ECB-970G

Qseven Carrier Board

User's Manual 1st Ed

Copyright Notice

Acknowledgement

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

Packing List

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

Item	Quantity
● ECB-970G	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

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.

China RoHS Requirements (CN)

产品中有毒有害物质或元素名称及含量

AAEON Main Board/ Daughter Board/ Backplane

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	X	X	O	O	O	O
外部信号 连接器及线材	X	X	O	O	O	O
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。						

China RoHS Requirement (EN)

Poisonous or Hazardous Substances or Elements in Products

AAEON Main Board/ Daughter Board/ Backplane

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

Table of Contents

Chapter 1

Product Specifications

1.1 Specifications

System	
Form Factor	3.5" Form Factor
COM Express Connector	MXM 230-pin
I/O Chipset	-
Front Panel Control	10-pin Header (2x5P) including:
	Power Button and LED, Reset button, and Status LED
Ethernet	10/100/1000M, RJ-45 x 1 (From CPU module)
Power Supply Type	+12V DC in
CMOS Battery	RTC Battery Socket x 1
BIOS	SPI Socket x 1
Board Size	5.75" x 4" (146mm x 101.7mm)
Gross Weight	1.32 lb. (0.6Kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing

Display	
LCD	Dual Channel LVDS x 1 or eDP x 2
Display Interface	Display Port x 1

I/O	
Storage	SATA x 2
	Micro SD Card x 1
Serial Port	4-wire UART
USB	USB 2.0 (Type-A) x 2
	USB 3.2 (Type-A) x 2
	Micro USB x 1 or USB 2.0 (Wafer) x 1
Audio	Audio Jack, supports Line-in, Line-out, Microphone
GPIO	8-bit (LPC co-lay GPIO by switch)
Switch/Button	Power Button x 1/Reset Button x 1
Debug LED	7-Segment Display LED x 2 (80 Port Post Code Indicator)
I2C	1
Expansion Interface	SMBus, WDT
	M.2 2230 E-Key x 1 (PCIe 3.0 [x1], USB 2.0)
	M.2 2280 B-Key (PCIe 3.0 [x2])
	PCIe [x1] Slot (PCIe Lane 4)

Note: I/O functions are based on the module installed. Refer to the function table on the datasheet for more information.

1.2   Block Diagram
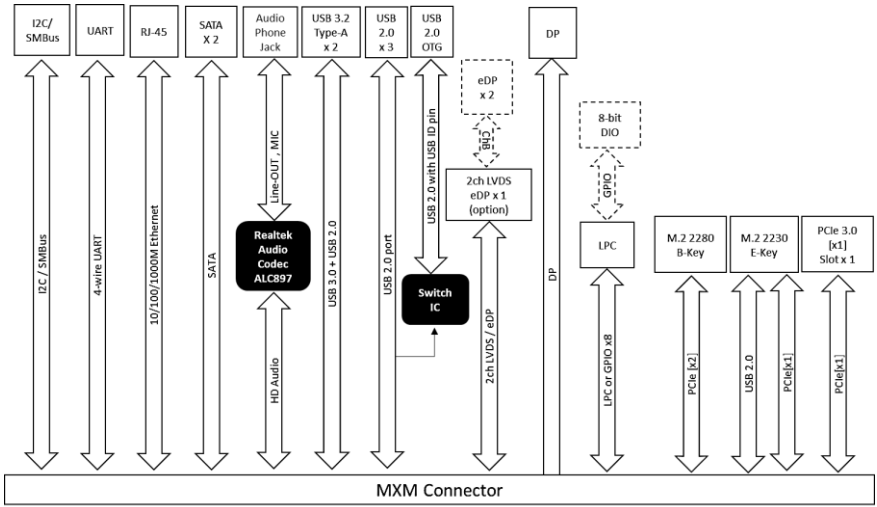
Chapter 2

Hardware Information

2.1   Dimensions

Top Side
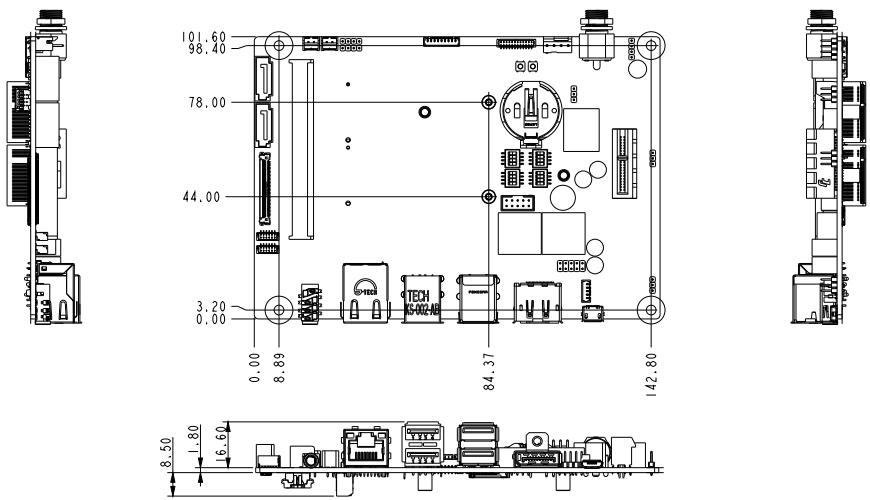
Bottom Side
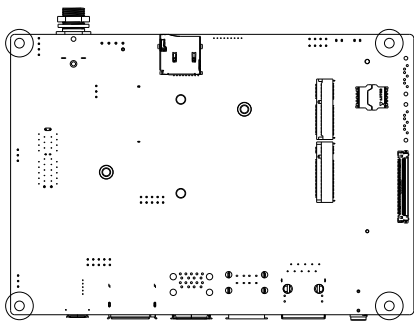
2.2 Jumpers and Connectors

Top Side
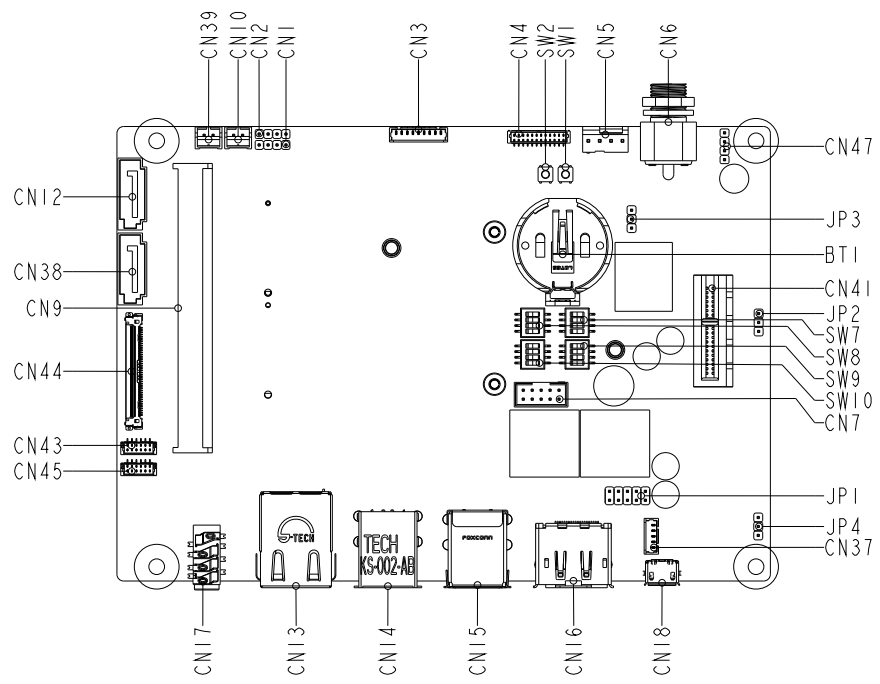
Bottom Side
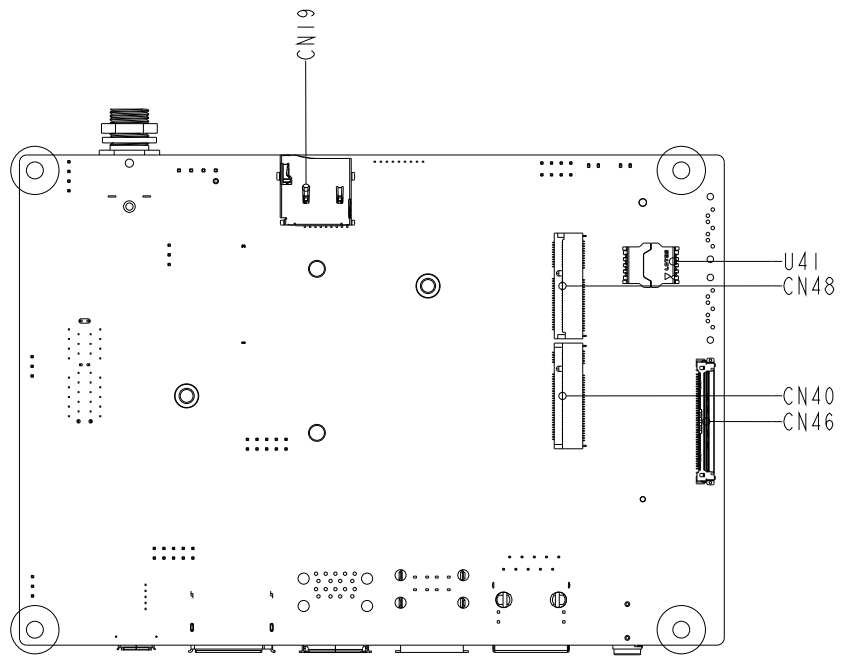
2.3   List of Jumpers

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

Label	Function
JP2	Clear CMOS
JP3	BIOS Selection
JP4	Micro USB/USB Type-A Selection
SW1	Reset Button
SW2	Power Button
SW7	LPC/GPIO
SW8	LPC/GPIO
SW9	LPC/GPIO
SW10	LPC/GPIO
BT1	Battery

2.3.1   Clear CMOS (JP2)
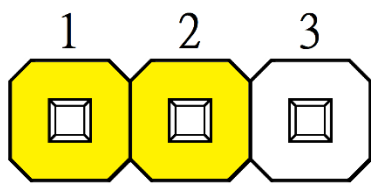
Clear CMOS	
1-2	Save CMOS Default
2-3	Clear CMOS

2.3.2   BIOS Selection (JP3)
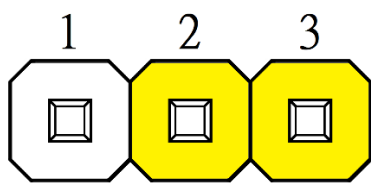
BIOS Disable	
1-2	Disable BIOS	Default for using BIOS (SPI Flash ROM) on the carrier board
2-3	Non-Disable BIOS	Default for using BIOS (SPI Flash ROM) on the Q7 CPU board

2.3.3 Micro USB/USB Type-A Selection (JP4)
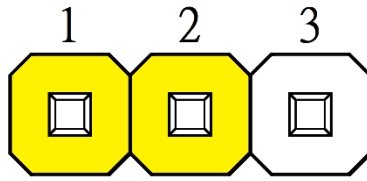
Micro USB/USB Type-A Selection		
1-2	Micro USB	Default for Micro USB (CN18) only
2-3	USB Type-A	for CN37 only

2.3.4 Reset Button (SW1)
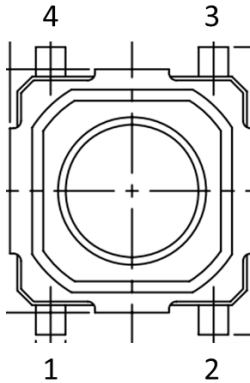
Pin	Pin Name	Signal Type
1	GND	GND
2	HWRST#	Signal
3	HWRST#	Signal
4	GND	GND

2.3.5   Power Button (SW2)
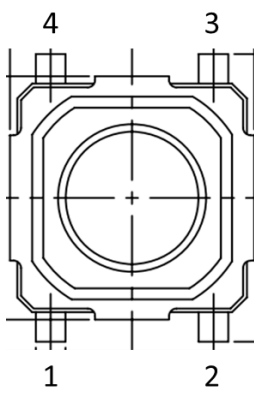
Pin	Pin Name	Signal Type
1	GND	GND
2	PWRBTN#	Signal
3	PWRBTN#	Signal
4	GND	GND

2.3.6   LPC/GPIO (SW7/SW8)
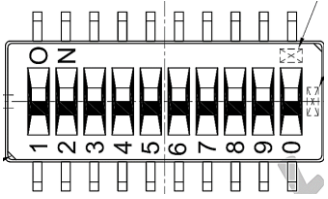
SW Pin No.	ON	OFF
1	LPC	GPIO
2	LPC	GPIO
3	LPC	GPIO
4	LPC	GPIO
5	LPC	GPIO

SW Pin No.	ON	OFF
6	LPC	GPIO
7	LPC	GPIO
8	LPC	GPIO
9	LPC	GPIO
0	LPC	GPIO

2.3.7   LPC/GPIO (SW9/SW10)
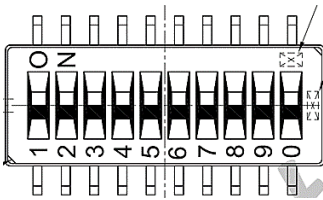
SW Pin No.	ON	OFF
1	GPIO	LPC
2	GPIO	LPC
3	GPIO	LPC
4	GPIO	LPC
5	GPIO	LPC
6	GPIO	LPC
7	GPIO	LPC
8	GPIO	LPC
9	GPIO	LPC
0	GPIO	LPC

2.3.8   Battery (BT1)
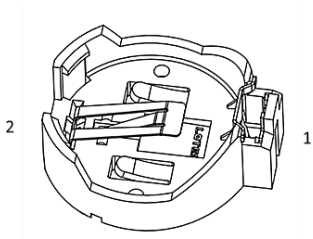
| Pin	Pin Name	Signal Type
1	BAT+	PWR
2	GND	GND

2.4   List of Connectors

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

Label	Function
CN1	I2C
CN2	SMBus
CN3	UART
CN4	Debug Port
CN5	Fan
CN6	DC In
CN7	GPIO
CN9	AQ7 Connector
CN10	SATA Power
CN12	SATA Connector
CN13	RJ-45
CN14	Dual USB 2.0 Port
CN15	Dual USB 3.2 Port
CN16	Display Port
CN17	Audio Jack
CN18	Micro USB
CN19	Micro SD
CN37	USB 2.0 Wafer
CN38	SATA Connector
CN39	SATA Power
CN40	M.2 2280 B-Key
CN41	PCIe [x1] Slot
CN43	eDP/LVDS Backlight Connector
CN44	eDP/LVDS Connector
CN45	eDP Backlight Connector
CN46	eDP Connector
CN47	Test Pin
CN48	M.2 2230 E-Key
JP1	Front Panel

Label	Function
U41	Flash on Carrier

2.4.1   I2C (CN1)
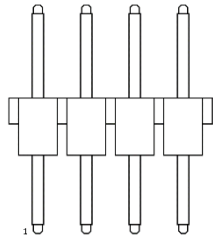
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	I2C_DAT	Signal	
3	I2C_CLK	Signal	
4	+V3P3A	PWR	+3.3V

2.4.2   SMBus (CN2)
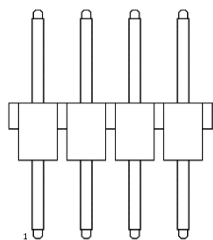
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	SMB_DAT	Signal	
3	SMB_CLK	Signal	
4	SMB_ALERT#	Signal	

2.4.3   UART (CN3)
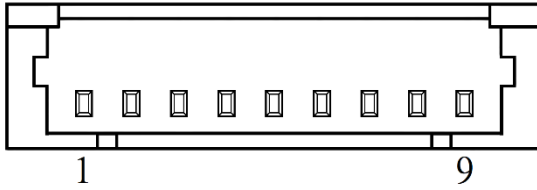
Pin	Pin Name	Signal Type	Signal Level
1	NC		
2	NC		
3	RX	Signal	
4	RTS	Signal	
5	TX	Signal	
6	CTS	Signal	
7	NC		
8	NC		
9	GND	GND	

2.4.4   Debug Port (CN4)
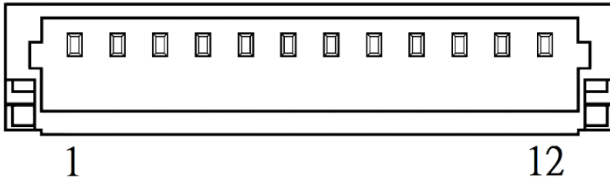
Pin	Pin Name	Signal Type	Signal Level
1	LPC_AD0	Signal	
2	LPC_AD1	Signal	
3	LPC_AD2	Signal	
4	LPC_AD3	Signal	
5	+V3P3S	PWR	+3.3V
6	LPC_FRAME#	Signal	
7	BUF_PLT_RST#	Signal	
8	GND	GND	

Pin	Pin Name	Signal Type	Signal Level
9	LPC_CLK	Signal	
10	SMB_DAT	Signal	
11	SMB_CLK	Signal	
12	SMB_ALERT#	Signal	

2.4.5   Fan (CN5)
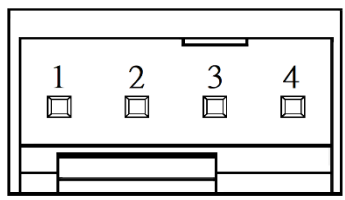
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	+V12S	PWR	+12V
3	FAN_TAC	Signal	
4	FAN_CTL	Signal	

Note: CN5 Fan power current max: 1.0A.

2.4.6   GPIO (CN7)
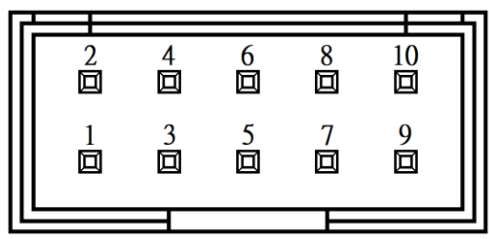
Pin	Pin Name	Signal Type	Signal Level
1	GPIO_0	Signal	
2	GPIO_1	Signal	
3	GPIO_2	Signal	

Pin	Pin Name	Signal Type	Signal Level
4	GPIO_3	Signal	
5	GPIO_4	Signal	
6	GPIO_5	Signal	
7	GPIO_6	Signal	
8	GPIO_7	Signal	
9	+V3P3S	PWR	+3.3V
10	GND	GND	

Note: The driving current of +V3P3S supports up to 0.5A.

2.4.7   SATA Power (CN10)
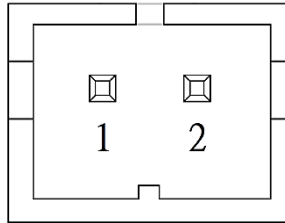
Pin	Pin Name	Signal Type	Signal Level
1	+V5S	PWR	+5V
2	GND	GND	

Note: The driving current of +V5S supports up to 2A.

2.4.8   SATA Connector (CN12)
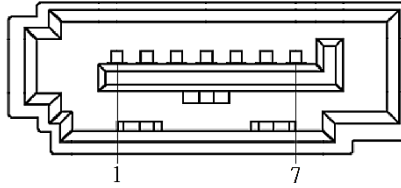
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	SATA_TXP	DIFF	
3	SATA_TXN	DIFF	
4	GND	GND	
5	SATA_RXN	DIFF	
6	SATA_RXP	DIFF	
7	GND	GND	

2.4.9   RJ-45 (CN13)
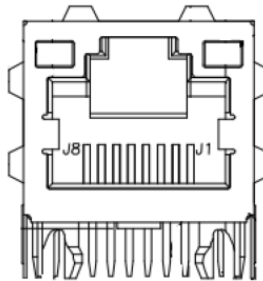
Pin	Pin Name	Signal Type	Signal Level
P1	MDI0_P	DIFF	
P2	MDI0_N	DIFF	
P3	MDI1_P	DIFF	
P4	MDI1_N	DIFF	
P5	TCD0		
P6	TCD1		
P7	MDI2_P	DIFF	
P8	MDI2_N	DIFF	

Pin	Pin Name	Signal Type	Signal Level
P9	MDI3_P	DIFF	
P10	MDI3_N	DIFF	
11	+V3P3A	PWR	+3.3V
12	LED_LINK#_ACT#	Signal	
13	LED_1000#	Signal	
14	LED_100#	Signal	

2.4.10   Dual USB 2.0 Port (CN14)
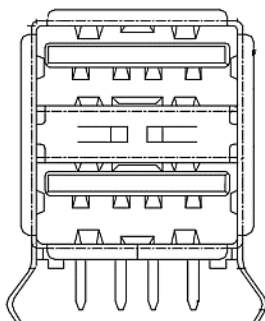
Pin	Pin Name	Signal Type	Signal Level
1	+V5A	PWR	+5V
2	USB2_DN	DIFF	
3	USB2_DP	DIFF	
4	GND	GND	
5	+V5A	PWR	+5V
6	USB2_DN	DIFF	
7	USB2_DP	DIFF	
8	GND	GND	

2.4.11   Dual USB 3.2 Port (CN15)
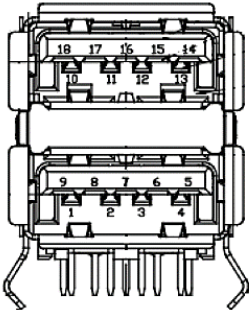
Pin	Pin Name	Signal Type	Signal Level
1	+V5A	PWR	+5V
2	USB2_DN	DIFF	
3	USB2_DP	DIFF	
4	GND	GND	
5	USB3_RXN	DIFF	
6	USB3_RXP	DIFF	
7	GND	GND	
8	USB3_TXN	DIFF	
9	USB3_TXP	DIFF	
10	+V5A	PWR	+5V
11	USB2_DN	DIFF	
12	USB2_DP	DIFF	
13	GND	GND	
14	USB3_RXN	DIFF	
15	USB3_RXP	DIFF	
16	GND	GND	
17	USB3_TXN	DIFF	
18	USB3_TXP	DIFF	

2.4.12   Display Port (CN16)
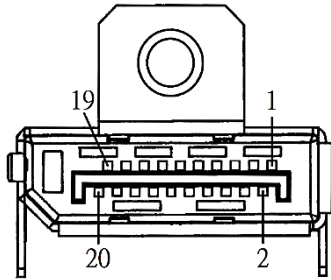
Pin	Pin Name	Signal Type	Signal Level
1	LANE0P	DIFF	
2	GND	GND	
3	LANE0N	DIFF	
4	LANE1P	DIFF	
5	GND	GND	
6	LANE1N	DIFF	
7	LANE2P	DIFF	
8	GND	GND	
9	LANE2N	DIFF	
10	LANE3P	DIFF	
11	GND	GND	
12	LANE3N	DIFF	
13	AUX_SEL	Signal	
14	GND	GND	
15	AUXP	DIFF	
16	GND	GND	
17	AUXN	DIFF	
18	HPD	Signal	
19	RTN		
20	+V3P3S	+3.3V	

2.4.13   Audio Jack (CN17)
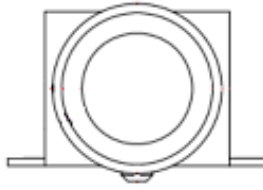
Pin	Pin Name	Signal Type	Signal Level
1	MIC_R	Signal	
2	GND		
3	LOUT_R	Signal	
4	NC		
5	NC		
6	JD	Signal	
7	NC		
8	LOUT_L	Signal	

2.4.14   Micro USB (CN18)
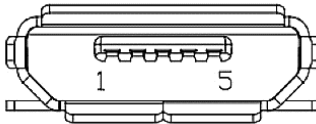
Pin	Pin Name	Signal Type	Signal Level
1	+V5A	PWR	+5V
2	USB_DN	DIFF	
3	USB_DP	DIFF	
4	ID	Signal	
5	GND	GND	

Note: Enabled as Default (Selection by JP4).

2.4.15   Micro SD (CN19)

Pin	Pin Name	Signal Type	Signal Level
1	DAT2	Signal	
2	DAT3	Signal	
3	CMD	Signal	
4	+V3P3S	PWR	+3.3V
5	CLK	Signal	
6	GND	GND	
7	DAT0	Signal	
8	DAT1	Signal	
9	CARD DETECT	Signal	
10	GND	GND	

2.4.16   USB 2.0 Wafer (CN37)
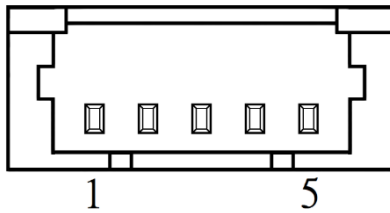
Pin	Pin Name	Signal Type	Signal Level
1	+V5A	PWR	+5V
2	USB2_N	DIFF	
3	USB2_P	DIFF	
4	GND	GND	
5	GND	GND	

Note: Disabled as Default (Selection by JP4).

2.4.17 SATA (CN38)
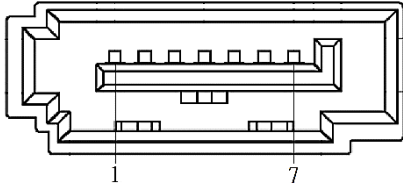
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	SATA_TXP	DIFF	
3	SATA_TXN	DIFF	
4	GND	GND	
5	SATA_RXN	DIFF	
6	SATA_RXP	DIFF	
7	GND	GND	

2.4.18 SATA Power (CN39)
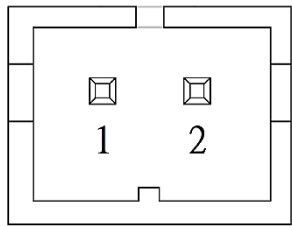
Pin	Pin Name	Signal Type	Signal Level
1	+V5S	PWR	+5V
2	GND	GND	

Note: The driving current of +V5S supports up to 2A.

2.4.19   M.2 2280 B-Key (CN40)
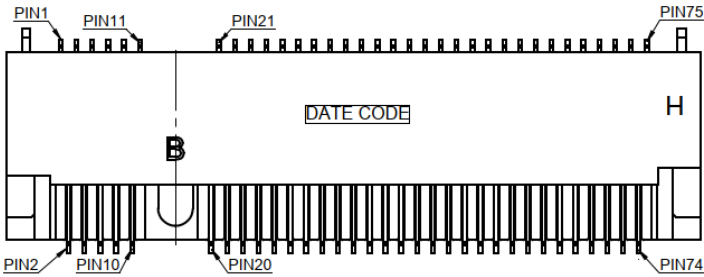
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	+V3P3A	PWR	+3.3V
3	GND	GND	
4	+V3P3A	PWR	+3.3V
5	GND	GND	
6	NC		
7	NC		
8	NC		
9	NC		
10	SSD_DAS#	Signal	
11	GND	GND	
20	NC		
21	GND	GND	
22	NC		
23	NC		
24	NC		
25	NC		
26	NC		
27	GND	GND	
28	NC		
29	PCIE_1_RXN	DIFF	
30	NC		
31	PCIE_1_RXP	DIFF	

Pin	Pin Name	Signal Type	Signal Level
32	NC		
33	GND	GND	
34	NC		
35	PCIE_1_TXN		
36	NC		
37	PCIE_1_TXP		
38	NC		
39	GND	GND	
40	NC		
41	PCIE_0_RXN	DIFF	
42	NC		
43	PCIE_0_RXP	DIFF	
44	NC		
45	GND	GND	
46	NC		
47	PCIE_0_TXN	DIFF	
48	NC		
49	PCIE_0_TXP	DIFF	
50	PCIE_0_RST#	Signal	
51	GND	GND	
52	NC		
53	PCIE_B_CLK_DN_M2B	DIFF	
54	PCIE_WAKE#	Signal	
55	PCIE_B_CLK_DP_M2B	DIFF	
56	NC		
57	GND	GND	
58	NC		
59	NC		
60	NC		
61	NC		
62	NC		
63	NC		
64	NC		
65	NC		

Pin	Pin Name	Signal Type	Signal Level
66	NC		
67	NC		
68	NC		
69	NC		
70	+V3P3A	PWR	+3.3V
71	GND	GND	
72	+V3P3A	PWR	+3.3V
73	GND	GND	
74	+V3P3A	PWR	+3.3V
75	NC		

2.4.20   PCIe [x1] Slot (CN41)
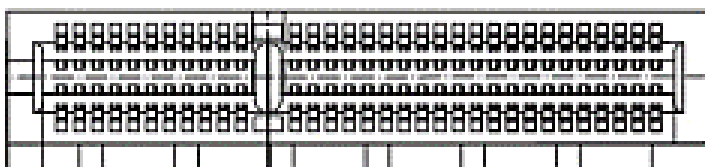
Pin	Pin Name	Signal Type	Signal Level
A1	PRSNT1		
A2	+V12S	PWR	+12V
A3	+V12S	PWR	+12V
A4	GND	GND	
A5	NC		
A6	NC		
A7	NC		
A8	NC		
A9	+V3P3S	PWR	+3.3V
A10	+V3P3S	PWR	+3.3V
A11	PCIE_2_RST#	Signal	
A12	GND		
A13	PCIE_B_CLK_DP_SLT	DIFF	
A14	PCIE_B_CLK_DN_SLT	DIFF	

Pin	Pin Name	Signal Type	Signal Level
A15	GND		
A16	PCIE_3_RXP	DIFF	
A17	PCIE_3_RXN	DIFF	
A18	GND		
B1	+V12S	PWR	+12V
B2	+V12S	PWR	+12V
B3	NC		
B4	GND	GND	
B5	SMB_CLK_SBY	Signal	
B6	SMB_DAT_SBY	Signal	
B7	GND		
B8	+V3P3S	PWR	+3.3V
B9	NC		
B10	+V3P3A	PWR	+3.3V
B11	PCIE_WAKE#	Signal	
B12	NC		
B13	GND		
B14	PCIE_3_TXP	DIFF	
B15	PCIE_3_TXN	DIFF	
B16	GND		
B17	PRSNT2		
B18	GND	GND	

2.4.21 eDP/LVDS Backlight Connector (CN43)
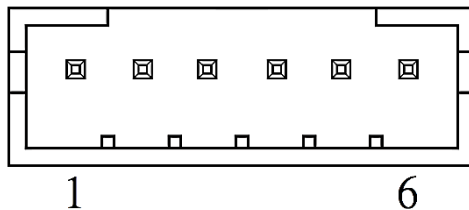
Pin	Pin Name	Signal Type	Signal Level
1	+VCC_EDP_BKLT_0	PWR	

Pin	Pin Name	Signal Type	Signal Level
2	+VCC_EDP_BKLT_0	PWR	
3	EDP_LVDS_0_BKLT_CTL	Signal	
4	GND	GND	
5	GND	GND	
6	EDP_LVDS_0_BKLT_EN	Signal	

Note: The driving current of BKL_PWR supports up to 2A.

2.4.22   eDP/LVDS Connector (CN44)
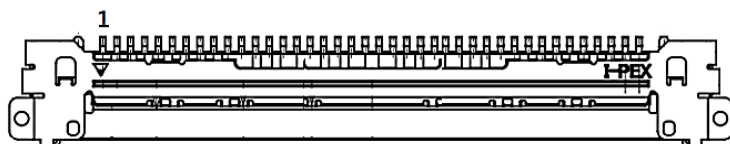
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	LVDS_1_LANE3_DP	DIFF	
3	LVDS_1_LANE3_DN	DIFF	
4	GND	GND	
5	LVDS_1_CLKP	DIFF	
6	LVDS_1_CLKN	DIFF	
7	GND	GND	
8	LVDS_1_LANE2_DP	DIFF	
9	LVDS_1_LANE2_DN	DIFF	
10	GND	GND	
11	LVDS_1_LANE1_DP	DIFF	
12	LVDS_1_LANE1_DN	DIFF	
13	GND	GND	
14	LVDS_1_LANE0_DP	DIFF	
15	LVDS_1_LANE0_DN	DIFF	
16	GND	GND	
17	+V3P3S	PWR	
18	LVDS_0_DDC_CLK_EDP_HPD	Signal	

Pin	Pin Name	Signal Type	Signal Level
19	EDP_LVDS_0_BKLT_EN	Signal	
20	LVDS_0_DDC_DATA	Signal	
21	EDP_LVDS_0_BKLT_CTL	Signal	
22	GND	GND	
23	EDP_LVDS_0_AUXP	DIFF	
24	EDP_LVDS_0_AUXN	DIFF	
25	GND	GND	
26	EDP_LVDS_0_LANE3_DP	DIFF	
27	EDP_LVDS_0_LANE3_DN	DIFF	
28	GND	GND	
29	EDP_LVDS_0_LANE0_DP	DIFF	
30	EDP_LVDS_0_LANE0_DN	DIFF	
31	GND	GND	
32	EDP_LVDS_0_LANE1_DP	DIFF	
33	EDP_LVDS_0_LANE1_DN	DIFF	
34	GND	GND	
35	EDP_LVDS_0_LANE2_DP	DIFF	
36	EDP_LVDS_0_LANE2_DN	DIFF	
37	GND	GND	
38	+VDD_eDP_0	PWR	
39	+VDD_eDP_0	PWR	
40	+VDD_eDP_0	PWR	

2.4.23   eDP Backlight Connector (CN45)
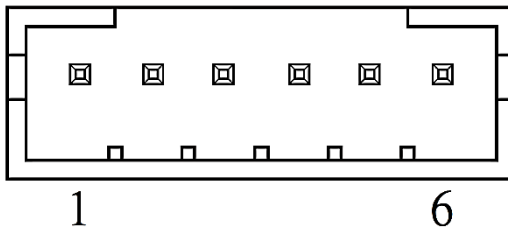
Pin	Pin Name	Signal Type	Signal Level
1	+VCC_EDP_BKLT_1	PWR	

Pin	Pin Name	Signal Type	Signal Level
2	+VCC_EDP_BKLT_1	PWR	
3	EDP_LVDS_1_BKLT_CTL	Signal	
4	GND	GND	
5	GND	GND	
6	EDP_LVDS_1_BKLT_EN	Signal	

Note: The driving current of BKL_PWR supports up to 2A.

2.4.24 eDP Connector (CN46)
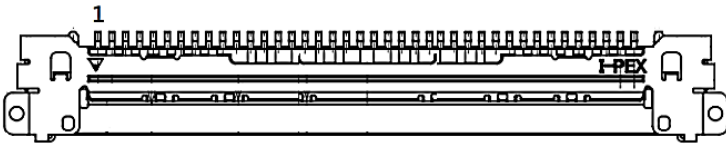
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	NC		
3	NC		
4	GND	GND	
5	NC		
6	NC		
7	GND	GND	
8	NC		
9	NC		
10	GND	GND	
11	NC		
12	NC		
13	GND	GND	
14	NC		
15	NC		
16	GND	GND	
17	+V3P3S	PWR	
18	EDP_HPD1_R	Signal	

Pin	Pin Name	Signal Type	Signal Level
19	EDP_LVDS_1_BKLT_EN	Signal	
20	NC		
21	EDP_LVDS_1_BKLT_CTL	Signal	
22	GND	GND	
23	EDP_1_AUXP	DIFF	
24	EDP_1_AUXN	DIFF	
25	GND	GND	
26	EDP_1_LANE3_DP	DIFF	
27	EDP_1_LANE3_DN	DIFF	
28	GND	GND	
29	EDP_1_LANE0_DP	DIFF	
30	EDP_1_LANE0_DN	DIFF	
31	GND	GND	
32	EDP_1_LANE1_DP	DIFF	
33	EDP_1_LANE1_DN	DIFF	
34	GND	GND	
35	EDP_1_LANE2_DP	DIFF	
36	EDP_1_LANE2_DN	DIFF	
37	GND	GND	
38	+VDD_eDP_1	PWR	
39	+VDD_eDP_1	PWR	
40	+VDD_eDP_1	PWR	

2.4.25 M.2 2230 E-Key (CN48)
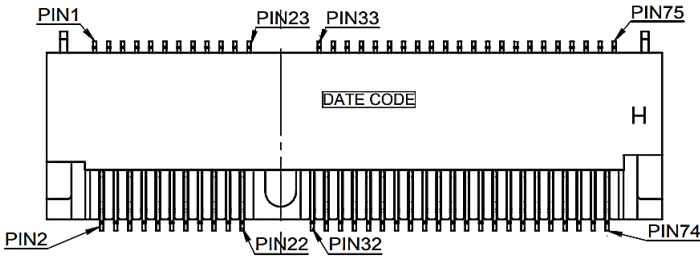
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	+V3P3A	PWR	+3.3V
3	USB_D+	DIFF	
4	+V3P3A	PWR	+3.3V
5	USB_D-	DIFF	
6	NC		
7	GND	GND	
8	NC		
9	NC		
10	NC		
11	NC		
12	NC		
13	NC		
14	NC		
15	NC		
16	NC		
17	NC		
18	GND	GND	
19	NC		
20	NC		
21	NC		
22	NC		
23	NC		
32	NC		

Pin	Pin Name	Signal Type	Signal Level
33	GND	GND	
34	NC		
35	PCIE_2_TXP	DIFF	
36	NC		
37	PCIE_2_TXN	DIFF	
38	NC		
39	GND	GND	
40	NC		
41	PCIE_2_RXP	DIFF	
42	NC		
43	PCIE_2_RXN	DIFF	
44	NC		
45	GND	GND	
46	NC		
47	PCIE_B_CLK_DP_M2E	DIFF	
48	NC		
49	PCIE_B_CLK_DN_M2E	DIFF	
50	NC		
51	GND	GND	
52	PCIE_1_RST#		
53	NC		
54	NC		
55	PCIE_WAKE#		
56	NC		
57	GND	GND	
58	I2C_DAT		
59	NC		
60	I2C_CLK		
61	NC		
62	NC		
63	NC		
64	NC		
65	NC		
66	NC		

Pin	Pin Name	Signal Type	Signal Level
67	NC		
68	NC		
69	GND	GND	
70	+V3P3A	PWR	+3.3V
71	NC		
72	+V3P3A	PWR	+3.3V
73	NC		
74	+V3P3A	PWR	+3.3V
75	GND	GND	

2.4.26 Front Panel (JP1)
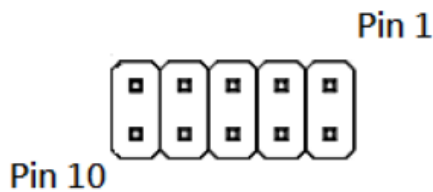
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	PWRBTN#	Signal	
3	SATA_LED-	Signal	
4	SATA_LED+	Signal	
5	FP_SPKR-	Signal	
6	FP_SPKR+	Signal	
7	GND	GND	
8	Power LED+	Signal	
9	GND	GND	
10	HWRST#	Signal	

2.4.27   Test Pin (CN47)
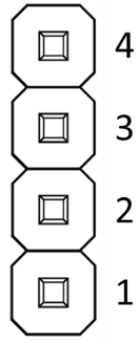
Pin	Pin Name	Signal Type
1	PWR_OK	Signal
2	WDTRIG#	Signal
3	WDT	Signal
4	GND	GND

2.4.28   Flash on Carrier (U41)
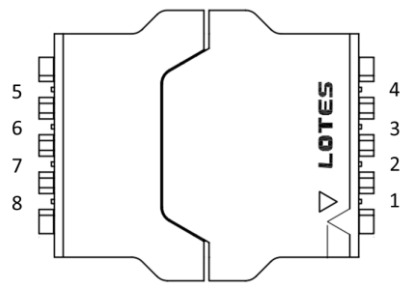
Pin	Pin Name	Signal Type
1	SPI_SO	Signal
2	SPI_WP#	Signal
3	GND	GND

Pin	Pin Name	Signal Type
4	SPI_SI	Signal
5	SPI_CLK	Clock
6	SPI_HOLD#	Signal
7	+V3P3A	PWR
8	+V3P3A	PWR

2.5   Carrier Board Assembly

SCREWS:M2.5x12L
Torque 3.2±5%kgf-cm

THERMAL OPTION

PCBA

SCREWS:M2.5x5L
Torque 3.2±5%kgf-cm

PCBA:ECB-970G
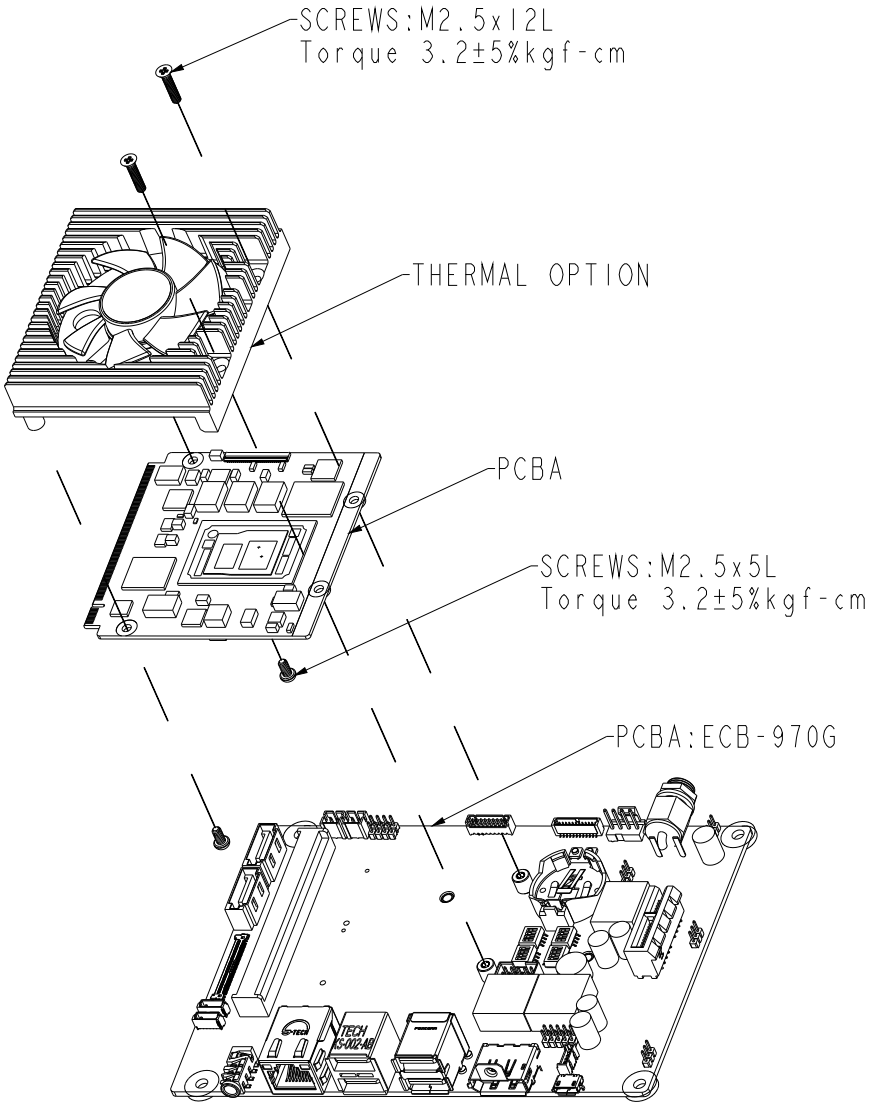
Appendix A

Mating Connectors

A.1   List of Mating Connectors and Cables

The following table lists mating connectors and available cables.

Connector Label	Function	Mating Connector		Available Cable	AAEON Cable P/N
		Vendor	Model no		
CN3	UART	Molex	51021-0900	Serial Port Cable	1701090150
CN7	GPIO	Molex	51110-1051	NA	NA
CN10	SATA Power	JST	PHR-2	SATA Power Cable	1702150155
CN12	SATA	Molex	887505318	SATA Cable	1709070500
CN37	USB2.0	Molex	51021-0500	USB2.0 Cable	1700050207
CN38	SATA	Molex	887505318	SATA Cable	1709070500
CN39	SATA Power	JST	PHR-2	SATA Power Cable	1702150155
CN43 CN45	LVDS Back Light Inverter	JST	SHR-06V-S-B	NA	NA
CN44 CN46	eDP/LVDS	I-PEX	20453-040T-11	NA	NA
JP1	Front Panel	Molex	51110-1050	NA	NA