SHENZHEN SUNCHIP TECHNOLOGY CO., LTD

Six-core RK3399 Android decoder drives all in one board specification（model：AD-B03-V1.5）

ADW Mainboard

Contents

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Chapter I product overview

Overview：

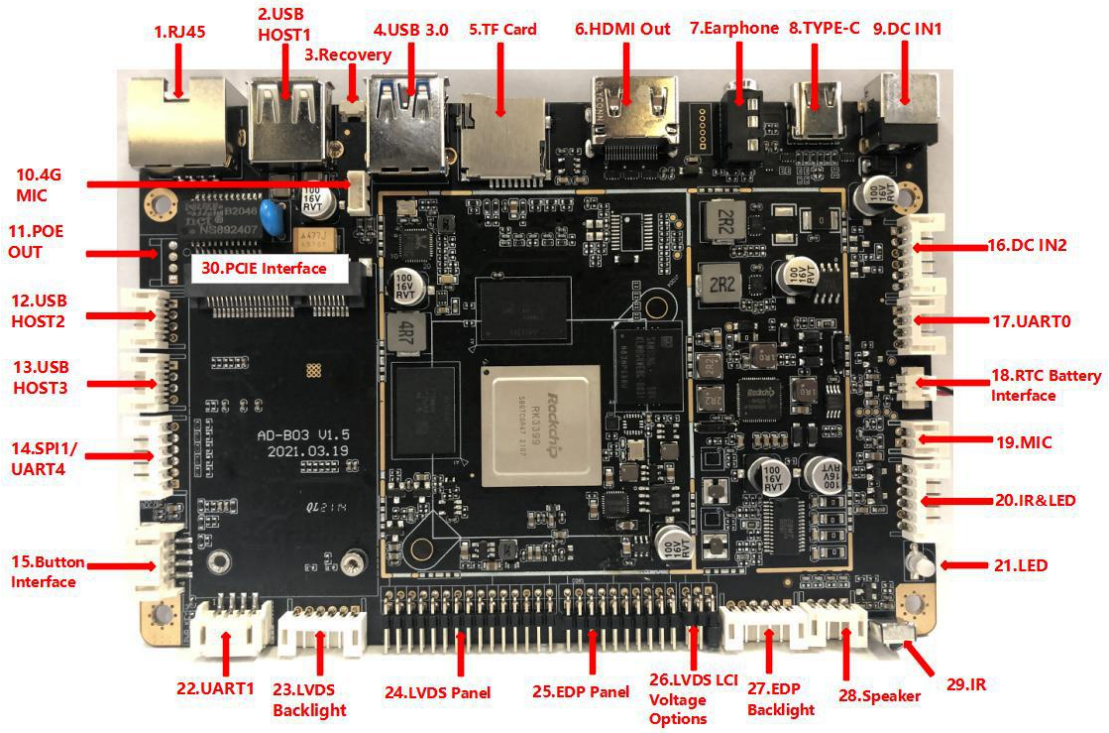
Intelligent industrial all in one board, using Rockchip RK3399 six-core chip program, support Google Android 7.0 or higher system. Powerful computing power. Support H.265 4K video playback. Rich interface and enhanced power management circuit. Suitable for intelligent remote network control: industrial, medical, large advertising, educational video terminals and other equipment.

Characteristic：

- Both LVDS interface displays and EDP interface displays are supported.
- Multiple interactive mode interfaces: capacitive touch, infrared touch, infrared remote control, USB mouse and keyboard, multi-point optical touch.
- A variety of network interfaces: Ethernet, 4G, WIFI, Bluetooth.
- Multi-channel USB interface, serial output.
- Support 4K video play with HDMI 2.0 HD output.
- Strong anti-electromagnetic interference and electromagnetic compatibility.

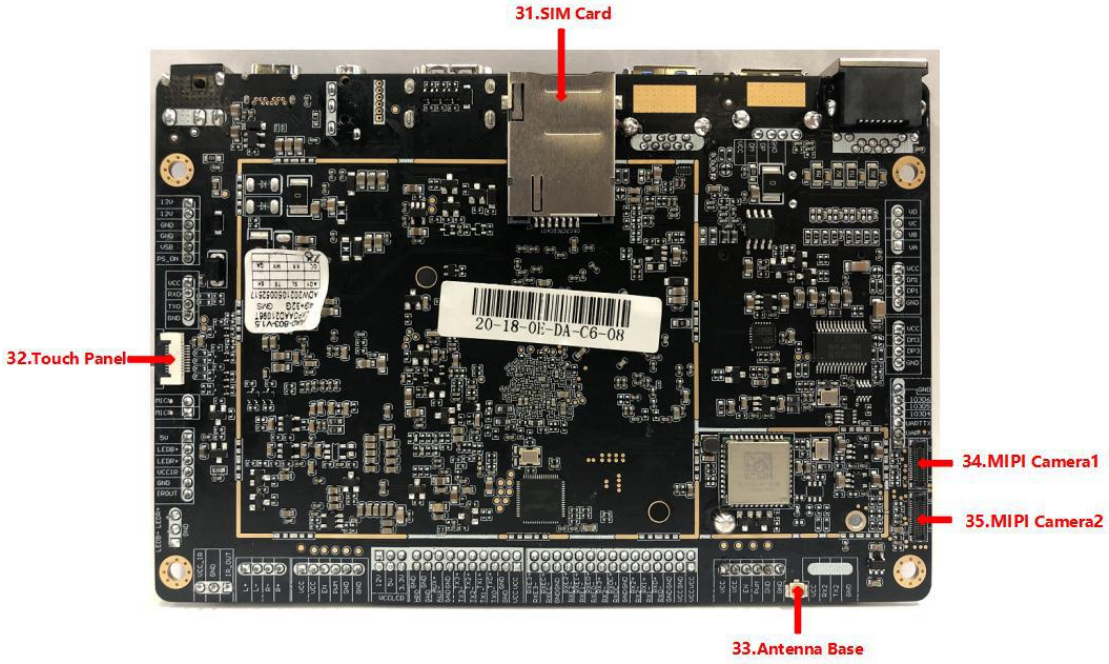
Chapter 2 Product Specifications

Product picture



1：Used to connect to Ethernet
2：Used for USB2.0 devices
3：Upgrade button
4：For USB3.0 devices
5：Used to store TF card
6：Used to connect HDMI display device
7：Used to insert the headset
8：Used to connect to the computer
9：Used to connect 12V power head
10：Used to connect 4G microphone
11：Used for POE power output
12：Used for USB2.0 devices
13：Used for USB2.0 devices
14：Used to connect SPI1/UART standard devices
15：Used to connect to the small button board
16：Used to connect to the 12V 4PIN interface

17：Used to connect UART standard equipment
18：Used to connect RTC power supply
19: Used to connect microphone
20: Used for external infrared & light
21: LED light
22: Used to connect UART standard equipment
23: used to adjust the LVDS backlight
24: used to connect to the LVDS screen
25: used to connect to the EDP screen
26: used to select the power supply voltage of the LVDS screen
27: Used to adjust EDP backlight
28: Used to connect speakers
29: Used for infrared receiver
30: Used for connecting 4G module



31: Used to store the SIM card
32: Used to connect to the TP
33: Used to connect to WIFI antenna
34: Used to connect to MIPI camera
35: Used to connect MIPI camera

Basic hardware specifications：

CPU	Rockchip RK3399 dual core Cortex-A72+ quad core Cortex-A53 CPU
GPU	ARM Mali-T860MP4 GPU
Deposit	LPDDR4 2G/4G optional
Built-in storage capacity	EMMC 16G/32G/64G optional
Display interface	LVDS interface (single, 6-bit dual, 8-bit dual). Supports a maximum resolution of 1920x1080, support 7"-84" display
	EDP screen interface, Maximum resolution 4K
Screen voltage	Support 3.3V/5V/12V optional
Network	With RJ45 interface, support 10/100/1000 Ethernet
	Support 4G PCIE interface
	With WIFI & BT module, support Wi-Fi 802.11a / b / g / n / ac protocol. Support BT 5.0
Image rotation	Support 0 degree, 90 degrees, 180 degrees, 270 degrees manual / automatic rotation, support gravity sensing function
Real Time Clock	External real-time clock power supply battery
Interface device	Support MIPI camera x2
	USB HOST x 3 (support usb camera@500W usb printer, U disk, mouse, keyboard and standard USB peripherals), 1x USB3.0
	3x UART/(2 UART, 1 SPI), support external serial device (NFC module, printer, card reader, etc.)
	TF card, maximum support 64GB
	Class D amplifier: 5W*2 8 ohms, support microphone
	HDMI 2.0 output
Audio	MP3, WMA, WAV, APE, FLAC, AAC, OGG, M4A, 3GPP format
Video	Supports H.264, MPEG2, VP6, VP8, MVC and other video formats. Online videos such as YouTube, up to 4K, HTML5 video playback, Flash 10.1 playback
Picture	Support JPG, BMP, PNG, GIF and other image formats to browse and support rotation / image enlargement
Power Adapter	Input：AC100-240V.50-60HZ， Output： DC12V/3A

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Basic software specifications：

Operating system	Android 7.0 and above
Basic software function	Web browsing, email, e-book, resource manager
Sound mode	Clock, alarm clock, calculator, recording
Voice support	Multinational voice
Recording	Support MP3, WMA format recording
Tool	Calendar
	Alarm Clock
	Calculator
	Note
	Weather + clock
	Recording
File processing	EPUB, WORD, EXCEL, POWERPOINT, PDF, TXT
E-book	PDF/TXT/CHM/DOC/EXCEL/EPUB/RTF/FB2
Schedule	Calendar
Input	Standard Android keyboard, optional third-party input method (Chinese, Korean, Japanese, etc.)
Internet	Browser -Chrome Lite
	Email
	Gmail
System Management	APK installer
	Original Android system, open root permissions, product customization development
	Real-time remote monitoring, 7*24 hours unattended
	Support OTA remote upgrade
	System setting
	Google Maps
	Global time

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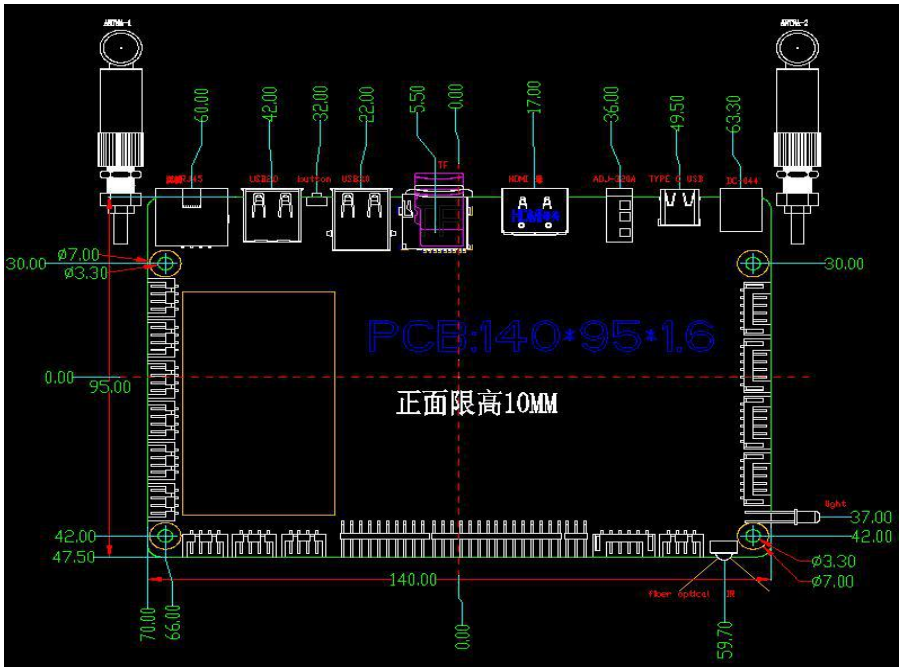
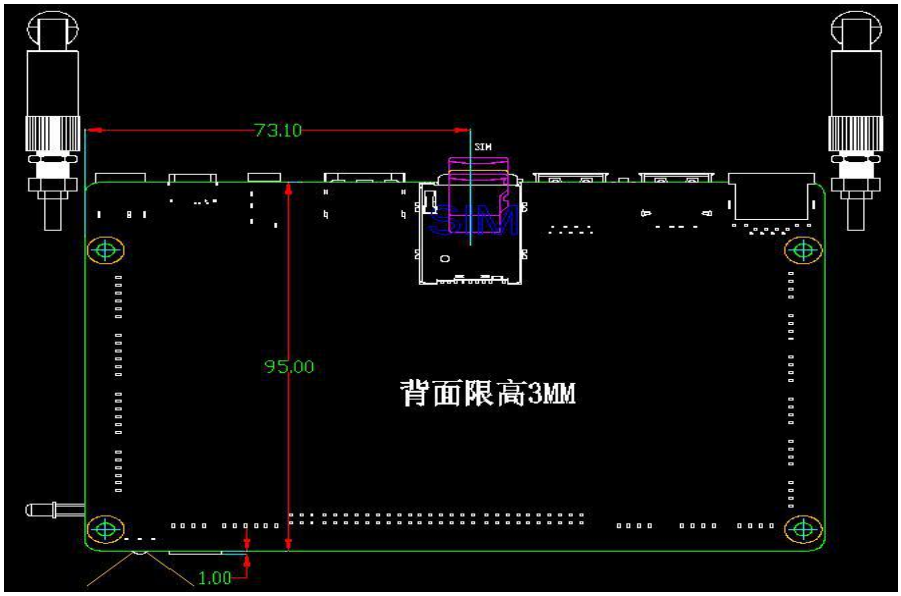
PCBA structure

Front：



Back：



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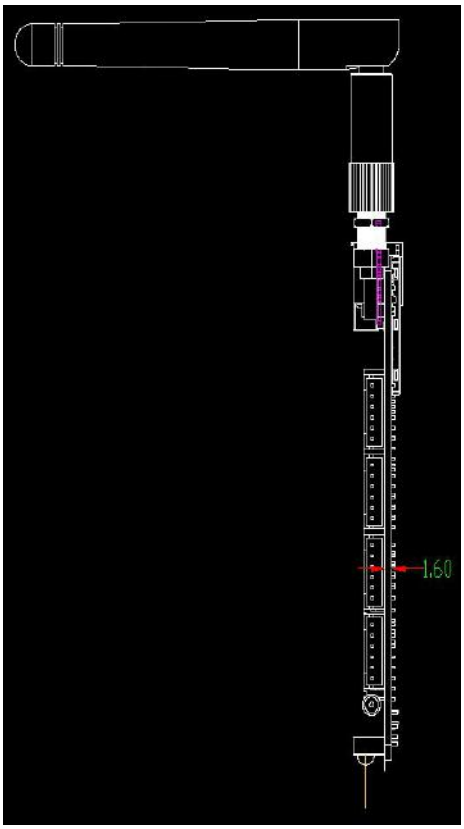
Side：



Electric

- 10.4G Calling microphone (4G MIC JACK)

No.	Definition	**Attributes**	Description
1	3G_OUT_P	Output	4G MIC positive output
2	3G_OUT_N	Output	4G MIC negative output
3	MICP	Input	MIC positive input
4	MICN	Input	MIC negative input

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- 11.POE Power output interface (POE OUT JACK)

No.	Definition	Attributes	Description
1	VA	Output	POE Module Input power
2	VB	Output	POE Module Input power
3	VC	Output	POE Module Input power
4	VD	Output	POE Module Input power

- **12.USB-HOST2 Interface (USB-HOST2 JACK)**

No.	Definition	Attributes	Description
1	VCC_5V	Output	5V voltage output
2	HOST_DM	Output	Data
3	HOST_DP	Input	Data
4	GND	ground line	ground line

- **13.USB-HOST3 Interface (USB-HOST3 JACK)**

No.	Definition	Attributes	Description
1	VCC_5V	Output	5V voltage output
2	HOST_DM	Output	Data
3	HOST_DP	Input	Data
4	GND	ground line	ground line

- **14.SPI1/UART4 Interface（SPI1/UART4 JACK）**

No.	Definition	Attributes	Description
1	WKI_IRQ	Input/Output	GPIO3-C0
2	SPI1_CK	Output	Clock
3	SPI1_CS0	Output	Data
4	SPI1_RXD/UART4_RXD	Input	Receive
5	SPI1_TXD/UART4_TXD	Output	Send
6	GND	Ground line	Ground line

- **15.Button interface（KEY ）**

No.	Definition	Attributes	Description
1	VOL+/RECOVER	Input	Volume + key / upgrade key Default high level

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			（ADKEY_IN）
2	VOL-	Input	Volume down key default high level （ADKEY_IN）
3	POWERKEY_IN	Input	Power button
4	GND	ground line	ground line

- **16.Power interface（12V IN）**

No.	Definition	Attributes	Description
1	12V_IN	Input	12V power input
2	12V_IN	Input	12V power input
3	GND	ground line	ground line
4	GND	ground line	ground line
5	VSB	Control foot	Control foot
6	PS_ON	Control foot	Control foot

- **17.Serial Interface (UART1 JACK)**

No.	Definition	Attributes	Description
1	VCC3V3_S3	Output	3.3V voltage output
2	SPI1_RXD/UART4_RXD	Input	receive
3	SPI1_TXD/UART4_TXD	Output	send
4	GND	Ground line	Ground line

- **18.RTC Power Interface（RTC JACK）**

No.	Definition	Attributes	Description
1	BAT	Input	RTC power positive
2	GND	Ground line	Ground line

- **19.Microphone interface（MIC JACK）**

No.	Definition	Attributes	Description
1	MIC1N1P	Input	MIC Positive input
2	MIC1N1N	Input	MIC Negative input

- **20.IR & LED (JACK)**

No.	Definition	Attributes	Description

1	5.0V	Output	5.0 V output
2	LED_B+	Output	Blue light positive
3	LED_R+	Output	Red light positive
4	VCC_IR	Output	5 V Output
5	GND	Ground line	Ground line
6	IR_OUT	Input	Infrared signal input

- **22.Serial Port (UART2 JACK)**

No.	Definition	Attributes	Description
1	VCC3V3_S3	Output	3.3V voltage output
2	UART2_RX	Input	Receive
3	UART2_TX	Output	Send
4	GND	Ground line	Ground line

- **23.LVDS Screen backlight interface（LVDS LCD BL JACK）**

No.	Definition	Attributes	Description
1	12V	Output	12V output
2	12V	Output	12V output
3	EN/ON/OFF	Output	Backlight control
4	BL_ADJ	Output	Backlight adjustment
5	GND	Ground line	Ground line
6	GND	Ground line	Ground line

- **24.LVDS interface（LVDS JACK）**

No.	Definition	Attributes	Description
1	POWER	Output	3.3V/5V/12V Power Output
2	POWER		
3	POWER		
4	GND	Ground line	Ground line
5	GND		

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6	GND		
7	TX0-	Output	Data
8	TX0+	Output	Data
9	TX1-	Output	Data
10	TX1+	Output	Data
11	TX2-	Output	Data
12	TX2+	Output	Data
13	GND	Ground line	Ground line
14	GND		
15	TCLK3-	Output	clock
16	TCLK3+	Output	clock
17	TX3-	Output	Data
18	TX3+	Output	Data
19	TB0-	Output	Data
20	TB0+	Output	Data
21	TB1-	Output	Data
22	TB1+	Output	Data
23	TB2-	Output	Data
24	TB2+	Output	Data
25	GND	Ground line	Ground line

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26	GND		
27	TCLK2-	Output	clock
28	TCLK2+	Output	clock
29	TB3-	Output	Data
30	TB3+	Output	Data

- **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 line	Ground line
4	GND	Ground line	Ground line
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 line	Ground line
14	GND	Ground line	Ground line
15	EDP_AUXN	Output	Data
16	EDP_AUXP	Output	Data
17	GND	Ground line	Ground line
18	GND	Ground line	Ground line
19	EDP_HPD	Input	Data
20	GND	Ground line	Ground line

- **26.Screen Voltage Jumper Interface（LCD JP JACK）**

No.	Definition	Attributes	Description
1	VCC_12V	Output	12V Output
2	VCC_LCD	Input	LCD voltage input
3	CC5V0_SYS	Output	5.0 V Output

4	VCC_LCD	Input	LCD voltage input
5	VCC3V3_SYS	Output	3.3V Output
6	VCC_LCD	Input	LCD voltage input

- **27.EDP Backlight Interface（EDP LCD BL JACK）**

No.	Definition	Attributes	Description
1	12V	Output	12V Output
2	12V	Output	12V Output
3	E_BL_EN	Output	Backlight adjustment
4	BL1_ADJ	Output	Backlight adjustment
5	GND	Ground line	Ground line
6	GND	Ground line	Ground line

- **28.Speaker Output Interface（SPEAKER OUT JACK）**

No.	Definition	Attributes	Description
1	SPL+	Output	Left channel output positive
2	SPL-	Output	Left channel output negative
3	SPR-	Output	Right channel output negative
4	SPR+	Output	Right channel output positive

- **32.TP interface（TOUCH SCREEN JACK）**

No.	Definition	Attributes	Description
1	GND	Ground line	Ground line
2	GND	Ground line	Ground line
3	VCC_TP	Input	TP power input（3.3V）
4	SDA	Output	Data（I2C4）
5	CLK	Output	clock（I2C4）
6	GND	Ground line	Ground line
7	TP_INT	Input	discontinue（7-A6）
8	TP_RESET	Input	diaplasis（7-A5）
9	GND	Ground line	Ground line
10	GND	Ground line	Ground line

- **34.Camera interface 1（CAMERA1 JACK）**

No.	Definition	Attributes	Description
1	GND	Ground line	Ground line
2	MIPI_MCLK	clock	Clock signal interface
3	GND	Ground line	Ground line
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 line	Ground line
9	VCC_DVP	Power	2.8V power supply interface
10	GND	Ground line	Ground line
11	AVDD_DVP	Power	2.8V power supply interface
12	GND	Ground line	Ground line
13	VCC_DVP	Power	1.8V power supply interface
14	VCC_DVP	Power	1.5V power supply interface
15	GND	Ground line	Ground line
16	GND	Ground line	Ground line
17	MIPI_D0N	Data	Data signal interface
18	MIPI_D0P	Data	Data signal interface
19	GND	Ground line	Ground line
20	MIPI_D1N	Data	Data signal interface
21	MIPI_D1P	Data	Data signal interface
22	GND	Ground line	Ground line
23	MIPI_CLKN	clock	Clock signal interface
24	MIPI_CLKP	clock	Clock signal interface
25	GND	Ground line	Ground line
26	MIPI_D2N	Data	Data signal interface
27	MIPI_D2P	Data	Data signal interface
28	GND	Ground line	Ground line
29	MIPI_D3N	Data	Data signal interface
30	MIPI_D3P	Data	Data signal interface

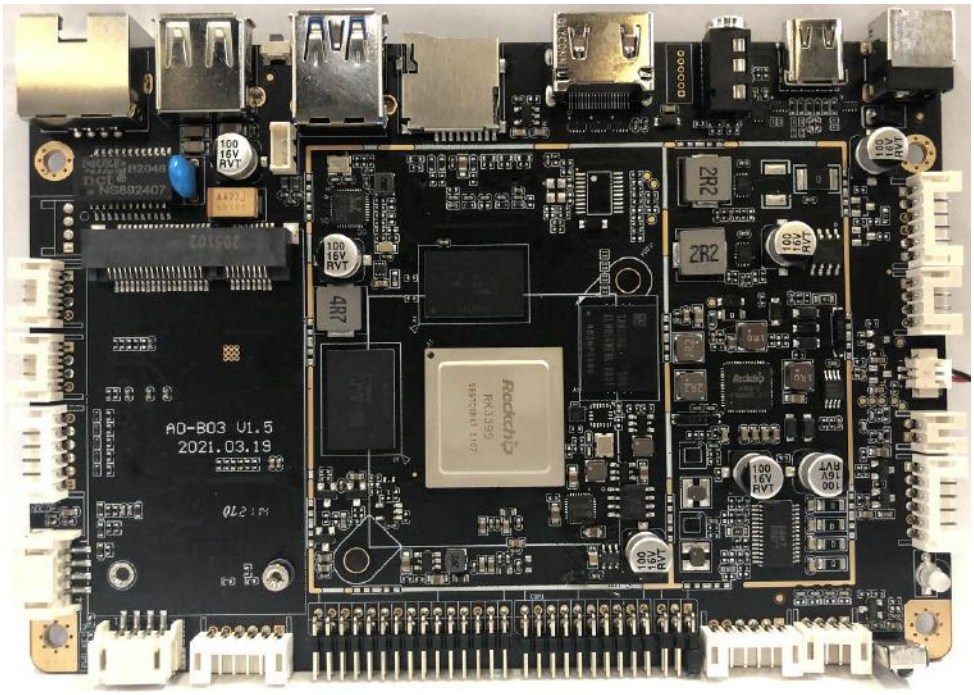
- **35.Camera interface 2（CAMERA2 JACK）**

No.	Definition	Attributes	Description
1	GND	Ground line	Ground line
2	MIPI_MCLK	clock	Clock signal interface
3	GND	Ground line	Ground line
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 line	Ground line
9	VCC_DVP	Power	2.8V power supply interface
10	GND	Ground line	Ground line
11	AVDD_DVP	Power	2.8V power supply interface
12	GND	Ground line	Ground line
13	VCC_DVP	Power	1.8V power supply interface
14	VCC_DVP	Power	1.5V power supply interface
15	GND	Ground line	Ground line
16	GND	Ground line	Ground line
17	MIPI_D0N	Data	Data signal interface
18	MIPI_D0P	Data	Data signal interface
19	GND	Ground line	Ground line
20	MIPI_D1N	Data	Data signal interface
21	MIPI_D1P	Data	Data signal interface
22	GND	Ground line	Ground line
23	MIPI_CLKN	clock	Clock signal interface
24	MIPI_CLKP	clock	Clock signal interface
25	GND	Ground line	Ground line
26	MIPI_D2N	Data	Data signal interface
27	MIPI_D2P	Data	Data signal interface
28	GND	Ground line	Ground line
29	MIPI_D3N	Data	Data signal interface
30	MIPI_D3P	Data	Data signal interface

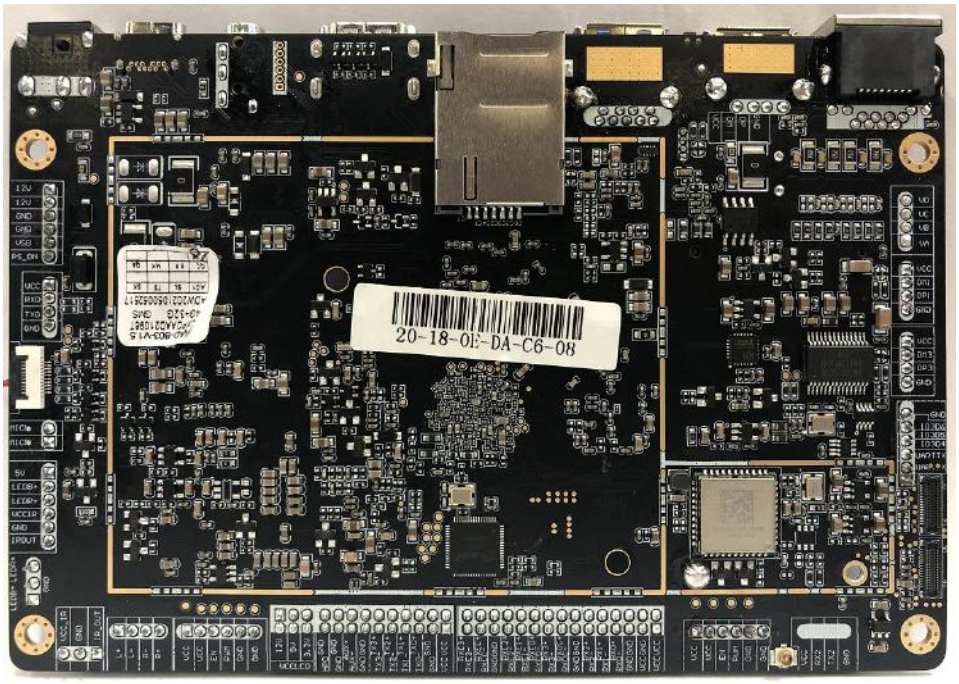
Appendix

◆ Product picture

- Front



- Back：



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◆ Mainboard 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.