



SHENZHEN SUNCHIP TECHNOLOGY CO., LTD

**Quad-core RK-PX30 Android Decoding Driver
Integrated Board Specification**

(Model: AD-K05 V1.5)

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Chapter I product overview

Overview:

The intelligent industrial all-in-one board adopts Rockchip RK-PX30 quad-core chip solution and supports Android 8.0 system. Powerful computing power. Rich interface, enhanced power management circuit. Suitable for intelligent remote network control: industrial, medical, large advertising machines, educational video terminals and other equipment.

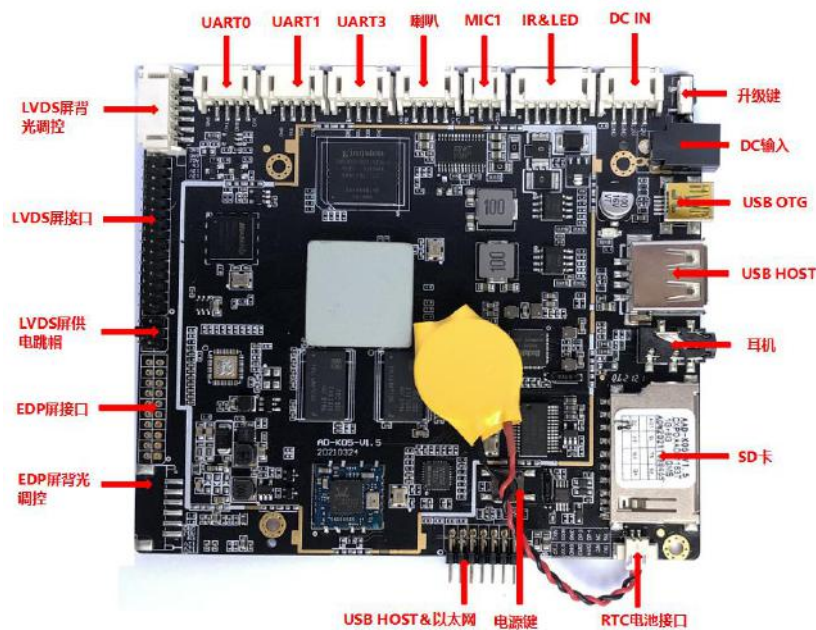
Characteristic:

- ◆ Support 7-inch to 84-inch LVDS interface display (point-to-point full HD display 1920*1080).
- ◆ Support EDP interface display
- ◆ Support MIPI interface display
- ◆ A variety of interactive mode interfaces: capacitive touch, infrared touch, infrared remote control, USB mouse and keyboard, multi-point optical touch
- ◆ Various network interfaces: Ethernet, Wireless Wifi, Bluetooth.
- ◆ Multi-channel USB interface, serial port
- ◆ Strong anti-electromagnetic interference and electromagnetic compatibility

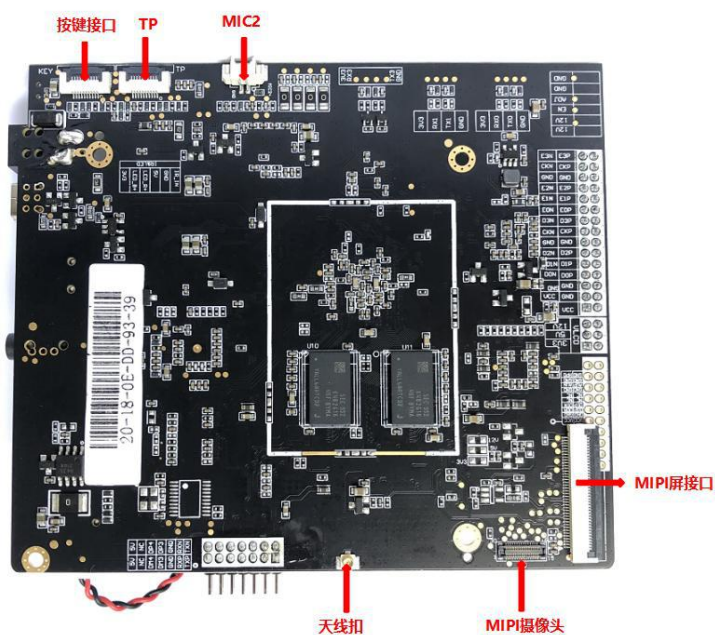
Chapter 2 Product Specifications

Product Picture

Front :



Backside:



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Basic hardware specifications:

CPU	Rockchip RK-PX30 Quad-core Cortex-A35 Mali-G31 MP2 GPU
Frequency	1.5GHz
RAM	DDR3 1G/2G Optional (Lable 1GB)
ROM	EMMC 8GB/16G/32G/64G Optional (Lable 8GB)
Display interface	LVDS interface (single, 6-bit dual, 8-bit dual). Support maximum resolution 1920x1080, support 7"-84" display
	EDP Interface
	MIPI Interface
Screen voltage	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.
Internet	With RJ45 interface, support 10/100 Ethernet.
	Equipped with Wifi&BT module, supporting Wi-Fi 802.11b/g/n protocol. Support BT4.0 (option WIFI 802.11 a/b/g/n/ac 5G&2.4G)
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
Interfaces	Support MIPI interface camera, up to 500W pixels
	3 USB HOST (secondary board), 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
Audio	MP3,WMA,WAV,APE,FLAC,AAC,OGG,M4A,3GPP 格式
Video	Support 4K 60fps H.265,H.264,VC-1, MPEG-1/2/4, VP8 video decoding; support 1080P H.265/VP8 video encoding
Image	Support JPG, BMP, PNG and other image format browsing and support rotation/slide show/picture zoom function
Adapter	Input: AC100-240V.50-60HZ, Output: DC12V /3A

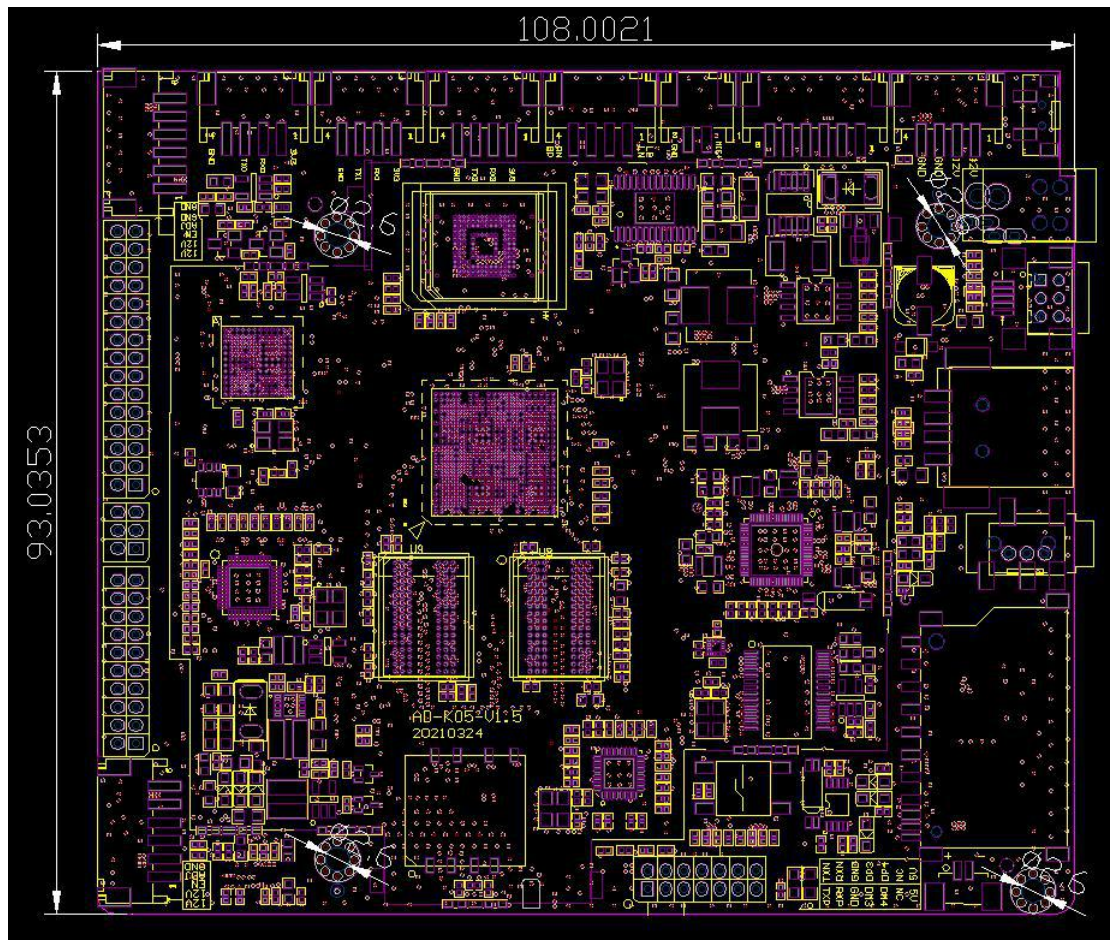
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Basic Software specifications:

OS	Google Android 8.1
Basic software functions	Web browsing, web chat, e-mail, e-books, and resource managers
Sound mode	Clock, alarm clock, calculator, recording
Language	Multi language
Recording	Support MP3, WMA, 3gpp, Amr, etc., the system comes with an Amr format
Tools	Calendar
	Alarm Clock
	Calculator
	Note
	Weather Clock
	Recording
Document	EPUB, WORD, EXCEL, POWERPOINT, PDF, TXT
E-book	PDF/TXT/CHM/DOC/EXCEL/EPUB/RTF/FB2
Schedule	Calendar
Input methods	Standard Android keyboard, optional third-party input method (Chinese, Korean, Japanese, etc.)
Internet	Browser -Chrome Lite
	Email
	Gmail
System Management	APK Installer
	Original eco-Android system, open root privileges, can be customized product development
	Real-time remote monitoring, system crash recovery automatically, 7 * 24 hours unattended
	Support OTA remote upgrade
	System setting
	Google Maps
	Global time

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PCBA Structure



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- Electric

Power interface (12V DC_IN)

No	Definition	Attributes	Description
1	DC_IN	Power	12V Power Input
2	DC_IN	Power	12V Power Input
3	GND	GND	GND
4	GND	GND	GND

- IR & LED Interface (IR&LED)

No	Definition	Attributes	Description
1	MCU_VCC	Power	3.3V Power Output
2	LED_B+	Output	System Indicator Positive
3	LED_R+	Output	Power Indicator Positive
4	VCC_IR	Power	3.3V IR Power
5	GND	GND	GND
6	IR_OUT	Input	IR Signal Input

- Microphone Interface (MIC1 JACK)

No	Definition	Attributes	Description
1	MIC1P	Input	MIC Positive Input
2	GND	GND	GND

- Microphone Interface (MIC2 JACK)

No	Definition	Attributes	Description
1	MIC1N	Input	MIC Negative Input
2	GND	GND	GND

- 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

- Serial Port Interface(UART3 JACK)

No	Definition	Attributes	Description
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1	VCC3V3_SYS	Power	3.3V Power Output
2	UART_RX3	Input	Receiving
3	UART_TX3	Output	Sending
4	GND	GND	GND

● Serial Port Interface(UART1 JACK)

No	Definition	Attributes	Description
1	VCC3V3_SYS	Power	3.3V Power Output
2	UART1_RXD	Input	Receiving
3	UART1_TXD	Output	Sending
4	GND	GND	GND

● Serial Port Interface(UART0 JACK)

No	Definition	Attributes	Description
1	VCC3V3_SYS	Power	3.3V Power Output
2	UART0_RX	Input	Receiving
3	UART0_TX	Output	Sending
4	GND	GND	GND

● LVDS Background Interface (LVDS LCD BL JACK)

No	Definition	Attributes	Description
1	VCC_IN	Power	12V Power Output
2	VCC_IN	Power	12V Power Output
3	LCD-EN	Output	Backlight Control
4	LCD-ADJ	Output	Backlight Adjustment
5	GND	GND	GND
6	GND	GND	GND

● LVDS Interface (LVDS JACK)

No	Definition	Attributes	Description
1	POWER	Power	3V/5V/12V Power Output
2	POWER		
3	POWER		
4	GND	GND	GND
5	GND		
6	GND		
7	LVDS0_D0N	Output	Data
8	LVDS0_D0P	Output	Data
9	LVDS0_D1N	Output	Data
10	LVDS0_D1P	Output	Data

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11	LVDS0_D2N	Output	Data
12	LVDS0_D2P	Output	Data
13	GND	GND	GND
14	GND		
15	LVDS0_CLKN	Output	Clock
16	LVDS0_CLKP	Output	Clock
17	LVDS0_D3N	Output	Data
18	LVDS0_D3P	Output	Data
19	LVDS1_D0N	Output	Data
20	LVDS1_D0P	Output	Data
21	LVDS1_D1N	Output	Data
22	LVDS1_D1P	Output	Data
23	LVDS1_D2N	Output	Data
24	LVDS1_D2P	Output	Data
25	GND	GND	GND
26	GND		
27	LVDS1_CLKN	Output	Clock
28	LVDS1_CLKP	Output	Clock
29	LVDS1_D3N	Output	Data
30	LVDS1_D3P	Output	Data

● LVDS LCD Panel Power Supply Jumper (LVDS LCD JP JACK)

No	Definition	Attributes	Description
1	VCC3V3_SYS	Power	3.3VPower Output
2	LVDS_VDD	Output	LVDS LCD Power Supply
3	VCC5V0_SYS	Power	5VPower Output
4	LVDS_VDD	Output	LVDS LCD Power Supply
5	VCC_IN	Power	12VPower Output
6	LVDS_VDD	Output	LVDS LCD Power Supply

● EDP LCD Panel Interface (EDP JACK)

No	Definition	Attributes	Description
1	POWER	Power	3.3VPower Output
2	POWER	Power	3.3VPower Output
3	GND	GND	GND
4	GND	GND	GND
5	EDP_TX0N	Output	Data
6	EDP_TX0P	Output	Data
7	EDP_TX1N	Output	Data

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8	EDP_TX1P	Output	Data
9	NC	/	/
10	NC	/	/
11	NC	/	/
12	NC	/	/
13	GND	GND	GND
14	GND	GND	GND
15	EDP_AUXN	Output	Data
16	EDP_AUXP	Output	Data
17	GND	GND	GND
18	GND	GND	GND
19	EDP_HPDP	Input	Data
20	GND	GND	GND

● EDP Screen Backlight Interface (EDP LCD BL JACK)

No	Definition	Attributes	Description
1	VCC_IN	Power	12VPower Output
2	VCC_IN	Power	12VPower Output
3	LCD-EN	Output	Backlight Control
4	LCD-ADJ	Output	Backlight Adjustment
5	GND	GND	GND
6	GND	GND	GND

● USB HOST & Ethernet (USB HOST & RJ45 JACK)

No	Definition	Attributes	Description
1	TXP	Output	Data
2	TXN	Output	Data
3	RXP	Input	Data
4	RXN	Input	Data
5	GND	GND	GND
6	GND	GND	GND
7	DM3	Output	Data
8	DP3	Input	Data
9	DM4	Output	Data
10	DP4	Input	Data
11	NC	/	/
12	NC	/	/
13	USB_HOST_5V_1	Power	5VPower Output
14	USB_HOST_5V_1	Power	5VPower Output

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● RTC Battery Interface (RTC POWER JACK)

No	Definition	Attributes	Description
1	BAT	Input	RTC Battery Positive
2	GND	GND	GND

● Key Button Interface (KEY JACK)

No	Definition	Attributes	Description
1	RECOVER KEY	Input	Default high level
2	KEY0	Input	Default high level
3	KEY1	Input	Default high level
4	KEY2	Input	Default high level
5	KEY3	Input	Default high level
6	PWRON	Input	Default high level
7	NC	/	/
8	GND	GND	GND
9	GND	GND	GND
10	GND	GND	GND

● TP Interface (TOUCH SCREEN JACK)

No	Definition	Attributes	Description
1	GND	GND	GND
2	GND	GND	GND
3	VCC_TP	Power	3VPower Output
4	SDA	Output	Data (I2C1)
5	SCL	Output	Clock (I2C1)
6	GND	GND	GND
7	TP_INT	Input	External Interrupt
8	TP_RESET	Input	External reset
9	GND	GND	GND
10	GND	GND	GND

● MIPI Camera Interface (MIPI Camera JACK)

No	Definition	Attributes	Description
1	GND	GND	GND
2	MIPI_MCLK	Clock	Clock Signal Interface
3	GND	GND	GND
4	MIPI_PDN	Output	Front Camera Control Interface
5	MIPI_RST	Output	Reset Signal Interface
6	SDA	Data	Data Signal Interface

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			(I2C2)
7	SCL	Clock	Clock Signal Interface (I2C2)
8	GND	GND	GND
9	VCC_DVP	Power	2.8V Power Supply Interface
10	GND	GND	GND
11	AVDD_DVP	Power	2.8V Power Supply Interface
12	GND	GND	GND
13	VCC_DVP	Power	1.8V Power Supply Interface
14	VCC_DVP	Power	1.5V Power Supply Interface
15	GND	GND	GND
16	GND	GND	GND
17	MIPI_D0N	Data	Data Signal Interface
18	MIPI_D0P	Data	Data Signal Interface
19	GND	GND	GND
20	MIPI_D1N	Data	Data Signal Interface
21	MIPI_D1P	Data	Data Signal Interface
22	GND	GND	GND
23	MIPI_CLKN	Clock	Clock Signal Interface
24	MIPI_CLKP	Clock	Clock Signal Interface
25	GND	GND	GND
26	MIPI_D2N	Data	Data Signal Interface
27	MIPI_D2P	Data	Data Signal Interface
28	GND	GND	GND
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	Power	3.3V Power Output
3	VDD_LCD	Power	3.3V Power Output
4	NC	/	/
5	LCD_RST0	Output	Reset
6	NC	/	/

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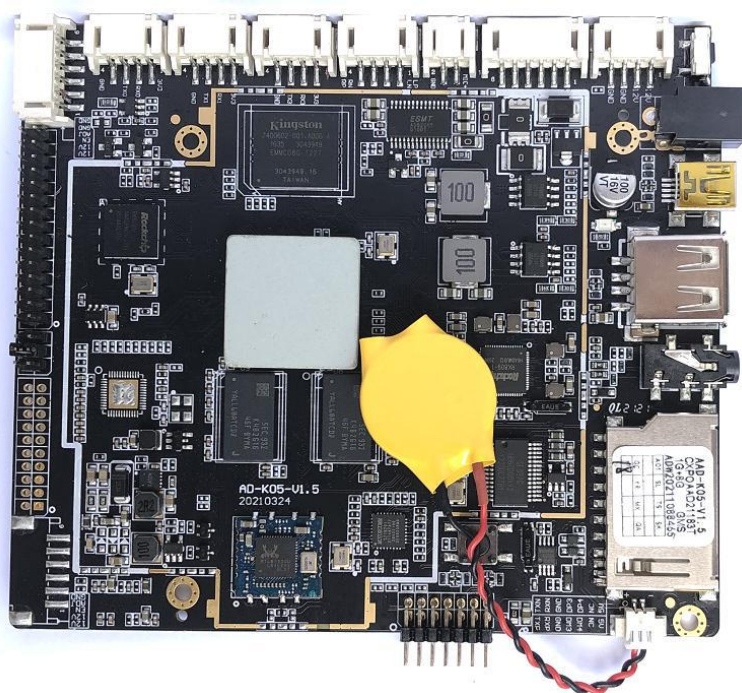
7	GND	GND	GND
8	MIPI_TX_D0N	Output	Data
9	MIPI_TX_D0P	Output	Data
10	GND	GND	GND
11	MIPI_TX_D1N	Output	Data
12	MIPI_TX_D1P	Output	Data
13	GND	GND	GND
14	MIPI_TX_CLKN	Output	Data
15	MIPI_TX_CLKP	Output	Data
16	GND	GND	GND
17	MIPI_TX_D2N	Output	Data
18	MIPI_TX_D2P	Output	Data
19	GND	GND	GND
20	MIPI_TX_D3N	Output	Data
21	MIPI_TX_D3P	Output	Data
22	GND	GND	GND
23	NC	/	/
24	NC	/	/
25	GND	GND	GND
26	NC	/	/
27	NC	/	/
28	NC	/	/
29	VCC_LCD18	Power	1.8VPower Output
30	GND	GND	GND
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

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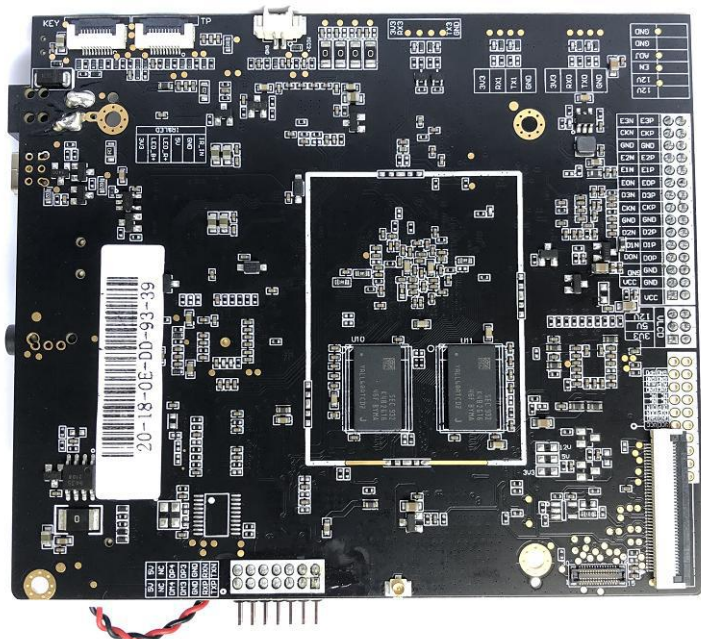
Appendix

◆ Product picture

- Front



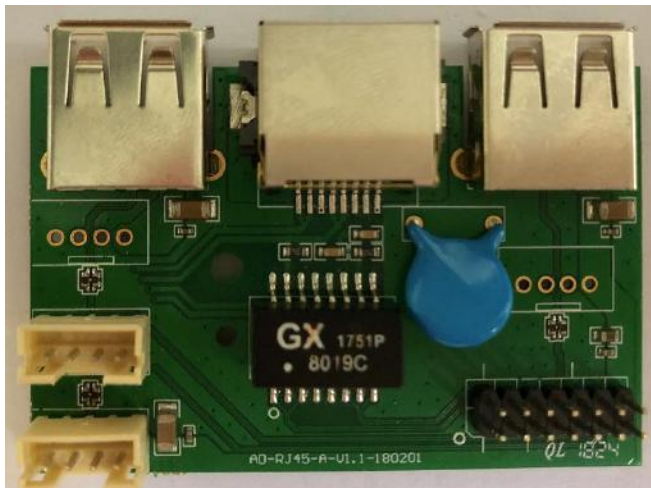
- Backside:



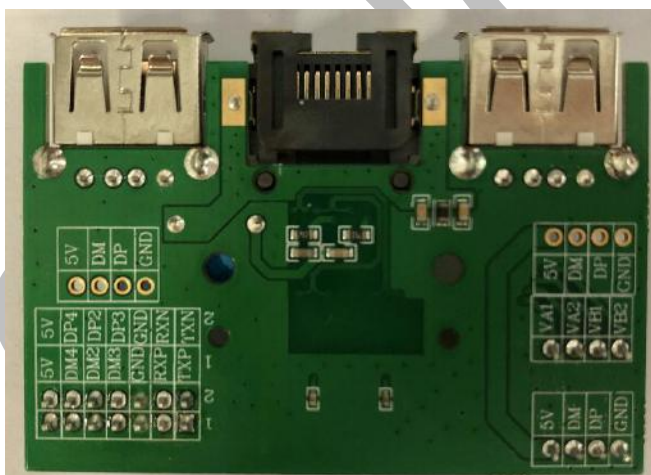
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◆ RJ45 Sub-board

Front:



Backside:



Front 2:



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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

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the socket sub-wiring can be powered on under the condition that the wiring is completely correct.