

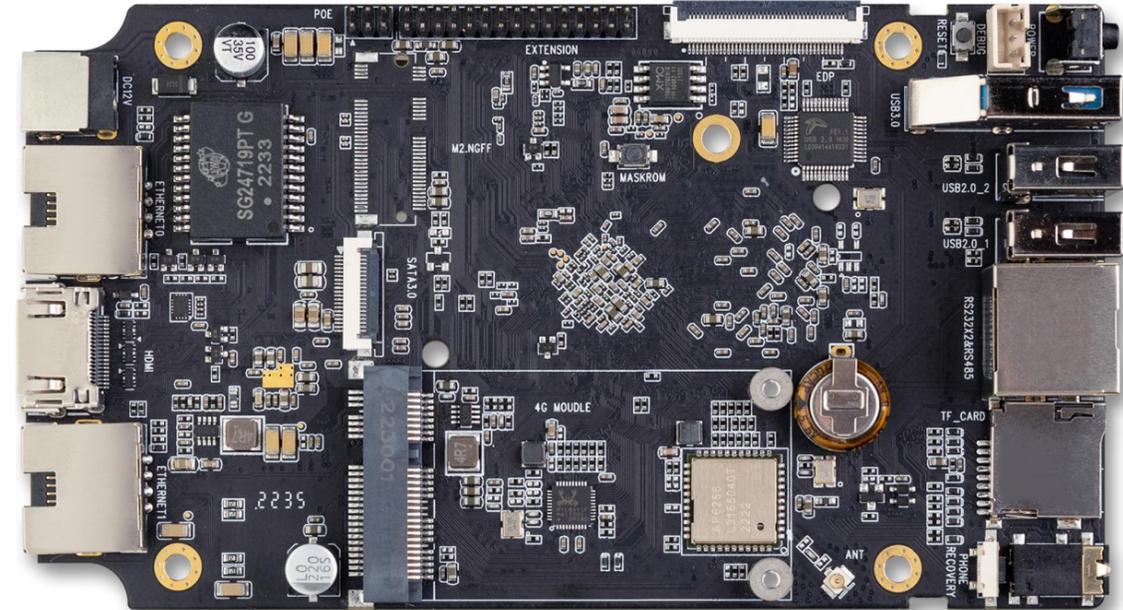


# ROC-RK3568-PC SE

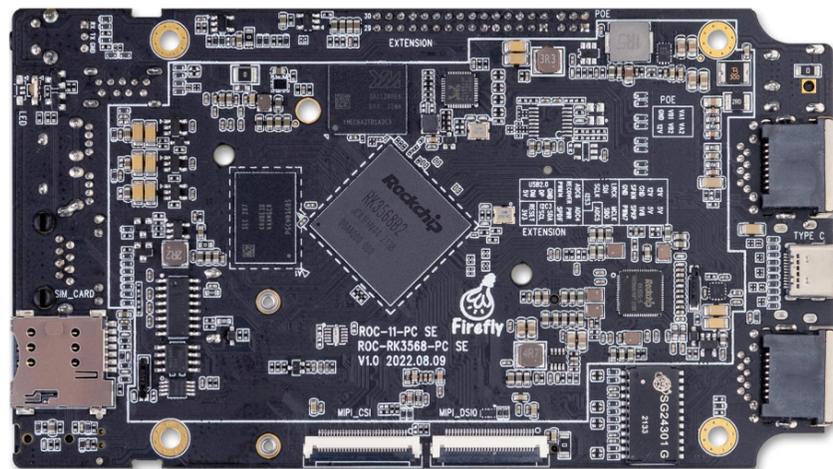
Quad-Core 64-Bit Mini Computer

T-CHIP INTELLIGENCE TECHNOLOGY

V1.0



# Product features



## Quad-core 64-bit processor

Quad-core 64bit Cortex-A55 processor  
22nm lithography process  
up to 2.0GHz



## 8GB large RAM

Up to 8GB RAM,  
frequency up to 1600MHz



## GPU/VPU/NPU

OpenGL ES3.2/2.0, Vulkan1.1  
4K@60fps H.265/VP9 video decoding  
1080P@100fps H.265 video encoding  
1TOPS NPU



## Dual Gigabit Ethernet

Dual 1000Mbps (RJ45)  
2.4G/5G Dual-band WiFi, BT5.0  
4G LTE module can be expanded.



## Operating systems

Android, Ubuntu, Buildroot  
It enables stable operation and  
customization for industries.



## A variety of interfaces

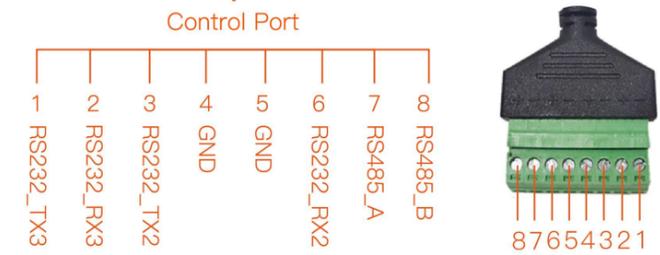
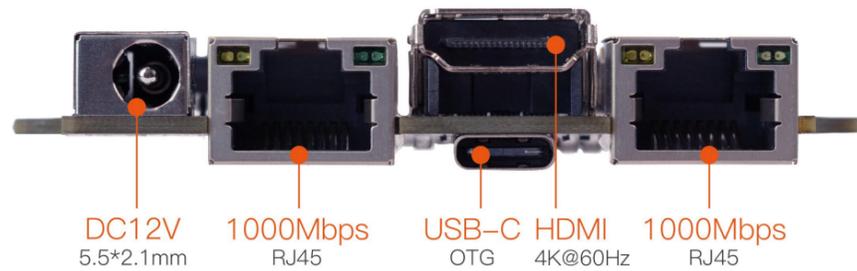
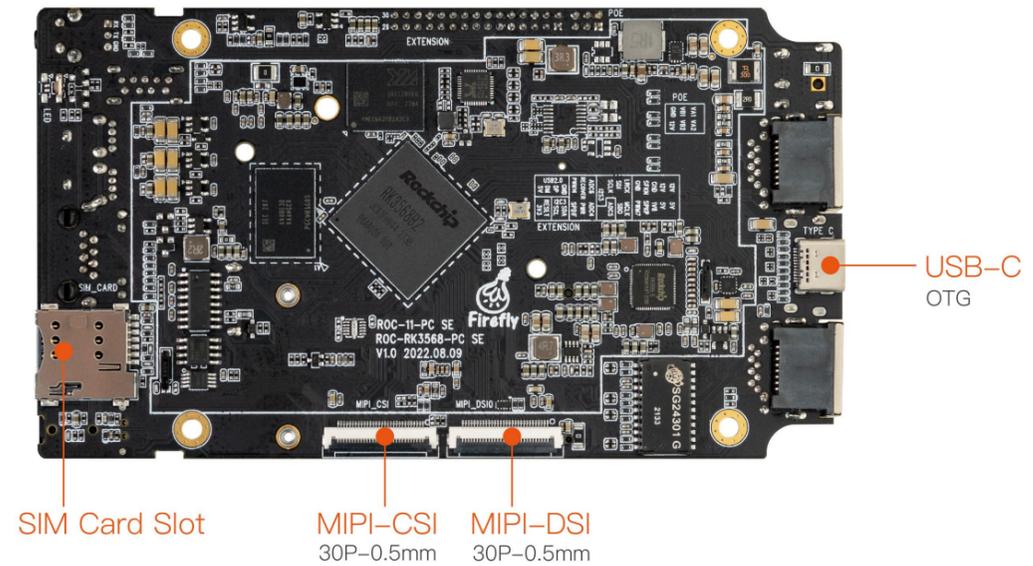
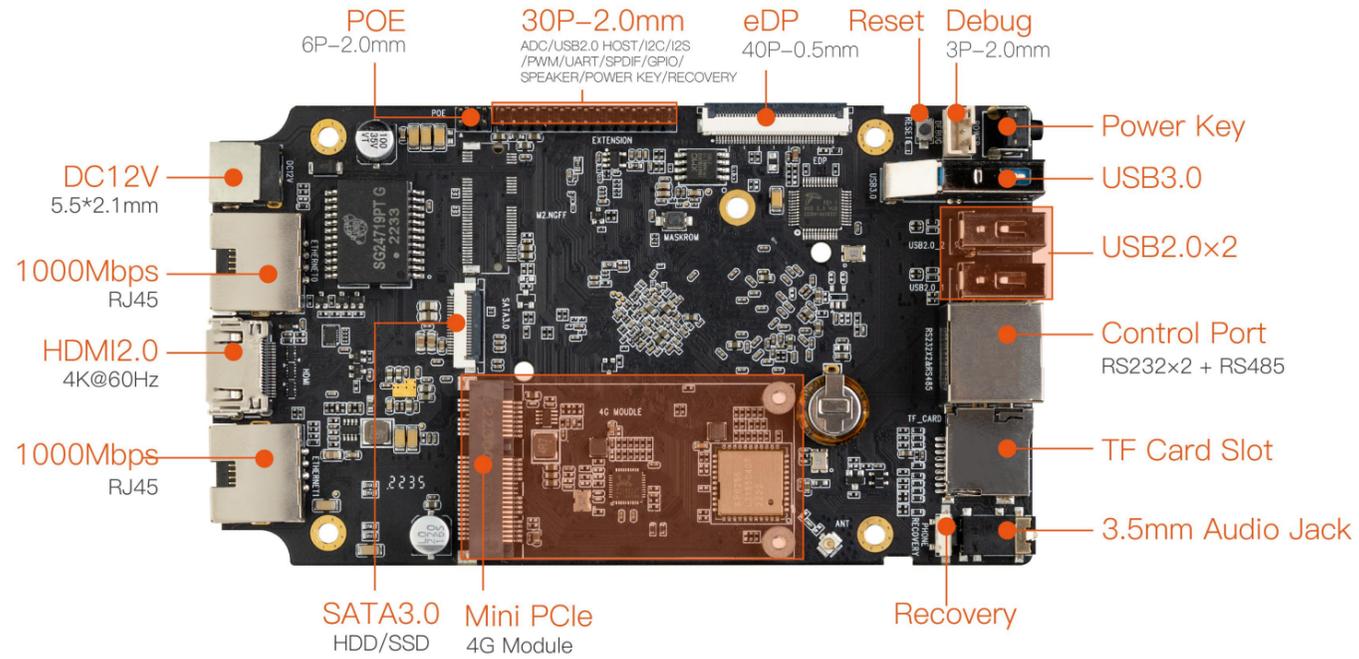
Control Port (RS232 x2, RS485x1)  
HDMI2.0, GE (RJ45), USB3.0, USB2.0  
USB-C (OTG)

# Specifications

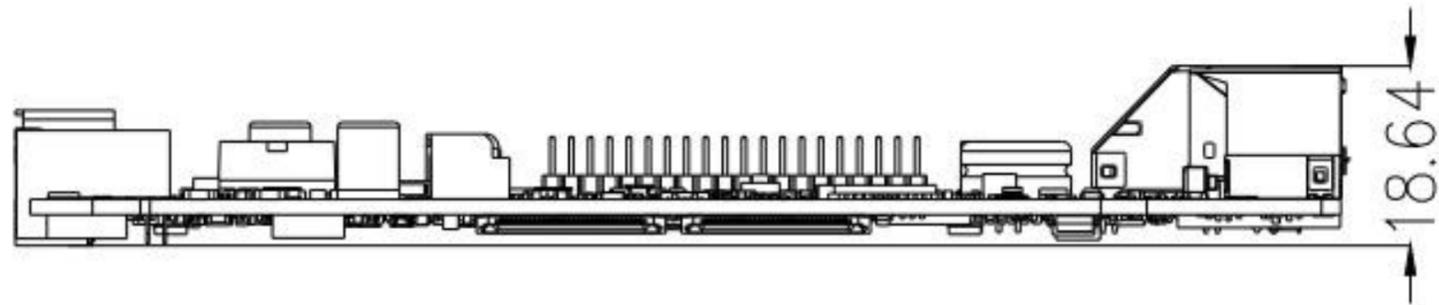
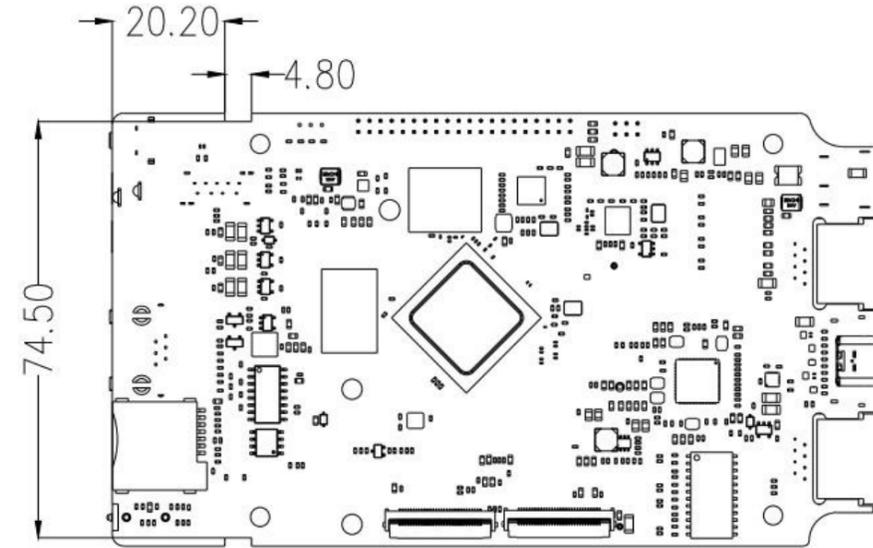
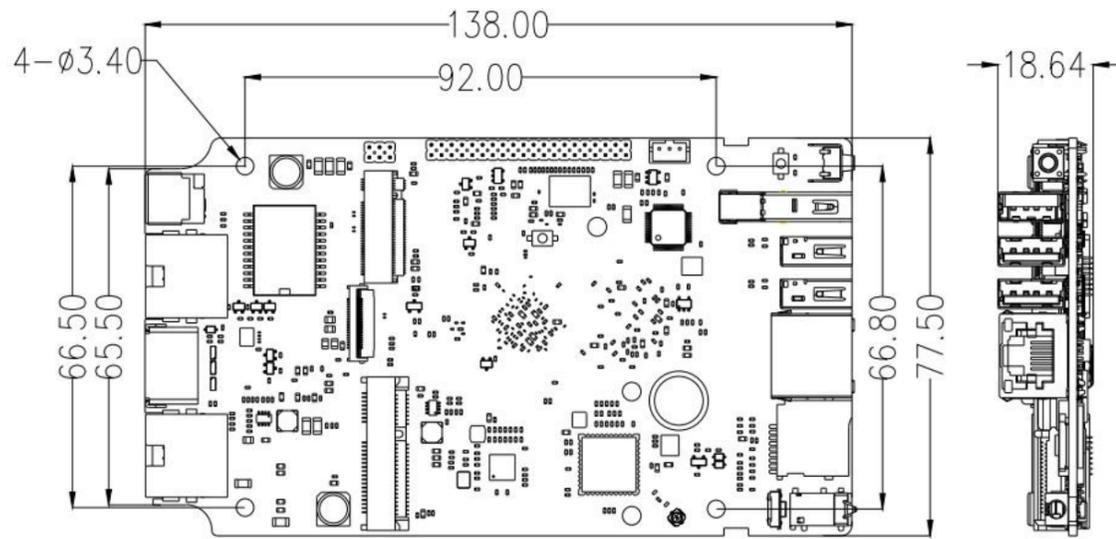


Specifications	
SOC	RK3568
CPU	Quad-core 64-bit Cortex-A55 processor, 22nm lithography process, frequency up to 2.0GHz
GPU	ARM G52 2EE, Support OpenGL ES 1.1/2.0/3.2, OpenCL 2.0 and Vulkan 1.1, Built-in high-performance 2D acceleration hardware
NPU	1Tops@INT8 RKNN NPU AI accelerator, Support one-click switching of Caffe/TensorFlow/TFLite/ONNX/PyTorch/Keras/Darknet
VPU	4K@60fps H.265/H.264/VP9 video decoding,1080P@60fps H.265/H.264 video encoding
RAM	2GB/4GB/8GB LPDDR4
Storage	16GB/32GB/64GB/128GB eMMC , 16MB SPI Flash
Storage Expansion	1*SATA 3.0 (2.5inch, 7mm thickness SSD/HDD) ,1*TF Card Slot
Ethernet	2*1000Mbps (RJ45)
Wireless	2.4G/5GHz Dual-band WiFi, 802.11 a/b/g/n/ac、Bluetooth 5.0, 4G LTE network communication can be expanded.
Video output	1 × HDMI2.0 (4K@60Hz) , 1× MIPI DSI (1920*1080@60fps or Dual channel 1×MIPI DSI 2560*1440@60fps) , 1 × eDP1.3 (2560x1600@60fps) , * Support up to three-screen output with different displays
Camera	1 × MIPI-CSI, Support HDR function
Audio	1 × HDMI audio output,1 × Speaker output (1.3W/8Ω, located in PH2.0-30P),1 × Phone headphone jack (3.5mm), 1 × SPDIF (located in PH2.0-30P)
USB	1*USB3.0 (Max:1A)、 2*USB2.0 (Max:500mA)、 1*USB-C (USB2.0 OTG)
Extended Interface	1 × RJ45 Control Port (1×RS485 + 2×RS232) , 1 × PH2.0-30P (PWM、GPIO、I2S、I2C、UART、SPDIF) , 1 × PH2.0-6P (POE)
Power	DC 12V (5.5*2.1mm, voltage tolerance±5%)
OS	Android 11.0 、 Ubuntu 18.04、 Buildroot +QT、 Station OS
Dimension	138.0 mm × 77.5 mm × 19.9 mm
Power Consumption	Idle: 0.3W, Typical: 4.2W, Max: 7.8W
Environment	Operating Temperature: -20°C- 60°C, Storage Temperature: -20°C- 70°C, Storage Humidity: 10% ~ 80 %

# Interface description



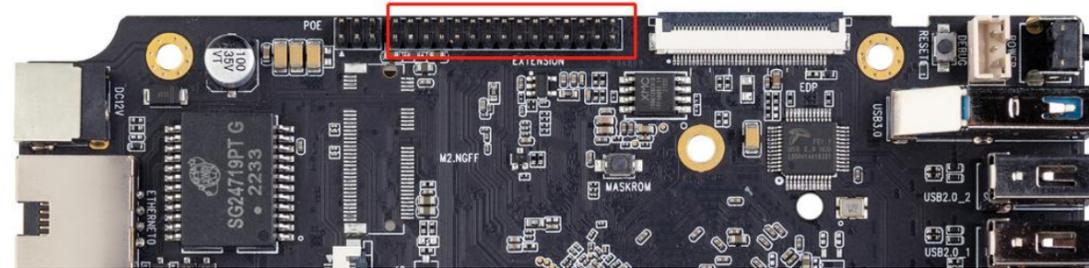
# Dimension



# Interface definition

Note: ( ) indicates that this pin has other functions besides the default one.

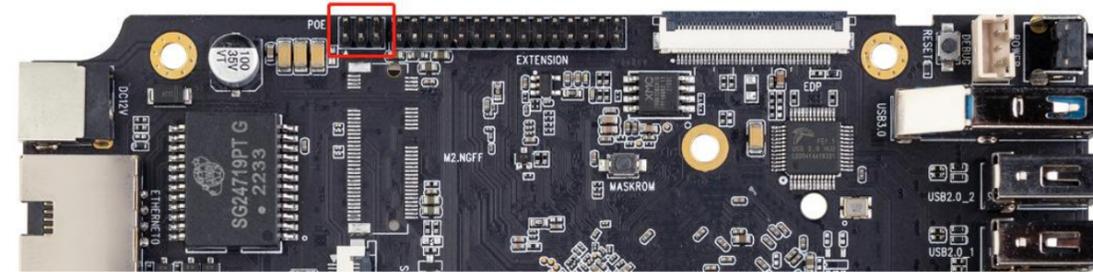
## 1. (J4) Two-row (15X2) 30 PIN 2.0mm header



NO.	Definition	Electrical Level/V	NO.	Definition	Electrical Level/V
1	5.0V Output (Total Max:1.0A)	5.0V	2	12V Input/ Output (Total Max:1.0A)	12.0V
3	5.0V Output (Total Max:1.0A)	5.0V	4	12V Input/ Output (Total Max:1.0A)	12.0V
5	1.8V Output,(Max:500mA)	1.8V	6	GND	
7	Speaker+ Output	5.0V	8	Speaker- Output	5.0V
9	PWM7/GPIO0_C6_d	3.3V	10	GND	
11	I2S3_MCLK_M1 (GPIO4_C2_d)	3.3V	12	I2S3_LRCK_M1 (GPIO4_C4_d)	3.3V
13	I2S3_SDO_M1 (GPIO4_C5_d)	3.3V	14	I2S3_SDI_M1 (GPIO4_C6_d)	3.3V
15	ADC5 Input	1.8V	16	I2S3_SCLK_M1 (GPIO4_C3_d)	3.3V
17	ADC4 Input pull up resistance 10K	1.8V	18	ADC6 Input pull up resistance 10K	1.8V
19	ADC5 Input pull up resistance 10K	1.8V	20	ADC0 Input /RECOVERY_KEY pull up resistance 10K	1.8V
21	UART7_RX_M1 (GPIO3_C5_d)	3.3V	22	UART7_TX_M1 (GPIO3_C4_d)	3.3V
23	I2C3_SDA_M0 (GPIO1_A0_u) pull up resistance 10K	3.3V	24	GND	
25	I2C3_SCL_M0 (GPIO1_A1_u) pull up resistance 10K	3.3V	26	HUB_HOST_DP2	-
27	RESET_KEY Input	3.3V	28	HUB_HOST_DM2	-
29	3.3V Output ,(Max:500mA)	3.3V	30	VCC5V0_HOST_OUTPUT (1A)	5.0V

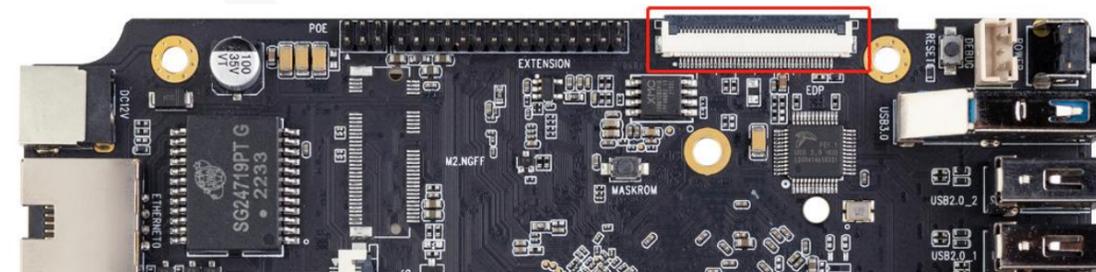
# Interface definition

## 2. (J5) Two-row (3X2) 6 PIN 2.0mm header



NO.	Definition	Electrical Level/V	NO.	Definition	Electrical Level/V
1	POW_VA2 (Transformer output A connects to the external POE module input A)	44~57V	2	POW_VA1 (Transformer output A connects to the external POE module input A)	44~57V
3	POW_VB2 (Transformer output B connects to the external POE module input B)	44~57V	4	POW_VB1 (Transformer output B connects to the external POE module input B)	44~57V
5	VCC12V_DCIN 1) 12V output is available when you use DC power supply. 2) 12V input is available when you use external POE module (DC is not connected).	12.0V	6	GND	

## 3. (J7) EDP Interface 40 PIN 0.5mm



NO.	Definition	Electrical Level/V	NO.	Definition	Electrical
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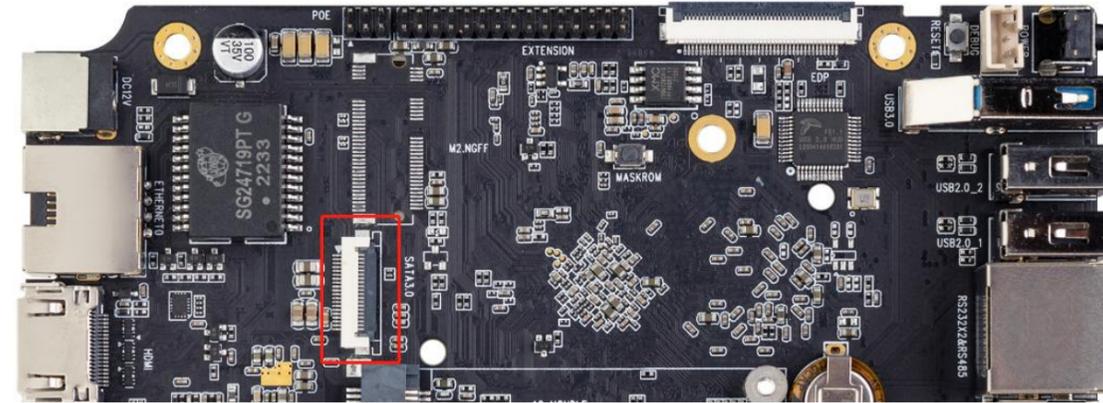


# Interface definition

					Level/V
1	NC		21	GND	
2	GND		22	EDP_BL_EN	3.3V
3	EDP_TX_D1N	-	23	EDP_BL_PWM14_M0	3.3V
4	EDP_TX_D1P	-	24	NC	
5	GND		25	NC	
6	EDP_TX_D0N	-	26	VCC_EDP (12V Output)	12V
7	EDP_TX_D0P	-	27	VCC_EDP (12V Output)	12V
8	GND		28	VCC_EDP (12V Output)	12V
9	EDP_AUXP	-	29	VCC_EDP (12V Output)	12V
10	EDP_AUXN	-	30	NC	
11	GND		31	HUB_HOST_DM4	-
12	VCC3V3_EDP (3.3V Output)	3.3V	32	HUB_HOST_DP4	-
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/GPIO3_B6_d	3.3V
17	EDP_HPD Input	3.3V	37	I2C1_SCL_TP pull up resistance 2.2K	3.3V
18	GND		38	I2C1_SDA_TP pull up resistance 2.2K	3.3V
19	GND		39	TP_INT/GPIO2_D7_d	3.3V
20	GND		40	TP_RST/GPIO3_A4_d	3.3V

# Interface definition

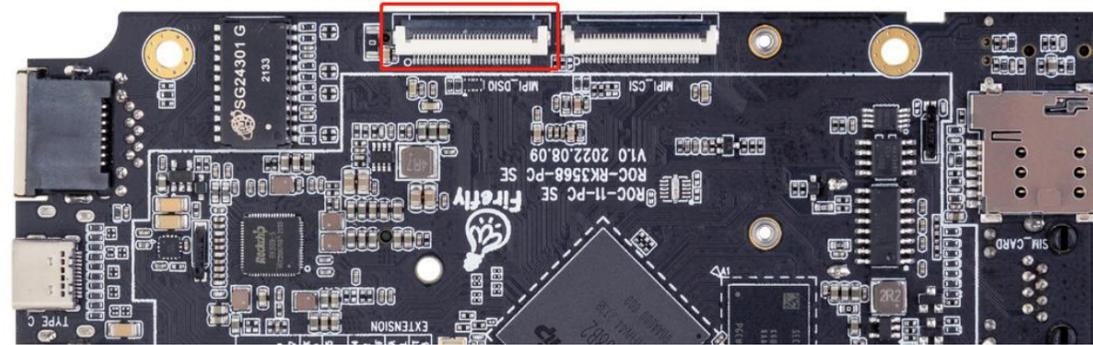
## 4. (J2) STAT3.0\_Interface 20 PIN 0.5mm pitch



NO.	Definition	Electrical Level/V	NO.	Definition	Electrical Level/V
1	GND		11	5V Output	5V
2	SATA2_TXP 【series capacitance 10nF】	-	12	5V Output	5V
3	SATA2_TXN 【series capacitance 10nF】	-	13	5V Output	5V
4	GND		14	5V Output	5V
5	SATA2_RXN 【series capacitance 10nF】	-	15	GND	
6	SATA2_RXP 【series capacitance 10nF】	-	16	GND	
7	GND		17	GND	
8	SATA2_LED (EDP_HPDIN_M0/SPDIF_TX_M2/SATA2_ACT_LED/PCIE)	3.3V	18	12V Output	12V
9	GND		19	12V Output	12V
10	GND		20	12V Output	12V

# Interface definition

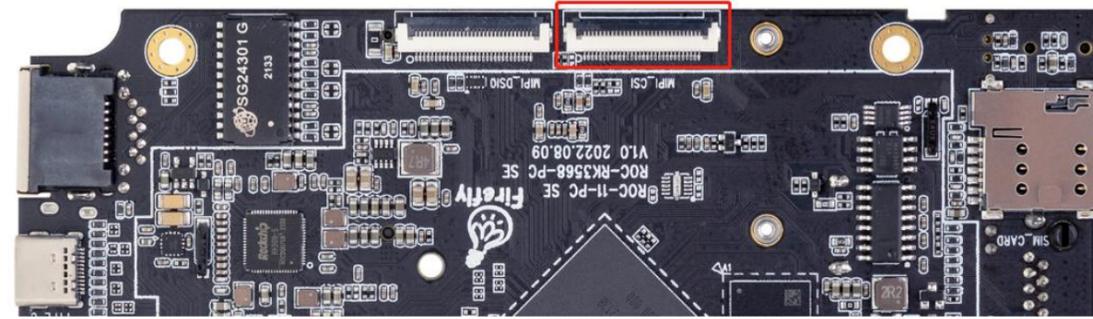
## 5. (J5200) MIPI\_Display\_Interface 30 PIN 0.5mm pitch



NO.	Definition	Electrical Level/V	NO.	Definition	Electrical Level/V
1	VCC5V0_SYS (5V Output)	5.0V	16	MIPI_DSI_TX0_D0P/LVDS_TX0_D0P	-
2	VCC5V0_SYS (5V Output)	5.0V	17	MIPI_DSI_TX0_D0N/LVDS_TX0_D0N	-
3	VCC5V0_SYS (5V Output)	5.0V	18	GND	
4	GND		19	MIPI_DSI_TX0_D1P/LVDS_TX0_D1P	-
5	NC		20	MIPI_DSI_TX0_D1N/LVDS_TX0_D1N	-
6	VCC3V3_S (3.3V Output)	3.3V	21	GND	
7	I2C1_SDA_TP [pull up resistance2.2K]	3.3V	22	MIPI_DSI_TX0_CLKP/LVDS_TX0_CLKP	-
8	I2C1_SCL_TP [pull up resistance2.2K]	3.3V	23	MIPI_DSI_TX0_CLKN/LVDS_TX0_CLKN	-
9	LCD0_PWREN_H(GPIO0_C7_d)	3.3V	24	GND	
10	TP_INT_L (GPIO0_B5_u)	3.3V	25	MIPI_DSI_TX0_D2P/LVDS_TX0_D2P	-
11	BL_EN0 (GPIO3_B0_d)	3.3V	26	MIPI_DSI_TX0_D2N/LVDS_TX0_D2N	-
12	LCD0_BL_PWM4 (GPIO0_C3_d)	3.3V	27	GND	
13	LCD0_RST (GPIO3_B5_d)	3.3V	28	MIPI_DSI_TX0_D3P/LVDS_TX0_D3P	-
14	TP_RST_L (GPIO0_B6_u)	3.3V	29	MIPI_DSI_TX0_D3N/LVDS_TX0_D3N	-
15	GND		30	GND	

# Interface definition

## 6. (J14) MIPI CAMERA 30 PIN 0.5 pitch



NO.	Definition	Electrical Level/V	NO.	Definition	Electrical Level/V
1	I2C4_SDA_M0	1.8V	16	GND	
2	I2C4_SCL_M0	1.8V	17	MIPI_CSI_RX_CLKOP	-
3	MIPI_PDNO_CAM (GPIO4_B4)	1.8V	18	MIPI_CSI_RX_CLKON	-
4	CAM_RST (GPIO0_D5)	1.8V	19	GND	
5	GND		20	MIPI_CSI_RX_D2P	-
6	CIF_CLKOUT (GPIO4_C0)	1.8V	21	MIPI_CSI_RX_D2N	-
7	MIPI_PDN1_CAM (GPIO4_B5)	1.8V	22	GND	
8	MIPI_RESET1_CAM (GPIO0_D6)	1.8V	23	MIPI_CSI_RX_D3P	-
9	MIPI_MCLK1 (GPIO0_A0)	1.8V	24	MIPI_CSI_RX_D3N	-
10	GND		25	GND	
11	MIPI_CSI_RX_D0P	-	26	MIPI_CSI_RX_CLK1P	-
12	MIPI_CSI_RX_D0N	-	27	MIPI_CSI_RX_CLK1N	-
13	GND		28	GND	
14	MIPI_CSI_RX_D1P	-	29	VCC5V0_SYS (5V Output)	5.0V
15	MIPI_CSI_RX_D1N	-	30	VCC5V0_SYS (5V Output)	5.0V



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