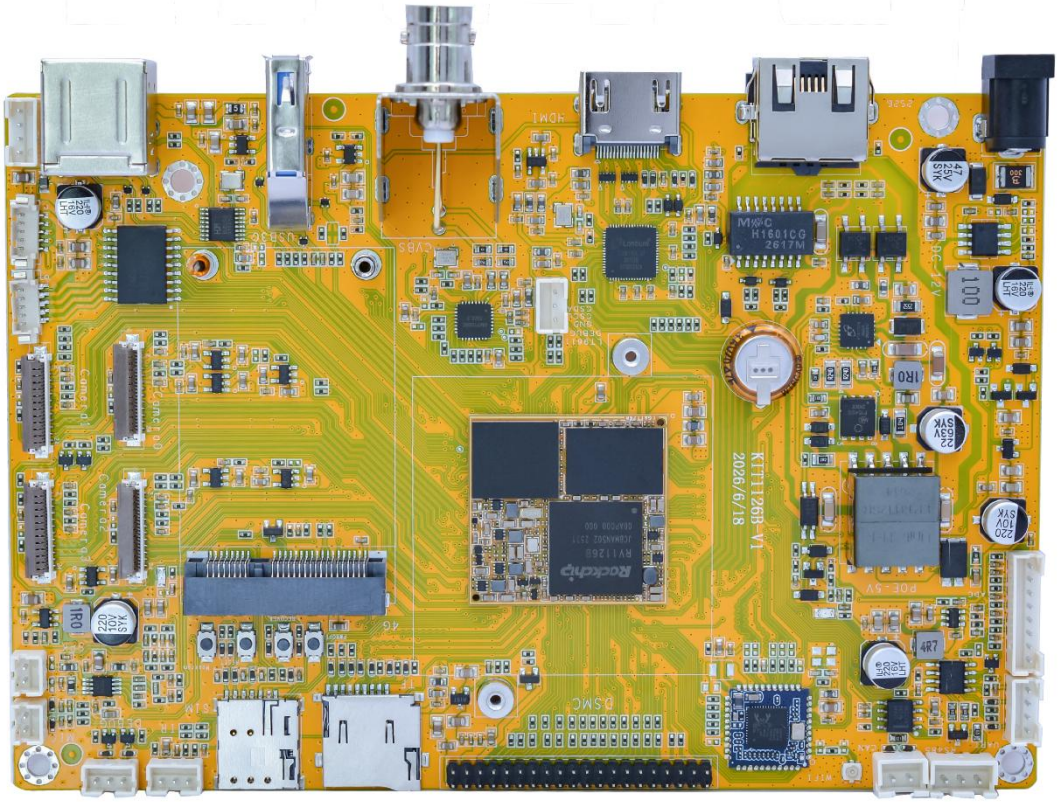
KIT1126B Hardware Manual

V1.202608



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 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 KIT1126B Introduction

1.1 Summary

The KIT1126B is an AI-vision development kit based on Rockchip RV1126B SoC, equipped with quad-core Cortex-A53 up to 1.6 GHz and a dedicated 3 TOPS (INT8) NPU. It supports INT4/INT8/INT16/FP16 precision and accelerates TensorFlow, ONNX, PyTorch and Caffe models for local edge-side AI inference. The integrated ISP supports 12MP@30fps, and the AI ISP supports 8MP@30fps, It implements a lot of algorithm accelerators, such as HDR, 3A, LSC, 3DNR, 2DNR, sharpening, dehaze, fisheye correction, gamma correction, feature points detection and so on.The video encoder embedded in RV1126B support H.265/H.264 video encoding and the multi-stream encoding is supported also.It accepts 4×MIPI-CSI and 2×CVBS camera inputs, suited for smart cameras, industrial vision, security surveillance and edge AIoT deployments.

Measuring 155 × 105 mm, the board provides flexible 2GB/4GB RAM and 8GB-256GB storage options. Rich interfaces include USB3.0 DRD, 3×USB2.0 Host, HDMI, Ethernet, mPCIe, CAN, RS485, Micro SD, Speaker, MIC, 4G-GPS, Wi-Fi & Bluetooth. It runs Debian 12 and Buildroot. supplied with complete software resources for fast prototyping and mass production, with 0℃ ~ +70℃ operating temperature range.

1.2 LGA1126B Features

- **Microprocessor**

  - Quad-core Cortex-A53 up to 1.6G

  - 32KB I-cache and 32KB D-cache for each core, 512KB L2 cache

  - 3.0 TOPS Neural Process Unit

  - Max 12M ISP

- **Memory Organization**

  - LPDDR4 RAM up to 4GB

  - EMMC4.51 up to 256GB

  - SPI Flash up to 256MB (need Carry board supply).

- **PWM**

  - Total 28-ch with 4 PWMs interface.

  - Only PWM2 can generates waveform through lookup table.

- Support continuous mode and one-shot output mode

- Support input caption mode.

- **Video Decoder/Encoder**

  - Supports video decode/encode up to 4K@30fps

  - Supports real-time decoding of H.264/265

  - Supports H.265/H.264 video encoding

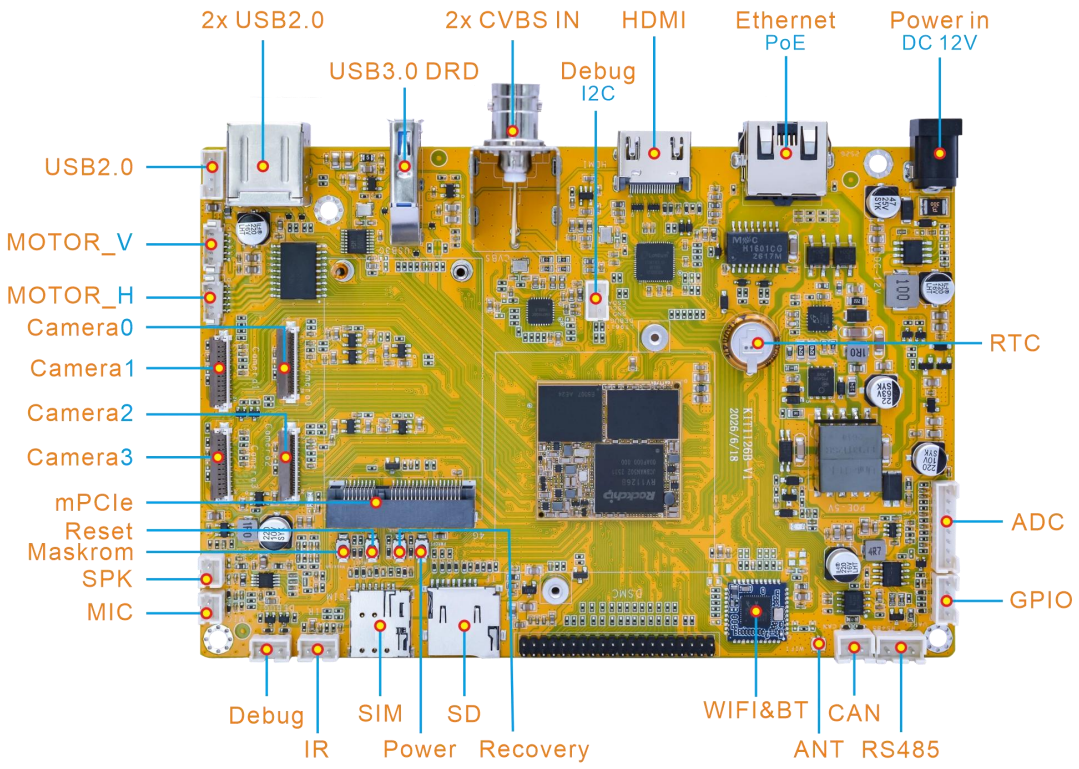
- **Power unit**

  - Discrete Power on board

  - 3.1~5.5V main power input and RTC power input

  - VCC_1V8 output for IO

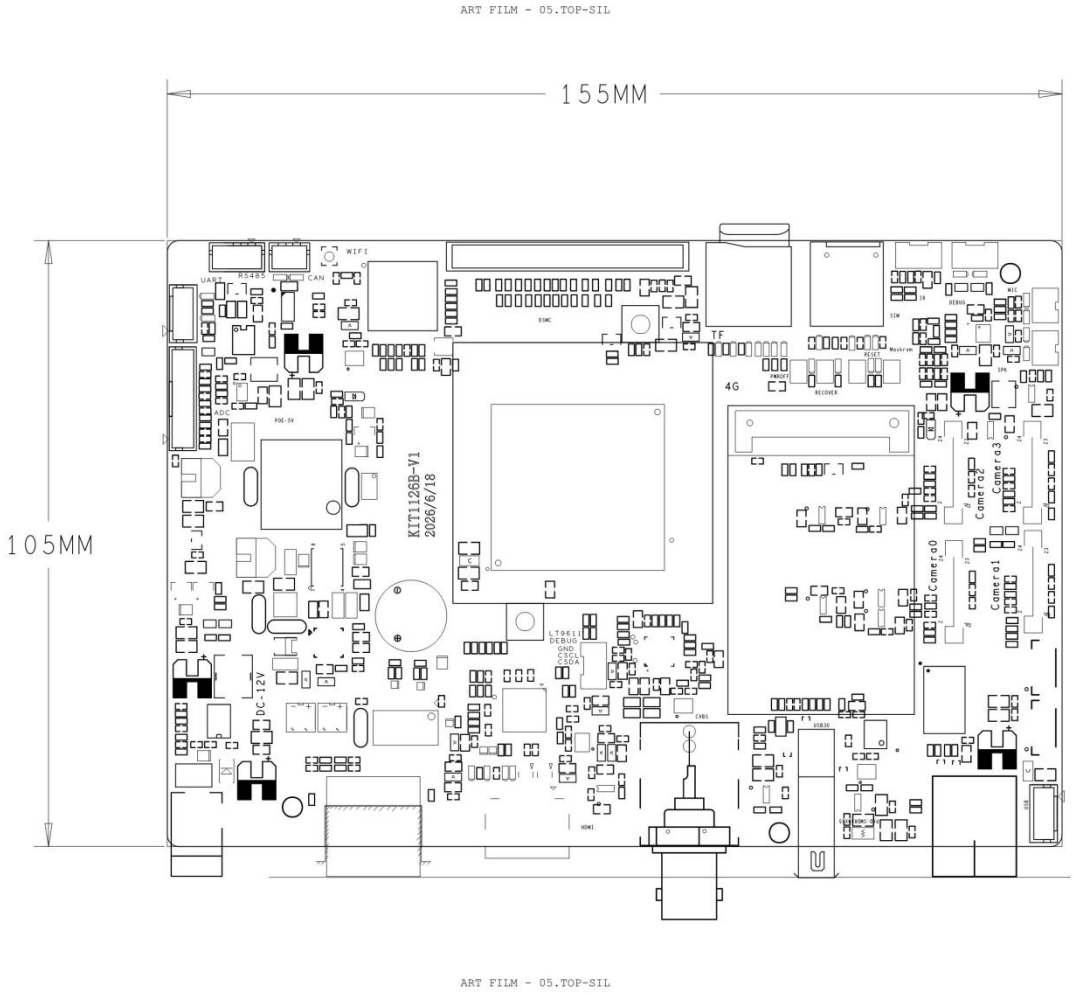
1.3 KIT1126B Specifications



Feature	Specifications
SoC	Rockchip RV1126B Quad-core Cortex-A53 @ 1.6GHz
Memory	2GB/4GB LPDDR4

Power	12V/3A DC input jack POE
USB	1x USB3.0 DRD (Dual-Role Device) 3x USB2.0 Host
Storage	8GB/16GB/32GB/64GB/128GB/256GB eMMC Micro SD card slot
Serial Port	Debug, 3-pin connector RS485, 3-pin connector
Display	HDMI (MIPI DSI to HDMI), 1920x1080@60fps
Camera	4x 2-lane MIPI CSI, 24-pin FPC connector 2x CVBS IN, dual-BNC connector
Audio	1x MIC, 2-pin connector 1x Speaker, 2-pin connector
Keys &Switch	Recovery key, Power key, Reset key, Maskrom key
Connectivity	2.4G WiFi (802.11b/g/n) with Bluetooth 4.2 1x 10/100M Ethernet RJ45 port with PoE support mPCIe socket with Nano SIM card port to support 4G&GPS module
Other features	Supercap-powered RTC CAN, 2-pin connector GPIO, 4-pin connector ADC, 8-pin connector IR, 3-pin connector I2C Debug, 3-pin connector Motor (V+H), 2x 5-pin connectors
Dimension	Base board - 155 x 105 mm, CPU module - 30 x 28.75 mm

1.4 PCB Dimension



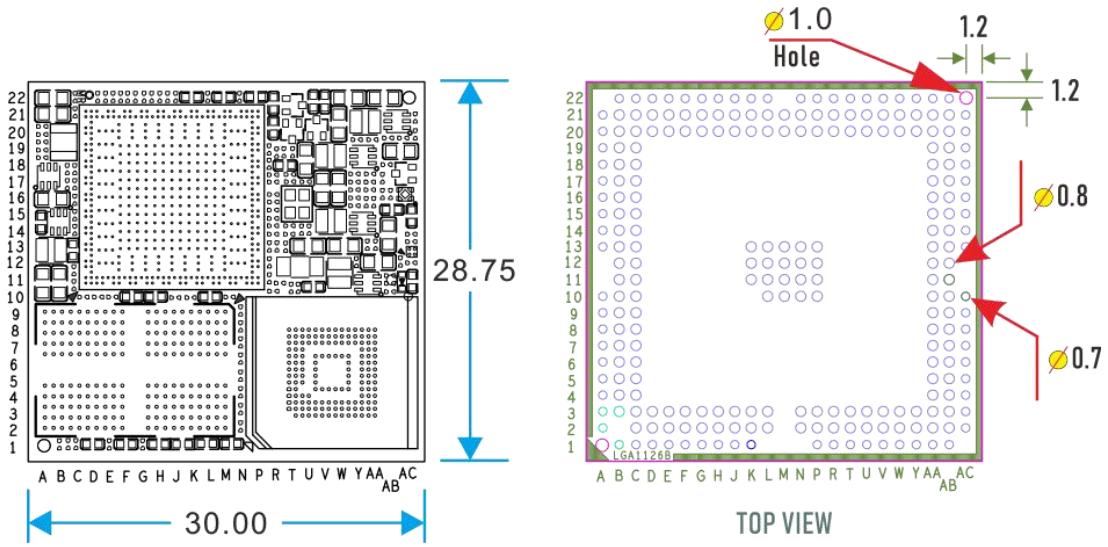
1.5 CPU Introduction

The LGA1126B 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.

LGA1126B specifications

Dimension– 30 x 28.75 mm

Application– IPC/CVR, AI cameras, smart displays/HMI, service robots/AGVs.



Pin Definition

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
A2	VCC5V0_SYS	C22	MIPI_DSI_D2N	M21	VO_LCDC_D10	AA5	GND
A3	VCC5V0_SYS	D1	I2C2_SCL_M0	N2	ETH_MDC_M0	AA6	WIFI_REG_ON
A4	GPIO7_A7_D	D2	UART1_RTS_M0	N3	GND	AA7	BT_RST
A5	GPIO7_A2_D	D3	UART1_RX_M0	N10	GND	AA8	BT_WAKE_HOST
A6	CAN1_RXD_M0	D20	VO_LCDC_HSYNC	N11	GND	AA9	UART0_RX_DBG
A7	PCM2_SYNC	D21	MIPI_DSI_D3P	N12	GND	AA10	UART0_TX_DBG
A8	PCM2_TX	D22	MIPI_DSI_D3N	N13	GND	AA11	RESETn
A9	SARADC0_IN0_KEY	E1	GPIO7_A1_D	N20	GND	AA12	GND
A10	SARADC0_IN7_BOOT	E2	UART1_TX_M0	N21	VO_LCDC_D2	AA13	MIPI_CSI_RX0_D2P

A13	UART2_RX_M0	E3	UART1_CTS_M0	N22	VO_LCDC_D16	AA14	MIPI_CSI_RX0_D2N
A14	GND	E20	VO_LCDC_D21	P1	ETH_MCLK_M0	AA15	MIPI_CSI_RX0_D1P
A15	UART2_CTSN_M0	E21	VO_LCDC_CLK	P2	GND	AA16	MIPI_CSI_RX0_D1N
A16	GND	E22	VO_LCDC_VSYNC	P3	ETH_MDIO_M0	AA17	GND
A17	SDIO_D1	F1	GPIO7_A5_D	P10	GND	AA18	MIPI_CSI_RX1_CLK0P
A18	FEPHY_RXP	F2	GPIO7_A3_D	P11	GND	AA19	MIPI_CSI_RX1_CLK0N
A19	MIPI_DSI_D0P	F3	I2C2_SDA_M0	P12	GND	AA20	I2C4_SCL_CAM_1V8
A20	MIPI_DSI_D0N	F20	VO_LCDC_D23	P13	GND	AA21	MIPI_MCLK_OUT1_1V8
A21	MIPI_DSI_CLKP	F21	VO_LCDC_D20	P20	VO_LCDC_D22	AA22	GND
B1	VCC5V0_SYS	F22	VO_LCDC_DEN	P21	GND	AB1	USB2_DRD_DM
B3	VCC5V0_SYS	G1	GND	P22	VO_LCDC_D15	AB2	USB2_DRD_DP
B4	I2C0_SCL_M0	G2	FSPI_D1_1V8	R1	ETH_RXCTL_M0	AB3	USB3_DRD_SSTXP
B5	GPIO7_A6_D	G3	GPIO7_A0_D	R2	ETH_RXCLK_LED_SPD	AB4	USB3_DRD_SSRXP
B6	GND	G20	VO_LCDC_D18	R3	GPIO6_B6_D	AB5	BT_WAKE
B7	CAN1_TXD_M0	G21	VO_LCDC_D14	R20	SDMMC0_D1	AB6	WIFI_WAKE_HOST
B8	PCM2_RX	G22	VO_LCDC_D19	R21	SDMMC0_D0	AB7	GPIO0_A3_U

B9	GND	H1	FSPI_D3_1V8	R22	VO_LCDC_D13	AB8	CLK_32K_OUT
B10	SARADC0_IN2	H2	FSPI_D0_1V8	T1	ETH_RXD2_M0	AB9	SDMMC0_DET
B11	SARADC0_IN3	H3	N.C.	T2	ETH_RXD1_M0	AB10	MIC1_P
B12	SARADC0_IN4	H20	VO_LCDC_D8	T3	ETH_RXD0_M0	AB11	MIC1_P
B13	UART2_TX_M0	H21	VO_LCDC_D3	T20	SDMMC0_D3	AB12	MIC1_N
B14	UART2_RTSN_M0	H22	VO_LCDC_D6	T21	SDMMC0_D2	AB13	MIPI_CSI_RX0_D3P
B15	SDIO_D2	J1	FSPI_CSN_1V8	T22	SDMMC0_CLK	AB14	MIPI_CSI_RX0_CLK1P
B16	SDIO_D3	J2	VBAT_RTC	U1	ETH_RXD3_M0	AB15	MIPI_CSI_RX0_CLK0P
B17	SDIO_D0	J3	GND	U2	GND	AB16	MIPI_CSI_RX0_D0N
B18	FEPHY_RXN	J20	VO_LCDC_D4	U3	ETH_TXCLK_LED_ACT	AB17	MIPI_CSI_RX1_D3N
B19	FEPHY_TXP	J21	VO_LCDC_D1	U20	GPIO7_A4_D	AB18	MIPI_CSI_RX1_D2P
B20	MIPI_DSI_D1P	J22	VO_LCDC_D0	U21	SDMMC0_CMD	AB19	MIPI_CSI_RX1_CLK1P
B21	MIPI_DSI_CLKN	K1	VCC_1V8	U22	GND	AB20	MIPI_CSI_RX1_CLK1N
B22	MIPI_DSI_D2P	K2	GND	V1	ETH_TXD3_M0	AB21	MIPI_CSI_RX1_D0P
C1	GND	K3	FSPI_D2_1V8	V2	ETH_TXCTL_M0	AB22	MIPI_CSI_RX1_D0N
C2	GND	K11	GND	V3	ETH_TXD1_M0	AC2	GND

C3	I2C0_SDA_M0	K12	GND	V20	GND	AC3	USB3_DRD_SSTXN
C4	GND	K13	GND	V21	UART4_CTSN_M0_1V8	AC4	USB3_DRD_SSRXN
C5	GND	K20	VO_LCDC_D17	V22	I2C3_SDA_CAM_1V8	AC5	DSM_AUD_RN
C6	CAN0_RXD_M0	K21	VO_LCDC_D7	W1	ETH_TXD0_M0	AC6	DSM_AUD_RP
C7	CAN0_TXD_M0	K22	GND	W2	ETH_TXD2_M0	AC7	GND
C8	GND	L2	ETH_CLK_25M_OUT_M0	W3	ETH_PPSTRIG_M0	AC8	REF_CLK0_OUT
C9	PCM2_CLK	L3	FSPI_CLK_1V8	W20	UART4_TX_M0_1V8	AC9	PWR_EN
C10	SARADC0_IN1	L10	GND	W21	UART4_RX_M0_1V8	AC10	MIC0_N
C11	GND	L11	GND	W22	I2C3_SCL_CAM_1V8	AC13	MIPI_CSI_RX0_D3N
C12	SARADC0_IN5	L12	GND	Y1	GND	AC14	MIPI_CSI_RX0_CLK1N
C13	SARADC0_IN6	L13	GND	Y2	ETH_PPS_CLK_M0	AC15	MIPI_CSI_RX0_CLK0N
C14	GPIO3_B7_D	L20	VO_LCDC_D11	Y3	ETH_PTP_REFCLK_M0	AC16	MIPI_CSI_RX0_D0P
C15	GPIO3_B6_D	L21	VO_LCDC_D9	Y20	I2C4_SDA_CAM_1V8	AC17	MIPI_CSI_RX1_D3P
C16	SDIO_CMD	L22	VO_LCDC_D5	Y21	UART4_RTSN_M0_1V8	AC18	MIPI_CSI_RX1_D2N
C17	GND	M10	GND	Y22	MIPI_MCLK_OUT0_1V8	AC19	GND
C18	SDIO_CLK	M11	GND	AA1	USB2_HOST_DM	AC20	MIPI_CSI_RX1_D1P

C19	FEPHY_TXN	M12	GND	AA2	USB2_HOST_DP	AC21	MIPI_CSI_RX1_D1N
C20	MIPI_DSI_D1N	M13	GND	AA3	USB2_DRD_VBUSDET		
C21	GND	M20	VO_LCDC_D12	AA4	USB2_DRD_ID		

2 Peripherals Introduction

2.1 Power in(P1)



The DC JACK is black enclosure full package and 5.5 x 2.1mm, , 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			

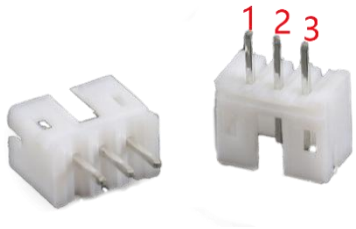
2.2 DSMC(CON3)



Pin	Signal	Description	Pin	Signal	Description
1	VDD5V	Battery Voltage	2	VDD5V	Not connect
3	GND	Ground	4	GND	Ground
5	VCC3V3_SYS	3.3V system power supply	6	VCC3V3_SYS	3.3V system power supply
7	DSMC_D1	DSMC data bit 1	8	DSMC_D0	DSMC data bit 0
9	DSMC_D3	DSMC data bit 3	10	DSMC_D2	DSMC data bit 2
11	DSMC_D5	DSMC data bit 5	12	DSMC_D4	DSMC data bit 4
13	DSMC_D7	DSMC data bit 7	14	DSMC_D6	DSMC data bit 6
15	DSMC_D9	DSMC data bit 9	16	DSMC_D8	DSMC data bit 8
17	DSMC_D11	DSMC data bit 11	18	DSMC_D10	DSMC data bit 10
19	DSMC_D13	DSMC data bit 13	20	DSMC_D12	DSMC data bit 12

21	DSMC_D15	DSMC data bit 15	22	DSMC_D14	DSMC data bit 14
23	DSMC_RESETN	DSMC module reset signal, active low	24	DSMC_DQS0	DSMC data-qualify strobe 0
25	DSMC_CSN0	DSMC chip select 0, active low	26	DSMC_DQS1	DSMC data-qualify strobe 1
27	DSMC_CSN1	DSMC chip select 1 active low	28	DSMC_RDYN	DSMC slave ready input signal, active low
29	DSMC_CSN2	DSMC chip select 2 active low	30	DSMC_INT2	DSMC interrupt input 2
31	DSMC_CSN3	DSMC chip select 3 active low	32	DSMC_INT3	DSMC interrupt input 3
33	GND	Ground	34	NC	Not connect
35	DSMC_CLKN	DSMC differential clock negative	36	NC	Not connect
37	DSMC_CLKP	DSMC differential clock positive	38	NC	Not connect
39	GND	Ground	40	GND	Ground

2.3 DEBUG (J6, J7)



3-pin connector. The J6 is debug serial port, baud rate is 1500000. it is Used for system debugging and serial log output.

DEBUG(J6)					
Pin	Signal	Description	Pin	Signal	Description
1	UART0_DBGRX	UART0 Debug Receive	2	UART0_DBGTX	UART0 Debug Transmit
3	GND	Ground			

DEBUG Interface(J7)					
Pin	Signal	Description	Pin	Signal	Description
1	CSDA	I2C debug serial data	2	CSCL	I2C debug serial clock
3	GND	Ground			

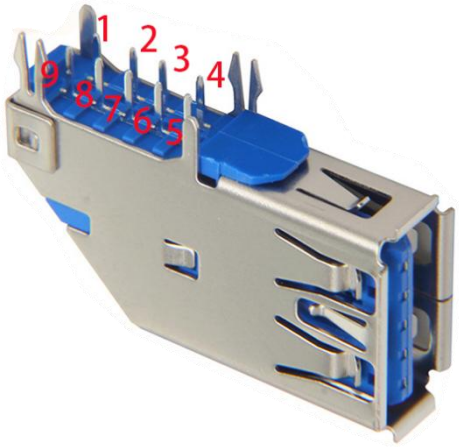
2.4 HDMI (J2)



KIT1126B HDMI supports up to 1920x1080@60fps output. It is a 23-pin connector.

J2					
Pin	Signal	Description	Pin	Signal	Description
1	TX_D2+	HDMI Data Lane 2 Positive	2	GND	Ground
3	TX_D2-	HDMI Data Lane 2 Positive	4	TX_D1+	HDMI Data Lane 1 Positive
5	GND	Ground	6	TX_D1-	HDMI Data Lane 1 Negative
7	TX_D0+	HDMI Data Lane 0 Positive	8	GND	Ground
9	TX_D0-	HDMI Data Lane 0 Negative	10	TX_C+	HDMI Clock Lane Positive
11	GND	Ground	12	TX_C-	HDMI Clock Lane Negative
13	CEC	Consumer Electronics Control	14	NC	Not Connect
15	HDMI_DDC_SCL	DDC I2C Clock	16	HDMI_DDC_SDA	DDC I2C Data
17	GND	Ground	18	HDMI_5V	+5V Power Output
19	TX_HPD	Hot- Plug Detect	20	GND	Ground
21	GND	Ground	22	GND	Ground
23	GND	Ground			

2.5 USB3.0 DRD(CON2)



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

Feature

- USB3.0 DRD Dual-Role Device port, support Host / Device / OTG mode auto switch.
- Support USB3.0 Super-Speed high-speed data communication.
- Used for system firmware 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_SSRXN	SuperSpeed differential receive negative	6	USB3_DRD_SSRXP	SuperSpeed differential receive positive
7	GND	Ground	8	USB3_DRD_SSTXN	SuperSpeed differential transmit negative
9	USB3_DRD_SSTXP	SuperSpeed differential transmit positive	10	GND	Ground
11	GND	Ground	12	GND	Ground
13	GND	Ground			

2.6 USB2.0 HOST (J4, P9)



KIT1126B provides 3x USB2.0 - one dual-USB (P9) and one 4-pin connector (J4).

It is used to connect USB mouse, U disk, USB camera, and other USB devices. Support hot-plug.

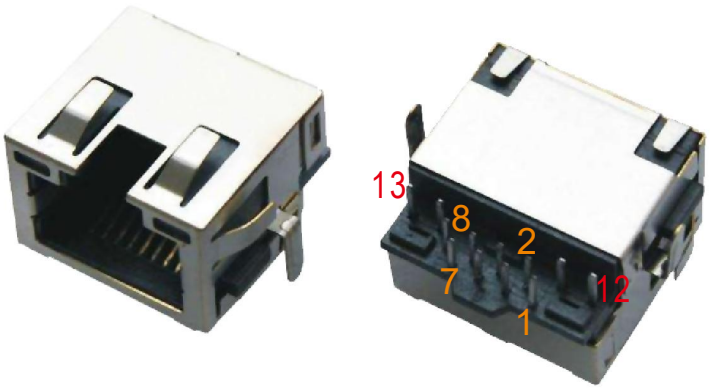
Feature

- 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.

J4					
Pin	Signal	Description	Pin	Signal	Description
1	VCC5V_HOST2	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

P9					
Pin	Signal	Description	Pin	Signal	Description
1	VCC5V_HOST1	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	VCC5V_HOST1	5V system power supply	6	USB_DM1	USB data line negative (D-) for port 1
7	USB_DP1	USB data line positive (D+) for port 1	8	GND	Ground

2.7 Ethernet (JP1)



KIT1126B adopts an RJ45 connector as its Ethernet interface. It use FEPHY.

Feature

- Supports 10/100 Mbps data transfer rates with the MII/RMII interfaces
- Supports both full-duplex and half-duplex operation
- Implements the full IEEE802.3u 100BASE-TX / 10BASE-T specification

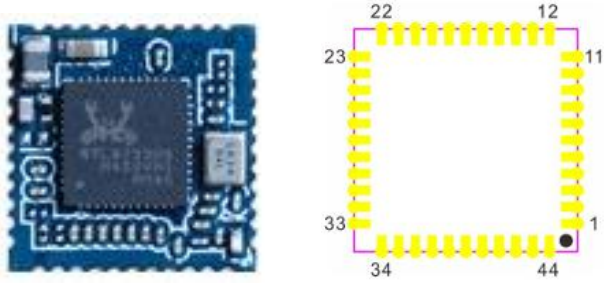
JP1					
Pin	Signal	Description	Pin	Signal	Description
1	TX+	Transmit differential positive	2	TX-	Transmit differential negative
3	RX+	Receive differential positive	4	CTB+	Transformer center-tap (TN1)
5	CTB+	Transformer center-tap (TN2)	6	RX-	Receive differential negative
7	CTB-	Transformer center-tap (RN1)	8	CTB-	Transformer center-tap (RN2)
9	GND	Ground	10	GND	Ground
11	ETH_RXCLK _LED_SPD	Ethernet speed status LED	12	GND	connect 510R to Ground
13	ETH_TXCLK _LED_ACT	Ethernet activity status LED	14	GND	connect 510R to Ground

2.8 User Buttons (K1, K2, K3, K4)



Key	Signal	Description	Key	Signal	Description
K1	PWROFF	Power On key	K2	RECOVER	Recover key
K3	RESET	Reset key	K4	Maskrom	Maskrom key

2.9 WiFi & Bluetooth (U12)



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.

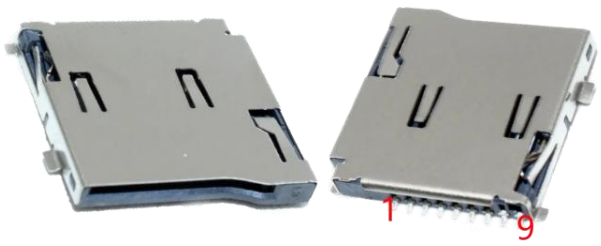
Features

- Operating Frequencies: 2.4~2.4835GHz.
- Host Interface is SDIO 2.0 and UART.
- Wireless data rate can reach up to 150Mbps.
- DC 3.3±0.2V(main power and VDIO power) @ 350 mA (Max)

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_OUT	32 kHz clock output
25	PCM2_RX	PCM2 (Pulse Code Modulation) receive line	26	PCM2_CLK	PCM2 clock line
27	PCM2_TX	PCM2 transmit line	28	PCM2_SYNC	PCM 2synchronization 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_M0	UART2 Clear To Send (CTS) line for M0	42	UART2_RX_M0	UART2 receive line for M0
43	UART2_TX_M0	UART2 transmit line for M0	44	UART2_RTSN_M0	UART2 Request To Send (RTS) line for M0
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	4	VCC3V3_SYS	3.3V Power Supply

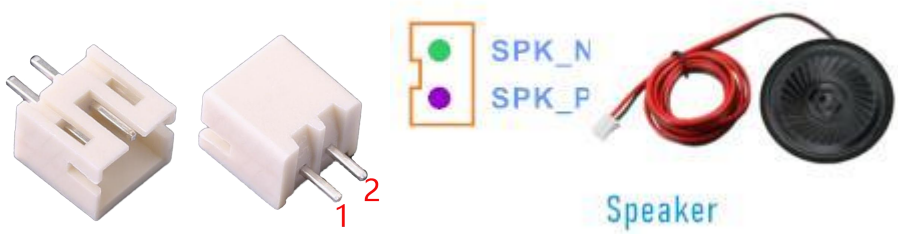
		signal			
5	SDMMC0_CLK	SD/MMC clock	6	GND	Ground
7	SDMMC0_D0	SD/MMC data0	8	SDMMC0_D1	SD/MMC data1
9	SDMMC0_DET	SD/MMC detect signal			

2.11 CVBS (J9)



Pin	Signal	Description	Pin	Signal	Description
1	CH2_IN	Channel 1 analog input	2	CH1_IN	Channel 1 analog input
3	GND	Ground	4	GND	Ground
5	GND	Ground	6	GND	Ground

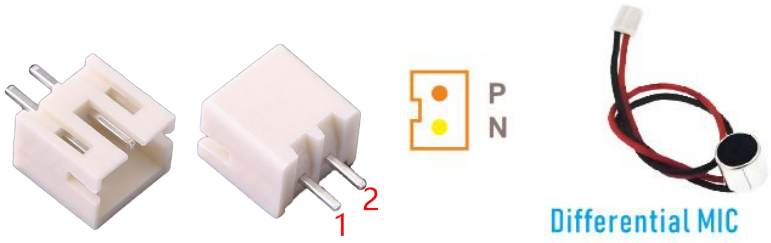
2.12 SPK(J12)



Using a 2 pin 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)



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

Pin	Signal	Description	Pin	Signal	Description
1	MIC0_INN	Negative input for Microphone 1	2	MIC0_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

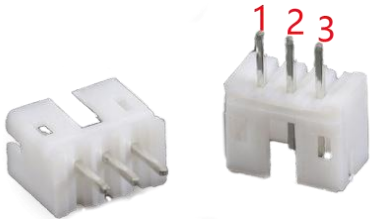
2.15 GPIO(J11)



Default used as GPIO, multiplexed with UART1.

Pin	Signal	Description	Pin	Signal	Description
1	VCC3V3_SYS	3.3V power supply	2	GPIO3_B6_D	General-purpose input/output pin GPIO3_B6
3	GPIO3_B7_D	General-purpose input/output pin GPIO3_B7	4	GND	Ground

2.16 IR(J5)



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

Pin	Signal	Description	Pin	Signal	Description
1	ETH_MDC_M0	IR receiver signal input (MDC multiplexing)	2	GND	Ground
3	VCC3V3_SYS	3.3V system power supply			

2.17 CAN (P4)

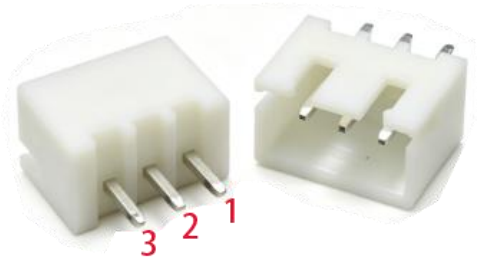


The CAN connector is a 2- pin type for CAN transmit and receive signals.

Pin	Signal	Description	Pin	Signal	Description
1	CANL_1	CAN bus low signal	2	CANH_1	CAN bus high signal

		line			line

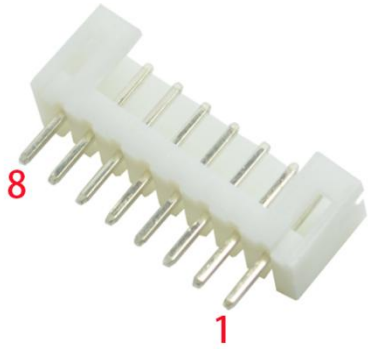
2.18 RS485(J1)



RS485 adopts a 3-pin (J1) connector and an SP3485EEN transceiver to achieve bidirectional transmission and reception.

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			

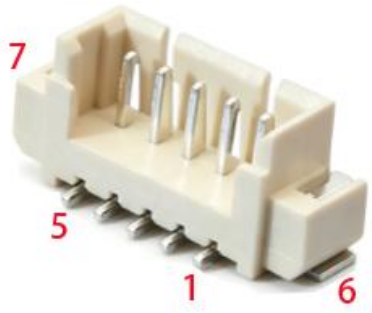
2.19 ADC(J43)



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

Pin	Signal	Description	Pin	Signal	Description
1	VCC_1V8	1.8V I/O power supply	2	SARADC0_IN1	Analog-to-Digital Converter input 1
3	SARADC0_IN2	Analog-to-Digital Converter input 2	4	SARADC0_IN3	Analog-to-Digital Converter input 3
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

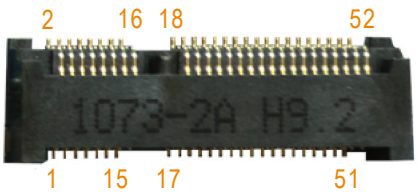
2.20 Motor (CON1, CON4)



CON1					
Pin	Signal	Description	Pin	Signal	Description
1	VCC-DC5V	DC 5V power supply	2	MOTOR_H4	Motor control signal H4
3	MOTOR_H3	Motor control signal H3	4	MOTOR_H2	Motor control signal H2
5	MOTOR_H1	Motor control signal H1	6	GND	Ground
7	GND	Ground			

CON4					
Pin	Signal	Description	Pin	Signal	Description
1	VCC-DC5V	DC 5V power supply	2	MOTOR_V4	Motor control signal V4
3	MOTOR_V3	Motor control signal V3	4	MOTOR_V2	Motor control signal V2
5	MOTOR_V1	Motor control signal V1	6	GND	Ground
7	GND	Ground			

2.21 4G Module (CON5, P5)







KIT1126B adopts the standard PCI Express® MiniCard form factor (MiniPCIe) and provides global network coverage on the connectivity of 4G. It delivers 50Mbps-up and100Mbps-down data rates on 4G FDD networks and can also be fully backward compatible with existing UMTS and GSM/GPRS networks.

CON5					
Pin	Signal	Description	Pin	Signal	Description
1	NC	Not connect	2	VCC3V3_4G	DC 3.3V
3	NC	Not connect	4	GND	Ground
5	NC	Not connect	6	NC	Not connect
7	NC	Not connect	8	SIM_VCC	SIM power
9	GND	Ground	10	SIM_DATA	SIM data
11	NC	Not connect	12	SIM_CLK	SIM Clock
13	NC	Not connect	14	SIM_RST	SIM Reset
15	GND	Ground	16	NC	Not connect
17	NC	Not connect	18	GND	Ground
19	NC	Not connect	20	VCC3V3_4G	DC 3.3V
21	GND	Ground	22	W_DISABLE_N	Module disable signal, active low
23	NC	Not connect	24	VCC3V3_4G	DC 3.3V
25	NC	Not connect	26	GND	Ground
27	GND	Ground	28	NC	Not connect
29	GND	Ground	30	NC	Not connect
31	NC	Not connect	32	NC	Not connect
33	NC	Not connect	34	GND	Ground
35	GND	Ground	36	USB-DM3	Host data DN
37	GND	Ground	38	USB-DP3	Host data DP
39	VCC3V3_4G	DC 3.3V	40	GND	Ground
41	VCC3V3_4G	DC 3.3V	42	LED_WWAN_N	WWAN module status LED, active low

43	GND	Ground	44	NC	Not connect
45	NC	Not connect	46	NC	Not connect
47	NC	Not connect	48	NC	Not connect
49	NC	Not connect	50	GND	Ground
51	NC	Not connect	52	VCC3V3_4G	DC 3.3V



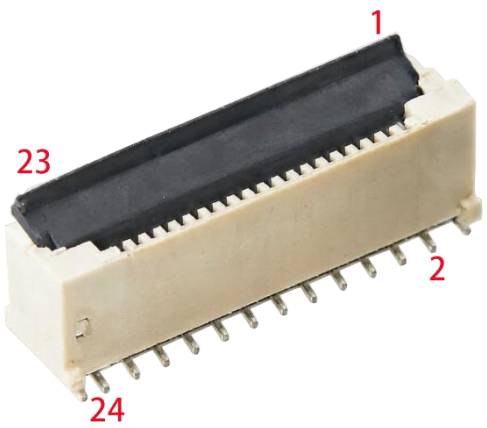


SIM supports standard SIM card communication, with clock, IO, reset, power and ground signals.

P4 is an auto pop-up SIM card slot which is compatible to the standard SIM Card and can be used for wireless transmission with a 3G/4G module.

P5					
Pin	Signal	Description	Pin	Signal	Description
1	SIM_CLK	SIM Card Clock	2	SIM_DATA	SIM Card IO / Data
3	SIM_RST	SIM Card Reset	4	SIM_VCC	SIM Card VPP
5	SIM_VCC	SIM Card Power Supply	6	GND	Ground

2.22 Camera (J31, J45, J46, J47)



J31					
Pin	Signal	Description	Pin	Signal	Description
1	NC	Not connect	2	GND	Ground
3	I2C3_SDA_CAM_1V8	I2C3 serial data for camera	4	AVDD2V8_DVPA	Analog supply voltage 2.8V for DVP
5	I2C3_SCL_CAM_1V8	I2C3 serial clock for camera	6	CAMERA_RST_1	Camera hardware reset signal
7	NC	Not connect	8	VCC1V8_DVPA	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	MIPI CSI RX0 data lane 0 positive
17	MIPI_CSI_RX0_CLK0P	MIPI CSI RX0 clock lane 0 positive	18	MIPI_CSI_RX0_D0N	MIPI CSI RX0 data lane 0 negative
19	NC	Not connect	20	MIPI_CSI_RX0_CLK0N	MIPI CSI RX0 clock lane 0 negative
21	MIPI_CSI_RX0_D1N	MIPI CSI RX0 data lane 1 negative	22	MIPI_CSI_RX0_D1P	MIPI CSI RX0 data lane 1 positive
23	NC	Not connect	24	NC	Not connect
25	GND	Ground	26	GND	Ground

J45					
Pin	Signal	Description	Pin	Signal	Description
1	NC	Not connect	2	GND	Ground
3	I2C4_SDA_CAM_1V8	I2C4 serial data for camera	4	AVDD2V8_DVPA	Analog supply voltage 2.8V for DVP
5	I2C4_SCL_CAM_1V8	I2C4 serial clock for camera	6	CAMERA_RST_2	Camera hardware reset signal
7	NC	Not connect	8	VCC1V8_DVPA	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	MIPI CSI RX0 data lane 2 positive
17	MIPI_CSI_RX0_CLK1P	MIPI CSI RX0 clock lane positive	18	MIPI_CSI_RX0_D2N	MIPI CSI RX0 data lane 2 negative
19	NC	Not connect	20	MIPI_CSI_RX0_CLK1N	MIPI CSI RX0 clock lane negative
21	MIPI_CSI_RX0_D3N	MIPI CSI RX0 data lane 3 negative	22	MIPI_CSI_RX0_D3P	MIPI CSI RX0data lane 3 positive
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	Camera I2C serial data	4	AVDD2V8_DVPB	Analog supply voltage 2.8V for DVP
5	I2C1_SCL_M2	Camera I2C serial clock	6	CAMERA_RST_3	Camera hardware reset signal
7	NC	Not connect	8	VCC1V8_DVPB	1.8V power supply for DVP interface
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	MIPI CSI RX1 data lane 0 positive
17	MIPI_CSI_RX1_CLK0P	MIPI CSI RX1 clock lane 0 positive	18	MIPI_CSI_RX1_D0N	MIPI CSI RX1 data lane 0 negative
19	NC	Not connect	20	MIPI_CSI_RX1_CLK0N	MIPI CSI RX1 clock lane 0 negative
21	MIPI_CSI_RX1_D1N	MIPI CSI RX1 data lane 1 negative	22	MIPI_CSI_RX1_D1P	MIPI CSI RX1 data lane 1 positive
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	I2C2_SDA_M0-1V8	I2C2 serial data	4	AVDD2V8_DVPB	Analog supply voltage 2.8V for DVP

5	I2C2_SCL_M0-1V8	I2C2 serial clock	6	CAMERA_RST_4	Camera hardware reset signal
7	NC	Not connect	8	VCC1V8_DVPB	1.8V power supply for DVP interface
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	MIPI CSI RX1 data lane 2 positive
17	MIPI_CSI_RX1_CLK1P	MIPI CSI RX1 clock lane positive	18	MIPI_CSI_RX1_D2N	MIPI CSI RX1 data lane 2 negative
19	NC	Not connect	20	MIPI_CSI_RX1_CLK1N	MIPI CSI RX1 clock lane negative
21	MIPI_CSI_RX1_D3N	MIPI CSI RX1 data lane 3 negative	22	MIPI_CSI_RX1_D3P	MIPI CSI RX1 data lane 3 positive
23	NC	Not connect	24	NC	Not connect
25	GND	Ground	26	GND	Ground

3 Product Configurations

3.1 Standard Contents

NO.	Item	Qty.(PCS)	Description
1	KIT1126B board	1	Standard Content(2GB RAM, 8GB eMMC)
2	U-disk/CD-ROM	1	Buildroot, Debian12 SDK, Fireware, Documents, tools, Schematic Drawing, datasheets, etc.
3	Ethernet cable	1	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 Antenna and WIFI module(on-board)

3.2 Optional Parts

- Camera (SW-MA2024HP, SC200AI)
- 4G module(EC20)