SHENZHEN SUNCHIP TECHNOLOGY CO.,LTD

Quad-core RK3568 Android Decoding Driver Integrated Board Specification

（Model No.：AD-C33P-V1.1）

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

Contents

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Chapter I product overview

Overview：

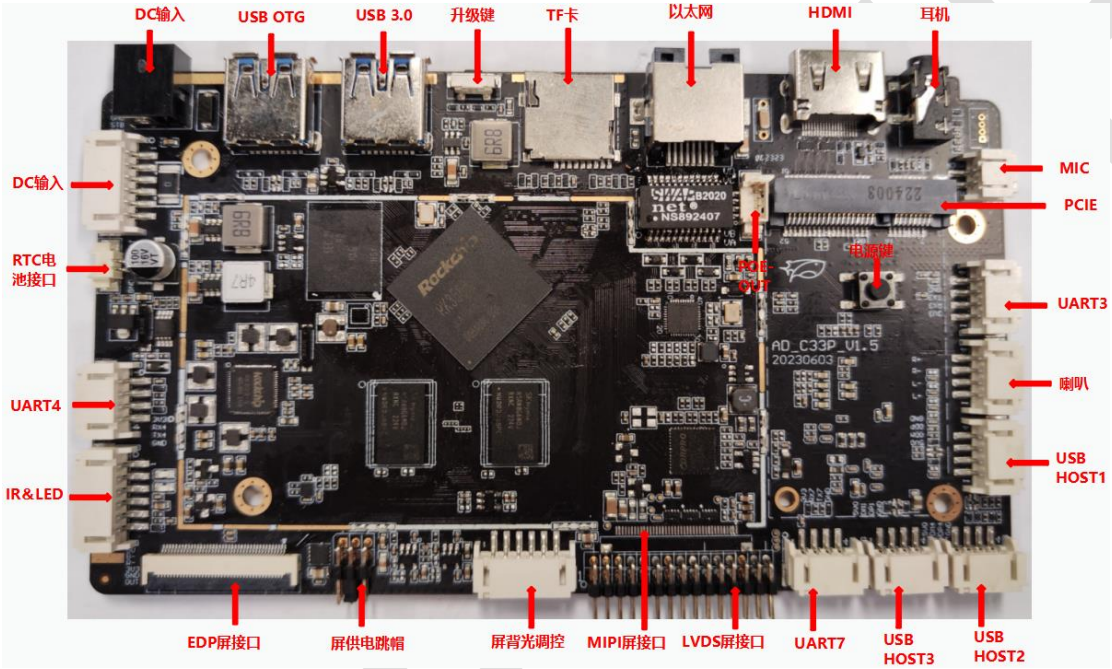
The large board of the intelligent industrial all-in-one machine adopts the Rockchip RK3568 quad-core chip solution. Support Android 11 system. Enhanced power management circuit. Support commonly used external devices. Rich interfaces and stable performance. Suitable for intelligent remote network control: equipment such as industrial, medical, large advertising machines, educational video terminals and other equipment.

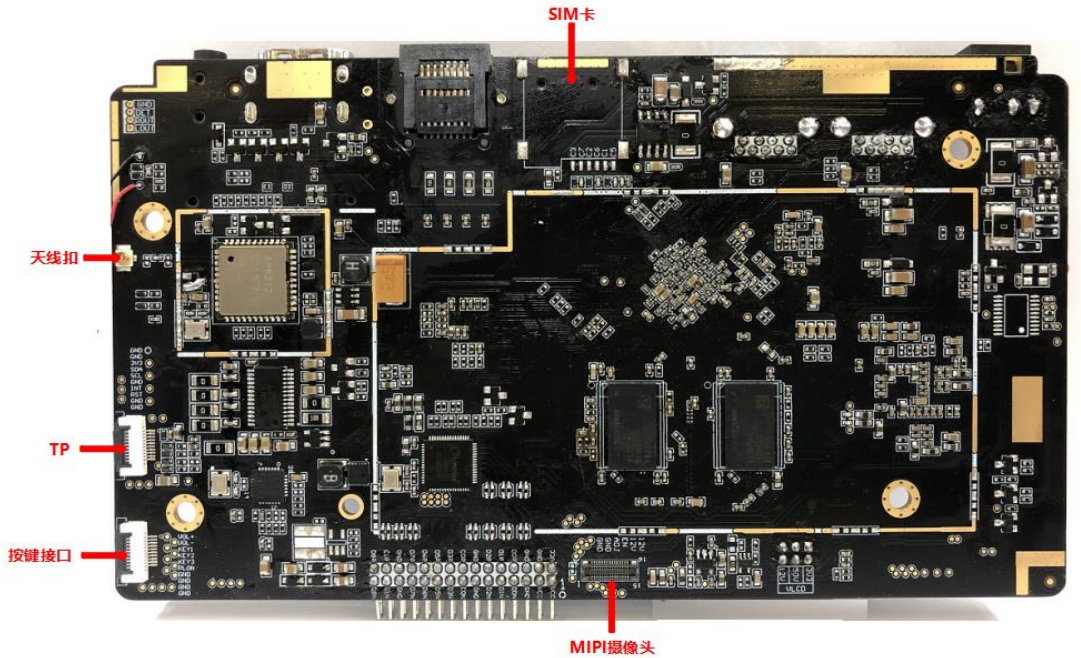
Characteristic：

- 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.
- Multiple network interfaces: Ethernet, wireless Wifi, Bluetooth, 4G. · Multiple interactive mode interfaces: capacitive touch, infrared touch, infrared remote control, USB keyboard and mouse, multi-point optical touch.
- Multi-channel USB interface, serial port.
- Strong anti-electromagnetic interference and electromagnetic compatibility.

Chapter 2 Product Specifications

Product picture





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Basic hardware specifications:

CPU	Rockchip RK3568 quad-core 64-bit Cortex-A55, GPU Mali-G52
Main frequency	Up to 2.0 GHz
RAM	DDR4 2G/4G optional
Built-in storage capacity	EMMC 8GB/16G/32G/64G optional (label 16GB)
Display interface	LVDS interface (single-channel, 6-bit dual-channel, 8-bit dual-channel). Support maximum resolution 1920x1080, support 7"-84" display
	MIPI interface
	EDP interface
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 10/100/1000M Ethernet.
	Equipped with Wifi&BT module, supporting Wi-Fi 802.11b/g/n protocol. Support BT5.2
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
	4 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 device module (NFC module, printer, card reader, etc.)
	TF 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 4K 60fps H.265/H.264/VP9 video decoding. Support 1080P 100fps H.265/H.264 video encoding. Support 8M ISP, support HDR.
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

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Basic software specifications：

Operating system	Android 11 system
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	Support OTA remote upgrade, U disk upgrade, SD upgrade (silent installation)
	Original ecological Android system, open root permission, can carry out product customization development
	Customizable local or remote server management system
	Support a variety of third-party Android remote advertising systems
	Support multiple serial devices, USB devices
	Support dual-screen different display

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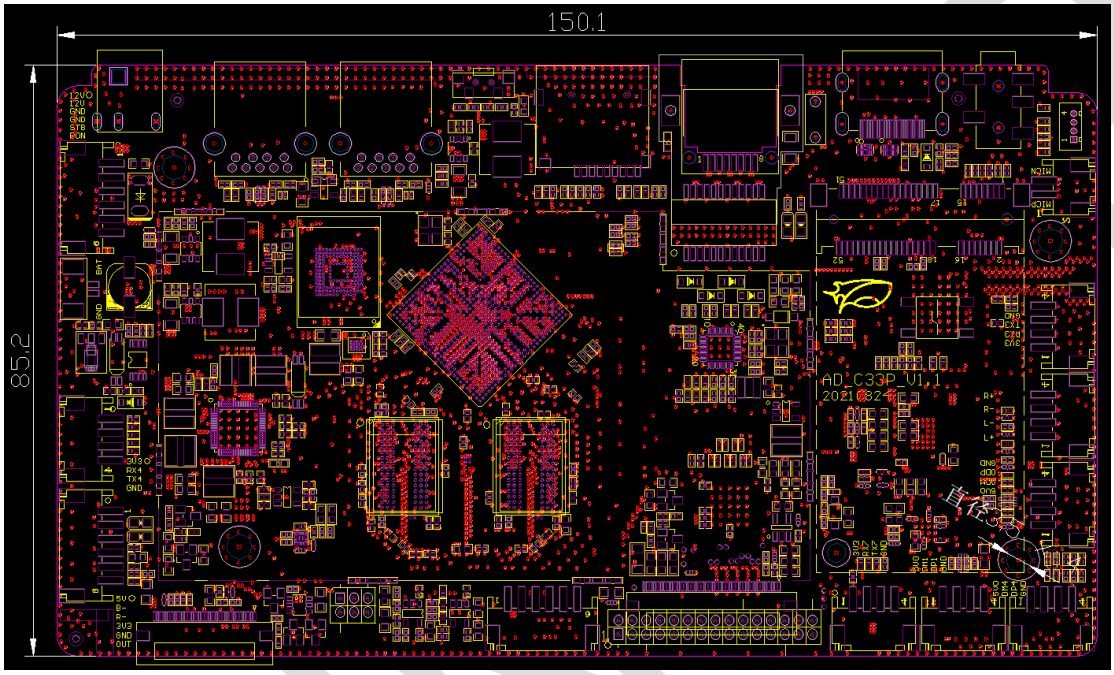
PCBA Structure



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Electric

- **Power interfaces（12V IN）**

No.	Definition	Attributes	Description
1	12V_IN	Power supply	12V power input
2	12V_IN	Power supply	12V power input
3	GND	Ground wire	Ground wire
4	GND	Ground wire	Ground wire
5	5V_STB	Input	Control
6	PS-ON	Input	Control

- **RTC battery interfaces（RTC ）**

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

- **Serial ports（UART4）**

No.	Definition	Attributes	Description
1	VCC_3V3	Output	3.3V voltage output
2	UART4_RX	Input	Take over
3	UART4_TX	Output	Send
4	GND	Ground wire	Ground wire

- **Infrared & light interfaces(IR&LED Receiver)**

No.	Definition	Attributes	Description
1	VCC_SYS	Output	5.0 V output
2	LED_B-	Output	Blue light negative
3	LED_R-	Output	Red light negative
4	VCC_IR	Output	3.3 V output
5	GND	Ground wire	Ground wire
6	IR_OUT	Input	Infrared signal input

- **Microphone interface（MIC1 ）**

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

- **Serial port（UART3）**

No.	Definition	Attributes	Description
1	VCC_3V3	Output	3.3V voltage output
2	UART3_RX	Input	Take over
3	UART3_TX	Output	Send
4	GND	Ground wire	Ground wire

- **Speaker output interface（SPEAKER）**

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

- **USB-HOST interface(USB_HOST1)**

No.	Definition	Attributes	Description
1	HOST_5V	Output	5V voltage output
2	HOST_DM	Output	Data
3	HOST_DP	Input	Data
4	GND	Ground wire	Ground wire

- **USB-HOST interface(USB_HOST2)**

No.	Definition	Attributes	Description
1	HOST_5V	Output	5V voltage output
2	HOST_DM	Output	Data
3	HOST_DP	Input	Data
4	GND	Ground wire	Ground wire

- **USB-HOST interface(USB_HOST3)**

No.	Definition	Attributes	Description
1	HOST_5V	Output	5V voltage output
2	HOST_DM	Output	Data
3	HOST_DP	Input	Data
4	GND	Ground wire	Ground wire

- **Serial port（UART7）**

No.	Definition	Attributes	Description

1	VCC_3V3	Output	3.3V voltage output
2	UART7_RX	Input	Take over
3	UART7_TX	Output	Send
4	GND	Ground wire	Ground wire

- **LVDS interface（LVDS Panel）**

No.	Definition	Attributes	Description
1	VCC_LVDS_LCD	Output	3V/5V/12V power output
2	VCC_LVDS_LCD		
3	VCC_LVDS_LCD		
4	GND	Ground wire	Ground wire
5	GND		
6	GND		
7	RX0-	Output	Data
8	RX0+	Output	Data
9	RX1-	Output	Data
10	RX1+	Output	Data
11	RX2-	Output	Data
12	RX2+	Output	Data
13	GND	Ground wire	Ground wire
14	GND		
15	RX0C-	Output	Clock
16	RX0C+	Output	Clock
17	RX03-	Output	Data
18	RX03+	Output	Data
19	RXE0-	Output	Data
20	RXE0+	Output	Data
21	RXE1-	Output	Data
22	RXE1+	Output	Data
23	RXE2-	Output	Data
24	RXE2+	Output	Data
25	GND	Ground wire	Ground wire
26	GND		
27	RXEC-	Output	Clock
28	RXEC+	Output	Clock
29	RXE3-	Output	Data
30	RXE3+	Output	Data

- **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

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

No.	Definition	Attributes	Description
1	3.3V	Output	3.3V output
2	VCC_IN_LCD	Input	LCD voltage input
3	5.0V	Output	5.0 V output
4	VCC_IN_LCD	Input	LCD voltage input
5	12V	Output	12V output
6	VCC_IN_LCD	Input	LCD voltage input

- **MIPI panel interface (MIPI Panel)**

No.	Definition	Attributes	Description
1	NC	/	/
2	VDD_LCD	Output	3.3V power supply
3	VDD_LCD	Output	3.3V power supply
4	GND	Ground wire	Ground wire
5	LCD_RST0	Output	Reset
6	NC	/	/
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	Clock
15	MIPI_TX_CLKP	Output	Clock
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	/	/
24	NC	/	/
25	GND	Ground wire	Ground wire
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	Output	/
35	AVEE	Output	Backlight adjustment
36	NC	/	/
37	NC	/	/
38	AVDD	Output	Backlight adjustment
39	LED+	Output	Backlight adjustment
40	LED+	Output	Backlight adjustment

- **EDP screen interface（EDP Panel）**

No.	Definition	Attributes	Description
1	NC	/	/
2	GND	Ground wire	Ground wire
3	EDP_TX_D1N	Output data	Output data
4	EDP_TX_D1P	Output data	Output data
5	GND	Ground wire	Ground wire
6	EDP_TX_D0N	Output data	Output data
7	EDP_TX_D0P	Output data	Output data
8	GND	Ground wire	Ground wire
9	EDP_AUXP	Output data	Output data
10	EDP_AUXN	Output data	Output data
11	GND	Ground wire	Ground wire
12	VCC3V3_LCD1	Output 3.3V power Output	Output 3.3V power Output
13	VCC3V3_LCD1	Output 3.3V power output	Output 3.3V power output
14	NC	/	/

15	GND	Ground wire	Ground wire
16	GND	Ground wire	Ground wire
17	EDP_HPD1	Input	Data
18	GND	Ground wire	Ground wire
19	GND	Ground wire	Ground wire
20	GND	Ground wire	Ground wire
21	GND	Ground wire	Ground wire
22	BL_EN	Output	Backlight control
23	BL_PWM	Output	Backlight adjustment
24	NC	/	/
25	NC	/	/
26	VCC12V_DCIN	Output	12V power output
27	VCC12V_DCIN	Output	12V power output
28	VCC12V_DCIN	Output	12V power output
29	VCC12V_DCIN	Output	12V power output
30	NC	/	/

- **TP interface（Touch Panel connector）**

No.	Definition	Attributes	Description
1	GND	Ground wire	Ground wire
2	GND	Ground wire	Ground wire
3	VCC_TP	Output	3.3V power output
4	SDA	Output	Data (I2C1)
5	SCL	Output	Clock (I2C1)
6	GND	Ground wire	Ground wire
7	TP_INT	Input	External Interrupt
8	TP_RST	Input	External reset
9	GND	Ground wire	Ground wire
10	GND	Ground wire	Ground wire

- **Button interface (KEY ）**

No.	Definition	Attributes	Description
1	VOL+/RECOVER	Input	Volume +/Upgrade button
2	VOL-	Input	Volume-
3	KEY1	Input	Reserved button interface
4	KEY2	Input	Reserved button interface
5	KEY3	Input	Reserved button interface
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

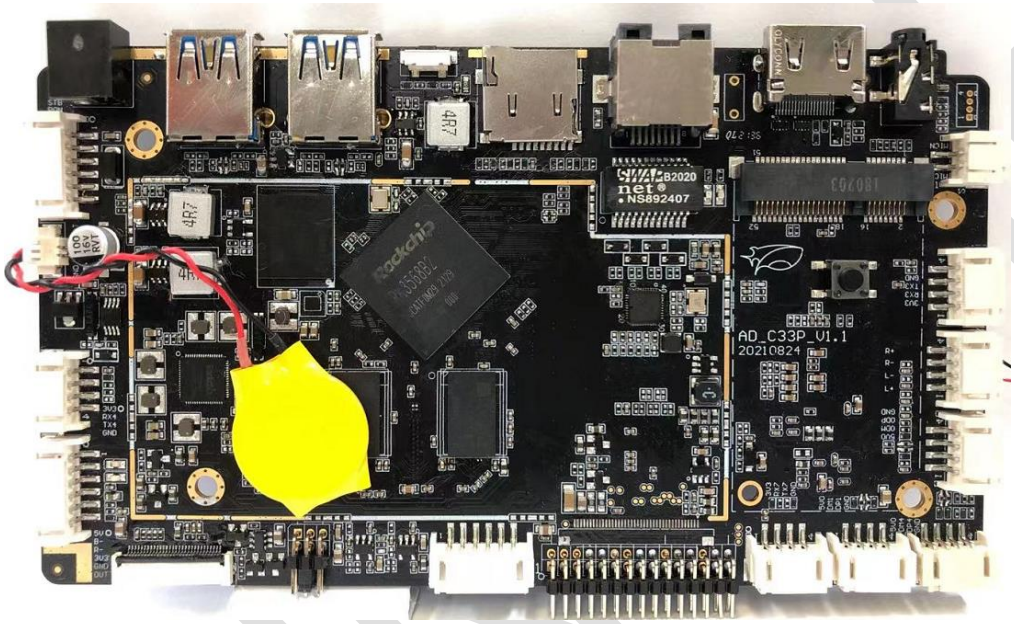
- **Camera interfaces（CAMERA JACK）**

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	1.8V 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

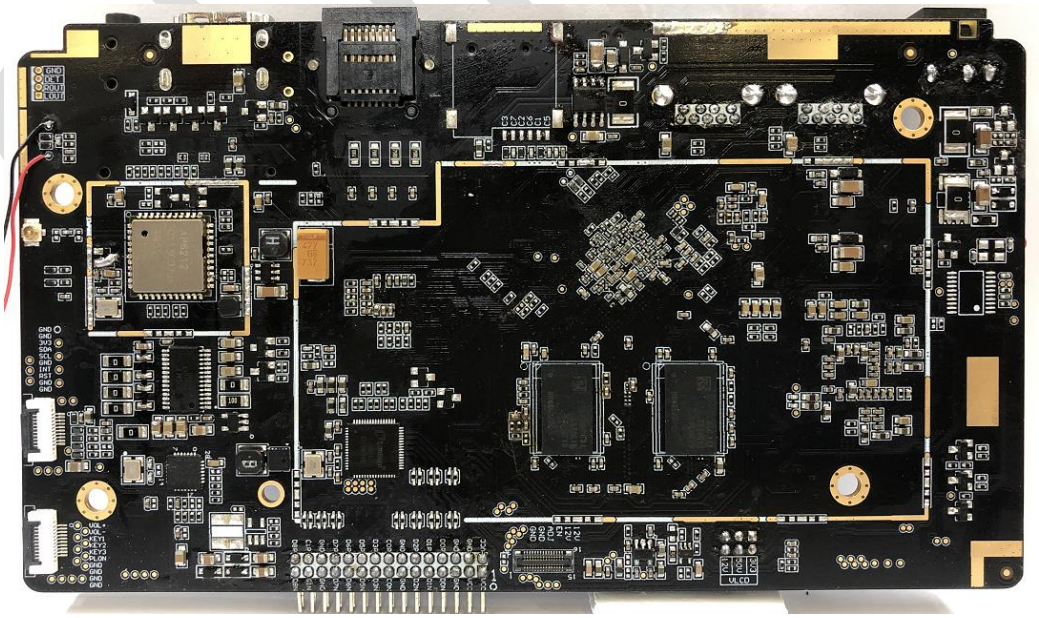
Appendix

◆ Product picture

- Front



- Back：



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◆ 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.