



PRODUCT SPECIFICATION

LCD Android Board
HD-3568S

Version: V2.2

Update History

Version	Release time	Description
V2.2	Jan. 2, 2024	Update V-By-One Interface Definition Description.
V2.1	Oct. 13, 2023	Update content layout.
V1.1	Aug. 30, 2023	First official release.

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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 decoding. 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.

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
NPU	1TOPS
RAM/ Storage	Standard 2GB+32GB, 4GB+32GB, 4G+64G
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)

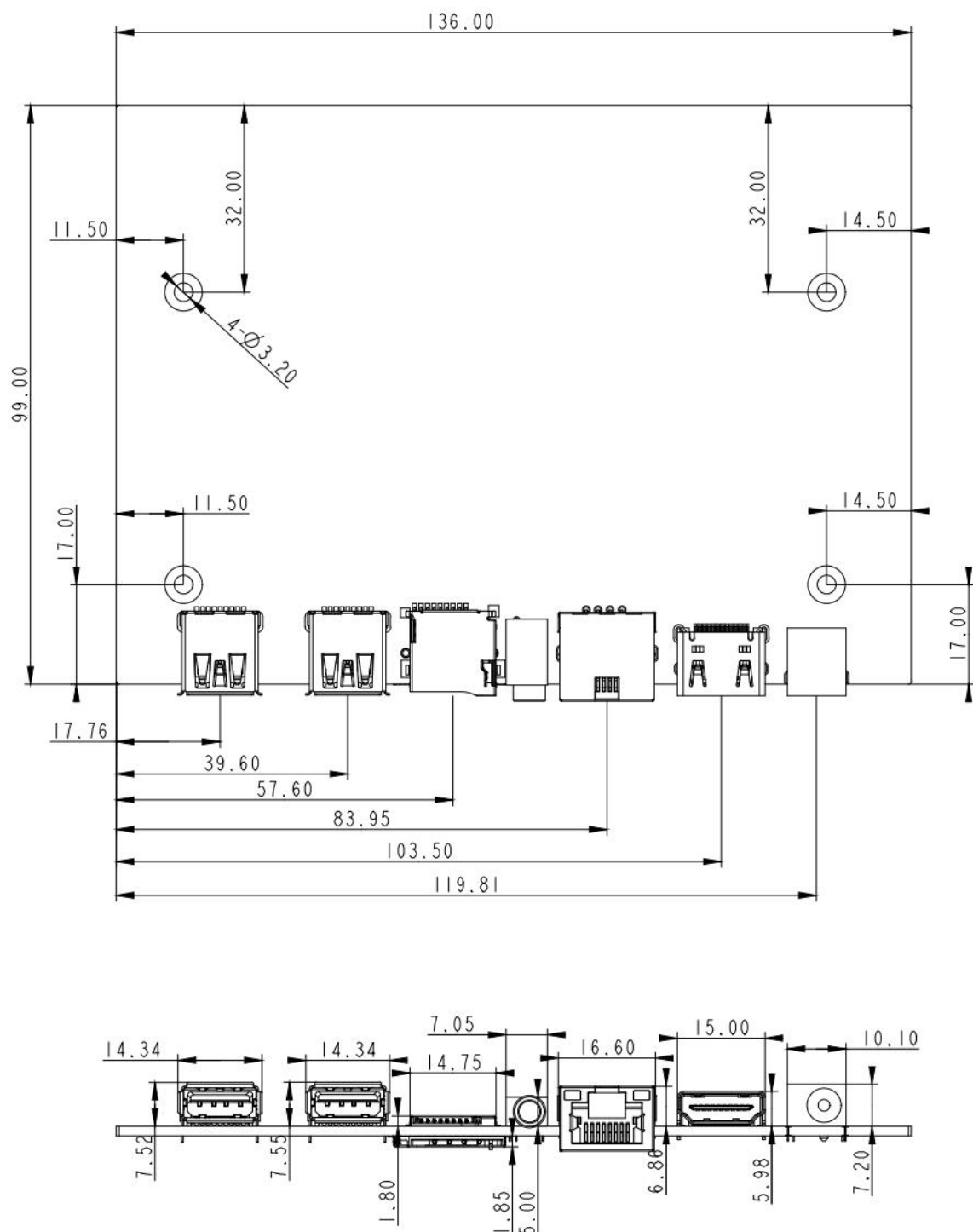
Button	1*upgrade key
Serial port	4-way UART, 1-way DEBUG, 1-way MCU programming serial port; optional RS232, RS485
GPIO	5-way IO input and output control, can be used for key scanning control
KEY	Support physical switch
Power Adapter	Input: AC100-240V.50-60HZ, Output: DC12V 1.5A (The surge voltage is 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

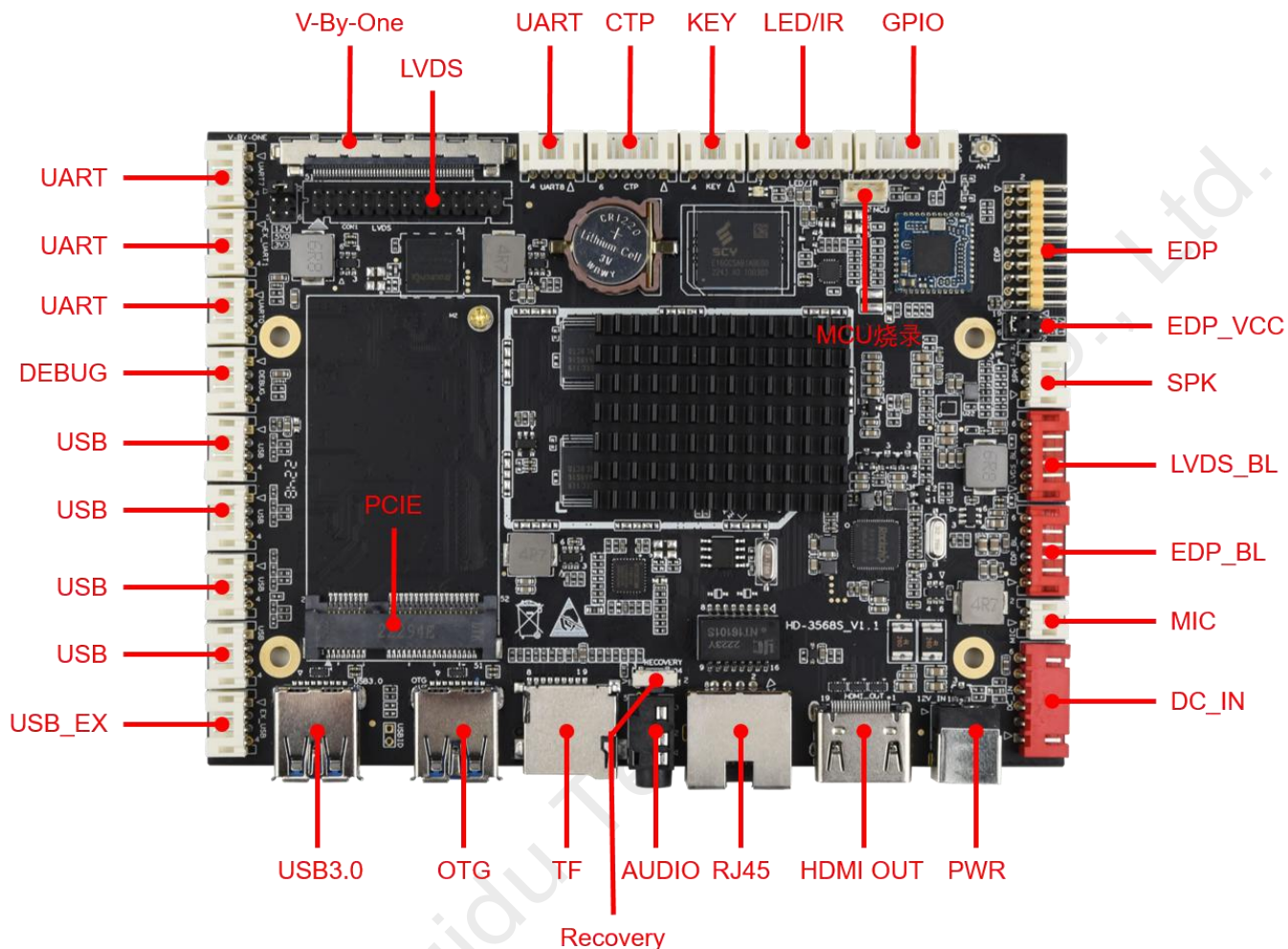
Software specifications	
Operating system	Android 11.0
Audio	MP3,WMA,WAV, APE, FLAC, AAC, OGG,M4A,3GPP and other formats
Video	Support H.265, H.264, VP8, MAV, WMV, AVS, H.263, MPEG4 and other video formats
Picture	Support JPG, BMP, PNG and other image formats
Built-in APP default	APK Installer, Email, 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
	Support Wi-Fi hotspot
System watchdog	Support software watchdog, hardware watchdog

II. Product size specifications

1. Dimensions of bare board (unit: mm)



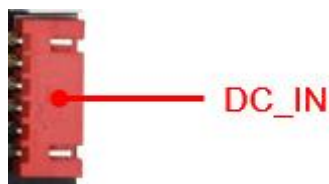
III. Product interface diagram



IV. Interface parameter description

1. Power Interface

12V DC power supply is used for power supply, and only DC socket and power socket are allowed to supply power to the board system.



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

Note: The inner diameter of the DC power port is 2.0mm, and the outer diameter is 5.8mm.

2. MIC Interface (Microphone)



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

3. LED/IR Interface (Remote control)



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 Interface (EDP Backlight)



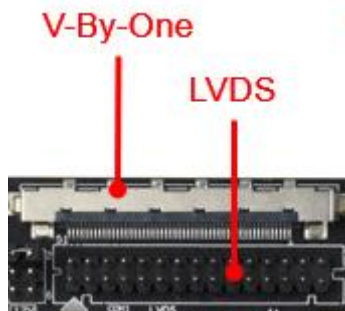
No.	Definition	Attributes	Description
1	GND	ground wire	ground wire
2	GND	ground wire	ground wire
3	ADJ	output	Backlight Brightness Control
4	EN	output	Backlight Enable Control
5	12V	power supply	12V output
6	12V	power supply	12V output

5. LVDS_BL Interface (LVDS Backlight)



No.	Definition	Attributes	Description
1	GND	ground wire	ground wire
2	GND	ground wire	ground wire
3	ADJ	output	Backlight Brightness Control
4	EN	output	Backlight Enable Control
5	12V	power supply	12V output
6	12V	power supply	12V output

6. LVDS Interface



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

In order to avoid burning the board and screen, please pay attention to the following:

1. Please confirm whether the power supply voltage of the screen specification book is correct, and whether the corresponding power supply of the board can meet the maximum working current of the screen.
2. Please use a multimeter to confirm whether the power supply selected by the jumper cap is correct.
3. When connecting the screen cable of the 6/8-bit LVDS screen, it should be installed close to the pin1 end.

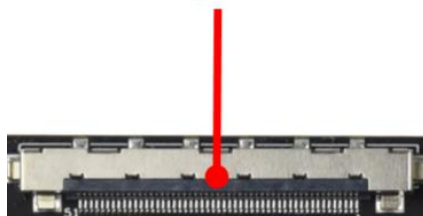
No.	Definition	Attributes	Description
1	VCC	power supply	3.3V/5V/12V optional output
2	VCC		
3	VCC		
4	GND	ground wire	ground wire
5	GND	ground wire	ground wire
6	GND	ground wire	ground wire
7	D0N	output	Odd 0-
8	D0P	output	Odd 0+
9	D1N	output	Odd 1-
10	D1P	output	Odd 1+
11	D2N	output	Odd 2-
12	D2P	output	Odd 2+
13	GND	ground wire	ground wire
14	GND	ground wire	ground wire
15	CKN	output	Odd Clock-
16	CKP	output	Odd Clock+
17	D3N	output	Odd 3-
18	D3P	output	Odd 3+
19	D5N	output	Even 0-
20	D5P	output	Even 0+
21	D6N	output	Even 1-
22	D6P	output	Even 1+
23	D7N	output	Even 2-
24	D7P	output	Even 2+

25	GND	ground wire	ground wire
26	GND	ground wire	ground wire
27	CKN	output	Even Clock-
28	CKP	output	Even Clock+
29	D8N	output	Even 3-
30	D8P	output	Even 3+

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

7. V-By-One Interface

V-By-One



No.	Definition	Attributes	Describe
1	GND	ground wire	ground wire
2	VBX-7P	output	Pixel0 Positive Data
3	VBX-7N	output	Pixel0 Negative Data
4	GND	ground wire	ground wire
5	VBX-6P	output	Pixel1 Positive Data
6	VBX-6N	output	Pixel1 Negative Data
7	GND	ground wire	ground wire
8	VBX-5P	output	Pixel2 Positive Data
9	VBX-5N	output	Pixel2 Negative Data
10	GND	ground wire	ground wire
11	VBX-4P	output	Pixel3 Positive Data
12	VBX-4N	output	Pixel3 Negative Data
13	GND	ground wire	ground wire
14	VBX-3P	output	Pixel4 Positive Data
15	VBX-3N	output	Pixel4 Negative Data
16	GND	ground wire	ground wire
17	VBX-2P	output	Pixel5 Positive Data
18	VBX-2N	output	Pixel5 Negative Data
19	GND	ground wire	ground wire
20	VBX-1P	output	Pixel6 Positive Data

21	VBX-1N	output	Pixel6 Negative Data
22	GND	ground wire	ground wire
23	VBX-0P	output	Pixel7 Positive Data
24	VBX-0N	output	Pixel7 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
31	Bit-SEL		TCON
32	LD-EN2		TCON
33	BOE-SCL		TCON
34	BOE-SDA		TCON
35	2D/3D		TCON
36	L/R-IN		TCON
37	L/R OUT		TCON
38			NC
39	GND	ground wire	ground wire
40	GND	ground wire	ground wire
41	GND	ground wire	ground wire
42	GND	ground wire	ground wire
43			NC
44	VCC-VX1	Power	Power
45	VCC-VX1	Power	Power
46	VCC-VX1	Power	Power
47	VCC-VX1	Power	Power
48	VCC-VX1	Power	Power
49	VCC-VX1	Power	Power
50	VCC-VX1	Power	Power
51	VCC-VX1	Power	Power

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

8. EDP Interface



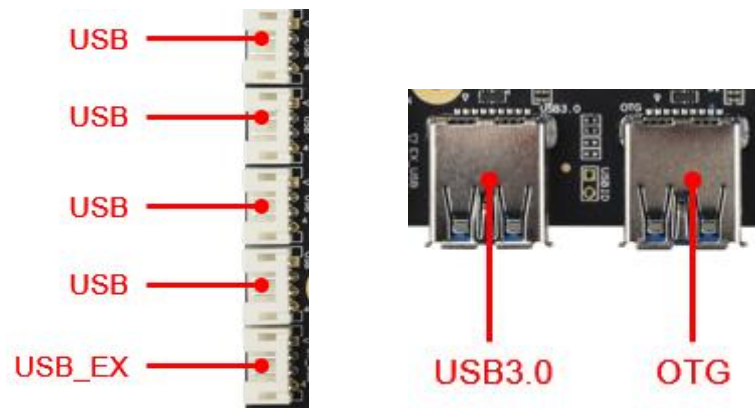
This interface is a common EDP screen interface in the form of 10*2 double-row pins. The screen voltage can be selected through the jumper cap, and it can choose to support 3.3V/5V/12V screen power supply.

In order to avoid burning the board and screen, please pay attention to the following:

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

No.	Definition	Attributes	Description
1	VCC	power supply	output
2	VCC	power supply	output
3	GND	ground wire	ground wire
4	GND	ground wire	ground wire
5	D0N	output	Display Port Lane 0 negative output
6	D0P	output	Display Port Lane 0 positive output
7	D1N	output	Display Port Lane 1 negative output
8	D1P	output	Display Port Lane 1 positive output
9	D2N	output	Display Port Lane 2 negative output
10	D2P	output	Display Port Lane 2 positive output
11	D3N	output	Display Port Lane 3 negative output
12	D3P	output	Display Port Lane 3 positive output
13	GND	ground wire	ground wire
14	GND	ground wire	ground wire
15	AUN	output	Display Port AUX- channel negative signal
16	AUP	output	Display Port AUX+ channel positive signal
17	GND	ground wire	ground wire
18	GND	ground wire	ground wire
19	3V3	power supply	output
20	HPD	input	Screen hot plug detection signal

9. USB Interface



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 Interface (Amplifier)



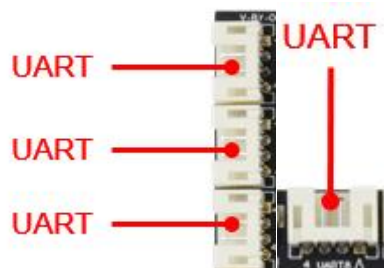
NO.	Definition	Attributes	Description
1	SPKR+	output	right channel+
2	SPKR-	output	right channel-
3	SPKL-	output	left channel-
4	SPKL+	output	left channel+

11. GPIO Interface (Extension) and Definition



NO.	Definition	Attributes	Description
1	GND	ground wire	ground wire
2	GPIO1	IO1	IO1
3	GPIO2	IO2	IO2
4	GPIO3	IO3	IO3
5	GPIO4	IO4	IO4
6	GPIO5	IO5	IO5
7	3V3	power supply	3.3V output

12. UART (Serial port) Interface



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

Precautions:

1. Whether the serial port voltage matches. It cannot be directly connected to RS232, RS485 serial devices.
2. Whether the connection of TX and RX is correct.

No.	Definition	Attributes	Description
1	3v3	power supply	3.3Voutput
2	TX	output	TX
3	RX	input	RX
4	GND	ground wire	ground wire

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	3.3V output
2	TX	output	TX
3	RX	input	RX
4	GND	ground wire	ground wire

14. CTP Interface



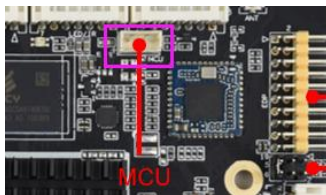
NO.	Definition	Attributes	Description
1	3V3	power supply	3.3V output
2	SCL	input/output	I2C clock
3	SDA	input/output	I2C data
4	INT	input/output	to interrupt
5	RST	input/output	reset
6	GND	ground wire	ground wire

15. KEY Interface



NO.	Definition	Attributes	Description
1	PWRON	Power switch	Power switch, which can be connected to an external button to control the switch
2	RST	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

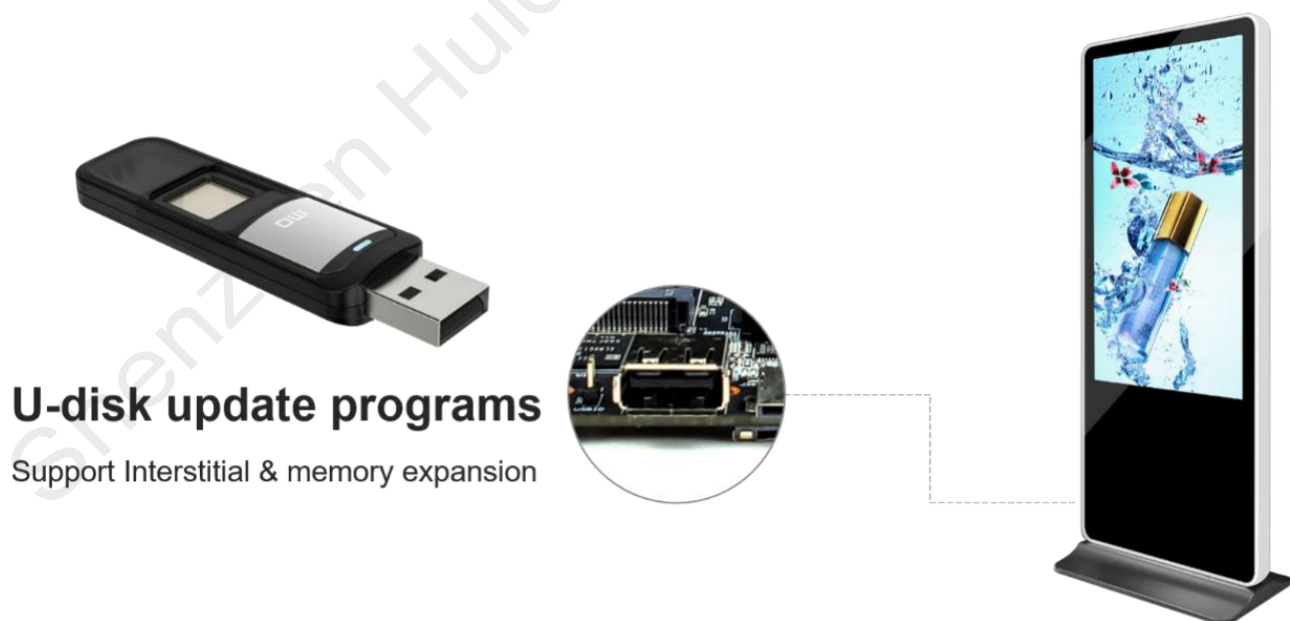
storage interface	SD card	Data storage, maximum support 32G
	USB	HOST interface, support data storage, data import, USB mouse keyboard, camera, touch screen, etc.
Ethernet interface	RJ45 interface	Support 100M wired network
HDMI interface	standard interface	Support HDMI output, up to 4K

Chapter III Communication Methods

I . Wi-Fi Update Program



II . U-disk Update Program



III. TF Card Update Program



TF card update programs

Support Interstitial & memory expansion



IV. Ethernet Cable to Update

LAN or Internet

Network cable connection

LAN & Internet integrated management



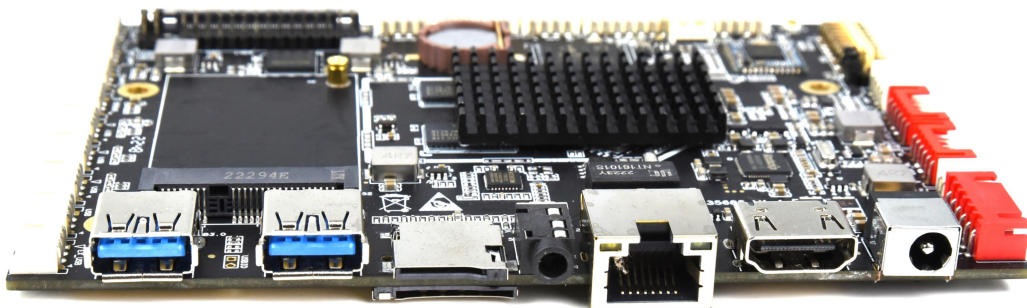
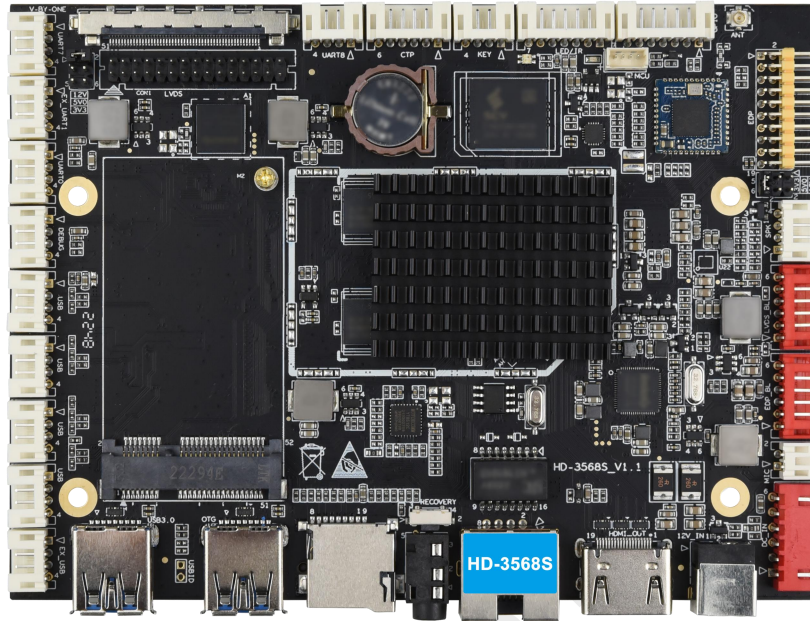
V. Internet Update

Internet remote management

Anytime & anywhere operation available



Chapter IV Appendix: Product Appearance



Note:

1. There are certain differences between the actual product and the picture in the specification, please refer to the actual product, if you have any questions, please contact relevant technical or business consultation.

2. Do not operate with power on, Do not hot swap.