


# REF\_LD20\_96 BOARD

		EU	NA	ASIA	CHN			EU	NA	ASIA	CHN
1	001_TOP					28	028_DCDC_STM				
2	002_HV2_POWER					29	029_DCDC_BE1				
3	003_HV2_CORE					30	030_DCDC_BE2				
4	004_HV2_AUDIO					31	031_Block Diagram				
5	005_HV2_VIDEO					32		O	X	X	O
6	006_LD20_BGA1					33		X	X	X	X
7	007_LD20_BGA2					34		X	X	O	O
8	008_LD20_PWR					35		O	X	X	X
9	009_LD20_DDR#0					36		O	X	O	O
10	010_LD20_DDR#1					37		X	X	X	X
11	011_LD20_DDR#2					38		X	O	O	O
12	012_LD20_DEST					39		O	X	X	X
13	013_INITIAL					40					
14	014_PORT					41		O	X	X	X
15	015_I2CI_DBG_SRL					42		X	X	X	X
16	016_User LEDs					43					
17	017_PWR_CTRL_RST					44					
18	018_USB TO UART					45					
19	019_emmc					46					
20	020_PERI_USB_WIFI					47					
21	021_00_DCDC_CTRL	O	X	X	X	48					
22	022_PERI_ETHER(RTL8211E-VB)					49					
23	023_PERI_ETHER_COMMON					50					
24	024_PERI_PCI					51					
25	025_AVIN_HDMI0-1					52					
26	026_SPDIF										
27	027_EXCON_TV_Tuner										

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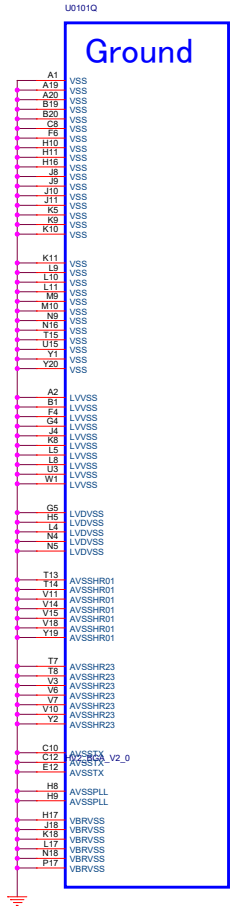
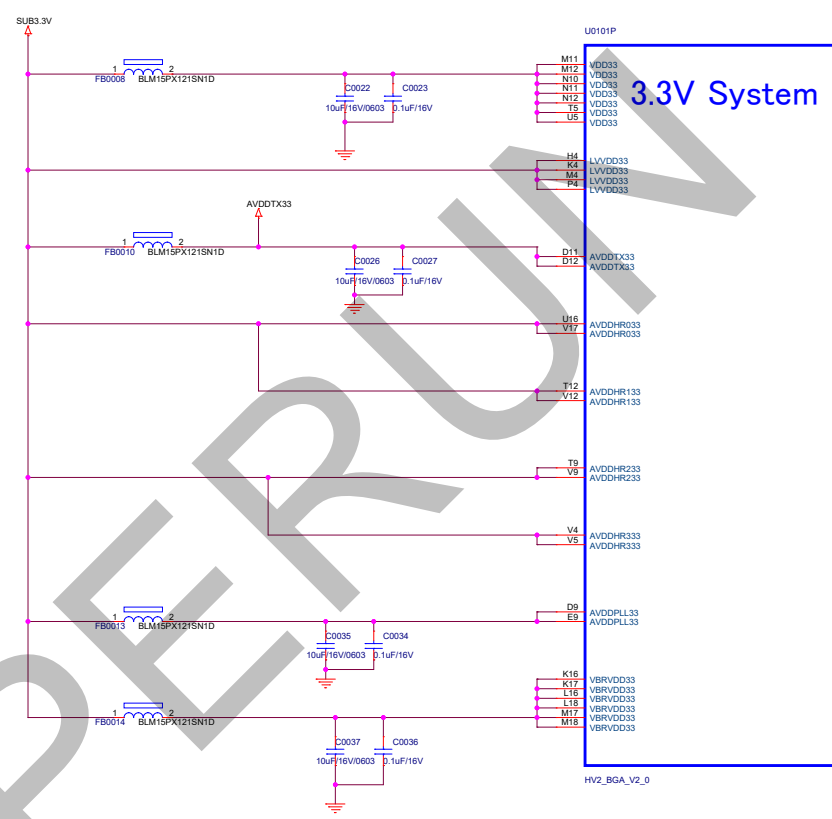
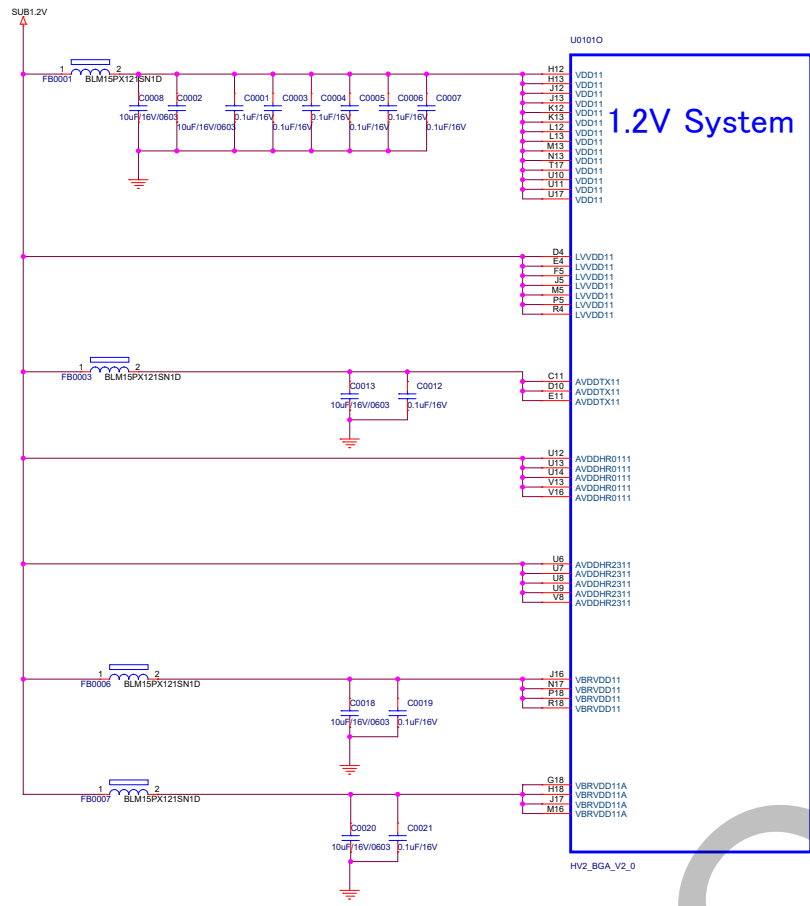
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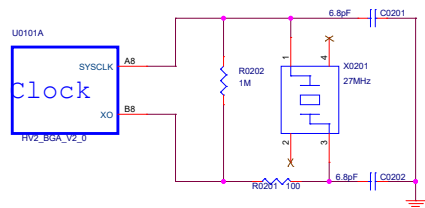
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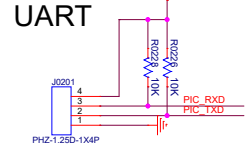
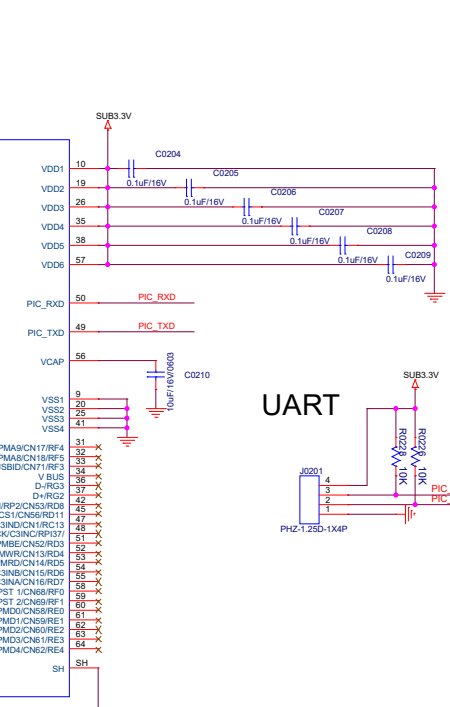
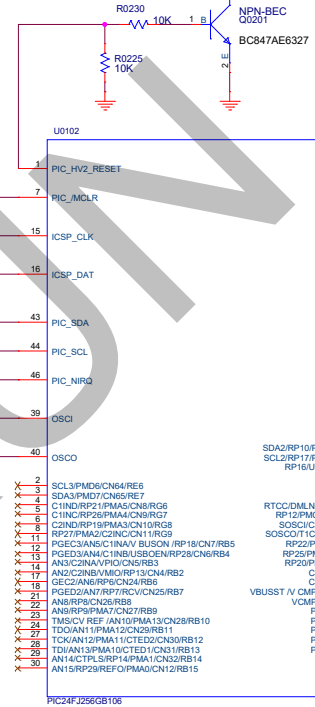
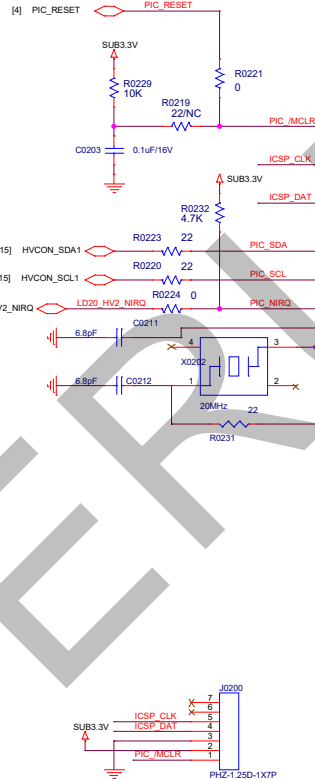
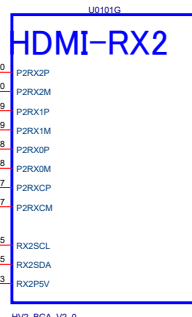
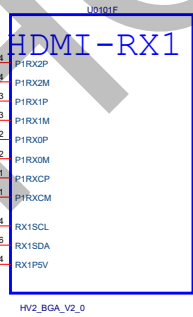
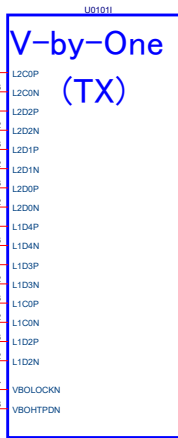
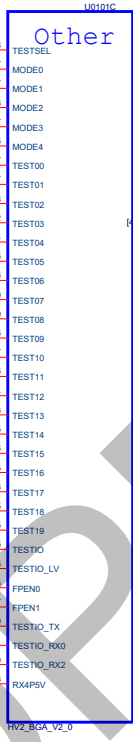
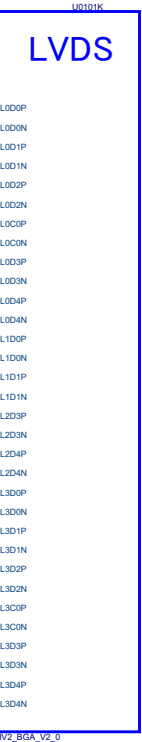
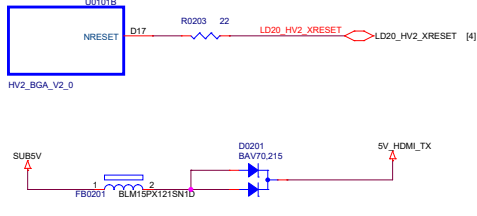


# HV2 CORE

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## RESET



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# HV2 AUDIO

**I2C Slave Address**

HV2\_BGA\_V2\_0

**HOST-IF**

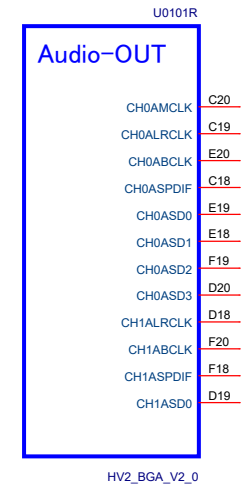
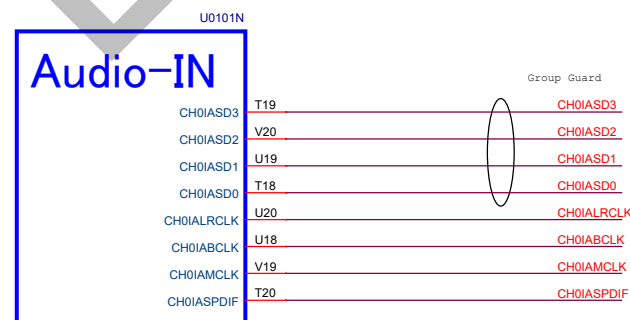
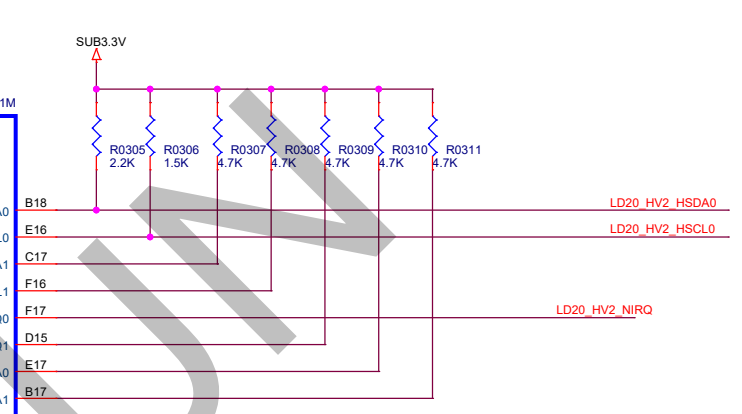
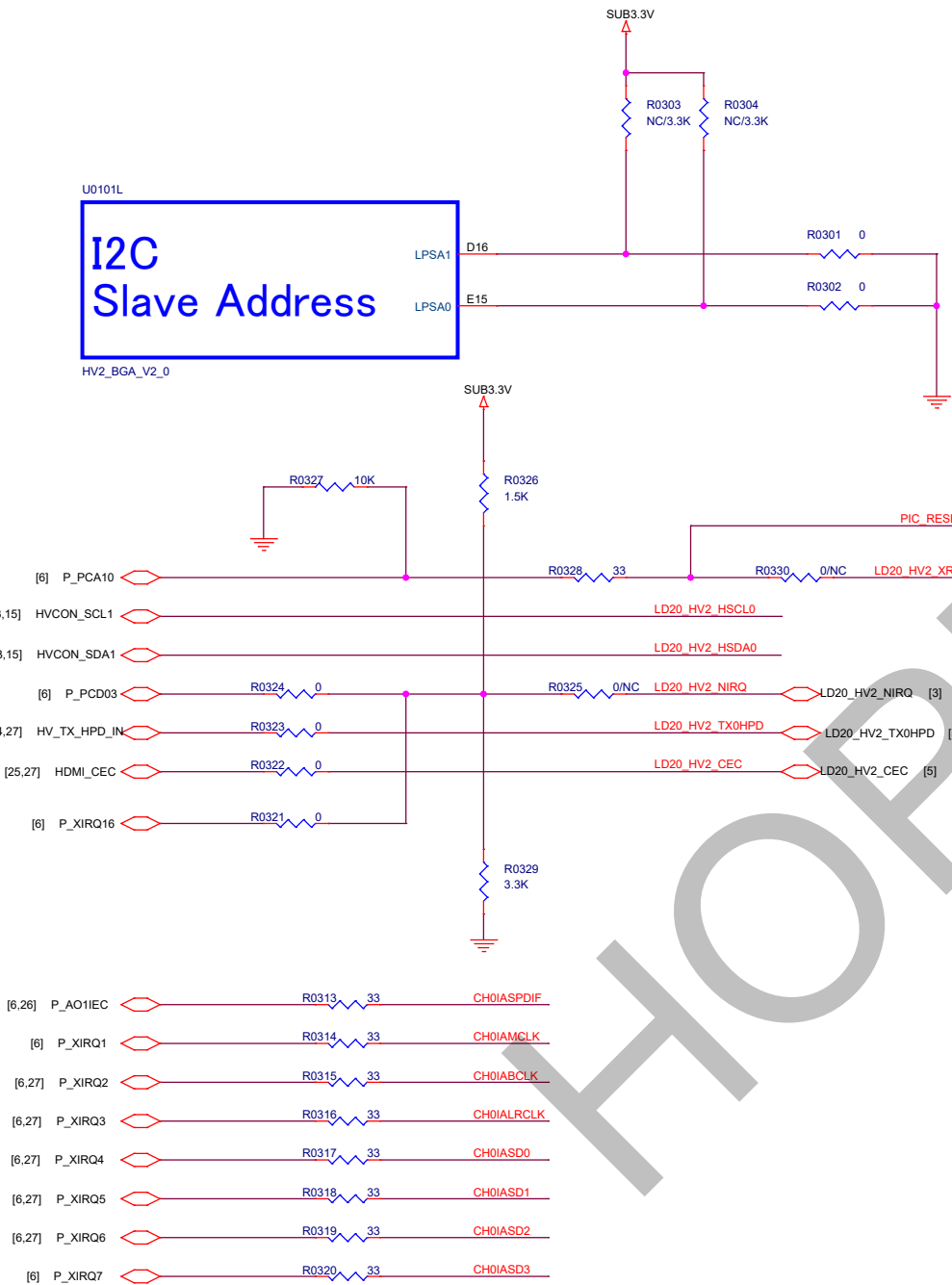
HV2\_BGA\_V2\_0


**Audio-IN**

HV2\_BGA\_V2\_0

**Audio-OUT**

HV2\_BGA\_V2\_0



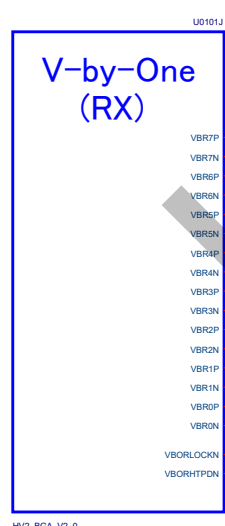
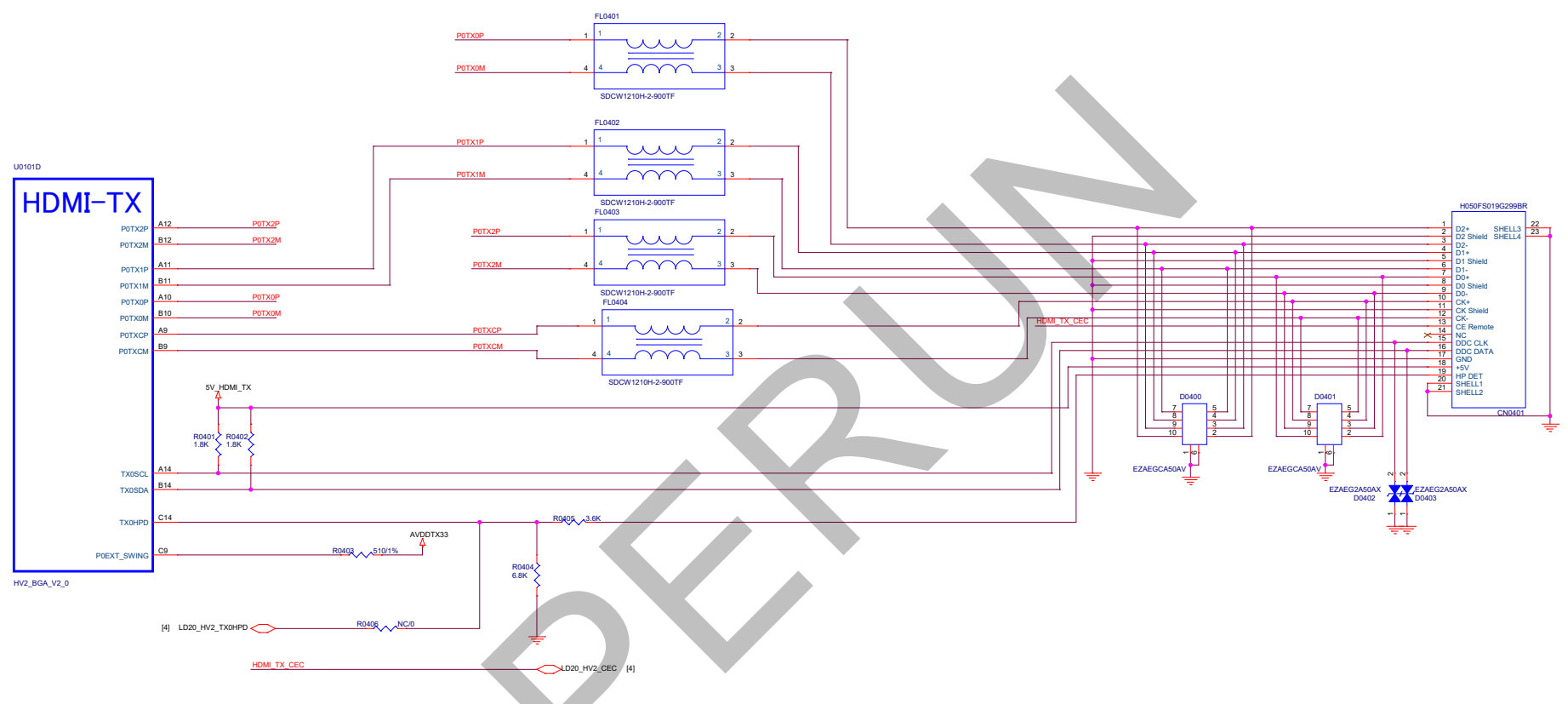
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		SOC		
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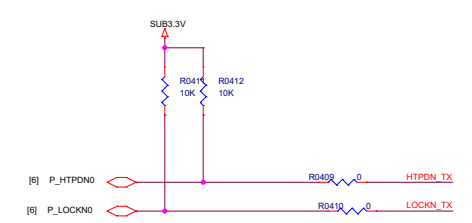
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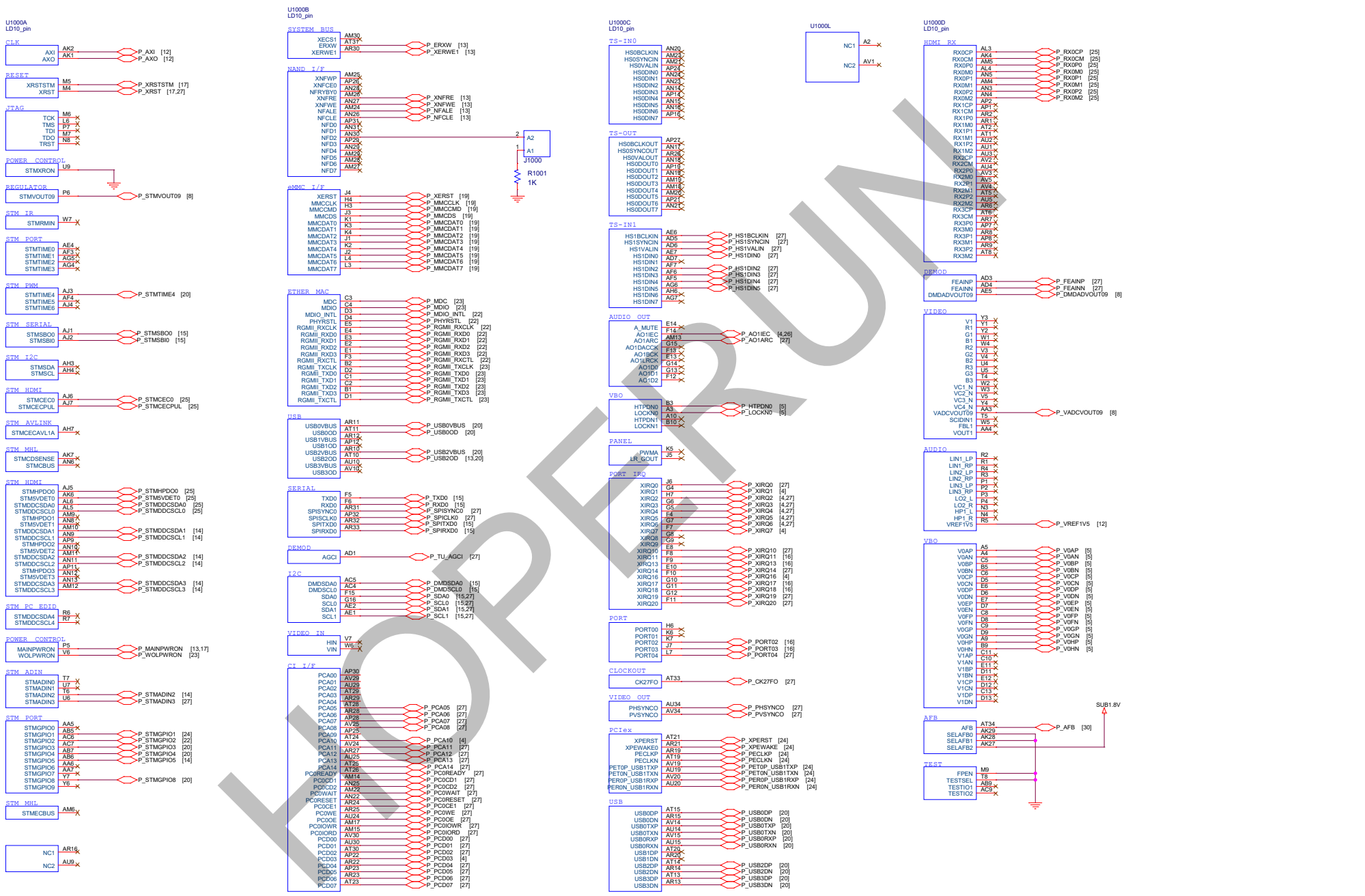


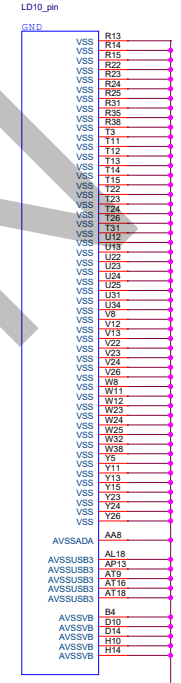
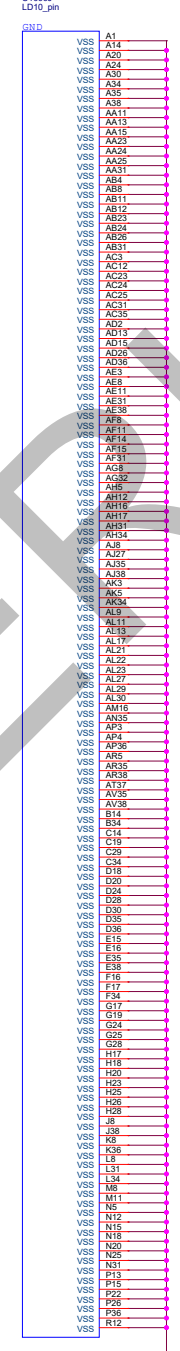
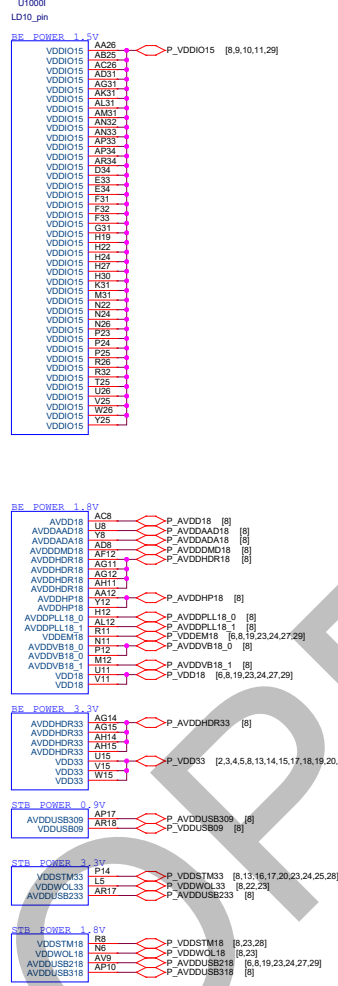
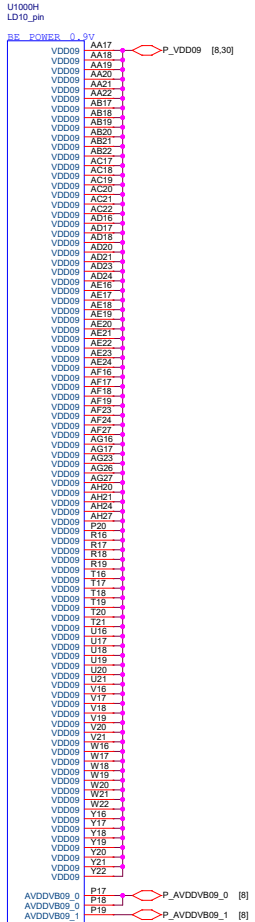
V-by-One Signal  
Isometry wiring  
Differential Impedance = 100 Ohm

[6] P_V0AN	C0401	0.1uF/16V	VBY0N_1
[6] P_V0AP	C0402	0.1uF/16V	VBY0P_1
[6] P_V0BN	C0403	0.1uF/16V	VBY1N_1
[6] P_V0BP	C0404	0.1uF/16V	VBY1P_1
[6] P_V0CN	C0405	0.1uF/16V	VBY2N_1
[6] P_V0CP	C0406	0.1uF/16V	VBY2P_1
[6] P_V0DN	C0407	0.1uF/16V	VBY3N_1
[6] P_V0DP	C0408	0.1uF/16V	VBY3P_1
[6] P_V0EN	C0409	0.1uF/16V	VBY4N_1
[6] P_V0EP	C0410	0.1uF/16V	VBY4P_1
[6] P_V0FN	C0411	0.1uF/16V	VBY5N_1
[6] P_V0FP	C0412	0.1uF/16V	VBY5P_1
[6] P_V0GN	C0413	0.1uF/16V	VBY6N_1
[6] P_V0GP	C0414	0.1uF/16V	VBY6P_1
[6] P_V0HN	C0415	0.1uF/16V	VBY7N_1
[6] P_V0HP	C0416	0.1uF/16V	VBY7P_1

VB1 Config







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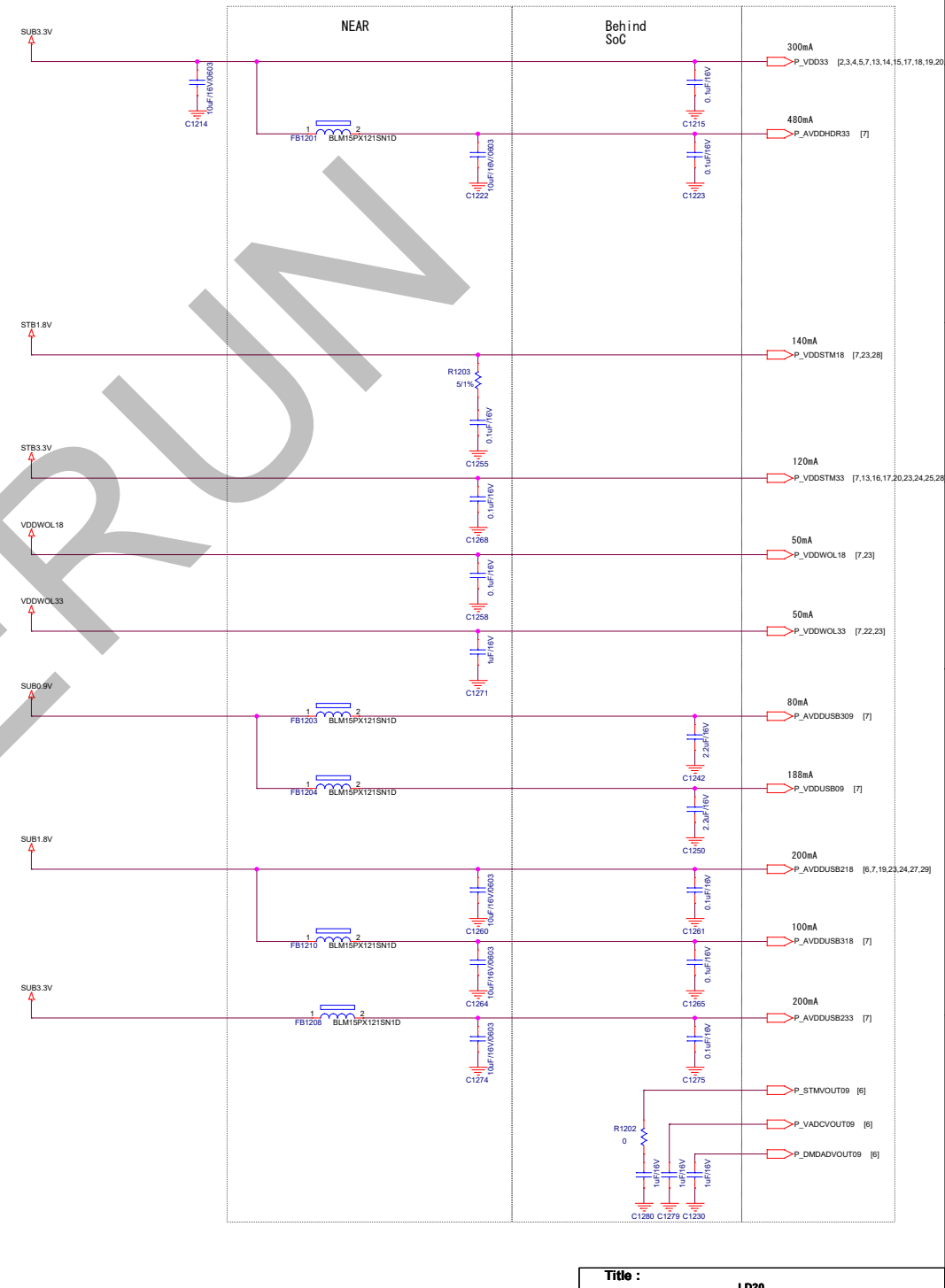
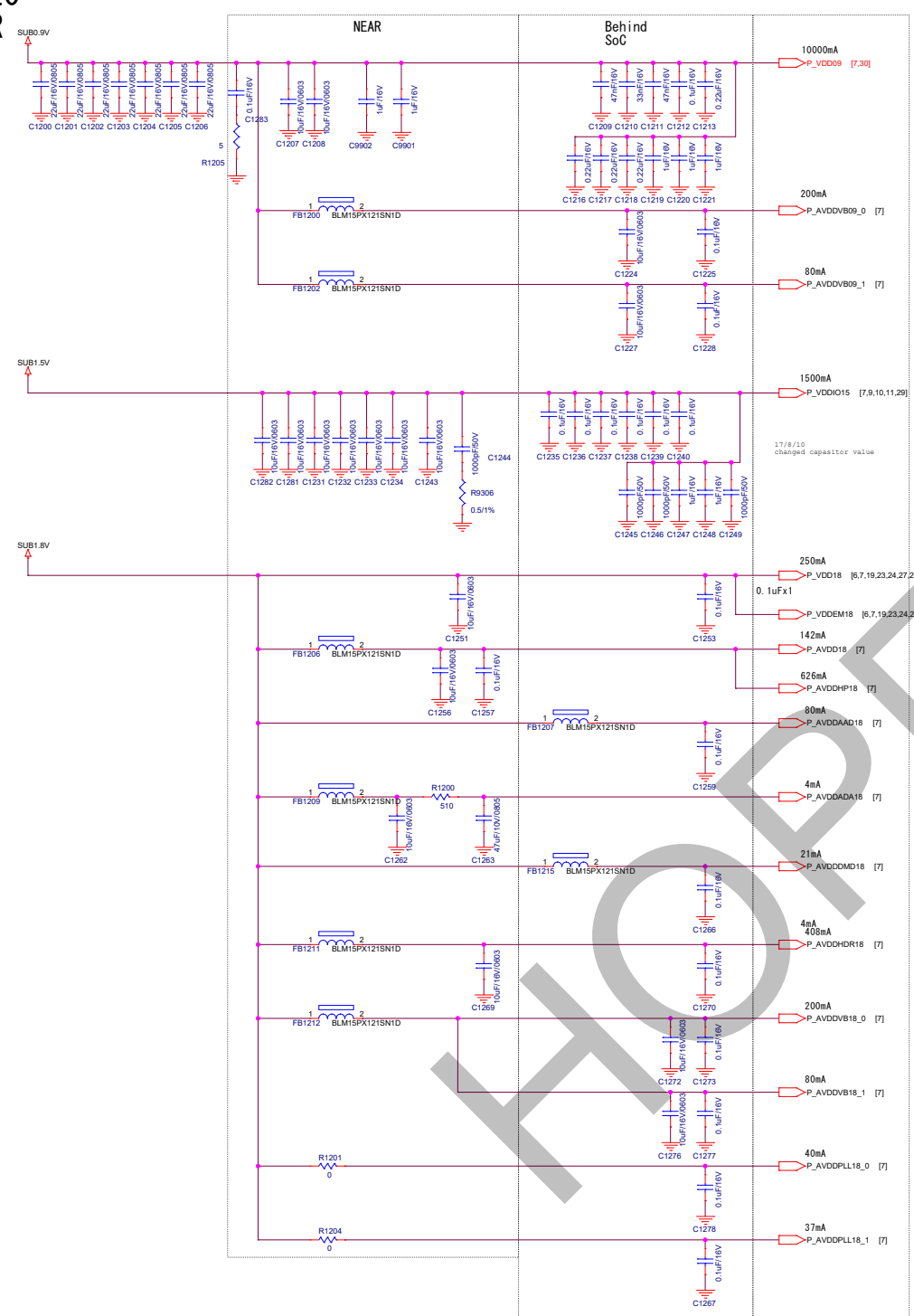
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LD20  
PWR

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LD20 DDR3  
LD20 DDR3  
IF

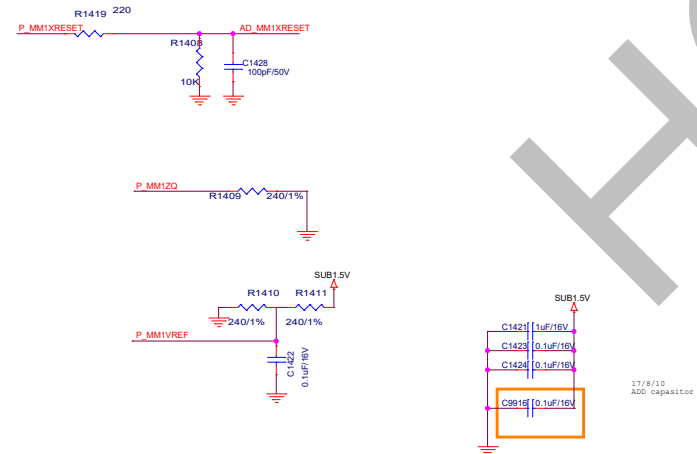
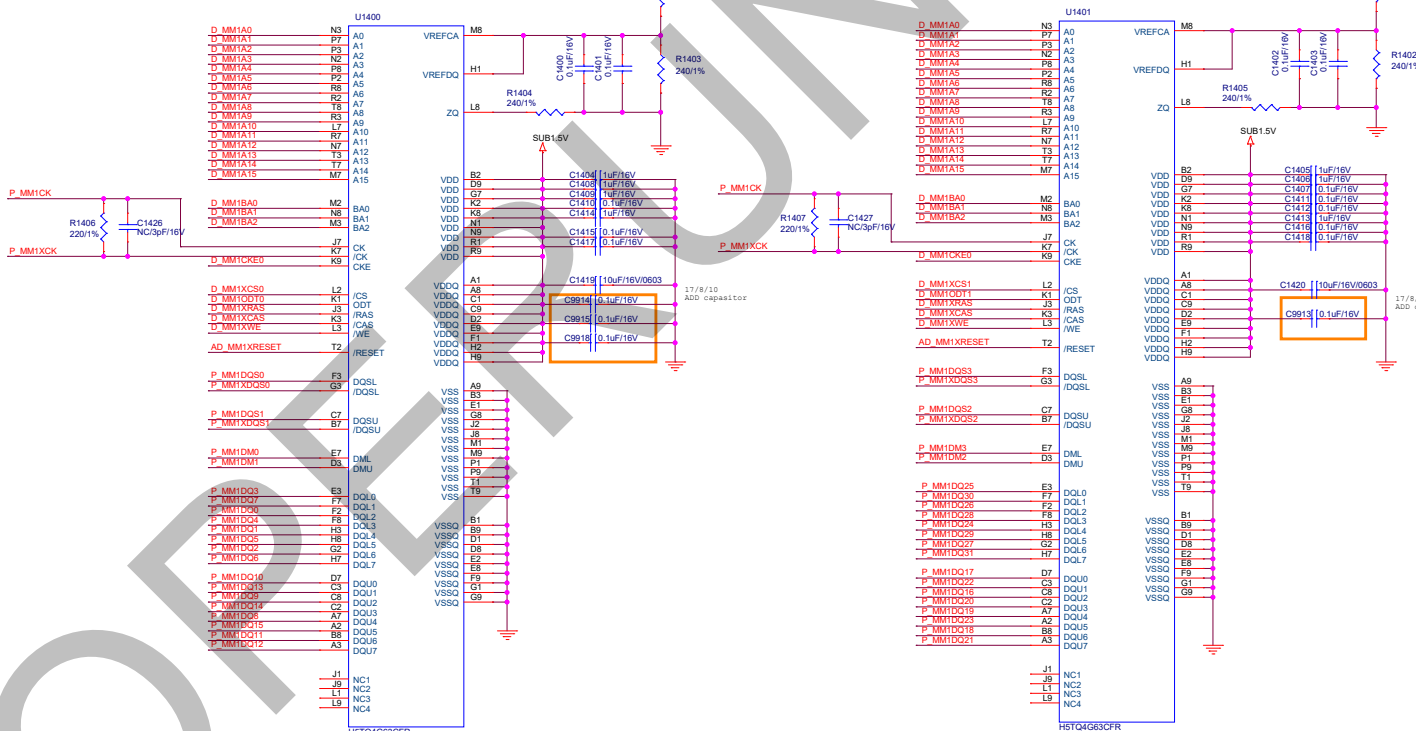
U1000F  
LD10\_µm

DDR CH1

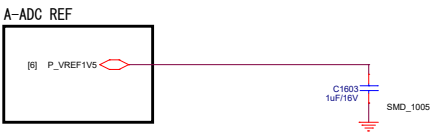
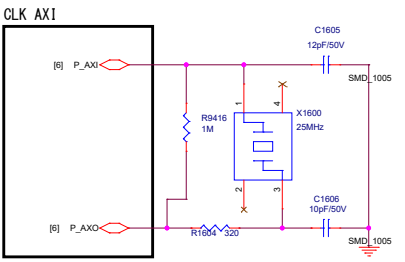
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MM1XCK	B24	P	MM1XCK
MM1DQ0	B21	P	MM1DQ0
MM1DQ1	B20	P	MM1DQ1
MM1DQ2	A29	P	MM1DQ2
MM1DQ3	C31	P	MM1DQ3
MM1DQ4	B25	P	MM1DQ4
MM1DQ5	B26	P	MM1DQ5
MM1DQ6	B25	P	MM1DQ6
MM1DQ7	C25	P	MM1DQ7
MM1DQ8	E27	P	MM1DQ8
MM1DQ9	D26	P	MM1DQ9
MM1DQ10	E27	P	MM1DQ10
MM1DQ11	E26	P	MM1DQ11
MM1DQ12	E31	P	MM1DQ12
MM1DQ13	D33	P	MM1DQ13
MM1DQ14	D32	P	MM1DQ14
MM1DQ15	D32	P	MM1DQ15
MM1DQ16	D17	P	MM1DQ16
MM1DQ17	E17	P	MM1DQ17
MM1DQ18	E18	P	MM1DQ18
MM1DQ19	D23	P	MM1DQ19
MM1DQ20	E22	P	MM1DQ20
MM1DQ21	E22	P	MM1DQ21
MM1DQ22	B19	P	MM1DQ22
MM1DQ23	C21	P	MM1DQ23
MM1DQ24	D21	P	MM1DQ24
MM1DQ25	A19	P	MM1DQ25
MM1DQ26	D19	P	MM1DQ26
MM1DQ27	A15	P	MM1DQ27
MM1DQ28	A15	P	MM1DQ28
MM1DQ29	A15	P	MM1DQ29
MM1DQ30	C15	P	MM1DQ30
MM1DQ31	D15	P	MM1DQ31
MM1DQ32	C30	P	MM1DQ32
MM1DQ33	D29	P	MM1DQ33
MM1DQ34	D19	P	MM1DQ34
MM1DQ35	C20	P	MM1DQ35
MM1DQ36	D20	P	MM1DQ36
MM1DQ37	C28	P	MM1DQ37
MM1DQ38	C18	P	MM1DQ38
MM1DQ39	B20	P	MM1DQ39
MM1DQ40	C26	P	MM1DQ40
MM1DM0	C33	P	MM1DM0
MM1DM1	C23	P	MM1DM1
MM1DM2	C16	P	MM1DM2
MM1DM3	C21	P	MM1DM3
MM1A0	E28	P	MM1A0
MM1A1	E29	P	MM1A1
MM1A2	F28	P	MM1A2
MM1A3	F29	P	MM1A3
MM1A4	G20	P	MM1A4
MM1A5	G20	P	MM1A5
MM1A6	F30	P	MM1A6
MM1A7	G30	P	MM1A7
MM1A8	E19	P	MM1A8
MM1A9	F27	P	MM1A9
MM1A10	E20	P	MM1A10
MM1A11	F21	P	MM1A11
MM1A12	E30	P	MM1A12
MM1A13	F18	P	MM1A13
MM1A14	E28	P	MM1A14
MM1A15	E27	P	MM1A15
MM1BA0	F20	P	MM1BA0
MM1BA1	G26	P	MM1BA1
MM1BA2	G26	P	MM1BA2
MM1XC50	F22	P	MM1XC50
MM1XC51	F24	P	MM1XC51
MM1XCAS	F24	P	MM1XCAS
MM1XRS	E24	P	MM1XRS
MM1XCAS	E25	P	MM1XCAS
MM1XWE	E23	P	MM1XWE
MM1CKE0	E23	P	MM1CKE0
MM1ODT0	F26	P	MM1ODT0
MM1ODT1	F25	P	MM1ODT1
MM1XRESET	G18	P	MM1XRESET
MM1ZQ	M24	P	MM1ZQ
MM1YREF	M22	P	MM1YREF

CH1#0  
DDR3 4Gb 1866

CH1#1  
DDR3 4Gb 1866

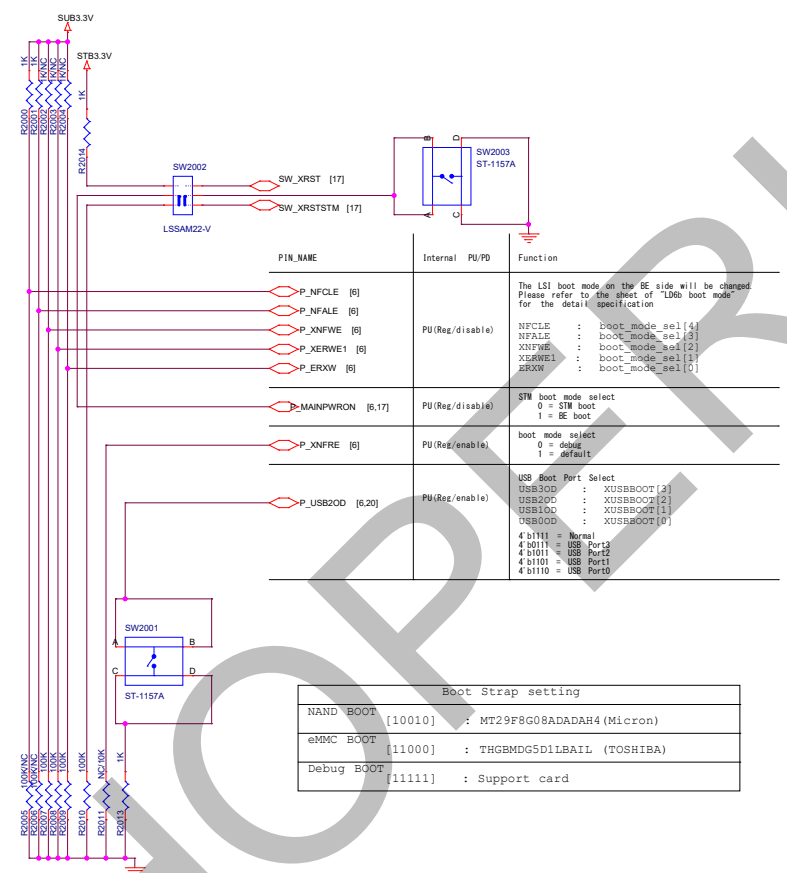






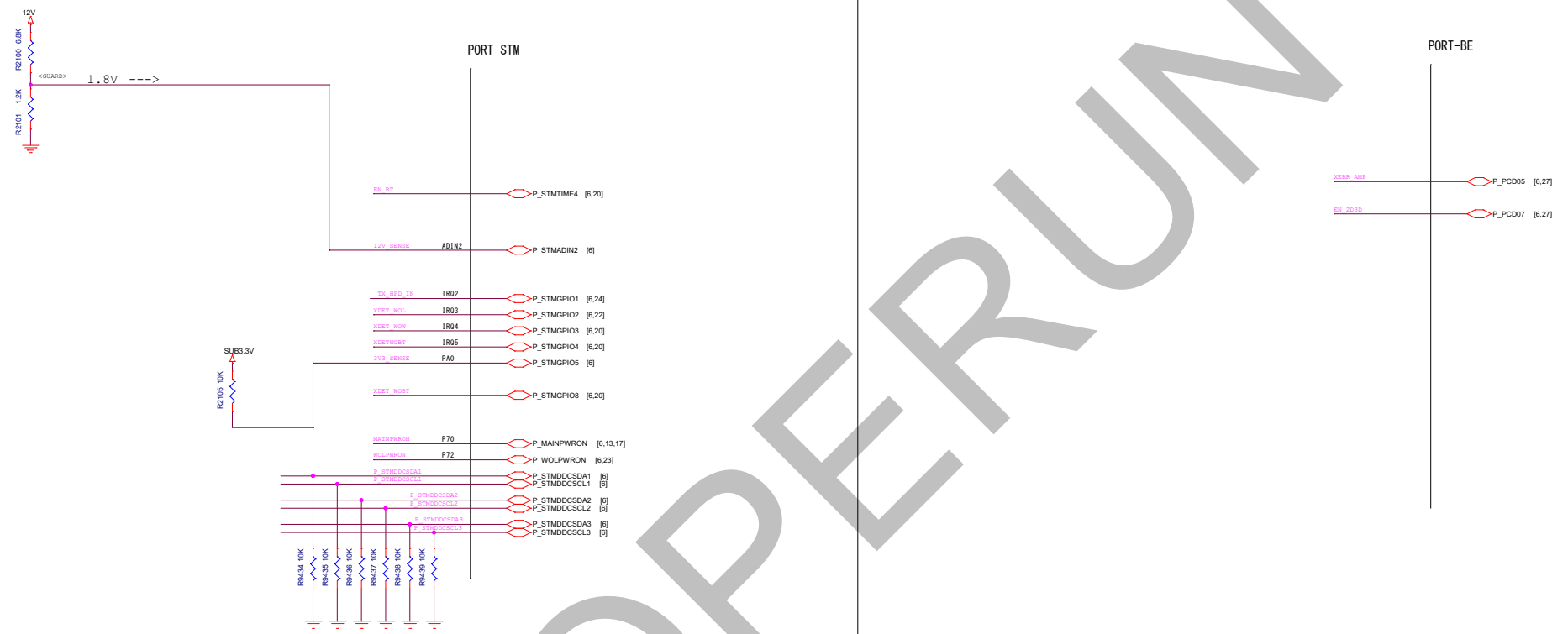
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# LD20 Initial SETUP




Select USB Port2

LD20  
Port



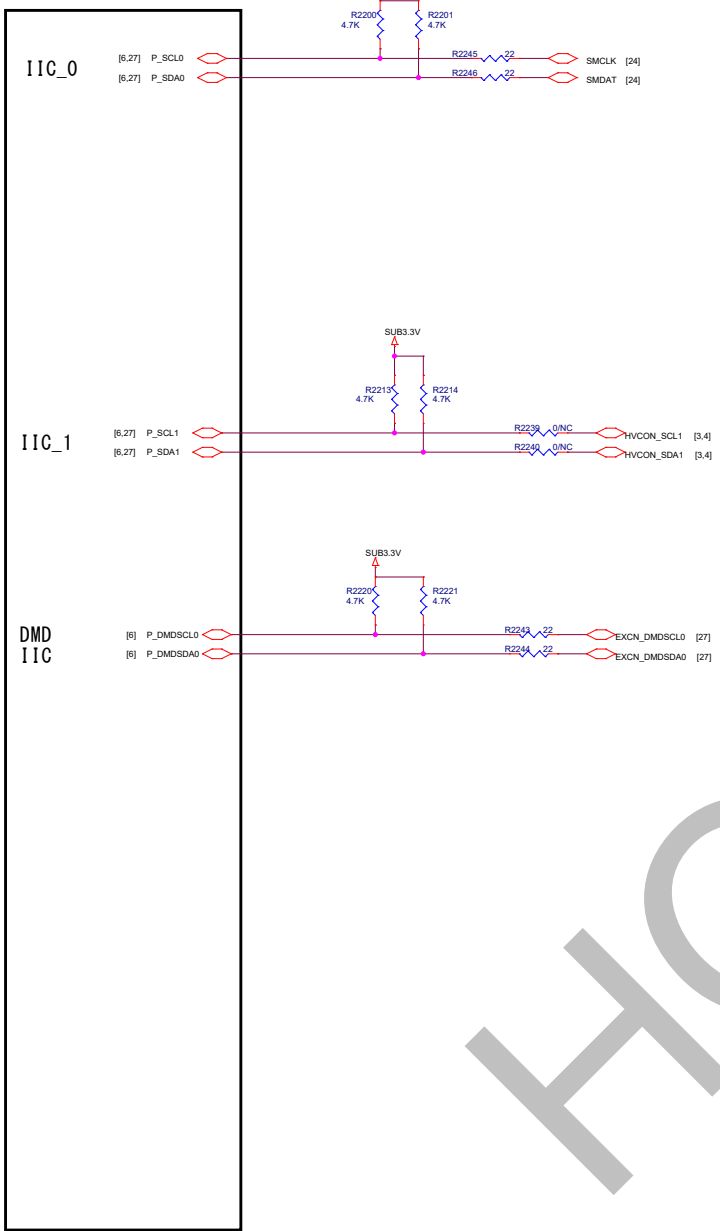
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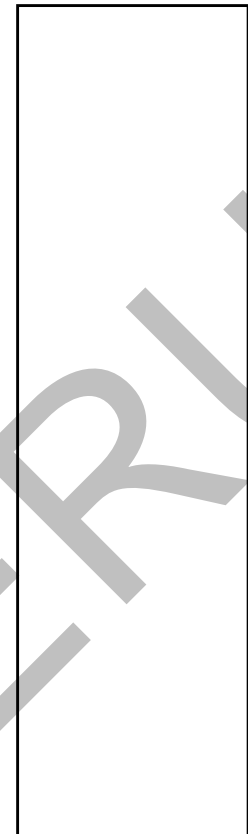
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# I2C, Debug, Serial

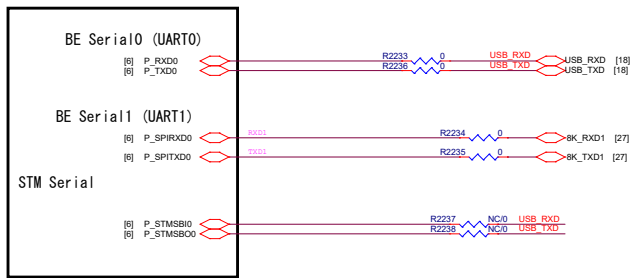
## I2C



## Debug connector

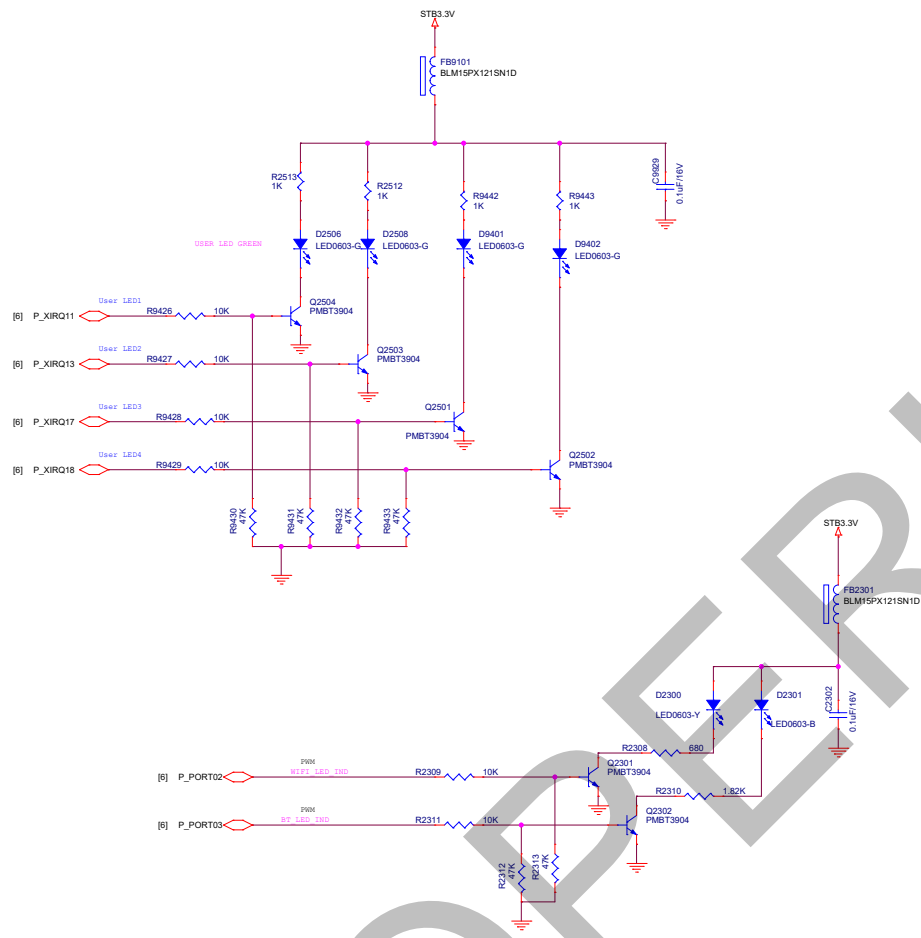


## Serial



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# USER LEDS



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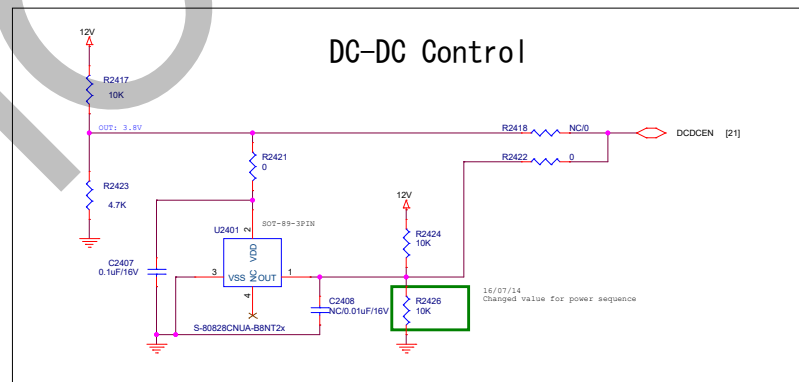
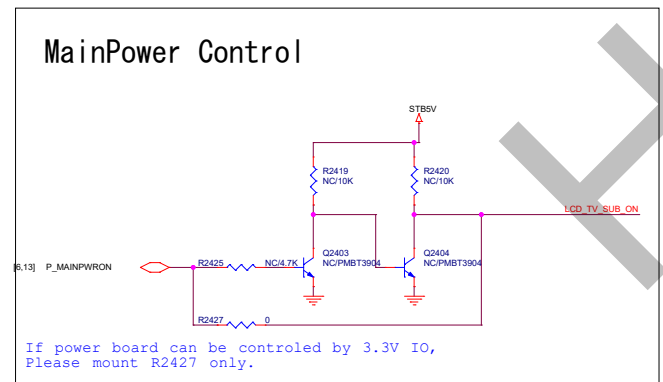
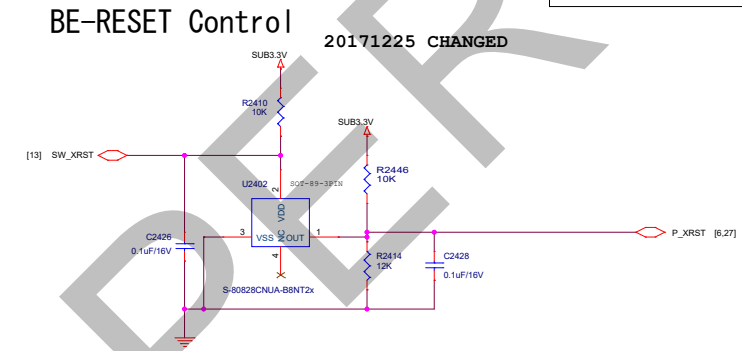
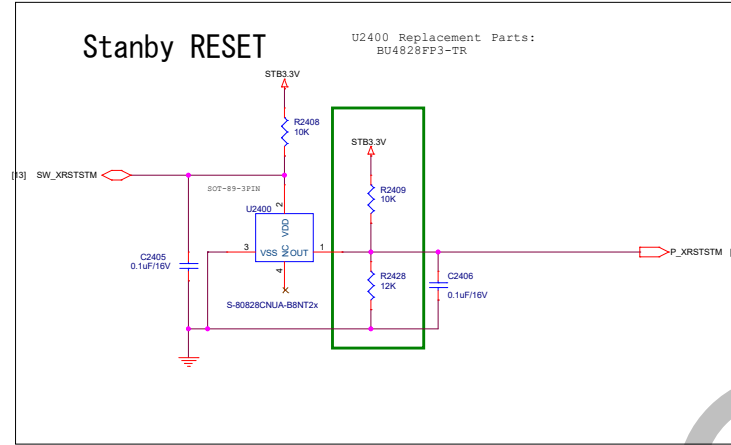
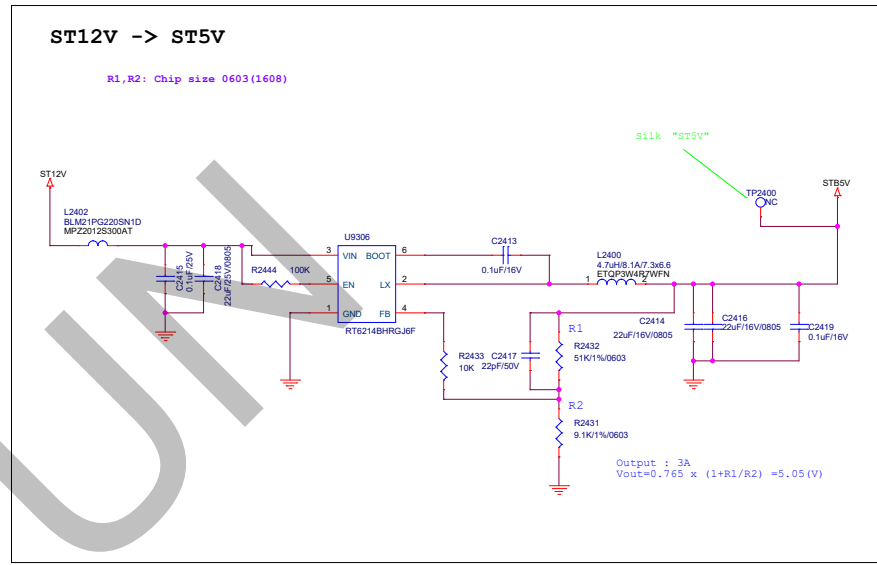
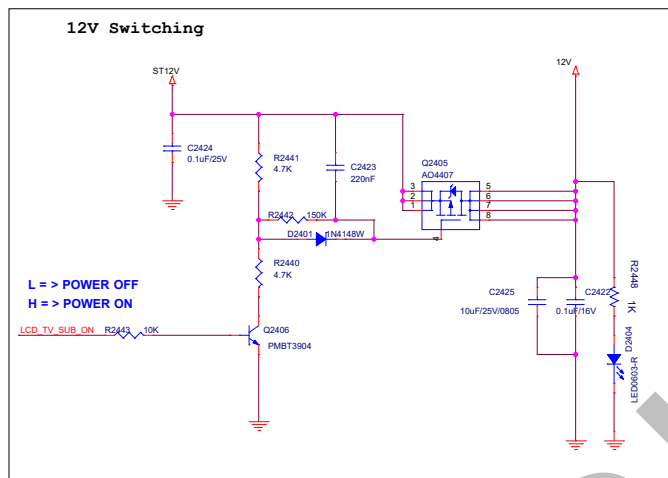
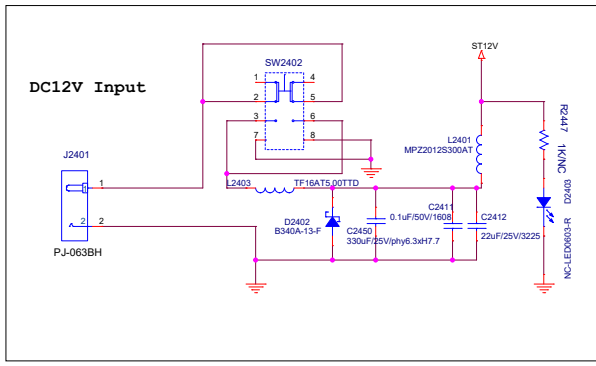
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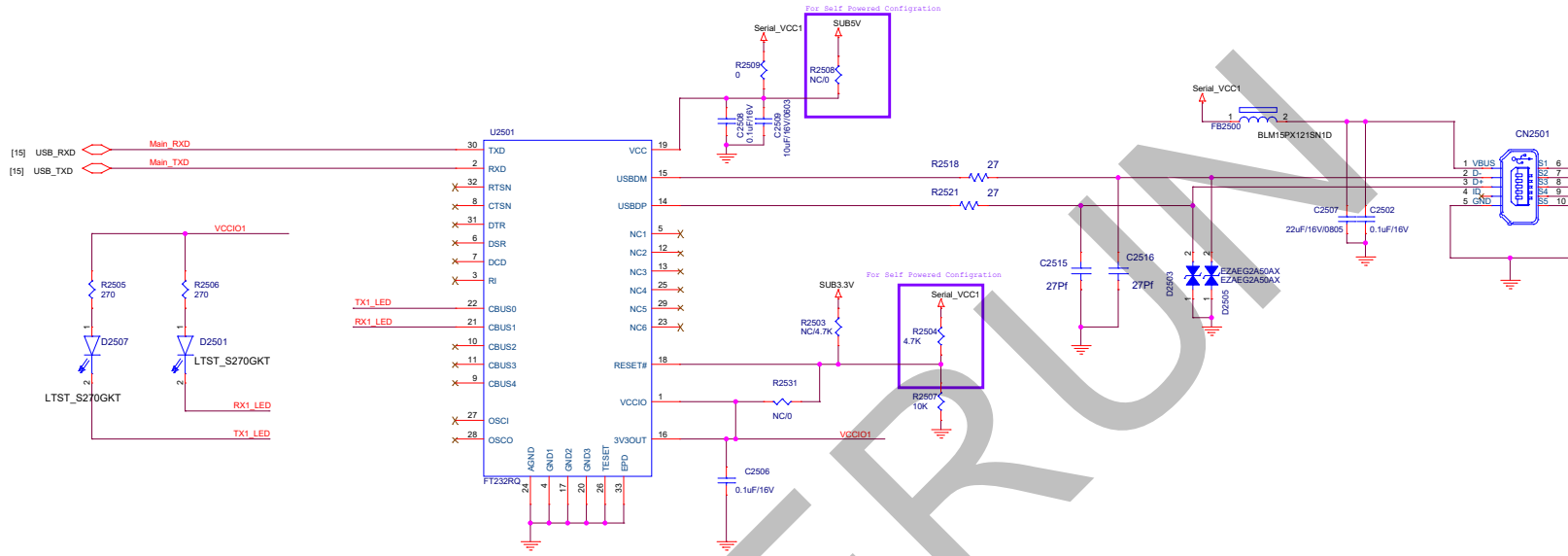





# Power Connector, Control signal



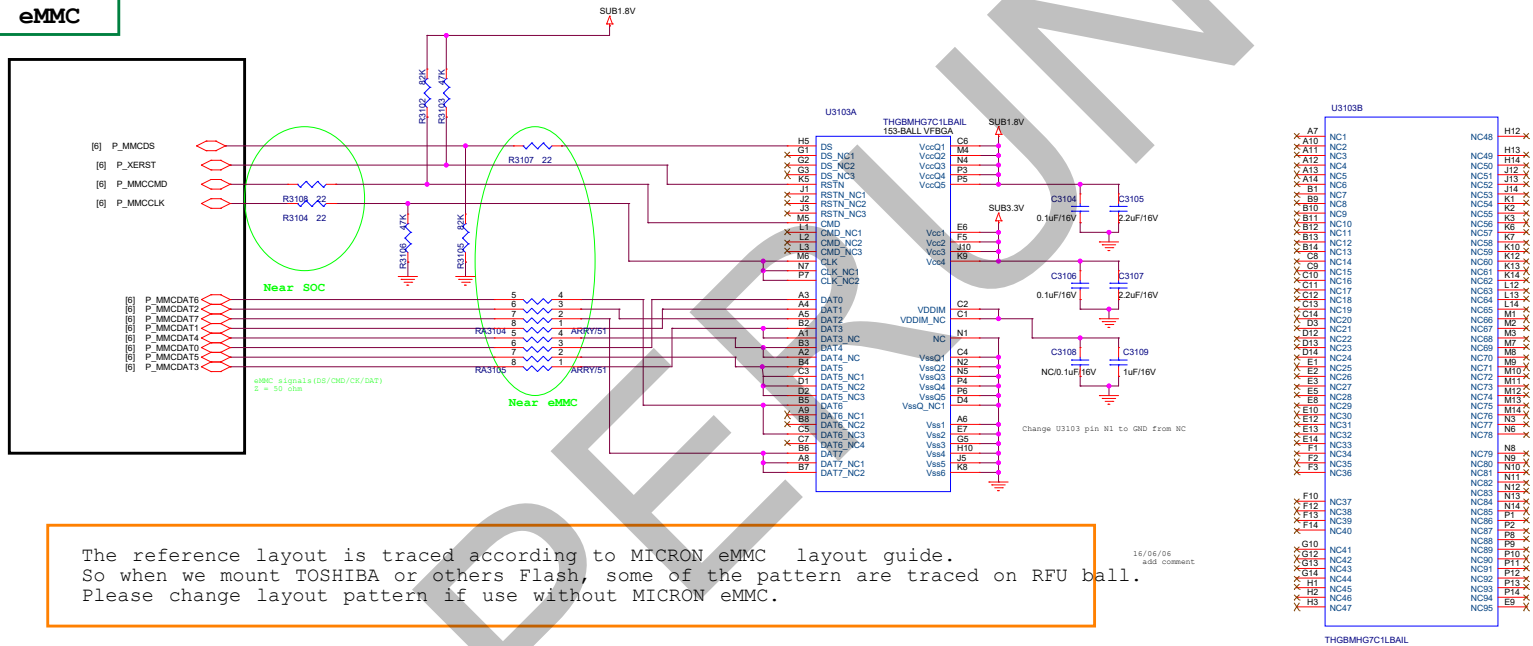
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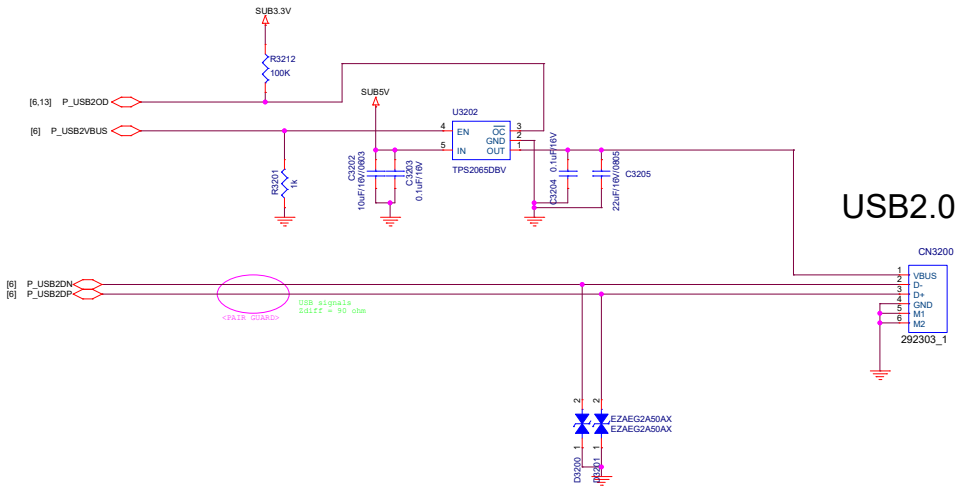
eMMC



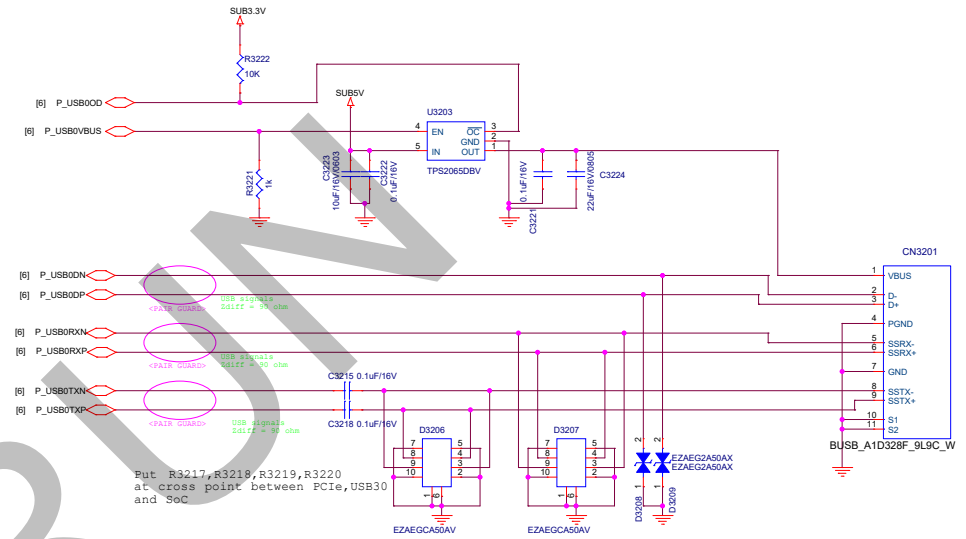
The reference layout is traced according to MICRON eMMC layout guide.  
 So when we mount TOSHIBA or others Flash, some of the pattern are traced on RFU ball.  
 Please change layout pattern if use without MICRON eMMC.

# USB

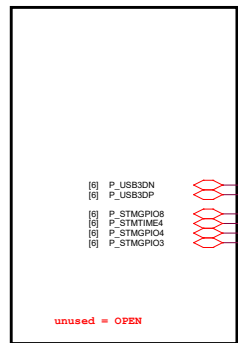
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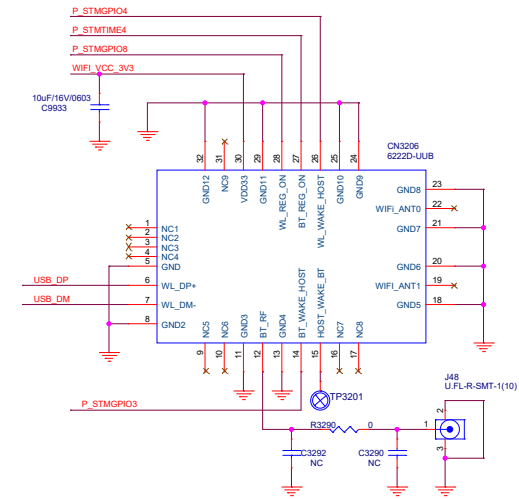
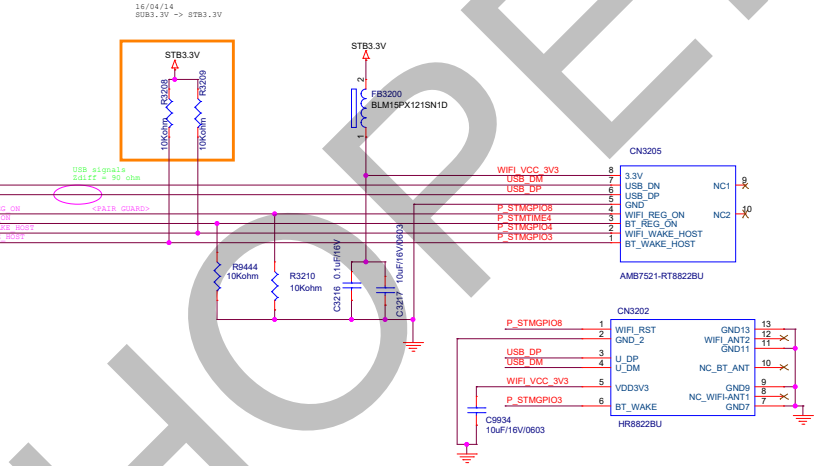
## USB0



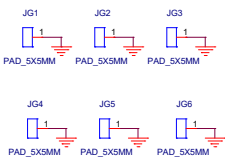
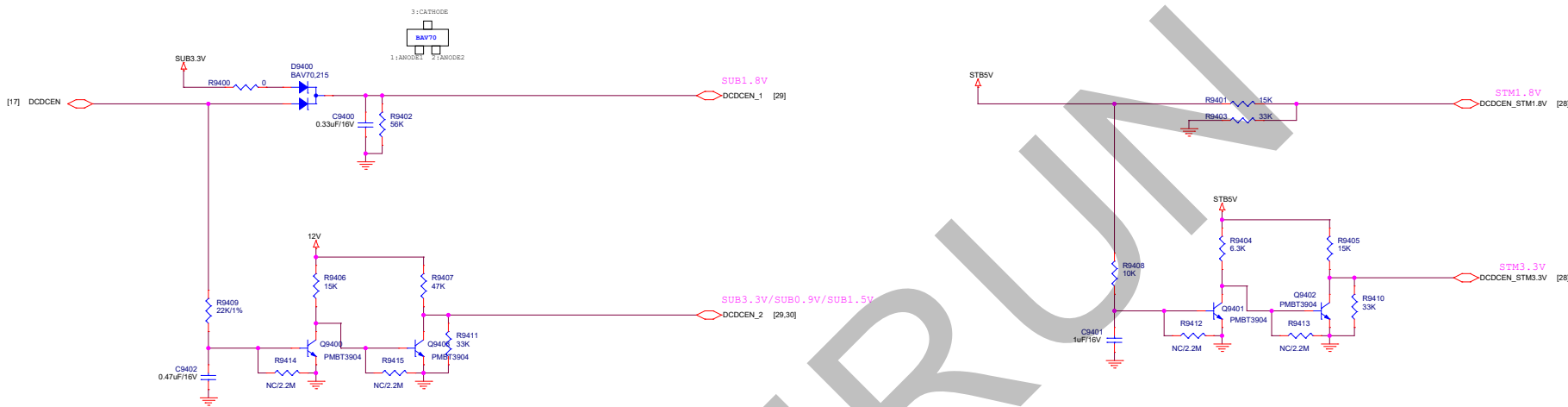
## USB3



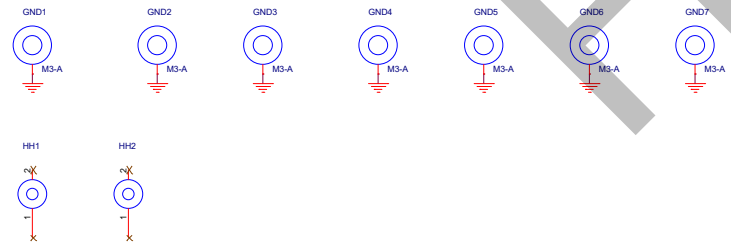
## WIFI Module



# DCDC CTRL

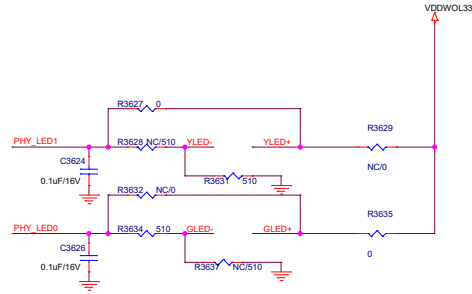
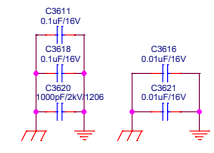
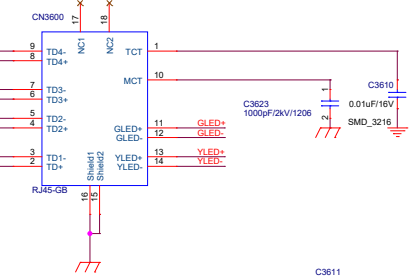
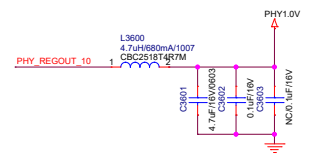
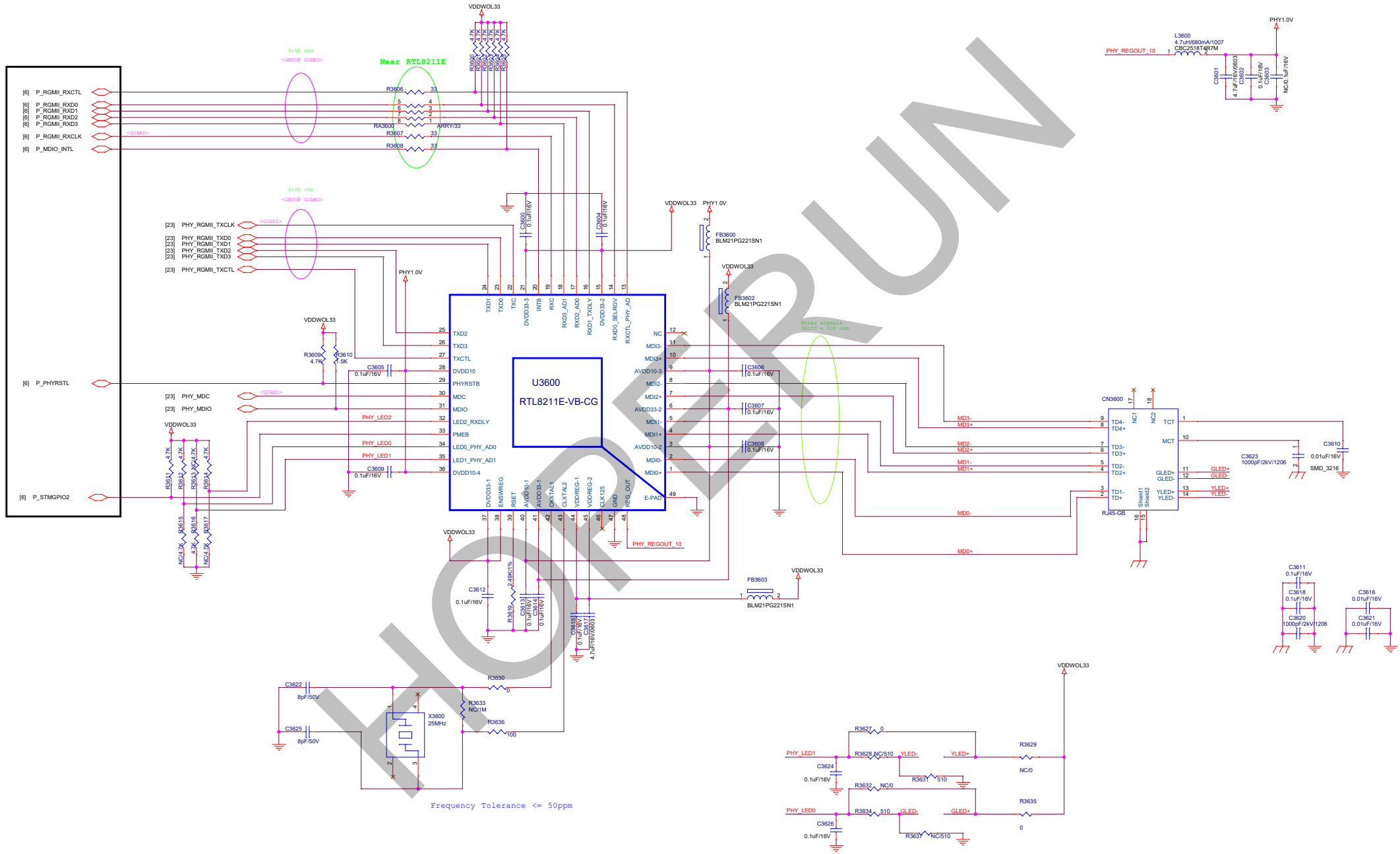


## SCREW HOLES



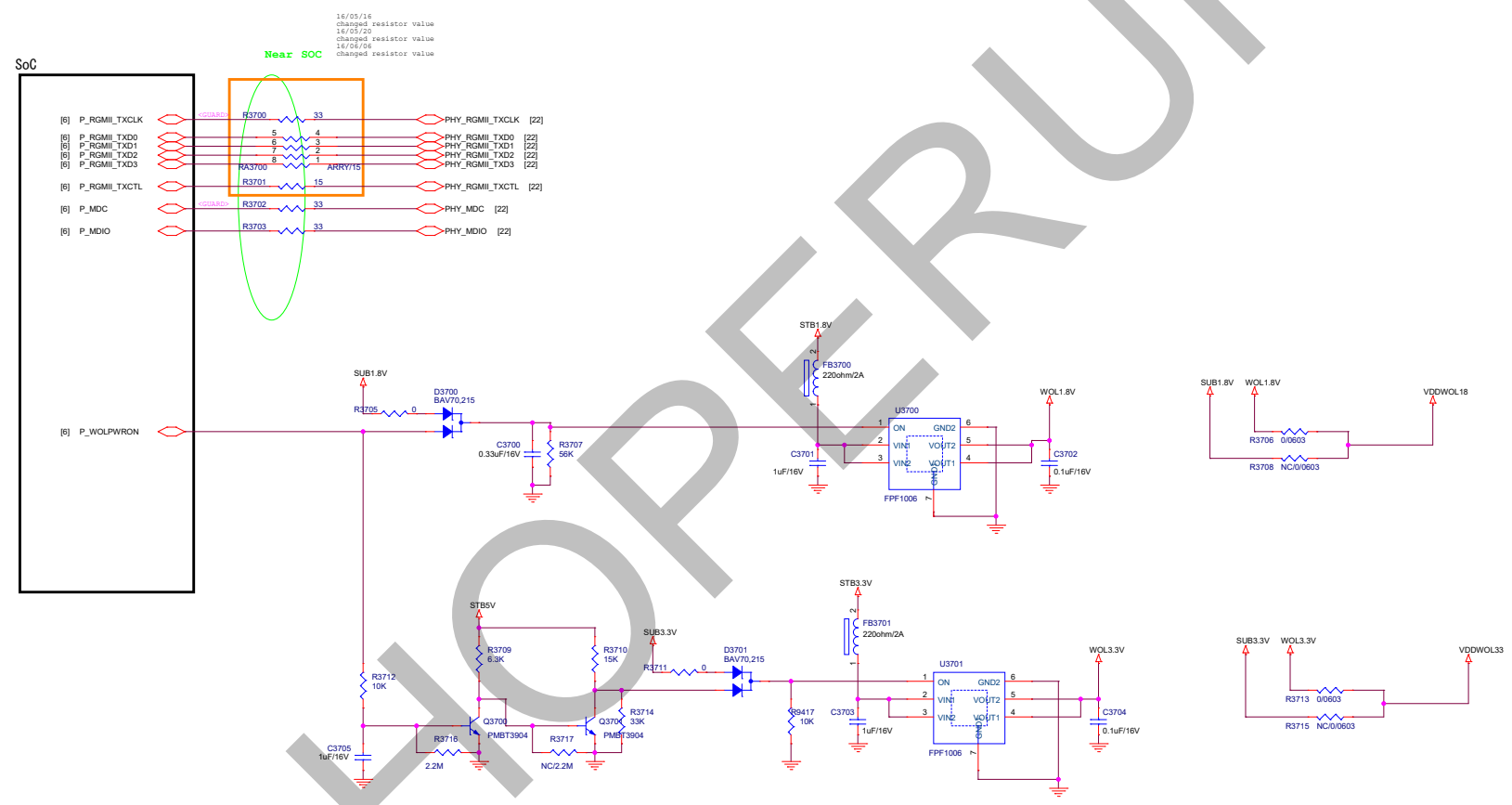
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<b>Document Number</b>		<b>DCDC CTRL</b>	
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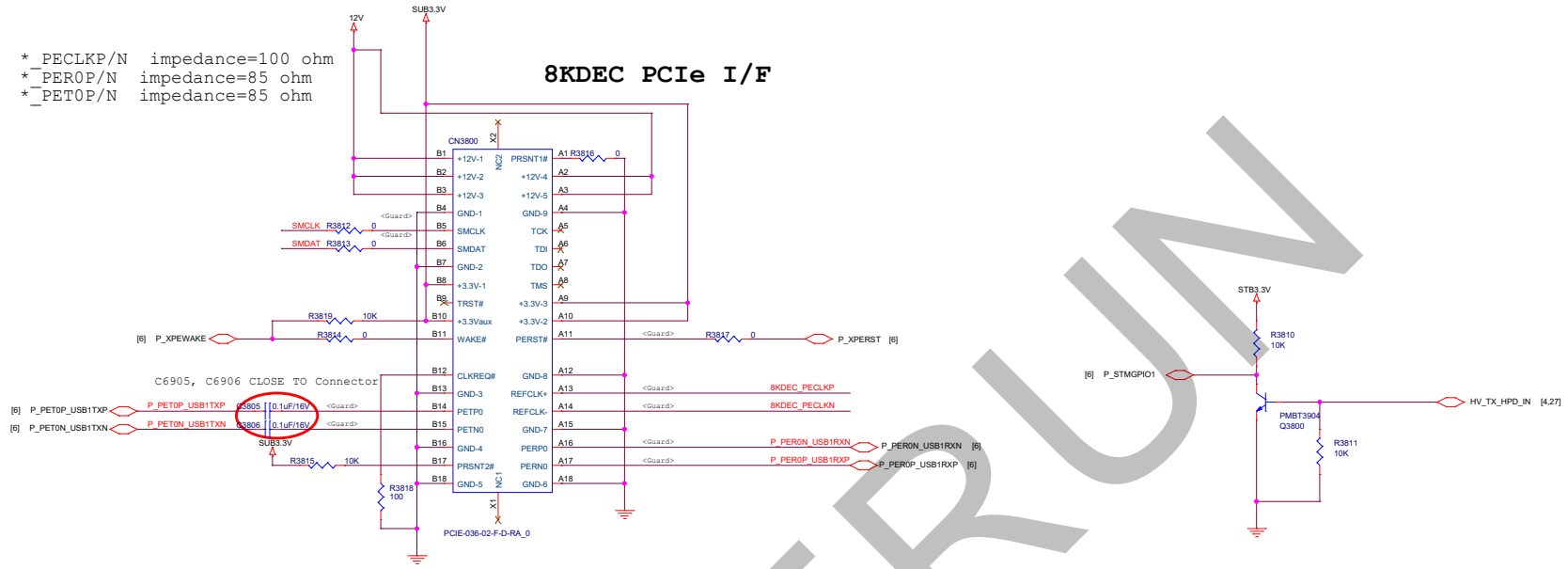
Frequency Tolerance <= 50ppm

Ether PHY

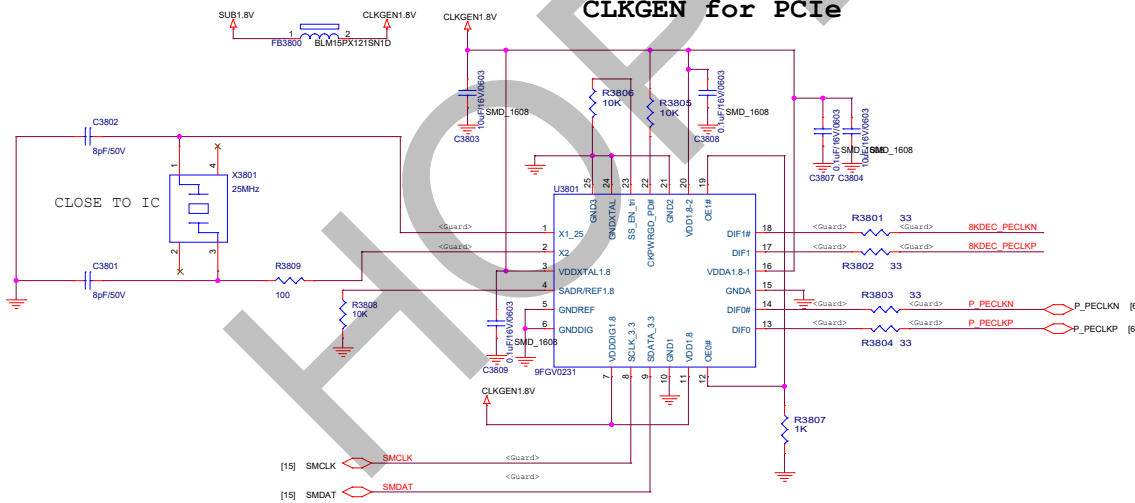


\*\_PECLKP/N impedance=100 ohm  
 \*\_PEROP/N impedance=85 ohm  
 \*\_PETOP/N impedance=85 ohm

### 8KDEC PCIe I/F

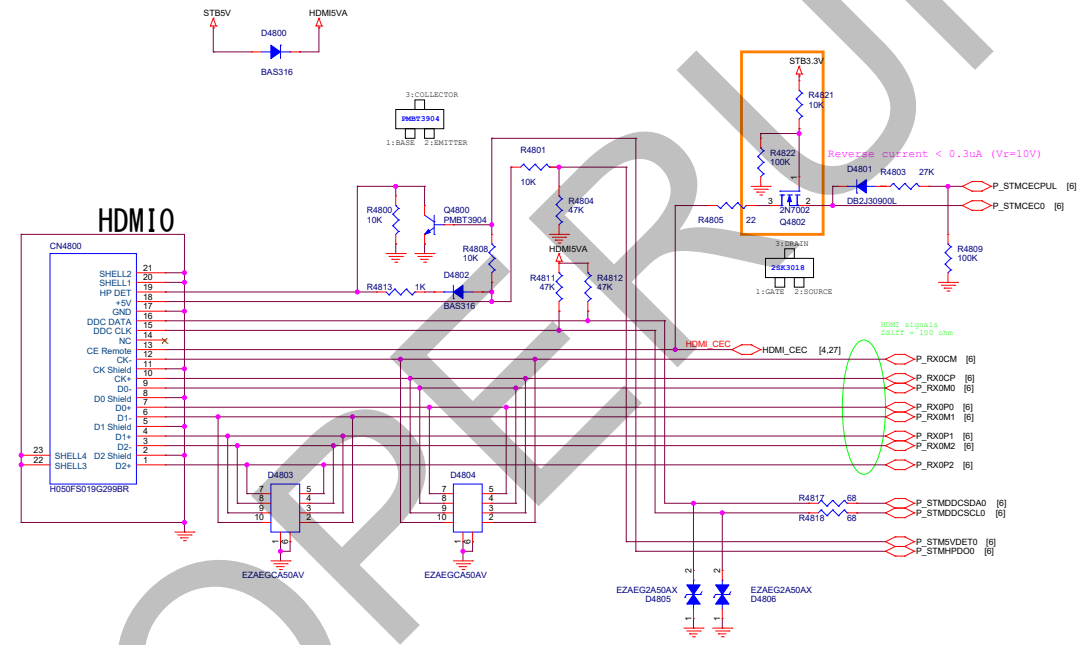


### CLKGEN for PCIe






# HDMI0

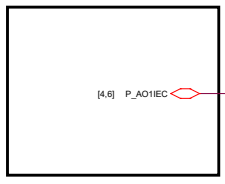


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SPDIF  
Out

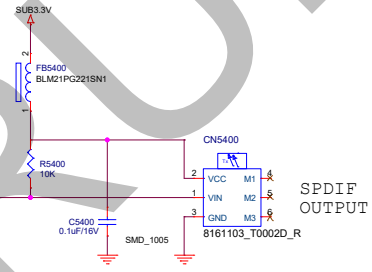
SPDIF out



[4,0] P\_AO1IEC

<QUAD>

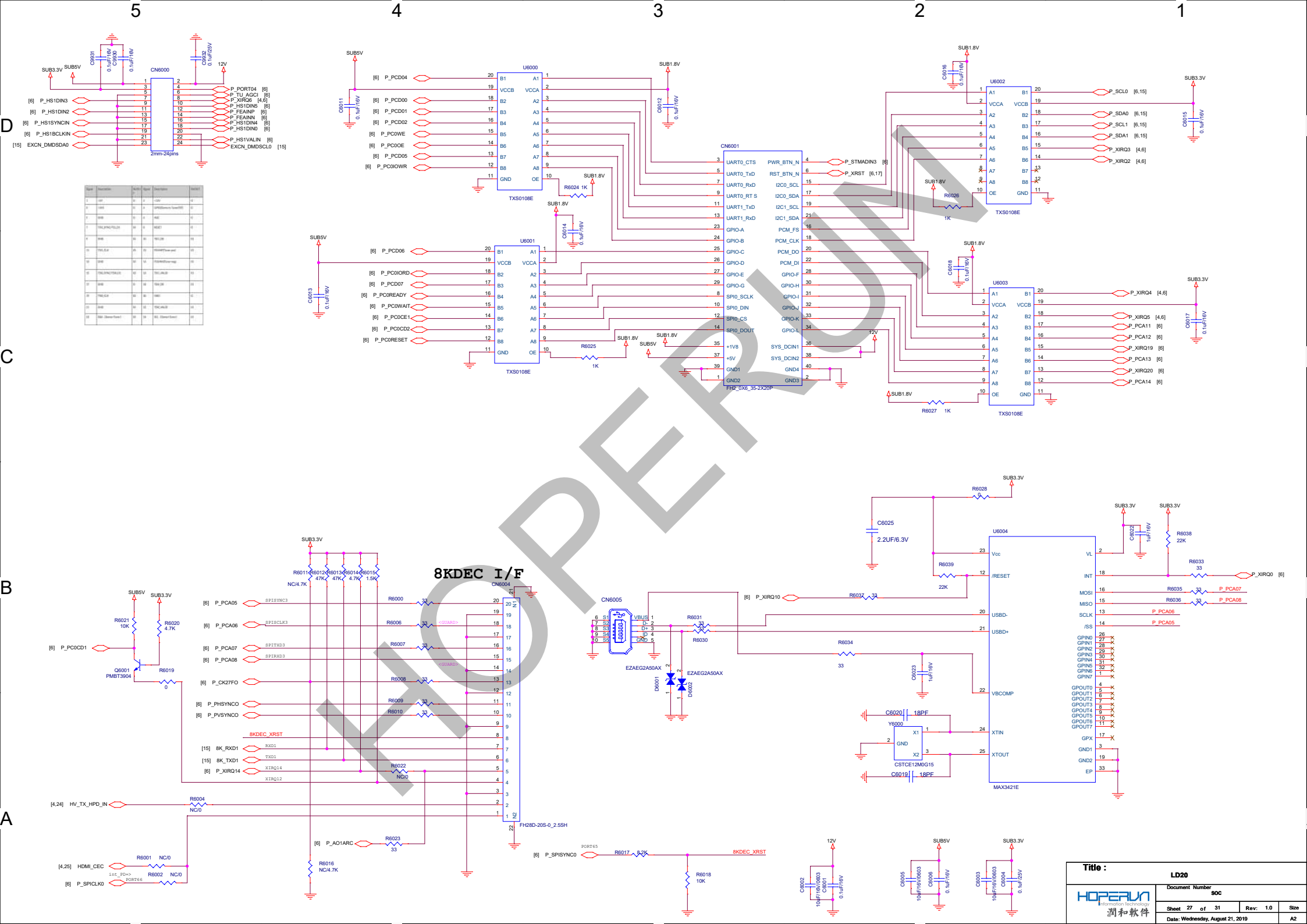
R5401 0



HOPERUN

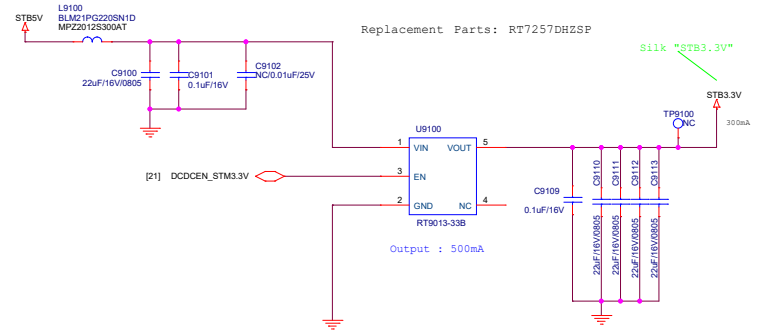
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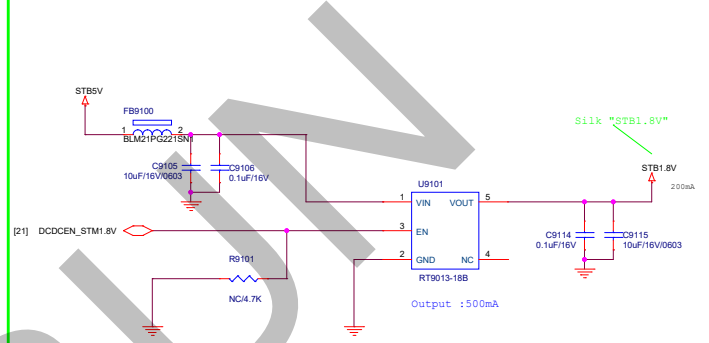


Signal	Manufacturer	Part No.	Value	Quantity	Location	Notes
1	LMF	50	1	1	U6000	
1	LMF	50	1	1	U6002	
1	LMF	50	1	1	U6003	
1	LMF	50	1	1	U6004	
1	LMF	50	1	1	U6005	
1	LMF	50	1	1	U6006	
1	LMF	50	1	1	U6007	
1	LMF	50	1	1	U6008	
1	LMF	50	1	1	U6009	
1	LMF	50	1	1	U6010	
1	LMF	50	1	1	U6011	
1	LMF	50	1	1	U6012	
1	LMF	50	1	1	U6013	
1	LMF	50	1	1	U6014	
1	LMF	50	1	1	U6015	
1	LMF	50	1	1	U6016	
1	LMF	50	1	1	U6017	
1	LMF	50	1	1	U6018	
1	LMF	50	1	1	U6019	
1	LMF	50	1	1	U6020	
1	LMF	50	1	1	U6021	
1	LMF	50	1	1	U6022	
1	LMF	50	1	1	U6023	
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1	LMF	50	1	1	U6040	
1	LMF	50	1	1	U6041	
1	LMF	50	1	1	U6042	
1	LMF	50	1	1	U6043	
1	LMF	50	1	1	U6044	
1	LMF	50	1	1	U6045	
1	LMF	50	1	1	U6046	
1	LMF	50	1	1	U6047	
1	LMF	50	1	1	U6048	
1	LMF	50	1	1	U6049	
1	LMF	50	1	1	U6050	

STB3.3V



STB1.8V

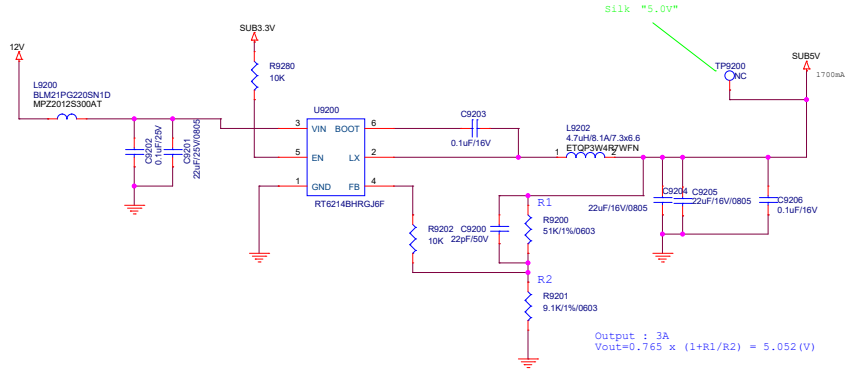


HOPERUN

# DCDC (BE1)

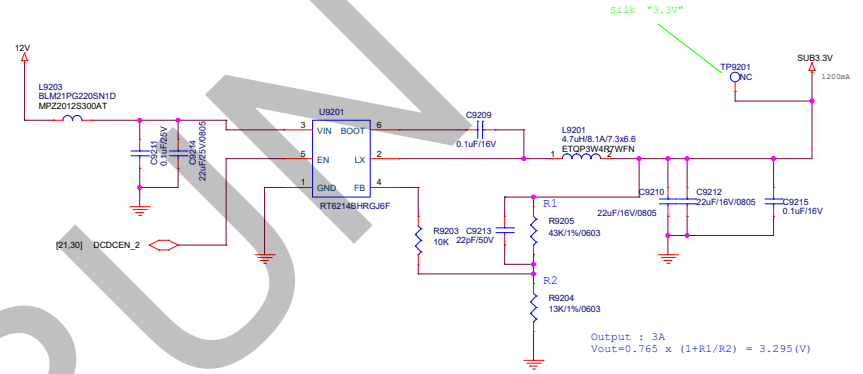
## 5.0V

R1,R2: Chip size 0603(1608)



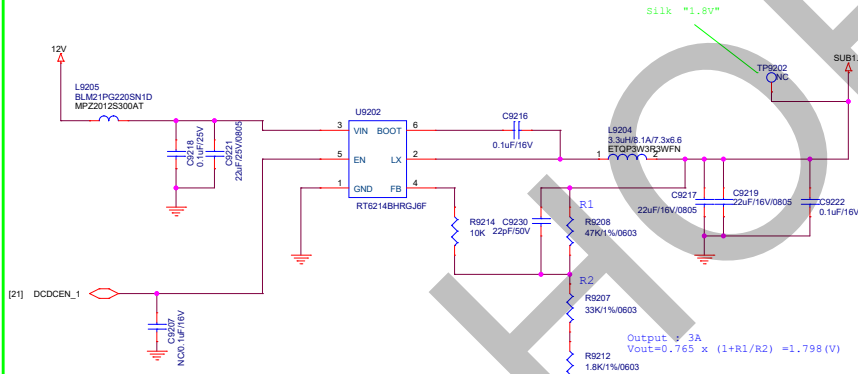
## 3.3V

R1,R2: Chip size 0603(1608)



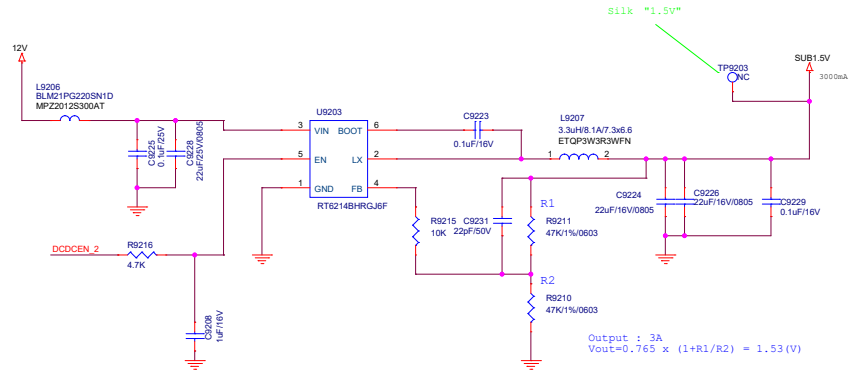
## 1.8V

R1,R2: Chip size 0603(1608)



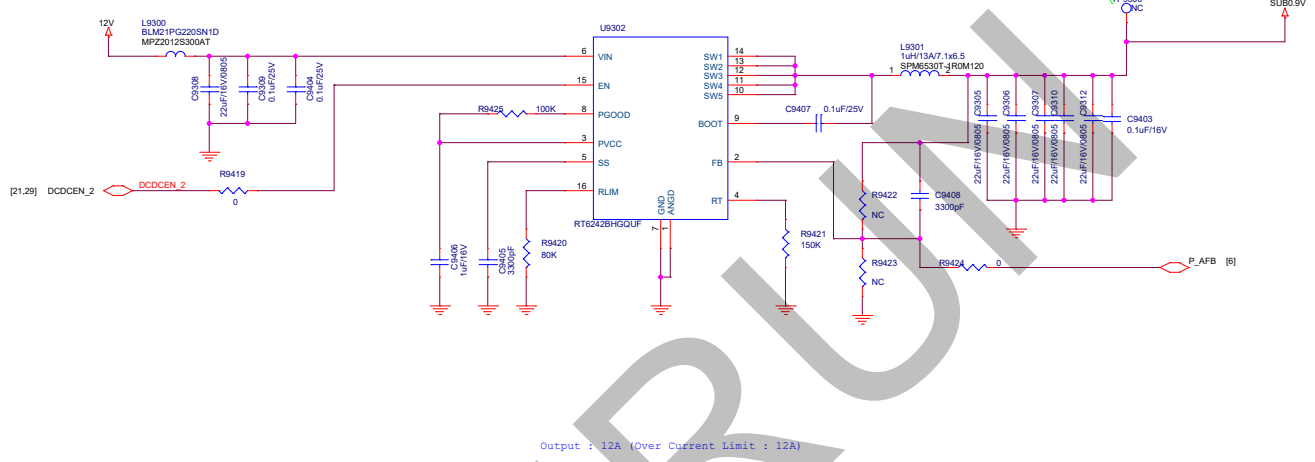
## 1.5V

R1,R2: Chip size 0603(1608)

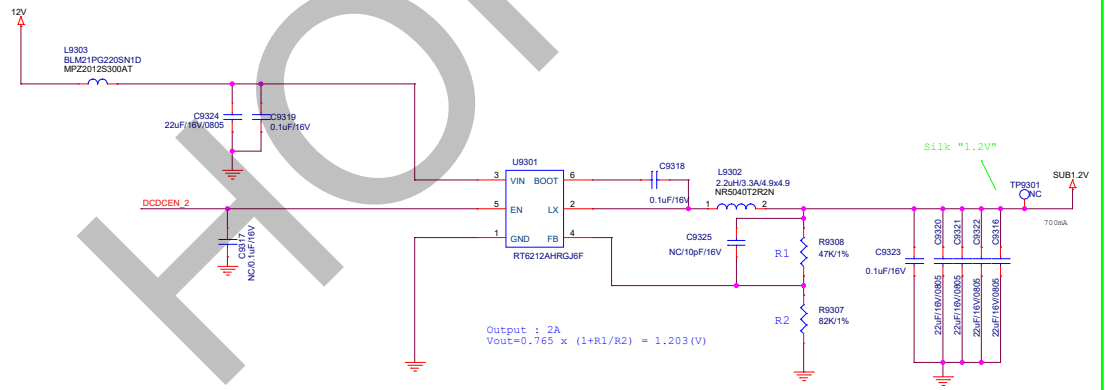


DCDC (BE2)

0.9V



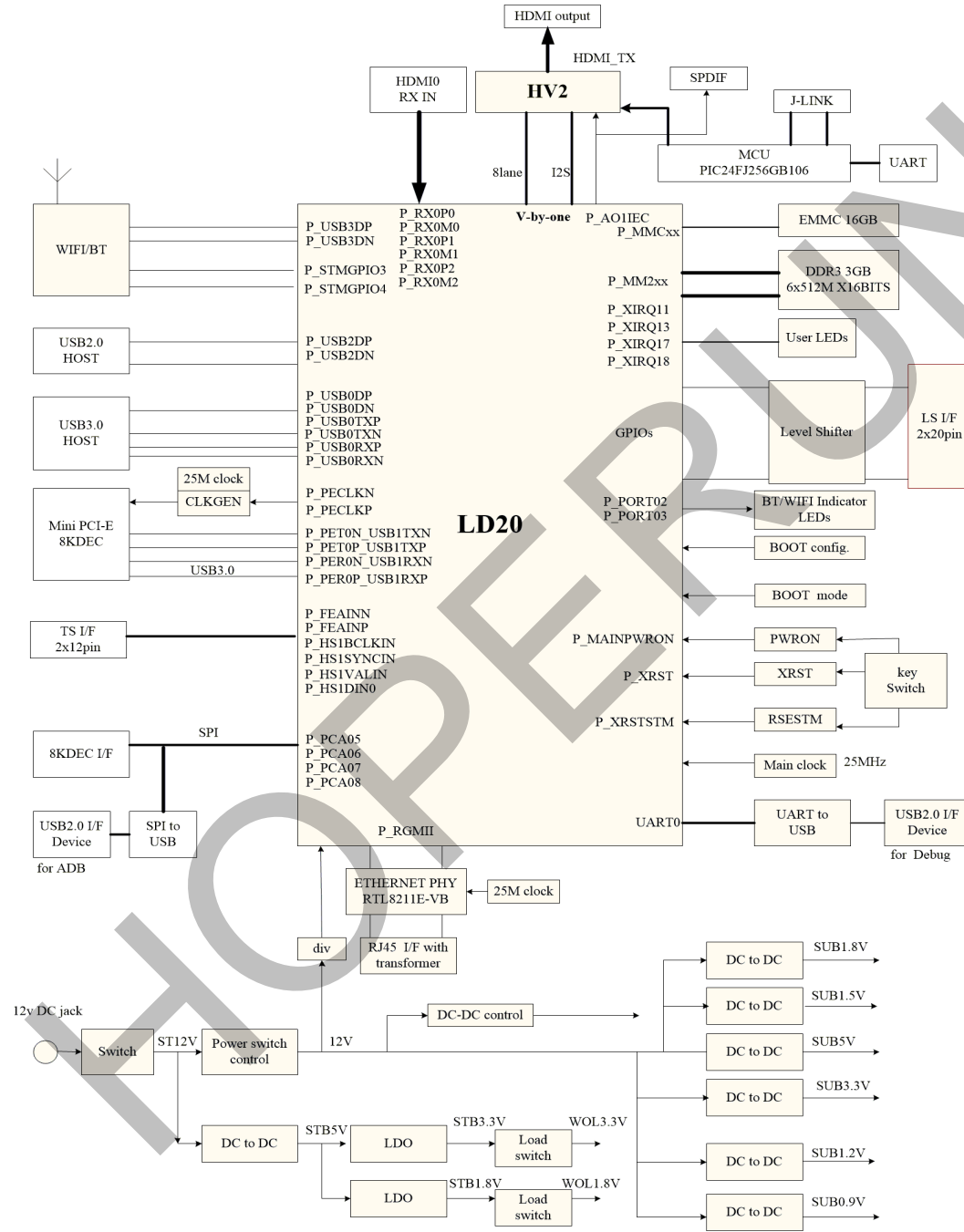
1.2V




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