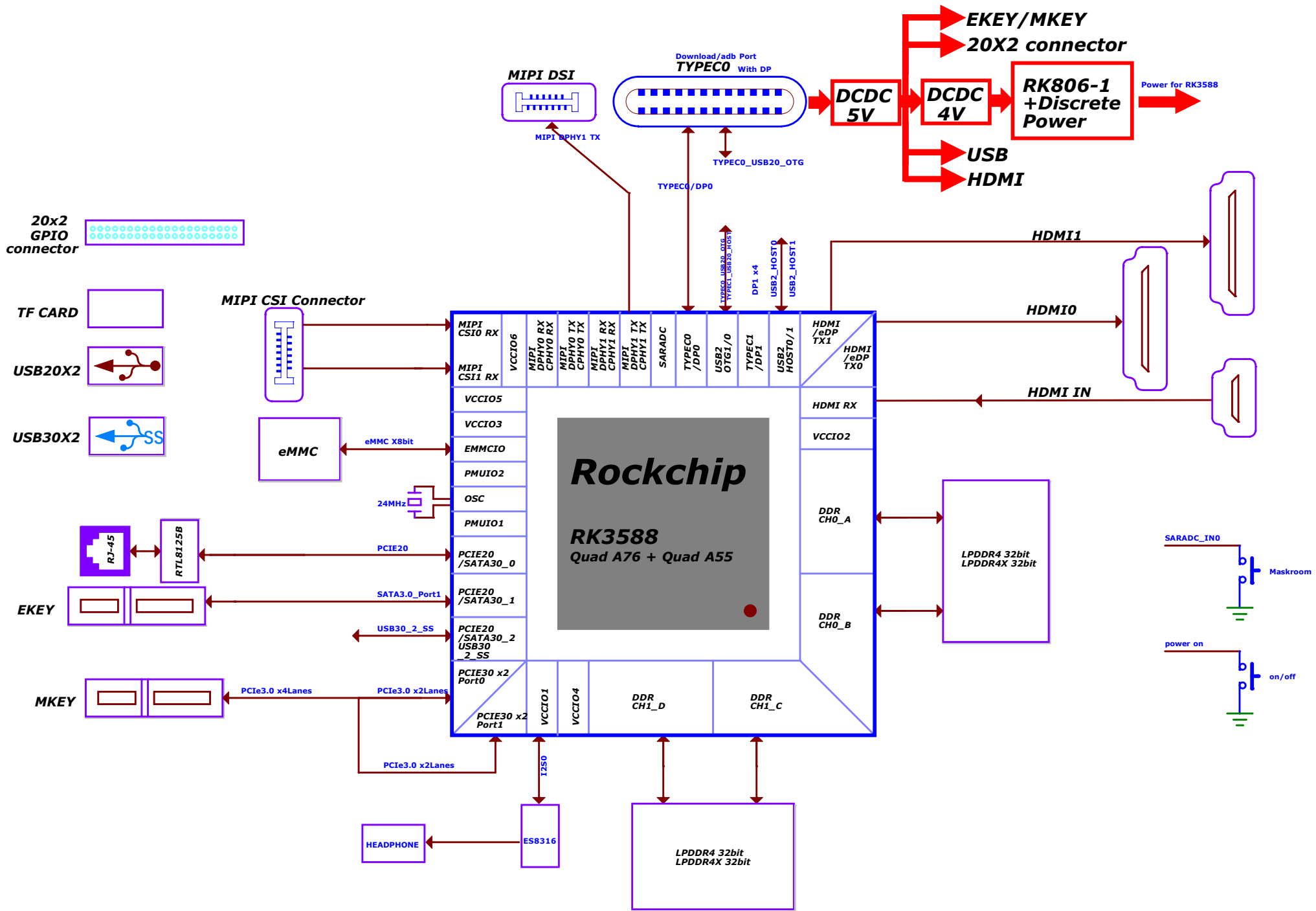


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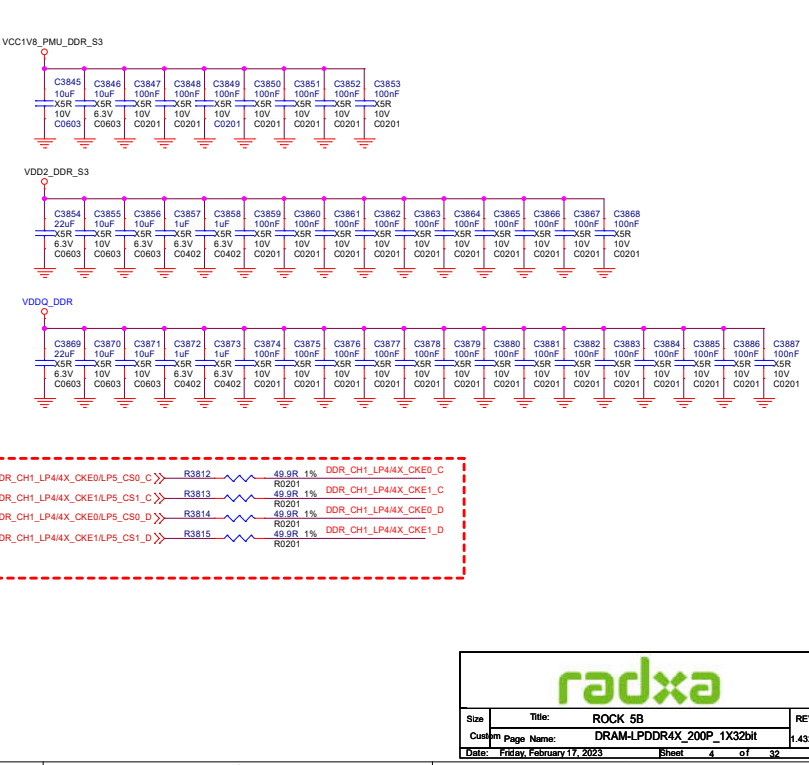
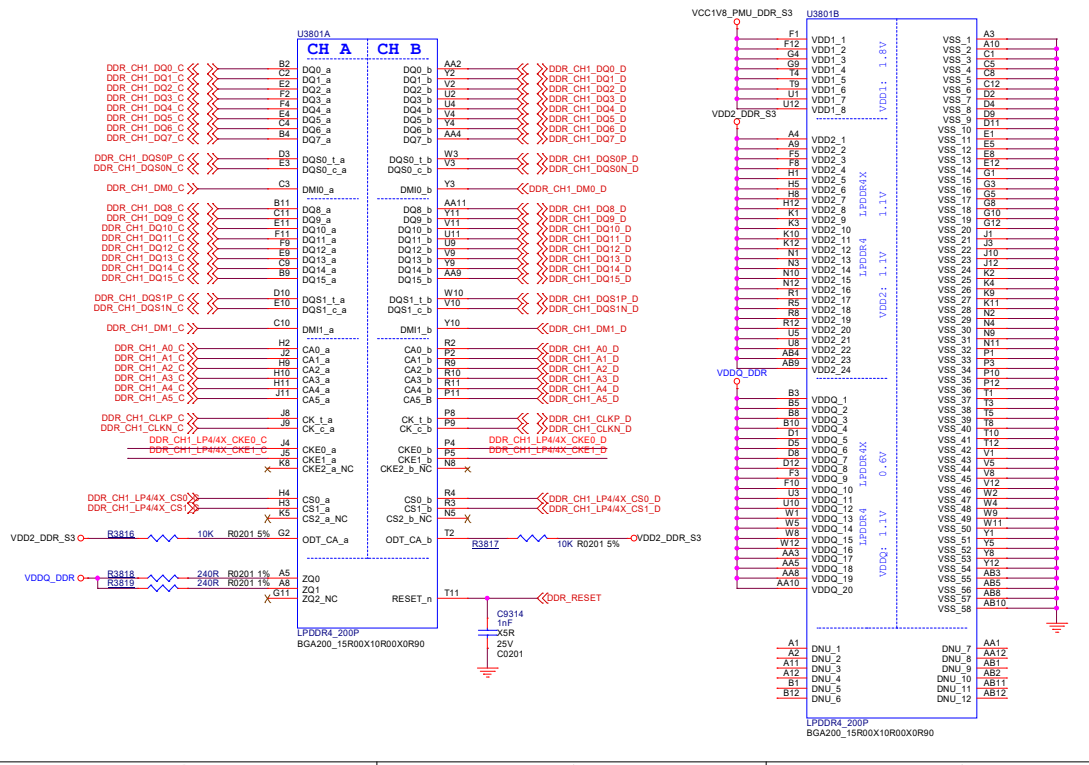
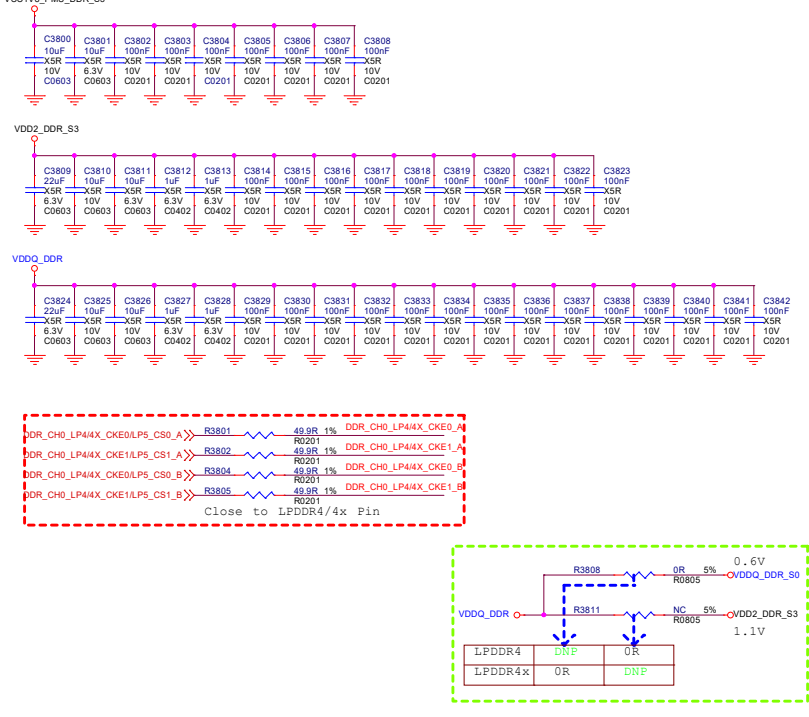
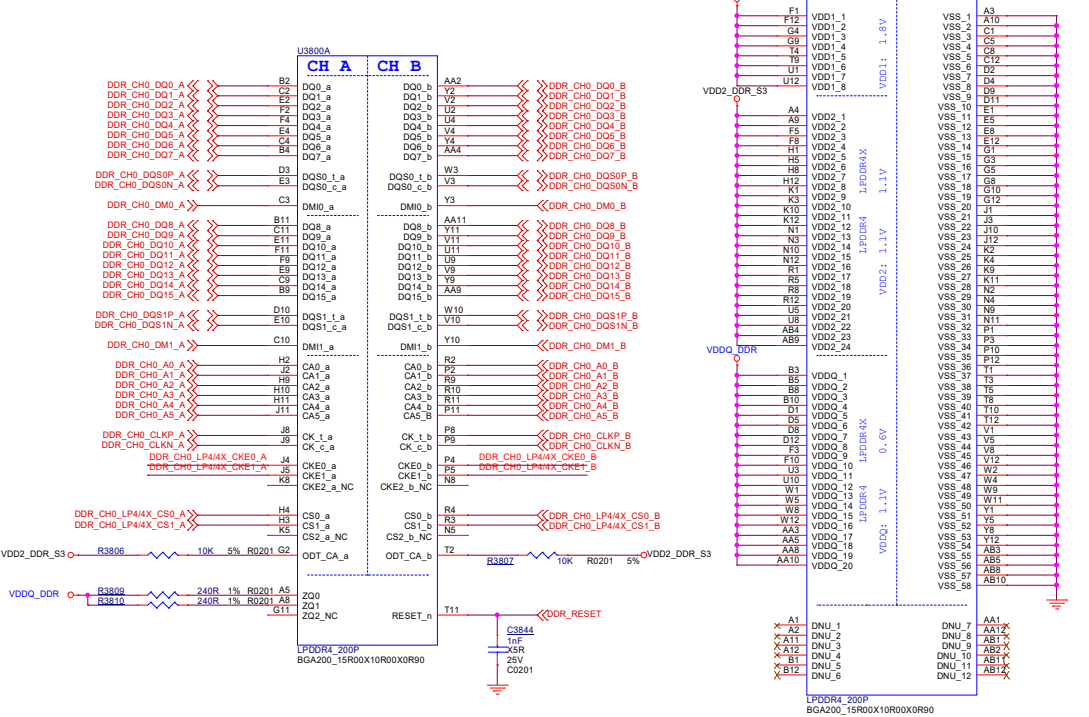
- 01.Cover
- 02.Content
- 03.Block Digram
- 04.DRAM-LPDDR4X\_200P\_1X32bit
- 05.CONNECT
- 06.PCIE-PCIE2.0\_Slot-Ekey
- 07.PCIE-PCIE3.0\_Slot-Mkey
- 08.VI-HDMI2.0 RX
- 09.USB2HUB
- 10.RK3588\_Power/GND
- 11.RK3588\_OSC/PLL/PMUIO
- 12.RK3588\_DDR Controler
- 13.RK3588\_Flash/SD Controller
- 14.RK3588\_USB30/USB20 Ctrl
- 15.RK3588\_SARADC/1.8V\_Only GPIO
- 16.RK3588\_MIPI Interface
- 17.RK3588\_HDMI/eDP Interface
- 18.RK3588\_PCIE30/PCIE20/SATA30
- 19.RK3588\_1.8V/ 3.3V GPIO
- 20.Power\_DC IN
- 21.Audio\_Codec-ES8316
- 22.Power-PMIC\_RK806-1
- 23.Power\_Ext\_Discrete
- 24.PCIE\_TO RJ45 RTL8125B
- 25.Flash-eMMC Flash
- 26.Flash-TF Card
- 27.USB20x2 Double Port
- 28.USB30x2 Double Port
- 29.Type-C Port
- 30.VI-Camera\_MIPI-CSI
- 31.VO-HDMI2.1 TX
- 32.VO-LCM\_MIPI



Size	Title: ROCK 5B	REV
A4	Page Name: Content	1.432
Date: Friday, February 17, 2023	Sheet	2 of 32

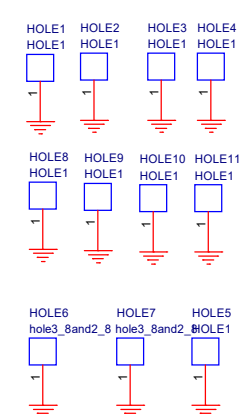
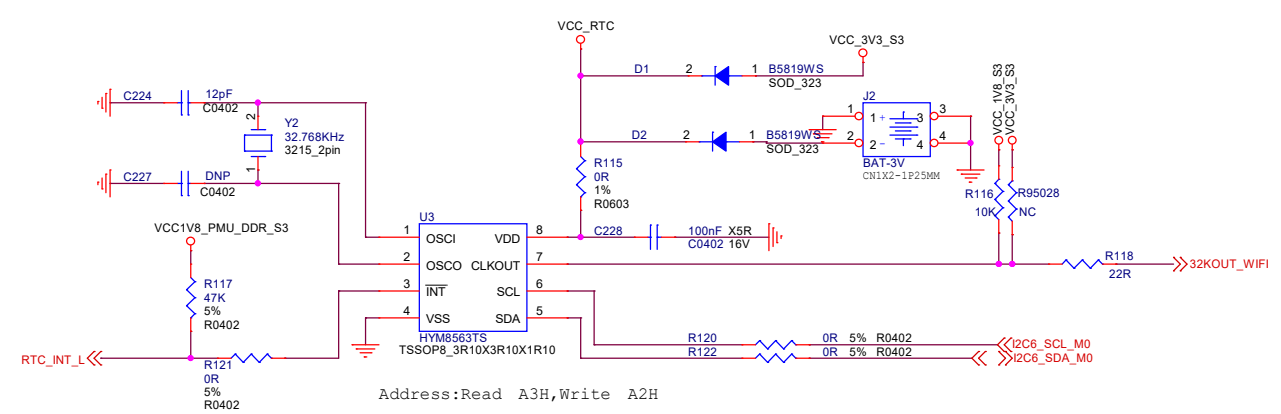
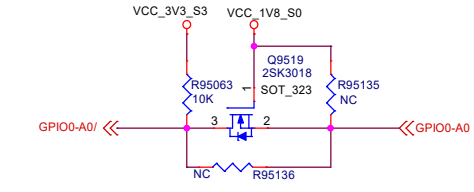
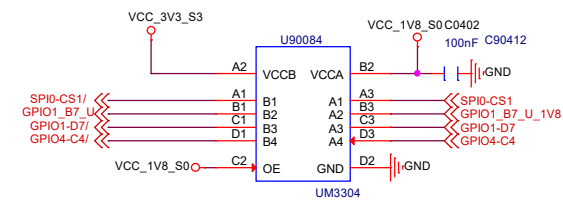
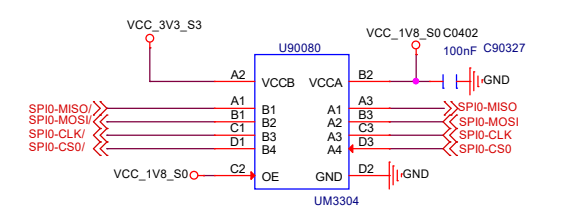
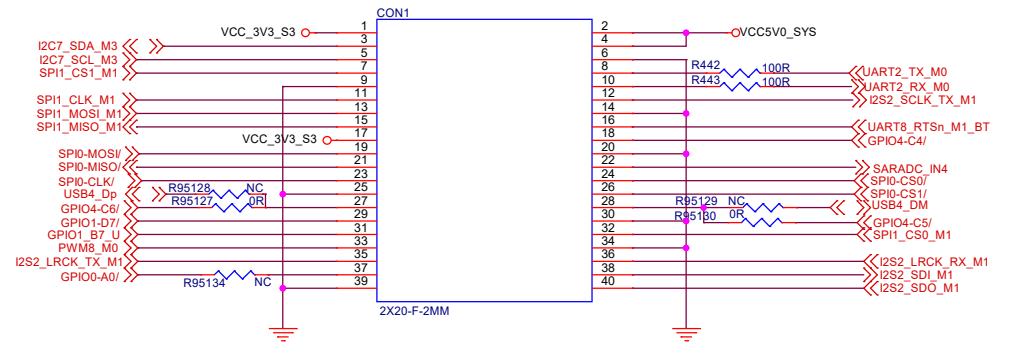


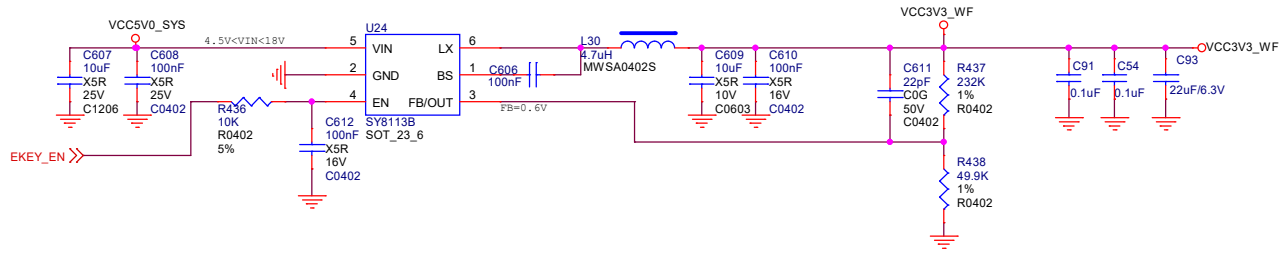
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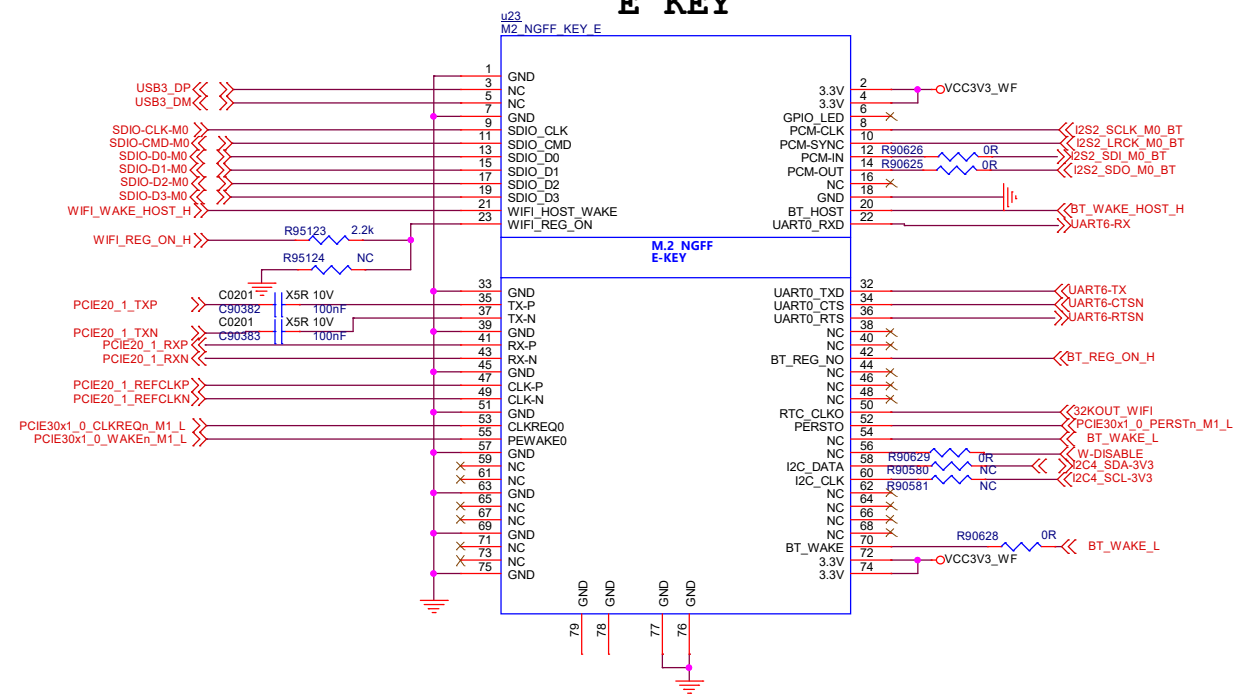
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Date: Fri, Feb 17, 2023		Sheet		4 of 32

# CONNECT

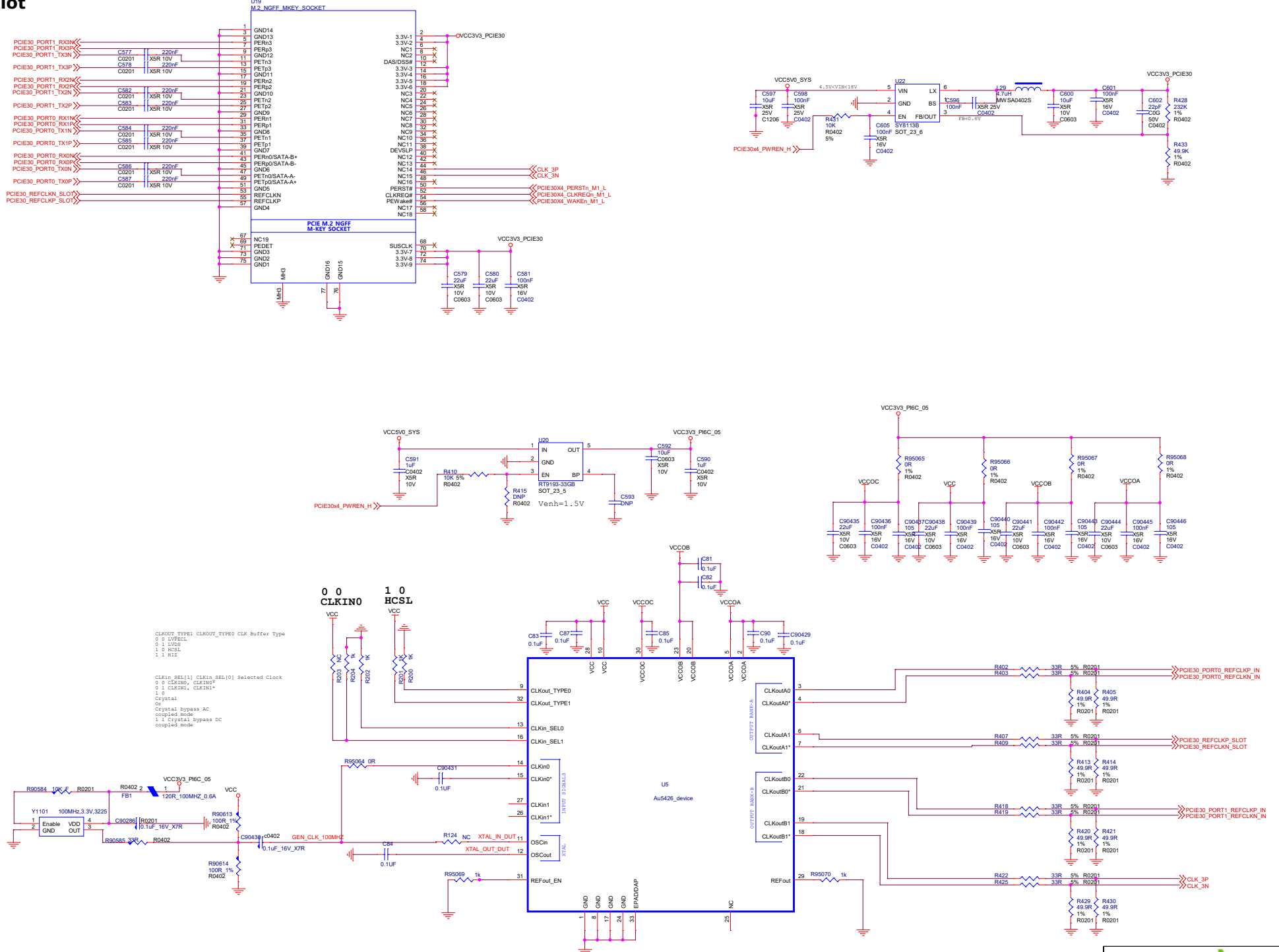




### E KEY



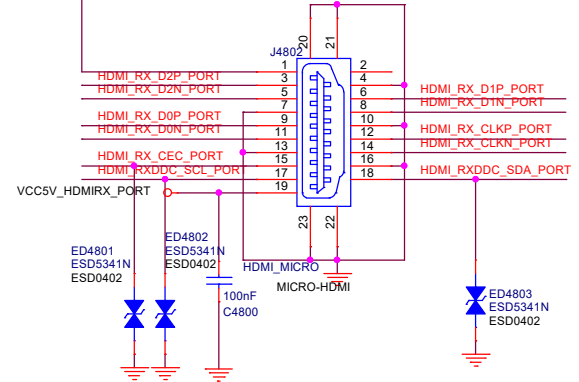
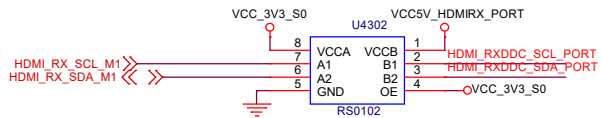
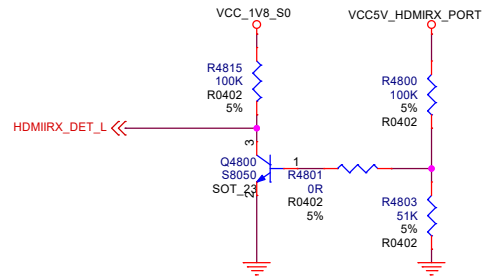
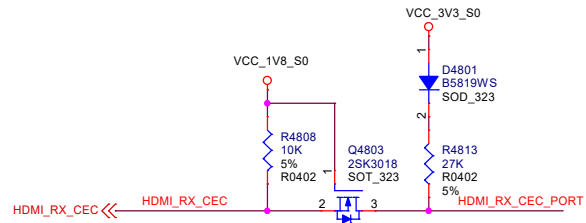
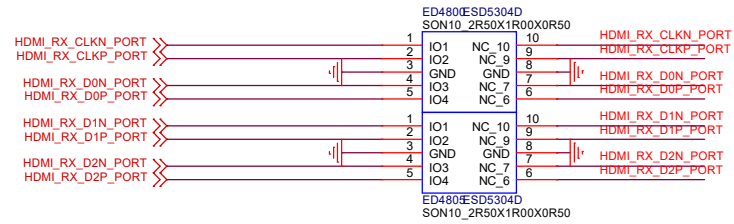
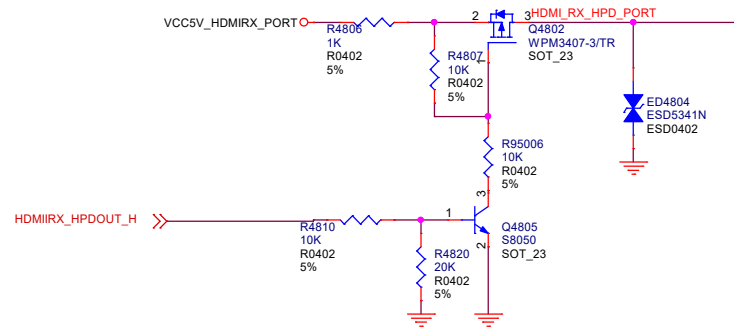
# PCIe3.0 x 4 Slot



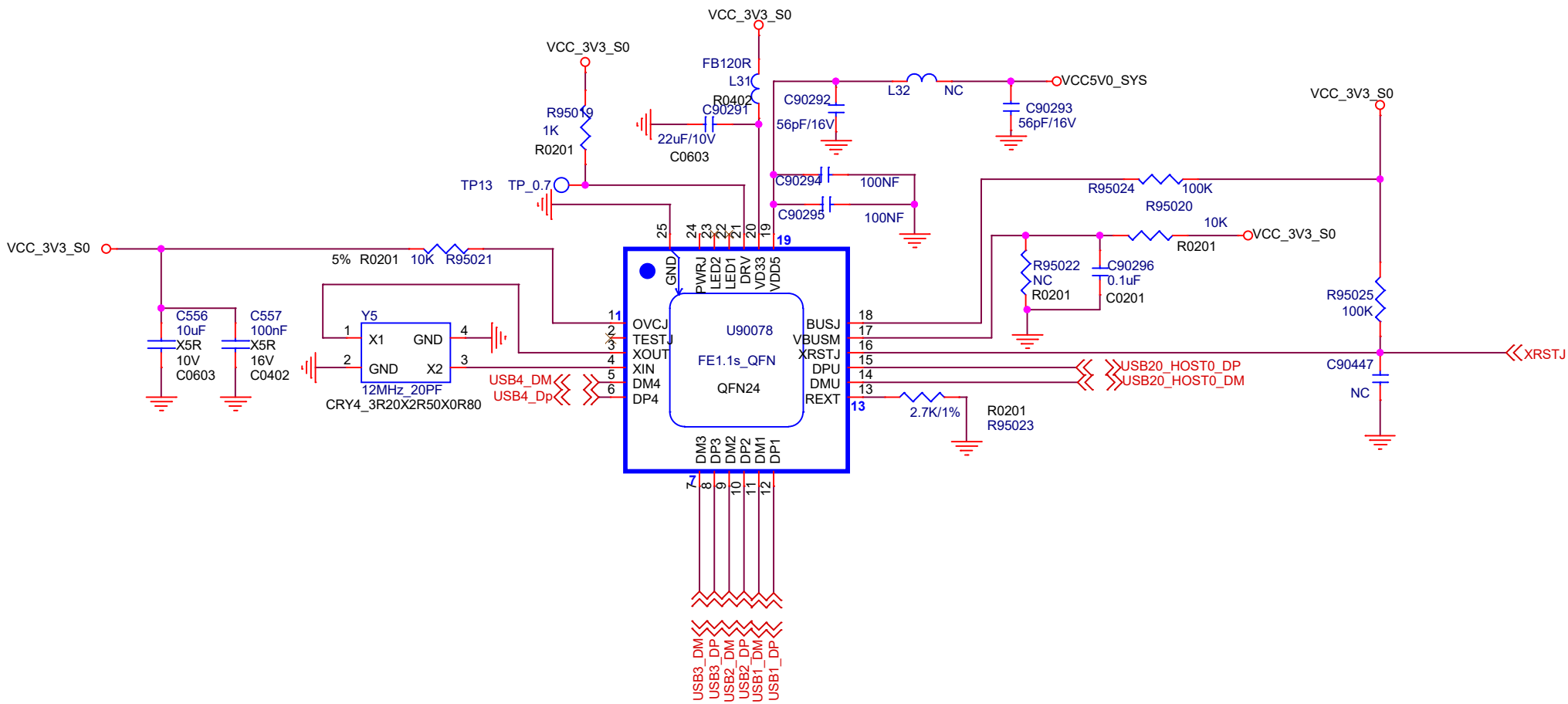
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0 0 LVDS  
0 1 LVDS  
1 0 HCSL  
1 1 H12

CLKin\_SEL[1] CLKin\_SEL[0] Selected Clock  
0 0 CLKIn0\_CLKIn0\*  
0 1 CLKIn1\_CLKIn1\*  
1 0 Crystal  
0r Crystal bypass AC coupled mode  
1 1 Crystal bypass DC coupled mode

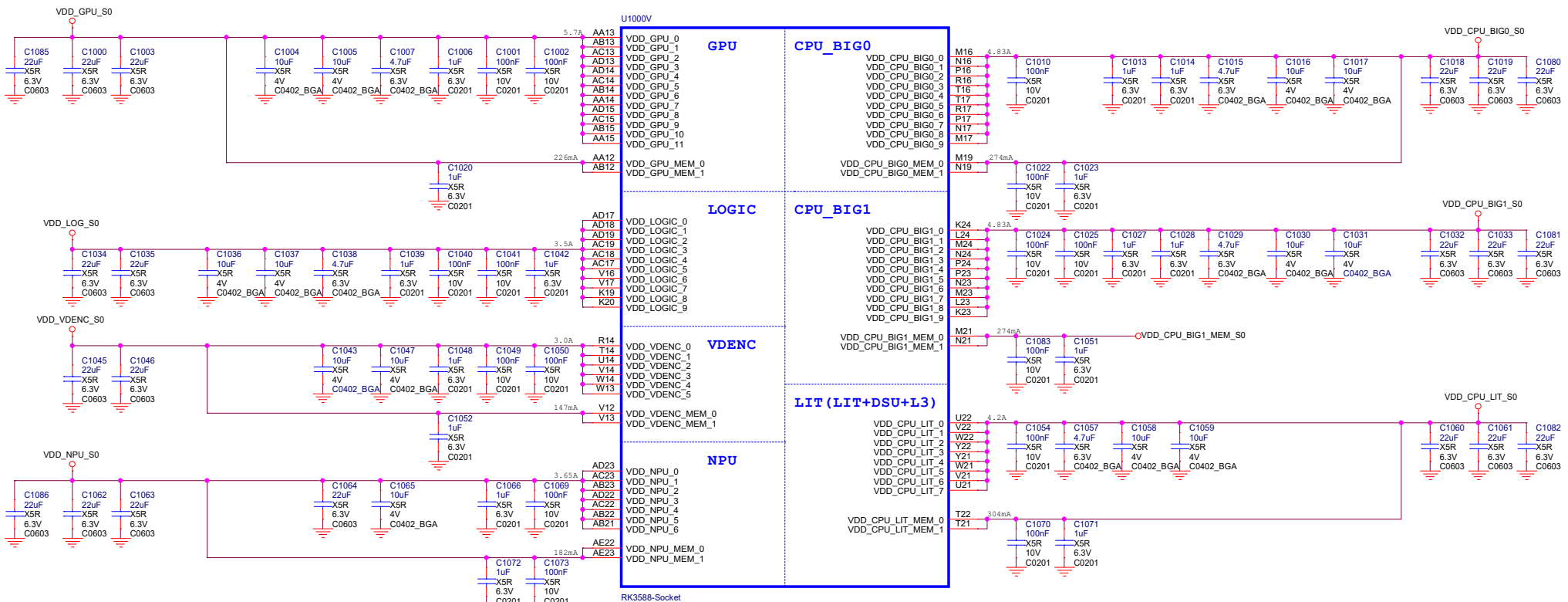
# HDMI2.0 RX







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A4	Page Name: USB2HUB	1.432
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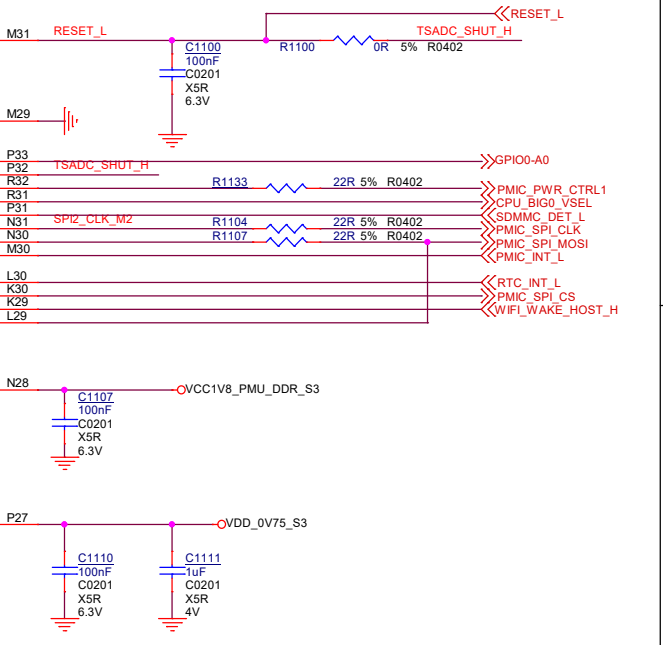
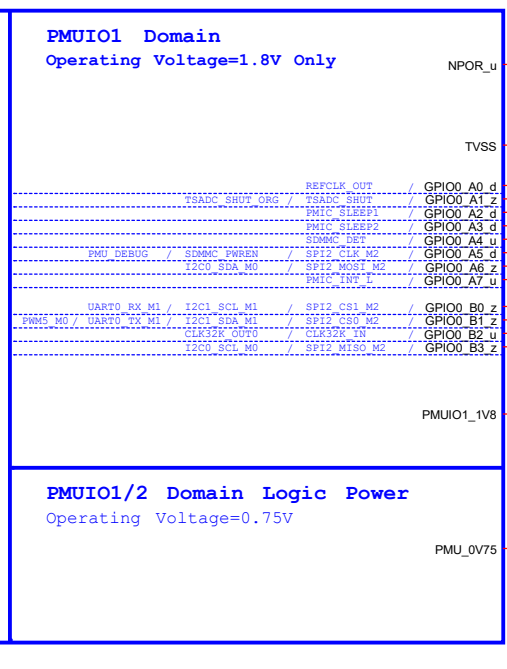
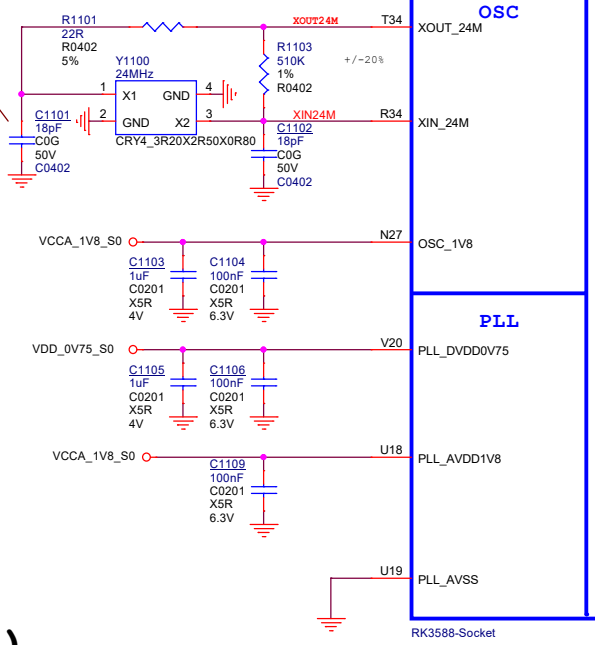


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H31	AVSS_2	AVSS_53	AH15	L6	VSS_108	VSS_161	R20	A11	VSS_2	VSS_55	F16	W6	VSS_214	VSS_267	AB19
J27	AVSS_3	AVSS_54	AH21	L9	VSS_109	VSS_162	R21	A14	VSS_3	VSS_56	F19	W7	VSS_215	VSS_268	AB20
J28	AVSS_4	AVSS_55	AH22	L19	VSS_110	VSS_163	R22	A34	VSS_4	VSS_57	F20	W9	VSS_216	VSS_269	AB21
J29	AVSS_5	AVSS_56	AH23	L20	VSS_111	VSS_164	R23	B6	VSS_5	VSS_58	F21	W10	VSS_217	VSS_270	AB22
J32	AVSS_6	AVSS_57	AJ3	L21	VSS_112	VSS_165	R24	B19	VSS_6	VSS_59	F22	W11	VSS_218	VSS_271	AB23
K26	AVSS_7	AVSS_58	AJ7	L22	VSS_113	VSS_166	R25	B24	VSS_7	VSS_60	F23	W12	VSS_219	VSS_272	AC3
K31	AVSS_8	AVSS_59	AJ8	L25	VSS_114	VSS_167	R26	B27	VSS_8	VSS_61	F31	W15	VSS_220	VSS_273	AC4
K32	AVSS_9	AVSS_60	AJ9	M3	VSS_115	VSS_168	R28	B33	VSS_9	VSS_62	G6	W16	VSS_221	VSS_274	AC11
L31	AVSS_10	AVSS_61	AJ11	M6	VSS_116	VSS_169	R33	C1	VSS_10	VSS_63	G10	W18	VSS_222	VSS_275	AC12
M26	AVSS_11	AVSS_62	AJ15	M14	VSS_117	VSS_170	T6	C5	VSS_11	VSS_64	G15	W19	VSS_223	VSS_276	AC16
M32	AVSS_12	AVSS_63	AJ16	M15	VSS_118	VSS_171	T9	C6	VSS_12	VSS_65	G19	W20	VSS_224	VSS_277	AC20
N32	AVSS_13	AVSS_64	AJ18	M18	VSS_119	VSS_172	T13	C7	VSS_13	VSS_66	G21	W23	VSS_225	VSS_278	AC21
N32	AVSS_14	AVSS_65	AJ21	M20	VSS_120	VSS_173	T20	C8	VSS_14	VSS_67	G19	W23	VSS_226	VSS_279	AC22
AA10	AVSS_15	AVSS_66	AJ22	M22	VSS_121	VSS_174	T15	C9	VSS_15	VSS_68	G25	W27	VSS_227	VSS_280	AC27
AB6	AVSS_16	AVSS_67	AJ23	M25	VSS_122	VSS_175	T18	C10	VSS_16	VSS_69	G32	Y3	VSS_228	VSS_281	AD11
AB7	AVSS_17	AVSS_68	AK4	N3	VSS_123	VSS_176	T19	C11	VSS_17	VSS_70	H3	Y5	VSS_229	VSS_282	AD12
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AE6	AVSS_26	AVSS_77	AL3	N25	VSS_132	VSS_185	U12	C21	VSS_26	VSS_79	J3	Y15	VSS_238	VSS_291	AE12
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AF4	AVSS_28	AVSS_79	AL5	N29	VSS_134	VSS_187	U13	C23	VSS_28	VSS_81	J6	Y17	VSS_240	VSS_293	AE14
AF4	AVSS_29	AVSS_80	AL11	P1	VSS_135	VSS_188	U16	C26	VSS_29	VSS_82	J6	Y18	VSS_241	VSS_294	AE15
AF7	AVSS_30	AVSS_81	AL13	P3	VSS_136	VSS_189	U17	C28	VSS_30	VSS_83	J10	Y19	VSS_242	VSS_295	AE16
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AG10	AVSS_42	AVSS_93	AN7	P25	VSS_148	VSS_201	V9	E25	VSS_42	VSS_95	J23	AA20	VSS_254	VSS_307	AF29
AG12	AVSS_43	AVSS_94	AN12	P26	VSS_149	VSS_202	V11	E22	VSS_43	VSS_96	J24	AA21	VSS_255	VSS_308	AF30
AG15	AVSS_44	AVSS_95	AN23	P34	VSS_150	VSS_203	V15	E23	VSS_44	VSS_97	J25	AA22	VSS_256	VSS_309	AF31
AG18	AVSS_45	AVSS_96	AN31	R3	VSS_151	VSS_204	V18	E32	VSS_45	VSS_98	K3	AA23	VSS_257	VSS_310	AF32
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AG22	AVSS_47	AVSS_98	AP17	R8	VSS_153	VSS_206	V19	F3	VSS_47	VSS_100	K6	AA31	VSS_259	VSS_312	AG30
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AH8	AVSS_49	AVSS_100	AP34	R11	VSS_155	VSS_208	V25	F10	VSS_49	VSS_102	K18	AB5	VSS_261	VSS_314	AK29
AVSS_50	AVSS_51	AVSS_101		R13	VSS_156	VSS_209	V27	F11	VSS_50	VSS_103	K21	AB11	VSS_262	VSS_315	AL25
				R15	VSS_157	VSS_210	V30	F13	VSS_51	VSS_104	K22	AB16	VSS_263	VSS_316	AM30
				R18	VSS_158	VSS_211	W2	F14	VSS_52	VSS_105	K22	AB16	VSS_264	VSS_317	
					VSS_159	VSS_212			VSS_53	VSS_106	L1	AB17	VSS_265		

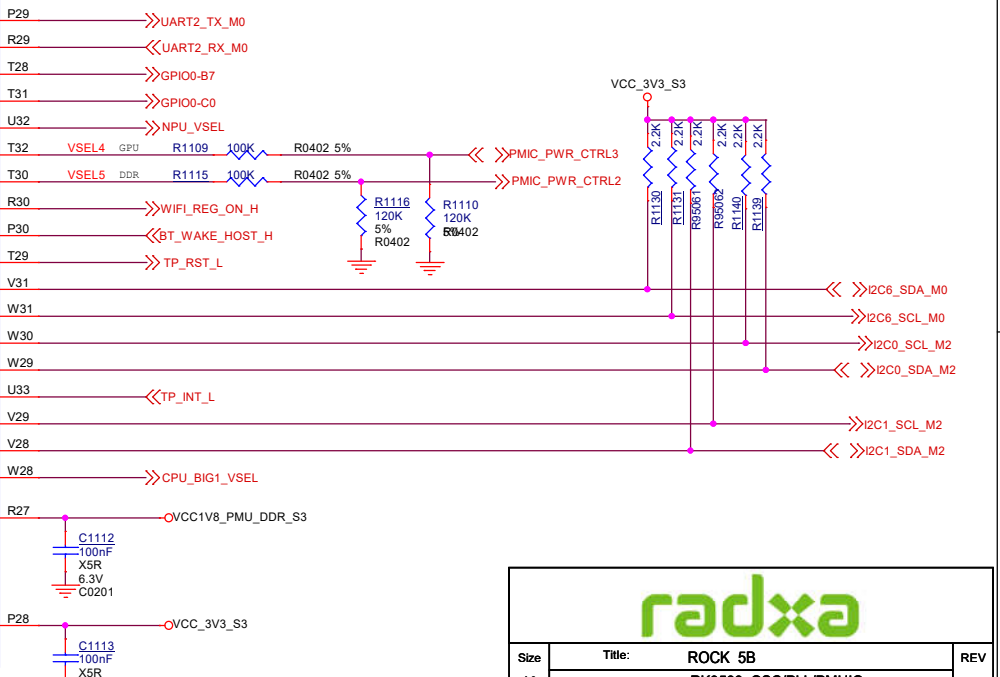
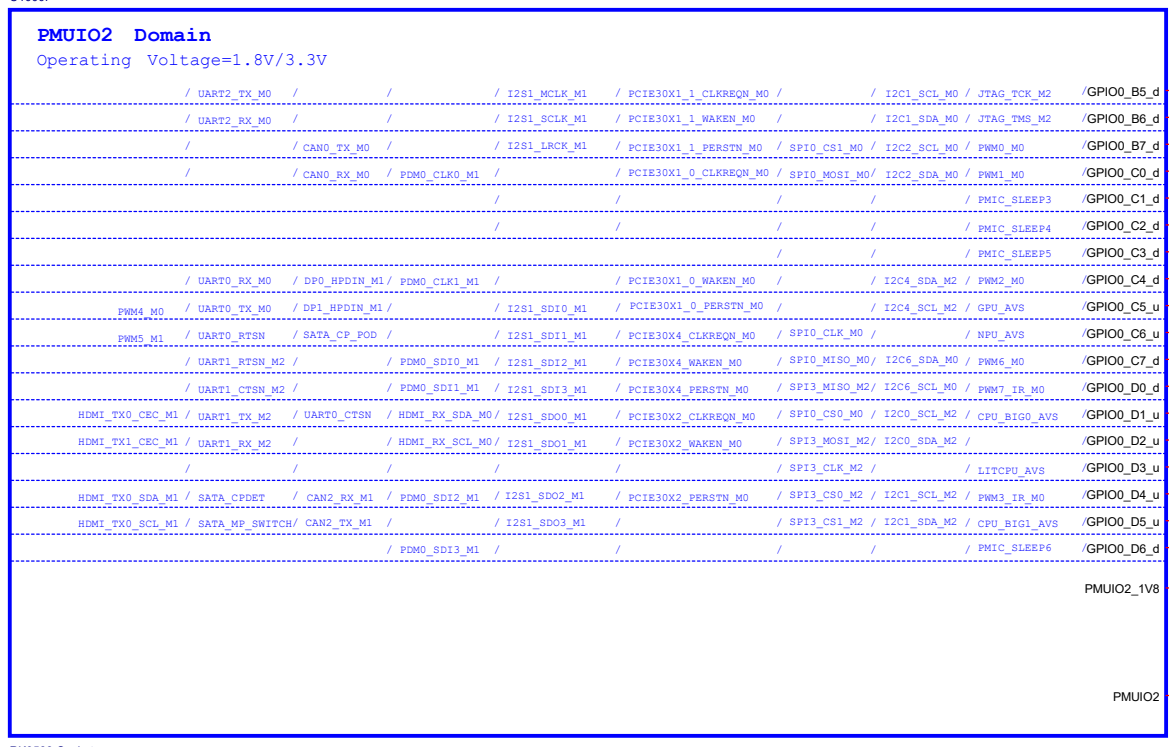
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**Custom Page Name:** RK3588\_Power/GND **1.432**  
**Date:** Friday, February 17, 2023 **Sheet** 10 **of** 32

# RK3588\_E (OSC/PLL/PMUIO1/2)

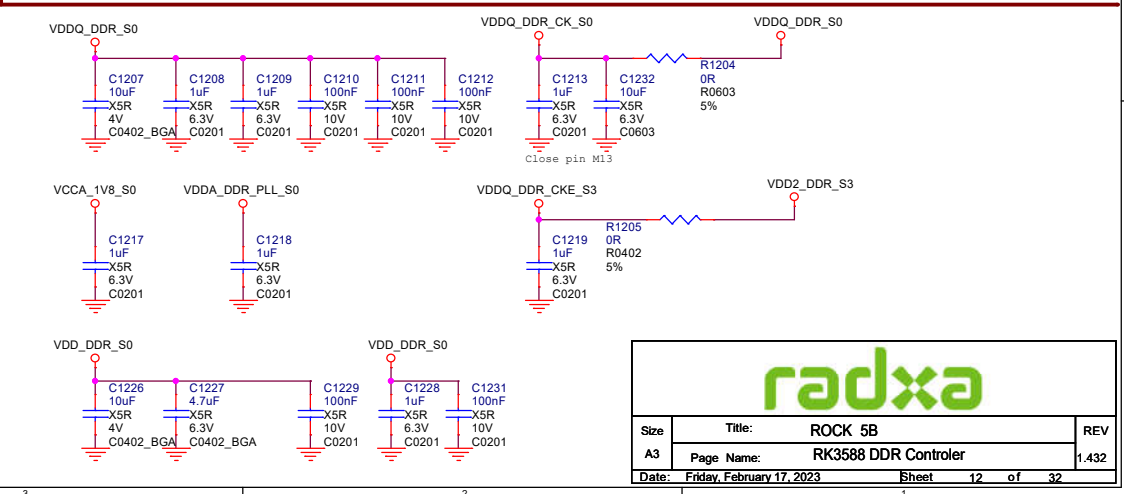
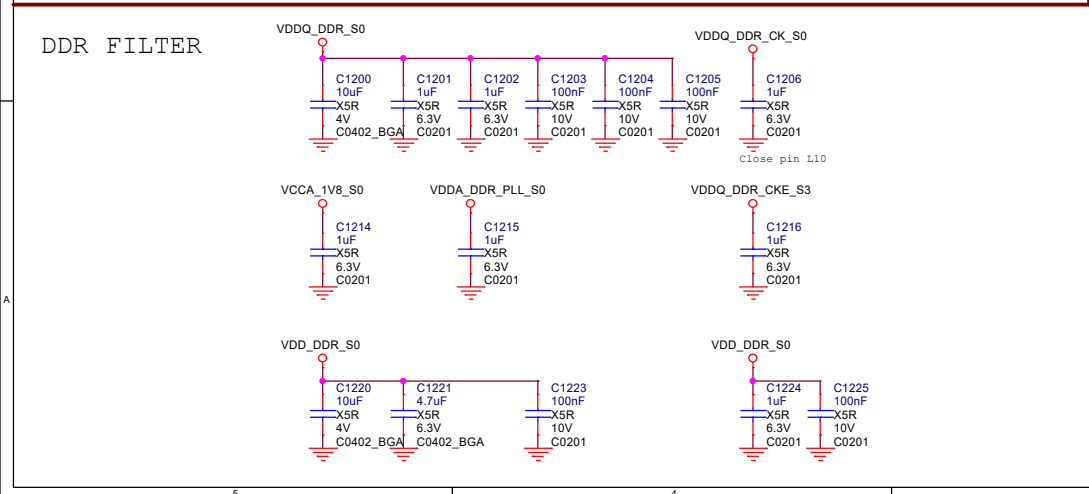
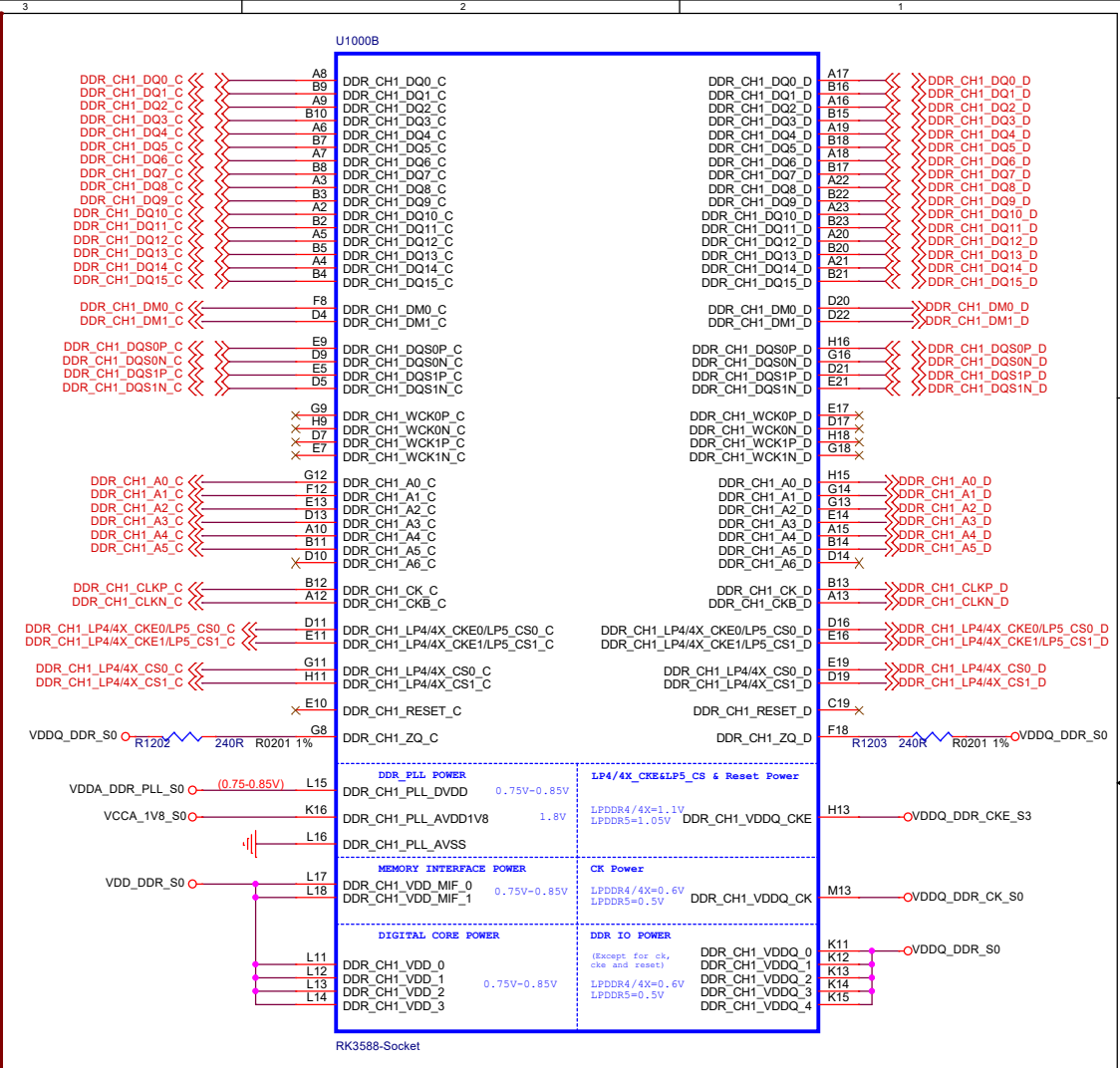
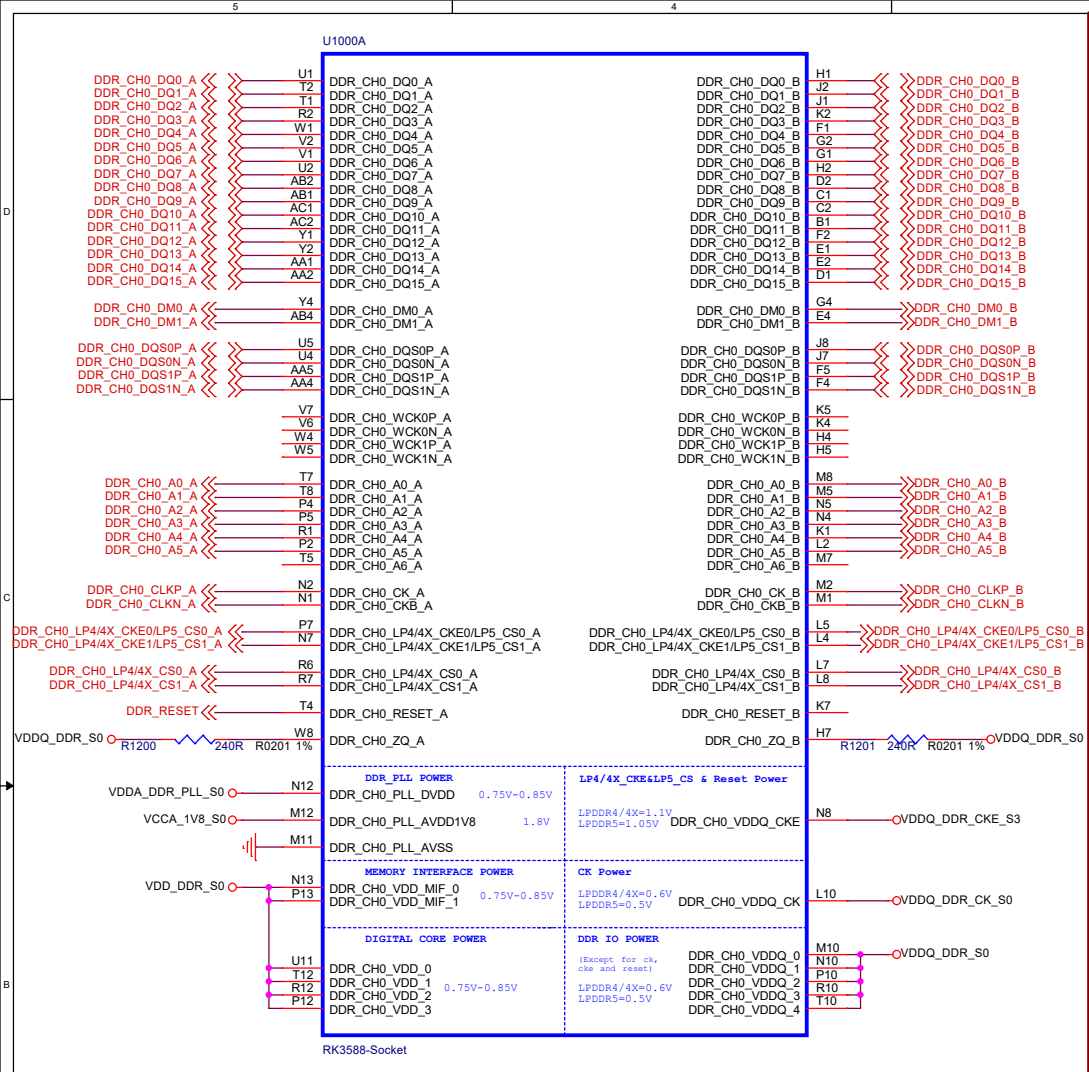
**Note:**  
 The CL is the load capacitance of the crystal that is recommended by the crystal vendors to obtain target clock frequency.  
 $CL = (CL1 + CL2) / (CL1 + CL2) + PCB \text{ strays}$   
 Total CL < 12pF



# RK3588\_F (PMUIO2)



Size	Title:	ROCK 5B	REV
A3	Page Name:	RK3588_OSC/PLL/PMUIO	1.432
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**radxa**

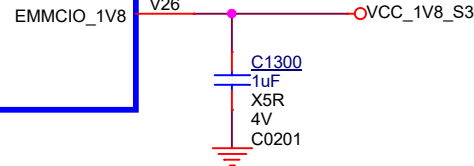
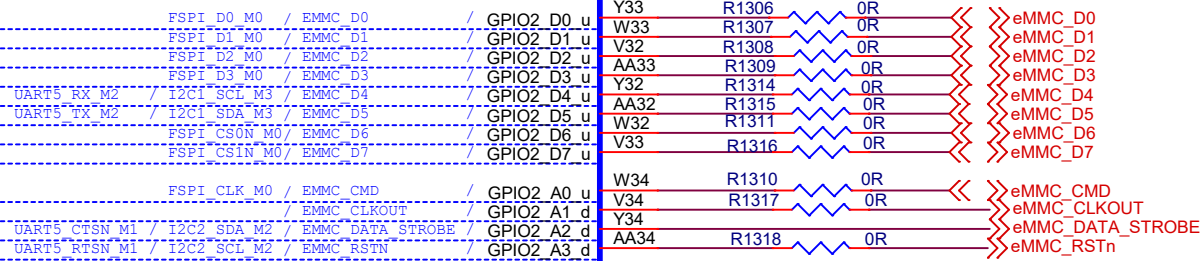
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A3	Page Name:	RK3588 DDR Controller	1.432
Date:		Friday, February 17, 2023	Sheet 12 of 32

# RK3588\_C (EMMCIO Domain)

U1000C

## EMMCIO Domain

Operating Voltage=1.8V



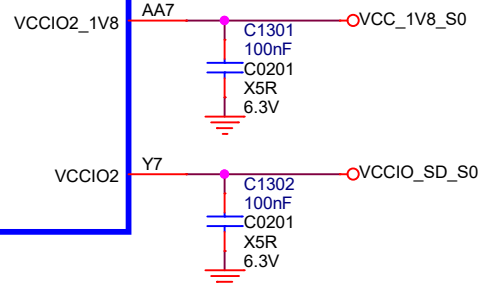
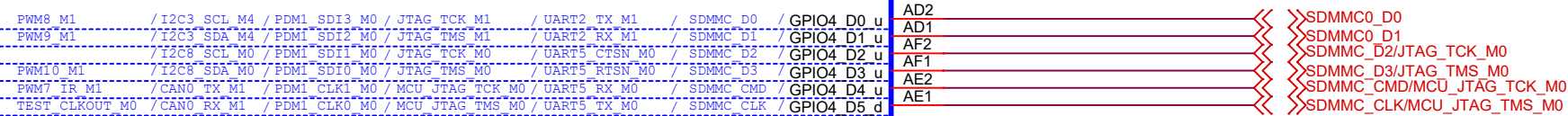
RK3588-Socket

# RK3588\_D (VCCIO2 Domain)

U1000D

## VCCIO2 Domain

Operating Voltage=1.8V/3.3V

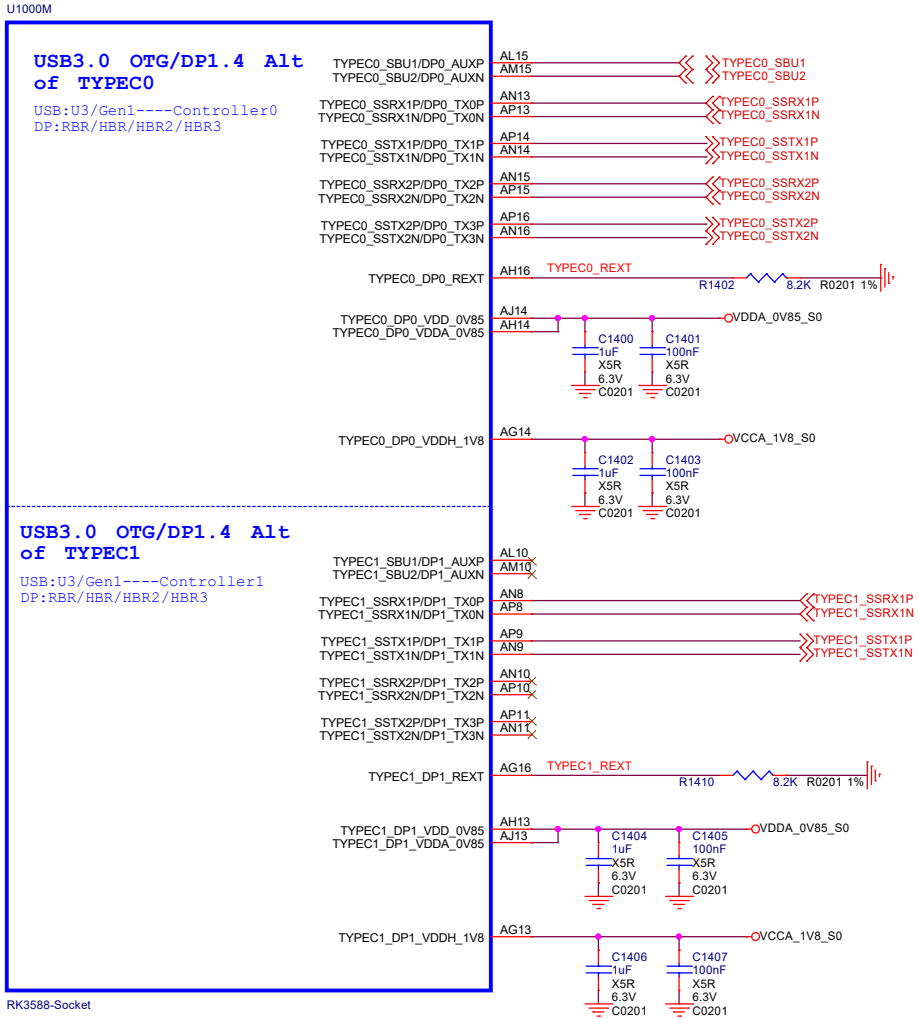


RK3588-Socket



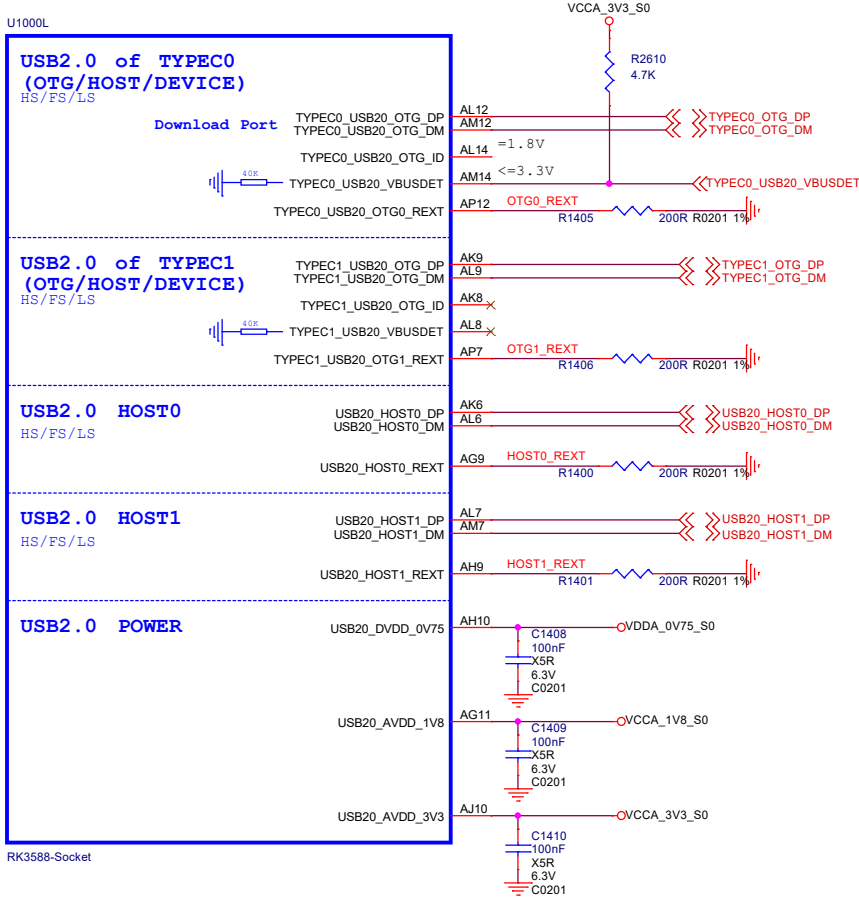
Size	Title: ROCK 5B	REV
A4	Page Name: RK3588_Flash/SD Controller	1.432
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# RK3588\_M (TYPE-C/DP)



RK3588-Socket

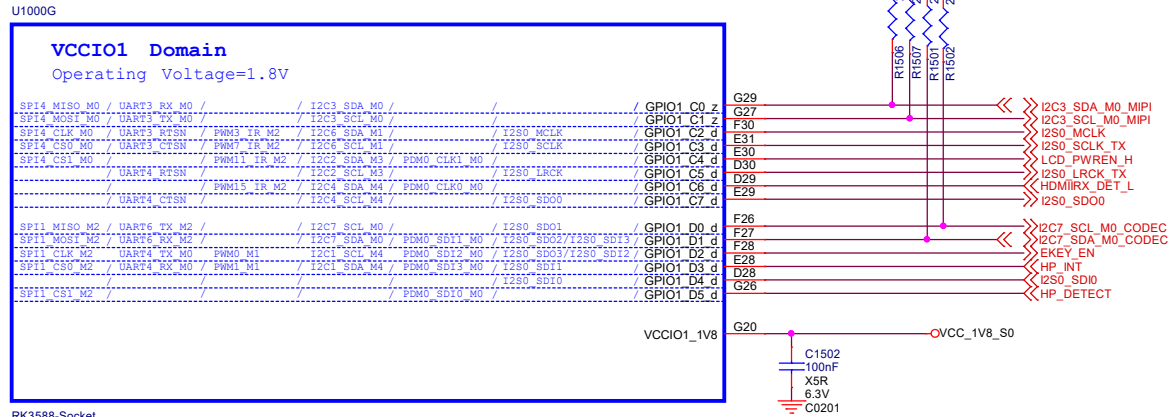
# RK3588\_L (USB2.0 HOST/OTG)



RK3588-Socket

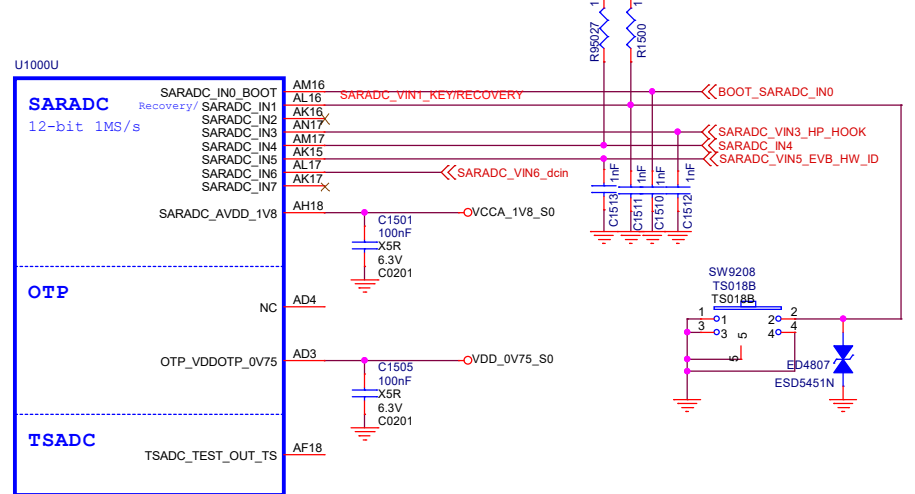


# RK3588\_G (VCCIO1 Domain)



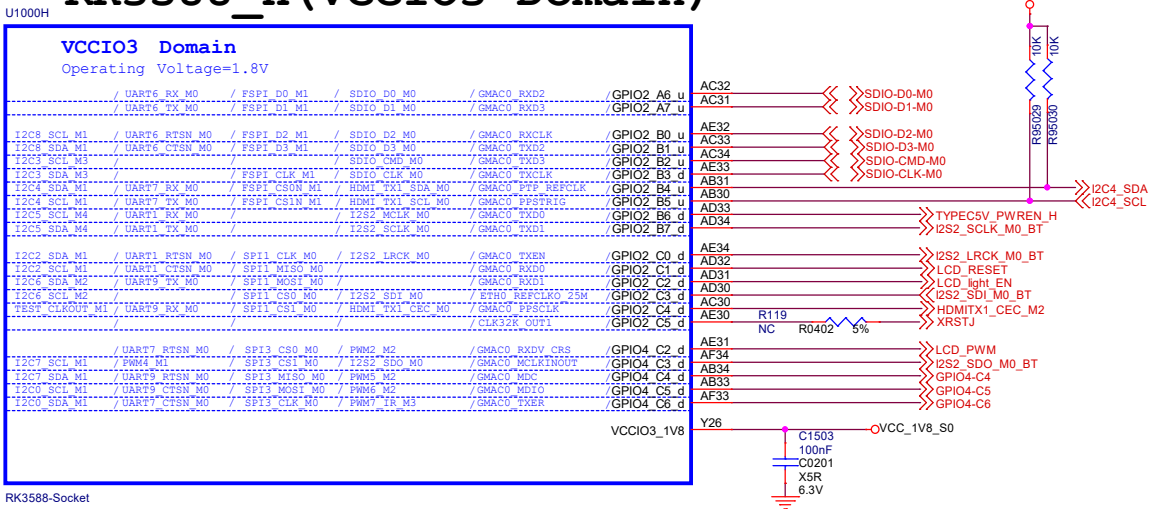
RK3588-Socket

# RK3588\_U (SARADC/OTP)



RK3588-Socket

# RK3588\_H (VCCIO3 Domain)



RK3588-Socket

## BOOT MODE CONFIG

TABLE 1

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

## BOARD ID CONFIG

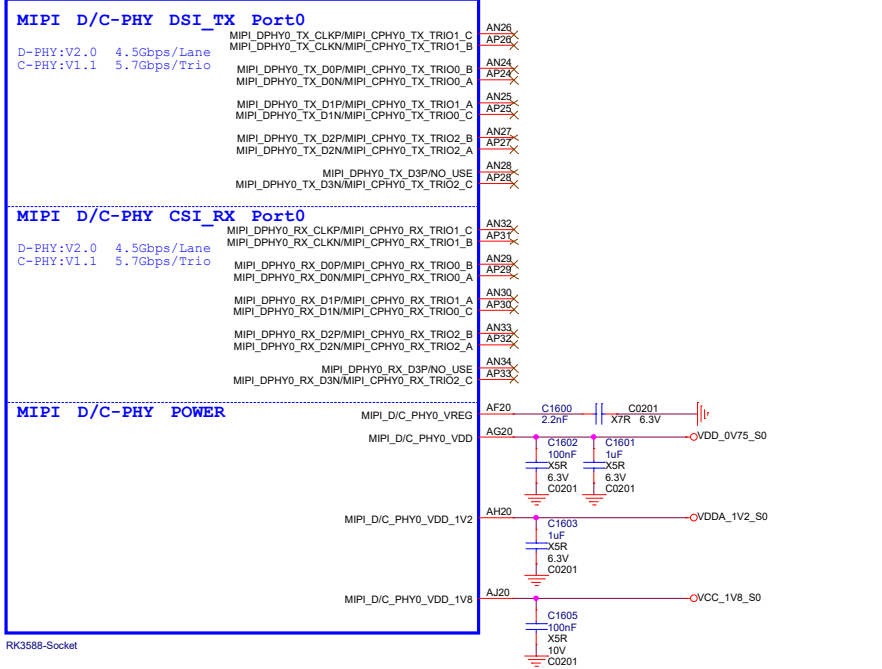
TABLE 2

Item	Rup	Rdown	ADC	VOL	VERSION
LEVEL1	DNP	100K	0	0V	A
LEVEL2	100K	20K	682	0.3V	B
LEVEL3	100K	51K	1365	0.6V	C
LEVEL4	100K	100K	2047	0.9V	D
LEVEL5	100K	200K	2730	1.2V	E
LEVEL6	100K	499K	3412	1.5V	F
LEVEL7	100K	DNP	4095	1.8V	H

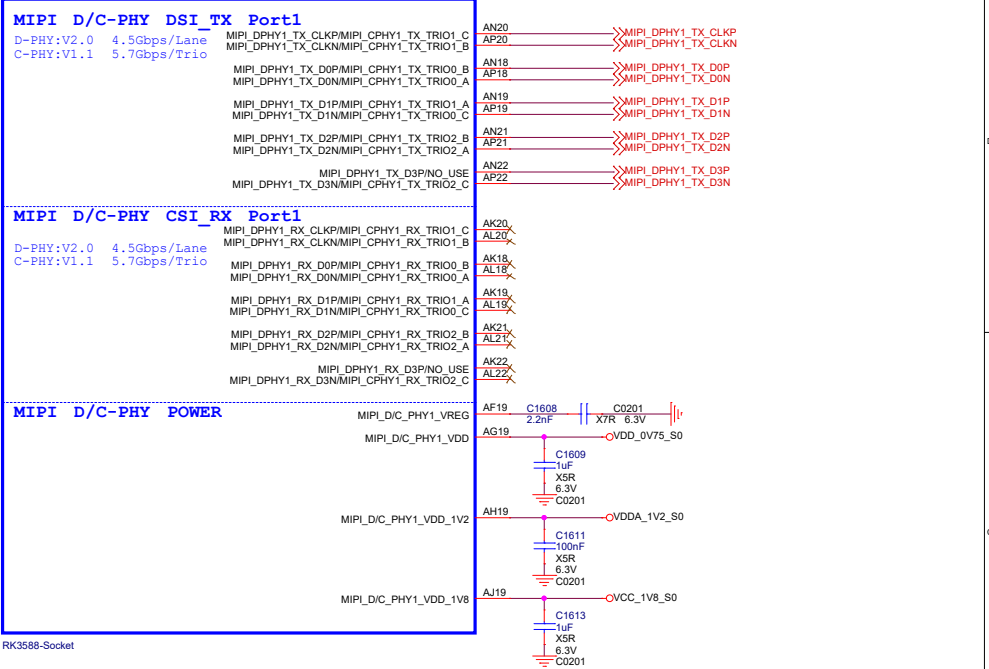


# RK3588\_Q/R (MIPI\_D/C\_PHY0/1)

U1000Q

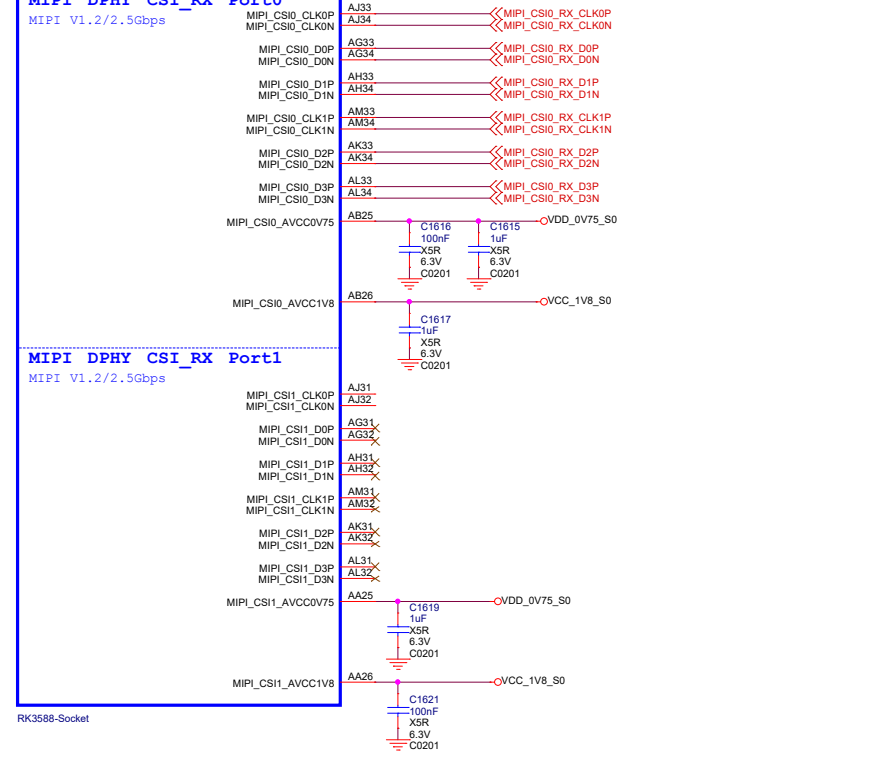


U1000R



# RK3588\_P (MIPI CSI\_RX\_PHY)

U1000P



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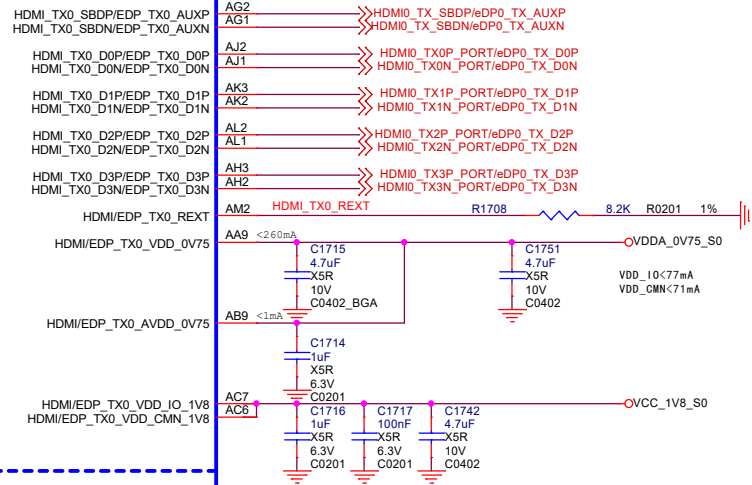


# RK3588\_S (HDMI2.1 TX)

U1000S

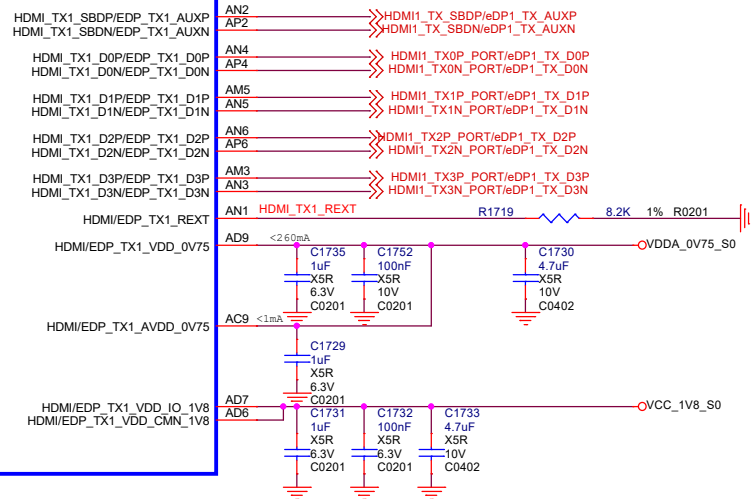
## HDMI TX/eDP MUX Port0

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



## HDMI TX/eDP MUX Port1

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



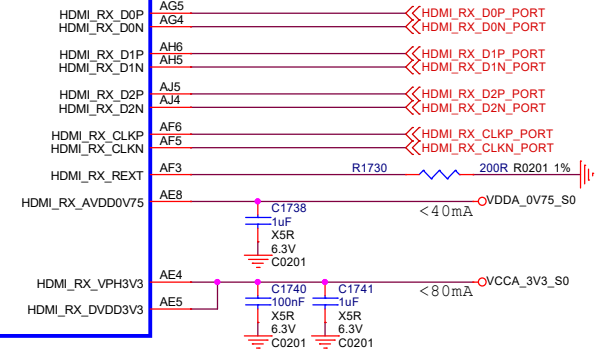
RK3588-Socket

# RK3588 T (HDMI20 RX)

J1000T

## HDMI RX

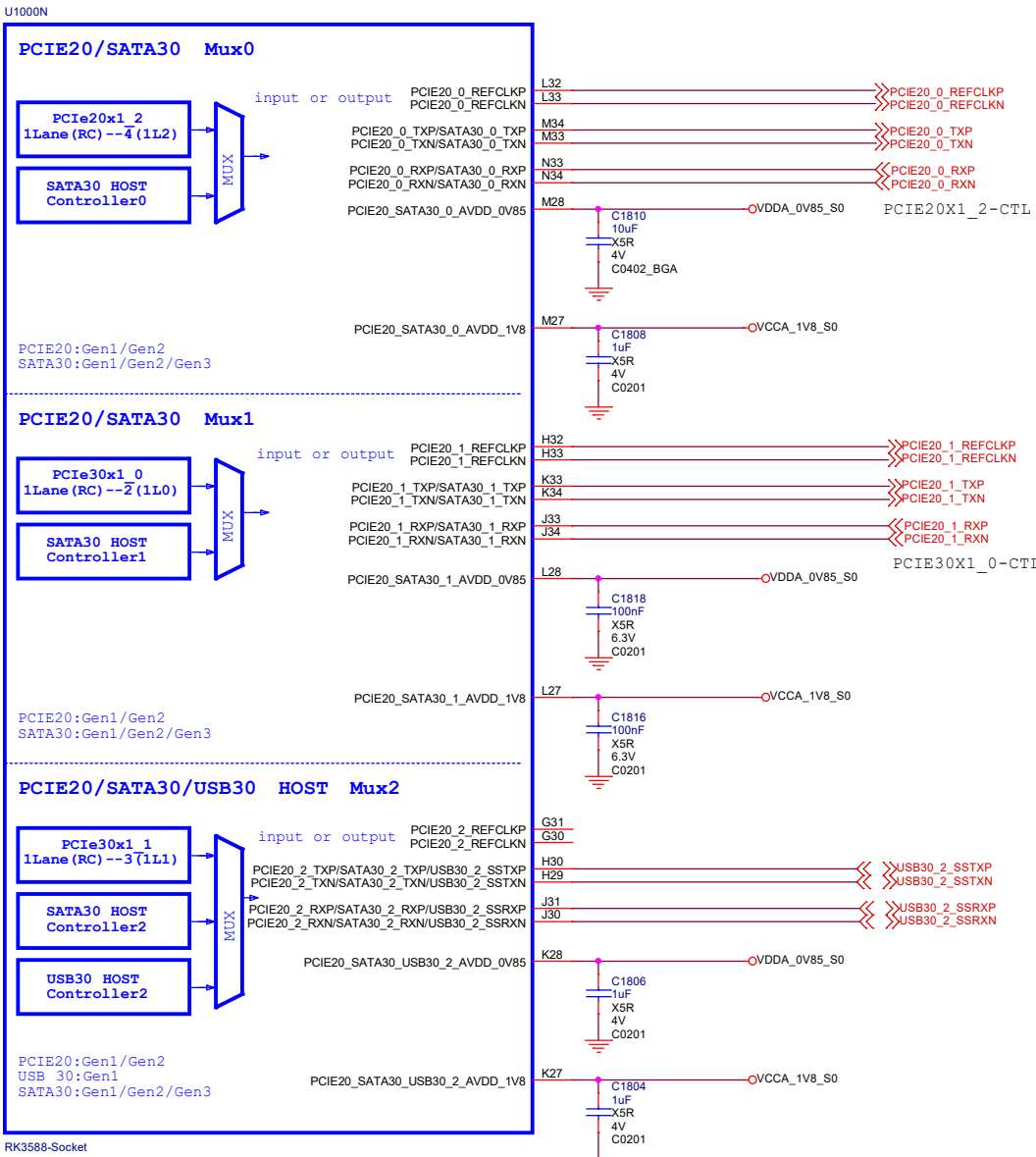
HDMI: V2.0



RK3588-Socket

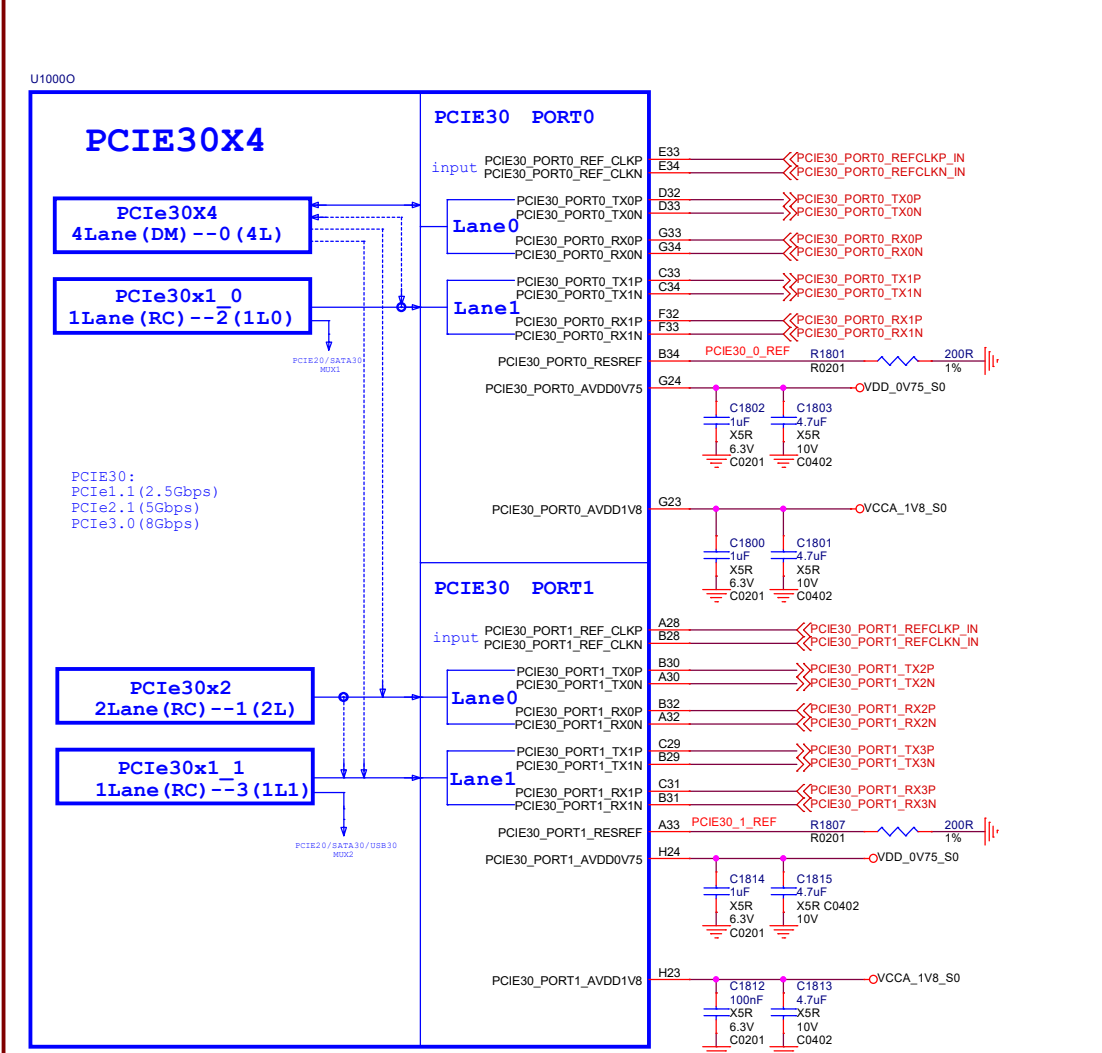


# RK3588\_N (PCIE20)



RK3588-Socket

# RK3588\_O (PCIE30)



RK3588-Socket

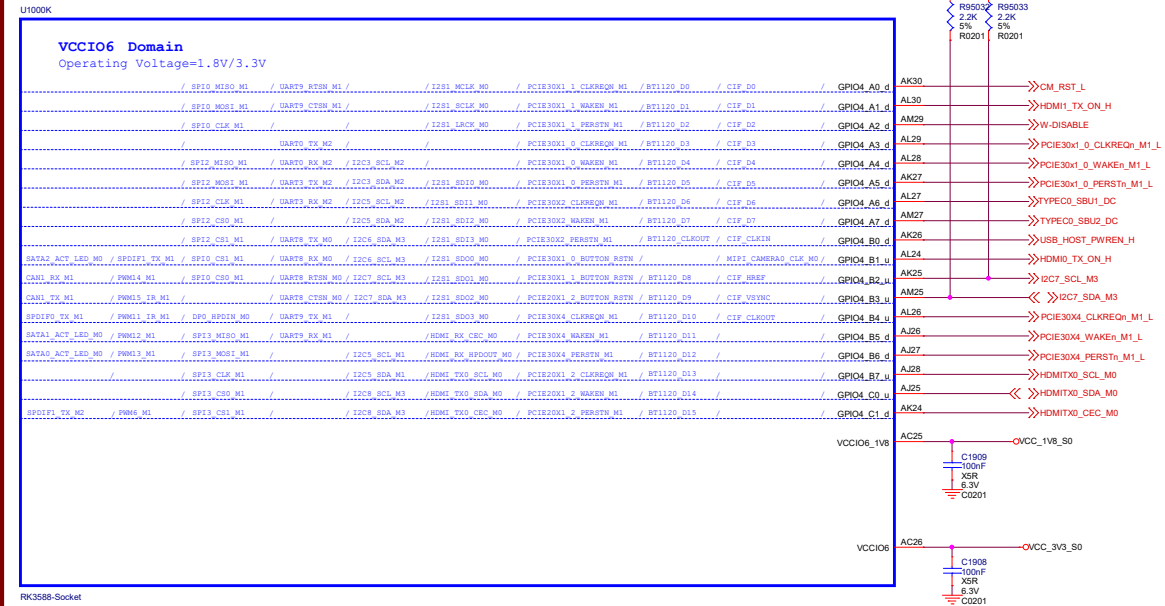


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A3	Page Name:	RK3588_PCIE30/PCIE20/SATA30	1.432
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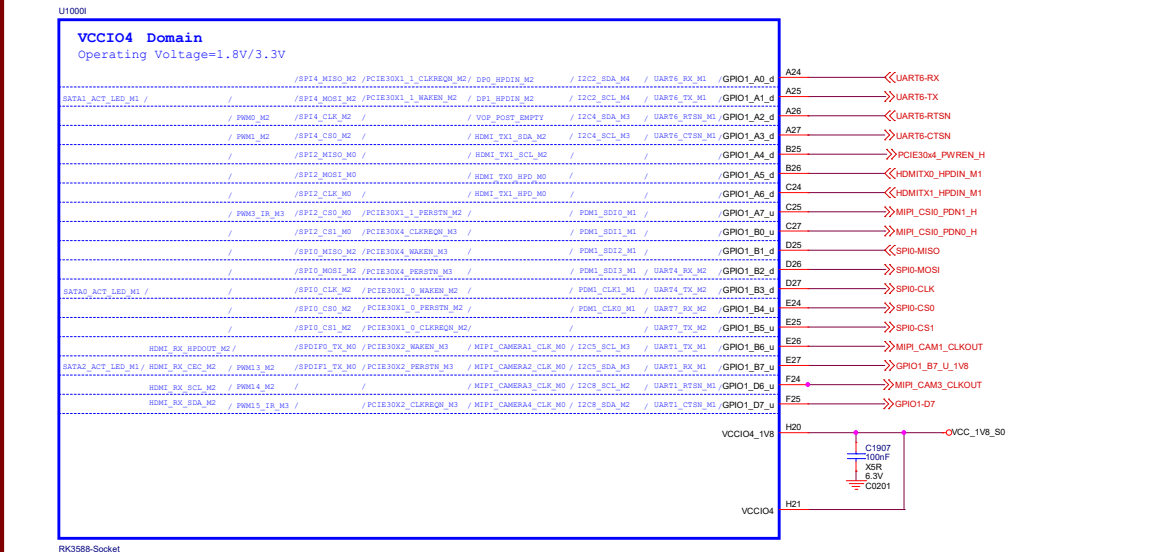
# RK3588\_J (VCCIO5 Domain)

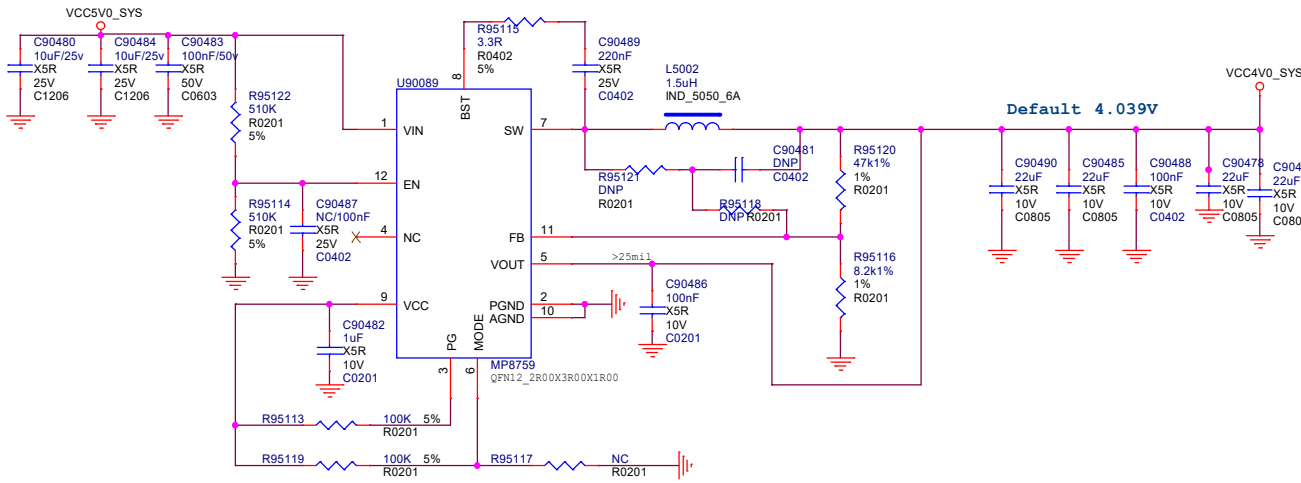


# RK3588\_K (VCCIO6 Domain)

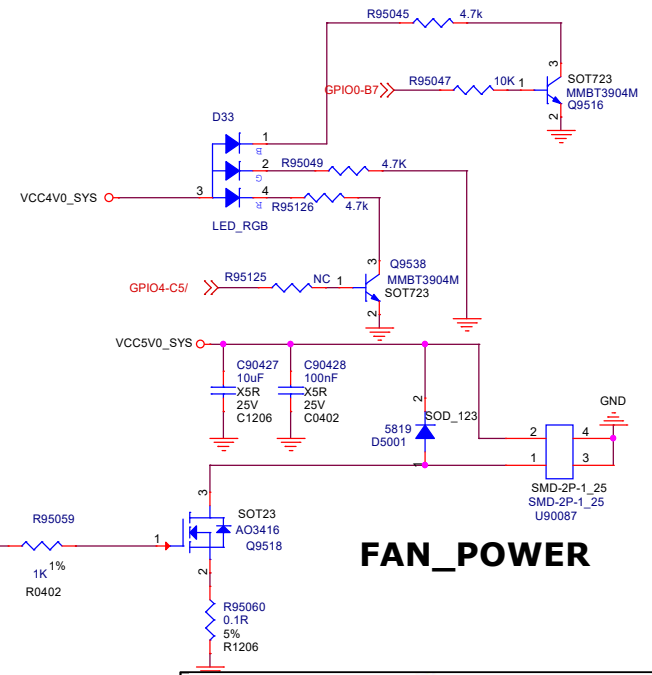
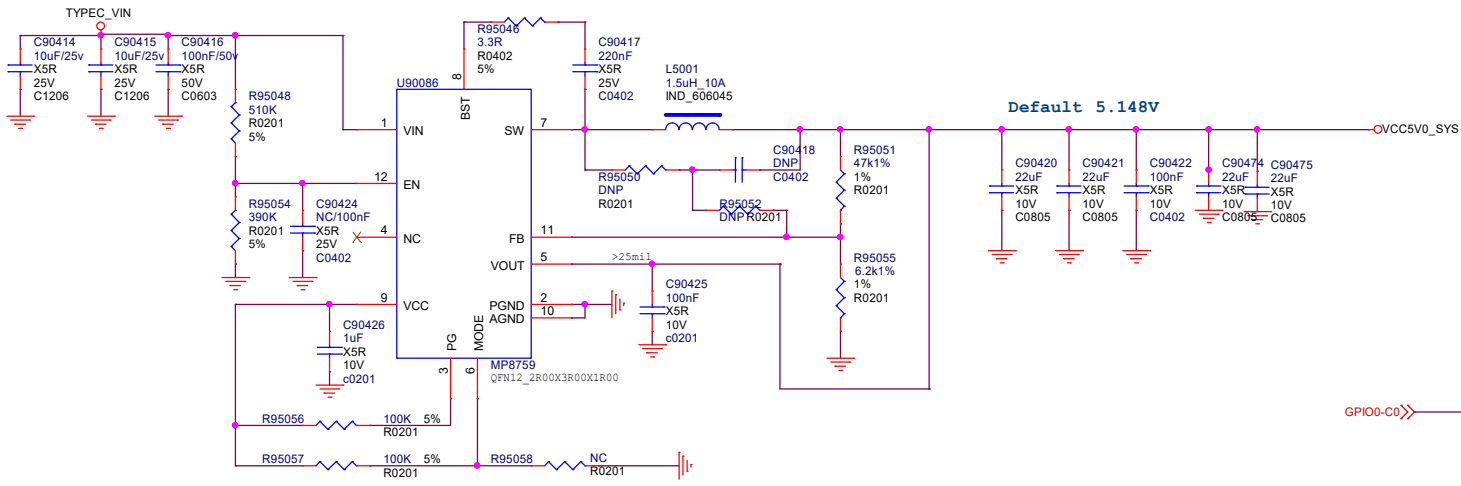
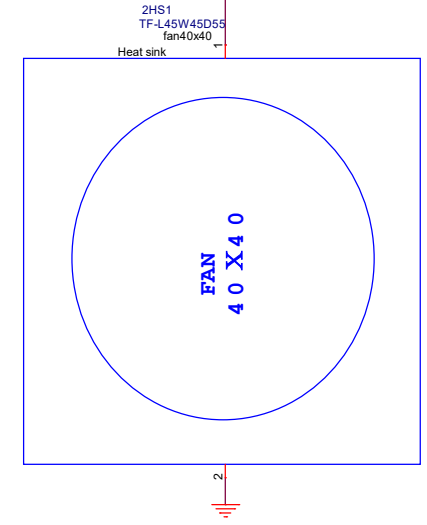


# RK3588\_I (VCCIO4 Domain)



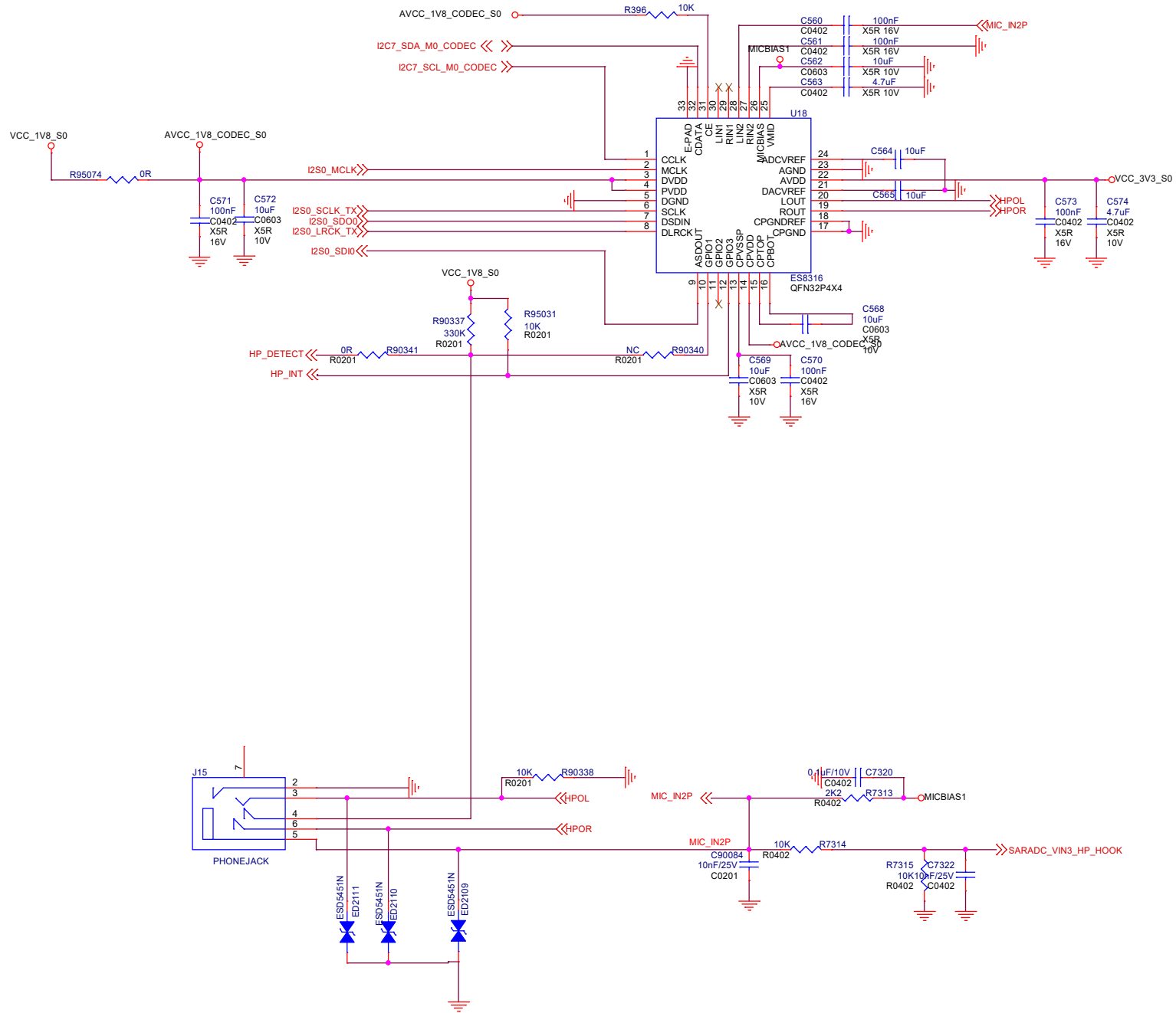


### Heat sink

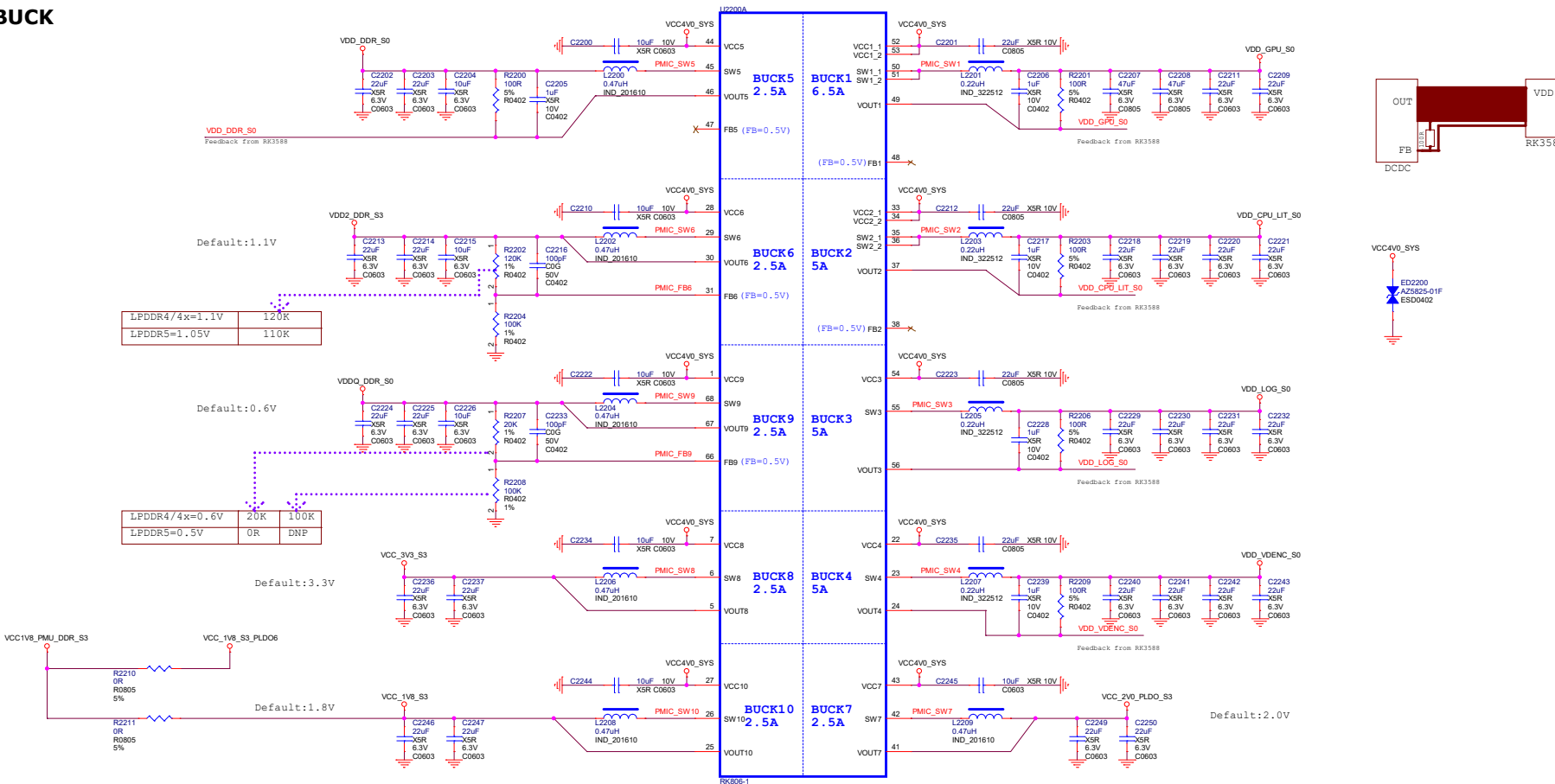


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# CODEC ES8316

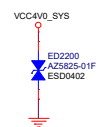
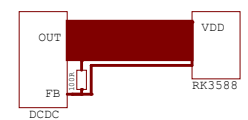


# PMIC RK806-1 BUCK

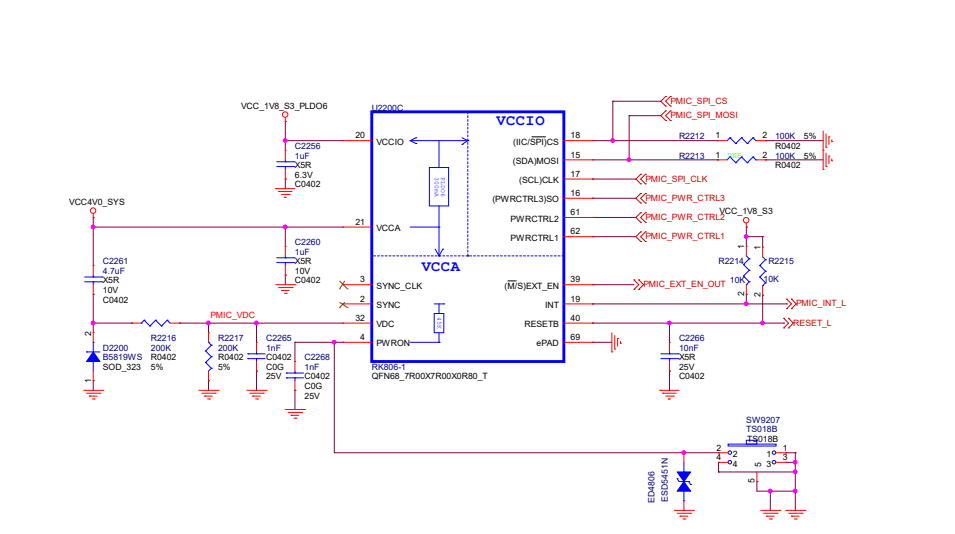


LPDDR4/4x=1.1V	120K
LPDDR5=1.05V	110K

LPDDR4/4x=0.6V	20K	100K
LPDDR5=0.5V	0R	DNP



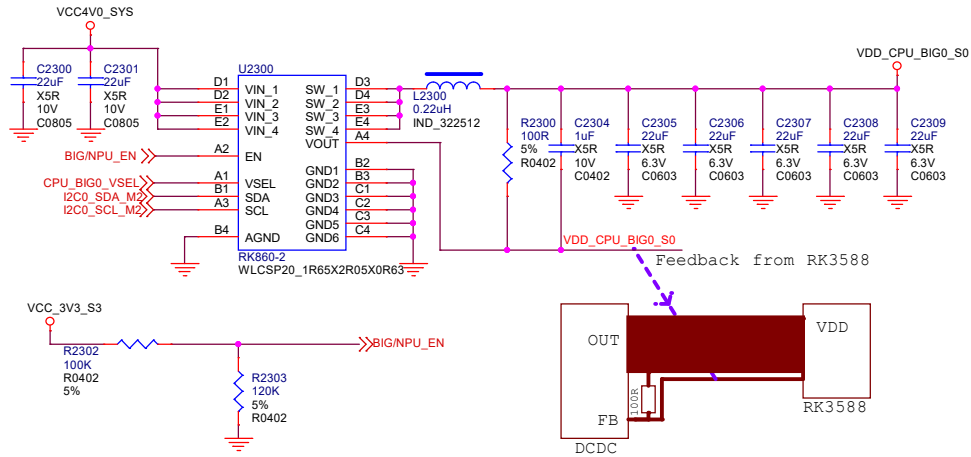
# PMIC RK806-1 Management



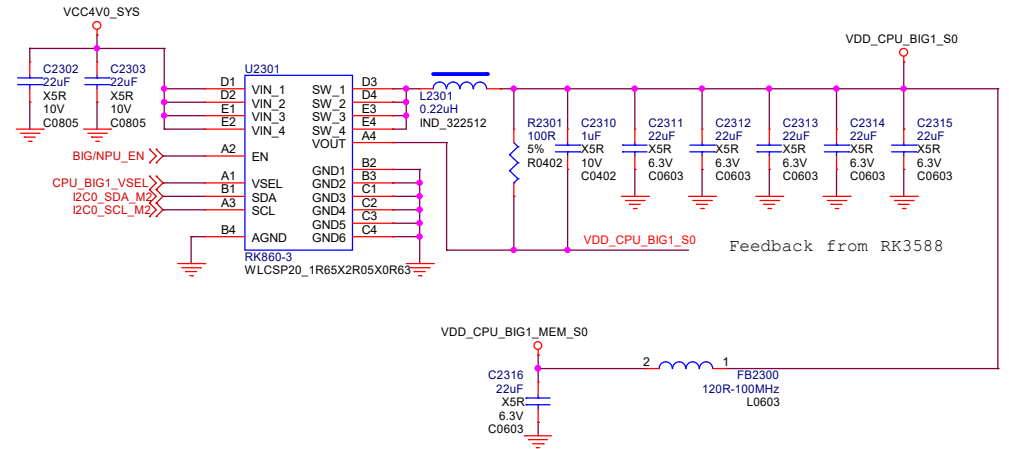
# PMIC RK806-1 LDO



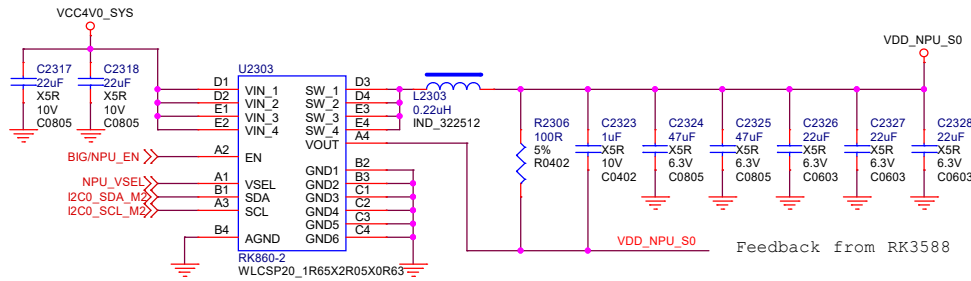
## VDD\_CPU\_BIG0



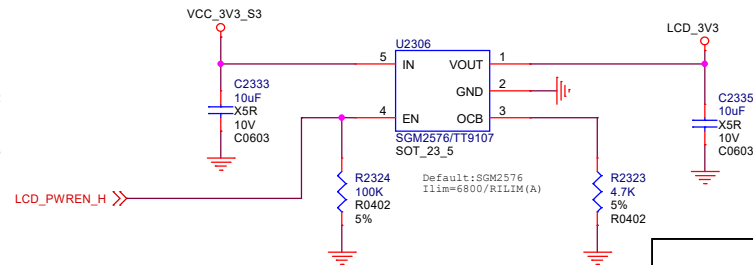
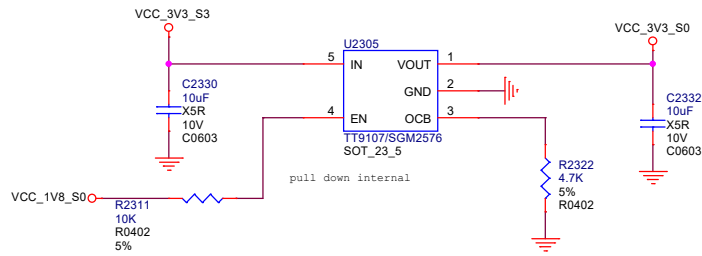
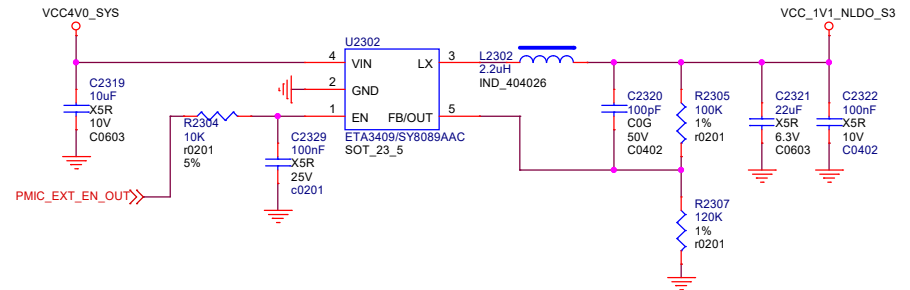
## VDD\_CPU\_BIG1



## VDD\_NPU

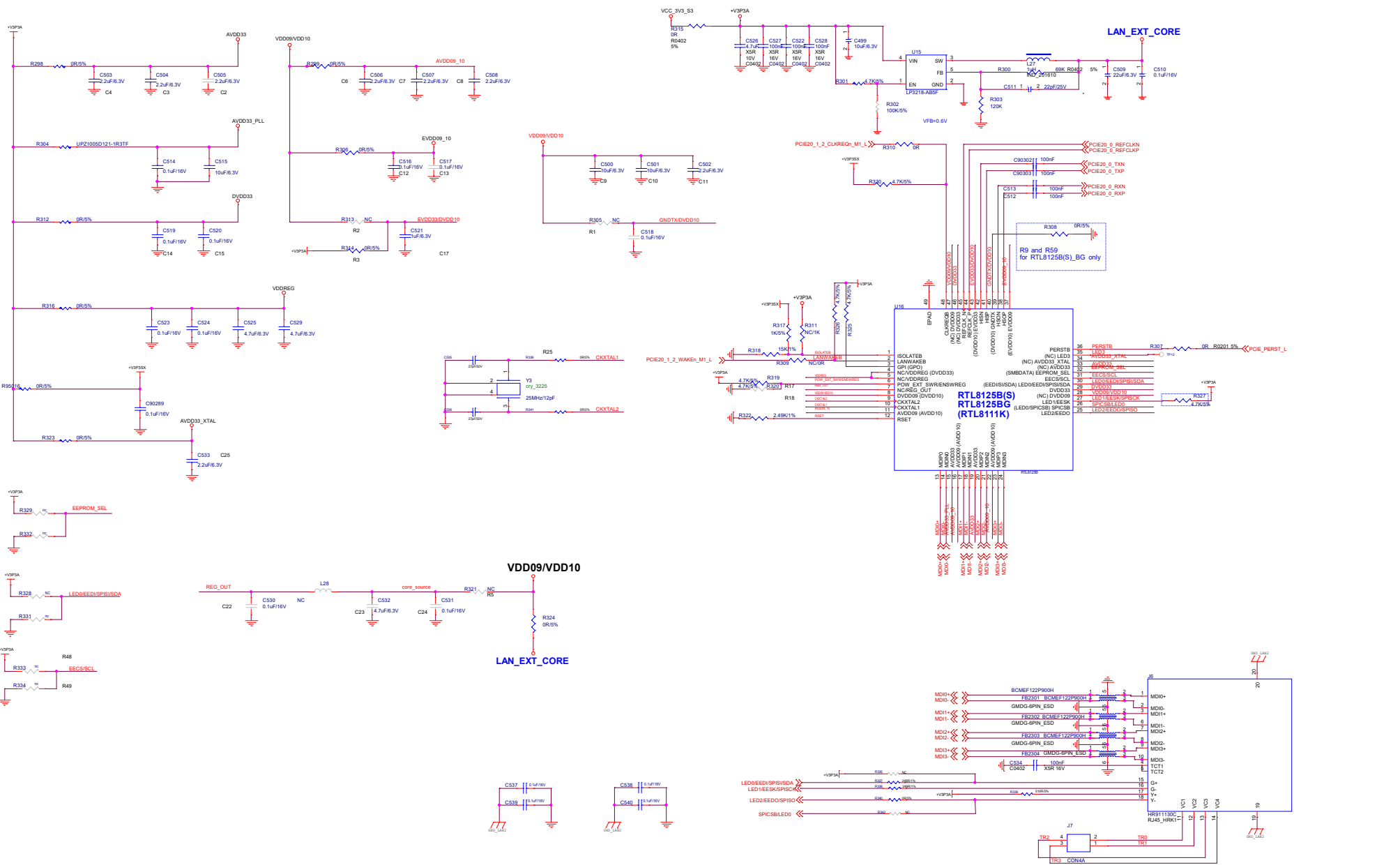


## VCC\_1V1\_NLDO\_S3

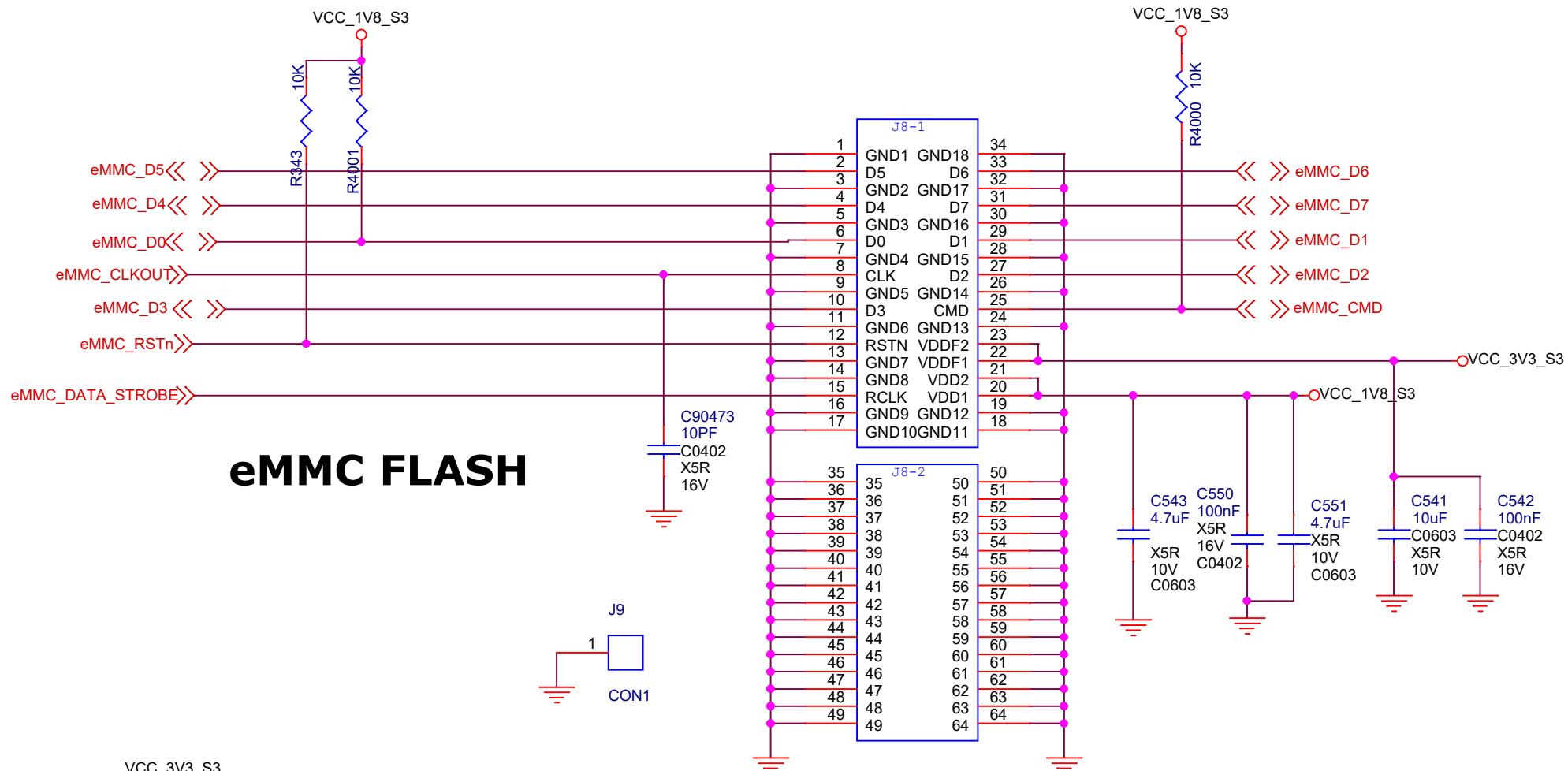


radxa

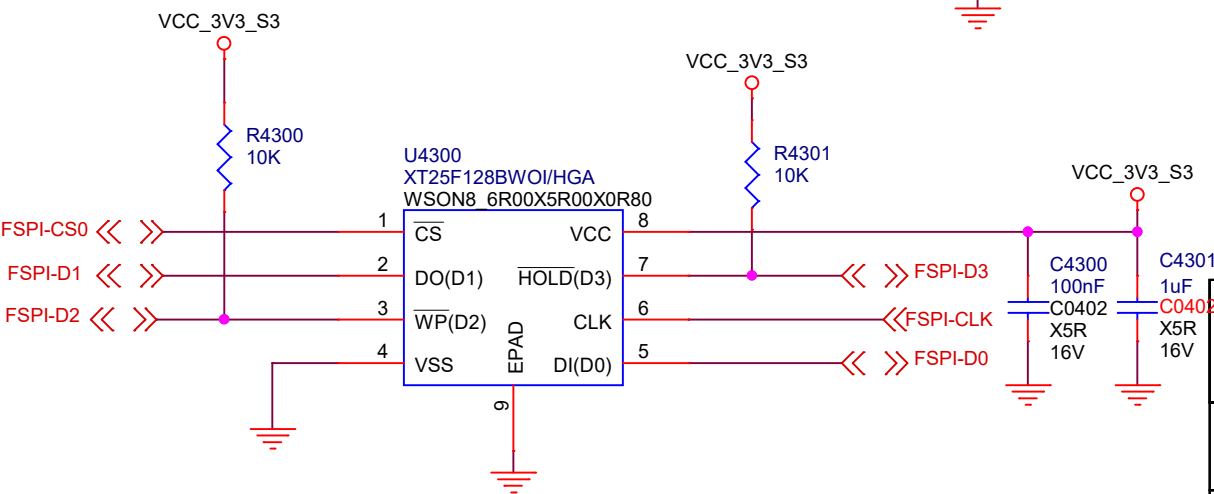
Size	Title: ROCK 5B	REV
A3	Page Name: Power_Ext Discrete	1.432
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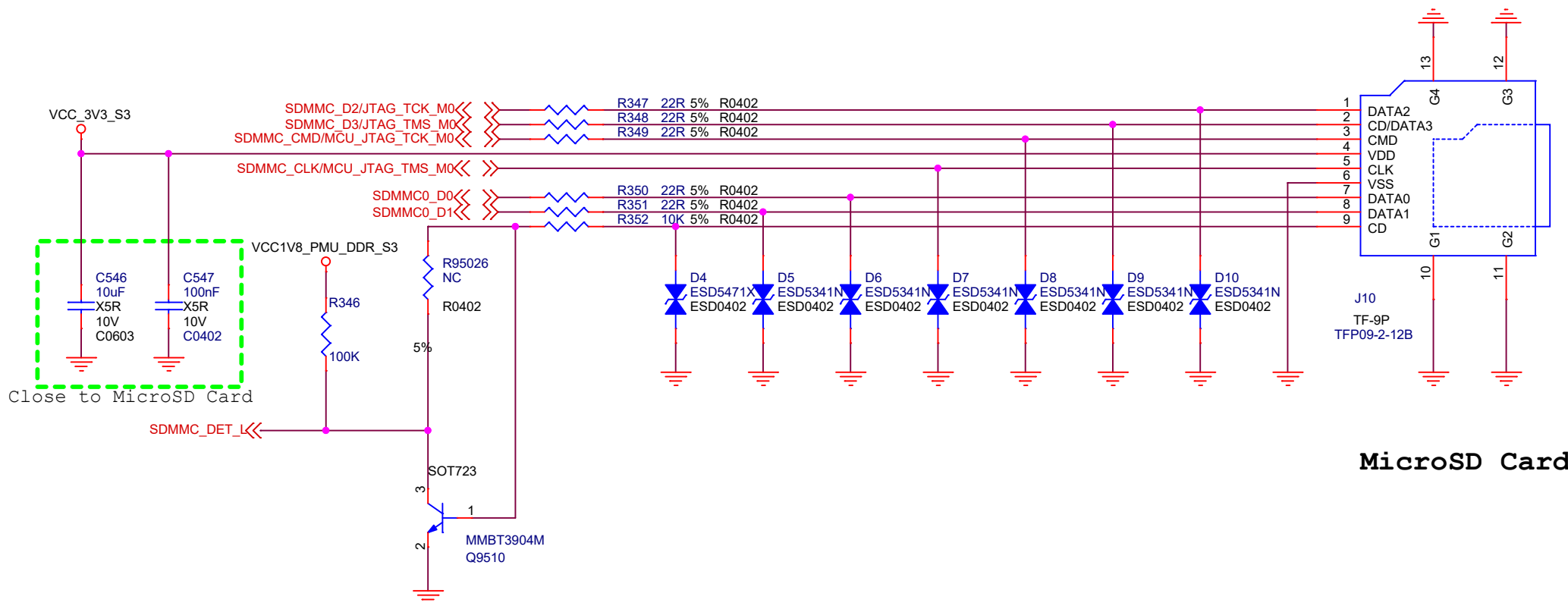


# eMMC FLASH



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# TF CARD

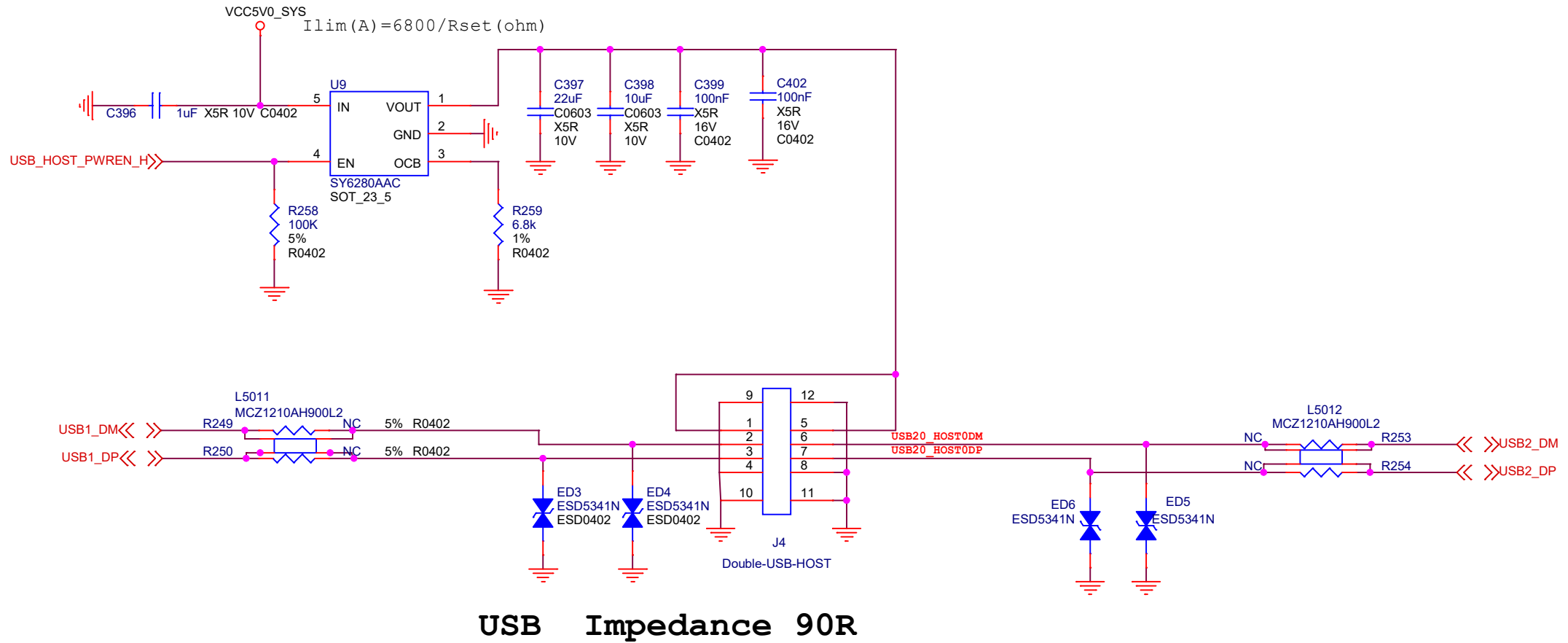


MicroSD Card



Size	Title: ROCK 5B	REV
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# USB2.0

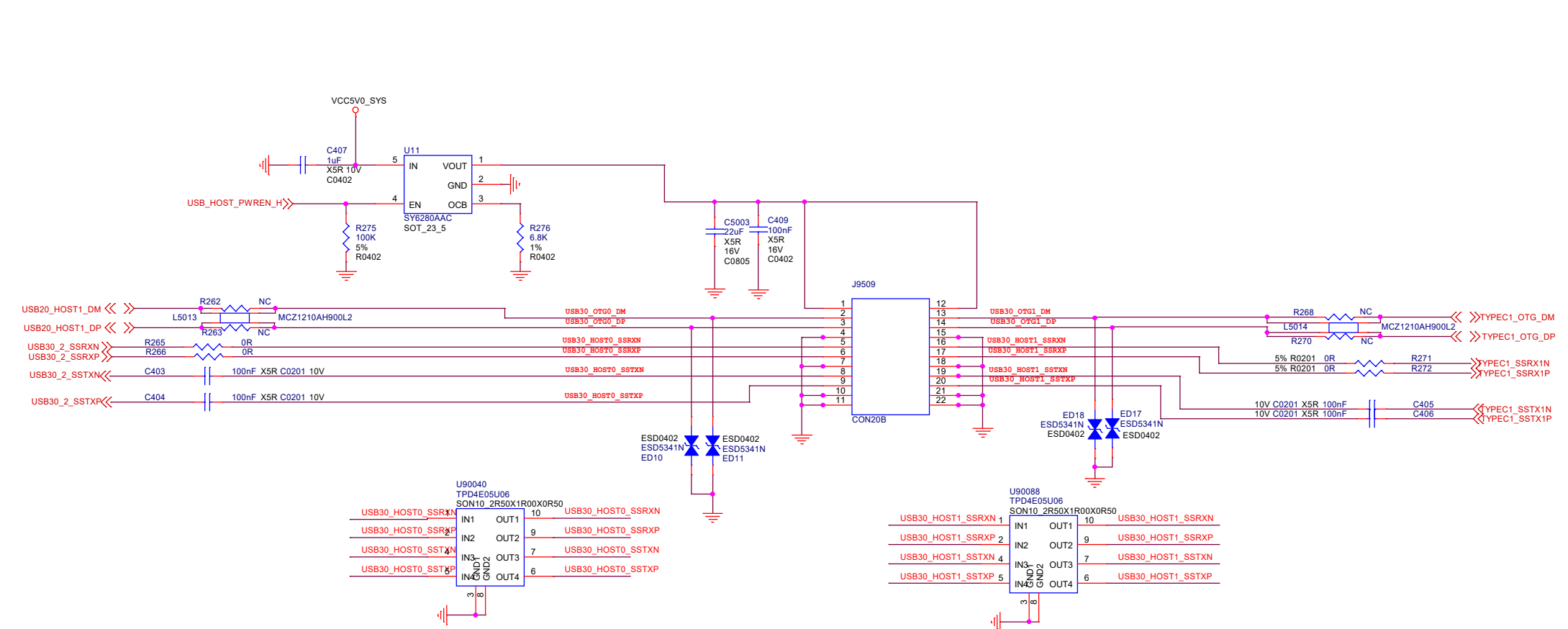


**USB Impedance 90R**

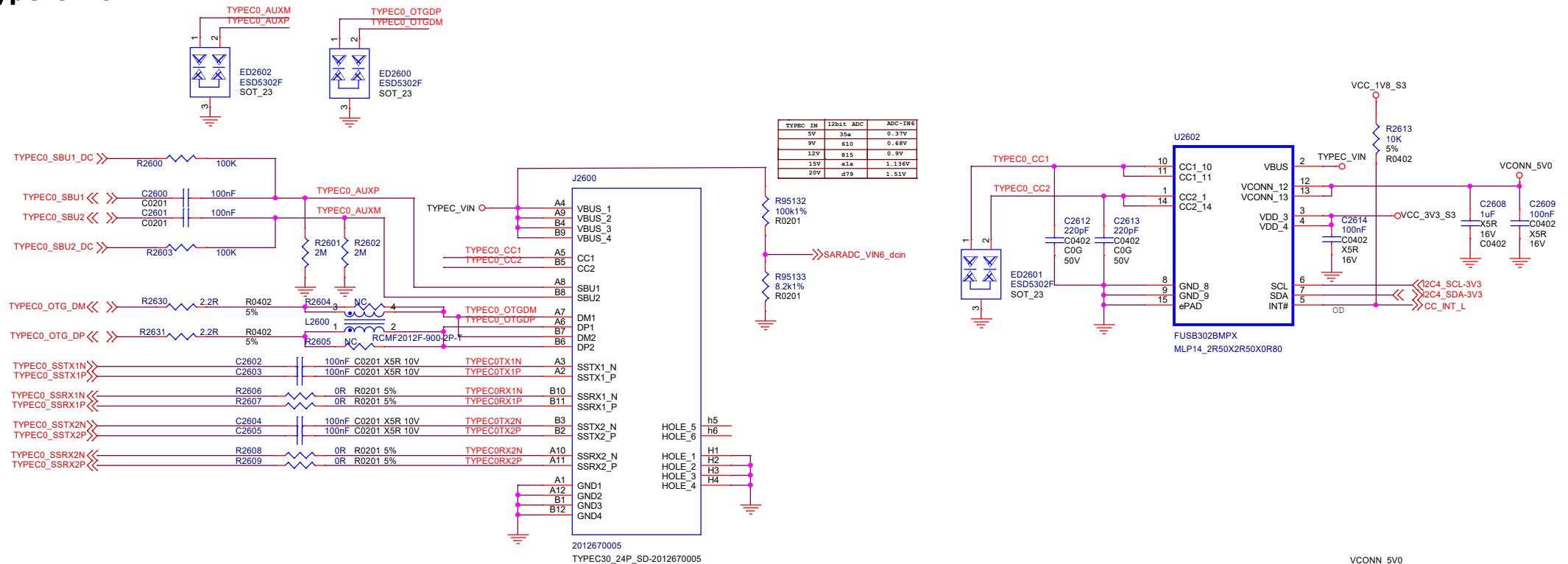


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A4	Page Name: USB20x2 Double Port	1.432
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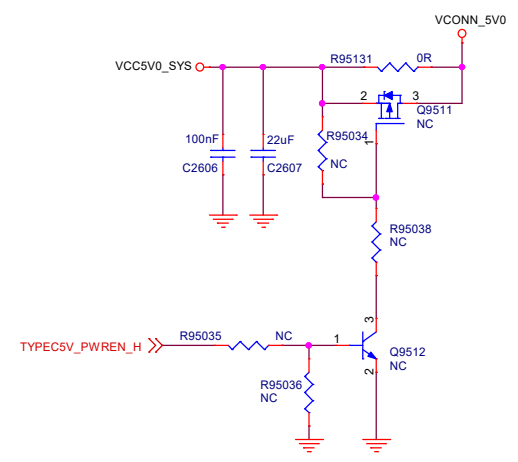
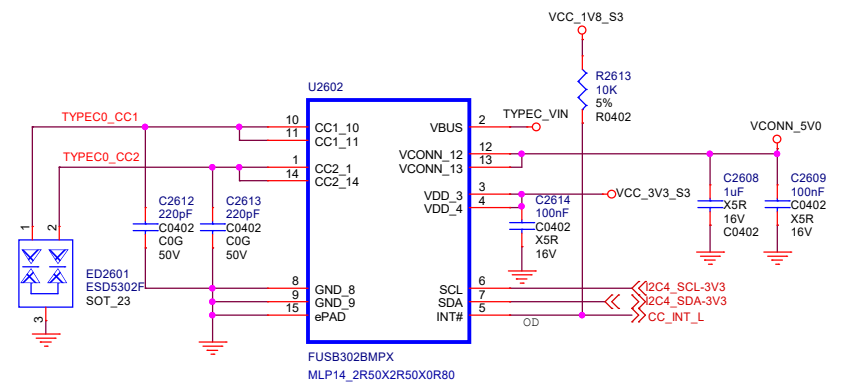
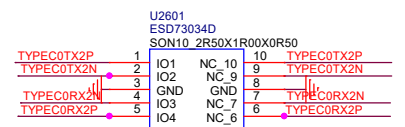
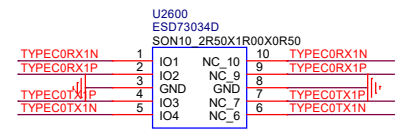
# USB3.0 HOST PORT



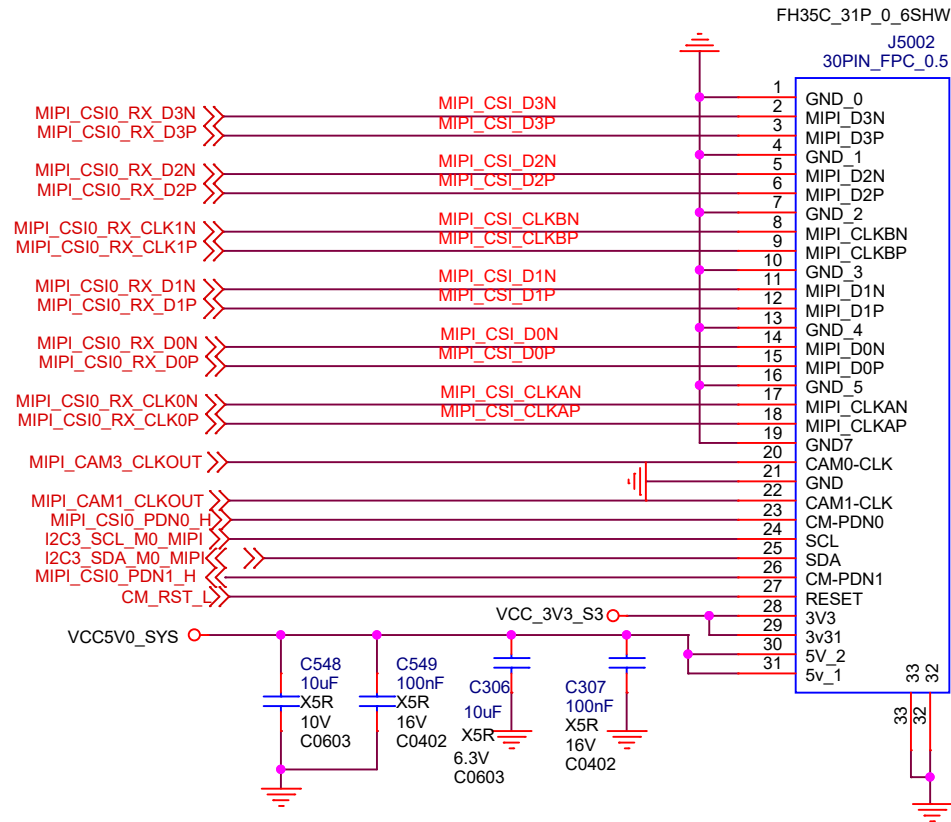
# Type-C PORT



2012670005  
TYPEC30\_24P\_SD-2012670005



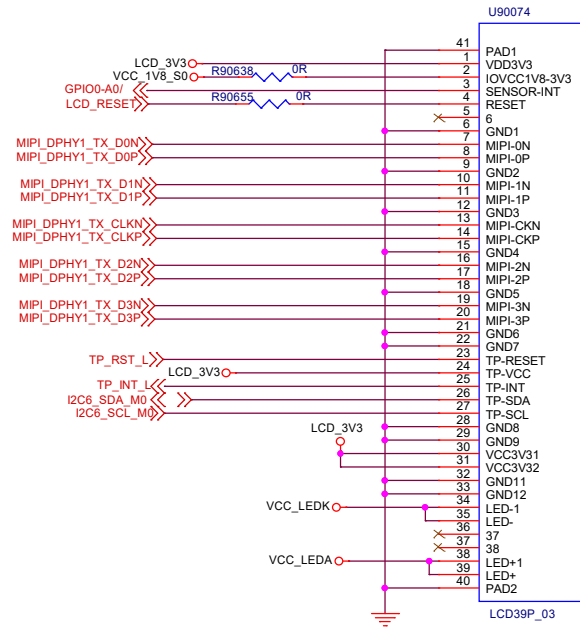
# CAM



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# MIPI DPHY1 TX



# LCD

