SHENZHEN SUNCHIP TECHNOLOGY CO.,LTD

Quad-core RK3566 Android Decoding Driver Integrated Board Specification

（Model No.：AD-C05-V1.2）

Add:2nd&3rd Floor, Building 4, Fu'an Industry Park, No. 90, Dayang Road, Fuyong Town, Baoan District, Shenzhen City, China 518103

Contents

Chapter I product overview

Overview：

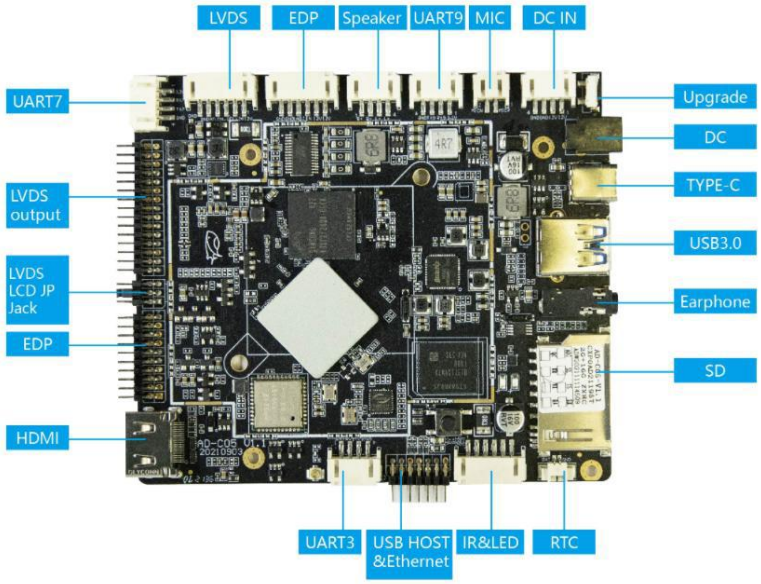
The intelligent industrial all-in-one board adopts the Rockchip RK3566 quad-core chip solution and supports the Android 11 system. Powerful computing power. Support multiple types of display interface, rich peripheral interface, enhanced power management circuit. Suitable for intelligent remote network control: equipment such as industrial, medical, large advertising machines, educational video terminals and other equipment.

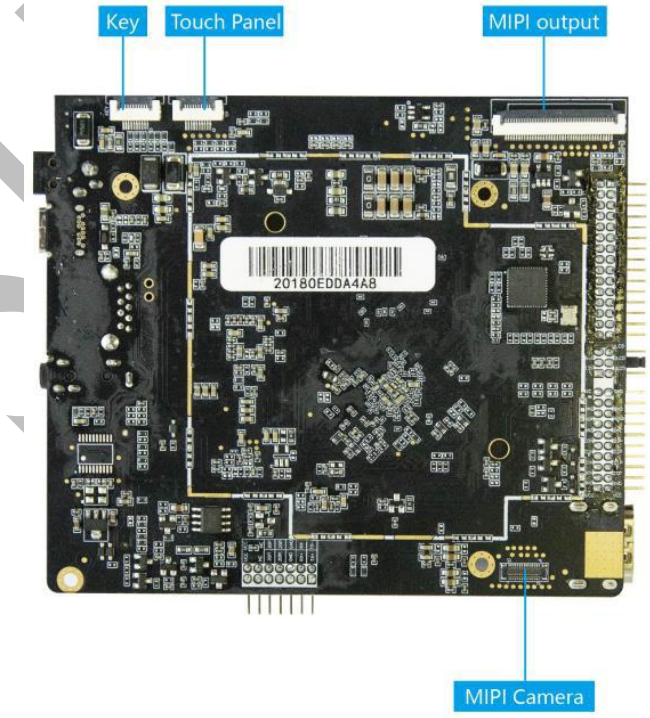
Characteristic：

- Support 7-inch to 84-inch various LVDS interface displays (point-to-point full HD display 1920*1080).
- Support EDP interface display screen.
- Support MIPI interface display screen.
- Support HDMI 2.0 high-definition output.
- 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.
- Strong anti-electromagnetic interference and electromagnetic compatibility.

Chapter 2 Product Specifications

Product picture





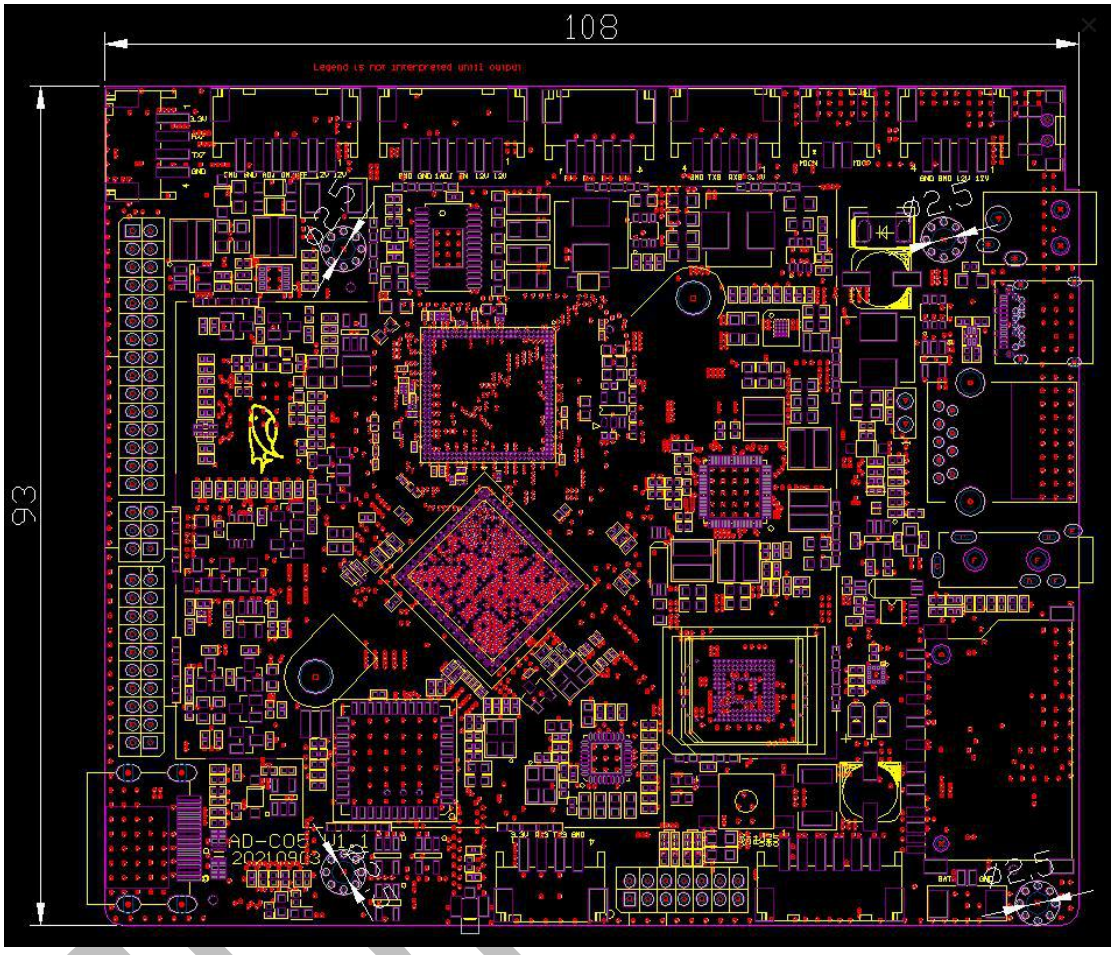
Basic hardware specifications:

CPU	Rockchip RK3566 Quad-core 64-bit Cortex-A55 GPU Mali-G52
Main frequency	Up to 1.8GHz
RAM	LPDDR4 2G/4G Optional
Built-in storage capacity	EMMC 8GB/16G/32G/64G Optional
Display interface	LVDS screen interface (MIPI and LVDS, choose one only)
	EDP screen interface
	MIPI screen interface (MIPI and LVDS, choose one only)
Screen voltage	Support 3.3V/5V/12V optional
Touch screen	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	External real-time clock power supply battery
Interface device	Support MIPI interface camera, up to 500W pixels
	2 USB HOST (secondary board), 1 USB 3.0 (support usb camera @500W usb printer, U disk, mouse, keyboard, standard USB peripherals)
	3 groups of serial ports. Support external serial port device module (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 formats
Video	Support 4K 60fps H.265/H.264/VP9 video decoding; support 1080P 100fps H.265/H.264 video encoding; support 8M ISP
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 11
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
	Original ecological Android system, open root permission, can carry out product customization development
	System setting
	Google Maps
	Global time
	Support OTA remote upgrade

PCBA Structure



Electric

- **Power interface（12V IN）**

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

- **Microphone interface（MIC JACK）**

No.	Definition	Attributes	Description
1	MIC+	Input	MIC positive input
2	GND	Ground wire	Ground wire

- **Serial port(UART9 JACK)**

No.	Definition	Attributes	Description
1	VCC_IO	Output	3.3V voltage output
2	UART9_RX	Input	Take over
3	UART9_TX	Output	Send
4	GND	Ground wire	Ground wire

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

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

- **EDP screen backlight interface（EDP 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

- **LVDS screen backlight interface（LVDS 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

- **Serial port(UART7 JACK)**

No.	Definition	Attributes	Description
1	VCC_IO	Output	3.3V voltage output
2	UART7_RX	Input	Take over
3	UART7_TX	Output	Send
4	GND	Ground wire	Ground wire

- **RTC battery interface（RTC ）**

No.	Definition	Attributes	Description
1	BAT	Power supply	RTC battery positive
2	GND	Ground wire	Ground wire

- **Infrared & light interface(IR&LED)**

No.	Definition	Attributes	Description
1	VCC_IO	Power supply	3.3V power output
2	LED_B+	Output	Blue light positive
3	LED_R+	Output	Red light positive
4	VCC_IR	Power supply	3.3V power output
5	GND	Ground wire	Ground wire
6	IR_OUT	Input	Infrared signal input

- **USB & Ethernet expansion interface**

No.	Definition	Attributes	Description
1	TXP	Output	Date
2	TXN	Output	Date
3	RXP	Input	Date
4	RXN	Input	Date
5	GND	Ground wire	Ground wire
6	GND	Ground wire	Ground wire
7	DM2	Output	Date
8	DP2	Input	Date

9	DM3	Output	Date
10	DP3	Input	Date
11	NC	/	/
12	NC	/	/
13	USB_5V	Output	5V voltage output
14	USB_5V	Output	5V voltage output

- **Serial port(UART3 JACK)**

No.	Definition	Attributes	Description
1	VCC_IO	Output	3.3V voltage output
2	UART3_RX	Input	Take over
3	UART3_TX	Output	Send
4	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

- **Screen voltage jumper interface（LCD JP JACK）**

No.	Definition	Attributes	Description
1	12V	Output	12V output
2	VCC_LCD	Input	LCD voltage input

3	5.0V	Output	5.0 V output
4	VCC_LCD	Input	LCD voltage input
5	3.3V	Output	3.3V output
6	VCC_LCD	Input	LCD voltage input

- **LVDS interface（LVDS JACK）**

No.	Definition	Attributes	Description
1	VDD_LCD	Output	3V/5V/12V power output
2	VDD_LCD		
3	VDD_LCD		
4	GND	Ground wire	Ground wire
5	GND		
6	GND		
7	TXA0N	Output	Data
8	TXA0P	Output	Data
9	TXA1N	Output	Data
10	TXA1P	Output	Data
11	TXA2N	Output	Data
12	TXA2P	Output	Data
13	GND	Ground wire	Ground wire
14	GND		
15	TXACN	Output	Clock
16	TXACP	Output	Clock
17	TXA3N	Output	Data
18	TXA3P	Output	Data
19	TXB0N	Output	Data
20	TXB0P	Output	Data
21	TXB1N	Output	Data
22	TXB1P	Output	Data
23	TXB2N	Output	Data
24	TXB2P	Output	Data
25	GND	Ground wire	Ground wire
26	GND		
27	TXBCN	Output	Clock
28	TXBCP	Output	Clock
29	TXB3N	Output	Data
30	TXB3P	Output	Data

- **Button interface（KEY ）**

No.	Definition	Attributes	Description
1	VOL+/RECOVERY	Input	Sound +/upgrade button

2	KEY0	Input	Reserved button
3	KEY1	Input	Reserved button
4	KEY2	Input	Reserved button
5	KEY3	Input	Reserved button
6	PLAY_ON	Input	Power button
7	GND	Ground wire	Ground wire
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 (I2C1)
5	CLK	Output	Clock (I2C1)
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_MCLK1	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

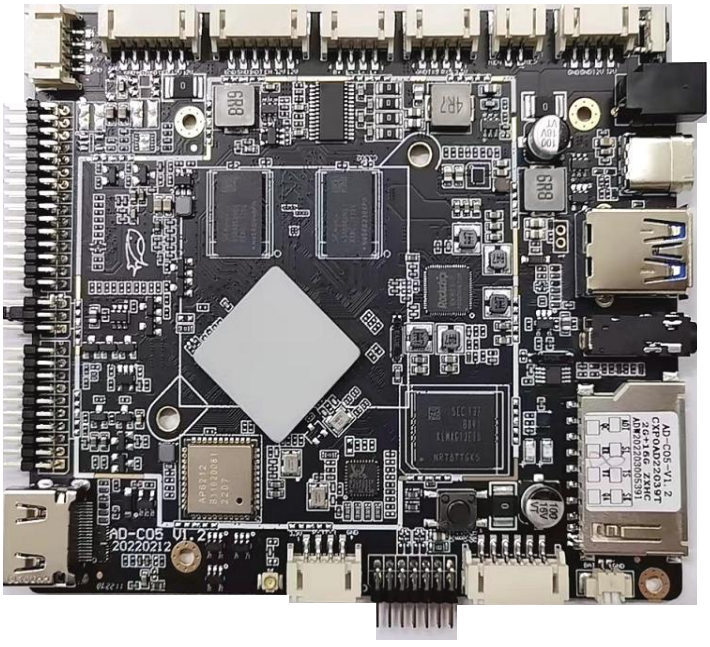
- **MIPI screen interface(MIPI JACK)**

No.	Definition	Attributes	Description
1	NC	/	/
2	VDD_LCD	Output	3.3V power supply
3	VDD_LCD	Output	3.3V power supply
4	NC	/	/
5	MIPI_RST	Output	Resect
6	NC	/	/
7	GND	Ground wire	Ground wire
8	MIPI_TX0N	Output	Data
9	MIPI_TX0P	Output	Data
10	GND	Ground wire	Ground wire
11	MIPI_TX1N	Output	Data
12	MIPI_TX1P	Output	Data
13	GND	Ground wire	Ground wire
14	MIPI_TX_CLKN	Output	Clock
15	MIPI_TX_CLKP	Output	Clock
16	GND	Ground wire	Ground wire
17	MIPI_TX2N	Output	Data
18	MIPI_TX2P	Output	Data
19	GND	Ground wire	Ground wire
20	MIPI_TX3N	Output	Data
21	MIPI_TX3P	Output	Data
22	GND	Ground wire	Ground wire

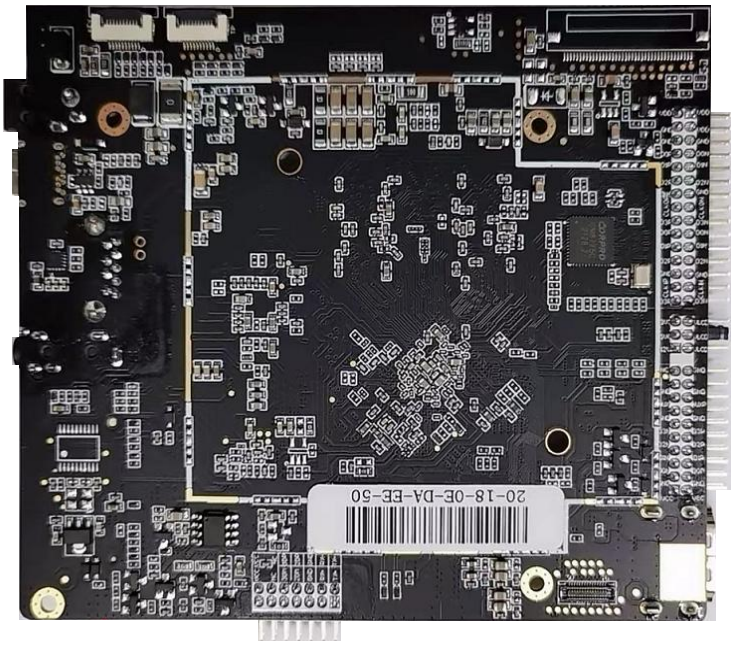
23	NC	/	/
24	NC	/	/
25	GND	Ground wire	Data
26	NC	/	/
27	NC	/	/
28	NC	/	/
29	VCC_LCD18	Power supply	1.8V power supply
30	GND	Ground wire	Ground wire
31	LED-	Output	Backlight adjustment
32	LED-	Output	Backlight adjustment
33	NC	/	/
34	NC	/	/
35	AVEE	Output	Backlight adjustment
36	NC	/	/
37	NC	/	/
38	AVDD	Output	Backlight adjustment
39	LED+	Output	Backlight adjustment
40	LED+	Output	Backlight adjustment

Appendix

- Product picture
  - Front:

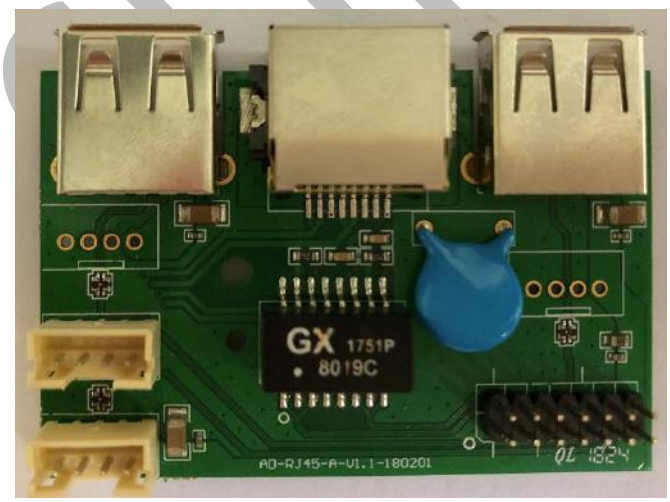


- Back：

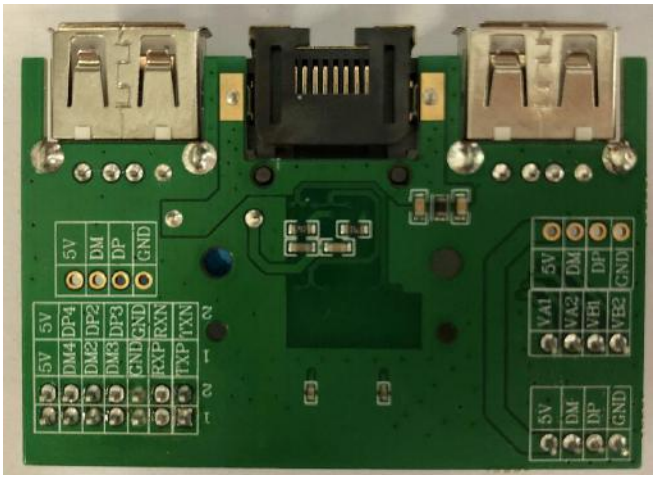


◆ RJ45 sub-board

Front：



Back：



Front：

◆ Motherboard installation instructions:

1. Take the board and install and wear the bracelet. If the working environment is dry, the bracelet must wear a wired electrostatic bracelet.

2. When installing and removing the board, you need to pay attention to your fingers should be placed on the edge of the board, and your fingers should not touch the center of the board. The center of the board is an important component and components that are extremely sensitive to ESD, which are easily damaged by ESD static electricity.

3. When installing peripheral pin header type interface devices, you should hold the bottom of the motherboard with your hands before inserting it; do not insert it forcefully, which will easily deform the motherboard and easily damage the BGA packaged components on the motherboard.

4. Before screwing the main board, the main board must be laid flat to ensure that the positioning posts are of the same height, otherwise the main board will be easily

deformed, causing the solder balls to crack and damage the components.

◆ Tips：

Pay special attention to the power supply used by the motherboard. The power supply voltage requirement of our motherboard power supply is DC_12V, the working voltage range is 9V-15V, and the ripple is less than 100mV. With a range of 15V, the motherboard will be permanently burned out or open circuited. The power supply ripple is greater than 100mV. It is easy to interfere with the motherboard or work unstable, especially the sensor and touch screen. It is easy to cause interference and jumping. Our company recommends using it The power supply is 12V/3A. For peripheral equipment, it is recommended to use 12V/5A. Before powering on the motherboard, 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 jumper of the display screen are correct, and whether the connection method and pins of each socket are correct. Make sure that each power supply voltage is correct. And the socket sub-wiring can be powered on under the condition that the wiring is completely correct.