



PRODUCT SPECIFICATION

LCD Display Motherboard

HD-3568S

V1.1

Shenzhen Huidu Technology Co., Ltd.

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Chapter I Product Description

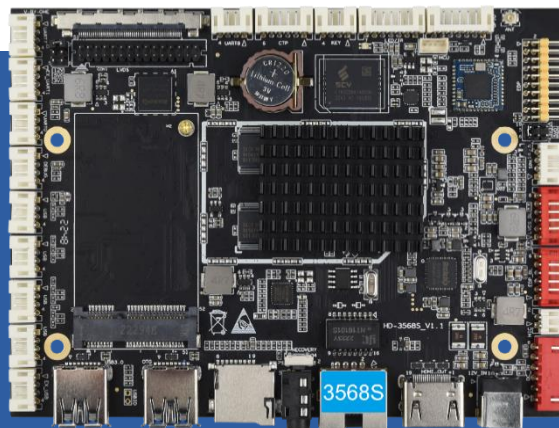
I. Overview

HD-3568S is a well-built all-in-one motherboard, which adopts Rockchip RK3568 quad-core chip solution, equipped with Android11 system, and the main frequency can reach up to 2.0GHz, with super performance. Adopt Mali-G52 GPU, support 4K 60fps H.265/H.264 video encoding. Support infrared remote control, Wi-Fi, RJ45 and other rich interfaces, making the product more versatile and widely used in intelligent control fields such as advertising machines, interactive all-in-one machines, security, medical, transportation, finance, industrial control, etc.

II. Features

- High performance. The RK3568 chip adopts the quad-core ARM Cortex-A55 architecture, and the main frequency can reach up to 2.0GHz, which is a qualitative leap in performance. It can play high-definition video in various formats and handle complex interactive operations.
- High stability. RK3568 Android all-in-one board adds unique technology to ensure product stability in terms of hardware and software, and can make the final product reach 7*24 hours unattended.
- High integration. RK3568 Android all-in-one board integrates Ethernet, EDP, Wi-Fi, power amplifier, and TF expansion card, USB expansion port, IR remote control function, TP, HDMI, LVDS, V-By-One interface, backlight control, microphone and other functions, which greatly simplifies the design of the whole machine.
- High scalability. 7 USB (5 pins, 2 standard USB 3.0), 4 serial ports + 1 scalable debug serial port + 1 MCU programming serial port, 5 IO expansion ports can expand more peripheral devices.
- High definition. Supports LCD displays with various LVDS/EDP/HDMI/V-By-One interfaces, and supports cutting screens of various sizes and resolutions.
- It perfectly supports multiple mainstream touch screen functions such as multi-point infrared touch, multi-point capacitive touch, multi-point nano-film touch, multi-point acoustic wave touch, and multi-point optical touch.

HD-3568S



Chapter II Specifications

I . Basic Parameters

1. Hardware Parameters

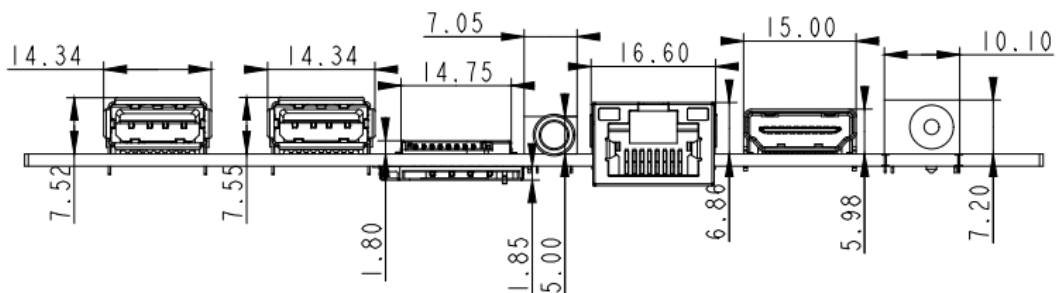
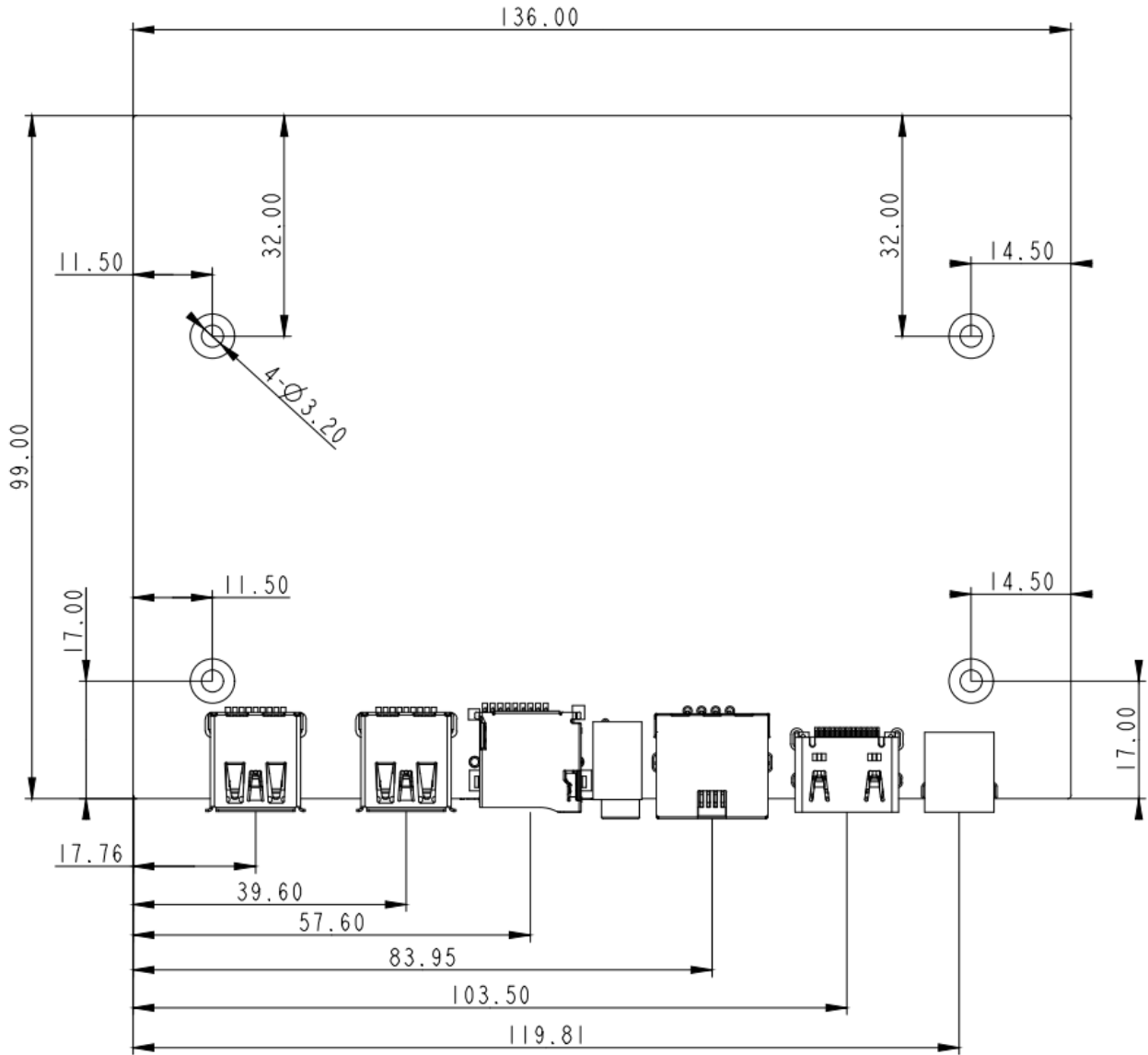
Hardware Specifications	
CPU	RK3568, quad-core, up to 2.0GHz
GPU	Mali-G52 GPU supports OpenGL ES 1.1/2.0/3.2, OpenCL 2.0 and Vulkan 1.1
Memory	Standard 2GB, optional 4GB
Built-in storage capacity	eMMC standard 16GB optional 32GB TF Card expansion (can be used to expand SSD)
Network	Support RJ45 R/A 100M Ethernet, support Ethernet; Support 2.4GHz Wi-Fi; support Wi-Fi 802.11b/g/n protocol; Support Bluetooth 4.2.
Image rotation	Support 0 degree, 90 degree, 180 degree, 270 degree manual rotation; optional gravity sensor, support automatic rotation
Display interface	1*LVDS interface (single/dual, 6-bit/8-bit), support 3.3V/5V/12V power supply 1 channel EDP interface, 1 channel HDMI 4K display, and 1 channel V-By-One interface display Onboard backlight control supports 12V backlight power supply
Audio	Support standard left and right channel line output; support 3.5mm audio output interface
Amplifier	2-way output (8 ohms 5 watts dual audio amplifier output)
Microphone	Differential MIC input
Touch screen	Support USB multi-point infrared touch, multi-point capacitive touch, multi-point Nano film touch, multi-point sound wave Touch, multi-point optical touch and more.
RTC	Built-in real-time clock function
USB	1-way USB-3.0 HOST, 1-way USB 3.0 OTG, 5-way extended USB port
Infrared	Infrared receiving socket, support infrared remote control function
LED	1*power status LED (green), 1*system LED (green, flashing by default)
Button	1*upgrade key
Serial port	4-way UART, 1-way DEBUG, 1-way MCU programming serial port; optional RS232, RS485
GPIO	5-way IO input and output control, can be used for key scanning control
KEY	Support physical switch
Power Adapter	Input: AC100-240V.50-60HZ, Output: DC12V 1.5A (The surge voltage is required to be less than 18V, and the ripple voltage is less than 100mV)
Storage humidity	10%~90%, no condensation
Storage temperature	-40°C~70°C
Operating temperature	-20°C~70°C

2. Software Parameters

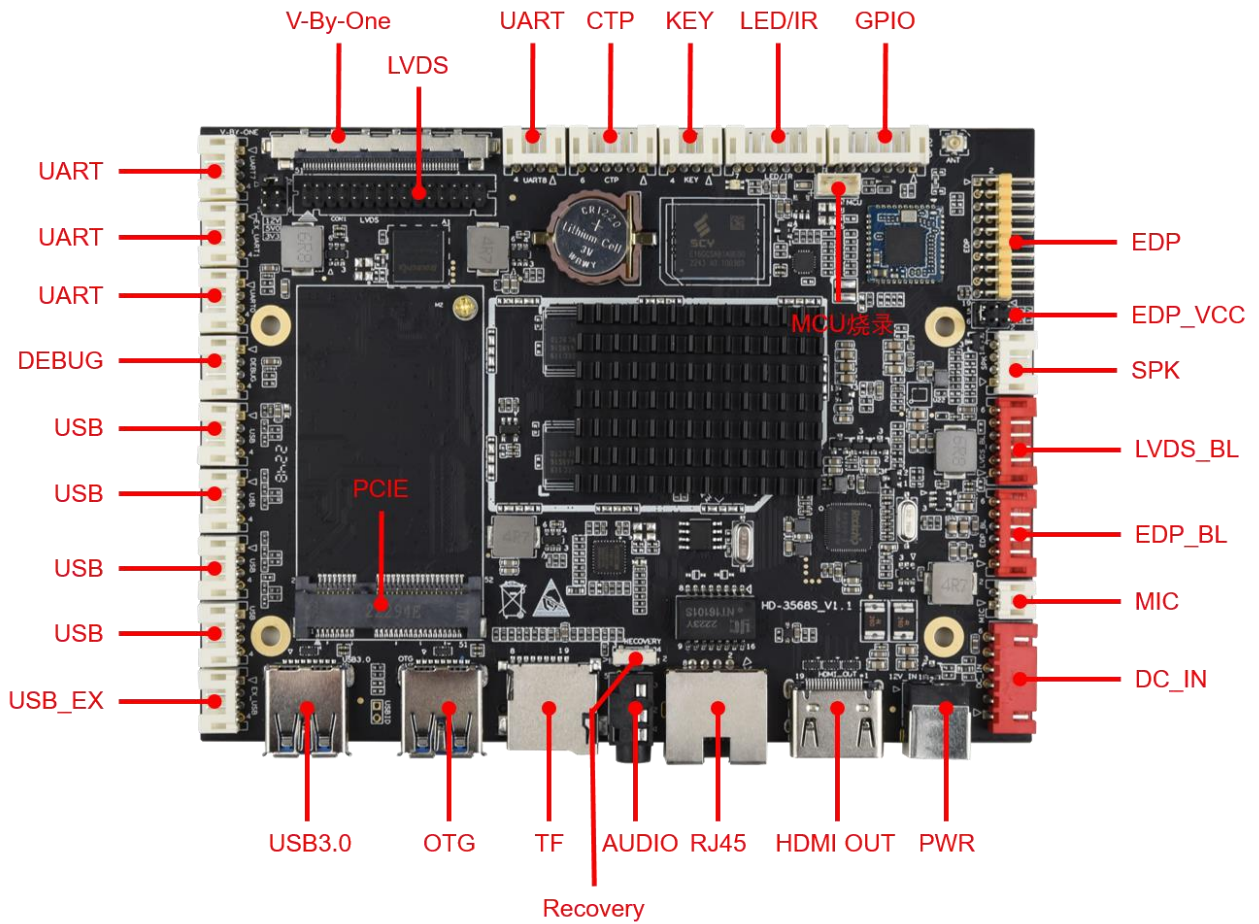
Software Specifications	
Operating system	Android 11.0
Audio	MP3,WMA,WAV, APE, FLAC, AAC, OGG,M4A,3GPP and other formats
Video	Support H.265, H.264, VP8, MAV, WMV, AVS, H.263, MPEG4 and other video formats
Picture	Support JPG, BMP, PNG and other image formats
Built-in APP default	APK Installer, Email, Calculator, Browser, Voice Recorder, Calendar, Settings, Clock, Video Player, Search, Contacts, Gallery, Downloads, Camera, Music, Explorer, etc.
Language	Support multi-languages
Input method	Standard Android keyboard, optional third-party input method
System Management	Original ecological Android system, open root privileges, and can carry out product customization development
	Real-time remote monitoring, system crash self-recovery, 7*24 hours unattended
	Support OTA remote upgrade; support U disk upgrade
	Support boot animation definition
	Support server/standalone mode switching
System watchdog	Support Wi-Fi hotspot
	Support software watchdog, hardware watchdog

II. Product Size Specifications

unit: (mm)



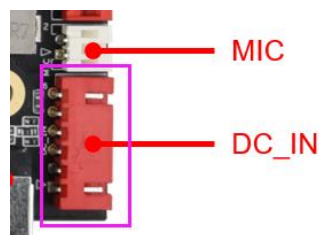
III. Product Interface Diagram



IV. Interface Parameter Description

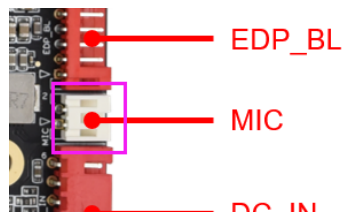
1. PWR / DC (Power input) Interface

It adopts 12V DC power supply and only allows the board subsystem to be powered from the DC socket and power socket.



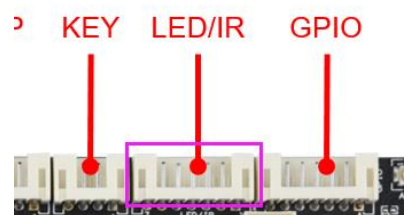
No.	Definition	Attributes	Description
6	12V	input	12V input
5	12V	input	12V input
4	GND	ground wire	ground wire
3	GND	ground wire	ground wire
2	5VS	input	standby 5V input
1	STB	output	standby signal output

2. MIC Interface (Microphone)



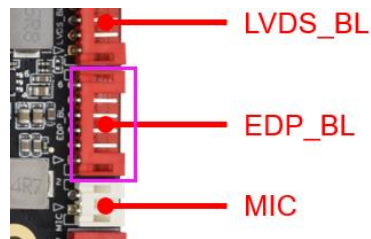
No.	Definition	Attributes	Description
1	MIC+	input	MIC+input
2	MIC-	input	MIC-input

3. LED/IR (Remote control) Interface and Definition



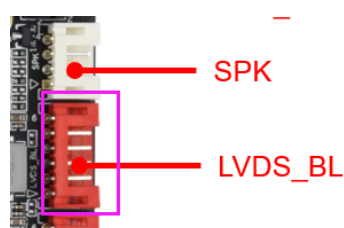
No.	Definition	Attributes	Description
1	RED	output	red light
2	3V3	power supply	3.3V output
3	GRN	output	green light
4	IO6	output	remote control signal output
5	IR	input	remote control signal input
6	GND	ground wire	ground wire
7	3V3	power supply	3.3Voutput

4. EDP_BL (EDP Backlight) Interface



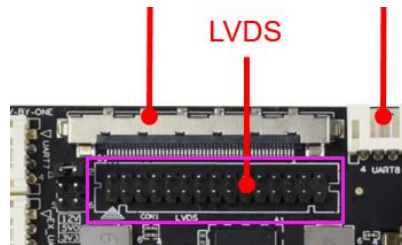
No.	Definition	Attributes	Description
1	GND	Ground	Ground
2	GND	Ground	Ground
3	ADJ	Output	Backlight brightness control
4	EN	Output	Backlight enable control
5	12V	Power	12V output
6	12V	Power	12V output

5. LVDS_BL (LVDS Backlight) Interface



No.	Definition	Attributes	Description
1	GND	Ground	Ground
2	GND	Ground	Ground
3	ADJ	Output	Backlight brightness control
4	EN	Output	Backlight enable control
5	12V	Power	12V output
6	12V	Power	12V output

6. LVDS Interface and Definition



General LVDS interface definition, support single / dual, 6/8 / 10-bit 1080P LVDS screen. The screen voltage can be selected through a jumper cap, and it can be selected to support 3.3V / 5V / 12V screen power supply.

In order to avoid burning boards and screens, please note the following:

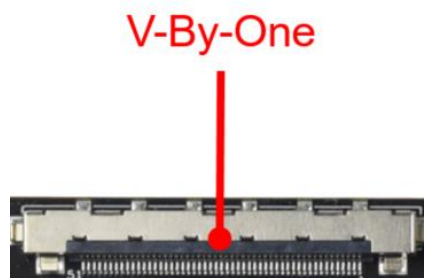
1. Please confirm whether the screen specification book screen supply voltage is correct, whether the board's corresponding power supply can meet the maximum working current of the screen.
2. Please use multimeter to confirm that the power supply selected by the jumper cap is correct.
3. When connecting the 6 / 8-bit LVDS screen cable, install it near pin1.

No.	Definition	Attributes	Description
1	VCC	Power	3.3V / 5V / 12V optional output
2	VCC		
3	VCC		
4	GND	Ground	Ground
5	GND	Ground	Ground
6	GND	Ground	Ground
7	RX00-	Output	Odd 0 -
8	RX00+	Output	Odd 0+
9	RX01-	Output	Odd 1 -
10	RX01+	Output	Odd 1+
11	RX02-	Output	Odd 2 -

12	RXO2+	Output	Odd 2+
13	GND	Ground	Ground
14	GND	Ground	Ground
15	RXOC-	Output	Odd Clock-
16	RXOC+	Output	Odd Clock+
17	RXO3-	Output	Odd 3 -
18	RXO3+	Output	Odd 3+
19	RXE0-	Output	Even 0 -
20	RXE0+	Output	Even 0+
21	RXE1-	Output	Even 1 -
22	RXE1+	Output	Even 1+
23	RXE2-	Output	Even 2 -
24	RXE2+	Output	Even 2+
25	GND	Ground	Ground
26	GND	Ground	Ground
27	RXEC-	Output	Even Clock -
28	RXEC+	Output	Even Clock+
29	RXE3 -	Output	Even 3 -
30	RXE3+	Output	Even 3+

Note: Do not operate with power on, Do not hot swap.

7、V-By-One Interface Description



Serial number	Definition	Attributes	Describe
1	GND	ground wire	ground wire
2	VBX-7P	output	Pixe10 Positive Data
3	VBX-7N	output	Pixe10 Negative Data
4	GND	ground wire	ground wire
5	VBX-6P	output	Pixe11 Positive Data

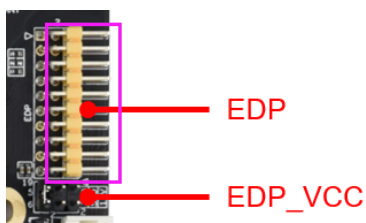
6	VBX-6N	output	Pixe11 Negative Data
7	GND	ground wire	ground wire
8	VBX-5P	output	Pixe12 Positive Data
9	VBX-5N	output	Pixe12 Negative Data
10	GND	ground wire	ground wire
11	VBX-4P	output	Pixe13 Positive Data
12	VBX-4N	output	Pixe13 Negative Data
13	GND	ground wire	ground wire
14	VBX-3P	output	Pixe14 Positive Data
15	VBX-3N	output	Pixe14 Negative Data
16	GND	ground wire	ground wire
17	VBX-2P	output	Pixe15 Positive Data
18	VBX-2N	output	Pixe15 Negative Data
19	GND	ground wire	ground wire
20	VBX-2P	output	Pixe16 Positive Data
21	VBX-2N	output	Pixe16 Negative Data
22	GND	ground wire	ground wire
23	VBX-1P	output	Pixe17 Positive Data
24	VBX-1N	output	Pixe17 Negative Data
25	GND	ground wire	ground wire
26	LOCKN-OUT	output	CLOCK
27	HTPDN	output	TCON
28	SEL		TCON
29	AGP		TCON
30	SCN-EN		TCON

8. EDP Interface and Definition

This interface is a common EDP screen interface, in the form of 10 * 2 double row pins, 3.3V screen power supply.

In order to avoid burning boards and screens, please note the following:

Confirm that the screen specification book screen supply voltage is correct and whether the board's corresponding power supply can meet the screen's maximum working current.



No.	Definition	Attributes	Description
1	PVCC	Power	Output
2	PVCC	Power	Output
3	GND	Ground	Ground
4	GND	Ground	Ground
5	D0-	Output	Display Port Lane 0 negative output
6	D0+	Output	Display Port Lane 0 positive output
7	D1-	Output	Display Port Lane 1 negative output
8	D1+	Output	Display Port Lane 1 positive output
9	D2-	Output	Display Port Lane 2 negative output
10	D2+	Output	Display Port Lane 2 positive output
11	D3-	Output	Display Port Lane 3 negative output
12	D3+	Output	Display Port Lane 3 positive output
13	GND	Ground	Ground
14	GND	Ground	Ground
15	AUX-	Output	Display Port AUX- chanenl negative singal
16	AUX+	Output	Display Port AUX+ chanenl positive singal
17	GND	Ground	Ground
18	GND	Ground	Ground
19	GND	Ground	Ground
20	HPD	Input	Screen heat plug board detection signal

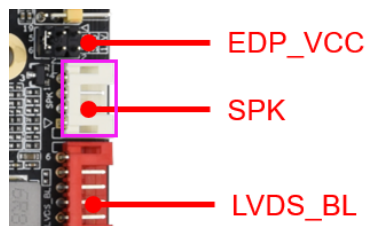
9. USB Interface and Definition



The board has 2 USB standard interfaces and 4 USB pins, one of which is shared with the 4G module.

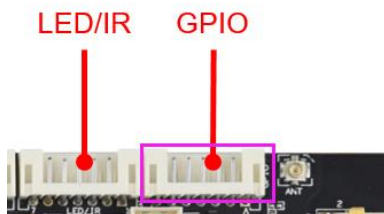
No.	Definition	Attributes	Description
1	5V	power supply	5Voutput
2	DM	input/output	DM
3	DP	input/output	DP
4	GND	ground wire	ground wire

10. SPK (Power amplifier) Interface



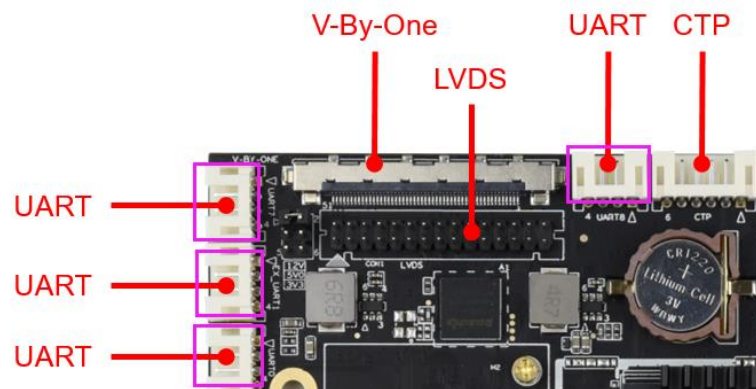
No.	Definition	Attributes	Description
1	SPKR+	output	right channel+
2	SPKR-	output	right channel-
3	SPKL-	output	left channel-
4	SPKL+	output	left channel+

11. GPIO Interface (Extension) and Definition



No.	Definition	Attributes	Description
1	GND	ground wire	ground wire
2	IO1	IO1	IO1
3	IO2	IO2	IO2
4	IO3	IO3	IO3
5	IO4	IO4	IO4
6	IO5	IO5	IO5
7	3V3	power supply	3.3V output

12. UART (Serial port) Interface



The board have to two sets of ordinary UART serial ports, which can support the UART serial port devices on the market.

Precautions:

Check the serial port voltage matches or not. Cannot directly connect to RS232, RS485 serial devices.

2.TX, RX Please confirm the connection is correct or not.

No.	Definition	Attributes	Description
1	VCC	Power	3.3V output, Configurable
2	TX	Output	TX
3	RX	Input	RX
4	GND	Ground	Ground

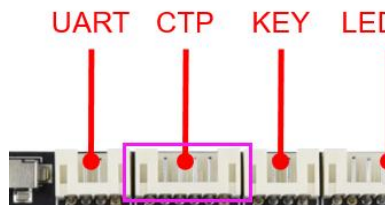
- 1.UART0/UART7 can adjust RS485 through hardware
- 2.UART1/UART8 can adjust RS232 through hardware
- 3.UART1 default Bluetooth function

13. DEBUG Interface



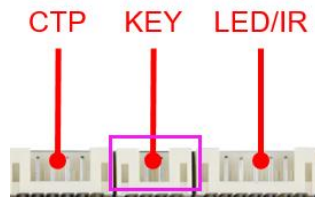
No.	Definition	Attributes	Description
1	3V3	power supply	3.3Voutput
2	TX	output	TX
3	RX	input	RX
4	GND	ground wire	ground wire

14. CTP Interface and Definition



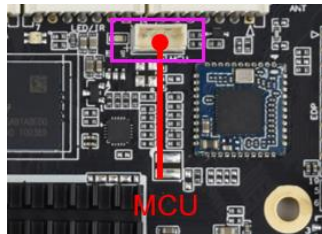
No.	Definition	Attributes	Description
1	3V3	power supply	3.3V output
2	SCL	input/output	I2Cclock
3	SDA	input/output	I2Cdata
4	INT	input/output	to interrupt
5	RST	input/output	reset
6	GND	ground wire	ground wire

15. KEY Interface Definition



No.	Definition	Attributes	Description
1	ON	Power switch	Power switch, which can be connected to an external button to control the switch
2	EX	reset signal	Reset signal interface, reserved
3	KEY	ADC	ADC reserve
4	GND	ground wire	ground wire

16. MCU Interface



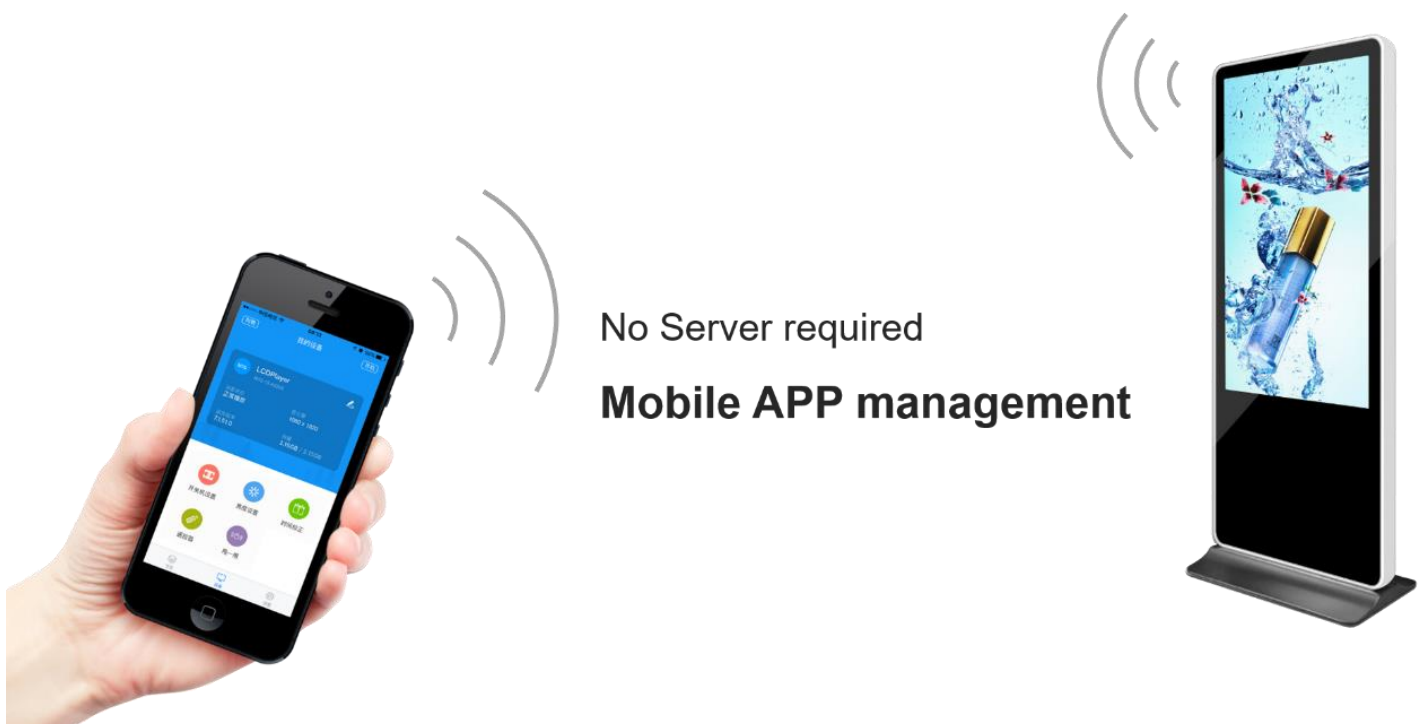
No.	Definition	Attributes	Description
1	3V3	power supply	3.3V output
2	TX	output	TX
3	RX	input	RX
4	GND	ground wire	ground wire

17. Other Interfaces

Storage interface	SD card	Data storage, up to 32G
	USB	HOST interface, support data storage, data import, USB mouse keyboard, camera, touch screen, etc.
Ethernet interface	RJ45 interface	Support 100M wired network
HDMI interface	Standard interface	Support HDMI output, maximum support 4K

Chapter III Communication Methods

I . Wi-Fi Update Program

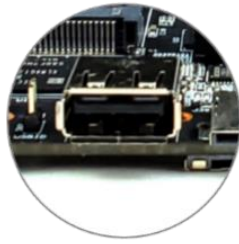


II. U-disk update program



U-disk update programs

Support Interstitial & memory expansion



III. TF Card Update Program

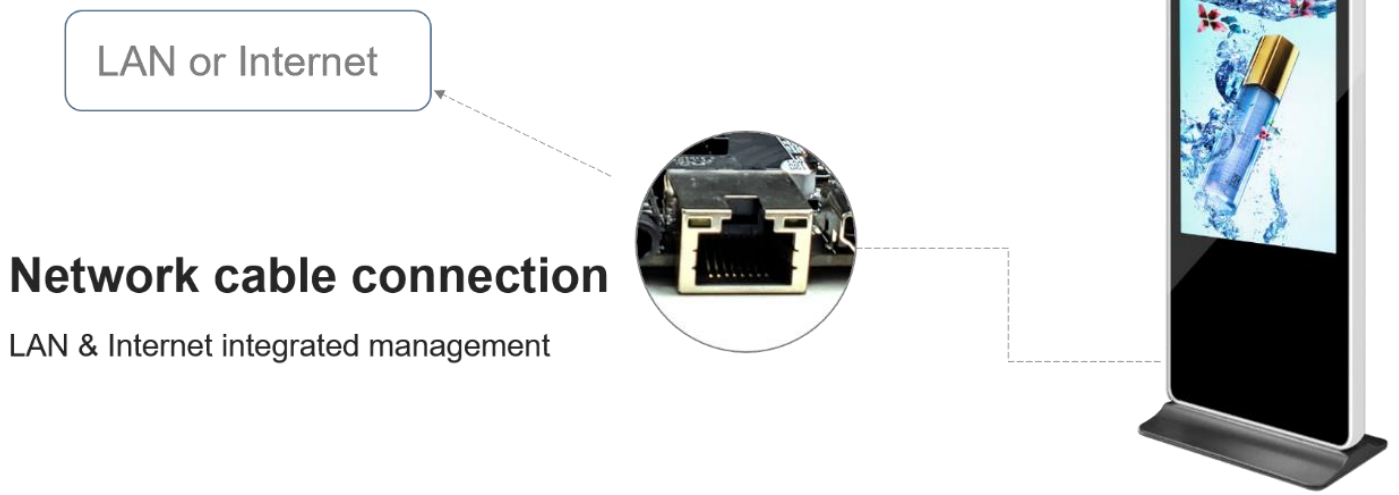


TF card update programs

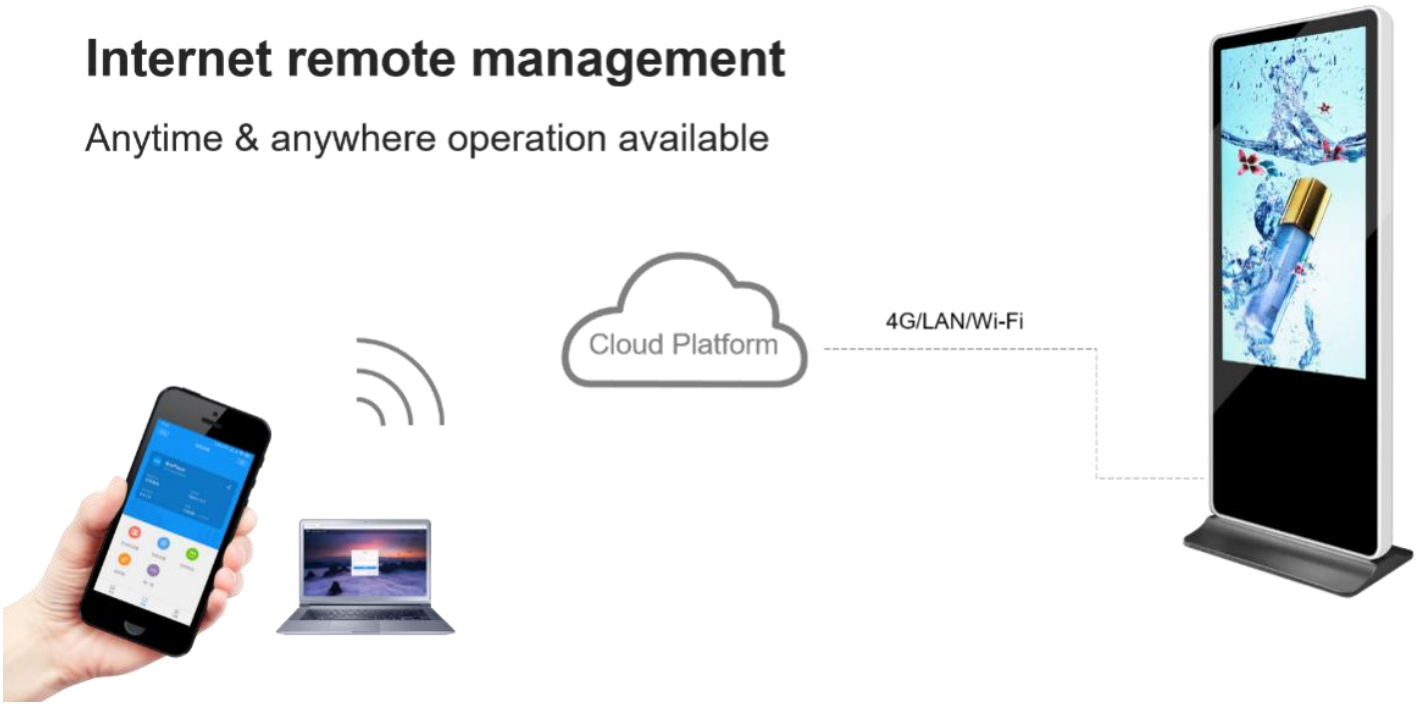
Support Interstitial & memory expansion



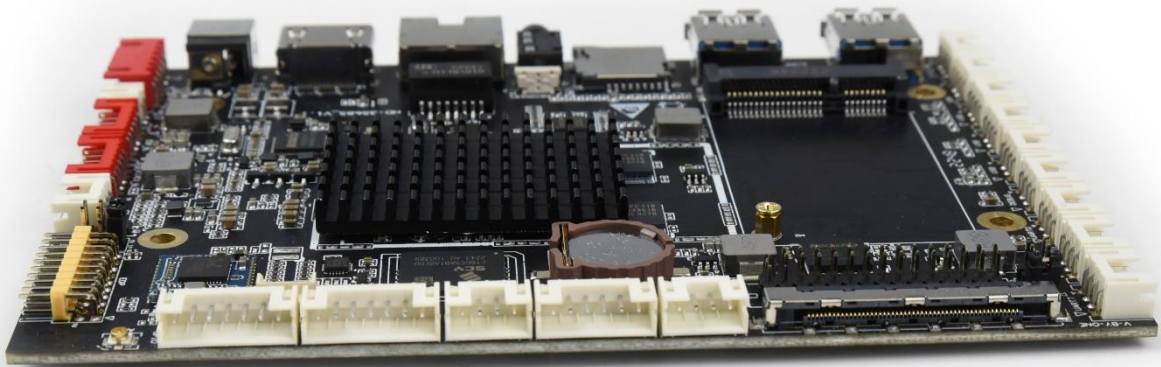
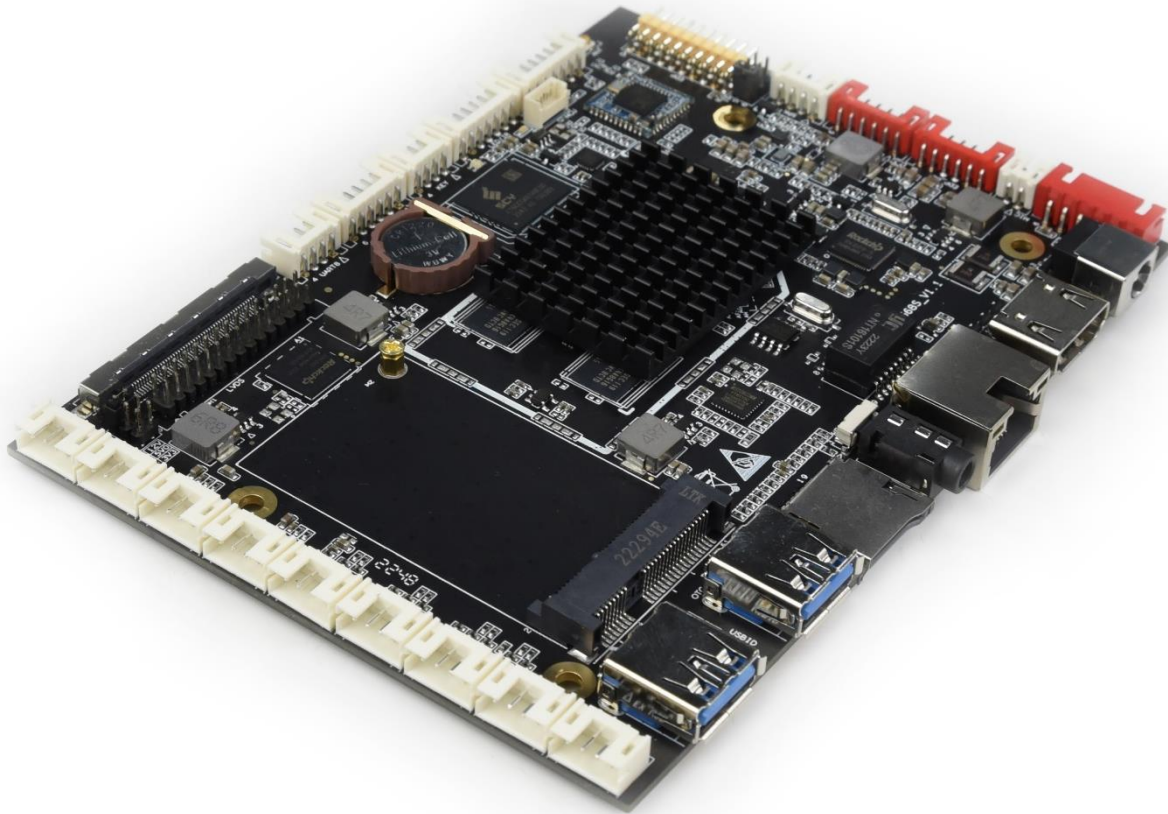
IV. Ethernet cable to Update



V. Internet Update



Chapter IV Appendix: Product Appearance



Note:

1. The 4G module is an optional accessory that is installed on the PCIE port. If the picture is different from the actual product, it is not a fake or inferior product. If you have any questions, please contact us for confirmation.
2. The model label is attached to the sales product. The product picture in the specification is different from the actual product. It is not a fake or inferior product. If you have any questions, please contact us for confirmation.
3. **Do not operate with power on, Do not hot swap.**