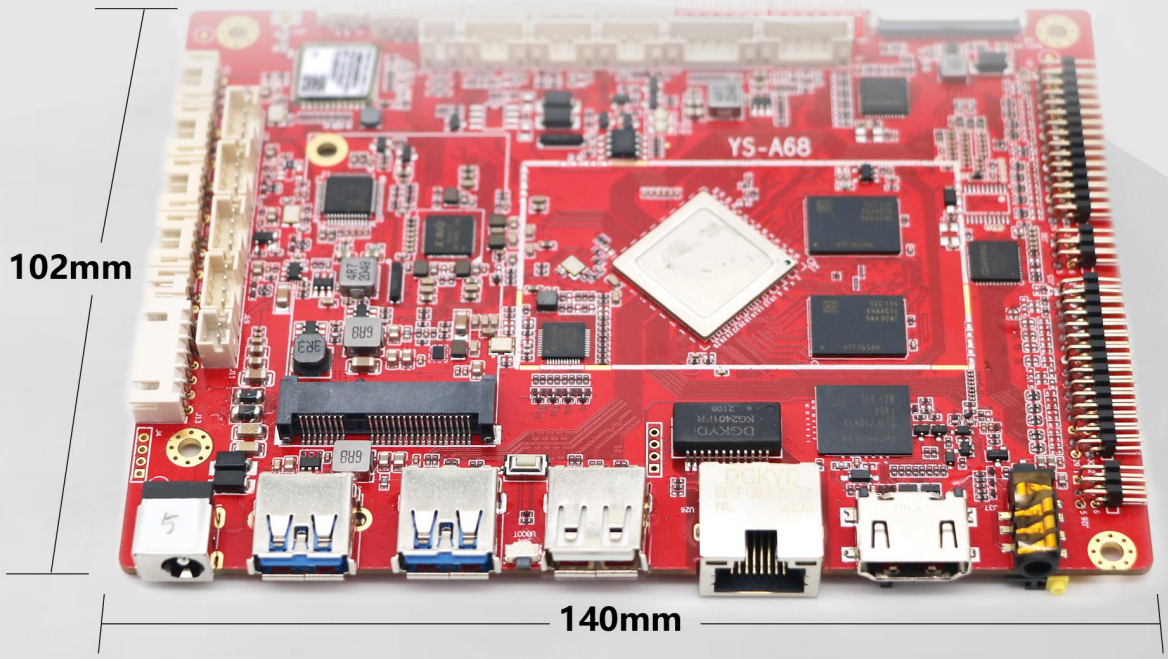
YISHENG ELECTRONICS

Specification

YS-A68

AIOT Board



Shenzhen Yisheng Technology Co., Ltd

Contents

Declaration

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Revision History

Version	Date	Author	Approver	Description
V1.0	2023.02.28	Zhang Wenjuan	Qin Yongling	Initial version
V2.3	2024.01.10	Zhang Wenjuan	Qin Yongling	Correct description error part
V2.4	2024.10.22	Zhang Wenjuan	Li Quan	Change wifi module picture
V2.5	2024.11.06	Zhang Wenjuan	Li Quan	Change Bluetooth parameters

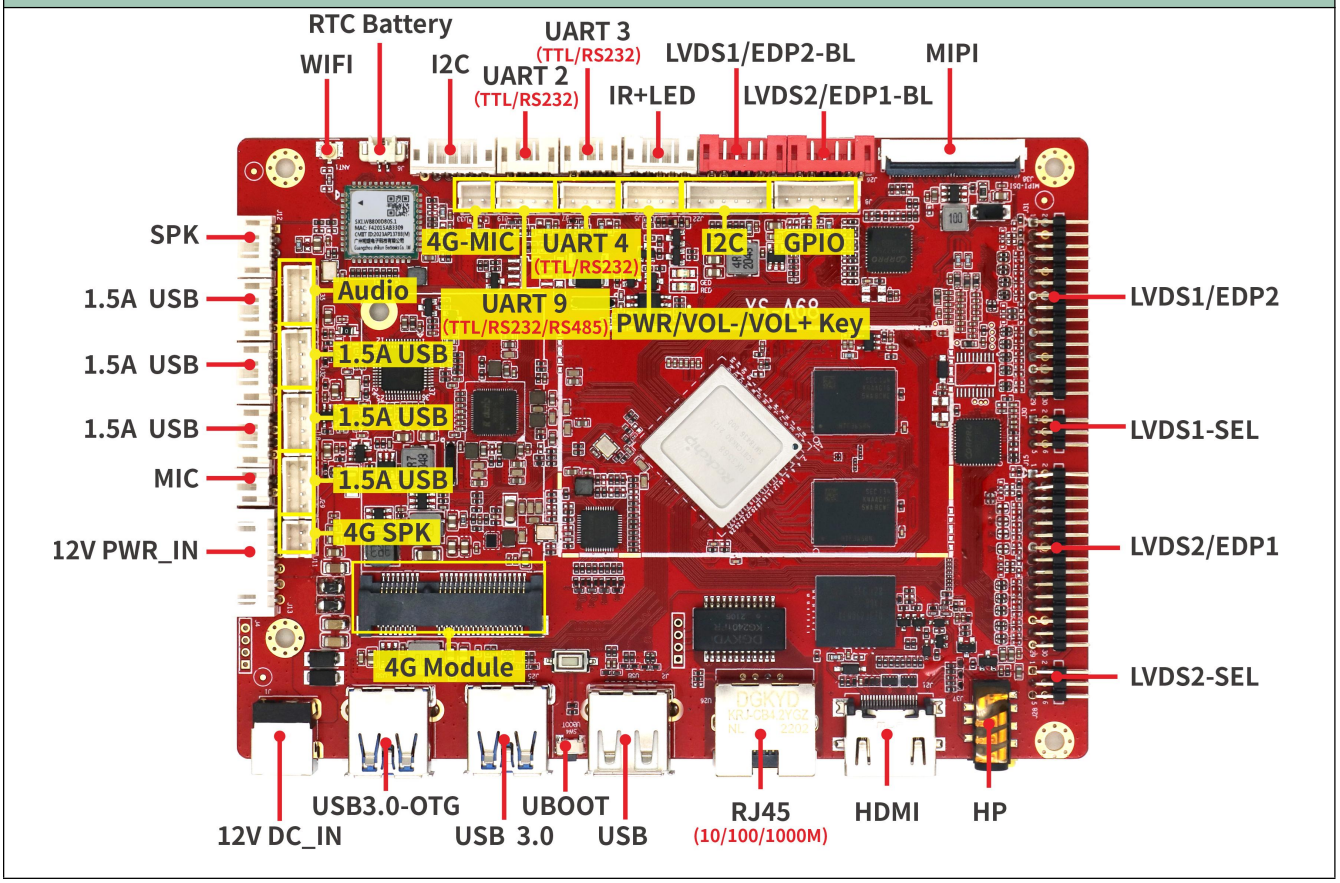
Chapter 1 Product Introduction

1.1 Overview

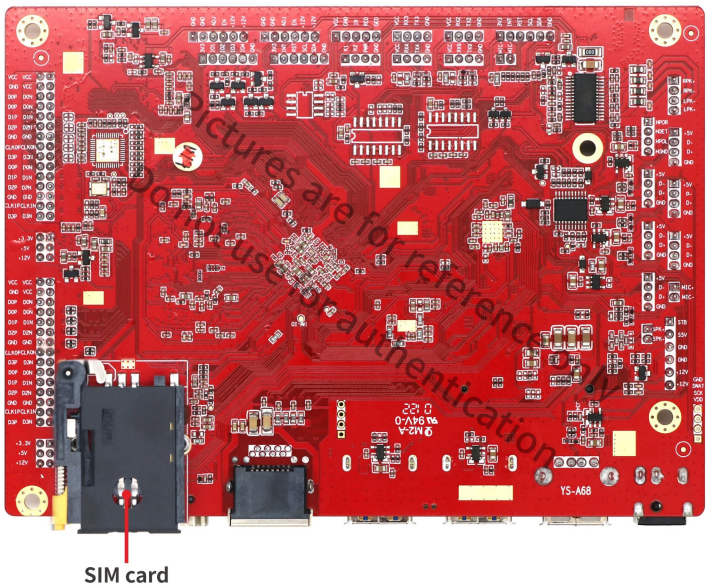
YS-A68 is developed based on Rockchip RK3568, the CPU is Quad-core Cortex-A55, NPU supports 1 TOPS, with rich peripheral interfaces, support dual LVDS , dual EDP, HDMI 2.0 output, GPIO, I2C, UART, etc. It can be widely used in mobile internet devices and AIoT devices.

1.2 Pictures and Dimensions

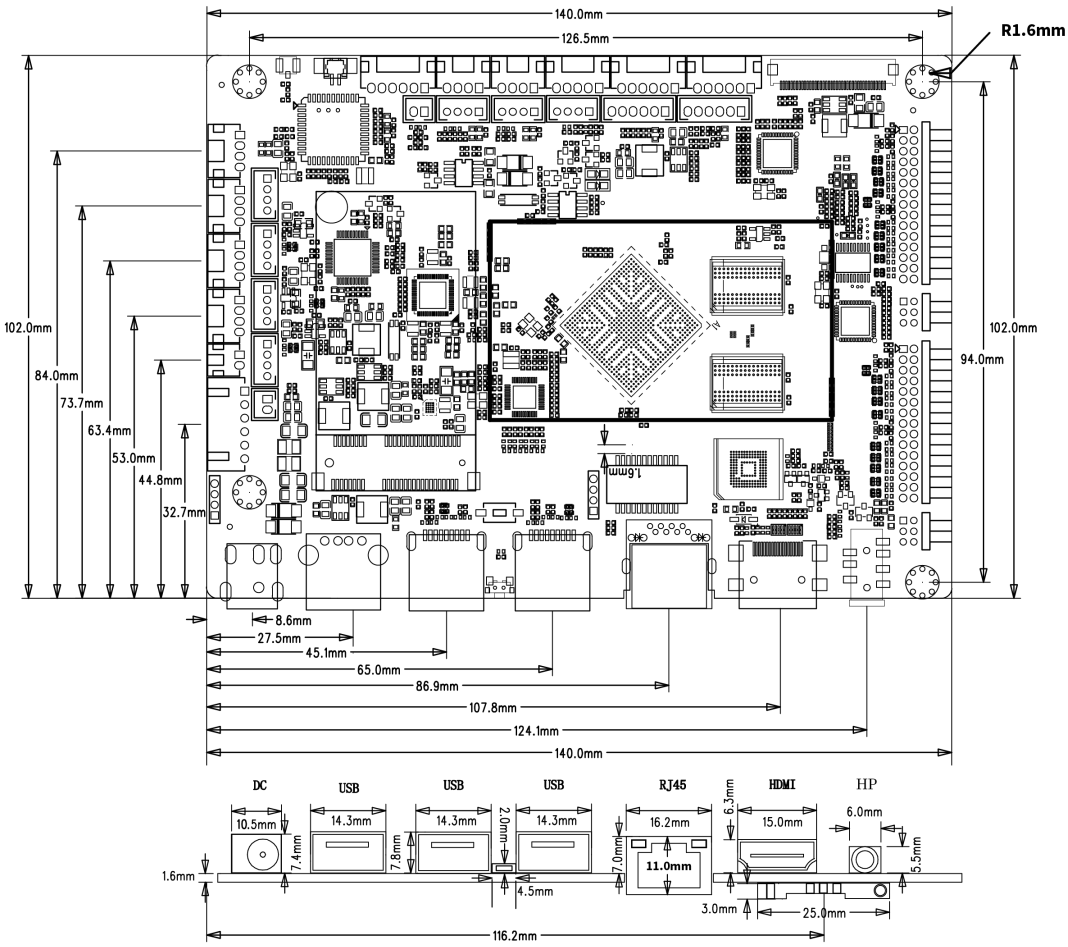
Top View



Bottom View

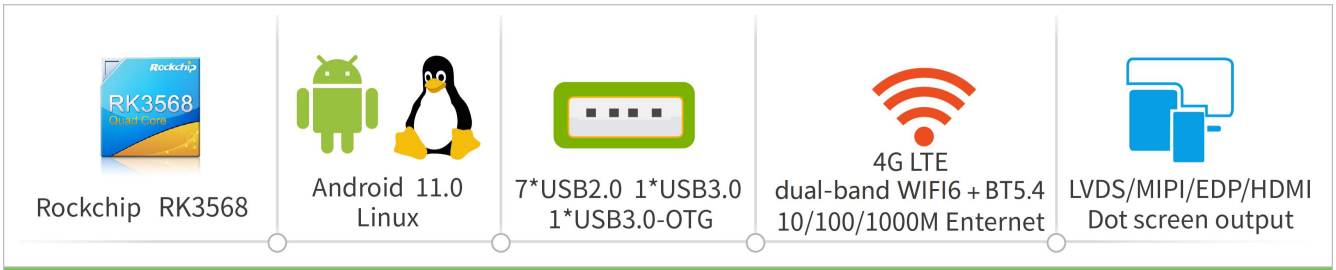


Dimensions



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

1.3 Product Detailed Parameters



Detail Specification	
SOC	RockChip RK3568
CPU	Quad-Core Cortex-A55 Max CPU frequency： 2.0GHz
GPU	Mali-G52 2EE,Embedded 3D GPU OpenGL ES 1.1/2.0/ 3.2 OpenCL up to 2.0 Vulkan 1.1 Special 2D hardware engine
NPU	Supports up to 1TOPs Supports INT8/INT16 hybrid operation
OS	**Android:** Android 11.0 **Linux:** Debian11
Video CODEC	**Video Decoder** 4K@60fps H.264 AVC/MVC/,H.265 HEVC/MVC ,VP9 1080P@60fps MPEG-4/-2/-1/VC-1,VP8 **Video Encoder** 1080P@60fps H.264/AVC BP/MP/HP ,H.265/HEVC MP
ROM	2GB/4GB（Up to 8GB）32bit LPDDR4
Storage	8/16GB（Up to 256GB）eMMC
Display Output	1*HDMI2.0（Up to 4K@60HZ） 2*LVDS or 2*EDP or 1*LVDS+1*EDP（Up to 1920x1080） 1*MIPI_DSI-40PIN-FPC（Up to 1200x1920）
Audio	1*SPK（L&R audio-out， Up to 2*8Ω/5W speaker） 1*HP（CTIA） 1*MIC 1*4G MIC 1*4G SPK（Single Track ）
Network	Ethernet： Support 10/100/1000M GMAC WIFI： dual-band WIFI6 Bluetooth： 5.4 4G LTE： Support Mini_PCIE Module

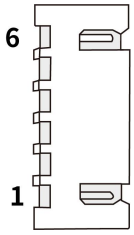
USB	1*Type-A USB3.0 (OTG or HOST) 1*Type-A USB3.0 HOST 1*Type-A USB2.0 HOST 6*USB2.0 HOST(4Pin*2.0mm Wafer)
UART	4*TTL(1*TTL/RS232/RS485,3* TTL/RS232)
Other	2*I2C 4*GPIO 1*IR+LED 3*Key（1*PWR_Key,2*Vol_Key）

1.4 Configuration & General Precautions

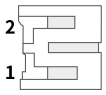
1. Relative humidity ≤ 85%
2. Storage temperature: - 30 ℃ to+70 ℃
3. Operating temperature: - 15 ℃ to+60 ℃
4. During the assembly of the whole machine, please do not operate the wiring with power to avoid short circuit between bare board and peripheral equipment.
5. Pay attention to the anti-static treatment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

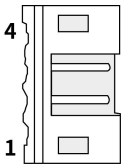
J13（6PIN/2.54）12V PWR_IN

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

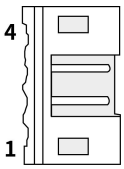
J36（2PIN/2.0）MIC

Exterior	Pin No.	Pin Name	Description
	1	MIC+	Positive input for local microphone
	2	MIC-	Negative input for local microphone

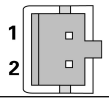
J27、J14、J23（4PIN/2.0）USB

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

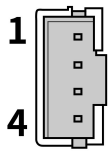
J12（4PIN/2.0）SPK

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

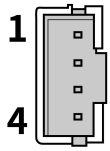
J11（2PIN/2.0）4G SPK

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

J29、J18、J32（4PIN/2.0）USB

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

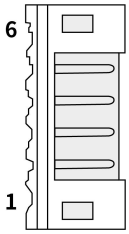
J35（4PIN/2.0）Audio

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

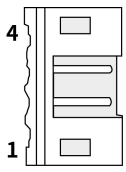
J6（2PIN/1.25）RTC Battery

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

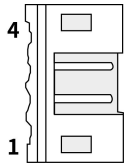
J9（6PIN/2.0）IIC（Power Domain 3.3V）

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

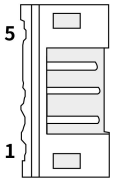
J24（4PIN/2.0）TTL UART 2-DEBUG（Optional TTL/RS232, TTL Power Domain 3.3V）

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

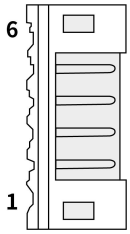
J3（4PIN/2.0）UART 3（Optional TTL/RS232 UART，TTL Power Domain 3.3V）

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

J7（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

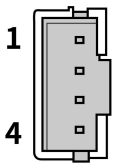
J16、J26（6PIN/2.0）EDP/LVDS_BL

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

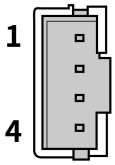
J33（2PIN/2.0）4G-MIC

Exterior	Pin No.	Pin Name	Description
	1	MIC+	Positive input for local microphone
	2	MIC-	Negative input for local microphone

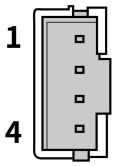
J19（4PIN/2.0）UART 9（Optional TTL/RS232/RS485 UART，TTL Power Domain 3.3V）

Exterior	Pin No.	Pin Name	Description
	1	VCC	5V Power Supply（Optional 3.3V）
	2	RX9/485B	UART Receive
	3	TX9/485A	UART Transmit
	4	GND	Ground

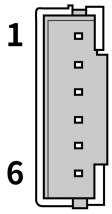
J17（4PIN/2.0）UART 4（Optional TTL/RS232 UART, TTL Power Domain 3.3V）

Exterior	Pin No.	Pin Name	Description
	1	VCC	5V Power Supply（Optional 3.3V）
	2	RX4	UART Receive
	3	TX4	UART Transmit
	4	GND	Ground

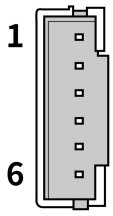
J5（4PIN/2.0）PWR/VOL-/VOL+ Key

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

J22（6PIN/2.0）IIC (Power Domain 3.3V)

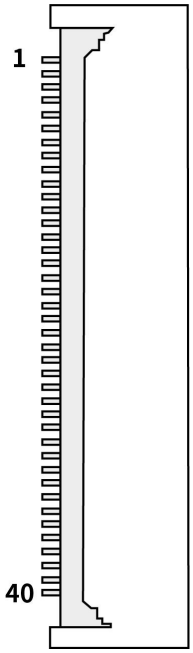
Exterior	Pin No.	Pin Name	Description
	1	3.3V	Power
	2	INT	Interrupt
	3	RST	Reset
	4	SCL	Clock
	5	SDA	Data
	6	GND	Ground

J8（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

J38 (40PIN/0.5mm) MIPI_DSI（FPC）

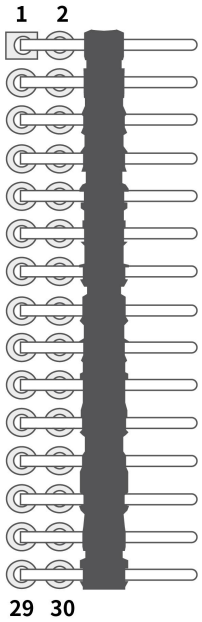
Exterior	Pin No.	Pin Name	Description
	1	VDD1V8	+1.8V Power Supply
	2	VDD3V3	+3.3V Power Supply
	3	VDD3V3	+3.3V Power Supply



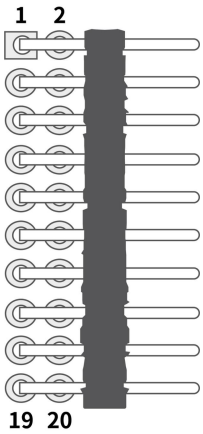
	4	NC	Null
	5	RESET	Reset
	6	NC	Null
	7	GND	Ground
	8	MIPI_D0-	MIPI Signal
	9	MIPI_D0+	MIPI Signal
	10	GND	Ground
	11	MIPI_D1-	MIPI Signal
	12	MIPI_D1+	MIPI Signal
	13	GND	Ground
	14	MIPI_CLK-	MIPI Signal
	15	MIPI_CLK+	MIPI Signal
	16	GND	Ground
	17	MIPI_D2-	MIPI Signal
	18	MIPI_D2+	MIPI Signal
	19	GND	Ground
	20	MIPI_D3-	MIPI Signal
	21	MIPI_D3+	MIPI Signal
	22	GND	Ground
	23	NC	Null
	24	NC	Null
	25	GND	Ground
	26	NC	Null
	27	NC	Null
	28	NC	Null
	29	NC	Null
	30	GND	Ground
	31-32	LEDK	Backlight Power Supply
	33-38	NC	Null
	39-40	LEDA	Backlight Power Supply

J31、J15 (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	RXO0-	LVDS Signal

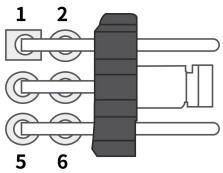
	8	RXO0+	LVDS Signal
	9	RXO1-	LVDS Signal
	10	RXO1+	LVDS Signal
	11	RXO2-	LVDS Signal
	12	RXO2+	LVDS Signal
	13	GND	Ground
	14	GND	Ground
	15	RXOC-	LVDS Signal
	16	RXOC+	LVDS Signal
	17	RXO3-	LVDS Signal
	18	RXO3+	LVDS Signal
	19	RXEO-	LVDS Signal
	20	RXEO+	LVDS Signal
	21	RXE1-	LVDS Signal
	22	RXE1+	LVDS Signal
	23	RXE2-	LVDS Signal
	24	RXE2+	LVDS Signal
	25	GND	Ground
	26	GND	Ground
	27	RXEC-	LVDS Signal
	28	RXEC+	LVDS Signal
	29	RXE3-	LVDS Signal
	30	RXE3+	LVDS Signal

J31、J15(20PIN/2.0) EDP

Exterior	Pin No.	Pin Name	Description
	1	PWR	Power Supply
	2	PWR	Power Supply
	3	GND	Ground
	4	GND	Ground
	5	TXON	EDP Signal
	6	TXOP	EDP Signal
	7	TX1N	EDP Signal
	8	TX1P	EDP Signal
	9	TX2N	EDP Signal
	10	TX2P	EDP Signal
	11	TX3N	EDP Signal
	12	TX3P	EDP Signal
	13	GND	Ground
	14	GND	Ground

	15	AUXN	EDP Signal
	16	AUXP	EDP Signal
	17-19	GND	Ground
	20	HPD	Plug and Pull Detection

J30、J28 (6PIN/2.0) LVDS_SEL_VOLT

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

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
Power Supply Current (with no display connected)	Operation Current	/	260mA	350mA
	STAND-BY CURRENT	/	10mA	30mA
	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

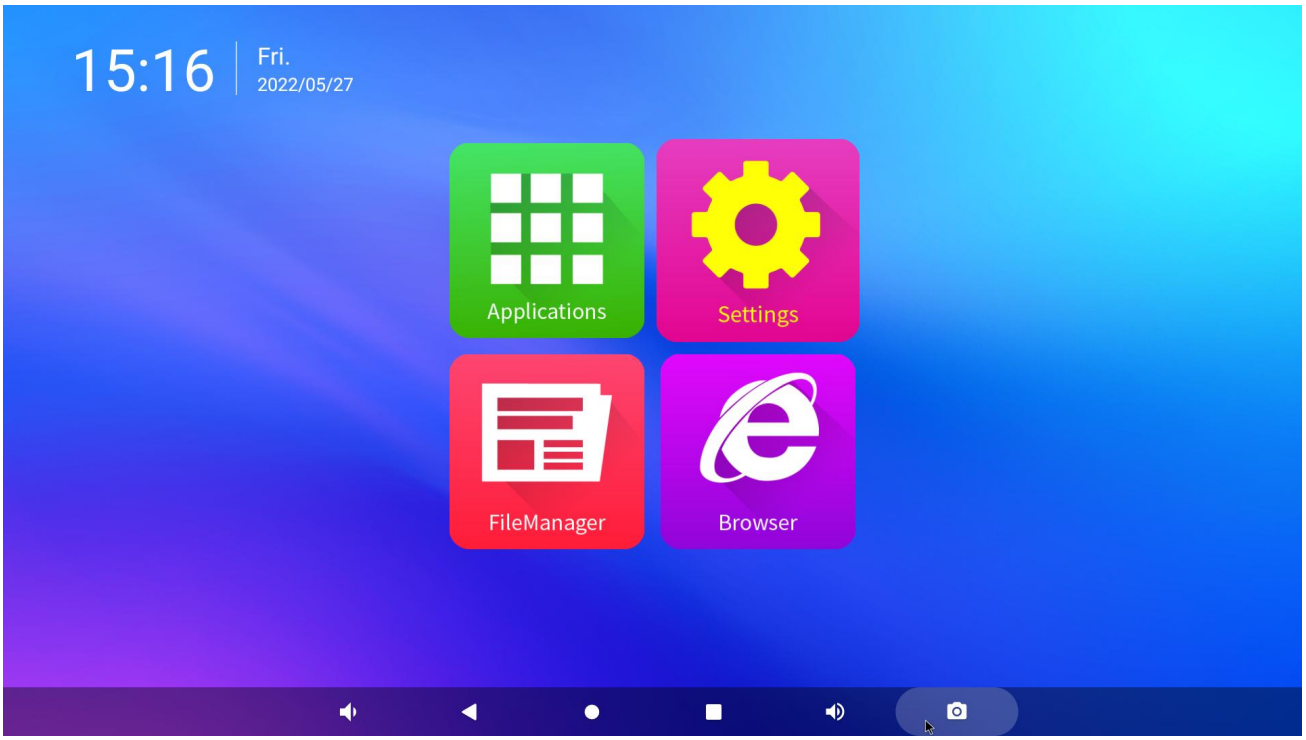
◆ Other

Interface Type	Rated Current	Max Current	Max Current
EXT 5V	/	3000mA	
EXT 3.3V	/	3000mA	
MIPI_DSI_BL	150mA	/	/

Chapter 4 System Instruction

4.1 Android System Interface Description

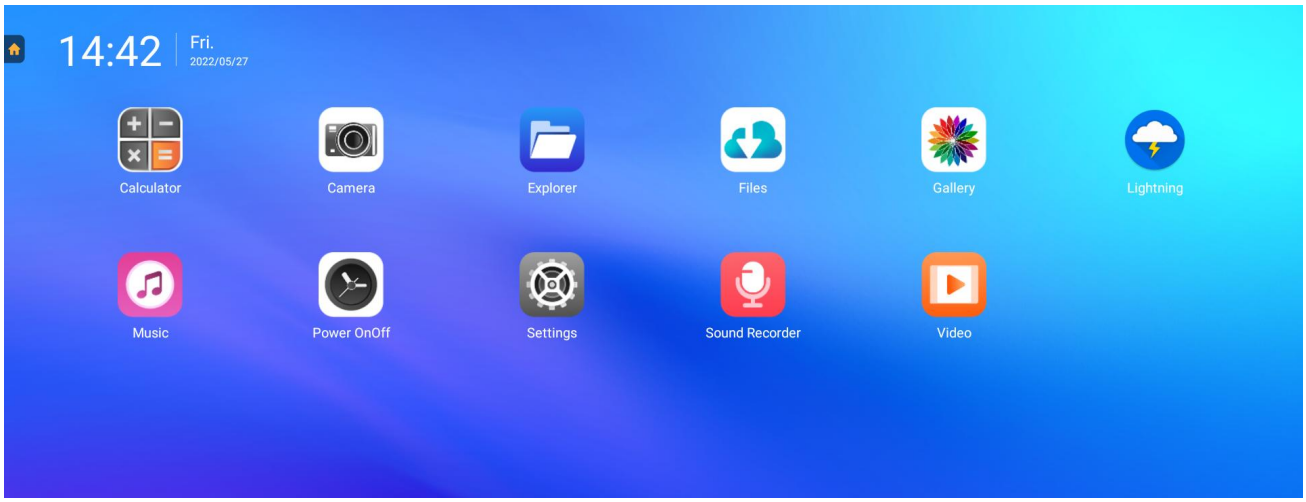
The main menu interface of Android system is divided into four categories: application, settings, file management and browser.



Homepage

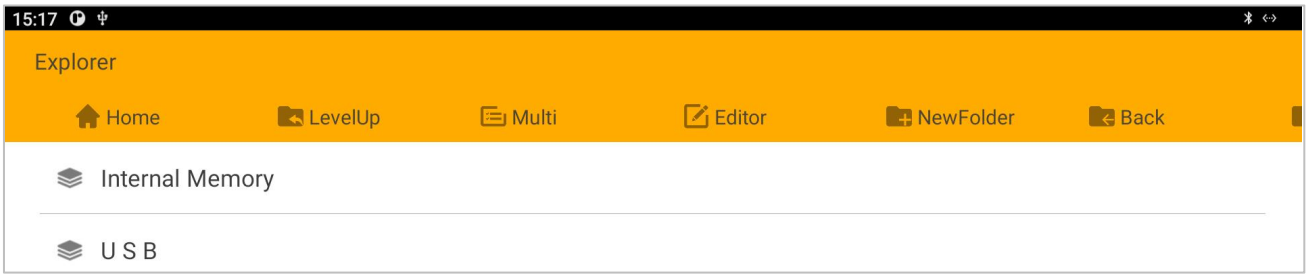
（1）Application interface

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



Application Interface

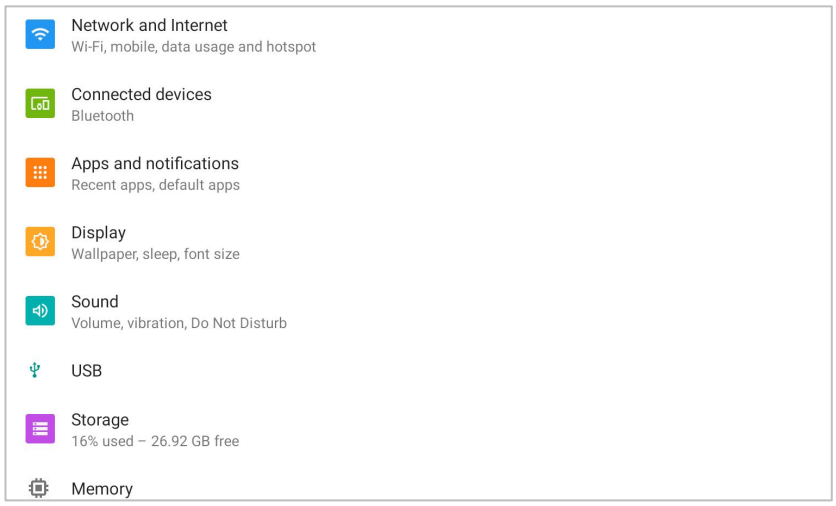
（2）File Management Interface



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.

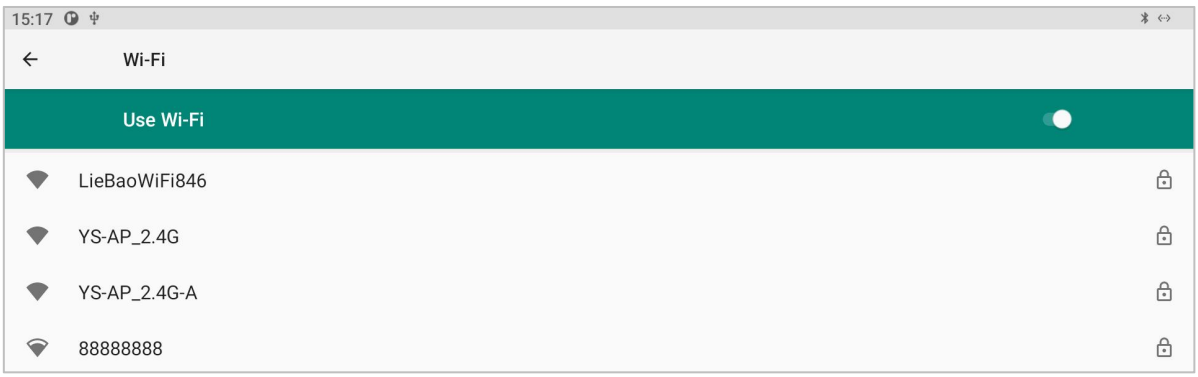


Setting Menu Interface

4.2 Network Interface Explanation

（1）WIFI Network Signal Connection

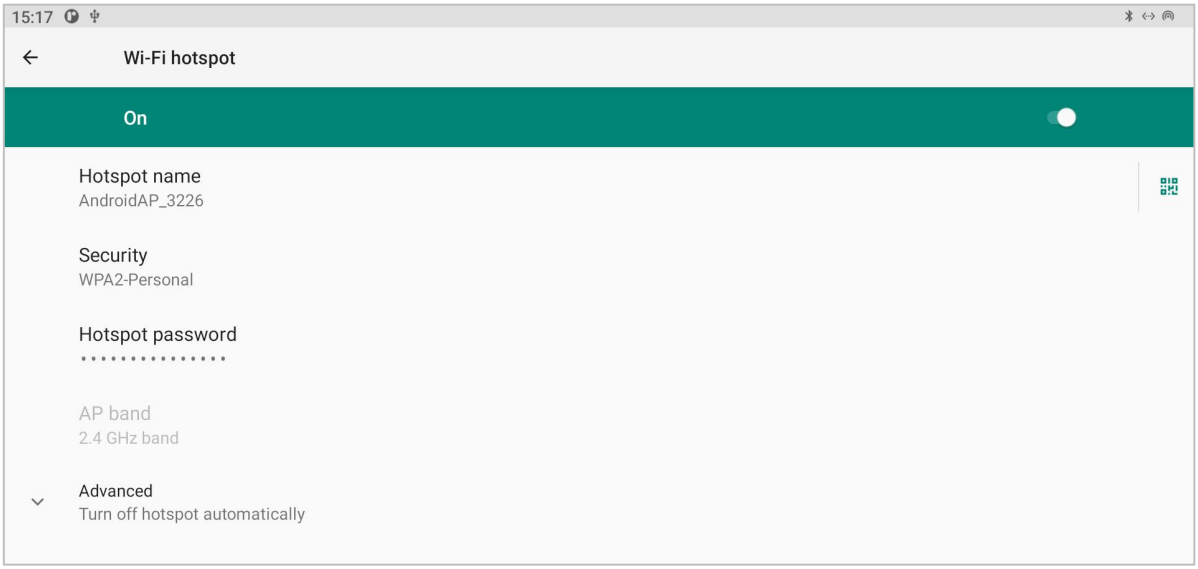
Turn on the WiFi switch in the "setting" interface, as shown in the following figure; Select the WiFi signal to be connected and enter the corresponding password to successfully connect.



WIFI Setting Interface

（2）WiFi Hotspot

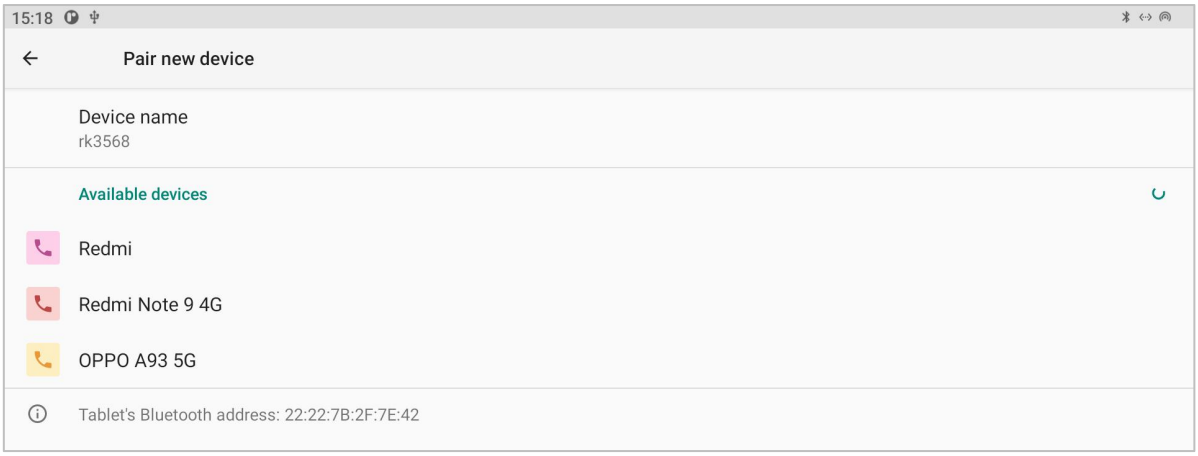
As shown in the following figure, in the "Settings - network and Internet" interface, open the "hotspot and network sharing - WIFI hotspot" function, enter the interface shown in the figure below, you can send WiFi signals, and the device can successfully connect to the hotspot by entering the password.



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：

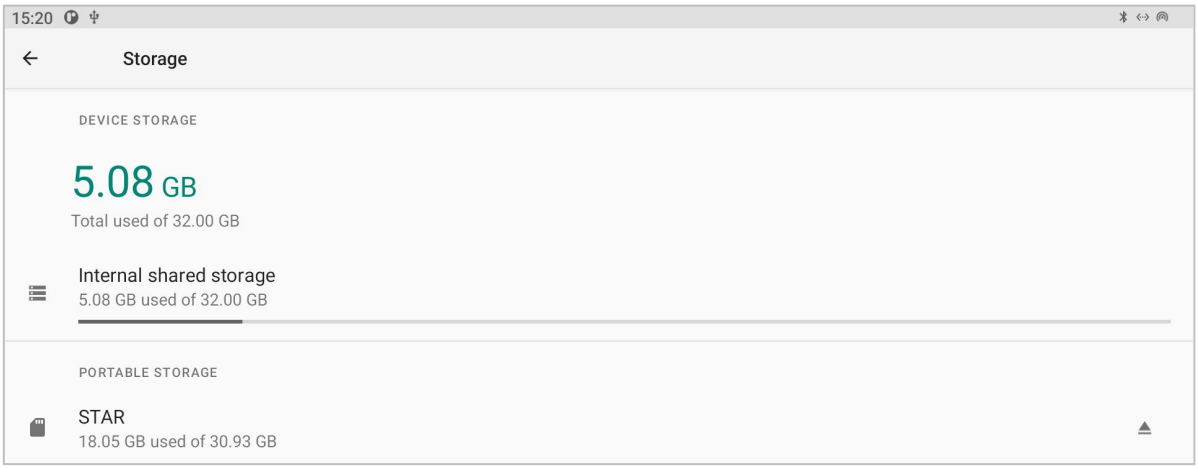
- **The use of the wireless network must be connected to the WIFI antenna at the WIFI antenna holder**
- **The availability and coverage of WIFI signals depends on the number of signals, antenna performance and external environment.**
- **The Ethernet MAC address is the only permanent and valid device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

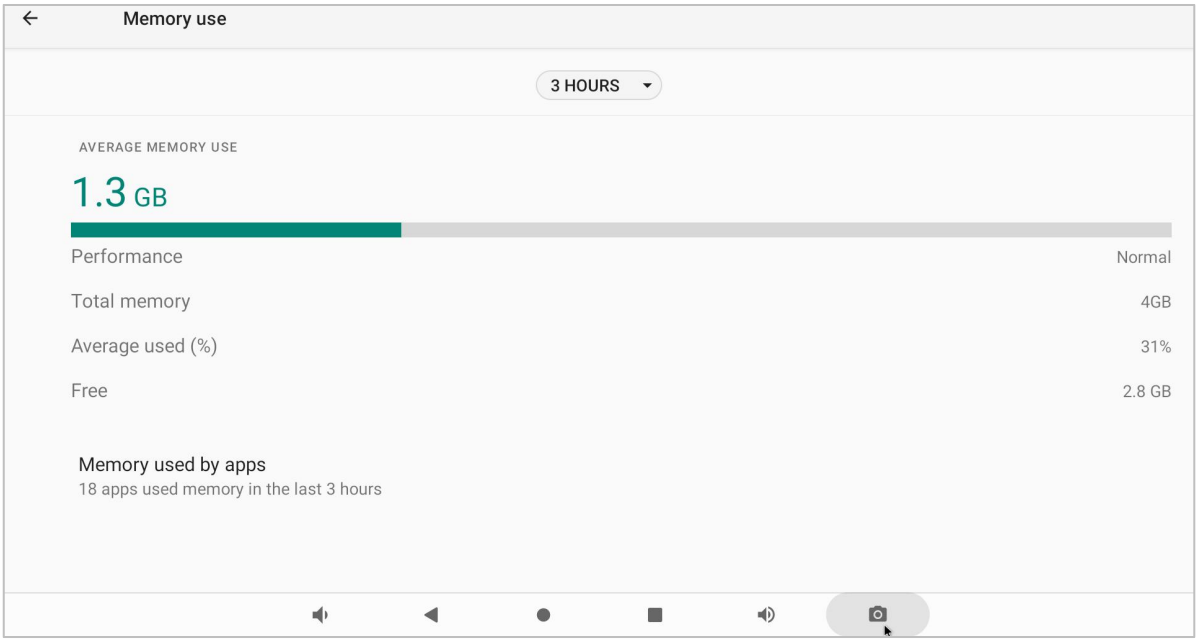
4.3 Viewing Storage and Memory

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

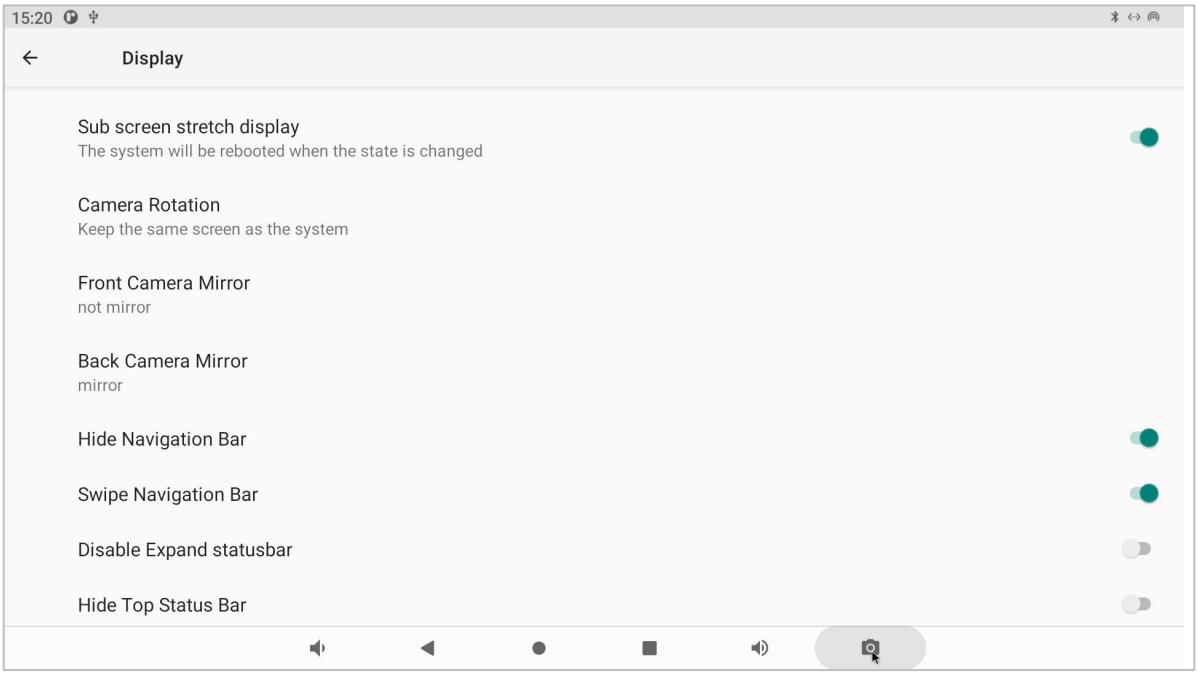
In the setting, select "memory" to enter the interface below to display the built-in storage information. The display shows that the capacity of 1.3GB is the remaining memory capacity of the board, and the display of "total memory 4GB" is the total memory.



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