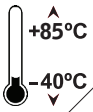
Wide Operating Temperature



PBQ-900L

Qseven R2.0 carrier Board

Quick Installation Guide
Version 1.0

Form Factor	Video	Audio
Qseven R2.0 Carrier Board	***Dual Channels LVDS, DVI***	***Realtek HD Audio CODEC, ALC662***

I/O	Ethernet
SATA, USB, COM, UART,I2C,SMbus, NGFF,DIO	***RJ-45 LAN Connector***

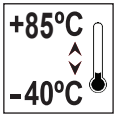
♦ Technical Support

If you have any technical difficulties, please consult the user's manual first at:
http://www.arbor-technology.com/

Please do not hesitate to call or e-mail our customer service when you still can not find out the answer.
http://www.arbor-technology.com/
E-mail: info@arbor.com.tw

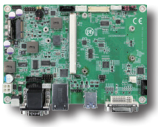
FCC Class A
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

4040090002100P



Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:



1 x PBQ-900L Qseven® R2.0 carrier board

1 x Quick Installation Guide

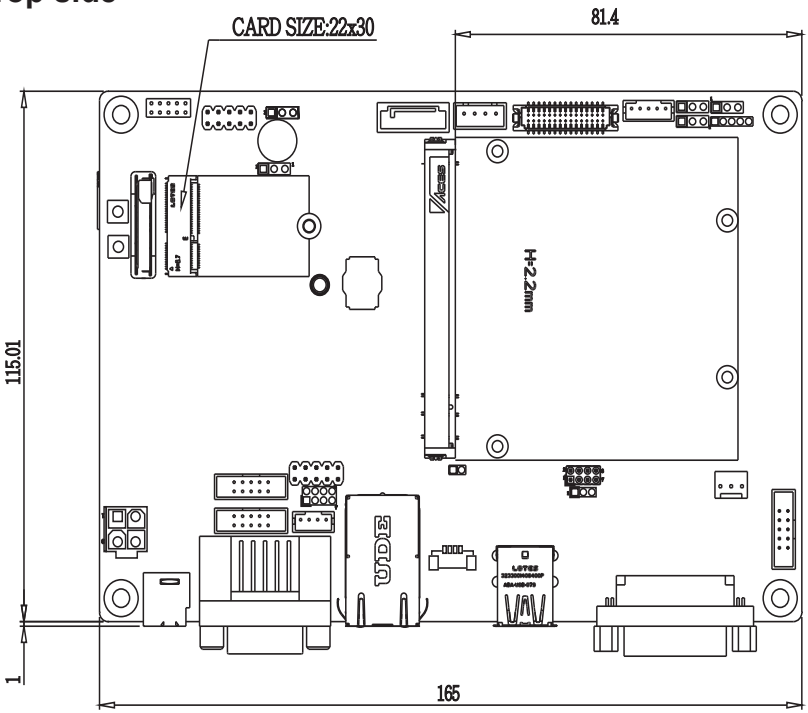
Ordering Information

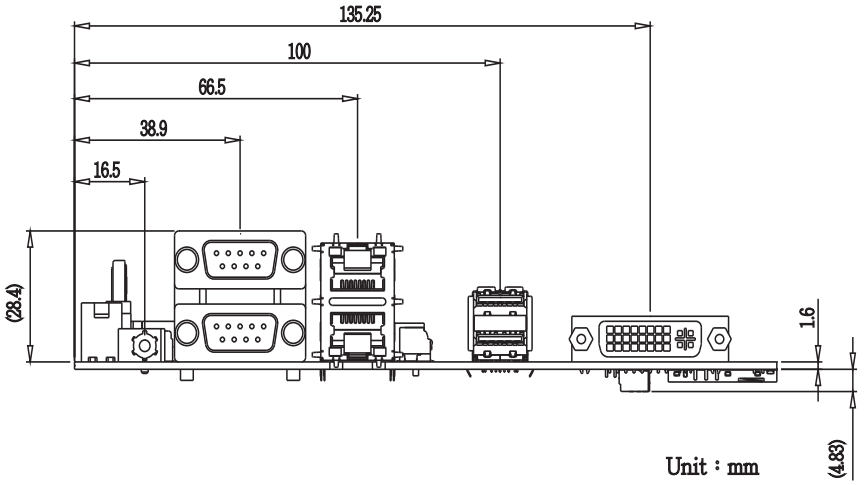
PBQ-900L	Qseven® R2.0 carrier board in EPIC form factor
CBK-06-900L-00	Cable kit 1 x USB cable 2 x COM cables 1 x SATA cable 1 x SATA power cable 1 x AUDIO cable

Specifications

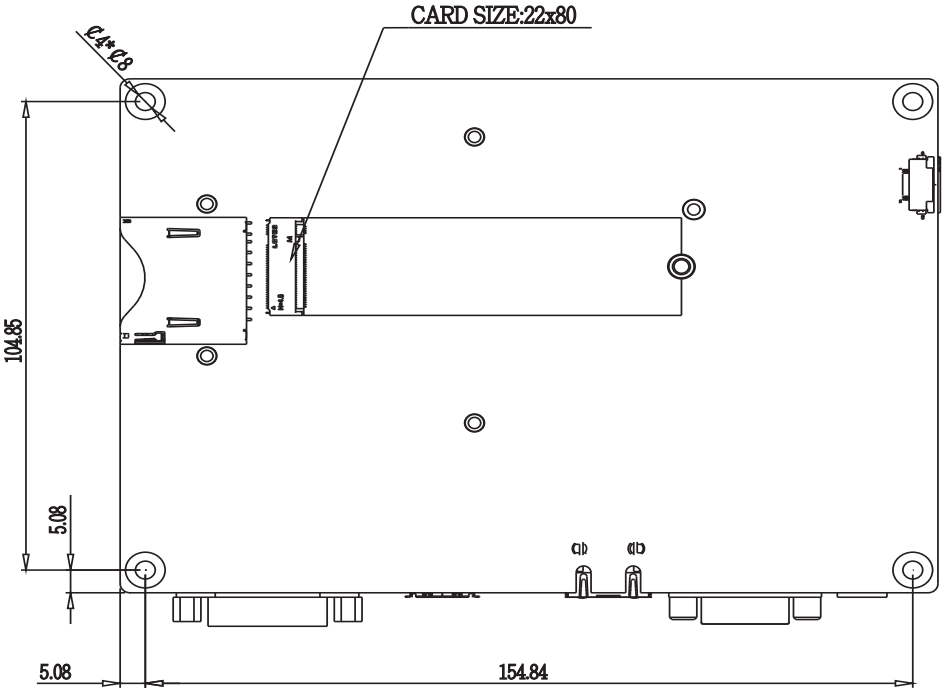
Form Factor	Qseven® R2.0 carrier board in EPIC form factor
Super I/O Chips	Fintek F71866D-I
Audio	Realtek ALC662 HD Audio CODEC,MIC/Line out
Serial Port	4 x COM ports - 3 x RS-232 ports - 1 x RS-232/422/485 selectable port 1 x Ultra port
USB 2.0	1 x USB 2.0 port
USB 3.0	2 x USB 3.0 ports depending on CPU module
LCD	1 x LVDS Dual Channel 24-bit connector
DVI	1 x DVI connector
Digital I/O	8-bit Programmable Digital Input/Output
Expansion Interface	1 x SMbus port 1 x SD card socket 1 x I2C port 1 x NGFF (M.2) socket for Skt1-E for Wireless
Storage	1 x Serial ATA connector 1 x NGFF(M.2)socket for Skt1-M to support SATA dpending on SSD module
Power Requirement	Wide range DC input:10V~30V
Power Consumption	0.88A@12V w/EmQ-i2200-N3160 (Typical)
Operation Temp.	-40 ~ 85ºC (-40 ~ 185ºF)
Power Connector	ATX Connector / DC IN Jack
Dimension (L x W)	165 x 115 mm (6.5” x 4.5”)

Board dimensions
Top side





Board dimensions
Bottom side



Unit：mm

Jumpers/ Connectors Quick Reference

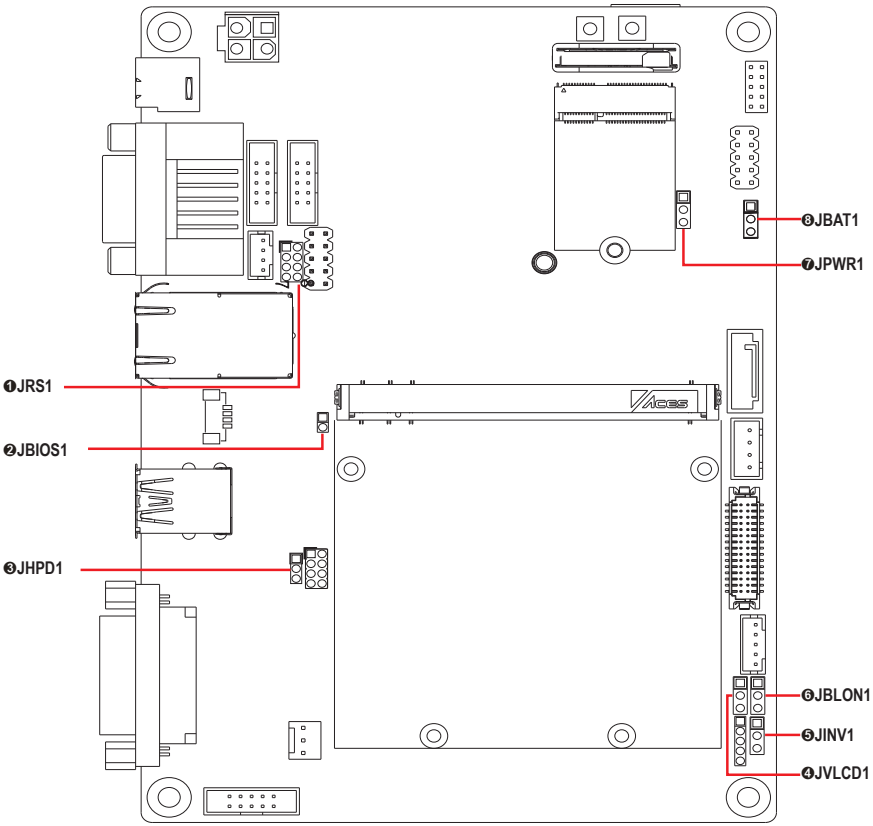
Jumpers

Label	Description
JRS1	JCOM1/COM2 RS-232/422/485 Selection
JBIOS	SPI BIOS Selection
JHPD1	DVI Inverter Selection
JVLCD1	LVDS Voltage Selection
JINV1	LCD Inverter Voltage Selection
JBLON1	LCD Backlight on Control Mode Selection
JPWR1	AT/ATX Power Mode Selection
JBAT1	Clear CMOS Selection

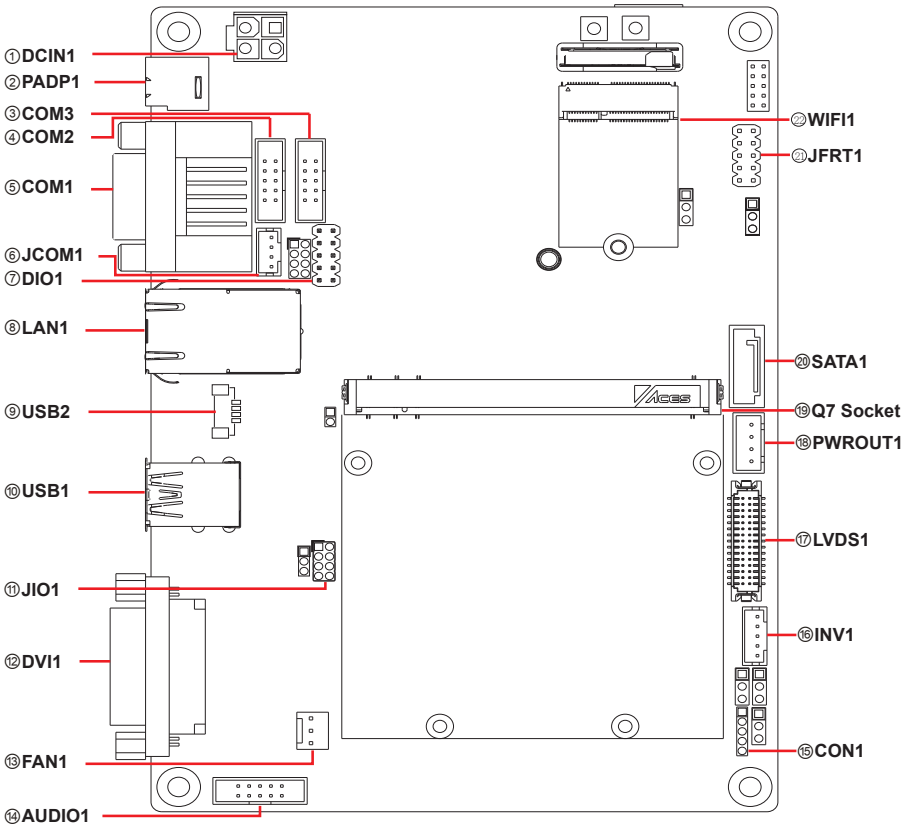
Connectors

Label	Function
DCIN1	DC input connector
PADP1	DC IN Power Jack
COM2~3	Serial Port Connectors
COM1	Double stack serial COM ports
JCOM1	RS-232/422 Serial Port
DIO1	Digital I/O Connector
LAN1	Double Stack RJ-45 Connectors
USB2	USB 2.0 port
USB1	Double Stack USB 3.0 ports(depending on CPU module)
JIO1	SMB/I2C connector
DVI1	DVI-I Connector
FAN1	Fan Connector
AUDIO1	HD AUDIO Connector
CON1	CPU Module Ultra Serial Ports
INV1	Inverter Connector
LVDS1	LVDS Connector
PWROUT1	SATA HDD Power Terminal connector
Q7 Connector	Qseven Socket
SATA1	Serial ATA Connector
JFRT1	Switches and Indicators Connector
WIFI1	NGFF E-Key for WIFI Socket
SSD1	NGFF M-Key for SSD Socket
SD_CONN1	SD Card Socket

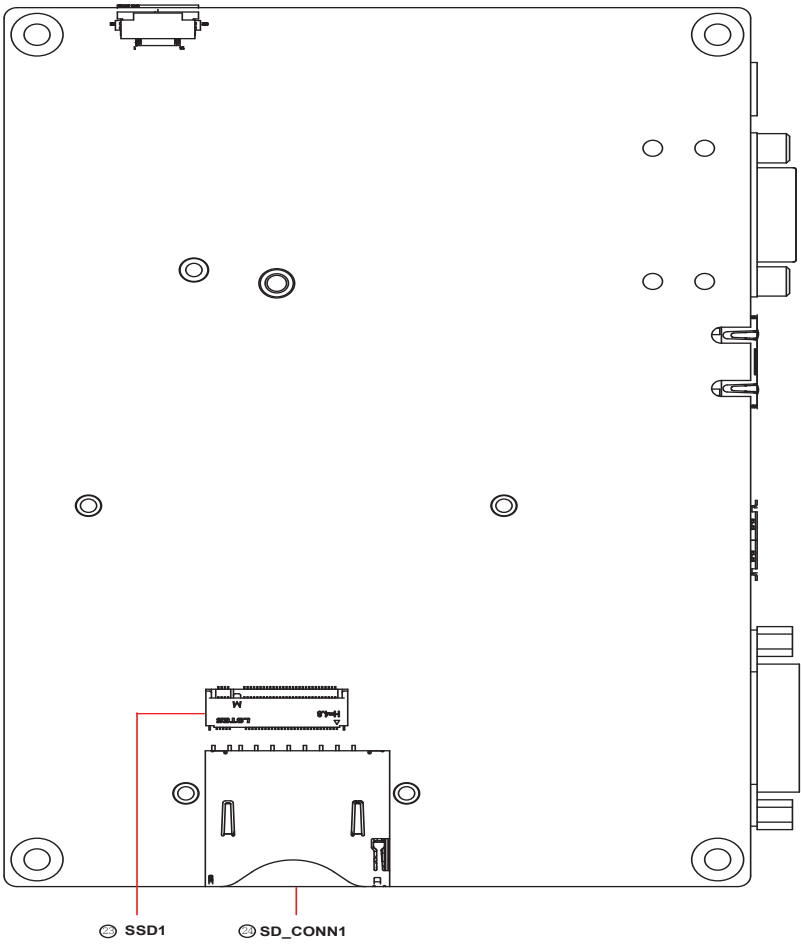
Jumpers Location



Connectors Location
Top Side



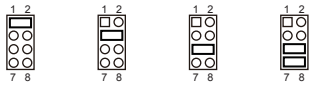
Connectors Location
Bottom Side



❶JRS1: JCOM1/COM2 RS-485 Auto-Flow Selection

Connector type: 2.00mm pitch 2x4-pin headers.

Mode	RS-232 (Default)	RS-422	RS-485	485 Autoflow
1-2	Short	Open	Open	Open
3-4	Open	Short	Open	Open
5-6	Open	Open	Short	Short
7-8	Open	Open	Open	Short



❷JBIOS1: SPI BIOS Selection

Connector type: 2.00mm pitch 1x2-pin headers.

Pin	Mode	
Open	Set SPI Flash to CPU module(Default)	
Short	Set SPI Flash to Carrier board	

Note: The voltage of carrier board provided is 3.3V, please choose 3.3V BIOS chipset.

❸JHPD1: DVI Inverter Selection

Connector type: 2.00mm pitch 1x3-pin headers.

Pin	Mode	
1-2	Inverter (default)	
2-3	Non-Inverter	

❹JVLCD1: LCD Voltage Selection

Connector type: 2.54mm pitch 1x3-pin headers.

Pin	Mode	
1-2	+5V	
2-3	+3.3V (Default)	

❺JINV1: LCD Inverter Voltage Selection

The voltage of inverter could be selected by JINV1 in +5V or +12V.

Connector type: 2.54mm pitch 1×3 pin header.

Pin	Mode	
1-2	+5V	
2-3	+12V (Default)	

❻JBLON1: LCD Backlight on Control Mode Selection

Connector type: 2.54mm pitch 1x3-pin headers.

Pin	Mode	
1-2	0V Low Enable	
2-3	+5V Enable (Default)	

❼JPWR1: AT/ATX Power Mode Selection

Connector type: 2.54mm pitch 1x3-pin headers.

Pin	Mode	
1-2	AT Mode (Default)	
2-3	ATX Mode	

❽JBAT1: Clear CMOS Selection

Connector type: 2.54mm pitch 1×3-pin header.

Pin	Mode	
1-2	Keep CMOS (Default)	
2-3	Clear CMOS	

Connectors

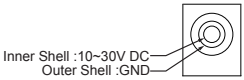
①DCIN1: DC Input Connector

DCIN1 supplies wide range DC voltage from 10~30V.

Pin	Desc.	Pin	Desc.
1	GND	2	GND
3	V-IN	4	V-IN

②PADP1: DC IN Power Jack

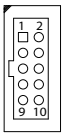
PADP1 supplies wide range DC voltage from 10~30V.



③④COM2~3: Serial Port Connectors

Connector type: 2.00mm pitch 2x5-pin box headers.

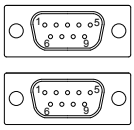
Pin	Desc.	Pin	Desc.
1	DCD#	2	RXD
3	TXD	4	DTR#
5	GND	6	DSR#
7	RTS#	8	CTS#
9	RI#	10	N/C



⑤COM1: Double stack serial COM ports

Connector type: Double Stacked D-Sub 9-pin male.

Pin	Desc.	Pin	Desc.
1	DCD#	6	DSR#
2	RXD	7	RTS#
3	TXD	8	CTS#
4	DTR#	9	RI#
5	GND		



⑥JCOM1: RS-422/485 Serial Port

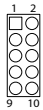
Connector type: 2.54mm pitch 1x4-pin box wafer connector.

Pin	RS-422	RS-485
1	TX+	DATA+
2	TX-	DATA-
3	RX+	N/C
4	RX-	N/C

⑦DIO1: Digital I/O Connector

Connector type: 2.54 mm pitch 2x5-pin headers

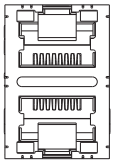
Pin	Desc.	Pin	Desc.
1	DIO1	2	DIO2
3	DIO3	4	DIO4
5	DIO5	6	DIO6
7	DIO7	8	DIO8
9	+5V	10	GND



⑧LAN1:Double Stack RJ-45 Connectors

Connector type: double stacks RJ-45 connector

The pin assignments conform to the industry standard.



⑨USB2: USB 2.0 Connector

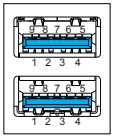
Connector type: 2.00mm pitch 1x5-pin headers.

Pin	Description
1	5V
2	USB3_D-
3	USB3_D+
4	GND
5	GND

⑩USB1: Double Stack USB Type A Connectors

Connector type: double stack USB 3.0 type A connector.

The pin assignments conform to the industry standard.



⑪JIO1: SMB/I2C connector

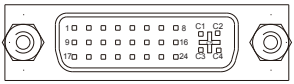
Connector type: 2.00mm pitch 2x4-pin headers.

Pin	Desc.	Pin	Desc.
1	3.3V	2	3.3V
3	SMBCLK	4	I2CCLK
5	SMBDAT	6	I2CDAT
7	GND	8	GND

⑫DVI1: DVI-I Connector

Connector type: 29 PIN,w/screw connector.

The pin assignments conform to the industry standard.



⑬FAN1: Fan Power Connector

The fan must be a +12V fan.

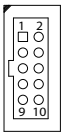
Connector type: 2.54mm pitch 1×3 wafer one wall connector.

Pin	Description
1	GND
2	+12V
3	Fan_Detect

⑭AUDIO1: Audio Connector

Connector type: 2.00mm pitch 2x5-pin box headers.

Pin	Desc.	Pin	Desc.
1	NC	2	NC
3	GND1	4	GND3
5	MIC1	6	NC/MIC2
7	GND2	8	GND4
9	LOUT_L	10	LOUT_R



⑮CON1: Ultra Serial Ports

Connector type: 2.00mm pitch 1×5 pin header.

Pin	Description
1	Uart_TX
2	Uart_RX
3	Uart_RTS
4	Uart_CTS
5	GND

⑯INV1: Inverter Connector

Connector type: 2.00mm pitch 1x5-pin box wafer connector.

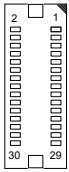
Power pin-1 could be configured as +5V/ +12V by JINV1.

Pin	Description
1	+5V/ +12V
2	GND
3	Backlight on/off
4	Brightness control
5	GND

⑰LVDS1: LVDS Connector

Connector type: DF-13-30DP-1.25V connector.

Pin	Desc.	Pin	Desc.
2	VDD	1	VDD
4	TX2CLK+	3	TX1CLK+
6	TX2CLK-	5	TX1CLK-
8	GND	7	GND
10	TX2D0+	9	TX1D0+
12	TX2D0-	11	TX1D0-
14	GND	13	GND
16	TX2D1+	15	TX1D1+
18	TX2D1-	17	TX1D1-
20	GND	19	GND
22	TX2D2+	21	TX1D2+
24	TX2D2-	23	TX1D2-
26	GND	25	GND
28	TX2D3+	27	TX1D3+
30	TX2D3-	29	TX1D3-



⑱PWROUT1: SATA HDD Power Connector

Connector type:WF250-4/B4B-XH-A(LF)(SN)

Pin	Description
1	+ 5V
2	GND
3	GND
4	+ 12V

⑲ Q_{SEVEN} Socket

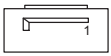
Pin	Signal	Pin	Signal
1	GND	2	GND
3	GBE_MDI3-	4	GBE_MDI2-
5	GBE_MDI3+	6	GBE_MDI2+
7	GBE_LINK100#	8	GBE_LINK1000#
9	GBE_MDI1-	10	GBE_MDI0-
11	GBE_MDI1+	12	GBE_MDI0+
13	GBE_LINK#	14	GBE_ACT#
15	GBE_CTREF	16	SUS_S5#
17	WAKE#	18	SUS_S3#
19	SUS_STAT#	20	PWRBTN#
21	SLP_BTN#	22	LID_BTN#
23	GND	24	GND
	KEY		KEY
25	GND	26	PWGIN
27	BATLOW#	28	RSTBTN#
29	SATA0_TX+	30	SATA1_TX+
31	SATA0_TX-	32	SATA1_TX-
33	SATA_ACT#	34	GND
35	SATA0_RX+	36	SATA1_RX+
37	SATA0_RX-	38	SATA1_RX-
39	GND	40	GND
41	BIOS_DISABLE#/ BOOT_ALT#	42	SDIO_CLK#
43	SDIO_CD#	44	SDIO_LED
45	SDIO_CMD	46	SDIO_WP
47	SDIO_PWR#	48	SDIO_DAT1
49	SDIO_DAT0	50	SDIO_DAT3
51	SDIO_DAT2	52	SDIO_DAT5
53	SDIO_DAT4	54	SDIO_DAT7
55	SDIO_DAT6	56	RSVD
57	GND	58	GND
59	HDA_SYNC/ I2S_WS	60	SMB_CLK/GP1_ I2C_CLK
61	HDA_RST#/ I2S_RST#	62	SMB_DAT/GP1_ I2C_DAT
63	HDA_BITCLK/ I2S_CLK	64	SMB_ALERT#

Pin	Signal	Pin	Signal
65	HDA_SDI/ I2S_SDI	66	GP0_I2C_CLK
67	HDA_SDO/ I2S_SDO	68	GP0_I2C_DAT
69	THRM#	70	WDTRIG#
71	THRMTRIP#	72	WDOUT
73	GND	74	GND
75	USB_P7-/USB_ SSTX0-	76	USB_P6-/USB_ SSRX0-
77	USB_P7+/USB_ SSTX0+	78	USB_P6+/USB_ SSRX0+
79	USB_6_7_OC# (N/C)	80	USB_4_5_OC#
81	USB_P5-/USB_ SSTX1-	82	USB_P4-/USB_ SSRX1-
83	USB_P5+/USB_ SSTX1+	84	USB_P4+/USB_ SSRX1+
85	USB_2_3_OC#	86	USB_0_1_OC#
87	USB_P3-	88	USB_P2-
89	USB_P3+	90	USB_P2+
91	USB_CC (N/C)	92	USB_ID
93	USB_P1-	94	USB_P0-
95	USB_P1+	96	USB_P0+
97	GND	98	GND
99	eDP0_TX0+/ LVDS_A0+	100	eDP1_TX0+/ LVDS_B0+
101	eDP0_TX0-/ LVDS_A0-	102	eDP1_TX0-/ LVDS_B0-
103	eDP0_TX1+/ LVDS_A1+	104	eDP1_TX1+/ LVDS_B1+
105	eDP0_TX1-/ LVDS_A1-	106	eDP1_TX1-/ LVDS_B1-
107	eDP0_TX2+/ LVDS_A2+	108	eDP1_TX2+/ LVDS_B2+
109	eDP0_TX2-/ LVDS_A2-	110	eDP1_TX2-/ LVDS_B2-
111	LVDS_VDDEN	112	LVDS_BLEN
113	eDP0_TX3+/ LVDS_A3+	114	eDP1_TX3+/ LVDS_B3+
115	eDP0_TX3-/ LVDS_A3-	116	eDP1_TX3-/ LVDS_B3-
117	GND	118	GND
119	eDP0_AUX+/ LVDS_A_CLK+	120	eDP1_AUX+/ LVDS_B_CLK+
121	eDP0_AUX-/ LVDS_A_CLK-	122	eDP1_AUX-/ LVDS_B_CLK-

Pin	Signal	Pin	Signal
123	LVDS_BLT_CTRL/GP_PWM_OUT0	124	GP_1-Wire_Bus
125	LVDS_I2C_DAT/LVDS_DIO_DAT	126	eDP0_HPD#/LVDS_BLC_DAT
127	LVDS_I2C_CLK/LVDS_DIO_CLK	128	eDP1_HPD#/LVDS_BLC_CLK
129	CAN0_TX	130	CAN0_RX
131	DP_LANE3+/TMDS_CLK+	132	RSVD (Differential Pair)
133	DP_LANE3-/TMDS_CLK-	134	RSVD (Differential Pair)
135	GND	136	GND
137	DP_LANE1+/TMDS_LANE1+	138	DDI0_AUX+
139	DP_LANE1-/TMDS_LANE1-	140	DDI0_AUX-
141	GND	142	GND
143	DP_LANE2+/TMDS_LANE0+	144	RSVD (Differential Pair)
145	DP_LANE2-/TMDS_LANE0-	146	RSVD (Differential Pair)
147	GND	148	GND
149	DP_LANE0+/TMDS_LANE2+	150	DDI0_DDC_DAT
151	DP_LANE0-/TMDS_LANE2-	152	DDI0_DDC_CLK
153	DP_HDMI_HPD#	154	RSVD
155	PCIE_CLK_REF+	156	PCIE_WAKE#
157	PCIE_CLK_REF-	158	PCIE_RST#
159	GND	160	GND
161	PCIE3_TX+	162	PCIE3_RX+
163	PCIE3_TX-	164	PCIE3_RX-
165	GND	166	GND
167	PCIE2_TX+	168	PCIE2_RX+
169	PCIE2_TX-	170	PCIE2_RX-
171	UART0_TX	172	UART0_RTS
173	PCIE1_TX+	174	PCIE1_RX+
175	PCIE1_TX-	176	PCIE1_RX-
177	UART0_RX	178	UART0_CTS#
179	PCIE0_TX+	180	PCIE0_RX+
181	PCIE0_TX-	182	PCIE0_RX-
183	GND	184	GND
185	LPC_AD0/GPIO0	186	LPC_AD1/GPIO1
187	LPC_AD2/GPIO2	188	LPC_AD3/GPIO3
189	LPC_CLK/GPIO4	190	LPC_FRAME#/GPIO5
191	SERIRQ/GPIO6	192	LPC_LDRQ#/GPIO7
193	VCC_RTC	194	SPKR/GP_PWM_OUT2
195	FAN_TACHOIN/GP_TIMER_IN	196	FAN_PWMOUT/GP_PWM_OUT1
197	GND	198	GND
199	SPI_MOSI	200	SPI_CS0#
201	SPI_MISO	202	SPI_CS1#
203	SPI_SCK	204	MFG_NC4
205	VCC_5V_SB	206	VCC_5V_SB
207	MFG_NC0	208	MFG_NC2
209	MFG_NC1	210	MFG_NC3
211	VCC	212	VCC
213	VCC	214	VCC
215	VCC	216	VCC
217	VCC	218	VCC
219	VCC	220	VCC
221	VCC	222	VCC
223	VCC	224	VCC
225	VCC	226	VCC
227	VCC	228	VCC
229	VCC	230	VCC

⑳SATA1: SATA Connector

Connector type: Standard 7-pin SATA Connector.



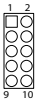
The pin assignments conform to the industry standard.

㉑JFRT1: Switches and Indicators

It provides connectors for system indicators that provides light indication of the computer activities and switches to change the computer status.

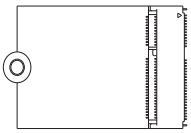
Connector type: 2.54mm pitch 2x5-pin headers.

Pin	Description	Pin	Description
1	RESET+	2	RESET-
3	POWER_LED+	4	POWER_LED-
5	HDD_LED+	6	HDD_LED-
7	SPEAKER+	8	SPEAKER-
9	PSON+	10	PSON-



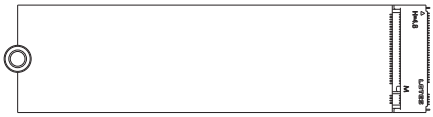
㉒WIFI1: NGFF M.2 E-Key Socket for WIFI

The pin assignments conform to the industry standard.



㉓SSD1: NGFF M.2 M-Key socket for SSD

The pin assignments conform to the industry standard.



㉔SD_CONN1: SD Card Slot

The pin assignments conform to the industry standard.