

Technical Datasheet for Android PC Module

Part No.: BTP-PCM-A-031B

Version History

Version	Description	Date
V2.0	Established	2025/06/05
V3.0	Revised	2025/10/21

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Part 1

1.1: General Product Description

1.1

The YF-031B-V2.0 board uses the Rockchip RK3576S octa-core 64-bit architecture with a big-small architecture (4xA72 + 4Xa53) and a high clock speed of up to 2.1GHz. It runs on Android 14.0 and features a built-in 3TOPS AI accelerator NPU supporting mixed operations such as INT4/INT8/INT16 and 4K 60fps decoding. It integrates multiple LCD drivers (V-BY-ONE, LVDS, eDP), Ethernet, HDMI-IN, WIFI, and BT5.0 amplifier, supporting decoding of most currently popular video and image formats.

Wide application support;

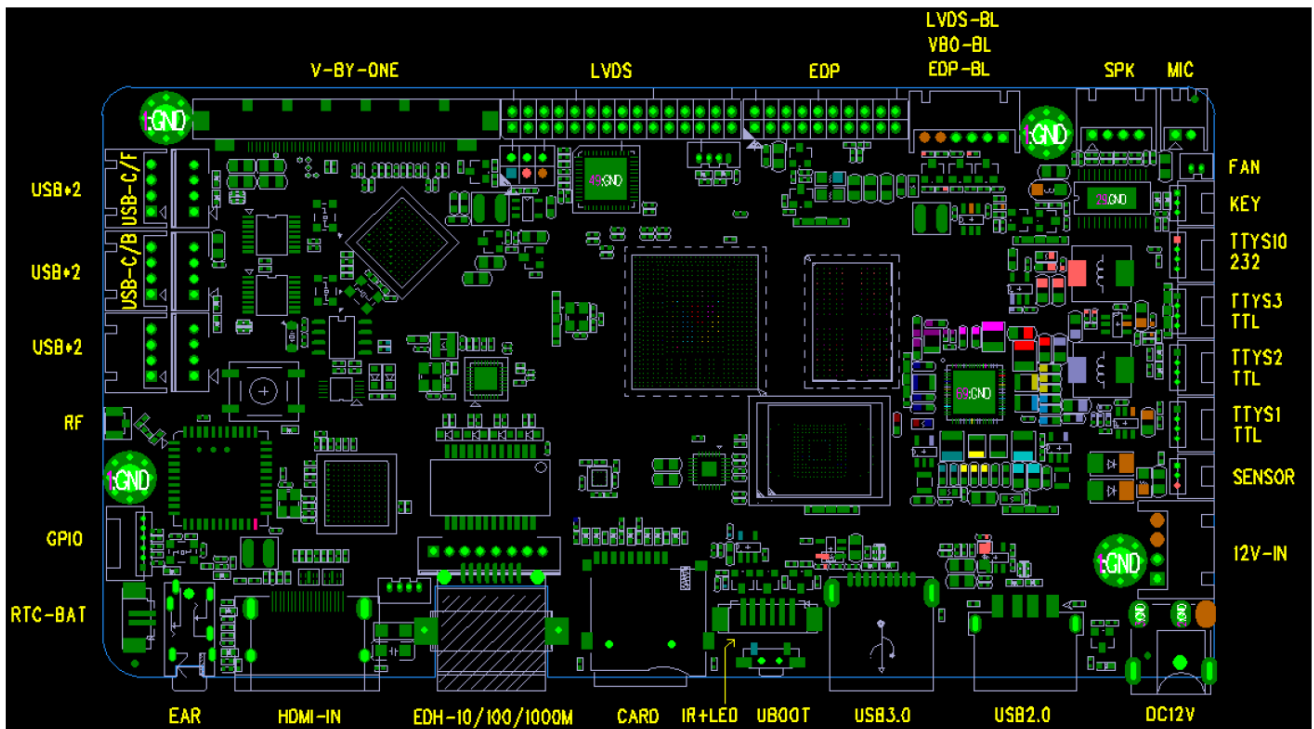
Computer vision: can be used for image recognition, target detection, face recognition and other tasks. In the field of security monitoring, it can quickly and accurately identify targets such as people and vehicles; in autonomous driving, it can perceive and analyze the road environment in real time; in medical image analysis, it helps doctors diagnose diseases more accurately

Natural language processing: It can accelerate tasks such as text classification, sentiment analysis, and machine translation, greatly improving the efficiency of processing large-scale text data.

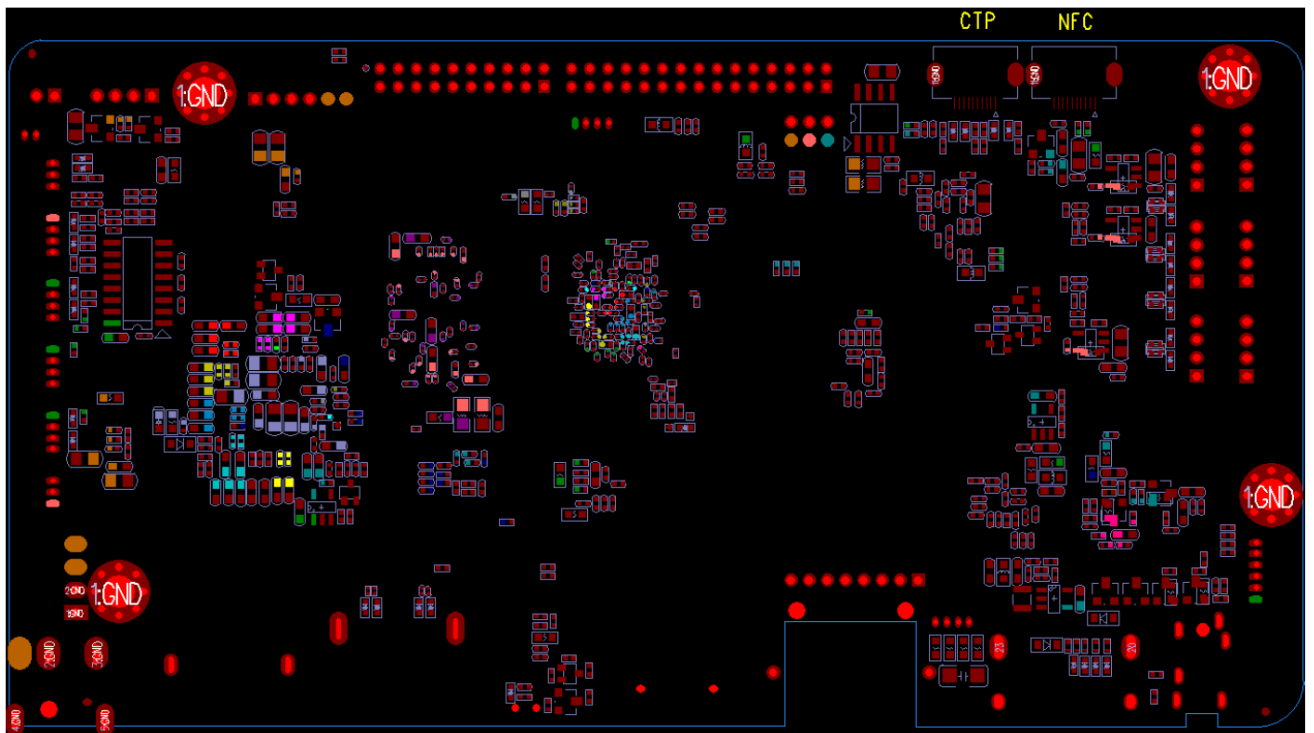
1.2: Key Features

- ◆ High Integration. Integrates V-BY-ONE/HDMI-IN/USB/Gigabit Ethernet/WIFI/BT5.0/microphone and other functions, simplifying the overall design and making it more aesthetically pleasing.
- ◆ High-definition 4K 60fps video decoding and various V-BY-ONE/LVDS/eDP, LCD display.
- ◆ Built-in Amplifier. Supports dual-channel 8R/5W amplifiers.
- ◆ Rich Interfaces. Supports USB/serial/GPIO/ADC interface expansion, meeting the needs of mainstream peripherals on the market.
- ◆ Full-featured. Supports landscape and portrait playback, video splitting, scrolling subtitles, timer on/off, USB data import, and other functions.
- ◆ Convenient Management: User-friendly playlist creation software facilitates advertising playback management and control. Playback logs provide easy access to playback information.

Front Side



Back Side



2.1: Hardware Specification

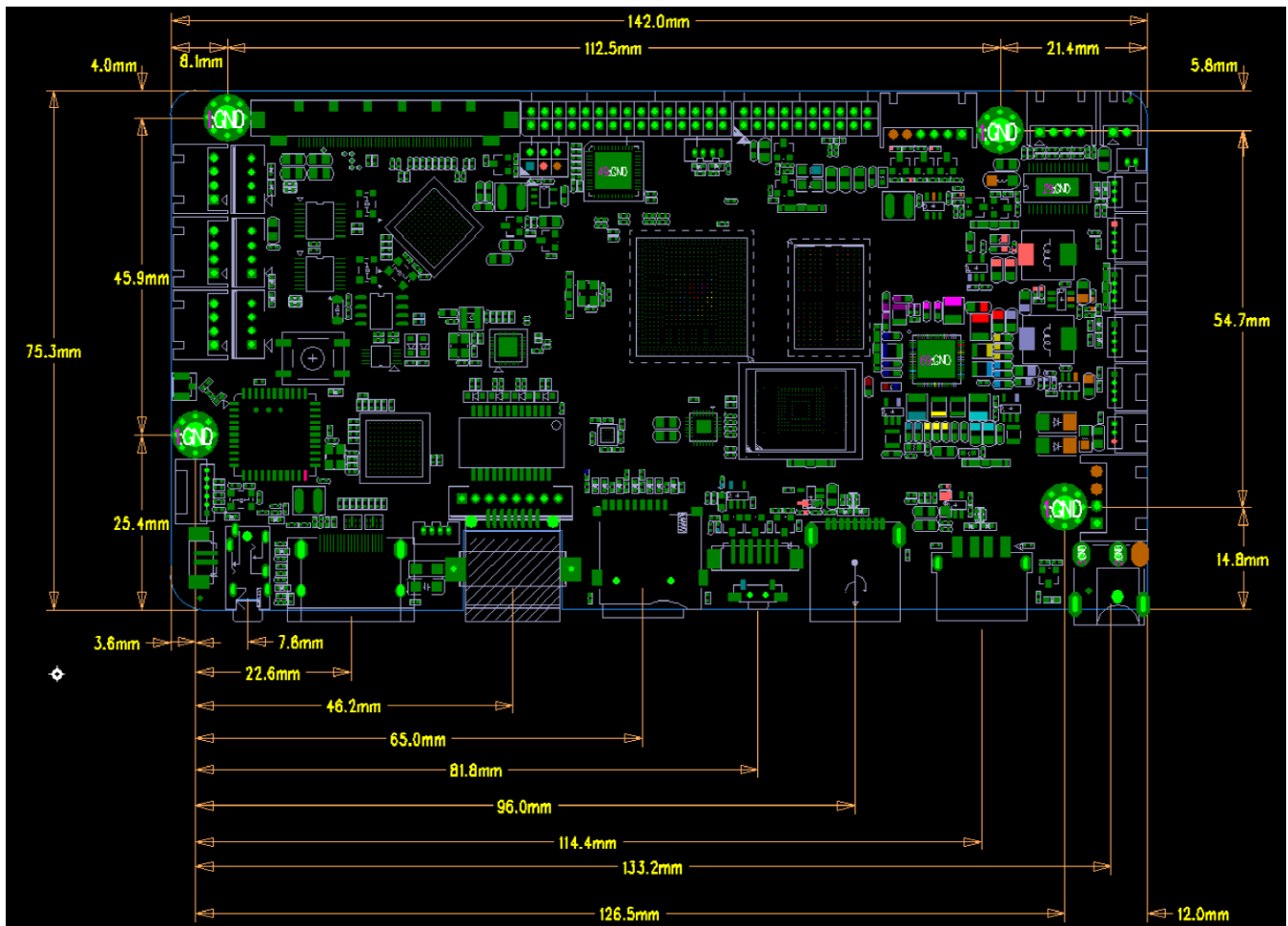
Hardware Specification	
CPU	Rockchip RK3576S , octa-core 64-bit architecture with a big+small architecture (4xA72 + 4Xa53) UP to 2.1GHz;
GPU	ARM Mali-G52 MC3 GPU
NPU	3 TOPS Support INT4/INT8/INT16/FP16/BF16/TF32 Etc
RAM	Standard 4G LPDDR5 (Option: 4GB, 8GB, 16GB)
ROM	EMMC32G/64/128/256G(Optional) Standard32G
Decoding Resolution	4K@60fps H.265/H.264/AV1/VP9/AVS2 Decoding And 4K@30fps H.264/H.265 coding
O.S.	Android14.0, Linux Debian 12
PLAY MODE	Supports multiple playback modes such as loop, timing, and insert
Wireless Network	Gigabit Ethernet, support WiFi/BT5.0, wireless peripheral expansion
USB2.0	6way built-in USB
USB 2.0	2 ↑ type-A USB interface (USB3.0/USB2.0OTG)
Network	1 way, 100/1000M RJ45
HDMI-IN	UP to 3840*2160
V-BY-One	UP to 3840*2160
LVDS	UP to 1920*1080
eDP	UP to 3840*2160
Audio output	Left and right channel output 8R/5W speakers
RTC Clock	Support
hardware watch-dog	Support
Timer Switch	Support
Serial Ports	3x way TTL, 1x way Debug, 1x way RS232

3.1: PCB Size

PCB: 8-Layer

Size: 142*75.3*1.6mm

Screw Hole Dia: ϕ 3.2mm x 4



3.2: Interface PIN Map Specification

1 BAT1 RTC Battery interface(J4)2P 1.25Pin Interval

No.	Definition	Property	Description	Appearance
1	RTC	Input	3.3VInput Triangle1PIN	
2	GND	Ground	Ground	

2 Touch Panel interface(JP2)10P/0.5Pin Interval

No.	Definition	Property	Description	Appearance
1	GND	Ground	Ground Triangle1PIN	
2	GND	Ground	Ground	
3	RST	Input/Output	Reset	
4	INT	Input/Output	Pause	
5	GND	Ground	Ground	
6	SCL	Clock	Clock	
7	SDA	Data	Data	
8	VCC	Power	V3.3 Power	
9	GND	Ground	Ground	
10	GND	Ground	Ground	

3 NFC interface(JP3)10P/0.5Pin Interval

No.	Definition	Property	Description	Appearance
1	GND	Ground	Ground Triangle1PIN	
2	GND	Ground	Ground	
3	RST	Input/Output	Reset	
4	INT	Input/Output	Pause	
5	GND	Ground	Ground	
6	SCL	Clock	Clock	
7	SDA	Data	Data	
8	VCC	Power	V3.3 Power	
9	GND	Ground	Ground	
10	GND	Ground	Ground	

4 Serial port interface RS232(CON14) 4P-1.25Pin Interval

No.	Definition	Property	Description	Appearance
1	VCC	Output	5V square 1PIN	
2	TX	Input/Output	Data Input/Output	
3	RX	Input/Output	Data Input/Output	
4	GND	Ground	Ground	

5 Serial port interface TTL (CON15/CON16/CON17) 4P-1.25Pin Interval

No.	Definition	Property	Description	Appearance
1	VCC	Output	3.3V Output square 1PIN	
2	UART-TX	Input/Output	Data Input/Output	
3	UART-RX	Input/Output	Data Input/Output	
4	GND	Ground	Ground	

6 IR/LED interface (CON11) 6P-1.25Pin Interval

No.	Definition	Property	Description	Appearance
1	LED-R	Output	LED Positive square 1PIN	
2	GND	Ground	Ground	
3	LED-G	Output	LED Positive	
4	IRVCC	Output	3.3V IRPower	
5	GND	Ground	Ground	
6	IR-OUT	Input	IR Remote signal Input	

7 GPIO interface (CON13) 6P-1.25Pin Interval

No.	Definition	Property	Description	Appearance
1	VCC	Output	3.3VPower, square 1PIN	
2	GPIO1	Output/Input	GPIO Signal , Default 3.3V	
3	GPIO2	Output/Input	GPIO Signal , Default 3.3V pull up	
4	GPIO3	Output/Input	GPIO Signal , Default 3.3V pull up	
5	GPIO4	Output/Input	GPIO Signal , Default 3.3V pull up	
6	GND	Ground	Ground	

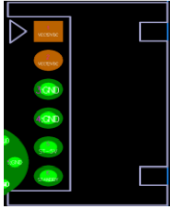
8 loudspeaker interface (CON3) 4P-2.0Pin Interval

No.	Definition	Property	Description	Appearance
1	OUTL+	Output	AudioOutput Left+	
2	OUTL-	Output	AudioOutput Left-	
3	OUTR-	Output	AudioOutput Right-	
4	OUTR+	Output	AudioOutput Right+	


9 MIC Interface(MIC1)

No.	Definition	Property	Description	Appearance
1	MCIN	Input	MIC Negative	
2	MCIP	Input	MIC Positive	

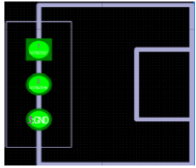
10 Power Input Interface (CON268)4P-2.0Pin Interval

No.	Definition	Property	Description	Appearance
1	VCC	Power	PowerInput12V Triangle1PIN	
2	VCC	Power	PowerInput12V	
3	GND	Ground	Ground	
4	GND	Ground	Ground	

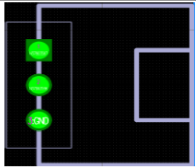
11 eDP/LVDS/VbyOne backlight Control Interface (CON4)6P-2.0 Pin Interval

No.	Definition	Property	Description	Appearance
1	GND	Ground	Ground	
2	GND	Ground	Ground	
3	ADJ	ADJ	backlight brightness adjustment	
4	EN	EN	backlight Power Switch	
5	VCC	Power	PowerInput12V	
6	VCC	Power	PowerInput12V	

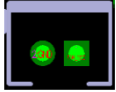
12 button Key Interface (J3)3P-1.25Pin Interval

No.	Definition	Property	Description	Appearance
1	PWR	Power 键	Power Switch button Key	
2	ADC	function button Key	function button Key	
3	GND	Ground	Ground	

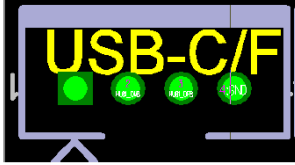
1 Sensor (CON4)3P-1.25Pin Interval

No.	Definition	Property	Description	Appearance
1	I/O	Input		
2	GND	Ground		
3	5V	Power		

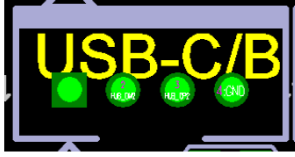
2 FAN Interface(CON12) 2P-2.0Pin Interval

No.	Definition	Property	Description	Appearance
1	VCC	Power	VCC 12V	
2	GND	Ground	Ground	

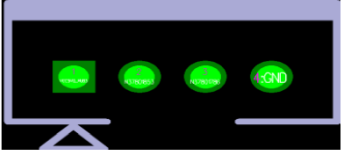
3 USB Interface(CON5) 4P-2.0Pin Interval (The front-facing camera is positioned as specified; alternatively, a separate device can be used if a dual-lens camera is not required.)

No.	Definition	Property	Description	Appearance
1	USB-5V	Output	5VOutput	
2	DM	Input/Output	DataInput/Output	
3	DP	Input/Output	DataInput/Output	
4	GND	Ground	Ground	

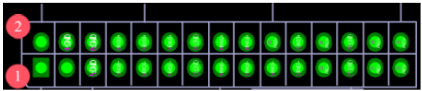
4 USB Interface(CON8) 4P-2.0Pin Interval The rear camera is positioned as specified; if the camera is not used, another device can be used.

No.	Definition	Property	Description	Appearance
1	USB-5V	Output	5VOutput	
2	DM	Input/Output	DataInput/Output	
3	DP	Input/Output	DataInput/Output	
4	GND	Ground	Ground	

5 USB Interface(CON10,CON6,CON22,CON25,) 4P-2.0Pin Interval

No.	Definition	Property	Description	Appearance
1	USB-5V	Output	5VOutput	
2	DM	Input/Output	DataInput/Output	
3	DP	Input/Output	DataInput/Output	
4	GND	Ground	Ground	

6 LVDS Interface(J1)

No.	Definition	Property	Description	Appearance
1	PVCC	PowerOutput	液晶 PowerOutput, +3.3V/+5V/ +12V 可选, 通过 CN2 选择	
2				
3				
4	GND	Ground	Ground	
5				

6			
7	RX00-	Output	Pixel0 Negative Data (Odd)
8	RX00+	Output	Pixel0 Positive Data (Odd)
9	RX01-	Output	Pixel1 Negative Data (Odd)
10	RX01+	Output	Pixel1 Positive Data (Odd)
11	RX02-	Output	Pixel2 Negative Data (Odd)
12	RX02+	Output	Pixel2 Positive Data (Odd)
13	GND	Ground	Ground
14	GND	Ground	Ground
15	RXOC-	Output	Negative Sampling Clock (Odd)
16	RXOC+	Output	Positive Sampling Clock (Odd)
17	RX03-	Output	Pixel3 Negative Data (Odd)
18	RX03+	Output	Pixel3 Positive Data (Odd)
19	RXE0-	Output	Pixel0 Negative Data (Even)
20	RXE0+	Output	Pixel0 Positive Data (Even)
21	RXE1-	Output	Pixel1 Negative Data (Even)
22	RXE1+	Output	Pixel1 Positive Data (Even)
23	RXE2-	Output	Pixel2 Negative Data (Even)
24	RXE2+	Output	Pixel2 Positive Data (Even)
25	GND	Ground	Ground
26	GND	Ground	Ground
27	RXEC-	Output	Negative Sampling Clock (Even)
28	RXEC+	Output	Positive Sampling Clock (Even)
29	RXE3-	Output	Pixel3 Negative Data (Even)
30	RXE3+	Output	Pixel3 Positive Data (Even)

13 eDP Interface (CON1)

No.	Definition	Property	Description	
1	PVCC	PowerOutput	液晶 PowerOutput, 通过 CN1Power 选择	
2	PVCC	PowerO	液晶 PowerOutput, 通过	

		utput	CN1Power 选择
3	GND	Ground	Ground
4	GND	Ground	Ground
5	Lane0_n	DataOut put	Complement Signal-Lane0
6	Lane0_p	DataOut put	True Signal-Main Lane0
7	Lane1_n	DataOut put	Complement Signal-Lane1
8	Lane1_p	DataOut put	True Signal-Main Lane1
9	Lane2_n	DataOut put	Complement Signal-Lane2
10	Lane2_p	DataOut put	True Signal-Main Lane2
11	Lane3_n	DataOut put	Complement Signal-Lane3
12	Lane3_p	DataOut put	True Signal-Main Lane3
13	GND	Ground	Ground
14	GND	Ground	Ground
15	AUX_N	DataOut put	Complement Signal- Auxiliary Channel
16	AUX_P	DataOut put	True Signal-Auxiliary Channel
17	GND	Ground	Ground
18	GND	Ground	Ground
19	GND	Ground	Ground
20			

◆ V-BY-ONE 51P-0.5 屏信号 (J11)

Pin	Symbol	Function
1	GND	Groud
2	M2-D3P	8th Pixel Positive V by One differential data input Lan 7.
3	M2-D3N	8th Pixel Negative V by One differential data input Lan 7.
4	GND	Groud
5	M2-D2P	7th Pixel Positive V by One differential data input Lan 6.
6	M2-D2N	7th Pixel Negative V by One differential data input Lan 6.

7	GND	Groud
8	M2-D1P	6th Pixel Positive V by One differential data input Lan 5.
9	M2-D1N	6th Pixel Negative V by One differential data input Lan 5.
10	GND	Groud
11	M2-D0P	5th Pixel Positive V by One differential data input Lan 4.
12	M2-D0N	5th Pixel Negative V by One differential data input Lan 4.
13	GND	Groud
14	M1-D3P	4th Pixel Positive V by One differential data input Lan 3.
15	M1-D3N	4th Pixel Negative V by One differential data input Lan 3.
16	GND	Groud
17	M1-D2P	Third Pixel Positive V by One differential data input Lan 2.
18	M1-D2N	Third Pixel Negative V by One differential data input Lan 2.
19	GND	Groud
20	M1-D1P	Second Pixel Positive V by One differential data input Lan 1.
21	M1-D1N	Second Pixel Negative V by One differential data input Lan 1.
22	GND	Groud
23	M1-D0P	First Pixel Positive V by One differential data input Lan 0.
24	M1-D0N	First Pixel Negative V by One differential data input Lan 0.
25	GND	Groud
26	LOCK	Lock detect output, Open drain.

27	HPD	Hot plug detect output, Open drain.
28	NC	No connection
29	NC	No connection
30	NC	No connection
31	NC	No connection
32	NC	No connection
33	NC	No connection
34	NC	No connection
35	NC	No connection
36	NC	No connection
37	NC	No connection
38	NC	No connection
39	GND	Groud
40	GND	Groud
41	GND	Groud
42	GND	Groud
43	NC	No connection
44	NC	No connection

Other Standard interface and their Functions

storage interface	TF Card Slot	Data storage, support up to 128G
	USB	HOST interface, support Data storage, Data import, USB Mouse, USB Keyboard, Camera, Touch-control Panel, Etc.
Ethernet interface	RJ45 interface	Support Wire Network
HDMI interface	standard interface	Support HDMI Data Output, support up to 4K
TF	standard interface	TF 128G

4.1: Electricity Property

Item		Min.	Typical	Max
PowerVoltage	Voltage	--	12	--
	Wave	--	--	50mV
Current output (HDMI Output,without other device connected)	Work Current	--	250mA	300mA
	Stand-by Current	--	10uA	5mA
	USB Current Output	--	--	500mA
	LCD Panel Current Output	--	--	1A
Work Enviroment	Relative Humidity	--	--	80%
	Work Temperature	-20°C	--	70°C

Caution 1: When connecting to the LVDS LCD Panel, it is necessary to pay attention to selecting the correct backlight working Voltage 3.3V, 5V, 12V. Users should not apply it to peripherals that exceed the corresponding Max current

5.1: Cautions for Assembling

- During assembly and use, please pay attention to the following (and not limited to) problems.
- Short circuit problem between bare board and peripherals.
- during the installation and fixation process, avoid deformation problems of the bare board due to fixation.
- To install the LVDS LCD Panel, pay attention to whether the LCD Panel Voltage and current are correct. Pay attention to the direction of pin 1 of the LCD Panel interface.
- To Install the LVDS LCD Panel, pay attention to whether the LCD Panel backlight Voltage and current are correct. When LCD Panel backlight power is above 20W, please use external Power boards for power supply.
- To Install peripherals (USB, IO), pay attention to the peripheral IO level and current Output issues.
- To Install Device to the serial port, pay attention to whether the RS232, 485 device is directly connected, and whether the TX and RX connected correctly.
- Check whether Input Power is connected to the Power Input interface. check whether Power Voltage and current meet the requirements, according to the total peripheral evaluation
- It is forbidden to connect the power supply to the backlight socket for the convenience of operation.

All above information are provided by SINOTELECTRONICS BTP Product Team. In case of any question, please feel free to email us: info@sinotelectronics.com