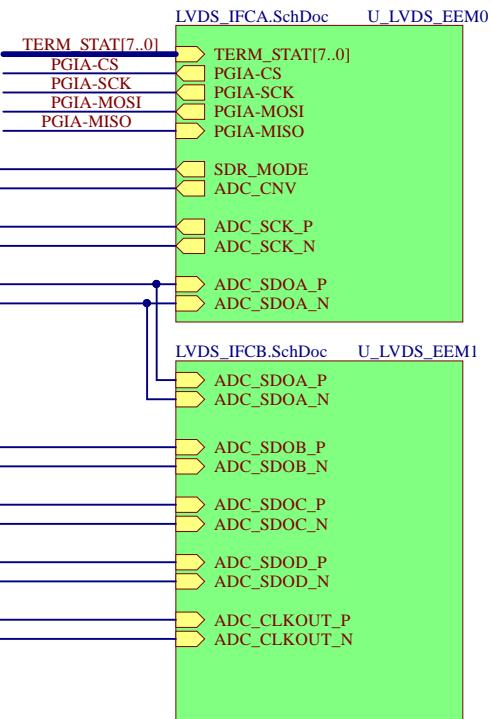
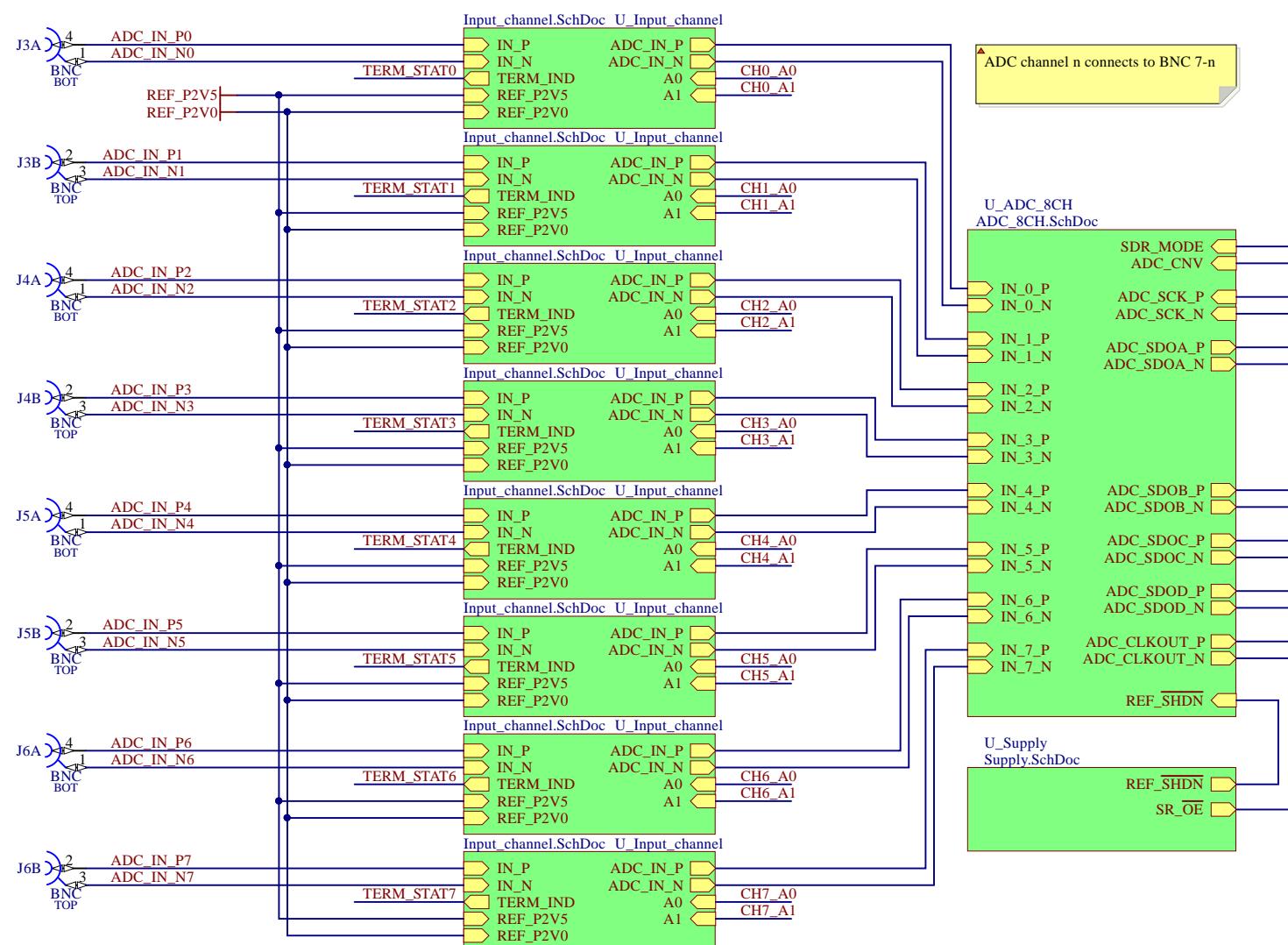
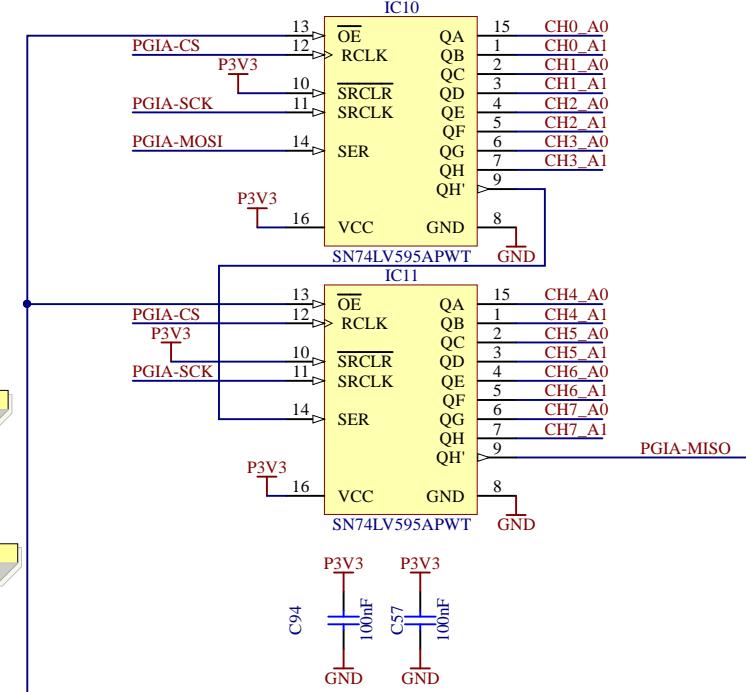
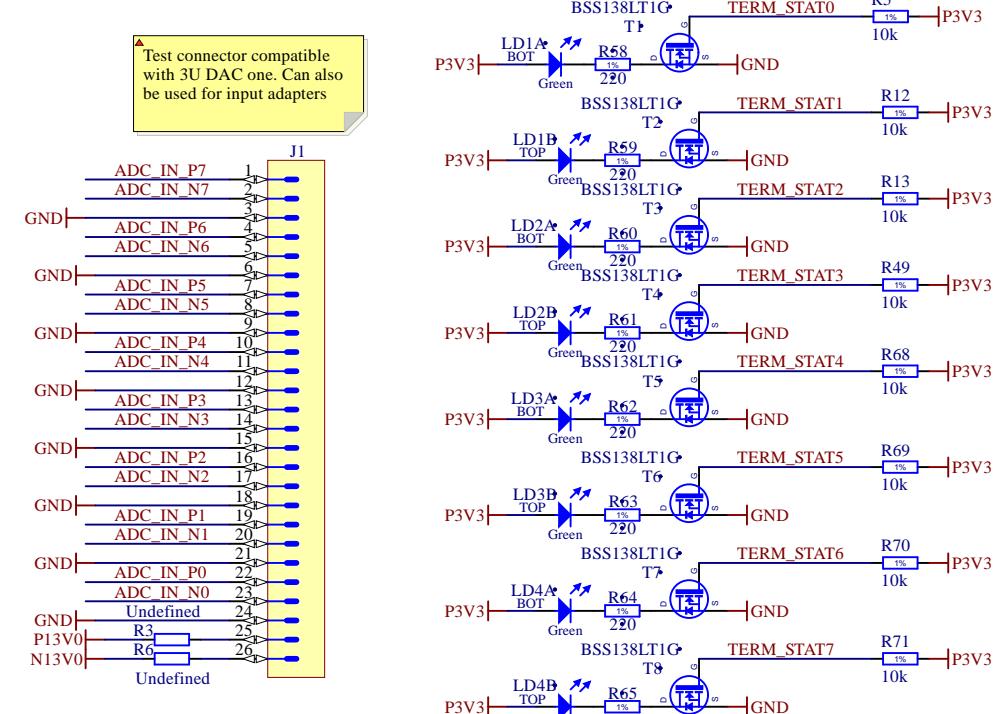
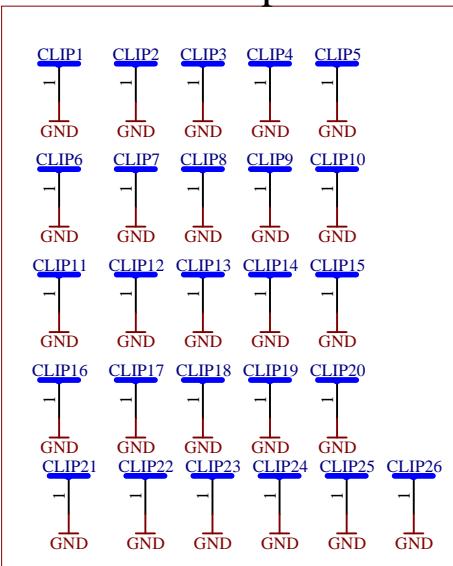


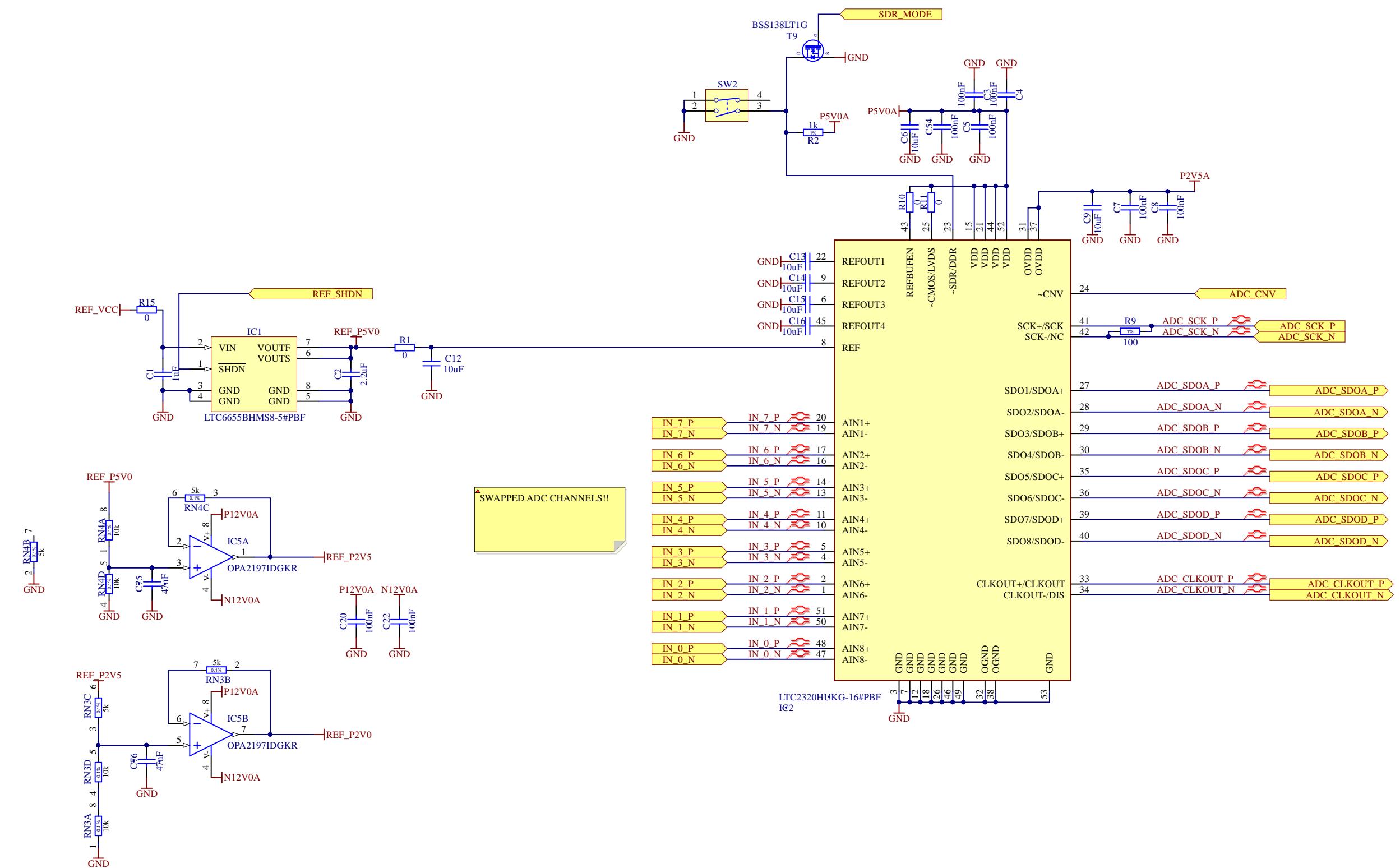
shield clips



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Project/Equipment	3U ADC		
Document		Designer G.K.	
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		File PCB_3U_ADC.schdoc	
		Print Date 30.11.2017 19:45:32	Sheet 1 of 5 Rev A3 -
<i>3U ADC - top 8 channel ADC v1.2</i>			
Warsaw University of Technology ISE Nowowiejska 15/19		ARTIQ	



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Project/Equipment 3U ADC

Document

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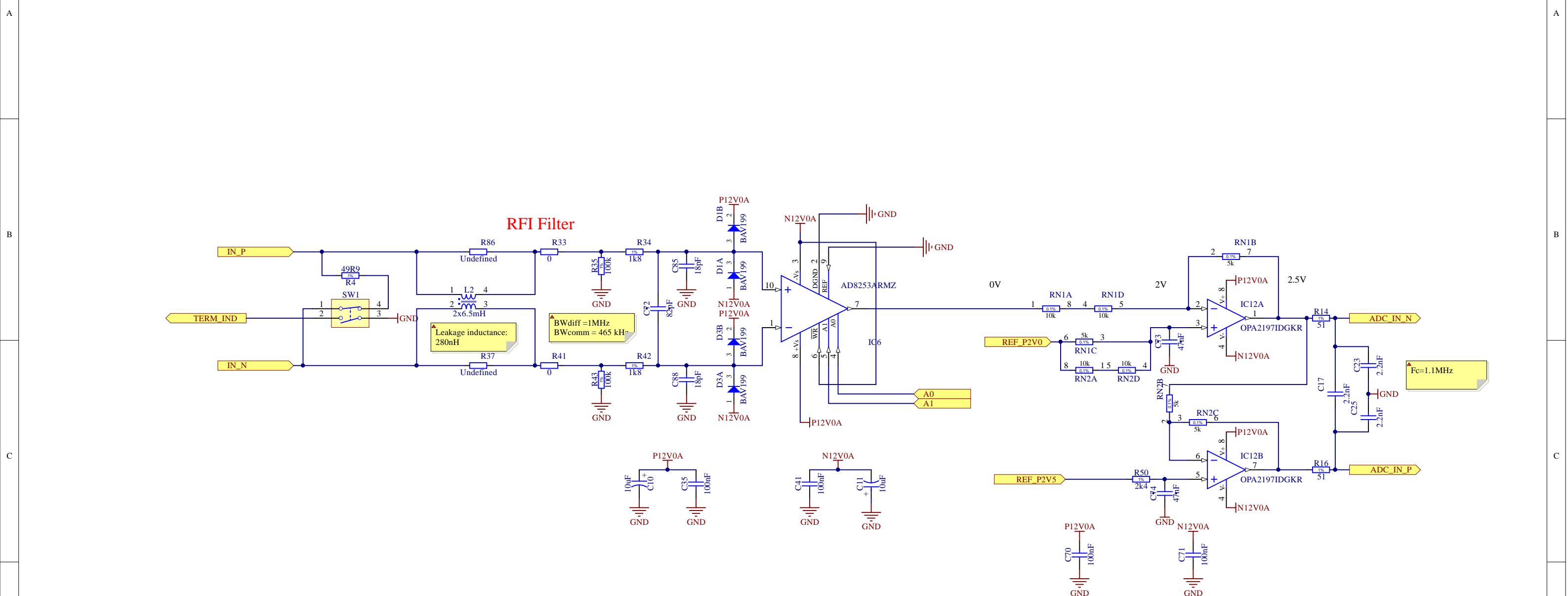
ADC + reference v1.2

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File ADC_8CH.SchDoc	Print Date	30.11.2017 19:45:33
	Sheet	2 of 5

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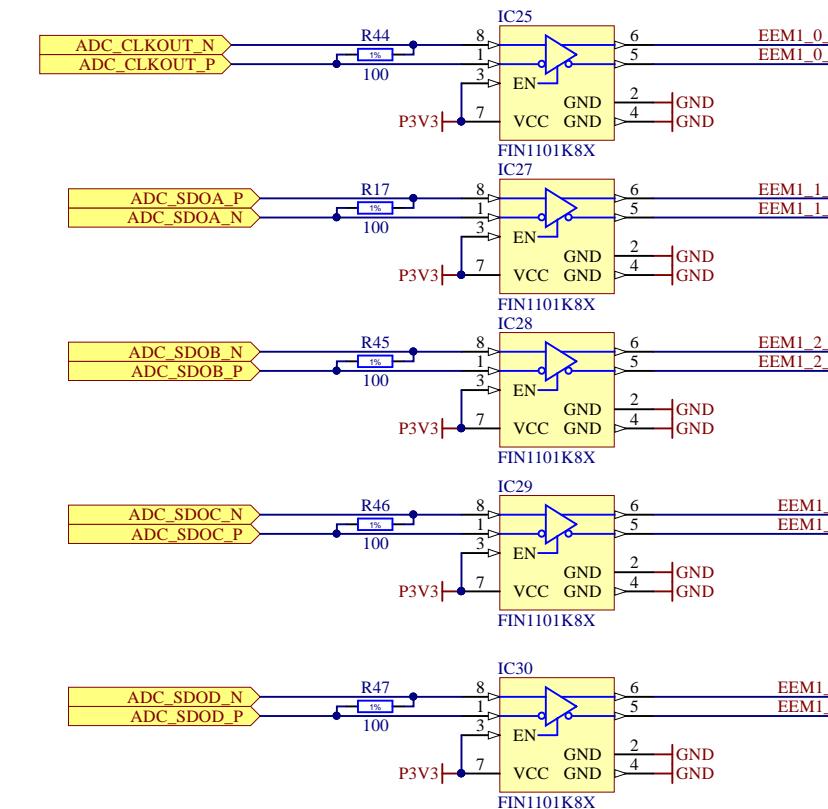
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Project/Equipment 3U ADC

**Input chnnnel
DPGA v1.2**

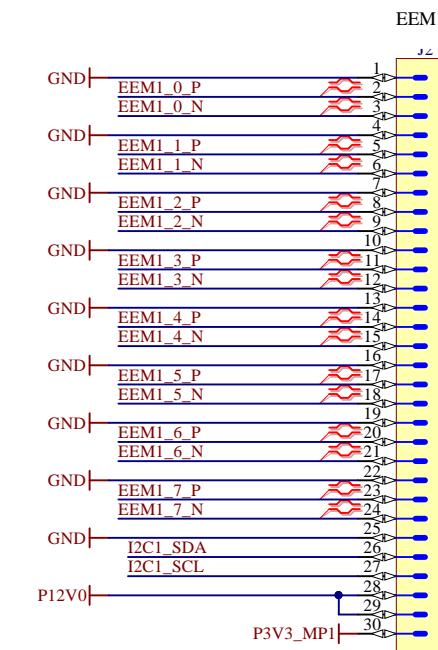
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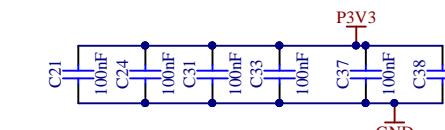


EEM connector: IO are LVDS, I2C is 3V3 LVC MOS, P3V3_MP up to 20mA, P12V up to 1A

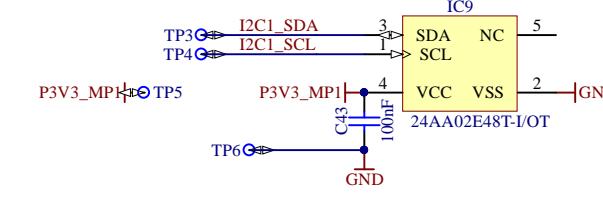
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C



D



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Project/Equipment 3U ADC

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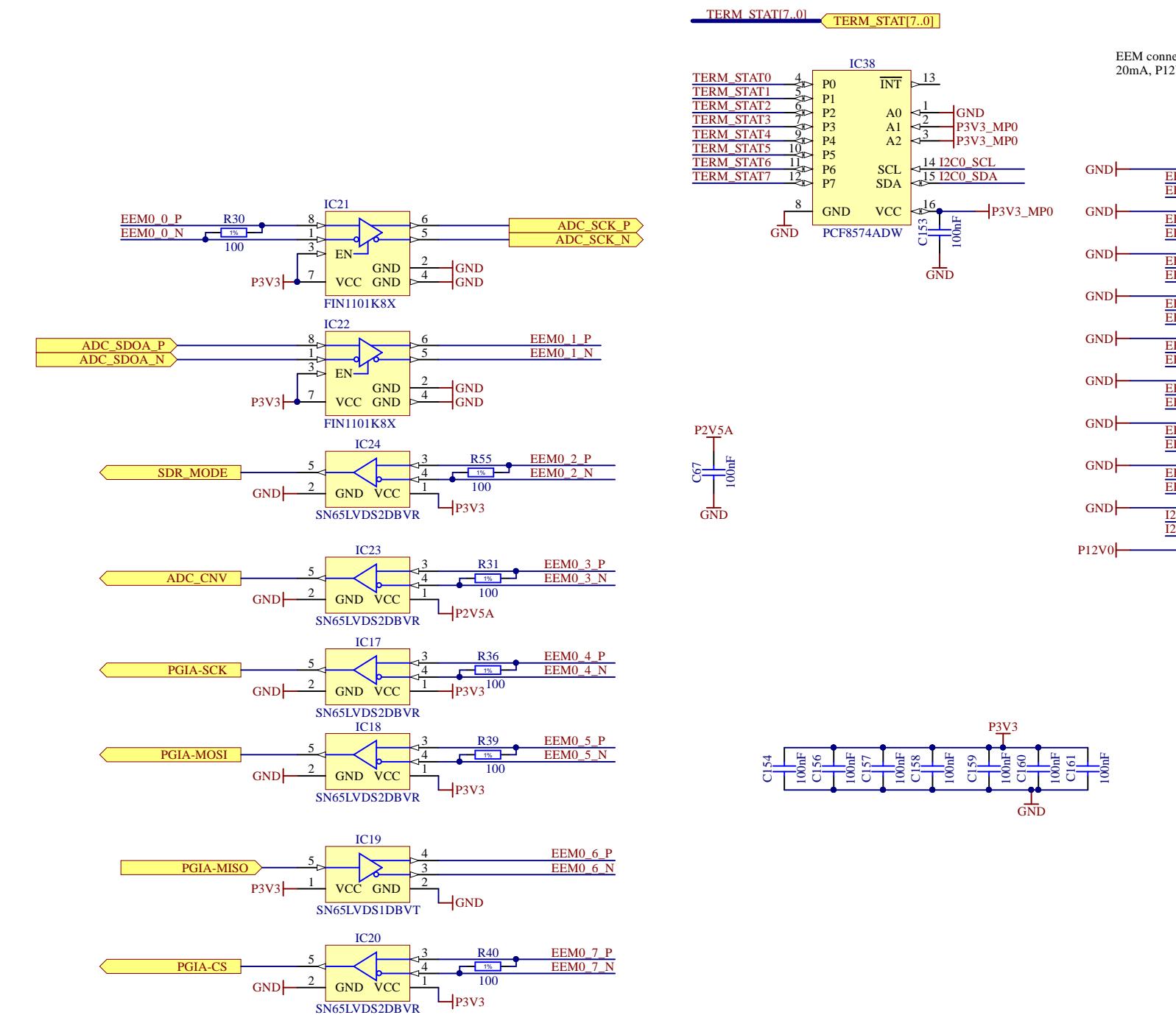
**LVDS Interface
I2C logic v1.2**

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		Size A3 Rev -

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	Sheet	4 of 5

LVDS Interface I2C logic v1.2

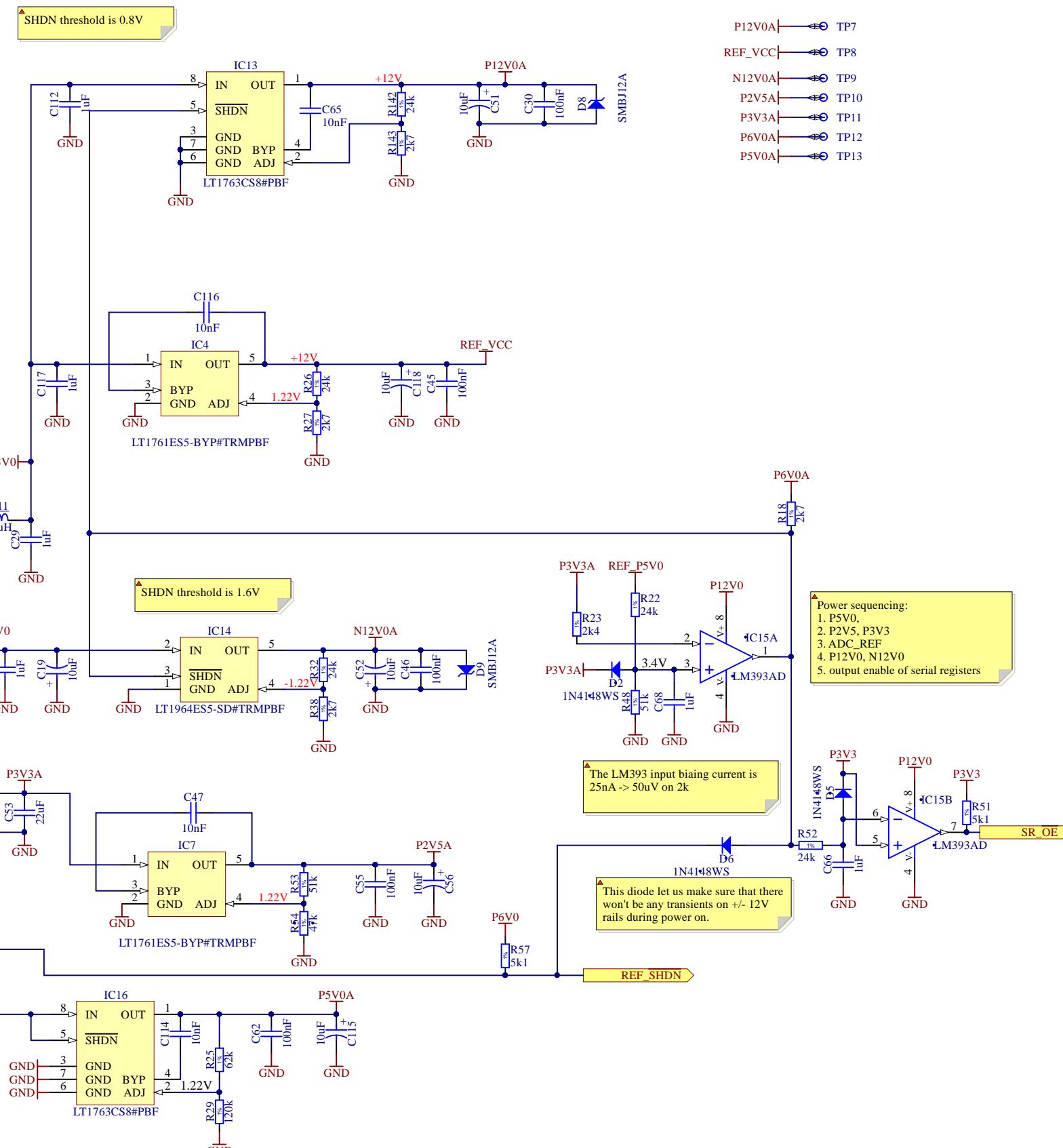
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Power budget (max ratings):	
P2V5 LTC2320 RAIL POWER	38 $38\text{mA} \times 2.5 = 0.095\text{W}$
P3V3: SN65LVDS20DRFT SN65LVDS2DBVR SN65LVDS1DBVT LEDs RAIL POWER	7*13.5=94.5 5*8=40 8 8*5=40 $183\text{mA} \times 3.3 = 0.603\text{W}$
P5V0 LTC2320 RAIL POWER	60 $60 \times 5 = 0.3\text{W}$
P12V0 AD8253ARMZ OPA2197 AD8253 load (10V/20k) OPA2197 load (500k:0.3V/50R) RAIL POWER	8*4mA=32mA 8*2mA=16mA 8*0.5mA=4mA 8*4mA=32mA 84*12 = 1W
N12V0 AD8253ARMZ OPA2197 OPA2197 load (500k:0.3V/50R) RAIL POWER	8*4mA=32mA 8*2mA=16mA 8*4mA=32mA 84*12 = 1W
DC/DC converter losses TPS62175:3.3 eff .95 TPS62175:6 eff .95 CC6-1212DF-E:13V eff 70% CC6-1212DF-E:-13V eff 70%	0.05*(0.18+0.038)*2.5+26e-6*12=0.022W 0.05*0.06*6+26e-6*12=0.018W 0.3*13*0.084=0.33W 0.3*13*0.084=0.33W
LDO losses 6V->5V 13V->12V -13V->-12V 3.3V -> 2.5V	0.06*1V = 60mW 84mW 84mW $(3.3-2.5) \times 38 = 30\text{mW}$
Total power from 12V rail	12V 4.16W
Total current from 12V rail	0.35A



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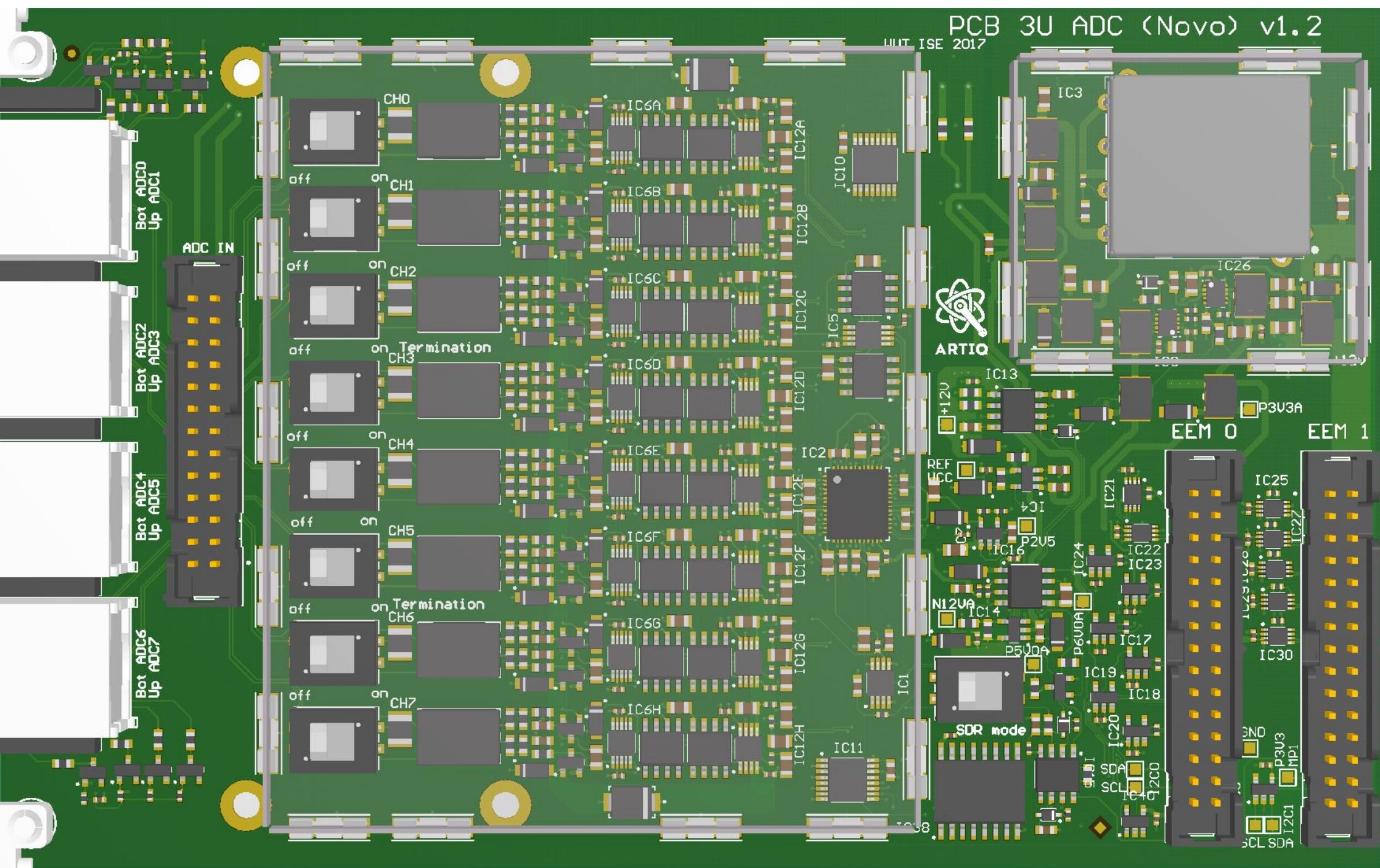
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Sheet 5 of 5

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PCB 3U ADC (Novo) v1.2

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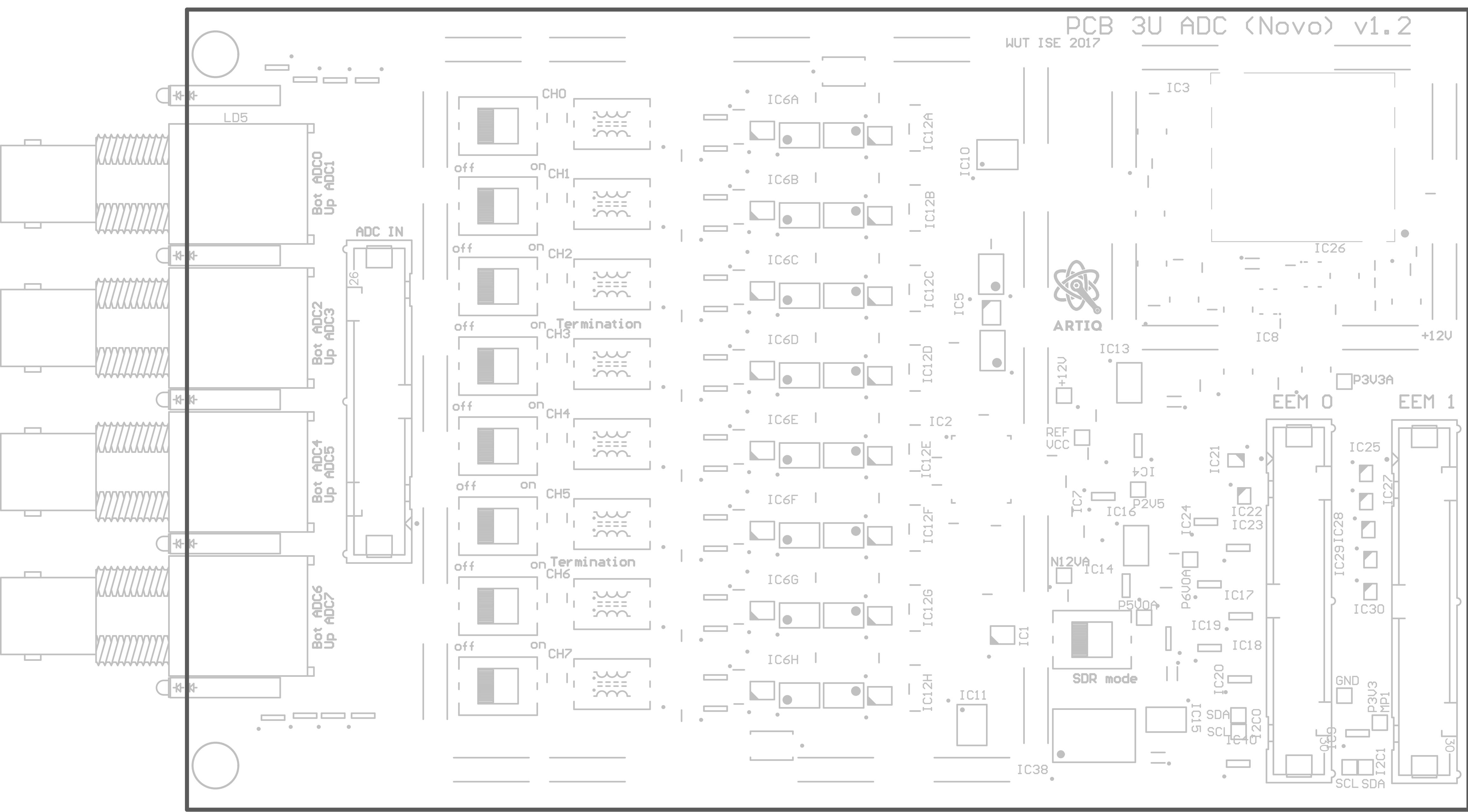


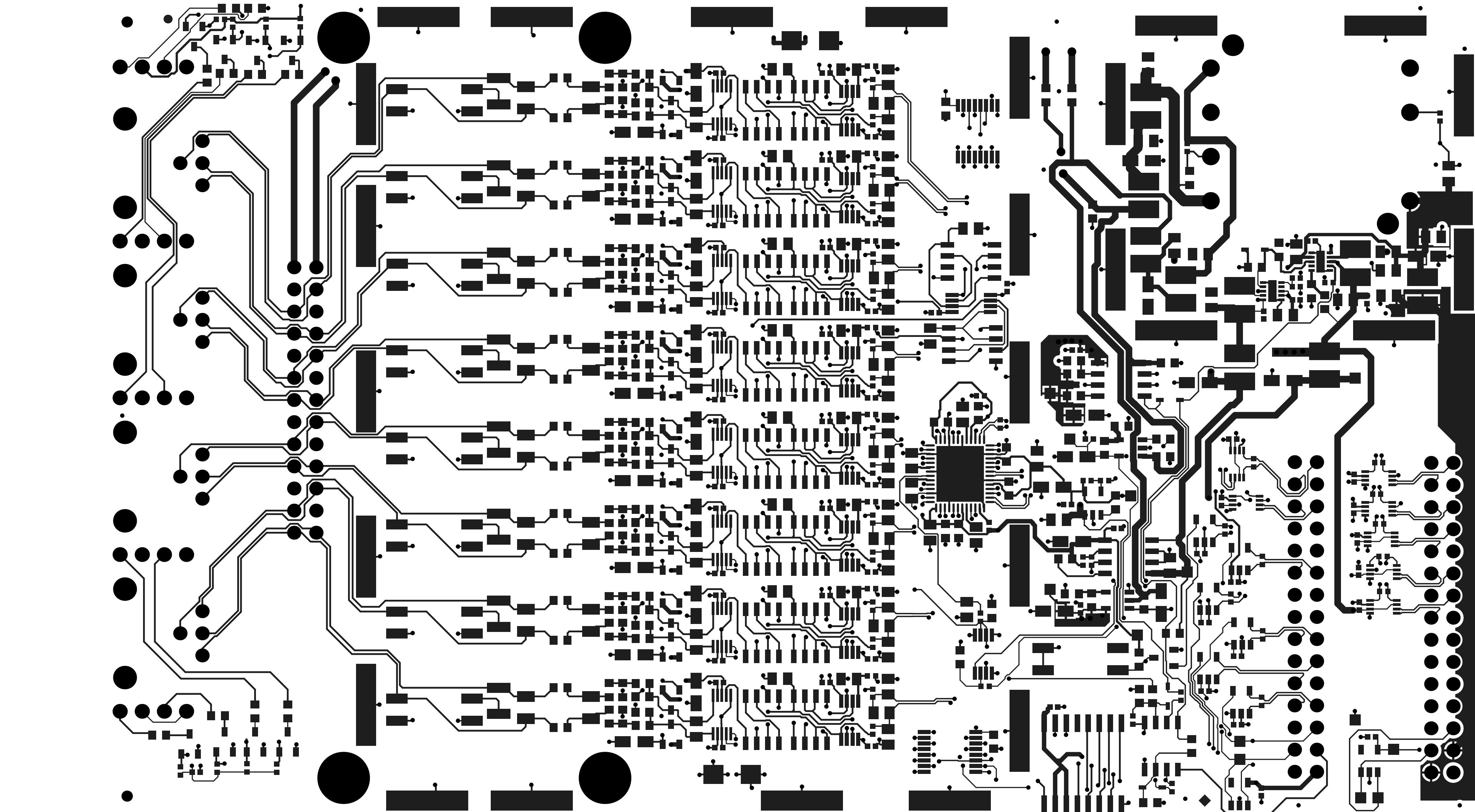


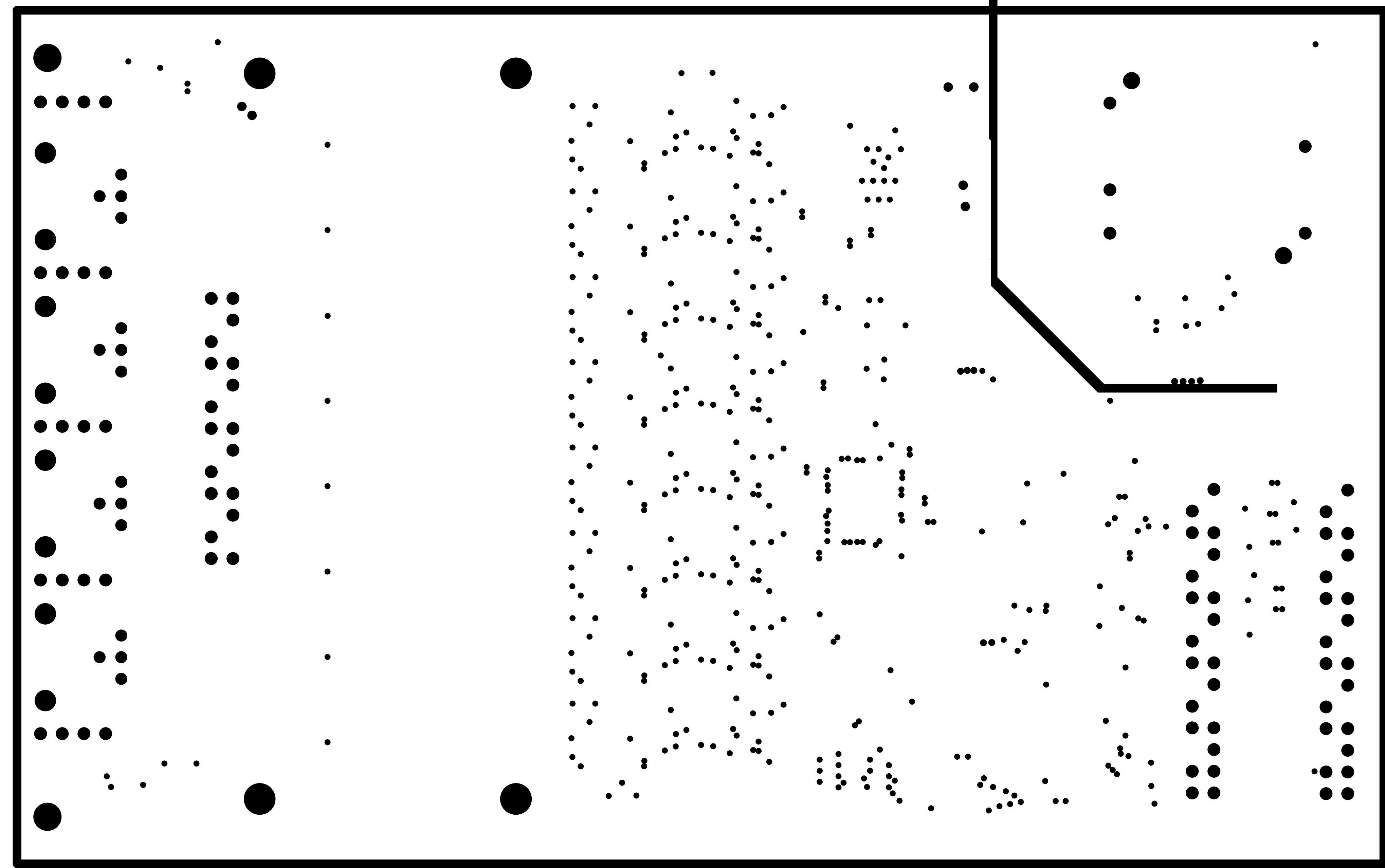
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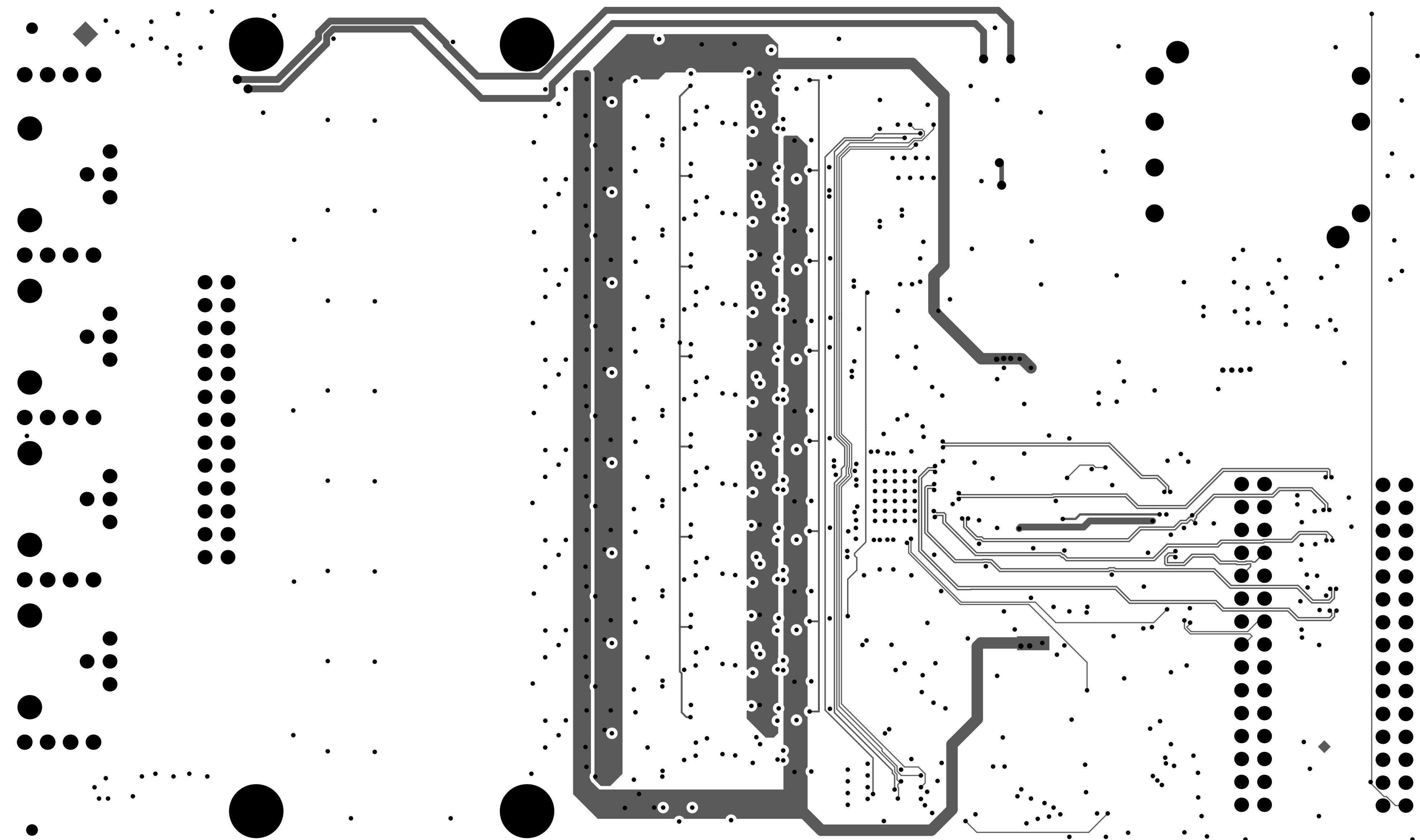
PCB 3U ADC (Novo) v1.2

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PCB 3U ADC (Novo) v1.5

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