UP Squared Pro 710H Edge

Maker Board System
UPN-EDGE-ASLH01

User's Manual 1st Ed

Last Updated: April 29, 2024

Copyright Notice

Acknowledgement

Packing List

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

Item	Quantity
● UPN-EDGE-ASLH01 (UP Squared Pro 710H Edge)	1
● DC in Phoenix Connector	1

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

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.

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.

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

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.

China RoHS Requirements (CN)

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 QO4-381 Rev.A0

Component Name	Hazardous or Toxic Materials or Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr(VI))	Polybrominated biphenyls (PBBs)	Polybrominated diphenyl 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 of 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.

Table of Contents

Chapter 1

Product Specifications

1.1 Specifications

System	
CPU	Intel® Core™ i3-N305 (8C, 1.80 GHz, 15W)
	Intel® Processor N97 (4C, 2.00 GHz, 12W)
	Onboard Hailo-8™ Edge AI Processor
Memory	Up to 16GB Onboard LPDDR5
Graphics	Intel® UHD Graphics for 12th Gen Intel® Processors
Storage	Up to 128GB onboard eMMC
Ethernet	2.5GbE x 2 (Intel® Ethernet Controller I226-IT)
WIFI/BT	Optional via M.2 2230 E-Key x 1
Expansion Slot	M.2 2230 E-Key x 1 (CNVi, PCIe Gen 3 [x1], USB 2.0)
	M.2 2280 M-Key x 1 (PCIe Gen 3 [x2])
	Optional: M.2 3052 B-Key with Nano SIM slot (USB 3.0)
Security	Onboard TPM 2.0
OS Support	Windows® 10 IoT Enterprise
	Ubuntu 22.04 LTS

I/O	
USB	USB 3.2 Gen 2 (Type-A) x 2
Display Port	HDMI 2.0b x 1
	DP 1.2 x 1
Ethernet	2.5GbE x 2 (Intel® Ethernet Controller I226-IT)
COM	RS-232/422/485 x 2
Audio	—
GPIO	40-pin GPIO x 1

Power Supply

Power Requirement	12V ~ 36V DC-in Phoenix Connector
	(Optional: Lockable Plug)
Power Supply Type	AT/ATX (Default: AT)
Power Consumption	50W ~ 55W

Mechanical

Mounting	VESA Mount/Wall Mount/DIN Rail (Optional)
Dimensions (W x H x D)	5.28" x 4.13" x 2.36" (134mm x 105mm x 60mm)
Net Weight	1.8 lb. (0.69Kg)
Gross Weight	2.2 lb. (0.97Kg)

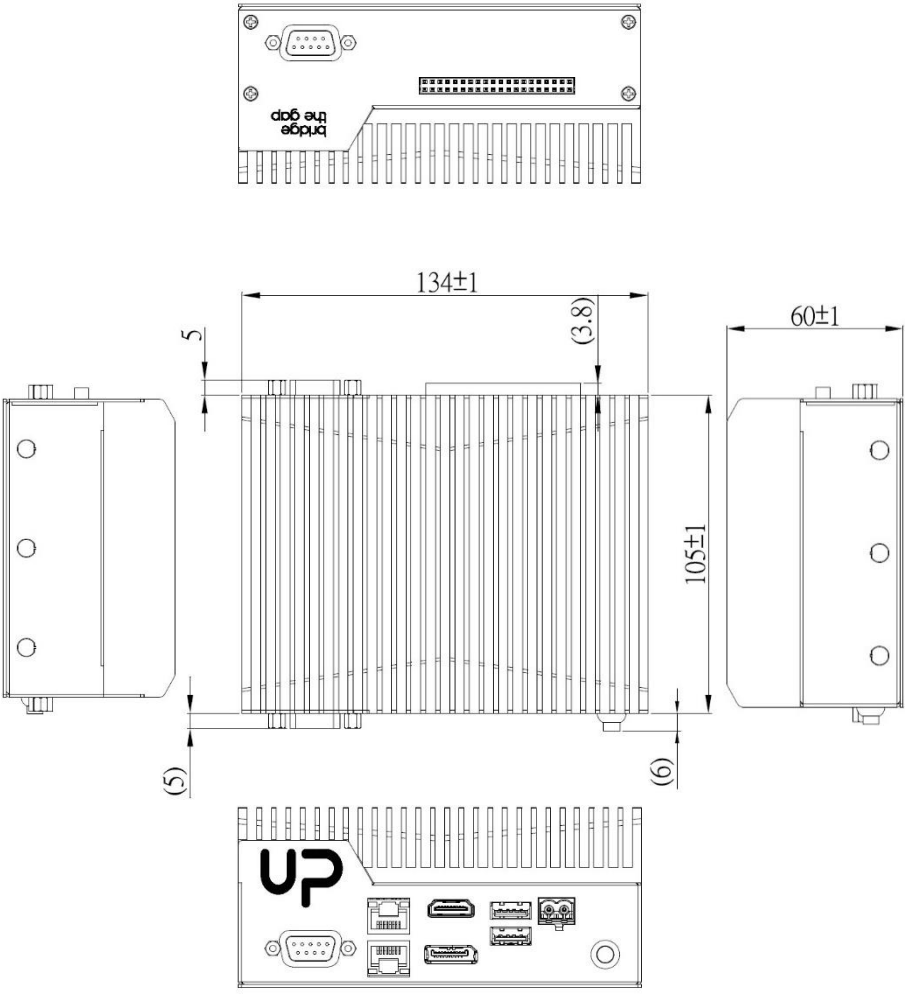
Environment

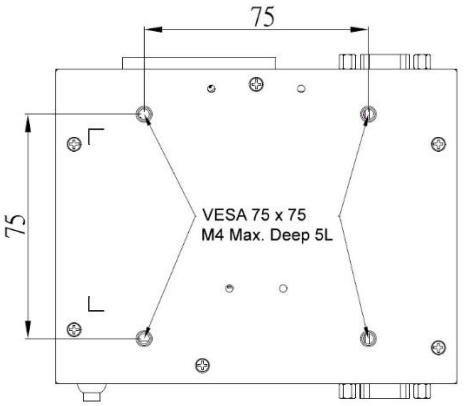
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)/0.5 airflow
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
MTBF	422,053 Hours
Certification	CE/FCC Class A, RoHS Compliant, REACH

Chapter 2

Hardware Information

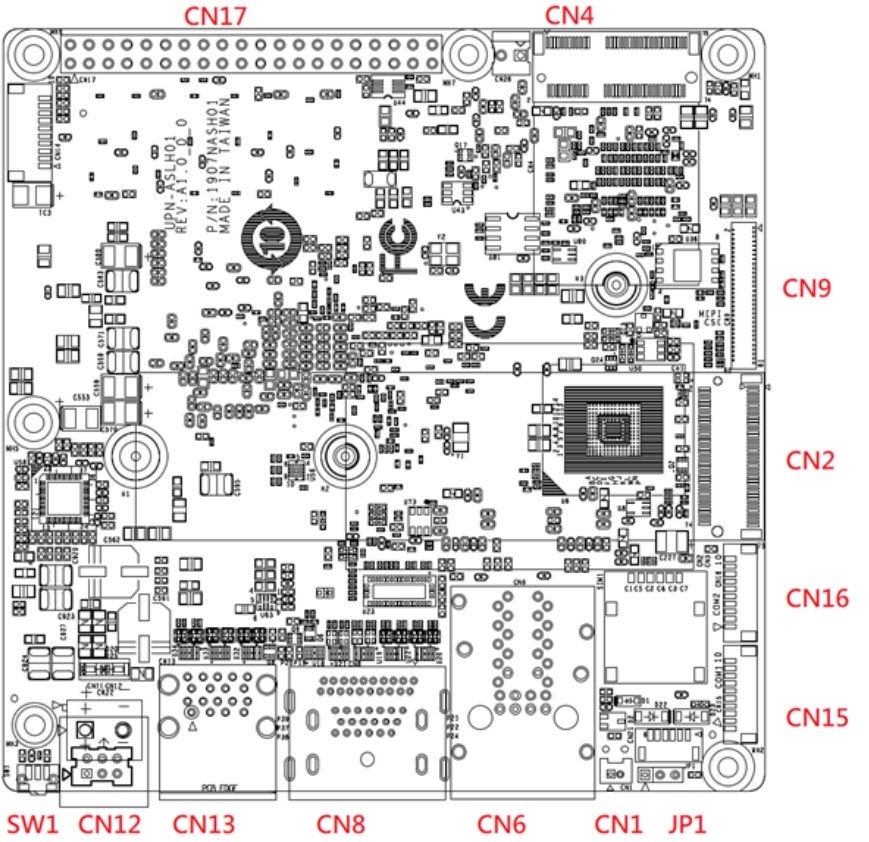
2.1 Dimensions



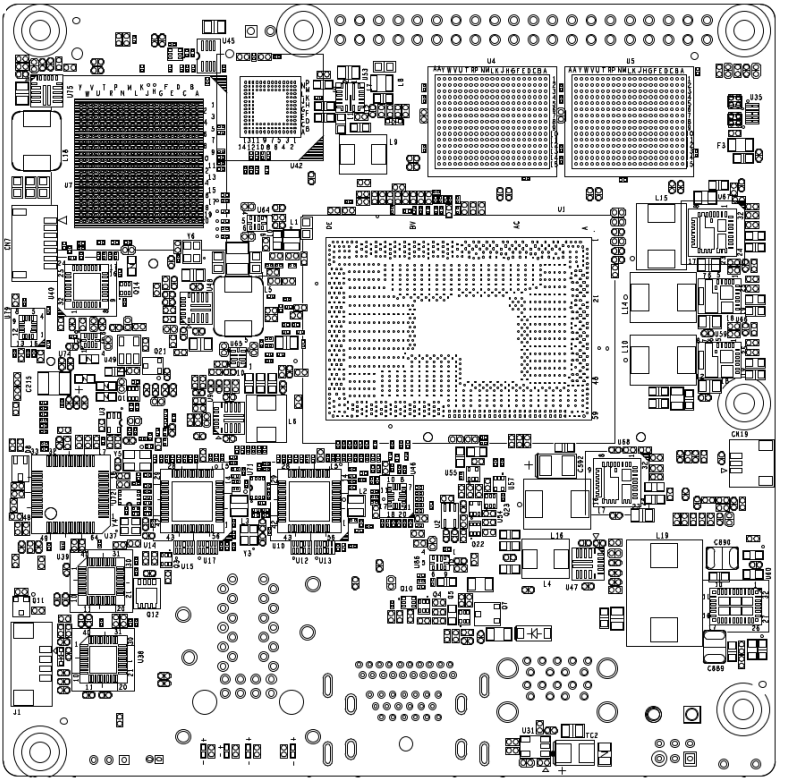

75
75
VESA 75 x 75
M4 Max. Deep 5L

2.2 Jumpers and Connectors

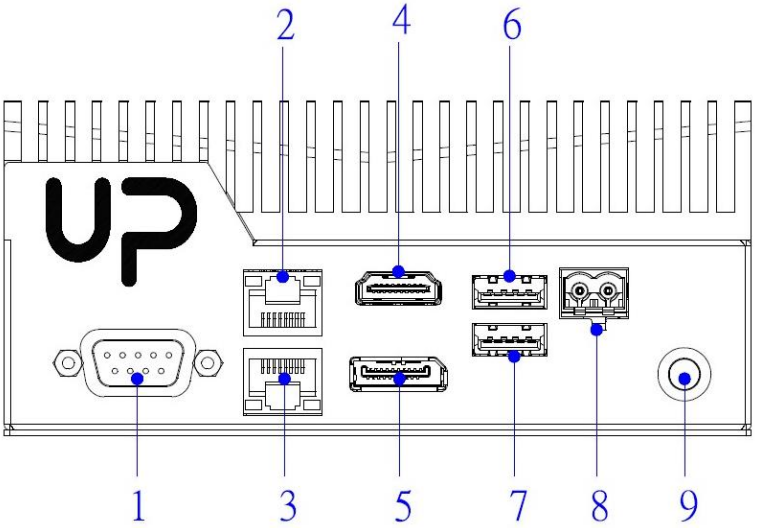
Component Side



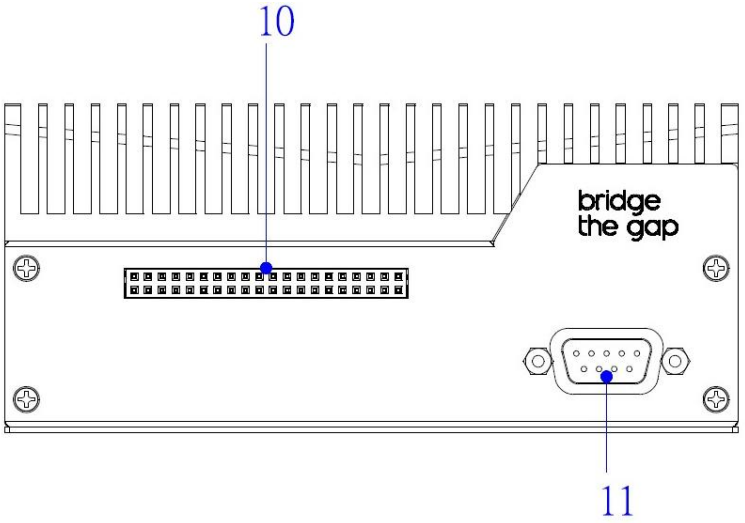
Solder Side



Front I/O



Rear I/O



2.2.1 List of Physical I/O Ports

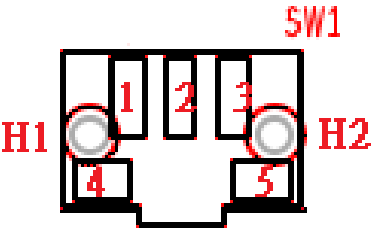
Label	Function
1	COM 1
2/3	Dual 2.5GbE LAN Port
4	HDMI 2.0b
5	Display Port 1.2
6/7	USB 3.2 Gen 2 (Type-A) Dual Port
8	12 ~ 36V DC-in
9	Power Button
10	GPIO
11	COM 2

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

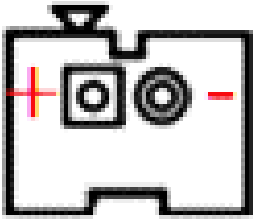
Label	Function
SW1	Power Button
CN1	RTC
CN2	M.2 M-Key Slot
CN4	M.2 E-Key Slot
CN6	Dual LAN
CN8	HDMI/DP
CN12	DC Input
CN13	Dual USB 3.2 Gen 2 (Type-A) Port
CN15	COM Port Wafer
CN16	COM Port Wafer
CN17	40 Pin HAT
CN21	Front Panel
JP1	AT/ATX Mode Selection

2.3.1 Power Button (SW1)



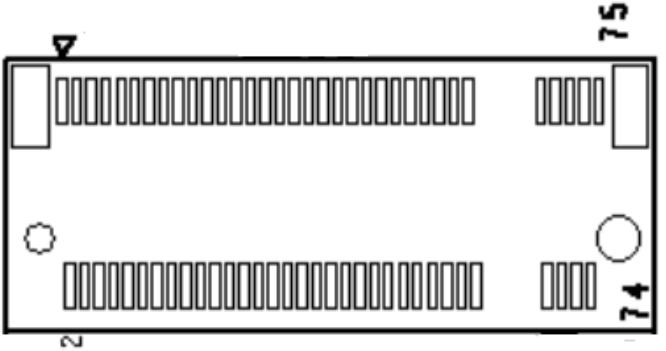
Pin	Signal	Pin	Signal
1	GND	2	Power Button
3	GND	4	GND
5	GND	H1	GND
H2	GND		

2.3.2 RTC (CN1)



Pin	Signal	Pin	Signal
1	RTC_VCC	2	GND

2.3.3 M.2 M-Key Slot (CN2)

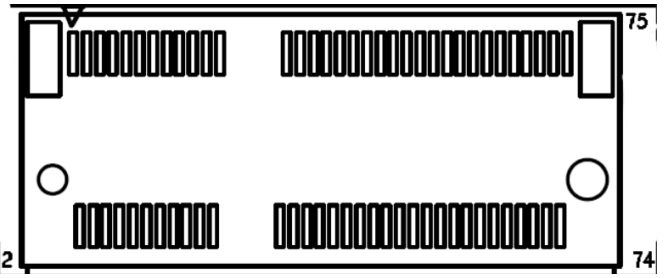


Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	+3.3V	3	GND
4	+3.3V	5	NC	6	NC
7	NC	8	NC	9	NC
10	NC	11	NC	12	+3.3V
13	NC	14	+3.3V	15	GND
16	+3.3V	17	NC	18	+3.3V/2.5A
19	NC	20	NC	21	GND
22	NC	23	NC	24	NC
25	NC	26	NC	27	GND
28	NC	29	NC	30	NC
31	NC	32	NC	33	GND
34	NC	35	NC	36	NC
37	NC	38	NC	39	GND
40	NC	41	PCIE3_RX-	42	NC
43	PCIE3_RX+	44	NC	45	GND
46	NC	47	PCIE3_TX-	48	NC
49	PCIE3_TX+	50	Platform Reset	51	GND
52	NC	53	PCIE_CLK3_D-	54	PCIE_WAKE#
55	PCIE_CLK3_D+	56	NC	57	GND
58	NC	59	Key-M	60	Key-M
61	Key-M	62	Key-M	63	Key-M

Pin	Signal	Pin	Signal	Pin	Signal
64	Key-M	65	Key-M	66	Key-M
67	NC	68	NC	69	NC
70	+3.3V	71	GND	72	+3.3V
73	GND	74	+3.3V	75	GND

Note: M.2 M-Key Max 2.5A.

2.3.4 M.2 E-Key Slot (CN4)

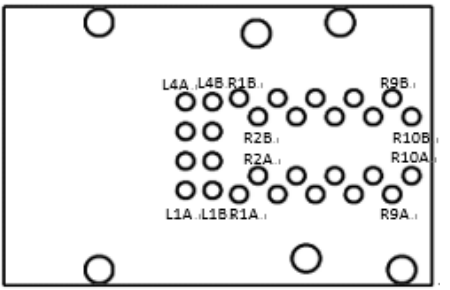


Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	+3.3V	3	USB2_D+
4	+3.3V	5	USB2_D-	6	NC
7	GND	8	NC	9	CNV_WR_LANE1_D-
10	CNV_RF_RESET	11	CNV_WR_LANE1_D+	12	NC
13	GND	14	CNV_MODEM_CLKREQ	15	CNV_WR_LANE0_D-
16	NC	17	CNV_WR_LANE0_D+	18	GND
19	GND	20	NC	21	CNV_WR_CLK_D-
22	CNV_BRI_RSP	23	CNV_WR_CLK_D+	24	Key-E
25	Key-E	26	Key-E	27	Key-E
28	Key-E	29	Key-E	30	Key-E
31	Key-E	32	CNV_RGI_DT	33	GND
34	CNV_RGI_RSP	35	PCIE10_TX+	36	CNV_BRI_DT

Pin	Signal	Pin	Signal	Pin	Signal
37	PCIE10_TX-	38	NC	39	GND
40	NC	41	PCIE10_RX+	42	NC
43	PCIE10_RX-	44	NC	45	GND
46	NC	47	PCIE_CLK2_D+	48	NC
49	PCIE_CLK2_D-	50	Suspend clock	51	GND
52	Platform reset	53	NC	54	BT_Enable
55	PCIE_WAKE#	56	Wi-Fi_Enable	57	GND
58	NC	59	CNV_WT_LANE1_D-	60	NC
61	CNV_WT_LANE1_D+	62	NC	63	GND
64	NC	65	CNV_WT_LANE0_D-	66	NC
67	CNV_WT_LANE0_D+	68	NC	69	GND
70	NC	71	CNV_WT_CLK_D-	72	+3.3V/2A
73	CNV_WT_CLK_D+	74	+3.3V/2A	75	GND

Note: M.2 E-Key Max 1.5A.

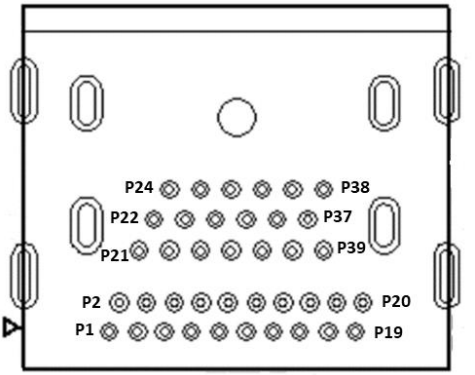
2.3.5 Dual LAN (CN6)



Pin	Signal	Pin	Signal	Pin	Signal
R1A	LAN1_MDI0+	R1B	LAN2_MDI0+	L1A	LAN1_ACTLED-
R2A	LAN1_MDI0-	R2B	LAN2_MDI0-	L2A	LAN1_ACTLED+
R3A	LAN1_MDI1+	R3B	LAN2_MDI1+	L3A	LAN1_LINK100#

Pin	Signal	Pin	Signal	Pin	Signal
R4A	LAN1_MDI1-	R4B	LAN2_MDI1-	L4A	LAN1_LINK1000#
R5A	LAN1_MDI2+	R5B	LAN2_MDI2+	L1B	LAN2_ACTLED-
R6A	LAN1_MDI2-	R6B	LAN2_MDI2-	L2B	LAN2_ACTLED+
R7A	LAN1_MDI3+	R7B	LAN2_MDI3+	L3B	LAN2_LINK100#
R8A	LAN1_MDI3-	R8B	LAN2_MDI3-	L4B	LAN2_LINK1000#
R9A	GND	R9B	GND		
R10A	GND	R10B	GND		

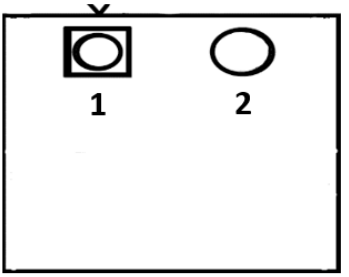
2.3.6 HDMI/DP (CN8)



Pin	Signal	Pin	Signal	Pin	Signal
P1	DP_TX0+	P2	GND	P3	DP_TX0-
P4	DP_TX1+	P5	GND	P6	DP_TX1-
P7	DP_TX2+	P8	GND	P9	DP_TX2-
P10	DP_CLK+	P11	GND	P12	DP_CLK-
P13	CONFIG1	P14	CONFIG2	P15	DP_AUX+
P16	GND	P17	DP_AUX-	P18	DP_HPD
P19	GND	P20	+3.3V/1A	P21	HDMI_TX2+
P22	GND	P23	HDMI_TX2-	P24	HDMI_TX1+
P25	GND	P26	HDMI_TX1-	P27	HDMI_TX0+
P28	GND	P29	HDMI_TX0-	P30	HDMI_CLK+

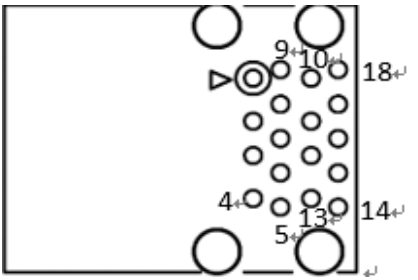
Pin	Signal	Pin	Signal	Pin	Signal
P31	GND	P32	HDMI_CLK-	P33	NC
P34	NC	P35	HDMI_SCL	P36	HDMI_SDA
P37	GND	P38	+5V/1A	P39	HDMI_HPD

2.3.7 DC Input (CN12)



Pin	Signal	Pin	Signal
1	DC_IN	2	GND

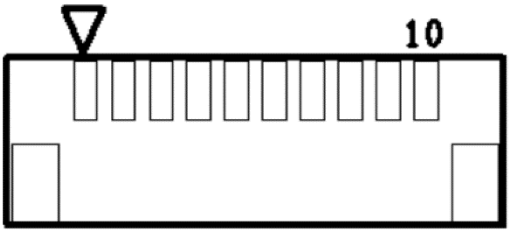
2.3.8 Dual USB 3.2 Gen 2 (Type-A) Port (CN13)



Pin	Signal	Pin	Signal	Pin	Signal
1	+5V/0.9A	2	USB2_D1-	3	USB2_D1+
4	GND	5	USB3_RX1-	6	USB3_RX1+
7	GND	8	USB3_TX1-	9	USB3_TX1+
10	+5V/0.9A	11	USB2_D2-	12	USB2_D2+

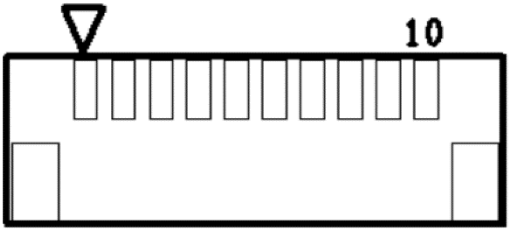
Pin	Signal	Pin	Signal	Pin	Signal
13	GND	14	USB3_RX2-	15	USB3_RX2+
16	GND	17	USB3_TX2-	18	USB3_TX2+

2.3.9 COM Port Wafer (CN15)



Pin	Signal	Pin	Signal
1	DCD	2	RX
3	TX	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	NC	10	NC

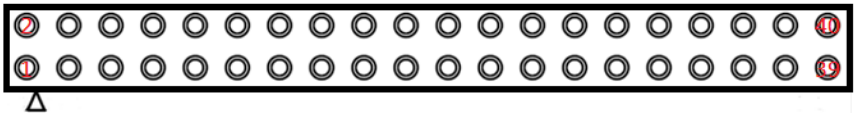
2.3.10 COM Port Wafer (CN16)



Pin	Signal	Pin	Signal
1	DCD	2	RX
3	TX	4	DTR

Pin	Signal	Pin	Signal
5	GND	6	DSR
7	RTS	8	CTS
9	NC	10	NC

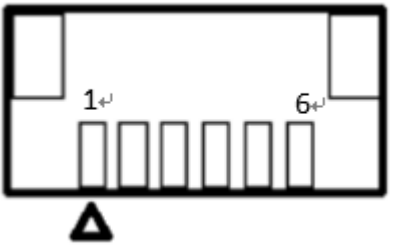
2.3.11 40 Pin HAT (CN17)



Pin	Signal	Pin	Signal
1	+3.3V/2A	2	+5V/2A
3	I2C1_SDA	4	+5V/2A
5	I2C1_SCL	6	GND
7	GPIO3_ADC	8	UART_TX
9	GND	10	UART_RX
11	RTS	12	I2S_CLK
13	GPIO4	14	GND
15	GPIO5	16	GPIO19
17	+3.3V/2A	18	GPIO20
19	SPI_MOSI	20	GND
21	SPI_MISO	22	GPIO21
23	SPI_CLK	24	SPI_CS0
25	GND	26	GPIO23
27	I2C0_SDA	28	I2C0_SCL
29	GPIO11	30	GND
31	GPIO12	32	PWM0
33	PWM1	34	GND
35	I2S_FRM	36	CTS
37	GPIO15	38	I2S_RX
39	GND	40	I2S_TX

Note: Total 2A(5V) and 2A(3.3V) for 40 pin HAT.

2.3.12 Front Panel (CN21)



Pin	Signal	Pin	Signal
1	GND	2	RESET button
3	GND	4	Power button
5	GND	6	+5V

2.3.13 AT/ATX Mode Selection (JP1)

Pin	Signal
1-2	ATX_MODE
2-3	AT_MODE (default)

Chapter 3

Software Installation

3.1 Linux Setup

The UP Squared Pro 710H Edge supports Linux operating systems (see Chapter 1 for specifications). For instructions on how to install a Linux OS onto your UP Squared Pro 710H 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

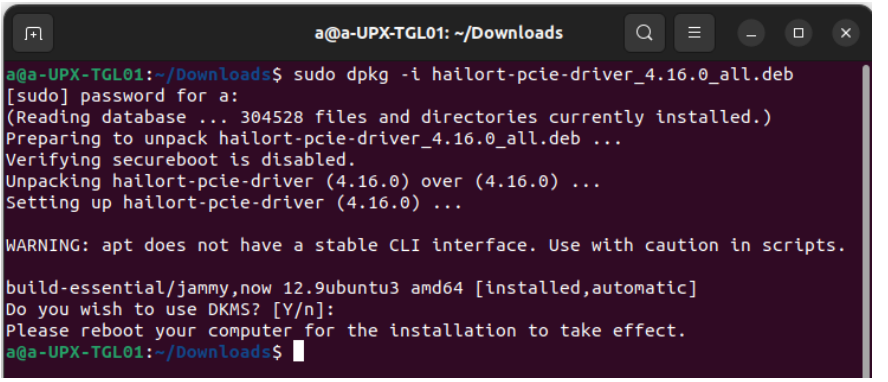
Drivers for the UP Squared Pro 710H Edge can be downloaded from the UP website by following the link https://up-board.org and navigating to the Downloads section, then clicking on the UP Squared Pro 710H Edge to find all relevant drivers.

3.3 Hailo Driver Information

3.3.1 Installing Hailo on Ubuntu

Command:

```
$sudo dpkg -i hailort-pcie-driver_4.16.0_all.deb
```



Command:

```
$sudo dpkg -i hailort_4.16.0_amd64.deb
```