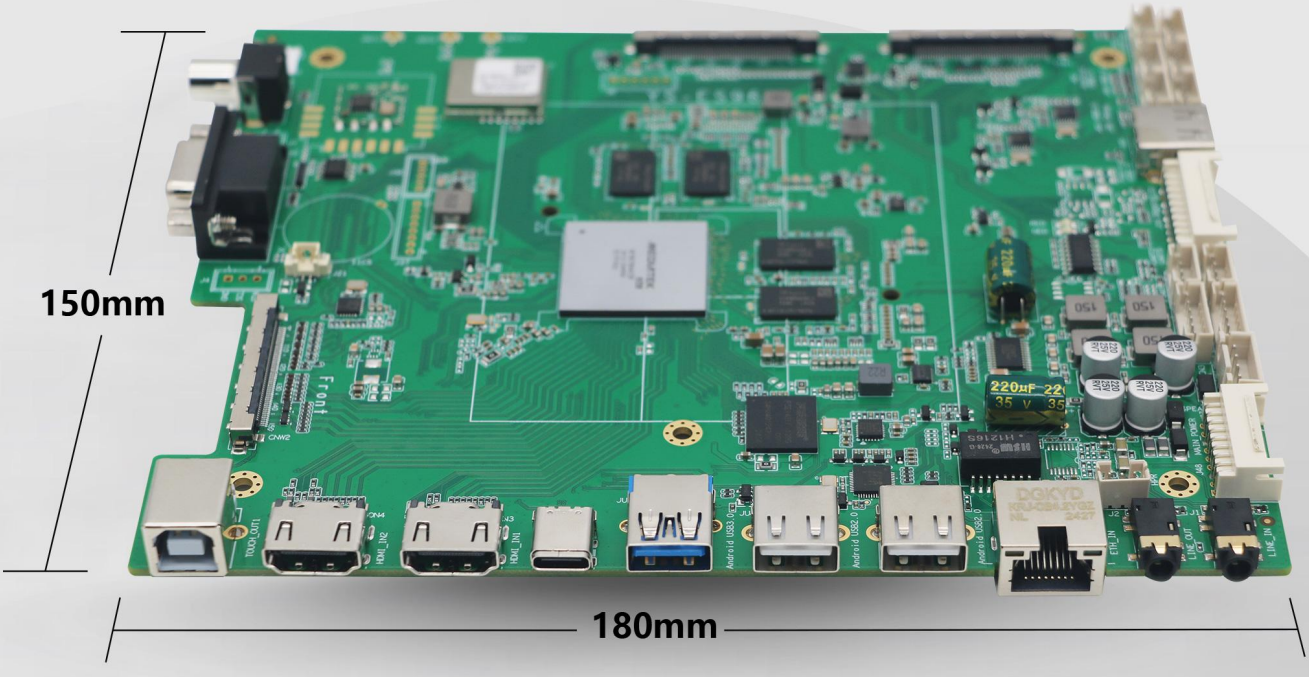
YISHENG ELECTRONICS

Specification

YS-ES9679

Conference & Educational Motherboard



Shenzhen Yisheng Technology Co., Ltd

Contents

Declaration

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Revision History

Version	Date	Author	Approver	Description
V3.0	2023.12.18	Zhang Wenjuan	Qin Yongling	Initial version

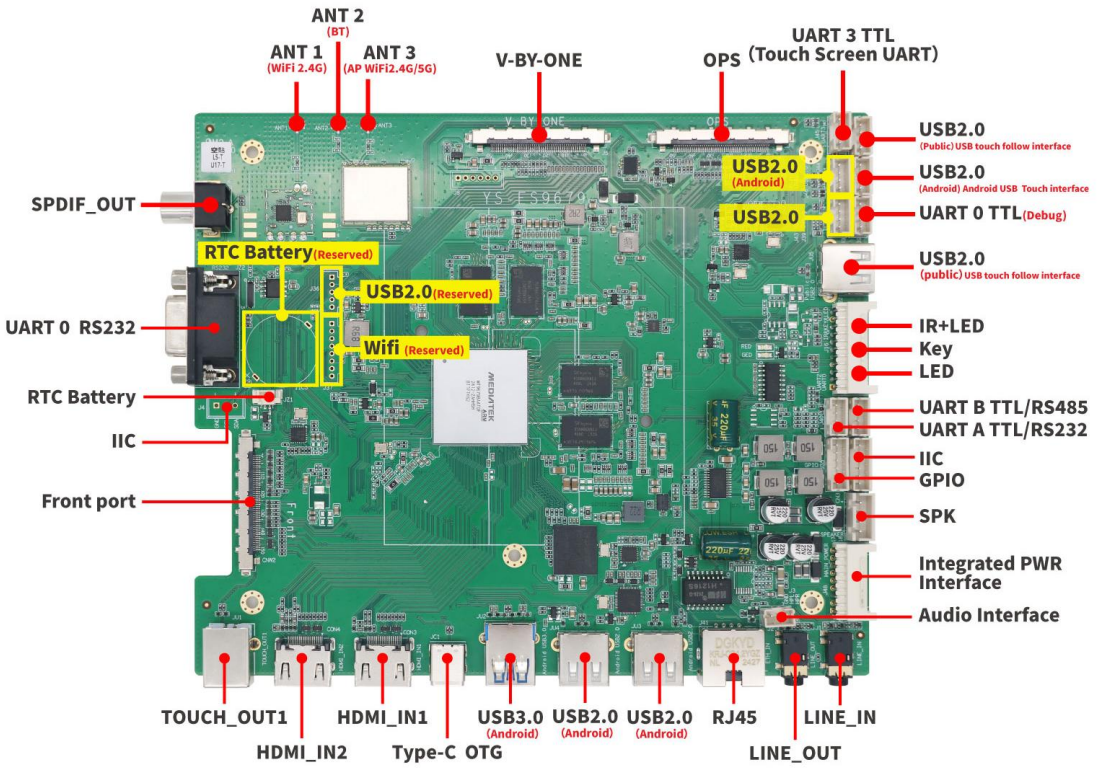
Chapter 1 Product Introduction

1.1 Overview

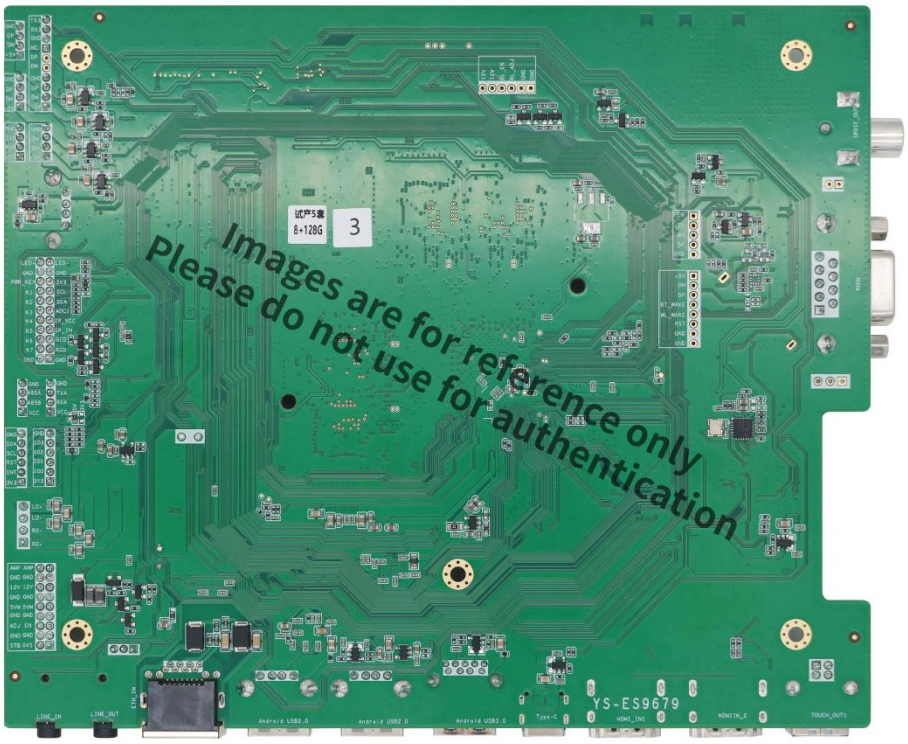
YS-ES9679 is powered by MTK MT9679 high performance processor, supporting the Android 14 operating system, with rich peripheral interfaces that perfectly match the interface of educational conference equipment, industry compatible touch screens, MIC arrays, and other peripherals; With whiteboard writing, wireless screen projection, video conferencing and other software.

1.2 Pictures and dimensions

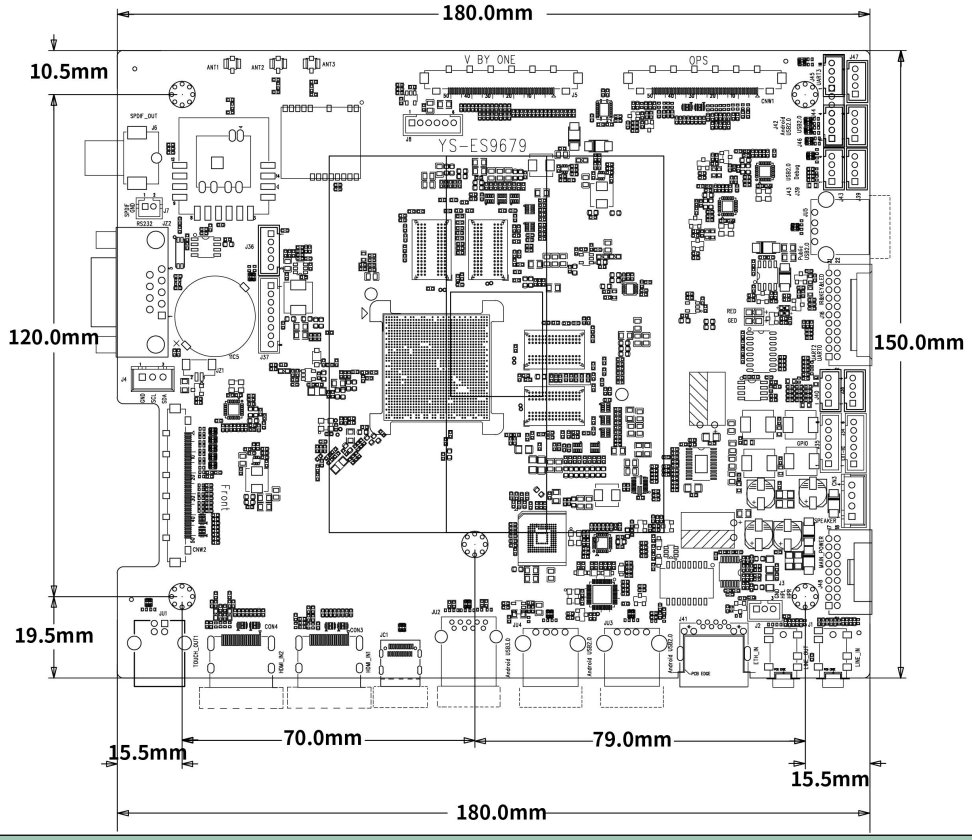
Top View



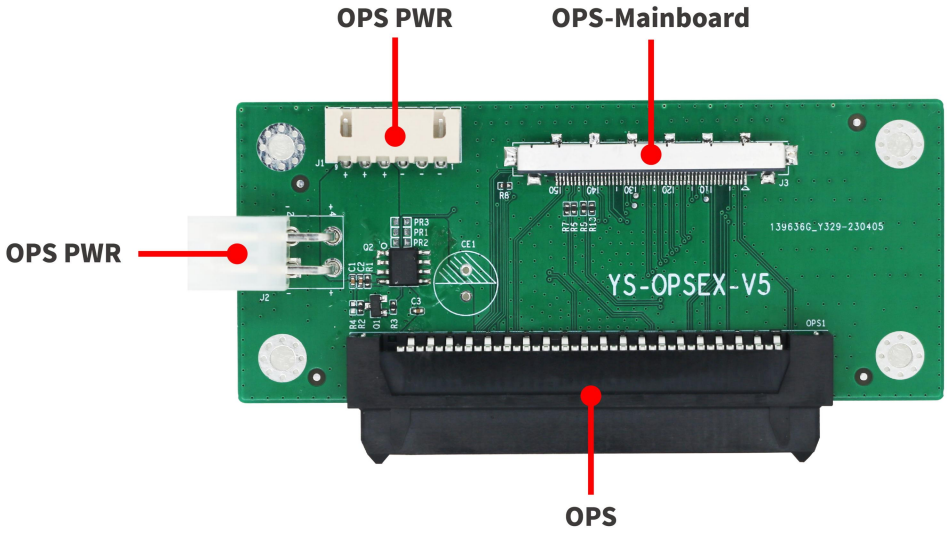
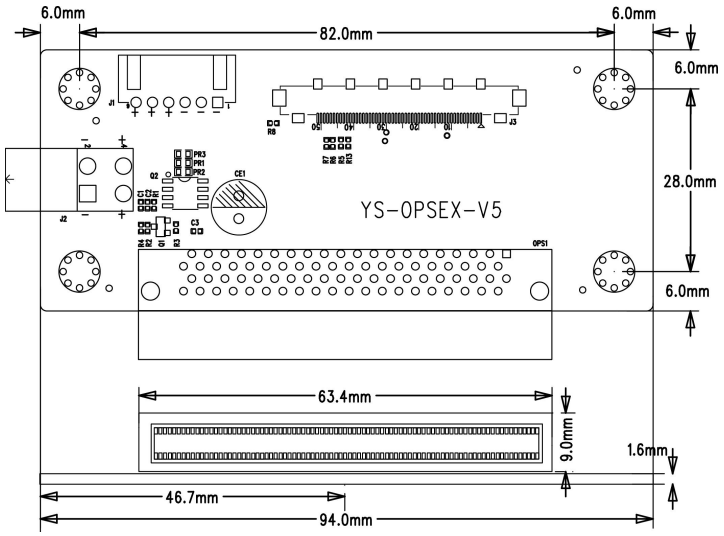
Bottom View

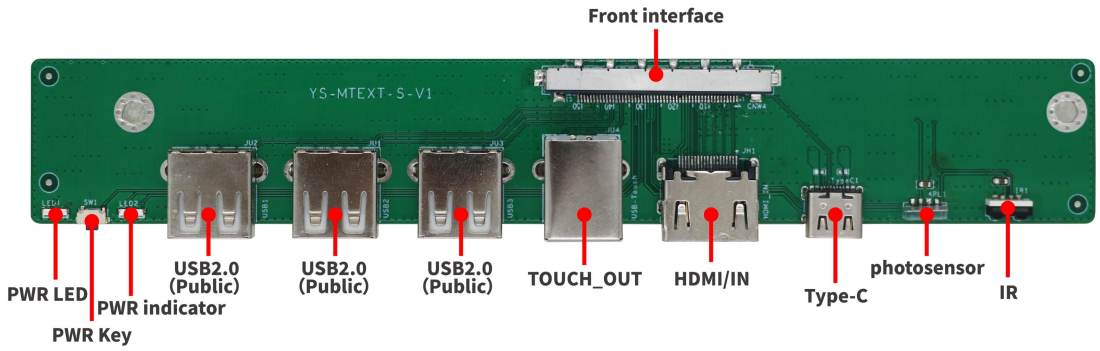


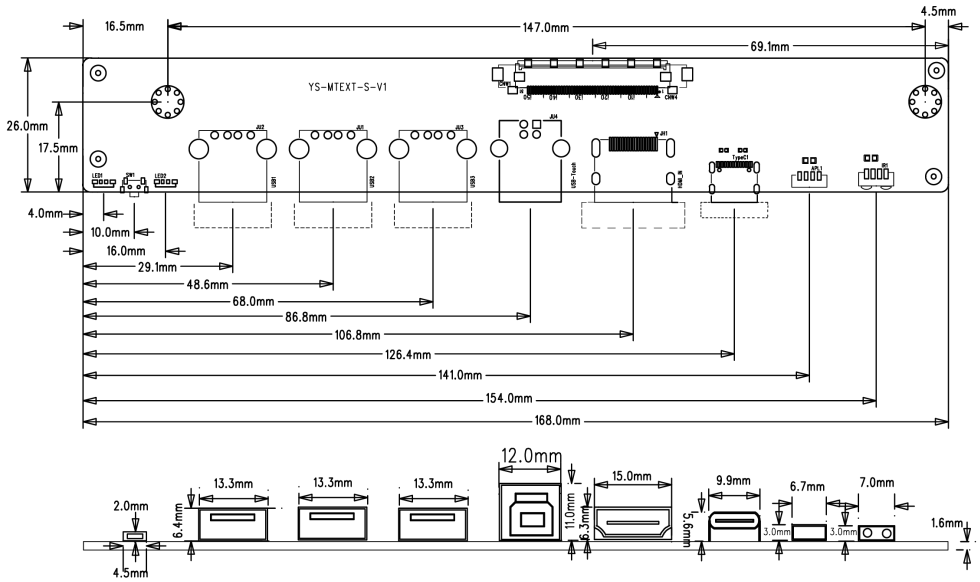
Dimensions



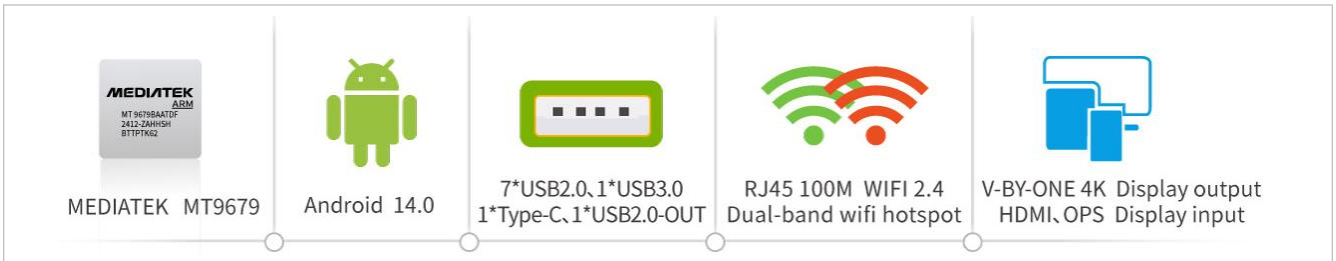
*PCBA L：180mm *PCBA W：150mm *PCBA H：18mm *PCBA Location Hole：Φ3.2mm x4

YS-OPSEX-V5 OPS Adapter Board	
Product Image	
Dimension Drawing	

YS-MTEXT-S-V Front Adapter Board	
Product Image	

Dimension Drawing	

1.3 Product detailed parameters



Detail specification	
CPU	4* CA73
GPU	Mali G52-MC1
APU	Y(1T)
ROM	4GB, up to 8GB
Storage	32GB, up to 128GB
Video CODEC	**Video decoder** 4K75, H.265/H265/AVS3/VVC/AV1/HEVC **Video encoder** 1080P60,H.264
Display Output	1*V-by-One (4K@60Hz)
Display Input	1*HDMI 2.1 IN(4K@60Hz) 1*OPS, after connecting OPS sub-board, can be connected to standard OPS PC
Audio	Support SPK, up to 2* 8Ω 15W, dual-channel speaker output Support 1*LINE_IN, 1*LINE_OUT (support ASIO) 1*SPDIF_OUT

Network	Ethernet: Support 10/100/1000M GMAC WIFI STA: 2.4G WiFi + BT4.0 WIFI AP: 2.4G/5G WiFi6
USB	1*USB 3.0 7*USB 2.0 1*Type-C OTG 1*USB 2.0 （The number of USB doesn't include the front port and the USB port on the OPS)
UART	3* UART (1 *TTL Debug(optional DB9 RS232)） 2*TTL
Others	8*ADC keys 1*Remote control 1*IIC 1*LED

1.4 Precautions for assembly and operation

During assembly and operation, please pay attention to the following (and not limited to) problem.

1.Relative Humidity ≤85％

2.Storage Temperature:-30℃ to +70℃

3.Operating temperature(（-20℃ ～ +60℃）

4.Pay attention to anti-static treatment during the assembly and transportation of the whole machine.

5.When the whole machine is assembled, it can be mounted under or on the side, but do not make the board deformed or distorted, do not exit heavy pressure.

6.The wiring position of each terminal retains a suitable distance to avoid extrusion of the terminal during installation.

7.The connecting line between this board and the matching module board should not be too long, otherwise the image quality may be affected.

8.The internal wiring of the whole machine should be reasonable, and the connecting lines should not cross directly from the PCB board as far as possible.

9.During the whole process of machine assembly, please attention to the installation of the motherboard combined with the direction of the whole machine cooling, to avoid poor heat dissipation caused by abnormal system operation.

10.When using I2C or port interface for external communication, please confirm the pull-up resistor, serial resistor and power domain matching with our hardware engineers.

11.Do not turn on the power before properly connecting the drive cable.

12.Do not plug or unplug cables when the motherboard is working.

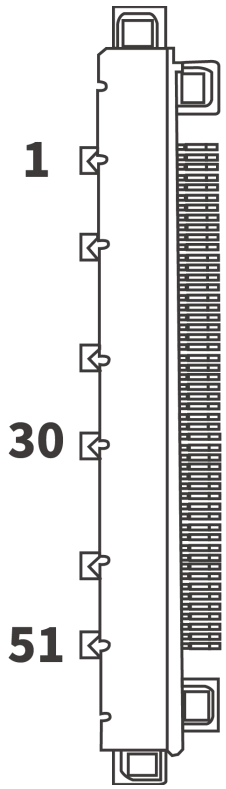
13.Switching the whole machine total power to turn on-and-off the motherboard power, please do not directly plug or unplug the power interface line at the motherboard.

14.In order to achieve better EMC effect of the whole machine, it is recommended that the screen line between the motherboard and the screen adopt a shielded wire.

15.The whole machine certification performance will be affected by the whole machine matching, which must be tested with the whole machine to confirm.

Chapter 2 Interface Definition

CNW2 Front interface (51PIN/0.5mm)

Exterior	Pin	Definition	Description
	1	GND	Ground
	2	USB_DP	USB positive
	3	USB_DN	USB negative
	4	GND	Ground
	5	USB_DP	USB positive
	6	USB_DN	USB negative
	7	GND	Ground
	8	USB_DP	USB positive
	9	USB_DN	USB negative
	10	GND	Ground
	11	USB_DP	USB positive
	12	USB_DN	USB negative
	13	GND	Ground
	14	Front_TUSB_DP	TOUCH_OUT USB positive
	15	Front_TUSB_DN	TOUCH_OUT USB negative
	16	GND	Ground
	17	ADC	ADC key(Reserved)
	18	PWR_KEY	PWR ON/IN key
	19	IR_IN	IR remote receive
	20	GED_LED	LED-Green indicator
	21	RED_LED	LED-Red indicator
	22	IR_VCC	IR 3.3V PWR
	23	VCC_EXT	3.3V PWR
	24	GND	Ground
	25	IIC_SCL	IIC data signal
	26	IIC_SDA	IIC clock signal
	27	GND	Ground
	28	5V_USBPWR	5V PWR
	29	5V_USBPWR	5V PWR
	30	5V_USBPWR	5V PWR
	31	5V_USBPWR	5V PWR
	32	5V_USBPWR	5V PWR
	33	5V_USBPWR	5V PWR
	34	HDMI_HPD	HDMI detection
	35	HDMIRX_5V_B	HDMI 5V input detection

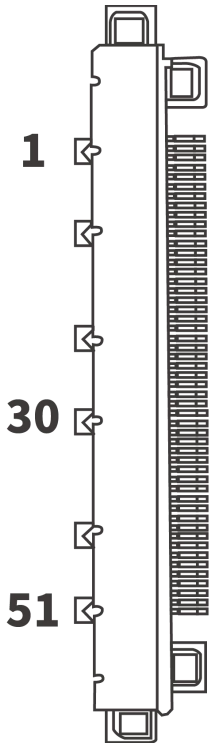
	36	F_H_SDA1	HDMI I2C data
	37	F_H_SCL1	HDMI I2C clock
	38	F_H_CEC	HDMI signal
	39	GND	Ground
	40	F_H-RXCN	HDMI audio-video data signal
	41	F_H-RXCP	HDMI audio-video data signal
	42	GND	Ground
	43	F_H-RX0N	HDMI audio-video data signal 号
	44	F_H-RX0P	HDMI audio-video data signal 号
	45	GND	Ground
	46	F_H-RX1N	HDMI audio-video data signal
	47	F_H-RX1P	HDMI audio-video data signal
	48	GND	Ground
	49	F_H-RX2N	HDMI audio-video data signal
	50	F_H-RX2P	HDMI audio-video data signal
	51	GND	Ground

JZ1 (2PIN/1.25) Battery interface (Push-in connection)

Exterior	Pin	Definition	Description
	1	BAT-	BAT negative
	2	BAT+	BAT positive

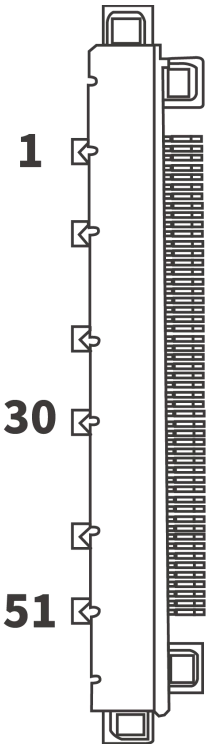
J5 V-BY-ONE interface (51PIN/0.5mm)

Exterior	Pin	Definition	Description
	1	GND	Ground
	2	VBX1_7P	VBYONE signal
	3	VBX1_7N	VBYONE signal
	4	GND	Ground
	5	VBX1_6P	VBYONE signal
	6	VBX1_6N	VBYONE signal
	7	GND	Ground
	8	VBX1_5P	VBYONE signal
	9	VBX1_5N	VBYONE signal
	10	GND	Ground
	11	VBX1_4P	VBYONE signal
	12	VBX1_4N	VBYONE signal
	13	GND	Ground



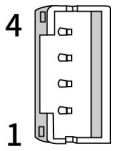
14	VBX1_3P	VBYONE signal
15	VBX1_3N	VBYONE signal
16	GND	Ground
17	VBX1_2P	VBYONE signal
18	VBX1_2N	VBYONE signal
19	GND	Ground
20	VBX1_1P	VVBYONE signal
21	VBX1_1N	VBYONE signal
22	GND	Ground
23	VBX1_0P	VBYONE signal
24	VBX1_0N	VBYONE signal
25	GND	Ground
26	LOCKN-OUT	Control signal
27	HTPDN	Control signal
28	SEL-LVDS	Control signal
29	AGP	Control signal
30	SCN-EN	Control signal
31	Bit-SEL1	Control signal
32	LD-EN2	Control signal
33	BOE-SCL	IIC signal
34	BOE-SDA	IIC signal
35	2D/3D	Control signal
36	L/R-IN	Control signal
37	L/R-OUT	Control signal
38	NC	Null
39	GND	Ground
40	GND	Ground
41	GND	Ground
42	GND	Ground
43	NC	Null
44	VCC	12V PWR
45	VCC	12V PWR
46	VCC	12V PWR
47	VCC	12V PWR
48	VCC	12V PWR
49	VCC	12V PWR
50	VCC	12V PWR
51	VCC-VX1	12V PWR

CNW1 OPS interface (51PIN/0.5mm)

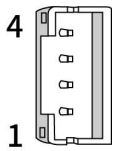
Exterior	Pin	Definition	Description
	1	GND	Ground
	2	USB_D+	USB positive
	3	USB_D-	USB negative
	4	GND	Ground
	5	USB3_TX+	USB transmit positive 3
	6	USB3_TX-	USB transmit negative 3
	7	GND	Ground
	8	USB3_RX+	USB transmit positive3
	9	USB3_RX-	USB transmit negative3
	10	GND	Ground
	11	USB_DP	USB positive
	12	USB_DN	SB negative
	13	GND	Ground
	14-17	NC	Null
	15	NC	Null
	16	NC	Null
	17	NC	Null
	18	OPS_PS_ON	OPS signal
	19	OPS_DEVICE_RST	OPS signal
	20	OPS_PWR_STATUS	OPS signal
	21	OPS_DET_PB	OPS signal
	22	SDA	IIC signal
	23	SCL	IIC signal
	24	GND	Ground
	25	HDMI_PC_RXCKN	HDMI signal
	26	HDMI_PC_RXCKP	HDMI signal
	27	GND	Ground
	28	HDMI_PC_RX0N	HDMI signal
	29	HDMI_PC_RX0P	HDMI signal
	30	GND	Ground
	31	HDMI_PC_RX1N	HDMI signal
	32	HDMI_PC_RX1P	HDMI signal
	33	GND	Ground
	34	HDMI_PC_RX2N	HDMI signal
	35	HDMI_PC_RX2P	HDMI signal
	36	GND	Ground
	37	HDMI_PC_SCL	HDMI signal
	38	HDMI_PC_SDA	HDMI signal

	39	GND	Ground
	40	HDMI_PC_5V	HDMI signal
	41	HDMI_PC_HPD	HDMI signal
	42	PC_TX	PC transmit
	43	PC_RX	PC receive
	44	VCC_5V	5V PWR
	45	OPS_45	OPS signal
	46	PC-SO	OPS signal
	47	OPS_EN_PWR	OPS signal
	48	GND	Ground
	49	NC	Null
	50	NC	Null
	51	GND	Ground

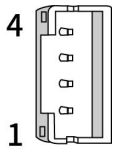
J45 (4PIN/2.0) UART 3 TTL interface (Push-in connection)

Exterior	Pin	Definition	Description
	1	NC	Null
	2	GND	Ground
	3	RX3	UART3 receive data
	4	TX3	UART3 transmit data

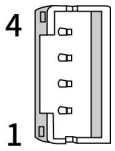
J42 (4PIN/2.0) USB 2.0 interface (Android) (Push-in connection)

Exterior	Pin	Definition	Description
	1	+5V	PWR
	2	DM	Data negative
	3	DP	Data positive
	4	GND	Ground

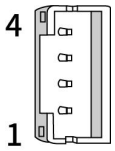
J43 (4PIN/2.0) USB 2.0 interface (Push-in connection)

Exterior	Pin	Definition	Description
	1	+5V	PWR
	2	DM	Data negative
	3	DP	Data positive
	4	GND	Ground

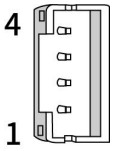
J47 (4PIN/2.0) USB 2.0 interface (Push-in connection)

Exterior	Pin	Definition	Description
	1	+5V	PWR
	2	DM	Data negative
	3	DP	Data positive
	4	GND	Ground

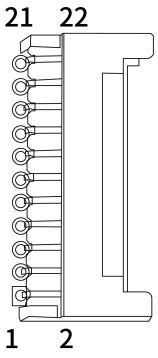
J46 (4PIN/2.0) USB 2.0 interface (Push-in connection)

Exterior	Pin	Definition	Description
	1	+5V	PWR
	2	DM	Data negative
	3	DP	Data positive
	4	GND	Ground

J39 (4PIN/2.0) UART 0 Debug interface (Push-in connection)

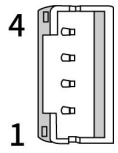
Exterior	Pin	Definition	Description
	1	VCC	PWR
	2	RXB	UART 0 receive data
	3	TXB	UART 0 transmit data
	4	GND	Ground

J16 (22PIN/2.0) Remote control/Key/LED indicator interface

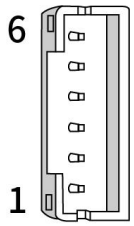
Exterior	Pin	Definition	Description
	1-2	GND	Ground
	3	RED	RED LED indicator
	4	K7	Key 7(Revered)
	5	GED	Green LED indicator
	6	K6	Key 6(Revered)
	7	IR_IN	Remote control input
	8	K5	Key 5(Revered)
	9	IR_VCC	Remote control PWR
	10	K4	Key 4(Revered)
	11	ADC1	ADC key(Reserved)
	12	K3	Key 3(Revered)
	13	SDA	I2C data signal
	14	K2	Key 2(Revered)
	15	SCL	I2C clock signal

	16	K1	Key 1(Revered)
	17	3V3	3.3V PWR
	18	PWR_KEY	PWR key
	19-20	GND	Ground
	21	LED-	LED negative
	22	LED+	LED positive

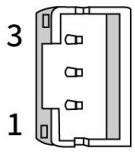
J40 (4PIN/2.0) UART A TTL interface (Push-in connection)

Exterior	Pin	Definition	Description
	1	VCC	PWR
	2	RXA	UART A receive data
	3	TXA	UART A transmit data
	4	GND	Ground

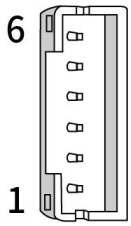
J33 (6PIN/2.0) GPIO interface (Push-in connection)(Power domain voltage 3.3V)

Exterior	Pin	Definition	Description
	1	3V3	PWR
	2	IO0	GPIO 0
	3	IO1	GPIO 1
	4	IO2	GPIO 2
	5	IO3	GPIO 3
	6	GND	Ground

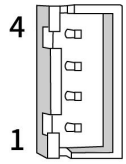
J38 (4PIN/2.0) UART B RS485 interface (Push-in connection)

Exterior	Pin	Definition	Description
	1	VCC	PWR
	2	485A	485 receive data
	3	485B	485 transmit data
	4	GND	Ground

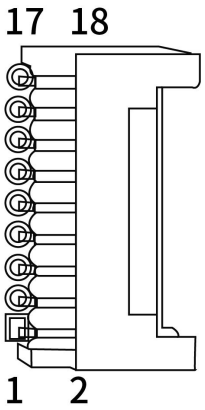
CN3（6PIN/2.0）IIC interface (Push-in connection) (Power domain voltage 3.3V)

Exterior	Pin	Definition	Description
	1	3.3V	3.3V PWR
	2	INT	Interrupt data
	3	RST	Reset data
	4	SCL	I2C clock
	5	SDA	I2C clock
	6	GND	Ground

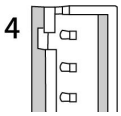
CN1 （4PIN/2.54） SPK interface (Push-in connection)

Exterior	Pin	Definition	Description
	1	ROUT+	Right channel +
	2	ROUT-	Right channel -
	3	LOUT-	Left channel -
	4	LOUT+	Left channel +

J8 (18PIN/2.0) Integrated power supply interface

Exterior	Pin	Definition	Description
	1	5VS	Standby power, supports 5VS
	2	STB	EN-PWR, supports PSON
	3	GND	Ground
	4	GND	Ground
	5	EN	Backlight enable signal
	6	ADJ	Adjust PWM backlight brightness
	7	GND	Ground
	8	GND	Ground
	9	5VM	5V PWR IN
	10	5VM	5V PWR IN
	11	GND	Ground
	12	GND	Ground
	13	12V	12V PWR
	14	12V	12V PWR
	15	GND	Ground
	16	GND	Ground
	17	AMP	Audio PWR 18-24V
	18	AMP	Audio PWR 18-24V

CN1 (3PIN/2.54) Audio interface (Optional) (Push-in connection)

Exterior	Pin	Definition	Description
	1	GND	Ground
	2	HPL	Right channel
	3	HPR	Right channel

Chapter 3 Electrical Properties

◆ Power supply

PWR Interface	Voltage	Typical Current	Max Current
5V PWR Interface	5V	3000mA	-
5VS PWR Interface	5V	2000mA	
12V PWR	12V	2000mA	
18V PWR	18-24V	2000mA	-

◆ Single board power consumption

Normal operating power consumption	Sleep mode power consumption	Standby power consumption (Power off status)
11.33W	10.30W	1.58W

Note: Test power consumption connected to 5V, 12V, 5VS power, turn on WIFI, Bluetooth, Hotspot, Ethernet, and do not connect any peripherals.

◆ USB PWR

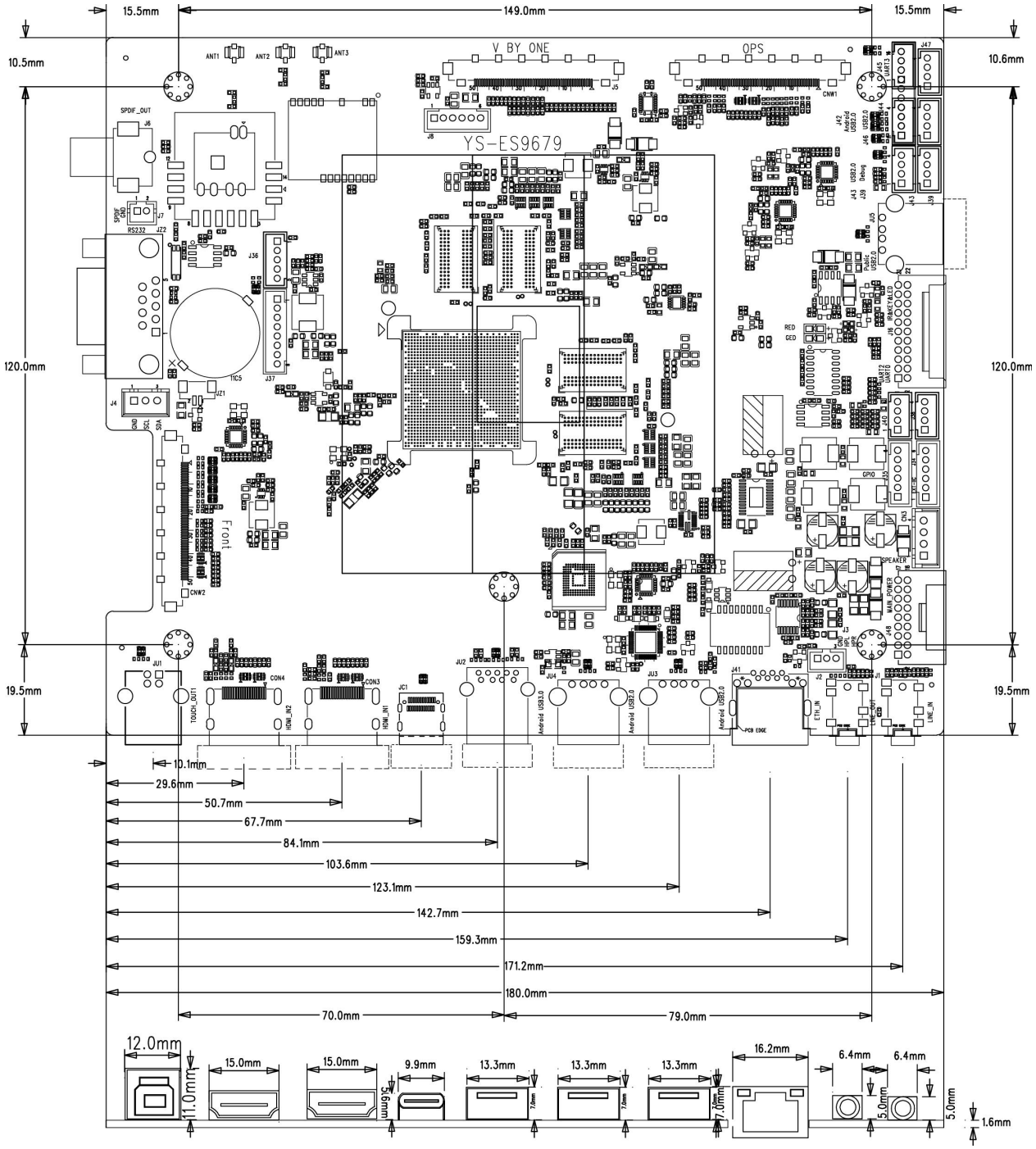
USB Interface Type	Voltage	Typical Current	Max Current
USB-Type-A	5V	500mA	1400mA
USB-Type-B	5V	500mA	1400mA
USB-Type-C	5V	500mA	1400mA

Note: USB overcurrent protection is normal within the maximum current ± 0.3mA error value.

◆ Others

Interface Type	Rated Current	Max Current	
External 5V	/	3000mA	
External 3.3V	/	3000mA	

Chapter 4 Motherboard Dimensions



Note: The soldering tolerance for each component is approximately ±0.5mm

*PCBA L：180 *PCBA W：150mm *PCBA H：18mm *PCBA Location Hole：3.2mm x4

Chapter 5 Contact Us

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Looking forward to working with you, thank you