

野火 RK3588 LubanCat 5 原理图

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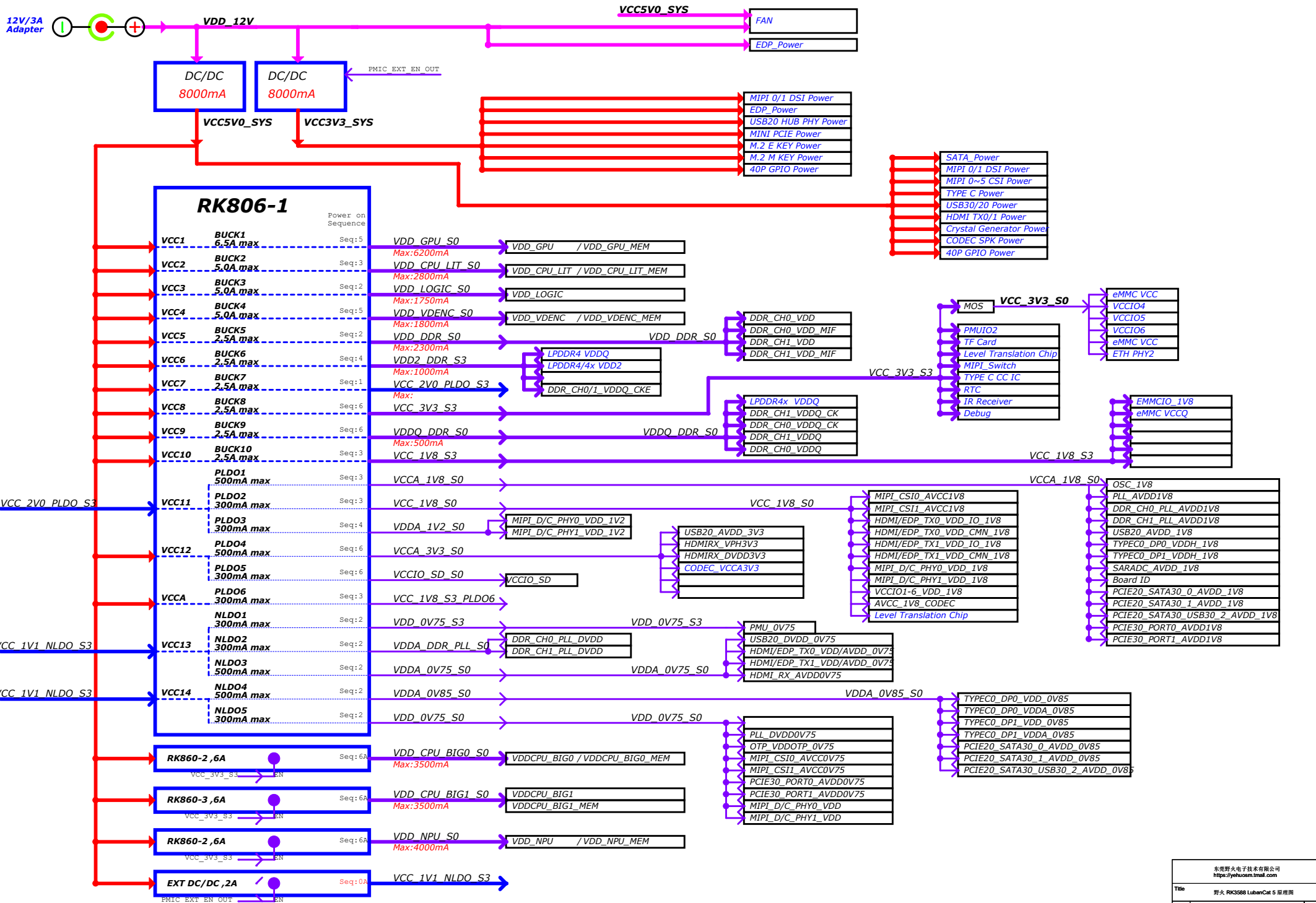
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Historic Version

版本号	日期	设计	描述
V0.1	2023-02-09	ghs	初始版本, 开发阶段
V1.0	2023-11-10	ghs	正式版本
V1R0	2024-02-21	ghs	修正HDMI RX热拔插检测功能异常

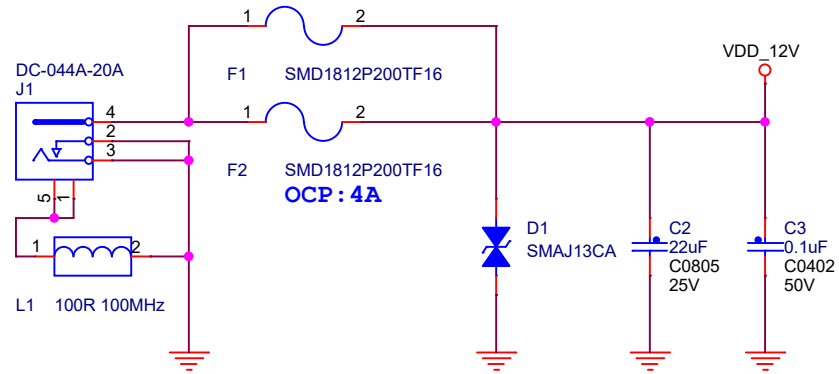
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Power tree

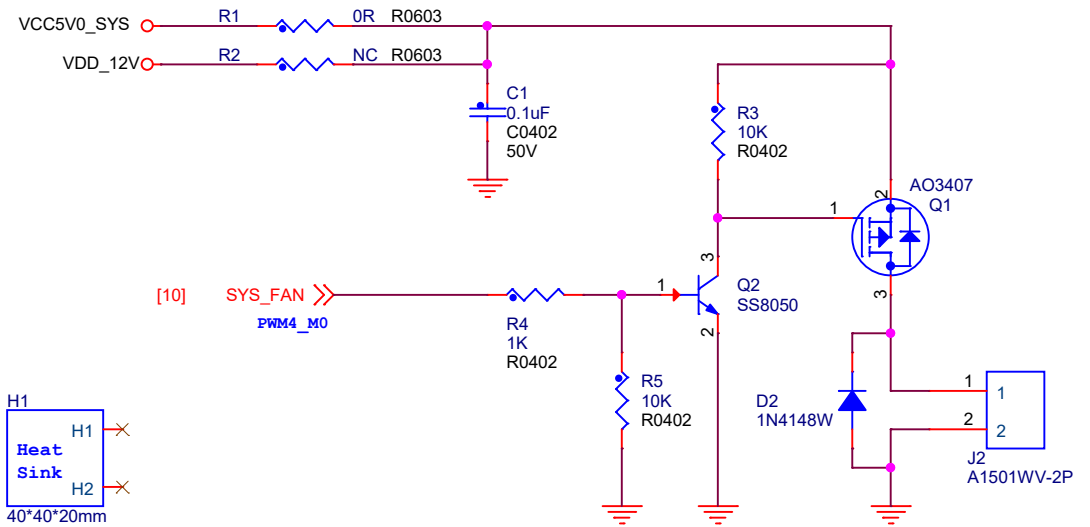


DC IN

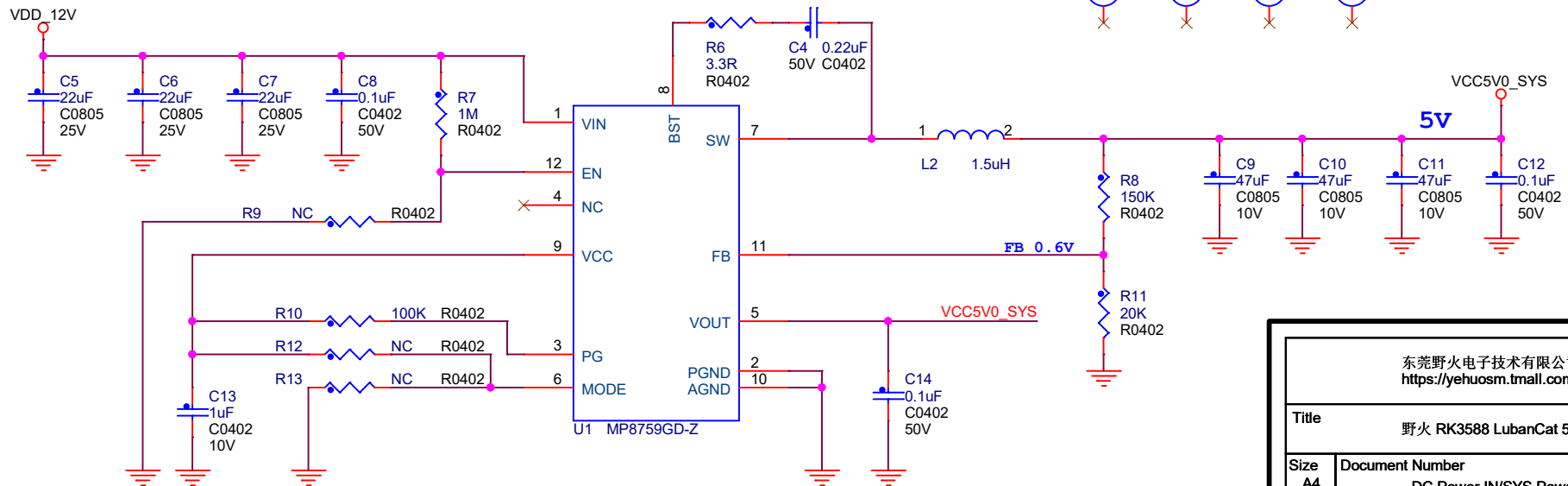
12V 3A



Active Cooling

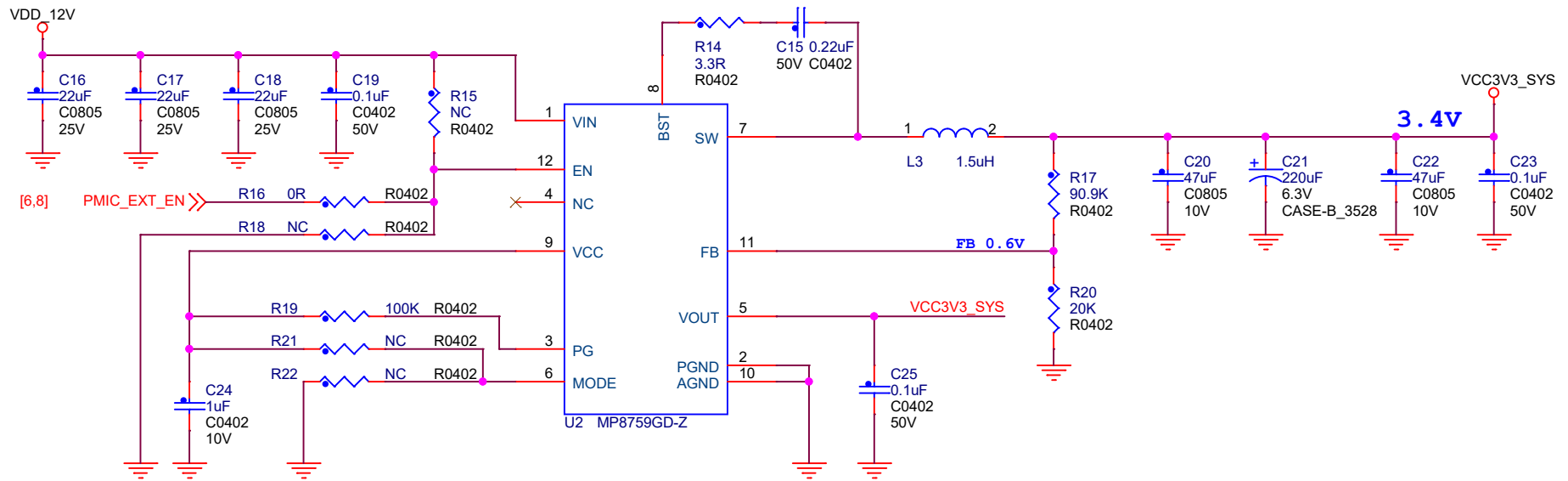


VCC5V_SYS

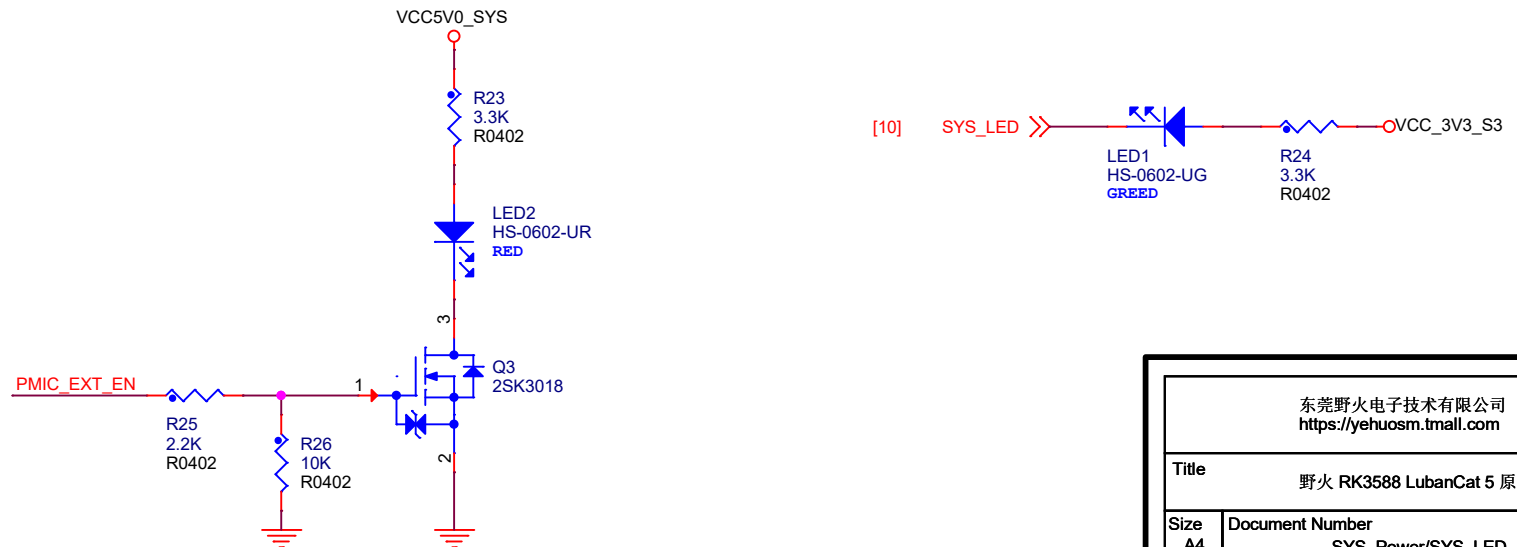


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VCC3V3_SYS



Power_LED/SYS_LED



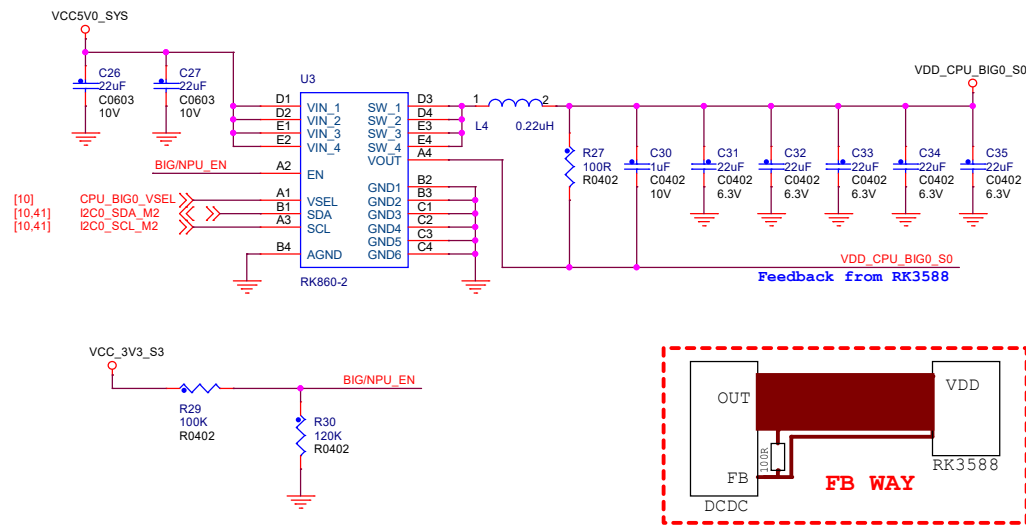
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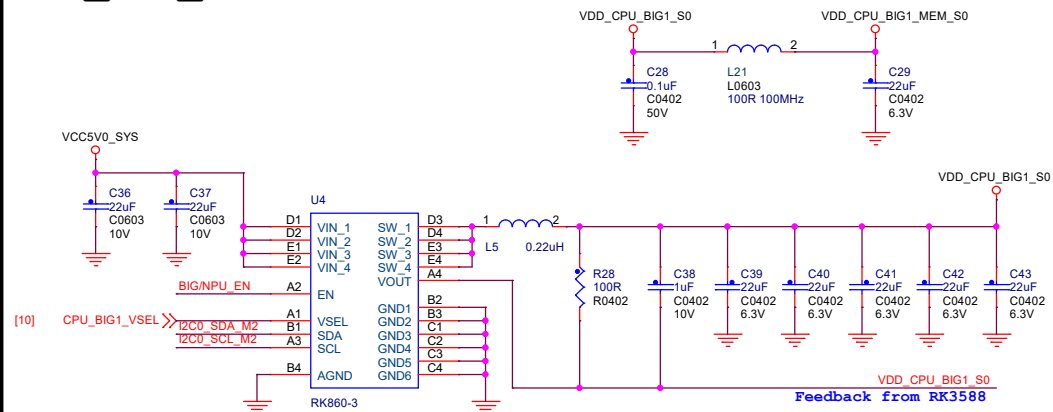
Size A4	Document Number SYS_Power/SYS_LED	Rev V1R0
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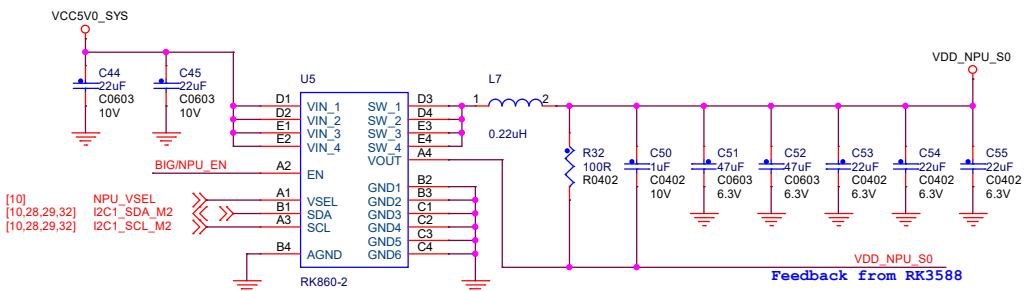
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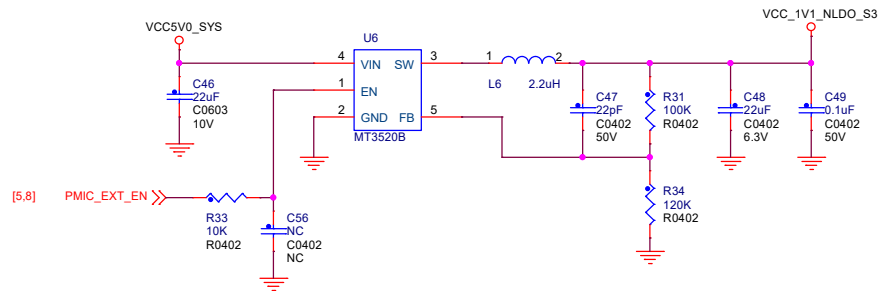
VDD_CPU_BIG1



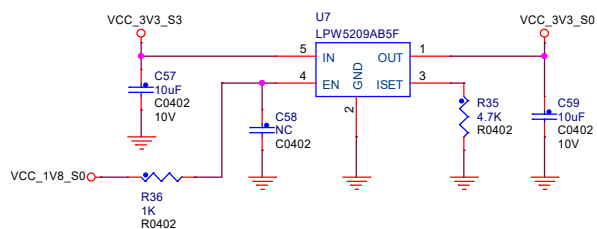
VDD_NPU



VCC_1V1_NLDO_S3



VCC_3V3_S0



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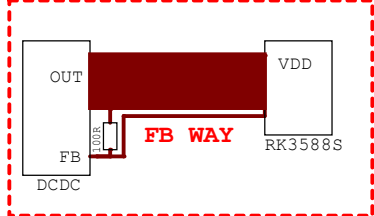
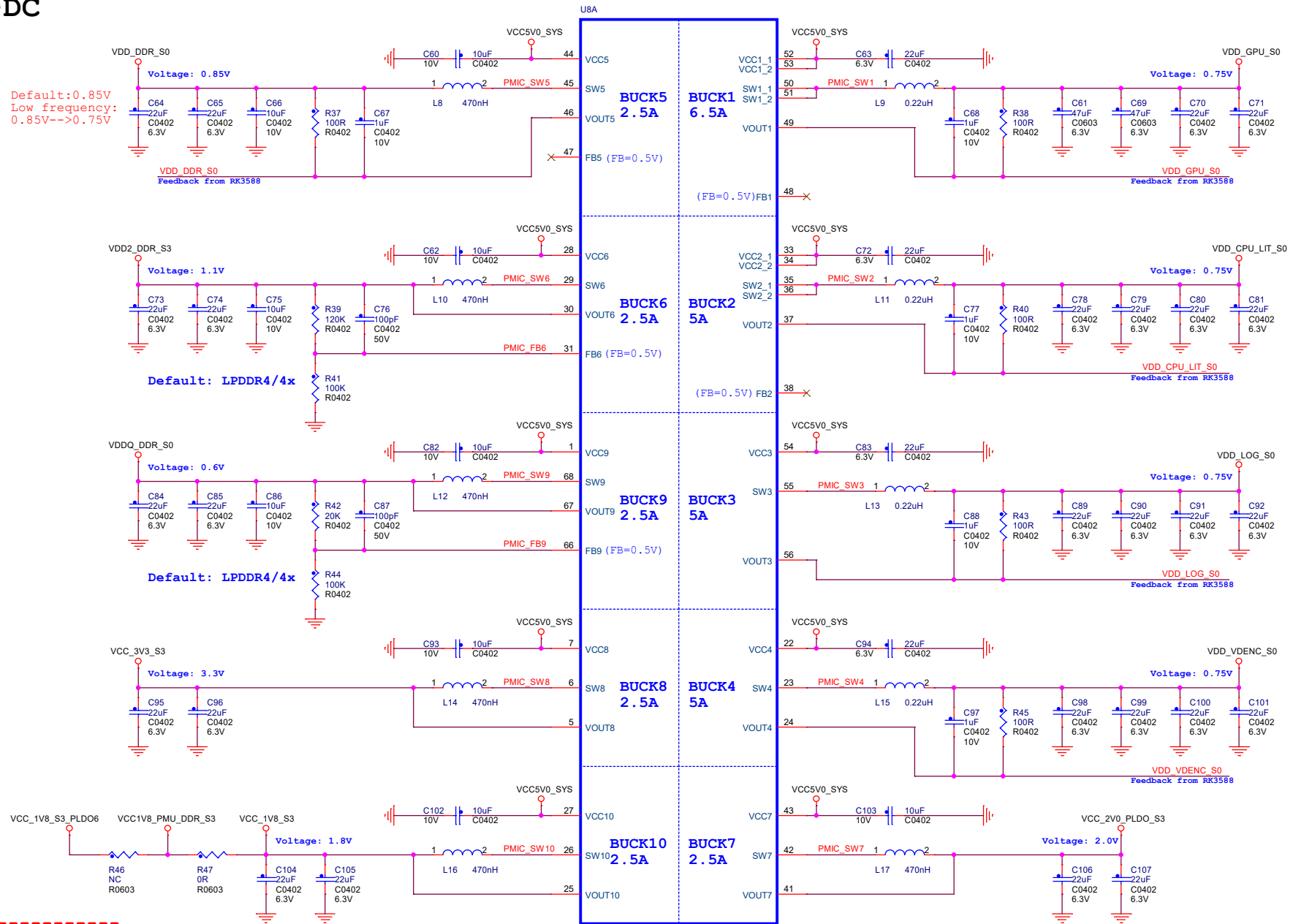
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Size A3	Document Number Power_Ext Discrete	Rev V1R0
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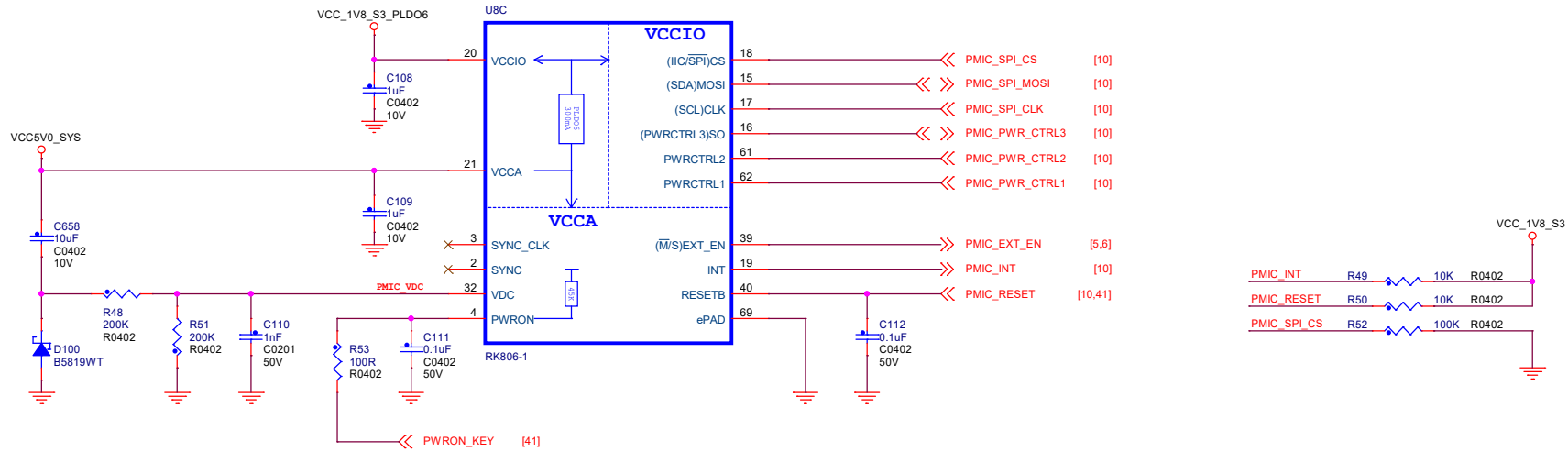
PMIC DC-DC

Default: 0.85V
Low frequency:
0.85V-->0.75V

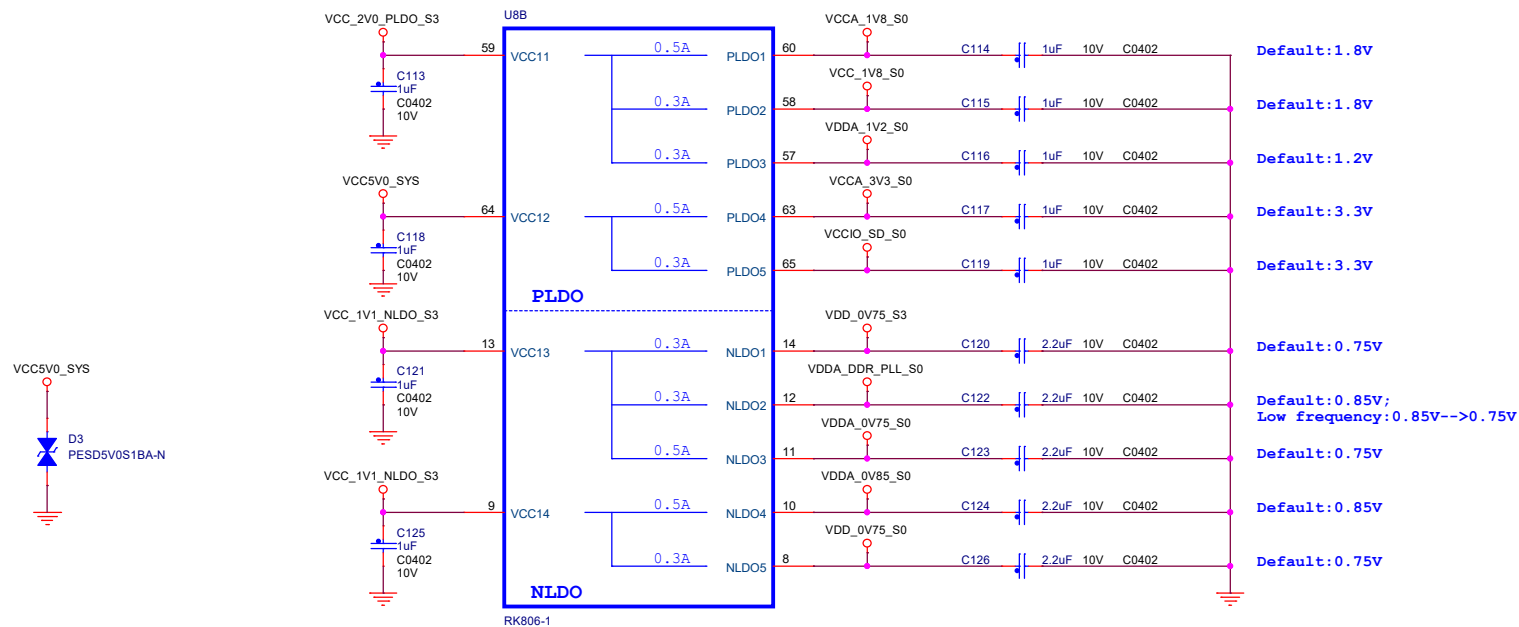


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PMIC RK806-1 Management

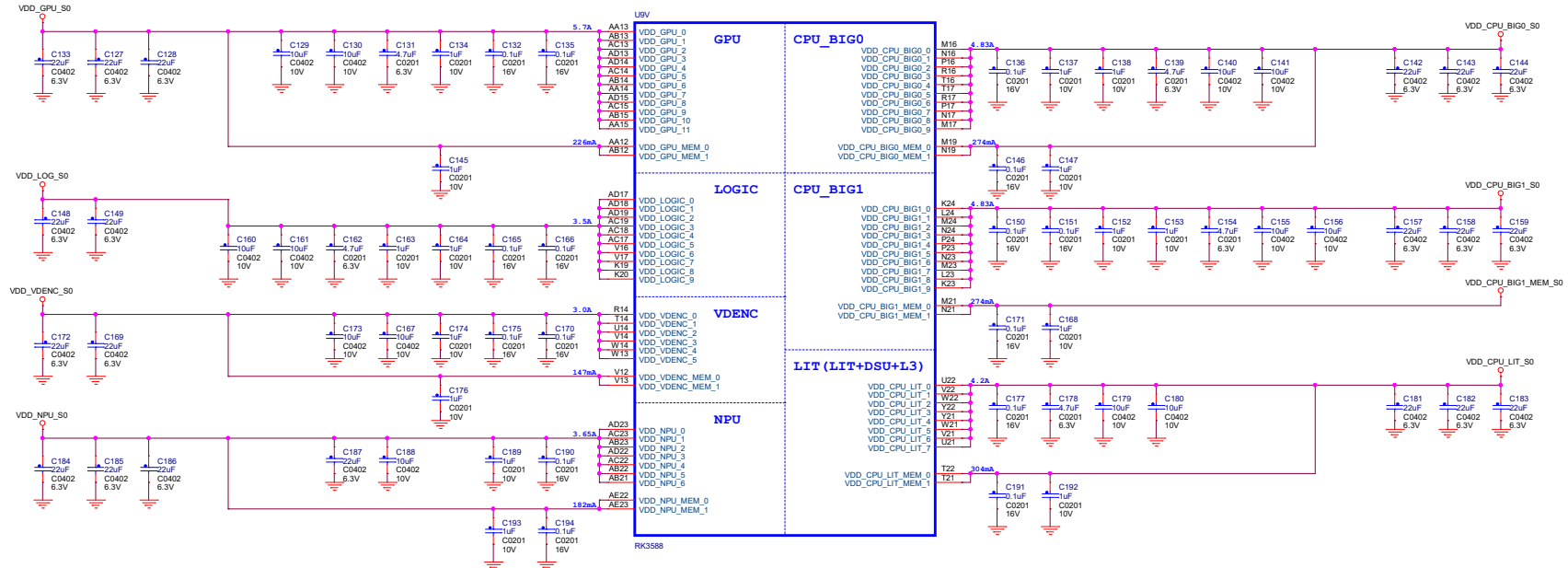


PMIC RK806-1 LDO



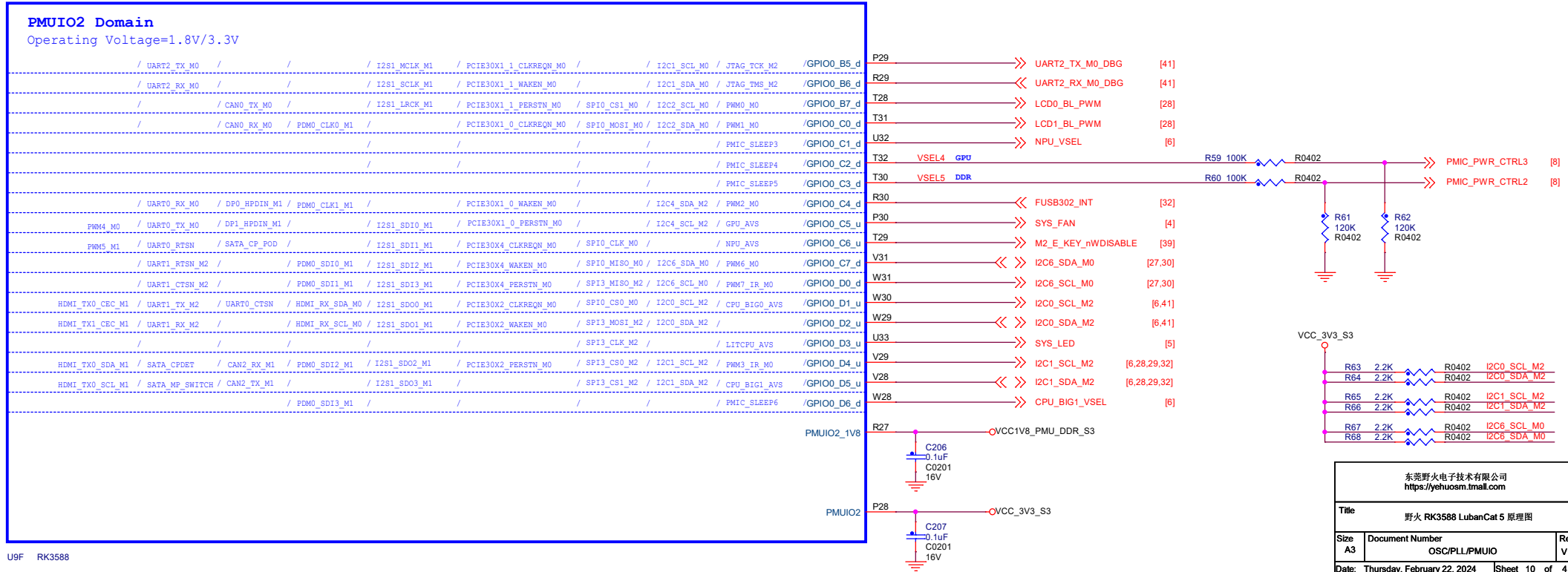
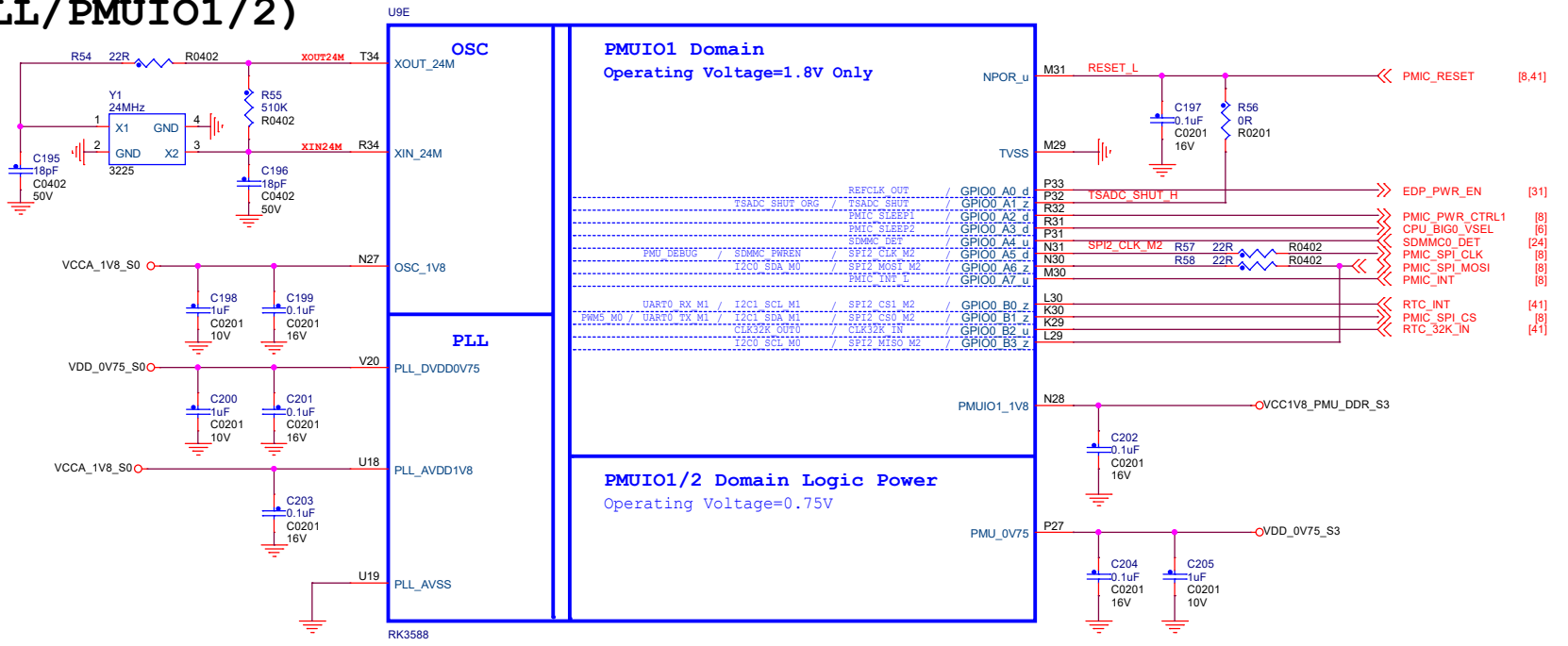
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RK3588_V (POWER)



UBZ	UBX	USW	USY
H28 AVSS_1	L3 VSS_107	A11 VSS_1	W3 VSS_213
H27 AVSS_2	VSS_108	VSS_54	VSS_266
H26 AVSS_3	VSS_109	R21 VSS_10	VSS_267
H25 AVSS_4	VSS_110	A12 VSS_2	VSS_268
H24 AVSS_5	VSS_111	A13 VSS_3	VSS_269
H23 AVSS_6	VSS_112	B4 VSS_4	W10 VSS_216
H22 AVSS_7	VSS_113	B5 VSS_5	W11 VSS_217
H21 AVSS_8	VSS_114	B6 VSS_6	W12 VSS_218
H20 AVSS_9	VSS_115	B7 VSS_7	W15 VSS_219
H19 AVSS_10	VSS_116	B8 VSS_8	W16 VSS_220
H18 AVSS_11	VSS_117	B9 VSS_9	W18 VSS_222
H17 AVSS_12	VSS_118	C3 VSS_10	W19 VSS_223
H16 AVSS_13	VSS_119	C4 VSS_11	W20 VSS_224
H15 AVSS_14	VSS_120	C5 VSS_12	W21 VSS_225
H14 AVSS_15	VSS_121	C6 VSS_13	W22 VSS_226
H13 AVSS_16	VSS_122	C7 VSS_14	W23 VSS_227
H12 AVSS_17	VSS_123	C8 VSS_15	W24 VSS_228
H11 AVSS_18	VSS_124	C9 VSS_16	W27 VSS_229
H10 AVSS_19	VSS_125	C10 VSS_17	W28 VSS_230
H9 AVSS_20	VSS_126	C11 VSS_18	W29 VSS_231
H8 AVSS_21	VSS_127	C12 VSS_19	W30 VSS_232
H7 AVSS_22	VSS_128	C13 VSS_20	W31 VSS_233
H6 AVSS_23	VSS_129	C14 VSS_21	W32 VSS_234
H5 AVSS_24	VSS_130	C15 VSS_22	W33 VSS_235
H4 AVSS_25	VSS_131	C16 VSS_23	W34 VSS_236
H3 AVSS_26	VSS_132	C17 VSS_24	W35 VSS_237
H2 AVSS_27	VSS_133	C18 VSS_25	W36 VSS_238
H1 AVSS_28	VSS_134	C19 VSS_26	W37 VSS_239
A80 AVSS_29	VSS_135	C20 VSS_27	W38 VSS_240
A79 AVSS_30	VSS_136	C21 VSS_28	W39 VSS_241
A78 AVSS_31	VSS_137	C22 VSS_29	W40 VSS_242
A77 AVSS_32	VSS_138	C23 VSS_30	W41 VSS_243
A76 AVSS_33	VSS_139	C24 VSS_31	W42 VSS_244
A75 AVSS_34	VSS_140	C25 VSS_32	W43 VSS_245
A74 AVSS_35	VSS_141	C26 VSS_33	W44 VSS_246
A73 AVSS_36	VSS_142	C27 VSS_34	W45 VSS_247
A72 AVSS_37	VSS_143	C28 VSS_35	W46 VSS_248
A71 AVSS_38	VSS_144	C29 VSS_36	W47 VSS_249
A70 AVSS_39	VSS_145	C30 VSS_37	W48 VSS_250
A69 AVSS_40	VSS_146	C31 VSS_38	W49 VSS_251
A68 AVSS_41	VSS_147	C32 VSS_39	W50 VSS_252
A67 AVSS_42	VSS_148	C33 VSS_40	W51 VSS_253
A66 AVSS_43	VSS_149	C34 VSS_41	W52 VSS_254
A65 AVSS_44	VSS_150	C35 VSS_42	W53 VSS_255
A64 AVSS_45	VSS_151	C36 VSS_43	W54 VSS_256
A63 AVSS_46	VSS_152	C37 VSS_44	W55 VSS_257
A62 AVSS_47	VSS_153	C38 VSS_45	W56 VSS_258
A61 AVSS_48	VSS_154	C39 VSS_46	W57 VSS_259
A60 AVSS_49	VSS_155	C40 VSS_47	W58 VSS_260
A59 AVSS_50	VSS_156	C41 VSS_48	W59 VSS_261
A58 AVSS_51	VSS_157	C42 VSS_49	W60 VSS_262
A57 AVSS_52	VSS_158	C43 VSS_50	W61 VSS_263
A56 AVSS_53	VSS_159	C44 VSS_51	W62 VSS_264
A55 AVSS_54	VSS_160	C45 VSS_52	W63 VSS_265
A54 AVSS_55	VSS_161	C46 VSS_53	VSS_106
A53 AVSS_56	VSS_162	C47 VSS_54	VSS_107
A52 AVSS_57	VSS_163	C48 VSS_55	VSS_108
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A48 AVSS_61	VSS_167	C52 VSS_59	VSS_112
A47 AVSS_62	VSS_168	C53 VSS_60	VSS_113
A46 AVSS_63	VSS_169	C54 VSS_61	VSS_114
A45 AVSS_64	VSS_170	C55 VSS_62	VSS_115
A44 AVSS_65	VSS_171	C56 VSS_63	VSS_116
A43 AVSS_66	VSS_172	C57 VSS_64	VSS_117
A42 AVSS_67	VSS_173	C58 VSS_65	VSS_118
A41 AVSS_68	VSS_174	C59 VSS_66	VSS_119
A40 AVSS_69	VSS_175	C60 VSS_67	VSS_120
A39 AVSS_70	VSS_176	C61 VSS_68	VSS_121
A38 AVSS_71	VSS_177	C62 VSS_69	VSS_122
A37 AVSS_72	VSS_178	C63 VSS_70	VSS_123
A36 AVSS_73	VSS_179	C64 VSS_71	VSS_124
A35 AVSS_74	VSS_180	C65 VSS_72	VSS_125
A34 AVSS_75	VSS_181	C66 VSS_73	VSS_126
A33 AVSS_76	VSS_182	C67 VSS_74	VSS_127
A32 AVSS_77	VSS_183	C68 VSS_75	VSS_128
A31 AVSS_78	VSS_184	C69 VSS_76	VSS_129
A30 AVSS_79	VSS_185	C70 VSS_77	VSS_130
A29 AVSS_80	VSS_186	C71 VSS_78	VSS_131
A28 AVSS_81	VSS_187	C72 VSS_79	VSS_132
A27 AVSS_82	VSS_188	C73 VSS_80	VSS_133
A26 AVSS_83	VSS_189	C74 VSS_81	VSS_134
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A22 AVSS_87	VSS_193	C78 VSS_85	VSS_138
A21 AVSS_88	VSS_194	C79 VSS_86	VSS_139
A20 AVSS_89	VSS_195	C80 VSS_87	VSS_140
A19 AVSS_90	VSS_196	C81 VSS_88	VSS_141
A18 AVSS_91	VSS_197	C82 VSS_89	VSS_142
A17 AVSS_92	VSS_198	C83 VSS_90	VSS_143
A16 AVSS_93	VSS_199	C84 VSS_91	VSS_144
A15 AVSS_94	VSS_200	C85 VSS_92	VSS_145
A14 AVSS_95	VSS_201	C86 VSS_93	VSS_146
A13 AVSS_96	VSS_202	C87 VSS_94	VSS_147
A12 AVSS_97	VSS_203	C88 VSS_95	VSS_148
A11 AVSS_98	VSS_204	C89 VSS_96	VSS_149
A10 AVSS_99	VSS_205	C90 VSS_97	VSS_150
A9 AVSS_100	VSS_206	C91 VSS_98	VSS_151
A8 AVSS_101	VSS_207	C92 VSS_99	VSS_152
A7 AVSS_102	VSS_208	C93 VSS_100	VSS_153
A6 AVSS_103	VSS_209	C94 VSS_101	VSS_154
A5 AVSS_104	VSS_210	C95 VSS_102	VSS_155
A4 AVSS_105	VSS_211	C96 VSS_103	VSS_156
A3 AVSS_106	VSS_212	C97 VSS_104	VSS_157
A2 AVSS_107	VSS_213	C98 VSS_105	VSS_158
A1 AVSS_108	VSS_214	C99 VSS_106	VSS_159
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RK3588_E (OSC/PLL/PMUIO1/2)

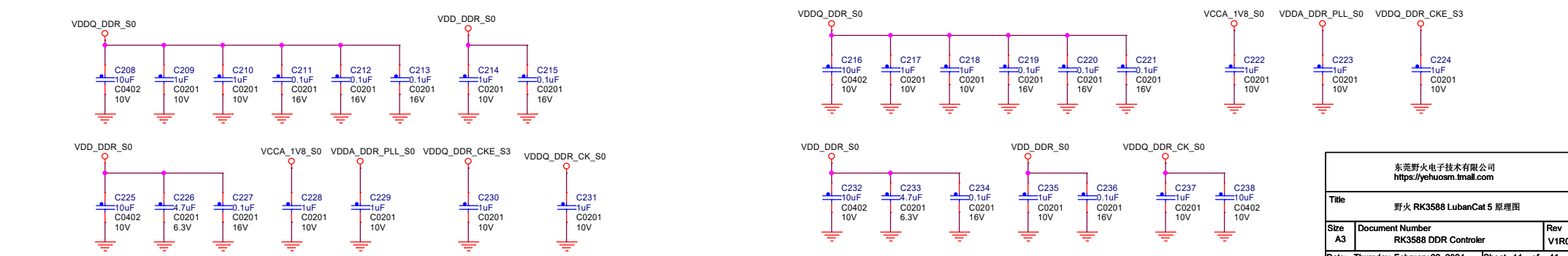
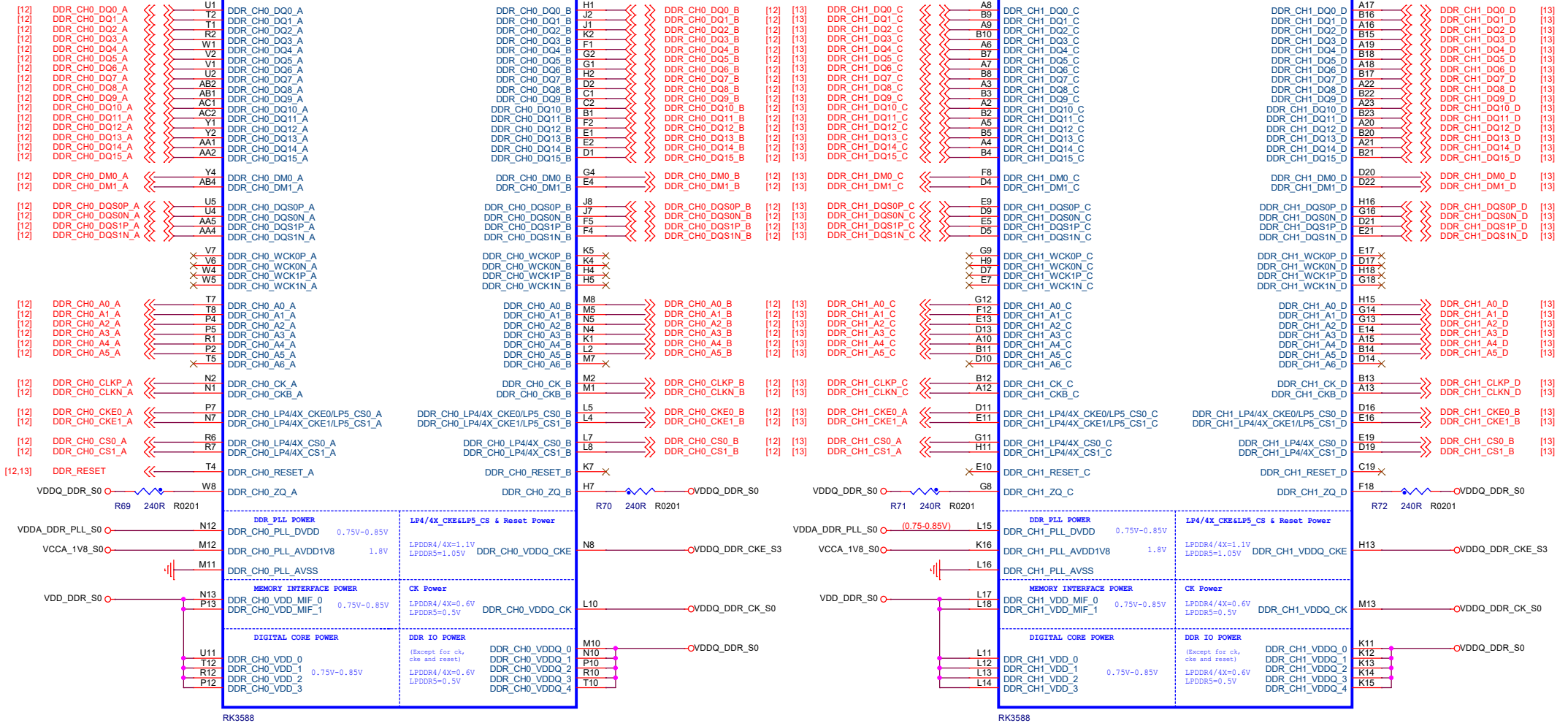


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RK3588 (DDR PHY)

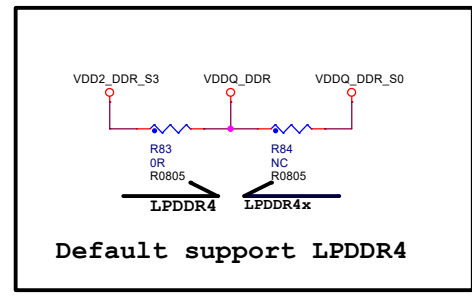
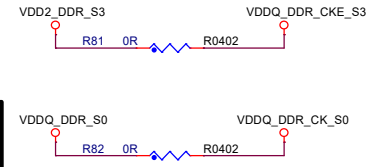
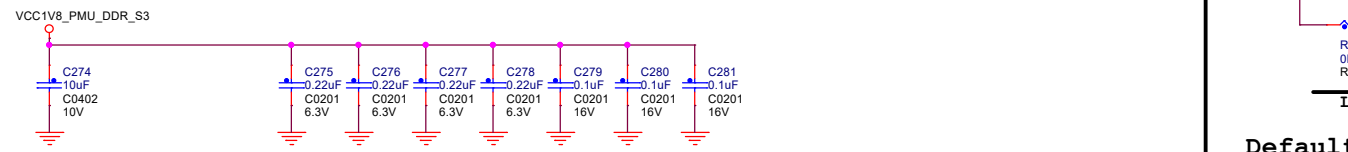
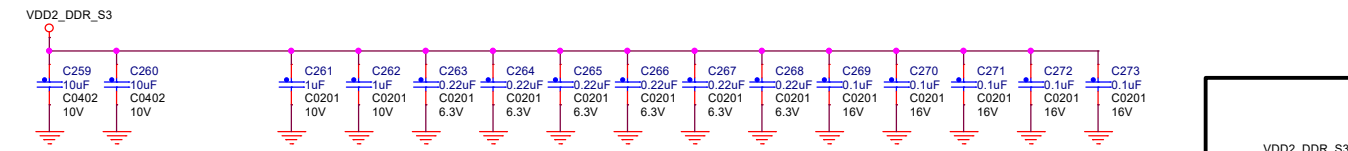
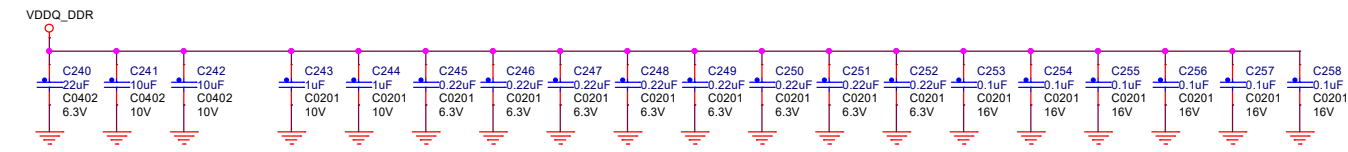
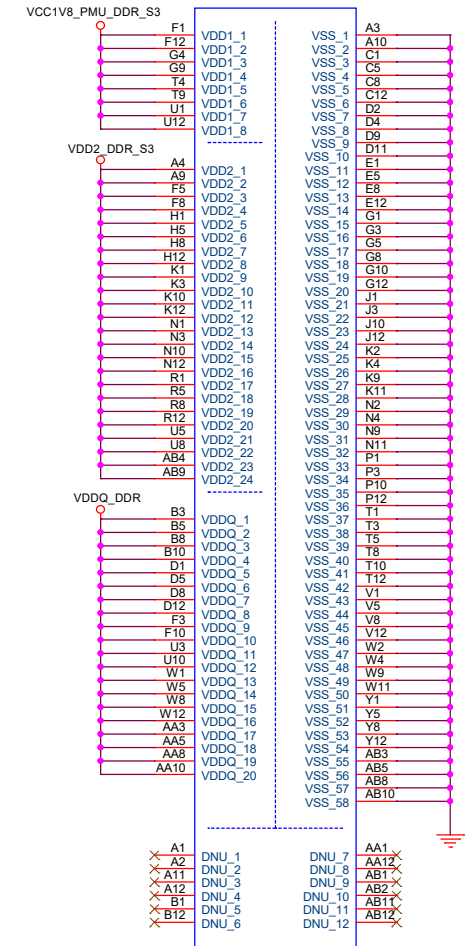
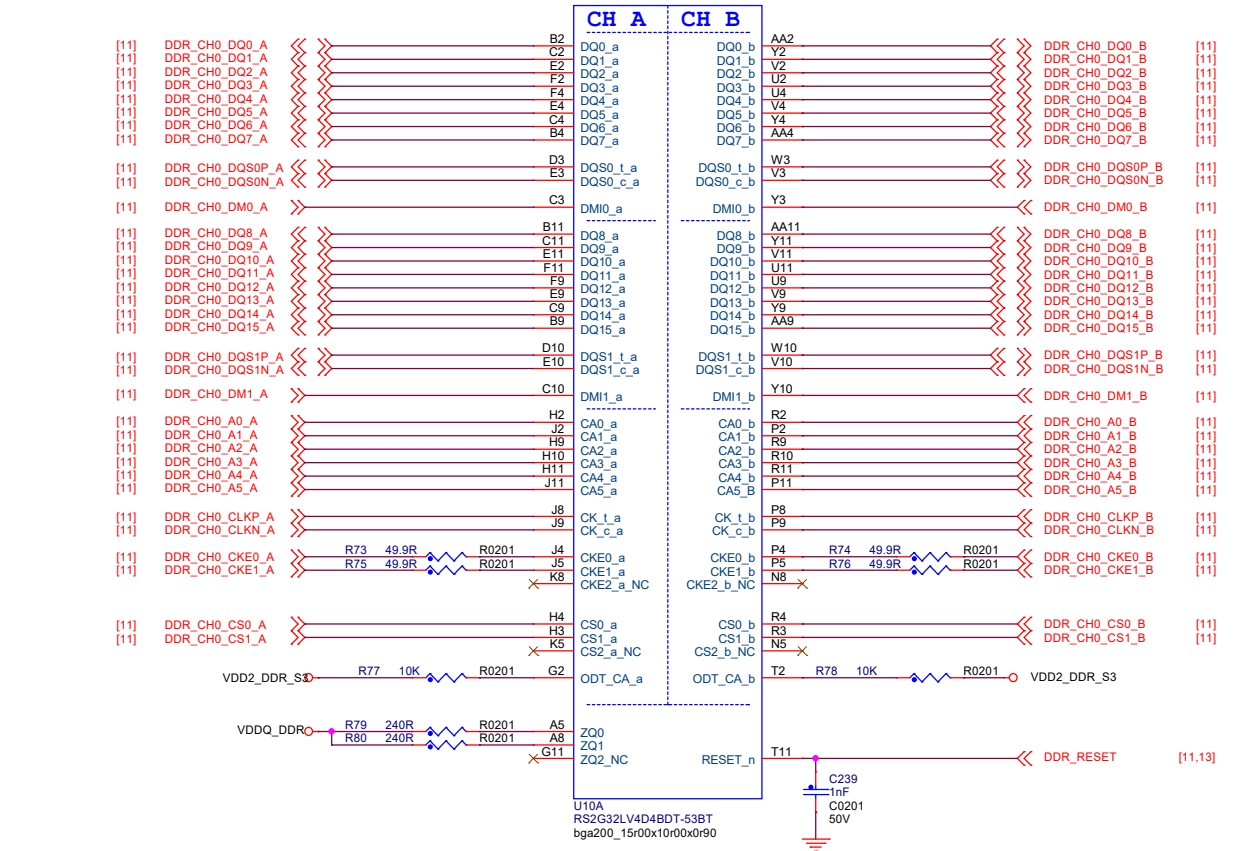
USA

U9B



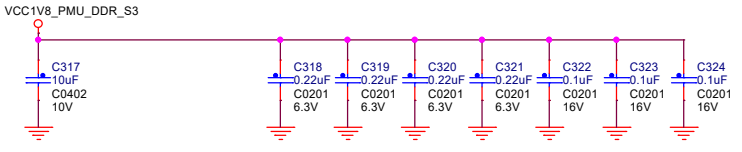
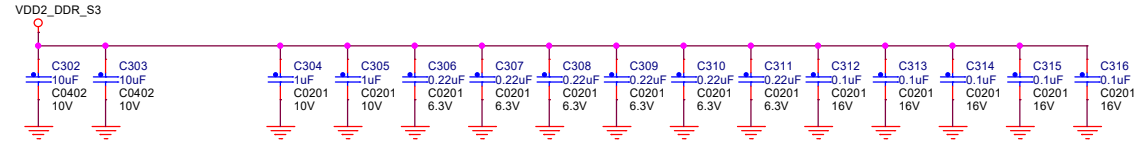
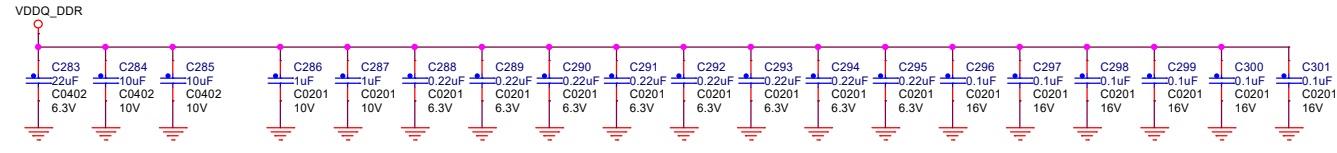
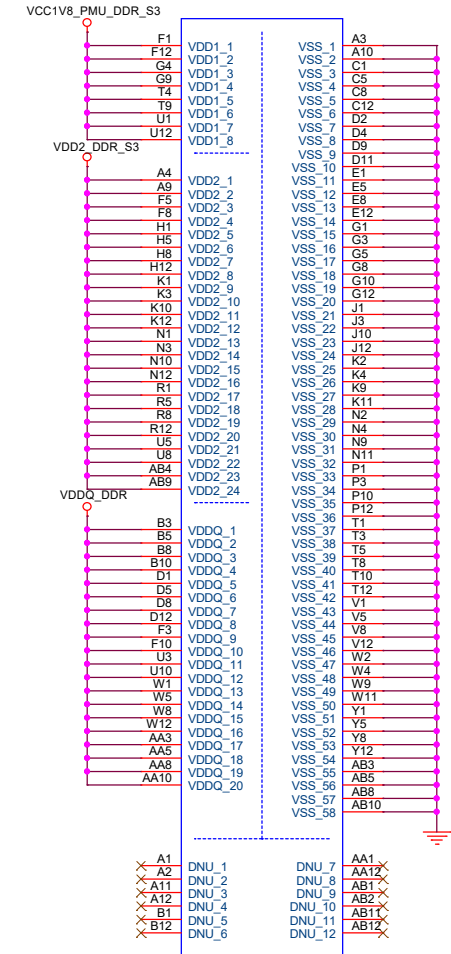
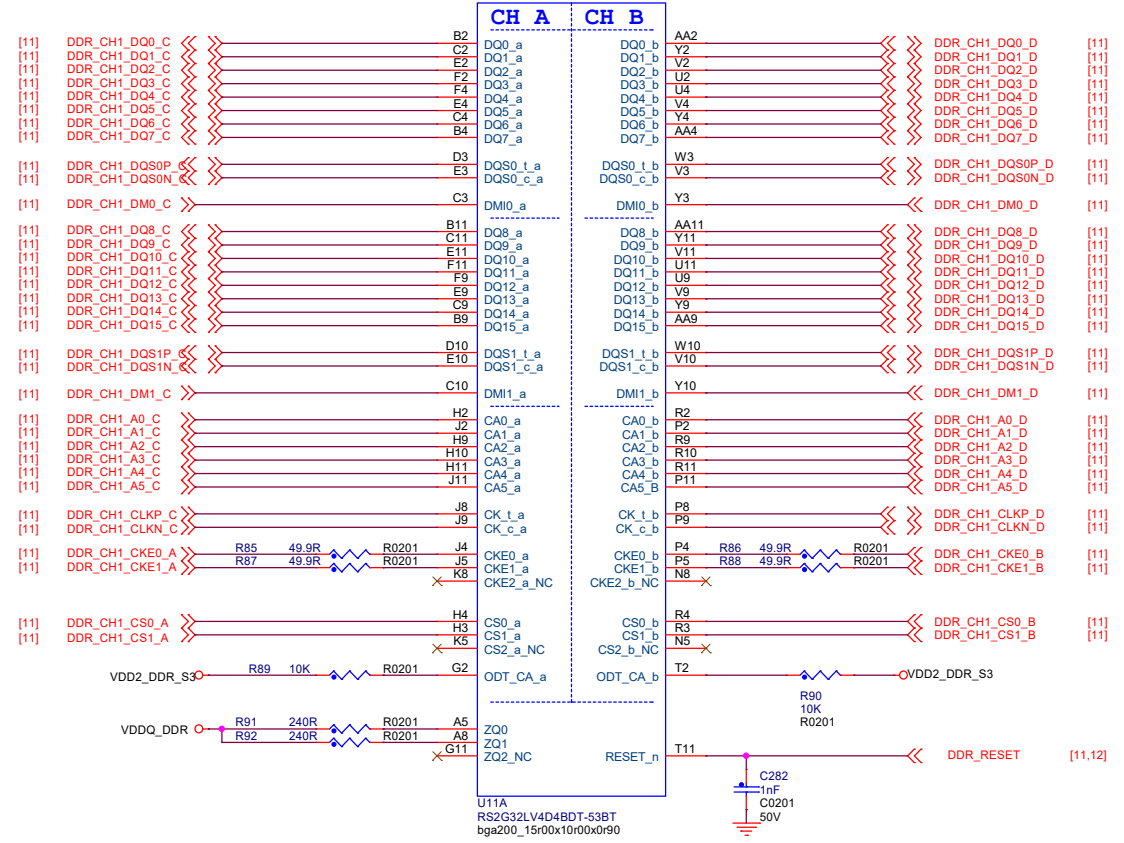
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LPDDR4/4x_01



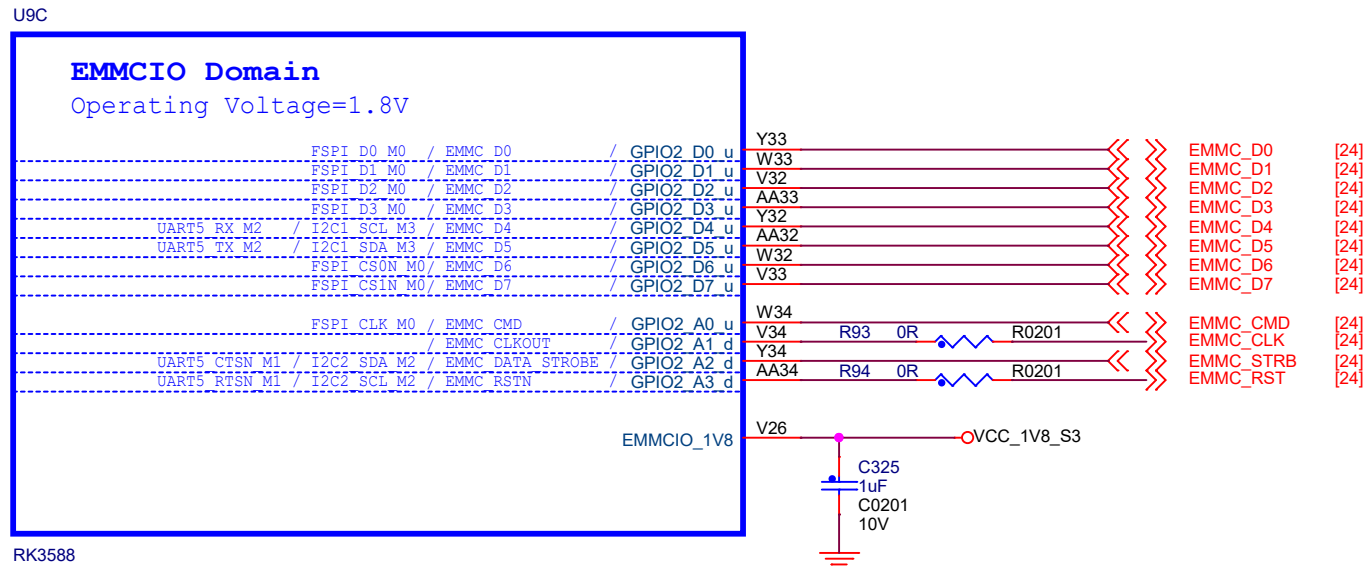
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LPDDR4/4x_02

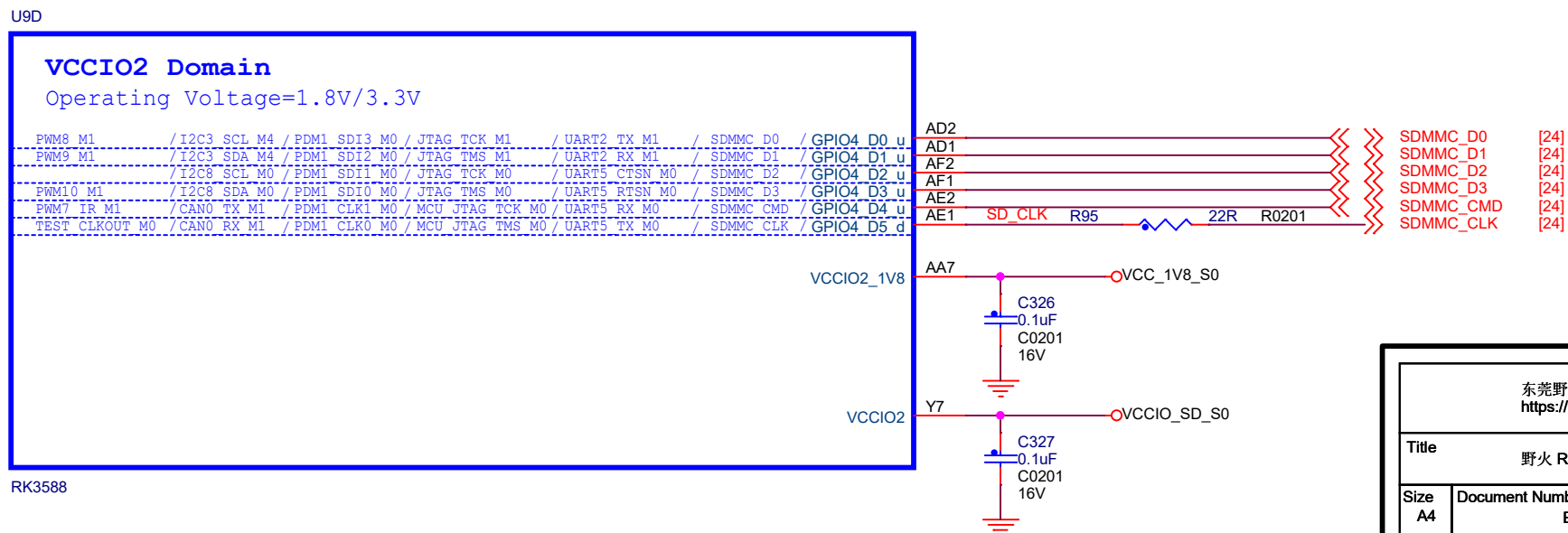


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RK3588_C (EMMCIO Domain)

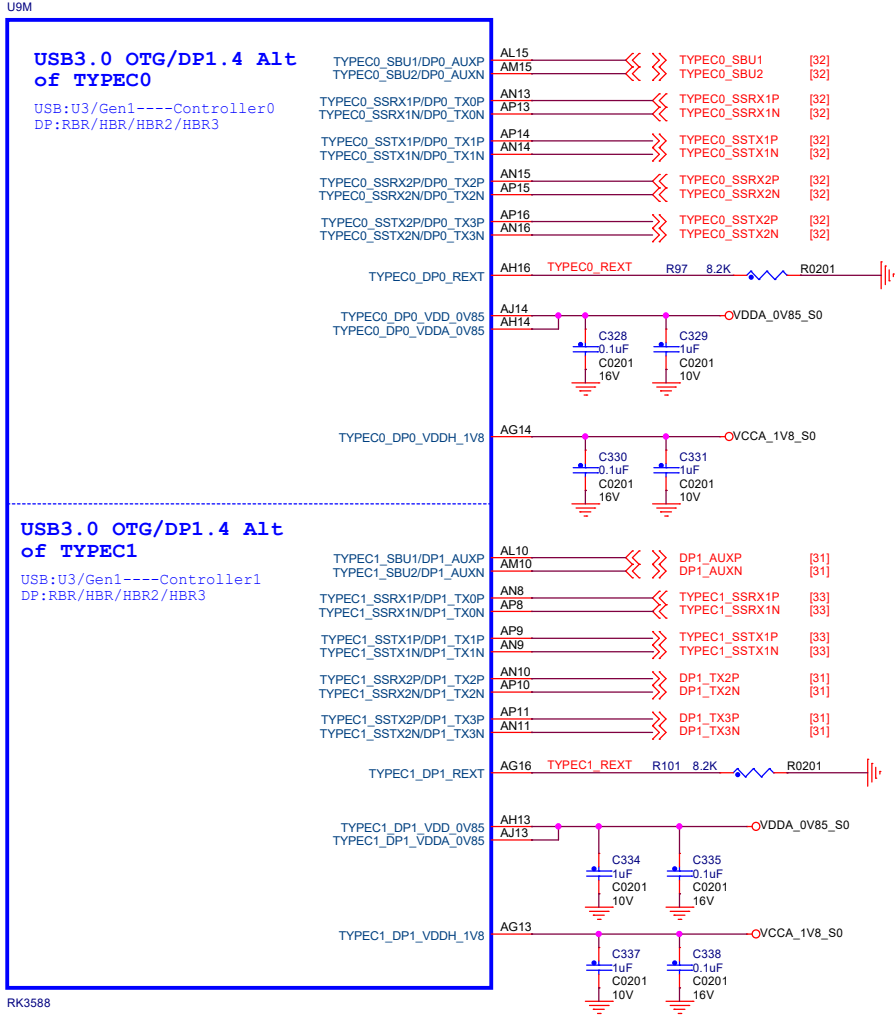


RK3588_D (VCCIO2 Domain)



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RK3588_M (TYPE-C/DP)

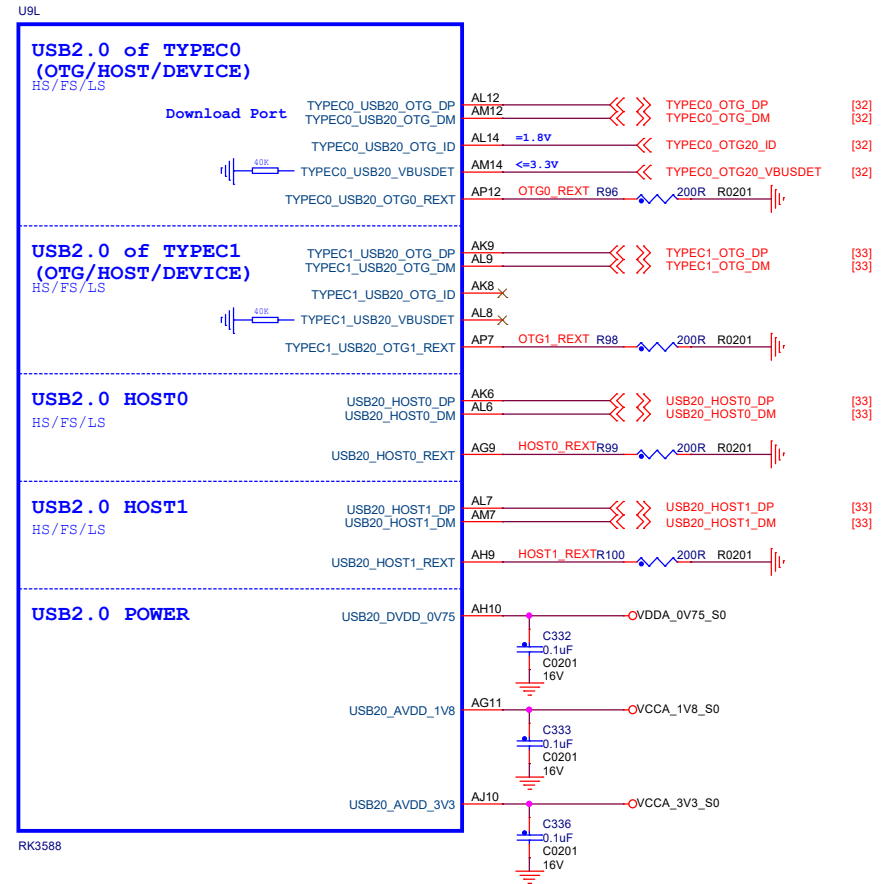


RK3588

USB30/DP1.4 Alt Mode Configuration

Option1	DP x4Lane	DP_TX_Lane0-3
Option2	USB30 x4Lane	DP_TX_Lane0-3
Option3	USB30X2Lane+DPX2Lane	USB30: Lane0 Lane1 DP: Lane2 Lane3
Option4	USB30X2Lane+DPX2Lane	USB30: Lane2 Lane3 DP: Lane0 Lane1

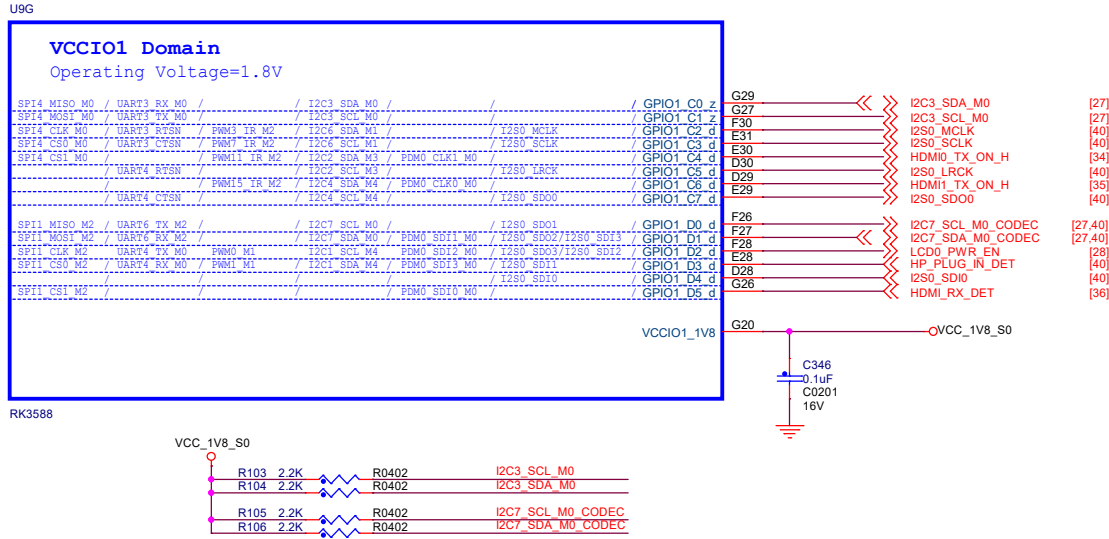
RK3588_L (USB2.0 HOST/OTG)



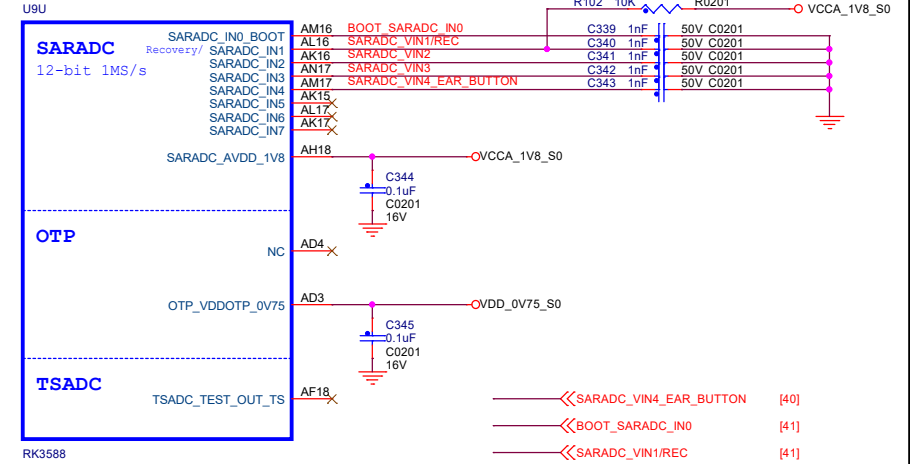
RK3588

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Title	野火 RK3588 LubanCat 5 原理图	
Size	Document Number	Rev
A3	USB20/TYPE C/DP PHY	V1R0
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RK3588_G (VCCIO1 Domain)



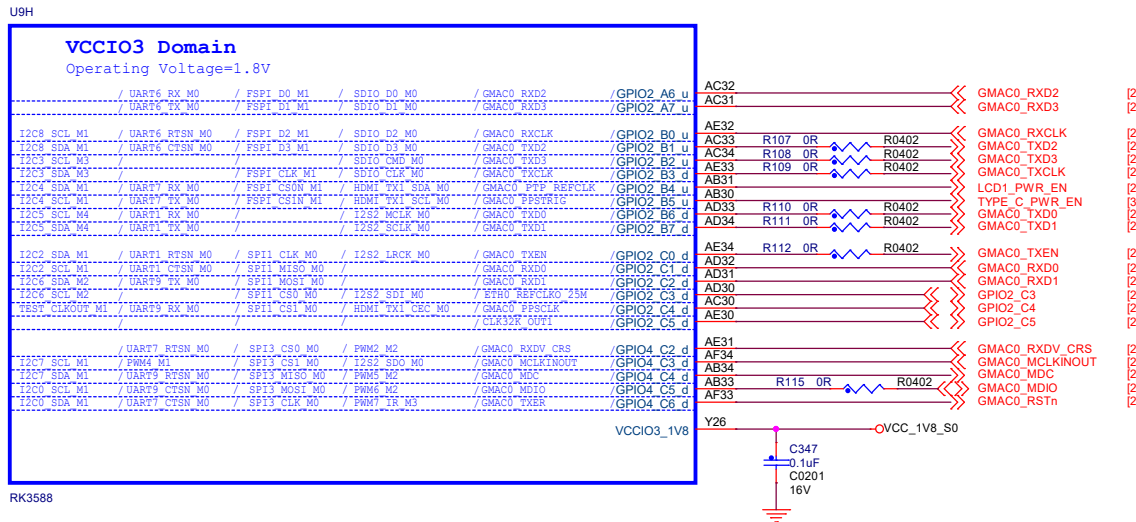
RK3588_U (SARADC/OTP)



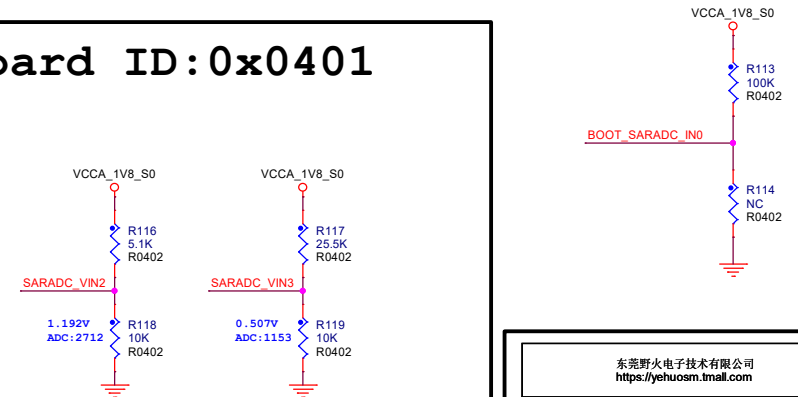
BOOT MODE CONFIG

Item	Rup	Rdown	ADC	VOL	BOOT MODE
LEVEL1	DNP	100K	0	0V	USB (Maskrom mode)
LEVEL2	100K	20K	682	0.3V	SD Card-USB
LEVEL3	100K	51K	1365	0.6V	EMMC-USB
LEVEL4	100K	100K	2047	0.9V	FSPI M0-USB
LEVEL5	100K	200K	2730	1.2V	FSPI M1-USB
LEVEL6	100K	499K	3412	1.5V	FSPI M2-USB
LEVEL7	100K	DNP	4095	1.8V	FSPI M2-FSPI M1-FSPI M0-EMMC-SD Card-USB

RK3588_H (VCCIO3 Domain)



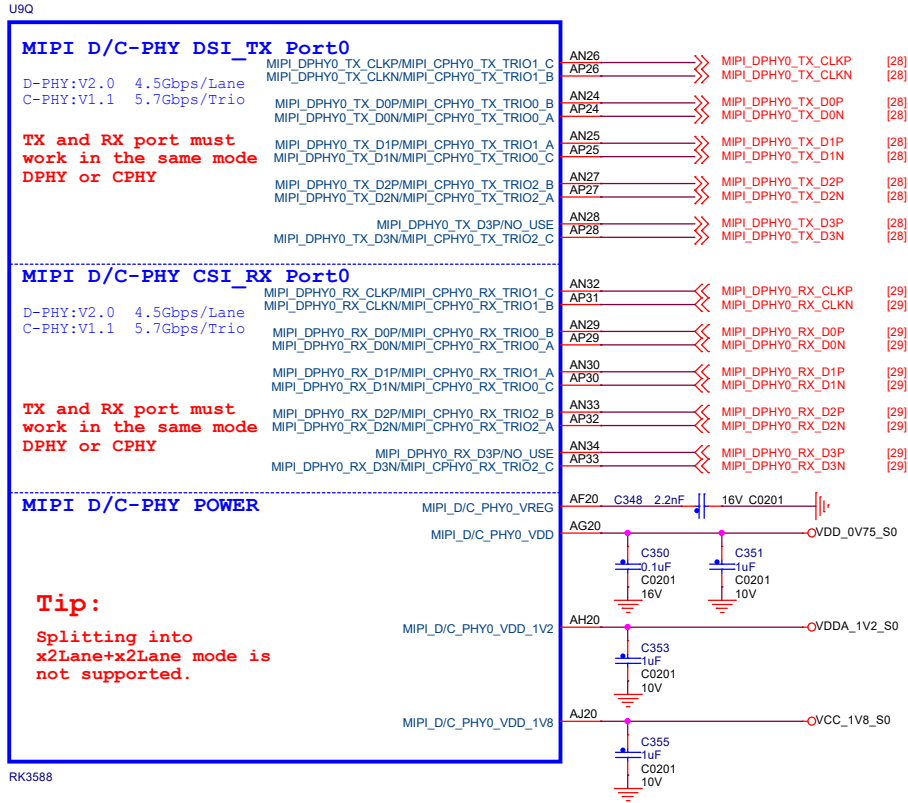
Board ID: 0x0401



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Title		
野火 RK3588 LubanCat 5 原理图		
Size	Document Number	Rev
A3	SARADC/1.8V GPIO	V1R0
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RK3588_Q/R(MIPI_D/C_PHY0)



RK3588

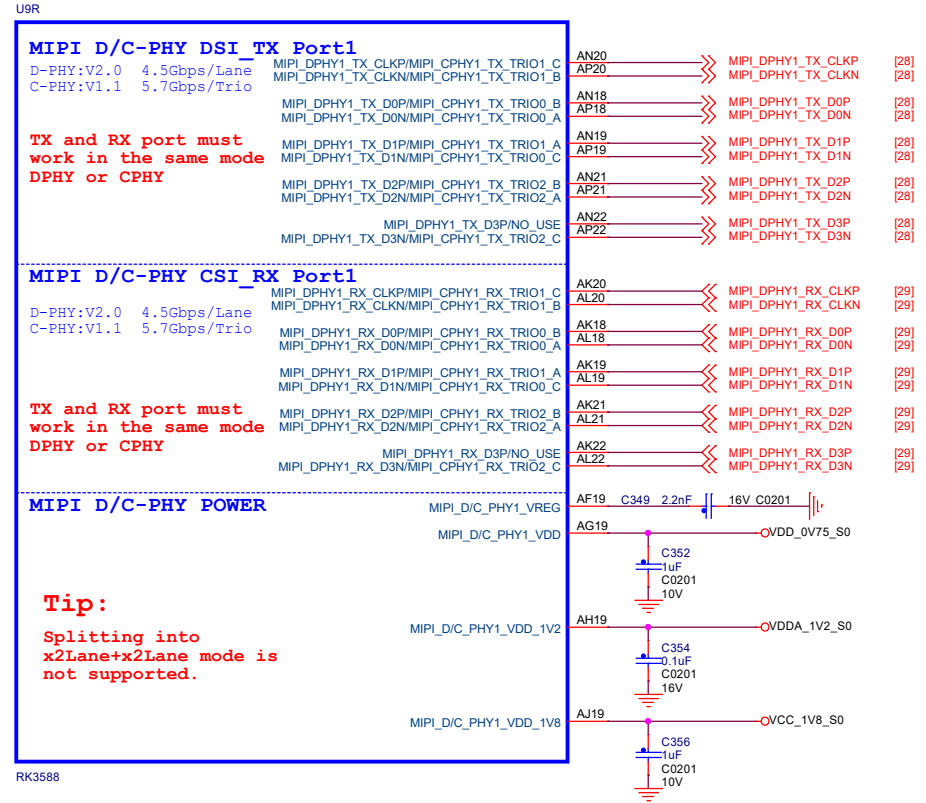
About MIPI_D/C_PHY0_VDD Pin:

D-PHY 4.5Gbps & C-PHY 2.5Gbps 0.85V

D-PHY 2.5Gbps & C-PHY 1.5Gbps 0.75V

Default: 0.75V

RK3588_Q/R(MIPI_D/C_PHY1)

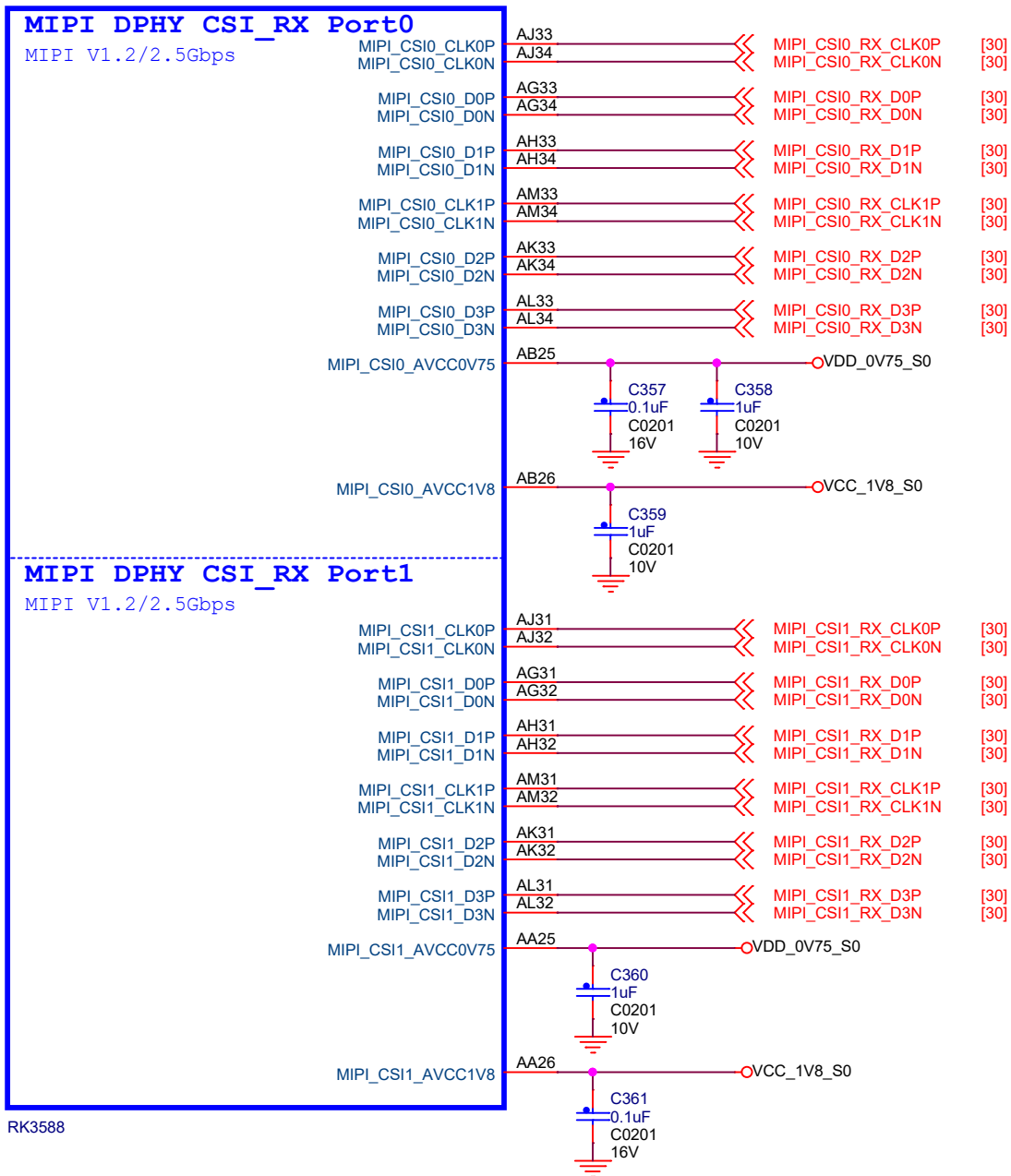


RK3588

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Title 野火 RK3588 LubanCat 5 原理图		
Size A3	Document Number MIPI_D/C Interface	Rev V1R0
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RK3588_P (MIPI_DPHY_CSI_RX_PHY)

U9P



RK3588

MIPI_CSI_RX Configuration

Option1	Sensor1 x4Lane	MIPI_CSI_RX_D0-3 MIPI_CSI_RX_CLK0
Option2	Sensor1 x2Lane	MIPI_CSI_RX_D0-1 MIPI_CSI_RX_CLK0
	+ Sensor2 x2Lane	MIPI_CSI_RX_D2-3 MIPI_CSI_RX_CLK1

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Title 野火 RK3588 LubanCat 5 原理图

Size A4	Document Number MIPI CSI Interface	Rev V1R0
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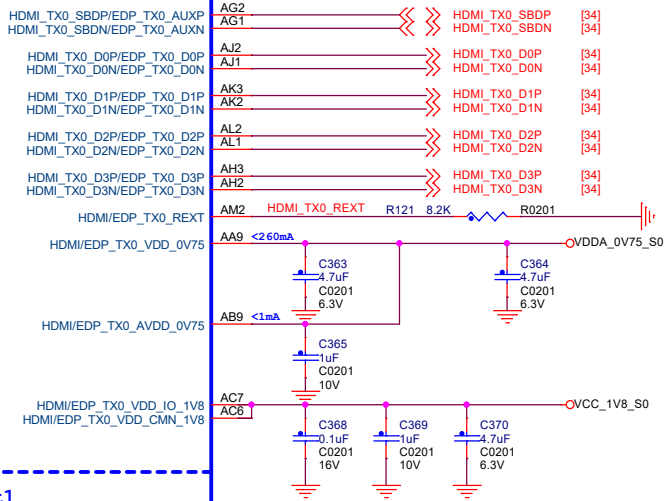
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RK3588_S (HDMI2.1 TX)

U9S

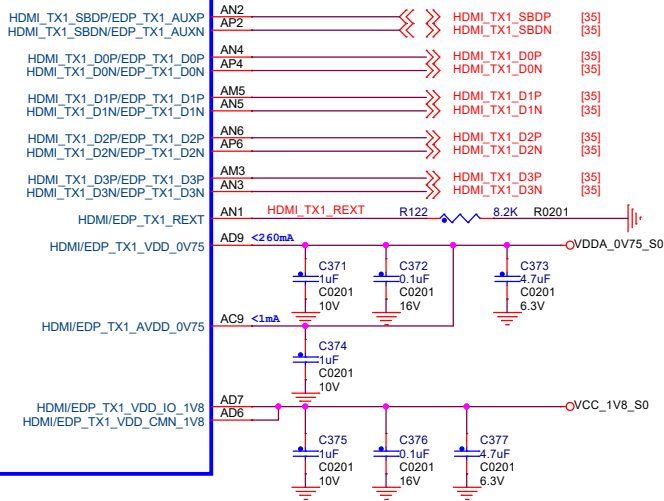
HDMI TX/eDP MUX Port0

HDMI: V2.1 12Gbps
eDP: V1.3 5.4Gbps



HDMI TX/eDP MUX Port1

HDMI: V2.1 12Gbps
eDP: V1.3 5.4Gbps



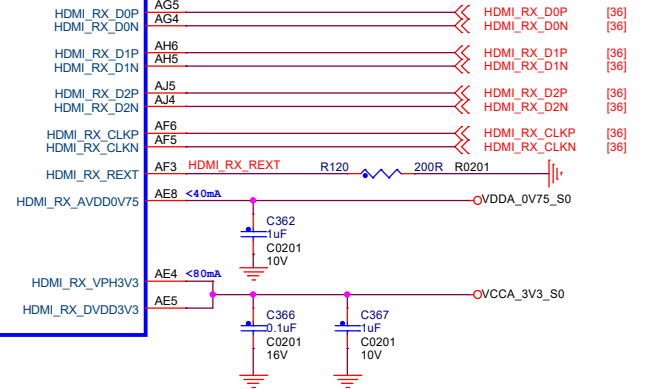
RK3588

RK3588_T (HDMI20 RX)

U9T

HDMI RX

HDMI: V2.0

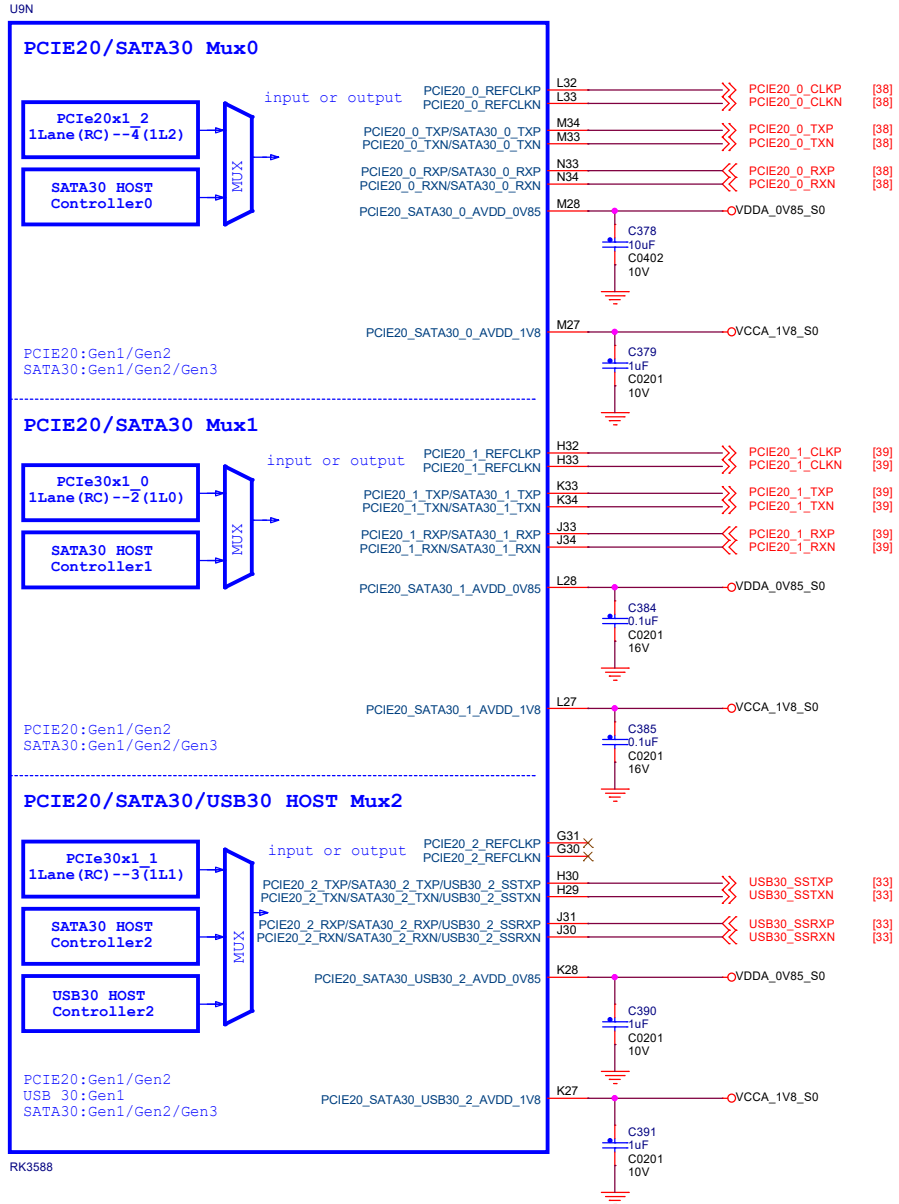


RK3588

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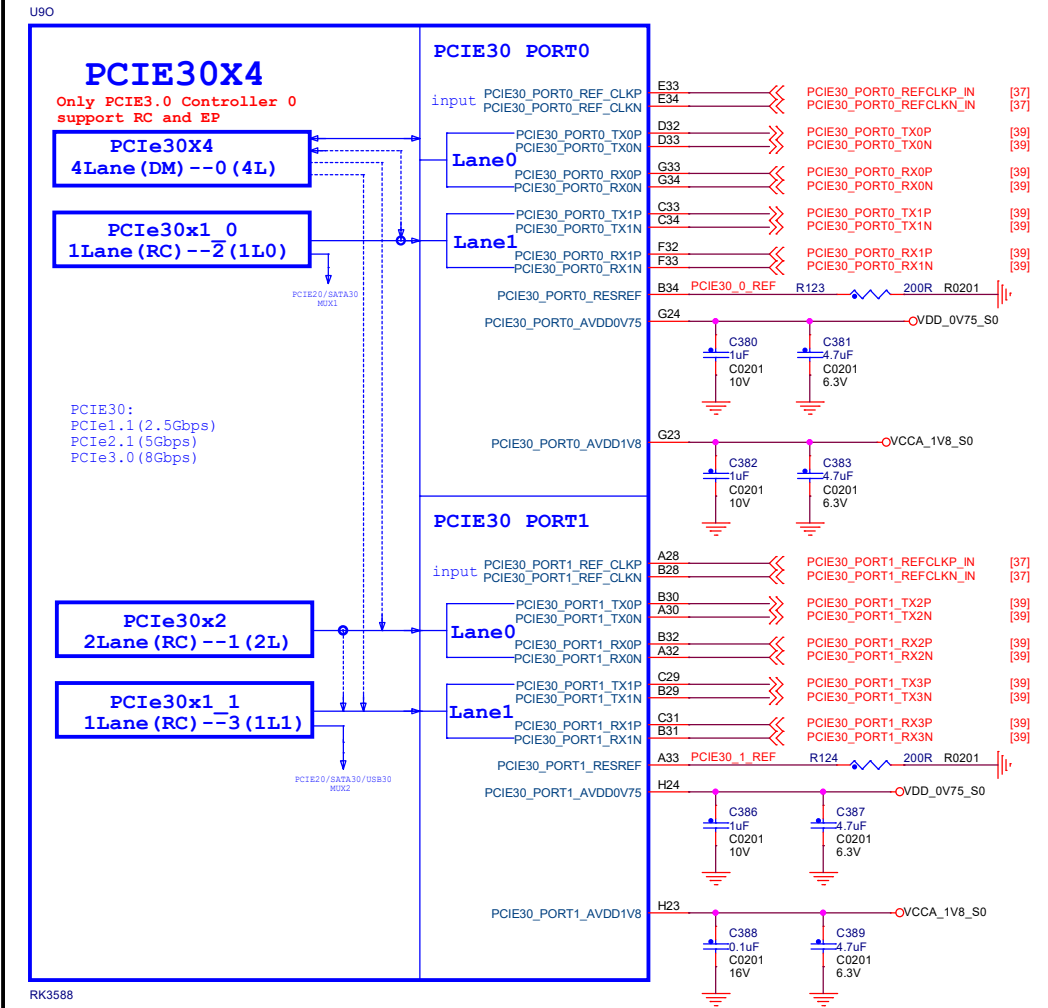
Title		
野火 RK3588 LubanCat 5 原理图		
Size	Document Number	Rev
A3	HDMI/eDP Interface	V1R0
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RK3588_N (PCIE20)



RK3588

RK3588_O (PCIE30)



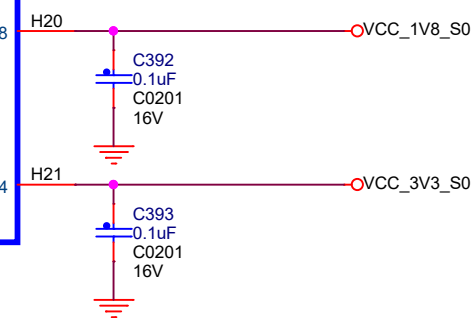
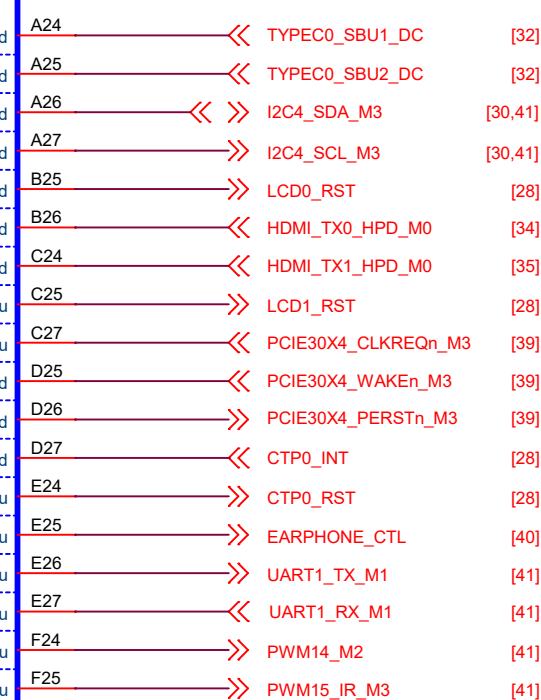
RK3588

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Title 野火 RK3588 LubanCat 5 原理图		
Size A3	Document Number PCIE30/PCIE20/SATA30	Rev V1R0
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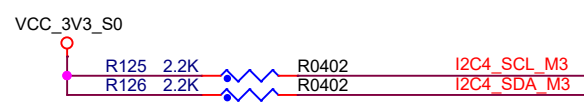
RK3588_I (VCCIO4 Domain)

U9I

VCCIO4 Domain	
Operating Voltage=1.8V/3.3V	
/SPI4_MISO_M2 /PCIE30X1_1_CLKREQN_M2/ DP0_HPDIN_M2 / I2C2_SDA_M4 / UART6_RX_M1 /GPIO1_A0_d	A24
SATA1_ACT_LED_M1 / / /SPI4_MOSI_M2 /PCIE30X1_1_WAKEN_M2 / DP1_HPDIN_M2 / I2C2_SCL_M4 / UART6_TX_M1 /GPIO1_A1_d	A25
/ PWM0_M2 /SPI4_CLK_M2 / / VOP_POST_EMPTY / I2C4_SDA_M3 / UART6_RTSN_M1/GPIO1_A2_d	A26
/ PWM1_M2 /SPI4_CS0_M2 / / HDMI_TX1_SDA_M2 / I2C4_SCL_M3 / UART6_CTSN_M1/GPIO1_A3_d	A27
/ /SPI2_MISO_M0 / / HDMI_TX1_SCL_M2 / / / /GPIO1_A4_d	B25
/ /SPI2_MOSI_M0 / / HDMI_TX0_HPD_M0 / / / /GPIO1_A5_d	B26
/ /SPI2_CLK_M0 / / / HDMI_TX1_HPD_M0 / / / /GPIO1_A6_d	C24
/ PWM3_IR_M3 /SPI2_CS0_M0 /PCIE30X1_1_PERSTN_M2 / / PDM1_SDI0_M1 / / /GPIO1_A7_u	C25
/ /SPI2_CS1_M0 /PCIE30X4_CLKREQN_M3 / / / PDM1_SDI1_M1 / / /GPIO1_B0_u	C27
/ /SPI0_MISO_M2 /PCIE30X4_WAKEN_M3 / / / PDM1_SDI2_M1 / / /GPIO1_B1_d	D25
/ /SPI0_MOSI_M2 /PCIE30X4_PERSTN_M3 / / / PDM1_SDI3_M1 / UART4_RX_M2 /GPIO1_B2_d	D26
SATA0_ACT_LED_M1 / / /SPI0_CLK_M2 /PCIE30X1_0_WAKEN_M2 / / / PDM1_CLK1_M1 / UART4_TX_M2 /GPIO1_B3_d	D27
/ /SPI0_CS0_M2 /PCIE30X1_0_PERSTN_M2 / / / PDM1_CLK0_M1 / UART7_RX_M2 /GPIO1_B4_u	E24
/ /SPI0_CS1_M2 /PCIE30X1_0_CLKREQN_M2/ / / / / UART7_TX_M2 /GPIO1_B5_u	E25
HDMI_RX_HPDOUT_M2/ /SPDIF0_TX_M0 /PCIE30X2_WAKEN_M3 / MIPI_CAMERA1_CLK_M0 / I2C5_SCL_M3 / UART1_TX_M1 /GPIO1_B6_u	E26
SATA2_ACT_LED_M1 / HDMI_RX_CEC_M2 / PWM13_M2 /SPDIF1_TX_M0 /PCIE30X2_PERSTN_M3 / MIPI_CAMERA2_CLK_M0 / I2C5_SDA_M3 / UART1_RX_M1 /GPIO1_B7_u	E27
HDMI_RX_SCL_M2 / PWM14_M2 / / / / MIPI_CAMERA3_CLK_M0 / I2C8_SCL_M2 / UART1_RTSN_M1/GPIO1_D6_u	F24
HDMI_RX_SDA_M2 / PWM15_IR_M3 / / / /PCIE30X2_CLKREQN_M3 / MIPI_CAMERA4_CLK_M0 / I2C8_SDA_M2 / UART1_CTSN_M1/GPIO1_D7_u	F25
VCCIO4_1V8	H20
VCCIO4	H21



RK3588



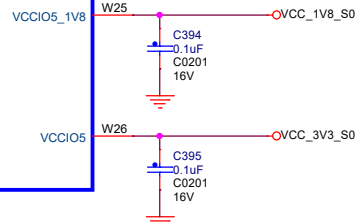
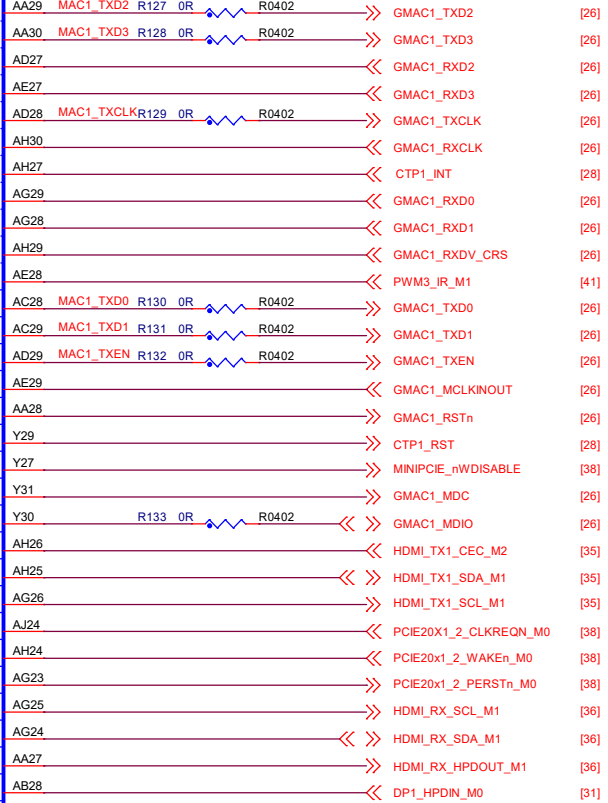
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Title 野火 RK3588 LubanCat 5 原理图		
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RK3588_J (VCCIO5 Domain)

U9J

VCCIO5 Domain
Operating Voltage=1.8V/3.3V

PWM10_M0	/ SPI4_MISO_M1	/	/ I2C6_SDA_M4	/ FSP1_D0_M2	/ I2S3_MCLK	/ SDIO_D0_M1	/ GMAC1_TXD2	/ GPIO3_A0_u
AUDDSM_LN	/ SPI4_MOSI_M1	/ PWM11_IR_M0	/ I2C6_SCL_M4	/ FSP1_D1_M2	/ I2S3_SCLK	/ SDIO_D1_M1	/ GMAC1_TXD3	/ GPIO3_A1_u
AUDDSM_LP	/ SPI4_CLK_M1	/ UART8_TX_M1	/	/ FSP1_D2_M2	/ I2S3_LRCK	/ SDIO_D2_M1	/ GMAC1_RXD2	/ GPIO3_A2_u
AUDDSM_RN	/ SPI4_CS0_M1	/ UART8_RX_M1	/	/ FSP1_D3_M2	/ I2S3_SDO	/ SDIO_D3_M1	/ GMAC1_RXD3	/ GPIO3_A3_u
AUDDSM_RP	/ SPI4_CS1_M1	/ UART8_RTSN_M1	/	/	/ I2S3_SDI	/ SDIO_CMD_M1	/ GMAC1_TXCLK	/ GPIO3_A4_d
	/ MIPI_CAMERA0_CLK_M1	/ UART8_RTSN_M1	/ I2C4_SDA_M0	/ FSP1_CLK_M2	/	/ SDIO_CLK_M1	/ GMAC1_RXCLK	/ GPIO3_A5_d
	/ MIPI_CAMERA1_CLK_M1	/	/ I2C4_SCL_M0	/	/	/	/ ETH1_REFCLK0_25M	/ GPIO3_A6_d
PWM8_M0	/ MIPI_CAMERA2_CLK_M1	/	/	/	/	/	/ GMAC1_RXD0	/ GPIO3_A7_u
PWM9_M0	/ MIPI_CAMERA3_CLK_M1	/	/	/	/	/	/ GMAC1_RXD1	/ GPIO3_B0_u
PWM2_M1	/ MIPI_CAMERA4_CLK_M1	/ UART2_TX_M2	/	/	/	/	/ GMAC1_RXDV_CRS	/ GPIO3_B1_d
PWM3_IR_M1	/	/ UART2_RX_M2	/	/	/ I2S2_SDI_M1	/	/ GMAC1_TXER	/ GPIO3_B2_d
	/	/ UART2_RTSN	/	/	/ I2S2_SDO_M1	/	/ GMAC1_TXD0	/ GPIO3_B3_u
	/	/ UART2_CTSN	/	/	/ I2S2_MCLK_M1	/	/ GMAC1_TXD1	/ GPIO3_B4_u
PWM12_M0	/ CAN1_RX_M0	/ UART3_TX_M1	/	/	/ I2S2_SCLK_M1	/	/ GMAC1_TXEN	/ GPIO3_B5_u
PWM13_M0	/ CAN1_TX_M0	/ UART3_RX_M1	/	/	/ I2S2_LRCK_M1	/	/ GMAC1_MCLKINOUT	/ GPIO3_B6_d
	/	/	/ I2C3_SCL_M1	/ SPI1_MOSI_M1	/ HDMI_TX1_HPD_M1	/	/ GMAC1_PTP_REF_CLK	/ GPIO3_B7_d
	/	/ UART7_TX_M1	/ I2C3_SDA_M1	/ SPI1_MISO_M1	/	/	/ GMAC1_PPSTRIG	/ GPIO3_C0_d
	/ PCIE30X2_BUTTON_BSTN	/ UART7_RX_M1	/	/	/ SPI1_CLK_M1	/	/ GMAC1_PPSCCLK	/ GPIO3_C1_d
PWM14_M0	/	/ UART7_RTSN_M1	/ I2C8_SCL_M4	/ SPI1_CS0_M1	/	/ MIPI_TE0	/ GMAC1_MDC	/ GPIO3_C2_d
PWM15_IR_M0	/	/ UART7_CTSN_M1	/ I2C8_SDA_M4	/ SPI1_CS1_M1	/	/ MIPI_TE1	/ GMAC1_MDIO	/ GPIO3_C3_d
CAN2_RX_M0	/ PCIE30X4_CLKREQN_M2	/ UART5_TX_M1	/ FSP1_CS0N_M2	/ SPI3_CS0_M3	/ HDMI_TX1_CEC_M2	/	/ CIF_D8	/ GPIO3_C4_u
CAN2_TX_M0	/ PCIE30X4_WAKEN_M2	/ UART5_RX_M1	/ FSP1_CS1N_M2	/ SPI3_CS1_M3	/ HDMI_TX1_SDA_M1	/	/ CIF_D9	/ GPIO3_C5_u
	/ PCIE30X4_PERSTN_M2	/	/	/ SPI3_MISO_M3	/ HDMI_TX1_SCL_M1	/	/ CIF_D10	/ GPIO3_C6_u
	/ PCIE20X1_2_CLKREQN_M0	/	/ I2C5_SCL_M0	/ SPI3_MOSI_M3	/ HDMI_TX0_SCL_M2	/	/ CIF_D11	/ GPIO3_C7_u
PWM8_M2	/ PCIE20X1_2_WAKEN_M0	/ UART4_RX_M1	/ I2C5_SDA_M0	/ SPI3_CLK_M3	/ HDMI_TX0_SDA_M2	/	/ CIF_D12	/ GPIO3_D0_u
PWM9_M2	/ PCIE20X1_2_PERSTN_M0	/ UART4_TX_M1	/	/ SPI0_MISO_M3	/ HDMI_RX_CEC_M1	/	/ CIF_D13	/ GPIO3_D1_d
	/ PCIE30X2_CLKREQN_M2	/ UART9_RTSN_M2	/ I2C7_SCL_M2	/ SPI0_MOSI_M3	/ HDMI_RX_SCL_M1	/	/ CIF_D14	/ GPIO3_D2_d
PWM10_M2	/ PCIE30X2_WAKEN_M2	/ UART9_CTSN_M2	/ I2C7_SDA_M2	/ SPI0_CLK_M3	/ HDMI_RX_SDA_M1	/	/ CIF_D15	/ GPIO3_D3_d
	/ PCIE30X2_PERSTN_M2	/ UART9_RX_M2	/	/ SPI0_CS0_M3	/ HDMI_RX_HPDOUT_M1	/ MCU_JTAG_TCK_M1	/	/ GPIO3_D4_d
PWM11_IR_M3	/ PCIE30X4_BUTTON_BSTN	/ UART9_TX_M2	/	/ SPI0_CS1_M3	/ DPI_HPDIN_M0	/	/ MCU_JTAG_TMS_M1	/ GPIO3_D5_d



RK3588

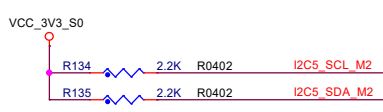
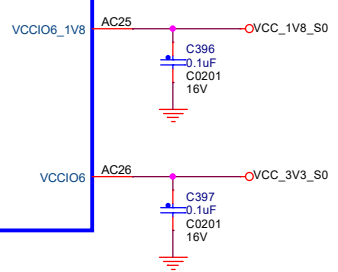
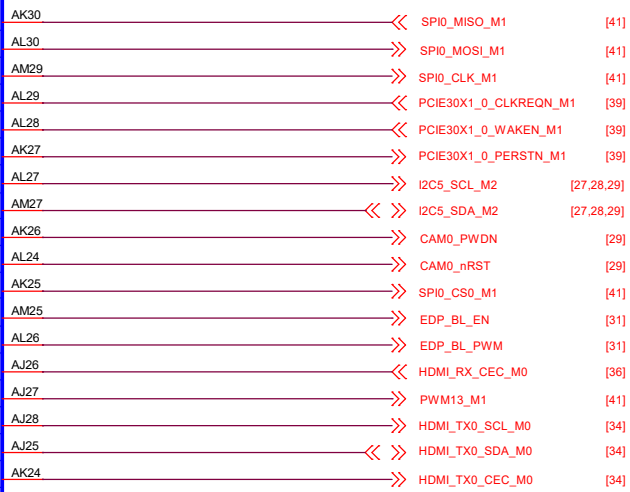
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RK3588_K (VCCIO6 Domain)

U9K

VCCIO6 Domain
Operating Voltage=1.8V/3.3V

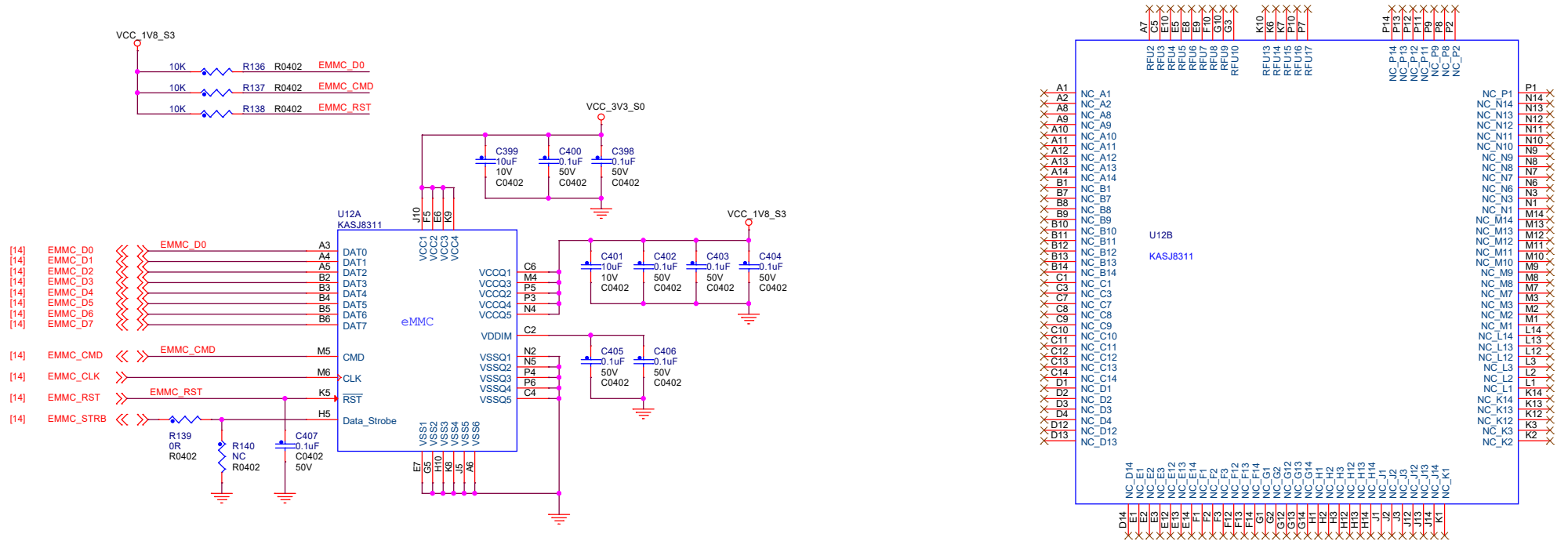
/ SPI0 MISO M1 / UART9 RTSN M1 / I2S1 MCLK M0 / PCIE30X1_1_CLKREQN_M1 / BT1120_D0 / CIF_D0 / GPIO4_A0_d	AK30	<<	SPI0_MISO_M1	[41]
/ SPI0 MOSI M1 / UART9 CTGN M1 / I2S1 SCLK M0 / PCIE30X1_1_WAKEN M1 / BT1120_D1 / CIF_D1 / GPIO4_A1_d	AL30	>>	SPI0_MOSI_M1	[41]
/ SPI0 CLK M1 / I2S1 LRCK M0 / PCIE30X1_1_PERSTN M1 / BT1120_D2 / CIF_D2 / GPIO4_A2_d	AM29	>>	SPI0_CLK_M1	[41]
UART0 TX M2 / PCIE30X1_0_CLKREQN_M1 / BT1120_D3 / CIF_D3 / GPIO4_A3_d	AL29	<<	PCIE30X1_0_CLKREQN_M1	[39]
/ SPI2 MISO M1 / UART0 RX M2 / I2C3 SCL M2 / PCIE30X1_0_WAKEN M1 / BT1120_D4 / CIF_D4 / GPIO4_A4_d	AL28	<<	PCIE30X1_0_WAKEN_M1	[39]
/ SPI2 MOSI M1 / UART3 TX M2 / I2C3 SDA M2 / I2S1 SDIO M0 / PCIE30X1_0_PERSTN M1 / BT1120_D5 / CIF_D5 / GPIO4_A5_d	AK27	>>	PCIE30X1_0_PERSTN_M1	[39]
/ SPI2 CLK M1 / UART3 RX M2 / I2C5 SCL M2 / I2S1 SDI1 M0 / PCIE30X2_CLKREQN_M1 / BT1120_D6 / CIF_D6 / GPIO4_A6_d	AL27	>>	I2C5_SCL_M2	[27.28.29]
/ SPI2 CS0 M1 / I2C5 SDA M2 / I2S1 SDI2 M0 / PCIE30X2_WAKEN M1 / BT1120_D7 / CIF_D7 / GPIO4_A7_d	AM27	<<	I2C5_SDA_M2	[27.28.29]
/ SPI2 CSI M1 / UART8 TX M0 / I2C6 SDA M3 / I2S1 SDI3 M0 / PCIE30X2_PERSTN M1 / BT1120_CLKOUT / CIF_CLKIN / GPIO4_B0_d	AK26	>>	CAM0_PWDN	[29]
SATA2_ACT_LED_M0 / SPDIF1_TX_M1 / SPI0 CSI M1 / UART8 RX M0 / I2C6 SCL M3 / I2S1 SD00 M0 / PCIE30X1_0_BUTTON_RSTN / MIPI_CAMERA0_CLK_M0 / GPIO4_B1_u	AL24	>>	CAM0_nRST	[29]
CAN1_RX_M1 / PWM14_M1 / SPI0 CS0 M1 / UART8 RTSN M0 / I2C7 SCL M3 / I2S1 SD01 M0 / PCIE30X1_1_BUTTON_RSTN / BT1120_D8 / CIF_HREF / GPIO4_B2_u	AK25	>>	SPI0_CS0_M1	[41]
CAN1_TX_M1 / PWM15_IR_M1 / UART8 CTGN M0 / I2C7 SDA M3 / I2S1 SD02 M0 / PCIE30X1_2_BUTTON_RSTN / BT1120_D9 / CIF_VSYNC / GPIO4_B3_u	AM25	>>	EDP_BL_EN	[31]
SPDIF0_TX_M1 / PWM11_IR_M1 / DPO_HPDIN_M0 / UART9 TX M1 / I2S1 SD03 M0 / PCIE30X4_CLKREQN_M1 / BT1120_D10 / CIF_CLKOUT / GPIO4_B4_u	AL26	>>	EDP_BL_PWM	[31]
SATA1_ACT_LED_M0 / PWM12_M1 / SPI3 MISO M1 / UART9 RX M1 / HDMI_RX_CEC_M0 / PCIE30X4_WAKEN M1 / BT1120_D11 / GPIO4_B5_d	AJ26	<<	HDMI_RX_CEC_M0	[36]
SATA0_ACT_LED_M0 / PWM13_M1 / SPI3 MOSI M1 / I2C5 SCL M1 / HDMI_RX_HPOUT_M0 / PCIE30X4_PERSTN M1 / BT1120_D12 / GPIO4_B6_d	AJ27	>>	PWM13_M1	[41]
/ SPI3 CLK M1 / I2C5 SDA M1 / HDMI_TX0_SCL_M0 / PCIE20X1_2_CLKREQN_M1 / BT1120_D13 / GPIO4_B7_u	AJ28	>>	HDMI_TX0_SCL_M0	[34]
/ SPI3 CS0 M1 / I2C8 SCL M3 / HDMI_TX0_SDA_M0 / PCIE20X1_2_WAKEN M1 / BT1120_D14 / GPIO4_C0_u	AJ25	<<	HDMI_TX0_SDA_M0	[34]
SPDIF1_TX_M2 / PWM6_M1 / SPI3 CSI M1 / I2C8 SDA M3 / HDMI_TX0_CEC_M0 / PCIE20X1_2_PERSTN M1 / BT1120_D15 / GPIO4_C1_d	AK24	>>	HDMI_TX0_CEC_M0	[34]



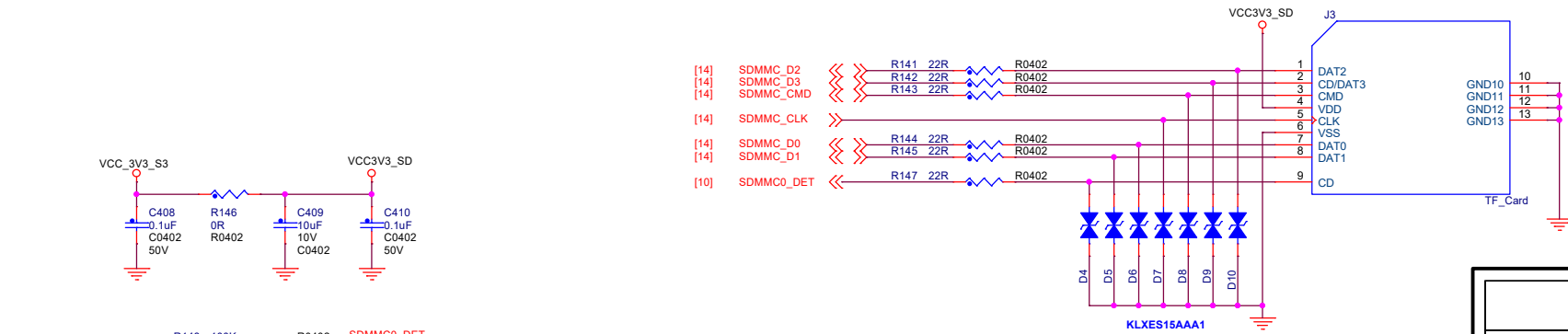
RK3588

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EMMC FLASH



Micro SD Card



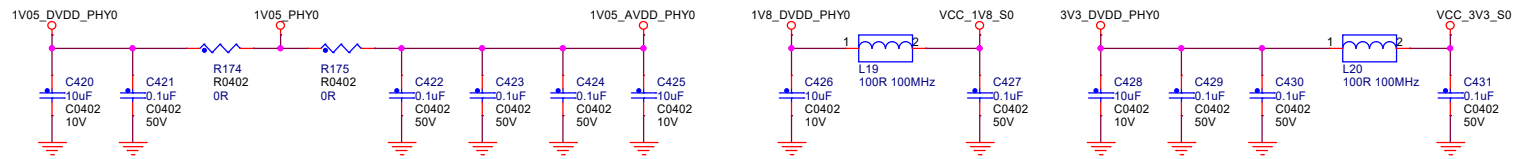
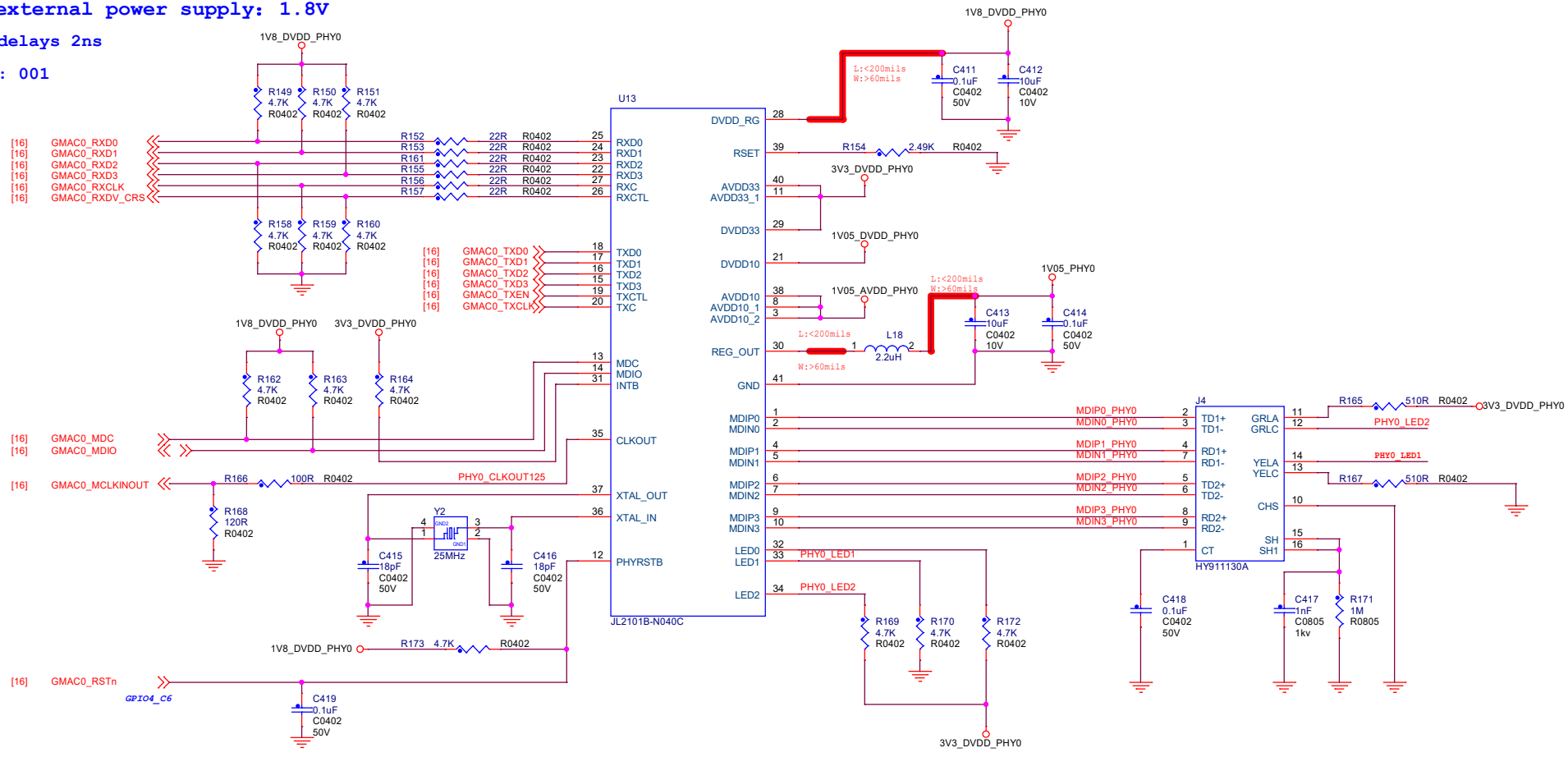
东莞野火电子技术有限公司 https://yeheosm.tmall.com		
Title	野火 RK3588 LubanCat 5 原理图	
Size	Document Number	Rev
A3	EMMC_FLASH/Micro SD	V1R0
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ETH_1

IO Use an external power supply: 1.8V

TXC / RXC : delays 2ns

PHY Address : 001



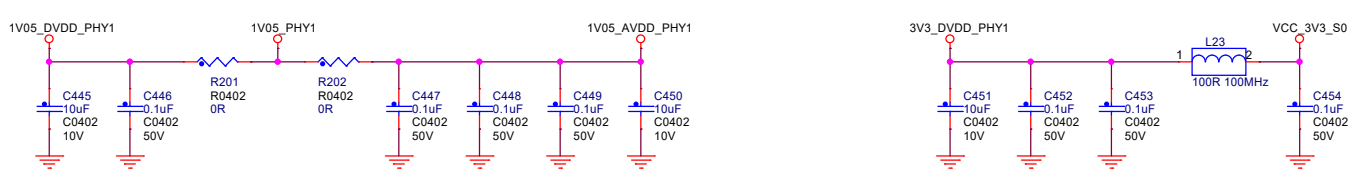
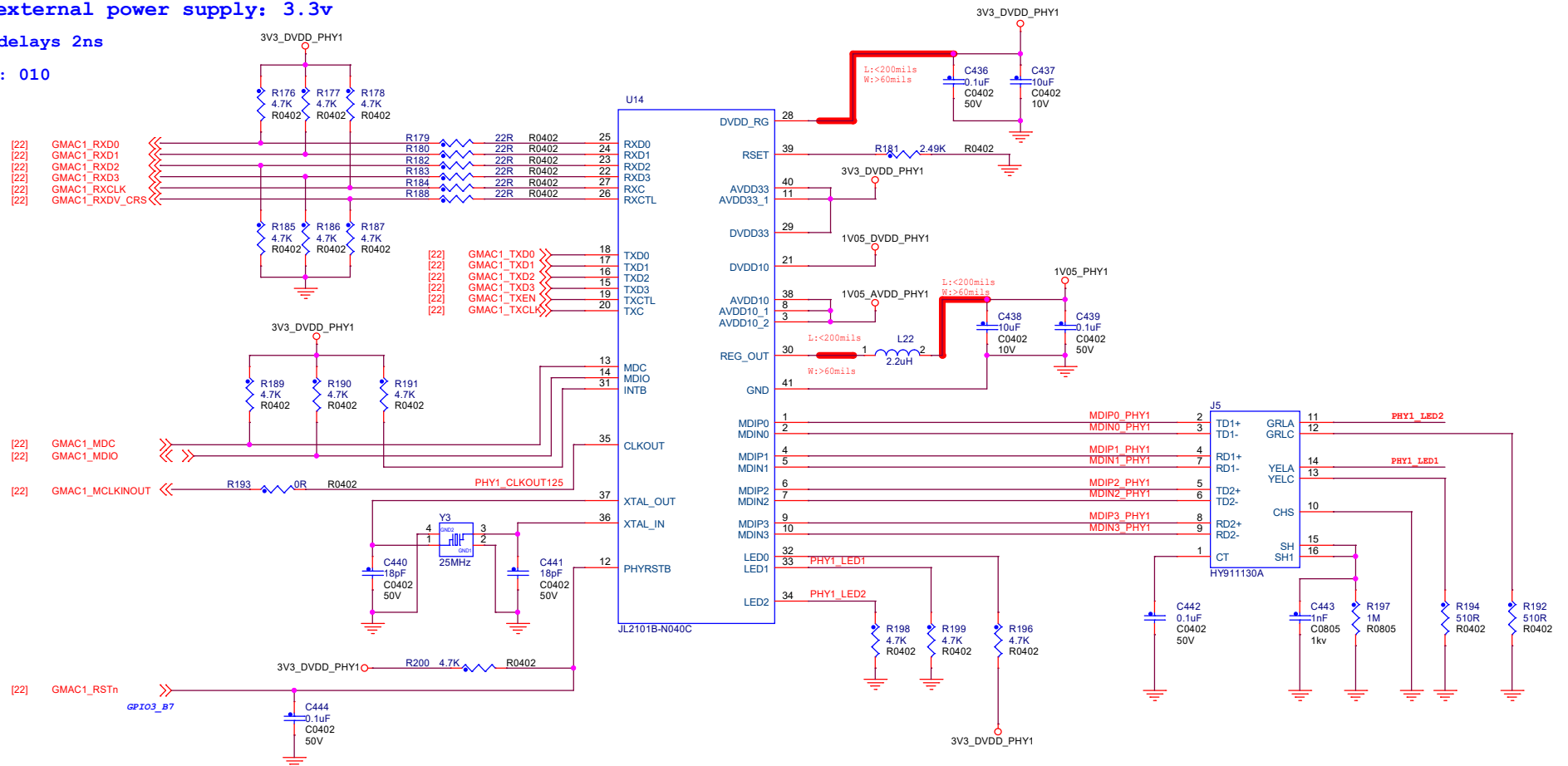
东莞野火电子有限公司 https://yehuosm.tmall.com		
Title 野火 RK3588 LubanCat 5 原理图		
Size A3	Document Number ETH_1	Rev V1R0
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ETH_0

IO Use an external power supply: 3.3v

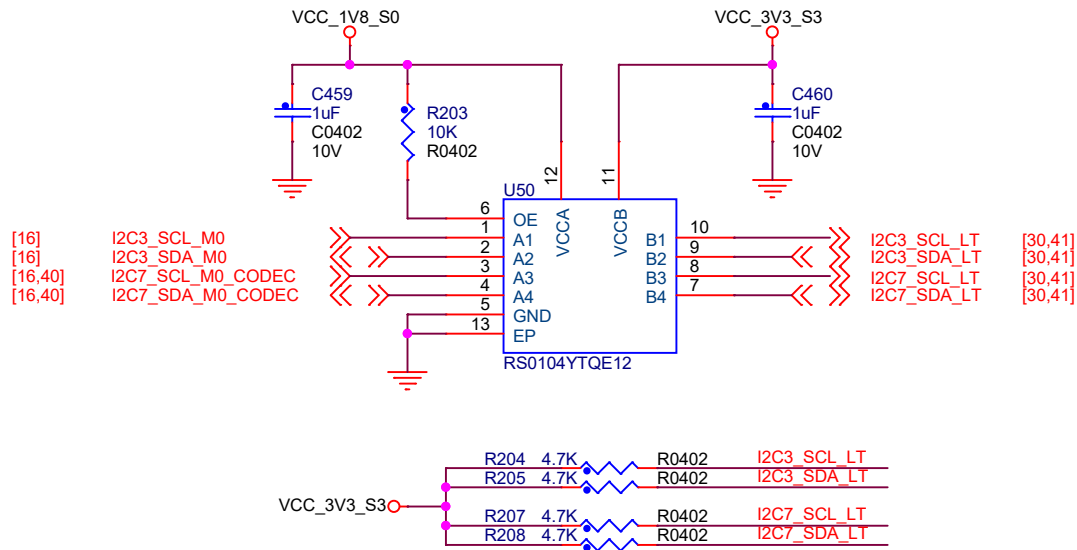
TXC / RXC : delays 2ns

PHY Address : 010

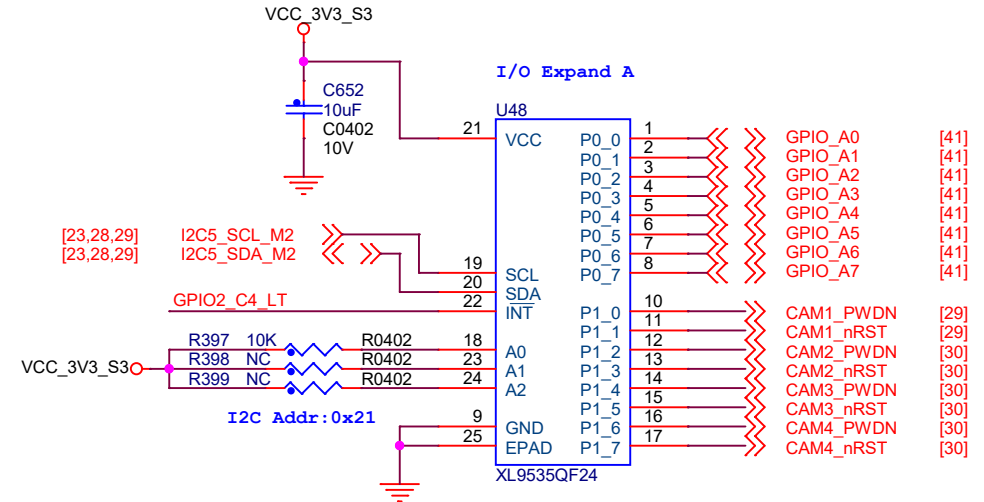


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Title 野火 RK3588 LubanCat 5 原理图		
Size A3	Document Number ETH_0	Rev V1R0
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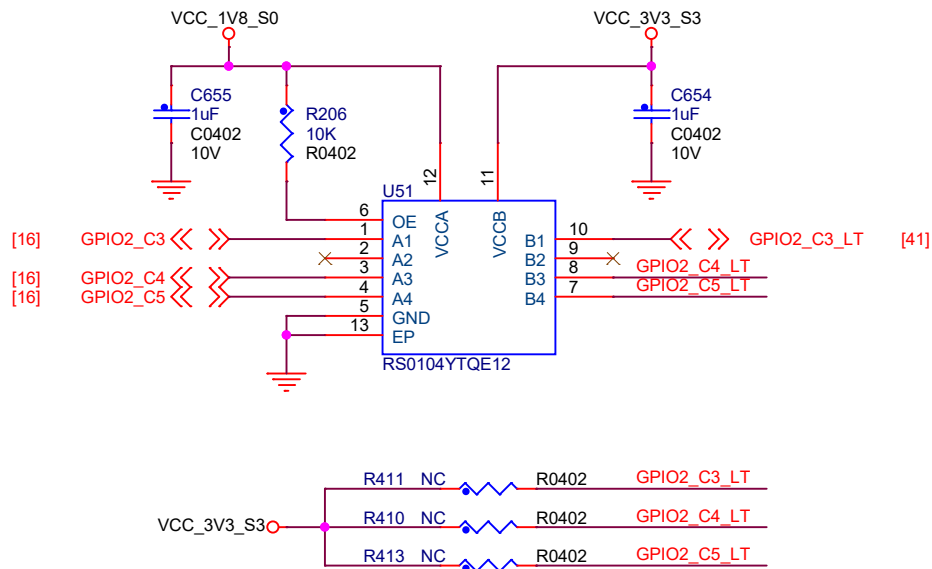
I2C Level Translation



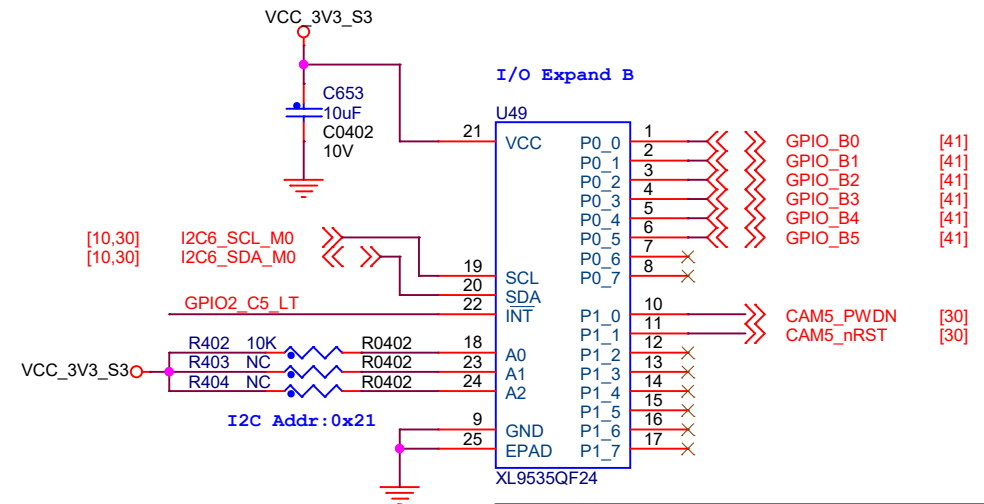
I/O Expand A



GPIO Level Translation



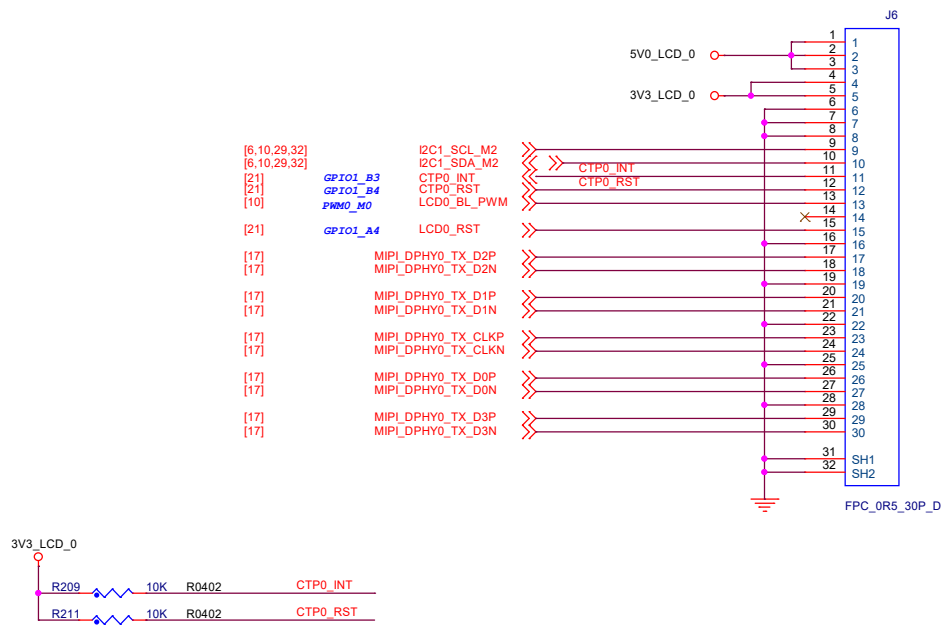
I/O Expand B



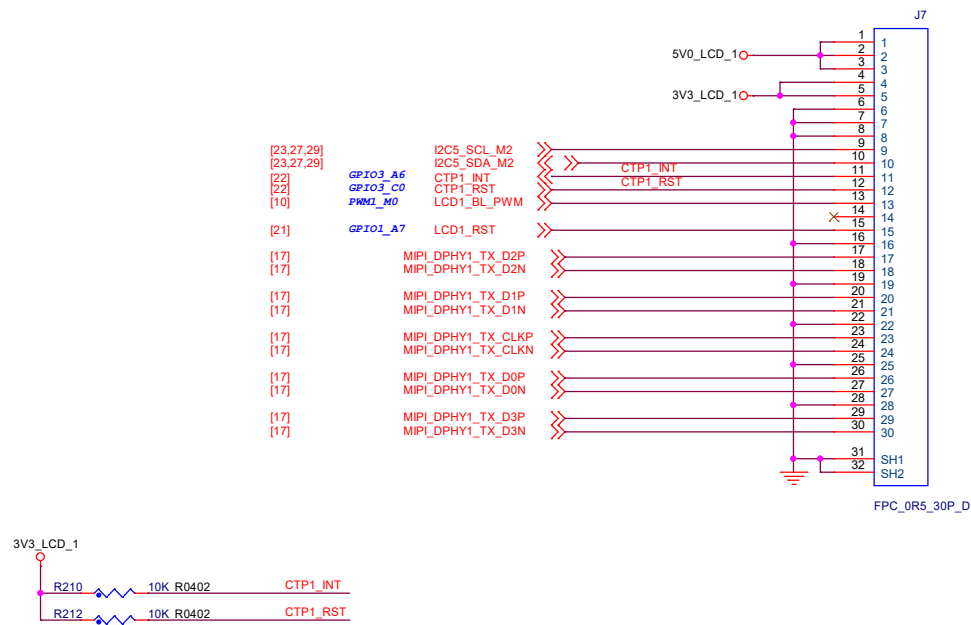
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Title		
野火 RK3588 LubanCat 5 原理图		
Size	Document Number	Rev
A4	I2C/GPIO Level Translation	V1R0
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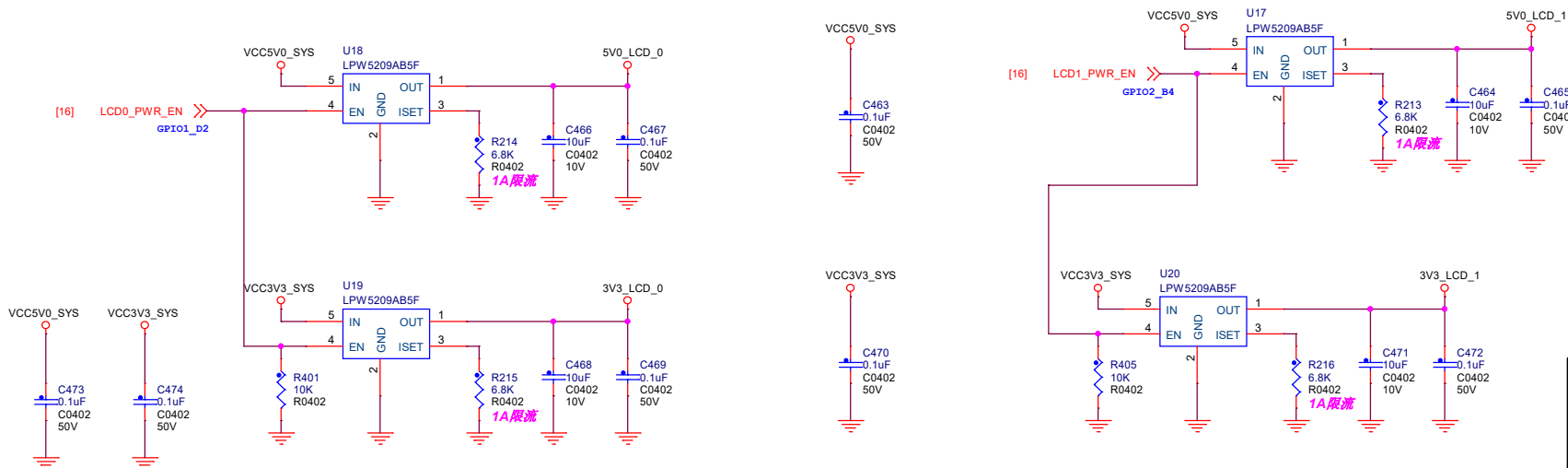
MIPI_DSI_TX0 PORT



MIPI_DSI_TX1 PORT

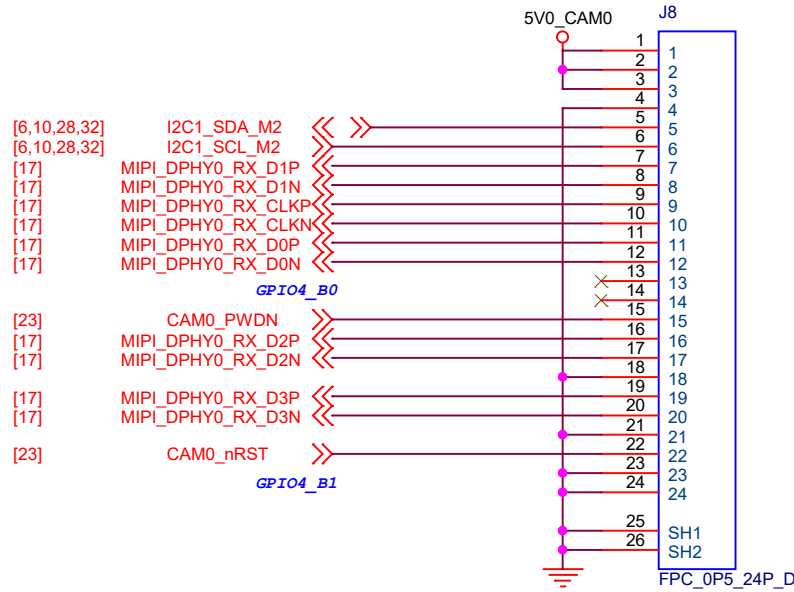


MIPI DSI Power

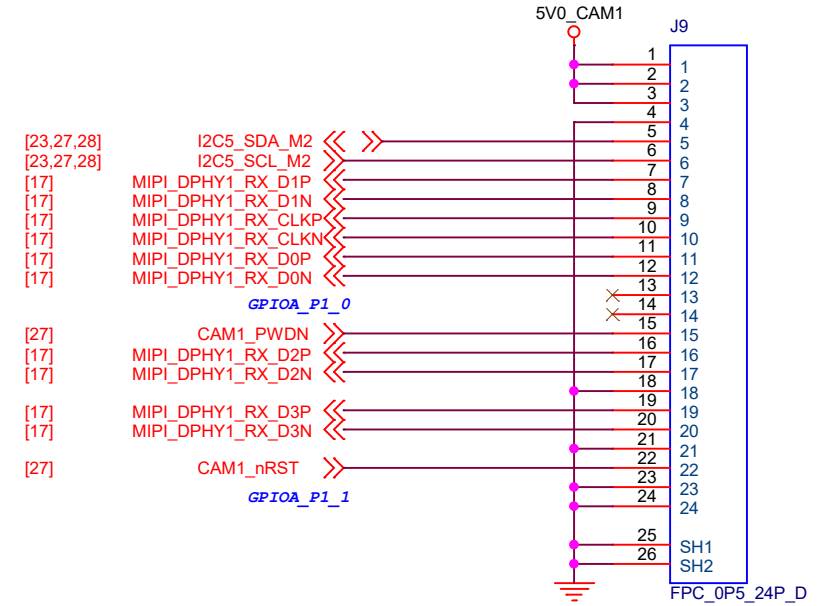


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Title 野火 RK3588 LubanCat 5 原理图		
Size A3	Document Number MIPI DSI PORT	Rev V1R0
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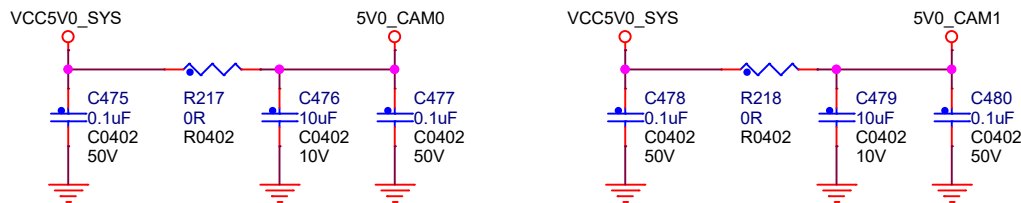
MIPI CSI 0 PORT



MIPI CSI 1 PORT



MIPI CSI Power



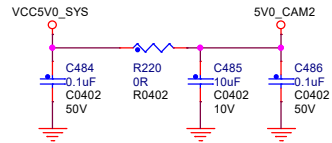
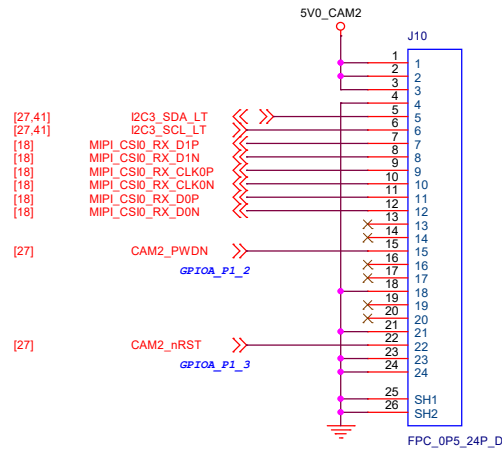
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https://yehuosm.tmall.com

Title 野火 RK3588 LubanCat 5 原理图

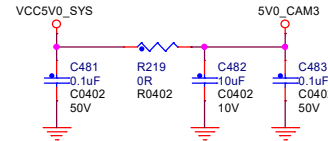
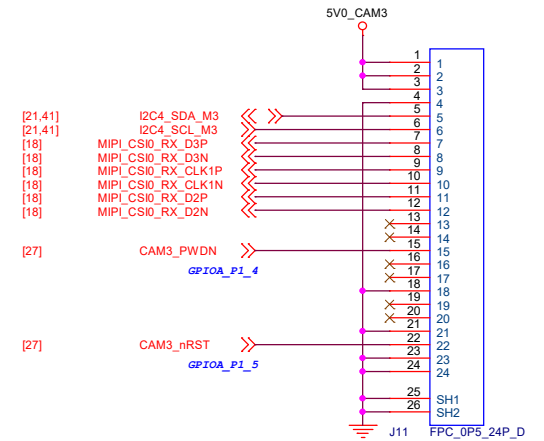
Size A4	Document Number MIPI DSI PORT1	Rev V1R0
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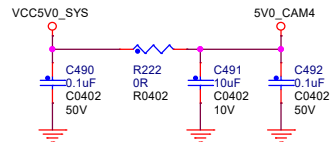
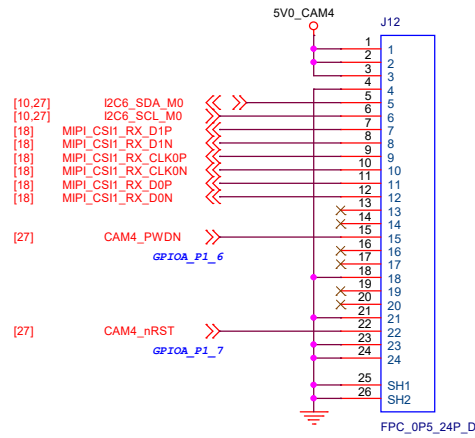
MIPI_CSI2_PORT



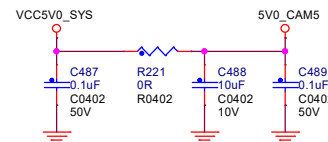
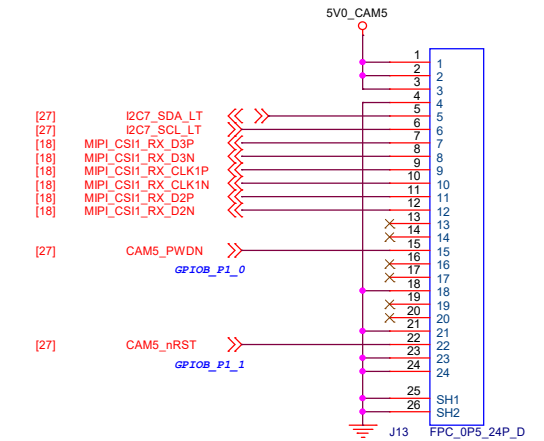
MIPI_CSI3_PORT



MIPI_CSI4_PORT

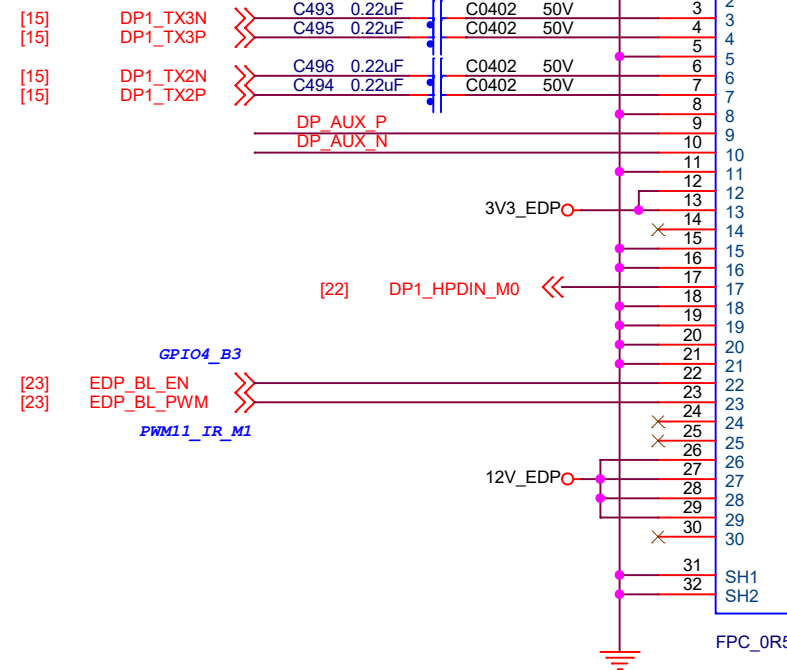
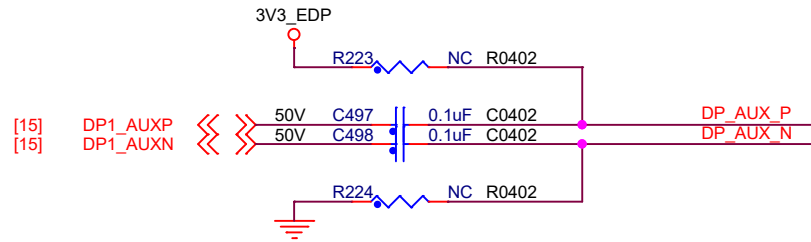


MIPI_CSI5_PORT

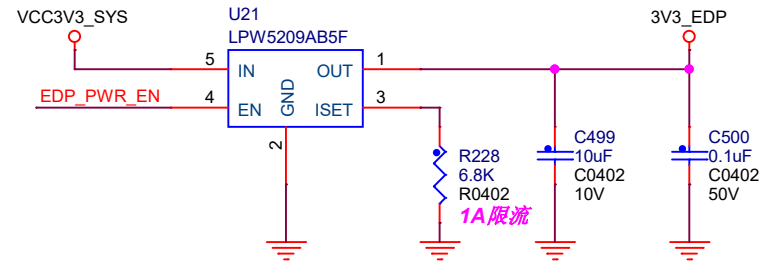
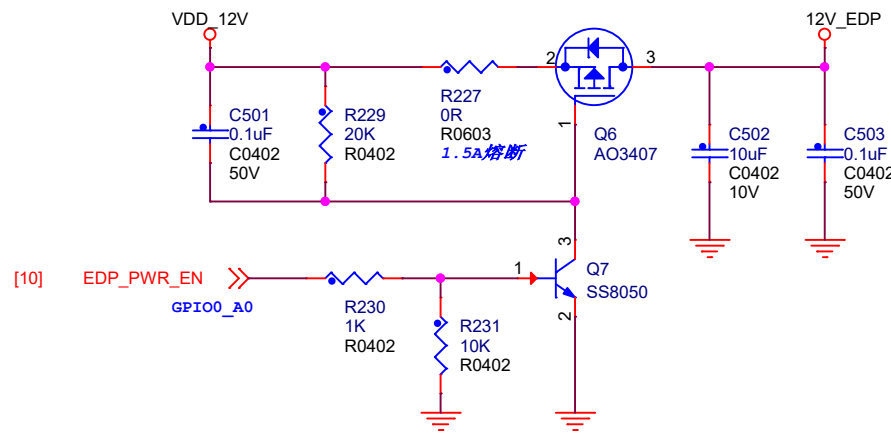


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Size: A3	Document Number: MIPI DSI PORT	Rev: V1R0
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eDP1.3 PORT



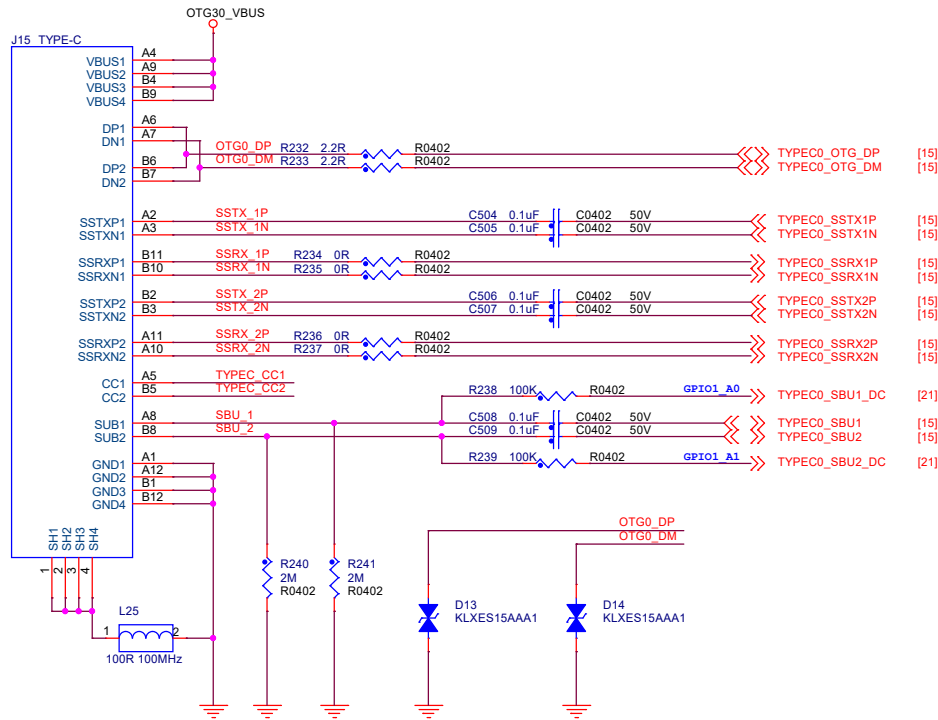
EDP Power



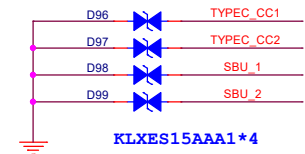
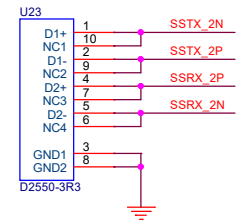
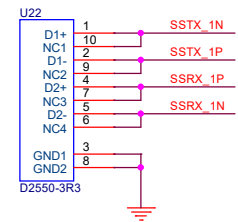
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Title 野火 RK3588 LubanCat 5 原理图		
Size A4	Document Number eDP_1.3_PORT	Rev V1R0
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TYPE C Socket

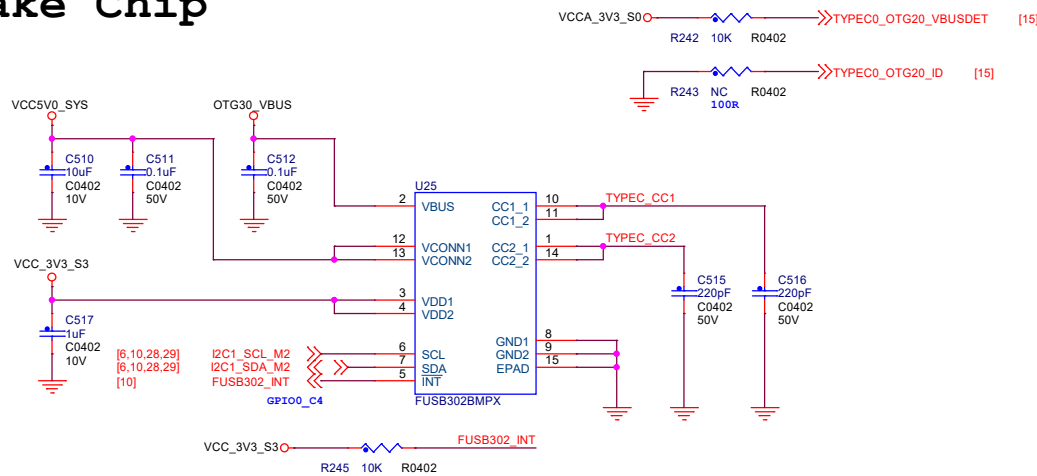
OTG30/Download PORT



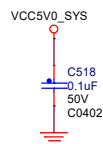
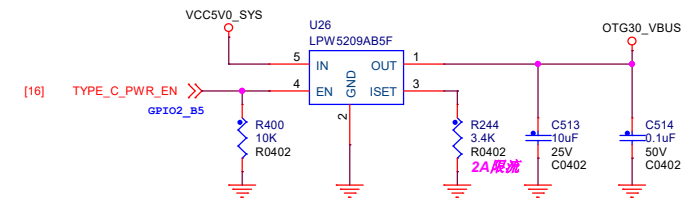
ESD



CC Handshake Chip

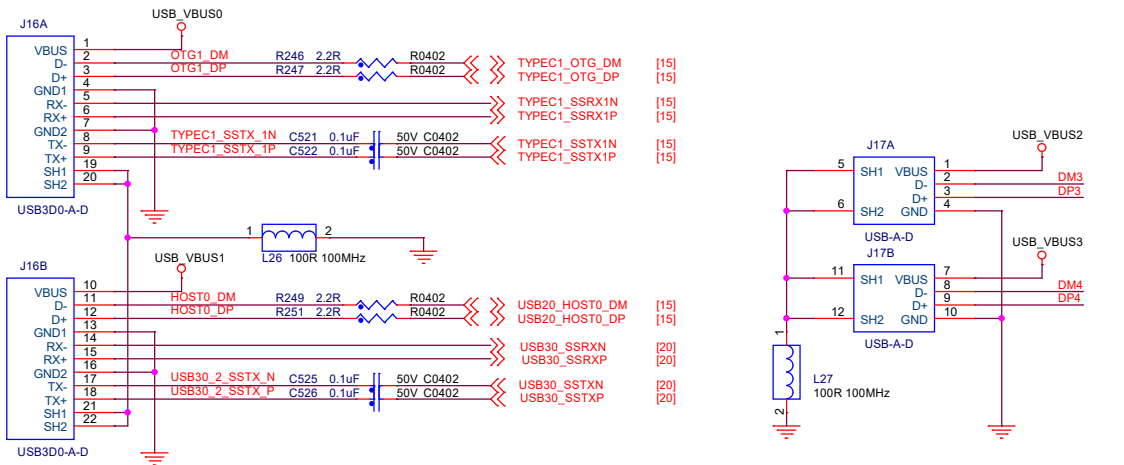


TYPE C Power

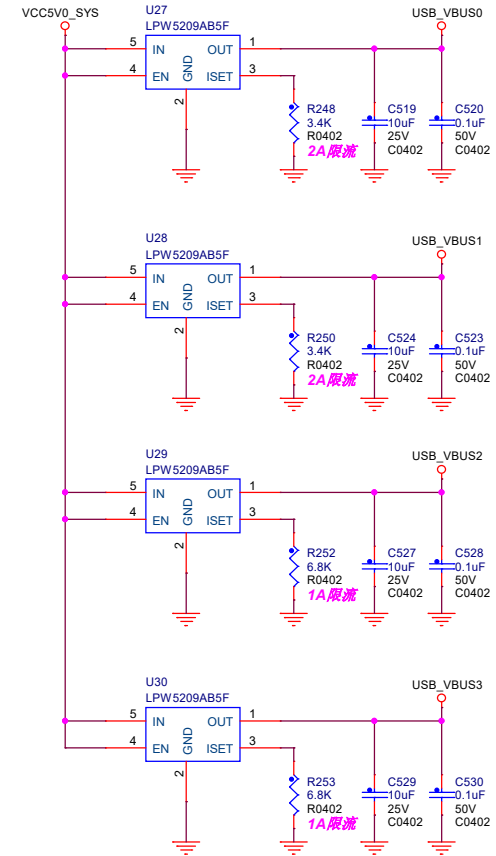


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USB 3.0 HOST x2 USB 2.0 HOST x2

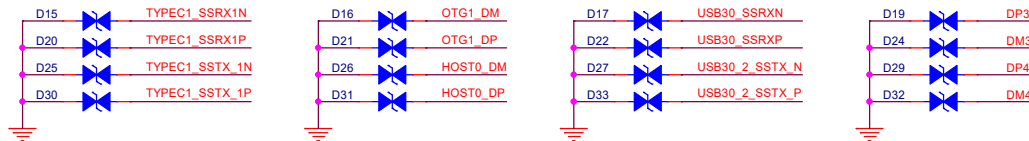


USB POWER

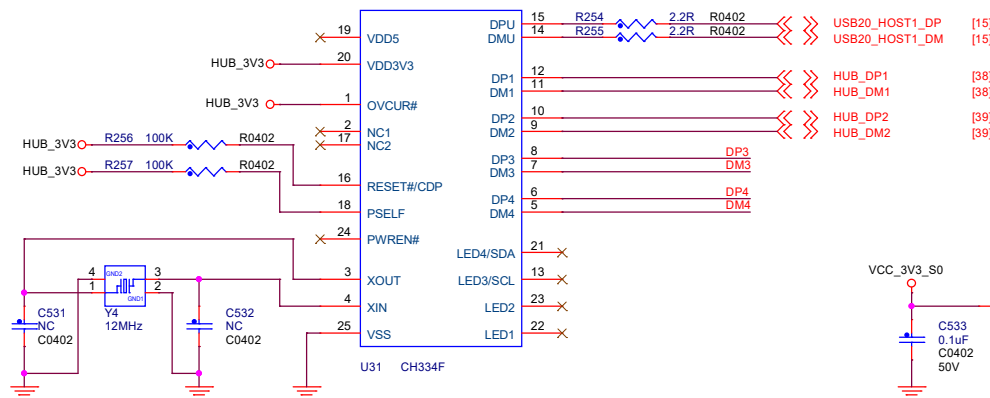


ESD

KLXES15AAA1*16

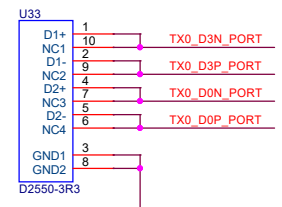
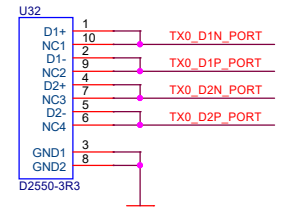
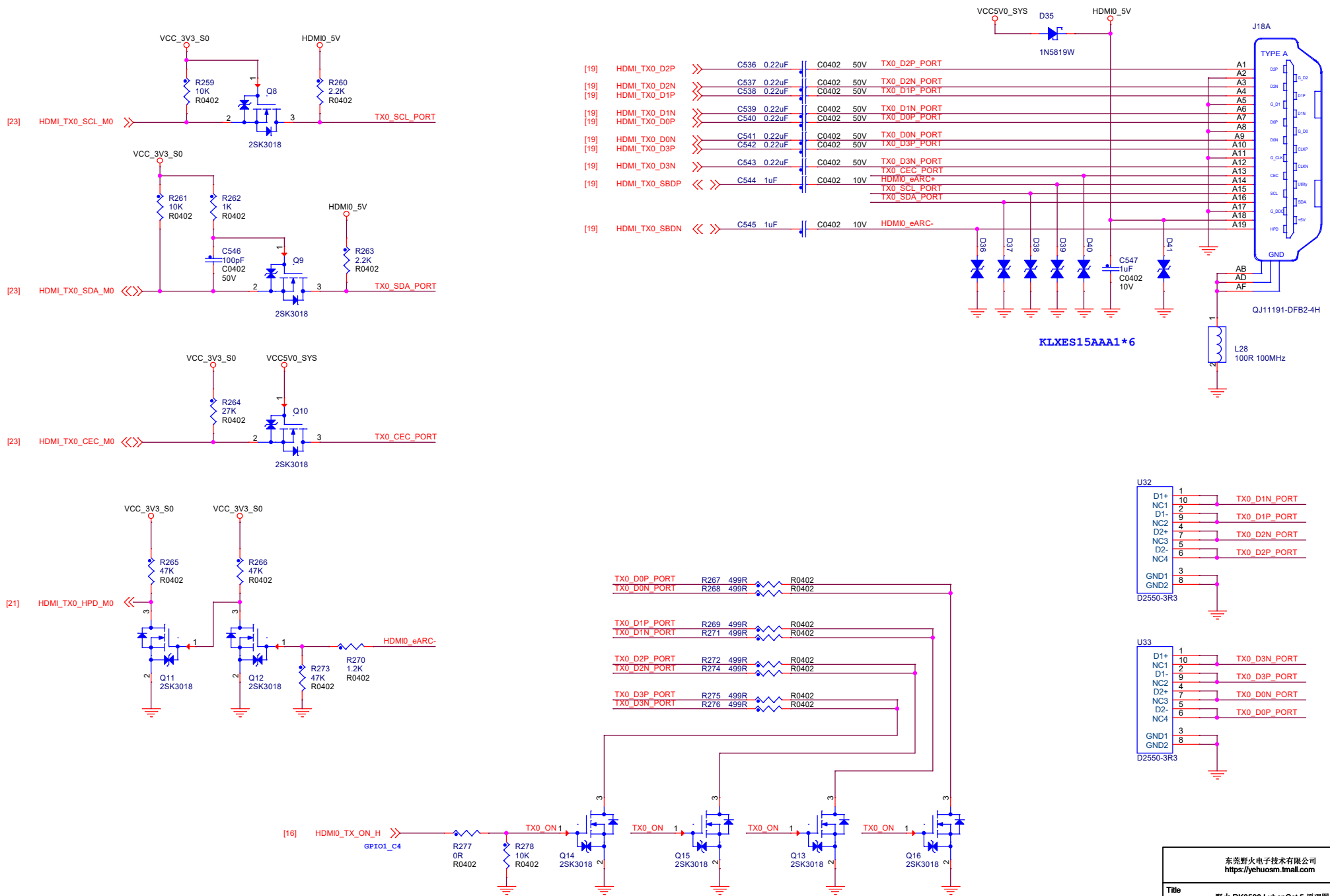


USB20 HUB PHY



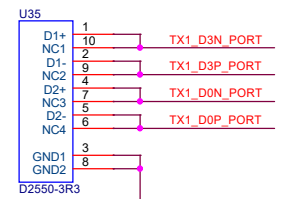
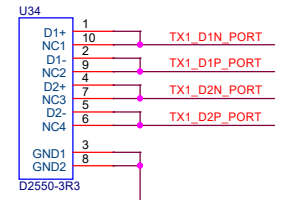
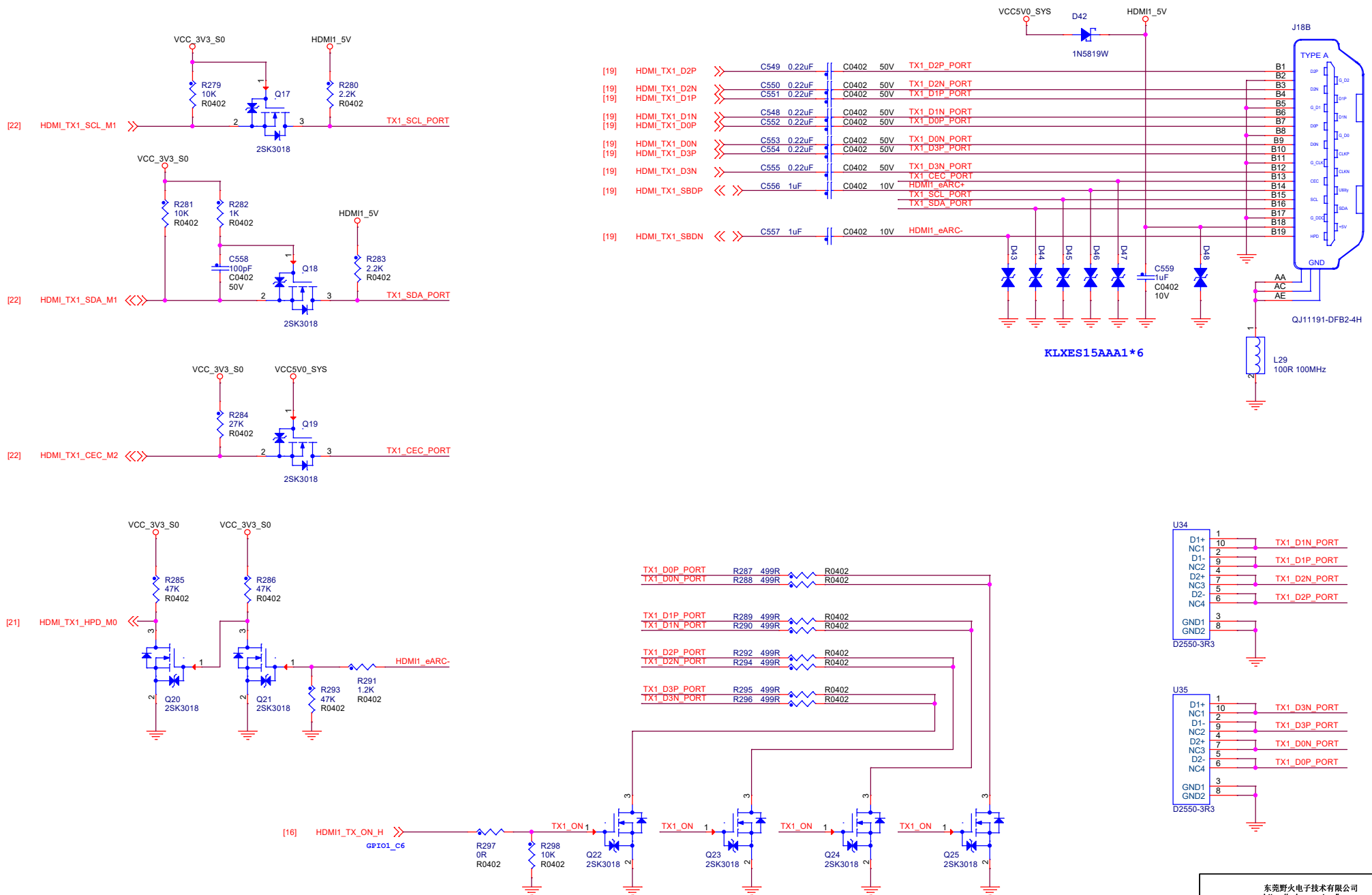
东莞野火技术有限公司 https://yehuosm.tmall.com		
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Size A3	Document Number USB30/USB20/SATA30_PORT	Rev V1R0
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HDMI2.1 PORT



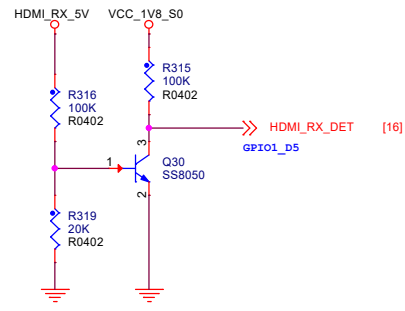
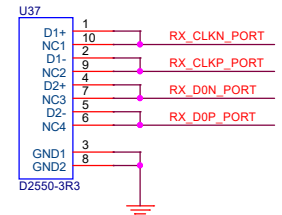
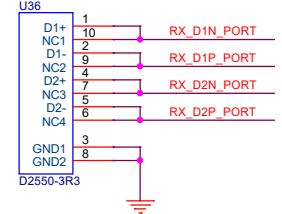
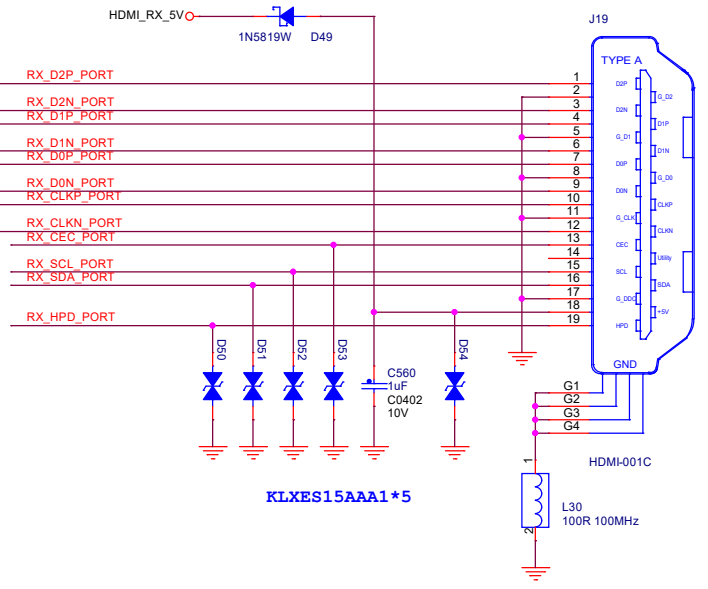
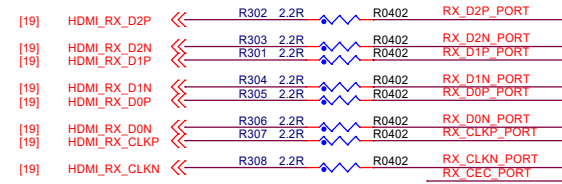
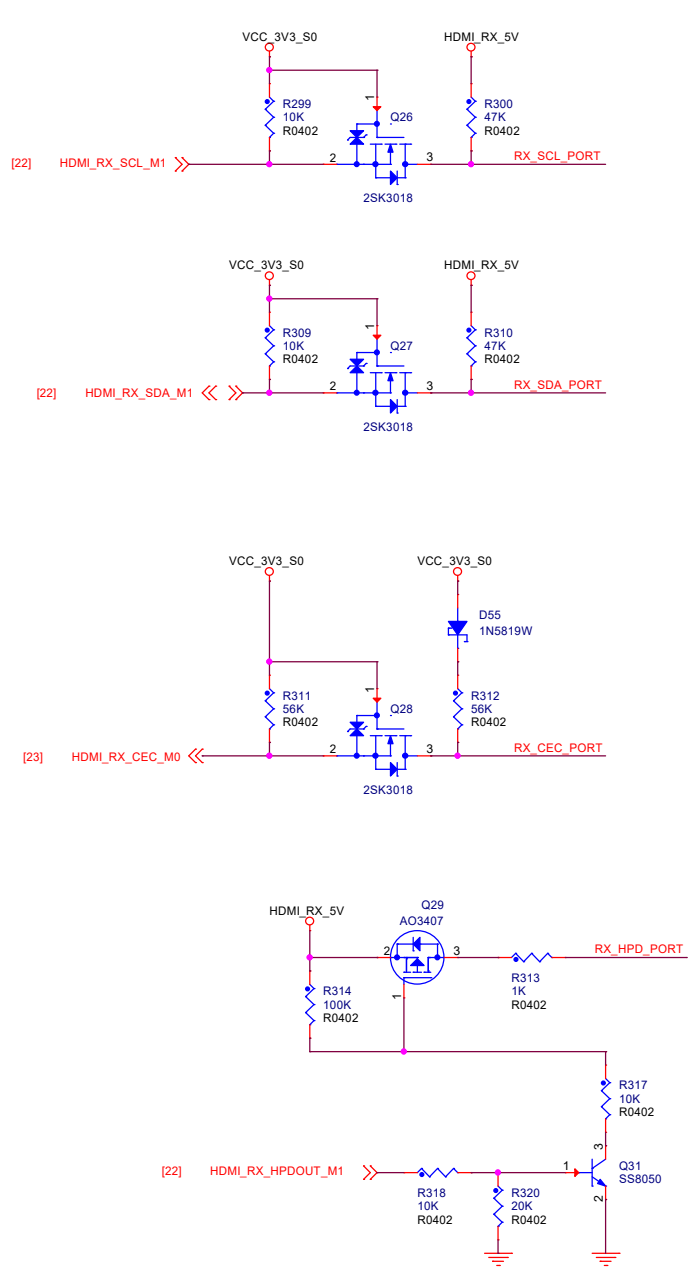
东莞野火电子技术有限公司 https://yehuosm.tmall.com		
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HDMI2.1 PORT



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Title 野火 RK3588 LubanCat 5 原理图		
Size A3	Document Number HDMI TX 1 PORT	Rev V1R0
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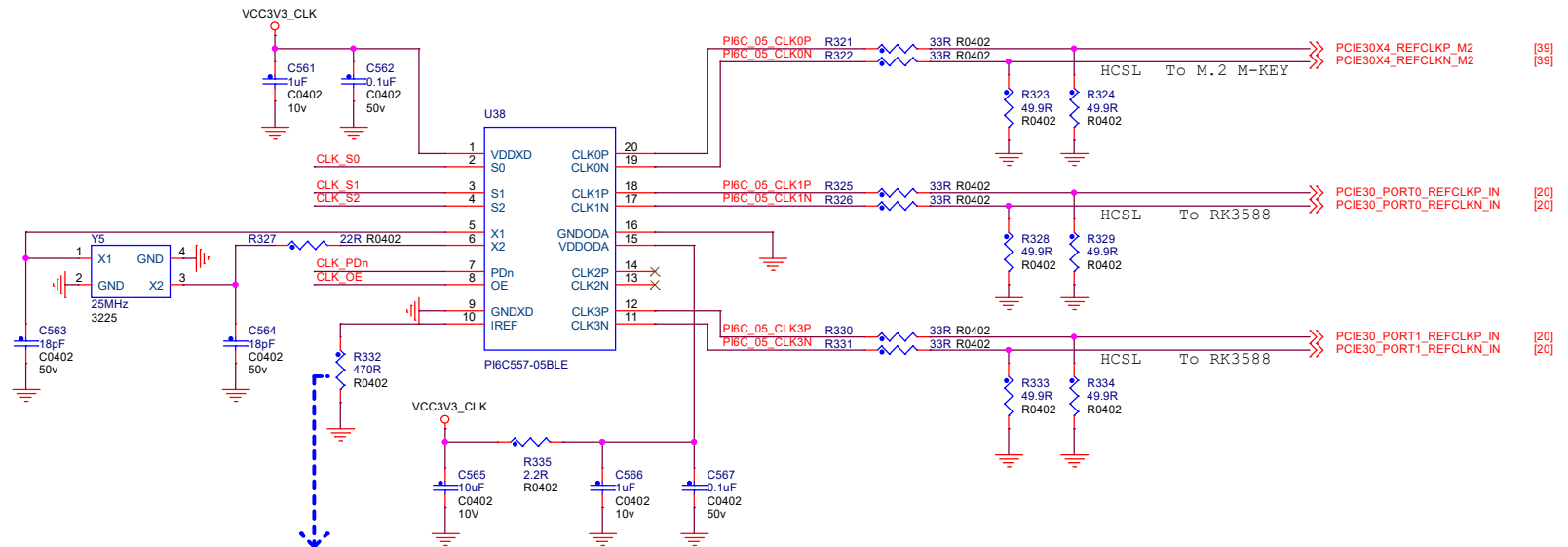
HDMI2.0 RX PORT



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PCIE3.0_REFCLK

CLK*3 @100MHz



If board target trace impedance is 50ohm then $R = 475\text{ohm}$ providing an IREF of 2.32 mA . The output current (IOH) is $6 * IREF$. $6 \times 2.32 \times 50 = 696\text{mV}$

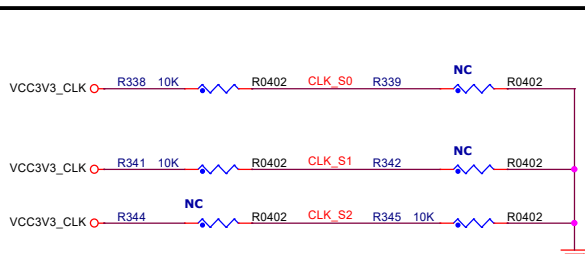
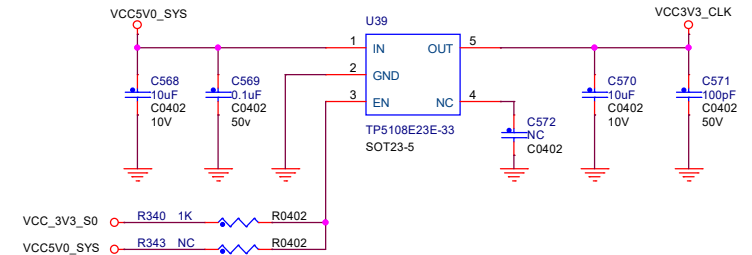


SPEED_MODE_SET

Default: No Spread

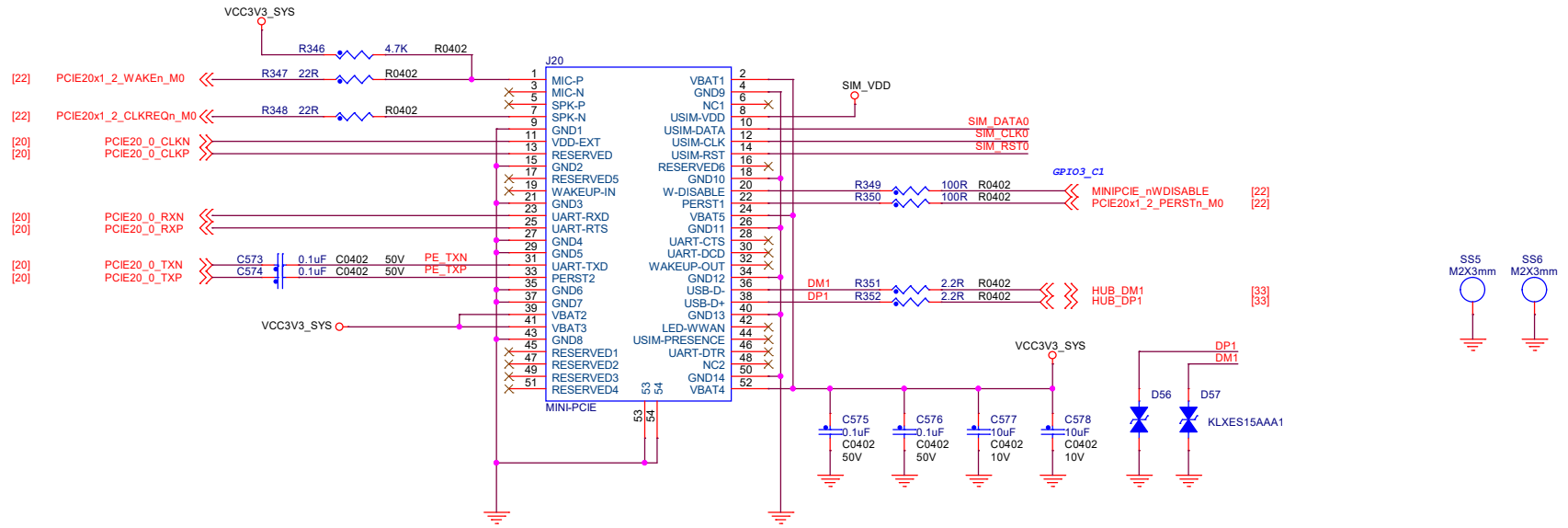
CLK_S0	CLK_S1	CLK_S2	Spread %	Out Freq
0	0	0	-0.5	100MHz
1	0	0	-1.0	100MHz
0	1	0	-1.5	100MHz
1	1	0	No Spread	100MHz

SPLIT_CLK_POWER

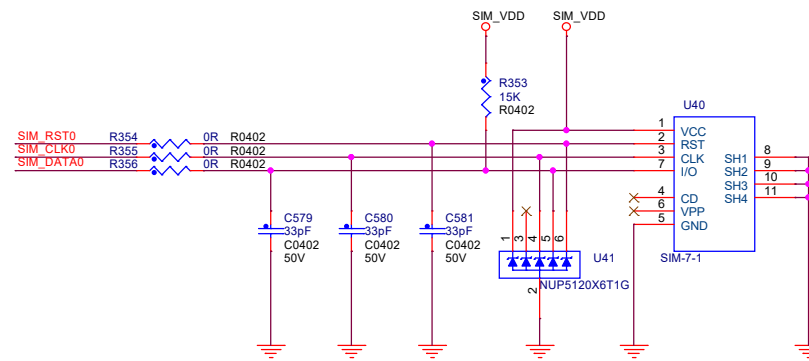


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Title 野火 RK3588 LubanCat 5 原理图		
Size A3	Document Number Crystal Generator	Rev V1R0
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MINI PCIE



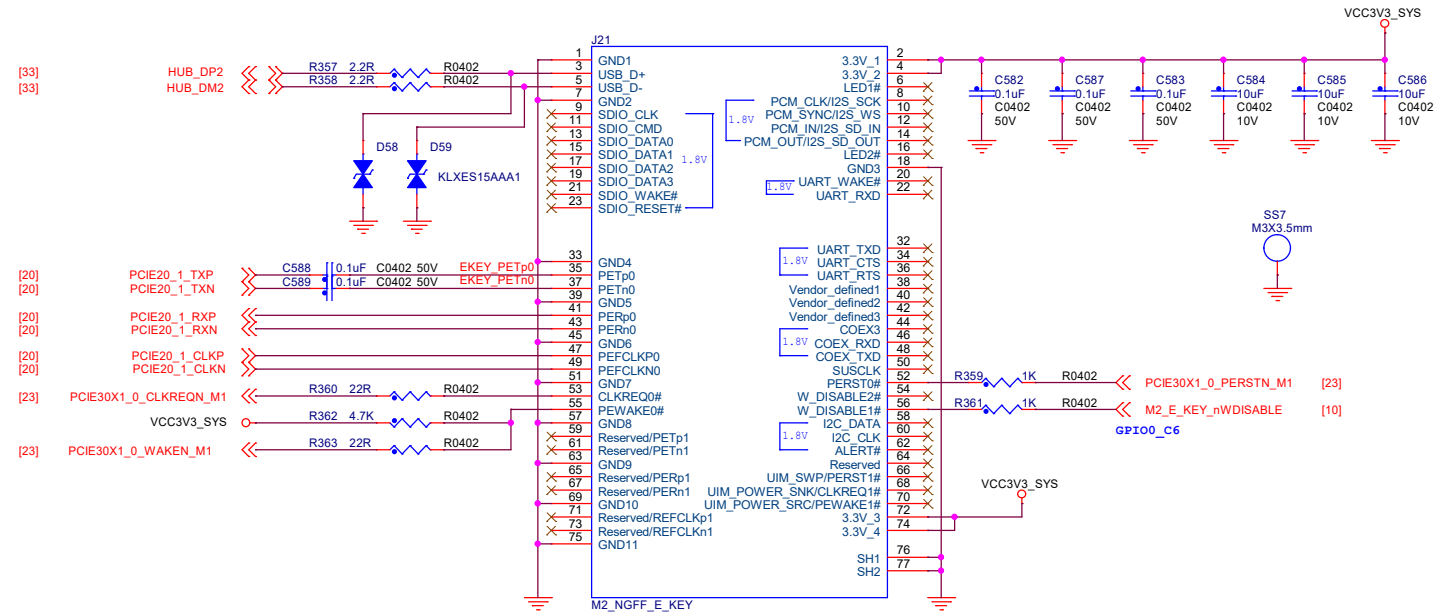
SIM CARD



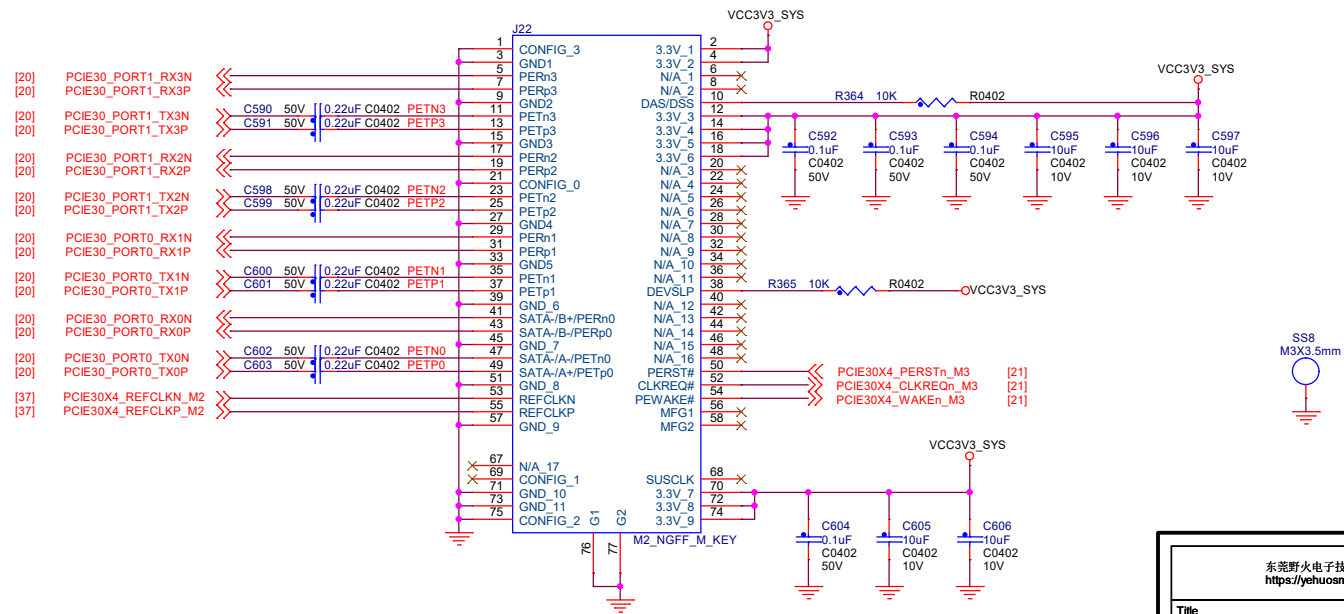
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Title		
野火 RK3588 LubanCat 5 原理图		
Size	Document Number	Rev
A3	MINI_PCIE_PORT	V1R0
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PCIE2.0 x 1Lanes E-KEY WLAN

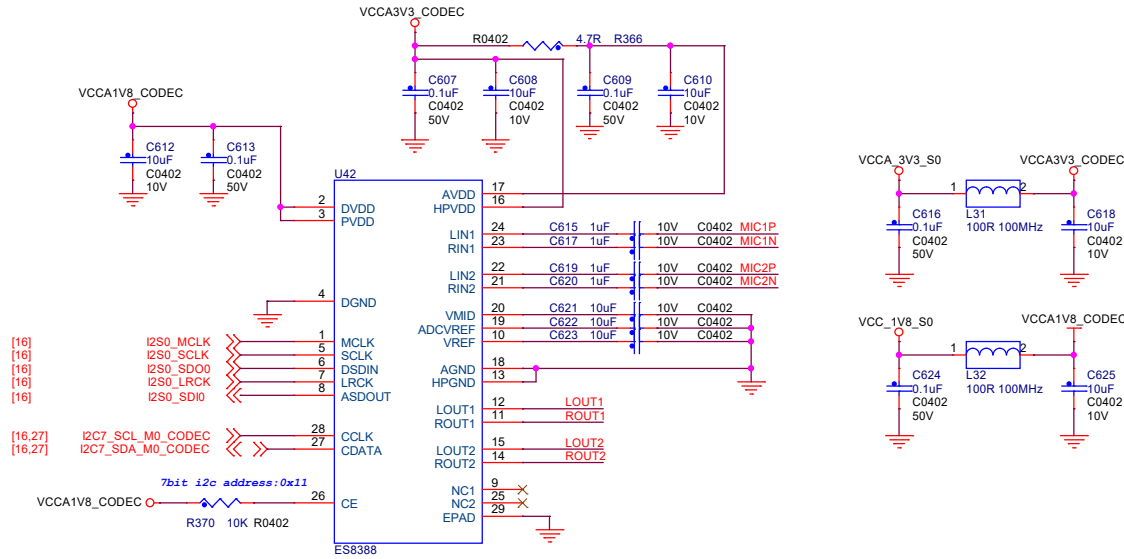


PCIE3.0 x 4Lanes m.2 SSD

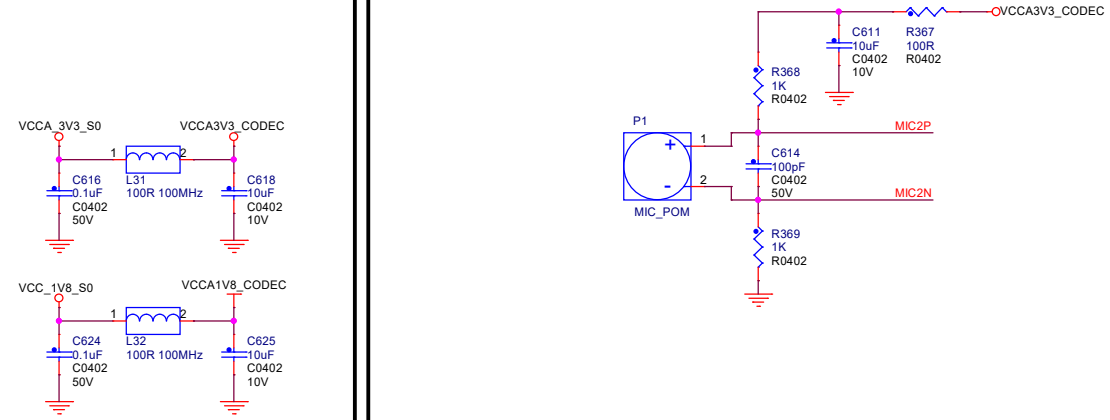


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Size A3	Document Number PCIE30 SSD/PCIE20 WLAN	Rev V1R0	
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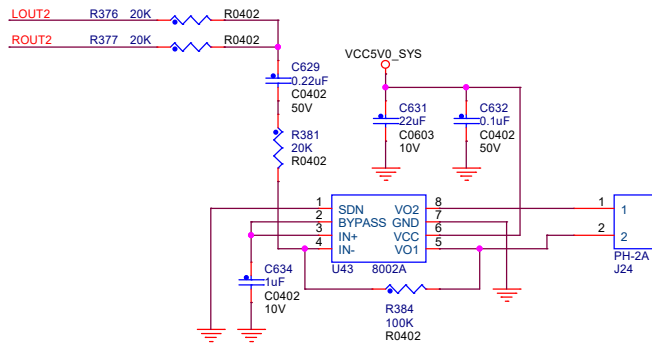
ES8388 CODEC



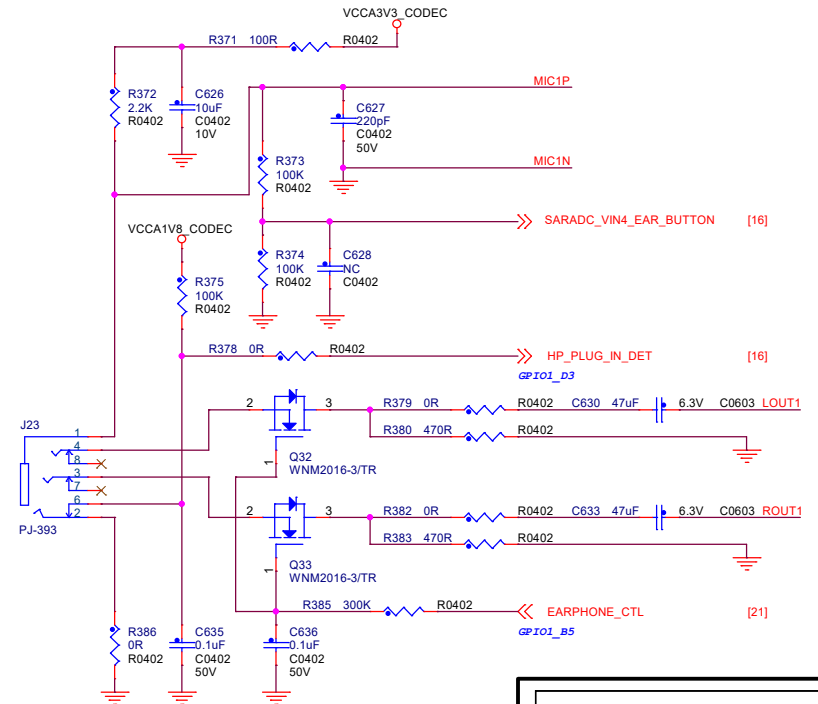
MIC



SPK

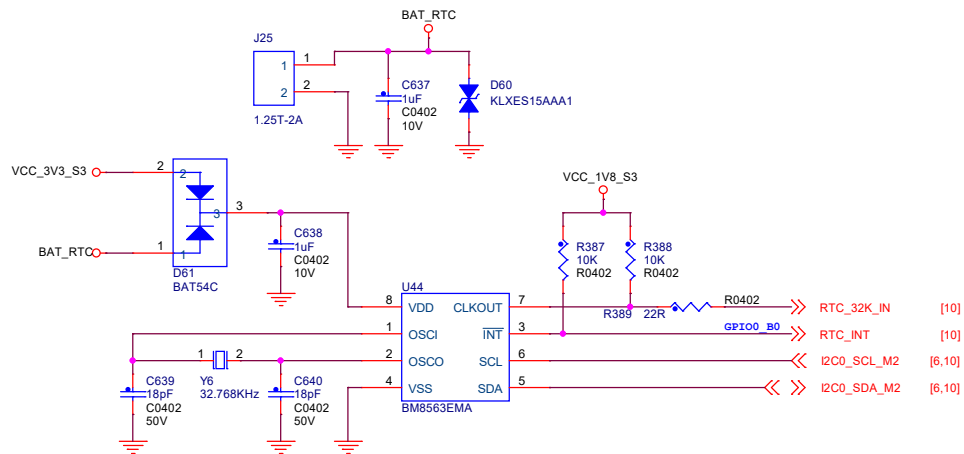


EarPhone

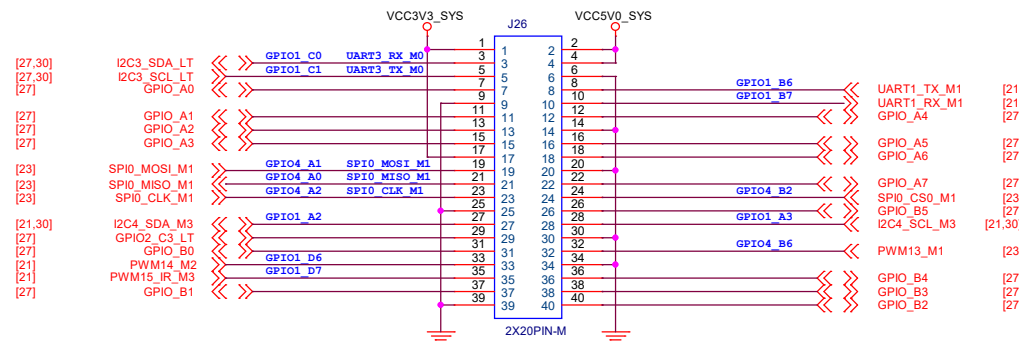


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Title: 野火 RK3588 LubanCat 5 原理图		
Size: A3	Document Number: CODEC/EarPhone/MIC/SPK	Rev: V1R0
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RTC

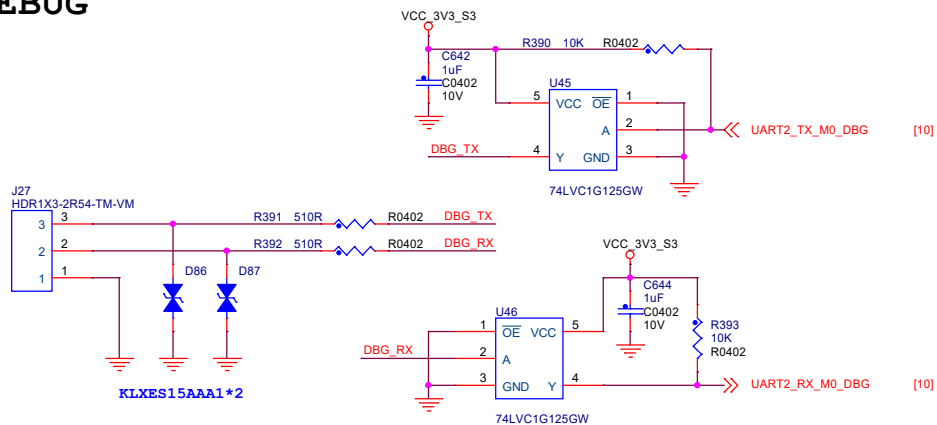


40P GPIO

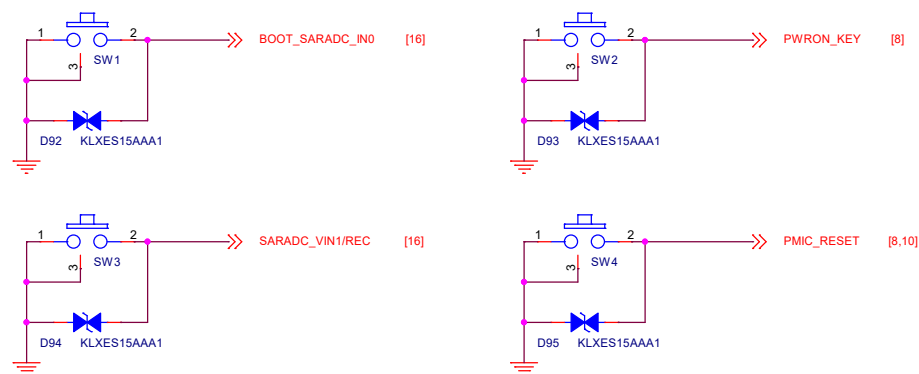


Only Support 3V3 I/O

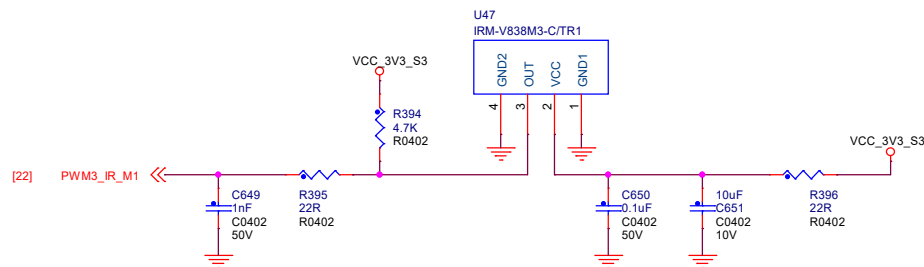
DEBUG



KEY



IR INPUT



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Title	野火 RK3588 LubanCat 5 原理图	
Size	Document Number	Rev
A3	32K_OSC/DEBUG/40P_IO/KEY	V1R0
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