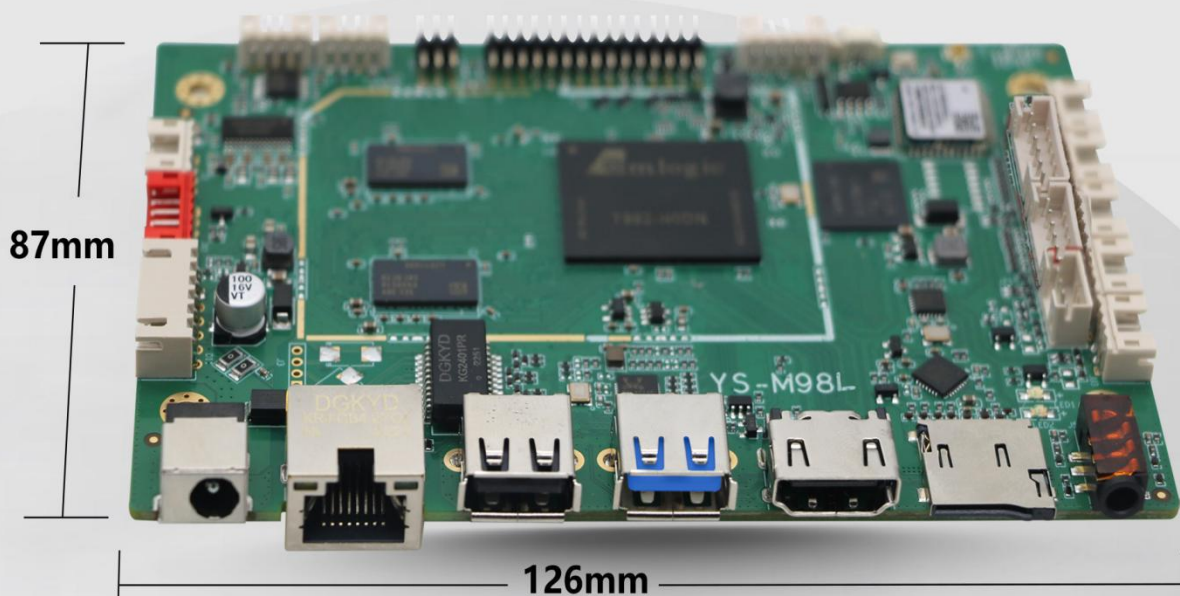


# Specification

## YS-M98L

Intelligent Terminal



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# Declaration

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# Revision History

Version	Date	Author	Approver	Description
V1.0	2023.02.28	Zhang Wenjuan	Qin Yongling	Initial version
V1.2	2024.01.10	Zhang Wenjuan	Qin Yongling	Correct description error part
V1.3	2024.10.22	Zhang Wenjuan	Li Quan	Change Wifi module picture
V1.4	2024.11.6	Zhang Wenjuan	Li Quan	Correct BT version

# Chapter 1 Product Introduction

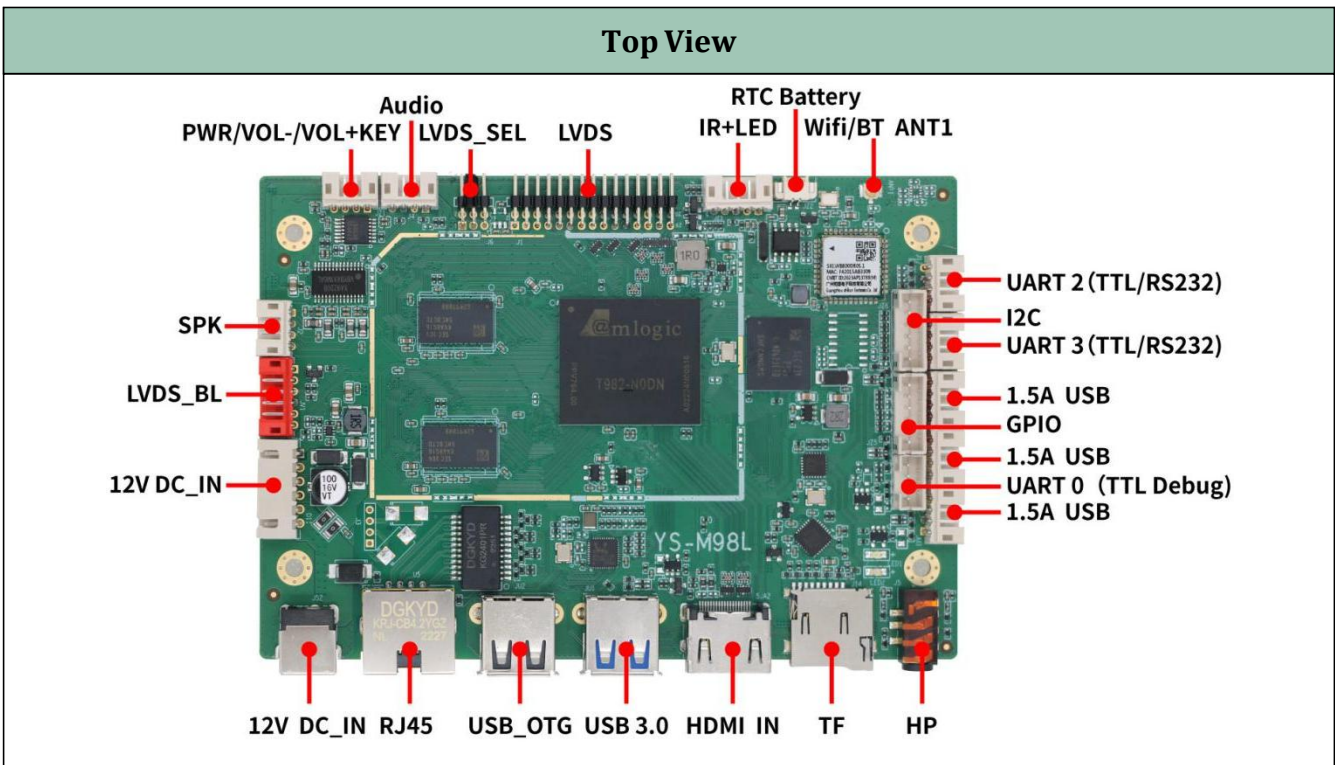
## 1.1 Overview



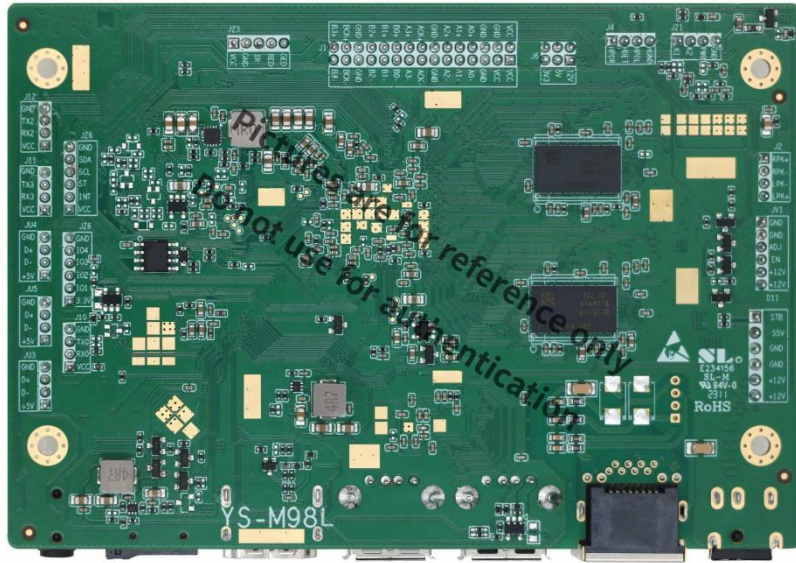
YS-M98L belongs to the intelligent Android motherboard, with rich control interface and extension interface, perfect support for the message system, support for remote production, release, management and real-time update program, support for local/network timing switch; Equipped with industrial binocular camera and face recognition technology, as well as infrared human body temperature measurement module; It is an efficient, safe and highly reliable product.

The product has a wide range of applications in intelligent display terminal, industrial automation terminal and video terminal. Such as: digital signage, intelligent self-service terminal, new retail intelligent terminal, intelligent display, building intercom, etc.

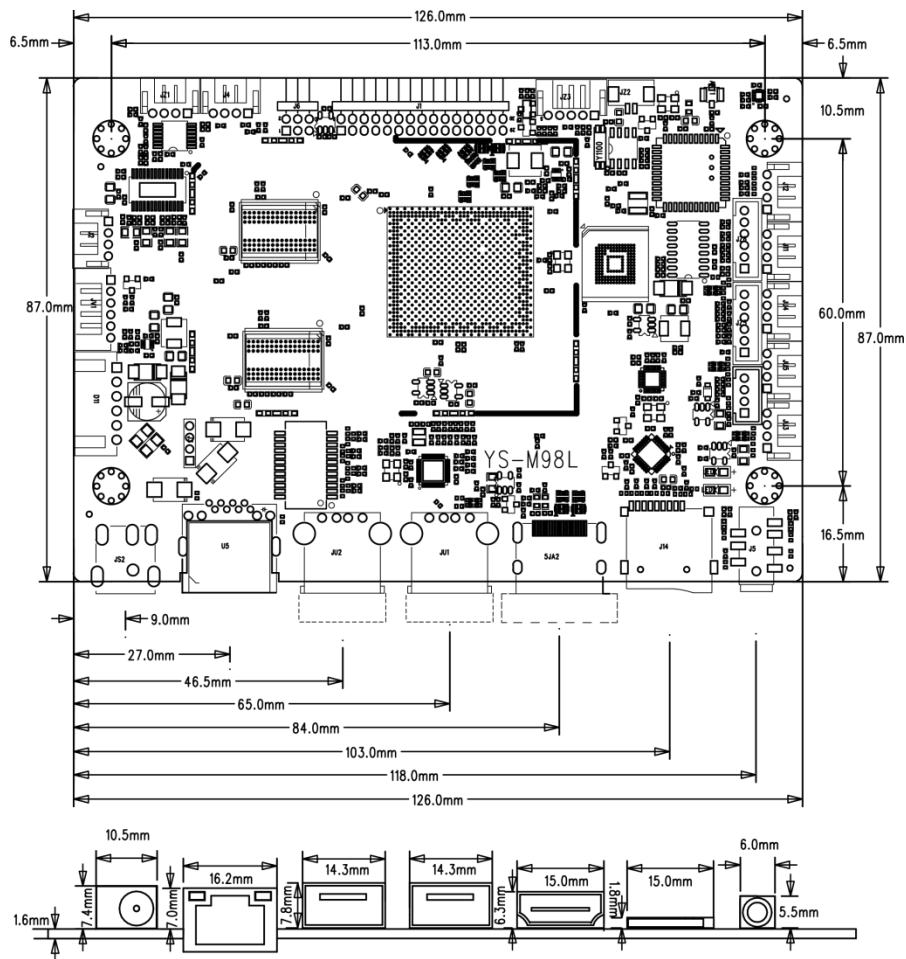
## 1.2 Pictures and Dimensions



Bottom View



Dimensions



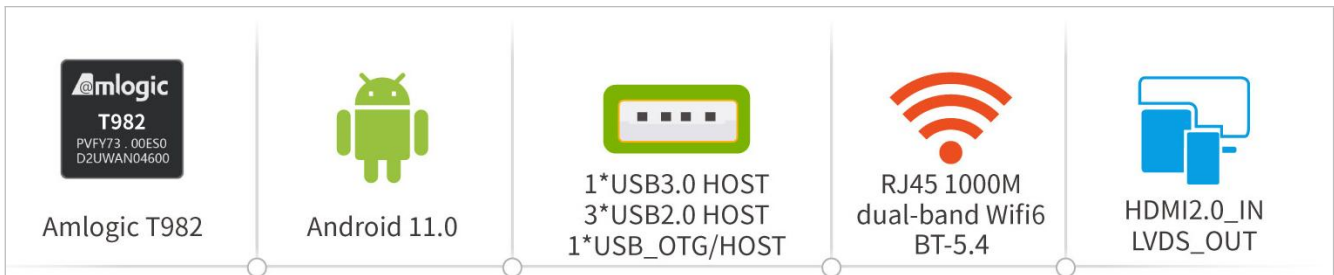
\*PCBA L: 126mm

\*PCBA W: 87mm

\*PCBA H: 12mm

\*PCBA Location Hole:  $\Phi 3.2\text{mm} \times 4$

## 1.3 Product Detailed Parameters



### Detail Specification

<b>SOC</b>	Amlogic T982
<b>CPU</b>	Quad-core Cortex-A55 Main frequency up to 1.92GHz
<b>GPU</b>	Mali-G52 MP2 (2EE) OpenGL ES 3.2 OpenCL 2.0 Vulkan 1.1
<b>NPU</b>	2 NNA with INT8 inference performance up to 2.6 TOPS
<b>OS</b>	<b>Android:</b> Android 11.0
<b>Video CODEC</b>	<p><b>Video Decoder</b></p> <p>8Kx4K@30fps or 4Kx2K@60fps: AV1 MP-10, H.265 HEVC MP-10, VP9</p> <p>4Kx2K@60fps: AVS2 MP</p> <p>4Kx2K@30fps: H.264 AVC</p> <p>1080P@60fps: MPEG-4/2/1, WMV/VC-1, AVS-P16</p> <p>Supports *.mkv, *.wmv, *.mpg, *.mpeg, *.dat, *.avi, *.mov, *.iso, *.mp4 and *.jpg file formats</p> <p><b>Video Encoder</b></p> <p>1080P@30fps: H.264</p>
<b>ROM</b>	2/4GB (Up to 8GB) DDR
<b>Storage</b>	16/32/64GB (Up to 128GB) EMMC
<b>Display Output</b>	1*LVDS (Up to 1920x1080)
<b>Display Input</b>	1*HDMI2.0 (4K@60HZ)
<b>Audio</b>	1*SPK (L&R audio-out, Up to 1*8Ω/5W speaker) 1*HP (CTIA) 1**Audio
<b>Network</b>	Ethernet: Support 10/100/1000M GMAC WIFI: Support dual-band WIFI6 Bluetooth: 5.4
<b>USB</b>	1*Type-A USB3.0 HOST 1*Type-A USB2.0 (OTG or HOST) 3*USB2.0 HOST (4Pin*2.0mm Wafer)

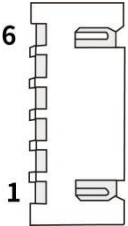
UART	4*TTL(2*TTL,2* TTL/RS232)
Other	1*I2C 4*GPIO 1*IR+LED 3*Key (1*PWR_Key,2*Vol_Key)

## 1.4 Configuration & General Precautions

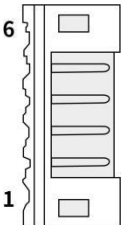
1. Relative humidity  $\leq 85\%$
2. Storage temperature:  $-30\text{ }^{\circ}\text{C}$  to  $+70\text{ }^{\circ}\text{C}$
3. Operating temperature:  $-15\text{ }^{\circ}\text{C}$  to  $+60\text{ }^{\circ}\text{C}$
4. During the assembly of the whole machine, please do not operate the wiring with power to avoid short circuit between bare board and peripheral equipment.
5. Pay attention to the anti-static treatment during the assembly and transportation of the whole machine, and it is necessary to wear electrostatic protection tools such as electrostatic bracelet (sleeve).
6. When assembling the whole machine, it can be installed at the bottom or side, but do not deform or twist the board, and do not bear heavy pressure.
7. Proper distance shall be reserved at the wiring position of each terminal to avoid squeezing the terminal during installation.
8. The connecting line between this board and the supporting module board should not be too long, otherwise it may affect the image quality.
9. The internal wiring of the whole machine shall be reasonable, and the connecting wires shall not pass through the PCB board directly as far as possible.
10. In order to achieve better EMC effect for the whole machine, it is recommended that the screen wire between the main board and the screen should be shielded wire.
11. The specifications of the peripherals connected to the installation shall be confirmed with our company, including but not limited to: voltage limit, current limit, timing, power domain, etc.

## Chapter 2 Interface Pin Name

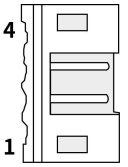
### D11 (6PIN/2.54) 12V DC\_IN

Exterior	Pin No.	Pin Name	Description
	1	STB	Power supply enable, connect to PSON
	2	S5V	5V constant power supply (standby)
	3	GND	Ground
	4	GND	Ground
	5	+12V	12V Power Input
	6	+12V	12V Power Input

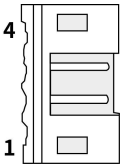
### JV1 (6PIN/2.0) LVDS\_BL

Exterior	Pin No.	Pin Name	Description
	1	GND	Ground
	2	GND	Ground
	3	ADJ	Backlight Brightness Adjustment
	4	EN	Backlight On/Off Control
	5	+12V	Screen Backlight Power Supply
	6	+12V	Screen Backlight Power Supply

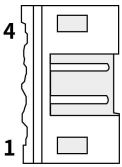
### J2 (4PIN/2.0) SPK

Exterior	Pin No.	Pin Name	Description
	1	RPK+	Positive output for right Channel
	2	RPK-	Negative output for right Channel
	3	LPK-	Negative output for left Channel
	4	LPK+	Positive output for left Channel

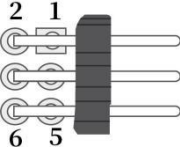
### JZ1 (4PIN/2.0) PWR/VOL-/VOL+ Key

Exterior	Pin No.	Pin Name	Description
	1	K1	Volume up
	2	K2	Volume down
	3	PWR	Power on/off
	4	GND	GROUND

**J4 (4PIN/2.0) Audio**

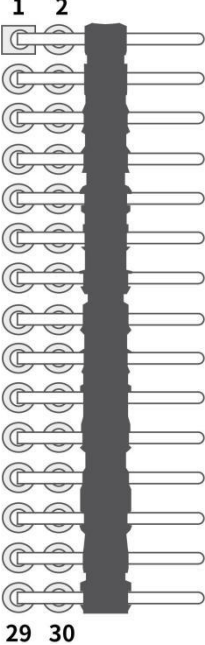
Exterior	Pin No.	Pin Name	Description
	1	HPOL	Left Channel
	2	HDET	Test
	3	HPOR	Right Channel
	4	HGND	Ground

**J6 (6PIN/2.0) LCD LVDS\_SEL\_VOLT**

Exterior	Pin No.	Pin Name	Description
	1	12V	12V Power Supply
	2	VCC_LCD	Screen Voltage Port
	3	5V	5V Power Supply
	4	VCC_LCD	Screen Voltage Port
	5	3.3V	3.3V Power Supply
	6	VCC_LCD	Screen Voltage Port

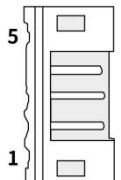
**Note: The LVDS screen uses a jumper cap to select the screen power supply. Connect 3.3V to VCC\_LCD, then the screen voltage is 3.3V.**

**J1 (30PIN/2.0) LVDS**


Exterior	Pin No.	Pin Name	Description
	1	PWR	Power Supply
	2	PWR	Power Supply
	3	PWR	Power Supply
	4	GND	Ground
	5	GND	Ground
	6	GND	Ground
	7	D0-	LVDS Signal
	8	D0+	LVDS Signal
	9	D1-	LVDS Signal
	10	D1+	LVDS Signal
	11	D2-	LVDS Signal
	12	D2+	LVDS Signal
	13	GND	Ground
	14	GND	Ground
	15	CKO-	LVDS Signal
	16	CKO+	LVDS Signal
	17	D3-	LVDS Signal
	18	D3+	LVDS Signal

	19	D5-	LVDS Signal
	20	D5+	LVDS Signal
	21	D6-	LVDS Signal
	22	D6+	LVDS Signal
	23	D7-	LVDS Signal
	24	D7+	LVDS Signal
	25	GND	Ground
	26	GND	Ground
	27	CK1-	LVDS Signal
	28	CK1+	LVDS Signal
	29	D8-	LVDS Signal
	30	D8+	LVDS Signal

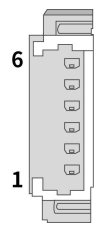
**JZ3 (5PIN/2.0) IR+LED**

Exterior	Pin No.	Pin Name	Description
	1	VCC	3.3V Power Supply
	2	GND	Ground
	3	IR	Remote Control Infrared
	4	RED	Red Light
	5	GND	Green light


**JZ2 (2PIN/2.0) RTC Battery**

Exterior	Pin No.	Pin Name	Description
	1	BAT+	Battery Positive
	2	BAT-	Battery Negative

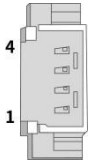
**JZ6 (6PIN/2.0) IIC(Power domain 3.3V)**

Exterior	Pin No.	Pin Name	Description
	1	3.3V	Power Supply
	2	INT	Interrupt
	3	RST	Reset
	4	SCL	12C Clock
	5	SDA	12C Data
	6	GND	Ground

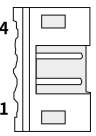
**JZ5 (6PIN/2.0) GPIO (Power domain 3.3V)**

Exterior	Pin No.	Pin Name	Description
	1	3.3V	Power Supply
	2	IO1	GPIO1
	3	IO2	GPIO2
	4	IO3	GPIO3
	5	IO4	GPIO4
	6	GND	Ground

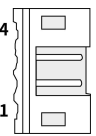
**J10 (4PIN/2.0) TTL UART 0 (Debug) (Power domain 3.3V)**

Exterior	Pin No.	Pin Name	Description
	1	VCC	Power 3.3V
	2	RX0	UART Receive
	3	TX0	UART Transmit
	4	GND	Ground

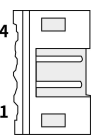
**J12 (4PIN/2.0) UART 2 (TTL/RS232, TTL power domain is 3.3V)**

Exterior	Pin No.	Pin Name	Description
	1	VCC	Power 5V (Can optional 3.3v)
	2	RX2	UART Receive
	3	TX2	UART Transmit
	4	GND	Ground

**J11 (4PIN/2.0) UART 3 (TTL/RS232, TTL power domain is 3.3V)**

Exterior	Pin No.	Pin Name	Description
	1	VCC	Power 5V (Can optional 3.3v)
	2	RX3	UART Receive
	3	TX3	UART Transmit
	4	GND	Ground

**JU4、JU5、JU3 (4PIN/2.0) USB (JU5 is the main control directly control USB)**

Exterior	Pin No.	Pin Name	Description
	1	+5V	USB Power Supply
	2	D-	USB data-
	3	D+	USB data+
	4	GND	Ground

## Chapter 3 Electrical Characteristics

### ◆ Normal Operating Conditions

Interface Type		Min	Typ	Max
Standard power parameters	Vcc	11V	12V	13.5V
	Ripple	/	/	60mV
	Current	2A	3A	/

### ◆ Power Consumption

Interface Type		Min	Typ	Max
Power Supply Current (with no display connected )	Operation Current	/	250mA	400mA
	STAND-BY CURRENT	/	25mA	30mA
	BATTERY OPERATION CURRENT	/	0.0024mA	/

### ◆ USB Power Supply

USB Interface Type	Voltage	Typical Current	Max Current
OTG_USB	5V	500mA	1.5mA
HOST_USB	5V	500mA	1.5mA

Note: It is recommended that the total current of USB peripherals not exceed 3000mA; otherwise, the machine cannot operate normally.

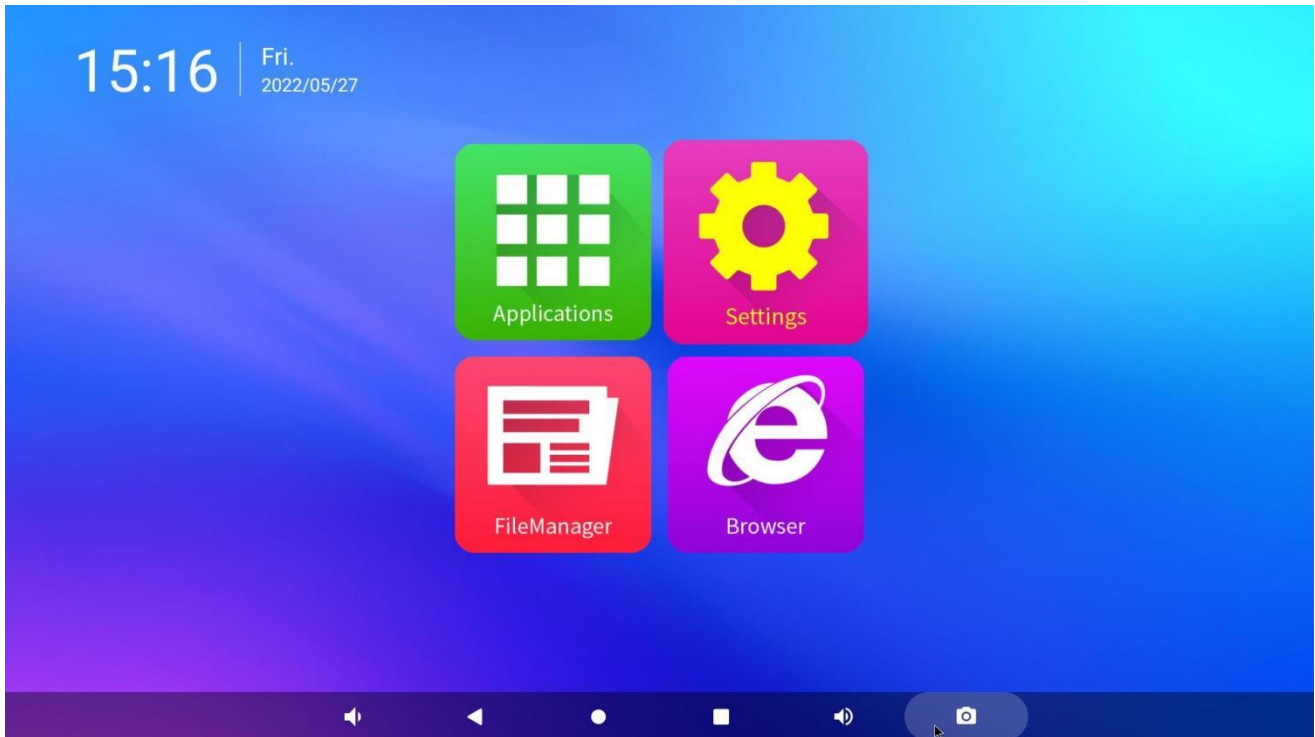
### ◆ Other

Interface Type	Rated Current	Typical Current	Max Current
EXT 5V	/	/	3000mA
EXT 3.3V	/	/	3000mA

## Chapter 4 System Instruction

### 4.1 Android System Interface Description

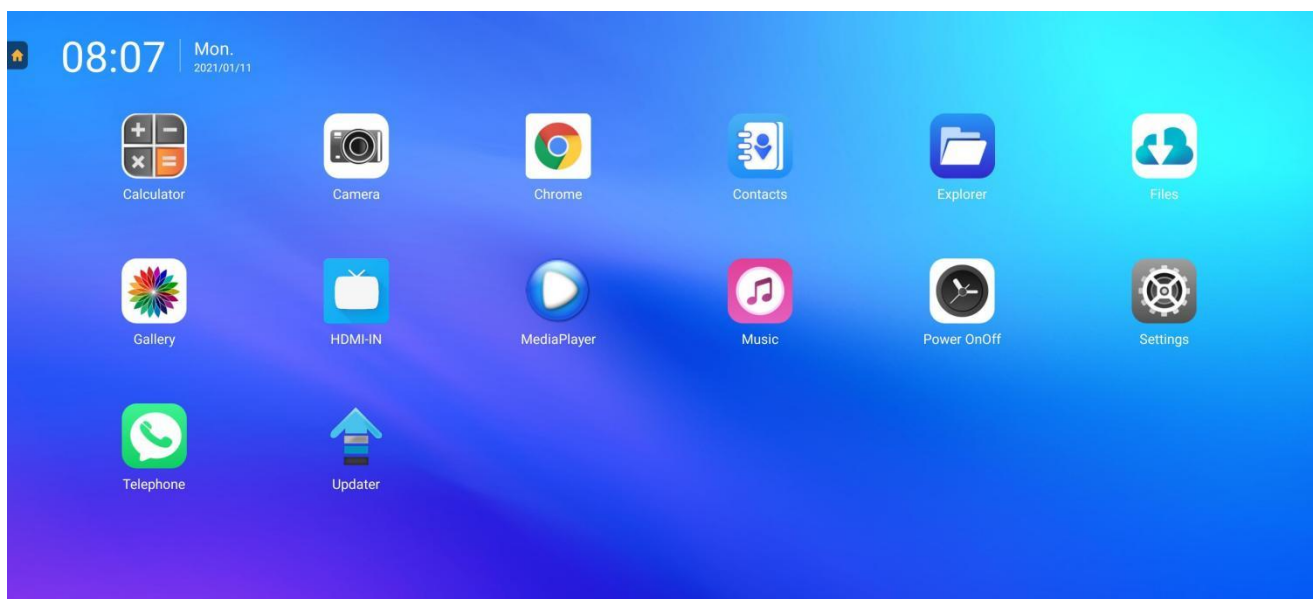
The main menu interface of Android system is divided into four categories: application, settings, file management and browser.



Homepage

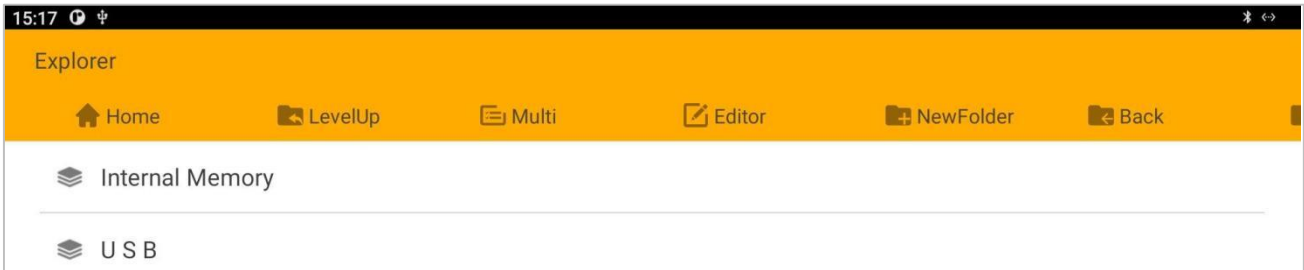
#### (1) Application interface

The application interface includes: Power on / off, settings, gallery, file, camera, music, explorer, browser, HDMI-IN, etc.



Application Interface

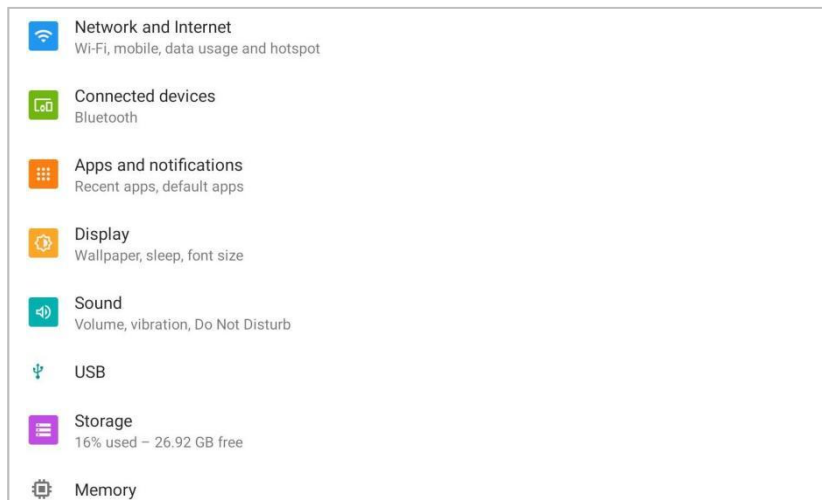
### (2) File Management Interface



File Management Interface

### (3) Setting Menu Interface

It supports the settings of wireless network and device display sound, and can also view the program applications installed on the device, storage memory, etc.

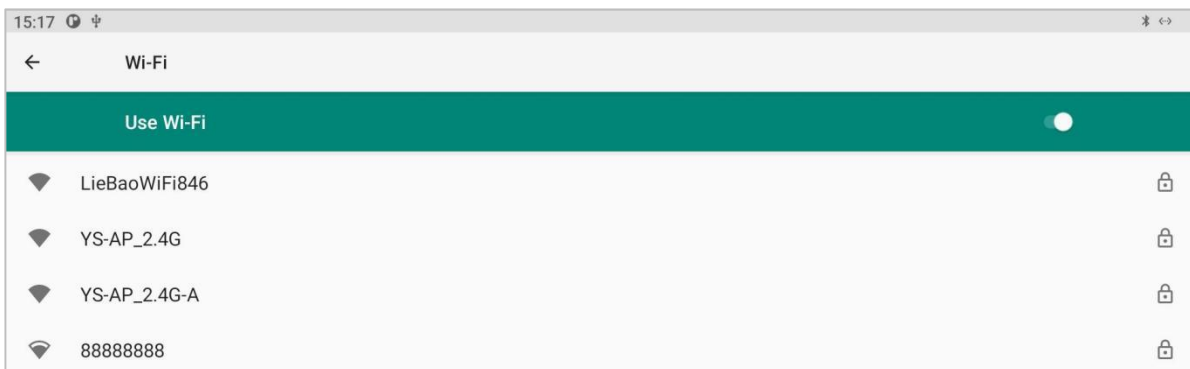


Setting Menu Interface

## 4.2 Network Interface Explanation

### (1) WIFI Network Signal Connection

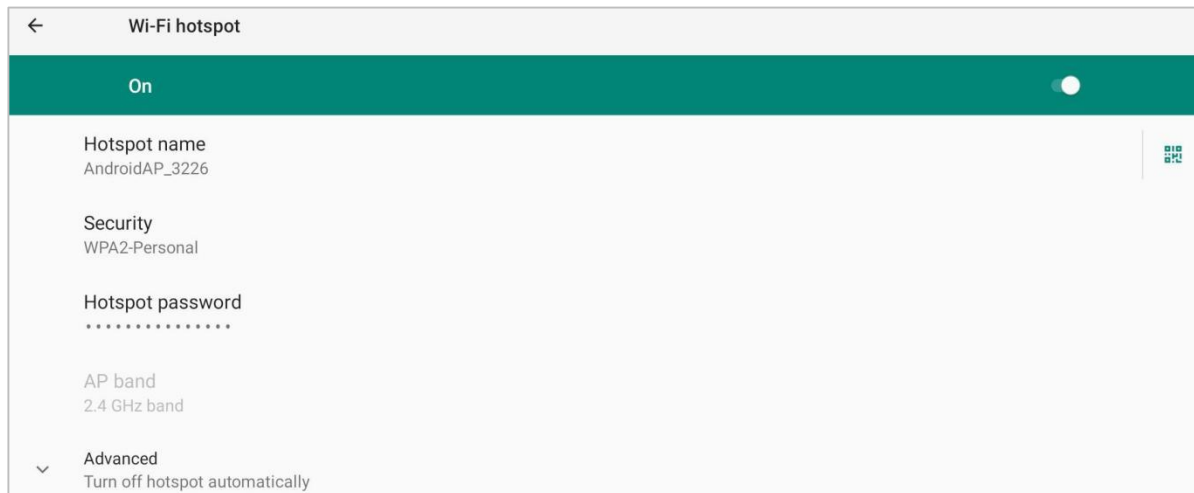
Turn on the WiFi switch in the "setting" interface, as shown in the following figure; Select the WiFi signal to be connected and enter the corresponding password to successfully connect.



WIFI Setting Interface

## (2) WiFi Hotspot

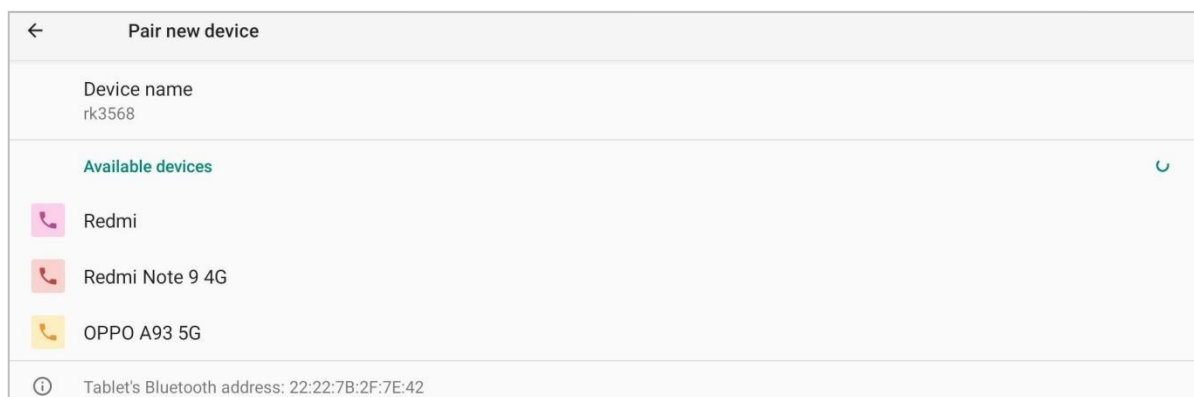
As shown in the following figure, in the "Settings - network and Internet" interface, open the "hotspot and network sharing - WIFI hotspot" function, enter the interface shown in the figure below, you can send WiFi signals, and the device can successfully connect to the hotspot by entering the password.



WiFi Hotspot connection interface

## (3) Bluetooth Signal Connection

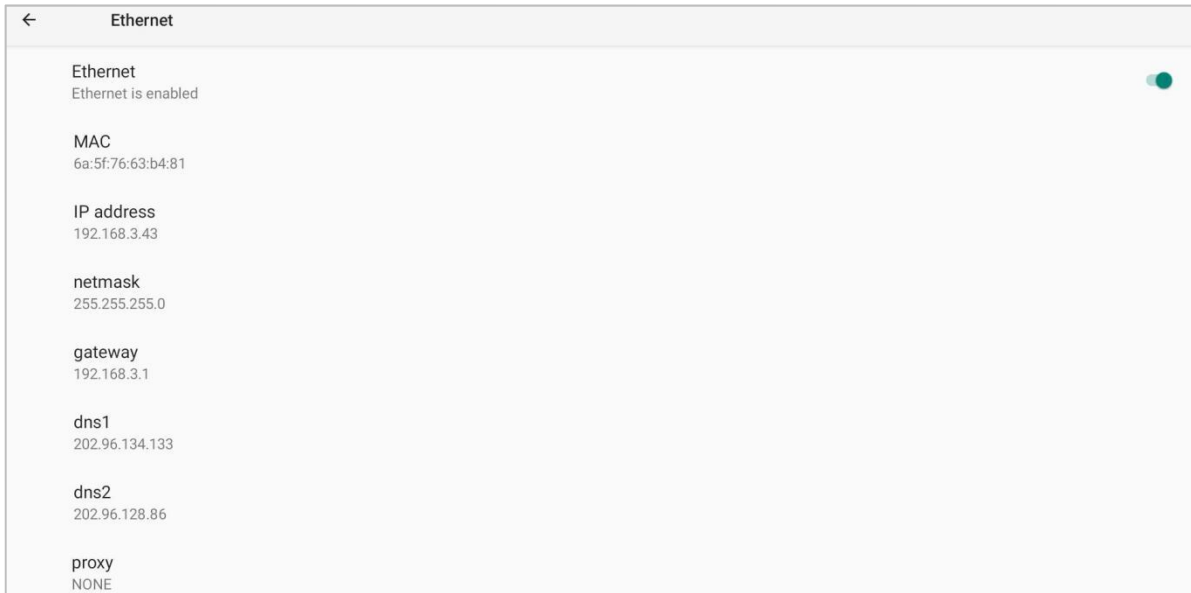
In the "Settings" interface, open the "connected devices" function and enter the "pairing with new devices" interface shown in the figure below to search for Bluetooth devices and pair them.



Bluetooth Setting Interface

## (4) Ethernet Connection

In the "Settings" interface, enter "network and Internet", turn on Ethernet, enter the page shown in the figure below, turn on the Ethernet switch, then plug in the network cable and automatically connect to Ethernet. You can view the IP address, Ethernet MAC address and other information in the interface shown in the figure below.



Ethernet Setting Interface

**Notice:**

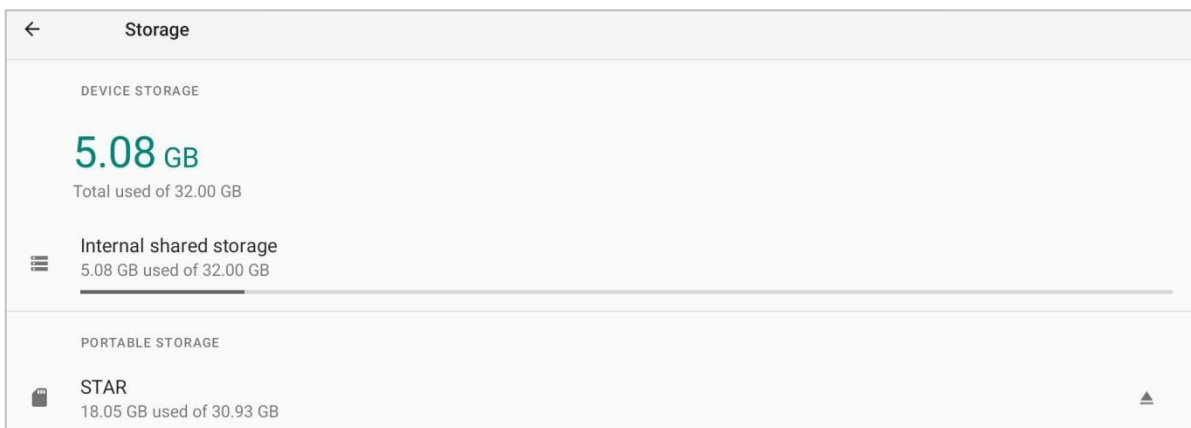
- The use of the wireless network must be connected to the WIFI antenna at the WIFI antenna holder
- The availability and coverage of WIFI signals depends on the number of signals, antenna performance and external environment.
- The Ethernet MAC address is the only permanent and valid device ID for this system.

The network priority order for all Android devices is:

1. ETH Ethernet network
2. WIFI wireless network
3. 3G/4G/5G mobile network

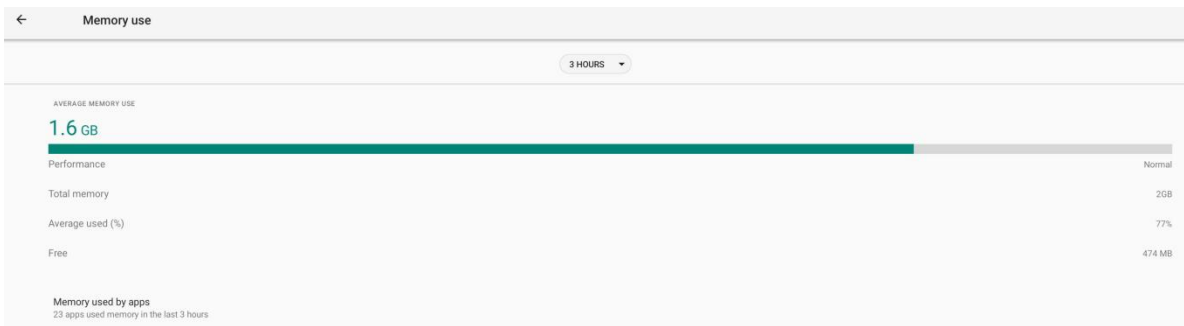
### 4.3 Viewing Storage and Memory

In settings, select "storage" to enter the following interface, where the storage information of the storage space will be displayed. The display of 5.08GB capacity is the remaining available storage capacity of the board, and the display of "Total used 32.00GB" is the total storage capacity of the hardware.



Viewing Storage Interface

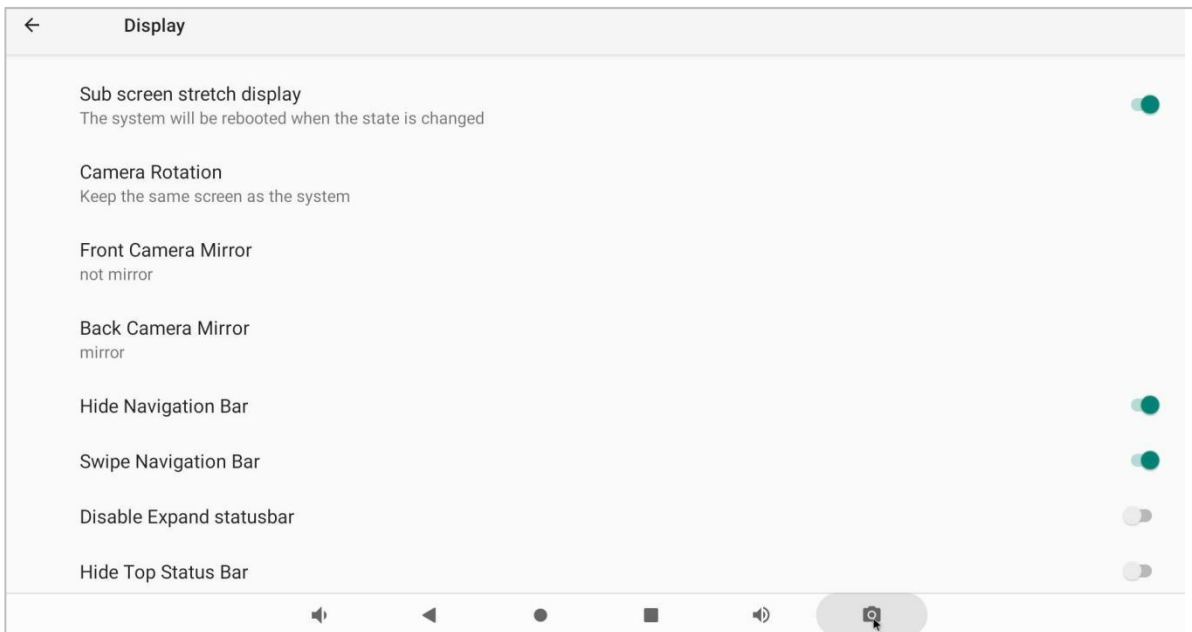
In the setting, select "memory" to enter the interface below to display the built-in storage information. The display shows that the capacity of 1.6GB is the remaining memory capacity of the board, and the display of "total memory 2GB" is the total memory.



View Memory Interface

### 4.4 Setting The Notification Bar And Navigation Bar

In the setting, select "display": check "hide navigation bar", and the navigation bar will be hidden; Check "swipe navigation bar", and the navigation bar can be slid out by sliding the mouse up from the bottom. The navigation bar will disappear 5 seconds after no operation. If disable expand statusbar is checked, expand statusbar cannot be pulled down; Check "hide top statusbar" to hide the top statusbar showing time and other statuses at the top of the interface.



Navigation Bar

**NOTE:**

"Hide navigation bar" must be selected before "swipe navigation bar" is selected;  
When hide top statusbar is selected, expand statusbar is also forced to be hidden by default.

## Chapter 5 Contact Us



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*[Looking forward to working with you, thank you](#)*