UP Squared 7100

Maker Board
UPS-ASL01

User's Manual 3rd Ed

Last Updated: February 12, 2025

Copyright Notice

Acknowledgement

Packing List

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

Item	Quantity
● UPS-ASL01 (UP Squared 7100) with Heatsink	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 主板/子板/背板 QO4-381 Rev.A2

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	×	○	○	○	○	○

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。

环保使用期限(EFUP (Environmental Friendly Use Period)) : 10年

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。

China RoHS Requirement (EN)

Name and content of hazardous substances in product

AAEON Main Board/Daughter Board/Backplane QO4-381 Rev.A2

Part Name	Hazardous Substances					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
PCB Assemblies	×	O	O	O	O	O
Connector and Cable	×	O	O	O	O	O

The table is prepared in accordance with the provisions of SJ/T 11364.

O：Indicates that said hazardous substance contained in all of the homogenous materials for this product is below the limit requirement of GB/T 26572.

×：Indicates that said hazardous substance contained in at least one of the homogenous materials used for this part is above the limit requirement of GB/T 26572. But this product still be compliance with 2011/65/EU Directive (allowed with 2011/65/EU Annex III of RoHS exemption with number 6(c),7(a),7(c)-1).

EFUP (Environment Friendly Use Period) value: 10 years

Notes: This product defined period of use is under normal condition.

Table of Contents

Chapter 1

Product Specifications

1.1 Specifications

System	
Processor	Intel® Processor N97
	Intel® Processor N100
Graphics	Intel® UHD Graphics for 12th Gen Intel® Processors
Memory	Up to 16GB LPDDR5
Storage	Up to 128GB eMMC
I/O	HDMI 2.0b x 1
	DP 1.2 x 1
	eDP 1.3 x 1
	Audio Wafer x 1 (Line out + Mic in)
	RS-232/422/485 via Wafer x 2
Camera	—
USB	USB 2.0 x 2 (from 10-pin Wafer x 1)
	USB 3.2 Gen 2 (Type-A) x 3
Expansion	40-pin GPIO x 1
	M.2 2230 E-Key x 1 (PCIe [x1], USB 2.0 x1)
	M.2 2280 M-Key x 1 (PCIe Gen 3 [x2])
Display Interface	HDMI 2.0b x 1
	DP 1.2 x 1
	eDP 1.3 x 1
Ethernet	GbE RJ-45 x 2
Security	Onboard TPM 2.0
RTC	Yes
OS Support	Microsoft Windows® 10/11
	Ubuntu 22.04 LTS
	Yocto 5.0

Power Requirement

Power	12V DC-in
Power Supply Type	AT/ATX
Power Consumption (Typical)	15W ~ 37W

Mechanical

Dimension	3.37" x 3.54" (85.6mm × 90mm)
Net Weight	0.41 lb. (0.19Kg)
Gross Weight	0.66 lb. (0.3Kg)

Environmental

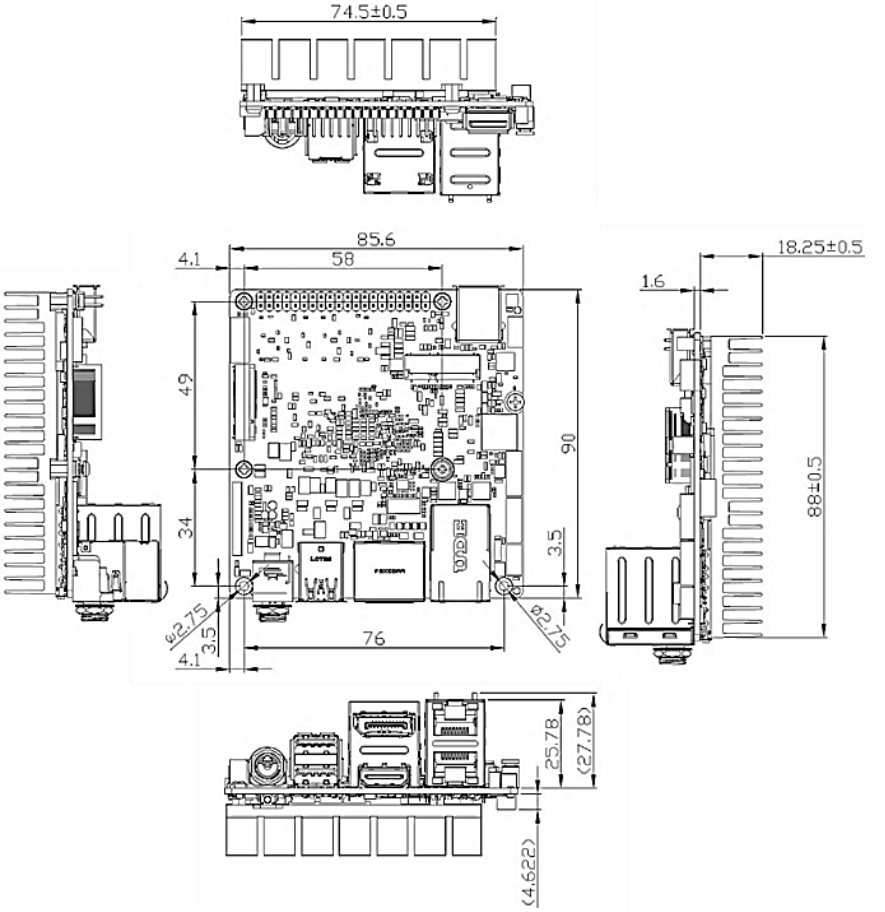
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) / 0.5 airflow
Operation Humidity	0% ~ 90% relative humidity, non-condensing
MTBF	1,224,238
Certification	CE/FCC Class A, RoHS Compliant, REACH

Chapter 2

Hardware Information

2.1 Dimensions

Top



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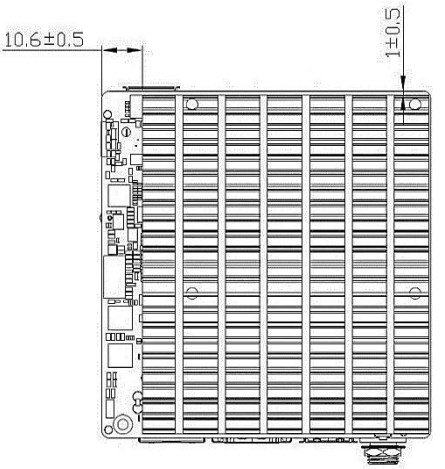
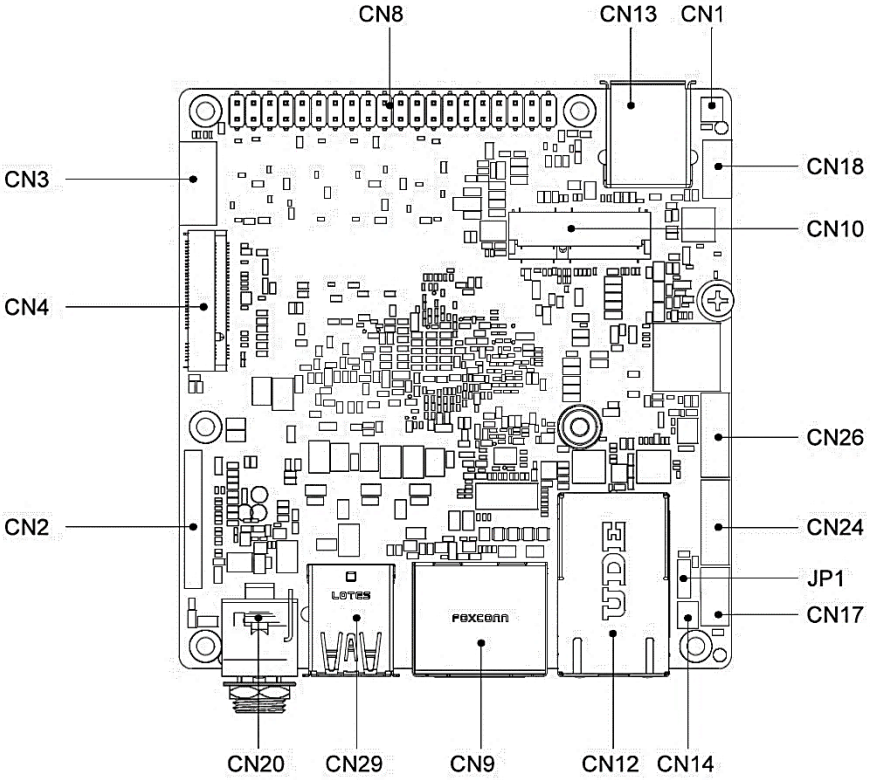


2.2 Jumpers and Connectors

Top:



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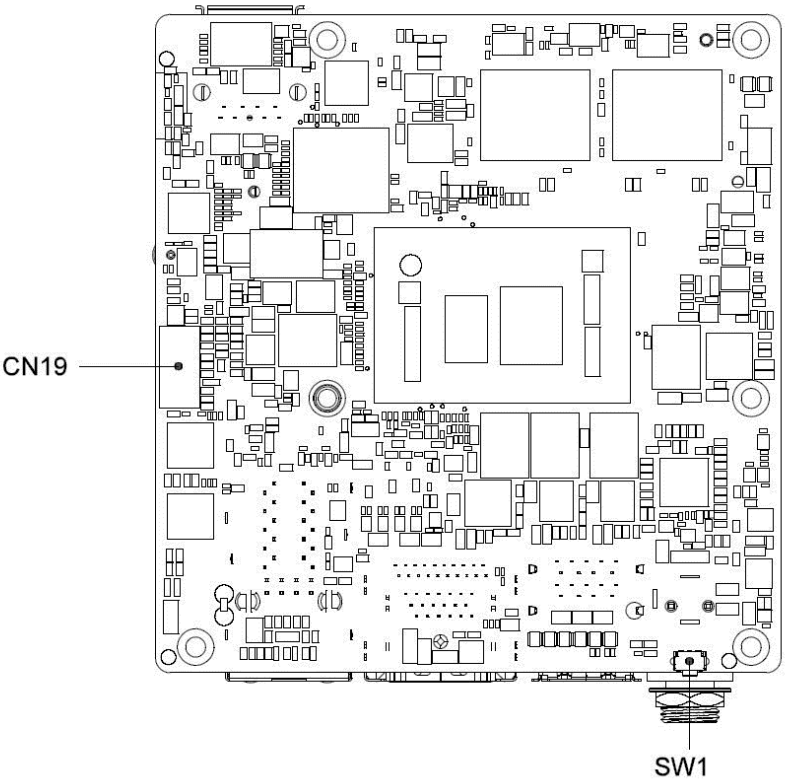
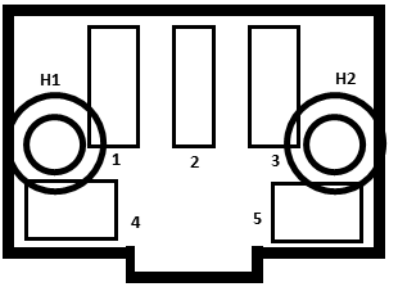


2.3 List of Jumpers and Connectors

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

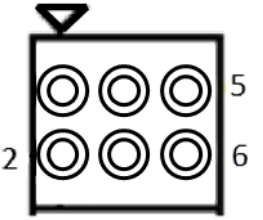
Label	Function
SW1	Power Button
CN1	BIOS Update Connector
CN2	eDP Connector
CN3	USB & UART
CN4	M.2 2280 M-Key Slot
CN29	Dual USB 3.0 (Type-A) Port
CN8	40 Pin HAT
CN9	HDMI/DP
CN10	M.2 2230 E-Key Slot
CN12	LAN x 2
CN13	USB 3.0 (Type-A) Port
CN14	RTC
CN17	Front Panel
CN18	Audio Wafer
CN19	Fan Connector
CN20	DC Power Jack
CN24	COM Port Wafer
CN26	COM Port Wafer
JP1	AT/ATX Mode Selection

2.3.1 Power Button (SW1)



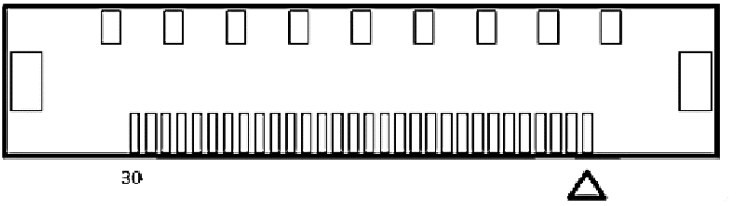
Pin	Signal	Pin	Signal
1	GND	2	Power Button Signal
3	GND	4	GND
5	GND		

2.3.2 BIOS Update Connector (CN1)



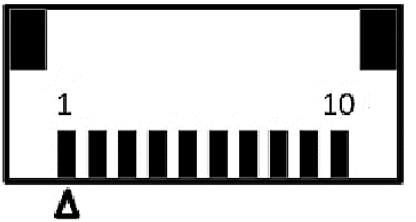
Pin	Signal	Pin	Signal
1	SPI_MISO	2	SPI_CLK
3	GND	4	SPC_CS0#
5	+1.8V	6	SPI_MOSI

2.3.3 eDP Connector (CN2)



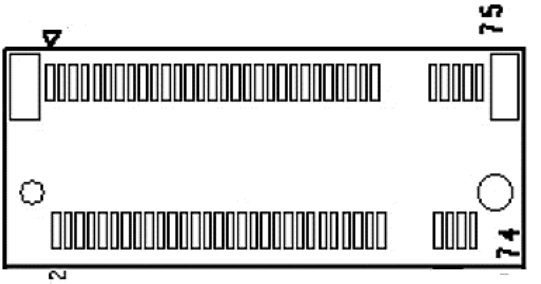
Pin	Signal	Pin	Signal
1	+3.3V	2	+3.3V
3	NC	4	GND
5	EDP_TX2-	6	EDP_TX2+
7	GND	8	EDP_TX1-
9	EDP_TX1+	10	GND
11	EDP_TX0-	12	EDP_TX0+
13	GND	14	EDP_TX3-
15	EDP_TX3+	16	GND
17	EDP_AUX-	18	EDP_AUX+
19	GND	20	BKLT_CTRL
21	NC	22	BKLT_EN
23	EDP_ Hot Plug Detect	24	GND
25	GND	26	GND
27	+12/1A	28	+12/1A
29	+12/1A	30	+12/1A

2.3.4 USB & UART (CN3)



Pin	Signal	Pin	Signal	Pin	Signal
1	+5V/2A	2	USB2_D5-	3	USB2_D5+
4	GND	5	+5V/2A	6	USB2_D4-
7	USB2_D4+	8	GND	9	UART_RX
10	UART_TX				

2.3.5 M.2 2280 M-Key (CN4)

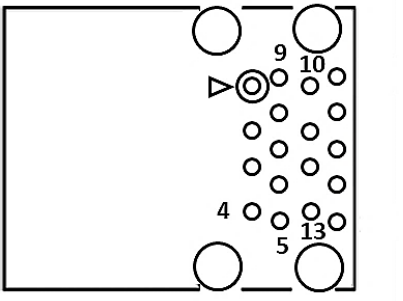


Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	+3.3V/2.5A	3	NC
4	+3.3V/2.5A	5	NC	6	+3.3V/2.5A
7	NC	8	NC	9	GND
10	NC	11	NC	12	+3.3V/2.5A
13	NC	14	+3.3V/2.5A	15	GND
16	+3.3V/2.5A	17	NC	18	+3.3V/2.5A
19	NC	20	NC	21	GND
22	NC	23	NC	24	NC

Pin	Signal	Pin	Signal	Pin	Signal
25	NC	26	NC	27	GND
28	NC	29	PCIE10_RX1-	30	NC
31	PCIE10_RX1+	32	NC	33	GND
34	NC	35	PCIE10_TX1-	36	NC
37	PCIE10_TX1+	38	NC	39	GND
40	SMB_CLK	41	PCIE9_RX0-	42	SMB_DATA
43	PCIE9_RX0+	44	NC	45	GND
46	NC	47	PCIE9_TX0-	48	NC
49	PCIE9_TX0+	50	Platform Reset	51	GND
52	NC	53	PCIE_CLK3_D-	54	NC
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
64	Key-M	65	Key-M	66	Key-M
67	NC	68	NC	69	NC
70	+3.3V/2.5A	71	GND	72	+3.3V/2.5A
73	GND	74	+3.3V/2.5A	75	GND

Note: Total 2.5A for M.2 M-Key Slot.

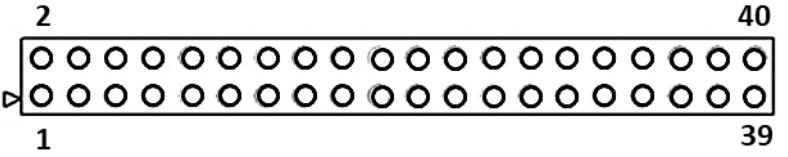
2.3.6 Dual USB 3.0 (Type-A) Port (CN29)



Pin	Signal	Pin	Signal	Pin	Signal
1	+5V/2A	2	USB2_D1-	3	USB2_D1+
4	GND	5	USB3_RX1-	6	USB3_RX1+

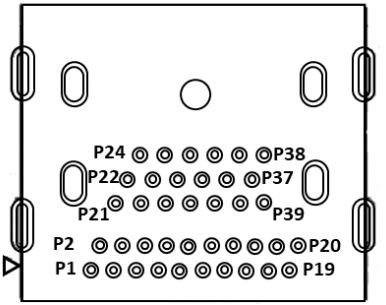
Pin	Signal	Pin	Signal	Pin	Signal
7	GND	8	USB3_TX1-	9	USB3_TX1+
10	+5V/2A	11	USB2_D2-	12	USB2_D2+
13	GND	14	USB3_RX2-	15	USB3_RX2+
16	GND	17	USB3_TX2-	18	USB3_TX2+

2.3.7 40 Pin HAT (CN8)



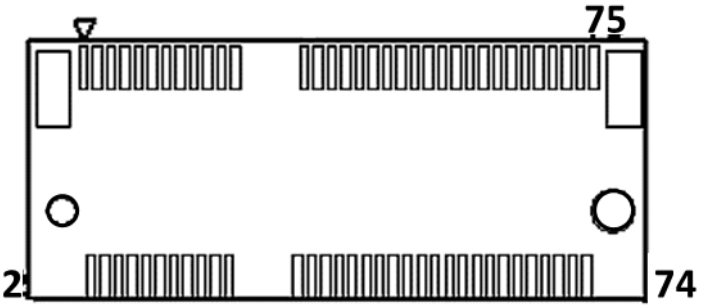
Pin	Signal	Pin	Signal
1	+3.3V/2A	2	+5V/2A
3	I2C1_SDA	4	+5V/2A
5	I2C1_SCL	6	GND
7	GPIO3_ADC	8	UART_TX
9	GND	10	UART_RX
11	RTS	12	I2S_CLK
13	GPIO5	14	GND
15	GPIO6	16	ISH_I2C2_SDA
17	+3.3V/2A	18	ISH_I2C2_SCL
19	SPI_MOSI	20	GND
21	SPI_MISO	22	GPIO21
23	SPI_CLK	24	SPI_CS0
25	GND	26	SPI_CS1
27	I2C0_SDA	28	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

2.3.8 HDMI/DP (CN9)



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	DP_AUX_EN	P14	Pull down 1M to	P15	DP_AUX+
P16	GND	P17	DP_AUX-	P18	DP_Hot Plug Detect
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+
P31	GND	P32	HDMI_CLK-	P33	HDMI_CEC
P34	NC	P35	HDMI_SCL	P36	HDMI_SDA
P37	GND	P38	+5V/0.5A	P39	HDMI_Hot Plug

2.3.9 M.2 E-Key Slot (CN10)

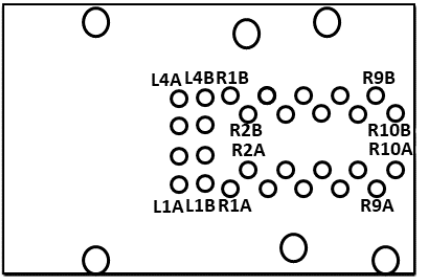


Pin	Signal	Pin	Signal	Pin	Signal
1	GND	2	+3.3V/2.5A	3	USB2_D8+
4	+3.3V/2.5A	5	USB2_D8-	6	NC
7	GND	8	NC	9	CNV_WR_LANE1_D-
10	CNV_RF_RESET	11	CNV_WR_LANE1_D+	12	NC
13	GND	14	CNV_MODEM_CLKRE	15	CNV_WR_LANE0_D-
16	NC	17	CNV_WR_LANE0_D+	18	GND
19	GND	20	NC	21	CNV_WR_CLK_D-
22	CNV_BRI_RSP	23	CNV_WR_CLK_D+	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	PCIE11_TX+	36	CNV_BRI_DT
37	PCIE11_TX-	38	NC	39	GND
40	NC	41	PCIE11_RX+	42	NC
43	PCIE11_RX-	44	NC	45	GND
46	NC	47	PCIE_CLK2_D+	48	NC
49	PCIE_CLK2_D-	50	SUS_CLK	51	GND
52	Platform Reset	53	NC	54	BT_EN
55	PCIE_WAKE#	56	WIFI_EN	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

Pin	Signal	Pin	Signal	Pin	Signal
70	NC	71	CNV_WT_CLK_D-	72	+3.3V/2.5A
73	CNV_WT_CLK_D+	74	+3.3V/2.5A	75	GND

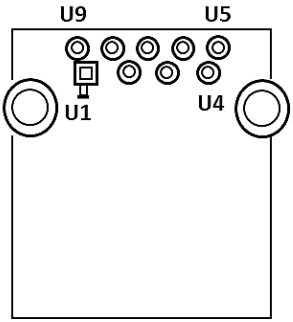
Note: Total 2.5A for M.2 E-Key Slot.

2.3.10 Dual LAN (CN12)



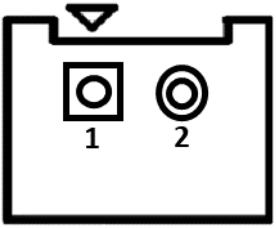
Pin	Signal	Pin	Signal	Pin	Signal
R1A	LAN1_MDI0+	R1B	LAN2_MDI0+	L1A	LAN1_ACTLED-
R2A	LAN1_MDI0-	R2B	LAN2_MDI0-	L2A	LAN1_ACTLED+
R3A	LAN1_MDI1+	R3B	LAN2_MDI1+	L3A	LAN1_LINK1000#
R4A	LAN1_MDI1-	R4B	LAN2_MDI1-	L4A	LAN1_LINK100#
R5A	LAN1_MDI2+	R5B	LAN2_MDI2+	L1B	LAN2_ACTLED-
R6A	LAN1_MDI2-	R6B	LAN2_MDI2-	L2B	LAN2_ACTLED+
R7A	LAN1_MDI3+	R7B	LAN2_MDI3+	L3B	LAN2_LINK1000#
R8A	LAN1_MDI3-	R8B	LAN2_MDI3-	L4B	LAN2_LINK100#
R9A	GND	R9B	GND		
R10A	GND	R10B	GND		

2.3.11 USB 3.0 (Type-A) Port (CN13)



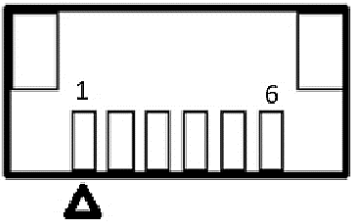
Pin	Signal	Pin	Signal
U1	+5V/2A	U2	USB2_D3-
U3	USB2_D3+	U4	GND
U5	USB3_RX-	U6	USB3_RX+
U7	GND	U8	USB3_TX-
U9	USB3_TX+		

2.3.12 RTC (CN14)



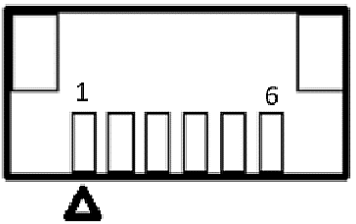
Pin	Signal	Pin	Signal
L1A	RTC_VCC	L1B	GND

2.3.13 Front Panel (CN17)



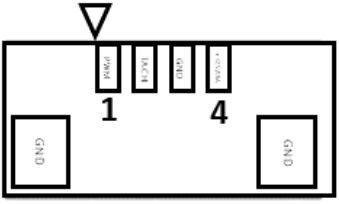
Pin	Signal	Pin	Signal
1	GND	2	RESET
3	GND	4	Power Button
5	GND	6	+5V

2.3.14 Audio Wafer (CN18)



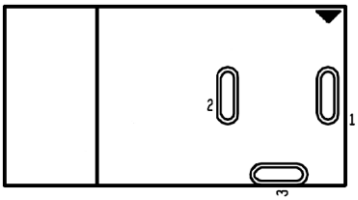
Pin	Signal	Pin	Signal
1	LINE_OUT_Right	2	LINE_OUT_Left
3	AUDIO_GND	4	NC
5	NC	6	MIC_IN

2.3.15 Fan Connector (CN19)



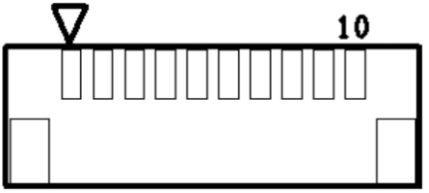
Pin	Signal	Pin	Signal
1	PWM	2	TACH
3	GND	4	+12V/1.5A

2.3.16 DC Power Jack (CN20)



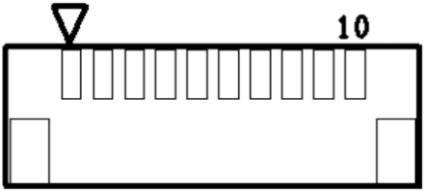
Pin	Signal	Pin	Signal
1	DC_IN	2	GND_Signal
3	GND		

2.3.17 COM Port Wafer (CN24)



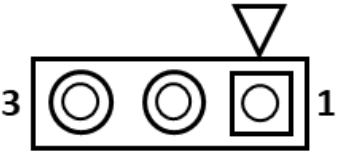
Pin	Signal	Pin	Signal
1	DCD	2	RX
3	TX	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	RI	10	NC

2.3.18 COM Port Wafer (CN26)



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

2.3.19 AT/ATX Mode Selection (JP1)



Pin	Signal	Pin	Signal
1	ATX_MODE	2	AT/ATX select
3	AT_MODE (default)		

Chapter 3

Software Installation

3.1 Linux Setup

The UP Squared 7100 supports Linux operating systems (see Chapter 1 for specifications). For instructions on how to install a Linux OS onto your UP Squared 7100, 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 7100 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.

Appendix A

Cables and Connectors

A.1 Cables and Connectors

This table provides detailed information about the cables and connectors used by the UP Squared 7100. If you have any questions about the configuration of your board, please contact your AAEON sales representative.

Label	Function	Mating Connector		AAEON Cable P/N
		Vendor	Model No.	
CN1	BIOS Update Connector	JVE	21N21540-06S10B-01G-3.5/2.1*A	170X000553
CN3	USB & UART	PINREX	710-74-10TWRG	170010015G
CN17	Front Panel	CATCH	1204-700-06SMR	170X000306
CN18	Audio Wafer	CATCH	1204-700-06SMR	170X000382
CN24	COM Port Wafer	CATCH	1204-700-10SMR	1701100180
CN26	COM Port Wafer	CATCH	1204-700-10SMR	1701100180