

PRODUCT SPECIFICATION

LCD Android Controller

HD-133TE

Update History

Version	Release time	Description
V1.2	Jul. 28, 2026	Update eDP interface pinout
V1.1	July 16, 2025	Change the MCU interface to the IR interface
V1.0	Jun. 3,2023	First official release.

Content

Chapter I Product Description	5
I. Overview	5
II. Features	5
Chapter II Product Specifications	7
I. Basic Parameters	7
1. Hardware Parameters	7
2. Software Parameters	9
II. Dimension Diagram	10
III. Product Diagram	11
IV. Interface Parameter Description	11
1. Power Interface and Definition (DC*1.65mm)	11
2. MIC (microphone) Interface and Definition (2pin*2.0mm)	12
3. LVDS BL (LVDS backlight) Interface and Definition (6pin*2.0mm Red)	12
4. LVDS Interface and Definition (Double row of pins, 2*15pin*2.0mm)	13
5. eDP Interface and Definition (30pin*0.5mm)	15
6. MIPI_DSI Interface and Definition (40pin*0.5mm)	17
7. USB Extension Interface and Definition (4pin*2.0mm)	20
8. USB extension Interface and Definition (Double rows of pins, 2*6pin*2.0mm)	20
9. CTP Interface and Definition (10pin*0.5mm)	21
10. URAT *2 Interface and Definition (4pin*1.25mm)	22
11. KEY Interface and Definition (3pin*1.25mm)	23

12. SPK (power amplifier) Interface and Definition (4pin*2.0mm)	23
13. GPIO (extended) Interface and Definition (4pin*1.25mm)	24
14. DEBUG Interface and Definition (4pin*1.25mm)	25
15. IR Interface and Definition (4pin*1.25mm)	25
16. Sensor Interfaces and Definitions (3pin*1.25mm)	26
Chapter III Communication Methods	27
I. Wi-Fi Update Program	27
II. U-disk Update Program	27
III. Ethernet Cable to Update (Optional)	28
IV. Internet Update	28
Chapter IV Appendix: Product Appearance	29

Chapter I Product Description

I. Overview

HD-133TE adopts Allwinner A133 integrated quad-core Arm® Cortex®-A53 CPU, Imagination PowerVR GE8300 GPU, the highest main frequency up to 1.6GHz, equipped with Android 10.0 system. It has very strong video processing capabilities and is compatible with most video formats and decoding ability.

It supports infrared remote control, Wi-Fi, external RJ45 and other rich interfaces, and is widely used in intelligent control fields such as advertising machines, interactive all-in-one machines, security, medical care, transportation, finance, and industrial control.

Due to the characteristics of its hardware platform and Android intelligence, it can be used on the main board of the smart terminal when human-computer interaction and network device interaction are required, and it can be your best choice.

II. Features

- Minimalist design, common interface reserved, extreme size, can be used in ultra-thin application scenarios;
- High stability. A133 Android all-in-one board, adding its own unique technology to hardware and software to ensure product stability, can make the final product reach 7*24 hours unattended.
- High integration. The 133T Android all-in-one board integrates functions such as Wi-Fi, power amplifier, TF expansion card, USB expansion port, Ethernet expansion port, IR remote control function, MiPi, LVDS,

backlight control, microphone, etc., which greatly simplifies the design of the whole machine.

- High scalability. 4 USB (1 pin, 1 standard, 1 internal USB port, 1 Mini USB port), 2 serial ports (2 UART optional RS232, RS485), 1 DEBUG, 1 MCU programming port, three IO expansion ports can expand more Peripherals.
- High definition. Support LCD display with various LVDS / MIPI / EDP interfaces, and support cropping screens of various sizes and resolutions.
- 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, and multi-point optical touch.

Chapter II Product Specifications

I. Basic Parameters

1. Hardware Parameters

Hardware Specifications	
CPU	A133, Quad-core, Frequency up to 1.6 GHz
GPU	GPU adopts Imagination PowerVR GE8300
RAM/ Storage	Standard 1GB+32GB, 2GB+32GB
Network	Support external RJ45 100M Ethernet, support Ethernet;(Optional) Support Wi-Fi, support Wi-Fi 802.11b/g/n protocol; USB 4G module can be plugged in.
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 Onboard backlight control supports 12V backlight power supply; 1*EDP interface (optional), the highest resolution support 1920*1200; 1*MIPI_DSI interface, the highest resolution support 1920*1200. Note: Hardware has eDP version and LVDS version. The eDP version only supports eDP display interface. The LVDS version supports switchable LVDS display interface and MIPI interface, configurable in system.
Audio	Support standard left and right channel line output; support 3.5mm audio

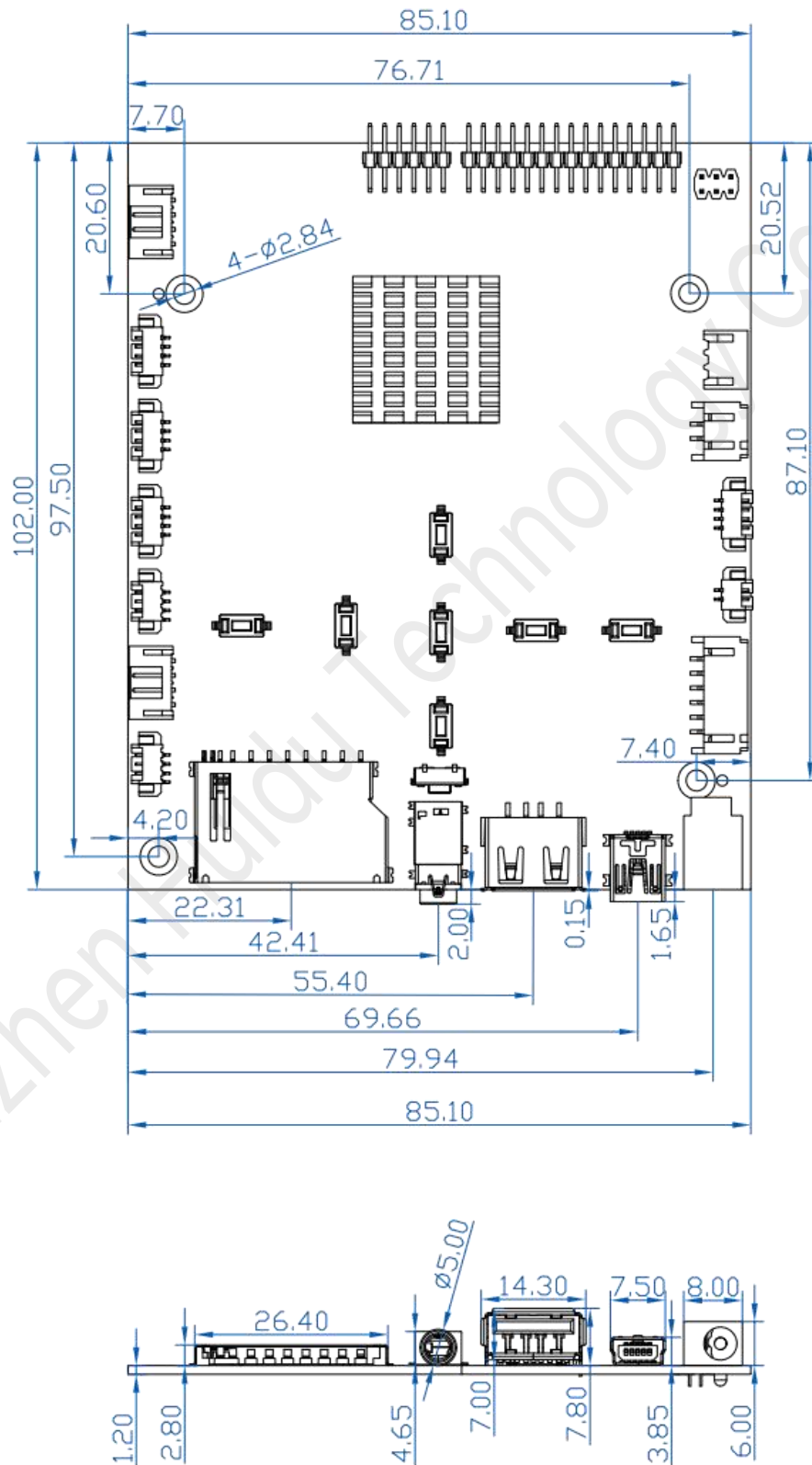
	output interface
Amplifier	2 output (8 ohms 5 watts dual audio amplifier output)
Microphone	Differential MIC input
Touch screen	Support USB multi-point infrared touch, multi-point capacitive touch, multi-point nano film touch, multi-point sound wave touch, multi-point optical touch and more.
RTC	Built-in real-time clock function
USB	1*USB-2.0 HOST, 1*Pin USB, 1*extended USB port, 1*Mini USB Port (OTG)
Infrared	Infrared receiving seat, support infrared remote control function
LED	1*power status LED (green), 1*system LED (green, flashing by default)
Button	1*upgrade key
Serial port	2-way UART, optional RS232, RS485, 1-way DEBUG
IO port	3-way IO input and output control, can be used for key scanning control
Storage Interface	Data storage, SD card supports up to 512G
Storage humidity	10% ~ 90%, no condensation
Storage temperature	-40°C~70°C
Operating temperature	-20°C~70°C
System watchdog	Hardware watchdog support

2. Software Parameters

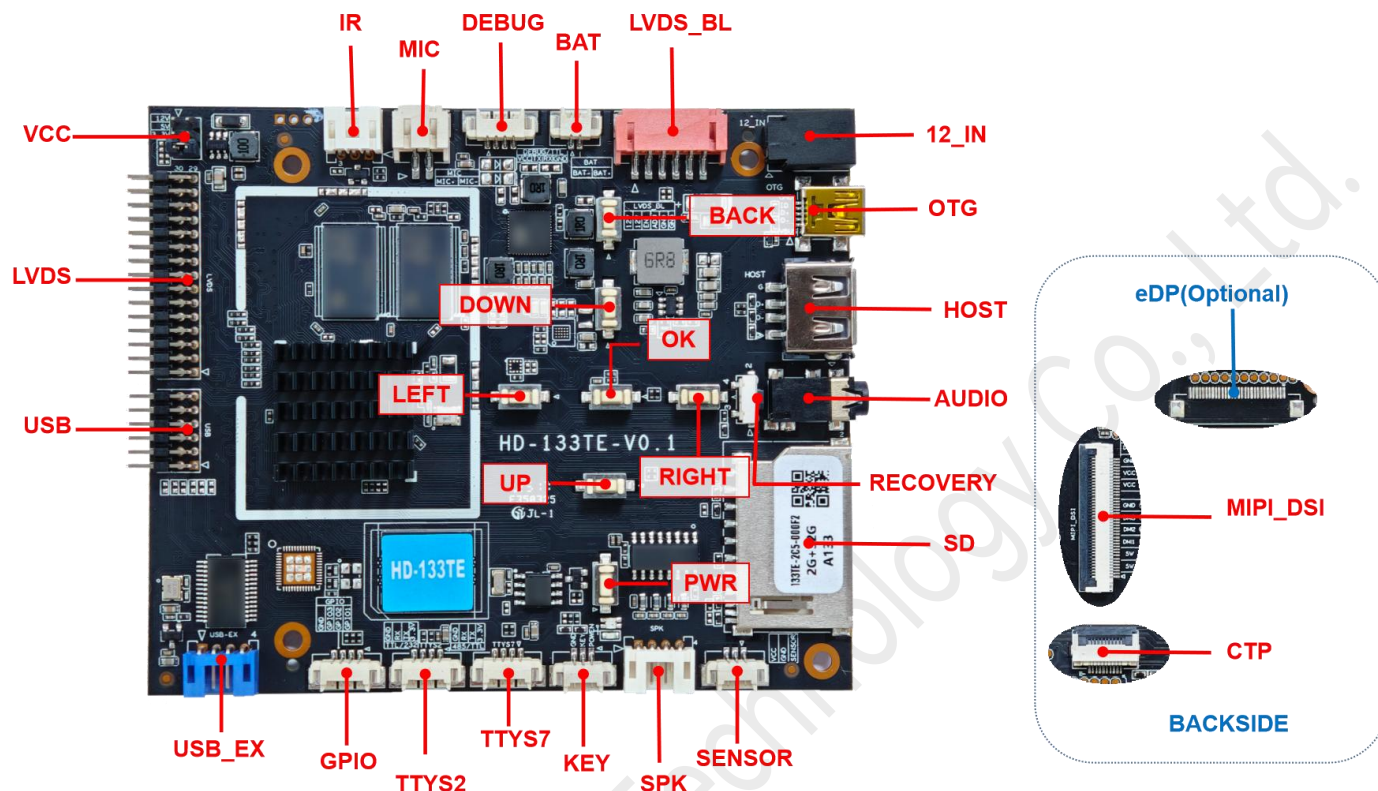
Software Specifications	
Operating system	Android 10.0
Audio	MP3,WAV, APE, FLAC, OGG,M4A,3GPP and other formats
Video	Support H.265, H.264, VP8, H.263 , MPEG4and other video formats
Picture	Support JPG, BMP, PNG and other image formats
System comes with application software	APK Installer, Email, Calculator, Browser, Voice Recorder, Calendar, Settings, Clock, Video Player, Search, Contacts, Gallery, Downloads, Camera, Music, Explorer, etc.
Language	Support multi-language
Input	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/stand-alone mode switching
	Support Wi-Fi hot spot

II. Dimension Diagram

Bare board size specification, unit: mm (mm)



III. Product Diagram



IV. Interface Parameter Description

1. Power Interface and Definition (DC*1.65mm)

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



No.	Definition	Attribute	Description
1	12V	Input	12V input

2	GND	Ground wire	Ground wire
2	GND	Ground wire	Ground wire

Note: The inner diameter of the DC power port is 1.65mm, and the outer diameter is 4.50mm.

2. MIC (microphone) Interface and Definition (2pin*2.0mm)



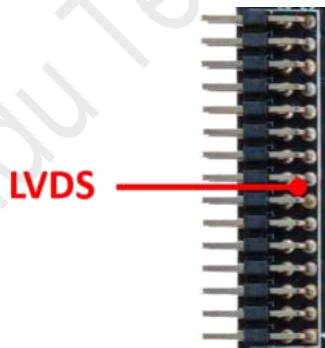
No.	Definition	Attribute	Description
1	MIC-P	Input	MIC+Input
2	MIC-N	Input	MIC-Input

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



No.	Definition	Attribute	Description
1	12V	Power supply	12V output
2	12V	Power supply	12V output
3	EN	Output	Backlight Enable Control
4	ADJ	Output	Backlight Brightness Control
5	GND	GND	GND
6	GND	GND	GND

4. LVDS Interface and Definition (Double row of pins, 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 jumper cap, and can choose to support 3.3V/5V/12V screen power supply. (LVDS and MIPI-DSI display interfaces are mutually exclusive and can be switched through system settings.)

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	Attribute	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	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	Ground wire	Ground wire
14	GND	Ground wire	Ground wire
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	Ground wire	Ground wire
26	GND	Ground wire	Ground wire
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. eDP Interface and Definition (30pin*0.5mm)

eDP(Optional)

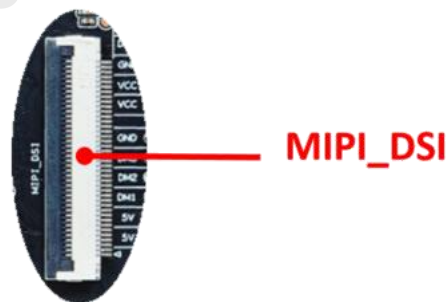


The eDP display interface is exclusive to the eDP variant. The eDP variant does not support MIPI or LVDS display interfaces.

No.	Definition	Attribute	Description
1	NC	Null	NC
2	GND	GND	GND
3	D1-	Output	Display Port Lane 1 negative output
4	D1+	Output	Display Port Lane 1 positive output
5	GND	GND	GND
6	D0-	Output	Display Port Lane 0 negative output
7	D0+	Output	Display Port Lane 0 positive output
8	GND	GND	GND
9	AU+	Output	Display Port AUX+ channel positive signal
10	AU-	Output	Display Port AUX- channel negative signal
11	GND	GND	GND
12	LCD_VCC	Power supply	3.3VOutput
13	LCD_VCC	Power supply	3.3VOutput
14	NC	Null	NC
15	GND	GND	GND
16	GND	GND	GND
17	HPD	Input	Hot-plug signal
18	GND	GND	GND
19	GND	GND	GND
20	GND	GND	GND

21	GND	GND	GND
22	BL_EN	Output	Backlight Enable Control
23	BL_PWM	Output	Backlight Brightness Control
24	NC	Null	NC
25	NC	Null	NC
26	BL_POWER	Backlight power supply	12VOutput
27	BL_POWER	Backlight power supply	12VOutput
28	BL_POWER	Backlight power supply	12VOutput
29	BL_POWER	Backlight power supply	12VOutput
30	NC	Null	NC

6. MIPI_DSI Interface and Definition (40pin*0.5mm)



Note: The MIPI and LVDS display interfaces are mutually exclusive and can be switched via system settings.

No.	Definition	Attribute	Description
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

7. USB Extension Interface and Definition (4pin*2.0mm)



Note: The USB_EX interface and the USB port on the dual-row pin header are mutually exclusive. Only one can be used at a time.

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

8. USB extension Interface and Definition (Double rows of pins, 2*6pin*2.0mm)



Note: The USB_EX interface and the USB port on the dual-row pin header are mutually exclusive. Only one can be used at a time.

No.	Definition	Attribute	Description
1	5V	Power Supply	5V Output

2	5V	Power Supply	5V Output
3	5V	Power Supply	5V Output
4	GND	Ground wire	Ground wire
5	DM1	Input/Output	DM
6	DP1	Input/Output	DP
7	DM2	Input/Output	DM
8	DP2	Input/Output	DP
9	DM3	Input/Output	DM
10	DP3	Input/Output	DP
11	GND	Ground wire	Ground wire
12	GND	Ground wire	Ground wire

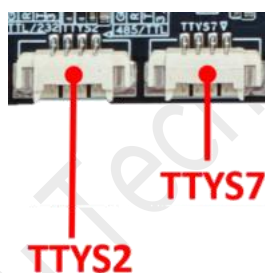
9. CTP Interface and Definition (10pin*0.5mm)



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. URAT *2 Interface and Definition (4pin*1.25mm)



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	Attribute	Description
1	VCC	Power supply	3.3V output
2	TX	Output	TX

3	RX	Input	RX
4	GND	Ground wire	Ground wire

TTYS7 can adjust RS485 through hardware; TTYS2 can adjust RS232 through hardware

11. KEY Interface and Definition (3pin*1.25mm)



KEY

No.	Definition	Attribute	Description
1	POWEN	POWEN	POWEN
2	KEY	KEY	KEY
3	GND	GND	GND

12. SPK (power amplifier) Interface and Definition (4pin*2.0mm)



SPK

No.	Definition	Attribute	Description
1	SPKL+	Output	Left channel +
2	SPKL-	Output	Left channel -
3	SPKR-	Output	Right channel -
4	SPKR+	Output	Right channel +

13. GPIO (extended) Interface and Definition (4pin*1.25mm)



GPIO

No.	Definition	Attribute	Description
1	GPIO1	GPIO1	GPIO1
2	GPIO2	GPIO2	GPIO2
3	GPIO3	GPIO3	GPIO3
4	GND	GND	GND

14. DEBUG 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

15. IR Interface and Definition (4pin*1.25mm)



No.	Definition	Attribute	Description
1	VCC	Power supply	Power supply
2	GND	GND	GND
3	IR_IN	Input	Remote control signal input

16. Sensor Interfaces and Definitions (3pin*1.25mm)

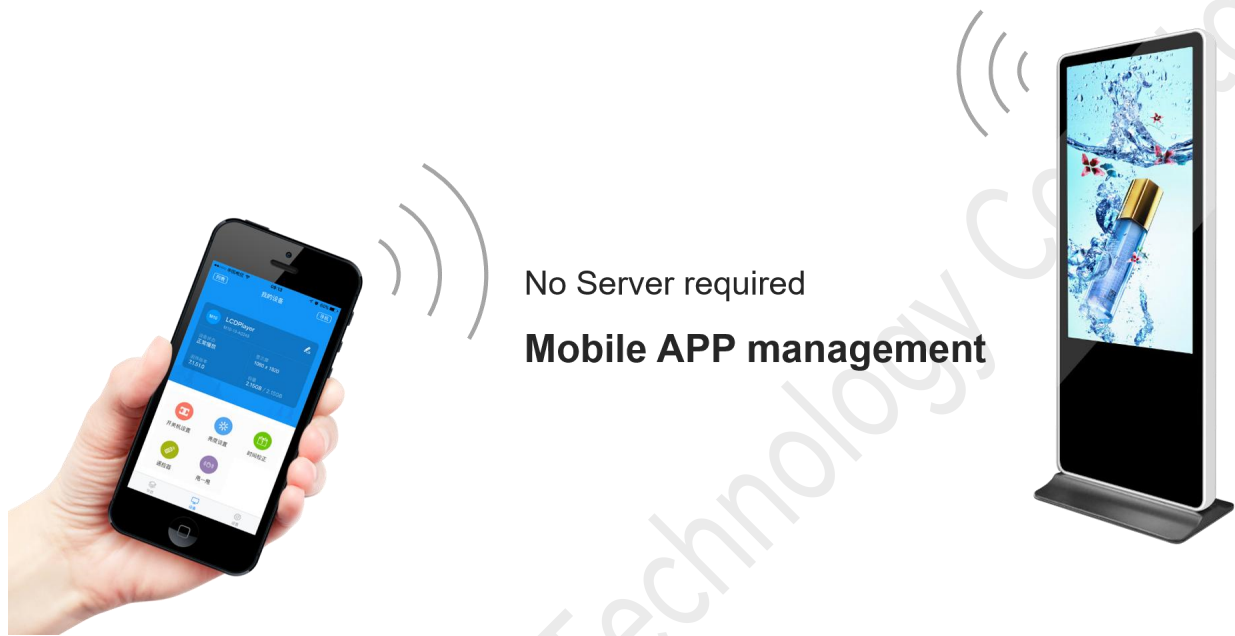


SENSOR

No.	Definition	Attribute	Description
1	Sensor	Input	Sensor
2	GND	Output	GND
3	VCC	Power supply	Power supply

Chapter III Communication Methods

I. Wi-Fi Update Program

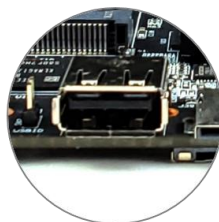


II. U-disk Update Program



U-disk update programs

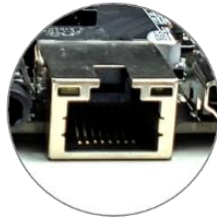
Support Interstitial & memory expansion



III. Ethernet Cable to Update (Optional)

LAN or Internet

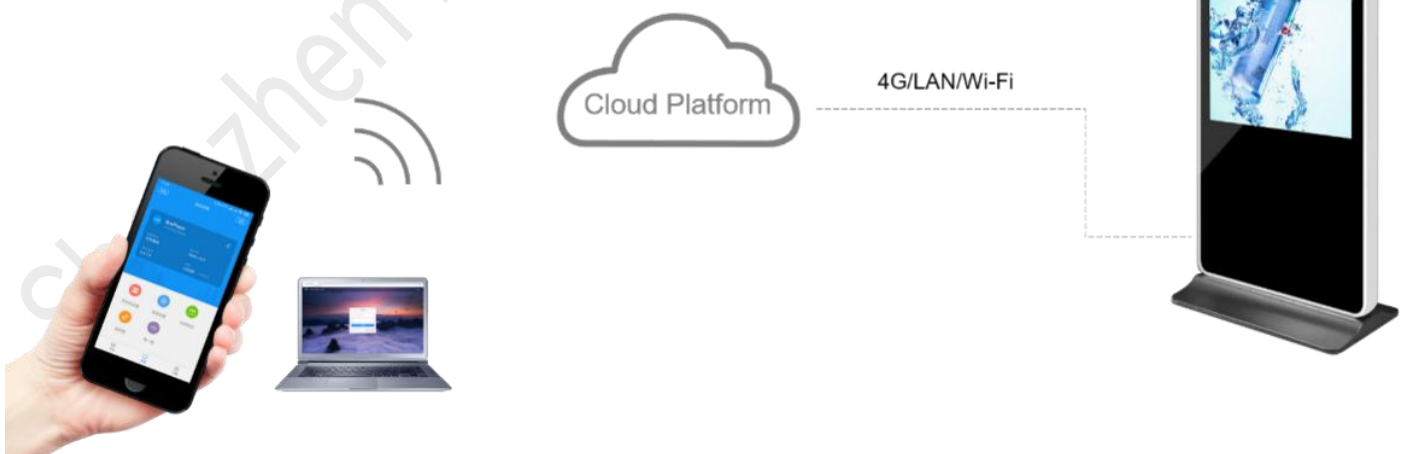
Network cable connection
LAN & Internet integrated management



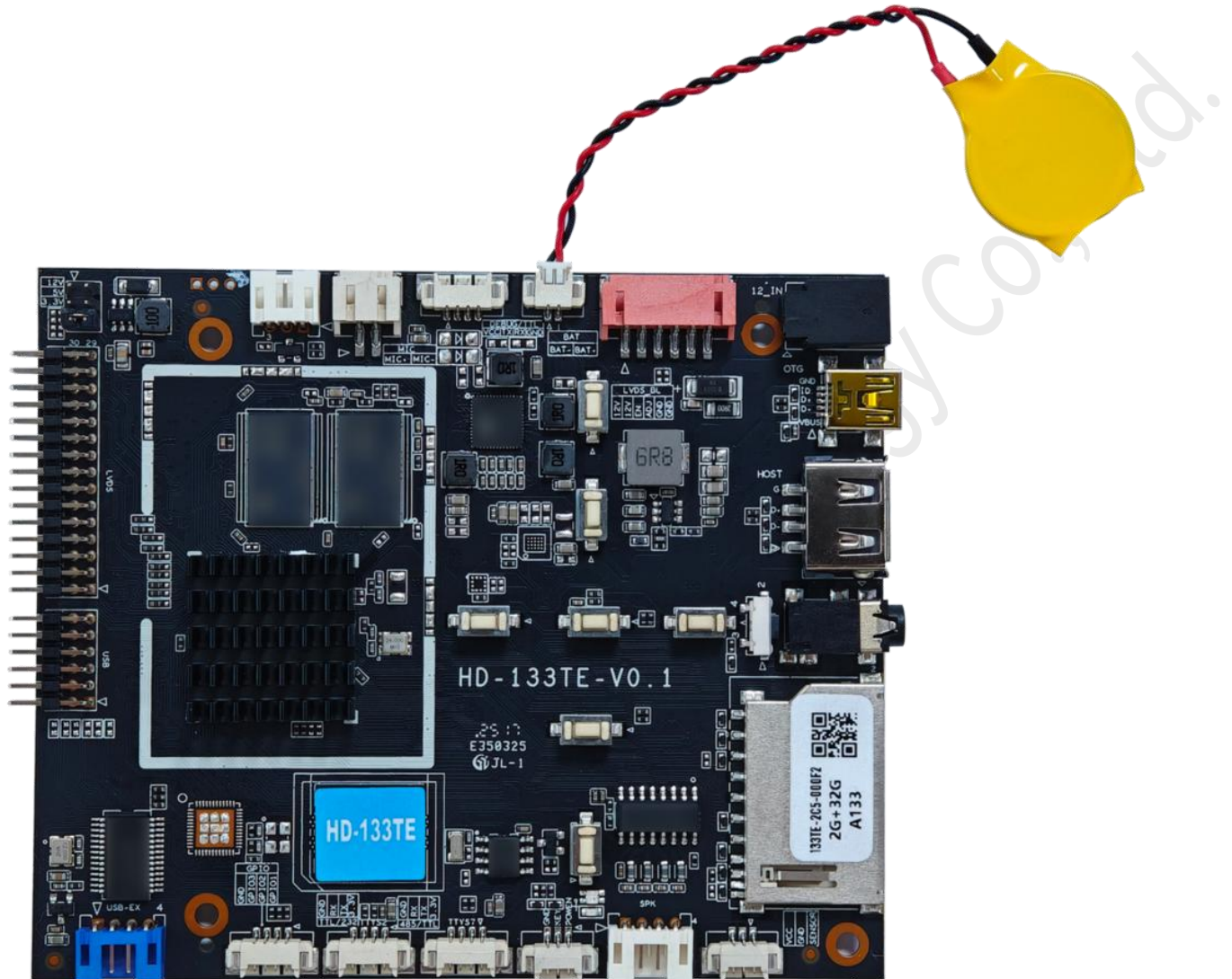
IV. Internet Update

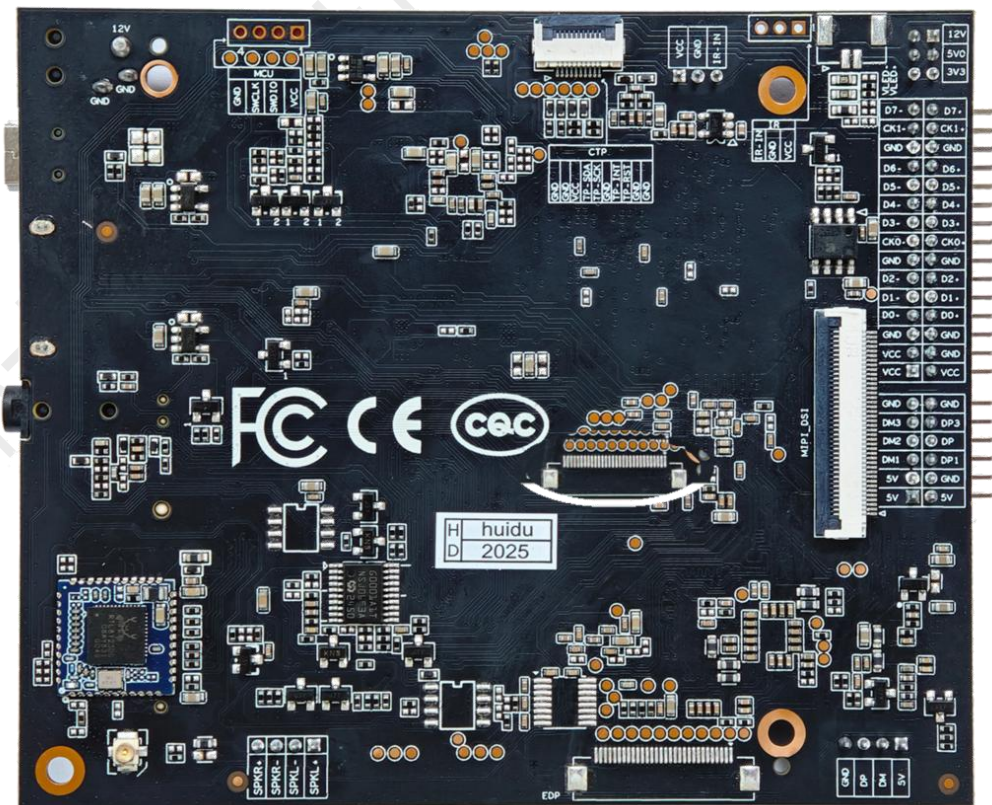
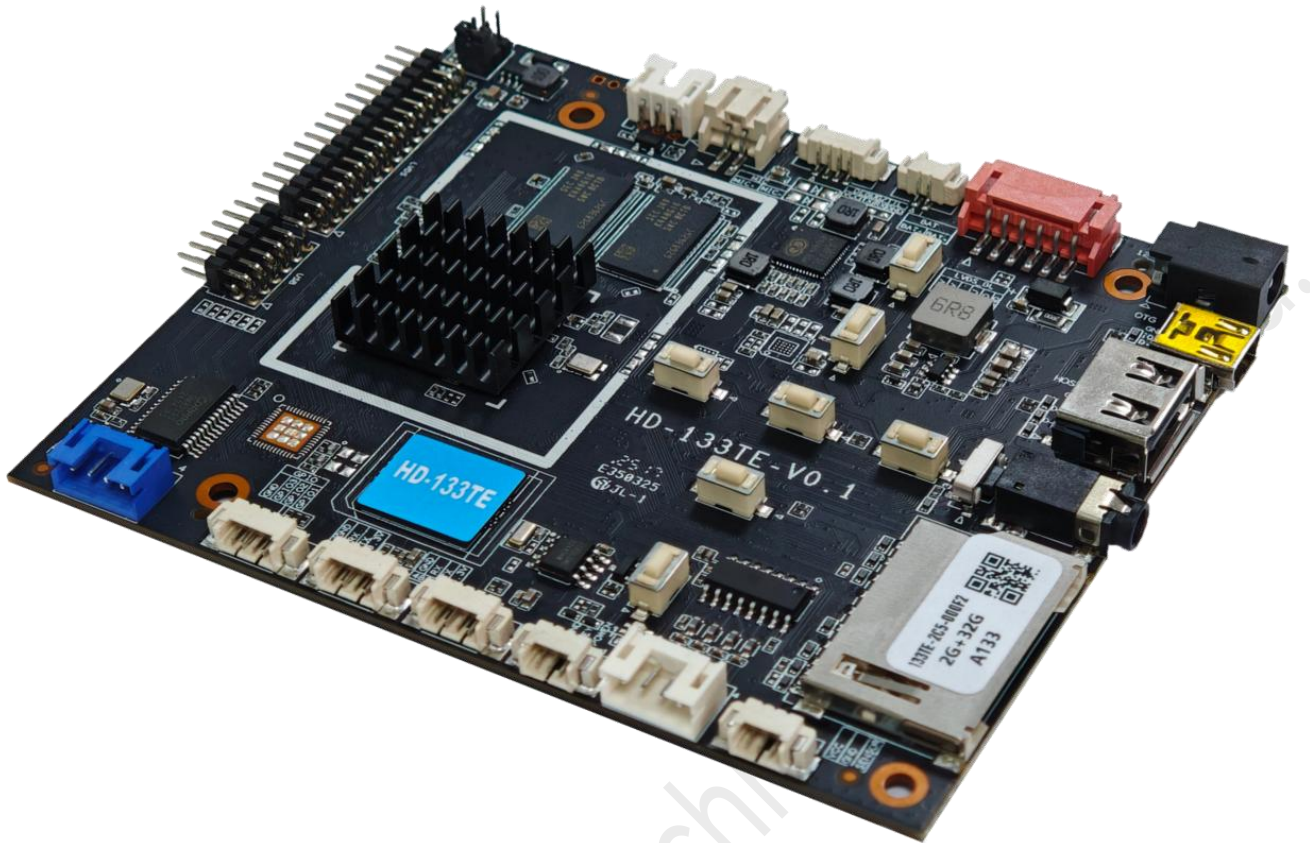
Internet remote management

Anytime & anywhere operation available



Chapter IV Appendix: Product Appearance





Illustrate:

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Do not operate with power on

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