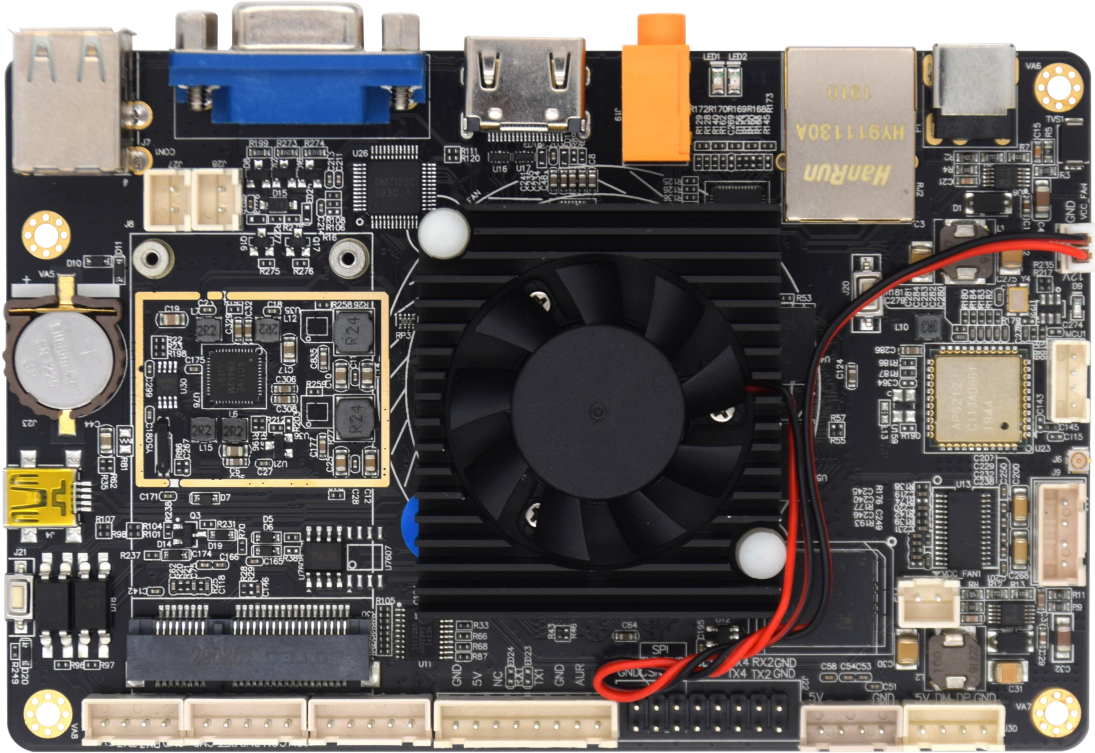


AIWEDO RK3288 V5.32 Integrated Board

Technical Specifications



Edition	Date	Changes
V1.0	2022-7-23	First edition

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1. Product overview

1.1. Introduction

AIWEDO RK3288 V5.32 Android integrated board, is based on Rockchip micro RK3288 Cortex-A17 quad-core chip solution, frequency up to 1.6GHz, it has excellent image processing and computing performance, able to meet a variety of requirements, such as human-machine interaction, game play, video play, industrial control etc; the board has multiple interfaces and I / O, which is capable of being connected to various external devices.

1.2. Characteristics

High performance: The 1.6GHz main frequency can process a variety of tasks quickly, and the Mali-T764 GPU enhances support for different APIs, including OpenCL 1.1, DirectX 11.1, and Renderscript.

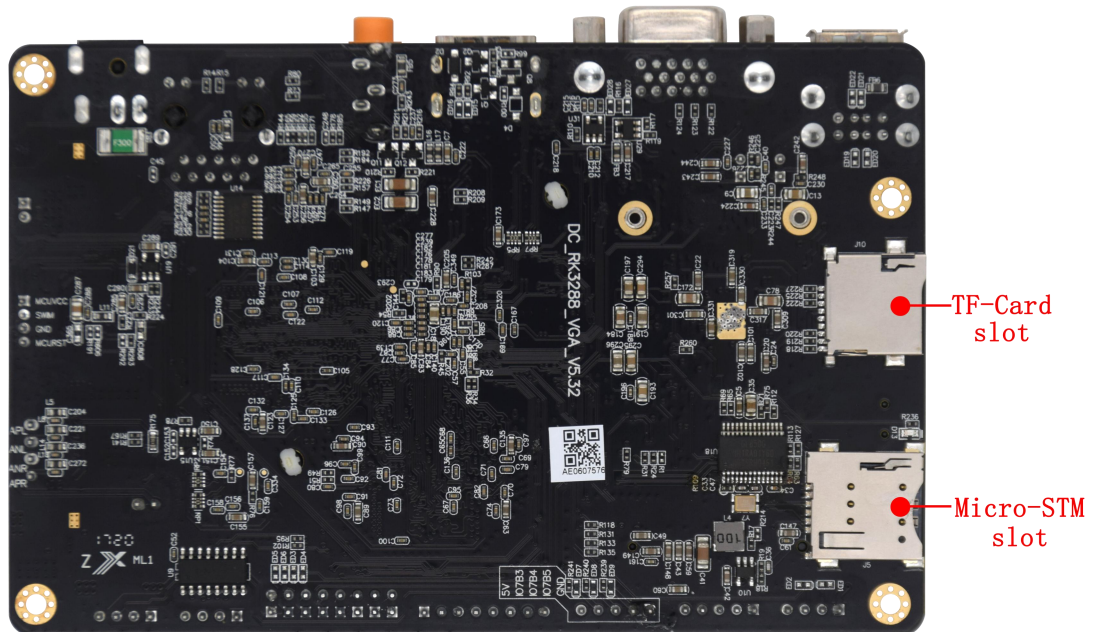
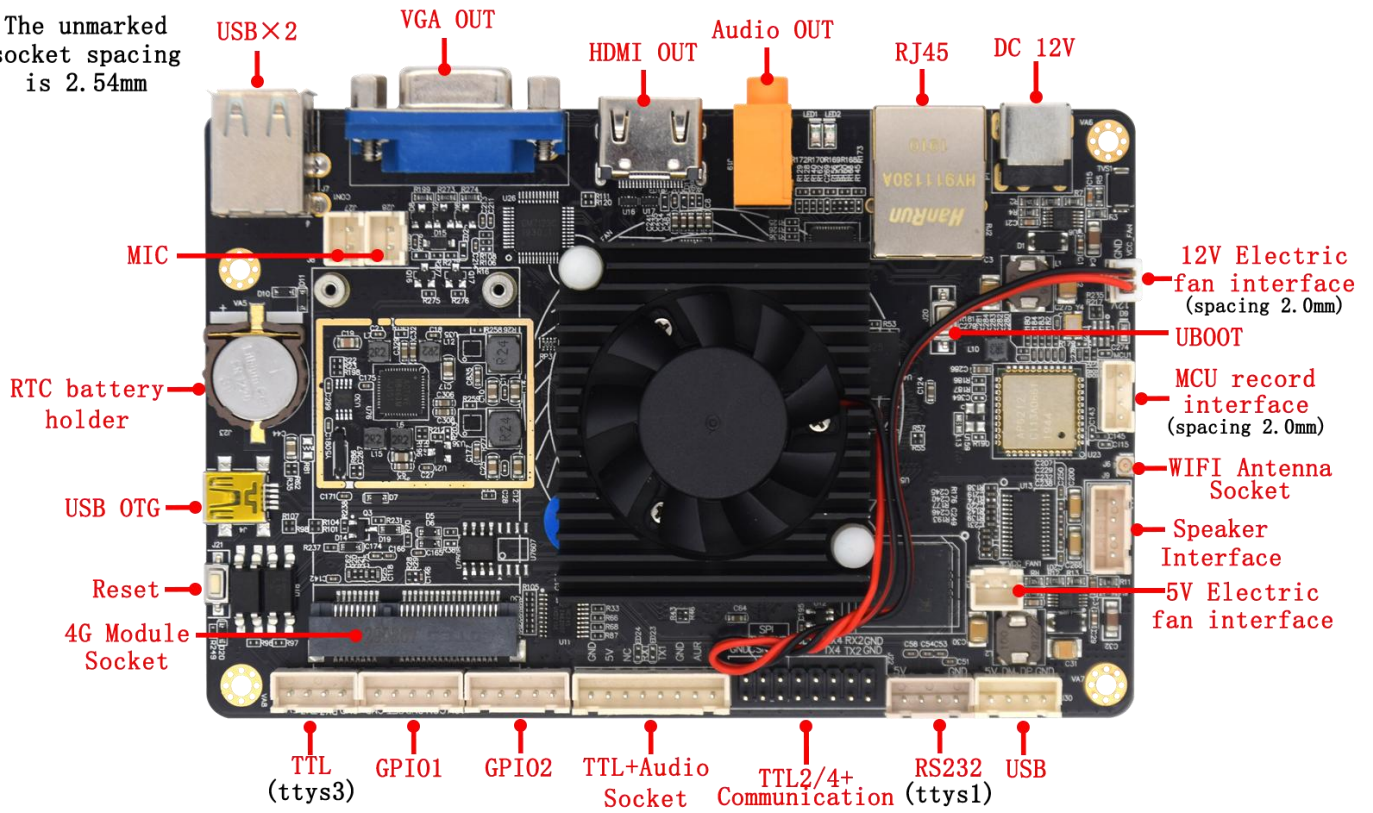
Multiple interface: It has USB port/ serial port/ I2C/SPI/ ADC/GPIO, suitable for common devices on the market, such as card swiping equipment, printing equipment and so on.

Excellent performance: Support horizontal and vertical screen play, dual-screen same display, dual-screen different display, remote control, VGA/HDMI etc.

System customization: support Android system optimization customization, provide system interface API code.

2. Appearance and Port Description

The unmarked socket spacing is 2.54mm



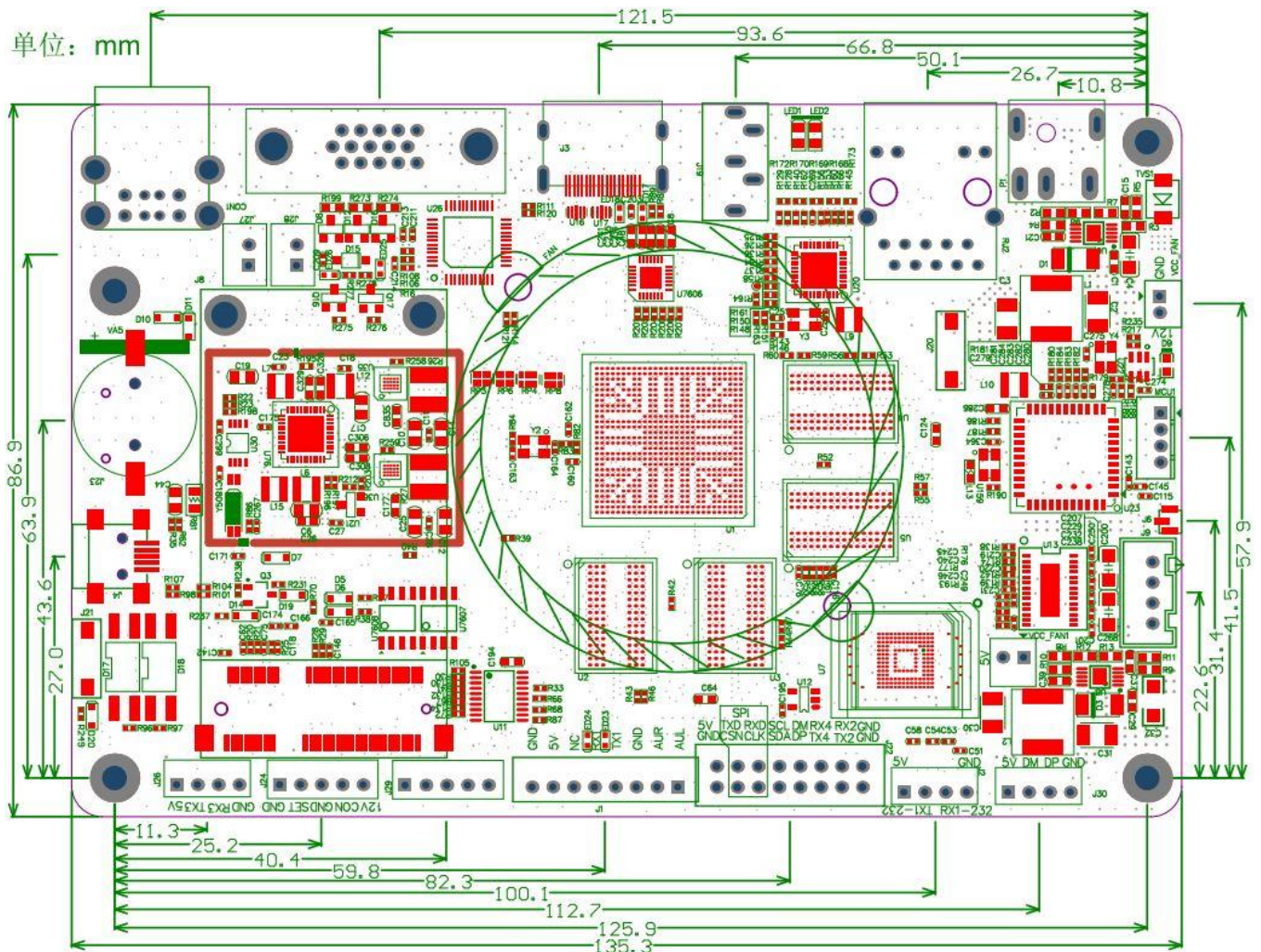
3. List of Basic Functions

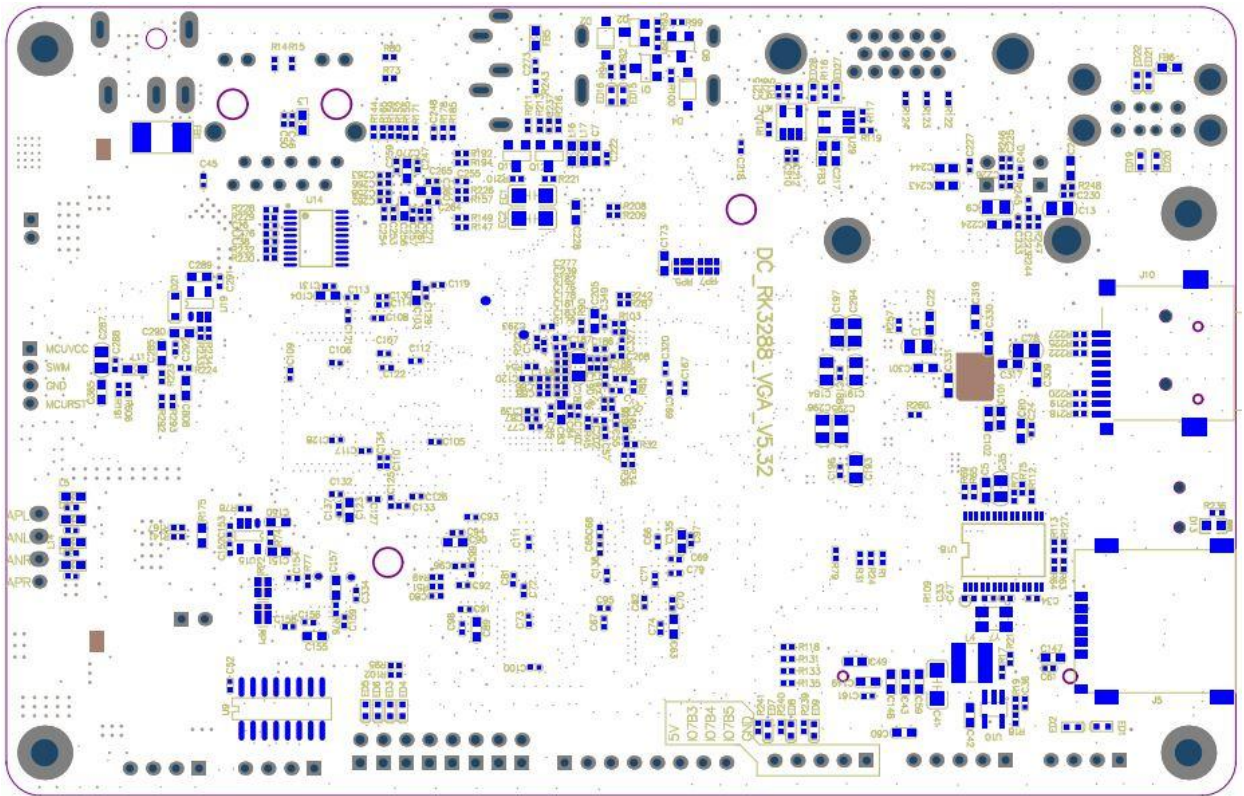
Core Components	
CPU	The RK3288 quad-core 32-bit ARM Coretex-A17 kernel architecture, with a 28nm process design, runs with a main frequency of 1.6GHz
GPU	Mali-T764 GPU, supports AFBC (frame buffer compression), OpenGL ES 1.1/2.0/3.1, OpenCL, DirectX9.3, and embedded high-performance 2D acceleration hardware
RAMA	1GB/2GB(Default)/4GB
Flash memory	eMMC 8G(Default)/16/32G/64G(optional)
Memory expansion	Up to 128GB of TF card extensions are supported
Display Interface	
HDMI OUT	HDMI2.0 supports a maximum of 3840x2160 output
VGA OUT	VGA video interface, up to 1920x1080@60fps
Audio Interface	
MIC interface	1-channel microphone input interface
Amplifier	Left and right dual-channel output, support 8 Ω 10W dual speakers
Network Support	
Ethernet	1-Standard RJ45 interface, 10/100/1000M Adaptive Ethernet
Wifi/Bluetooth	On-board WIFI / BT module, with WiFi 2.4GHz / 5GHz (5GHz option), 802.11a/b/g/n/ac protocol, and Bluetooth 4.0 (BLE support)
Mobile Network	One built-in MINI PCI_E seat slot to expand the connection to the 3G / 4G module
Basic Interface	
USB2.0	4-USB Host interfaces(1*USB socket,1*2.54mm-4P,1*2.54mm-2P) for external high-definition USB camera, U disk, keyboard and mouse and other devices
USB OTG	Used to debug the system, update the firmware, can also be used in Host mode
Serial port	5-serial ports , including 4*TTL and 1*multiplexed RS232 serial ports
GPIO interface	Provides 5 IO ports for free definition of input and output status
RTC	Support for real-time clock, 1220 button battery power supply
SPI interface	Support standard SPI interface
IIC interface	Support standard I2C interface
Other	
Operating system	Android 5.1/Android 7.1/Android 11/debian/ubuntu18.04/buildroot
Power socket	1* DC 12V Input (DC-5.5*2.5MM)
Adaptive	12V 2-5A

System Update	Support PC/U disk/TF card
Working Environment	
working temperature	0°C~70°C, recommended 5°C~35°C
working humidity	10%~90%, no condensation
Storage Temperature	-30°C~75°C, recommended storage at room temperature

4. Main board specification

4.1. PCB Dimension drawing





4.2. Specifications parameters

Main board size: 135.3*92.7*20mm

Main board height: front side \leq 9mm, back side \leq 3mm

PCB number of layers: 6 layers

PCB Size: 135.3*86.9*1.6mm

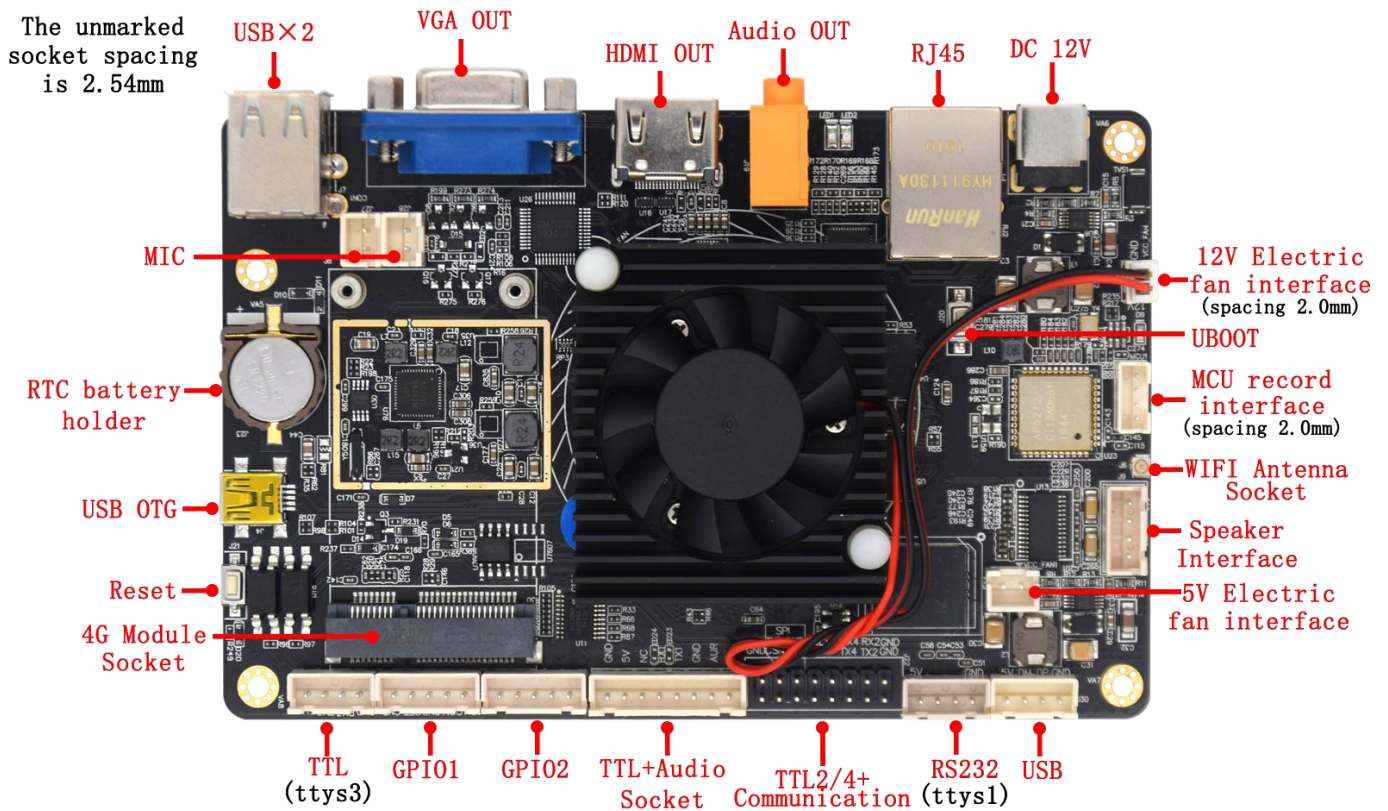
PCB Color: Black

PCB Technology: Sink gold

Screw hole specification: Φ 3mm*4

5. Interface Specification

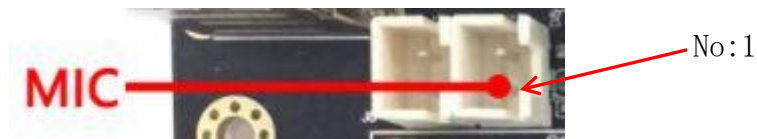
5.1. Interface description



* Note: Except for DC interface, no other interfaces can receive power input;
Square plate perforation or wire mark 1 is the first foot;

5.1.1. MIC interface

XH2.54mm-2P socket, used for microphone device signal input;



No.	Definition	Attribute	Description
1	MIC_1P	Microphone+	麦克风输入正极
2	MIC_1N	Microphone-	麦克风输入负极

5.1.2. Serial port 3 interface

XH2.54mm-4Psocket.UART 3,TTL level standard;

No.	Definition	Attribute	Description	Voltage domain
1	5V	Power	+5V Output	

2	TX3	Output	Serial port 3 data send (TTL)	3.3V
3	RX3	Input	Serial port 3 data receive (TTL)	3.3V
4	GND	Ground	Ground	

5.1.3. GPIO interface 1

XH2. 54mm-5P socket. Two input ports are reserved with voltage limit of 5V;

No.	Definition	Attribute	Description
1	GND	Ground	Ground
2	KEY_SET	Input	输入口 (GPIO7_A5)
3	GND	Ground	Ground
4	KEY_CON	Input	输入口 (GPIO7_A6)
5	12V	Power	+12V Output

5.1.4. GPIO interface 2

XH2. 54mm-5P socket. Three I / O ports are reserved, with a voltage limit of 3.3V;

No.	Definition	Attribute	Description	Voltage domain
1	GND	Ground	Ground	
2	I07B5	Input/Output	GPIO7_B5	3.3V
3	I07B4	Input/Output	GPIO7_B4	3.3V
4	I07B3	Input/Output	GPIO7_B3	3.3V
5	5V	Power	+12V Output	

5.1.5. Serial port + audio socket

XH2. 54mm-8P socket. Reserved audio, TTL serial port and power interface;

No.	Definition	Attribute	Description	Voltage domain
1	AUL	Audio left channel	Audio left channel output (external amplifier required)	
2	AUR	Audio Right Channel	Audio right channel output (external amplifier required)	
3	GND	Ground	Ground	
4	TX1	Output	Serial port 1 data send (TTL)	3.3V
5	RX1	Input	Serial port 1 data receive (TTL)	3.3V
6	NC	/	/	
7	5V	Power	+5V Output	
8	GND	Ground	Ground	

5.1.6. Serial port + communication pin

2. 54mm-6P*2 pin. Including power supply, I2C, SPI, USB data, RS232 serial port and TTL serial port interface;

No.	Definition	Attribute	Description	Voltage domain
1	GND	Ground	Ground	
2	GND	Ground	Ground	
3	TX2	Output	Serial port 2 data send (TTL)	3.3V

4	RX2	Input	Serial port 2 data receive (TTL)	3.3V
5	TX4	Output	Serial port 4 data send (TTL)	3.3V
6	RX4	Input	Serial port 4 data receive (TTL)	3.3V
7	DP	Output	USB data line positive pole	
8	DM	Output	USB data line negative pole	
9	SDA	Input/Output	I2C1 data line	3.3V
10	SCL	Input/Output	I2C1 clock line	3.3V
11	CLK	Input/Output	SPI2 clock signal	3.3V
12	RXD	Input	SPI2 data receive	3.3V
13	CSN	Input/Output	SPI2 chip selection signal	3.3V
14	TXD	Output	SPI2 data send	3.3V
15	GND	Ground	Ground	
16	5V	Power	+5V Output	

5.1.7. RS232 interface

XH2.54mm-4P socket. Serial port 1, level standard;

No.	Definition	Attribute	Description
1	GND	Ground	Ground
2	RX1	Input	Serial port 1 data receive (RS232)
3	TX1	Output	Serial port 1 data send (RS232)
4	5V	Power	+5V Output

5.1.8. USB interface

XH2.54mm-4P socket. It can be used to connect touch screen, camera, mouse and other USB devices;

No.	Definition	Attribute	Description
1	5V	Power	+5V Output
2	DM	Output	USB data line negative pole
3	DP	Output	USB data line positive pole
4	GND	Ground	Ground

5.1.9. Speaker interface

XH2.54mm-4P socket. This audio signal is amplified by a built-in amplifier, and it is recommended to connect an external 8 Ω 10W double speaker;

No.	Definition	Attribute	Description
1	APL	Output	Output L+ Audio Signal
2	ANL	Output	Output L- Audio Signal
3	ANR	Output	Output R- Audio Signal
4	APR	Output	Output R+ Audio Signal

5.1.10. MCU record interface

PH2.0mm-4P socket, Used for burning the program of single chip microcomputer.

No.	Definition	Attribute	Description
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1	MCUVCC	Power	+3.3V Output
2	SWIM	Input	Single wire interface
3	GND	Ground	Ground
4	MCURST	Input	Reset

5.1.11. 12V Electric fan interface

PH2.0mm-2P socket for 5V fan.

No.	Definition	Attribute	Description
1	GND	Ground	Ground
2	12V	Power	+12V Output

5.1.12. 5V Electric fan interface

PH2.0mm-2P socket for 5V fan.

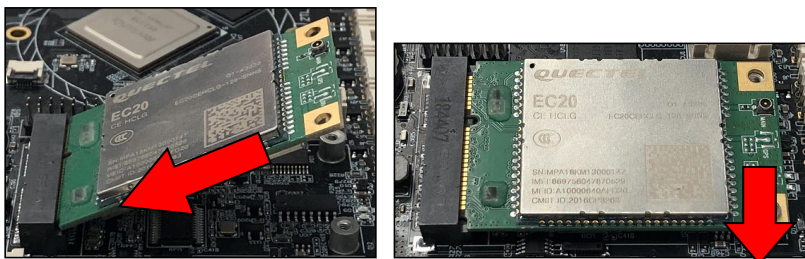
No.	Definition	Attribute	Description
1	GND	Ground	Ground
2	5V	Power	+5V Output

5.1.13. 4G module socket

52P MINI PCI-E socket, is used for 4G module assembly (optional, can't connect to any other external device)

- ① According to the module model, record the corresponding software.
- ② Insert the gold finger of the module into the 4G module socket at an angle of 30 °
- ③ Insert the Micro-SIM card into the slot on back of the board.
- ④ Some IOT cards need to be configured with APN, please consult SIM card operator to obtain APN,

and then add / configure



6. Matters need attention

- Please wear electrostatic wristbands and other electrostatic protective tools when contacting the main board (you should have good grounding);
- Do not do live assembly, wiring and other operations;
- Please check the motherboard interface definition and peripheral interface definition, no error or reverse connection;
- Please fix the motherboard with M3 flat round head screws, do not use large gauge screws; pay attention to avoid motherboard deformation and bending when twisting screws;
- Pay attention to the matching of IO port, serial port, enabling foot and other levels;
- Pay attention to the power of the external screen, with large power, please consider the external power supply;
- Pay attention to the overall power of the product, and select the power supply with sufficient power;