

TB-96AIoT Som Schematic

PMIC: RK809-2 (5BUCK + 9LDO + Codec)
RAM: LPDDR3
ROM: eMMC + TF card
Interface: MIPI CSI/MIPI DSI/UART/I2S/RMII/LCDC/PCIE/USB3

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项目:	TB-96AIoT		
文件:	SoM_Schematic		
图纸:	00.Cover Page		
修改日期:	Tuesday, May 21, 2019	版本:	V0.1
设计者:	chenza	页码:	0 of 23

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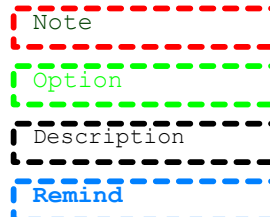
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- 17.VCC_NPU
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- 22.EFUSE
- 23.CONNECTOR

Note

NOTE 1: Component parameter description

- 1. DNP stands for component not mounted temporarily
- 2. If Value or option is DNP, which means the area is reserved without being mounted
- 3. If Flash is compatible, please notice when eMMC is used, the option is that @eMMC is mounted, @Nand is not mounted when Nand is used, the option is that @Nand is mounted, @eMMC is not mounted

NOTE 2: Please use our recommended components to avoid too many changes.For more informations about the second source,please refer to our AVL.



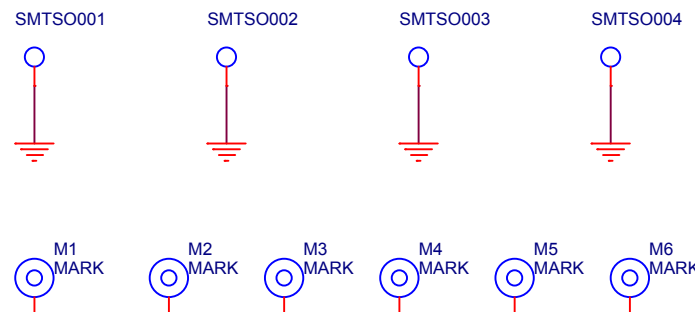
Bill of Materials

Header:

Item\tPart\tDescription\tPCB Footprint\tReference\tQuantity\tOption

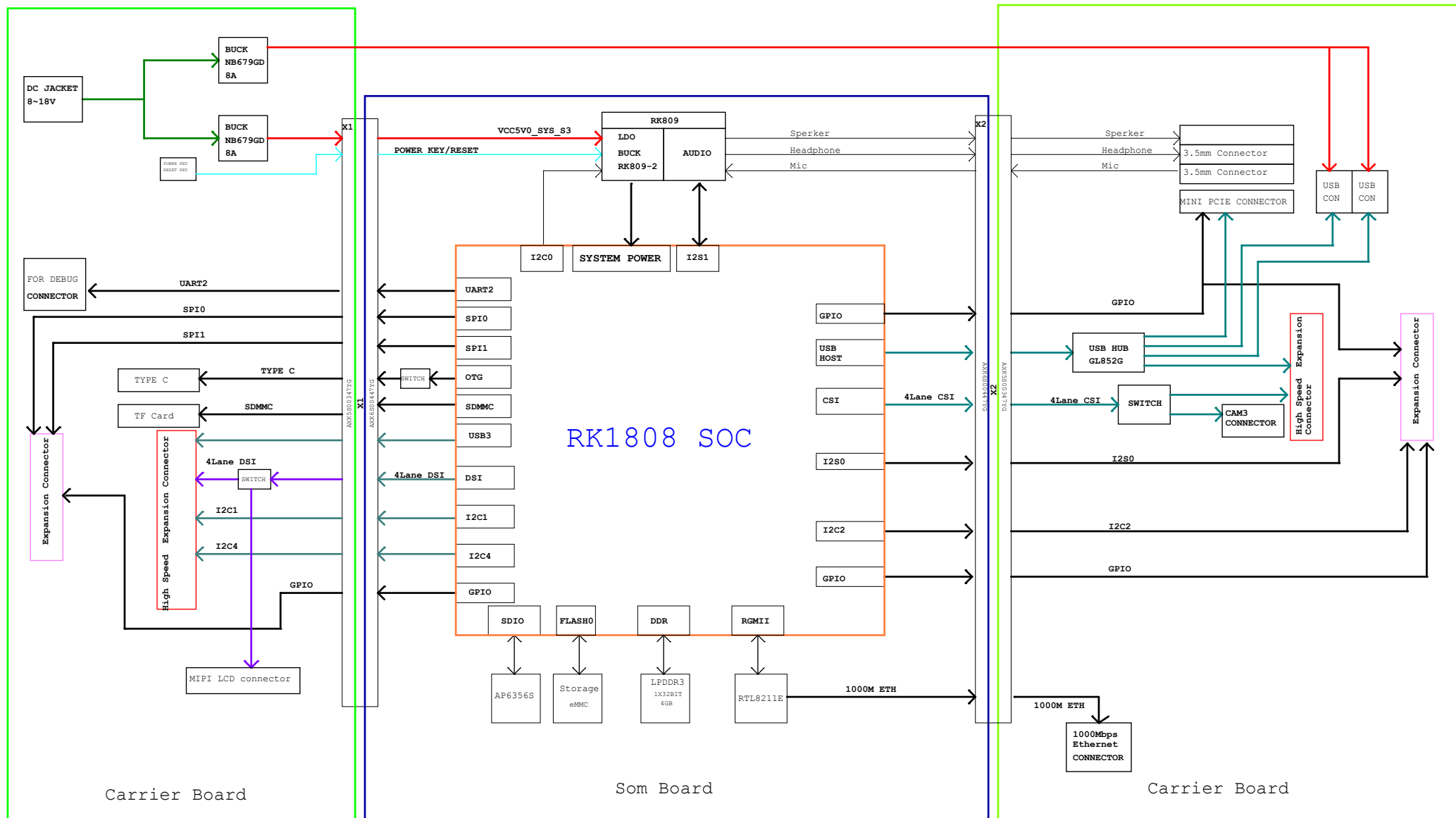
Combined property string:

{Item}\t{Value}\t{Description}\t{PCB Footprint}\t{Reference}\t{Quantity}\t{Option}




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Version	Date	Author	Change List	Approved
V0.1	2019.2.14		First edition for RK1808	chenza



I2C MAP

Port	Pin name	Domain	Bus name	Pull-up voltage	Slave Device	Slave Addr (MS 7Bits)	Note	Slave Bus Capability
I2C0	I2C0_SCL/GPIO0_B0_u I2C0_SDA/GPIO0_B1_u	PMUIO2	I2C0_SCL_PMIC I2C0_SDA_PMIC	VCC_1V8	Rockchip RK809-2	0x20	PMIC	100kHz, 400kHz
					TCS4525		BUCK	100kHz, 400kHz
I2C1	I2C1_SCL/GPIO0_C0_u I2C1_SDA/GPIO0_C1_u	PMUIO2	I2C1_SCL_TP I2C1_SDA_TP	VCC_1V8			Touch IC	100kHz, 400kHz 100kHz, 400kHz
I2C2	I2C1_SCL/GPIO3_B3_U I2C1_SDA/GPIO3_B4_U	VCCA_1V8		VCCA_1V8	CODEC			100kHz, 400kHz
					MIPI CAMERA			
I2C3	GPIO2_D0/I2C3_SCL_U GPIO2_D1/I2C3_SDA_U	VCCIO_3V3						
I2C4	GPIO3_C2/I2C4_SCL_U GPIO3_C3/I2C4_SDA_U	VCCA_1V8		VCCA_1V8				

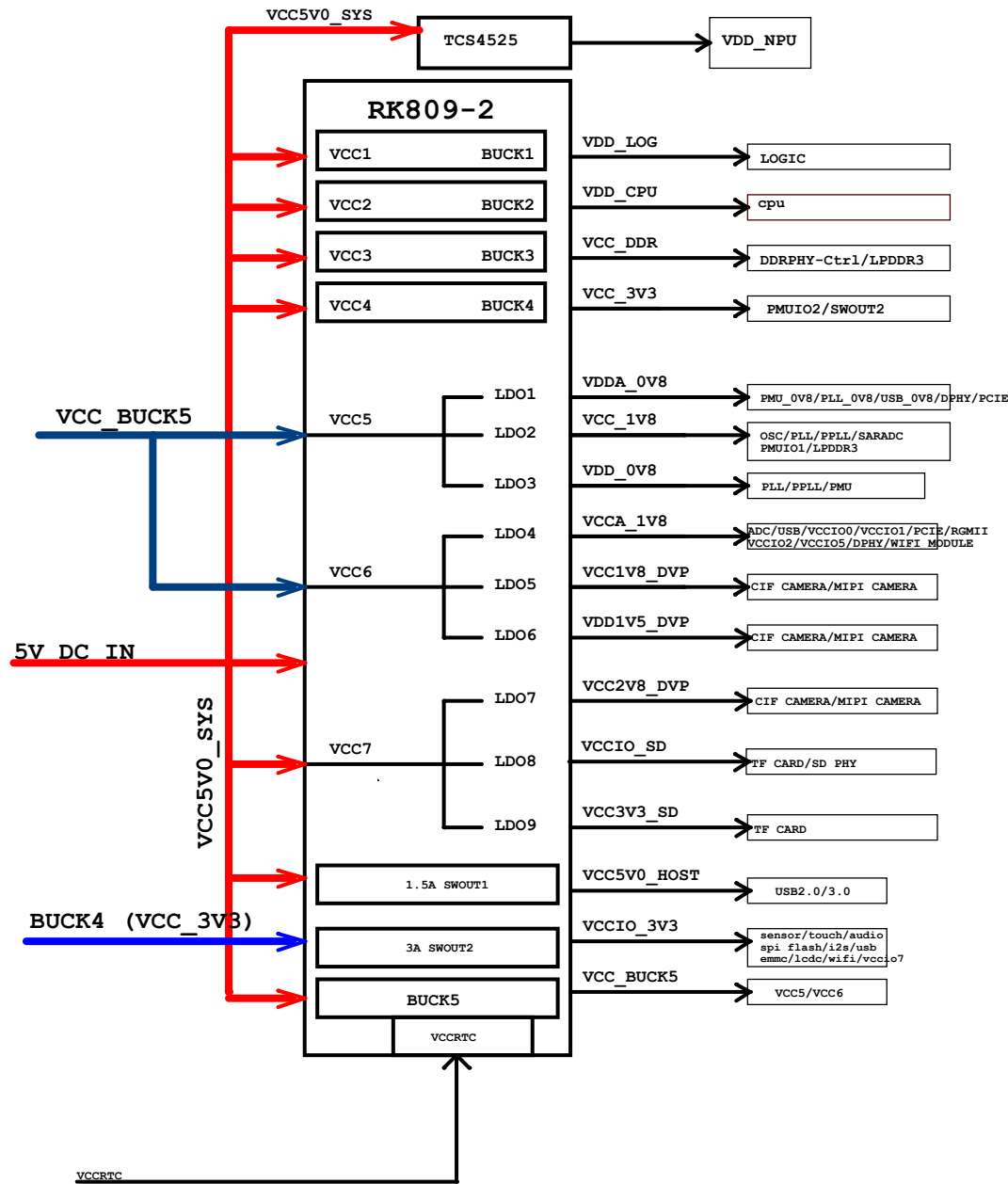


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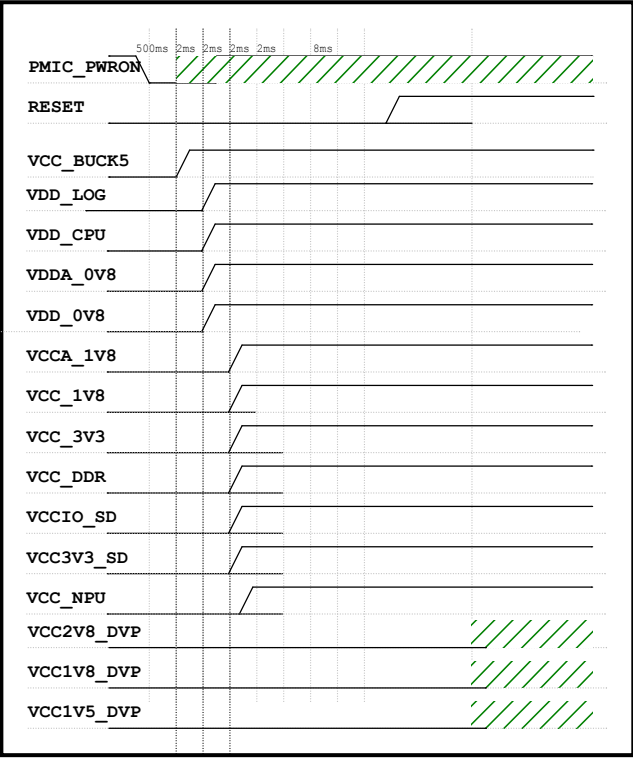
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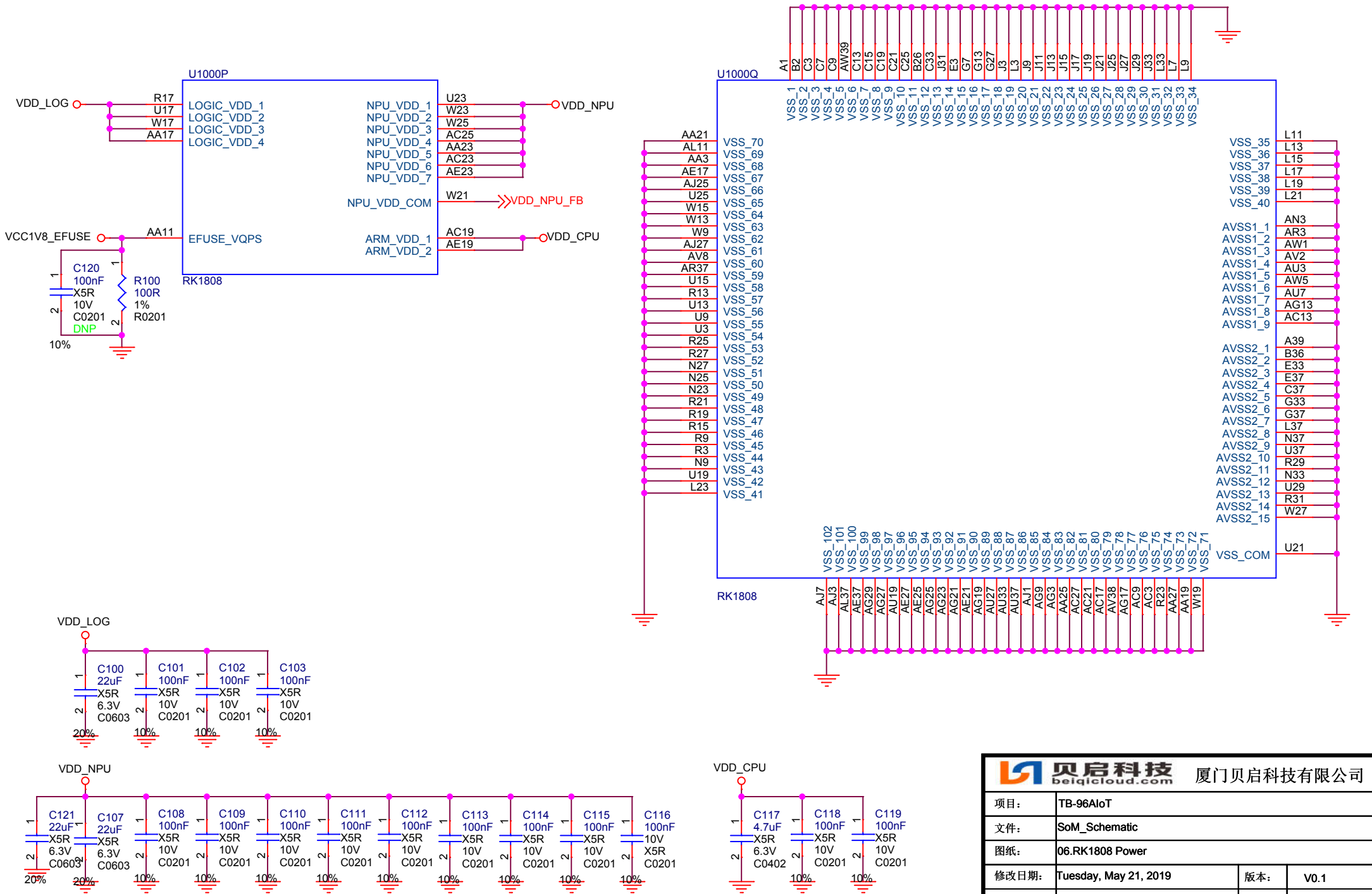
POWER DIAGRAM




RK809-2 Power-on Sequence							
PowerName	PMIC Channel	Time Slot (step 2mS)	Default voltage	Supply Limit	Default ON/OFF	Sleep ON/OFF	Peak Current
VDD_NPU	EXTERNAL(SYS37)	Slot:3A	1V	6A	ON	OFF	4A
VDD_LOG	BUCK1	Slot:2	0.85V	2.5A	ON	OFF	1.25A
VDD_CPU	BUCK2	Slot:2	0.85V	2.5A	ON	OFF	150ma
VCC_DDR	BUCK3	Slot:3	FB=0.6V	1.5A	ON	ON	
VCC_3V3	BUCK4	Slot:4	3.3V	1.5A	ON	ON	
VCC_BUCK5	BUCK5	Slot:1	2.5V	2.5A	ON	ON	
VDDA_0V8	LDO1	Slot:2	0.8V	400mA	ON	OFF	
VCC_1V8	LDO2	Slot:3	1.8V	400mA	ON	ON	
VDD_0V8	LDO3	Slot:2	0.8V	100mA	ON	ON	
VCCA_1V8	LDO4	Slot:2	1.8V	400mA	ON	OFF	
VCC1V8_DVP	LDO5	Slot:3	1.8V	400mA	OFF	OFF	
VDD1V5_DVP	LDO6		1.5V	400mA	OFF	OFF	
VCC2V8_DVP	LDO7		2.8V	400mA	OFF	OFF	
VCCIO_SD	LDO8	Slot:4	3.3V	400mA	ON	OFF	
VCC3V3_SD	LDO9	Slot:4	3.3V	400mA	ON	OFF	
VCCIO_3V3	SWOUT2	Slot:4	3A	3A	ON	OFF	
VCC5V0_HOST	SWOUT1	Slot:4	5V	1.5A	OFF	OFF	
RESET	RESETB	Slot:10	OD				



RK1808 Power

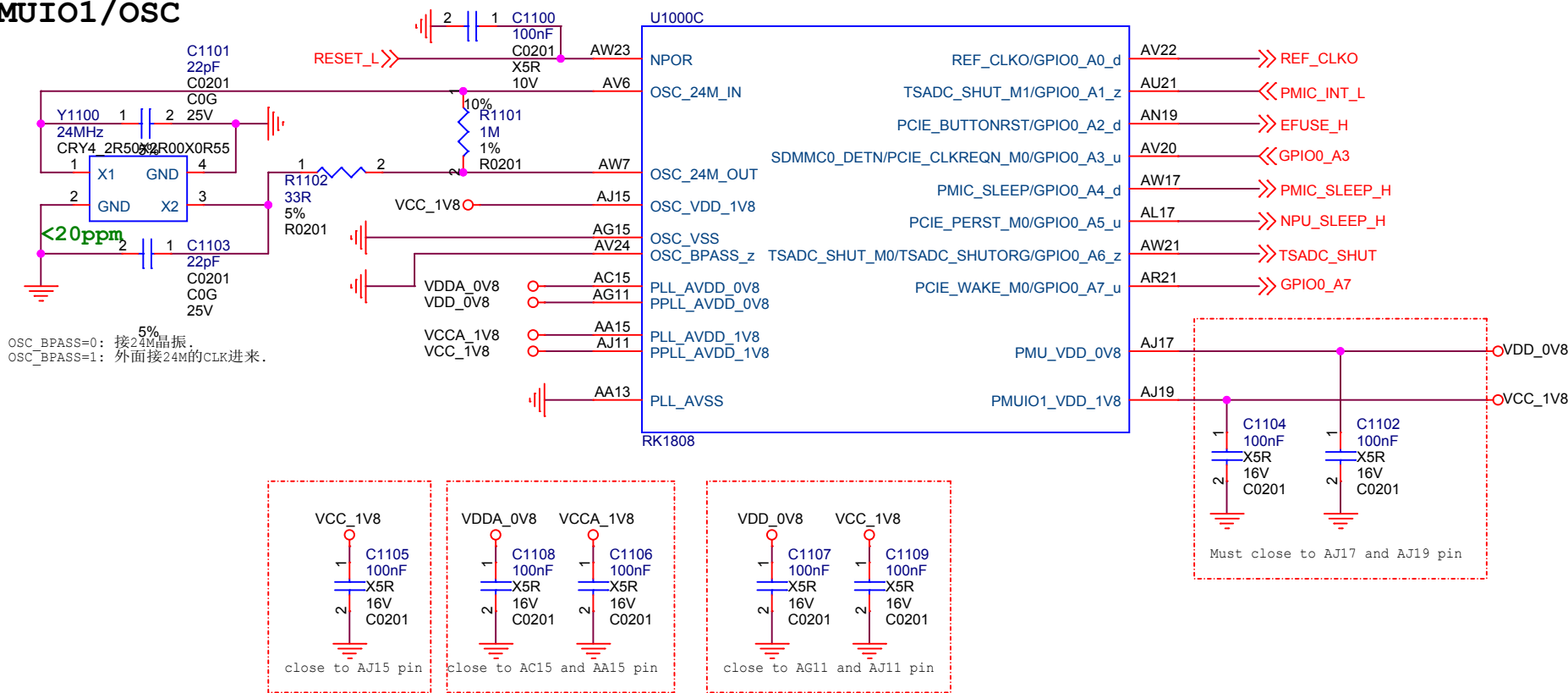




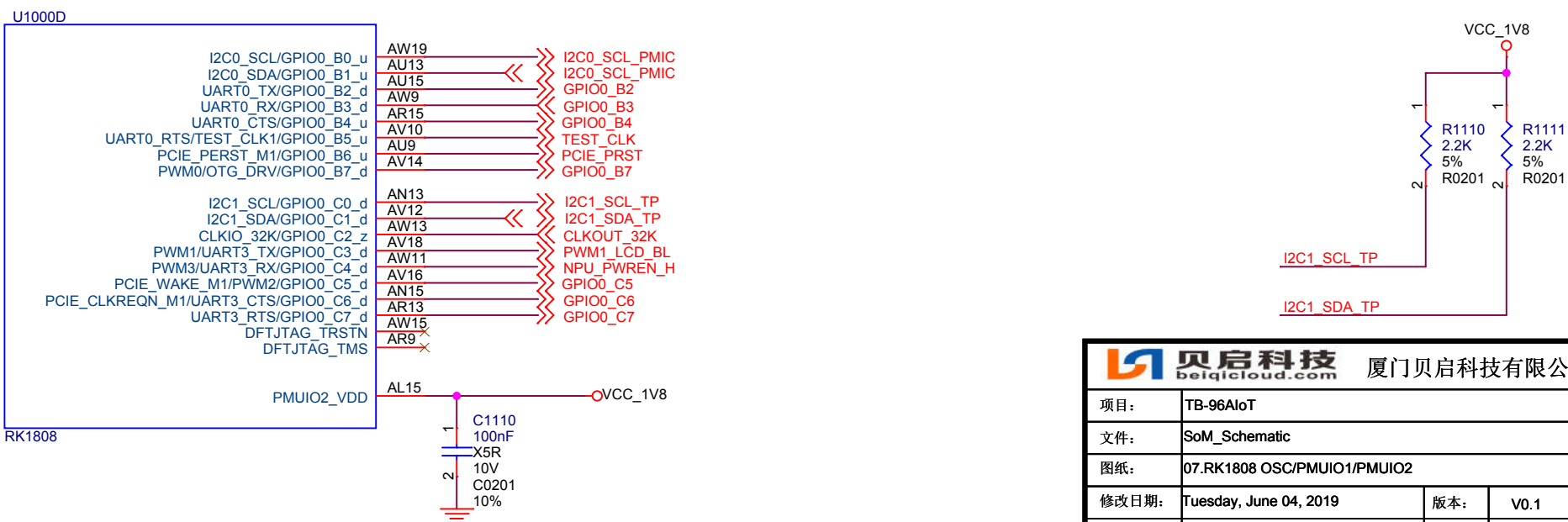
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PMUIO1/OSC

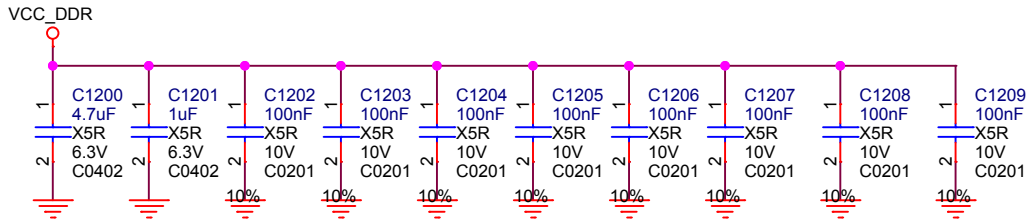
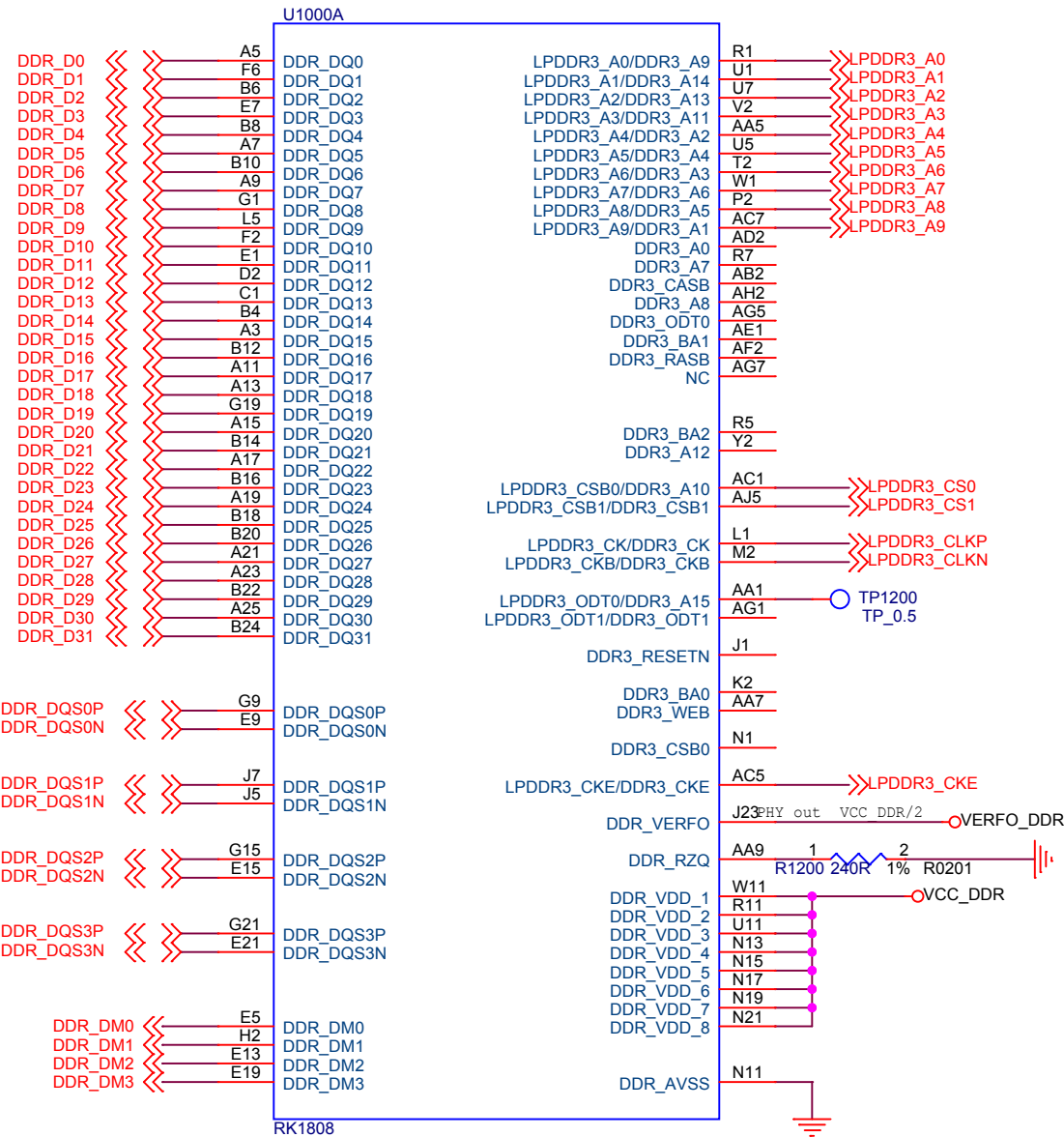


PMUIO2




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图纸:	07.RK1808 OSC/PMUIO1/PMUIO2		
修改日期:	Tuesday, June 04, 2019	版本:	V0.1
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DDR Controller



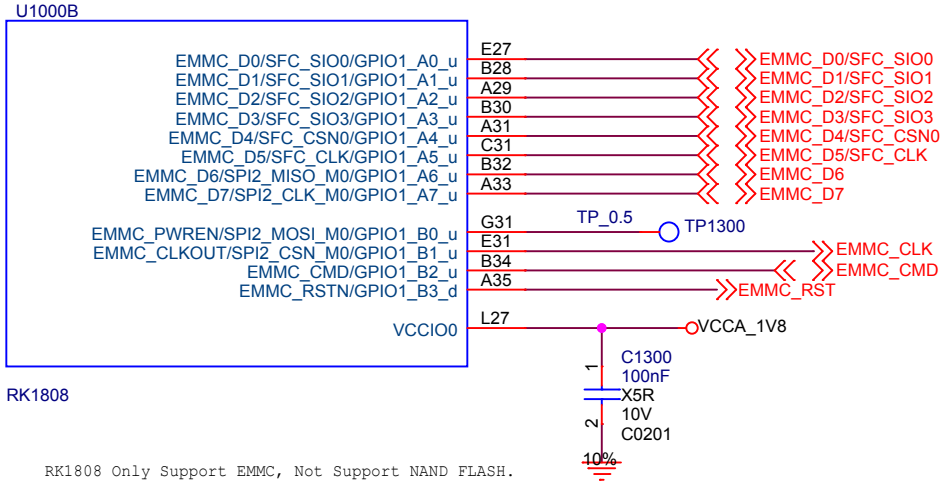
LPDDR3/LPDDR2	DDR3
A0	A9
A1	A14
A2	A13
A3	A11
A4	A2
A5	A4
A6	A3
A7	A6
A8	A5
A9	A1
	A0
	A7
	CASB
	A8
	ODT0
	BA1
	RASB
	CSB0
	BA2
	A12
	BA0
	WEB
CK	CK
CKB	CKB
CKE	CKE
CSB0	A10
CSB1	CSB1
ODT0	A15
ODT1	ODT1
	RESETN



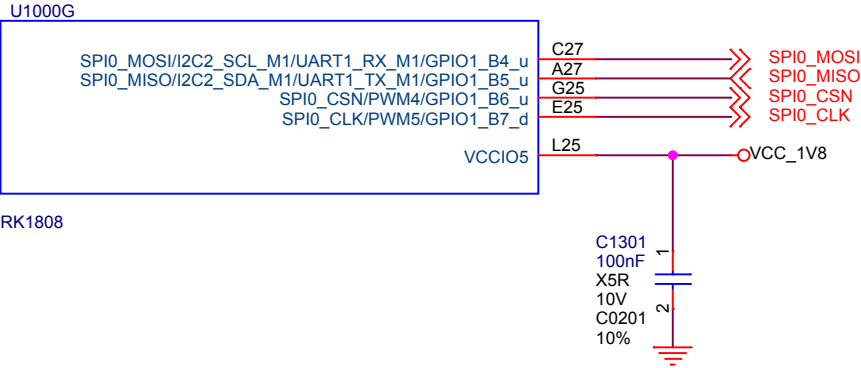
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EMMC/SFC Controller

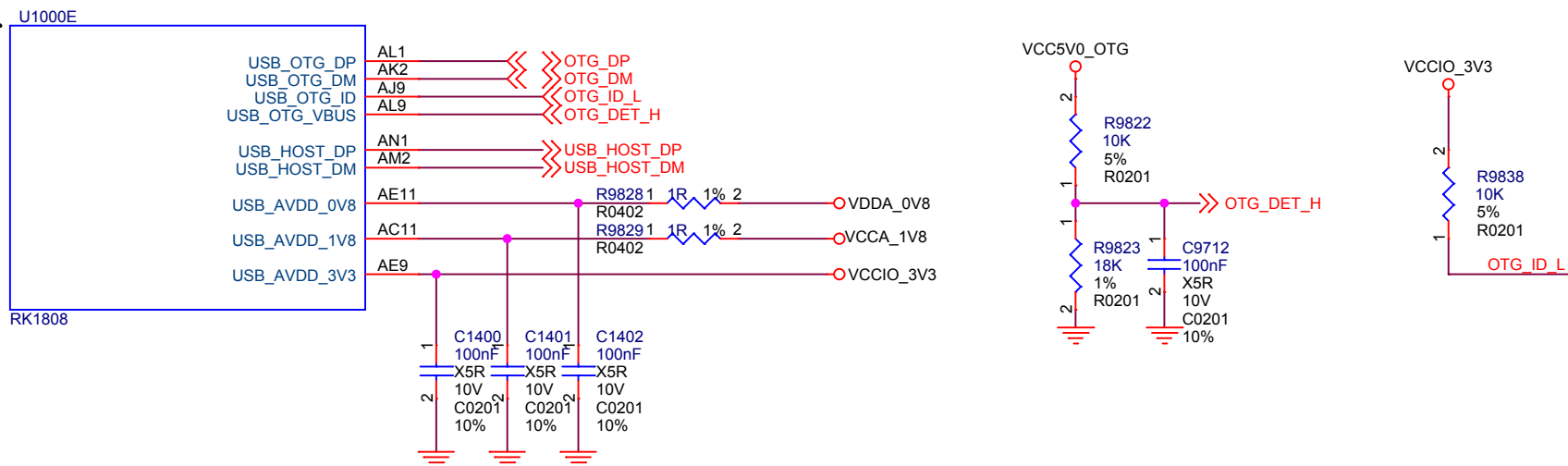


SPI0 Controller

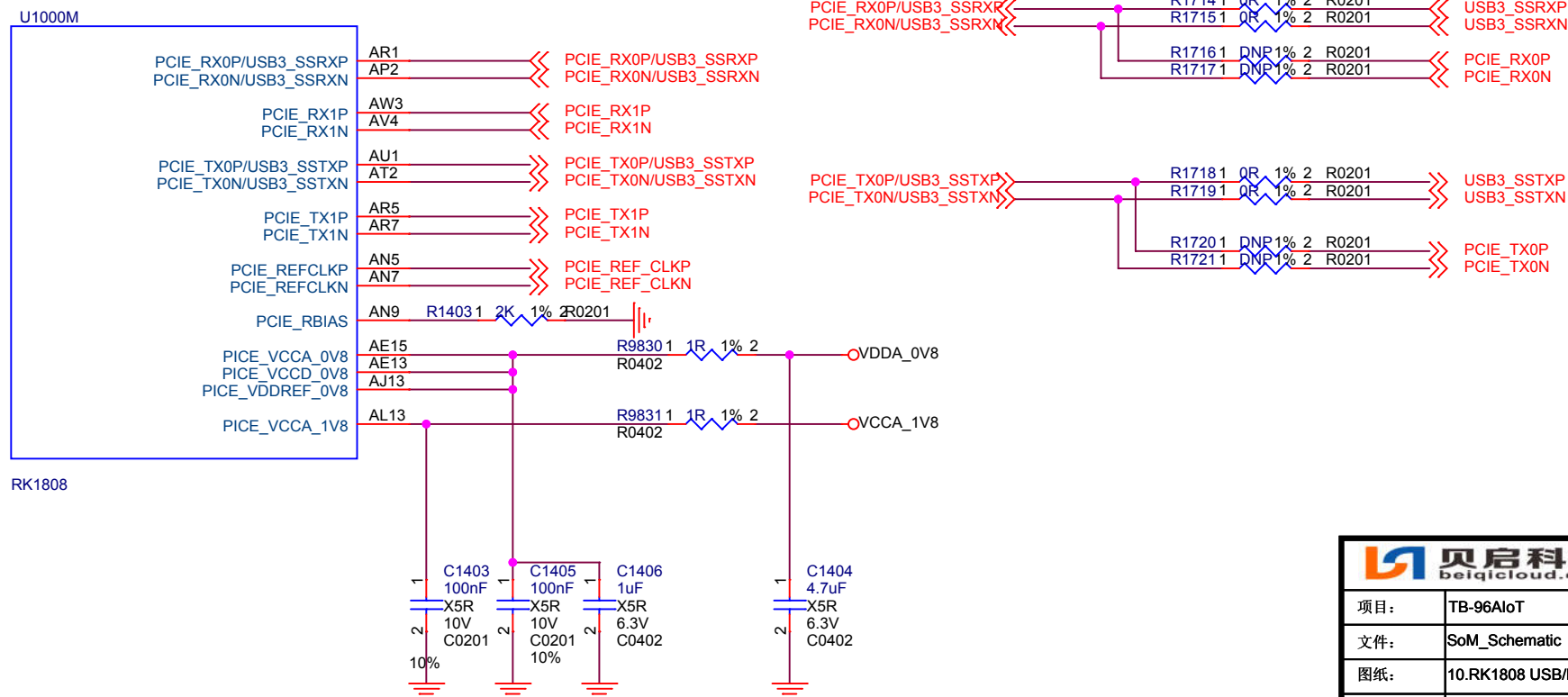



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USB Controller

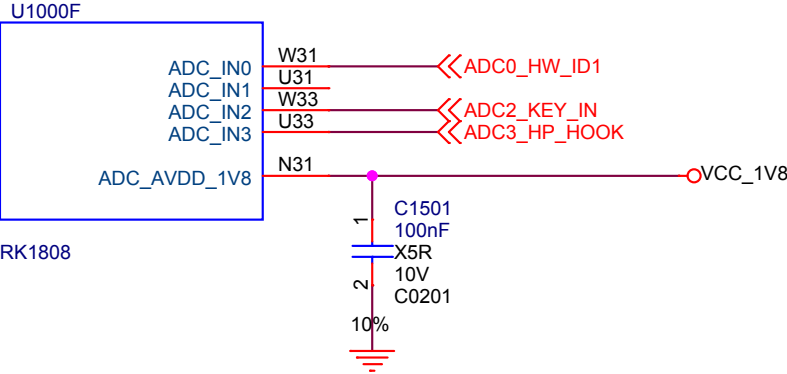


PCIE Controller

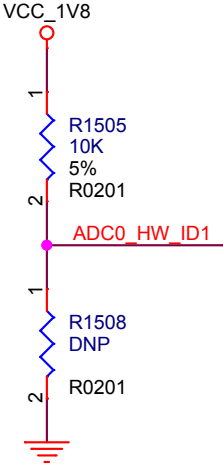



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图纸:	10.RK1808 USB/PCIE Controller		
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SARADC/KEY

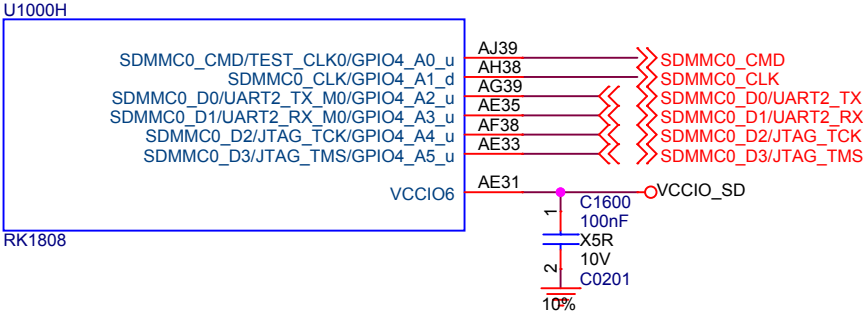


Key Name	SARADC
VOL+/RECOVERY	10
VOL-	170

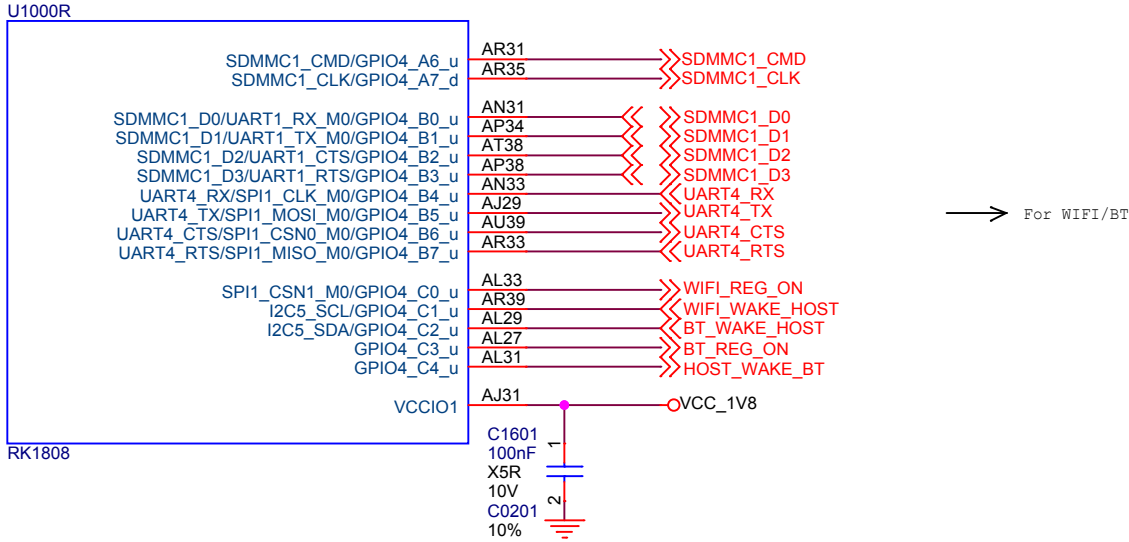


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SDMMC0 Controller



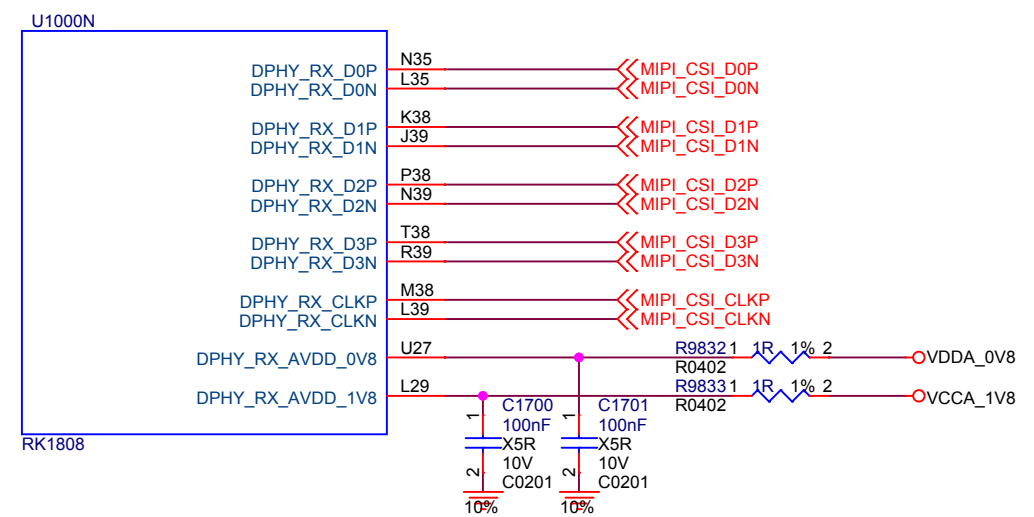
SDMMC1 Controller



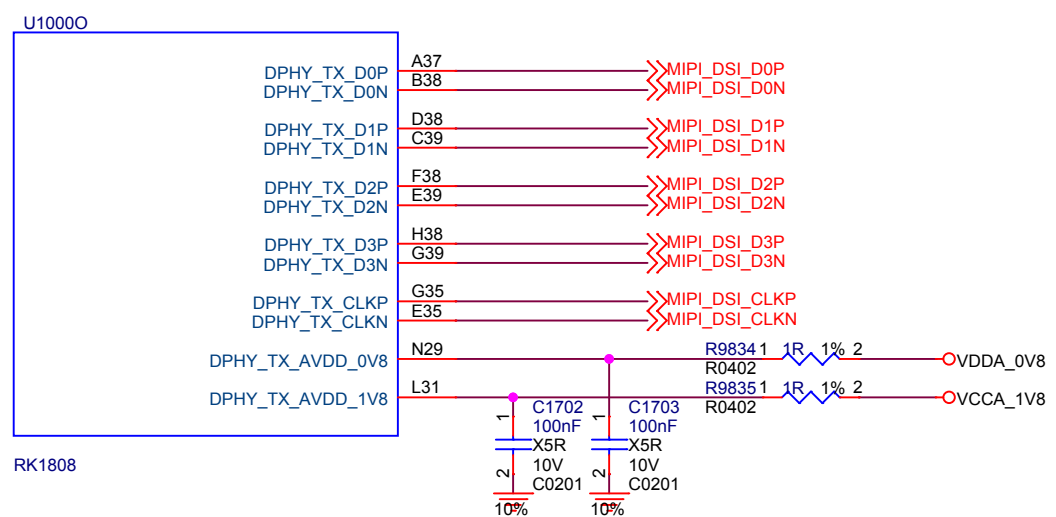
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图纸:	12.RK1808 SDMMC0/SDMMC1			
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MIPI CSI Controller



MIPI DSI Controller

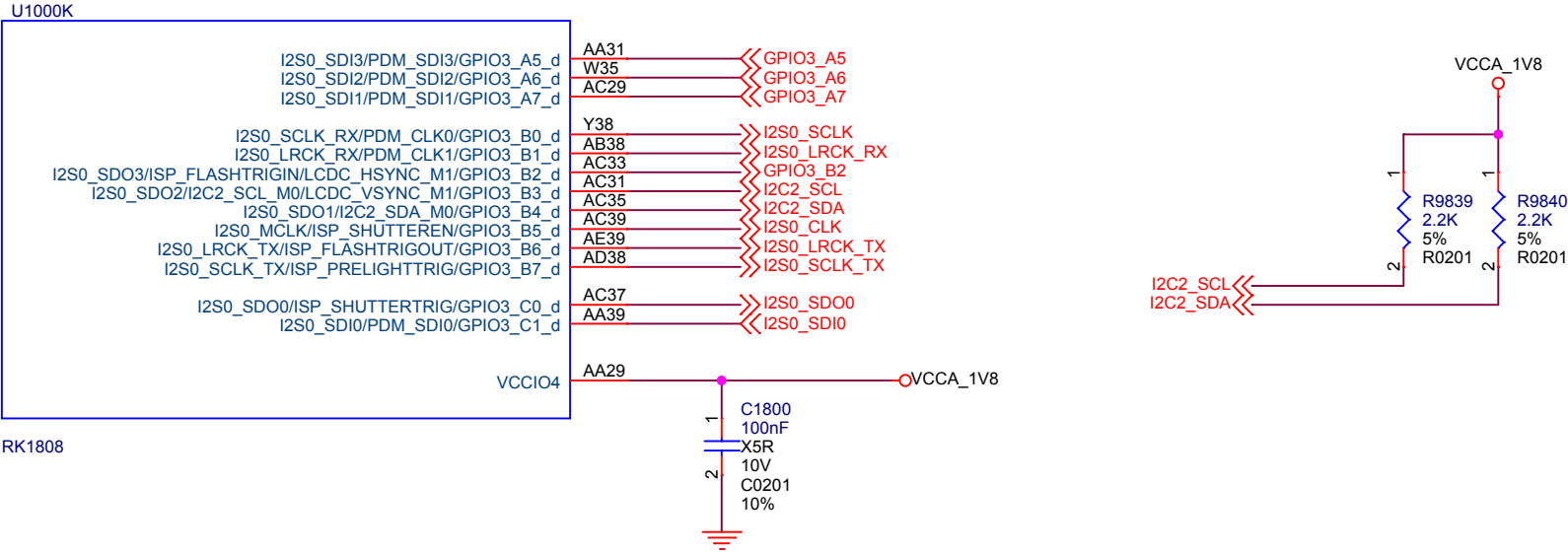




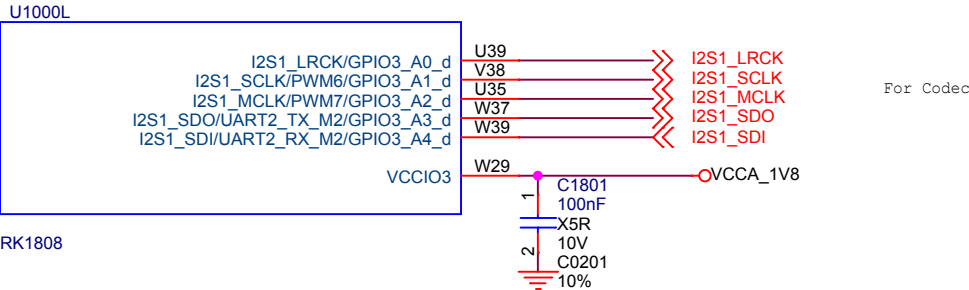
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图纸:	13.RK1808 MIPI DSI/CSI		
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I2S0 Controller

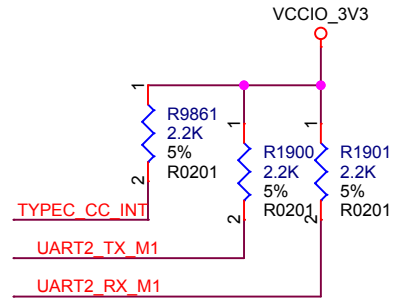
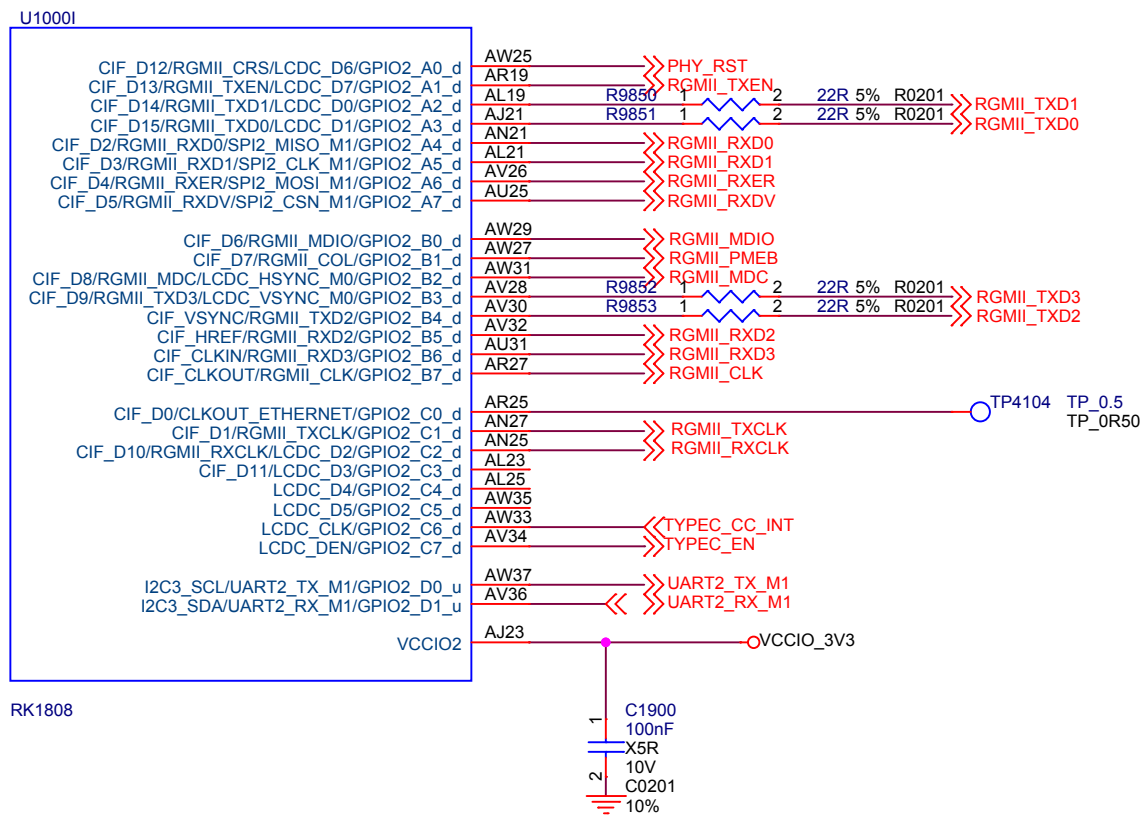


I2S1 Controller

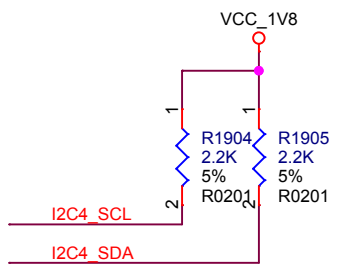
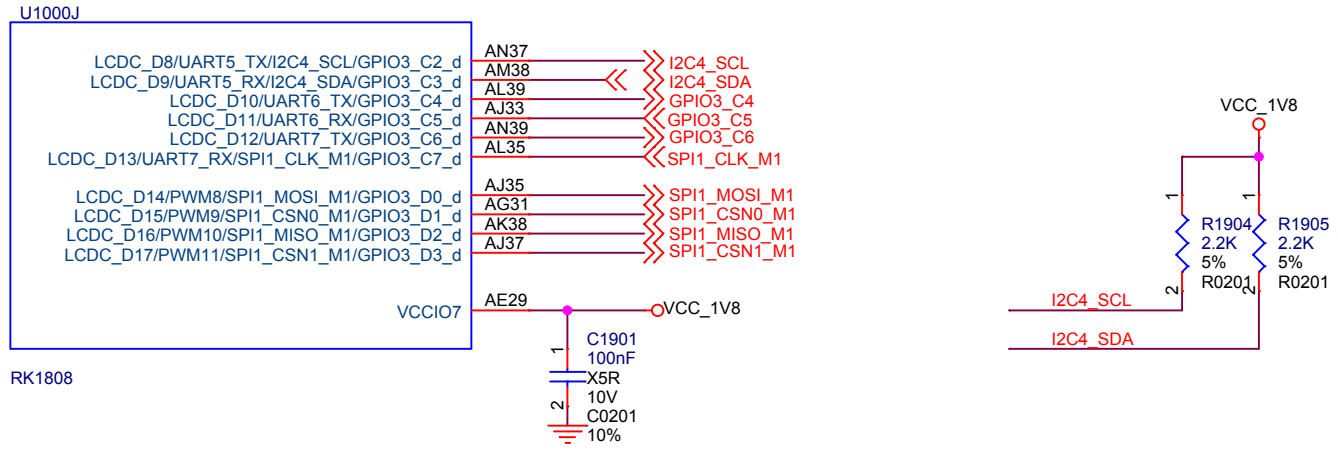


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图纸:	14.RK1808 I2S0/I2S1		
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CIF/RGMII/LCDC Controller

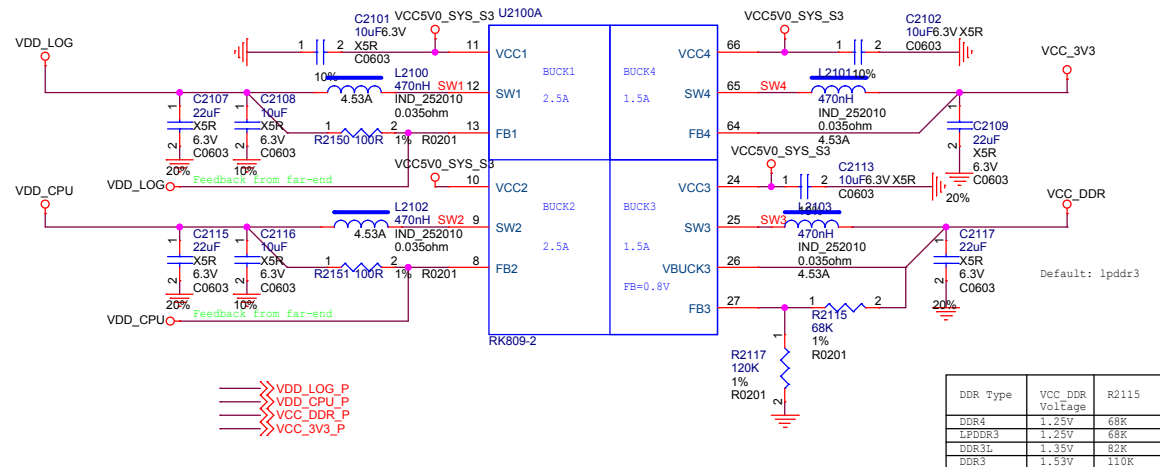


LCDC Controller

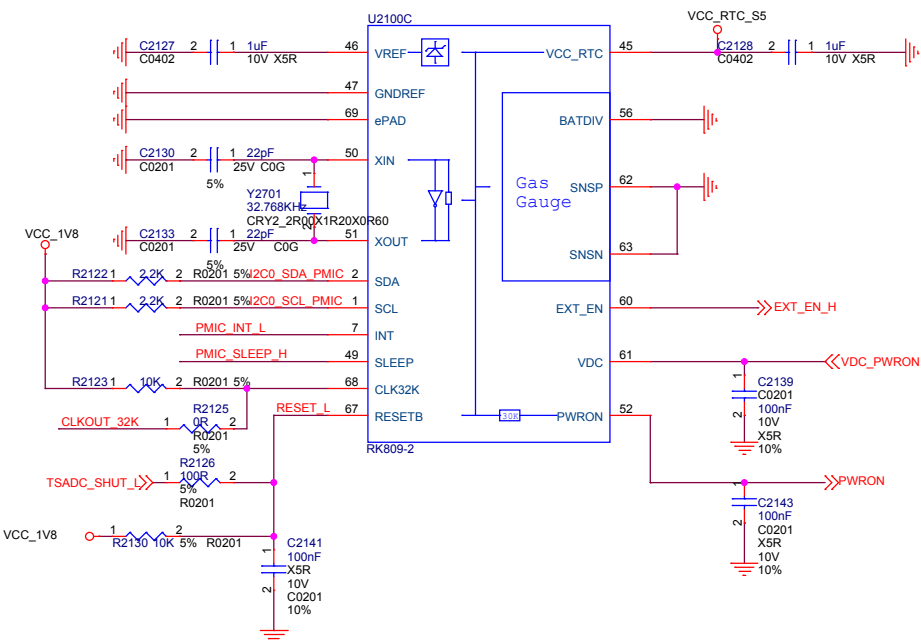


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项目:	TB-96AIoT		
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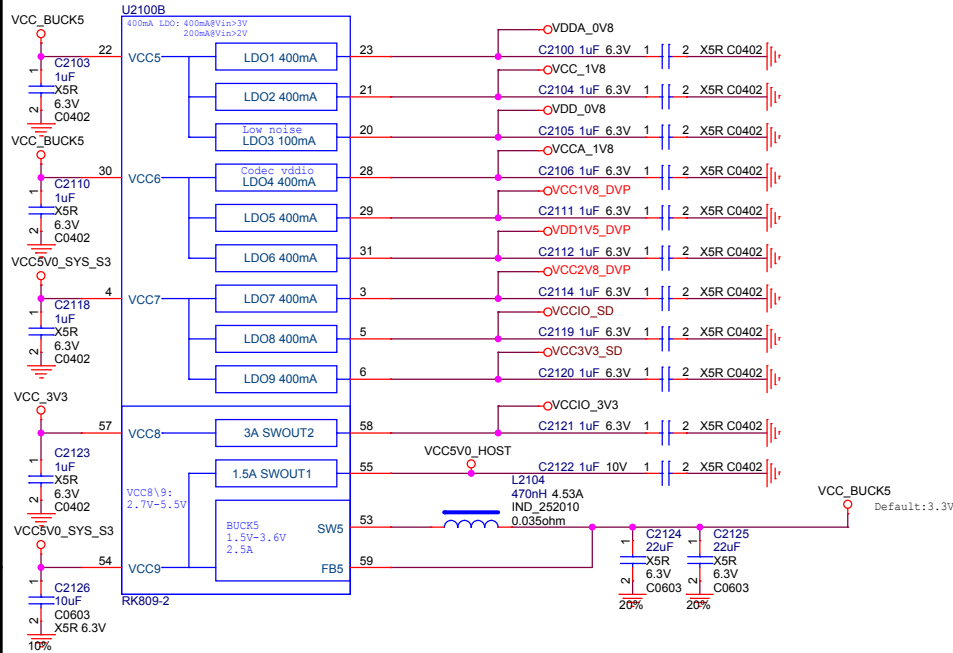
PMIC RK809-2 DCDC



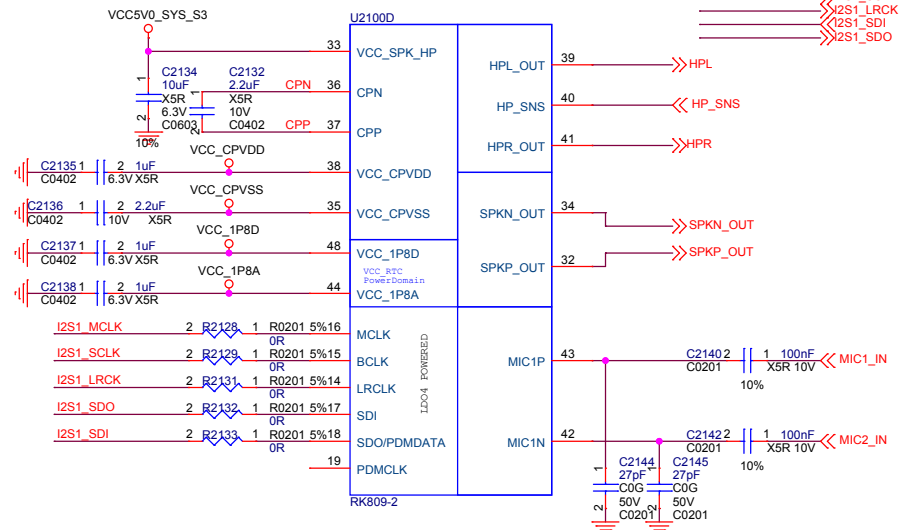
PMIC RK809-2 Management

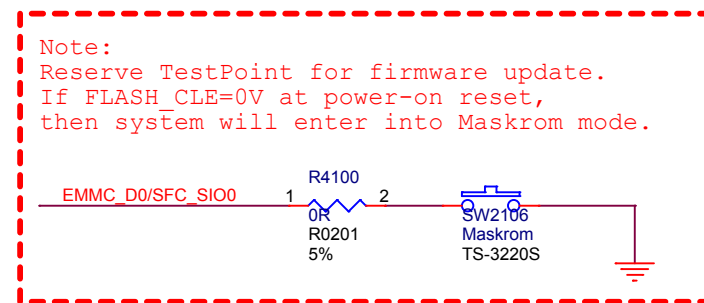


PMIC RK809-2 LDO



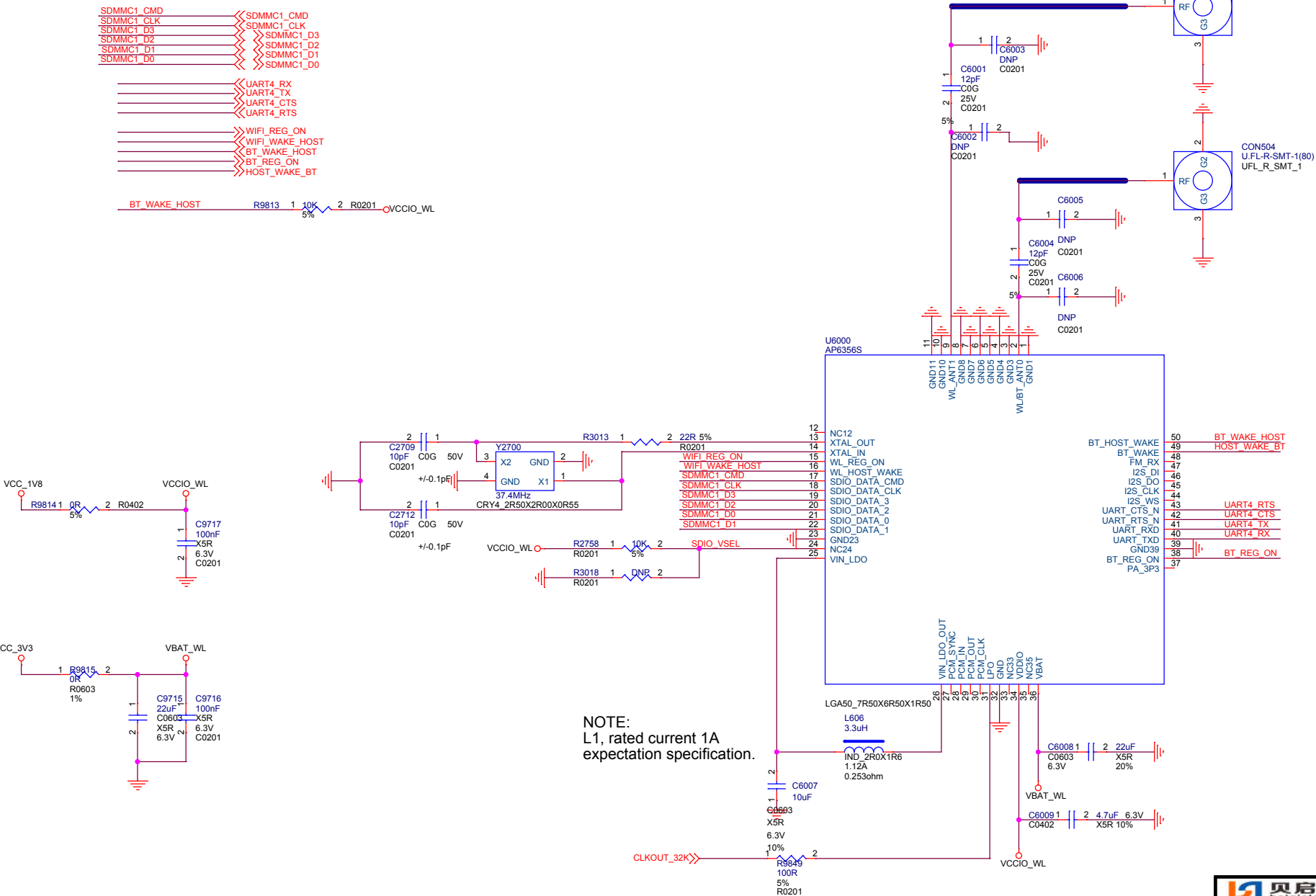
PMIC RK809-2 CODEC





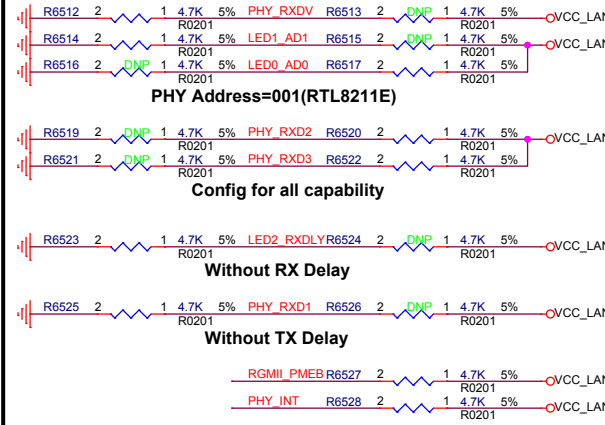
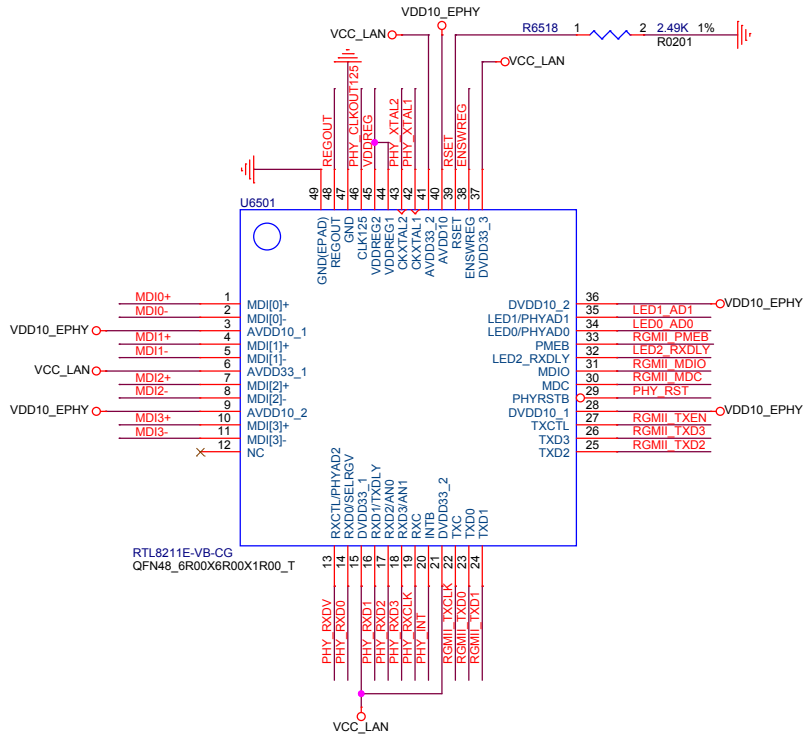
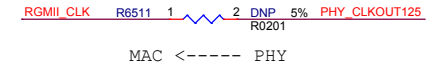
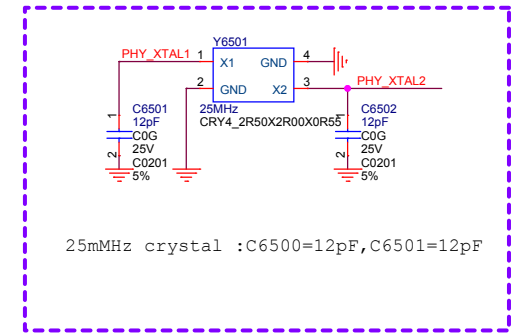
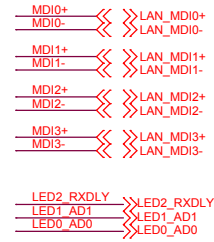
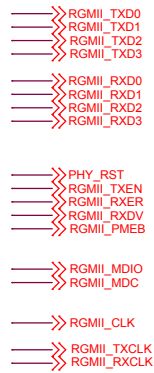
Remind: Refer to the latest AVL for parts selection.

WIFI/BT MODULE

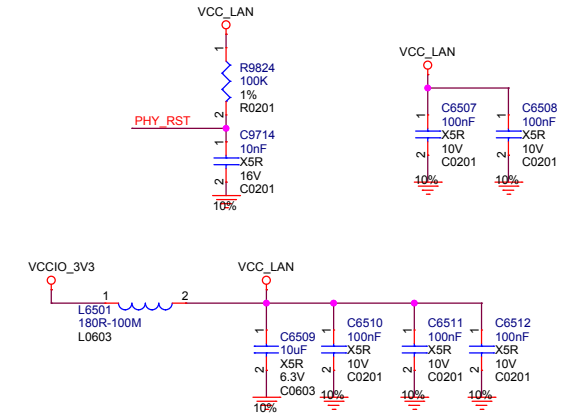
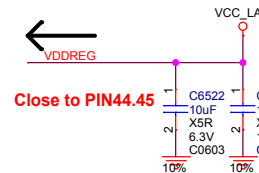
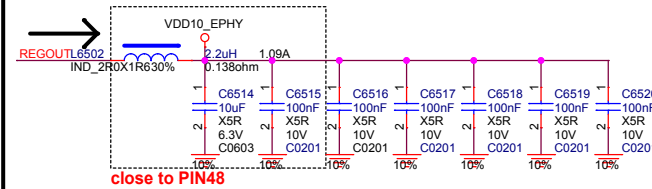


NOTE:
L1, rated current 1A
expectation specification.

项目:	TB-96AIoT		
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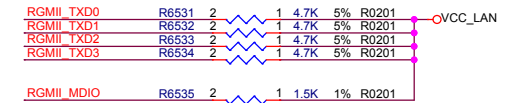


Connect ENSWREG to AVDD33 to enable Switching regulator or connect ENSWREG to GND to disable Switching regulator.



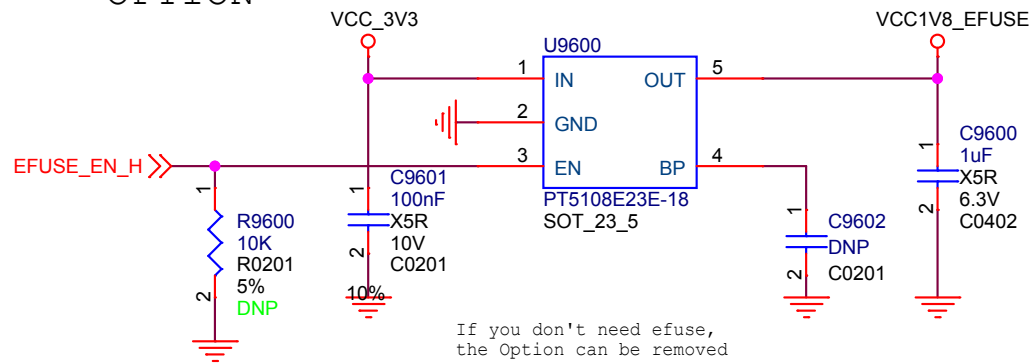
Pull down for 2.5V RGMII(RTL8211D/8211E)
Pull up for 3.3V RGMII (RTL8211D/8211E)
Pull up 1.5 / 1.8V RGMII (RTL8211E-VL only)

RGMII 1000M



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OPTION



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项目:	TB-96AIoT		
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