



ECB-960T-A15

SMARC 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-960T	1
● COM Port Cable	4
● HDA Cable	1
● SATA Cable	1
● GPIO Cable	2

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

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	×	○	○	○	○	○
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

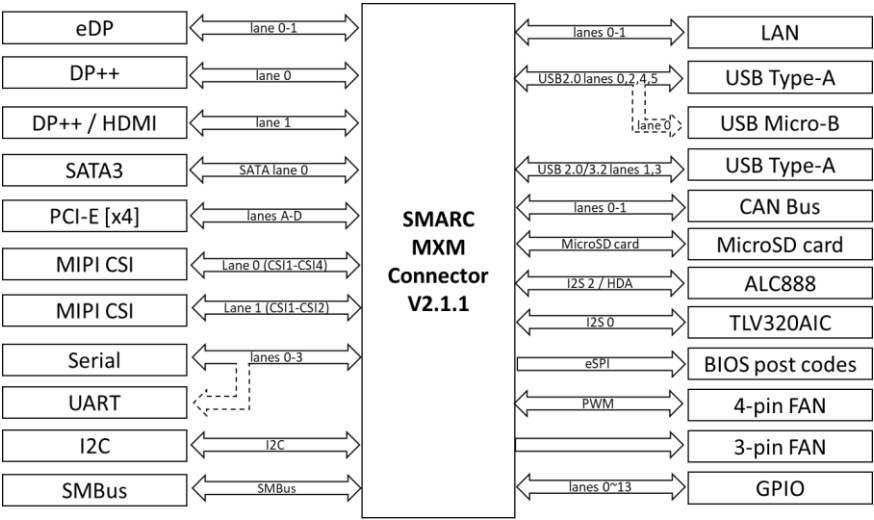
System	
Form Factor	Mini-ITX
COM Express Connector	—
I/O Chipset	—
Front Panel Control	—
Ethernet	10/100/1000/2500 Base-TX RJ-45 x 2 (From CPU Module)
Expansion Interface	PCIe Lane [x4] x 1
Power Supply Type	Dependent on Module
CMOS Battery	RTC Battery Socket x 1
BIOS	—
Dimensions	6.69" x 6.69" (170mm x 170mm)
Gross Weight	1.54 lb. (0.7Kg)
Operating Temperature	32°F ~ 140°F (0°C ~ 60°C) -40°F ~ 185°F (-40°C ~ 85°C)
Storage Temperature	-40°F ~ 176°F (-40°C ~ 80°C)
Operating Humidity	0% ~ 90% relative humidity, non-condensing

Display	
DVT/CRT/VGA	HDMI x 1 (Optional, by CPU Module)
LVDS / eDP	eDP x 2
DDI	Display Port++ x 2 (Optional, by CPU Module)

I/O	
Storage	SATA 6Gb/s x 1 M.2 2280 M-Key x 2 (PCIe Gen 4 [x4] for NVMe)
Serial Port	4-Wire UART x 4 or Serial Port x 4 (Optional, by CPU Module)
USB	Type-A Connector x 6 (USB 2.0 x 4, USB 3.2/2.0 x 2) OTG x 1 (co-lay USB 2.0 x 1)
Audio	High Definition Audio x 1 (Pin Header) or I2S x 1 (Optional, by CPU Module)
GPIO	14-bit
Switch/Button	Power Button x 1 Reset Button x 1 Sleep Button x 1
Debug LED	7-Segment Display LED x 1 (80 Port Post Code Indicator)
I2C	x 2
Expansion Interface	Micro SD Card x 1 (Optional, by CPU Module) MIPI CSI x 2 CANBus x 2 (Optional, by CPU Module) 3-pin Fan Connector x 1 4-pin Fan Connector x 1 SMBus x 1 I2C x 1

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

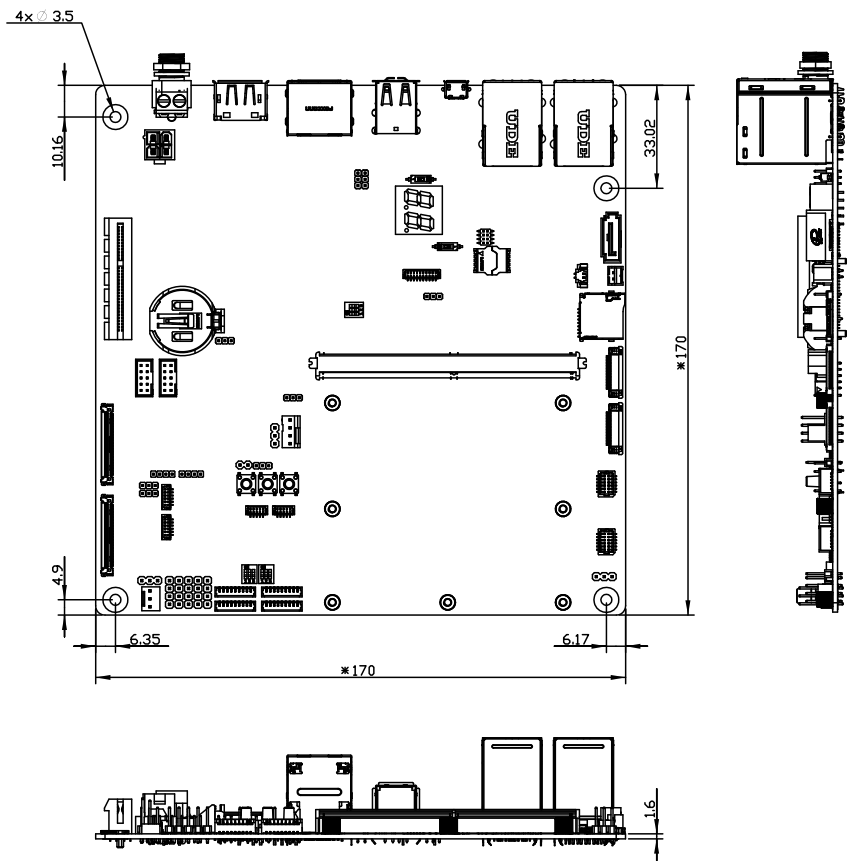


Chapter 2

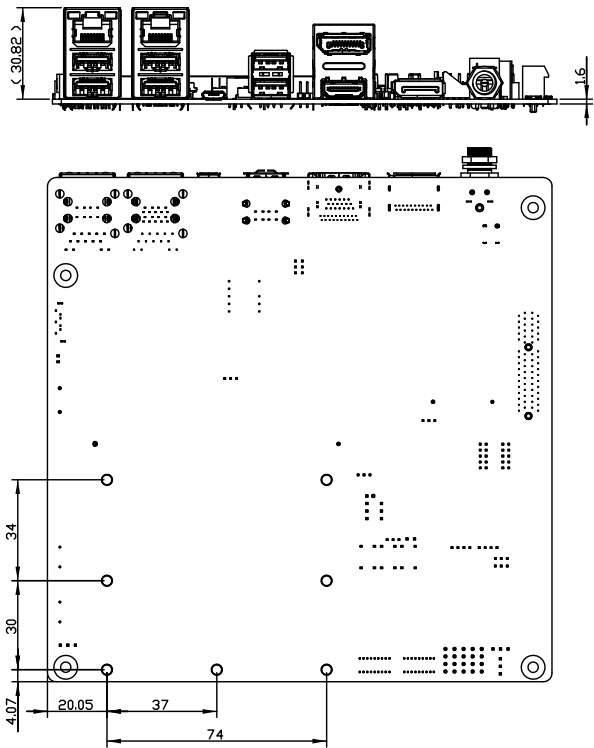
Hardware Information

2.1 Dimensions

Top Side

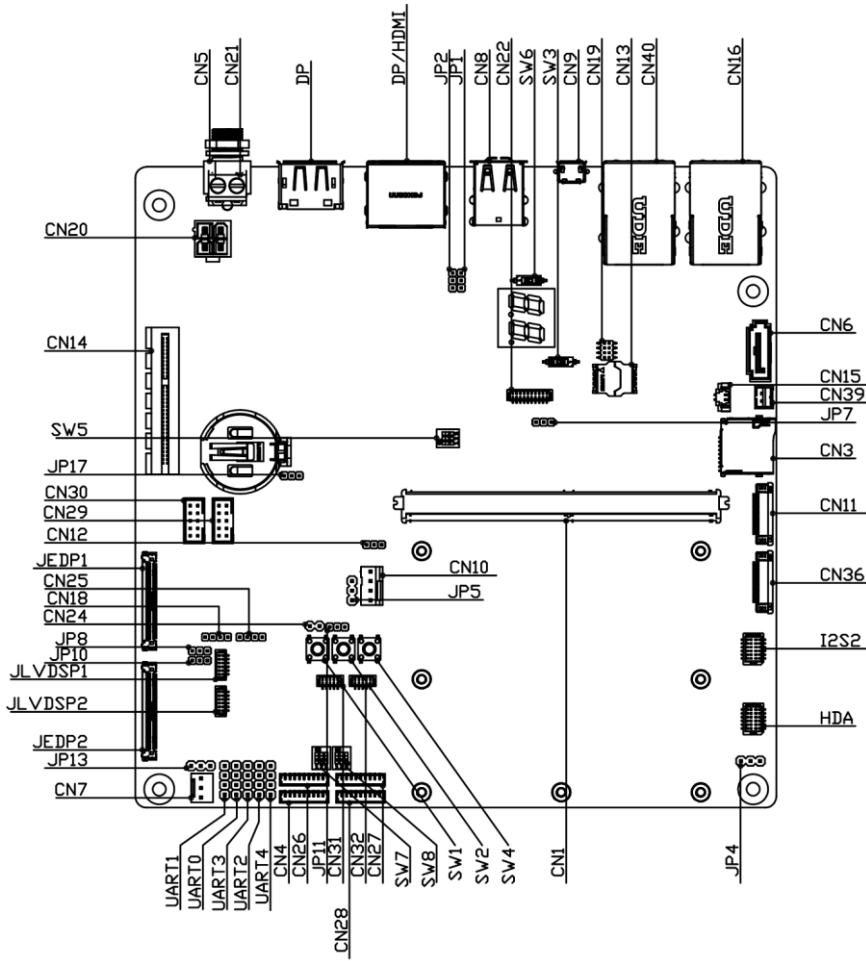


Bottom Side



2.2 Jumpers and Connectors

Top Side

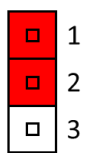
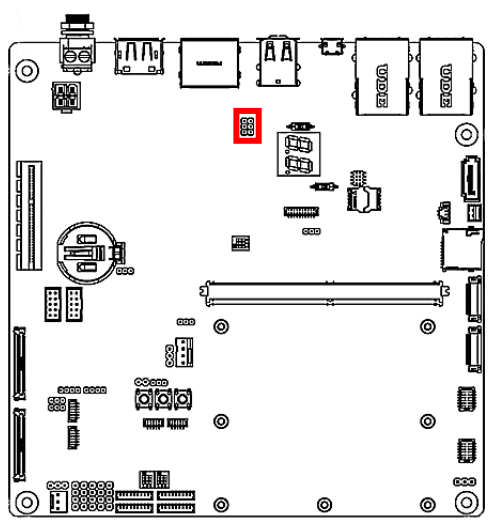


2.3 List of Jumpers and Switches

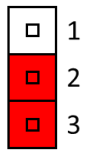
Please refer to the table below for all of the board's jumpers that you can configure for your application

Label	Function	Note
JP1	DP0 Level Select	3.3V or 1.8V
JP2	DP1 Level Select	3.3V or 1.8V
JP4	Audio Codec Level Select	1.8V or 1.5V
JP5	FAN 1 Level Select	12V or 5V
JP7	eSPI Chip Select	
JP8	eDP0 Level Select	3.3V or 1.8V
JP10	eDP1 Level Select	3.3V or 1.8V
JP11	Auto Power Button Select	
JP13	Fan 2 Level Select	12V or 5V
JP17	Clean CMOS Select	
SW1	Power Button	
SW2	Reset Button	
SW3	80 Port Power Switch	
SW4	Sleep Button	
SW5	Boot Select	Option
SW6	USB/OTG Mode Switch	Option
SW7	COM-Port 0,1 Loopback	
SW8	COM-Port 2,3 Loopback	
SW9	Carrier SPI Switch	

2.3.1 DP0/1 Voltage Selection (JP1/JP2)

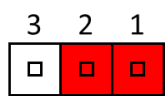
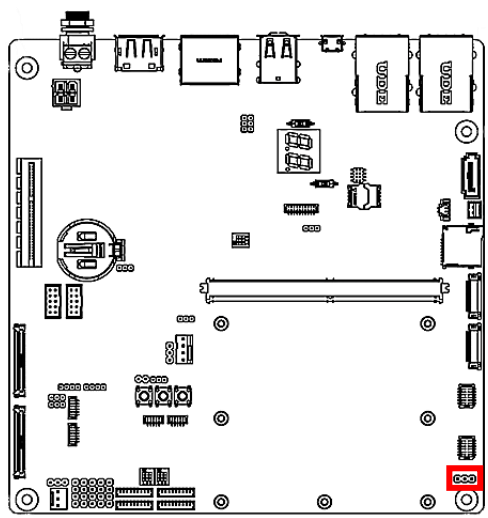


3.3V

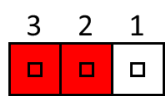


1.8V (Default)

2.3.2 Audio Codec Voltage Selection (JP4)

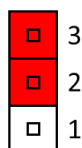
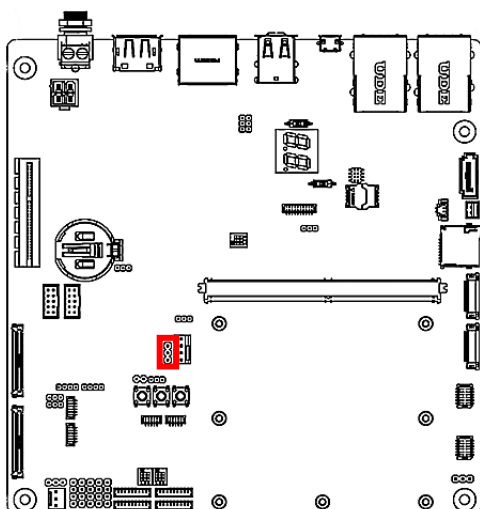


1.8V (Default)

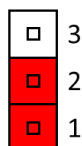


1.5V

2.3.3 FAN 1 Voltage Selection (JP5)

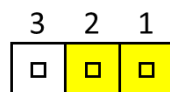
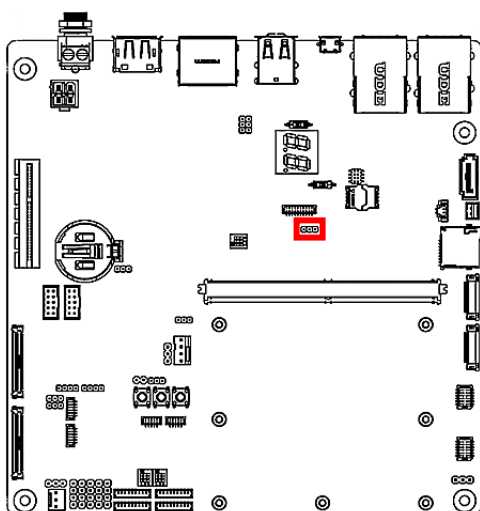


5V

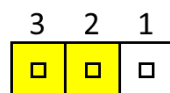


12V (Default)

2.3.4 eSPI Chip Selection (JP7)

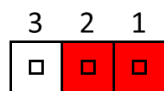
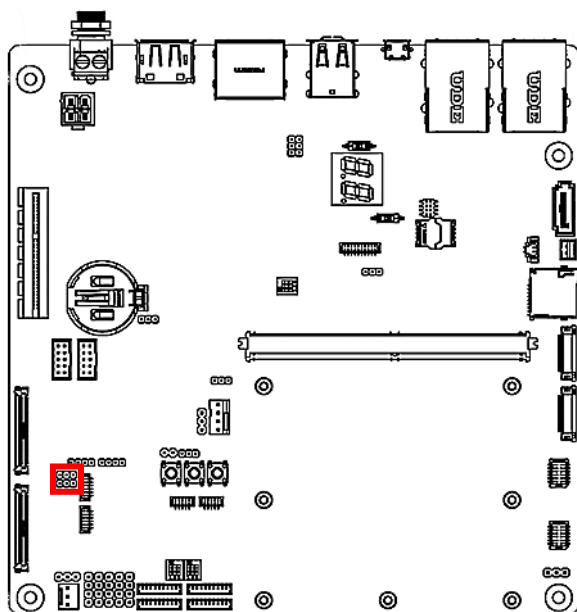


ESPI_CS0#(Default)

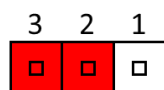


ESPI_CS1#

2.3.5 eDP0/1 Voltage Selection (JP8/JP10)

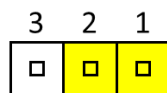
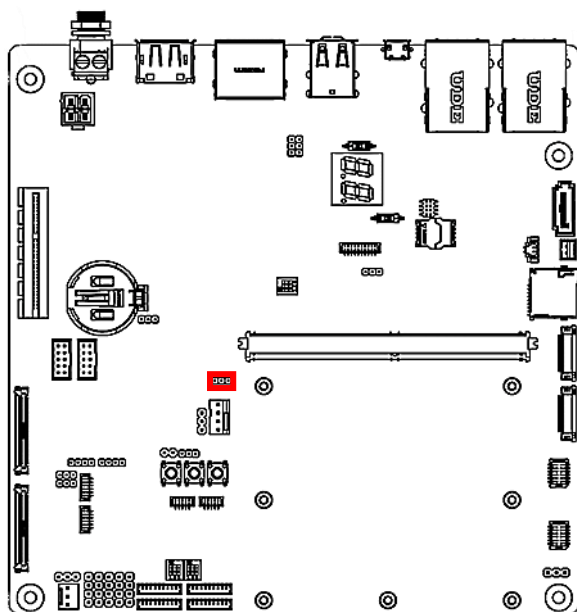


3.3V

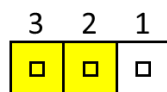


1.8V (Default)

2.3.6 Auto Power Button Select (JP11)

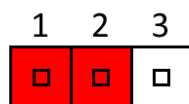
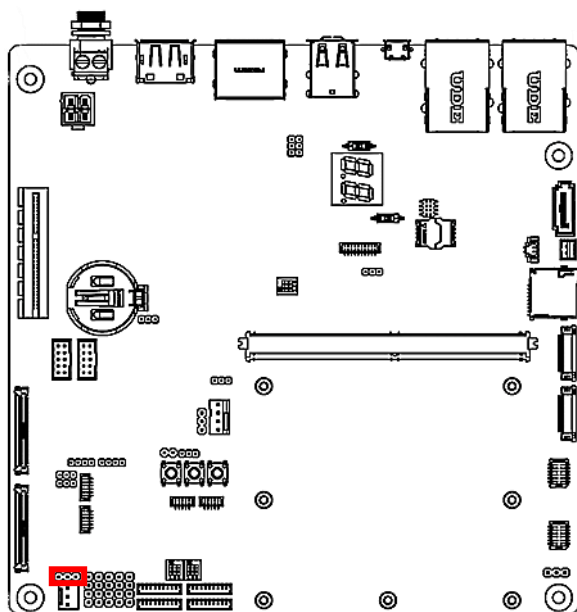


Auto Power Button

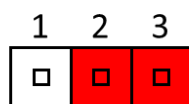


Power Button(default)

2.3.7 FAN 2 Voltage Selection (JP13)

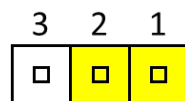
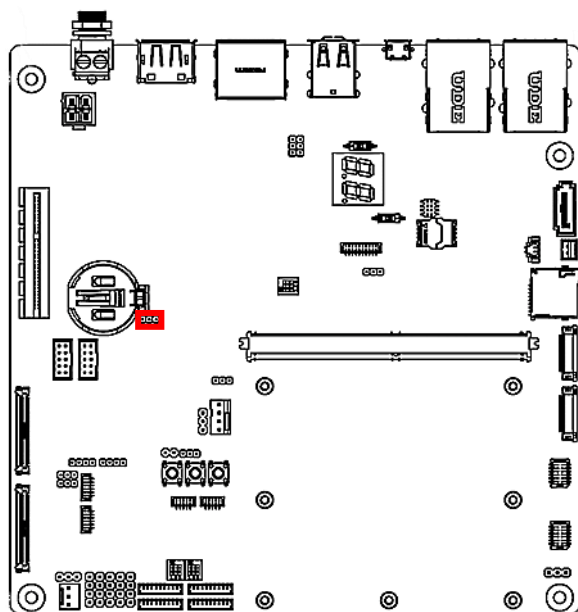


12V (default)

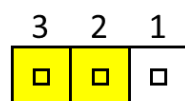


5V

2.3.8 Clear CMOS Selection (JP17)

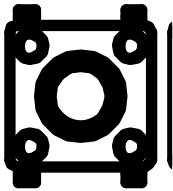
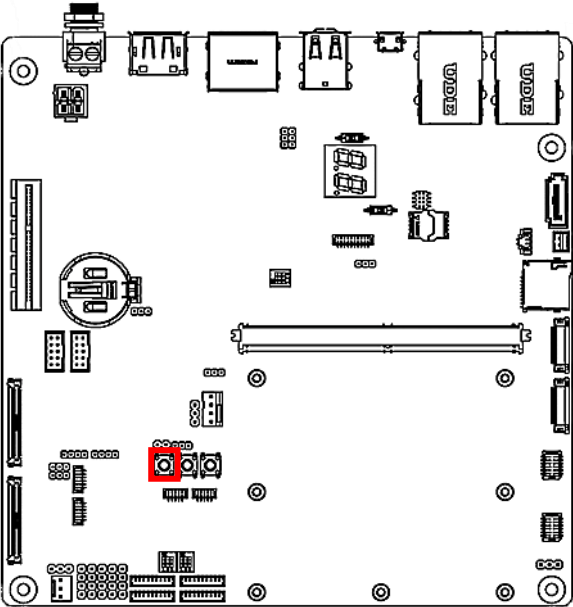


RTC BAT (Default)



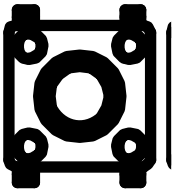
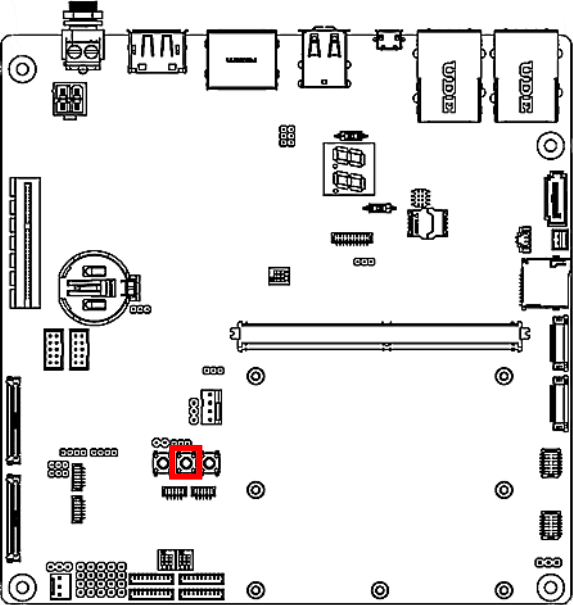
Clear CMOS

2.3.9 Power Button (SW1)



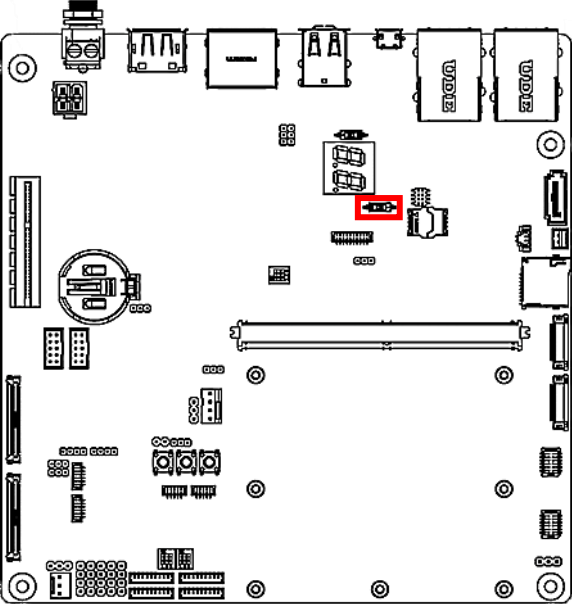
Pin	Function
ON	PWRBTN#

2.3.10 Reset Button (SW2)



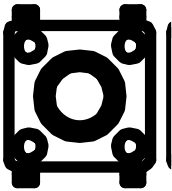
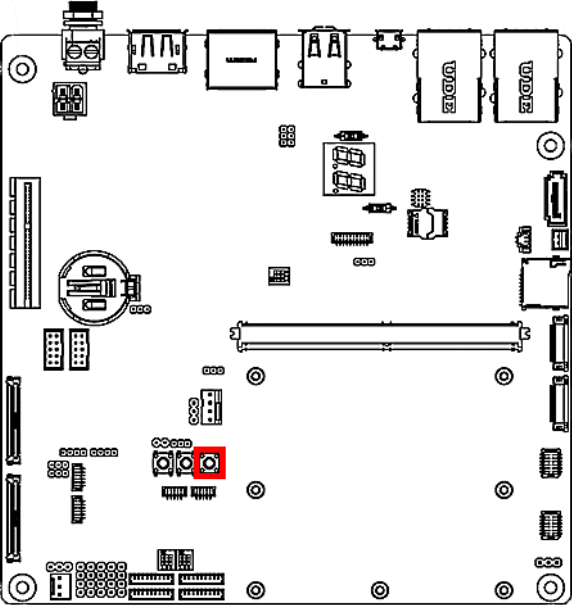
Pin	Function
ON	RSTBTN#

2.3.11 80 Port Power Switch (SW3)



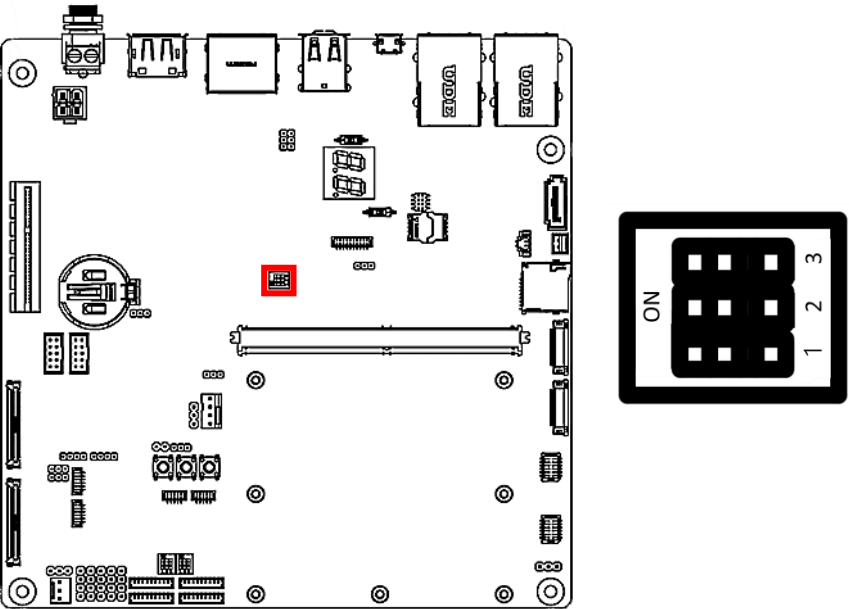
Pin	Function
ON	ON (Default)
OFF	OFF

2.3.12 Sleep Button (SW4)



Pin	Function
ON	Sleep Mode

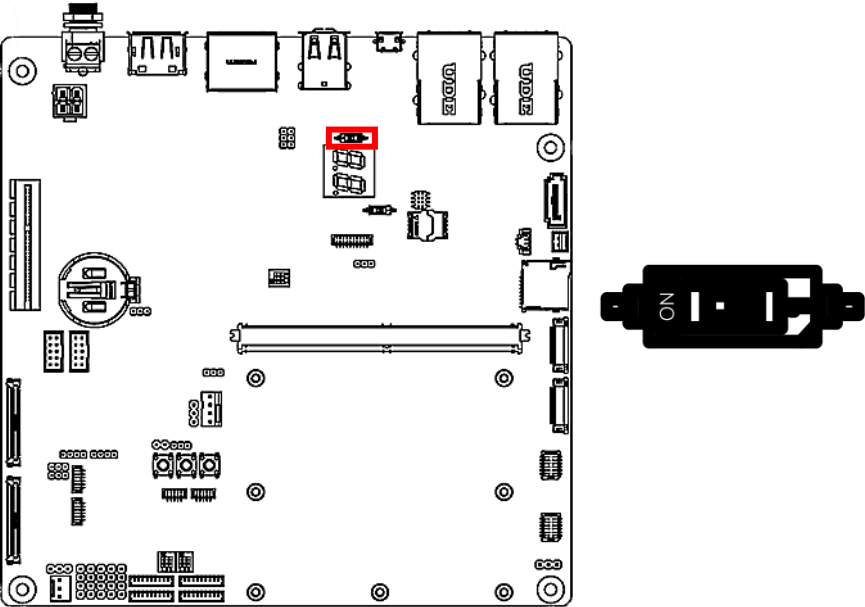
2.3.13 Boot Select (SW5)



Pin	BOOT_SEL2#	BOOT_SEL1#	BOOT_SEL0#	Note
1	ON	ON	ON	Carrier SATA
2	ON	ON	OFF	Carrier SD card
3	ON	OFF	ON	Carrier eSPI (CS0#)
4	ON	OFF	OFF	Carrier SPI (CS0#)
5	OFF	ON	ON	Module device-vendor specific
6	OFF	ON	OFF	Remote boot-vendor specific
7	OFF	OFF	ON	Module eMMC Flash
8	OFF	OFF	OFF	Module SPI (default)

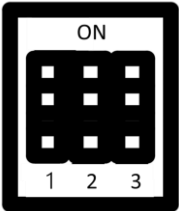
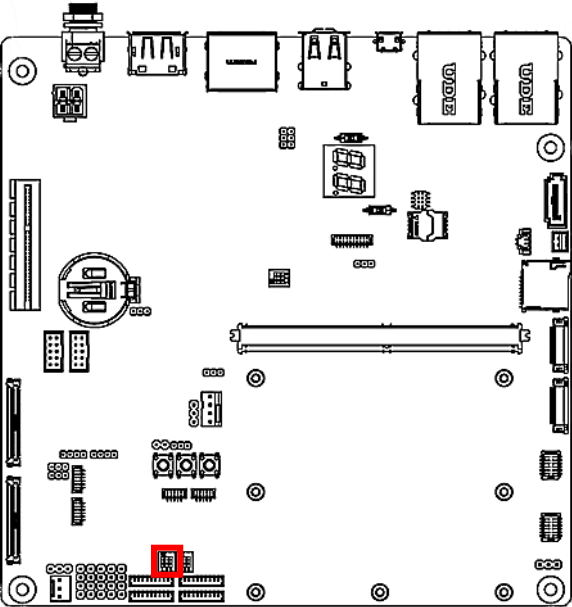
Note: Please refer to SMARC SPEC V2.1.1 Boot Select for more details.

2.3.14 USB/OTG Mode Switch (SW6)



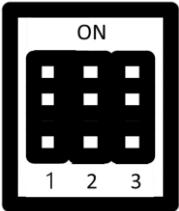
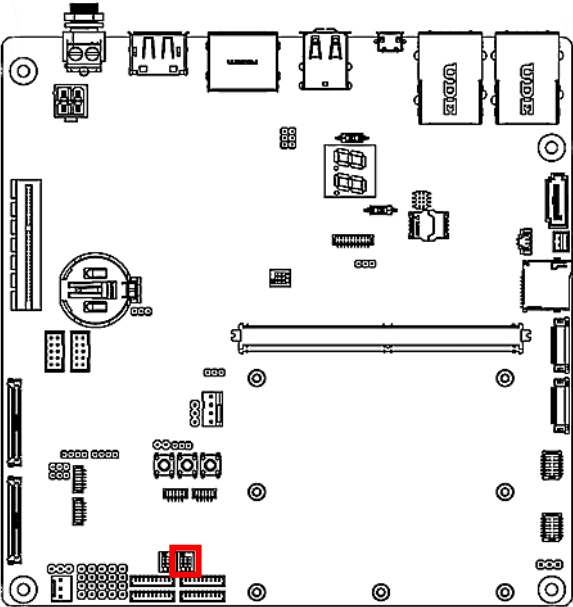
Pin	Function
ON	OTG
OFF	USB2.0 (Default)

2.3.15 COM-Port 0,1 Loopback (SW7)



Pin	ON	OFF
1	TX0/RX0 short	TX0/RX0 not short (Default)
2	RTS0/CTS0 short	RTS0/CTS0 not short (Default)
3	TX1/RX1 short	TX1/RX1 not short (Default)

2.3.16 COM-Port 2,3 Loopback (SW8)



Pin	ON	OFF
1	TX2/RX2 short	TX2/RX2 not short (Default)
2	RTS2/CTS2 short	RTS2/CTS2 not short (Default)
3	TX3/RX3 short	TX3/RX3 not short (Default)

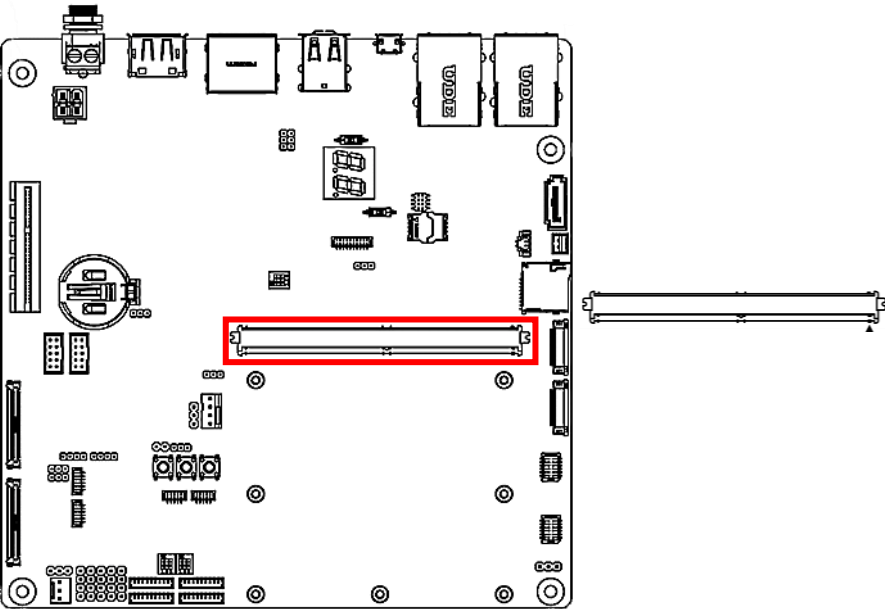
2.4 List of Connectors

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

Label	Function
CN1	MXM Connector
CN2	Burn Carrier SPI
CN3	Micro SD Card
CN4	Serial Port 1
CN5	12V DC Power Jack
CN6	SATA Port 0
CN7	Fan Port 2
CN8	USB 2.0 (lane 0,1)
CN9	OTG Port (lane 0)
CN10	FAN Port 1
CN11	MIPI CSI Port 1
CN12	LID Pin Header
CN13	SPI Socket
CN14	PCIe Gen 3 [x4] (4x1)
CN15	Module Power Connector
CN16	Giga LAN (lane 0) + USB 2.0 (lane 4,5)
HDA	HDA Wafer
CN18	CANBus Port 1
CN19	SPI (lane 0)
CN20	12V ATX 4-pin Power
CN21	12V Terminal Blocks
CN22	eSPI (Debug Card)
CN24	Power Button Pin Header
CN25	CANBus Port 0
CN26	Serial Port 0
CN27	Serial Port 2
CN28	Serial Port 3
CN29	GPIO (lane 0-7)
CN30	GPIO (lane 8-13)
CN31	I2C Wafer
CN32	SMBus Wafer
CN36	MIPI CSI Port 0
CN39	SATA Port 0 Power
CN40	Giga LAN (lane 1) + USB 3.2 (lane 2,3)

Label	Function
JEDP1	eDP (lane 0)
JEDP2	eDP (lane 1)
JLVDSP1	LVDS Back Light Power
JLVDSP2	LVDS Back Light Power
DP	DP (lane 0)
DP/HDMI	DP/HDMI (lane 1)
BT2	RTC Battery
I2S	I2S Wafer
UART0	TX0/RX0/RTS0/CTS0
UART1	TX1/RX1
UART2	TX2/RX2/RTS2/CTS2
UART3	TX3/RX3

2.4.1 MXM Connector (Follow SMARC 2.1.1) (CN1)



Pin	Pin Name	Pin	Pin Name
P1	SMB_ALERT#	S1	I2C_CAM1_CK
P2	GND	S2	I2C_CAM1_DAT
P3	CSI1_CK+	S3	GND
P4	CSI1_CK-	S4	RSVD
P5	GBE1_SDP	S5	I2C_CAM0_CK
P6	GBE0_SDP	S6	CAM_MCK
P7	CSI1_RX0+	S7	I2C_CAM0_DAT
P8	CSI1_RX0-	S8	CSI0_CK+
P9	GND	S9	CSI0_CK-
P10	CSI1_RX1+	S10	GND
P11	CSI1_RX1-	S11	CSI0_RX0+
P12	GND	S12	CSI0_RX0-
P13	CSI1_RX2+	S13	GND
P14	CSI1_RX2-	S14	CSI0_RX1+
P15	GND	S15	CSI0_RX1-
P16	CSI1_RX3+	S16	GND
P17	CSI1_RX3-	S17	GBE1_MDIO+

Pin	Pin Name	Pin	Pin Name
P18	GND	S18	GBE1_MDI0-
P19	GBE0_MDI3-	S19	GBE1_LINK100#
P20	GBE0_MDI3+	S20	GBE1_MDI1+
P21	GBE0_LINK100#	S21	GBE1_MDI1-
P22	GBE0_LINK1000#	S22	GBE1_LINK1000#
P23	GBE0_MDI2-	S23	GBE1_MDI2+
P24	GBE0_MDI2+	S24	GBE1_MDI2-
P25	GBE0_LINK_ACT#	S25	GND
P26	GBE0_MDI1-	S26	GBE1_MDI3+
P27	GBE0_MDI1+	S27	GBE1_MDI3-
P28	GBE0_CTREF	S28	GBE1_CTREF
P29	GBE0_MDI0-	S29	PCIE_D_TX+
P30	GBE0_MDI0+	S30	PCIE_D_TX-
P31	SPI0_CS1#	S31	GBE1_LINK_ACT#
P32	GND	S32	PCIE_D_RX+
P33	SDIO_WP	S33	PCIE_D_RX-
P34	SDIO_CMD	S34	GND
P35	SDIO_CD#	S35	USB4+
P36	SDIO_CK	S36	USB4-
P37	SDIO_PWR_EN	S37	USB3_VBUS_DET
P38	GND	S38	AUDIO_MCK
P39	SDIO_D0	S39	I2S0_LRCK
P40	SDIO_D1	S40	I2S0_SDOUT
P41	SDIO_D2	S41	I2S0_SDIN
P42	SDIO_D3	S42	I2S0_CK
P43	SPI0_CS0#	S43	ESPI_ALERT0#
P44	SPI0_CK	S44	ESPI_ALERT1#
P45	SPI0_DIN	S45	MDIO_CLK
P46	SPI0_DO	S46	MDIO_DAT
P47	GND	S47	GND
P48	SATA_TX+	S48	I2C_GP_CK
P49	SATA_TX-	S49	I2C_GP_DAT
P50	GND	S50	HDA_SYNC
P51	SATA_RX+	S51	HDA_SDO
P52	SATA_RX-	S52	HDA_SDI
P53	GND	S53	HDA_CK
*P54	ESPI_CS0#/SPI1_CS0#/QSPI_CS0#	S54	SATA_ACT#

Pin	Pin Name	Pin	Pin Name
*P55	ESPI_CS1#/SPI1_CS1#/QSPI_CS1#	S55	USB5_EN_OC#
*P56	ESPI_CK/SPI1_CK/QSPI_CK	*S56	ESPI_IO_2/QSPI_IO_2
*P57	ESPI_IO_1/SPI1_DIN/QSPI_IO_1	*S57	ESPI_IO_3/QSPI_IO_3
*P58	ESPI_IO_0/SPI1_DO/QSPI_IO_0	S58	ESPI_RESET#
P59	GND	S59	USB5+
P60	USB0+	S60	USB5-
P61	USB0-	S61	GND
P62	USB0_EN_OC#	S62	USB3_SSTX+
P63	USB0_VBUS_DET	S63	USB3_SSTX-
P64	USB0_OTG_ID	S64	GND
P65	USB1+	S65	USB3_SSRX+
P66	USB1-	S66	USB3_SSRX-
P67	USB1_EN_OC#	S67	GND
P68	GND	S68	USB3+
P69	USB2+	S69	USB3-
P70	USB2-	S70	GND
P71	USB2_EN_OC#	S71	USB2_SSTX+
P72	RSVD	S72	USB2_SSTX-
P73	RSVD	S73	GND
P74	USB3_EN_OC#	S74	USB2_SSRX+
P75	PCIE_A_RST#	S75	USB2_SSRX-
P76	USB4_EN_OC#	S76	PCIE_B_RST#
P77	PCIE_B_CLKREQ#	S77	PCIE_C_RST#
P78	PCIE_A_CLKREQ#	S78	PCIE_C_RX+
P79	GND	S79	PCIE_C_RX-
P80	PCIE_C_REFCK+	S80	GND
P81	PCIE_C_REFCK-	S81	PCIE_C_TX+
P82	GND	S82	PCIE_C_TX-
P83	PCIE_A_REFCK+	S83	GND
P84	PCIE_A_REFCK-	S84	PCIE_B_REFCK+
P85	GND	S85	PCIE_B_REFCK-
P86	PCIE_A_RX+	S86	GND
P87	PCIE_A_RX-	S87	PCIE_B_RX+
P88	GND	S88	PCIE_B_RX-
P89	PCIE_A_TX+	S89	GND
P90	PCIE_A_TX-	S90	PCIE_B_TX+
P91	GND	S91	PCIE_B_TX-
P92	HDMI_D2+/DP1_LANE0+	S92	GND

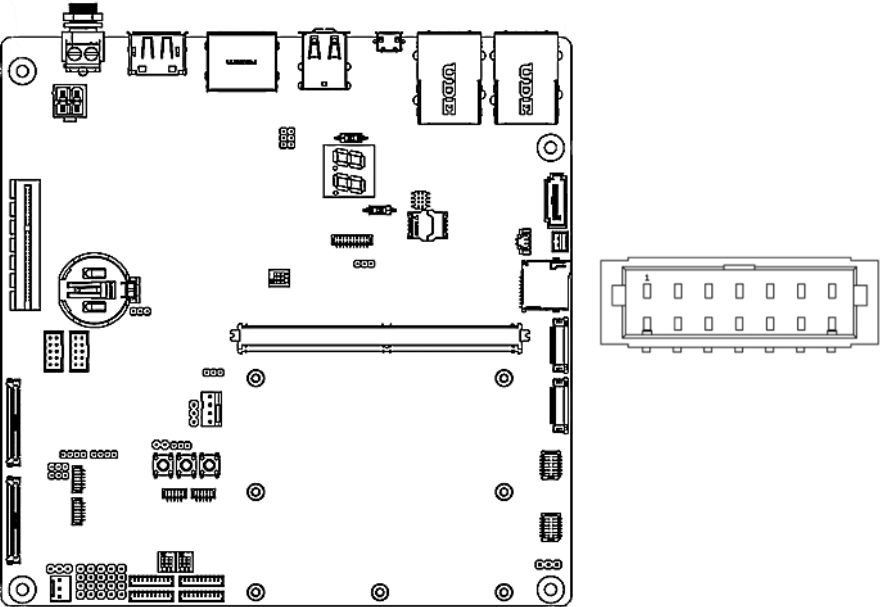
Pin	Pin Name	Pin	Pin Name
P93	HDMI_D2-/DP1_LANE0-	S93	DP0_LANE0+
P94	GND	S94	DP0_LANE0-
P95	HDMI_D1+/DP1_LANE1+	S95	DP0_AUX_SEL
P96	HDMI_D1-/DP1_LANE1-	S96	DP0_LANE1+
P97	GND	S97	DP0_LANE1-
P98	HDMI_D0+/DP1_LANE2+	S98	DP0_HPD
P99	HDMI_D0-/DP1_LANE2-	S99	DP0_LANE2+
P100	GND	S100	DP0_LANE2-
P101	HDMI_CK+/DP1_LANE3+	S101	GND
P102	HDMI_CK-/DP1_LANE3-	S102	DP0_LANE3+
P103	GND	S103	DP0_LANE3-
P104	HDMI_HPD/DP1_HDP	S104	USB3_OTG_ID
P105	HDMI_CTRL_CK/DP1_AUX+	S105	DP0_AUX+
P106	HDMI_CTRL_DAT/DP1_AUX-	S106	DP0_AUX-
P107	DP1_AUX_SEL	S107	LCD1_BKLT_EN
*P108	GPIO0/CAM0_PWR#	*S108	LVDS1_CK+/eDP1_AUX+/DSI1_CLK+
*P109	GPIO1/CAM1_PWR#	*S109	LVDS1_CK-/eDP1_AUX-/DSI1_CLK-
*P110	GPIO2/CAM0_RST#	S110	GND
*P111	GPIO3/CAM1_RST#	*S111	LVDS1_0+/eDP1_TX0+/DSI1_D0+
*P112	GPIO4/HDA_RST#	*S112	LVDS1_0-/eDP1_TX0-/DSI1_D0-
*P113	GPIO5/PWM_OUT	S113	eDP_HPD/DSI1_TE
*P114	GPIO6/TACHIN	*S114	LVDS1_1+/eDP1_TX1+/DSI1_D1+
P115	GPIO7	*S115	LVDS1_1-/eDP1_TX1-/DSI1_D1-
P116	GPIO8	S116	LCD1_VDD_EN
P117	GPIO9	*S117	LVDS1_2+/eDP1_TX2+/DSI1_D2+
P118	GPIO10	*S118	LVDS1_2-/eDP1_TX2-/DSI1_D2-
P119	GPIO11	S119	GND
P120	GND	*S120	LVDS1_3+/eDP1_TX3+/DSI1_D3+
P121	I2C_PM_CK	*S121	LVDS1_3-/eDP1_TX3-/DSI1_D3-
P122	I2C_PM_DAT	S122	LCD1_BKLT_PWM
P123	BOOT_SEL0#	S123	GPIO13
P124	BOOT_SEL1#	S124	GND
P125	BOOT_SEL2#	*S125	LVDS0_0+/eDP0_TX0+/DSI0_D0+
P126	RESET_OUT#	*S126	LVDS0_0-/eDP0_TX0-/DSI0_D0-
P127	RESET_IN#	S127	LCD0_BKLT_EN
P128	POWER_BTN#	*S128	LVDS0_1+/eDP0_TX1+/DSI0_D1+
P129	SER0_TX	*S129	LVDS0_1-/eDP0_TX1-/DSI0_D1-
P130	SER0_RX	S130	GND

Pin	Pin Name	Pin	Pin Name
P131	SER0_RTS#	*S131	LVDS0_2+/eDP0_TX2+/DSIO_D2+
P132	SER0_CTS#	*S132	LVDS0_2-/eDP0_TX2-/DSIO_D2-
P133	GND	S133	LCD0_VDD_EN
P134	SER1_TX	*S134	LVDS0_CK+/eDP0_AUX+/DSIO_CLK+
P135	SER1_RX	*S135	LVDS0_CK-/eDP0_AUX-/DSIO_CLK-
P136	SER2_TX	S136	GND
P137	SER2_RX	*S137	LVDS0_3+/eDP0_TX3+/DSIO_D3+
P138	SER2_RTS#	*S138	LVDS0_3-/eDP0_TX3-/DSIO_D3-
P139	SER2_CTS#	S139	I2C_LCD_CK
P140	SER3_TX	S140	I2C_LCD_DAT
P141	SER3_RX	S141	LCD0_BKLT_PWM
P142	GND	S142	GPIO12
P143	CAN0_TX	S143	GND
P144	CAN0_RX	*S144	eDP0_HPD/DSIO_TE
P145	CAN1_TX	S145	WDT_TIME_OUT#
P146	CAN1_RX	S146	PCIE_WAKE#
P147	VDD_IN	S147	VDD_RTC
P148	VDD_IN	S148	LID#
P149	VDD_IN	S149	SLEEP#
P150	VDD_IN	S150	VIN_PWR_BAD#
P151	VDD_IN	S151	CHARGING#
P152	VDD_IN	S152	CHARGER_PRSENT#
P153	VDD_IN	S153	CARRIER_STBY#
P154	VDD_IN	S154	CARRIER_PWR_ON
P155	VDD_IN	S155	FORCE_RECOV#
P156	VDD_IN	S156	BATLOW#
		S157	TEST#
		S158	GND

Note: If function modification is required, please contact the AAEON support team.

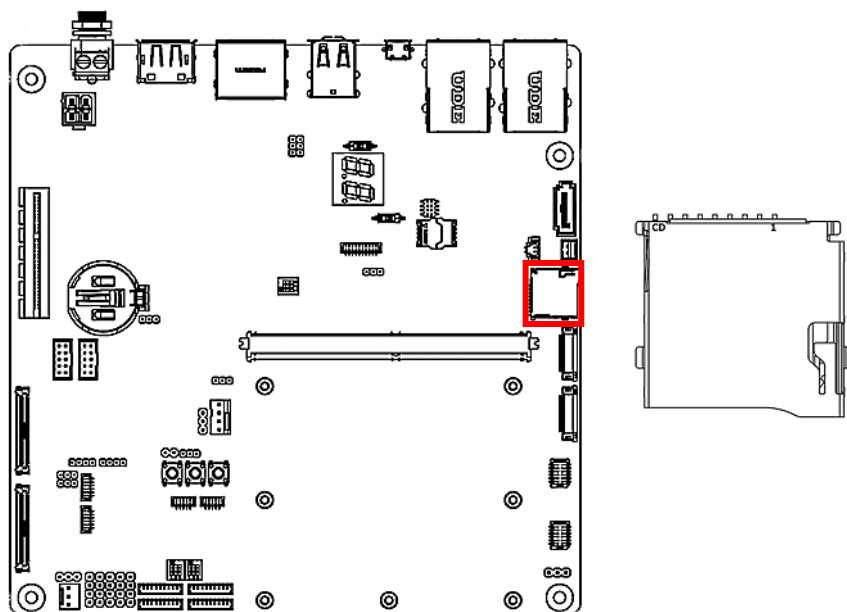
Note: The marked functions are only for ARM.

2.4.2 Burn Carrier SPI (CN2)



Note: CN2 is optional.

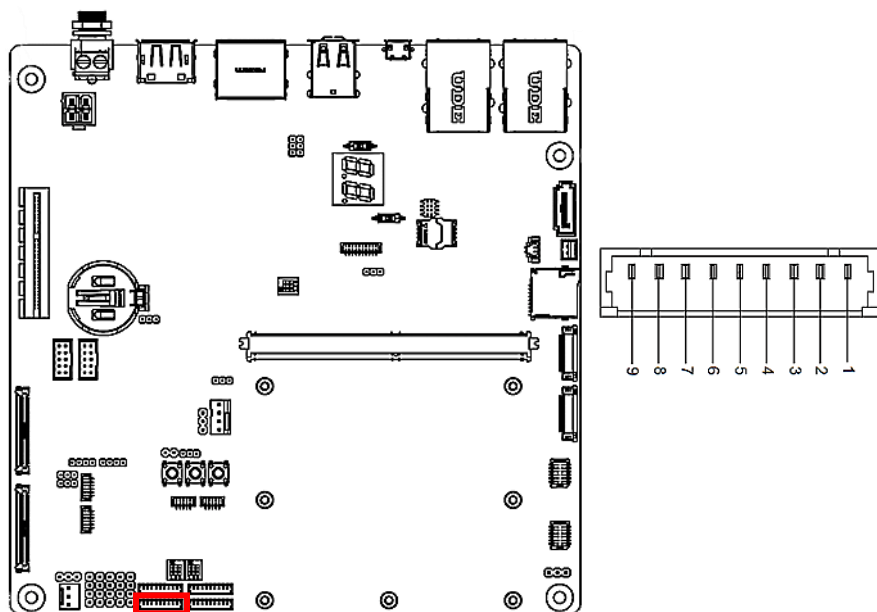
2.4.3 Micro SD Card (CN3)



Pin	Pin Name	Signal Type	Signal Level
1	SDIO_D2_3V	I/O	
2	SDIO_D3_3V	I/O	
3	SDIO_CMD_3V	I/O	
4	VCC_3V3_SD	PWR	+3.3V
5	SDIO_CK_3V	I/O	
6	GND	GND	
7	SDIO_D0_3V	I/O	
8	SDIO_D1_3V	I/O	
9	SDIO_CD#_3V	I/O	

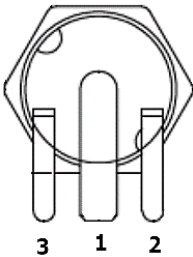
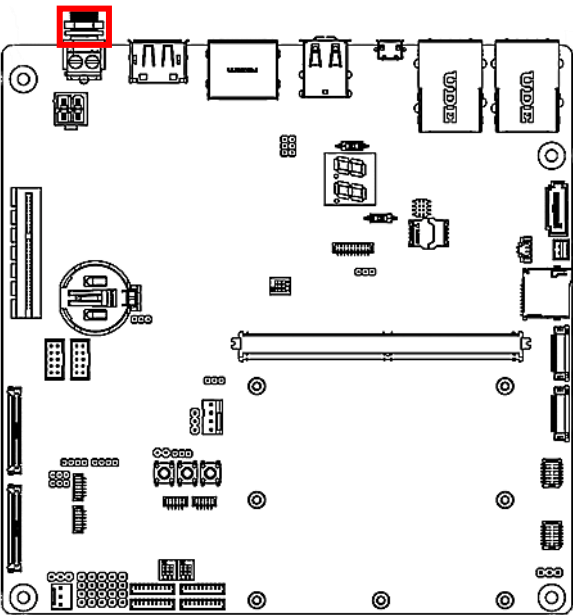
Note: CN3 is optional.

2.4.4 Serial Port 1 (CN4)



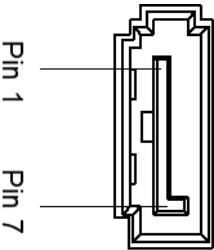
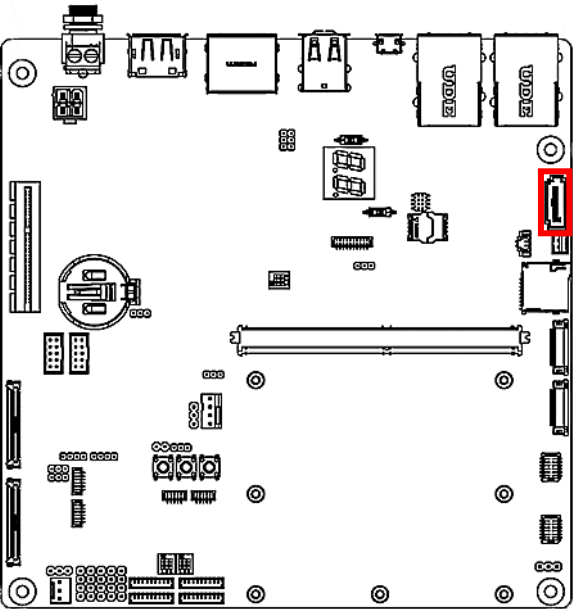
Pin	Pin Name	Signal Type	Signal Level
1	NC		
2	NC		
3	SRXD1	I/O	
4	NC		
5	STXD1	I/O	
6	NC		
7	NC		
8	NC		
9	GND	GND	

2.4.5 +12V DC Power Jack (CN5)



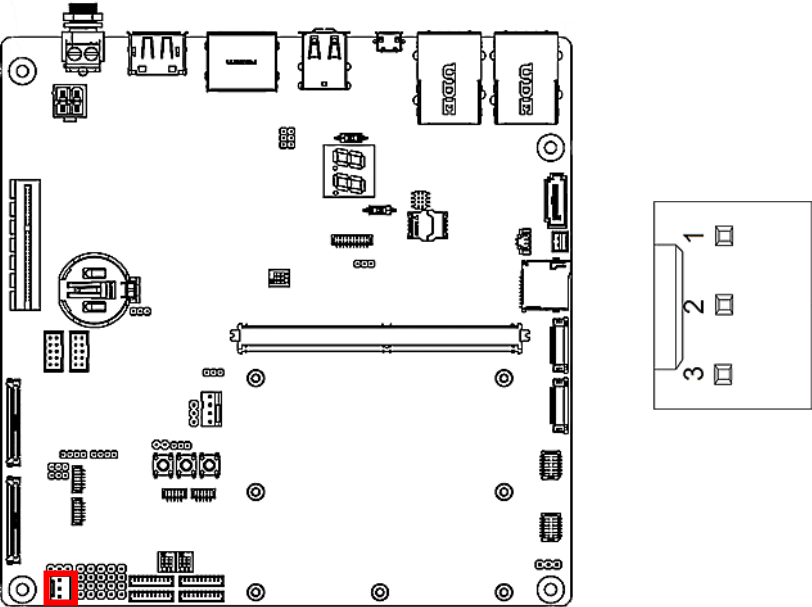
Pin	Pin Name	Signal Type	Signal Level
1	VCC_DCIN_EXT	PWR	+12V
2	GND	GND	
3	GND	GND	

2.4.6 SATA Port 0 (CN6)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	SATA_TX_P	DIFF	
3	SATA_TX_N	DIFF	
4	GND	GND	
5	SATA_RX_N	DIFF	
6	SATA_RX_P	DIFF	
7	GND	GND	

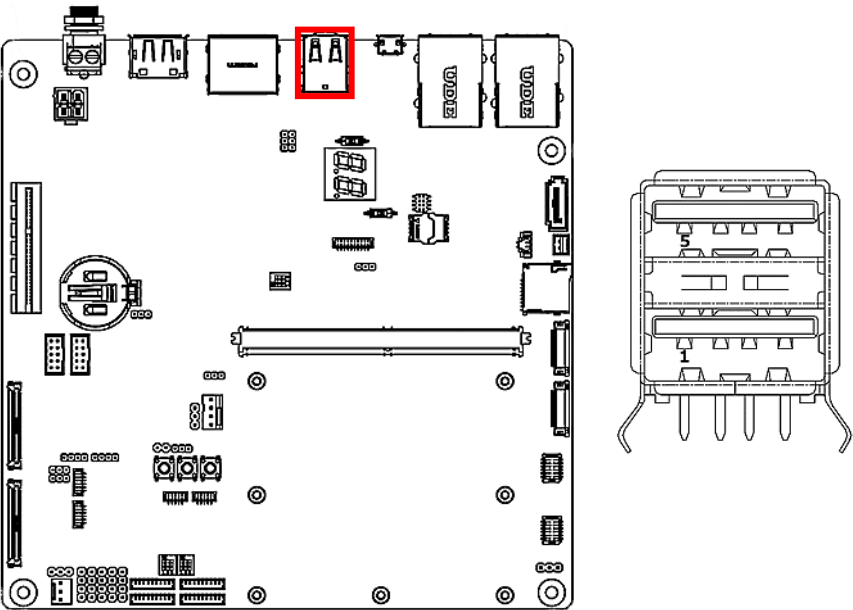
2.4.7 Fan Port 2 (CN7)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	+12V_FAN2	PWR	+5V / +12V
3	NC		

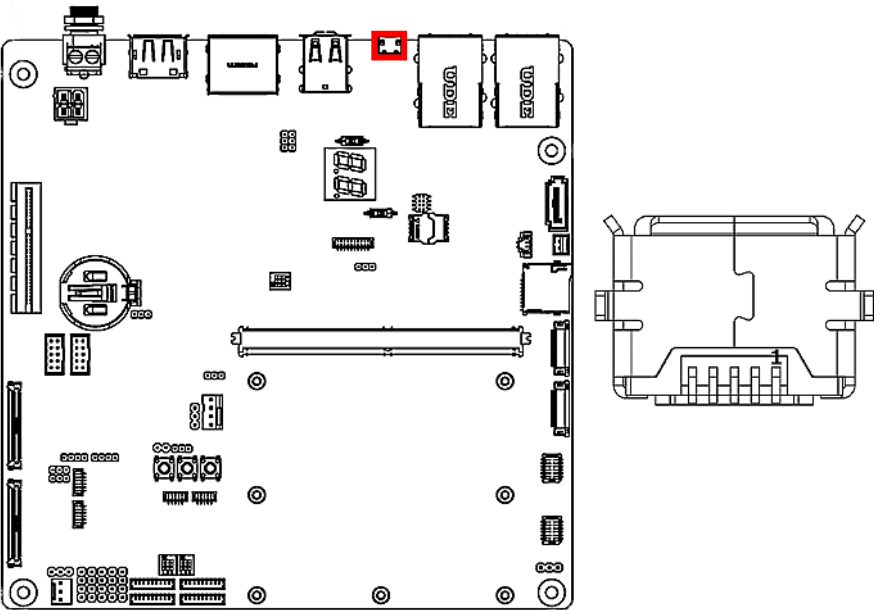
Note: Fan 2 can be set to +5V or +12V by JP13.

2.4.8 USB 2.0 (lane 0,1) (CN8)



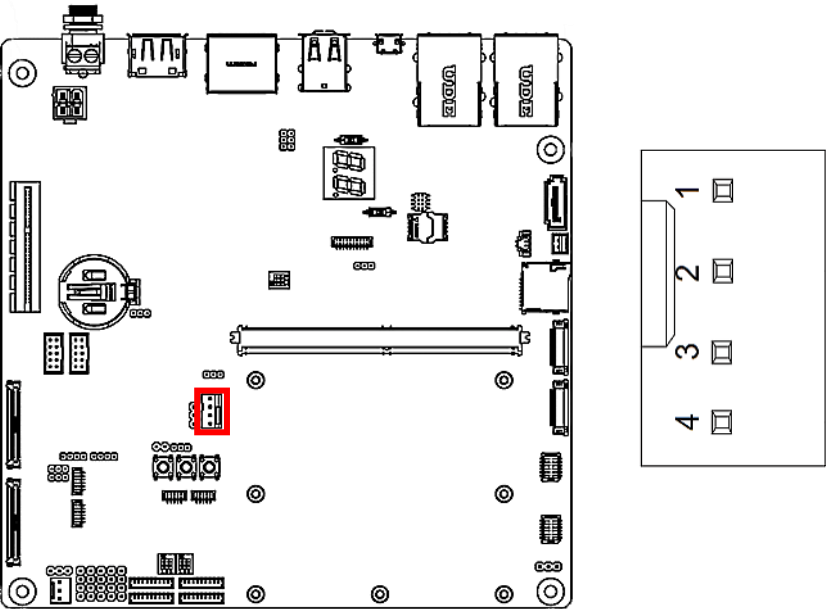
Pin	Pin Name	Signal Type	Signal Level
1	+5V_DUAL_USB_1	PWR	+5V
2	USB2N_1_CM	DIFF	
3	USB2P_1_CM	DIFF	
4	GND	GND	
5	+5V_DUAL_USB_1	PWR	+5V
6	USB2N_1_CM	DIFF	
7	USB2P_1_CM	DIFF	
8	GND	GND	

2.4.9 OTG Port (lane 0) (CN9)



Pin	Pin Name	Signal Type	Signal Level
1	USB2_0_VBUS_DET	PWR	+5V
2	USB2N_1_CM_OTG	DIFF	
3	USB2P_1_CM_OTG	DIFF	
4	USB2_0_OTG_ID	I/O	
5	GND	GND	

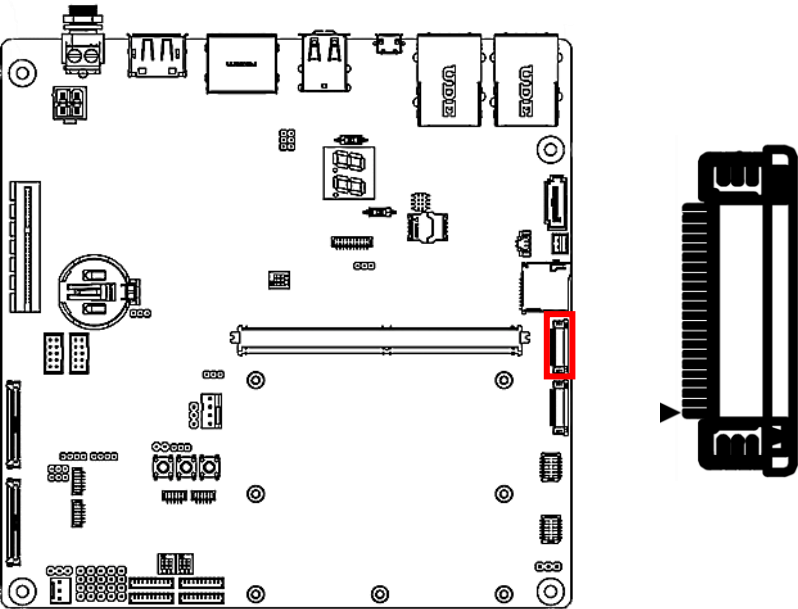
2.4.10 FAN Port 1 (CN10)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	+12V_FAN	PWR	+5V / +12V
3	FAN_CN_TACHIN	IN	
4	FAN_CN_PWMOUT	IN	

Note: FAN1 can be set to +5V or +12V by JP5.

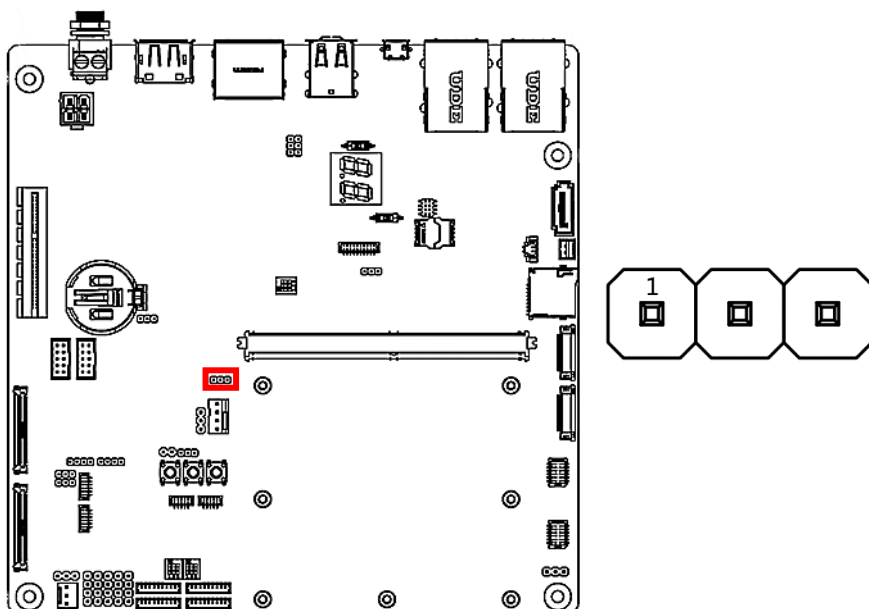
2.4.11 MIPI CSI Port 1 (CN11)



Pin	Pin Name	Signal Type	Signal Level
1	VCC_3V3	PWR	+3.3V
2	VCC_3V3	PWR	+3.3V
3	GND	GND	
4	MCSI1_DP0	I/O	
5	MCSI1_DN0	I/O	
6	GND	GND	
7	MCSI1_DP1	I/O	
8	MCSI1_DN1	I/O	
9	GND	GND	
10	MCSI1_DP2	I/O	
11	MCSI1_DN2	I/O	
12	CAM0_RST#	I/O	
13	MCSI1_DP3	I/O	
14	MCSI1_DN3	I/O	
15	GND	GND	
16	MCSI1_CLKP	I/O	
17	MCSI1_CLKN	I/O	

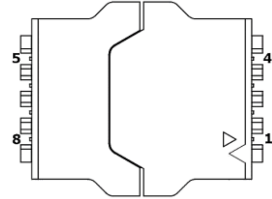
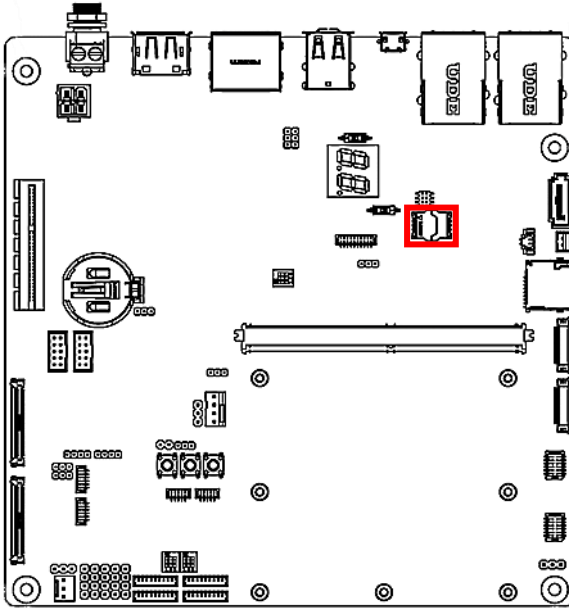
Pin	Pin Name	Signal Type	Signal Level
18	GND	GND	
19	I2C_CAM0_CK	I/O	
20	I2C_CAM0_DAT	I/O	
21	CAM0_PWR#	I/O	
22	PCAM_MCK	I/O	

2.4.12 LID Pin Header (CN12)



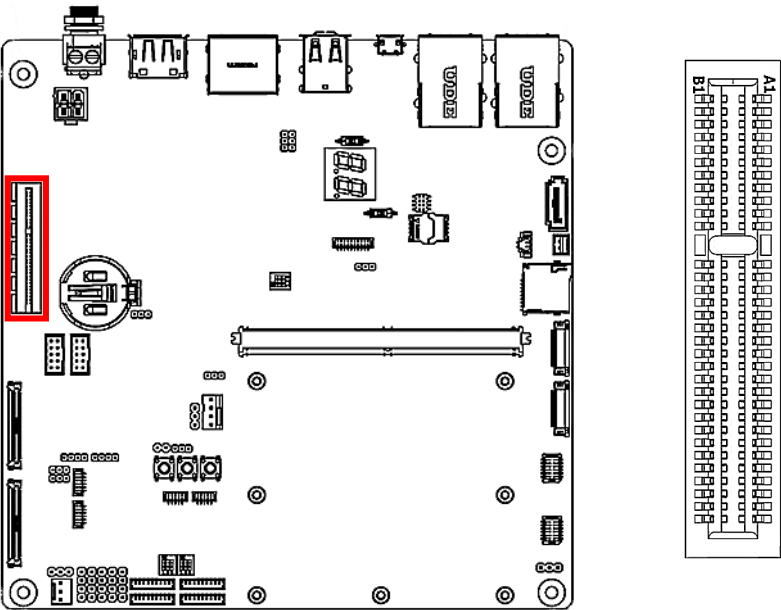
Pin	Pin Name	Signal Type	Signal Level
1	NC		
2	LID#	I/O	
3	GND	GND	

2.4.13 SPI Socket (CN13)



Pin	Pin Name	Signal Type	Signal Level
1	SPI_CE#_F	I/O	
2	SPI_DI_F	I/O	
3	3VSB_SPI	I/O	
4	GND	GND	
5	SPI_DO_F	I/O	
6	SPI_CLK_F	I/O	
7	3VSB_SPI	I/O	
8	3VSB_SPI	PWR	+3.3V

2.4.14 PCIe Gen 3 [x4] (4x1) (CN14)



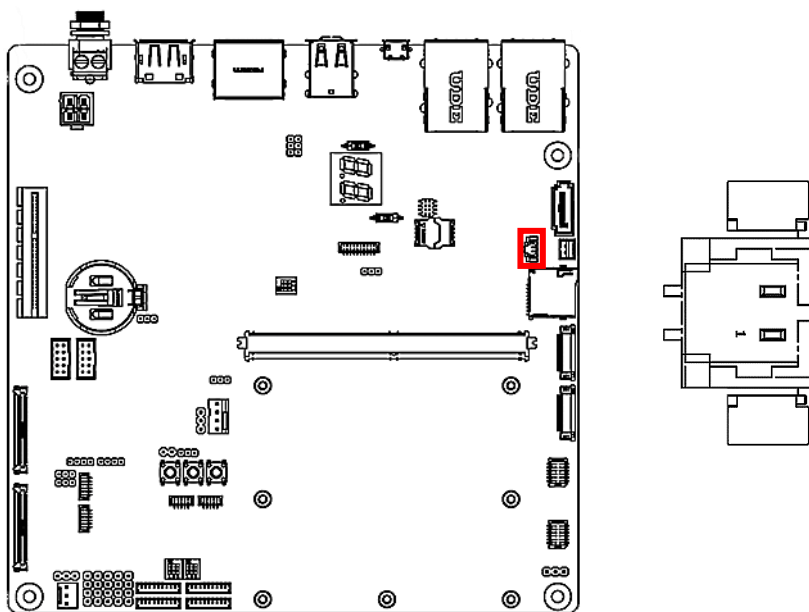
Pin	Pin Name	Signal Type	Signal Level
A1	GND	GND	
A2	VCC_12V	PWR	+12V
A3	VCC_12V	PWR	+12V
A4	GND	GND	
A5	NC		
A6	NC		
A7	NC		
A8	NC		
A9	VCC_3V3	PWR	+3.3V
A10	VCC_3V3	PWR	+3.3V
A11	PCIE_A_X4_RST#	I/O	
A12	GND	GND	
A13	PCIE_A_REFCK_P	DIFF	
A14	PCIE_A_REFCK_N	DIFF	
A15	GND	GND	
A16	PCIE_A_RX_P	DIFF	
A17	PCIE_A_RX_N	DIFF	

Pin	Pin Name	Signal Type	Signal Level
A18	GND	GND	
A19	NC		
A20	GND	GND	
A21	PCIE_B_RX_P	DIFF	
A22	PCIE_B_RX_N	DIFF	
A23	GND	GND	
A24	GND	GND	
A25	PCIE_C_RX_P	DIFF	
A26	PCIE_C_RX_N	DIFF	
A27	GND	GND	
A28	GND	GND	
A29	PCIE_D_RX_P	DIFF	
A30	PCIE_D_RX_N	DIFF	
A31	GND	GND	
A32	NC		
B1	VCC_12V	PWR	+12V
B2	VCC_12V	PWR	+12V
B3	VCC_12V	PWR	+12V
B4	GND	GND	
B5	I2C_GP_CK_3V	I/O	
B6	I2C_GP_DTA_3V	I/O	
B7	GND	GND	
B8	VCC_3V3	PWR	+3.3V
B9	NC		
B10	VCC_3V3_SBY	PWR	+3.3V
B11	PCIE_WARK#	I/O	
B12	PCIE_A_CKREQ#	I/O	
B13	GND	GND	
B14	PCIE_A_TX_P	DIFF	
B15	PCIE_A_TX_N	DIFF	
B16	GND	GND	
B17	PCIE_PRSENT	I/O	
B18	GND	GND	
B19	PCIE_B_TX_P	DIFF	
B20	PCIE_B_TX_N	DIFF	
B21	GND	GND	
B22	GND	GND	
B23	PCIE_C_TX_P	DIFF	
B24	PCIE_C_TX_N	DIFF	

Pin	Pin Name	Signal Type	Signal Level
B25	GND	GND	
B26	GND	GND	
B27	PCIE_D_TX_P	DIFF	
B28	PCIE_D_TX_N	DIFF	
B29	GND	GND	
B30	NC		
B31	PCIE_PRSTNT	I/O	
B32	GND	GND	

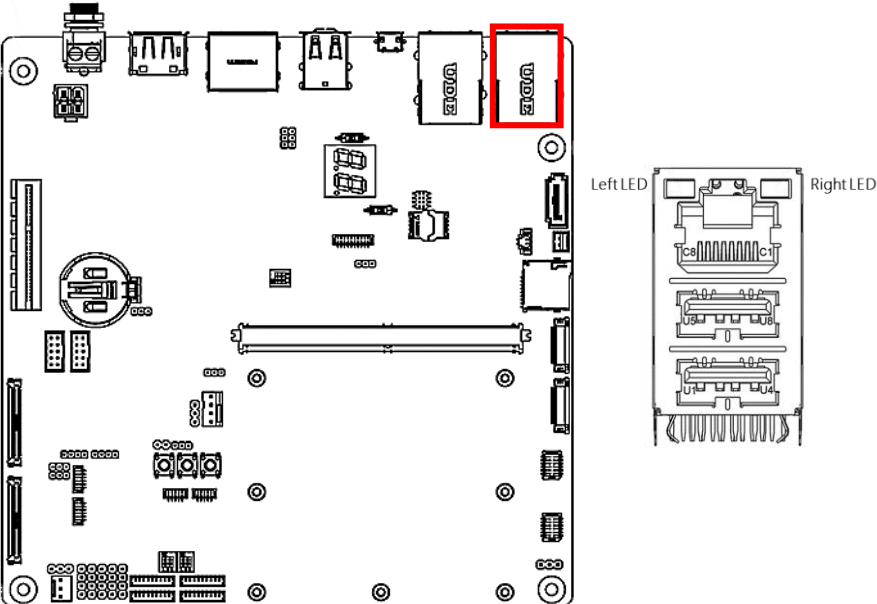
Note: Supports PCIe_CLK_REQ (Default off).

2.4.15 Module Power Connector (CN15)



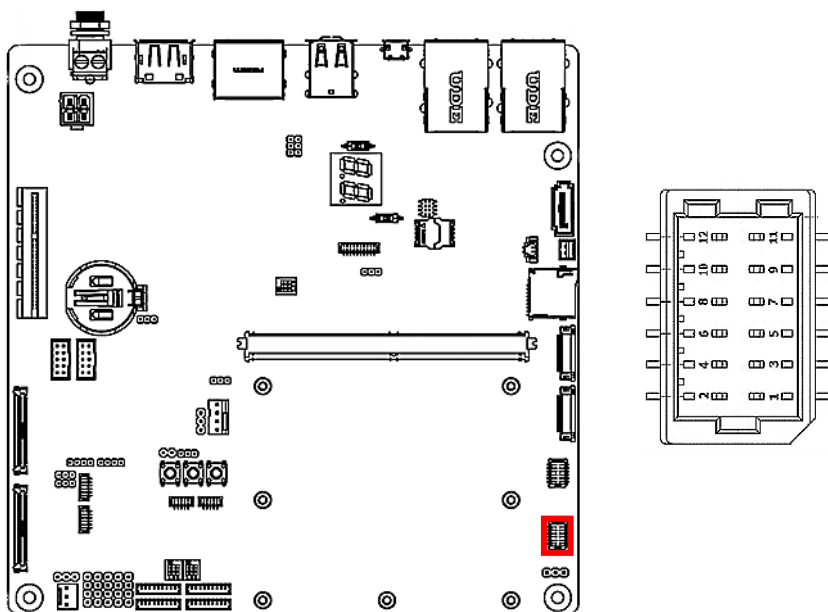
Pin	Pin Name	Signal Type	Signal Level
A1	VCC_5V_Module	PWR	+5V
A2	GND	GND	

2.4.16 Giga LAN (lane 0) + USB 2.0 (lane 4, 5) (CN16)



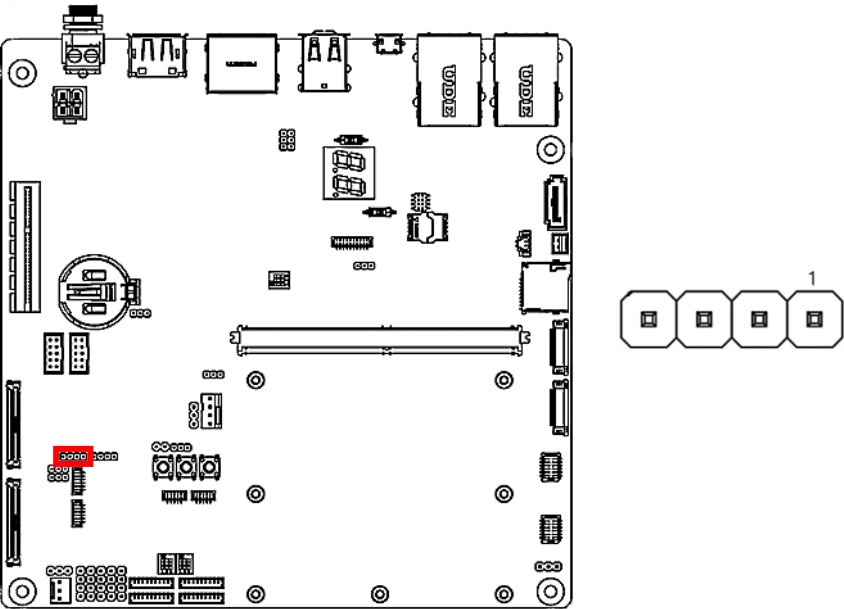
Pin	Pin Name	Signal Type	Signal Level
U1	+5V_DUAL_USB_5	PWR	+5V
U2	USB2N_5_CM	DIFF	
U3	USB2P_5_CM	DIFF	
U4	GND	GND	
U5	+5V_DUAL_USB_4	PWR	+5V
U6	USB2N_4_CM	DIFF	
U7	USB2P_4_CM	DIFF	
U8	GND	GND	
C1	GBE0_MDIO_P	DIFF	
C2	GBE0_MDIO_N	DIFF	
C3	GBE0_MDI1_P	DIFF	
C4	GBE0_MDI1_N	DIFF	
C5	GBE0_MDI2_P	DIFF	
C6	GBE0_MDI2_N	DIFF	
C7	GBE0_MDI3_P	DIFF	
C8	GBE0_MDI3_N	DIFF	

2.4.17 HDA Wafer (HDA)



Pin	Pin Name	Signal Type	Signal Level
1	LOUT_R	OUT	
2	MIC_R	IN	
3	LOUT_L	OUT	
4	MIC_L	IN	
5	FRONT-JD	IN	
6	MIC-JD	IN	
7	AUD_GND	GND	
8	AUD_GND	GND	
9	LINE-JD	IN	
10	LIN_R	IN	
11	VCC_5V_SBY	PWR	+5V
12	LIN_L	IN	

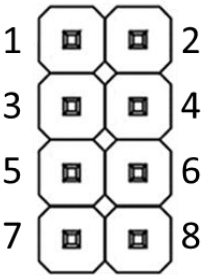
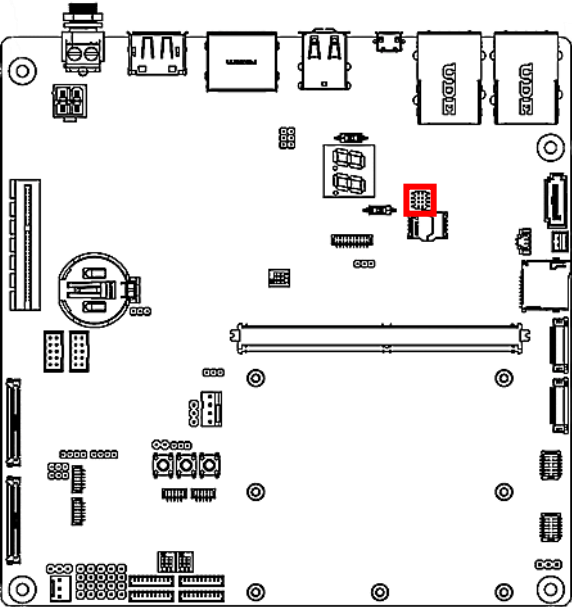
2.4.18 CANBus Port 1 (CN18)



Pin	Pin Name	Signal Type	Signal Level
1	CANH1	I/O	-27V ~ +40V
2	GND	GND	
3	CANL1	I/O	-27V ~ +40V
4	NC		

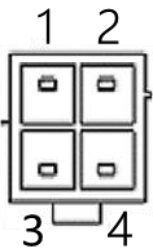
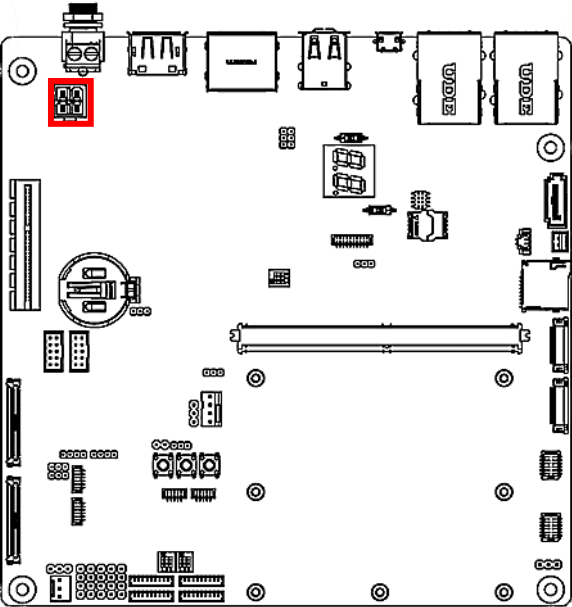
Note: CN18 is optional.

2.4.19 SPI (lane 0) (CN19)



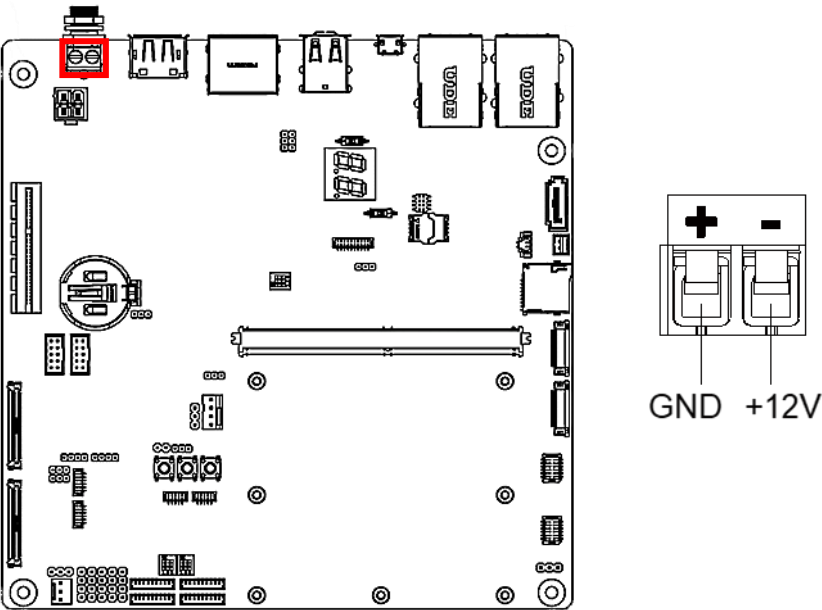
Pin	Pin Name	Signal Type	Signal Level
1	3VSB_SPI	PWR	+3.3V
2	GND	GND	
3	SPI_CE#_F	I/O	
4	SPI_CLK_F	I/O	
5	SPI_DI_F	I/O	
6	SPI_DO_F	I/O	
7	NC		
8	NC		

2.4.20 12V ATX 4-pin Power (CN20)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	GND	GND	
3	VCC_DCIN_EXT	PWR	+12V
4	VCC_DCIN_EXT	PWR	+12V

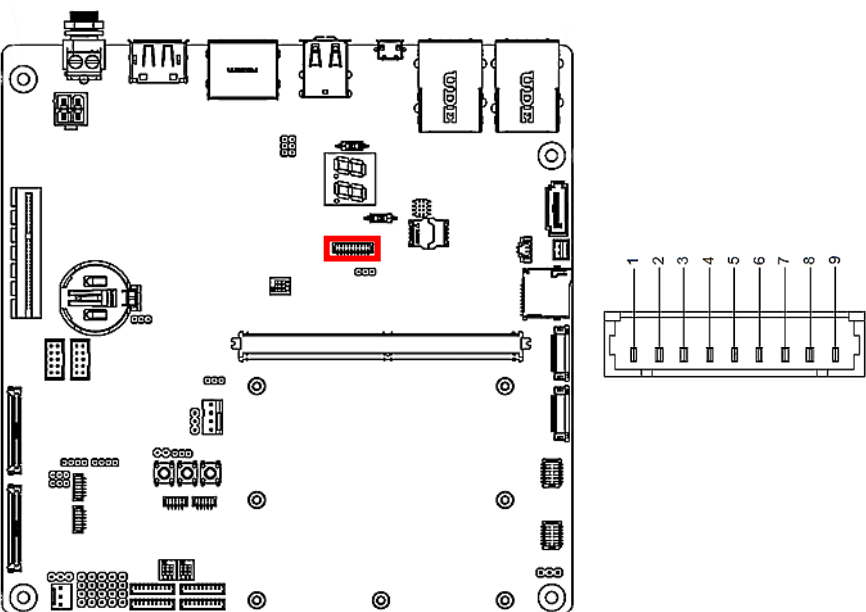
2.4.21 12V Terminal Blocks (CN21)



Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	VCC_DCIN_EXT	PWR	+12V

Note: CN21 is optional.

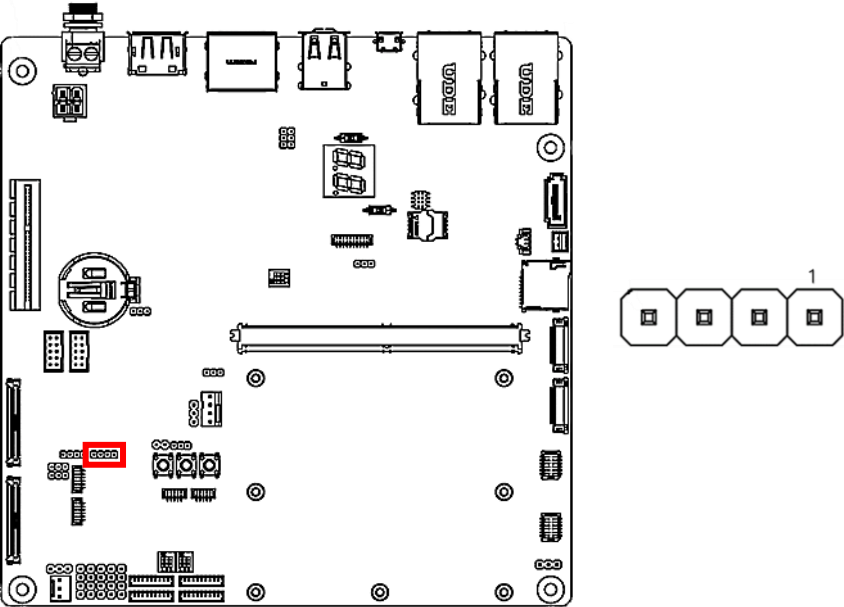
2.4.22 eSPI (Debug Card) (CN22)



Pin	Pin Name	Signal Type	Signal Level
1	SPI1_IO0_3V	I/O	
2	SPI1_IO1_3V	I/O	
3	SPI1_IO2_3V	I/O	
4	SPI1_IO3_3V	I/O	
5	VCC_3V3_SBY	PWR	+3.3V
6	ESPI_R_CS#	I/O	
7	SPI1_RESET#_3V	I/O	
8	GND_eSPI	GND	
9	SPI1_CK_3V	I/O	
10	VCC_3V3	PWR	+3.3V

Note: Only supports AAEON ECBU Debug Card.

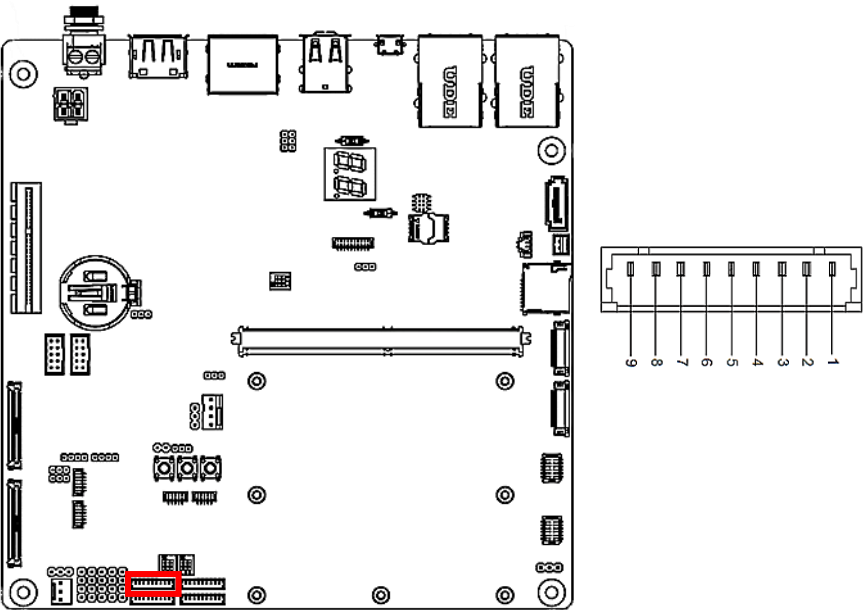
2.4.23 CANBus Port 0 (CN25)



Pin	Pin Name	Signal Type	Signal Level
1	CANH0	I/O	-27V ~ +40V
2	GND	GND	
3	CANL0	I/O	-27V ~ +40V
4	NC		

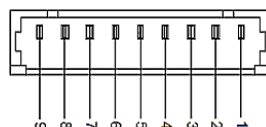
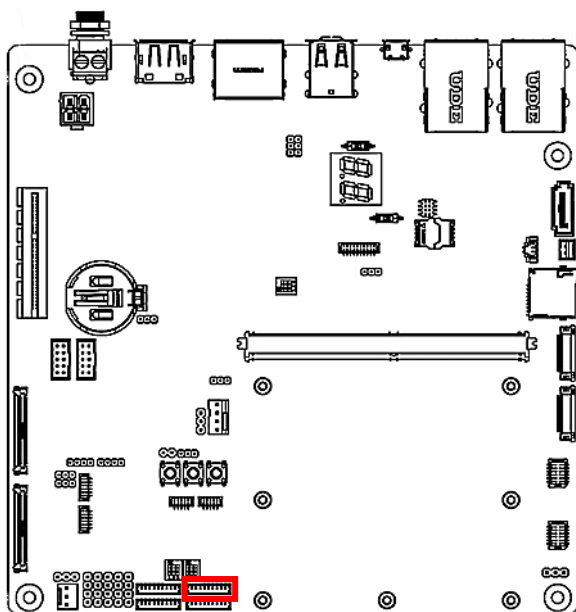
Note: CN25 is optional.

2.4.24 Serial Port 0 (CN26)



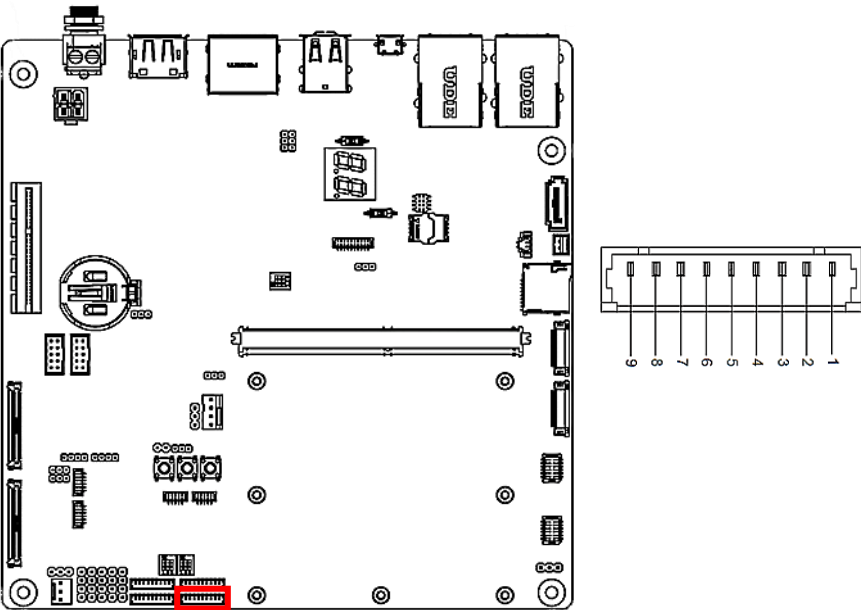
Pin	Pin Name	Signal Type	Signal Level
1	NC		
2	NC		
3	SRXD0	I/O	
4	SRTS#0	I/O	
5	STXD0	I/O	
6	SCTS#0	I/O	
7	NC		
8	NC		
9	GND	GND	

2.4.25 Serial Port 2 (CN27)



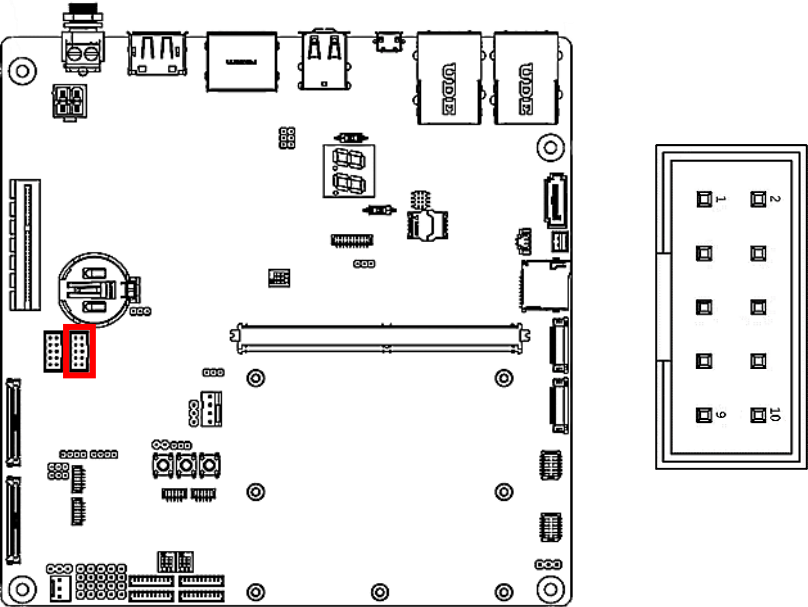
Pin	Pin Name	Signal Type	Signal Level
1	NC		
2	NC		
3	SRXD2	I/O	
4	SRTS#2	I/O	
5	STXD2	I/O	
6	SCTS#2	I/O	
7	NC		
8	NC		
9	GND	GND	

2.4.26 Serial Port 3 (CN28)



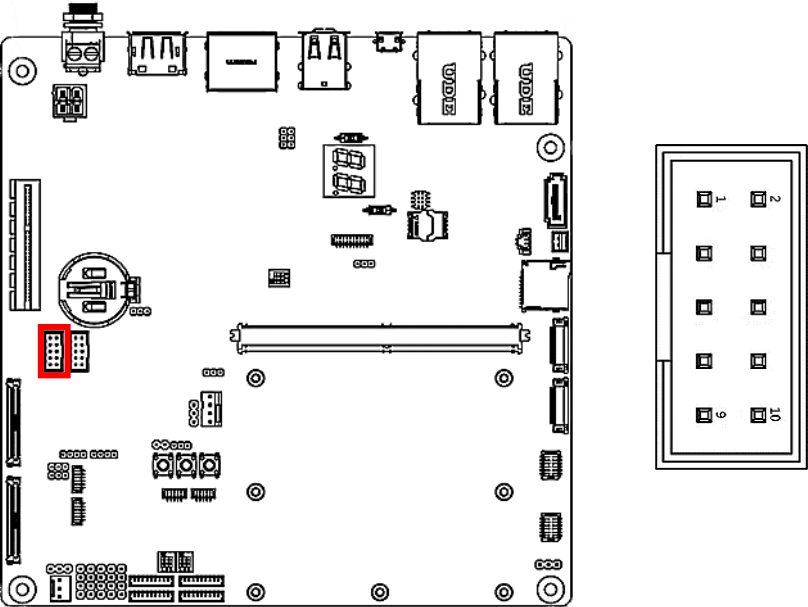
Pin	Pin Name	Signal Type	Signal Level
1	NC		
2	NC		
3	SRXD3	I/O	
4	NC		
5	STXD3	I/O	
6	NC		
7	NC		
8	NC		
9	GND	GND	

2.4.27 GPIO (lane 0-6) (CN29)



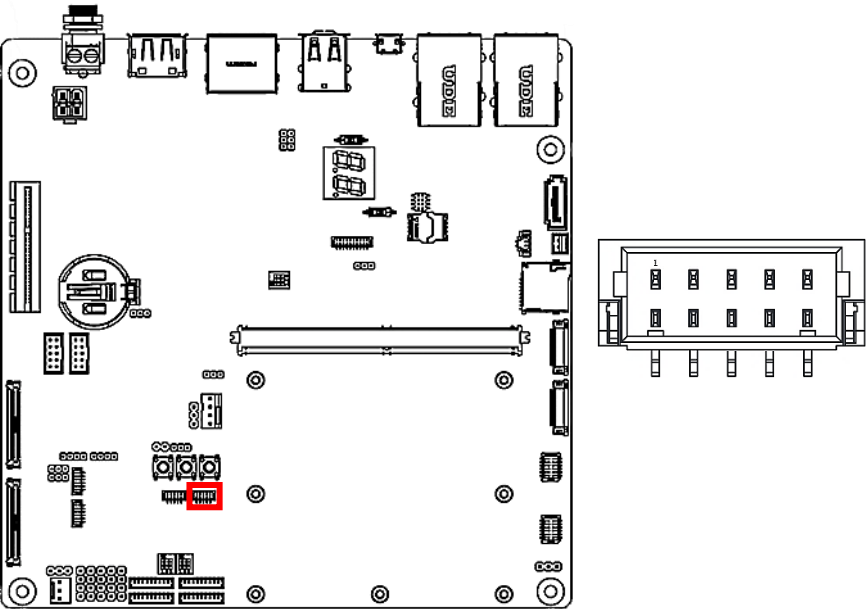
Pin	Pin Name	Signal Type	Signal Level
1	GPIO0_5V/ <u>CAM0 PWR#</u>	I/O	+3.3V
2	GPIO1_5V/ <u>CAM1 PWR#</u>	I/O	+3.3V
3	GPIO2_5V/ <u>CAM0 RST#</u>	I/O	+3.3V
4	GPIO3_5V/ <u>CAM1 RST#</u>	I/O	+3.3V
5	GPIO4_5V/ <u>HDA RST#</u>	I/O	+3.3V
6	GPIO5_5V/ <u>FAN_PWMOUT</u>	I/O	+3.3V
7	GPIO6_5V/ <u>FAN_TACHIN</u>	I/O	+3.3V
8	NC		
9	VCC_3V3	PWR	+3.3V
10	GND	GND	

2.4.28 GPIO (lane 7-13) (CN30)



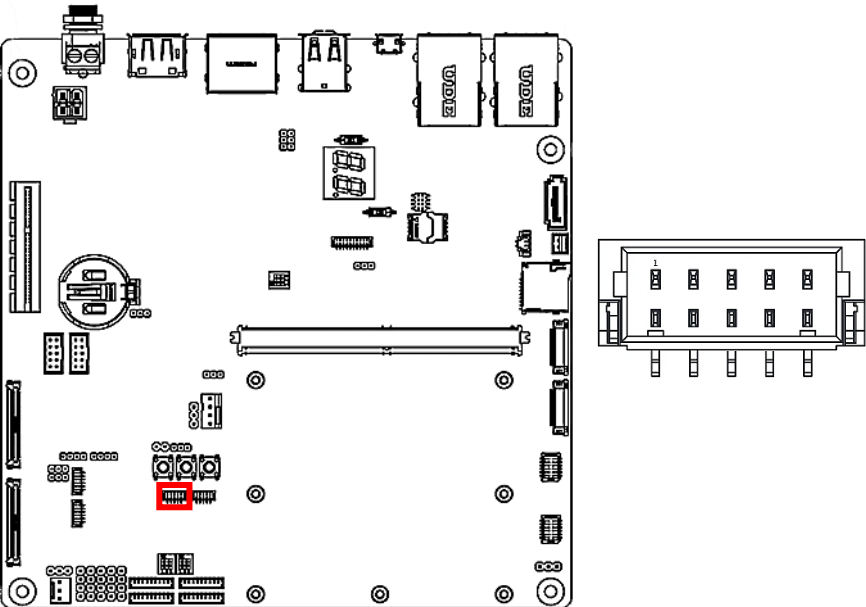
Pin	Pin Name	Signal Type	Signal Level
1	GPIO7_5V	I/O	+3.3V
2	GPIO8_5V	I/O	+3.3V
3	GPIO9_5V	I/O	+3.3V
4	GPIO10_5V	I/O	+3.3V
5	GPIO11_5V	I/O	+3.3V
6	GPIO12_5V	I/O	+3.3V
7	GPIO13_5V	I/O	+3.3V
8	NC		
9	VCC_3V3	PWR	+3.3V
10	GND	GND	

2.4.29 I2C Wafer (CN31)



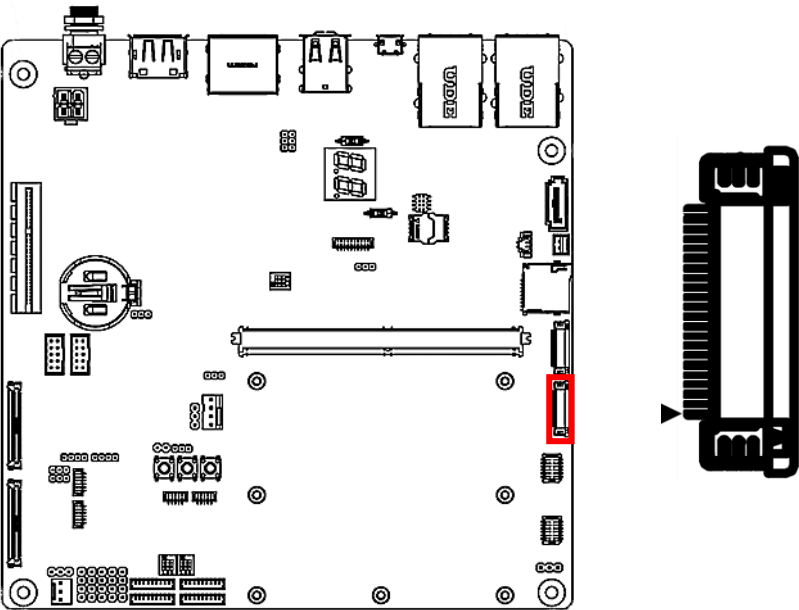
Pin	Pin Name	Signal Type	Signal Level
1	VCC_3V3	PWR	+3.3V
2	I2C_GP_CK_R	I/O	
3	I2C_GP_DTA_R	I/O	
4	NC		
5	GND	GND	

2.4.30 SMBus Wafer (CN32)



Pin	Pin Name	Signal Type	Signal Level
1	VCC_3V3	PWR	+3.3V
2	I2C_PM_CK_R	I/O	
3	I2C_PM_DTA_R	I/O	
4	NC		
5	GND	GND	

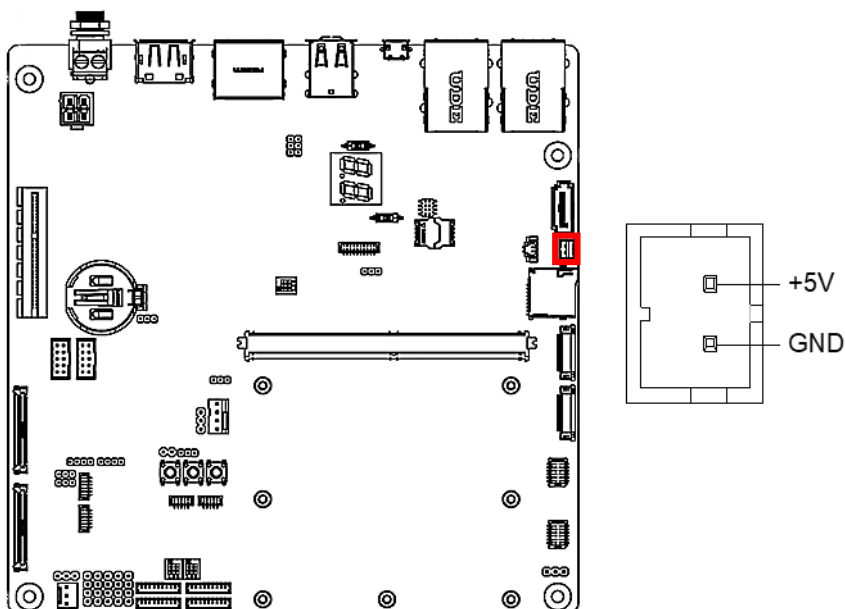
2.4.31 MIPI CSI Port 0 (CN36)



Pin	Pin Name	Signal Type	Signal Level
1	VCC_3V3	PWR	+3.3V
2	VCC_3V3	PWR	+3.3V
3	GND	GND	
4	MCSI2_DP0	I/O	
5	MCSI2_DN0	I/O	
6	GND	GND	
7	MCSI2_DP1	I/O	
8	MCSI2_DN1	I/O	
9	GND	GND	
10	NC		
11	NC		
12	CAM1_RST#	I/O	
13	NC		
14	NC		
15	GND	GND	
16	MCSI2_CLKP	I/O	
17	MCSI2_CLKN	I/O	

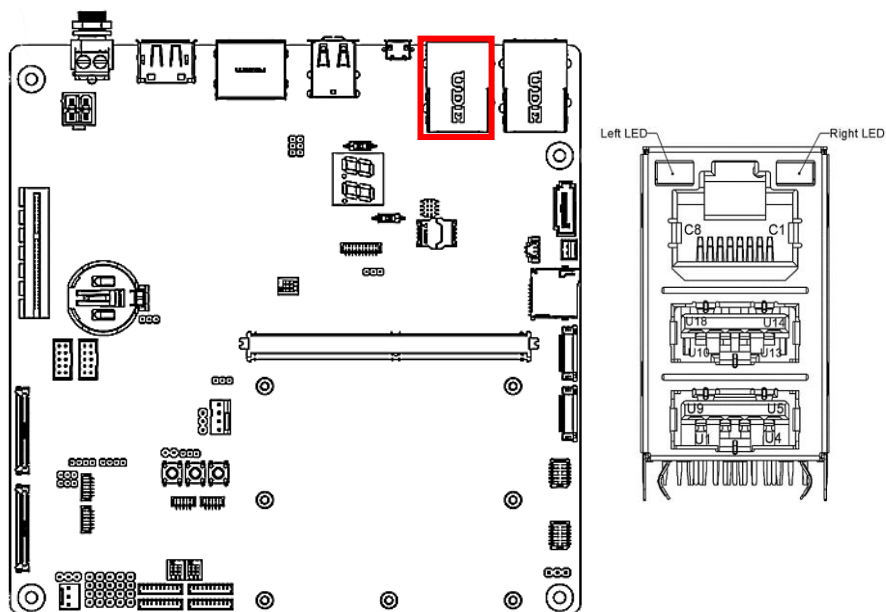
Pin	Pin Name	Signal Type	Signal Level
18	GND	GND	
19	I2C_CAM1_CK	I/O	
20	I2C_CAM1_DAT	I/O	
21	CAM1_PWR#	I/O	
22	PCAM_MCK	I/O	

2.4.32 SATA Port 0 Power (CN39)



Pin	Pin Name	Signal Type	Signal Level
1	+5V	PWR	+5V
2	GND	GND	

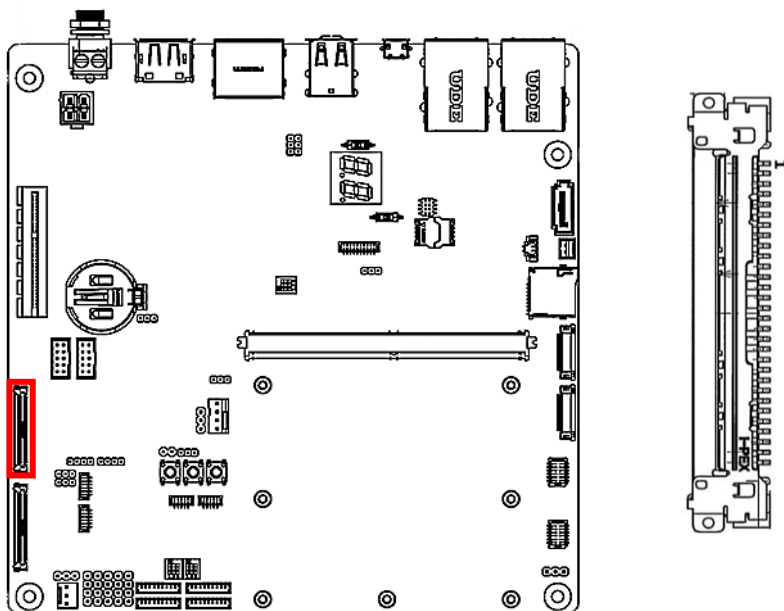
2.4.33 Giga LAN (lane 1) + USB 3.2 (lane 2,3) (CN40)



Pin	Pin Name	Signal Type	Signal Level
U1	+5V_DUAL_USB_2	PWR	+5V
U2	USB2_2_DN_CM	DIFF	
U3	USB2_2_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_3_DN_CM	DIFF	
U12	USB2_3_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	

Pin	Pin Name	Signal Type	Signal Level
U18	USB3_3_TXP_CM	DIFF	
C1	GBE1_MDIO_P	DIFF	
C2	GBE1_MDIO_N	DIFF	
C3	GBE1_MDIO_P	DIFF	
C4	GBE1_MDIO_N	DIFF	
C5	GBE1_MDIO_P	DIFF	
C6	GBE1_MDIO_N	DIFF	
C7	GBE1_MDIO_P	DIFF	
C8	GBE1_MDIO_N	DIFF	

2.4.34 eDP Port 0 (lane 0) (JEDP1)

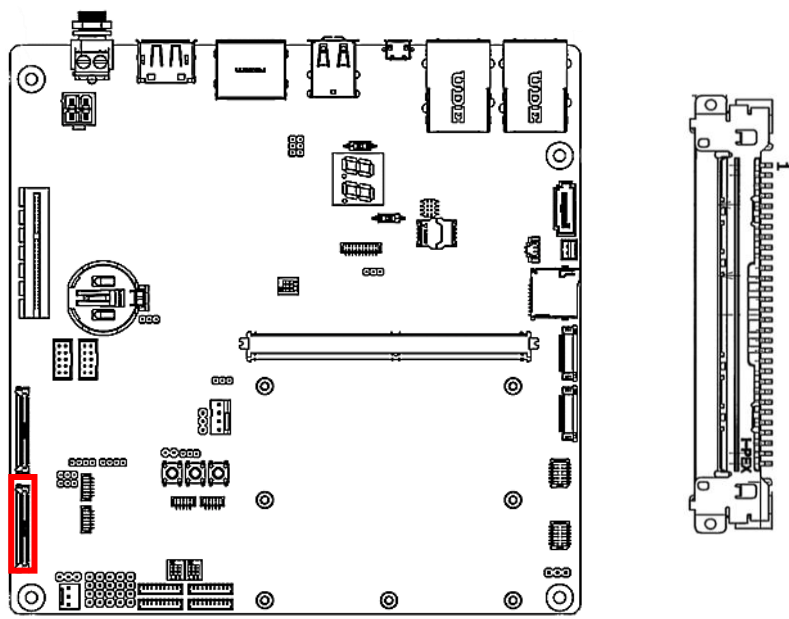


Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	LVDS_1_LANE3_DP_C	I/O	
3	LVDS_1_LANE3_DN_C	I/O	
4	GND	GND	
5	LVDS_1_CLKP_C	I/O	
6	LVDS_1_CLKN_C	I/O	
7	GND	GND	

Pin	Pin Name	Signal Type	Signal Level
8	LVDS_1_LANE2_DP_C	I/O	
9	LVDS_1_LANE2_DN_C	I/O	
10	GND	GND	
11	LVDS_1_LANE1_DP_C	I/O	
12	LVDS_1_LANE1_DN_C	I/O	
13	GND	GND	
14	LVDS_1_LANE0_DP_C	I/O	
15	LVDS_1_LANE0_DN_C	I/O	
16	GND	GND	
17	VCC_3V3	PWR	
18	LVDS_DDC_CK_EDP_HPD	I/O	
19	EDP_BKLT_EN_3V3	I/O	
20	LVDS0_DDC_DAT_CON	I/O	
21	EDP_BKLT_CTL_3V3	I/O	
22	GND	GND	
23	EDP_AUX_DP	DIFF	
24	EDP_AUX_DN	DIFF	
25	GND	GND	
26	EDP_TX3_DP	DIFF	
27	EDP_TX3_DN	DIFF	
28	GND	GND	
29	EDP_TX0_DP	DIFF	
30	EDP_TX0_DN	DIFF	
31	GND	GND	
32	EDP_TX1_DP	DIFF	
33	EDP_TX1_DN	DIFF	
34	GND	GND	
35	EDP_TX2_DP	DIFF	
36	EDP_TX2_DN	DIFF	
37	GND	GND	
38	+VDD_LVDS_eDP	PWR	+3.3V
38	+VDD_LVDS_eDP	PWR	+3.3V
40	+VDD_LVDS_eDP	PWR	+3.3V

Note: Pins 38, 39, 40 total driving current supports up to 2A.

2.4.35 eDP Port 1 (lane 1) (JEDP2)

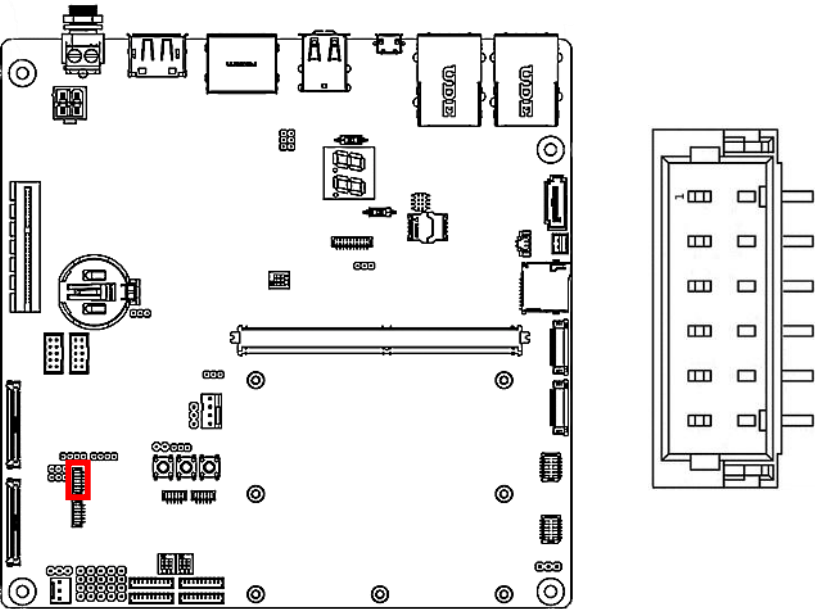


Pin	Pin Name	Signal Type	Signal Level
1	GND	GND	
2	NC		
3	NC		
4	GND	GND	
5	NC		
6	NC		
7	GND	GND	
8	NC		
9	NC		
10	GND	GND	
11	NC		
12	NC		
13	GND	GND	
14	NC		
15	NC		
16	GND	GND	
17	VCC_3V3	PWR	

Pin	Pin Name	Signal Type	Signal Level
18	LVDS_DDC_CK_1_EDP1_HPDP		
19	EDP1_BKLT_EN_3V3	I/O	
20	LVDS1_DDC_DAT_CON	I/O	
21	EDP1_BKLT_CTL_3V3	I/O	
22	GND	GND	
23	EDP1_AUX_DP	DIFF	
24	EDP1_AUX_DN	DIFF	
25	GND	GND	
26	EDP1_TX3_DP	DIFF	
27	EDP1_TX3_DN	DIFF	
28	GND	GND	
29	EDP1_TX0_DP	DIFF	
30	EDP1_TX0_DN	DIFF	
31	GND	GND	
32	EDP1_TX1_DP	DIFF	
33	EDP1_TX1_DN	DIFF	
34	GND	GND	
35	EDP1_TX2_DP	DIFF	
36	EDP1_TX2_DN	DIFF	
37	GND	GND	
38	+VDD_LVDS_eDP1	PWR	+3.3V
39	+VDD_LVDS_eDP1	PWR	+3.3V
40	+VDD_LVDS_eDP1	PWR	+3.3V

Note: Pins 38, 39, 40 total driving current supports up to 2A.

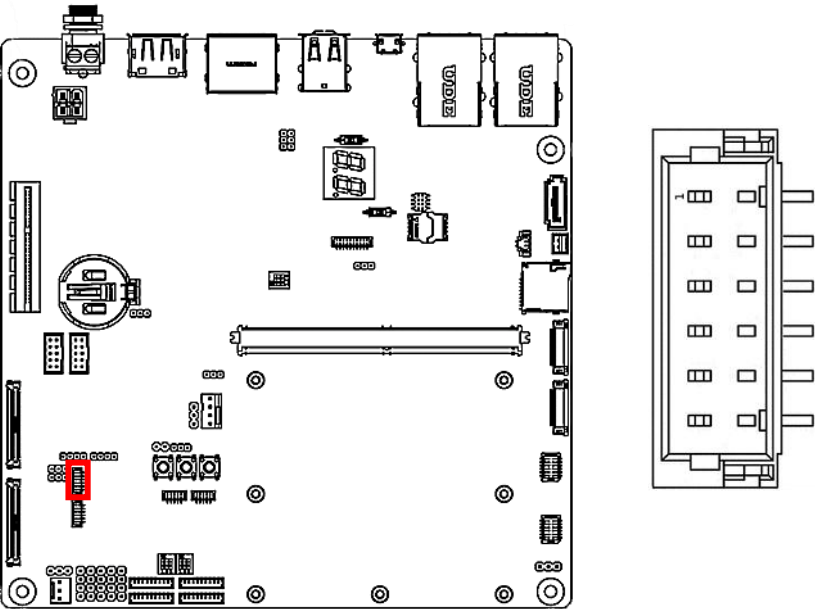
2.4.36 LVDS Back Light Power Port 0 (JLVDSBP1)



Pin	Pin Name	Signal Type	Signal Level
1	+VCC_EDP_BKLT_0	PWR	+12V/+5V
2	+VCC_EDP_BKLT_0	PWR	+12V/+5V
3	EDP_BKLT_CTL_3V3	I/O	+3.3V
4	GND	GND	
5	GND	GND	
6	EDP_BKLT_EN_3V3	I/O	+3.3V

Note: The driving current supports up to 2A.

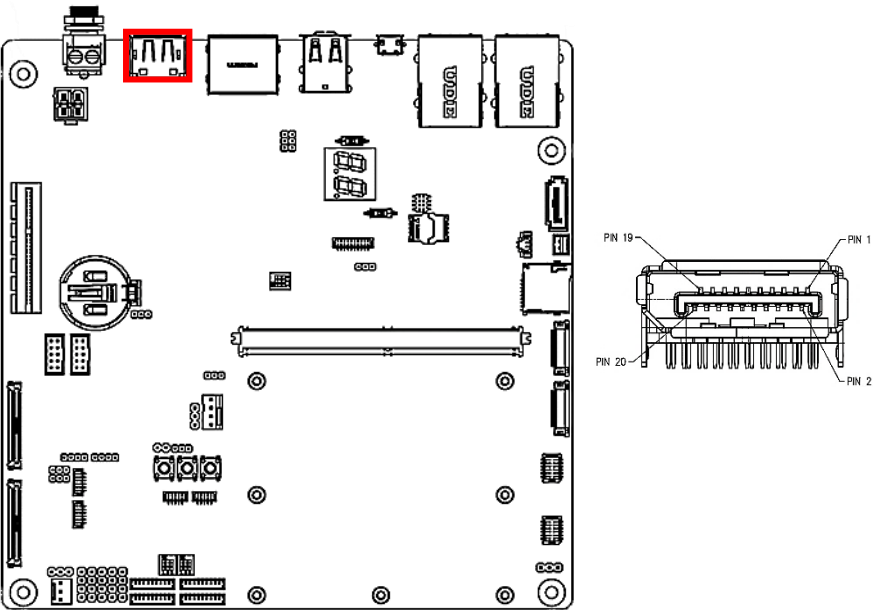
2.4.37 LVDS Back Light Power Port 1 (JLVDS2P2)



Pin	Pin Name	Signal Type	Signal Level
1	+VCC_EDP_BKLT_1	PWR	+12V/+5V
2	+VCC_EDP_BKLT_1	PWR	+12V/+5V
3	EDP1_BKLT_CTL_3V3	I/O	+3.3V
4	GND	GND	
5	GND	GND	
6	EDP1_BKLT_EN_3V3	I/O	+3.3V

Note: The driving current supports up to 2A.

2.4.38 DP (lane 0) (DP)

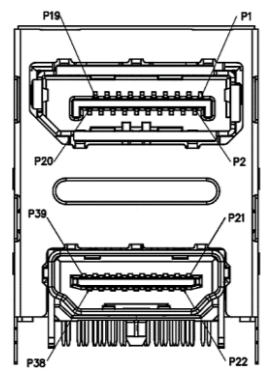
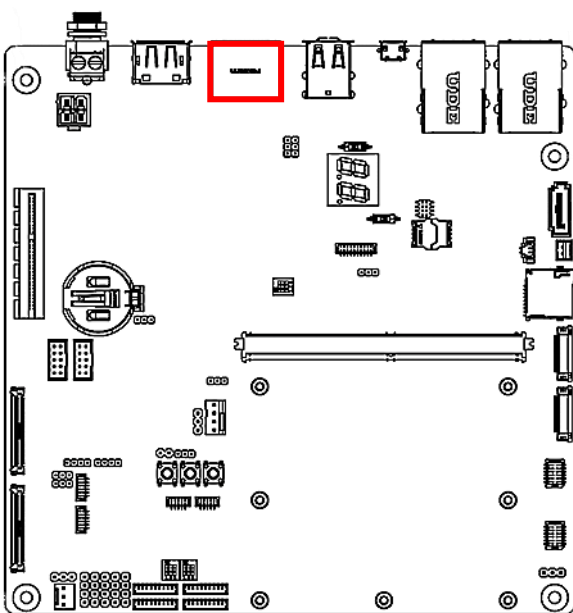


Pin	Pin Name	Signal Type	Signal Level
1	DP0_LANE0_RP_C	DIFF	
2	GND	GND	
3	DP0_LANE0_RN_C	DIFF	
4	DP0_LANE1_RP_C	DIFF	
5	GND	GND	
6	DP0_LANE1_RN_C	DIFF	
7	DP0_LANE2_RP_C	DIFF	
8	GND	GND	
9	DP0_LANE2_RN_C	DIFF	
10	DP0_LANE3_RP_C	DIFF	
11	GND	GND	
12	DP0_LANE3_RN_C	DIFF	
13	DP0_AUX_SEL_R	I/O	
14	GND	GND	
15	DP0_AUXP_RP	DIFF	
16	GND	GND	
17	DP0_AUXN_RP	DIFF	

Pin	Pin Name	Signal Type	Signal Level
18	DP0_HPD_R	I/O	
19	GND	GND	
20	+V3P3S_DP_F0	PWR	3.3V

Note: Pin 20 driving current supports up to 0.5A.

2.4.39 DP/HDMI (DP lane 1) (DP/HDMI)



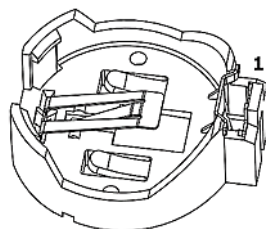
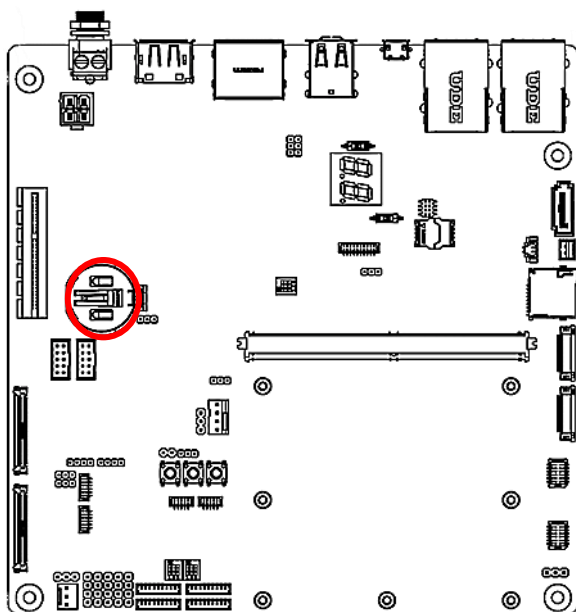
Pin	Pin Name	Signal Type	Signal Level
1	DP1_LANE0_RP_C	DIFF	
2	GND	GND	
3	DP1_LANE0_RN_C	DIFF	
4	DP1_LANE1_RP_C	DIFF	
5	GND	GND	
6	DP1_LANE1_RN_C	DIFF	
7	DP1_LANE2_RP_C	DIFF	
8	GND	GND	
9	DP1_LANE2_RN_C	DIFF	
10	DP1_LANE3_RP_C	DIFF	
11	GND	GND	

Pin	Pin Name	Signal Type	Signal Level
12	DP1_LANE3_RN_C	DIFF	
13	DP1_AUX_SEL_R	I/O	
14	GND	GND	
15	DP1_AUXP_RP	DIFF	
16	GND	GND	
17	DP1_AUXN_RP	DIFF	
18	DP1_HPD_R	I/O	
19	GND	GND	
20	+V3P3S_DP_F0	PWR	3.3V
21	HDMI_D2+	DIFF	
22	GND	GND	
23	HDMI_D2-	DIFF	
24	HDMI_D1+	DIFF	
25	GND	GND	
26	HDMI_D1-	DIFF	
27	HDMI_D0+	DIFF	
28	GND	GND	
29	HDMI_D0-	DIFF	
30	HDMI_CK+	DIFF	
31	GND	GND	
32	HDMI_CK-	DIFF	
33	NC		
34	NC		
35	HDMI_CTRL_CK_3V	I/O	
36	HDMI_CTRL_DAT_3V	I/O	
37	GND	GND	
38	+V5S_HDMI1	PWR	5V
39	HDMI_HPD	I/O	

Note: Pins 20, 38 driving current supports up to 0.5A.

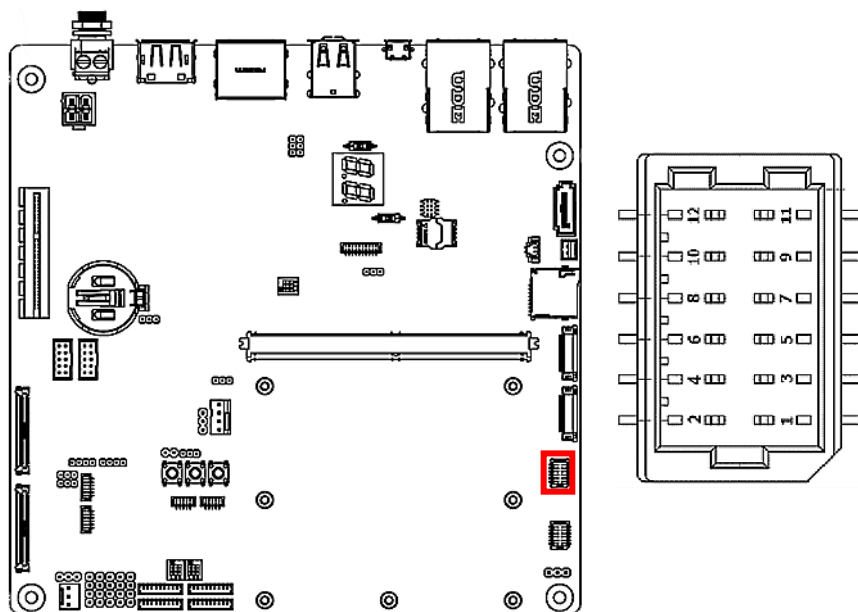
Note: HDMI and DP can't work at the same time, configure by BOM.

2.4.40 RTC Battery (BT2)



Pin	Pin Name	Signal Type	Signal Level
1	VCC_3V3_SBY	PWR	+3.3V
2	GND	GND	

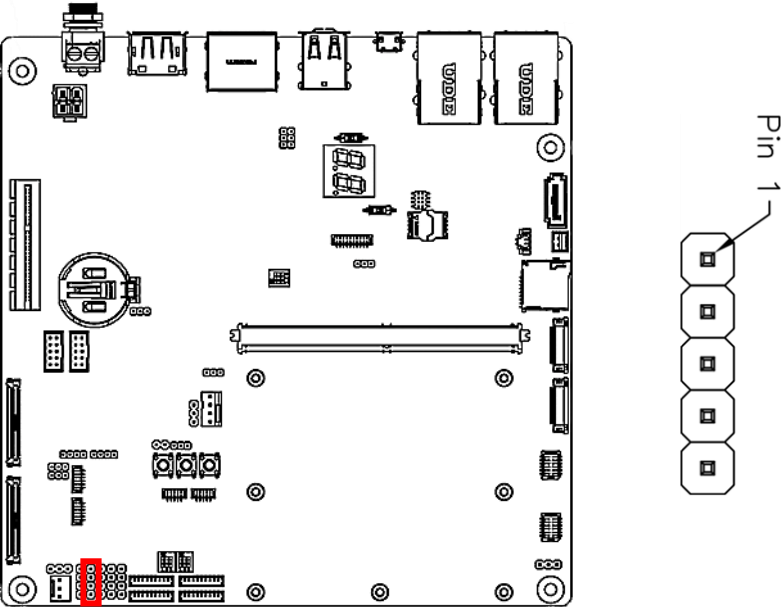
2.4.41 I2S Wafer (I2S)



Pin	Pin Name	Signal Type	Signal Level
1	LINE_OUT_R	OUT	
2	MIC_IN_R	IN	
3	LINE_OUT_L	OUT	
4	MIC_IN_L	IN	
5	NC		
6	NC		
7	AGND_AUD	GND	
8	AGND_AUD	GND	
9	NC		
10	LINE_IN_R	IN	
11	VCC_3V3_AUD	PWR	+3.3V
12	LINE_IN_L	IN	

Note: I2S is optional.

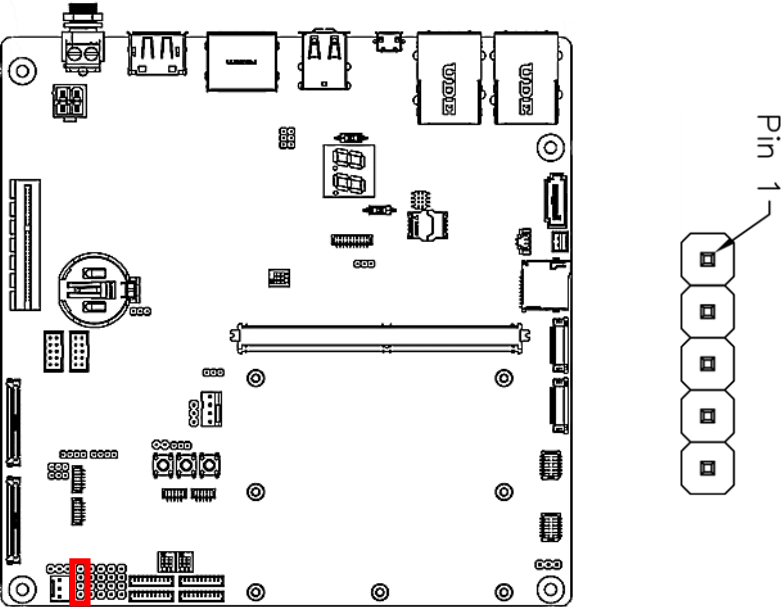
2.4.42 UART Lane 0 (UART0)



Pin	Pin Name	Signal Type	Signal Level
1	SER0_RTS_3V_R	O	3.3V or 1.8V
2	SER0_TX_3V_R	O	3.3V or 1.8V
3	SER0_RX_3V_R	I	3.3V or 1.8V
4	SER0_CTS_3V_R	I	3.3V or 1.8V
	GND	GND	

Note: UART0 is optional.

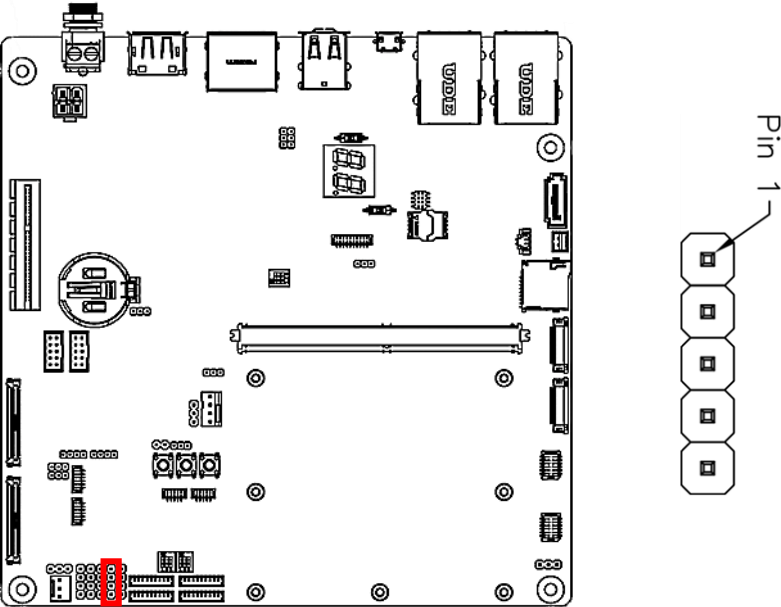
2.4.43 UART Lane 1 (UART1)



Pin	Pin Name	Signal Type	Signal Level
1	VCC_3V3_L	PWR	+3.3V
2	SER1_TX_3V_R	O	3.3V or 1.8V
3	SER1_RX_3V_R	I	3.3V or 1.8V
4	GND	GND	
5	GND	GND	

Note: UART1 is optional.

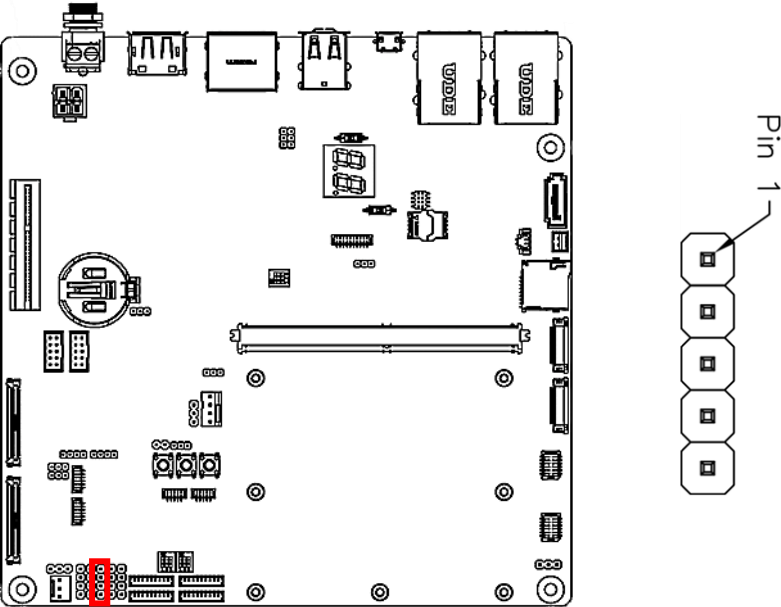
2.4.44 UART Lane 2 (UART2)



Pin	Pin Name	Signal Type	Signal Level
1	SER2_RTS_3V_R	O	3.3V or 1.8V
2	SER2_TX_3V_R	O	3.3V or 1.8V
3	SER2_RX_3V_R	I	3.3V or 1.8V
4	SER2_CTS_3V_R	I	3.3V or 1.8V
5	GND	GND	

Note: UART2 is optional.

2.4.45 UART Lane 3 (UART3)



Pin	Pin Name	Signal Type	Signal Level
1	VCC_3V3_L	PWR	+3.3V
2	SER3_TX_3V_R	O	3.3V or 1.8V
3	SER3_RX_3V_R	I	3.3V or 1.8V
4	GND	GND	
5	GND	GND	

Note: UART3 is optional.

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		
CN2	SPI0 Connector	JST	SHR-07V-S-B		
CN4	COM Port 1	Molex	51021-0900	1701090150	
CN6	SATA	Molex	887505318		
CN7	3-Pin Fan	Molex	22013037		
CN10	4-Pin Fan	Molex	470541000		
CN15	Module Power Conn	Molex	510210200		
CN17	HDA Wafer	ACES	50247-012H0H0-001	170X000156	
CN20	ATX CPU 4-Pin	Molex	39012045		
CN22	eSPI Connector	JST	SHR-10V-S-B	1703100133	AAEON ECBU Debug Card Only
CN26	COM Port 0	Molex	51021-0900	1701090150	
CN27	COM Port 2	Molex	51021-0900	1701090150	
CN28	COM Port 3	Molex	51021-0900	1701090150	
CN29	GPIO (0-7)	Molex	51110-1051	170X000709	
CN30	GPIO (8-13)	Molex	51110-1051	170X000709	
CN31	I2C	JST	SHR-05V-S-B	170X000743	
CN32	SMBus	JST	SHR-05V-S-B	170X000743	
CN39	SATA Power	JST	PHR-2	1702150155	
JLVDSP1	eDP/LVDS Backlight Power	JST	SHR-06V-S-B	170X000531	
JLVDSP2	eDP/LVDS Backlight Power	JST	SHR-06V-S-B	170X000531	
I2S	I2S Wafer	ACES	50247-012H0H0-001	170X000156	
JEDP1	eDP1	I-PEX	20453-240T-03	170X000531	Panel: B173ZAN01
JEDP2	eDP2				