



PICO-APL4 Rev A0.2

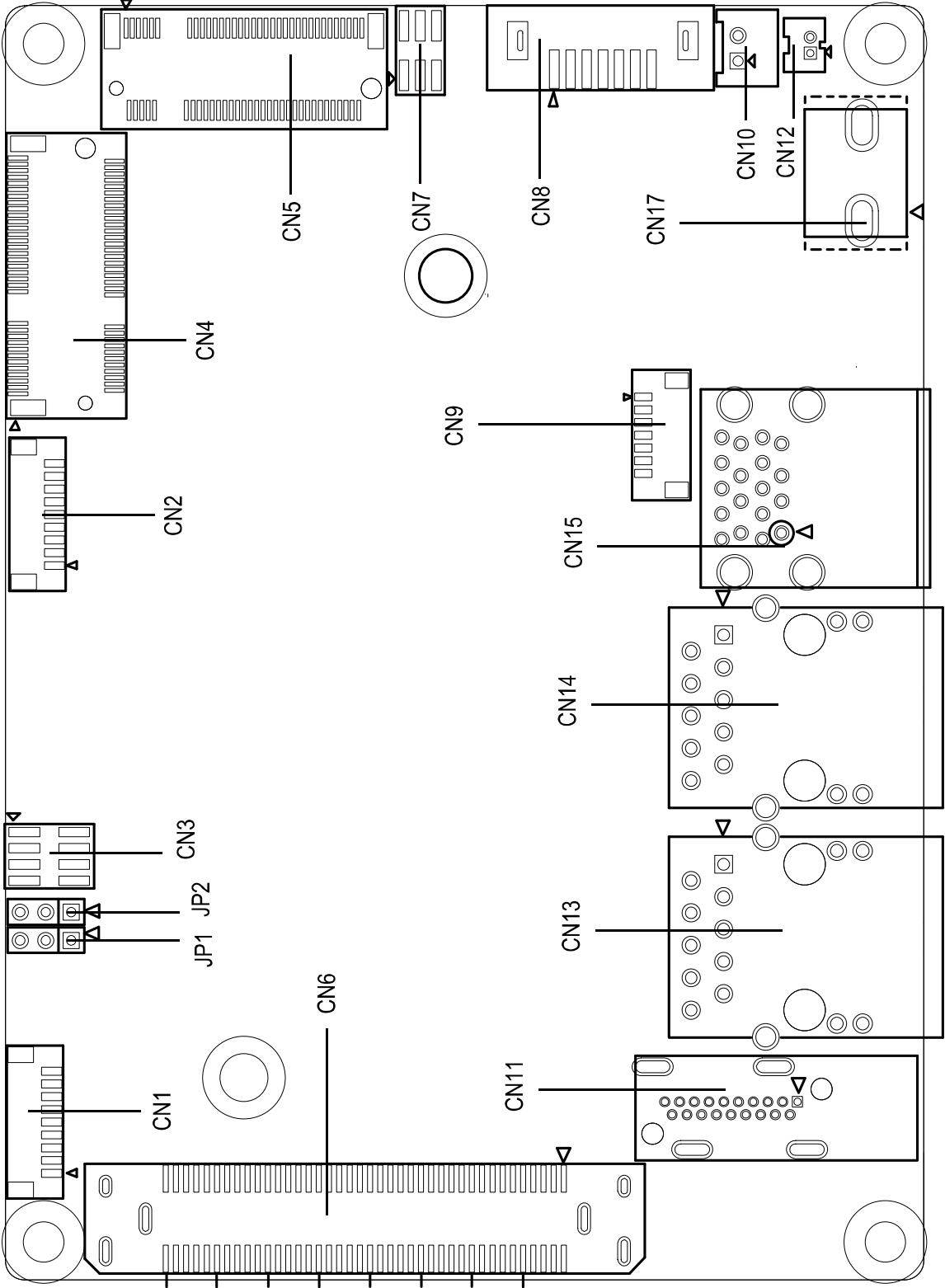
Jumper and Connector Settings

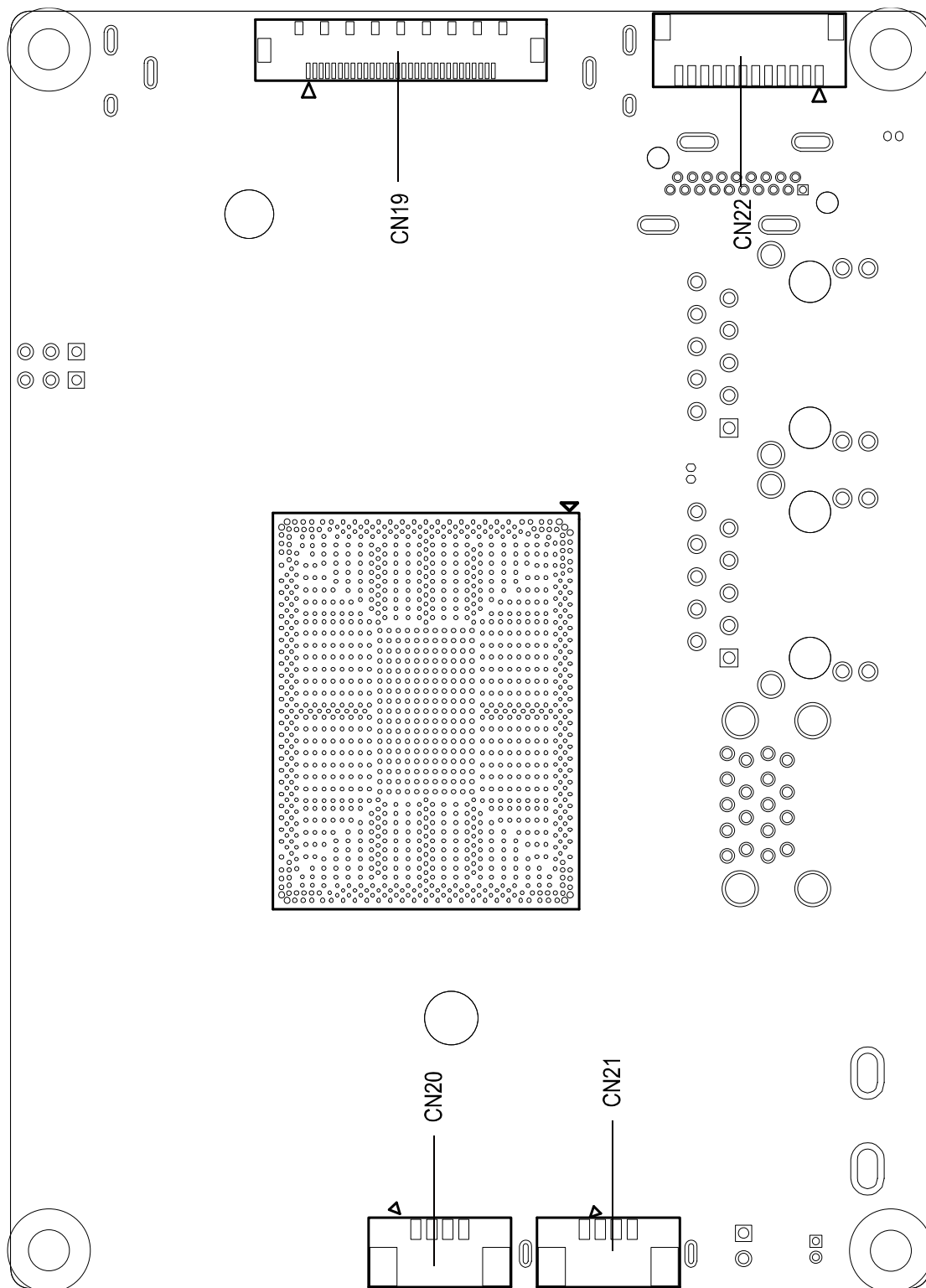
User Manual

Features

1. Intel® Apollo lake Processor
2. DDR3L 1600 4G
3. eDP/HDMI /DDI (BIO)
4. SATA III x 1, eMMC 32G
5. Support 4-bit Digital I/O, 2 USB 2.0, 2 USB 3.0, 2 COM
6. LAN Realtek 8111G x 2
7. M.2 2230 x 1 (E-Key), 2280 x 1 (B-Key)
8. BIO x1
9. DC 12V

Location of Connectors and Jumpers





List of Jumpers

Jumpers allow users to manually customize system configurations to their suitable application needs.

The following chart consist the list of each jumper function:

Label	Function
JP1	Auto Power Button Enable/Disable Selection
JP2	Clear CMOS Jumper
CN3	Front Panel Connector

(JP1) Auto Power Button Enable/Disable Selection



1

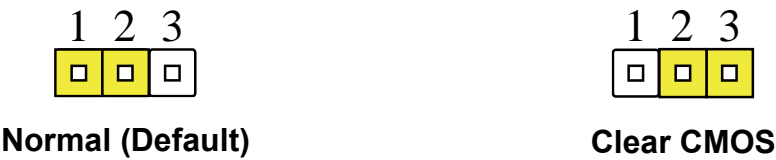
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3

Disable/ATX

※ When disabled, the power button of CN3 (1-2) will be used to power on the system

(JP2) Clear CMOS Jumper



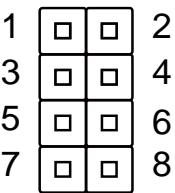
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2

3

Clear CMOS

(CN3) Front Panel Connector

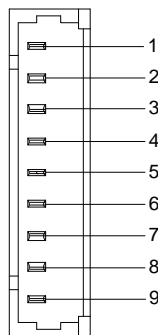


Pin 1	PWR_BTN-	Pin 2	PWR_BTN+
Pin 3	HDD_LED-	Pin 4	HDD_LED+
Pin 5	SPEAKER-	Pin 6	SPEAKER+
Pin 7	H/W RESET-	Pin 8	H/W RESET+

List of Connectors

Connectors on board access link to external devices such as hard disk drives, a keyboard.

Label	Function
CN1	COM Port 2
CN2	COM Port 1
CN4	M.2 Key-E Slot (2230)
CN5	M.2 Key-B Slot (2280)
CN6	BIO Port
CN7	Digital I/O
CN8	SATA Port
CN9	SPI Flash Programming Port
CN10	+5V Output for SATA HDD
CN11	HDMI Port
CN12	Battery
CN13	LAN (RJ-45) Port1
CN14	LAN (RJ-45) Port2
CN15	USB 3.0 Ports 0 and 1
CN17	External Power Input
CN19	Embedded DisplayPort
CN20	USB 2.0 Port 2
CN21	USB 2.0 Port 1
CN22	LPC Port

(CN1) COM Port 2

RS232			
Pin	Pin Name	Signal Type	Signal level
1	DCD2	IN	
2	DSR2	IN	
3	RX2	IN	
4	RTS2	OUT	±5V
5	TX2	OUT	±5V
6	CTS2	IN	
7	DTR2	OUT	±5V
8	RI2/+5V/+12V	IN	+5V/+12V
9	GND	GND	

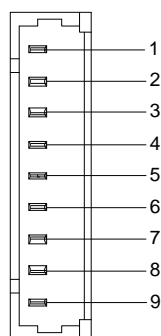
RS485			
Pin	Pin Name	Signal Type	Signal level
1	RS485_ D2-	I/O	±5V
2	NC		
3	RS485_ D2+	I/O	±5V
4	NC		
5	NC		
6	NC		
7	NC		
8	NC/+5V/+12V	PWR	+5V/+12V
9	GND	GND	

RS422			
Pin	Pin Name	Signal Type	Signal level
1	RS422_TX2-	OUT	±5V
2	NC		
3	RS422_TX2+	OUT	±5V
4	NC		
5	RS422_RX2+	IN	
6	NC		
7	RS422_RX2-	IN	
8	NC/+5V/+12V	PWR	+5V/+12V
9	GND	GND	

※ COM2 RS-232/422/485 can be set by BIOS setting. Default is RS-232.

※ Pin 8 function can be changed by BOM.

(CN2) COM Port 1



RS232			
Pin	Pin Name	Signal Type	Signal level
1	DCD1	IN	
2	DSR1	IN	
3	RX1	IN	
4	RTS1	OUT	±9V
5	TX1	OUT	±9V
6	CTS1	IN	
7	DTR1	OUT	±9V
8	RI1	IN	
9	GND	GND	

(CN55) M.2 Key-E Slot (2230)

Pin	Pin Name	Signal Type	Signal level
1	GND	GND	
2	+3.3VSB	PWR	+3.3V
3	USB_D+	DIFF	
4	+3.3VSB	PWR	+3.3V
5	USB_D-	DIFF	
6	NC		
7	GND	GND	
8	NC		
9	NC		
10	NC		
11	NC		
12	NC		
13	NC		
14	NC		

15	NC		
16	NC		
17	NC		
18	NC		
19	NC		
20	NC		
21	NC		
22	NC		
23	NC		
32	NC		
33	GND	GND	
34	NC		
35	PCIE_TX+	DIFF	
36	NC		
37	PCIE_TX-	DIFF	
38	NC		
39	GND	GND	
40	NC		
41	PCIE_RX+	DIFF	
42	NC		
43	PCIE_RX-	DIFF	
44	NC		
45	GND	GND	
46	NC		
47	PCIE_REF_CLK+	DIFF	
48	NC		
49	PCIE_REF_CLK-	DIFF	
50	NC		

51	GND	GND	
52	PCIE_RST#	OUT	+3.3V
53	PCIE_CLK_REQ#	IN	+3.3V
54	W_DISABLE2#	OUT	+3.3V
55	PCIE_WAKE#	IN	+3.3V
56	W_DISABLE1#	OUT	+3.3V
57	GND	GND	
58	NC		
59	NC		
60	NC		
61	NC		
62	NC		
63	GND	GND	
64	NC		
65	NC		
66	+3.3VSB	PWR	+3.3V
67	NC		
68	NC		
69	GND	GND	
70	NC		
71	NC		
72	+3.3VSB	PWR	+3.3V
73	NC		
74	+3.3VSB	PWR	+3.3V
75	GND	GND	

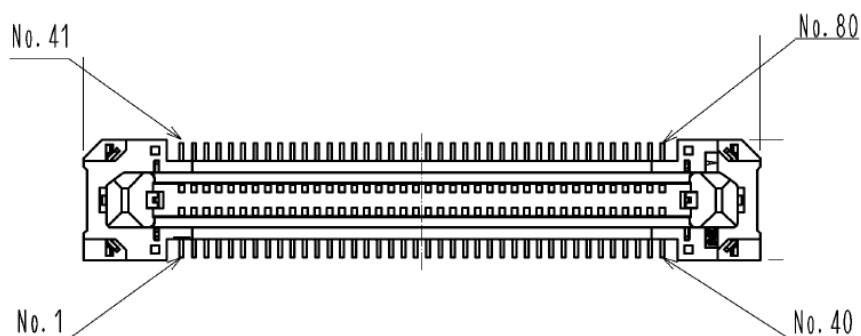
(CN5) M.2 Key-B Slot (2280)

Pin	Pin Name	Signal Type	Signal level
1	GND	GND	
2	+3.3V	PWR	+3.3V
3	GND	GND	
4	+3.3V	PWR	+3.3V
5	GND	GND	
6	NC		
7	USB_D+	DIFF	
8	NC		
9	USB_D-	DIFF	
10	SSD_DAS#	IN	+3.3V
11	NC		
20	NC		
21	GND	GND	
22	NC		
23	NC		
24	NC		
25	NC		
26	NC		
27	GND	GND	
28	NC		
29	NC		
30	NC		
31	NC		
32	NC		
33	GND	GND	
34	NC		

35	NC		
36	NC		
37	NC		
38	DEVSLP	OUT	+1.8V
39	GND	GND	
40	NC		
41	SATA_RX+	DIFF	
42	NC		
43	SATA_RX-	DIFF	
44	NC		
45	GND	GND	
46	NC		
47	SATA_TX-	DIFF	
48	NC		
49	SATA_TX+	DIFF	
50	NC		
51	GND	GND	
52	NC		
53	NC		
54	NC		
55	NC		
56	NC		
57	GND	GND	
58	NC		
59	NC		
60	NC		
61	NC		
62	NC		

63	GND	GND	
64	NC		
65	NC		
66	NC		
67	NC		
68	NC		
69	GND	GND	
70	+3.3V	PWR	+3.3V
71	GND	GND	
72	+3.3V	PWR	+3.3V
73	GND	GND	
74	+3.3V	PWR	+3.3V
75	GND	GND	

(CN6) BIO Port

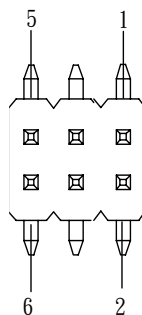


Pin	Pin Name	Signal Type	Signal level
1	+12VSB	PWR	+12V
2	GND	GND	
3	GND	GND	
4	PCIE_TXN0	DIFF	
5	PCIE_RXN0	DIFF	
6	PCIE_TXP0	DIFF	

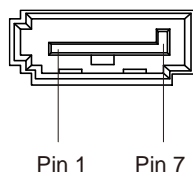
7	PCIE_RXP0	DIFF	
8	GND	GND	
9	GND	GND	
10	PCIE_TXN1	DIFF	
11	PCIE_RXN1	DIFF	
12	PCIE_TXP1	DIFF	
13	PCIE_RXP1	DIFF	
14	GND	GND	
15	GND	GND	
16	PS_ON#	OUT	
17	DDI_DDCCLK	I/O	+3.3V
18	DDI_DDCDATA	I/O	+3.3V
19	+5VSB	PWR	+5V
20	+5VSB	PWR	+5V
21	+5VSB	PWR	+5V
22	+5VSB	PWR	+5V
23	PCIE_REF_CLK0	DIFF	
24	RESET#	OUT	
25	PCIE_REF_CLK0#	DIFF	
26	GND	GND	
27	GND	GND	
28	DDI_TX1N	DIFF	
29	DDI_TX0N	DIFF	
30	DDI_TX1P	DIFF	
31	DDI_TX0P	DIFF	
32	GND	GND	
33	GND	GND	
34	DDI_TX3N	DIFF	

35	DDI_TX2N	DIFF	
36	DDI_TX3P	DIFF	
37	DDI_TX2P	DIFF	
38	GND	GND	
39	GND	GND	
40	DDI_HPDP	IN	+5V
41	DDI_AUXN	DIFF	
42	GND	GND	
43	DDIO_AUXP	DIFF	
44	USB3_TX_N	DIFF	
45	GND	GND	
46	USB_D0-	DIFF	
47	USB3_TX_P	DIFF	
48	GND	GND	
49	USB_D0+	DIFF	
50	USB3_RX_N	DIFF	
51	GND	GND	
52	USB3_RX_P	DIFF	
53	SMB_CLK	I/O	+3.3V
54	GND	GND	
55	SMB_DATA	I/O	+3.3V
56	WAKE#	IN	+3.3V
57	GND	GND	
58	USB_OC#	IN	+3.3V
59	+5V	PWR	+5V
60	USB_OC#	IN	+3.3V
61	+5V	PWR	+5V
62	+5V	PWR	+5V

63	+5V	PWR	+5V
64	+5V	PWR	+5V
65	LPC_AD0	I/O	+3.3V
66	LPC_FRAME#	IN	+3.3V
67	LPC_AD1	I/O	+3.3V
68	SERIRQ	I/O	+3.3V
69	LPC_AD2	I/O	+3.3V
70	NC		
71	LPC_AD3	I/O	+3.3V
72	BIO_PWOK	IN	+3.3V
73	GND	GND	
74	AGND	GND	
75	LPC_CLK	OUT	+3.3V
76	NC		
77	PME#	IN	+3.3V
78	NC		
79	GND	GND	
80	GND	GND	

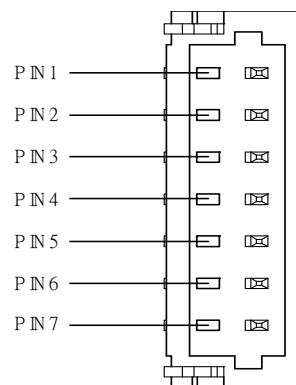
(CN7) Digital I/O

Pin	Pin Name	Signal Type	Signal level
1	+5V	PWR	+5V
2	DIO0	I/O	+5V
3	DIO1	I/O	+5V
4	DIO2	I/O	+5V
5	DIO3	I/O	+5V
6	GND	GND	

(CN8) SATA Port

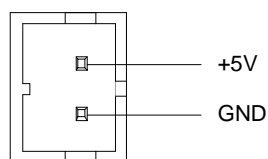
Pin	Pin Name	Signal Type	Signal level
1	GND	GND	
2	SATA_TX+	DIFF	
3	SATA_TX-	DIFF	
4	GND	GND	
5	SATA_RX-	DIFF	
6	SATA_RX+	DIFF	
7	GND	GND	

(CN9) SPI Flash Programming Port

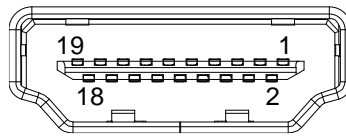


Pin	Pin Name	Signal Type	Signal level
1	SPI_MISO	OUT	
2	GND	GND	
3	SPI_CLK	IN	
4	+3.3VSB	PWR	+3.3V
5	SPI_MOSI	IN	
6	SPI_CS	IN	
7	NC		

(CN10) +5V Output for SATA HDD



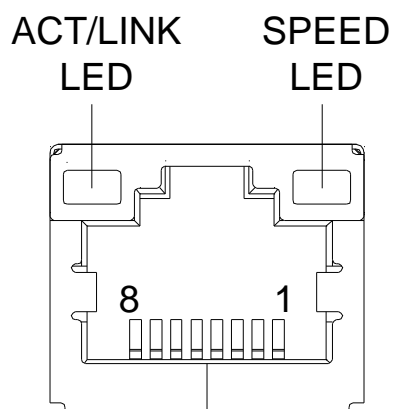
Pin	Pin Name	Signal Type	Signal level
1	+5V	PWR	+5V
2	GND	GND	

(CN11) HDMI Port

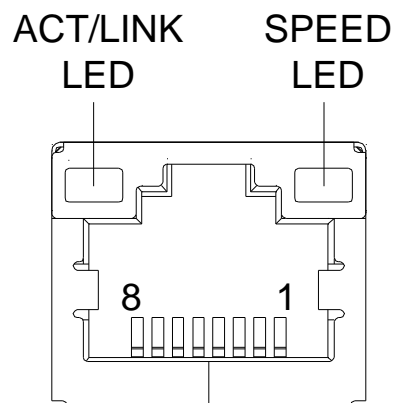
Pin	Pin Name	Signal Type	Signal level
1	TMDS_DAT2+	DIFF	
2	GND	GND	
3	TMDS_DAT2-	DIFF	
4	TMDS_DAT1+	DIFF	
5	GND	GND	
6	TMDS_DAT1-	DIFF	
7	TMDS_DAT0+	DIFF	
8	GND	GND	
9	TMDS_DAT0-	DIFF	
10	TMDS_CLK+	DIFF	
11	GND	GND	
12	TMDS_CLK-	DIFF	
13	NC		
14	NC		
15	DDC_CLK	I/O	+5V
16	DDC_DATA	I/O	+5V
17	GND	GND	
18	+5V	I/O	+5V
19	HPLG_DETECT	IN	

(CN12) Battery

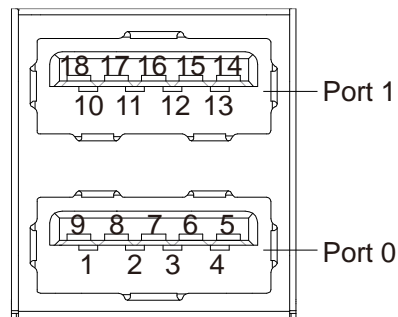
Pin	Pin Name	Signal Type	Signal level
1	+3.3V	PWR	3.3V
2	GND	GND	

(CN13) LAN (RJ-45) Port1

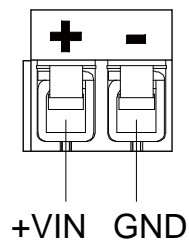
Pin	Pin Name	Signal Type	Signal level
1	MDI0+	DIFF	
2	MDI0-	DIFF	
3	MDI1+	DIFF	
4	MDI2+	DIFF	
5	MDI2-	DIFF	
6	MDI1-	DIFF	
7	MDI3+	DIFF	
8	MDI3-	DIFF	

(CN14) LAN (RJ-45) Port2

Pin	Pin Name	Signal Type	Signal level
1	MDI0+	DIFF	
2	MDI0-	DIFF	
3	MDI1+	DIFF	
4	MDI2+	DIFF	
5	MDI2-	DIFF	
6	MDI1-	DIFF	
7	MDI3+	DIFF	
8	MDI3-	DIFF	

(CN15) USB 3.0 Ports 0 and 1

Pin	Pin Name	Signal Type	Signal level
1	+5VSB	PWR	+5V
2	USB0_D-	DIFF	
3	USB0_D+	DIFF	
4	GND	GND	
5	USB0_SSRX-	DIFF	
6	USB0_SSRX+	DIFF	
7	GND	GND	
8	USB0_SSTX-	DIFF	
9	USB0_SSTX+	DIFF	
10	+5VSB	PWR	+5V
11	USB1_D-	DIFF	
12	USB1_D+	DIFF	
13	GND	GND	
14	USB1_SSRX-	DIFF	
15	USB1_SSRX+	DIFF	
16	GND	GND	
17	USB1_SSTX-	DIFF	
18	USB1_SSTX+	DIFF	

(CN17) External Power Input

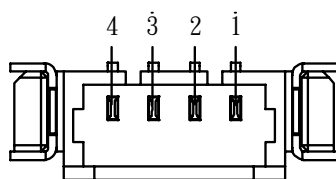
Pin	Pin Name	Signal Type	Signal level
1	+VIN	PWR	+12V
2	GND	GND	

(CN19) Embedded DisplayPort

Pin	Pin Name	Signal Type	Signal level
1	+12V	PWR	+12V
2	+12V	PWR	+12V
3	GND	GND	
4	GND	GND	
5	EDP_TX2_N	DIFF	
6	EDP_TX2_P	DIFF	
7	GND	GND	
8	EDP_TX1_N	DIFF	
9	EDP_TX1_P	DIFF	
10	GND	GND	
11	EDP_TX0_N	DIFF	
12	EDP_TX0_P	DIFF	
13	GND	GND	
14	EDP_TX3_N	DIFF	
15	EDP_TX3_P	DIFF	

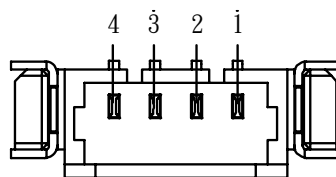
Pin	Pin Name	Signal Type	Signal level
16	GND	GND	
17	EDP_AUXN	DIFF	
18	EDP_AUXP	DIFF	
19	GND	GND	
20	EDP_BKLTNESS	OUT	+3.3V
21	NC		
22	EDP_BKLTEN	OUT	+3.3V
23	EDP_HPD	IN	
24	GND	GND	
25	GND	GND	
26	GND	GND	
27	+12V	PWR	+12V
28	+12V	PWR	+12V
29	+12V	PWR	+12V
30	+12V	PWR	+12V

(CN20) USB 2.0 Port 2



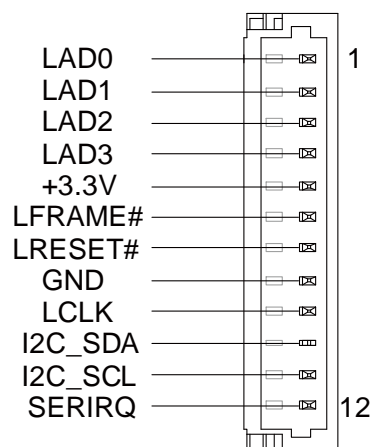
Pin	Pin Name	Signal Type	Signal level
1	+5VSB	PWR	+5V
2	USB_D-	DIFF	
3	USB_D+	DIFF	
4	GND	GND	

(CN21) USB 2.0 Port 1



Pin	Pin Name	Signal Type	Signal level
1	+5VSB	PWR	+5V
2	USB_D-	DIFF	
3	USB_D+	DIFF	
4	GND	GND	

(CN22) LPC Port



Pin	Pin Name	Signal Type	Signal level
1	LAD0	I/O	+3.3V
2	LAD1	I/O	+3.3V
3	LAD2	I/O	+3.3V
4	LAD3	I/O	+3.3V
5	+3.3V	PWR	+3.3V
6	LFRAME#	IN	
7	LRESET#	OUT	+3.3V
8	GND	GND	
9	LCLK	OUT	
10	I2C_SDA	I/O	+3.3V
11	I2C_SCL	OUT	+3.3V
12	SERIRQ	I/O	+3.3V

Function Block

