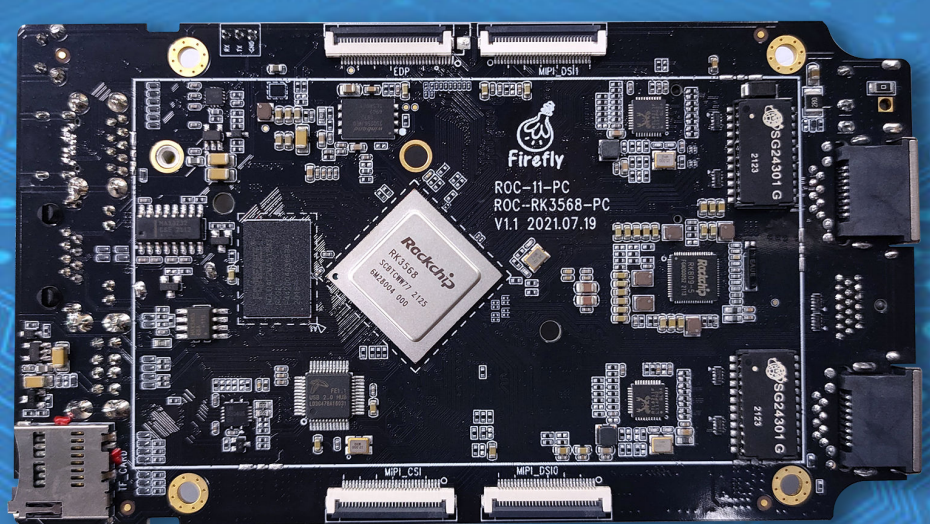
ROC-RK3568-PC

Quad-core high-performance mainboard

V1.1



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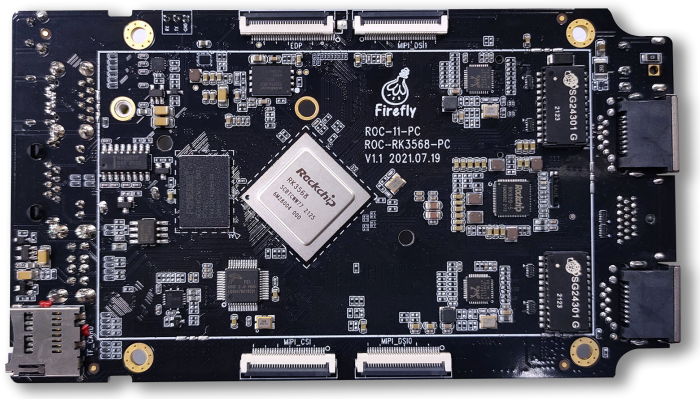
Update history

Version	Date	Details
V1.0	2021-05-12	Original Version
V1.1	2022-01-06	Interface Definition update

Directory

Overview

The mini computer supports 8G large RAM. M.2 and SATA3.0 interfaces enables expansion with large hard drives. Providing dual Gigabit Ethernet ports, it supports WiFi 6 wireless transmission. Control Port can be connected with RS485/RS232 devices. Various systems and boot ways are supported — with the dedicated application programs and forums, geek fun is endless.



1.RK3568 quad-core 64-bit processor

RK3568 quad-core 64-bit Cortex-A55 processor, with brand new ARM v8.2-A architecture, has frequency up to 2.0GHz — the efficiency is greatly improved. With 22nm lithography process, it features low power consumption and high performance.

2.8GB large RAM

It supports up to 8GB RAM, meeting the requirements of running large-memory products application.

3.Integrated co-processors

It is integrated with dual-core GPU, high-performance VPU and high-efficiency NPU. The GPU supports OpenGL ES3.2/2.0/1.1, Vulkan1.1. The VPU can achieve 4K 60fps H.265/H.264/VP9 video decoding and 1080P 60fps H.265/ H.264 video encoding. The NPU supports one-click switching of mainstream frameworks like Caffe/TensorFlow.

4.Various display interfaces

With MIPI-CSI x2, MIPI-DSI ×2, HDMI2.0, EDP video interfaces, it can support up to three screen output with different display. The built-in 8M ISP supports dual cameras and HDR. Video input interface can be connected to an external camera or multiple cameras.

5.Dual Gigabit Ethernet ports

The dual adaptive RJ45 Gigabit Ethernet ports, through which internal and external network data can be accessed and transmitted, improves the network transmission efficiency. Dual Gigabit Ethernet ports deliver better network scalability, and can be used in setting up family gigabit network, DIY gigabit router, soft router, OpenWrt, etc.

6.Powerful wireless network

WiFi 6 (802.11ax) wireless network communication is supported, with the maximum bandwidth reaches 160MHz and the highest speed reaches 9.6Gbps — the speed is greatly improved than WiFi 5. And, WiFi 6 delivers lower packet loss rate and retransmission rate, making the transmission more stable and secure.

7.Onboard M.2 and SATA3.0 interfaces

The onboard M.2 PCIe3.0 and SATA3.0 interfaces can be connected with an M.2 NVMe SSD and a 2.5-inch SATA SSD/HDD respectively, owning the advantages of high-speed reading and writing and large capacity.

8.RS485 and RS232 interface extension

The configured Control Port (RJ45) provides one RS485 and two RS232, through which you can connect to external devices with RS485/RS232 serial port to control more external devices flexibly and create more fun ways to play.

9.Configured with Geek System

Station OS (Firefly Geek System) brings you living room playing experience. Just connect the TV or display at home to build a home entertainment center to enjoy movies and games with high-definition and big-screen viewing.

10.Various systems and boot ways supported

It supports to upgrade to Android, Ubuntu, Linux+QT, Station OS and other systems, and supports to boot the system via TF card, U disk, EMMC, etc. Diverse supporting systems make entertainment, work, programming learning, creative development all easy.

11.A variety of interfaces

With RS485, RS232 x2, HDMI2.0, USB3.0, USB2.0 x2, Type-C and other interfaces, it can be directly used for external device control and expansion.

12.Abundant resources for customization

A complete SDK, development documents, examples, technology documents, tutorials and other resources are provided for the users to make a further customization.

Specifications

Basic

SOC	RK3568
CPU	Quad-core 64-bit Cortex-A55, 22nm lithography process, frequency up to 2.0GHz
GPU	ARM G52 2EE Supports OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, Vulkan 1.1 Embedded high-performance 2D acceleration hardware
NPU	0.8Tops@INT8, integrated high-performance AI accelerator RKNN NPU Supports one-click switching of Caffe/TensorFlow/TFLite/ONNX/PyTorch/Keras/Darknet
VPU	Supports 4K 60fps H.265/H.264/VP9 video decoding Supports 1080P 60fps H.265/H.264 video encoding Supports 8M ISP, supports HDR
RAM	2GB / 4GB / 8GB　LPDDR4
Storage	32GB / 64GB / 128GB eMMC
Extended storage	M.2 PCIe 3.0 NVMe SSD (2242 / 2280) SATA 3.0 SSD/HDD TF Card Slot

Hardware

Ethernet	2× RJ45 (1000 Mbps)
WiFi	2.4G/5GHz Dual-band WiFi, WiFi 6, 802.11 a/b/g/n/ac/ax Bluetooth 5.0
Display	1 × HDMI2.0, 4K@60fps 2 × MIPI DSI, 1920*1080@60fps (or dual-channel 1 × MIPI DSI 2560 *1440@60fps) 1 × eDP1.3 , 2560x1600@60fps output * Supports up to three screen output with different display
Audio	1 × HDMI audio output 1 × Speaker output (1.3W/8Ω，from Row socket) 1 × phone output 1 × SPDIF (from Row socket)
Camera	2-channel MIPI-CSI camera interface (MIPI CSI 0 / MIPI CSI 1) Supports dual cameras and HDR
USB	1 × USB3.0 (Max: 1000mA) 1 × USB-C (OTG) 2 × USB2.0 (Max :500mA)
Control Port	1 × RJ45 Control Port（1×RS485 + 2×RS232）
Interface	1 × Female header connector 1： POWER KEY×1、SPEAKER×1、RESET KEY×1、SPDIF×1、I2S×1、I2C×1、 PWM×4、SPI×1、UART×1、CAN×1、USB HOST×3 、GPIO×9 1 × Female header connector 2： ADC×4、RECOVERY×1、PWM×2、I2C×2、UART×1、CAN×2、 GPIO×6
Power	DC 12V（5.5*2.1mm），Support 9V~24V Wide voltage input

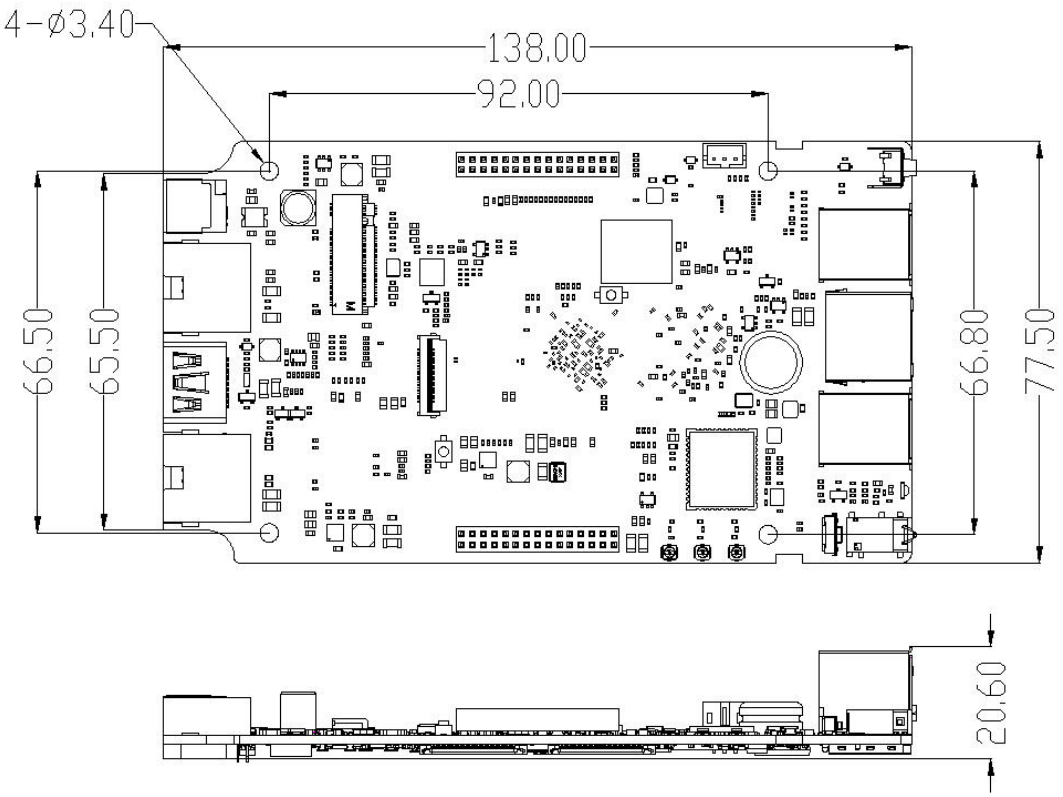
Software

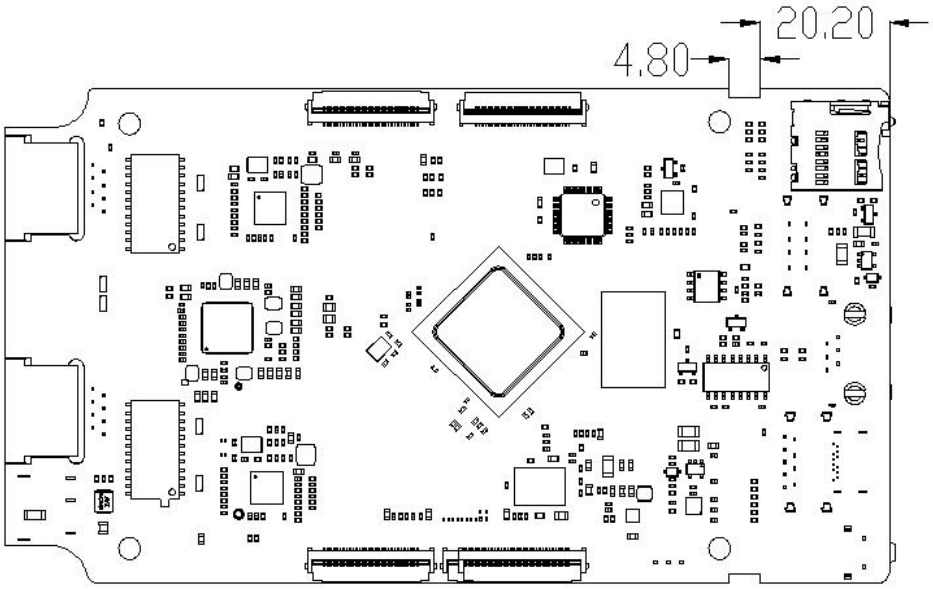
OS	Supports Android 11.0 , Ubuntu 18.04, Buildroot + QT, Station OS Supports TF card, EMMC, U disk boot up

General

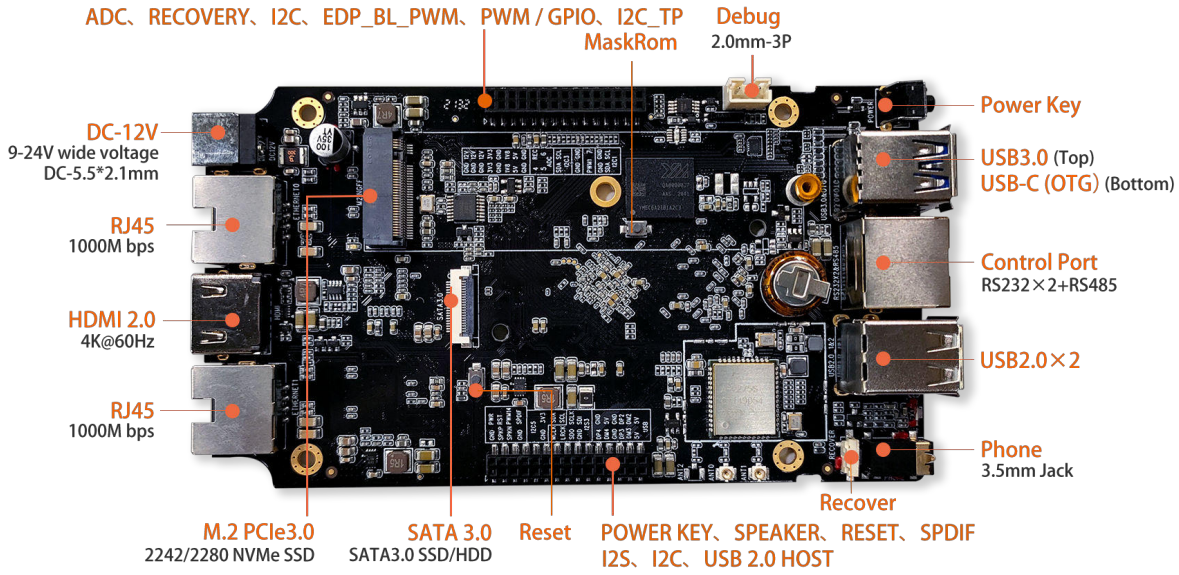
Size	138.0 mm × 77.5 mm × 19.9 mm
Power Consumption	Idle: 0.3W(12V/25mA) Normal: 4.2W(12V/350mA) Max: 7.8W(12V/650mA)
Heat Dissipation	Heat sink installation hole pitch: 52mm, matched heat sink is recommended (Click to See)
Temperature	Operating Temperature : -20℃ ~ 60℃ Storage Temperature:-20℃ ~ 70℃ Storage Humidity :10% ~ 90%RH(non-condensing)

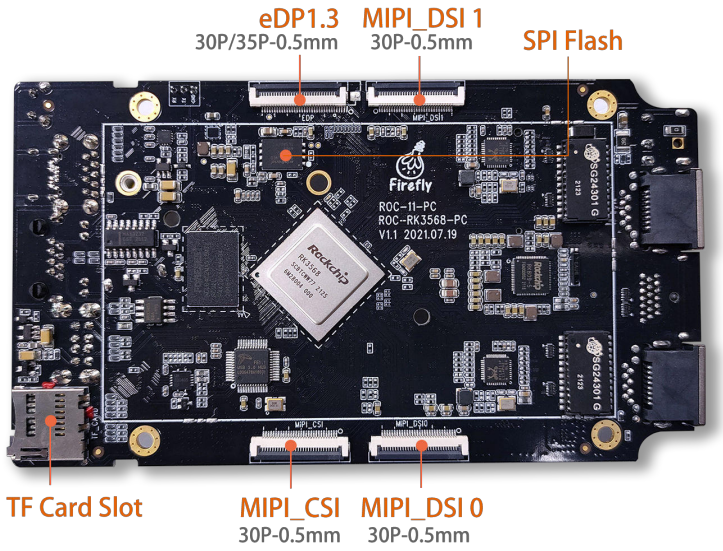
Size

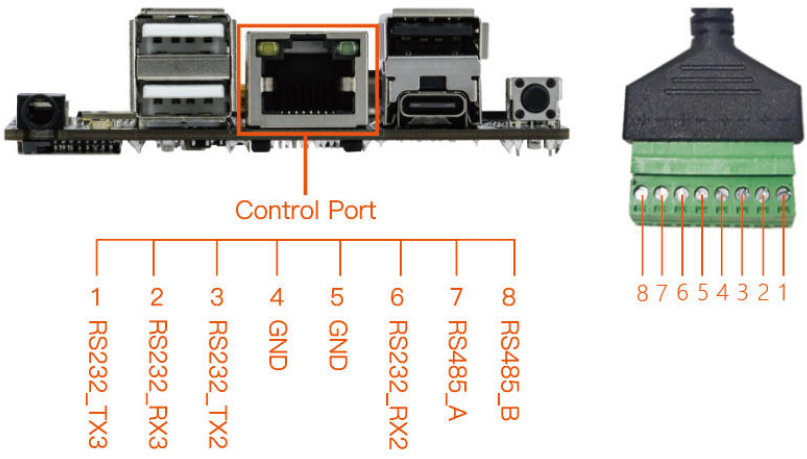




Interface description

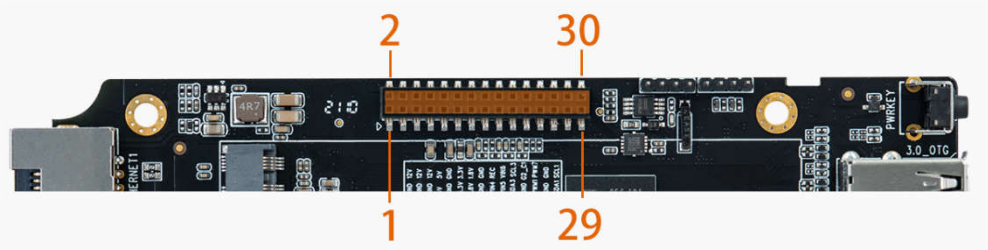






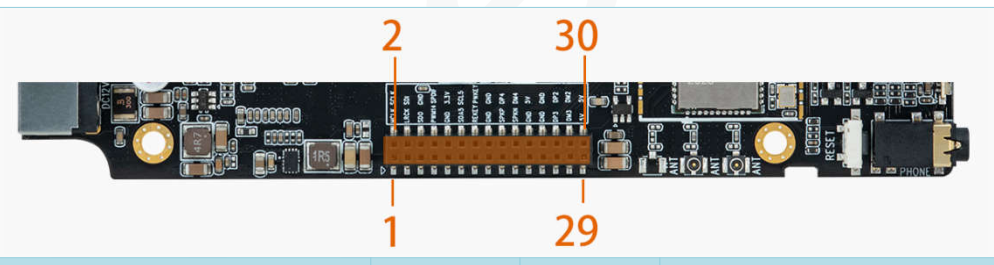
Interface Definition

1. (J5) Double row (15X2) 30 PIN 2.0mm pitch



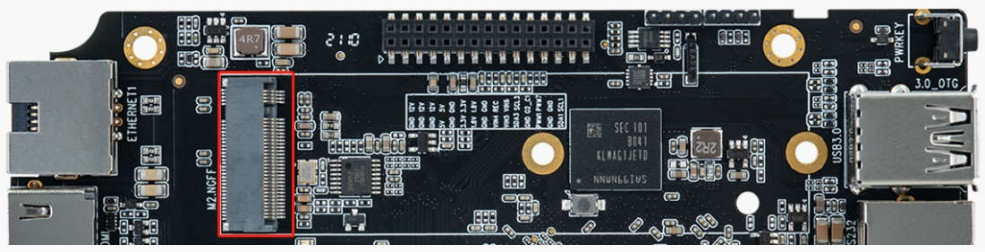
NO.	Definition	Voltage	NO.	Definition	Voltage
1	GND		2	12V Input/ Output	12
3	GND		4	12V Input/ Output	12
5	GND		6	12V Input/ Output	12
7	3.3V Output	3.3	8	3.3V Output	3.3
9	GND		10	GND	
11	1.8V Output	1.8	12	1.8V Output	1.8
13	5V Output	5.0	14	5V Output	5.0
15	GND		16	GND	
17	ADC4 Input pull up resistance 10K	1.8	18	ADC0 Input /RECOVERY_KEY pull up resistance 10K	1.8
19	ADC5 Input pull up resistance 10K	1.8	20	ADC6 Input pull up resistance 10K	1.8
21	**I2C3_SDA_M0**/UART3_RX_M0/CAN1_RX_M0/AUDIOPWM_LOUT_P/ACODEC_ADC_DATA/GPIO1_A0_u pull up resistance 2.2K	3.3	22	**I2C3_SCL_M0**/UART3_TX_M0/CAN1_TX_M0/AUDIOPWM_LOUT_N/ACODEC_ADC_CLK/GPIO1_A1_u pull up resistance 2.2K	3.3
23	GND		24	GND	
25	**PWM1_M0**/GPUAVS/UART0_RX/GPIO0_C0_d	3.3	26	**PWM7_IR**/SPI0_CS0_M0/PCIE30X2_PERSTn_M0/GPIO0_C6_d	3.3
27	GND		28	GND	
29	**I2C1_SDA_TP**/ CAN0_RX_M0/PCIE20_BUTTONRSTn/MCU_JTAG_TCK/GPIO0_B4_u pull up resistance 2.2K	3.3	30	**I2C1_SCL_TP**/CAN0_TX_M0/PCIE30X1_BUTTONRSTn/MCU_JTAG_TDO/GPIO0_B3_u pull up resistance 2.2K	3.3

2. (J6) Double row (15X2) 30 PIN 2.0mm pitch



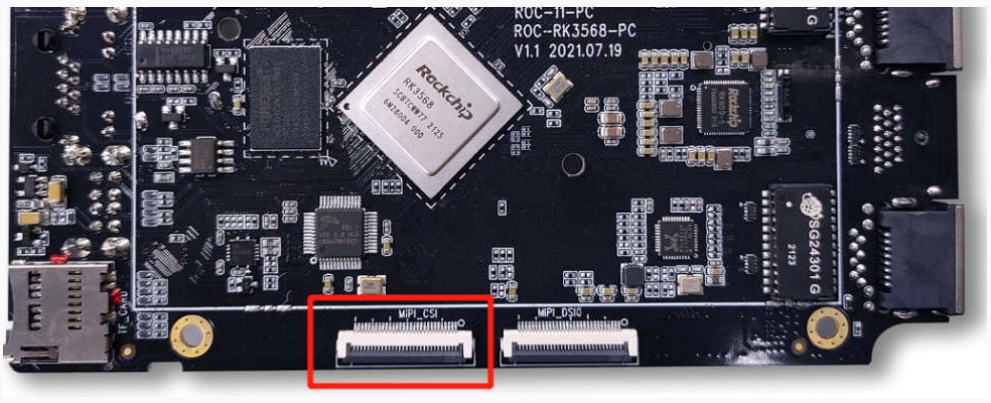
NO.	Definition	Voltage	NO.	Definition	Voltage
1	GND		2	PWRON_KEY【to RK809】	3.3
3	SPKP_OUT【speaker Output +】	5.0	4	RESET_KEY【system reset】	3.3
5	SPKN_OUT【speaker Output -】	5.0	6	**PWM14_M0**/VOP_PWM_M1/GMAC1_MDC_M0/UART7_TX_M1/PDM_CLK1_M2/GPIO3_C4_d	3.3
7	GND		8	**SPDIF_TX_M1**/PWM15_IR_M0/GMAC1_MDIO_M0/UART7_RX_M1/I2S1_LRCK_RX_M2/GPIO3_C5_d	3.3
9	GND		10	3.3V Output	3.3
11	**I2S3_MCLK_M1**/PWM14_M1/SPI3_CLK_M1/CAN1_RX_M1/PCIE30X2_CLKREQn_M2/GPIO4_C2_d	3.3	12	**I2C5_SDA_M0**/LCDC_D19/VOP_BT1120_D10/GMAC1_RXER_M0/PDM_SDI1_M2/GPIO3_B4_d pull up resistance 电阻 2.2K	3.3
13	**I2S3_LRCK_M1**/EDP_HPDIN_M0/SPDIF_TX_M2/SATA2_ACT_LED/PCIE30X2_PERSTn_M2/GPIO4_C4_d	3.3	14	**I2C5_SCL_M0**/LCDC_D18/VOP_BT1120_D9/GMAC1_RXDV_CRS_M0/PDM_SDI0_M2/GPIO3_B3_d pull up resistance 电阻 2.2K	3.3
15	**I2S3_SDO_M1**/PWM12_M1/SPI3_MISO_M1/SATA1_ACT_LED/UART9_TX_M1/GPIO4_C5_d	3.3	16	**I2S3_SCLK_M1**/PWM15_IR_M1/SPI3_MOSI_M1/CAN1_TX_M1/PCIE30X2_WAKEn_M2/GPIO4_C3_d	3.3
17	GND		18	**I2S3_SDI_M1**/PWM13_M1/SPI3_CS0_M1/SATA0_ACT_LED/UART9_RX_M1/GPIO4_C6_d	3.3
19	HUB_HOST_DP4	3.3	20	GND	
21	HUB_HOST_DM4	3.3	22	5V Output	5.0
23	GND		24	GND	
25	HUB_HOST_DP3	3.3	26	HUB_HOST_DP2	3.3
27	HUB_HOST_DM3	3.3	28	HUB_HOST_DM2	3.3
29	5V Output	5.0	30	5V Output	5.0

3. (J9) M-KEY PCIE



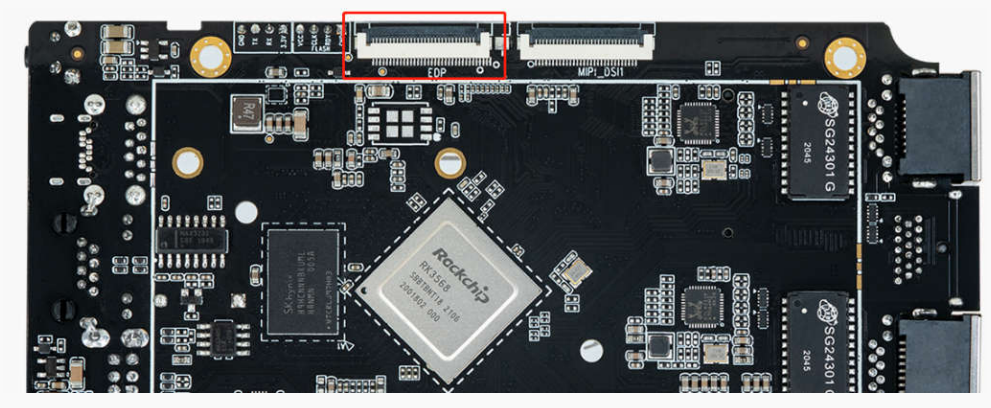
NO.	Definition	Voltage	NO.	Definition	Voltage
1	GND		2	3.3V Output	3.3
3	GND		4	3.3V Output	3.3
5	NC		6	NC	
7	NC		8	NC	
9	GND		10	DAS/DSS	3.3
11	NC		12	3.3V Output	3.3
13	NC		14	3.3V Output	3.3
15	GND		16	3.3V Output	3.3
17	NC		18	3.3V Output	3.3
19	NC		20	NC	
21	GND		22	NC	
23	NC		24	NC	
25	NC		26	NC	
27	GND		28	NC	
29	PCIE30_RX1N	1.8	30	NC	
31	PCIE30_RX1P	1.8	32	NC	
33	GND		34	NC	
35	PCIE30_TX1N【series capacitance 0.1uF】	1.8	36	NC	
37	PCIE30_TX1P【series capacitance 0.1uF】	1.8	38	DEVSLP【pull up resistance10K】	3.3
39	GND		40	NC	
41	PCIE30_RX0N	1.8	42	NC	
43	PCIE30_RX0P	1.8	44	NC	
45	GND		46	NC	
47	PCIE30_TX0N【series capacitance 0.1uF】	1.8	48	NC	
49	PCIE30_TX0P【series capacitance 0.1uF】	1.8	50	**PCIE30X2_PERSTn_M1**/LCDC_D6/VOP_BT656_D6_M0/SPI2_MOSI_M1/ I2S1_SDI3_M2/GPIO2_D6_d	3.3
51	GND		52	**PCIE30X2_CLKREQn_M1**/ LCDC_D4/VOP_BT656_D4_M0/SPI2_CS1_M1/ I 2S1_SDI1_M2 /GPIO2_D4_d	3.3
53	PCIE30_REFCLKN_CON	1.8	54	**PCIE30X2_WAKEn_M1**/LCDC_D5/VOP_BT656_D5_M0/SPI2_CS0_M1/ I2S1_SDI2_M2/GPIO2_D5_d	3.3
55	PCIE30_REFCLKP_CON	1.8	56	NC	
57	GND		58	NC	
59	NC		60	NC	
61	NC		62	3.3V Output	
63	GND		64	3.3V Output	
65	GND		66	3.3V Output	
67	GND				

4. (J4701) MIPI CAMERA 30 PIN 0.5mm pitch



NO.	Definition	Voltage	NO.	Definition	Voltage
1	**I2C4_SDA_M0** (EBC_VCOM/ GMAC1_RXER_M1/ SPI3_MOSI_M0/ I2S2_SDI_M1/ GPIO4_B2_d) 【pull up resistance2.2K】	1.8	16	GND	
2	**I2C4_SCL_M0** (EBC_GDOE/ETH1_REFCLKO_25M_ M1/SPI3_CLK_M0/I2S2_SDO_M1/GPI O4_B3_d) 【pull up resistance2.2K】	1.8	17	MIPI_CSI_RX_CLK0P	1.8
3	**CAMERA0_PDN_L** (I2C2_SDA_M1/EBC_GDSP/CAN2_RX _M0/ISP_FLASH_TRIGIN/VOP_BT656 _CLK_M1/GPIO4_B4_d)	1.8	18	MIPI_CSI_RX_CLK0N	1.8
4	CAM_RST (GPIO0_D5_D)	1.8	19	GND	
5	GND		20	MIPI_CSI_RX_D2P	1.8
6	**CIF_CLKOUT** (CIF_CLKOUT/EBC_GDCLK/PWM11_I R_M1/GPIO4_C0_d)	1.8	21	MIPI_CSI_RX_D2N	1.8
7	**CAMERA1_PDN_L** (I2C2_SCL_M1/EBC_SDSHR/CAN2_T X_M0/I2S1_SDO3_M1/GPIO4_B5_d)	1.8	22	GND	
8	CAM1_RST (GPIO0_D6_d)	1.8	23	MIPI_CSI_RX_D3P	1.8
9	**MIPI_MCLK1** (REFCLK_OUT/GPIO0_A0_d)	1.8	24	MIPI_CSI_RX_D3N	1.8
10	GND		25	GND	
11	MIPI_CSI_RX_D0P	1.8	26	MIPI_CSI_RX_CLK1P	1.8
12	MIPI_CSI_RX_D0N	1.8	27	MIPI_CSI_RX_CLK1N	1.8
13	GND		28	GND	
14	MIPI_CSI_RX_D1P	1.8	29	5V Output	5.0
15	MIPI_CSI_RX_D1N	1.8	30	5V Output	5.0

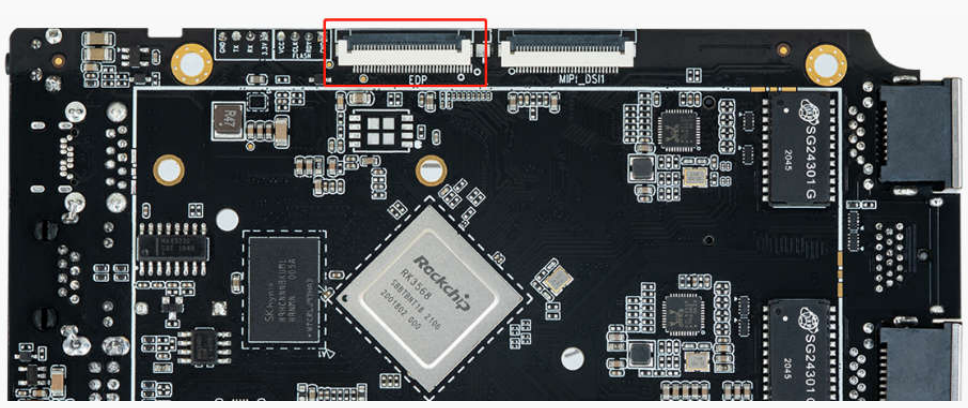
5. (J5600) EDP_Display_Interface 30 PIN 0.5mm pitch



NO.	Definition	Voltage	NO.	Definition	Voltage
1	NC		19	*GND*	
2	GND		20	*GND*	
3	EDP_TX_D1N	1.8	21	*GND*	
4	EDP_TX_D1P	1.8	22	**EDP_BL_EN** (LCDC_DEN/VOP_BT1120_D15/S PI1_CLK_M1/UART5_RX_M1/I2S1 _SCLK_RX_M2/GPIO3_C3_d)	*3.3*
5	GND		23	**EDP_BL_PWM1_M0** (PWM1_M0/GPUAVS/UART0_RX/ GPIO0_C0_d)	*3.3*
6	EDP_TX_D0N	1.8	24	NC	
7	EDP_TX_D0P	1.8	25	NC	
8	GND		26	12V Output	*12*
9	EDP_AUXP	1.8	27	12V Output	*12*

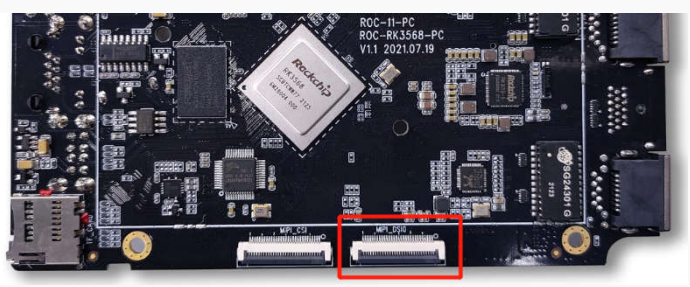
10	EDP_AUXN	1.8	28	12V Output	*12*
11	GND		29	12V Output	*12*
12	3.3V Output	3.3	30	NC	
13	3.3V Output	3.3			
14	NC				
15	GND				
16	GND				
17	**EDP_HPD** (EDP_HPDIN_M1/PWM3_IR/ PCIE30X1_WAKEn_M0/MCU_JTAG_TMS/GPIO0_C2_d)	3.3V			
18	GND				

6.(J5601) EDP_Display_Interface 35 PIN 0.5mm pitch



NO.	Definition	Voltage	NO.	Definition	Voltage
1	EDP_TX_D3N	1.8	19	NC	
2	EDP_TX_D3P	1.8	20	GND	
3	GND		21	GND	
4	EDP_TX_D2N	1.8	22	**EDP_HPD** (EDP_HPDIN_M1/PWM3_IR/ PCIE30X1_WAKEn_M0/MCU_JTAG_TMS/GPIO0_C2_d)	3.3V
5	EDP_TX_D2P	1.8	23	GND	
6	NC		24	GND	
7	GND		25	GND	
8	EDP_TX_D1N	1.8	26	GND	
9	EDP_TX_D1P	1.8	27	**EDP_BL_EN** (LCDC_DEN/VOP_BT1120_D15/SPI1_CLK_M1/UART5_RX_M1/I2S1_SCLK_RX_M2/GPIO3_C3_d)	*3.3*
10	GND		28	**EDP_BL_PWM1_M0** (PWM1_M0/GPUAVS/UART0_RX/ GPIO0_C0_d)	*3.3*
11	EDP_TX_D0N	1.8	29	NC	
12	EDP_TX_D0P	1.8	30	NC	
13	GND		31	12V Output	*12*
14	EDP_AUXP	1.8	32	12V Output	*12*
15	EDP_AUXN	1.8	33	12V Output	*12*
16	GND		34	12V Output	*12*
17	3.3V Output	3.3	35	NC	
18	3.3V Output	3.3			

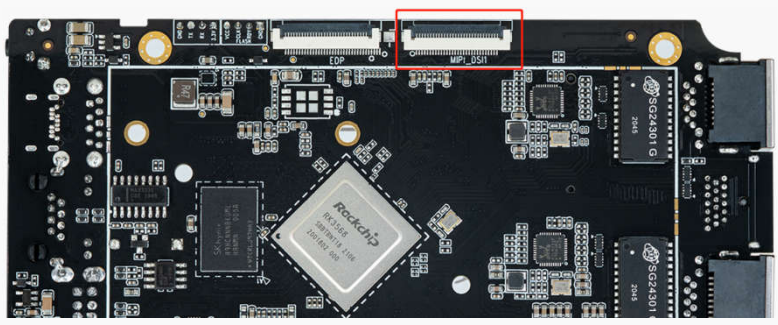
7.(J5200) MIPI_Display_Interface 30 PIN 0.5mm pitch



NO.	Definition	Voltage	NO.	Definition	Voltage
1	5V Output	5.0	16	MIPI_DSI_TX0_D0P/LVDS_TX0_D0P	1.8
2	5V Output	5.0	17	MIPI_DSI_TX0_D0N/LVDS_TX0_D0N	1.8
3	5V Output	5.0	18	GND	
4	GND		19	MIPI_DSI_TX0_D1P/LVDS_TX0_D1P	1.8
5	NC	3.3	20	MIPI_DSI_TX0_D1N/LVDS_TX0_D1N	1.8

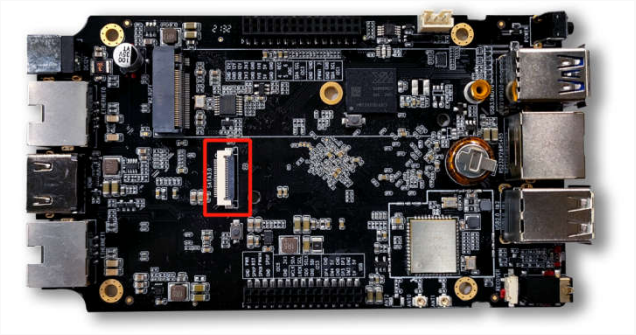
6	3.3V Output	3.3	21	GND	
7	**I2C1_SDA_TP** (I2C1_SDA/CAN0_RX_M0/PCIE20_BUTTONRSTn/MCU_JTAG_TCK/GPIO0_B4_u) 【pull up resistance2.2K】	3.3	22	MIPI_DSI_TX0_CLKP/LVDS_TX0_CLKP	1.8
8	**I2C1_SCL_TP** (I2C1_SCL/CAN0_TX_M0/PCIE30X1_BUTTONRSTn/MCU_JTAG_TDO / GPIO0_B3_u) 【pull up resistance2.2K】	3.3	23	MIPI_DSI_TX0_CLKN/LVDS_TX0_CLKN	1.8
9	**LCD0_PWREN_H** (HDMITX_CEC_M1/PWM0_M1/UART0_CTSn/GPIO0_C7 _d)	3.3	24	GND	
10	**TP_INT_L** (I2C2_SCL_M0/SPI0_CLK_M0/PCIE20_WAKEn_M0/PWM1_M1/GPIO0_B5_u)	3.3	25	MIPI_DSI_TX0_D2P/LVDS_TX0_D2P	1.8
11	**BL_EN0** (LCDC_D15/VOP_BT1120_D6/ETH1_REFCLKO_25M_M0/SDMMC2_PWREN_M1/GPIO3_B0_d)	3.3	26	MIPI_DSI_TX0_D2N/LVDS_TX0_D2N	1.8
12	**LCD0_BL** (PWM4/VOP_PWM_M0/PCIE30X1_PERSTn_M0/MCU_JTAG_TRSTn/GPIO0_C3_d)	3.3	27	GND	
13	**LCD0_RST** (LCDC_D20/VOP_BT1120_D11/GMAC1_TXD0_M0/I2C3_SCL_M1/PWM10_M0/GPIO3_B5_d)	3.3	28	MIPI_DSI_TX0_D3P/LVDS_TX0_D3P	1.8
14	**TP_RST_L** (I2C2_SDA_M0/SPI0_MOSI_M0/PCIE20_PERSTn_M0/PWM2_M1/GPIO0_B6_u)	3.3	29	MIPI_DSI_TX0_D3N/LVDS_TX0_D3N	1.8
15	GND		30	GND	

8.(J5400) MIPI_Display_Interface 30 PIN 0.5mm pitch



NO.	Definition	Voltage	NO.	Definition	Voltage
1	5V Output	5.0	16	MIPI_DSI_TX1_D0P	1.8
2	5V Output	5.0	17	MIPI_DSI_TX1_D0N	1.8
3	5V Output	5.0	18	GND	
4	GND		19	MIPI_DSI_TX1_D1P	1.8
5	NC	3.3	20	MIPI_DSI_TX1_D1N	1.8
6	3.3V Output	3.3	21	GND	
7	**I2C5_SDA_M0** (LCDC_D19/VOP_BT1120_D10/GMAC1_RXER_M0/I2C5_SDA_M0/PDM_SDI1_M2/GPIO3_B4_d) 【pull up resistance2.2K】	3.3	22	MIPI_DSI_TX1_CLKP	1.8
8	**I2C5_SCL_M0** (LCDC_D18/VOP_BT1120_D9/GMAC1_RXDV_CRS_M0/I2C5_SCL_M0/PDM_SDI0_M2/GPIO3_B3_d) 【pull up resistance2.2K】	3.3	23	MIPI_DSI_TX1_CLKN	1.8
9	**LCD1_PWREN_H** (PWM6/SPI0_MISO_M0/PCIE30X2_WAKEn_M0/ GPIO0_C5_d)	3.3	24	GND	
10	**TP1_INT** (LCDC_D7/VOP_BT656_D7_M0/SPI2_MISO_M1/UART8_TX_M1/I2S1_SDO0_M2/GPIO2_D7_d)	3.3	25	MIPI_DSI_TX1_D2P	1.8
11	**BL_EN1** (GPIO4_D2_d)	3.3	26	MIPI_DSI_TX1_D2N	1.8
12	LCD1_BL (PWM5/SPI0_CS1_M0/UART0_RTSn/GPIO0_C4_d)	3.3	27	GND	
13	**LCD1_RST** (LCDC_D21/VOP_BT1120_D12/GMAC1_TXD1_M0/I2C3_SDA_M1/PWM11_IR_M0/GPIO3_B6_d)	3.3	28	MIPI_DSI_TX1_D3P	1.8
14	**TP1_RST_L** (PWM0_M0/CPUAVS/GPIO0_B7_d)	3.3	29	MIPI_DSI_TX1_D3N	1.8
15	GND		30	GND	

18.(J2) STAT3.0_Interface 20 PIN 0.5 pitch



NO.	Definition	Voltage	NO.	Definition	Voltage
1	GND		11	5V Output	5
2	SATA2_TXP 【series capacitance 10nF】 (PCIE20_TXP/SATA2_TXP/QSGMII_TXP_M1)	1.8	12	5V Output	5
3	SATA2_TXN 【series capacitance 10nF】 (PCIE20_TXN/SATA2_TXN/QSGMII_TXN_M1)	1.8	13	5V Output	5
4	GND		14	5V Output	5
5	SATA2_RXN 【series capacitance 10nF】 (PCIE20_RXP/SATA2_RXP/QSGMII_RXP_M1)	1.8	15	GND	
6	SATA2_RXP 【series capacitance 10nF】 (PCIE20_RXN/SATA2_RXN/QSGMII_RXN_M1)	1.8	16	GND	
7	GND		17	GND	1.8
8	SATA2_LED (EDP_HPDIN_M0/SPDIF_TX_M2/SATA2_ACT_LED/PCIE)	3.3	18	12V Output	12
9	GND		19	12V Output	12
10	GND		20	12V Output	12

About us

T-Chip Intelligent Technology (Zhongshan) Co., Ltd. , established in 2005, has more than ten years of technological product research and development capabilities, and has nearly 100 patents and software copyrights. As a national high-tech enterprise, we focus on the research and development, production and sales of open source smart hardware, Internet of Things, and digital audio products, while also provide overall solutions with smart hardware products.

T-Chip is an IDH (Independent Design House) officially authorized by Rockchip in Fuzhou, and also a strategic partner of Rockchip, with a close cooperative relationship for more than 10 years.

Firefly is a brand established by T-Chip, with open source community and online store. Firefly products include core boards, mainboards, embedded computers, cluster servers, development kits and other products. Currently, we have more than 100,000 users, including more than 10,000 enterprise users such as Arm, Google, Baidu, Tencent and Alibaba.

Firefly team has more than 70 R&D members, with excellent research and development capabilities of schematic design, PCB layout, board mass production, embedded development, system development, application development and so on. We accelerate the research and development process for many technology entrepreneurs and start-ups, and provide professional technical services.

Make technology simpler, Make life smarter - is the idea of Firefly team. We hope that through Firefly's open source products and technical services, the research and development of various technological products will become efficient and simple, and intelligent technology can be integrated into life.

Firefly is committed to providing enterprise customers with long-term stable and reliable industrial products and services, and continuously creating value for customers.

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