

PRODUCT SPECIFICATION

LCD Android Controller
HD-133M

Update History

Version	Release time	Description
V1.3	Jun. 12, 2025	Add CTP and MiPi_SDI interface description
V1.2	Dec. 31, 2024	Dimensions update.
V1.1	Aug. 30, 2023	First official release.

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Chapter I Product Description

I. Overview

HD-133M 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 own 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, Power amplifier, TF expansion card, USB expansion port, IR remote control function, LVDS, Backlight control, microphone and other functions.
- High scalability. 5*USB (3 *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, Android10.0
GPU	PowerVR GE8300
RAM/ Storage	1GB+32GB, 2GB+32GB
Network	RJ45 100M; Ethernet; 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, 2 *Expansion USB
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℃

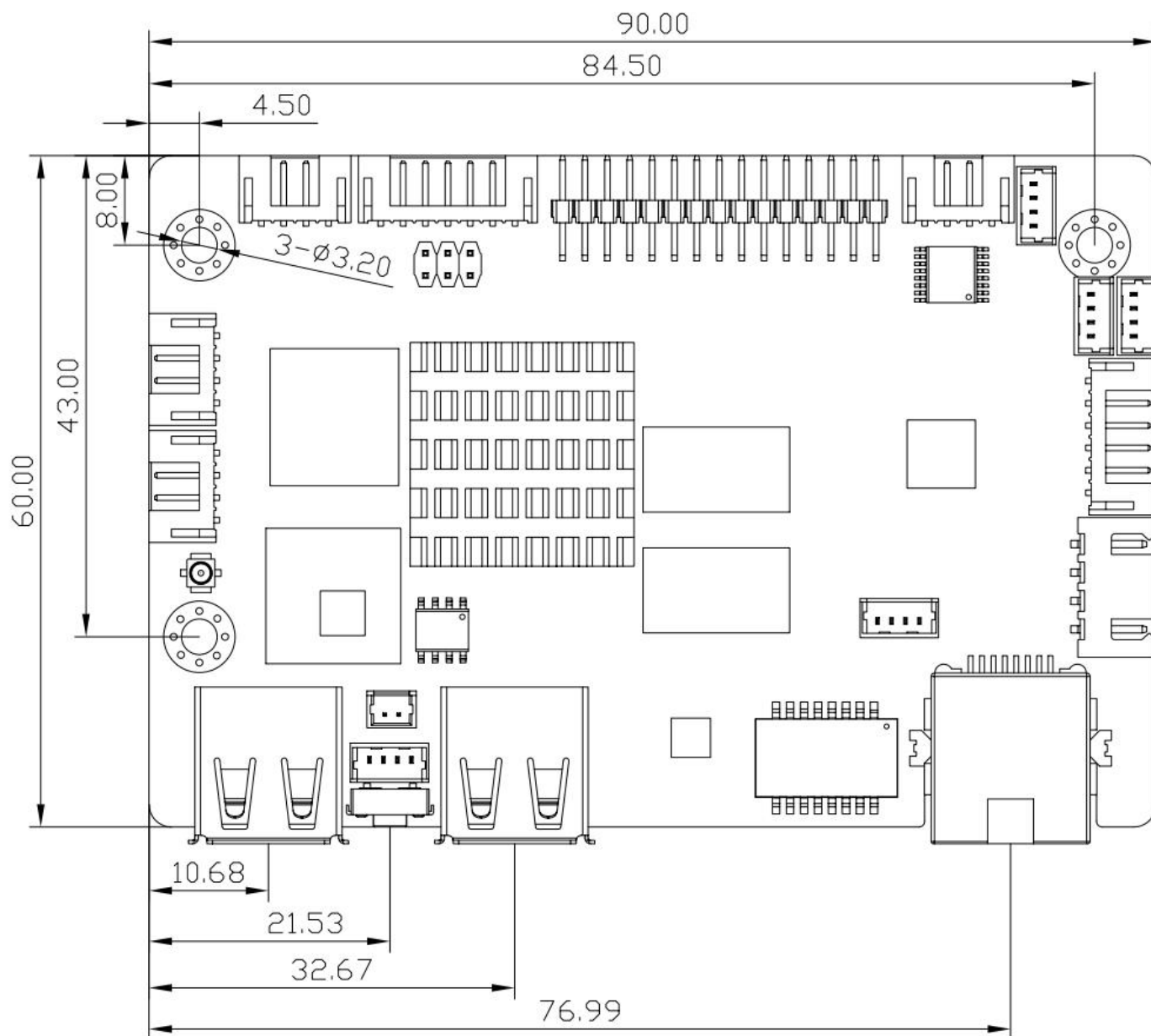
2. Software Parameters

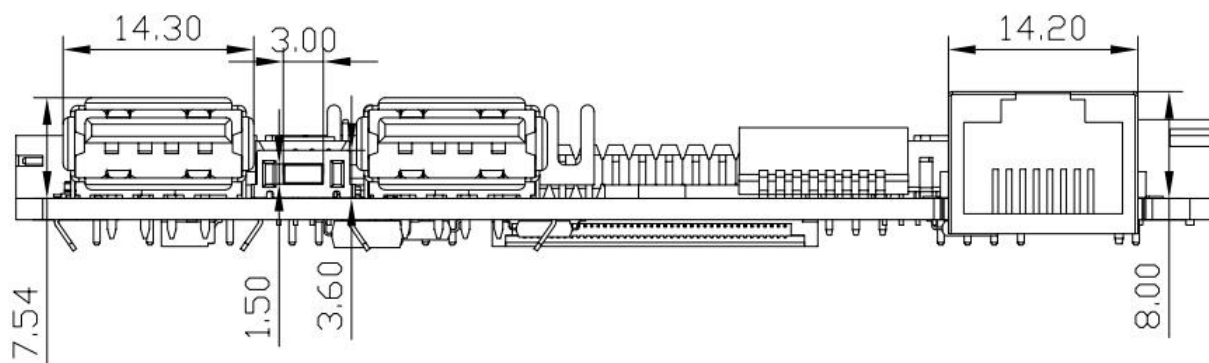
Software Specifications	
Operation system	Android 10.0
Audio	MP3,WMA,WAV, APE, FLAC, AAC, OGG,M4A,3GPP and other formats
Video	Support AVI, rm, rmvb, MKV,WMV,MOV,MP4,DAT,PMP,MPEG,MPG, FLV,ASF ,TS, TP,3GP,MPG and other formats
Image	Support JPG、 BMP、 PNG and various images formats
System default application 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 OTA remote upgrade; support U disk upgrade
	Support boot animation definition
	Support server / stand-alone mode switching
System watchdog	Support Wi-Fi hotspot
	Support software watchdog

II. Dimension Diagram

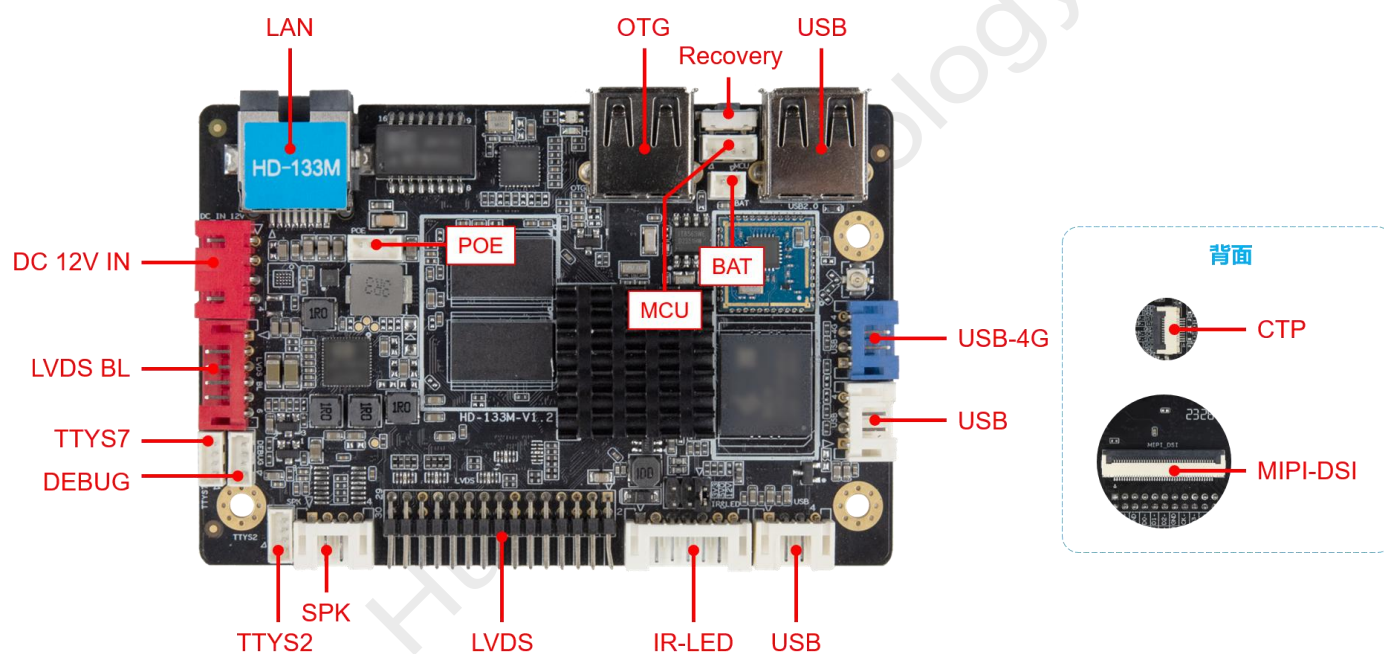
Bare board size specification

Unit: millimeter (mm); screw hole specification: $\phi 3.2\text{mm} \times 4$; PCB thickness: $1.6\text{mm} \pm 10\%$





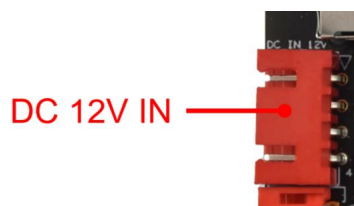
III. Product Diagram



IV. Interface Parameter Description

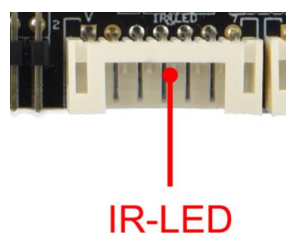
1. PWR/DC (Power input) Interface and Definition (4pin*2.54mm)

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	GND	GND
1	GND	GND	GND

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



No.	Definition	Attribute	Description
1	RED	Output	Red indicator lamp
2	5V	Power	5V Output
3	GRN	Output	Green indicator lamp
4	IO	Output	Remote control signal Output

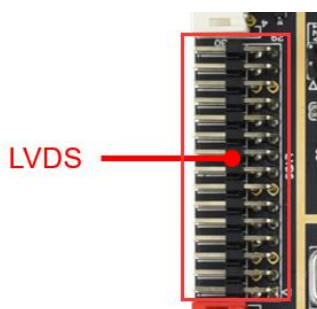
5	IR	Input	Remote control signal input
6	GND	GND	GND
7	5V	Power	3V3 Output

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



No.	Definition	Attribute	Description
1	GND	GND	GND
2	GND	GND	GND
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)



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. MiPi_DSI Interface and Definition



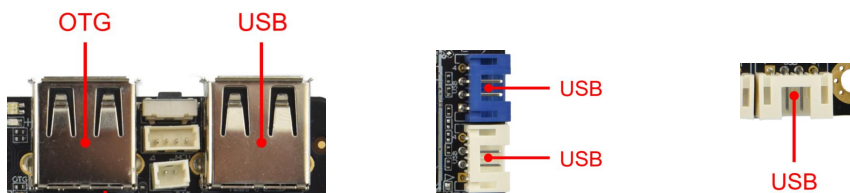
MIPI-DSI

No.	Definition	Attributes	Describe
1	LED+	Output	LED+
2	LED+	Output	LED+
3	NC	Null	NC
4	NC	Null	NC
5	NC	Null	NC
6	NC	Null	NC

7	NC	Null	NC
8	NC	Null	NC
9	LED-	Output	LED-
10	LED-	Output	LED-
11	GND	Ground wire	Ground wire
12	NC	Null	NC
13	NC	Null	NC
14	NC	Null	NC
15	NC	Null	NC
16	GND	Ground wire	Ground wire
17	NC	Null	NC
18	NC	Null	NC
19	GND	Ground wire	Ground wire
20	RXE3+	Output	MIPI 3+ Signal
21	RXE3-	Output	MIPI 3- Signal
22	GND	Ground wire	Ground wire
23	RXE2+	Output	MIPI 2+ Signal
24	RXE2-	Output	MIPI 2- Signal
25	GND	Ground wire	Ground wire
26	RXECLK+	Output	MIPI CLK + Signal
27	RXECLK-	Output	MIPI CLK - Signal
28	GND	Ground wire	Ground wire
29	RXE1+	Output	MIPI 1 + Signal

30	RXE1-	Output	MIPI 1 - Signal
31	GND	Ground wire	Ground wire
32	RXE0+	Output	MIPI 0 + Signal
33	RXE0-	Output	MIPI 0 - Signal
34	GND	Ground wire	Ground wire
35	NC	Null	NC
36	RST	Output	Reset
37	GND	Ground wire	Ground wire
38	VCC	Output	Power supply
39	VCC	Output	Power supply
40	NC	Null	NC

6. USB Interface and Definition



The motherboard has 2 USB standard interfaces and 3 USB pin

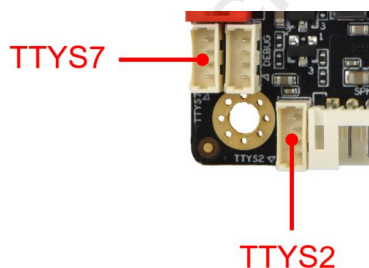
No.	Definition	Attribute	Description
1	5V	Power	5V Output
2	DM	Input/ Output	DM
3	DP	Input/output	DP
4	GND	GND	GND

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



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

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



The motherboard leads to one set of common UART serial ports, which can support common UART serial devices on the market.

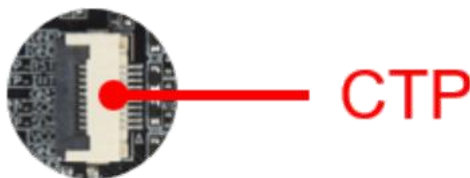
Matters need attention:

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	5V	Power	5V Output
2	TX	Output	TX
3	RX	Input	RX
4	GND	GND	GND

TTYS4 can be adjusted by hardware RS232; TTYX2 can be adjusted by hardware RS485

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



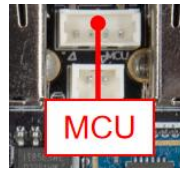
No.	Definition	Attribute	Description
1	GND	Ground wire	Ground wire
2	GND	Ground wire	Ground wire
3	VCC	Power Supply	3.3VOutput
4	TP-SDA	Input/Output	I2C data
5	TP-SCK	Input/Output	I2C clock
6	GND	Ground wire	Ground wire
7	TP-INT	Input/Output	Disruptions
8	TP-RST	Input/Output	Reset
9	GND	Ground wire	Ground 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. MCU Interface and Definition (4pin*1.25mm)



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

12. DEBUG Interface and Definition



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

Chapter III Communication Methods

I . Wi-Fi Update Program

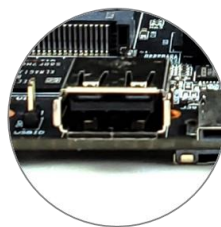


II. U-disk Update Program



U-disk update programs

Support Interstitial & memory expansion

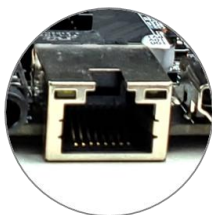


III. TF card Update Program

LAN or Internet

Network cable connection

LAN & Internet integrated management



IV. Internet Update

Internet remote management

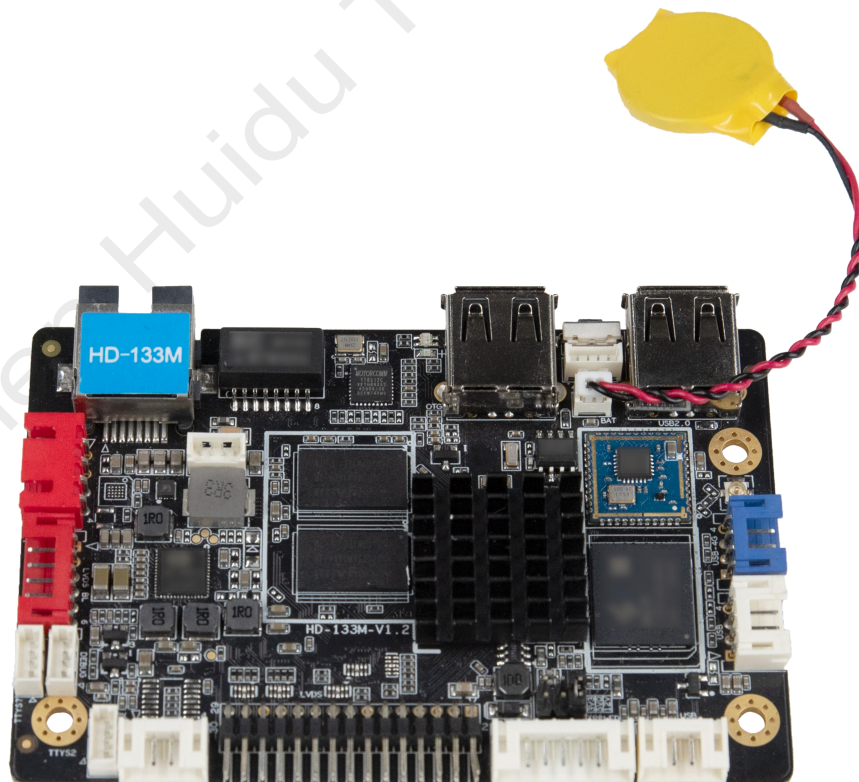
Anytime & anywhere operation available

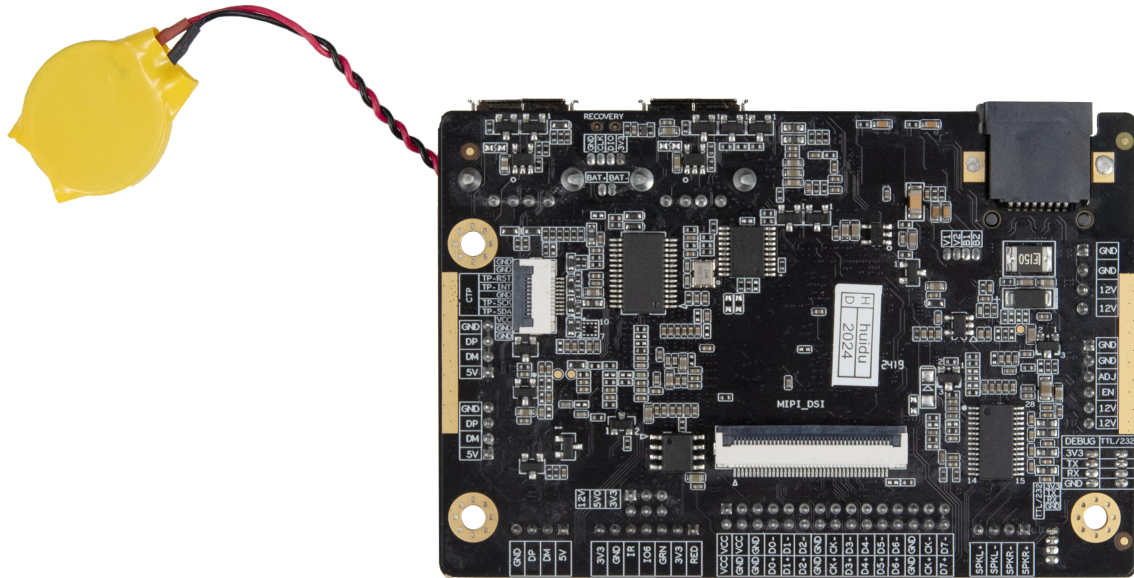


LAN/Wi-Fi



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.**