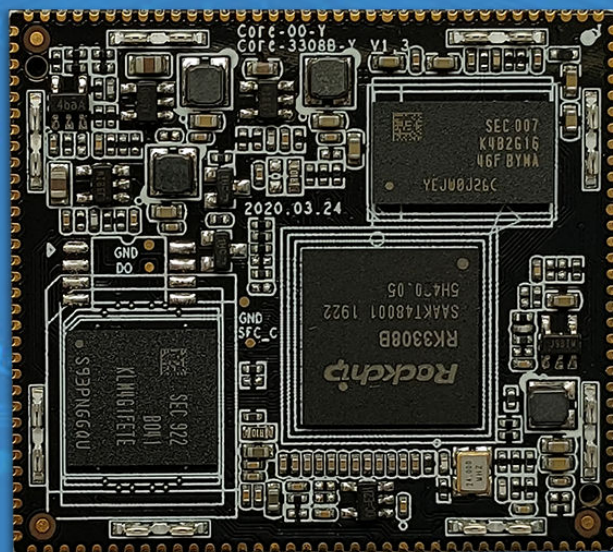


天启科技

Core-3308Y

邮票孔核心板

V1.1



天启智能科技有限公司

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

## 更新记录

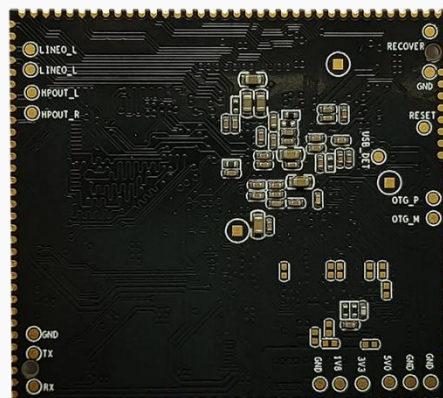
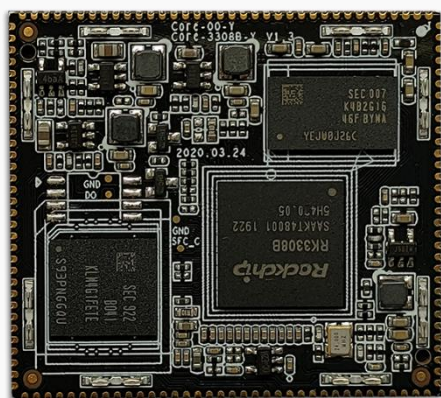
版本	更新日期	更新内容
V1.0	2020-02-28	硬件版本为 V1.2
V1.1	2020-08-18	硬件版本为 V1.3

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## 一、产品简介

邮票孔核心板 Core-3308Y，采用 136P 接口设计，板载基于 64 位四核 ARM Cortex-A35 处理器的 RK3308B 主控，主频 1.3 GHz，整合了高性能 CODEC 音频编解码器，VAD，可用于 IoT 智能物联网、智能音频、语音识别等项目，提供配套的源代码、教程、技术资料 and 开发工具，让开发变得更加简单方便，提供多种存储配置选择，用户仅需扩展功能底板，即可快速实现项目研产。



### 高性价比四核 64 位 IoT 处理器

采用瑞芯微 RK3308B 专用 IoT 处理器，基于 ARM 四核 64 位 Cortex-A35 内核，主频 1.3GHz，集成高性能 Codec 和 Hardware VAD，直接支持最大 8 通道 MIC 阵列+回采，拥有极为丰富的外设接口、超高的性价比。可快速应用于 IoT 智能物联网、智能语音识别、人机界面、工业控制、智能机器人等领域。

### 支持多种 IoT 系统、语音系统和服务

支持 Buildroot、Linux + MiniGUI/QT、ROS (Robot Operating System) 多种操作系统、以及支持科大讯飞、Amazon Alexa 等语音系统和服务。

### 邮票孔接口、沉金工艺，稳定可靠

PCB 采用 6 层板沉金工艺，邮票孔接口，设计尺寸仅 45mm x 40.2mm，节约更多宝贵的空间。工作温度 -20°C -60°C，主板采用高品质器件，运行稳定，可应用于各种智能产品中。

### 丰富的扩展接口

支持 PWM×11 (含复用)、I2C×4、UART×5、SPI×1、I2S×1、ADC×6、LineOUTx1、LineIN x6、MICIN x6 支持数字音频接口 (8CH I2S/TDM x 2, 8CH PDM, 2CH I2S/PCM)、支持加速度传感器、温湿度传感器、距离传感器、GPRS、NB-IOT 等模块。丰富的扩展接口方便连接各种 IoT 设备和二次研发。

### 强大的显示能力，适用于屏显应用场景

支持 24/18/16Bit RGB、MCU 屏幕 (最高支持 1080P 分辨率) 强大的显示屏驱动能力，适合应用于屏显场景，如：智能家居、家庭网关、人机界面、工业控制等场景。

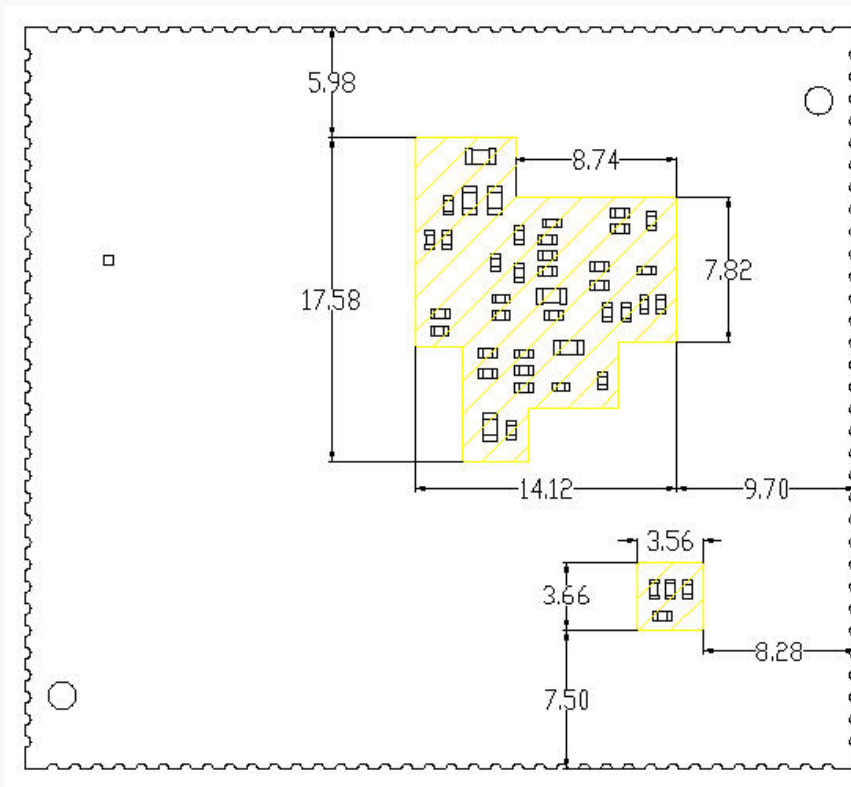
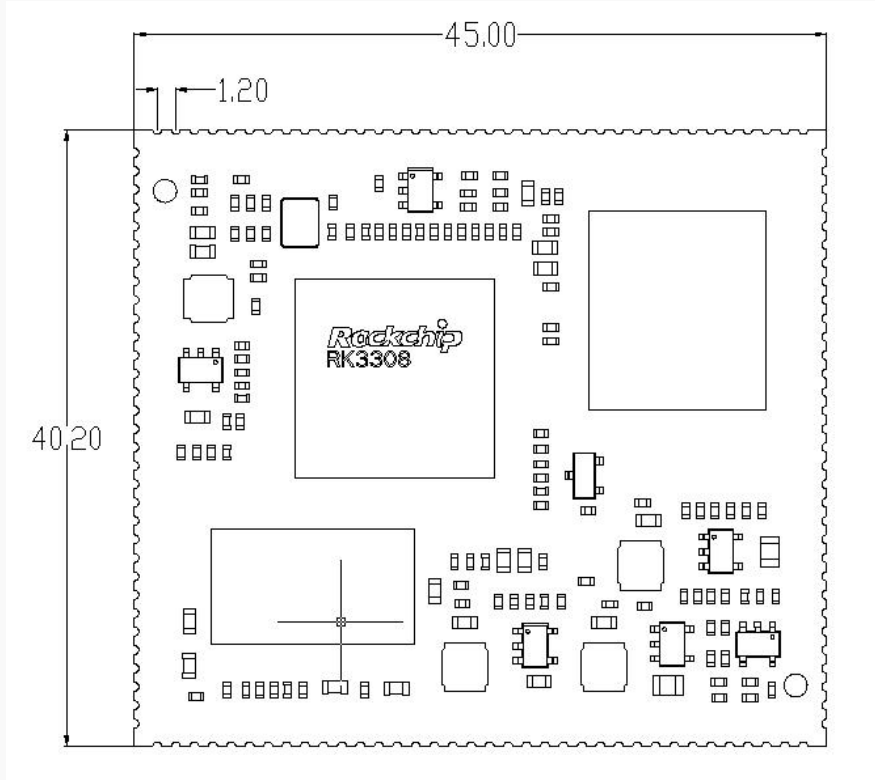
### 应用场景

广泛应用于语音识别、智能家电 (带屏幕控制，也支持语音控制，空调、冰箱、洗衣机、油烟机、咖啡机)、智能家居、家庭网关、智能扫地机器人、语音识别翻译机等物联网、智能语音交互、音频输入/输出处理的场景中。

## 二、规格参数

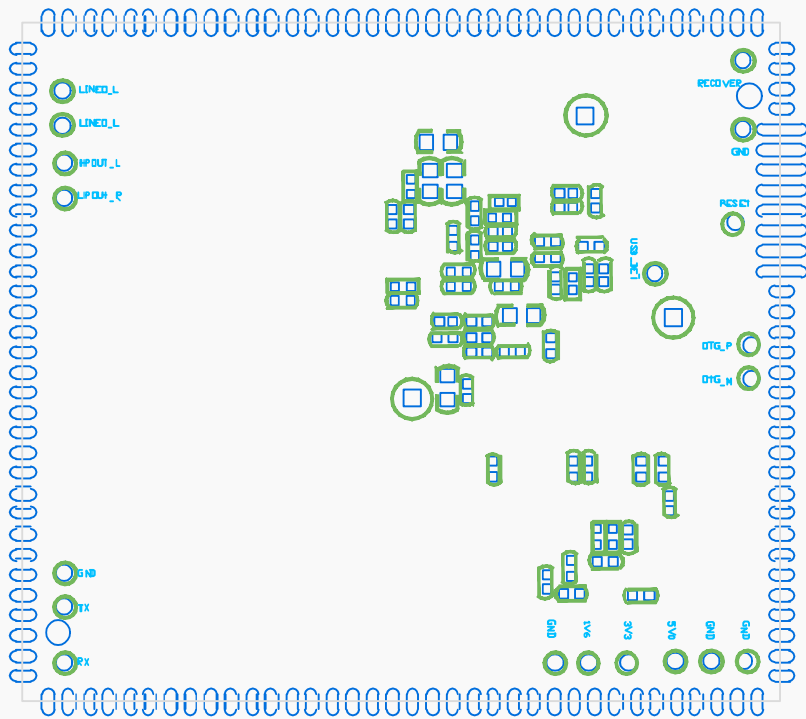
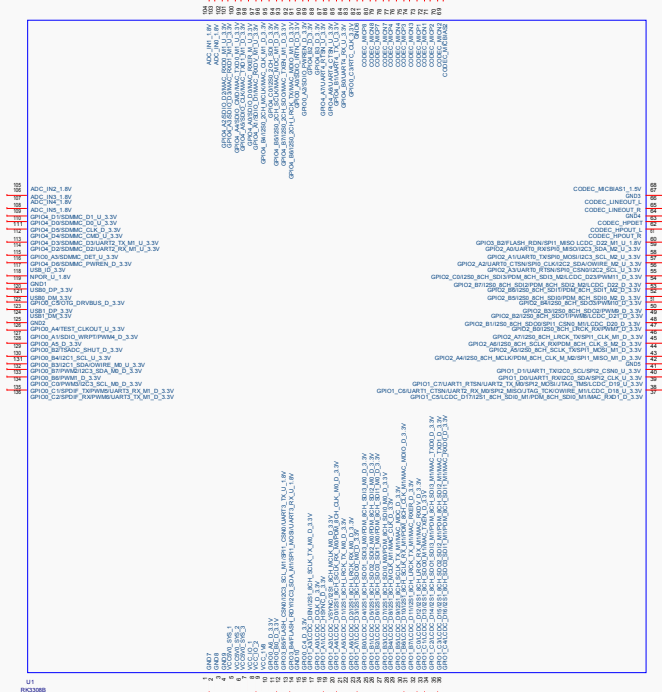
基本参数	
主控芯片	RK3308B (28 纳米制程)
处理器	四核 64 位 ARM Cortex-A35, 主频 1.3GHz
内存	256M DDR3 (可选 128MB ~ 512MB)
存储器	4GB eMMC (可选 8GB/16GB/32GB/128GB) 支持 SPI Flash (可扩展 16MB ~512 MB) 支持 MicroSD (TF) Card Slot 扩展
硬件特性	
以太网	支持 RMII 接口, 可扩展 10M/100M bps 以太网
无线网络	支持 SDIO 3.0, 可扩展 2.4GHz/5.0GHz WiFi 和 Bluetooth 4.2/5.0 单/多合一模块
显示	支持 24/18/16 bit RGB 显示屏、MCU 显示屏 (最高支持 1080P 分辨率)
音频	内置立体声耳机输出和 Line out 输出 支持最大 6 通道模拟麦克风输入 支持数字音频接口 (8CH I2S/TDM x 2, 8CH PDM, 2CH I2S/PCM) 支持最大 8 通道 MIC 阵列+回采
USB	USB 2.0 × 1、USB2.0 × 1 (OTG)
调试	调试串口 × 1, 用于开发调试
扩展接口	支持 PWM×11 (含复用)、UART×5、ADC×6、I2C×4、SPI×1、I2S×1 支持 Line OUT x1、Line IN x6、模拟 MIC IN x6 支持数字音频接口 (8CH I2S/TDM x 2, 8CH PDM, 2CH I2S/PCM) 支持加速度传感器、温湿度传感器、距离传感器、GPRS、NB-IOT 等模块
工作温度	-20°C - 60°C
系统软件	
系统支持	支持 Buildroot、Linux + MiniGUI/QT、ROS (Robot Operating System) 多种操作系统 支持科大讯飞、Amazon Alexa 等语音系统和服务。
外观规格	
核心板尺寸	45mm × 40.2 mm
接口类型	接口 (136Pin, 1.2mm 间距)
PCB 规格	6 层板设计

### 三、主板尺寸

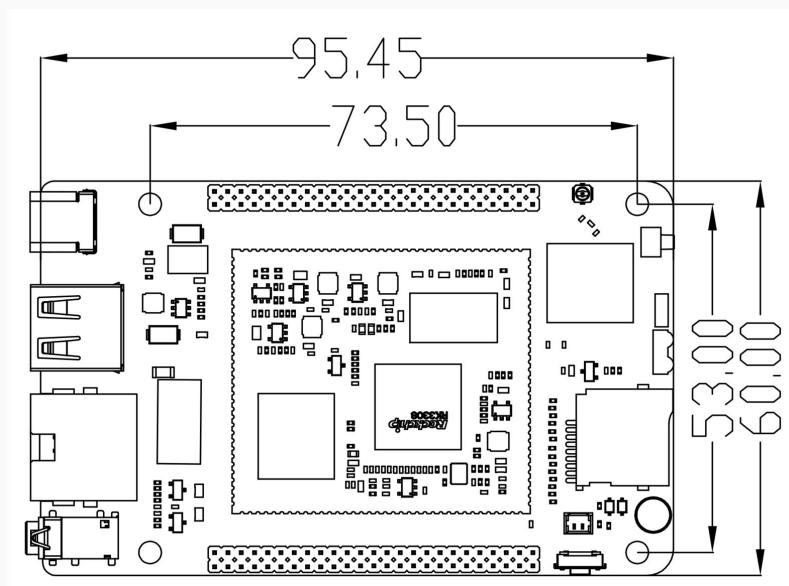
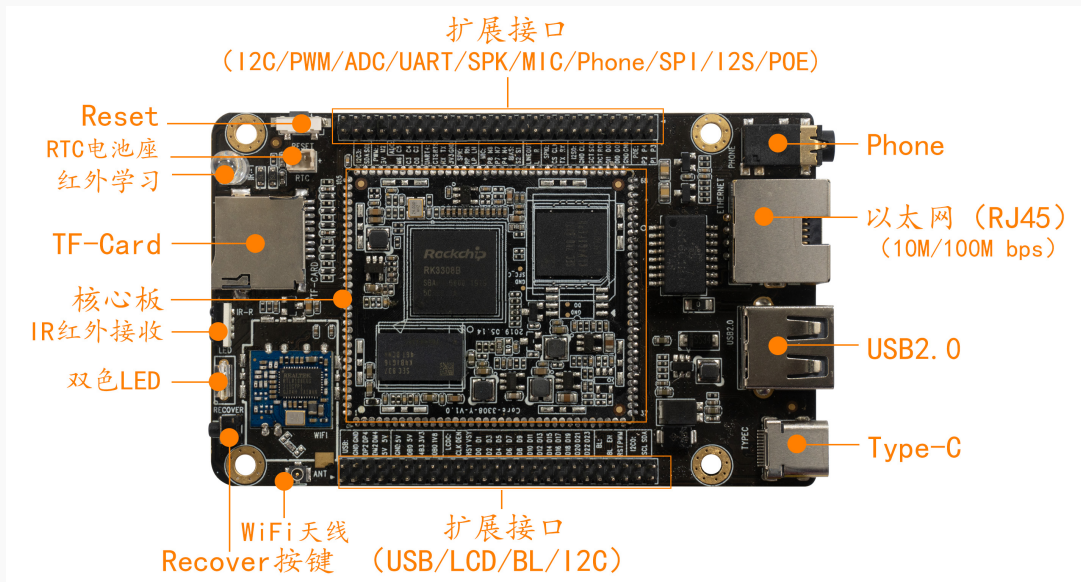




### 四、接口描述



### 五、核心板+底板





## 六、接口定义

Notes1:										
① : Pad types: I = input, O = output, I/O = input/output (bidirectional) , I/GPIO = When used as GPIO port, it is input (I) , A = Analog , G = Ground , P = power supply , DOWN = Internal pull down , UP = Internal pull UP										
0 = Low Level 1 = High level										
Part A	pin	Core board pin definition	Pad type	IO Pull	Reset State	function for ROC-RK3308B-CC	Default function description	IO Power domain	RK3308B Pin Number	RK3308B Pin Name
	1	GND7	G		GND	GND	Power ground	GND		GND7
	2	GND8	G		GND	GND		GND		GND8
	3	GND9	G		GND	GND		GND		GND9
	4	VCC5V0_SYS_1	P			VCC5V0_SYS	System Power supply Input Voltag : Min 4.8V, Typ 5V, Max 5.2V Input current: Typ 500mA ;Max 1000mA	5V		VCC5V0_SYS_1
	5	VCC5V0_SYS_2	P			VCC5V0_SYS		5V		VCC5V0_SYS_2
	6	VCC5V0_SYS_3	P			VCC5V0_SYS		5V		VCC5V0_SYS_3
	7	VCC_IO_1	P			VCC_IO	DCDC Output Voltage 3.3V, Output current MAX 500mA	3.3V		VCC_IO_1
	8	VCC_IO_2	P			VCC_IO		3.3V		VCC_IO_2
	9	VCC_1V8	P			VCC_1V8	LDO Output Voltage 1.8V , Output current Max 100mA	1.8V		VCC_1V8
	10	GPIO0_A6_d_3.3V	I/O	DOWN	I/GPIO	POWER_LED	POWER LED DriveIC enable (output) 1:Enable 0:Disable	3.3V	T5	GPIO0_A6
	11	GPIO0_B0_d_3.3V	I/O	DOWN	I/GPIO	MIC_LED_EN	Array MIC LED DriveIC enable (output) 1:Enable 0:Disable	3.3V	T3	GPIO0_B0
	12	GPIO3_B5/FLASH_CSNO/I2C3_SCL_M1/SP11_CSNO/UART3_TX_u_1.8V	I/O	UP	I/GPIO	I2C3_SCL/UART3_TX	I2C serial port 3	1.8V	T12	GPIO3_B5/FLASH_CSNO/I2C3_SCL_M1/SP11_CSNO/UART3_TX
	13	GPIO3_B4/FLASH_RDY/I2C3_SDA_M1/SP11_MOSI/UART3_RX_u_1.8V	I/O	UP	I/GPIO	I2C3_SDA/UART3_RX	I2C serial port 3	1.8V	W12	GPIO3_B4/FLASH_RDY/I2C3_SDA_M1/SP11_MOSI/UART3_RX
	14	GND10	GND		GND	GND	GND	GND		GND10
	15	GPIO0_C4_d_3.3V	I/O	DOWN	I/GPIO	LCD_RST	LCD Reset (output)	3.3V	T2	GPIO0_C4
	16	GPIO1_A3/LCDC_DEN/I2S1_8CH_SCLK_TX_M0_d_3.3V	I/O	DOWN	I/GPIO	LCDC_DEN/I2S1_SCLK_TX_M0	LCDC RGB interface data enable, MCU i80 interface REN signal	3.3V	W4	GPIO1_A3/LCDC_DEN/I2S1_8CH_SCLK_TX_M0
	17	GPIO1_A0/LCDC_DCLK_d_3.3V	I/O	DOWN	I/GPIO	LCDC_CLK	LCDC RGB interface display clock out, MCU i80 interface RS signal	3.3V	Y5	GPIO1_A0/LCDC_DCLK
	18	GPIO1_A1/LCDC_HSYNC_d_3.3V	I/O	DOWN	I/GPIO	LCDC_HSYNC	LCDC RGB interface horizontal sync pulse, MCU i80 interface WEN signal	3.3V	V4	GPIO1_A1/LCDC_HSYNC
	19	GPIO1_A2/LCDC_VSYNC/I2S1_8CH_HMCLK_M0_d_3.3V	I/O	DOWN	I/GPIO	LCDC_VSYNC/I2S1_MCLK_M0	LCDC RGB interface vertical sync pulse, MCU i80 interface CSN signal	3.3V	U4	GPIO1_A2/LCDC_VSYNC/I2S1_8CH_HMCLK_M0
	20	GPIO1_A4/LCDC_D0/I2S1_8CH_SCLK_RX_M0/PDM_8CH_CLK_M0_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D0/I2S1_SCLK_RX_M0/PDM_CLK_M0	LCDC data output	3.3V	W5	GPIO1_A4/LCDC_D0/I2S1_8CH_SCLK_RX_M0/PDM_8CH_CLK_M0
	21	GPIO1_A5/LCDC_D1/I2S1_8CH_LRCK_TX_M0_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D1/I2S1_LRCK_TX_M0	LCDC data output	3.3V	V5	GPIO1_A5/LCDC_D1/I2S1_8CH_LRCK_TX_M0
	22	GPIO1_A6/LCDC_D2/I2S1_8CH_LRCK_RX_M0_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D2/I2S1_LRCK_RX_M0	LCDC data output	3.3V	U5	GPIO1_A6/LCDC_D2/I2S1_8CH_LRCK_RX_M0
	23	GPIO1_A7/LCDC_D3/I2S1_8CH_SDO0_M0_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D3/I2S1_SDO0_M0	LCDC data output	3.3V	W6	GPIO1_A7/LCDC_D3/I2S1_8CH_SDO0_M0
	24	GPIO1_B0/LCDC_D4/I2S1_8CH_SDO1_SDI3_M0/PDM_8CH_SDI3_M0_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D4/I2S1_SDO1_SDI3_M0/PDM_8CH_SDI3_M0	LCDC data output	3.3V	V6	GPIO1_B0/LCDC_D4/I2S1_8CH_SDO1_SDI3_M0/PDM_8CH_SDI3_M0
	25	GPIO1_B1/LCDC_D5/I2S1_8CH_SDO2_SDI2_M0/PDM_8CH_SDI2_M0_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D5/I2S1_SDO2_SDI2_M0/PDM_8CH_SDI2_M0	LCDC data output	3.3V	U6	GPIO1_B1/LCDC_D5/I2S1_8CH_SDO2_SDI2_M0/PDM_8CH_SDI2_M0
	26	GPIO1_B2/LCDC_D6/I2S1_8CH_SDO3_SDI1_M0/PDM_8CH_SDI1_M0_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D6/I2S1_SDO3_SDI1_M0/PDM_8CH_SDI1_M0	LCDC data output	3.3V	T6	GPIO1_B2/LCDC_D6/I2S1_8CH_SDO3_SDI1_M0/PDM_8CH_SDI1_M0
	27	GPIO1_B3/LCDC_D7/I2S1_8CH_SDI0_M0/PDM_8CH_SDI0_M0_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D7/I2S1_SDI0_M0/PDM_8CH_SDI0_M0	LCDC data output	3.3V	U7	GPIO1_B3/LCDC_D7/I2S1_8CH_SDI0_M0/PDM_8CH_SDI0_M0
	28	GPIO1_B4/LCDC_D8/I2S1_8CH_MCLK_M1/MAC_CLK_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D8/I2S1_MCLK_M1/MAC_CLK	LCDC data output	3.3V	V7	GPIO1_B4/LCDC_D8/I2S1_8CH_MCLK_M1/MAC_CLK
	29	GPIO1_B5/LCDC_D9/I2S1_8CH_SCLK_TX_M1/MAC_MDC_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D9/I2S1_SCLK_TX_M1/MAC_MDC	LCDC data output	3.3V	T8	GPIO1_B5/LCDC_D9/I2S1_8CH_SCLK_TX_M1/MAC_MDC
	30	GPIO1_B6/LCDC_D10/I2S1_8CH_SCLK_RX_M1/PDM_8CH_CLK_M1/MAC_MDIO_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D10/I2S1_SCLK_RX_M1/PDM_8CH_CLK_M1/MAC_MDIO	LCDC data output	3.3V	W7	GPIO1_B6/LCDC_D10/I2S1_8CH_SCLK_RX_M1/PDM_8CH_CLK_M1/MAC_MDIO
	31	GPIO1_B7/LCDC_D11/I2S1_8CH_LRCK_TX_M1/MAC_RXER_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D11/I2S1_LRCK_TX_M1/MAC_RXER	LCDC data output	3.3V	Y7	GPIO1_B7/LCDC_D11/I2S1_8CH_LRCK_TX_M1/MAC_RXER
	32	GPIO1_C0/LCDC_D12/I2S1_8CH_LRCK_RX_M1/MAC_RXDV_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D12/I2S1_LRCK_RX_M1/MAC_RXDV	LCDC data output	3.3V	V9	GPIO1_C0/LCDC_D12/I2S1_8CH_LRCK_RX_M1/MAC_RXDV
	33	GPIO1_C1/LCDC_D13/I2S1_8CH_SDO0_M1/MAC_TXEN_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D13/I2S1_SDO0_M1/MAC_TXEN	LCDC data output	3.3V	V8	GPIO1_C1/LCDC_D13/I2S1_8CH_SDO0_M1/MAC_TXEN
	34	GPIO1_C2/LCDC_D14/I2S1_8CH_SDO1_SDI3_M1/PDM_8CH_SDI3_M1/MAC_TXD0_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D14/I2S1_SDO1_SDI3_M1/PDM_8CH_SDI3_M1/MAC_TXD0	LCDC data output	3.3V	U8	GPIO1_C2/LCDC_D14/I2S1_8CH_SDO1_SDI3_M1/PDM_8CH_SDI3_M1/MAC_TXD0
	35	GPIO1_C3/LCDC_D15/I2S1_8CH_SDO2_SDI2_M1/PDM_8CH_SDI2_M1/MAC_TXD1_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D15/I2S1_SDO2_SDI2_M1/PDM_8CH_SDI2_M1/MAC_TXD1	LCDC data output	3.3V	U9	GPIO1_C3/LCDC_D15/I2S1_8CH_SDO2_SDI2_M1/PDM_8CH_SDI2_M1/MAC_TXD1
	36	GPIO1_C4/LCDC_D16/I2S1_8CH_SDO3_SDI1_M1/PDM_8CH_SDI1_M1/MAC_RXD0_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D16/I2S1_SDO3_SDI1_M1/PDM_8CH_SDI1_M1/MAC_RXD0	LCDC data output	3.3V	R9	GPIO1_C4/LCDC_D16/I2S1_8CH_SDO3_SDI1_M1/PDM_8CH_SDI1_M1/MAC_RXD0
Part B	pin	Core board pin definition	Pad type	IO Pull	Reset State	Default function	Default function description	IO Power domain	RK3308B Pin Number	Core board pin definition
	37	GPIO1_C5/LCDC_D17/I2S1_8CH_SDI0_M1/PDM_8CH_SDI0_M1/MAC_RXD1_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D17/I2S1_SDI0_M1/PDM_8CH_SDI0_M1/MAC_RXD1	LCDC data output	3.3V	Y9	GPIO1_C5/LCDC_D17/I2S1_8CH_SDI0_M1/PDM_8CH_SDI0_M1/MAC_RXD1
	38	GPIO1_C6/UART1_CTSN/UART2_RX_M0/SPI2_MISO/JTAG_TCK/O_WIRE_M1/LCDC_D18_u_3.3V	I/O	UP	I/GPIO	LCDC_D18/UART2_RX_M0/UART1_CTSN/SPI2_MISO	LCDC data output	3.3V	W9	GPIO1_C6/UART1_CTSN/UART2_RX_M0/SPI2_MISO/JTAG_TCK/O_WIRE_M1/LCDC_D18
	39	GPIO1_C7/UART1_RTSN/UART2_TX_M0/SPI2_MOSI/JTAG_TMS/LCDC_D19_u_3.3V	I/O	UP	I/GPIO	LCDC_D19/UART2_TX_M0/UART1_RTSN/SPI2_MOSI	LCDC data output	3.3V	T9	GPIO1_C7/UART1_RTSN/UART2_TX_M0/SPI2_MOSI/JTAG_TMS/LCDC_D19
	40	GPIO1_D0/UART1_RX/I2C0_SDA/SPI2_CLK_u_3.3V	I/O	UP	I/GPIO	I2C0_SDA/UART1_RX/SPI2_CLK/HDMI_SDA	I2C serial port 0	3.3V	V10	GPIO1_D0/UART1_RX/I2C0_SDA/SPI2_CLK

41	GPIO1_D1/UART1_TX/I2C0_SCL/SPI2_CSN0_u_3.3V	I/O	UP	I/GPIO	I2C0_SCL/UART1_TX/SPI2_CSN0/HDMI_SCL	I2C serial port 0	3.3V	T10	GPIO1_D1/UART1_TX/I2C0_SCL/SPI2_CSN0	
42	GND5	G		GND	GND	GND	GND		GND5	
43	GPIO2_A4/I2S0_8CH_MCLK/PDM_8CH_CLK_M_M2/SPI1_MISO_M1_d_3.3V	I/O	DOWN	I/GPIO	I2S0_MCLK/PDM_CLK_M	I2S clock source	3.3V	T15	GPIO2_A4/I2S0_8CH_MCLK/PDM_8CH_CLK_M_M2/SPI1_MISO_M1	
44	GPIO2_A5/I2S0_8CH_SCLK_TX/SPI1_MOSI_M1_d_3.3V	I/O	DOWN	I/GPIO	I2S0_SCLK_TX	I2S transmitting serial clock	3.3V	R15	GPIO2_A5/I2S0_8CH_SCLK_TX/SPI1_MOSI_M1	
45	GPIO2_A6/I2S0_8CH_SCLK_RX/PDM_8CH_CLK_S_M2_d_3.3V	I/O	DOWN	I/GPIO	I2S0_SCLK_RX/PDM_CLK_S	I2S receiving serial clock	3.3V	T16	GPIO2_A6/I2S0_8CH_SCLK_RX/PDM_8CH_CLK_S_M2	
46	GPIO2_A7/I2S0_8CH_LRCK_TX/SPI1_CLK_M1_d_3.3V	I/O	DOWN	I/GPIO	I2S0_LRCK_TX	I2S left & right channel signal for transmitting serial data	3.3V	V17	GPIO2_A7/I2S0_8CH_LRCK_TX/SPI1_CLK_M1	
47	GPIO2_B0/I2S0_8CH_LRCK_RX/PWM7_d_3.3V	I/O	DOWN	I/GPIO	I2S0_LRCK_RX	I2S left & right channel signal for receiving serial data	3.3V	R16	GPIO2_B0/I2S0_8CH_LRCK_RX/PWM7	
48	GPIO2_B1/I2S0_8CH_SDO0/SPI1_CSN0_M1/LCDC_D20_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D20/I2S0_SDO0	LCDC data output	3.3V	V14	GPIO2_B1/I2S0_8CH_SDO0/SPI1_CSN0_M1/LCDC_D20	
49	GPIO2_B2/I2S0_8CH_SDO1/PWM8/LCDC_D21_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D21/I2S0_SDO1	LCDC data output	3.3V	V15	GPIO2_B2/I2S0_8CH_SDO1/PWM8/LCDC_D21	
50	GPIO2_B3/I2S0_8CH_SDO2/PWM9_d_3.3V	I/O	DOWN	I/GPIO	I2S0_SDO2	I2S serial data output	3.3V	U16	GPIO2_B3/I2S0_8CH_SDO2/PWM9	
51	GPIO2_B4/I2S0_8CH_SDO3/PWM10_d_3.3V	I/O	DOWN	I/GPIO	I2S0_SDO3	I2S serial data output	3.3V	T17	GPIO2_B4/I2S0_8CH_SDO3/PWM10	
52	GPIO2_B5/I2S0_8CH_SDI0/PDM_8CH_SDI0_M2_d_3.3V	I/O	DOWN	I/GPIO	I2S0_SDI0/PDM_SDI0	I2S serial data input	3.3V	T14	GPIO2_B5/I2S0_8CH_SDI0/PDM_8CH_SDI0_M2	
53	GPIO2_B6/I2S0_8CH_SDI1/PDM_8CH_SDI1_M2_d_3.3V	I/O	DOWN	I/GPIO	I2S0_SDI1/PDM_SDI1	I2S serial data input	3.3V	U15	GPIO2_B6/I2S0_8CH_SDI1/PDM_8CH_SDI1_M2	
54	GPIO2_B7/I2S0_8CH_SDI2/PDM_8CH_SDI2_M2/LCDC_D22_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D22/I2S0_SDI2/PDM_SDI2	LCDC data output	3.3V	W14	GPIO2_B7/I2S0_8CH_SDI2/PDM_8CH_SDI2_M2/LCDC_D22	
55	GPIO2_C0/I2S0_8CH_SDI3/PDM_8CH_SDI3_M2/LCDC_D23/PWM11_d_3.3V	I/O	DOWN	I/GPIO	LCDC_D23/I2S0_SDI3/PDM_SDI3	LCDC data output	3.3V	Y14	GPIO2_C0/I2S0_8CH_SDI3/PDM_8CH_SDI3_M2/LCDC_D23/PWM11	
56	GPIO2_A3/UART0_RTSN/SPI0_CSN0/I2C2_SCL_u_3.3V	I/O	UP	I/GPIO	SPI0_CS/I2C2_SCL/CAN_TXD	SPI chip select signal, low active	3.3V	W16	GPIO2_A3/UART0_RTSN/SPI0_CSN0/I2C2_SCL	
57	GPIO2_A2/UART0_CTSN/SPI0_CLK/I2C2_SDA/OWIRE_M2_u_3.3V	I/O	UP	I/GPIO	SPI0_CLK/I2C2_SDA/CAN_RXD	SPI serial clock	3.3V	Y16	GPIO2_A2/UART0_CTSN/SPI0_CLK/I2C2_SDA/OWIRE_M2	
58	GPIO2_A1/UART0_TX/SPI0_MOSI/I2C3_SCL_M2_u_3.3V	I/O	UP	I/GPIO	SPI0_TX	SPI transmitting serial data	3.3V	V16	GPIO2_A1/UART0_TX/SPI0_MOSI/I2C3_SCL_M2	
59	GPIO2_A0/UART0_RX/SPI0_MISO/I2C3_SDA_M2_u_3.3V	I/O	UP	I/GPIO	SPI0_RX	SPI receiving serial data	3.3V	U14	GPIO2_A0/UART0_RX/SPI0_MISO/I2C3_SDA_M2	
60	GPIO3_B2/FLASH_RDN/SPI1_MISO/LCDC_D22_M1_u_1.8V	I/O	UP	I/GPIO	GPIO3_B2	USB HOST Power enable 1:Enable 0:Disable	1.8V	U13	GPIO3_B2/FLASH_RDN/SPI1_MISO/LCDC_D22_M1	
61	CODEC_HPOUT_R	A			HPOUT_R	Right DAC channel headphone output		W18	CODEC_HPOUT_R	
62	CODEC_HPOUT_L	A			HPOUT_L	Left DAC channel headphone output		Y19	CODEC_HPOUT_L	
63	CODEC_HPDET	A			HP_DET	Codec Headphone DET	1.8V	V18	CODEC_HPDET	
64	GND4	G		GND	GND	GND	GND		GND4	
65	CODEC_LINEOUT_R	A			LINEOUT_R	Right DAC channel Line output		W19	CODEC_LINEOUT_R	
66	CODEC_LINEOUT_L	A			LINEOUT_L	Left DAC channel Line output		W20	CODEC_LINEOUT_L	
67	GND3	G		GND	GND	GND	GND		GND3	
68	CODEC_MICBIAS1	A			MICBIAS1	Microphone bias voltage1		Y18	CODEC_MICBIAS1	
<b>Part C</b>	<b>pin</b>	<b>Core board pin definition</b>	<b>Pad type</b>	<b>IO Pull</b>	<b>Reset State</b>	<b>Default function</b>	<b>Default function description</b>	<b>IO Power domain</b>	<b>RK3308B Pin Number</b>	<b>Core board pin definition</b>
69	CODEC_MICBIAS2	A				MICBIAS2	MIC bias voltage2		U18	CODEC_MICBIAS2
70	CODEC_MICN2	A				MICN2	ADC channel 2 Microphone input		U19	CODEC_MICN2
71	CODEC_MICP2	A				MICP2	ADC channel 2 Microphone input		U20	CODEC_MICP2
72	CODEC_MICN1	A				MICN1	ADC channel 1 Microphone input		V19	CODEC_MICN1
73	CODEC_MICP1	A				MICP1	ADC channel 1 Microphone input		V20	CODEC_MICP1
74	CODEC_MICN3	A				MICN3	ADC channel 3 Microphone input		P17	CODEC_MICN3
75	CODEC_MICP3	A				MICP3	ADC channel 3 Microphone input		P18	CODEC_MICP3
76	CODEC_MICN4	A				MICN4	ADC channel 4 Microphone input		R19	CODEC_MICN4
77	CODEC_MICP4	A				MICP4	ADC channel 4 Microphone input		R20	CODEC_MICP4
78	CODEC_MICN7	A				MICN7	ADC channel 7 Microphone input		N19	CODEC_MICN7
79	CODEC_MICP7	A				MICP7	ADC channel 7 Microphone input		N20	CODEC_MICP7
80	CODEC_MICN8	A				MICN8	ADC channel 8 Microphone input		M19	CODEC_MICN8
81	CODEC_MICP8	A				MICP8	ADC channel 8 Microphone input		M20	CODEC_MICP8
82	GND6	G		GND	GND	GND	GND	GND		GND6
83	GPIO0_C3/RTC_CLK_3.3V	I/O	High-Z	I/GPIO	CLK_32K_OUT	32K RTC clock (output)	3.3V	Y2	GPIO0_C3/RTC_CLK	
84	GPIO4_B0/UART4_RX_u_3.3V	I/O	UP	I/GPIO	UART4_RXD	UART serial data input	3.3V	F17	GPIO4_B0/UART4_RX	
85	GPIO4_B1/UART4_TX_u_3.3V	I/O	UP	I/GPIO	UART4_TXD	UART serial data output	3.3V	J16	GPIO4_B1/UART4_TX	
86	GPIO4_A6/UART4_CTSN_u_3.3V	I/O	UP	I/GPIO	UART4_CTS	UART clear to send modem status input	3.3V	K19	GPIO4_A6/UART4_CTSN	
87	GPIO4_A7/UART4_RTSN_u_3.3V	I/O	UP	I/GPIO	UART4_RTS	UART modem control request to send output	3.3V	K18	GPIO4_A7/UART4_RTSN	
88	GPIO4_B3_d_3.3V	I/O	DOWN	I/GPIO	BT_REG_ON	BT module power enable (output)	3.3V	F19	GPIO4_B3	
89	GPIO4_B2_d_3.3V	I/O	DOWN	I/GPIO	HUB_RST	HUB reset (output)	3.3V	G16	GPIO4_B2	

90	GPIO0_A2/SDIO_PWREN_d_3.3V	I/O	DOWN	I/GPIO	WIFI_PWREN	WIFI Power enable	3.3V	P3	GPIO0_A2/SDIO_PWREN	
91	GPIO0_A0/SDIO_INTN_d_3.3V	I/O	DOWN	I/GPIO	WIFI_WAKE_HOST	WIFI module wake up AP	3.3V	N3	GPIO0_A0/SDIO_INTN	
92	GPIO4_B6/I2S0_2CH_LRCK_TX/MAC_MDIO_M1_d_3.3V	I/O	DOWN	I/GPIO	MAC_MDIO/PCM_SYNC	MAC management interface data	3.3V	J15	GPIO4_B6/I2S0_2CH_LRCK_TX/MAC_MDIO_M1	
93	GPIO4_B7/I2S0_2CH_SDO/MAC_TXEN_M1_d_3.3V	I/O	DOWN	I/GPIO	MAC_TXEN/PCM_OUT	MAC TX data enable	3.3V	H15	GPIO4_B7/I2S0_2CH_SDO/MAC_TXEN_M1	
94	GPIO4_B5/I2S0_2CH_SCLK/MAC_MDC_M1_d_3.3V	I/O	DOWN	I/GPIO	MAC_MDC/PCM_CLK	MAC management interface clock	3.3V	F18	GPIO4_B5/I2S0_2CH_SCLK/MAC_MDC_M1	
95	GPIO4_C0/I2S0_2CH_SDI_d_3.3V	I/O	DOWN	I/GPIO	LCD_BL	LCD panel backlight brightness control output	3.3V	H14	GPIO4_C0/I2S0_2CH_SDI	
96	GPIO4_B4/I2S0_2CH_MCLK/MAC_CLK_M1_d_3.3V	I/O	DOWN	I/GPIO	MAC_CLK/BT_WAKE_HOST	MAC REC_CLK output or external clock input	3.3V	H16	GPIO4_B4/I2S0_2CH_MCLK/MAC_CLK_M1	
97	GPIO4_A1/SDIO_D1/MAC_RXDV_M1_u_3.3V	I/O	UP	I/GPIO	MAC_RXDV/SDIO_D1	MAC RX data valid signal	3.3V	J17	GPIO4_A1/SDIO_D1/MAC_RXDV_M1	
98	GPIO4_A0/SDIO_D0/MAC_RXER_M_u_3.3V	I/O	UP	I/GPIO	MAC_RXER/SDIO_D0	MAC RX error signal	3.3V	J19	GPIO4_A0/SDIO_D0/MAC_RXER_M	
99	GPIO4_A5/SDIO_CLK/MAC_TXD1_M1_d_3.3V	I/O	UP	I/GPIO	MAC_TXD1/SDIO_CLK	MAC TX data	3.3V	J18	GPIO4_A5/SDIO_CLK/MAC_TXD1_M1	
100	GPIO4_A4/SDIO_CMD/MAC_TXD0_M1_u_3.3V	I/O	UP	I/GPIO	MAC_TXD0/SDIO_CMD	MAC TX data	3.3V	H18	GPIO4_A4/SDIO_CMD/MAC_TXD0_M1	
101	GPIO4_A3/SDIO_D3/MAC_RXD1_M1_u_3.3V	I/O	UP	I/GPIO	MAC_RXD1/SDIO_D3	MAC RX data	3.3V	G17	GPIO4_A3/SDIO_D3/MAC_RXD1_M1	
102	GPIO4_A2/SDIO_D2/MAC_RXD0_M1_u_3.3V	I/O	UP	I/GPIO	MAC_RXD0/SDIO_D2	MAC RX data	3.3V	G18	GPIO4_A2/SDIO_D2/MAC_RXD0_M1	
103	ADC_IN0_1.8V				ADC_IN0	ADC input , Core board interior pull up Resistor 10K	1.8V	A19	ADC_IN0	
104	ADC_IN1_1.8V				RECOVERY	RECOVERY , Core board interior pull up Resistor 10K	1.8V	B19	ADC_IN1	
<b>Part D</b>	<b>pin</b>	<b>Core board pin definition</b>	<b>Pad type</b>	<b>IO Pull</b>	<b>Reset State</b>	<b>Default function</b>	<b>Default function description</b>	<b>IO Power domain</b>	<b>RK3308B Pin Number</b>	<b>Core board pin definition</b>
	105	ADC_IN2_1.8V				ADC_IN2	ADC input , Core board interior pull up Resistor 10K	1.8V	C18	ADC_IN2
	106	ADC_IN3_1.8V				ADC_IN3	ADC input	1.8V	A18	ADC_IN3
	107	ADC_IN4_1.8V				ADC_IN4	ADC input	1.8V	B18	ADC_IN4
	108	ADC_IN5_1.8V				ADC_IN5	ADC input	1.8V	D18	ADC_IN5
	109	GPIO4_D1/SDMMC_D1_u_3.3V	I/O	UP	I/GPIO	SDMMC_D1	SDMMC_D1 data port,for TF Card	<b>Note 2</b>	A17	GPIO4_D1/SDMMC_D1
	110	GPIO4_D0/SDMMC_D0_u_3.3V	I/O	UP	I/GPIO	SDMMC_D0	SDMMC_D0 data port,for TF Card		B17	GPIO4_D0/SDMMC_D0
	111	GPIO4_D5/SDMMC_CLK_d_3.3V	O	DOWN	I/GPIO	SDMMC_CLK	SDMMC clock output,for TF Card		B16	GPIO4_D5/SDMMC_CLK
	112	GPIO4_D4/SDMMC_CMD_u_3.3V	I/O	UP	I/GPIO	SDMMC_CMD	SDMMC command output,for TF Card		C16	GPIO4_D4/SDMMC_CMD
	113	GPIO4_D3/SDMMC_D3/UART2_TX_M1_u_3.3V	I/O	UP	I/GPIO	SDMMC_D3	SDMMC_D3 data port,for TF Card		A15	GPIO4_D3/SDMMC_D3/UART2_TX_M1
	114	GPIO4_D2/SDMMC_D2/UART2_RX_M1_u_3.3V	I/O	UP	I/GPIO	SDMMC_D2	SDMMC_D2 data port,for TF Card		B15	GPIO4_D2/SDMMC_D2/UART2_RX_M1
<b>Note 2:Default is 3.3V; VCCIO5 Domain 1.8V or 3.3V Power supply, Voltage configure by GPIO0_A7; H = 3.3V, L = 1.8V.</b>										
	115	GPIO0_A3/SDMMC_DET_u_3.3V	I	UP	I/GPIO	SDMMC_DET	Sdmmc card detect signal, 0: TF card insert 1: TF card no insert	3.3V	P4	GPIO0_A3/SDMMC_DET
	116	GPIO4_D6/SDMMC_PWREN_d_3.3V	I/O	DOWN	I/GPIO	SDMMC_PWREN	Sdmmc power enable 1:Enable 0:Disable	<b>Note 2</b>	B14	GPIO4_D6/SDMMC_PWREN
	117	USB_ID_3.3V	I			USB_OTG_ID	OTG Role switching(Input) 0: HOST Mode 1: Slave Mode	3.3V	C12	USB_ID
	118	NPOR_u_1.8V	I	fix up	I/GPIO	RESET	Core board pull up 10K, System reset signal input. 0 : System Reset 1 : Normal	1.8V	B20	NPOR
	119	GND1	G		GND	GND	GND	GND		GND1
	120	USB0_DP_3.3V	I/O			USB_OTG_DP	OTG_DP	3.3V	B13	USB0_DP
	121	USB0_DM_3.3V	I/O			USB_OTG_DM	OTG_DM	3.3V	A13	USB0_DM
	122	GPIO0_C5/OTG_DRVBUS_d_3.3V	I/O	DOWN	I/GPIO	USB_DRV	USB HOST Power enable 1:Enable 0:Disable	3.3V	N2	GPIO0_C5/OTG_DRVBUS
	123	USB1_DP_3.3V	I/O			USB_HOST_DP	USB 2.0 Data signal DP	3.3V	B12	USB1_DP
	124	USB1_DM_3.3V	I/O			USB_HOST_DM	USB 2.0 Data signal DM	3.3V	A12	USB1_DM
	125	GND2	GND		GND	GND	GND	GND		GND2
	126	GPIO0_A4/TEST_CLKOUT_u_3.3V	I/O	UP	I/GPIO	LCD_EN	LCD panel power enable	3.3V	R3	GPIO0_A4/TEST_CLKOUT
	127	GPIO0_A1/SDIO_WRP/ PWM4_d_3.3V	I/O	DOWN	I/GPIO	PHONE_CTL	Earphone control (output) 1:Enable 0:Disable	3.3V	N4	GPIO0_A1/SDIO_WRP/ PWM4
	128	GPIO0_A5_d_3.3V	I/O	DOWN	I/GPIO	SPK_MUTE	Speaker control (output) 1:Enable 0:Disable	3.3V	R4	GPIO0_A5

129	GPIO0_B2/TSADC_SHUT_d_3.3V	I/O	DOWN	I/GPIO	WORK_LED	System LED control 1:Enable 0:Disable	3.3V	U3	GPIO0_B2/TSADC_SHUT
130	GPIO0_B4/I2C1_SCL_u_3.3V	I/O	UP	I/GPIO	I2C1_SCL	I2C serial port 1 , Core board interior! pull up Resistor 2.2K	3.3V	V1	GPIO0_B4/I2C1_SCL
131	GPIO0_B3/I2C1_SDA/OWIRE_M0_u_3.3V	I/O	UP	I/GPIO	I2C1_SDA	I2C serial port 1 , Core board interior! pull up Resistor 2.2K	3.3V	V2	GPIO0_B3/I2C1_SDA/OWIRE_M0
132	GPIO0_B7/PWM2/I2C3_SDA_M0_d_3.3V	I/O	DOWN	I/GPIO	PWM2	Pulse Width Modulation input and output	3.3V	W1	GPIO0_B7/PWM2/I2C3_SDA_M0
133	GPIO0_B6/PWM1_d_3.3V	I/O	DOWN	I/GPIO	PWM1	Pulse Width Modulation input and output	3.3V	W2	GPIO0_B6/PWM1
134	GPIO0_C0/PWM3/I2C3_SCL_M0_d_3.3V	I/O	DOWN	I/GPIO	PWM3	Pulse Width Modulation input and output, used for IR application recommended	3.3V	U2	GPIO0_C0/PWM3/I2C3_SCL_M0
135	GPIO0_C1/SPDIF_TX/PWM5/UART3_RX_M1_d_3.3V	I/O	DOWN	I/GPIO	PWM5	Pulse Width Modulation input and output	3.3V	T1	GPIO0_C1/SPDIF_TX/PWM5/UART3_RX_M1
136	GPIO0_C2/SPDIF_RX/PWM6/UART3_TX_M1_d_3.3V	I/O	DOWN	I/GPIO	PWM6	Pulse Width Modulation input and output	3.3V	W3	GPIO0_C2/SPDIF_RX/PWM6/UART3_TX_M1

## 关于我们

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天启科技成立于 2009 年，国家高新技术企业，专注于开源智能硬件，人工智能，物联网，数字音频产品的研发设计、生产和销售，同时提供了智能软硬件产品的整体解决方案。开源品牌“Firefly”在互联网上拥有开源社区与网上商城，目前已超过 20 万用户与 10000 多家的企业用户，为众多科技创业者与初创企业加速研发进程，并提供专业的技术服务。

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