

鲁班猫3 BTB核心板 (LubanCat 3CB) RK3576_原理图_v0.1

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Title

鲁班猫3 BTB核心板(LubanCat 3CB)RK3576

Size
A4

Document Number
目录

Rev
V0.1

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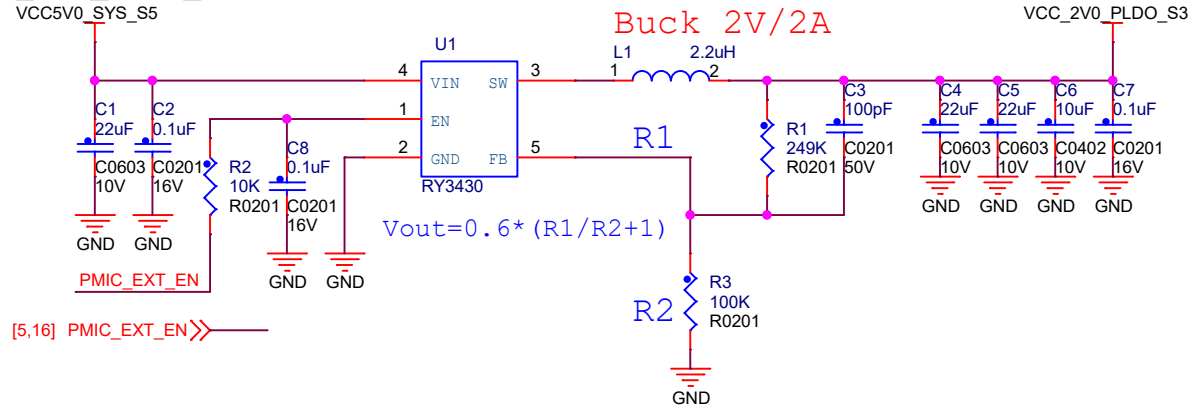
历史版本

版本号	日期	设计	描述
V1.0	2025-09-06	ZTC	初版发行
V1.0	2026-06-25	llm	把核心板复位信号引出到CN3的55引脚，替换原来的RTC_32K_IN信号，同时预留跳阻兼容V1R0版本

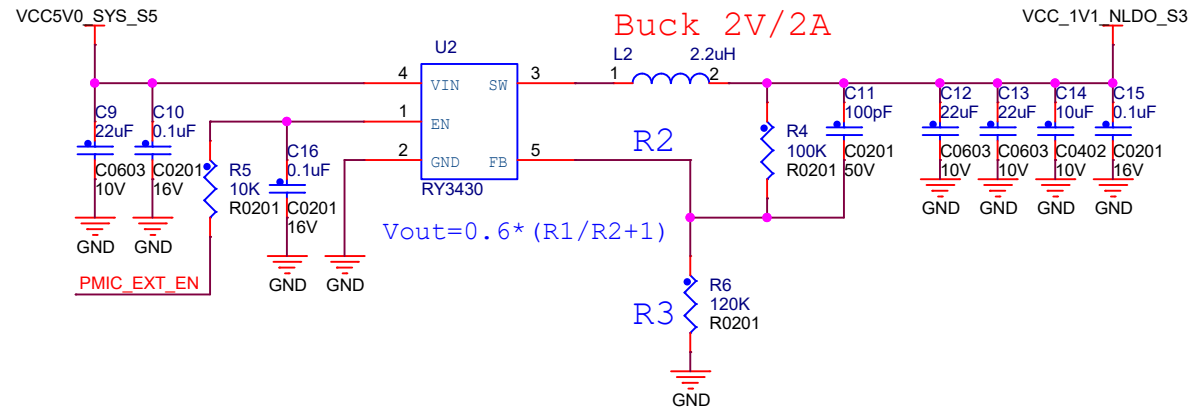
东莞野火信息技术有限公司 https://yehuosm.tmall.com		
Title 鲁班猫3 BTB核心板(LubanCat 3CB)RK3576		
Size A4	Document Number 历史版本	Rev V0.1
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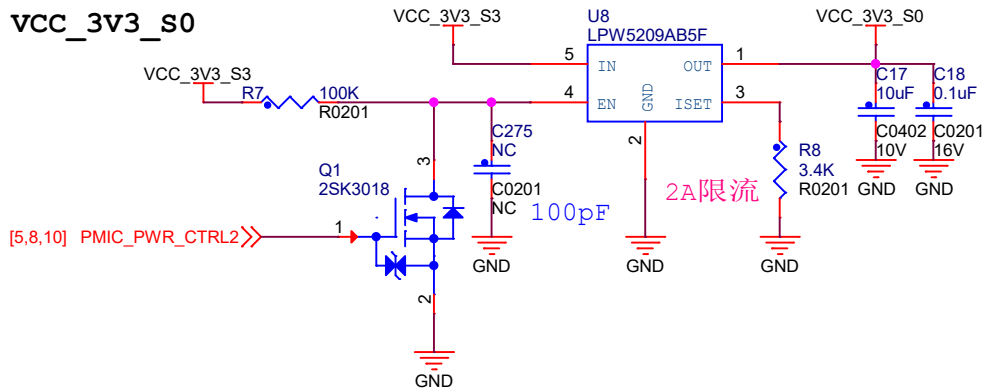
VCC_2V0_PLDO_S3



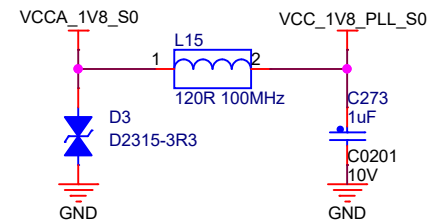
VCC_1V1_NLDO_S3



VCC_3V3_S0



VCC_1V8_PLL_S0



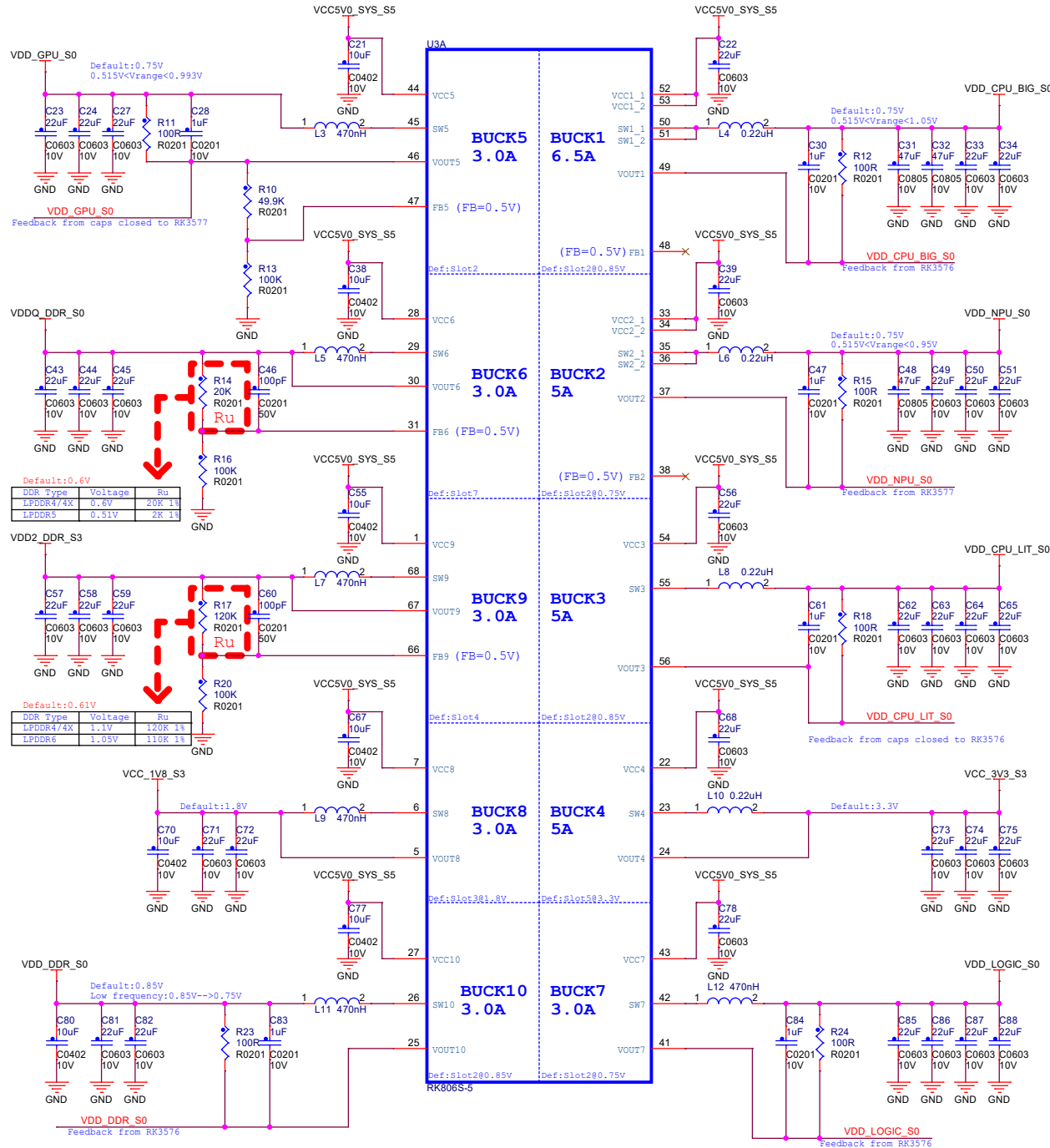
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Title
鲁班猫3 BTB核心板(LubanCat 3CB)RK3576

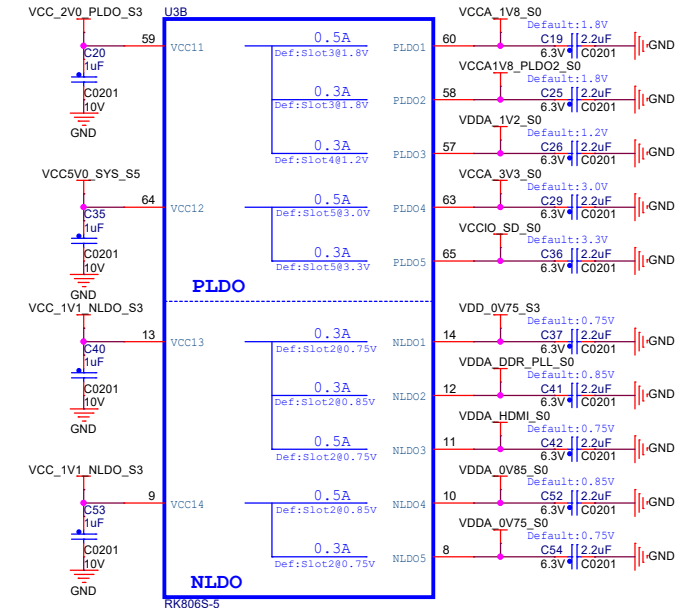
Size A4 Document Number POWER_IN/FAN/VCC5V_SYS Rev V0.1

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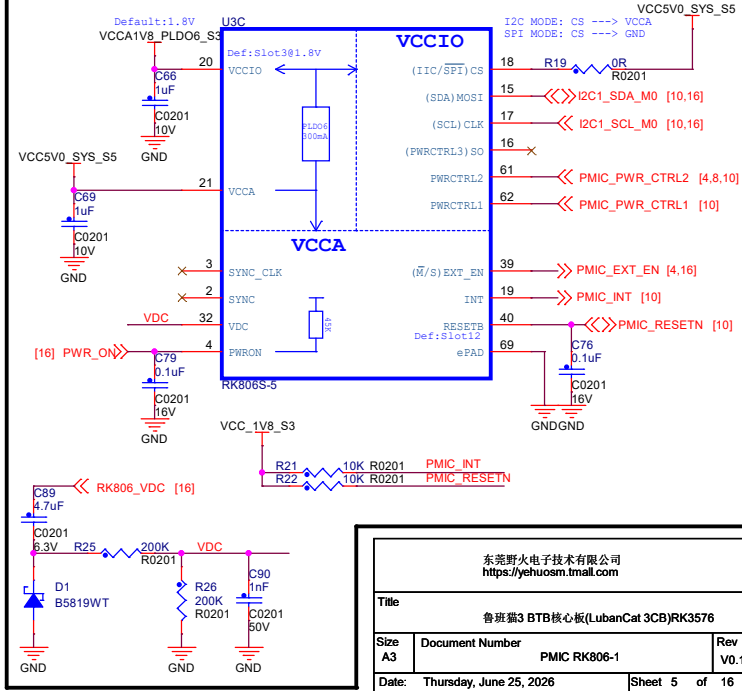
PMIC RK806-1 BUCK



PMIC RK806-1 LDO

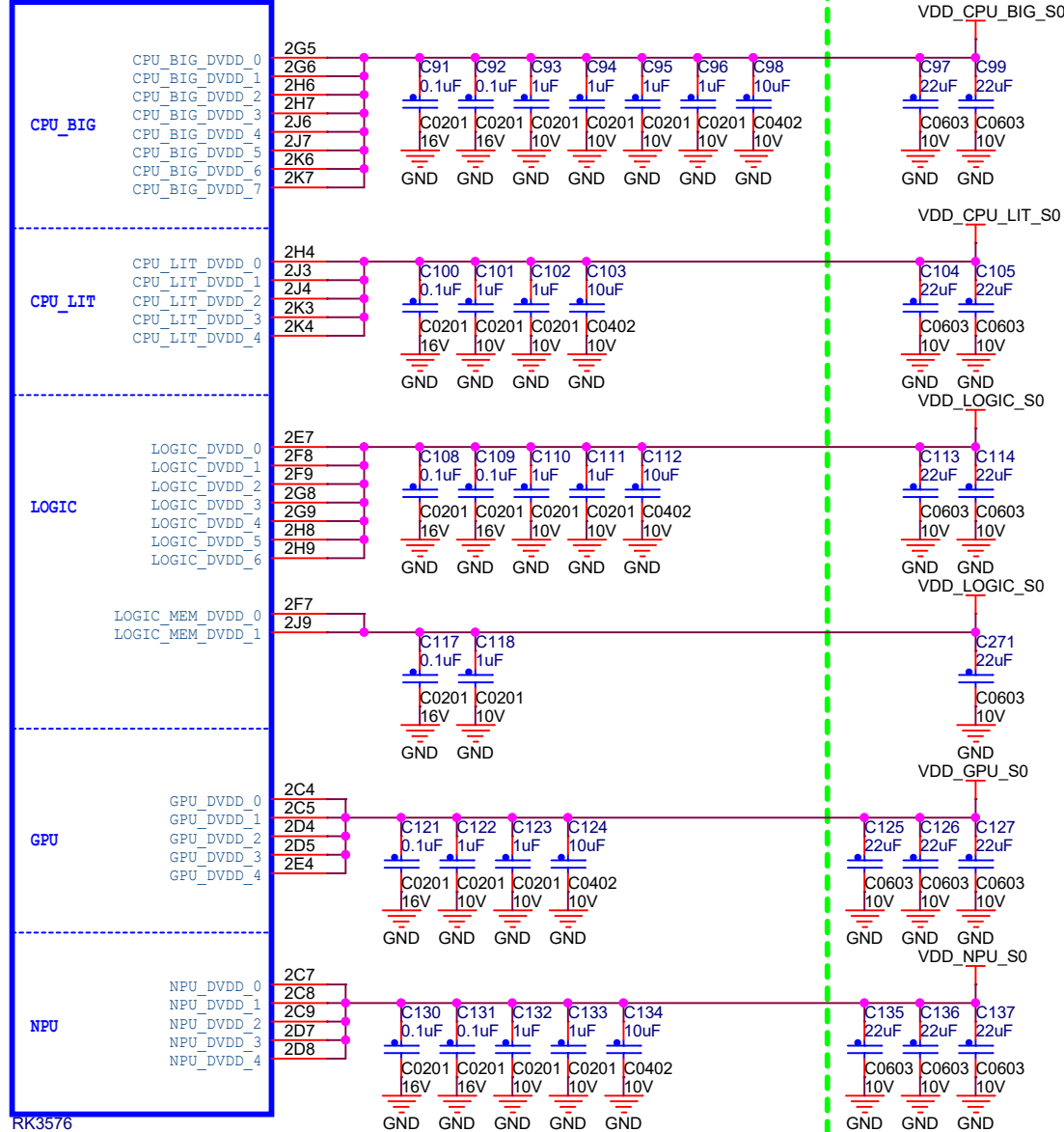


PMIC RK806S-5 Management



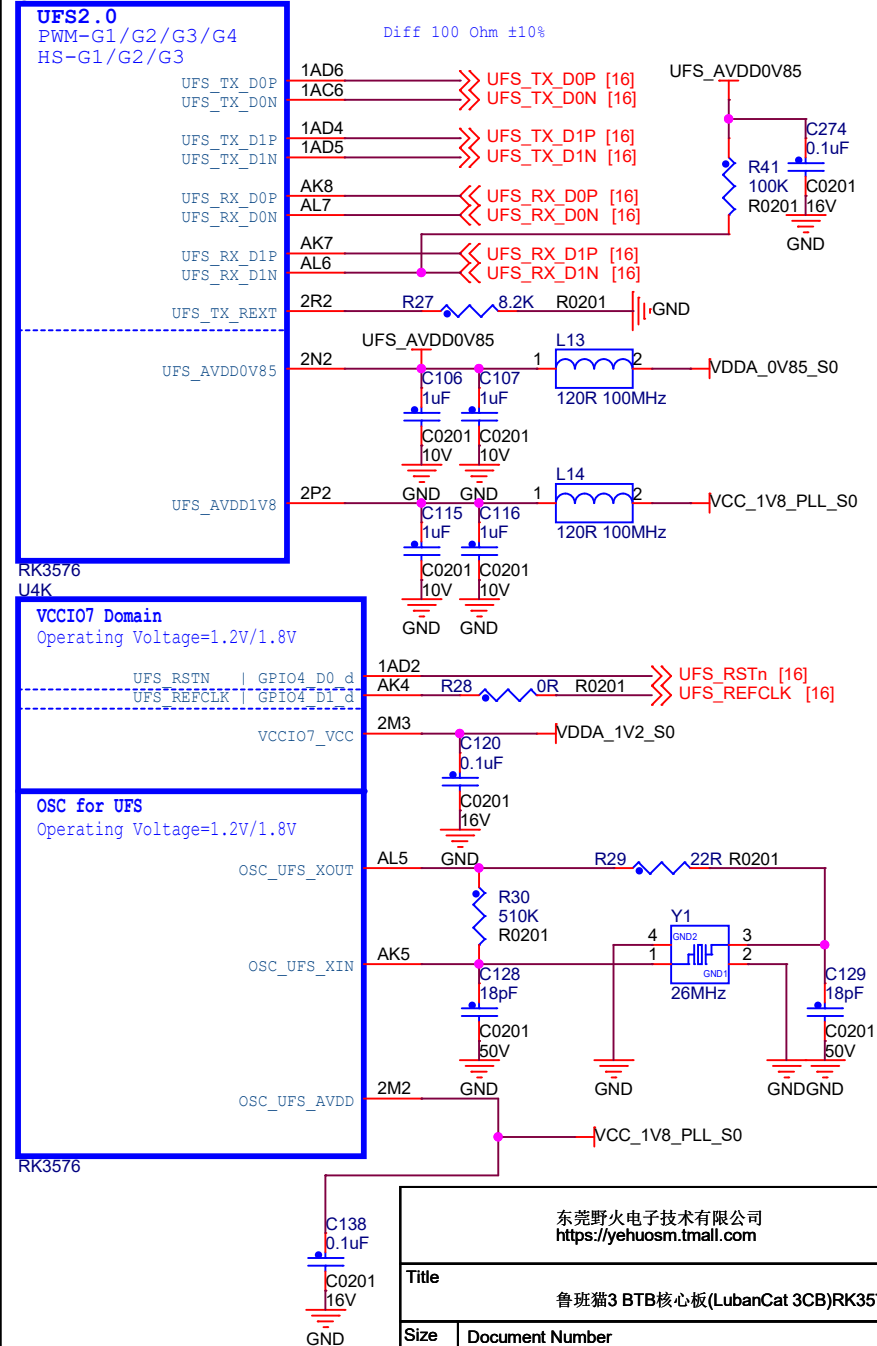
RK3576_PWR

U4S

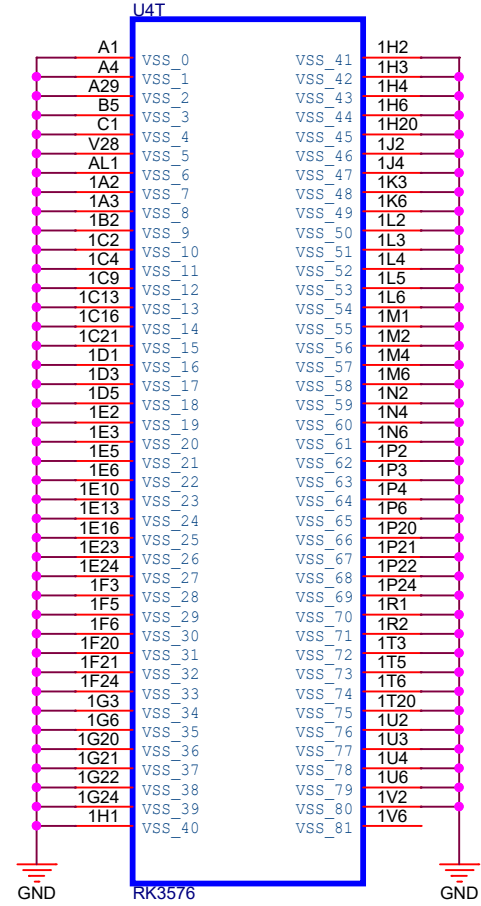
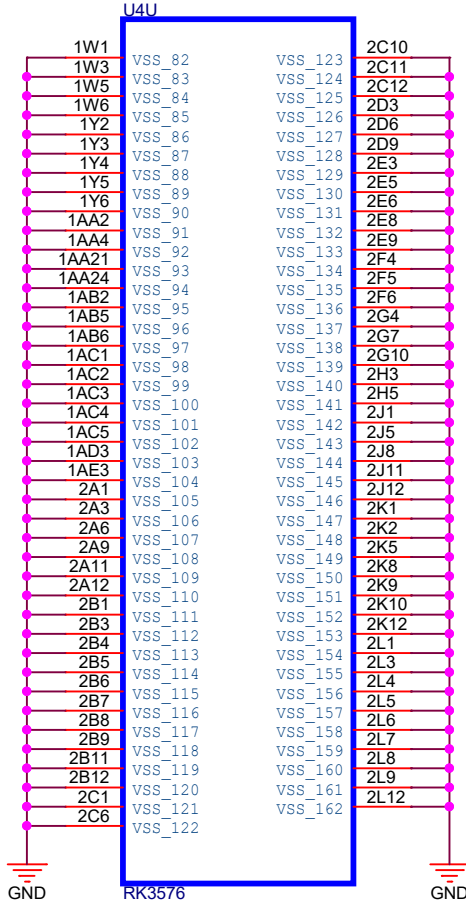
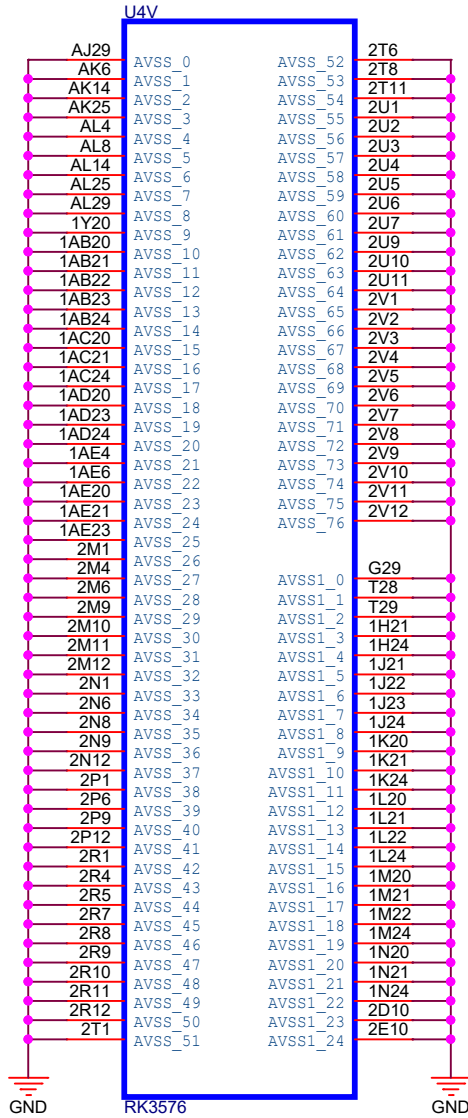


UFS2.1

U4B



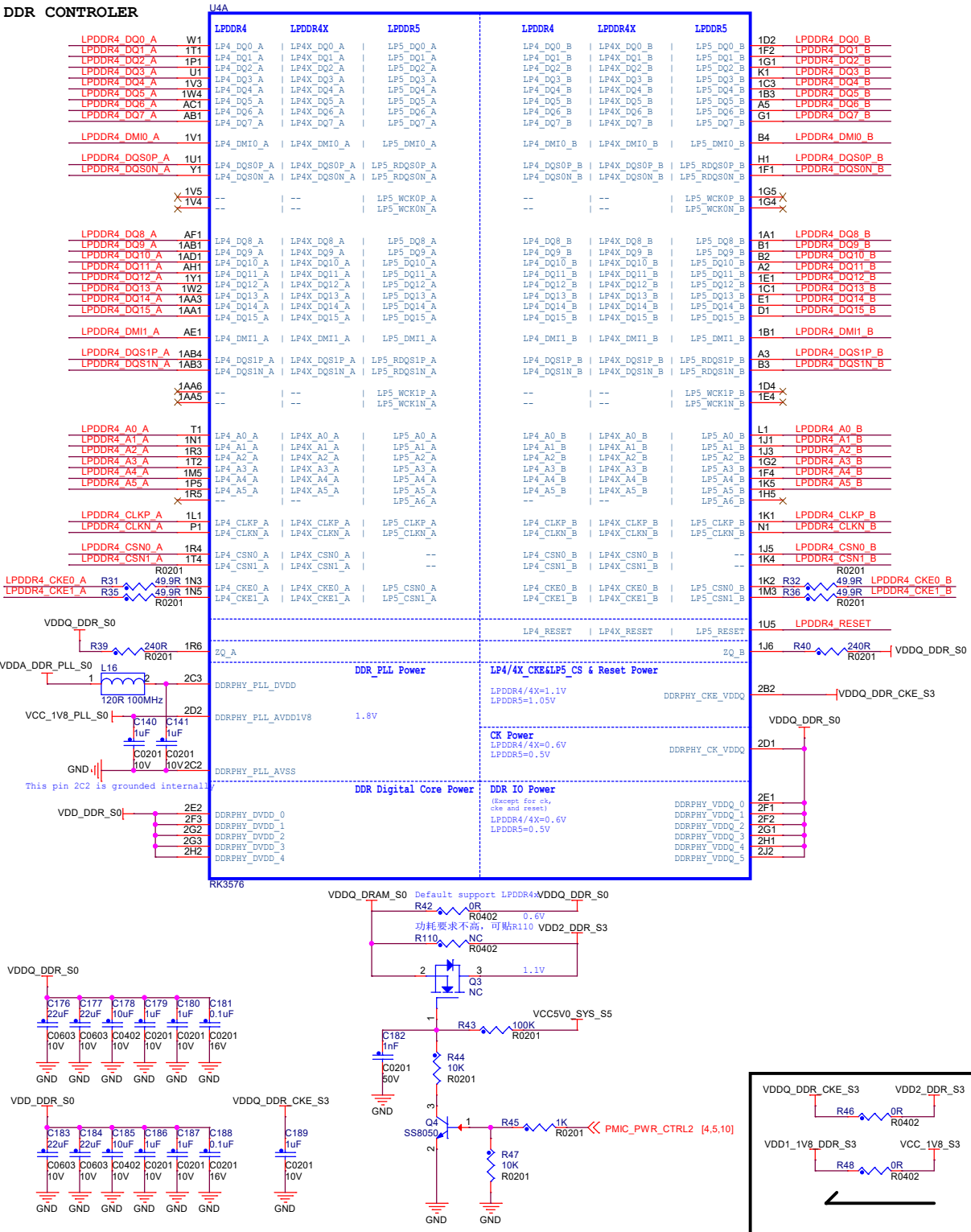
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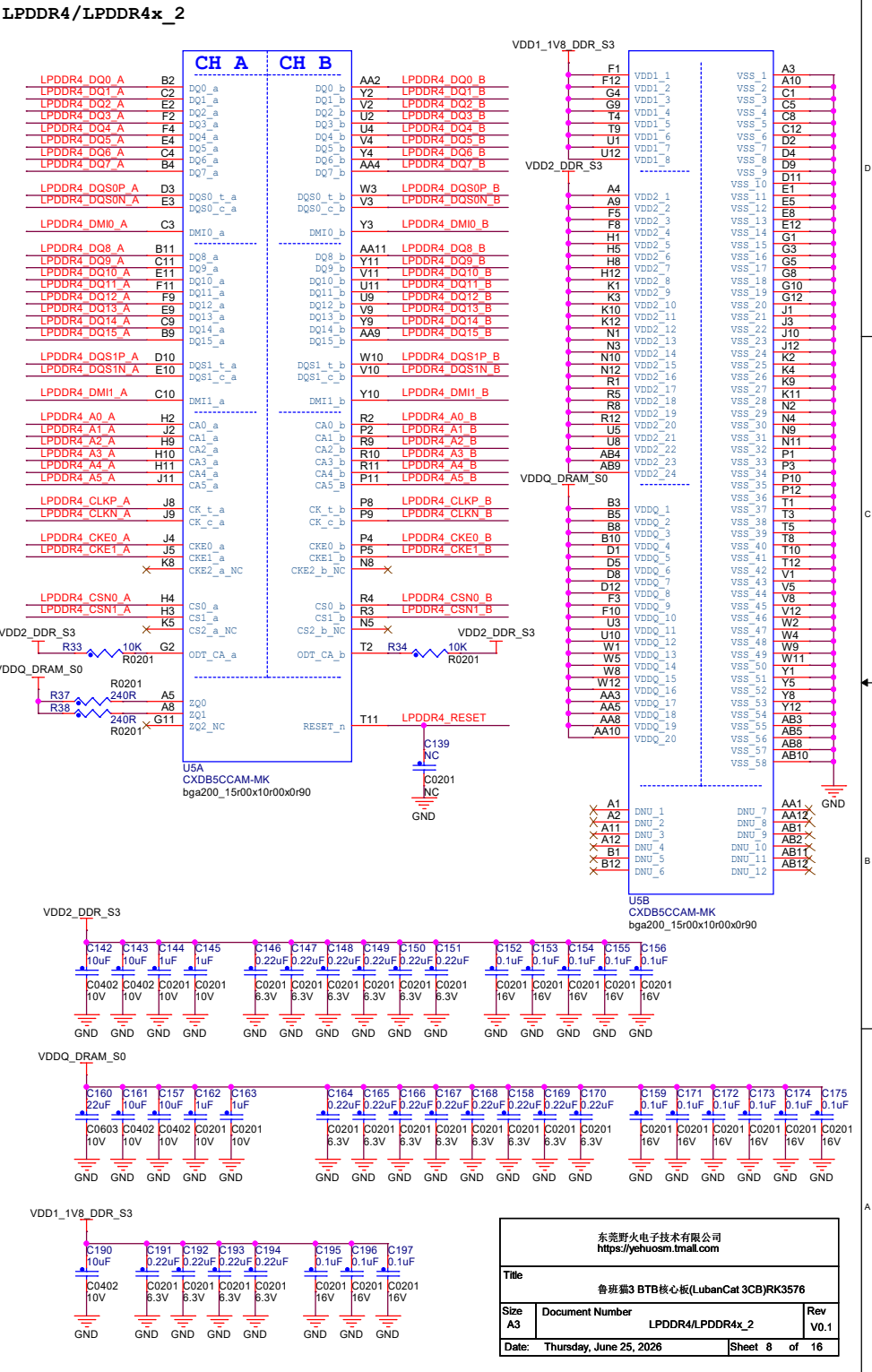
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Title				鲁班猫3 BTB核心板(LubanCat 3CB)RK3576			
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DDR CONTROLLER



LPDDR4/LPDDR4x 2

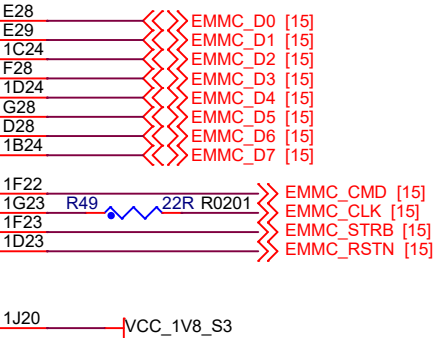


RK3576_VCCIO0/1/6

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

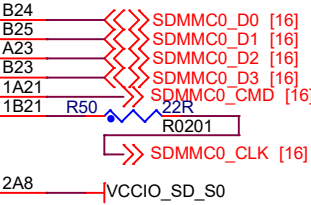


RK3576

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

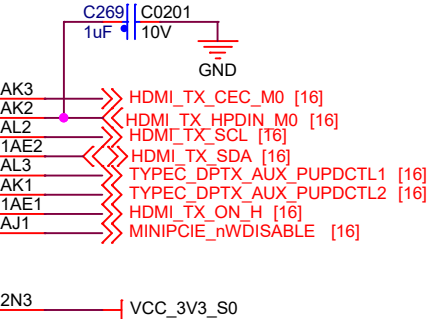


RK3576

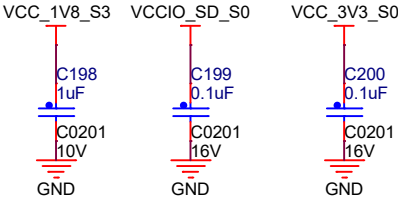
U4J

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

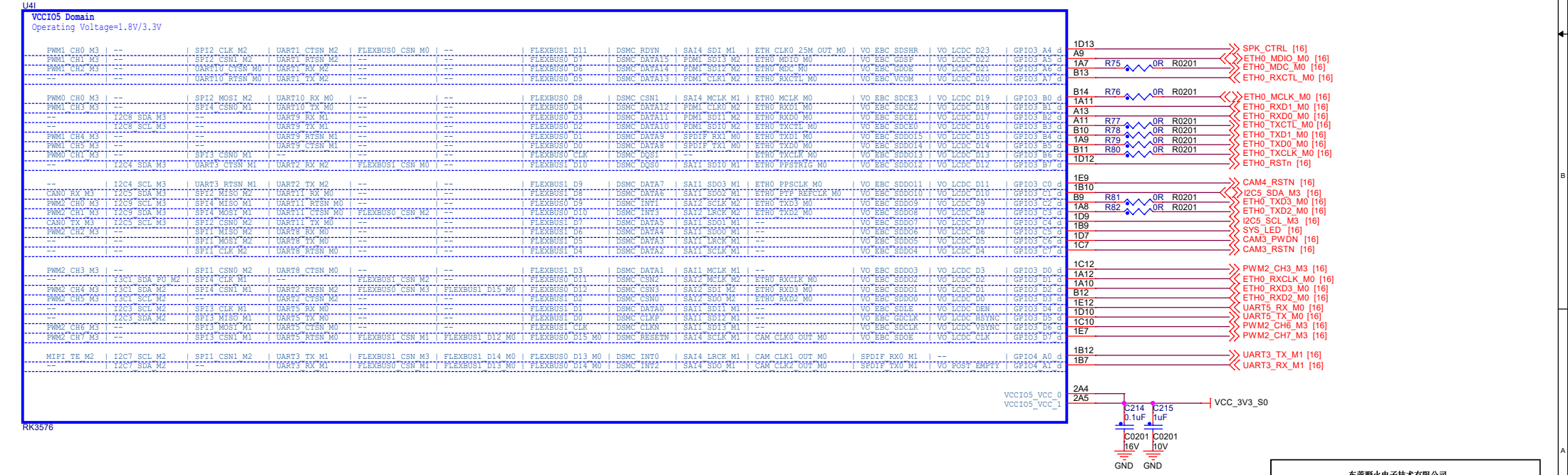
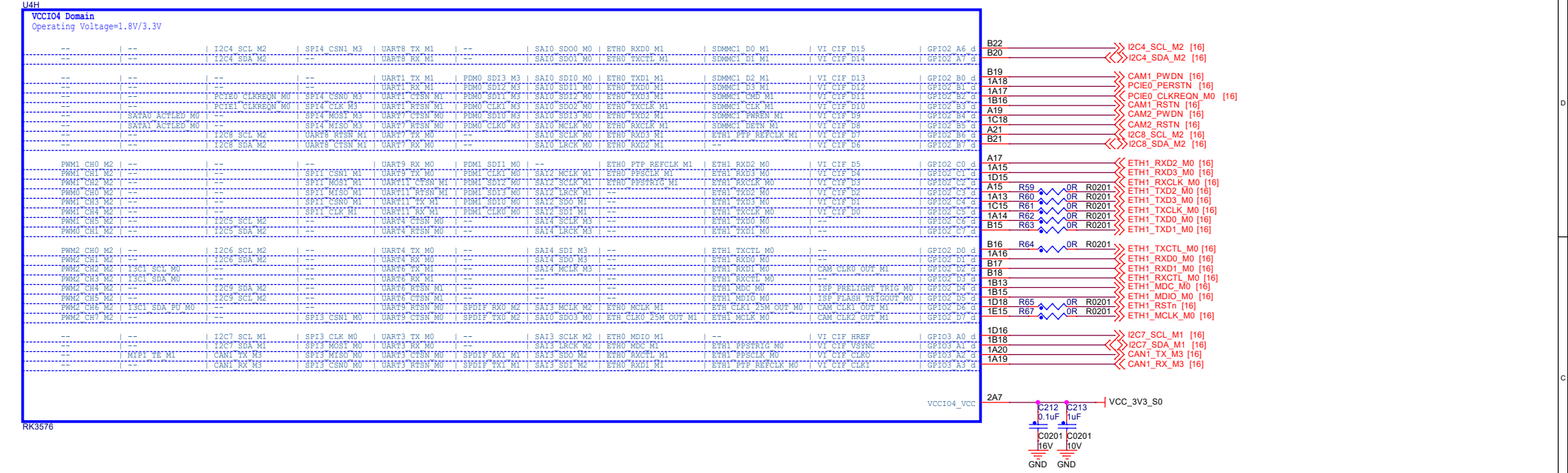


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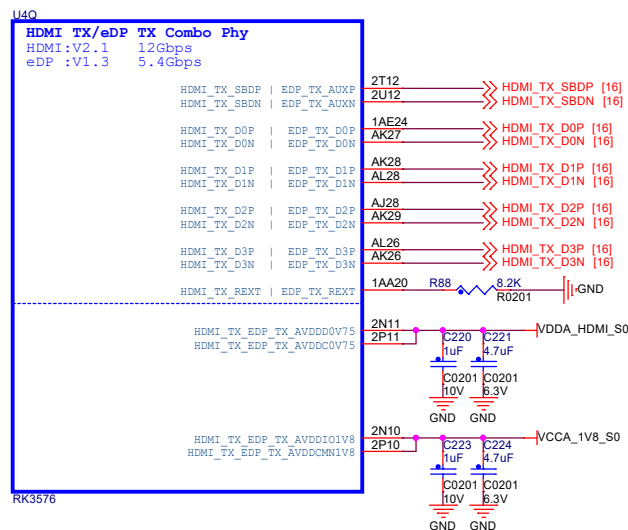
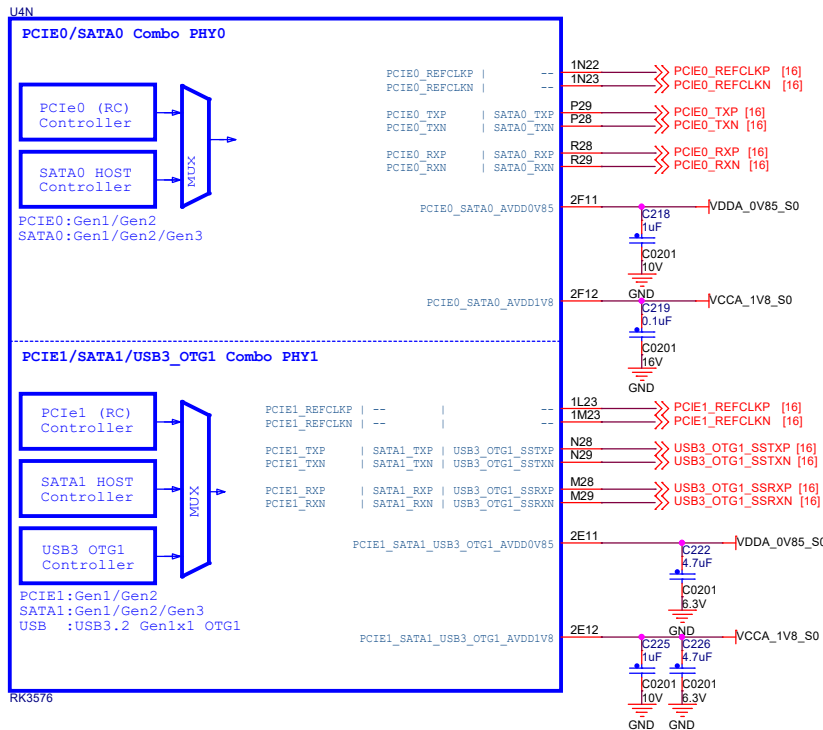
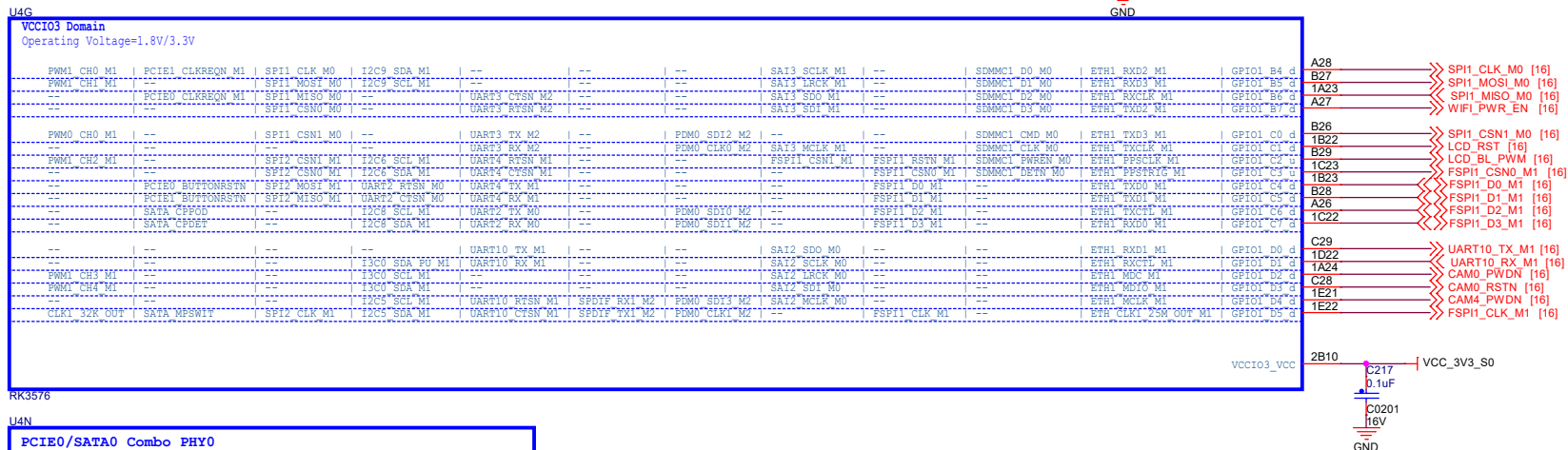
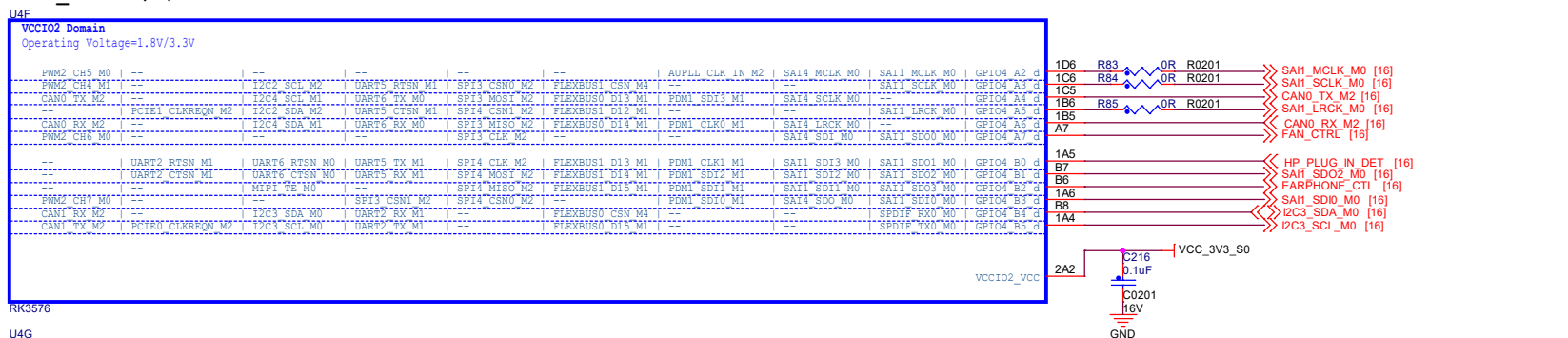


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Title			鲁班猫3 BTB核心板(LubanCat 3CB)RK3576		
Size	Document Number				Rev
A4	RK3576_VCCIO0/1/6				V0.1
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RK3576 VCCIO2/3/HDMI



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

RK3576

U4O

MIPI DCPHY DSI TX

D-PHY:V2.0 2.5Gbps/Lane

C-PHY:V1.1 1.7Gsps/Trio

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

MIPI DCPHY CSI RX

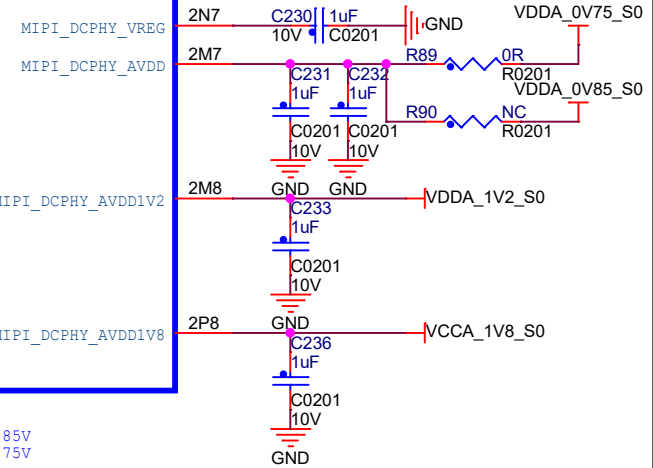
D-PHY:V2.0 4.5Gbps/Lane

C-PHY:V1.1 2.5Gsps/Trio

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

RK3576

MIPI DCPHY AVDD:
D-PHY 4.5Gbps & C-PHY 2.5Gsps 0.85V
D-PHY 2.5Gbps & C-PHY 1.5Gsps 0.75V



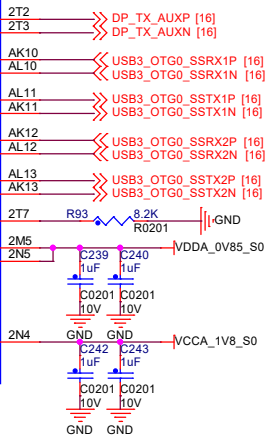
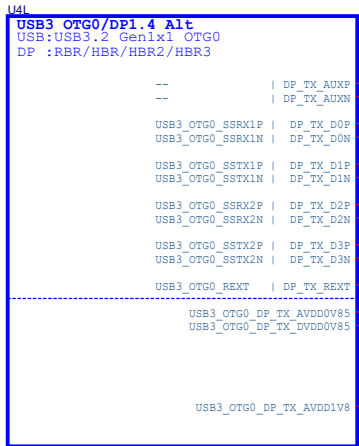
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Title
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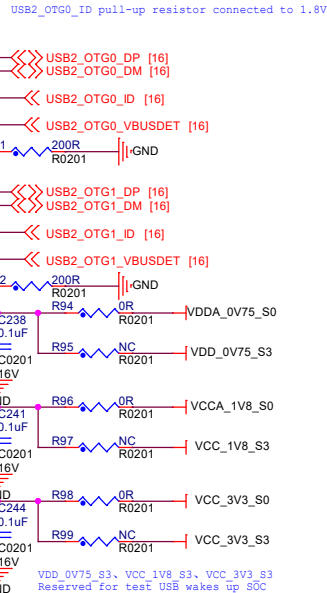
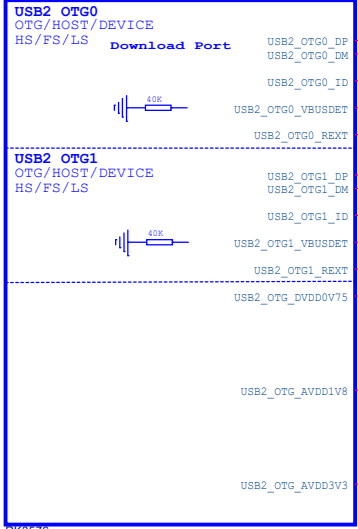
Size A4	Document Number RK3576_MIPI_PHY	Rev V0.1
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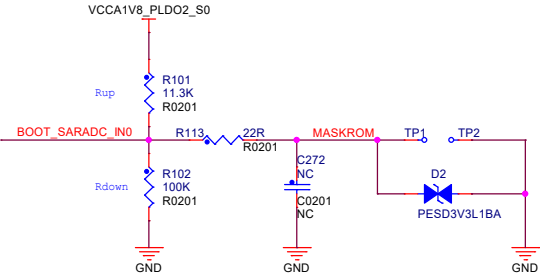
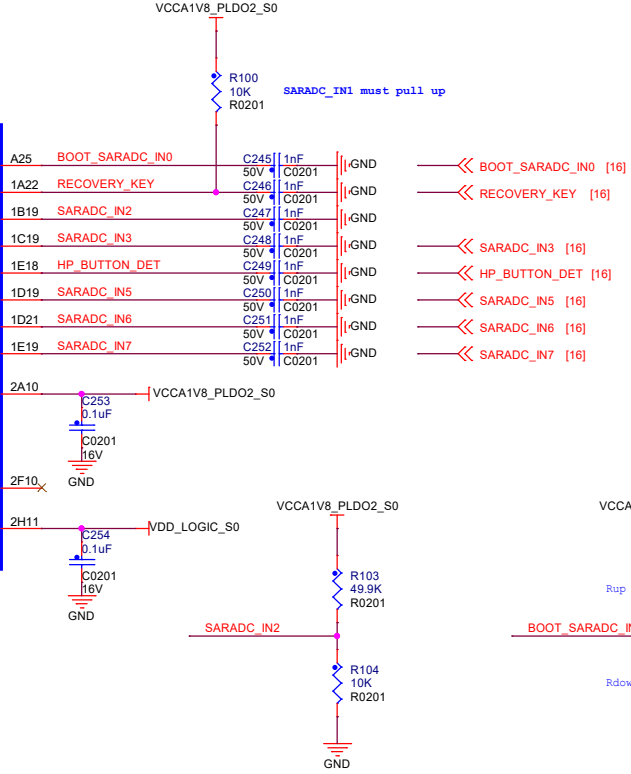
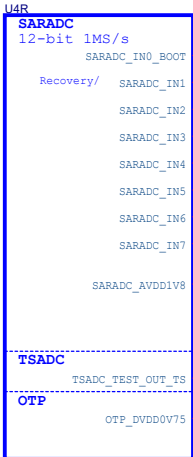
RK3576_USB



U4M



SARADC

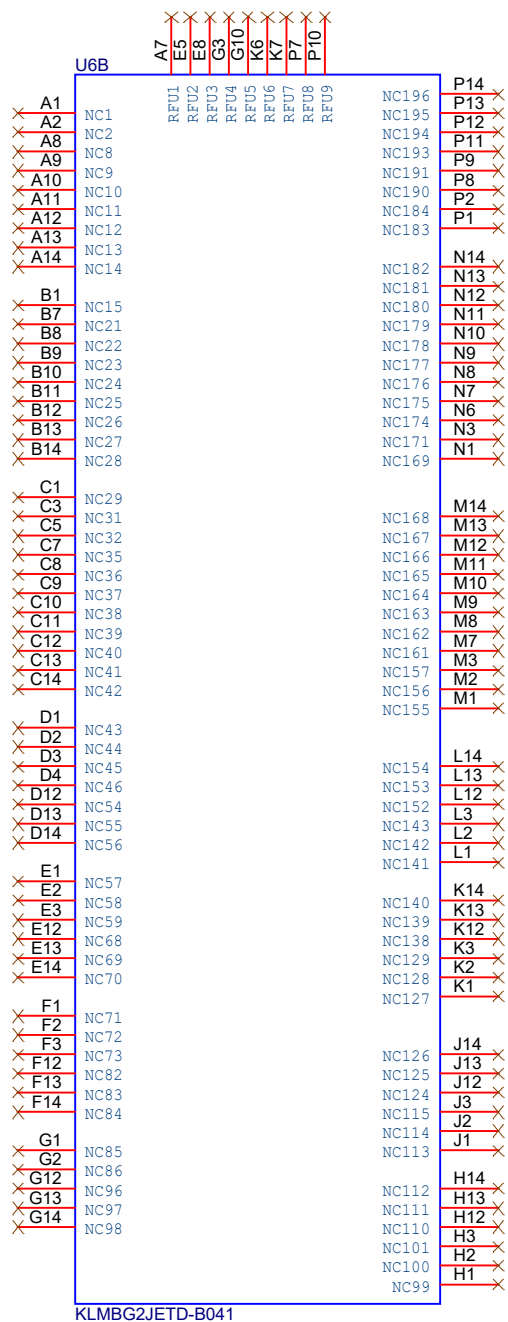


Board ID:0x0001 VIN2:0.3V VIN3:0.507V ADC VIN2:682 VIN3:1153 Default:EMMC->SDMMC0->USB

BOOT MODE CONFIG

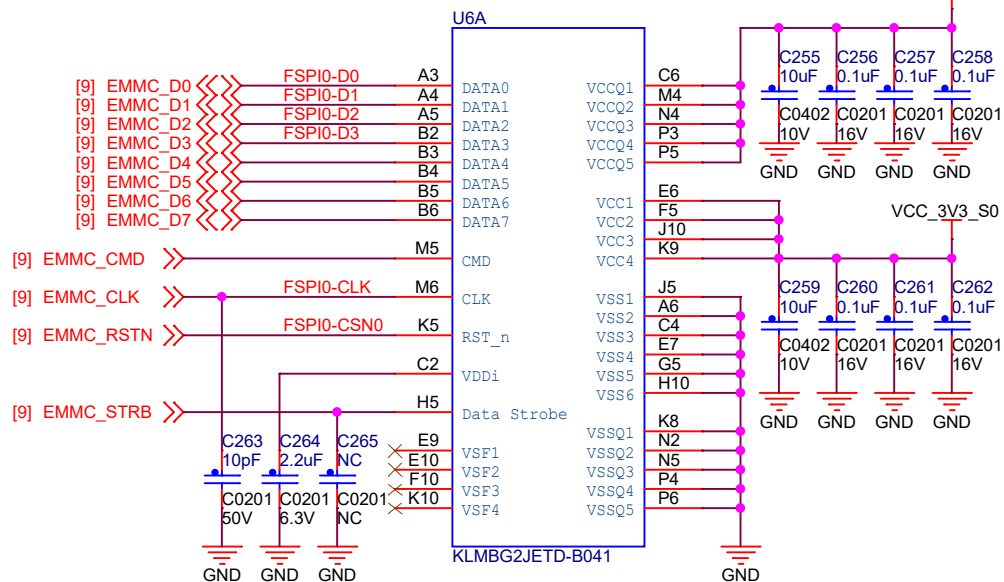
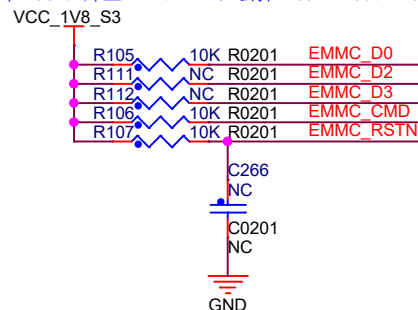
Config Table for SARADC_VIN0_BOOT				
Item	Rup	Rdown	ADC	BOOT MODE
CONFIG1	NC	10K	0	USB (Maskrom mode)
CONFIG2	10K	1.13K	416	FSPI0->USB
CONFIG3	10K	2.49K	816	FSPI1_M0->EMMC->USB
CONFIG4	10K	4.3K	1231	FSPI1_M1->EMMC->USB
CONFIG5	10K	6.8K	1658	FSPI0->UFS->USB
CONFIG6	10K	10K	2048	FSPI1_M0->UFS->USB
CONFIG7	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

FLASH EMMC

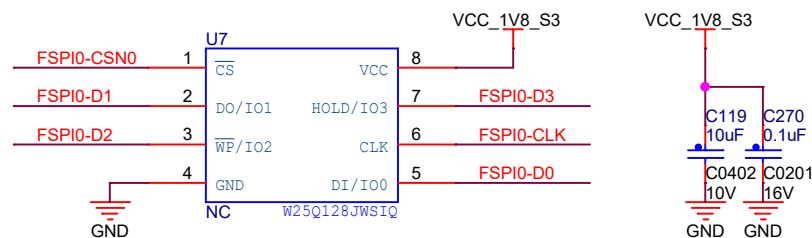


KLMBG2JETD-B041

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



SPI FLASH



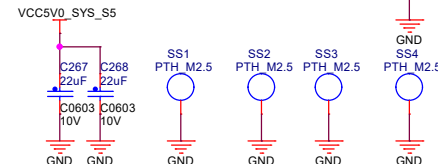
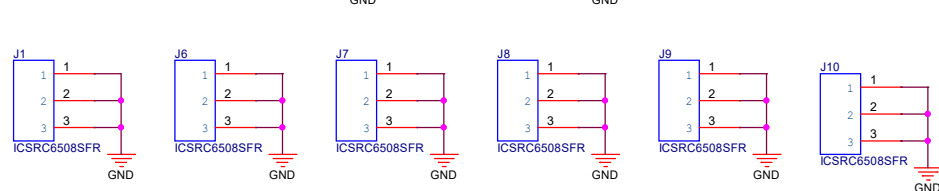
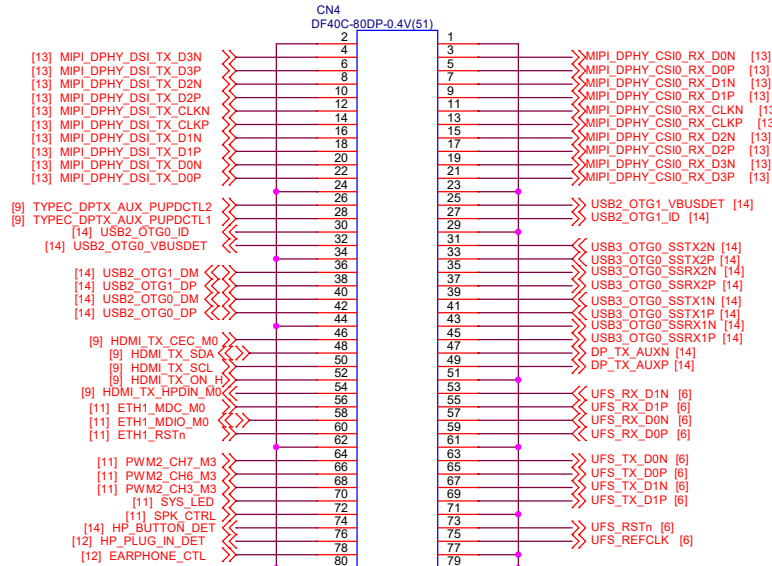
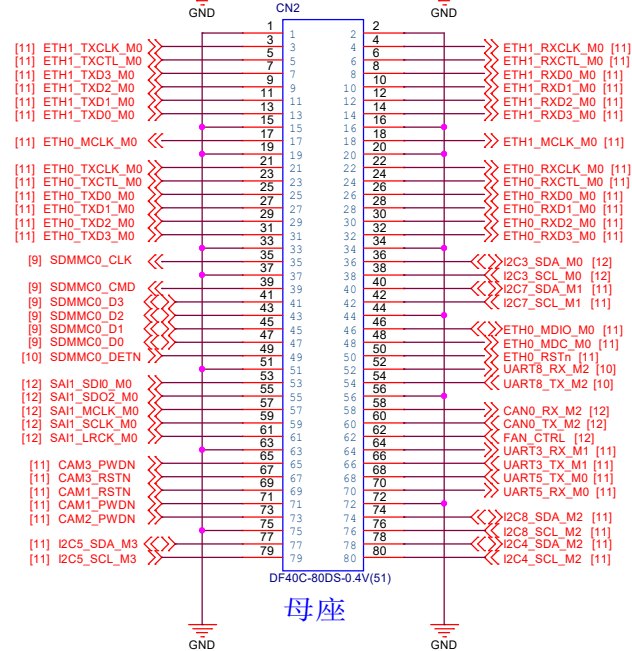
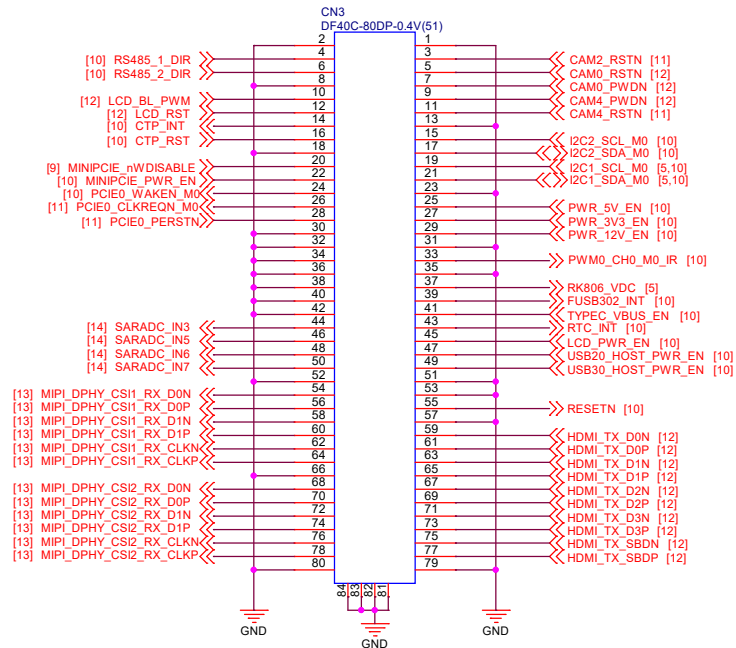
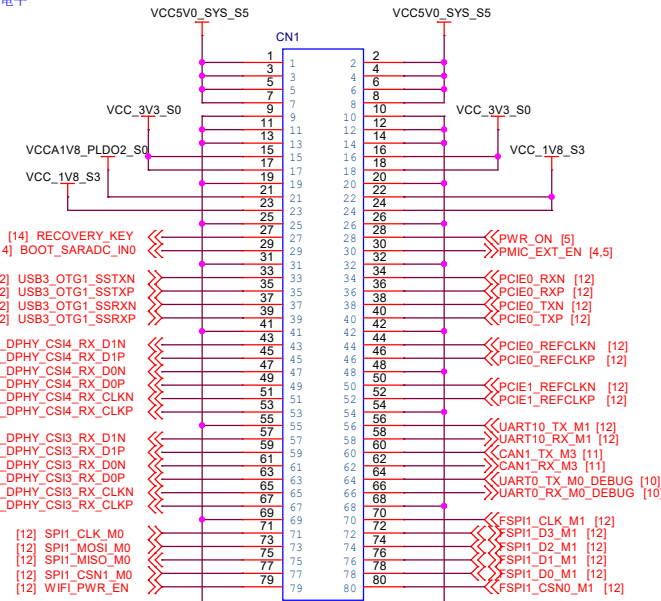
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Title			
鲁班猫3 BTB核心板(LubanCat 3CB)RK3576			
Size A4	Document Number FLASH_EMMC		Rev V0.1
Date:	Thursday, June 25, 2026	Sheet 15 of	16

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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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Title 鲁班猫3 BTB核心板(LubanCat 3CB)RK3576			
Size A3	Document Number BTB座子	Rev V0.1	
Date:	Thursday, June 25, 2026	Sheet	16 of 16