SHENZHEN SUNCHIP TECHNOLOGY CO.,LTD

Quad-core RK3288 Android Decoding Driver All-in-One Board Specification

（Model No.：AD-Z37M V1.5）

Add:2nd&3rd Floor, Building 4, Fu'an Industry Park, No. 90, Dayang Road, Fuyong Town, Baoan District, Shenzhen City, Guangdong Province, P.R.C

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Chapter 1 product overview

Overview：

The intelligent industrial all-in-one board adopts the Rockchip RK3288 quad-core chip solution and supports Android 8.0 and above systems. Powerful computing power. Support H.265 4K video playback. Rich interface, enhanced power management circuit. It is suitable for intelligent remote network control: equipment such as industrial, medical, large advertising machine, educational video terminal and so on.

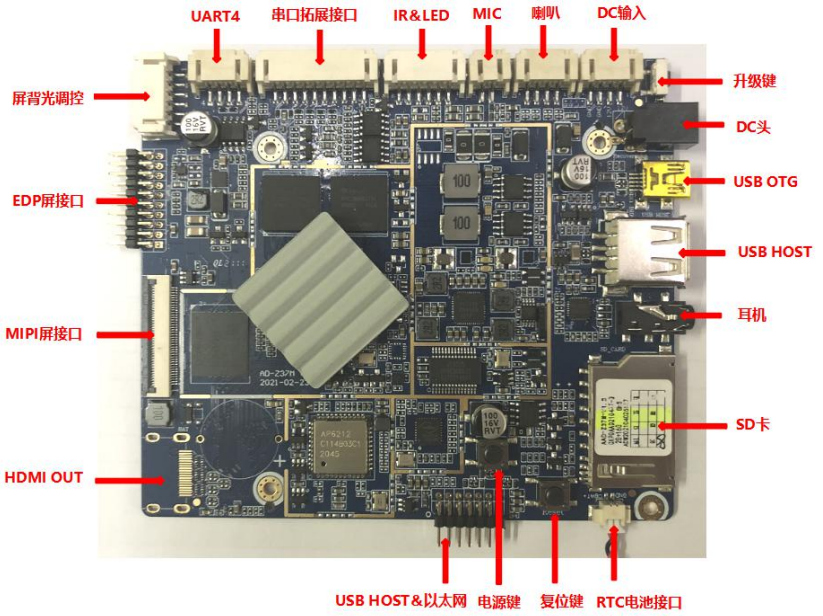
Characteristics：

- Support MIPI interface LCD displays
- Support EDP interface LCD displays
- Multiple interactive mode interfaces: capacitive touch, infrared touch, infrared remote control, USB keyboard and mouse, multi-point optical touch.
- Multiple network interfaces: Ethernet, wireless Wifi, Bluetooth.
- Multi-channel USB interface, serial port.
- Support 4K video playback and HDMI 2.0 high-definition output.
- Strong anti-electromagnetic interference and electromagnetic compatibility.

Chapter 2 Product Specifications

Product pictures

Front：



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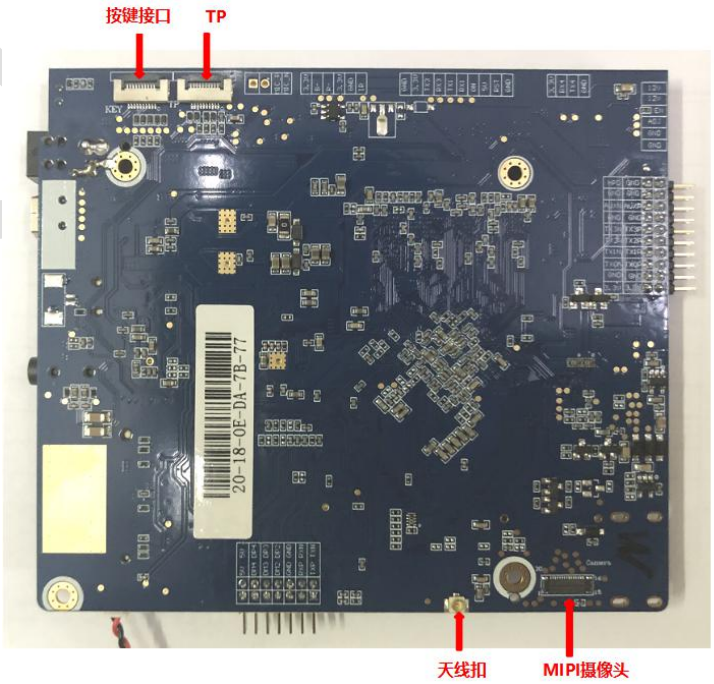


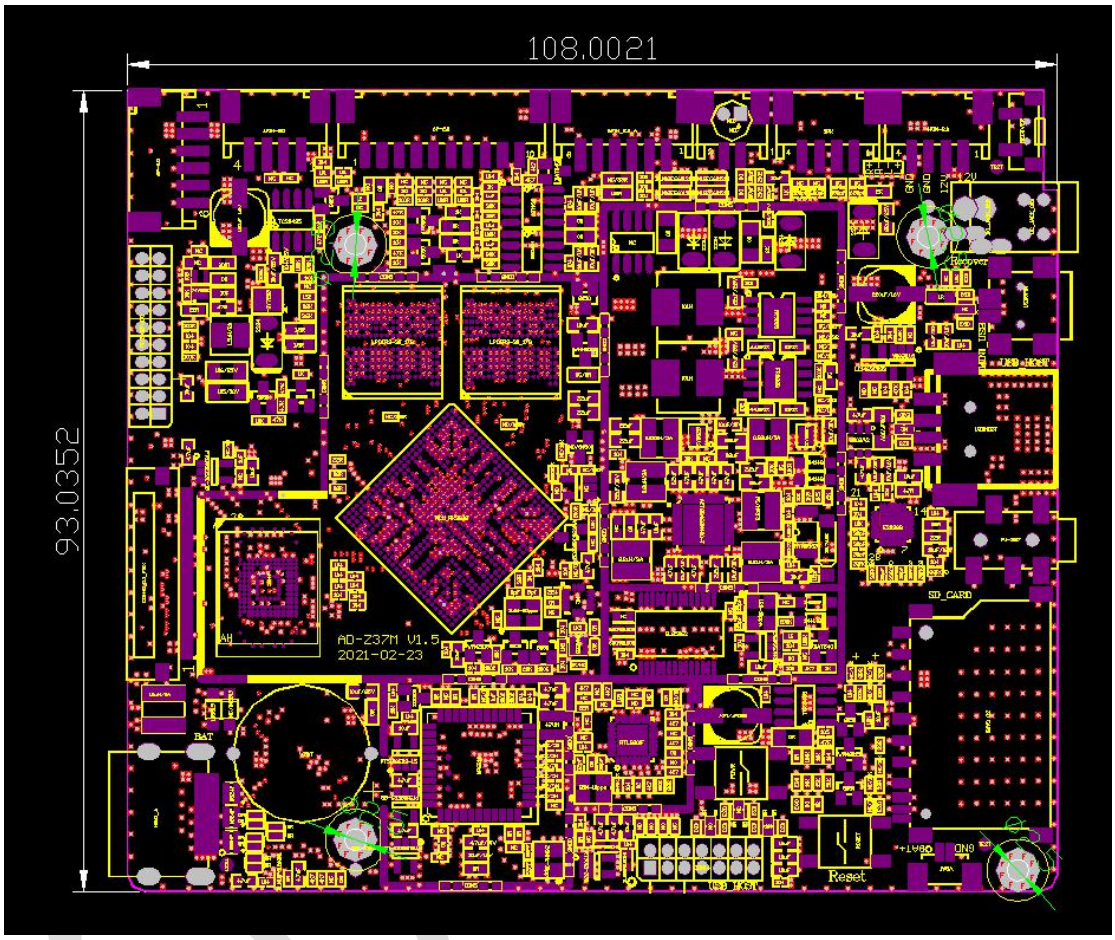
Basic hardware specifications：

CPU	Rockchip RK3288 Quad-core Cortex-A17 Quad-core GPU Mali-T764
Main frequency	1.8GHz
RAM	LPDDR3 2G/4G Optional
Built-in storage capacity	EMMC 8GB/16G/32G/64G Optional
Display interface	MIPI Screen interface, Max resolution 1920*1080
	EDP screen interface
Touch Panel	Provide I2C interface (can support multi-point resistive touch, multi-point capacitive touch). Support USB multi-point infrared touch, multi-point acoustic wave touch, multi-point optical touch.
The internet	With RJ45 interface, support 10/100 Ethernet.
	Equipped with Wifi&BT module, supporting Wi-Fi 802.11b/g/n protocol. Support BT4.0
Image rotation	Support 0 degree, 90 degree, 180 degree, 270 degree manual/auto rotation, support gravity sensor function
Real Time Clock	Built-in (optional external) real-time clock power supply battery
Interface device	Support MIPI interface camera, up to 500W pixels
	3 USB HOST, 1 USB OTG (support usb camera@500W usb printer, U disk, mouse, keyboard, standard usb peripherals)
	3 groups of serial ports. Support external serial port device modules (3G module, NFC module, printer, card reader, etc.)
	SD card, maximum support 32GB
	Class D power amplifier: 3W*2 8 ohms, support microphone
	HDMI 2.0 Output
Audio	MP3,WMA,WAV, APE, FLAC, AAC, OGG,M4A,3GPP format
Video	Support H.264, MPEG2, VP6, VP8, MVC and other video formats 2160P@24FPS decoding. YouTube and other online videos, up to 4K, HTML5 video playback, Flash 10.1 playback
Picture	Support JPG, BMP, PNG and other image format browsing and support rotation/slide show/picture zoom function
Power Adapter	Input: AC100-240V.50-60HZ, output: DC12V 3A

Basic software specifications:

Operating system	Android 8.0 and above
Basic software functions	Web browsing, web chat, email, e-book, resource manager
Sound effect mode	Clock, alarm clock, calculator, recording
Language support	multi-lingual
Recording	Support MP3, WMA format recording
Tool	Calendar
	Alarm Clock
	Calculator
	note
	Weather + clock
	recording
Word processing	EPUB, WORD, EXCEL, POWERPOINT, PDF, TXT
Ebook	PDF/TXT/CHM/DOC/EXCEL/EPUB/RTF/FB2
Schedule	calendar
Input	Standard Andriod keyboard, optional third-party input method (Chinese, Korean, Japanese, etc.)
Network	Browser -ChromeLite
	GOOGLE Market
	Email
	Gmail
	Google talk
System Management	APK installer
	The original ecological Android system, open root permissions, can be customized product development
	Real-time remote monitoring, self-recovery from system crashes, 7*24 hours unattended
	System setting
	Google Maps
	Global time
	Support OTA remote upgrade

PCBA Structure



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Electric

- **Power interface**（DCIN）

No.	Definition	Attributes	Description
1	DC_IN	Power supply	12V power input
2	DC_IN	Power supply	12V power input
3	GND	Ground wire	Ground wire
4	GND	Ground wire	Ground wire

- **Speaker output interface**（SPEAKER OUT JACK）

No.	Definition	Attributes	Description
1	LP	Output	Left channel output positive
2	LN	Output	Left channel output negative
3	RN	Output	Right channel output negative
4	RP	Output	Right channel output positive

- **Microphone interface**（MIC JACK）

No.	Definition	Attributes	Description
1	MIC+	Input	MIC positive input
2	MIC-	Input	MIC negative input

- **Infrared interface** (IR)

No.	Definition	Attributes	Description
1	VCC_IO	Power supply	3.3V
2	LED_B-	Output	System indicator negative
3	LED_R-	Output	Power indicator negative
4	VCC_IR	Power supply	Infrared power supply
5	GND	Ground wire	Ground wire
6	IR_OUT	Input	Infrared signal input

- **Serial port expansion interface**

No.	Definition	Attributes	Description
1	GND	Ground wire	Ground wire
2	PWR_EN	Output	Reset button
3	VCC_SYS	Output	Power supply 5V
4	PWR_ON	Ground wire	External power switch key
5	UART1_RX	Input	Serial 1 receive
6	UART1_TX	Output	Serial 1 send
7	UART3_RX	Input	Serial 3 receiving

8	UART3_TX	Output	Serial 3 send
9	VCC_IO	Output	3.3V power supply
10	GND	Ground wire	Ground wire

- **Serial port** (UART4 JACK)

No.	Definition	Attributes	Description
1	VCC_IO	Output	3.3V voltage output
2	UART4_RX	Input	Take over
3	UART4_TX	Output	Send
4	GND	Ground wire	Ground wire

- **Screen backlight interface**（LCD BL JACK）

No.	Definition	Attributes	Description
1	12V	Output	12V output
2	12V	Output	12V output
3	LCD-EN	Output	Backlight control
4	LCD-ADJ	Output	Backlight adjustment
5	GND	Ground wire	Ground wire
6	GND	Ground wire	Ground wire

- **EDP Screen interface**（EDP JACK）

No.	Definition	Attributes	Description
1	POWER	Output	3.3V power output
2	POWER	Output	3.3V power output
3	GND	Ground wire	Ground wire
4	GND	Ground wire	Ground wire
5	EDP_TX0N	Output	Data
6	EDP_TX0P	Output	Data
7	EDP_TX1N	Output	Data
8	EDP_TX1P	Output	Data
9	EDP_TX2N	Output	Data
10	EDP_TX2P	Output	Data
11	EDP_TX3N	Output	Data
12	EDP_TX3P	Output	Data
13	GND	Ground wire	Ground wire
14	GND	Ground wire	Ground wire
15	EDP_AUXN	Output	Data
16	EDP_AUXP	Output	Data
17	GND	Ground wire	Ground wire
18	GND	Ground wire	Ground wire
19	EDP_HPD	Input	Data
20	GND	Ground wire	Ground wire

- MIPI screen interface（MIPI JACK）

No.	Definition	Attributes	Description
1	NC	Na	Na
2	VDD_LCD	Output	3.3V power supply
3	VDD_LCD	Output	3.3Vpower supply
4	GND	Ground wire	Ground wire
5	LCD_RSTO	Output	Reset
6	NC	Na	Na
7	GND	Ground wire	Ground wire
8	MIPI_TX_D0N	Output	Data
9	MIPI_TX_D0P	Output	Data
10	GND	Ground wire	Ground wire
11	MIPI_TX_D1N	Output	Data
12	MIPI_TX_D1P	Output	Data
13	GND	Ground wire	Ground wire
14	MIPI_TX_CLKN	Output	Data
15	MIPI_TX_CLKP	Output	Data
16	GND	Ground wire	Ground wire
17	MIPI_TX_D2N	Output	Data
18	MIPI_TX_D2P	Output	Data
19	GND	Ground wire	Ground wire
20	MIPI_TX_D3N	Output	Data
21	MIPI_TX_D3P	Output	Data
22	GND	Ground wire	Ground wire
23	NC	Na	Na
24	NC	Na	Na
25	GND	Ground wire	Ground wire
26	NC	Na	Na
27	NC	Na	Na
28	NC	Na	Na
29	VCC_LCD18	Power supply	1.8V power supply
30	GND	Ground wire	Ground wire
31	LED-	Output	Backlight adjustment
32	LED-	Output	Backlight adjustment
33	NC	Na	Na
34	NC	Na	Na
35	AVEE	Output	Backlight adjustment
36	NC	Na	Na
37	NC	Na	Na

38	AVDD	Output	Backlight adjustment
39	LED+	Output	Backlight adjustment
40	LED+	Output	Backlight adjustment

- **USB & Ethernet expansion interface**

No.	Definition	Attributes	Description
1	TXP	Output	Data
2	TXN	Output	Data
3	RXP	Input	Data
4	RXN	Input	Data
5	GND	Ground wire	Ground wire
6	GND	Ground wire	Ground wire
7	DM2	Output	Data
8	DP2	Input	Data
9	DM3	Output	Data
10	DP3	Input	Data
11	DM4	Output	Data
12	DP4	Input	Data
13	USB_HOST_5V_1	Output	5V voltage output
14	USB_HOST_5V_1	Output	5V voltage output

- **Button interface**（KEY ）

No.	Definition	Attributes	Description
1	RECOVER key	Input	Default high level
2	KEY0	GPIO	Default high level
3	KEY1	GPIO	Default high level
4	KEY2	GPIO	Default high level
5	KEY3	GPIO	Default high level
6	PLAY_ON	Input	Default low level (power button)
7	VCC_RTC	Power supply	3.3V output
8	GND	Ground wire	Ground wire
9	GND	Ground wire	Ground wire
10	GND	Ground wire	Ground wire

- TP **interface**（TOUCH SCREEN JACK）

No.	Definition	Attributes	Description
1	GND	Ground wire	Ground wire
2	GND	Ground wire	Ground wire
3	VCC_TP	Power supply	3.3V power output

4	SDA	Output	Data (I2C4)
5	CLK	Output	Clock (I2C4)
6	GND	Ground wire	Ground wire
7	TP_INT	Input	External Interrupt
8	TP_RESET	Input	External reset
9	GND	Ground wire	Ground wire
10	GND	Ground wire	Ground wire

- **Camera interface**

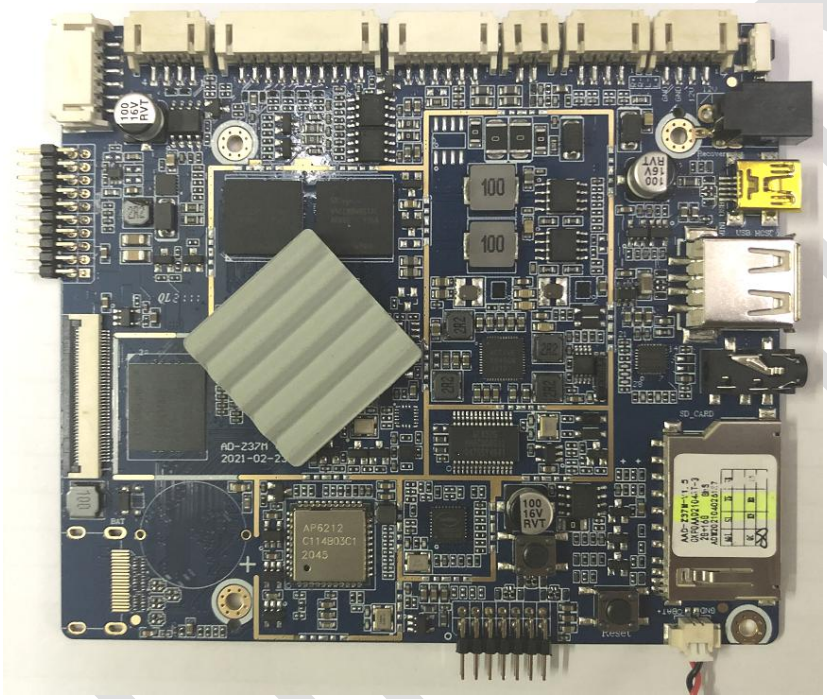
No.	Definition	Attributes	Description
1	GND	Ground wire	Ground wire
2	MIPI_MCLK	Clock	Clock signal interface
3	GND	Ground wire	Ground wire
4	CIF_PDN1	Output	Front camera control interface
5	MIPI_RST	Output	Reset signal interface
6	SDA	Data	Data signal interface
7	SCL	Clock	Clock signal interface
8	GND	Ground wire	Ground wire
9	VCC_DVP	Power supply	2.8V power supply interface
10	GND	Ground wire	Ground wire
11	AVDD_DVP	Power supply	2.8V power supply interface
12	GND	Ground wire	Ground wire
13	VCC_DVP	Power supply	1.8V power supply interface
14	VCC_DVP	Power supply	1.5V power supply interface
15	GND	Ground wire	Ground wire
16	GND	Ground wire	Ground wire
17	MIPI_D0N	Data	Data signal interface
18	MIPI_D0P	Data	Data signal interface
19	GND	Ground wire	Ground wire
20	MIPI_D1N	Data	Data signal interface
21	MIPI_D1P	Data	Data signal interface
22	GND	Ground wire	Ground wire
23	MIPI_CLKN	Clock	Clock signal interface
24	MIPI_CLKP	Clock	Clock signal interface
25	GND	Ground wire	Ground wire
26	MIPI_D2N	Data	Data signal interface
27	MIPI_D2P	Data	Data signal interface
28	GND	Ground wire	Ground wire

29	MIPI_D3N	Data	Data signal interface
30	MIPI_D3P	Data	Data signal interface

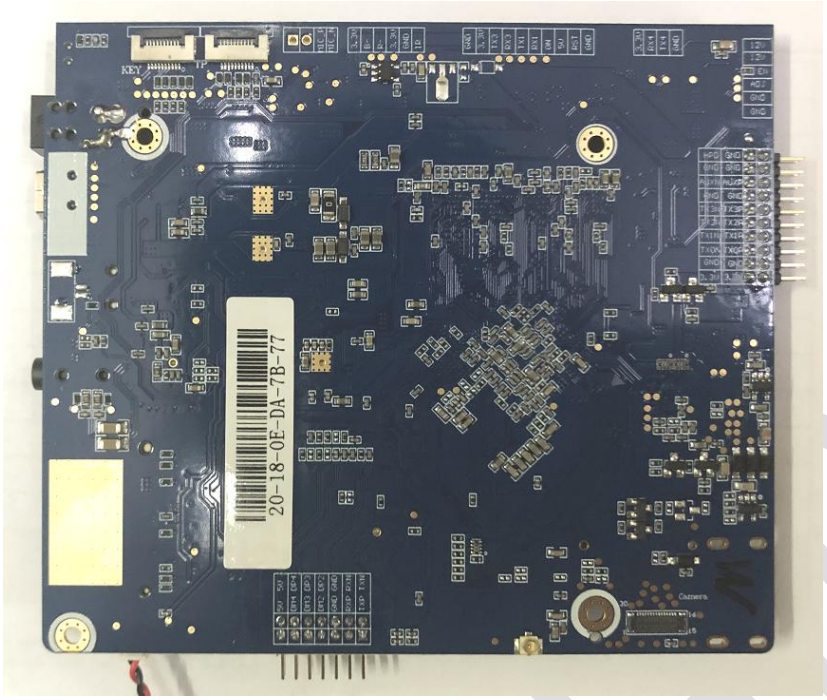
Appendix

◆ Product picture

- Front

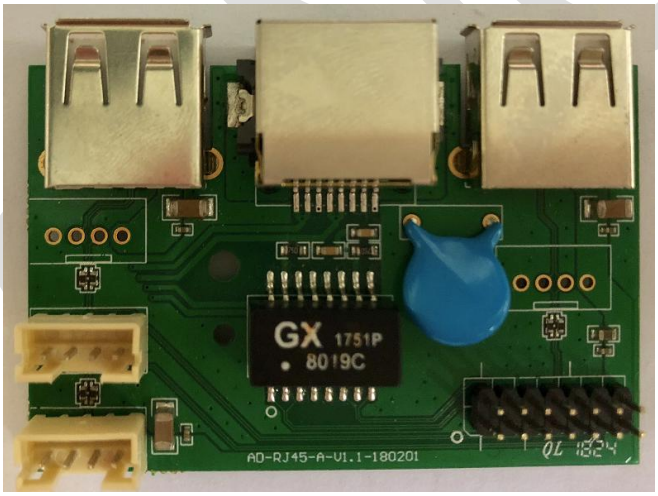


- Backside：

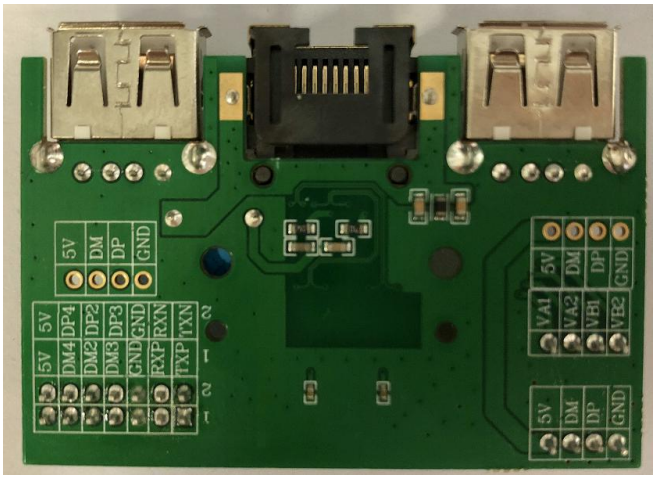


◆ RJ45 small board

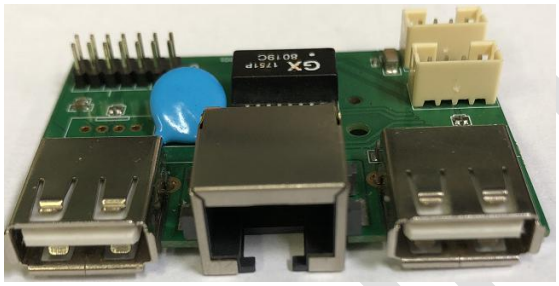
Front：



Backside：



Front/side：



◆ Motherboard installation instructions：

1. Take the board and install the wristband. If the working environment is dry, the wristband must wear a wired static bracelet.
2. When installing the board, pay attention to the finger should be placed on the side of the board, do not touch the center of the board, the center of the board is an important device and components that are extremely sensitive to ESD, easily damaged by ESD static electricity.
3. When installing the peripheral pin header type interface device, it should be inserted under the motherboard, and inserted; it can not be forced to insert, it is easy to deform the motherboard, and it is easy to damage the components of the BGA package on the motherboard.
4. Before the screw is screwed, the motherboard must be leveled to ensure the height of the positioning post. Otherwise, the motherboard may be deformed, causing the solder ball to crack and damage the components.

◆ Tips:

Pay special attention to the power supply used by the board. The power supply voltage requirement of our board is DC_12V, the working voltage range is 9V-15V, and the ripple is less than 100mV. When selecting the power supply, pay attention to the power surge voltage PP value can not exceed 15V, once the power supply voltage or power supply The surge voltage PP value exceeds the range of the board voltage to 15V, the board will be permanently burned or open circuit breaker, the power supply ripple is greater than 100mV. It is easy to interfere with the board or work unstable, especially for the sensor device and touch screen. Point phenomenon, we recommend the use of power supply 12V / 3A, such as the use of peripheral equipment is more recommended to use 12V/5A. Before powering on the motherboard, please make sure that the power supply voltage is within the required range, whether the power supply wiring is correct, whether the screen line and voltage jump cap of the display are correct, and whether the connection and pin of each socket are correct, and ensure the power supply voltage. The power supply can be used under the condition that the socket wiring is completely correct.