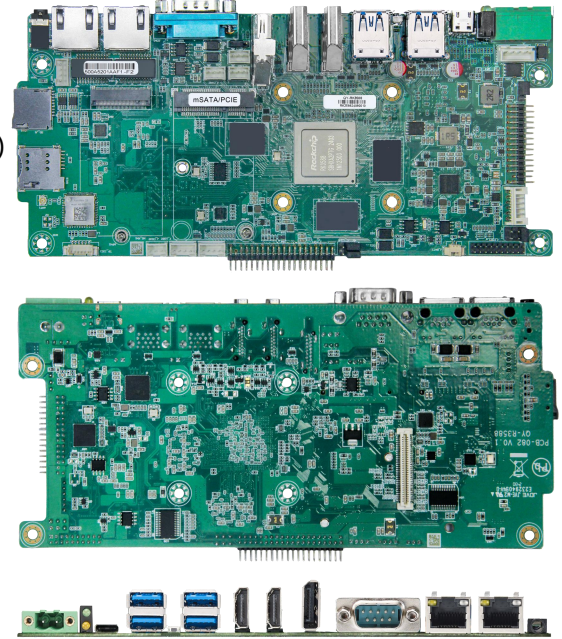


QY-RK3588 Series

- CPU: Quad core Cortex-A76 + Quad-core Cortex-A55, up to 2.40GHz
GPU: Mail-G610,
NPU: Support 6Tops
- 6*COM, 4*USB3.0, 5*USB2.0, 2*1G LAN, 1*TYPE-C(OTG)
- 1*LVDS/eDP, 1*HDMI-IN, 1*HDMI-OUT, 1*DP
- 1*Mini-PCIE (mSATA/PCIE/4G)
1*M.2 KEY_M (PCIE)
- 12V/24V Power Input
- 200*90mm



1. Specification

Model	QY-RK3588 Series
CPU	Quad core Cortex-A76 + Quad-core Cortex-A55, up to 2.40GHz
GPU	Mail-G610
NPU	Support 6Tops
Display	1 * LVDS/eDP: LVDS, resolution up to 1920 * 1080@60Hz eDP: resolution up to 1920 * 1080@60Hz 1 * HDMI-OUT: resolution up to 4096 * 2304@60Hz 1 * DP: resolution up to 4096 * 2160@60Hz 1 * HDMI-IN
Wireless network	Onboard 2.4G WIFI+BT4.2/2.4G&5G WIFI+BT4.2
Expansion Interface	1 * Mini-PCle: mSATA/PCIE/4G ^[2] 1 * M.2 KEY_M: PCIE ^[2]
Ethernet	2 * 1Gbps Ethernet Controller, RJ45
Audio	MIC/Line-out and Amplifier(3W/5W) 1 * Line-Out/MIC 2in1 Phone Jack
COM	3 * RS232(J_EXT1 Header) ^[1] 1 * RS232/RS485(J_EXT1 Header) ^[1] 1 * RS232(Internal, 3PIN Header/J1 Header) ^[2] 1 * RS232/RS485(DB9 Connector)
USB	4 * USB3.0 (Rear I/O, TYPE-A) 2 * USB2.0 (Internal, 4PIN Header) 2 * USB2.0 (J_EXT1 Header) ^[1] 1 * TYPE-C (OTG)
Other Ports	1 * Micro SIM Card Slot 1 * DEBUG COM Header 1 * VDC SEL Jumper(Auto Power off/Auto Power on) 1 * TP I2C Header 1 * Recover Button 1 * TF Card Connector 2 * CAN Headers 1 * Battery Header 1 * System LED 1 * J_EXP Header 1 * J1 Slot
System	Android/Linux
Temperature	Storage: -20~70°C Operating: -5°~50°C
Power Input	12V/24V
Factor	200 * 90mm

Note:

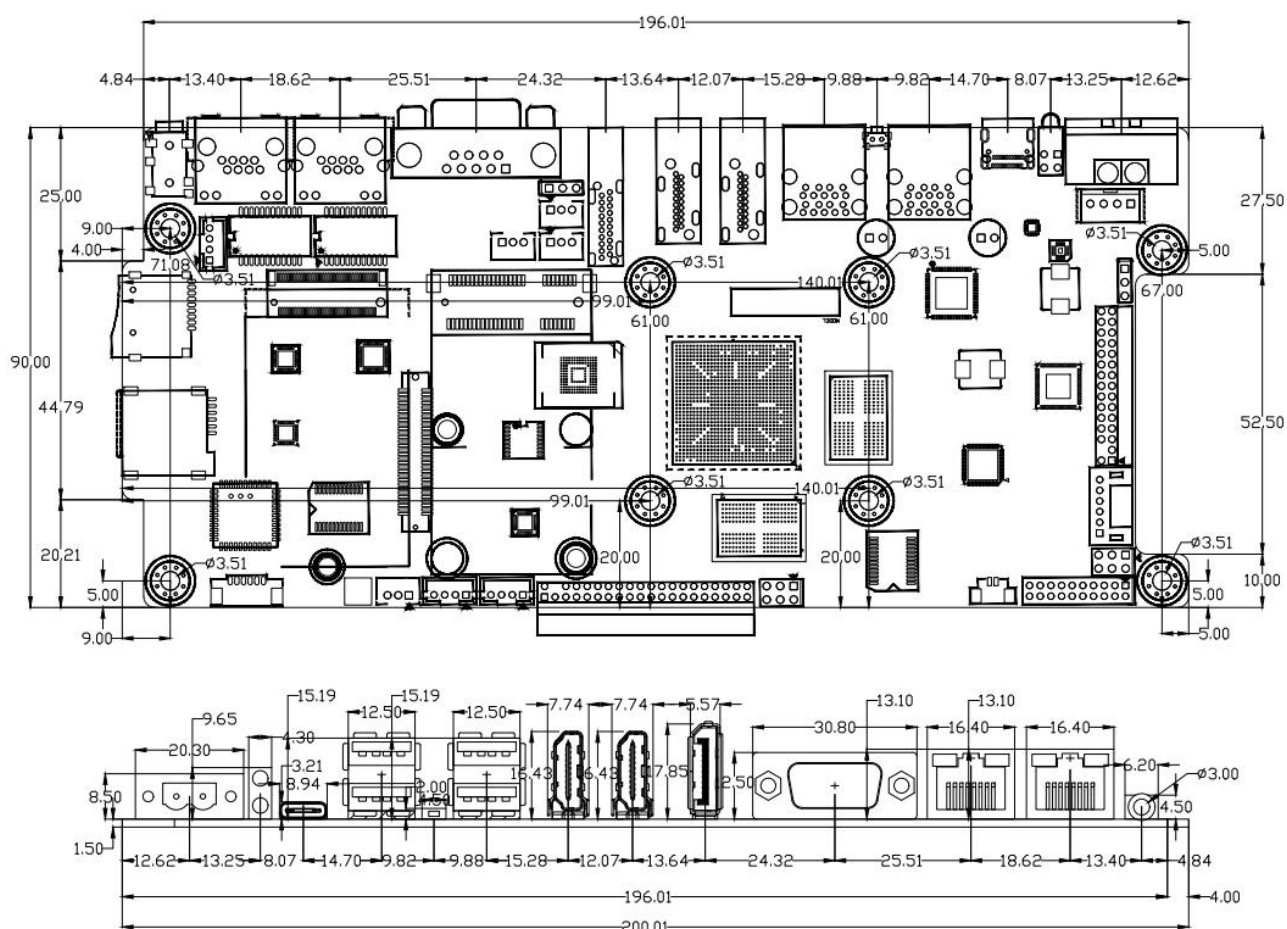
[1] :J_EXT1(20 * 2 PIN Header) Contain 2 * USB2.0, 1 * Front Panel, 8 * GPIO 3 * RS232 and 1 * RS232/RS485 COM signal.

[2] :J1 Slot Contain 1 * RS232 COM, 1 * Mini-PCle(4G), 4 * M.2 KEY_M(PCIE) signal.

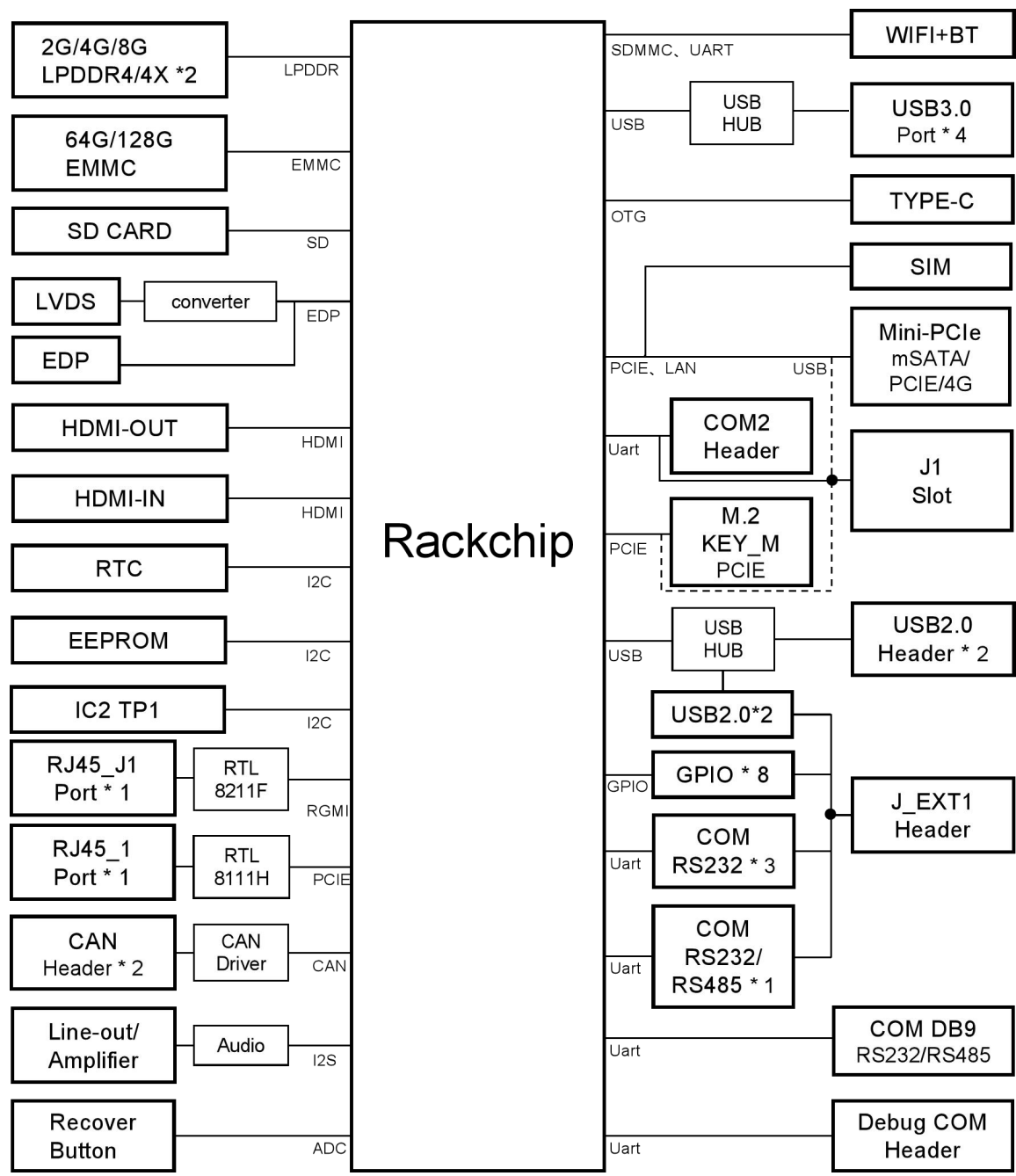
2. Specific Model

Model	QY-RK3588464	QY-RK3588864	QY-RK35888128	QY-RK3588A128
Memory	LPDDR4/4X: 2GB * 2	LPDDR4/4X: 4GB * 2	LPDDR4/4X: 4GB * 2	LPDDR4/4X: 8GB * 2
Storage	Onboard eMMC: 64GB	Onboard eMMC: 64GB	Onboard eMMC: 128GB	Onboard eMMC: 128GB

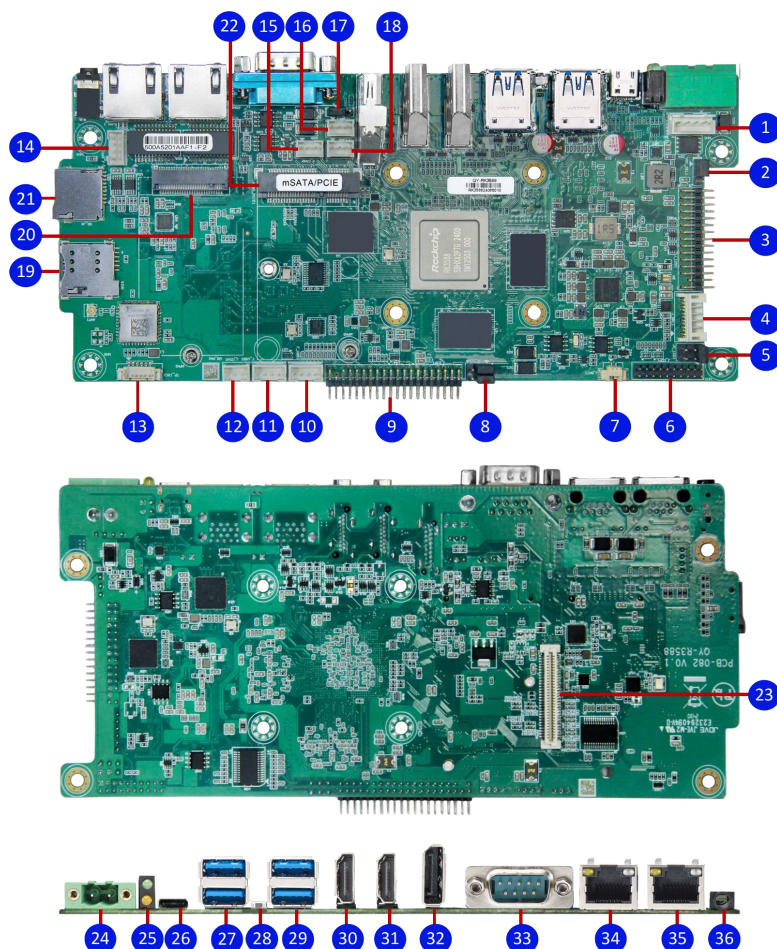
3. Mechanical structure



4. Data Flow



5. Marking instruction

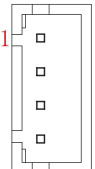


Connector&Header

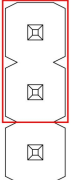
1	Power Input Header	19	SIM Card Slot
2	VDC SEL Jumper	20	M.2 KEY_M Slot (PCIE)
3	LVDS Signal Pin Header	21	TF Card Pin Connector
4	LVDS Backlight Control Pin Header	22	Mini PCIE1 Slot (mSATA/PCIE/4G)
5	LVDS VDD Select Jumper	23	J1 Slot
6	EDP Signal Pin Header	24	Power Input Connector
7	Battery Pin Header	25	System LED
8	COM6 RS232/485 Signal Select Jumper	26	Type-C(OTG)
9	J_EXP Pin Header	27	USB3.0 Connectors
10	Front USB1 Pin Header	28	Recover Button
11	Front USB2 Pin Header	29	USB3.0 Connectors
12	COM2 Pin Header	30	HDMI-IN Connector
13	TP I2C Pin Header	31	HDMI-OUT Connector
14	Amplifier Pin Header	32	DP Connector
15	CAN2 Pin Header	33	COM Connector
16	DEBUG COM Pin Header	34	RJ45_J1 Connector
17	COM1 RS232/485 Signal Select Jumper	35	RJ45_1 Connector
18	CAN1 Pin Header	36	Mic-in/Line-out Connector

6. Definition

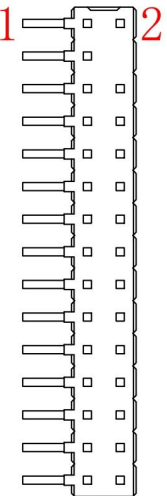
[1] Power Input Header (4*1 Pin 2.54mm)

No.	Location	Pin	Definition	Pin	Definition
1		1	DC_IN	2	GND
		3	GND	4	+ 12V

[2] VDC SEL Jumper (3*1 Pin 2.54mm)

No.	Location	Settings	Function
2		1-2(Default)	Auto Power off
		2-3	Auto Power on

[3] LVDS Signal Pin Header (15*2 Pin 2.00mm)

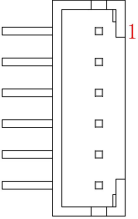
No.	Location	Pin	Definition	Pin	Definition
3		1	VDD(Default3.3V) ^[1]	2	VDD(Default3.3V) ^[1]
		3	VDD(Default3.3V) ^[1]		
		5	LVDS_Detect#	6	GND
		7	LVDS_A_DATA0-	8	LVDS_A_DATA0+
		9	LVDS_A_DATA1-	10	LVDS_A_DATA1+
		11	LVDS_A_DATA2-	12	LVDS_A_DATA2+
		13	GND	14	GND
		15	LVDS_A_CLK-	16	LVDS_A_CLK+
		17	LVDS_A_DATA3-	18	LVDS_A_DATA3+
		19	LVDS_B_DATA0-	20	LVDS_B_DATA0+
		21	LVDS_B_DATA1-	22	LVDS_B_DATA1+
		23	LVDS_B_DATA2-	24	LVDS_B_DATA2+
		25	GND	26	GND
		27	LVDS_B_CLK-	28	LVDS_B_CLK+

		29	LVDS_B_DATA3-	30	LVDS_B_DATA3+
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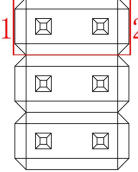
Notes:

[1] : Panel Power VDD is 3.3V by default, 5V or 12V is selectable by "LVDS VDD Select Jumper" (JC_LCD1, Location 5).

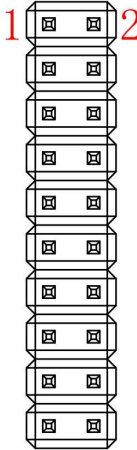
[4] LVDS Backlight Control Pin Header (6*1 Pin 2.00mm)

No.	Location	Pin	Definition	Pin	Definition
4		1	GND	2	GND
		3	LVDS_BKL_CTL	4	LVDS_BKL_EN
		5	+ 12V	6	+ 12V

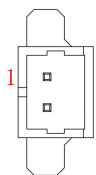
[5] LVDS VDD Select Jumper (3*2 Pin 2.54mm)

No.	Location	Setting	Function
5		1-2(Default)	+ 3.3V
		3-4	+ 5V
		5-6	+ 12V

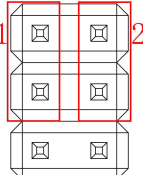
[6] EDP Signal Pin Header (10*2 Pin 2.00mm)

No.	Location	Pin	Definition	Pin	Definition
6		1	VDD(Default3.3V)	2	VDD(Default3.3V)
		3	GND		GND
		5	EDP_AUX-	6	EDP_AUX+
		7	GND	8	GND
		9	EDP_B3-	10	EDP_B3+
		11	EDP_B2-	12	EDP_B2+
		13	EDP_B1-	14	EDP_B1+
		15	EDP_B0-	16	EDP_B0+
		17	GND	18	GND
		19	N/C	20	EDP_HPD

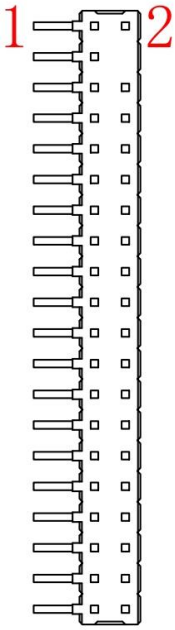
[7] Battery Pin Header (2*1 Pin 1.25mm)

No.	Location	Pin	Definition	Pin	Definition
7	J_BAT1 	1	+ 3.3V	2	GND

[8] COM6 RS232/RS485 Signal Select Jumper (3*2 Pin 2.54mm)

No.	Location	Settings	Function
8	JC_COM6 	1-3、 2-4(Default)	RS232
		3-5、 4-6	RS485

[9] J_EXP Pin Header (20*2 Pin 2.00mm)

No.	Location	Pin	Definition	Pin	Definition
9	J_EXP1 ^[1] 	1	+ 3V	2	GND
		3	+ 3V		
		5	GPIO_ D7	6	GPIO_ D6
		7	GPIO_ D5	8	GPIO_ D4
		9	GPIO_ D3	10	GPIO_ D2
		11	GPIO_ D1	12	GPIO_ D0
		13	PWR-	14	RESET-
		15	PWR+	16	RESET+
		17	Power LED-	18	HD LED-
		19	Power LED+	20	HD LED+
		21	GND	22	GND
		23	USB+	24	USB+
		25	USB-	26	USB-
		27	+ 5V	28	+ 5V
		29	GND	30	GND

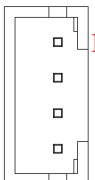
		31	TXD6/RS485-B ^[2]	32	TXD5 ^[1]
		33	RXD6/RS485-A ^[2]	34	RXD5 ^[1]
		35	GND	36	GND
		37	TXD4 ^[1]	38	TXD3
		39	RXD4 ^[1]	40	RXD3

Notes:

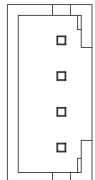
[1] : COM4/5 is support RS232 by default, it also can support TTL levels(resistor selectable).

[2] : COM6 is support RS232 by default, it also can support TTL levels(resistor selectable), and can also support RS485 selected by JC_COM6(Location8).

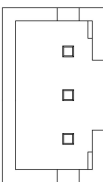
[10] From USB1 Pin Header (4*1 Pin 2.00mm)

No.	Location	Pin	Definition	Pin	Definition
10	F_USB1 	1	+ 5V	2	USB+
		3	USB-	4	GND

[11] From USB2 Pin Header (4*1 Pin 2.00mm)

No.	Location	Pin	Definition	Pin	Definition
11	F_USB2 	1	+ 5V	2	USB+
		3	USB-	4	GND

[12] COM2 Pin Header (3*1 Pin 2.00mm)

No.	Location	Pin	Definition	Pin	Definition
12	J_COM2 	1	RXD ^[1]	2	TXD ^[1]
		3	GND		

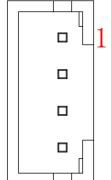
Note:

[1] : J_COM2 and J1 Slot share the same signal and can' t be accessed simultaneously.

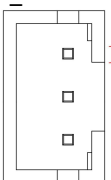
[13] TP I2C Pin Header (6*1 Pin 1.25mm)

No.	Location	Pin	Definition	Pin	Definition
13		1	+ 3.3V	2	TP1_SCL
		3	TP1_SDA	4	TP1_RST#
		5	TP1_INT	6	GND

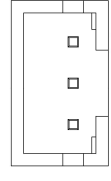
[14] Amplifier Pin Header (4*1 Pin 2.00mm)

No.	Location	Pin	Definition	Pin	Definition
14		1	SPK_L-	2	SPK_L+
		3	SPK_R-	4	SPK_R+

[15] CAN2 Pin Header (3*1 Pin 2.00mm)

No.	Location	Pin	Definition	Pin	Definition
15		1	GND	2	CAN_L
		3	CAN_H		

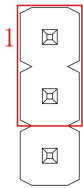
[16] DEBUG COM Pin Header (3*1 Pin 2.00mm)

No.	Location	Pin	Definition	Pin	Definition
16		1	TX_M0_DEBUG	2	RX_M0_DEBUG
		3	GND		

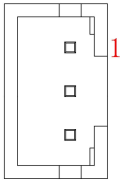
Note:

[1] :It supports TTL levels and the default baud rate is 1500000bps.

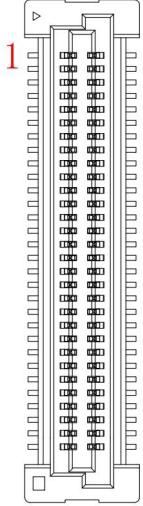
[17] COM1 RS232/RS485 Signal Select Jumper (3*1 Pin 2.54mm)

No.	Location	Settings	Function
17	JC_COM1 	1-2(Default)	RS232
		2-3	RS485

[18] CAN1 Pin Header (3*1 Pin 2.00mm)

No.	Location	Pin	Definition	Pin	Definition
18	J_CAN1 	1	GND	2	CAN_L
		3	CAN_H		

[19] J1 Slot

No.	Location	Pin	Definition	Pin	Definition
23	J1^[1] 	1	+ 12V	2	+ 12V
		3	+ 12V	4	+ 12V
		5	+ 12V	6	+ 12V
		7	N/C	8	N/C
		9	GND	10	GND
		11	GND	12	GND
		13	GND	14	GND
		15	+ 5V	16	+ 5V
		17	+ 5V	18	+ 5V
		19	N/C	20	N/C
		21	+ 3.3V	22	+ 3.3V
		23	GND	24	GND
		25	TYPEC1_EXP_DM ^[1]	26	TXD2 ^[2]
		27	TYPEC1_EXP_DP ^[1]	28	RXD2 ^[2]
		29	GND	30	GND
		31	CLKGEN_PCIE+	32	PCIE30X4_PERSTn_M1_L

33	CLKGEN_PCIE-	34	PCIE30X4_CLKREQn_M1_L
35	GND	36	GND
37	PE3_EXP_RX0- ^[3]	38	PE3_EXP_TX0- ^[3]
39	PE3_EXP_RX0+ ^[3]	40	PE3_EXP_TX0+ ^[3]
41	GND	42	GND
43	PE3_EXP_RX1- ^[3]	44	PE3_EXP_TX1- ^[3]
45	PE3_EXP_RX1+ ^[3]	46	PE3_EXP_TX1+ ^[3]
47	GND	48	GND
49	PE3_EXP_RX2- ^[3]	50	PE3_EXP_TX2- ^[3]
51	PE3_EXP_RX2+ ^[3]	52	PE3_EXP_TX2+ ^[3]
53	GND	54	GND
55	PE3_EXP_RX3- ^[3]	56	PE3_EXP_TX3- ^[3]
57	PE3_EXP_RX3+ ^[3]	58	PE3_EXP_TX3+ ^[3]
59	GND	60	GND

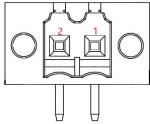
Notes:

[1] : Mini-PCIe(4G) and J1 Slot share the same signal and can' t be accessed simultaneously.

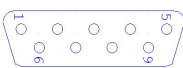
[2] : J_COM2 and J1 Slot share the same signal and can' t be accessed simultaneously.

[3] : M.2 KEY_M(PCIe) and J1 Slot share the same signal and can' t be accessed simultaneously.

[20] Power Input Connector

No.	Location	Pin	Definition	Pin	Definition
24	DC-IN1 	1	GND_IN	2	DC_IN

[21] COM1 Connector

No.	Location	Pin	Definition	Pin	Definition
33	COM1 	1	DCD/RS485- ^[1]	2	RXD/RS485+ ^[1]
		3	TXD	4	DTR#
		5	GND	6	DSR#
		7	RTS#	8	CTS#
		9	RI#	10	GND

Note:

[1] COM1 support RS232 by default, and also can support RS485 selected by JC_COM1(Location17).

[END]