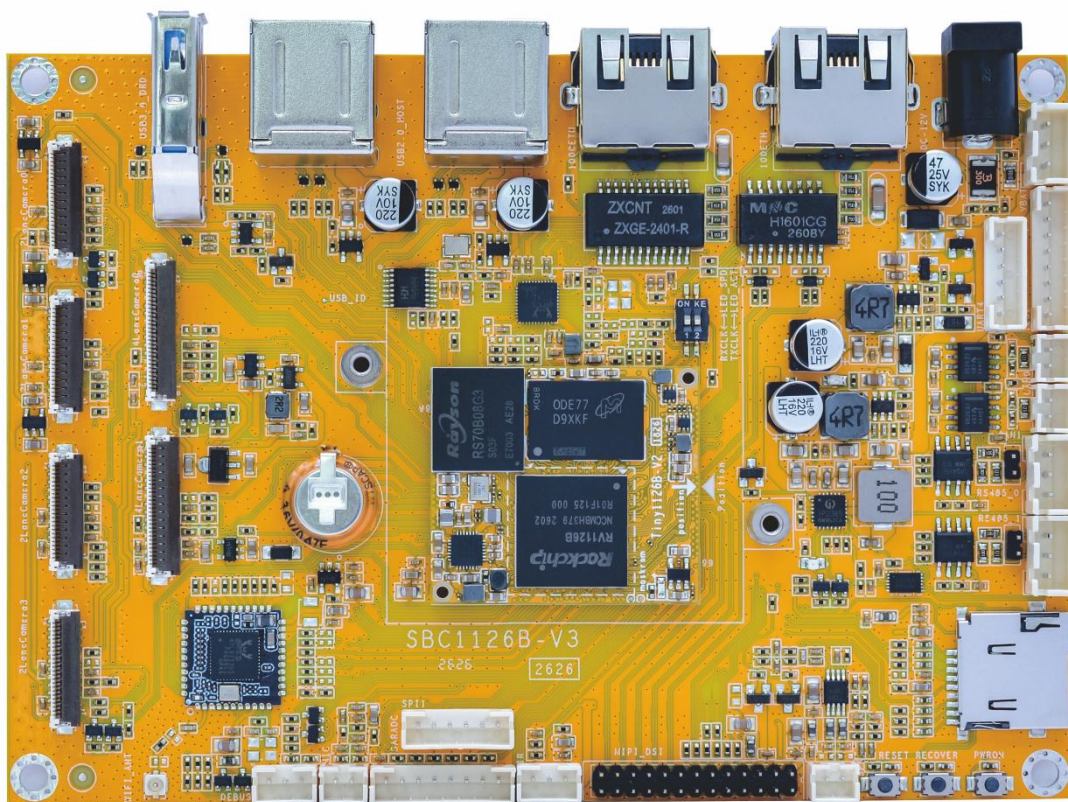


SBC1126B Hardware Manual

V3.202608



Boardcon Embedded Design

www.boardcon.com

1.Introduction

1.1.About this Manual

This manual is intended to provide the user with an overview of the board and benefits, complete features specifications, and set up procedures. It contains important safety information as well.

1.2.Feedback and Update to this Manual

To help our customers make the most of our products, we are continually making additional and updated resources available on the Boardcon website(www.boardcon.com,www.armdesigner.com).

These include manuals, application notes, programming examples, and updated software and hardware. Check in periodically to see what's new!

When we are prioritizing work on these updated resources, feedback from customers is the number one influence, If you have questions, comments, or concerns about your product or project, please do no hesitate to contact us at support@armdesigner.com.

1.3.Limited Warranty

Boardcon warrants this product to be free of defects in material and workmanship for a period of one year from date of buy. During this warranty period Boardcon will repair or replace the defective unit in accordance with the following process:

A copy of the original invoice must be included when returning the defective unit to Boardcon. This limited warranty does not cover damages resulting from lighting or other power surges, misuse, abuse, abnormal conditions of operation, or attempts to alter or modify the function of the product.

This warranty is limited to the repair or replacement of the defective unit. In no event shall Boardcon be liable or responsible for any loss or damages, including but not limited to any lost profits, incidental or consequential damages, loss of business, or anticipatory profits arising from the use or inability to use this product.

Repairs make after the expiration of the warranty period are subject to a repair charge and the cost of return shipping. Please contact Boardcon to arrange for any repair service and to obtain repair charge information.

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1 SBC1126B Introduction

1.1 Summary

The SBC1126B adopts the Rockchip RV1126B, which integrates a quad-core Cortex-A53 processor running up to 1.6GHz. The SoC also features a dedicated NPU with computing power up to 3 TOPS (INT8), supporting INT4/INT8/INT16/FP16 precision and accelerating Tensor Flow, ONNX, PyTorch, and Caffe AI models at the edge. With a built-in multi-channel AI-ISP image processing engine (12MP + 8MP AI) supporting hardware HDR, 3DNR, dehaze, and AI-based denoising, as well as H.264/H.265 multi-stream encoding, the SBC1126B support 4x 2-lane MIPI CSI cameras or 2x 4-lane MIPI CSI cameras inputs and MIPI DSI display outputs. It is widely applicable to smart cameras, AI edge boxes, security surveillance, industrial vision, service robotics, industrial inspection, and edge AIoT devices.

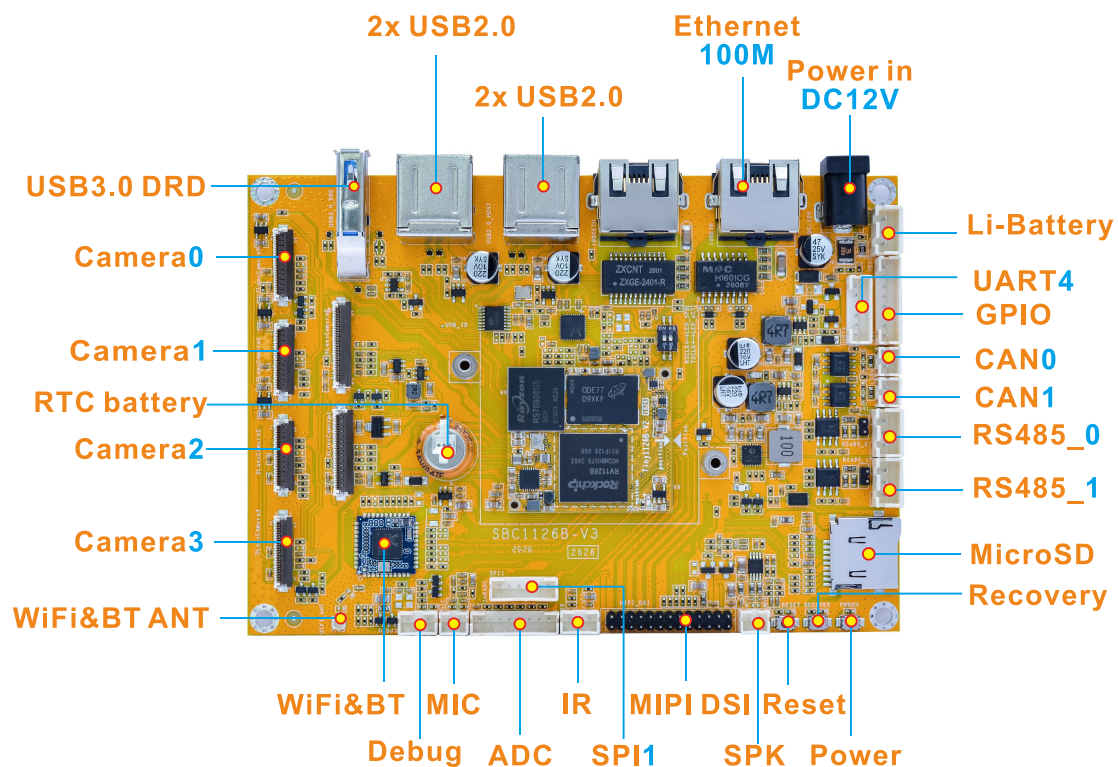
The SBC1126B is a highly integrated single-board computer in a compact 135 × 95 mm form factor, offering flexible memory and storage configurations with 2GB/4GB LPDDR4 RAM and 8GB to 256GB eMMC options plus a Micro SD slot. It provides a rich set of peripheral interfaces including USB3.0 DRD, four USB2.0 Host ports, Ethernet, UART, Debug, I2S, dual CAN, dual RS485, SPI, ADC, IR, Speaker, MIC, and WiFi/BT, making it readily adaptable to a wide range of standard peripheral devices. The board supports both Debian 12 and Buildroot operating systems and is provided with full ready-to-run software packages, comprehensive user manuals, and design guides.

1.2 Rockchip Tiny1126B Features

- **Microprocessor**
 - Quad-core Cortex-A53 up to 1.6GHz
 - 32KB I-cache and 32KB D-cache for each core, 512KB L3 cache
 - 3.0 TOPS Neural Process Unit
 - RISC-V MCU to support 250mS fast boot
 - Max 12M ISP
- **Memory Organization**
 - LPDDR4/4x RAM up to 4GB.
 - eMMC4.51 up to 256GB.
 - SPI Flash up to 8MB.
- **PWM**

- Total 28-ch with 4 PWMs interface.
- Only PWM2 can generate waveform through lookup table.
- Support continuous mode and one-shot output mode
- Support input capture mode.
- **Video Decoder/Encoder**
 - Supports video decode/encode up to 4K@30fps
 - Supports real-time decoding of H.264/H.265
 - Supports real-time UHD H.264/265 video encoding
- **Power unit**
 - RK801 on board
 - 4.5~14.2V main power input and RTC power input
 - VCC3V3_SYS output for IO
- **Temperature**
 - 20~85°C temperature range.

1.3 SBC1126B Specifications

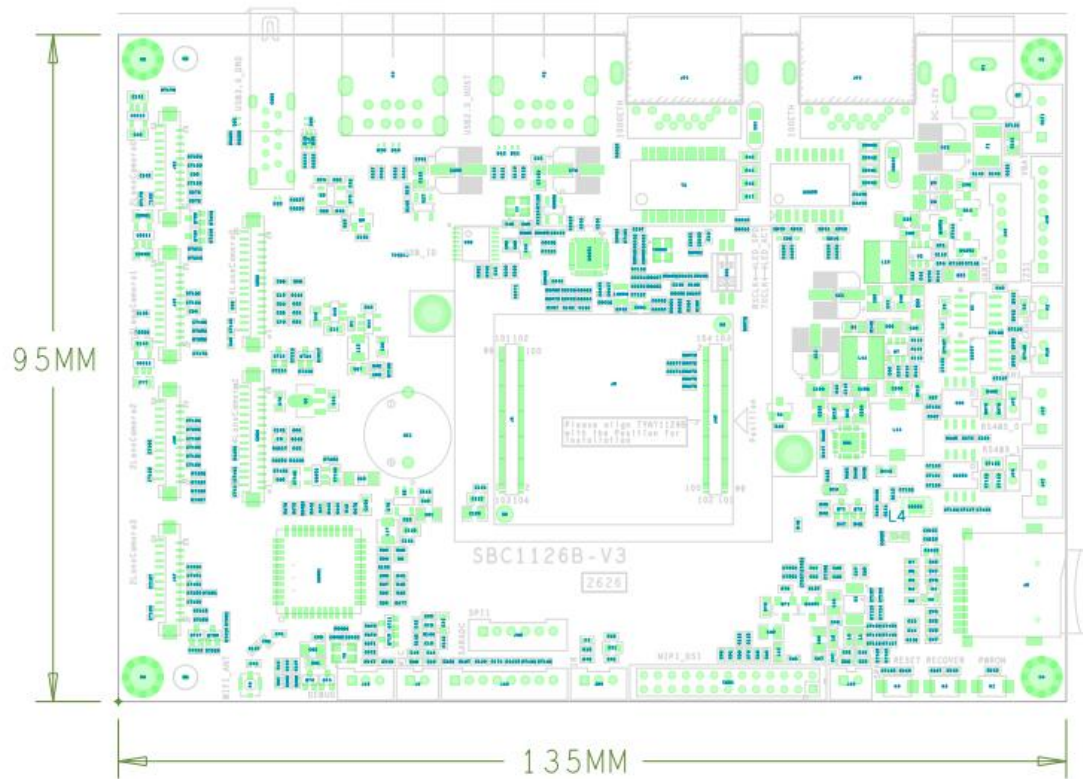




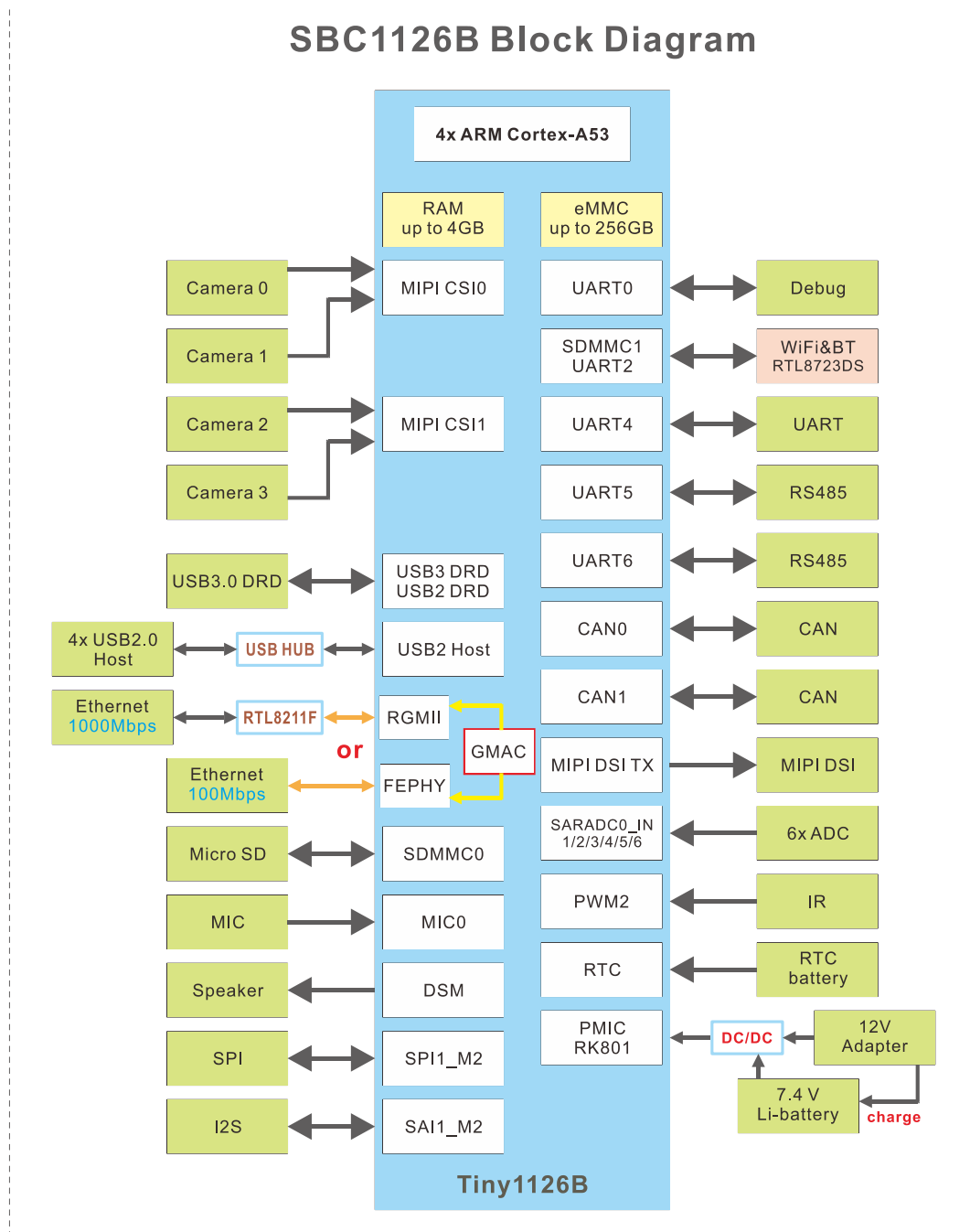
Feature	Specifications
SoC	Rockchip RV1126B Quad-core Cortex-A53 @ 1.6GHz
Memory	2GB/4GB LPDDR4
Power	12V/3A DC input jack 7.4V Li-battery, 3-pin connector
USB	USB3.0 DRD (Dual-Role Device) USB2.0 Host, dual-USB-AF
Storage	8GB/16GB/32GB/64GB/128GB/256GB eMMC Micro SD card slot
Serial Port	Debug, 3-pin connector UART, 6-pin connector RS485, 3-pin connector
Display	MIPI DSI, 1920x1080@60fps, 26-pin header
Camera	4x 2-lane MIPI CSI or 2x 4-lane MIPI CSI
Audio	MIC, 2-pin connector Speaker, 2-pin connector
Keys & Switch	Recovery key, Power key, Reset key
WIFI&BT	2.4G WiFi (802.11b/g/n) with Bluetooth 4.2
Other features	RTC battery, SPI, I2S, ADC, CAN, IR
Dimension	135 x 95 mm



1.4 PCB Dimension



1.5 Block Diagram



1.6 CPU Introduction

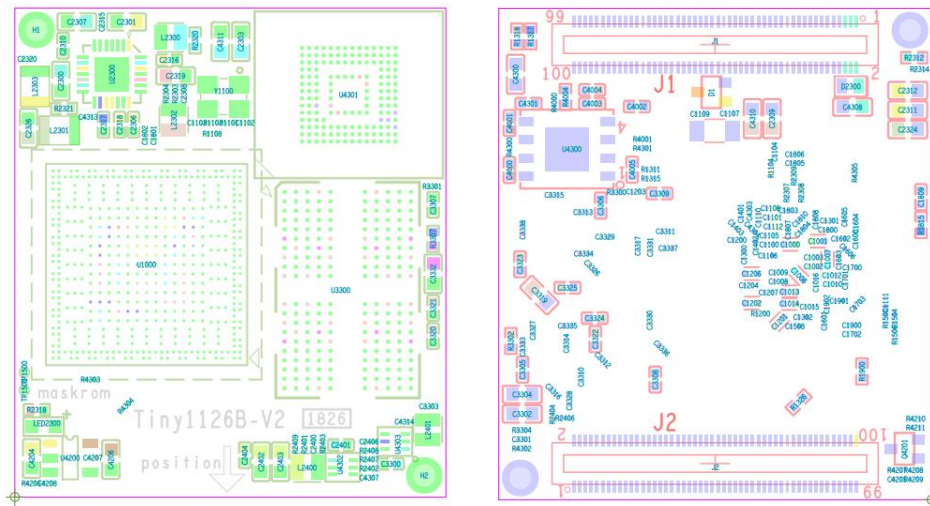
The Tiny1126B system-on-module is equipped with Rockchip's RV1126B, which features a built-in quad core Cortex-A53, 3.0 TOPS NPU, and RISC-V MCU. It is designed specifically for IPC/CVR devices, AI camera devices, intelligent interactive devices, and mini robots.

Tiny1126B specifications

Pin number– 2x 100-pin, 0.4mm pitch

Dimension– 30 x 34 mm

Application– AI cameras, smart door locks, inspection cameras, cleaning/logistics robots, DMS/BSD systems, smart displays.



Pin Definition

Pin (J1)	Signal	Pin (J1)	Signal
1	VCC5V0_SYS	51	MIPI_MCLK_OUT1_1V8
2	VCC5V0_SYS	52	MIPI_CSI_RX0_D3N
3	VCC5V0_SYS	53	GND
4	VCC5V0_SYS	54	MIPI_CSI_RX0_D3P
5	VCC5V0_SYS	55	MIPI_MCLK_OUT0_1V8
6	VCC5V0_SYS	56	MIPI_CSI_RX0_D2N
7	GND	57	GPIO7_A5_D
8	GND	58	MIPI_CSI_RX0_D2P
9	GPIO6_A2_D	59	GPIO7_A3_D
10	SDMMC0_CLK	60	MIPI_CSI_RX0_CLK0N
11	GPIO6_A1_D	61	GPIO7_A4_D
12	SDMMC0_D0	62	MIPI_CSI_RX0_CLK0P
13	GPIO6_B6_D	63	GPIO7_A2_D
14	SDMMC0_D1	64	GND
15	GPIO7_A1_D	65	GPIO7_A6_D
16	SDMMC0_CMD	66	UART4_RX_M1_1V8



17	GPIO7_A0_D	67	GPIO7_A7_D
18	SDMMC0_D2	68	UART4_TX_M0_1V8
19	PMIC_PWRON	69	DSM_AUD_RN
20	SDMMC0_D3	70	I2C4_SDA_CAM_1V8
21	MIPI_CSI_RX1_D0N	71	DSM_AUD_RP
22	GND	72	I2C4_SCL_CAM_1V8
23	MIPI_CSI_RX1_D0P	73	GPIO0_C5_D
24	nRESET	74	UART0_RX_DBG
25	MIPI_CSI_RX1_D1N	75	CLK_32K_OUT
26	MIC0_N	76	UART0_TX_DBG
27	MIPI_CSI_RX1_D1P	77	GND
28	MIC0_P	78	I2C2_SCL_M0
29	MIPI_CSI_RX1_CLK0N	79	USB3_DRD_SSRXN
30	MIC1_N	80	I2C2_SDA_M0
31	MIPI_CSI_RX1_CLK0P	81	USB3_DRD_SSRXP
32	MIC1_P	82	SPK_CTRL
33	GND	83	GND
34	MIPI_CSI_RX0_CLKIN	84	BT_WAKE
35	MIPI_CSI_RX1_D3N	85	USB3_DRD_SSTXN
36	MIPI_CSI_RX0_CLK1P	86	BT_WAKE_HOST
37	MIPI_CSI_RX1_D3P	87	USB3_DRD_SSTXP
38	VBAT_RTC	88	SDMMC0_DET
39	MIPI_CSI_RX1_CLKI1N	89	GND
40	I2C3_SDA_CAM_1V8	90	WIFI_REG_ON
41	MIPI_CSI_RX1_CLK1P	91	USB2_HOST_DP
42	I2C3_SCL_CAM_1V8	92	WIFI_WAKE_HOST
43	MIPI_CSI_RX1_D2N	93	USB2_HOST_DM
44	MIPI_CSI_RX0_D0N	94	BT_RST
45	MIPI_CSI_RX1_D2P	95	USB2_DRD_VBUSDET
46	MIPI_CSI_RX0_D0P	96	GND
47	UART4_RTSN_M0_1V8	97	USB2_DRD_ID
48	MIPI_CSI_RX0_D1N	98	USB2_DRD_DP
49	UART4_CTSN_M0_1V8	99	GPIO0_A3_U
50	MIPI_CSI_RX0_D1P	100	USB2_DRD_DM



Pin (J2)	Signal	Pin (J2)	Signal
1	VO_LCDC_D17	51	GND
2	ETH_CLK_25M_OUT_M0	52	UART2_CTSN_BT_1V8
3	VO_LCDC_D18	53	MIPI_DSI_D0N
4	GND	54	GND
5	VO_LCDC_D23	55	MIPI_DSI_D0P
6	ETH_TXCLK_M0	56	PCM_RX_1V8
7	VO_LCDC_D22	57	MIPI_DSI_D1N
8	ETH_TXCTL_M0	58	PCM_CLK_1V8
9	VO_LCDC_D21	59	MIPI_DSI_D1P
10	ETH_TXD1_M0	60	PCM_TX_1V8
11	VO_LCDC_D11	61	GND
12	ETH_TXD0_M0	62	PCM_SYNC_1V8
13	VO_LCDC_D00	63	MIPI_DSI_CLKN
14	ETH_TXD3_M0	64	SDIO_D2
15	VO_LCDC_D01	65	MIPI_DSI_CLKP
16	ETH_TXD2_M0	66	SDIO_D3
17	VO_LCDC_D02	67	MIPI_DSI_D2N
18	ETH_MDIO_M0	68	SDIO_CMD
19	VO_LCDC_D03	69	MIPI_DSI_D2P
20	ETH_MDC_M0	70	GND
21	VO_LCDC_D04	71	MIPI_DSI_D3N
22	ETH_MCLK_M0	72	SDIO_CLK
23	VO_LCDC_D05	73	MIPI_DSI_D3P
24	GND	74	SDIO_D0
25	CAN0_RXD_M0	75	GND
26	ETH_PPSTRIG_M0	76	SDIO_D1
27	CAN0_TXD_M0	77	VO_LCDC_D13
28	ETH_RXD3_M0	78	GND
29	VO_LCDC_D19	79	VO_LCDC_D10



30	ETH_RXD2_M0	80	SARADC0_IN5
31	VO_LCDC_D20	81	VO_LCDC_D12
32	ETH_RXD0_M0	82	SARADC0_IN6
33	VO_LCDC_DEN	83	VO_LCDC_D09
34	ETH_RXD1_M0	84	SARADC0_IN4
35	VO_LCDC_HSYNC	85	VO_LCDC_D06
36	ETH_RXCTL_M0	86	SARADC0_IN2
37	VO_LCDC_VSYNC	87	VO_LCDC_D07
38	ETH_RXCLK_M0	88	SARADC0_IN3
39	VO_LCDC_CLK	89	VO_LCDC_D08
40	GND	90	SARADC0_IN1
41	GND	91	VO_LCDC_D15
42	GPIO3_B6_D_1V8	92	SARADC0_IN0_KEY
43	FEPHY_RXN	93	VO_LCDC_D14
44	GPIO3_B7_D_1V8	94	GND
45	FEPHY_RXP	95	VO_LCDC_D16
46	UART2_TX_BT_1V8	96	CAN1_RXD_M0
47	FEPHY_TXN	97	GND
48	UART2_RX_BT_1V8	98	CAN1_TXD_M0
49	FEPHY_TXP	99	SDMMC0_PWREN
50	UART2_RTSN_BT_1V8	100	VCC3V3_SYS

2 Peripherals Introduction

2.1 Power in(P1)



The DC JACK is black enclosure full package, 3-pin plug Type 12V/3A DC adapter.

Pin	Signal	Description	Pin	Signal	Description
1	VCC12V_DCIN	+12V DC Input Power	2	GND	Ground
3	GND	Ground			

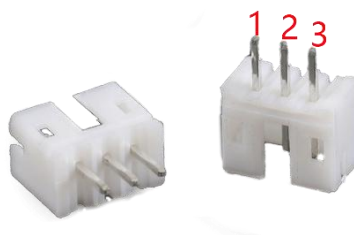
2.2 Battery(BAT1)



The Battery is 3-pin connector, connect the 7.4V Li-ion battery.

Pin	Signal	Description	Pin	Signal	Description
1	VBAT	Battery Voltage	2	NC	Not connect
3	GND	Ground			

2.3 Debug (J10)

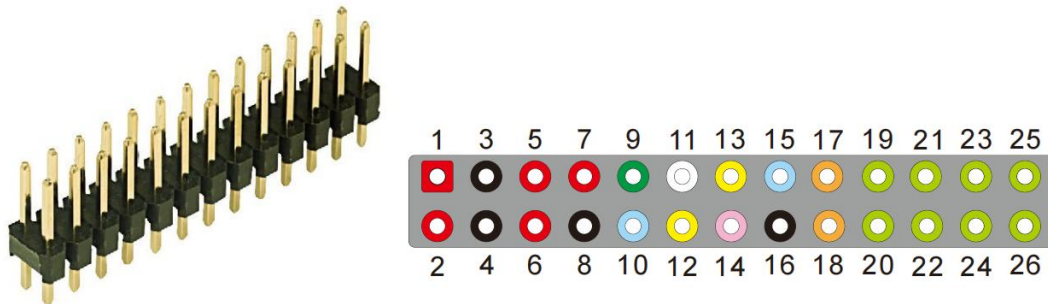


The Debug is 3-pin connector. It is used to connect the USB-to-serial Debug device, the baud rate

is 1500000.

Pin	Signal	Description	Pin	Signal	Description
1	UART0_DBGRX	UART0 Debug Receive	2	UART0_DBGTX	UART0 Debug Transmit
3	GND	Ground			

2.4 MIPI DSI(CON1)

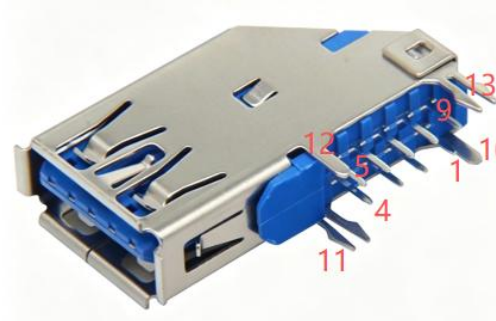


SBC1126B MIPI supports up to 1920X1080 @60Hz output. It is a 26-pin connector.

Pin	Signal	Description	Pin	Signal	Description
1	VCC5V0_SYS	System 5V Power Supply	2	VCC5V0_SYS	System 5V Power Supply
3	GND	Ground	4	GND	Ground
5	VCC_LCD	LCD Power Supply	6	VCC_LCD	LCD Power Supply
7	VDDIO_18	1.8V I/O Power Supply	8	GND	Ground
9	LCD_PWM	LCD Backlight PWM Control	10	LCD_BLEN	LCD Backlight Enable
11	NC	Not Connect	12	TOUCH_SCL	Touch Screen I2C Clock Line
13	TOUCH_SDA	Touch Screen I2C Data Line	14	TOUCH_RST	Touch Screen Reset
15	TOUCH_INT	Touch Screen Interrupt	16	GND	Ground
17	MIPI_DSI_D0N	MIPI DSI Data Lane 0 Negative	18	MIPI_DSI_D0P	MIPI DSI Data Lane 0 Positive
19	MIPI_DSI_D1N	MIPI DSI Data Lane 1 Negative	20	MIPI_DSI_D1P	MIPI DSI Data Lane 1 Positive
21	MIPI_DSI_CLKN	MIPI DSI Clock Lane Negative	22	MIPI_DSI_CLKP	MIPI DSI Clock Lane Positive
23	MIPI_DSI_D2N	MIPI DSI Data Lane 2 Negative	24	MIPI_DSI_D2P	MIPI DSI Data Lane 2 Positive
25	MIPI_DSI_D3N	MIPI DSI Data Lane	26	MIPI_DSI_D3P	MIPI DSI Data Lane

		3 Negative			3 Positive
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2.5 USB3.0 DRD(CON5)



USB3.0 DRD used to download image and ADB transfer file.

Feature

- USB3.0 DRD Dual-Role Device port, support OTG and Host / Device mode auto switch.
- Support USB3.0 Super-Speed and USB2.0 high-speed data communication.
- Used for system image download, ADB debugging and file data transmission.

Pin	Signal	Description	Pin	Signal	Description
1	VCC5V0_OTG	5V power supply for OTG function	2	OTGDM	OTG data line negative (D-)
3	OTGDP	OTG data line positive (D+)	4	GND	Ground
5	USB3_DRD_SS RXN	SuperSpeed differential receive negative	6	USB3_DRD_SSR XP	SuperSpeed differential receive positive
7	GND	Ground	8	USB3_DRD_SST XN	SuperSpeed differential transmit negative
9	USB3_DRD_SS TXP	SuperSpeed differential transmit positive	10	GND	Ground
11	GND	Ground	12	GND	Ground
13	GND	Ground			

2.6 USB2.0 HOST (P8, P9)



SBC1126B provides two dual-USB (P8, P9). It is used to connect USB mouse, U disk, USB camera, and other USB devices. Support hot-plug.

Feature

- Supports high-speed (480Mbps), full-speed (12Mbps) and low-speed (1.5Mbps) mode.
- Supports automatic switching between bus- and self-powered modes.
- Support periodic out channel in host mode.

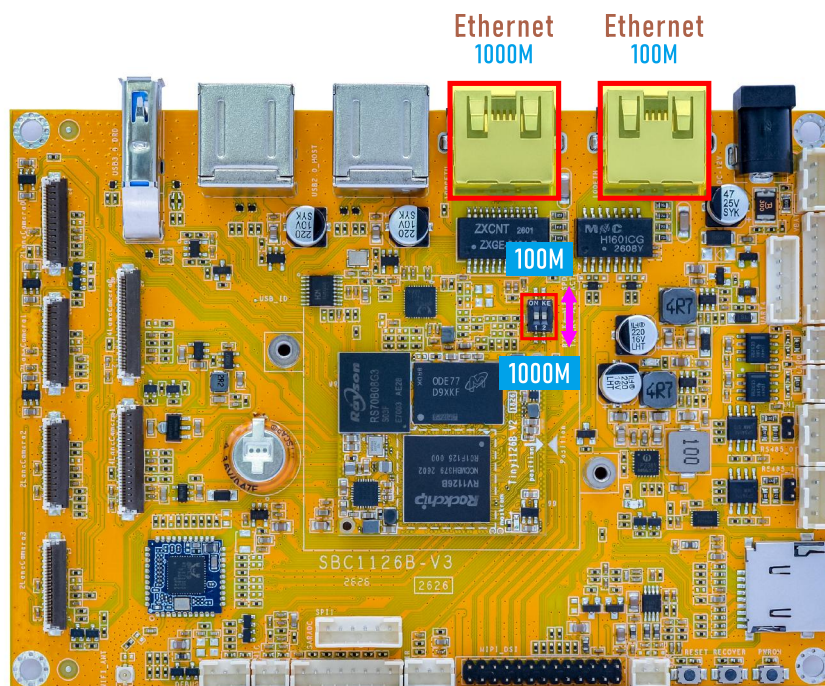
P8					
Pin	Signal	Description	Pin	Signal	Description
1	VCC5V0_SYS	5V system power supply	2	USB_DM4	USB data line negative (D-) for port 4
3	USB_DP4	USB data line positive (D+) for port 4	4	GND	Ground
5	VCC5V0_SYS	5V system power supply	6	USB_DM3	USB data line negative (D-) for port 3
7	USB_DP3	USB data line positive (D+) for port 3	8	GND	Ground
P9					
Pin	Signal	Description	Pin	Signal	Description
1	VCC5V0_SYS	5V system power supply	2	USB_DM2	USB data line negative (D-) for port 2
3	USB_DP2	USB data line positive (D+) for port 2	4	GND	Ground
5	VCC5V0_SYS	5V system power supply	6	USB_DM1	USB data line negative (D-) for port 1
7	USB_DP1	USB data line positive	8	GND	Ground

		(D+) for port 1			
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2.7 Ethernet (JP1, JP3, SW1)



The Ethernet interface of SBC1126B uses RJ45 connectors. JP1 supports Gigabit Ethernet, while JP3 only supports 100-Mbps Ethernet. They are multiplexed and cannot be used at the same time. When switching between them, the corresponding firmware image must be updated, and the hardware selection must also be changed using the DIP switch on the development board.



Feature

- Supports both full-duplex and half-duplex operation
- Implements the full 802.3 specification

JP1					
Pin	Signal	Description	Pin	Signal	Description
1	DA+	Bi-directional transmit/receive pair A	2	DA-	Bi-directional transmit/receive pair



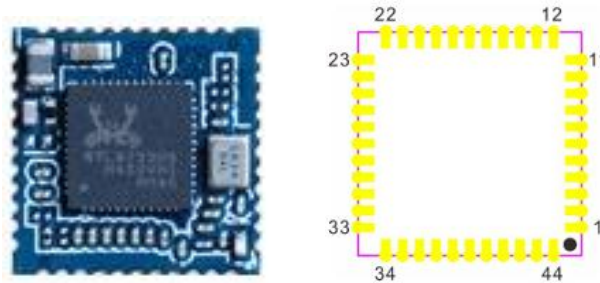
					A
3	DB+	Bi-directional transmit/receive pair B	4	DC+	Bi-directional transmit/receive pair C
5	DC-	Bi-directional transmit/receive pair C	6	DB-	Bi-directional transmit/receive pair B
7	DD+	Bi-directional transmit/receive pair D	8	DD-	Bi-directional transmit/receive pair D
9	GND	Ground	10	GND	Ground
11	YLED+	Yellow LED indicator signal	12	GND	Ground
13	GLED+	Green LED indicator signal	14	GND	Ground
JP3					
Pin	Signal	Description	Pin	Signal	Description
1	TX+	Ethernet differential signal A positive	2	TX-	Ethernet differential signal A negative
3	RX+	Ethernet differential signal B positive	4	CTB+	Ethernet differential signal C positive (TN1)
5	CTB+	Ethernet differential signal C positive (TN2)	6	RX-	Ethernet differential signal B negative
7	CTB-	Ethernet differential signal D negative (RN1)	8	CTB-	Ethernet differential signal D negative (RN2)
9	GND	Ground	10	GND	Ground
11	LED_SPD	Speed status LED indicator signal	12	GND	Ground
13	LED_ACT	Activity status LED indicator signal	14	GND	Ground
SW1					
Pin	Signal	Description	Pin	Signal	Description
1	ETH_RXCLK_M0	Ethernet Receive Clock	2	GMAC_TXCLK	GMAC Transmit Clock
3	LED_ACT	Ethernet Activity Indicator LED Signal	4	LED_SPD	Ethernet Speed Indicator LED Signal

2.8 User Buttons (K1, K3, K4)



Key	Signal	Description	Key	Signal	Description
K1	PWRON	Power On key	K3	RECOVER	Recover key
K4	RESET	Reset key			

2.9 WiFi & Bluetooth (U6501)



BL-M8723DS1 is a highly integrated WiFi + BT combo module, it contains a WLAN and a BT MAC, a 1T1R capable base band. It supports IEEE 802.11b/g/n standard and provides the highest PHY rate up to 150Mbps, and Bluetooth can support BT2.1+EDR/BT3.0 and BT4.2. This module can provide feature-rich wireless connection and reliable throughput from an extended distance.

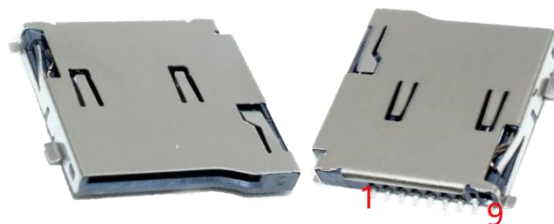
Features

- Operating Frequencies: 2.4~2.4835GHz.
- Host Interface is SDIO 2.0 and UART.
- Wireless data rate can reach up to 150Mbps.

Pin	Signal	Description	Pin	Signal	Description
1	GND	Ground	2	WL_BT_ANT	Bluetooth/Wi-Fi antenna
3	GND	Ground	4	NC	Not Connect
5	NC	Not Connect	6	BT_WAKE	Wake signal for Bluetooth
7	BT_WAKE_HOST	Wake signal for Bluetooth from host	8	NC	Not Connect
9	VBAT_WL	Battery voltage for Wi-Fi/Bluetooth module	10	XTAL_IN	Crystal oscillator input

11	XTAL_OUT	Crystal oscillator output	12	WIFI_REG_ON	Wi-Fi regulator enable
13	WIFI_WAKE_HOST	Wake signal for Wi-Fi from host	14	WIFI_D2	Wi-Fi data line 2
15	WIFI_D3	Wi-Fi data line 3	16	WIFI_CMD	Wi-Fi command line
17	WIFI_CLK	Wi-Fi clock line	18	WIFI_D0	Wi-Fi data line 0
19	WIFI_D1	Wi-Fi data line 1	20	GND	Ground
21	VIN_LDO_OUT	LDO output voltage	22	VCCIO_WL	I/O voltage for Wi-Fi/Bluetooth module
23	VIN_LDO	Input voltage for LDO	24	CLKO_32K_3V3	32 kHz clock output (3.3V)
25	PCM_RX	PCM (Pulse Code Modulation) receive line	26	PCM_CLK	PCM clock line
27	PCM_TX	PCM transmit line	28	PCM_SYNC	PCM synchronization line
29	NC	Not Connect	30	GND	Ground
31	GND	Ground	32	NC	Not Connect
33	GND	Ground	34	BT_RST	Bluetooth reset line
35	NC	Not Connect	36	GND	Ground
37	NC	Not Connect	38	NC	Not Connect
39	NC	Not Connect	40	NC	Not Connect
41	UART2_CTSN_BT	UART2 Clear To Send (CTS) line for BT	42	UART2_RX_BT	UART2 receive line for BT
43	UART2_TX_BT	UART2 transmit line for BT	44	UART2_RTSN_BT	UART2 Request To Send (RTS) line for BT
45	NC	Not Connect	46	NC	Not Connect
47	NC	Not Connect			

2.10 Micro SD(J3)



The Micro SD card is used as an external storage device. The MMC controller interface supports up to 4-bit transfer modes. MMC is always accessible through the carrier board interface.

Pin	Signal	Description	Pin	Signal	Description
1	SDMMC0_D2	SD/MMC data2	2	SDMMC0_D3	SD/MMC data3
3	SDMMC0_CMD	SD/MMC command signal	4	VCC3V3_SD	3.3V Power Supply
5	SDMMC0_CLK	SD/MMC clock	6	GND	Ground
7	SDMMC0_D0	SD/MMC data0	8	SDMMC0_D1	SD/MMC data1
9	SDMMC0_DET_3V3	SD/MMC detect signal (3V3)			

2.11 Camera (CON3, CON4, J31, J45, J46, J47)



The SBC1126B is equipped with two 30-pin MIPI connectors (IMX415) and four 26-pin MIPI-CSI_RX3 interface cameras (SC200AI) for camera use. Different camera modes require corresponding hardware configurations and firmware images. To enable the 2-lane MIPI CSI camera mode, solder the corresponding configuration resistors on the back side of the board. Then to enable the 4-lane MIPI CSI camera mode, remove the corresponding configuration resistors on the back side of the board.

The designators of resistors are as follows:

R39, R46, R31 R37, R29, R22, R11, R21, R10, R2, R60, R58, R62, R65, R64, R67, R68, R70, R69

CON3					
Pin	Signal	Description	Pin	Signal	Description
1	NC	Not connect	2	CAM_AF_2V8	2.8V power supply for camera AF
3	DVDD1V2B	Digital supply voltage 1.2V	4	VCC1V8_DVP B	Digital supply voltage 1.8V for DVP
5	NC	Not connect	6	GND	Ground



7	AVDD2V8_DVPB	Analog supply voltage 2.8V for DVP	8	GND	Ground
9	I2C3_SDA_CAM	I2C3 serial data for camera	10	I2C3_SCL_CAM	I2C3 serial clock for camera
11	CAMERA_RST_0	Camera reset signal	12	CAM_PDN2_L_1V8	Camera power-down signal, 1.8V level
13	GND	Ground	14	MIPI_CLK0	MIPI clock signal
15	GND	Ground	16	MIPI_CSI_RX0_D3P	MIPI CSI RX0 data lane 3 positive
17	MIPI_CSI_RX0_D3N	MIPI CSI RX0 data lane 3 negative	18	GND	Ground
19	MIPI_CSI_RX0_D2P	MIPI CSI RX0 data lane 2 positive	20	MIPI_CSI_RX0_D2N	MIPI CSI RX0 data lane 2 negative
21	GND	Ground	22	MIPI_CSI_RX0_D1P	MIPI CSI data lane 1 positive
23	MIPI_CSI_RX0_D1N	MIPI CSI RX0 data lane 1 negative	24	GND	Ground
25	MIPI_CSI_RX0_CLK0P	MIPI CSI RX0 clock lane positive	26	MIPI_CSI_RX0_CLK0N	MIPI CSI RX0 clock lane negative
27	GND	Ground	28	MIPI_CSI_RX0_D0P	MIPI CSI RX0 data lane 0 positive
29	MIPI_CSI_RX0_D0N	MIPI CSI RX0 data lane 0 negative	30	GND	Ground

CON4					
Pin	Signal	Description	Pin	Signal	Description
1	NC	Not connect	2	CAM_AF_2V8	2.8V power supply for camera AF
3	DVDD1V2B	Digital supply voltage 1.2V	4	VCC1V8_DVPB	Digital supply voltage 1.8V for DVP
5	NC	Not connect	6	GND	Ground
7	AVDD2V8_DVPB	Analog supply voltage 2.8V for DVP	8	GND	Ground
9	I2C4_SDA_CAM	I2C4 serial data for camera	10	I2C4_SCL_CAM	I2C4 serial clock for camera
11	CAMERA_RST_1	Camera reset signal	12	CAM_PDN3_L_1V8	Camera power-down signal, 1.8V level
13	GND	Ground	14	MIPI_CLK1	MIPI clock signal
15	GND	Ground	16	MIPI_CSI_RX1_D3P	MIPI CSI RX1 data lane 3 positive
17	MIPI_CSI_RX1_	MIPI CSI RX1 data	18	GND	Ground



	D3N	lane 3 negative			
19	MIPI_CSI_RX1_D2P	MIPI CSI RX1 data lane 2 positive	20	MIPI_CSI_RX1_D2N	MIPI CSI RX1 data lane 2 negative
21	GND	Ground	22	MIPI_CSI_RX1_D1P	MIPI CSI RX1 data lane 1 positive
23	MIPI_CSI_RX1_D1N	MIPI CSI RX1 data lane 1 negative	24	GND	Ground
25	MIPI_CSI_RX1_CLK0P	MIPI CSI RX1 clock lane positive	26	MIPI_CSI_RX1_CLK0N	MIPI CSI RX1 clock lane negative
27	GND	Ground	28	MIPI_CSI_RX1_D0P	MIPI CSI RX1 data lane 0 positive
29	MIPI_CSI_RX1_D0N	MIPI CSI RX1 data lane 0 negative	30	GND	Ground
31	NC	Not connect	32	NC	Not connect

J31					
Pin	Signal	Description	Pin	Signal	Description
1	NC	Not connect	2	GND	Ground
3	I2C5_SDA_M0_1V8	I2C5 serial data, 1.8V level	4	AVDD2V8_DVPA	Analog supply voltage 2.8V for DVP
5	I2C5_SCL_M0_1V8	I2C5 serial clock, 1.8V level	6	CAMERA_RST_4	Camera hardware reset signal
7	NC	Not connect	8	CAM_PDN0_L_1V8	Camera power-down signal, 1.8V level
9	NC	Not connect	10	DVDD1V2A	Digital supply voltage 1.2V
11	VCC1V8_DVPA	1.8V power supply for DVP interface	12	NC	Not connect
13	MIPI_MCLK0	MIPI reference clock signal	14	NC	Not connect
15	GND	Ground	16	MIPI_CSI_RX0_D0P_2LANE	MIPI CSI RX0 data lane 0 positive, 2-lane
17	MIPI_CSI_RX0_CLK0P_2LANE	MIPI CSI RX0 clock lane positive, 2-lane	18	MIPI_CSI_RX0_D0N_2LANE	MIPI CSI RX0 data lane 0 negative, 2-lane
19	NC	Not connect	20	MIPI_CSI_RX0_CLK0N_2LANE	MIPI CSI RX0 clock lane negative, 2-lane
21	MIPI_CSI_RX0_D1N_2LANE	MIPI CSI RX0 data lane 1 negative, 2-lane	22	MIPI_CSI_RX0_D1P_2LANE	MIPI CSI RX0 data lane 1 positive, 2-lane
23	NC	Not connect	24	NC	Not connect

25	GND	Ground	26	GND	Ground
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J45					
Pin	Signal	Description	Pin	Signal	Description
1	NC	Not connect	2	GND	Ground
3	I2C3_SDA_CAM	I2C3 serial data for camera	4	AVDD2V8_DVP A	Analog supply voltage 2.8V for DVP
5	I2C3_SCL_CAM	I2C3 serial clock for camera	6	CAMERA_RST_5	Camera hardware reset signal
7	NC	Not connect	8	CAM_PDN1_L_1V8	Camera power-down signal, 1.8V level
9	NC	Not connect	10	DVDD1V2A	Digital supply voltage 1.2V
11	VCC1V8_DVPA	1.8V power supply for DVP interface	12	NC	Not connect
13	MIPI_MCLK1	MIPI reference clock signal	14	NC	Not connect
15	GND	Ground	16	MIPI_CSI_RX0_D2P_2LANE	MIPI CSI RX0 data lane 2 positive, 2-lane
17	MIPI_CSI_RX0_CLK1P	MIPI CSI RX0 clock lane positive, 2-lane	18	MIPI_CSI_RX0_D2N_2LANE	MIPI CSI RX0 data lane 2 negative, 2-lane
19	NC	Not connect	20	MIPI_CSI_RX0_CLK1N	MIPI CSI RX0 clock lane negative, 2-lane
21	MIPI_CSI_RX0_D3N_2LANE	MIPI CSI RX0 data lane 3 negative, 2-lane	22	MIPI_CSI_RX0_D3P_2LANE	MIPI CSI RX0 data lane 3 positive, 2-lane
23	NC	Not connect	24	NC	Not connect
25	GND	Ground	26	GND	Ground

J46					
Pin	Signal	Description	Pin	Signal	Description
1	NC	Not connect	2	GND	Ground
3	I2C1_SDA_M2_1V8	I2C1 serial data, 1.8V level	4	AVDD2V8_DVP B	Analog supply voltage 2.8V for DVP
5	I2C1_SCL_M2_1V8	I2C5 serial clock, 1.8V level	6	CAMERA_RST_2	Camera hardware reset signal
7	NC	Not connect	8	CAM_PDN2_L_1V8	Camera power-down signal, 1.8V level
9	NC	Not connect	10	DVDD1V2B	Digital supply voltage 1.2V

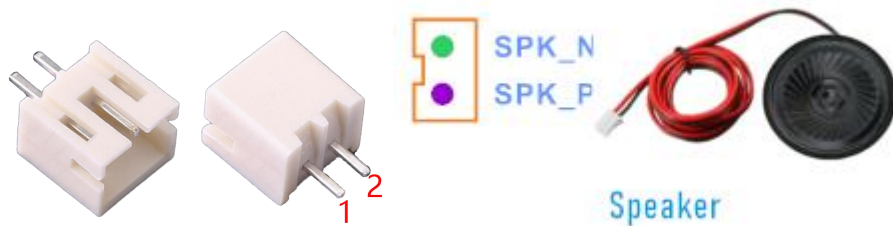


11	VCC1V8_DVPB	1.8V power supply for DVP interface	12	NC	Not connect
13	MIPI_MCLK2	MIPI reference clock signal	14	NC	Not connect
15	GND	Ground	16	MIPI_CSI_RX1_D0P_2LANE	MIPI CSI RX1 data lane 0 positive, 2-lane
17	MIPI_CSI_RX1_CLK0P_2LANE	MIPI CSI RX1 clock lane positive, 2-lane	18	MIPI_CSI_RX1_D0N_2LANE	MIPI CSI RX1 data lane 0 negative, 2-lane
19	NC	Not connect	20	MIPI_CSI_RX1_CLK0N_2LANE	MIPI CSI RX1 clock lane negative, 2-lane
21	MIPI_CSI_RX1_D1N_2LANE	MIPI CSI RX1 data lane 1 negative, 2-lane	22	MIPI_CSI_RX1_D1P_2LANE	MIPI CSI RX1 data lane 1 positive, 2-lane
23	NC	Not connect	24	NC	Not connect
25	GND	Ground	26	GND	Ground

J47					
Pin	Signal	Description	Pin	Signal	Description
1	NC	Not connect	2	GND	Ground
3	I2C4_SDA_CAM	I2C4 serial data for camera	4	AVDD2V8_DVPB	Analog supply voltage 2.8V for DVP
5	I2C4_SCL_CAM	I2C4 serial clock for camera	6	CAMERA_RST_3	Camera hardware reset signal
7	NC	Not connect	8	CAM_PDN3_L_1V8	Camera power-down signal, 1.8V level
9	NC	Not connect	10	DVDD1V2B	Digital supply voltage 1.2V
11	VCC1V8_DVPB	1.8V power supply for DVP interface	12	NC	Not connect
13	MIPI_MCLK3	MIPI reference clock signal	14	NC	Not connect
15	GND	Ground	16	MIPI_CSI_RX1_D2P_2LANE	MIPI CSI RX1 data lane 2 positive, 2-lane
17	MIPI_CSI_RX1_CLK1P	MIPI CSI RX1 clock lane positive, 2-lane	18	MIPI_CSI_RX1_D2N_2LANE	MIPI CSI RX1 data lane 2 negative, 2-lane
19	NC	Not connect	20	MIPI_CSI_RX1_CLK1N	MIPI CSI RX1 clock lane negative, 2-lane
21	MIPI_CSI_RX1_D3N_2LANE	MIPI CSI RX1 data lane 3 negative,	22	MIPI_CSI_RX1_D3P_2LANE	MIPI CSI RX1 data lane 3 positive,

		2-lane			2-lane
23	NC	Not connect	24	NC	Not connect
25	GND	Ground	26	GND	Ground

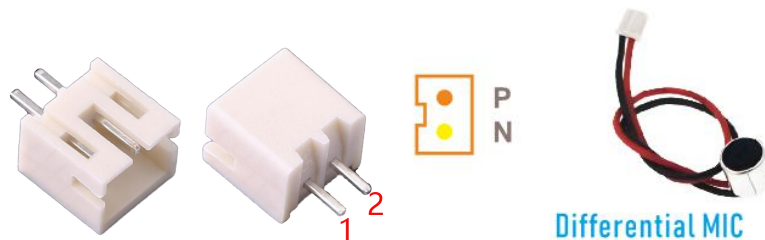
2.12 SPK(J39)



The SPK using a 2pin connector to connect an external speaker.

Pin	Signal	Description	Pin	Signal	Description
1	SPK1_P	Positive terminal for Speaker 1	2	SPK1_N	Negative terminal for Speaker 1

2.13 MIC (J8)



The MIC is 2-pin microphone(J8), It is used for recording.

Pin	Signal	Description	Pin	Signal	Description
1	MIC1_INN	Negative input for Microphone 1	2	MIC1_INP	Positive input for Microphone 1

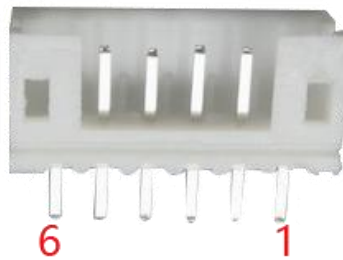
2.14 RTC (GC1)



The RTC is a supercapacitor interface is used to ensure the RTC is still able to work after power off.

Pin	Signal	Description	Pin	Signal	Description
1	VBAT_RTC	RTC backup power, super-capacitor positive	2	GND	Ground

2.15 UART(J34)



UART4 serial interface with transmit, receive, RTS and CTS hardware flow-control signals.

Pin	Signal	Description	Pin	Signal	Description
1	VCC3V3_SYS	3.3V power supply	2	UART4_RTSN_M1	Request To Send
3	UART4_CTSN_M1	Clear To Send	4	UART4_TX_M1	Transmit
5	UART4_RX_M1	Receive	6	GND	Ground

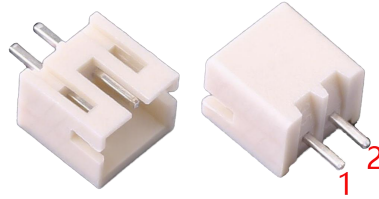
2.16 IR(J24)



The IR is 3-pin connector. It is used to connect the IR receiver.

Pin	Signal	Description	Pin	Signal	Description
1	PWM3_IR	IR signal	2	GND	Ground
3	VCC3V3_SYS	3.3V system power supply			

2.17 CAN (P2, P10)



The CAN connector is a 2-pin type for CAN transmit and receive signals.

P2					
Pin	Signal	Description	Pin	Signal	Description
1	CANL_0	CAN bus low signal line	2	CANH_0	CAN bus high signal line
P10					
Pin	Signal	Description	Pin	Signal	Description
1	CANL_1	CAN bus low signal line	2	CANH_1	CAN bus high signal line

2.18 RS485(J32, J41, JP2, JP4)



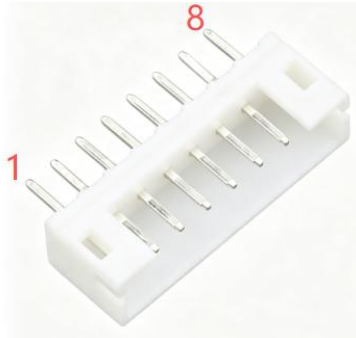
RS485 uses 3-pin (J32, J41) connectors and 2-pin (JP2, JP4) connectors, both using the SP3485EEN transceiver for bidirectional transmission and reception.

J32					
Pin	Signal	Description	Pin	Signal	Description
1	GND	Ground	2	RS485_0_B	RS-485 signal line B
3	RS485_0_A	RS-485 signal line A			
J41					
Pin	Signal	Description	Pin	Signal	Description
1	GND	Ground	2	RS485_1_B	RS-485 signal line B
3	RS485_1_A	RS-485 signal line A			
JP2					
Pin	Signal	Description	Pin	Signal	Description
1	RS485_0_A	RS-485 signal line A	2	RS485_0_B	RS-485 signal line B
JP4					



Pin	Signal	Description	Pin	Signal	Description
1	RS485_1_A	RS-485 signal line A	2	RS485_1_B	RS-485 signal line B

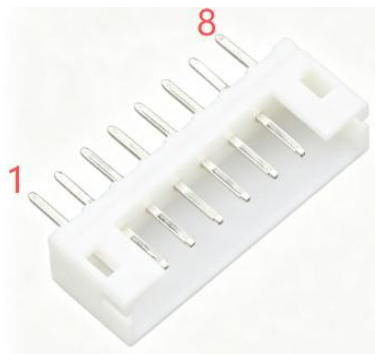
2.19 ADC(J43)



The ADC is 8-pin connector. It is used to connect the ADC device.

Pin	Signal	Description	Pin	Signal	Description
1	VDDIO_18	1.8V I/O power supply	2	SARADC0_IN1	Analog-to-Digital Converter input 1
3	SARADC0_IN3	Analog-to-Digital Converter input 3	4	SARADC0_IN2	Analog-to-Digital Converter input 2
5	SARADC0_IN4	Analog-to-Digital Converter input 4	6	SARADC0_IN5	Analog-to-Digital Converter input 5
7	SARADC0_IN6	Analog-to-Digital Converter input 6	8	GND	Ground

2.20 I2S1 (J16)



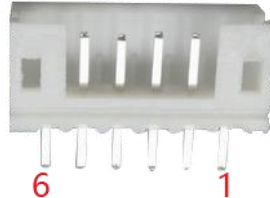
Used for I2S1 device connection, multiplexed with GPIO, and available for GPIO-test purposes.

Pin	Signal	Description	Pin	Signal	Description
1	VCC3V3_SYS	3.3V System Voltage	2	VO_LCDC_D19	GPIO5_C3_D



3	VO_LCDC_D20	GPIO5_C4_D	4	VO_LCDC_D21	GPIO5_C5_D
5	VO_LCDC_D22	GPIO5_C6_D	6	VO_LCDC_D23	GPIO5_C7_D
7	NC	Not Connect	8	GND	Ground

2.21 SPI (J33)



The SPI is 6-pin connector. It is used to connect the SPI device.

Pin	Signal	Description	Pin	Signal	Description
1	VCC3V3_SYS	3.3V System Voltage	2	SPI1_MOSI_M2	SPI1 Master Out Slave In
3	SPI1_MISO_M2	SPI1 Master In Slave Out	4	SPI1_CSN0_M2	SPI1 Chip Select 0
5	SPI1_CLK_M2	SPI1 Serial Clock	6	GND	Ground



3 Product Configurations

3.1 Standard Contents

NO.	Item	Qty.(PCS)	Description
1	SBC1126B board	1	Standard Content(2GB RAM, 8GB eMMC)
2	U-disk/CD-ROM	1	Buildroot, Debian12 SDK, Images, Documents, tools, Schematic, datasheets, etc.
3	Ethernet cable	2	1.5m Crossover cable
4	Serial Cable	1	CH9102X
5	USB Cable	1	Type-A USB
6	Power adaptor	2	12V/3A DC
7	WIFI Module	1	WIFI Module, WIFI Antenna

3.2 Optional Parts

- LCD Module (10.1-inch MIPI panel)
- Camera (IMX415, SC200AI)