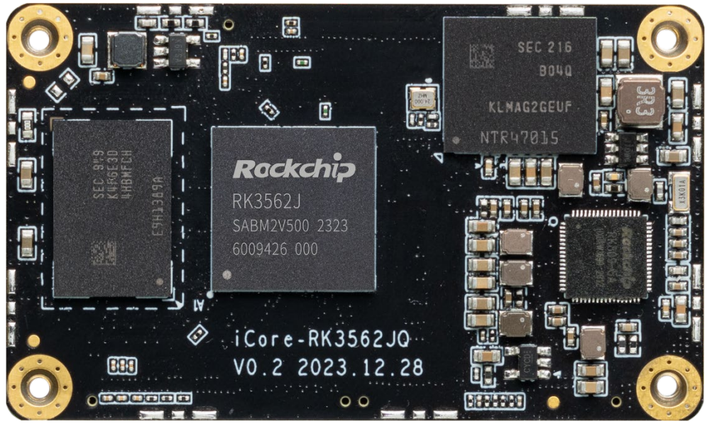
iCore-3562JQ

High-performance industrial core board



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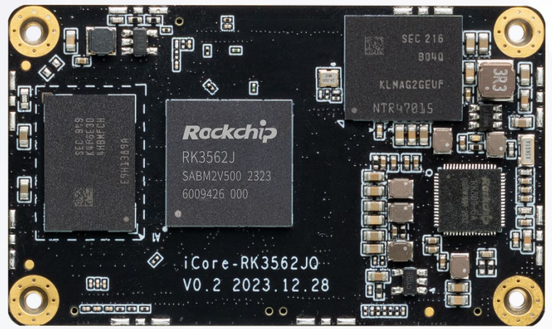
T-CHIP INTELLIGENCE TECHNOLOGY

Product features



Quad-core industrial-grade high-performance processor

It is RK3562J with quad-core 64-bit Cortex-A53 industrial-grade high-performance processor, normal mode main frequency 1.2GHz, overdrive mode main frequency 1.8GHz.

Powerful image processing capabilities

Built-in Mali-G52 GPU, support 4K 30fps H.265/VP9 and 1080P 60fps H.264 video decoding, support 1080P 60fps H.264 video encoding.

Support a variety of display interfaces

It supports single-channel MIPI-DSI, 2048*1080@60fps, single-channel LVDS, supports 800*1280@60fps, supports RGB interface, has a 13M ISP image signal processor, and can support dual cameras and HDR functions.

Supports multiple operating systems

Support Linux OS (Ubuntu, Debian), Buildroot+QT system, the system is safe and stable, to meet different needs.

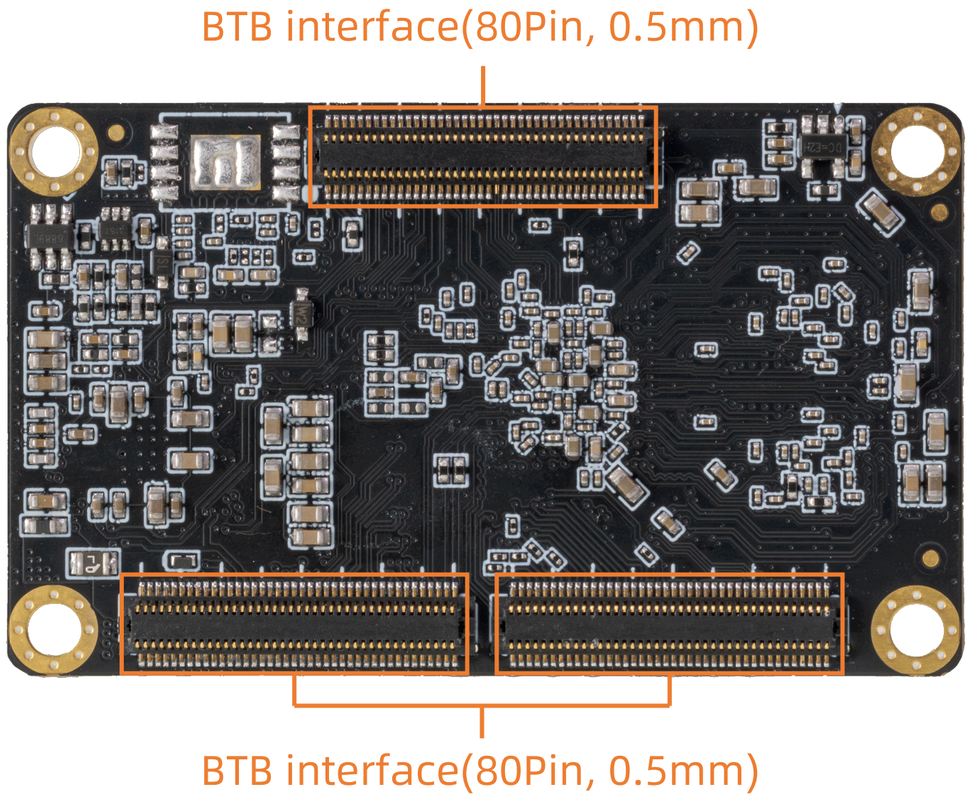
Wide range of application scenarios

It is widely used in smart commercial displays, tablets, video conferences, dictionary pens, sweepers, image recognition, medical equipment, industrial HMI, PLC, edge computing, power distribution, concentrators and other fields.

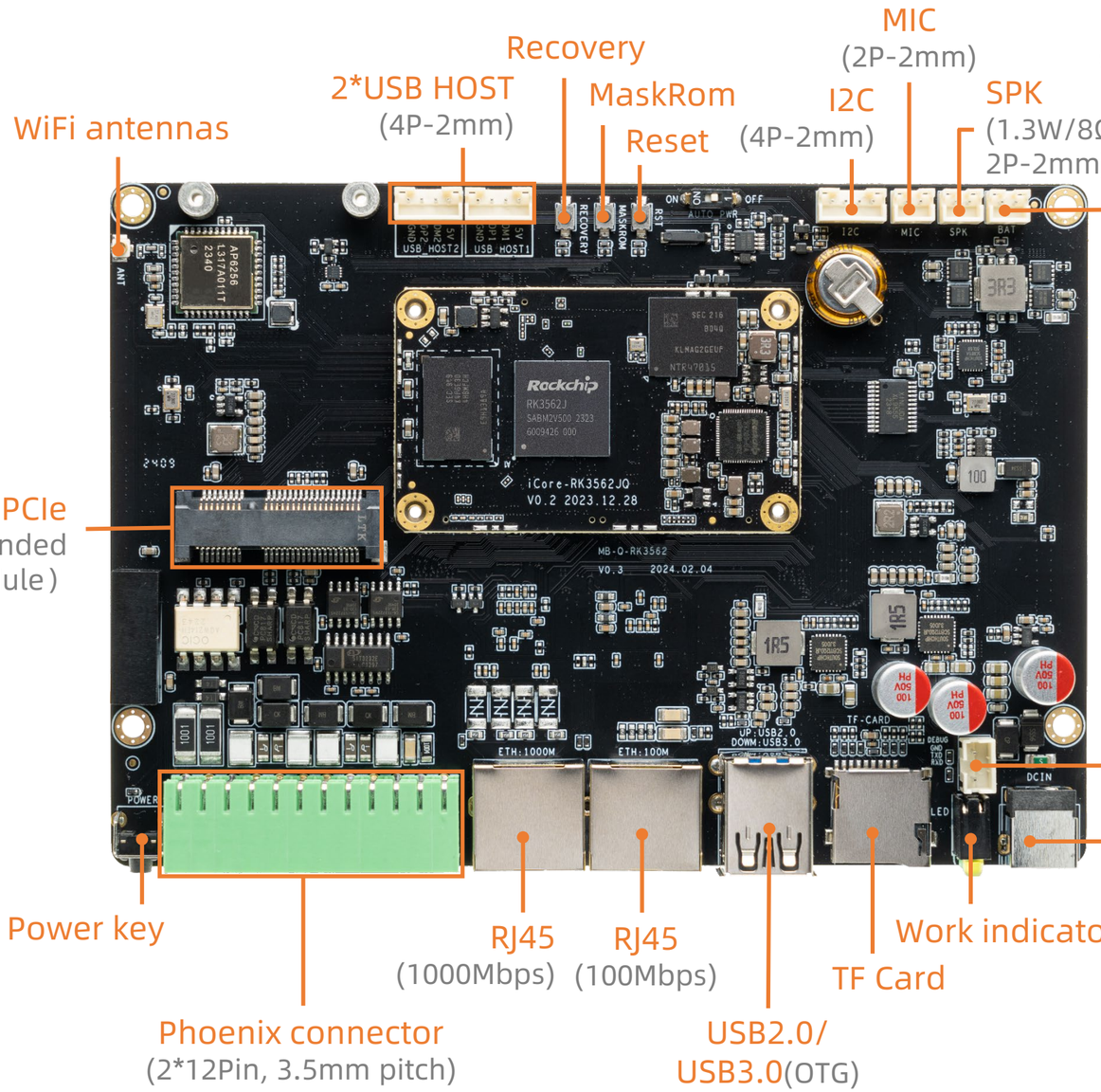
Specifications

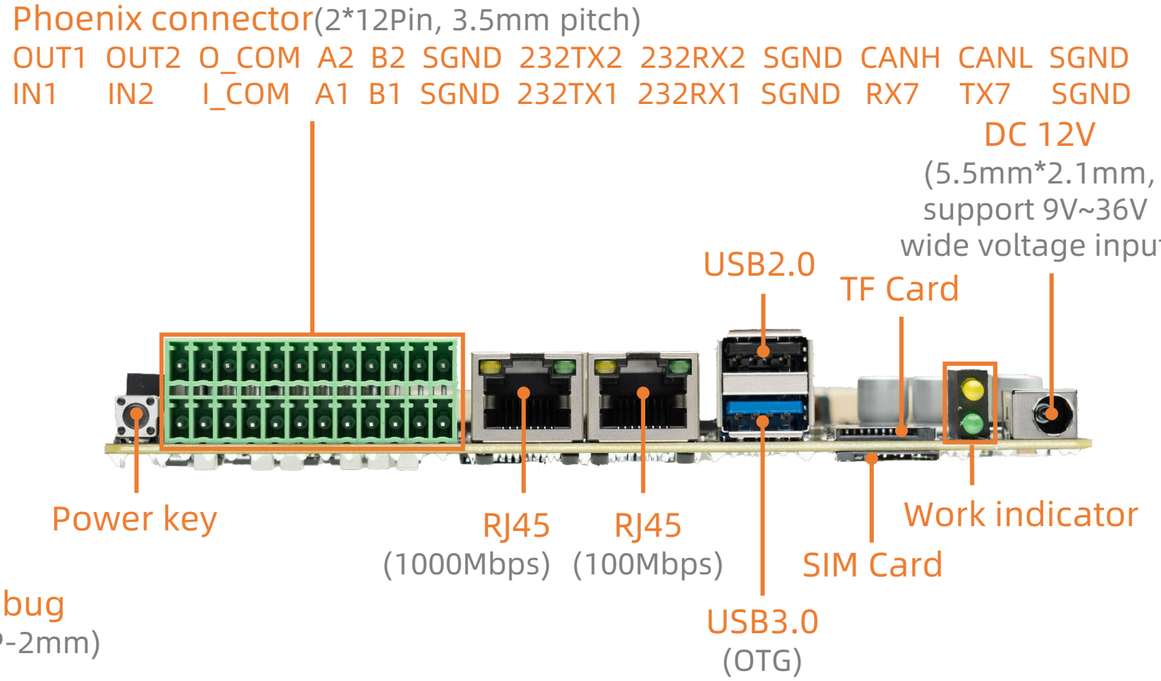
Specifications		
Basic Specifications	SOC	Rockchip RK3562J
	CPU	Quad-core 64-bit Cortex-A53 processor, normal mode main frequency 1.2GHz, overdrive mode main frequency 1.8GHz
	GPU	ARM G52 2EE, supports OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, Vulkan 1.1 with high-performance 2D-accelerated hardware embedded
	VPU	Supports 4K 30fps H.265/VP9 and 1080P 60fps H.264 video decoding Support 1080P 60fps H.264 video encoding Supports 13M ISP and HDR
	RAM	LPDDR4/LPDDR4x (2GB/4GB/8GB optional)
	Storage	eMMC (16GB/32GB/64GB optional)
	Power	5.0V (voltage tolerance ± 5%)
	OS	Ubuntu, Debian, Buildroot+QT
	Size	60mm * 36mm
	Weight	≈12g
	Power consumption	Normal:0.75W(5.0V/150mA); Max: 3.0W(5.0V/600mA); Min:0.025W(5.0V/5mA)
	Environment	Operating Temperature:-40℃- 85℃ , Storage Humidity:5% ~ 90%RH(non-condensing)
Interface Specifications	Internet	Integrated 1 * RMII for 100 Gigabit Ethernet (100 Mbps), 1 * RGMII for Gigabit Ethernet (1000 Mbps) Support WAN port + LAN port dual IP, support "WIFI+BT" two-in-one module through SDIO, and expand 4G module via USB
	Video input	Supports 2 * MIPI CSI (4 Lanes) or 4 * MIPI CSI (2 Lanes) or 1 * MIPI CSI (4 Lanes) + 2 * MIPI CSI (2 Lanes)
	Video output	Supports LVDS 800*1280@60Hz or MIPI-DSI 2048*1080@60Hz, support RGB 2048*1080@60Hz
	Audio output	1 * SPDIF, 1 * PDM(8 channels), 2 * DAC(I2S/PCM)
	USB	1 * USB3.0 OTG(reused with PCIe 2.1), 2 * USB2.0 HOST
	PCIE	1 * PCIe 2.1(1 lane, multiplexed with USB3.0)
	Extended interfaces	5 * I2C, 10 * UART, 2 * CAN, 3 * SPI, 13 * ADC, 16 * PWM, 1 * SDMMC, GPIOs
	Interface type	BTB connector (3 * 80 PIN, 0.5mm pitch)
	PCB	The thickness of the board is 1.6mm, 6 layers of board, high Tg material, immersion gold process

Core Board Interface description

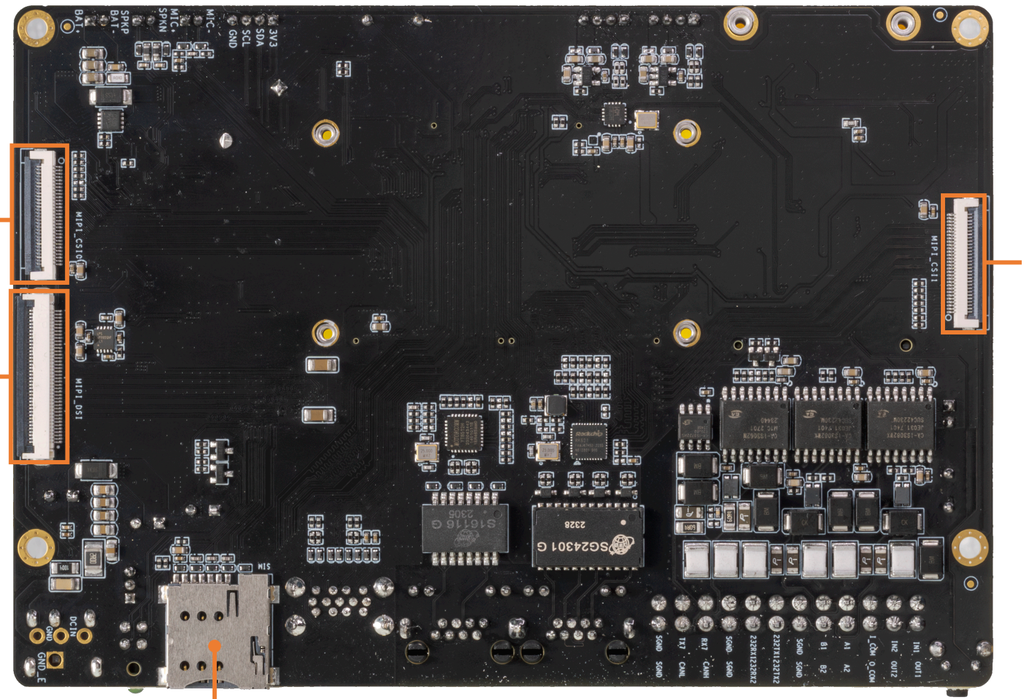


Mainboard Interface description

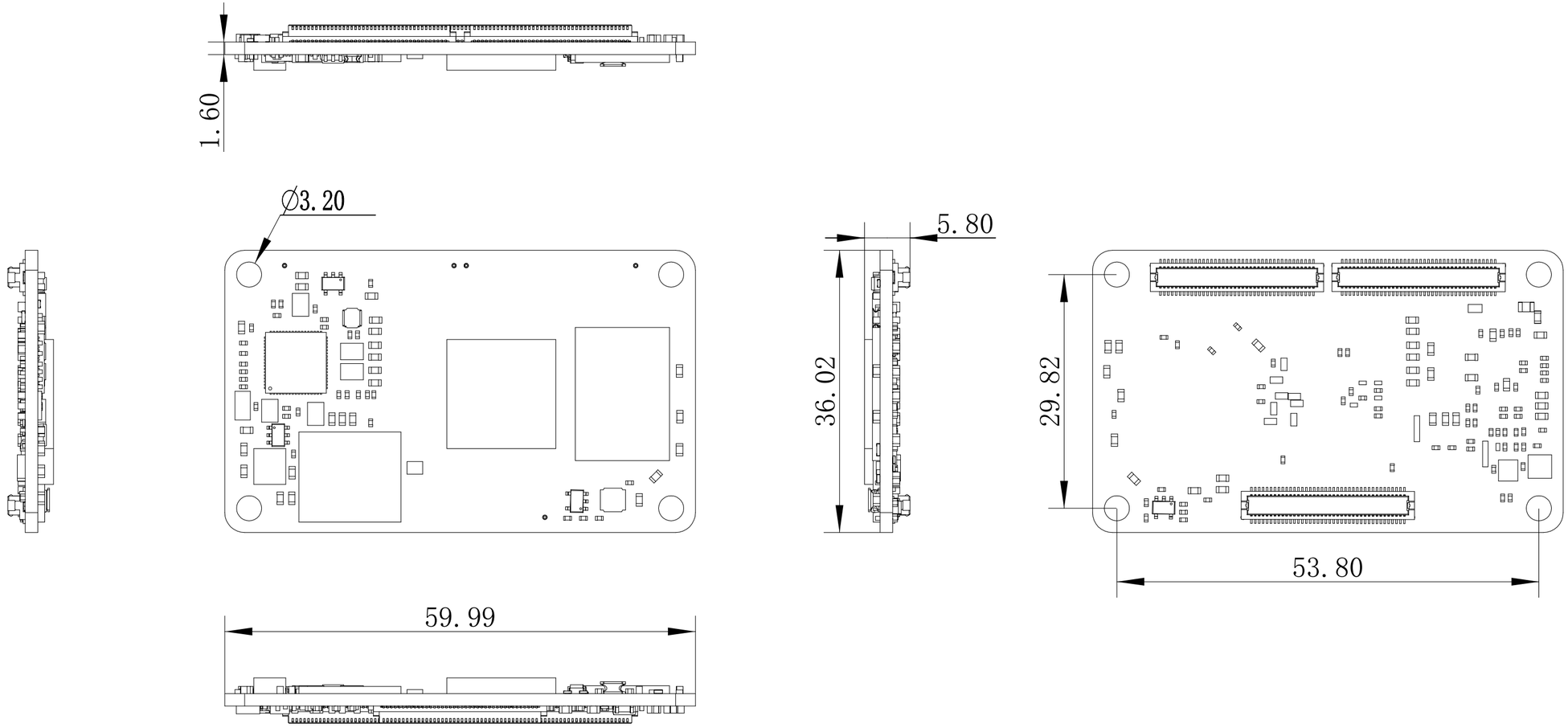




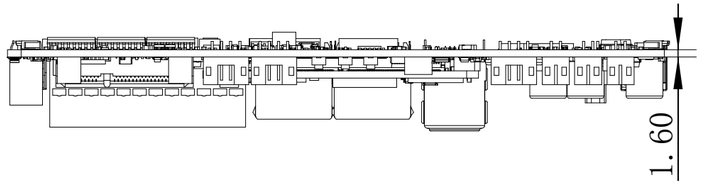
Mainboard Interface description

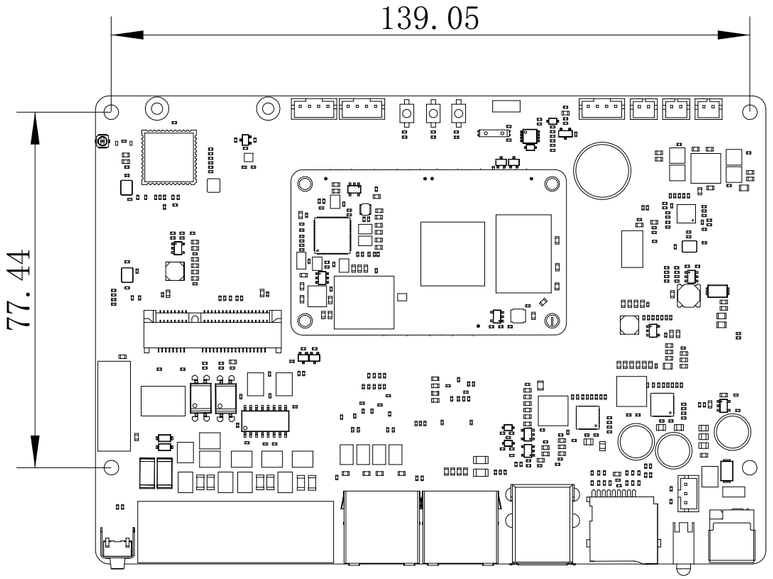


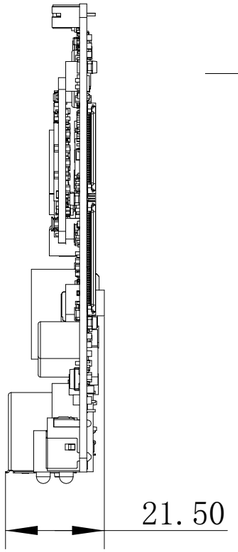
Core Board Dimension

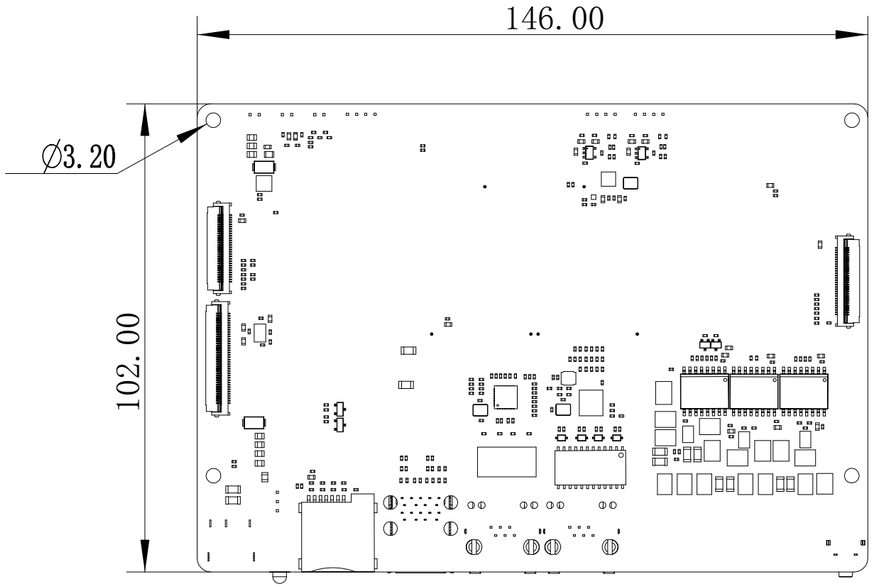


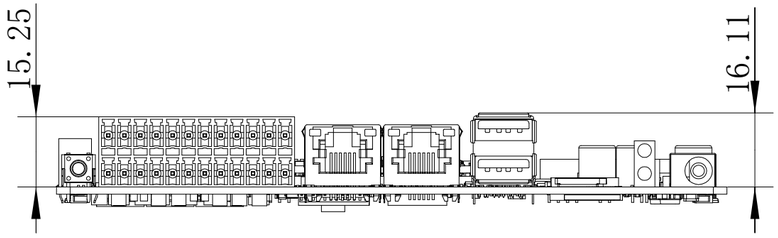
Mainboard Dimension











Interface definition

Notes1:
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 = Lowe Level H = High level”

PIN	iCoe-rk3562JQ(J1) iCoe-rk3562JQ board pin definition	Pad type	IO Pull	IO Power domain	RK3562 Pin Number	Function for Mainboard (MB-Q-RK3562)	Defual function description
1	VCCIO_6	P		1.8V/3.3V		VCC_1V8	VCC_1V8 (VCCIO_6 power input)
3	VCCIO_5	P		1.8V/3.3V		VCC_3V3	VCC_3V3 (VCCIO_5 power input)
5	GND	G				GND	GND
7	MIPI_CSI_RX0_CLK1P	I		-	1P7	MIPI_CSI_RX0_CLK1P	MIPI_CSI_RX0_CLK1P
9	MIPI_CSI_RX0_CLK1N	I		-	1R7	MIPI_CSI_RX0_CLK1N	MIPI_CSI_RX0_CLK1N
11	MIPI_CSI_RX0_D3P	I		-	AF5	MIPI_CSI_RX0_D3P	MIPI_CSI_RX0_D3P
13	MIPI_CSI_RX0_D3N	I		-	AG5	MIPI_CSI_RX0_D3N	MIPI_CSI_RX0_D3N
15	MIPI_CSI_RX0_D2P	I		-	AF6	MIPI_CSI_RX0_D2P	MIPI_CSI_RX0_D2P
17	MIPI_CSI_RX0_D2N	I		-	AG6	MIPI_CSI_RX0_D2N	MIPI_CSI_RX0_D2N
19	GND	G				GND	GND
21	MIPI_CSI_RX0_CLK0P	I		-	AF7	MIPI_CSI_RX0_CLK0P	MIPI_CSI_RX0_CLK0P
23	MIPI_CSI_RX0_CLK0N	I		-	AG7	MIPI_CSI_RX0_CLK0N	MIPI_CSI_RX0_CLK0N
25	GND	G				GND	GND
27	MIPI_CSI_RX0_D1P	I		-	AF8	MIPI_CSI_RX0_D1P	MIPI_CSI_RX0_D1P
29	MIPI_CSI_RX0_D1N	I		-	AG8	MIPI_CSI_RX0_D1N	MIPI_CSI_RX0_D1N

Interface definition

31	MIPI_CSI_RX0_D0P	I		-	AF9	MIPI_CSI_RX0_D0P	MIPI_CSI_RX0_D0P
33	MIPI_CSI_RX0_D0N	I		-	AG9	MIPI_CSI_RX0_D0N	MIPI_CSI_RX0_D0N
35	GND	G				GND	GND
37	GND	G				GND	GND
39	GND	G				GND	GND
41	VCC_1V8	P		1.8V		VCC_1V8	VCC_1V8: 1.8V Output , Pin41/43 Total Max:500mA
43	VCC_1V8	P		1.8V		VCC_1V8	
45	GND	G				GND	GND
47	VCC_3V3	P		3.3V		VCC_3V3	VCC_3V3: 3.3V Output , Pin47/49 Total Max:500mA
49	VCC_3V3	P		3.3V		VCC_3V3	
51	NC					NC	this pin must be NC, cannot connect to GND!
53	VCCIO_ACODEC	P		3.3V		VCCIO_ACODEC	3.3V Output For codec, Max:200mA
55	VCCIO_ACODEC	P		3.3V		VCCIO_ACODEC	
57	VCC_RSV1	P		3.3V		VCC_RSV1	VCC_RSV1 Output (Max 200mA,Default:OFF)
59	VCC3V3_SD	P		3.3V		VCC3V3_SD	VCC3V3_SD Output ,For SD card
61	GND	G		GND		GND	GND
63	GND	G		GND		GND	
65	GND	G		GND		GND	

Interface definition

67	GND	G		GND		GND	GND
69	GND	G		GND		GND	
71	5V0	P		5.0V		VCC5V0_CORE	**Core board Power supply Input: 5.0V +/-5%**
73	5V0	P		5.0V		VCC5V0_CORE	
75	5V0	P		5.0V		VCC5V0_CORE	
77	5V0	P		5.0V		VCC5V0_CORE	
79	5V0	P		5.0V		VCC5V0_CORE	
2	GND	G				GND	GND
4	GND	G				GND	GND
6	MIPI_DSI_TX_D3P/LVDS_TX_D3P	O		-	AG10	MIPI_DSI_TX_D3P/LVDS_TX_D3P	MIPI_DSI_TX_D3P/LVDS_TX_D3P
8	MIPI_DSI_TX_D3N/LVDS_TX_D3N	O		-	AF10	MIPI_DSI_TX_D3N/LVDS_TX_D3N	MIPI_DSI_TX_D3N/LVDS_TX_D3N
10	MIPI_DSI_TX_D2P/LVDS_TX_D2P	O		-	AF11	MIPI_DSI_TX_D2P/LVDS_TX_D2P	MIPI_DSI_TX_D2P/LVDS_TX_D2P
12	MIPI_DSI_TX_D2N/LVDS_TX_D2N	O		-	AG11	MIPI_DSI_TX_D2N/LVDS_TX_D2N	MIPI_DSI_TX_D2N/LVDS_TX_D2N
14	GND	G				GND	GND
16	MIPI_DSI_TX_CLKP/LVDS_TX_CLKP	O		-	AG12	MIPI_DSI_TX_CLKP/LVDS_TX_CLKP	MIPI_DSI_TX_CLKP/LVDS_TX_CLKP
18	MIPI_DSI_TX_CLKN/LVDS_TX_CLKN	O		-	AF12	MIPI_DSI_TX_CLKN/LVDS_TX_CLKN	MIPI_DSI_TX_CLKN/LVDS_TX_CLKN
20	GND	G				GND	GND
22	MIPI_DSI_TX_D1P/LVDS_TX_D1P	O		-	AF13	MIPI_DSI_TX_D1P/LVDS_TX_D1P	MIPI_DSI_TX_D1P/LVDS_TX_D1P

Interface definition

24	MIPI_DSI_TX_D1N/LVDS_TX_D1N	O		-	AG13	MIPI_DSI_TX_D1N/LVDS_TX_D1N	MIPI_DSI_TX_D1N/LVDS_TX_D1N
26	MIPI_DSI_TX_D0P/LVDS_TX_D0P	O		-	AG14	MIPI_DSI_TX_D0P/LVDS_TX_D0P	MIPI_DSI_TX_D0P/LVDS_TX_D0P
28	MIPI_DSI_TX_D0N/LVDS_TX_D0N	O		-	AF14	MIPI_DSI_TX_D0N/LVDS_TX_D0N	MIPI_DSI_TX_D0N/LVDS_TX_D0N
30	GND	G		-		GND	GND
32	GND	G				GND	GND
34	GND	G				GND	GND
36	VCC_RSV2	P		1.8V/3.3V		VCC_LCD1V8	VCC_RSV2 Output (Default:1.8V)
38	VCCA_1V8	P		1.8V		VCCA_1V8	VCCA_1V8: 1.8V Output, Pin28/40 Max:200mA
40	VCCA_1V8	P		1.8V		VCCA_1V8	
42	GND	G				GND	GND
44	MIC2_IN	I		3.3V		MIC2_IN	MIC2_IN to RK809_pin42 core board series capacitance 0.1uF
46	MIC1_IN	I		3.3V		MIC1_IN	MIC1_IN to RK809_pin43 core board series capacitance 0.1uF
48	GND	G				GND	GND
50	GND	G				GND	GND
52	HPR_OUT	O		+/-2.7V		NC	NC (RK809 HPR_OUT)
54	HP_SNS	G				NC	NC (RK809 HP_SNS)
56	HPL_OUT	O		+/-2.7V		NC	NC (RK809 HPL_OUT)
58	GND	G				GND	GND

Interface definition

60	SPKN_OUT	O		5.0V		SPKN_OUT	RK809 Speaker driver output- (1.3W/8Ω)
62	SPKP_OUT	O		5.0V		SPKP_OUT	RK809 Speaker driver output+(1.3W/8Ω)
64	GND	G		GND		GND	GND
66	GND	G		GND		GND	
68	GND	G		GND		GND	
70	GND	G		GND		GND	
72	5V0	P		5.0V		VCC5V0_CORE	**Core board Power supply Input: 5.0V +/-5%**
74	5V0	P		5.0V		VCC5V0_CORE	
76	5V0	P		5.0V		VCC5V0_CORE	
78	5V0	P		5.0V		VCC5V0_CORE	
80	5V0	P		5.0V		VCC5V0_CORE	
PIN	**iCoe-rk3562JQ(J2) Core board pin definition**	**Pad type**	**IO Pull**	**IO Power domain**	**RK3562 Pin Number**	**Function for Mainboard (MB-Q-RK3562)**	**Defual function description**
1	GND	G		GND			
3	GND	G		GND		GND	GND
5	SARADC1_IN7	I		1.8V	1E1	NC	NC (ADC1_7 Input)
7	SARADC1_IN1	I		1.8V	1J1	NC	NC (ADC1_1 Input)
9	SARADC1_IN3	I		1.8V	1J2	NC	NC (ADC1_3 Input)
11	VO_LCDC_D12/I2S1_SDI3_M0/UART7_RTSN_M0/SPI2_MOSI_M0/I2C2_SDA_M1/GPIO3_D3_d	I/O	DOWN	VCCIO_6	T3	LCD0_RST	LCD0_Reset Output, Active L

Interface definition

13	I2S0_SDO3_M0/I2S0_SDI1_M0/PDM_SDI1_M0/PCIE20_PERSTN_M1/GPIO3_B0_d	I/O	DOWN	3.3V	1M2	SYS_PWR_EN	System Power_EN Output, Active H
15	VO_LCDC_D16/RGMII_RXER_M0/UART1_CTSN_M1/PDM_SDI1_M1/UART6_RX_M1/GPIO4_B0_d	I/O	DOWN	VCCIO_6	V3	SC8815_INT	SC8815_INT Input, Active L
17	I2C5_SDA_M0/ISP_FLASH_TRIGOUT/UART9_RX_M1/GPIO3_C3_d	I/O	DOWN	VCCIO_5	D3	UART9_RX_M1	UART9_RX_M1
19	I2C5_SCL_M0/ISP_PRELIGHT_TRIGOUT/UART9_TX_M1/GPIO3_C2_d	I/O	DOWN	VCCIO_5	E1	UART9_TX_M1	UART9_TX_M1
21	I2S1_SDI0_M1/ISP_FLASH_TRIGIN/UART3_RTSN_M1/GPIO3_C1_d	I/O	DOWN	VCCIO_5	E2	GPIO3_C1_d	GPIO3_C1_d
23	I2S1_SDO2_M1/I2S1_SDI2_M1/UART3_TX_M1/SPI0_CSN0_M1/I2C4_SDA_M0//CAN0_RX_M1/GPIO3_B7_d	I/O	DOWN	VCCIO_5	G2	CAN0_RX_M1	CAN0_RX_M1
25	I2S1_SDO1_M1/I2S1_SDI3_M1/UART3_CTSN_M1/SPI0_CSN1_M1/I2C4_SCL_M0/CAN0_TX_M1/GPIO3_B6_d	I/O	DOWN	VCCIO_5	G3	CAN0_TX_M1	CAN0_TX_M1
27	I2S1_SDO3_M1/I2S1_SDI1_M1/UART3_RX_M1/SPI0_MISO_M1/GPIO3_C0_d	I/O	DOWN	VCCIO_5	H2	GPIO3_C0_d	GPIO3_C0_d
29	I2S0_SDO1_M0/I2S0_SDI3_M0/PDM_CLK0_M0/PCIE20_CLKREQN_M1/UART5_TX_M1/GPIO3_A6_d	I/O	DOWN	VCCIO_5	J1	UART5_TX_M1	UART5_TX_M1
31	I2S0_SDO2_M0/I2S0_SDI2_M0/PDM_SDI2_M0/PCIE20_WAKEN_M1/UART5_RX_M1/GPIO3_A7_d	I/O	DOWN	VCCIO_5	L2	UART5_RX_M1	UART5_RX_M1
33	GND	G		GND		GND	GND
35	GND	G		GND		GND	GND
37	VO_LCDC_HSYNC/I2S1_SDO1_M0/UART9_CTSN_M0/SPI2_CSN1_M0/I2C1_SCL_M1/UART3_TX_M0/GPIO4_B4_d	I/O	DOWN	VCCIO_6	M2	I2C1_SCL_M1	I2C1_SCL_M1
39	VO_LCDC_VSYNC/I2S1_SDO2_M0/UART9_RTSN_M0/SPI2_CSN0_M0/I2C1_SDA_M1/UART3_RX_M0/GPIO4_B5_d	I/O	DOWN	VCCIO_6	M3	I2C1_SDA_M1	I2C1_SDA_M1
41	GND	G		GND		GND	GND
43	VO_LCDC_D17/ETH_CLK_25M_OUT_M0/CAM_CLK0_OUT_M1/I2S2_SCLK_M1/PDM_CLK1_M1/GPIO4_B1_d	I/O	DOWN	VCCIO_6	T2	CAM_CLK0_OUT_M1	CAM_CLK0_OUTPUT core board series resistance 22R
45	GND	G		GND		GND	GND

Interface definition

47	VO_LCDC_CLK/RGMII_CLK_M0/CAM_CLK1_OUT_M1/PDM_CLK0_M1/GPIO4_B7_d	I/O	DOWN	VCCIO_6	U1	LCD_PWREN	LCD Power_EN Output, Active H
49	GND	G		GND		GND	GND
51	VO_LCDC_D21/RGMII_RXCLK_M0/I2S2_LRCK_M1/PWM12_M0/GPIO4_A1_d	I/O	DOWN	VCCIO_6	U1	RGMII_RXCLK_M0	RGMII_RXCLK_M0
53	VO_LCDC_D9/RGMII_RXDV_M0/UART1_RTSN_M1/PDM_SDI0_M1/UART6_TX_M1/GPIO4_A7_d	I/O	DOWN	VCCIO_6	V2	RGMII_RXDV_M0	RGMII_RXDV_M0
55	VO_LCDC_D1/RGMII_RXD0_M0/UART1_TX_M1/PDM_SDI2_M1/I2C3_SCL_M1/GPIO4_A5_d	I/O	DOWN	VCCIO_6	W3	RGMII_RXD0_M0	RGMII_RXD0_M0
57	VO_LCDC_D20/RGMII_RXD3_M0/UART8_RTSN_M1/SPI1_CSN1_M0/GPIO4_A0_d	I/O	DOWN	VCCIO_6	Y3	RGMII_RXD3_M0	RGMII_RXD3_M0
59	VO_LCDC_D8/RGMII_RXD1_M0/UART1_RX_M1/PDM_SDI3_M1/I2C3_SDA_M1/GPIO4_A6_d	I/O	DOWN	VCCIO_6	W1	RGMII_RXD1_M0	RGMII_RXD1_M0
61	VO_LCDC_D19/RGMII_RXD2_M0/UART8_CTSN_M1/SPI1_CSN0_M0/GPIO3_D7_d	I/O	DOWN	VCCIO_6	W2	RGMII_RXD2_M0	RGMII_RXD2_M0
63	VO_LCDC_D0/RGMII_TXEN_M0/PWM13_M0/GPIO4_A4_d	I/O	DOWN	VCCIO_6	AA3	RGMII_TXEN_M0	RGMII_TXEN_M0 core board series resistance 22R
65	VO_LCDC_D15/RGMII_TXCLK_M0/I2S2_MCLK_M1/SPI1_CLK_M0/GPIO3_D6_d	I/O	DOWN	VCCIO_6	Y2	RGMII_TXCLK_M0	RGMII_TXCLK_M0 core board series resistance 22R
67	VO_LCDC_D22/RGMII_TXD0_M0/UART6_CTSN_M1/SPI1_MOSI_M0/GPIO4_A2_d	I/O	DOWN	VCCIO_6	AA1	RGMII_TXD0_M0	RGMII_TXD0_M0 core board series resistance 22R
69	VO_LCDC_D23/RGMII_TXD1_M0/UART6_RTSN_M1/SPI1_MISO_M0/GPIO4_A3_d	I/O	DOWN	VCCIO_6	AA2	RGMII_TXD1_M0	RGMII_TXD1_M0 core board series resistance 22R
71	VO_LCDC_D13/RGMII_TXD2_M0/UART8_TX_M1/I2S2_SDI_M1/GPIO3_D4_d	I/O	DOWN	VCCIO_6	AB3	RGMII_TXD2_M0	RGMII_TXD2_M0 core board series resistance 22R
73	VO_LCDC_D14/RGMII_TXD3_M0/UART8_RX_M1/I2S2_SDO_M1/GPIO3_D5_d	I/O	DOWN	VCCIO_6	AB2	RGMII_TXD3_M0	RGMII_TXD3_M0 core board series resistance 22R
75	VO_LCDC_D2/RGMII_MDC_M0/UART9_TX_M0/GPIO4_B2_d	I/O	DOWN	VCCIO_6	AC1	RGMII_MDC_M0	RGMII_MDC_M0
77	VO_LCDC_D18/RGMII_MDIO_M0/UART9_RX_M0/GPIO4_B3_d	I/O	DOWN	VCCIO_6	AC2	RGMII_MDIO_M0	RGMII_MDIO_M0
79	GND	G		GND		GND	GND

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2	GND	G		GND		GND	GND
4	GND	G		GND		GND	GND
6	SARADC1_IN2	I/O	DOWN	1.8V	1F2	NC	NC (ADC1_2 Input)
8	SARADC1_IN5	I/O	DOWN	1.8V	1L2	NC	NC (ADC1_5 Input)
10	SARADC1_IN6	I/O	DOWN	1.8V	1K1	NC	NC (ADC1_6 Input)
12	VO_LCDC_D7/I2S1_SDI0_M0/UART4_TX_M0/GPIO3_D0_d	I/O	DOWN	VCCIO_6	R3	UART4_TX_M0	UART4_TX_M0
14	GND	G		GND		GND	GND
16	I2S1_SDO0_M1/CAM_CLK3_OUT/UART8_RTSN_M0/SPI0_CLK_M1/PWM13_M1/GPIO3_B5_d	I/O	DOWN	VCCIO_5	D1	LCD_BL_PWM	LCD_BL_PWM Output core board series resistance 22R
18	I2S1_LRCK_M1/CAM_CLK2_OUT/UART8_CTSN_M0/SPI0_MOSI_M1/PWM12_M1/GPIO3_B4_d	G	DOWN	VCCIO_5	F2	CAM_CLK2_OUT	CAM_CLK2_OUTPUT core board series resistance 22R
20	GND	G		GND		GND	GND
22	I2S1_SCLK_M1/CAM_CLK1_OUT_M0/UART8_RX_M0/GPIO3_B3_d	I/O	DOWN	VCCIO_5	G1	UART8_RX_M0	UART8_RX_M0 core board series resistance 22R
24	GND	G		GND		GND	GND
26	I2S1_MCLK_M1/CAM_CLK0_OUT_M0/UART8_TX_M0/GPIO3_B2_d	I/O	DOWN	VCCIO_5	H3	UART8_TX_M0	UART8_TX_M0 core board series resistance 22R
28	GND	G		GND		GND	GND
30	GND	G		GND		GND	GND
32	GND	G		GND		GND	GND
34	VO_LCDC_D3/I2S1_MCLK_M0/UART7_TX_M0/GPIO3_C4_d	I/O	DOWN	VCCIO_6	N1	UART7_TX_M0	UART7_TX_M0

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36	VO_LCDC_D4/I2S1_SCLK_M0/UART4_CTSN_M0/PWM14_M0/GPIO3_C5_d	I/O	DOWN	VCCIO_6	N2	UART4_CTSN_M0	UART4_CTSN_M0
38	VO_LCDC_DEN/I2S1_SDO3_M0/UART3_CTSN_M0/SPI2_CLK_M0/GPIO4_B6_d	I/O	DOWN	VCCIO_6	N3	TP_RST_L	TP_Reset Output, Active L
40	VO_LCDC_D6/I2S1_SDO0_M0/UART7_RX_M0/GPIO3_C7_d	I/O	DOWN	VCCIO_6	P2	UART7_RX_M0	UART7_RX_M0
42	VO_LCDC_D5/I2S1_LRCK_M0/UART4_RTSN_M0/PWM15_M0/GPIO3_C6_d	I/O	DOWN	VCCIO_6	P3	UART4_RTSN_M0	UART4_RTSN_M0
44	VO_LCDC_D10/I2S1_SDI1_M0/UART4_RX_M0/UART3_RTSN_M0/GPIO3_D1_d	I/O	DOWN	VCCIO_6	R1	UART4_RX_M0	UART4_RX_M0
46	VO_LCDC_D11/I2S1_SDI2_M0/UART7_CTSN_M0/SPI2_MISO_M0/I2C2_SCL_M1/GPIO3_D2_d	I/O	DOWN	VCCIO_6	R2	USB_OTG_PWREN_H	USB_OTG_POWER_EN Output, Active H
48	I2C3_SDA_M0/UART2_RX_M1/SPDIF_TX_M0/UART5_RTSN_M1/GPIO3_A1_d	I/O	DOWN	3.3V	1L1	RGMII_INT/PMEB	RGMII_INT Input, Active L
50	I2C3_SCL_M0/UART2_TX_M1/PDM_SDI3_M0/UART5_CTSN_M1/GPIO3_A0_d	I/O	DOWN	3.3V	1M1	RGMII_RSTn	RGMII_Reset Output, Active L
52	GND	G		GND		GND	GND
54	MIPI_CSI_RX1_CLK1N	I		-	1R3	MIPI_CSI_RX1_CLK1N	MIPI_CSI_RX1_CLK1N
56	MIPI_CSI_RX1_CLK1P	I		-	1P3	MIPI_CSI_RX1_CLK1P	MIPI_CSI_RX1_CLK1P
58	GND	G		GND		GND	GND
60	MIPI_CSI_RX1_D3N	I		-	AD2	MIPI_CSI_RX1_D3N	MIPI_CSI_RX1_D3N
62	MIPI_CSI_RX1_D3P	I		-	AD1	MIPI_CSI_RX1_D3P	MIPI_CSI_RX1_D3P
64	MIPI_CSI_RX1_D2N	I		-	AF1	MIPI_CSI_RX1_D2N	MIPI_CSI_RX1_D2N
66	MIPI_CSI_RX1_D2P	I		-	AE1	MIPI_CSI_RX1_D2P	MIPI_CSI_RX1_D2P
68	GND	G		GND		GND	GND
70	MIPI_CSI_RX1_CLK0N	I		-	AG2	MIPI_CSI_RX1_CLK0N	MIPI_CSI_RX1_CLK0N

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72	MIPI_CSI_RX1_CLK0P	I		-	AF2	MIPI_CSI_RX1_CLK0P	MIPI_CSI_RX1_CLK0P
74	MIPI_CSI_RX1_D1N	I		-	AG3	MIPI_CSI_RX1_D1N	MIPI_CSI_RX1_D1N
76	MIPI_CSI_RX1_D1P	I		-	AF3	MIPI_CSI_RX1_D1P	MIPI_CSI_RX1_D1P
78	MIPI_CSI_RX1_D0N	I		-	AG4	MIPI_CSI_RX1_D0N	MIPI_CSI_RX1_D0N
80	MIPI_CSI_RX1_D0P	I		-	AF4	MIPI_CSI_RX1_D0P	MIPI_CSI_RX1_D0P
PIN	**iCoe-rk3562JQ(J3) Core board pin definition**	**Pad type**	**IO Pull**	**IO Power domain**	**RK3562 Pin Number**	**Function for Mainboard (MB-Q-RK3562)**	**Defual function description**
1	PMIC_PWRON	I	UP	3.3V		PMIC_PWRON	PMIC Power_ON Input, Active L
3	PMIC_VDC	I		3.3V/5.0V		PMIC_VDC	RK809 VDC Input, Active H
5	PMIC_EXT_EN	O		3.3V		PMIC_EXT_EN	PMIC_EXT_EN Output, Active H
7	Npor	I	UP	3.3V		RESETn	System Reset Input, Core board Pull up resistance 10K
9	I2C1_SCL_M0/GPIO0_B3_d	I/O	DOWN	1.8V	AE17	WIFI_REG_ON_H	WIFI_EN Output, Active H
11	I2C1_SDA_M0/GPIO0_B4_d	I/O	DOWN	1.8V	AF18	WIFI_WAKE_HOST_H	WIFI_WAKE_HOST, Active H
13	UART6_RTSN_M0/PWM2_M0/SPI0_MISO_M0/GPIO0_C5_d	I/O	DOWN	1.8V	AE18	BT_REG_ON_H	BT_EN Output, Active H
15	UART6_CTSN_M0/PWM1_M0/SPI0_MOSI_M0/GPIO0_C4_d	I/O	DOWN	1.8V	AG19	BT_WAKE_HOST_H	BT_WAKE_HOST, Active H
17	UART6_TX_M0/GPIO0_C6_d	I/O	DOWN	1.8V	AF19	UART6_TX_M0	UART6_TX_M0
19	UART6_RX_M0/GPIO0_C7_d	I/O	DOWN	1.8V	AE19	UART6_RX_M0	UART6_RX_M0
21	UART0_RX_M0/JTAG_CPU_MCU_TMS_M0/GPIO0_D0_u	I/O	UP	1.8V	AF20	UART0_RX_M0_DEBUG	UART0_RX_M0_DEBUG
23	UART0_TX_M0/JTAG_CPU_MCU_TCK_M0/GPIO0_D1_u	I/O	UP	1.8V	AE20	UART0_TX_M0_DEBUG	UART0_TX_M0_DEBUG

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25	CLK_32K_IN/CLK0_32K_OUT/PCIE20_BUTTONRSTN/GPIO0_B0_d	I/O	DOWN	3.3V	AF21	GPIO0_B0_d	GPIO0_B0_d
27	SDMMC0_PWREN/I2C4_SCL_M1/PMU_DEBUG/GPIO0_A5_d	I/O	DOWN	3.3V	AE22	RTCIC_INT_L	RTC_INT Input, Active L
29	PCIE20_CLKREQN_M0/GPIO0_A6_d	I/O	DOWN	3.3V	AG24	RMII_RSTn	RMII_Reset Output, Active L
31	USB30_OTG0_VBUSDET	I		3.3V	1P14	USB30_OTG0_VBUSDET	USB30_OTG0_VBUS DET, Active H
33	REF_CLK_OUT/GPIO0_A0_d	I/O	DOWN	3.3V	AE24	GPIO0_A0_d	GPIO0_A0_d
35	SDMMC0_DETN/I2C4_SDA_M1/GPIO0_A4_u	I/O	UP	3.3V	1R15	SDMMC0_DET_L	SDMMC0_DET Intput, Active L
37	USB30_OTG0_ID	I	UP	3.3V	1P15	NC	NC (USB30_OTG0_ID Input)
39	SDMMC1_DETN/RGMII_MDIO_M1/PWM3_M1/I2C5_SDA_M1/RMII_MDIO/ GPIO1_D0_d	I/O	DOWN	VCCIO_4	V26	RMII_MDIO	RMII_MDIO
41	SDMMC1_PWREN/RGMII_MDC_M1/PWM2_M1/I2C5_SCL_M1/RMII_MDC/ GPIO1_C7_d	I/O	DOWN	VCCIO_4	1J14	RMII_MDC	RMII_MDC
43	NC	NC		NC		NC	NC
45	GND	G		GND		GND	GND
47	I2S2_MCLK_M0/ETH_CLK_25M_OUT_M1/CLK1_32K_OUT/SPI2_CLK_M1/I2S 0_SDO3_M1/GPIO2_A1_d	I/O	DOWN	VCCIO_4	W25	LCD1_TP_PWREN	LCD1_TP_Power_EN Output, Active H
49	GND	G		GND		GND	GND
51	PMIC_32KOUT	O	UP	VCCIO_4		PMIC_32KOUT	PMIC_32K OUTPUT To Wifi
53	SDMMC1_D1/RGMII_TXD3_M1/I2S0_SDI1_M1/PWM9_M1/GPIO1_C2_d	I/O	DOWN	VCCIO_4	V25	SDIO_D1	SDIO_D1 to WIFI
55	SDMMC1_D0/RGMII_TXD2_M1/I2S0_SDI0_M1/PWM8_M1/GPIO1_C1_d	I/O	DOWN	VCCIO_4	U26	SDIO_D0	SDIO_D0 to WIFI
57	SDMMC1_CLK/RGMII_RXCLK_M1/I2S0_MCLK_M1/PWM1_M1/GPIO1_C6_d	I/O	DOWN	VCCIO_4	U25	SDIO_CLK	SDIO_CLK to WIFI core board series resistance 22R
59	SDMMC1_CMD/RGMII_RXD3_M1/I2S0_SCLK_M1/PWM0_M1/GPIO1_C5_d	I/O	DOWN	VCCIO_4	T27	SDIO_CMD	SDIO_CMD to WIFI

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61	SDMMC1_D3/RGMII_RXD2_M1/I2S0_LRCK_M1/PWM11_M1/GPIO1_C4_d	I/O	DOWN	VCCIO_4	T26	SDIO_D3	SDIO_D3 to WIFI
63	SDMMC1_D2/RGMII_TXCLK_M1/I2S0_SDO0_M1/PWM10_M1/GPIO1_C3_d	I/O	DOWN	VCCIO_4	T25	SDIO_D2	SDIO_D2 to WIFI
65	GND	G		GND		GND	GND
67	SDMMC0_D1/UART0_TX_M1/UART7_TX_M1/SPI1_MISO_M1/DSM_AUD_LN/GPIO1_B4_u	I/O	UP	VCCIO_SD	R26	SDMMC0_D1	SDMMC0_D1 to SD Card
69	SDMMC0_D0/UART0_RX_M1/UART7_RX_M1/SPI1_MOSI_M1/DSM_AUD_LP/GPIO1_B3_u	I/O	UP	VCCIO_SD	R25	SDMMC0_D0	SDMMC0_D0 to SD Card
71	SDMMC0_CLK/TEST_CLK_OUT/UART5_TX_M0/SPI1_CLK_M1/GPIO1_C0_d	I/O	DOWN	VCCIO_SD	P27	SDMMC0_CLK	SDMMC0_CLK to SD Card core board series resistance 22R
73	SDMMC0_CMD/SPDIF_TX_M2/UART5_RX_M0/GPIO1_B7_u	I/O	UP	VCCIO_SD	P25	SDMMC0_CMD	SDMMC0_CMD to SD Card
75	SDMMC0_D3/JTAG_CPU_MCU_TMS_M1/UART5_RTSN_M0/SPI1_CSN0_M1/PWM11_M0/DSM_AUD_RN/GPIO1_B6_u	I/O	UP	VCCIO_SD	N26	SDMMC0_D3	SDMMC0_D3 to SD Card
77	SDMMC0_D2/JTAG_CPU_MCU_TCK_M1/UART5_CTSN_M0/SPI1_CSN1_M1/PWM10_M0/DSM_AUD_RP/GPIO1_B5_u	I/O	UP	VCCIO_SD	N25	SDMMC0_D2	SDMMC0_D2 to SD Card
79	GND	G		GND		GND	GND
VCCIO_SD: 1.8V/3.3V auto							
2	SPI0_CSN1_M0/PWM4_M0/CPU_AVS/SPDIF_TX_M1/GPIO0_B7_d	I/O	DOWN	1.8V	AF15	HOST_WAKE_BT_H	HOST_WAKE_BT, Active H
4	I2C2_SDA_M0/PCIE20_WAKEN_M0/GPIO0_B6_d	I/O	DOWN	1.8V	AE15	I2C2_SDA_TP	I2C2_SDA_TP
6	I2C2_SCL_M0/PCIE20_PERSTN_M0/GPIO0_B5_d	I/O	DOWN	1.8V	AF16	I2C2_SCL_TP	I2C2_SCL_TP
8	UART2_RTSN_M0/PWM0_M0/SPI0_CLK_M0/GPIO0_C3_d	I/O	DOWN	1.8V	AE16	TP_INT_L	TP_INT Input, Active L
10	UART2_CTSN_M0/PWM5_M0/SPI0_CSN0_M0/GPIO0_C2_d	I/O	DOWN	1.8V	AG17	GPIO0_C2_d	GPIO0_C2_d
12	UART2_TX_M0/PWM7_M0/GPU_AVS/GPIO0_C0_d	I/O	DOWN	1.8V	AF17	GPIO0_C0_d	GPIO0_C0_d
14	GND	G		GND		GND	GND

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16	USB30_OTG0_DM			-		USB30_OTG0_DM	USB30_OTG0_DM
18	USB30_OTG0_DP			-		USB30_OTG0_DP	USB30_OTG0_DP
20	GND	G		GND		GND	GND
22	USB20_HOST1_DM			-		USB20_HOST1_DM	USB20_HOST1_DM
24	USB20_HOST1_DP			-		USB20_HOST1_DP	USB20_HOST1_DP
26	GND	G		GND		GND	GND
28	USB30_OTG0_SSTXP/PCIE20_TXDP	O		-		USB30_OTG0_SSTXP	USB30_OTG0_SSTXP
30	USB30_OTG0_SSTXN/PCIE20_TXDN	O		-		USB30_OTG0_SSTXN	USB30_OTG0_SSTXN
32	GND	G		GND		GND	GND
34	PCIE20_REFCLKP	O		-		NC	NC (PCIE20_REFCLKP)
36	PCIE20_REFCLKN	O		-		NC	NC (PCIE20_REFCLKN)
38	GND	G		GND		GND	GND
40	USB30_OTG0_SSRXP/PCIE20_RXDP	I		-		USB30_OTG0_SSRXP	USB30_OTG0_SSRXP
42	USB30_OTG0_SSRXN/PCIE20_RXDN	I		-		USB30_OTG0_SSRXN	USB30_OTG0_SSRXN
44	GND	G		GND		GND	GND
46	UART1_RTSN_M0/RGMII_TXEN_M1/I2S0_SDI2_M1/PWM6_M1/RMII_TXEN/GPIO1_D3_d	I/O	DOWN	VCCIO_4	AA25	RMII_TXEN	RMII_TXEN
48	UART1_CTSN_M0/RGMII_RXD0_M1/I2S0_SDI3_M1/PWM7_M1/RMII_RXD0/GPIO1_D4_d	I/O	DOWN	VCCIO_4	Y27	RMII_RXD0	RMII_RXD0
50	UART1_TX_M0/RGMII_TXD1_M1/I2S0_SDO2_M1/PWM5_M1/RMII_TXD1/GPIO1_D2_d	I/O	DOWN	VCCIO_4	Y26	RMII_TXD1	RMII_TXD1

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52	UART1_RX_M0/RGMII_TXD0_M1/I2S0_SDO1_M1/PWM4_M1/RMII_TXD0/GPIO1_D1_d	I/O	DOWN	VCCIO_4	Y25	RMII_TXD0	RMII_TXD0
54	I2S2_SDI_M0/RGMII_RXER_M1/UART4_CTSN_M1/SPI2_MISO_M1/PWM15_M1/RMII_RXER/GPIO2_A0_d	I/O	DOWN	VCCIO_4	1J15	RMII_RXER	RMII_RXER
56	I2S2_SDO_M0/RGMII_RXD1_M1/UART4_RTSN_M1/SPI2_MOSI_M1/PWM14_M1/RMII_RXD1/GPIO1_D7_d	I/O	DOWN	VCCIO_4	1H15	RMII_RXD1	RMII_RXD1
58	I2S2_SCLK_M0/RGMII_CLK_M1/UART4_RX_M1/SPI2_CSN1_M1/RMII_CLK/GPIO1_D5_d	I/O	DOWN	VCCIO_4	W26	RMII_CLK	RMII_CLK
60	I2S2_LRCK_M0/RGMII_RXDV_M1/UART4_TX_M1/SPI2_CSN0_M1/RMII_RXDV_CRS/GPIO1_D6_d	I/O	DOWN	VCCIO_4	V27	RMII_RXDV_CRS	RMII_RXDV_CRS
62	GND	G		GND		GND	GND
64	SARADC0_BOOT	I		1.8V		SARADC0_BOOT	ADC0_boot Input
66	SARADC0_IN4	I		1.8V		NC	NC (ADC0_4 Input)
68	SARADC0_IN5	I		1.8V		NC	NC (ADC0_5 Input)
70	SARADC0_IN6	I		1.8V		NC	NC (ADC0_6 Input)
72	SARADC0_IN3	I		1.8V		SARADC0_IN3_HW_ID	ADC0_3 Input
74	SARADC0_IN7	I		1.8V		NC	NC (ADC0_7 Input)
76	SARADC0_IN1	I		1.8V		RECOVERY	ADC0_1 Input (RECOVERY)
78	GND	G		GND		GND	GND
80	VCCIO_4	P		1.8V/3.3V		VCC_3V3	VCC_3V3 (VCCIO_4 Input)
VCCIO_4 /VCCIO_5/ VCCIO_6: 1.8V,3.3V option							

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