

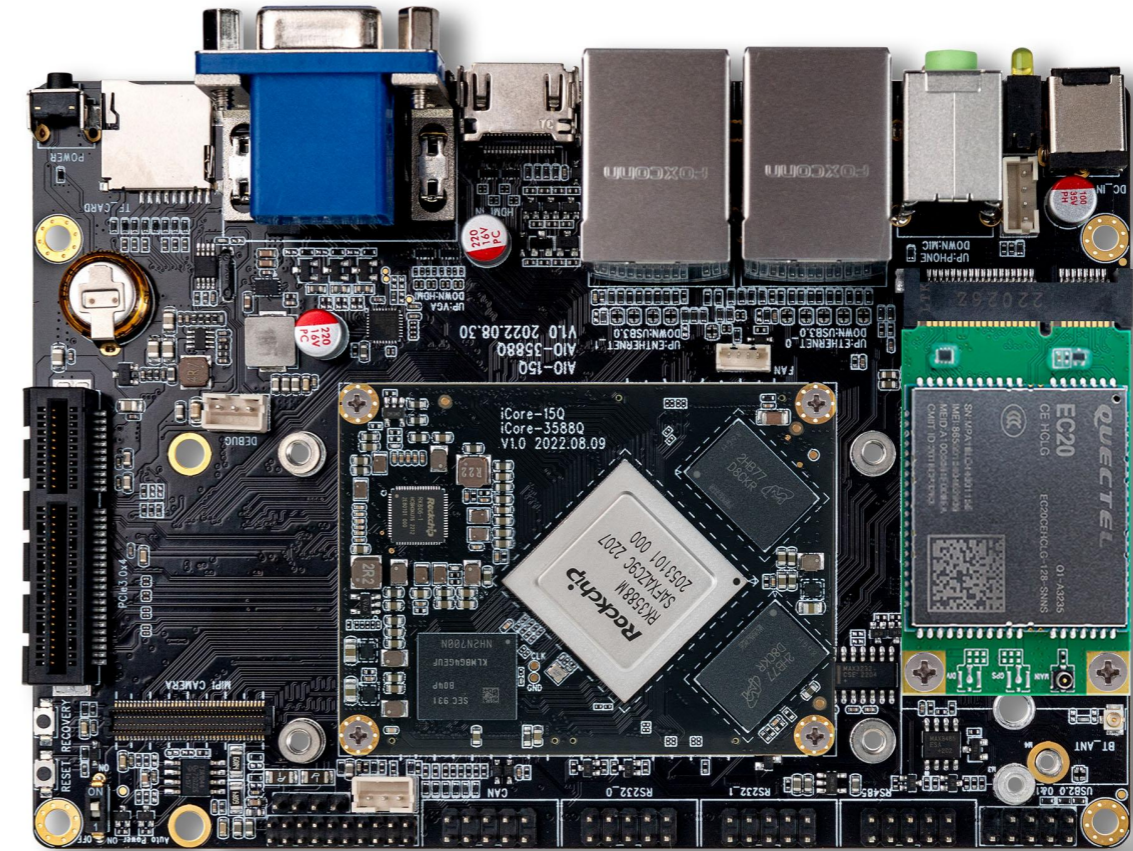


# AIO-3588MQ

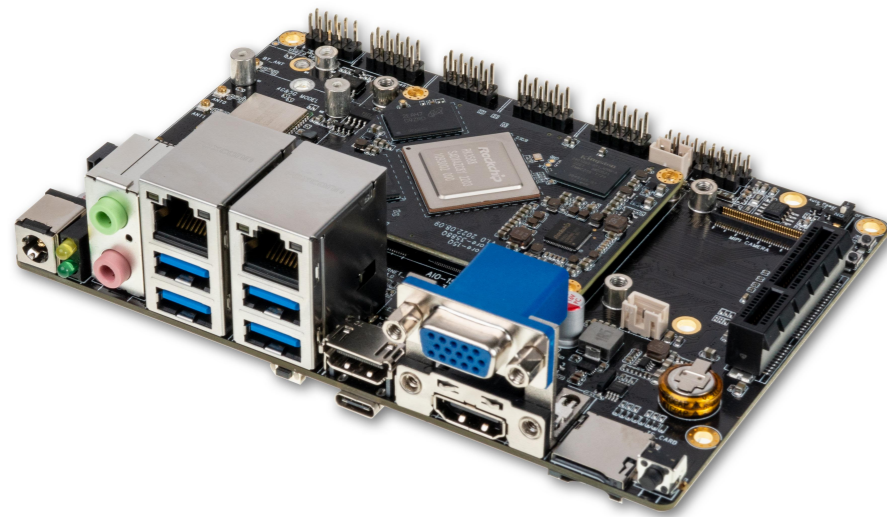
Automotive-Grade AI Mainboard

T-CHIP INTELLIGENCE TECHNOLOGY

V1.0



# Product features



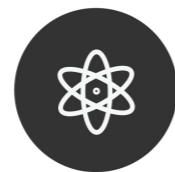
## Automotive-grade AI SoC

8-Core 64bit processor RK3588M  
up to 2.1GHz  
8nm lithography process



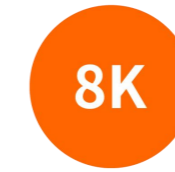
## 6-channel 1080P display

With HDMI 2.1/eDP/MIPI-DSI/DP1.4  
video output and up to 6-channel  
1080P video output,



## One SoC with multiple OS

Supports Kernel-based Virtual  
Machine (KVM) and Docker container  
technology. It can run Android,  
ubuntu, Debian, Linux



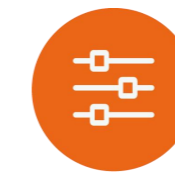
## 8K H.265 / 6TOPS NPU

OpenGL ES3.2/2.0, Vulkan1.1  
8K@60fps H.265/VP9 Decoding  
8K@30fps H.265/H.264 Encoding  
6TOPS NPU computing power



## 16-channel camera

Up to 16-channel 1080P@30fps  
camera input and ADAS/DMS/BSD/APA  
multiple cameras assisted driving



## A variety of interfaces

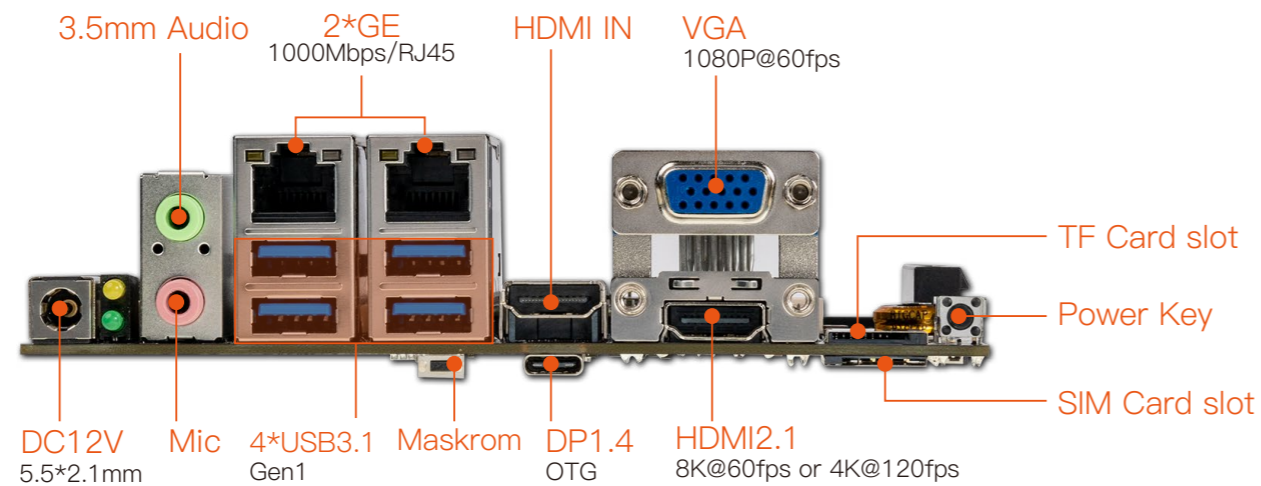
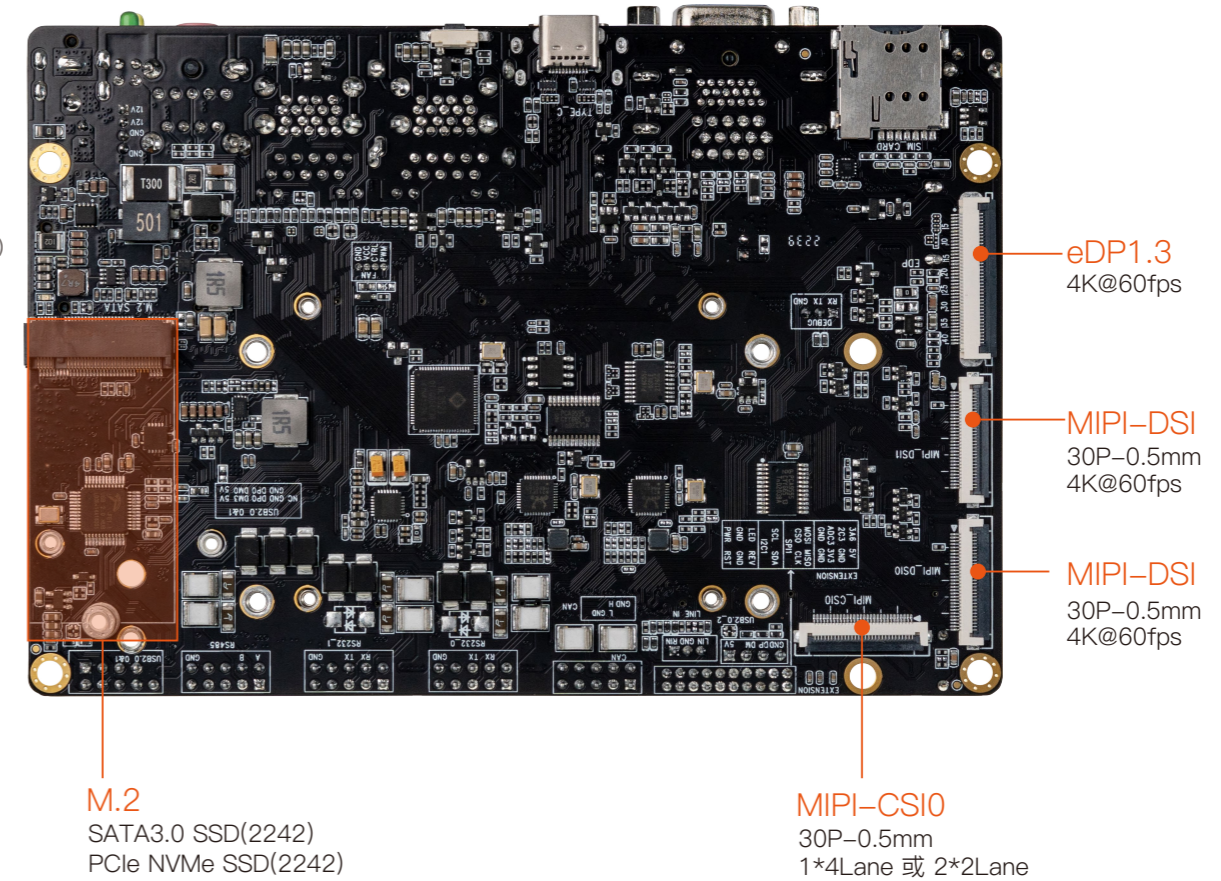
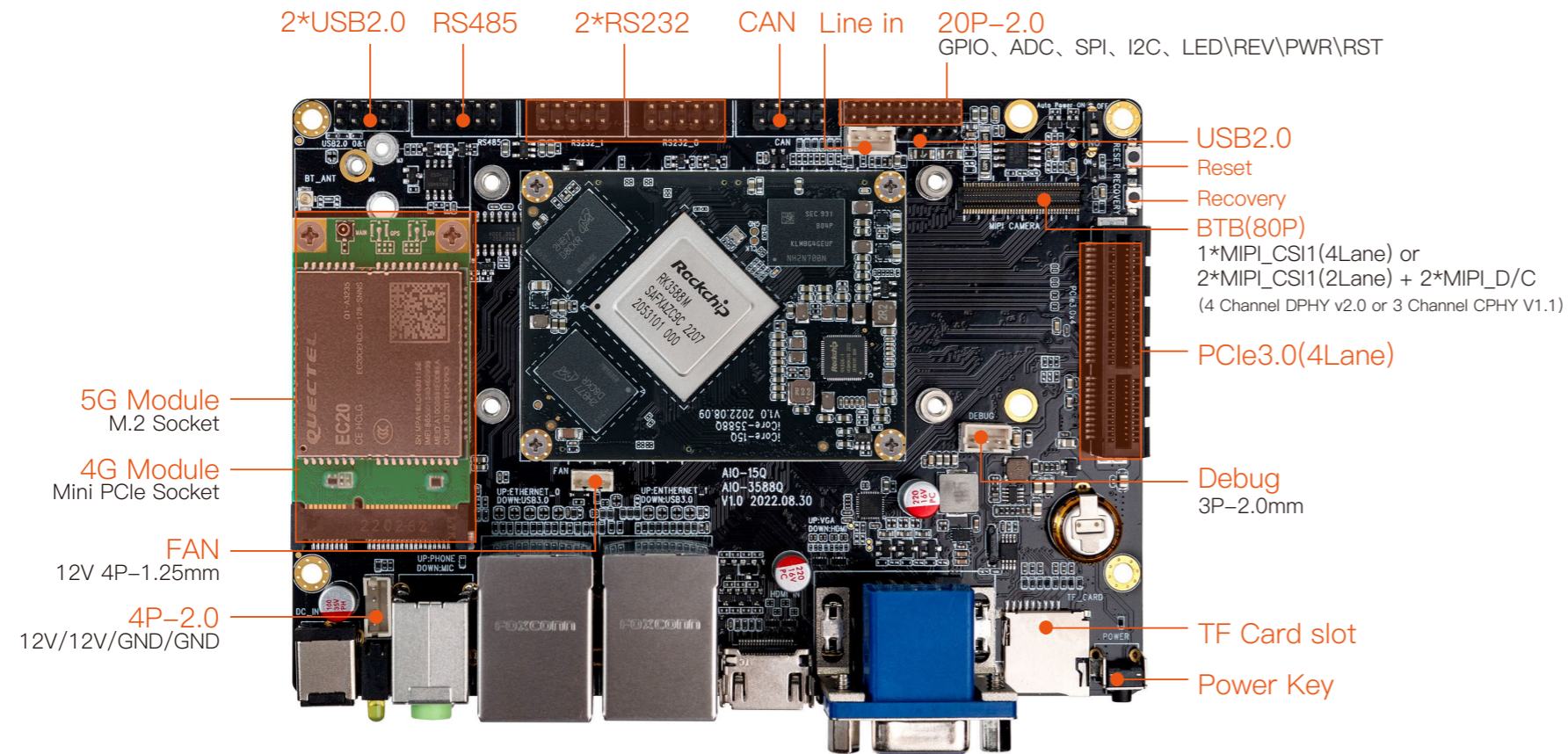
PCIE3.0, SATA3.0, I2S, I2C, CAN  
UART, SDIO3.0, MIPI-CSI, MIPI-DSI  
SPDIF, USB3.1, USB2.0, SPI, GPIO

# Specifications

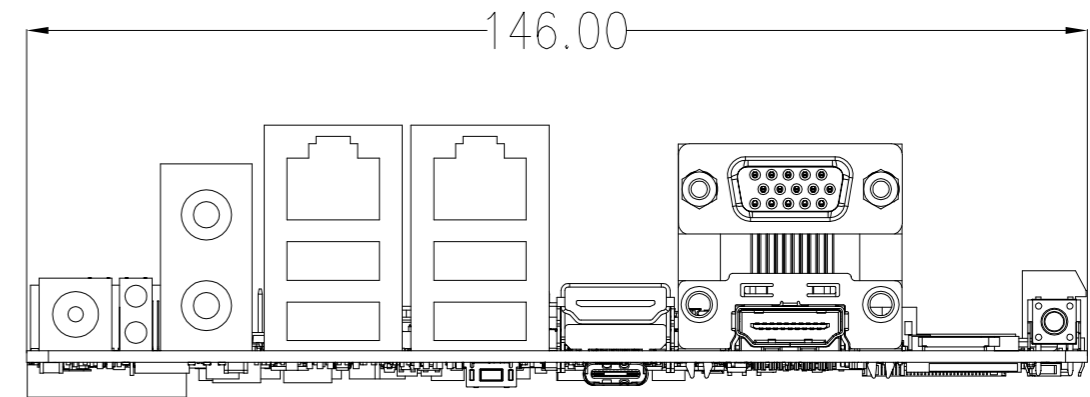
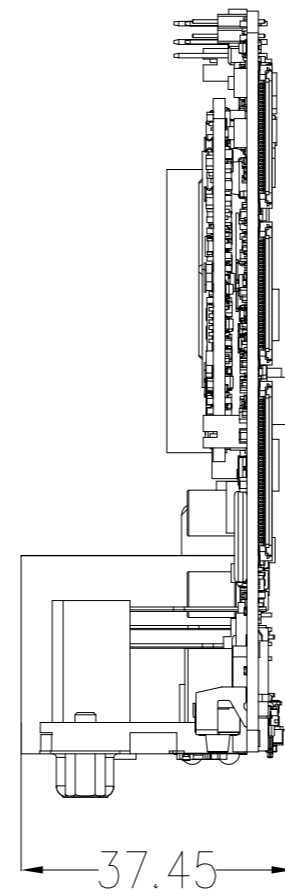
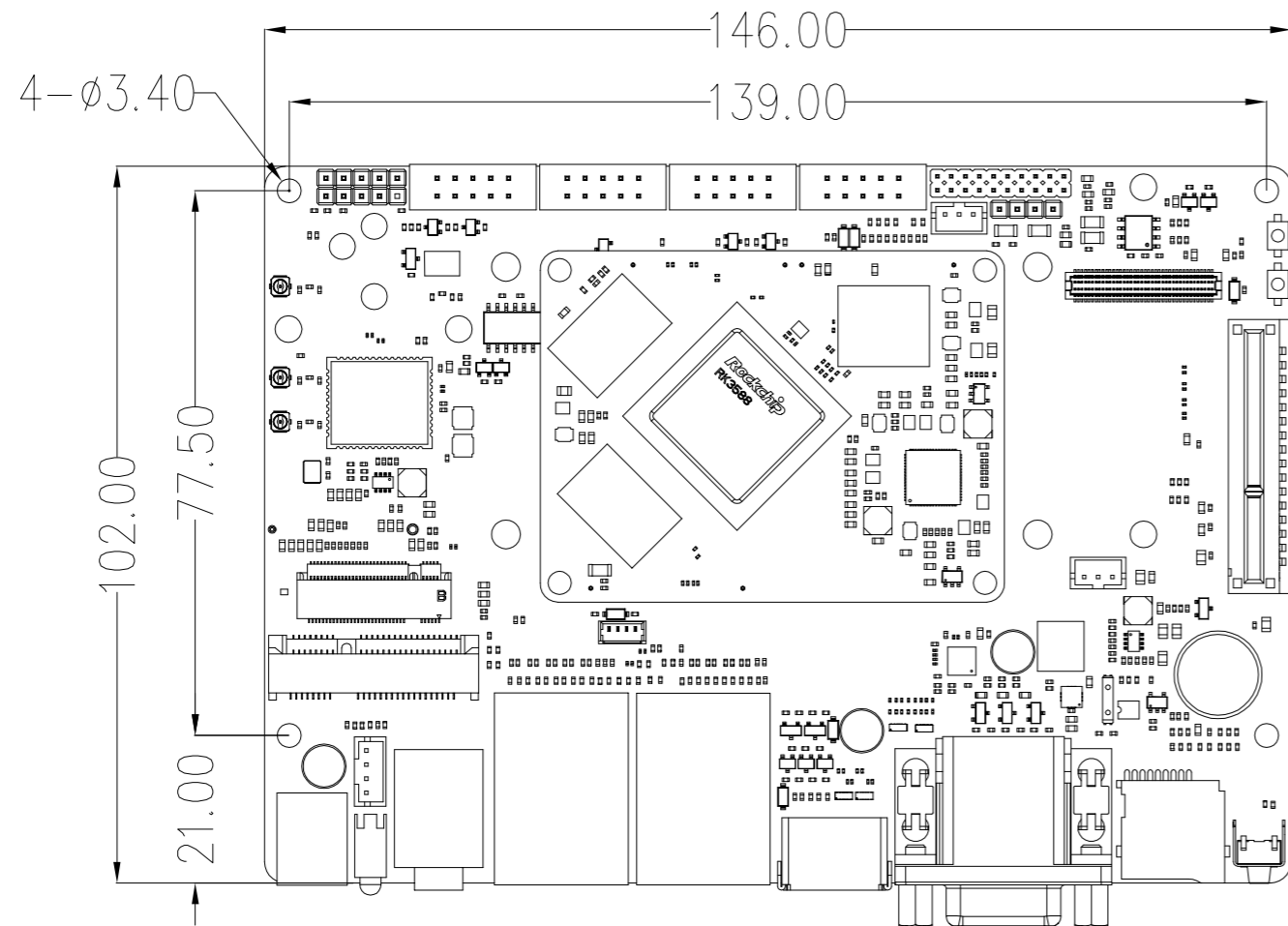


Specifications	
SOC	RK3588M
CPU	8-64bit (4×Cortex-A76+4×Cortex-A55) , 8nm lithography process, up to 2.1GHz
GPU	ARM Mali-G610 MP4 GPU, Support OpenGL ES3.2 / OpenCL 2.2 / Vulkan1.1, 450 GFLOPS
NPU	6 TOPS, Support INT4/INT8/INT16 mixed operation,Support framework switching of TensorFlow / MXNet / PyTorch / Caffe
ISP	Integrated 48MP ISP with HDR&3DNR
VPU	Decoding: 8K@60fps H.265/VP9/AVS2、8K@30fps H.264 AVC/MVC、4K@60fps AV1、1080P@60fps MPEG-2/-1/VC-1/VP8 Encoding: 8K@30fps H.265 / H.264
RAM	4GB/8GB/16GB (up to 32GB) 64bit LPDDR4/LPDDR4x/LPDDR5
Storage	16GB/32GB/64GB/128GB eMMC
Expanded Storage	1 * M.2 SATA3.0 SSD (2242) 、 1*TF Card Slot
Network	2 * GE (1000Mbps)
Wireless	2.4G/5G dual-band WiFi6 (802.11a/b/g/n/ac/ax) , Bluetooth5.0, 5G/4G LTE expansion supported
Video Output	1 * HDMI2.1 (8K@60fps或4K@120fps) 、 1 * DP1.4 (8K@30fps, Via USB-C) 、 1 * VGA (1080P@60fps) 、 1 * eDP1.3 (4K@60Hz) 2 * MIPI-DSI (4K@60fps) , * Support six-screen output with different displays
Video Input	1 * HDMI-IN (4K@60fps), support HDCP 2.3, 1 * MIPI_CSI0 (1*4 Lane or 2*2 Lane, 30P-0.5mm) 1 * BTB (1*MIPI_CSI1 (4 Lane) or 2*MIPI_CSI1 (2 Lane) + 2*MIPI_D/C(4 Lane DPHY v2.0 or 3 Lane CPHY V1.1))
PCIe	1 * PCIe3.0 (4lanes)
USB	4 * USB3.1 (Gen1), 3 * USB2.0 (pin header), 1 * USB-C (OTG/DP1.4)
Interface	2 * RS232、RS485、CAN、Debug、20P-2.0排针 (GPIO、ADC、SPI、I2C、LED\REV\PWR\RST)
Power	DC12V (DC5.5*2.1mm, above 12V-2A power recommended)
OS	Android 12.0, Ubuntu Desktop and Server, Debian11 and Buildroot、RTLinux (delivering excellent real-time performance)
Dimension	146mm*102mm*37.5mm
Power Consumption	Idle: ≈0.72W (12V/60mA), Typical: ≈2.4W (12V/200mA), Max: ≈14.4W (12V/1200mA)
Environment	Operating Temperature: -40°C- 85°C, Operating humidity: 10% ~ 90% (non-condensing)

# Interface description



# Dimension



# Interface Definition

## 1. (J13)FAN 4PIN 1.25mm wafer (WHITE)



NO.	Definition	Level/V	NO.	Definition	Level/V
1	GND		3	SARADC_IN6 (pull up resistor 10K)	1.8V
2	VCC_FAN(12V Output)	12V	4	PWM1_CONN (pull up resistor 10K)	3.3V

## 2. (J5)DEBUG 3PIN 2.0mm wafer (WHITE)



NO.	Definition	Level/V	NO.	Definition	Level/V
1	DEBUG_RXD (pull up resistor 10K)	3.3V	3	GND	
2	DEBUG_TXD (pull up resistor 10K)	3.3V			

### 3. (J100)PCIe3.0x4 64PIN



NO.	Definition	Level/V	NO.	Definition	Level/V
B1	VCC12V_PCIE30 (12V Output)	12V	A1	GND	
B2	VCC12V_PCIE30 (12V Output)	12V	A2	VCC12V_PCIE30 (12V Output)	12V
B3	VCC12V_PCIE30 (12V Output)	12V	A3	VCC12V_PCIE30 (12V Output)	12V
B4	GND		A4	GND	
B5	NC		A5	NC	
B6	NC		A6	NC	
B7	GND		A7	NC	
B8	VCC3V3_PCIE30 (3.3V Output)	3.3V	A8	NC	
B9	NC		A9	VCC3V3_PCIE30 (3.3V Output)	3.3V
B10	VCC3V3_PCIE30 (3.3V Output)	3.3V	A10	VCC3V3_PCIE30 (3.3V Output)	3.3V
B11	PCIE30X4_WAKEn (GPIO4_B5_d)	3.3V	A11	PCIE30X4_PERSTn(GPIO4_B6_d)	3.3V
B12	PCIE30X4_CLKREQn (GPIO4_B4_u)	3.3V	A12	GND	
B13	GND		A13	PCIE30_REFCLKP_SLOT	-
B14	PCIE30_PORT0_TX0P	-	A14	PCIE30_REFCLKN_SLOT	-
B15	PCIE30_PORT0_TX0N	-	A15	GND	
B16	GND		A16	PCIE30_PORT0_RX0P	-
B17	PCIE30X4_PRSENT_L (From PCA9555)[pull down resistor 10K]	3.3V	A17	PCIE30_PORT0_RX0N	-
B18	GND		A18	GND	
B19	PCIE30_PORT0_TX1P	-	A19	NC	

B20	PCIE30_PORT0_TX1N	-	A20	GND	
B21	GND		A21	PCIE30_PORT0_RX1P	-
B22	GND		A22	PCIE30_PORT0_RX1N	-
B23	PCIE30_PORT1_TX2P	-	A23	GND	
B24	PCIE30_PORT1_TX2N	-	A24	GND	
B25	GND		A25	PCIE30_PORT1_RX2P	-
B26	GND		A26	PCIE30_PORT1_RX2N	-
B27	PCIE30_PORT1_TX3P	-	A27	GND	
B28	PCIE30_PORT1_TX3N	-	A28	GND	
B29	GND		A29	PCIE30_PORT1_RX3P	-
B30	NC		A30	PCIE30_PORT1_RX3N	-
B31	PCIE30X4_PRSENT_L (From PCA9555) [pull down resistor 10K]	3.3V	A31	GND	
B32	GND		A32	NC	

**4. (U22)MIPI CAMERA 80PIN --- This interface is only for expansion, not debugged.**



NO.	Definition	Level/V	NO.	Definition	Level/V
1	GND		2	VCC5V0_SYS (5V Output)	5.0V
3	GND		4	VCC5V0_SYS (5V Output)	5.0V
5	GND		6	VCC5V0_SYS (5V Output)	5.0V
7	GND		8	VCC5V0_SYS (5V Output)	5.0V
9	GND		10	VCC3V3_SYS (3.3V Output)	3.3V

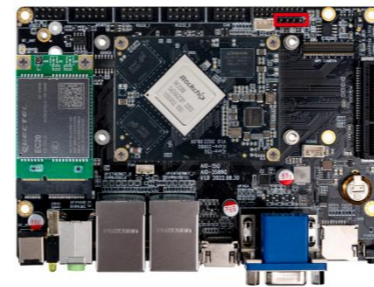




11	GND		12	VCC3V3_SYS (3.3V Output)	3.3V
13	GND		14	VCC3V3_SYS (3.3V Output)	3.3V
15	MIPI_DPHY1_RX_D3N	-	16	VCC3V3_SYS (3.3V Output)	3.3V
17	MIPI_DPHY1_RX_D3P	-	18	GND	
19	GND		20	I2C6_SDA_M0 (GPIO0_C7_d) [pull up resistor 2.2K]	1.8V
21	MIPI_DPHY1_RX_D2N	-	22	I2C6_SCL_M0 (GPIO0_D0_d) [pull up resistor 2.2K]	1.8V
23	MIPI_DPHY1_RX_D2P	-	24	I2C3_SDA_M0_MIPI (GPIO1_C0_z) [pull up resistor 2.2K]	1.8V
25	GND		26	I2C3_SCL_M0_MIPI (GPIO1_C1_z) [pull up resistor 2.2K]	1.8V
27	MIPI_DPHY1_RX_CLKN	-	28	MIPI_CAM1_Power_EN (From PCA9555)	3.3V
29	MIPI_DPHY1_RX_CLKP	-	30	MIPI_CAM2_Power_EN (From PCA9555)	3.3V
31	GND		32	MIPI_CAM3_Power_EN (From PCA9555)	3.3V
33	MIPI_DPHY1_RX_D1N	-	34	MIPI_RESET1 (From PCA9555)	3.3V
35	MIPI_DPHY1_RX_D1P	-	36	MIPI_RESET2 (From PCA9555)	3.3V
37	GND		38	MIPI_RESET3 (From PCA9555)	3.3V
39	MIPI_DPHY1_RX_D0N	-	40	GND	
41	MIPI_DPHY1_RX_D0P	-	42	MIPI_CAM4_CLKOUT [GPIO1_D7_u]	1.8V
43	GND		44	GPIO1(From PCA9555)	3.3V
45	MIPI_CSI1_RX_D0N	-	46	GPIO2(From PCA9555)	3.3V
47	MIPI_CSI1_RX_D0P	-	48	GPIO2_C4 [GPIO2_C4_d]	1.8V
49	GND		50	GND	
51	MIPI_CSI1_RX_D1N	-	52	MIPI_DPHY0_RX_D3P	-
53	MIPI_CSI1_RX_D1P	-	54	MIPI_DPHY0_RX_D3N	-
55	GND		56	GND	
57	MIPI_CSI1_RX_CLK0N	-	58	MIPI_DPHY0_RX_D2P	-
59	MIPI_CSI1_RX_CLK0P	-	60	MIPI_DPHY0_RX_D2N	-
61	GND		62	GND	
63	MIPI_CSI1_RX_D2N	-	64	MIPI_DPHY0_RX_CLKP	-
65	MIPI_CSI1_RX_D2P	-	66	MIPI_DPHY0_RX_CLKN	-

67	GND		68	GND	
69	MIPI_CSI1_RX_D3N	-	70	MIPI_DPHY0_RX_D1P	-
71	MIPI_CSI1_RX_D3P	-	72	MIPI_DPHY0_RX_D1N	-
73	GND		74	GND	
75	MIPI_CSI1_RX_CLK1N	-	76	MIPI_DPHY0_RX_D0P	-
77	MIPI_CSI1_RX_CLK1P	-	78	MIPI_DPHY0_RX_D0N	-
79	GND		80	GND	

#### 5. (JUSB2)USB2.0\_2 4PIN 2.0mm



NO.	Definition	Level/V	NO.	Definition	Level/V
1	VCC5V0_USB20_HOST2(5V Output)	5V	3	DP2	-
2	DM2	-	4	GND	

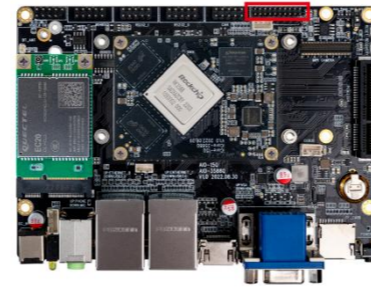
#### 6. (J17)LINE\_IN 3 PIN 2.0mm wafer (WHITE)



NO.	Definition	Level/V	NO.	Definition	Level/V
1	Line_in1_R	3.3V	3	Line_in1_L	3.3V

2	GND			
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### 7. (J10)EXTENSION PIN 2.0mm



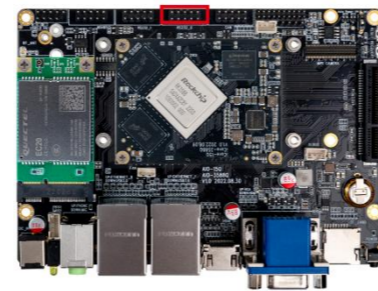
NO.	Definition	Level/V	NO.	Definition	Level/V
1	VCC5V0_SYS (5V Output)	5.0V	2	GPIO3_A6_EXT (GPIO3_A6_d)	1.8V
3	GND		4	NC	
5	VCC3V3_SYS (3.3V Output)	3.3V	6	ADC3 Input [pull up resistor 10K]	1.8V
7	GND		8	GND	
9	SPI1_MISO_M2 (GPIO1_D0_d)	1.8V	10	SPI1_MOSI_M2 (GPIO1_D1_d)	1.8V
11	SPI1_CLK_M2 (GPIO1_D2_d)	1.8V	12	SPI1_CS0_M2 (GPIO1_D3_d)	1.8V
13	I2C1_SDA_M2 [pull up resistor 2.2K]	3.3V	14	I2C1_SCL_M2 [pull up resistor 2.2K]	3.3V
15	RECOVERY_KEY [pull up resistor 10K]	1.8V	16	SATA0_LED_M1 (GPIO1_B3_d)	1.8V
17	GND		18	GND	
19	RESET_KEY	1.8V	20	PWRON_KEY	5.0V

### 8. (J7)CAN 10 PIN 2.5mm



NO.	Definition	Level/V	NO.	Definition	Level/V
1	NC		6	CAN_VSS_1	5.0V
2	CANL1	5.0V	7	CANH1	5.0V
3	CAN_VSS_1	5.0V	8	NC	
4	NC		9	NC	
5	NC		10	NC	

### 9. (J31)RS232\_0 10 PIN 2.5mm



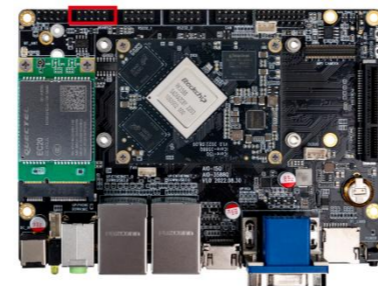
NO.	Definition	Level/V	NO.	Definition	Level/V
1	NC		6	NC	
2	RS232_RXD0 (GPIO4_A4_d)	+/-10V	7	NC	
3	RS232_TXD0 (GPIO4_A3_d)	+/-10V	8	NC	
4	NC		9	NC	
5	GND		10	NC	

### 10. (J15) RS232\_1 10 PIN 2.5mm



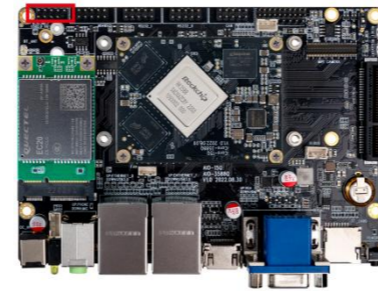
NO.	Definition	Level/V	NO.	Definition	Level/V
1	NC		6	NC	
2	RS232_RXD1 [pull up resistor 10K]	+/-10V	7	NC	
3	RS232_TXD1 [pull up resistor 10K]	+/-10V	8	NC	
4	NC		9	NC	
5	GND		10	NC	

### 11. (J32) RS485 10 PIN 2.5mm



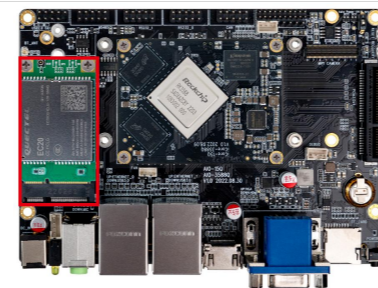
NO.	Definition	Level/V	NO.	Definition	Level/V
1	RS485_A	3.3V	6	NC	
2	RS485_B	3.3V	7	NC	
3	NC		8	NC	
4	NC		9	NC	
5	GND		10	NC	

### 12. (JUSB1)USB2.0 0&1 10 PIN 2.5mm



NO.	Definition	Level/V	NO.	Definition	Level/V
1	VCC5V0_USB20_HOST1 (5V Output)	5V	2	VCC5V0_USB20_HOST1 (5V Output)	5V
3	USB20_HOST0_DM	-	4	HUB_HOST20_DP3	-
5	USB20_HOST0_DP	-	6	HUB_HOST20_DM3	-
7	GND		8	GND	
			10	NC	

### 13. (U38) MINI\_PCIE\_52P\_9H (4G MOUDEL) 52PIN

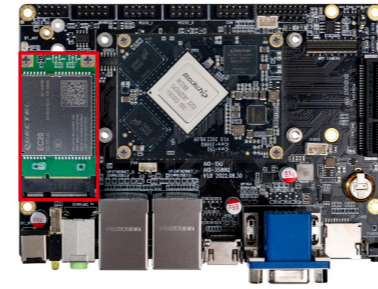


NO.	Definition	Level/V	NO.	Definition	Level/V
1	NC		2	VCC3V8_4G	3.8V
3	NC		4	GND	
5	NC		6	NC	
7	NC		8	UIM_PWR	1.8V/3.0V
9	GND		10	UIM_DAT	1.8V/3.0V
11	NC		12	UIM_CLK	1.8V/3.0V



13	NC		14	UIM_RST	1.8V/3.0V
15	GND		16	NC	
17	NC		18	GND	
19	NC		20	NC	
21	GND		22	4G_RESET[pull up resistor10K]	3.8V
23	NC		24	NC	
25	NC		26	GND	
27	GND		28	NC	
29	GND		30	NC	
31	NC		32	NC	
33	NC		34	GND	
35	GND		36	HUB_HOST20_DM4	-
37	GND		38	HUB_HOST20_DP4	-
39	VCC3V8_4G	3.8V	40	GND	
41	VCC3V8_4G	3.8V	42	NC	
43	GND		44	SIM_DET	1.8 V
45	NC		46	NC	
47	NC		48	NC	
49	NC		50	GND	
51	NC		52	VCC3V8_4G	3.8V

**14. (U37)M2\_NGFF-4G/5G (5G MOUDEL) 75 PIN**

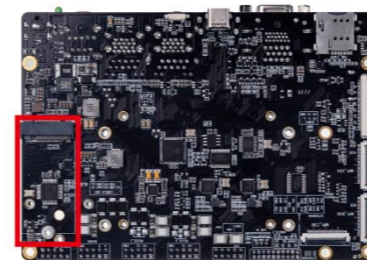


NO.	Definition	Level/V	NO.	Definition	Level/V
1	NC		2	VCC3V8_4G	3.8V
3	GND		4	VCC3V8_4G	3.8V
5	GND		6	FULL_CARD/Power_OFF#	3.8V
7	HUB_HOST20_DP4	-	8	NC	
9	HUB_HOST20_DM4	-	10	NC	
11	GND		20	NC	
21	NC		22	NC	
23	NC		24	NC	
25	NC		26	NC	
27	GND		28	NC	
29	USB30_2_SSRXN PCIE20_2_RXN/SATA30_2_RXN	-	30	UIM_RST	1.8V/3.0V
31	USB30_2_SSRXP PCIE20_2_RXP/SATA30_2_RXP	-	32	UIM_CLK	1.8V/3.0V
33	GND		34	UIM_DAT	1.8V/3.0V
35	USB30_2_SSTXN PCIE20_2_TXN/SATA30_2_TXN	-	36	UIM_PWR	1.8V/3.0V
37	USB30_2_SSTXP PCIE20_2_TXP/SATA30_2_TXP	-	38	NC	
39	GND		40	NC	
41	NC		42	NC	
43	NC		44	NC	
45	GND		46	NC	



47	NC		48	NC	
49	NC		50	NC	
51	GND		52	NC	
53	NC		54	NC	
55	NC		56	NC	
57	GND		58	NC	
59	NC		60	NC	
61	NC		62	NC	
63	NC		64	NC	
65	NC		66	SIM_DET	1.8V
67	4G_RESET	3.8V	68	NC	
69	NC		70	VCC3V8_4G	3.8V
71	GND		72	VCC3V8_4G	3.8V
73	GND		74	VCC3V8_4G	3.8V
75	NC				

**15. (U2)M.2 SATA 75 PIN**



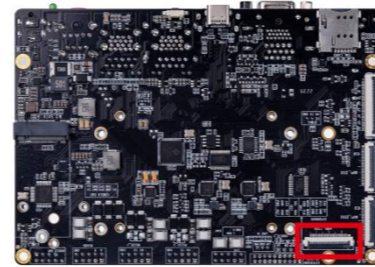
NO.	Definition	Level/V	NO.	Definition	Level/V
1	GND		2	VCC3V3_SATA (3.3V Output)	3.3V
3	GND		4	VCC3V3_SATA (3.3V Output)	3.3V
5	NC		6	NC	
7	NC		8	NC	



9	GND		10	DAS/DSS [pull up resistor10K]	3.3V
11	NC		12	VCC3V3_SATA (3.3V Output)	3.3V
13	NC		14	VCC3V3_SATA (3.3V Output)	3.3V
15	NC		16	VCC3V3_SATA (3.3V Output)	3.3V
17	NC		18	VCC3V3_SATA (3.3V Output)	3.3V
19	NC		20	NC	
21	GND		22	NC	
23	NC		24	NC	
25	NC		26	NC	
27	GND		28	NC	
29	NC		30	NC	
31	NC		32	NC	
33	GND		34	NC	
35	NC		36	NC	
37	NC		38	SATA_DEVSLP (From PCA9555) [pull up resistor10K]	3.3V
39	GND		40	NC	
41	PCIE20_0_RXP/SATA30_0_RXP	-	42	NC	
43	PCIE20_0_RXN/SATA30_0_RXN	-	44	NC	
45	GND		46	NC	
47	PCIE20_0_TXN/SATA30_0_TXN	-	48	NC	
49	PCIE20_0_TXP/SATA30_0_TXP	-	50	PCIE30X2_PERSTn_M1 (From PCA9555)	3.3V
51	GND		52	PCIE30X2_CLKREQN_M1 (GPIO4_A6_d)	3.3V
53	PCIE20_0_TXN	-	54	PCIE30X2_WAKEN_M1 (GPIO4_A7_d)	3.3V
55	PCIE20_0_TXP	-	56	NC	
57	GND		58	NC	
67	NC		68	NC	
69	GND		70	VCC3V3_SATA (3.3V Output)	3.3V
71	GND		72	VCC3V3_SATA (3.3V Output)	3.3V

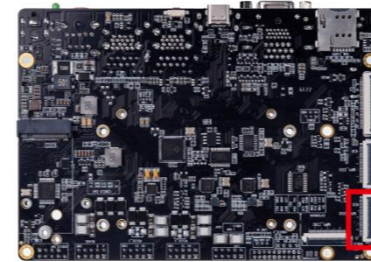
73	GND		74	VCC3V3_SATA (3.3V Output)	3.3V
75	GND				

### 16. (J8) MIPI\_CSI0 30 PIN



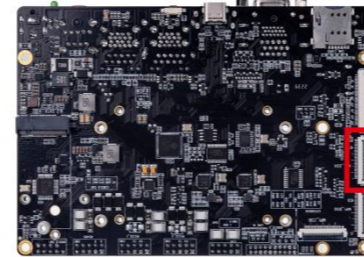
NO.	Definition	Level/V	NO.	Definition	Level/V
1	I2C3_SDA_M0_MIPI (GPIO1_C0_z) [pull up resistor 2.2K]	1.8V	16	GND	
2	I2C3_SCL_M0_MIPI (GPIO1_C1_z) [pull up resistor 2.2K]	1.8V	17	MIPI_CSI0_RX_CLK0P	-
3	MIPI_CAM3_PDN_L (GPIO1_A6_d)	1.8V	18	MIPI_CSI0_RX_CLK0N	-
4	RESET0_CAM (GPIO1_B0_u)	1.8V	19	GND	
5	GND		20	MIPI_CSI0_RX_D2P	-
6	MIPI_CAM3_CLKOUT (GPIO1_D6_u)	1.8V	21	MIPI_CSI0_RX_D2N	-
7	MIPI_CAM4_PWREN_H (GPIO1_B1_d)	1.8V	22	GND	
8	MIPI_CAM3_PWREN_H (GPIO1_B2_d)	1.8V	23	MIPI_CSI0_RX_D3P	-
9	MIPI_CAM3_CLKOUT (GPIO1_D6_u)	1.8V	24	MIPI_CSI0_RX_D3N	-
10	GND		25	GND	
11	MIPI_CSI0_RX_D0P	-	26	MIPI_CSI0_RX_CLK1P	-
12	MIPI_CSI0_RX_D0N	-	27	MIPI_CSI0_RX_CLK1N	-
13	GND		28	GND	
14	MIPI_CSI0_RX_D1P	-	29	VCC5V0_SYS (5V Output)	5.0V
15	MIPI_CSI0_RX_D1N	-	30	VCC5V0_SYS (5V Output)	5.0V

### 17. (J16)MIPI\_DSIO 30 PIN



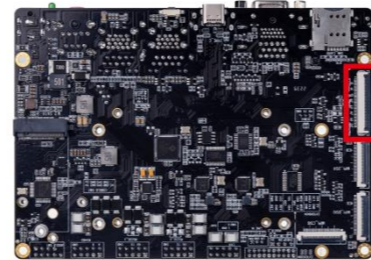
NO.	Definition	Level/V	NO.	Definition	Level/V
1	VCC5V0_SYS (5V Output)	5.0V	16	MIPI_DPHY0_TX_D0P	-
2	VCC5V0_SYS (5V Output)	5.0V	17	MIPI_DPHY0_TX_D0N	-
3	VCC5V0_SYS (5V Output)	5.0V	18	GND	
4	GND		19	MIPI_DPHY0_TX_D1P	-
5	I2C_ID1	3.3V	20	MIPI_DPHY0_TX_D1N	-
6	VCC3V3_SYS (3.3V Output)	3.3V	21	GND	
7	I2C1_SDA_M2 [pull up resistor 2.2K]	3.3V	22	MIPI_DPHY0_TX_CLKP	-
8	I2C1_SCL_M2 [pull up resistor 2.2K]	3.3V	23	MIPI_DPHY0_TX_CLKN	-
9	LCD0_PWR_EN (From PCA9555)	3.3V	24	GND	
10	TPO_INT [pull up resistor 10K]	3.3V	25	MIPI_DPHY0_TX_D2P	-
11	LCD0_BL_EN [pull up resistor 10K]	1.8V	26	MIPI_DPHY0_TX_D2N	-
12	PWM12_M1 (GPIO4_B5_d)	3.3V	27	GND	
13	LCD0_RESET [pull up resistor 10K]	3.3V	28	MIPI_DPHY0_TX_D3P	-
14	TPO_RST [pull up resistor 10K]	3.3V	29	MIPI_DPHY0_TX_D3N	-
15	GND		30	GND	

### 18. (J9)MIPI\_DSI1 30 PIN



NO.	Definition	Level/V	NO.	Definition	Level/V
1	VCC5V0_SYS (5V Output)	5V	16	MIPI_DPHY1_TX_D0P	-
2	VCC5V0_SYS (5V Output)	5V	17	MIPI_DPHY1_TX_D0N	-
3	VCC5V0_SYS (5V Output)	5V	18	GND	
4	GND		19	MIPI_DPHY1_TX_D1P	-
5	I2C_ID2 [pull down resistor 10K]	3.3V	20	MIPI_DPHY1_TX_D1N	-
6	VCC3V3_SYS (3.3V Output)	3.3V	21	GND	
7	I2C6_SDA_M0 [pull up resistor 2.2K]	3.3V	22	MIPI_DPHY1_TX_CLKP	-
8	I2C6_SCL_M0 [pull up resistor 2.2K]	3.3V	23	MIPI_DPHY1_TX_CLKN	-
9	LCD1_PWR_EN (From PCA9555)	3.3V	24	GND	
10	TP1_INT (From PCA9555)	3.3V	25	MIPI_DPHY1_TX_D2P	-
11	LCD1_BL_EN (From PCA9555)	3.3V	26	MIPI_DPHY1_TX_D2N	-
12	LCD1_BL_PWM [pull up resistor 10K]	3.3V	27	GND	
13	LCD1_RESET_L (From PCA9555)[pull up resistor 10K]	3.3V	28	MIPI_DPHY1_TX_D3P	-
14	TP1_RST_L (From PCA9555)[pull up resistor 10K]	3.3V	29	MIPI_DPHY1_TX_D3N	-
15	GND		30	GND	

### 19. (J25)EDP 40 PIN



NO.	Definition	Level/V	NO.	Definition	Level/V
1	NC		21	GND	
2	GND		22	EDP_BL_EN_H (From PCA9555)	3.3V
3	eDP1_TX_D1N	-	23	EDP_BL_PWM [pull up resistor 10K]	3.3V
4	eDP1_TX_D1P	-	24	NC	
5	GND		25	NC	
6	eDP1_TX_D0N	-	26	VCC_EDP (12V Output)	12V
7	eDP1_TX_D0P	-	27	VCC_EDP (12V Output)	12V
8	GND		28	VCC_EDP (12V Output)	12V
9	EDP_AUXP	1.8V	29	VCC_EDP (12V Output)	12V
10	EDP_AUXN	1.8V	30	NC	
11	GND		31	HUB_HOST20_DM1	-
12	VCC3V3_EDP (3.3V Output)	3.3V	32	HUB_HOST20_DP1	-
13	VCC3V3_EDP (3.3V Output)	3.3V	33	GND	
14	NC		34	VCC3V3_EDP (3.3V Output)	3.3V
15	GND		35	VCC3V3_EDP (3.3V Output)	3.3V
16	GND		36	TP_EN_EDP (From PCA9555)	3.3V
17	EDP_HPD [pull up resistor 10K]	3.3V	37	I2C1_SCL_M2 [pull up resistor 2.2K]	3.3V
18	GND		38	I2C1_SDA_M2 [pull up resistor 2.2K]	3.3V
19	GND		39	TP_INT_EDP [pull up resistor 10K]	3.3V
20	GND		40	TP_RST_EDP (From PCA9555) [pull up resistor 10K]	3.3V



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