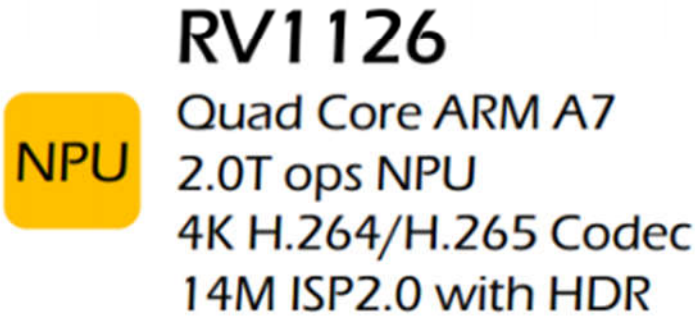
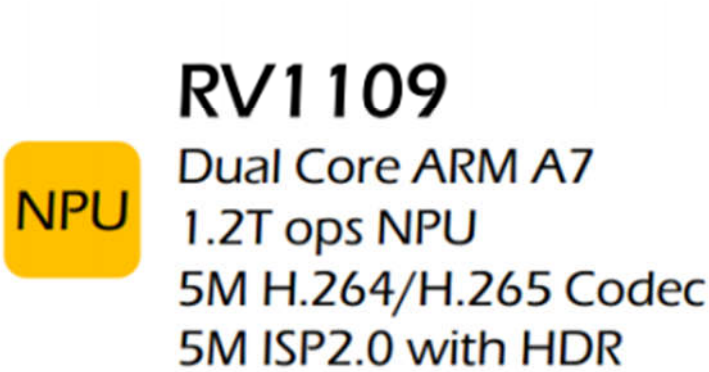
产品简介

基于瑞芯微半导体的 RV1109，RV1126 AI 媒体处理芯片开发的邮票孔核心板，便于客户项目快 速落地。RV1109 RV1126 具备安防级图像处理单元和能力，具备高效性能比和 AI 能力。





产品参数

SOC	RV1109，RV1126
RAM	DDR3，32 位，512MB/1GB 2133/1866Mbps 速率
ROM	最大支持 4Gb Nand Flash/256Mb Nor Flash，32GB eMMC
NPU	1.2TOPS，2.0TOPS，支持 RKNN AI 框架
面积大小	40mm X 55mm
PCB 层数	FR4-6 层
工作范围	-10℃-70℃
引脚数	SOC 全引脚扇出，共计 186 引脚数（包括电源与 GND）
优点 1	Power_OUT 功能，节省外部电源成本
优点 2	引出系统 Reset 引脚
优点 3	引出 Power Reset 引脚
优点 4	屏蔽罩设计，提高 EMC 等级
优点 5	单 5V 供电电源，设计有 100V DC 浪涌保护
优点 6	支持 Audio SPK/Line Out，节省 PA+Coder
优点 7	支持 MIC IN
优点 8	Follow RK 的原理图 Symbol，方便 TurnKey DEMO 图纸

产品交付清单

1、硬件交付

RV11XX 核心板；

PCBA 板（屏蔽罩选配）；

静电袋+干燥剂；

硬件文档；

硬件器件引脚图（原理 symbol），名为：OWL_RV11XX_YPK；

PCB 封装，Allegro，PADS 版本，名为：OWL_RVXX_40X55MM_H4MM

2、软件交付

纯净版本的固件

硬件接口

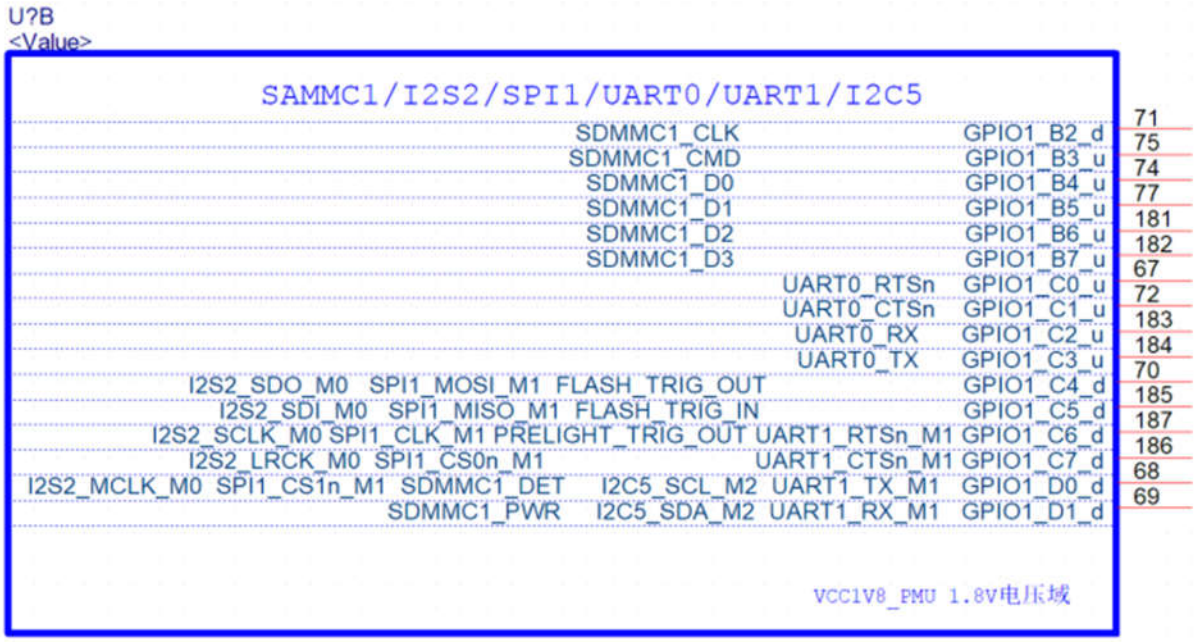


图 1B 块

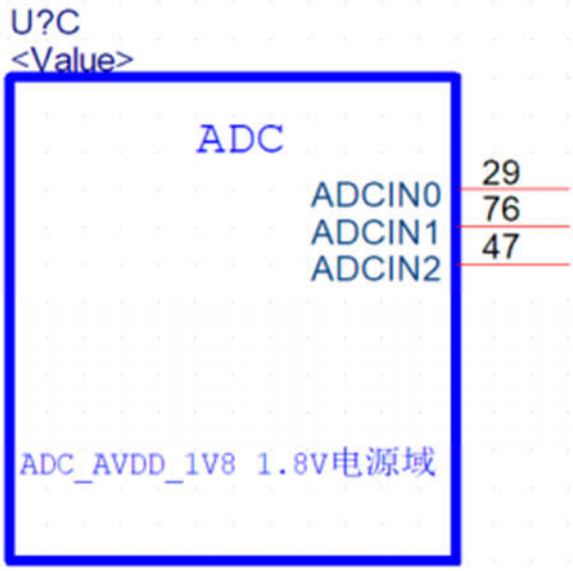


图 2C 块

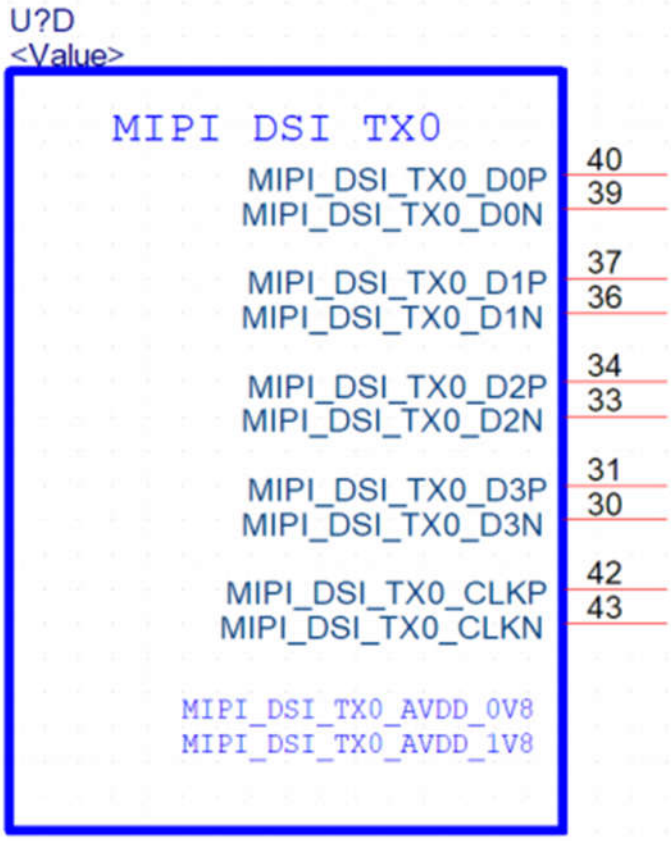

U?D
<Value>
MIPI DSI TX0
MIPI_DSI_TX0_D0P
MIPI_DSI_TX0_D0N
MIPI_DSI_TX0_D1P
MIPI_DSI_TX0_D1N
MIPI_DSI_TX0_D2P
MIPI_DSI_TX0_D2N
MIPI_DSI_TX0_D3P
MIPI_DSI_TX0_D3N
MIPI_DSI_TX0_CLKP
MIPI_DSI_TX0_CLKN
MIPI_DSI_TX0_AVDD_0V8
MIPI_DSI_TX0_AVDD_1V8
40
39
37
36
34
33
31
30
42
43

图 3D 块

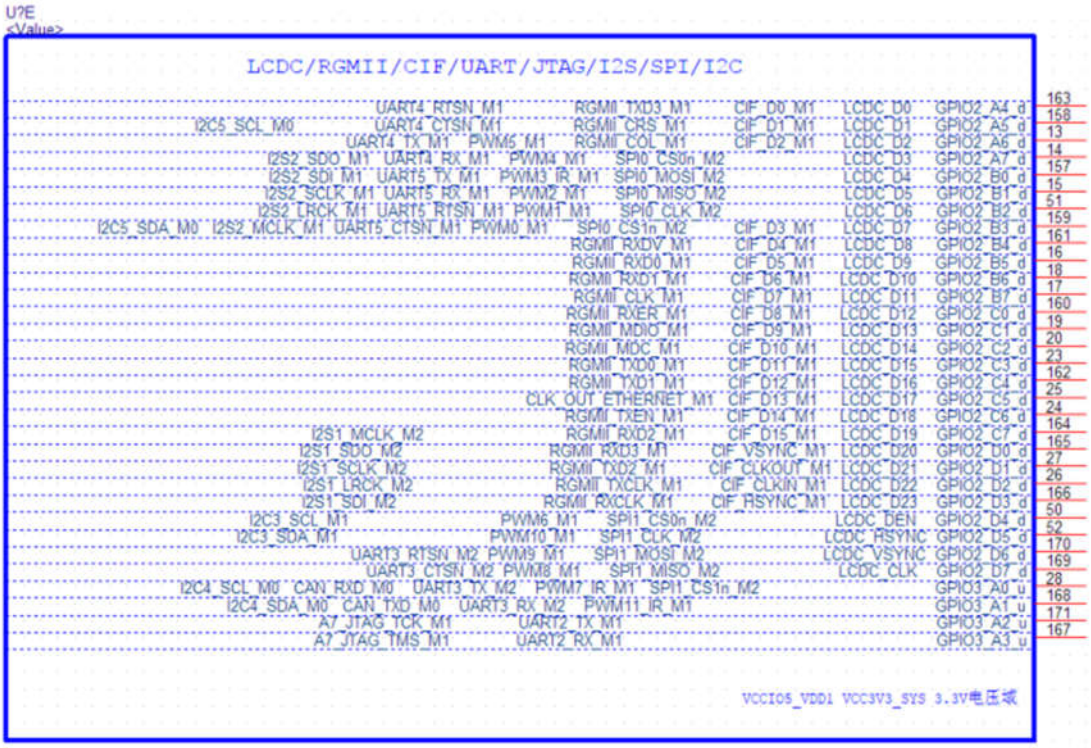

U?E
<Value>
LCDC/RGMII/CIF/UART/JTAG/I2S/SPI/I2C
VCCIO5_VDD1 VCC3V3_SYS 3.3V电压域

图 4E 块

U?F
<Value>
CIF/RGMII/I2S/PDM/UART/SPI/I2C
CIF_D0_M0 I2S0_SCLK_TX_M1 UART4_TX_M0 I2C3_SCL_M0 PWM8_M0 GPIO3_A4_d 134
CIF_D1_M0 RGMII_CRS_M0 I2S0_LRCK_TX_M1 UART4_RX_M0 I2C3_SDA_M0 PWM9_M0 GPIO3_A5_d 132
CIF_D2_M0 RGMII_COL_M0 I2S0_SDO0_M1 UART5_TX_M0 CAN_RXD_M1 PWM10_M0 GPIO3_A6_d 136
CIF_D3_M0 RGMII_RXD2_M0 I2S0_SDI0_M1 UART5_RX_M0 CAN_TXD_M1 PWM11_IR_M0 GPIO3_A7_d 133
CIF_D4_M0 RGMII_RXD3_M0 I2S0_MCLK_M1 UART5_RTSN_M0 I2C5_SCL_M1 GPIO3_B0_d 5
CIF_D5_M0 RGMII_TXD2_M0 I2S0_SCLK_RX_M1 UART5_CTSN_M0 I2C5_SDA_M1 GPIO3_B1_d 7
CIF_D6_M0 RGMII_TXD3_M0 I2S0_LRCK_RX_M1 UART4_RTSN_M0 GPIO3_B2_d 138
CIF_D7_M0 RGMII_TXD0_M0 I2S0_SDO1_SDI3_M1 UART4_CTSN_M0 GPIO3_B3_d 135
CIF_D8_M0 RGMII_TXD1_M0 I2S0_SDO2_SDI2_M1 SPI1_CS1n_M0 GPIO3_B4_d 6
CIF_D9_M0 RGMII_TXEN_M0 I2S0_SDO3_SDI1_M1 SPI1_CS0n_M0 GPIO3_B5_d 1
CIF_D10_M0 RGMII_RXD0_M0 PDM_SDI2_M1 SPI1_MOSI_M0 GPIO3_B6_d 9
CIF_D11_M0 RGMII_RXD1_M0 PDM_SDI3_M1 SPI1_MISO_M0 GPIO3_B7_d 8
CIF_D12_M0 RGMII_CLK_M0 PDM_CLK0_M1 SPI1_CLK_M0 GPIO3_C0_d 3
CIF_D13_M0 RGMII_RXDV_M0 PDM_SDI0_M1 GPIO3_C1_d 2
CIF_D14_M0 RGMII_RXER_M0 PDM_SDI1_M1 GPIO3_C2_d 21
CIF_D15_M0 RGMII_MDIO_M0 PDM_CLK1_M1 GPIO3_C3_d 12
CIF_VSYNC_M0 RGMII_MDC_M0 UART3_RTSN_M0 GPIO3_C4_d 11
CIF_CLKIN_M0 CLK_OUT_ETHERNET_M0 UART3_CTSN_M0 GPIO3_C5_d 22
CIF_CLKOUT_M0 RGMII_TXCLK_M0 UART3_TX_M0 GPIO3_C6_d 137
CIF_HSYNC_M0 RGMII_RXCLK_M0 UART3_RX_M0 GPIO3_C7_d 10
VCCIO6_VDD 默认1.8V 电压域，可选3V3电压域

图 5F 块

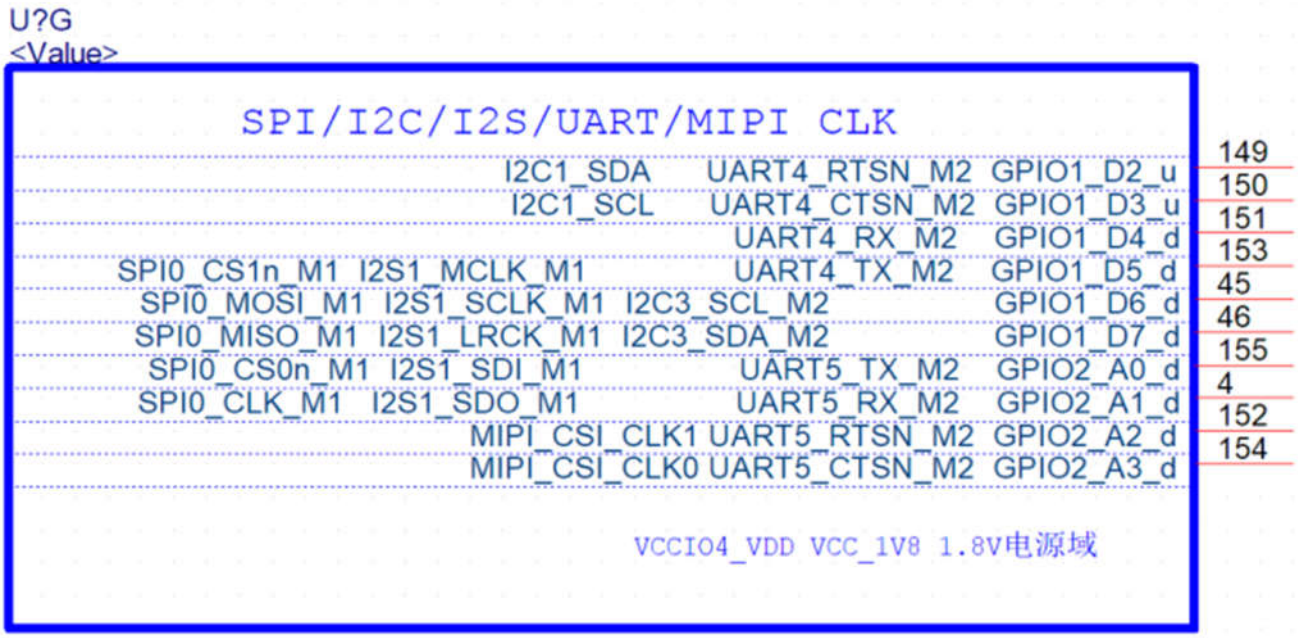

U?G
<Value>
SPI/I2C/I2S/UART/MIPI CLK
I2C1_SDA UART4_RTSN_M2 GPIO1_D2_u 149
I2C1_SCL UART4_CTSN_M2 GPIO1_D3_u 150
UART4_RX_M2 GPIO1_D4_d 151
SPI0_CS1n_M1 I2S1_MCLK_M1 UART4_TX_M2 GPIO1_D5_d 153
SPI0_MOSI_M1 I2S1_SCLK_M1 I2C3_SCL_M2 GPIO1_D6_d 45
SPI0_MISO_M1 I2S1_LRCK_M1 I2C3_SDA_M2 GPIO1_D7_d 46
SPI0_CS0n_M1 I2S1_SDI_M1 UART5_TX_M2 GPIO2_A0_d 155
SPI0_CLK_M1 I2S1_SDO_M1 UART5_RX_M2 GPIO2_A1_d 4
MIPI_CSI_CLK1 UART5_RTSN_M2 GPIO2_A2_d 152
MIPI_CSI_CLK0 UART5_CTSN_M2 GPIO2_A3_d 154
VCCIO4_VDD VCC_1V8 1.8V电源域

图 6G 块

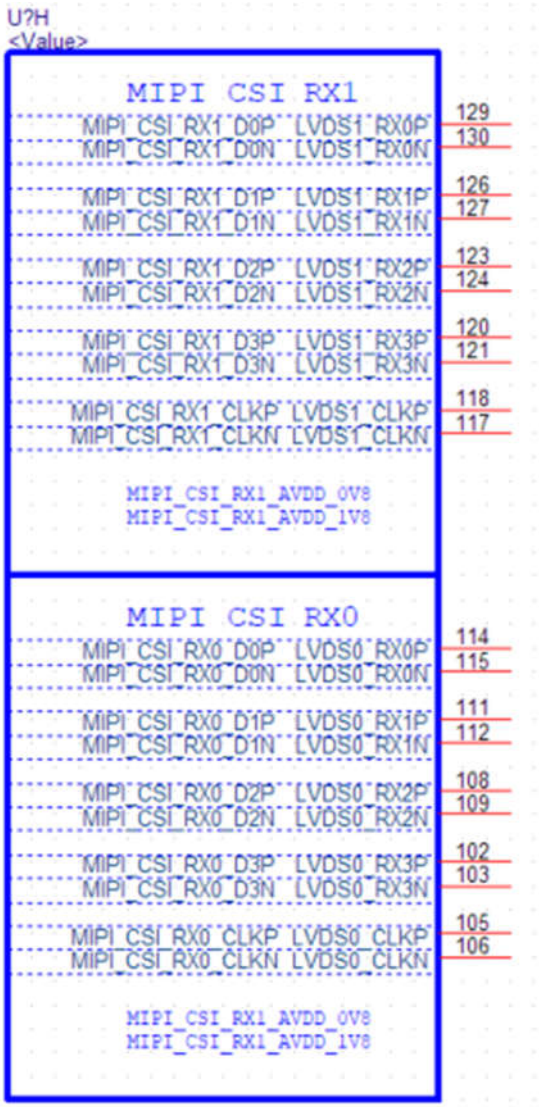

U?H
<Value>
MIPI CSI RX1
MIPI_CSI_RX1_D0P LVDS1_RX0P 129
MIPI_CSI_RX1_D0N LVDS1_RX0N 130
MIPI_CSI_RX1_D1P LVDS1_RX1P 126
MIPI_CSI_RX1_D1N LVDS1_RX1N 127
MIPI_CSI_RX1_D2P LVDS1_RX2P 123
MIPI_CSI_RX1_D2N LVDS1_RX2N 124
MIPI_CSI_RX1_D3P LVDS1_RX3P 120
MIPI_CSI_RX1_D3N LVDS1_RX3N 121
MIPI_CSI_RX1_CLKP LVDS1_CLKP 118
MIPI_CSI_RX1_CLKN LVDS1_CLKN 117
MIPI_CSI_RX1_AVDD_0V8
MIPI_CSI_RX1_AVDD_1V8
MIPI CSI RX0
MIPI_CSI_RX0_D0P LVDS0_RX0P 114
MIPI_CSI_RX0_D0N LVDS0_RX0N 115
MIPI_CSI_RX0_D1P LVDS0_RX1P 111
MIPI_CSI_RX0_D1N LVDS0_RX1N 112
MIPI_CSI_RX0_D2P LVDS0_RX2P 108
MIPI_CSI_RX0_D2N LVDS0_RX2N 109
MIPI_CSI_RX0_D3P LVDS0_RX3P 102
MIPI_CSI_RX0_D3N LVDS0_RX3N 103
MIPI_CSI_RX0_CLKP LVDS0_CLKP 105
MIPI_CSI_RX0_CLKN LVDS0_CLKN 106
MIPI_CSI_RX1_AVDD_0V8
MIPI_CSI_RX1_AVDD_1V8

图 7H 块

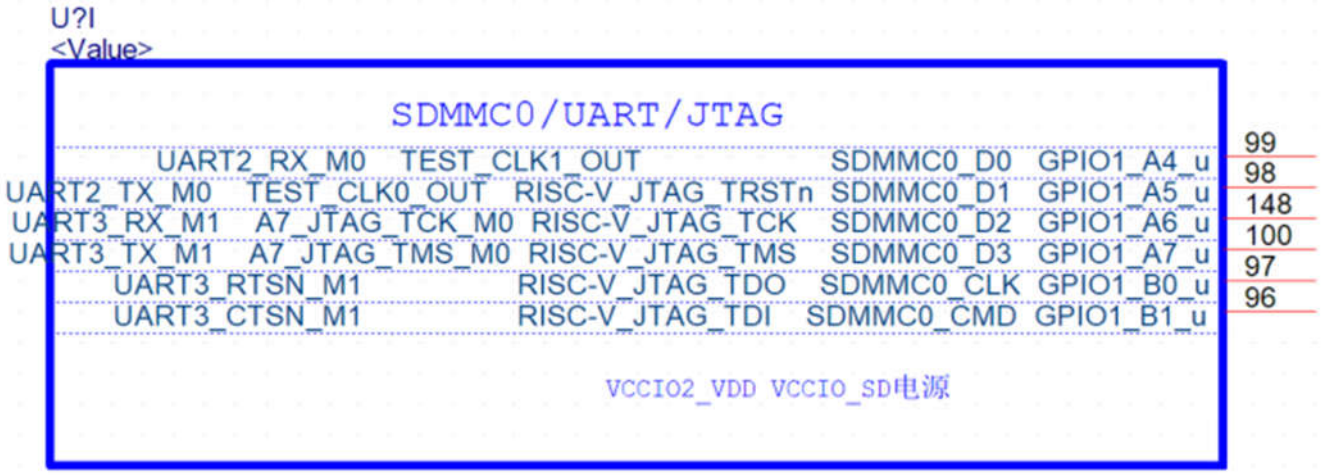

U?I
<Value>
SDMMC0/UART/JTAG
UART2_RX_M0 TEST_CLK1_OUT SDMMC0_D0 GPIO1_A4_u 99
UART2_TX_M0 TEST_CLK0_OUT RISC-V_JTAG_TRSTn SDMMC0_D1 GPIO1_A5_u 98
UART3_RX_M1 A7_JTAG_TCK_M0 RISC-V_JTAG_TCK SDMMC0_D2 GPIO1_A6_u 148
UART3_TX_M1 A7_JTAG_TMS_M0 RISC-V_JTAG_TMS SDMMC0_D3 GPIO1_A7_u 100
UART3_RTSN_M1 RISC-V_JTAG_TDO SDMMC0_CLK GPIO1_B0_u 97
UART3_CTSN_M1 RISC-V_JTAG_TDI SDMMC0_CMD GPIO1_B1_u 96
VCCIO2_VDD VCCIO_SD电源

图 8I 块

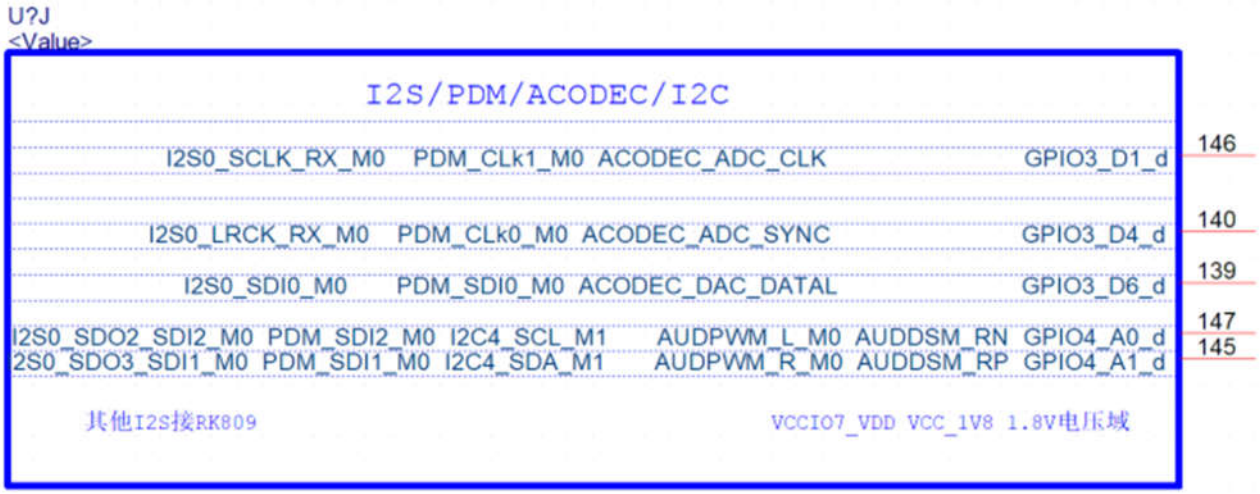

U?J
<Value>
I2S/PDM/ACODEC/I2C
I2S0_SCLK_RX_M0 PDM_CLk1_M0 ACODEC_ADC_CLK GPIO3_D1_d 146
I2S0_LRCK_RX_M0 PDM_CLk0_M0 ACODEC_ADC_SYNC GPIO3_D4_d 140
I2S0_SDI0_M0 PDM_SDI0_M0 ACODEC_DAC_DATAL GPIO3_D6_d 139
I2S0_SDO2_SDI2_M0 PDM_SDI2_M0 I2C4_SCL_M1 AUDPWM_L_M0 AUDDSM_RN GPIO4_A0_d 147
2S0_SDO3_SDI1_M0 PDM_SDI1_M0 I2C4_SDA_M1 AUDPWM_R_M0 AUDDSM_RP GPIO4_A1_d 145
其他I2S接RK809
VCCIO7_VDD VCC_1V8 1.8V电压域

图 9J 块

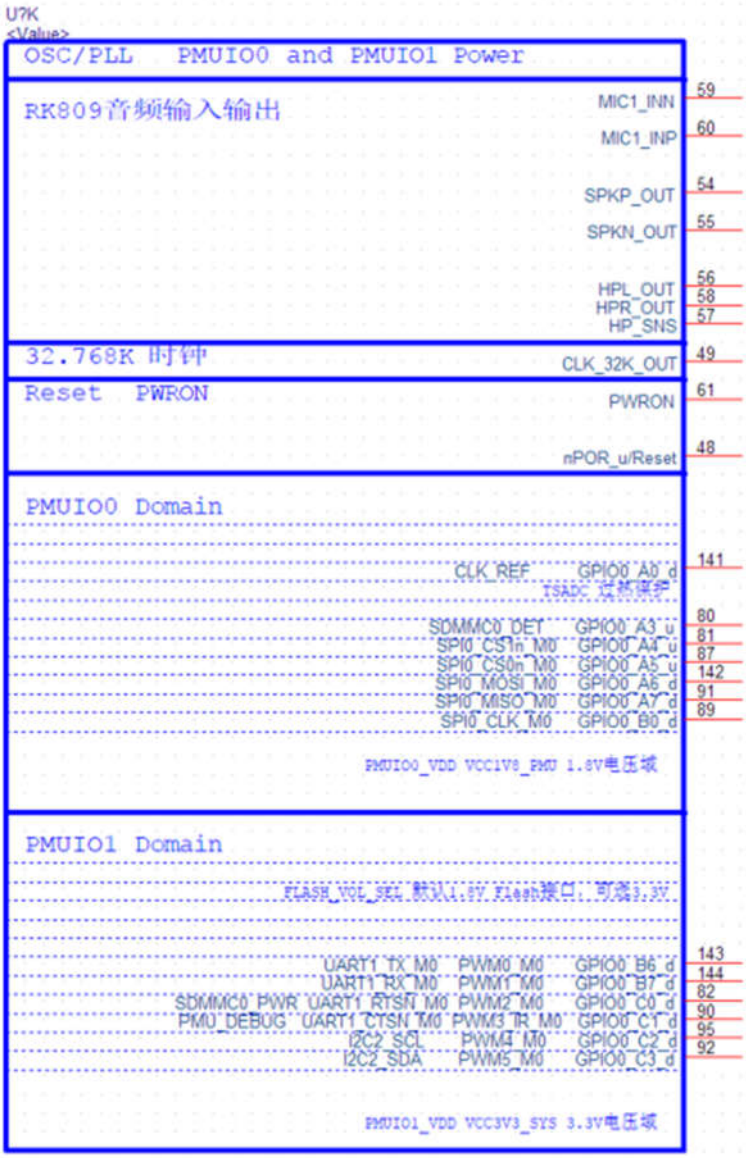

U?K
<Value>
OSC/PLL PMUIO0 and PMUIO1 Power
RK809音频输入输出
MIC1_INN 59
MIC1_INP 60
SPKP_OUT 54
SPKN_OUT 55
HPL_OUT 56
HPR_OUT 58
HP_SNS 57
32.768K 时钟
CLK_32K_OUT 49
Reset PWRON
PWRON 61
nPOR_u/Reset 48
PMUIO0 Domain
CLK_REF GPIO0_A0_d 141
SDMMC0_DET GPIO0_A3_u 80
SPI0_CS1n_M0 GPIO0_A4_u 81
SPI0_CS0n_M0 GPIO0_A5_u 87
SPI0_MOSI_M0 GPIO0_A6_d 142
SPI0_MISO_M0 GPIO0_A7_d 91
SPI0_CLK_M0 GPIO0_B0_d 89
PMUIO0_VDD VCC1V8_PMU 1.8V电压域
PMUIO1 Domain
FLASH_VOL_SEL 默认1.8V Flash接口，可选3.3V
UART1_TX_M0 PWM0_M0 GPIO0_B6_d 143
UART1_RX_M0 PWM1_M0 GPIO0_B7_d 144
SDMMC0_PWR UART1_RTSN_M0 PWM2_M0 GPIO0_C0_d 82
PMU_DEBUG UART1_CTSN_M0 PWM3_IR_M0 GPIO0_C1_d 90
I2C2_SCL PWM4_M0 GPIO0_C2_d 95
I2C2_SDA PWM5_M0 GPIO0_C3_d 92
PMUIO1_VDD VCC3V3_SYS 3.3V电压域

图 10K 块

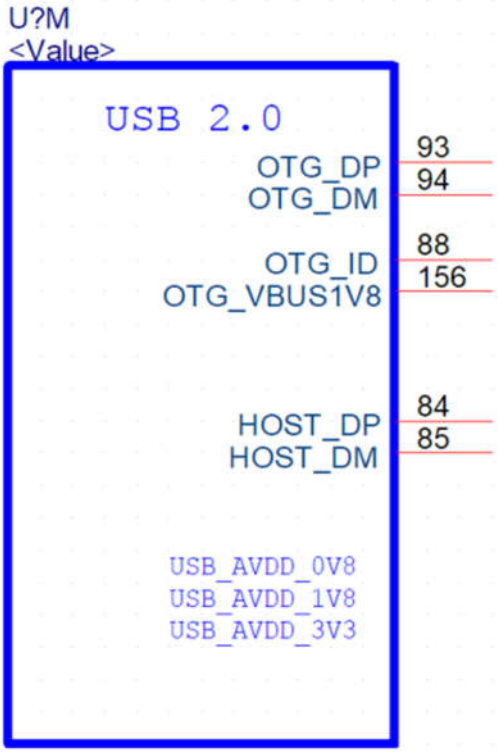

U?M
<Value>
USB 2.0
OTG_DP
OTG_DM
OTG_ID
OTG_VBUS1V8
HOST_DP
HOST_DM
USB_AVDD_0V8
USB_AVDD_1V8
USB_AVDD_3V3
93
94
88
156
84
85

图 11 M 块

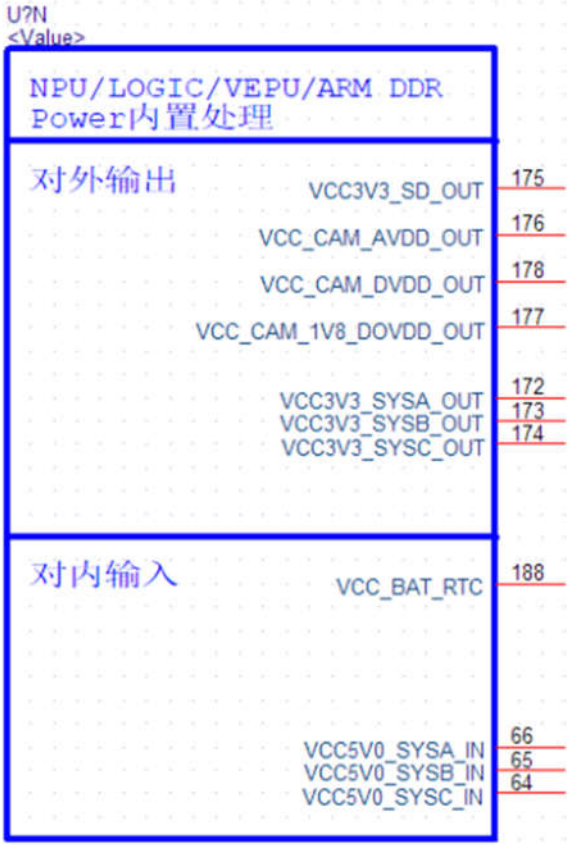

U?N
<Value>
NPU/LOGIC/VEPU/ARM DDR
Power内置处理
对外输出
VCC3V3_SD_OUT
VCC_CAM_AVDD_OUT
VCC_CAM_DVDD_OUT
VCC_CAM_1V8_DOVDD_OUT
VCC3V3_SYSA_OUT
VCC3V3_SYSB_OUT
VCC3V3_SYSC_OUT
175
176
178
177
172
173
174
对内输入
VCC_BAT_RTC
188
VCC5V0_SYSA_IN
VCC5V0_SYSB_IN
VCC5V0_SYSC_IN
66
65
64

图 12N 块

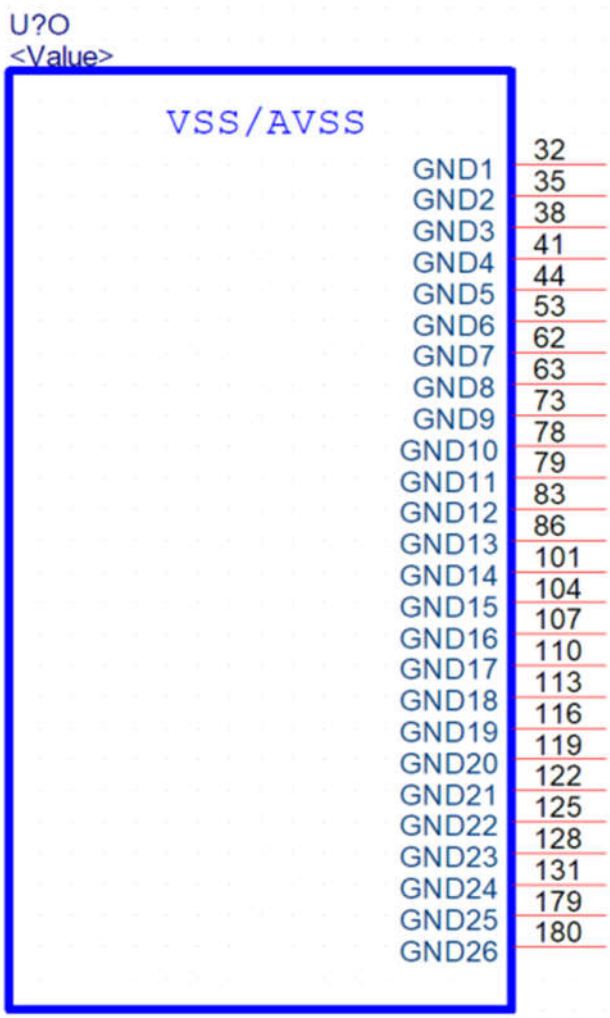
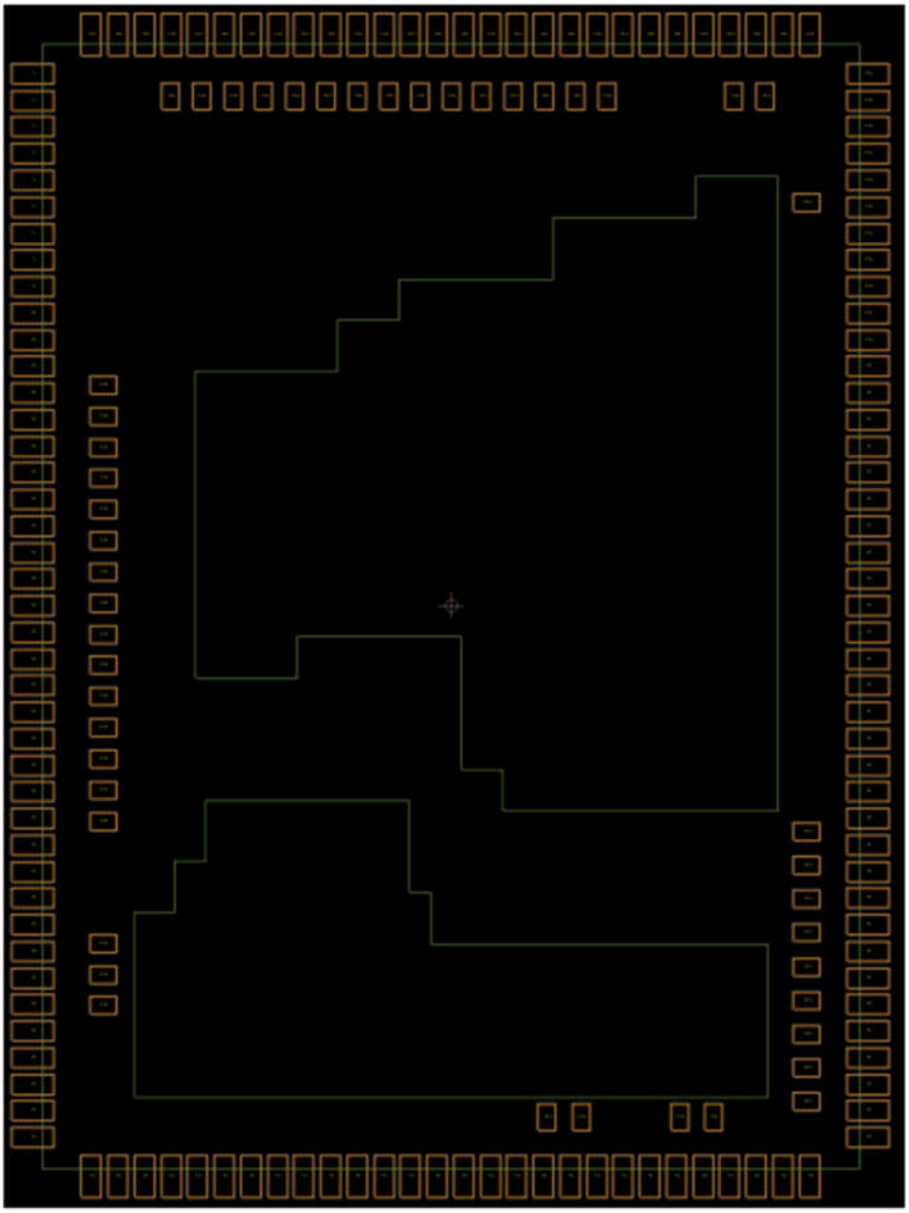

U?O
<Value>
VSS/AVSS
GND1 32
GND2 35
GND3 38
GND4 41
GND5 44
GND6 53
GND7 62
GND8 63
GND9 73
GND10 78
GND11 79
GND12 83
GND13 86
GND14 101
GND15 104
GND16 107
GND17 110
GND18 113
GND19 116
GND20 119
GND21 122
GND22 125
GND23 128
GND24 131
GND25 179
GND26 180

图 130 块



封装图