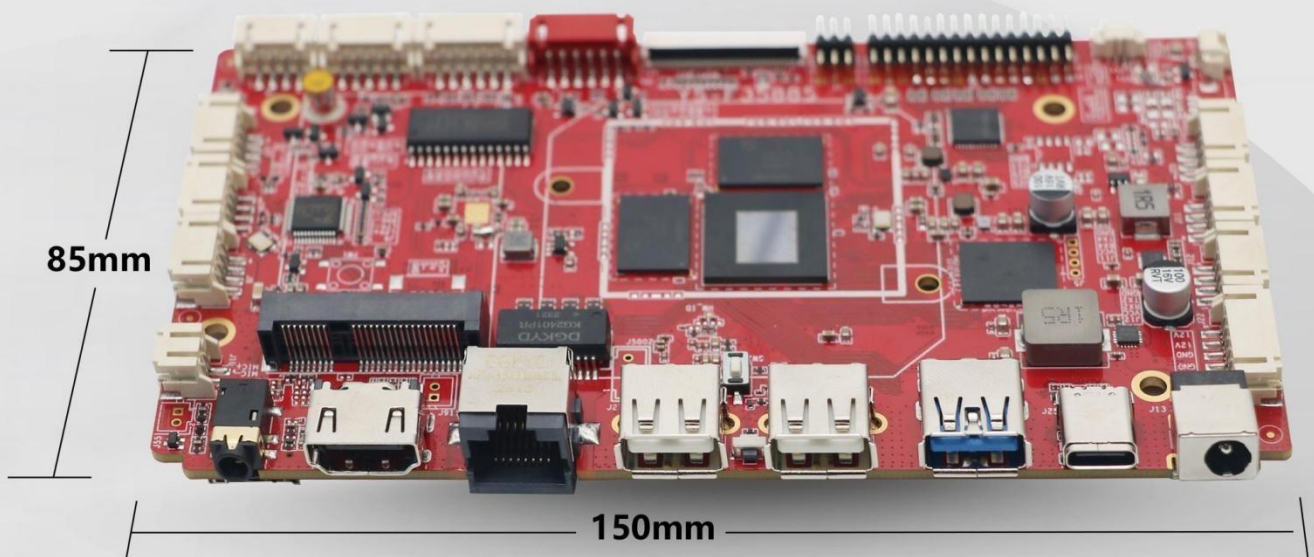


Specification

YS-F3588

Edge Computing



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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
V2.1	2024.01.10	Zhang Wenjuan	Qin Yongling	1.Change motherboard picture 2.Change the display interface EDP to MIPI Change SIM card holder
V2.2	2024.10.22	Zhang Wenjuan	Li Quan	Change wifi module picture

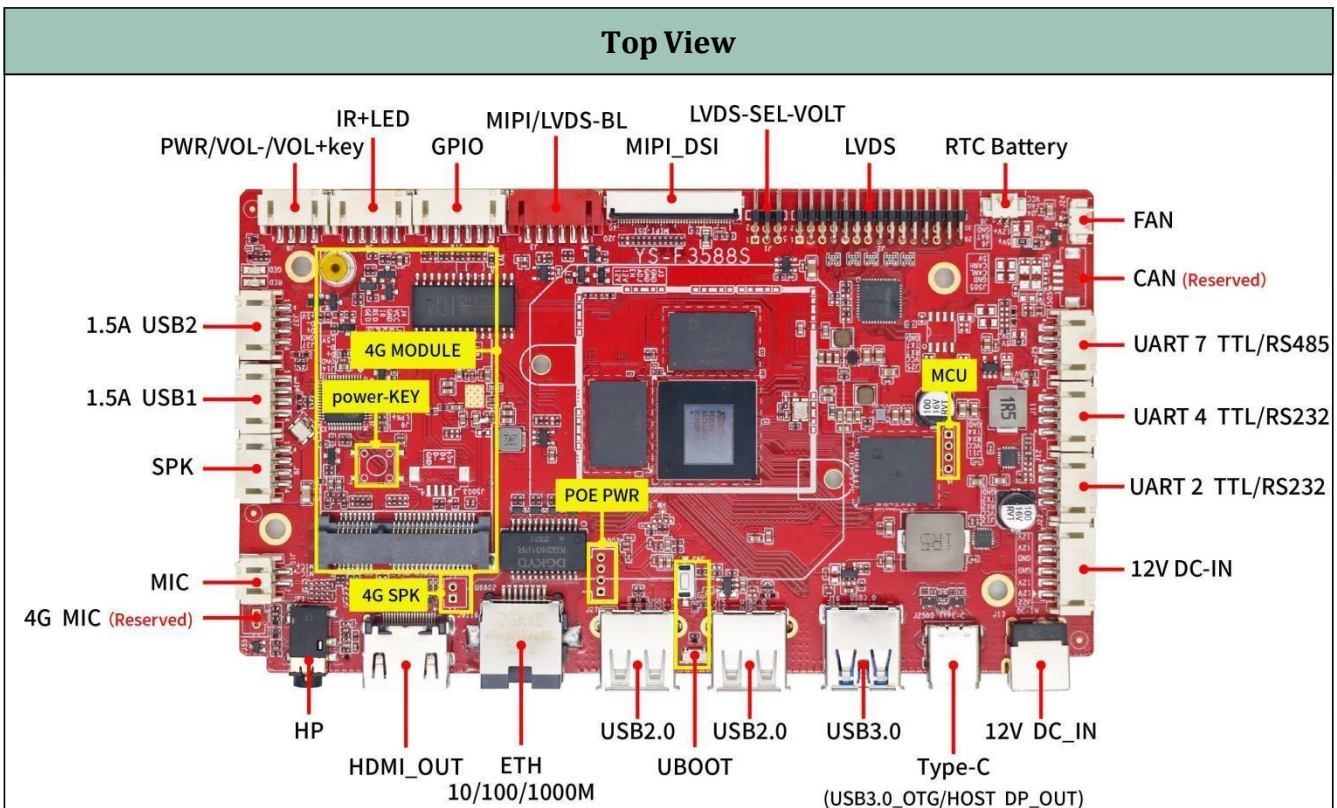
Chapter 1 Product Introduction

1.1 Overview

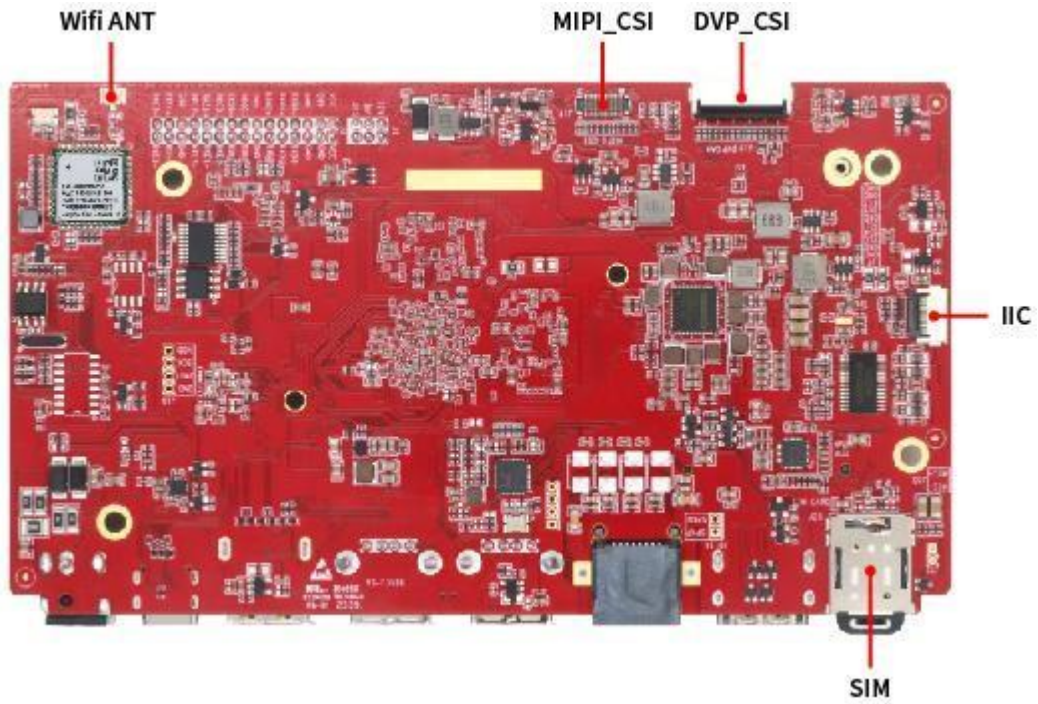


YS-F3588 is developed based on Rockchip's RK3588. It features a CPU with four Cortex-A76 cores and four Cortex-A55 cores. It is equipped with an NPU that supports 6 TOPs of computing power. The device offers a wide range of peripheral interfaces, including LVDS output, HDMI 2.1 output, DP 1.4 output, GPIO, I2C, UART, and more. It can be widely used in ARM-based PCs, edge computing devices, personal mobile internet devices, and other digital multimedia applications.

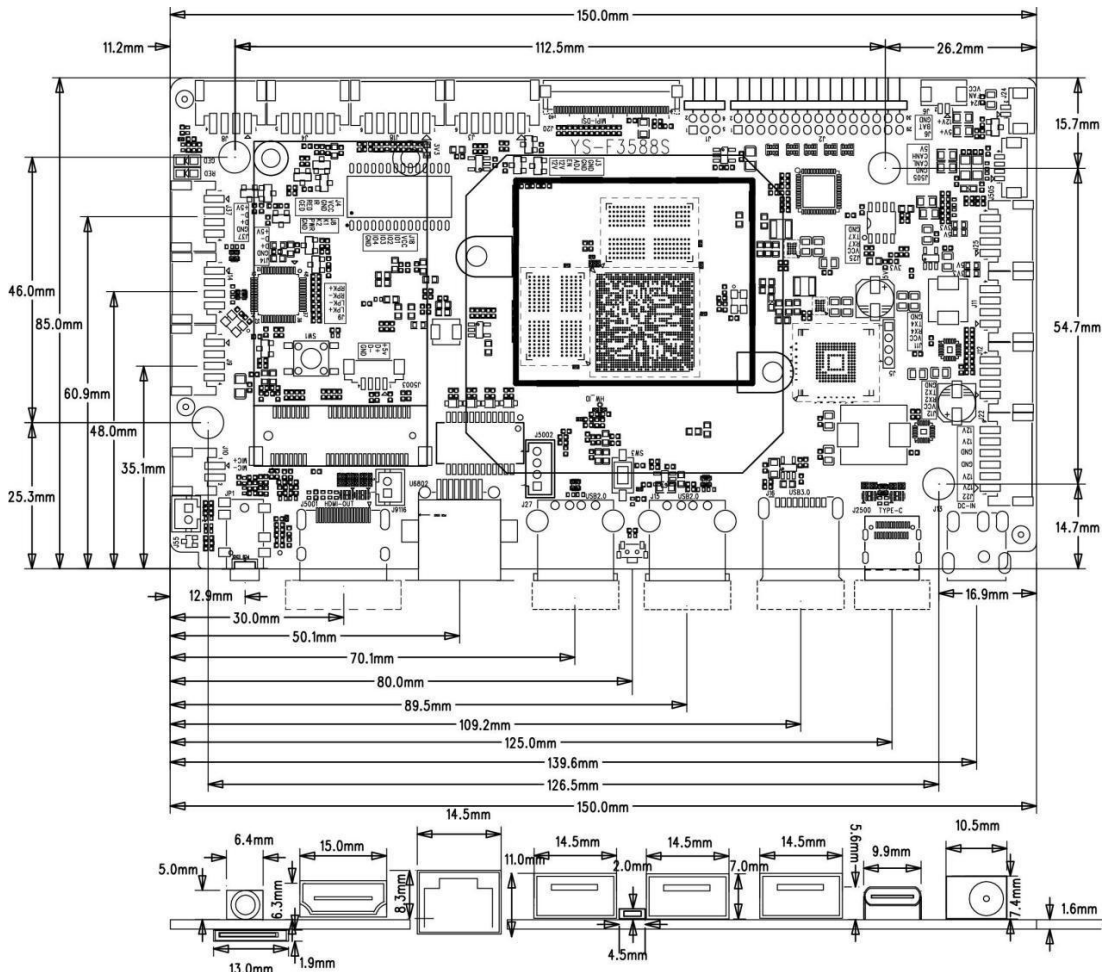
1.2 Pictures and Dimensions



Bottom View



Dimensions



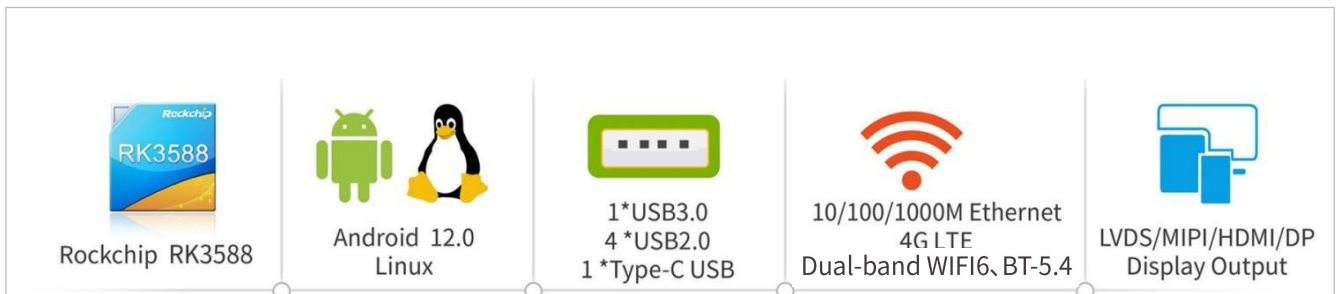
*PCBA L: 150mm

*PCBA W: 85mm

*PCBA H: 12mm

*PCBA Location Hole: $\Phi 3.4\text{mm} \times 4$

1.3 Product Detailed Parameters



Detail Specification

SOC	RockChip RK3588
CPU	Quad-core Cortex-A76 and Quad-core Cortex-A55 Max CPU frequency: 2.4GHz
GPU	Mali-G610 MC4 OpenGL ES 1.1/2.0/ 3.2 OpenCL up to 2.2 Vulkan 1.1/1.2 Special 2D hardware engine with MMU
NPU	Supports up to 6TOPs Supports INT4/INT8/INT16/FP16/BF16/TF32
OS	Android: Android 12.0 Linux: Debian11
Video CODEC	<p>Video Decoder</p> <p>Real-time video decoder of MPEG-1, MPEG-2, MPEG-4, H.263, H.264, H.265, VC-1, VP9, VP8, MVC, AV1</p> <p>8K@60fps H.265/VP9/AVS2</p> <p>8K@30fps H.264 AVC/MVC</p> <p>4K@60fps AV1</p> <p>1080P@60fps MPEG-2/-1/VC-1/VP8</p> <p>Video Encoder</p> <p>Real-time H.265/H.264 video encoding</p> <p>Support up to 8K@30fps</p> <p>(Up to 32 channels 1080P@30fps Decoding and 16-way 1080P@30fps code)</p>
ROM	4GB/8GB (Up to 32GB) 64bit LPDDR4/LPDDR4x
Storage	16GB/32GB/64GB/128GB/256GB eMMC 5.1
Display Output	1*HDMI2.1 (Up to 8K@60Hz or 4K@120Hz) 1*Type-C DP 1.4 (Up to 8K@30Hz) 1*LVDS (Up to 1920x1080) 1*MIPI_DSI-40PIN-FPC (Up to 1200x1920)
Display Input	1*DVP-CSI-24PIN-FPC 1*MIPI-CSI-30PIN-BTB


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: Support Dual- Band WIFI6 Bluetooth: V5.4 4G LTE: Support Mini_PCIE Module
USB	1*Type-C USB(OTG or HOST) 1*Type-A USB3.0 HOST 2*Type-A USB2.0 HOST 2*USB2.0 HOST(4Pin*2.0mm Wafer)
UART	3*TTL(2 optional TTL or RS232, 1 optional TTL or RS485)
Other	1*IIC 4*GPIO 1*FAN 3*Key (1*PWR_Key,2*Vol_Key)

1.4 Configuration & General Precautions


1. Relative humidity ≤ 85%
2. Storage temperature: - 30 °C to+70 °C
3. Operating temperature: - 15 °C to+60 °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


J55 (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


J10 (2PIN/2.0) MIC

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


J9 (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

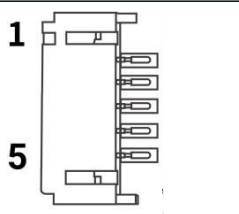
J14、J37 (4PIN/2.0) 1.5A USB2.0 HOST

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

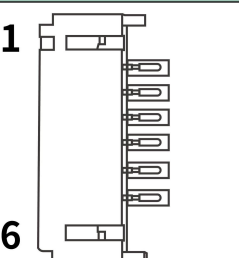
J8 (4PIN/2.0) PWR/VOL-/VOL+ Key

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

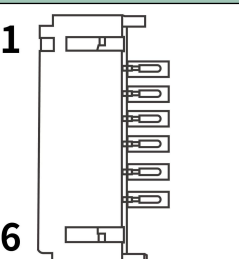
J4 (4PIN/2.0) IR+LED

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


J18 (6PIN/2.0) GPIO (Power Domain 3.3V)

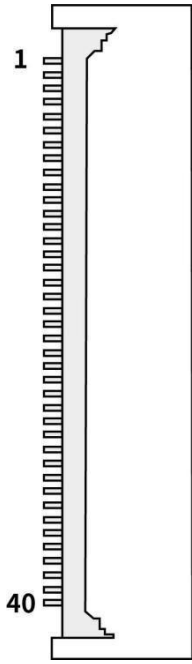
Exterior	Pin No.	Pin Name	Description
	1	3.3V	Power Supply
	2	IO1	GPIO1
	3	IO2	GPIO2
	4	IO3	GPIO3
	5	IO4	GPIO4
	6	GND	Ground

J3 (6PIN/2.0) LVDS Backlight

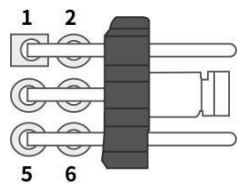
Exterior	Pin No.	Pin Name	Description
	1	GND	Ground
	2	GND	Ground
	3	ADJ	Backlight brightness adjustment
	4	EN	Backlight on/off control
	5	+12V	Screen backlight power supply
	6	+12V	Screen backlight power supply

J20 (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

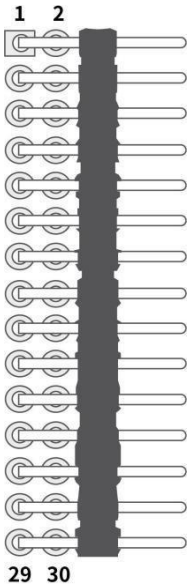
	10	GND	Ground
	11	MIPI_D1-	MIPI Signal
	12	MIPI_D1+	MIPI Signal
	13	GND	Ground
	14	MIPI_CLK-	MIPI Signal
	15	MIPI_CLK+	MIPI Signal
	16	GND	Ground
	17	MIPI_D2-	MIPI Signal
	18	MIPI_D2+	MIPI Signal
	19	GND	Ground
	20	MIPI_D3-	MIPI Signal
	21	MIPI_D3+	MIPI Signal
	22	GND	Ground
	23	NC	Null
	24	NC	Null
	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

J1 (6PIN/2.0) 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.


J2 (30PIN/2.0) LVDS

Exterior	Pin No.	Pin Name	Description
	1	PWR	Power Supply
	2	PER	Power Supply
	3	PWR	Power Supply
	4	GND	Ground
	5	GND	Ground
	6	GND	Ground
	7	D0N	LVDS Data Lane-0 Negative Output
	8	D0P	LVDS Data Lane-0 Positive Output
	9	D1N	LVDS Data Lane-1 Negative Output
	10	D1P	LVDS Data Lane-1 Positive Output
	11	D2N	LVDS Data Lane-2 Negative Output
	12	D2P	LVDS Data Lane-2 Positive Output
	13	GND	Ground
	14	GND	Ground
	15	CLK0N	LVDS Clock Negative for Channel 0
	16	CLK0P	LVDS Clock Positive for Channel 0
	17	D3N	LVDS Data Lane-3 Negative Output
	18	D3P	LVDS Data Lane-3 Positive Output
	19	D5N	LVDS Data Lane-5 Negative Output
	20	D5P	LVDS Data Lane-5 Positive Output
	21	D6N	LVDS Data Lane-6 Negative Output
	22	D6P	LVDS Data Lane-6 Positive Output
	23	D7N	LVDS Data Lane-7 Negative Output
	24	D7P	LVDS Data Lane-7 Positive Output
	25	GND	Ground
	26	GND	Ground
	27	CLK1N	LVDS Clock Negative for Channel 1
	28	CLK1P	LVDS Clock Positive for Channel 1
	29	D8N	LVDS Data Lane-8 Negative Output
	30	D8P	LVDS Data Lane-8 Positive Output

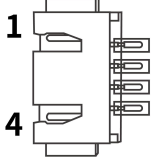
J6 BAT (2PIN/1.25) RTC Battery

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

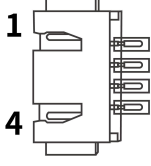
J24 (2PIN/1.25) FAN

Exterior	Pin No.	Pin Name	Description
	1	FAN	FAN Negative
	2	VCC	FAN Positive

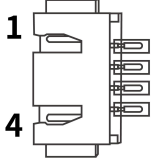
J25 (4PIN/2.0) UART 7 (Optional TTL or RS485, TTL Power Domain 3.3V)

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

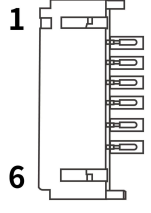
J11 (4PIN/2.0) UART 4 (Optional TTL or RS232, TTL Power Domain 3.3V)

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

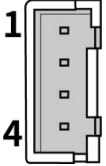
J12 (4PIN/2.0) UART 2 (Debug, Optional TTL or RS232, TTL Power Domain 3.3V)

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

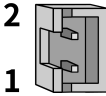
J22 (6PIN/2.0) 12V_OUT and 12V PWR_IN

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

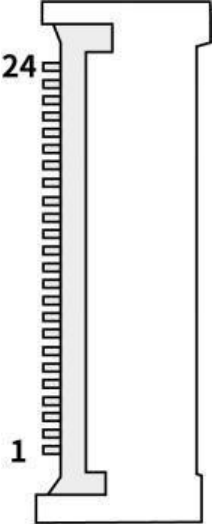
J5002 (4PIN/2.0) POE Power

Exterior	Pin No.	Pin Name	Description
	1	CT1	Transformer module CT1
	2	CT2	Transformer module CT2
	3	CT3	Transformer module CT3
	4	CT4	Transformer module CT4

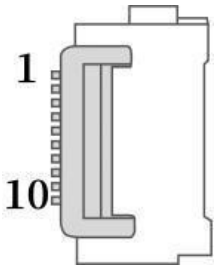
J9116 (2PIN/1.25) 4G Speaker

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

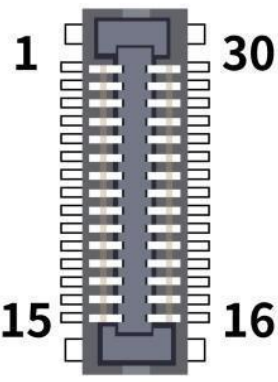
J19 (24PIN/0.5) DVP Camera

Exterior	Pin No.	Pin Name	Description
	1	CIF_PD1	CIF_Power down 1
	2	GND	Ground
	3	I2CO_SDA	IIC Data
	4	AVDD	2.8V Power
	5	I2CO_SCL	IIC Clock
	6	CIF_RST	CIF Reset
	7	CIF_VSYNC	CIF_VSYNC
	8	CIF_PWDN-F	CIF_Power Down 0
	9	CIF_HREF	CIF_HREF
	10	VCC18_DVP	1.8V Power
	11	VCC28_DVP	2.8V Power
	12	CIF_D7	CIF_Data 7
	13	CIF_HCLKOUT	CIF_Clock Out
	14	CIF_D6	CIF_Data 6
	15	GND	Ground
	16	CIF_D5	CIF_Data 5
	17	CIF_PCLKIN	CIF_Clock In
	18	CIF_D4	CIF_Data 4
	19	CIF_D0	CIF_Data 0
	20	CIF_D3	CIF_Data 3
	21	CIF_D1	CIF_Data 1
	22	CIF_D2	CIF_Data 2
	23	NC	No connection
	24	NC	No connection

J7 (10PIN/0.5 FPC) TP(IIC)

Exterior	Pin No.	Pin Name	Description
	1	GND	Ground
	2	GND	Ground
	3	RST	Reset
	4	INT	Interrupt
	5	GND	Ground
	6	SCL	Data
	7	SDA	Clock
	8	VCC	Power
	9	GND	Ground
	10	GND	Ground

J17(30PIN/0.4 BTB) MIPI_CSI

Exterior	Pin No.	Pin Name	Description
	1	GND	Ground
	2	MIPI_MCLK	MIPI Main Clock
	3	GND	Ground
	4	GIF_PDN1	GIF_Power Down
	5	MIPI_RST	MIPI Reset
	6	SDA	Data
	7	SCL	Clock
	8	GND	Ground
	9	VCC_DVP	2.8V Power
	10	GND	Ground
	11	VCC	2.8V Power
	12	GND	Ground
	13	VCC	1.8V Power
	14	VCC	1.8V Power
	15	GND	Ground
	16	GND	Ground
	17	MIPI_DON	MIPI Data Lane-0 Negative Input
	18	MIPI_DOP	MIPI Data Lane-0 Positive Input
	19	GND	Ground
	20	MIPI_D1N	MIPI Data Lane-1 Negative Input
	21	MIPI_D1P	MIPI Data Lane-1 Positive Input
	22	GND	Ground
	23	MIPI_CLKN	MIPI Clock Negative Input
	24	MIPI_CLKP	MIPI Clock Positive Input

	25	GND	Ground
	26	MIPI_D2N	MIPI Data Lane-2 Negative Input
	27	MIPI_D2P	MIPI Data Lane-2 Positive Input
	28	GND	Ground
	29	MIPI_D3N	MIPI Data Lane-3 Negative Input
	30	MIPI_D3P	MIPI Data Lane-3 Positive Input

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	/	260mA	350mA
	STAND-BY CURRENT	/	10mA	30mA
	BATTERY OPERATION CURRENT	/	0.0024mA	/

◆ USB Power Supply

USB Interface	Voltage	Typical Current	Max Current
Single OTG_USB	5 ± 0.25V	500mA	1.5A
Single HOST_USB	5 ± 0.25V	500mA	1.5A

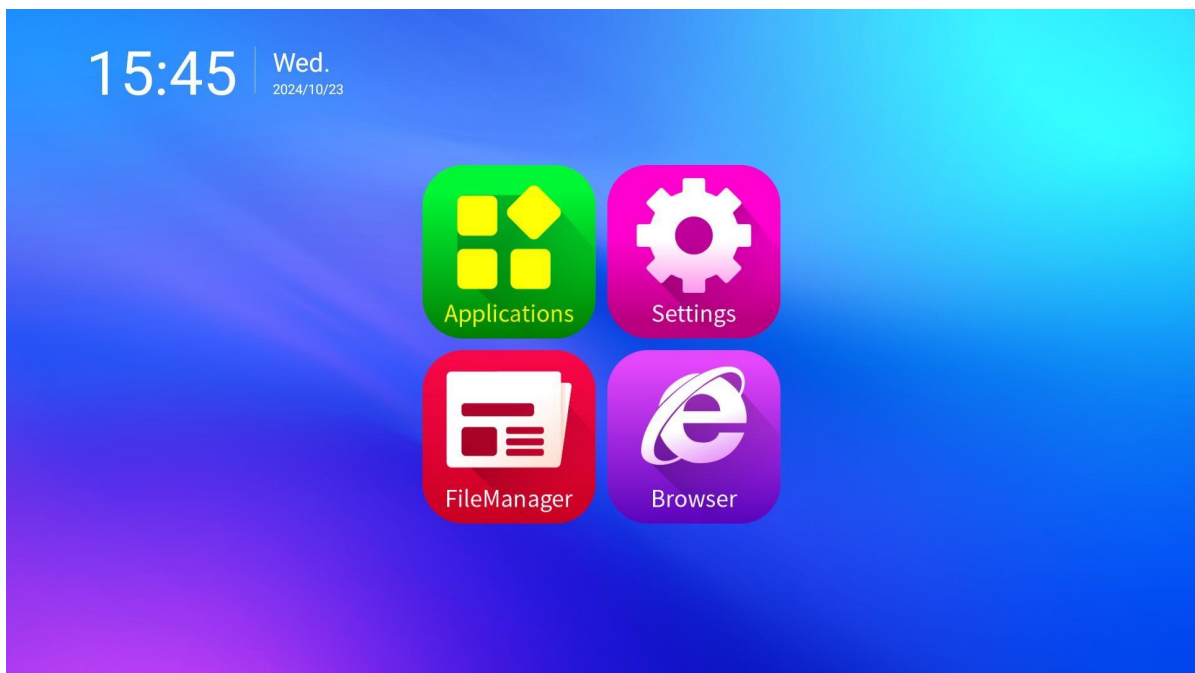
◆ Other

Interface Type	Rated Current	Max Current	-
EXT 5V (USB\5V UART\5V Display)	/	3000mA	/
EXT 3.3V (GPIO\IIC\3.3V UART\3.3V Display)	/	3000mA	/

Chapter 4 System Instruction

4.1 Android System Interface Description

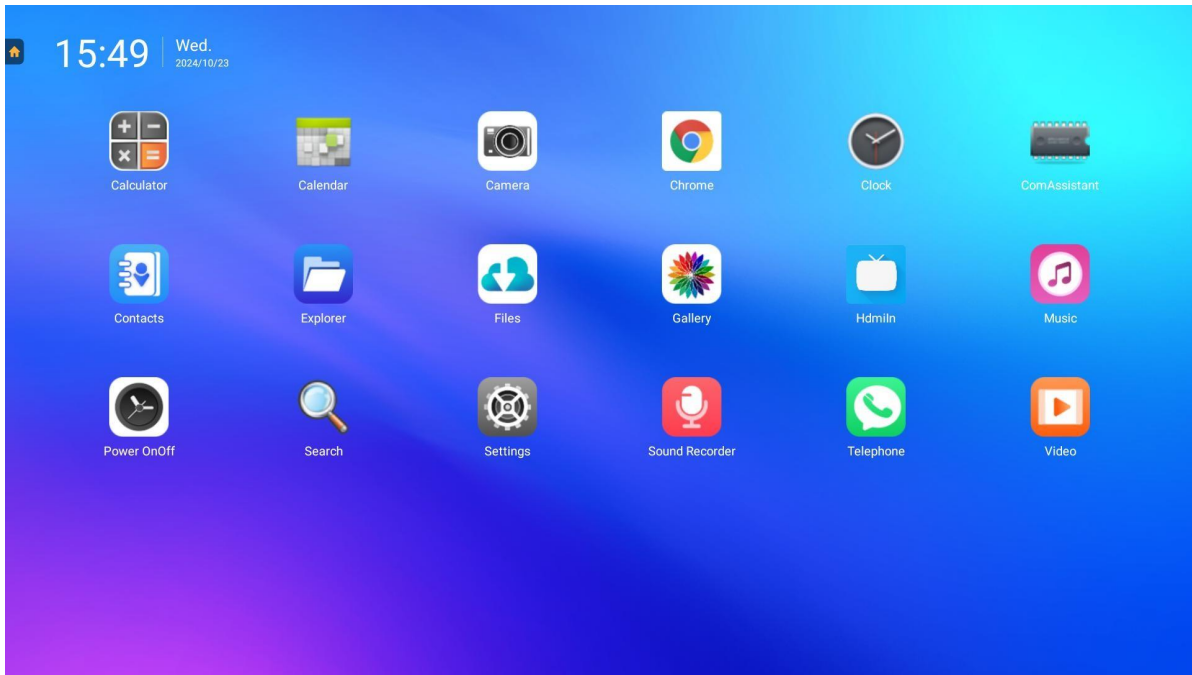
The main menu interface of Android is divided into four categories: apps, Settings, file management and browse.



Main Interface

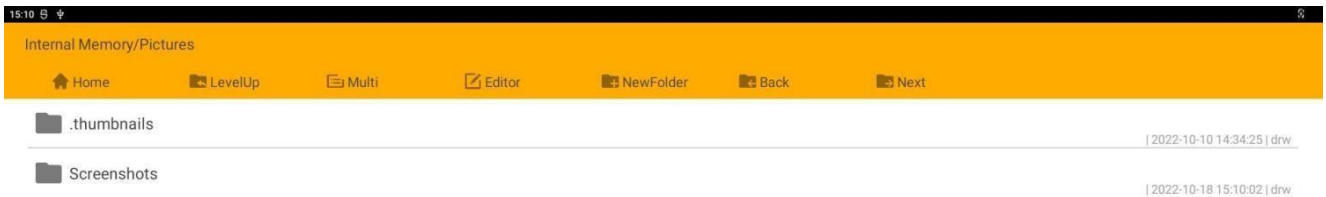
(1) Application interface

The application interface includes: timed on/off, video player, settings, picture library, file, camera, music, resource manager, browser, HDMI-IN and other applications.



Application Interface

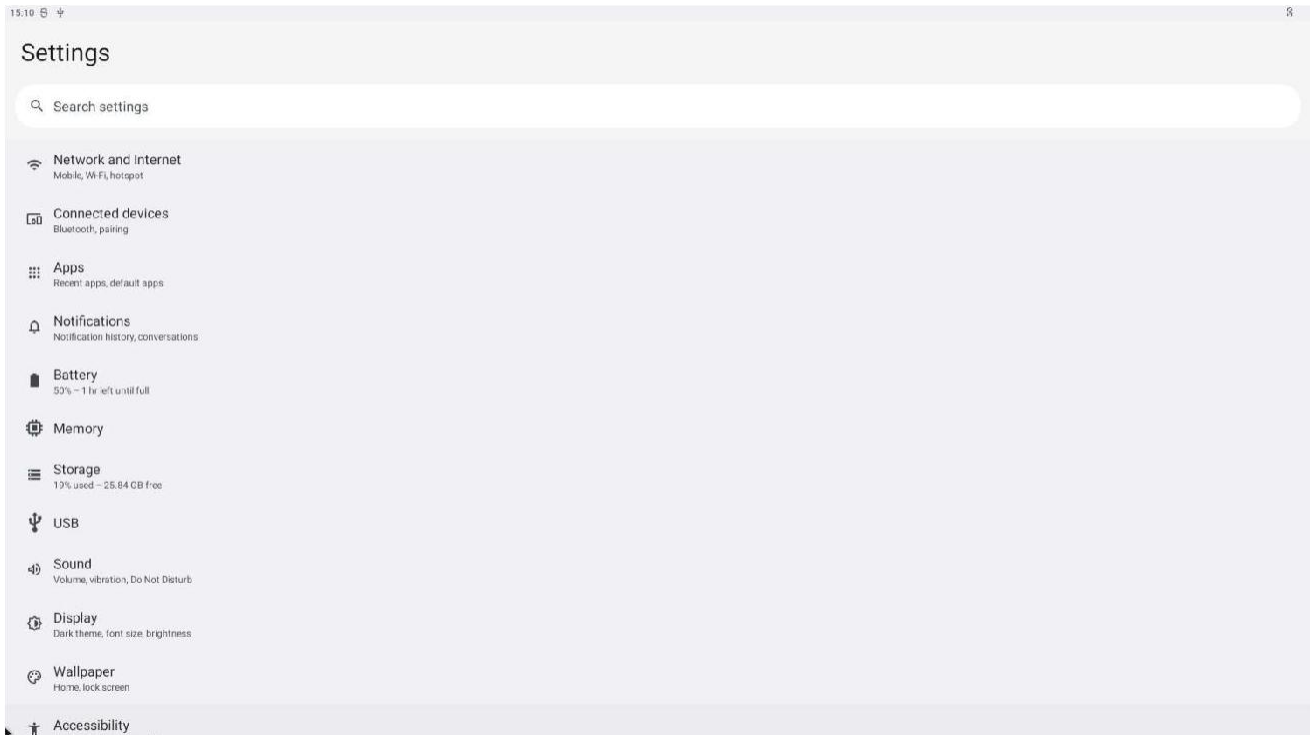
(2) File Management Interface



File Management Interface

(3) Setting Menu Interface

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

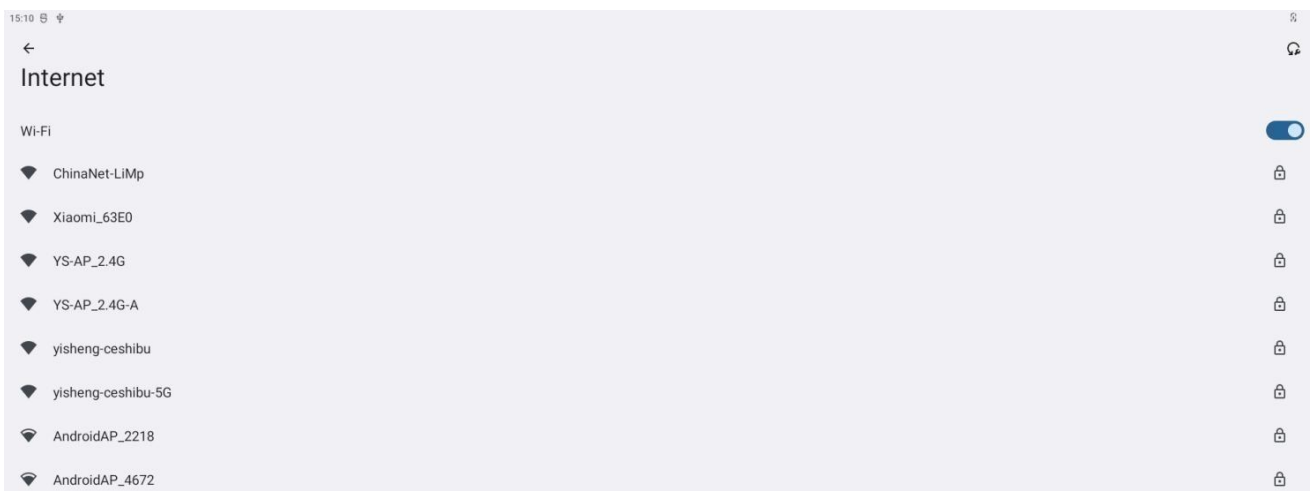


Setting Menu Interface

4.2 Network Interface Explanation

(1) WIFI Network Signal Connection

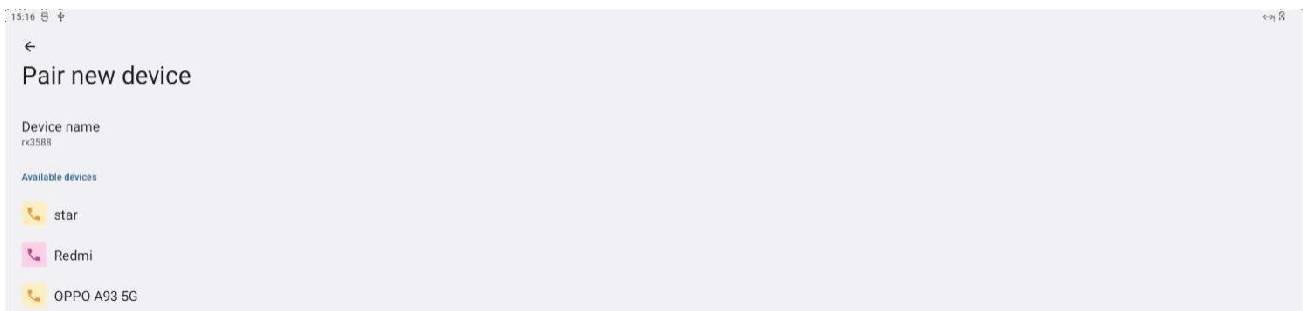
Enter the "Settings - Network and Internet - Internet" interface to turn on the WIFI switch, as shown below; Select the WIFI signal to be connected and enter the corresponding password to successfully connect.



WIFI Setting Interface

(2) Bluetooth Signal Connection

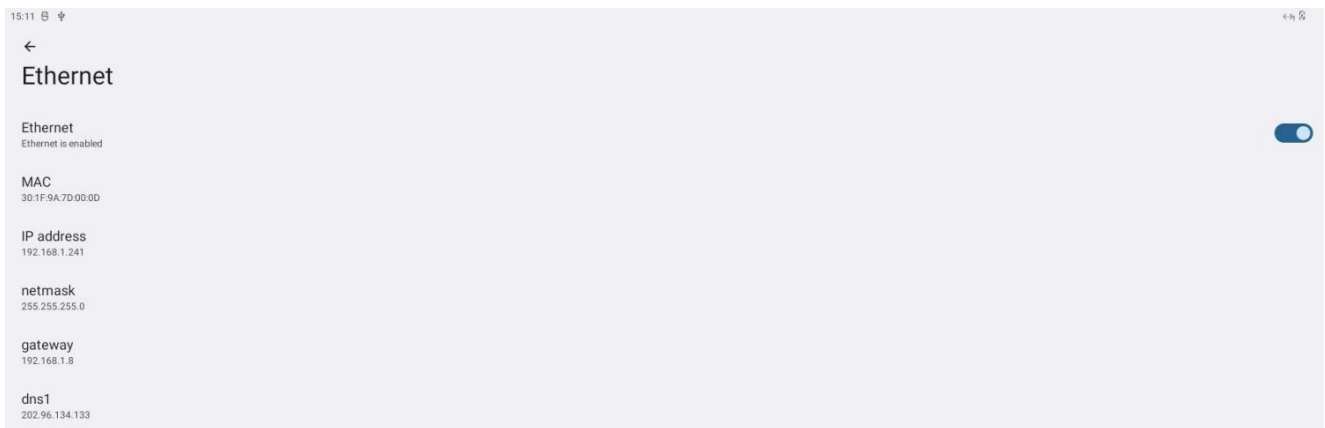
In the "Settings - Connected Devices - Pair with New Devices" interface, you can search for Bluetooth devices, as shown in the following figure. Find the Bluetooth devices to pair and click Pair.



Bluetooth Setting Interface

(3) Ethernet Connection

Enter the "Settings - Network and Internet - Ethernet" interface, as shown in the following figure, turn on the Ethernet switch, and then automatically connect to the Ethernet after inserting the network cable. You can view the IP address, Ethernet MAC address and other information on the interface as shown in the figure.



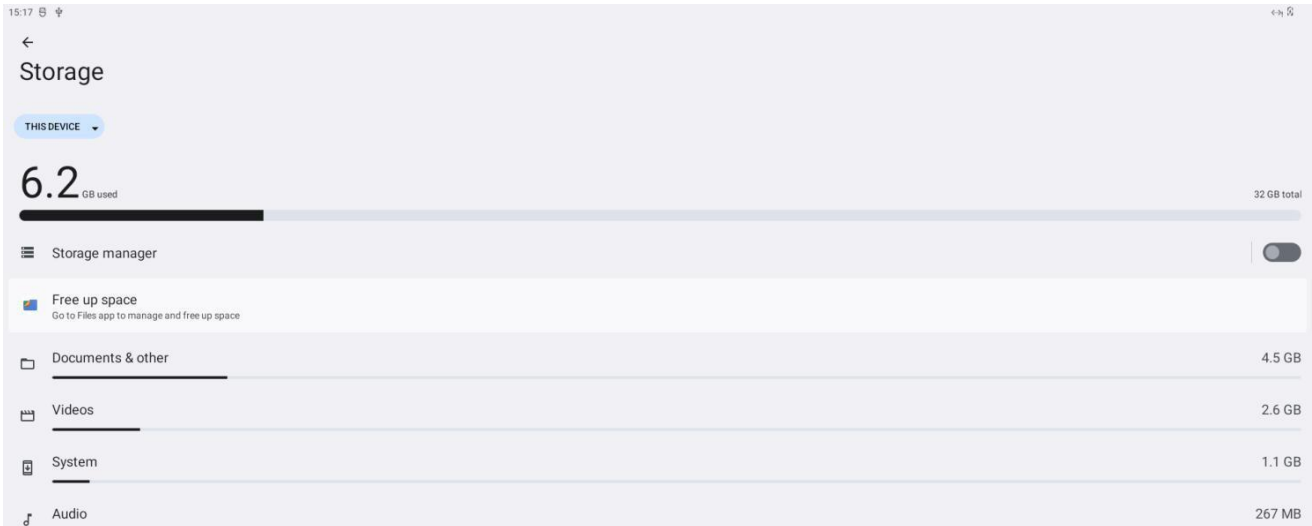
Ethernet Setting Interface

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: ETH Ethernet network > WIFI wireless network.

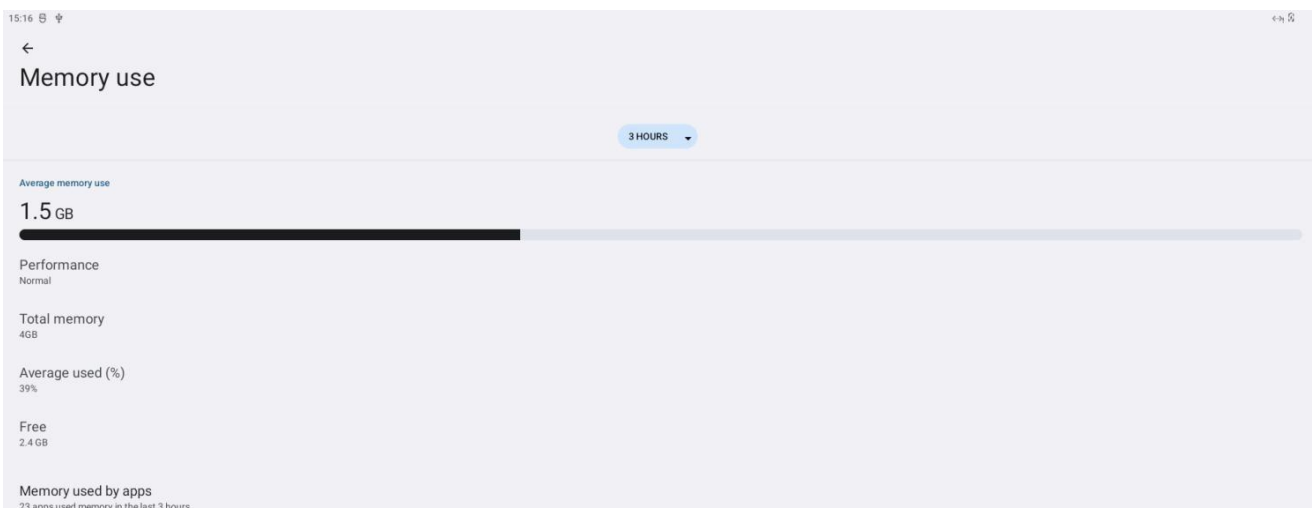
4.3 Viewing Storage and Memory

In the setting, select "Storage" and enter the interface below to display the storage information of the internal storage space. The display shows that 6.2G is the used capacity of the board, and "32G in total" is the total hardware storage capacity. The list shows the storage space used by each application.



Viewing Storage Interface

In the setting, select "Memory" and enter the interface below to display the storage information of the internal storage space. The display shows that 1.5GB is the used amount of the board, "4G in total" is the total hardware memory, and the list shows the storage space used by each application.



View Memory Interface

4.4 Setting The Notification Bar And Navigation Bar

In Settings, select Show: Select Hide Navigation bar, the navigation bar will be hidden. Select Slide Out of the navigation bar, and slide the mouse pointer from the bottom up to slide out of the navigation bar. The navigation bar disappears after 5 seconds. If you select Do not pull down Notification bar, the notification bar cannot be pulled down. Select Hide Status bar to hide the status bar that displays the time and other status on the upper part of the interface.

Hide Navigation Bar	<input checked="" type="checkbox"/>
Swipe Navigation Bar	<input checked="" type="checkbox"/>
Disable Expand statusbar	<input type="checkbox"/>
Hide Top Status Bar	<input type="checkbox"/>

Setting The Notification Bar And Navigation Bar



Navigation Bar

Note:

If you select "Slide out navigation bar", select "Hide Navigation bar". If the status bar is hidden, the notification bar is 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