

# UP Squared i12 Edge

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Maker Board System  
UPS-EDGE-ADLP01

User's Manual 2<sup>nd</sup> Ed

## Copyright Notice

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## Packing List

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

Item	Quantity
● UPS-EDGE-ADLP01 (UP Squared i12 Edge)	1

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

## About this Document

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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](http://AAEON.com) for the latest version of this document.

## Safety Precautions

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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.

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.**

## FCC Statement

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### **Warning!**



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.*



## 产品中有毒有害物质或元素名称及含量

AAEON System

QO4-381 Rev.A0

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
印刷电路板 及其电子组件	×	○	○	○	○	○
外部信号 连接器及线材	×	○	○	○	○	○
外壳	○	○	○	○	○	○
中央处理器 与内存	×	○	○	○	○	○
硬盘	×	○	○	○	○	○
液晶模块	×	○	○	○	○	○
光驱	×	○	○	○	○	○
触控模块	×	○	○	○	○	○
电源	×	○	○	○	○	○
电池	×	○	○	○	○	○

本表格依据 SJ/T 11364 的规定编制。

○：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 GB/T 26572 标准规定的限量要求以下。

×：表示该有害物质的某一均质材料超出了 GB/T 26572 的限量要求，然而该部件仍符合欧盟指令 2011/65/EU 的规范。

备注：

- 一、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。
- 二、上述部件物质中央处理器、内存、硬盘、光驱、电源为选购品。
- 三、上述部件物质液晶模块、触控模块仅一体机产品适用。

# China RoHS Requirement (EN)

## Hazardous and Toxic Materials List

AAEON System

QQ4-381 Rev.A0

Component Name	Hazardous or Toxic Materials or Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr(VI))	Polybrominated biphenyls (PBBS)	Polybrominated ethers (PBDES)
PCB and Components	X	O	O	O	O	O
Wires & Connectors for Ext.Connections	X	O	O	O	O	O
Chassis	O	O	O	O	O	O
CPU & RAM	X	O	O	O	O	O
HDD Drive	X	O	O	O	O	O
LCD Module	X	O	O	O	O	O
Optical Drive	X	O	O	O	O	O
Touch Control Module	X	O	O	O	O	O
PSU	X	O	O	O	O	O
Battery	X	O	O	O	O	O

This form is prepared in compliance with the provisions of SJ/T 11364.  
 O: The level of toxic or hazardous materials present in this component and its parts is below the limit specified by GB/T 26572.  
 X: The level of toxic or hazardous materials present in the component exceed the limits specified by GB/T 26572, but is still in compliance with EU Directive 2011/65/EU (RoHS 2).

Notes:

1. The Environment Friendly Use Period indicated by labelling on this product is applicable only to use under normal conditions.
2. Individual components including the CPU, RAM/memory, HDD, optical drive, and PSU are optional.
3. LCD Module and Touch Control Module only applies to certain products which feature these components.

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# Chapter 1

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Product Specifications

## 1.1 Specifications

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### System

<b>CPU</b>	12th Gen Intel® Core™ Processor SoC Intel® Core™ i7-1270PE Intel® Core™ i7-1260P Intel® Core™ i5-1250PE Intel® Core™ i5-1240P Intel® Core™ i3-1220PE Intel® Celeron® Processor 7305E 13th Gen Intel® Core™ Processor SoC Intel® Core™ i7-1370PE Intel® Core™ i7-1360P Intel® Core™ i5-1340PE Intel® Core™ i3-1320PE
<b>Memory</b>	Up to 16GB Onboard Single-Channel LPDDR5
<b>Graphics</b>	Intel® UHD Graphics
<b>Storage</b>	Up to 128GB Onboard SSD M.2 2280 M-Key x 1 (PCIe Gen 4 [x4], NVMe) SATA 6Gb/s x 1
<b>Ethernet</b>	1GbE RJ-45 x 2 (Realtek RTL8111H-CG)
<b>WIFI/BT</b>	Optional: M.2 2230 E-Key
<b>Expansion Slot</b>	M.2 2230 E-Key x 1 (CNVI & PCIe Gen 3.0 [x1]) M.2 2280 M-Key x 1 (PCIe Gen 4 [x4], NVMe) SATA 6Gb/s x 1
<b>Security</b>	Onboard TPM 2.0

## System

OS Support	Windows® 10 IoT Enterprise
	Ubuntu 22.04 LTS
	Yocto 4

## I/O

USB	USB 3.2 Gen 2 (Type-A) x 2
	USB 3.2 Gen 2 (Type-C) x 1
Display Port	HDMI 1.4b/DP 1.2 STACK Connector x 1
	DP 1.4a x 1 (via USB Type-C)
Ethernet	1GbE RJ45 x 2 (Dual Stacked) (Realtek 8111H CG)
COM	—
Audio	Audio Jack (Line out + MIC in) x 1
GPIO	—

## Power Supply

Power Requirement	12V DC-in
Power Supply Type	AT (default)/ATX
Power Consumption	26W ~ 39W

## Mechanical

Mounting	VESA Mount/Wall Mount (Optional)
Dimensions (W x H x D)	5.12" x 3.7" x 2.68" (130mm x 94mm x 68mm)
Net Weight	1.87 lb. (0.85Kg)
Gross Weight	2.36 lb. (1.07Kg)

## Environmental

<b>Operating Temperature</b>	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow
<b>Storage Temperature</b>	0% ~ 90% relative humidity, non-condensing
<b>Operating Humidity</b>	-4°F ~ 158°F (-20°C ~ 70°C)
<b>MTBF</b>	522,716
<b>Certification</b>	CE/FCC Class A, RoHS Compliant, REACH

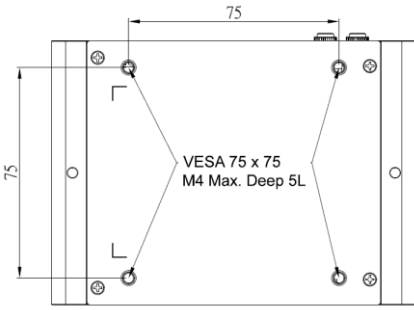
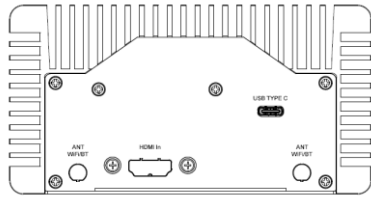
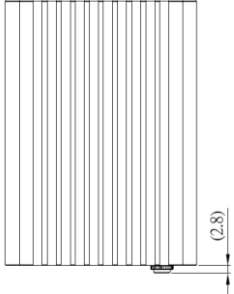
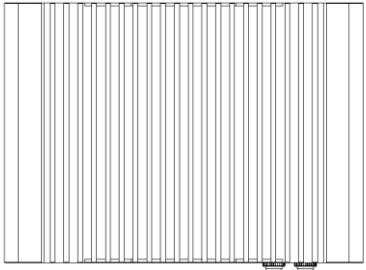
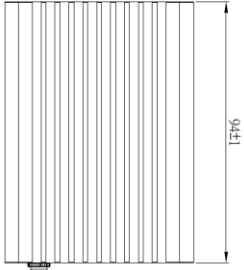
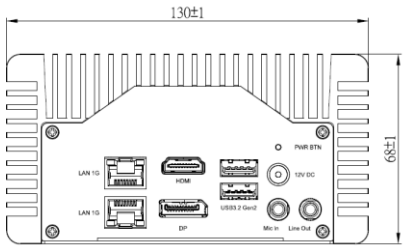
# Chapter 2

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Hardware Information



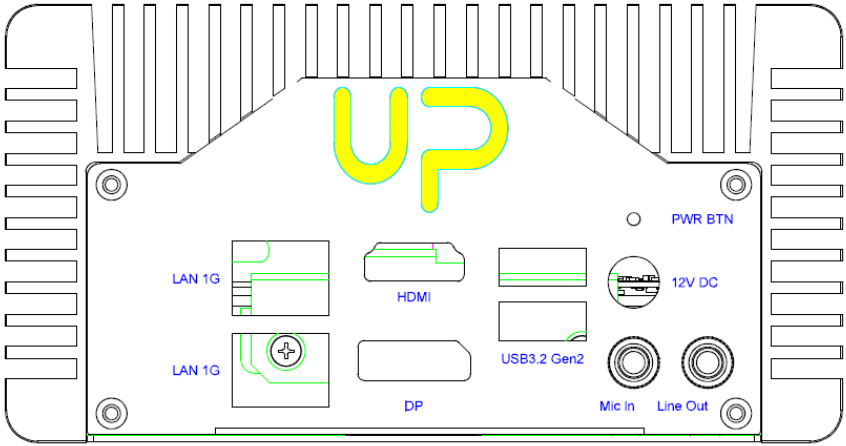
## 2.1 Dimensions



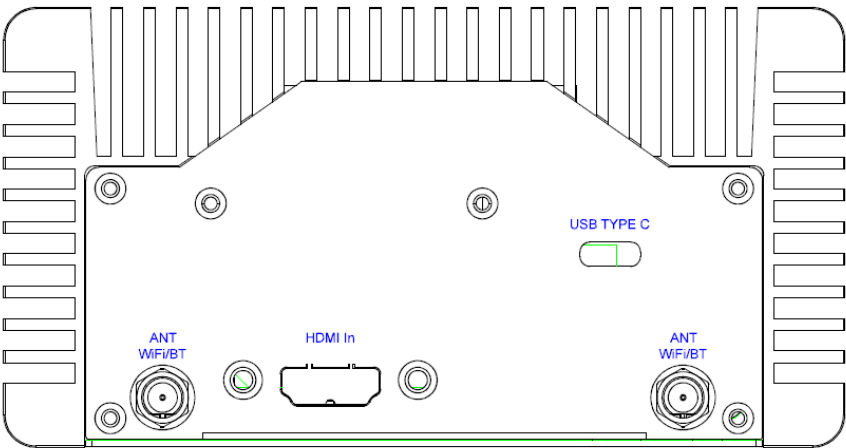
## 2.2 Jumpers and Connectors

### Chassis

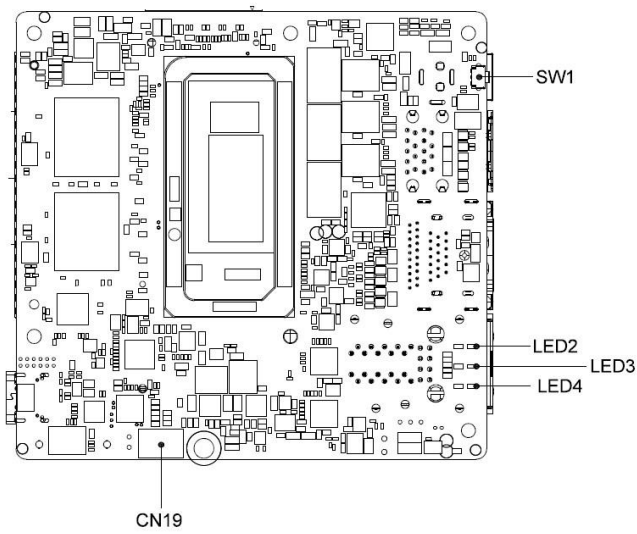
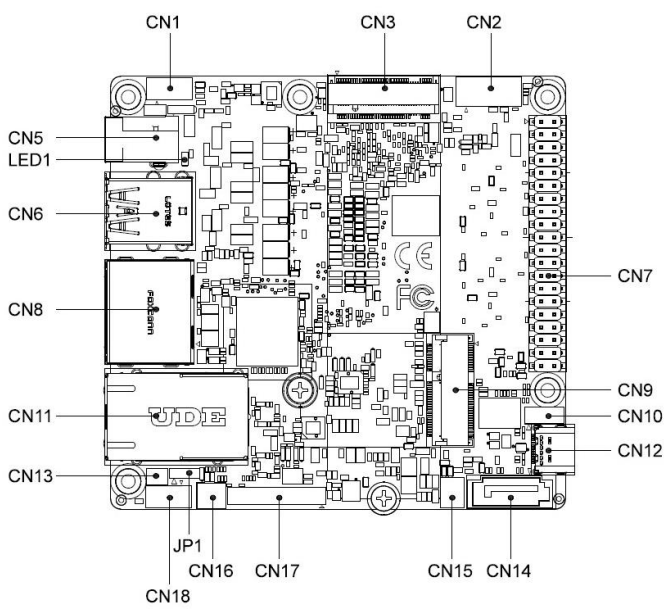
#### Front I/O



#### Rear I/O



### Board



**Note:** Not all PCBA-level internal connector pins are accessible via edge system external ports.

## 2.3 List of Jumpers and Connectors

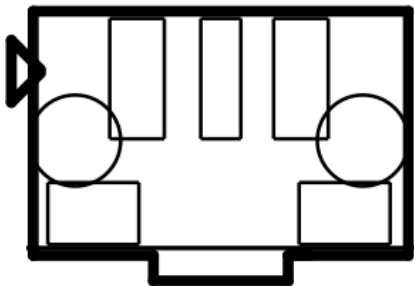
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Please refer to the table below for all of the board's jumpers and connectors that you can configure for your application

Label	Function
SW1	Power Button
CN1	Audio
CN5	Power Input
CN6	USB 3.0 Port (Type-A)
CN8	DP/HDMI
CN11	LAN
CN12	USB Type-C Port
CN14	SATA

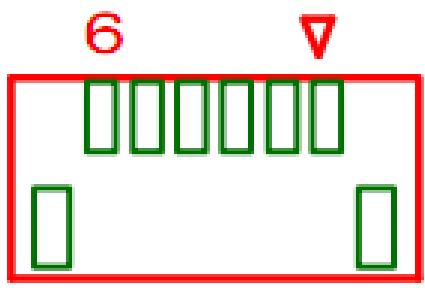
**Note:** Please refer to the user manual of UP Squared i12 for the detailed PCBA-level internal connector pin definition.

### 2.3.1 Power Button (SW1)



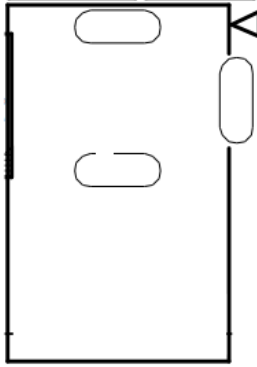
Pin	Signal	Pin	Signal
1	GND	2	PWRBTN_N
3	GND		

### 2.3.2 Audio (CN1)



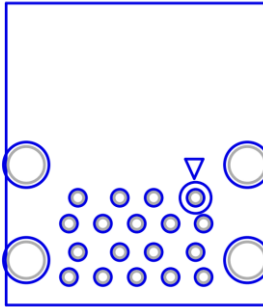
Pin	Signal	Pin	Signal
1	LOUT_R	2	LOUT_L
3	AUD_GND	4	NC
5	NC	6	MIC_L_CN

### 2.3.3 Power Input (CN5)



Pin	Signal	Pin	Signal
1	VCC_12V	2	GND
3	GND		

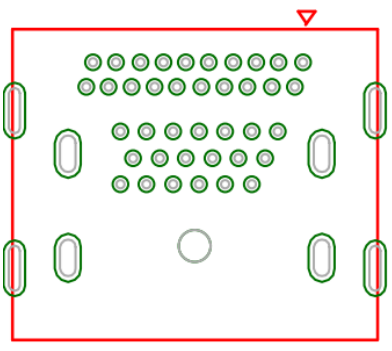
### 2.3.4 USB 3.0 Port (CN6)



Pin	Signal	Pin	Signal
1	+V5	2	USB2_C_DN1
3	USB2_C_DP1	4	GND
5	USB3_RXN_CON_P1	6	USB3_RXP_CON_P1

Pin	Signal	Pin	Signal
7	GND	8	USB3_TXN_CON_P1
9	USB3_TXP_CON_P1	10	+V5
11	USB2_C_DN2	12	USB2_C_DP2
13	GND	14	USB3_RXN_CON_P2
15	USB3_RXP_CON_P2	16	GND
17	USB3_TXN_CON_P2	18	USB3_TXP_CON_P2

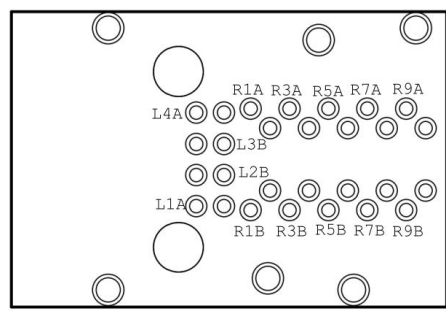
### 2.3.5 DP/HDMI (CN8)



Pin	Signal	Pin	Signal
P1	DDIO_TXP_DP_0	P2	GND
P3	DDIO_TXN_DP_0	P4	DDIO_TXP_DP_1
P5	GND	P6	DDIO_TXN_DP_1
P7	DDIO_TXP_DP_2	P8	GND
P9	DDIO_TXN_DP_2	P10	DDIO_CLK_DP_DP
P11	GND	P12	DDIO_CLK_DP_DN
P13	GND	P14	GND
P15	DP_AUX_P	P16	GND

Pin	Signal	Pin	Signal
P17	DP_AUX_N	P18	DDI0_TYPE_C_HPD
P19	GND	P20	+3.3V
P21	DDI1_TXP_HDMI_2	P22	GND
P23	DDI1_TXN_HDMI_2	P24	DDI1_TXP_HDMI_1
P25	GND	P26	DDI1_TXN_HDMI_1
P27	DDI1_TXP_HDMI_0	P28	GND
P29	DDI1_TXN_HDMI_0	P30	DDI1_CLK_HDMI_DP
P31	GND	P32	DDI1_CLK_HDMI_DN
P33	HDMI_CEC_D	P34	NC
P35	HDMI_SCL	P36	HDMI_SDA
P37	GND	P38	5V
P39	HDMI_HPD_R		

### 2.3.6 LAN (CN11)

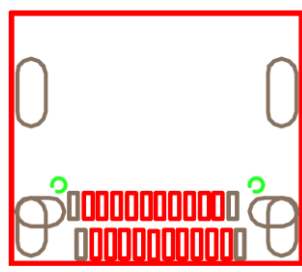


Pin	Signal	Pin	Signal
L1A	LAN1_ACTLEDN	L1B	LAN2_ACTLEDN
L2A	LAN1_ACTLEDP	L2B	LAN2_ACTLEDP
L3A	LAN1_LINK1000#	L3B	LAN2_LINK1000#



Pin	Signal	Pin	Signal
L4A	LAN1_LINK100#	L4B	LAN2_LINK100#
R1A	LAN1_MDIO+	R1B	LAN2_MDIO+
R2A	LAN1_MDIO-	R2B	LAN2_MDIO-
R3A	LAN1_MD11+	R3B	LAN2_MD11+
R4A	LAN1_MD11-	R4B	LAN2_MD11-
R5A	LAN1_MD12+	R5B	LAN2_MD12+
R6A	LAN1_MD12-	R6B	LAN2_MD12-
R7A	LAN1_MD13+	R7B	LAN2_MD13+
R8A	LAN1_MD13-	R8B	LAN2_MD13-
R9A	LAN1_DAC	R9B	LAN2_DAC
R10A	LAN1_GND	R10B	LAN2_GND

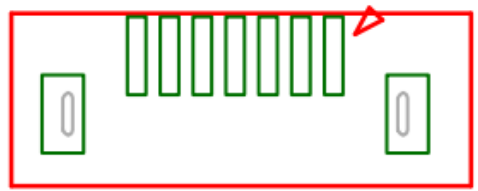
### 2.3.7 USB Type-C (CN12)



Pin	Signal	Pin	Signal
A1	GND	B1	GND
A2	TCP0_RT_TX0_C_DP	B2	TCP0_RT_TX1_C_DP
A3	TCP0_RT_TX0_C_DN	B3	TCP0_RT_TX1_C_DN
A4	+5V	B4	+5V
A5	+VTCPC0_CC1_CONN	B5	+VTCPC0_CC2_CONN

Pin	Signal	Pin	Signal
A6	USB2_P5_R_DP	B6	USB2_P5_R_DP
A7	USB2_P5_R_DN	B7	USB2_P5_R_DN
A8	TCP0_SBU1_CONN	B8	TCP0_SBU2_CONN
A9	+5V	B9	+5V
A10	TCP0_RT_TXRX1_C_DN	B10	TCP0_RT_TXRX0_C_DN
A11	TCP0_RT_TXRX1_C_DP	B11	TCP0_RT_TXRX0_C_DP
A12	GND	B12	GND

### 2.3.8 SATA (CN14)



Pin	Signal	Pin	Signal
1	GND	2	SATA_C_TXP0
3	SATA_C_TXN0	4	GND
5	SATA_C_RXN0	6	SATA_C_RXP0
7	GND		

# Chapter 3

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Software Installation

### 3.1 Linux Setup

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The UP Squared i12 Edge supports Linux operating systems (see Chapter 1 for specifications). For instructions on how to install a Linux OS onto your UP Squared i12 Edge, you can find several guides and tutorials in the wiki section of the UP website at <https://up-board.org> for both installing supported distributions as well as porting your own Linux build.

### 3.2 Windows Drivers Installation

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Drivers for the UP Squared i12 Edge can be downloaded from the UP website by following the link <https://up-board.org> and navigating to the Downloads section, then clicking on the UP Squared i12 Edge to find all relevant drivers.

# Appendix A

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UP Framework SDK Installation

## A.1 Introduction

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This section provides instructions for the installation of the UP Framework SDK. Instructions are provided for Windows 10. You can download the latest version of the UP Framework SDK from the UP community:

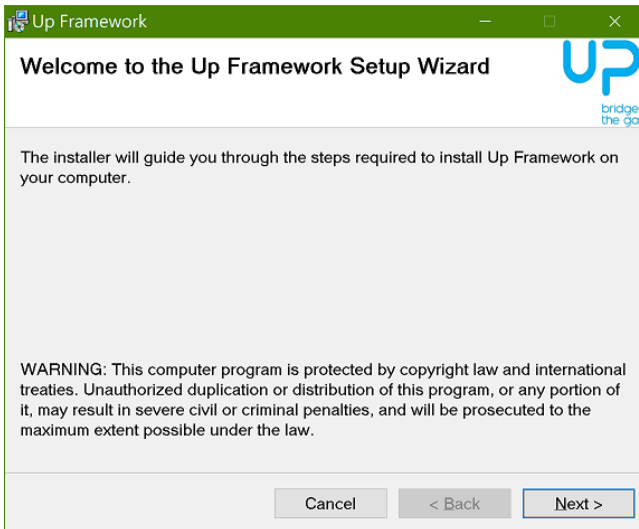
<https://downloads.up-community.org/download/up-sdk-for-windows-10-and-windows-iot/>

## A.2 Installation for Windows 10

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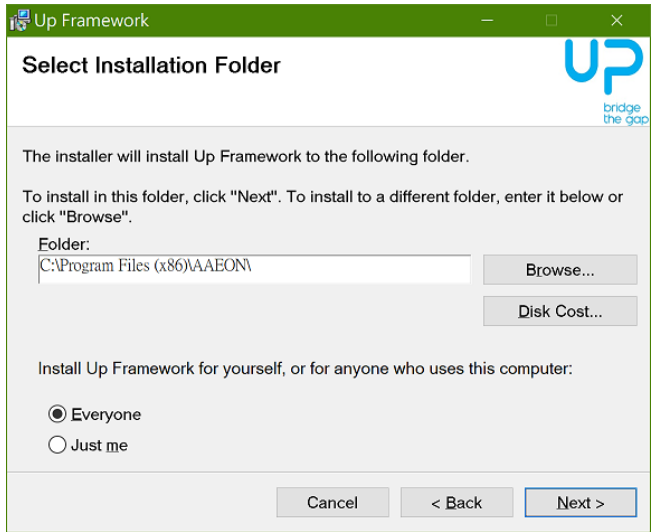
### Step 1

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



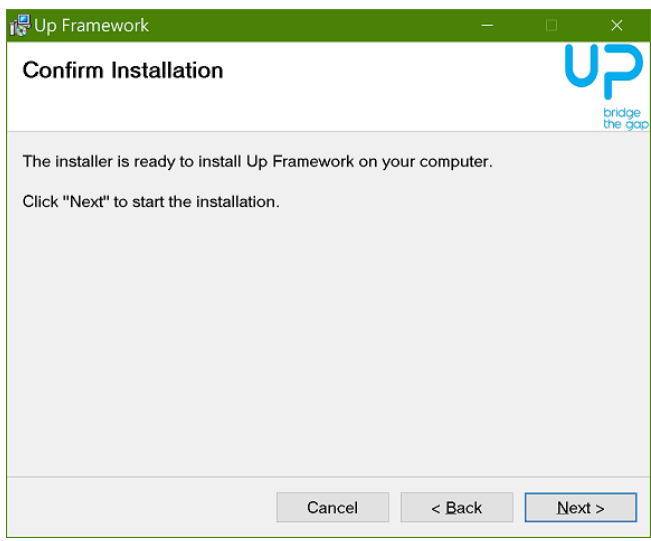
### Step 2

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.

