

野火RK3576鲁班猫3金手指核心板

（LubanCat 3CF）_原理图_V0.1

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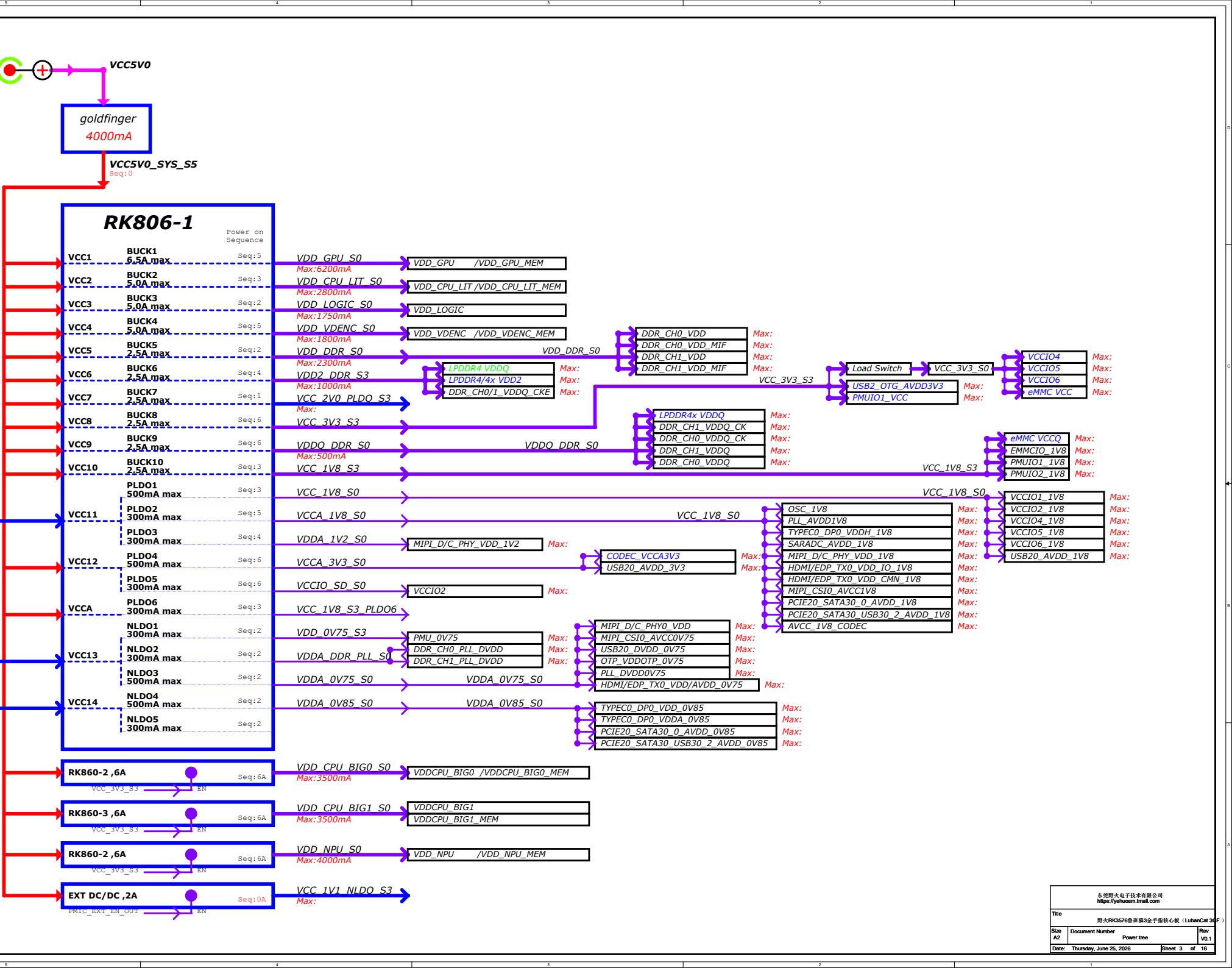
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Title 野火RK3576鲁班猫3金手指核心板（LubanCat 3CF）		
Size A4	Document Number 目录	Rev V0.1
Date: Thursday, June 25, 2026	Sheet 1 of 16	

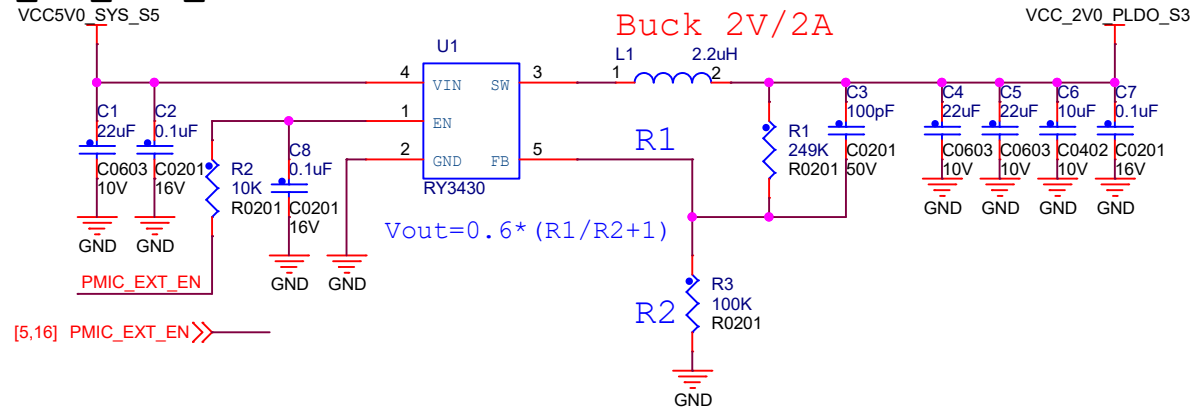
历史版本

版本号	日期	设计	描述
V1.0	2024-08-17	ZTC	初始版本
V1.1	2026-06-25	llm	把核心板复位信号引出到金手指163引脚，替换原来的RTC_32K_IN信号，同时预留跳阻兼容V1R0版本

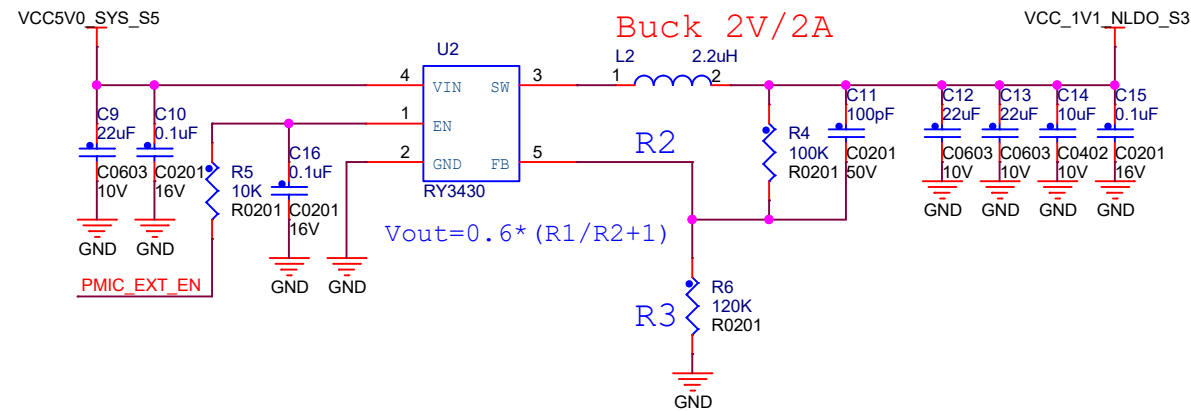
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Title 野火RK3576鲁班猫3金手指核心板（LubanCat 3CF）		
Size A4	Document Number 历史版本	Rev V0.1
Date: Thursday, June 25, 2026	Sheet 2 of 16	



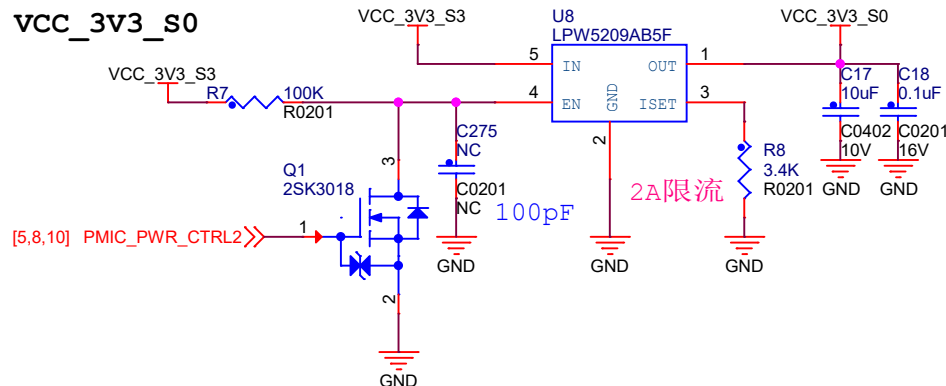
VCC_2V0_PLDO_S3



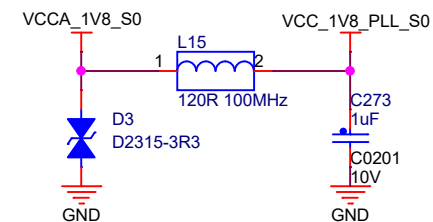
VCC_1V1_NLDO_S3



VCC_3V3_S0



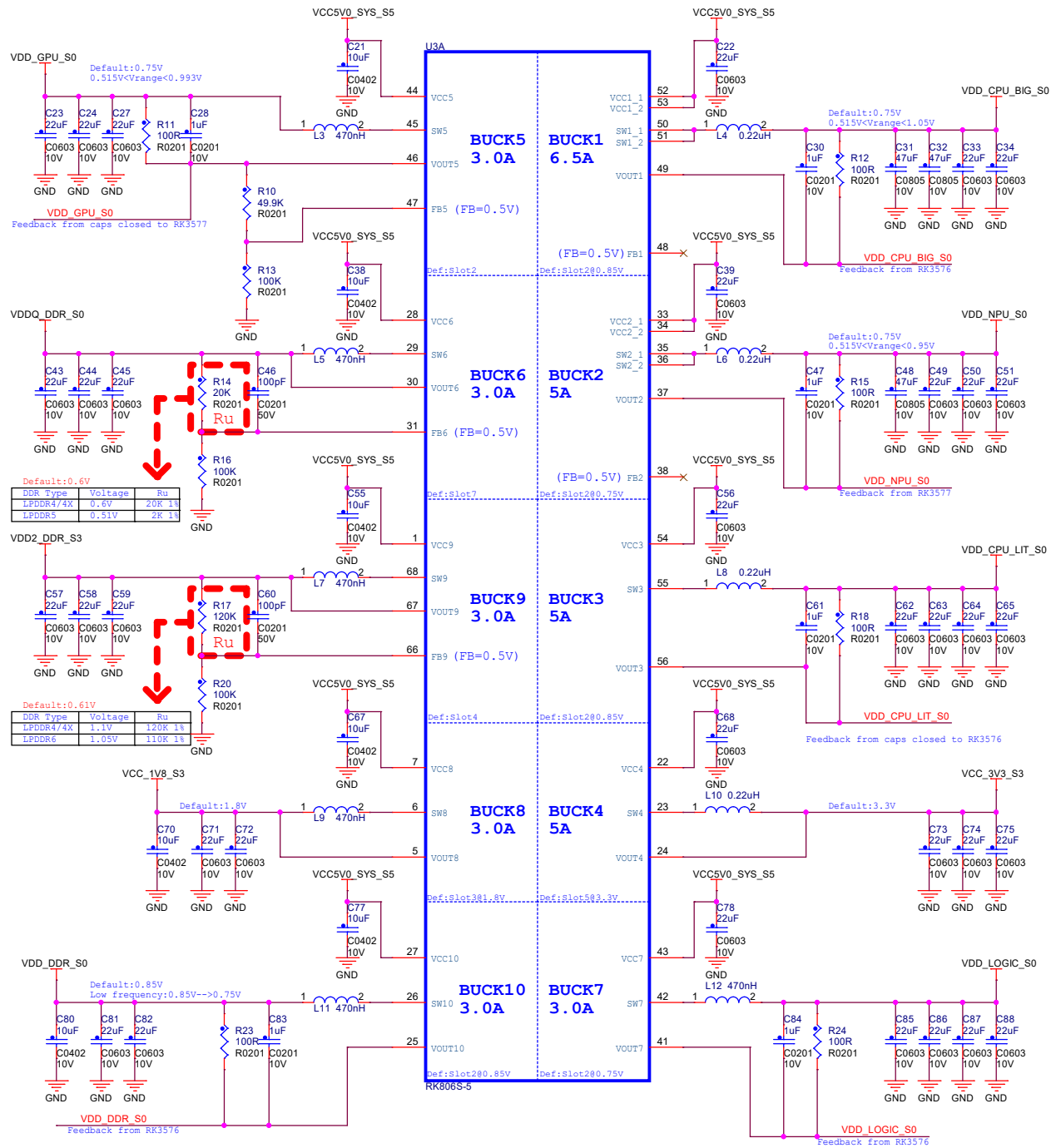
VCC_1V8_PLL_S0



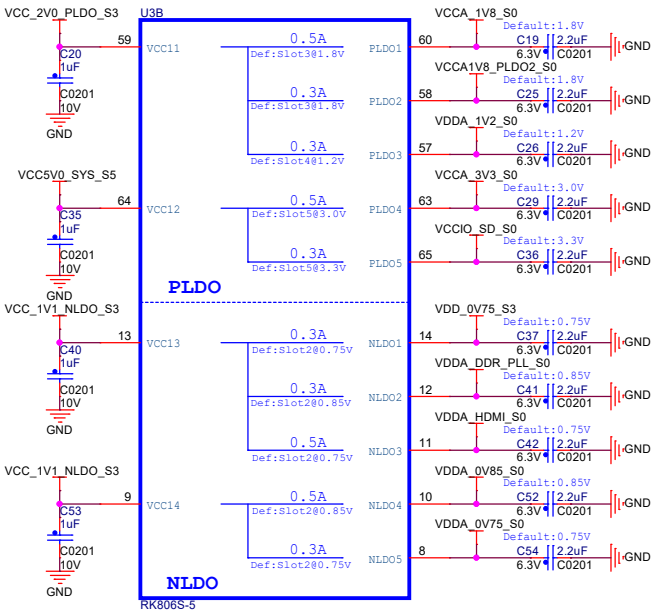
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Title		
野火RK3576鲁班猫3金手指核心板 (LubanCat 3C)		
Size A4	Document Number POWER_IN/FAN/VCC5V_SYS	Rev V0.1
Date: Thursday, June 25, 2026	Sheet 4 of 16	

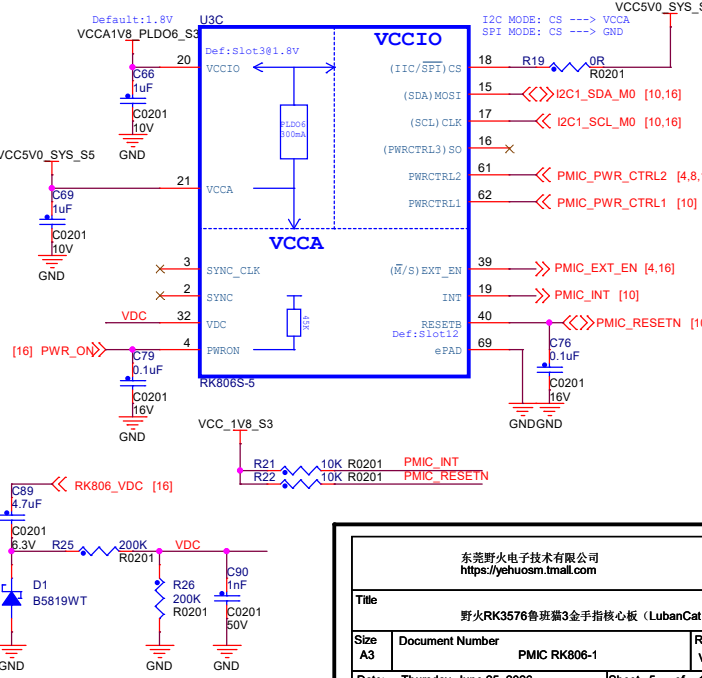
PMIC RK806-1 BUCK



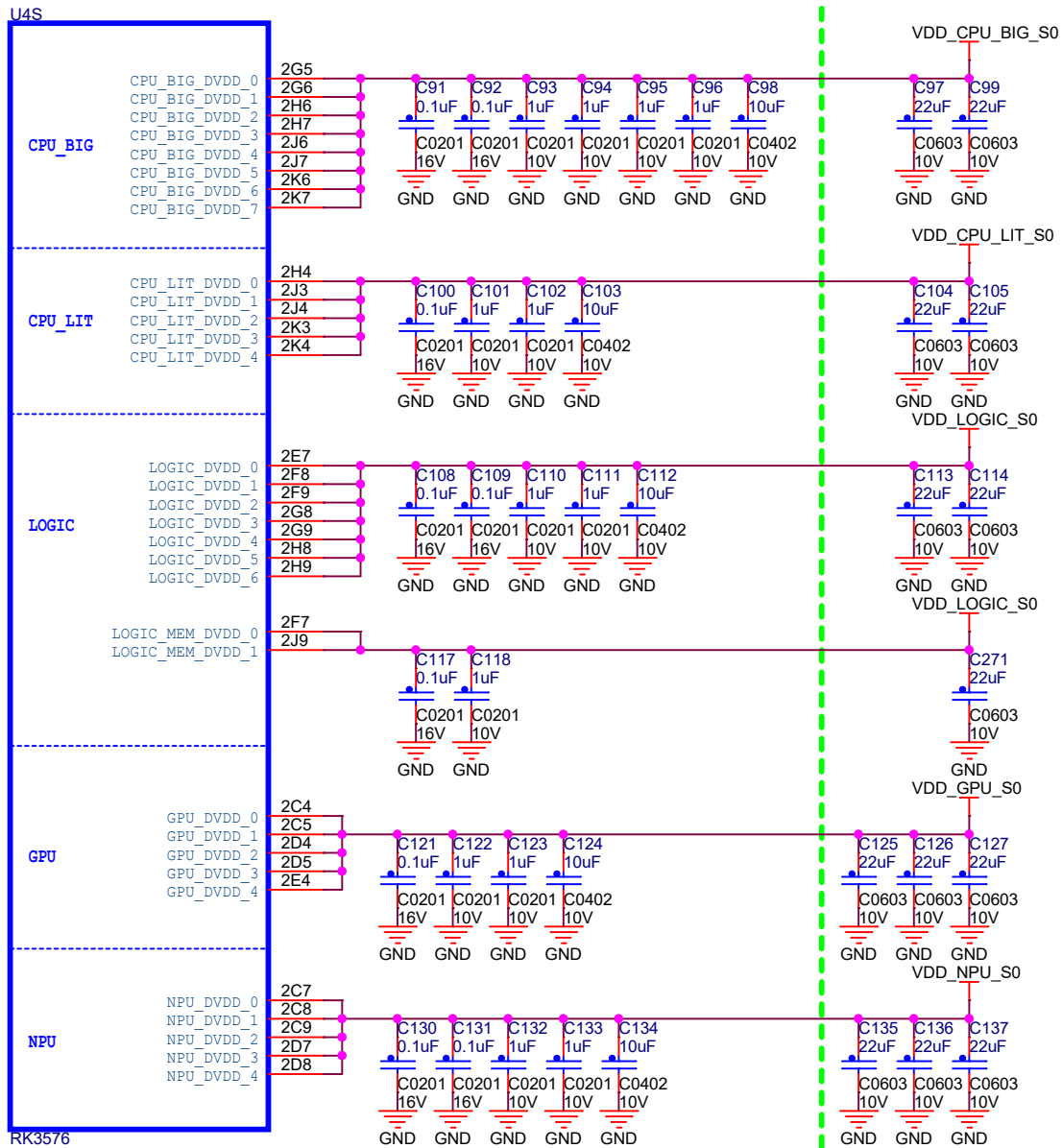
PMIC RK806-1 LDO



PMIC RK806S-5 Management



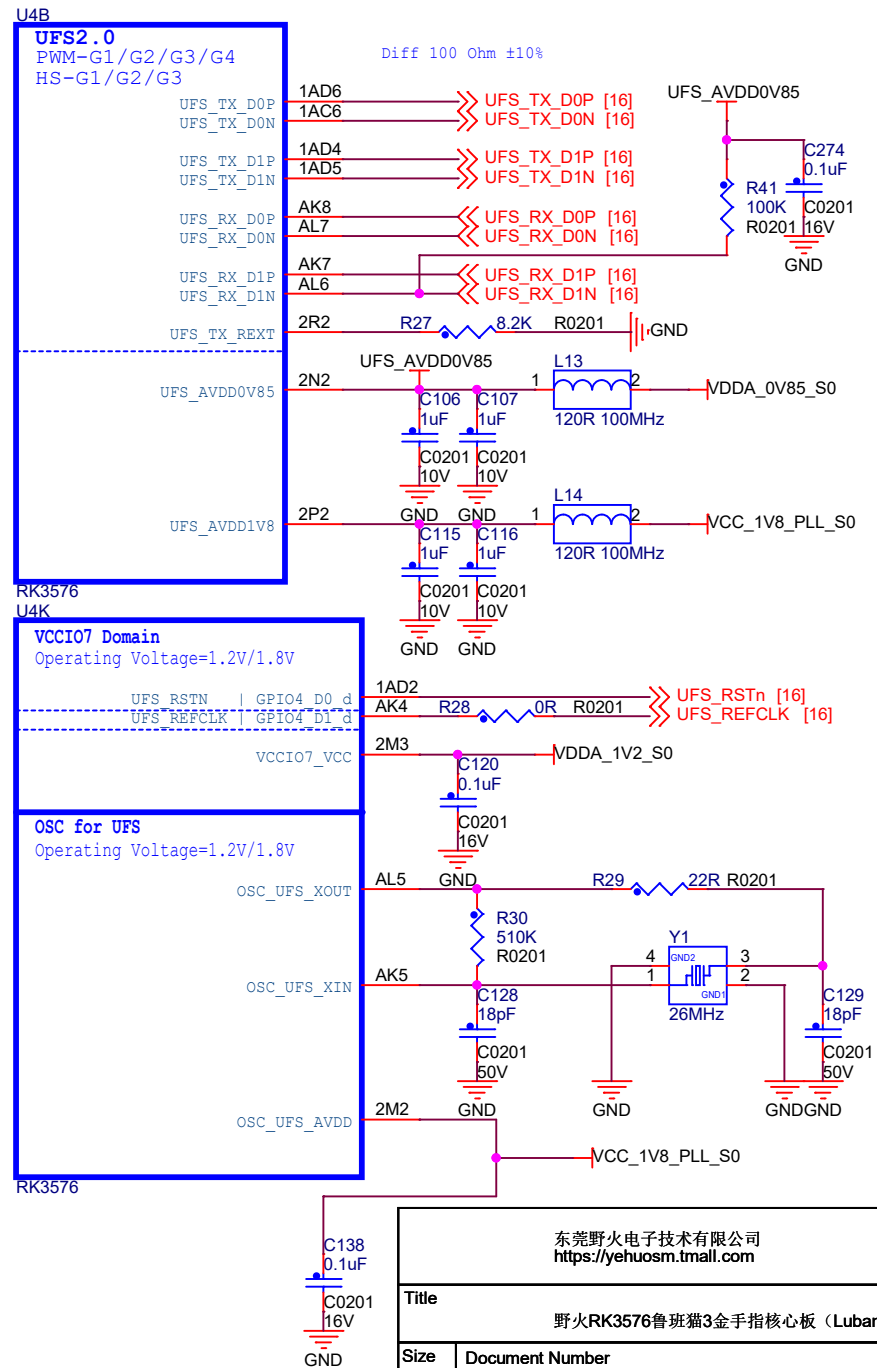
RK3576 PWR



Note:

The Caps between green line and U9 should be placed under the U9 package. Other caps should be placed close to the U9 package

UFS2.1



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Title

Size
A4

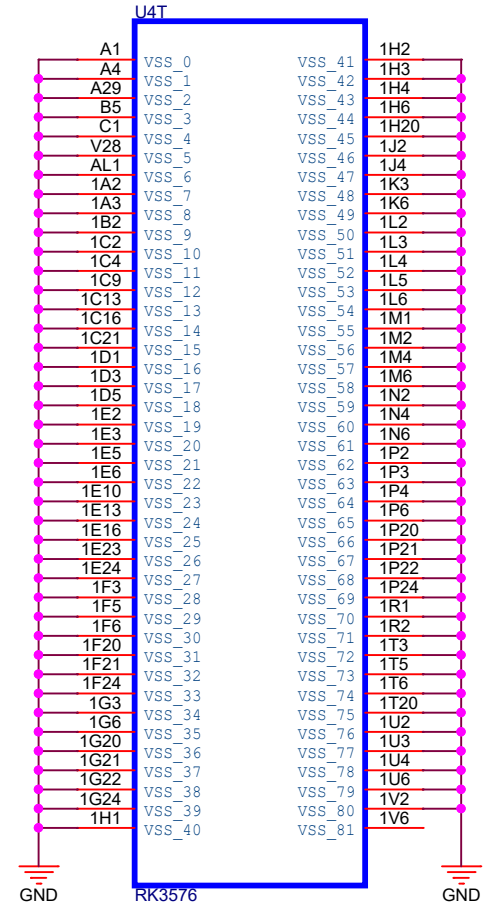
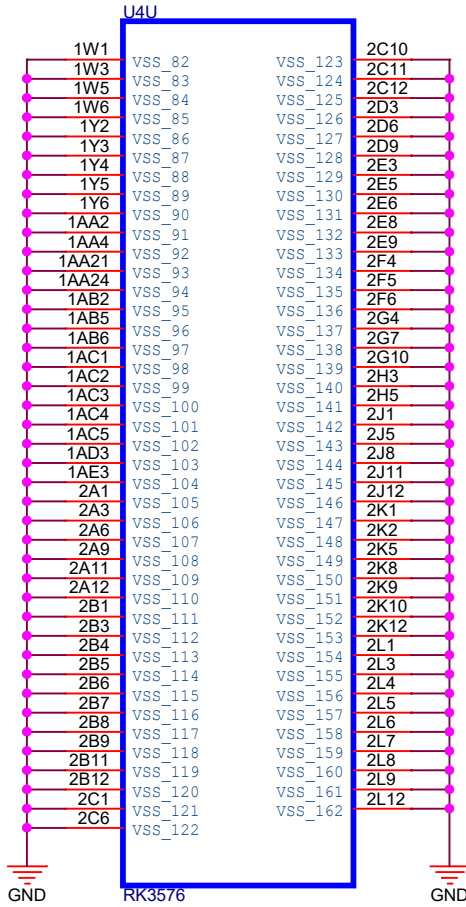
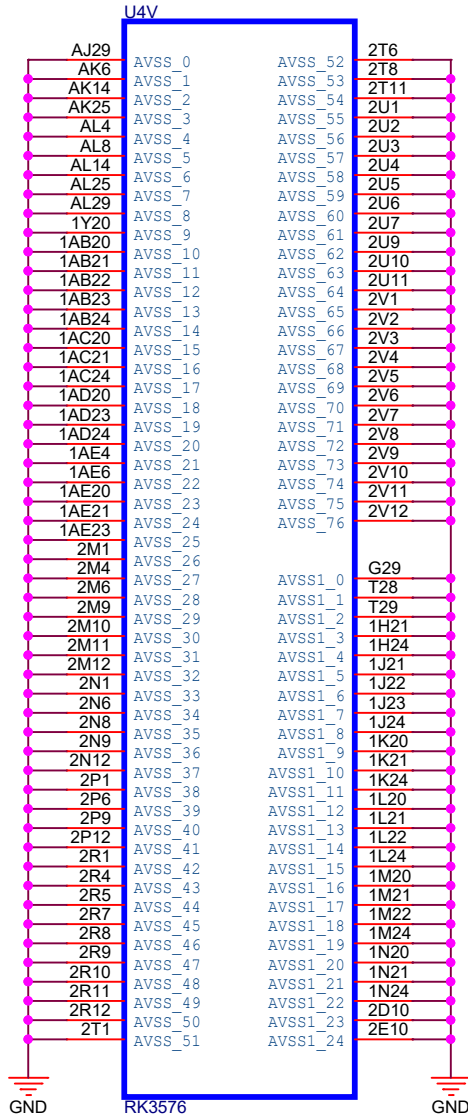
Document Number
RK3576_PWR

Date: Thursday, June 25, 2026

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野火RK3576鲁班猫3金手指核心板 (LubanCat 3CF)

RK3576_GND



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Title

野火RK3576鲁班猫3金手指核心板 (LubanCat 3C-F)

Size
A4

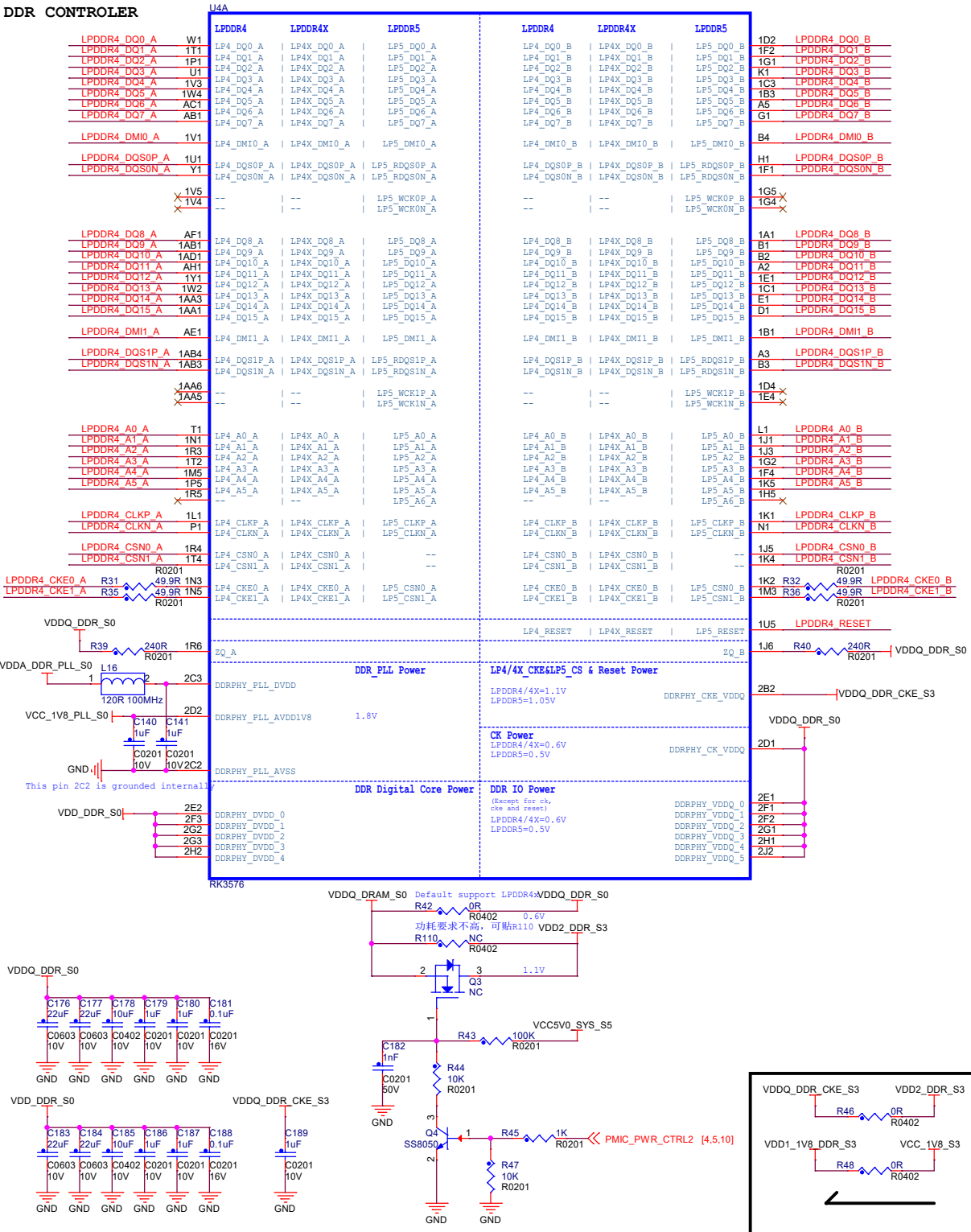
Document Number
RK3576_GND

Rev
V0.1

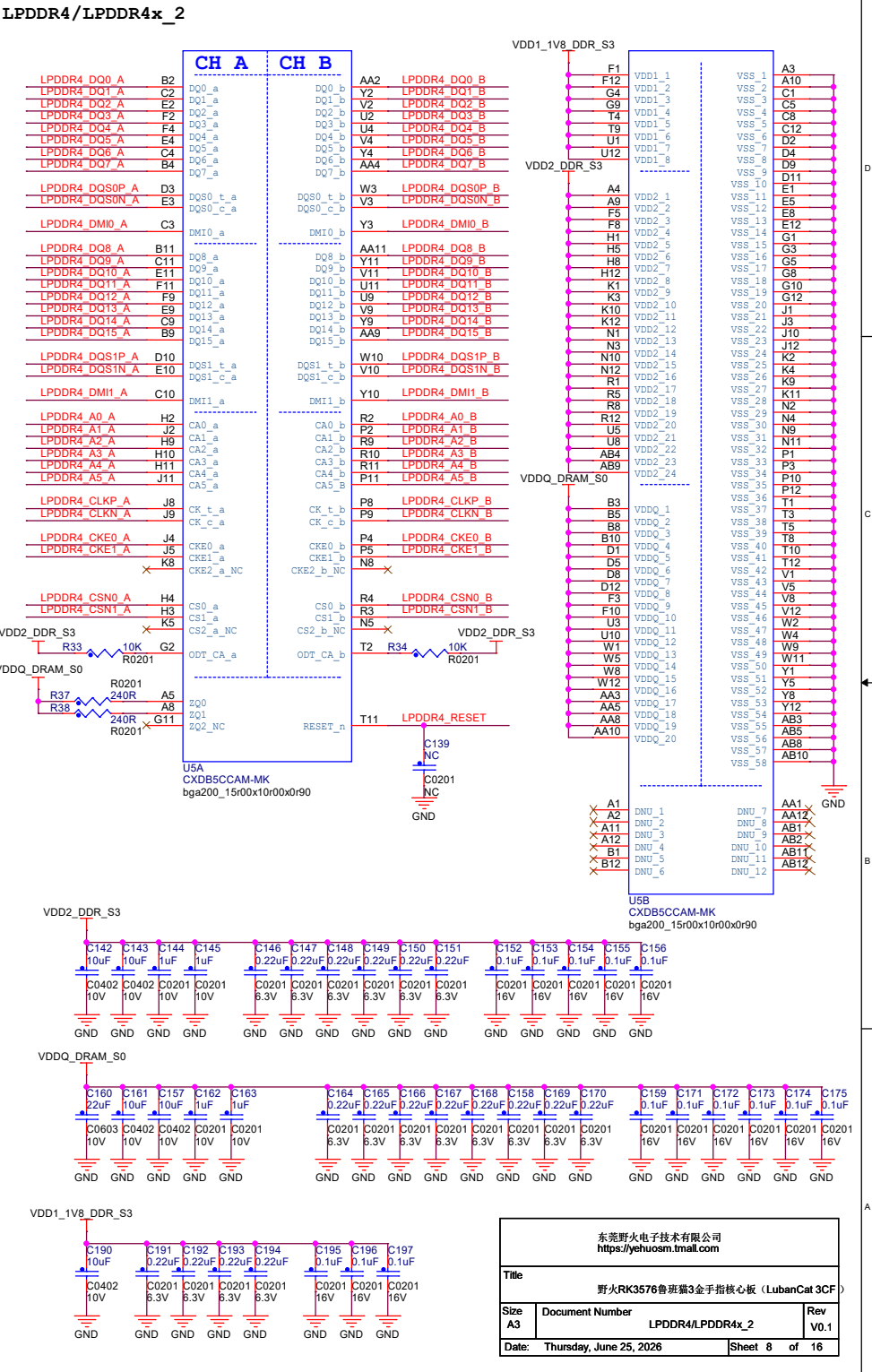
Date: Thursday, June 25, 2026

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DDR CONTROLLER



LPDDR4/LPDDR4x 2



RK3576_VCCIO0/1/6

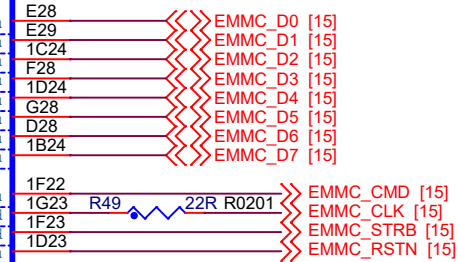
U4C

VCCIO0 Domain

Operating Voltage=1.8V

--	--	I2C2_SCL_M1	UART7_RTSN_M1	--	--	SAI0_SCLK_M2	FSPIO_D0	EMMC_D0	GPIO1_A0_u
--	--	I2C2_SDA_M1	UART7_CTSN_M1	--	--	SAI0_LRCK_M2	FSPIO_D1	EMMC_D1	GPIO1_A1_u
--	--	UART6_RTSN_M2	UART7_RX_M1	PDM0_SDI3_M1	SAI0_SDI3_M2	SAI0_SDO1_M2	FSPIO_D2	EMMC_D2	GPIO1_A2_u
--	--	UART6_CTSN_M2	UART7_RX_M1	PDM0_SDI1_M1	SAI0_SDI2_M2	SAI0_SDO2_M2	FSPIO_D3	EMMC_D3	GPIO1_A3_u
--	--	--	SPI0_CSN0_M2	--	SAI3_MCLK_M0	SAI0_MCLK_M2	--	EMMC_D4	GPIO1_A4_u
--	--	I2C9_SCL_M0	SPI0_MOSI_M2	PDM0_SDI2_M1	SAI3_SCLK_M0	--	--	EMMC_D5	GPIO1_A5_u
--	--	I2C9_SDA_M0	SPI0_MISO_M2	PDM0_CLK1_M1	SAI3_LRCK_M0	--	--	EMMC_D6	GPIO1_A6_u
--	--	--	SPI0_CLK_M2	--	SAI3_SDI_M0	SAI0_SDO0_M2	--	EMMC_D7	GPIO1_A7_u
--	--	I2C7_SCL_M0	UART6_TX_M2	--	--	FSPIO_CSN1	FSPIO_RSTN	EMMC_CMD	GPIO1_B0_u
PWM2_CH1_M1	--	--	--	PDM0_CLK0_M1	SAI0_SDI1_M2	SAI0_SDO3_M2	FSPIO_CLK	EMMC_CLK	GPIO1_B1_d
--	--	--	SPI0_CSN1_M2	PDM0_SDI0_M1	SAI3_SDO_M0	SAI0_SDI0_M2	--	EMMC_STRB	GPIO1_B2_d
PWM2_CH1_M0	MIPI_TE_M3	I2C7_SDA_M0	UART6_RX_M2	--	--	--	FSPIO_CSN0	EMMC_RSTN	GPIO1_B3_u

VCCIO0_VCC1V8



RK3576

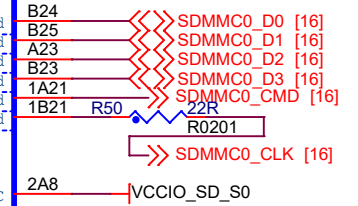
U4D

VCCIO1 Domain

Operating Voltage=1.8V/3.3V

PWM2_CH2_M0	CAN0_RX_M0	SPI0_MOSI_M1	I2C8_SCL_M0	UART7_RX_M2	UART0_RX_M1	--	--	DSM_AUD_LP_M0	FSPII_D0_M0	SDMMC0_D0	GPIO2_A0_d
PWM2_CH3_M0	CAN0_TX_M0	SPI0_MISO_M1	I2C8_SDA_M0	UART7_TX_M2	UART0_TX_M1	--	SAI3_MCLK_M3	DSM_AUD_LN_M0	FSPII_D1_M0	SDMMC0_D1	GPIO2_A1_d
13C1_SCL_M1	CAN1_RX_M0	SPI0_CSN1_M1	--	UART5_RTSN_M2	JTAG_TCK_M0	--	SAI3_LRCK_M3	DSM_AUD_RP_M0	FSPII_D2_M0	SDMMC0_D2	GPIO2_A2_d
13C1_SDA_M1	CAN1_TX_M0	--	--	UART5_CTSN_M2	JTAG_TMS_M0	--	SAI3_SDI_M3	DSM_AUD_RN_M0	FSPII_D3_M0	SDMMC0_D3	GPIO2_A3_d
PWM2_CH4_M0	--	SPI0_CSN0_M1	I2C5_SDA_M0	--	UART5_RX_M2	--	SAI3_SDO_M3	--	FSPII_CSN0_M0	SDMMC0_CMD	GPIO2_A4_d
13C1_SDA_PU_M1	--	SPI0_CLK_M1	I2C5_SCL_M0	--	UART5_TX_M2	TEST_CLK_OUT	SAI3_SCLK_M3	--	FSPII_CLK_M0	SDMMC0_CLK	GPIO2_A5_d

VCCIO1_VCC



RK3576

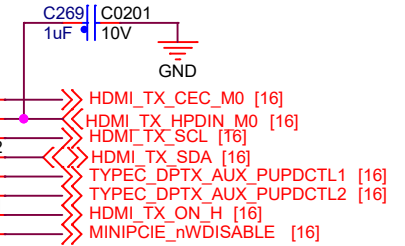
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VCCIO6 Domain

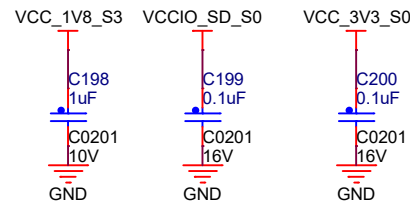
Operating Voltage=1.8V/3.3V

PWM1_CH5_M1	UART11_TX_M2	SPI4_CSN1_M0	I2C7_SCL_M3	--	HDMI_TX_CEC_M0	--	SAI4_MCLK_M2	DSM_AUD_LP_M1	GPIO4_C0_d
PWM0_CH1_M1	UART11_RX_M2	EDS_TX_HPDI0_M0	I2C7_SDA_M3	PCIe1_CLKREQ0_M3	HDMI_TX_HPDI0_M0	--	--	DSM_AUD_LN_M1	GPIO4_C1_d
PWM2_CH0_M1	UART9_TX_M2	CAN0_TX_M1	I2C2_SCL_M3	--	HDMI_TX_SCL	--	--	DSM_AUD_RP_M1	GPIO4_C2_d
PWM2_CH1_M1	UART9_RX_M2	CAN0_RX_M1	I2C2_SDA_M3	--	HDMI_TX_SDA	--	--	DSM_AUD_RN_M1	GPIO4_C3_d
PWM2_CH6_M1	UART6_TX_M3	SPI4_CSN0_M0	I2C3_SCL_M3	DP_HPDI0_M0	--	--	SAI4_LRCK_M2	ISP_PRELIGHT_TRIG_M1	GPIO4_C4_d
PWM2_CH5_M1	UART6_RX_M3	SPI4_MOSI_M0	I2C3_SDA_M3	SATA1_ACTLED_M1	--	VP0_SYNC_OUT	SAI4_SDO_M2	ISP_FLASH_TRIGOUT_M1	GPIO4_C5_d
PWM2_CH2_M1	CAN1_TX_M1	SPI4_MISO_M0	I2C6_SCL_M3	SATA0_ACTLED_M1	PCIe0_CLKREQ0_M3	VP1_SYNC_OUT	SAI4_SDI_M2	--	GPIO4_C6_d
PWM2_CH3_M1	CAN1_RX_M1	SPI4_CLK_M0	I2C6_SDA_M3	--	--	VP2_SYNC_OUT	SAI4_SCLK_M2	--	GPIO4_C7_d

VCCIO6_VCC



RK3576

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Title

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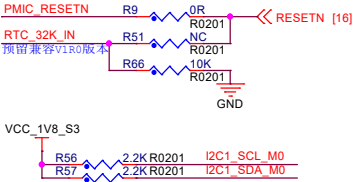
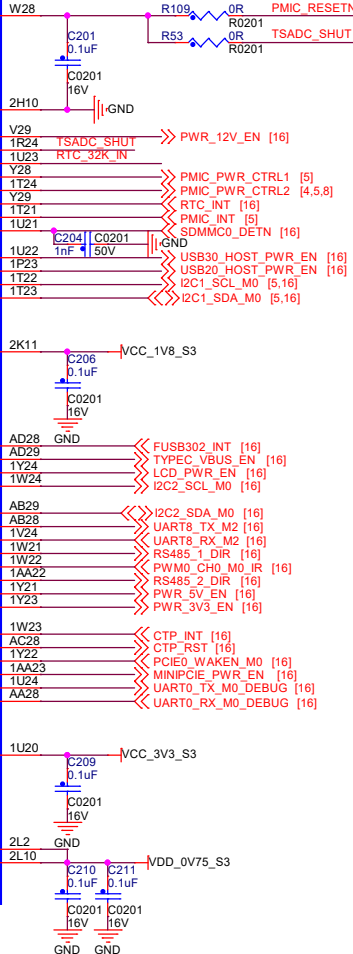
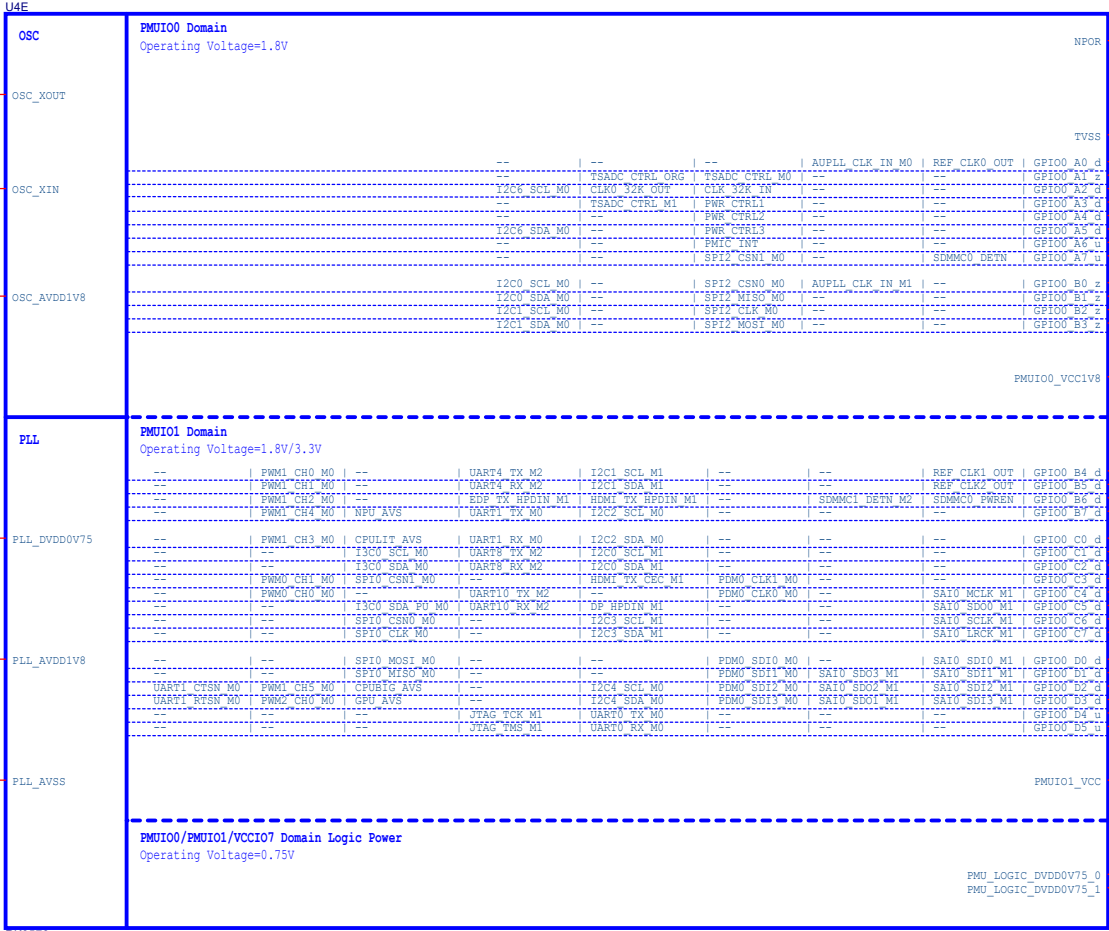
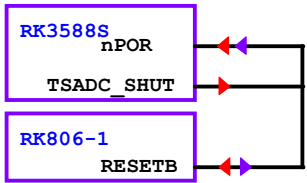
Size
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RK3576_VCCIO0/1/6Rev
V0.1

Date: Thursday, June 25, 2026

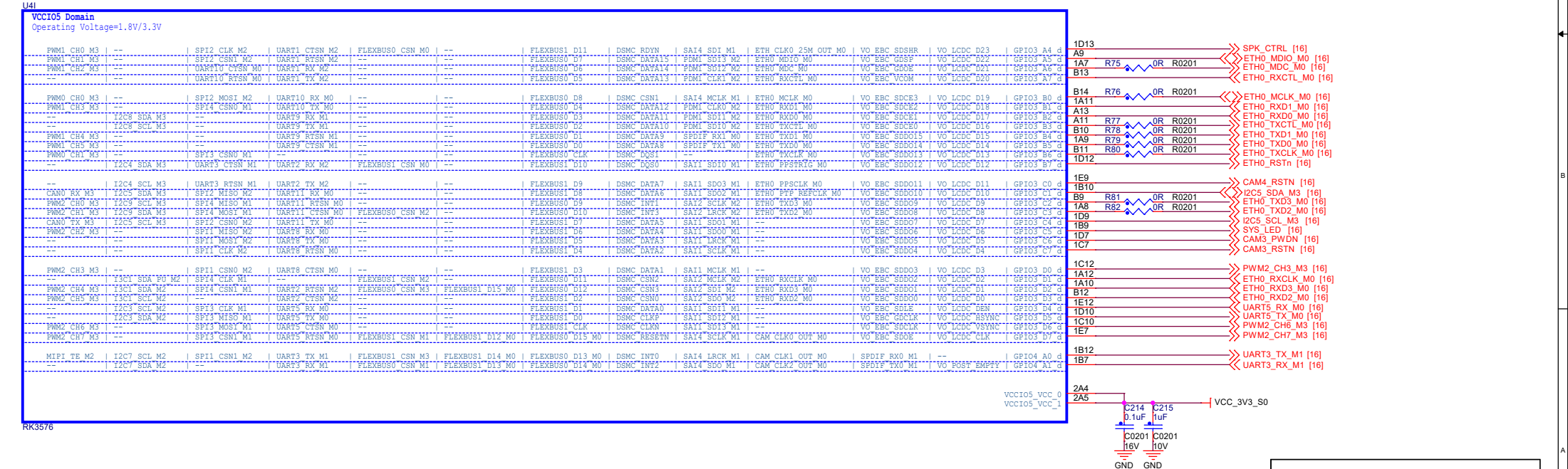
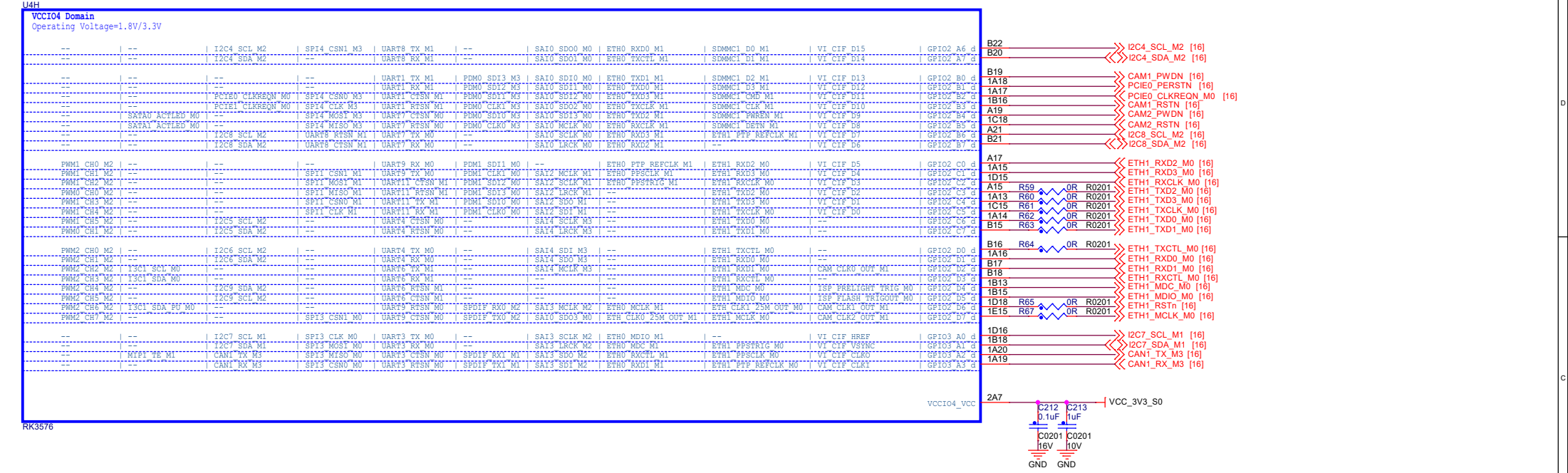
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Notes:

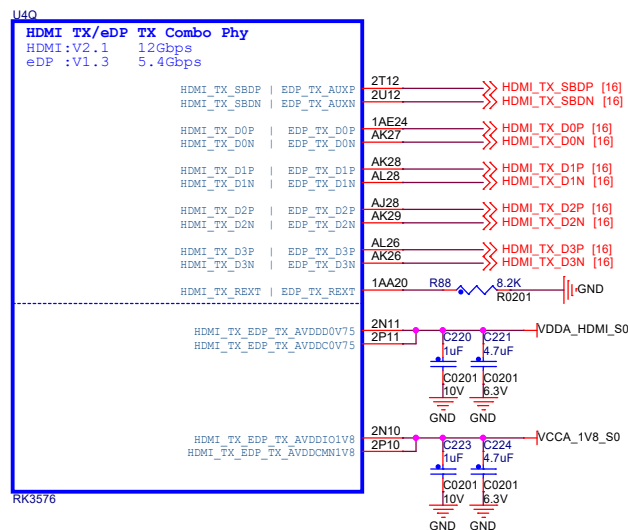
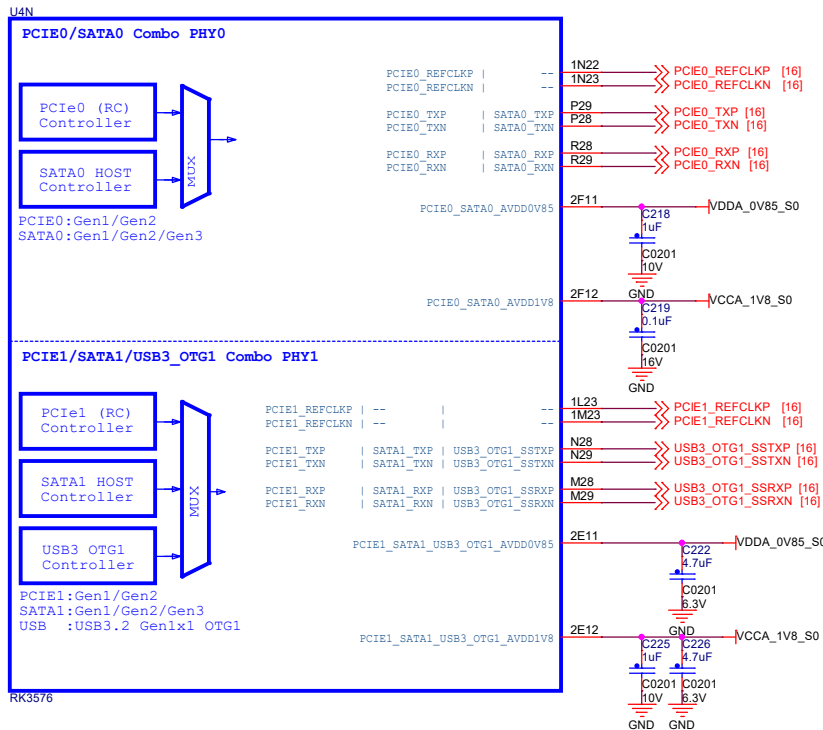
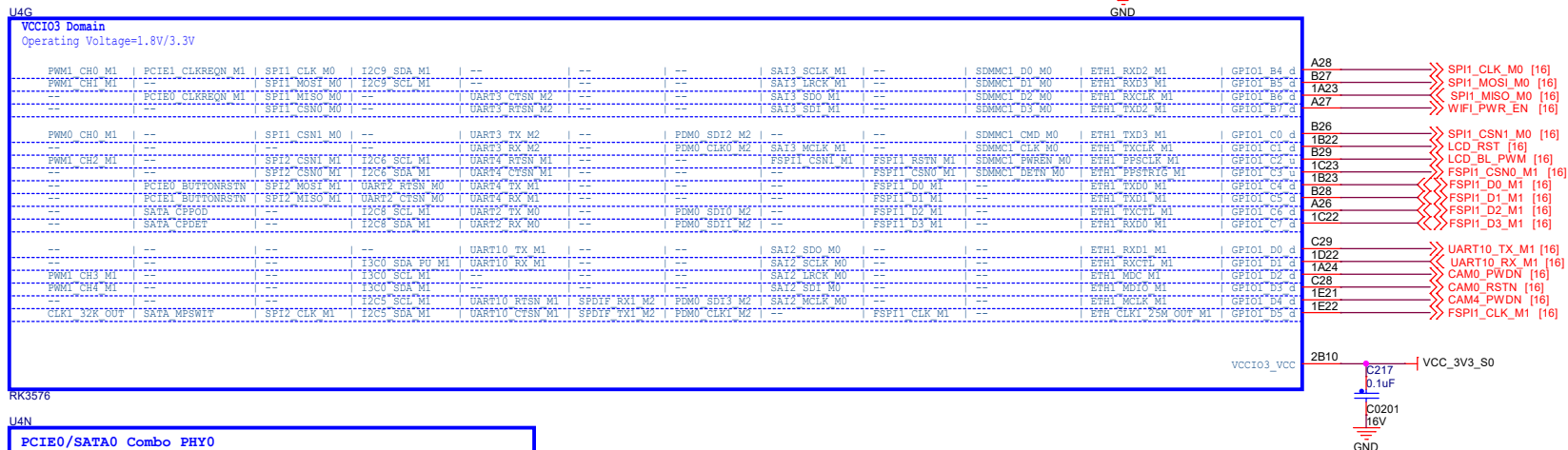
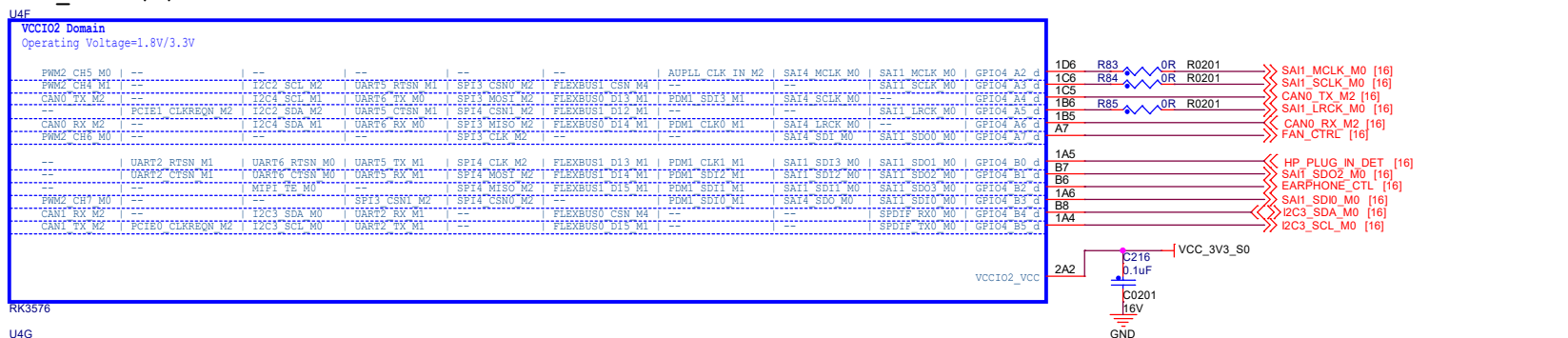
- ▶ TSADC_SHUT Control Path
- ▶ RK806-1 Control Path



RK3576_VCCIO4/5



RK3576 VCCIO2/3/HDMI



RK3576_MIPI_PHY

U4P

MIPI DPHY CSI1/2 RX

MIPI V1.2/2.5Gbps

MIPI_DPHY_CSI1_RX_D0N	AE28	MIPI_DPHY_CSI1_RX_D0N	[16]
MIPI_DPHY_CSI1_RX_D0P	AE29	MIPI_DPHY_CSI1_RX_D0P	[16]
MIPI_DPHY_CSI1_RX_D1N	AF28	MIPI_DPHY_CSI1_RX_D1N	[16]
MIPI_DPHY_CSI1_RX_D1P	AF29	MIPI_DPHY_CSI1_RX_D1P	[16]
MIPI_DPHY_CSI1_RX_CLKN	1AC23	MIPI_DPHY_CSI1_RX_CLKN	[16]
MIPI_DPHY_CSI1_RX_CLKP	1AC22	MIPI_DPHY_CSI1_RX_CLKP	[16]
MIPI_DPHY_CSI1_RX_D2N	AG28	MIPI_DPHY_CSI2_RX_D0N	[16]
MIPI_DPHY_CSI1_RX_D2P	AG29	MIPI_DPHY_CSI2_RX_D0P	[16]
MIPI_DPHY_CSI1_RX_D3N	AH28	MIPI_DPHY_CSI2_RX_D1N	[16]
MIPI_DPHY_CSI1_RX_D3P	AH29	MIPI_DPHY_CSI2_RX_D1P	[16]
--	1AD22	MIPI_DPHY_CSI2_RX_CLKN	[16]
--	1AD21	MIPI_DPHY_CSI2_RX_CLKP	[16]

MIPI_DPHY_CSI1/2_RX_AVDD0V75

MIPI_DPHY_CSI1/2_RX_AVDD1V8

MIPI DPHY CSI3/4 RX

MIPI V1.2/2.5Gbps

MIPI_DPHY_CSI3_RX_D0N	H29	MIPI_DPHY_CSI3_RX_D0N	[16]
MIPI_DPHY_CSI3_RX_D0P	H28	MIPI_DPHY_CSI3_RX_D0P	[16]
MIPI_DPHY_CSI3_RX_D1N	J29	MIPI_DPHY_CSI3_RX_D1N	[16]
MIPI_DPHY_CSI3_RX_D1P	J28	MIPI_DPHY_CSI3_RX_D1P	[16]
MIPI_DPHY_CSI3_RX_CLKN	1H23	MIPI_DPHY_CSI3_RX_CLKN	[16]
MIPI_DPHY_CSI3_RX_CLKP	1H22	MIPI_DPHY_CSI3_RX_CLKP	[16]
MIPI_DPHY_CSI3_RX_D2N	K29	MIPI_DPHY_CSI4_RX_D0N	[16]
MIPI_DPHY_CSI3_RX_D2P	K28	MIPI_DPHY_CSI4_RX_D0P	[16]
MIPI_DPHY_CSI3_RX_D3N	L29	MIPI_DPHY_CSI4_RX_D1N	[16]
MIPI_DPHY_CSI3_RX_D3P	L28	MIPI_DPHY_CSI4_RX_D1P	[16]
--	1K23	MIPI_DPHY_CSI4_RX_CLKN	[16]
--	1K22	MIPI_DPHY_CSI4_RX_CLKP	[16]

MIPI_DPHY_CSI3/4_RX_AVDD0V75

MIPI_DPHY_CSI3/4_RX_AVDD1V8

U4O

MIPI DCPHY DSI TX

D-PHY:V2.0 2.5Gbps/Lane
C-PHY:V1.1 1.7Gsps/Trio

MIPI_DPHY_DSI_TX_D0N	MIPI_CPHY_DSI_TX_TRIO0_A
MIPI_DPHY_DSI_TX_D0P	MIPI_CPHY_DSI_TX_TRIO0_B
MIPI_DPHY_DSI_TX_D1N	MIPI_CPHY_DSI_TX_TRIO0_C
MIPI_DPHY_DSI_TX_D1P	MIPI_CPHY_DSI_TX_TRIO1_A
MIPI_DPHY_DSI_TX_CLKN	MIPI_CPHY_DSI_TX_TRIO1_B
MIPI_DPHY_DSI_TX_CLKP	MIPI_CPHY_DSI_TX_TRIO1_C
MIPI_DPHY_DSI_TX_D2N	MIPI_CPHY_DSI_TX_TRIO2_A
MIPI_DPHY_DSI_TX_D2P	MIPI_CPHY_DSI_TX_TRIO2_B
MIPI_DPHY_DSI_TX_D3N	MIPI_CPHY_DSI_TX_TRIO2_C
MIPI_DPHY_DSI_TX_D3P	NO_USE

MIPI DCPHY CSI RX

D-PHY:V2.0 4.5Gbps/Lane
C-PHY:V1.1 2.5Gsps/Trio

MIPI_DPHY_CSI0_RX_D0N	MIPI_CPHY_CSI_RX_TRIO0_A
MIPI_DPHY_CSI0_RX_D0P	MIPI_CPHY_CSI_RX_TRIO0_B
MIPI_DPHY_CSI0_RX_D1N	MIPI_CPHY_CSI_RX_TRIO0_C
MIPI_DPHY_CSI0_RX_D1P	MIPI_CPHY_CSI_RX_TRIO1_A
MIPI_DPHY_CSI0_RX_CLKN	MIPI_CPHY_CSI_RX_TRIO1_B
MIPI_DPHY_CSI0_RX_CLKP	MIPI_CPHY_CSI_RX_TRIO1_C
MIPI_DPHY_CSI0_RX_D2N	MIPI_CPHY_CSI_RX_TRIO2_A
MIPI_DPHY_CSI0_RX_D2P	MIPI_CPHY_CSI_RX_TRIO2_B
MIPI_DPHY_CSI0_RX_D3N	MIPI_CPHY_CSI_RX_TRIO2_C
MIPI_DPHY_CSI0_RX_D3P	NO_USE

MIPI_DCPHY_VREG

MIPI_DCPHY_AVDD

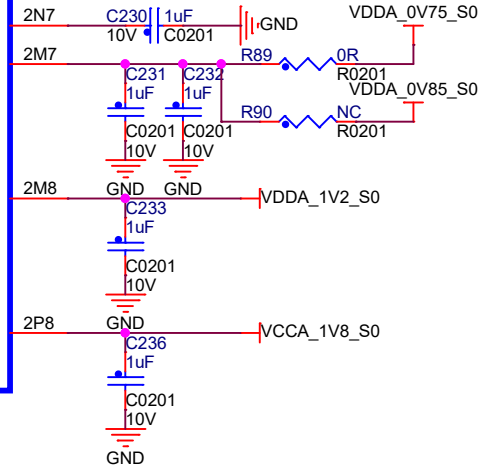
MIPI_DCPHY_AVDD1V2

MIPI_DCPHY_AVDD1V8

MIPI_DCPHY_AVDD:
D-PHY 4.5Gbps & C-PHY 2.5Gsps 0.85V
D-PHY 2.5Gbps & C-PHY 1.5Gsps 0.75V

AK15	MIPI_DPHY_DSI_TX_D0N	[16]
AL15	MIPI_DPHY_DSI_TX_D0P	[16]
AK16	MIPI_DPHY_DSI_TX_D1N	[16]
AL16	MIPI_DPHY_DSI_TX_D1P	[16]
AK17	MIPI_DPHY_DSI_TX_CLKN	[16]
AL17	MIPI_DPHY_DSI_TX_CLKP	[16]
AK18	MIPI_DPHY_DSI_TX_D2N	[16]
AL18	MIPI_DPHY_DSI_TX_D2P	[16]
AK19	MIPI_DPHY_DSI_TX_D3N	[16]
AL19	MIPI_DPHY_DSI_TX_D3P	[16]

AL20	MIPI_DPHY_CSI0_RX_D0N	[16]
AK20	MIPI_DPHY_CSI0_RX_D0P	[16]
AL21	MIPI_DPHY_CSI0_RX_D1N	[16]
AK21	MIPI_DPHY_CSI0_RX_D1P	[16]
AL22	MIPI_DPHY_CSI0_RX_CLKN	[16]
AK22	MIPI_DPHY_CSI0_RX_CLKP	[16]
AL23	MIPI_DPHY_CSI0_RX_D2N	[16]
AK23	MIPI_DPHY_CSI0_RX_D2P	[16]
AL24	MIPI_DPHY_CSI0_RX_D3N	[16]
AK24	MIPI_DPHY_CSI0_RX_D3P	[16]



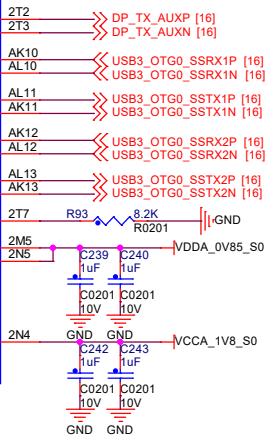
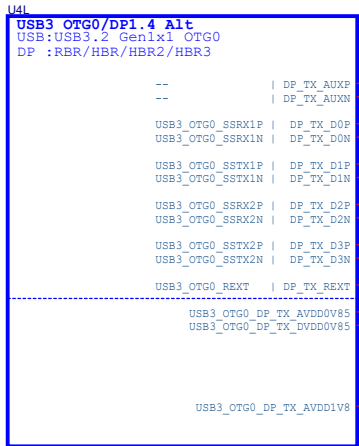
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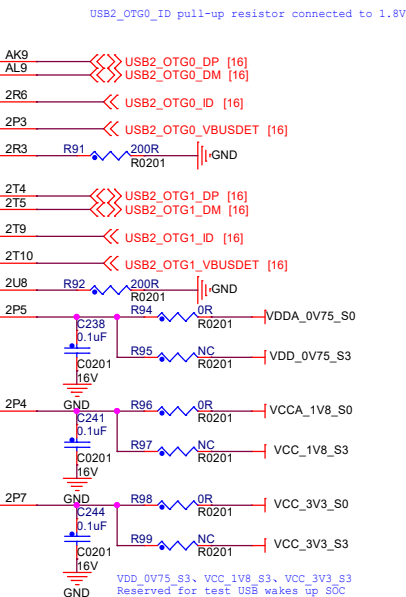
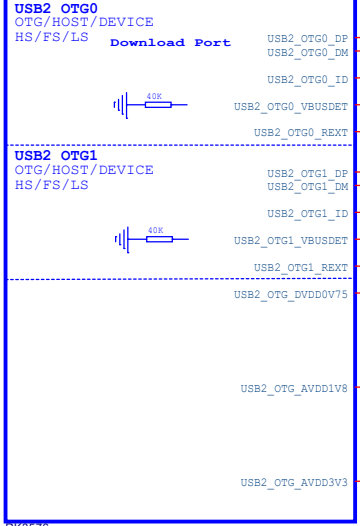
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Title			野火RK3576鲁班猫3金手指核心板 (LubanCat 3CF)
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	RK3576_MIPI_PHY	V0.1	
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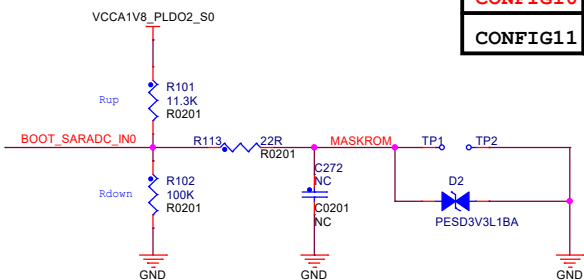
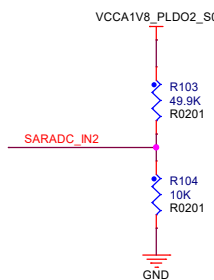
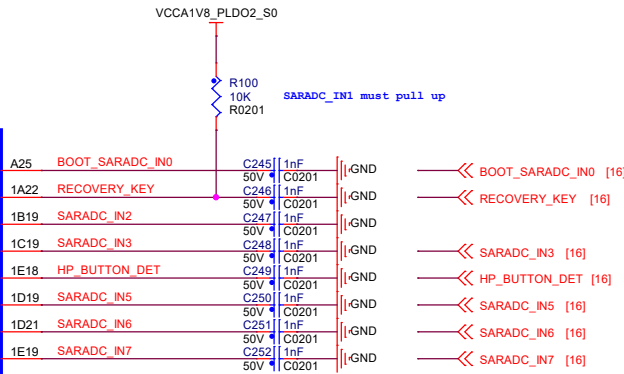
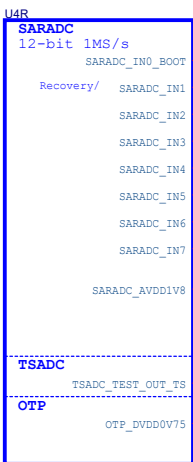
RK3576_USB



U4M



SARADC



BOOT MODE CONFIG

Config Table for SARADC_VIN0_BOOT				
Item	Rup	Rdown	ADC	BOOT MODE
CONFIG1	NC	10K	0	USB (Maskrom mode)
CONFIG2	10K	1.13K	416	FSPI0->USB
CONFIG3	10K	2.49K	816	FSPI1_M0->EMMC->USB
CONFIG4	10K	4.3K	1231	FSPI1_M1->EMMC->USB
CONFIG5	10K	6.8K	1658	FSPI0->UFS->USB
CONFIG6	10K	10K	2048	FSPI1_M0->UFS->USB
CONFIG7	10K	14.7K	2437	UFS->USB
CONFIG8	10K	23.2K	2864	UFS->SDMMC0->USB
CONFIG9	10K	40.2K	3279	RFU
CONFIG10	10K	88.7K	3680	EMMC->SDMMC0->USB
CONFIG11	10K	NC	4095	EMMC->USB

Board ID:0x0001 VIN2:0.3V VIN3:0.507V ADC VIN2:682 VIN3:1153 Default:EMMC->SDMMC0->USB

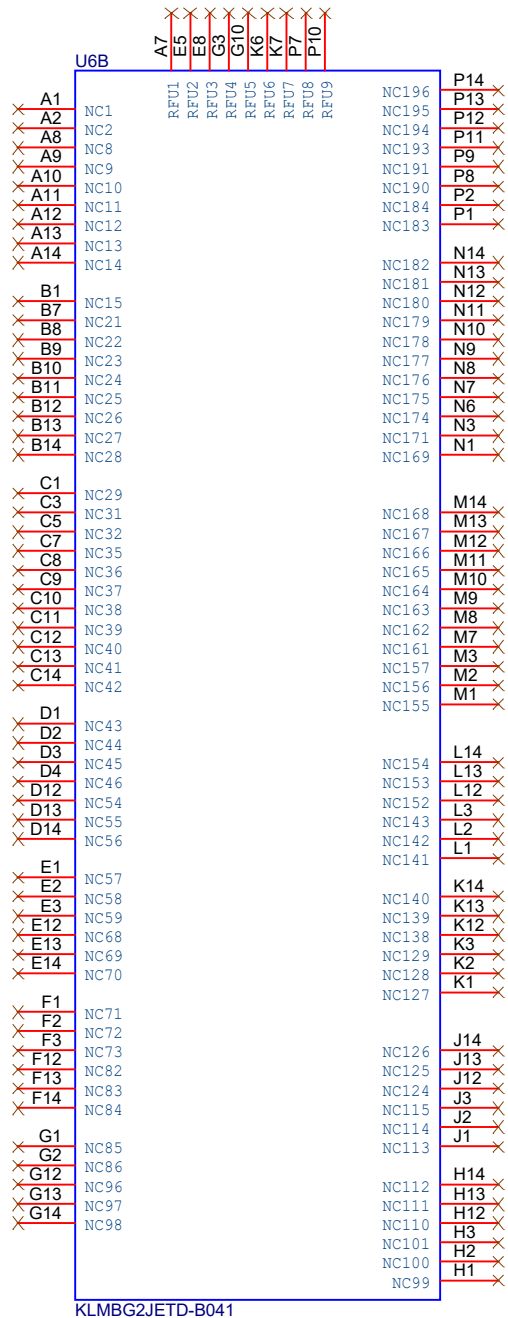
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Title野火RK3576鲁班猫3金手指核心板 (LubanCat 3CF)

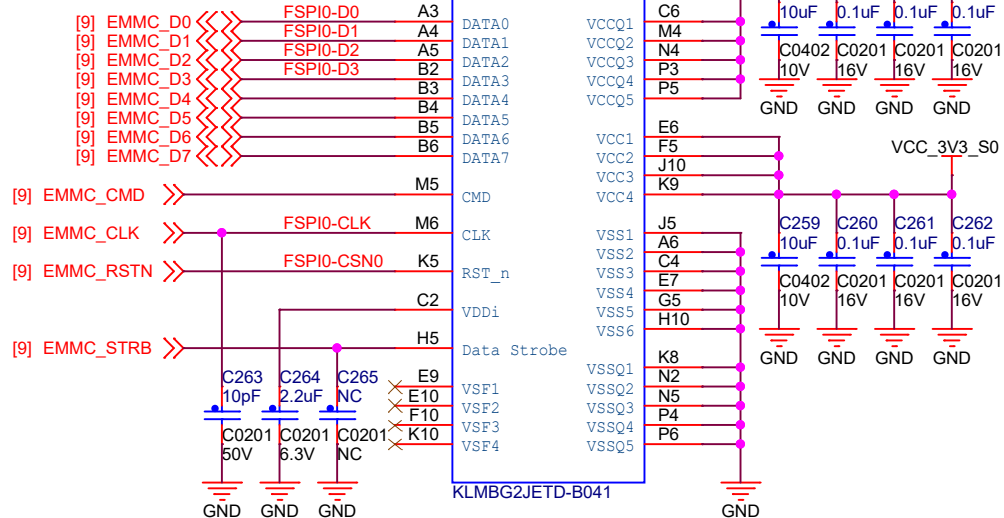
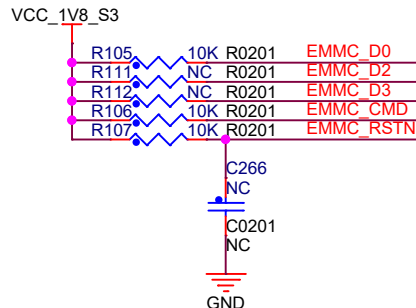
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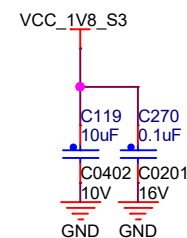
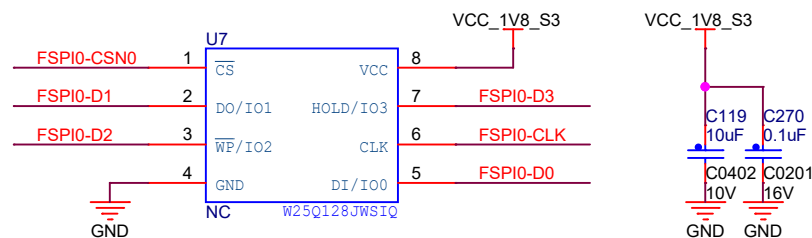
FLASH_EMMC



焊emmc: 焊上R105、R106、R107, 去掉R111、R112
焊Flash: 焊上R111、R112, 去掉R105、R106、R107



SPI FLASH



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Size
A4Document Number
FLASH_EMMCRev
V0.1

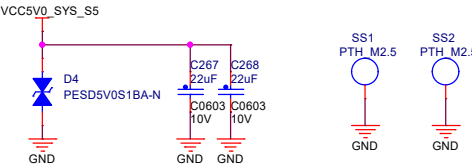
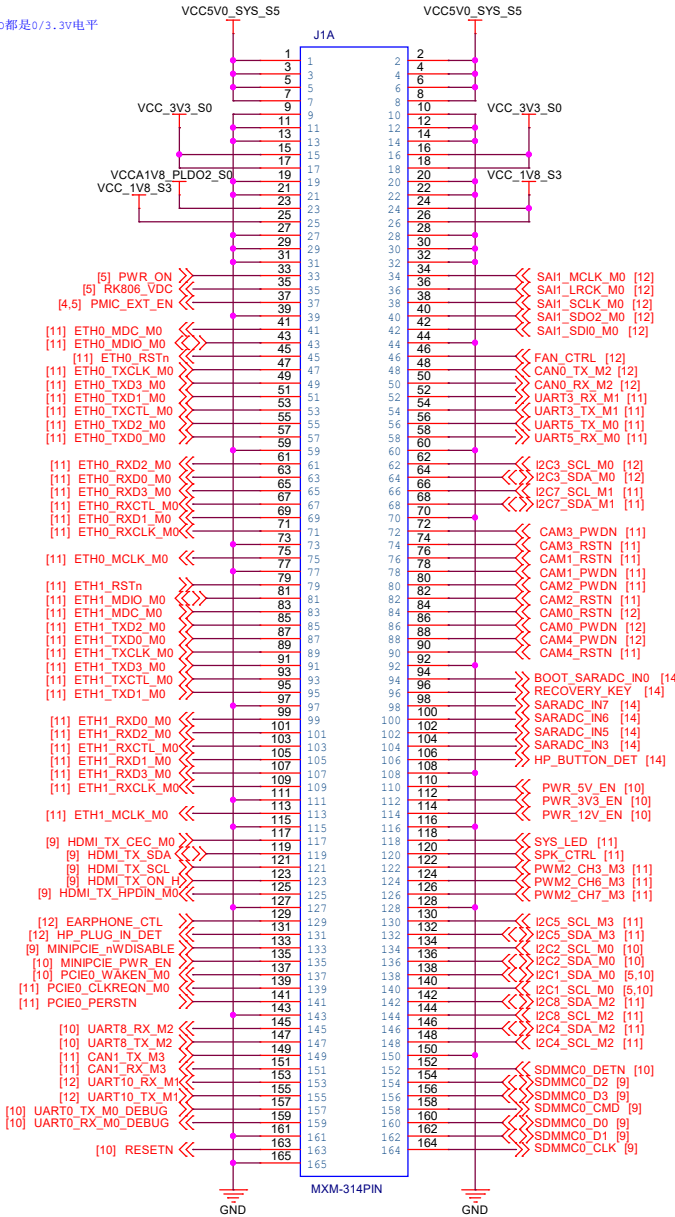
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金手指

0/1.8V的GPIO如下，其余GPIO都是0/3.3V电平

PWR_12V_EN
RTC_32K_IN
PMIC_PWR_CTRL1
PMIC_PWR_CTRL2
RTC_INT
PMIC_INT
SDMMC0_DET_N
USB30_HOST_PWR_EN
USB20_HOST_PWR_EN
I2C1_SCL_M0
I2C1_SDA_M0



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