

Confirmation

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1. 产品描述

SOM-3576 模块由 Geniatech 设计，基于瑞芯微 RK3576 方案进行设计，RK3576 具有四核 Cortex-A72 和四核 Cortex-A 53，内置用于 NPU 6TOP。SOM3576 支持蓝牙、Wi-Fi、音频、视频、摄像头等功能，并具有多种视频输出接口。配备千兆自适应 RJ45 以太网端口，适用于云终端、物联网网关、工业控制、信息发布终端、多媒体广告机等场景，也可广泛应用于嵌入式人工智能领域。它通过标准 SODIMM 314P 接口将核心板连接到载板，构成了一个完整的系统功能开发板。以下是详细功能描述：

(I) 标准 SODIMM 连接器 ,核心板尺寸 82mm x 53mm.

(II) 四核 Cortex-A72 和四核 Cortex-A53,内置最大可达 6TOPs 神经处理网络 NPU，支持主流深度学习框架；它可以为各种 AI 应用场景带来更优化的性能.

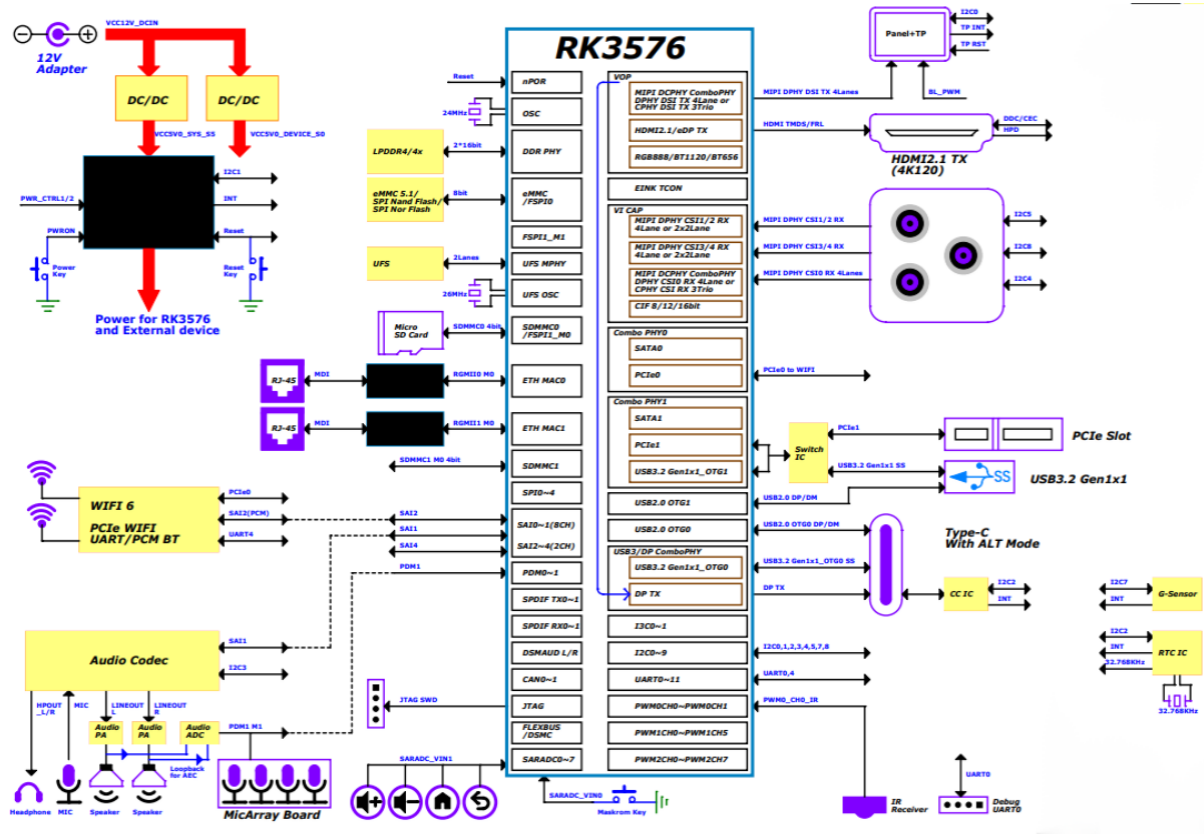
(III) LPDDR 最大支持 16GB ,32-256GB EMMC FLASH 可选. 兼容支持 UFS 扩展内存 512GB /1TB（可选）.

(IV) 集成 PCIe/GMAC/SDIO3.0/USB3.0,支持千兆以太网, WiFi6/蓝牙.

(VI) 支持 4K@60fps H.264/AVC 和 8K@30fps H.265/H.264 /VP9 视频解码.

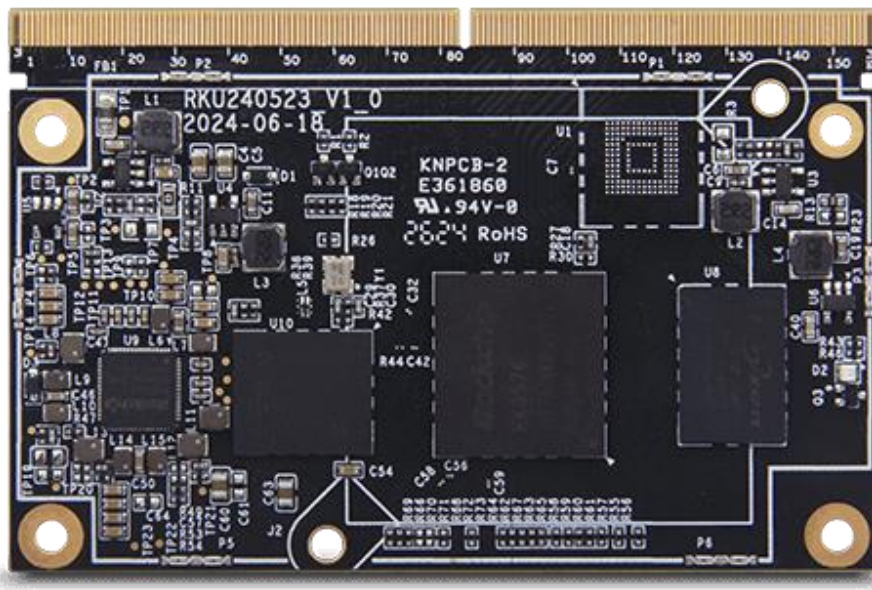
(VII) 提供 Android14&Debian12 多个性能稳定可靠的操作系统选择

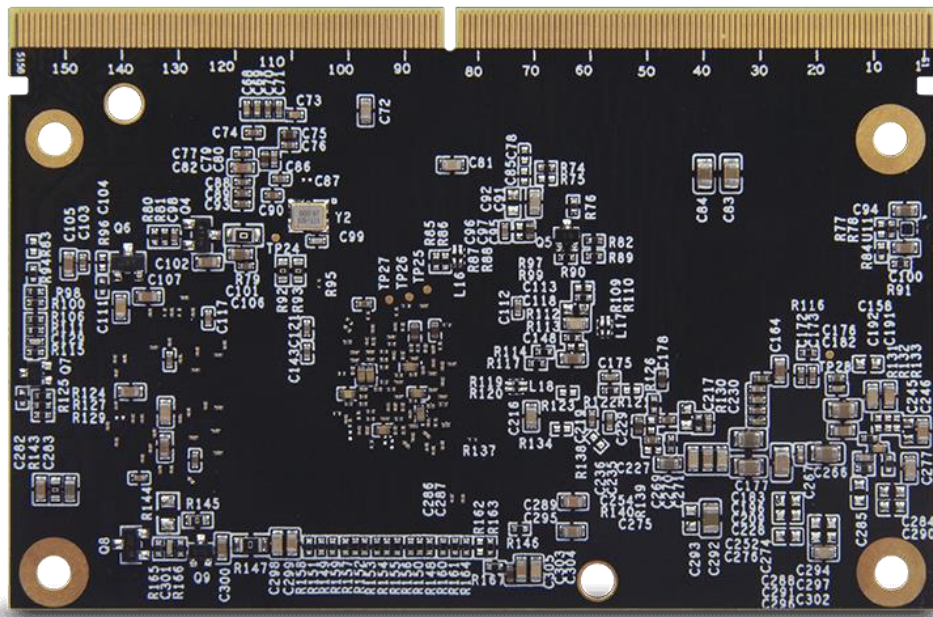
(VIII) pin 脚采用镀金工艺, 耐腐蚀, 2 个固定螺柱, 可在 0°C -55°C 温度下持续工作 7*24 小时.



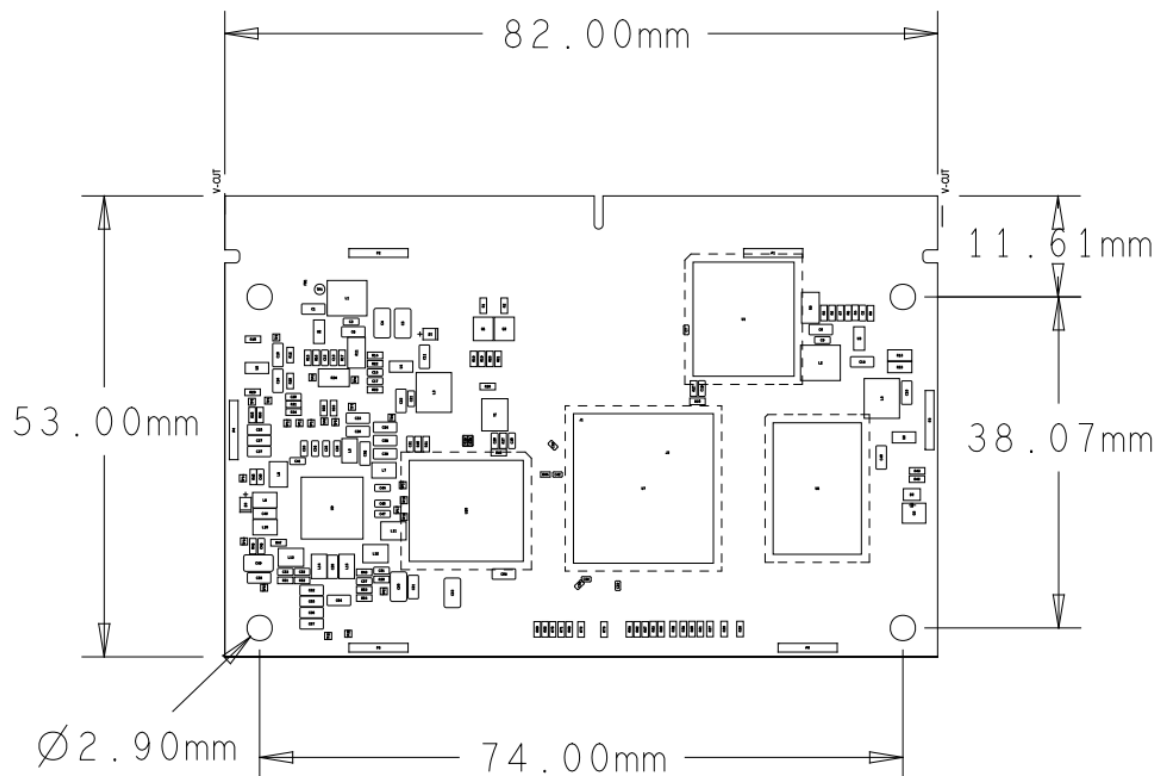
2. 产品图片

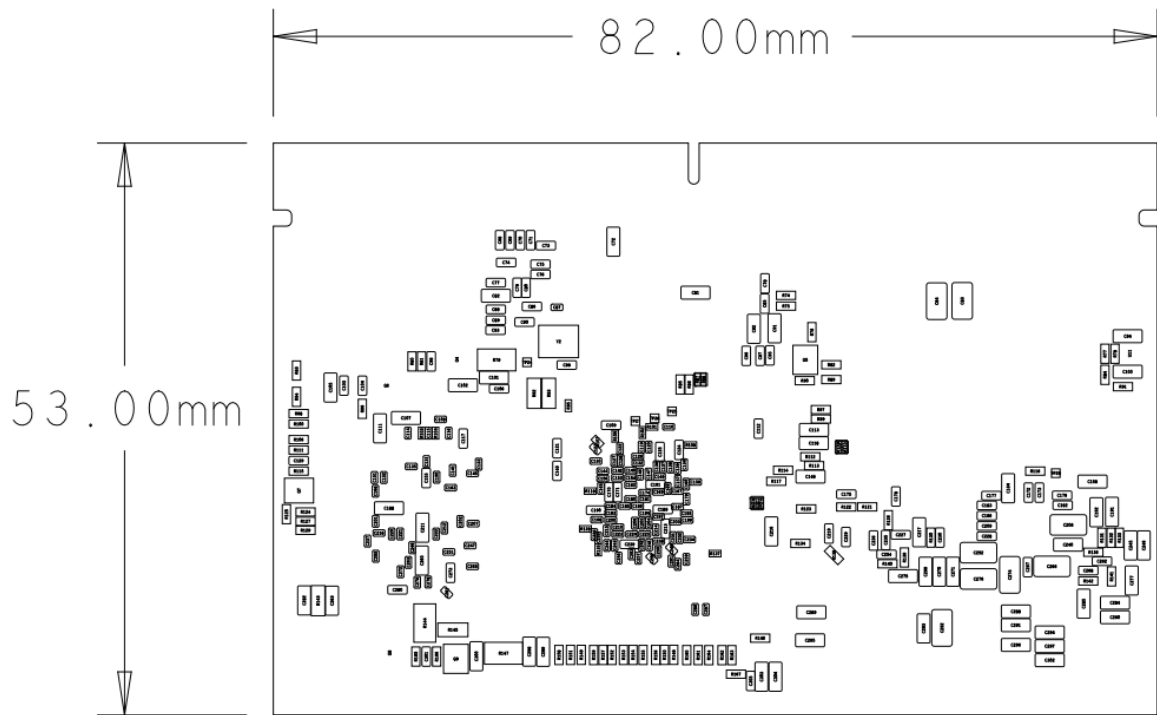
以下图片仅供参考:





3.主板尺寸





4.基本参数

芯片	瑞芯微 RK3576	
市场范围	全球	
默认语言	英语/中文(多种内置语言可选)	
处理器	系统	Android14 / Debian12
	CPU	Quad-core Cortex-A72and Quad-core Cortex-A53
	GPU	Mali-G52 MC3
	RAM	4GB(8/16 可选)
	EMMC FLASH	32GB (64G/128G/256G 可选)
SODIMM 接口	网络	1 x 以太网
	PCIe	1×PCIe2.0(1 lanes)
	USB	USB3.0*2

	MIPI CSI	*2
	MIPI DSI	*1
	I2S	*2
	HDMI	HDMI OUT*1(7680x4320@30Hz),
	SDIO	*12
	eDP	*1
	Type-c	*1
	SATA	*2
	SPDIF	*1
	SPI	*3
	ADC	*6
	DEBUG	*1
	I2C	*4
	POWER	5V/3A
尺寸	82 x 53 mm	

5.视频格式

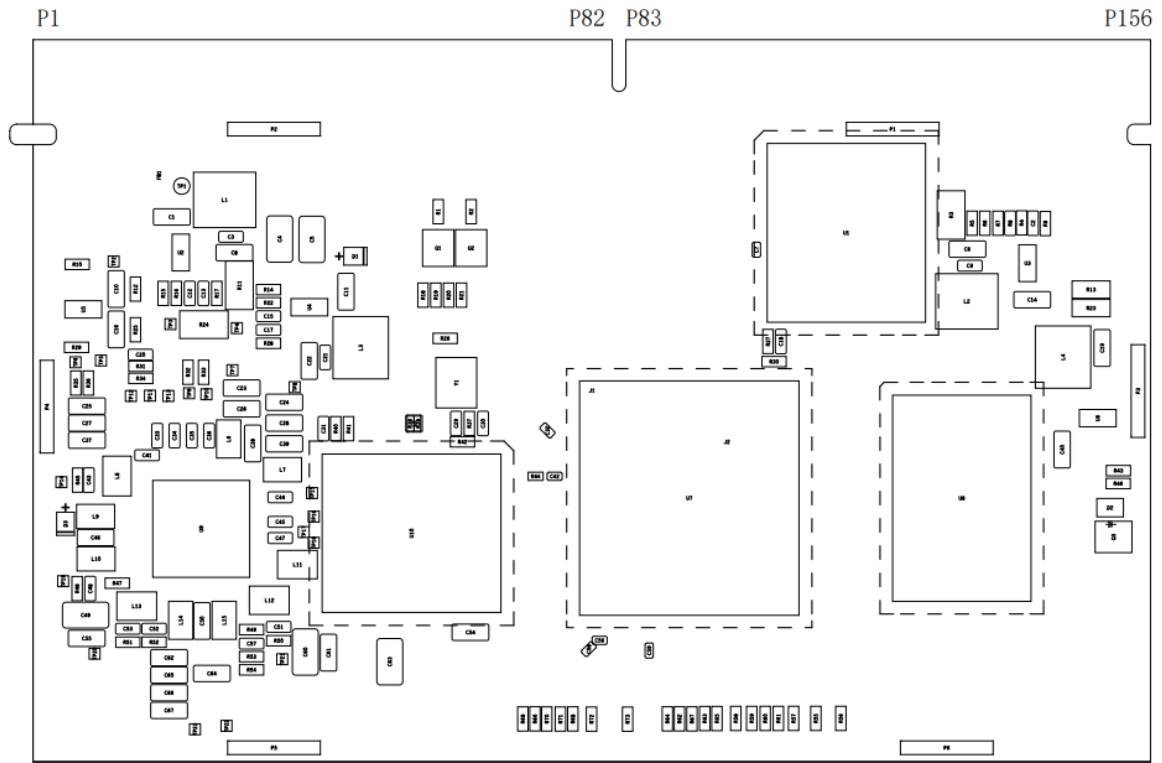
视频解码

- 支持视频解码格式：H.264, H.265, VP9, AV1 和 AVS2
- MMU 嵌入式
- 低分辨时支持多路并行解码器
- H.264 AVC/ Main10 L5.2 :8K@30fps (7680x4320)
- VP9 Profile0/2 L6.0 :8K@60fps (7680x4320)
- H.265/HEVC Main10 L6.0 :8K@60fps (7680x4320)
- AVS2 Profile0/2 L8.2.120 :8K@60fps (7680x4320)
- AV1 Main 10 L6.0 :4K@60fps (3840x2160)

视频编码

- H.265/H.264 实时编码
- 最高支持 4K@60fps编码
- 低分辨时支持多路并行编码器

6. pin 脚扩展示意图

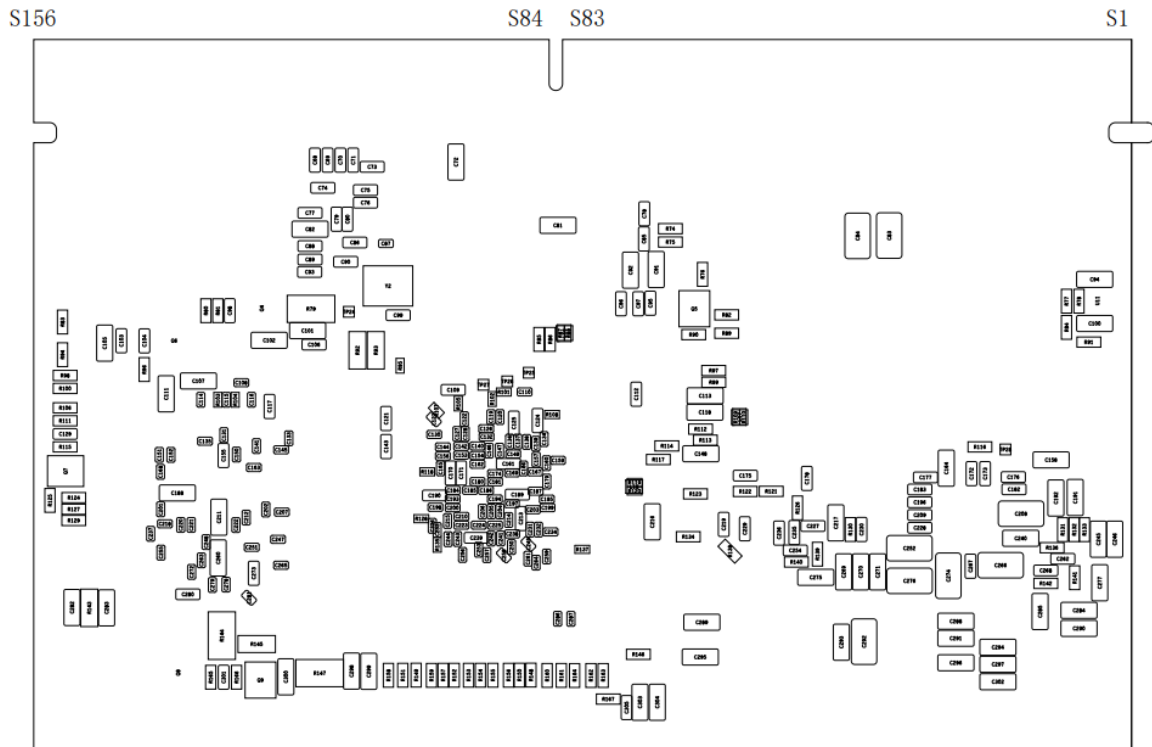


Front view

No.	Functional Description	No.	Functional Description	No.	Functional Description
P1	VCCIN	P53	WIFI_PCIE0_REFCLKP	P105	USB3_OTGO_SSRX2P/DP_TX_D2P
P2	VCCIN	P54	WIFI_PCIE0_TXN	P106	USB3_OTGO_SSRX2N/DP_TX_D2N
P3	VCCIN	P55	WIFI_PCIE0_TXP	P107	USB3_OTGO_SSTX1N/DP_TX_D1N
P4	VCCIN	P56	WIFI_PCIE0_RXN	P108	USB3_OTGO_SSTX1P/DP_TX_D1P
P5	GND	P57	WIFI_PCIE0_RXP	P109	USB3_OTGO_SSRX1P/DP_TX_D0P
P6	GND	P58	GND	P110	USB3_OTGO_SSRX1N/DP_TX_D0N
P7	GND	P59	UART4_RTSN_M1	P111	GND
P8	GND	P60	UART4_CTSN_M1	P112	NA
P9	VCC_3V3_S0	P61	SDMMC1_CMD_M0	P113	NA
P10	VCC_3V3_S0	P62	SDMMC1_D3_M0	P114	NA
P11	VCC_1V8_S0	P63	SAI2_SCLK_M0_CON	P115	NA

P12	VCC_1V8_S0	P64	MIPI_DPHY_CSI0_PDN_H	P116	USB3_HOST1_SSTXN
P13	PWRON_L	P65	SAI2_LRCK_M0_CON	P117	USB3_HOST1_SSTXP
P14	VDC_EXT	P66	SDMMC1_CLK_M0	P118	USB3_HOST1_SSRXP
P15	PMIC_EXT_EN_OUT	P67	SAI2_SDO_M0_CON	P119	USB3_HOST1_SSRXN
P16	VCCA_RK806	P68	GND	P120	GND
P17	LCD_PWREN_H	P69	MIPI_DPHY_CSI1_RX_D0N	P121	NA
P18	I2C3_SCL_M0_Audio	P70	MIPI_DPHY_CSI1_RX_D0P	P122	NA
P19	I2C3_SDA_M0_Audio	P71	MIPI_DPHY_CSI1_RX_D1N	P123	NA
P20	I2C8_SCL_M3	P72	MIPI_DPHY_CSI1_RX_D1P	P124	NA
P21	I2C8_SDA_M3	P73	MIPI_DPHY_CSI1_RX_CLKN	P125	NA
P22	GND	P74	MIPI_DPHY_CSI1_RX_CLKP	P126	NA
P23	NA	P75	MIPI_DPHY_CSI1_RX_D2N/MIPI_DPHY_CSI2_RX_D0N	P127	NA
P24	NA	P76	MIPI_DPHY_CSI1_RX_D2P/MIPI_DPHY_CSI2_RX_D0P	P128	NA
P25	NA	P77	MIPI_DPHY_CSI1_RX_D3N/MIPI_DPHY_CSI2_RX_D1N	P129	NA
P26	NA	P78	MIPI_DPHY_CSI1_RX_D3P/MIPI_DPHY_CSI2_RX_D1P	P130	NA
P27	NA	P79	MIPI_DPHY_CSI2_RX_CLKN	P131	GND
P28	NA	P80	MIPI_DPHY_CSI2_RX_CLKP	P132	HDMI_TX_D2P
P29	NA	P81	NA	P133	HDMI_TX_D2N
P30	NA	P82	NA	P134	HDMI_TX_D1P
P31	NA	P83	NA	P135	HDMI_TX_D1N
P32	NA	P84	NA	P136	HDMI_TX_D0P
P33	NA	P85	NA	P137	HDMI_TX_D0N
P34	NA	P86	NA	P138	HDMI_TX_D3P
P35	NA	P87	NA	P139	HDMI_TX_D3N
P36	NA	P88	NA	P140	HDMI_TX_SBDP
P37	NA	P89	NA	P141	HDMI_TX_SBDN
P38	NA	P90	NA	P142	GND
P39	NA	P91	GND	P143	SDMMC0_D2
P40	NA	P92	MIPI_DPHY1_DSI_TX_D3N	P144	SDMMC0_D3
P41	NA	P93	MIPI_DPHY1_DSI_TX_D3P	P145	SDMMC0_CMD
P42	NA	P94	MIPI_DPHY1_DSI_TX_D2N	P146	SD_CLK
P43	NA	P95	MIPI_DPHY_DSI_TX_D2P	P147	SDMMC0_D0
P44	GND	P96	MIPI_DPHY_DSI_TX_CLKN	P148	SDMMC0_D1
P45	NA	P97	MIPI_DPHY_DSI_TX_CLKP	P149	GND
P46	NA	P98	MIPI_DPHY_DSI_TX_D1N	P150	NA
P47	NA	P99	MIPI_DPHY_DSI_TX_D1P	P151	DP1_HPDIIN_M0
P48	NA	P100	MIPI_DPHY_DSI_TX_D0N	P152	I2C4_SCL_M1_SENSOR

P49	NA	P101	MIPI_DPHY_DSI_TX_D0P	P153	PCIE_PWREN_H
P50	NA	P102	GND	P154	I2C4_SDA_M1_SENSOR
P51	GND	P103	USB3_OTG0_SSTX2N/DP_TX_D3 N	P155	UART9_RX_M0_BT
P52	WIFI_PCIE0_REFCLKN	P104	USB3_OTG0_SSTX2P/DP_TX_D3 P	P156	GND



Back view

No.	Functional Description	No.	Functional Description	No.	Functional Description
S1	VCCIN	S53	GND	S105	SARADC_VIN4
S2	VCCIN	S54	RTC_INT_L	S106	SARADC_VIN3_HP_HOOK
S3	VCCIN	S55	UART2_TX_M0_DEBUG	S107	SARADC_VIN2_HW_ID
S4	VCCIN	S56	UART2_RX_M0_DEBUG	S108	SARADC_VIN0_BOOT
S5	GND	S57	HP_CTL_H	S109	SARADC_VIN1_KEY/RECOV ERY
S6	GND	S58	LCD_BL_PWM1_CH1_M0	S110	USB2_OTG0_VBUSDET
S7	GND	S59	I2C2_SDA_M0_CC_RTC	S111	USB2_OTG0_ID
S8	GND	S60	I2C2_SCL_M0_CC_RTC	S112	USB2_OTG1_ID
S9	VCC_1V8_S3	S61	GND	S113	USB2_OTG1_VBUSDET
S10	VCC_1V8_S3	S62	SDMMC1_D0_M0	S114	DP_TX_AUXN
S11	RESET_L	S63	SDMMC1_D1_M0	S115	DP_TX_AUXP

S12	MIPI_CAM1_PWREN_H	S64	LCD_BL_EN_H	S116	GND
S13	HDMIIRX_DET_L	S65	UART4_TX_M1	S117	USB2_OTG0_DM
S14	WIFI_WAKE_HOST_H	S66	SDMMC1_D2_M0	S118	USB2_OTG0_DP
S15	HOST_WAKE_HOST_H	S67	MIPI_DPHY_CSI1_PDN_H	S119	NA
S16	BT_WAKE_HOST_H	S68	GMAC1_MDIO_M0	S120	NA
S17	BT_REG_ON_H	S69	GMAC1_MDC_M0	S121	USB2_HOST1_DP
S18	I2C9_SDA_M3	S70	GMAC1_RSTn	S122	USB2_HOST1_DM
S19	I2C9_SCL_M3	S71	SAI2_SDI_M0_CON	S123	NA
S20	WIFI_REG_ON_H	S72	GMAC1_MCLKINOUT_M0	S124	NA
S21	USBCC_INT_L	S73	GMAC1_TXD3_M0	S125	NA
S22	I2C5_SDA_M3_MIPI_CSI1	S74	GMAC1_TXD2_M0	S126	NA
S23	I2C5_SCL_M3_MIPI_CSI1	S75	GMAC1_TXCTL_M0	S127	GND
S24	HDMI_TX_HPDI_M1	S76	GMAC1_TXD1_M0	S128	NA
S25	GSENSOR_INT_L	S77	GMAC1_TXCLK_M0	S129	NA
S26	UART1_TX_M2	S78	GMAC1_RXD0_M0	S130	NA
S27	LCD_RESET_L	S79	GMAC1_TXD0_M0	S131	NA
S28	UART10_RX_M0	S80	GMAC1_RXCLK_M0	S132	NA
S29	SARADC_VIN7_LCD_ID	S81	GMAC1_RXD1_M0	S133	NA
S30	USB_OTG0_PWREN_H	S82	GMAC1_RXCTL_M0	S134	NA
S31	NA	S83	GMAC1_RXD2_M0	S135	NA
S32	UART10_TX_M0	S84	GMAC1_RXD3_M0	S136	GND
S33	SPK_CTL_H	S85	ETH_CLK1_25M_OUT_M0	S137	MIPI_DPHY_CSI0_CAM_CL KOUT
S34	UART1_RX_M2	S86	GND	S138	MIPI_DPHY_CSI1_CAM_CL KOUT
S35	PDM1_SDI3_M1	S87	SPI4_MISO_M0	S139	MIPI_DPHY_CSI0_PWREN_ H
S36	HDMI_TX_ON_H	S88	SPI4_CLK_M0	S140	MIPI_DPHY_CSI3_CAM_CL KOUT
S37	NA	S89	SPI4_MOSI_M0	S141	SDMMC0_DET_L
S38	PDM1_SDI1_M1	S90	UART7_TX_M0	S142	TP_RST_L
S39	PDM1_CLK0_M1	S91	UART7_RX_M0	S143	TP_INT_L
S40	SAI1_LRCK_M0	S92	TYPEC_DPTX_AUX_PUPDC TL2	S144	NA
S41	SAI1_SDI0_M0	S93	TYPEC_DPTX_AUX_PUPDC TL1	S145	NA
S42	PDM1_CLK1_M1	S94	SDMMC0_PWREN_H	S146	NA
S43	SAI1_SCLK_M0	S95	NA	S147	NA
S44	SAI1_SDO0_M0	S96	NA	S148	NA
S45	SAI1_MCLK_M0	S97	SPI4_CSNO_M0	S149	NA
S46	GND	S98	NA	S150	HDMI_TX_CEC_M0

S47	NA	S99	NA	S151	HDMI_TX_SDA
S48	NA	S100	USB3_HOST_PWREN_H	S152	HDMI_TX_SCL
S49	NA	S101	NA	S153	MIPI_TE_M1_GPIO3_A2
S50	NA	S102	I2C7_SCL_M1_Sensor	S154	NA
S51	NA	S103	I2C7_SDA_M1_Sensor	S155	SARADC_VIN7_LCD_ID
S52	NA	S104	SARADC_VIN6	S156	NA
				S157	NA
				S158	NA

7.使用注意事项

1. 相对湿度: 10% ~ 90% .
2. 储存温度: -20 ~ 85°C
3. 工作温度: 0 ~ 55°C
4. 不要挤压、扭曲和私自拆卸主板.
5. 使主板远离静电.
6. 使主板远离水和其他液体.
7. 当电路板变脏时, 用柔软干净的干布清洁.
8. 不要使用过长的连接线, 可能影响性能和图像质量.