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D

Project Title: UAARG Autopilot.PrjPcb

Revision: 2.0      Date: 20-DEC-2015

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Blocks

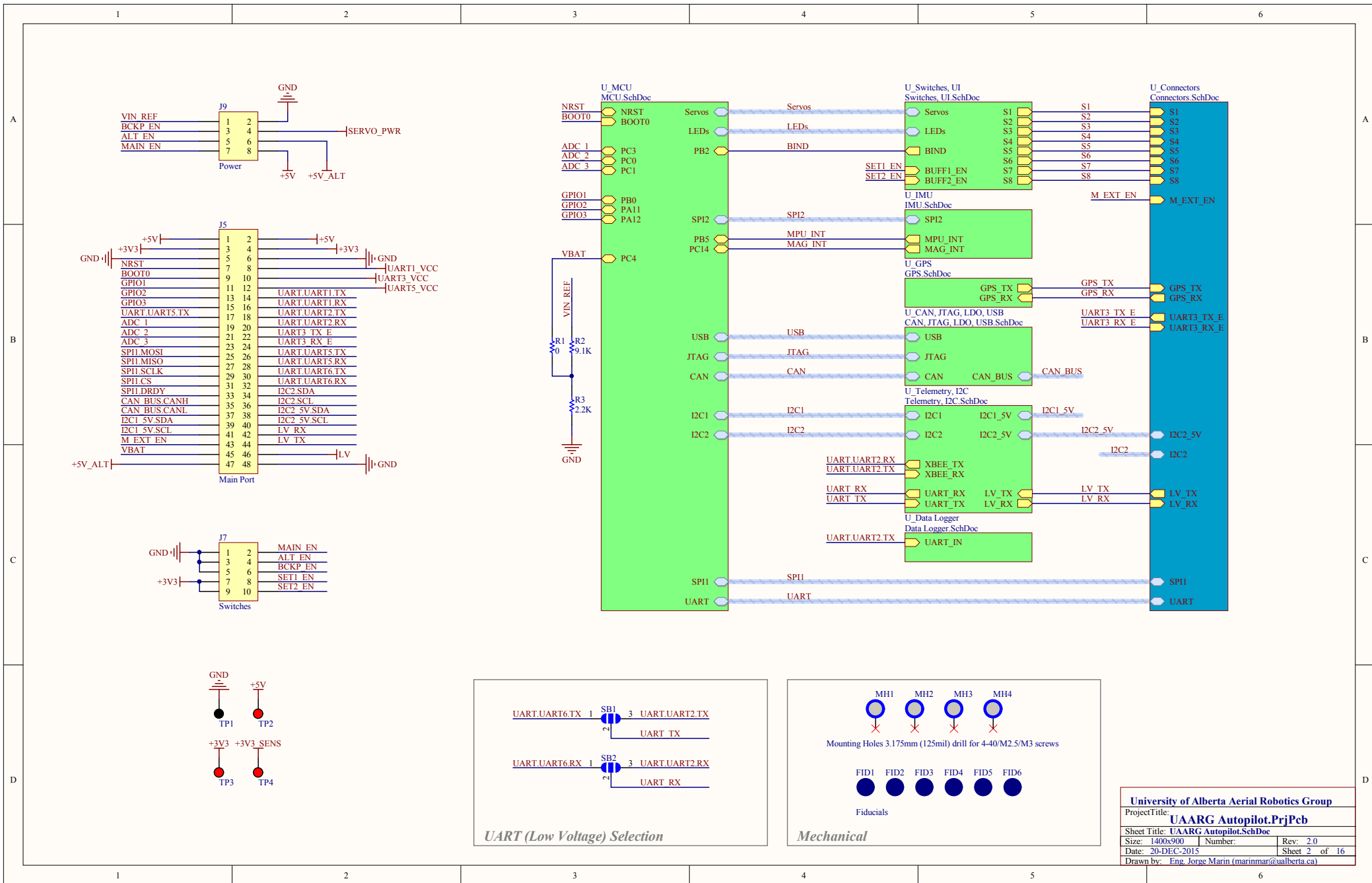
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UAARG Autopilot.SchDoc

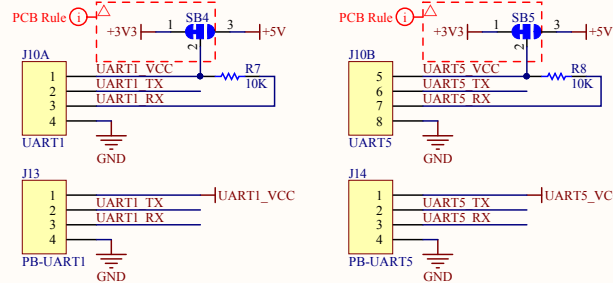
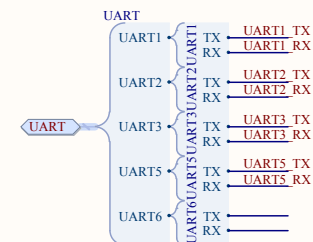
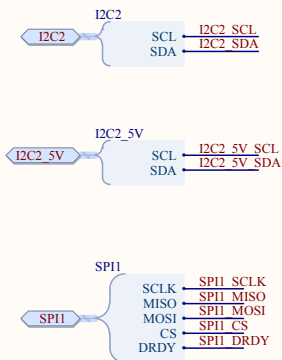
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Power.SchDoc

U\_Notes  
Notes.SchDoc

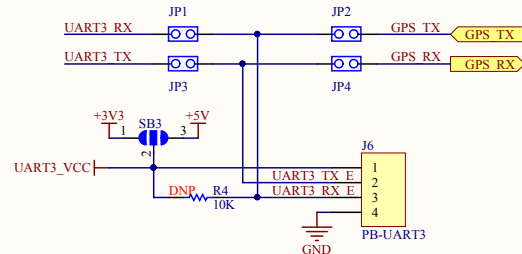
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U\_Revision History  
Revision History.SchDoc

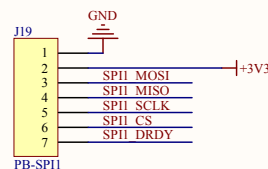




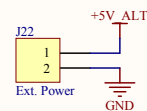
*UART1 & UART5 (RC)*



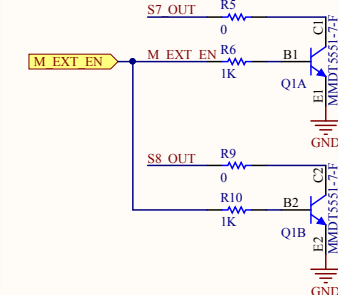
*UART3 (GPS)*



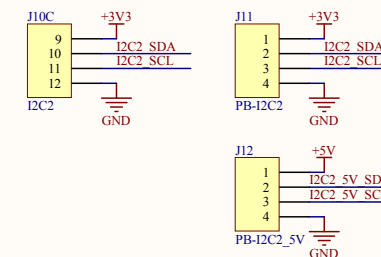
*SPI1*



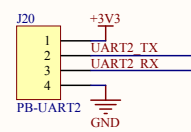
*External Power*



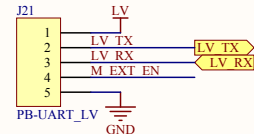
*Motor(s) External Shutdown*



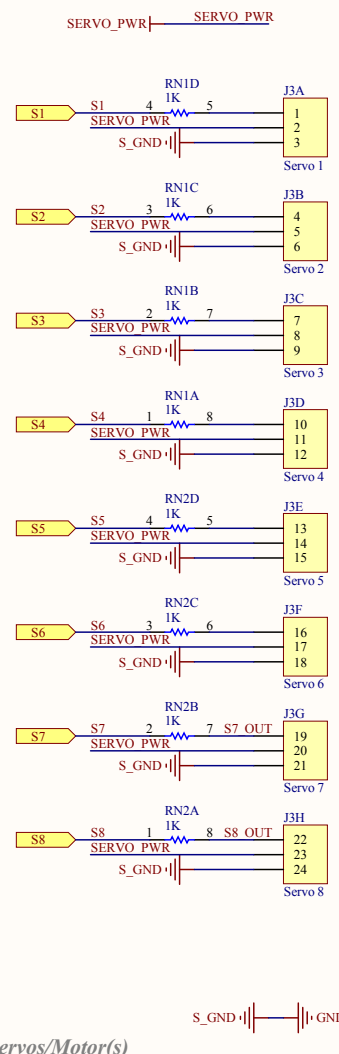
*I2C2*



*UART2 (Telemetry)*

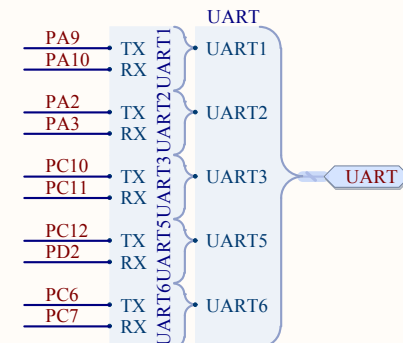
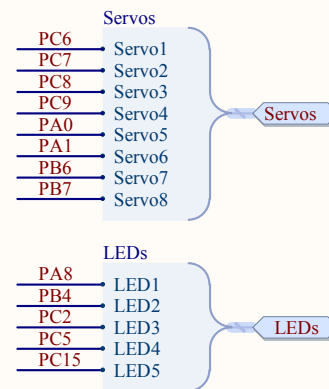
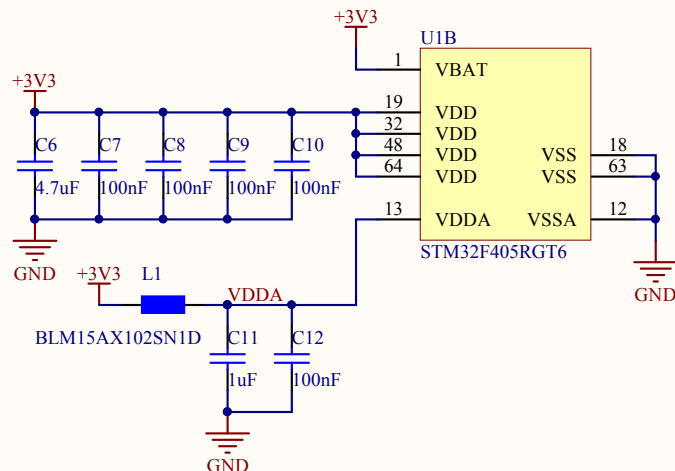
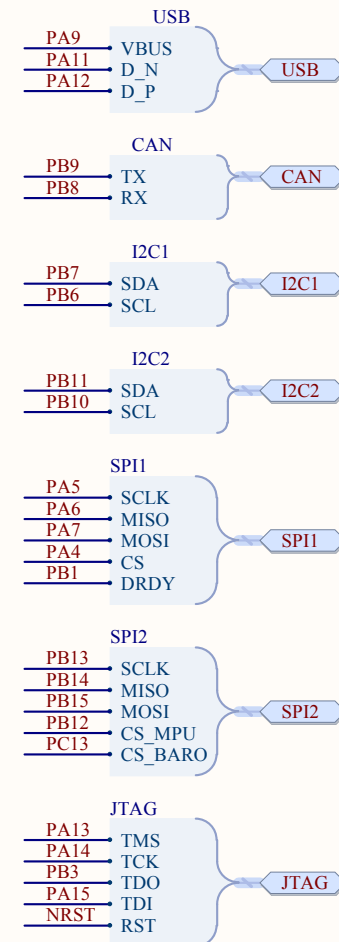
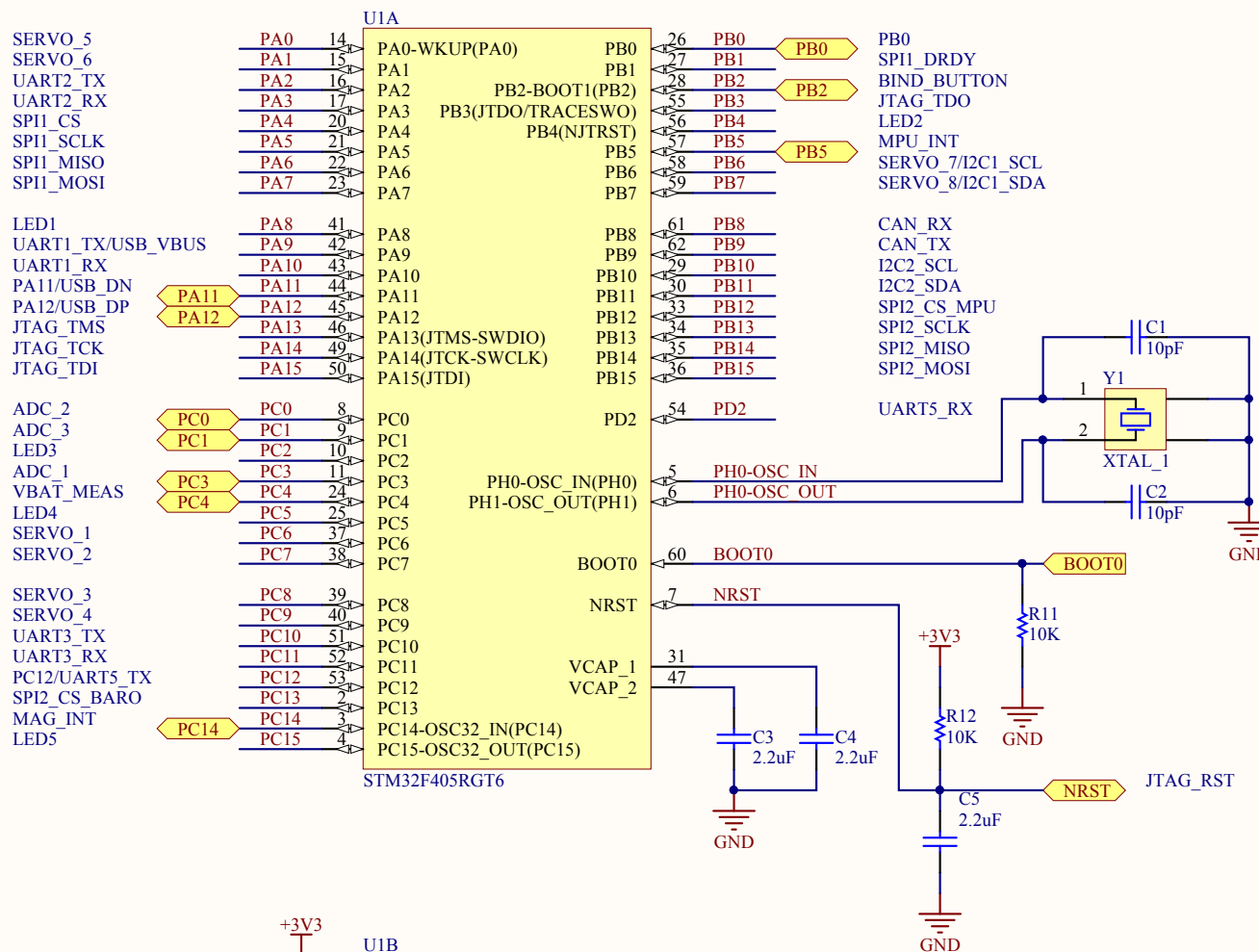


*UART (External Voltage Level)*



*Servos/Motor(s)*

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Project Title: UAARG Autopilot.PrjPcb		
Sheet Title: Connectors.SchDoc		
Size: 1400x900	Number:	Rev: 2.0
Date: 20-DEC-2015	Sheet 3 of 16	
Drawn by: Eng. Jorge Marin (marinmar@ualberta.ca)		



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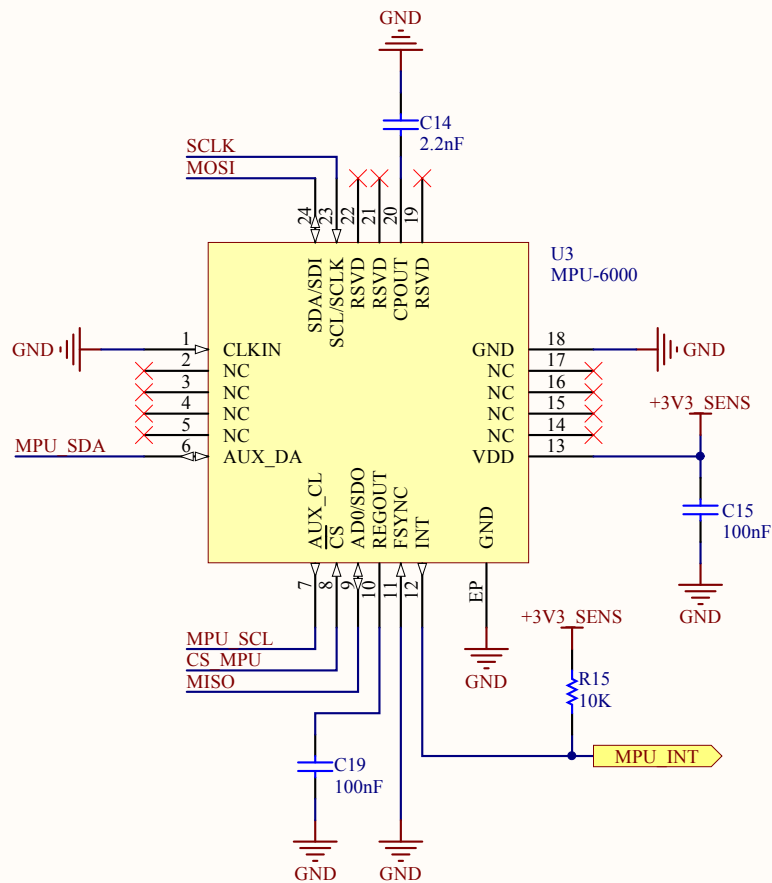
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Sheet Title: MCU.SchDoc

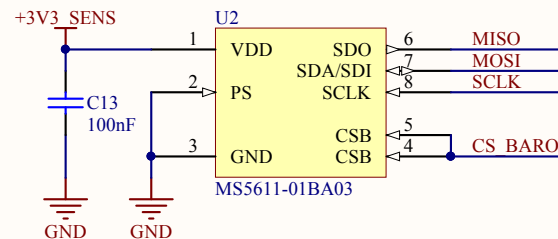
Size: A Number: Rev: 2.0

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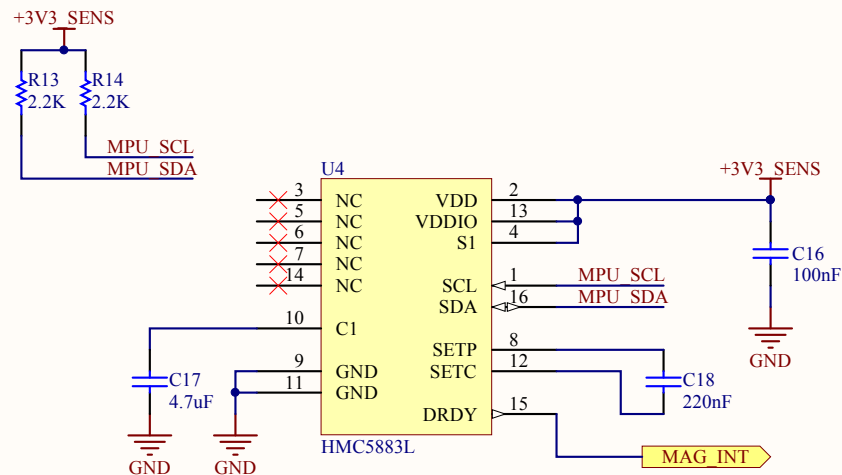
Drawn by: Eng. Jorge Marin (marinmar@ualberta.ca)



Accelerometer & Gyroscope



Barometer



Magnetometer

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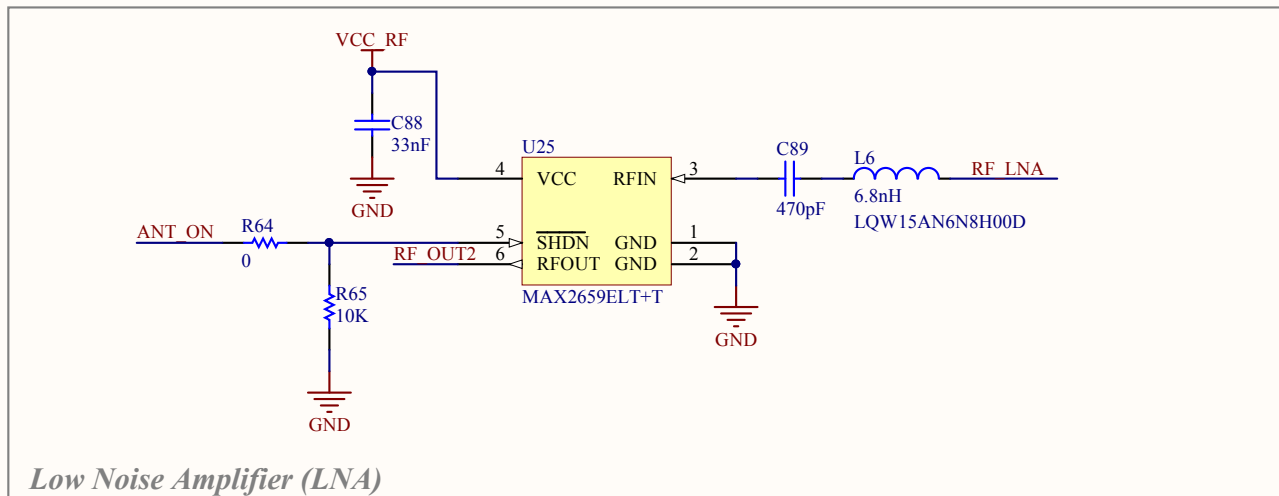
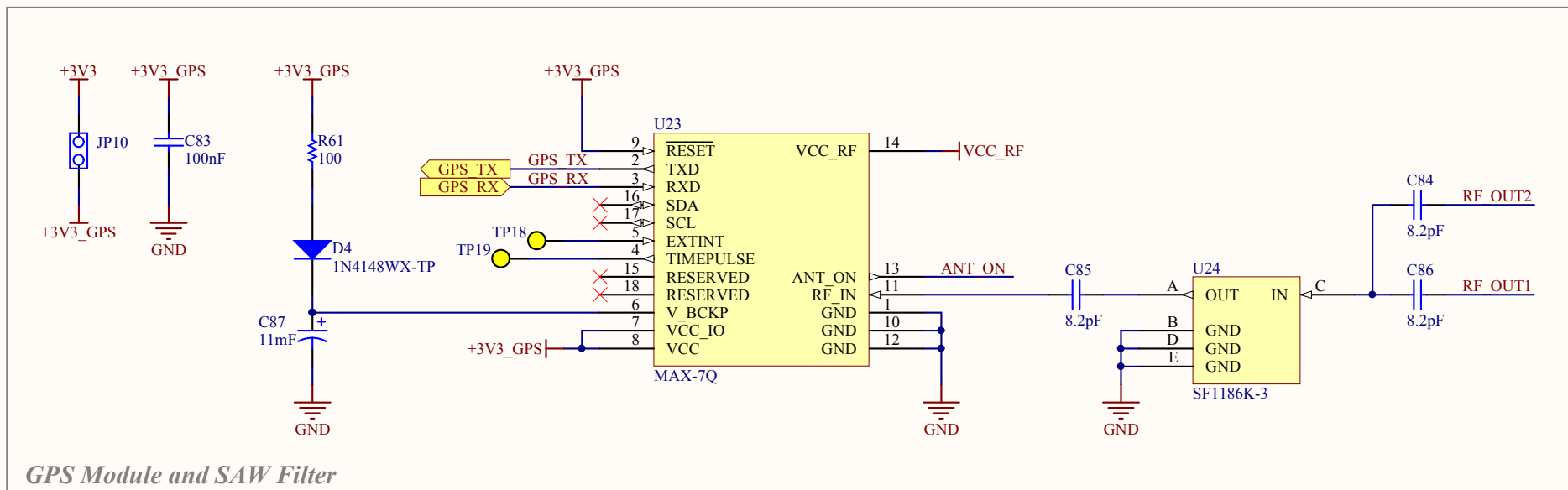
ProjectTitle: UAARG Autopilot.PrjPcb

Sheet Title: IMU.SchDoc

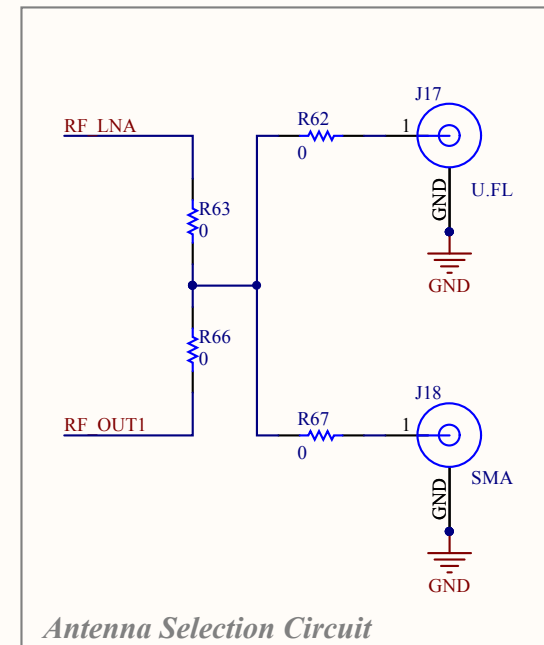
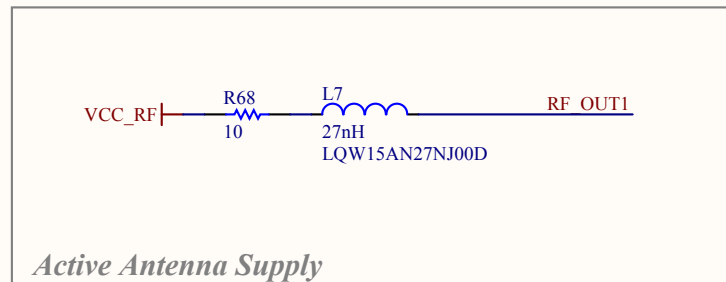
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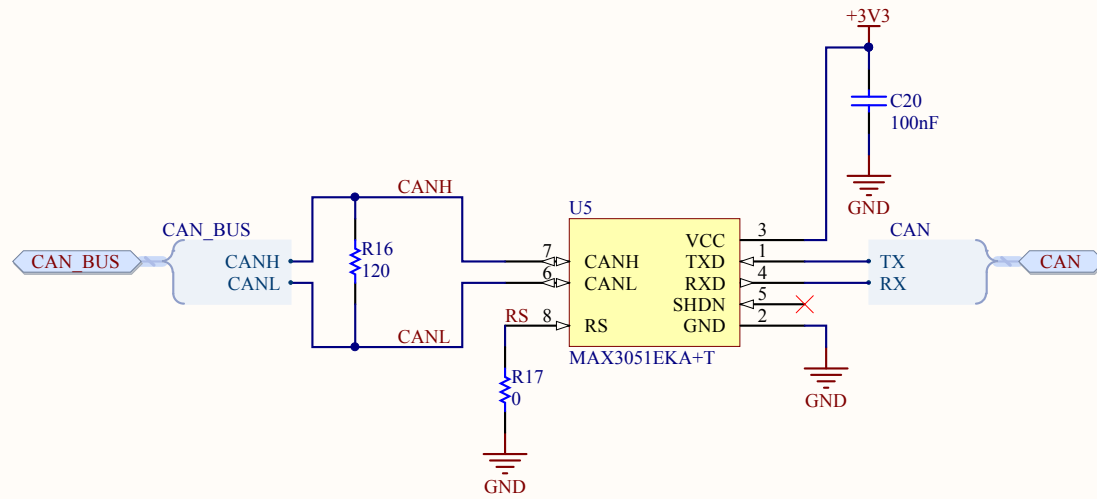
Drawn by: Eng. Jorge Marin (marinmar@ualberta.ca)



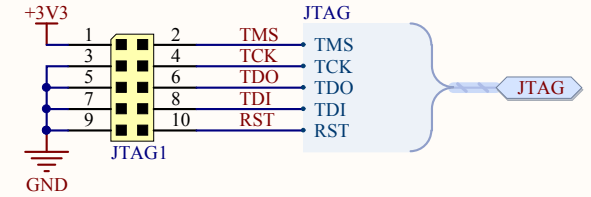
[1] Antenna traces require 50ohm impedance all the way through from the GPS module to the antenna connector



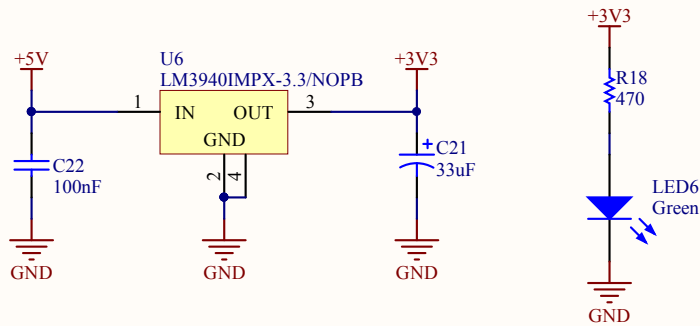
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ProjectTitle: <b>UAARG Autopilot.PrjPcb</b>		
Sheet Title: <b>GPS.SchDoc</b>		
Size: <b>A</b>	Number:	Rev: <b>2.0</b>
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Drawn by: <b>Eng. Jorge Marin (marinmar@ualberta.ca)</b>		



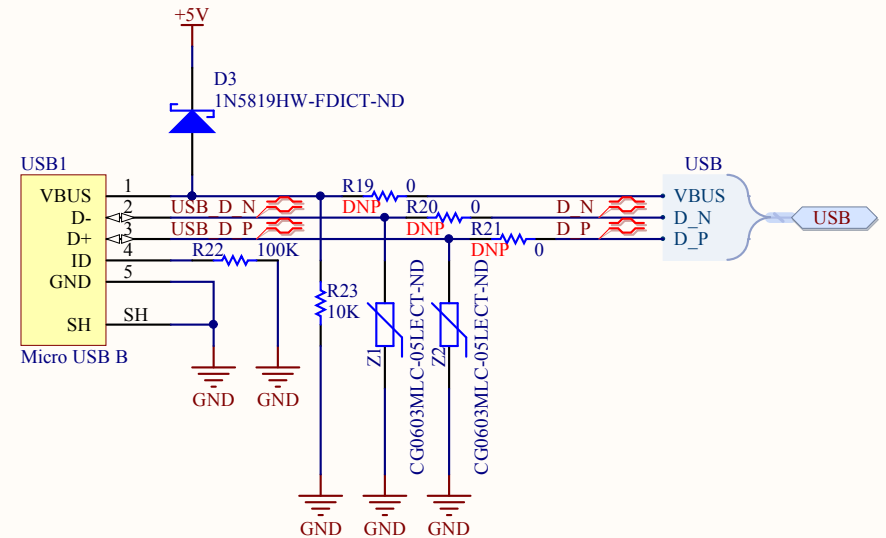
*CAN Transceiver*



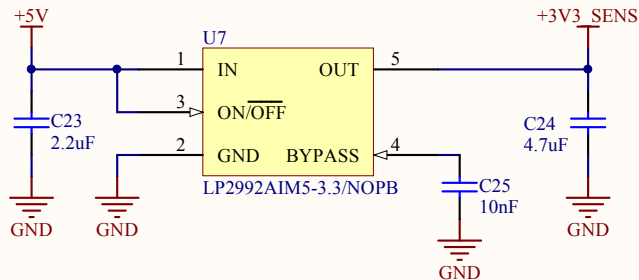
*JTAG*



*LDO Voltage Regulator (Main)*

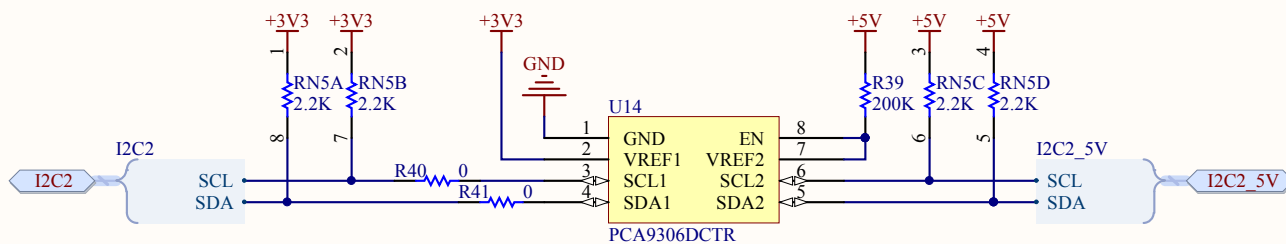
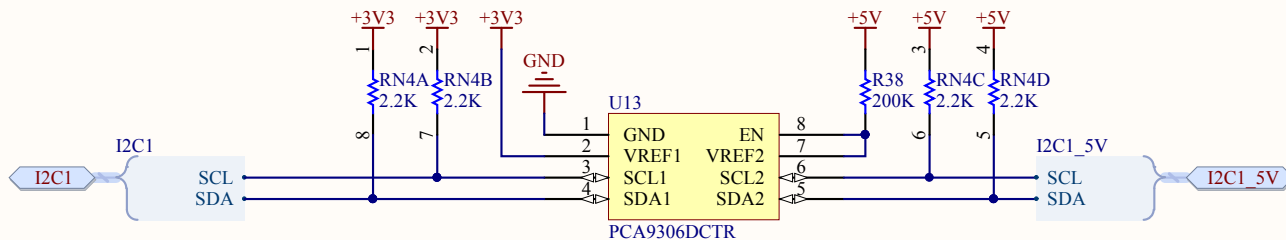
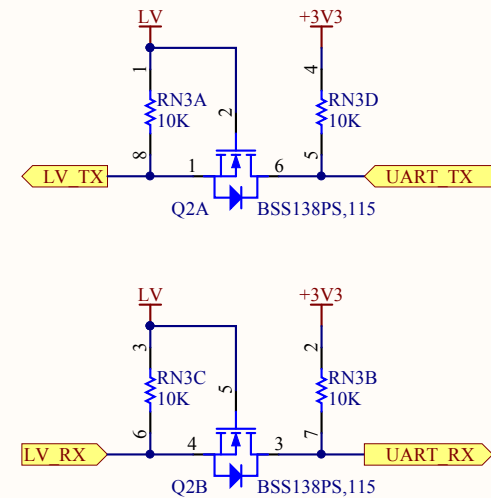
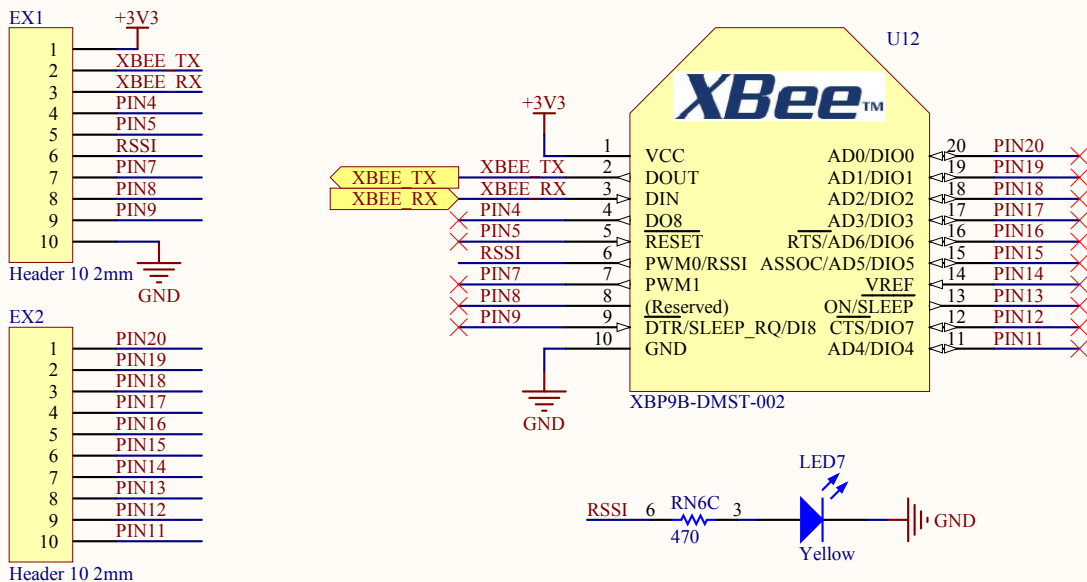


*USB*



*LDO Voltage Regulator (Sensors)*

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ProjectTitle: <b>UAARG Autopilot.PrjPcb</b>		
Sheet Title: <b>CAN, JTAG, LDO, USB.SchDoc</b>		
Size: <b>A</b>	Number:	Rev: <b>2.0</b>
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Drawn by: <b>Eng. Jorge Marin (marinmar@ualberta.ca)</b>		



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ProjectTitle: UAARG Autopilot.PrjPcb

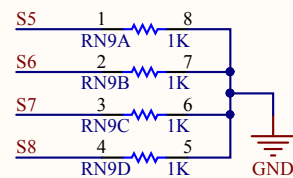
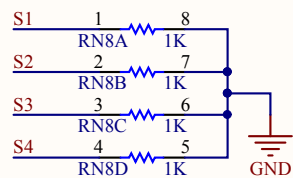
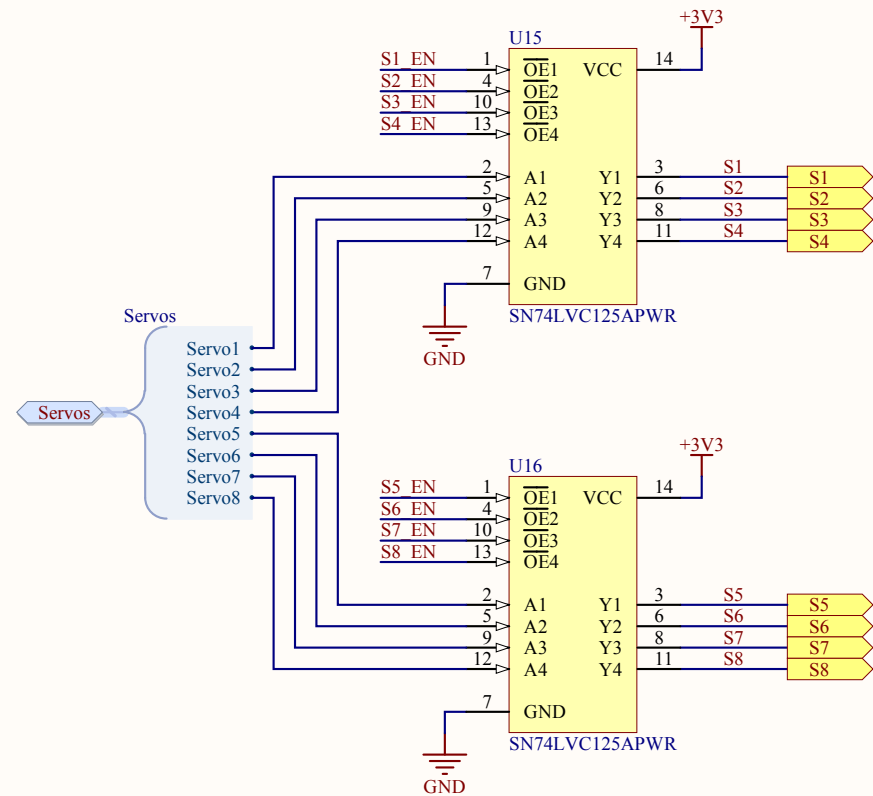
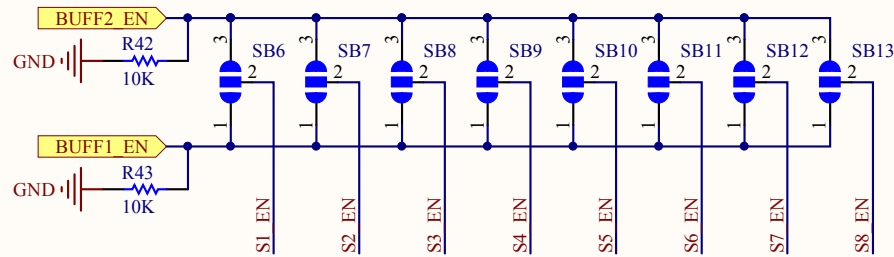
Sheet Title: Telemetry, I2C.SchDoc

Size: A Number: Rev: 2.0

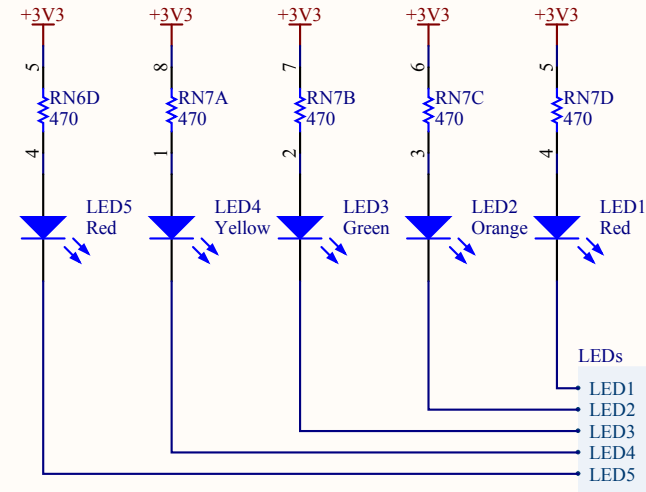
Date: 20-DEC-2015 Sheet 8 of 16

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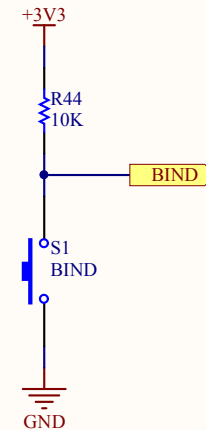




*Servo/Motor Signals Enable Switches*

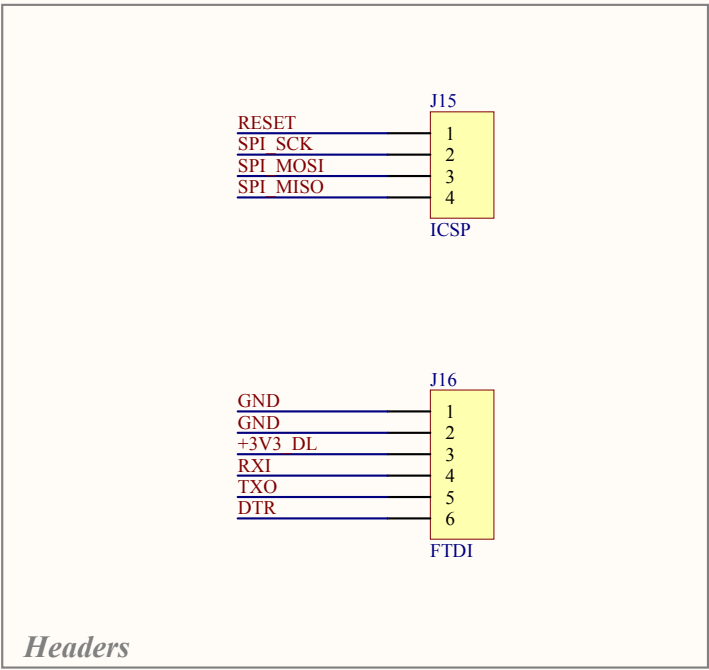
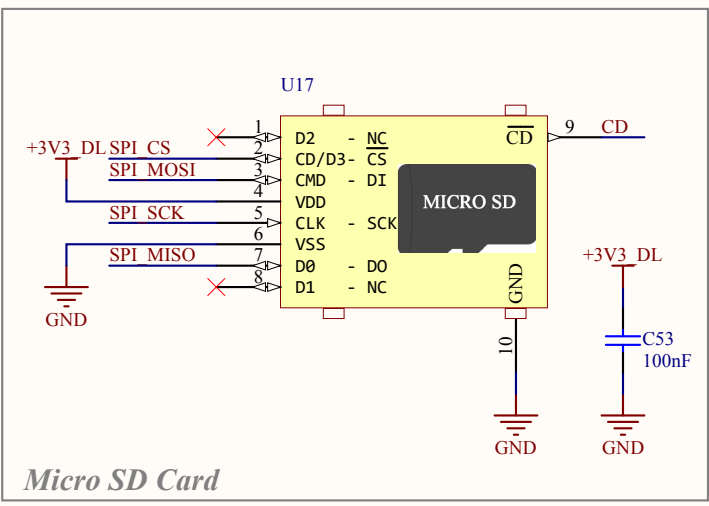
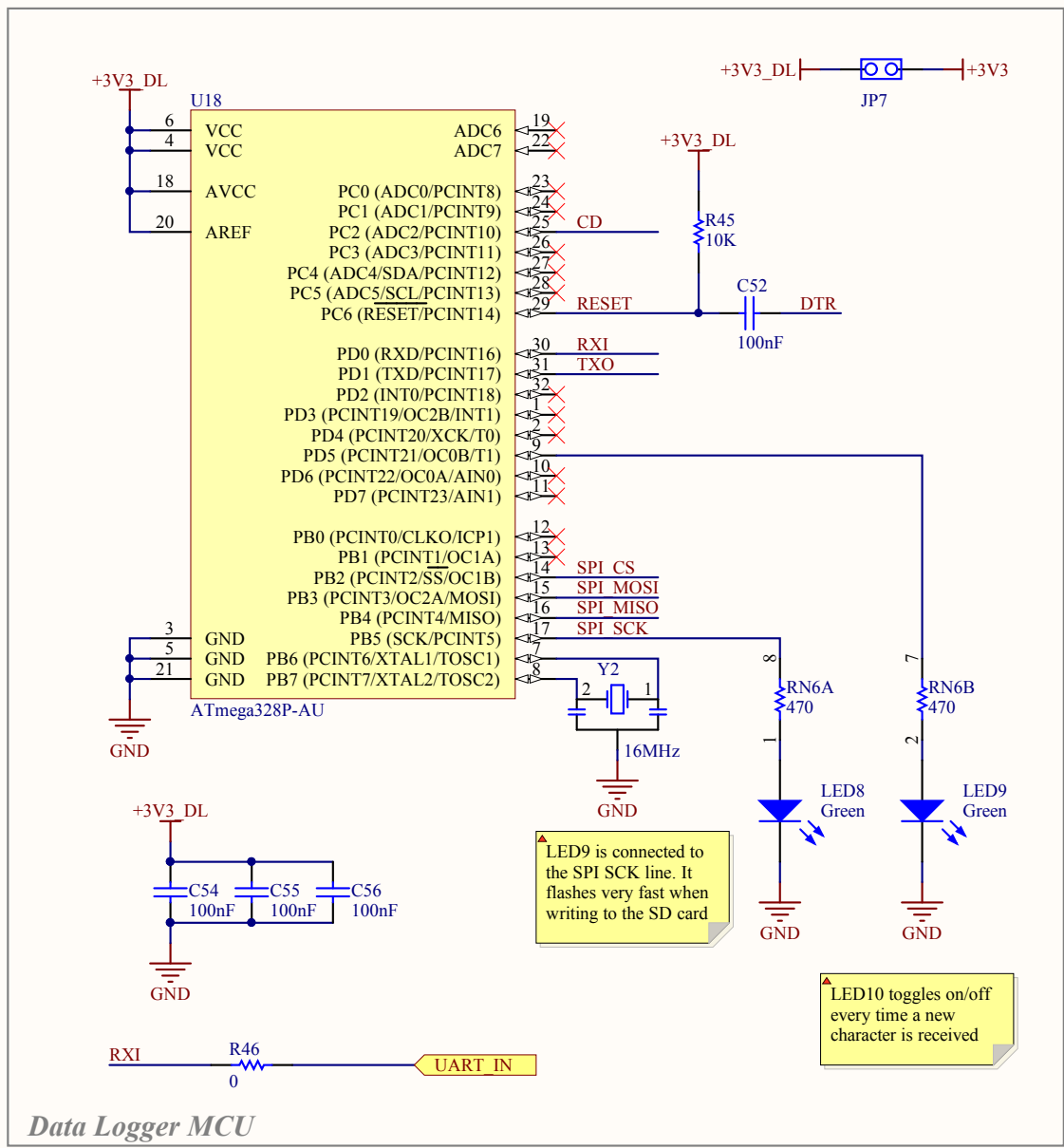


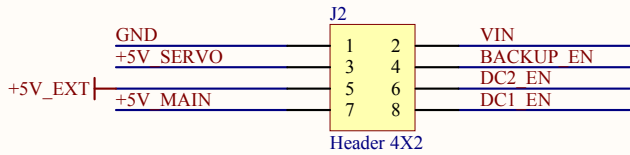
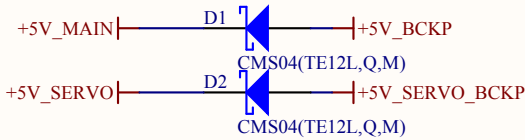
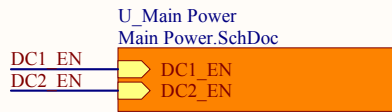
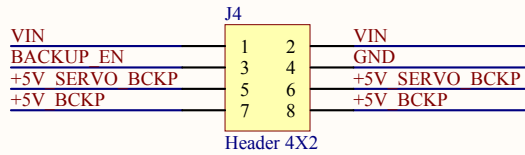
*LEDs*



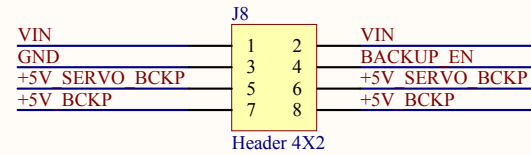
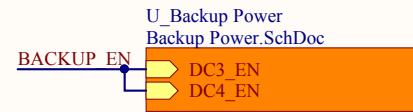
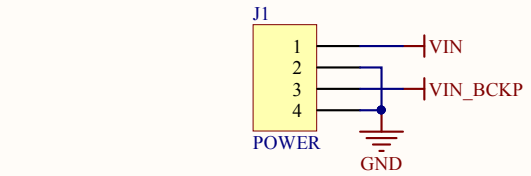
*Bind Button*

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Sheet Title: Switches, UI.SchDoc		
Size: A	Number:	Rev: 2.0
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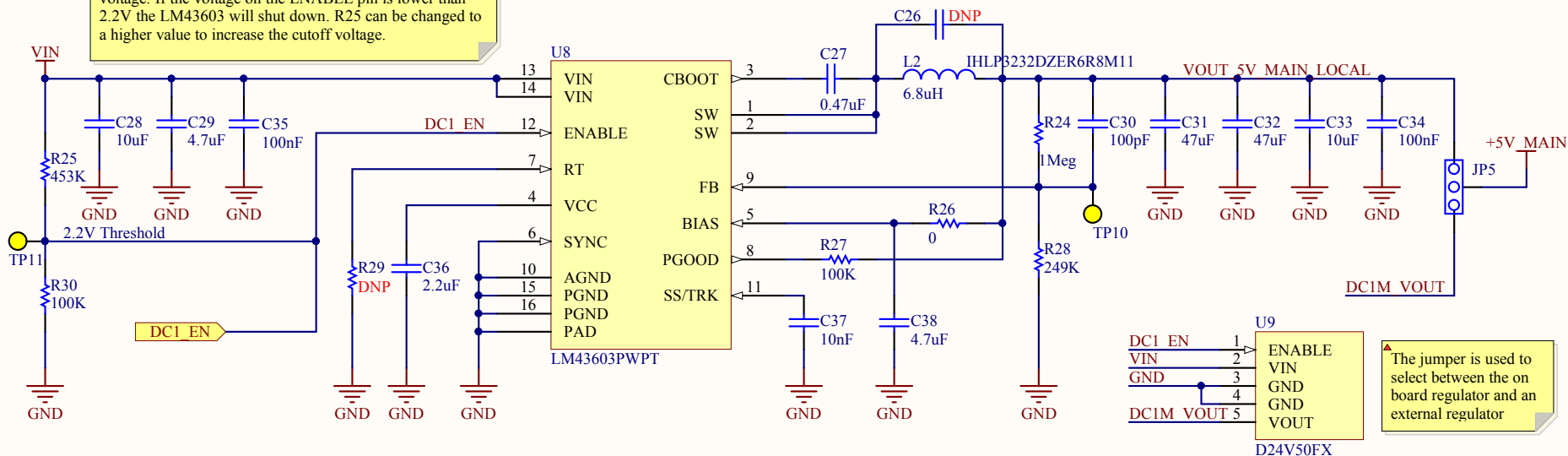
*Main Power*



*Backup Power*

<b>University of Alberta Aerial Robotics Group</b>		
ProjectTitle: <b>UAARG Autopilot.PrjPcb</b>		
Sheet Title: <b>Power.SchDoc</b>		
Size: <b>A</b>	Number:	Rev: <b>2.0</b>
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▲ R25 and R30 form a voltage divider used for cutoff voltage. If the voltage on the ENABLE pin is lower than 2.2V the LM43603 will shut down. R25 can be changed to a higher value to increase the cutoff voltage.





### General Notes

General notes relating to the design.

Note No.	Description

### PCB Layout Requirements

Layout notes referring to specific components or group of components are indicated on the schematics by the note number, enclosed in braces, adjacent to the component. Eg [1].

[Number]	Description
[1]	GPS antenna traces require 50ohm impedance.

### PCB Assembly Variations

List of assembly variations. Variants are designated with a letter starting from A. The description shows the Variant name in brackets and then any comments.

Variant	Description
A	[w/o headers] All SMT components soldered. Through-hole headers are not included.
B	[w/ headers] All SMT components soldered, including through-hole headers.
C	[Assembled] All components are soldered and external components are plugged. Fully assembled board.

*Copyright section (if applicable)*

**Notes**

Sheet Title:		
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Size: A	Number:	Rev: 2.0
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Drawn by: Eng. Jorge Marin (marinmar@ualberta.ca)		

SPI SLAVES AND "CHIP SELECT" PIN MAPPING

NAME	PERIPHERAL	MCU CS PIN
SPI2	MPU-6000	PB12
	MS5611-01BA03	PC13

UART PORTS MAPPING

NAME	FUNCTION	MCU PIN	DEFAULT SET
UART1	TX	PA9	-
	RX	PA10	RC Receiver 1 TX
UART2	TX	PA2	XBee RX
	RX	PA3	XBee TX
UART3	TX	PC10	GPS RX
	RX	PC11	GPS TX
UART4	TX	PA0	SERVO_5
	RX	PA1	SERVO_6
UART5	TX	PC12	GPIO PC12
	RX	PD2	RC Receiver 2 TX
UART6	TX	PC6	SERVO_1
	RX	PC7	SERVO_2

Sheet Title: <i><b>Documentation.SchDoc</b></i>		
ProjectTitle: <i><b>UAARG Autopilot.PrjPcb</b></i>		
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Size: <b>A</b>	Number:	Rev: <b>2.0</b>
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Drawn by: <b>Eng. Jorge Marin (marinmar@ualberta.ca)</b>		

	1	2	3	4							
A	<div>REVISION HISTORY</div> <table><tr><th>DATE</th><th>REVISION</th><th>DESCRIPTION</th></tr><tr><td>09-DEC-2015</td><td>1.0</td><td>Initial Release</td></tr></table>				DATE	REVISION	DESCRIPTION	09-DEC-2015	1.0	Initial Release	A
DATE	REVISION	DESCRIPTION									
09-DEC-2015	1.0	Initial Release									
B					B						
C					C						
D				<div><div>Sheet Title:</div><div>Revision History.SchDoc</div><div>ProjectTitle:</div><div>UAARG Autopilot.PrjPcb</div><div>Company:</div><div><div>Size: A</div><div>Number:</div><div>Rev: 2.0</div></div><div><div>Date: 20-DEC-2015</div><div>Sheet 16 of 16</div></div><div>Drawn by: Eng. Jorge Marin (marinmar@ualberta.ca)</div></div>	D						
	1	2	3	4							