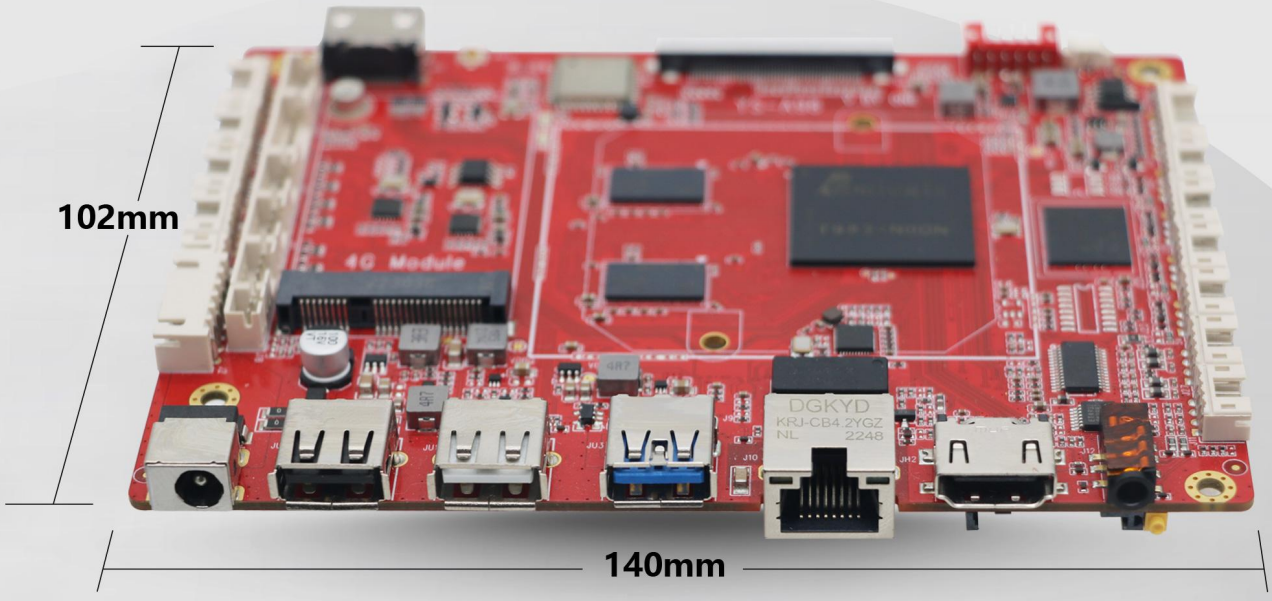
YISHENG ELECTRONICS

Specification

YS-A98

AIOT Board



Shenzhen Yisheng Technology Co., Ltd

Contents

Declaration

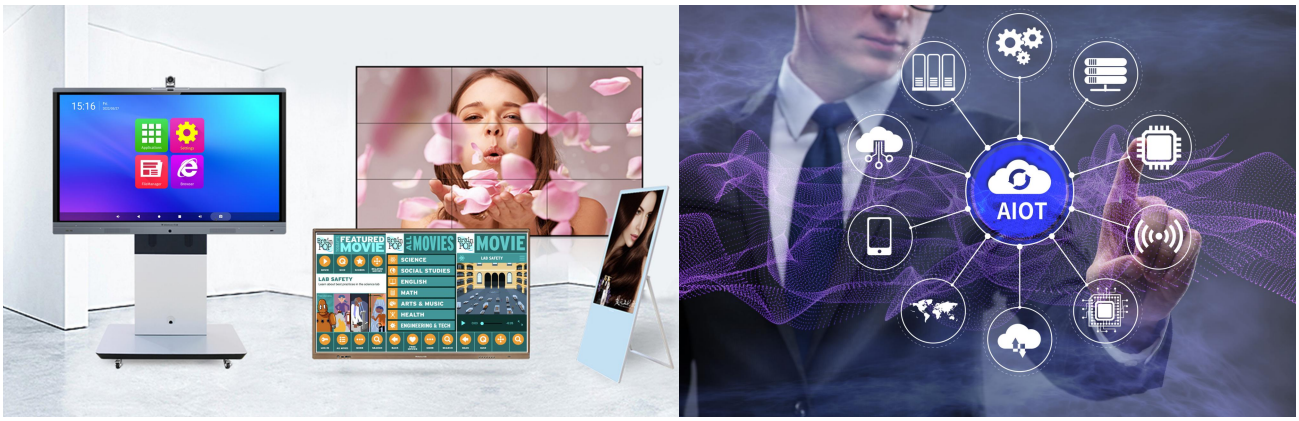
Images and specifications of YS-F3588 mentioned in this document are for reference only. Any further changes or updates will not be sent to you unless special contract signed. This document serves as a product guide and the statements made in it do not constitute any form of guarantee. Without the written permission of Yisheng Technology Co., Ltd., no individual or organization may reproduce any part of this document or engage in any form of dissemination for profit. In order to obtain the latest version of product information, please visit Yisheng Technology Co., Ltd.'s official website regularly or contact company staff for assistance. Thank you for your understanding and support!

Revision History

Version	Date	Author	Approver	Description
V1.0	2023.02.28	Zhang Wenjuan	Qin Yongling	Initial version
V1.5	2024.01.10	Zhang Wenjuan	Qin Yongling	Correct the incorrect description section

Chapter 1 Product Introduction

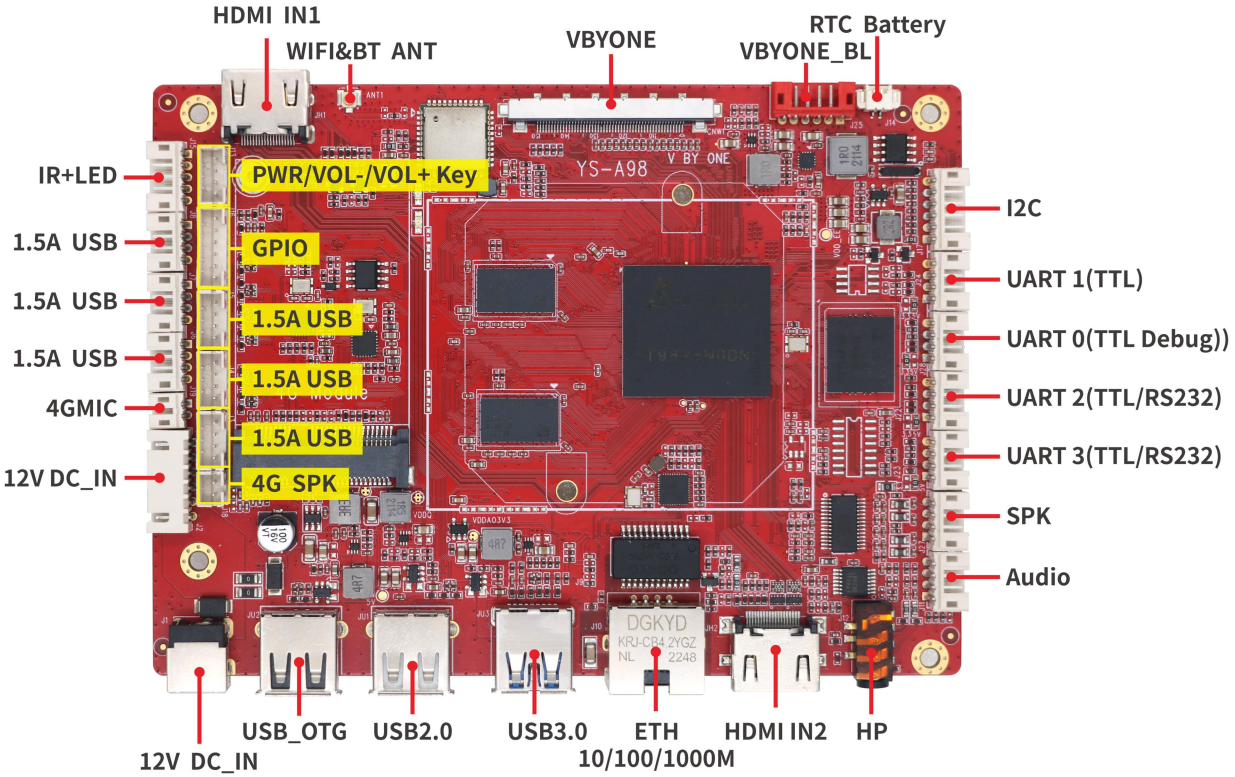
1.1 Overview



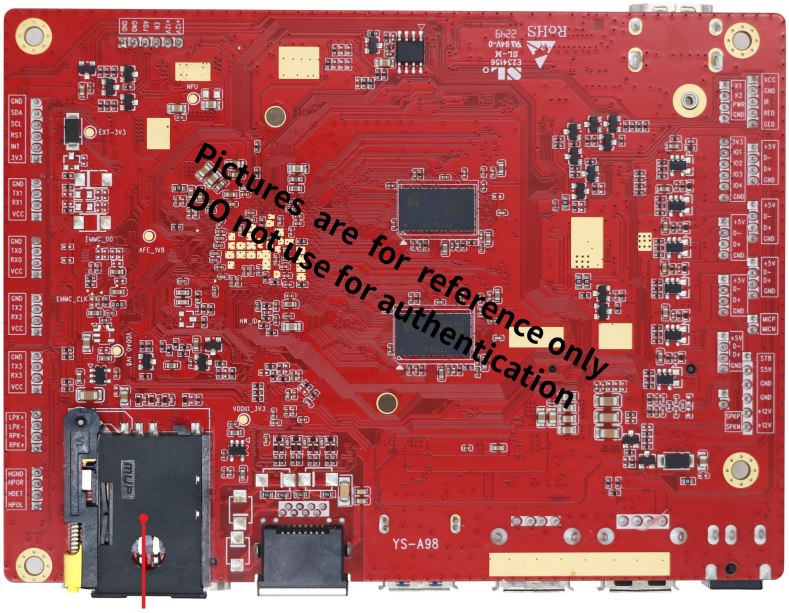
YS-A98 AMlogic T982 CPU.The main system CPU is a quad-core ARM Cortex-A55 CPU with shared L3 cache to improve system performance. In addition, the Cortex-A55 CPU includes the NEON SIMD co-processor to improve software media processing capability. There is also the NPU supporting INT8 inference for all popular deep learning frameworks including TensorFlow and Caffe.

1.2 Pictures and Dimension

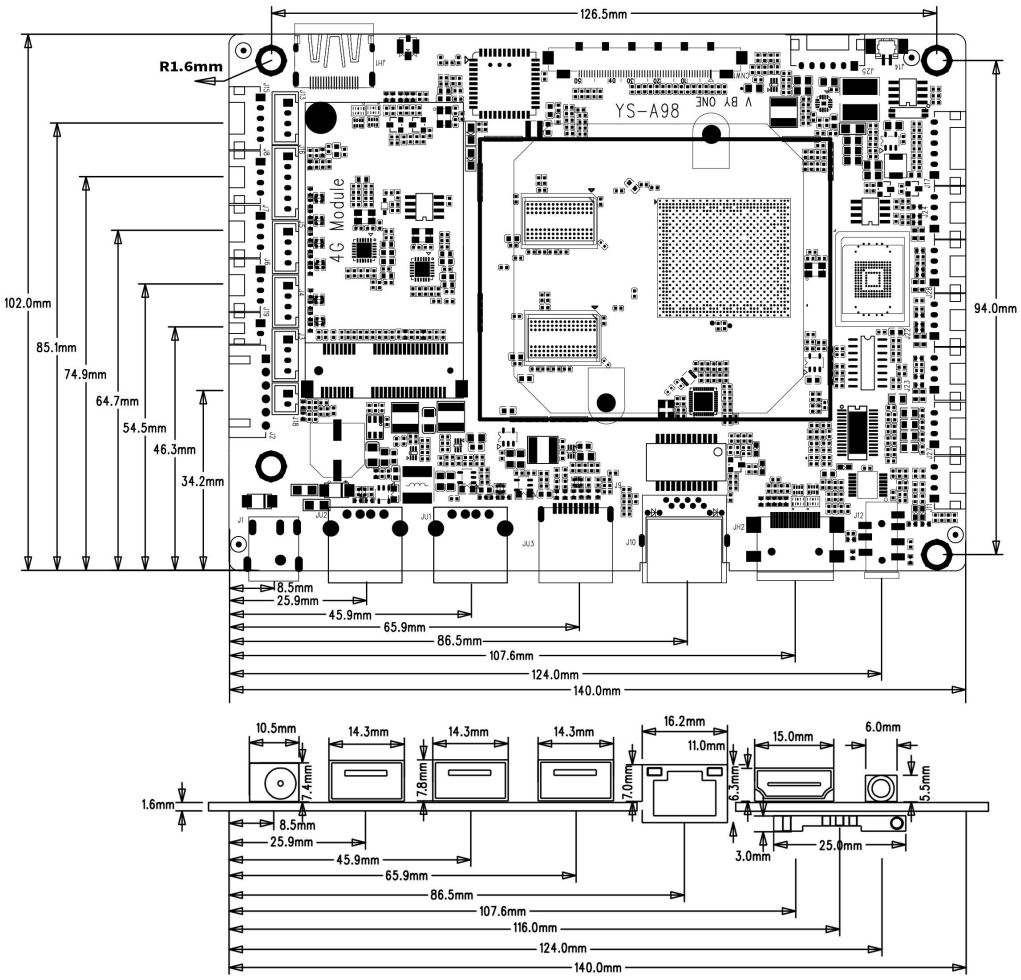
Top View



Bottom View

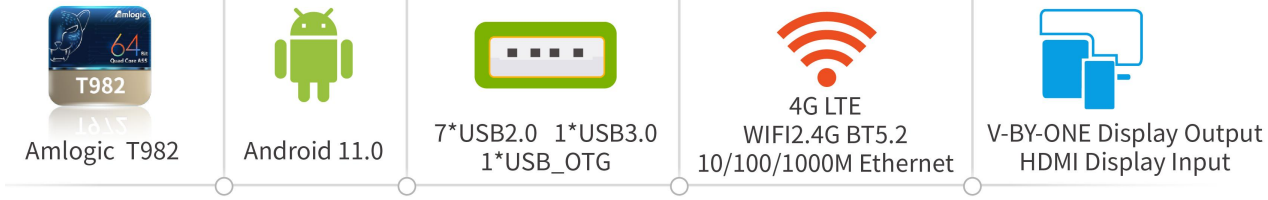


Dimension



*PCBA L：140mm *PCBA W：102mm *PCBA H：12mm *PCBA Location Hole：Φ3.2mm x4

1.3 Product Detailed Parameters



Detail Specification

SOC	Amlogic T982
CPU	Quad-core Cortex-A55 Main frequency up to 1.92GHz
GPU	Mali-G52 MP2（2EE） OpenGL ES 3.2 OpenCL 2.0 Vulkan 1.1
NPU	2 NNA with INT8 inference performance up to 2.6 TOPS
OS	**Android:** Android 11.0
Video CODEC	**Video Decoder** 8Kx4K@30fps or 4Kx2K@60fps：AV1 MP-10,H.265 HEVC MP-10,VP9 4Kx2K@60fps: AVS2 MP 4Kx2K@30fps: H.264 AVC 1080P@60fps : MPEG-4/2/1,WMV/VC-1,AVS-P16 Supports *.mkv,*.wmv,*.mpg, *.mpeg, *.dat, *.avi, *.mov, *.iso, *.mp4 and *.jpg file formats **Video Encoder** 1080P@30fps: H.264
ROM	2/4GB(Up to 8GB) DDR
Storage	16/32/64(Up to 128GB) EMMC
Display Output	1*VBYONE（Up to 4K@60HZ）
Display Input	2*HDMI2.0（4K@60HZ）
Audio	1*SPK（L&R audio-out，Up to 2*8Ω/5W speaker） 1*HP（CTIA） 1*4G MIC 1*4G SPK（Single Track ）
Network	Ethernet：Support 10/100/1000M GMAC WIFI：Support 2.4GHz Band,System:IEE Std.802.11b/g/n Bluetooth：4.2(Up to 5.2) 4G LTE：Support Mini_PCIE Module
USB	1*Type-A USB3.0

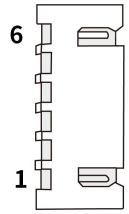
	1*Type-A USB2.0 (OTG or HOST) 1*Type-A USB2.0 HOST 6*USB2.0 HOST(4Pin*2.0mm Wafer)
UART	4*TTL(2*TTL,2* TTL/RS232)
Other	1*I2C 4*GPIO 1*IR+LED 3*Key（1*PWR_Key,2*Vol_Key）

1.4 Configuration & General Precautions

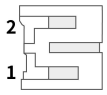
1. Relative humidity ≤ 85%
2. Storage temperature: - 30 ℃ to+70 ℃
3. Operating temperature: - 15 ℃ to+60 ℃
4. During the assembly of the whole machine, please do not operate the wiring with power to avoid short circuit between bare board and peripheral equipment.
5. Pay attention to the anti-static treatment 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

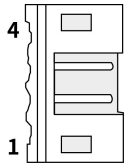
J2（6PIN/2.54）12V DC_IN

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

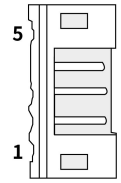
J19（2PIN/2.0）4G_MIC

Exterior	Pin No.	Pin Name	Description
	1	MICP	Positive input for 4G microphone
	2	MICN	Negative input for 4G microphone

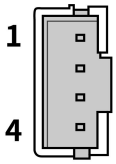
J6、J7、J8（4PIN/2.0）USB

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

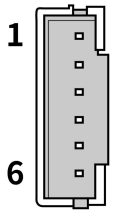
J15（5PIN/2.0）IR+LED

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	GED	Green Light

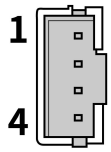
J13（4PIN/2.0）PWR/VOL-/VOL+ Key

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

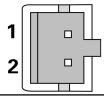
J16（6PIN/2.0）GPIO (Power Domain 3.3V)

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

J5、J4、J3（4PIN/2.0）USB

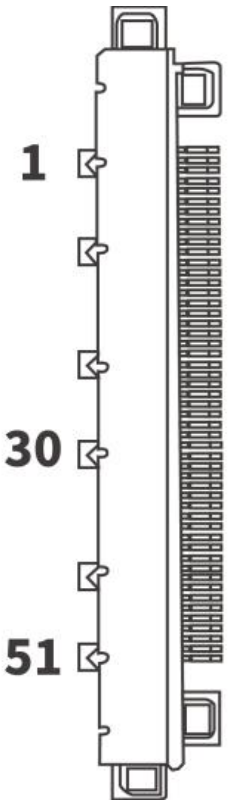
Exterior	Pin No.	Pin Name	Description
	1	+5V	Power Supply
	2	D-	USB data-
	3	D+	USB data+
	4	GND	Ground

J18（2PIN/2.0）4G SPK

Exterior	Pin No.	Pin Name	Description
	1	SPK+	4G Speaker Positive Output
	2	SPK-	4G Speaker Negative Output

CW1 VBYONE (51PIN/0.5mm)

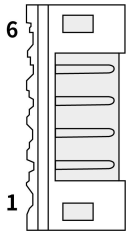
Exterior	Pin No.	Pin Name	Description
	1	GND	Ground
	2	VBX1_7P	VBYONE Signal
	3	VBX1_7N	VBYONE Signal
	4	GND	Ground
	5	VBX1_6P	VBYONE Signal



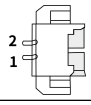
6	VBX1_6N	VBYONE Signal
7	GND	Ground
8	VBX1_5P	VBYONE Signal
9	VBX1_5N	VBYONE Signal
10	GND	Ground
11	VBX1_4P	VBYONE Signal
12	VBX1_4N	VBYONE Signal
13	GND	Ground
14	VBX1_3P	VBYONE Signal
15	VBX1_3N	VBYONE Signal
16	GND	Ground
17	VBX1_2P	VBYONE Signal
18	VBX1_2N	VBYONE Signal
19	GND	Ground
20	VBX1_1P	VBYONE Signal
21	VBX1_1N	VBYONE Signal
22	GND	Ground
23	VBX1_0P	VBYONE Signal
24	VBX1_0N	VBYONE Signal
25	GND	Ground
26	LOCKN-OUT	Control Signal
27	HTPDN	Control Signal
28	SEL-LVDS	Control Signal
29	AGP	Control Signal
30	SCN-EN	Control Signal
31	Bit-SEL1	Control Signal
32	LD-EN2	Control Signal
33	BOE-SCL	IIC Signal
34	BOE-SDA	IIC Signal
35	2D/3D	Control Signal
36	L/R-IN	Control Signal
37	L/R-OUT	Control Signal
38	NC	Null
39	GND	Ground
40	GND	Ground
41	GND	Ground
42	GND	Ground
43	NC	Null
44	VCC	12V Power Supply
45	VCC	12V Power Supply

	46	VCC	12V Power Supply
	47	VCC	12V Power Supply
	48	VCC	12V Power Supply
	49	VCC	12V Power Supply
	50	VCC	12V Power Supply
	51	VCC-VX1	12V Power Supply

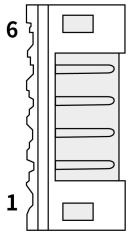
J25（6PIN/2.0）VBYONE_BL

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

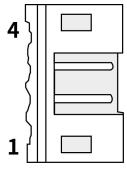
J14（2PIN/1.25）RTC Battery

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

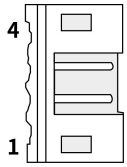
J17（6PIN/2.0）IIC（Power Domain 3.3V）

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

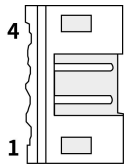
J24（4PIN/2.0）UART 1（TTL UART, Power Domain 3.3V）

Exterior	Pin No.	Pin Name	Description
	1	VCC	5V Power Supply（Optional 3.3V）
	2	RX1	UART Receive
	3	TX1	UART Transmit
	4	GND	Ground

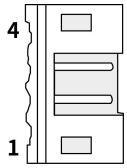
J28（4PIN/2.0）TTL UART 0-DEBUG（TTL UART，Power Domain 3.3V）

Exterior	Pin No.	Pin Name	Description
	1	VCC	3.3V Power Supply（Optional 5V）
	2	RX0	UART Receive
	3	TX0	UART Transmit
	4	GND	Ground

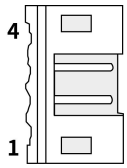
J22（4PIN/2.0）UART 2（Optional TTL/RS232 UART，TTL Power Domain 3.3V）

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

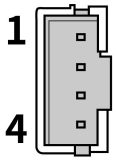
J23（4PIN/2.0）UART 3（Optional TTL/RS232 UART，TTL Power Domain 3.3V）

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

J27（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

J11（4PIN/2.0）Audio

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

Chapter 3 Electrical Characteristics

◆ Normal Operating Conditions

Interface Type		Min	Typ	Max
Standard power parameters	VCC	11V	12V	13.5V
	Ripple	/	/	±3%
	Current	2A	3A	/

◆ Power Consumption

Interface Type		Min	Typ	Max
+12V Power Supply Current (with no display connected)	Operation Current	/	250mA	370mA
	STAND-BY CURRENT	/	18mA	25mA
	BATTERY OPERATION CURRENT	/	0.0024mA	/

◆ USB Power Supply

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

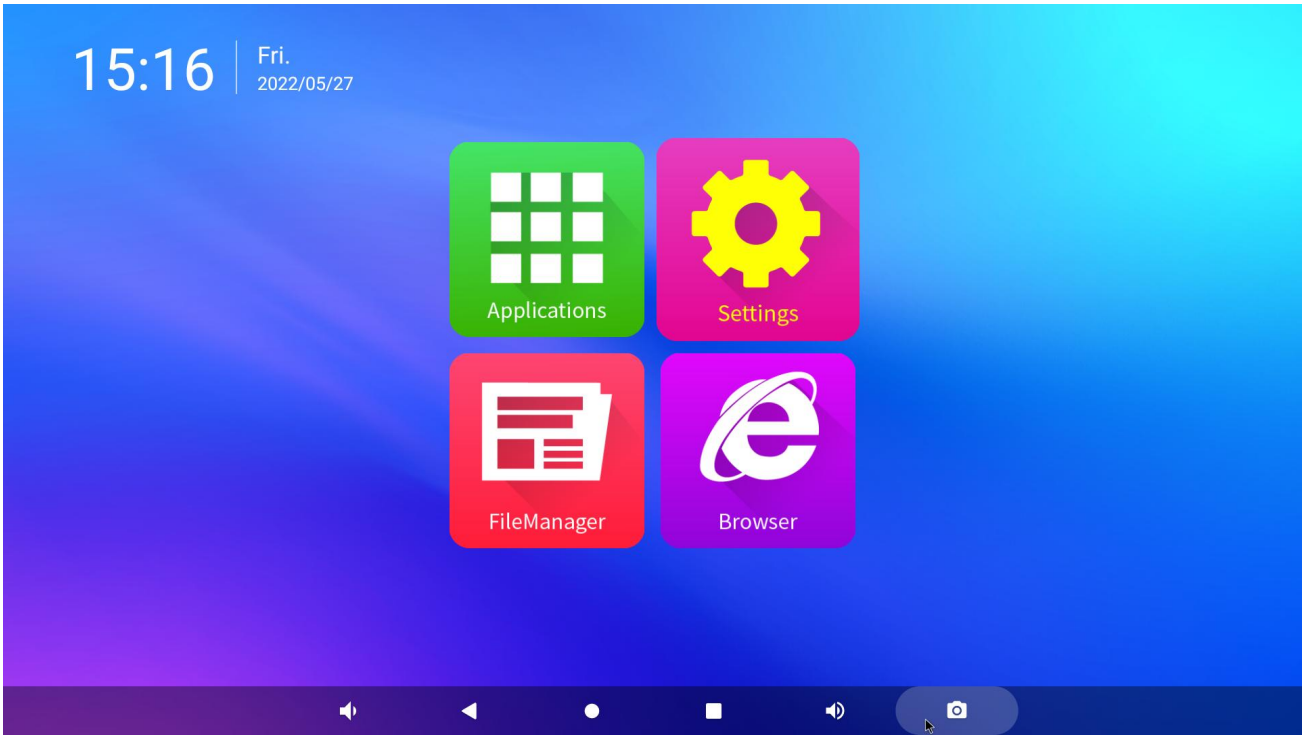
◆ Other

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

Chapter 4 System Instruction

4.1 Android System Interface Description

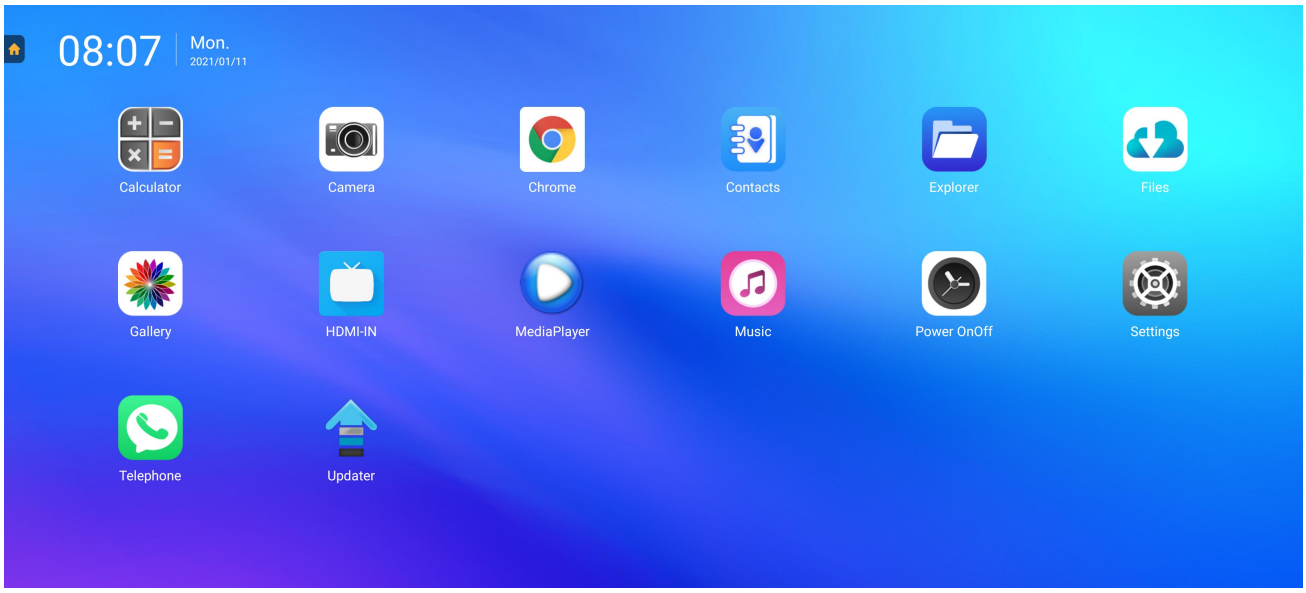
The main menu interface of Android system is divided into four categories: application, settings, file management and browser.



Homepage

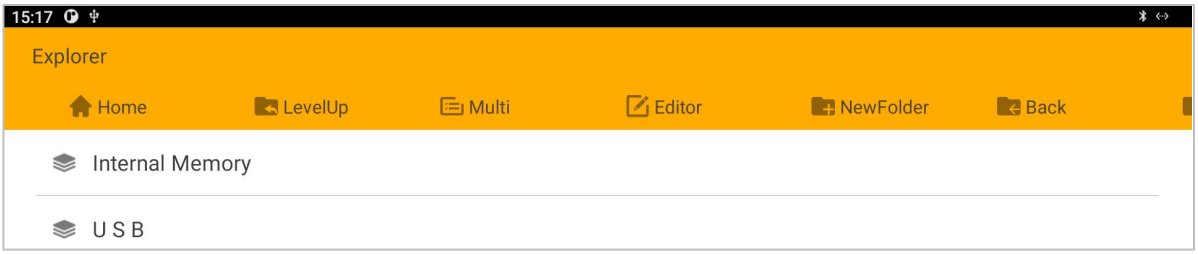
（1）Application interface

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



Application Interface

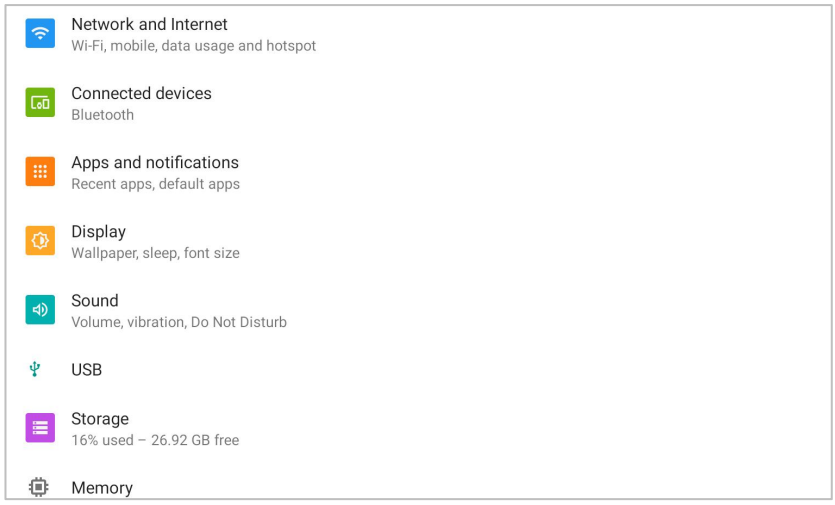
（2）File Management Interface



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.

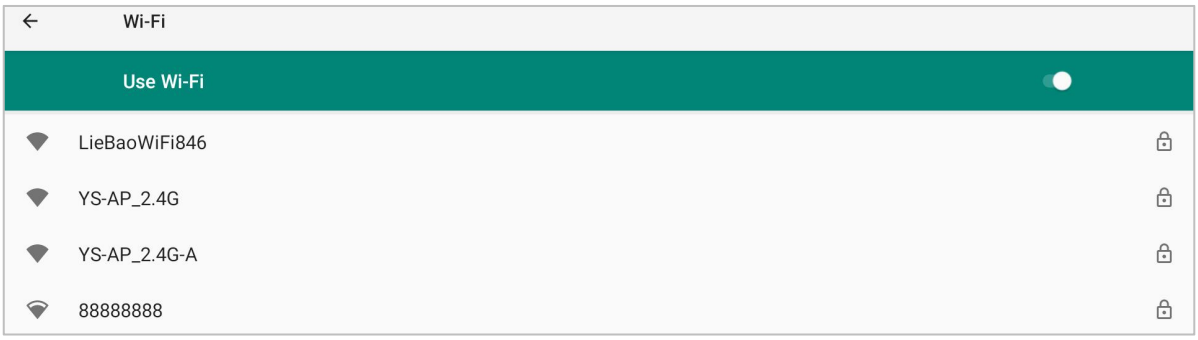


Setting Menu Interface

4.2 Network Interface Explanation

（1）WIFI Network Signal Connection

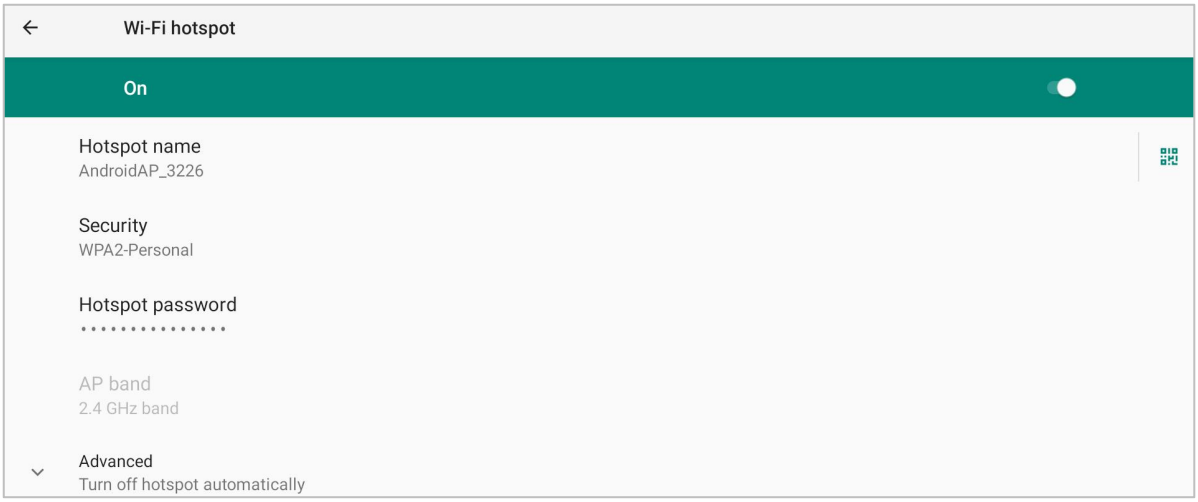
Turn on the WiFi switch in the "setting" interface, as shown in the following figure; Select the WiFi signal to be connected and enter the corresponding password to successfully connect.



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

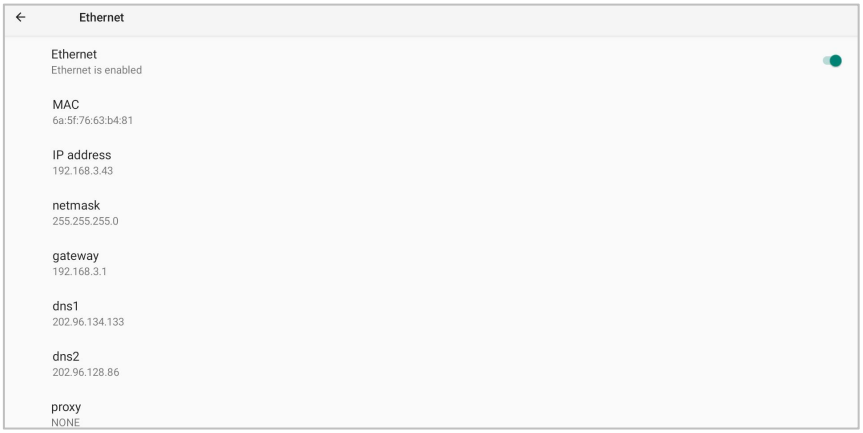
（3）Bluetooth Signal Connection

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：

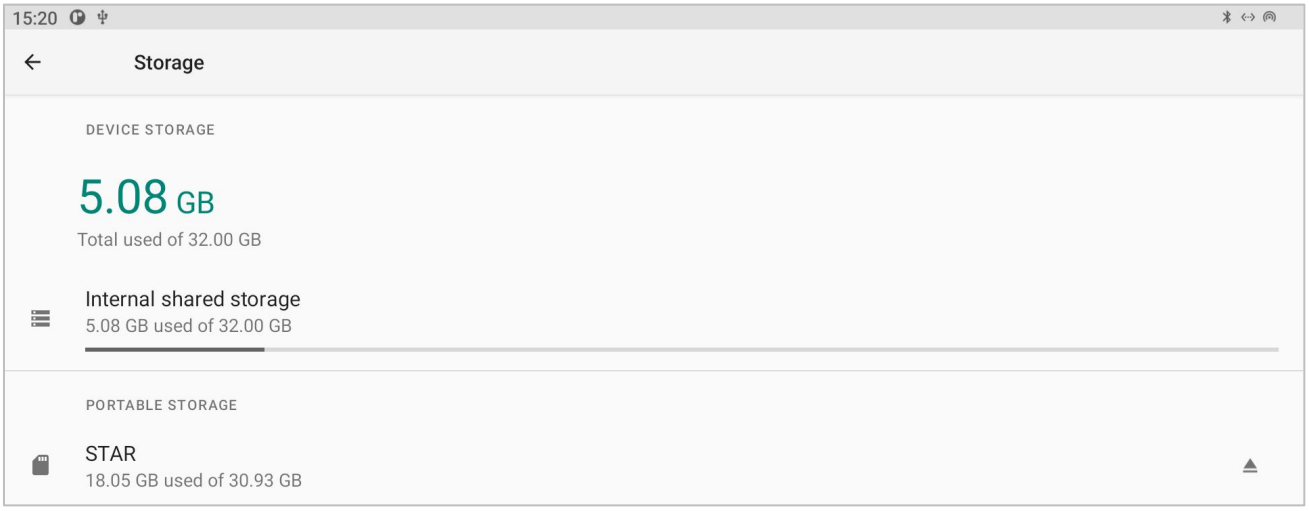
- The use of the wireless network must be connected to the WIFI antenna at the WIFI antenna holder
- The availability and coverage of WIFI signals depends on the number of signals, antenna performance and external environment.
- The Ethernet MAC address is the only permanent and valid device ID for this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

The network priority order for all Android devices is:

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

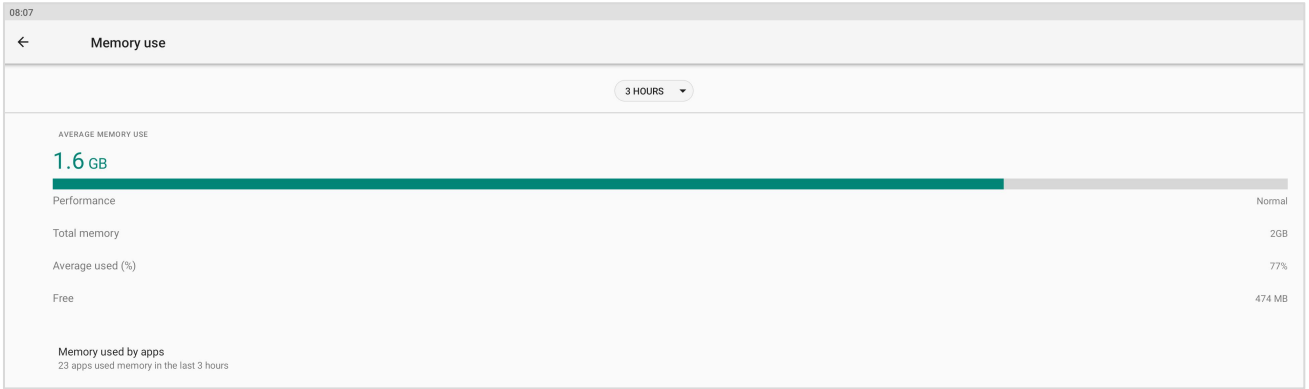
4.3 Viewing Storage and Memory

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

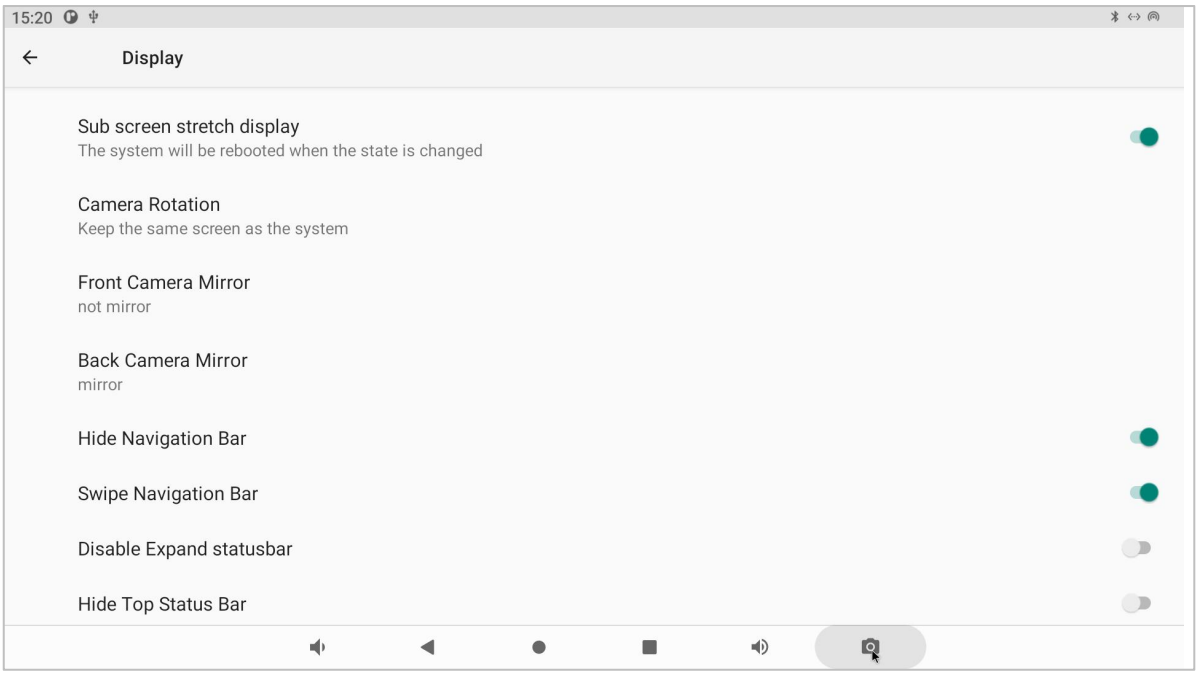
In the setting, select "memory" to enter the interface below to display the built-in storage information. The display shows that the capacity of 1.6GB is the remaining memory capacity of the board, and the display of "total memory 2GB" is the total memory.



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

Contact Information:

Tel: 0755-27383670

Email: lisiping@yishengtc.com

Operation Website:

Web: www.yishengtec.cn/en

Office Address:

Shenzhen Headquarters: 6/F, R&D Center, Lixinhu High-tech Industrial Park, Bao'an District, Shenzhen

Guangzhou Branch: Room 318, Jiangrun Building, No. 565, Xingnan Avenue, Panyu District, Guangzhou

Looking forward to working with you, thank you