

ECB-980A

COM HPC Client Carrier Board

User's Manual 2nd Ed

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Packing List

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

Item	Quantity
● ECB-980A	1
● COM Port Cable	2
● Screw.M2.5*5mm	2
● Bolt.M2.5mm.8mm	4

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 主板/子板/背板

QQ4-381 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	×	○	○	○	○	○
Connector and Cable	×	○	○	○	○	○
The table is prepared in accordance with the provisions of SJ/T 11364. ○: 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.						

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Chapter 1

Product Specifications

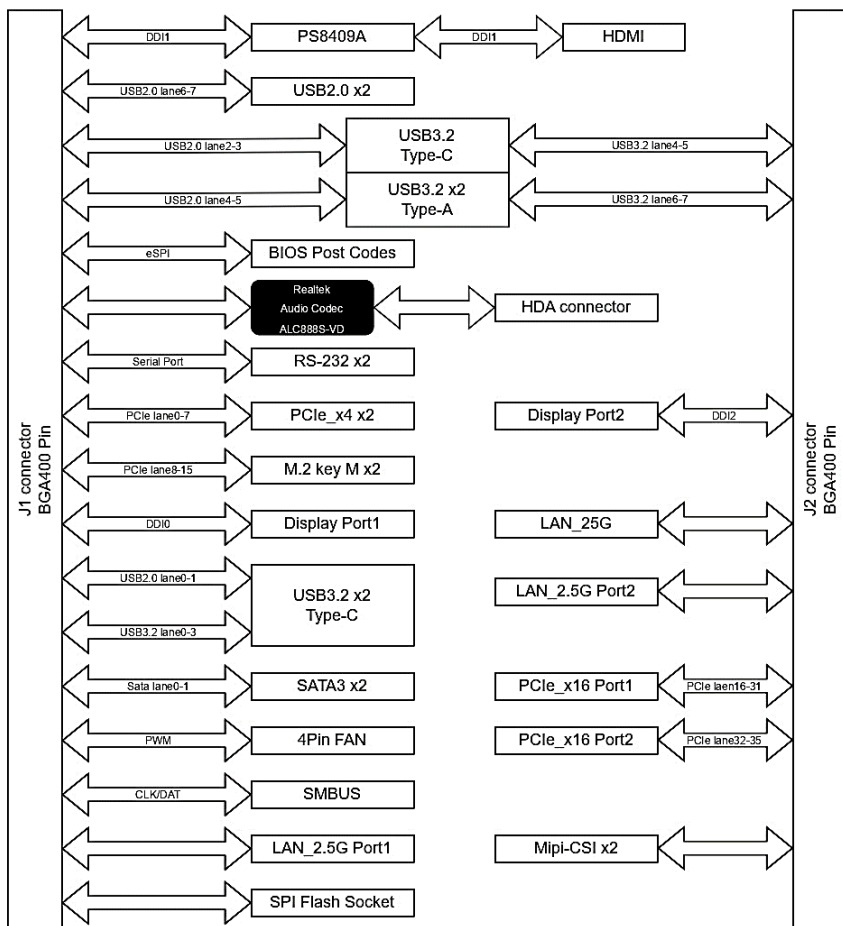
1.1 Specifications

System	
Form Factor	COM HPC Client Size A/B/C
COM Express Connector	x 2 (J1 and J2)
I/O Chipset	—
Front Panel Control	10-pin Header (2x5P)
Ethernet	2.5GbE x 1
	10GbE x 1
Expansion Interface	PCIe [x4] x 2 (Group 0, Lane 0 ~ 7)
	PCIe [x16] x 2 (one PCIe [x16] only supports PCIe [x4])
Power Supply Type	Standard 24-pin ATX + 8-pin 12V
CMOS Battery	RTC battery Socket x 1
BIOS	Yes
Dimensions	12" x 9.6" (305mm x 244mm)
Gross Weight	1.54 lb. (0.7Kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
Display	
LCD	eDP x 1
Display Interface	Display Port x 2
	HDMI x 1

I/O	
Storage	SATA x 2 M.2 2280 M-Key x 2 (PCIe Gen 4 [x4] for NVMe)
Serial Port	4-wire UART x 2
USB	USB 3.2 x 2 (20Gbps, up to Gen 2 x 2 support)
	USB 3.2 x 1 (10Gbps, up to Gen 2 x 1 support)
	USB 3.2 x 2 (5Gbps, up to Gen 1 x 1 support)
	USB 2.0 x 8 (from HPC module)
Audio	Audio Jack, supports Line-in, Line-out, Microphone
GPIO	12-bit
Switch/Button	Power Button x 1/Reset Button x 1
Debug LED	7-Segment Display LED x 2 (80 Port Post Code Indicator)
I2C	x 1
Expansion Interface	SMBus
	eSPI slot

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

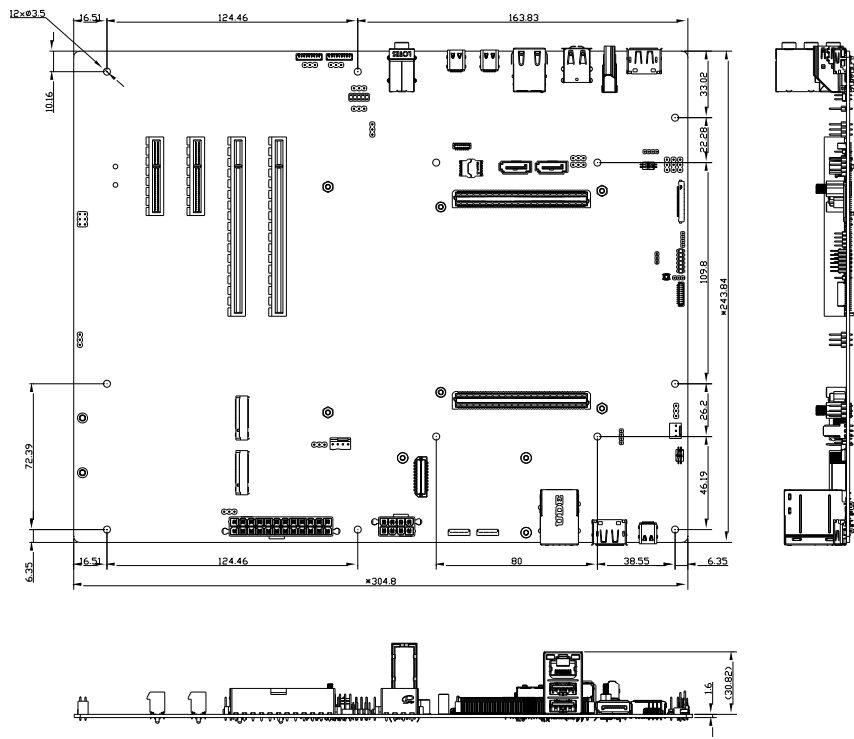


Chapter 2

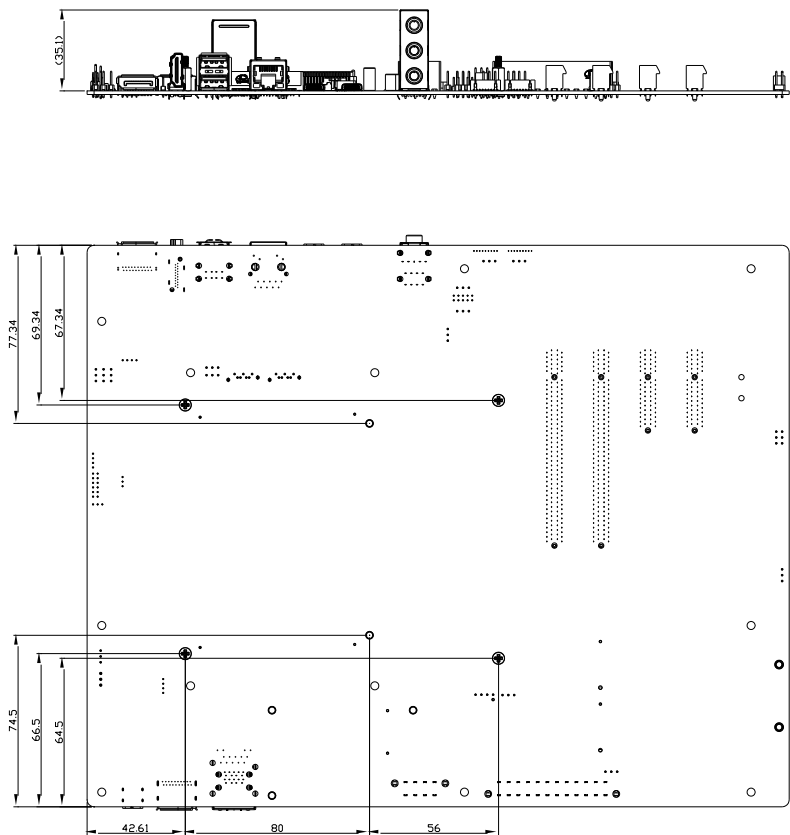
Hardware Information

2.1 Dimensions

Top Side

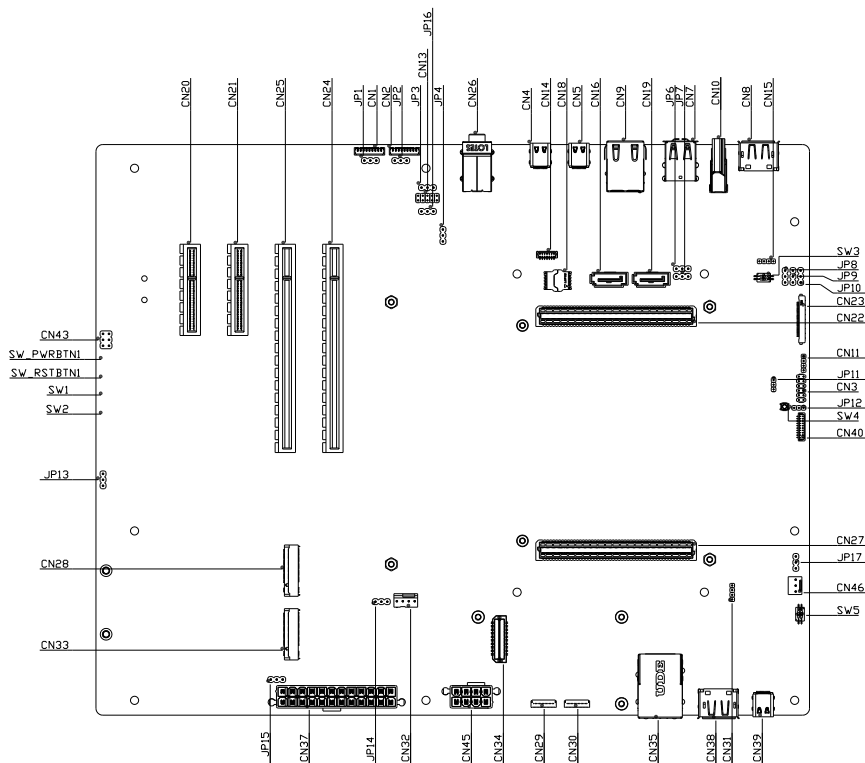


Bottom Side



2.2 Jumpers and Connectors

Top Side

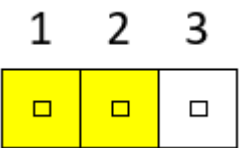


2.3 List of Jumpers and Switches

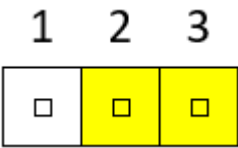
Please refer to the table below for all of the board's jumpers that you can configure for your application

Label	Function
JP1	COM Port TX/RX Short
JP2	COM Port TX/RX Short
JP3	Serial Port Power Selection(5V)
JP4	HAD Voltage Change Pin
JP6	+5V_DUAL for ATX Power
JP7	+5V_DUAL for ATX Power
JP8	BIOS Selection
JP9	BIOS Selection
JP10	BIOS Selection
JP11	eSPI Chip Selection
JP12	80 Port Selection
JP13	RTC Clear CMOS Selection
JP14	FAN1 Power Selection
JP15	AT/ATX Mode Selection
JP16	Serial Port Power Selection (3.3V)
JP17	FAN 2 Power Selection
SW1	LID Button
SW2	Sleep Button
SW3	DDI0 AUX or DDC Selection
SW4	eSPI PRE#/PORT_SEL Button
SW5	DDI1 AUX or DDC Selection
SW_PWRBTN1	Power Button
SW_RSTBTN1	Reset Button

2.3.1 COM Port TX/RX Short (JP1/JP2)

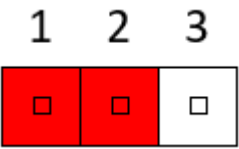


TX/RX Short (Default)

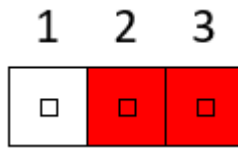


NC

2.3.2 Serial Port Power Selection (JP3)

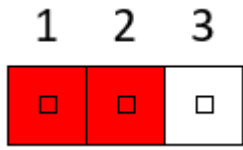


+5V_DUAL

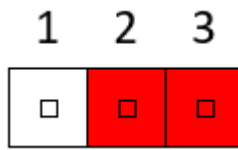


+5V_EXT

2.3.3 HDA Voltage Change Pin (JP4)

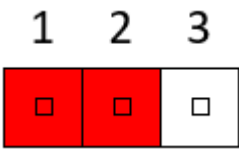


+3.3V (Default)

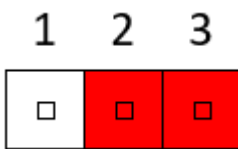


+1.5V

2.3.4 +5V_DUAL for ATX Power (JP6/JP7)

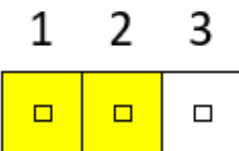


+5V_DUAL Power

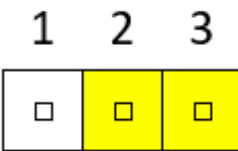


+5V_DUAL for ATX (Default)

2.3.5 BIOS Selection (JP8/JP9/JP10)

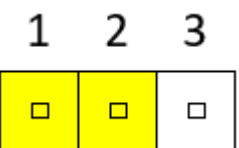


Carrier

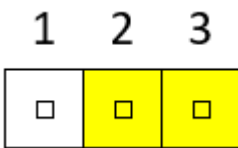


COM Module (Default)

2.3.6 eSPI Chip Selection (JP11)

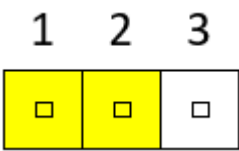


ESPI_CS0# (Default)

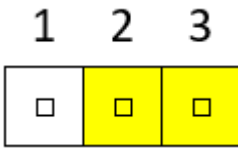


ESPI_CS1#

2.3.7 Port Selection (JP12)

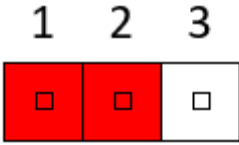


82/83 Port

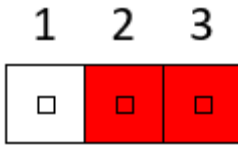


80/81 Port (Default)

2.3.8 RTC Clear CMOS Selection (JP13)

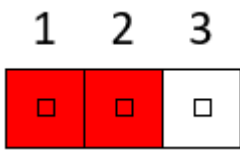


Normal (Default)

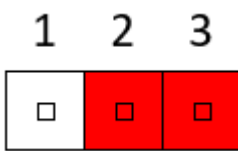


Clear CMOS

2.3.9 FAN1 Power Selection (JP14)

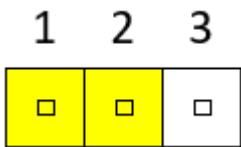


+12V FAN Voltage (Default)

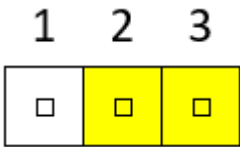


+5V FAN Voltage

2.3.10 AT/ATX Mode Selection (JP15)

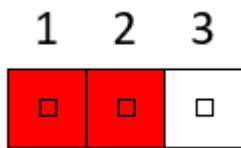


ATX supply in AT mode

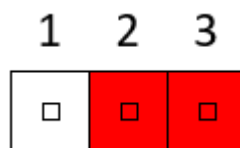


ATX supply controlled (Default)

2.3.11 Serial Port Power Selection (JP16)

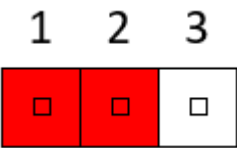


+3.3V_DUAL

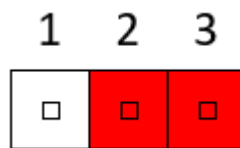


+3.3V_EXT (Default)

2.3.12 FAN2 Power Selection (JP17)



+12V FAN Voltage (Default)



+5V FAN Voltage

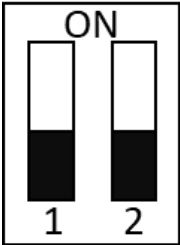
2.3.13 LID Button (SW1)

Pin	Function
ON	LID#
OFF	Normal mode

2.3.14 Sleep Button (SW2)

Pin	Function
ON	Sleep mode
OFF	Normal mode

2.3.15 DDI0 AUX or DDC Selection (SW3)

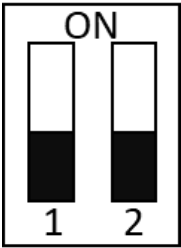


Pin	Function
1-ON	DDC
1-OFF	AUX (Default)
2-ON	NA
2-OFF	NA

2.3.16 eSPI PRE#/PORT_SEL Button (SW4)

Pin	Function
ON	PRE#
OFF	PORT

2.3.17 DDI1 AUX or DDC Selection (SW5)



Pin	Function
1-ON	DDC
1-OFF	AUX (Default)
2-ON	NA
2-OFF	NA

2.3.18 Power Button (SW_PWRBTN1)

Pin	Function
ON	Power Button
OFF	Normal Mode

2.3.19 Reset Button (SW_RSTBTN1)

Pin	Function
ON	Reset
OFF	Normal Mode

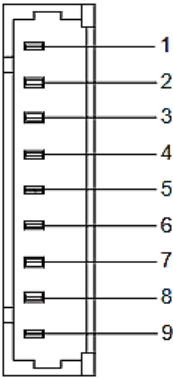
2.4 List of Connectors

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

Label	Function
CN1	Serial Port 1
CN2	Serial Port 0
CN3	GPIO
CN4	USB 3.2 Port 2 (Lane 2-3)
CN5	USB 3.2 Port 1 (Lane 0-1)
CN7	Dual USB 2.0 (Lane 6-7)
CN8	Display Port 1 (DDI 0)
CN9	2.5GbE RJ-45 Port 1
CN10	HDMI (DDI 1)
CN11	SMBus Pin Header
CN13	GSPI
CN14	SPI
CN15	I2C 0 Pin Header
CN16	SATA 6 Gb/s Port 2 (Lane 1)
CN18	SPI Socket
CN19	SATA 6 Gb/s Port 1 (Lane 0)
CN20	PCIe Gen 3 [x4] (Lane 4-7)
CN21	PCIe Gen 3 [x4] (Lane 0-3)
CN22	COM-HPC Row A/B/C/D
CN23	eDP
CN24	PCIe Gen 4 [x16] (Lane 16-31)
CN25	PCIe Gen 4 [x4] (Lane 32-35)
CN26	High Definition Audio Connector
CN27	COM-HPC Row E/F/G/H
CN28	PCIe Gen 4 M.2 M-Key (Lane 12-15)
CN29	MIPI X4 CSI Connector Port 2
CN30	MIPI X4 CSI Connector Port 1
CN31	I2C 1 Pin Header
CN32	Fan 1

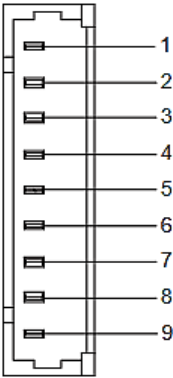
Label	Function
CN33	PCIe Gen 4 M.2 M-Key (Lane 8-11)
CN34	25G Module Connector
CN35	10G RJ-45 Port 2/Dual USB 3.2 (Lane 6-7)
CN37	24-Pin ATX Power
CN38	Display Port 2 (DDI 2)
CN39	USB3.2 Port 3 (Lane 4-5)
CN40	eSPI
CN43	Power and Reset Pin Header
CN45	8-Pin ATX 12V Power
CN46	Fan 2

2.4.1 Serial Port 1 (CN1)



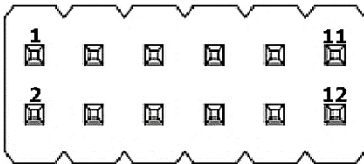
Pin	Pin Name	Signal Type	Signal Level
1	N.C		
2	N.C		
3	SRXD1C	IN	
4	RTSD_1	OUT	3.3V
5	STXD1C	OUT	3.3V
6	CTSD_1	IN	
7	N.C		
8	N.C		
9	GND	GND	

2.4.2 Serial Port 0 (CN2)



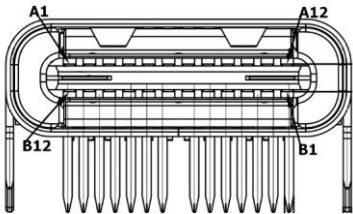
Pin	Pin Name	Signal Type	Signal Level
1	N.C		
2	N.C		
3	SRXD0C	IN	
4	RTSD_0	OUT	3.3V
5	STXD0C	OUT	3.3V
6	CTSD_0	IN	
7	N.C		
8	N.C		
9	GND	GND	

2.4.3 GPIO (CN3)



Pin	Pin Name	Signal	Signal	Pin	Pin Name	Signal	Signal
1	GPI0	I/O	3.3V	2	GPO0	I/O	3.3V
3	GPI1	I/O	3.3V	4	GPO1	I/O	3.3V
5	GPI2	I/O	3.3V	6	GPO2	I/O	3.3V
7	GPI3	I/O	3.3V	8	GPO3	I/O	3.3V
9	GPI4	I/O	3.3V	10	GPO4	I/O	3.3V
11	GPI5	I/O	3.3V	12	GPO5	I/O	3.3V

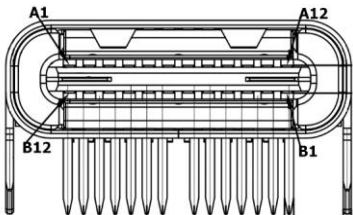
2.4.4 USB 3.2 Gen 2 Port 2 (Lane 2-3) (CN4)



Pin	Pin Name	Signal Type	Signal Level
A1	GND	GND	
A2	SSTX2P_CM_C	DIFF	
A3	SSTX2N_CM_C	DIFF	
A4	+V5A_TYPE_CB	PWR	+5V
A5	TBT2_CC1_CONN	I/O	
A6	USB2_1_DP_CM	DIFF	
A7	USB2_1_DN_CM	DIFF	
A8	NC		
A9	+V5A_TYPE_CB	PWR	+5V
A10	SSRX3N_CM_C	DIFF	

Pin	Pin Name	Signal Type	Signal Level
A11	SSRX3P_CM_C	DIFF	
A12	GND	GND	
B1	GND	GND	
B2	SSTX3P_CM_C	DIFF	
B3	SSTX3N_CM_C	DIFF	
B4	+V5A_TYPE_CB	PWR	+5V
B5	TBT2_CC2_CONN	I/O	
B6	USB2_1_DP_CM	DIFF	
B7	USB2_1_DN_CM	DIFF	
B8	NC		
B9	+V5A_TYPE_CB	PWR	+5V
B10	SSRX2N_CM_C	DIFF	
B11	SSRX2P_CM_C	DIFF	
B12	GND	GND	

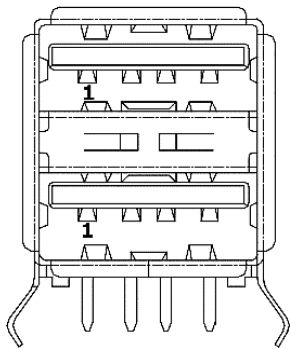
2.4.5 USB 3.2 Gen 2 Port 1 (Lane 0-1) (CN5)



Pin	Pin Name	Signal Type	Signal Level
A1	GND	GND	
A2	SSTX0P_CM_C	DIFF	
A3	SSTX0N_CM_C	DIFF	
A4	+V5A_TYPE_CA	PWR	+5V
A5	TBT1_CC1_CONN	I/O	
A6	USB2_0_DP_CM	DIFF	
A7	USB2_0_DN_CM	DIFF	
A8	NC		
A9	+V5A_TYPE_CA	PWR	+5V

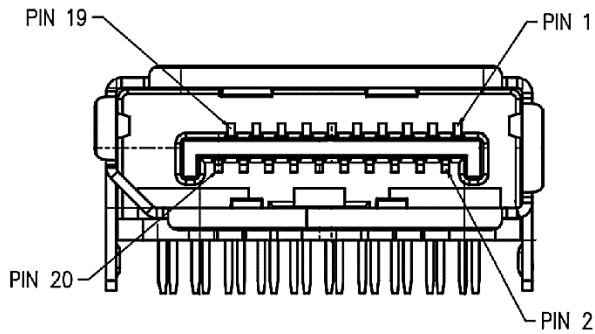
Pin	Pin Name	Signal Type	Signal Level
A10	SSRX1N_CM_C	DIFF	
A11	SSRX1P_CM_C	DIFF	
A12	GND	GND	
B1	GND	GND	
B2	SSTX1P_CM_C	DIFF	
B3	SSTX1N_CM_C	DIFF	
B4	+V5A_TYPE_CA	PWR	+5V
B5	TBT1_CC2_CONN	I/O	
B6	USB2_0_DP_CM	DIFF	
B7	USB2_0_DN_CM	DIFF	
B8	NC		
B9	+V5A_TYPE_CA	PWR	+5V
B10	SSRX0N_CM_C	DIFF	
B11	SSRX0P_CM_C	DIFF	
B12	GND	GND	

2.4.6 Dual USB 2.0 (Lane 6-7) (CN7)



Pin	Pin Name	Signal Type	Signal Level
1	+5V_DUAL_USB_67	PWR	+5V
2	USB2N_6_CM	DIFF	
3	USB2P_6_CM	DIFF	
4	GND	GND	
5	+5V_DUAL_USB_67	PWR	+5V
6	USB2N_7_CM	DIFF	
7	USB2P_7_CM	DIFF	
8	GND	GND	

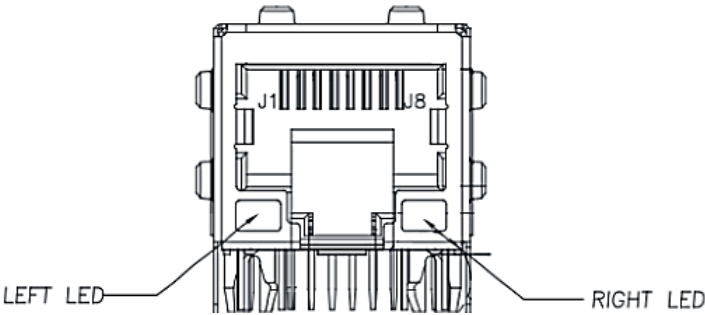
2.4.7 Display Port 1 (DDI 0) (CN8)



Pin	Pin Name	Signal Type	Signal Level
1	DDIO_LANE0_DP_C	DIFF	
2	GND	GND	
3	DDIO_LANE0_DN_C	DIFF	
4	DDIO_LANE1_DP_C	DIFF	
5	GND	GND	
6	DDIO_LANE1_DN_C	DIFF	
7	DDIO_LANE2_DP_C	DIFF	
8	GND	GND	
9	DDIO_LANE2_DN_C	DIFF	
10	DDIO_LANE3_DP_C	DIFF	
11	GND	GND	
12	DDIO_LANE3_DN_C	DIFF	
13	DDIO_AUTO_SEL	I/O	
14	GND	GND	
15	DDIO_AUXP_RP	DIFF	
16	GND	GND	
17	DDIO_AUXN_RP	DIFF	
18	DP0_HPD	I/O	
19	GND	GND	
20	+V3P3S_DP_F0	PWR	3.3V

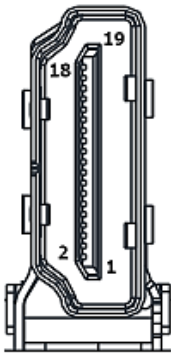
Note: The driving current supports up to 0.5A.

2.4.8 2.5GbE RJ-45 Port 1 (CN9)



Pin	Pin Name	Signal Type	Signal Level
J1	LAN0_MDI0P	DIFF	
J2	LAN0_MDI0N	DIFF	
J3	LAN0_MDI1P	DIFF	
J4	LAN0_MDI1N	DIFF	
J5	LAN0_MDI2P	DIFF	
J6	LAN0_MDI2N	DIFF	
J7	LAN0_MDI3P	DIFF	
J8	LAN0_MDI3N	DIFF	

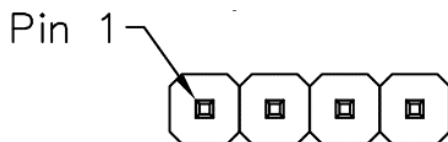
2.4.9 HDMI (DDI 1) (CN10)



Pin	Pin Name	Signal Type	Signal Level
1	HDMI1_D2_DP_CM	DIFF	
2	GND	GND	
3	HDMI1_D2_DN_CM	DIFF	
4	HDMI1_D1_DP_CM	DIFF	
5	GND	GND	
6	HDMI1_D1_DN_CM	DIFF	
7	HDMI1_D0_DP_CM	DIFF	
8	GND	GND	
9	HDMI1_D0_DN_CM	DIFF	
10	HDMI1_CLK_DP_CM	DIFF	
11	GND	GND	
12	HDMI1_CLK_DN_CM	DIFF	
13	NC		
14	NC		
15	HDMI1_SCL	I/O	
16	HDMI1_SDA	I/O	
17	GND	GND	
18	+V5S_HDMI1	PWR	+5V
19	HDMI1_HPD	I/O	

Note: The driving current supports up to 0.5A.

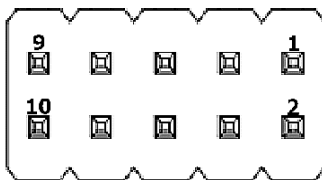
2.4.10 SMBus Pin Header (CN11)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	SMBDAT_SBY	I/O	
3	SMBCLK_SBY	I/O	
4	+VCC_SMBus	PWR	+5V

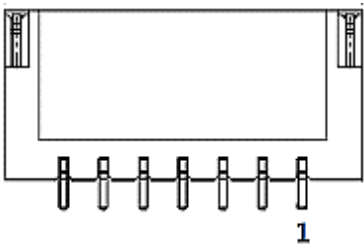
Note: The driving current supports up to 1A.

2.4.11 GSPI (CN13)



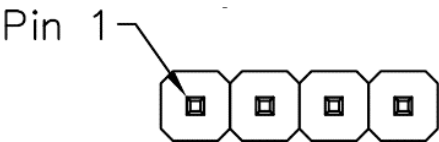
Pin	Pin Name	Signal Type	Signal Level
1	+3V3	PWR	+3.3V
2	GND	GND	
3	CB_GSPI0_MOSI	I/O	
4	CB_GSPI0_CS0#	I/O	
5	CB_GSPI0_MISO	I/O	
6	CB_GSPI0_CS1#	I/O	
7	CB_GSPI0_ALERT	I/O	
8	CB_GSPI0_CLK	I/O	
9	NC		
10	NC		

2.4.12 SPI (CN14)



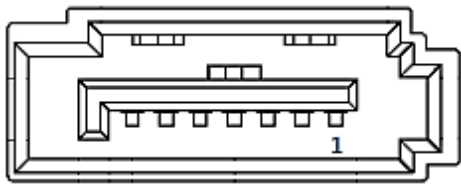
Pin	Pin Name	Signal Type	Signal Level
1	SPI_SO_PH	Signal	
2	GND	GND	
3	SPI_CLK_PH	Signal	
4	+3.3V	PWR	+3.3V
5	SPI_SI_PH	Signal	
6	SPI_CE0#_PH	Signal	
7	NC		

2.4.13 I2C0 Pin Header (CN15)



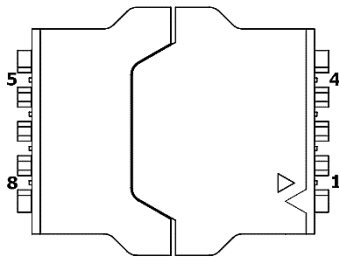
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	I2C0_CLK	I/O	
3	I2C0_DAT	I/O	
4	+3.3V	PWR	+3.3V

2.4.14 SATA 6 Gb/s Port 2 (Lane 1) (CN16)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	SATA0_TXP	DIFF	
3	SATA0_TXN	DIFF	
4	GND	GND	
5	SATA0_RXN	DIFF	
6	SATA0_RXP	DIFF	
7	GND	GND	

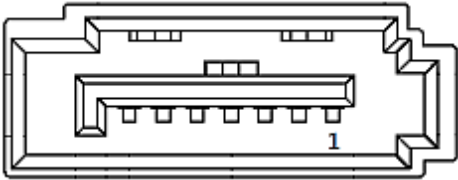
2.4.15 SPI Socket (CN18)



Pin	Pin Name	Signal Type	Signal Level
1	SPI_CE#_R	I/O	
2	SPI_SO_R	I/O	
3	SPI_WP#_R	I/O	
4	GND	GND	
5	SPI_SI_R	I/O	
6	SPI_CLK_R	I/O	
7	SPI_HOLD#_R	I/O	

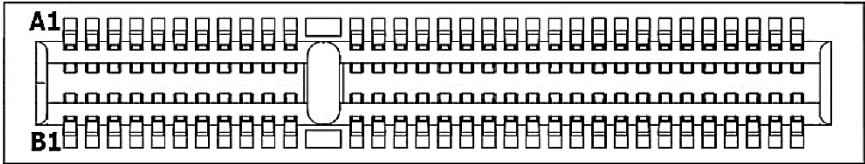
Pin	Pin Name	Signal Type	Signal Level
8	3.3V	PWR	+3.3V

2.4.16 SATA 6 Gb/s Port 1 (Lane 0) (CN19)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	SATA1_TXP	DIFF	
3	SATA1_TXN	DIFF	
4	GND	GND	
5	SATA1_RXN	DIFF	
6	SATA1_RXP	DIFF	
7	GND	GND	

2.4.17 PCIe Gen 3 [x4] (Lane 4-6) (CN20)



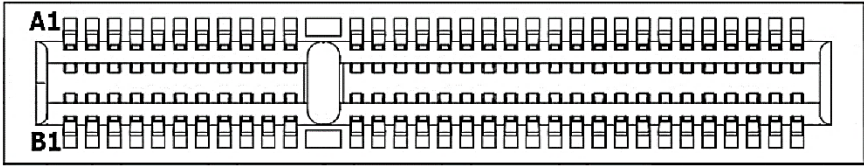
Pin	Pin Name	Signal Type	Signal Level
A1	GND	GND	
A2	+12V_EXT	PWR	+12V
A3	+12V_EXT	PWR	+12V
A4	GND	GND	
A5	NC		
A6	NC		
A7	NC		

Pin	Pin Name	Signal Type	Signal Level
A8	NC		
A9	+3V3_EXT	PWR	+3.3V
A10	+3V3_EXT	PWR	+3.3V
A11	BUF_PLT_RST3#	I/O	
A12	GND	GND	
A13	PCIE2_x4_CLK	DIFF	
A14	PCIE2_x4_CLK#	DIFF	
A15	GND	GND	
A16	PCIE_RX4+_SLOT	DIFF	
A17	PCIE_RX4-_SLOT	DIFF	
A18	GND	GND	
A19	NC		
A20	GND	GND	
A21	PCIE_RX5+_SLOT	DIFF	
A22	PCIE_RX5-_SLOT	DIFF	
A23	GND	GND	
A24	GND	GND	
A25	PCIE_RX6+_SLOT	DIFF	
A26	PCIE_RX6-_SLOT	DIFF	
A27	GND	GND	
A28	GND	GND	
A29	PCIE_RX7+_SLOT	DIFF	
A30	PCIE_RX7-_SLOT	DIFF	
A31	GND	GND	
A32	NC		
B1	+12V_EXT	PWR	+12V
B2	+12V_EXT	PWR	+12V
B3	+12V_EXT	PWR	+12V
B4	GND	GND	
B5	SMB_CLK	I/O	
B6	SMB_DATA	I/O	
B7	GND	GND	
B8	+3V3_EXT	PWR	+3.3V
B9	NC		

Pin	Pin Name	Signal Type	Signal Level
B10	+3V3_DUAL	PWR	+3.3V
B11	PCIE_WAKE#	I/O	
B12	PCIE2_x4_CLK_REQ#_R	I/O	
B13	GND	GND	
B14	PCIE_TX4+_SLOT	DIFF	
B15	PCIE_TX4-_SLOT	DIFF	
B16	GND	GND	
B17	PCIE2_X4_PRSNT	I/O	
B18	GND	GND	
B19	PCIE_TX5+_SLOT	DIFF	
B20	PCIE_TX5-_SLOT	DIFF	
B21	GND	GND	
B22	GND	GND	
B23	PCIE_TX6+_SLOT	DIFF	
B24	PCIE_TX6-_SLOT	DIFF	
B25	GND	GND	
B26	GND	GND	
B27	PCIE_TX7+_SLOT	DIFF	
B28	PCIE_TX7-_SLOT	DIFF	
B29	GND	GND	
B30	NC		
B31	PCIE2_X4_PRSNT	I/O	
B32	GND	GND	

Note: Supports PCIe_CLK_REQ (Default off).

2.4.18 PCIe Gen 3 [x4] (Lanes 0-3) (CN21)



Pin	Pin Name	Signal Type	Signal Level
A1	GND	GND	
A2	+12V_EXT	PWR	+12V
A3	+12V_EXT	PWR	+12V
A4	GND	GND	
A5	NC		
A6	NC		
A7	NC		
A8	NC		
A9	+3V3_EXT	PWR	+3.3V
A10	+3V3_EXT	PWR	+3.3V
A11	BUF_PLT_RST3#	I/O	
A12	GND	GND	
A13	PCIE_x4SLOT_CLK	DIFF	
A14	PCIE_x4SLOT_CLK#	DIFF	
A15	GND	GND	
A16	PCIE_RX0+_SLOT	DIFF	
A17	PCIE_RX0-_SLOT	DIFF	
A18	GND	GND	
A19	NC		
A20	GND	GND	
A21	PCIE_RX1+_SLOT	DIFF	
A22	PCIE_RX1-_SLOT	DIFF	
A23	GND	GND	
A24	GND	GND	
A25	PCIE_RX2+_SLOT	DIFF	
A26	PCIE_RX2-_SLOT	DIFF	
A27	GND	GND	

Pin	Pin Name	Signal Type	Signal Level
A28	GND	GND	
A29	PCIE_RX3+_SLOT	DIFF	
A30	PCIE_RX3-_SLOT	DIFF	
A31	GND	GND	
A32	NC		
B1	+12V_EXT	PWR	+12V
B2	+12V_EXT	PWR	+12V
B3	+12V_EXT	PWR	+12V
B4	GND	GND	
B5	SMB_CLK	I/O	
B6	SMB_DATA	I/O	
B7	GND	GND	
B8	+3V3_EXT	PWR	+3.3V
B9	NC		
B10	+3V3_DUAL	PWR	+3.3V
B11	PCIE_WAKE#	I/O	
B12	PCIE_x4_CLK_REQ#_R	I/O	
B13	GND	GND	
B14	PCIE_TX0+_SLOT	DIFF	
B15	PCIE_TX0-_SLOT	DIFF	
B16	GND	GND	
B17	PCIE_X4_PRSENT	I/O	
B18	GND	GND	
B19	PCIE_TX1+_SLOT	DIFF	
B20	PCIE_TX1-_SLOT	DIFF	
B21	GND	GND	
B22	GND	GND	
B23	PCIE_TX2+_SLOT	DIFF	
B24	PCIE_TX2-_SLOT	DIFF	
B25	GND	GND	
B26	GND	GND	
B27	PCIE_TX3+_SLOT	DIFF	
B28	PCIE_TX3-_SLOT	DIFF	
B29	GND	GND	

Pin	Pin Name	Signal Type	Signal Level
B30	NC		
B31	PCIE_X4_PRSENT	I/O	
B32	GND	GND	

Note: Supports PCIe_CLK_REQ (Default off).

2.4.19 COM-HPC Row A/B/C/D (CN22)

Pin	Row A	Pin	Row B
A01	VCC	B01	VCC
A02	VCC	B02	PWRBTN#
A03	VCC	B03	VCC
A04	VCC	B04	THERMTRIP#
A05	VCC	B05	VCC
A06	VCC	B06	TAMPER#
A07	VCC	B07	VCC
A08	VCC	B08	SUS_S3#
A09	VCC	B09	VCC
A10	GND	B10	WD_STROBE#
A11	BATLOW#	B11	WD_OUT
A12	PLTRST#	B12	GND
A13	GND	B13	USB5-
A14	USB7-	B14	USB5+
A15	USB7+	B15	GND
A16	GND	B16	USB4-
A17	USB6-	B17	USB4+
A18	USB6+	B18	GND
A19	GND	B19	I2S_LRCLK/SNDW_CLK3
A20	DDI1_SDA_AUX-	B20	I2S_DOUT/SNDW_DAT3
A21	DDI1_SCL_AUX+	B21	I2S_MCLK
A22	GND	B22	I2S_DIN/SNDW_DAT2
A23	DDI1_PAIR0-	B23	I2S_CLK/SNDW_CLK2
A24	DDI1_PAIR0+	B24	VCC_5V_SBY

Pin	Row A	Pin	Row B
A25	GND	B25	USB67_OC#
A26	DDI1_PAIR1-	B26	USB45_OC#
A27	DDI1_PAIR1+	B27	USB23_OC#
A28	GND	B28	USB01_OC#
A29	DDI1_PAIR2-	B29	SML1_CLK
A30	DDI1_PAIR2+	B30	SML1_DAT
A31	GND	B31	PMCALERT#
A32	DDI1_PAIR3-	B32	SML0_CLK
A33	DDI1_PAIR3+	B33	SML0_DAT
A34	GND	B34	USB_PD_ALERT#
A35	eDP_AUX-	B35	USB_PD_I2C_CLK
A36	eDP_AUX+	B36	USB_PD_I2C_DAT
A37	GND	B37	USB_RT_ENA
A38	eDP_TX0-	B38	USB1_LSRX
A39	eDP_TX0+	B39	USB1_LSTX
A40	GND	B40	USB0_LSRX
A41	eDP_TX1-	B41	USB0_LSTX
A42	eDP_TX1+	B42	GND
A43	GND	B43	USB0_AUX-
A44	eDP_TX2-	B44	USB0_AUX+
A45	eDP_TX2+	B45	LID#
A46	GND	B46	SLEEP#
A47	eDP_TX3-	B47	VCC_BOOT_SPI
A48	eDP_TX3+	B48	BOOT_SPI_CS#
A49	GND	B49	BSEL0
A50	eSPI_IO0	B50	BSEL1
A51	eSPI_IO1	B51	BSEL2
A52	eSPI_IO2	B52	eSPI_ALERT0#
A53	eSPI_IO3	B53	eSPI_ALERT1#
A54	eSPI_CLK	B54	eSPI_CS0#
A55	GND	B55	eSPI_CS1#
A56	PCIe_CLKREQ0_LO#	B56	eSPI_RST#
A57	PCIe_CLKREQ0_HI#	B57	GND
A58	GND	B58	PCIe_BMC_RX-

Pin	Row A	Pin	Row B
A59	PCle_BMC_TX-	B59	PCle_BMC_RX+
A60	PCle_BMC_TX+	B60	GND
A61	GND	B61	PCle08_RX-
A62	PCle08_TX-	B62	PCle08_RX+
A63	PCle08_TX+	B63	GND
A64	GND	B64	PCle09_RX-
A65	PCle09_TX-	B65	PCle09_RX+
A66	PCle09_TX+	B66	GND
A67	GND	B67	PCle10_RX-
A68	PCle10_TX-	B68	PCle10_RX+
A69	PCle10_TX+	B69	GND
A70	GND	B70	PCle11_RX-
A71	PCle11_TX-	B71	PCle11_RX+
A72	PCle11_TX+	B72	GND
A73	GND	B73	PCle12_RX-
A74	PCle12_TX-	B74	PCle12_RX+
A75	PCle12_TX+	B75	GND
A76	GND	B76	PCle13_RX-
A77	PCle13_TX-	B77	PCle13_RX+
A78	PCle13_TX+	B78	GND
A79	GND	B79	PCle14_RX-
A80	PCle14_TX-	B80	PCle14_RX+
A81	PCle14_TX+	B81	GND
A82	GND	B82	PCle15_RX-
A83	PCle15_TX-	B83	PCle15_RX+
A84	PCle15_TX+	B84	GND
A85	GND	B85	TEST#
A86	VCC_RTC	B86	RSMRST_OUT#
A87	SUS_CLK	B87	UART1_TX
A88	GPIO_00	B88	UART1_RX
A89	GPIO_01	B89	UART1_RTS#
A90	GPIO_02	B90	UART1_CTS#
A91	GPIO_03	B91	IPMB_CLK
A92	GPIO_04	B92	IPMB_DAT

Pin	Row A	Pin	Row B
A93	GPIO_05	B93	GP_SPI_MOSI
A94	GPIO_06	B94	GP_SPI_MISO
A95	GPIO_07	B95	GP_SPI_CS0#
A96	GPIO_08	B96	GP_SPI_CS1#
A97	GPIO_09	B97	GP_SPI_CS2#
A98	GPIO_10	B98	GP_SPI_CS3#
A99	GPIO_11	B99	GP_SPI_CLK
A100	TYPE0	B100	GP_SPI_ALERT#

Pin	Row C	Pin	Row D
C01	VCC	D01	VCC
C02	RSTBTN#	D02	VCC
C03	VCC	D03	VCC
C04	CARRIER_HOT#	D04	VCC
C05	VCC	D05	VCC
C06	VIN_PWROK	D06	VCC
C07	VCC	D07	VCC
C08	SUS_S4_S5#	D08	VCC
C09	VCC	D09	VCC
C10	GND	D10	WAKE0#
C11	FAN_PWMOUT	D11	WAKE1#
C12	FAN_TACHIN	D12	GND
C13	GND	D13	USB1-
C14	USB3-	D14	USB1+
C15	USB3+	D15	GND
C16	GND	D16	USB0-
C17	USB2-	D17	USB0+
C18	USB2+	D18	GND
C19	GND	D19	DDIO_SDA_AUX
C20	SNDW_DMIC_CLK1	D20	DDIO_SCL_AUX+
C21	SNDW_DMIC_DAT1	D21	GND
C22	GND	D22	DDIO_PAIR0-
C23	SNDW_DMIC_CLK0	D23	DDIO_PAIR0+
C24	SNDW_DMIC_DAT0	D24	GND

Pin	Row C	Pin	Row D
C25	GND	D25	DDIO_PAIR1-
C26	DDIO_DDC_AUX_SEL	D26	DDIO_PAIR1+
C27	DDI1_DDC_AUX_SEL	D27	GND
C28	DDIO_HPD	D28	DDIO_PAIR2-
C29	DDI1_HPD	D29	DDIO_PAIR2+
C30	eDP_HPD	D30	GND
C31	eDP_VDD_EN	D31	DDIO_PAIR3-
C32	eDP_BKLT_EN	D32	DDIO_PAIR3+
C33	eDP_BKLTCTL	D33	GND
C34	GND	D34	AC_PRESENT
C35	USB1_AUX-	D35	RSVD
C36	USB1_AUX+	D36	GND
C37	GND	D37	USB1_SSTX0-
C38	USB1_SSRX0-	D38	USB1_SSTX0+
C39	USB1_SSRX0+	D39	GND
C40	GND	D40	USB1_SSTX1-
C41	USB1_SSRX1-	D41	USB1_SSTX1+
C42	USB1_SSRX1+	D42	GND
C43	GND	D43	USB0_SSTX0-
C44	USB0_SSRX0-	D44	USB0_SSTX0+
C45	USB0_SSRX0+	D45	GND
C46	GND	D46	USB0_SSTX1-
C47	USB0_SSRX1-	D47	USB0_SSTX1+
C48	USB0_SSRX1+	D48	GND
C49	GND	D49	SATA0_RX-
C50	BOOT_SPI_IO0	D50	SATA0_RX+
C51	BOOT_SPI_IO1	D51	GND
C52	BOOT_SPI_IO2	D52	SATA0_TX-
C53	BOOT_SPI_IO3	D53	SATA0_TX+
C54	BOOT_SPI_CLK	D54	GND
C55	GND	D55	SATA1_RX-
C56	PCIe_REFCLK0_HI-	D56	SATA1_RX+
C57	PCIe_REFCLK0_HI+	D57	GND
C58	GND	D58	SATA1_TX-

Pin	Row C	Pin	Row D
C59	PCle_REFCLK0_LO-	D59	SATA1_TX+
C60	PCle_REFCLK0_LO+	D60	GND
C61	GND	D61	PCle00_TX-
C62	PCle00_RX-	D62	PCle00_TX+
C63	PCle00_RX+	D63	GND
C64	GND	D64	PCle01_TX-
C65	PCle01_RX-	D65	PCle01_TX+
C66	PCle01_RX+	D66	GND
C67	GND	D67	PCle02_TX-
C68	PCle02_RX-	D68	PCle02_TX+
C69	PCle02_RX+	D69	GND
C70	GND	D70	PCle03_TX-
C71	PCle03_RX-	D71	PCle03_TX+
C72	PCle03_RX+	D72	GND
C73	GND	D73	PCle04_TX-
C74	PCle04_RX-	D74	PCle04_TX+
C75	PCle04_RX+	D75	GND
C76	GND	D76	PCle05_TX-
C77	PCle05_RX-	D77	PCle05_TX+
C78	PCle05_RX+	D78	GND
C79	GND	D79	PCle06_TX-
C80	PCle06_RX-	D80	PCle06_TX+
C81	PCle06_RX+	D81	GND
C82	GND	D82	PCle07_TX-
C83	PCle07_RX-	D83	PCle07_TX+
C84	PCle07_RX+	D84	GND
C85	GND	D85	NBASET0_MDI0-
C86	SMB_CLK	D86	NBASET0_MDI0+
C87	SMB_DAT	D87	GND
C88	SMB_ALERT#	D88	NBASET0_MDI1-
C89	UART0_TX	D89	NBASET0_MDI1+
C90	UART0_RX	D90	GND
C91	UART0_RTS#	D91	NBASET0_MDI2-
C92	UART0_CTS#	D92	NBASET0_MDI2+

Pin	Row C	Pin	Row D
C93	I2C0_CLK	D93	GND
C94	I2C0_DAT	D94	NBASET0_MDI3-
C95	I2C0_ALERT#	D95	NBASET0_MDI3+
C96	I2C1_CLK	D96	GND
C97	I2C1_DAT	D97	NBASET0_LINK_MAX#
C98	NBASET0_SDP	D98	NBASET0_LINK_MID#
C99	NBASET0_CTREF	D99	NBASET0_LINK_ACT#
C100	TYPE1	D100	TYPE2

2.4.20 eDP (CN23)

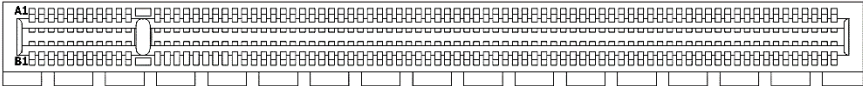
Pin	Pin Name	Signal Type	Signal Level
1	+VDD_LVDS_eDP	PWR	3.3V
2	+VDD_LVDS_eDP	PWR	3.3V
3	+VDD_LVDS_eDP	PWR	3.3V
4	GND	GND	
5	EDP_TX2_DN	DIFF	
6	EDP_TX2_DP	DIFF	
7	GND	GND	
8	EDP_TX1_DN	DIFF	
9	EDP_TX1_DP	DIFF	
10	GND	GND	
11	EDP_TX0_DN	DIFF	
12	EDP_TX0_DP	DIFF	
13	GND	GND	
14	EDP_TX3_DN	DIFF	
15	EDP_TX3_DP	DIFF	
16	GND	GND	
17	EDP_AUX_DN	DIFF	
18	EDP_AUX_DP	DIFF	
19	GND	GND	
20	EDP_BKLT_CTL	Signal	
21	NC		

Pin	Pin Name	Signal Type	Signal Level
22	EDP_BKLT_EN	Signal	
23	EDP_LVDS_HPD	Signal	
24	GND	GND	
25	GND	GND	
26	GND	GND	
27	+VCC_LVDS_BKLT	PWR	12V
28	+VCC_LVDS_BKLT	PWR	12V
29	+VCC_LVDS_BKLT	PWR	12V
30	+VCC_LVDS_BKLT	PWR	12V

Note: Pins 1, 2, 3 total driving current supports up to 2A.

Note: Pins 27, 28, 29, 30 total driving current supports up to 1.5A.

2.4.21 PCIe Gen4 [x16] (Lane 16-31) (CN24)



Pin	Pin Name	Signal Type	Signal Level
A1	GND	GND	
A2	+12V_EXT	PWR	+12V
A3	+12V_EXT	PWR	+12V
A4	GND	GND	
A5	NC		
A6	NC		
A7	NC		
A8	NC		
A9	+3V3_EXT	PWR	+3.3V
A10	+3V3_EXT	PWR	+3.3V
A11	BUF_PLT_RST1#	I/O	
A12	GND	GND	
A13	PCIE_x16SLOT1_CLK_R	DIFF	
A14	PCIE_x16SLOT1_CLK#_R	DIFF	

Pin	Pin Name	Signal Type	Signal Level
A15	GND	GND	
A16	PEG_RX16+_SLOT	DIFF	
A17	PEG_RX16-_SLOT	DIFF	
A18	GND	GND	
A19	NC		
A20	GND	GND	
A21	PEG_RX17+_SLOT	DIFF	
A22	PEG_RX17-_SLOT	DIFF	
A23	GND	GND	
A24	GND	GND	
A25	PEG_RX18+_SLOT	DIFF	
A26	PEG_RX18-_SLOT	DIFF	
A27	GND	GND	
A28	GND	GND	
A29	PEG_RX19+_SLOT	DIFF	
A30	PEG_RX19-_SLOT	DIFF	
A31	GND	GND	
A32	NC		
A33	NC		
A34	GND	GND	
A35	PEG_RX20+_SLOT	DIFF	
A36	PEG_RX20-_SLOT	DIFF	
A37	GND	GND	
A38	GND	GND	
A39	PEG_RX21+_SLOT	DIFF	
A40	PEG_RX21-_SLOT	DIFF	
A41	GND	GND	
A42	GND	GND	
A43	PEG_RX22+_SLOT	DIFF	
A44	PEG_RX22-_SLOT	DIFF	
A45	GND	GND	
A46	GND	GND	
A47	PEG_RX23+_SLOT	DIFF	
A48	PEG_RX23-_SLOT	DIFF	

Pin	Pin Name	Signal Type	Signal Level
A49	GND	GND	
A50	NC		
A51	GND	GND	
A52	PEG_RX24+_SLOT	DIFF	
A53	PEG_RX24-_SLOT	DIFF	
A54	GND	GND	
A55	GND	GND	
A56	PEG_RX25+_SLOT	DIFF	
A57	PEG_RX25-_SLOT	DIFF	
A58	GND	GND	
A59	GND	GND	
A60	PEG_RX26+_SLOT	DIFF	
A61	PEG_RX26-_SLOT	DIFF	
A62	GND	GND	
A63	GND	GND	
A64	PEG_RX27+_SLOT	DIFF	
A65	PEG_RX27-_SLOT	DIFF	
A66	GND	GND	
A67	GND	GND	
A68	PEG_RX28+_SLOT	DIFF	
A69	PEG_RX28-_SLOT	DIFF	
A70	GND	GND	
A71	GND	GND	
A72	PEG_RX29+_SLOT	DIFF	
A73	PEG_RX29-_SLOT	DIFF	
A74	GND	GND	
A75	GND	GND	
A76	PEG_RX30+_SLOT	DIFF	
A77	PEG_RX30-_SLOT	DIFF	
A78	GND	GND	
A79	GND	GND	
A80	PEG_RX31+_SLOT	DIFF	
A81	PEG_RX31-_SLOT	DIFF	
A82	GND	GND	

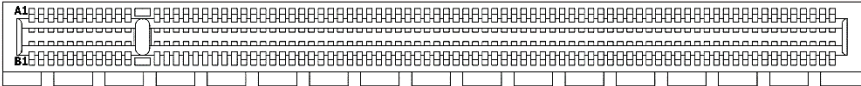
Pin	Pin Name	Signal Type	Signal Level
B1	+12V_EXT	PWR	+12V
B2	+12V_EXT	PWR	+12V
B3	+12V_EXT	PWR	+12V
B4	GND	GND	
B5	SMB_CLK	I/O	
B6	SMB_DATA	I/O	
B7	GND	GND	
B8	+3V3_EXT	PWR	+3.3V
B9	NC		
B10	+3V3_DUAL	PWR	+3.3V
B11	PCIE_WAKE#	I/O	
B12	PCIE_CLKREQ1#_R	I/O	
B13	GND	GND	
B14	PEG_TX16+_SLOT	DIFF	
B15	PEG_TX16-_SLOT	DIFF	
B16	GND	GND	
B17	PCIE_X16_1_PRSENT	I/O	
B18	GND	GND	
B19	PEG_TX17+_SLOT	DIFF	
B20	PEG_TX17-_SLOT	DIFF	
B21	GND	GND	
B22	GND	GND	
B23	PEG_TX18+_SLOT	DIFF	
B24	PEG_TX18-_SLOT	DIFF	
B25	GND	GND	
B26	GND	GND	
B27	PEG_TX19+_SLOT	DIFF	
B28	PEG_TX19-_SLOT	DIFF	
B29	GND	GND	
B30	NC		
B31	PCIE_X4_PRSENT	I/O	
B32	GND	GND	
B33	PEG_TX20+_SLOT	DIFF	
B34	PEG_TX20-_SLOT	DIFF	

Pin	Pin Name	Signal Type	Signal Level
B35	GND	GND	
B36	GND	GND	
B37	PEG_TX21+_SLOT	DIFF	
B38	PEG_TX21-_SLOT	DIFF	
B39	GND	GND	
B40	GND	GND	
B41	PEG_TX22+_SLOT	DIFF	
B42	PEG_TX22-_SLOT	DIFF	
B43	GND	GND	
B44	GND	GND	
B45	PEG_TX23+_SLOT	DIFF	
B46	PEG_TX23-_SLOT	DIFF	
B47	GND	GND	
B48	PCIE_X16_1_PRSN	I/O	
B49	GND	GND	
B50	PEG_TX24+_SLOT	DIFF	
B51	PEG_TX24-_SLOT	DIFF	
B52	GND	GND	
B53	GND	GND	
B54	PEG_TX25+_SLOT	DIFF	
B55	PEG_TX25-_SLOT	DIFF	
B56	GND	GND	
B57	GND	GND	
B58	PEG_TX26+_SLOT	DIFF	
B59	PEG_TX26-_SLOT	DIFF	
B60	GND	GND	
B61	GND	GND	
B62	PEG_TX27+_SLOT	DIFF	
B63	PEG_TX27-_SLOT	DIFF	
B64	GND	GND	
B65	GND	GND	
B66	PEG_TX28+_SLOT	DIFF	
B67	PEG_TX28-_SLOT	DIFF	
B68	GND	GND	

Pin	Pin Name	Signal Type	Signal Level
B69	GND	GND	
B70	PEG_TX29+_SLOT	DIFF	
B71	PEG_TX29-_SLOT	DIFF	
B72	GND	GND	
B73	GND	GND	
B74	PEG_TX30+_SLOT	DIFF	
B75	PEG_TX30-_SLOT	DIFF	
B76	GND	GND	
B77	GND	GND	
B78	PEG_TX31+_SLOT	DIFF	
B79	PEG_TX31-_SLOT	DIFF	
B80	GND	GND	
B81	PCIE_X16_1_PRSN	I/O	
B82	NC		

Note: Support PCIe_CLK_REQ (Default off).

2.4.22 PCIe Gen 4 [x4] (Lane 32-35) (CN25)



Pin	Pin Name	Signal Type	Signal Level
A1	GND	GND	
A2	+12V_EXT	PWR	+12V
A3	+12V_EXT	PWR	+12V
A4	GND	GND	
A5	NC		
A6	NC		
A7	NC		
A8	NC		
A9	+3V3_EXT	PWR	+3.3V
A10	+3V3_EXT	PWR	+3.3V

Pin	Pin Name	Signal Type	Signal Level
A11	BUF_PLT_RST2#	I/O	
A12	GND	GND	
A13	PCIE_x16SLOT2_CLK_R	DIFF	
A14	PCIE_x16SLOT2_CLK#_R	DIFF	
A15	GND	GND	
A16	PEG_RX0+_SLOT	DIFF	
A17	PEG_RX0-_SLOT	DIFF	
A18	GND	GND	
A19	NC		
A20	GND	GND	
A21	PEG_RX1+_SLOT	DIFF	
A22	PEG_RX1-_SLOT	DIFF	
A23	GND	GND	
A24	GND	GND	
A25	PEG_RX2+_SLOT	DIFF	
A26	PEG_RX2-_SLOT	DIFF	
A27	GND	GND	
A28	GND	GND	
A29	PEG_RX3+_SLOT	DIFF	
A30	PEG_RX3-_SLOT	DIFF	
A31	GND	GND	
A32	NC		
A33	NC		
A34	GND	GND	
A35	PEG_RX4+_SLOT	DIFF	
A36	PEG_RX4-_SLOT	DIFF	
A37	GND	GND	
A38	GND	GND	
A39	PEG_RX5+_SLOT	DIFF	
A40	PEG_RX5-_SLOT	DIFF	
A41	GND	GND	
A42	GND	GND	
A43	PEG_RX6+_SLOT	DIFF	
A44	PEG_RX6-_SLOT	DIFF	

Pin	Pin Name	Signal Type	Signal Level
A45	GND	GND	
A46	GND	GND	
A47	PEG_RX7+_SLOT	DIFF	
A48	PEG_RX7-_SLOT	DIFF	
A49	GND	GND	
A50	NC		
A51	GND	GND	
A52	PEG_RX8+_SLOT	DIFF	
A53	PEG_RX8-_SLOT	DIFF	
A54	GND	GND	
A55	GND	GND	
A56	PEG_RX9+_SLOT	DIFF	
A57	PEG_RX9-_SLOT	DIFF	
A58	GND	GND	
A59	GND	GND	
A60	PEG_RX10+_SLOT	DIFF	
A61	PEG_RX10-_SLOT	DIFF	
A62	GND	GND	
A63	GND	GND	
A64	PEG_RX11+_SLOT	DIFF	
A65	PEG_RX11-_SLOT	DIFF	
A66	GND	GND	
A67	GND	GND	
A68	PEG_RX12+_SLOT	DIFF	
A69	PEG_RX12-_SLOT	DIFF	
A70	GND	GND	
A71	GND	GND	
A72	PEG_RX13+_SLOT	DIFF	
A73	PEG_RX13-_SLOT	DIFF	
A74	GND	GND	
A75	GND	GND	
A76	PEG_RX14+_SLOT	DIFF	
A77	PEG_RX14-_SLOT	DIFF	
A78	GND	GND	

Pin	Pin Name	Signal Type	Signal Level
A79	GND	GND	
A80	PEG_RX15+_SLOT	DIFF	
A81	PEG_RX15-_SLOT	DIFF	
A82	GND	GND	

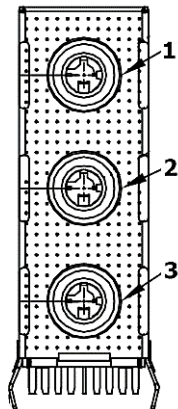
Pin	Pin Name	Signal Type	Signal Level
B1	+12V_EXT	PWR	+12V
B2	+12V_EXT	PWR	+12V
B3	+12V_EXT	PWR	+12V
B4	GND	GND	
B5	SMB_CLK	I/O	
B6	SMB_DATA	I/O	
B7	GND	GND	
B8	+3V3_EXT	PWR	+3.3V
B9	NC		
B10	+3V3_DUAL	PWR	+3.3V
B11	PCIE_WAKE#	I/O	
B12	PCIE_CLKREQ2#_R	I/O	
B13	GND	GND	
B14	PEG_TX0+_SLOT	DIFF	
B15	PEG_TX0-_SLOT	DIFF	
B16	GND	GND	
B17	PCIE_X16_2_PRSENT	I/O	
B18	GND	GND	
B19	PEG_TX1+_SLOT	DIFF	
B20	PEG_TX1-_SLOT	DIFF	
B21	GND	GND	
B22	GND	GND	
B23	PEG_TX2+_SLOT	DIFF	
B24	PEG_TX2-_SLOT	DIFF	
B25	GND	GND	
B26	GND	GND	
B27	PEG_TX3+_SLOT	DIFF	
B28	PEG_TX3-_SLOT	DIFF	

Pin	Pin Name	Signal Type	Signal Level
B29	GND	GND	
B30	NC		
B31	PCIE_X4_PRSENT	I/O	
B32	GND	GND	
B33	PEG_TX4+_SLOT	DIFF	
B34	PEG_TX4-_SLOT	DIFF	
B35	GND	GND	
B36	GND	GND	
B37	PEG_TX5+_SLOT	DIFF	
B38	PEG_TX5-_SLOT	DIFF	
B39	GND	GND	
B40	GND	GND	
B41	PEG_TX6+_SLOT	DIFF	
B42	PEG_TX6-_SLOT	DIFF	
B43	GND	GND	
B44	GND	GND	
B45	PEG_TX7+_SLOT	DIFF	
B46	PEG_TX7-_SLOT	DIFF	
B47	GND	GND	
B48	PCIE_X16_2_PRSENT	I/O	
B49	GND	GND	
B50	PEG_TX8+_SLOT	DIFF	
B51	PEG_TX8-_SLOT	DIFF	
B52	GND	GND	
B53	GND	GND	
B54	PEG_TX9+_SLOT	DIFF	
B55	PEG_TX9-_SLOT	DIFF	
B56	GND	GND	
B57	GND	GND	
B58	PEG_TX10+_SLOT	DIFF	
B59	PEG_TX10-_SLOT	DIFF	
B60	GND	GND	
B61	GND	GND	
B62	PEG_TX11+_SLOT	DIFF	

Pin	Pin Name	Signal Type	Signal Level
B63	PEG_TX11-_SLOT	DIFF	
B64	GND	GND	
B65	GND	GND	
B66	PEG_TX12+_SLOT	DIFF	
B67	PEG_TX12-_SLOT	DIFF	
B68	GND	GND	
B69	GND	GND	
B70	PEG_TX13+_SLOT	DIFF	
B71	PEG_TX13-_SLOT	DIFF	
B72	GND	GND	
B73	GND	GND	
B74	PEG_TX14+_SLOT	DIFF	
B75	PEG_TX14-_SLOT	DIFF	
B76	GND	GND	
B77	GND	GND	
B78	PEG_TX15+_SLOT	DIFF	
B79	PEG_TX15-_SLOT	DIFF	
B80	GND	GND	
B81	PCIE_X16_2_PRSENT	I/O	
B82	NC		

Note: Support PCIe_CLK_REQ (Default off).

2.4.23 High Definition Audio Connector (CN26)



Pin	Pin Name	Signal Type
1	Line IN	Signal
2	Line OUT	Signal
3	MIC	Signal

2.4.24 COM-HPC ROW E/F/G/H (CN27)

Pin	Row E	Pin	Row F
E1	RAPID_SHUTDOWN	F1	RSVD
E2	GND	F2	RSVD
E3	DDI2_SDA_AUX-	F3	RSVD
E4	DDI2_SCL_AUX+	F4	RSVD
E5	GND	F5	RSVD
E6	DDI2_PAIR0-	F6	RSVD
E7	DDI2_PAIR0+	F7	RSVD
E8	GND	F8	RSVD
E9	DDI2_PAIR1-	F9	RSVD
E10	DDI2_PAIR1+	F10	RSVD
E11	GND	F11	RSVD
E12	DDI2_PAIR2-	F12	RSVD

Pin	Row E	Pin	Row F
E13	DDI2_PAIR2+	F13	RSVD
E14	GND	F14	RSVD
E15	DDI2_PAIR3-	F15	RSVD
E16	DDI2_PAIR3+	F16	RSVD
E17	GND	F17	RSVD
E18	DDI2_DDC_AUX_SEL	F18	RSVD
E19	DDI2_HPD	F19	GND
E20	GND	F20	PCle32_RX-
E21	PCle32_TX-	F21	PCle32_RX+
E22	PCle32_TX+	F22	GND
E23	GND	F23	PCle33_RX-
E24	PCle33_TX-	F24	PCle33_RX+
E25	PCle33_TX+	F25	GND
E26	GND	F26	PCle34_RX-
E27	PCle34_TX-	F27	PCle34_RX+
E28	PCle34_TX+	F28	GND
E29	GND	F29	PCle35_RX-
E30	PCle35_TX-	F30	PCle35_RX+
E31	PCle35_TX+	F31	GND
E32	GND	F32	PCle36_RX-
E33	PCle36_TX-	F33	PCle36_RX+
E34	PCle36_TX+	F34	GND
E35	GND	F35	PCle37_RX-
E36	PCle37_TX-	F36	PCle37_RX+
E37	PCle37_TX+	F37	GND
E38	GND	F38	PCle38_RX-
E39	PCle38_TX-	F39	PCle38_RX+
E40	PCle38_TX+	F40	GND
E41	GND	F41	PCle39_RX-
E42	PCle39_TX-	F42	PCle39_RX+
E43	PCle39_TX+	F43	GND
E44	GND	F44	PCle16_RX-
E45	PCle16_TX-	F45	PCle16_RX+
E46	PCle16_TX+	F46	GND

Pin	Row E	Pin	Row F
E47	GND	F47	PCle17_RX-
E48	PCle17_TX-	F48	PCle17_RX+
E49	PCle17_TX+	F49	GND
E50	GND	F50	PCle18_RX-
E51	PCle18_TX-	F51	PCle18_RX+
E52	PCle18_TX+	F52	GND
E53	GND	F53	PCle19_RX-
E54	PCle19_TX-	F54	PCle19_RX+
E55	PCle19_TX+	F55	GND
E56	GND	F56	PCle20_RX-
E57	PCle20_TX-	F57	PCle20_RX+
E58	PCle20_TX+	F58	GND
E59	GND	F59	PCle21_RX-
E60	PCle21_TX-	F60	PCle21_RX+
E61	PCle21_TX+	F61	GND
E62	GND	F62	PCle22_RX-
E63	PCle22_TX-	F63	PCle22_RX+
E64	PCle22_TX+	F64	GND
E65	GND	F65	PCle23_RX-
E66	PCle23_TX-	F66	PCle23_RX+
E67	PCle23_TX+	F67	GND
E68	GND	F68	RSVD
E69	RSVD	F69	RSVD
E70	RSVD	F70	GND
E71	RSVD	F71	NBASET1_MDI0-
E72	RSVD	F72	NBASET1_MDI0+
E73	RSVD	F73	GND
E74	RSVD	F74	NBASET1_MDI1-
E75	RSVD	F75	NBASET1_MDI1+
E76	RSVD	F76	GND
E77	RSVD	F77	NBASET1_MDI2-
E78	NBASET1_CTREF	F78	NBASET1_MDI2+
E79	NBASET1_SDP	F79	GND
E80	NBASET1_LINK_MID#	F80	NBASET1_MDI3-

Pin	Row E	Pin	Row F
E81	NBASET1_LINK_ACT#	F81	NBASET1_MDI3+
E82	NBASET1_LINK_MAX#	F82	GND
E83	GND	F83	RSVD
E84	RSVD	F84	RSVD
E85	RSVD	F85	GND
E86	GND	F86	ETH0_TX-
E87	ETH0_RX-	F87	ETH0_TX+
E88	ETH0_RX+	F88	GND
E89	GND	F89	ETH1_TX-
E90	ETH1_RX-	F90	ETH1_TX+
E91	ETH1_RX+	F91	GND
E92	GND	F92	PCIe_REFCLK2-
E93	PCIe_REFCLK1-	F93	PCIe_REFCLK2+
E94	PCIe_REFCLK1+	F94	GND
E95	GND	F95	RSVD
E96	PCIe_CLKREQ1#	F96	ETH0-1_PRSENT#
E97	PCIe_CLKREQ2#	F97	ETH0-1_PHY_RST#
E98	PCIe_CLKREQ_OUT0#	F98	ETH0_SDP
E99	PCIe_CLKREQ_OUT1#	F99	ETH1_SDP
E100	PCIe_PERST_IN0#	F100	PCIe_PERST_IN1#

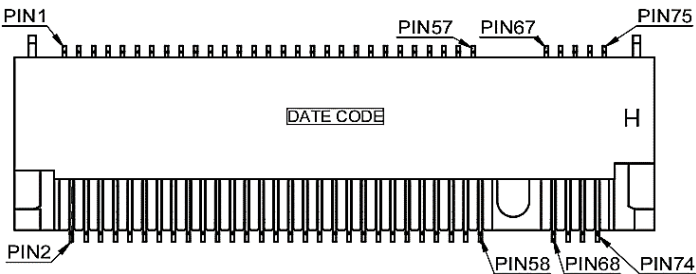
Pin	Row G	Pin	Row H
G1	RSVD	H1	GND
G2	GND	H2	USB2_SSTX0-
G3	USB2_SSRX0-	H3	USB2_SSTX0+
G4	USB2_SSRX0+	H4	GND
G5	GND	H5	USB2_SSTX1-
G6	USB2_SSRX1-	H6	USB2_SSTX1+
G7	USB2_SSRX1+	H7	GND
G8	GND	H8	USB3_SSTX0-
G9	USB3_SSRX0-	H9	USB3_SSTX0+
G10	USB3_SSRX0+	H10	GND
G11	GND	H11	USB3_SSTX1-
G12	USB3_SSRX1-	H12	USB3_SSTX1+

Pin	Row G	Pin	Row H
G13	USB3_SSRX1+	H13	GND
G14	GND	H14	USB2_AUX-
G15	USB3_LSRX	H15	USB2_AUX+
G16	USB3_LSTX	H16	GND
G17	USB2_LSRX	H17	USB3_AUX-
G18	USB2_LSTX	H18	USB3_AUX+
G19	PEG_LANE_REV#	H19	GND
G20	GND	H20	PCle40_TX-
G21	PCle40_RX-	H21	PCle40_TX+
G22	PCle40_RX+	H22	GND
G23	GND	H23	PCle41_TX-
G24	PCle41_RX-	H24	PCle41_TX+
G25	PCle41_RX+	H25	GND
G26	GND	H26	PCle42_TX-
G27	PCle42_RX-	H27	PCle42_TX+
G28	PCle42_RX+	H28	GND
G29	GND	H29	PCle43_TX-
G30	PCle43_RX-	H30	PCle43_TX+
G31	PCle43_RX+	H31	GND
G32	GND	H32	PCle44_TX-
G33	PCle44_RX-	H33	PCle44_TX+
G34	PCle44_RX+	H34	GND
G35	GND	H35	PCle45_TX-
G36	PCle45_RX-	H36	PCle45_TX+
G37	PCle45_RX+	H37	GND
G38	GND	H38	PCle46_TX-
G39	PCle46_RX-	H39	PCle46_TX+
G40	PCle46_RX+	H40	GND
G41	GND	H41	PCle47_TX-
G42	PCle47_RX-	H42	PCle47_TX+
G43	PCle47_RX+	H43	GND
G44	GND	H44	PCle24_TX-
G45	PCle24_RX-	H45	PCle24_TX+
G46	PCle24_RX+	H46	GND

Pin	Row G	Pin	Row H
G47	GND	H47	PCle25_TX-
G48	PCle25_RX-	H48	PCle25_TX+
G49	PCle25_RX+	H49	GND
G50	GND	H50	PCle26_TX-
G51	PCle26_RX-	H51	PCle26_TX+
G52	PCle26_RX+	H52	GND
G53	GND	H53	PCle27_TX-
G54	PCle27_RX-	H54	PCle27_TX+
G55	PCle27_RX+	H55	GND
G56	GND	H56	PCle28_TX-
G57	PCle28_RX-	H57	PCle28_TX+
G58	PCle28_RX+	H58	GND
G59	GND	H59	PCle29_TX-
G60	PCle29_RX-	H60	PCle29_TX+
G61	PCle29_RX+	H61	GND
G62	GND	H62	PCle30_TX-
G63	PCle30_RX-	H63	PCle30_TX+
G64	PCle30_RX+	H64	GND
G65	GND	H65	PCle31_TX-
G66	PCle31_RX-	H66	PCle31_TX+
G67	PCle31_RX+	H67	GND
G68	GND	H68	RSVD
G69	RSVD	H69	RSVD
G70	RSVD	H70	GND
G71	GND	H71	CSI1_RX0-
G72	CSI0_RX0-	H72	CSI1_RX0+
G73	CSI0_RX0+	H73	GND
G74	GND	H74	CSI1_RX1-
G75	CSI0_RX1-	H75	CSI1_RX1+
G76	CSI0_RX1+	H76	GND
G77	GND	H77	CSI1_RX2-
G78	CSI0_RX2-	H78	CSI1_RX2+
G79	CSI0_RX2+	H79	GND
G80	GND	H80	CSI1_RX3-

Pin	Row G	Pin	Row H
G81	CSI0_RX3-	H81	CSI1_RX3+
G82	CSI0_RX3+	H82	GND
G83	GND	H83	CSI1_CLK-
G84	CSI0_CLK-	H84	CSI1_CLK+
G85	CSI0_CLK+	H85	GND
G86	GND	H86	CSI1_I2C_CLK
G87	CSI0_I2C_CLK	H87	CSI1_I2C_DAT
G88	CSI0_I2C_DAT	H88	CSI1_MCLK
G89	CSI0_MCLK	H89	CSI1_RST#
G90	CSI0_RST#	H90	CSI1_ENA
G91	CSI0_ENA	H91	GND
G92	GND	H92	PCIe_REFCLKIN0-
G93	RSVD	H93	PCIe_REFCLKIN0+
G94	RSVD	H94	GND
G95	GND	H95	PCIe_REFCLKIN1-
G96	ETH0-1_I2C_CLK	H96	PCIe_REFCLKIN1+
G97	ETH0-1_I2C_DAT	H97	GND
G98	ETH0-1_PHY_INT#	H98	ETH0-1_MDIO_CLK
G99	ETH0-1_INT#	H99	ETH0-1_MDIO_DAT
G100	PCIe_WAKE_OUT0#	H100	PCIe_WAKE_OUT1#

2.4.25 M.2 2280 M-Key (PCIe Gen 4 Lane 12-15) (CN28)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	+3V3_DUAL	PWR	+3.3V

Pin	Pin Name	Signal Type	Signal Level
3	GND	GND	
4	+3V3_DUAL	PWR	+3.3V
5	PCIE_15_RXN_SLOT	DIFF	
6	NC		
7	PCIE_15_RXP_SLOT	DIFF	
8	NC		
9	GND	GND	
10	NC		
11	PCIE_15_TXN_SLOT	DIFF	
12	+3V3_DUAL	PWR	+3.3V
13	PCIE_15_TXP_SLOT	DIFF	
14	+3V3_DUAL	PWR	+3.3V
15	GND	GND	
16	+3V3_DUAL	PWR	+3.3V
17	PCIE_14_RXN_SLOT	DIFF	
18	+3V3_DUAL	PWR	+3.3V
19	PCIE_14_RXP_SLOT	DIFF	
20	NC		
21	GND	GND	
22	NC		
23	PCIE_14_TXN_SLOT	DIFF	
24	NC		
25	PCIE_14_TXP_SLOT	DIFF	
26	NC		
27	GND	GND	
28	NC		
29	PCIE_13_RXN_SLOT	DIFF	
30	NC		
31	PCIE_13_RXP_SLOT	DIFF	
32	NC		
33	GND	GND	
34	NC		
35	PCIE_13_TXN_SLOT	DIFF	
36	NC		

Pin	Pin Name	Signal Type	Signal Level
37	PCIE_13_TXP_SLOT	DIFF	
38	NC		
39	GND	GND	
40	GF1_SMCLK	I/O	
41	PCIE_12_RXN_SLOT	DIFF	
42	GF1_SMDAT	I/O	
43	PCIE_12_RXP_SLOT	DIFF	
44	NC		
45	GND	GND	
46	NC		
47	PCIE_12_TXN_SLOT	DIFF	
48	NC		
49	PCIE_12_TXP_SLOT	DIFF	
50	BUF_PLT_RST4#	I/O	
51	GND	GND	
52	PCIE_CLK4_REQ#	I/O	
53	PCIE_CLK4_REF-	DIFF	
54	PCIE_WAKE#	I/O	
55	PCIE_CLK4_REF+	DIFF	
56	NC		
57	GND	GND	
58	NC		
59			
60			
61			
62	KEY-M		
63			
64			
65			
66			
67	NC		
68	SUS_CLK2	I/O	
69	NC		
70	+3V3_DUAL	PWR	+3.3V

Pin	Pin Name	Signal Type	Signal Level
71	GND	GND	
72	+3V3_DUAL	PWR	+3.3V
73	GND	GND	
74	+3V3_DUAL	PWR	+3.3V
75	GND	GND	

Note: Support PCIe_CLK_REQ (Default off).

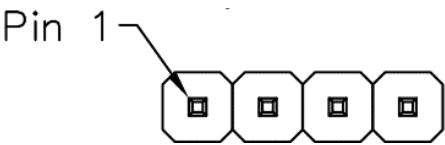
2.4.26 MIPI X4 CSI Connector Port 2 (CN29)

Pin	Pin Name	Signal Type	Pin	Pin Name	Signal Type
1	GND	GND	2	CAM_RST#	Signal
3	MCSI_ENA	Signal	4	MCSI_SDA	Signal
5	MCSI_SCL	Signal	6	GND	GND
7	OSC_CLK_OUT_2	Signal	8	GND	GND
9	MCSI_RX_DATAN_0	Signal	10	MCSI_RX_DATAP_0	Signal
11	GND	GND	12	MCSI_RX_DATAN_1	Signal
13	MCSI_RX_DATAP_1	Signal	14	GND	GND
15	MCSI_RX_CLKN_0	Signal	16	MCSI_RX_CLKP_0	Signal
17	GND	GND	18	MCSI_RX_DATAN_2	Signal
19	MCSI_RX_DATAP_2	Signal	20	GND	GND
21	MCSI_RX_DATAN_3	Signal	22	MCSI_RX_DATAP_3	Signal
23	GND	GND	24	+AVDD_CAM	PWR
25	GND_CAM	GND	26	+V1P2_CAM	PWR
27	+V1P8_CAM	PWR	28	GND	GND
29	+V2P8_CAM	PWR	30	+V2P8_CAM	PWR
31	GND	GND			

2.4.27 MIPI X4 CSI Connector Port 1 (CN30)

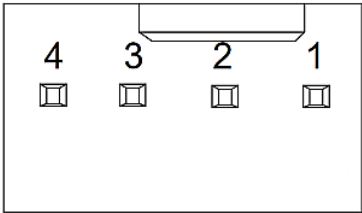
Pin	Pin Name	Signal Type	Pin	Pin Name	Signal Type
1	GND	GND	2	CAM_RST#	Signal
3	MCSI_ENA	Signal	4	MCSI_SDA	Signal
5	MCSI_SCL	Signal	6	GND	GND
7	OSC_CLK_OUT_3	Signal	8	GND	GND
9	MCSI_RX_DATAN_0	Signal	10	MCSI_RX_DATAP_0	Signal
11	GND	GND	12	MCSI_RX_DATAN_1	Signal
13	MCSI_RX_DATAP_1	Signal	14	GND	GND
15	MCSI_RX_CLKN_0	Signal	16	MCSI_RX_CLKP_0	Signal
17	GND	GND	18	MCSI_RX_DATAN_2	Signal
19	MCSI_RX_DATAP_2	Signal	20	GND	GND
21	MCSI_RX_DATAN_3	Signal	22	MCSI_RX_DATAP_3	Signal
23	GND	GND	24	+AVDD_CAM	PWR
25	GND_CAM	GND	26	+V1P2_CAM	PWR
27	+V1P8_CAM	PWR	28	GND	GND
29	+V2P8_CAM	PWR	30	+V2P8_CAM	PWR
31	GND	GND			

2.4.28 I2C1 Pin Header (CN31)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	I2C1_CLK	Signal	
3	I2C1_DAT	Signal	
4	+3.3V	PWR	+3.3V

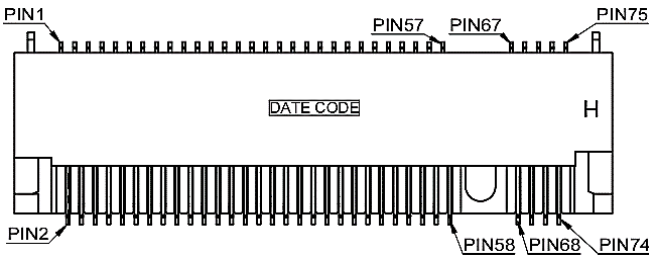
2.4.29 FAN 1 (CN32)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	+12V_FAN	PWR	+12V
3	FAN_CN_TACHIN	I/O	
4	FAN_CN_PWMOUT	I/O	

Note: FAN1 can be set to +5V or +12V by JP14.

2.4.30 M.2 2280 M-Key (PCIe Gen 4 Lane 8-11) (CN33)



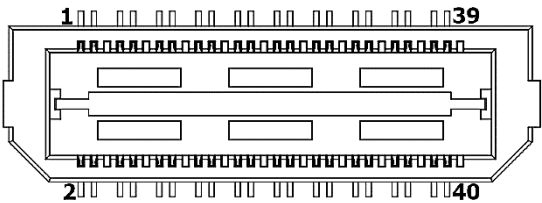
Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	+3V3_DUAL	PWR	+3.3V
3	GND	GND	
4	+3V3_DUAL	PWR	+3.3V
5	PCIE_11_RXN_SLOT	DIFF	
6	NC		
7	PCIE_11_RXP_SLOT	DIFF	

Pin	Pin Name	Signal Type	Signal Level
8	NC		
9	GND	GND	
10	NC		
11	PCIE_11_TXN_SLOT	DIFF	
12	+3V3_DUAL	PWR	+3.3V
13	PCIE_11_TXP_SLOT	DIFF	
14	+3V3_DUAL	PWR	+3.3V
15	GND	GND	
16	+3V3_DUAL	PWR	+3.3V
17	PCIE_10_RXN_SLOT	DIFF	
18	+3V3_DUAL	PWR	+3.3V
19	PCIE_10_RXP_SLOT	DIFF	
20	NC		
21	GND	GND	
22	NC		
23	PCIE_10_TXN_SLOT	DIFF	
24	NC		
25	PCIE_10_TXP_SLOT	DIFF	
26	NC		
27	GND	GND	
28	NC		
29	PCIE_9_RXN_SLOT	DIFF	
30	NC		
31	PCIE_9_RXP_SLOT	DIFF	
32	NC		
33	GND	GND	
34	NC		
35	PCIE_9_TXN_SLOT	DIFF	
36	NC		
37	PCIE_9_TXP_SLOT	DIFF	
38	NC		
39	GND	GND	
40	GF_SMCLK	I/O	
41	PCIE_8_RXN_SLOT	DIFF	

Pin	Pin Name	Signal Type	Signal Level
42	GF_SMDAT	I/O	
43	PCIE_8_RXP_SLOT	DIFF	
44	NC		
45	GND	GND	
46	NC		
47	PCIE_8_TXN_SLOT	DIFF	
48	NC		
49	PCIE_8_TXP_SLOT	DIFF	
50	BUF_PLT_RST4#	I/O	
51	GND	GND	
52	PCIE_CLK3_REQ#	I/O	
53	PCIE_CLK3_REF-	DIFF	
54	PCIE_WAKE#	I/O	
55	PCIE_CLK3_REF+	DIFF	
56	NC		
57	GND	GND	
58	NC		
59	KEY-M		
60			
61			
62			
63			
64			
65			
66			
67	NC		
68	SUS_CLK1	I/O	
69	NC		
70	+3V3_DUAL	PWR	+3.3V
71	GND	GND	
72	+3V3_DUAL	PWR	+3.3V
73	GND	GND	
74	+3V3_DUAL	PWR	+3.3V
75	GND	GND	

Note: Support PCIe_CLK_REQ (Default off).

2.4.31 25G Module Connector (CN34)

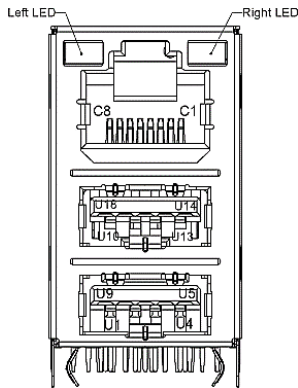


Pin	Pin Name	Signal Type	Signal Level
1	ETH0_TX+	DIFF	
2	ETH0_SDP	Signal	
3	ETH0_TX-	DIFF	
4	ETH0_INT#	Signal	
5	ETH0_RX+	DIFF	
6	ETH1_SDP	Signal	
7	ETH0_RX-	DIFF	
8	NA		
9	ETH1_TX+	DIFF	
10	ETH0_I2C0_DAT	Signal	
11	ETH1_TX-	DIFF	
12	ETH0_I2C0_CLK	Signal	
13	ETH1_RX+	DIFF	
14	ETH0_MDIO_DAT	Signal	
15	ETH1_RX-	DIFF	
16	ETH0_MDIO_CLK	Signal	
17	NA		
18	ETH0_PHY_INT#	Signal	
19	NA		
20	ETH01_PHY_RST#	Signal	
21	NA		
22	ETH01_PRSNT#	Signal	
23	NA		

Pin	Pin Name	Signal Type	Signal Level
24	NA		
25	NA		
26	NA		
27	NA		
28	NA		
29	NA		
30	NA		
31	NA		
32	NA		
33	NA		
34	+12V_EXT	PWR	+12V
35	NA		
36	+12V_EXT	PWR	+12V
37	NA		
38	+12V_EXT	PWR	+12V
39	NA		
40	+12V_EXT	PWR	+12V

Note: CN34 is optional.

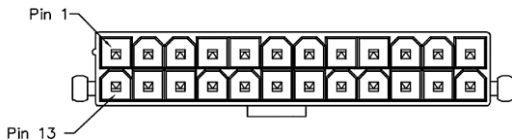
2.4.32 10G RJ-45 Port 2/Dual USB 3.2 (Lane 6-7) (CN35)



Pin	Pin Name	Signal Type	Signal Level
U1	+5V_DUAL_USB_2	PWR	+5V
U2	USB2_4_DN_CM	DIFF	
U3	USB2_4_DP_CM	DIFF	
U4	GND	GND	
U5	USB3_2_RXN_CM	DIFF	
U6	USB3_2_RXP_CM	DIFF	
U7	GND	GND	
U8	USB3_2_TXN_CM	DIFF	
U9	USB3_2_TXP_CM	DIFF	
U10	+5V_DUAL_USB_3	PWR	+5V
U11	USB2_5_DN_CM	DIFF	
U12	USB2_5_DP_CM	DIFF	
U13	GND	GND	
U14	USB3_3_RXN_CM	DIFF	
U15	USB3_3_RXP_CM	DIFF	
U16	GND	GND	
U17	USB3_3_TXN_CM	DIFF	
U18	USB3_3_TXP_CM	DIFF	
Pin	Pin Name	Signal Type	Signal Level
C1	LAN1_MDIOP	DIFF	

Pin	Pin Name	Signal Type	Signal Level
C2	LAN1_MDI0N	DIFF	
C3	LAN1_MDI1P	DIFF	
C4	LAN1_MDI1N	DIFF	
C5	LAN1_MDI2P	DIFF	
C6	LAN1_MDI2N	DIFF	
C7	LAN1_MDI3P	DIFF	
C8	LAN1_MDI3N	DIFF	

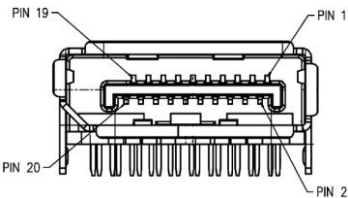
2.4.33 24-Pin ATX Power (CN37)



Pin	Pin Name	Signal Type	Signal Level
1	+3V3_EXT	PWR	+3.3V
2	+3V3_EXT	PWR	+3.3V
3	GND	GND	
4	+5V_EXT	PWR	+5V
5	GND	GND	
6	+5V_EXT	PWR	+5V
7	GND	GND	
8	CN_PWROK	I/O	
9	+5VSB_EXT	PWR	+5V
10	+12V_EXT	PWR	+12V
11	+12V_EXT	PWR	+12V
12	+3V3_EXT	PWR	+3.3V
13	+3V3_EXT	PWR	+3.3V
14	NC		
15	GND	GND	
16	CN_PS_ON#	I/O	
17	GND	GND	
18	GND	GND	

Pin	Pin Name	Signal Type	Signal Level
19	GND	GND	
20	NC		
21	+5V_EXT	PWR	+5V
22	+5V_EXT	PWR	+5V
23	+5V_EXT	PWR	+5V
24	GND	GND	

2.4.34 Display Port 2 (DDI 2) (CN38)

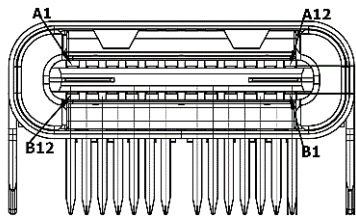


Pin	Pin Name	Signal Type	Signal Level
1	DDI2_LANE0_DP_C	DIFF	
2	GND	GND	
3	DDI2_LANE0_DN_C	DIFF	
4	DDI2_LANE1_DP_C	DIFF	
5	GND	GND	
6	DDI2_LANE1_DN_C	DIFF	
7	DDI2_LANE2_DP_C	DIFF	
8	GND	GND	
9	DDI2_LANE2_DN_C	DIFF	
10	DDI2_LANE3_DP_C	DIFF	
11	GND	GND	
12	DDI2_LANE3_DN_C	DIFF	
13	DDI2_AUTO_SEL	I/O	
14	GND	GND	
15	DDI2_AUXP_RP	DIFF	
16	GND	GND	
17	DDI2_AUXN_RP	DIFF	
18	DP2_HPD	I/O	
19	GND	GND	

Pin	Pin Name	Signal Type	Signal Level
20	+V3P35_DP_F2	PWR	3.3V

Note: The driving current supports up to 0.5A.

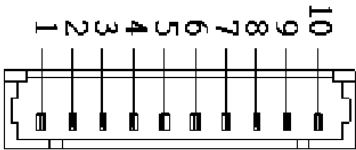
2.4.35 USB 3.2 Port 3 (Lane 4-5) (CN39)



Pin	Pin Name	Signal Type	Signal Level
A1	GND	GND	
A2	SSTXP1_C	DIFF	
A3	SSTXN1_C	DIFF	
A4	V5_TYPEC1	PWR	+5V
A5	TYPECC1_CONN	I/O	
A6	USB2P_2_R	DIFF	
A7	USB2N_2_R	DIFF	
A8	NC		
A9	V5_TYPEC1	PWR	+5V
A10	SSRXN2_C	DIFF	
A11	SSRXP2_C	DIFF	
A12	GND	GND	
B1	GND	GND	
B2	SSTXP2_C	DIFF	
B3	SSTXN2_C	DIFF	
B4	V5_TYPEC1	PWR	+5V
B5	TYPECC2_CONN	I/O	
B6	USB2P_3_R	DIFF	
B7	USB2N_3_R	DIFF	

Pin	Pin Name	Signal Type	Signal Level
B8	NC		
B9	V5_TYPEC1	PWR	+5V
B10	SSRXN1_C	DIFF	
B11	SSRXP1_C	DIFF	
B12	GND	GND	

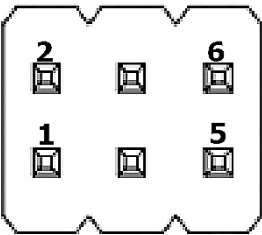
2.4.36 eSPI (CN40)



Pin	Pin Name	Signal Type	Signal Level
1	ESPI_PH_IO0	I/O	
2	ESPI_PH_IO1	I/O	
3	ESPI_PH_IO2	I/O	
4	ESPI_PH_IO3	I/O	
5	+3.3V_EXT	PWR	+3.3V
6	ESPI_PH_CS#	I/O	
7	ESPI_PH_RST#	I/O	
8	GND	GND	
9	ESPI_PH_CLK	I/O	
10	+3.3V_DUAL	PWR	+3.3V

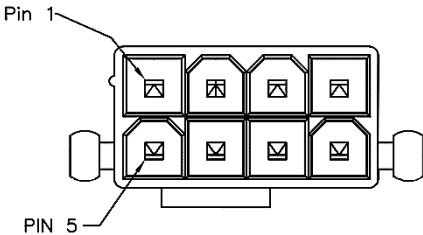
Note: Only supports AAEON ECD Debug Card.

2.4.37 Power and Reset Pin Header (CN43)



Pin	Pin Name	Signal Type	Signal Level
1	PWRBTN_D#	I/O	
2	GND		
3	HWRST_D#	I/O	
4	GND		
5	NA		
6	NA		

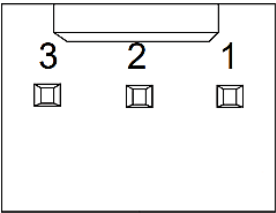
2.4.38 8-Pin ATX 12V Power (CN45)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	GND	GND	
3	GND	GND	
4	GND	GND	
5	+12V	PWR	+12V
6	+12V	PWR	+12V
7	+12V	PWR	+12V

Pin	Pin Name	Signal Type	Signal Level
8	+12V	PWR	+12V

2.4.39 FAN 2 (CN46)

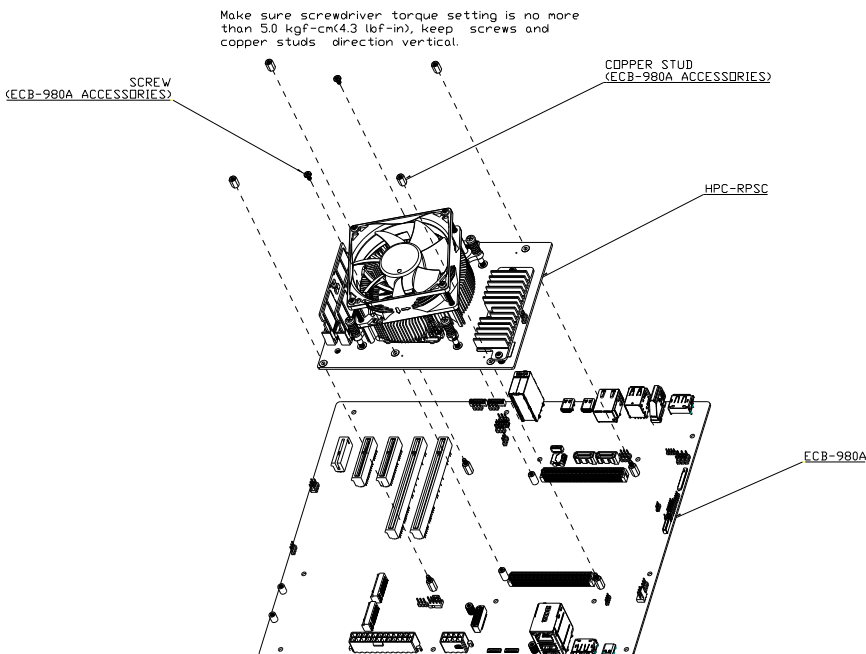


Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	+12V	PWR	+12V/+5V
3	NC		

Note: FAN 2 can be set to +5V or +12V by JP17.

2.5 Carrier Board Assembly

To affix the carrier board to the HPC-RPSC, follow the diagram below.



Appendix A

Mating Connectors

A.1 List of Mating Connectors and Cables

The following table lists mating connectors and available cables.

Label	Function	Mating Connector		Cable P/N	Remarks
		Vendor	Model No		
CN1	Serial port1	Molex	51021-0900	1701090150	
CN2	Serial port0	Molex	51021-0900	1701090150	
CN16	SATA3 port2(lane 1)	Molex	887505318		
CN19	SATA3 port1(lane 0)	Molex	887505318		
CN23	eDP	KEL	SSL20-30S	170X000598	Test Panel: AUO G101UAN01.0
CN32	FAN1	Molex	470541000		
CN40	ESPI	JST	SHR-12V-S-B		
CN46	FAN2	Molex	22013037		