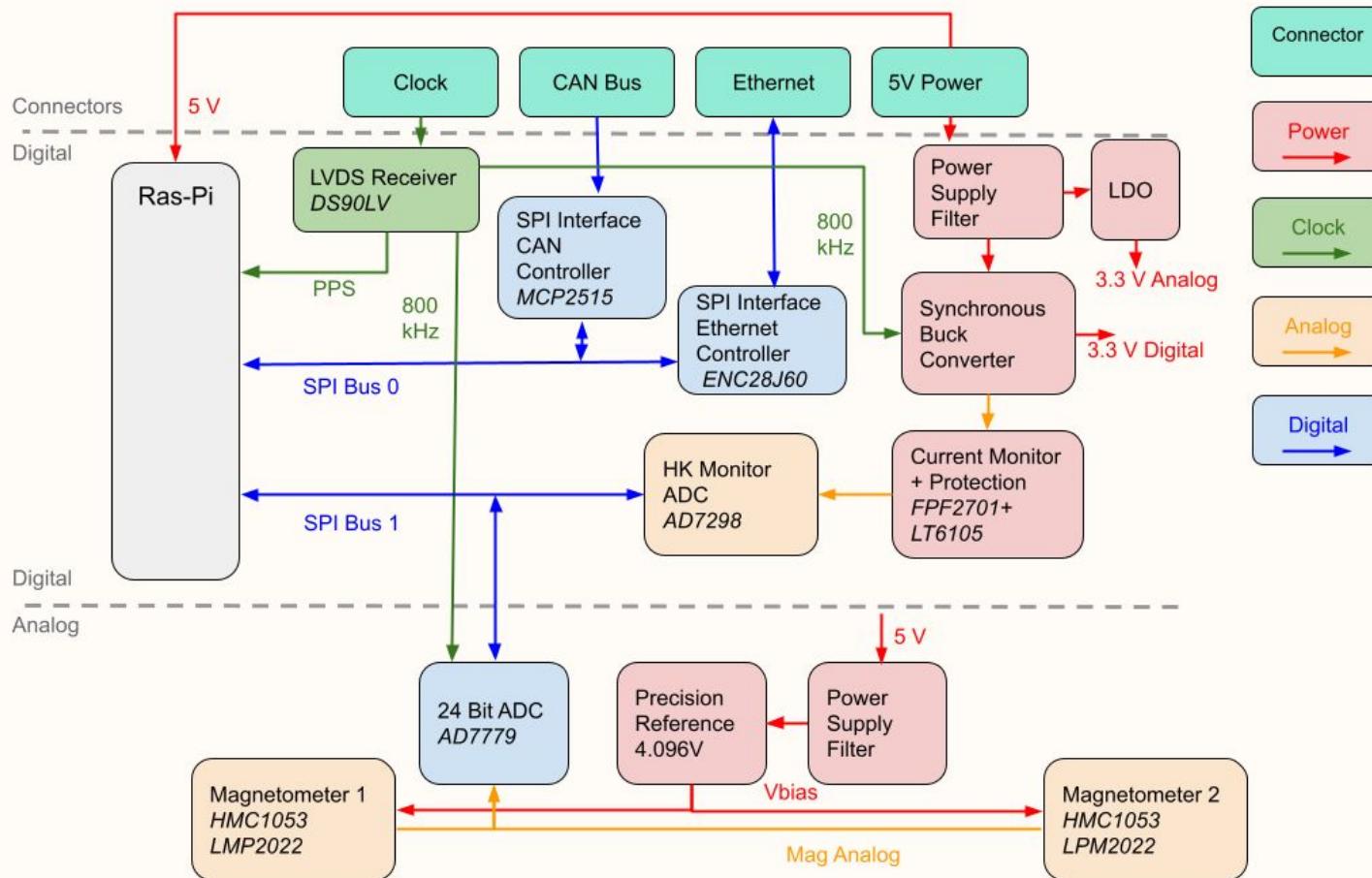


HRAFN

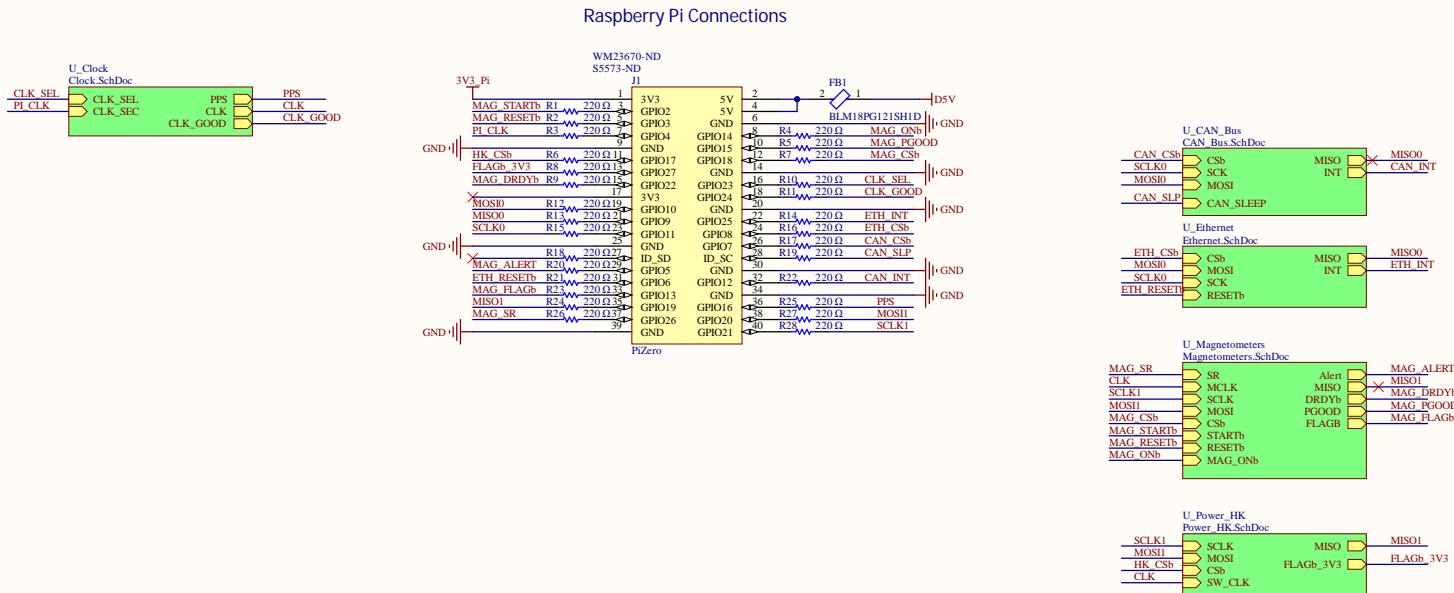
AERO-VISTA Auxiliary Sensor Package PCB



Hrafn
Top

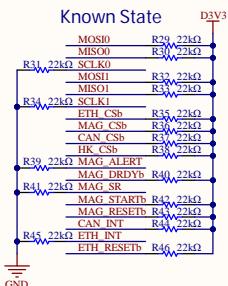
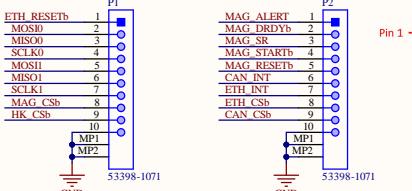


A



B

Test Connectors

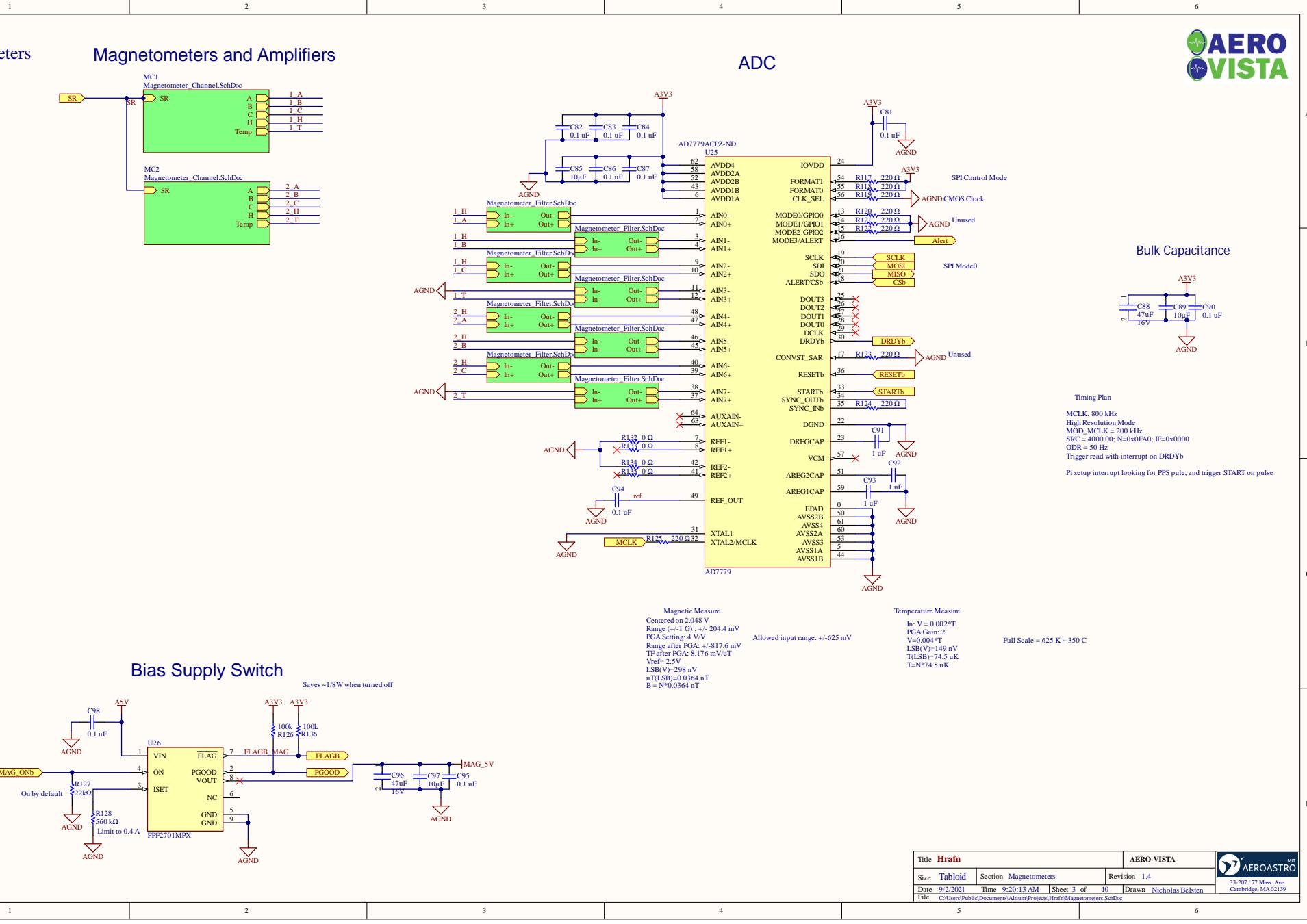


Bulk Capacitance

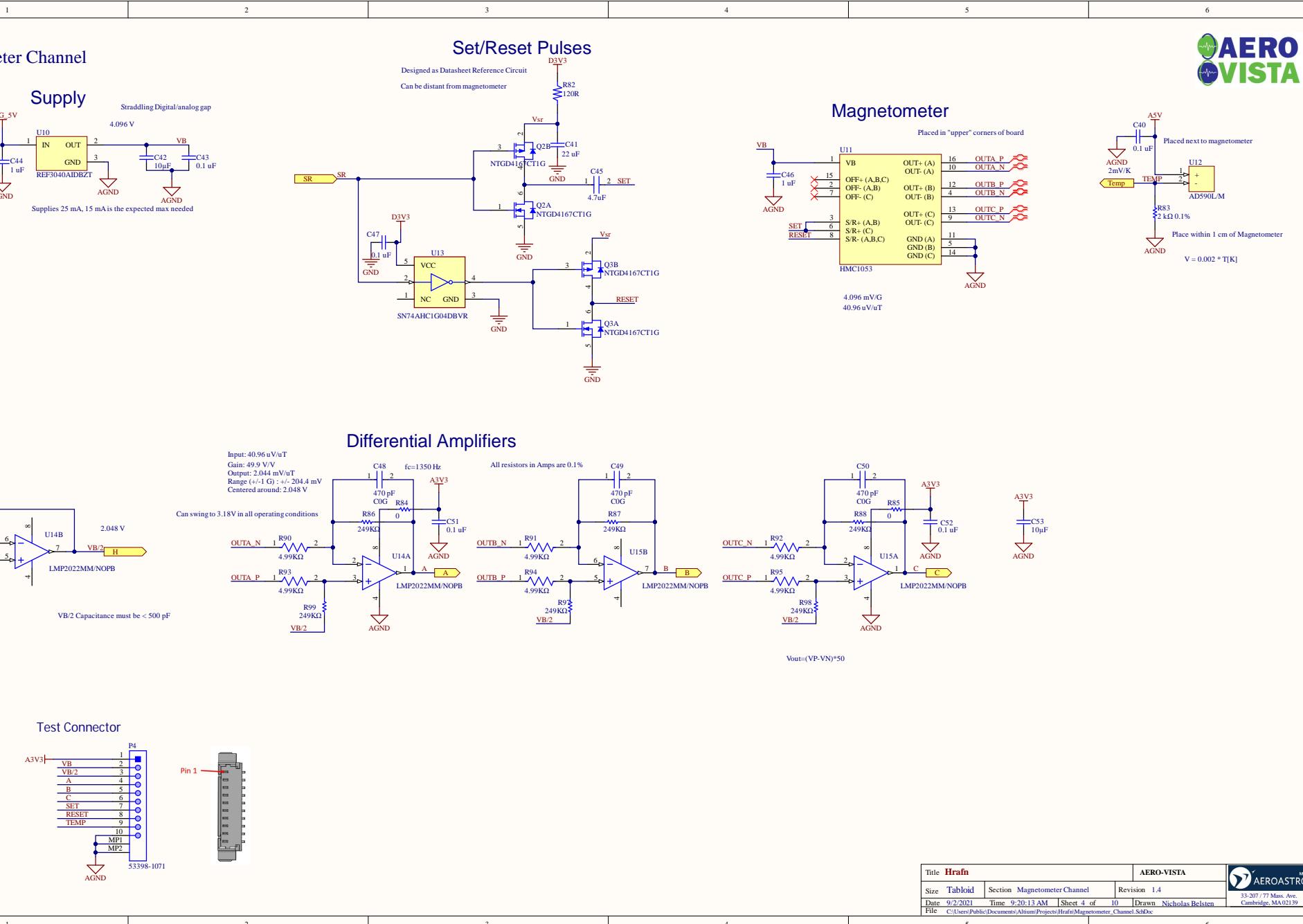
160 mΩ target impedance 50 kHz to 50 MHz
0.1 uF: 11 MHz-90 MHz
10 uF: 140 kHz-50 MHz
47 uF: 30 kHz-40 MHz

D

Title Hrafn		AERO-VISTA	
Size Tabloid	Section Top	Revision 1.4	
Date 9/2/2021	Time 9:20:13 AM	Sheet 2 of 10	Drawn Nicholas Belstgen
File C:/Users/Public/Documents/AltiumProjects/Hrafn/Hrafn_Top.SchDoc			



Hrafn Magnetometer Channel



1

2

3

4

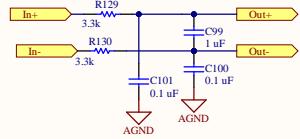
5

6

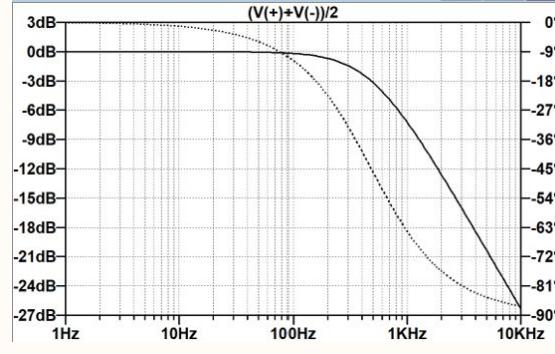
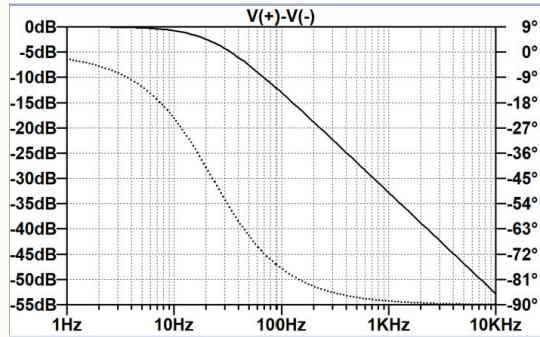
Hrafn Magnetometer Filter



A



$f_c = 48 \text{ Hz}$
50 ppm settling accuracy
High $T_s = 33\text{ms}$



B

A

C

B

D

C

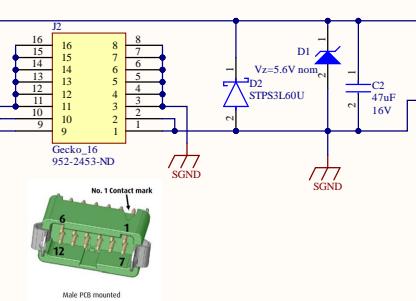
D

Title Hrafn		AERO-VISTA	
Size Tabloid	Section Magnetometer Filter	Revision 1.4	
Date 9/2/2021	Time 9:20:13 AM	Sheet 5 of 10	Drawn Nicholas Belstgen
File C:/Users/Public/Documents/AltiumProjects/Hrafn/Magnetometer_Filter.SchDoc			

1 2 3 4 5 6

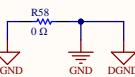
Hrafn Power + Housekeeping

Power Connector

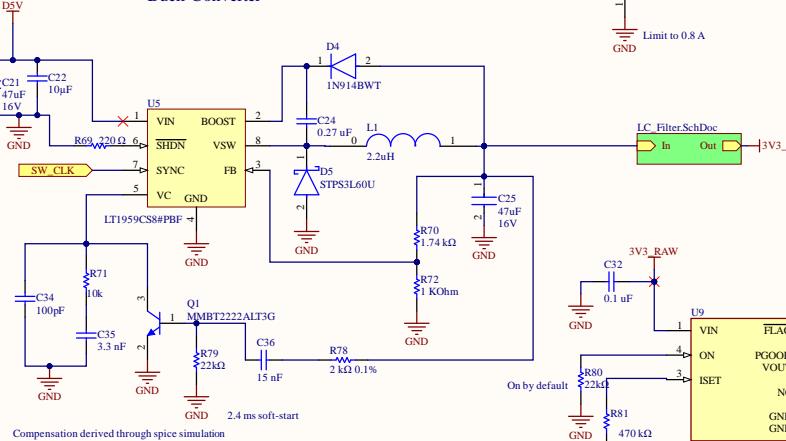


Grounding

SGND is for Cable Shields and EPS Return
The Chassis is Bonded to the main GND Section
The GND plane is split between AGND and GND sections
DGND is the same node as GND
The Return path from AGND to GND is placed at the ADC + LDO



Buck-Converter



1

2

3

4

5

6

1

2

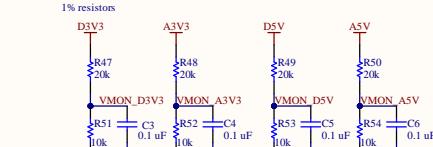
3

4

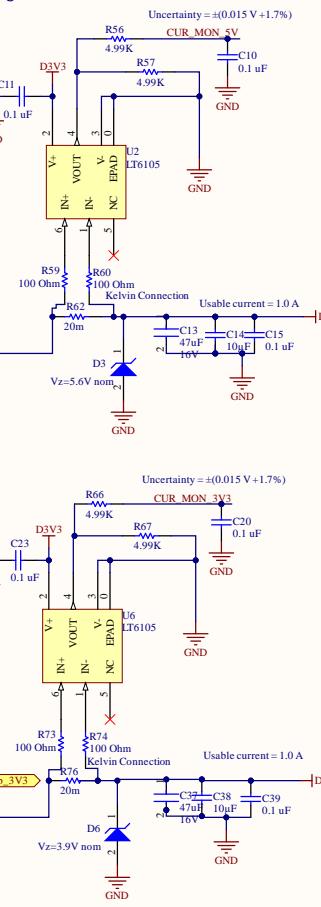
5

6

Voltage Dividers



Current Limiting Switches and Current Monitors



1

2

3

4

5

6

1

2

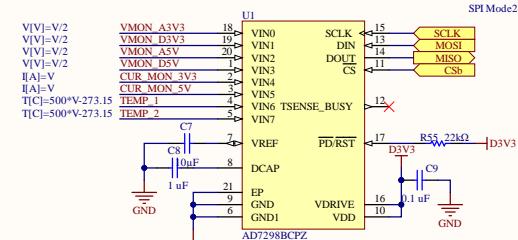
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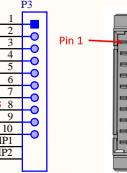
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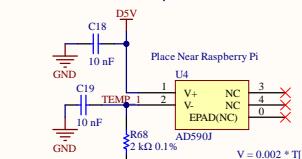
HK ADC



Test Connector

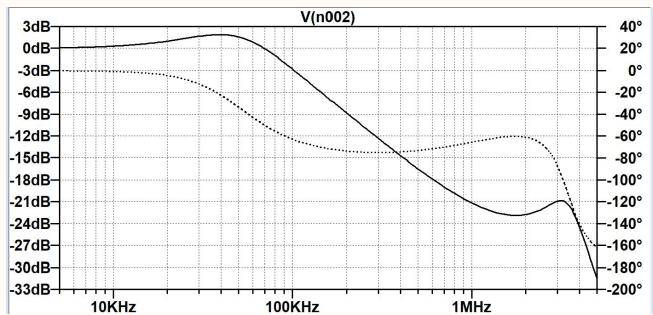


Temperature Sensors



Title	Hrafn	AERO-VISTA			
Size	Tabloid	Section	Power + Housekeeping	Revision	1.4
Date	9/2/2021	Time	9:20:14 AM	Sheet	6 of 10
File	C:/Users/Public/Documents/Altium/Projects/Hrafn/Hrafn.Power_HK.SchDxc	Drawn	Nicholas Belstgen	Cambridge, MA 02139	

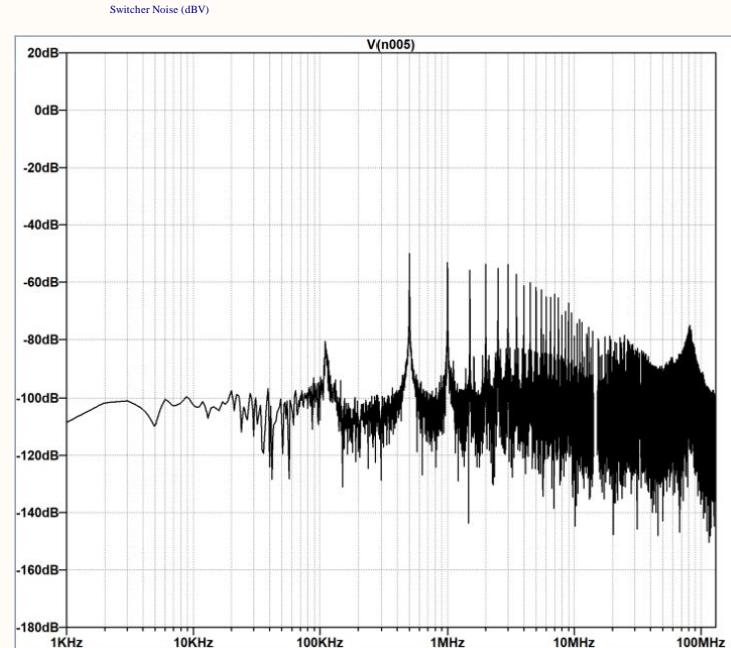
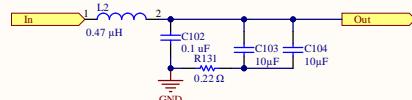
Hrafn LC Filter



Designed for 800 kHz and harmonics

350 mVpp before filter

5.5m Vpp after filter



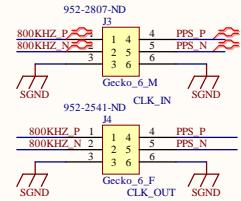
1 2 3 4 5 6

Hrafn Clock

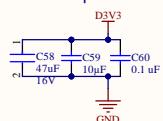


Connectors

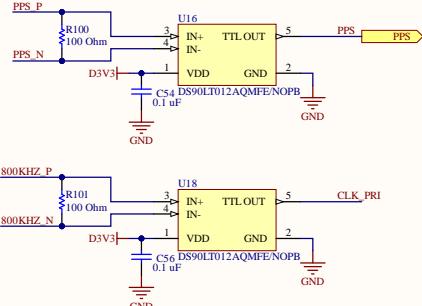
Direct daisy-chain of clock from in to out



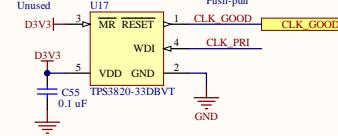
Bulk Capacitance



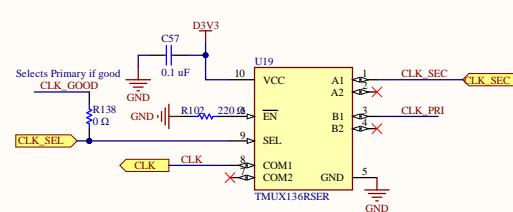
LVDS Receivers



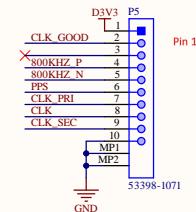
Clock Detect



Clock Selector



Test Connectors

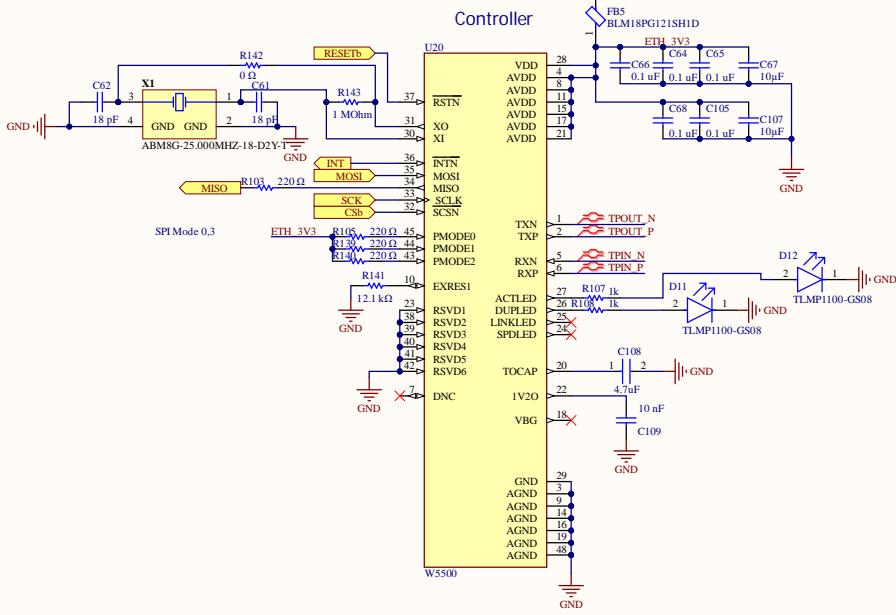


Title Hrafn		AERO-VISTA
Size Tabloid	Section Clock	Revision 1.4
Date 9/2/2021	Time 9:20:14 AM	Sheet 8 of 10 Drawn Nicholas Belstgen
File C:/Users/Public/Documents/AltiumProjects/Hrafn/Clock.SchDoc		

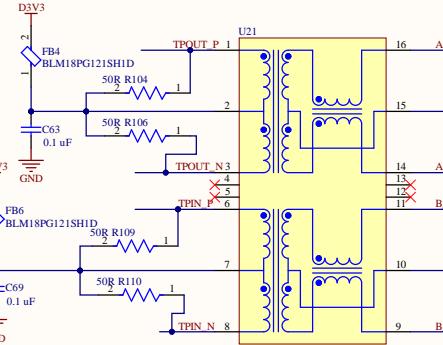


1 2 3 4 5 6

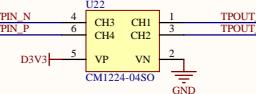
Hrafn
Ethernet



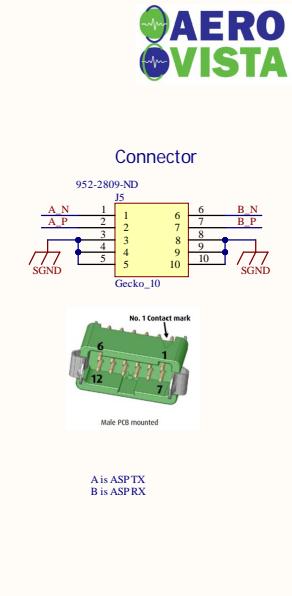
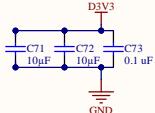
Magnetics

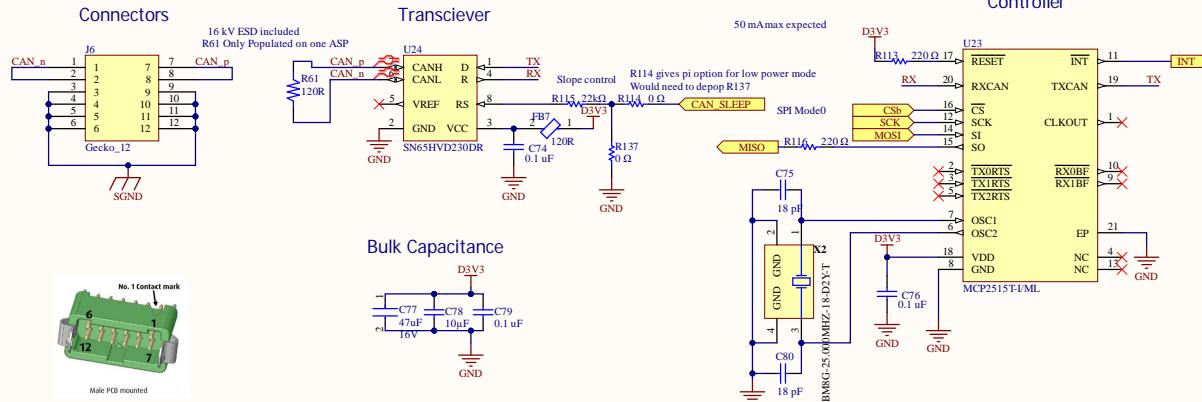


ESD

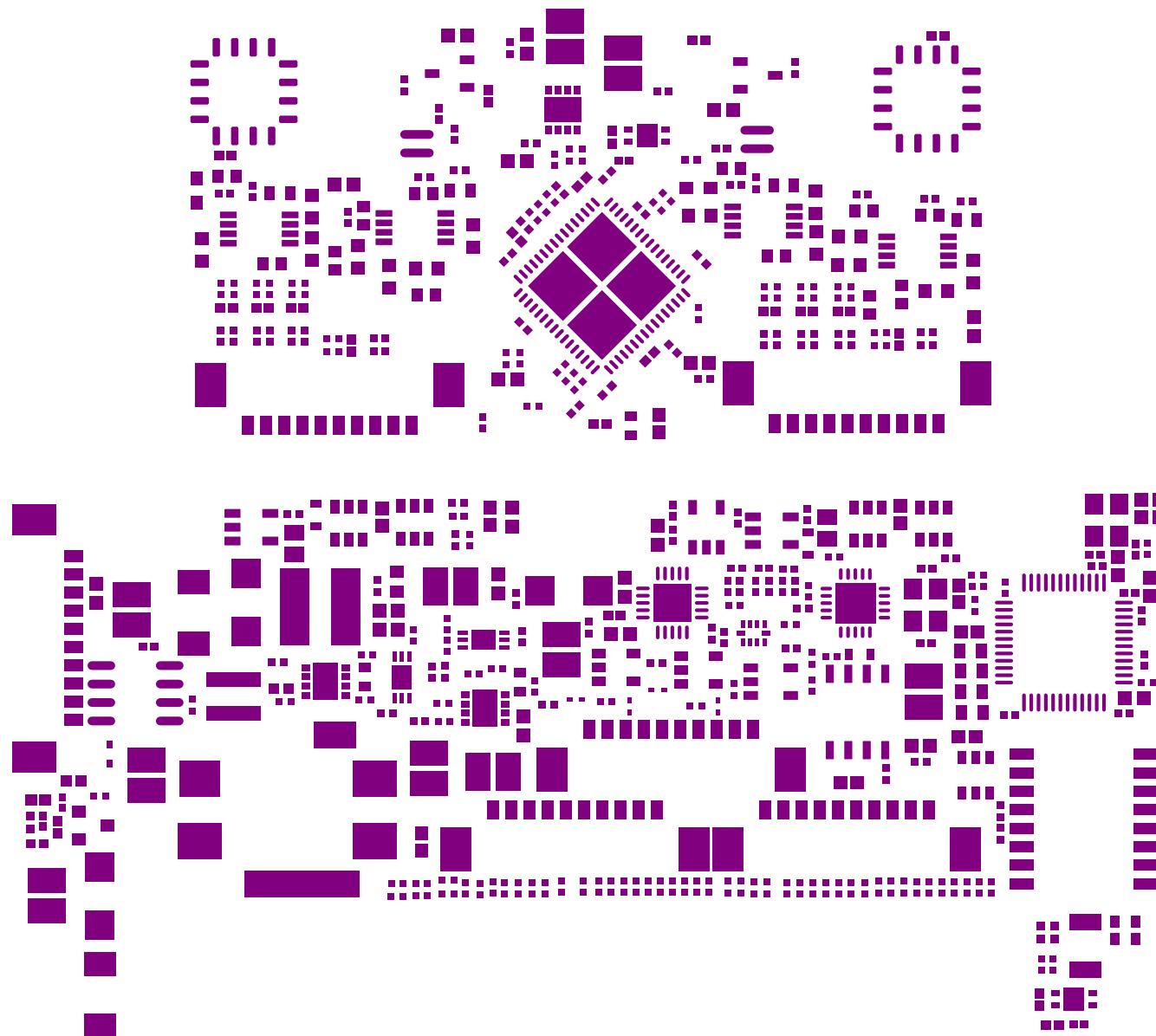


Bulk Capacitance

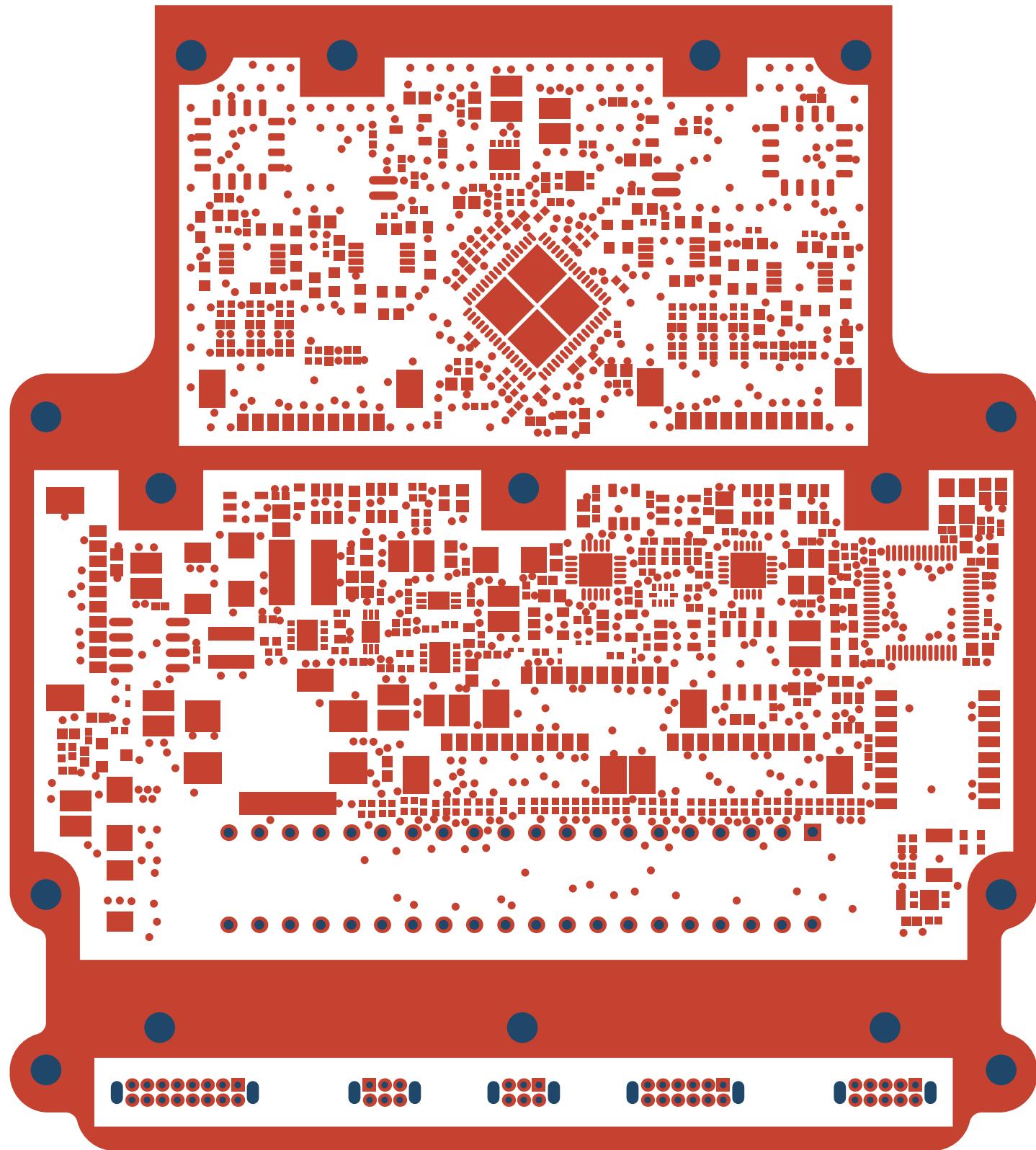


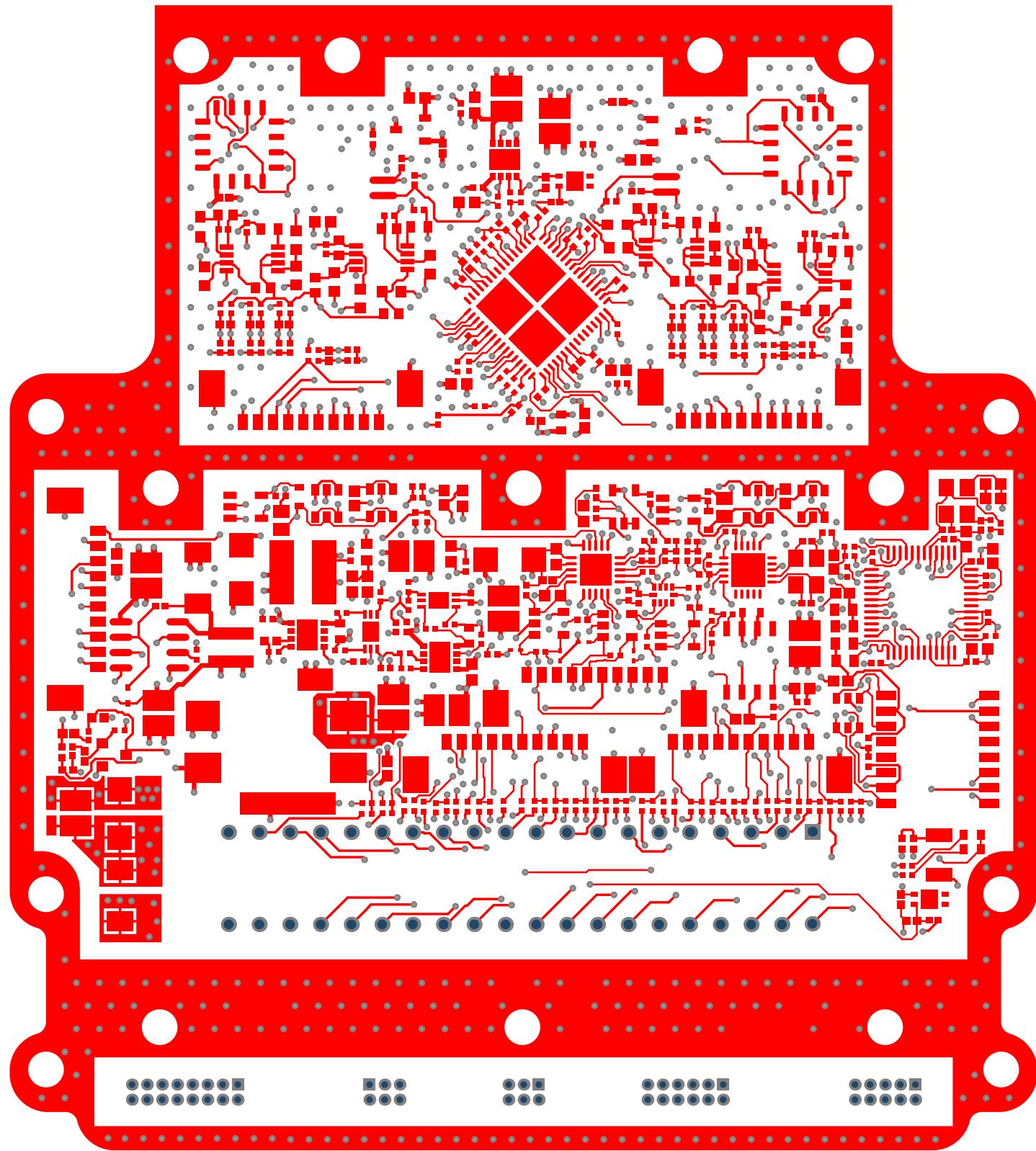


Title Hrafn		AERO-VISTA	
Size Tabloid	Section CAN	Revision 1.4	
Date 9/2/2021	Time 9:20:14 AM	Sheet 10 of 10	Drawn Nicholas Belstgen
File C:/Users/Public/Documents/AltiumProjects/Hrafn/CAN_Bus.SchDoc			

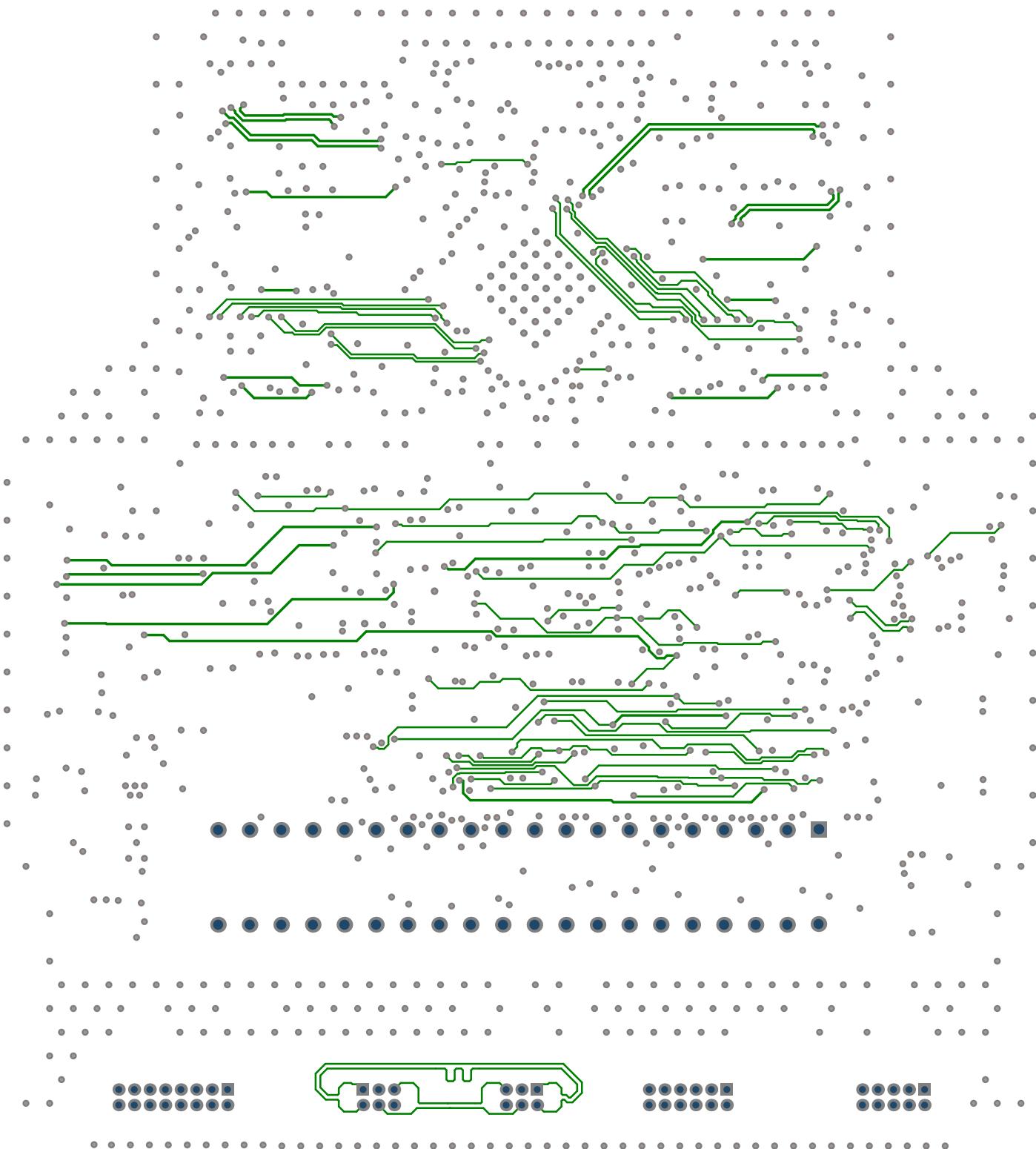


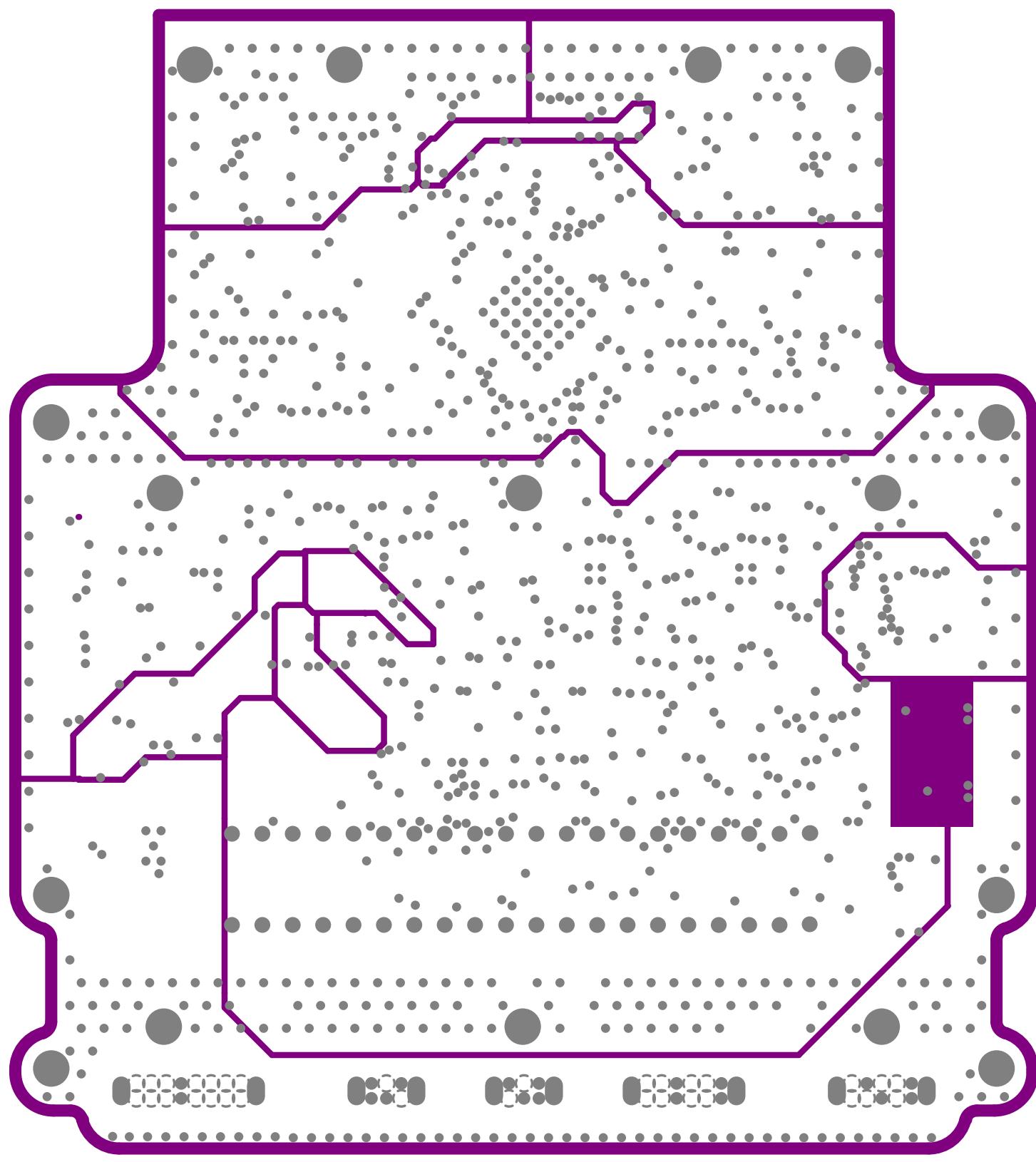


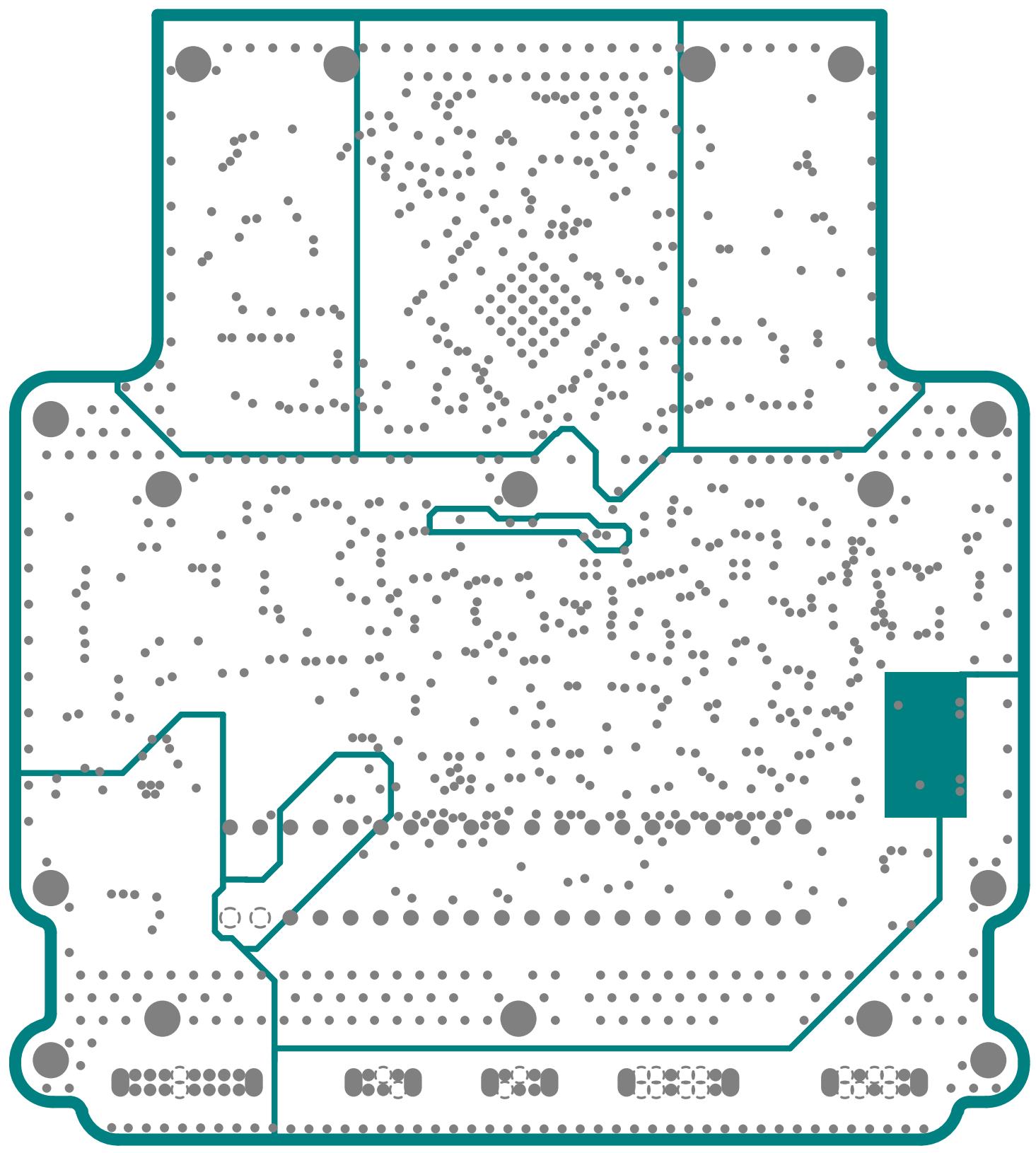












U10A

U10B

U14A

U15A

U14B

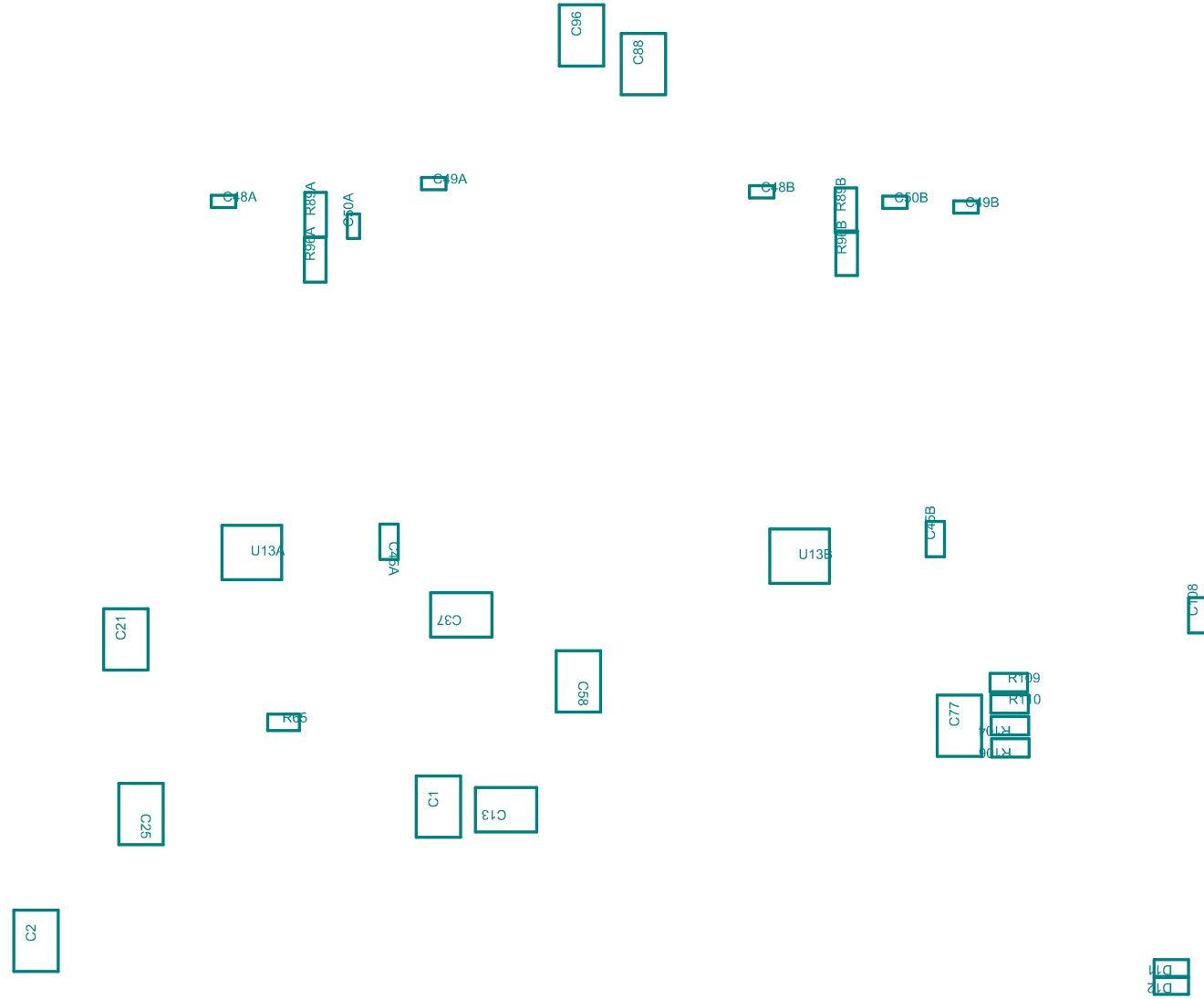
U15B

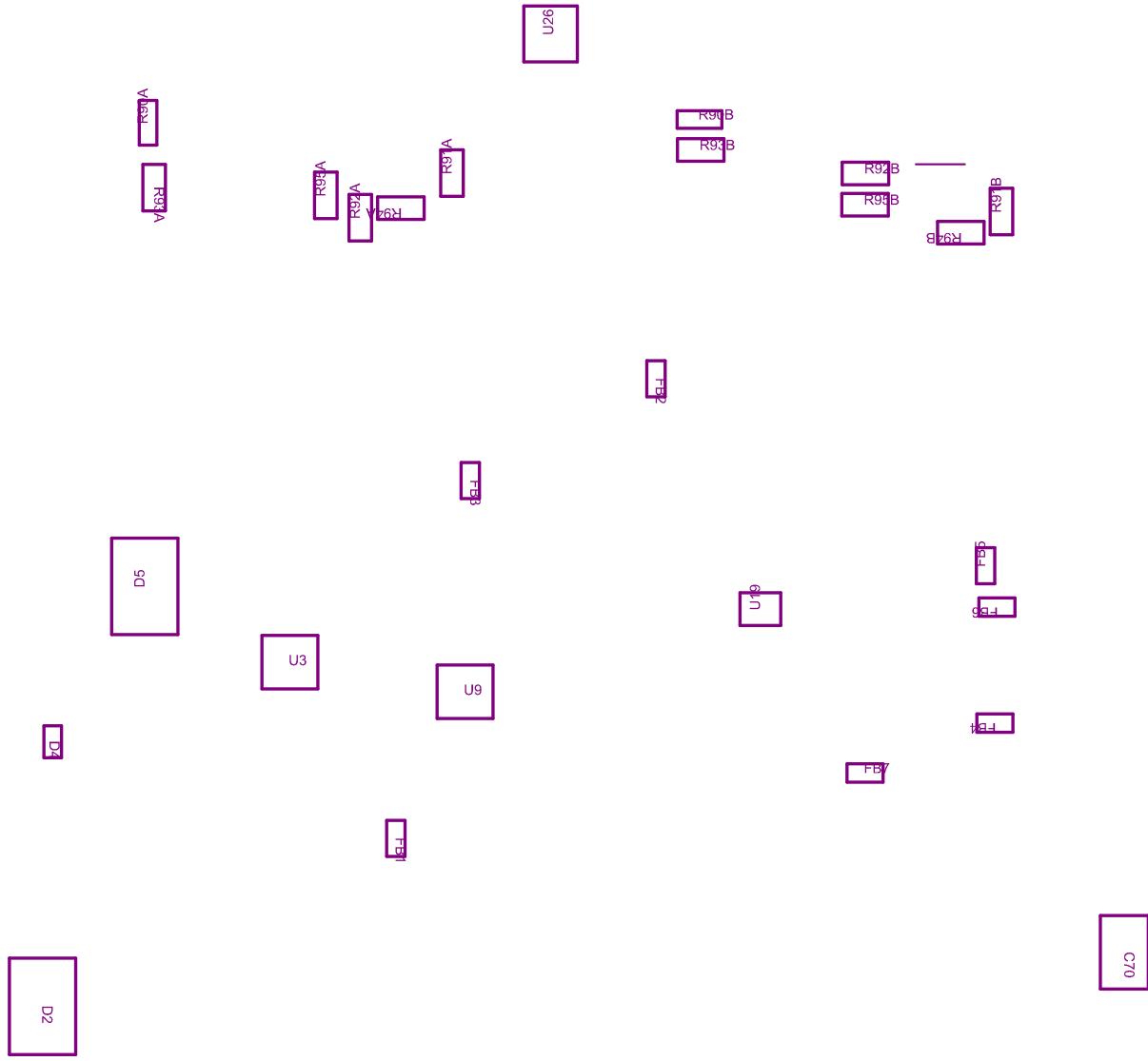
U7

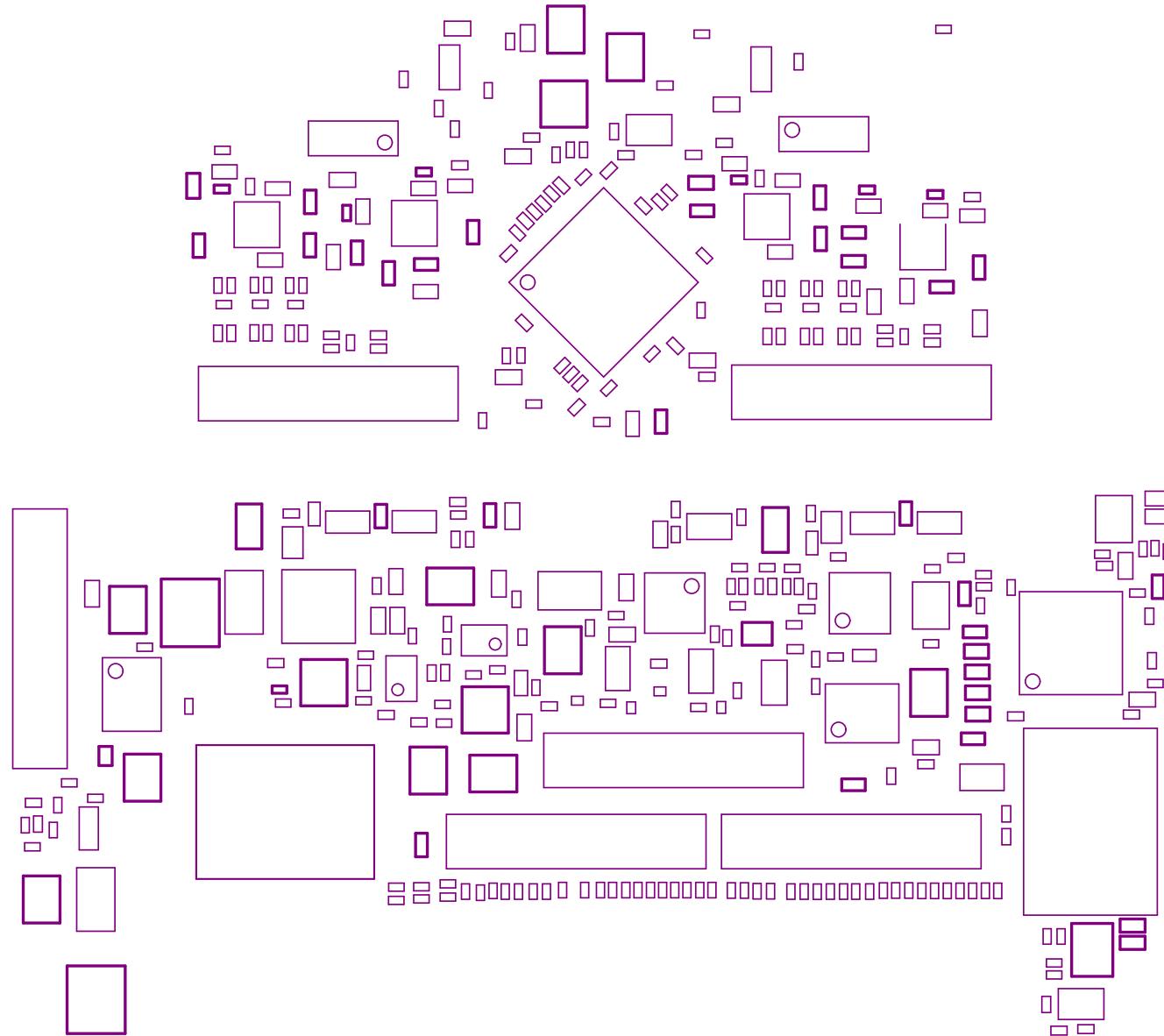
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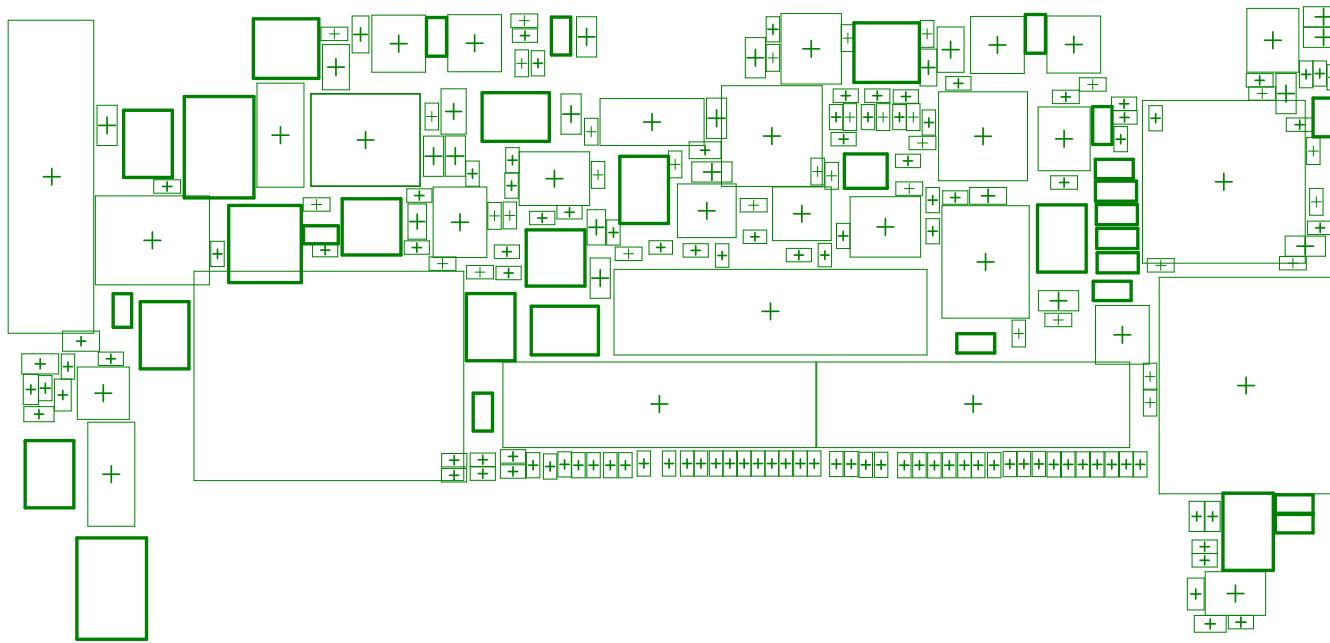
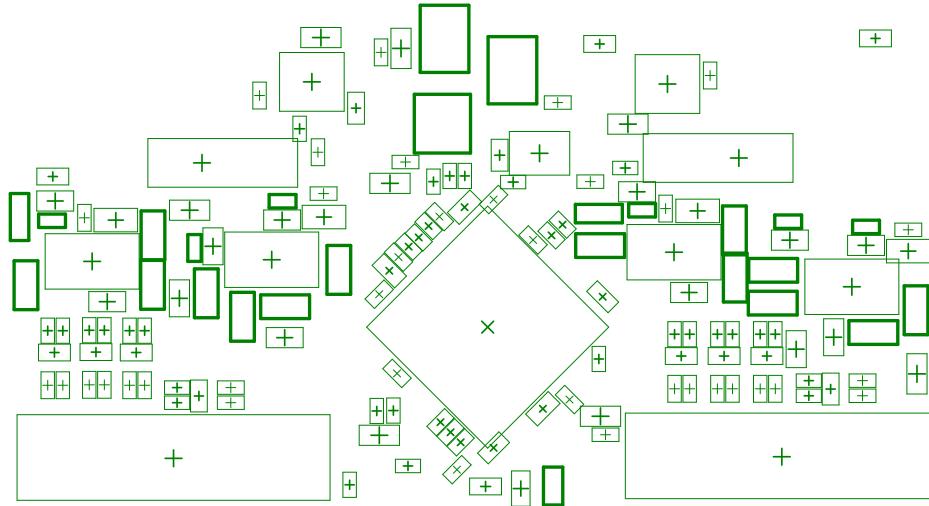
U24

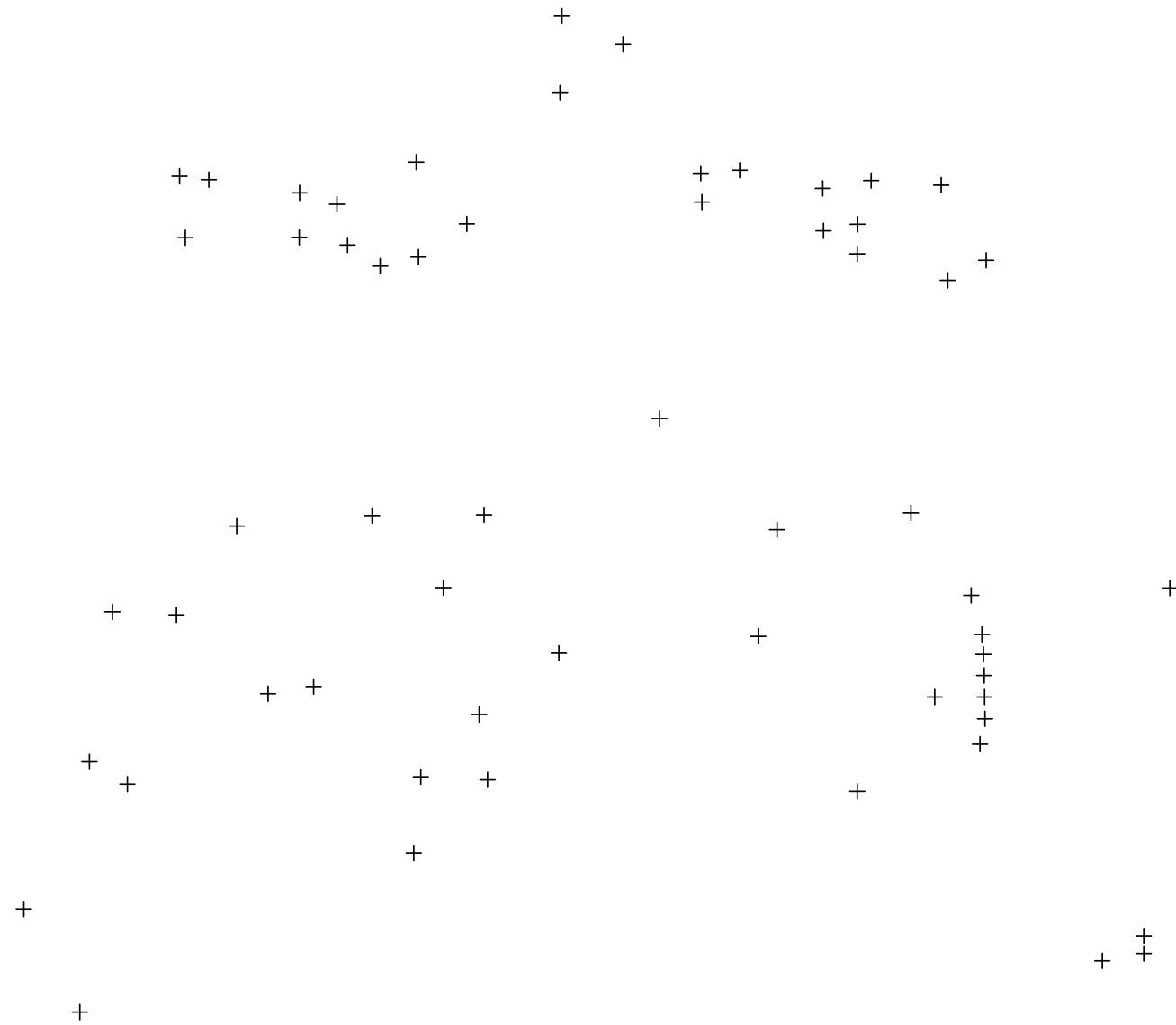


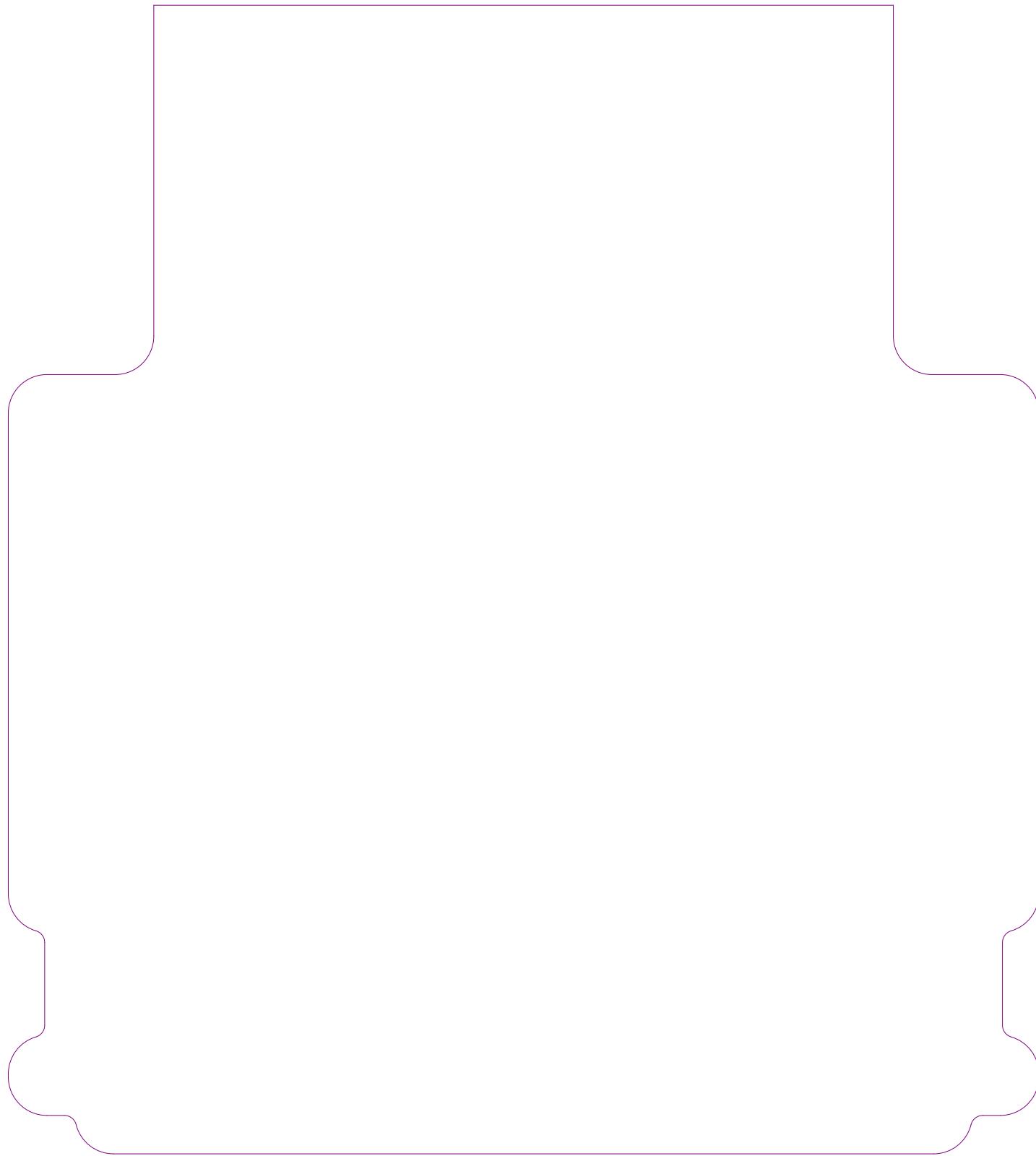


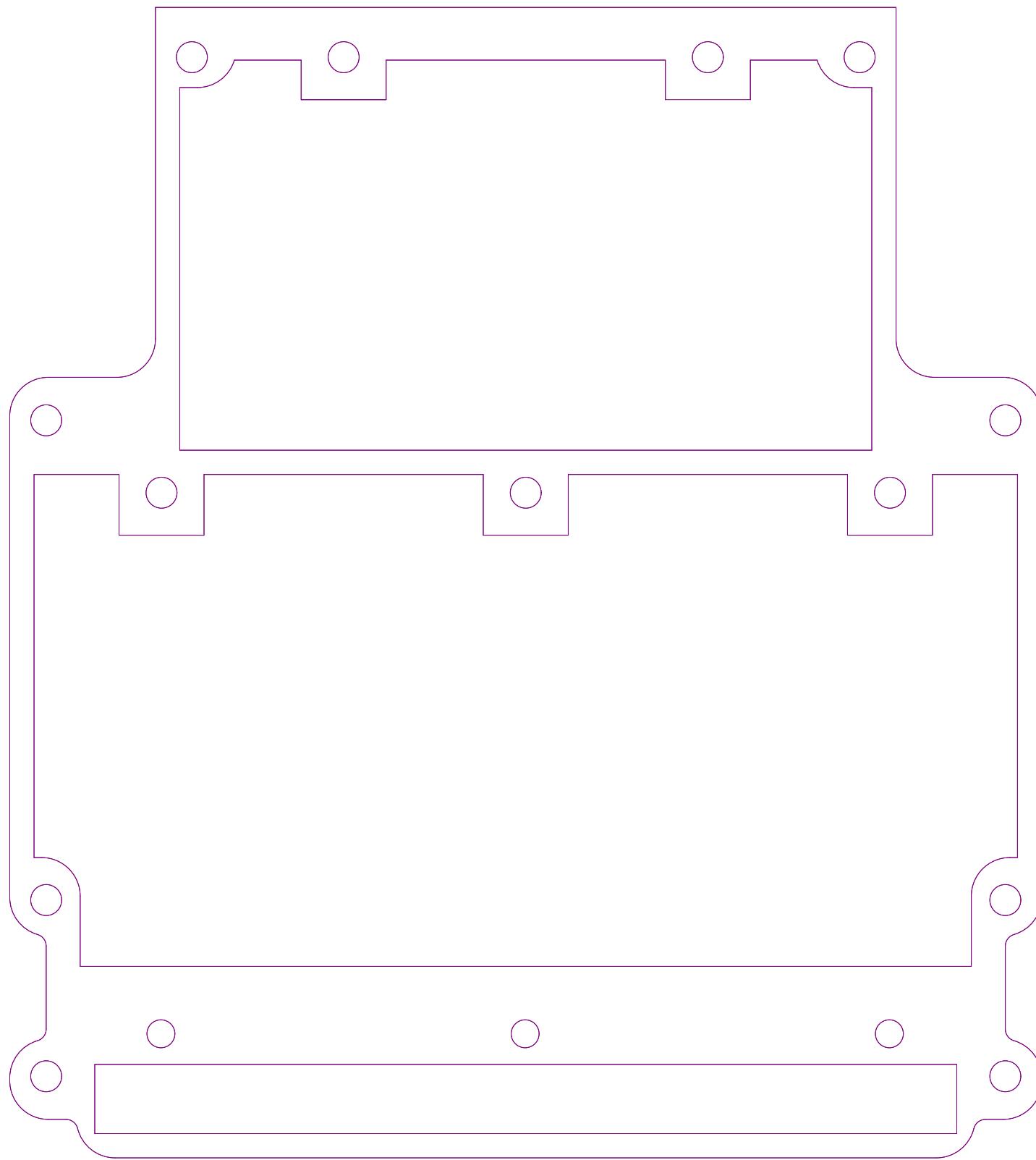


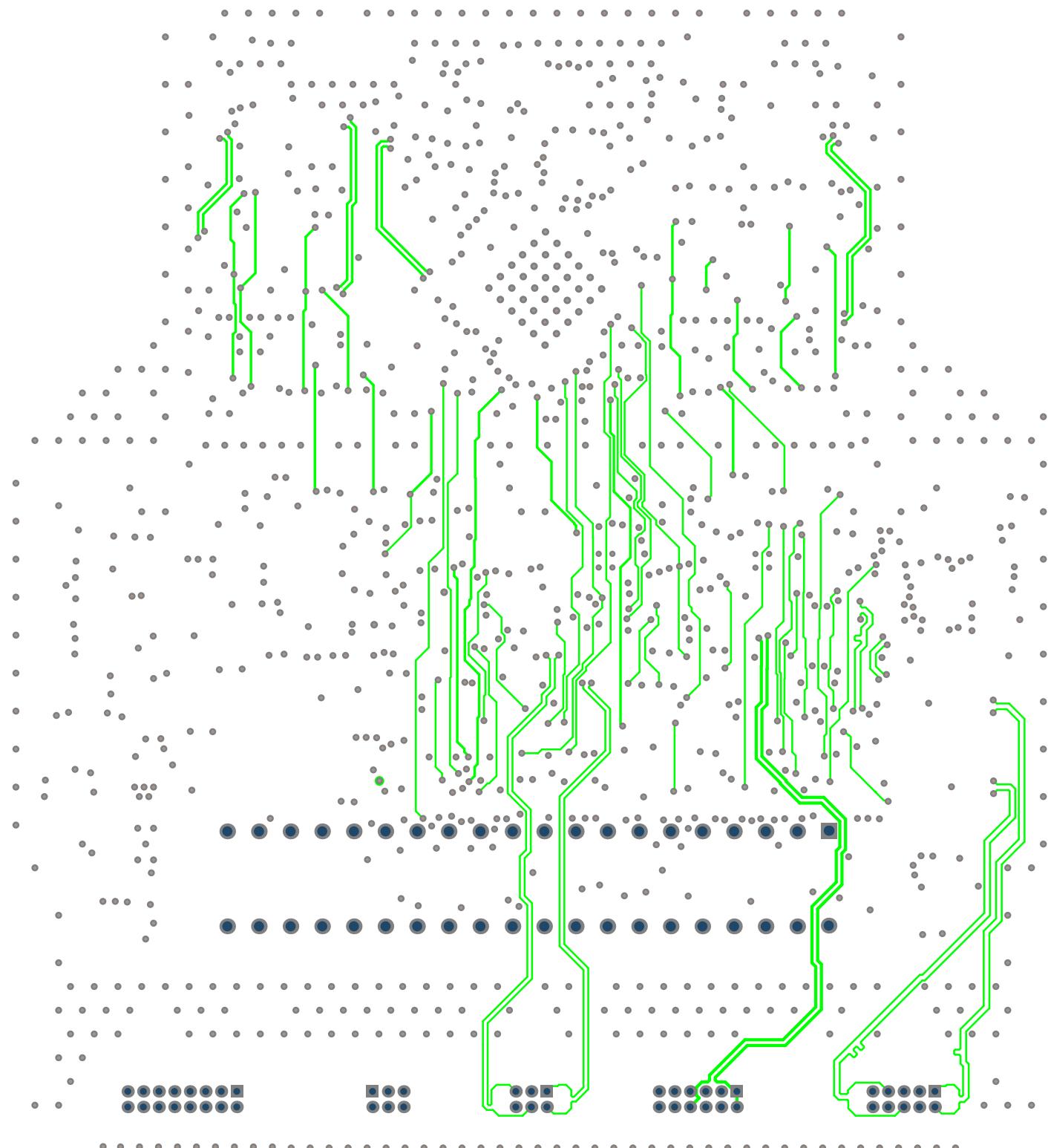


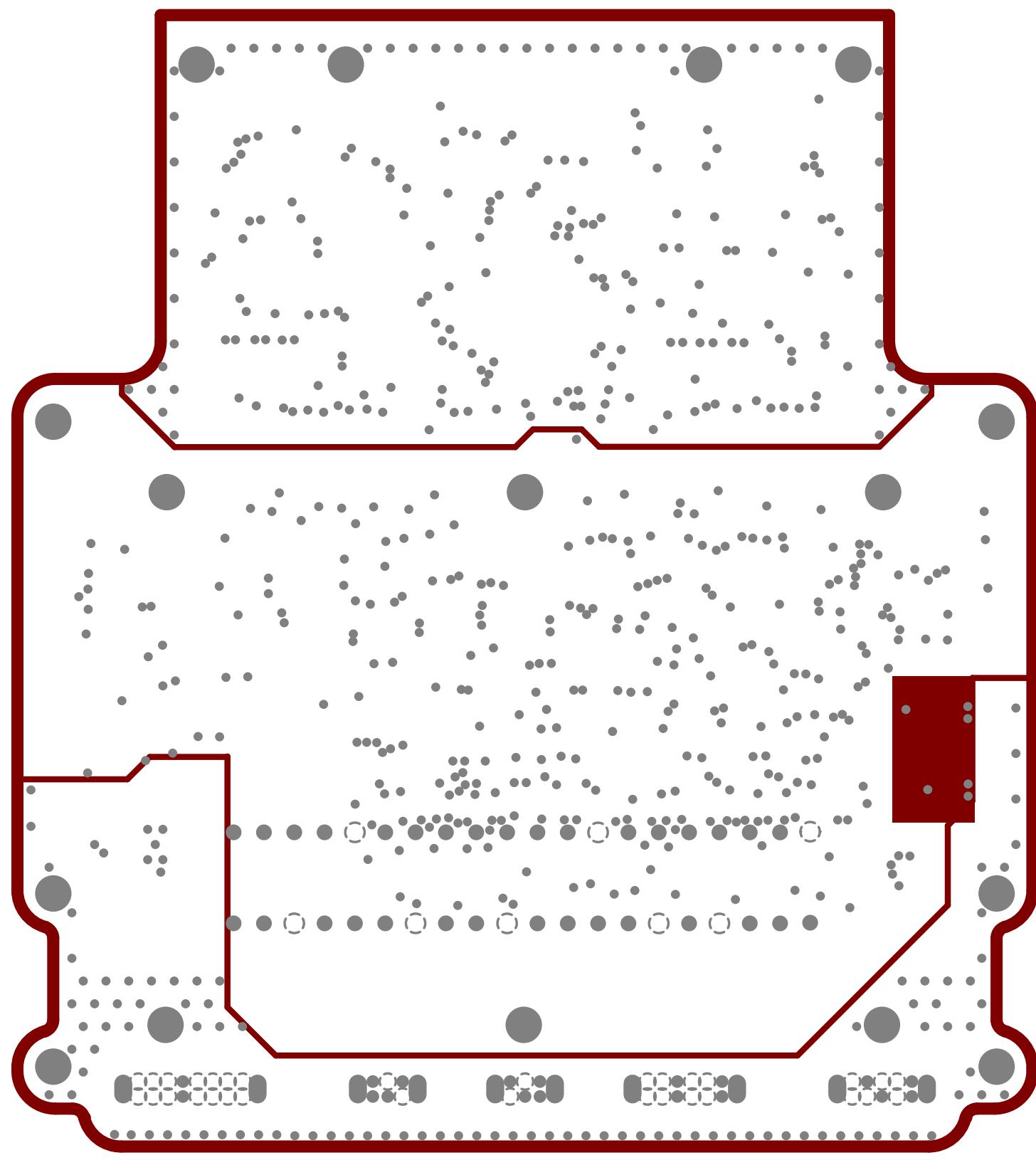


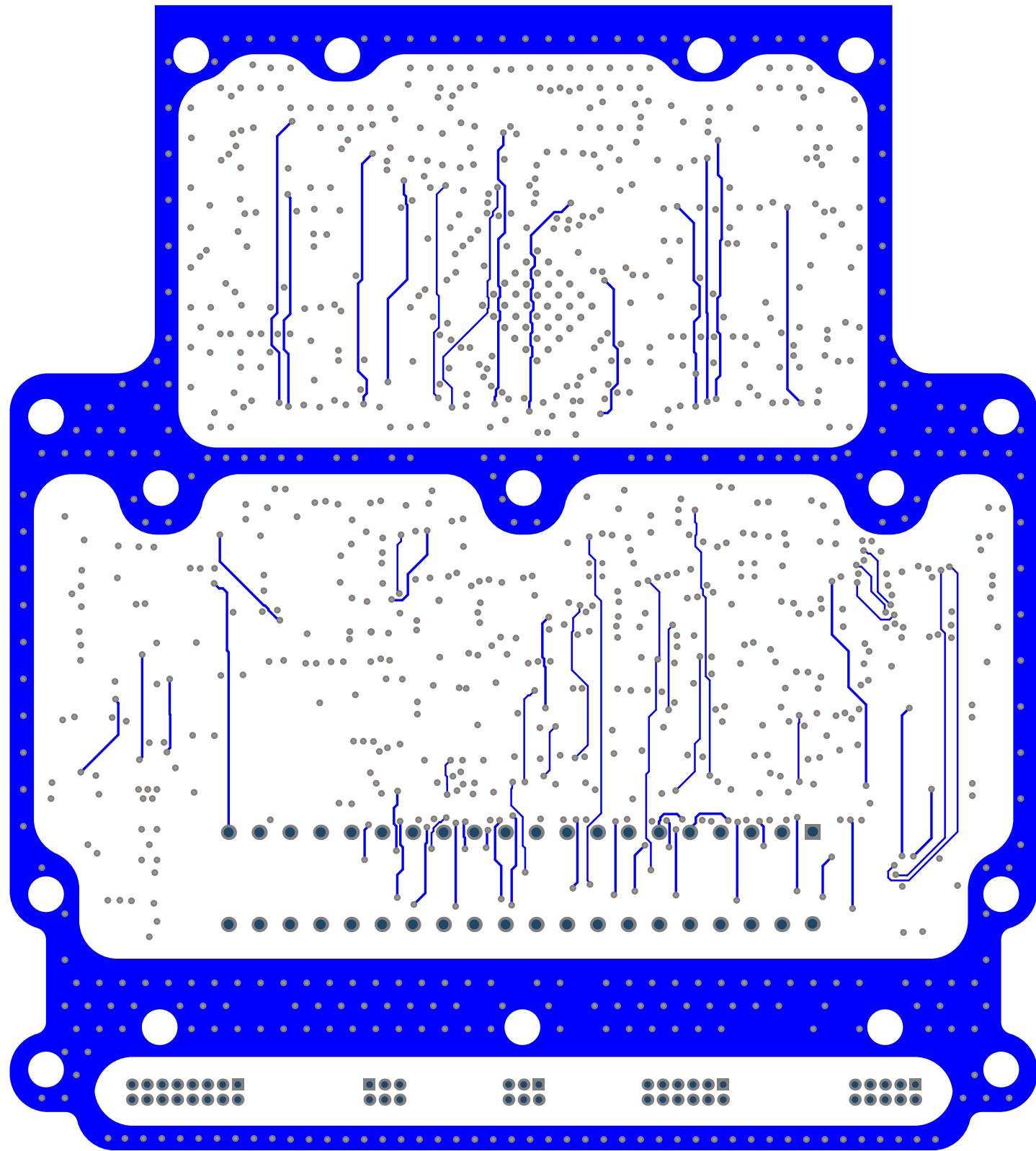


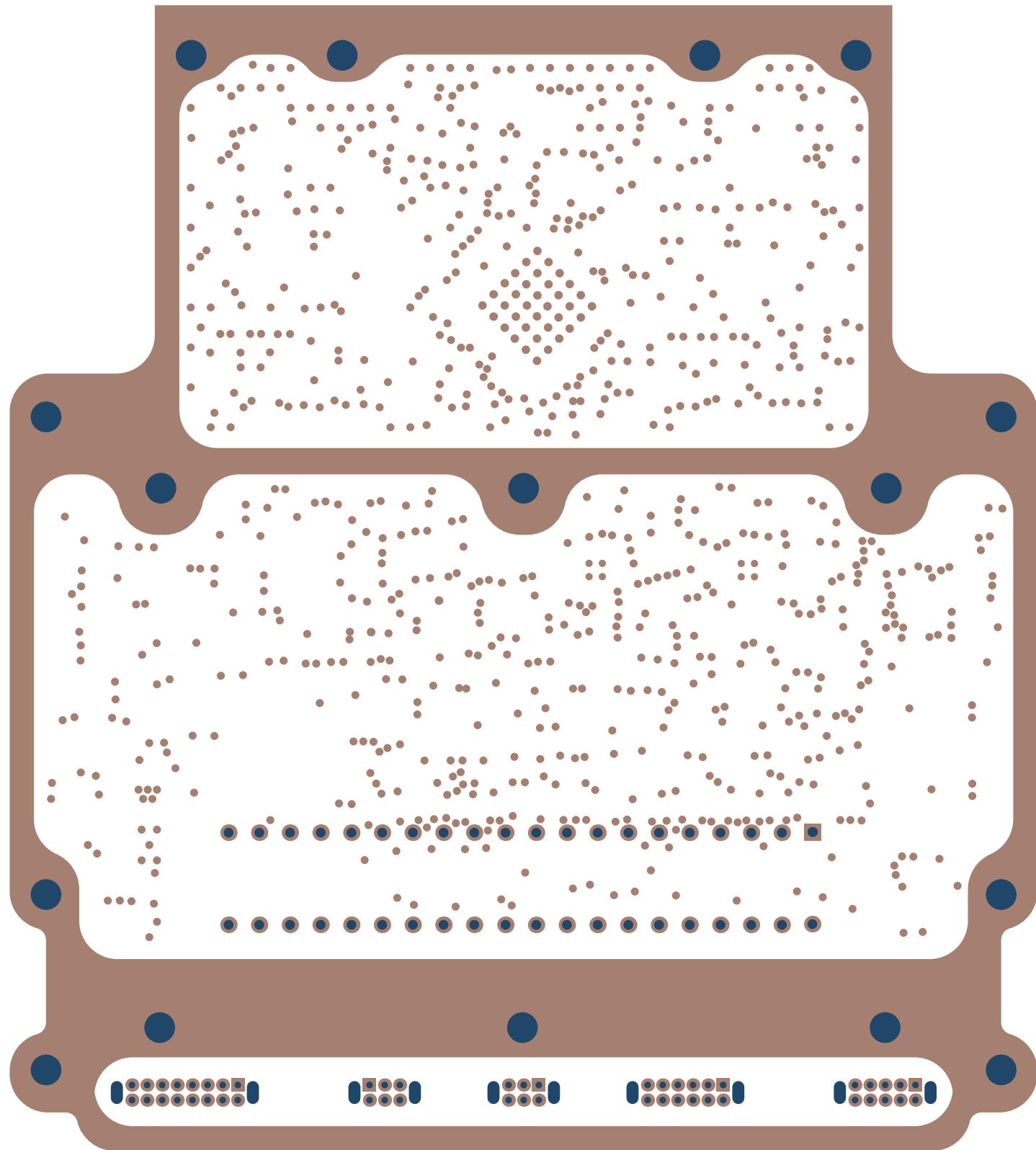












HR 64
Rev. 1.4
NEG
6/18/2021

