SIGNWAY

STOCK CODE:
833050

SIGNWAY PRODUCT SPECIFICATION

AIoT3588

Embedded Intelligent Motherboard

TECHNICAL SPECIFICATION

Nanjing Signway Technology Co.,Ltd.

Version History

Version	Release Date	Author	Review	Notes
V2.0	2022-10-08	Zhang Linlin	/	Create this document.
V3.0	2025-01-24	Zhang Linlin	/	Replace product images, modify interface descriptions, etc.

Approval for Release

Engineer Signature	Department Manager Signature

*This specification is made based on the existing information. There may be slight differences between the actual product and this specification. The specific configuration information is subject to the sales contract. If you have any questions, please consult our sales staff.

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1 Overview

1.1 Introduction

The computing power motherboard AIoT3588 adopts the brand-new flagship chip RK3588 8-core CPU, quad core Cortex-A76 and quad core Cortex-A55 NEON, Mali-G610 GPU. It is equipped with Android 12 system. Enable more complex scenes with stronger performance, bringing a new round of intelligent upgrading. It is applicable to vehicle mounted multi screen system, edge computing, multi screen/large screen display, industrial and agricultural terminal equipment, security monitoring, ARM PC, AIoT intelligent terminal, intelligent NVR and other application scenarios.

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2 Specification

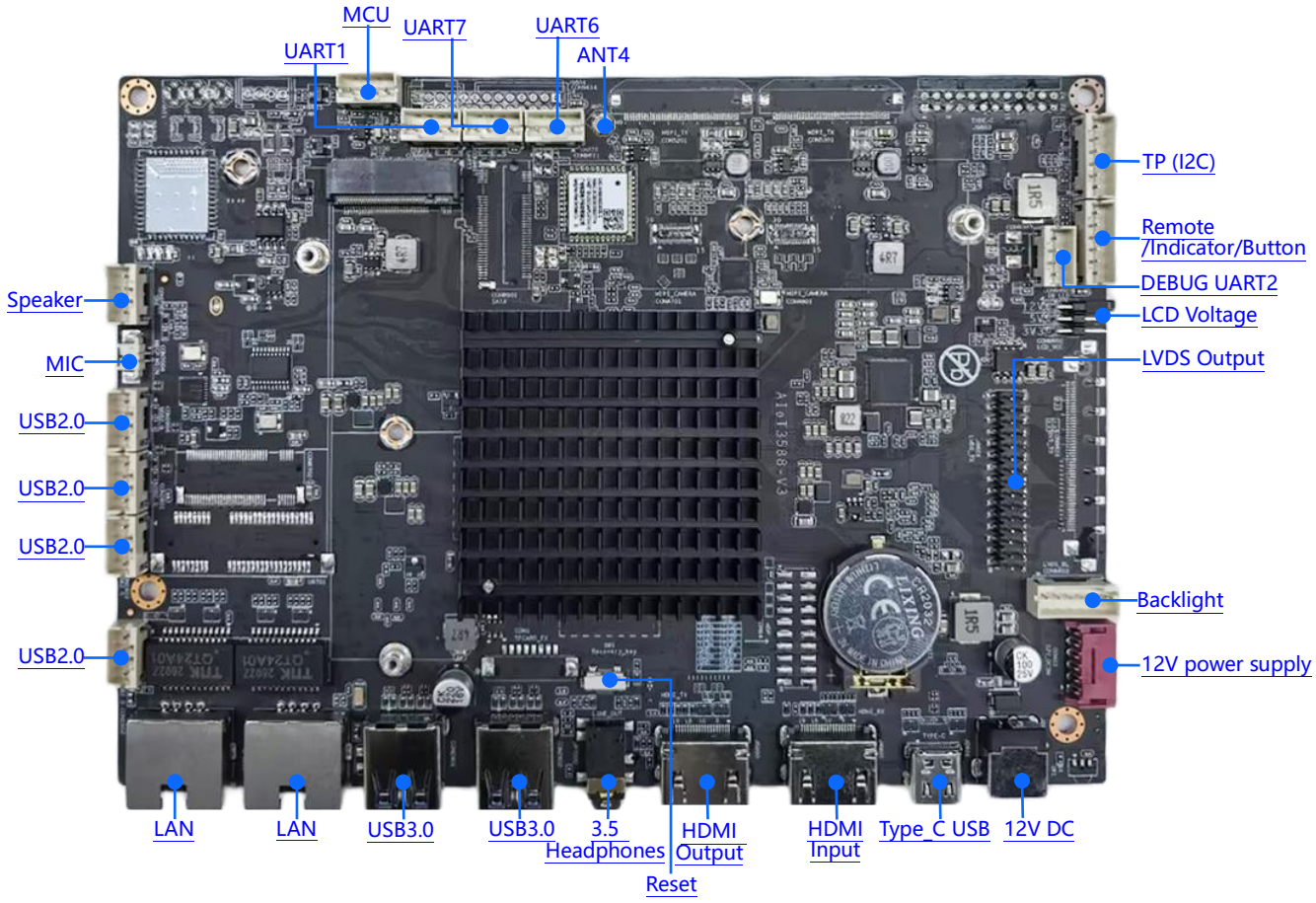
Specification	
OS	Android 12
RAM	LPDDR4 4GB , 64 bit line width (default 4GB, optional 8GB/16GB, etc.)
Storage	eMMC 32GB (optional 16GB ~ 128GB)
CPU	RK3588, 4-core Cortex-A76 and 4-core Cortex-A55 NEON, up to 2.4GHz
GPU	ARM Mali-G610 MP4
	Support OpenGL ES 1.1/2.0/3.2, OpenCL 2.2, Vulkan 1.2
	Embedded 3D engine
NPU	Support 6T computing power
Media	Supports H.265/H.264/AV1/VP9/AVS2 video decoding, up to 8K@60FPS
	Supports H.264/H.265 video encoding, up to 8K@30FPS
Video Input	32MP ISP, supports HDR and 3DNR
	Supports 1 HDMI 2.0 input, up to 4K@60FPS
Network	Support 10/100/1000M adaptive Ethernet
	WiFi, 802.11a/b/g/n/ac/ax, 1T1R, dual band 2.4G+5G BT, BT5.0
Display Output <Choose one of two>	1 HDMI, HDMI Type-A, maximum support 8K@60Hz , output
	1 LVDS, Double pin 2.0mm30P, maximum support 1080P@60Hz, output
Interface	1 TYPE-C (including USB2.0 OTG), 2 TYPE-A USB3.0 HOST, 4 PH2.0 USB2.0 HOST
	3 UART serial port
	1 TP interface
	Support speaker interface, up to two 8 Ω 10W, dual channel speaker output
	Support 1 MIC interface and 3.5 Headphones
	1 NANO-SIM card holder
	1 TF card holder, up to 128G
Dimension	170*120*12mm

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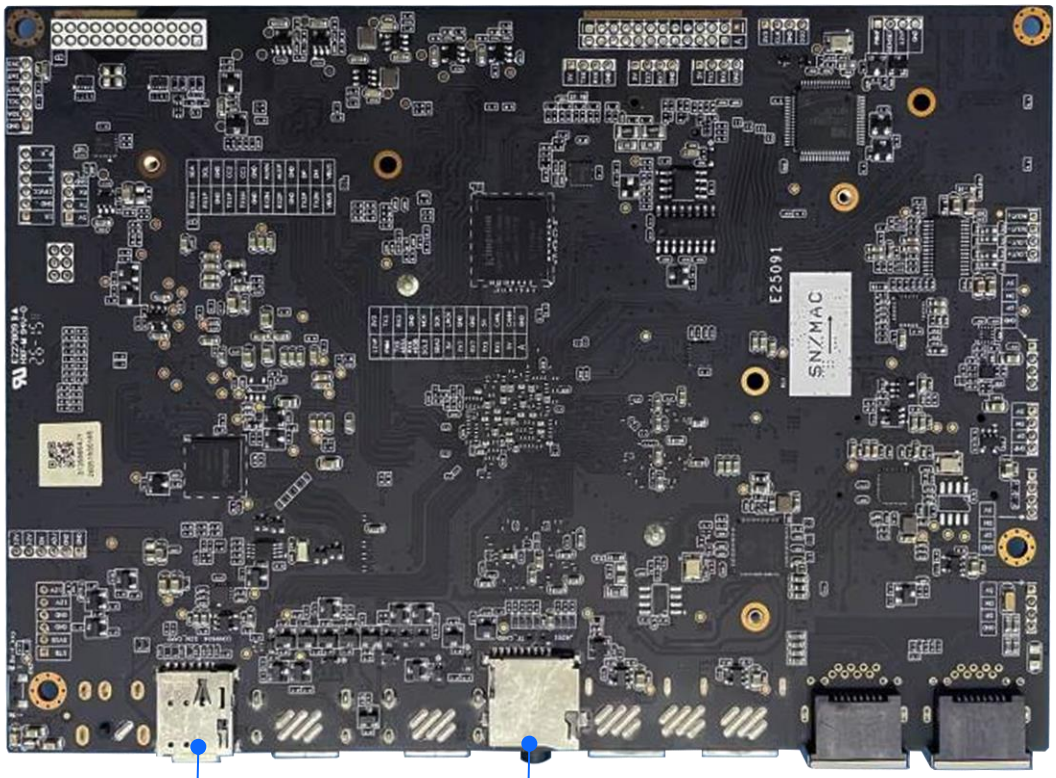
3 Profile

3.1 Profile

■ **Front View**

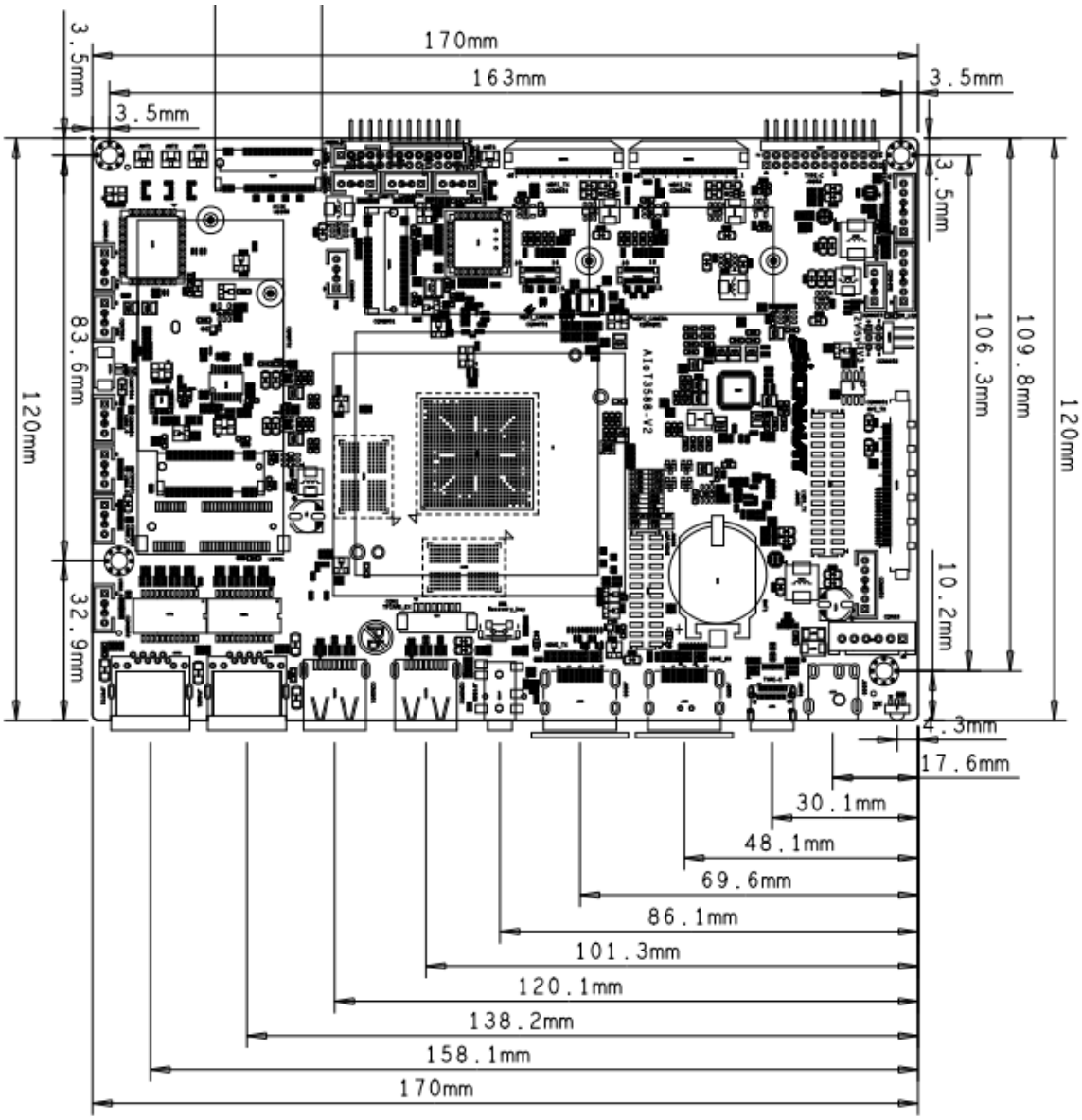


■ **Back View**



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3.2 Dimensions



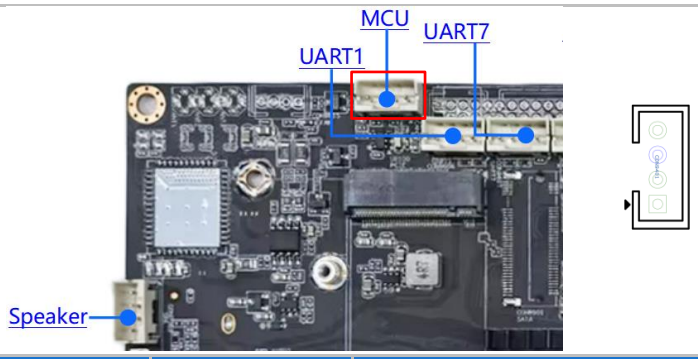
Length: 170mm, Width: 120mm, Front Max. Height: 8mm, Rear Max. Height: 2.5mm. Board thickness: 1.6mm, Screw Hole: Φ3.5mm

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4 Interfaces

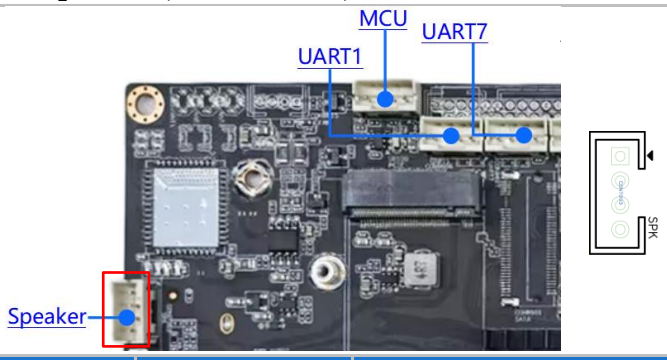
◆ **CON9401** **MCU burning interfacee (PH2.0mm4P)**

For internal R&D use only; intended for debugging; no external peripherals/equipment shall be connected.



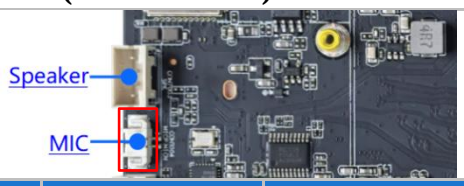
No.	Pin Name	Type	Description
1	3V3	Power	MCU burning power supply input,+3.3V
2	SWCLK	Input	Clock input
3	GND	Ground	Ground
4	SWDIO	Input/Output	DATA communication data

◆ **CON7003** **Speaker (PH2.0mm4P)**



No.	Pin Name	Type	Description
1	ROUT+	Output	R Positive
2	ROUT-	Output	R Negative
3	LOUT-	Output	L Negative
4	LOUT+	Output	L Positive

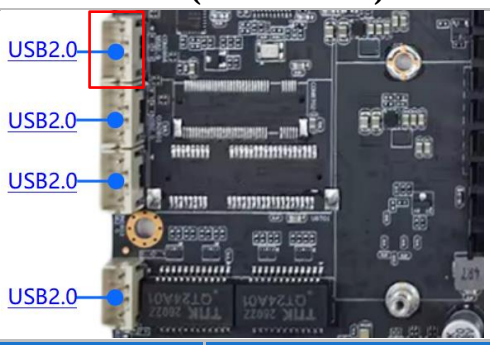
◆ **CON7004** **MIC (PH1.25mm2P)**





No.	Pin Name	Type	Description
1	MICP	Input	MIC +
2	MICN	Input	MIC —

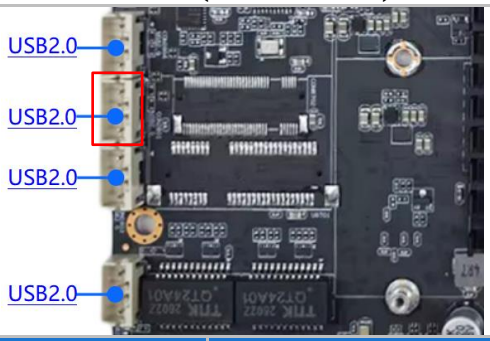
◆ **CON2804** **USB2.0 interface(PH2.0mm4P)**





No.	Pin Name	Type	Description
1	5V	Power output	Power output, +5V Maximum output current 1A (shared with CON2801)
2	DM	Input / Output	D- signal line
3	DP	Input / Output	D+ signal line
4	GND	Ground	Ground

◆ **CON2801** **USB2.0 interface (PH2.0mm4P)**

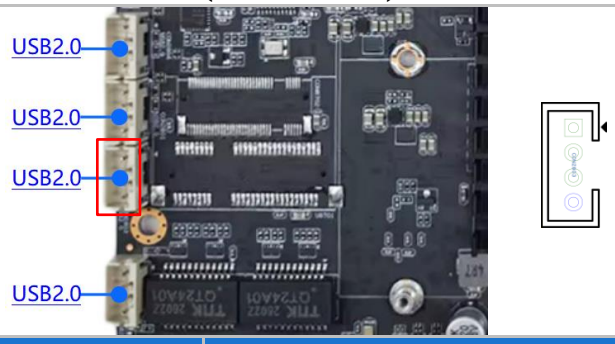




No.	Pin Name	Type	Description
1	5V	Power output	Power output, +5V Maximum output current 1A (shared with CON2804)
2	DM	Input / Output	D- signal line
3	DP	Input / Output	D+ signal line
4	GND	Ground	Ground

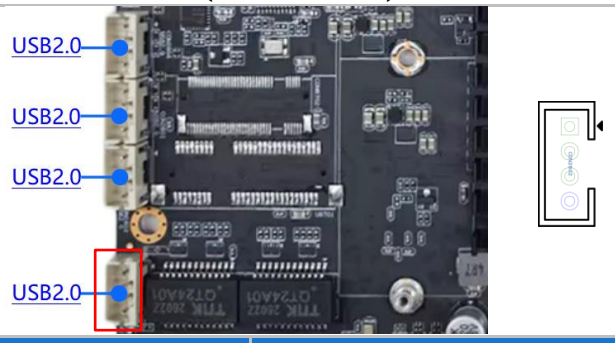
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◆ **CON2803** **USB2.0 interface (PH2.0mm4P)**



No.	Pin Name	Type	Description
1	5V	Power output	Power output, +5V Maximum output current 1A (shared with CON2802)
2	DM	Input / Output	D- signal line
3	DP	Input / Output	D+ signal line
4	GND	Ground	Ground

◆ **CON2802** **USB2.0 interface (PH2.0mm4P)**

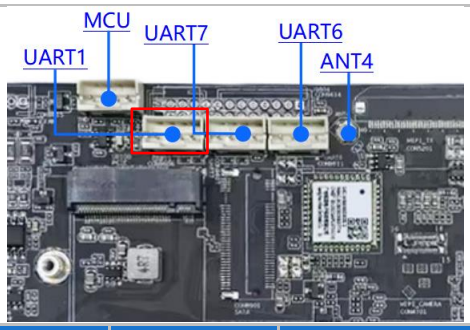


No.	Pin Name	Type	Description
1	5V	Power output	Power output, +5V Maximum output current 1A (shared with CON2803)
2	DM	Input / Output	D- signal line
3	DP	Input / Output	D+ signal line
4	GND	Ground	Ground

◆ **CON9606** **UART1 interface (default RS232 mode, optional TTL) (PH2.0mm4P)**

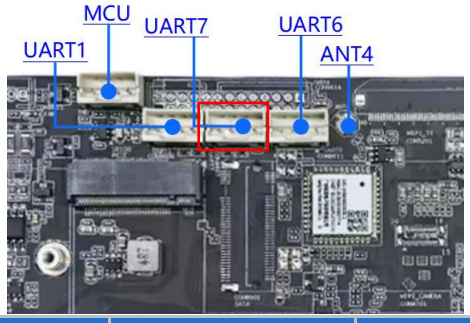
Same functionality as UART6 and UART7.

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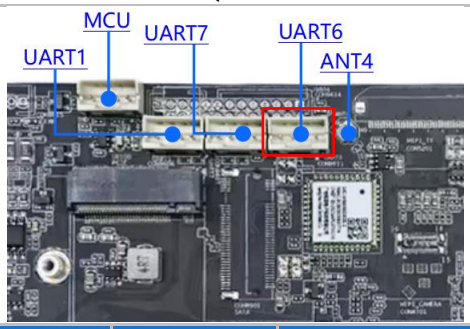
No.	Pin Name	Type	Description
1	5V	Output	Power output, +5V
2	TX1	Output	Serial port output, +3.3V
3	RX1	Input	Serial port input, +3.3V
4	GND	Ground	Ground

◆ **CON9607 UART7 interface (default RS232 mode, optional TTL) (PH2.0mm4P)**



No.	Pin Name	Type	Description
1	5V	Power output	Power output, +5V
2	TX7	Output	Serial port output, +3.3V
3	RX7	Input	Serial port input, +3.3V
4	GND	Ground	Ground

◆ **CON9611 UART6 interface (default RS485 mode, optional TTL) (PH2.0mm4P)**



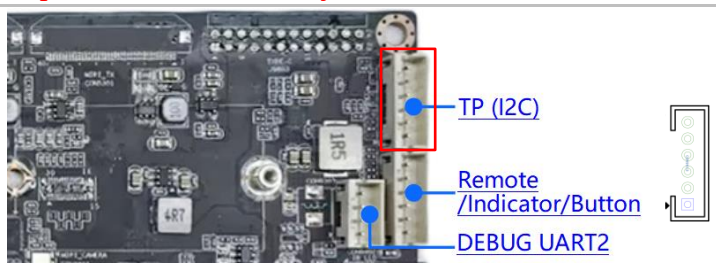
No.	Pin Name	Type	Description
1	5V	Output	Power output, +5V

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2	TX6	Output	RS48_ A (TTL mode, serial port output), +3.3V
3	RX6	Input	RS48_ B (TTL mode, serial port input), +3.3V
4	GND	Ground	Ground

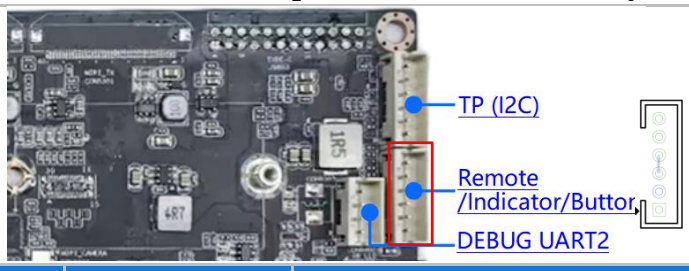
◆ **CON9613** **Touch screen interface (PH2.0mm6P)**

Used as a serial port, with functionality similar to that of UART6 and UART7.



No.	Pin Name	Type	Description
1	GND	Ground	Ground
2	I2C_SDA_TP	Input / Output	Touch screen I2C device data signal, +3.3V
3	I2C_SCL_TP	Output	Touch screen I2C device clock signal, +3.3V
4	TP_RST	Output	Reset signal output, +3.3V
5	TP_INT	Input	Interrupt signal input, +3.3V
6	VCC_3V3_S0	Output	Power output, +3.3V

◆ **CON9402** **Remote control reception, work indicator, key interface (PH2.0mm6P)**



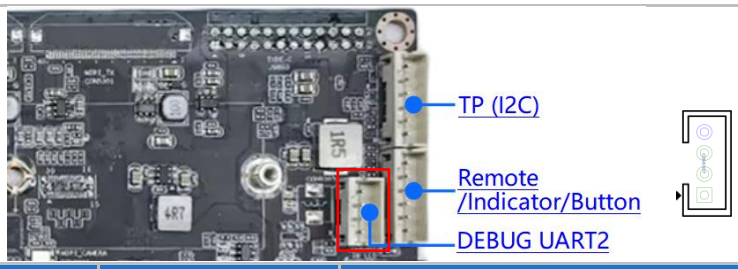
No.	Pin Name	Type	Description
1	IR_EX	Input	Remote control reception signal input
2	GND	Ground	Ground
3	IR_VCC	Output	Remote head power supply +3.3V
4	RLED	Red light	Standby display, +3.3V
5	GLED	Green light	Work show, +3.3V
6	PWR_KEY	Input	External key Input

◆ **CON9307** **UART interface(PH2.0mm6P)**

For internal R&D use only; intended for debugging; no external peripherals/equipment shall

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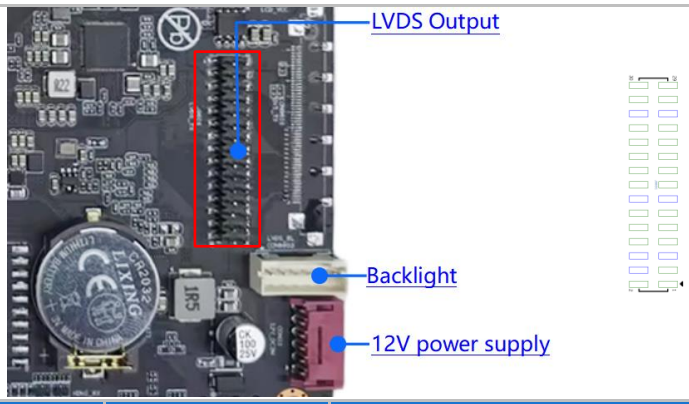
be connected.



No.	Pin Name	Type	Description
1	UART_5V	Output	Power output, +5V
2	URART2_TX	Output	Serial port output
3	URART2_RX	Input	Serial port input
4	GND	Ground	Ground

◆ **J9601 LVDS output interface (double pin 2.0mm30P)**

Backup interface



No.	Pin Name	Type	Description
1	VCC_PANEL	Power	LVDS screen power supply
2			
3			
4	GND	Ground	Ground
5			
6			
7	LVTX1_D0N	Output	Lane0- Output
8	LVTX1_D0P	Output	Lane0+ Output
9	LVTX1_D1N	Output	Lane1- Output
10	LVTX1_D1P	Output	Lane1+ Output
11	LVTX1_D2N	Output	Lane2- Output

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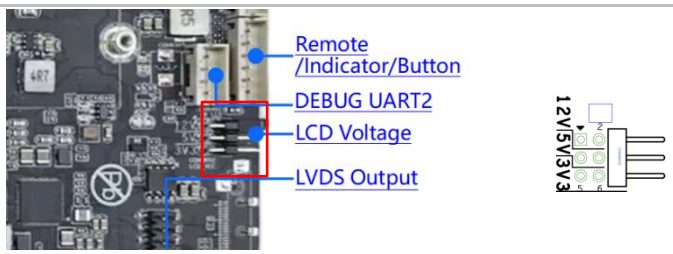
12	LVTX1_D2P	Output	Lane2+ Output
13	GND	Ground	Ground
14			
15	LVTX1_CLKN	Output	CLK1- Output
16	LVTX1_CLKP	Output	CLK1+ Output
17	LVTX1_D3N	Output	Lane3- Output
18	LVTX1_D3P	Output	Lane3+ Output
19	LVTX2_D0N	Output	Lane0- Output
20	LVTX2_D0P	Output	Lane0+ Output
21	LVTX2_D1N	Output	Lane1- Output
22	LVTX2_D1P	Output	Lane1+ Output
23	LVTX2_D2N	Output	Lane2- Output
24	LVTX2_D2P	Output	Lane2+ Output
25	GND	Ground	Ground
26			
27	LVTX2_CLKN	Output	CLK2- Output
28	LVTX2_CLKP	Output	CLK2+ Output
29	LVTX2_D3N	Output	Lane3- Output
30	LVTX2_D3P	Output	Lane3+ Output

◆ CON9602 LCD Voltage(double pin 2.0mm 6P)

CON24 corresponds to LCDVCC1 voltage selection on CON14/CON9601/J9601 socket

The screen voltage can be selected through the CON9602 jumper cap, and the screen power supply can be selected to support 3.3V/5V/12V.

For example, if the LCD voltage used is 5V, then plug the two pins of 5V in the middle to jump out.



In the above picture, the jumper cap is used to select the screen power supply

CON9602 from top to bottom, in order: 12V / 5V / 3.3V

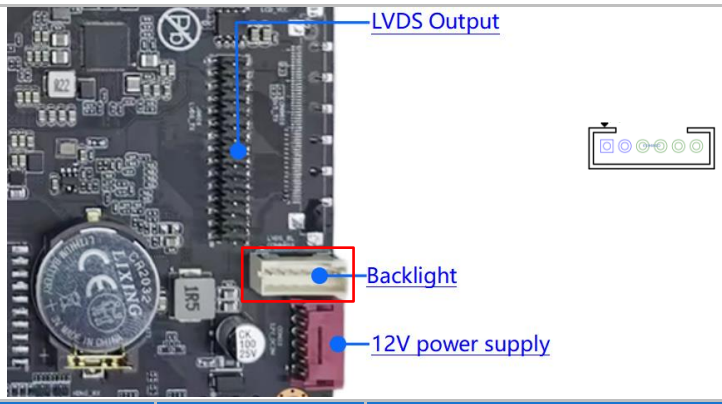
No.	Pin Name	Type	Description
1	12V	Power output	Power output, +12V

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3	5V	Power output	Power output, +5V
5	3.3V	Power output	Power output, +3.3V
2	LCDVCC1	Power output	Screen pressure output
4			
6			

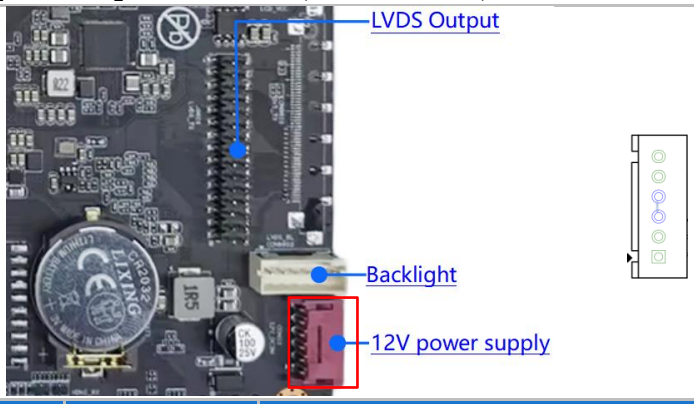
◆ **CON9603 Backlight interface (PH2.0mm6P)**

Backup interface.



No.	Pin Name	Type	Description
1	+12V_NORMAL	Power output	Backlight power output, +12V, switchable control, maximum controllable current 3A Large-size multi-tube backlight panels with operating current greater than 3A need to be powered from the power supply separately
2			
3	EN	Output	Backlight switch signal, 5V level, high and low level can be configured
4	ADJ	Output	Backlight DIMMING Control
5	GND	Ground	Ground
6			

◆ **CON33 12V power input interface (PH2.0mm6P)**



No.	Pin Name	Type	Description

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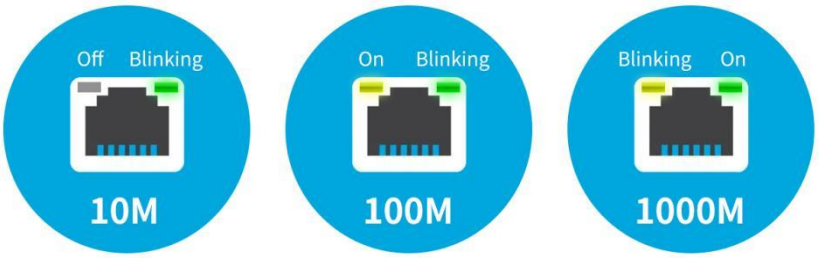
1	STB	Output	Standby Power Control
2	5VSB	Input	Standby power, +5V
3	GND	Ground	Ground
4			
5	VCC12V_DCIN	Power Input	Power input, +12V
6			

◆ Other Interface Description

Front View			
No.	**Positon**	**Interface**	**Description**
1	ANT6201	ANT4	WIFI2.4G/5G/BT antenna interface, reserved, optional
3	J2000	12V DC	Power interface, DC head, inner core 2.0mm
4	J2601	TYPE-C USB	TYPE-C interface, compatible with OTG function, only supports 5V/1.5A power supply output
5	J4900	HDMI Input	HDMI input interface, max 4K@60HZ
6	J5000	HDMI Output	HDMI output interface, max 8K@60Hz
7	JP7000	3.5 headphone	Headphone interface, American standard interface, audio L, audio R, GND, MIC signal in turn
8	CON2902	USB3.0	USB 3.0 interface
9	CON2901	USB3.0	USB 3.0 interface
10	JP6801	LAN	LAN
11	JP6701	LAN	LAN
13	SW1	Reset	Reset button
Back View			
No.	**Positon**	**Interface**	**Description**
1	CON9604	NANO-SIM card slot	NANO-SIM card slot
2	J4201	TF card slot	TF card slot

◆ Schematic diagram of network port light status

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5 Electrical Performance

Item		Min	Typical	Max
Power parameters	Voltage	10V	12V	14V
	Ripple	--	150mV	--
	Current	2A	3A	--
Supply Current (no other peripherals connected)	Working current	--	0.5A	--
	Stand-by current	--	0.015A	--
	Battery working current	--	0.5μA	--
Supply Current (LVDS)	Working current	--	1.5A	3A
	Stand-by current	--	0.015A	--
Supply Current (HDMI)	Working current	--	0.8A	1.5A
	Stand-by current	--	0.015A	--
Environment	Relative Humidity	30%	--	80%
	Working Temperature	0℃	--	40℃
	Storage Temperature	0℃	--	70℃

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FCC Statement

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment .This equipment should be installed and operated with minimum distance 20cm between the radiator& your body.

Note : This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates,uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.