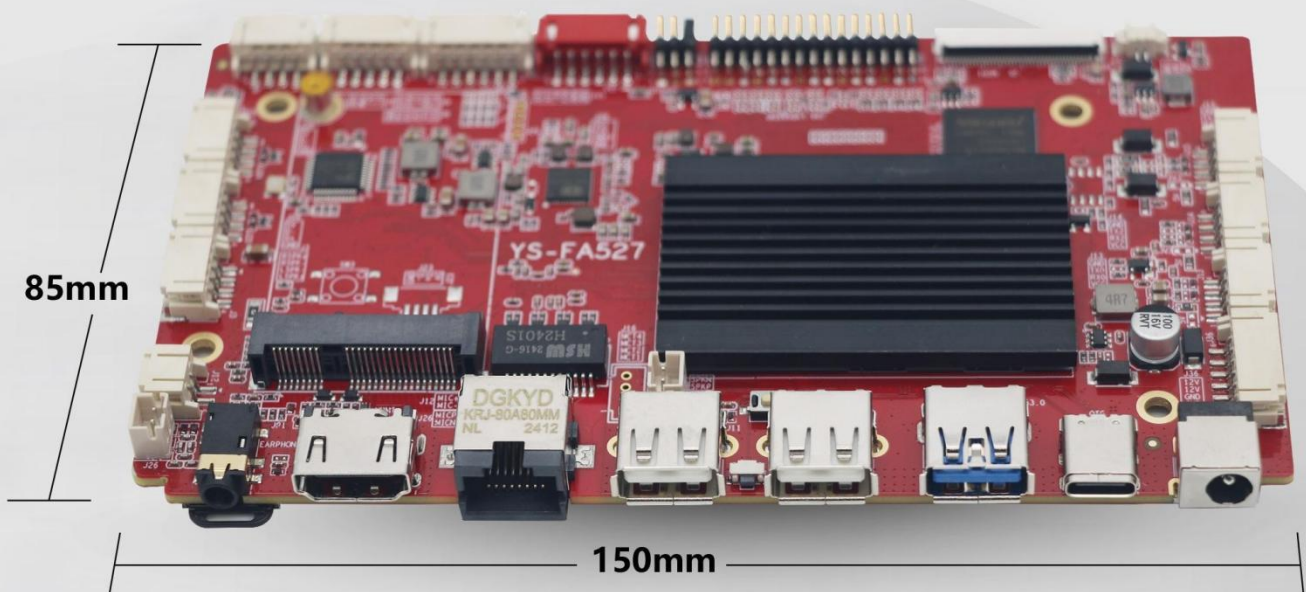


Specification

YS-FA527

Digital Sign Board



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Declaration

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Revision History

Version	Date	Author	Approver	Description
V1.2	2024.01.28	Zhang Wenjuan	Qin Yongling	Initial version

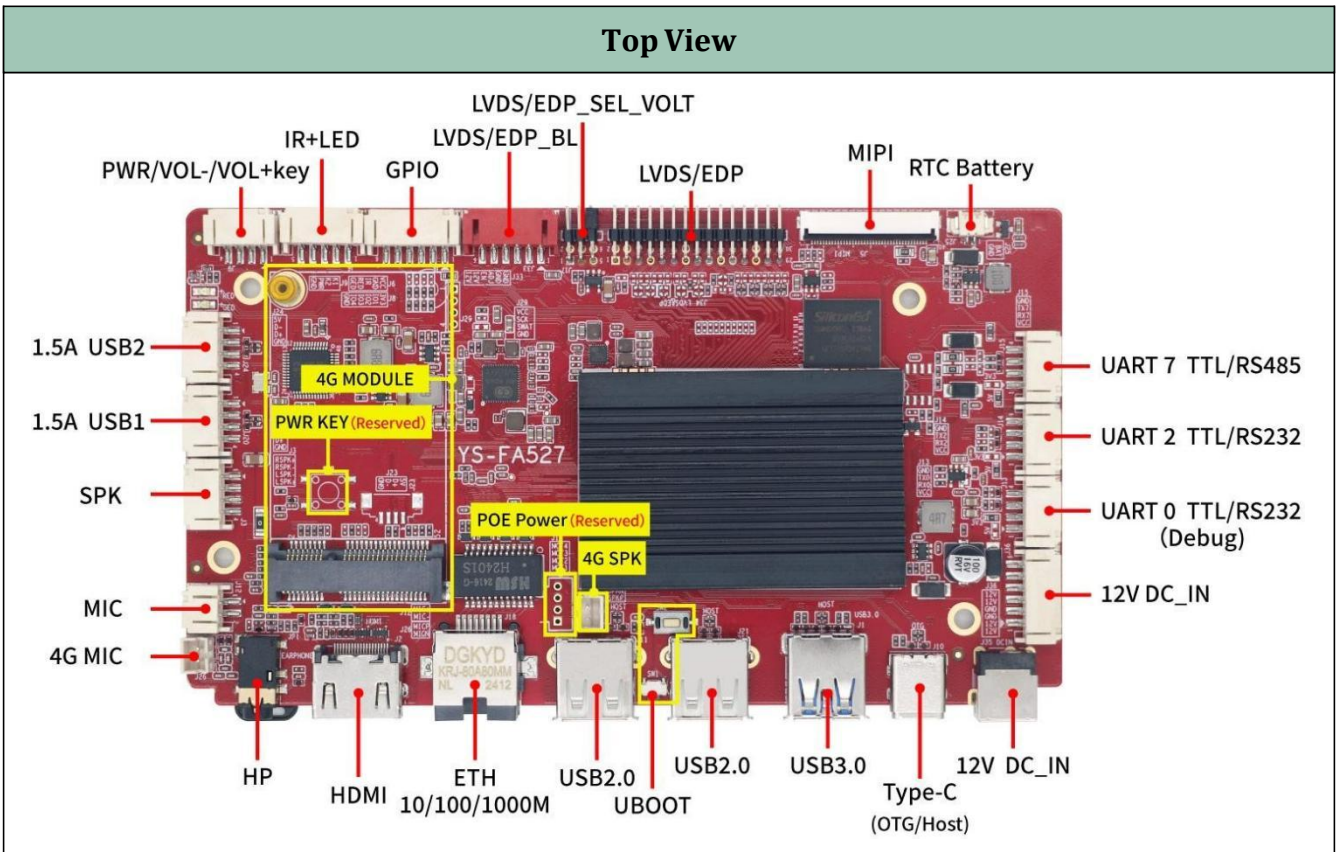
Chapter 1 Product Introduction

1.1 Overview

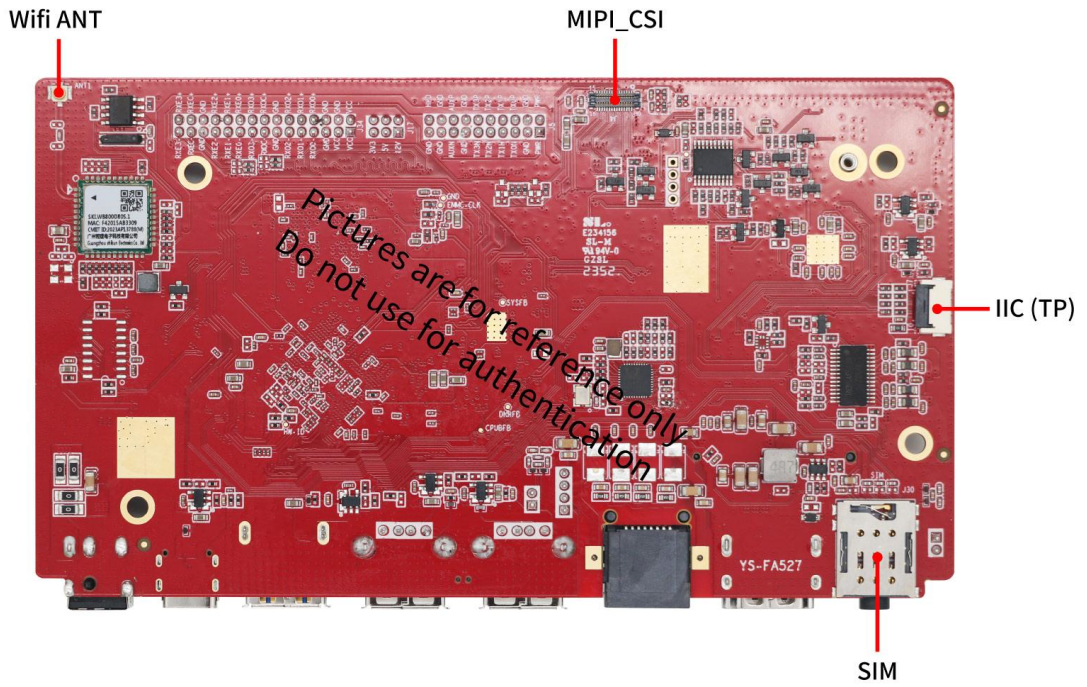


YS-FA527 is developed based on Allwinner A527, the CPU is Octa-core Cortex-A55, CPU clock speed up to 2.0GHz, with rich peripheral interfaces, support LVDS, EDP, HDMI 2.0 output, GPIO, I2C, UART, etc. It can be widely used in mobile internet devices and AIoT devices.

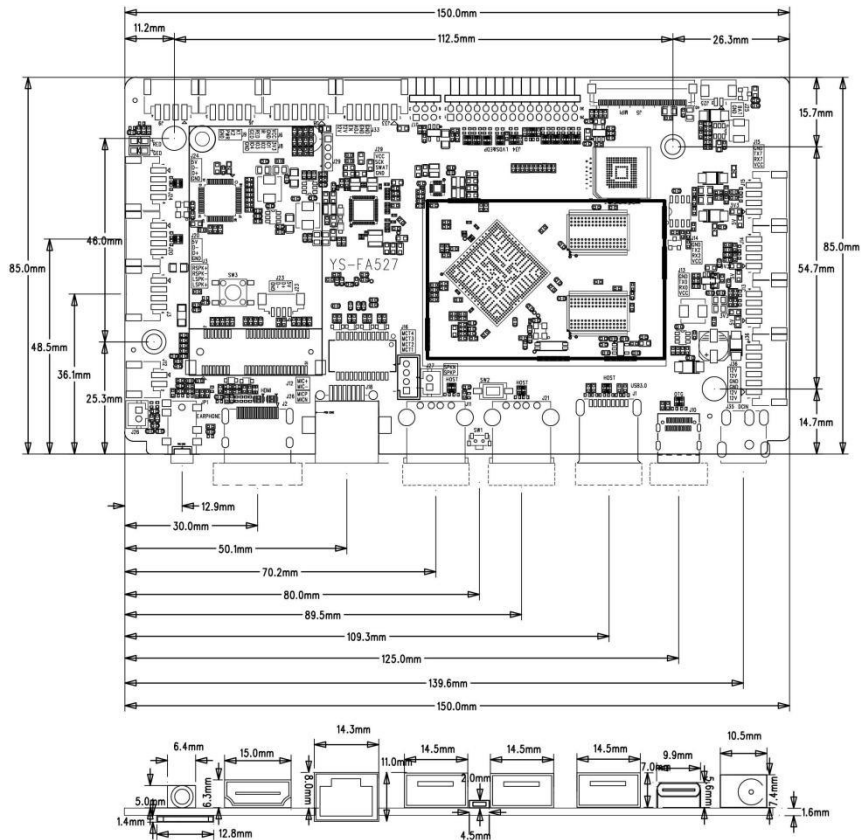
1.2 Pictures and Dimensions



Bottom View



Dimension



*PCBA L: 150mm *PCBA W: 85mm *PCBA H: 12mm *PCBA Location Hole: $\Phi 3.4\text{mm} \times 4$

1.3 Product Detailed Parameters



Detail Specification

SOC	Allwinner A527
CPU	Eight-Core Cortex-A55 64Bit Max CPU frequency: 2.0GHz
GPU	ARMG57 MC01 OpenGL ES 1.1/2.0/3.2, OpenCL 2.2, Vulkan 1.1/1.2/1.3
OS	Android 13.0
Video CODEC	Video Decoder 4K@60fps VP9&H.265, 4K@30fps H.264 Video Encoder 4K@25fps H.264, 4K@15fps MJPEG
ROM	2GB/4GB DDR
Storage	8/16GB (Up to 256GB) EMMC
Display Output	1*EDP (Up to 1920x1080, optional) 1*LVDS (Up to 1920x1080, optional) 1*MIPI (Up to 1200*1920) 1*HDMI 2.0 (Up to 2160P@60fps)
Display Input	1*MIPI-CSI-30PIN-BTB
Audio	1*SPK (L&R audio-out, Up to 1*8Ω/5W speaker) 1*HP (CTIA) 1*MIC 1*4GMIC (optional) 1*4GSPK (optional) 4G/3G MINI_PCIE、SIM
Network	Ethernet: Support 10/100/1000M GMAC WIFI: Support 5.8G Hz Bluetooth: 5.4 4GLTE: Support Mini_PCIE Module (optional)
USB	5*USB 2.0 1*Type-C OTG
UART	3*TTL (2 optional TTL or RS232, 1 optional TTL or RS485)
Other	1*I2C


	2*GPIO 1*IR+LED 3*Key (1*PWR_Key,2*Vol_Key) 1*POE power(optional)
--	--

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

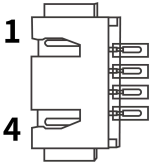
J26 (2PIN/2.0) 4G MIC

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

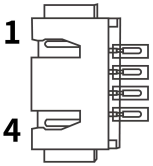
J12 (2PIN/2.0) 4G MIC

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

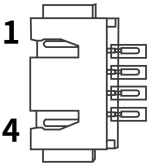
J3 (4PIN/2.0) SPK

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

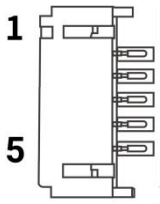
J20、J24 (4PIN/2.0) 1.5A USB(J10 Optional)

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

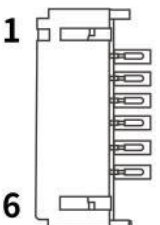
J9 (4PIN/2.0) PWR/VOL-/VOL+ Key

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

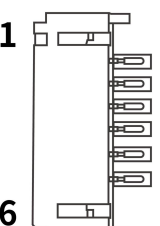
J6 (5PIN/2.0) IR+LED

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

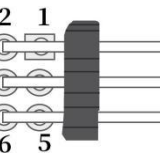
J8 (6PIN/2.0) GPIO (Power domain 3.3V)

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

J33 (6PIN/2.0) LVDS/EDP_BL

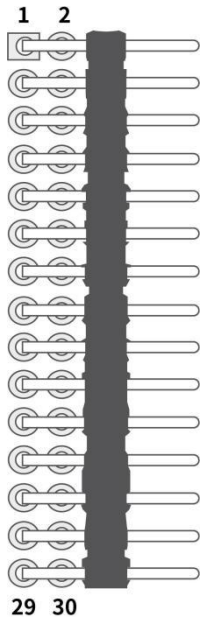
Exterior	Pin No.	Pin Name	Description
	1	GND	Ground
	2	GND	Ground
	3	ADJ	Backlight Brightness Adjustment
	4	EN	Backlight On/Off Control
	5	+12V	Screen Backlight Power Supply
	6	+12V	Screen Backlight Power Supply

J17(6PIN/2.0) LVDS/EDP_BLE_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

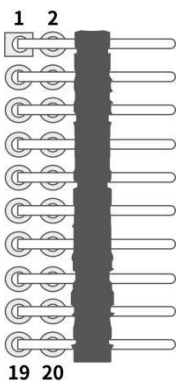
Note: The LVDS screen uses a jumper cap to select the screen power supply. Connect 3.3V to VCC_LCD, then the screen voltage is 3.3V.

J34 (30PIN/2.0) LVDS (Choose one from EDP display)

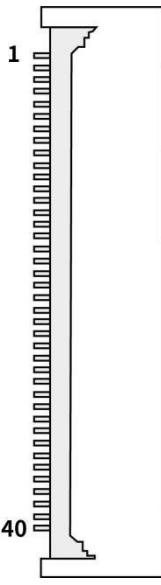
Exterior	Pin No.	Pin Name	Description
	1	PWR	Power Supply
	2	PWR	Power Supply
	3	PWR	Power Supply
	4	GND	Ground
	5	GND	Ground
	6	GND	Ground
	7	D0N	LVDS Signal
	8	D0P	LVDS Signal
	9	D1N	LVDS Signal
	10	D1P	LVDS Signal
	11	D2N	LVDS Signal
	12	D2P	LVDS Signal
	13	GND	Ground
	14	GND	Ground
	15	CKON	LVDS Signal
	16	CKOP	LVDS Signal
	17	D3N	LVDS Signal
	18	D3P	LVDS Signal
	19	D5N	LVDS Signal
	20	D5P	LVDS Signal
	21	D6N	LVDS Signal
	22	D6P	LVDS Signal
	23	D7N	LVDS Signal
	24	D7P	LVDS Signal
	25	GND	Ground
	26	GND	Ground
	27	CK1N	LVDS Signal
	28	CK1P	LVDS Signal
	29	D8N	LVDS Signal
	30	D8P	LVDS Signal

J34(20PIN/2.0)EDP (Choose one from LVDS display)

Exterior	Pin No.	Pin Name	Description
	1	PWR	Power Supply
	2	PWR	Power Supply
	4	GND	Ground
	5	GND	Ground


	7	TXON	EDP Signal
	8	TXOP	EDP Signal
	9	TX1N	EDP Signal
	10	TX1P	EDP Signal
	11	TX2N	EDP Signal
	12	TX2P	EDP Signal
	13	TX3N	Ground
	14	TX3P	Ground
	15	GND	EDP Signal
	16	GND	EDP Signal
	17	AUXN	Ground
	18	AUXP	Ground
	19	GND	Ground
	20	HPD	Plug and pull detection

J5 (40PIN/0.5mm) MIPI_DSI (FPC)

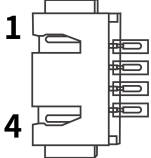
Exterior	Pin No.	Pin Name	Description
	1	VDD1V8	+1.8V Power Supply
	2	VDD3V3	+3.3V Power Supply
	3	VDD3V3	+3.3V Power Supply
	4	NC	Null
	5	RESET	Reset
	6	NC	Null
	7	GND	Ground
	8	MIPI_D0-	MIPI Signal
	9	MIPI_D0+	MIPI Signal
	10	GND	Ground
	11	MIPI_D1-	MIPI Signal
	12	MIPI_D1+	MIPI Signal
	13	GND	Ground
	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

	23-24	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

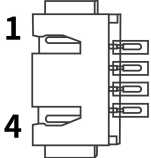
J25 (2PIN/2.0) RTC Battery

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

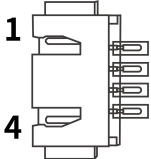
J13 (4PIN/2.0) UART 0 (Debug,default TTL , RS232 optional, 3.3V power domain)

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

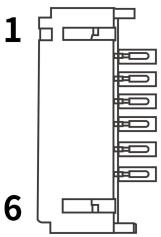
J14 (4PIN/2.0) UART 2 (Default TTL , RS232 optional, 3.3V power domain)

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

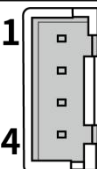
J15 (4PIN/2.0) UART 7 (Default TTL , RS485 optional, 3.3V power domain)

Exterior	Pin No.	Pin Name	Description
	1	VCC	Power 5V (Optional 3.3V)
	2	RX7	UART Receive
	3	TX7	UART Transmit
	4	GND	Ground


J36 (6PIN/2.54) 12V PWR_IN

Exterior	Pin No.	Pin Name	Description
	1	12V-IN	12V Power Input
	2	12V-IN	12V Power Input
	3	GND	Ground
	4	GND	Ground
	5	12V-OUT	12V Power output
	6	12V-OUT	12V Power output

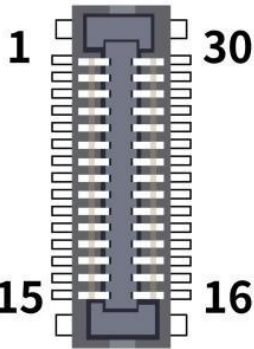
J16 (4PIN/2.0) POE

Exterior	Pin No.	Pin Name	Description
	1	CT1	communication data 1
	2	CT3	communication data 3
	3	CT4	communication data 4
	4	CT5	communication data 5

J27 (4PIN/2.0) 4G SPK

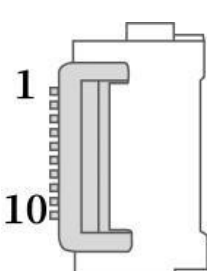
Exterior	Pin No.	Pin Name	Description
	1	SPKP	4G Speaker Positive Output
	2	SPKN	4G Speaker Negative Output

J6 (30PIN/0.4) MIPI_CSI (BTB) (Rear interface)

Exterior	Pin No.	Pin Name	Description
	1	GND	Ground
	2	MIPI_MCLK	MIPI Signal
	3	GND	Power Supply Ground
	4	GIF_PDN1	1.8V Power Supply GIF_PDN1
	5	MIPI_RST	Null MIPI_Reset
	6	SDA	12C Data
	7	SCL	y12C Clock
	8	GND	Ground
	9	VCC_DVP	2.8V Power Supply
	10	GND	Ground
	11	VCC	2.8V Power Supply
	12	GND	Ground
	13	VCC	1.8V Power Supply
	14	VCC	1.8V Power Supply
	15	GND	Ground

	16	GND	Ground
	17	MIPI_D0N	MIPI Signal
	18	MIPI_D0P	MIPI Signal
	19	GND	Ground
	20	MIPI_D1N	MIPI Signal
	21	MIPI_D1P	MIPI Signal
	22	GND	Ground
	23	MIPI_CLKN	MIPI Signal
	24	MIPI_CLKP	MIPI Signal
	25	GND	Ground
	26	MIPI_D2N	MIPI Signal
	27	MIPI_D2P	MIPI Signal
	28	GND	Ground
	29	MIPI_D3N	MIPI Signal
	30	MIPI_D3P	MIPI Signal

J7 (10PIN/0.5 FPC) IIC (Touch screen interface) (Rear interface)

Exterior	Pin No.	Pin Name	Description
	1	GND	Ground
	2	GND	Ground
	3	RST	Reset
	4	INT	Interrupt
	5	GND	Ground
	6	SCL	12C Clock
	7	SDA	12C Data
	8	VCC	Power Supply
	9	GND	Ground
	10	GND	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
Power Supply Current (with no display connected)	Operation Current	/	180mA	400mA
	STAND-BY CURRENT	/	15mA	20mA
	BATTERY OPERATION CURRENT	/	0.0024mA	/

◆ USB Power Supply

USB Interface Type	Voltage	Typical Current	Max Current
OTG_USB	5V	500mA	1500mA
HOST_USB	5V	500mA	1500mA

Note: It is recommended that the total current of USB peripheral should not exceed 3000 mA, otherwise the machine will be unable to operate normally.

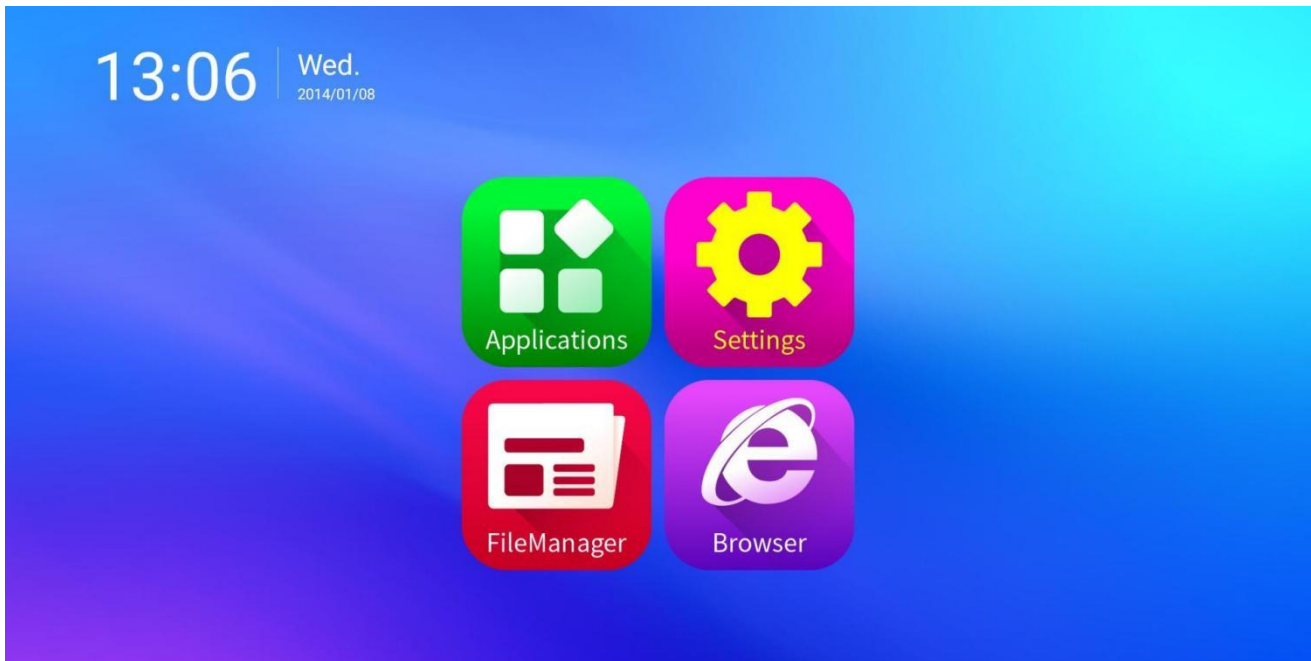
◆ Other

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

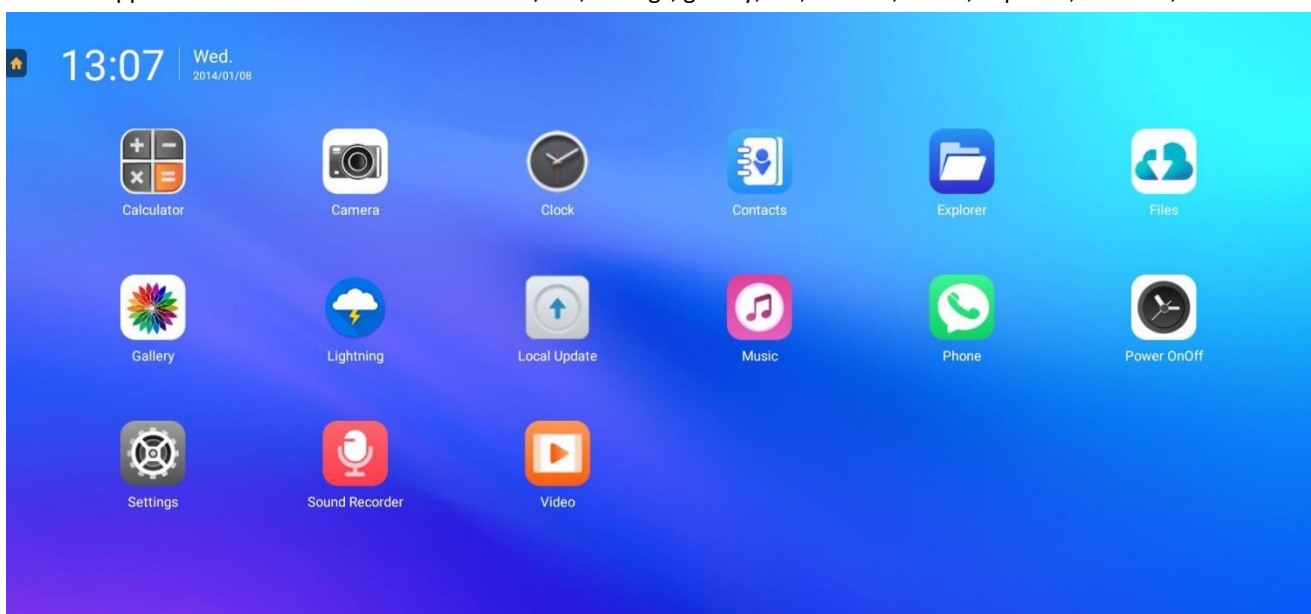
The main menu interface of Android system is divided into four categories: application, settings, file management and browser.



Homepage

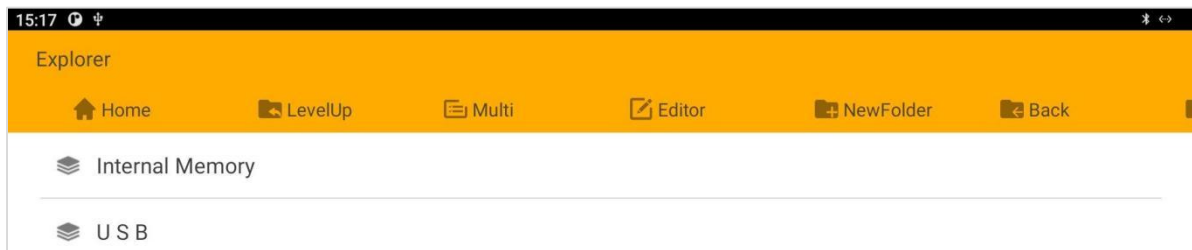
(1) Application interface

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



Application Interface

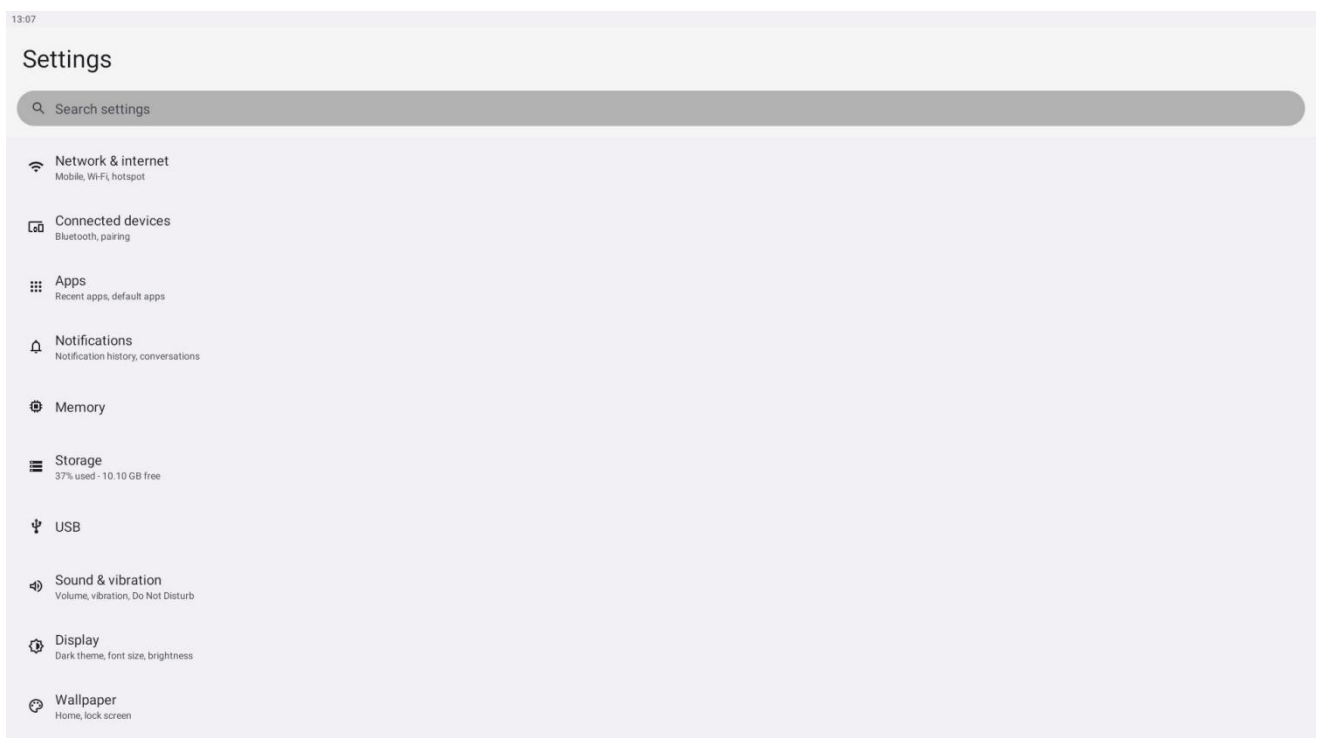
(2) File Management Interface



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.

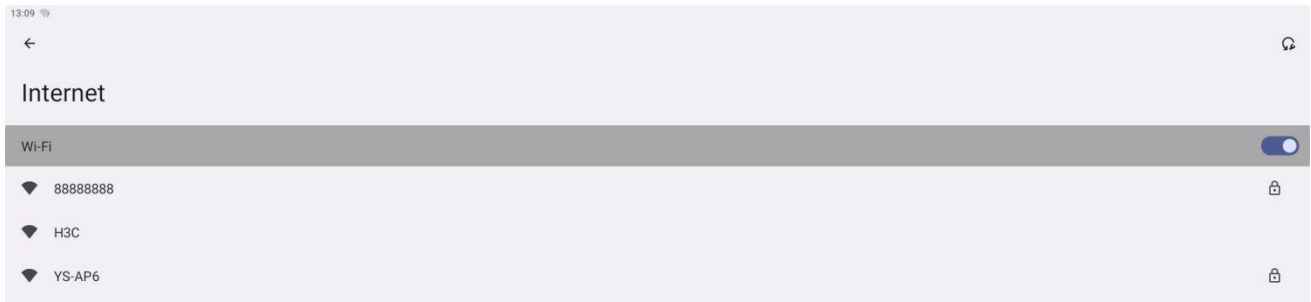


Setting Menu Interface

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

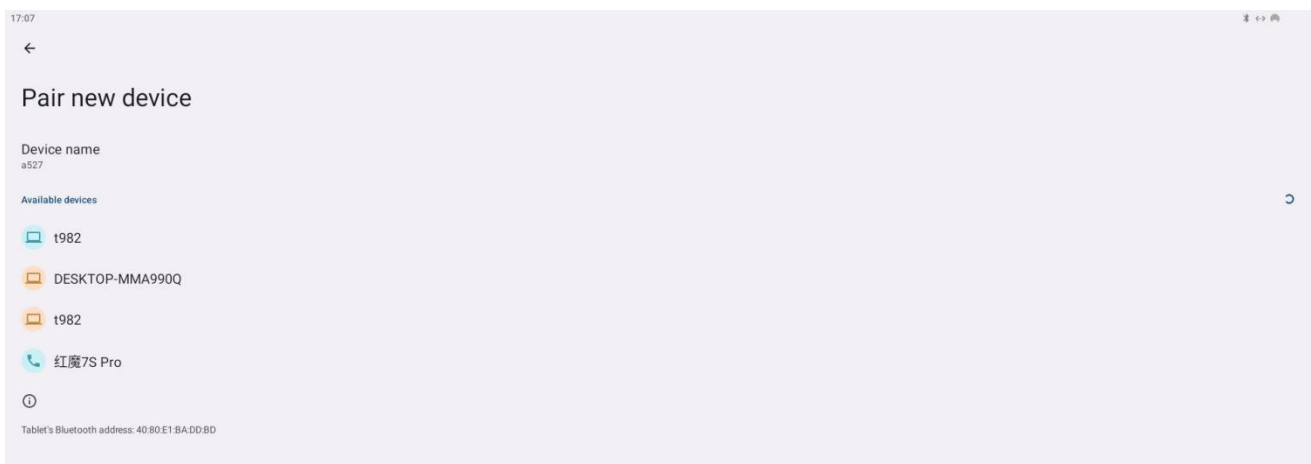
如下图,在“设置”界面,将“WIFI 热点”功能打开,进入下图界面,即可发出 WIFI 信号,设备输入密码可成功连接热点。



WIFI Hotspot connection interface

(3) Bluetooth Signal Connection

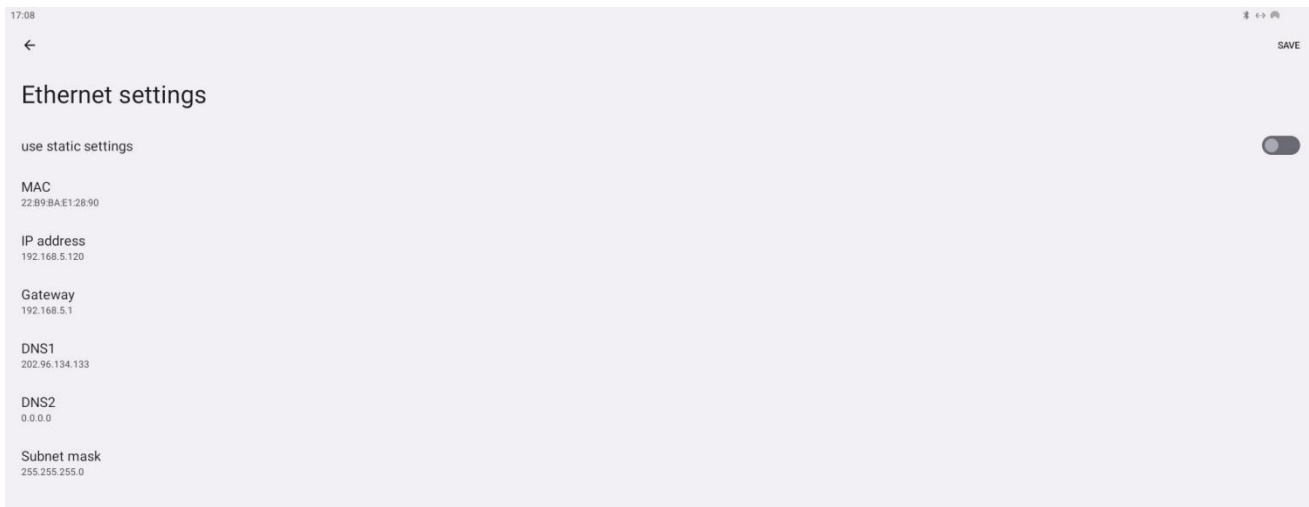
In the "Settings" interface, open the "connected devices" function and enter the "pairing with new devices" interface shown in the figure below to search for Bluetooth devices and pair them.



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:

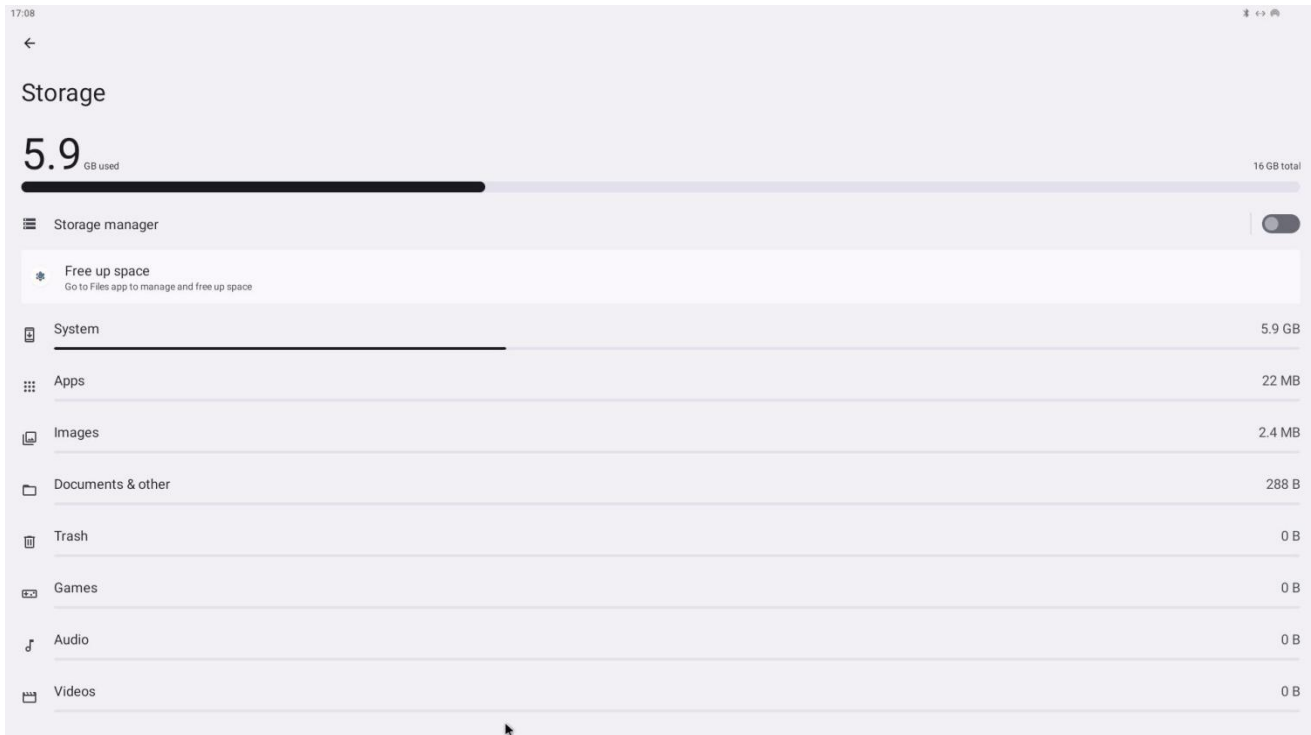
- THE USE OF THE WIRELESS NETWORK MUST BE CONNECTED TO THE WIFI ANTENNA AT THE WIFI ANTENNA HOLDER
- THE AVAILABILITY AND COVERAGE OF WIFI SIGNALS DEPENDS ON THE NUMBER OF SIGNALS, ANTENNA PERFORMANCE AND EXTERNAL ENVIRONMENT.
- THE ETHERNET MAC ADDRESS IS THE ONLY PERMANENT AND VALID DEVICE ID FOR THIS SYSTEM.

THE NETWORK PRIORITY ORDER FOR ALL ANDROID DEVICES IS:

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

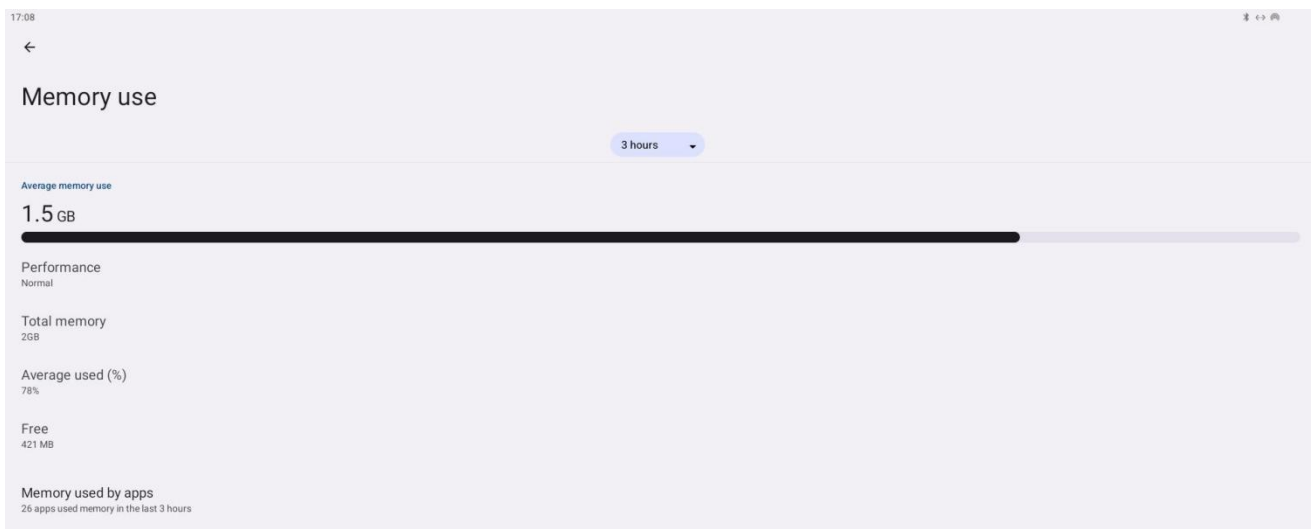
4.3 Viewing Storage and Memory

In settings, select "storage" to enter the following interface, where the storage information of the storage space will be displayed. The display of 5.9GB capacity is the remaining available storage capacity of the board, and the display of "Total used 16GB" 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 1.5GB is the remaining memory capacity of the board, and the display of "total memory 2GB" is the total memory.

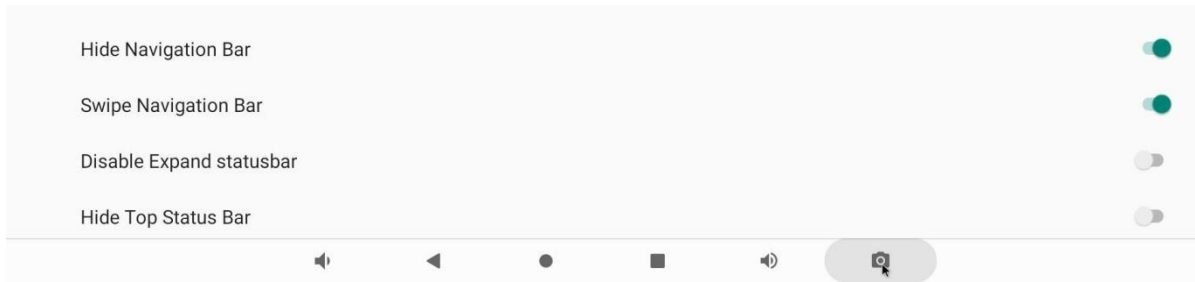


View Memory Interface

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