灰度科技
HUIDU TECHNOLOGY

PRODUCT SPECIFICATION

LCD Android Controller

HD-40M

Version: V2.1

Update History

Version	Release time	Description
V2.1	Oct. 13, 2023	Update dimensions and content layout.
V1.1	Aug,30,2023	First official release.

Content

Chapter Ⅰ Product Description

Ⅰ. Overview

HD-40M is a well-built all-in-one motherboard, using All winner A40i Quad-core chip solution, equipped with Android7.1.1 system, 1.2GHz, Mail-400MP2 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, which can accelerate Product development cycle.

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. The A40i Android integrated board 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. The A40i Android all-in-one board integrates Ethernet, Wi-Fi, Power amplifier, TF expansion card, USB expansion port, IR remote control function, HDMI, LVDS, Backlight control, microphone and other functions, which greatly simplifies the design of the whole machine.
- High scalability. 3*USB (1 *Pins, 2 *standard), 2*serial ports (1 *UART, 1 *DEBUG).
- High definition. It supports various LVDS/HDMI 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

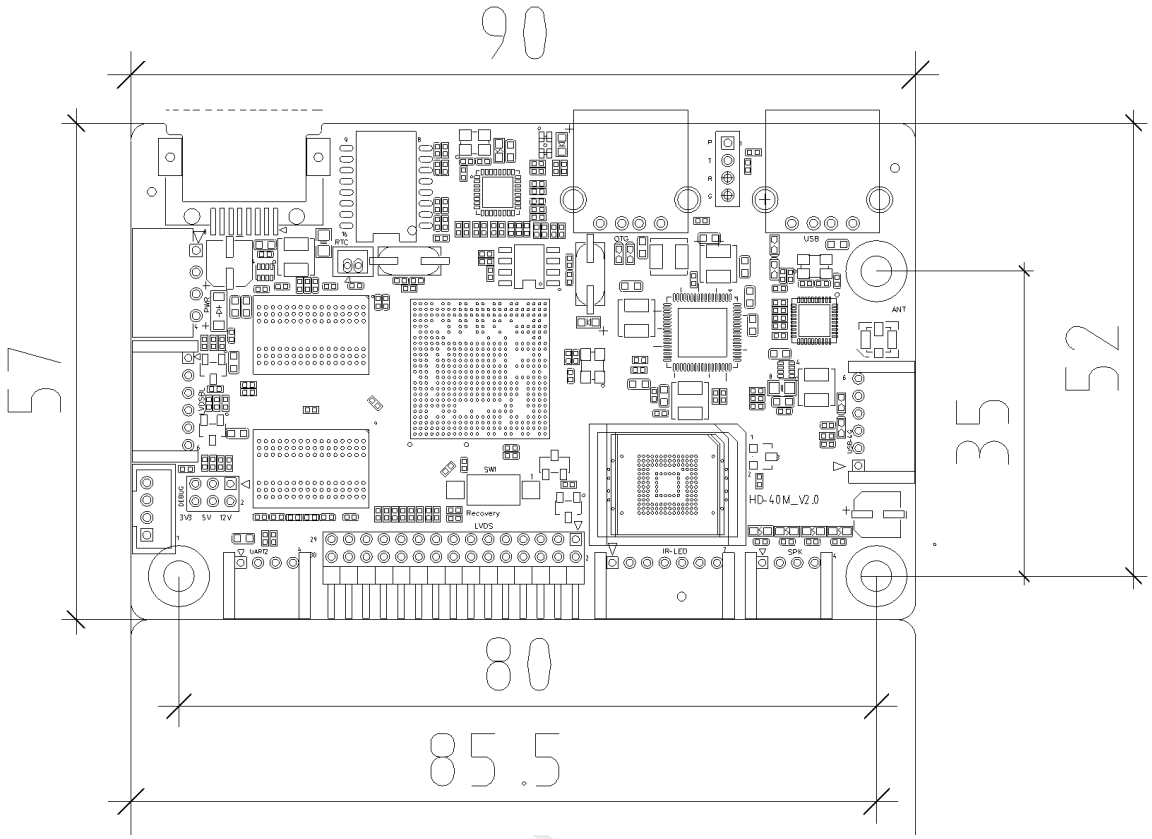
Hardware Specifications	
CPU	A40i, Quad-core，Dominant Frequency up to 1.2GHz， Android7.1.1
GPU	Mali400 MP2
RAM/ Storage	Standard 1GB+8GB
Network	RJ45 100M; Ethernet； Wi-Fi, support Wi-Fi 802.11b/g/n protocol；
Image rotation	Support 0 degree, 90 degree, 180 degree, 270 degree manual rotation
Display interface	1*LVDS interface (single/dual, 6-bit/8-bit), support 3.3V/5V/12V power supply Onboard backlight control supports 12V backlight power supply
Audio	Support standard left & right channel line output; support 3.5mm audio output interface
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
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	1 *UART，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℃

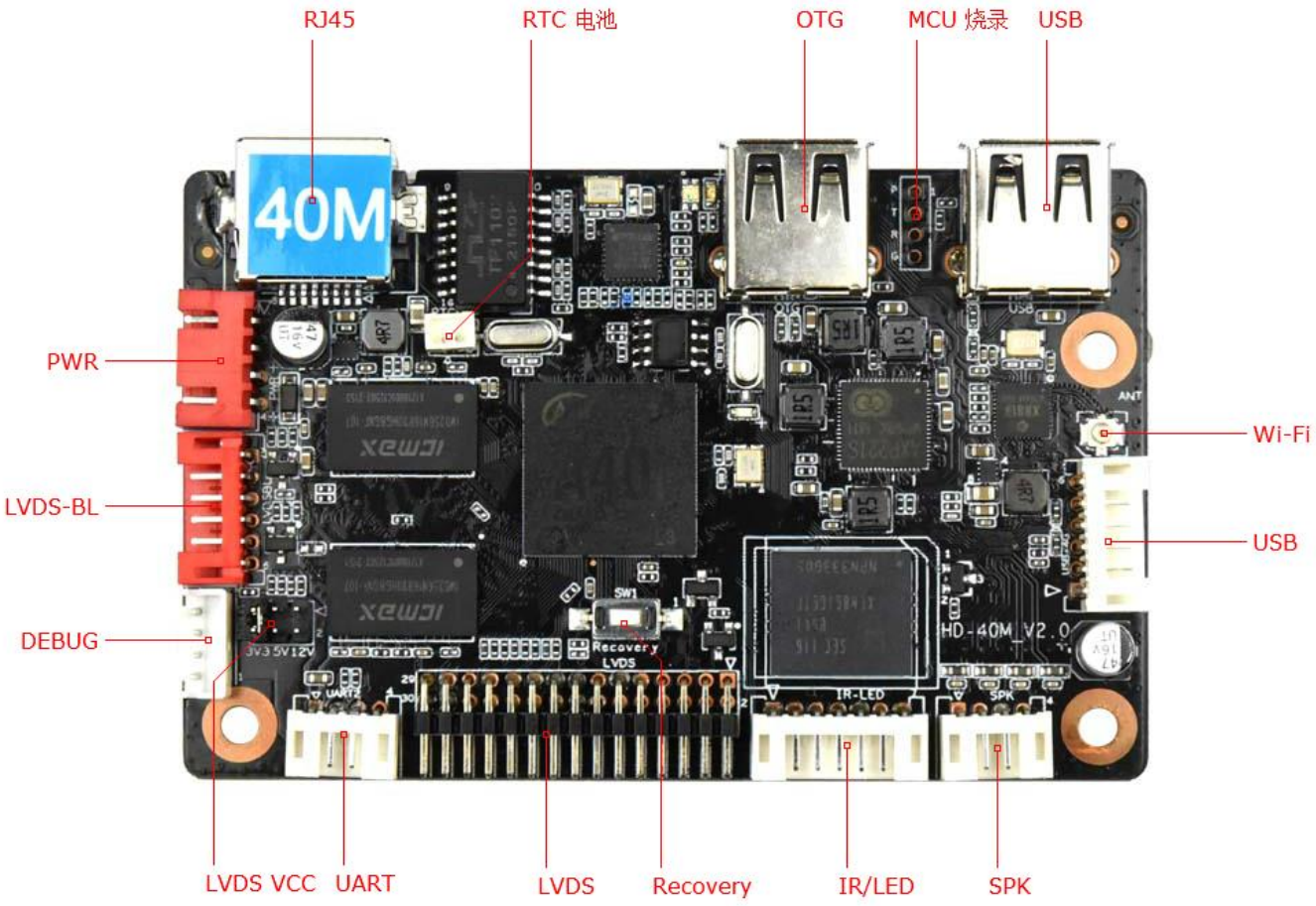
2. Software Parameters

Software Specifications	
Operation system	Android 7.1.1
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



Ⅲ. Product Diagram



Ⅳ. Interface Parameter Description

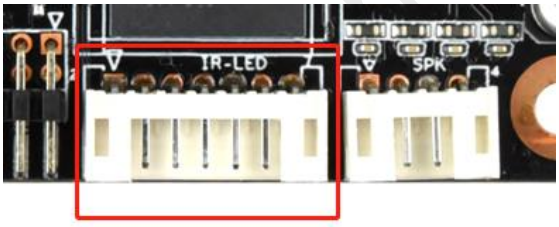
1. PWR/DC (Power input) Interface and Definition

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
6	12V	Input	12V Input
5	12V	Input	12V Input
4	GND	GND	GND
3	GND	GND	GND
2	5VS	Input	Standby 5V Input
1	STB	Output	Standby signal output

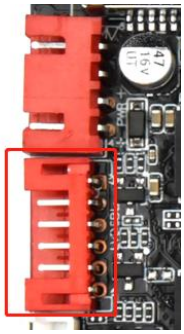
Note: The inner diameter of the DC power port is 2.0mm, and the outer diameter is 5.8mm.

2. IR-LED (Remote control) interface and definition



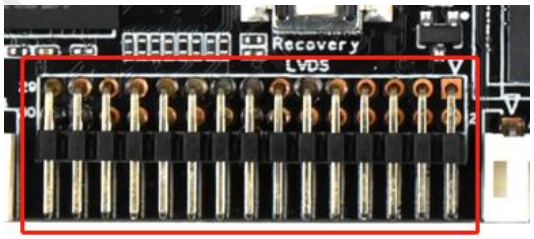
No.	Definition	Attribute	Description
1	RED	Output	Red indicator lamp
2	5V	Power	5V Output
3	GRN	Output	Green indicator lamp
4	IO	Output	Remote control signal Output
5	IR	Input	Remote control signal input
6	GND	GND	GND
7	5V	Power	5V Output

3. LVDS BL（LVDS backlight）Interface



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 bridle-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.

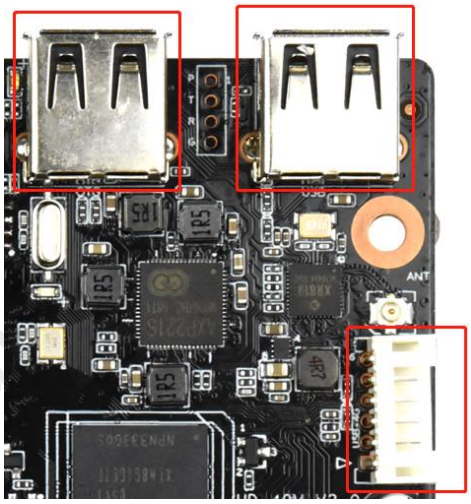
2. Please use a multimeter to confirm that the power supply selected by the jumper cap is correct.

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	RXO0-	Output	Odd 0-
8	RXO0+	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+

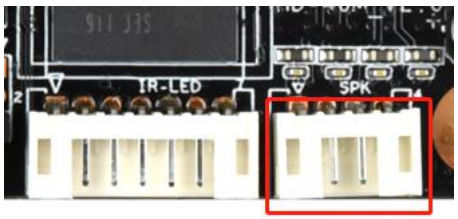
5. USB interface and definition



The motherboard has 2 USB standard interfaces and 1 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

6. SPK (Power amplifier) interface



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 +

7. UART（Serial Port）

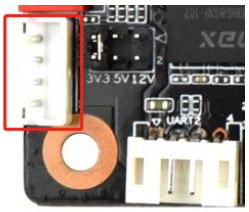
The motherboard leads to one set of common UART serial ports, which can support common UART serial devices on the market.

Matters need attention：

1. Whether the TTL serial port voltage matches. Can not 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

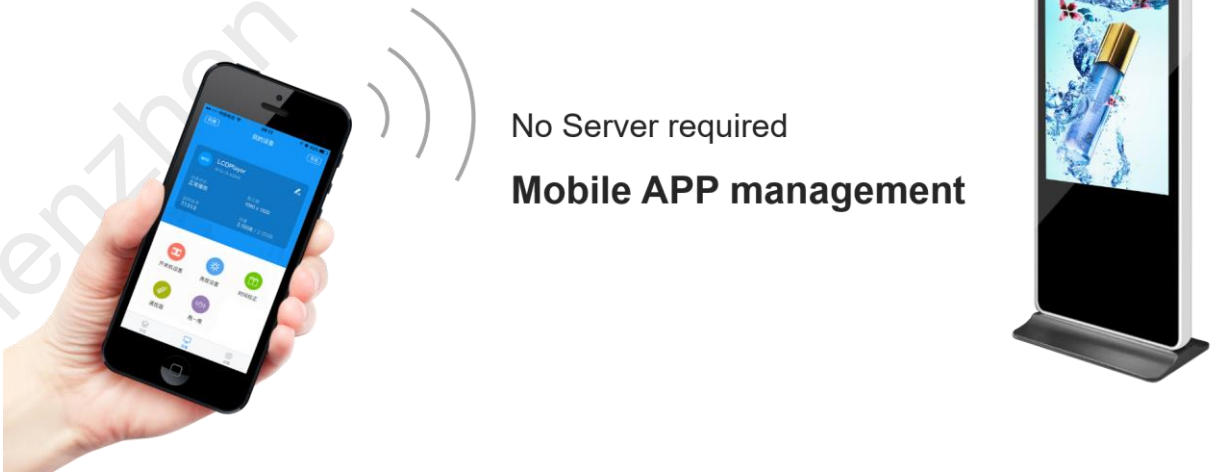
8. DEBUG Interface



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

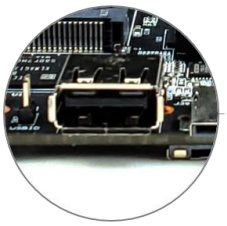
Ⅰ. Wi-Fi Update Program



Ⅱ. U-disk Update Program

U-disk update programs

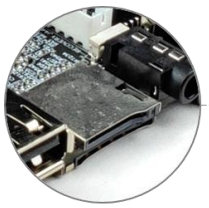
Support Interstitial & memory expansion



Ⅲ. TF card Update Program

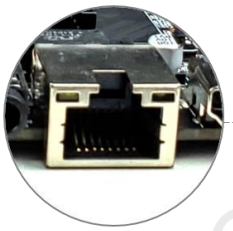
TF card update programs

Support Interstitial & memory expansion



Ⅳ. Network Cable Update Program

LAN or Internet



Network cable connection

LAN & Internet integrated management

Ⅴ. Internet Update

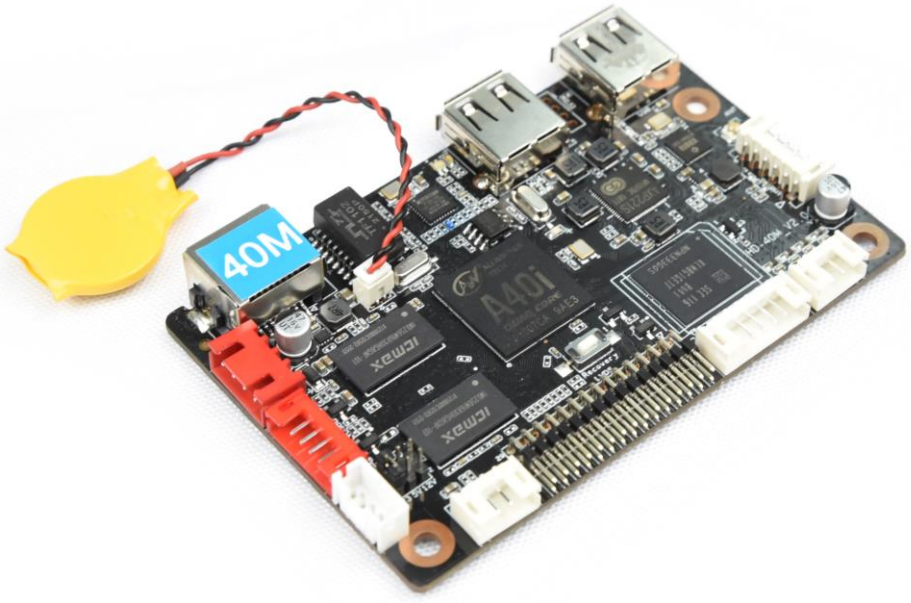
Internet remote management

Anytime & anywhere operation available

Cloud Platform

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.**