CORTADObin (GTI-MT510) Quick Start Guide -Rev 03

Revision History

Date	Revision	Board Rev	Description
Sep 20, 2024	Rev 01	V1-0-0	Preliminary
Dec 22, 2024	Rev 02	V1-0-0	Add B.Appearance
Mar 04, 2025	Rev 03	V1-0-0	SOM Picture changed

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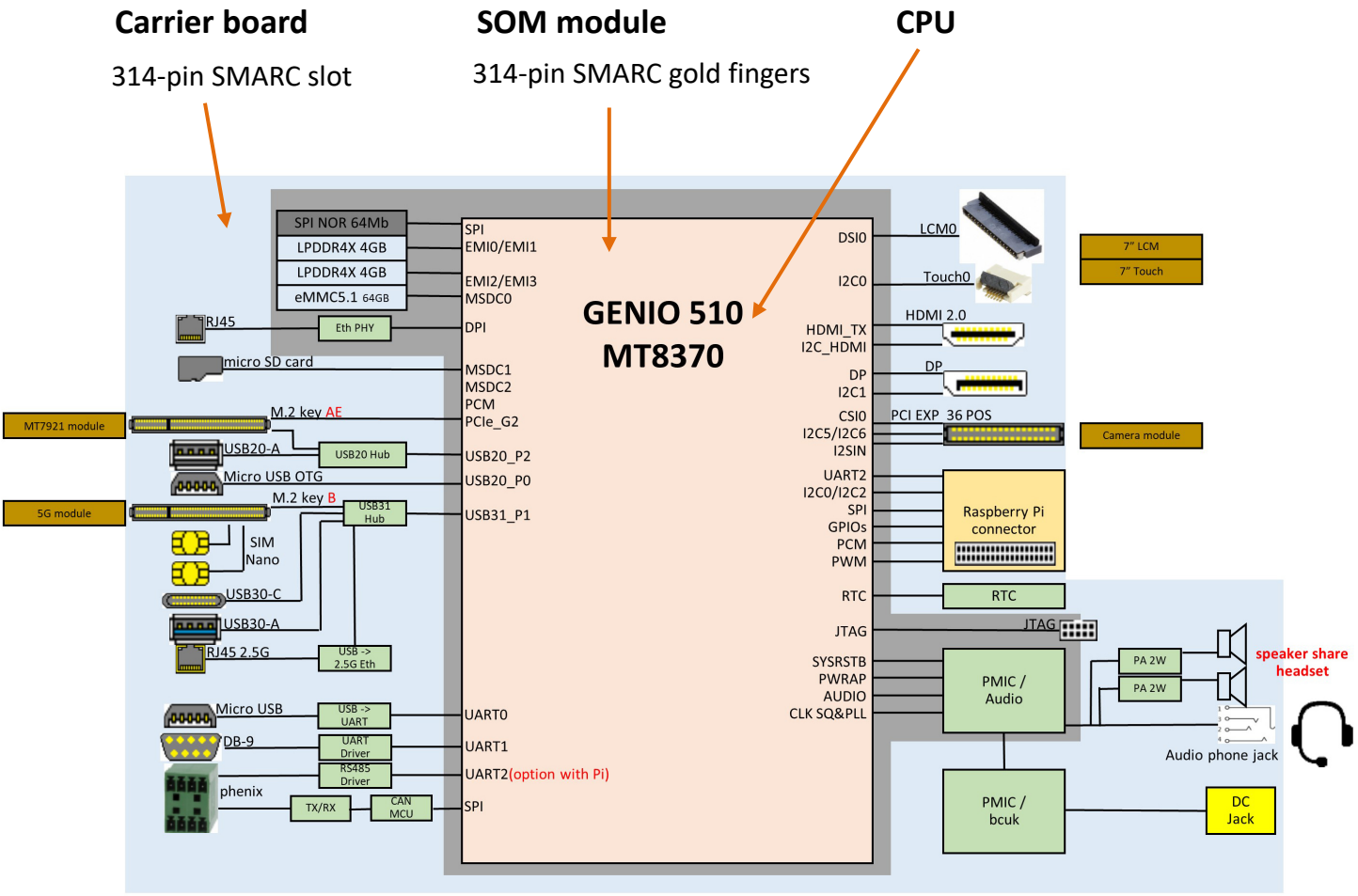
A. Specifications

CPU	Dual-core Arm® Cortex®-A78 processor Plus Quad-core Arm Cortex-A55 processor	Media MT8370 @2.0 GHz
Memory	LPDDR4X	8GB
	eMMC	64GB
Ethernet	RJ45 1Gb	X1
	RJ45 2.5Gb	X1
Wireless	Wi-Fi 802.11 a/b/g/n/ac/ax 2T/2R	X1
	Bluetooth 5.4	X1
USB	USB 2.0 type-A	X1
	Micro USB OTG	X1
	USB 3.0 type-A	X1
	USB 3.0 type-C	X1
UART	Micro USB	X1
	DB-9	X1
AV	7” LCM touch panel	X1, 1200*1920
	speakers	X2, 2W+2W stereo
	Speakerphone jack	X1, stereo
	Digital microphone jack	X1, stereo
Add on connector	M.2 key A/E	X1
	M.2 Key B	X1
	Nano SIM socket	X2 (connected to M.2 key B)
	Raspberry Pi connector	X1
	CAN BUS connector	X1
	Micro SD sleeve	X1
Others	CAN BUS connector	X1
	PCBA: 168.2mm*176mm Enclosure: 183mm*175mm*46mm SOM module: 82mm*50mm	
Dimensions		

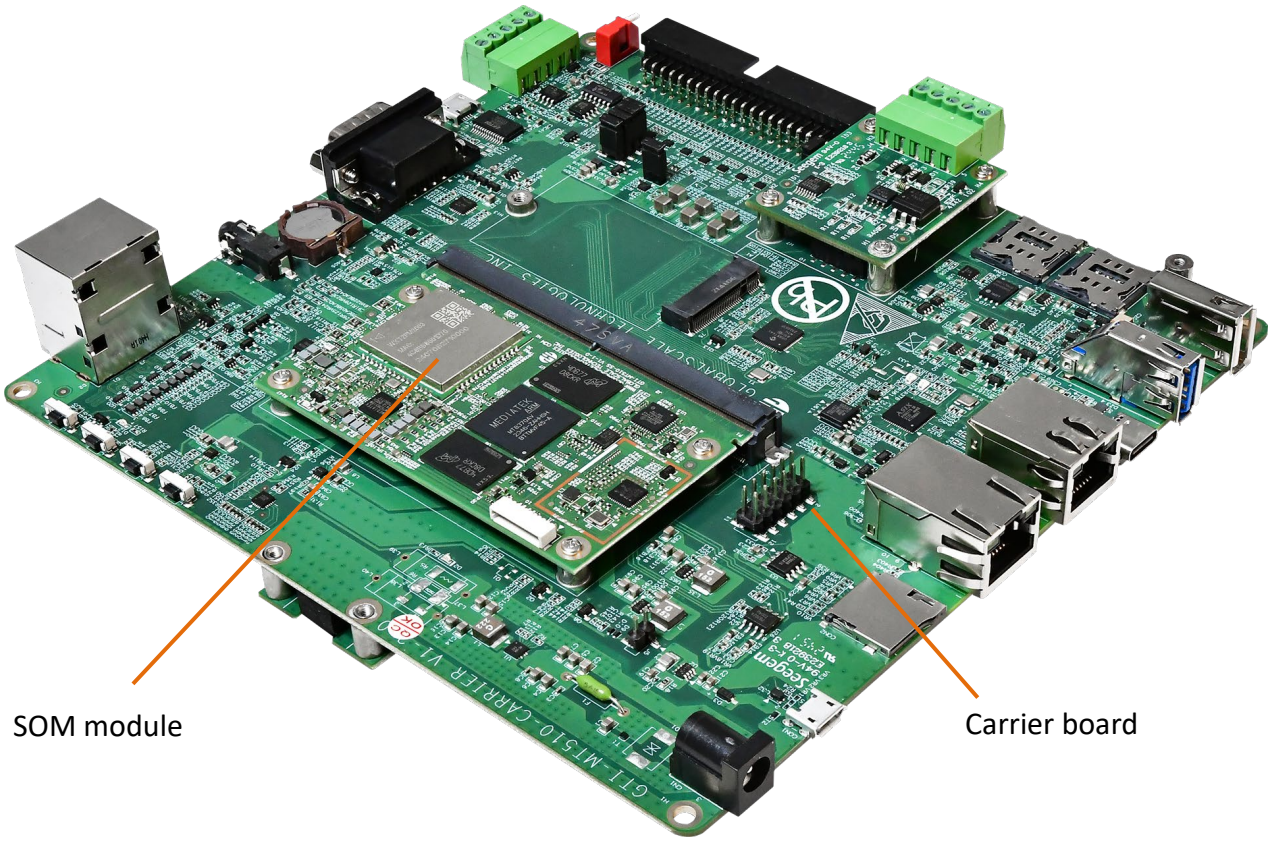
B. Appearance (183mm*175mm*46mm)

C. Block diagram

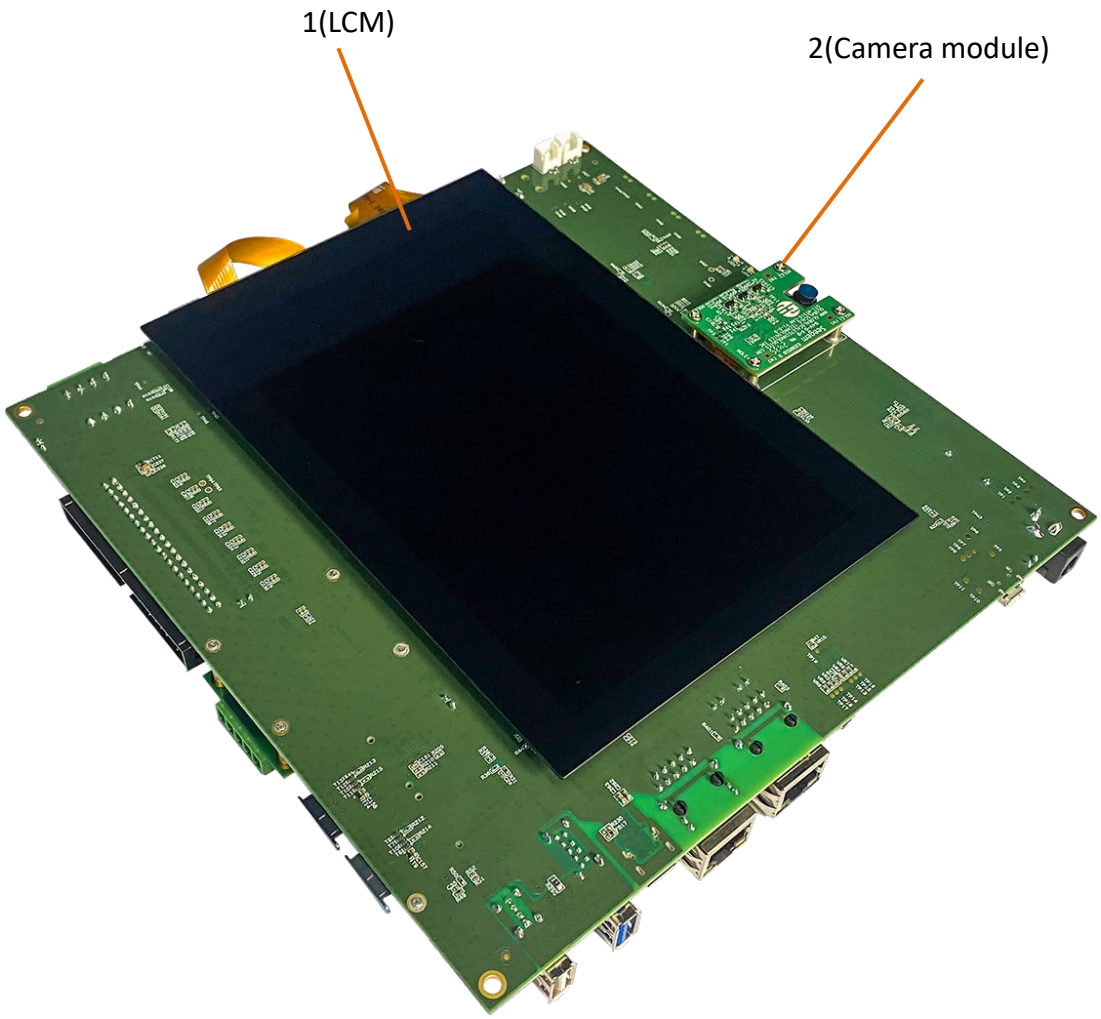


D. PCBA (170mm*170mm)

D-1. Top of PCBA



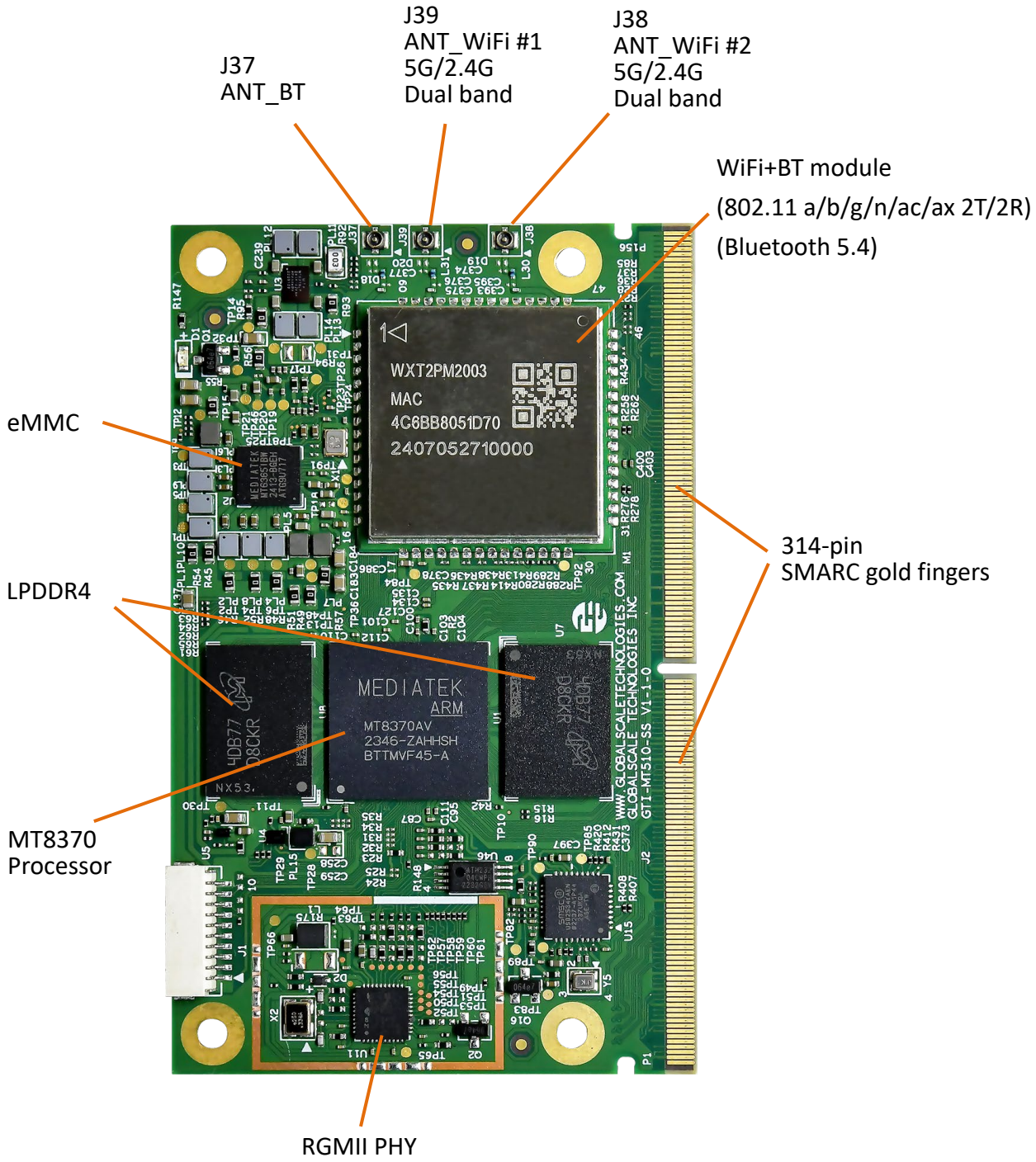
D-2. Back of PCBA



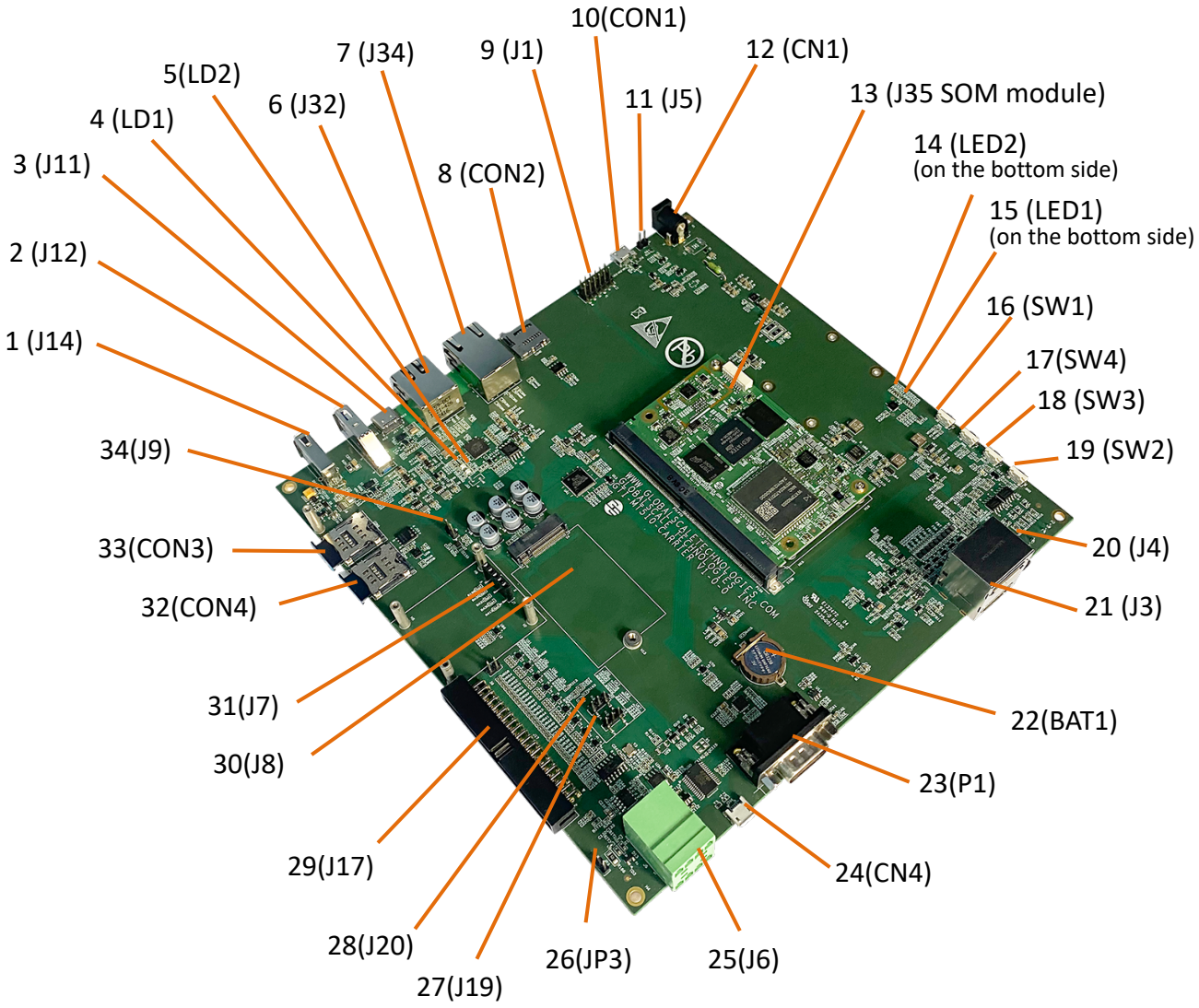
D-2-1. Module specifications

I/O #	module	Specifications
1	LCM	● 7.02” TFT LCD, 94.5mm (H)* 151.2mm (V) ● Capacitance touch panel ● 1200x1920 pixels, 16.7M colors ● I2C interface
2	Camera module IMX214	● Diagonal 5.867mm ● 13 Mega-pixel CMOS sensor with a square-pixel array ● Single Frame HDR with equivalent full pixels ● Full resolution @30fps HDR 4K3K @30fps HDR 1080p @60fps ● MIPI CSI2 4-lane interface

D-3. SOM (System On Module) board (82mm*50mm)



E. I/O connectors

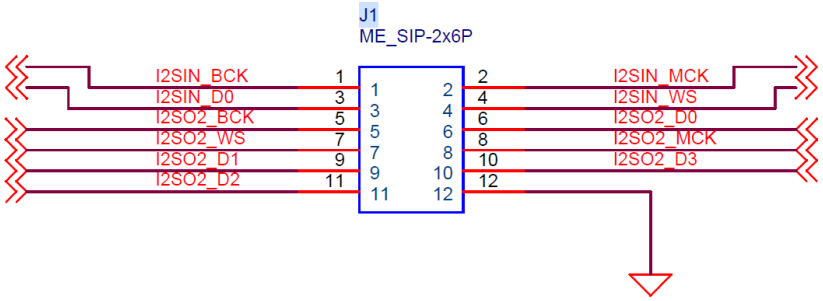


E-1. I/O connector description

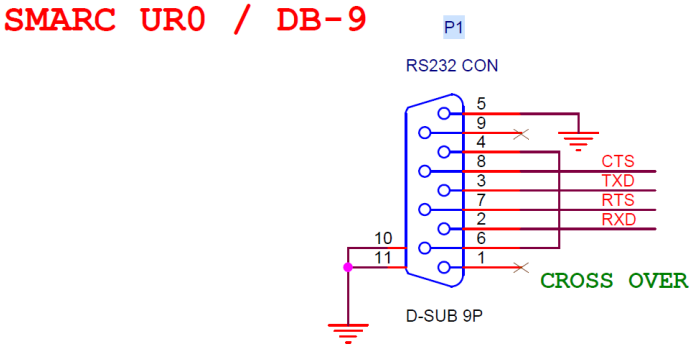
I/O #	Location	Description 1	Description 2	Remark
1	J14	USB 2.0 type-A		
2	J12	USB 3.0 type-A		
3	J11	USB 3.0 type-C		
4	LD1	GPIO3 OUT	LOW active	optional
5	LD2	USB link		optional
6	J32	RJ45	Ethernet 2.5Gb	
7	J34	RJ45	Ethernet 1.0Gb	
8	CON2	SD card slot		
9	J1	I2S pin header		See D-1-1
10	CON1	Micro USB OTG		
11	J5	Power on start configuration	short- Auto start with DC power-up open -manual start	
12	CN1	12VDC input jack		
13	J35	314-pin SMARC connector	For SOM	
14	LED2	Tri-color LED	Software-driven via I2C	
15	LED1	Tri-color LED	Software-driven via I2C	
16	SW1	SOM power button		
17	SW4	Home key	To SOM rset_out#	
18	SW3	SOM download button		
19	SW2	SOM reset button	To SOM rset_in#	
20	J4	Digital Microphone jack		
21	J3	J3A-lower deck-HDMI connector J3B- upper deck- DP connector		
22	BAT1	RTC battery	CR1220 /3V	
23	P1	UART0 on SMARC (SOM)	DB9 connector	See D-1-2
24	CN4	UART1 on SMARC (SOM)	Micro USB connector	See D-1-3
25	J6	J6A- RS485 I/O J6B- CAN bus I/O		See D-1-4
26	JP3	RS485 termination resistor		See D-1-5

I/O #	Location	Description 1	Description 2	Remark
27	J19	UART2_RXD selection		See D-1-6
28	J20	UART2_TXD selection		See D-1-6
29	J17	Raspberry Pi connector		See D-1-7
30	J8	5G module	M.2 NGFF KEY B connector	
31	J7	I2C_2 I/O		See D-1-8
32	CON4	Micro SIM connector	SIM2 to 5G module J8	
33	CON3	Nano SIM connector	SIM1 to 5G module J8	
34	J9	Supply power from VSYS to VSYS_5G		See D-1-9

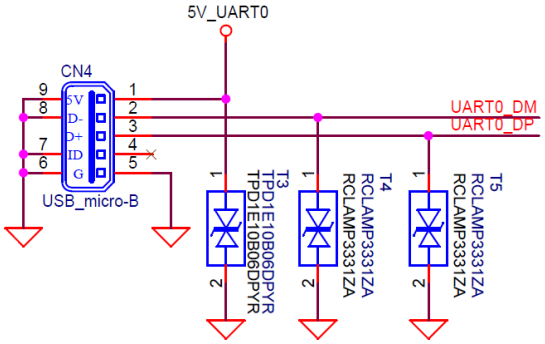
E-1-1. J1- I2S pin header



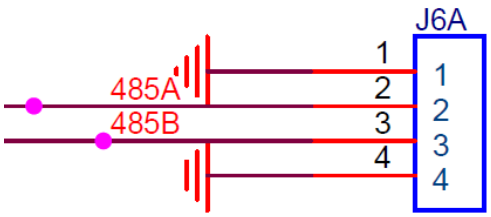
E-1-2. P1- UART0 on SMARC (SOM)

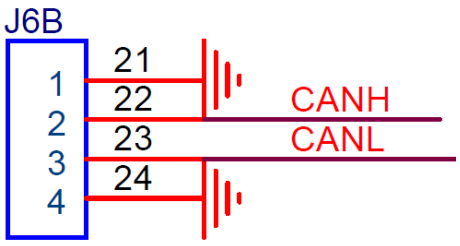


E-1-3. CN4- UART1 on SMARC (SOM)

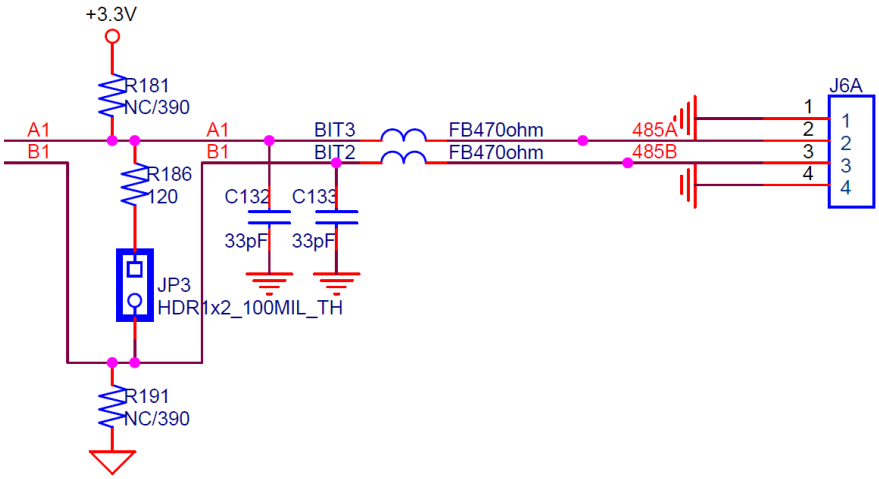


E-1-4. J6A- RS485 I/O ,J6B- CAN bus I/O

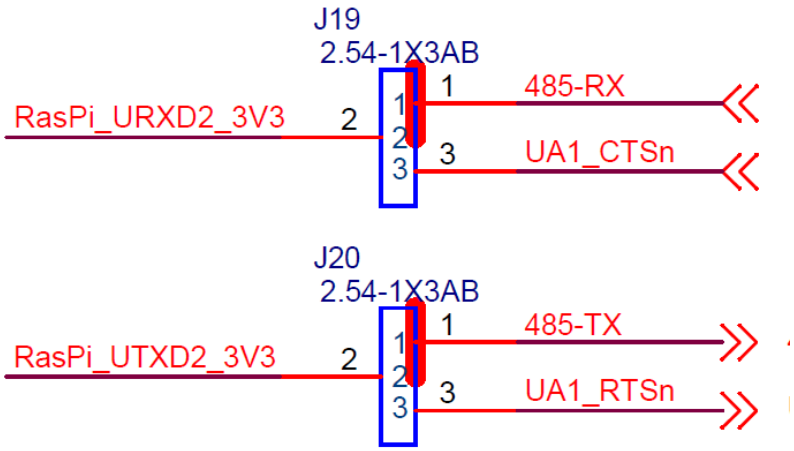




E-1-5. RS485 termination resistor



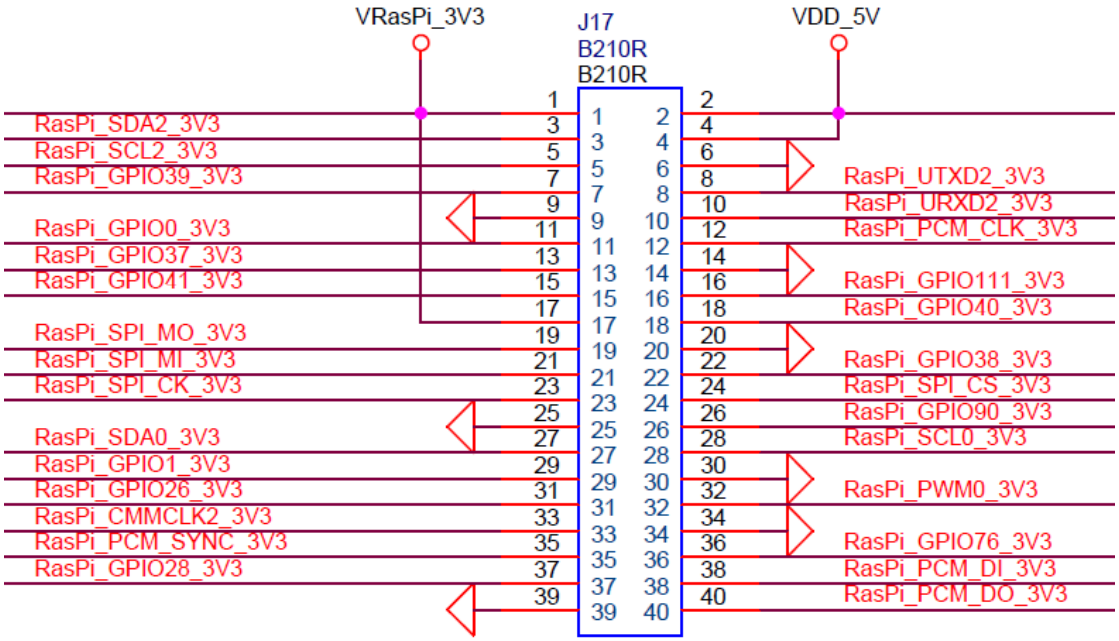
E-1-6. J19- UART2_RXD selection/ J20- UART2_TXD selection



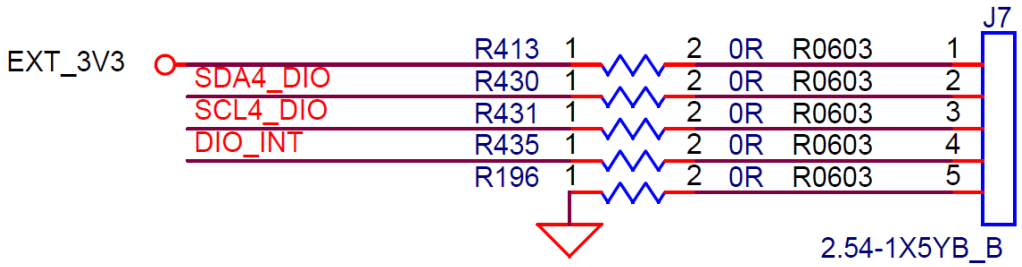
Note:

1. RasPi_URXD2_3V3 comes from SOM UART2_RXD(1.8V) via a 3.3V level shifter.
2. As default with pin 1-2 short in J19, J20, UART2 RX/TX will be sent to 485-RX/TX.
3. None of UART1 and UART2 have the CTS/ RTS flow control signals.
4. UA1_CTSn and UA1_RTSn came from SOM by software coding and then combined with UA1_TXD/ UA1_RXD as a group.
5. P1 (DB9) can use all four signals of TXD/ RXD/ CTS/ RTS, please keep pin-23 short in J19 and J20 for P1 with flow control which will also disable 485-TX and 485-RX signals.

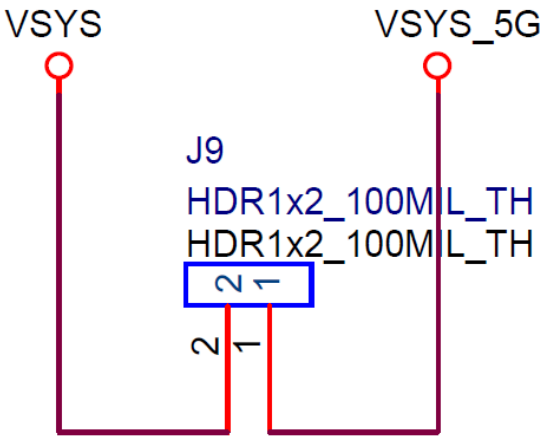
E-1-7. J17- Raspberry P1 connector



E-1-8. J7- I2C_2 I/O



E-1-9. J9- Supply power VSYS to VSYS_5G



F. Contact Information

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