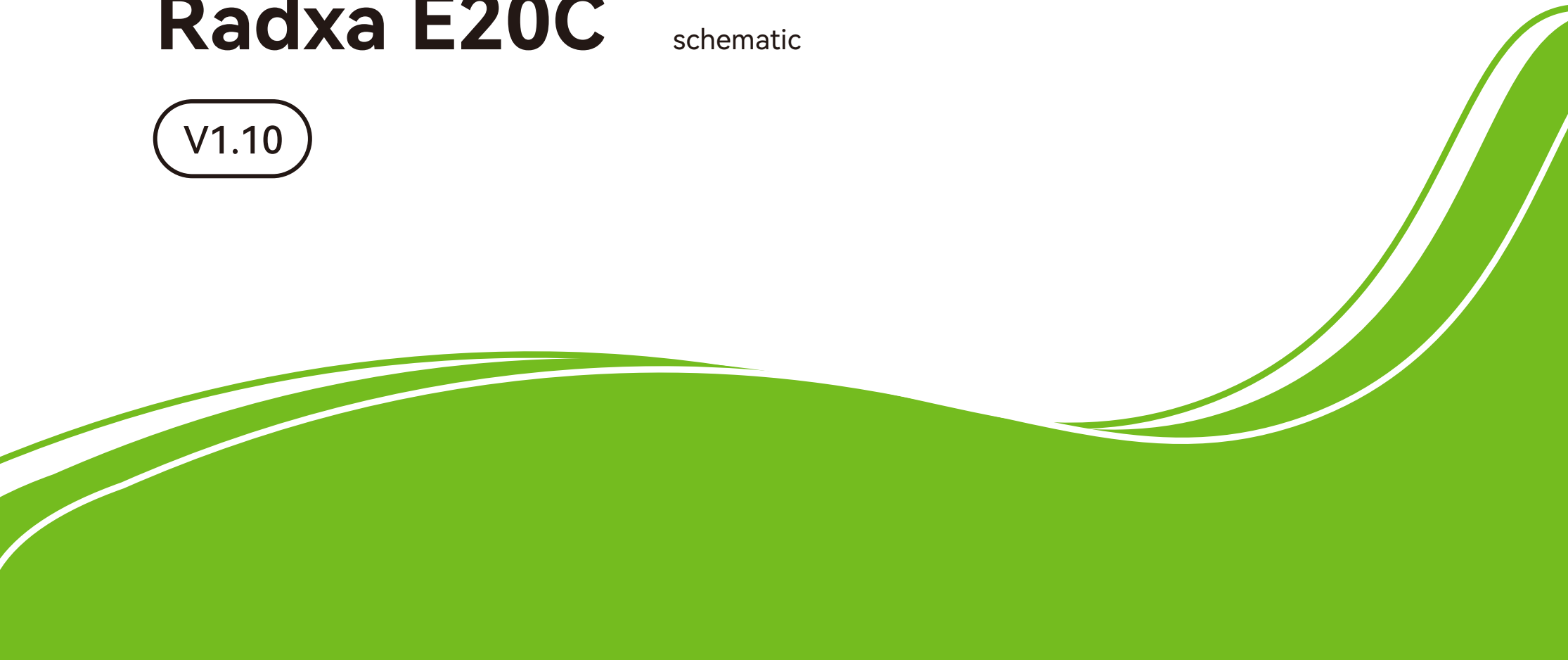




Radxa E20C

schematic

V1.10



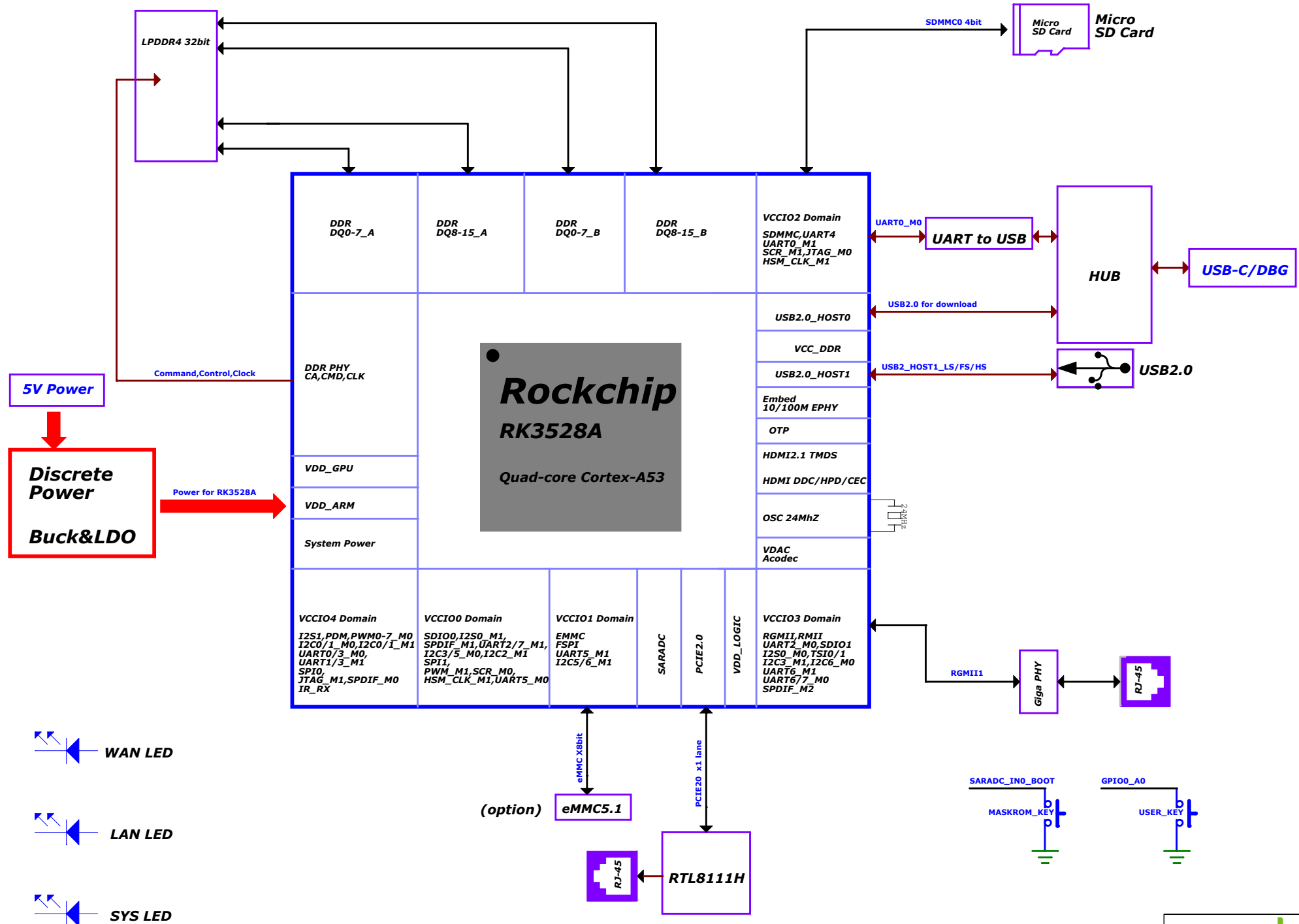
Index

Page 1	01.Cover
Page 2	02.Index
Page 3	03.Block
Page 4	04.RK3528A Power/GND
Page 5	05.RK3528A OSC/PLL/PMUIO
Page 6	06.RK3528A DDR Controller
Page 7	07.RK3528A FLASH/SD Controller
Page 8	08.RK3528A USB/PCIE Controller
Page 9	09.RK3528A SARADC/OTP
Page 10	10.RK3528A HDMI Interface
Page 11	11.RK3528A AV OUT
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Page 17	17.LAN_RTL8111H
Page 18	18.USB20_HUB
Page 19	19.Ethernet_RGMII
Page 20	20.Micro_SD
Page 21	21.5V_Power
Page 22	22.Key_LED

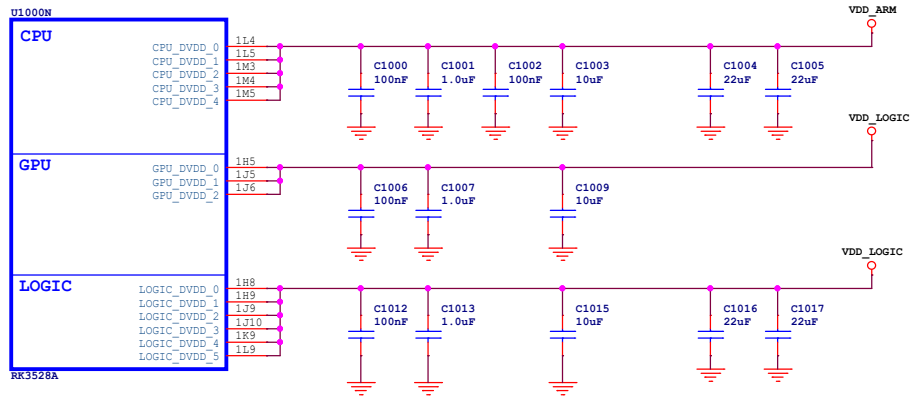


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A4	Page Name: 02.Index	V1.10
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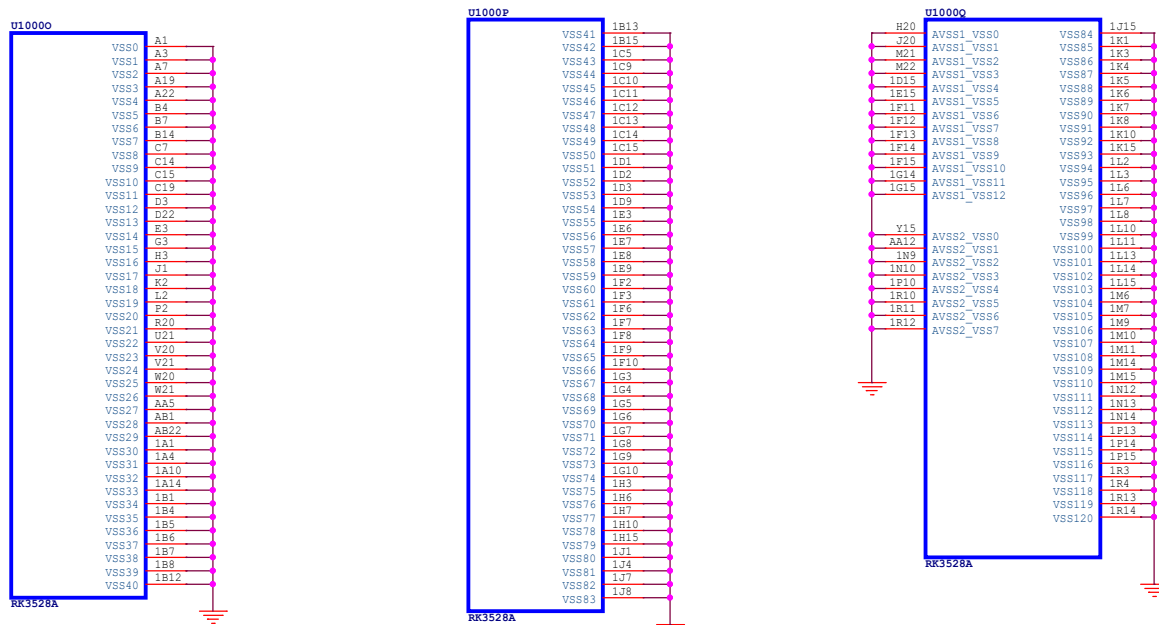
RK3528A Block Diagram



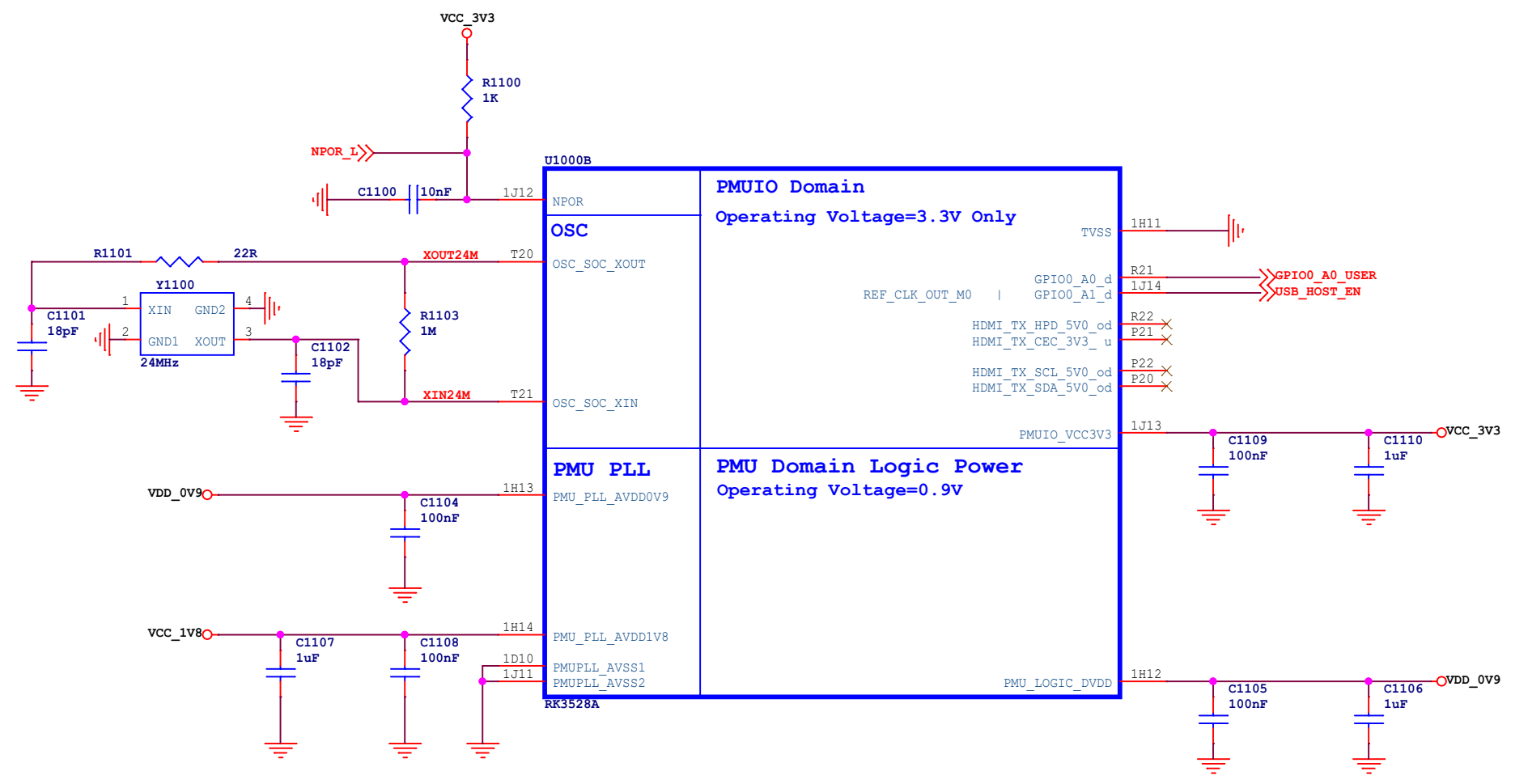
RK3528A_N (POWER)



RK3528A_O/P/Q (GND)



RK3528A_B (OSC/PLL/PMUIO Domain)



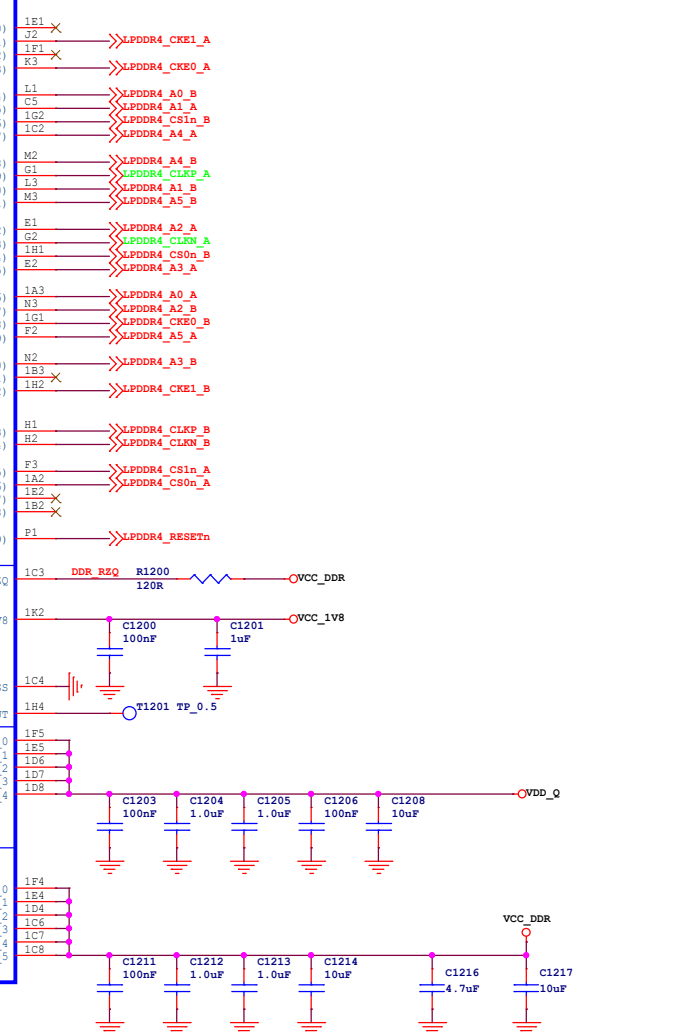
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A4	Page Name: 05.RK3528A OSC/PLL/PMUIO	V1.10
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RK3528A_A (DDR PHY)

U1000A

	DDR4	LPDDR4	DDR3	LPDDR3	DDR4	LPDDR4	DDR3	LPDDR3		
LPDDR4_DQ0_A	DDRPHY_A_DQ0	DDR4_DQ0_A	LPDDR4_DQ0_A	DDR3_D0	LPDDR3_D0	DDR4_A0	LPDDR4_ODT1_B	DDR3_A9	LPDDR3_ODT2	DDRPHY_A0 (AC0)
LPDDR4_DQ1_A	DDRPHY_A_DQ1	DDR4_DQ1_A	LPDDR4_DQ1_A	DDR3_D0	LPDDR3_D1	DDR4_A1	LPDDR4_CKE1_A	DDR3_A14	--	DDRPHY_A1 (AC1)
LPDDR4_DQ2_A	DDRPHY_A_DQ2	DDR4_DQ2_A	LPDDR4_DQ2_A	DDR3_D1	LPDDR3_D2	DDR4_A2	LPDDR4_ODT0_B	DDR3_A13	LPDDR3_ODT3	DDRPHY_A2 (AC2)
LPDDR4_DQ3_A	DDRPHY_A_DQ3	DDR4_DQ3_A	LPDDR4_DQ3_A	DDR3_D2	LPDDR3_D3	DDR4_A3	LPDDR4_CKE0_A	DDR3_A1	--	DDRPHY_A3 (AC3)
LPDDR4_DQ4_A	DDRPHY_A_DQ4	DDR4_DQ4_A	LPDDR4_DQ4_A	DDR3_D6	LPDDR3_D4	DDR4_A4	LPDDR4_A0_B	DDR3_A2	LPDDR3_A5	DDRPHY_A4 (AC4)
LPDDR4_DQ5_A	DDRPHY_A_DQ5	DDR4_DQ5_A	LPDDR4_DQ5_A	DDR3_D5	LPDDR3_D5	DDR4_A5	LPDDR4_A1_A	DDR3_A4	--	DDRPHY_A5 (AC5)
LPDDR4_DQ6_A	DDRPHY_A_DQ6	DDR4_DQ6_A	LPDDR4_DQ6_A	DDR3_D5	LPDDR3_D6	DDR4_A6	LPDDR4_CS1N_B	DDR3_A3	LPDDR3_CS2	DDRPHY_A6 (AC6)
LPDDR4_DQ7_A	DDRPHY_A_DQ7	DDR4_DQ7_A	LPDDR4_DQ7_A	DDR3_D3	LPDDR3_D7	DDR4_A7	LPDDR4_A4_A	DDR3_A6	--	DDRPHY_A7 (AC7)
LPDDR4_DM0_A	DDRPHY_A_DM0	DDR4_DML_A	LPDDR4_DM0_A	DDR3_DM0	LPDDR3_DM0	DDR4_A8	LPDDR4_A4_B	DDR3_A5	LPDDR3_A6	DDRPHY_A8 (AC8)
LPDDR4_DQS0P_A	DDRPHY_A_DQS0P	DDR4_DQS1_P_A	LPDDR4_DQS0P_A	DDR3_DQS0P	LPDDR3_DQS0P	DDR4_A9	LPDDR4_CLKP_A	DDR3_A11	LPDDR3_A2	DDRPHY_A9 (AC9)
LPDDR4_DQS0N_A	DDRPHY_A_DQS0N	DDR4_DQS1_N_A	LPDDR4_DQS0N_A	DDR3_DQS0N	LPDDR3_DQS0N	DDR4_A10	LPDDR4_A1_B	DDR3_A0	--	DDRPHY_A10 (AC10)
						DDR4_A11	LPDDR4_A5_B	DDR3_A7	LPDDR3_A7	DDRPHY_A11 (AC11)
						DDR4_A12	LPDDR4_A2_A	DDR3_A10	LPDDR3_A4	DDRPHY_A12 (AC12)
						DDR4_A13	LPDDR4_CLKN_A	DDR3_A8	LPDDR3_A3	DDRPHY_A13 (AC13)
						DDR4_WEN/A14	LPDDR4_CS0N_B	DDR3_ODT0	LPDDR3_CS3	DDRPHY_A14 (AC14)
						DDR4_CASW/A15	LPDDR4_A3_A	DDR3_BA1	LPDDR3_A0	DDRPHY_A15 (AC15)
						DDR4_RASN/A16	LPDDR4_A0_A	DDR3_CKE0	--	DDRPHY_A16 (AC16)
						DDR4_ACTN	LPDDR4_A2_B	DDR3_CS0	LPDDR3_A9	DDRPHY_ACTN (AC17)
						DDR4_BA0	LPDDR4_CKE0_B	DDR3_BA2	LPDDR3_CKE0	DDRPHY_BA0 (AC18)
						DDR4_BA1	LPDDR4_A5_A	DDR3_A12	LPDDR3_A1	DDRPHY_BA1 (AC19)
						DDR4_BG0	LPDDR4_A3_B	DDR3_BA0	LPDDR3_A8	DDRPHY_BG0 (AC20)
						DDR4_BG1	--	DDR3_A15	--	DDRPHY_BG1 (AC21)
						DDR4_CKE	LPDDR4_CKE1_B	DDR3_RASN	--	DDRPHY_CKE (AC22)
						DDR4_CLKP	LPDDR4_CLKP_B	DDR3_CLKP	LPDDR3_CLKP	DDRPHY_CLKP (AC23)
						DDR4_CLKN	LPDDR4_CLKN_B	DDR3_CLKN	LPDDR3_CLKN	DDRPHY_CLKN (AC24)
						DDR4_CS0	LPDDR4_CS1N_A	DDR3_CASN	LPDDR3_CS1	DDRPHY_CS0 (AC25)
						DDR4_CS1	LPDDR4_CS0_A	DDR3_CS1	LPDDR3_CS0	DDRPHY_CS1 (AC26)
						DDR4_ODT0	LPDDR4_ODT1_A	DDR3_WEN	LPDDR3_ODT0	DDRPHY_ODT0 (AC27)
						DDR4_ODT1	LPDDR4_ODT0_A	DDR3_ODT1	LPDDR3_ODT1	DDRPHY_ODT1 (AC28)
						DDR4_RESETN	LPDDR4_RESETN	DDR3_RESETN	--	DDRPHY_RESETN (AC29)
						Note: Sequences can not be swap				

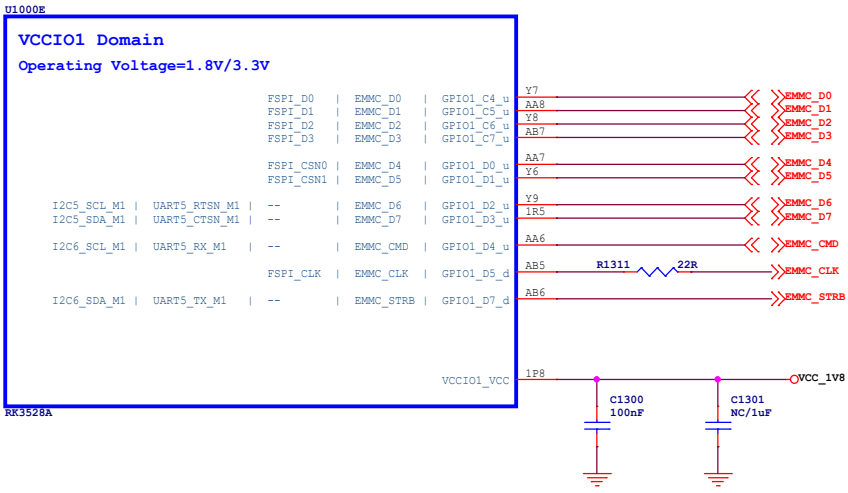
RK3528A



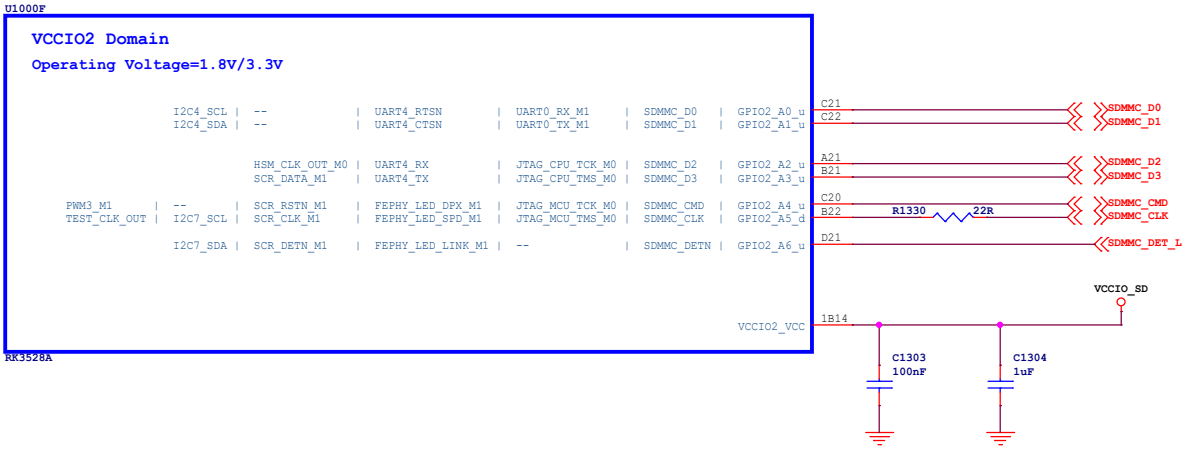


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A3	Page Name: 06.RK3528A DDR Controller	V1.10
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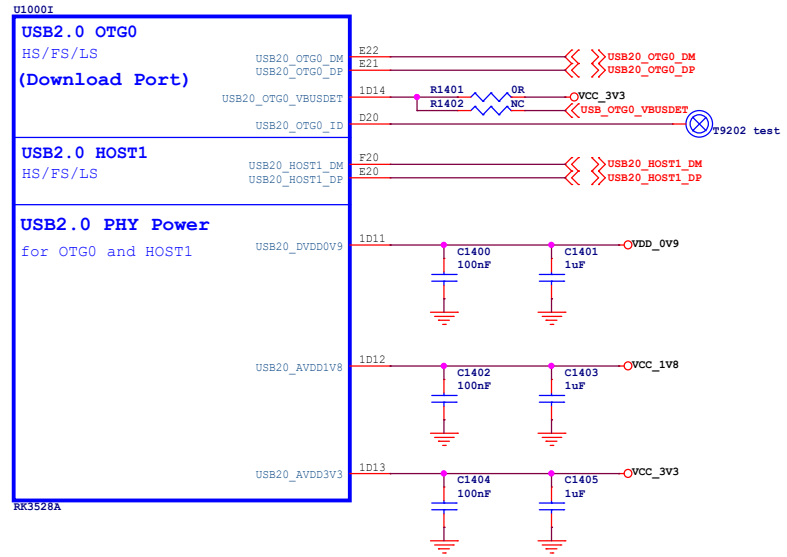
RK3528A_E (VCCIO1 Domain)



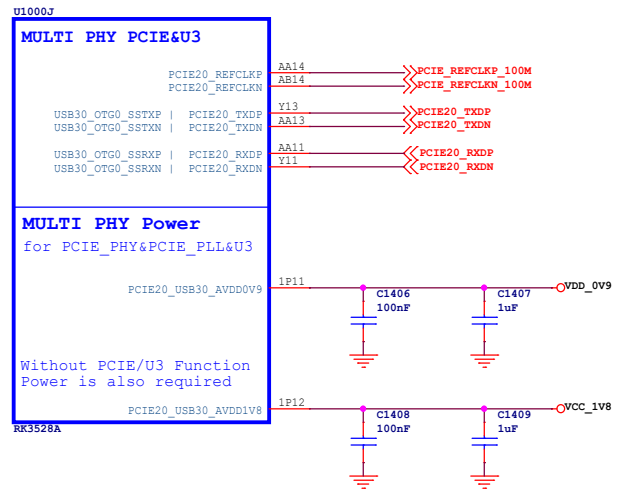
RK3528A_F (VCCIO2 Domain)



RK3528A_I (USB2.0 OTG/HOST)

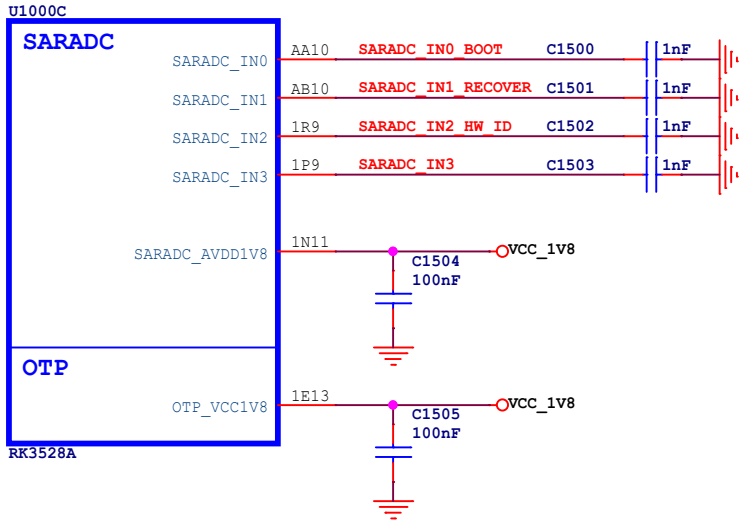


RK3528A_J (PCIE2.0/U3 PHY)



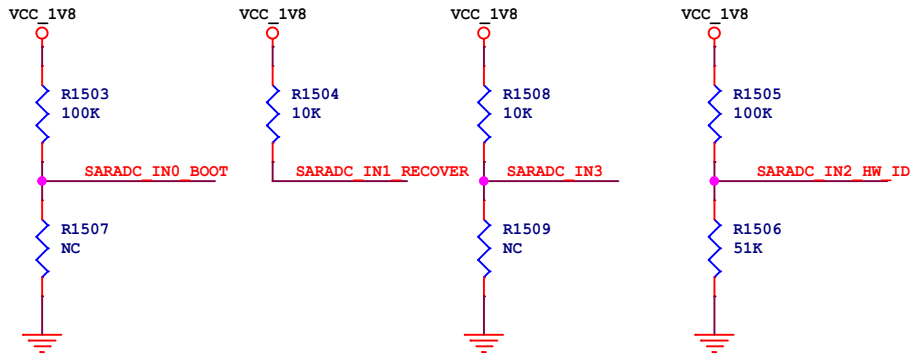
Size	Title: E20C	REV
A3	Page Name: 08.RK3528A USB/PCIE Controller	V1.10
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RK3528A_C (Saradc/OTP)



TABLE

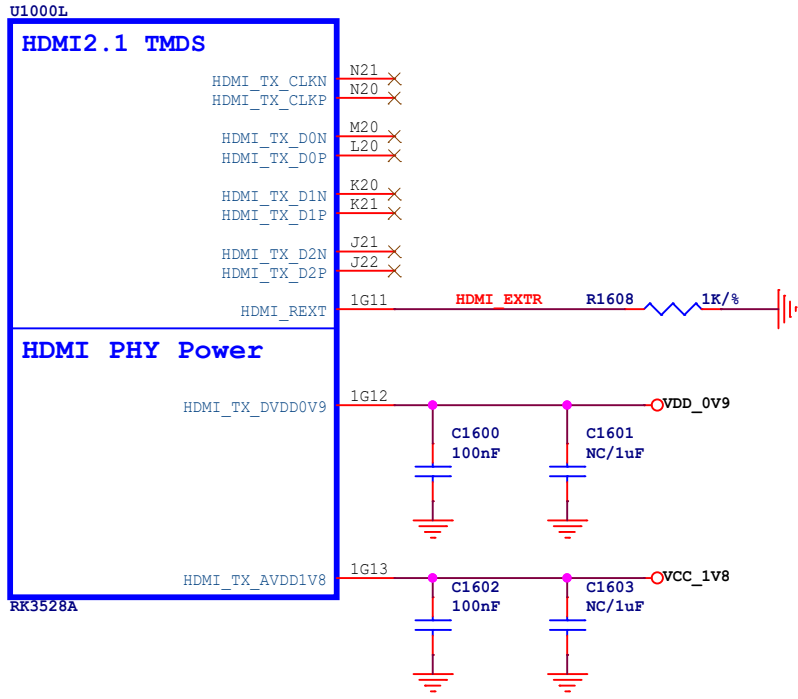
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LEVEL1	DNP	100K	0	USB (Maskrom mode)
LEVEL2	100K	12K	114	
LEVEL3	100K	27K	228	FSPI--USB
LEVEL4	100K	51K	342	
LEVEL5	100K	82K	456	
LEVEL6	100K	120K	570	EMMC--USB
LEVEL7	100K	200K	683	EMMC--SD Card--USB
LEVEL8	100K	330K	796	SD Card--USB
LEVEL9	100K	820K	910	
LEVEL10	100K	DNP	1023	FSPI--EMMC--SD Card--USB





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A4	Page Name: 09.RK3528A SARADC/OTP	V1.10
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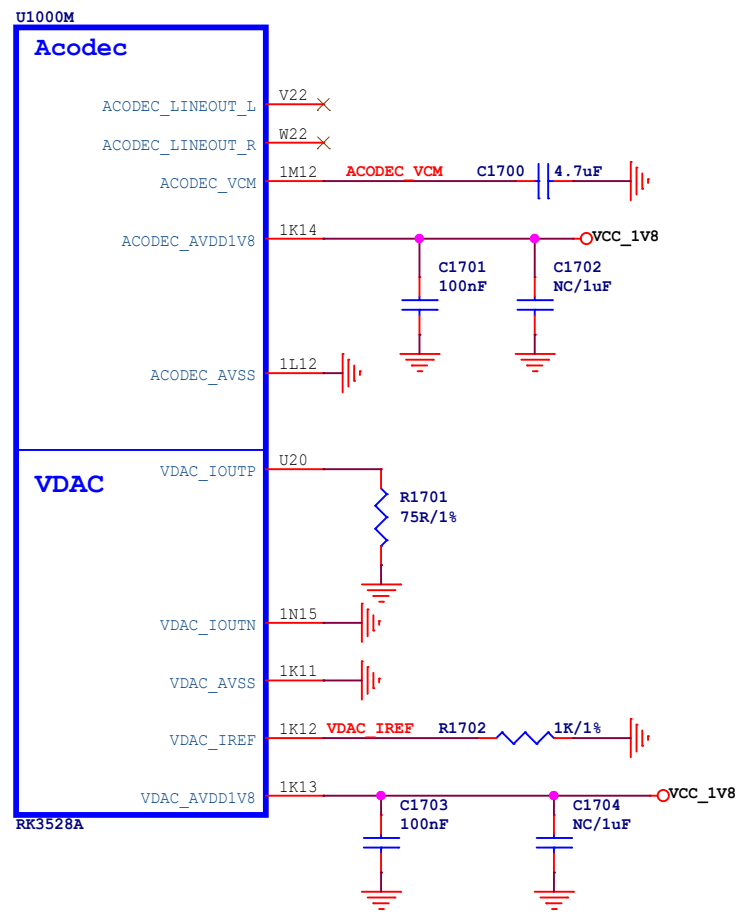
RK3528A_L (HDMI PHY)





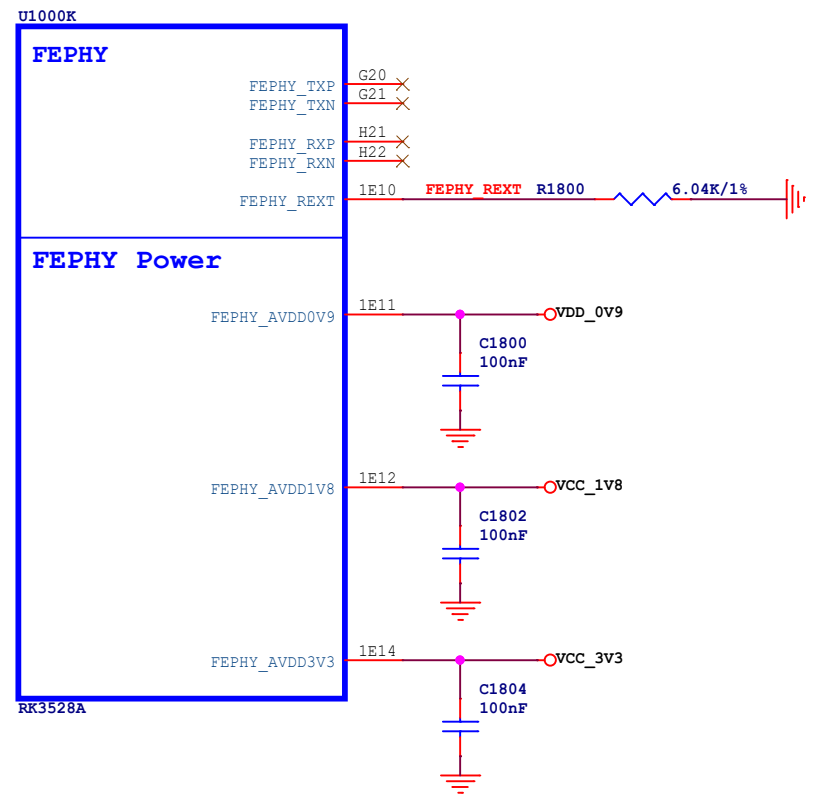
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A4	Page Name: 10.RK3528A HDMI Interface	V1.10
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RK3528A_M (Acodec/VDAC)



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A4	Page Name: 11.RK3528A AV OUT	V1.10
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RK3528A_K (Embed FEPHY)



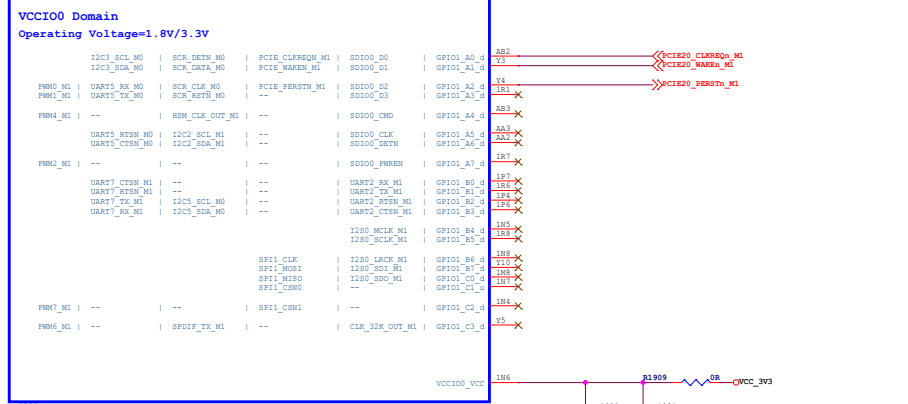
radxa

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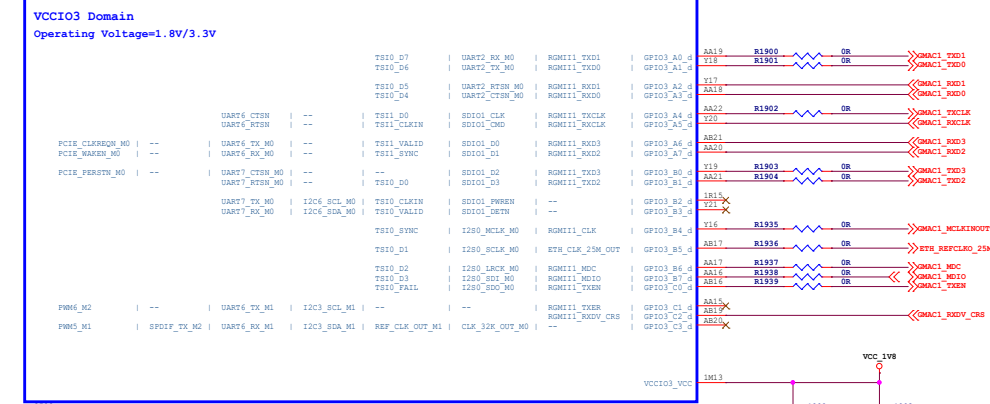
RK3528A_D (VCCIO0 Domain)

RK3528A_G (VCCIO3 Domain)

010000

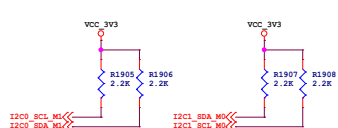
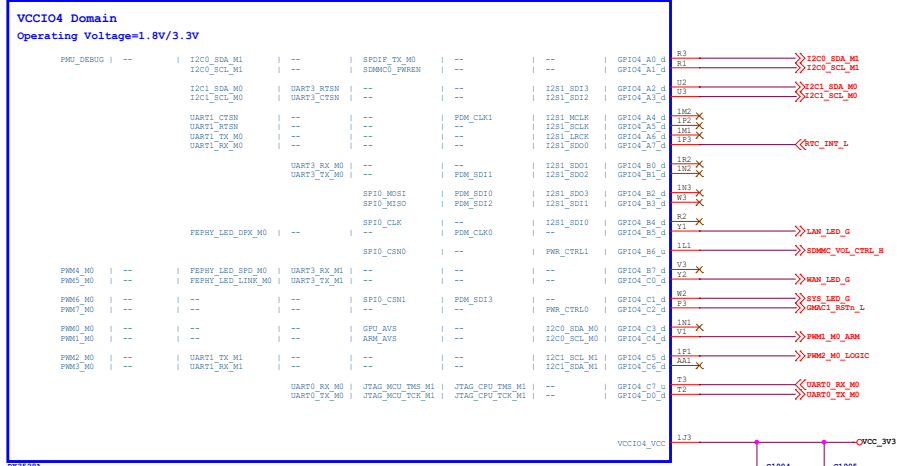


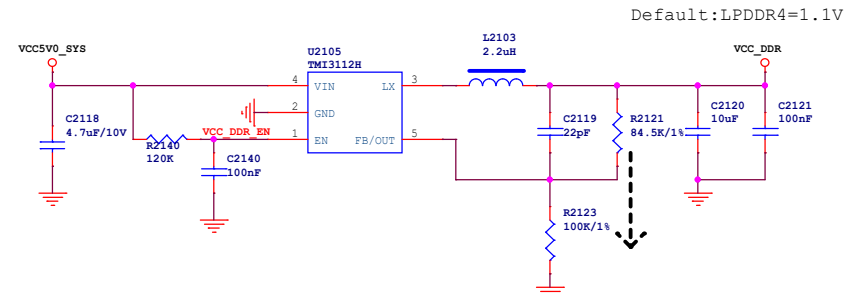
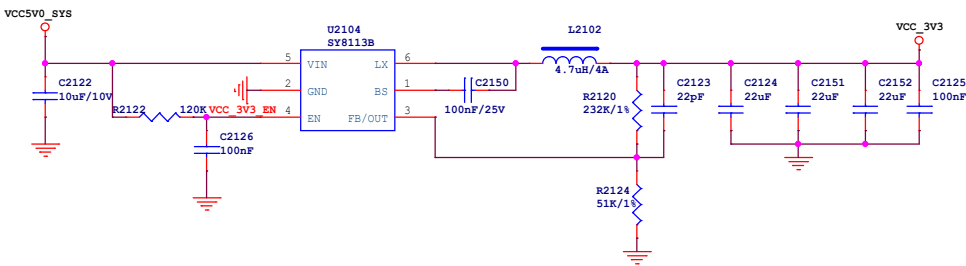
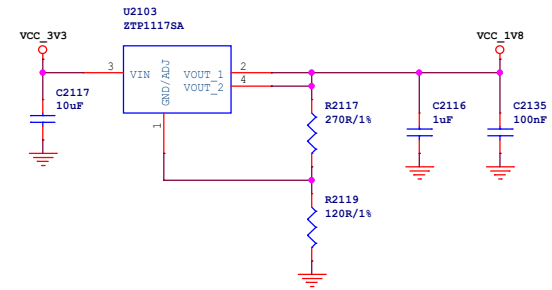
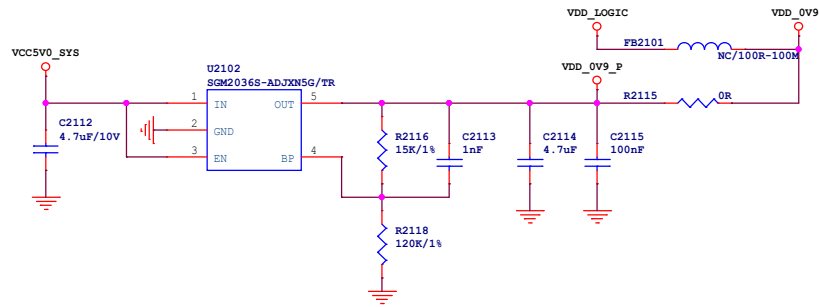
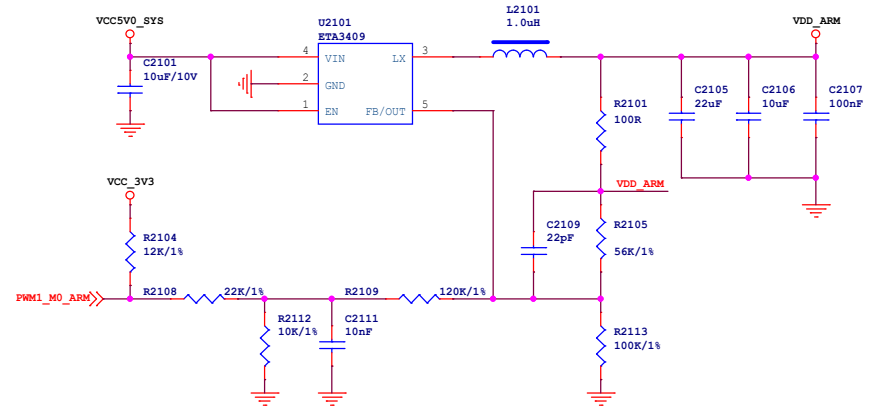
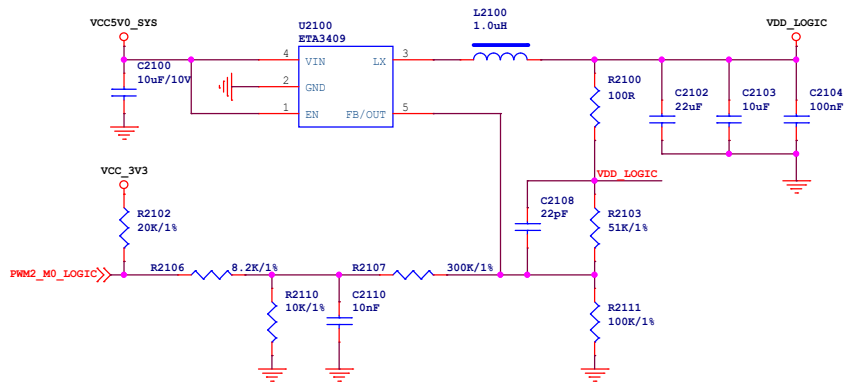
010000



RK3528A_H (VCCIO4 Domain)

010000



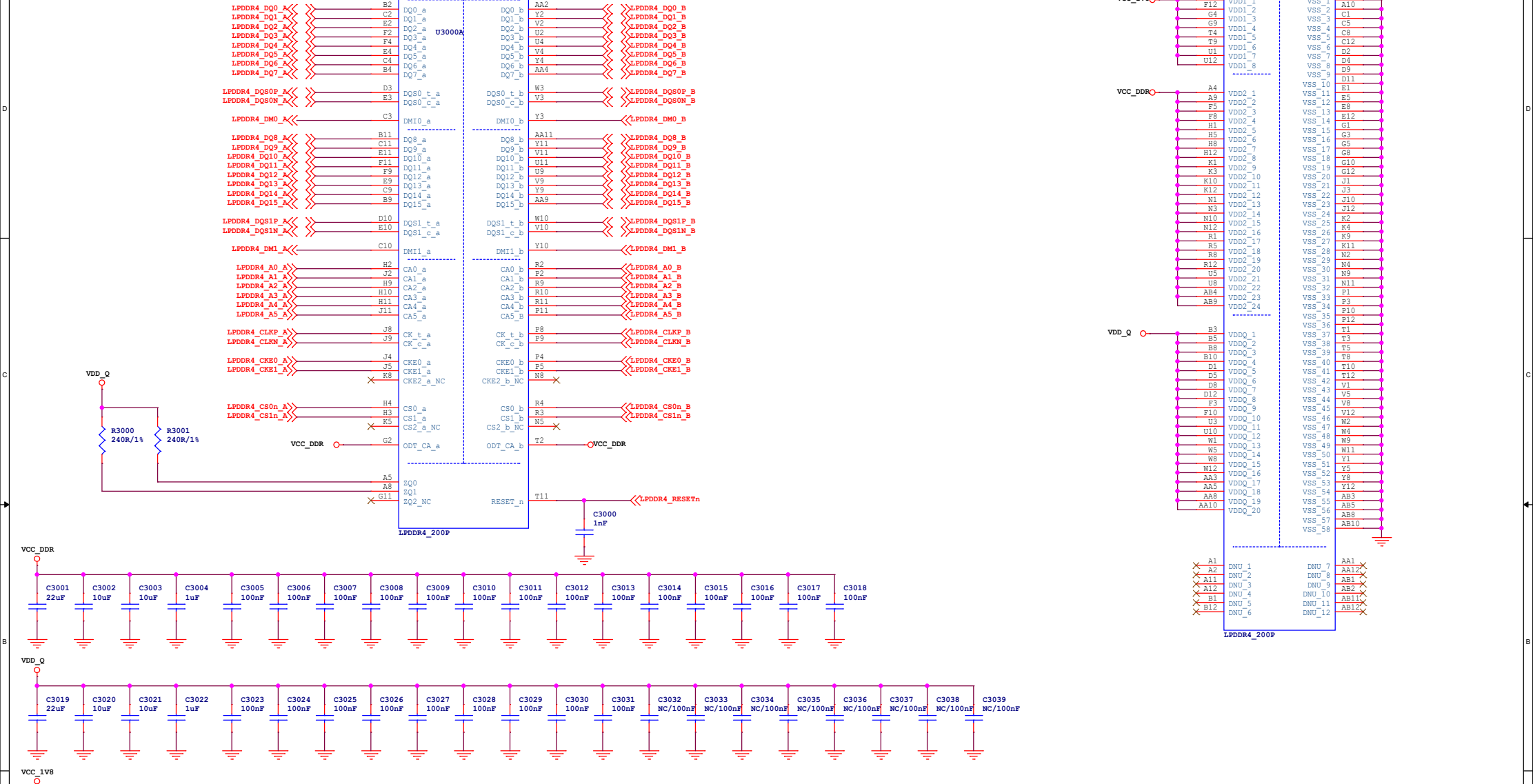


Default: LPDDR4=1.1V

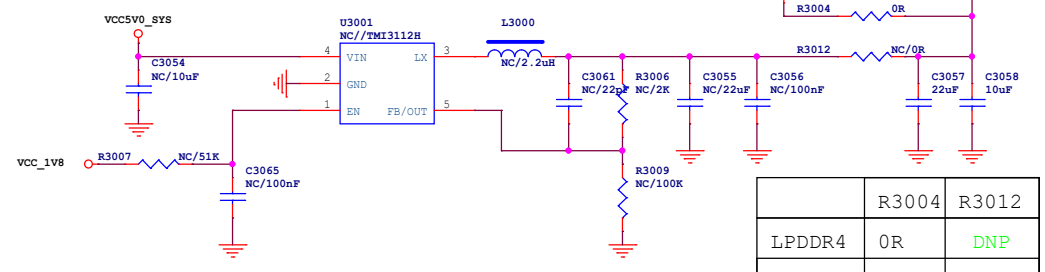
DDR4	1.20V	100K	1%
LPDDR4/4x	1.10V	84.5K	1%
DDR3	1.5V	150K	1%
DDR3L	1.35V	127K	1%
LPDDR3	1.25V	110K	1%

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A3	Page Name: 14.Power-DiscretePower	V1.10
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LPDDR4 200Ball



VCC0V6_DDR

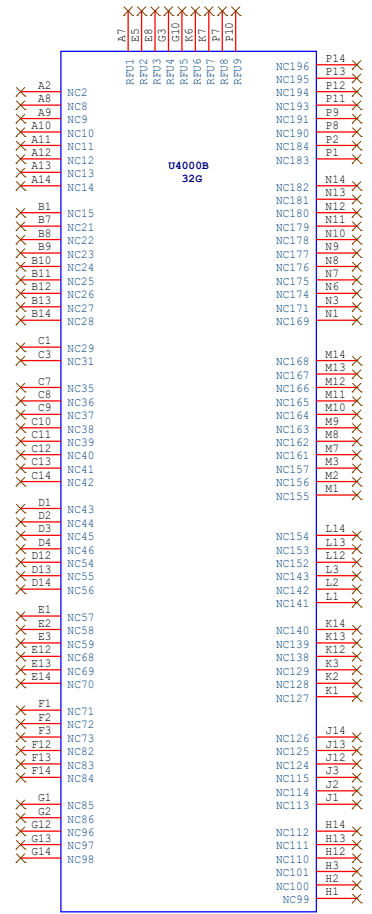
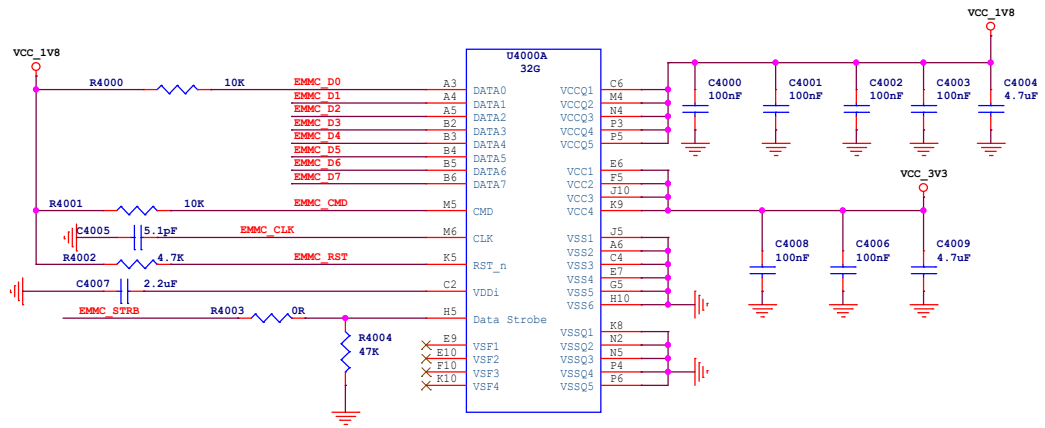


	R3004	R3012
LPDDR4	0R	DNP
LPDDR4X	DNP	0R

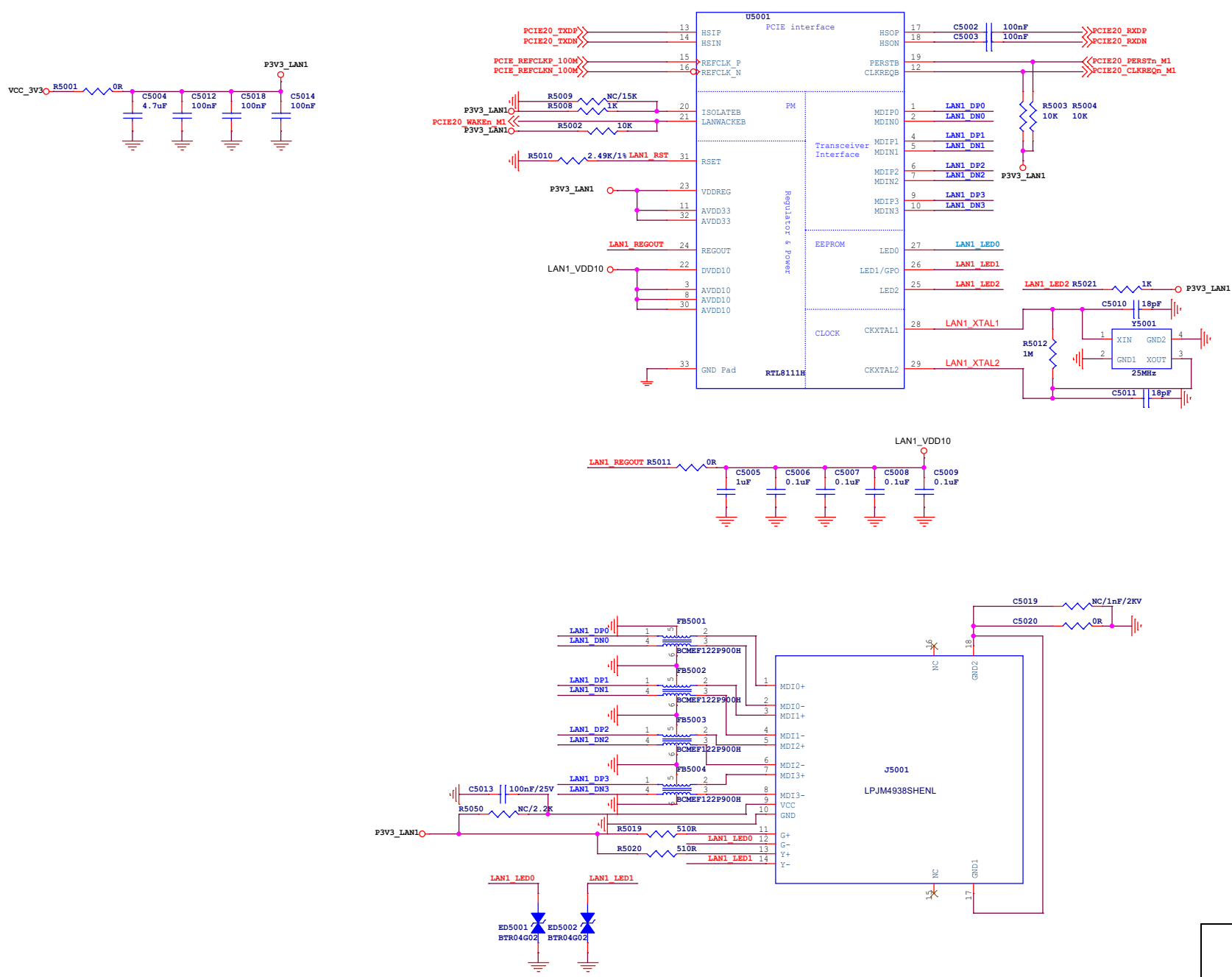



Size	Title:	E20C	REV
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EMMC

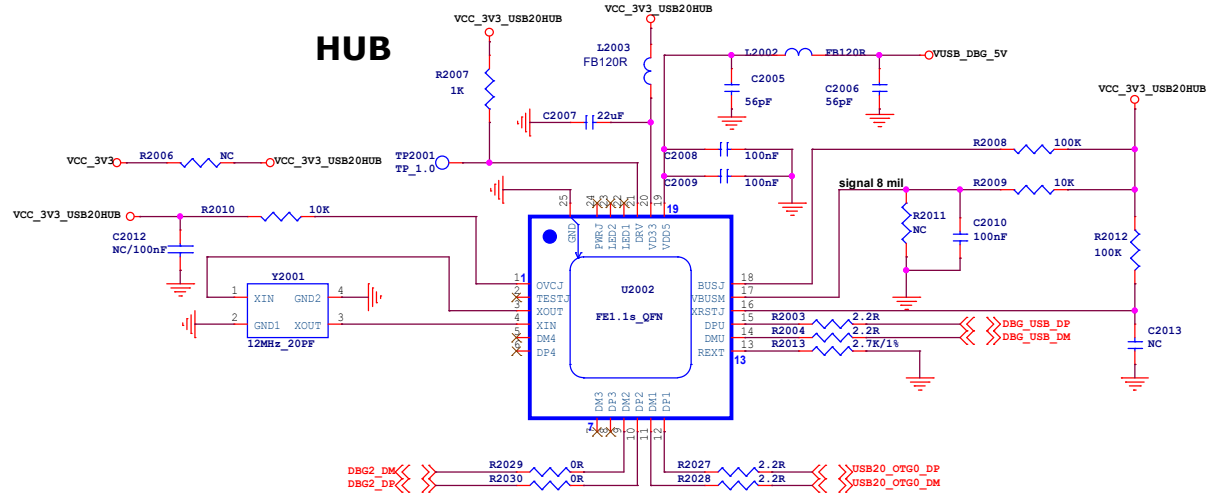
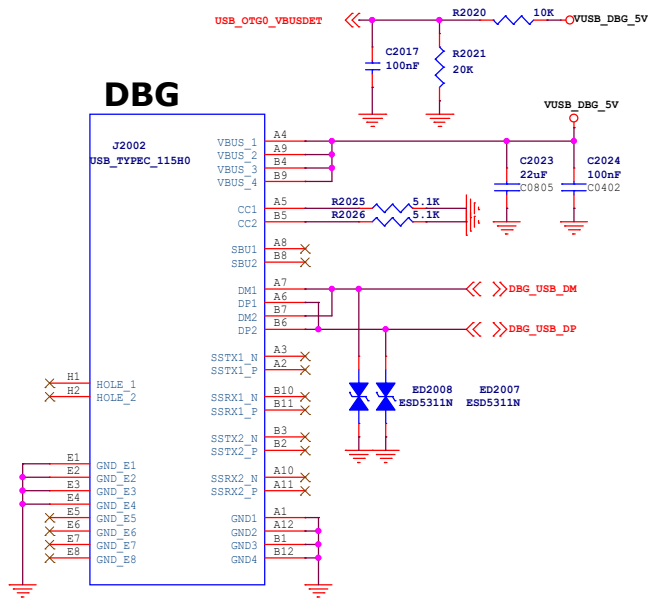


LAN_RTL8111H

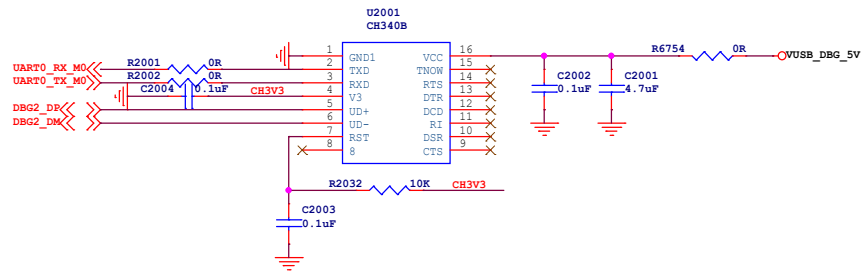




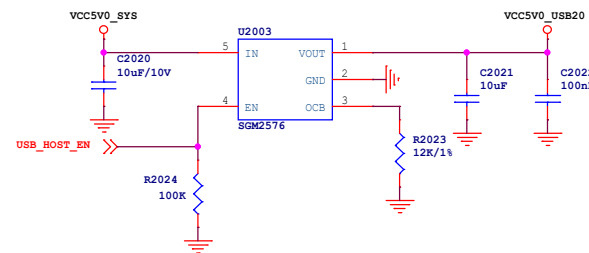
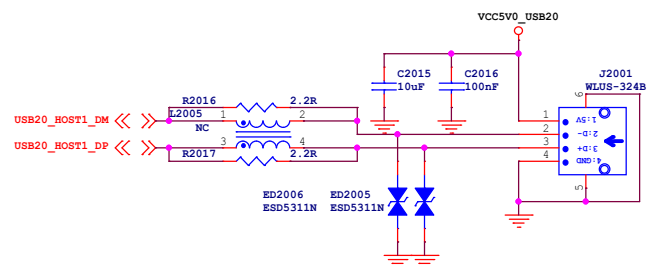
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A3	Page Name: 17.LAN_RTL8111H	V1.10
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UART to USB



USB2.0

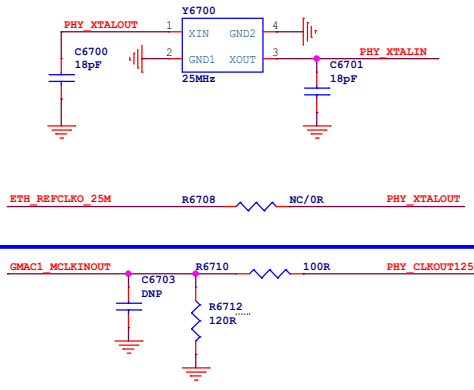


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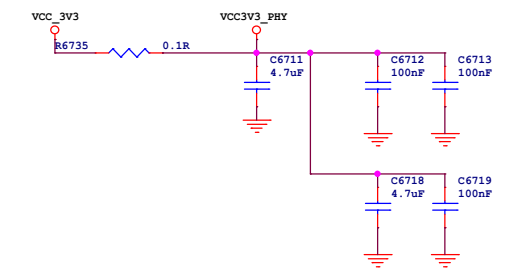
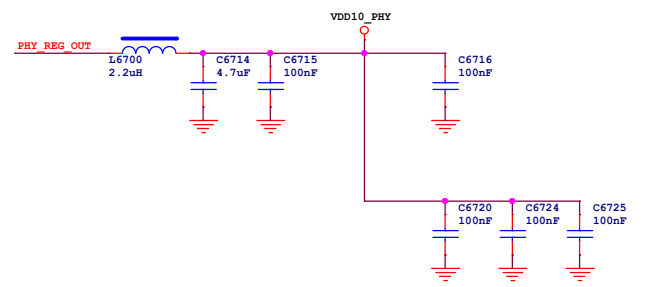
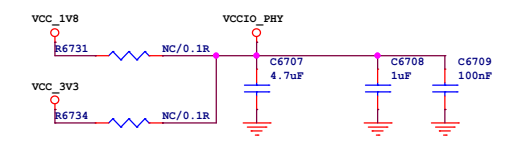
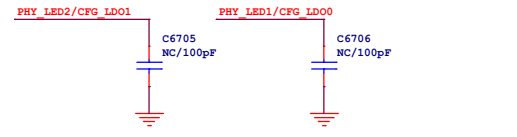
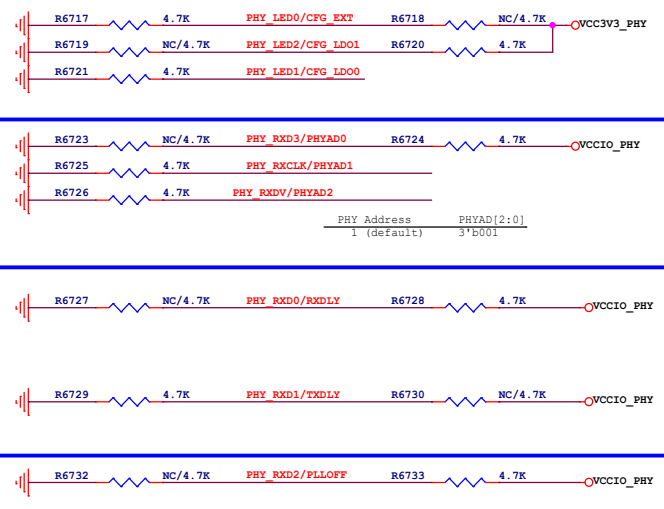
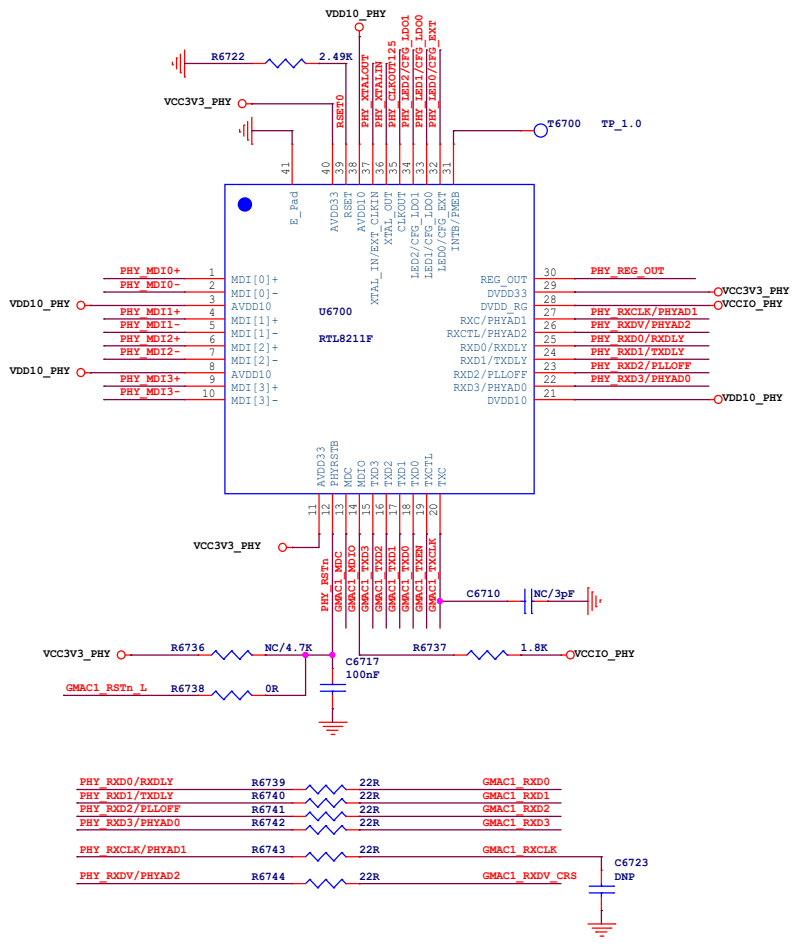
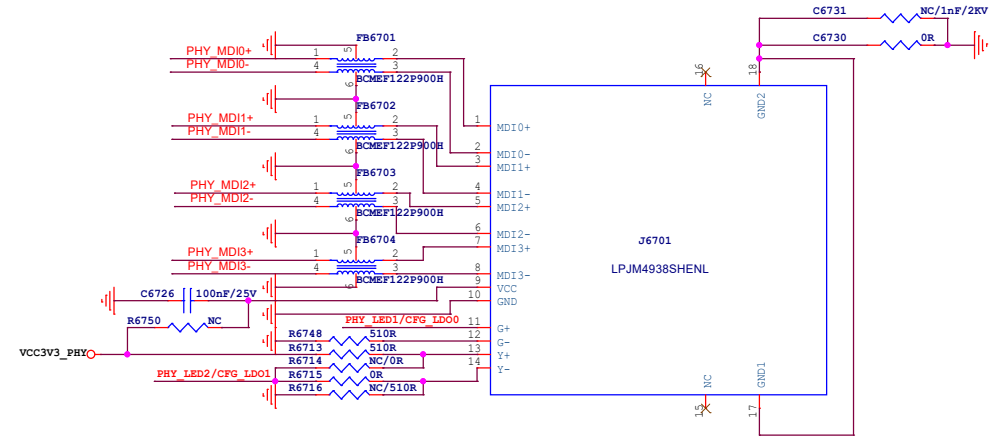
Size	Title: E20C	REV
A3	Page Name: 18.USB20_HUB	V1.10
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RGMII

- >>> GMAC1_TXD0
- >>> GMAC1_TXD1
- >>> GMAC1_TXD2
- >>> GMAC1_TXD3
- >>> GMAC1_TXEN
- >>> GMAC1_TXCLK
- >>> GMAC1_RXD0
- >>> GMAC1_RXD1
- >>> GMAC1_RXD2
- >>> GMAC1_RXD3
- >>> GMAC1_RXDV_CRS
- >>> GMAC1_RXCLK
- >>> ETH_REFCLK0_25M
- >>> GMAC1_MCLKINOUT
- >>> GMAC1_MDC
- >>> GMAC1_MDIO
- >>> GMAC1_RSTn_L



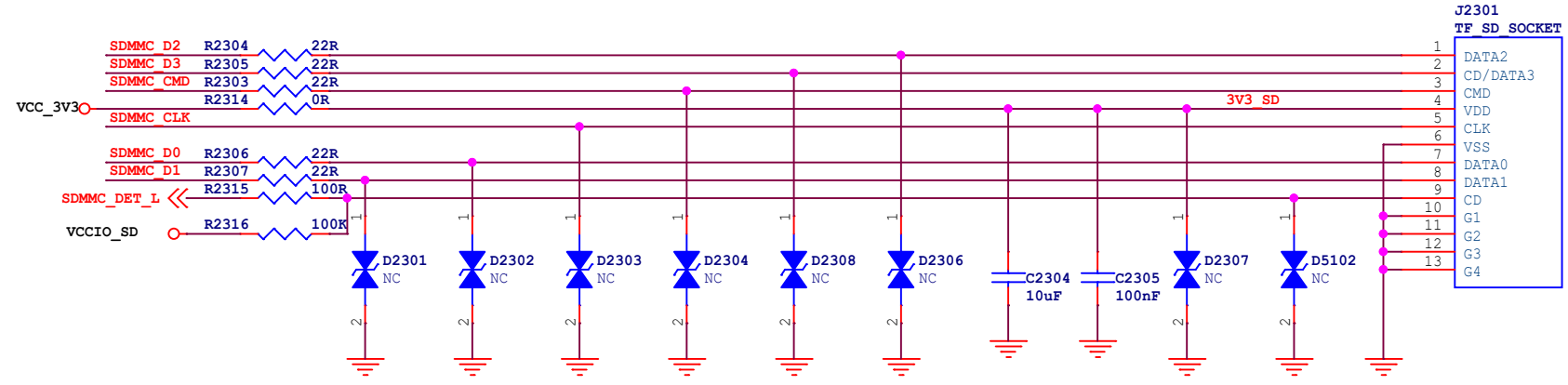
RJ45



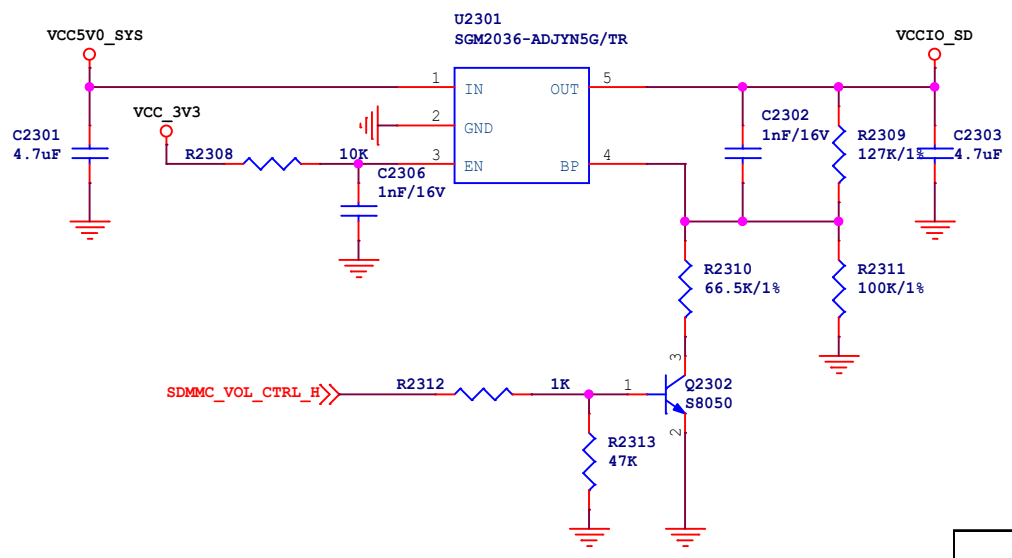
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A3	Page Name: 19.Ethernet_RGMII	V1.10
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Micro_SD Card

- SDMMC_D0
- SDMMC_D1
- SDMMC_D2
- SDMMC_D3
- SDMMC_CMD
- SDMMC_CLK
- SDMMC_DET_L



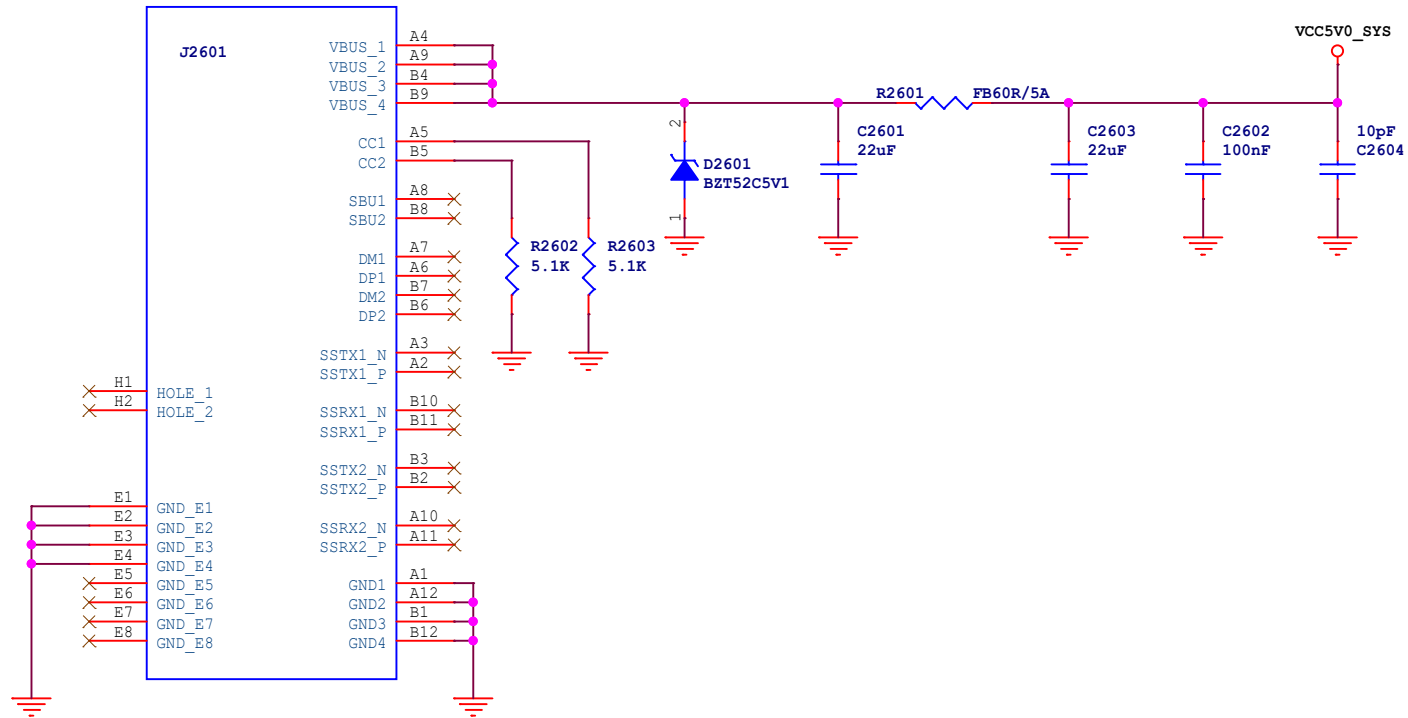
VCCIO_SD





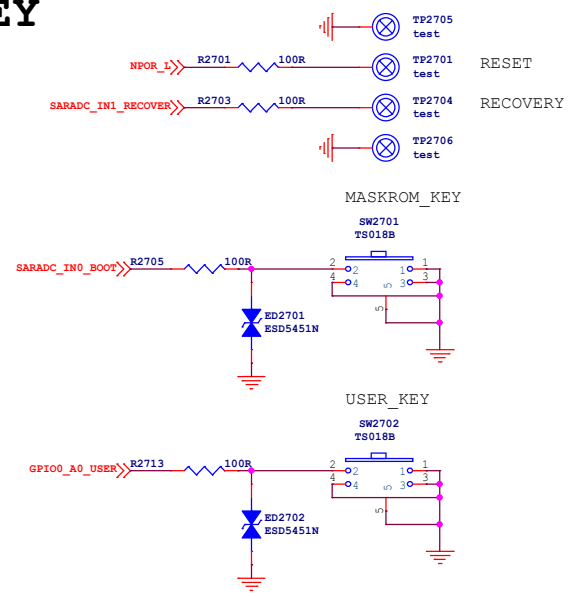
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A4	Page Name: 20.Micro_SD	V1.10
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DC 5V

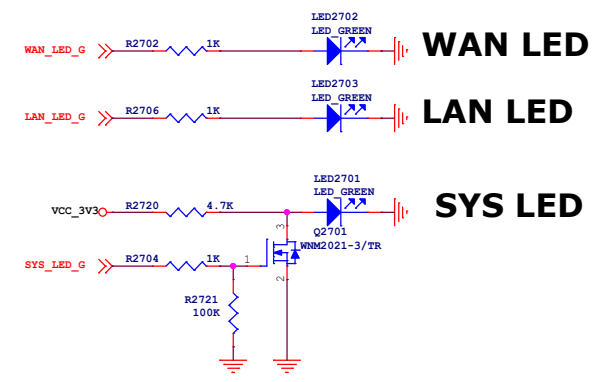


radxa		
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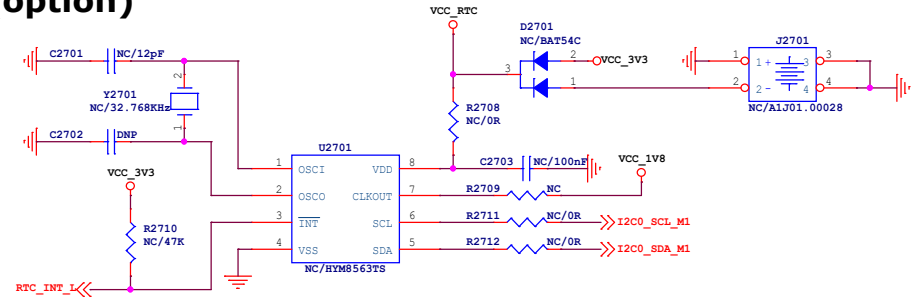
KEY



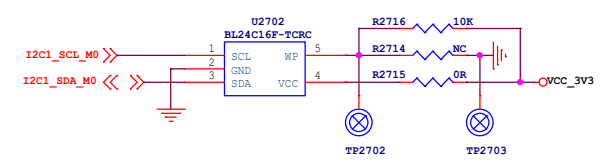
LED



RTC(option)



EEPROM



MARK

