

A

A

B

B

C

C

D

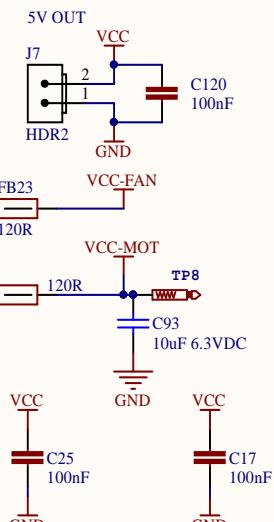
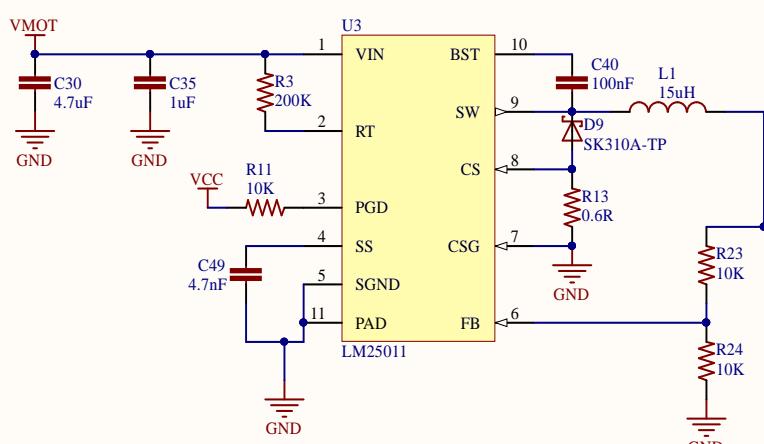
D

Einsy Breakout 0.0a  
UltiMachine  
9/18/2017

Notes:  
**DNI** = Do Not Include = No Populate

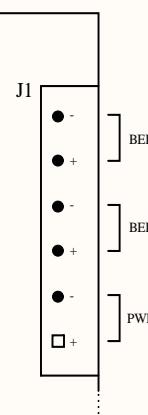
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Title: Title Page	File: Title.SchDoc
Drawn by: AWS	Sheet: 1 of 12





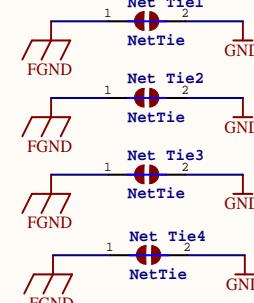
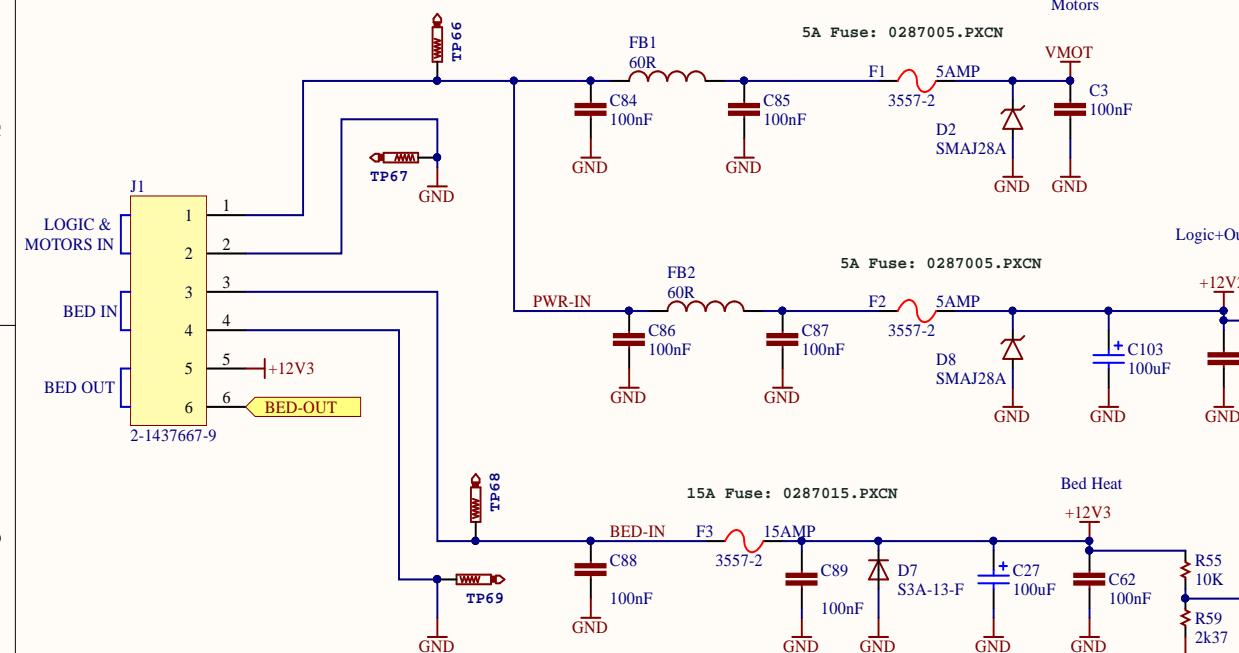
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TOP BOARD EDGE

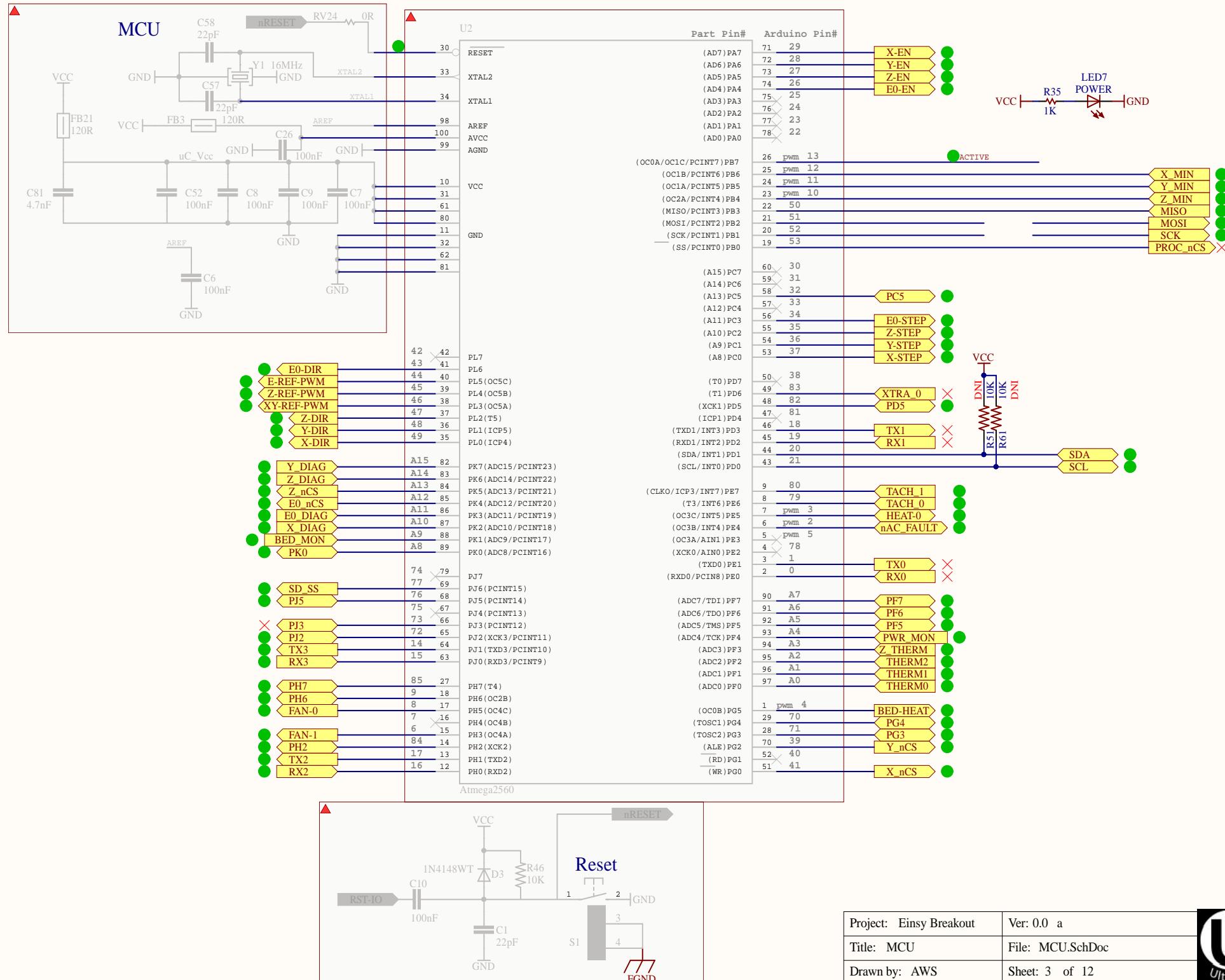


## Connector Layout

## Power Input



Project: Einsky Breakout	Ver: 0.0 a	
Title: Power-SMPS	File: Power-SMPS.SchDoc	
Drawn by: AWS	Sheet: 2 of 12	



# Atmega 32u2 USB

## USB to Serial

A

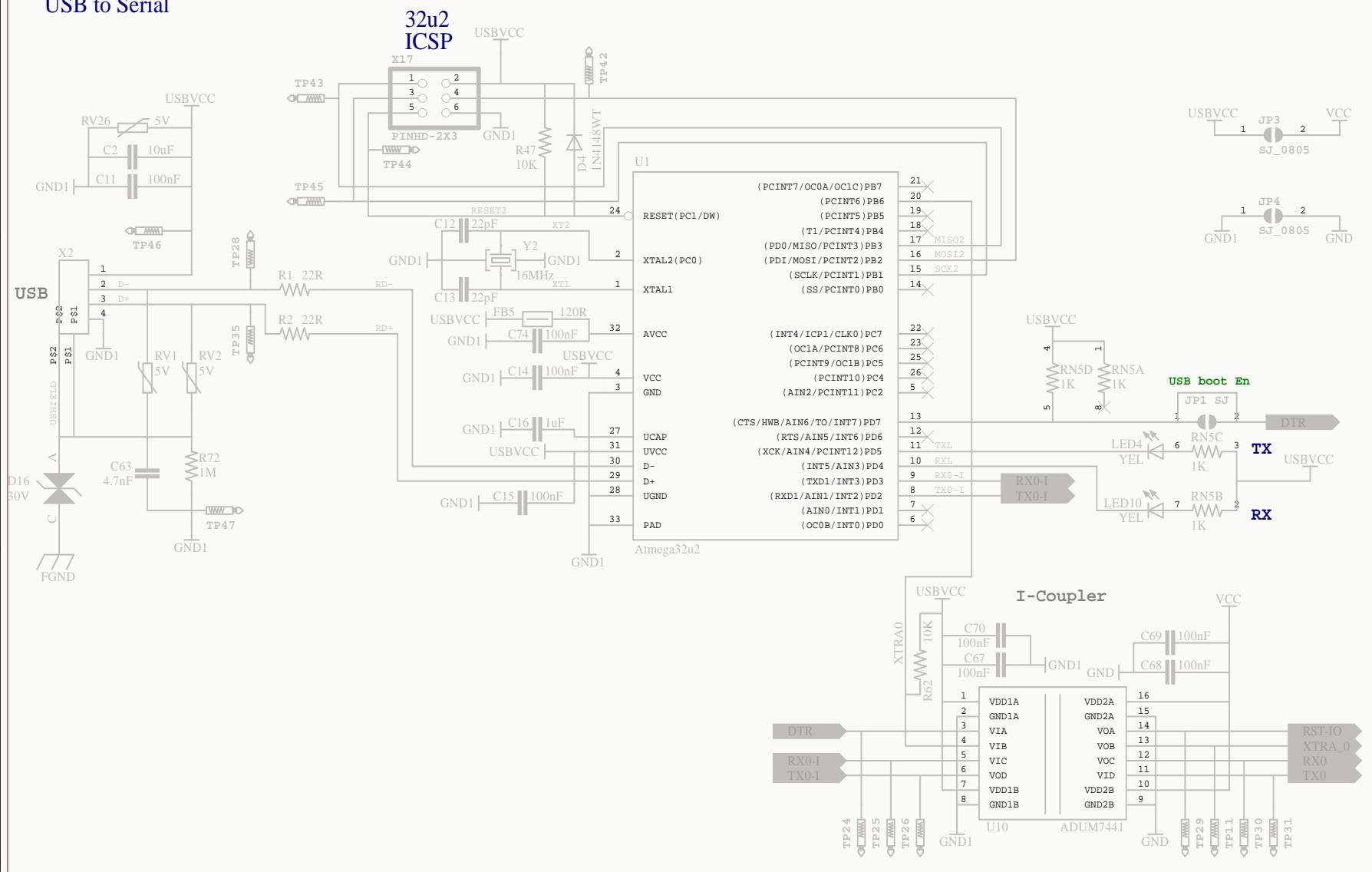
B

C

A

B

C



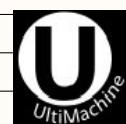
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We may make changes to specifications and product descriptions at any time, without notice. The Customer must not rely on the absence or characteristics of any features or instructions marked "reserved" or "undefined." We reserve these for future definition and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to them. The product information on the Web Site or Materials is subject to change without notice. Do not finalize a design with this information.

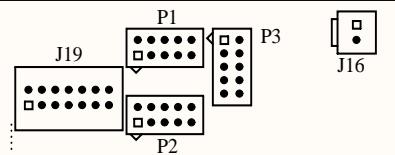


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Copyright 2017 - UltiMachine

Project: Einsy Breakout	Ver: 0.0 a
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Drawn by: AWS	Sheet: 4 of 12

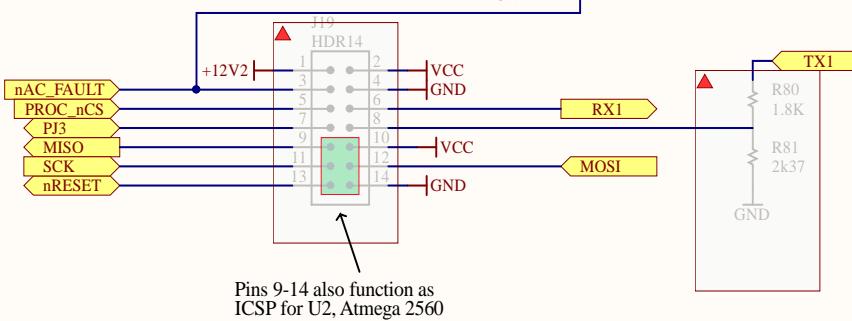
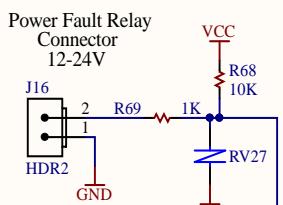
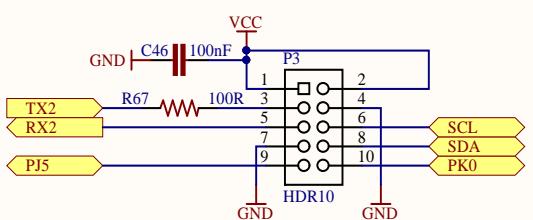
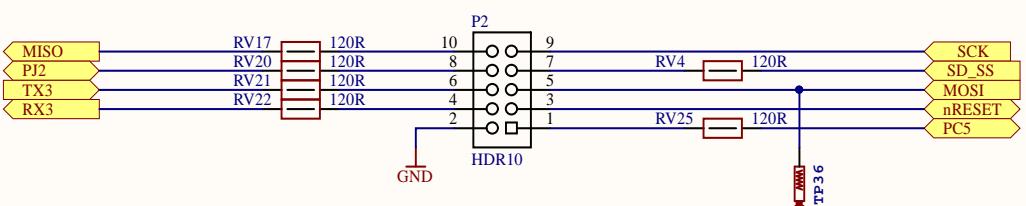
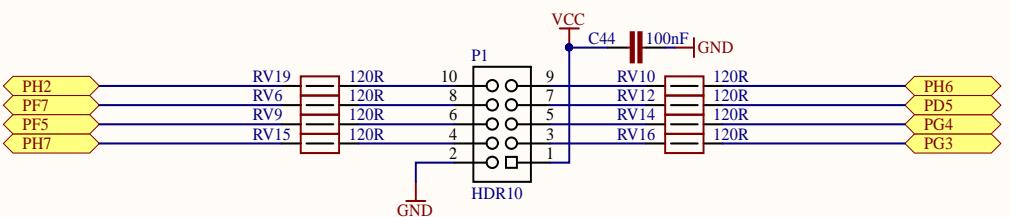


TOP BOARD EDGE



Connector Layout

## Expansion Connectors

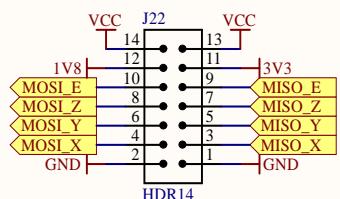
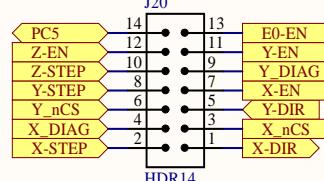
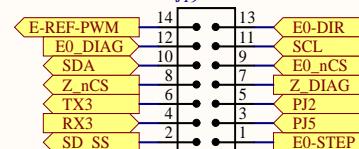
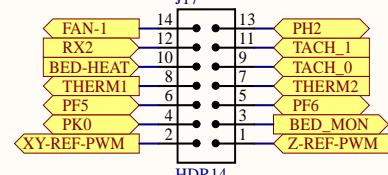
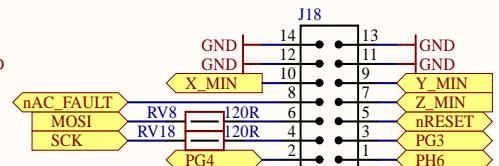
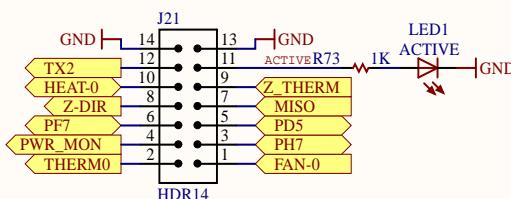


Project: Einsy Breakout	Ver: 0.0 a
Title: Connectors	File: Connectors.SchDoc
Drawn by: AWS	Sheet: 6 of 12



A

A

 $V_{CC} = 5V0$ 

B

B

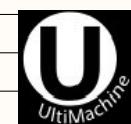
C

C

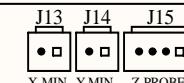
D

D

Project: Einsy Breakout	Ver: 0.0 a
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Drawn by: AWS	Sheet: 5 of 12



TOP BOARD EDGE



Connector Layout

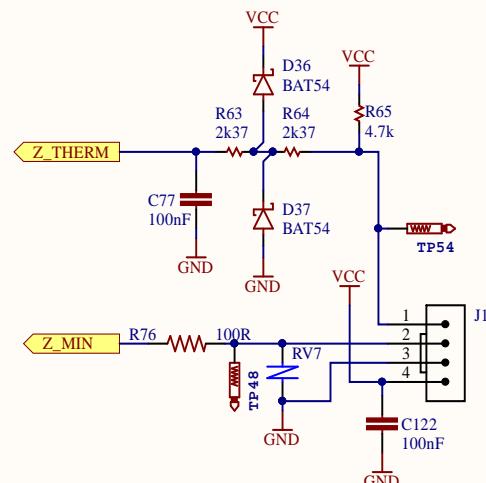
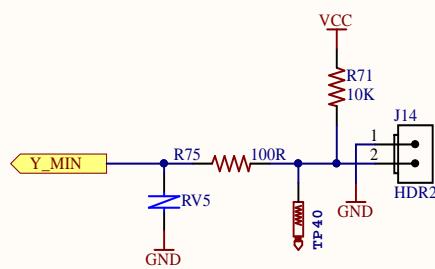
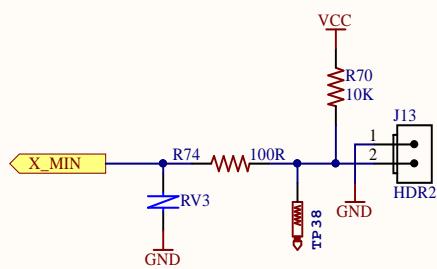
A

A

B

B

## End Stops



C

C

D

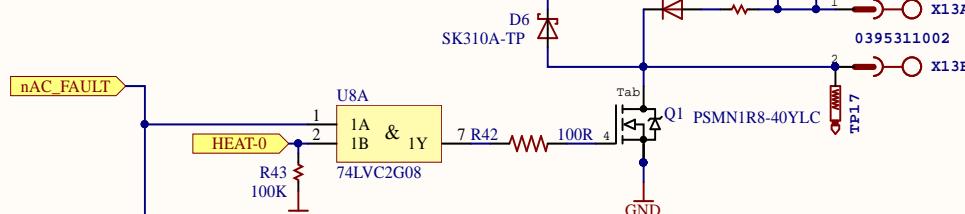
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Drawn by: AWS	Sheet: 7 of 12

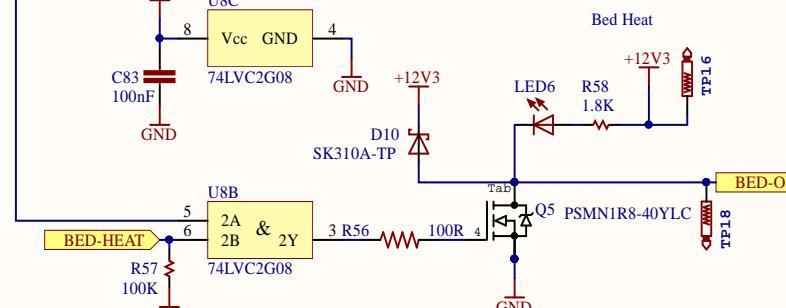


## Heater Outputs

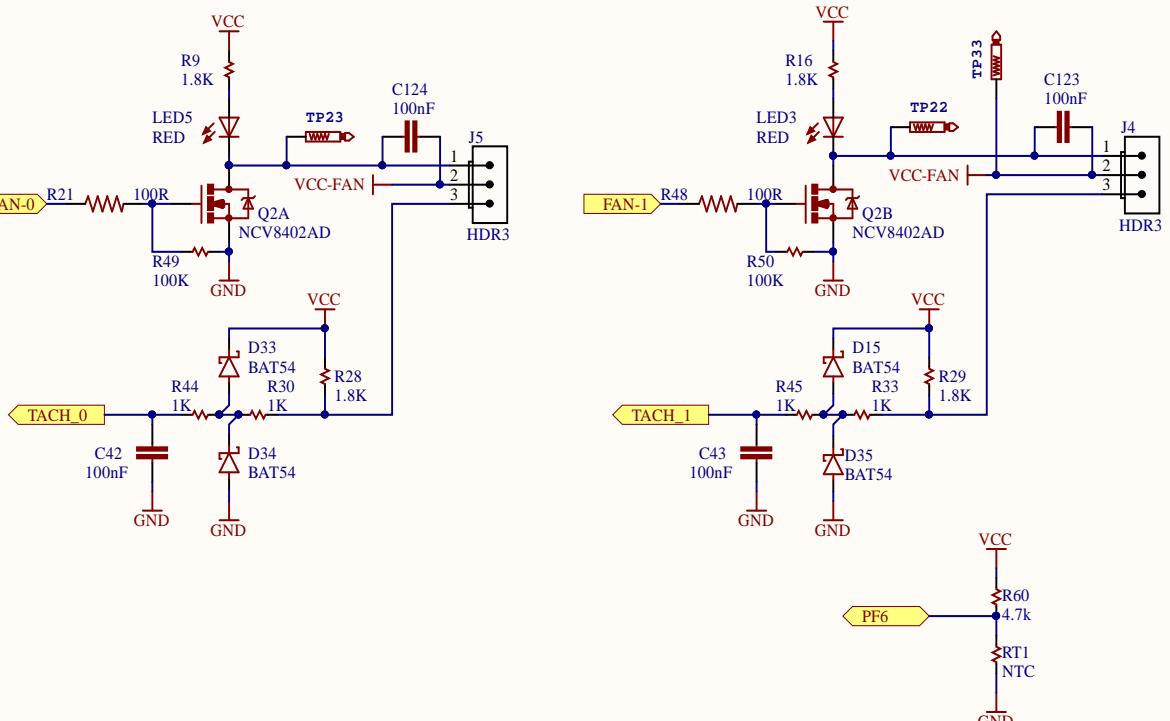
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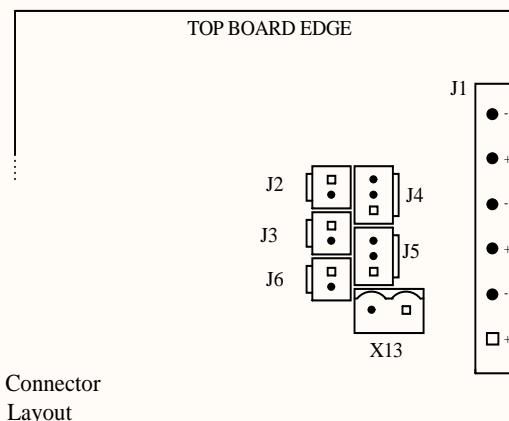
B



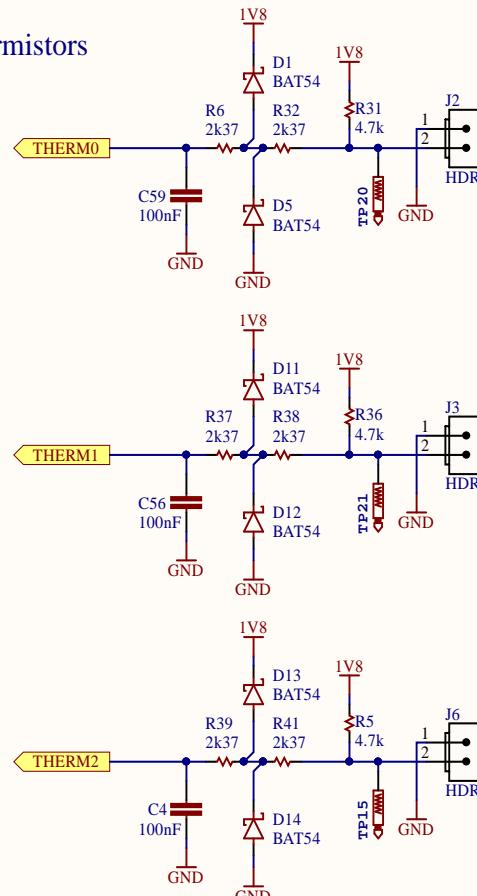
C



D



## Thermistors



Project: Einsy Breakout

Ver: 0.0 a

Title: Heaters

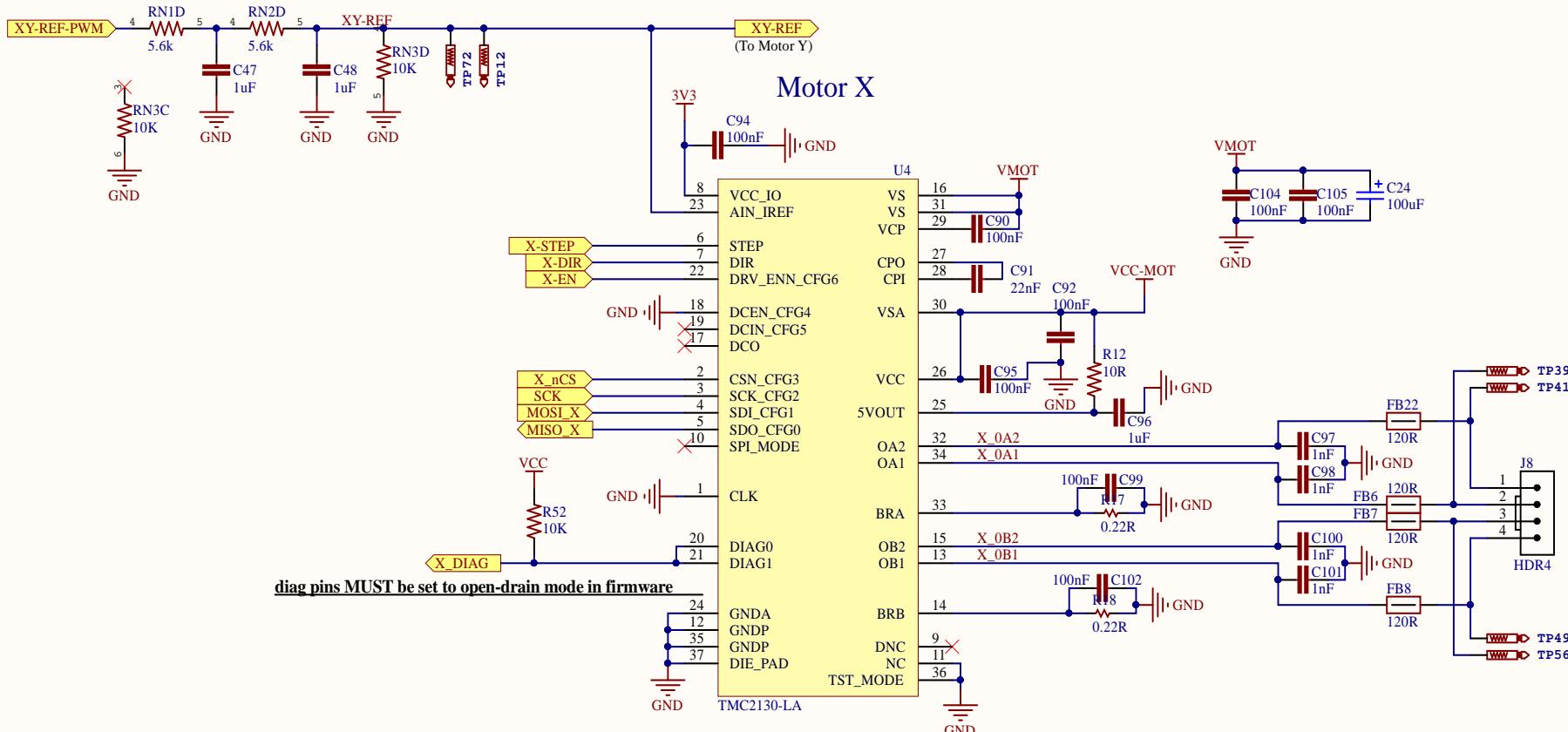
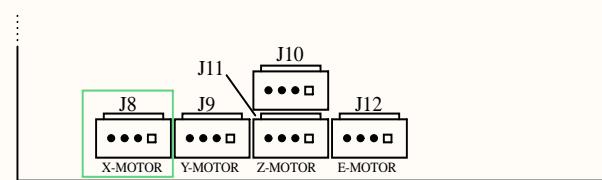
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Drawn by: AWS

Sheet: 8 of 12



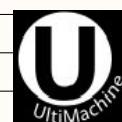
Connector  
Layout



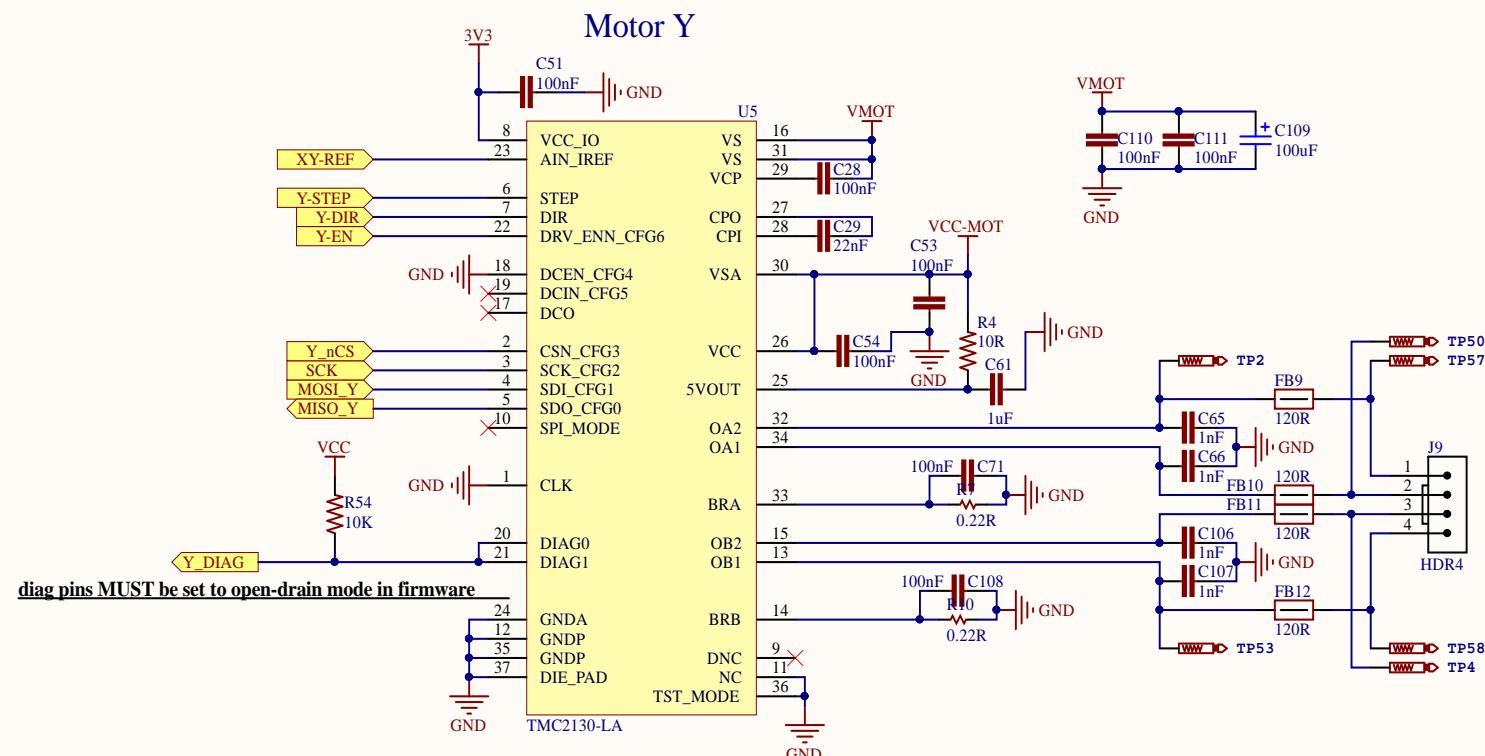
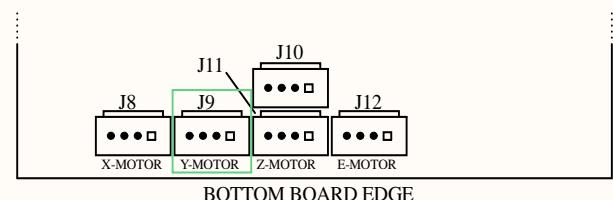
Deprecated Test Points

X_0A1	TP75
X_0A2	TP73
X_0B1	TP1
X_0B2	TP74

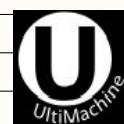
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Drawn by: AWS	Sheet: 9 of 12



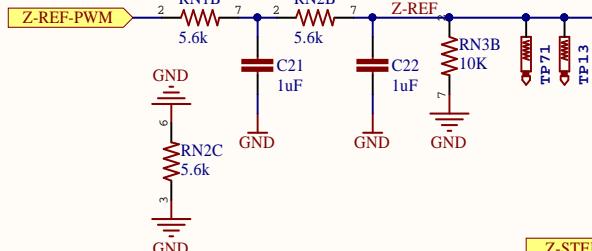
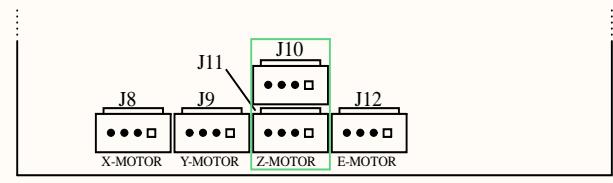
Connector  
Layout



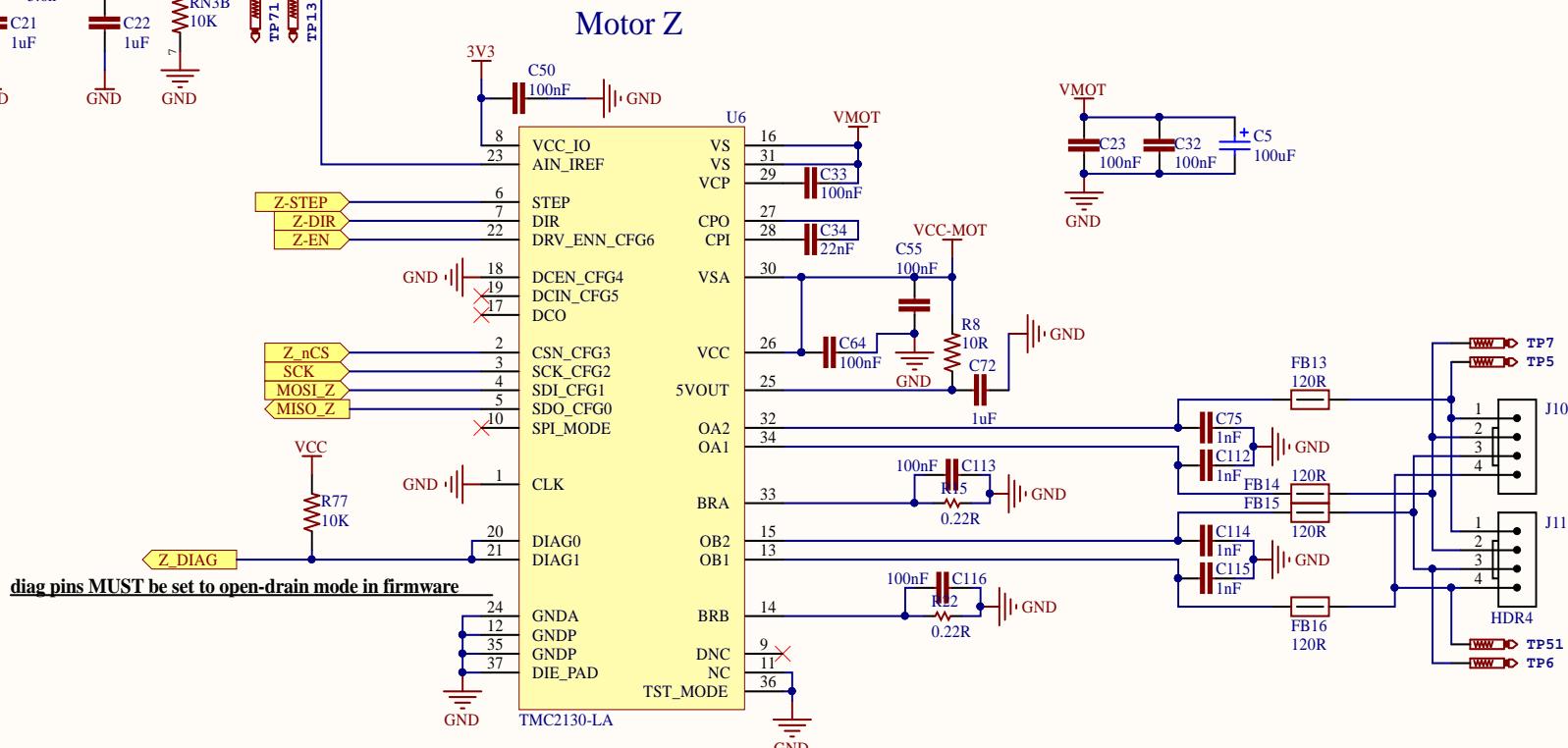
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Title: Motor-Y	File: Motor-Y.SchDoc
Drawn by: AWS	Sheet: 10 of 12



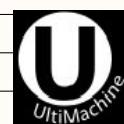
Connector  
Layout



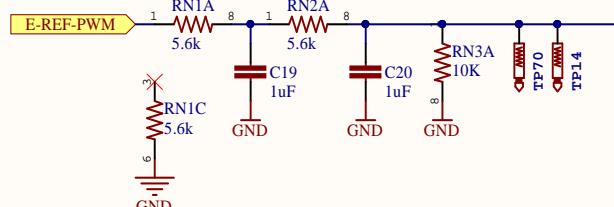
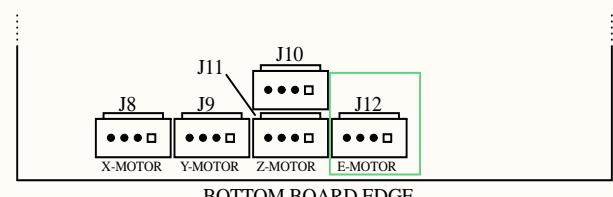
**Motor Z**



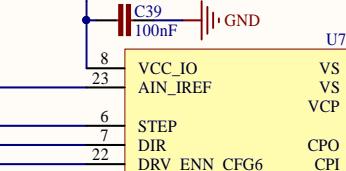
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Title: Motor-Z	File: Motor-Z.SchDoc
Drawn by: AWS	Sheet: 11 of 12



Connector  
Layout

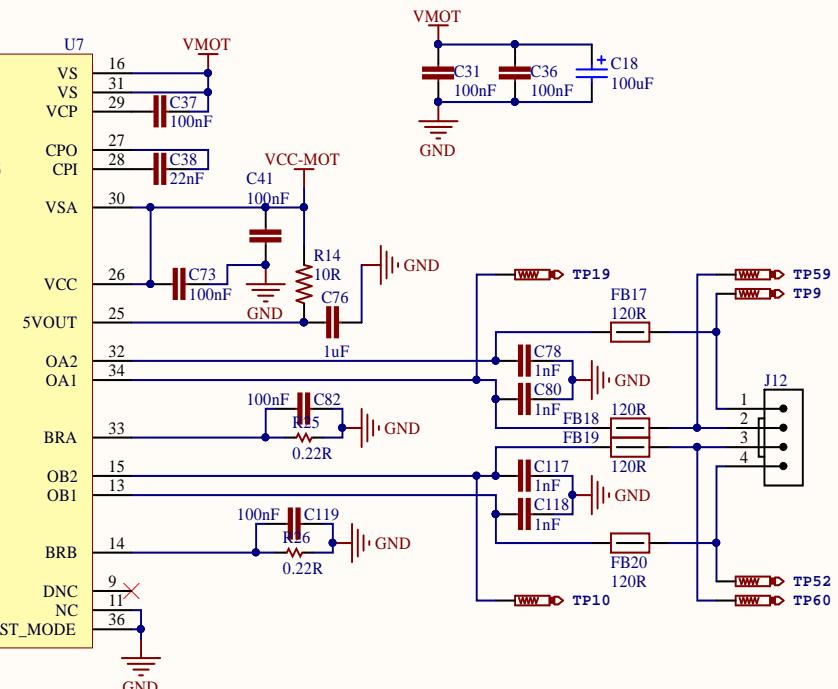
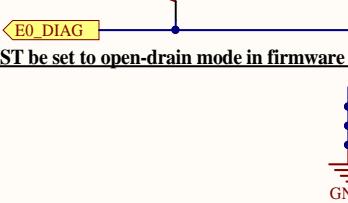


Motor E



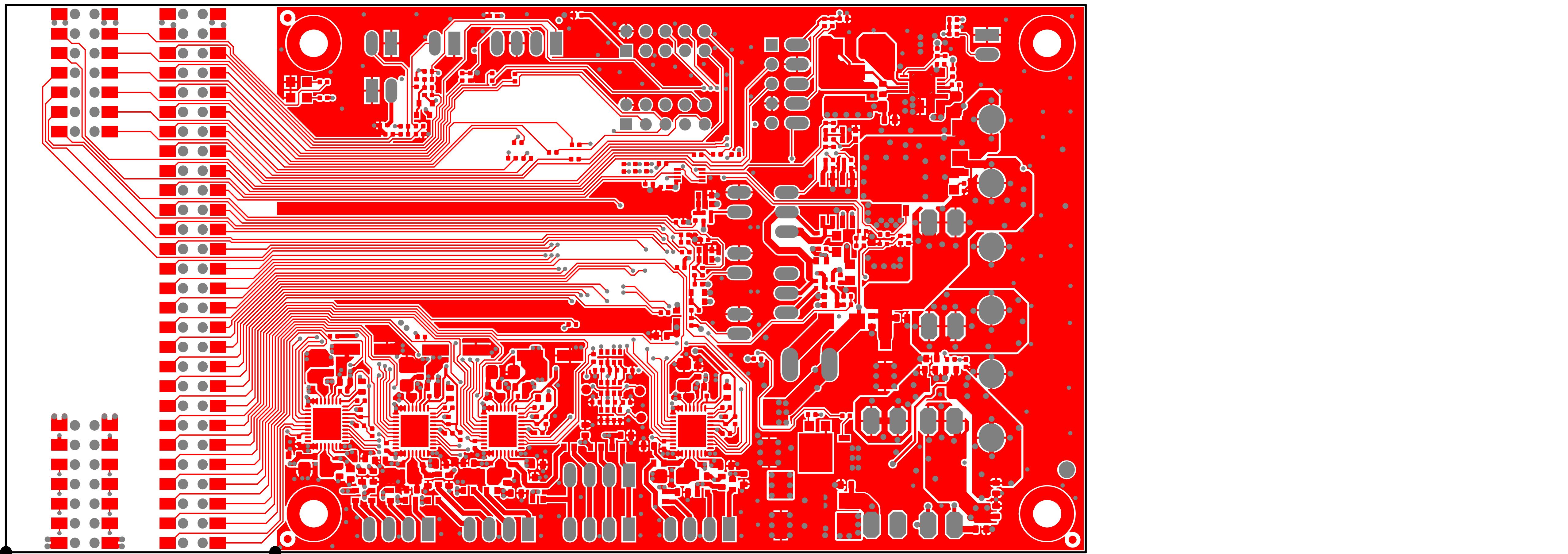
TMC2130-LA

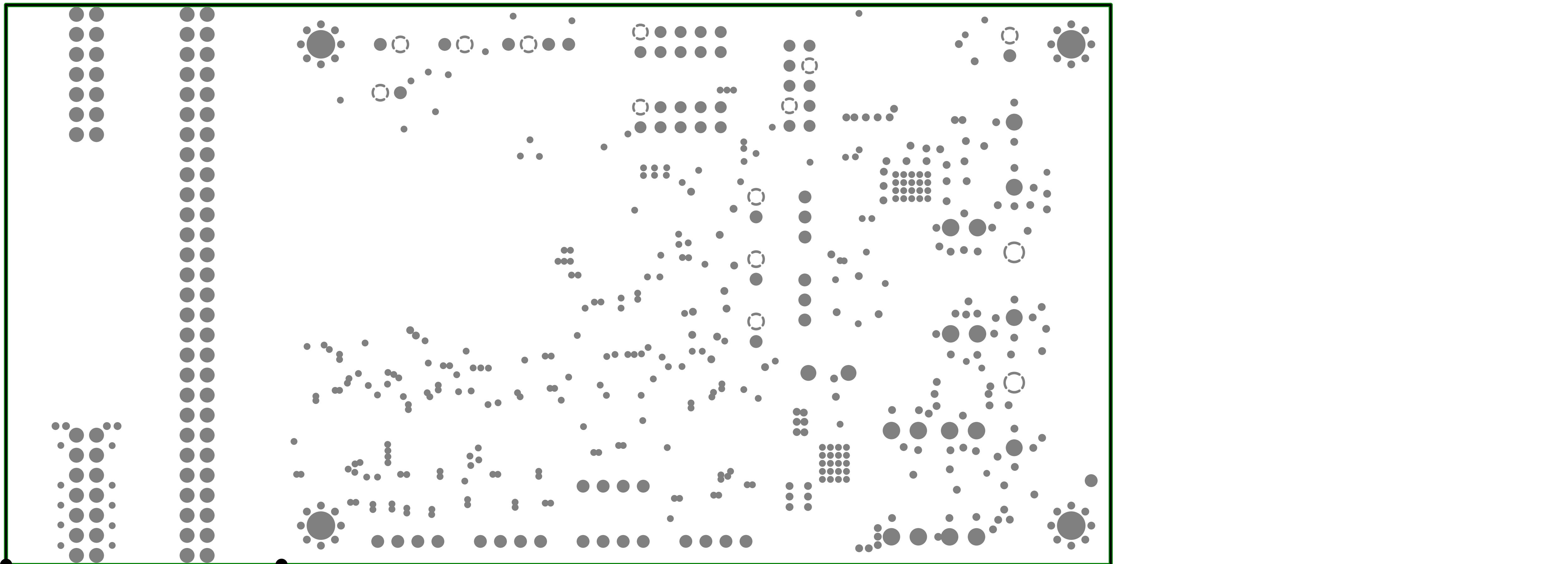
diag pins MUST be set to open-drain mode in firmware

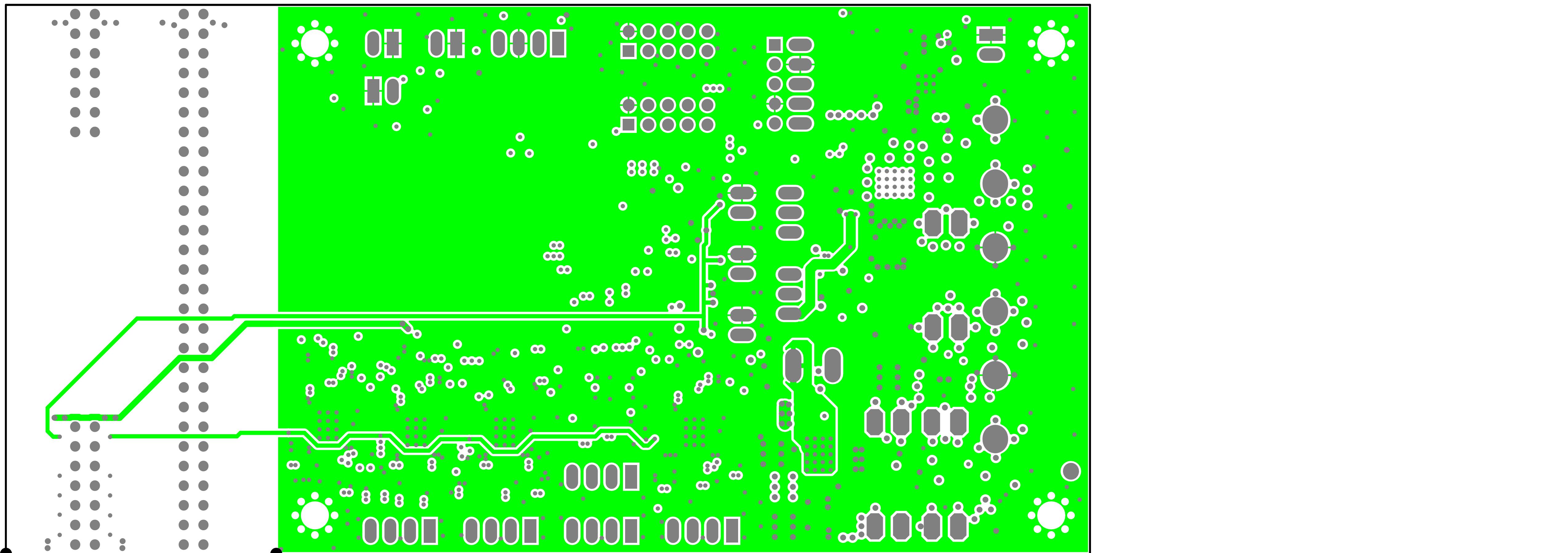


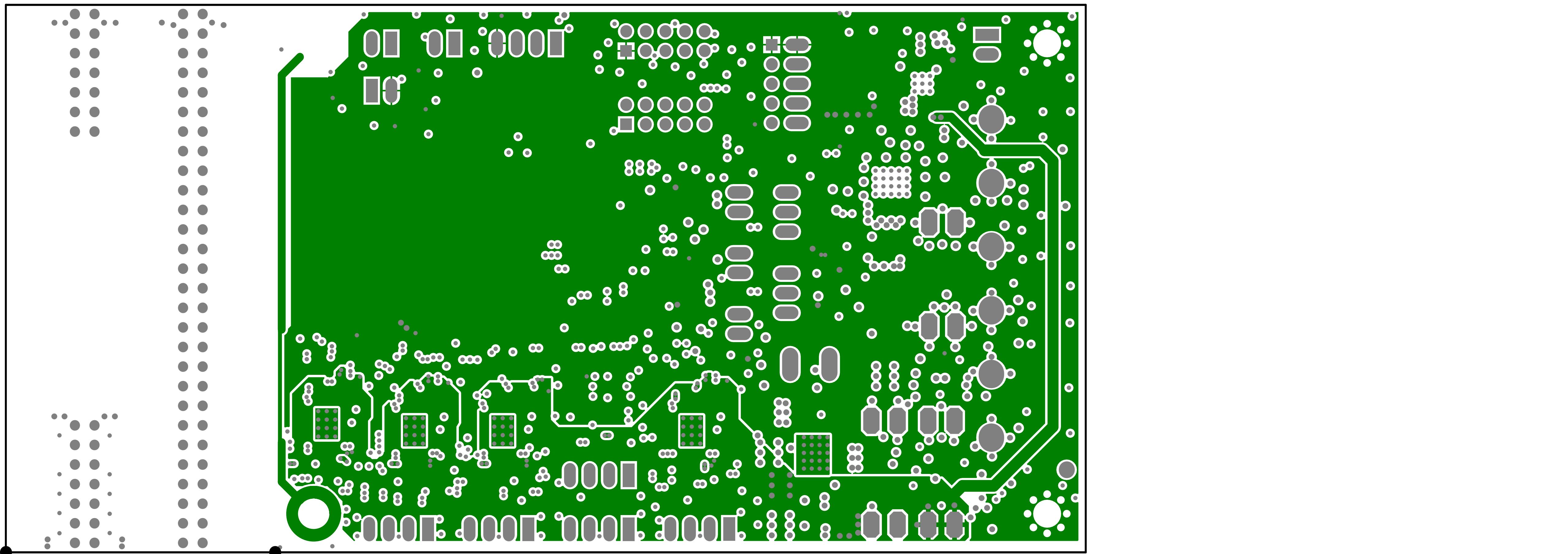
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Drawn by: AWS	Sheet: 12 of 12

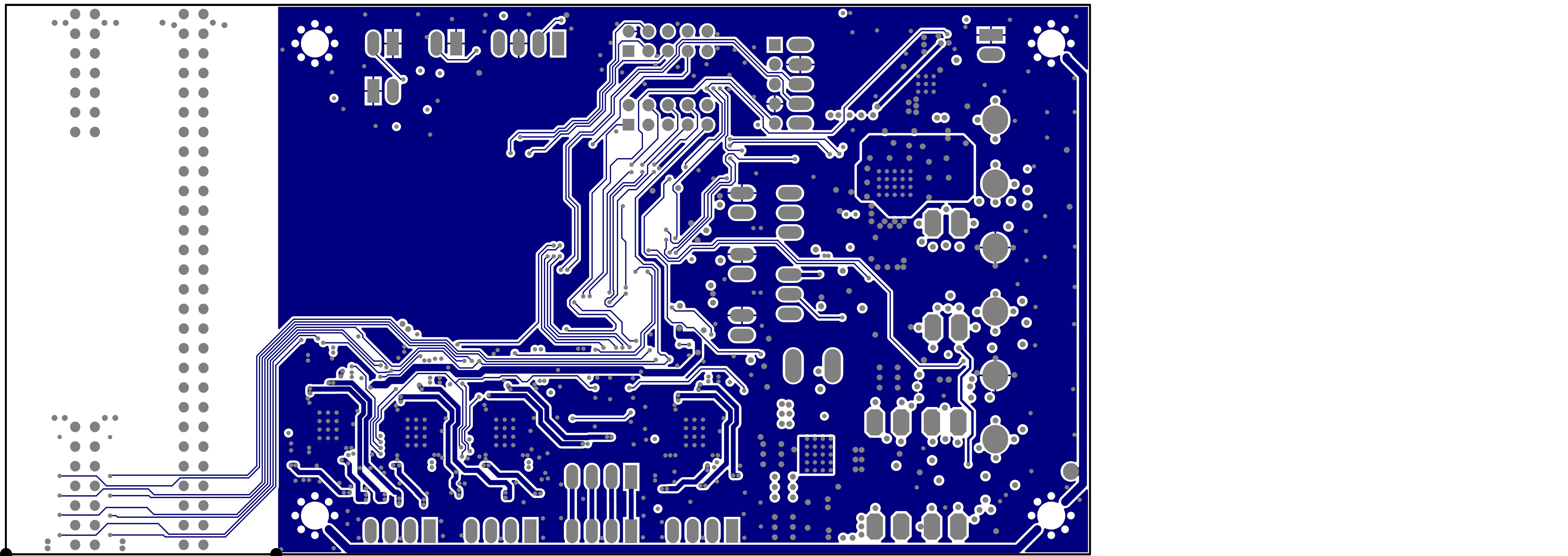


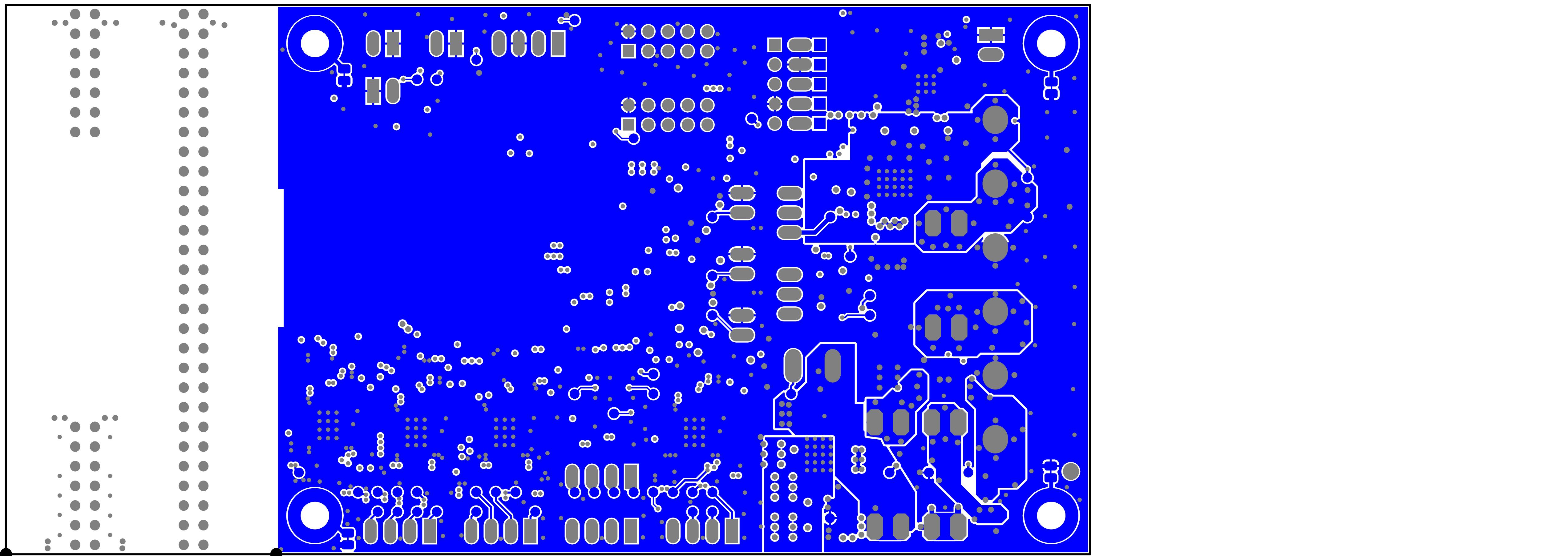


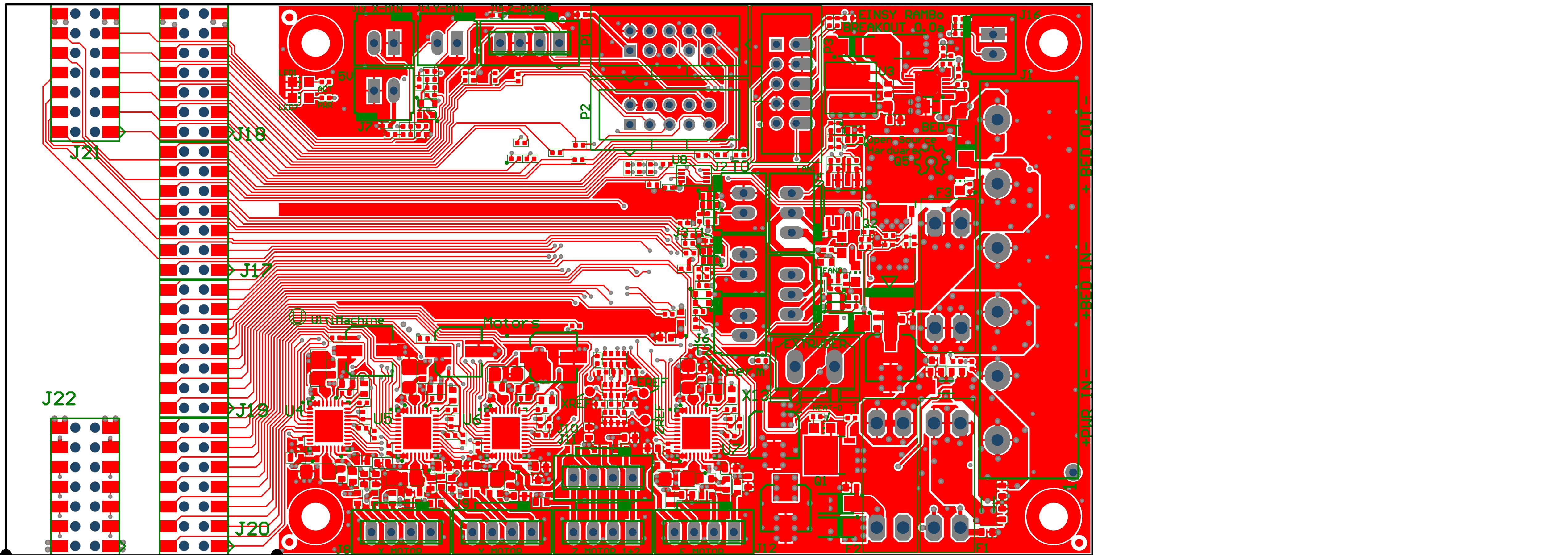


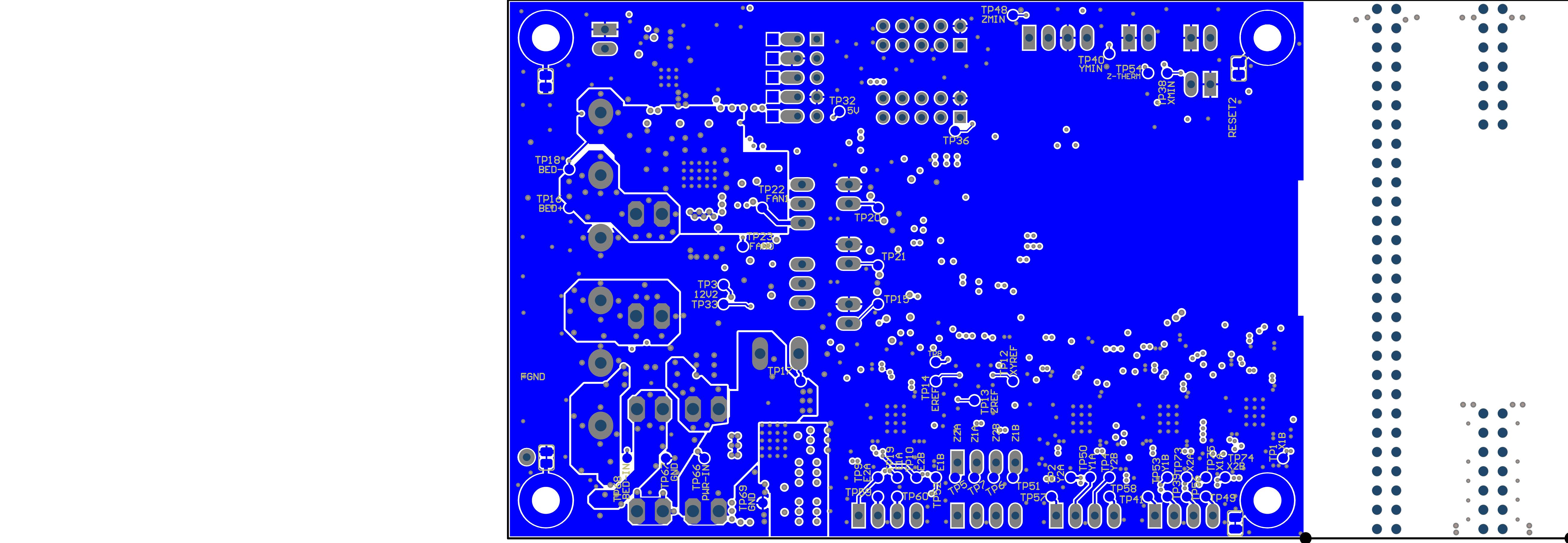












Thickness	Constant	Board Layer Stack
0.47mil	3.5	
2.80mil		
4.32mil	4.2	
1.20mil		
15.77mil	4.2	
1.20mil		
11.28mil	4.2	
1.20mil		
15.75mil	4.2	
1.20mil		
4.32mil	4.2	
2.80mil		
0.47mil	3.5	

Plated	Hole Type	Drill Layer Pair	Via/Pad	Pad Shape	Template	Description	Hole Tolerance <+>	Hole Tolerance <->
PTH	Round	Top - Bottom	Pad	Rounded	r419_210h140r100			
NPTH	Round	Top - Bottom	Pad	Rounded	c0hn300m-1p-1			
PTH	Round	Top - Bottom	Pad	Rounded	r345_330h152r100			
PTH	Round	Top - Bottom	Pad	Octagonal	r338_211h160c50			
PTH	Round	Top - Bottom	Pad	<Mixed>	<Mixed>			
PTH	Round	Top - Bottom	Pad	<Mixed>	<Mixed>			
NPTH	Round	Top - Bottom	Pad	Rounded	c128hn128			
PTH	Round	Top - Bottom	<Mixed>	Rounded	<Mixed>			
PTH	Round	Top - Bottom	Via	Rounded	<Mixed>			