

PRODUCT SPECIFICATION

LCD Android Controller
HD-133MC

Update History

Version	Release time	Description
V1.1	Jun. 7, 2025	Add CTP interface definition
V1.0	Apr. 16, 2025	First official release.

Contents

Chapter I Product Description	4
I . Overview	4
II . Features	4
Chapter II Product Specifications	5
I . Basic Parameters	5
1. Hardware Parameters	5
2. Software Parameters	6
II . Dimension Diagram	7
III. Product Diagram	8
IV. Interface Parameter Description	8
1. PWR/DC (Power input) Interface and Definition (6pin*2.54mm)	8
2. IR-LED (Remote control) Interface and Definition (7pin*2.0mm)	9
3. LVDS BL (LVDS backlight) Interface and Definition (6pin*2.0mm)	9
4. LVDS Interface and Definition (2*15pin*2.0mm)	10
5. UART Interface and Definition (4pin*2.0mm)	12
6. USB Interface and Definition	13
7. SPK (Audio) Interface and Definition (4pin*2.0mm)	13
8. MCU Interface and Definition (4pin*1.25mm)	14
9. CTP Interface and Definition (10pin*0.5mm)	14
10. POE Interface and Definition (4pin*1.25mm)	14
11. DEBUG Interface and Definition (standby) (4pin*2.0mm)	15
12. Other Interfaces	15
Chapter III Communication Methods	16
I . Wi-Fi Update Program	16
II . U-disk Update Program	16
III. TF card Update Program	17
IV. Internet Update	17
Chapter IV Appendix: Product Appearance	18

Chapter I Product Description

I . Overview

HD-133MC is an A133 quad-core chip solution, mains frequency up to 1.6 GHz, equipped with Android 10.0 system, and used PowerVR GE8300 GPU, with very strong video processing capabilities, compatible with most Video format and decoding capabilities.

It supports IR control, Wi-Fi, RJ45 and other rich interfaces, making the product more versatile, and is widely used in advertising machines, interactive all-in-one machines, security, medical, transportation, finance, industrial control and other intelligent control fields.

Due to its hardware platform and Android intelligent features, it can be used on the smart terminal motherboard when human-computer interaction or network device interaction is required, which can be your best choice.

II . Features

- Minimalist design, reserved common interfaces, Mini size, can be used in ultra-thin application scenarios;
- High stability. Adds its unique technology to the hardware and software to ensure the stability of the product, which can make the final product reach 7*24 hours unattended.
- High integration. Integrates Ethernet, Wi-Fi, Audio output, USB expansion port, IR remote control function, LVDS, Backlight control, microphone and other functions.
- High scalability. 3 * USB (1 * Pins, 2 * standard), 3 * serial ports (2 * UART, 1 * DEBUG).
- High definition. It supports various LVDS interface LCD displays, and supports various sizes and resolutions of cropped screens.
- Perfectly support 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, multi-point optical touch, etc.

Chapter II Product Specifications

I . Basic Parameters

1. Hardware Parameters

Hardware Specifications	
CPU	A133, Quad-core, Dominant Frequency up to 1.6GHz
GPU	PowerVR GE8300
RAM/ Storage	1GB+8GB, 1GB+32GB, 2GB+32GB
Network	RJ45 100Mbps; Support PoE power supply; 2.4GHz Wi-Fi, support Wi-Fi 802.11b/g/n protocol; Supports external USB 4G communication module
Image rotation	Support 0 degree, 90 degree, 180 degree, 270 degree manual rotation
Display interface	1*LVDS interface (single/dual, 6-bit/8-bit), support 3.3V/5V/12V power supply 40 PIN MIPI interface*1 Onboard backlight control supports 12V backlight power supply
Audio	Support standard left & right channel line output
Power amplifier	2 outputs (Default 8 ohms 5 watts, compatible with 8 ohm 10 watt, dual audio amplifier output)
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 so on
RTC	Built-in real-time clock function
USB	1 *USB-2.0 HOST , 1* USB2.0 OTG, 1*Expansion USB-4G
IR	Infrared receiver, support infrared remote control function
LED	Power light: green light on, red light off; Running light: green light blinking on, no light on
Button	1*upgrade key
Serial port	2 *UART(support optional RS232), 1 *DEBUG
Storage Humid	10% ~ 90% RH
Storage Temp	-40℃~70℃

Working Temp	-10℃~60℃
System watchdog	Support hardware watchdog

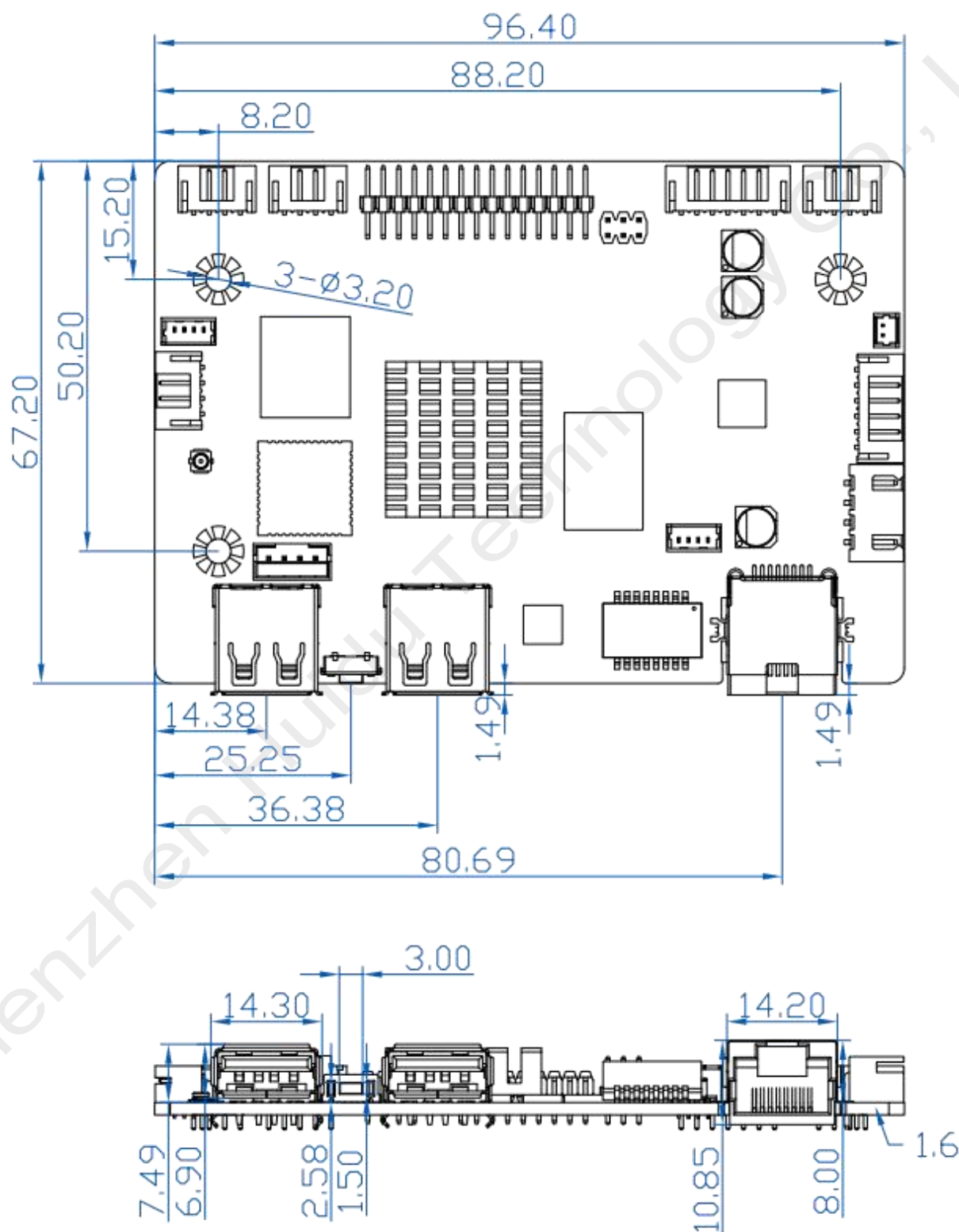
2. Software Parameters

Software Specifications	
Operation system	Android 10.0
Audio	MP3,WMA,WAV, APE, FLAC, AAC, OGG,M4A,3GPP and other formats
Video	Support AVI(H.264, DIVX, DIVX, XVID), rm, rmvb, MKV(H.264, DIVX, DIVX, XVID), WMV, MOV, MP4(H.264, MPEG, DIVX XVID), DAT(VCD), VOB(DVD), PMP, MPEG, MPG, FLV(H.263, H.264), ASF, TS, TP, 3GP, MPG, etc.
Image	Support JPG, BMP, PNG and various images formats
System default application software	APK Installer, Email, Calculator, Browser, Recorder, Calendar, Settings, Clock, Video Player, Search, Contacts, Gallery, Download, Camera, Music, Explorer, etc.
Language	Support multi-language
Input method	Standard Android keyboard with optional third-party input method
System Management	Original ecological Android system, open root permissions, and can customize product development
	Real-time remote monitoring, system crash self-recovery, unattended 7 * 24 hours
	Support U-disk upgrade
	Support boot animation definition
	Support server / stand-alone mode switching
	Support Wi-Fi hotspot
System watchdog	Support software watchdog

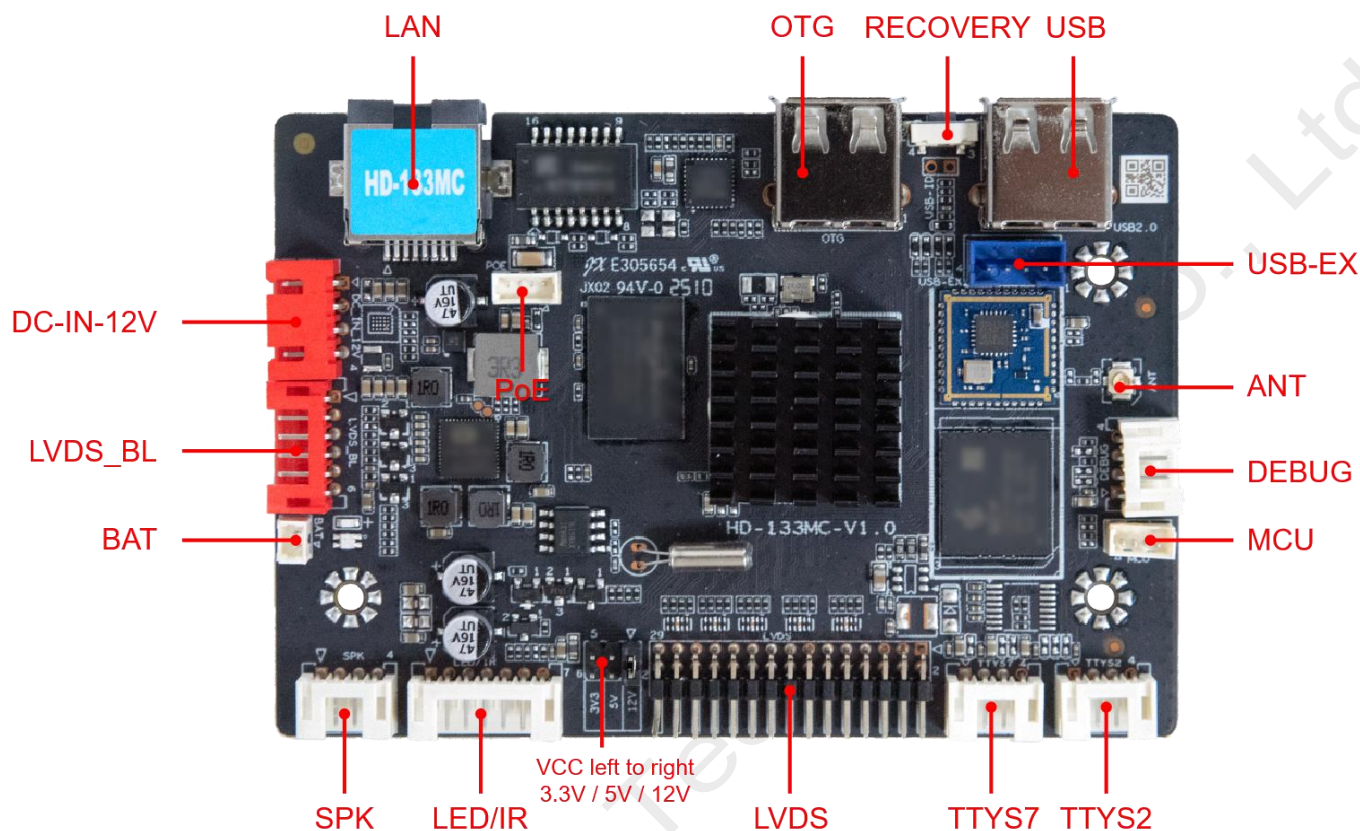
II. Dimension Diagram

Bare board size specification

Unit: millimeter (mm); screw hole specification: $\phi 3.5\text{mm} \times 4$; PCB thickness: $1.6\text{mm} \pm 10\%$



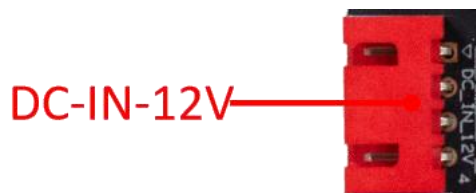
III. Product Diagram



IV. Interface Parameter Description

1. PWR/DC (Power input) Interface and Definition (6pin*2.54mm)

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



No.	Definition	Attribute	Description
4	12V	Input	12V Input

3	12V	Input	12V Input
2	GND	Ground wire	Ground wire
1	GND	Ground wire	Ground wire

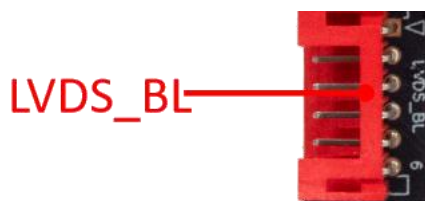
2. IR-LED (Remote control) Interface and Definition (7pin*2.0mm)



LED/IR

No.	Definition	Attribute	Description
1	RED	Output	Red indicator lamp
2	3V3	Power	3V3 Output
3	GRN	Output	Green indicator lamp
4	IO	Output	Remote control signal output
5	IR	Input	Remote control signal input
6	GND	Ground wire	Ground wire
7	3V3	Power	3V3 Output

3. LVDS BL (LVDS backlight) Interface and Definition (6pin*2.0mm)



LVDS_BL

No.	Definition	Attribute	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	12V Output
6	12V	Power	12V Output

4. LVDS Interface and Definition (2*15pin*2.0mm)



LVDS

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

In order to avoid burning the motherboards and screens, please pay attention to the following matters:

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 a 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 pin 1.

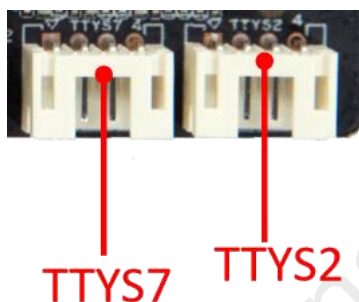
No.	Definition	Attribute	Description
1	VCC	Power	3.3V/5V/12V optional output
2	VCC		
3	VCC		
4	GND	GND	GND
5	GND	GND	GND

6	GND	GND	GND
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	RX02+	Output	Odd 2+
13	GND	GND	GND
14	GND	GND	GND
15	RXOC-	Output	Odd Clock-
16	RXOC+	Output	Odd Clock+
17	RX03-	Output	Odd 3-
18	RX03+	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	GND	GND
26	GND	GND	GND
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.

5. UART Interface and Definition (4pin*2.0mm)



The motherboard leads to one set of common UART serial ports, which can support common UART serial devices on the market. The level of the serial port is from 0V to 3.3V. If the level of the docked serial port is higher than 3.3V, there should be an isolation circuit or a level conversion circuit, otherwise it will burn out the main control and the device.

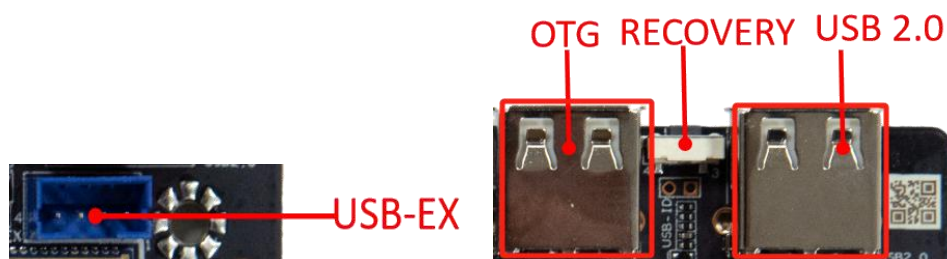
Matters need attention:

1. Whether the TTL serial port voltage matches. Cannot directly connect to RS232, RS485 devices.
2. Whether the TX and RX connections are correct.

No.	Definition	Attribute	Description
1	3V3	Power	3V3 Output
2	TX	Output	TX
3	RX	Input	RX
4	GND	Ground wire	Ground wire

TTY52, TTY57 can be adjusted by hardware RS232

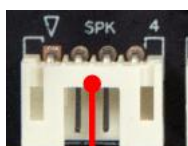
6. USB Interface and Definition



The motherboard has 2 USB 2.0 standard interfaces and 1 4pin*2.0mm USB 2.0 interface.

No.	Definition	Attribute	Description
1	5V	Power	5V Output
2	DM	Input/ Output	DM
3	DP	Input/output	DP
4	GND	Ground wire	Ground wire

7. SPK (Audio) Interface and Definition (4pin*2.0mm)



SPK

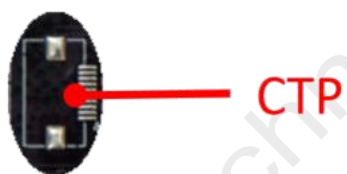
No.	Definition	Attribute	Description
1	OUTP-R	Output	Left channel +
2	OUTN-R	Output	Left channel -
3	OUTN-L	Output	Right channel -
4	OUTP-L	Output	Right channel +

8. MCU Interface and Definition (4pin*1.25mm)



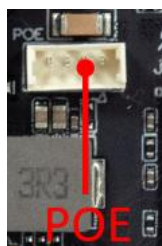
NO.	Definition	Attributes	Description
1	3V3	power supply	3.3V output
2	DIO	Output	TX
3	CLK	Input	RX
4	GND	Ground wire	Ground wire

9. CTP Interface and Definition (10pin*0.5mm)



No.	Definition	Attributes	Description
1	GND	Ground wire	Ground wire
2	GND	Ground wire	Ground wire
3	VCC	Power supply	3.3V output
4	TP-SDA	Input / Output	I2C data
5	TP-SCK	Input / Output	I2C clock
6	GND	Ground wire	Ground wire
7	TP-INT	Input / Output	disruptions
8	TP-RST	Input / Output	Reset
9	GND	Ground wire	Ground wire
10	GND	Ground wire	Ground wire

10. POE Interface and Definition (4pin*1.25mm)



NO.	Definition	Attributes	Description
1	V1	CT1	Transformer Center 1
2	V2	CT2	Transformer Center 2
3	B1	CT3	Transformer Center 3
4	B2	CT4	Transformer Center 4

11. DEBUG Interface and Definition (standby) (4pin*2.0mm)



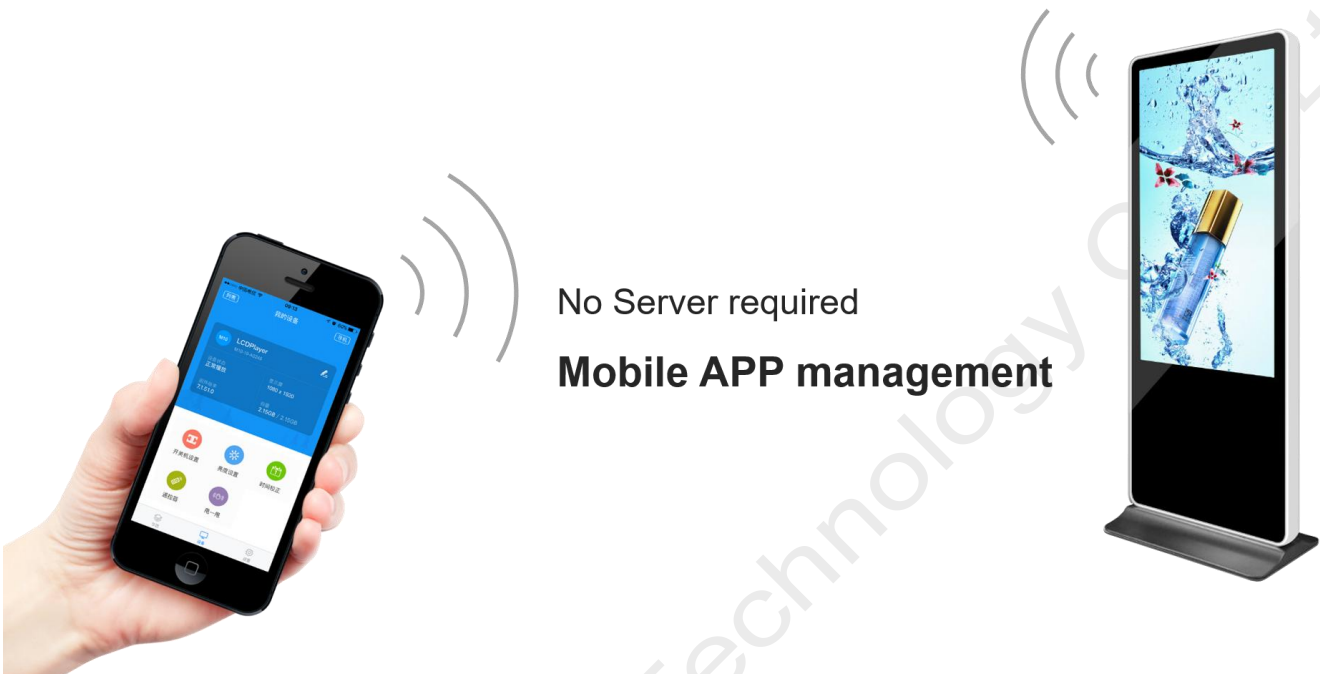
No.	Definition	Attribute	Description
1	3V3	Power	3.3V Output
2	TX	Output	TX
3	RX	Input	RX
4	GND	Ground wire	Ground wire

12. Other Interfaces

Ethernet interface	RJ45 interface	Support 10/100Mbps wired network
--------------------	----------------	----------------------------------

Chapter III Communication Methods

I . Wi-Fi Update Program

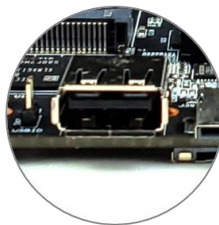


II . U-disk Update Program



U-disk update programs

Support Interstitial & memory expansion

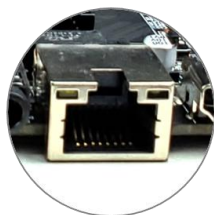


III. TF card Update Program

LAN or Internet

Network cable connection

LAN & Internet integrated management



IV. Internet Update

Internet remote management

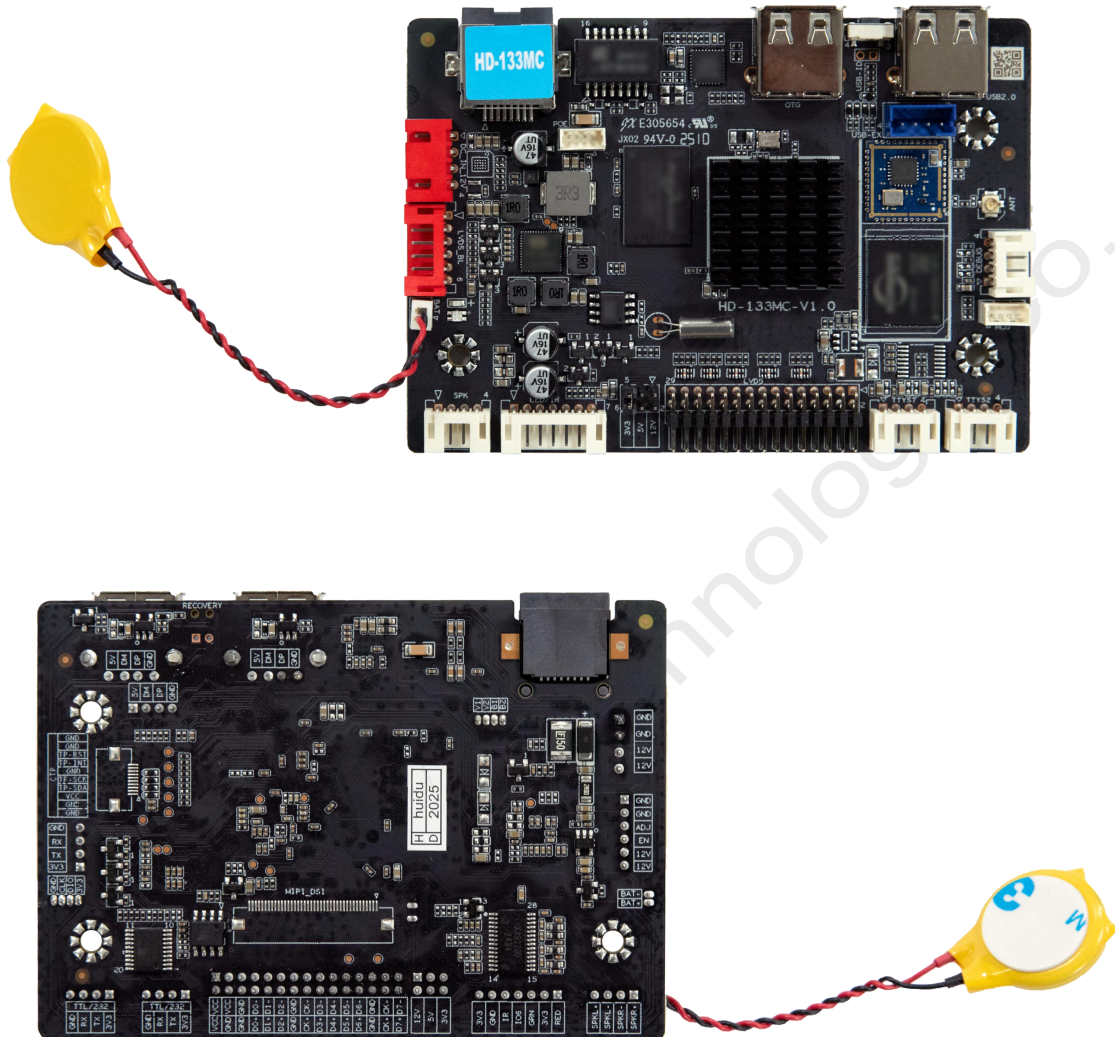
Anytime & anywhere operation available



LAN/Wi-Fi



Chapter IV Appendix: Product Appearance



Note:

1. Paste the corresponding model label on the sales product. Some difference between the product picture in the specification and the actual product, not a fake or inferior product. If you have any questions, please contact HUIDU Technology for confirmation.
2. **Do not operate with power on, Do not hot swap.**