

A

B

C

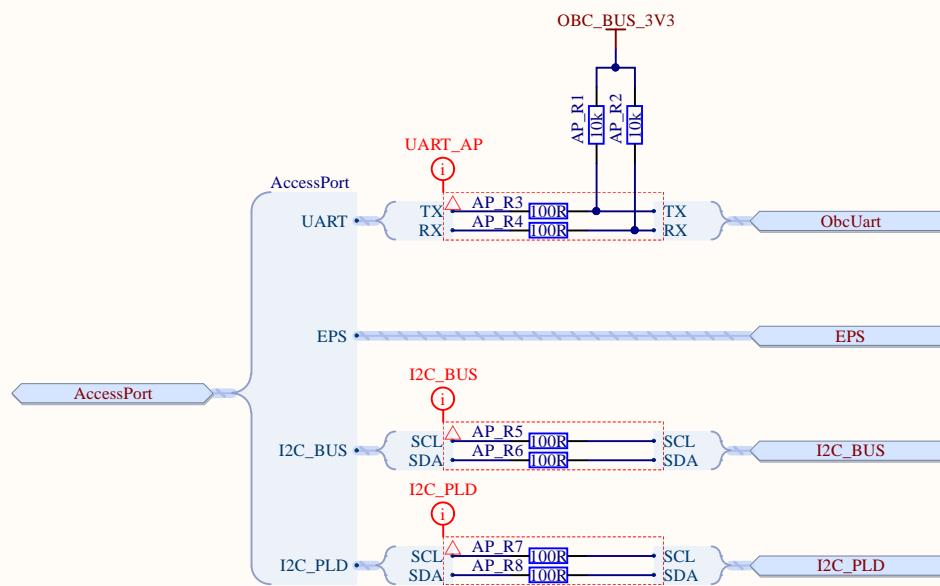
D

A

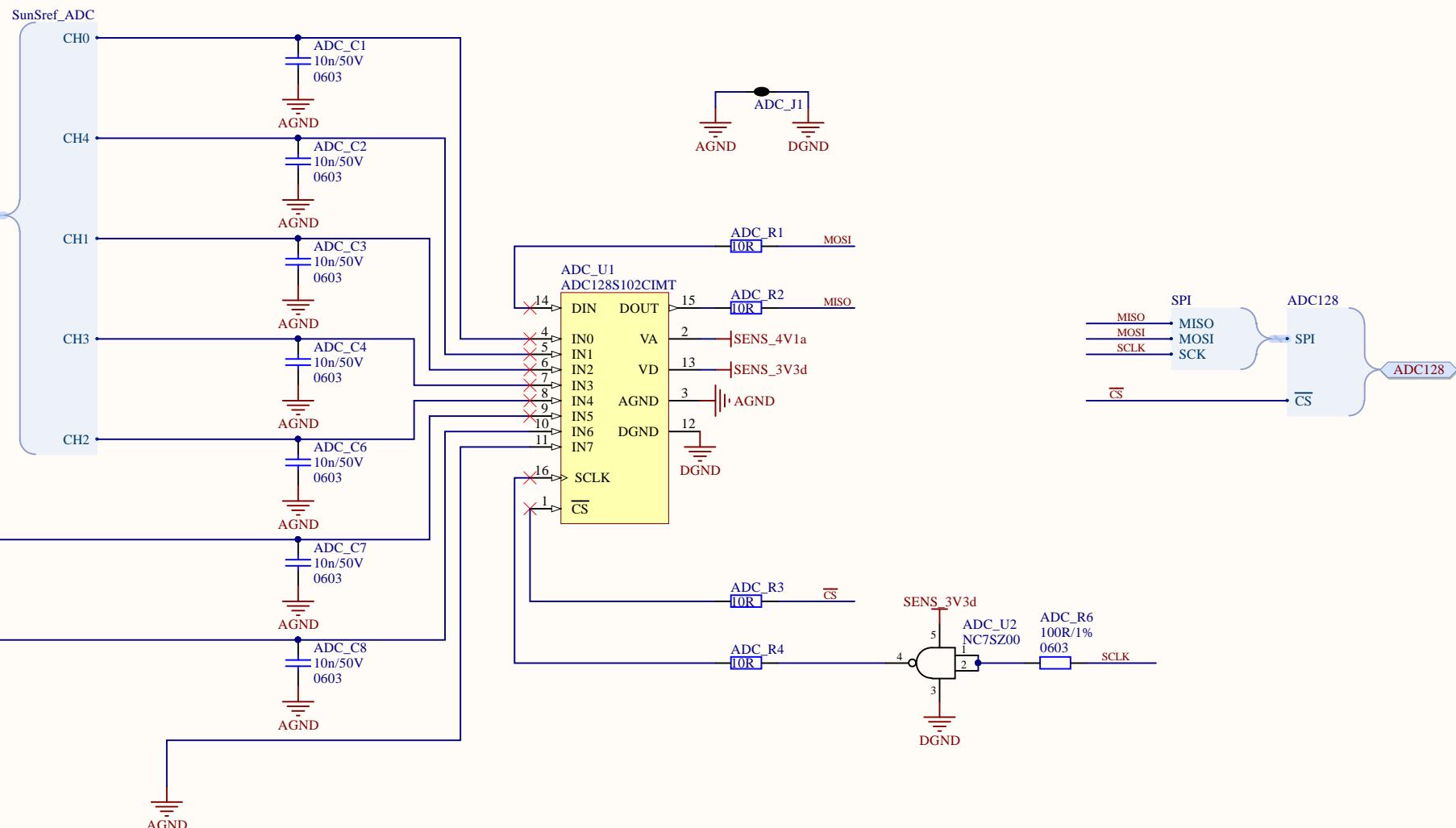
B

C

D



Project: PLD / Main Board / DM1					
Title: Main Board / ADC for SunSref, Photodiodes and HK					
Model: DM1	Document Number: PWSat2-xxx-DW-xxx	Rev: 1	Date: 2017-06-01	Sheet: 1 of 32	
Author: Grzegorz Gajoch		Checked by: Michal Gumiela		Approved by: Piotr Kuligowski	
File name: PLD_AcessPortInterface.SchDoc					



Project: PLD / Main Board / DM1					
Title: Main Board / ADC for SunRef,Photodiodes and HK					
Model: DM1	Document Number: PWSat2-xxx-DW-xxx	Rev: 1	Date: 2017-06-01	Sheet: 1 of 32	
Author: Grzegorz Gajoch	Checked by: Michał Gumiela		Approved by: Piotr Kuligowski		
File name: PLD_ADC.SchDoc					

A

A

B

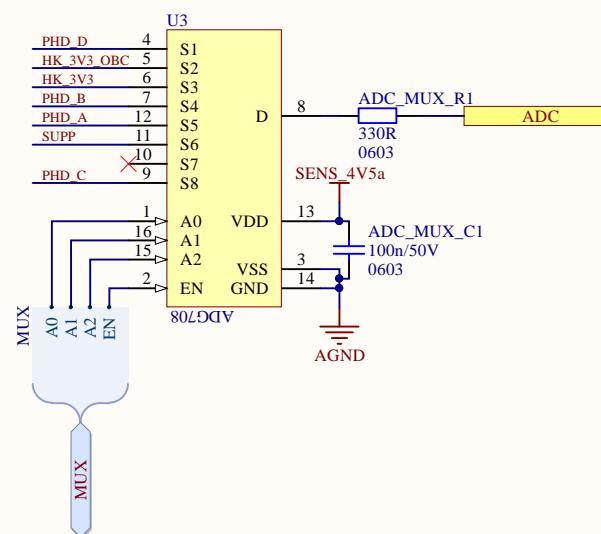
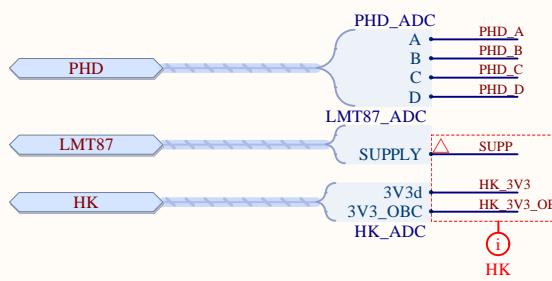
B

C

C

D

D



Project:		PLD / Main Board / DM1			
Title:		Main Board / RadFET			
Model:	Document Number:	Rev:	Date:	Sheet:	
DM1	PWSat2-xxx-DW-xxx	1	2017-06-01	* of	32
Author:	Checked by:		Approved by:		
Grzegorz Gajoch	Michał Gumiela		Piotr Kuligowski		
File name: PLD_ADC_MUX.SchDoc					

A

B

C

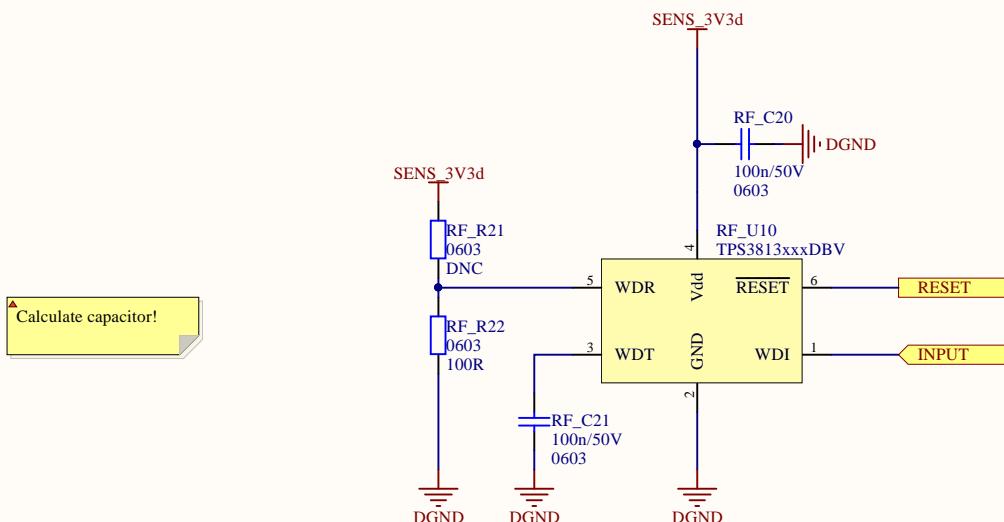
D

A

B

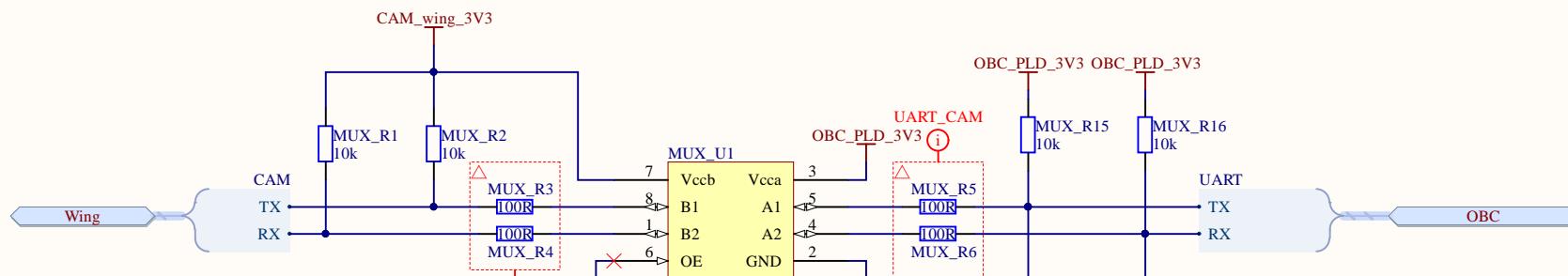
C

D

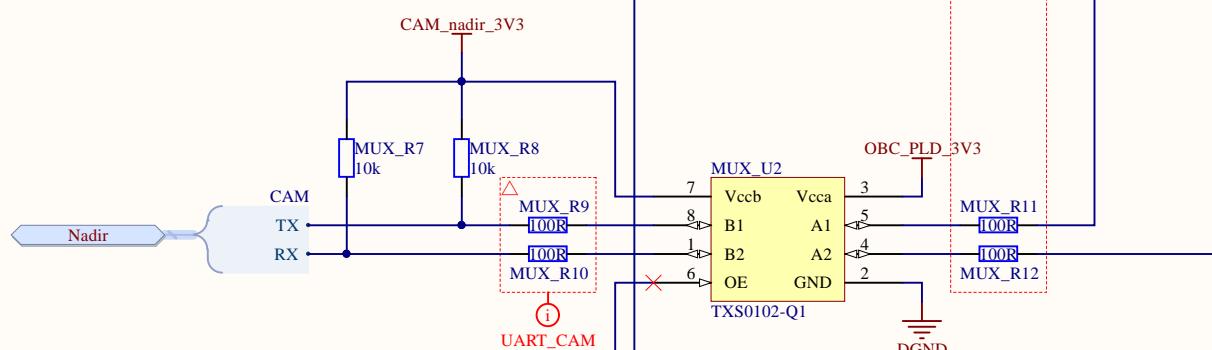


Project: PLD / Main Board / DM1					
Title: Main Board / Watchdog for RadFET					
Model: DM1	Document Number: PWSat2-xxx-DW-xxx	Rev: 1	Date: 2017-06-01	Sheet: 1 of 32	
Author: Grzegorz Gajoch	Checked by: Michal Gumiela		Approved by: Piotr Kuligowski		
File name: PLD AVR Watchdog.SchDoc					

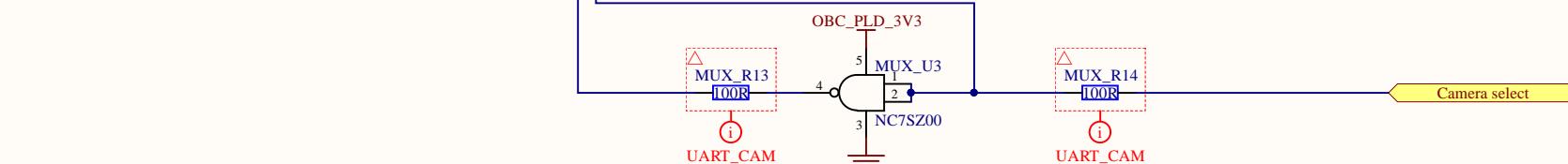
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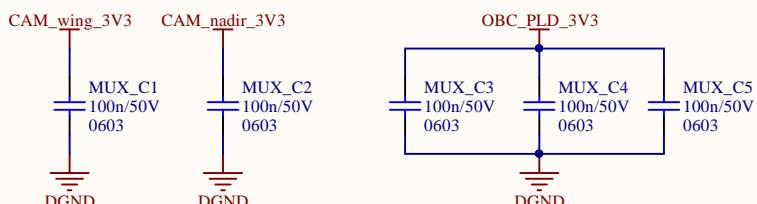
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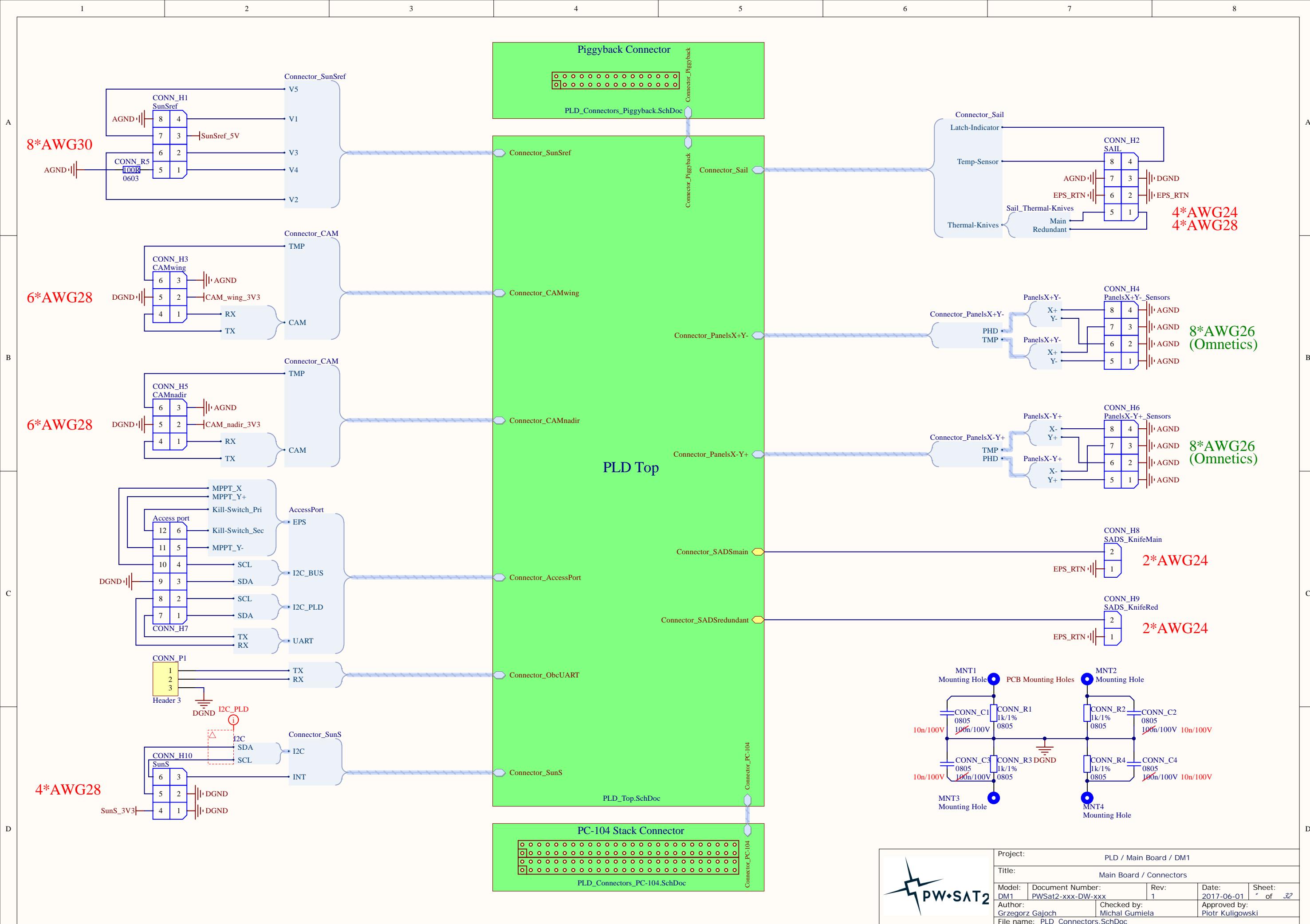
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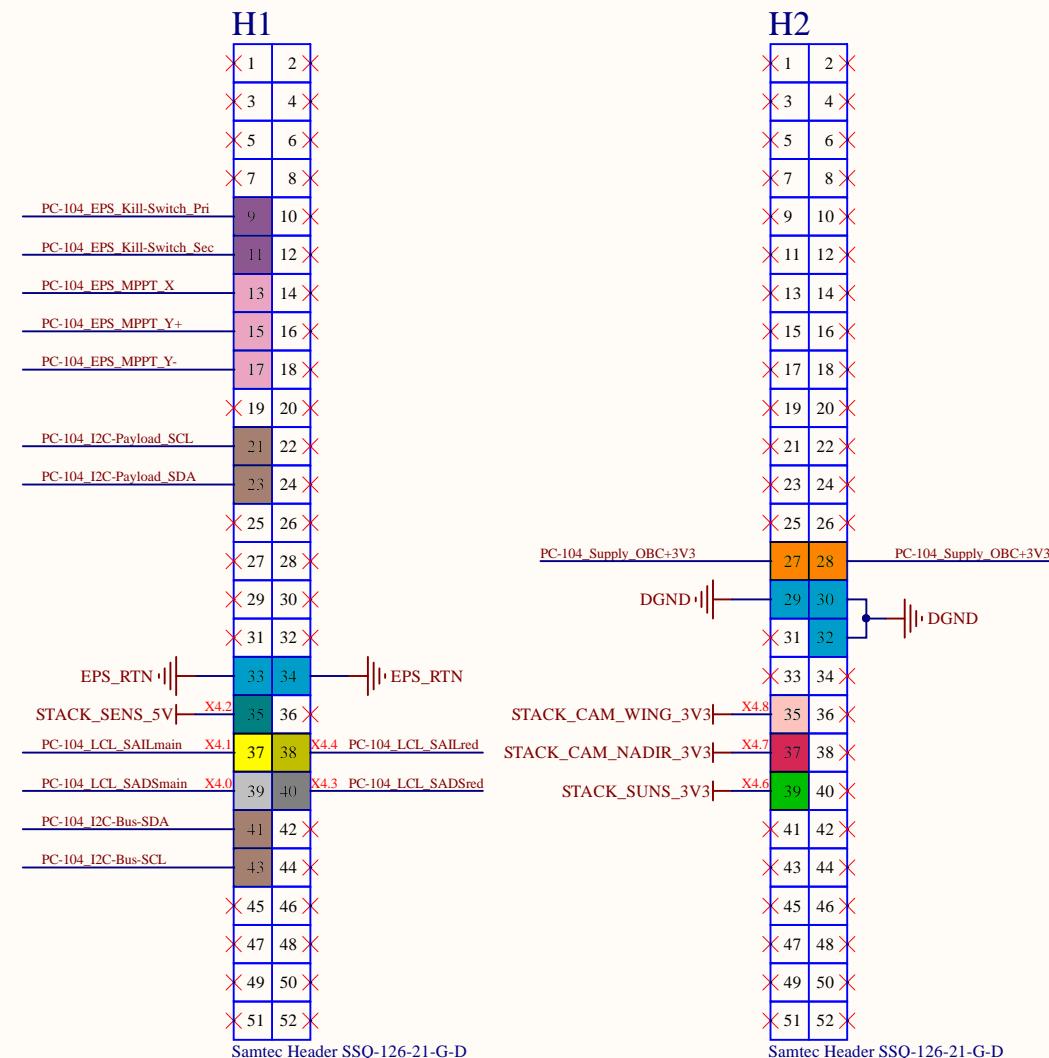
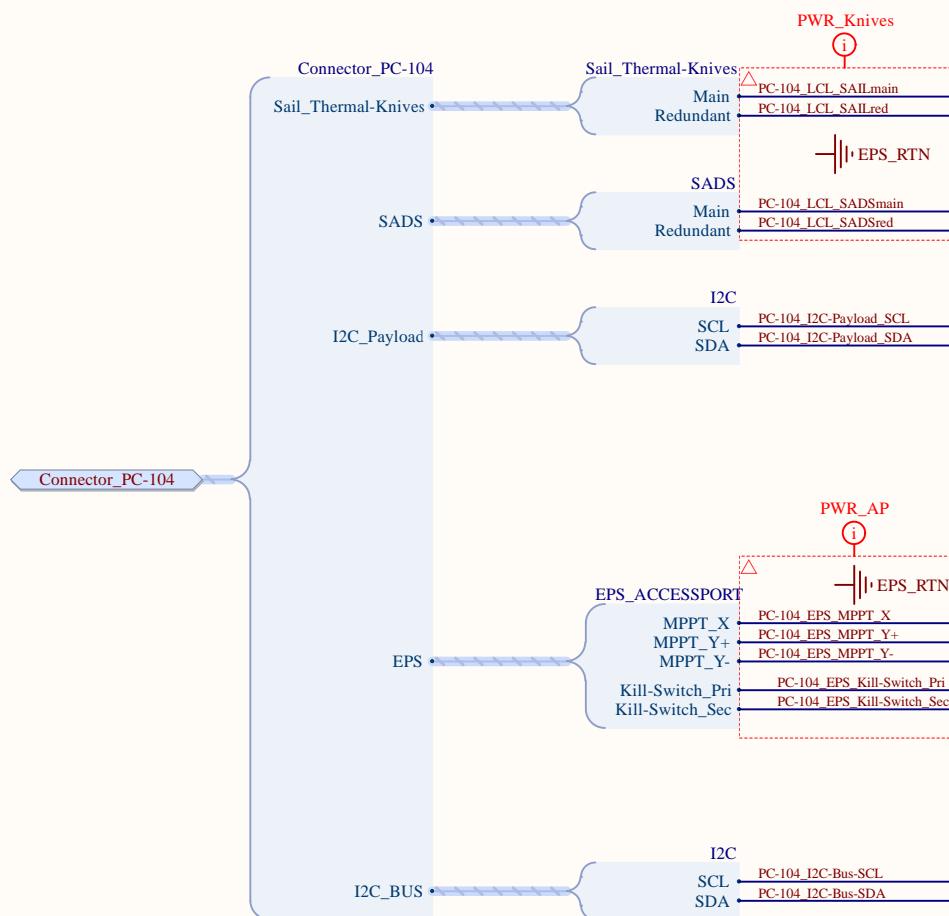


D



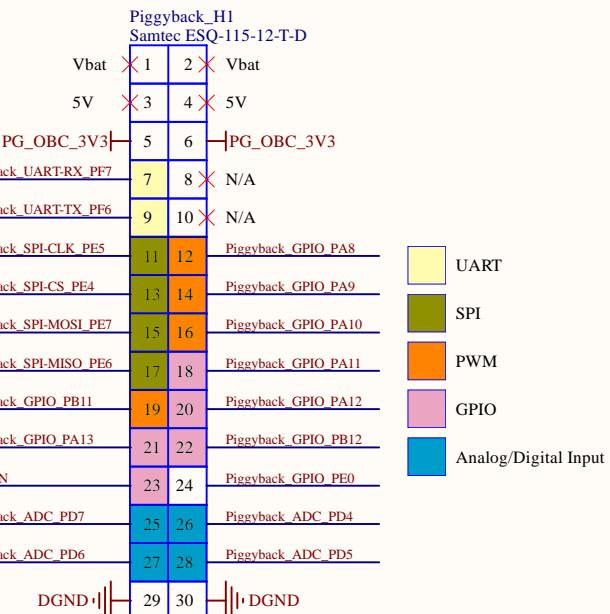
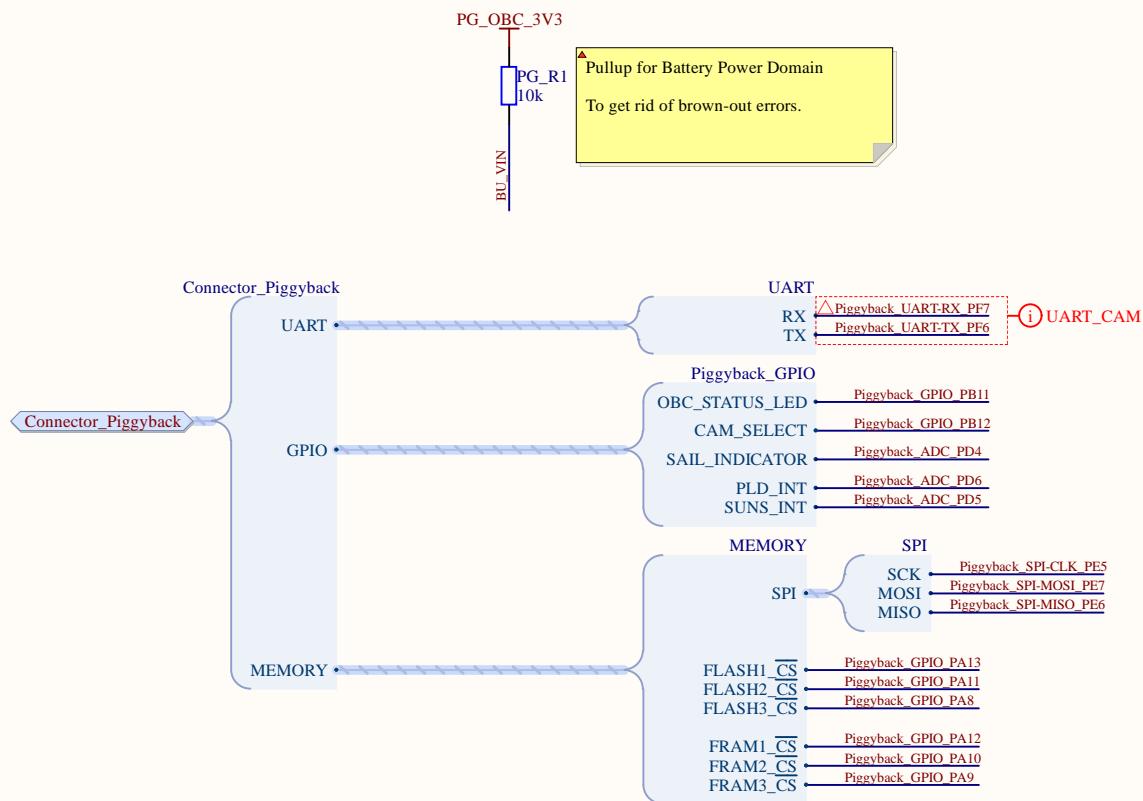
Project: PLD / Main Board / DM1					
Title: Main Board / CAMs UART-Buffer					
Model: DM1	Document Number: PWSat2-xxx-DW-xxx	Rev: 1	Date: 2017-06-01	Sheet: 32	of 32
Author: Grzegorz Gajoch	Checked by: Michal Gumieła		Approved by: Piotr Kuligowski		
File name: PLD_CAM_MUX.SchDoc					





Project:		PLD / Main Board / DM1			
Title:		Main Board / Connectors - PC-104			
Model:	Document Number:	Rev:	Date:	Sheet:	
DM1	PWSat2-xxx-DW-xxx	1	2017-06-01	* of	32
Author:	Checked by:		Approved by:		
Grzegorz Gajoch	Michał Gumiela		Piotr Kuligowski		
File name: PLD_Connectors_PC-104.SchDoc					

A



https://github.com/PW-Sat2/Documentation/raw/master/obc/obc_datasheet_esl_cubecomputer.pdf

B

C

D



Project: PLD / Main Board / DM1					
Title: Main Board / Connectors - Piggyback					
Model: DM1	Document Number: PWSat2-xxx-DW-xxx	Rev: 1	Date: 2017-06-01	Sheet: 1 of 32	
Author: Grzegorz Gajoch	Checked by: Michal Gumieła		Approved by: Piotr Kuligowski		
File name: PLD_Connectors_Piggyback.SchDoc					

A

A

B

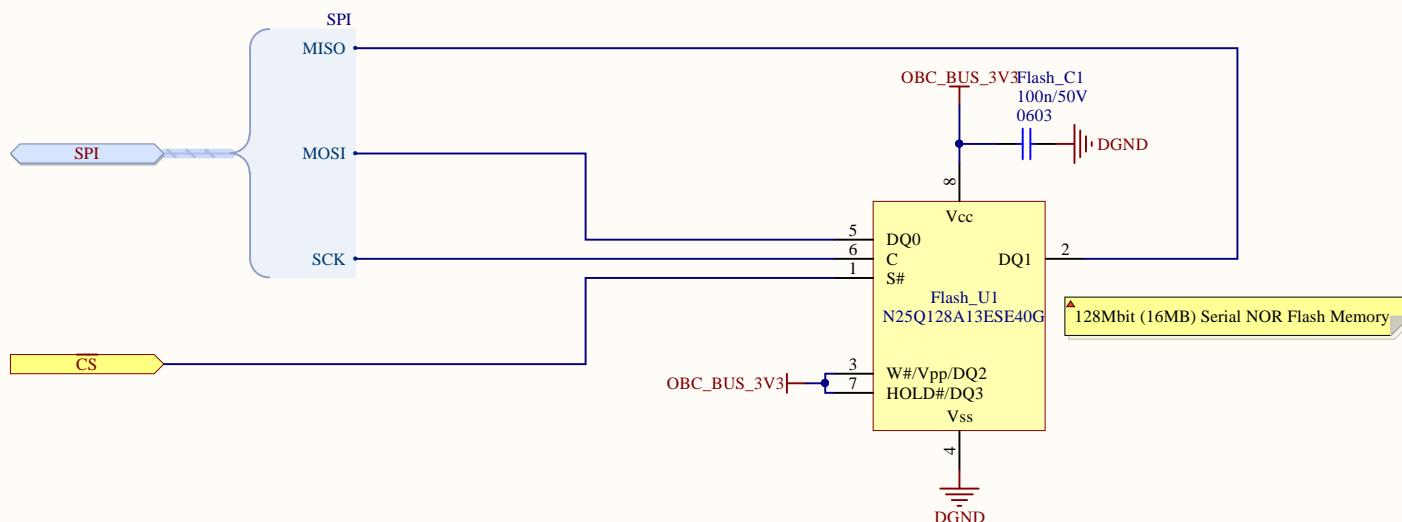
B

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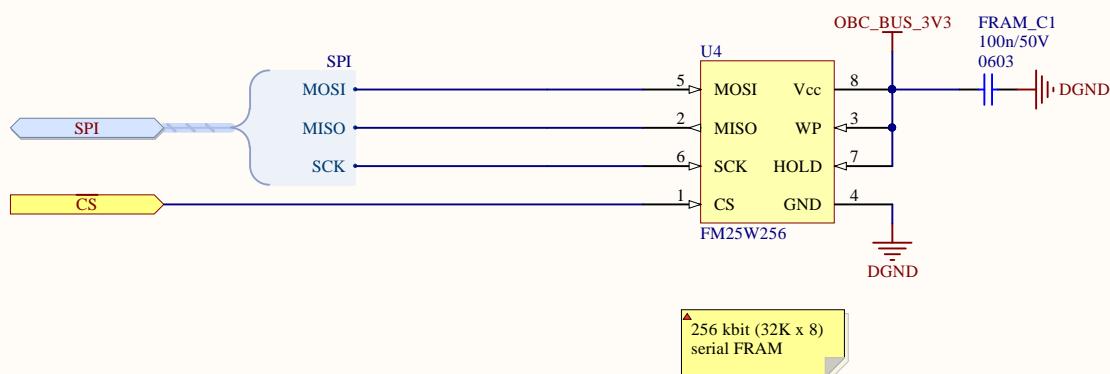
Project:		PLD / Main Board / DM1			
Title:		Main Board / Flash Memory			
Model:	Document Number:	Rev:	Date:	Sheet:	
DM1	PWSat2-xxx-DW-xxx	1	2017-06-01	* of	32
Author:	Checked by:		Approved by:		
Grzegorz Gajoch	Michał Gumiela		Piotr Kuligowski		
File name: PLD_Flash-Memory.SchDoc					

A

A

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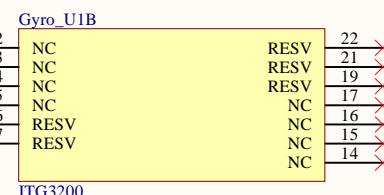
D

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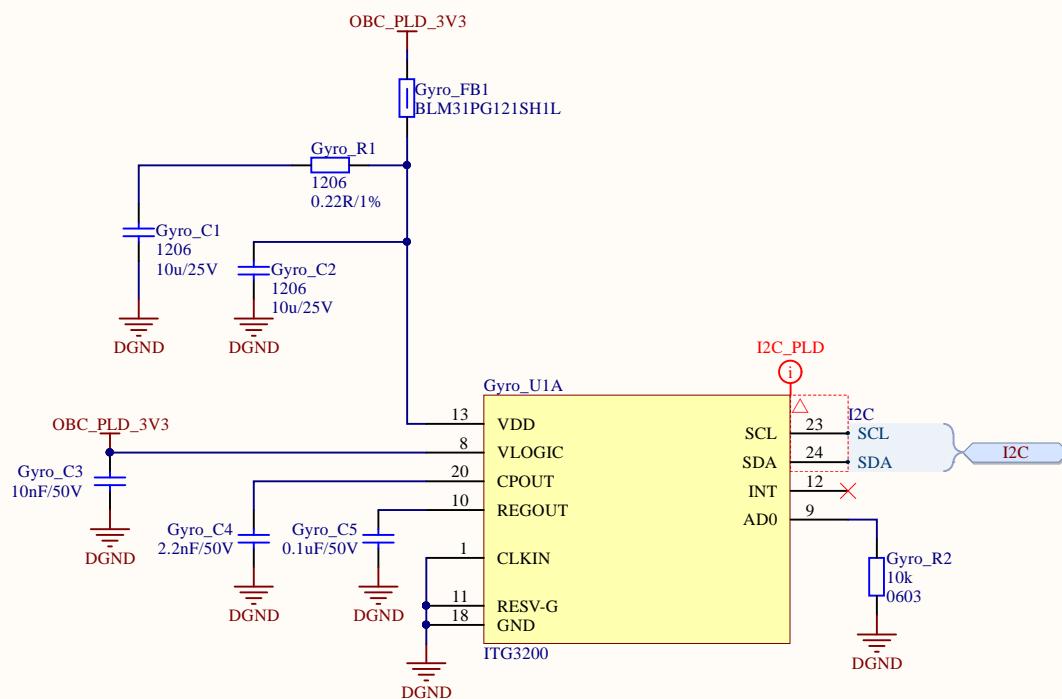


Project: PLD / Main Board / DM1					
Title: Main Board / Flash Memory					
Model: DM1	Document Number: PWSat2-xxx-DW-xxx	Rev: 1	Date: 2017-06-01	Sheet: 32	
Author: Grzegorz Gajoch		Checked by: Michal Gumiela		Approved by: Piotr Kuligowski	
File name: PLD_FRAM-Memory.SchDoc					

A



B



C



Project:		PLD / Main Board / DM1			
Title:		Main Board / Gyroscopes			
Model:	Document Number:	Rev:	Date:	Sheet:	
DM1	PWSat2-xxx-DW-xxx	1	2017-06-01	* of	32
Author:	Checked by:		Approved by:		
Grzegorz Gajoch	Michał Gumiela		Piotr Kuligowski		
File name: PLD_Gyrosopes.SchDoc					

A

A

B

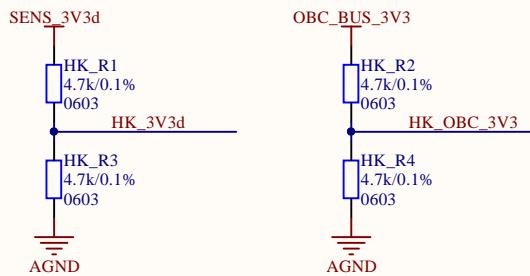
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C

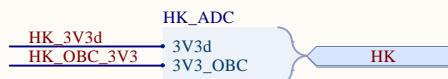
C

D

D



▲ HK measurements:
 - 3V3d for sensors
 - 3V3 from OBC for SPI buffers
 - 3V3 for RTC



Project:		PLD / Main Board / DM1			
Title:		Main Board / RadFET			
Model:	Document Number:	Rev:	Date:	Sheet:	
DM1	PWSat2-xxx-DW-xxx	1	2017-06-01	*	of 32
Author:	Checked by:		Approved by:		
Grzegorz Gajoch	Michał Gumiela		Piotr Kuligowski		
File name: PLD_HK.SchDoc					

A

A

B

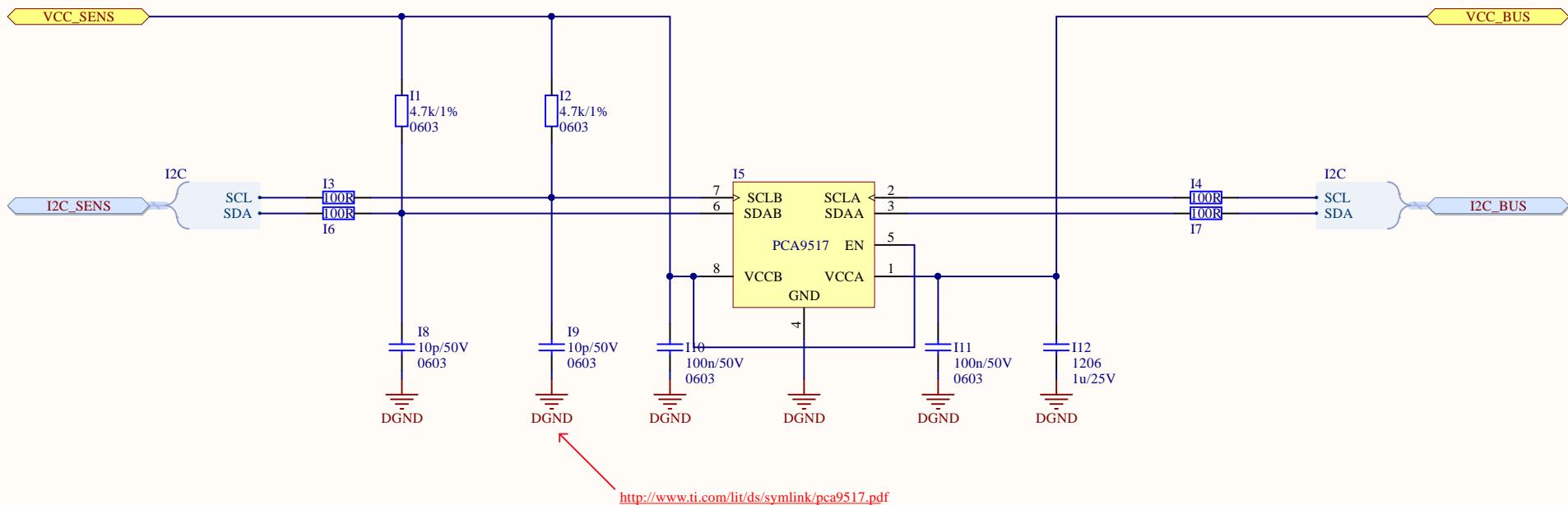
B

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Project: PLD / Main Board / DM1					
Title: Main Board / I ² C Repeater for RadFET					
Model: DM1	Document Number: PWSat2-xxx-DW-xxx	Rev: 1	Date: 2017-06-01	Sheet: 1 of 32	
Author: Grzegorz Gajoch	Checked by: Michal Gumiela		Approved by: Piotr Kuligowski		
File name: PLD_I ² C-Repeater.SchDoc					

A

B

C

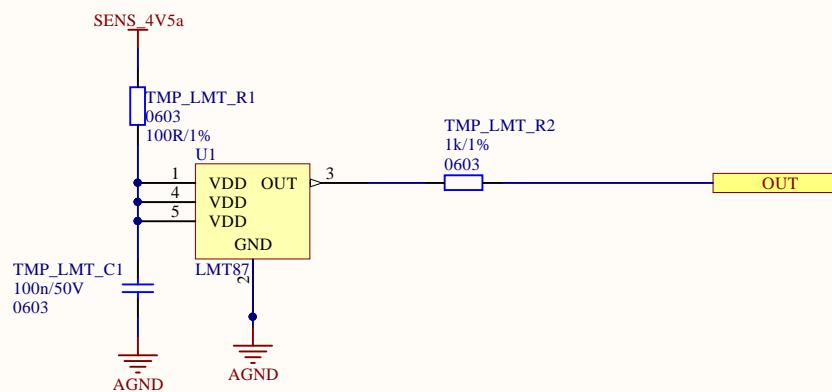
D

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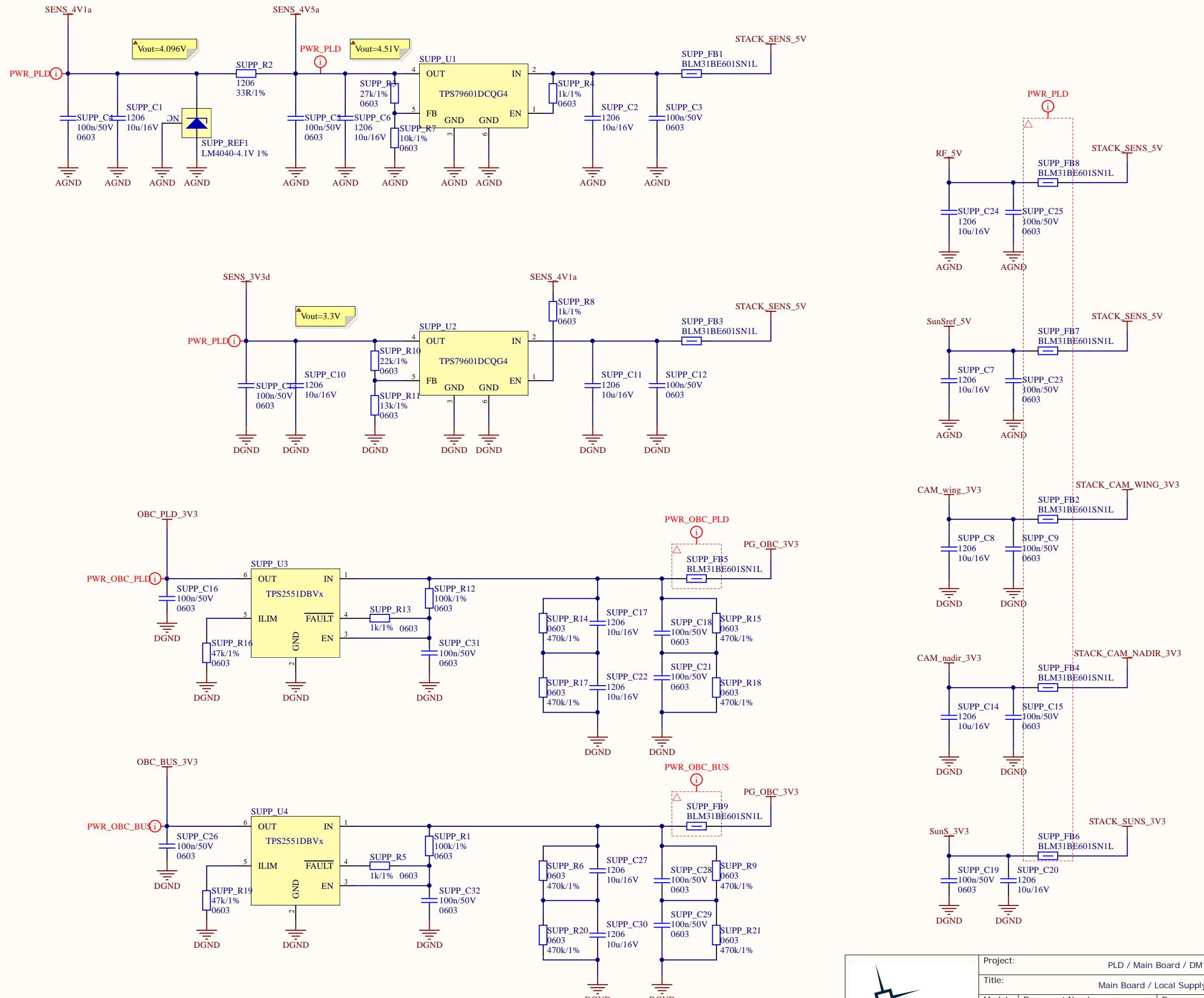
B

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Project:		PLD / Main Board / DM1			
Title:		Main Board / LM60			
Model:	Document Number:	Rev:	Date:	Sheet:	
DM1	PWSat2-xxx-DW-xxx	1	2017-06-01	*	of 32
Author:	Checked by:		Approved by:		
Grzegorz Gajoch	Michał Gumiela		Piotr Kuligowski		
File name: PLD_LMT87.SchDoc					



Project:	PLD / Main Board / DM1		
Title:	Main Board / Local Supply		
Model:	Document Number:	Rev:	Date:
DM1	PWSat2-xxx-DW-xxx	1	2017-06-01
Author:	Checked by:		Approved by:
Grzegorz Gajoch	Michał Gumiela		Piotr Kuligowski
File name: PLD_Local-Supply.SchDoc			

A

A

B

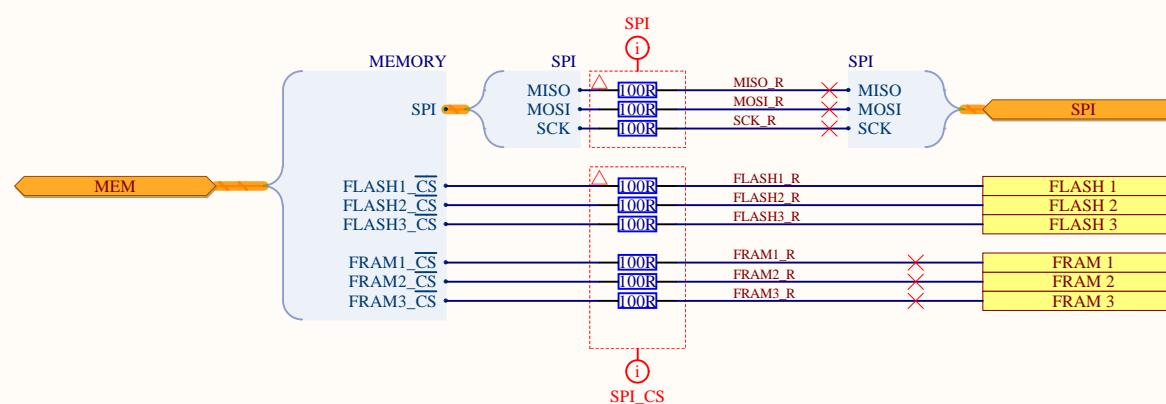
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C

C

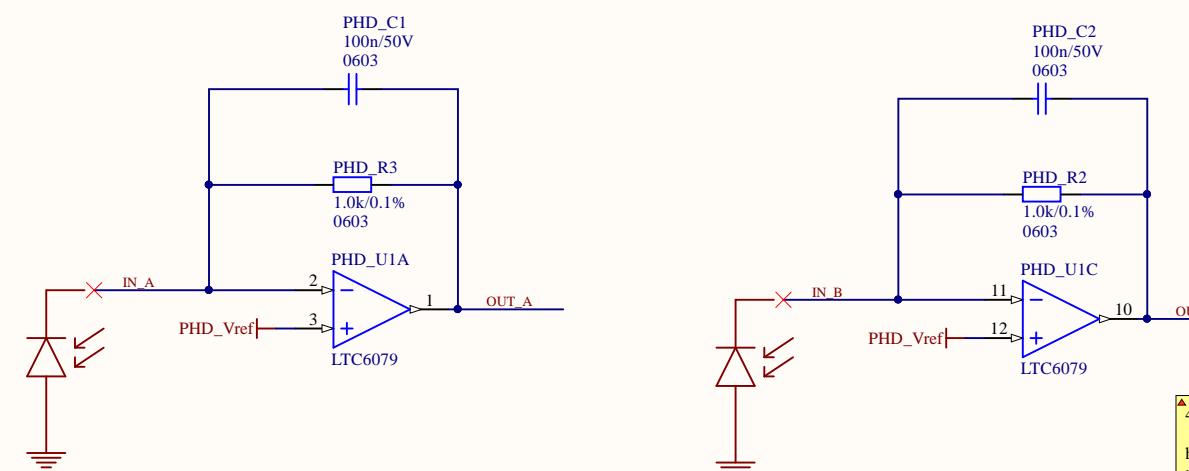
D

D



Project: PLD / Main Board / DM1				
Title: Main Board / ADC for SunSref,Photodiodes and HK				
Model: DM1	Document Number: PWSat2-xxx-DW-xxx	Rev: 1	Date: 2017-06-01	Sheet: 32 of 32
Author: Grzegorz Gajoch	Checked by: Michal Gumiela		Approved by: Piotr Kuligowski	
File name: PLD_MemoryInterface.SchDoc				

A

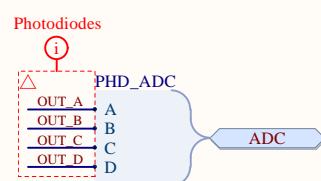
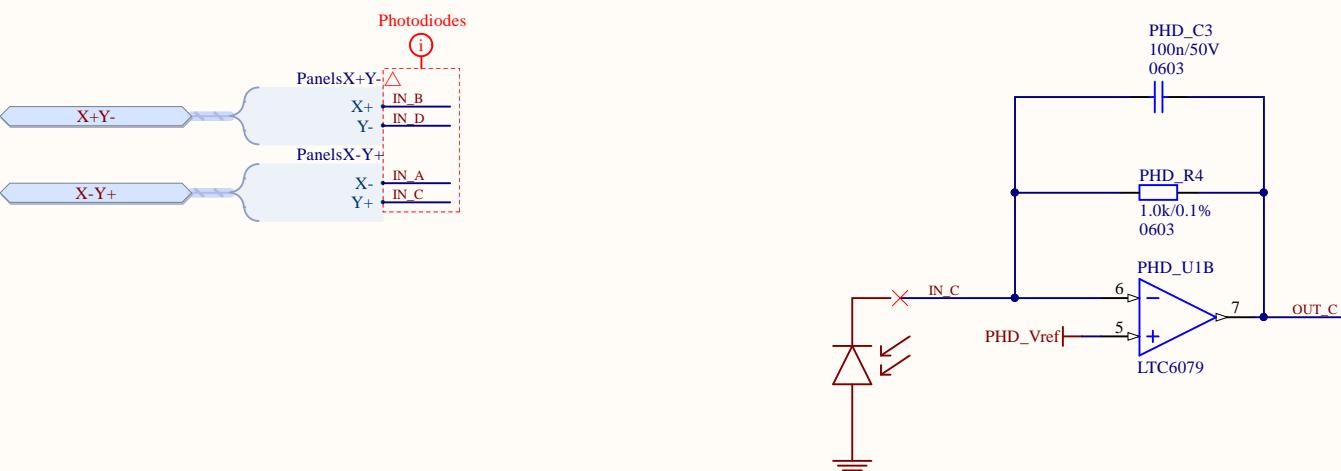


▲ 4x SLCD-61N8
<http://ww1.microchip.com/downloads/en/AppNotes/00951a.pdf>

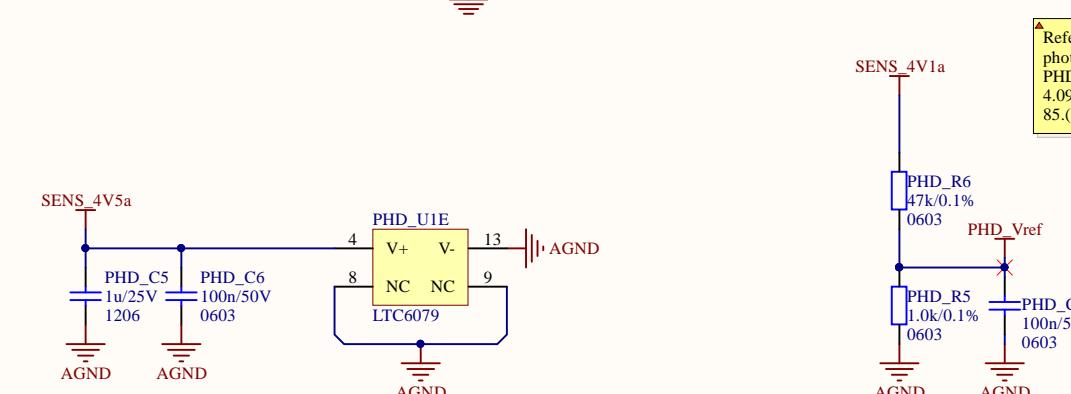
SLCD-61N8 (photoconductive mode):
- sensitivity = 0.55A/W
- sensitive area = 2.7mm²
- current max @ 1500W/m² = 2.2275mA

$$OUT = 1V/1mA + PHD_Vref$$

B



C



▲ Reference for photodiodes:
PHD_Vref = 4.096V*(1/48)
85.(3)mV

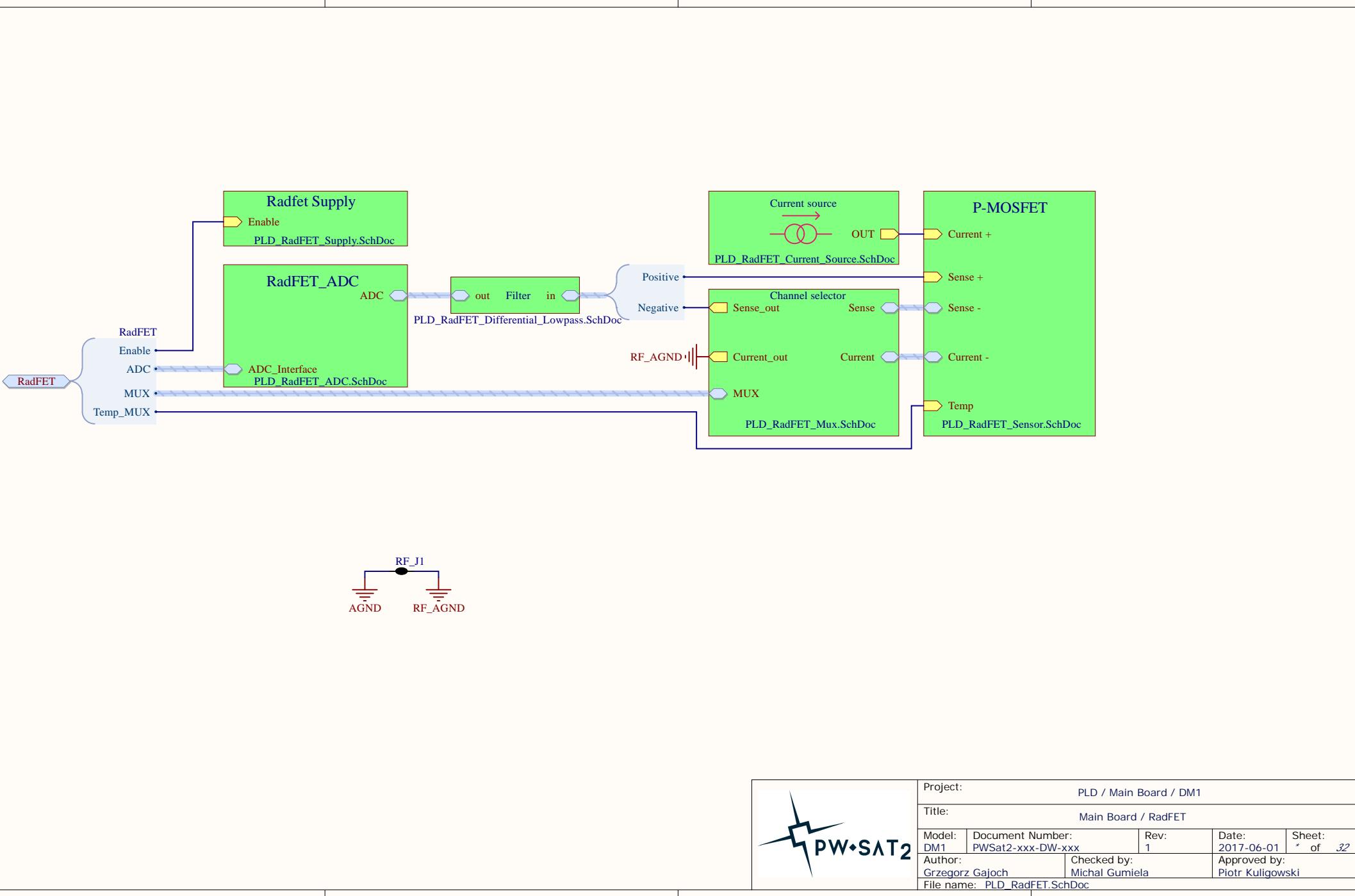
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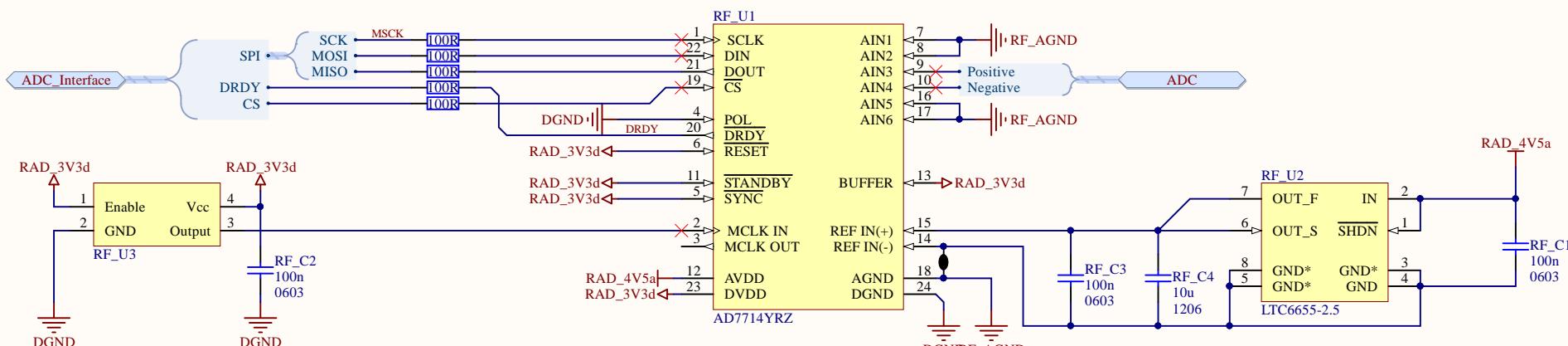
Project:	PLD / Main Board / DM1			
Title:	Main Board / Photodiodes			
Model:	Document Number:	Rev:	Date:	Sheet:
DM1	PWSat2-xxx-DW-xxx	1	2017-06-01	32
Author:	Checked by:		Approved by:	
Grzegorz Gajoch	Michał Gumiela		Piotr Kuligowski	
File name: PLD_Photodiodes.SchDoc				

A

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Project:		PLD / Main Board / DM1			
Title:		Main Board / A 24-bit AD7714YRZ Analog-to-Digital Converter			
Model:	Document Number:	Rev:	Date:	Sheet:	
DM1	PWSat2-xxx-DW-xxx	1	2017-06-01	* of	32
Author:	Checked by:		Approved by:		
Grzegorz Gajoch	Michał Gumiela		Piotr Kuligowski		
File name: PLD_RadFET_ADC.SchDoc					

A

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C

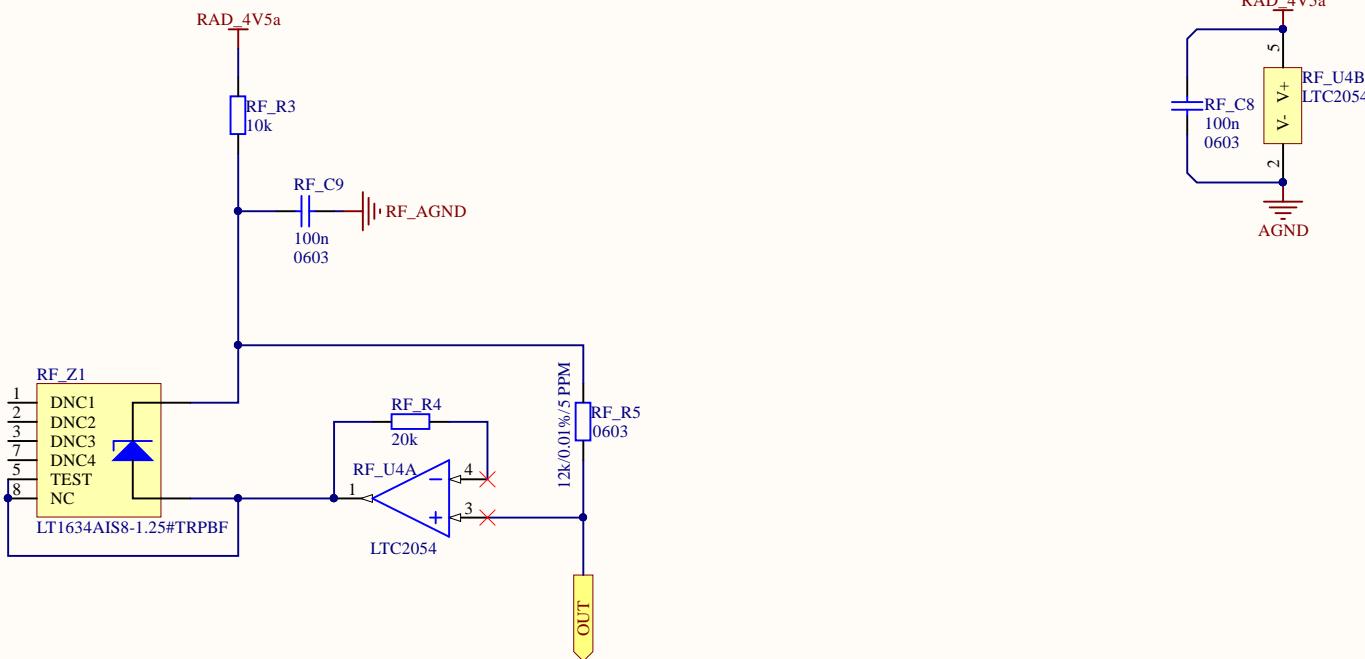
D

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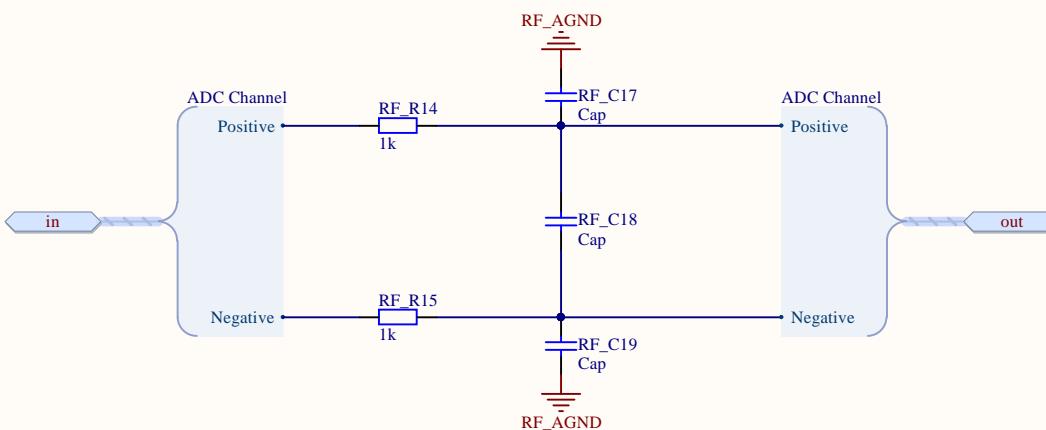
B

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D



Project: PLD / Main Board / DM1					
Title: Main Board / Differential low-pass filter					
Model: DM1	Document Number: PWSat2-xxx-DW-xxx	Rev: 1	Date: 2017-06-01	Sheet: 1 of 32	
Author: Grzegorz Gajoch	Checked by: Michal Gumiela		Approved by: Piotr Kuligowski		
File name: PLD_RadFET_Differential_Lowpass.SchDoc					

A

A

B

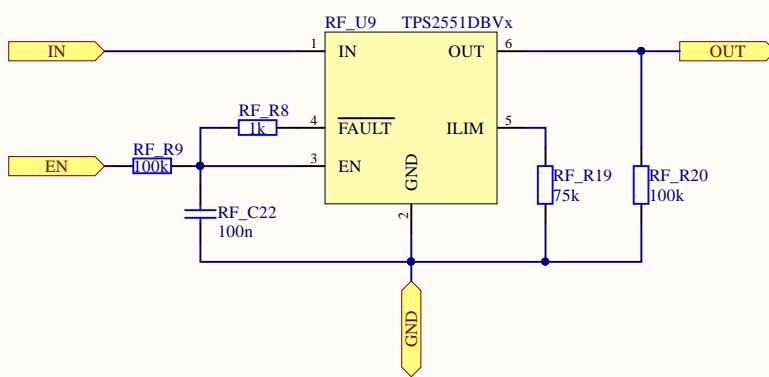
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D



Project:		PLD / Main Board / DM1			
Title:		Main Board / Local Supply			
Model:	Document Number:	Rev:	Date:	Sheet:	
DM1	PWSat2-xxx-DW-xxx	1	2017-06-01	* of	32
Author:	Checked by:		Approved by:		
Grzegorz Gajoch	Michał Gumiela		Piotr Kuligowski		
File name: PLD_RadFET_LCL.SchDoc					

A

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B

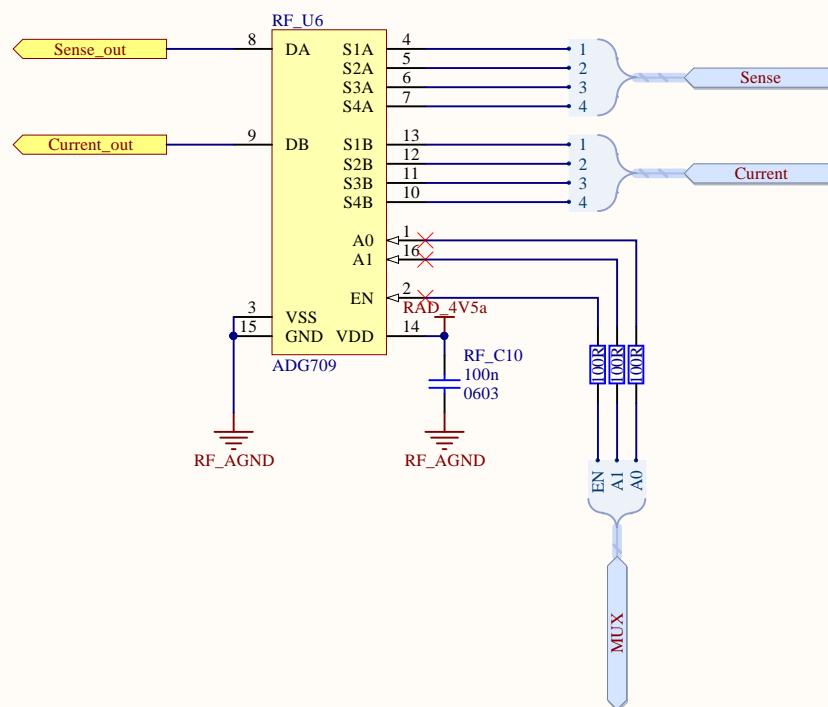
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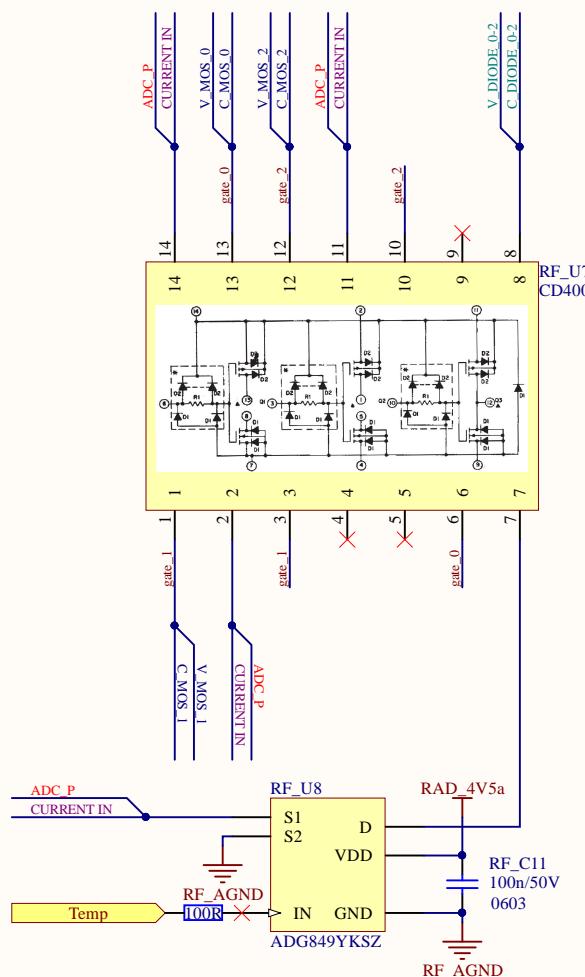
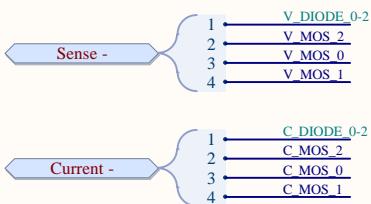
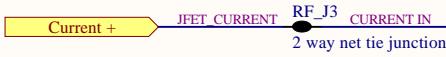
D

D



Project: PLD / Main Board / DM1				
Title: Main Board / A 24-bit AD7714YRZ Analog-to-Digital Converter				
Model: DM1	Document Number: PWSat2-xxx-DW-xxx	Rev: 1	Date: 2017-06-01	Sheet: 32 of 32
Author: Grzegorz Gajoch	Checked by: Michal Gumiela		Approved by: Piotr Kuligowski	
File name: PLD_RadFET_Mux.SchDoc				

A



Project:

PLD / Main Board / DM1

Title: Main Board / 24-bit AD7714YRZ Analog-to-Digital Converter

Model: Document Number: Rev: Date: Sheet:
DM1 PWSat2-xxx-DW-xxx 1 2017-06-01 32Author: Checked by: Approved by:
Grzegorz Gajoch Michal Gumielka Piotr Kuligowski

File name: PLD_RadFET_Sensor.SchDoc

A

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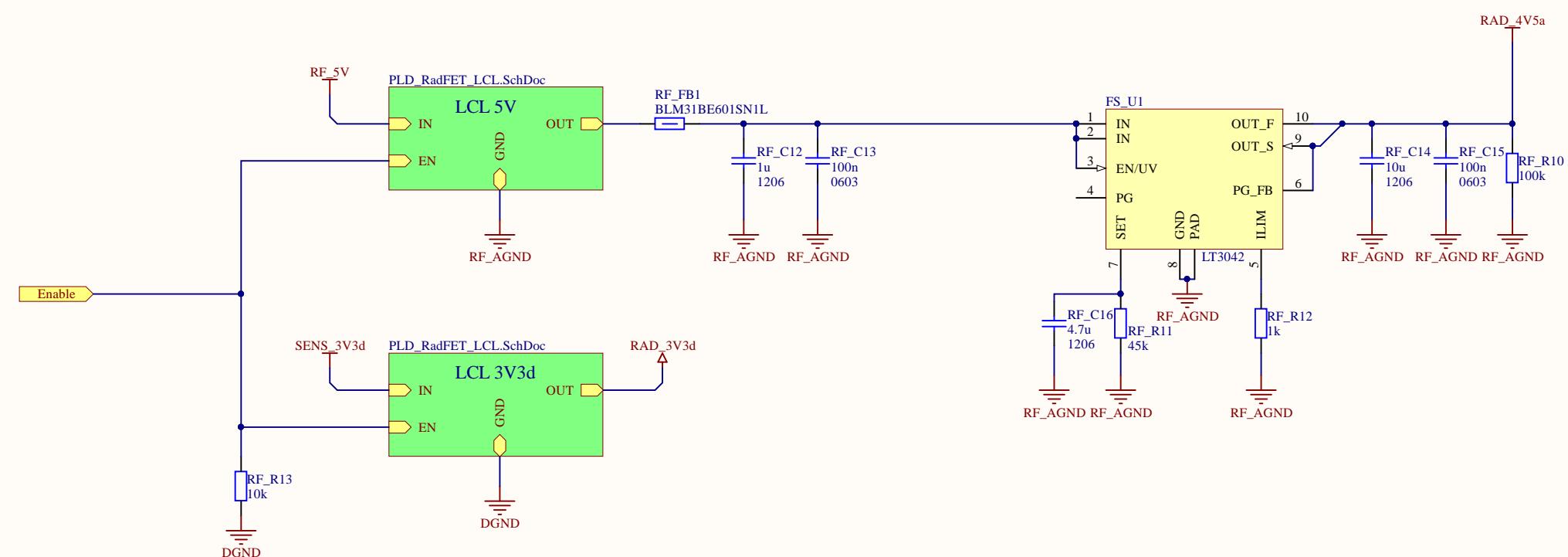
B

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Project:		PLD / Main Board / DM1			
Title:		Main Board / Local Supply			
Model:	Document Number:	Rev:	Date:	Sheet:	
DM1	PWSat2-xxx-DW-xxx	1	2017-06-01	1 of 32	
Author:	Checked by:			Approved by:	
Grzegorz Gajoch	Michał Gumiela			Piotr Kuligowski	
File name: PLD_RadFET_Supply.SchDoc					

A

A

B

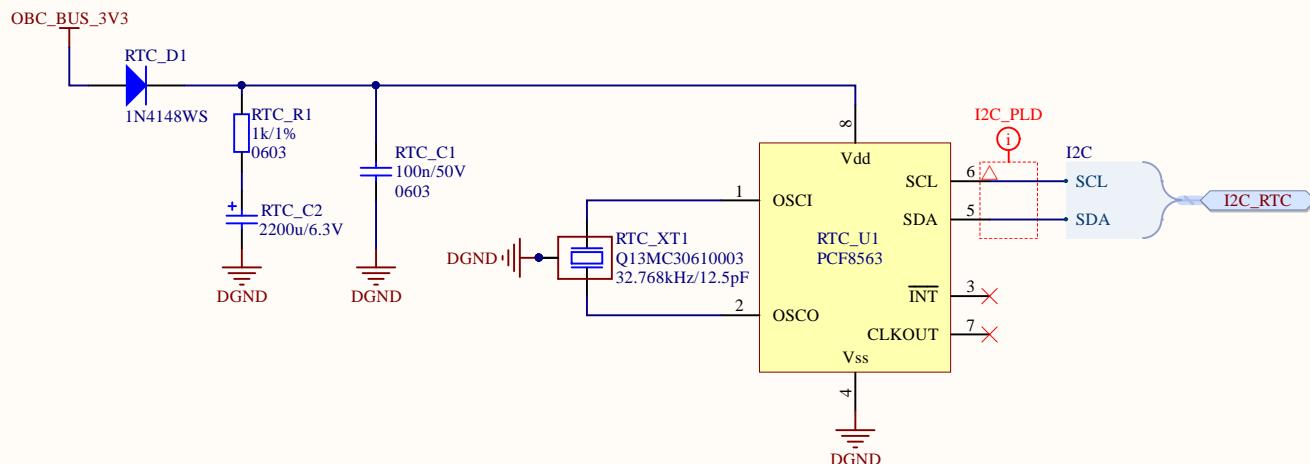
B

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Project:		PLD / Main Board / DM1			
Title:		Main Board / RTC			
Model:	Document Number:	Rev:	Date:	Sheet:	
DM1	PWSat2-xxx-DW-xxx	1	2017-06-01	* of	32
Author:	Checked by:		Approved by:		
Grzegorz Gajoch	Michał Gumiela		Piotr Kuligowski		
File name: PLD_RTC.SchDoc					

A

A

B

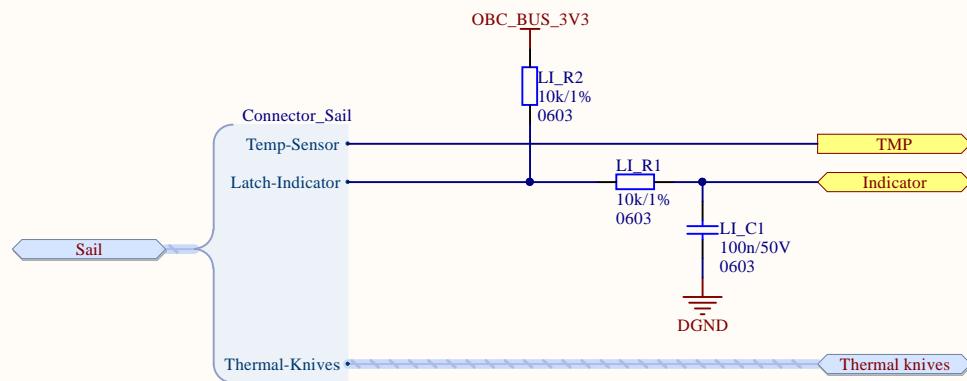
B

C

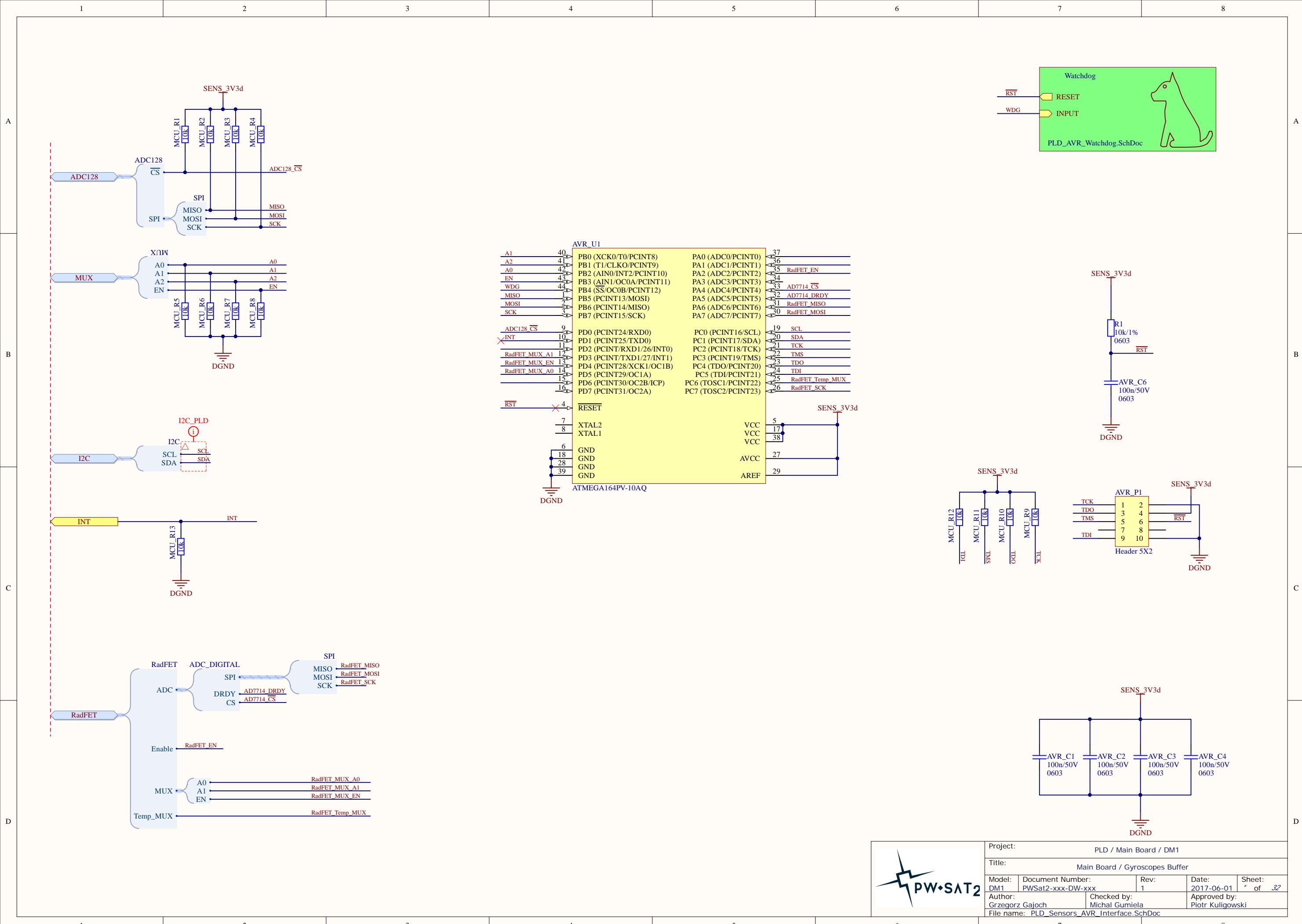
C

D

D



Project: PLD / Main Board / DM1					
Title: Main Board / Latch Indicator Interface for Sail					
Model: DM1	Document Number: PWSat2-xxx-DW-xxx	Rev: 1	Date: 2017-06-01	Sheet: 1 of 32	
Author: Grzegorz Gajoch		Checked by: Michal Gumiela		Approved by: Piotr Kuligowski	
File name: PLD_Sail_Interface.SchDoc					



A

A

B

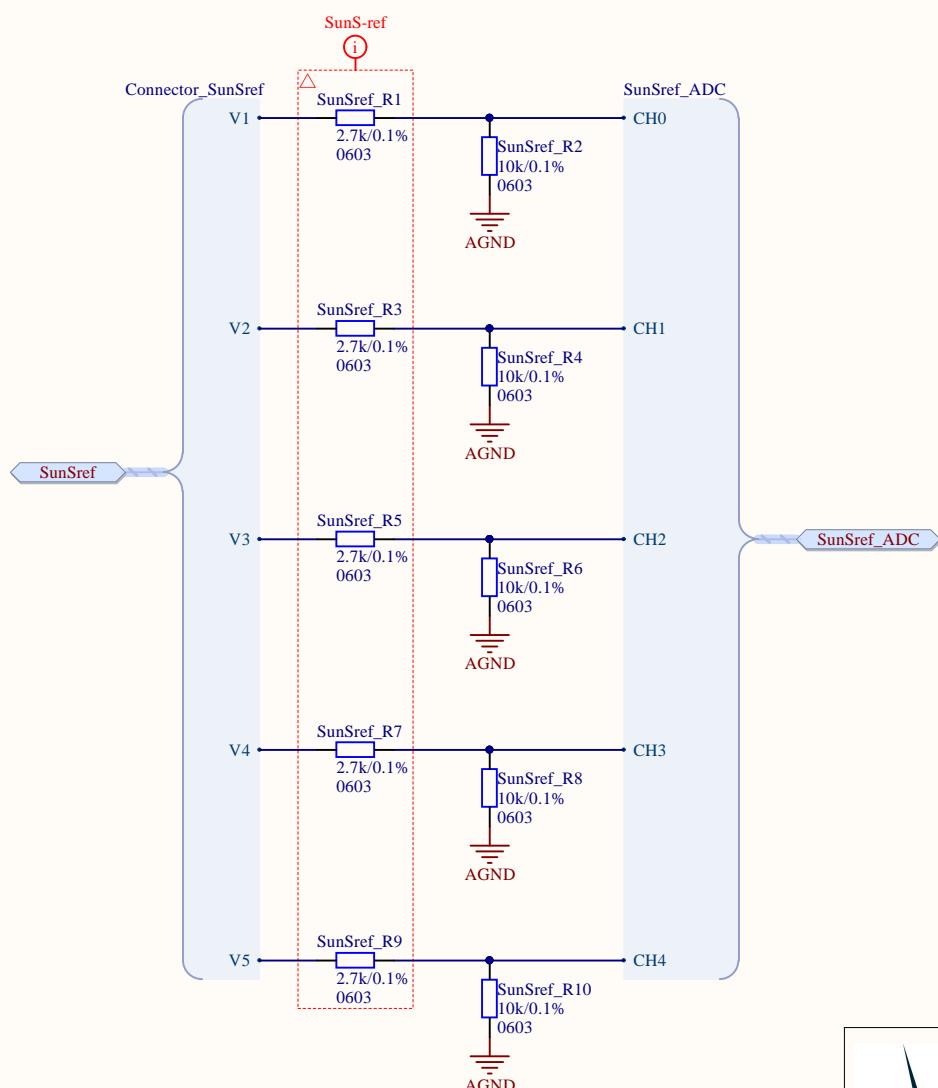
B

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Project: PLD / Main Board / DM1					
Title: Main Board / SunS Ref. Interface					
Model: DM1	Document Number: PWSat2-xxx-DW-xxx	Rev: 1	Date: 2017-06-01	Sheet: 1 of 32	
Author: Grzegorz Gajoch	Checked by: Michal Gumiela		Approved by: Piotr Kuligowski		
File name: PLD_SunSref-Interface.SchDoc					

A

A

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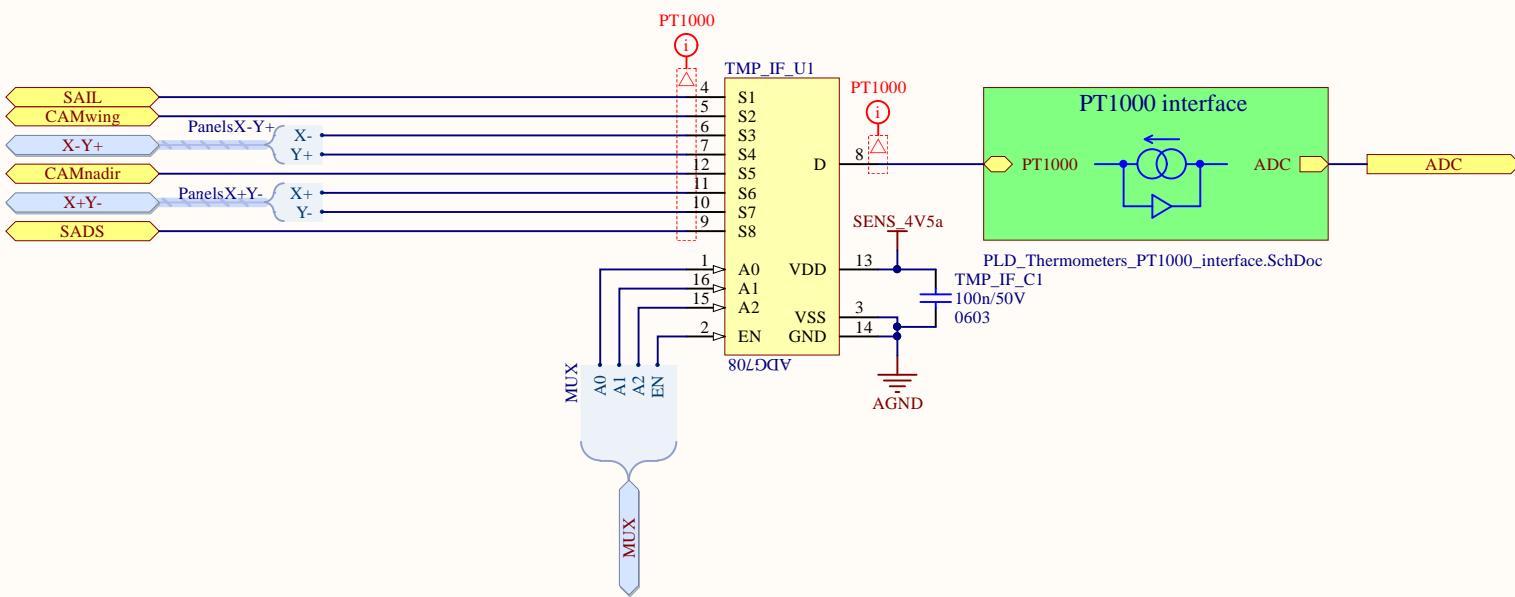
B

C

C

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D



Project: PLD / Main Board / DM1					
Title: Main Board / Thermometers					
Model: DM1	Document Number: PWSat2-xxx-DW-xxx	Rev: 1	Date: 2017-06-01	Sheet: 1 of 32	
Author: Grzegorz Gajoch	Checked by: Michal Gumiela		Approved by: Piotr Kuligowski		
File name: PLD Thermometers_PT1000.SchDoc					

A

A

B

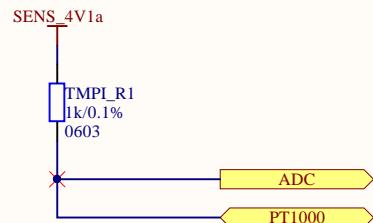
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C

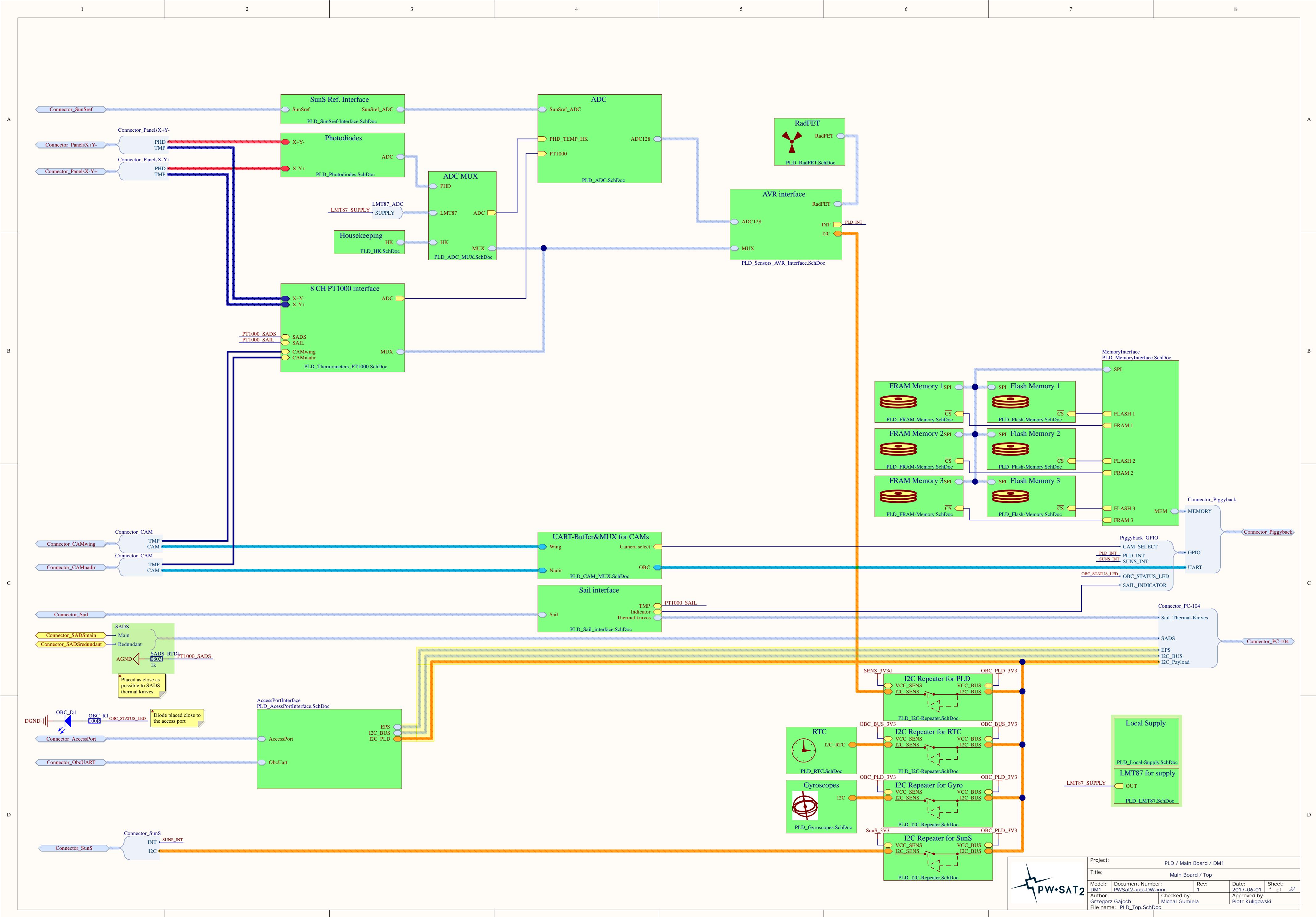
C

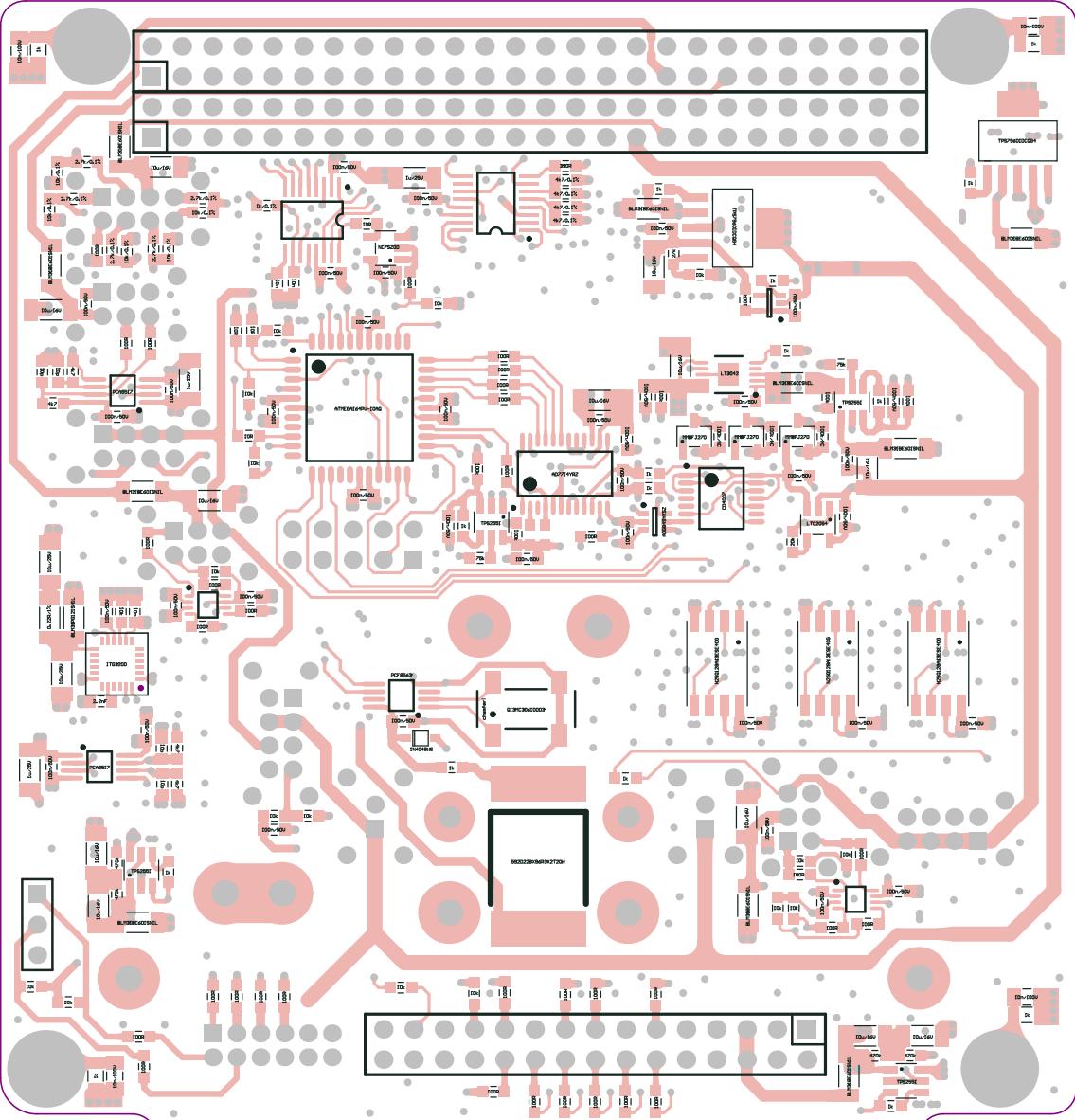
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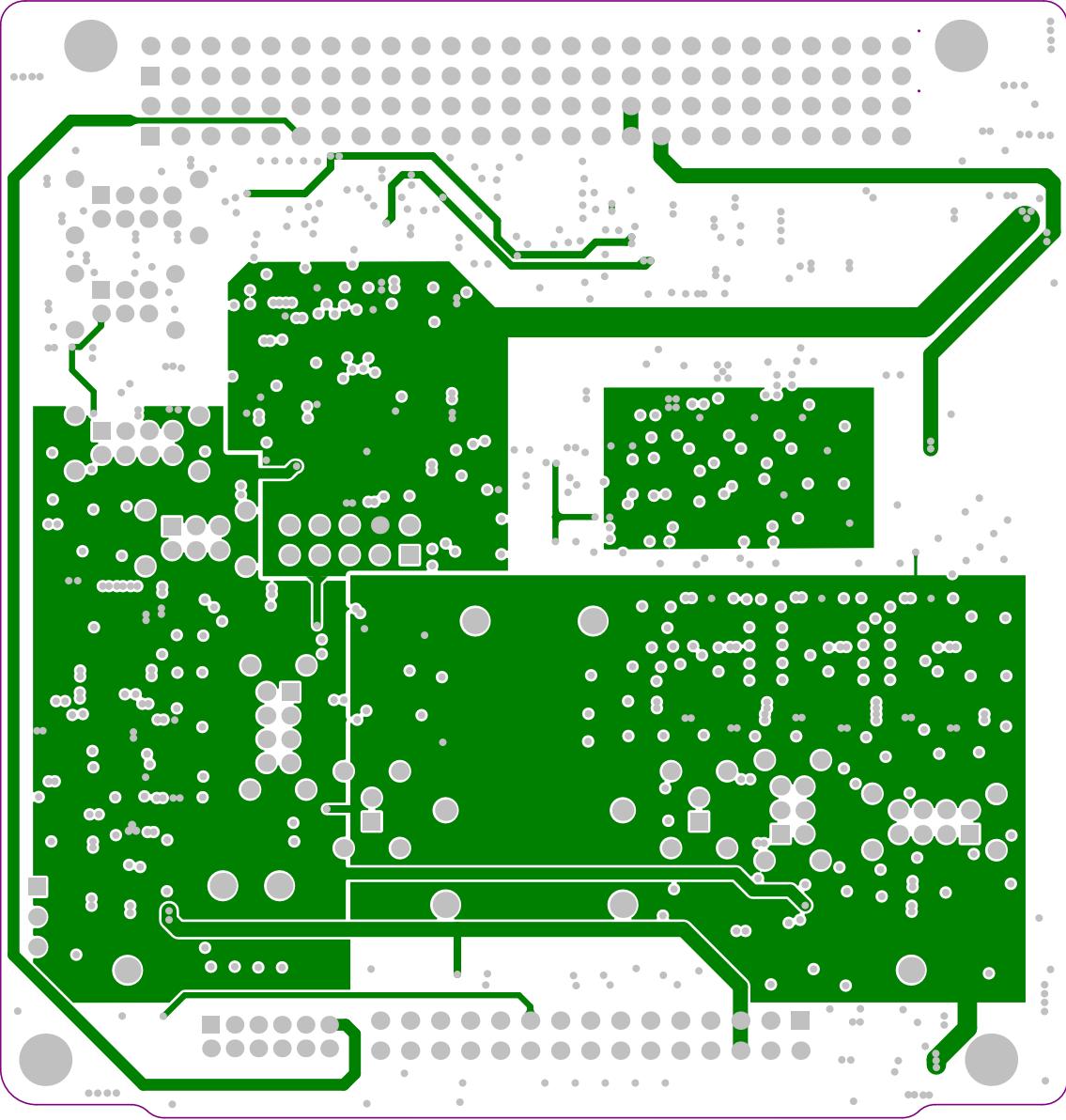
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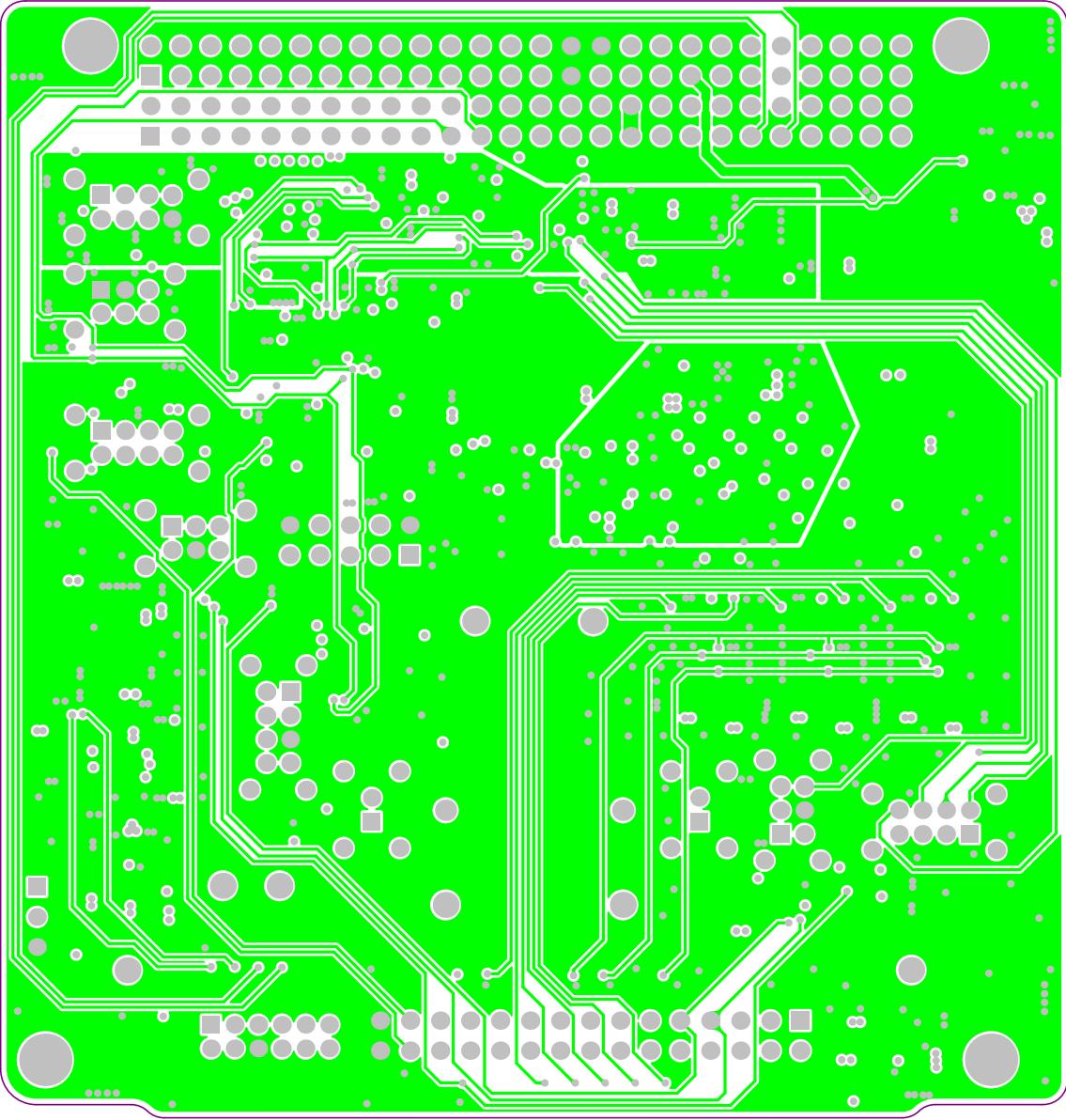


Project: PLD / Main Board / DM1					
Title: Main Board / Thermometers					
Model: DM1	Document Number: PWSat2-xxx-DW-xxx	Rev: 1	Date: 2017-06-01	Sheet: 32	
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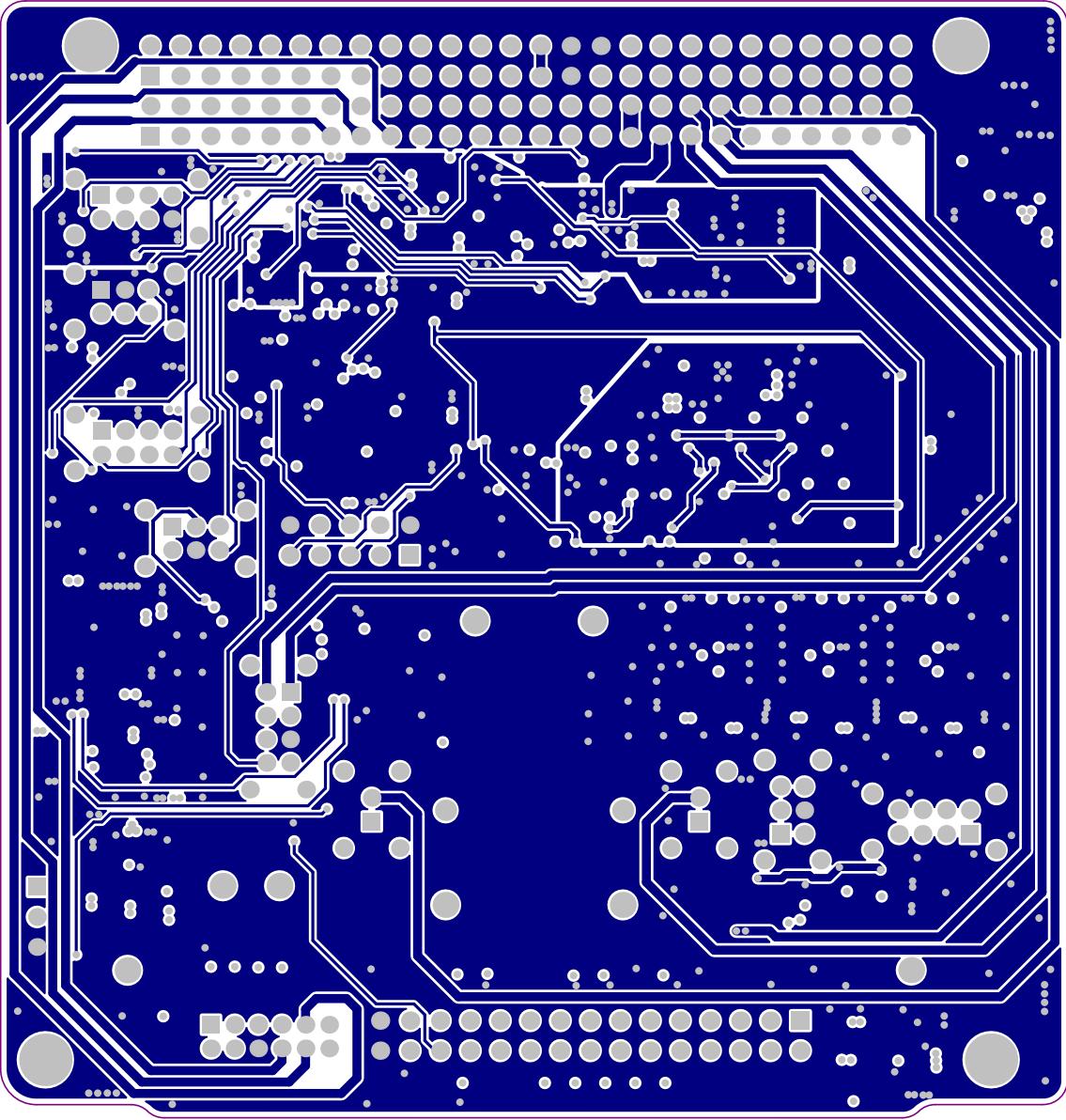


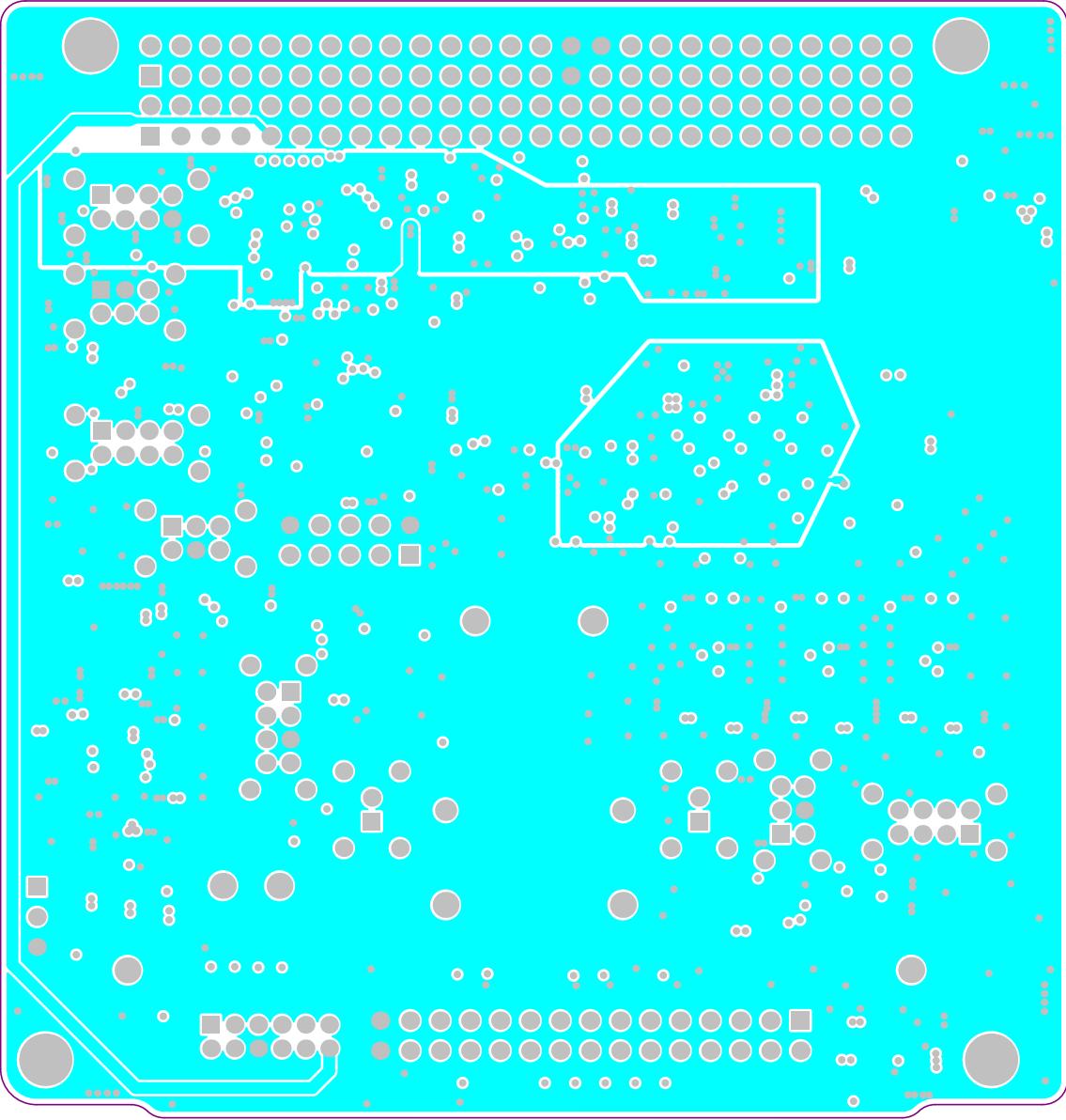












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