

UP Squared Pro 7000

Maker Board UPN-ADLN01

User's Manual 1st Ed

Copyright Notice

This document is copyrighted, 2023. All rights are reserved. The original manufacturer reserves the right to make improvements to the products described in this manual at any time without notice.

No part of this manual may be reproduced, copied, translated, or transmitted in any form or by any means without the prior written permission of the original manufacturer. Information provided in this manual is intended to be accurate and reliable. However, the original manufacturer assumes no responsibility for its use, or for any infringements upon the rights of third parties that may result from its use.

The material in this document is for product information only and is subject to change without notice. While reasonable efforts have been made in the preparation of this document to assure its accuracy, AAEON assumes no liabilities resulting from errors or omissions in this document, or from the use of the information contained herein.

AAEON reserves the right to make changes in the product design without notice to its users.

Preface II

Acknowledgement

All other products' name or trademarks are properties of their respective owners.

- Microsoft®, Windows®, Windows® 10 IoT Enterprise, and Windows® IoT Core are registered trademarks of Microsoft Corp.
- Intel® and Atom® are registered trademarks of Intel Corporation
- Core™ is a trademark of Intel Corporation
- Yocto Project® is a trademark of The Linux Foundation.
- Linux® is a registered trademark of Linus Torvalds in the U.S. and other countries.
- Ubuntu and Canonical are registered trademarks of Canonical Ltd.

All other product names or trademarks are properties of their respective owners.

Preface III

Packing List

Before setting up your product, please make sure the following items have been shipped:

| ltem | | Quantity |
|------|--|----------|
| • | UPN-ADLN01 (UP Squared Pro 7000) with heatsink | 1 |

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

Preface IV

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.

Preface V

Safety Precautions

Please read the following safety instructions carefully. It is advised that you keep this manual for future references

- 1. All cautions and warnings on the device should be noted.
- 2. Make sure the power source matches the power rating of the device.
- 3. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- 4. Always completely disconnect the power before working on the system's hardware.
- 5. No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
- 6. If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
- 7. Always disconnect this device from any AC supply before cleaning.
- 8. While cleaning, use a damp cloth instead of liquid or spray detergents.
- 9. Make sure the device is installed near a power outlet and is easily accessible.
- 10. Keep this device away from humidity.
- 11. Place the device on a solid surface during installation to prevent falls
- 12. Do not cover the openings on the device to ensure optimal heat dissipation.
- 13. Watch out for high temperatures when the system is running.
- 14. Do not touch the heat sink or heat spreader when the system is running
- 15. Never pour any liquid into the openings. This could cause fire or electric shock.
- 16. 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.

Preface VI

- 17. If any of the following situations arises, please the contact our service personnel:
 - i. Damaged power cord or plug
 - ii. Liquid intrusion to the device
 - iii. Exposure to moisture
 - iv. Device is not working as expected or in a manner as described in this manual
 - v. The device is dropped or damaged
 - vi. Any obvious signs of damage displayed on the device
- 18. DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WITH TEMPERATURES BEYOND THE DEVICE'S PERMITTED STORAGE TEMPERATURES (SEE CHAPTER 1) TO PREVENT DAMAGE.

Preface VII



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.

Caution:

There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.

Attention:

Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte. Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur. Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.

Preface VIII

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 | | х | 0 | 0 | 0 | 0 | | |
| 及其电子组件 | X | ^ | U | O | 0 | O | | |
| 外部信号 | x | V | | | C | 0 | | |
| 连接器及线材 | , x | Х | 0 | 0 | 0 | 0 | | |

- 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 SJ/T 11363-2006 标准规定的限量要求。

备注:此产品所标示之环保使用期限,系指在一般正常使用状况下。

Preface IX

China RoHS Requirement (EN)

Poisonous or Hazardous Substances or Elements in Products AAEON Main Board/ Daughter Board/ Backplane

| | Poisonous or Hazardous Substances or Elements | | | | | | | | |
|--|---|-----------------|-----------------|------------------------------------|--------------------------------------|---|--|--|--|
| Component | Lead (Pb) | Mercury (Hg) | Cadmium (Cd) | Hexavalent Chromium (Cr(VI)) | Polybrominated Biphenyls (PBB) | Polybrominated Diphenyl Ethers (PBDE) | | | |
| PCB & Other Components | Х | Х | 0 | 0 | 0 | 0 | | | |
| Wires & Connectors for External Connections | X | Х | 0 | 0 | 0 | 0 | | | |

O: The quantity of poisonous or hazardous substances or elements found in each of the component's parts is below the SJ/T 11363-2006-stipulated requirement.

X: The quantity of poisonous or hazardous substances or elements found in at least one of the component's parts is beyond the SJ/T 11363-2006-stipulated requirement.

Note: The Environment Friendly Use Period as labeled on this product is applicable under normal usage only

Preface X

| Cha | apter | 1 - Produ | ct Specifications | 1 |
|-----|-------|-----------|--|----|
| | 1.1 | Speci | fications | 2 |
| Cha | apter | 2 – Hardv | ware Information | 4 |
| | 2.1 | Dime | nsions | 5 |
| | 2.2 | Jump | ers and Connectors | 6 |
| | 2.3 | List o | f Jumpers and Connectors | 8 |
| | | 2.3.1 | Power Button (SW1) | 9 |
| | | 2.3.2 | RTC (CN1) | 9 |
| | | 2.3.3 | M.2 2280 M-Key Slot (CN2) | 10 |
| | | 2.3.4 | M.2 3052 B-Key Slot (CN3) | 11 |
| | | 2.3.5 | M.2 2230 E-Key Slot (CN4) | 13 |
| | | 2.3.6 | Dual LAN Port (RJ-45) (CN6) | 14 |
| | | 2.3.7 | HDMI/DP Port (CN8) | 15 |
| | | 2.3.8 | SATA Connector (CN10) | 16 |
| | | 2.3.9 | SATA Power Connector (CN11) | 16 |
| | | 2.3.10 | USB Type-C Port (CN12) | 17 |
| | | 2.3.11 | Dual USB Type-A Port (CN13) | 18 |
| | | 2.3.12 | USB 2.0/UART 1x10P Wafer (CN14) | 18 |
| | | 2.3.13 | RS-232/422/485 1x10P Wafer (COM 1) (CN15) | 19 |
| | | 2.3.14 | RS-232/422/485 1x10P Wafer (COM 2) (CN16) | |
| | | 2.3.15 | 40-Pin HAT (CN17) | 20 |
| | | 2.3.16 | CPLD and BIOS Update (CN18) | 21 |
| | | 2.3.17 | DC Power Jack (CN20) | 21 |
| | | 2.3.18 | Front Panel 1x6P Wafer (CN21) | 22 |
| | | 2.3.19 | DC Terminal Block (Optional with Colay) (CN22) | 22 |
| | | 2.3.20 | Audio Wafer (CN23) | 23 |

| | | 2.3.21 | 12V DC-In Connector (CN26) | 23 |
|-----|-------|-----------|-------------------------------|----|
| | | 2.3.22 | Fan Connector (J1) | 24 |
| | | 2.3.23 | AT/ATX Mode (JP1) | 24 |
| Cha | pter | 3 – Softw | vare Installation | 25 |
| | 3.1 | Linux | x Setup | 26 |
| | 3.2 | Winc | dows Drivers Installation | 26 |
| | 3.3 | Dum | nmy Driver Information | 27 |
| | | 3.3.1 | Dummy Driver Installation | 27 |
| | | 3.3.2 | Uninstalling the Dummy Driver | 31 |
| App | pendi | x A – UP | Framework SDK Installation | 32 |
| | A.1 | Intro | duction | 33 |
| | A.2 | Insta | Ilation for Windows 10 | 33 |
| | A.3 | Insta | llation for Windows IoT Core | 36 |
| App | pendi | x B – Cab | oles and Connectors | 38 |
| | B.1 | Cable | es and Connectors | 39 |

Chapter 1

Product Specifications

| System | |
|-------------------|---|
| Processor | Intel® Core™ i3-N305 |
| | Intel Atom® x7425E |
| | Intel® Processor N97 |
| | Intel® Processor N50 |
| | (formerly Alder Lake N) |
| Graphics | Intel® UHD Graphics for 12th Gen Intel® Processors |
| Memory | Up to 16GB LPDDR5 |
| Storage | Up to 64GB eMMC |
| I/O | HDMI 2.0b x 1 |
| | DP 1.2 x 1 |
| | DP 1.4a x 1 (via USB Type-C) |
| | Audio Jack x 1 (Mic-In + Line-Out) |
| | RS-232/422/485 x 2 (from 10-pin header) |
| Camera | MIPI-CSI via 61-Pin FPC Connector |
| USB | USB 2.0 x 2 (from 10-pin Header x 1) |
| | USB 3.2 Gen 2 x 2 (Type-A) |
| | USB 3.2 Gen 2 x 1 (Type-C) |
| Expansion | 40 pin GPIO x 1 |
| | M.2 2230 E-Key x 1 (CNVI, PCIe Gen 3 [x1], USB 2.0) |
| | M.2 2280 M-Key x 1 (PCle Gen 3 [x2], USB 2.0) |
| | M.2 3052 B-Key x 1 (USB 3.2 Gen 2 only) |
| | SATA III x 1 |
| Display Interface | HDMI 2.0b x 1 |
| | DP 1.2 x 1 |
| | DP 1.4a x 1 (via USB Type-C) |

System

Ethernet 2.5GbE x 2 (Intel® i226-IT)

Security Onboard TPM 2.0

RTC Yes

OS Support Windows® 10 IoT Enterprise

Windows® IoT Core

Ubuntu 22.04 LTS

Yocto 4

Power Requirement

Power 12V DC-in, 6A

Power Supply Type AT/ATX

Power Consumption 35W

Mechanical

Dimension 4" x 4" (101.6mm × 101.6mm)

 Net Weight
 0.44 lb. (0.2 kg)

 Gross Weight
 0.77 lb. (0.35 kg)

Environment

Operating Temperature $32^{\circ}\text{F} \sim 140^{\circ}\text{F} (0^{\circ}\text{C} \sim 60^{\circ}\text{C}) / 0.5 \text{ airflow}$

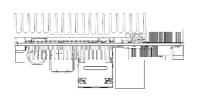
Operation Humidity 0% ~ 90% relative humidity, non-condensing

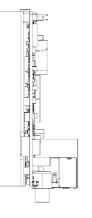
MTBF 422,053

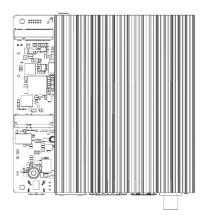
Certification CE/FCC Class A, RoHS Compliant, REACH

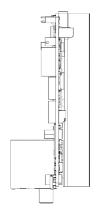
Chapter 2

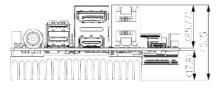
Hardware Information

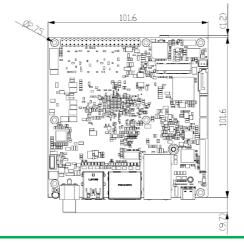




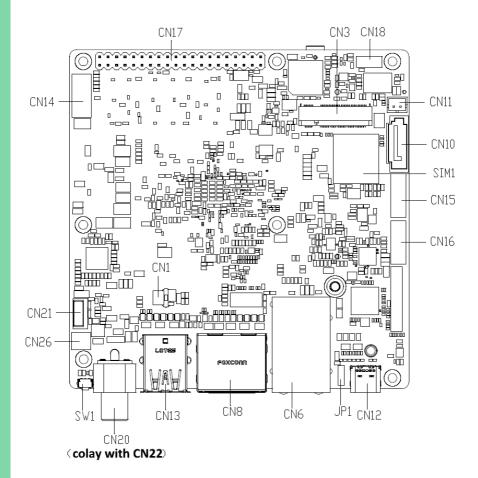




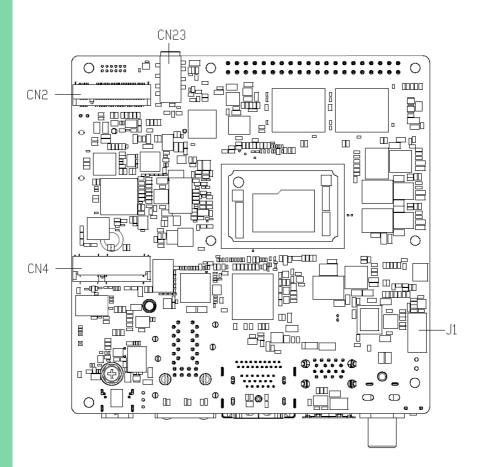




Тор:



Bottom:



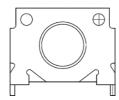
2.3 List of Jumpers and Connectors

Please refer to the table below for all of the board's jumpers and connectors that you can configure for your application

| Function |
|---|
| PWR Button |
| RTC |
| M.2 2280 M-Key Slot |
| M.2 3052 B-Key Slot |
| M.2 2230 E-Key Slot |
| Dual LAN Port (RJ-45) |
| HDMI/DP Port |
| SATA Connector |
| SATA Power Connector |
| USB Type-C Port |
| Dual USB Type-A Port |
| USB 2.0/UART 1x10P Wafer |
| RS-232/422/485 1x10P Wafer (COM 1) |
| RS-232/422/485 1x10P Wafer (COM 2) |
| 40-Pin HAT |
| CPLD and BIOS Update |
| DC Power Jack |
| Front Panel 1x6P Wafer |
| DC Terminal Block (Optional with Colay) |
| Audio Wafer |
| 12V DC-In Connector |
| |

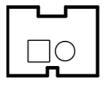
| Label | Function |
|-------|-------------------------|
| J1 | Fan Connector |
| JP1 | AT/ATX Mode |
| SIM1 | Nano SIM Card Connector |

2.3.1 Power Button (SW1)

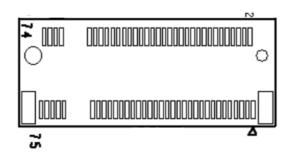


| Switch Position | Function |
|-----------------|-----------|
| SW1 1 | (Default) |
| SW1 0 | Power ON |

2.3.2 RTC (CN1)



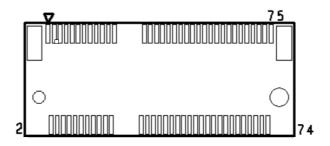
| Pin | Signal | Pin | Signal |
|-----|---------|-----|--------|
| 1 | RTC_VCC | 2 | GND |



| Pin | Signal | Pin | Signal | Pin | Signal |
|-----|--------------|-----|--------------|-----|-----------------|
| 1 | GND | 2 | +3.3V | 3 | NC |
| 4 | +3.3V | 5 | NC | 6 | FULL_CARD_POWER |
| 7 | NC | 8 | NC | 9 | GND |
| 10 | NC | 11 | NC | 12 | +3.3V |
| 13 | NC | 14 | +3.3V | 15 | GND |
| 16 | +3.3V | 17 | NC | 18 | +3.3V |
| 19 | NC | 20 | NC | 21 | GND |
| 22 | NC | 23 | NC | 24 | NC |
| 25 | NC | 26 | NC | 27 | GND |
| 28 | NC | 29 | PCIE_RXN10 | 30 | NC |
| 31 | PCIE_RXP10 | 32 | NC | 33 | GND |
| 34 | NC | 35 | PCIE_TXN10 | 36 | NC |
| 37 | PCIE_TXP10 | 38 | NC | 39 | GND |
| 40 | SMB_CLK_1V8 | 41 | PCIE_RXN9 | 42 | SMB_DATA_1V8 |
| 43 | PCIE_RXP9 | 44 | NC | 45 | GND |
| 46 | NC | 47 | PCIE_TXN9 | 48 | NC |
| 49 | PCIE_TXP9 | 50 | PLT_RST# | 51 | GND |
| 52 | PCIE_CLKREQ# | 53 | PCIE3_CLK_DN | 54 | PCIE_WAKE# |

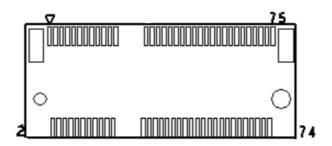
| Pin | Signal | Pin | Signal | Pin | Signal |
|-----|--------------|-----|--------|-----|--------|
| 55 | PCIE3_CLK_DP | 56 | NC | 57 | GND |
| 58 | NC | 59 | NC | 60 | NC |
| 61 | NC | 62 | NC | 63 | NC |
| 64 | NC | 65 | NC | 66 | NC |
| 67 | NC | 68 | NC | 69 | NC |
| 70 | +3.3V | 71 | GND | 72 | +3.3V |
| 73 | GND | 74 | +3.3V | 75 | GND |

2.3.4 M.2 3052 B-Key Slot (CN3)



| Pin | Signal | Pin | Signal | Pin | Signal |
|-----|---------|-----|-------------|-----|------------------------------|
| 1 | NC | 2 | +3.3V | 3 | GND |
| 4 | +3.3V | 5 | GND | 6 | FULL_CARD_PWR_ OFF#(1.8V) |
| 7 | USB2_D+ | 8 | W_DISABLE#1 | 9 | USB2_D- |
| 10 | NC | 11 | GND | 12 | NC |
| 13 | NC | 14 | NC | 15 | NC |
| 16 | NC | 17 | NC | 18 | NC |
| 19 | NC | 20 | NC | 21 | NC |
| 22 | NC | 23 | NC | 24 | NC |
| 25 | NC | 26 | NC | 27 | GND |

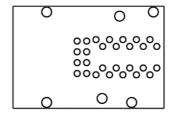
| Pin | Signal | Pin | Signal | Pin | Signal |
|-----|----------------|-----|----------------|-----|---------|
| 28 | NC | 29 | USB3_RX3- | 30 | UIM_RST |
| 31 | USB3_RX3+ | 32 | UIM_CLK | 33 | GND |
| 34 | UIM_DAT | 35 | USB3_PX3- | 36 | UIM_PWR |
| 37 | USB3_PX3+ | 38 | NC | 39 | GND |
| 40 | NC | 41 | NC | 42 | NC |
| 43 | NC | 44 | NC | 45 | GND |
| 46 | NC | 47 | NC | 48 | NC |
| 49 | NC | 50 | PLT_RST#(3.3V) | 51 | GND |
| 52 | NC | 53 | NC | 54 | NC |
| 55 | NC | 56 | NC | 57 | GND |
| 58 | NC | 59 | NC | 60 | NC |
| 61 | NC | 62 | NC | 63 | NC |
| 64 | NC | 65 | NC | 66 | NC |
| 67 | PLT_RST#(1.8V) | 68 | NC | 69 | NC |
| 70 | +3.3V | 71 | GND | 72 | +3.3V |
| 73 | GND | 74 | +3.3V | 75 | GND |



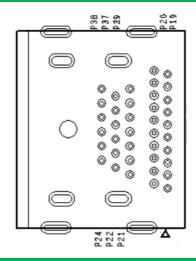
| Pin | Signal | Pin | Signal | Pin | Signal |
|-----|---------------|-----|-----------------|-----|---------------------|
| 1 | GND | 2 | +3.3V | 3 | USB2_D8+ |
| 4 | +3.3V | 5 | USB2_D8- | 6 | NC |
| 7 | GND | 8 | NC | 9 | CNV_WR_LANE1_D N |
| 10 | CNV_RF_RST# | 11 | CNV_WR_LANE1_DP | 12 | NC |
| 13 | GND | 14 | CNV_CLKREQ_R | 15 | CNV_WR_LANE0_D N |
| 16 | NC | 17 | CNV_WR_LANE0_DP | 18 | GND |
| 19 | GND | 20 | NC | 21 | CNV_WR_CLK_DN |
| 22 | CNV_RGI_RSP_R | 23 | CNV_WR_CLK_DP | 24 | NC |
| 25 | NC | 26 | NC | 27 | NC |
| 28 | NC | 29 | NC | 30 | NC |
| 31 | NC | 32 | CNV_RGI_DT | 33 | GND |
| 34 | CNV_RGI_RSP | 35 | PCIE11_TXP | 36 | CNV_BRI_DT |
| 37 | PCIE11_TXN | 38 | NC | 39 | GND |
| 40 | NC | 41 | PCIE11_RXP | 42 | NC |
| 43 | PCIE11_RXN | 44 | NC | 45 | GND |
| 46 | NC | 47 | PCIE_CLK2P | 48 | NC |
| 49 | PCIE_CLK2N | 50 | SUS_CLK | 51 | GND |
| 52 | WIFI_RST# | 53 | PCIE_CLKREQ# | 54 | BT_EN |

| Pin | Signal | Pin | Signal | Pin | Signal |
|-----|-----------------|-----|-----------------|-----|--------|
| 55 | PCIE_WAKE# | 56 | WIFI_EN | 57 | GND |
| 58 | NC | 59 | CNV_WT_LANE1_DN | 60 | NC |
| 61 | CNV_WT_LANE1_DP | 62 | NC | 63 | GND |
| 64 | NC | 65 | CNV_WT_LANE0_DN | 66 | NC |
| 67 | CNV_WT_LANE0_DP | 68 | NC | 69 | GND |
| 70 | NC | 71 | CNV_WT_CLK_DN | 72 | +3.3V |
| 73 | CNV_WT_CLK_DP | 74 | +3.3V | 75 | GND |

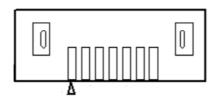
2.3.6 Dual LAN Port (RJ-45) (CN6)



| Pin | Signal | Pin | Signal | Pin | Signal |
|------|----------------|-----|----------------|------|----------------|
| R1A | LAN1_MDI0+ | R2A | LAN1_MDI0- | R3A | LAN1_MDI1+ |
| R4A | LAN1_MDI1- | R5A | LAN1_MDI2+ | R6A | LAN1_MDI2- |
| R7A | LAN1_MDI3+ | R8A | LAN1_MDI3- | R9A | GND |
| R10A | GND | L1A | LAN1_ACTLED- | L2A | LAN1_ACTLED+ |
| L3A | LAN1_LINK2500# | L4A | LAN1_LINK1000# | R1B | LAN2_MDI0+ |
| R2B | LAN2_MDI0- | R3B | LAN2_MDI1+ | R4B | LAN2_MDI1- |
| R5B | LAN2_MDI2+ | R6B | LAN2_MDI2- | R7B | LAN2_MDI3+ |
| R8B | LAN2_MDI3- | R9B | GND | R10B | GND |
| L1B | LAN2_ACTLED- | L2B | LAN2_ACTLED+ | L3B | LAN2_LINK2500# |
| L4B | LAN2_LINK1000# | | | | |

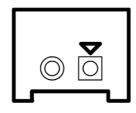


| Pin | Signal | Pin | Signal | Pin | Signal |
|-----|---------|-----|-----------|-----|-----------|
| P1 | DP_TXP0 | P2 | GND | P3 | DP_TXN0 |
| P4 | DP_TXP1 | P5 | GND | P6 | DP_TXN1 |
| P7 | DP_TXP2 | P8 | GND | P9 | DP_TXN2 |
| P10 | DP_CLK+ | P11 | GND | P12 | DP_CLK- |
| P13 | CONFIG1 | P14 | CONFIG2 | P15 | DP_AUX_P |
| P16 | GND | P17 | DP_AUX_N | P18 | DP_HPD |
| P19 | GND | P20 | 3.3V | P21 | HDMI_TXP2 |
| P22 | GND | P23 | HDMI_TXN2 | P24 | HDMI_TXP1 |
| P25 | GND | P26 | HDMI_TXN1 | P27 | HDMI_TXP0 |
| P28 | GND | P29 | HDMI_TXN0 | P30 | HDMI_CLK+ |
| P31 | GND | P32 | HDMI_CLK- | P33 | NC |
| P34 | NC | P35 | DDC_CLK | P36 | DDC_DATA |
| P37 | GND | P38 | 5V | P39 | HDMI_HPD |

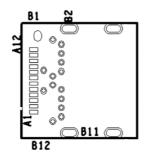


| Pin | Signal | Pin | Signal |
|-----|-----------|-----|-----------|
| 1 | GND | 2 | SATA_TXP0 |
| 3 | SATA_TXN0 | 4 | GND |
| 5 | SATA_RXN0 | 6 | SATA_RXP0 |
| 7 | GND | | |

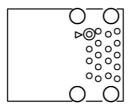
2.3.9 SATA Power Connector (CN11)



| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1 | 5V | 2 | GND |

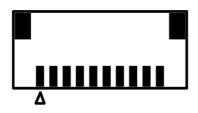


| Pin | Signal | Pin | Signal | Pin | Signal |
|-----|--------|------------|--------|-----|--------|
| A1 | GND | A2 | SSTXP1 | А3 | SSTXN1 |
| A4 | +5V | A 5 | CC1 | A6 | DP1 |
| A7 | DN1 | A8 | SBU1 | A9 | +5V |
| A10 | SSRXN2 | A11 | SSRXP2 | A12 | GND |
| B1 | GND | B2 | SSTXP2 | В3 | SSTXN2 |
| B4 | +5V | B5 | CC2 | В6 | DP1 |
| В7 | DN1 | В8 | SBU2 | В9 | +5V |
| B10 | SSRXN1 | B11 | SSRXP1 | B12 | GND |

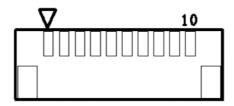


| Pin | Signal | Pin | Signal | Pin | Signal |
|-----|--------|-----|-----------|-----|-----------|
| 1 | +5V | 2 | USB2_D1- | 3 | USB2_D1+ |
| 4 | GND | 5 | USB3_RX1- | 6 | USB3_RX1+ |
| 7 | GND | 8 | USB3_TX1- | 9 | USB3_TX1+ |
| 10 | +5V | 11 | USB2_D2- | 12 | USB2_D2+ |
| 13 | GND | 14 | USB3_RX2- | 15 | USB3_RX2+ |
| 16 | GND | 17 | USB3_TX2- | 18 | USB3_TX2+ |

2.3.12 USB 2.0/UART 1x10P Wafer (CN14)

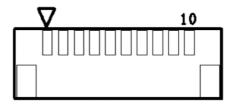


| Pin | Signal | Pin | Signal | Pin | Signal |
|-----|----------|-----|----------|-----|----------|
| 1 | +5V | 2 | USB2_D3- | 3 | USB2_D3+ |
| 4 | GND | 5 | +5V | 6 | USB2_D4- |
| 7 | USB2_D4+ | 8 | GND | 9 | UART_RX |
| 10 | UART_TX | | | | |



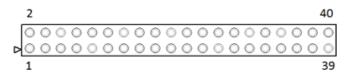
| Pin | Signal | Pin | Signal |
|-----|-------------------------|-----|------------------------|
| 1 | DCD / RS422TX- / RS485- | 2 | RX / RS422TX+ / RS485+ |
| 3 | TX / RS422RX+ | 4 | DTR / RS422RX- |
| 5 | GND | 6 | DSR |
| 7 | RTS | 8 | CTS |
| 9 | RI | 10 | NC |

2.3.14 RS-232/422/485 1x10P Wafer (COM 2) (CN16)

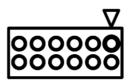


| Pin | Signal | Pin | Signal |
|-----|-------------------------|-----|------------------------|
| 1 | DCD / RS422TX- / RS485- | 2 | RX / RS422TX+ / RS485+ |
| 3 | TX / RS422RX+ | 4 | DTR / RS422RX- |
| 5 | GND | 6 | DSR |
| 7 | RTS | 8 | CTS |
| 9 | RI | 10 | NC |

2.3.15 40-Pin HAT (CN17)

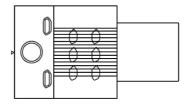


| Pin | Signal | Pin | Signal |
|-----|---------------------|-----|-------------------|
| 1 | +3.3V | 2 | +5V |
| 3 | 12C1_DAT / GPIO1 | 4 | +5V |
| 5 | 12C1_CLK / GPIO2 | 6 | GND |
| 7 | ANALOG_DATA / GPIO3 | 8 | UART_TX / GPIO16 |
| 9 | GND | 10 | UART_RX / GPIO17 |
| 11 | GPIO4/ UART_RTS | 12 | I2S_BCLK / GPIO18 |
| 13 | GPIO5 | 14 | GND |
| 15 | GPIO6 | 16 | GPIO19 |
| 17 | +3.3V | 18 | GPIO20 |
| 19 | SPI_MOSI / GPIO7 | 20 | GND |
| 21 | SPI_MISO / GPIO8 | 22 | GPIO21 |
| 23 | SPI_CLK / GPIO9 | 24 | SPI_CS0 / GPIO22 |
| 25 | GND | 26 | GPIO23 |
| 27 | 12C0_DAT / GPIO10 | 28 | 12C0_CLK / GPIO24 |
| 29 | GPIO11 | 30 | GND |
| 31 | GPIO12 | 32 | PWM0 / GPIO25 |
| 33 | PWM1 / GPIO13 | 34 | GND |
| 35 | I2S_SYNC / GPIO14 | 36 | GPIO26/ UART_CTS |
| 37 | GPIO15 | 38 | I2S_SDI / GPIO27 |
| 39 | GND | 40 | I2S_SDO / GPIO28 |

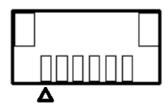


| Pin | Signal | Pin | Signal | Pin | Signal |
|-----|----------|-----|----------|-----|----------|
| 1 | JTAG_TCK | 2 | GND | 3 | JTAG_TDO |
| 4 | 1.8V | 5 | JTAG_TMS | 6 | SPI_CS |
| 7 | SPI_CLK | 8 | SPI_MISO | 9 | JTAG_TDI |
| 10 | GND | 11 | SPI_MOSI | 12 | SPI_HOLD |

2.3.17 DC Power Jack (CN20)

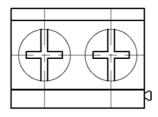


| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1 | DC_IN | 2 | GND |
| 3 | GND | | |



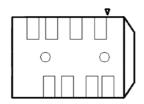
| Pin | Signal | Pin | Signal |
|-----|--------|-----|-----------|
| 1 | GND | 2 | RESET |
| 3 | GND | 4 | POWER S/W |
| 5 | GND | 6 | +5V |

2.3.19 DC Terminal Block (Optional with Colay) (CN22)



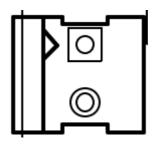
| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1 | DC_IN | 2 | GND |

Audio Wafer (CN23) 2.3.20

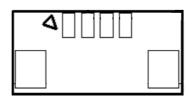


| Pin | Signal | Pin | Signal |
|-----|--------|-----|----------|
| 1 | MIC_LR | 2 | GND |
| 3 | LOUT_R | 4 | NC |
| 5 | NC | 6 | AUDIO-JD |
| 7 | NC | 8 | LOUT_L |

2.3.21 12V DC-In Connector (CN26)



| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1 | 12V | 2 | GND |



| Pin | Signal | Pin | Signal |
|-----|--------|-----|--------|
| 1 | PWM | 2 | TACH |
| 3 | GND | 4 | 12V |

2.3.23 AT/ATX Mode (JP1)



| Pin | Signal | Pin | Signal |
|-----|----------|-----|--------|
| 1 | ATX_MODE | 2 | PWRBTN |
| 3 | AT_MODE | - | - |





Chapter 3

Software Installation

3.1 Linux Setup

The UP Squared Pro 7000 supports Linux operating systems (see Chapter 1 for specifications). For instructions on how to install a Linux OS onto your UP Squared Pro 7000, you can find several guides and tutorials in the wiki section of the UP Board website at https://up-board.org for both installing supported distributions as well as porting your own Linux build.

3.2 Windows Drivers Installation

Drivers for the UP Squared Pro 7000 can be downloaded from the UP Board website by following the link https://up-board.org and navigating to the Downloads section, then clicking on the UP Squared Pro 7000 to find all relevant drivers.

3.3 Dummy Driver Information

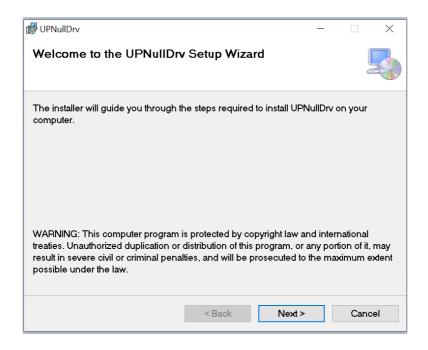
3.3.1 Dummy Driver Installation

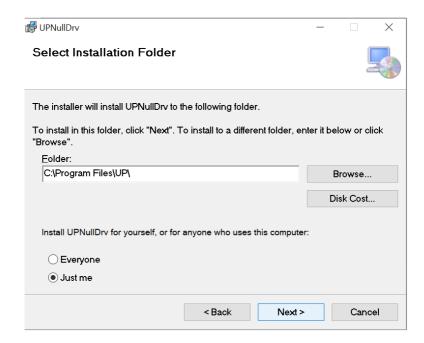
The following instructions detail how to install the dummy driver for your UP Squared Pro 7000 (UPN-ADLN01).

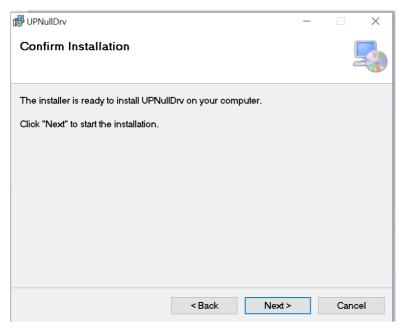
Step 1 - Download UPNullDrv.msi.

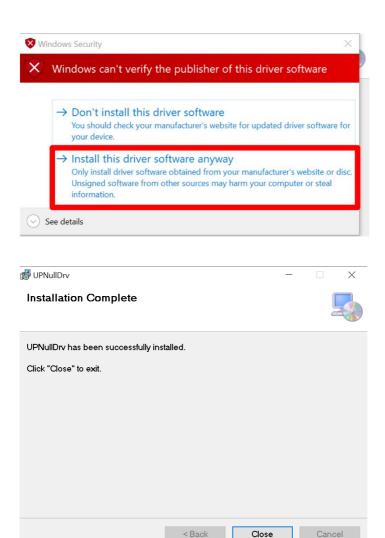


Step 2 – Click **UPNullDrv.msi** and follow the steps as per the below images to install Driver.

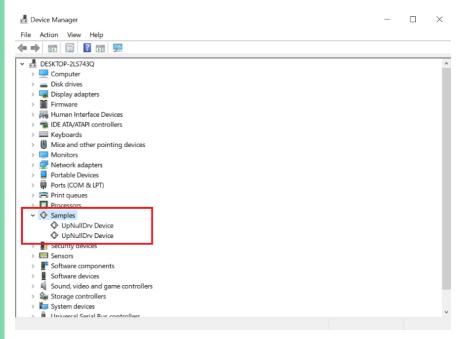




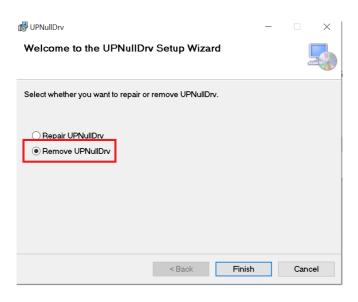


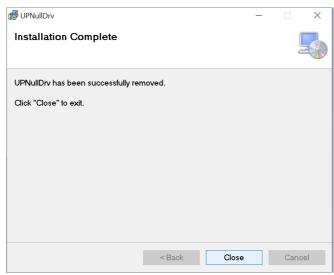


Once you have successfully installed the dummy driver, you will be able to locate it via your system's Device Manager, as shown below.



Click UPNullDrv.msi to uninstall driver, then select Remove UPNullDrv.





Appendix A

UP Framework SDK Installation

A.1 Introduction

This section provides instructions for the installation of the UP Framework SDK.

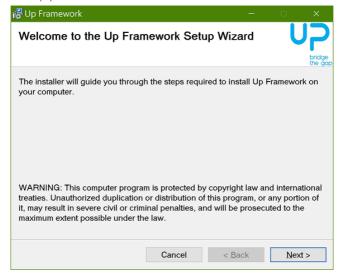
Instructions are provided for Windows 10 and Windows IoT Core. You can download the latest version of UP Framework SDK from the UP community:

https://downloads.up-community.org/download/up-sdk-for-windows-10-and-windows-iot/

A.2 Installation for Windows 10

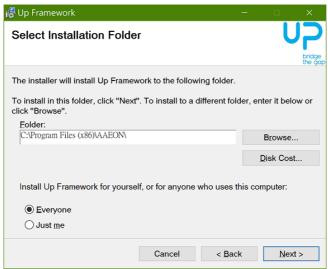
Step 1

Locate the downloaded file UpFrameworkSetup.msi and run the installer. Press "Next" to begin the setup process.

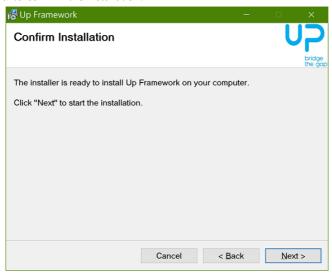


Step 2

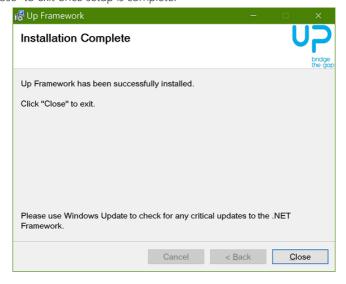
Select the installation folder. Default destination path is C:\Program Files(x86)\AAEON\
You may also choose to install the UP Framework SDK for all users or only the current user. Press "Next" to continue installation.



Step 3
Press "Next" to confirm the installation.



Step 4
Press "Close" to exit once setup is complete.



A.3 Installation for Windows IoT Core

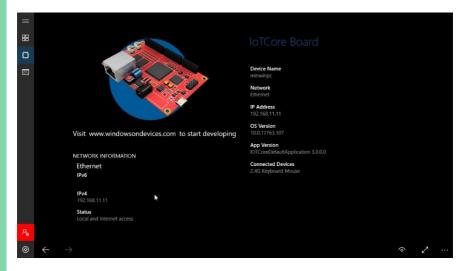
Before you begin, make sure you have downloaded and installed the latest version of the Windows IoT Core image from the UP community.

Installation requires using a connected PC with the UP Framework SDK software downloaded and saved.

Note: Make sure the UP IoT Core device is connected to the same network as the PC you are using to install the software from.

Step 1

Turn on your UP IoT Core device and note the IP address at the home screen.



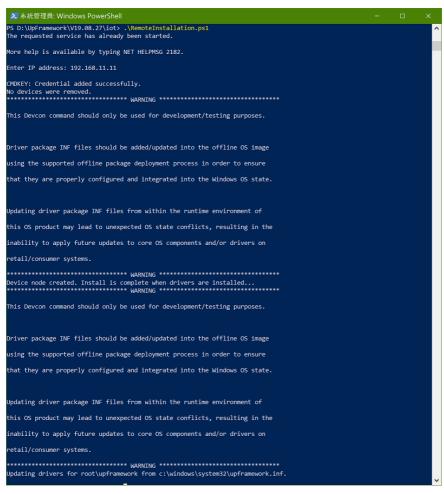
Step 2

Download the UP Framework SDK to your PC and unzip the files.

Open PowerShell as an Administrator. Enter the command

RemoteInstallation.ps1 to install the UP Framework SDK on the UP IoT Core device.

Enter the IP address of the UP IoT Core device when prompted.



Note: you must connect Up IoT Core and PC in the same network.

Appendix B

Cables and Connectors

B.1 Cables and Connectors

This table provides detailed information about the cables and connectors used by the UP Squared Pro 7000 (UPN-ADLN01). If you have any questions about the configuration of your board, please contact your AAEON sales representative.

| Label | Mating Cable PN | Mating Cable Description |
|-------|-----------------|---|
| COM1 | 1701100180 | (TF)COM Cable.D-SUB 9P(M).10P.1.0mm Housing.15cm |
| COM2 | 1701100180 | (TF)COM Cable.D-SUB 9P(M).10P.1.0mm Housing.15cm |
| RTC | | (TF)Lithium Battery.CR2032H.3V.240mAH.w/cable 90mm.Battery power.BP-CR2032-M90-001 |