

Specification

CL3566-A

V1.0

catalogue

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Chapter 1 Product Introduction

1.1 scope of application

The CL3566-A is a high-performance, low-power Android series processor featuring 22nm advanced manufacturing technology. It boasts a 4-core 64-bit Cortex-A55 architecture with a clock speed of up to 1.8GHz, a dedicated NPU delivering 1TOPS AI computing power for lightweight AI development, and a GPU powered by ARM Mali-G52 2EE. The processor supports 4K video encoding and decoding, along with 4K display output.

1.2 function Introduction

The CL3566-A is compatible with Android 15.0, Linux 6.1, Debian 12, and Ubuntu 24.04. It features dual LVDS, eDP, MIPI, and HDMI display outputs, along with MIPI Camera, 100Mbps Ethernet, and a built-in universal backlight board interface with screen voltage jumper, supporting diverse display types. With enhanced performance, faster processing, and expanded connectivity, it stands as the optimal choice for human-machine interaction, smart terminals, and industrial control projects.

1.3 characteristic

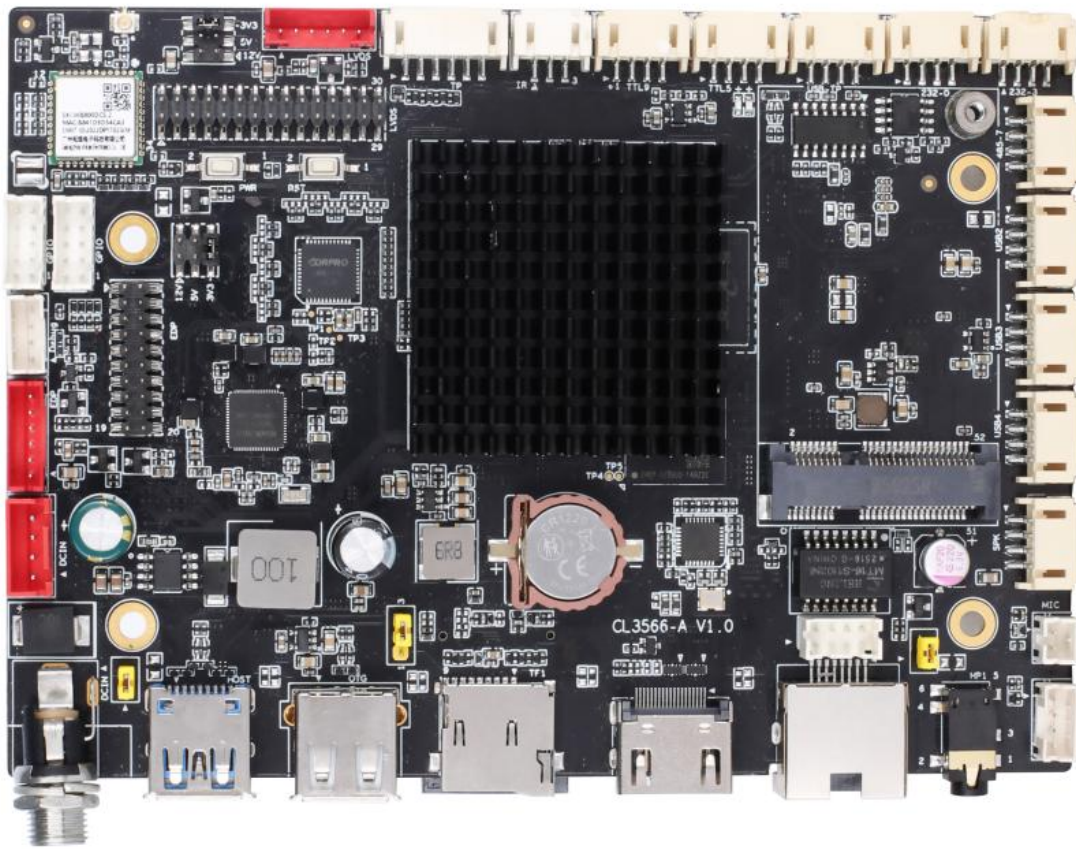
- Multi-display interface: Dual LVDS, eDP, MIPI, HDMI and other display output interfaces.
- Extensive expansion interfaces: 6 USB ports (1 USB3.0 HOST + 1 USB 2.0 OTG Type-A), 4 USB 2.0 HOST sockets, 2 RS232 sockets, 2 TTL sockets, 1 RS485 socket, and 12 GPIO pins to meet diverse peripheral requirements.
- Multiple network interfaces: 1*100M Ethernet port, single-band WIFI, BT5.2 support, and built-in MINI PCI-E 4G port.
- High definition: Supports up to 4K/60Hz video output and LCD displays with LVDS, eDP, MIPI, or HDMI interfaces.
- Customized for Android, this system provides API reference code for system calls, fully supporting the development of customer applications. It also supports various mainstream touch screens, including infrared, optical, capacitive, resistive, and touch film.

Chapter 2 Product Specifications

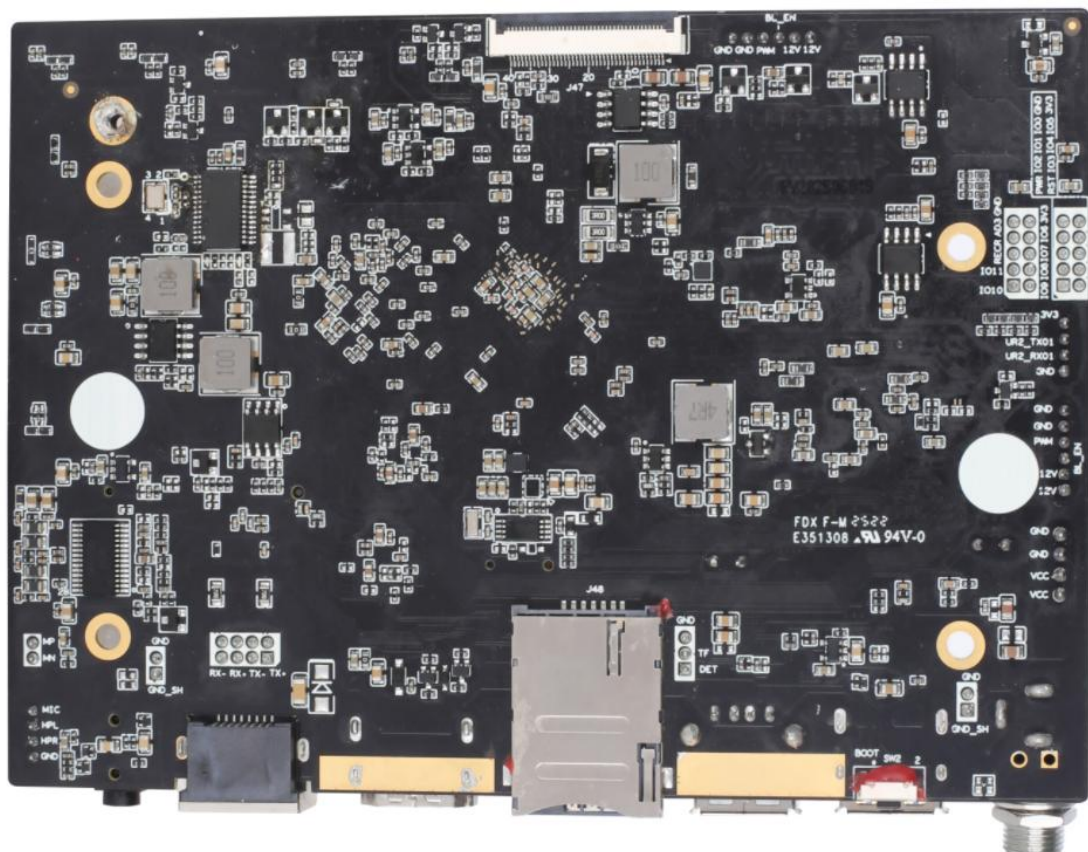
type	Specifications
CPU	RK3566 is a 64-bit high-performance CPU
	Featuring a quad-core 64-bit Cortex-A55 architecture with a clock speed of up to 1.8GHz;
GPU	Equipped with ARM Mali-G52 2EE graphics processor
internal storage	2GB/4GB/8GB LPDDR4 available in any combination
Built-in memory	EMMC 16GB/32GB/64GB/128GB/256GB can be combined freely
built-in ROM	4KB EEPROM
Decoding resolution	Supports up to 4K/60Hz
operating system	Android15.0, Linux6.1 ,Debian12 ,Ubuntu24.04
Playback Mode	Supports loop, timer, and insert playback modes
Network Support	4G, Ethernet, WiFi/Bluetooth support, wireless peripheral expansion
Video Play	Supports WMV, AVI, FLV, RM, RMVB, MPEG, TS, MP4, and more
picture format	Supports BMP, JPEG, PNG, and GIF
USB joggle	1 USB3.0 HOST port and 1 USB2.0 OTG port on the 1st port
	4 internal USB2.0 ports
Mipi Camera	not have
gorge line	2 *RS232 sockets, 2 *TTL sockets, 1 *RS485 socket
GPS	External GPS (optional)
CAN	not have
WIFI、 BT	Built-in 2.4G WIFI 6 and Bluetooth 5.2
4G	4G module interface with built-in MINI PCIe
Ethernet	1*100M Ethernet port
TF block	Supports TF card
LVDS output	1* dual-channel LVDS port
eDP output	1*4-lane eDP port
HDMI output	1* standard HDMI2.0 output port
MIPI output	1 *MIPI LCD interface with 40-pin FPC connector

Audio output	Built-in dual-channel power amplifier with 4R/10W per channel and 8R/5W per channel
Headphone jack	Built-in 3.5mm 4-segment headphone jack
RTC real-time clock	support
Scheduled on/off	support

Chapter 3 Product Interface Definition



front

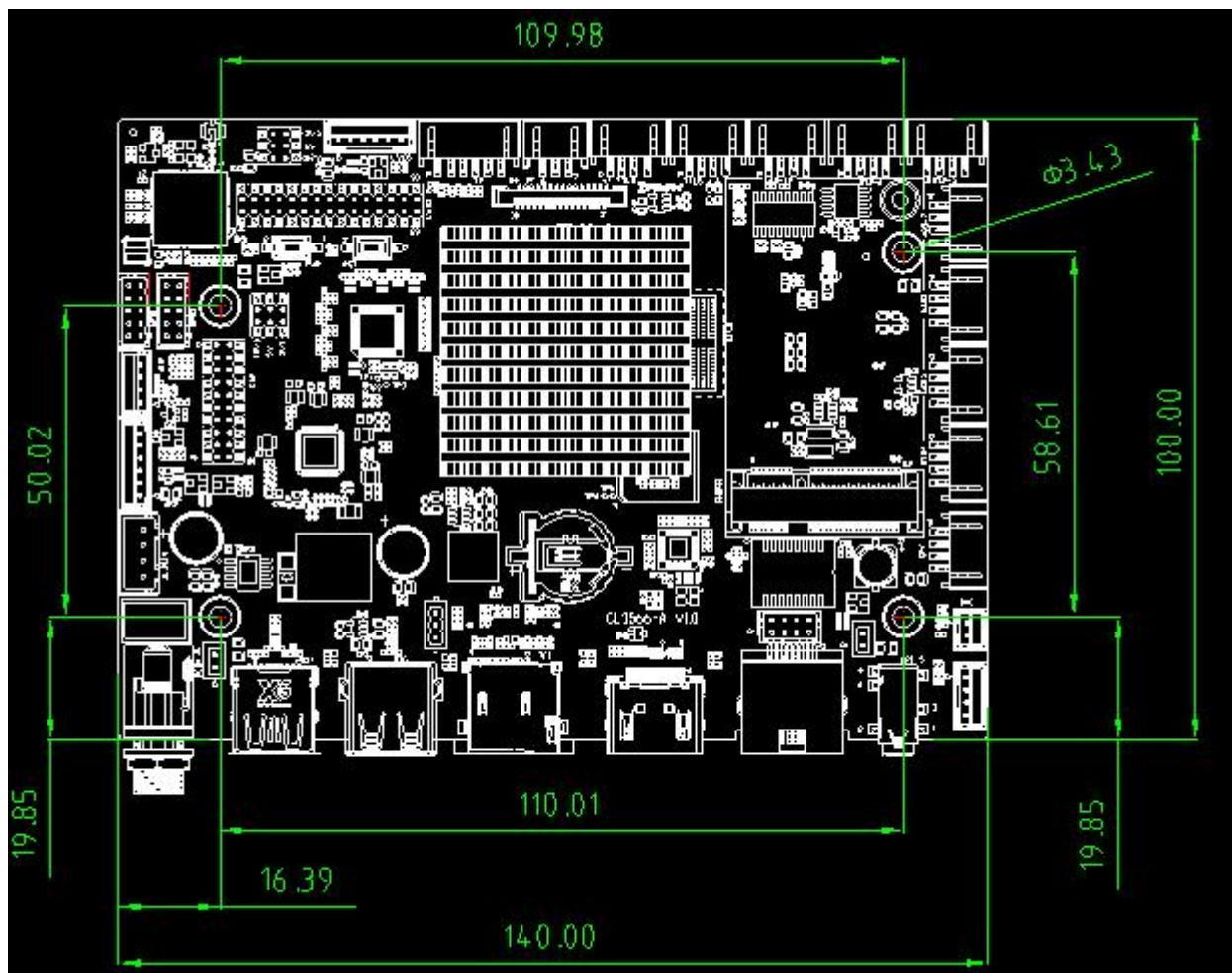


the back

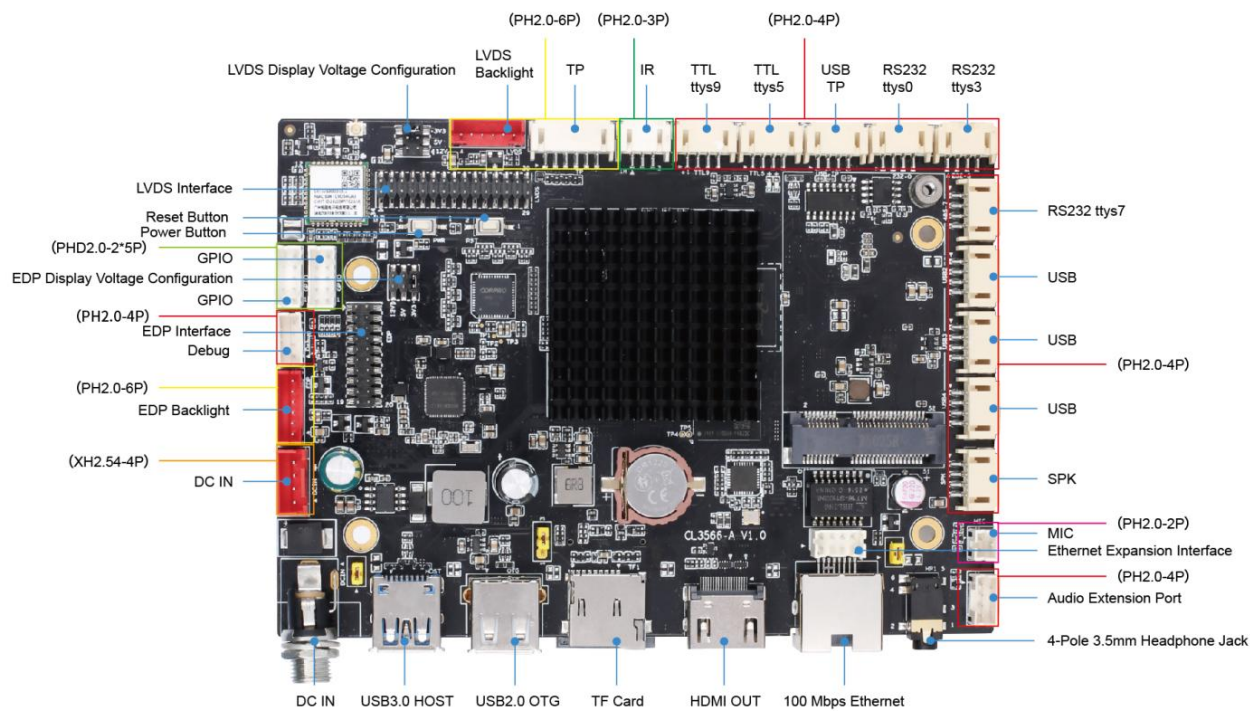


Coastline interface

◆ 3.1 PCB size diagram

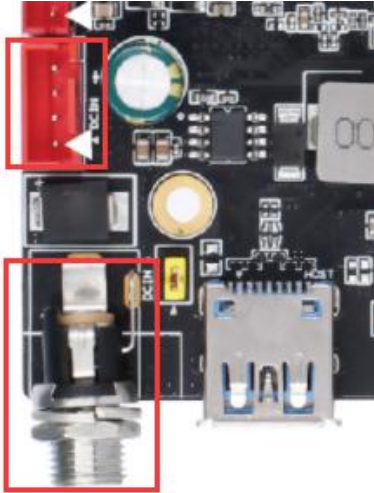


◆ 3.2. External Interface Diagram



◆ 3.2.1 Power Input Interface

The system operates on a 12V-36V DC power supply, which must be fed exclusively through the DC socket or power outlet. The power adapter's DC IN plug features a d2.0 threaded connector. When no external devices are connected, the 12V DC power must maintain a minimum current of 2A. The power outlet interface specifications are as follows:

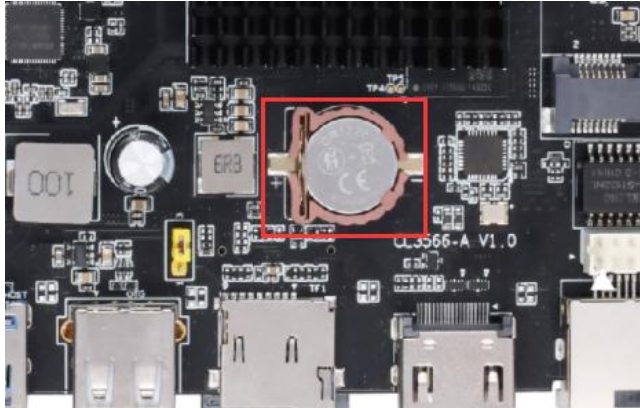


order number	definition	attribute	description
1	VCC	import	12V-36V input
2	VCC	import	12V-36V input
3	GND	earth wire	earth wire
4	GND	earth wire	earth wire

◆ 3.2.2 RTC Battery

CR1220 button cell

Power the system clock during a power failure.



◆ 3.2.3 MIC Interface

Pay attention to the connection of MIC positive and negative terminals. Do not reverse them.



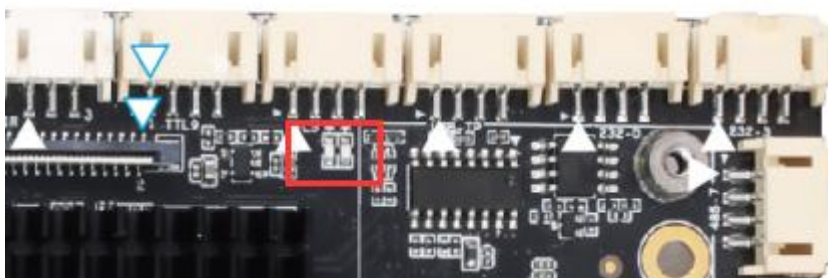
order	definition	attribute	description
1	MICP	import	MIC+
2	MICN	import	MIC-

◆ 3.2.4 Remote Control Interface



order number	definition	attribute	description
1	IR	import	Remote control signal input
2	GND	earth wire	earth wire
3	3V3	source	3.3V output

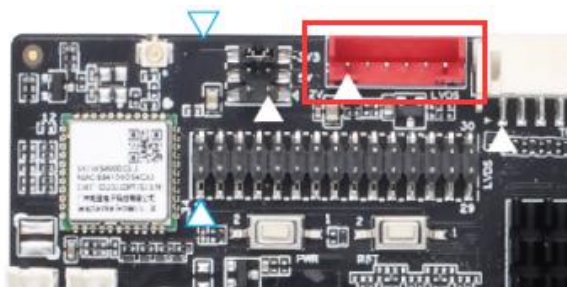
◆ 3.2.5 Work indicator light



When the external DC power adapter is plugged in, the red light will turn on slightly. After the system starts up, the blue light will turn on and the red light will turn off.

◆ 3.2.6 LVDS backlight control interface

For LVDS display backlight control, the 12V power supply current must not exceed 2A. When using screens larger than 21 inches or those with backlight power exceeding 24W, the backlight power should be drawn from another power board to prevent system instability. The backlight enable voltage is 5V; if other voltages are used, add an IO level conversion circuit. This 12V power supply must only serve as a backlight output and must never be used as system input power.



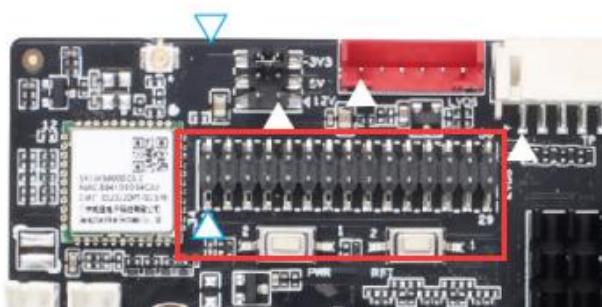
order number	definition	attribute	description
1	VCC	source	12V output
2	VCC	source	12V output
3	EN	output	Backlight enable control
4	PWM	output	Backlight brightness control
5	GND	earth wire	earth wire
6	GND	earth wire	earth wire

◆ 3.2.7 LVDS Interface

The LVDS interface standard supports 1080P screens with 6/8-bit resolution in single/double mode. Screen voltage can be selected via jumper caps, with options for 3.3V, 5V, or 12V power supply.

To avoid burning the board and screen, please note the following:

1. Verify that the screen's power supply voltage matches the specifications and that the board's power supply can handle the maximum operating current.
2. Use a multimeter to verify that the power supply selected by the jumper cap is correct.



order num ber	definition	attribute	description
1	VCC	power output	LCD power output: +3.3V/+5V/+12V optional
2			
3			
4	GND	earth wire	earth wire
5			
6	GND	earth wire	earth wire
7	D0N	output	Pixel0 Negative Data (Odd)
8	D0P	output	Pixel0 Positive Data (Odd)
9	D1N	output	Pixel1 Negative Data (Odd)
10	D1P	output	Pixel1 Positive Data (Odd)
11	D2N	output	Pixel2 Negative Data (Odd)
12	D2P	output	Pixel2 Positive Data (Odd)
13	GND	earth wire	earth wire
14	GND	earth wire	earth wire
15	CLK0N	output	Negative Sampling Clock (Odd)
16	CLK0P	output	Positive Sampling Clock (Odd)
17	D3N	output	Pixel3 Negative Data (Odd)
18	D3P	output	Pixel3 Positive Data (Odd)
19	D5N	output	Pixel0 Negative Data (Even)
20	D5P	output	Pixel0 Positive Data (Even)
21	D6N	output	Pixel1 Negative Data (Even)
22	D6P	output	Pixel1 Positive Data (Even)
23	D7N	output	Pixel2 Negative Data (Even)

24	D7P	output	Pixel2 Positive Data (Even)
25	GND	earth wire	earth wire
26	GND	earth wire	earth wire
27	CLK1N	output	Negative Sampling Clock (Even)
28	CLK1P	output	Positive Sampling Clock (Even)
29	D8N	output	Pixel3 Negative Data (Even)
30	D8P	output	Pixel3 Positive Data (Even)

◆ 3.2.8 EDP backlight control interface

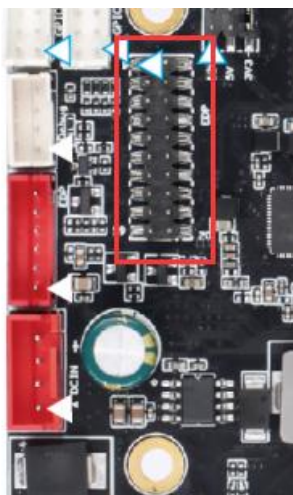
For backlight control in EDP screens, the 12V power supply must not exceed 2A. When using screens larger than 21 inches or those with backlight power exceeding 24W, the backlight power should be drawn from another power board to prevent system instability. The backlight enable voltage is 5V; if other voltages are used, add an IO level conversion circuit. This 12V power supply must only serve as a backlight output and must never be used as system input power.



order number	definition	attribute	description
1	VCC	source	12V output
2	VCC	source	12V output
3	EN	output	Backlight enable control
4	PWM	output	Backlight brightness control
5	GND	earth wire	earth wire
6	GND	earth wire	earth wire

◆ 3.2.9 EDP Interface

Use the jumper cap to select the screen power supply: 12V/5V/3.3V;



order number	definition	attribute	description
1	VCC	power output	LCD power output: +3.3V/+5V/+12V optional
2			
3	GND	earth wire	earth wire
4			
5	TX0P	output	EDP Pixel0 Positive Data (Odd)
6	TX0N	output	EDP Pixel0 Negative Data (Odd)
7	TX1P	output	EDP Pixel1 Positive Data (Odd)
8	TX1N	output	EDP Pixel1 Negative Data (Odd)
9	TX2P	output	EDP Pixel2 Positive Data (Odd)
10	TX2N	output	EDP Pixel2 Negative Data (Odd)
11	TX3P	output	EDP Pixel3 Positive Data (Odd)
12	TX3N	output	EDP Pixel3 Negative Data (Odd)
13	GND	earth wire	earth wire
14	GND	earth wire	earth wire
15	AUXP	output	EDP AUX Positive Data (Odd)
16	AUXN	output	EDP AUX Negative Data (Odd)
17	GND	earth wire	earth wire
18			

19			
20	HPD	import	EDP DETECT

◆ 3.3.0 MIPI Screen Interface

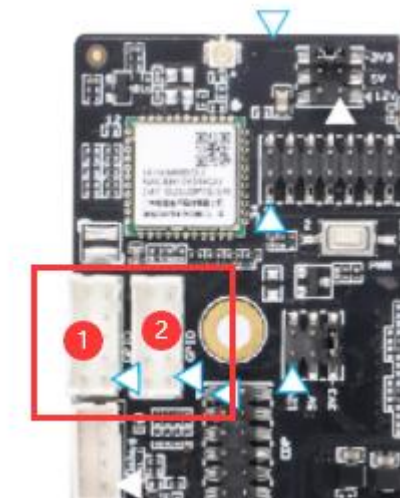
The MIPI interface supports both single-channel MIPI LCD screens and 4-line MIPI interfaces.



order number	definition	attribute	description
40	NC	-	Not connect
39	VDD	source	Digital power
38	VDD	source	Digital power
37	GND	the earth	Ground
36	REST	output	Global reset pin
35	NC	-	Not connect
34	GND	the earth	Ground
33	D0N	output	Negative MIPI differential data output
32	D0P	output	Positive MIPI differential data output
31	GND	the earth	Ground
30	D1N	output	Negative MIPI differential data output
29	D1P	output	Positive MIPI differential data output
28	GND	the earth	Ground
27	CLKN	output	Negative MIPI differential data output
26	CLKP	output	Positive MIPI differential data output
25	GND	the earth	Ground
24	D2N	output	Negative MIPI differential data output
23	D2P	output	Positive MIPI differential data output
22	GND	the earth	Ground
21	D3N	output	Negative MIPI differential data output

20	D3P	output	Positive MIPI differential data output
19	GND	the earth	Ground
18	NC	-	Not connect
14	NC	-	Not connect
16	GND	the earth	Ground
15	NC	-	Not connect
14	NC	-	Not connect
13	NC	-	Not connect
12	NC	-	Not connect
11	GND	the earth	Ground
10	LED-	source	LED Cathode
9	LED-	source	LED Cathode
8	NC	-	Not connect
7	NC	-	Not connect
6	NC	-	Not connect
5	NC	-	Not connect
4	NC	-	Not connect
3	NC	-	Not connect
2	LED+	source	LED Anode
1	LED+	source	LED Anode

◆ 3.3.1 IO Interface



IO1 interface

The input/output provides control signals for peripherals with a 3.3V level. The socket also features a power switch.

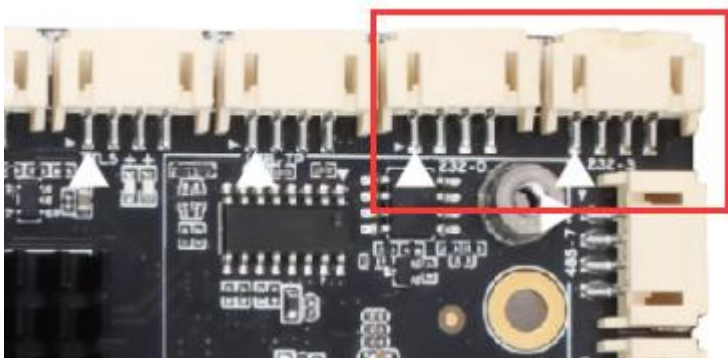
order number	definition	attribute	description
1	PWR	source	System power
2	RST	import	reset
3	I/O2	Input/Output	I/O 2
4	I/O 3	Output/Input	I/O 3
5	I/O 1	Input/Output	I/O 1
6	I/O 4	Input/Output	I/O 4
7	I/O 0	Input/Output	I/O 0
8	I/O 5	Input/Output	I/O 5
9	GND	earth wire	earth wire
10	3V3	source	VCC3V3 OUTPUT

IO2 interface

The input/output is used to provide control signals for peripherals, with a 3.3V level. The socket also has an AD input port whose level must be below 1.8V.

order number	definition	attribute	description
1	I/O 10	Input/Output	I/O 10
2	I/O 9	Input/Output	I/O 9
3	I/O 11	Input/Output	I/O 11
4	I/O 8	Output/Input	I/O 8
5	RECOVER	Output/Input	Upgrade button signal
6	I/O 7	Input/Output	I/O 7
7	AD3	import	Analog input pin/1.8V or lower
8	I/O 6	Input/Output	I/O 6
9	GND	earth wire	earth wire
10	3V3	source	VCC3V3 OUTPUT

◆ 3.3.2 3.3.2 Board Internal RS232 Interface



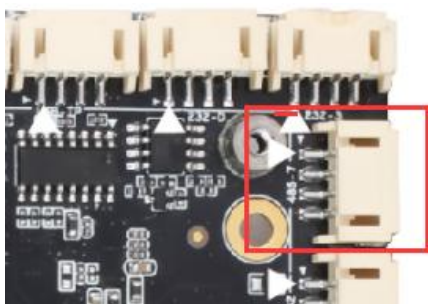
The board has two sets of 232 serial ports, which can support the common 232 serial port devices on the market.

matters need attention :

1. Check if the serial port voltage matches. Do not directly connect to standard 485 serial port devices.
2. Is the TX/RX connection correct?

order number	definition	attribute	description
1	GND	earth wire	earth wire
2	PC-RX	import	232-RX
3	PC-TX	output	232-TX
4	VCC	source	5V output

◆ 3.3.3 Board Internal RS485 Interface



The board has one RS485 interface that supports standard 485 devices. The interface level is 3.3V. If the interface level is higher than 3.3V, an isolation circuit or level conversion circuit is required to avoid damaging the device.

matters need attention :

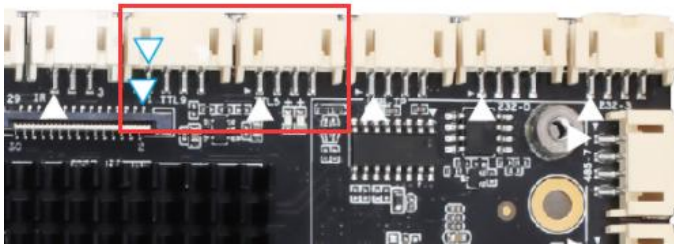
1. Is the 485 interface voltage compatible?
2. Is the wiring sequence of 485A and 485B correct?

order number	definition	attribute	description
1	GND	earth wire	earth wire
2	485B	Input/Output	B
3	485A	Input/Output	A
4	VCC	source	3.3V output

◆ 3.3.4 DEBUG Port



◆ 3.3.5 TTL Interface



The board provides two TTL serial ports, supporting standard serial devices with voltage ranges from 0V to 3.3V. When interfacing with serial devices operating above 3.3V, isolation or voltage conversion circuits are required to prevent damage to the main controller and connected devices.

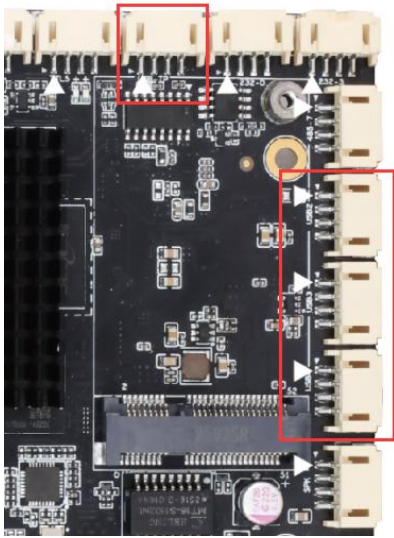
matters need attention :

1. Check if the TTL serial port voltage matches. Do not connect directly to MAX232 or 485 devices.
2. Is the TX/RX connection correct?

order number	definition	attribute	description
1	GND	earth wire	earth wire
2	UART-RX	import	RX
3	UART-TX	output	TX
4	VCC	source	3.3V output

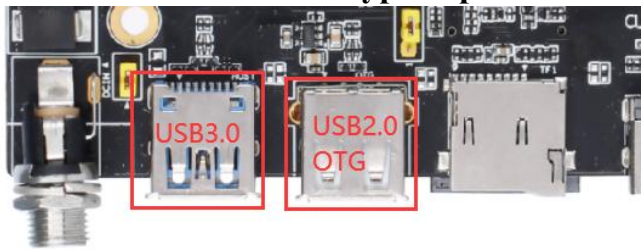
◆ 3.3.6 USB2.0 socket

The expansion board features four USB2.0 ports for peripheral expansion, with HOST as the default setting. Each port delivers no more than 500mA current. The USB-TP port is a dedicated interface for touch screen devices, while other USB devices can connect to this designated port.



order num ber	definition	attribute	description
1	GND	earth wire	earth wire
2	DP	Input/Output	DP
3	DM	Input/Output	DM
4	VCC	source	5V output

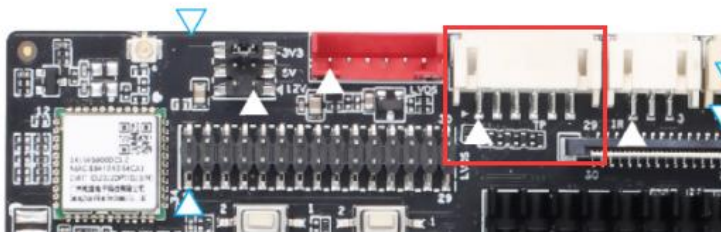
◆ 3.3.7 USB3.0 and USB2.0 Type-A ports



The board features one USB3.0 HOST Type-A port and one USB OTG 2.0 Type-A port.

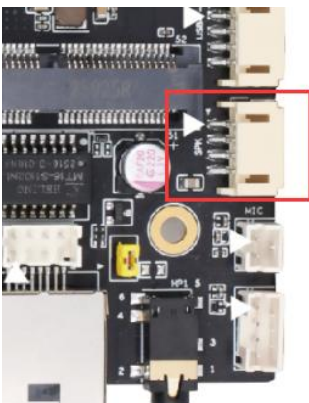
The USB3.0 port supports backward compatibility with USB 2.0, data storage, data import, USB mouse and keyboard, camera, touch screen, and more.

◆ 3.3.8 Touchscreen Interface



order num ber	definition	attribute	description
1	VCC	source	3.3V output
2	SCK	Input/Output	I2C clock
3	SDA	Input/Output	I2C data
4	INT	Input/Output	suspend
5	RST	Input/Output	reset
6	GND	earth wire	earth wire

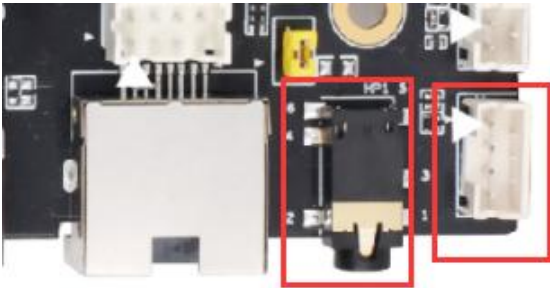
◆ 3.4.0 Speaker Interface



order numb	definition	attribute	description
---------------	------------	-----------	-------------

er			
1	OUP-R	output	Audio output right+
2	OUN-R	output	Audio output right-
3	OUN-L	output	Audio output left-
4	OUP-L	output	Audio output left+

◆ 3.4.1 3.5mm 4-way headphone jack and expansion port

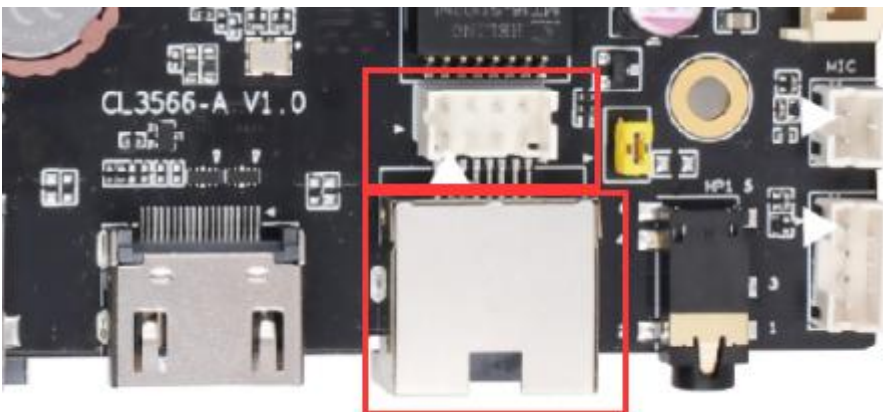


Headphone expansion port interface definition:

order number	definition	attribute	description
1	MIC	Mouth input	MIC
2	HPL	output	Audio output left
3	HPR	output	Audio output right
4	GND	the earth	GND

◆ 3.4.2 Ethernet and Expansion Ports

The board supports one 100 Mbps network port and one 100 Mbps network expansion port.

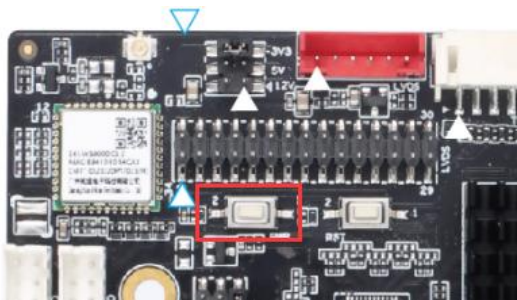


100Mbps network expansion port

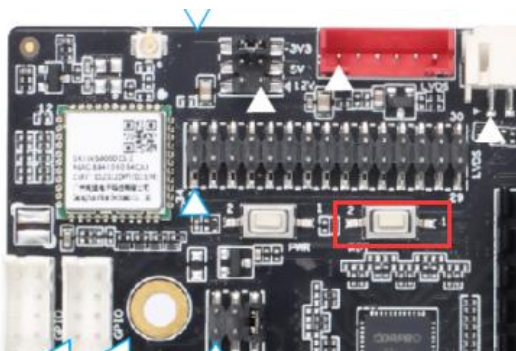
order number	definition	attribute	description
1	TX+	RJ45 signal	TX+ signal
2	NC	NC	NC
3	TX-	RJ45 signal	TX- signal
4	NC	NC	NC
5	RX+	RJ45 signal	RX+ signal
6	NC	NC	NC
7	RX-	RJ45 signal	RX- signal
8	NC	NC	NC

◆ 3.4.3 Key Instructions

Power button



Reset button



Upgrade with side buttons



◆ 3.4.4 Other standard interfaces and functions

memory interface	TF block	Data storage is currently tested up to 128GB
	USB standard port	The USB Type-A port has instructions on the front
HDMI joggle	standard interface	Supports HDMI data output, up to 4K/60Hz
Headphone jack	standard interface	3.5mm standard connector
4G interface	PCI-E standard interface	Supports standard 4G modules such as Quectel
SIM card interface	standard interface	Supports various formats (depending on the 4G module)

Chapter 4 behaviour of electricity

project		minimum	typical case	maximum
Power parameters	voltage	12V	--	36V
	ripple wave	--	--	100mV
	current	--	--	--
Power supply current (HDMI output, no other peripherals connected)	12V operating current	--	12V/400mA	12V/800mA
	Standby current	--	--	--
	USB supply current	--	--	5V/500mA
static electricity	Contact discharge			8KV
	Air discharge			15KV
environment	relative humidity	--	--	80%
	working temperature	-20°C	--	70°C
	Storage temperature	-30°C		80°C

Note 1: When connecting LVDS/EDP screens, use a jumper cap to select the correct display operating voltage (3.3V, 5V, or 12V). The LVDS/EDP display backlight must not exceed 12V/2A. If exceeding this limit, external power supply is required to prevent overheating and board damage.

Note 2: For eDP/LVDS screens, the board's total operating current and standby current depend on the connected display, which are not listed in the table above.

Chapter 5 Assembly and Usage Notes

During assembly and use, pay attention to the following (and not limited to) issues.

1. Naked board and peripheral short circuit problem;
2. During the installation and fixation process, avoid the deformation of the bare plate caused by the fixation;
3. When installing the eDP/LVDS display, ensure the voltage and current meet specifications, and verify the orientation of the display base's leg 1.
4. When installing eDP/LVDS screens, verify that the backlight voltage and current meet specifications. If the backlight power exceeds 24W, ensure an alternative power supply board is used.
5. When installing peripherals (USB, IO, ETC), ensure proper IO voltage levels and current output.
6. When installing the serial port, ensure it is directly connected to the 232,485 device and that the TX and RX connections are correct.
7. Check if the input power is properly connected to the power input interface. Based on the overall peripheral assessment, verify that the input power voltage and current meet the requirements. Avoid connecting power from the backlight socket for operational convenience.