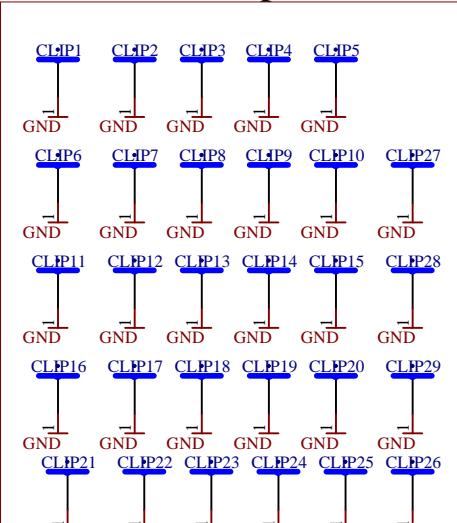


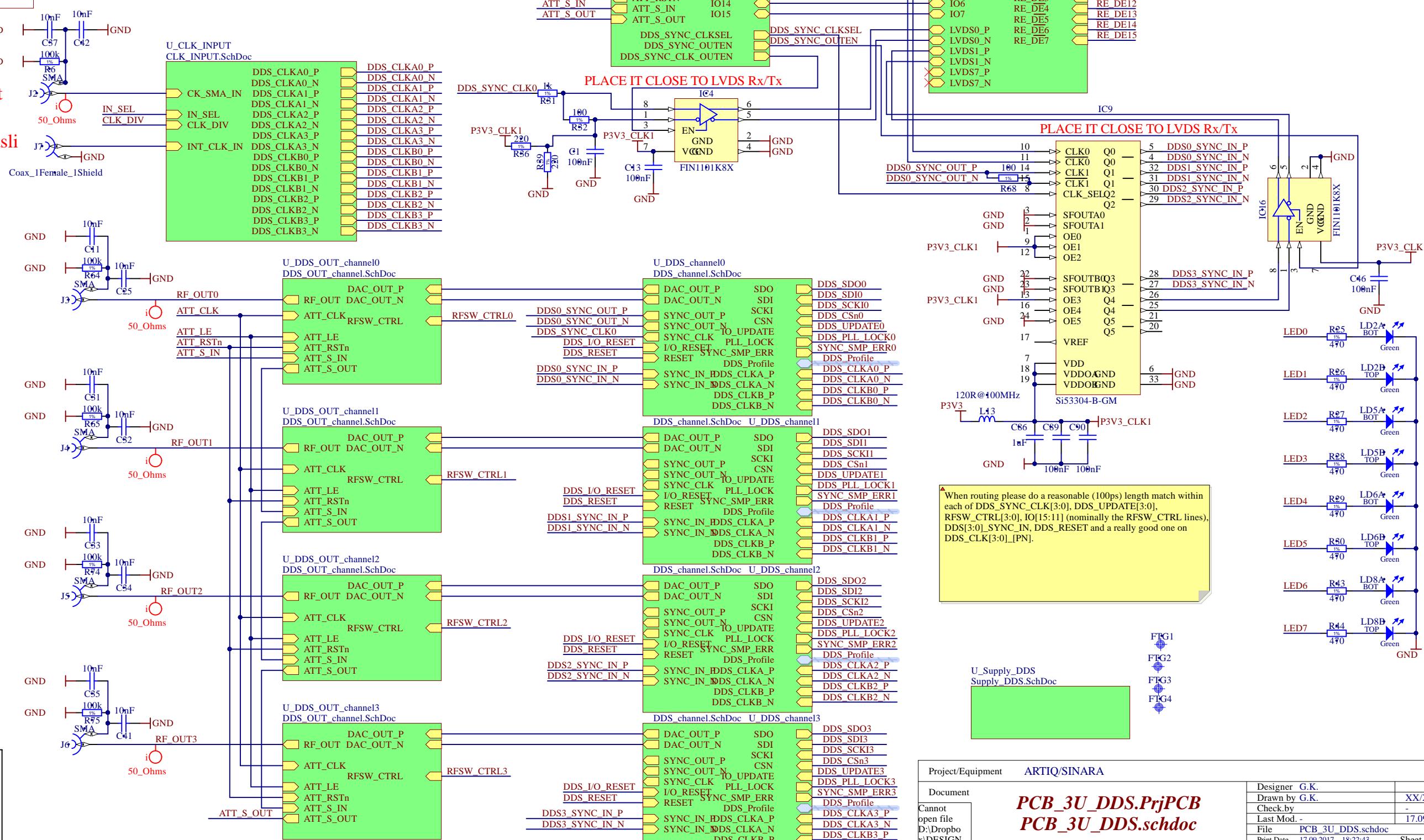
shield clips



Ext clock input

Clock from Kasli

Output SMAs



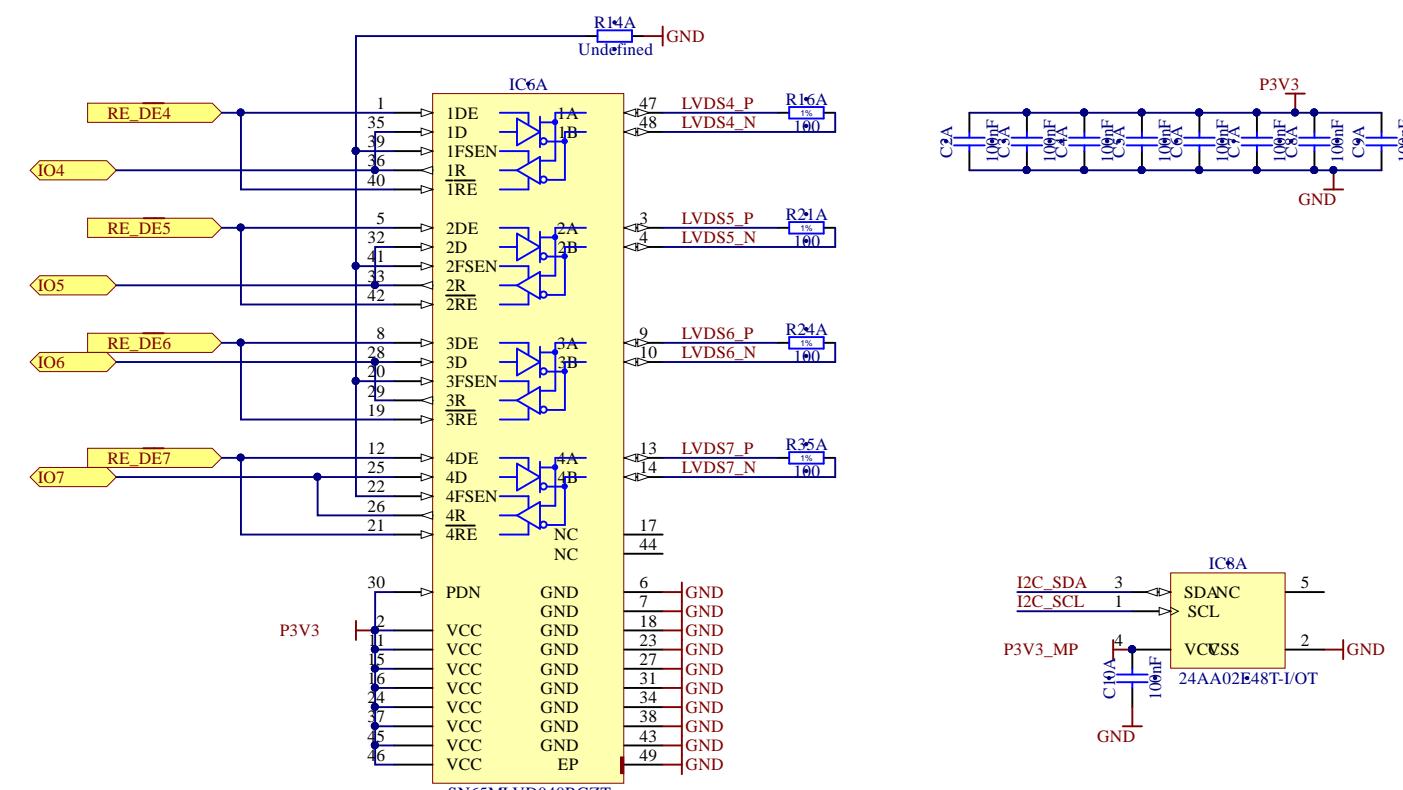
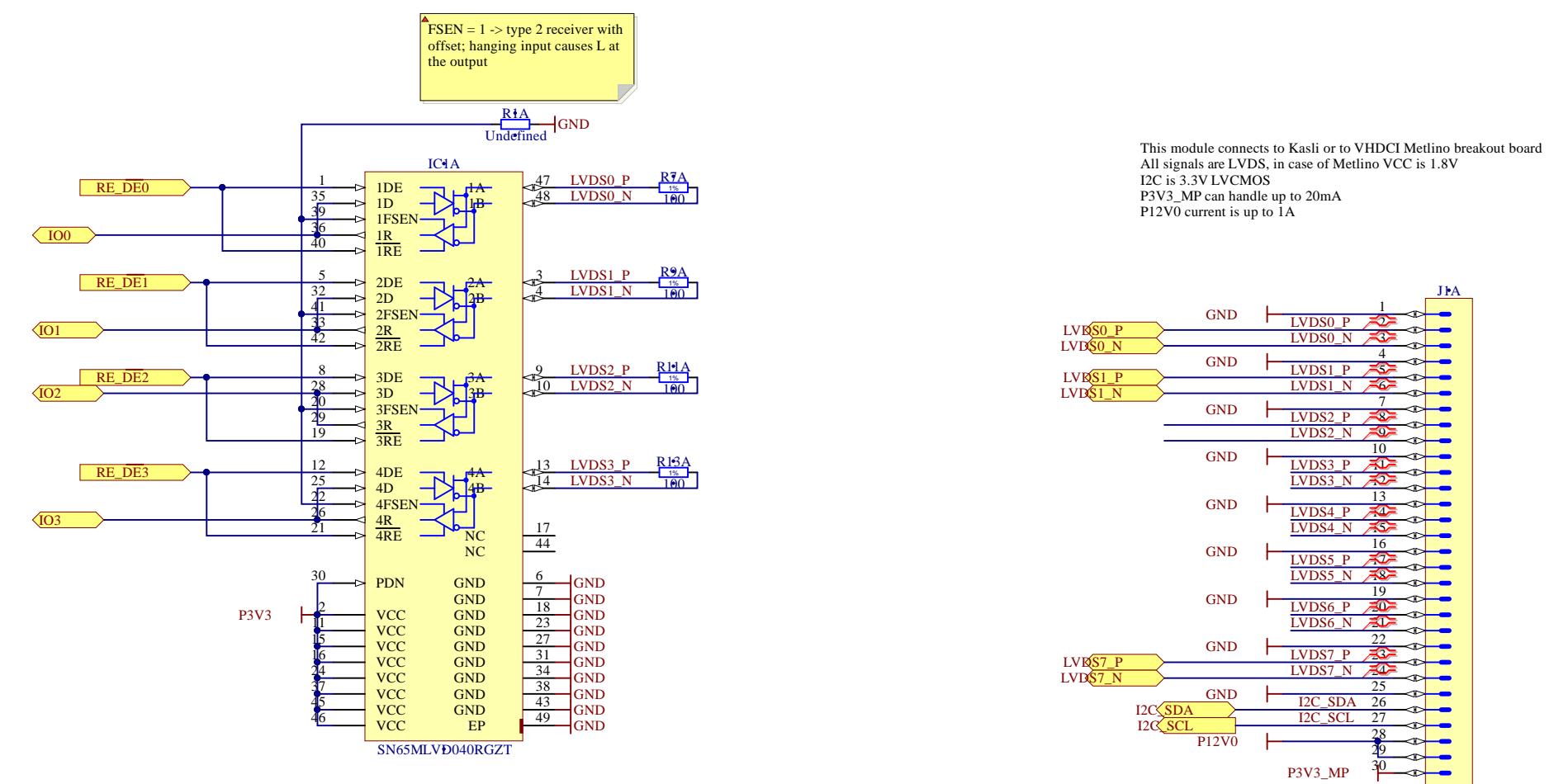
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Project/Equipment

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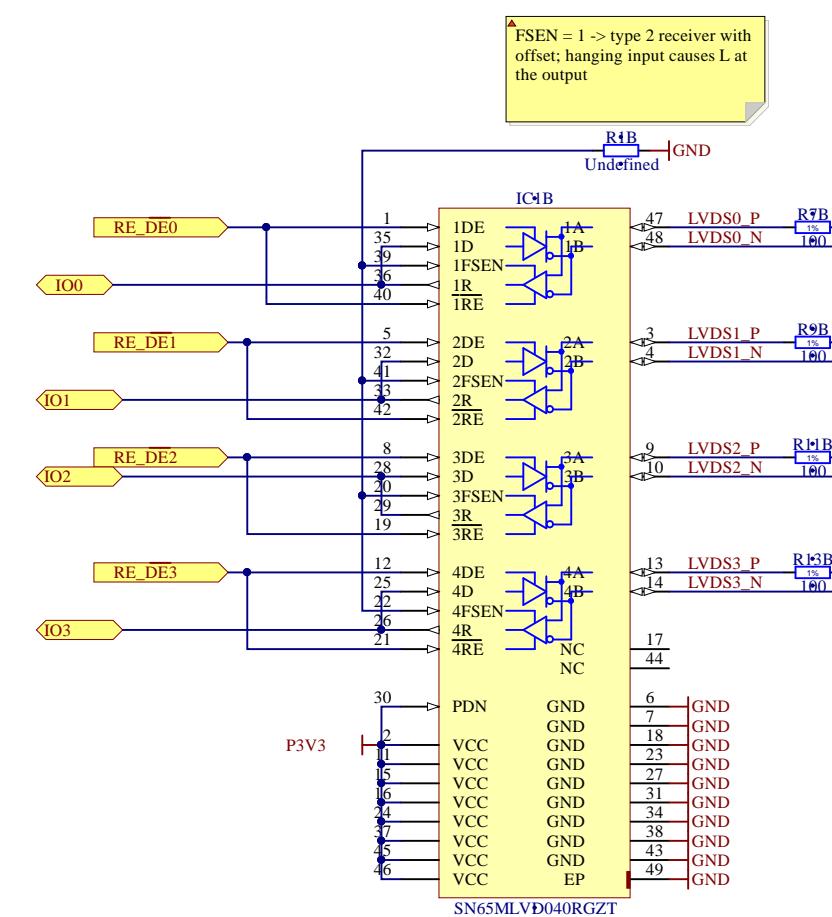
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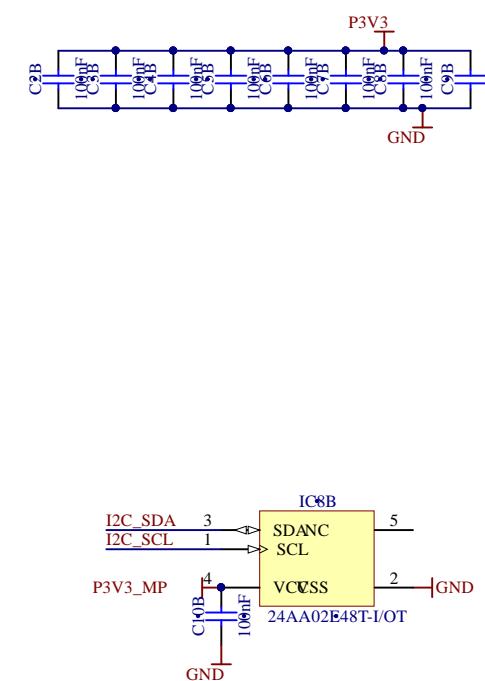
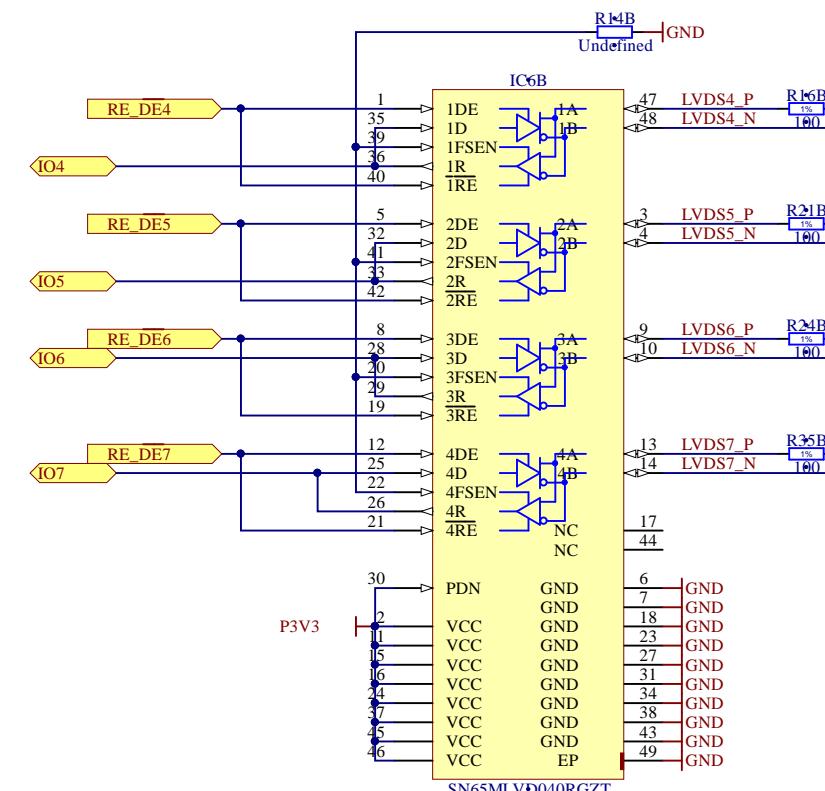
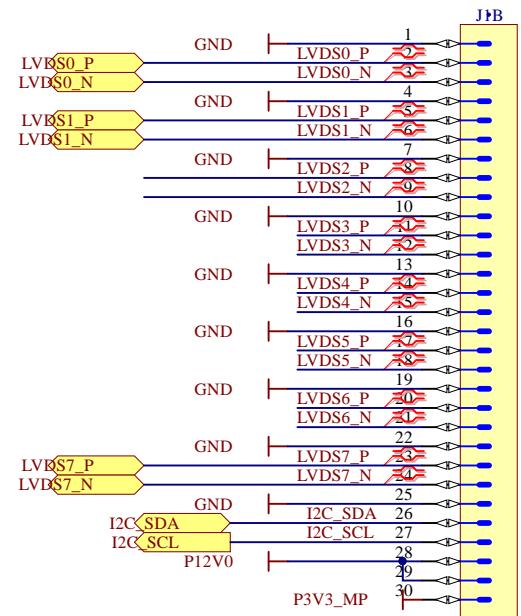


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File LVDS_IFC_DDS.SchDoc
Print Date 17.09.2017 18:22:43 Sheet 2 of 7
Warsaw University of Technology ISE
Nowowiejska 15/19 ARTIQ
Size A3 Rev -



This module connects to Kasli or to VHDCI Metlino breakout board
All signals are LVDS, in case of Metlino VCC is 1.8V
I2C is 3.3V LVC MOS
P3V3_MP can handle up to 20mA
P12V0 current is up to 1A



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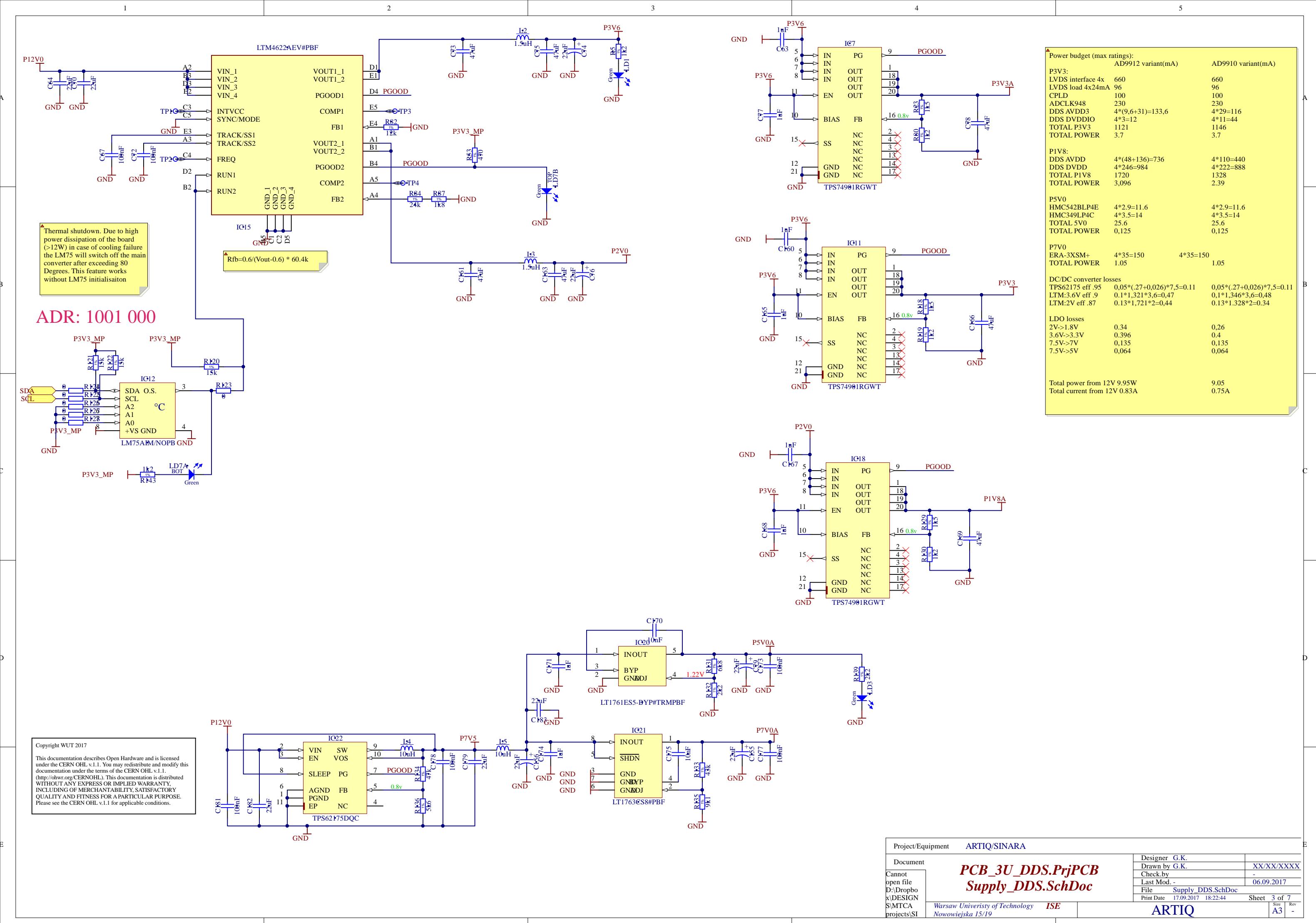
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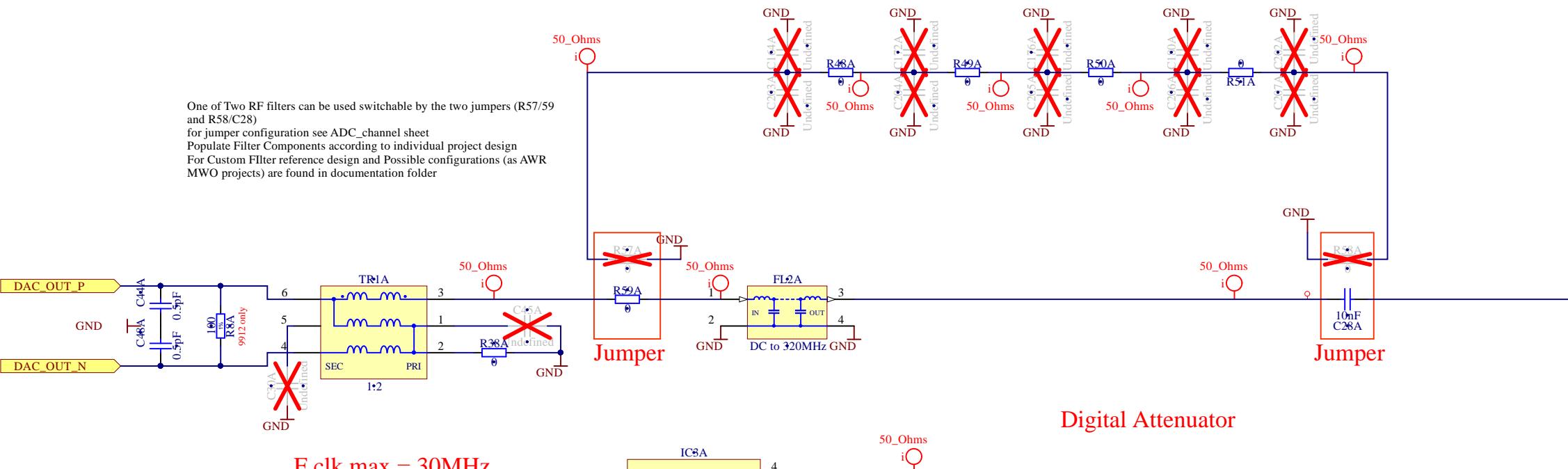
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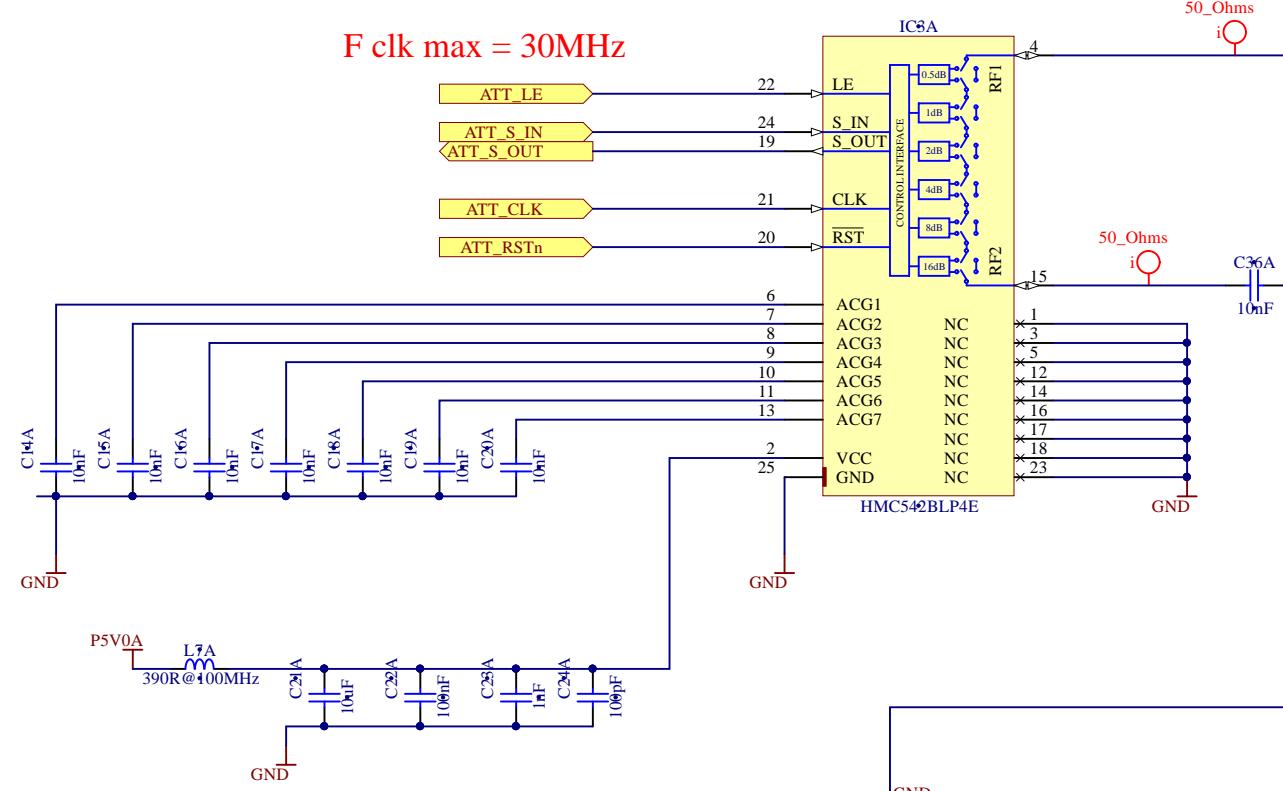
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One of Two RF filters can be used switchable by the two jumpers (R57/59 and R58/C28)
for jumper configuration see ADC_channel sheet
Populate Filter Components according to individual project design
For Custom Filter reference design and Possible configurations (as AWR MWO projects) are found in documentation folder

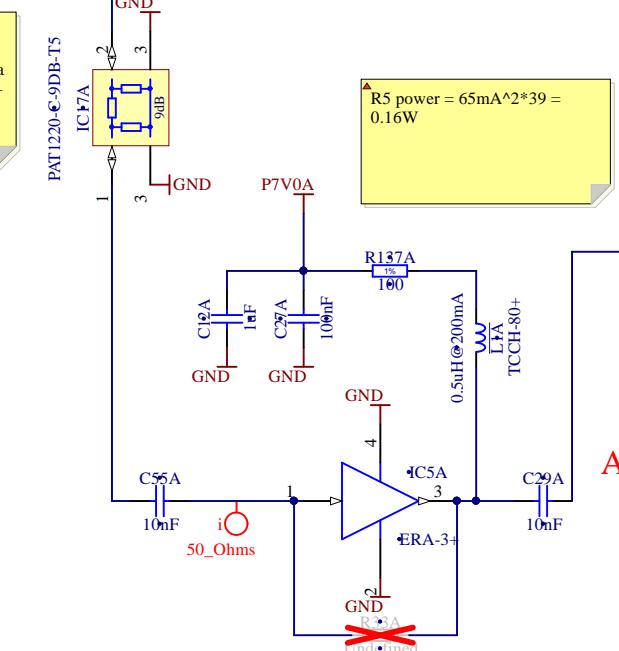


Digital Attenuator

F clk max = 30MHz

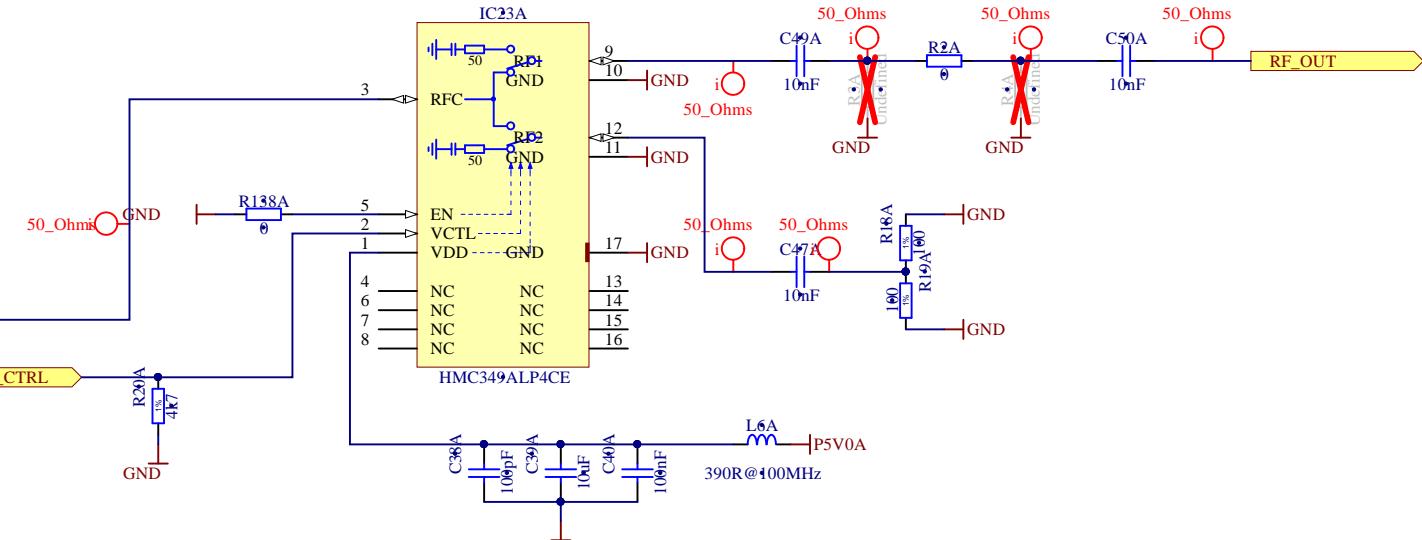


With about 1dBm out of the DDS, 0.5 dB insertion loss from the Balun, 0.5 dB from the lowpass, 1.5 dB from the attenuator, we need a 9dB T-pad to attenuate that before the ERA-3+ with 23 dB gain and P1dB of 13 dBm at our frequencies.



Amplifier
~23 dB gain and 13 dBm P1dB

SPDT switch



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Project/Equipment ARTIQ/SINARA

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DDS_OUT_channel.SchDoc

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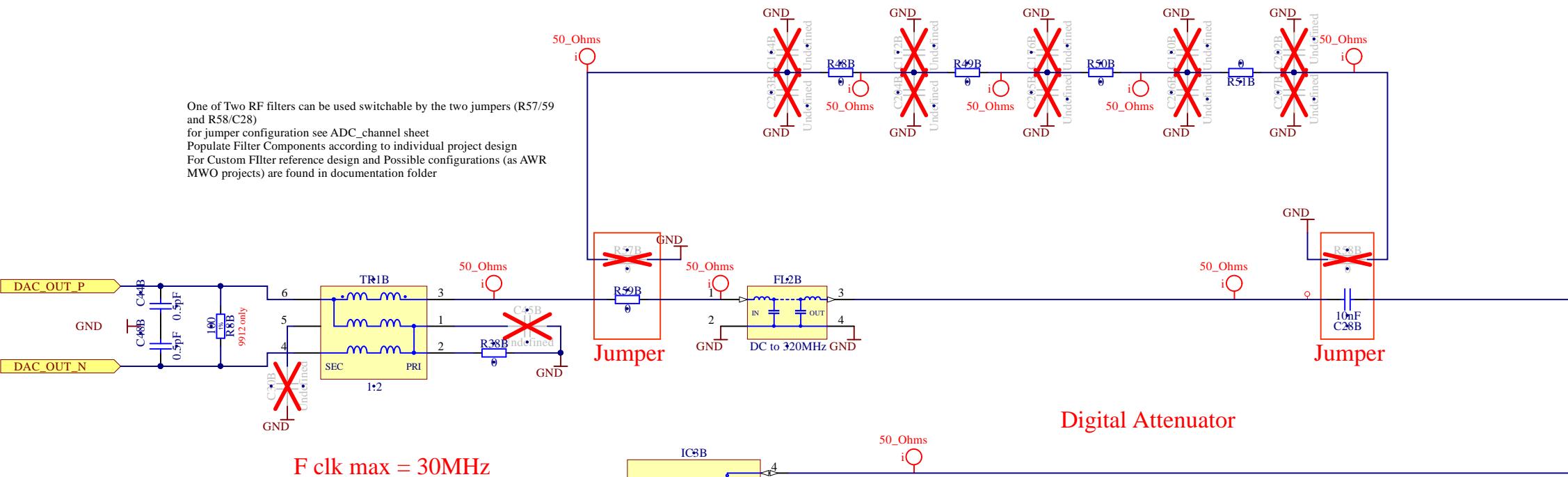
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Size A3 Rev -

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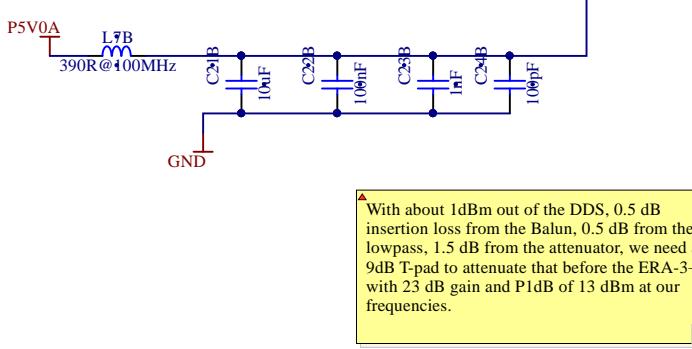
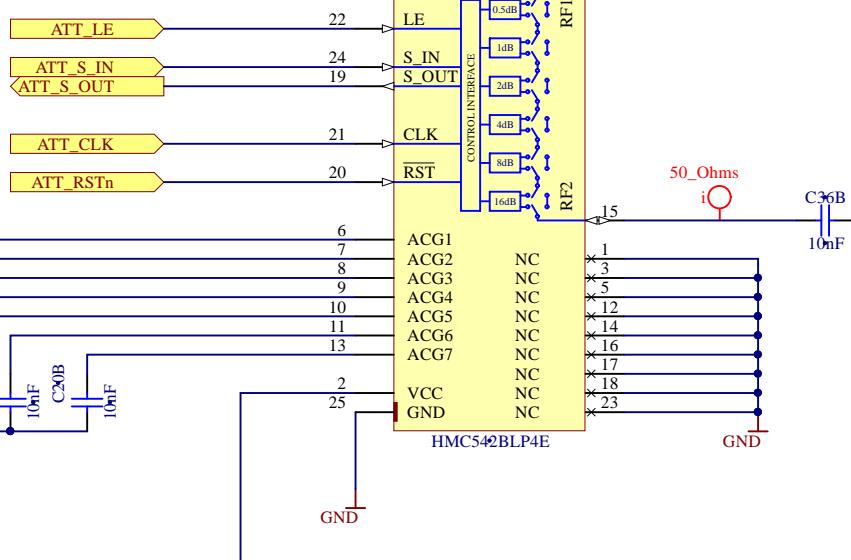
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One of Two RF filters can be used switchable by the two jumpers (R57/59 and R58/C28) for jumper configuration see ADC_channel sheet. Populate Filter Components according to individual project design. For Custom Filter reference design and Possible configurations (as AWR MWO projects) are found in documentation folder.

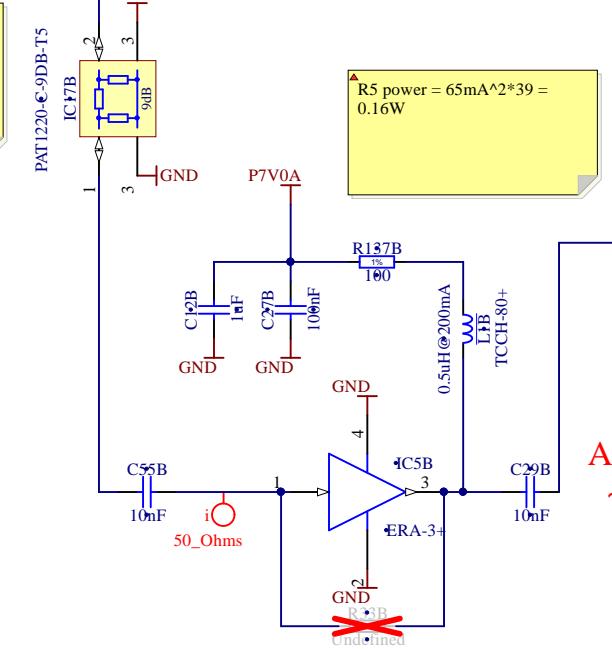


Digital Attenuator

F clk max = 30MHz

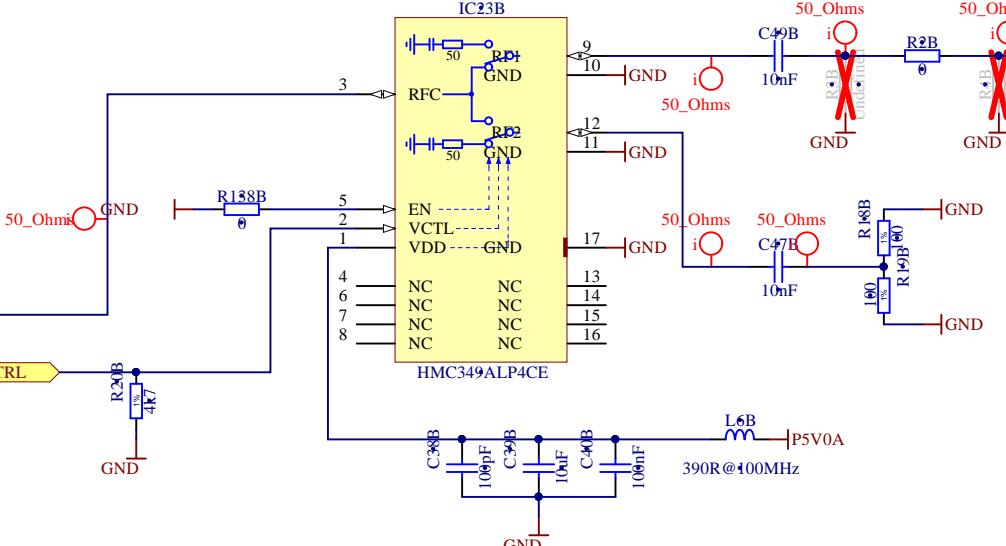


With about 1dBm out of the DDS, 0.5 dB insertion loss from the Balun, 0.5 dB from the lowpass, 1.5 dB from the attenuator, we need a 9dB T-pad to attenuate that before the ERA-3+ with 23 dB gain and P1dB of 13 dBm at our frequencies.



Amplifier ~23 dB gain and 13 dBm P1dB

SPDT switch



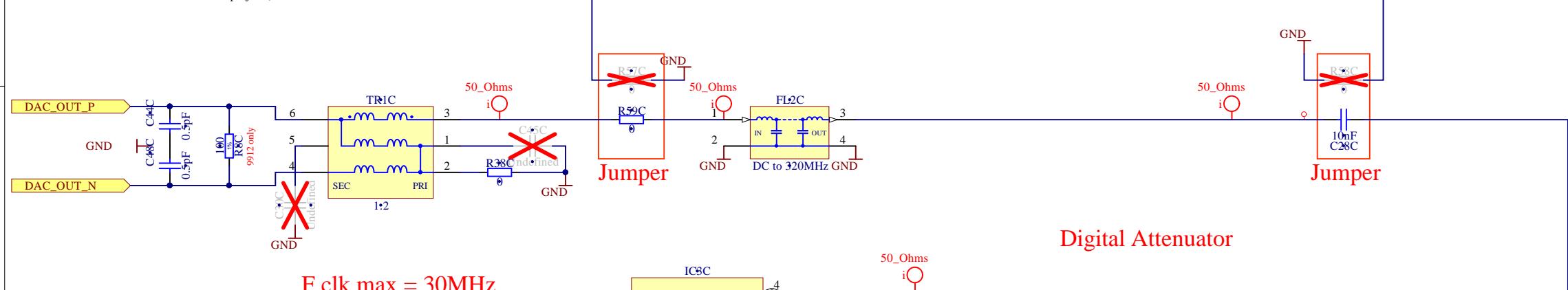
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Warsaw University of Technology ISE Nowowiejska 15/19		Size A3 Rev -

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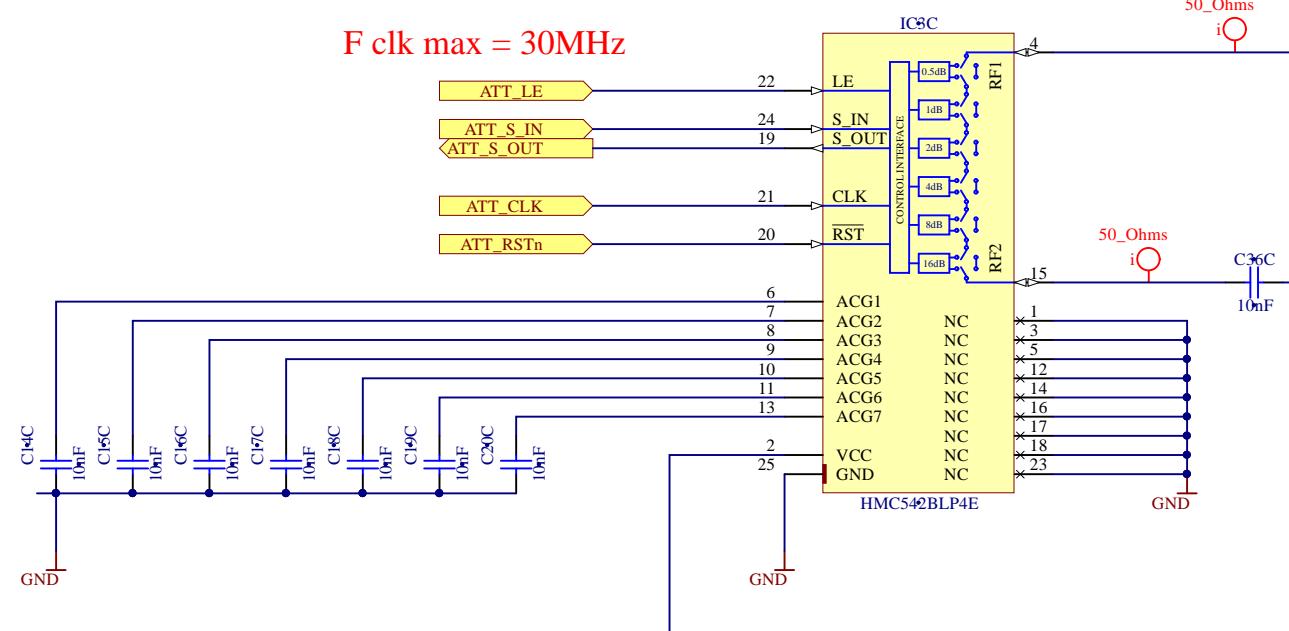
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One of Two RF filters can be used switchable by the two jumpers (R57/59 and R58/C28)
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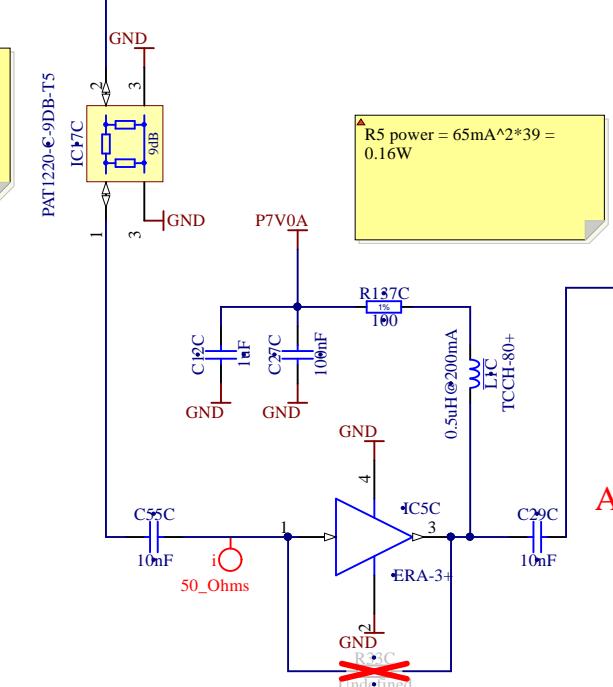


Digital Attenuator

F clk max = 30MHz

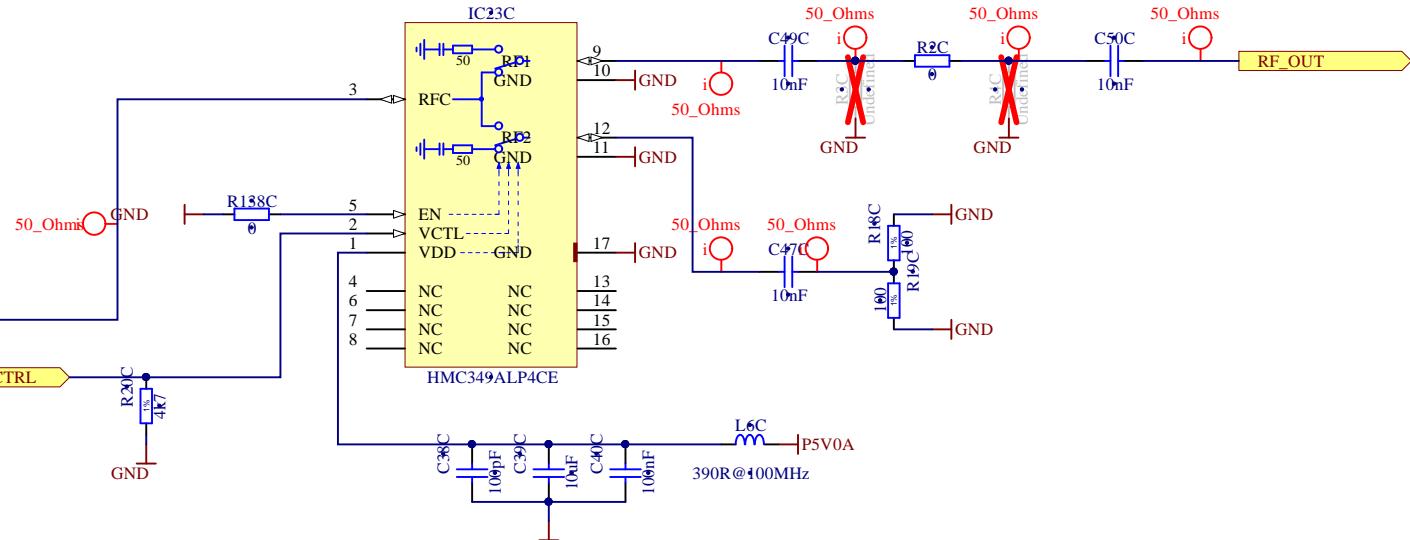


With about 1dBm out of the DDS, 0.5 dB insertion loss from the Balun, 0.5 dB from the lowpass, 1.5 dB from the attenuator, we need a 9dB T-pad to attenuate that before the ERA-3+ with 23 dB gain and P1dB of 13 dBm at our frequencies.



Amplifier
~23 dB gain and 13 dBm P1dB

SPDT switch



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Project/Equipment ARTIQ/SINARA

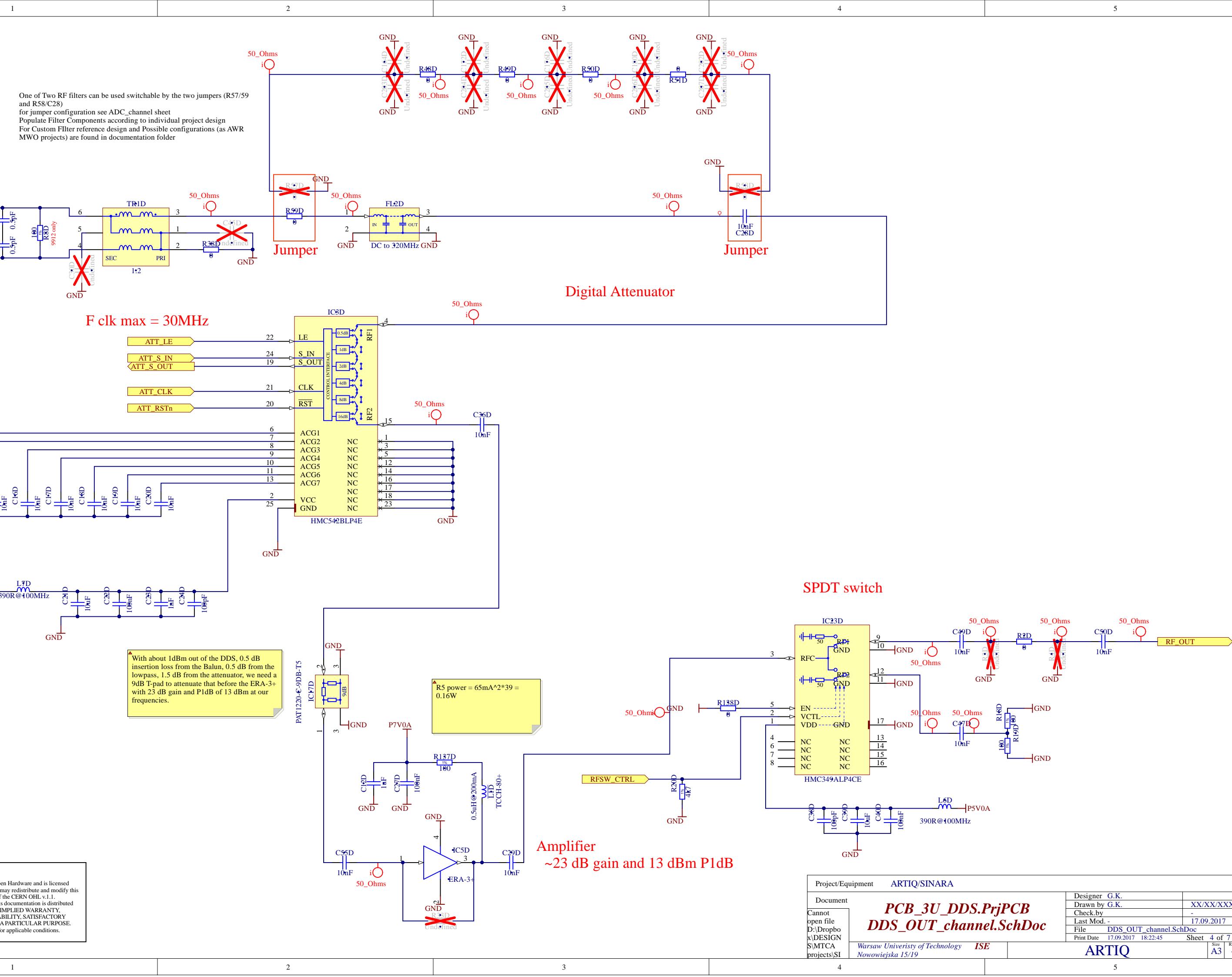
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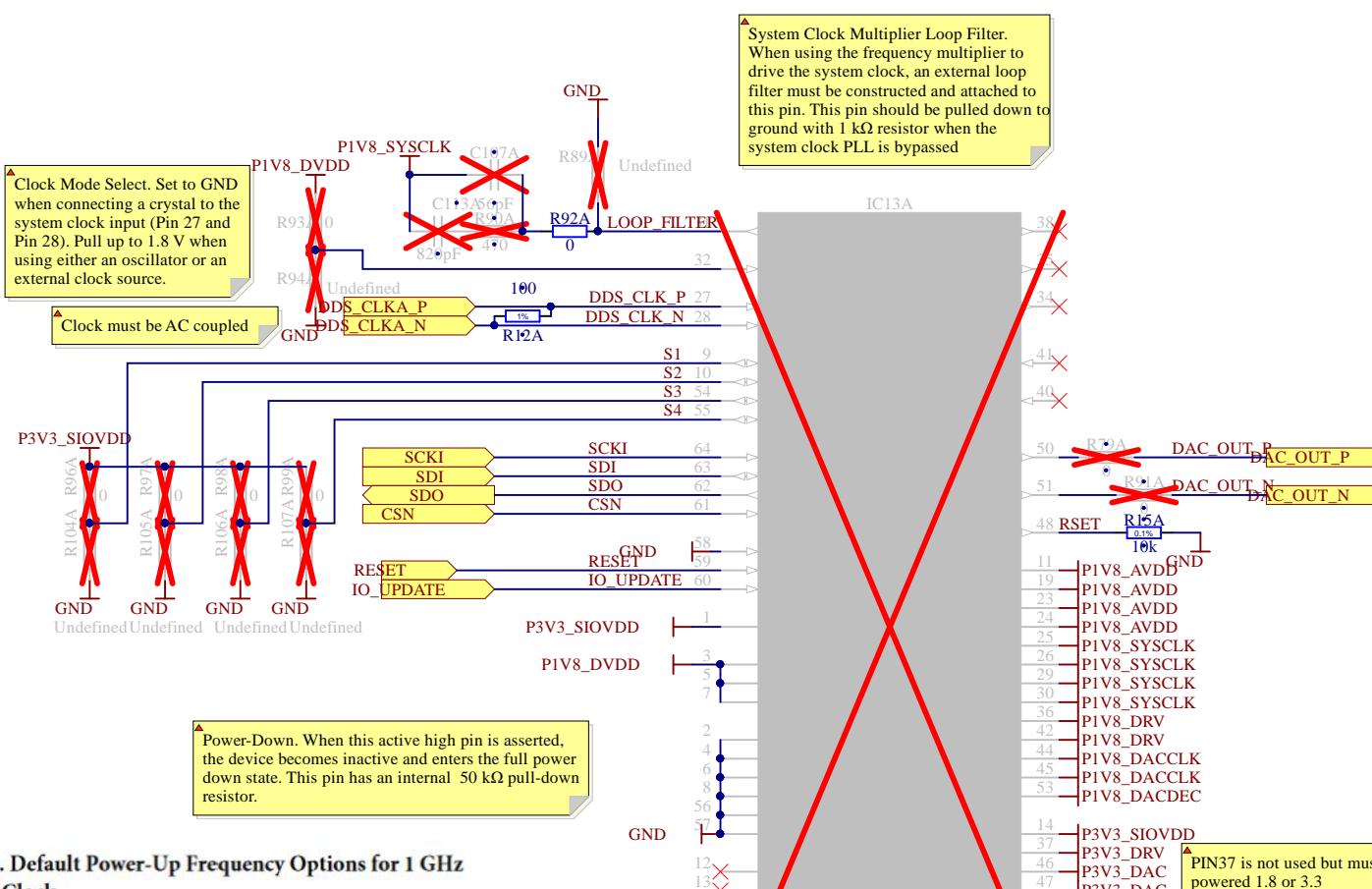
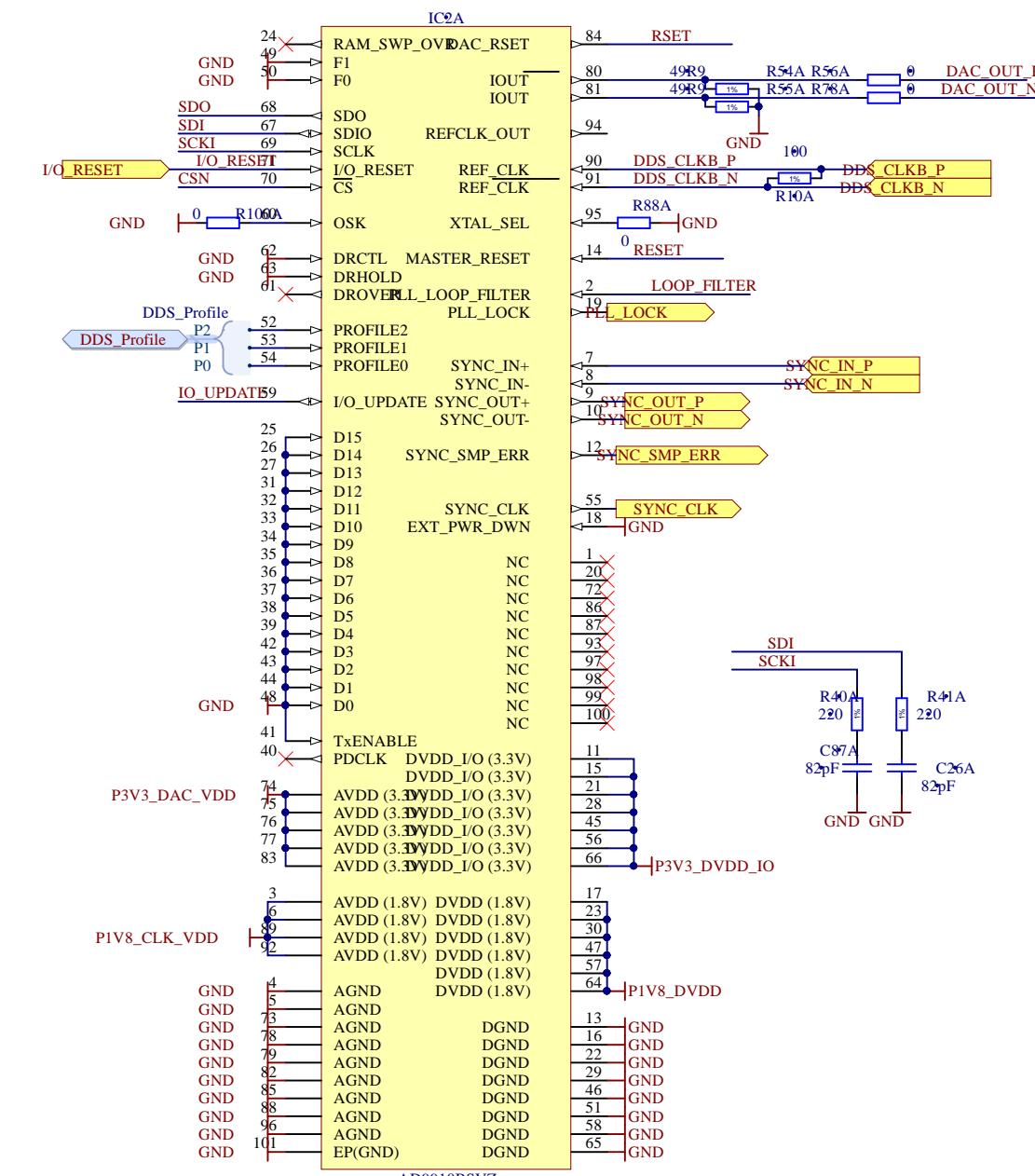


Table 8. Default Power-Up Frequency Options for 1 GHz System Clock

Status Pin				SYSCLK Input Mode	Output Frequency (MHz)
S4	S3	S2	S1		
0	0	0	0	Xtal/PLL	0
0	0	0	1	Xtal/PLL	38.87939
0	0	1	0	Xtal/PLL	51.83411
0	0	1	1	Xtal/PLL	61.43188
0	1	0	0	Xtal/PLL	77.75879
0	1	0	1	Xtal/PLL	92.14783
0	1	1	0	Xtal/PLL	122.87903
0	1	1	1	Xtal/PLL	155.51758
1	0	0	0	Direct	0
1	0	0	1	Direct	38.87939
1	0	1	0	Direct	51.83411
1	0	1	1	Direct	61.43188
1	1	0	0	Direct	77.75879
1	1	0	1	Direct	92.14783
1	1	1	0	Direct	122.87903
1	1	1	1	Direct	155.51758

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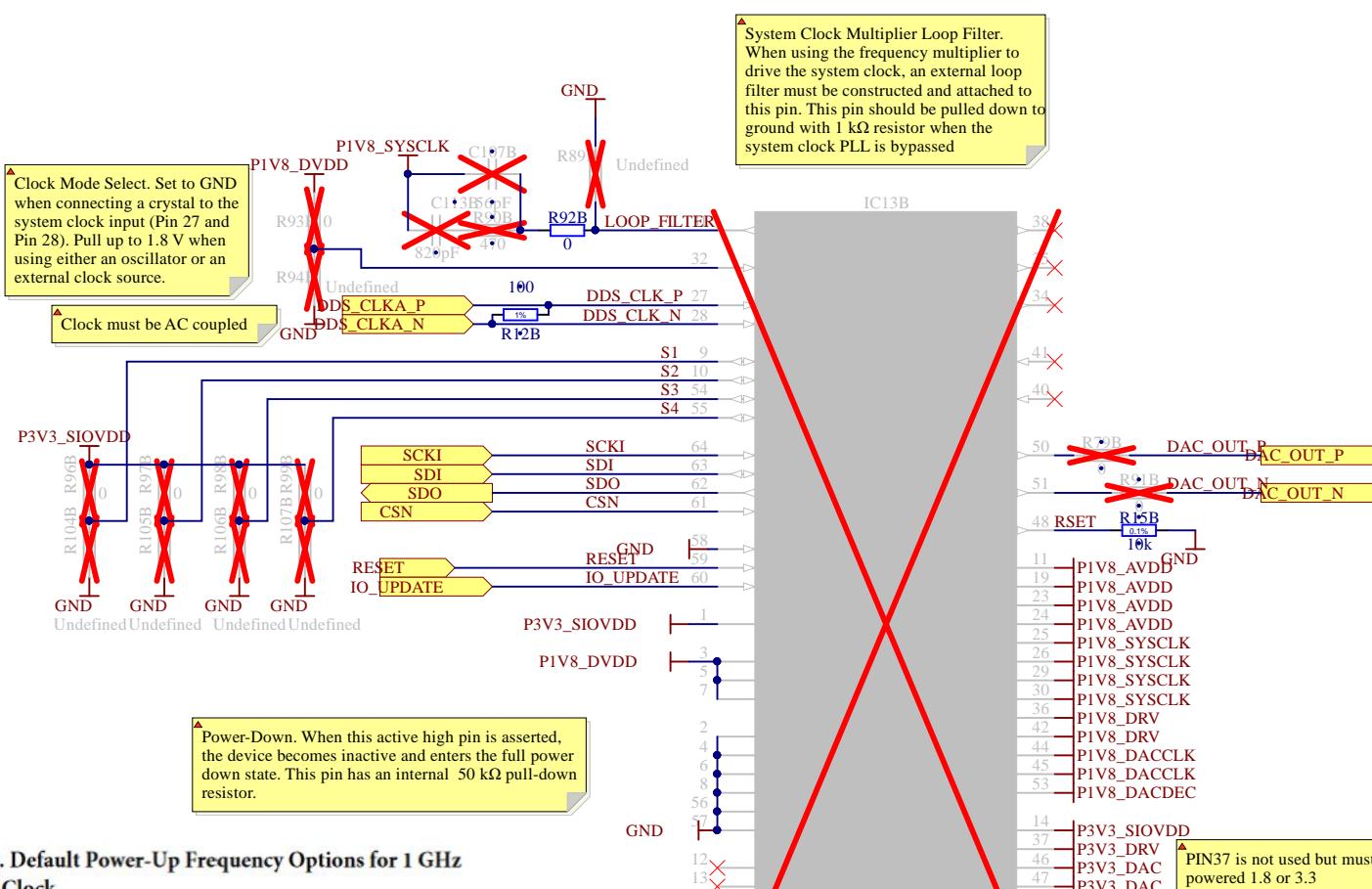
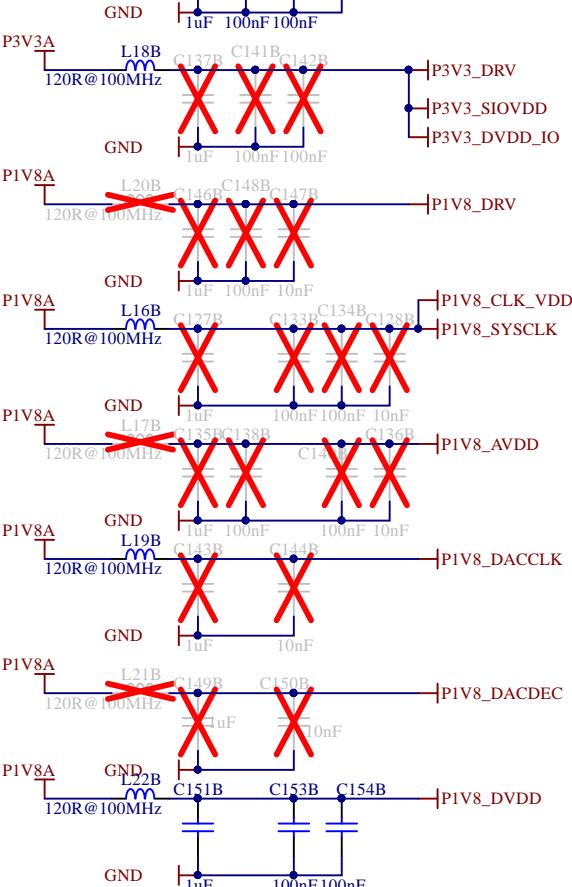
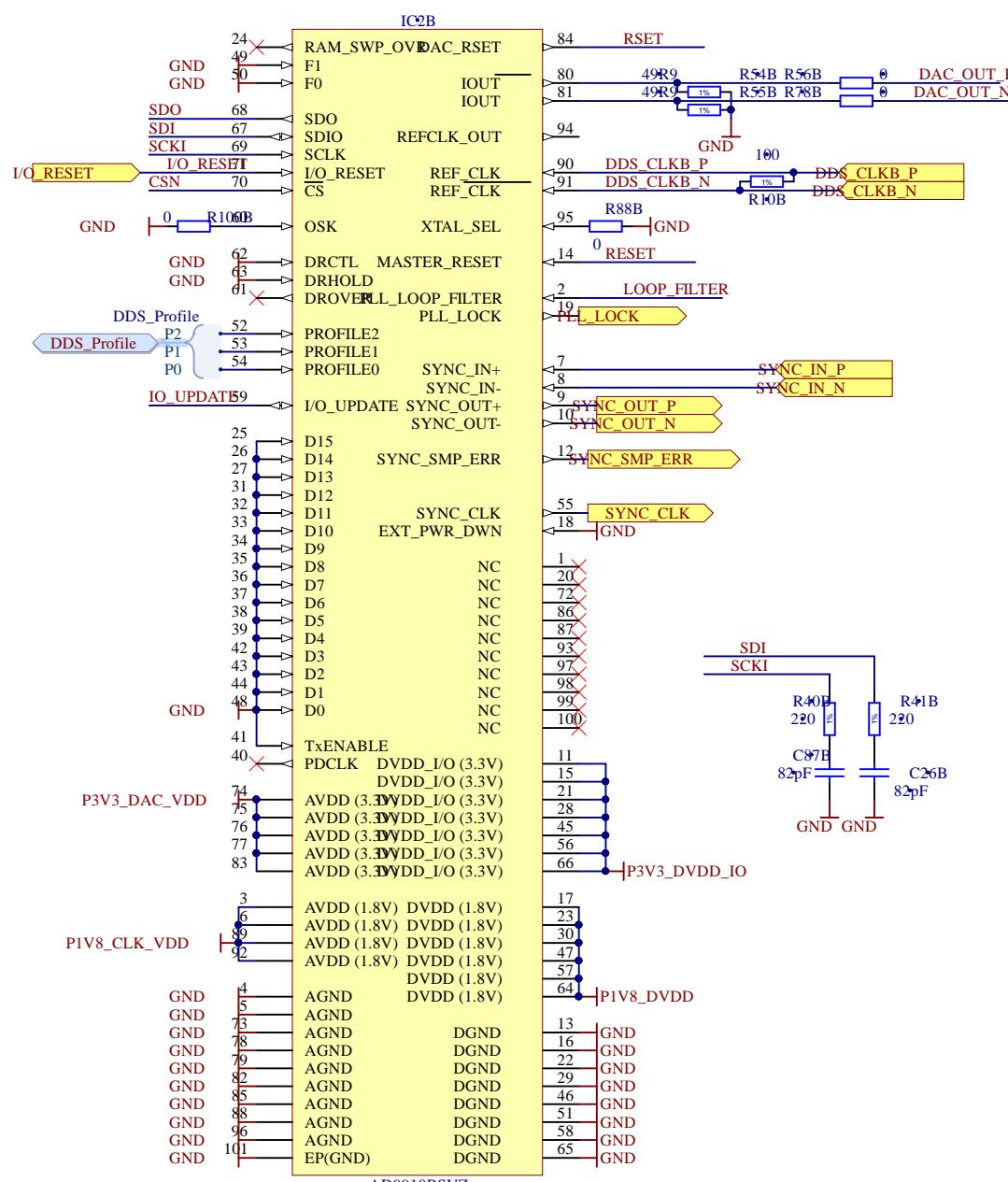


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0	1	0	0	Xtal/PLL	77.75879
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0	1	1	0	Xtal/PLL	122.87903
0	1	1	1	Xtal/PLL	155.51758
1	0	0	0	Direct	0
1	0	0	1	Direct	38.87939
1	0	1	0	Direct	51.83411
1	0	1	1	Direct	61.43188
1	1	0	0	Direct	77.75879
1	1	0	1	Direct	92.14783
1	1	1	0	Direct	122.87903
1	1	1	1	Direct	155.51758

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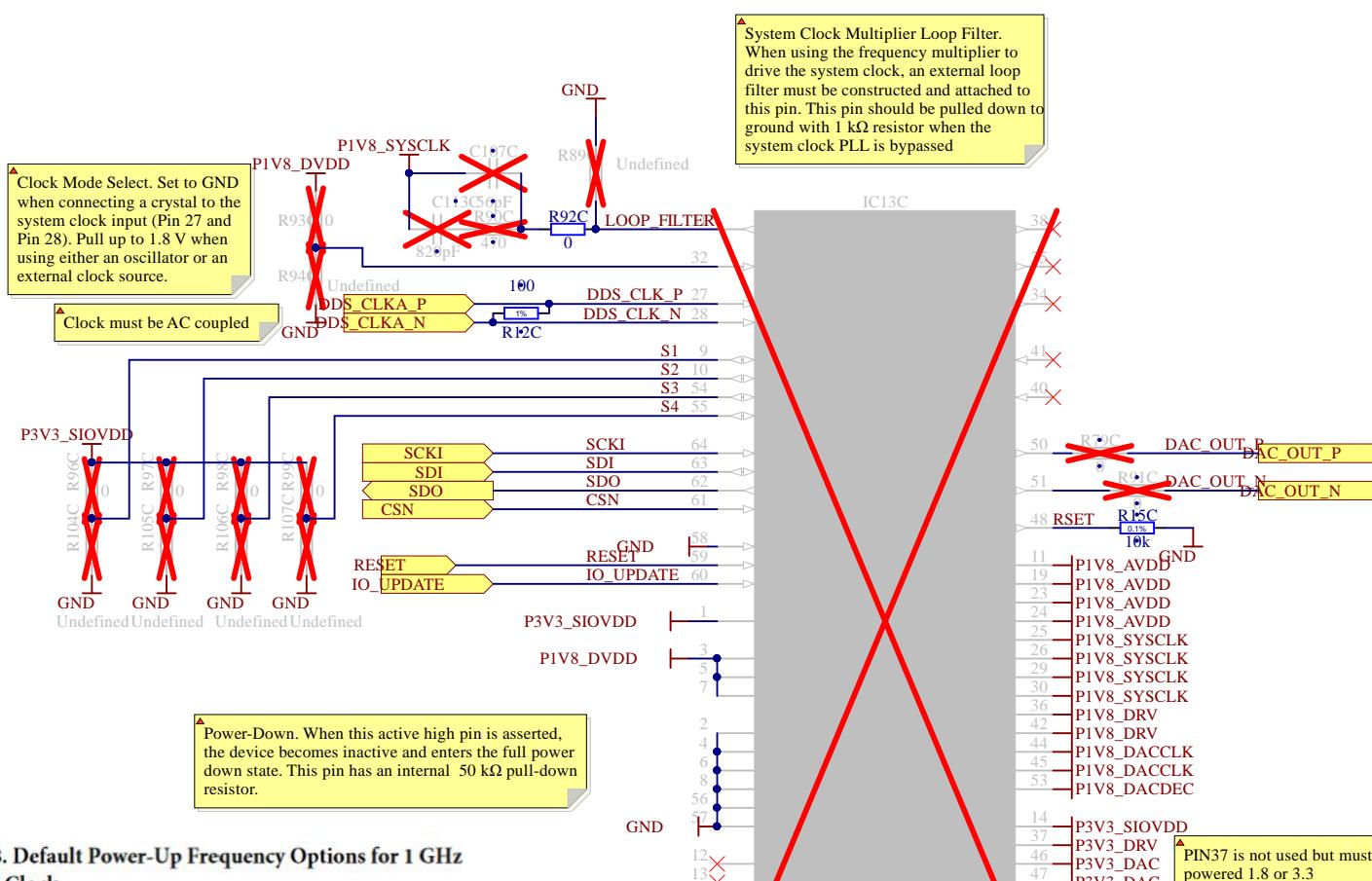
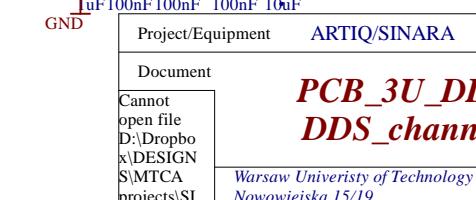
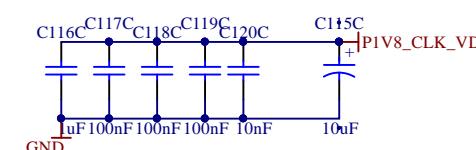
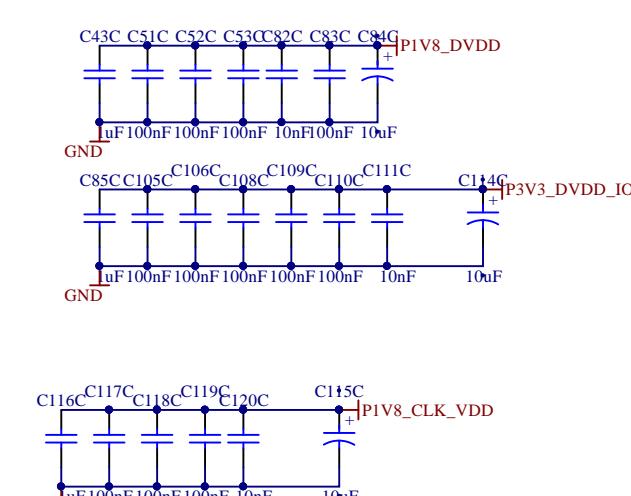
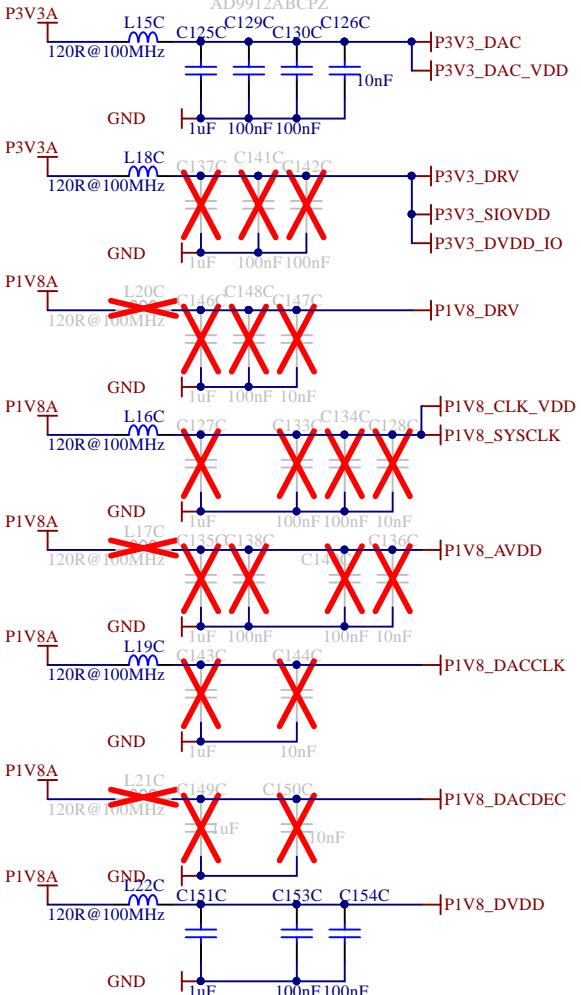
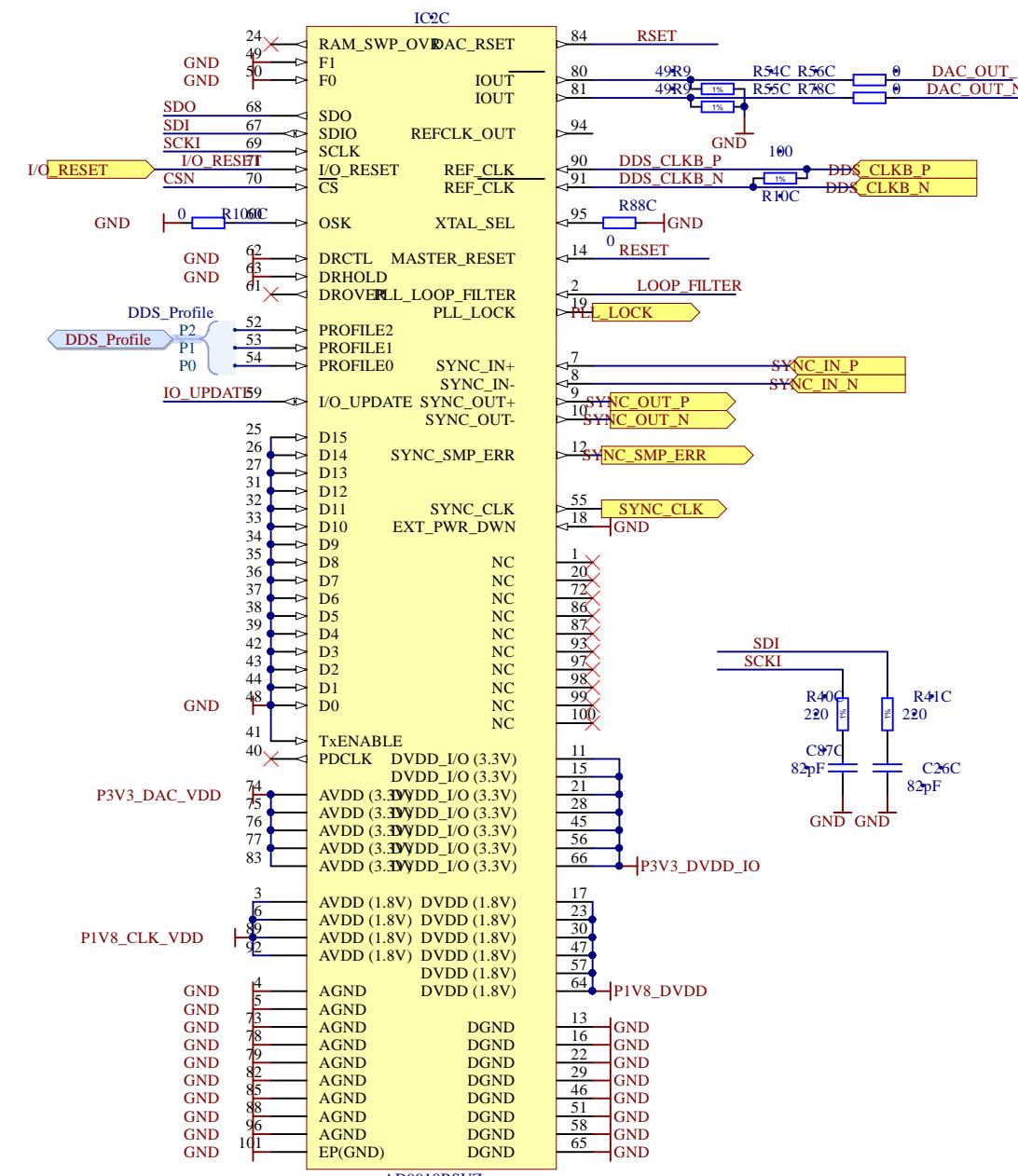


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0	1	0	1	Xtal/PLL	92.14783
0	1	1	0	Xtal/PLL	122.87903
0	1	1	1	Xtal/PLL	155.51758
1	0	0	0	Direct	0
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1	0	1	0	Direct	51.83411
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1	1	0	0	Direct	77.75879
1	1	0	1	Direct	92.14783
1	1	1	0	Direct	122.87903
1	1	1	1	Direct	155.51758

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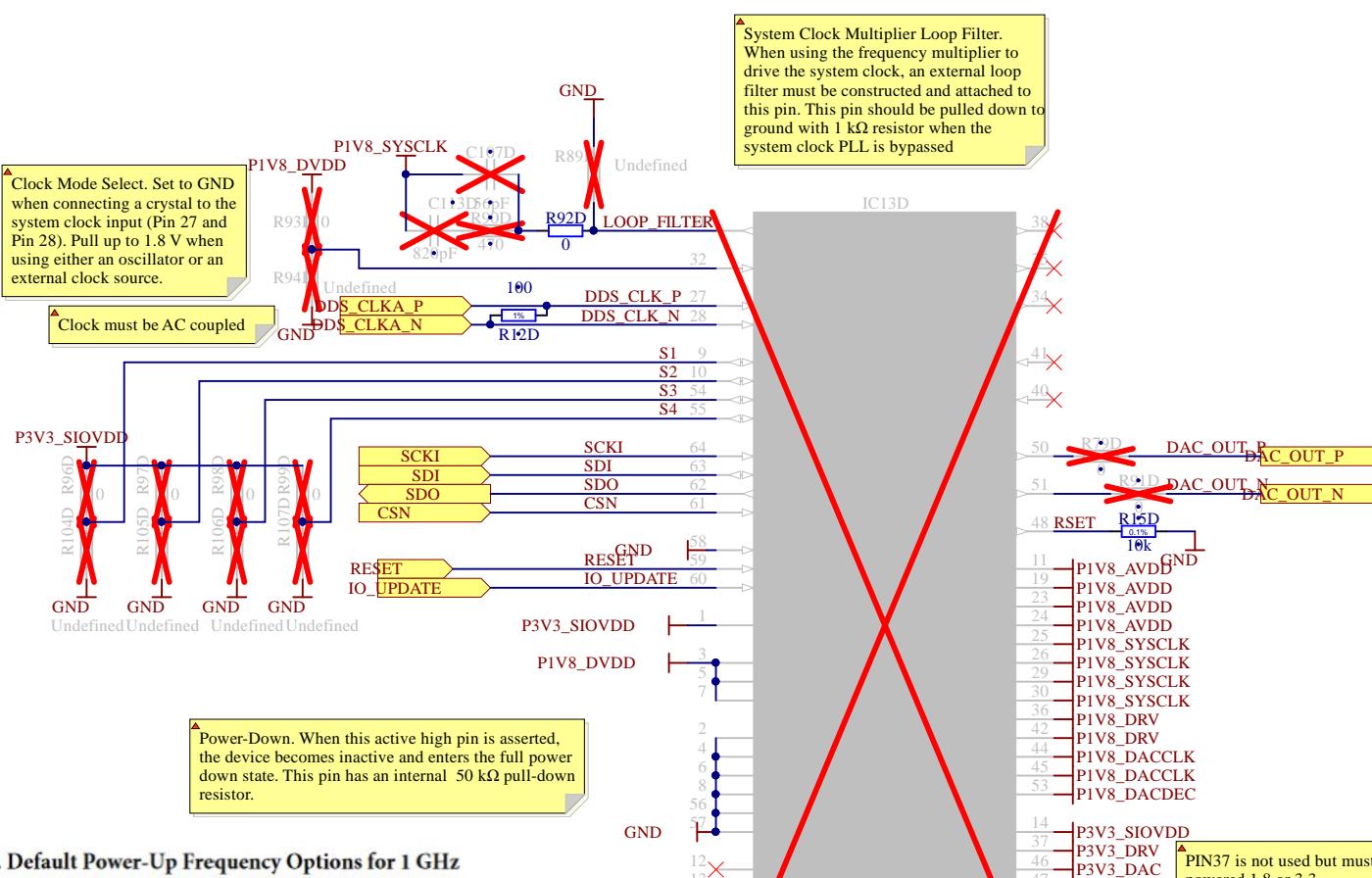
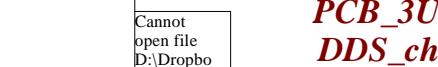
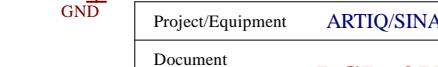
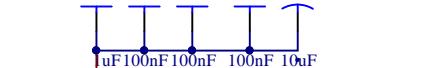
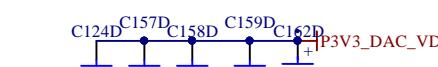
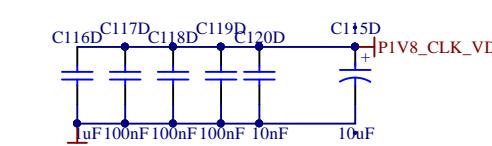
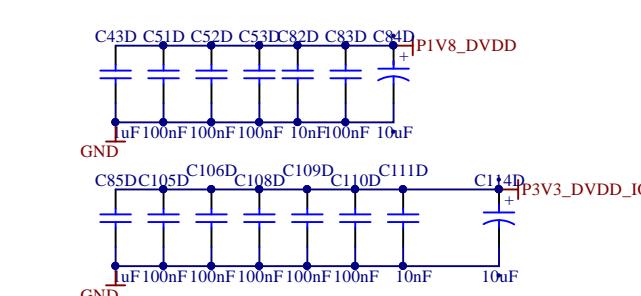
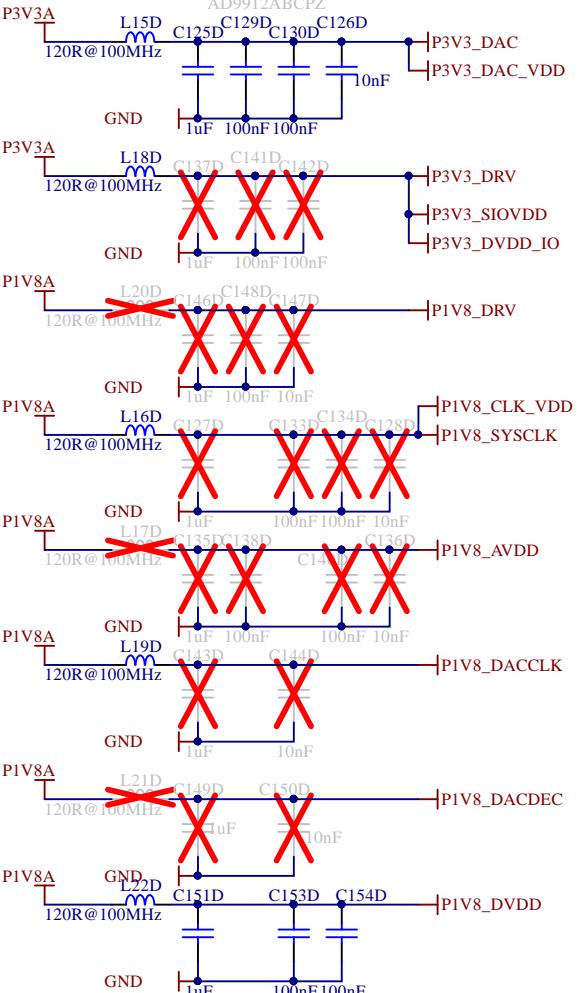
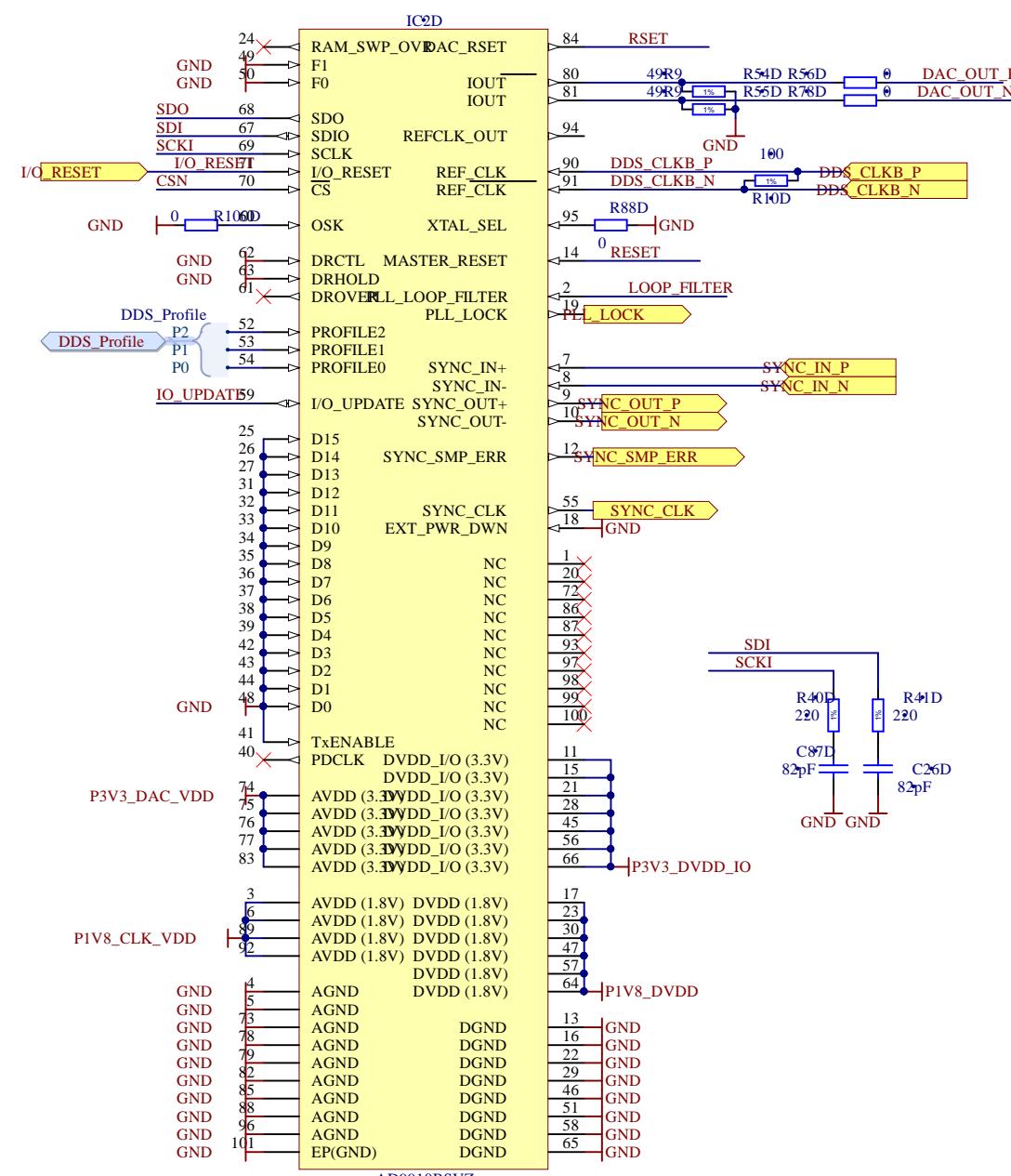


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0	0	1	1	Xtal/PLL
0	1	0	0	Xtal/PLL
0	1	0	1	Xtal/PLL
0	1	1	0	Xtal/PLL
0	1	1	1	Xtal/PLL
1	0	0	0	Direct
1	0	0	1	38.87939
1	0	1	0	51.83411
1	0	1	1	61.43188
1	1	0	0	77.75879
1	1	0	1	92.14783
1	1	1	0	122.87903
1	1	1	1	155.51758

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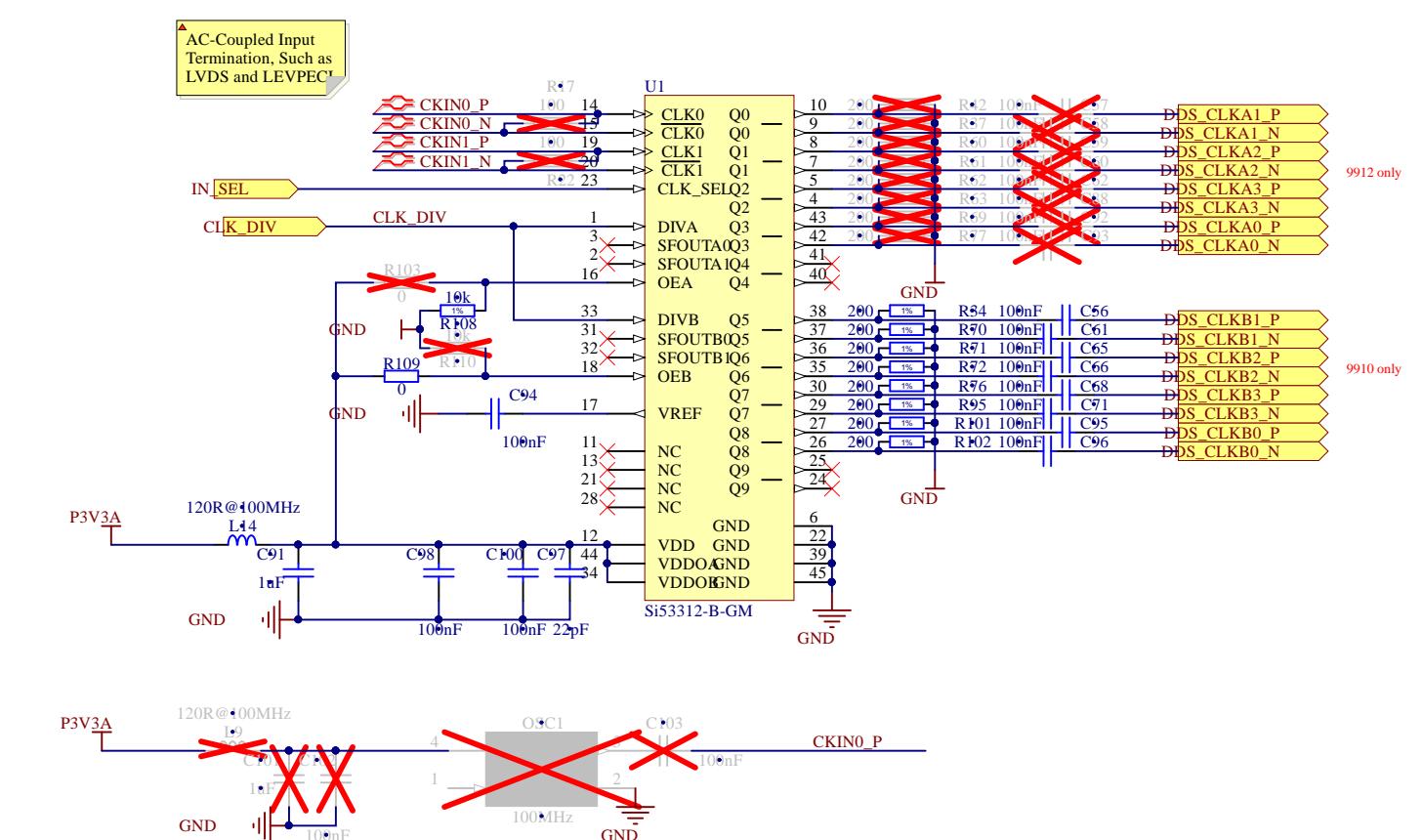
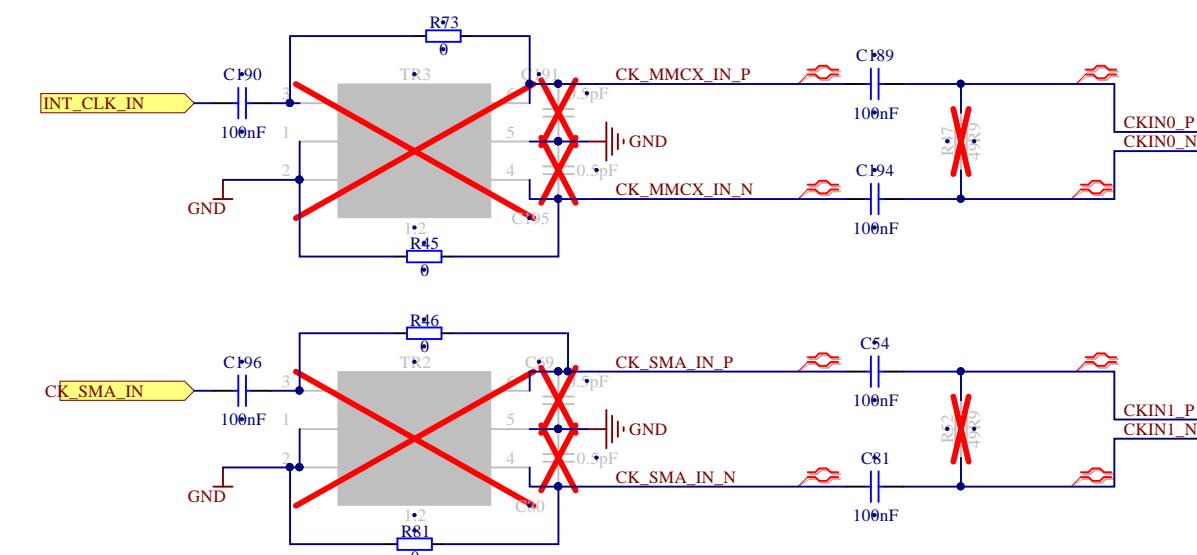


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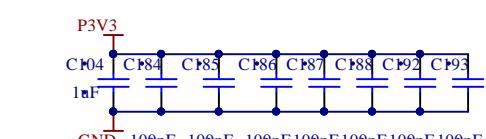
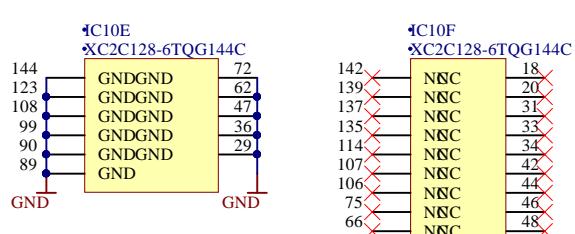
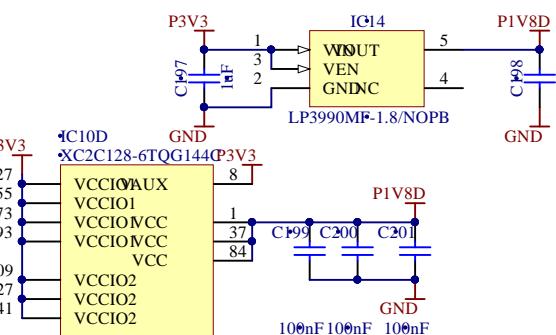
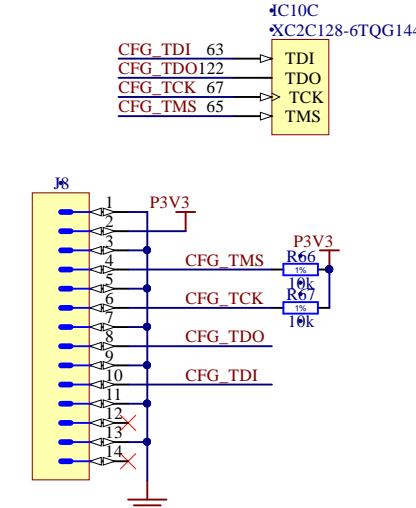
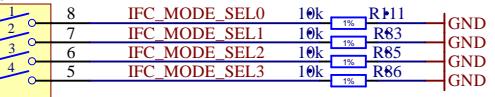
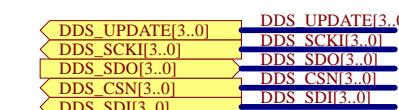
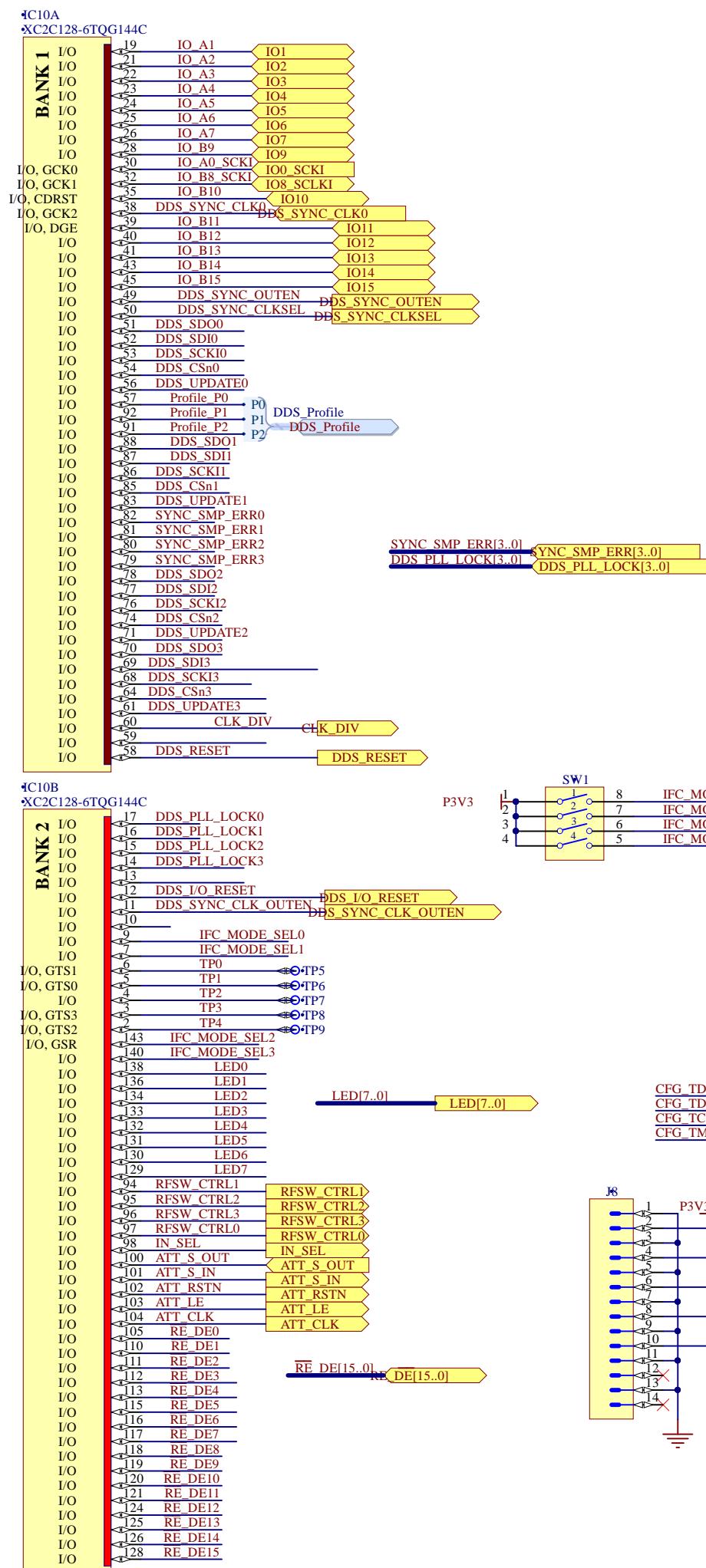
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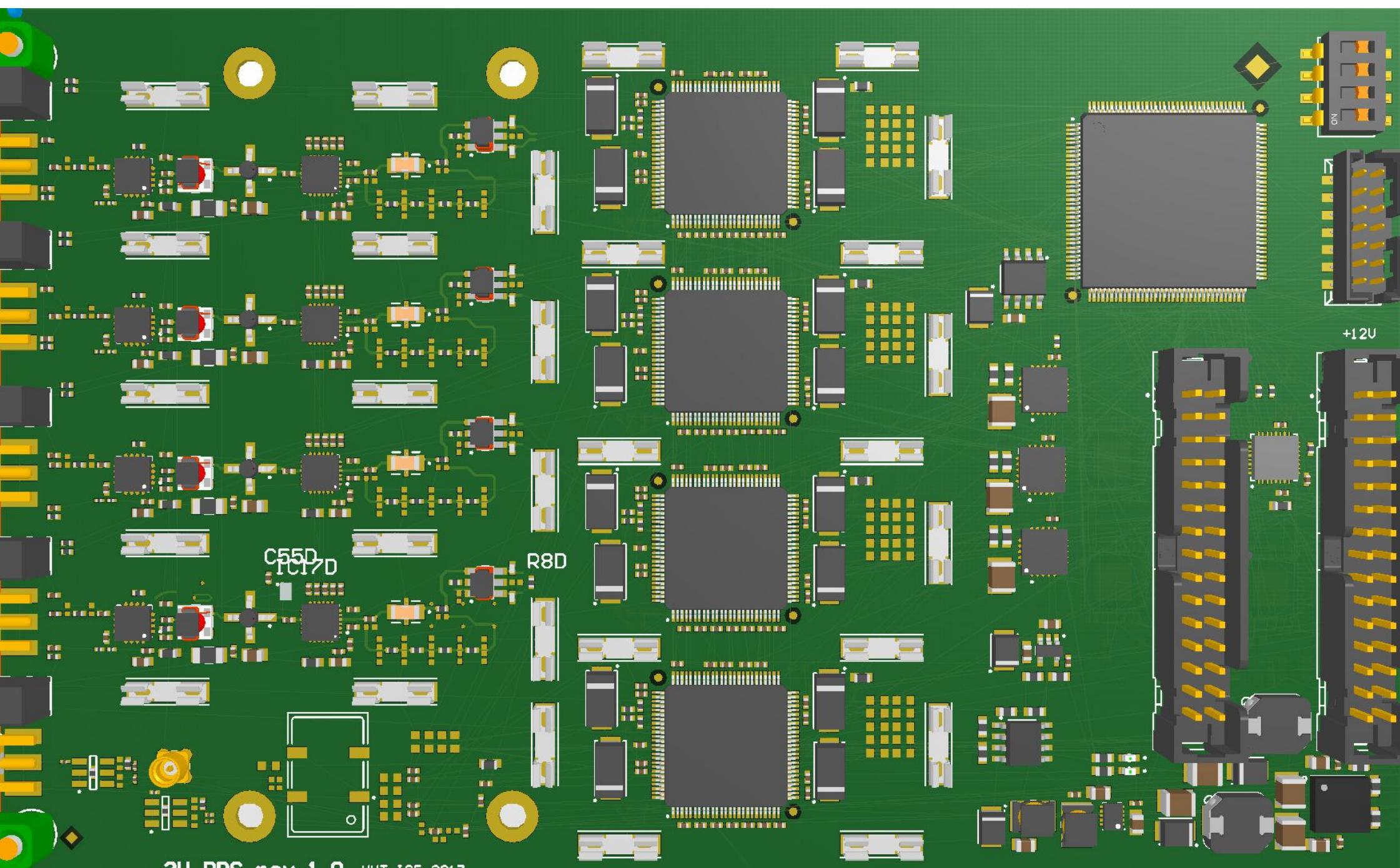
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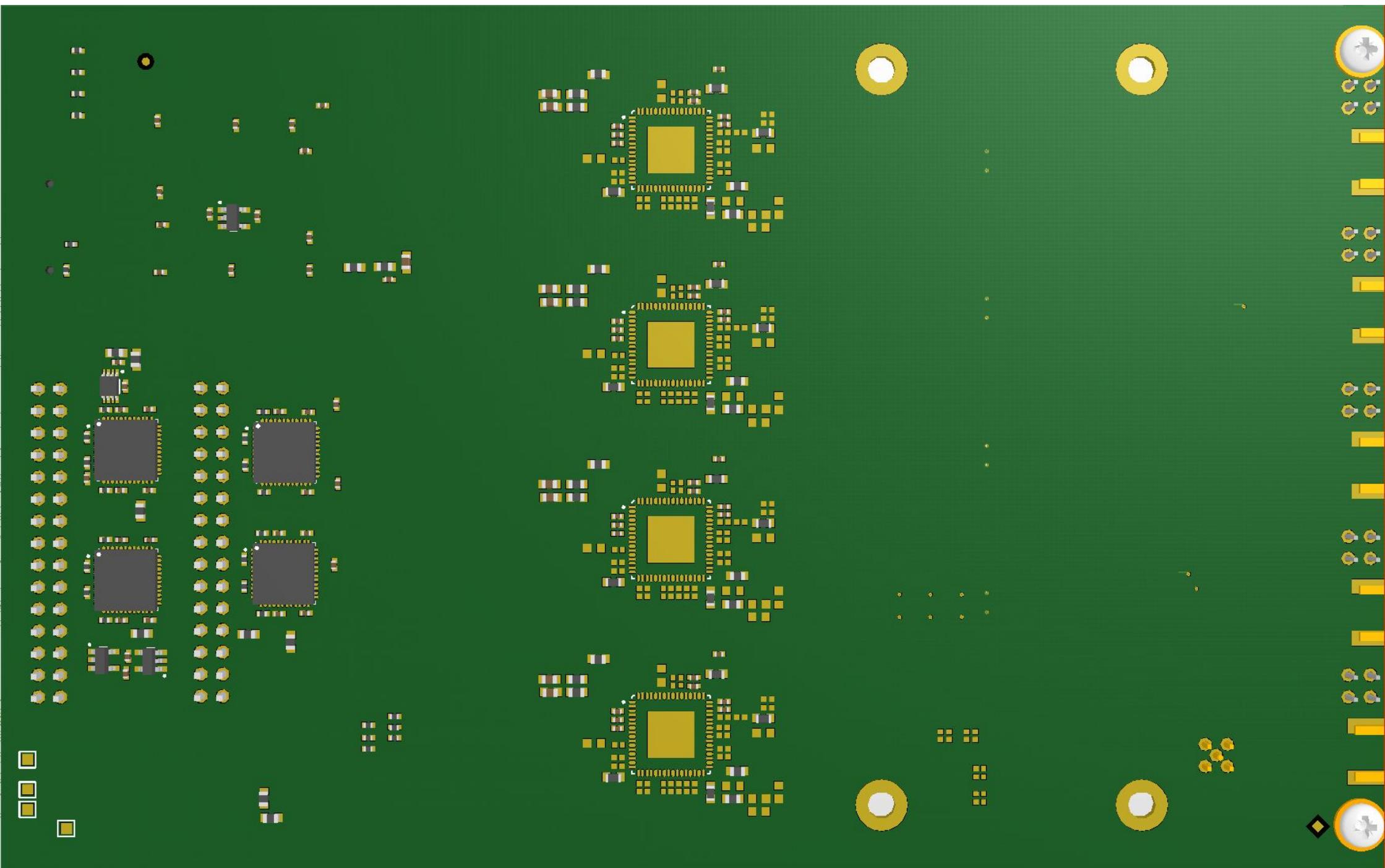
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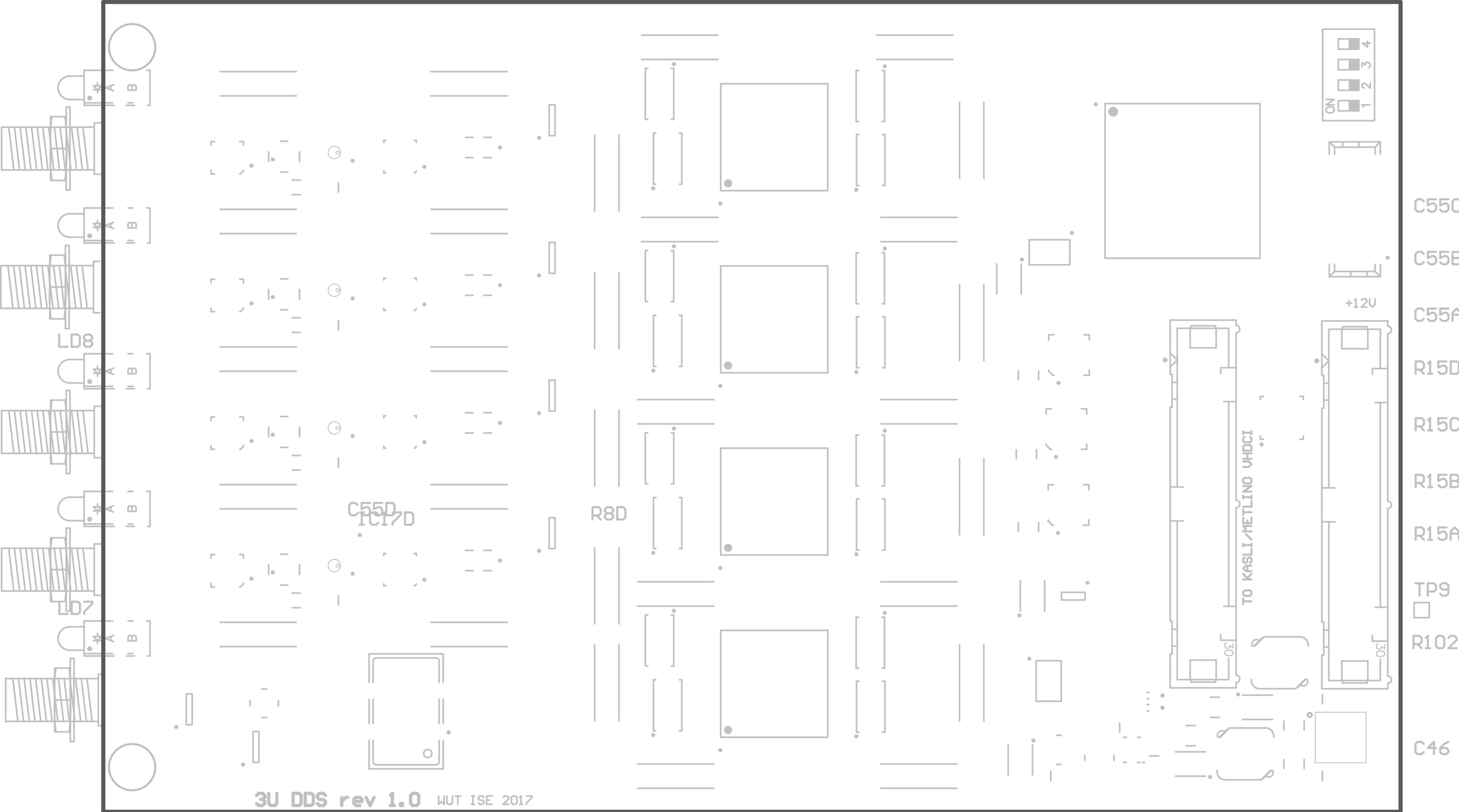
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