SHENZHEN SUNCHIP TECHNOLOGY CO.,LTD

Quad core RK3188 Android decoder drives all in one board specification（**model：AD-Z05V4.1**）

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Chapter I product overview

Overview：

RK3188 Android all in one board, using Rockchip RK3188 quad-core chip program, support Google Android 4.4 system. Support the mainstream audio and video formats and picture decoding. Dual 8-bit LVDS interface 1920 * 1080, can drive 7 "to 82" display. With HDMI interface 1080P, support 1080P video playback. Rich interface, so that products become more common, widely used in advertising machines, one machine, security, industrial control, and so the field of intelligent control. Because of its hardware platform, Android intelligent features, in the need for human-computer interaction, network equipment, interactive, intelligent terminal platform can be used.

Characteristic：

- High performance. RK3188 chip using quad-core A9 program, it's currently on the market one of the most powerful quad-core chip. Using the chip RK3188 motherboard program, compared to the common market of single-core, dual-core, quad-core program, a qualitative leap in performance, to play a variety of formats HD video, can handle complex interactive operation.

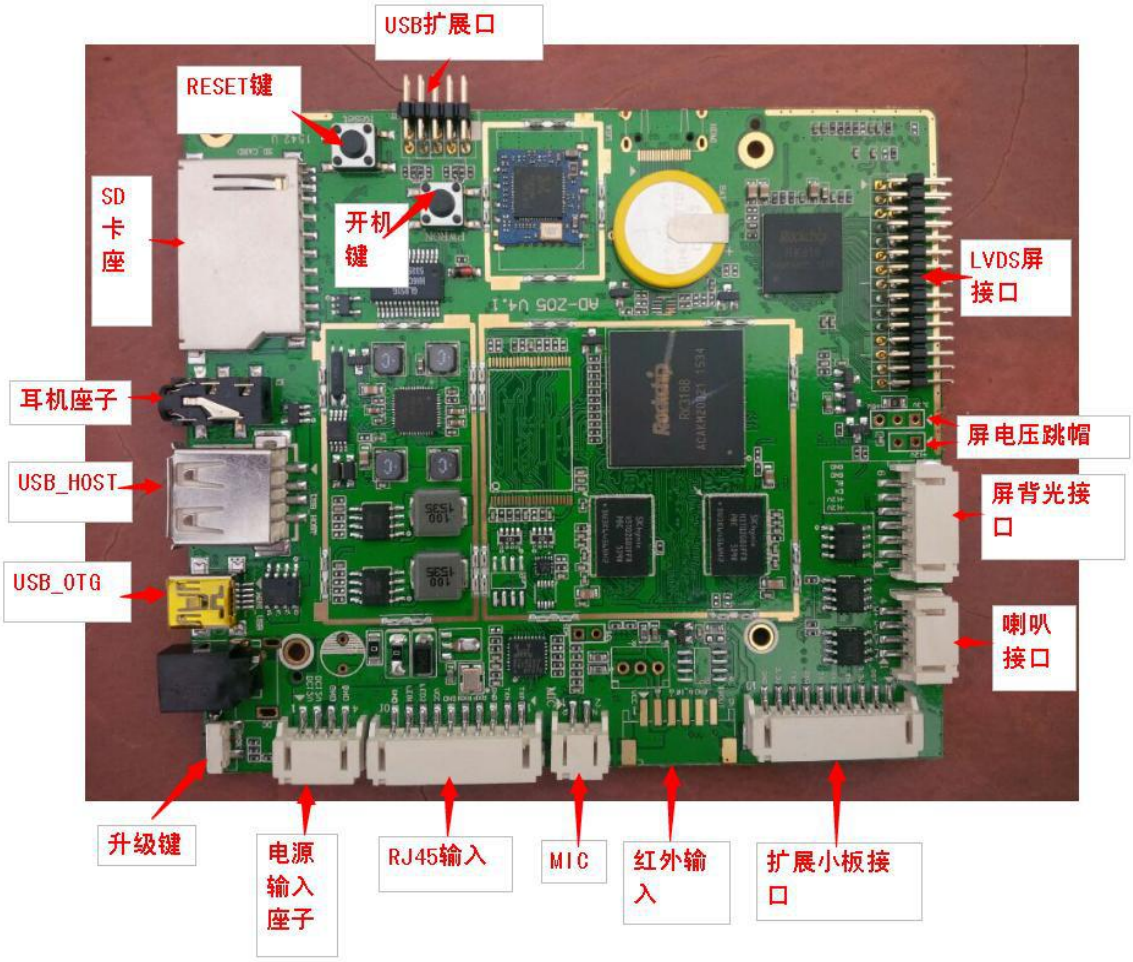
- High stability. RK3188 Andrews board, in the hardware, software, to increase their own unique technology to ensure product stability, can make the final product to 7 * 24 hours unattended.

- Highly integrated. RK3188 Andrews integrated board integrated Ethernet, wifi, Bluetooth, amplifier, SD card, backlight power supply and so on, greatly simplifying the machine design. Ultra-thin motherboard design, make the machine design more beautiful.

- High scalability. 3 USB ports (need to connect RJ45 small board), a serial port, can expand more peripherals.

Chapter 2 Product Specifications

Product picture



按键接口
TP接口
摄像头座子

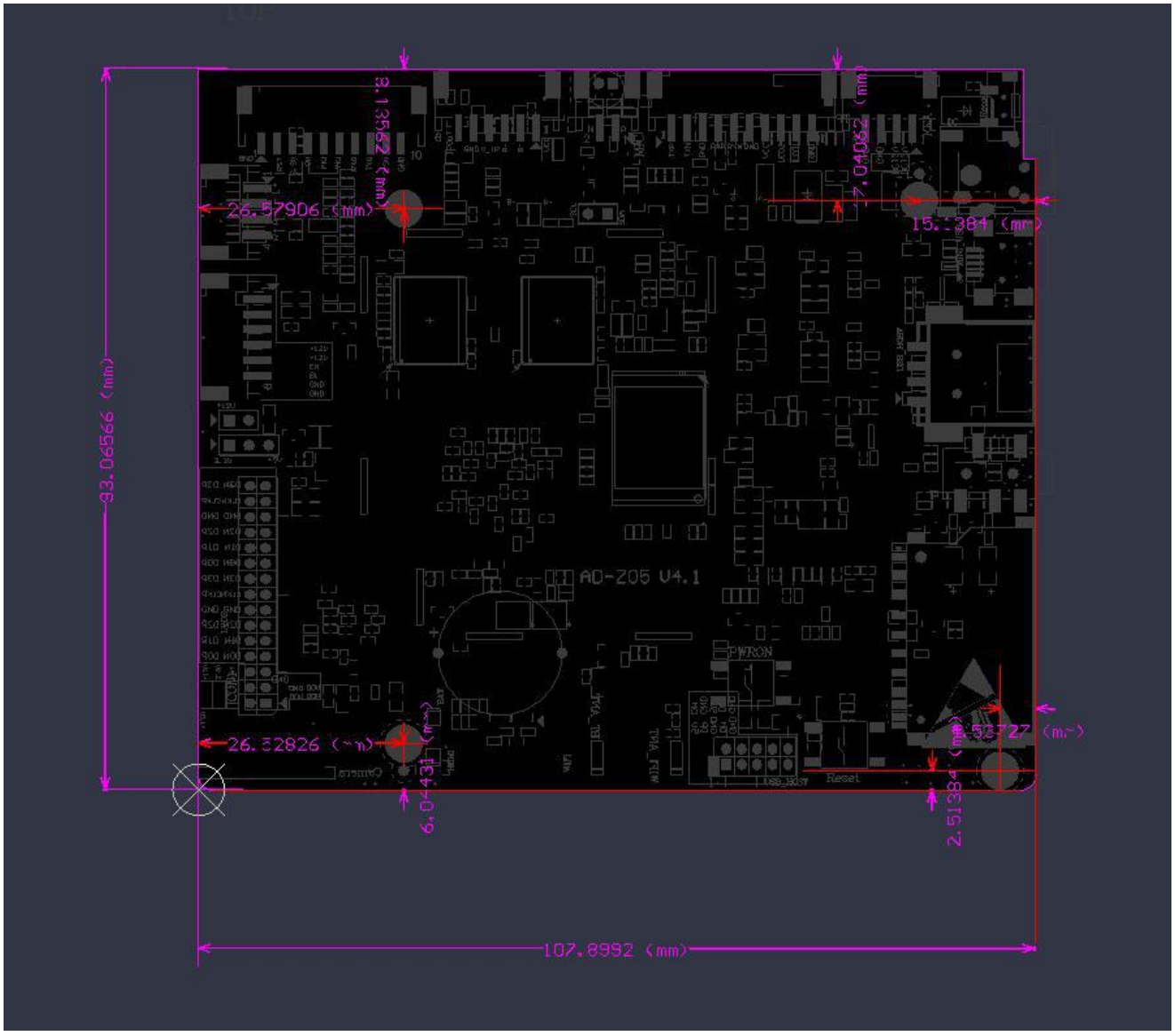
Basic hardware specifications:

CPU	RockChipRK3188 quad core Cortex-A9 quad core GPU Mail-400 @ 533MHz
Frequency	1.6 GHz
RAM	DDR3 1G/2G Optional
Built-in storage capacity	NAND FLASH 8GB/16G/32GOptional（label 8GB)
DIF	LVDS interface （ Single, 6-way, 8-way dual).Support maximum resolution 1920x1080, support 7 "-82" display.
Onboard backlight	Support 3.3V/5V/12V Optional
Touch screen	Provide I2C interface (can support multi-point resistance touch, multi-point capacitive touch).Support USB multi-point infrared touch, multi-point sound saw touch, multi-point optical touch.
Network	Have RJ45 interface,support Ethernet.
	Have wifi&BT module,support Wi-Fi 802.11b/g/nprotocol.Support BT3.0/BT4.0
	With wifi & BT module, support Wi-Fi 802.11b / g / n protocol. Support BT3.0 / BT4.0
Image rotation	Support 0 degree,90 degree,180 degree,270 degrees manual / automatic rotation, support gravity sensing function.
Real Time Clock	Built-in real-time clock powered battery
Interface device	Support DVP interface camera, the maximum support 500W pixels
	Support USB camera
	3 USB HOST (1 motherboard, 2 small board), 1 USB OTG
	1 group serial port. Support external serial device module (3G module, NFC module, printer, card reader, etc.)
	1 group of I2C ports
	SD card, maximum support 32GB
	D class large built-in speaker, 8 oh / 3W
	Support for microphones
Audio	MP3,WMA,WAV, APE, FLAC, AAC, OGG,M4A,3GPP format
Video	Support H.264,VP8,RV,WMV,AVS,H.263,MPEG4 video formats such as 1080P decoding, YouTube and other online video, up to 1080P, HTML5 video playback, Flash 10.1 play
Picture	Support JPG, BMP, PNG and other picture formats to browse and support the rotation / slide show / picture zoom
Power Adapter	Input AC100-240V.50-60HZ, output:DC12V 3A

Basic software specifications：

Operating system	Google Android 4.4
Basic software functions	Web browsing, web chat, e-mail, e-books, and resource managers
Sound mode	Clock, alarm clock, calculator, recording
Language support	Multiple languages
Recording	Support MP3、WMA format recording
Tool	Calendar
	Alarm Clock
	Calculator
	Note
	Weather + clock
	Recording
Document processing	EPUB, WORD, EXCEL, POWERPOINT, PDF, TXT
E-book	PDF/TXT/CHM/DOC/EXCEL/EPUB/RTF/FB2
Schedule	Calendar
Input method	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 eco-Android system, open root privileges, can be customized product development.
	Real-time remote monitoring, system crash since recovery, 7 * 24 hours unattended
	System setting
	Google Maps
	Global time
	Support OTA remote upgrade

PCBA Structure



Electric

- Power interface（DC IN）

No.	Definition	Attributes	Description
1	DC_IN	power supply	12V power input
2	DC_IN	power supply	12V power input
3	GND	ground line	ground line
4	GND	ground line	ground line

- Touch screen 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（I2C2）
5	CLK	output	clock（I2C2）
6	GND	ground line	ground line
7	TP_INT	input	External interrup（1-B7）
8	TP_RESET	input	External reset（0-B6）
9	GND	ground line	ground line
10	GND	ground line	ground line

- Microphone interface（MIC JACK）

No.	Definition	Attributes	Description
1	MIC+	input	MIC Positive input
2	MIC-	input	MIC Negative input

- Headphone output interface（PHONE OUT JACK）

No.	Definition	Attributes	Description
1	HPR	output	Right channel output
2	COM	ground line	ground line
3	HPL	output	Left channel output

- 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

- Key interface（KEY ）

No.	Definition	Attributes	Description
1	RECOVER key	input	Default high level
2	KEY0	Key input / data entry	Default high / receive（1-B2/UART3_RX）
3	KEY1	Key input / data output	Default high / receive（1-B3/UART3_TX）
4	KEY2	input	Default high level（1_B5）
5	KEY3	input	Default high level（1_B4）
6	PLAY_ON	input	Default low (power on)
7	VCC_RTC	Power supply	3.3V output
8	GND	ground line	ground line
9	GND	ground line	ground line
10	GND	ground line	ground line

- USB Expansion interface

No.	Definition	Attributes	Description
1	HOST 5V	output	5V Voltage output
2	DM4	output	data
3	DP4	input	data
4	GND	ground line	ground line
5	GND	ground line	ground line
6	HOST 5V	output	5V Voltage output
7	DM3	output	data
8	DP3	input	data
9	GND	ground line	ground line
10	GND	ground line	ground line

- Expansion board board interface

No.	Definition	Attributes	Description
1	GND	ground line	ground line
2	RESET	output	Machine reset
3	PWR_VCC	output	Power supply key power supply 3.3V
4	PWR_ON/OFF	ground line	External power on key
5	UART1_RX	input	Serial port 1 received
6	UART1_RX	output	Serial port 1 send
7	UART0_RX	input	Serial port 0 received
8	UART0_RX	output	Serial port 0 sent
9	MCU_VCC	output	3.3V powered by
10	GND	ground line	ground line

- Infrared interface(IR)

No.	Definition	Attributes	Description
1	MCU_VCC	power supply	3.3V
2	LED_B-	output	System indicator negative
3	LED_R-	output	System indicator negative
4	VCC_IR	power supply	Infrared power supply
5	GND	ground line	ground line
6	IR_OUT	input	data input（0-B2）

- LVDS interface（LVDS JACK）

No.	Definition	Attributes	Description
1	POWER	output	3V/5V/12V Power output
2	POWER		
3	POWER		
4	GND	ground line	ground line
5	GND		
6	GND		
7	TX0-	output	data
8	TX0+	output	data
9	TX1-	output	data
1 0	TX1+	output	data
1 1	TX2-	output	data
1 2	TX2+	output	data
1 3	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
26	GND		
27	TCLK2-	output	clock
28	TCLK2+	output	clock
29	TB3-	output	data
30	TB3+	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（0-B1）
4	LCD-ADJ	output	Backlight adjustment（3-D6）
5	GND	ground line	ground line
6	GND	ground line	ground line

- RJ45 External interface

No.	Definition	Attributes	Description
1	TXP	output	Signal sent positive
2	TXN	output	Signal sending negative
3	AGND	output	Analog ground
4	RXP	output	Signal sent positive
5	RXN	ground line	Signal sending negative
6	AGND	ground line	Analog ground
7	VCCA	power supply	powered by 3.3V

8	LED2-	output	LED light circuit
9	LED1-	output	LED light circuit
10	AGND	ground line	Analog ground

- camera interface

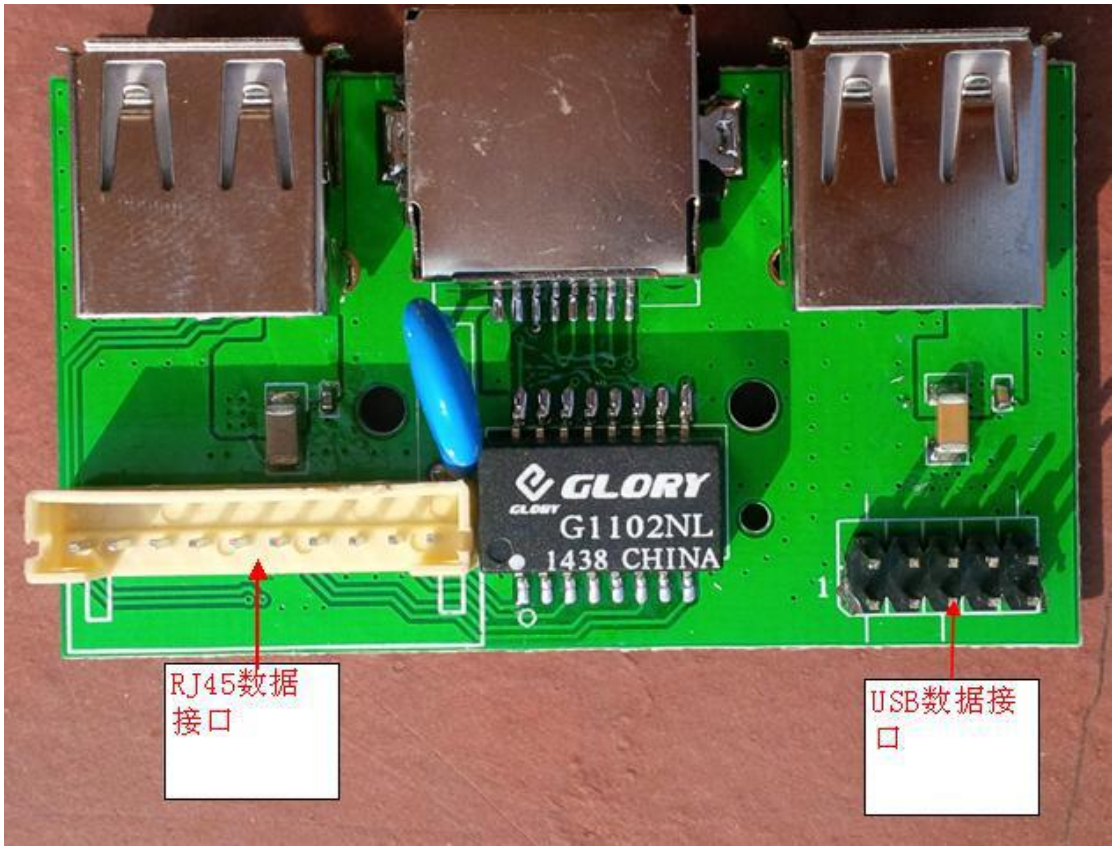
No.	Definition	Attributes	Description
1	PDN1	output	Front camera control interface
2	GND	ground line	ground line
3	I2C_SDA	data	Data signal interface
4	AVDD_2.8V	power supply	2.8V Power supply interface
5	I2C_SCL	data	Clock signal interface
6	RESET	output	Reset the signal interface
7	CAM_VSYNC	input	Data synchronization signal interface
8	PDN2	output	Front camera control interface
9	CAM_HSREF	input	Data synchronization signal interface
10	DVDD_1.8V	power supply	1.8V Power supply interface
11	DOVDD_2.8V	power supply	2.8V Power supply interface
12	D9	power supply	Data signal interface
13	CLKOUT	clock	Clock signal output
14	D8	power supply	Data signal interface
15	GND	ground line	ground line
16	D7	power supply	Data signal interface
17	CLKIN	clock	Clock signal output
18	D6	power supply	Data signal interface
19	D2	power supply	Data signal interface

20	D5	power supply	Data signal interface
21	D3	power supply	Data signal interface
22	D4	power supply	Data signal interface
23	NC	NC	blank
24	NC	NC	blank

Appendix

RJ45 Small board specifications

◆ Product picture



Interface definition

- RJ45 interface

No.	Definition	Attributes	Description
1	TXP	output	Signal sent positive
2	TXN	output	Signal sending negative
3	AGND	output	Analog ground
4	RXP	output	Signal receiving positive
5	RXN	Ground line	Signal receiving negative
6	AGND	Ground line	Analog ground
7	VCCA	power supply	powered by 3.3V
8	NC	NC	NC
9	NC	NC	NC
10	AGND	Ground line	Analog ground

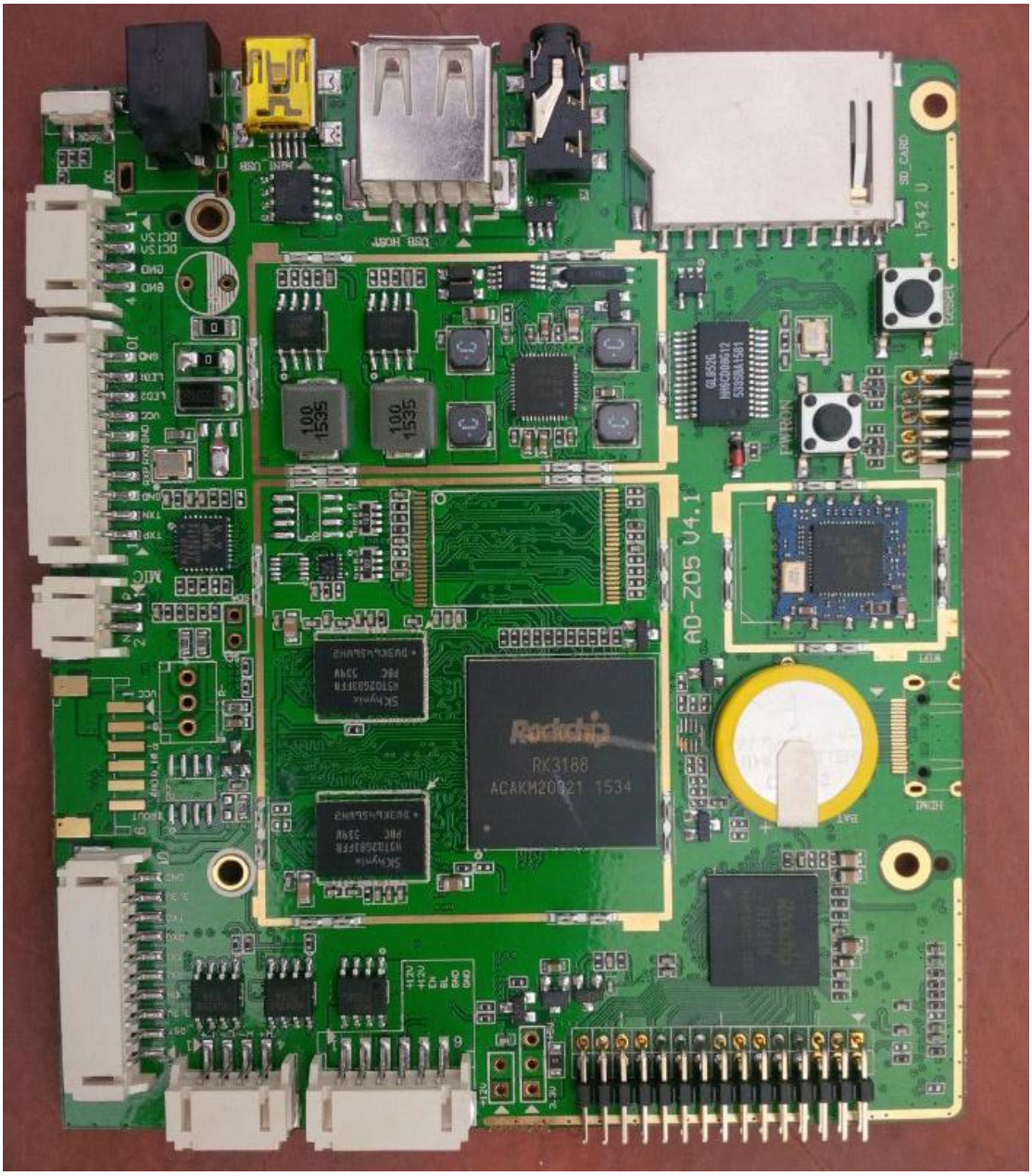
- USB Expansion interface

No.	Definition	Attributes	Description
1	HOST 5V	output	5V Voltage output
2	DM4	output	data

3	DP4	input	data
4	GND	Ground line	Ground line
5	GND	Ground line	Ground line
6	HOST 5V	output	5V Voltage output
7	DM3	output	data
8	DP3	input	data
9	GND	Ground line	Ground line
10	GND	Ground line	Ground line

◆ Product picture

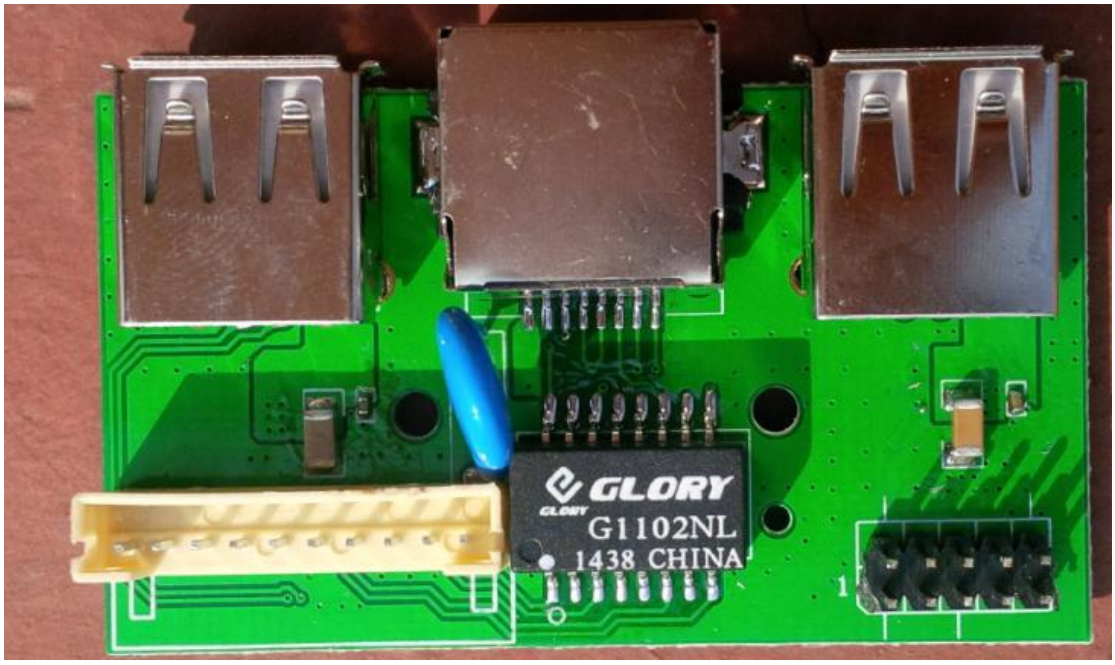
- Front side

- 

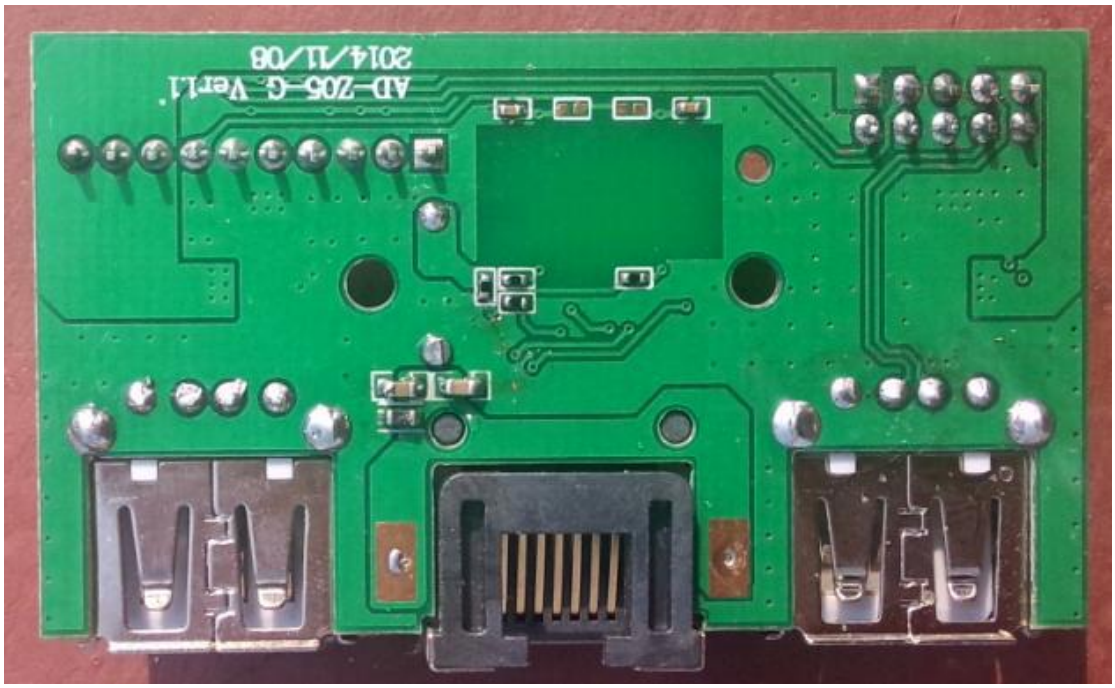
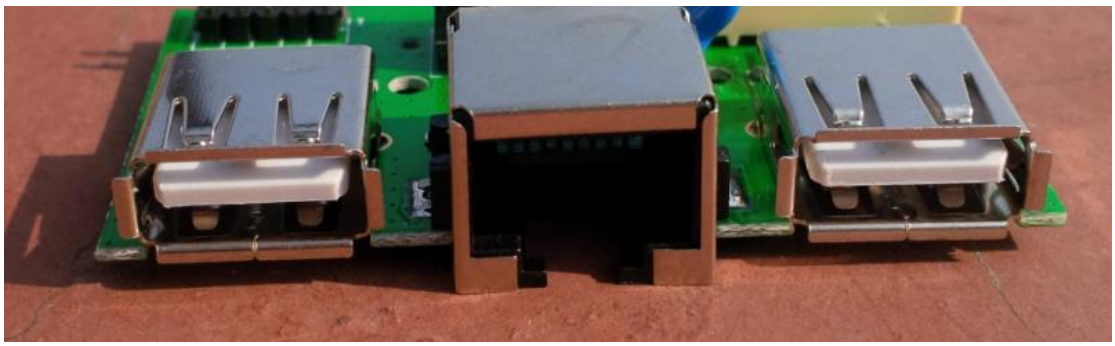
- Back side：

RJ45 Small board

Front



back



front