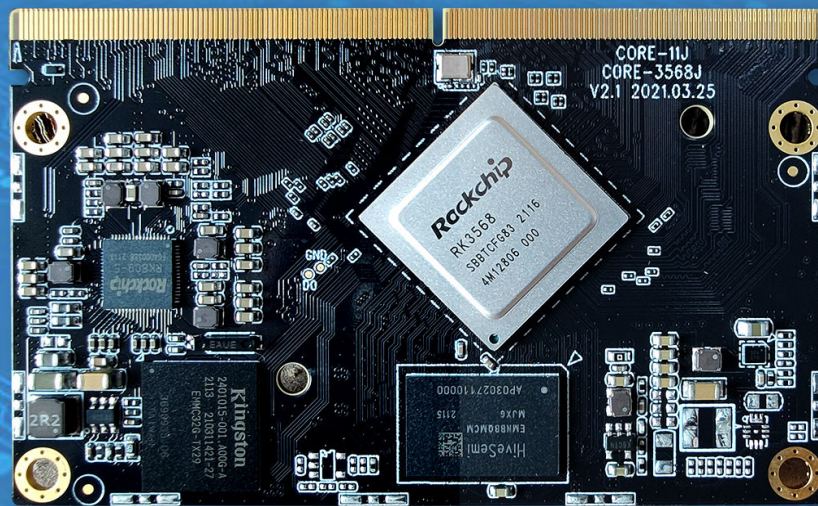


# Core-3568J

AI Core board

V2.1



T-CHIP INTELLIGENCE TECHNOLOGY CO.,LTD.  
[www.t-firefly.com](http://www.t-firefly.com)

## Update history

Version	Date	Details
V1.0	2021-5-11	Original version
V2.1	2021-12-31	Interface Definition update

Firefly

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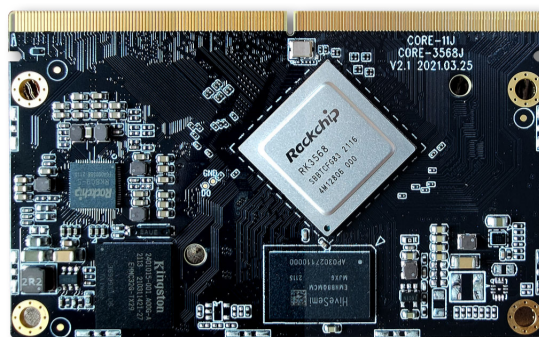
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The AI Core Board is equipped with Rockchip 64-bit processor RK3568 which is configured with dual-core GPU and high-performance NPU, supporting up to 8G RAM. It supports WiFi 6, 5G/4G and other high-speed wireless network communications. Having different video input and output interfaces, it is suitable for scenarios such as smart NVR, cloud terminal, IoT gateway and industrial control.



## 1. RK3568 quad-core 64-bit processor

The quad-core 64-bit Cortex-A55 processor, with 22nm lithography process, has frequency up to 2.0GHz, delivering efficient and stable performance for data processing of back-end equipment. There are a variety of storage options, allowing customers to quickly implement the research and production of products.

## 2.8GB large RAM, all-data-link ECC

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

## 3. Integrated co-processors — GPU, VPU, NPU

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 x2, 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. The board can be used in NVRs, intelligent terminals, multimedia advertising players and other products.

## 5. Dual efficient Gigabit Ethernet ports

It is equipped with dual adaptive RJ45 Gigabit Ethernet ports, through which internal and external network data can be accessed and transmitted, improving network transmission efficiency, and meeting the needs of products with multiple network ports such as NVR and industrial gateway.

## 6. Powerful wireless network communication

Supporting WiFi 6 (802.11ax) wireless network communication, it features high-speed transmission, lower packet loss rate and retransmission rate, which more effectively reduces data congestion, and allows more devices to connect to the network. It can also be connected to 5G/4G module, enabling the product to have a higher-rate, larger-capacity and lower-latency communication.

## 7. Android and Ubuntu supported

Android 11.0, Ubuntu 18.04 OS are supported. The stable and reliable operation provides a safe and stable system environment for product research and production.

## 8. More interfaces with industrial backplane

The core board is equipped with SODIMM 314P interface, which can be combined with a backplane to form a complete high-performance industrial mainboard with more expansion interfaces — the mainboard can be directly used in various intelligent products to facilitate the completion of products.

## 9. 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.

## 10. A wide range of applications

This core board can be widely used in smart NVRs, cloud terminals, IoT gateways, industrial control, edge computing, face recognition gates, NASs, vehicle center consoles, etc.

# Specifications

## Basic

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

## Hardware

<b>Ethernet</b>	Integrated GMAC Ethernet controller extended 2×RJ45 (1000Mbps)
<b>Wireless</b>	With SDIO port to extend WiFi&Bluetooth two-in-one module -- Supports 2.4G/5GHz Dual-band WiFi, WiFi 6, 802.11 a/b/g/n/ac/ax -- Supports BT5.0 Supports 5G/4G LTE
<b>Display</b>	1 × HDMI2.0, 4K@60fps 2 × MIPI DSI, 1920*1080@60fps (or dual-channel 1×MIPI DSI 2560*1440@60fps) 1 × eDP1.3 , supports 2560x1600@60fps output * Supports up to three screen output with different display
<b>Camera</b>	2 × MIPI-CSI (Single-channel 4Lan MIPI CSI or Dual-channel 2Lan MIPI CSI)
<b>Audio</b>	1 × HDMI audio output 1 × Speaker output (1.3W 8Ω) 1 × Earphone output 1 × Microphone onboard audio input
<b>PCIE</b>	1 × PCIe 3.0 (2Lane) 1 × PCIe 2.1 (1Lane)
<b>SATA</b>	3 × SATA 3.0
<b>USB</b>	2 × USB 3.0, 2 × USB 2.0
<b>Interface</b>	3 × SDMMC 3 × SPI 10 × UART 6 × I2C x 6 2 × I2S/PCM(2ch)/TDM(8ch) 16 × PWM 7 × ADC 3 × CAN 130 × GPIO
<b>Power</b>	5V (±5%)

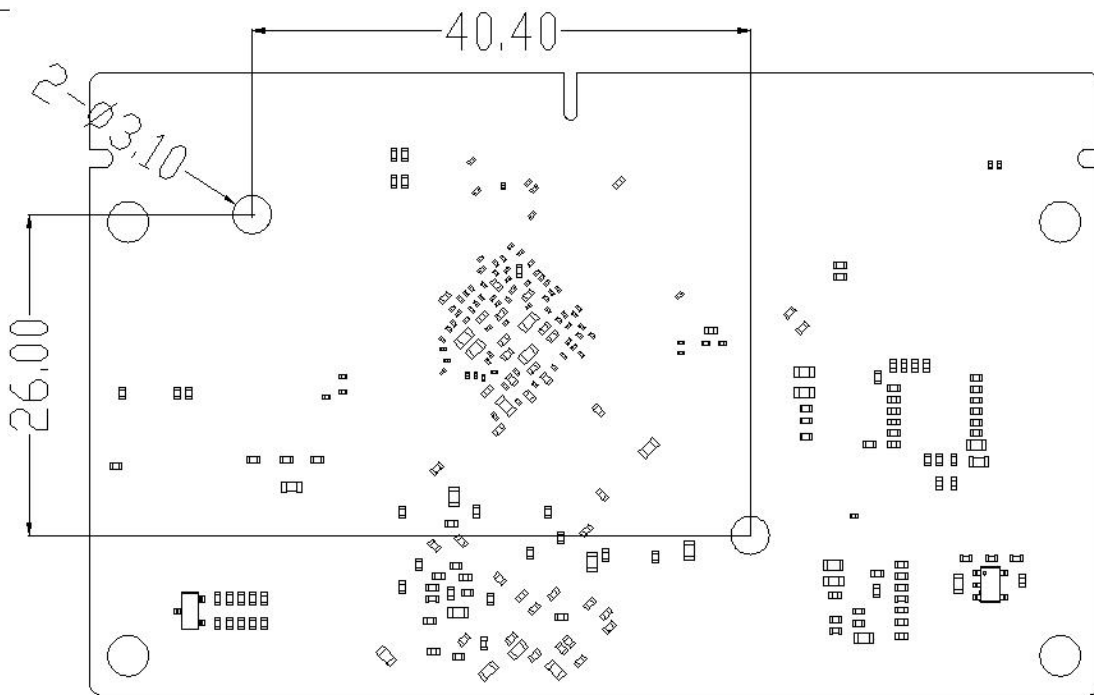
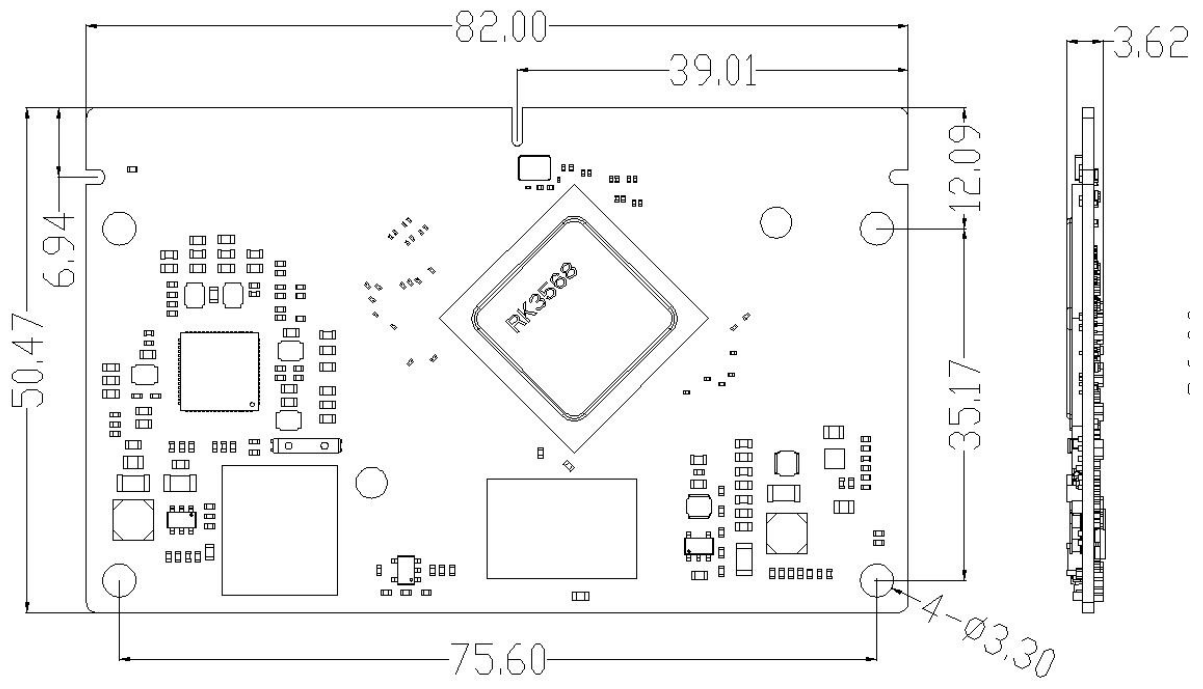
## Software

<b>OS</b>	Supports Android 11.0, Ubuntu 18.04 OS
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## General

<b>Size</b>	82.0 mm × 53.5mm
<b>Type</b>	Gold finger (MXM3.0 314P standard interface), 0.5mm pitch, immersion gold technology
<b>Power Consumption</b>	Idle: 0.015W Normal: 2.75W Max: 5.55W
<b>Heat Dissipation</b>	Heat sink installation hole pitch: 45mm, matched heat sink is recommended (Click to See)
<b>Temperature</b>	Operating Temperature : -10°C ~ 60°C Storage Temperature:-20°C ~ 70°C Storage Humidity :10% ~ 80 %

# Size



# Interface Definition

"Notes1: N O T E : VCCIO\_WL =1.8V or 3.3V INPUT Option (Default: 1.8V) This power supply is an input and must be powered on on the backplane. If it is changed to 3.3V, the software needs to change the voltage configuration of the power supply domain, otherwise there is a risk of burning the IO port  
: Pad types: I = input, O = output, I/O = input/output (bidirectional) , G= Ground ,P = power supply , DOWN = Internal pull down , UP = Internal pull UP L = Lowe Level H = Highlevel"

Part A	PIN	Core board pin definition	Pad type	IO Pull	Function for Floor(MB-JM3-RK3568)	Defual function description	IO Power domain	RK356 8 Pin Numbe	RK3568 Pin Name
	1	VCC5V0_SYS_1	P		VCC_SYS	Input Voltage 4.8V-5.5V	5.0V		
	3	VCC5V0_SYS_2	P		VCC_SYS		5.0V		
	5	VCC5V0_SYS_3	P		VCC_SYS		5.0V		
	7	GND1	G		GND	GND	GND		
	9	GND2	G		GND		GND		
	11	GND3	G		GND		GND		
	13	VCC_1V8	P		VCC_1V8	1.8V Output ,VCC_1V8 Total Max:500mA (Pin13/14 same net)	1.8V		
	15	VCC3V3_SD	P		VCC3V3_SD	3.3V Output TF Card Power ,VCC3V3_SD Total Max:100mA (Pin15/16 same net)	3.3V		
	17	VCCIO_ACODEC	P		VCCIO_ACODEC	3.3V Output For codec,VCCIO_ACODEC Total Max:200mA, (Pin17/18 same net)	3.3V		
	19	NC_1			NC		NC		
	21	NC_3			NC		NC		
	23	VCC_3V3	P		VCC_3V3	3.3V Output ,VCC_3V3 Total Max:800mA (Pin23/24 same net)	3.3V		
	25	VCCIO_WL	P		VCCIO_WL	<b>WIFI/GMAC1</b> VCCIO Input, 1.8V or 3.3V option	1.8V/3.3V		
	27	GND4	G		GND		GND		
	29	I2C3_SDA_M0	I/O	UP	I2C3_SDA_M0	I2C3_SDA_M0 Core board Pull up resistance 2.2K to	3.3V	D18	I2C3_SDA_M0/UART3_RX_M0/CAN1_RX_M0/AUDIOPWM_LOUT_P/GPIO1_A0_U
	31	I2C3_SCL_M0	I/O	UP	I2C3_SCL_M0	I2C3_SCL_M0 Core board Pull up resistance 2.2K to	3.3V	E18	I2C3_SCL_M0/UART3_TX_M0/CAN1_TX_M0/AUDIOPWM_LOUT_N/GPIO1_A1_U
	33	EMMC_RSTN/FSPI_D2/FLASH_WPN	I/O	DOWN	EMMC_RSTN/FSPI_D2/FLASH_WPN	FSPI_D2/FLASH_WPN	1.8V	F20	EMMC_RSTN/FSPI_D2/FLASH_WPN/GPIO1_C7_D
	35	I2S1_SCLK_RX_M0/PDM_CLK1_M0_CON	I/O	DOWN	EDP_BL_EN	EDP Backlight EN, Active H	3.3V	F18	I2S1_SCLK_RX_M0/PDM_CLK1_M0_CON/SPDIF_TX_M0/GPIO1_A4_D
	37	I2S1_SDO2_M0/I2S1_SDI2_M0/PDM_SDI2_M0_CON	I/O	DOWN	EDP_VCC_EN	EDP Power EN, Active H	3.3V	E20	I2S1_SDO2_M0/I2S1_SDI2_M0/PDM_SDI2_M0_CON/GPIO1_B1_D
	39	I2S1_SDO1_M0/I2S1_SDI3_M0/PDM_SDI3_M0_CON	I/O	DOWN	EAR_CTL	Headphone output control, Active H	3.3V	D20	I2S1_SDO1_M0/I2S1_SDI3_M0/PDM_SDI3_M0_CON/GPIO1_B0_D
	41	I2S1_SDO3_M0/I2S1_SDI1_M0/PDM_SDI1_M0_CON	I/O	DOWN	GPIO1_B2_D	MIPI DSI1 BL_EN,Active H	3.3V	A21	I2S1_SDO3_M0/I2S1_SDI1_M0/PDM_SDI1_M0_CON/GPIO1_B2_D
	43	PWRON_KEY	I/O	DOWN	PWRON_KEY	PMIC PWRON_KEY Input, Active L	3.3V		
	45	NC			NC				
	47	EXT_EN	O		EXT_EN	PMIC POWER_EN Output, Active H	3.3V		
	49	RESET_KEY	I	UP	RESET_KEY	System reset input Reset key , Active L Pull up resistance 10K ,series resistance 22R	3.3V	AH27	nPOR_u
	51	FSPI_CLK/FLASH_ALE	I/O	DOWN	FSPI_CLK/FLASH_ALE	FSPI_CLK Core board series resistance 22R	1.8V	A22	FSPI_CLK/FLASH_ALE/GPIO1_D0_D
	53	FSPI_CS0N/FLASH_CS0N	I/O	UP	FSPI_CS0N/FLASH_CS0N	FSPI_CS0N	1.8V	C23	FSPI_CS0N/FLASH_CS0N/GPIO1_D3_U
	55	FSPI_D1/FLASH_RDN	I/O	UP	FSPI_D1/FLASH_RDN	FSPI_D1	1.8V	D23	FSPI_D1/FLASH_RDN/GPIO1_D2_U
	57	FSPI_D0/FLASH_RDY	I/O	UP	FSPI_D0/FLASH_RDY	FSPI_D0	1.8V	C24	FSPI_D0/FLASH_RDY/GPIO1_D1_u
	59	GND5	I/O						GND5
	61	SARADC_VIN2_LCD_ID	I/O	UP	SARADC_VIN2	SARADC_VIN2	1.8V	D24	SARADC_VIN2
	63	SARADC_VIN3	I/O	UP	SARADC_VIN3_EVB_HW_ID	SARADC_VIN3: distinguish HW version	1.8V	E23	SARADC_VIN3
	65	GND6	G		GND				GND6
	67	UART8_CTSN_M0	I/O	UP	UART8_CTSN_M0	UART8_CTSN_M0 For BT	1.8V	E25	SDMMC1_DET/I2C4_SCL_M1/UART8_CTSn_M0/CAN2_TX_M1/GPIO2_B2_u
	69	UART8_RX_M0	I/O	UP	UART8_RX_M0	UART8_RX_M0 For BT	1.8V	E26	CLK32K_OUT1/UART8_RX_M0/SPI1_CS1_M0/GPIO2_C6_d
	71	UART8_RTSN_M0	I/O	UP	UART8_RTSN_M0	UART8_RTSN_M0 For BT	1.8V	D26	SDMMC1_PWREN/I2C4_SDA_M1/UART8_RTSn_M0/CAN2_RX_M1/GPIO2_B1_d
	73	UART8_TX_M0	I/O	DOWN	UART8_TX_M0	UART8_TX_M0 For BT	1.8V	F26	I2S2_SDI_M0/GMAC0_RXER/UART8_TX_M0/SPI2_CS1_M0/GPIO2_C5_d
	75	GND7	G		GND				GND7
	77	ETH0_REFCKLO_25M	I/O	DOWN	ETH0_REFCKLO_25M	ETH0_REF CLOCK OUTPUT_25MHz CPU to PHY,Default NC series resistance 22R	1.8V	G23	ETH0_REFCLK_25M/I2S2_MCLK_M0/UART7_RTSn_M0/SPI2_CLK_M0/GPIO2_C1_d
	79	GND8	G		GND				GND8
	81	GMAC0_MCLKINOUT	I/O	DOWN	GMAC0_MCLKINOUT	GMAC0_MCLK_IN/OUT PUT Default: Input--PHY use external crystal	1.8V	F25	GMAC0_MCLKINOUT/I2S2_SCLK_TX_M0/UART7_CTSn_M0/SPI2_MISO_M0/GPIO2_C2_d
	83	GND9	G		GND				GND9

# 接口定义

85	GMAC0_RXDV_CRS	I/O	DOWN	GMAC0_RXDV_CRS	GMAC RX data valid signal	1.8V	F24	GMAC0_RXDV_CRS/I2S2_LRCK_RX_M0/UART6_CTSn_M0/SPI1_CS0_M0/GPIO2_C0_d
87	GMAC0_MDIO	I/O	DOWN	GMAC0_MDIO	GMAC management interface data	1.8V	H23	GMAC0_MDIO/I2S2_SDO_M0/UART9_CTSn_M0/SPI2_CS0_M0/GPIO2_C4_d
89	GMAC0_MDC	I/O	DOWN	GMAC0_MDC	GMAC management interface clock	1.8V	H24	GMAC0_MDC/I2S2_LRCK_TX_M0/UART9_RTSn_M0/SPI2_MOSI_M0/GPIO2_C3_d
91	GMAC0_RXD1	I/O	DOWN	GMAC0_RXD1	GMAC RX data	1.8V	H25	GMAC0_RXD1/I2S2_SCLK_RX_M0/UART6_RTSn_M0/SPI1_MOSI_M0/GPIO2_B7_d
93	GND10	G		GND	GND			GND10
95	SDMMC0_D2	I/O	UP	SDMMC0_D2	SDMMC0_D2 for TF Card		H26	SDMMC0_D2/ARMJTAG_TCK/UART5_CTSn_M0/GPIO1_D7_u
97	SDMMC0_D1	I/O	UP	SDMMC0_D1	SDMMC0_D1 for TF Card		J24	SDMMC0_D1/UART2_RX_M1/UART6_RX_M1/PWM9_M1/GPIO1_D6_u
99	SDMMC0_D0	I/O	UP	SDMMC0_D0	SDMMC0_D0 for TF Card		J25	SDMMC0_D0/UART2_TX_M1/UART6_TX_M1/PWM8_M1/GPIO1_D5_u
101	SDMMC0_D3	I/O	UP	SDMMC0_D3	SDMMC0_D3 for TF Card		J23	SDMMC0_D3/ARMJTAG_TMS/UART5_RTSn_M0/GPIO2_A0_u
103	SDMMC0_DET_L	I/O	UP	SDMMC0_DET_L	SDMMC0_DET Input, Active L	3.3V	Y22	SDMMC0_DET_L/SATA_CP_DET/PCIE30X1_CLKREQn_M0/GPIO0_A4_u
105	GND11	G		GND	GND			GND11
107	EDP_TX_AUXN	O		EDP_TX_AUXN	eDP CH-AUX negative differential output	1.8V	M25	EDP_TX_AUXN
109	EDP_TX_AUXP	O		EDP_TX_AUXP	eDP CH-AUX positive differential output	1.8V	L25	EDP_TX_AUXP
111	GND12	G		GND	GND			GND12
113	USB3_HOST1_DP	I/O		USB3_HOST1_DP	USB3_HOST1_DP	3.3V	P24	USB3_HOST1_DP
115	USB3_HOST1_DM	I/O		USB3_HOST1_DM	USB3_HOST1_DM	3.3V	P25	USB3_HOST1_DM
117	GND12	G		GND	GND			GND12
119	MULTI_PHY0_REFCLKP	O		NA	NA	1.8V	R24	MULTI_PHY0_REFCLKP
121	MULTI_PHY0_REFCLKN	O		NA	NA	1.8V	R25	MULTI_PHY0_REFCLKN
123	MULTI_PHY1_REFCLKN	O		NA	NA	1.8V	U24	MULTI_PHY1_REFCLKN
125	MULTI_PHY1_REFCLKP	O		NA	NA	1.8V	U25	MULTI_PHY1_REFCLKP
127	GND13	G		GND	GND			GND13
129	USB3_OTG0_ID	I		USB3_OTG0_ID	OTG0 DET,Active L Default NC	1.8V	L23	USB3_OTG0_ID
131	USB3_OTG0_VBUSDET	I		USB3_OTG0_VBUSDET	USB plug-in DET,Active H	3.3V	M24	USB3_OTG0_VBUSDET
133	SATA2_ACT_LED	I/O	DOWN	SATA2_ACT_LED	SATA2_ACT_LED EN,Active H	3.3V	AH7	EDP_HPDI_N_M0/SPDIF_TX_M2/SATA2_ACT_LED/PCIE30X2_PERSTn_M2/I2S3_LRCK_M1/GPIO4_C4_d
135	PCIE30X2_CLKREQN_M1	I/O	DOWN	PCIE30X2_CLKREQN_M1	PCIE30X2_CLKREQN	3.3V	AF5	LCDC_D4/VOP_BT656_D4_M0/SPI2_CS1_M1/PCIE30X2_CLKREQn_M1/I2S1_SDI1_M2/GPIO2_D4_d
137	PCIE30X2_WAKEN_M1	I/O	DOWN	PCIE30X2_WAKEN_M1	PCIE30X2_WAKEN	3.3V	AF6	LCDC_D5/VOP_BT656_D5_M0/SPI2_CS0_M1/PCIE30X2_WAKEn_M1/I2S1_SDI2_M2/GPIO2_D5_d
139	GND14	G		GND	GND			GND14
141	PCIE20_REFCLKP	O		PCIE20_REFCLKP	PCIE20_REFCLKP	1.8V	V24	PCIE20_REFCLKP
143	PCIE20_REFCLKN	O		PCIE20_REFCLKN	PCIE20_REFCLKN	1.8V	V25	PCIE20_REFCLKN
145	PCIE30_REFCLKP_IN	I		PCIE30_REFCLKP_IN	PCIE30_REFCLKP_IN	1.8V	Y25	PCIE30_REFCLKP_IN
147	PCIE30_REFCLKN_IN	I		PCIE30_REFCLKN_IN	PCIE30_REFCLKN_IN	1.8V	AA25	PCIE30_REFCLKN_IN
149	GND15	G		GND	GND			GND15
151	PCIE_PWREN_H_GPIO0_D4	I/O	DOWN	PCIE_PWREN_H_GPIO0_D4	PCIE Power enable ,Active H	1.8V	AB23	GPIO0_D4_d
153	GPIO0_D6	I/O	DOWN	USB30_HOST_PWREN_H	USB30_HOST Power enable ,Active H	1.8V	AC24	GPIO0_D6_d
155	I2C0_SDA_PMIC	I/O	UP	NC	NC, Core board Pull up resistance 2.2K	3.3V	AB21	I2C0_SDA/GPIO0_B2_u
157	I2C0_SCL_PMIC	I/O	UP	NC	NC, Core board Pull up resistance 2.2K	3.3V	AF24	I2C0_SCL/GPIO0_B1_u
159	TP_RST_L_GPIO0_B6	I/O	UP	TP_RST_L_GPIO0_B6	MIPI DSI0 TP_Reset ,Active L	3.3V	AA20	I2C2_SDA_M0/SPI0_MOSI_M0/PCIE20_PERSTn_M0/PWM2_M1/GPIO0_B6_u
161	VGA_PWREN_H_GPIO0_D5	I/O	DOWN	USB20_HOST0_PWREN	USB20_HOST0_PWR_EN ,Active H	1.8V	AD25	GPIO0_D5_d
163	RTCIC_INT_L_GPIO0_D3	I/O	DOWN	RTCIC_INT_L_GPIO0_D3	RTC IC_INT ,Active L	1.8V	AE26	GPIO0_D3_d
165	GND16	G		GND	GND			GND16
167	GND17	G		GND	GND			GND17
169	USB_HOST_PWREN_H_GPIO0_A6	I/O	DOWN	WK2124_INT	WK2124 interrupt input ,Active L	3.3V	AE24	USB_HOST_PWREN_H/GPU_PWREN/SATA_CP_POD/PCIE30X2_CLKREQn_M/GPIO0_A6_d
171	LCD0_BL_PWM4	I/O	DOWN	LCD0_BL_PWM4	PWM4 Output	3.3V	AE23	PWM4/VOP_PWM_M0/PCIE30X1_PERSTn_M0/MCU_JTAG_TRSTn/GPIO0_C3_d
173	DVP_PWREN0_H_GPIO0_C1	I/O	DOWN	LCD1_TP_INT_GPIO0_C1	MIPI DSI1 TP interrupt input ,Active L	3.3V	AF23	PWM2_M0/NPUAVS/UART0_TX/MCU_JTAG_TD1/GPIO0_C1_d
175	TP_INT_L_GPIO0_B5	I/O	UP	TP_INT_L_GPIO0_B5	MIPI DSI0 TP interrupt input ,Active L	3.3V	AC22	I2C2_SCL_M0/SPI0_CLK_M0/PCIE20_WAKEn_M0/PWM1_M1/GPIO0_B5_u
177	WORKING_LEDEN_H_GPIO0_C0	I/O	DOWN	WORK_LED	LED EN, active H	3.3V	AD22	PWM1_M0/GPUAVS/UART0_RX/GPIO0_C0_d



# 接口定义

179	I2C1_SDA_TP	I/O	UP	I2C1_SDA_TP	I2C1 SDA for TP Core board Pull up resistance 2.2K	3.3V	AB20	I2C1_SDA/CAN0_RX_M0/PCIE20_BUTTONRSTn/MCU_JTAG_TCK/GPIO0_B4_u
181	I2C1_SCL_TP	I/O	UP	I2C1_SCL_TP	I2C1 SCL for TP Core board Pull up resistance 2.2K	3.3V	AG24	I2C1_SCL/CAN0_TX_M0/PCIE30X1_BUTTONRSTn/MCU_JTAG_TDO/GPIO0_B3_u
183	LCD1_BL_PWM5	I/O	DOWN	LCD1_BL_PWM5	LCD1_BL_PWM5	3.3V	AD21	PWM5/SPI0_CS1_M0/UART0_RTSn/GPIO0_C4_d
185	PWM7_IR	I/O	DOWN	PWM7_IR	PWM7_IR Input	3.3V	AD20	PWM7_IR/SPI0_CS0_M0/PCIE30X2_PERSTn_M0/GPIO0_C6_d
187	LCD1_PWREN_H_GPIO0_C5	I/O	DOWN	LCD0_RST_L_GPIO0_C5	MIPI D50_Reset Active L	3.3V	AC21	PWM6/SPI0_MISO_M0/PCIE30X2_WAKEn_M0/GPIO0_C5_d
189	HDMITX_SDA	I/O	UP	HDMITX_SDA	I2C SDA for HDMI	3.3V	AG7	HDMITX_SDA/I2C5_SDA_M1/GPIO4_D0_u
191	HDMITX_SCL	I/O	UP	HDMITX_SCL	I2C SCL for HDMI	3.3V	AG8	HDMITX_SCL/I2C5_SCL_M1/GPIO4_C7_u
193	HDMITX_CEC_M0	I/O	UP	HDMITX_CEC_M0	HDMITX_CEC_M0	3.3V	AH6	HDMITX_CEC_M0/SPI3_CS1_M1/GPIO4_D1_u
195	HDMI_TX_HPDIN	I		HDMI_TX_HPDIN	HDMI_TX_HPDIN ,Active H	1.8V	AB18	HDMI_TX_HPDIN
197	GND18	G		GND	GND			GND18
199	MIPI_DSI_TX1_D0N	O		MIPI_DSI_TX1_D0N	MIPI_DSI_TX1_D0N	1.8V	AE18	MIPI_DSI_TX1_D0N
201	MIPI_DSI_TX1_D0P	O		MIPI_DSI_TX1_D0P	MIPI_DSI_TX1_D0P	1.8V	AD18	MIPI_DSI_TX1_D0P
203	MIPI_DSI_TX1_D1N	O		MIPI_DSI_TX1_D1N	MIPI_DSI_TX1_D1N	1.8V	AC17	MIPI_DSI_TX1_D1N
205	MIPI_DSI_TX1_D1P	O		MIPI_DSI_TX1_D1P	MIPI_DSI_TX1_D1P	1.8V	AD17	MIPI_DSI_TX1_D1P
207	GND19	G		GND	GND			GND19
209	MIPI_DSI_TX1_CLKN	O		MIPI_DSI_TX1_CLKN	MIPI_DSI_TX1_CLKN	1.8V	AE15	MIPI_DSI_TX1_CLKN
211	MIPI_DSI_TX1_CLKP	O		MIPI_DSI_TX1_CLKP	MIPI_DSI_TX1_CLKP	1.8V	AD15	MIPI_DSI_TX1_CLKP
213	MIPI_DSI_TX1_D2N	O		MIPI_DSI_TX1_D2N	MIPI_DSI_TX1_D2N	1.8V	AC17	MIPI_DSI_TX1_D2N
215	MIPI_DSI_TX1_D2P	O		MIPI_DSI_TX1_D2P	MIPI_DSI_TX1_D2P	1.8V	AE17	MIPI_DSI_TX1_D2P
217	MIPI_DSI_TX1_D3N	O		MIPI_DSI_TX1_D3N	MIPI_DSI_TX1_D3N	1.8V	AE12	MIPI_DSI_TX1_D3N
219	MIPI_DSI_TX1_D3P	O		MIPI_DSI_TX1_D3P	MIPI_DSI_TX1_D3P	1.8V	AD12	MIPI_DSI_TX1_D3P
221	MIPI_CSI_RX_D2N	I		MIPI_CSI_RX_D2N	MIPI_CSI_RX_D2N	1.8V	AD11	MIPI_CSI_RX_D2N
223	MIPI_CSI_RX_D2P	I		MIPI_CSI_RX_D2P	MIPI_CSI_RX_D2P	1.8V	AE11	MIPI_CSI_RX_D2P
225	MIPI_CSI_RX_D3N	I		MIPI_CSI_RX_D3N	MIPI_CSI_RX_D3N	1.8V	AE9	MIPI_CSI_RX_D3N
227	MIPI_CSI_RX_D3P	I		MIPI_CSI_RX_D3P	MIPI_CSI_RX_D3P	1.8V	AD9	MIPI_CSI_RX_D3P
229	GND20	G		GND	GND			GND20
231	UART9_TX_M1	I/O	DOWN	BL_EN0	MIPI DSI0 BL_EN, Active H	3.3V	AD8	PWM12_M1/SPI3_MISO_M1/SATA1_ACT_LED/UART9_TX_M1/I2S3_SDO_M1/GPIO4_C5_d
233	UART9_RX_M1	I/O	DOWN	LCD1_RST_L	MIPI DSI1 Reset, Active L	3.3V	AE8	PWM13_M1/SPI3_CS0_M1/SATA0_ACT_LED/UART9_RX_M1/I2S3_SDI_M1/GPIO4_C6_d
235	CAN1_RX_M1	I/O	DOWN	CAN1_RX_M1	CAN1_RX_M1	3.3V	AF8	PWM14_M1/SPI3_CLK_M1/CAN1_RX_M1/PCIE30X2_CLKREQn_M2/I2S3_MCLK_M1/GPIO4_C2_d
237	CAN1_TX_M1	I/O	DOWN	CAN1_TX_M1	CAN1_TX_M1	3.3V	AA11	PWM15_IR_M1/SPI3_MOSI_M1/CAN1_TX_M1/PCIE30X2_WAKEn_M2/I2S3_SCLK_M1/GPIO4_C3_d
239	GMAC0_INT/PMEB_GPIO2_D2	I/O	DOWN	GMAC0_INT/PMEB_GPIO2_D2	GMAC0_INT/PMEB	3.3V	AC8	LCDC_D2/VOP_BT656_D2_M0/SPI0_CS0_M1/PCIE30X1_CLKREQn_M1/I2S1_LRCK_TX_M2/GPIO2_D2_d
241	BT_WAKE_HOST_H_GPIO3_A1	I/O	DOWN	SPI1_CS0_M1	SPI1_CS0_M1	3.3V	AB8	LCDC_D8/VOP_BT1120_D0/SPI1_CS0_M1/PCIE30X1_PERSTn_M1/SDMMC2_D0_M1/GPIO3_A1_d
243	GMAC1_RSTN_GPIO2_D1	I/O	DOWN	GMAC1_RSTN_GPIO2_D1	GMAC1_Reset, Active L	3.3V	AD7	LCDC_D1/VOP_BT656_D1_M0/SPI0_MOSI_M1/PCIE20_WAKEn_M1/I2S1_SCLK_TX_M2/GPIO2_D1_d
245	PCIE30X2_PERSTN_M1	I/O	DOWN	PCIE30X2_PERSTN_M1	PCIE Reset, Active L	3.3V	AD6	LCDC_D6/VOP_BT656_D6_M0/SPI2_MOSI_M1/PCIE30X2_PERSTn_M1/I2S1_SDI3_M2/GPIO2_D6_d
247	HOST_WAKE_BT_H_GPIO3_A2	I/O	DOWN	HUB_USB1_PWREN_H	HOST_USB2.0 POWER Output EN, Active H	3.3V	AE5	LCDC_D9/VOP_BT1120_D1/GMAC1_TXD2_M0/I2S3_MCLK_M0/SDMMC2_D1_M1/GPIO3_A2_d
249	UART3_TX_M1	I/O	DOWN	UART3_TX_M1	UART3_TX_M1	3.3V	AD4	LCDC_D22/PWM12_M0/GMAC1_TXEN_M0/UART3_TX_M1/PDM_SDI2_M2/GPIO3_B7_d
251	UART3_RX_M1	I/O	DOWN	UART3_RX_M1	UART3_RX_M1	3.3V	AD2	LCDC_D23/PWM13_M0/GMAC1_MCLKINOUT_M0/UART3_RX_M1/PDM_SDI3_M2/GPIO3_C0_d
253	I2S3_LRCK_M0	I/O	DOWN	I2S3_LRCK_M0	I2S3_LRCK_M0	3.3V	AF4	LCDC_D11/VOP_BT1120_D3/GMAC1_RXD2_M0/I2S3_LRCK_M0/SDMMC2_D3_M1/GPIO3_A4_d
255	GMAC0_RSTN_GPIO2_D3	I/O	DOWN	GMAC0_RSTN_GPIO2_D3	GMAC0_Reset, Active L	3.3V	AC7	LCDC_D3/VOP_BT656_D3_M0/SPI0_CLK_M1/PCIE30X1_WAKEn_M1/I2S1_SDI0_M2/GPIO2_D3_d
257	PA_EN_H_GPIO3_C3	I/O	DOWN	SPI1_CLK_M1	SPI1_CLK_M1 out	3.3V	AC4	LCDC_DEN/VOP_BT1120_D15/SPI1_CLK_M1/UART5_RX_M1/I2S1_SCLK_RX_M2/GPIO3_C3_d
259	PWM14_M0	I/O	DOWN	EDP_BL_PWM14_M0	EDP_BL_PWM14_M0	3.3V	AC3	PWM14_M0/VOP_PWM_M1/GMAC1_MDC_M0/UART7_TX_M1/PDM_CLK1_M2/GPIO3_C4_d
261	CON_INT_L_GPIO4_D2	I/O	DOWN	SENSOR_INT_L_GPIO4_D2	SENSOR_INT,Active L	3.3V	AB9	GPI04_D2_d
263	HP_DET_L_GPIO3_C2	I/O	DOWN	SPI1_MISO_M1	SPI1_MISO_M1	3.3V	AA7	LCDC_VSYNC/VOP_BT1120_D14/SPI1_MISO_M1/UART5_TX_M1/I2S1_SDO3_M2/GPIO3_C2_d

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265	CAMERA0_PDN_L_GPIO4_B4	I/O	DOWN	CAN2_RX_M0	CAN2_RX_M0	VCCIO_WL	V6	I2C2_SDA_M1/EBC_GDSP/CAN2_RX_M0/ISP_FLASH_TRIGIN/VOP_BT656_CLK_M1/GPIO4_B4_d
267	CAMERA1_PDN_L_GPIO4_B5	I/O	DOWN	CAN2_TX_M0	CAN2_TX_M0	VCCIO_WL	V5	I2C2_SCL_M1/EBC_SDSHR/CAN2_TX_M0/I2S1_SDO3_M1/GPIO4_B5_d
269	MIPICAM1_RST_L_GPIO3_B5	I/O	DOWN	HOST_WAKE_BT_H_GPIO3_B5	HOST WAKE BT, Active H	3.3V	AE2	LCDC_D20/VOP_BT1120_D11/GMAC1_TXD0_M0/I2C3_SCL_M1/PWM10_M0/GPIO3_B5_d
271	GND21	G		GND	GND			GND21
273	CLK32K_OUT0_WIFI	I/O	UP	4G_PWR_EN	4G/5G Power_EN , Active H	3.3V	AD23	CLK32K_IN/CLK32K_OUT/GPIO0_B0_u
275	RK809_32KOUT_WIFI	O		RK809_32KOUT_WIFI	PMIC RK809 32.768KHz clock output for WIFI	1.8V		RK809_32KOUT_WIFI
277	GND22	G		GND	GND			GND22
279	SDMMC2_D0_M0/CIF_D0	I/O	DOWN	SDMMC2_D0_M0	SDMMC2_D0_M0 To WIFI	VCCIO_WL	AC5	CIF_D0/EBC_SDDO0/SDMMC2_D0_M0/I2S1_MCLK_M1/VOP_BT656_D0_M1/GPIO3_C6_d
281	SDMMC2_D1_M0/CIF_D1	I/O	DOWN	SDMMC2_D1_M0	SDMMC2_D1_M0 To WIFI	VCCIO_WL	AA6	CIF_D1/EBC_SDDO1/SDMMC2_D1_M0/I2S1_SCLK_TX_M1/VOP_BT656_D1_M1/GPIO3_C7_d
283	SDMMC2_CMD_M0/CIF_D4	I/O	DOWN	SDMMC2_CMD_M0	SDMMC2_CMD_M To WIFI	VCCIO_WL	Y7	CIF_D4/EBC_SDDO4/SDMMC2_CMD_M0/I2S1_SDIO_M1/VOP_BT656_D4_M1/GPIO3_D2_d
285	WIFI_REG_ON_H_GPIO3_D5/CIF_D7	I/O	DOWN	WIFI_REG_ON_H	WIFI EN , Active H	VCCIO_WL	AA5	CIF_D7/EBC_SDDO7/SDMMC2_PWREN_M0/I2S1_SDI3_M1/VOP_BT656_D7_M1/GPIO3_D5_d
287	GND22	G		GND	GND			GND22
289	GMAC1_TXCLK_M1/CIF_D10	I/O	DOWN	GMAC1_TXCLK_M1	GMAC1_TXCLK_M1, core board series resistance 22R	VCCIO_WL	AA3	CIF_D10/EBC_SDDO10/GMAC1_TXCLK_M1/PDM_CLK1_M1/GPIO4_A0_d
291	GMAC1_RXCLK_M1/CIF_D13	I/O	DOWN	GMAC1_RXCLK_M1	GMAC1_RXCLK_M1	VCCIO_WL	Y3	CIF_D13/EBC_SDDO13/GMAC1_RXCLK_M1/UART7_RX_M2/PDM_SDI3_M1/GPIO4_A3_d
293	GMAC1_RXD3_M1/CIF_D12	I/O	DOWN	GMAC1_RXD3_M1	GMAC1_RXD3_M1	VCCIO_WL	Y4	CIF_D12/EBC_SDDO12/GMAC1_RXD3_M1/UART7_TX_M2/PDM_SDI2_M1/GPIO4_A2_d
295	GMAC1_TXD3_M1/CIF_D9	I/O	DOWN	GMAC1_TXD3_M1	GMAC1_TXD3_M1, core board series resistance 22R	VCCIO_WL	Y5	CIF_D9/EBC_SDDO9/GMAC1_TXD3_M1/UART1_RX_M1/PDM_SDI0_M1/GPIO3_D7_d
297	GMAC1_TXD2_M1/CIF_D8	I/O	DOWN	GMAC1_TXD2_M1	GMAC1_TXD2_M1, core board series resistance 22R	VCCIO_WL	Y6	CIF_D8/EBC_SDDO8/GMAC1_TXD2_M1/UART1_TX_M1/PDM_CLK0_M1/GPIO3_D6_d
299	GMAC1_RXD1_M1/CAM_CLKOUT1	I/O	DOWN	GMAC1_RXD1_M1	GMAC1_RXD1_M1	VCCIO_WL	V7	CAM_CLKOUT1/EBC_SDCE2/GMAC1_RXD1_M1/SPI3_MISO_M0/I2S1_SDO1_M1/GPIO4_B0_d
301	GND23	G		GND	GND			GND23
303	CIF_CLKOUT	I/O	DOWN	CIF_CLKOUT	CIF_CLK OUT For MIPI Camera	VCCIO_WL	U3	CIF_CLKOUT/EBC_GDCLK/PWM11_IR_M1/GPIO4_C0_d
305	GND24	G		GND	GND			GND24
307	GMAC1_MDIO_M1/CIF_VSYNC	I/O	DOWN	GMAC1_MDIO_M1	GMAC1_MDIO_M1	VCCIO_WL	U4	CIF_VSYNC/EBC_SDOE/GMAC1_MDIO_M1/I2S2_SCL_TX_M1/GPIO4_B7_d
309	GMAC1_MDC_M1/CIF_HREF	I/O	DOWN	GMAC1_MDC_M1	GMAC1_MDC_M1	VCCIO_WL	U5	CIF_HREF/EBC_SDL/GMAC1_MDC_M1/UART1_RTSn_M1/I2S2_MCLK_M1/GPIO4_B6_d
311	GND25	G		GND	GND			GND25
313	I2C4_SCL_M0	I/O	DOWN	I2C4_SCL_M0	I2C4_SCL_M0 core board series resistance 22R Core board Pull up resistance 2.2K to VCCIO_WL	VCCIO_WL	V1	I2C4_SCL_M0/EBC_GDOE/ETH1_REFCLK0_25M_M1/SPI3_CLK_M0/I2S2_SDO_M1/GPIO4_B3_d
314	I2C4_SDA_M0	I/O	DOWN	I2C4_SDA_M0	I2C4_SDA_M0 Core board Pull up resistance 2.2K to VCCIO_WL	VCCIO_WL	V4	I2C4_SDA_M0/EBC_VCOM/GMAC1_RXER_M1/SPI3_MOSI_M0/I2S2_SDI_M1/GPIO4_B2_d

Note: VCCIO\_WL =1.8V or 3.3V INPUT Option (Default: 1.8V),

Note: If you change to 3.3V, the software needs to change the power domain voltage configuration, otherwise there is a risk of damage to the IO port

Part B	PIN	Core board pin definition	Pad type	IO Pull	Function for Floor(MB-JM3-RK3568)	Defual function description	IO Power domain	RK3568 Pin Numbe	RK3568 Pin Name
	2	VCC5V0_SYS	P		VCC_SYS	Input Voltage 4.8V-5.5V	5.0V		
	4	VCC5V0_SYS	P		VCC_SYS		5.0V		
	6	VCC5V0_SYS	P		VCC_SYS		5.0V		
	8	GND_26	G		GND	GND			GND_26
	10	GND_27	G		GND				GND_27
	12	GND_28	G		GND				GND_28
	14	VCC_1V8	P		VCC_1V8	1.8V Output ,VCC_1V8 Total Max:500mA (Pin13/14 same net)	1.8V		
	16	VCC3V3_SD	P		VCC3V3_SD	3.3V Output TF Card Power ,VCC3V3_SD Total Max:100mA (Pin15/16 same net)	3.3V		
	18	VCCIO_ACODEC	P		VCCIO_ACODEC	3.3V Output For codec,VCCIO_ACODEC Total Max:200mA, (Pin17/18 same net)	3.3V		
	20	NC_2			NC_2				NC_2
	22	NC_4			NC_4				NC_4
	24	VCC_3V3	P		VCC_3V3	3.3V Output ,VCC_3V3 Total Max:800mA (Pin23/24 same net)	3.3V		VCC_3V3
	26	VCCIO_WL	P		VCCIO_WL	WIFI/GMAC1 VCCIO Input, 1.8V or 3.3V option (Pin25/26 same net)	1.8V/3.3V		VCCIO_WL

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28	VCCA_1V8	P		VCCA_1V8	Output: 1.8V ,VCCA_1V8 Total Max:500mA	1.8V		VCCA_1V8
30	GND29	G		GND	GND			GND29
32	SPKP_OUT	O		SPKP_OUT	PMIC RK809 Speaker Out+ core board series bead 180R@100MHz	5.0V		SPKP_OUT
34	SPKN_OUT	O		SPKN_OUT	PMIC RK809 Speaker Out- core board series bead 180R@100MHz	5.0V		SPKN_OUT
36	GND30	G		GND	GND			GND30
38	MIC1_INN	I		MIC1_INN	MIC1_INPUT- core board series capacitance 0.1uF	3.3V		MIC1_INN
40	MIC1_INP	I		MIC1_INP	MIC1_INPUT+ core board series capacitance 0.1uF	3.3V		MIC1_INP
42	GND31	G		GND	GND			GND31
44	HPL_OUT	O		HPL_OUT	HeadPhone_OUT L	3.3V		HPL_OUT
46	HP_SNS	G		HP_SNS	HeadPhone_OUT GND			HP_SNS
48	HPR_OUT	O		HPR_OUT	HeadPhone_OUT R	3.3V		HPR_OUT
50	GND32	G		GND	GND			GND32
52	FSPI_D3/FLASH_CS1N	I/O	UP	FSPI_D3/FLASH_CS1N	FSPI_D3/FLASH_CS1N	1.8V	A27	FSPI_D3/FLASH_CS1N/GPIO1_D4_u
54	SARADC_VIN6	I		SARADC_VIN6	SARADC_VIN6	1.8V	G20	SARADC_VIN6
56	SARADC_VIN7	I		SARADC_VIN7	SARADC_VIN7	1.8V	F21	SARADC_VIN7
58	SARADC_VIN4	I		SARADC_VIN4	SARADC_VIN4	1.8V	G21	SARADC_VIN4
60	SARADC_VIN5	I		SARADC_VIN5	SARADC_VIN5	1.8V	F22	SARADC_VIN5
62	SARADC_VIN0_KEY/RECOVERY	I		SARADC_VIN0_KEY/RECOVERY	SARADC_VIN0_KEY/RECOVERY (MB must pullup to 1.8V )	1.8V	B27	SARADC_VIN0
64	GND33	G		GND	GND			GND33
66	GMAC0_RXCLK	I/O	UP	GMAC0_RXCLK	GMAC0_RXCLK	1.8V	B28	GMAC0_RXCLK/SDMMC1_D2/UART7_RX_M0/GPIO2_A5_u
68	GMAC0_TXD2	I/O	UP	GMAC0_TXD2	GMAC0_TXD2 core board series resistance 22R	1.8V	C27	GMAC0_TXD2/SDMMC1_D3/UART7_TX_M0/GPIO2_A6_u
70	GMAC0_TXD3	I/O	UP	GMAC0_TXD3	GMAC0_TXD3 core board series resistance 22R	1.8V	C28	GMAC0_TXD3/SDMMC1_CMD/UART9_RX_M0/GPIO2_A7_u
72	GMAC0_TXCLK	I/O	DOWN	GMAC0_TXCLK	GMAC0_TXCLK core board series resistance 22R	1.8V	D27	GMAC0_TXCLK/SDMMC1_CLK/UART9_TX_M0/GPIO2_B0_d
74	GND34	G		GND	GND			GND34
76	GMAC0_RXD2	I/O	UP	GMAC0_RXD2	GMAC0_RXD2	1.8V	E27	GMAC0_RXD2/SDMMC1_D0/UART6_RX_M0/GPIO2_A3_u
78	GMAC0_RXD3	I/O	UP	GMAC0_RXD3	GMAC0_RXD3	1.8V	E28	GMAC0_RXD3/SDMMC1_D1/UART6_TX_M0/GPIO2_A4_u
80	GMAC0_RXD0	I/O	UP	GMAC0_RXD0	GMAC0_RXD0	1.8V	F27	GMAC0_RXD0/UART1_CTSn_M0/SPI1_MISO_M0/GPIO2_B6_u
82	GMAC0_TXD0	I/O	UP	GMAC0_TXD0	GMAC0_TXD0 core board series resistance 22R	1.8V	F28	GMAC0_TXD0/UART1_RX_M0/GPIO2_B3_u
84	GMAC0_TXD1	I/O	UP	GMAC0_TXD1	GMAC0_TXD1 core board series resistance 22R	1.8V	G27	GMAC0_TXD1/UART1_TX_M0/GPIO2_B4_u
86	GMAC0_TXEN	I/O	UP	GMAC0_TXEN	GMAC0_TXEN core board series resistance 22R	1.8V	G28	GMAC0_TXEN/UART1_RTSn_M0/SPI1_CLK_M0/GPIO2_B5_u
88	GND35	G		GND	GND			GND35
90	SDMMC0_CMD	I/O	UP	SDMMC0_CMD	SDMMC0_CMD to TF Card	Note1	H27	SDMMC0_CMD/PWM10_M1/UART5_RX_M0/CAN0_TX_M1/GPIO2_A1_u
92	SDMMC0_CLK	I/O	DOWN	SDMMC0_CLK	SDMMC0_CLK to TF Card core board series resistance 22R		H28	SDMMC0_CLK/TEST_CLKOUT/UART5_TX_M0/CAN0_RX_M1/GPIO2_A2_d
94	GND36	G		GND	GND			GND36
<b>Note 1: Default is 3.3V; VCCIO_SD=1.8V(SDIO 3.0) or 3.3V(SDIO 2.0)</b>								
96	EDP_TX_D0P	O		EDP_TX_D0P	EDP_TX_D0+ core board series capacitance 0.1uF	1.8V	J28	EDP_TX_D0P
98	EDP_TX_D0N	O		EDP_TX_D0N	EDP_TX_D0- core board series capacitance 0.1uF	1.8V	K27	EDP_TX_D0N
100	EDP_TX_D1P	O		EDP_TX_D1P	EDP_TX_D1+ core board series capacitance 0.1uF	1.8V	K28	EDP_TX_D1P
102	EDP_TX_D1N	O		EDP_TX_D1N	EDP_TX_D1- core board series capacitance 0.1uF	1.8V	L27	EDP_TX_D1N
104	EDP_TX_D2P	O		EDP_TX_D2P	EDP_TX_D2+ core board series capacitance 0.1uF	1.8V	L28	EDP_TX_D2P
106	EDP_TX_D2N	O		EDP_TX_D2N	EDP_TX_D2- core board series capacitance 0.1uF	1.8V	M27	EDP_TX_D2N
108	EDP_TX_D3P	O		EDP_TX_D3P	EDP_TX_D3+ core board series capacitance 0.1uF	1.8V	M28	EDP_TX_D3P
110	EDP_TX_D3N	O		EDP_TX_D3N	EDP_TX_D3- core board series capacitance 0.1uF	1.8V	N27	EDP_TX_D3N
112	GND37	G		GND	GND			GND37
114	USB3_OTG0_DP	I/O		USB3_OTG0_DP	USB3_OTG0_DP	3.3V	P27	USB3_OTG0_DP
116	USB3_OTG0_DM	I/O		USB3_OTG0_DM	USB3_OTG0_DM	3.3V	P28	USB3_OTG0_DM
118	GND38	G		GND	GND			GND38

# 接口定义

120	USB3_OTG0_SSRXN	I/O		USB3_OTG0_SSRXN	USB3_OTG0_SSRXN	1.8V	R27	USB3_OTG0_SSRXN/SATA0_RXN
122	USB3_OTG0_SSRXP	I/O		USB3_OTG0_SSRXP	USB3_OTG0_SSRXP	1.8V	R28	USB3_OTG0_SSRXP/SATA0_RXP
124	USB3_OTG0_SSTXN	I/O		USB3_OTG0_SSTXN	USB3_OTG0_SSTXN	1.8V	T27	USB3_OTG0_SSTXN/SATA0_TXN
126	USB3_OTG0_SSTXP	I/O		USB3_OTG0_SSTXP	USB3_OTG0_SSTXP	1.8V	T28	USB3_OTG0_SSTXP/SATA0_TXP
128	GND39	G		GND	GND			GND39
130	USB3_HOST1_SSRXN	I/O		USB3_HOST1_SSRXN	USB3_HOST1_SSRXN	1.8V	U27	USB3_HOST1_SSRXN/SATA1_RXN/QSGMII_RXN_M0
132	USB3_HOST1_SSRXP	I/O		USB3_HOST1_SSRXP	USB3_HOST1_SSRXP	1.8V	U28	USB3_HOST1_SSRXP/SATA1_RXP/QSGMII_RXP_M0
134	USB3_HOST1_SSTXN	I/O		USB3_HOST1_SSTXN	USB3_HOST1_SSTXN	1.8V	V27	USB3_HOST1_SSTXN/SATA1_TXN/QSGMII_TXN_M0
136	USB3_HOST1_SSTXP	I/O		USB3_HOST1_SSTXP	USB3_HOST1_SSTXP	1.8V	V28	USB3_HOST1_SSTXP/SATA1_TXP/QSGMII_TXP_M0
138	GND40	G		GND	GND			GND40
140	SATA2_TXP	O		SATA2_TXP	SATA2_TXP	1.8V	W27	PCIE20_TXP/SATA2_TXP/QSGMII_TXP_M1
142	SATA2_TXN	O		SATA2_TXN	SATA2_TXN	1.8V	W28	PCIE20_TXN/SATA2_TXN/QSGMII_TXN_M1
144	SATA2_RXP	I		SATA2_RXP	SATA2_RXP	1.8V	Y27	PCIE20_RXP/SATA2_RXP/QSGMII_RXP_M1
146	SATA2_RXN	I		SATA2_RXN	SATA2_RXN	1.8V	Y28	PCIE20_RXN/SATA2_RXN/QSGMII_RXN_M1
148	GND41	G		GND	GND			GND41
150	PCIE30_TX0P	O		PCIE30_TX0P	PCIE30_TX0P	1.8V	AA28	PCIE30_TX0P
152	PCIE30_TX0N	O		PCIE30_TX0N	PCIE30_TX0N	1.8V	AA27	PCIE30_TX0N
154	PCIE30_TX1P	O		PCIE30_TX1P	PCIE30_TX1P	1.8V	AB28	PCIE30_TX1P
156	PCIE30_TX1N	O		PCIE30_TX1N	PCIE30_TX1N	1.8V	AB27	PCIE30_TX1N
158	PCIE30_RX0P	I		PCIE30_RX0P	PCIE30_RX0P	1.8V	AC28	PCIE30_RX0P
160	PCIE30_RX0N	I		PCIE30_RX0N	PCIE30_RX0N	1.8V	AC27	PCIE30_RX0N
162	PCIE30_RX1P	I		PCIE30_RX1P	PCIE30_RX1P	1.8V	AD28	PCIE30_RX1P
164	PCIE30_RX1N	I		PCIE30_RX1N	PCIE30_RX1N	1.8V	AD27	PCIE30_RX1N
166	GND43	G		GND	GND			GND43
168	GND44	G		GND	GND			GND44
170	REFCLK_OUT_CAM	I/O	DOWN	REFCLK_OUT_CAM	Clock output for camera core board series resistance 22R	3.3V	AG27	REFCLK_OUT_CAM/GPIO0_A0_d
172	GND45	G		GND	GND			GND45
174	USB_OTG_PWREN_H_GPIO0_A5	I/O	DOWN	USB_OTG_PWREN_H_GPIO0_A5	USB_OTG_PWREN_H_GPIO0_A5	3.3V	AF25	SDMMC0_PWREN/SATA_MP_SWITCH/PCIE20_CLKREQn_M0/GPIO0_A5_d
176	CPU_AVS/CPU_DVS_PWM0_M0	I/O	DOWN	NC	NC	3.3V	AH26	PWM0_M0/CPUAVS/GPIO0_B7_d
178	LCD0_PWREN_H_GPIO0_C7	I/O	DOWN	LCD0_PWR_EN/GPIO0_C7	MIPI DSI0 Power EN ,Active H	3.3V	AH25	HDMITX_CEC_M1/PWM0_M1/UART0_CTSn/GPIO0_C7_d
180	UART2_TX_M0_DEBUG	I/O	UP	UART2_TX_M0_DEBUG	UART2_TX_M0 for DEBUG	3.3V	AH24	UART2_TX_M0/GPIO0_D1_u
182	UART2_RX_M0_DEBUG	I/O	UP	UART2_RX_M0_DEBUG	UART2_RX_M0 for DEBUG	3.3V	AC20	UART2_RX_M0/GPIO0_D0_u
184	EDP_HPDI_N_M1	I	DOWN	EDP_HPDI	EDP_HPDI det ,Active H	3.3V	AG23	PWM3_IR/EDP_HPDI_N_M1/PCIE30X1_WAKEn_M0/MCU_ITAG_TMS/GPIO0_C2_d
186	GND46	G		GND	GND			GND46
188	HDMI_TX2P_PORT	O		HDMI_TX2P_PORT	HDMI_TX2P_PORT,core board series resistance 2.2R	1.8V	AG22	HDMI_TX2P
190	HDMI_TX2N_PORT	O		HDMI_TX2N_PORT	HDMI_TX2N_PORT,core board series resistance 2.2R	1.8V	AH22	HDMI_TX2N
192	HDMI_TX1P_PORT	O		HDMI_TX1P_PORT	HDMI_TX1P_PORT,core board series resistance 2.2R	1.8V	AG21	HDMI_TX1P
194	HDMI_TX1N_PORT	O		HDMI_TX1N_PORT	HDMI_TX1N_PORT,core board series resistance 2.2R	1.8V	AH21	HDMI_TX1N
196	HDMI_TX0P_PORT	O		HDMI_TX0P_PORT	HDMI_TX0P_PORT,core board series resistance 2.2R	1.8V	AG20	HDMI_TX0P
198	HDMI_TX0N_PORT	O		HDMI_TX0N_PORT	HDMI_TX0N_PORT,core board series resistance 2.2R	1.8V	AH20	HDMI_TX0N
200	HDMI_TXCLKP_PORT	O		HDMI_TXCLKP_PORT	HDMI_TXCLKP_PORT,core board series resistance 2.2R	1.8V	AH19	HDMI_TXCLKP
202	HDMI_TXCLKN_PORT	O		HDMI_TXCLKN_PORT	HDMI_TXCLKN_PORT,core board series resistance 2.2R	1.8V	AG19	HDMI_TXCLKN
204	GND47	G		GND	GND			GND47
206	MIPI_DSI_TX0_D0N/LVDS_TX0_D0N	O		MIPI_DSI_TX0_D0N/LVDS_TX0_D0N	MIPI_DSI_TX0_D0N/LVDS_TX0_D0N	1.8V	AG17	MIPI_DSI_TX0_D0N/LVDS_TX0_D0N
208	MIPI_DSI_TX0_D0P/LVDS_TX0_D0P	O		MIPI_DSI_TX0_D0P/LVDS_TX0_D0P	MIPI_DSI_TX0_D0P/LVDS_TX0_D0P	1.8V	AH17	MIPI_DSI_TX0_D0P/LVDS_TX0_D0P
210	MIPI_DSI_TX0_D1N/LVDS_TX0_D1N	O		MIPI_DSI_TX0_D1N/LVDS_TX0_D1N	MIPI_DSI_TX0_D1N/LVDS_TX0_D1N	1.8V	AG16	MIPI_DSI_TX0_D1N/LVDS_TX0_D1N
212	MIPI_DSI_TX0_D1P/LVDS_TX0_D1P	O		MIPI_DSI_TX0_D1P/LVDS_TX0_D1P	MIPI_DSI_TX0_D1P/LVDS_TX0_D1P	1.8V	AH16	MIPI_DSI_TX0_D1P/LVDS_TX0_D1P
214	GND48	G		GND	GND			GND48
216	MIPI_DSI_TX0_CLKN/LVDS_TX0_CLKN	O		MIPI_DSI_TX0_CLKN/LVDS_TX0_CLKN	MIPI_DSI_TX0_CLKN/LVDS_TX0_CLKN	1.8V	AG15	MIPI_DSI_TX0_CLKN/LVDS_TX0_CLKN

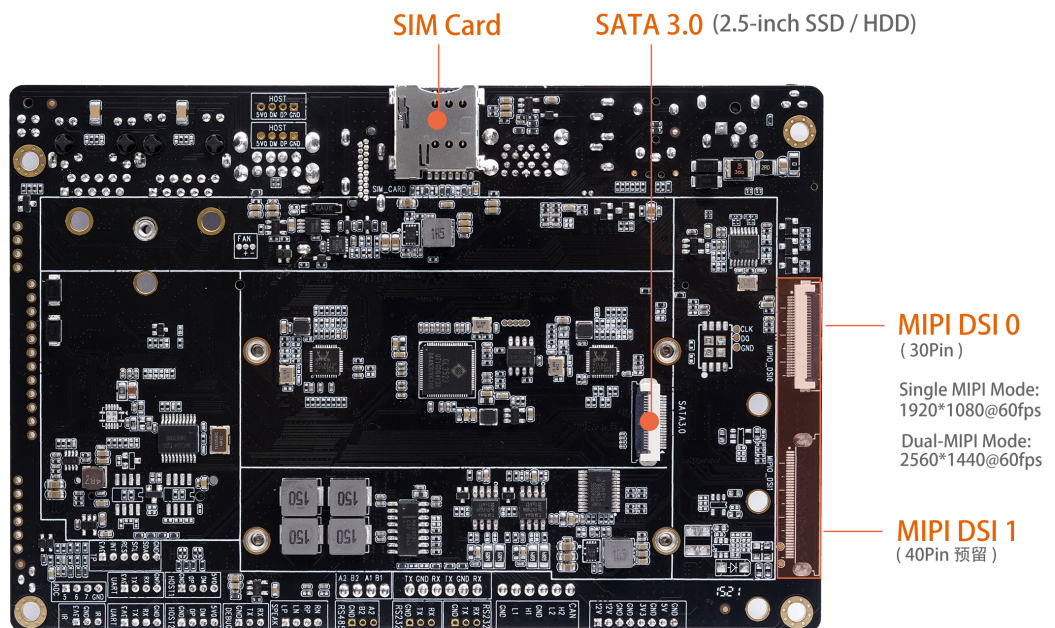
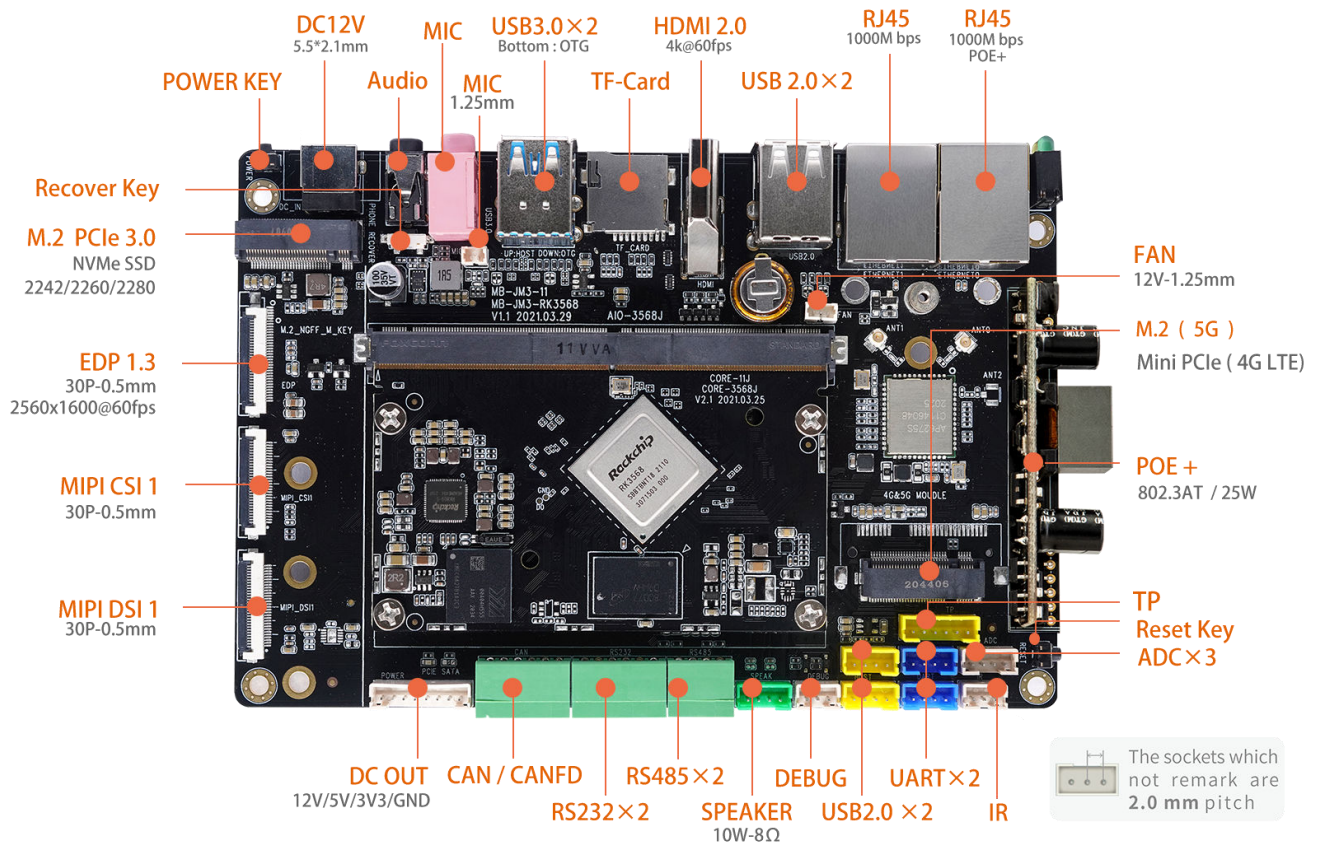
# 接口定义

218	MIPI_DSI_TX0_CLKP/LVDS_TX0_CLKP	O		MIPI_DSI_TX0_CLKP/LVDS_TX0_CLKP	MIPI_DSI_TX0_CLKP/LVDS_TX0_CLKP	1.8V	AH15	MIPI_DSI_TX0_CLKP/LVDS_TX0_CLKP
220	MIPI_DSI_TX0_D2N/LVDS_TX0_D2N	O		MIPI_DSI_TX0_D2N/LVDS_TX0_D2N	MIPI_DSI_TX0_D2N/LVDS_TX0_D2N	1.8V	AG14	MIPI_DSI_TX0_D2N/LVDS_TX0_D2N
222	MIPI_DSI_TX0_D2P/LVDS_TX0_D2P	O		MIPI_DSI_TX0_D2P/LVDS_TX0_D2P	MIPI_DSI_TX0_D2P/LVDS_TX0_D2P	1.8V	AH14	MIPI_DSI_TX0_D2P/LVDS_TX0_D2P
224	MIPI_DSI_TX0_D3N/LVDS_TX0_D3N	O		MIPI_DSI_TX0_D3N/LVDS_TX0_D3N	MIPI_DSI_TX0_D3N/LVDS_TX0_D3N	1.8V	AG13	MIPI_DSI_TX0_D3N/LVDS_TX0_D3N
226	MIPI_DSI_TX0_D3P/LVDS_TX0_D3P	O		MIPI_DSI_TX0_D3P/LVDS_TX0_D3P	MIPI_DSI_TX0_D3P/LVDS_TX0_D3P	1.8V	AH13	MIPI_DSI_TX0_D3P/LVDS_TX0_D3P
228	MIPI_CSI_RX_D0N	I		MIPI_CSI_RX_D0N	MIPI_CSI_RX_D0N	1.8V	AH12	MIPI_CSI_RX_D0N
230	MIPI_CSI_RX_D0P	I		MIPI_CSI_RX_D0P	MIPI_CSI_RX_D0P	1.8V	AG12	MIPI_CSI_RX_D0P
232	MIPI_CSI_RX_D1N	I		MIPI_CSI_RX_D1N	MIPI_CSI_RX_D1N	1.8V	AH11	MIPI_CSI_RX_D1N
234	MIPI_CSI_RX_D1P	I		MIPI_CSI_RX_D1P	MIPI_CSI_RX_D1P	1.8V	AG11	MIPI_CSI_RX_D1P
236	MIPI_CSI_RX_CLK0N	I		MIPI_CSI_RX_CLK0N	MIPI_CSI_RX_CLK0N	1.8V	AH10	MIPI_CSI_RX_CLK0N
238	MIPI_CSI_RX_CLK0P	I		MIPI_CSI_RX_CLK0P	MIPI_CSI_RX_CLK0P	1.8V	AG10	MIPI_CSI_RX_CLK0P
240	MIPI_CSI_RX_CLK1N	I		MIPI_CSI_RX_CLK1N	MIPI_CSI_RX_CLK1N	1.8V	AH9	MIPI_CSI_RX_CLK1N
242	MIPI_CSI_RX_CLK1P	I		MIPI_CSI_RX_CLK1P	MIPI_CSI_RX_CLK1P	1.8V	AG9	MIPI_CSI_RX_CLK1P
244	GND49	G		GND	GND			GND49
246	GMAC1_INT/PMEB_GPIO2_D0	I/O	DOWN	GMAC1_INT/PMEB_GPIO2_D0	GMAC1_INT/PMEB	3.3V	AG6	LCDC_D0/VOP_BT656_D0_M0/SPI0_MISO_M1/PCIE20_CLKREQn_M1/I2S1_MCLK_M2/GPIO2_D0_d
248	PCIE30X2_PRSTNT_L_GPIO2_D7	I/O	DOWN	BT_WAKE_HOST_H_GPIO2_D7	BT_WAKE_HOST,Active H	3.3V	AH5	LCDC_D7/VOP_BT656_D7_M0/SPI2_MISO_M1/UART8_TX_M1/I2S1_SDO0_M2/GPIO2_D7_d
250	BT_REG_ON_H_GPIO3_A0	I/O	DOWN	BT_REG_ON_H_GPIO3_A0	BT_EN ,Active H	3.3V	AH4	LCDC_CLK/VOP_BT656_CLK_M0/SPI2_CLK_M1/UART8_RX_M1/I2S1_SDO1_M2/GPIO3_A0_d
252	I2S3_SCLK_M0	I/O	DOWN	I2S3_SCLK_M0	I2S3_SCLK_M0	3.3V	AG4	LCDC_D10/VOP_BT1120_D2/GMAC1_TXD3_M0/I2S3_SCLK_M0/SDMMC2_D2_M1/GPIO3_A3_d
254	I2S3_SDO_M0	I/O	DOWN	I2S3_SDO_M0	I2S3_SDO_M0	3.3V	AH3	LCDC_D12/VOP_BT1120_D4/GMAC1_RXD3_M0/I2S3_SDO_M0/SDMMC2_CMD_M1/GPIO3_A5_d
256	I2S3_SDI_M0	I/O	DOWN	I2S3_SDI_M0	I2S3_SDI_M0	3.3V	AG3	LCDC_D13/VOP_BT1120_CLK/GMAC1_TXCLK_M0/I2S3_SDI_M0/SDMMC2_CLK_M1/GPIO3_A6_d
258	PCIECLKIC_OE_H_GPIO3_A7	I/O	DOWN	PCIECLKIC_OE_H_GPIO3_A7	PCIE_CLOCK IC_EN ,Active H	3.3V	AH2	LCDC_D14/VOP_BT1120_D5/GMAC1_RXCLK_M0/SDMMC2_DET_M1/GPIO3_A7_d
260	GND50	G		GND	GND			GND50
262	ETH1_REFCLKO_25M_M0	I/O	DOWN	ETH1_REFCLKO_25M_M0	ETH1_REF CLOCK OUTPUT_25MHz CPU to PHY,Default NC	3.3V	AG2	LCDC_D15/VOP_BT1120_D6/ETH1_REFCLKO_25M_M0/SDMMC2_PWREN_M1/GPIO3_B0_d
264	UART4_TX_M1	I/O	DOWN	UART4_TX_M1	UART4_TX_M1	3.3V	AF2	LCDC_D17/VOP_BT1120_D8/GMAC1_RXD1_M0/UART4_TX_M1/PWM9_M0/GPIO3_B2_d
266	UART4_RX_M1	I/O	DOWN	UART4_RX_M1	UART4_RX_M1	3.3V	AG1	LCDC_D16/VOP_BT1120_D7/GMAC1_RXD0_M0/UART4_RX_M1/PWM8_M0/GPIO3_B1_d
268	MIPICAM0_RST_L_GPIO3_B6	I/O	DOWN	BAT_ALERT_GPIO3_B6	BAT_ALERT, Default NC	3.3V	AE3	LCDC_D21/VOP_BT1120_D12/GMAC1_TXD1_M0/I2C3_SDA_M1/PWM11_IR_M0/GPIO3_B6_d
270	I2C5_SCL_M0	I/O	DOWN	I2C5_SCL_M0	I2C5_SCL_M0 Core board Pull up resistance 2.2K	3.3V	AF1	LCDC_D18/VOP_BT1120_D9/GMAC1_RXDV_CR_S_M0/I2C5_SCL_M0/PDM_SDI0_M2/GPIO3_B3_d
272	I2C5_SDA_M0	I/O	DOWN	I2C5_SDA_M0	I2C5_SDA_M0 Core board Pull up resistance 2.2K	3.3V	AE1	LCDC_D19/VOP_BT1120_D10/GMAC1_RXER_M0/I2C5_SDA_M0/PDM_SDI1_M2/GPIO3_B4_d
274	GSENSOR_INT_L_GPIO3_C1	I/O	DOWN	SPI1_MOSI_M1	SPI1_MOSI_M1	3.3V	AD1	LCDC_HSYNC/VOP_BT1120_D13/SPI1_MOSI_M1/PCIE20_PERSTn_M1/I2S1_SDO2_M2/GPIO3_C1_d
276	SPDIF_TX_M1	I/O	DOWN	SPK_CTL_H	SPK_EN ,Active H	3.3V	AC2	PWM15_IR_M0/SPDIF_TX_M1/GMAC1_MDIO_M0/UART7_RX_M1/I2S1_LRCK_RX_M2/GPIO3_C5_d
278	GND51	G		GND	GND			GND51
280	SDMMC2_CLK_M0/CIF_D5	I/O	DOWN	SDMMC2_CLK_M0	SDMMC2_CLK_M0 To WIFI core board series resistance 22R	VCCIO_WL	AC1	CIF_D5/EBC_SDD05/SDMMC2_CLK_M0/I2S1_SDI1_M1/VOP_BT656_D5_M1/GPIO3_D3_d
282	SDMMC2_D2_M0/CIF_D2	I/O	DOWN	SDMMC2_D2_M0	SDMMC2_D2_M0 To WIFI	VCCIO_WL	AB5	CIF_D2/EBC_SDD02/SDMMC2_D2_M0/I2S1_LRCK_TX_M1/VOP_BT656_D2_M1/GPIO3_D0_d
284	SDMMC2_D3_M0/CIF_D3	I/O	DOWN	SDMMC2_D3_M0	SDMMC2_D3_M0 To WIFI	VCCIO_WL	AB1	CIF_D3/EBC_SDD03/SDMMC2_D3_M0/I2S1_SDO0_M1/VOP_BT656_D3_M1/GPIO3_D1_d
286	GND52	G		GND	GND			GND52
288	GMAC1_RXD2_M1/CIF_D11	I/O	DOWN	GMAC1_RXD2_M1	GMAC1_RXD2_M1	VCCIO_WL	AA2	CIF_D11/EBC_SDD011/GMAC1_RXD2_M1/PDM_SDI1_M1/GPIO4_A1_d
290	WIFI_WAKE_HOST_H_GPIO3_D4/CIF_D6	I/O	DOWN	WIFI_WAKE_HOST_H_GPIO3_D4	WIFI_WAKE_HOST Active H	VCCIO_WL	AA1	CIF_D6/EBC_SDD06/SDMMC2_DET_M0/I2S1_SDI2_M1/VOP_BT656_D6_M1/GPIO3_D4_d
292	GMAC1_TXD0_M1/CIF_D14	I/O	DOWN	GMAC1_TXD0_M1	GMAC1_TXD0_M1 core board series resistance 22R	VCCIO_WL	Y2	CIF_D14/EBC_SDD014/GMAC1_TXD0_M1/UART9_TX_M2/I2S2_LRCK_TX_M1/GPIO4_A4_d
294	GMAC1_TXD1_M1/CIF_D15	I/O	DOWN	GMAC1_TXD1_M1	GMAC1_TXD1_M1 core board series resistance 22R	VCCIO_WL	Y1	CIF_D15/EBC_SDD015/GMAC1_TXD1_M1/UART9_RX_M2/I2S2_LRCK_RX_M1/GPIO4_A5_d
296	GMAC1_TXEN_M1	I/O	DOWN	GMAC1_TXEN_M1	GMAC1_TXEN_M1 core board series resistance 22R	VCCIO_WL	W2	ISP_FLASHTRIGOUT/EBC_SDCE0/GMAC1_TXEN_M1/SPI3_CS0_M0/I2S1_SCLK_RX_M1/GPIO4_A6_d
298	GMAC1_RXD0_M1/CAM_CLKOUT0	I/O	DOWN	GMAC1_RXD0_M1	GMAC1_RXD0_M1	VCCIO_WL	W1	CAM_CLKOUT0/EBC_SDCE1/GMAC1_RXD0_M1/SPI3_CS1_M0/I2S1_LRCK_RX_M1/GPIO4_A7_d

# 接口定义

300	GMAC1_RXDV_CR5_M1	I/O	DOWN	GMAC1_RXDV_CR5_M1	GMAC1_RXDV_CR5_M1	VCCIO_WL	V2	ISP_PRELIGHT_TRIG/EBC_SDCE3/GMAC1_RXDV_CR5_M1/I2S1_SDO2_M1/GPIO4_B1_d
302	GMAC1_MCLKINOUT_M1/ CIF_CLKIN	I/O	DOWN	GMAC1_MCLKINOUT_M1	GMAC1_MCLKINOUT_M1 Input--PHY use external crystal	VCCIO_WL	U2	CIF_CLKIN/EBC_SDCLK/GMAC1_MCLKINOUT_M1/UART1_CTSn_M1/I2S2_SCLK_RX_M1/GPIO4_C1_d
<p><b>Note: VCCIO_WL =1.8V or 3.3V INPUT Option (Default: 1.8V),</b>  <b>Note: If you change to 3.3V, the software needs to change the power domain voltage configuration, otherwise there is a risk of damage to the IO port</b></p>								
304	GND53	G		GND	GND			GND53
306	USB2_HOST3_DP	I/O		USB2_HOST3_DP	USB2_HOST3_DP	3.3V	T2	USB2_HOST3_DP
308	USB2_HOST3_DM	I/O		USB2_HOST3_DM	USB2_HOST3_DM	3.3V	T1	USB2_HOST3_DM
310	USB2_HOST2_DP	I/O		USB2_HOST2_DP	USB2_HOST2_DP	3.3V	R2	USB2_HOST2_DP
312	USB2_HOST2_DM	I/O		USB2_HOST2_DM	USB2_HOST2_DM	3.3V	R1	USB2_HOST2_DM

# Core Board and Backplane



# 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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## Shopping Mall

- 1) [store.t-firefly.com](http://store.t-firefly.com)
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