



PRODUCT SPECIFICATION

LCD Android Controller

HD-133M

Version: V1.0

Update History

| Version | Release time | Description |
|---------|--------------|-------------------------|
| V1.1 | 2023.8.30 | First official release. |

Content

| | |
|--|----|
| 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 | 8 |
| 2. IR-LED (Remote control) Interface and Definition..... | 9 |
| 3. LVDS BL (LVDS backlight) Interface and Definition | 9 |
| 4. LVDS Interface and Definition..... | 10 |
| 5. MiPi_DSI Interface and Definition | 12 |
| 6. USB Interface and Definition..... | 14 |
| 7. SPK (Audio) Interface and Definition | 14 |
| 8. UART Interface and Definition | 15 |
| 9. DEBUG Interface and Definition | 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-133M is an A133 quad-core chip solution, main frequency up to 1.6GHz, 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 |
| Memory | 1GB(optional 2GB) |
| Built-in ROM | eMMC Default 16GB(optional 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 (8 ohms, 5 watts 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 | 1*power status LED(green),1*system LED(green blinking in default) |
| Button | 1*upgrade key |
| Serial port | 2 *UART(support optional RS232), 1 *DEBUG |
| Power Adapter | Input:AC100-240V.50-60HZ , Output: DC12V 1.5A (Requires surge voltage less than 18V and ripple voltage less than 100mV) |
| Storage Humid | 10% ~ 90% RH |
| Storage Temp | -40℃~70℃ |
| Work Temp | -20℃~70℃ |

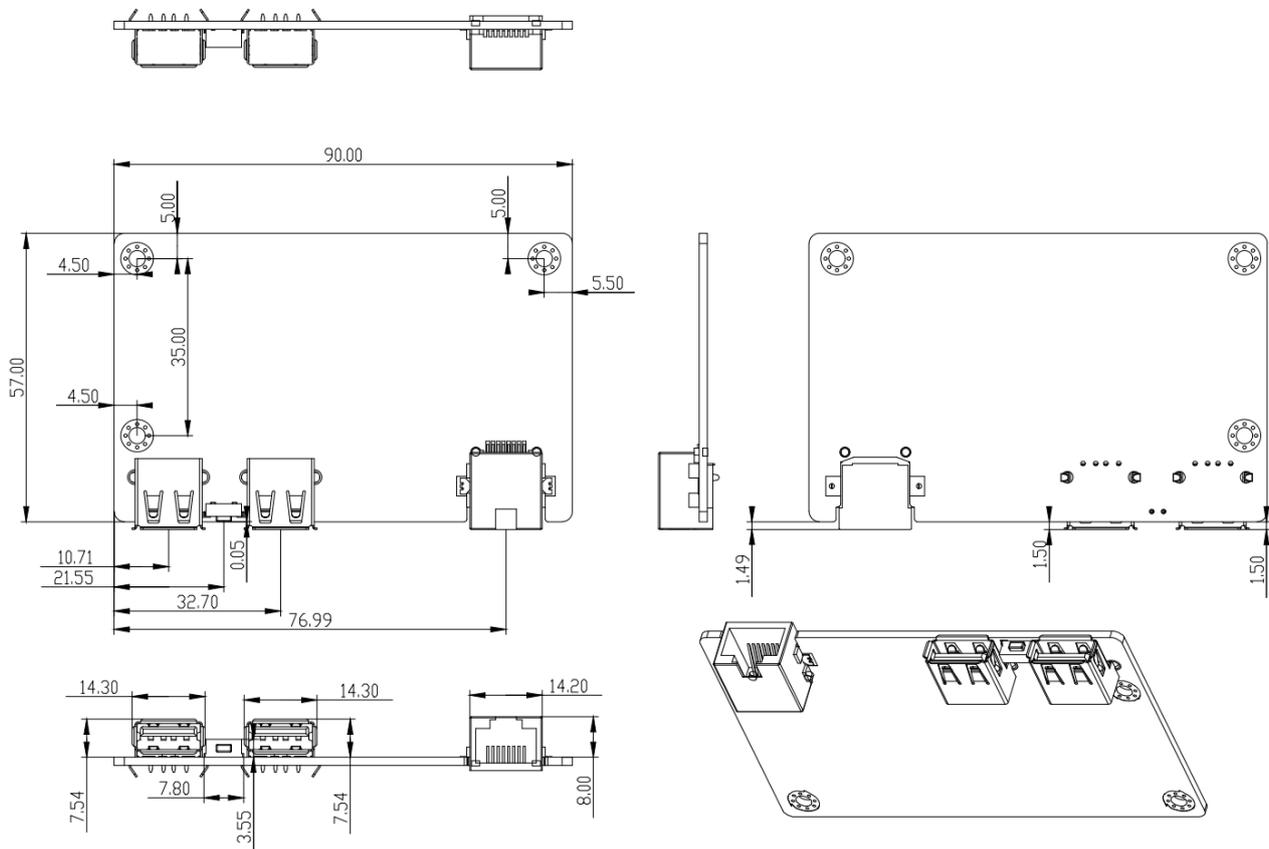
2. Software Parameters

| 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 |
| | Support Wi-Fi hotspot |
| System watchdog | Support software watchdog |

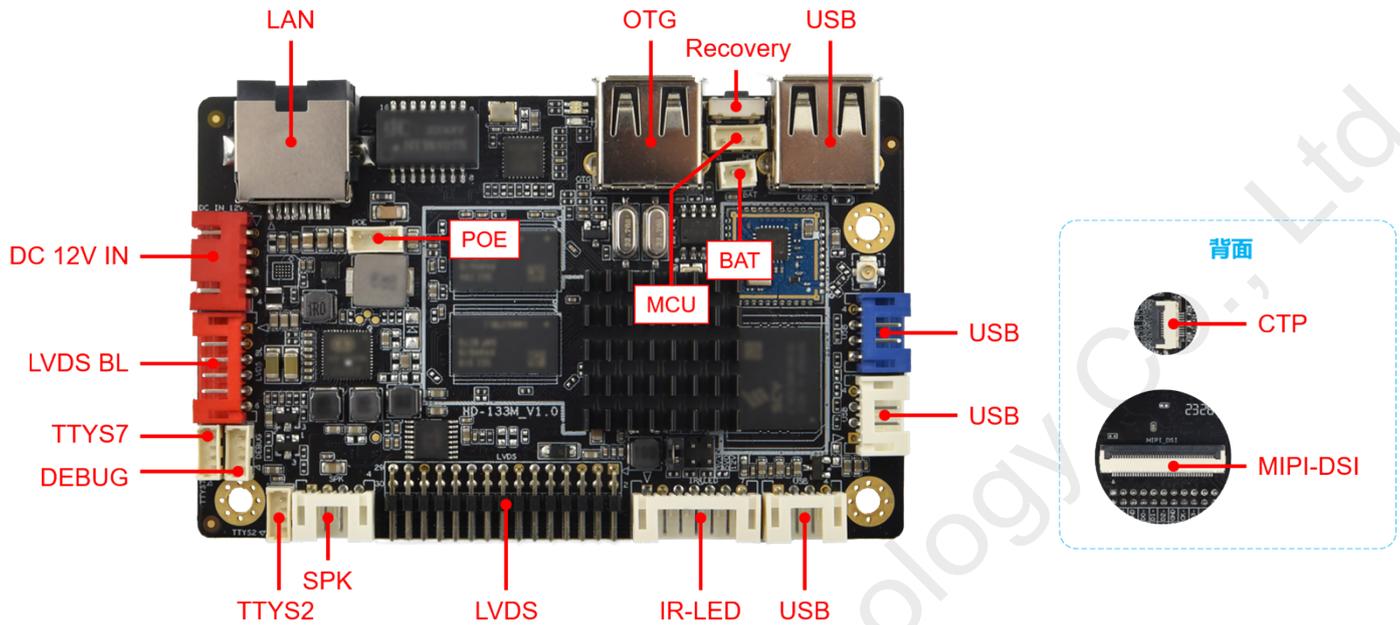
II. Dimension Diagram

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

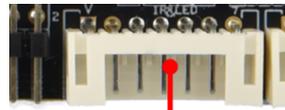
It adopts 12V DC power supply and only allows the motherboard subsystem to be powered from the DC socket and power socket.



| 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



IR-LED

| 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

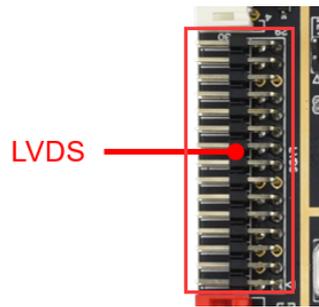


LVDS BL

| 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



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 | RXO1- | Output | Odd 1- |
| 10 | RXO1+ | Output | Odd 1+ |
| 11 | RXO2- | Output | Odd 2- |
| 12 | RXO2+ | Output | Odd 2+ |
| 13 | GND | GND | GND |
| 14 | GND | GND | GND |
| 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 | 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.

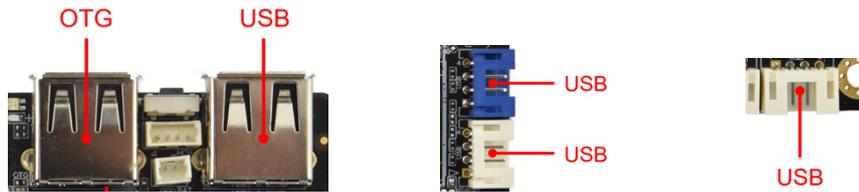
5. MiPi_DSI Interface and Definition



| No. | Definition | Attributes | Describe |
|-----|------------|-------------|-------------------|
| 1 | NC | Null | NC |
| 2 | VCC | Output | Power supply |
| 3 | VCC | Output | Power supply |
| 4 | GND | Ground wire | Ground wire |
| 5 | RST | Output | Reset |
| 6 | NC | Null | NC |
| 7 | GND | Ground wire | Ground wire |
| 8 | RXE0- | Output | MIPI 0- Signal |
| 9 | RXE0+ | Output | MIPI 0+ Signal |
| 10 | GND | Ground wire | Ground wire |
| 11 | RXE1- | Output | MIPI 1- Signal |
| 12 | RXE1+ | Output | MIPI 1+ Signal |
| 13 | GND | Ground wire | Ground wire |
| 14 | RXECLK- | Output | MIPI CLK- Signal |
| 15 | RXECLK+ | Output | MIPI CLK + Signal |
| 16 | GND | Ground wire | Ground wire |
| 17 | RXE2- | Output | MIPI 2- Signal |

| | | | |
|----|-------|-------------|----------------|
| 18 | RXE2+ | Output | MIPI 2+ Signal |
| 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 | NC | Null | NC |
| 24 | NC | Null | NC |
| 25 | GND | Ground wire | Ground wire |
| 26 | NC | Null | NC |
| 27 | NC | Null | NC |
| 28 | NC | Null | NC |
| 29 | NC | Null | NC |
| 30 | GND | Ground wire | Ground wire |
| 31 | LED- | Output | LED- |
| 32 | LED- | Output | LED- |
| 33 | NC | Null | NC |
| 34 | NC | Null | NC |
| 35 | NC | Null | NC |
| 36 | NC | Null | NC |
| 37 | NC | Null | NC |
| 38 | NC | Null | NC |
| 39 | LED+ | Output | LED+ |
| 40 | LED+ | Output | LED+ |

6. USB Interface and Definition



The motherboard has 2 USB standard interfaces and 3 USB pin

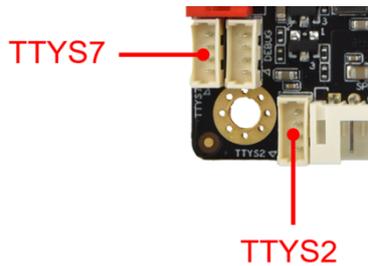
| No. | Definition | Attribute | Description |
|-----|------------|---------------|-------------|
| 1 | 5V | Power | 5V Output |
| 2 | DM | Input/ Output | DM |
| 3 | DP | Input/output | DP |
| 4 | GND | GND | GND |

7. SPK (Audio) Interface and Definition



| 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



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 MAX232, 485 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

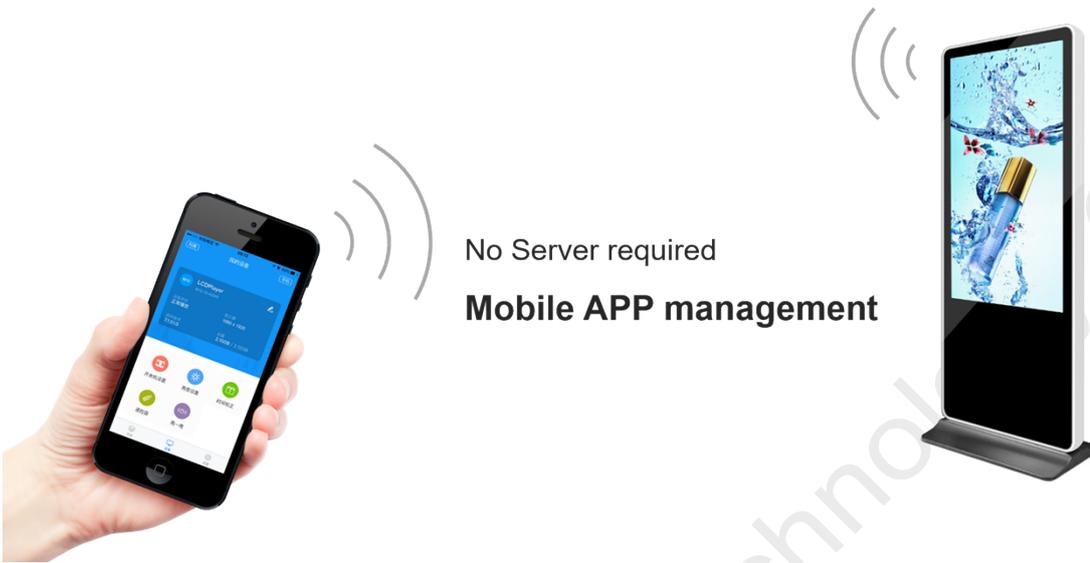
9. DEBUG Interface and Definition



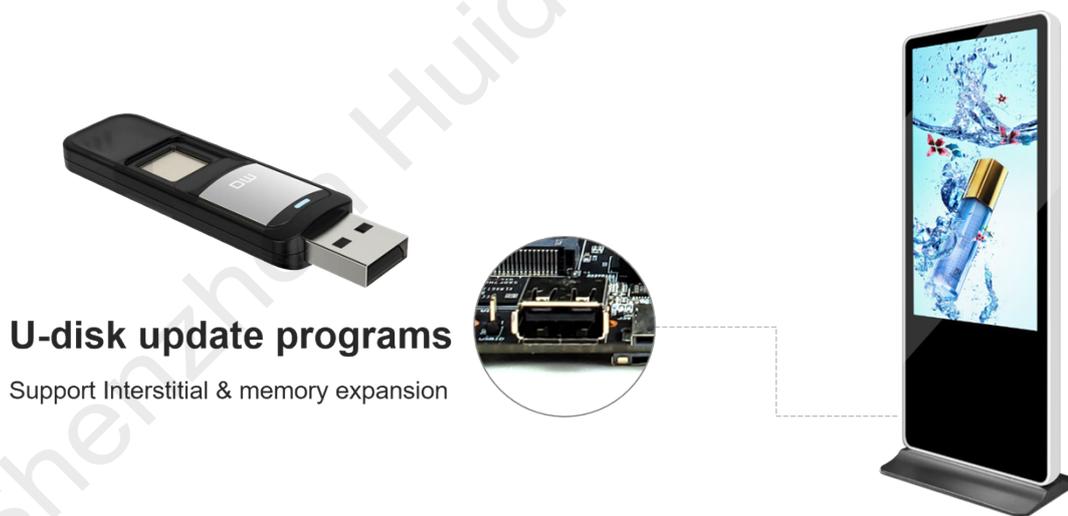
| No. | Definition | Attribute | Description |
|-----|------------|-----------|-------------|
| 1 | 3V3 | Power | 3.3V Output |
| 2 | TX | Output | TX |
| 3 | RX | Input | RX |
| 4 | GND | GND | GND |

Chapter III Communication Methods

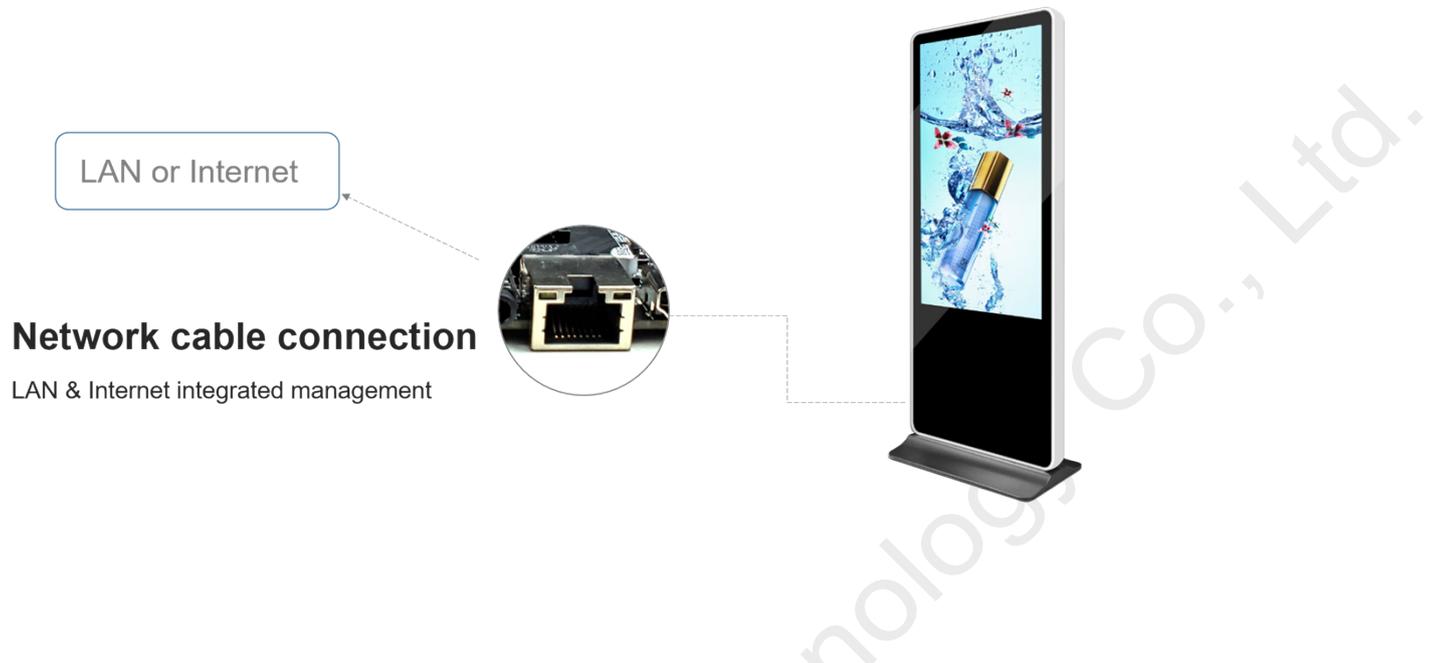
I . Wi-Fi Update Program



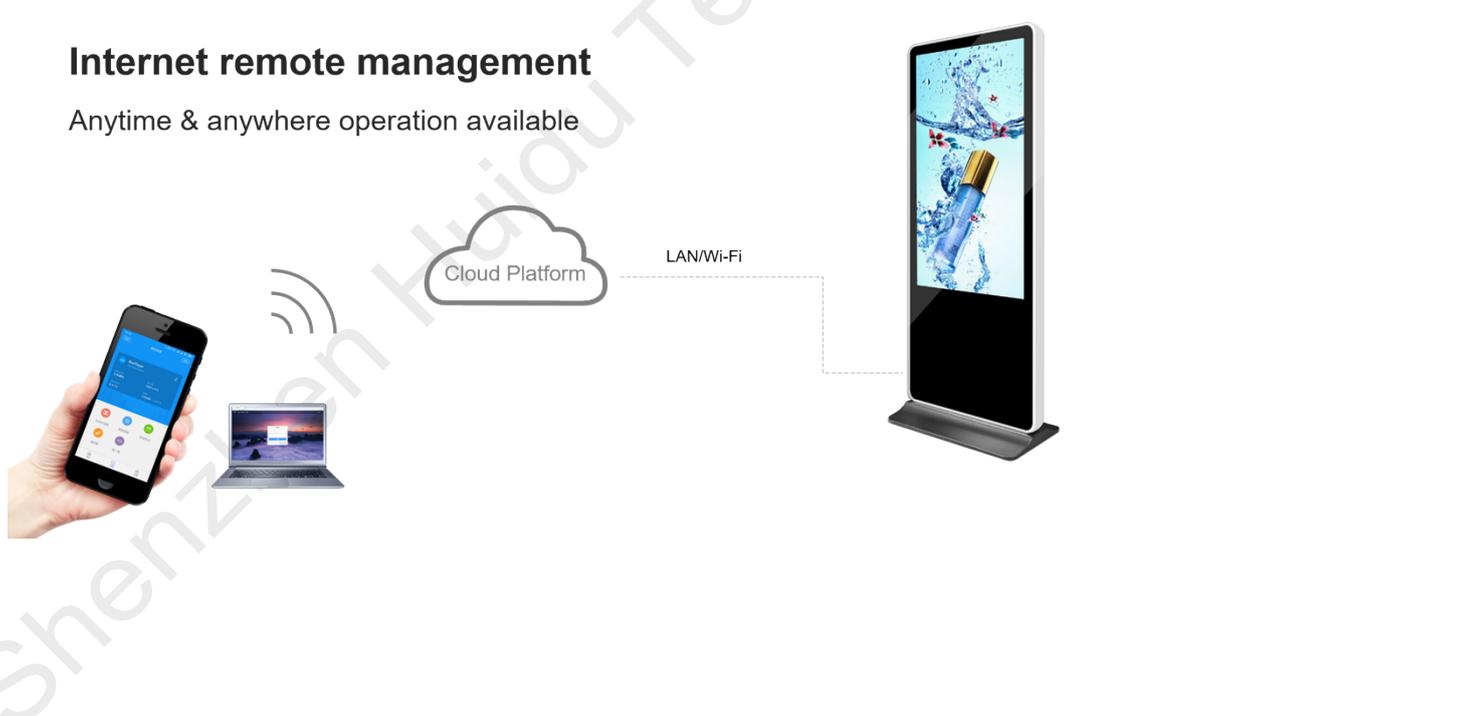
II. U-disk Update Program



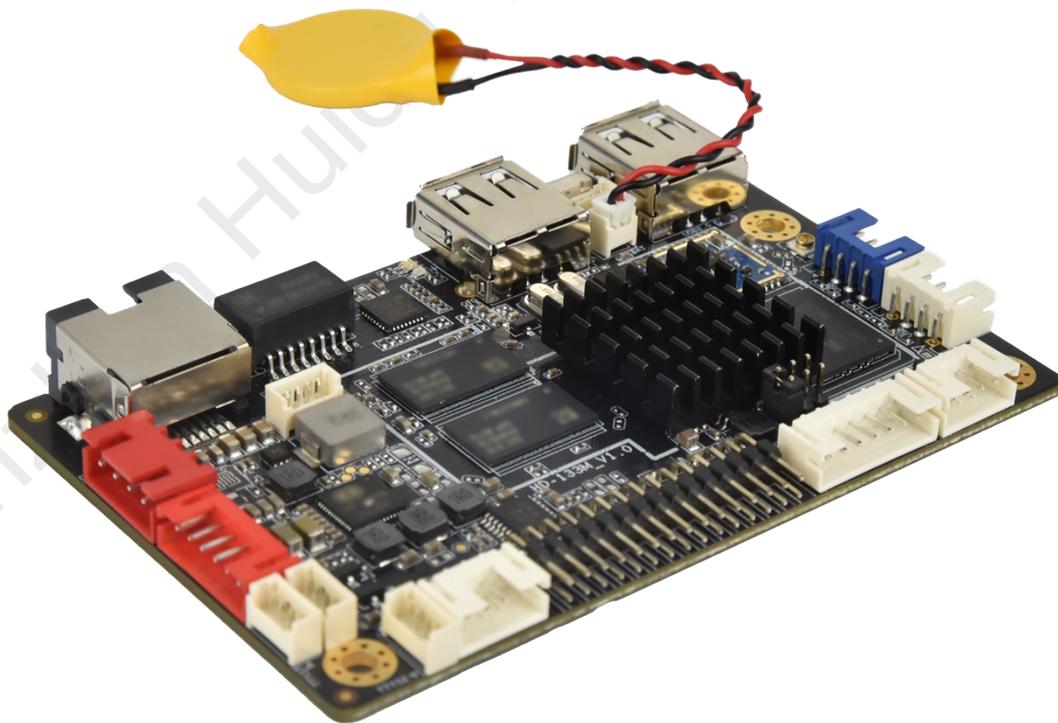
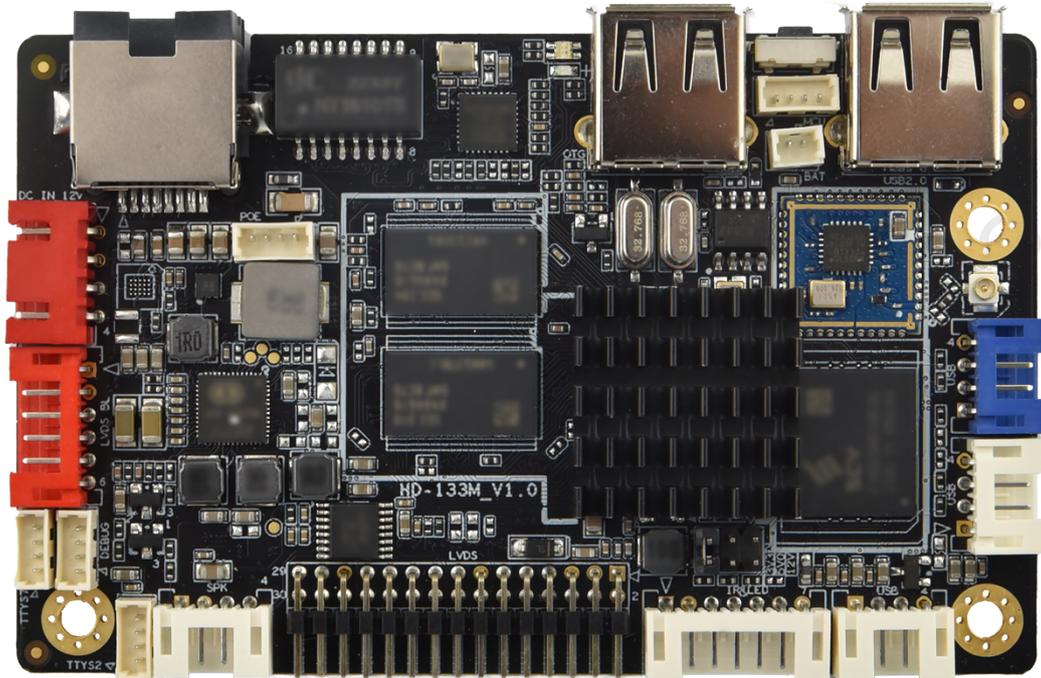
III. TF card Update Program

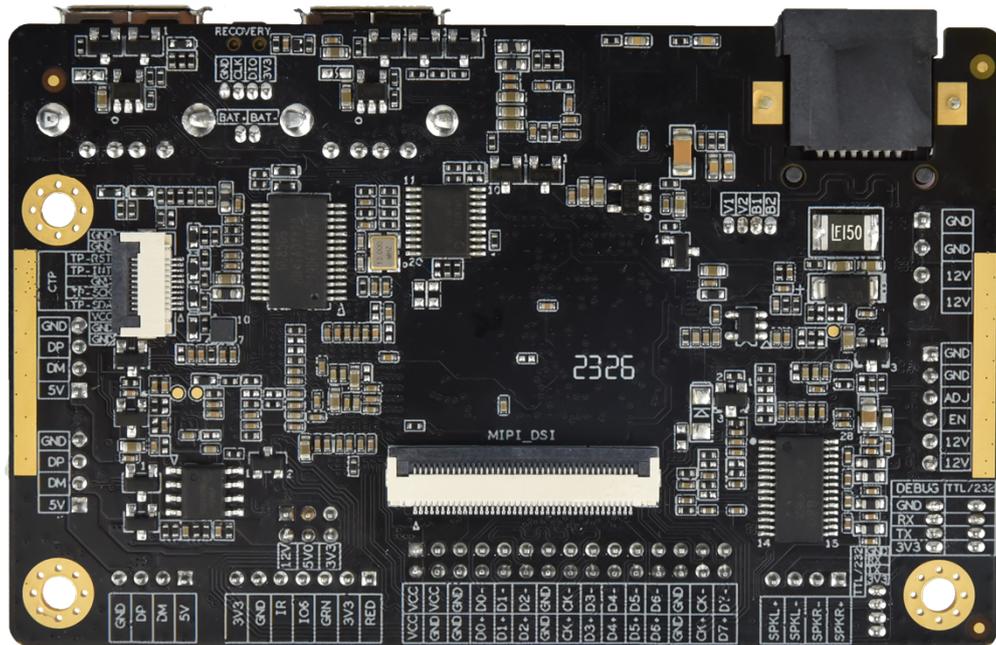


IV. Internet Update



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.**