

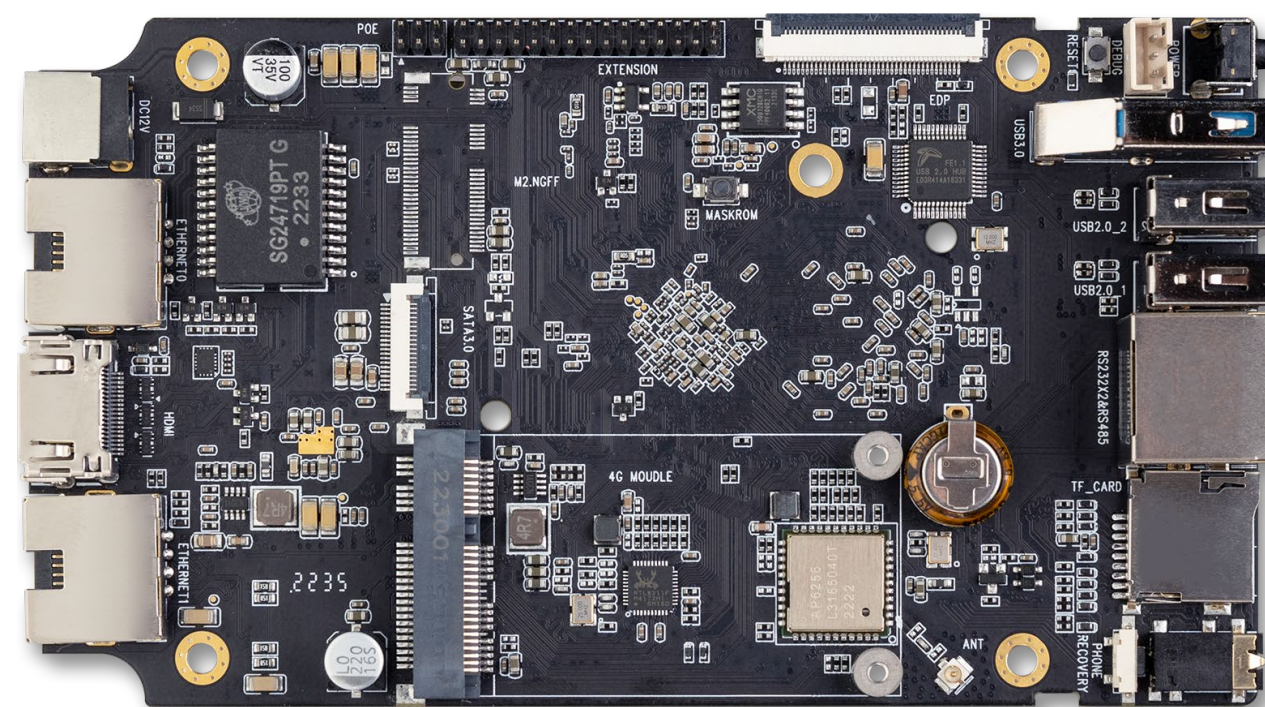


ROC-RK3568-PC SE

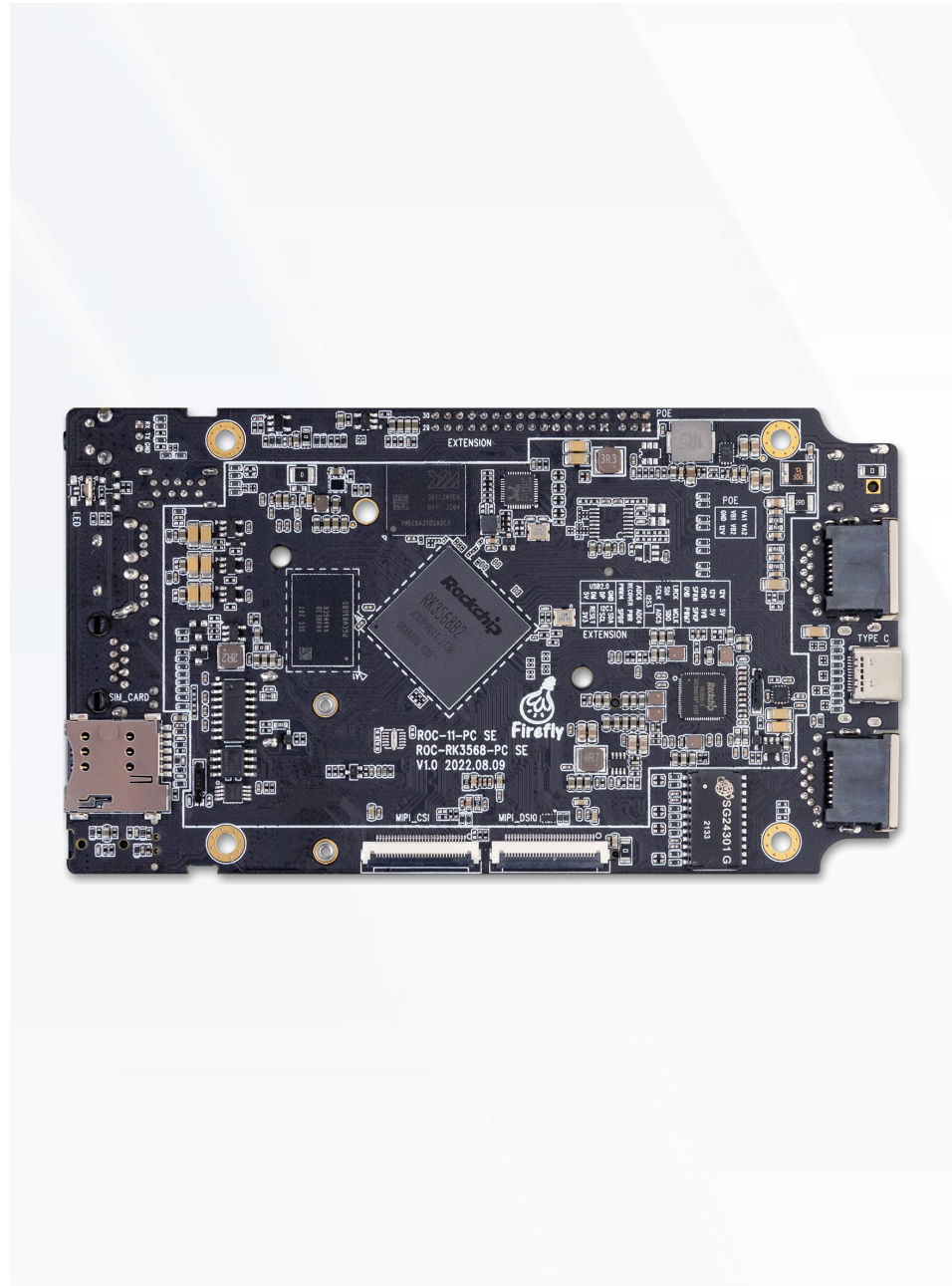
Quad-Core 64-Bit Mini Computer

V1.0 2024-12-5

T-CHIP INTELLIGENCE TECHNOLOGY

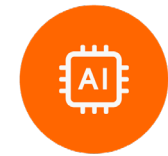


Product features



Quad-core 64-bit RK3568

Quad-core 64-bit Cortex-A55 processor RK3568, 22nm lithography process, up to 2.0GHz



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



Operating systems

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



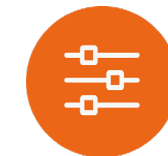
UP to 8GB large RAM

Up to 8GB RAM, frequency up to 1600MHz, make your data more secure and secure



Dual Gigabit Ethernet

Dual 1000Mbps(RJ45)
2.4G/5G dual-band WiFi
Bluetooth5.0
4G LTE module can be expanded



A variety of interfaces

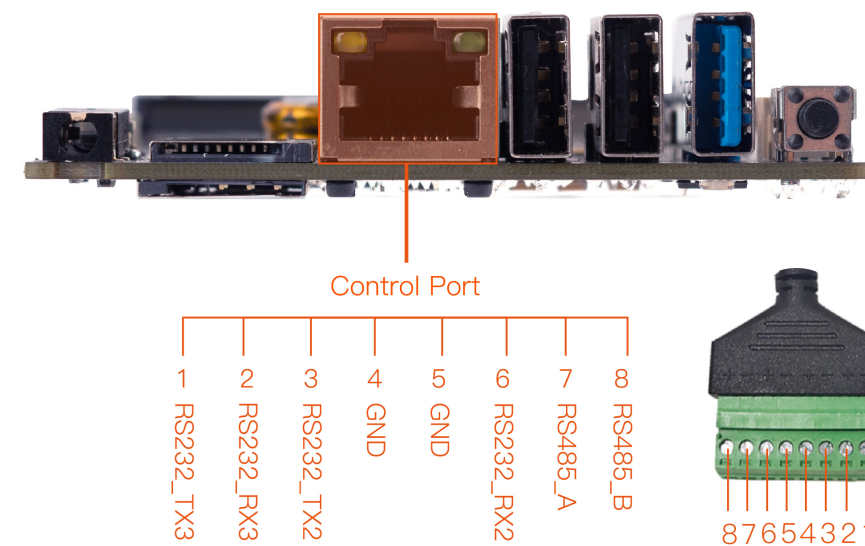
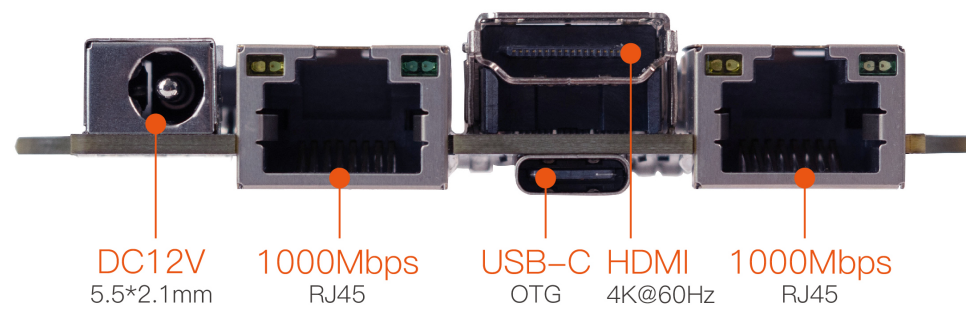
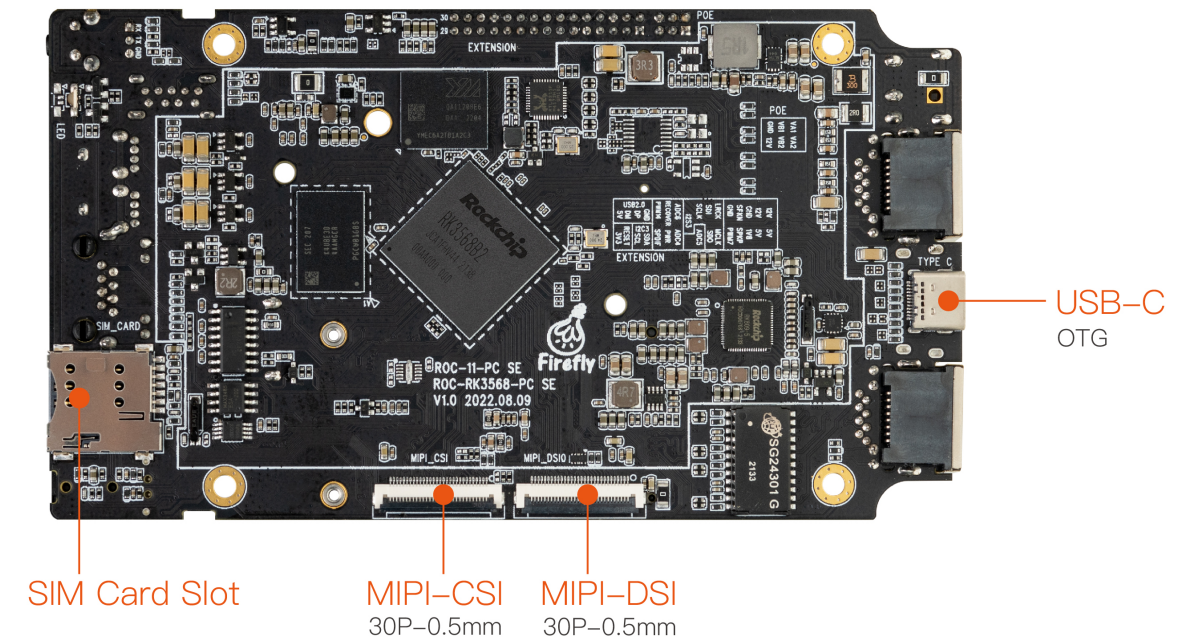
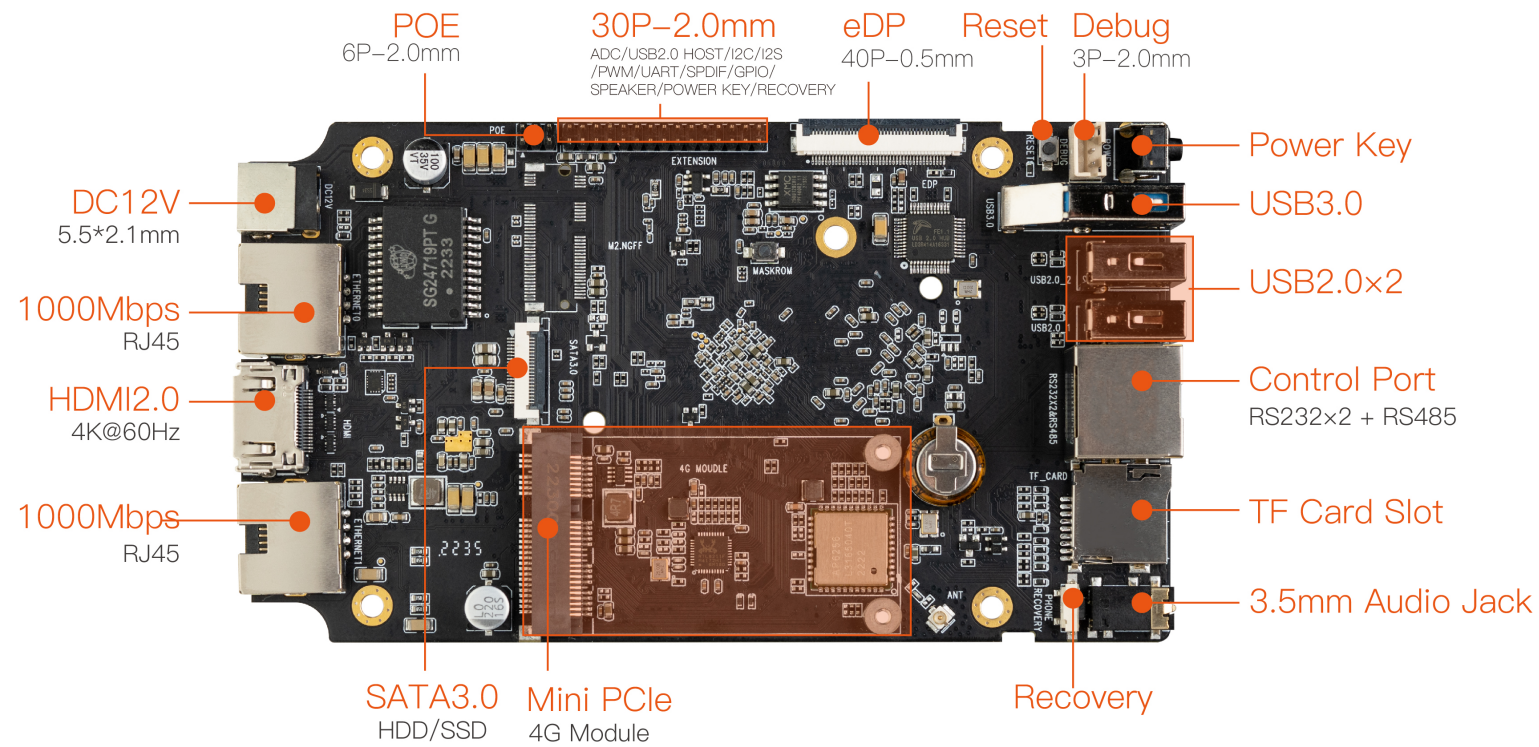
Control Port (RS232×2, RS485×1),
HDMI2.0, GE (RJ45), USB3.0,
USB2.0, USB-C (OTG)

Specifications

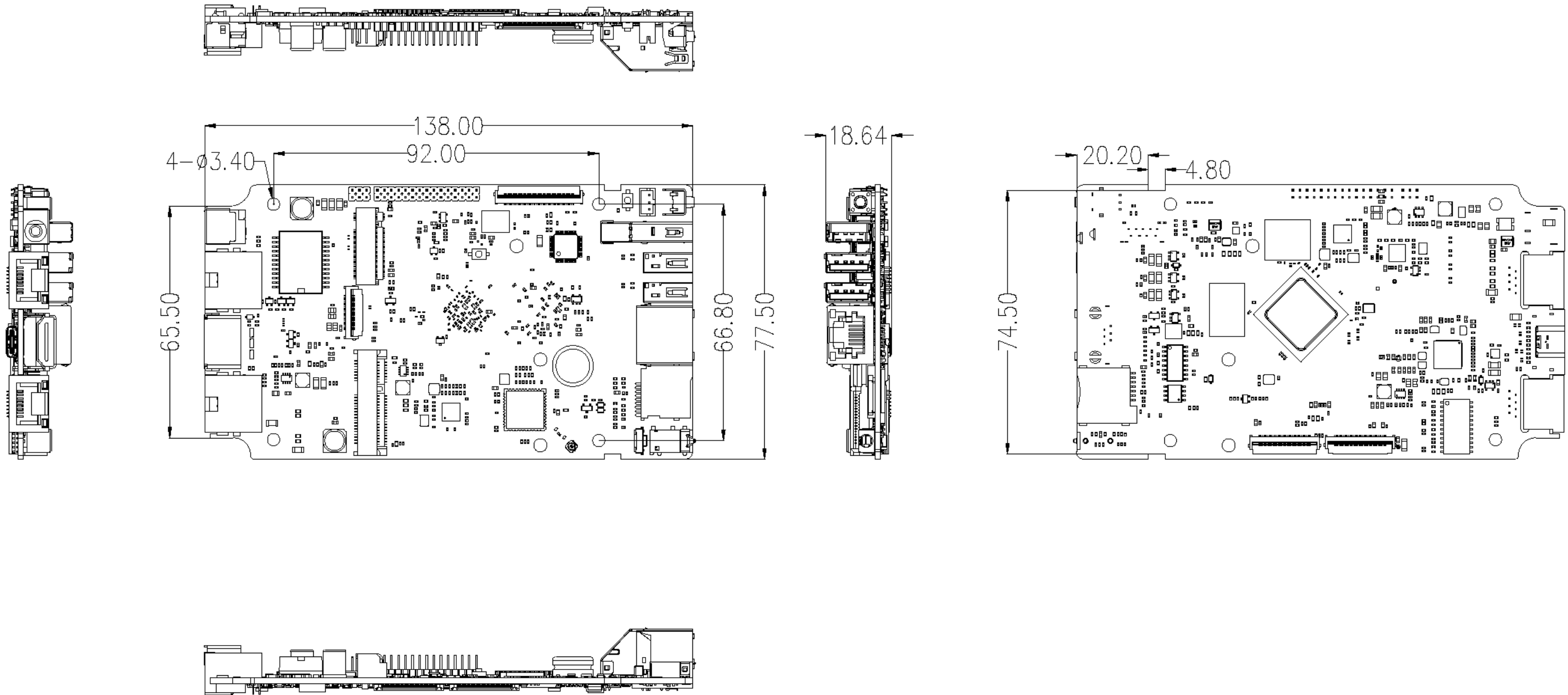


Specifications		
Basic Specifications	SOC	RK3568
	CPU	Quad-core 64-bit Cortex-A55 processor, 22nm lithography process, frequency up to 2.0GHz
	GPU	ARM G52 2EE, Support OpenGL ES 1.1/2.0/3.2, OpenCL 2.0 and Vulkan 1.1, built-in high-performance 2D acceleration hardware
	NPU	1TOPS@INT8, support RKNN NPU AI accelerator, and 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
	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	Min: 0.3W(12V/25mA), Normal: 4.2W(12V/350mA), Max: 7.8W(12V/650mA)
	Environment	Operating Temperature: -20°C ~ 60°C, Storage Temperature: -20°C ~ 70°C, Storage Humidity: 10% ~ 90%RH(non-condensing)
Interface Specifications	Ethernet	2 × 1000Mbps(RJ45)
	Wireless	2.4GHz/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)

Interface description



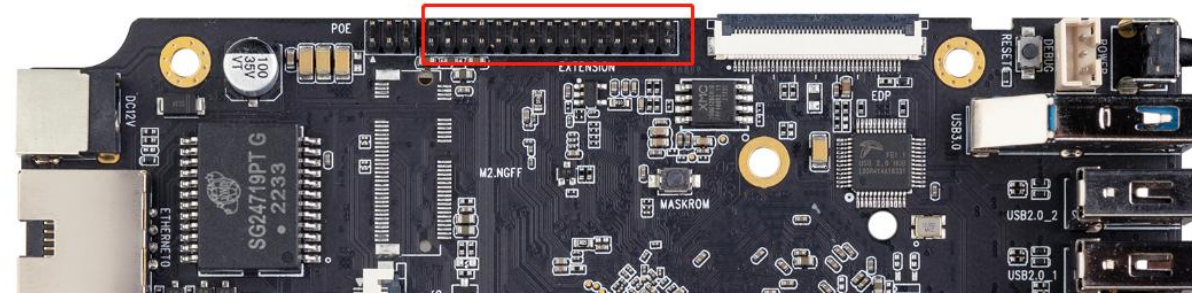
Dimension



Interface definition

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

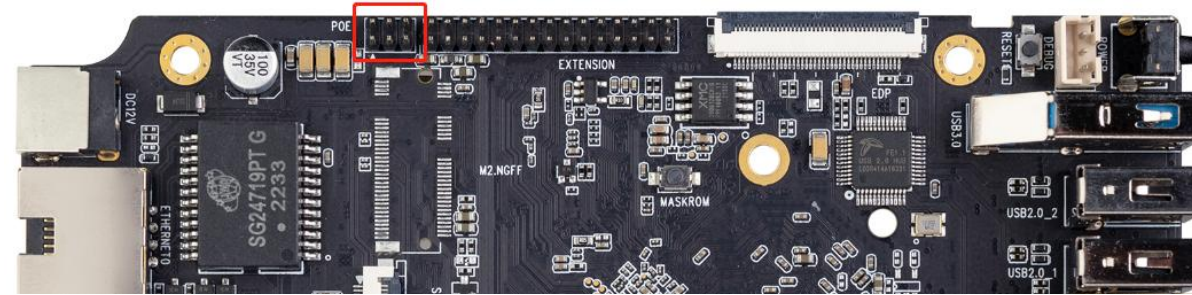
1. (J4) Two-row (15X2) 30 PIN 2.0mm header



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

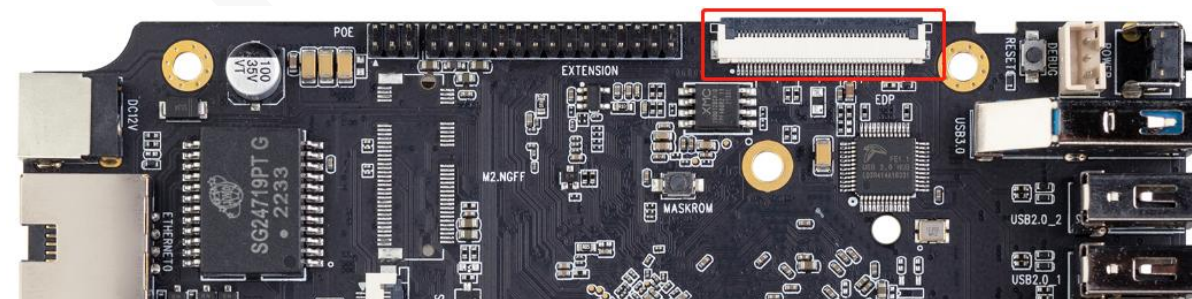
Interface definition

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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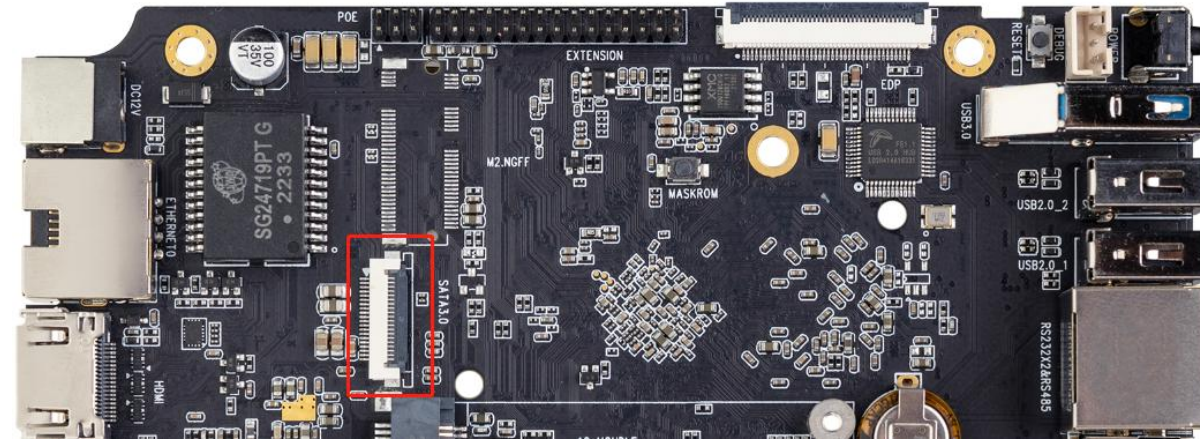
Interface definition

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

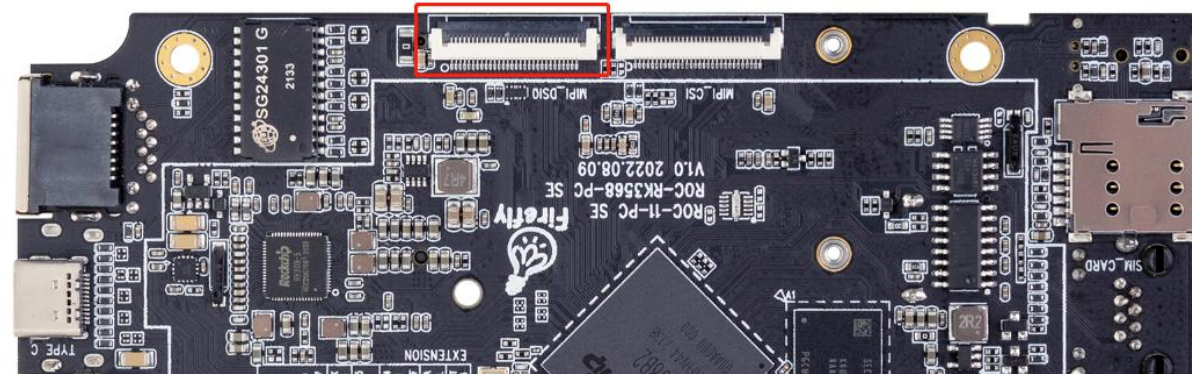


NO.	Definition	Electrical Level/V	NO.	Definition	Electrical Level/V
1	GND		11	5V Output	5V
2	SATA2_TXP 【series capacitance 10nF】	-	12	5V Output	5V
3	SATA2_TXN 【series capacitance 10nF】	-	13	5V Output	5V
4	GND		14	5V Output	5V
5	SATA2_RXN 【series capacitance 10nF】	-	15	GND	
6	SATA2_RXP 【series capacitance 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

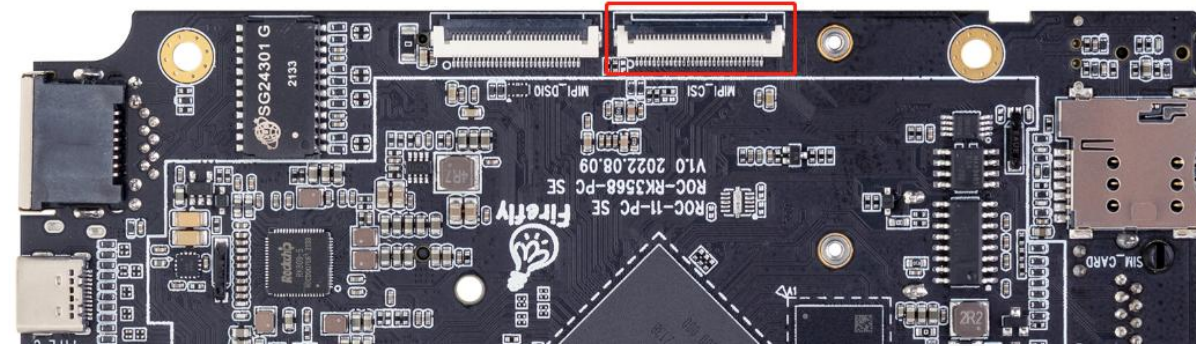


NO.	Definition	Electrical Level/V	NO.	Definition	Electrical Level/V
1	VCC5V0_SYS (5V Output)	5.0V	16	MIPI_DSI_TX0_D0P/LVDS_TX0_D0P	-
2	VCC5V0_SYS (5V Output)	5.0V	17	MIPI_DSI_TX0_D0N/LVDS_TX0_D0N	-
3	VCC5V0_SYS (5V Output)	5.0V	18	GND	
4	GND		19	MIPI_DSI_TX0_D1P/LVDS_TX0_D1P	-
5	NC		20	MIPI_DSI_TX0_D1N/LVDS_TX0_D1N	-
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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