Configuration Options summary: IOU0 (IIO PCIe Port Auto Optimal Default, Failsafe Default X4x4x8 X8x8 Selects PCIe port Bifurcation for selected slot(s) Chapter 3 - AMI BIOS Setup...

Page 73: Advanced Power Management Configuration

3.5.11 Advanced Power Management Configuration Chapter 3 - AMI BIOS Setup...

Page 74: Hardware Pm State Control

3.5.12 Hardware PM State Control Options summary: Hardware P-States Disable Optimal Default, Failsafe Default Native Mode Disable: Hardware chooses a P-state based on OS Request (Legacy P-States) Native Mode: Hardware chooses a P-state based on OS guidance Out of Band Mode: Hardware autonomously chooses a P-state (no OS guidance)" Chapter 3 - AMI BIOS Setup...

Page 75: Setup Submenu: Security

Setup Submenu: Security Change User/Administrator Password You can install an Administrator password, and if you install an administrator 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 76: Secure Boot

3.6.1 Secure Boot Options summary: Secure Boot Disabled Optimal Default, Failsafe Default Enabled Secure Boot feature is Active if Secure Boot 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 Optimal Default, Failsafe Default...

Page 77: Key Management

3.6.1.1 Key Management Options summary: Factory Key Disabled Optimal Default, Failsafe Default Provision Enabled Install factory default Secure Boot keys after the platform reset and while the System is in Setup mode Restore Factory Force System to User Mode. Keys Install factory default Secure Boot key databases Enroll Efi Image Allow Efi image to run in Secure Boot mode.

Page 78 Secure Boot Variables Enroll Factory Defaults or load certificates from a file: 1. Public Key Certificate in: a) EFI_SIGNATURE_LIST b) EFI_CERT_X509 (DER encoded) c) EFI_CERT_RSA2048 (bin) d) EFI_CERT_SHAXXX 2. Authenticated UEFI Variable 3. EFI PE/COFF Image (SHA256) Key Source: Default, External, Mixed Chapter 3 - AMI BIOS Setup...

Page 79 Setup Submenu: Boot Options summary: Quiet Boot Enabled Optimal Default, Failsafe Default Disabled Enable or Disable Quiet Boot option. Network Stack Enabled Disabled Optimal Default, Failsafe Default Enable/Disable UEFI Network Stack. Chapter 3 - AMI BIOS Setup...

Page 80 Setup Submenu: Save & Exit Chapter 3 - AMI BIOS Setup...