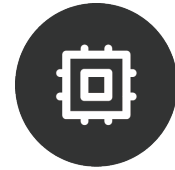# Intelligent IoT Development Kit

V1.0 2024-9-12

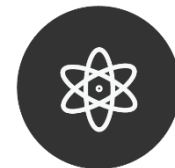T-CHIP INTELLIGENCE TECHNOLOGY

Product features

Quad-core 64-bit IoT processor

A special IoT processer for RockChip RK3308B, based on ARM quad-core 64-bit Cortex-A35 kernel, 1.3GHz frequency, and integrated high-performance Codec and Hardware VAD, directly supports at most 8-channel analog MIC array.

Powerful display capability

It with powerful display drive capability and can support up to 1024×720 resolution, suitable for HMI, smart home, AIOT and other screen display applications.

Support IoT systems and services

It can support a variety of voice systems and services, such as Buildroot（Linux/QT）embedded system, ROS(Robot os), and iFLYTEK, Amazon Alexa. Rich operating systems/services support can use for IoT, intelligent speech recognition and other products easily.
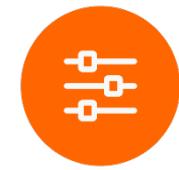
Buildroot+Qt application development

Support buildroot+Qt application development, and the open-source QT applications provided by the SDK include music applications (support mp3 and other formats), video applications (support mp4 and other formats), picture applications, and settings applications (a variety of control functions).

Product features

Voice intercom

Not limited by transmission distance, keep the call in the place with network, realize functions such as sensitive word filtering and the automatic storage of call recording. It widely used in fields such as finance, education, transportation, medical treatment, etc.

Rich expansion interfaces

With multiple expansion interfaces such as 100M Ethernet, USB2.0, Type-C, I2C, I2S, 3.5mm Audio jack, SPI, PWM, ADC, UART, and so on, to meet the requirements of various application scenarios.

Open SDK

Equipped source code, tutorial, technical materials, and development tools are provided, making development easier and more convenient.

A wide range of applications

It is widely used in scenarios such as IoT Internet of Things, intelligent voice interaction, audio input/output processing, etc., such as smart speakers, home gateways, smart sweepers, smart toys, industrial networking terminals, voice translators, smart home appliances, etc.
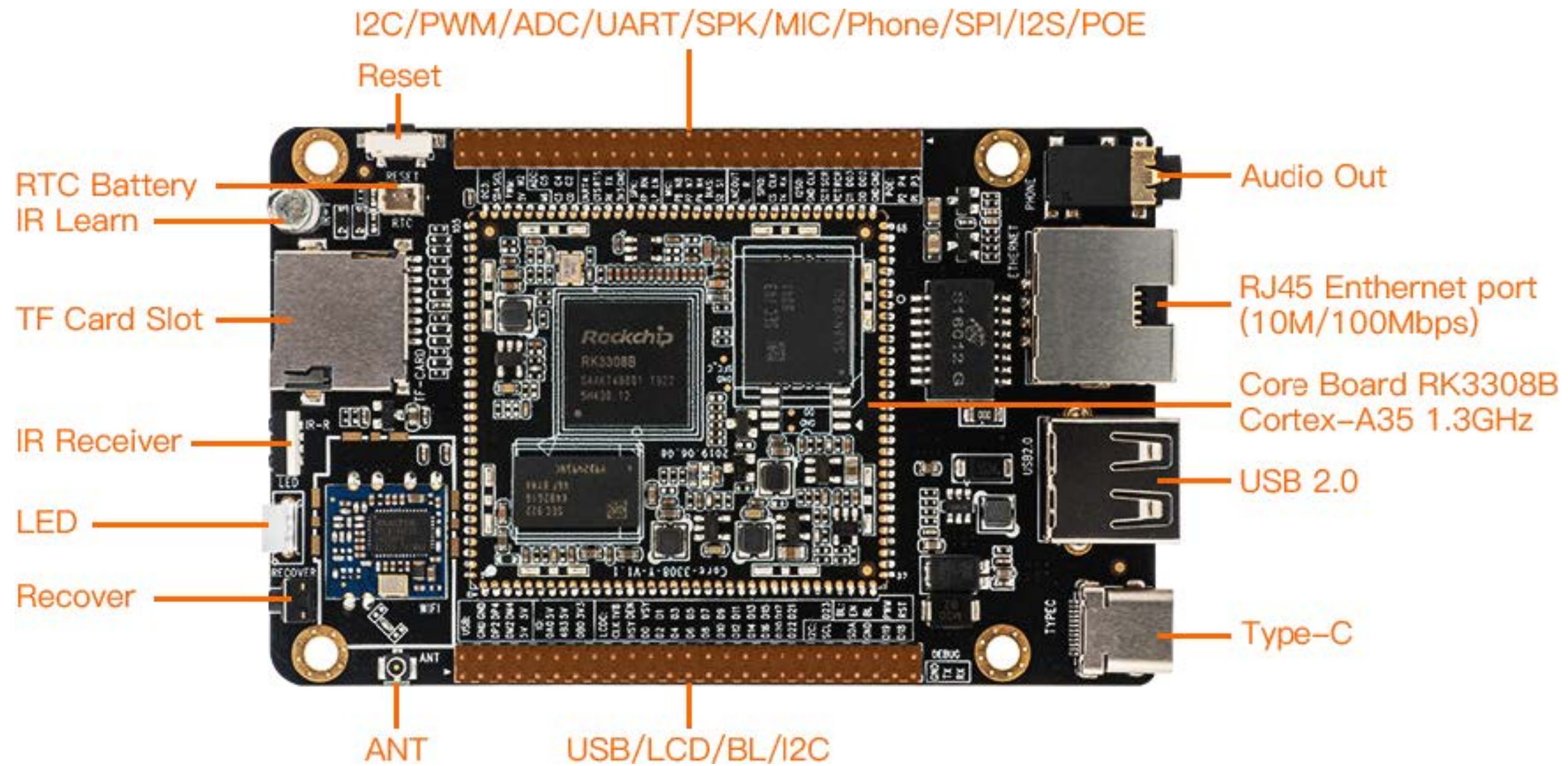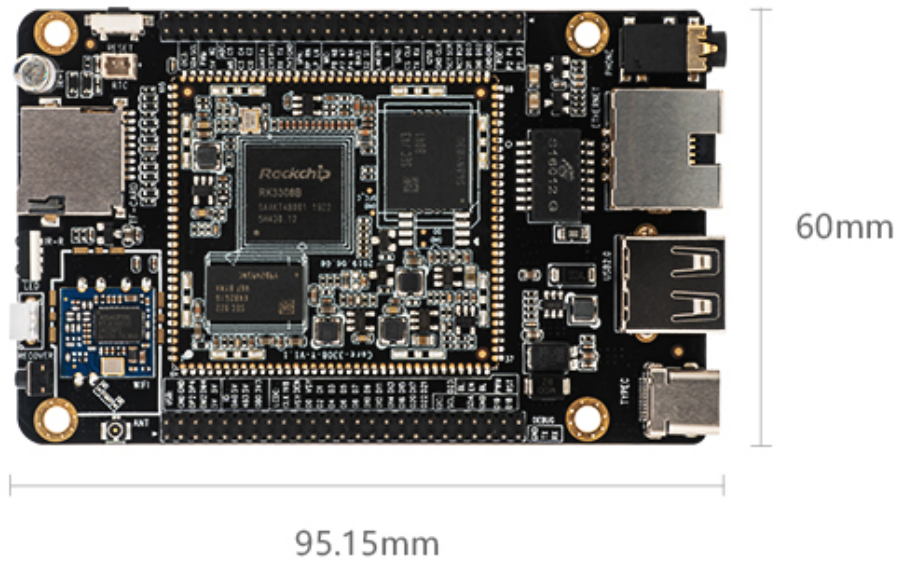
Specifications

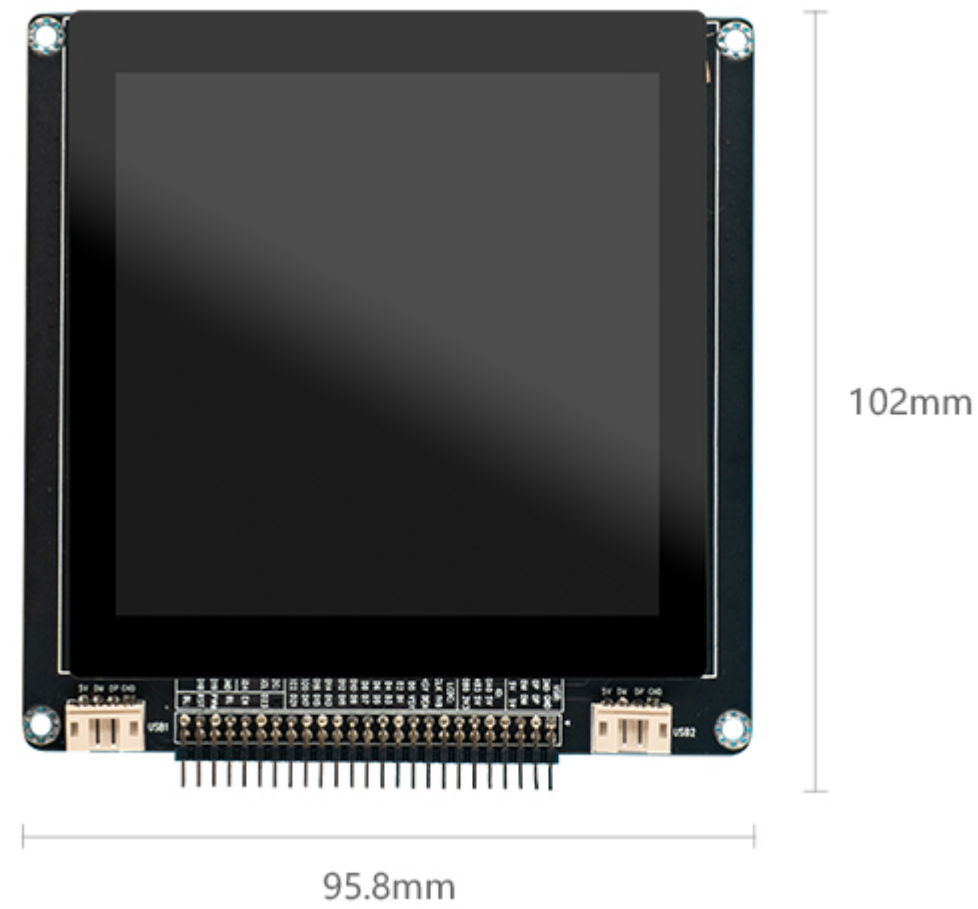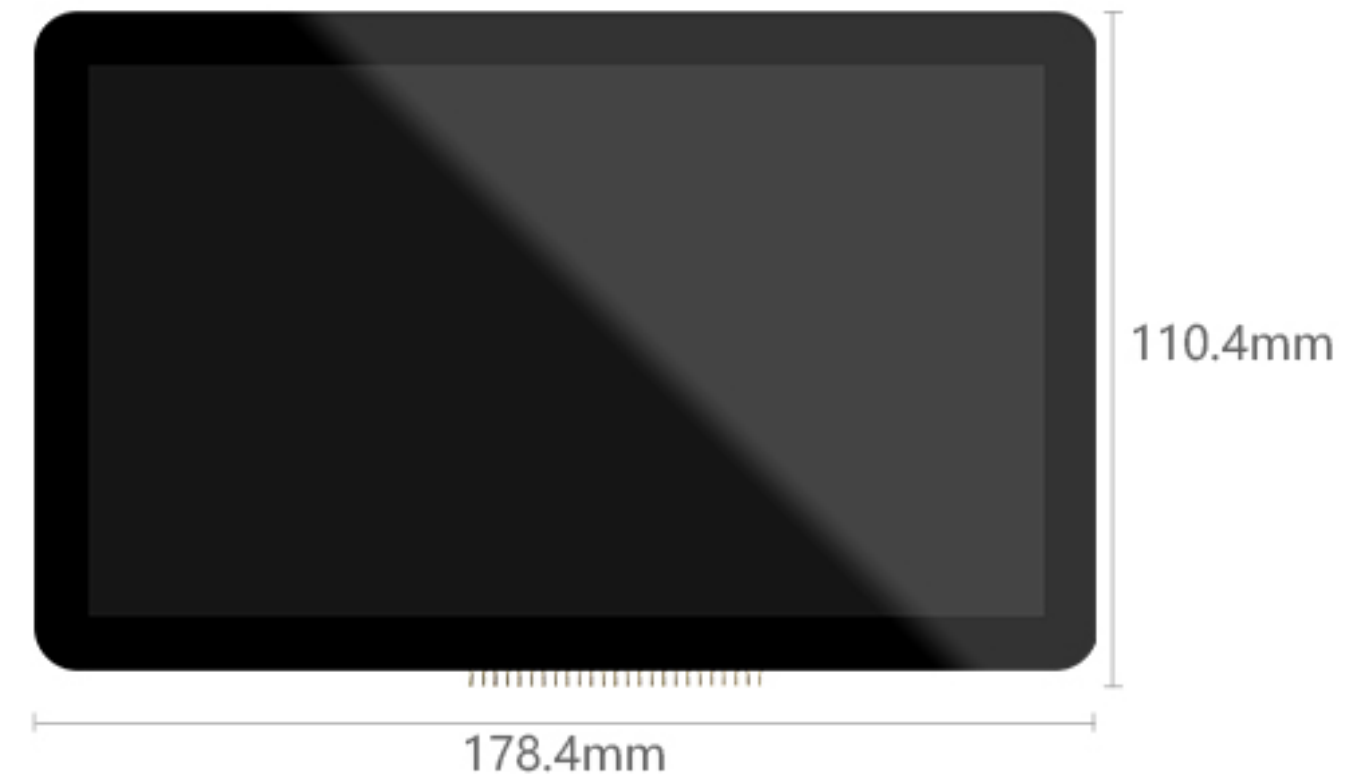| Specifications			
Mainboard	SOC	Rockchip RK3308B	
	CPU	Quad-core 64-bit ARM Cortex-A35, frequency up to 1.3GHz	
	RAM	256M DDR3 (128MB ~ 512MB optional)	
	Storage	4GB eMMC (4GB/8GB/16GB/32GB/64GB/128GB optional), NandFlash (128MB/256MB optional), SPI Flash (16MB ~ 512 MB optional)	
	Storage Expansion	1 × TF Card	
	Power	DC 5V (Powered via Type-C)	
	OS	Support Buildroot, Linux + Mini GUI/QT, ROS (Robot Operating System), support multiple speech systems and services, such as iFLYTEK, Amazon Alexa, etc.	
	Size	95.15mm × 60.00mm	
	Environment	Operating Temperature: -20℃ ~ 60℃, Storage Temperature: -20℃ ~ 70℃, Storage Humidity: 10% ~ 90%RH(non-condensing)	
	Internet	1 × 100M Ethernet (100Mbps/RJ45), support 2.4GHz WiFi (802.11/b/g/n protocol)	
	Video output	Support RGB/MCU display (up to 720P resolution)	
	Audio	1 × 3.5mm Audio jack (Support MIC recording, American Standard CTIA) With built-in audio CODEC, including ADC × 8 Integrated high-performance Codec and Hardware VAD, supporting up to 8-channel MIC array Support digital audio interface (8CH I2S/TDM × 2, 8CH PDM, 2CH I2S/PCM)	
	USB	1 × USB2.0 (OTG), 1 × USB2.0 (Led by pin header), 1 × Type-C (OTG/DC 5V power supply)	
	Extended interfaces	1 × Infrared receiver, 1 × RTC battery holder, 1 × Reset, 1 × Recovery, 1 × Debug (3Pin-2mm), 1 × MIC (2Pin-1.25mm), 3 × I2C, 8 × PWM, 4 × ADC, 5 × UART, SPK, MIC, Phone, 2 × SPI, I2S, POE, LCD, BL, I2C, Lineout	
Screen	Screen	4-inch IPS full view screen	7-inch IPS full view screen
	Resolution	480 × 480 pixels	1024 × 600 pixels
	Touch Screen	Support multi-touch	Support multi-touch
	Brightness	300cd/m²	200cd/m²
	Display	RGB-24bit interface	RGB-24bit interface
	Size	LCD size: 86.0mm × 86.0mm × 3.9mm (W × H × D) Module size: 95.8mm × 102.0mm (50P PH2.0 Pin protruding: 4mm)	LCD size: 178.4mm × 110.4mm × 4.0mm (W × H × D) Module size: 178.4mm × 110.4mm (50P PH2.0 Pin protruding: 2mm)
	Extended interfaces	2 × USB2.0 (XH2.54-4P socket)	2 × USB2.0 (XH2.54-4P socket)
	Environment	Operating Temperature: -20℃ ~ 70℃ Storage Temperature: -30℃ ~ 80℃ Storage Humidity: 10% ~ 90%RH (non-condensing)	Operating Temperature: -20℃ ~ 70℃ Storage Temperature: -30℃ ~ 80℃ Storage Humidity: 10% ~ 90%RH (non-condensing)
Software	Support IoT Systems And Services	It can support a variety of voice systems and services, such as Buildroot（Linux/QT）embedded system, ROS(Robot os), and iFLYTEK, Amazon Alexa. Rich operating systems/services support can use for IoT, intelligent speech recognition and other products easily.	
	Buildroot+Qt application development	It can support Buildroot + QT application development. The open source QT application program provided by the SDK includes music application (supporting various audio formats, such as mp3, wav, ogg, etc.), video application (supporting various video formats, such as mp4, avi, flv, etc.), picture application, and setting application (various control functions: WiFi connection, volume, brightness adjustment, language switch).	

Interface description

I2C/PWM/ADC/UART/SPK/MIC/Phone/SPI/I2S/POE

Reset

RTC Battery
IR Learn

TF Card Slot

IR Receiver

LED

Recover

ANT

USB/LCD/BL/I2C

Audio Out

RJ45 Enthernet port
(10M/100Mbps)

Core Board RK3308B
Cortex-A35 1.3GHz

USB 2.0

Type-C

Dimension

ROC-RK3308B-CC

60mm

95.15mm

4-inch IPS full view screen

102mm

95.8mm

7-inch IPS full view screen

110.4mm

178.4mm

T-CHIP INTELLIGENCE TECHNOLOGY

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