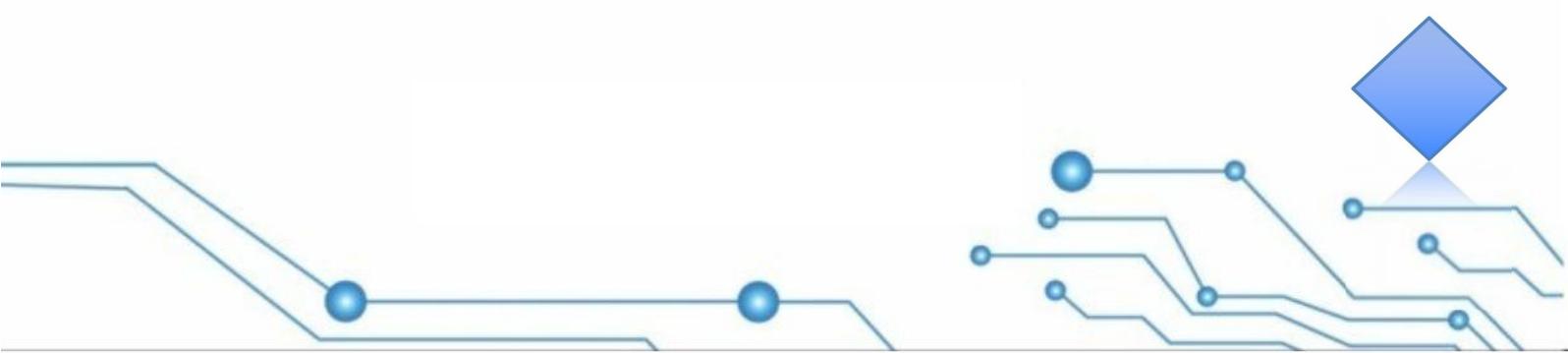
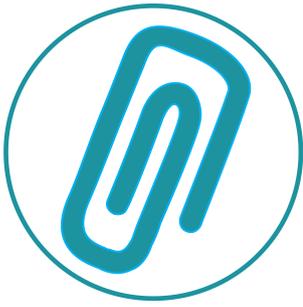


# Specification





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# Version change log

No	Date	Page	Change description
V0.1	2023-2	all	Version 1
V1.0	2023-10	all	Update and remake styles



## First: Overview

JLS-Z3568-01 is a motherboard used in advertising machines, automatic terminals, tablets and other fields. It uses RK3568 processor, which is a high-performance, low-power quad-core application processor chip with a variety of powerful embedded hardware engines, providing excellent performance for high-end applications. Support for almost full-format H.264 4k@60fps decoding, support for H.265 4k@60fps decoding, also support H.264/H.265 1080p@60fps encoding, as well as high-quality JPEG encoding/decoding.

The RK3568 has a built-in 3D GPU that is fully compatible with OpenGL ES1.1/2.0/3.2, OpenCL 2.0 and Vulkan 1.0. A dedicated 2D hardware engine will maximize display performance and provide a smooth operating experience.

The embedded NPU supports INT8/INT16 mixed operation. In addition, its strong compatibility makes it easy to transform network models based on a range of frameworks such as TensorFlow /MXNet/PyTorch/Caffe.

The RK3568 has a high-performance memory interface that can provide the memory bandwidth required in high-performance scenarios. (DDR3 / DDR3L/DDR4 / LPDDR3 / LPDDR4 / LPDDR4

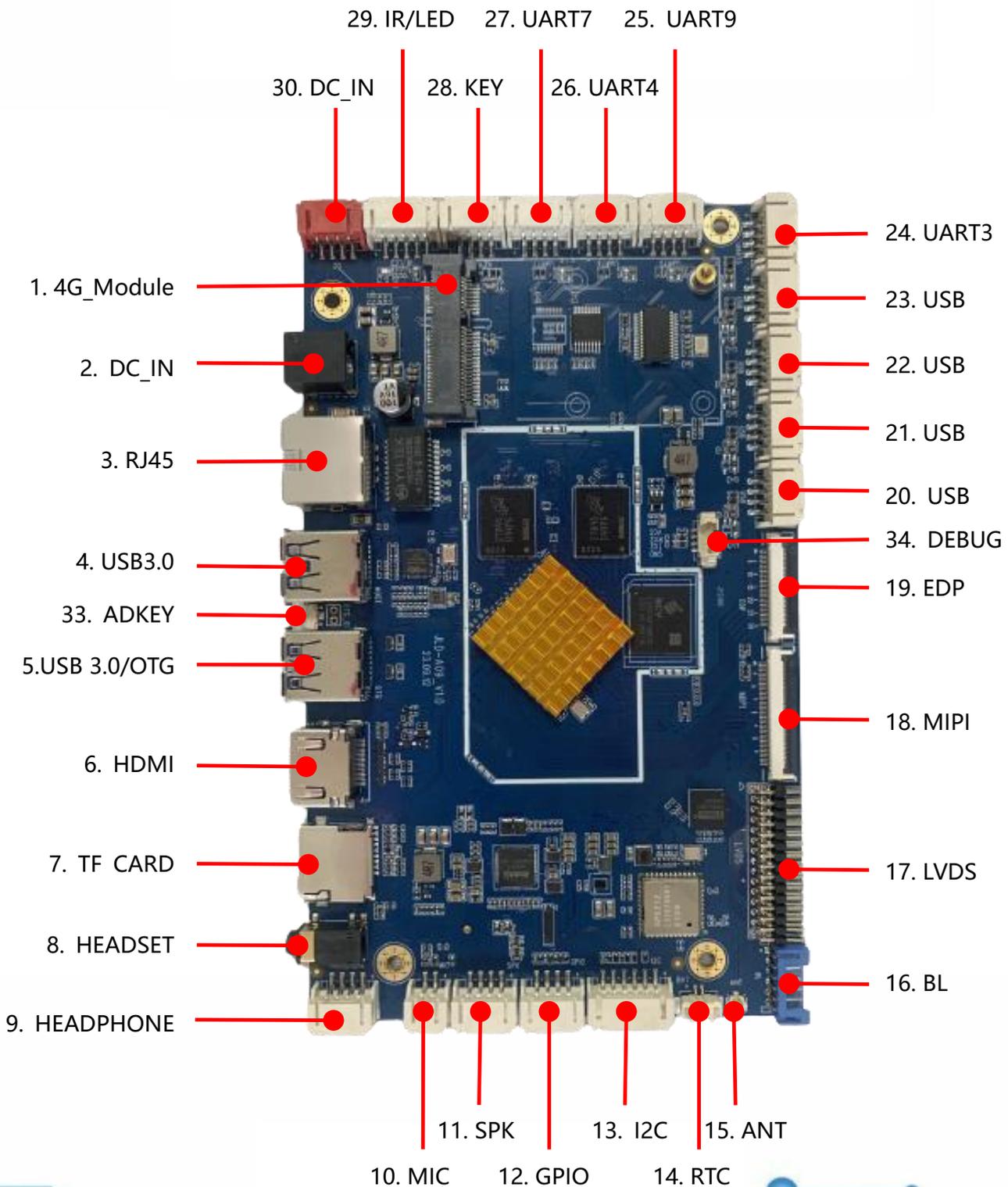


## Second:Features

Main Parameter	
CPU	RK3568 Quad-core Cortex-A55 64-bit processor, Maximum frequency 2.0GHz
GPU	ARM G52 2EE support OpenGL ES 1.1/2.0/3.2, OpenCL 2.0, Vulkan 1.1
NPU	1TOPS
Memory	2G/4G/8G DDR4 optional
EMMC	16G-128G optional
Display	Support LVDS (Dual 8, 1920*1080) , EDP, MIPI, HDMI
Audio output	Stereo, support Dolby
Audio interface	3.5mm Headphone interface , 4P2.0 Headphone interface , 2P2.0 Microphone interface, 4P2.0 Speaker interface
Ethernet	10/100/1000M
WIFI	2.4G/5G WiFi BT
OS	Android 11/ Ubuntu 20.04
TP	I2C and USB interface TP
Memory card type	TF-CARD
USB interface	Built-in USB 2.0 socket (4 pcs) 、extraposition USB 3.0 HOST (1pcs) 、extraposition OTG (1pcs)
Serial port	Five in all, Variety optional, TTL (1-5pcs) 、RS232 (0-4pcs) 、RS485 (0-2pcs)
RTC	Support power off clock memory, support automatic switch
Camera	MIPI Camera
PCB size	158mm*95mm*1.5mm
Power supply	DC12V3A input
Temperature	-20°-80°C



# Three:Appearance drawing and interface

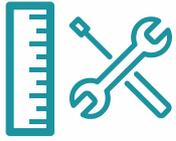


34. CAMERA



31. SIM

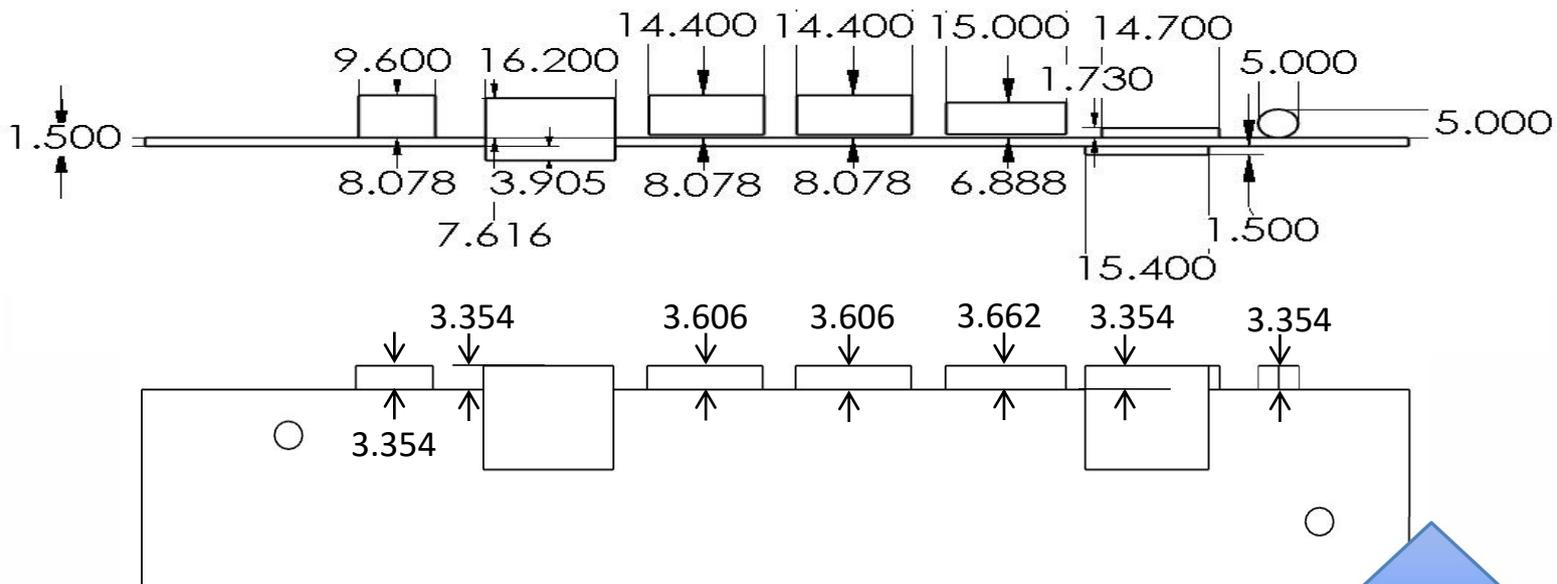
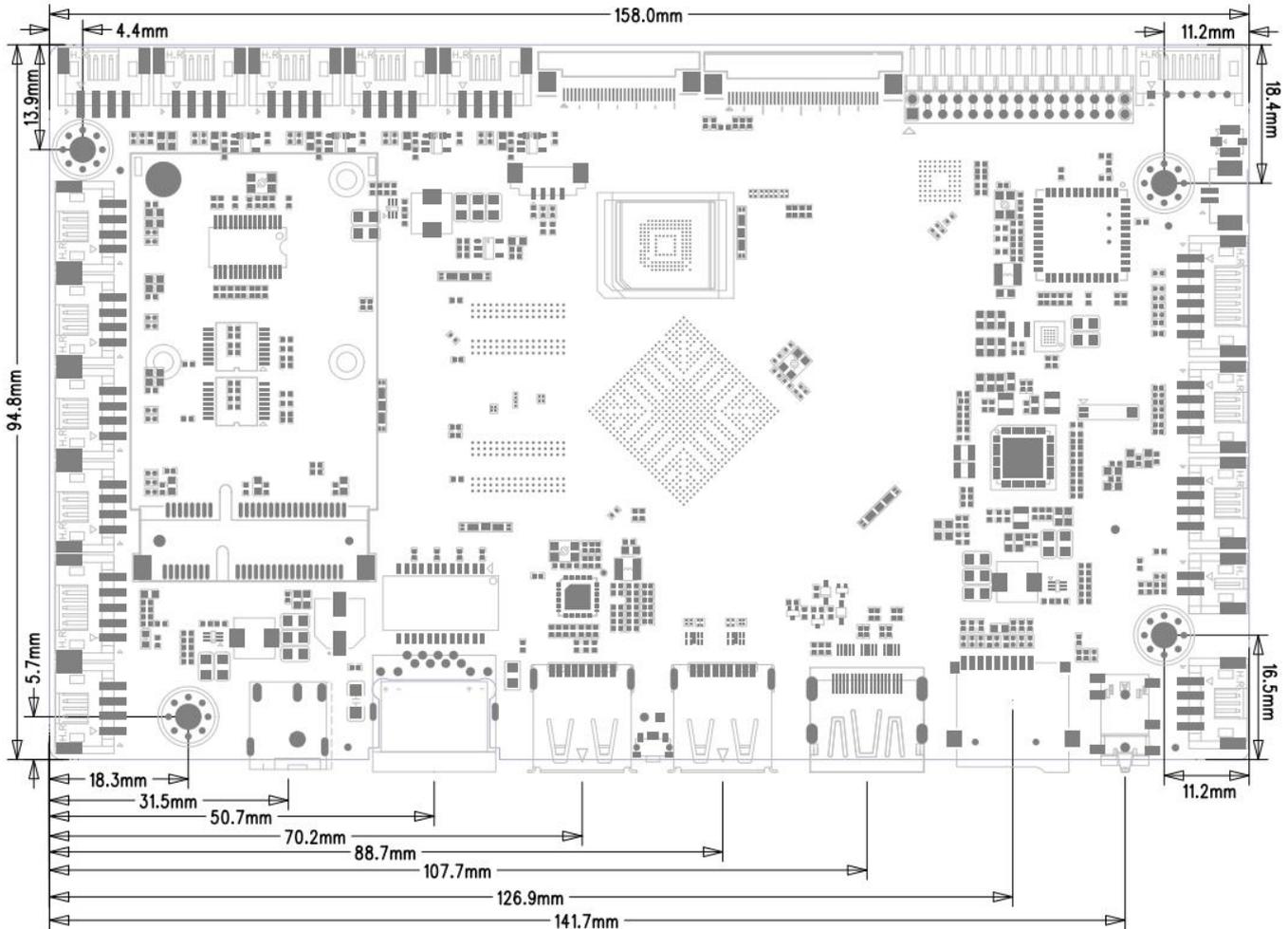




# Four: Structural dimension

PCB: 4-ply board  
Size: 158mm\*95mm

Screw hole : diameter 3.2mm  
Thickness: 1.5mm





## Five:User interface description

No.		Instructions
1	4G_Module	Mini PCIE 4G interface
2	DC_IN	DC Power input interface ( adapter)
3	RJ45	Gigabit network interface
4	USB3.0	USB HOST3.0 interface
5	USB3.0/OTG	USB HOST3.0/OTG interface
6	HDMI	Gigabit network interface
7	TF_CARD	TF slot
8	HEADSET	Headphone connector
9	HEADPHONE	Headphone output interface
10	MIC	Microphone input interface
11	SPK	Speaker output interface
12	GPIO	Generic input/output interface
13	I2C	TP input interface
14	RTC	RTC battery
15	ANT	Antenna interface
16	BL	Displayed backlight interface
17	LVDS	LVDS output interface
18	MIPI	MIPI output interface
19	EDP	EDP output interface
20	USB	USB 2.0 HOST interface
21	USB	USB 2.0 HOST interface
22	USB	USB 2.0 HOST interface
23	USB	USB 2.0 HOST interface
24	UART3	UART3 serial port optional232/TTL
25	UART9	UART9 serial port optional232/TTL
26	UART4	UART4 serial interface232/485/TTL
27	UART7	UART7 serial interface232/485/TTL
28	KEY	ADC、 resetting、 Power button interface
29	IR/LED	Remote control and indicator interface
30	DC_IN	DC Power input interface (socket)
31	SIM	SIM slot
32	CAMERA	MIPI camera interface
33	ADKEY	ADKEY upgrade button
34	DEBUG	UART2 debug serial portTTL



## Six:Main interface definition

### 9. HEADPHONE (Headphone output interface) 4P interval2.0mm

No.	interface	Function definition
1	R	Right channel output
2	SNS	Voice-frequency ground loop
3	L	Left channel output
4	DET	Detection pin

### 10. MIC (Microphone output interface) 2P interval2.0mm

No.	interface	Function definition
1	MIC+	Microphone input pin
2	GND	Ground pin

### 11. SPK (Speaker output interface) 4P interval2.0mm

No.	interface	Function definition
1	L+	Left channel+
2	L-	Left channel-
3	R-	Right channel-
4	R+	Right channel+

### 12. GPIO (Generic input/output interface) 4P interval 2.0mm

No.	interface	Function definition
1	GND	Ground pin
2	GPIO0_C6	GPIO_C6 pin
3	GPIO0_C5	GPIO_C5 pin
4	VCC	Power supply pin5V/3.3V optional , default5V

13. I2C (TP interface) 6P interval 2.0mm

No.	interface	Function definition
1	GND	Ground pin
2	RST	resetting pin
3	INT	Interrupt pin
4	SCL	I2C clock pin
5	SDA	I2C data pin
6	VCC	3.3V Power supply pin

14. RTC (circumscribed clock interface) 2P interval 1.25mm

No.	interface	Function definition
1	RTC	RTC Function pin
2	GND	Ground pin

16. BL (Displayed backlight Power supply output interface) 6P interval 2.0mm

No.	interface	Function definition
1	VCC	Displayed backlight 12V Power supply 5V optional
2	VCC	Displayed backlight 12V Power supply 5V optional
3	EN	Displayed backlight enable pin
4	ADJ	Displayed backlight adjust pin
5	GND	Ground pin
6	GND	Ground pin

17. LVDS (LVDS output interface) 2x15P interval 2.00mm

No.	interface	Function definition
1	VCC	Displayed Power supply pin 12V/5V/3.3V optional
2	VCC	Displayed Power supply

		pin12V/5V/3.3V optional
3	VCC	Displayed Power supply pin12V/5V/3.3V optional
4	GND	Ground pin
5	GND	Ground pin
6	GND	Ground pin
7	RXO0-	RXO0 difference data-
8	RXO0+	RXO0 difference data+
9	RXO1-	RXO1 difference data-
10	RXO1+	RXO1 difference data+
11	RXO2-	RXO2 difference data-
12	RXO2+	RXO2 difference data+
13	GND	Ground pin
14	GND	Ground pin
15	RXOC-	RXO clock-
16	RXOC+	RXO clock+
17	RXO3-	RXO3 difference data-
18	RXO3+	RXO3 difference data+
19	RXE0-	RXE0 difference data-
20	RXE0+	RXE0 difference data+
21	RXE1-	RXE1 difference data-
22	RXE1+	RXE1 difference data+
23	RXE2-	RXE2 difference data-
24	RXE2+	RXE2 difference data+
25	GND	Ground pin
26	GND	Ground pin
27	RXEC-	RXE clock-
28	RXEC+	RXE clock+
29	RXE3-	RXE3 difference data-
30	RXE3+	RXE3 difference data+

18. MIPI (MIPI output interface) FPC40P interval 0.5mm

No.	interface	Function definition
1	VCOM/VCCIO	Air-or-connect1.8V
2	VCC	3.3VPower supply pin
3	VCC	3.3VPower supply pin
4	GND	Ground pin
5	RST	Resetting pin
6	NC	Not connected
7	GND	Ground pin
8	MIPI_0N	MIPI difference data0-
9	MIPI_0P	MIPI difference data0+
10	GND	Ground pin
11	MIPI_1N	MIPI difference data1-
12	MIPI_1P	MIPI difference data1+
13	GND	Ground pin
14	MIPI_CKN	MIPI output clock-
15	MIPI_CKP	MIPI output clock+
16	GND	Ground pin
17	MIPI_2N	MIPI difference data2-
18	MIPI_2P	MIPI difference data2+
19	GND	Ground pin
20	MIPI_3N	MIPI difference data3-
21	MIPI_3P	MIPI difference data3+
22	GND	Ground pin
23	NC	Not connected
24	NC	Not connected
25	GND	Ground pin
26	NC	Not connected
27	NC	Not connected
28	NC	Not connected
29	NC	Not connected
30	GND	Ground pin
31	LED-	LED negative electrode
32	LED-	LED negative electrode
33	NC	Not connected
34	NC	Not connected
35	NC	Not connected

36	NC	Not connected
37	NC	Not connected
38	NC	Not connected
39	LED+	LED positive electrode
40	LED+	LED positive electrode



19. EDP (EDP output interface) FPC30P interval 0.5mm

No.	interface	Function definition
1	NC	Not connected
2	GND	Ground pin
3	EDP_1N	EDP output data1-
4	EDP_1P	EDP output data1+
5	GND	Ground pin
6	EDP_0N	EDP output data0-
7	EDP_0P	EDP output data0+
8	GND	Ground pin
9	EDP_CLKP	EDP output clock-
10	EDP_CLKN	EDP output clock+
11	GND	Ground pin
12	EDP_VCC	3.3V Power supply pin
13	EDP_VCC	3.3V Power supply pin
14	NC	Not connected
15	GND	Ground pin
16	GND	Ground pin
17	HPD	Detection pin
18	GND	Ground pin
19	EDP_2N	EDP output data2-
20	EDP_2P	EDP output data2+
21	GND	Ground pin
22	BL_EN	enable

23	BL_PWM	PWM backlight adjust pin
24	EDP_3N	EDP output data3-
25	EDP_3P	EDP output data3+
26	BL-VCC	12VPower supply voltage
27	BL-VCC	12VPower supply voltage
28	BL-VCC	12VPower supply voltage
29	BL-VCC	12VPower supply voltage

20. USB HOST (USB HOST interface) 4P interval 2.0mm

No.	interface	Function definition
1	GND	Ground pin
2	DP	USB data+
3	DM	USB data-
4	VCC	5VPower supply pin

21. USB HOST (USB HOST interface) 4P interval 2.0mm

No.	interface	Function definition
1	GND	Ground pin
2	DP	USB data+
3	DM	USB data-
4	VCC	5VPower supply pin

22. USB HOST (USB HOST interface) 4P interval 2.0mm

No.	interface	Function definition
1	GND	Ground pin
2	DP	USB data+
3	DM	USB data-
4	VCC	5VPower supply pin



23. USB HOST (USB HOST interface) 4P interval2.0mm

No.	interface	Function definition
1	GND	Ground pin
2	DP	USB data+
3	DM	USB data-
4	VCC	5VPower supply pin

24. UART3 (232/TTL optional serial port3) 4P interval2.0mm

No.	interface	Function definition
1	GND	Ground pin
2	TX3	Send
3	RX3	Receive
4	VCC	Power supply pin5V/3.3V optional , default5V

25. UART9 (232/TTL optional serial port9) 4P interval2.0mm

No.	interface	Function definition
1	GND	Ground pin
2	TX9	Send
3	RX9	Receive
4	VCC	Power supply pin5V/3.3V optional , default5V

26. UART4 (232/485/TTL optional serial port4) 4P interval2.0mm

No.	interface	Function definition
1	GND	Ground pin
2	TX4/A	Send/A
3	RX4/B	Receive/B
4	VCC	Power supply pin5V/3.3V optional , default5V

27. UART7 (232/485/TTL optional serial port7) 4P interval2.0mm

No.	interface	Function definition
1	GND	Ground pin
2	TX7/A	Send/A
3	RX7/B	Receive/B
4	VCC	Power supply pin5V/3.3V optional , default5V

28. KEY (ADC、 resetting、 Power button interface) 4P interval2.0mm

No.	interface	Function definition
1	GND	Ground pin
2	PWER	Power button pin
3	ADKEY	ADKEY key pin
4	RESET	Resetting key pin

29. IR/LED (Remote control and indicator interface) 5P interval2.0mm

No.	interface	Function definition
1	LEDG	Indicator light green
2	LEDR	Indicator light red
3	IR	Remote control signal pin
4	GND	Ground pin
5	3V3	3.3VPower supply pin

30. DC\_IN (DC power interface) 4P interval2.0mm

No.	interface	Function definition
1	GND	Ground pin
2	GND	Ground pin
3	DCIN	12V Power input
4	DCIN	12V Power input

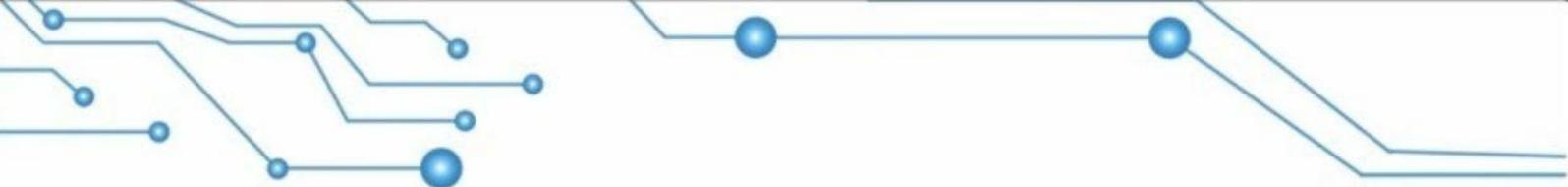
32. CAMERA (MIPI camera interface) FPC30P interval0.5mm

No.	interface	definition
1	AVDD	2.8V Power supply pin
2	DVDD	1.5V Power supply pin
3	VCCIO	1.8V Power supply pin
4	VCCAF	2.8V Power supply pin
5	NC	Not connected
6	RST	Output resetting
7	PWDN	Camera enable
8	NC	Not connected
9	GND	Ground pin
10	SCL	I2C clock
11	SDA	I2C data
12	GND	Ground pin
13	MCLK1	MIPI camera clock
14	GND	Ground pin
15	MCP	MIPI output clock+
16	MCN	MIPI output clock-
17	GND	Ground pin
18	MD0P	MIPI difference signalD0+
19	MD0N	MIPI difference signalD0-
20	GND	Ground pin
21	MD1P	MIPI difference signalD1+
22	MD1N	MIPI difference signalD1-
23	GND	Ground pin
24	MD2P	MIPI difference signalD2+
25	MD2N	MIPI difference signalD2-
26	GND	Ground pin
27	MD3P	MIPI difference signalD3+
28	MD3N	MIPI difference signalD3-
29	GND	Ground pin
30	GND	Ground pin

34. UART2 Debug serial port (TTL serial port2) 4P interval1.25mm

No.	interface	Function definition
1	GND	Ground pin
2	TX2	Send
3	RX2	Receive
4	VCC	Power supply pin3.3V





## Seven: Attention

1. Do not install or assemble peripherals when the mainboard is powered on. Wear ESD tools, such as an ESD bracelet, during installation.
  2. When connecting peripherals through cables, check that the pin definition of the peripherals corresponds to the socket of the motherboard to avoid burning the motherboard due to incorrect connection.
  3. When fixing the motherboard during the installation process, pay attention to the uniform force on the board to avoid the deformation of the board and open the road.
  4. When installing the voltage interface of the screen, pay attention to whether the selected voltage screen has the same specifications and the position of the first pin.
  5. When installing the serial port, pay attention to the level type and whether TX,RX,485/A,485/B correspond.
  6. When installing peripherals, pay attention to peripheral level matching and current output.
  7. It is necessary to consider whether the input power voltage current power can meet the use requirements according to the total peripherals in advance.
  8. When designing the whole machine product, it is also necessary to consider the height limit and heat dissipation of the machine and the motherboard.
- 