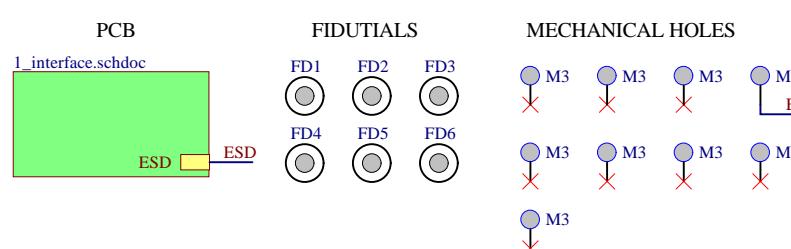


Rev	Description	Date	Author
0.1	- Initial release - Update beacon radio output - General updates for compliance with the SpaceLab hardware development standards	28-Aug-2020	Andre M. P. Mattos

Revision History



PCB Elements

EPS2 Hardware:
- Drawn by: André M. P. Mattos (updates from FloripaSat-I EPS)
- Based on FloripaSat-I OBDH designed by: Sara V. Martinez
- Reviewers: Kleber Gouveia and Yan C. Azeredo
- Support: Gabriel M. Marcelino

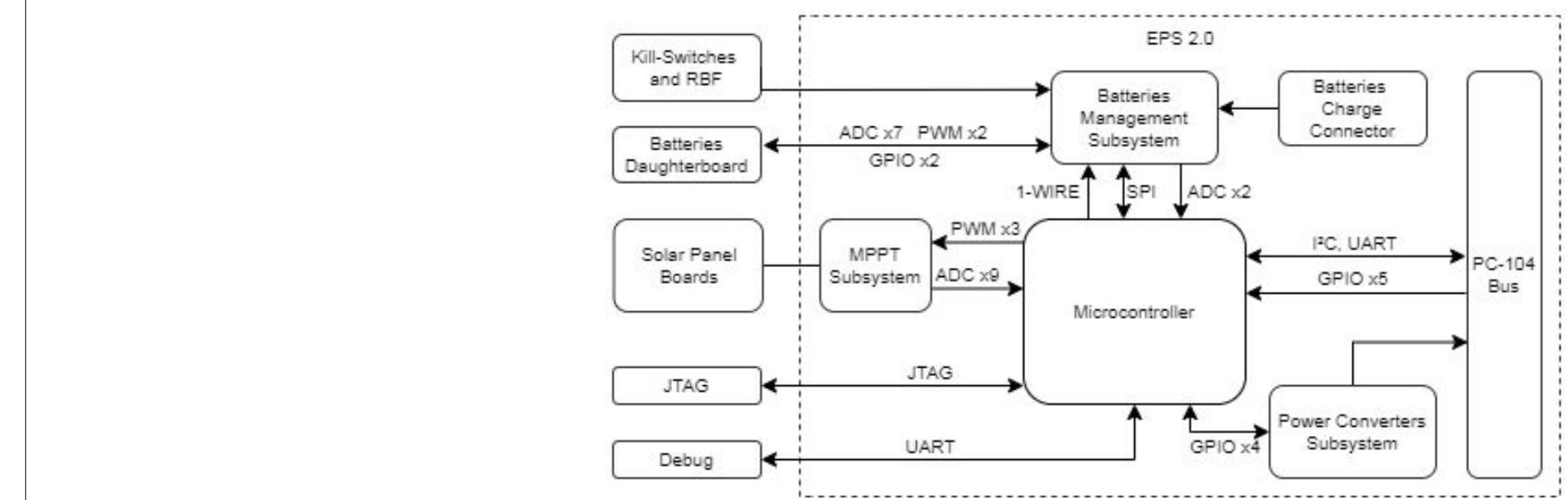
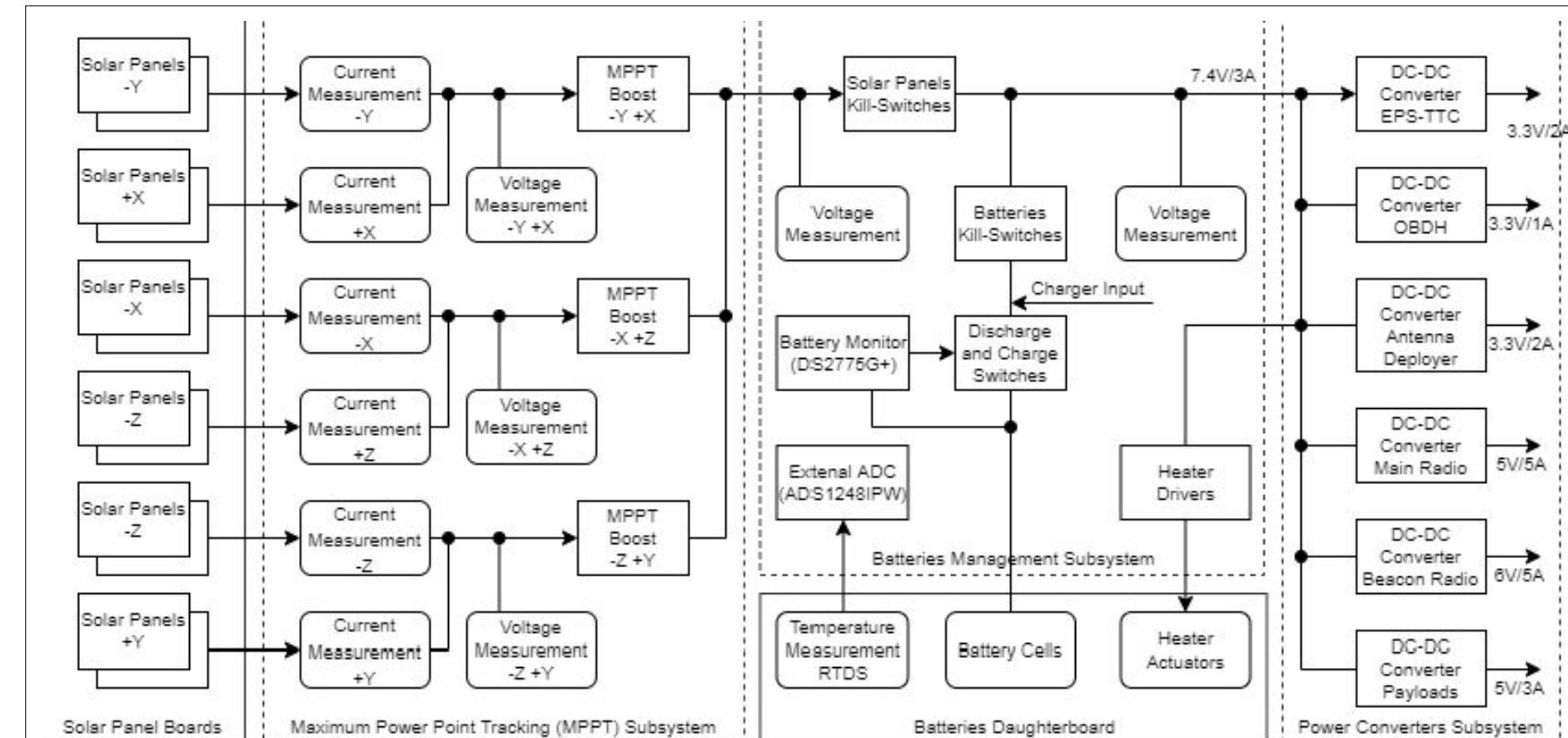
Project Contributions

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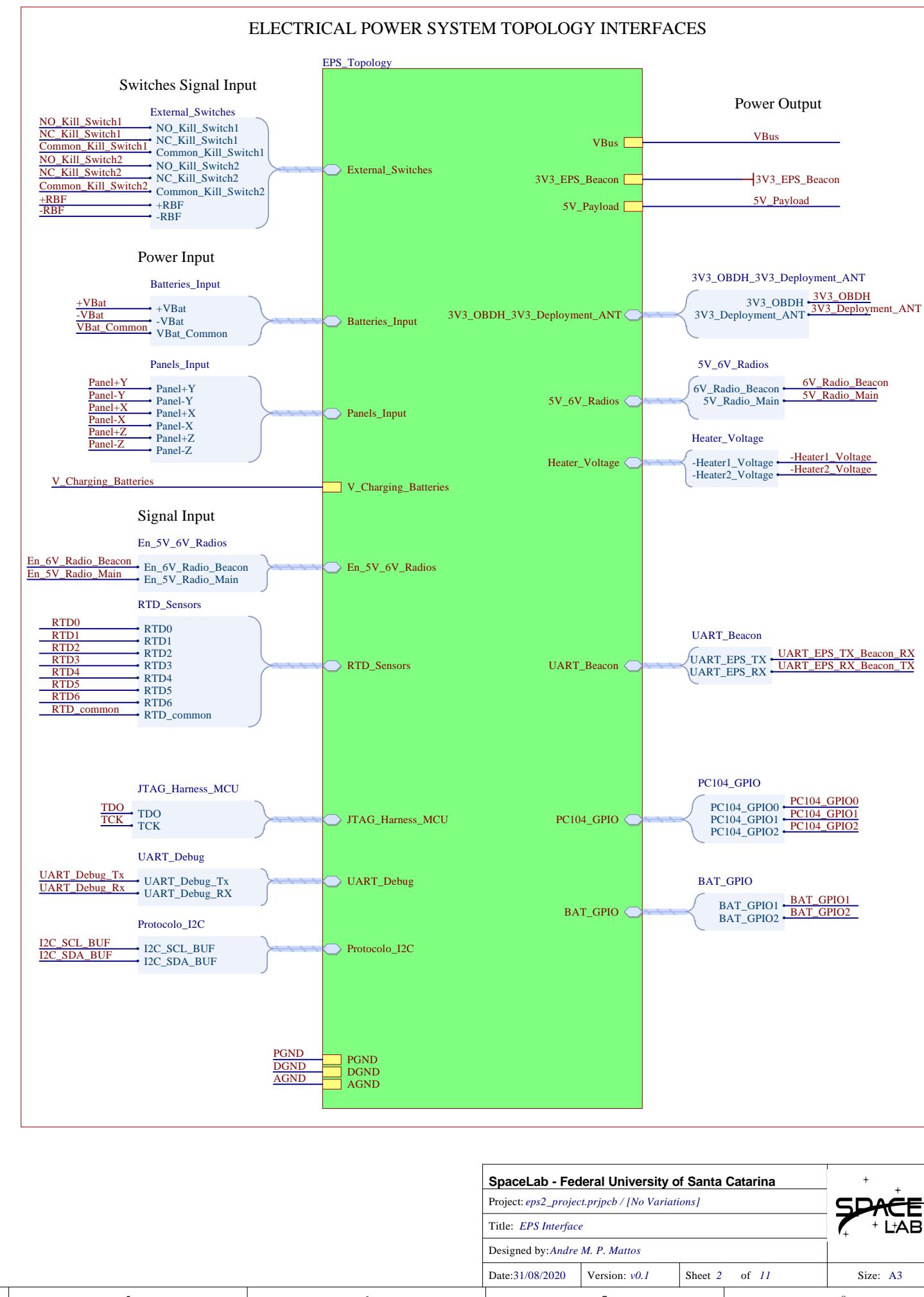
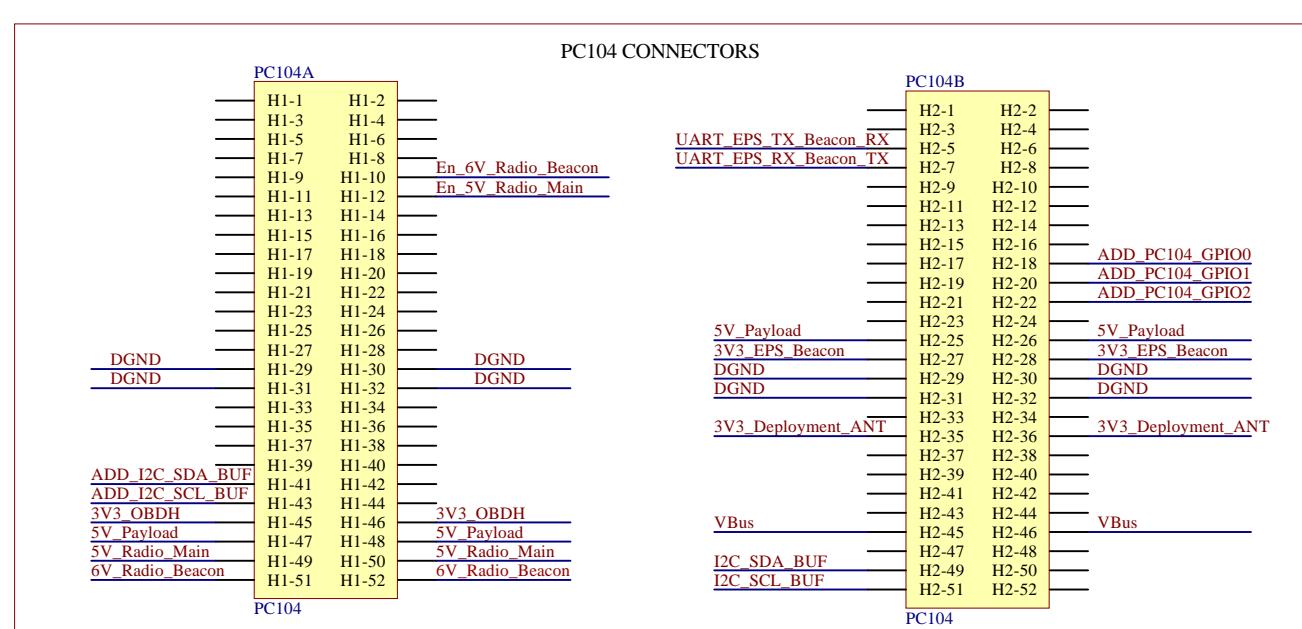
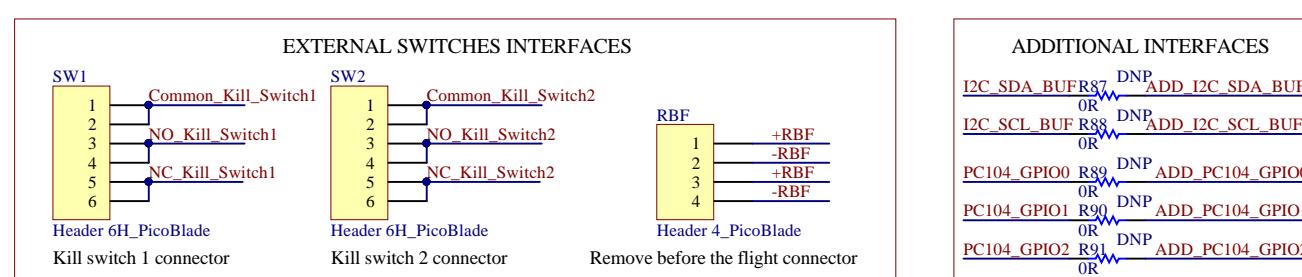
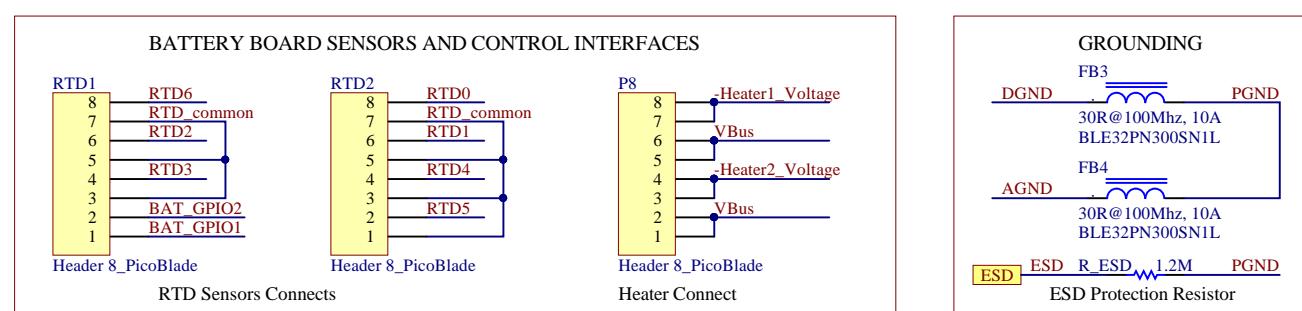
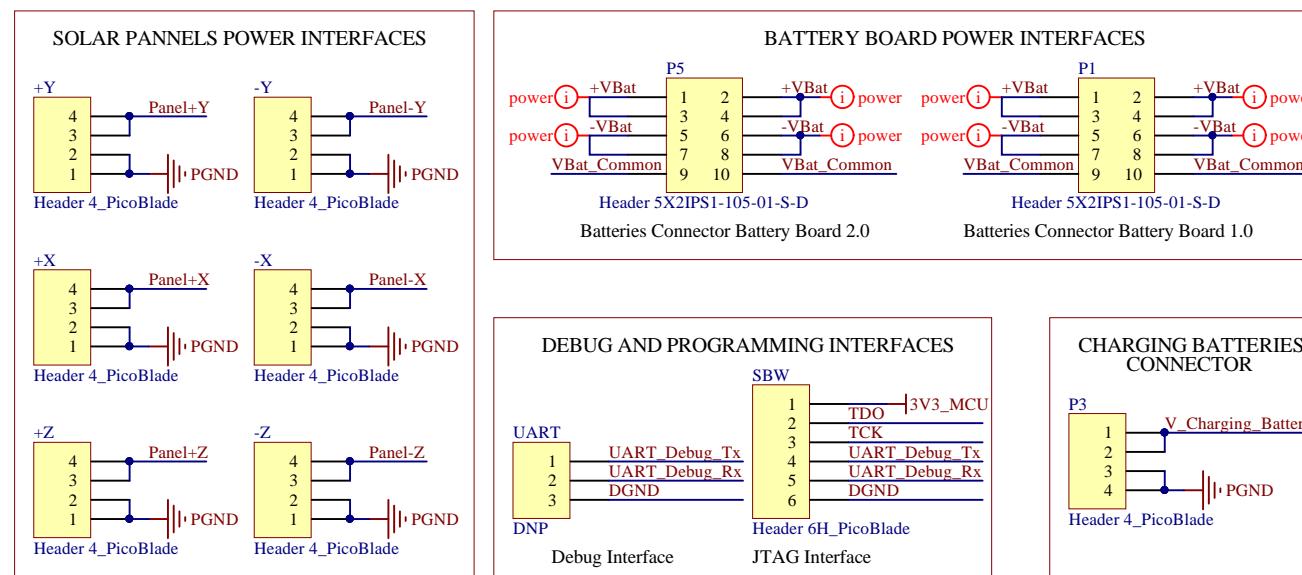
EPS2 Hardware
Based on the FloripaSat-I EPS

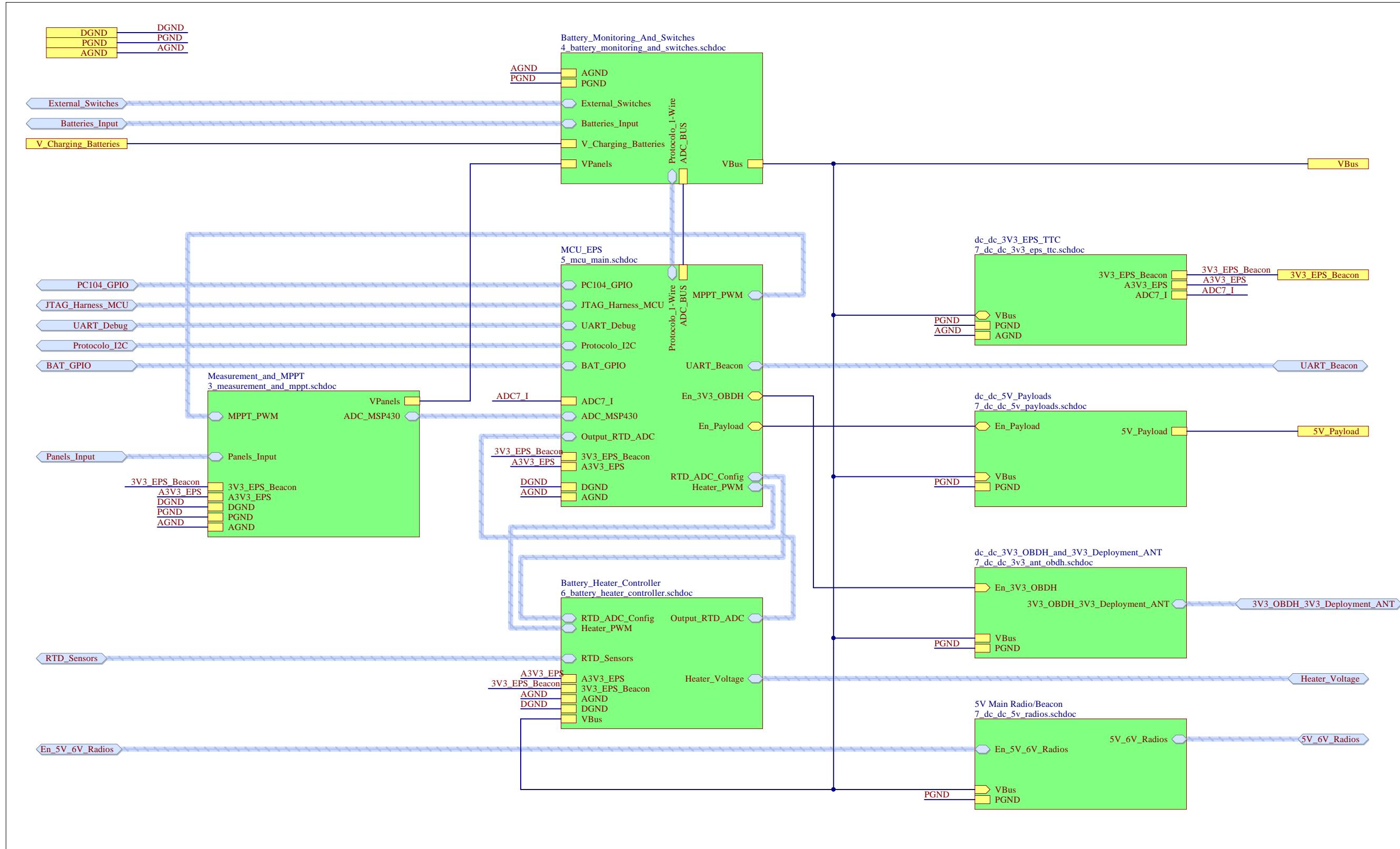
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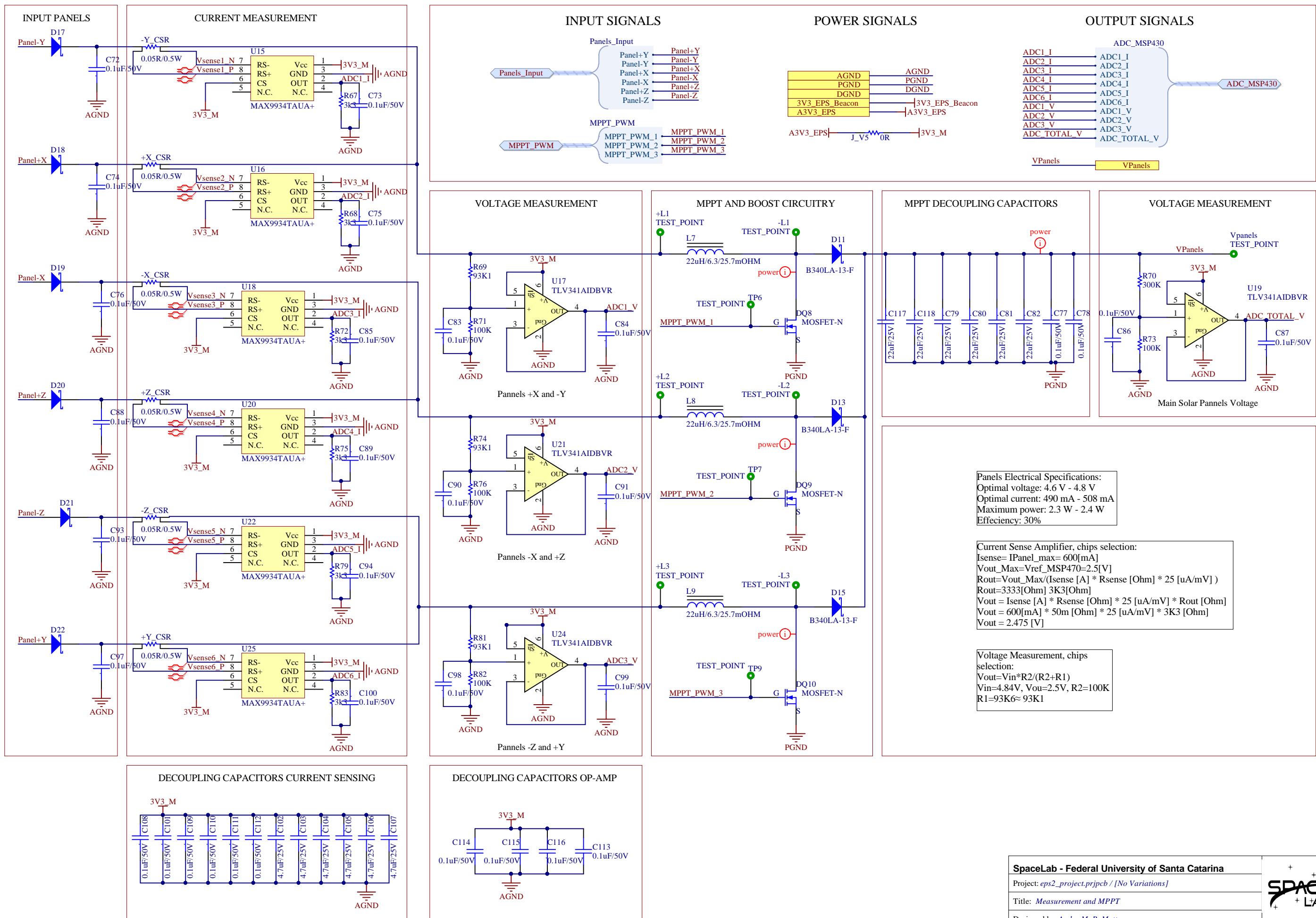
Project Information

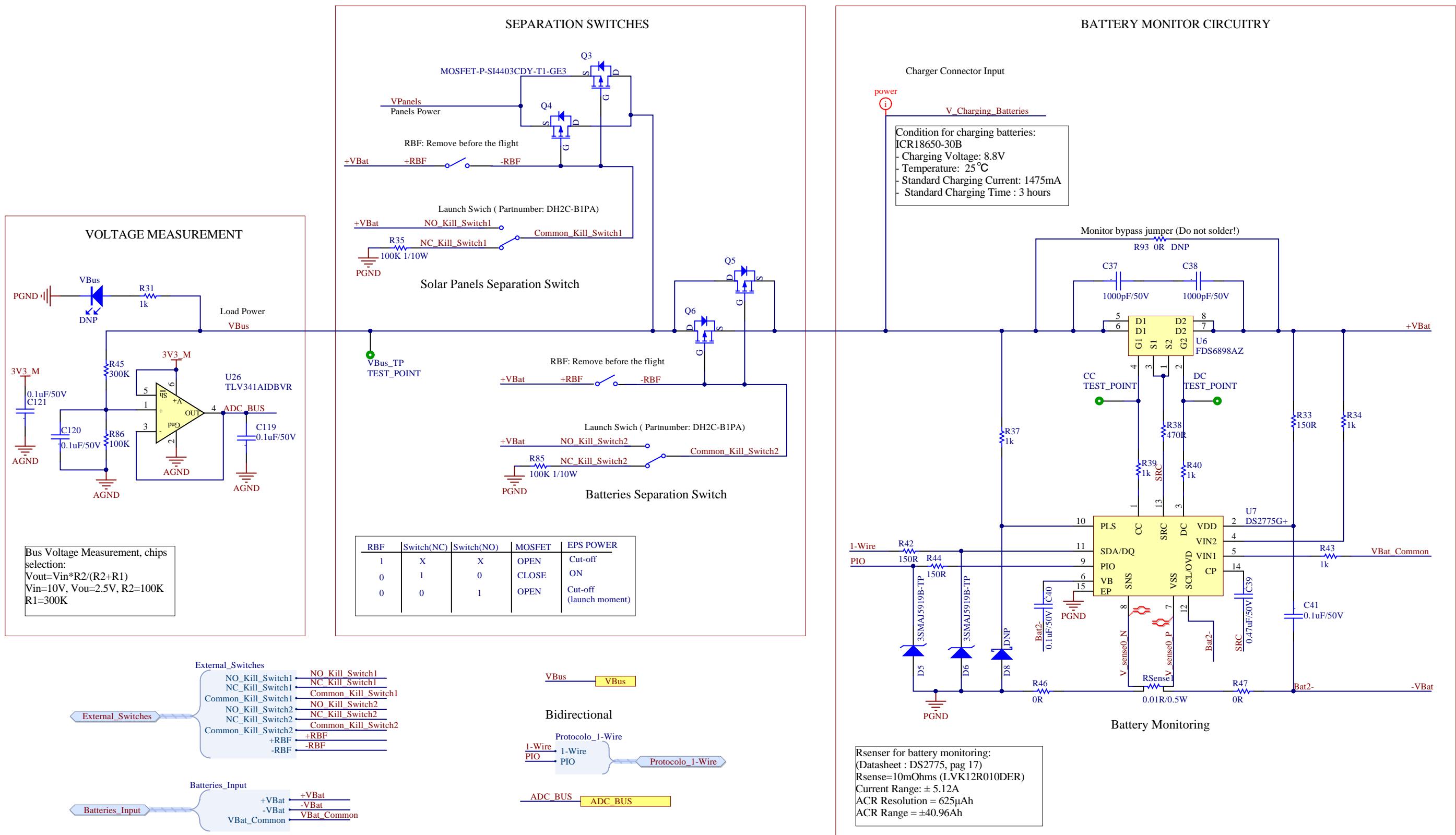


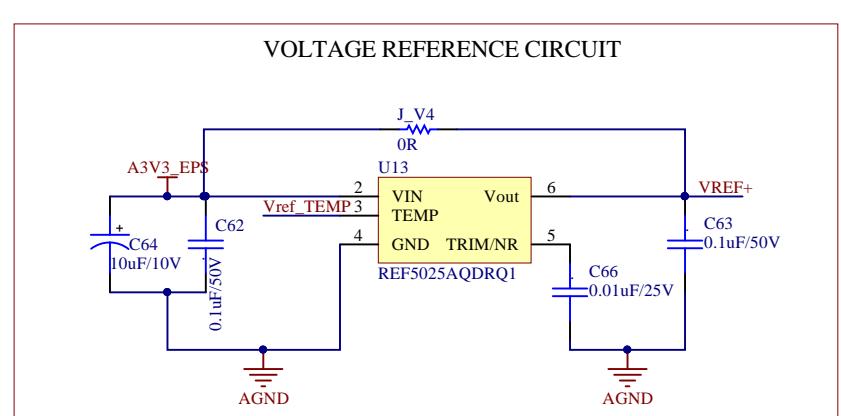
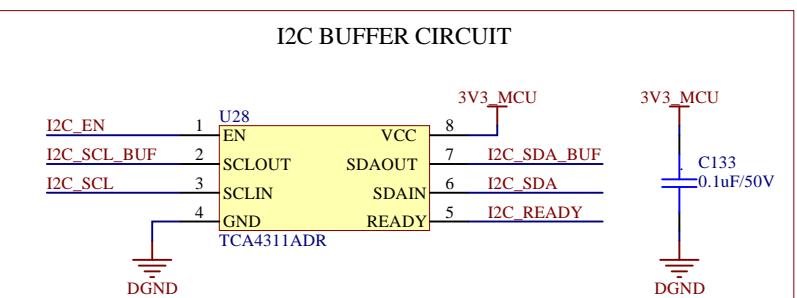
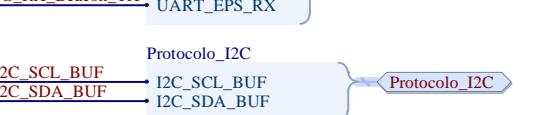
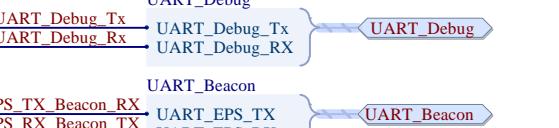
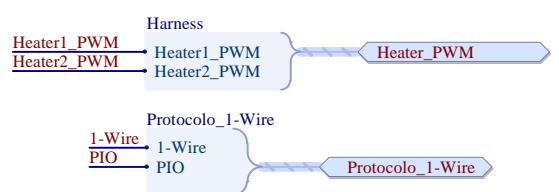
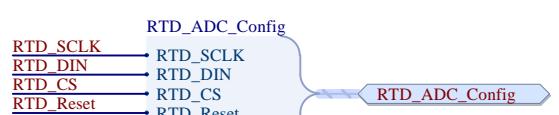
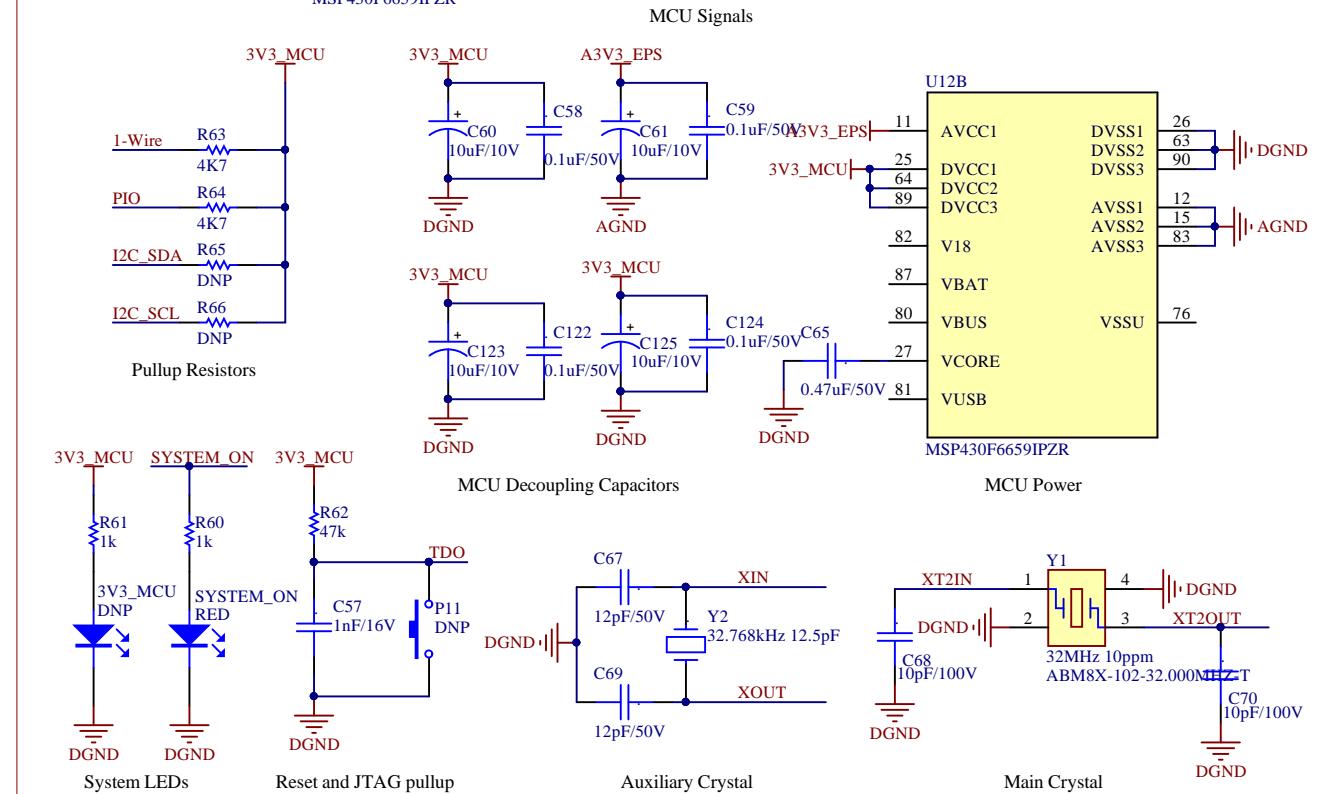
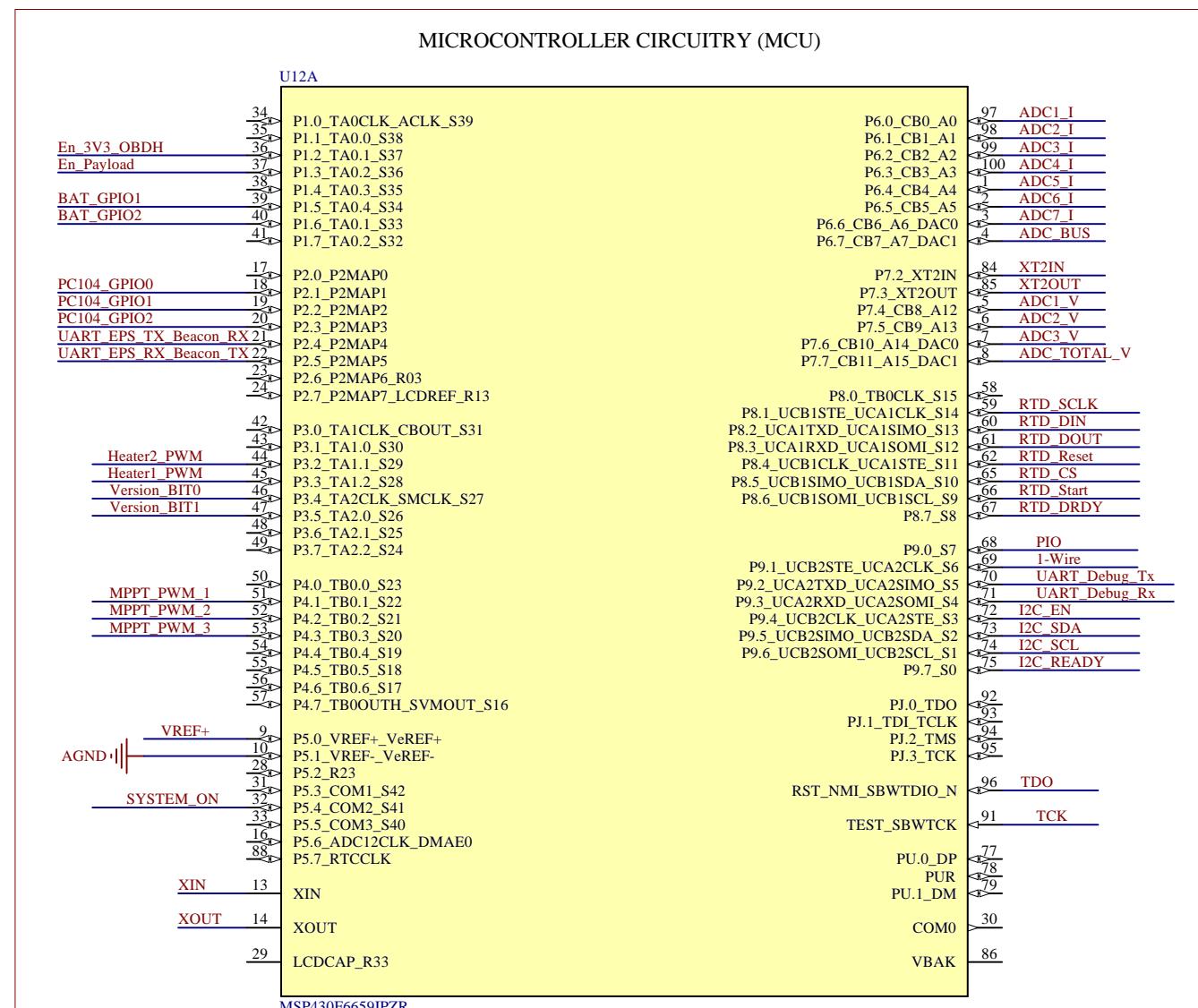
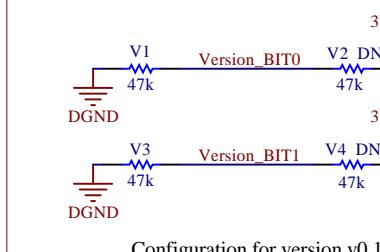
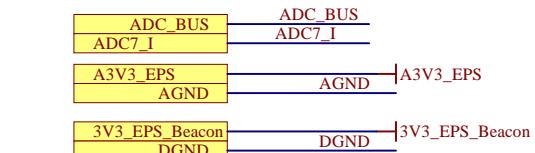
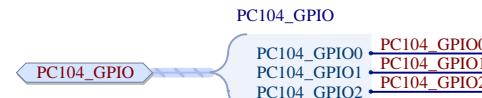
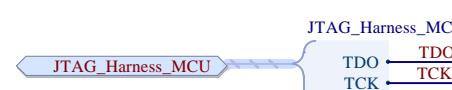
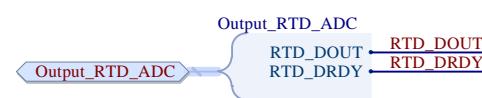
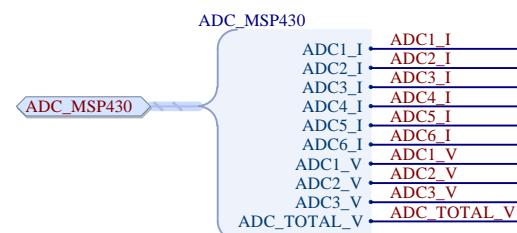
Block Diagram











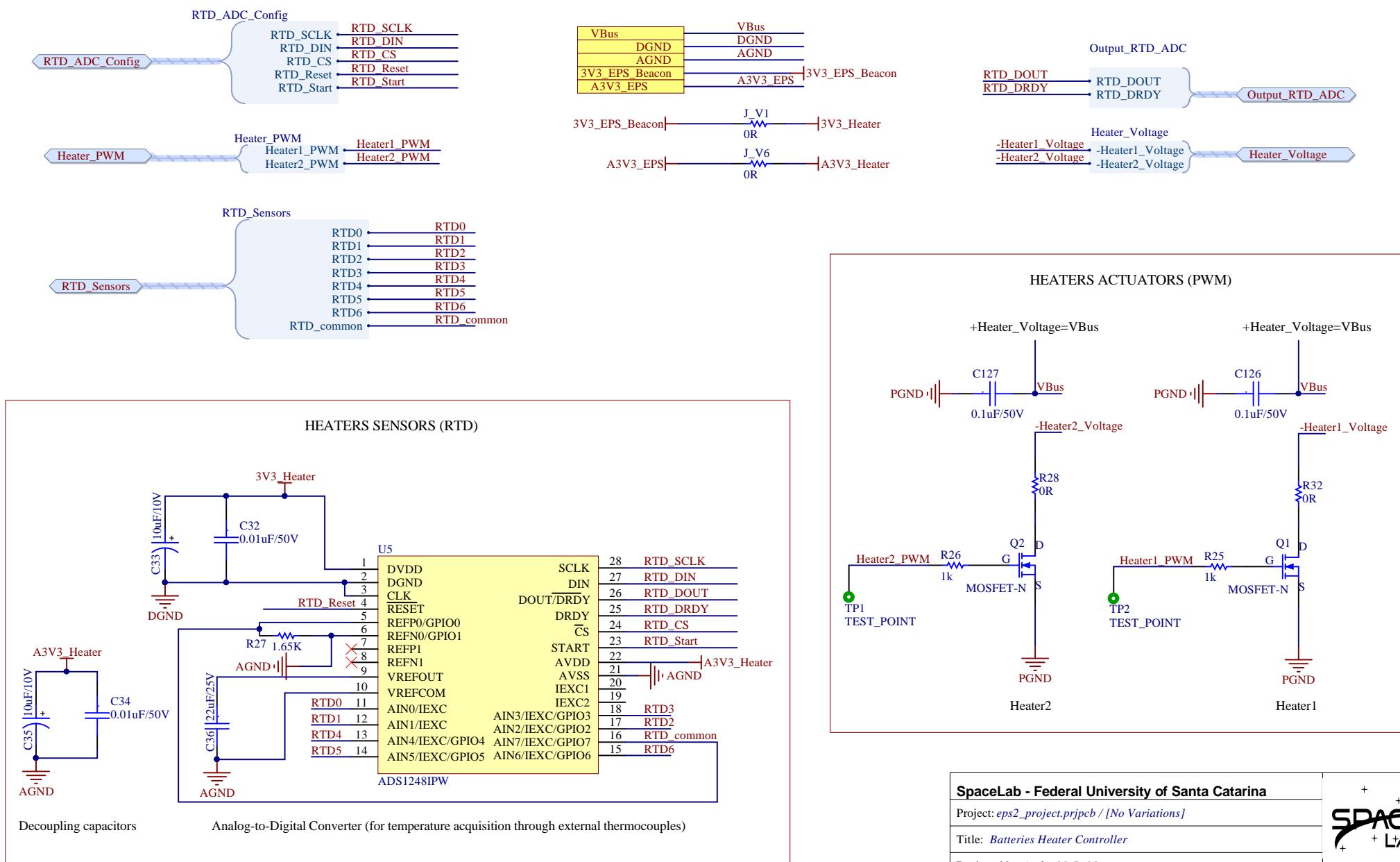
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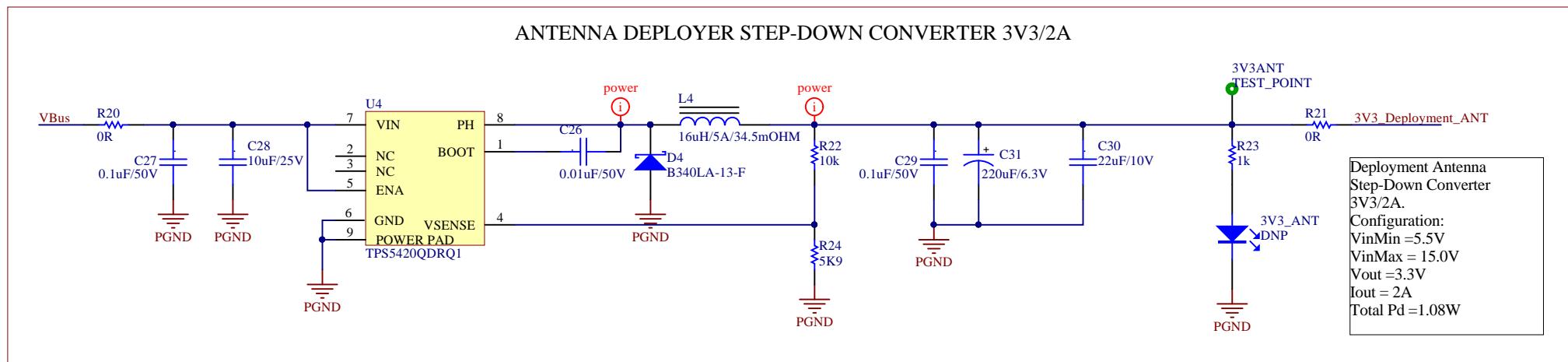
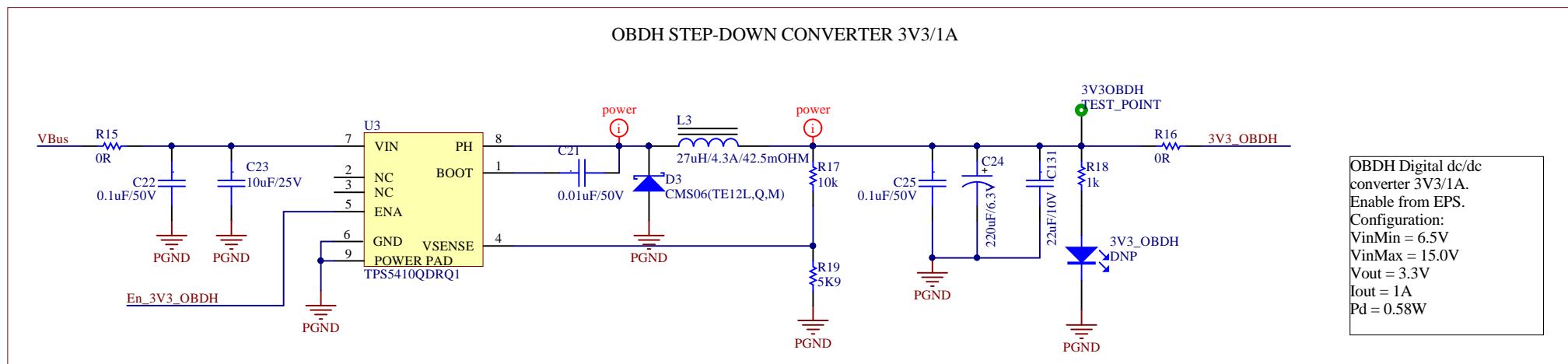
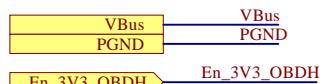
SpaceLab - Federal University of São Paulo

Project: *eps2_project.prjpcd* / [No var]

Designed by *André M. B. Matos*

SPACE
LAB



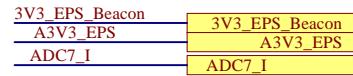
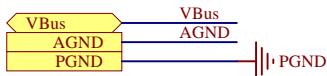
**Input****Output****SpaceLab - Federal University of Santa Catarina**Project: [eps2_project.prjpcb](#) [No Variations]Title: [OBDH Step-Down 3V3/1A/2A](#)

Designed by: Andre M. P. Mattos

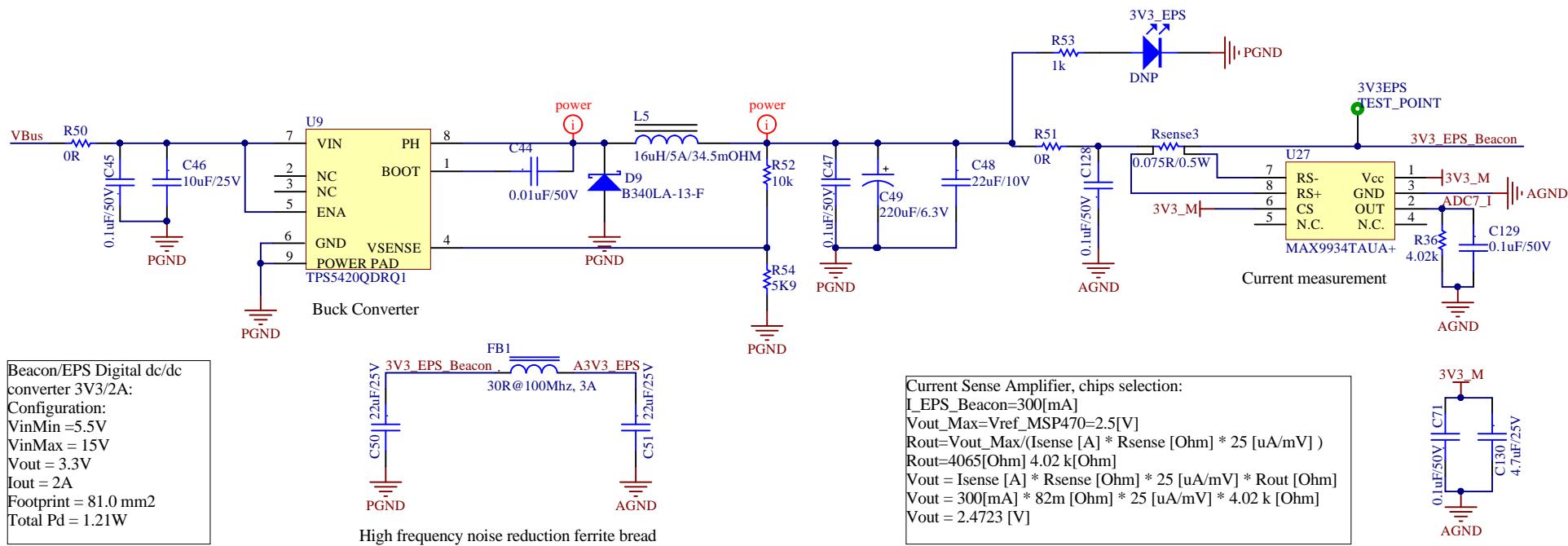
Date: 31/08/2020 Version: v0.1 Sheet 8 of 11 Size: A4



A



EPS/BEACON STEP-DOWN CONVERTER 3V3/2A



SpaceLab - Federal University of Santa Catarina

Project: [eps2_project.prjpcb / \[No Variations\]](#)

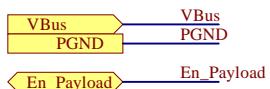
Title: [EPS/BCM Step-Down Converter](#)

Designed by: Andre M. P. Mattos

Date: 31/08/2020 Version: v0.1 Sheet 9 of 11



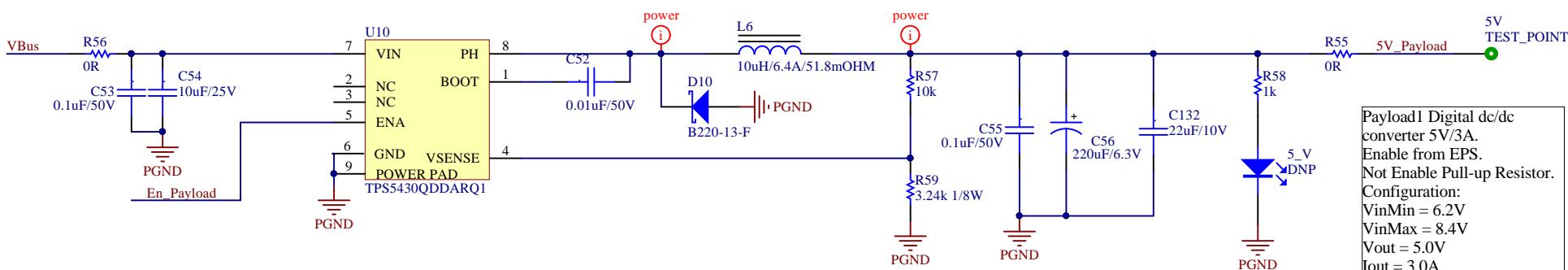
Input



Output



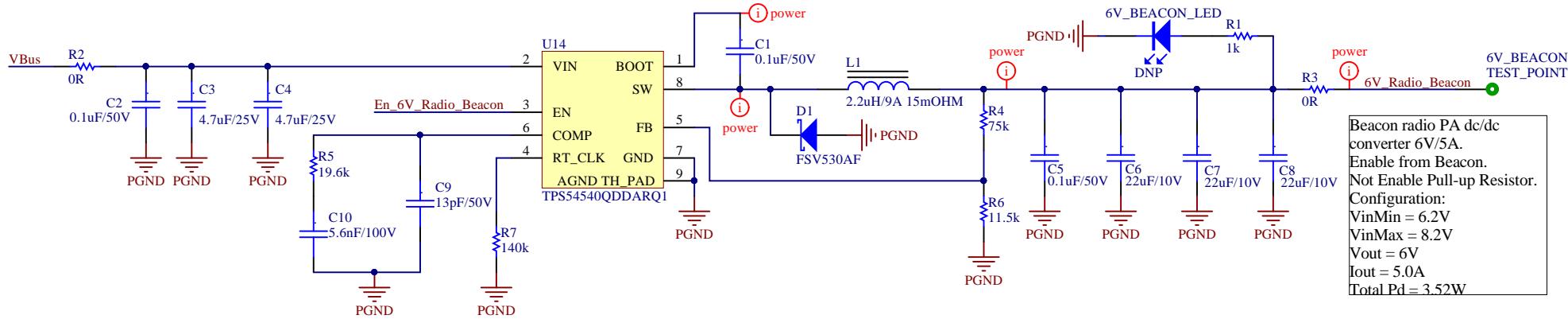
PAYLOAD STEP-DOWN CONVERTER 5V/3A



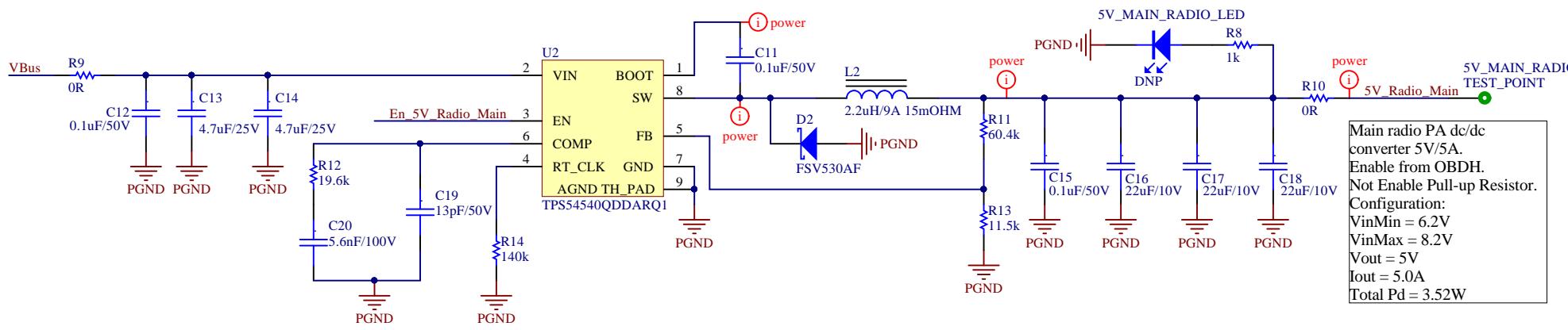
SpaceLab - Federal University of Santa Catarina

Project: *eps2_project.prjpcb* / [No Variations]Title: *Payloads Step-Down Converters 5V/3A*Designed by: *Andre M. P. Mattos*Date: *31/08/2020* Version: *v0.1* Sheet *10* of *11*Size: *A4*

BEACON RADIO STEP-DOWN CONVERTER 6V/5A



MAIN RADIO STEP-DOWN CONVERTER 5V/5A



Input



Output



SpaceLab - Federal University of Santa Catarina

Project: *eps2_project.prjpcb* / [No Variations]

Title: *Radios Step-Down Converters 5V/3A*

Designed by: Andre M. P. Mattos

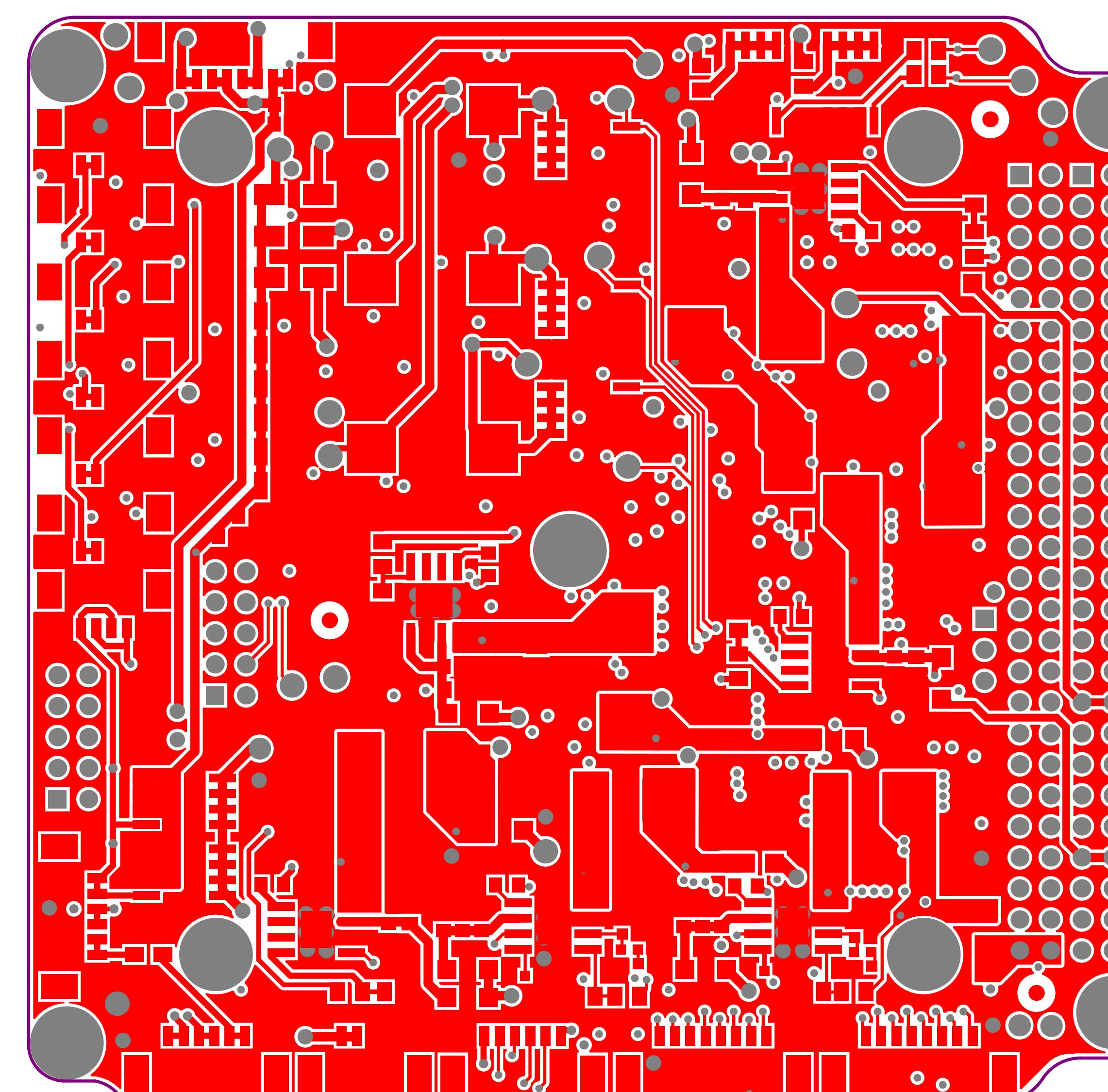
Date: 31/08/2020

Version: *

Sheet 11 of 11



A



B

Layer	Name	Material	Thickness	Constant	Board Layer Stack
1	Top Overlay				
2	Top Solder	Solder Resist	0,010mm	3,5	
3	Top Layer	Copper	0,035mm		
4	Dielectric 1		0,100mm	4,2	
5	Signal Layer 1	Copper	0,018mm		
6	Core	FR-4	1,265mm	4,2	
7	Signal Layer 2	Copper	0,018mm		
8	Dielectric 2		0,100mm	4,2	
9	Bottom Layer	Copper	0,035mm		
10	Bottom Solder	Solder Resist	0,010mm	3,5	
11	Bottom Overlay				

C

Fabrication specifications:

- Copper base 10Z:
- PCB Material: Prepeg FR4—Standard
- PCB Thickness: 1.6mm
- PCB Surface: HASL (with lead)
- Silkscreen Color: White (top and bottom)
- Soldermask Color: Blue
- Vias: Force Complete Tenting
- Special: Stack-up (herein included)

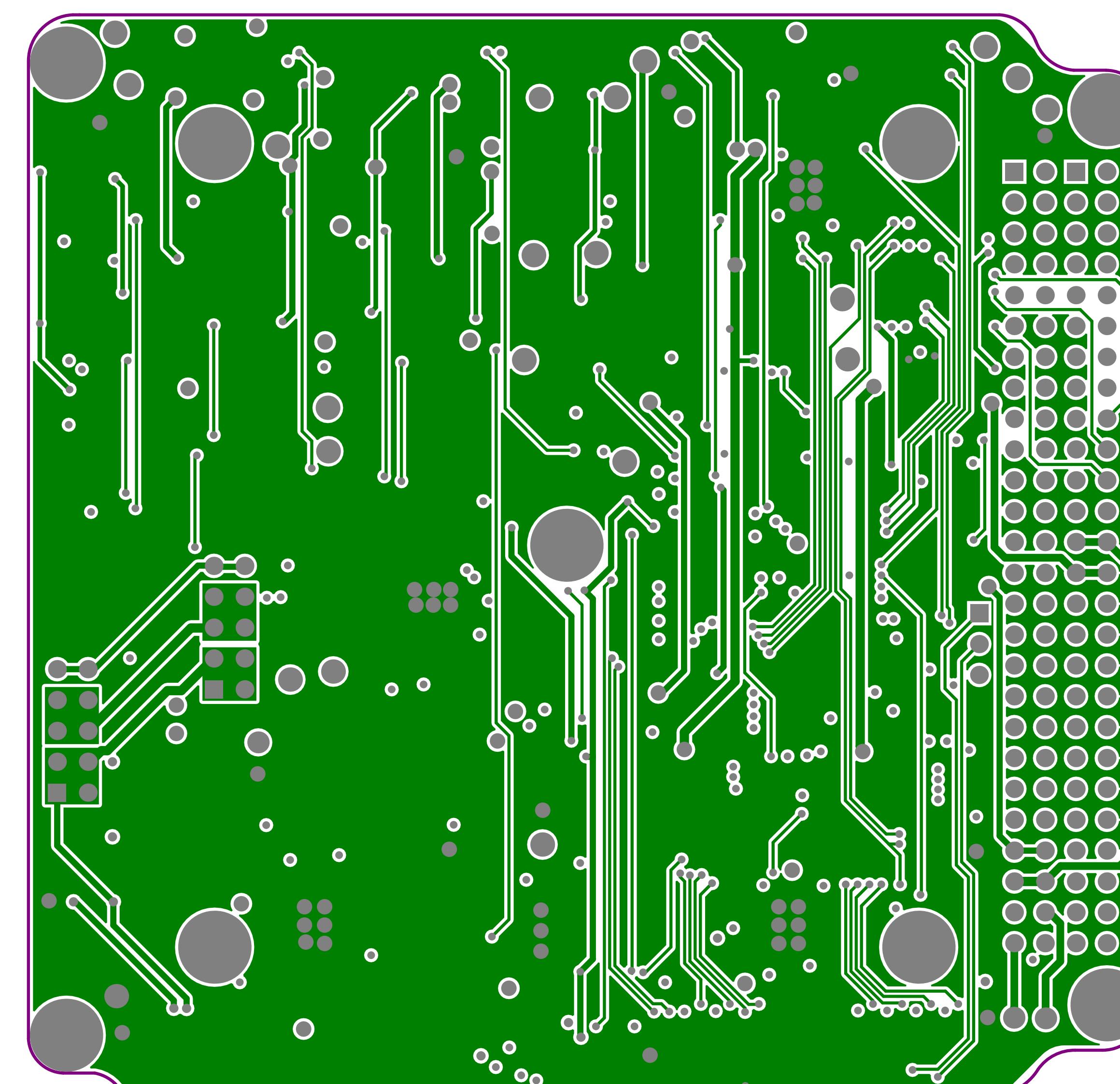
D

Assembly specifications:

- Solder composition: Include lead
- Fiducials: 3 top and 3 bottom available
- Check BOM for not placed components

SpaceLab - Federal University of Santa Catarina	
Project: EPS2	
Layer: Top Layer	
Designed by: Andre M. P. Mattos (based on FSat-I EPS)	Project Code: EPS2
Date: 31/08/2020	Version: v0.1
	Size: A4

A



B

Layer	Name	Material	Thickness	Constant	Board Layer Stack
1	Top Overlay				
2	Top Solder	Solder Resist	0,010mm	3,5	
3	Top Layer	Copper	0,035mm		
4	Dielectric 1		0,100mm	4,2	
5	Signal Layer 1	Copper	0,018mm		
6	Core	FR-4	1,265mm	4,2	
7	Signal Layer 2	Copper	0,018mm		
8	Dielectric 2		0,100mm	4,2	
9	Bottom Layer	Copper	0,035mm		
10	Bottom Solder	Solder Resist	0,010mm	3,5	
11	Bottom Overlay				

C

Fabrication specifications:

- Copper base 10Z:
- PCB Material: Prepeg FR4—Standard
- PCB Thickness: 1.6mm
- PCB Surface: HASL (with lead)
- Silkscreen Color: White (top and bottom)
- Soldermask Color: Blue
- Vias: Force Complete Tenting
- Special: Stack-up (herein included)

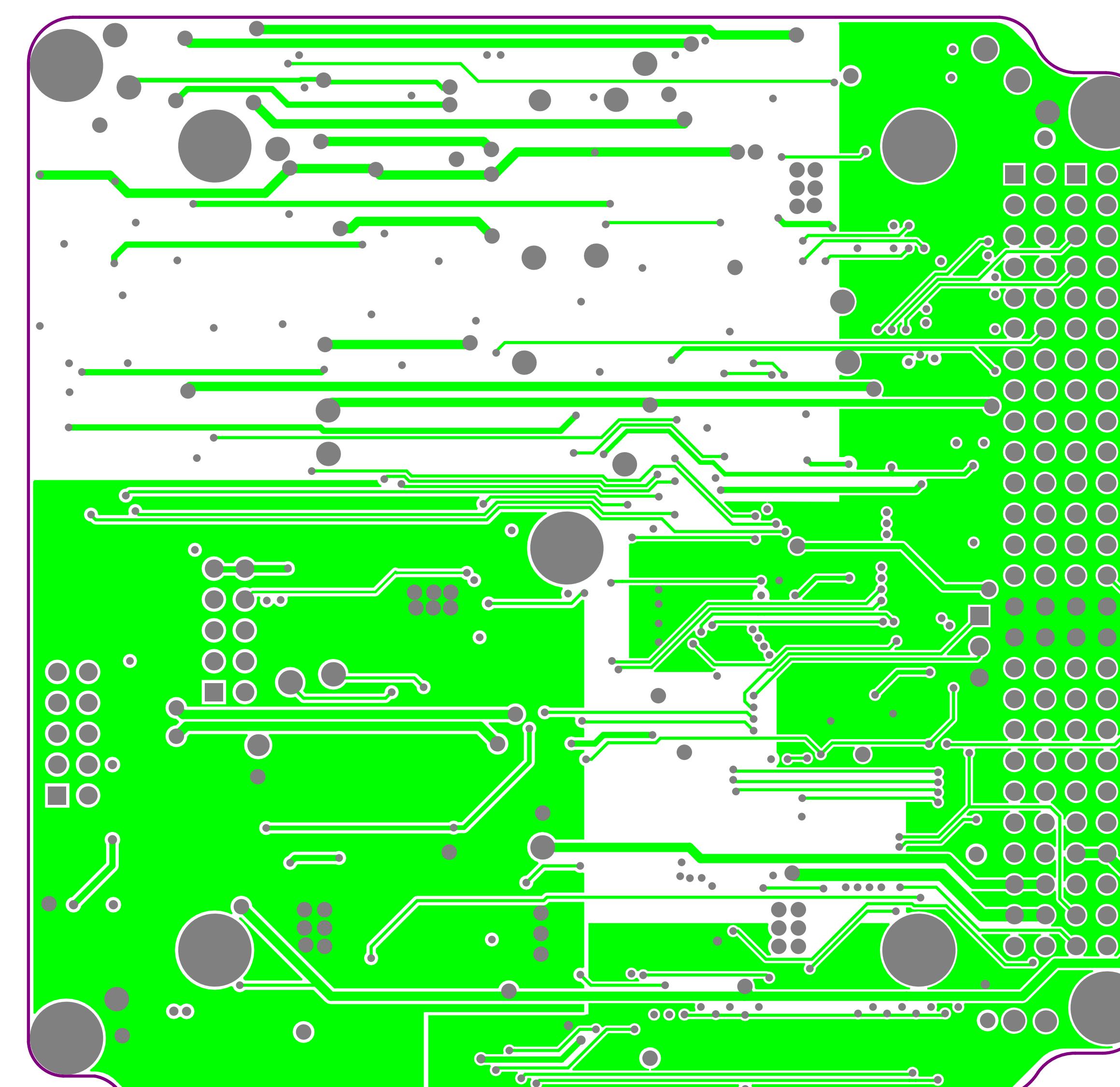
D

Assembly specifications:

- Solder composition: Include lead
- Fiducials: 3 top and 3 bottom available
- Check BOM for not placed components

SpaceLab - Federal University of Santa Catarina	
Project: EPS2	
Layer: Signal Layer 1	
Designed by: Andre M. P. Mattos (based on FSat-I EPS)	
Date: 31/08/2020	Project Code: EPS2
Version: v0.1	Size: A4

A



Layer	Name	Material	Thickness	Constant	Board Layer Stack
1	Top Overlay				
2	Top Solder	Solder Resist	0,010mm	3,5	
3	Top Layer	Copper	0,035mm		
4	Dielectric 1		0,100mm	4,2	
5	Signal Layer 1	Copper	0,018mm		
6	Core	FR-4	1,265mm	4,2	
7	Signal Layer 2	Copper	0,018mm		
8	Dielectric 2		0,100mm	4,2	
9	Bottom Layer	Copper	0,035mm		
10	Bottom Solder	Solder Resist	0,010mm	3,5	
11	Bottom Overlay				

B



C

Fabrication specifications:

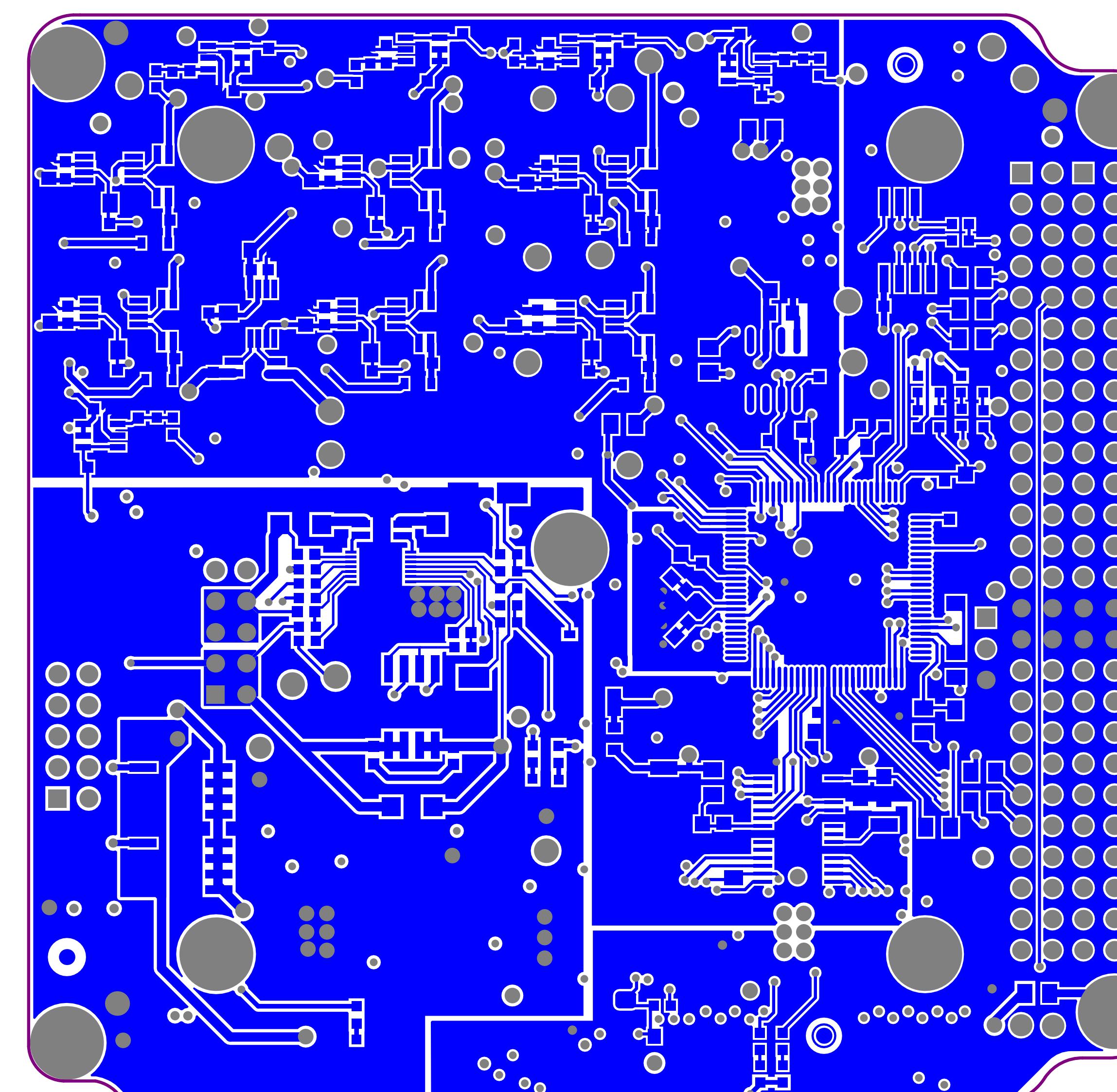
- Copper base 10Z:
- PCB Material: Prepeg FR4—Standard
- PCB Thickness: 1.6mm
- PCB Surface: HASL (with lead)
- Silkscreen Color: White (top and bottom)
- Soldermask Color: Blue
- Vias: Force Complete Tenting
- Special: Stack-up (herein included)

D

Assembly specifications:

- Solder composition: Include lead
- Fiducials: 3 top and 3 bottom available
- Check BOM for not placed components

SpaceLab - Federal University of Santa Catarina	
Project: EPS2	
Layer: Signal Layer 2	
Designed by: Andre M. P. Mattos (based on FSat-I EPS) Project Code: EPS2	
Date: 31/08/2020 Version: v0.1 Size: A4	



Layer	Name	Material	Thickness	Constant	Board Layer Stack
1	Top Overlay				
2	Top Solder	Solder Resist	0,010mm	3,5	
3	Top Layer	Copper	0,035mm		
4	Dielectric 1		0,100mm	4,2	
5	Signal Layer 1	Copper	0,018mm		
6	Core	FR-4	1,265mm	4,2	
7	Signal Layer 2	Copper	0,018mm		
8	Dielectric 2		0,100mm	4,2	
9	Bottom Layer	Copper	0,035mm		
10	Bottom Solder	Solder Resist	0,010mm	3,5	
11	Bottom Overlay				

Fabrication specifications:

- Copper base 10Z:
- PCB Material: Prepeg FR4—Standard
- PCB Thickness: 1.6mm
- PCB Surface: HASL (with lead)
- Silkscreen Color: White (top and bottom)
- Soldermask Color: Blue
- Vias: Force Complete Tenting
- Special: Stack-up (herein included)

Assembly specifications:

- Solder composition: Include lead
- Fiducials: 3 top and 3 bottom available
- Check BOM for not placed components

SpaceLab - Federal University of Santa Catarina	 SPACE + LAB
Project: EPS2	
Layer: Bottom Layer	
Designed by: Andre M. P. Mattos (based on FSat-I EPS2)	
Date: 31/08/2020	Project Code: EPS2
Version: v0.1	Size: A4

A



Pad Designator

Layer	Name	Material	Thickness	Constant	Board Layer Stack
1	Top Overlay				
2	Top Solder	Solder Resist	0,010mm	3,5	
3	Top Layer	Copper	0,035mm		
4	Dielectric 1		0,100mm	4,2	
5	Signal Layer 1	Copper	0,018mm		
6	Core	FR-4	1,265mm	4,2	
7	Signal Layer 2	Copper	0,018mm		
8	Dielectric 2		0,100mm	4,2	
9	Bottom Layer	Copper	0,035mm		
10	Bottom Solder	Solder Resist	0,010mm	3,5	
11	Bottom Overlay				

B

C

D

Fabrication specifications:

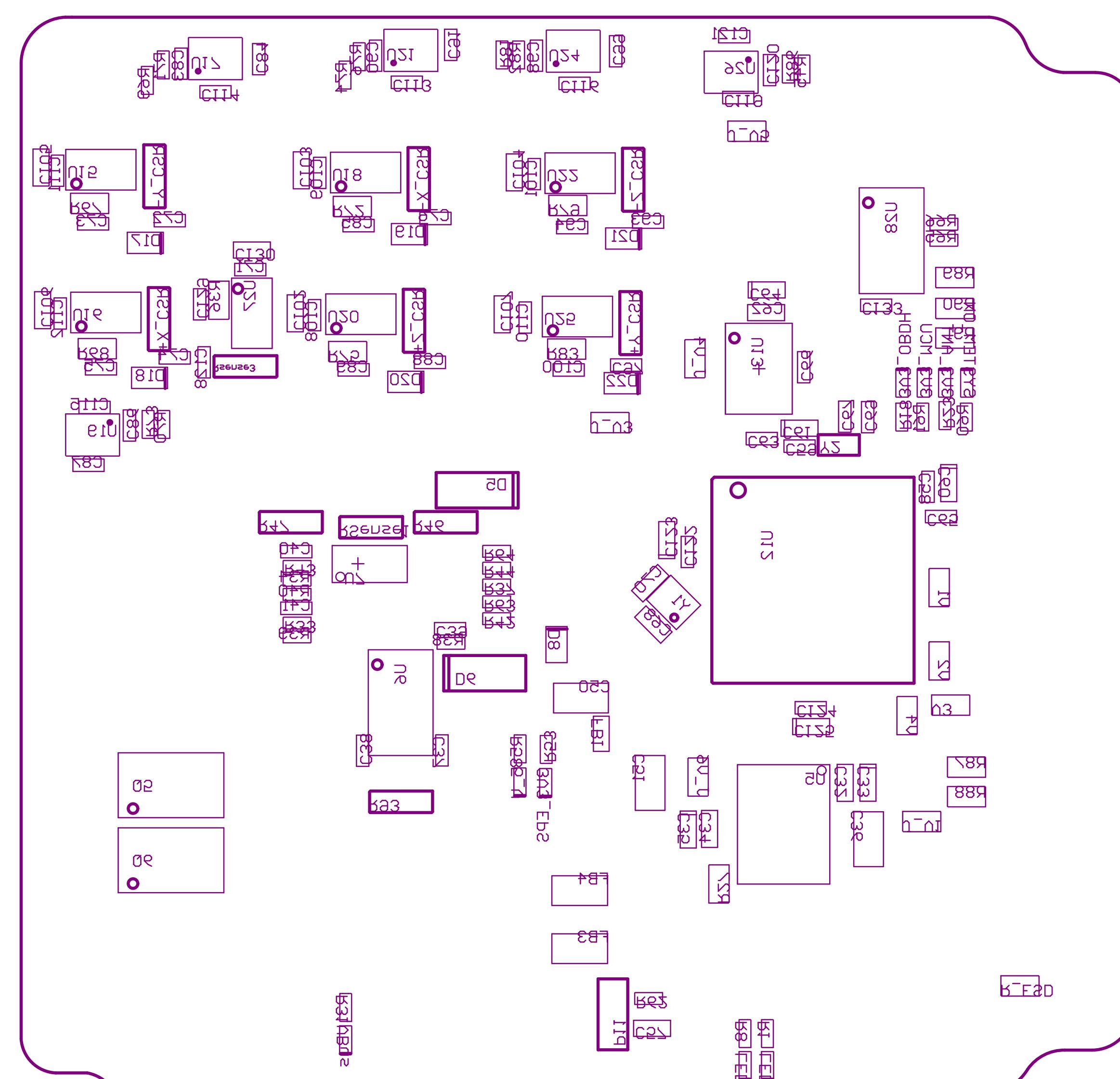
- Copper base 10Z:
- PCB Material: Prepeg FR4—Standard
- PCB Thickness: 1.6mm
- PCB Surface: HASL (with lead)
- Silkscreen Color: White (top and bottom)
- Soldermask Color: Blue
- Vias: Force Complete Tenting
- Special: Stack-up (herein included)

Assembly specifications:

- Solder composition: Include lead
- Fiducials: 3 top and 3 bottom available
- Check BOM for not placed components

SpaceLab - Federal University of Santa Catarina	+ SPACE + LAB
Project: EPS2	
Layer: ASM Top	
Designed by: Andre M. P. Mattos (based on FSat-I EPS)	Project Code: EPS2
Date: 31/08/2020	Version: v0.1
	Size: A4

A



B

Layer	Name	Material	Thickness	Constant	Board Layer Stack
1	Top Overlay				
2	Top Solder	Solder Resist	0,010mm	3,5	
3	Top Layer	Copper	0,035mm		
4	Dielectric 1		0,100mm	4,2	
5	Signal Layer 1	Copper	0,018mm		
6	Core	FR-4	1,265mm	4,2	
7	Signal Layer 2	Copper	0,018mm		
8	Dielectric 2		0,100mm	4,2	
9	Bottom Layer	Copper	0,035mm		
10	Bottom Solder	Solder Resist	0,010mm	3,5	
11	Bottom Overlay				

C

Fabrication specifications:

- Copper base 10Z:
- PCB Material: Prepeg FR4—Standard
- PCB Thickness: 1.6mm
- PCB Surface: HASL (with lead)
- Silkscreen Color: White (top and bottom)
- Soldermask Color: Blue
- Vias: Force Complete Tenting
- Special: Stack-up (herein included)

D

Assembly specifications:

- Solder composition: Include lead
- Fiducials: 3 top and 3 bottom available
- Check BOM for not placed components

SpaceLab - Federal University of Santa Catarina	
Project: EPS2	
Layer: ASM Bottom	
Designed by: Andre M. P. Mattos (based on FSat-I EPS)	Project Code: EPS2
Date: 31/08/2020	Version: v0.1
	Size: A4

