

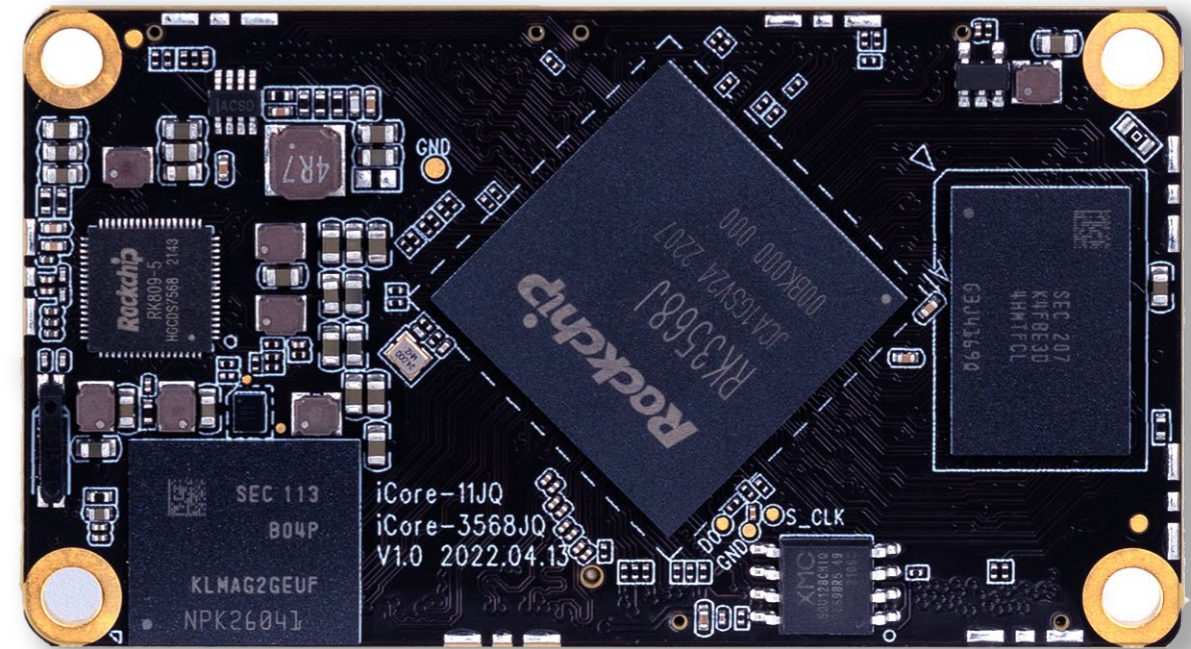


Quad-Core Industrial Core Board

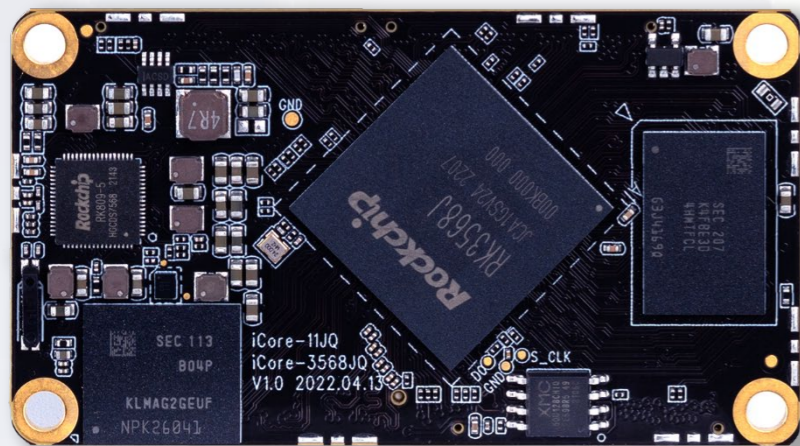
- | iCore-3568Q(Commercial)
- | iCore-3568JQ(Industrial)
- | iCore-3568MQ(Automotive)

V1.0 2024-3-7

T-CHIP INTELLIGENCE TECHNOLOGY

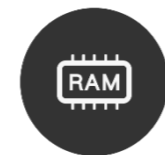


Product features



RK3568J industrial-grade 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.



8GB large RAM, all-data-link ECC

It supports up to 8GB RAM, with up to 32Bit width. It supports all-data-link ECC, making data safer and more reliable, and meeting the requirements of running large-memory products.



Integrated co-processors — GPU, VPU, NPU

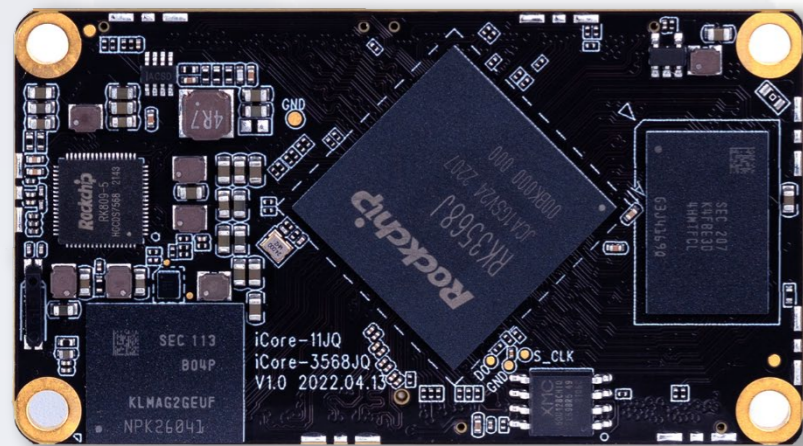
It is integrated with dual-core GPU, high-performance VPU and high-efficiency NPU. The GPU supports OpenGL ES3.2/2.0/1.1, Vulkan1.1. The VPU can achieve 4K 60fps H.265/H.264/VP9 video decoding and 1920x1080@60fps H.265/ H.264 video encoding. The NPU supports one-click switching of mainstream frameworks like Caffe/TensorFlow.



A wide range of applications

This core board can be widely used in smart NVR, cloud terminal, IoT gateway, industrial control, edge computing, face recognition gate, NAS, vehicle center console, etc.

Product features



Various display interfaces, dual cameras supported

With MIPI-CSI x2, MIPI-DSI x2, HDMI2.0 and EDP video interface, 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 NVR, intelligent terminal, multimedia advertising player, etc.



Android and Linux are supported

Android 11.0, Ubuntu Desktop version and Server version are supported. And it also supports RTLinux, delivering excellent real-time performance. The stable and reliable operation provides a safe and stable system environment for product research and production.



Powerful network communication

It is integrated with PCIe3.0, GMAC Ethernet controller, SDIO3.0 interface, and can be extended to multi-channel Gigabit Ethernet, WiFi 6/Bluetooth, 5G/4G LTE, enabling higher-rate communication.



Wide-temperature stable operation

It is made of strictly selected industrial-grade processor and components, so it can provide 7x24h continuous and stable operation in harsh operating environments regardless of if it is as low as -40°C or as high as 85°C, satisfying the industrial-grade needs.

Specifications



		iCore-3568Q(Commercial)	iCore-3568JQ(Industrial)	iCore-3568MQ(Automotive)
Basic Specifications	CPU	RK3568 Quad-core 64-bit Cortex-A55 processor, 22nm lithography process, up to 2.0GHz	RK3568J Quad-core 64-bit Cortex-A55 processor, 22nm lithography process, up to 1.4GHz	RK3568M Quad-core 64-bit Cortex-A55 processor, 22nm lithography process, up to 1.6GHz
	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	Integrated high-performance AI accelerator RKNN NPU, 1.0Tops@INT8(Commercial), 512MAC NPU(Industrial and Automotive) Supports one-click switching of Caffe/TensorFlow/TFLite/ONNX/PyTorch/Keras/Darknet		
	ISP	Supports 8M ISP, supports HDR		
	VPU	4K@60fps H.265/H.264/VP9 video encoding(or 8CH 1080P 30fps multi-format decoding) 1080P@60fps H.265/H.264 video encoding		
	RAM	LPDDR4 (1GB/2GB/4GB/8GB optional)		
	Storage	eMMC(8GB/16GB/32GB/64GB/128GB optional)		
	power	5V (voltage tolerance $\pm 5\%$)		
	OS	Android and Linux OS		
	Interface	BTB connector(1*60Pin + 3*80Pin)		
	Size	66 mm * 36.5mm		
	Weight	≈ 20 g		
	Power consumption	Min: 0.015W(5V/3mA), Normal:2.75W(5V/550mA), Max:5.55W(5V/1110mA)		
	Environment	Operating temperature: -20°C ~ 60°C Storage humidity: 10% ~ 90%RH(non-condensing)	Operating temperature: -40°C ~ 85°C Storage humidity: 10% ~ 90%RH(non-condensing)	Operating temperature: -40°C ~ 85°C Storage humidity: 10% ~ 90%RH(non-condensing)
Interface Specifications	Network	Integrated with GMAC/SDIO3.0/USB3.0, the core board enables expansion for Gigabit Ethernet, WiFi6/Bluetooth, and 5G/4G LTE.		
	Video Input	1 * MIPI CSI(1*MIPI CSI(4Lanes) or 2*MIPI CSI(2Lanes) 1 * DVP		
	Video Output	1 * HDMI2.0 (4K@60 Hz) 2 * MIPI DSI (support 1920*1080@60fps or dual-channel 1*MIPI DSI 2560*1440@60fps) 1 * eDP1.3 (support 2560*1600@60fps) 1 * RGB display interface (1920*1080@60Hz) 1 * Single LVDS LCD screen display interface * It can support up to three different display outputs		
	Audio	1 * HDMI audio output 2 * I2S/PCM(2ch)/TDM(8ch)		
	SATA	3 * SATA 3.0		
	PCIe	1 * PCIe 3.0(2Lane)、1 * PCIe 2.1(1Lane)		
	USB	2 * USB 3.0、2 * USB 2.0		
	Other	3 * SDMMC、3 * SPI、10 * UART、6 * I2C、16 * PWM、7 * ADC、3 * CAN、125 * GPIO		

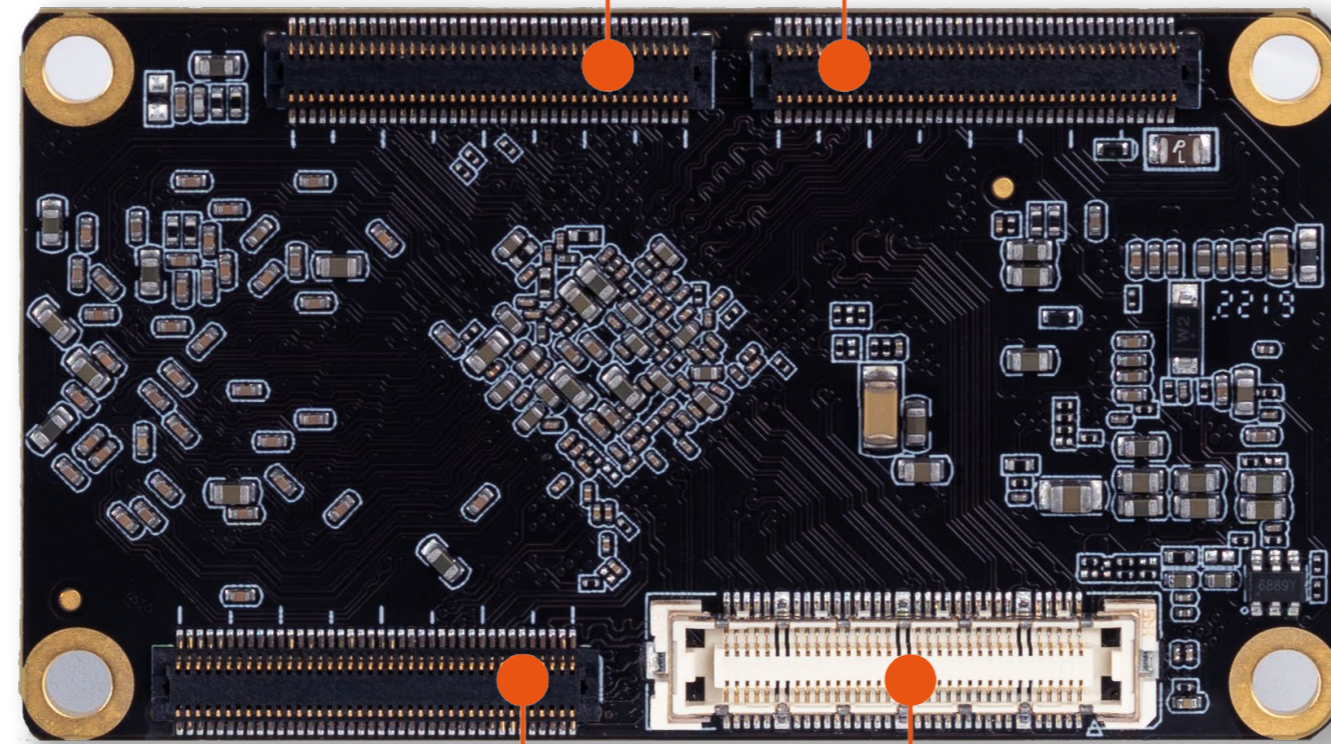
Core Board Interface description

SDMMC/ETHERNET/USB2.0/GPIO/I2C
(BTB seat,80P-0.5mm)

J3

MIPI-CSI/MIPI-DSI/POWER/GPIO
(BTB seat,80P-0.5mm)

J1



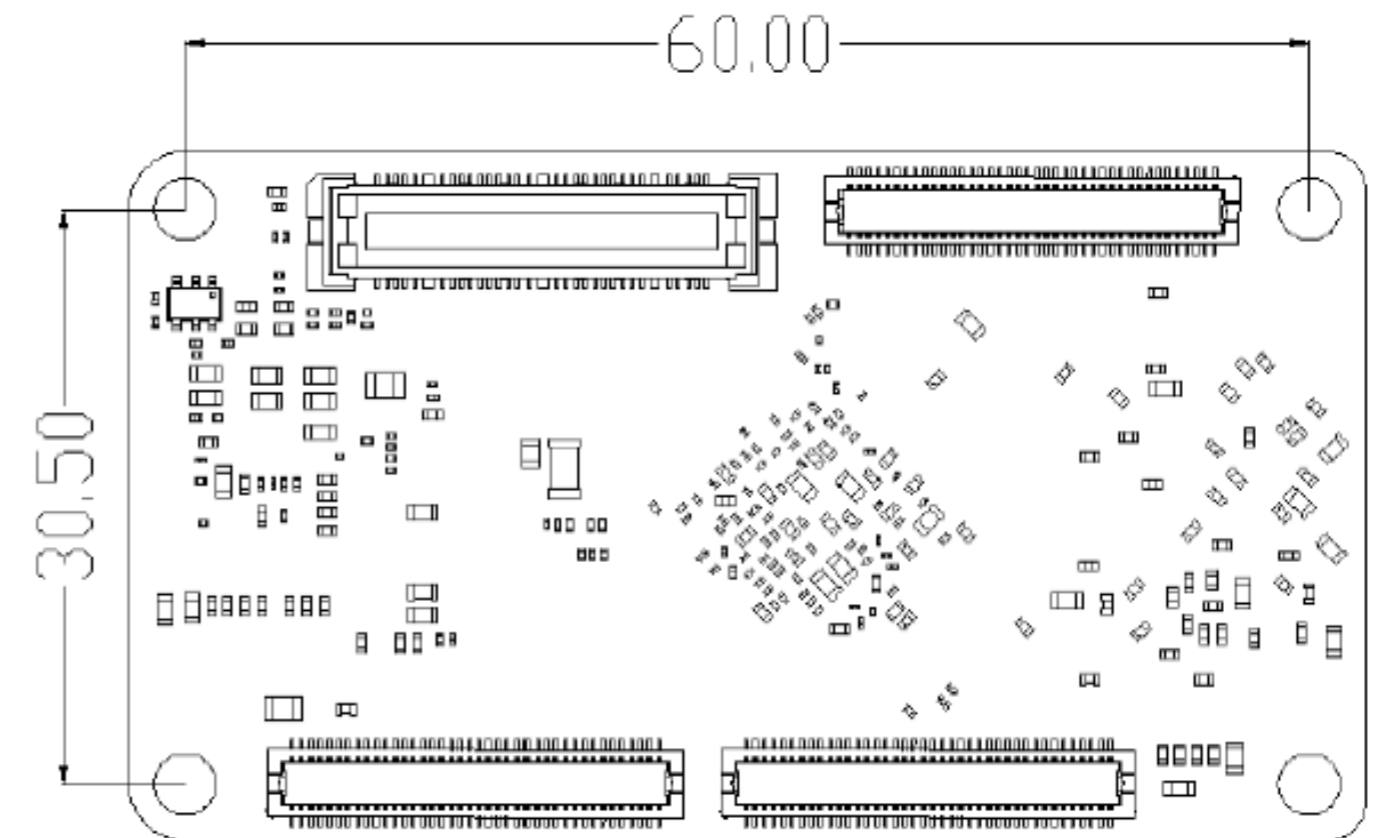
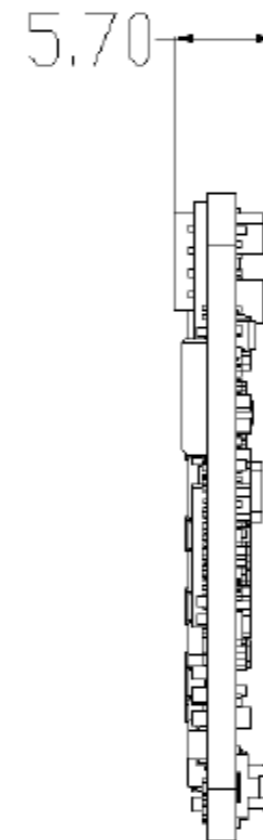
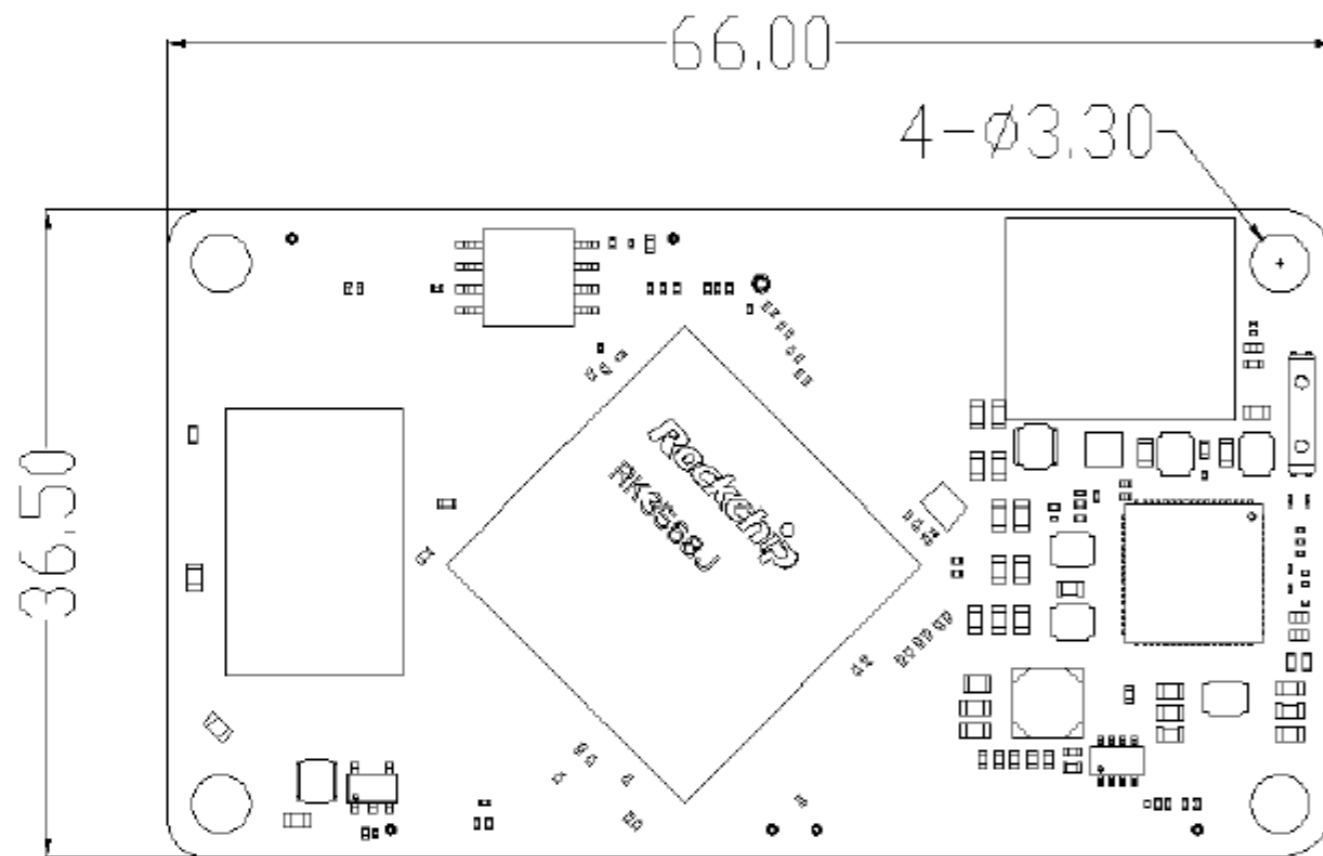
ETHERNET/SDMMC/GPIO/ADC/I2C
(BTB seat,80P-0.5mm)

J4

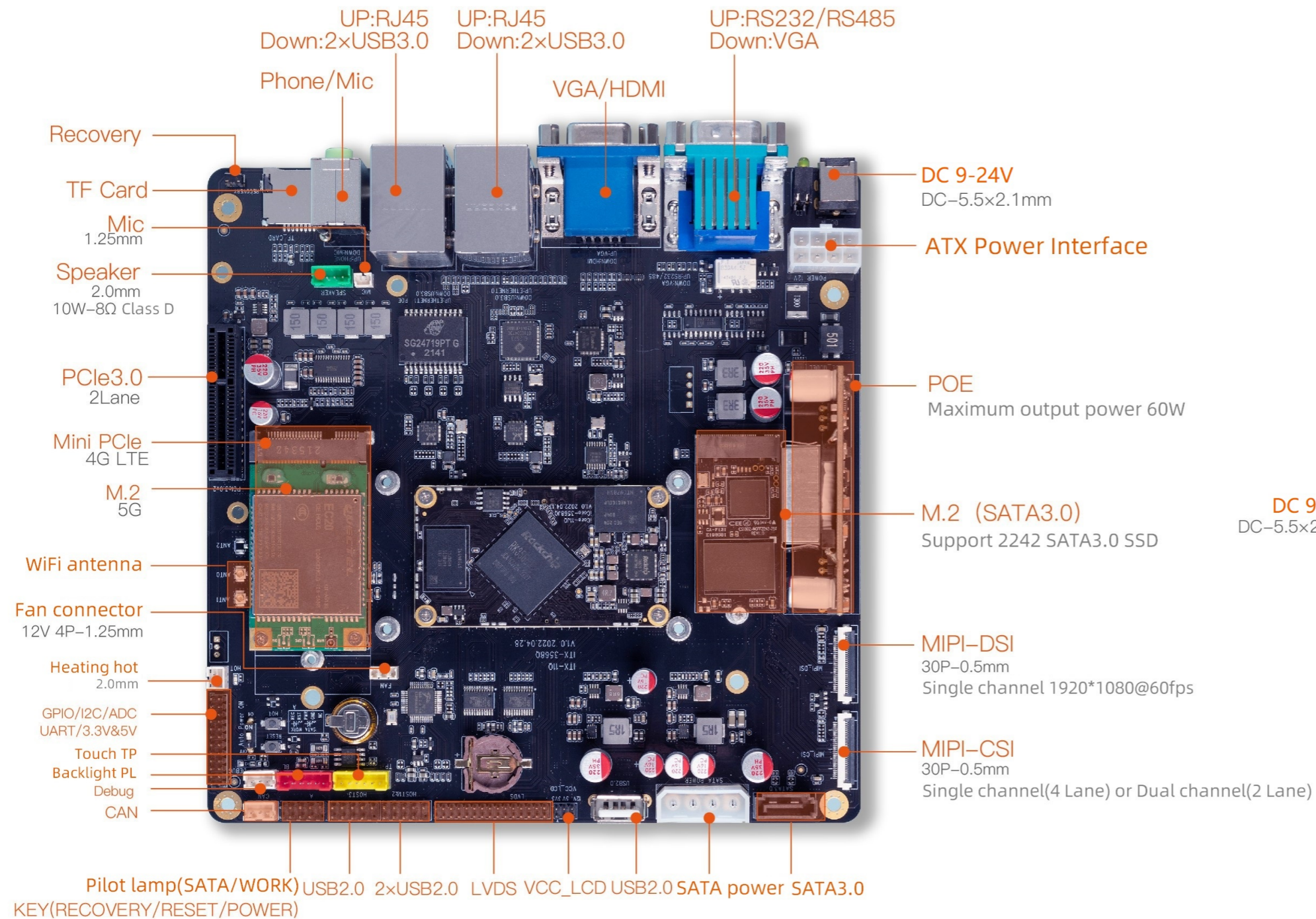
USB3.0/eDP/PCIe3.0/HDMI/SATA
(BTB seat,60P-0.5mm)

J2

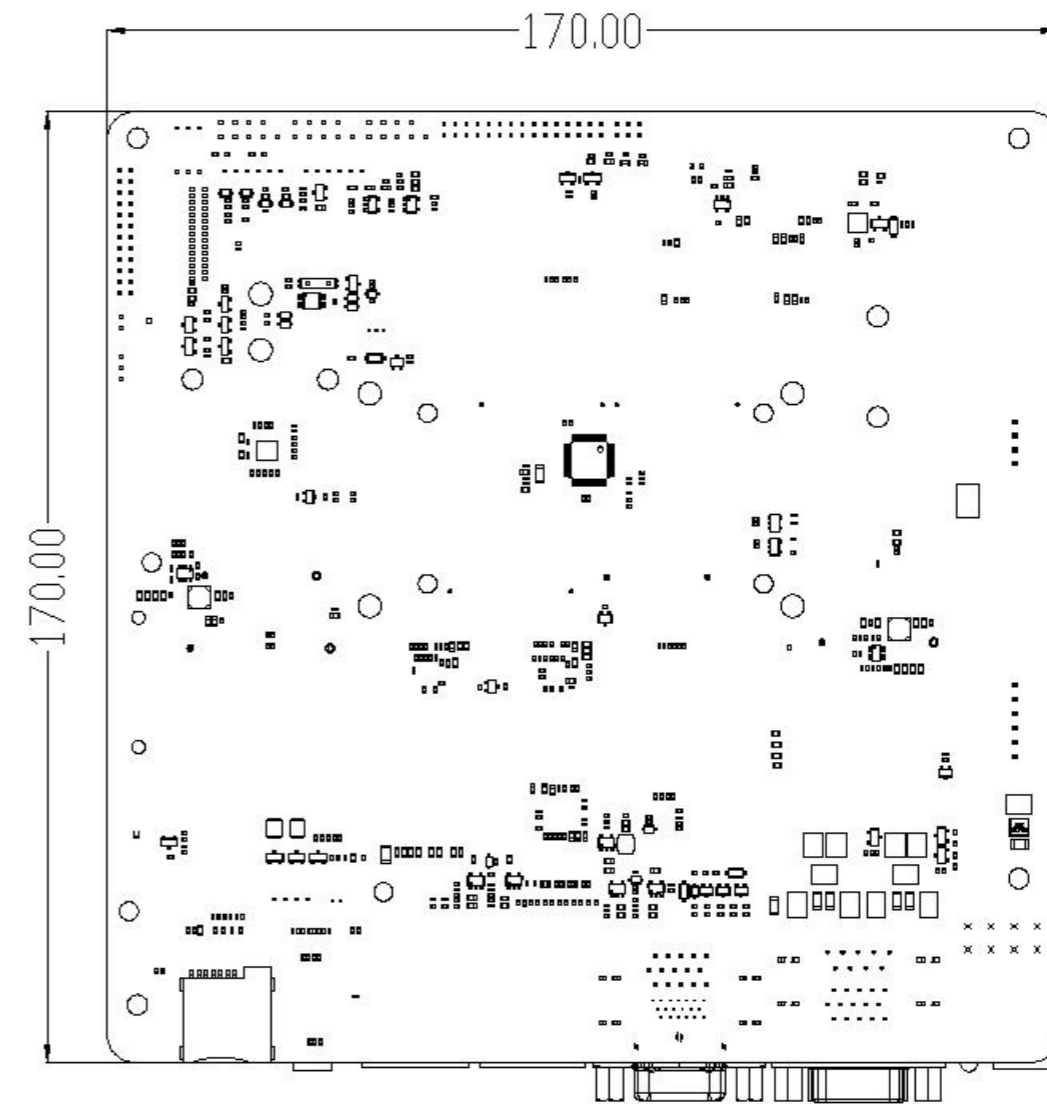
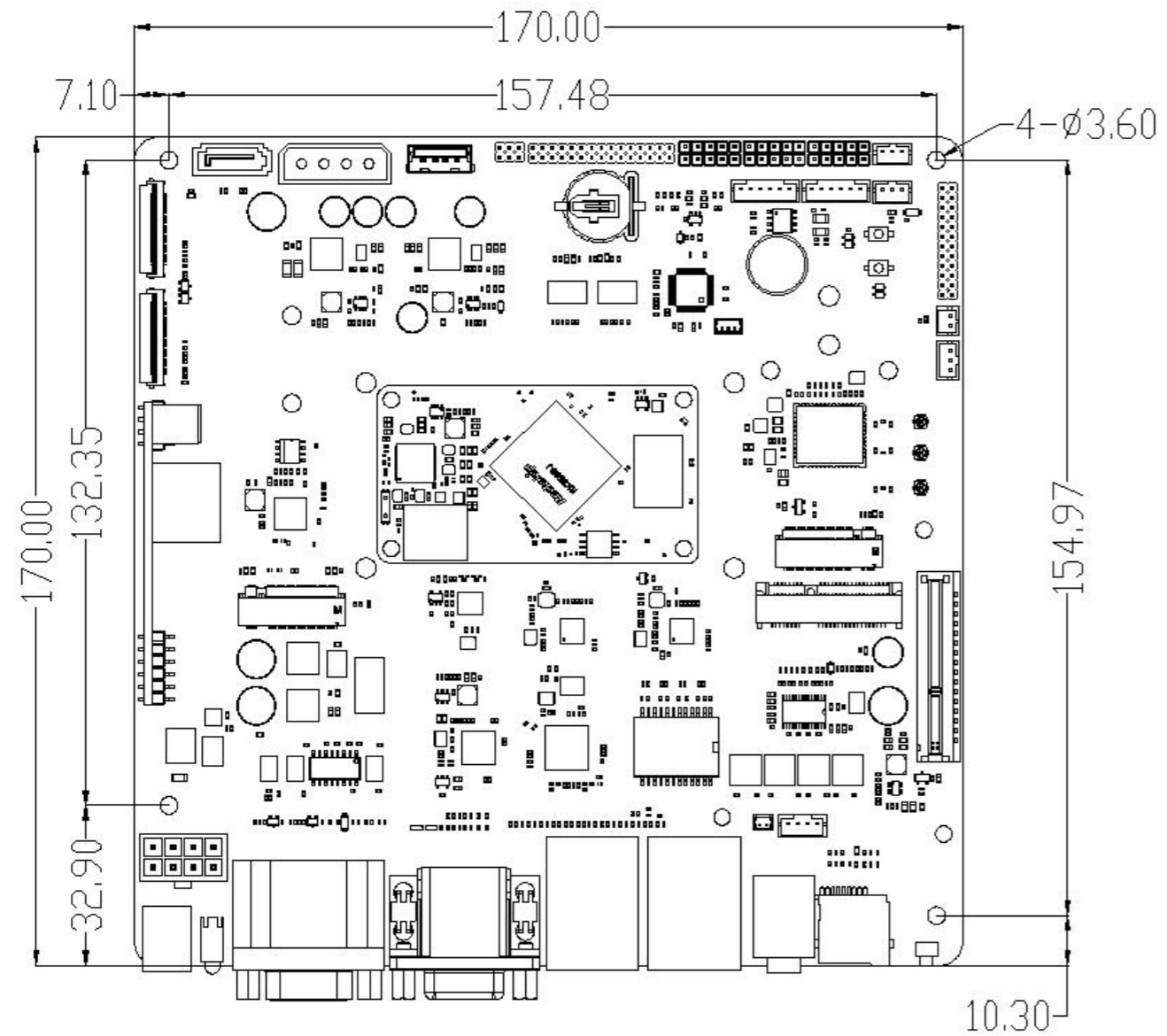
Core Board Dimension



Mainboard Interface description



Mainboard Dimension





Interface definition

① : 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 = Low Level H = High level"

PIN	iCORE-3568Q(J1) iCORE-3568Q board pin definition	Pad type	IO Pull	Function for Mainboard (iBOARD-3568Q)	Defual function description	IO Power domain	RK3568 Pin Number
1	MIPI_CSI_RX_D3P	I		MIPI_CSI_RX_D3P	MIPI_CSI_RX_D3P	-	AD9
3	MIPI_CSI_RX_D3N	I		MIPI_CSI_RX_D3N	MIPI_CSI_RX_D3N	-	AE9
5	MIPI_CSI_RX_D2P	I		MIPI_CSI_RX_D2P	MIPI_CSI_RX_D2P	-	AE11
7	MIPI_CSI_RX_D2N	I		MIPI_CSI_RX_D2N	MIPI_CSI_RX_D2N	-	AD11
9	MIPI_DSI_TX1_D3P	O		MIPI_DSI_TX1_D3P	MIPI_DSI_TX1_D3P	-	AD12
11	MIPI_DSI_TX1_D3N	O		MIPI_DSI_TX1_D3N	MIPI_DSI_TX1_D3N	-	AE12
13	MIPI_DSI_TX1_D2P	O		MIPI_DSI_TX1_D2P	MIPI_DSI_TX1_D2P	-	AD14
15	MIPI_DSI_TX1_D2N	O		MIPI_DSI_TX1_D2N	MIPI_DSI_TX1_D2N	-	AE14
17	MIPI_DSI_TX1_CLKP	O		MIPI_DSI_TX1_CLKP	MIPI_DSI_TX1_CLKP	-	AD15
19	MIPI_DSI_TX1_CLKN	O		MIPI_DSI_TX1_CLKN	MIPI_DSI_TX1_CLKN	-	AE15
21	MIPI_DSI_TX1_D1N	O		MIPI_DSI_TX1_D1N	MIPI_DSI_TX1_D1N	-	AC17
23	MIPI_DSI_TX1_D1P	O		MIPI_DSI_TX1_D1P	MIPI_DSI_TX1_D1P	-	AD17
25	MIPI_DSI_TX1_D0P	O		MIPI_DSI_TX1_D0P	MIPI_DSI_TX1_D0P	-	AD18
27	MIPI_DSI_TX1_D0N	O		MIPI_DSI_TX1_D0N	MIPI_DSI_TX1_D0N	-	AE18
29	GND	G		GND	GND		
31	HDMI_TX_HPDIN	I		HDMI_TX_HPDIN	HDMI_TX_HPDIN	5.0V	AB18
33	UART2_RX_M0/GPIO0_D0_u	I/O	UP	UART2_RX_M0_DEBUG	UART2_RX_M0_DEBUG	3.3V	AC20



Interface definition

35	UART2_TX_M0/GPIO0_D1_u	I/O	UP	UART2_TX_M0_DEBUG	UART2_TX_M0_DEBUG	3.3V	35
37	VDC_EXT	I		VDC_EXT	VDC(PMIC EN) Input,Active H	5.0V	37
39	VCCA_1V8	P		VCCA_1V8	1.8V Output , Max:200mA	1.8V	39
41	VCC_1V8	P		VCC_1V8	1.8V Output , Pin41/43 Total Max:500mA	1.8V	41
43	VCC_1V8	P		VCC_1V8		1.8V	43
45	VCC3V3_SD	P		VCC3V3_SD	3.3V Output TF Card Power Max:100mA	3.3V	45
47	VCC_3V3	P		VCC_3V3	3.3V Output , Pin47/49/51 Total Max:800mA	3.3V	47
49	VCC_3V3	P		VCC_3V3		3.3V	49
51	VCC_3V3	P		VCC_3V3		3.3V	51
53	VCCIO_ACODEC	P		VCCIO_ACODEC	3.3V Output For codec, Max:200mA	3.3V	53
55	GND	G		GND	GND		55
57	HPL_OUT	O		HPL_OUT	Left channel output of the headphone	3.3V	57
59	HP_SNS	G		HP_SNS	Reference ground for the headphone	GND	59
61	HPR_OUT	O		HPR_OUT	Right channel output of the headphone	3.3V	61
63	GND	G		GND	GND	GND	63
65	GND	G		GND		GND	65
67	GND	G		GND		GND	67
69	GND	G		GND		GND	69
71	VCC5V0_CORE	P		VCC5V0_CORE	Input Voltage 5.0V +/-5%	5V	



Interface definition

73	VCC5V0_CORE	P		VCC5V0_CORE	Input Voltage 5.0V +/-5%	5V	
75	VCC5V0_CORE	P		VCC5V0_CORE		5V	
77	VCC5V0_CORE	P		VCC5V0_CORE		5V	
79	VCC5V0_CORE	P		VCC5V0_CORE		5V	
PIN	iCORE-3568Q(J1) iCORE-3568Q board pin definition	Pad type	IO Pull	Function for Mainboard (iBOARD-3568Q)	Defual function description	IO Power domain	RK3568 Pin Number
2	MIPI_CSI_RX_CLK1P	I		MIPI_CSI_RX_CLK1P	MIPI_CSI_RX_CLK1P	-	AG9
4	MIPI_CSI_RX_CLK1N	I		MIPI_CSI_RX_CLK1N	MIPI_CSI_RX_CLK1N	-	AH9
6	MIPI_CSI_RX_CLK0P	I		MIPI_CSI_RX_CLK0P	MIPI_CSI_RX_CLK0P	-	AG10
8	MIPI_CSI_RX_CLK0N	I		MIPI_CSI_RX_CLK0N	MIPI_CSI_RX_CLK0N	-	AH10
10	MIPI_CSI_RX_D1P	I		MIPI_CSI_RX_D1P	MIPI_CSI_RX_D1P	-	AG11
12	MIPI_CSI_RX_D1N	I		MIPI_CSI_RX_D1N	MIPI_CSI_RX_D1N	-	AH11
14	MIPI_CSI_RX_D0P	I		MIPI_CSI_RX_D0P	MIPI_CSI_RX_D0P	-	AG12
16	MIPI_CSI_RX_D0N	I		MIPI_CSI_RX_D0N	MIPI_CSI_RX_D0N	-	AH12
18	MIPI_DSI_TX0_D3P/LVDS_TX0_D3P	O		MIPI_DSI_TX0_D3P/LVDS_TX0_D3P	MIPI_DSI_TX0_D3P/LVDS_TX0_D3P	-	AH13
20	MIPI_DSI_TX0_D3N/LVDS_TX0_D3N	O		MIPI_DSI_TX0_D3N/LVDS_TX0_D3N	MIPI_DSI_TX0_D3N/LVDS_TX0_D3N	-	AG13
22	MIPI_DSI_TX0_CLKP/LVDS_TX0_CLKP	O		MIPI_DSI_TX0_CLKP/LVDS_TX0_CLKP	MIPI_DSI_TX0_CLKP/LVDS_TX0_CLKP	-	AH15
24	MIPI_DSI_TX0_CLKN/LVDS_TX0_CLKN	O		MIPI_DSI_TX0_CLKN/LVDS_TX0_CLKN	MIPI_DSI_TX0_CLKN/LVDS_TX0_CLKN	-	AG15
26	MIPI_DSI_TX0_D2P/LVDS_TX0_D2P	O		MIPI_DSI_TX0_D2P/LVDS_TX0_D2P	MIPI_DSI_TX0_D2P/LVDS_TX0_D2P	-	AH14
28	MIPI_DSI_TX0_D2N/LVDS_TX0_D2N	O		MIPI_DSI_TX0_D2N/LVDS_TX0_D2N	MIPI_DSI_TX0_D2N/LVDS_TX0_D2N	-	AG14
30	GND	G		GND	GND	GND	



Interface definition

32	MIPI_DSI_TX0_D1P/LVDS_TX0_D1P	O		MIPI_DSI_TX0_D1P/LVDS_TX0_D1P	MIPI_DSI_TX0_D1P/LVDS_TX0_D1P	-	AH16
34	MIPI_DSI_TX0_D1N/LVDS_TX0_D1N	O		MIPI_DSI_TX0_D1N/LVDS_TX0_D1N	MIPI_DSI_TX0_D1N/LVDS_TX0_D1N	-	AG16
36	MIPI_DSI_TX0_D0P/LVDS_TX0_D0P	O		MIPI_DSI_TX0_D0P/LVDS_TX0_D0P	MIPI_DSI_TX0_D0P/LVDS_TX0_D0P	-	AH17
38	MIPI_DSI_TX0_D0N/LVDS_TX0_D0N	O		MIPI_DSI_TX0_D0N/LVDS_TX0_D0N	MIPI_DSI_TX0_D0N/LVDS_TX0_D0N	-	AG17
40	GND	G		GND	GND	GND	
42	GND	G		GND	GND	GND	
44	VCCIO_WL	P		VCCIO_WL	WIFI/GMAC1 VCCIO Input to RK3568 VCCIO6, 1.8V or 3.3V option (Pin44/46 same net) Default:1.8V Input	1.8V/3.3V	M board must input 1.8V or 3.3V *Note 1
46	VCCIO_WL	P		VCCIO_WL		1.8V/3.3V	
48	GND	G		GND	GND		
50	HDMITX_SCL/I2C5_SCL_M1/GPIO4_C7_u	I/O	UP	HDMITX_SCL	HDMI TX_SCL M board need add Pull up resistance	3.3V	AG8
52	EDP_HPDIN_M0/SPDIF_TX_M2/SATA2_ACT_LED/PC IE30X2_PERSTn_M2/I2S3_LRCK_M1/GPIO4_C4_d	I/O	DOWN	SATA2_ACT_LED	DIY_LED	3.3V	AH7
54	HDMITX_SDA/I2C5_SDA_M1/GPIO4_D0_u	I/O	UP	HDMITX_SDA	HDMI TX_SDA M board need add Pull up resistance	3.3V	AG7
56	HDMITX_CEC_M0/SPI3_CS1_M1/GPIO4_D1_u	I/O	UP	HDMITX_CEC_M0	HDMITX_CEC_M0	3.3V	AH6
58	GND	G		GND	GND	GND	
60	MIC1_INP	I		MIC1_INP	MIC1_INP, core board series capacitance 0.1uF	3.3V	
62	MIC1_INN	I		MIC1_INN	MIC1_INN core board series capacitance 0.1uF	3.3V	
64	GND	G		GND	GND	GND	
66	GND	G		GND		GND	



Interface definition

68	GND	G		GND	GND	GND	
70	GND	G		GND		GND	
72	VCC5V0_CORE	P		VCC5V0_CORE	Input Voltage 5.0V +/-5%	5V	
74	VCC5V0_CORE	P		VCC5V0_CORE		5V	
76	VCC5V0_CORE	P		VCC5V0_CORE		5V	
78	VCC5V0_CORE	P		VCC5V0_CORE		5V	
80	VCC5V0_CORE	P		VCC5V0_CORE		5V	
<p>*Notes1: VCCIO_WL =1.8V or 3.3V INPUT Option (Default: 1.8V) This power supply is input, be sure to power on the backplane. If it is changed to 3.3V, the software needs to change the voltage configuration of the power domain, otherwise there is a risk of burning the IO port</p>							
PIN	iCORE-3568Q(J2) Core board pin definition	Pad type	IO Pull	Function for Mainboard (iBOARD-3568Q)	Defual function description	IO Power domain	RK3568 Pin Number
1	GND	G				GND	
3	PCIE30_RX0N	I		PCIE30_RX0N	PCIE30_RX0N	-	AC27
5	PCIE30_RX0P	I		PCIE30_RX0P	PCIE30_RX0P	-	AC28
7	PCIE30_TX1N	O		PCIE30_TX1N	PCIE30_TX1N	-	AB27
9	PCIE30_TX1P	O		PCIE30_TX1P	PCIE30_TX1P	-	AB28
11	PCIE30_TX0N	O		PCIE30_TX0N	PCIE30_TX0N	-	AA27
13	PCIE30_TX0P	O		PCIE30_TX0P	PCIE30_TX0P	-	AA28
15	GND	G		GND	GND	GND	
17	SATA2_RXN	I		SATA2_RXN	SATA2_RXN	-	Y28
19	SATA2_RXP	I		SATA2_RXP	SATA2_RXP	-	Y27
21	SATA2_TXN	O		SATA2_TXN	SATA2_TXN	-	W28



Interface definition

23	SATA2_TXP	O		SATA2_TXP	SATA2_TXP	-	W27
25	GND	G		GND	GND	GND	
27	USB3_HOST1_SSRXN/SATA1_RXN/QSGMII_RXN_M0	I/O		USB3_HOST1_SSRXN	USB3_HOST1_SSRXN	-	U27
29	USB3_HOST1_SSRXP/SATA1_RXP/QSGMII_RXP_M0	I/O		USB3_HOST1_SSRXP	USB3_HOST1_SSRXP	-	U28
31	USB3_HOST1_SSTXN/SATA1_TXN/QSGMII_TXN_M0	I/O		USB3_HOST1_SSTXN	USB3_HOST1_SSTXN	-	V27
33	USB3_HOST1_SSTXP/SATA1_TXP/QSGMII_TXP_M0	I/O		USB3_HOST1_SSTXP	USB3_HOST1_SSTXP	-	V28
35	GND	G		GND	GND	GND	
37	EDP_TX_D3N	O		NC	EDP_TX_D3- core board series capacitance 0.1uF	1.8V	N27
39	EDP_TX_D3P	O		NC	EDP_TX_D3+ core board series capacitance 0.1uF	1.8V	M28
41	GND	G		GND	GND	GND	
43	EDP_TX_AUXP	O		EDP_TX_AUXP	eDP CH-AUX+		L25
45	EDP_TX_AUXN	O		EDP_TX_AUXN	eDP CH-AUX-		M25
47	EDP_TX_D2N	O		NC	EDP_TX_D2- core board series capacitance 0.1uF	-	M27
49	EDP_TX_D2P	O		NC	EDP_TX_D2+ core board series capacitance 0.1uF	-	L28
51	EDP_TX_D1N	O		EDP_TX_D1N	EDP_TX_D1- core board series capacitance 0.1uF	-	L27
53	EDP_TX_D1P	O		EDP_TX_D1P	EDP_TX_D1+ core board series capacitance 0.1uF	-	K28
55	EDP_TX_D0N	O		EDP_TX_D0N	EDP_TX_D0- core board series capacitance 0.1uF	-	K27
57	EDP_TX_D0P	O		EDP_TX_D0P	EDP_TX_D0+ core board series capacitance 0.1uF	-	J28



Interface definition

PIN	iCORE-3568Q(J2) Core board pin definition	Pad type	IO Pull	Function for Mainboard (iBOARD-3568Q)	Defual function description	IO Power domain	RK3568 Pin Number
59	GND	G		GND	GND	GND	
2	HDMI_TX2P	O		HDMI_TX2P_PORT	HDMI_TX2P_PORT, core board series resistance 2.2R	-	AG22
4	HDMI_TX2N	O		HDMI_TX2N_PORT	HDMI_TX2N_PORT, core board series resistance 2.2R	-	AH22
6	HDMI_TX1P	O		HDMI_TX1P_PORT	HDMI_TX1P_PORT, core board series resistance 2.2R	-	AG21
8	HDMI_TX1N	O		HDMI_TX1N_PORT	HDMI_TX1N_PORT, core board series resistance 2.2R	-	AH21
10	HDMI_TX0P	O		HDMI_TX0P_PORT	HDMI_TX0P_PORT, core board series resistance 2.2R	-	AG20
12	HDMI_TX0N	O		HDMI_TX0N_PORT	HDMI_TX0N_PORT, core board series resistance 2.2R	-	AH20
14	HDMI_TXCLKN	O		HDMI_TXCLKN_PORT	HDMI_TXCLKN_PORT, core board series resistance 2.2R	-	AG19
16	HDMI_TXCLKP	O		HDMI_TXCLKP_PORT	HDMI_TXCLKP_PORT, core board series resistance 2.2R	-	AH19
18	GND	G		GND	GND	GND	
20	PCIE30_RX1N	I		PCIE30_RX1N	PCIE30_RX1N		AD27
22	PCIE30_RX1P	I		PCIE30_RX1P	PCIE30_RX1P		AD28
24	PCIE30_REFCLKP_IN	I		PCIE30_REFCLKP_IN	PCIE30_REFCLKP_IN		Y25
26	PCIE30_REFCLKN_IN	I		PCIE30_REFCLKN_IN	PCIE30_REFCLKN_IN		AA25
28	PCIE20_REFCLKP	O		PCIE20_REFCLKP	PCIE20_REFCLKP		V24
30	PCIE20_REFCLKN	O		PCIE20_REFCLKN	PCIE20_REFCLKN		V25
32	MULTI_PHY1_REFCLKP	O		NC	NC		U25



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34	MULTI_PHY1_REFCLKN	O		NC	NC		U24
36	MULTI_PHY0_REFCLKN	O		NC	NC		R25
38	MULTI_PHY0_REFCLKP	O		NC	NC		R24
40	GND	G		GND	GND	GND	
42	USB3_OTG0_SSRXN/SATA0_RXN	I/O		USB3_OTG0_SSRXN	USB3_OTG0_SSRXN	-	R27
44	USB3_OTG0_SSRXP/SATA0_RXP	I/O		USB3_OTG0_SSRXP	USB3_OTG0_SSRXP	-	R28
46	GND	G		GND	GND	GND	
48	USB3_OTG0_SSTXN/SATA0_TXN	I/O		USB3_OTG0_SSTXN	USB3_OTG0_SSTXN	-	T27
50	USB3_OTG0_SSTXP/SATA0_TXP	I/O		USB3_OTG0_SSTXP	USB3_OTG0_SSTXP	-	T28
52	USB3_OTG0_DM	I/O		USB3_OTG0_DM	USB3_OTG0_DM	-	P28
54	USB3_OTG0_DP	I/O		USB3_OTG0_DP	USB3_OTG0_DP	-	P27
56	GND	G		GND	GND	GND	
58	USB3_HOST1_DM	I/O		USB3_HOST1_DM	USB3_HOST1_DM	-	P25
60	USB3_HOST1_DP	I/O		USB3_HOST1_DP	USB3_HOST1_DP	-	P24
PIN	iCORE-3568Q(J3) Core board pin definition	Pad type	IO Pull	Function for Mainboard (MB-Q-RK3568ITX)	Defual function description	IO Power domain	RK3568 Pin Number
1	USB2_HOST2_DP	I/O		USB2_HOST2_DP	USB2_HOST2_DP	-	R2
3	USB2_HOST2_DM	I/O		USB2_HOST2_DM	USB2_HOST2_DM	-	R1
5	GND	G		GND	GND	GND	
7	LCDC_D18/VOP_BT1120_D9/GMAC1_RXDV_CRS_M0/I2C5_SCL_M0/PDM_SDIO_M2/GPIO3_B3_d	I/O	DOWN	LCD_D18	LCDC_D18	3.3V	AF1



Interface definition

9	I2C2_SDA_M1/EBC_GDSP/CAN2_RX_M0/ISP_FLASH_T RIGIN/VOP_BT656_CLK_M1/GPIO4_B4_d	I/O	DOWN	I2C2_SDA_M1	I2C2_SDA_M1 M board add Pull up resistance	VCCIO_WL *Note 1	V6
11	I2C2_SCL_M1/EBC_SDSHR/CAN2_TX_M0/I2S1_SDO3_ M1/GPIO4_B5_d	I/O	DOWN	I2C2_SCL_M1	I2C2_SCL_M1 M board add Pull up resistance		V5
13	LCDC_VSYNC/VOP_BT1120_D14/SPI1_MISO_M1/UAR T5_TX_M1/I2S1_SDO3_M2/GPIO3_C2_d	I/O	DOWN	LCDC_VSYNC	LCDC_VSYNC	3.3V	AA7
15	GND	G		GND	GND	GND	
17	CIF_HREF/EBC_SDLE/GMAC1_MDC_M1/UART1_RTsn_ M1/I2S2_MCLK_M1/GPIO4_B6_d	I/O	DOWN	GMAC1_MDC_M1	GMAC1_MDC_M1	VCCIO_WL *Note 1	U5
19	CIF_VSYNC/EBC_SDOE/GMAC1_MDIO_M1/I2S2_SCLK_ TX_M1/GPIO4_B7_d	I/O	DOWN	GMAC1_MDIO_M1	GMAC1_MDIO_M1		U4
21	CIF_CLKOUT/EBC_GDCLK/PWM11_IR_M1/GPIO4_C0_d	I/O	DOWN	MIPI_MCLK0	MIPI_CLK OUT For MIPI Camera		U3
23	CIF_CLKIN/EBC_SDCLK/GMAC1_MCLKINOUT_M1/UAR T1_CTSn_M1/I2S2_SCLK_RX_M1/GPIO4_C1_d	I/O	DOWN	GMAC1_MCLKINOUT_M1	GMAC1_MCLKINOUT_M1 Input--PHY use external crystal		U2
25	GND	G		GND	GND		GND
27	CAM_CLKOUT1/EBC_SDCE2/GMAC1_RXD1_M1/SPI3_ MISO_M0/I2S1_SDO1_M1/GPIO4_B0_d	I/O	DOWN	GMAC1_RXD1_M1	GMAC1_RXD1_M1	VCCIO_WL *Note 1	V7
29	CIF_D8/EBC_SDDO8/GMAC1_TXD2_M1/UART1_TX_M 1/PDM_CLK0_M1/GPIO3_D6_d	I/O	DOWN	GMAC1_TXD2_M1	GMAC1_TXD2_M1, core board series resistance 22R		Y6
31	CIF_D9/EBC_SDDO9/GMAC1_TXD3_M1/UART1_RX_M 1/PDM_SDI0_M1/GPIO3_D7_d	I/O	DOWN	GMAC1_TXD3_M1	GMAC1_TXD3_M1, core board series resistance 22R		Y5
33	CIF_D12/EBC_SDDO12/GMAC1_RXD3_M1/UART7_TX_ M2/PDM_SDI2_M1/GPIO4_A2_d	I/O	DOWN	GMAC1_RXD3_M1	GMAC1_RXD3_M1		Y4
35	CIF_D13/EBC_SDDO13/GMAC1_RXCLK_M1/UART7_RX_ M2/PDM_SDI3_M1/GPIO4_A3_d	I/O	DOWN	GMAC1_RXCLK_M1	GMAC1_RXCLK_M1		Y3
37	CIF_D10/EBC_SDDO10/GMAC1_TXCLK_M1/PDM_CLK 1_M1/GPIO4_A0_d	I/O	DOWN	GMAC1_TXCLK_M1	GMAC1_TXCLK_M1, core board series resistance 22R		AA3
39	GND	G		GND	GND		GND
41	CIF_D4/EBC_SDDO4/SDMMC2_CMD_M0/I2S1_SDI0_ M1/VOP_BT656_D4_M1/GPIO3_D2_d	I/O	DOWN	SDMMC2_CMD_M0	SDMMC2_CMD_M To WIFI	VCCIO_WL *Note 1	Y7



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43	CIF_D4/EBC_SDDO4/SDMMC2_CMD_M0/I2S1_SDI0_M1/VOP_BT656_D4_M1/GPIO3_D2_d	I/O	DOWN	SDMMC2_CMD_M0	SDMMC2_CLK_M0 To WIFI core board series resistance 22R	VCCIO_WL *Note 1	AC1
45	GND	G		GND	GND		
47	CIF_D3/EBC_SDDO3/SDMMC2_D3_M0/I2S1_SDO0_M1/VOP_BT656_D3_M1/GPIO3_D1_d	I/O	DOWN	SDMMC2_D3_M0	SDMMC2_D3_M0 To WIFI	VCCIO_WL *Note 1	AB1
49	CIF_D2/EBC_SDDO2/SDMMC2_D2_M0/I2S1_LRCK_TX_M1/VOP_BT656_D2_M1/GPIO3_D0_d	I/O	DOWN	SDMMC2_D2_M0	SDMMC2_D2_M0 To WIFI		AB5
51	CIF_D0/EBC_SDDO0/SDMMC2_D0_M0/I2S1_MCLK_M1/VOP_BT656_D0_M1/GPIO3_C6_d	I/O	DOWN	SDMMC2_D0_M0	SDMMC2_D0_M0 To WIFI		AC5
53	CIF_D1/EBC_SDDO1/SDMMC2_D1_M0/I2S1_SCLK_TX_M1/VOP_BT656_D1_M1/GPIO3_C7_d	I/O	DOWN	SDMMC2_D1_M0	SDMMC2_D1_M0 To WIFI		AA6
55	GND	G		GND	GND	GND	
57	CIF_D7/EBC_SDDO7/SDMMC2_PWREN_M0/I2S1_SDI3_M1/VOP_BT656_D7_M1/GPIO3_D5_d	I/O	DOWN	WIFI_REG_ON_H	WIFI EN , Active H	VCCIO_WL *Note 1	AA5
59	LCDC_D23/PWM13_M0/GMAC1_MCLKINOUT_M0/UART3_RX_M1/PDM_SDI3_M2/GPIO3_C0_d	I/O	DOWN	LCD_D23	LCD_D23	3.3V	AD2
61	LCDC_D22/PWM12_M0/GMAC1_TXEN_M0/UART3_TX_M1/PDM_SDI2_M2/GPIO3_B7_d	I/O	DOWN	LCD_D22	LCD_D22	3.3V	AD4
63	LCDC_D9/VOP_BT1120_D1/GMAC1_TXD2_M0/I2S3_MCLK_M0/SDMMC2_D1_M1/GPIO3_A2_d	I/O	DOWN	LCD_D9	LCD_D9	3.3V	AE5
65	LCDC_D3/VOP_BT656_D3_M0/SPI0_CLK_M1/PCIE30X1_WAKEn_M1/I2S1_SDI0_M2/GPIO2_D3_d	I/O	DOWN	LCD_D3	LCD_D3	3.3V	AC7
67	LCDC_D1/VOP_BT656_D1_M0/SPI0_MOSI_M1/PCIE20_WAKEn_M1/I2S1_SCLK_TX_M2/GPIO2_D1_d	I/O	DOWN	LCD_D1	LCD_D1	3.3V	AD7
69	LCDC_D8/VOP_BT1120_D0/SPI1_CS0_M1/PCIE30X1_PERSTn_M1/SDMMC2_D0_M1/GPIO3_A1_d	I/O	DOWN	LCD_D8	LCD_D8	3.3V	AB8
71	PWM14_M1/SPI3_CLK_M1/CAN1_RX_M1/PCIE30X2_CLKREQn_M2/I2S3_MCLK_M1/GPIO4_C2_d	I/O	DOWN	CAN1_RX_M1	CAN1_RX_M1	3.3V	AF8
73	PWM15_IR_M1/SPI3_MOSI_M1/CAN1_TX_M1/PCIE30X2_WAKEn_M2/I2S3_SCLK_M1/GPIO4_C3_d	I/O	DOWN	CAN1_TX_M1	CAN1_TX_M1	3.3V	AA11
75	LCDC_D2/VOP_BT656_D2_M0/SPI0_CS0_M1/PCIE30X1_CLKREQn_M1/I2S1_LRCK_TX_M2/GPIO2_D2_d	I/O	DOWN	LCD_D2	LCD_D2	3.3V	AC8



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77	PWM13_M1/SPI3_CS0_M1/SATA0_ACT_LED/UART9_RX_M1/I2S3_SDI_M1/GPIO4_C6_d	I/O	DOWN	UART9_RX_M1	UART9_RX_M1	3.3V	AE8
79	PWM12_M1/SPI3_MISO_M1/SATA1_ACT_LED/UART9_TX_M1/I2S3_SDO_M1/GPIO4_C5_d	I/O	DOWN	UART9_TX_M1	UART9_TX_M1	3.3V	AD8
PIN	iCORE-3568Q(J3) Core board pin definition	Pad type	IO Pull	Function for Mainboard (MB-Q-RK3568ITX)	Defual function description	IO Power domain	RK3568 Pin Number
2	USB2_HOST3_DP	I/O		USB2_HOST3_DP	USB2_HOST3_DP	-	T2
4	USB2_HOST3_DM	I/O		USB2_HOST3_DM	USB2_HOST3_DM	-	T1
6	GND	G		GND	GND	GND	
8	LCDC_D19/VOP_BT1120_D10/GMAC1_RXER_M0/I2C5_SDA_M0/PDM_SDI1_M2/GPIO3_B4_d	I/O	DOWN	LCD_D19	LCDC_D19	3.3V	AE1
10	LCDC_HSYNC/VOP_BT1120_D13/SPI1_MOSI_M1/PCIE20_PERSTn_M1/I2S1_SDO2_M2/GPIO3_C1_d	I/O	DOWN	LCDC_HSYNC	LCDC_HSYNC	3.3V	AD1
12	LCDC_D6/VOP_BT656_D6_M0/SPI2_MOSI_M1/PCIE30_X2_PERSTn_M1/I2S1_SDI3_M2/GPIO2_D6_d	I/O	DOWN	LCD_D6	LCD_D6	3.3V	AD6
14	GPIO4_D2_d	I/O	DOWN	GPIO4_D2_D	GPIO4_D2_D	3.3V	AB9
16	PWM14_M0/VOP_PWM_M1/GMAC1_MDC_M0/UART7_TX_M1/PDM_CLK1_M2/GPIO3_C4_d	I/O	DOWN	FAN_PWM14_M0	FAN_PWM14_M0	3.3V	AC3
18	I2C4_SDA_M0/EBC_VCOM/GMAC1_RXER_M1/SPI3_MOSI_M0/I2S2_SDI_M1/GPIO4_B2_d	I/O	DOWN	I2C4_SDA_M0	I2C4_SDA_M0 Core board Pull up resistance 2.2K	VCCIO_WL *Note 1	V4
20	I2C4_SCL_M0/EBC_GDOE/ETH1_REFCLKO_25M_M1/SPI3_CLK_M0/I2S2_SDO_M1/GPIO4_B3_d	I/O	DOWN	I2C4_SCL_M0	I2C4_SCL_M0 core board series resistance 22R Core board Pull up resistance 2.2K		V1
22	GND	G		GND	GND	GND	
24	ISP_PRELIGHT_TRIG/EBC_SDCE3/GMAC1_RXDV_CRS_M1/I2S1_SDO2_M1/GPIO4_B1_d	I/O	DOWN	GMAC1_RXDV_CRS_M1	GMAC1_RXDV_CRS_M1	VCCIO_WL *Note 1	V2
26	CAM_CLKOUT0/EBC_SDCE1/GMAC1_RXD0_M1/SPI3_CS1_M0/I2S1_LRCK_RX_M1/GPIO4_A7_d	I/O	DOWN	GMAC1_RXD0_M1	GMAC1_RXD0_M1		W1
28	ISP_FLASHTRIGOUT/EBC_SDCE0/GMAC1_TXEN_M1/SPI3_CS0_M0/I2S1_SCLK_RX_M1/GPIO4_A6_d	I/O	DOWN	GMAC1_TXEN_M1	GMAC1_TXEN_M1 core board series resistance 22R		W2



Interface definition

30	CIF_D15/EBC_SDDO15/GMAC1_TXD1_M1/UART9_RX_M2/I2S2_LRCK_RX_M1/GPIO4_A5_d	I/O	DOWN	GMAC1_TXD1_M1	GMAC1_TXD1_M1 core board series resistance 22R	VCCIO_WL *Note 1	Y1
32	CIF_D14/EBC_SDDO14/GMAC1_TXD0_M1/UART9_TX_M2/I2S2_LRCK_TX_M1/GPIO4_A4_d	I/O	DOWN	GMAC1_TXD0_M1	GMAC1_TXD0_M1 core board series resistance 22R		Y2
34	CIF_D11/EBC_SDDO11/GMAC1_RXD2_M1/PDM_SDI1_M1/GPIO4_A1_d	I/O	DOWN	GMAC1_RXD2_M1	GMAC1_RXD2_M1		AA2
36	CIF_D6/EBC_SDDO6/SDMMC2_DET_M0/I2S1_SDI2_M1/VOP_BT656_D6_M1/GPIO3_D4_d	I/O	DOWN	WIFI_WAKE_HOST_H_GPIO3_D4	WIFI_WAKE_HOST Active H		AA1
38	GND	G		GND	GND	GND	
40	LCDC_D15/VOP_BT1120_D6/ETH1_REFCLKO_25M_M0/SDMMC2_PWREN_M1/GPIO3_B0_d	I/O	DOWN	LCD_D15	LCD_D15	3.3V	AG2
42	GND	G		GND	GND	GND	
44	LCDC_D21/VOP_BT1120_D12/GMAC1_TXD1_M0/I2C3_SDA_M1/PWM11_IR_M0/GPIO3_B6_d	I/O	DOWN	LCD_D21	LCD_D21	3.3V	AE3
46	LCDC_DEN/VOP_BT1120_D15/SPI1_CLK_M1/UART5_RX_M1/I2S1_SCLK_RX_M2/GPIO3_C3_d	I/O	DOWN	LCDC_DEN	LCDC_DEN	3.3V	AC4
48	PWM15_IR_M0/SPDIF_TX_M1/GMAC1_MDIO_M0/UART7_RX_M1/I2S1_LRCK_RX_M2/GPIO3_C5_d	I/O	DOWN	BL_PWM15	BACKLIGHT_PWM15	3.3V	AC2
50	LCDC_D20/VOP_BT1120_D11/GMAC1_TXD0_M0/I2C3_SCL_M1/PWM10_M0/GPIO3_B5_d	I/O	DOWN	LCD_D20	LCD_D20	3.3V	AE2
52	LCDC_D16/VOP_BT1120_D7/GMAC1_RXD0_M0/UART4_RX_M1/PWM8_M0/GPIO3_B1_d	I/O	DOWN	LCD_D16	LCD_D16	3.3V	AG1
54	LCDC_D17/VOP_BT1120_D8/GMAC1_RXD1_M0/UART4_TX_M1/PWM9_M0/GPIO3_B2_d	I/O	DOWN	LCD_D17	LCD_D17	3.3V	AF2
56	LCDC_D14/VOP_BT1120_D5/GMAC1_RXCLK_M0/SDMMC2_DET_M1/GPIO3_A7_d	I/O	DOWN	LCD_D14	LCD_D14	3.3V	AH2
58	LCDC_D11/VOP_BT1120_D3/GMAC1_RXD2_M0/I2S3_LRCK_M0/SDMMC2_D3_M1/GPIO3_A4_d	I/O	DOWN	LCD_D11	LCD_D11	3.3V	AF4
60	LCDC_D12/VOP_BT1120_D4/GMAC1_RXD3_M0/I2S3_SDO_M0/SDMMC2_CMD_M1/GPIO3_A5_d	I/O	DOWN	LCD_D12	LCD_D12	3.3V	AH3
62	LCDC_D13/VOP_BT1120_CLK/GMAC1_TXCLK_M0/I2S3_SDI_M0/SDMMC2_CLK_M1/GPIO3_A6_d	I/O	DOWN	LCD_D13	LCD_D13	3.3V	AG3



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64	LCDC_D10/VOP_BT1120_D2/GMAC1_TXD3_M0/I2S3_SCLK_M0/SDMMC2_D2_M1/GPIO3_A3_d	I/O	DOWN	LCD_D10	LCD_D10	3.3V	AG4
66	LCDC_CLK/VOP_BT656_CLK_M0/SPI2_CLK_M1/UART8_RX_M1/I2S1_SDO1_M2/GPIO3_A0_d	I/O	DOWN	LCD_CLK	LCD_CLK	3.3V	AH4
68	LCDC_D4/VOP_BT656_D4_M0/SPI2_CS1_M1/PCIE30X2_CLKREQn_M1/I2S1_SDI1_M2/GPIO2_D4_d	I/O	DOWN	LCD_D4	LCD_D4	3.3V	AF5
70	LCDC_D5/VOP_BT656_D5_M0/SPI2_CS0_M1/PCIE30X2_WAKEn_M1/I2S1_SDI2_M2/GPIO2_D5_d	I/O	DOWN	LCD_D5	LCD_D5	3.3V	AF6
72	LCDC_D7/VOP_BT656_D7_M0/SPI2_MISO_M1/UART8_TX_M1/I2S1_SDO0_M2/GPIO2_D7_d	I/O	DOWN	LCD_D7	LCD_D7	3.3V	AH5
74	LCDC_D0/VOP_BT656_D0_M0/SPI0_MISO_M1/PCIE20_CLKREQn_M1/I2S1_MCLK_M2/GPIO2_D0_d	I/O	DOWN	LCD_D0	LCD_D0	3.3V	AG6
76	GND	G		GND	GND	GND	
78	CLK32K_IN/CLK32K_OUT/GPIO0_B0_u	I/O	UP	LCD1_RST	LCD RESET FOR MIPI DSI	3.3V	AD23
80	RK809_32KOUT_WIFI	O		NC	PMIC RK809 32.768KHz clock output for WIFI	VCCIO_WL *Note 1	
<p>*Notes1: VCCIO_WL = 1.8V or 3.3V INPUT Option (Default: 1.8V) This power supply is input, be sure to power on the backplane. If it is changed to 3.3V, the software needs to change the voltage configuration of the power domain, otherwise there is a risk of burning the IO port</p>							
PIN	iCORE-3568Q(J4) Core board pin definition	Pad type	IO Pull	Function for Mainboard (MB-Q-RK3568ITX)	Defual function description	IO Power domain	RK3568 Pin Number
1	GMAC0_RXD2/SDMMC1_D0/UART6_RX_M0/GPIO2_A3_u	I/O	UP	GMAC0_RXD2	GMAC0_RXD2	1.8V	E27
3	GMAC0_RXD1/I2S2_SCLK_RX_M0/UART6_RTSn_M0/SPI1_MOSI_M0/GPIO2_B7_d	I/O	DOWN	GMAC0_RXD1	GMAC0_RXD1	1.8V	H25
5	GMAC0_RXDV_CRS/I2S2_LRCK_RX_M0/UART6_CTSn_M0/SPI1_CS0_M0/GPIO2_C0_d	I/O	DOWN	GMAC0_RXDV_CRS	GMAC0_RXDV_CRS	1.8V	F24
7	GMAC0_TXD3/SDMMC1_CMD/UART9_RX_M0/GPIO2_A7_u	I/O	UP	GMAC0_TXD3	GMAC0_TXD3 core board series resistance 22R	1.8V	C28
9	GMAC0_RXCLK/SDMMC1_D2/UART7_RX_M0/GPIO2_A5_u	I/O	UP	GMAC0_RXCLK	GMAC0_RXCLK	1.8V	B28
11	GND			GND	GND	GND	



Interface definition

13	GMAC0_MCLKINOUT/I2S2_SCLK_TX_M0/UART7_CTSn_M0/SPI2_MISO_M0/GPIO2_C2_d	I/O	DOWN	GMAC0_MCLKINOUT	GMAC0_MCLK_IN/OUT PUT	1.8V	F25
15	GND			GND	GND	GND	
17	ETH0_REFCLK_25M/I2S2_MCLK_M0/UART7_RTsn_M0/SPI2_CLK_M0/GPIO2_C1_d	I/O	DOWN	HP_CTL	Headphone output EN, Active H	1.8V	G23
19	GND			GND	GND	GND	
21	GMAC0_MDC/I2S2_LRCK_TX_M0/UART9_RTsn_M0/SPI2_MOSI_M0/GPIO2_C3_d	I/O	DOWN	GMAC0_MDC	GMAC0_MDC	1.8V	H24
23	GMAC0_MDIO/I2S2_SDO_M0/UART9_CTSn_M0/SPI2_CS0_M0/GPIO2_C4_d	I/O	DOWN	GMAC0_MDIO	GMAC0_MDIO	1.8V	H23
25	SDMMC0_DET_L/SATA_CP_DET/PCIE30X1_CLKREQn_M0/GPIO0_A4_u	I/O	UP	SDMMC0_DET_L	SDMMC0_DET Input, Active L	3.3V	Y22
27	GND			GND	GND	GND	
29	SDMMC0_D1/UART2_RX_M1/UART6_RX_M1/PWM9_M1/GPIO1_D6_u	I/O	UP	SDMMC0_D1	SDMMC0_D1 for TF Card	VCCIO_SD *Note 2	J24
31	SDMMC0_CMD/PWM10_M1/UART5_RX_M0/CAN0_TX_M1/GPIO2_A1_u	I/O	UP	SDMMC0_CMD	SDMMC0_CMD to TF Card		H27
33	GND			GND	GND	GND	
35	I2C1_SDA/CAN0_RX_M0/PCIE20_BUTTONRSTn/MCU_JTAG_TCK/GPIO0_B4_u	I/O	UP	I2C1_SDA_TP	I2C1 SDA for TP Core board Pull up resistance 2.2K	3.3V	AB20
37	I2C1_SCL/CAN0_TX_M0/PCIE30X1_BUTTONRSTn/MCU_JTAG_TDO/GPIO0_B3_u	I/O	UP	I2C1_SCL_TP	I2C1 SCL for TP Core board Pull up resistance 2.2K	3.3V	AG24
39	PWM3_IR/EDP_HPDI_M1/PCIE30X1_WAKEn_M0/MCU_JTAG_TMS/GPIO0_C2_d	I/O	DOWN	EDP_HPDI_M1	EDP_HPDI_DET Input ,Active H	3.3V	AG23
41	PWM2_M0/NPUAVS/UART0_TX/MCU_JTAG_TDI/GPIO0_C1_d	I/O	DOWN	UART0_TX	MIPI DSI1 TP_INT input ,Active L	3.3V	AF23
43	GPIO0_D3_d	I/O	DOWN	RTCIC_INT_L_GPIO0_D3	RTC IC_INT ,Active L	1.8V	AE26
45	GND			GND	GND	GND	
47	GPIO0_D4_d	I/O	DOWN	GMAC1_INT/PMEB	GMAC1_INT	1.8V	AB23



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49	GPIO0_D6_d	I/O	DOWN	GMAC0_INT/PMEB	GMAC0_INT	1.8V	AC24
51	I2C2_SCL_M0/SPI0_CLK_M0/PCIE20_WAKEn_M0/PWM1_M1/GPIO0_B5_u	I/O	UP	PCIE30X2_PRSENT_L	PCIE30X2_PRSENT_L	3.3V	AC22
53	I2C2_SDA_M0/SPI0_MOSI_M0/PCIE20_PERSTn_M0/PWM2_M1/GPIO0_B6_U	I/O	UP	WORK_LED	WORK_LED Output, Active H	3.3V	AA20
55	PWM6/SPI0_MISO_M0/PCIE30X2_WAKEn_M0/GPIO0_C5_d	I/O	DOWN	PCIE30X2_WAKEN_M0	PCIE30X2_WAKEN_M0	3.3V	AC21
57	USB3_OTG0_VBUSDET	I		USB3_OTG0_VBUSDET	USB plug-in DET,Active H	3.3V	M24
59	USB3_OTG0_ID	I		USB3_OTG0_ID	OTG0 DET,Active L Default NC	1.8V	L23
61	SDMMC1_PWREN/I2C4_SDA_M1/UART8_RTSn_M0/CAN2_RX_M1/GPIO2_B1_d	I/O	DOWN	UART8_RTSM_M0	UART8_RTSM_M0 For BT	1.8V	D26
63	CLK32K_OUT1/UART8_RX_M0/SPI1_CS1_M0/GPIO2_C6_d	I/O	DOWN	UART8_RX_M0	UART8_RX_M0 For BT	1.8V	E26
65	I2S1_SDO3_M0/I2S1_SDI1_M0/PDM_SDI1_M0_CON/GPIO1_B2_D	I/O	DOWN	BT_WAKE_HOST	BT_WAKE_HOST	3.3V	A21
67	I2S1_SDO2_M0/I2S1_SDI2_M0/PDM_SDI2_M0_CON/GPIO1_B1_D	I/O	DOWN	BT_REG_ON_H	EDP Power EN, Active H	3.3V	E20
69	I2C3_SDA_M0/UART3_RX_M0/CAN1_RX_M0/AUDIOPWM_LOUT_P/GPIO1_A0_U	I/O	UP	UART3_RX_M0	UART3_RX_M0	3.3V	D18
71	I2C3_SCL_M0/UART3_TX_M0/CAN1_TX_M0/AUDIOPWM_LOUT_N/GPIO1_A1_U	I/O	UP	UART3_TX_M0	UART3_TX_M0	3.3V	E18
73	SARADC_VIN0	I		SARADC_VIN0_KEY/RECOVERY	(ADC0) RECOVERY key Input Core board Pull up resistance 10K	1.8V	B27
75	SARADC_VIN5	I		SARADC_VIN5	ADC5 Input M board need add Pull up resistance	1.8V	F22
77	SARADC_VIN7	I		SARADC_VIN7	ADC7 Input M board need add Pull up resistance	1.8V	F21
79	SARADC_VIN6	I		SARADC_VIN6	ADC6 Input M board need add Pull up resistance	1.8V	G20
PIN	iCORE-3568Q(J4) Core board pin definition	Pad type	IO Pull	Function for Mainboard (MB-Q-RK3568ITX)	Defual function description	IO Power domain	RK3568 Pin Number
2	GMAC0_TXD1/UART1_TX_M0/GPIO2_B4_u	I/O	UP	GMAC0_TXD1	GMAC0_TXD1 core board series resistance 22R	1.8V	G27



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4	GMAC0_TXEN/UART1_RTSn_M0/SPI1_CLK_M0/GPIO2_B5_u	I/O	UP	GMAC0_TXEN	GMAC0_TXEN core board series resistance 22R	1.8V	G28
6	GMAC0_RXD0/UART1_CTSn_M0/SPI1_MISO_M0/GPIO2_B6_u	I/O	UP	GMAC0_RXD0	GMAC0_RXD0	1.8V	F27
8	GMAC0_TXD0/UART1_RX_M0/GPIO2_B3_u	I/O	UP	GMAC0_TXD0	GMAC0_TXD0 core board series resistance 22R	1.8V	F28
10	GMAC0_RXD3/SDMMC1_D1/UART6_TX_M0/GPIO2_A4_u	I/O	UP	GMAC0_RXD3	GMAC0_RXD3	1.8V	E28
12	GMAC0_TXCLK/SDMMC1_CLK/UART9_TX_M0/GPIO2_B0_d	I/O	DOWN	GMAC0_TXCLK	GMAC0_TXCLK core board series resistance 22R	1.8V	D27
14	GMAC0_TXD2/SDMMC1_D3/UART7_TX_M0/GPIO2_A6_u	I/O	UP	GMAC0_TXD2	GMAC0_TXD2 core board series resistance 22R	1.8V	C27
16	GND			GND	GND	GND	
18	nPOR_u	I	UP	RESET_KEY	System reset input , Active L core board Pull up resistance 10K series resistance 22R	3.3V	AH27
20	SDMMC0_PWREN/SATA_MP_SWITCH/PCIE20_CLKREQn_M0/GPIO0_A5_d	I/O	DOWN	USB_OTG_EN	USB_OTG_Power_EN, Active H	3.3V	AF25
22	PWM0_M0/CPUAVS/GPIO0_B7_d	I/O	DOWN	PCIE_PWREN_H	PCIE_Power EN,Active H	3.3V	AH26
24	GND			GND	GND	GND	
26	REFCLK_OUT_CAM/GPIO0_A0_d	I/O	DOWN	REFCLK_OUT_CAM	Clock output for camera core board series resistance 22R	3.3V	AG27
28	GND			GND	GND	GND	
30	SDMMC0_CLK/TEST_CLKOUT/UART5_TX_M0/CAN0_RX_M1/GPIO2_A2_d	I/O	DOWN	SDMMC0_CLK	SDMMC0_CLK to TF Card core board series resistance 22R	VCCIO_SD *Note 2	H28
32	GND			GND	GND	GND	
34	SDMMC0_D3/ARMJTAG_TMS/UART5_RTSn_M0/GPIO2_A0_u	I/O	UP	SDMMC0_D3	SDMMC0_D3 for TF Card	VCCIO_SD *Note 2	J23
36	SDMMC0_D2/ARMJTAG_TCK/UART5_CTSn_M0/GPIO1_D7_u	I/O	UP	SDMMC0_D2	SDMMC0_D2 for TF Card		H26
38	SDMMC0_D0/UART2_TX_M1/UART6_TX_M1/PWM8_M1/GPIO1_D5_u	I/O	UP	SDMMC0_D0	SDMMC0_D0 for TF Card		J25



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40	GND			GND	GND	GND	
42	USB_HOST_PWREN_H/GPU_PWREN/SATA_CP_POD/PCIE30X2_CLKREQn_M/GPIO0_A6_d	I/O	DOWN	PCIE30X2_CLKREQN_M0	PCIE30X2_CLKREQN_M0	3.3V	AE24
44	GPIO0_D5_d	I/O	DOWN	GMAC0_RSTN	GMAC0_RESET Output, Active L	1.8V	AD25
46	GND			GND	GND	GND	
48	PWM4/VOP_PWM_M0/PCIE30X1_PERSTn_M0/MCU_JTAG_TRSTn/GPIO0_C3_d	I/O	DOWN	MIPI_BL_PWM	MIPI_BL PWM4 Output	3.3V	AE23
50	HDMITX_CEC_M1/PWM0_M1/UART0_CTSn/GPIO0_C7_d	I/O	DOWN	TP_INT	(LVDS) TP_INT Input, Active L	3.3V	AH25
52	PWM1_M0/GPUAVS/UART0_RX/GPIO0_C0_d	I/O	DOWN	UART0_RX	UART0_RX	3.3V	AD22
54	PWM5/SPI0_CS1_M0/UART0_RTSn/GPIO0_C4_d	I/O	DOWN	MIPI_TP_INT	MIPI_TP_INT Input, Active L	3.3V	AD21
56	PWM7_IR/SPI0_CS0_M0/PCIE30X2_PERSTn_M0/GPIO0_C6_d	I/O	DOWN	PCIE30X2_PERSTN_M0	PCIE30X2_PERSTN_M0	3.3V	AD20
58	EXT_EN	O		EXT_EN	PMIC POWER_EN Output, Active H core board series resistance 1K	3.3V	
60	PWRON_KEY	I		PWRON_KEY	PMIC PWRON_KEY Input, Active L core board series resistance 100R	3.3V	
62	I2S2_SDI_M0/GMAC0_RXER/UART8_TX_M0/SPI2_CS1_M0/GPIO2_C5_d	I/O	DOWN	UART8_TX_M0	UART8_TX_M0 For BT	1.8V	F26
64	SDMMC1_DET/I2C4_SCL_M1/UART8_CTSn_M0/CAN2_TX_M1/GPIO2_B2_u	I/O	UP	UART8_CTSN_M0	UART8_CTSN_M0 For BT	1.8V	E25
66	GND			GND	GND	GND	
68	I2S1_SDO1_M0/I2S1_SDI3_M0/PDM_SDI3_M0_CON/GPIO1_B0_D	I/O	DOWN	GMAC1_RSTN	GMAC1_RSTN	3.3V	D20
70	I2S1_SCLK_RX_M0/PDM_CLK1_M0_CON/SPDIF_TX_M0/GPIO1_A4_D	I/O	DOWN	HOST_WAKE_BT_H	HOST_WAKE_BT, Active H	3.3V	F18
72	I2C0_SDA (I2C for PMIC)	I/O	UP	NC	NC, Core board Pull up resistance 2.2K	3.3V	AB21
74	I2C0_SCL (I2C for PMIC)	I/O	UP	NC	NC, Core board Pull up resistance 2.2K	3.3V	AF24



Interface definition

76	SARADC_VIN2	I		SARADC_VIN2	ADC2 Input M board need add Pull up resistance	1.8V	D24
78	SARADC_VIN3	I		MIC_DET	(ADC3)MIC_DET Input M board need add Pull up resistance	1.8V	E23
80	SARADC_VIN4	I		HP_DET	(ADC4)Headphone detect Input M board need add Pull up resistance	1.8V	G21
*Note 2: VCCIO_SD=1.8V(SDIO 3.0) or 3.3V(SDIO 2.0); Default:3.3V;							



T-CHIP INTELLIGENCE TECHNOLOGY



Contact Us
(+86)18688117175



E-mail
global@t-firefly.com



Website
www.t-firefly.com



Address
Room 2101, Hongyu Building, #57 Zhongshan 4Rd, East District,
Zhongshan, Guangdong, China.