

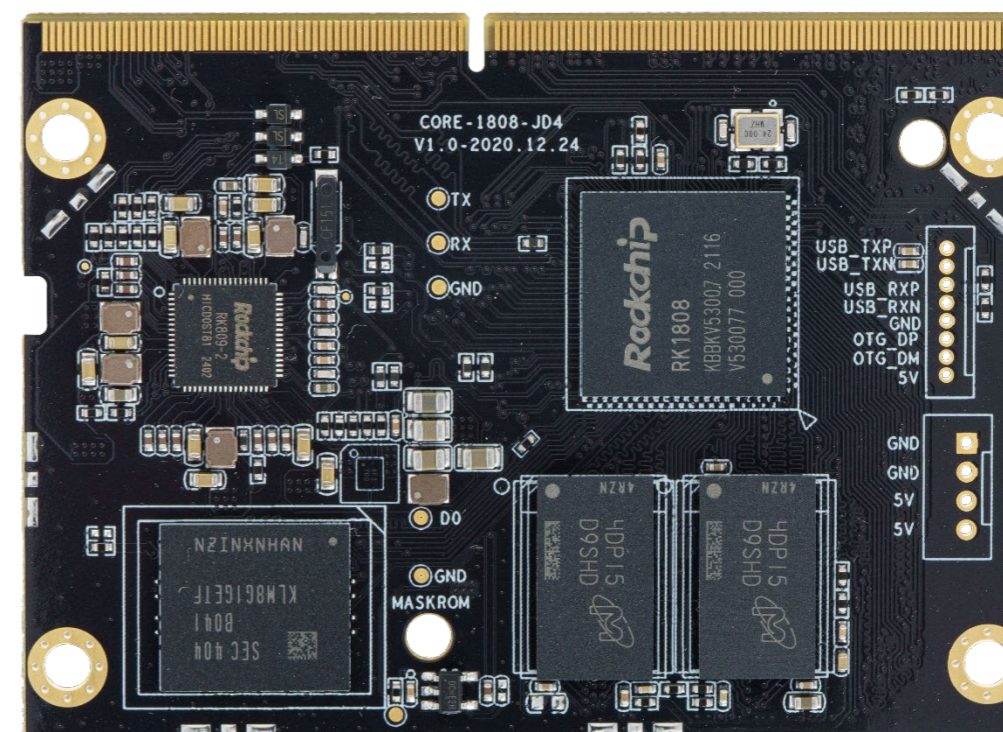


Core-1808-JD4

人工智能核心板

V1.0 2024-11-13

天启智能科技





产品特点 Product features



双核64位AI处理器RK1808

核心板搭载Rockchip RK1808 AI 芯片
CPU 采用双核64位 Cortex-A35 架构
最高主频 1.6GHz



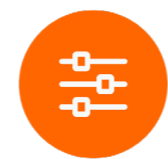
多种显示接口

支持单路MIPI-DSI, 1080P@60fps输出;
支持RGB接口; 拥有2MP ISP图像信号处理器, 支持双摄像头功能



支持Linux操作系统

支持Linux+QT操作系统, 为产品研发提供安全稳定的系统环境, 满足不同场景的应用需求



丰富的扩展接口

拥有MIPI-CSI、MIPI-DSI、DVP、PCIe2.1、USB3.0、USB2.0、SDIO、I2C、I2S、SPI、UART、PWM、GPIO等扩展接口



强大的AI运算能力

NPU 算力最高 3TOPS, 支持INT8/INT16/FP16 混合运算, 支持 TensorFlow、Caffe、ONNX、Darknet 等框架的网络模型转换



强大的网络通讯能力

集成GMAC以太网管理器, 提供RGMII/RMII接口, 可扩展1路千兆以太网; 可通过SDIO3.0扩展WiFi、蓝牙



沉金接口, 稳定可靠

采用 SODIMM 260Pin 接口, 数据传输和扩展性能得到最好发挥, 沉金工艺引脚, 耐腐蚀, 牢固可靠。



广泛的应用场景

广泛应用于语音唤醒、语音识别、人脸检测及属性分析、人脸识别、姿态分析、目标检测及识别、图像处理等场景

规格参数 Specifications

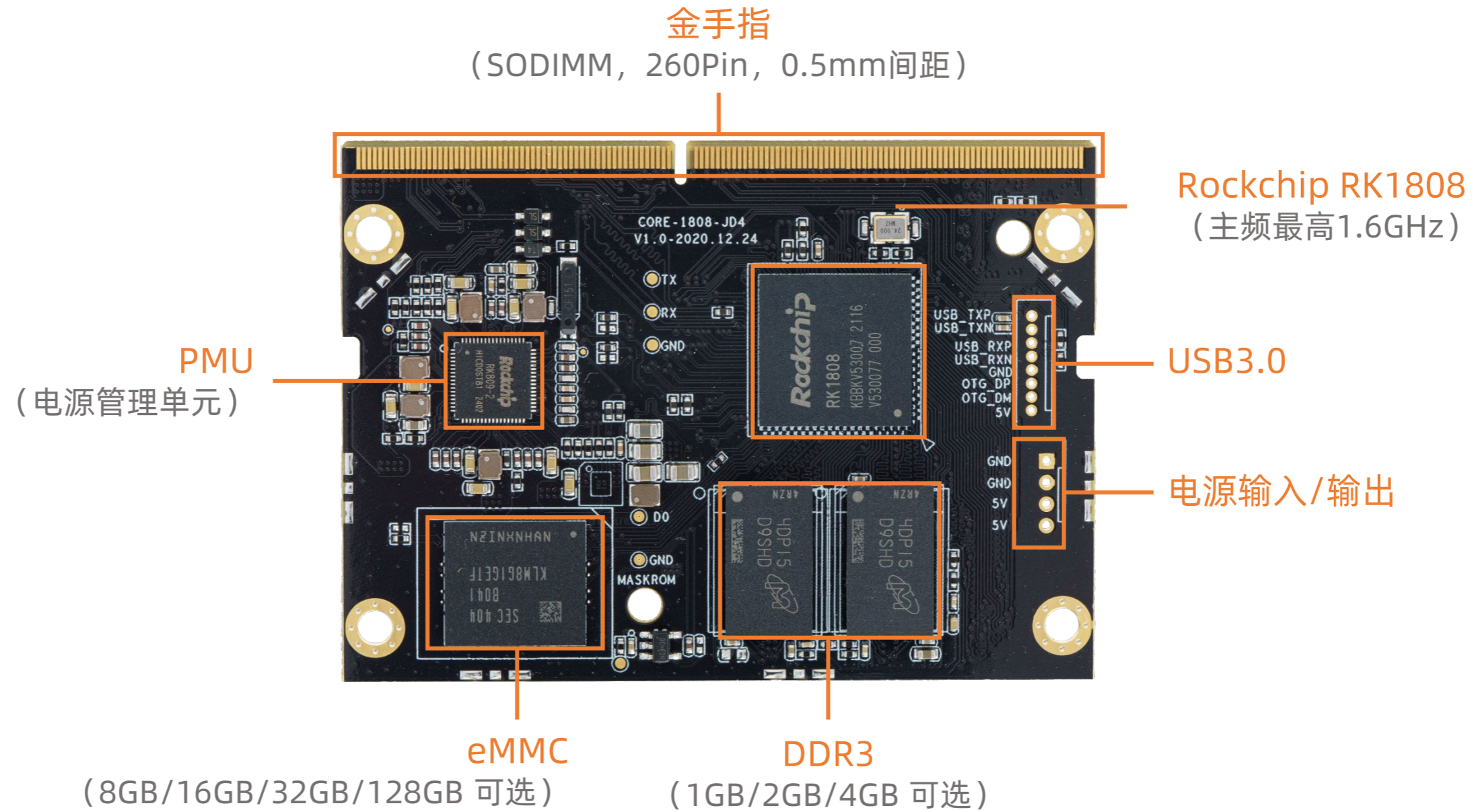


规格参数

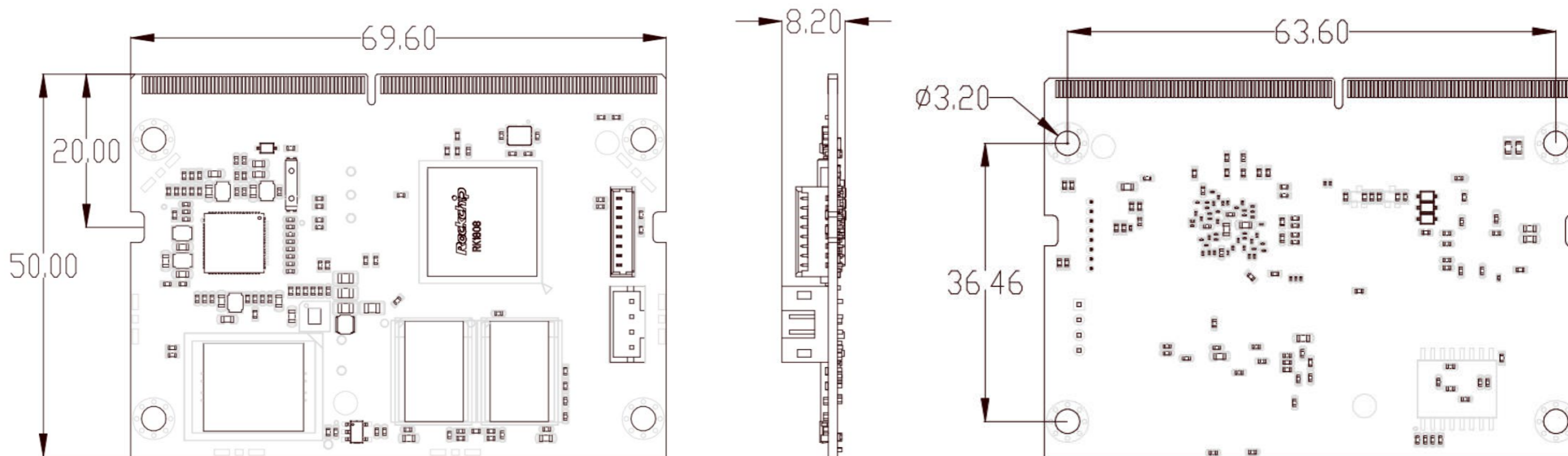
规格参数		
基本参数	SOC	Rockchip RK1808
	CPU	双核64位 Cortex-A35, 主频最高 1.6GHz
	NPU	峰值算力高达 3 TOPS, 支持 OpenCL/OpenVX, 支持 INT8/INT16/FP16 混合运算 支持 TensorFlow、Caffe、ONNX、Darknet 等框架的网络模型转换
	ISP	支持 2MP, AE/AWB/AF/Hist
	编解码	视频解码: 1080P@60fps H.264/AVC 视频编码: 1080P@30fps H.264
	内存	1GB DDR3 (1GB/2GB/4GB 可选)
	存储	8GB 高速 eMMC 4.51 (8GB/16GB/32GB/128GB 可选) 支持 TF 卡扩展、支持 PCIe2.1
	系统	Linux+Qt
	电源	5V (电源误差 $\pm 5\%$)
	功耗	典型功耗: 1.25W (5V/250mA), 最大功耗: 2.15W (5V/430mA)
	接口	金手指 (260 PIN, SODIMM, 0.5mm间距)
	尺寸	69.6mm \times 50.0mm \times 8.2mm
	环境	工作温度: -20°C ~ 60°C 存储温度: -20°C ~ 70°C 存储湿度: 10% ~ 90%RH (无凝露)
接口参数	网络	1 \times GMAC, 提供RGMII/RMII接口, 支持 10/100/1000Mbps 数据传输速率, 可通过SDIO3.0扩展 WiFi、蓝牙
	视频输入	1 \times MIPI-CSI 摄像头接口 (内置双硬件 ISP, 最高支持单13Mpixel 或 双8Mpixel) 1 \times DVP
	视频输出	1 \times MIPI-DSI (支持单通道 1080P@60fps 输出) 1 \times RGB (18位(RGB666), 最高支持 1280 \times 800@60fps)
	音频	1 \times I2S (用于音频输入输出) 1 \times 3.5mm耳机接口 (左右声道) 2 \times MIC 单声道 Speaker (8 Ω , 1.3W)
	USB	1 \times USB3.0 (与PCIe2.1复用)、1 \times USB2.0 HOST、1 \times USB2.0 OTG
	其他接口	内置 1-ch & 8-ch I2S & 8-ch PDM, 内置 VAD 7 \times UART、3 \times SPI、5 \times I2C、10 \times PWM、4 \times SARADC、I2S、GPIOs



接口描述 Interface description



产品尺寸 Dimension





接口定义 Interface definition

Notes1:

① : Pad types: I = input, O = output, I/O = input/output (bidirectional), G= Ground ,
P = power supply , DOWN = Internal pull down , UP = Internal pull UP L = Lowe Level H = High level”

pin	Core board pin definition	Pad type	IO Pull	Reset State	function for Floor	Default function description	IO Power domain	RK1808 Pin Number	RK1808 Pin Name
1	GND_1	G		GND	GND	GND	GND		GND_1
3	GPIO0_B4/UART0_CTS_u_3.3V	I/O	UP	I/GPIO	WORK_LED	System LED control 1:Enable 0:Disable	3.3V	AR15	GPIO0_B4/UART0_CTS
5	GPIO0_B5/UART0_RTS/TEST_CLK1_u_3.3V	I/O	UP	I/GPIO	DIY_LED	Diy led control 1:Enable 0:Disable	3.3V	AV10	GPIO0_B5/UART0_RTS/TEST_CLK1
7	GPIO0_B2/UART0_TX_d_3.3V	I/O	DOWN	I/GPIO	VCC5V0_HOST_EN	Host usb 5v power enable 1:Enable 0:Disable	3.3V	AU15	GPIO0_B2/UART0_TX
9	GPIO0_B3/UART0_RX_d_3.3V	I/O	DOWN	I/GPIO	VCC5V0_OTG_EN	OTG 5v power enable 1:Enable 0:Disable	3.3V	AW9	GPIO0_B3/UART0_RX
11	GPIO2_C7/LCDC_DEN_d_3.3V	I/O	DOWN	I/GPIO	LVDS_RESX	LVDS Reset	3.3V	AV34	GPIO2_C7/LCDC_DEN
13	GPIO0_C0/I2C1_SCL_d_3.3V	I/O	DOWN	I/GPIO	I2C1_SCL	I2C clock , Core board interiorl pull up Resistor 2.2K	3.3V	AN13	GPIO0_C0/I2C1_SCL
15	GPIO0_C1/I2C1_SDA_d_3.3V	I/O	DOWN	I/GPIO	I2C1_SDA	I2C data , Core board interiorl pull up Resistor 2.2K	3.3V	AV12	GPIO0_C1/I2C1_SDA
17	GPIO3_C2/LCDC_D8/UART5_TX/I2C4_SCL_d_3.3V	I/O	DOWN	I/GPIO	LCD_EN	Lcd enable , Core board interiorl pull up Resistor 2.2K	3.3V	AN37	GPIO3_C2/LCDC_D8/UART5_TX/I2C4_SCL
19	GPIO3_C3/LCDC_D9/UART5_RX/I2C4_SDA_d_3.3V	I/O	DOWN	I/GPIO	CAM_PWR	Camera power enable , Core board interiorl pull up Resistor 2.2K	3.3V	AM38	GPIO3_C3/LCDC_D9/UART5_RX/I2C4_SDA
21	GPIO2_B1/CIF_D7/RGMII_COL_d_1.8V	I/O	DOWN	I/GPIO	MIPI_PWR_EN	MIPI power enable , Core board internal pull-down resistor 12K, parallel 10K	1.8V	AW27	GPIO2_B1/CIF_D7/RGMII_COL
23	NC_1								
25	GPIO0_A0/REF_CLKO_d_1.8V	I/O	DOWN	I/GPIO	MIPI_RST	Mipi reset	1.8V	AV22	GPIO0_A0/REF_CLKO



接口定义 Interface definition

27	GPIO0_A7/PCIE_WAKE_M0_u_1.8V	I/O	UP	I/GPIO	LCD_BL_EN	LCD panel power enable	1.8V	AR21	GPIO0_A7/PCIE_WAKE_M0
29	GPIO1_B6/SPI0_CSN_u_3.3V	I/O	UP	I/GPIO	GPIO1_B6/SPI0_CSN	SPI bus port 1 , Core board interiorl pull up Resistor 10K	3.3V	G25	GPIO1_B6/SPI0_CSN
31	NC_67								
33	NC_68								
35	GPIO1_B7/SPI0_CLK/PWM5_d_3.3V	I/O	DOWN	I/GPIO	SPI0_CLK/PWM5/GPIO1_B7	SPI serial clock	3.3V	E25	GPIO1_B7/SPI0_CLK/PWM5
37	GPIO3_C6/LCDC_D12/UART7_TX_d_3.3V	I/O	DOWN	I/GPIO	TP_RST	Tp reset	3.3V	AN39	GPIO3_C6/LCDC_D12/UART7_TX
39	NC_69								
41	GPIO3_D3/LCDC_D17/PWM11/SPI1_CSN1_M1_d_3.3V	I/O	DOWN	I/GPIO	SPK_CTL_H	Control play and stop of spk	3.3V	AJ37	GPIO3_D3/LCDC_D17/PWM11/SPI1_CSN1_M1
43	GND_2	G		GND	GND	GND	GND		GND_2
45	NC_2								
47	NC_3								
49	NC_4								
51	NC_5								
53	NC_6								
55	NC_7								
57	NC_8								
59	NC_9								
61	NC_10								



接口定义 Interface definition

63	NC_11								
65	GND_3	G		GND	GND	GND	GND		GND_3
67	DPHY_RX_D3P	A			MIPI_RX0_D3P	MIPI-CSIO differential lane 3 positive	1.8V	T38	DPHY_RX_D3P
69	DPHY_RX_D3N	A			MIPI_RX0_D3N	MIPI-CSIO differential lane 3 positive	1.8V	R39	DPHY_RX_D3N
71	DPHY_RX_D2P	A			MIPI_RX0_D2P	MIPI-CSIO differential lane 2 positive	1.8V	P38	DPHY_RX_D2P
73	DPHY_RX_D2N	A			MIPI_RX0_D2N	MIPI-CSIO differential lane 2 negative	1.8V	N39	DPHY_RX_D2N
75	DPHY_RX_CLKP	A			MIPI_RX0_CLKP	MIPI-CSIO differential clock lane positive	1.8V	M38	DPHY_RX_CLKP
77	DPHY_RX_CLKN	A			MIPI_RX0_CLKN	MIPI-CSIO differential clock lane negative	1.8V	L39	DPHY_RX_CLKN
79	DPHY_RX_D1P	A			MIPI_RX0_D1P	MIPI-CSIO differential lane 1 positive	1.8V	K38	DPHY_RX_D1P
81	DPHY_RX_D1N	A			MIPI_RX0_D1N	MIPI-CSIO differential lane 1 negative	1.8V	J39	DPHY_RX_D1N
83	DPHY_RX_D0P	A			MIPI_RX0_D0P	MIPI-CSIO differential lane 0 positive	1.8V	N35	DPHY_RX_D0P
85	DPHY_RX_D0N	A			MIPI_RX0_D0N	MIPI-CSIO differential lane 0 negative	1.8V	L35	DPHY_RX_D0N
87	GND_4	G		GND	GND	GND	GND		GND_4
89	NC_12								
91	NC_13								
93	NC_14								
95	NC_15								
97	GND_5	G		GND	GND	GND	GND		GND_5



接口定义 Interface definition

99	NC_16								
101	NC_17								
103	NC_18								
105	NC_19								
107	NC_20								
109	NC_21								
111	NC_22								
113	NC_23								
115	GND_6	G		GND	GND	GND	GND		GND_6
117	USB_OTG_ID_3.3V	A			USB_OTG_ID	OTG Role switching Input (no used) 0: HOST Mode 1: Slave Mode	3.3V	AJ9	USB_OTG_ID
119	NC_24								
121	NC_25								
123	NC_26								
125	PCIE_RX0N/USB3_SSRXN	A			USB3_SSRXN	Channel 0 negative serial input	1.8V	AP2	PCIE_RX0N/USB3_SSRXN
127	PCIE_RX0P/USB3_SSRXP	A			USB3_SSRXP	Channel 0 positive serial input	1.8V	AR1	PCIE_RX0P/USB3_SSRXP
129	PCIE_TX0P/USB3_SSTXP	A			USB3_SSTXP	Channel 0 positive serial output	1.8V	AU1	PCIE_TX0P/USB3_SSTXP
131	PCIE_TX0N/USB3_SSTXN	A			USB3_SSTXN	Channel 0 negative serial output	1.8V	AT2	PCIE_TX0N/USB3_SSTXN
133	USB_OTG_DP	A			USB_OTG_DP	OTG_DP	3.3V	AL1	USB_OTG_DP



接口定义 Interface definition

135	USB_OTG_DM	A		USB_OTG_DM	OTG_DM	3.3V	AK2	USB_OTG_DM
137	NC_27							
139	NC_28							
141	NC_29							
143	NC_30							
145	USB_OTG_VBUS	A		VBUS_DET	Vbus power detect for USB3.0 , Core board interiorl pull up Resistor 10K	3.3V	AL9	USB_OTG_VBUS
147	GND_7	G		GND	GND	GND		GND_7
149	NC_31							
151	NC_32							
153	NC_33							
155	NC_34							
157	NC_35							
159	NC_36							
161	NC_37							
163	NC_38							
165	PCIE_RX1P	A		PCIE_RX1_P	Channel 1 positive serial input	1.8V	AW3	PCIE_RX1P
167	PCIE_RX1N	A		PCIE_RX1_N	Channel 1 negative serial input	1.8V	AV4	PCIE_RX1N
169	PCIE_TX1P	A		PCIE_TX1P	Channel 1 positive serial output	1.8V	AR5	PCIE_TX1P



接口定义 Interface definition

171	PCIE_TX1N	A			PCIE_TX1N	Channel 1 negative serial output	1.8V	AR7	PCIE_TX1N
173	NC_39								
175	NC_40								
177	NC_41								
179	NC_42								
181	PCIE_REFCLKN	A			PCIE_REF_CLKN	Low-swing differential clock pair	1.8V	AN7	PCIE_REFCLKN
183	PCIE_REFCLKP	A			PCIE_REF_CLKP	Low-swing differential clock pair	1.8V	AN5	PCIE_REFCLKP
185	GND_8	G			GND	GND	GND		GND_8
187	USB_HOST_DP	A			HOST0_DP	USB 2.0 Data signal DP	3.3V	AN1	USB_HOST_DP
189	USB_HOST_DM	A			HOST0_DM	USB 2.0 Data signal DM	3.3V	AM2	USB_HOST_DM
191	GND_9	G			GND	GND	GND		GND_9
193	NC_43								
195	NC_44								
197	GND_10	G			GND	GND	GND		GND_10
199	NC_45								
201	NC_46								
203	NC_47								
205	NC_48								



接口定义 Interface definition

207	NC_49								
209	NC_50								
211	NC_51								
213	NC_52								
215	NC_53								
217	NC_54								
219	GND_11	G			GND	GND	GND		GND_11
221	POWER_ON				POWER_ON	Power on Signal Input, External connection Power key , active low	To POWER_KEY		
223	NC_55								
225	VDDIO_WL_1	P			VDDIO_WL (LDO)	Output Voltage 1.8V, Rated output current 300mA	1.8V		
227	VCC_3V3_S0_1	P			VCC_LAN (LDO)	(VCCIO_3V3) Output Voltage 3.3V, Rated output current 500mA	3.3V		
229	VCCA1V8_CODEEC_1	P			VCCA1V8_CODEEC (LDO)	Output Voltage 1.8V, Rated output current 300mA	1.8V		
231	VCCA3V0_CODEEC_1	P			VCCA3V0_CODEEC (LDO)	Output Voltage 3.0V, Rated output current 100mA	3.0V		
233	VCC_5V_S	P			VCC_5V_S	Input Voltage 3.3V-5.5V, Rated input current 50mA	5.0V		
235	VCC3V3_SYS_1	P			VCC_3V3 (DCDC)	Output Voltage 3.3V, Rated output current 1A	3.3V		
237	HP_SNS				HP_SNS	Reference ground for the headphone			
239	MIC2_IN				MIC2_IN	Negative input of the Microphone			
241	MIC1_IN				MIC1_IN	Positive input of the Microphone			



接口定义 Interface definition

243	GND_12	G			GND	Power ground	GND		GND_12
245	GND_13	G			GND		GND		GND_13
247	GND_14	G			GND		GND		GND_14
249	GND_15	G			GND		GND		GND_15
251	VCC5V0_SYS_1	P			VCC5V0_SYS	System Power supply Input Voltag : Min 4.8V, Typ 5.0V, Max 5.2V Input current: Typ 400mA ;Max 700mA	5.0V		
253	VCC5V0_SYS_2	P			VCC5V0_SYS		5.0V		
255	VCC5V0_SYS_3	P			VCC5V0_SYS		5.0V		
257	VCC5V0_SYS_4	P			VCC5V0_SYS		5.0V		
259	VCC5V0_SYS_12	P			VCC5V0_SYS		5.0V		
pin	Core board pin definition	Pad type	IO Pull	Reset State	function for Floor	Default function description	IO Power domain	RK1808 Pin Number	RK1808 Pin Name
2	GND_16	G			GND	GND	GND		GND_16
4	GPIO3_B7/I2S0_SCLK_TX/ISP_PRELIGHTTRIG_d_3.0V	I/O	DOWN	I/GPIO	I2S0_SCLK_TX	I2S 0 port, for audio codec	3.0V	AD38	GPIO3_B7/I2S0_SCLK_TX/ISP_P RELIGHTTRIG
6	GPIO3_B1/I2S0_LRCK_RX/PDM_CLK1_d_3.0V	I/O	DOWN	I/GPIO	I2S0_LRCK_RX	I2S 0 port, for audio codec	3.0V	AB38	GPIO3_B1/I2S0_LRCK_RX/PDM_ CLK1
8	GPIO3_B6/I2S0_LRCK_TX/ISP_FLASHTRIGOUT_d_3.0V	I/O	DOWN	I/GPIO	I2S0_LRCK_TX	I2S 0 port, for audio codec	3.0V	AE39	GPIO3_B6/I2S0_LRCK_TX/ISP_F LASHTRIGOUT
10	GPIO3_C1/I2S0_SDI0/PDM_SDI0_d_3.0V	I/O	DOWN	I/GPIO	I2S0_SDI0	I2S 0 port, for audio codec	3.0V	AA39	GPIO3_C1/I2S0_SDI0/PDM_SDI0
12	GPIO3_C0/I2S0_SDO0/ISP_SHUTTERTRIG_d_3.0V	I/O	DOWN	I/GPIO	I2S0_SDO0	I2S 0 port, for audio codec	3.0V	AC37	GPIO3_C0/I2S0_SDO0/ISP_SHU TTERTRIG
14	GPIO3_B2/I2S0_SDO3/ISP_FLASHTRIGIN/LCDC_HSYNC_M1_d_3.0V	I/O	DOWN	I/GPIO	I2S0_SDO3	I2S 0 port, for audio codec	3.0V	AC33	GPIO3_B2/I2S0_SDO3/ISP_FLAS HTRIGIN/LCDC_HSYNC_M1
16	GPIO3_B3/I2S0_SDO2/I2C2_SCL_M0/LCDC_VSYNC_M1_d_3.0V	I/O	DOWN	I/GPIO	I2S0_SDO2	I2S 0 port, for audio codec	3.0V	AC31	GPIO3_B3/I2S0_SDO2/I2C2_SCL _M0/LCDC_VSYNC_M1



接口定义 Interface definition

18	GPIO3_B4/I2S0_SDO1/I2C2_SDA_M0_d_3.0V	I/O	DOWN	I/GPIO	I2S0_SDO1	I2S 0 port, for audio codec	3.0V	AC35	GPIO3_B4/I2S0_SDO1/I2C2_SDA_M0
20	GPIO3_B5/I2S0_MCLK/ISP_SHUTTEREN_d_3.0V	I/O	DOWN	I/GPIO	I2S_CLK	I2S MCLK, for both I2S0 and I2S1	3.0V	AC39	GPIO3_B5/I2S0_MCLK/ISP_SHUTTEREN
22	GPIO2_D1/I2C3_SDA/UART2_RX_M1_u_3.3V	I/O	UP	I/GPIO	I2C3_SDA	I2C serial port 1,for Audio, Core board interior pull up Resistor 2.2K	3.3V	AV36	GPIO2_D1/I2C3_SDA/UART2_RX_M1
24	GPIO2_D0/I2C3_SCL/UART2_TX_M1_u_3.3V	I/O	UP	I/GPIO	I2C3_SCL	I2C serial port 1,for Audio, Core board interior pull up Resistor 2.2K	3.3V	AW37	GPIO2_D0/I2C3_SCL/UART2_TX_M1
26	GND_17	G			GND	GND	GND		GND_17
28	NC_56								
30	GPIO3_B0/I2S0_SCLK_RX/PDM_CLK0_d_3.0V	I/O	DOWN		I2S0_SCLK_RX	I2S serial clock	3.0V	Y38	GPIO3_B0/I2S0_SCLK_RX/PDM_CLK0
32	GPIO3_A7/I2S0_SDI1/PDM_SDI1_d_3.0V	I/O	DOWN		I2S0_SDI1	I2S serial data input	3.0V	AC29	GPIO3_A7/I2S0_SDI1/PDM_SDI1
34	GPIO3_A5/I2S0_SDI3/PDM_SDI3_d_3.0V	I/O	DOWN		I2S0_SDI3	I2S serial data input	3.0V	AA31	GPIO3_A5/I2S0_SDI3/PDM_SDI3
36	GPIO3_A6/I2S0_SDI2/PDM_SDI2_d_3.0V	I/O	DOWN		I2S0_SDI2	I2S serial data input	3.0V	W35	GPIO3_A6/I2S0_SDI2/PDM_SDI2
38	NC_57								
40	GND_18	G			GND	GND	GND		GND_18
42	GPIO4_C0/SPI1_CSN1_M0_u_1.8V	I/O	UP		WIFI_REG_ON_H	WIFI module power enable	1.8V	AL33	GPIO4_C0/SPI1_CSN1_M0
44	GPIO4_C1/I2C5_SCL_u_1.8V	I/O	UP		WIFI_HOST_WAKE_L	WIFI module wake up AP	1.8V	AR39	GPIO4_C1/I2C5_SCL
46	GPIO4_B2/SDMMC1_D2/UART1_CTS_u_1.8V	I/O	UP		SDIO0_D2	SDIO1 data port , for WIFI module	1.8V	AT38	GPIO4_B2/SDMMC1_D2/UART1_CTS
48	GPIO4_B3/SDMMC1_D3/UART1_RTS_u_1.8V	I/O	UP		SDIO0_D3	SDIO1 data port , for WIFI module	1.8V	AP38	GPIO4_B3/SDMMC1_D3/UART1_RTS
50	GPIO4_A6/SDMMC1_CMD_u_1.8V	I/O	UP		SDIO0_CMD	SDIO0 command output , for WIFI module	1.8V	AR31	GPIO4_A6/SDMMC1_CMD
52	GPIO4_A7/SDMMC1_CLK_d_1.8V	I/O	DOWN		SDIO0_CLK	SDIO0 clock output, for WIFI module	1.8V	AR35	GPIO4_A7/SDMMC1_CLK



接口定义 Interface definition

54	GPIO4_B0/SDMMC1_D0/UART1_RX_M0_u_1.8V	I/O	UP		SDIO0_D0	SDIO0 data port , for WIFI module	1.8V	AN31	GPIO4_B0/SDMMC1_D0/UART1_RX_M0
56	GPIO4_B1/SDMMC1_D1/UART1_TX_M0_u_1.8V	I/O	UP		SDIO0_D1	SDIO0 data port , for WIFI module	1.8V	AP34	GPIO4_B1/SDMMC1_D1/UART1_TX_M0
58	GND_19	G			GND	GND	GND		GND_19
60	RTC_CLKO_WIFI				RTC_CLKO_WIFI	32.768K clock output to WIFI	1.8V		
62	GPIO4_C2/I2C5_SDA_u_1.8V	I/O	UP		BT_REG_ON_H	BT module power enable 1:Enable 0:Disable	1.8V	AL29	GPIO4_C2/I2C5_SDA
64	GPIO4_B4/UART4_RX/SPI1_CLK_M0_u_1.8V	I/O	UP		UART4_RXD	UART0 serial port, for BT module	1.8V	AN33	GPIO4_B4/UART4_RX/SPI1_CLK_M0
66	GPIO4_B5/UART4_TX/SPI1_MOSI_M0_u_1.8V	I/O	UP		UART4_TXD	UART0 serial port, for BT module	1.8V	AJ29	GPIO4_B5/UART4_TX/SPI1_MOSI_M0
68	GPIO4_B6/UART4_CTS/SPI1_CSN0_M0_u_1.8V	I/O	UP		UART4_CTS	UART0 serial port, for BT module	1.8V	AU39	GPIO4_B6/UART4_CTS/SPI1_CSN0_M0
70	GPIO4_B7/UART4_RTS/SPI1_MISO_M0_u_1.8V	I/O	UP		UART4_RTS	UART0 serial port, for BT module	1.8V	AR33	GPIO4_B7/UART4_RTS/SPI1_MISO_M0
72	GPIO4_C3_u_1.8V	I/O	UP		BT_WAKE_L	AP wake up BT module	1.8V	AL27	GPIO4_C3
74	GPIO4_C4_u_1.8V	I/O	UP		BT_HOST_WAKE_L	WIFI module wake up AP	1.8V	AL31	GPIO4_C4
76	GND_20	G			GND	GND	GND		GND_20
78	GPIO2_C6/LCDC_CLK_d_3.3V	I/O	DOWN		3G_PWR_EN	3G power enable	3.3V	AW33	GPIO2_C6/LCDC_CLK
80	GPIO2_C0/CIF_D0/CLKOUT_ETHERNET_d_3.3V	I/O	DOWN		TP_INT1	Touch panel interrupt input (Not debugged)	3.3V	AR25	GPIO2_C0/CIF_D0/CLKOUT_ETHERNET
82	GPIO3_C7/LCDC_D13/UART7_RX/SPI1_CLK_M1_d_3.3V	I/O	DOWN		SPI1_CLK_M1/GPIO3_C7	SPI bus port 2	3.3V	AL35	GPIO3_C7/LCDC_D13/UART7_RX/SPI1_CLK_M1
84	GPIO3_D1/LCDC_D15/PWM9/SPI1_CSN0_M1_d_3.3V	I/O	DOWN		SPI1_CSN0_M1/PWM9	SPI bus port 2	3.3V	AG31	GPIO3_D1/LCDC_D15/PWM9/SPI1_CSN0_M1
86	GPIO3_D2/LCDC_D16/PWM10/SPI1_MISO_M1_d_3.3V	I/O	DOWN		SPI1_MISO_M1/PWM10	SPI bus port 2	3.3V	AK38	GPIO3_D2/LCDC_D16/PWM10/SPI1_MISO_M1
88	GPIO3_D0/LCDC_D14/PWM8/SPI1_MOSI_M1_d_3.3V	I/O	DOWN		SPI1_MOSI_M1/PWM8	SPI bus port 2	3.3V	AJ35	GPIO3_D0/LCDC_D14/PWM8/SPI1_MOSI_M1



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90	GPIO0_C7/UART3_RTS_d_3.3V	I/O	DOWN		SDMMC0_PWR	SD card power supply enabled	3.3V	AR13	GPIO0_C7/UART3_RTS
92	NC_58								
94	GPIO0_B7/PWM0/OTG_DRV_d_3.3V	I/O	DOWN		LCD_BL_PWM0	LCD panel backlight brightness control output	3.3V	AV14	GPIO0_B7/PWM0/OTG_DRV
96	GPIO0_C3/PWM1/UART3_TX_d_3.3V	I/O	DOWN		LCD_BL_PWM1	PWM1	3.3V	AV18	GPIO0_C3/PWM1/UART3_TX
98	GPIO1_B0/EMMC_PWREN/SPI2_MOSI_M0_u_3.3V	I/O	UP		GPIO1_B0	GPIO (no used)	3.3V	G31	GPIO1_B0/EMMC_PWREN/SPI2_MOSI_M0
100	GPIO1_B4/SPI0_MOSI/I2C2_SCL_M1/UART1_RX_M1_u_3.3V	I/O	UP		UART1DBG_RX	Uart1 serial port data input, for AP debug	3.3V	C27	GPIO1_B4/SPI0_MOSI/I2C2_SCL_M1/UART1_RX_M1
102	GPIO1_B5/SPI0_MISO/I2C2_SDA_M1/UART1_TX_M1_u_3.3V	I/O	UP		UART1DBG_TX	Uart1 serial port data output ,for AP debug	3.3V	A27	GPIO1_B5/SPI0_MISO/I2C2_SDA_M1/UART1_TX_M1
104	NC_70								
106	GPIO2_C3/CIF_D11/LCDC_D3_d_3.3V	I/O	DOWN		MIPI_PDN0_H	Mipi camera power down, low when the camera is working	3.3V	AL23	GPIO2_C3/CIF_D11/LCDC_D3
108	NC_61								
110	GPIO2_C4/LCDC_D4_d_3.3V	I/O	DOWN		WK2124_INT	INT interrupt trigger, notify CPU, CPU gets related information	3.3V	AL25	GPIO2_C4/LCDC_D4
112	GPIO2_C5/LCDC_D5_d_3.3V	I/O	DOWN		TP_INT	Touch panel interrupt input	3.3V	AW35	GPIO2_C5/LCDC_D5
114	NC_62								
116	GPIO3_C4/LCDC_D10/UART6_TX_d_3.3V	I/O	DOWN		WK2124_RST	WK2124 Reset	3.3V	AL39	GPIO3_C4/LCDC_D10/UART6_TX
118	GPIO3_C5/LCDC_D11/UART6_RX_d_3.3V	I/O	DOWN		LCD_RST	LCD Reset	3.3V	AJ33	GPIO3_C5/LCDC_D11/UART6_RX
120	GPIO0_B6/PCIE_PERST_M1_u_3.3V	I/O	UP		PCIE_RST	PCIE Reset	3.3V	AU9	GPIO0_B6/PCIE_PERST_M1
122	NC_63								
124	GND_21	G			GND	GND	GND		GND_21



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126	DPHY_TX_D3P	A			MIPI_DSI_D3P	MIPI-DSI0 differential lane 3 positive	1.8V	H38	DPHY_TX_D3P
128	DPHY_TX_D3N	A			MIPI_DSI_D3N	MIPI-DSI0 differential lane 3 negative	1.8V	G39	DPHY_TX_D3N
130	DPHY_TX_D2P	A			MIPI_DSI_D2P	MIPI-DSI0 differential lane 2 positive	1.8V	F38	DPHY_TX_D2P
132	DPHY_TX_D2N	A			MIPI_DSI_D2N	MIPI-DSI0 differential lane 2 negative	1.8V	E39	DPHY_TX_D2N
134	DPHY_TX_CLKP	A			MIPI_DSI_CLKP	MIPI-DSI0 differential clock lane positive	1.8V	G35	DPHY_TX_CLKP
136	DPHY_TX_CLKN	A			MIPI_DSI_CLKN	MIPI-DSI0 differential clock lane negative	1.8V	E35	DPHY_TX_CLKN
138	DPHY_TX_D1P	A			MIPI_DSI_D1P	MIPI-DSI0 differential lane 1 positive	1.8V	D38	DPHY_TX_D1P
140	DPHY_TX_D1N	A			MIPI_DSI_D1N	MIPI-DSI0 differential lane 1 negativ	1.8V	C39	DPHY_TX_D1N
142	DPHY_TX_D0P	A			MIPI_DSI_D0P	MIPI-DSI0 differential lane 0 positive	1.8V	A37	DPHY_TX_D0P
144	DPHY_TX_D0N	A			MIPI_DSI_D0N	MIPI-DSI0 differential lane 0 negativ	1.8V	B38	DPHY_TX_D0N
146	NC_64								
148	NC_65								
150	ADC_IN0	A			ADC_IN0	ADC input , Core board interiorl pull up Resistor 10K	1.8V	W31	ADC_IN0
152	ADC_IN2	A			RECOVER	AD keyboard input , Core board interiorl pull up Resistor 10K	1.8V	W33	ADC_IN2
154	ADC_IN1	A			LINE_IN_DET	LINE_IN detect input , Core board interiorl pull up Resistor 10K	1.8V	U31	ADC_IN1
156	ADC_IN3	A			HP_DET	Headphone insert detect input , Core board interiorl pull up Resistor 10K	1.8V	U33	ADC_IN3
158	GPIO0_C5/PCIE_WAKE_M1/PWM2_d_3.3V	I/O	DOWN		PCIE_WAKE	AP wake up PCIE	3.3V	AV16	GPIO0_C5/PCIE_WAKE_M1/PWM2
160	GPIO0_C6/PCIE_CLKREQN_M1/UART3_CTS_d_3.3V	I/O	DOWN		PCIE_CLKREQ	PCIE CLKREQN	3.3V	AN15	GPIO0_C6/PCIE_CLKREQN_M1/UAR T3_CTS



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162	NC_66								
164	GND_22	G			GND	GND	GND		GND_22
166	GPIO4_A3/SDMMC0_D1/UART2_RX_M0_u_3.3V	I/O	UP		SDMMC0_D1	SDMMC_D1 data port,for TF Card	3.3V	AE35	GPIO4_A3/SDMMC0_D1/UART2_RX_M0
168	GPIO4_A2/SDMMC0_D0/UART2_TX_M0_u_3.3V	I/O	UP		SDMMC0_D0	SDMMC_D0 data port,for TF Card	3.3V	AG39	GPIO4_A2/SDMMC0_D0/UART2_TX_M0
170	GPIO4_A4/SDMMC0_D2/JTAG_TCK_u_3.3V	I/O	UP		SDMMC0_D2	SDMMC_D2 data port,for TF Card	3.3V	AF38	GPIO4_A4/SDMMC0_D2/JTAG_TCK
172	GPIO4_A0/SDMMC0_CMD/TEST_CLK0_u_3.3V	I/O	UP		SDMMC0_CMD	SDMMC command output,for TF Card	3.3V	AJ39	GPIO4_A0/SDMMC0_CMD/TEST_CLK0
174	GPIO4_A5/SDMMC0_D3/JTAG_TMS_u_3.3V	I/O	UP		SDMMC0_D3	SDMMC_D3 data port,for TF Card	3.3V	AE33	GPIO4_A5/SDMMC0_D3/JTAG_TMS
176	GPIO4_A1/SDMMC0_CLK_d_3.3V	I/O	DOWN		SDMMC0_CLK	SDMMC clock output is used for TF card.	3.3V	AH38	GPIO4_A1/SDMMC0_CLK
178	GPIO0_A3/PCIE_CLKREQN_M0/SDMMC0_DETN_u_1.8V	I/O	UP		SDMMC0_DET	Sdmmc card detect signal, 0: TF card insert 1: TF card no insert	1.8V	AV20	GPIO0_A3/PCIE_CLKREQN_M0/SDMMC0_DETN
180	GND_23	G			GND	GND	GND		GND_23
182	GPIO2_B0/CIF_D6/RGMII_MDIO_d_3.3V	I/O	DOWN		MAC_MDIO	MAC management interface data	3.3V	AW29	GPIO2_B0/CIF_D6/RGMII_MDIO
184	GPIO2_B2/CIF_D8/RGMII_MDC/LCDC_HSYNC_M0_d_3.3V	I/O	DOWN		MAC_MDC	MAC management interface clock	3.3V	AW31	GPIO2_B2/CIF_D8/RGMII_MDC/LCDC_HSYNC_M0
186	GPIO2_C1/CIF_D1/RGMII_TXCLK_d_3.3V	I/O	DOWN		PHY_TXCLK	MAC transmit clock	3.3V	AN27	GPIO2_C1/CIF_D1/RGMII_TXCLK
188	GPIO2_C2/CIF_D10/RGMII_RXCLK/LCDC_D2_d_3.3V	I/O	DOWN		MAC_RXCLK	MAC RX clock	3.3V	AN25	GPIO2_C2/CIF_D10/RGMII_RXCLK/LCDC_D2
190	GND_24	G			GND	GND	GND		GND_24
192	GPIO2_B7/CIF_CLKOUT/RGMII_CLK_d_3.3V	I/O	DOWN		MAC_CLK	MAC reference clock output	3.3V	AR27	I/O DOWN
194	GPIO2_A5/CIF_D3/RGMII_RXD1/SPI2_CLK_M1_d_3.3V	I/O	DOWN		MAC_RXD1	MAC receive data	3.3V	AL21	I/O DOWN



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196	GPIO2_B6/CIF_CLKIN/RGMII_RXD3_d_3.3V	I/O	DOWN		MAC_RXD3	MAC receive data	3.3V	AU31	I/O DOWN
198	GPIO2_A4/CIF_D2/RGMII_RXD0/SPI2_MISO_M1_d_3.3V	I/O	DOWN		MAC_RXD0	MAC receive data	3.3V	AN21	I/O DOWN
200	GPIO2_B5/CIF_HREF/RGMII_RXD2_d_3.3V	I/O	DOWN		MAC_RXD2	MAC receive data	3.3V	AV32	I/O DOWN
202	GPIO2_A7/CIF_D5/RGMII_RXDV/SPI2_CSN_M1_d_3.3V	I/O	DOWN		MAC_RXDV	MAC receive data valid	3.3V	AU25	I/O DOWN
204	GPIO2_A3/CIF_D15/RGMII_TXD0/LCDC_D1_d_3.3V	I/O	DOWN		PHY_TXD0	MAC transmit data	3.3V	AJ21	I/O DOWN
206	GPIO2_B4/CIF_VSYNC/RGMII_TXD2_d_3.3V	I/O	DOWN		PHY_TXD2	MAC transmit data	3.3V	AV30	I/O DOWN
208	GPIO2_B3/CIF_D9/RGMII_TXD3/LCDC_VSYNC_M0_d_3.3V	I/O	DOWN		PHY_TXD3	MAC transmit data	3.3V	AV28	I/O DOWN
210	GPIO2_A2/CIF_D14/RGMII_TXD1/LCDC_D0_d_3.3V	I/O	DOWN		PHY_TXD1	MAC transmit data	3.3V	AL19	I/O DOWN
212	GPIO2_A1/CIF_D13/RGMII_TXEN/LCDC_D7_d_3.3V	I/O	DOWN		PHY_TXEN	MAC transmit enable	3.3V	AR19	I/O DOWN
214	GPIO2_A6/CIF_D4/RGMII_RXER/SPI2_MOSI_M1_d_3.3V	I/O	DOWN		FAN_CTL	FAN_EN:H	3.3V	AV26	I/O DOWN
216	GPIO2_A0/CIF_D12/RGMII_CRS/LCDC_D6_d_3.3V	I/O	DOWN		PHY_RST	PHY_Reset:L	3.3V	AW25	I/O DOWN
218	NPOR	I	fix up		RESET_KEY	Core board pull up 10K, System reset signal input. 0 : System Reset 1 : Normal	1.8V	AW23	NPOR
220	EXT_EN				PMIC_EXT_EN	External Power enable output,Voltage 5V 1:Enable 0:Disable	5.0V		
222	GND_25	G			GND	GND	GND		GND_25
224	VDDIO_WL_2	P			VDDIO_WL (LDO)	Output Voltage 1.8V,Rated output current 300mA	1.8V		
226	VCC_3V3_S0_2	P			VCC_LAN (LDO)	(VCCIO_3V3) Output Voltage 3.3V,Rated output current 500mA	3.3V		
228	VCCA1V8_CODEEC_2	P			VCCA1V8_CODEEC (LDO)	Output Voltage 1.8V,Rated output current 300mA	1.8V		



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230	VCCA3V0_CODEC_2	P			VCCA3V0_CODEC (LDO)	Output Voltage 3.0V, Rated output current 100mA	3.0V		
232	VCC_RTC	P			VCC_RTC	Input Voltage 3.3V-5.5V, Rated input current 50mA	5.0V		
234	VCC3V3_SYS_2	P			VCC_3V3 (DCDC)	Output Voltage 3.3V, Rated output current 1A	3.3V		
236	SPKP_OUT				SPKP_OUT	Positive speaker driver output. (no used)			
238	SPKN_OUT				SPKN_OUT	Negative speaker driver output. (no used)			
240	HPL_OUT				HPL	Left channel output of the headphone.			
242	HPR_OUT				HPR	Right channel output of the headphone.			
244	GND_26	G			GND	Power ground	GND		GND_26
246	GND_27	G			GND		GND		GND_27
248	GND_28	G			GND		GND		GND_28
250	GND_29	G			GND		GND		GND_29
252	VCC_SYS_6	P			VCC5V0_SYS	System Power supply Input Voltag : Min 4.8V, Typ 5.0V, Max 5.2V Input current: Typ 400mA ;Max 700mA	5.0V		
254	VCC_SYS_7	P			VCC5V0_SYS		5.0V		
256	VCC_SYS_8	P			VCC5V0_SYS		5.0V		
258	VCC_SYS_9	P			VCC5V0_SYS		5.0V		
260	VCC_SYS_10	P			VCC5V0_SYS		5.0V		



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