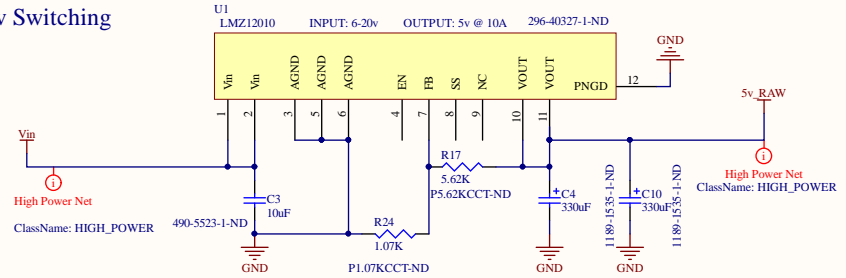
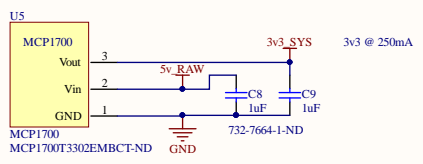


SYS 5v Switching

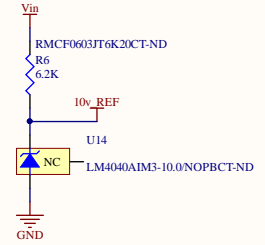


3v3 Linear



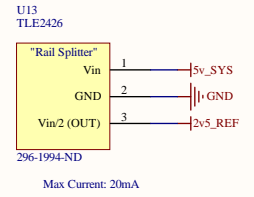
Precision Voltage References

10v Reference

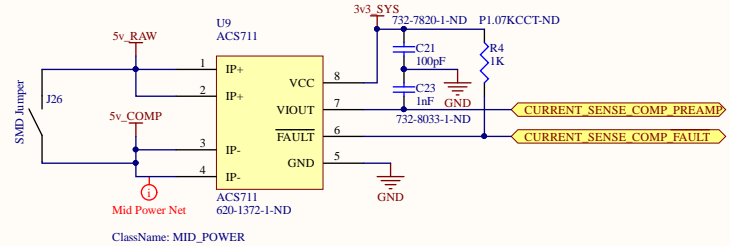
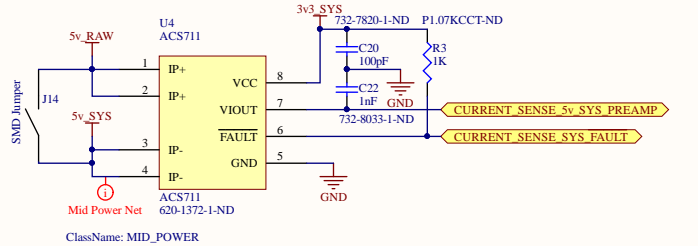
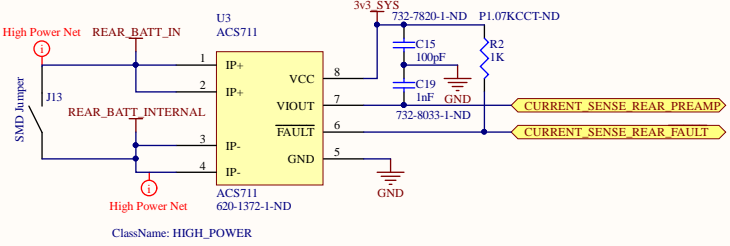
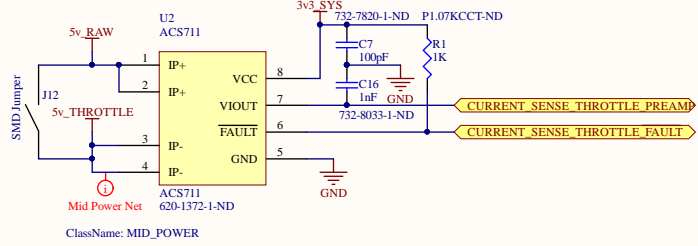


Note: Assumed calculated current of 2mA minimum required current is 100uA

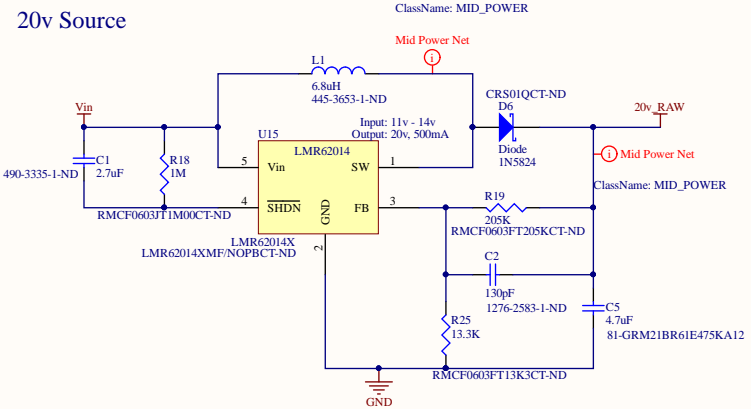
2v5v Reference



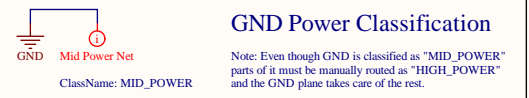
Current Sensing



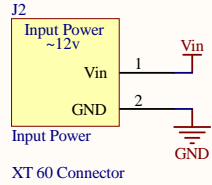
20v Source



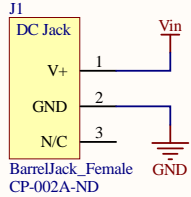
GND Power Classification



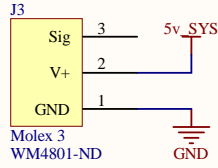
Power Input



XTend Power Output

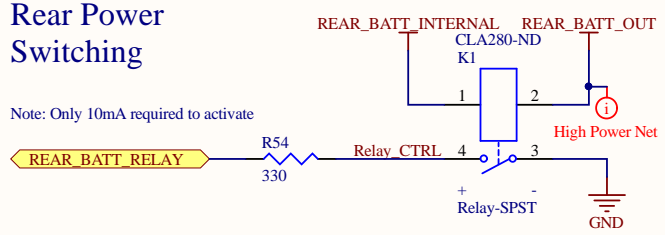


R/C Reciever

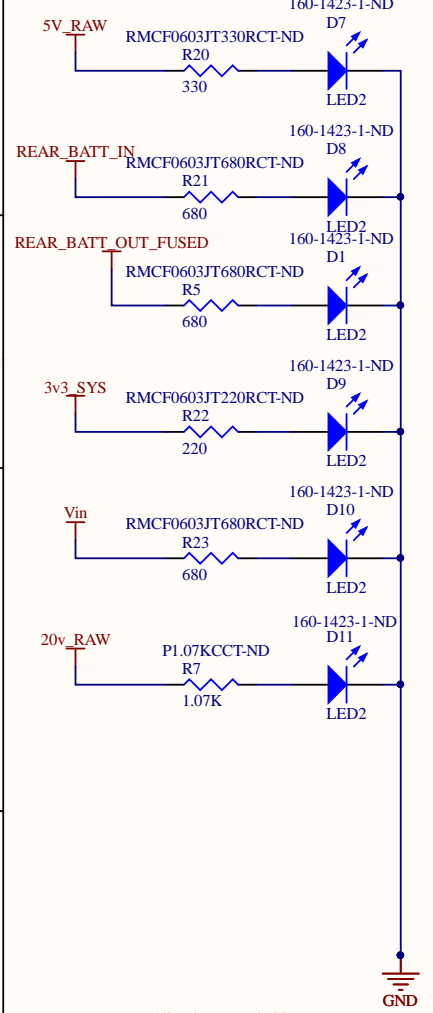


Rear Power Switching

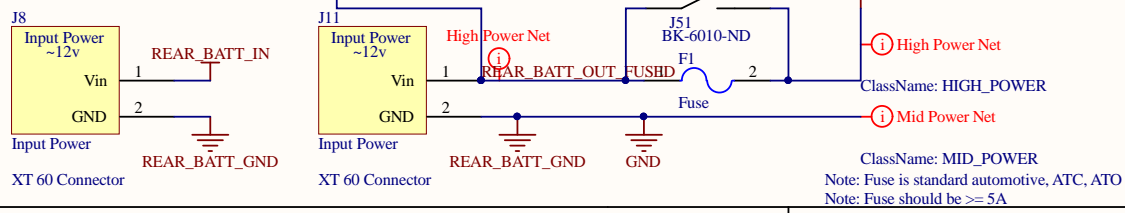
Note: Only 10mA required to activate



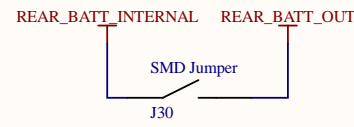
Power Status LEDs



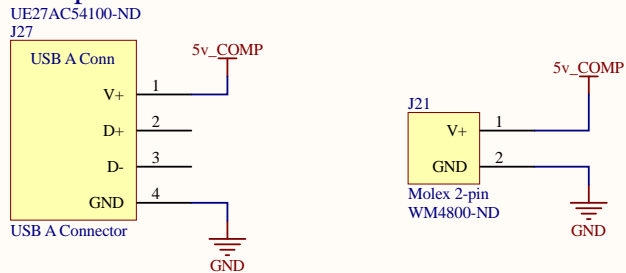
Rear Power I/O



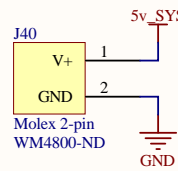
Rear Manual Bypass



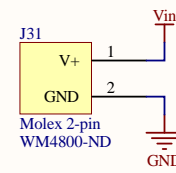
Computer Power Connection



Arduino UNO Power

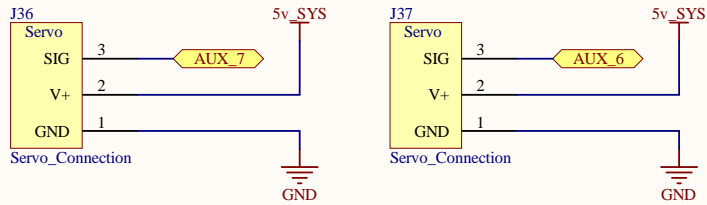


Iridium Beacon Power



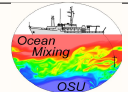
Note: Place close to input voltage

AUX Power Access Points

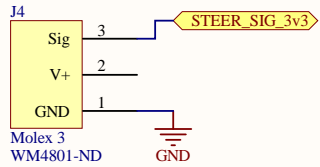


NOTE: This document uses OLD molex pinouts

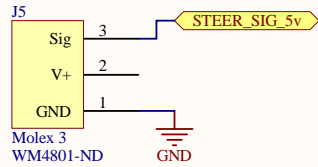
Note: All resistors are 0603

Title PowerDistribution.SchDoc			
Size: A4	Number: 2	Engineer: Nick McComb	
Date: 5/12/2016	Time: 4:37:45 PM	Sheet 2 of 8 Revision: 2.2	
File: C:\Users\nrpc_000\Google Drive\PCB Designs\ROSSPowerDistribution\PowerDistribution.SchDoc			

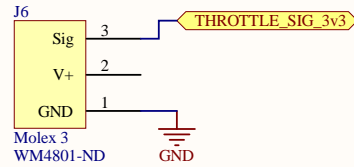
Steering Input



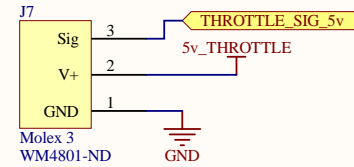
Steering Output



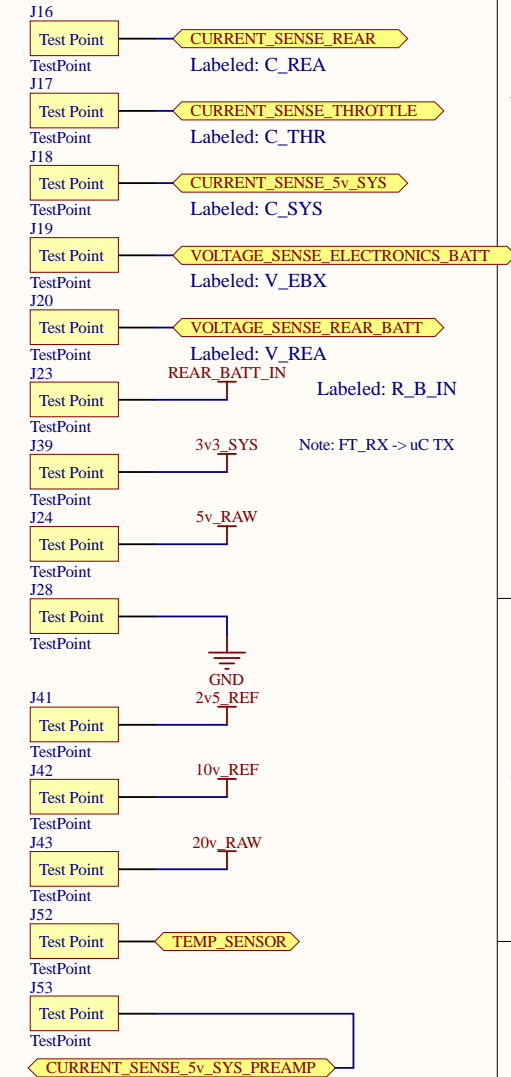
Throttle Input



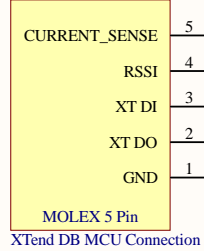
Throttle Output



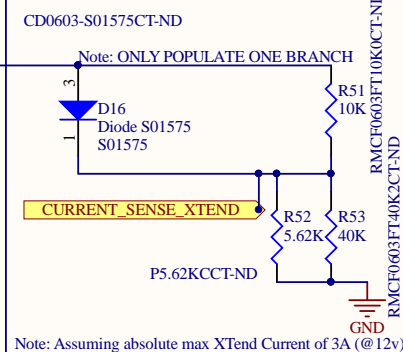
Test Points



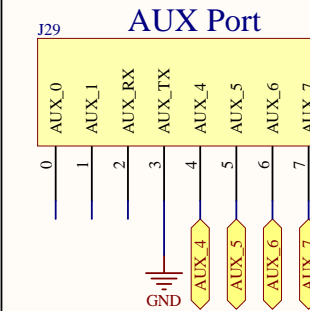
J9 WM4803-ND



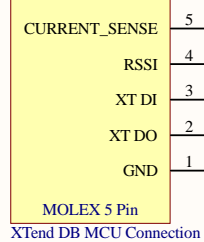
XTend Sig Input



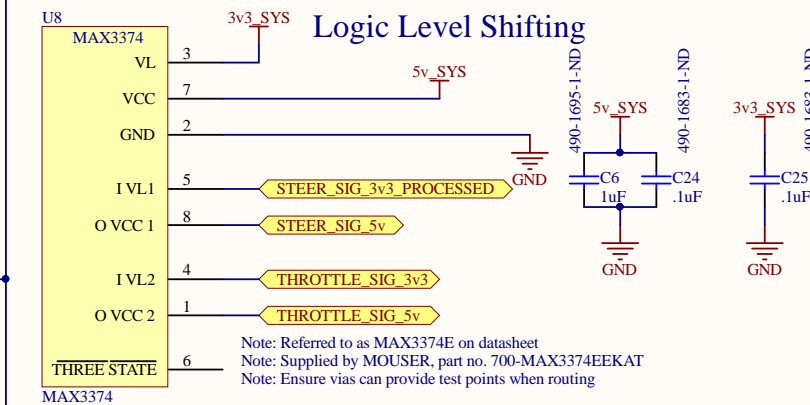
Aux Port



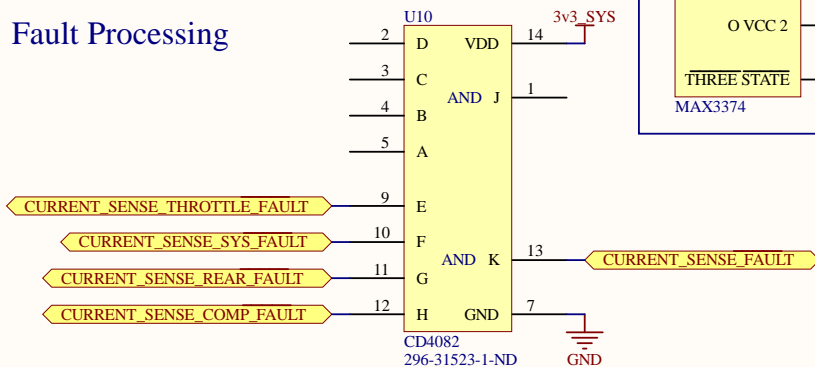
J10 WM4803-ND



XTend Sig Output



Fault Processing



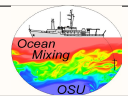
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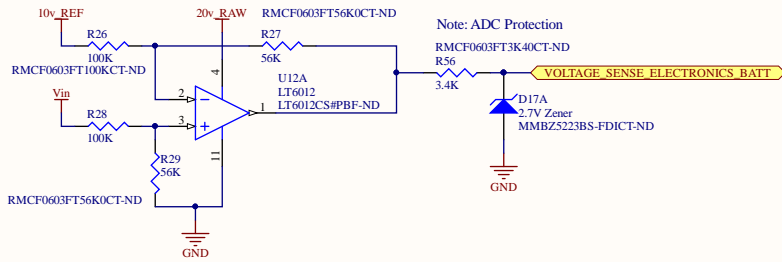
Size: A4 Number: 3 Engineer: Nick McComb

Date: 5/12/2016 Time: 4:37:45 PM Sheet 3 of 8 Revision: 2.2

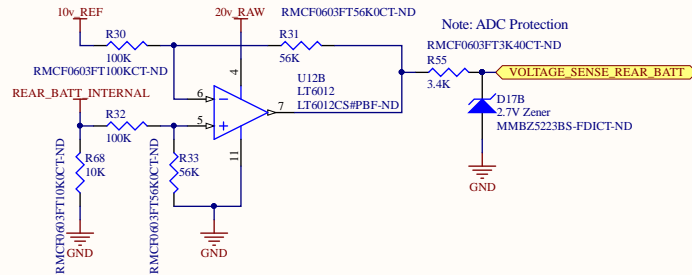
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Ocean Mixing Group
Oregon State University
Corvallis, OR





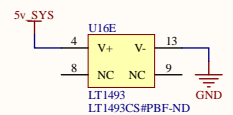
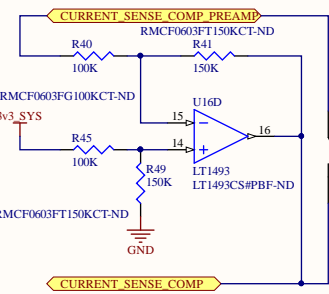
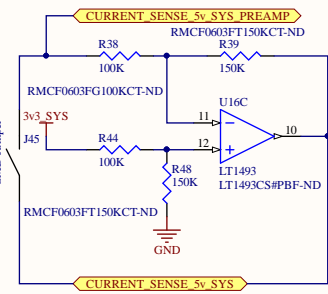
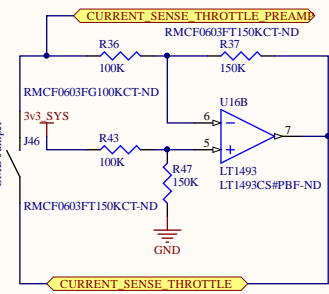
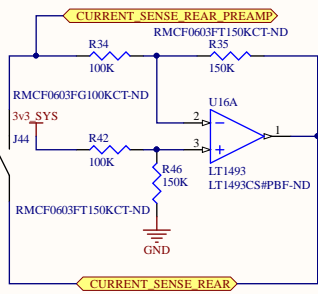
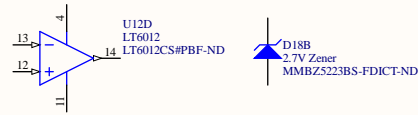
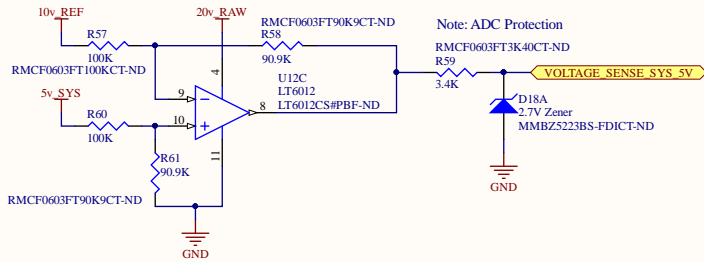
Note: VOLTAGE_SENSE_ELECTRONICS_BATT can be calculated as the following: $VEBAT = (Vin - 10.0v) * .56$



Note: VOLTAGE_SENSE_ELECTRONICS_BATT can be calculated as the following: $VEBAT = (Vin - 10.0v) * .56$

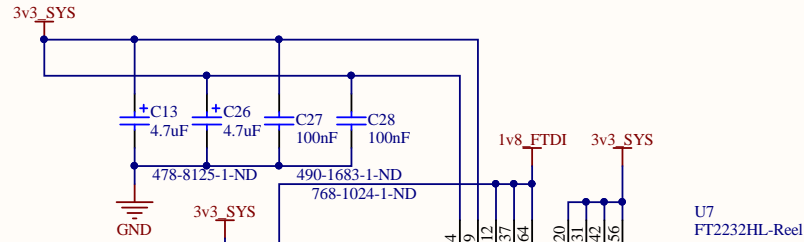
Note: Therefore $Vin = (VEBAT / .56) + 10.0v$

Note: R68 is to account for the usage case in which there is no rear battery

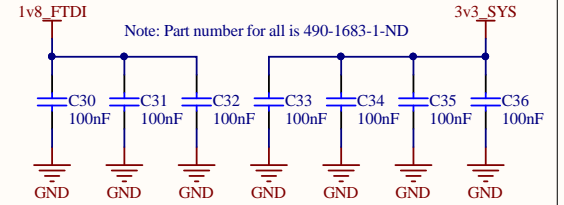


Dual UART FTDI Chip

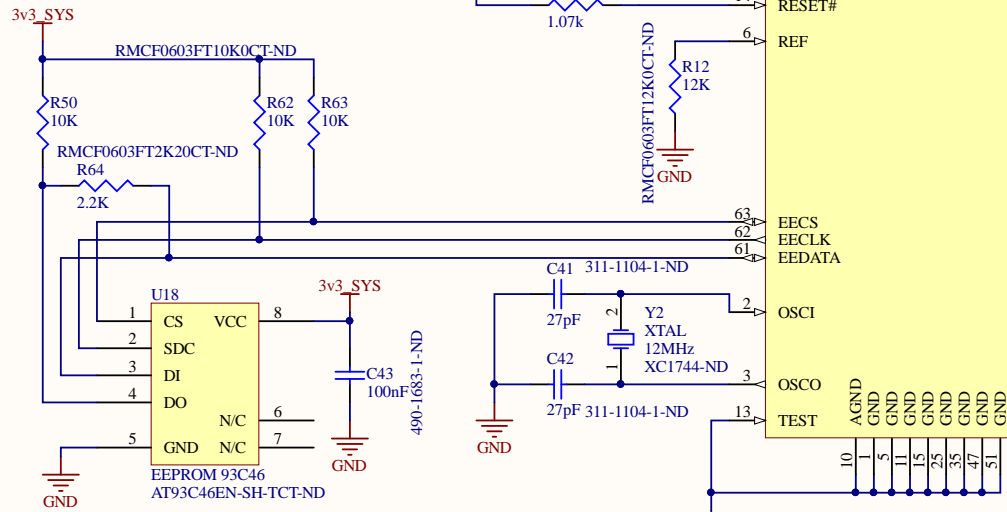
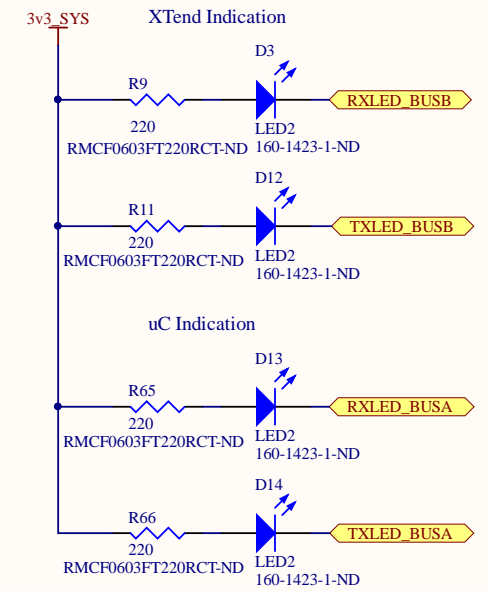
3v3 Regulation



Filtering Caps

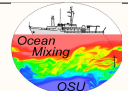


Status LEDs

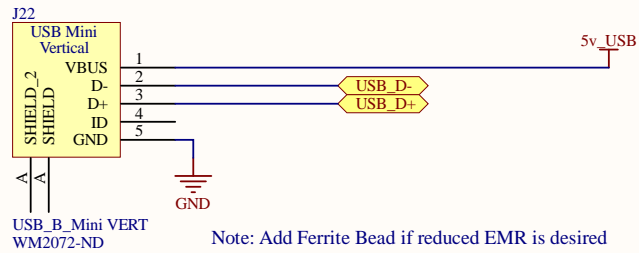
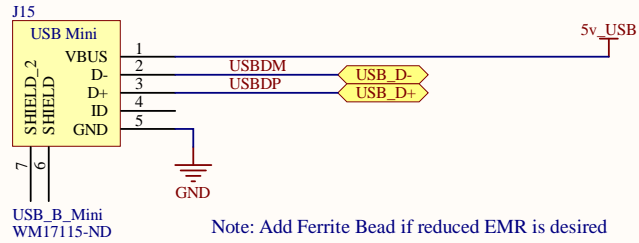


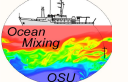
FTDI EEPROM

12Mhz Osc

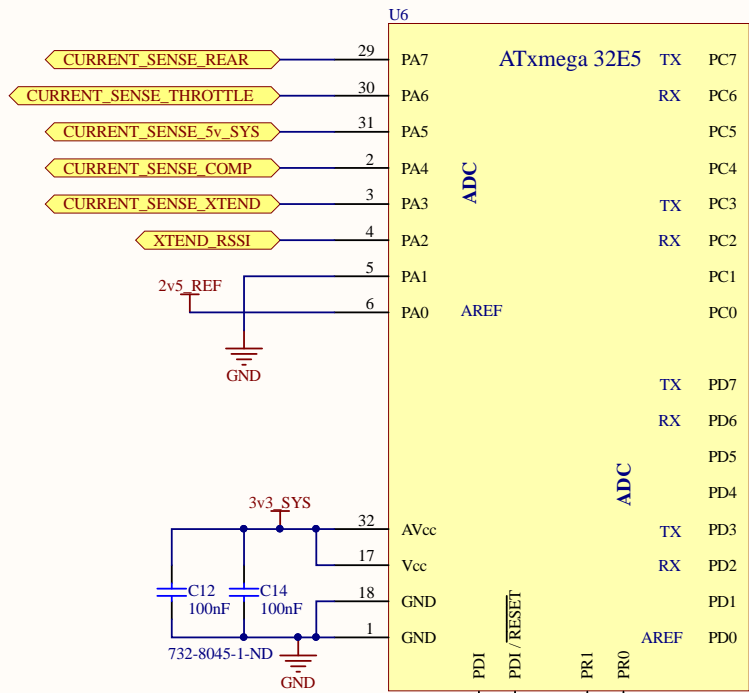
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Size: A4	Number: 5	Engineer: Nick McComb	
Date: 5/12/2016	Time: 4:37:46 PM	Sheet 5 of 8	
Revision: 2.2			
File: C:\Users\nrpc_000\Google Drive\PCB Designs\ROSSPowerDistribution\FTDI.SchDoc			

Microcontroller USB Connection

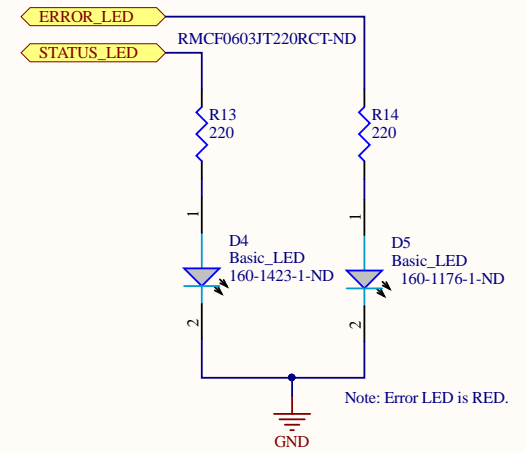


Title FTDI Aux.SchDoc			Ocean Mixing Group Oregon State University Corvallis, OR	
Size: A4	Number: 6	Engineer: Nick McComb		
Date: 5/12/2016	Time: 4:37:46 PM	Sheet 6 of 8	Revision: 2.2	
File: C:\Users\nrpic_000\Google Drive\PCB Designs\ROSSPowerDistribution\FTDI Aux.SchDoc				

MCU



MCU LEDs

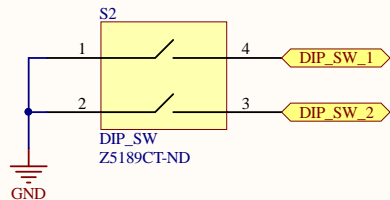


Note: Backup to Firmware Solution

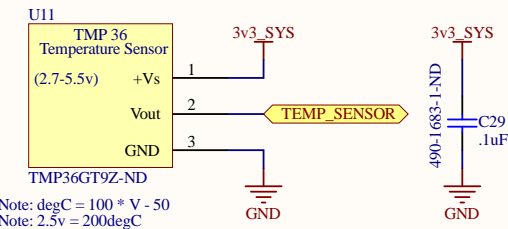
XMega ADC Application Notes

Note: One of the first 7 channels needs to be GND, for our reference
 Note: AREFA and AREFD are pin 0
 Note: They need to be fed 3.3-6 volts

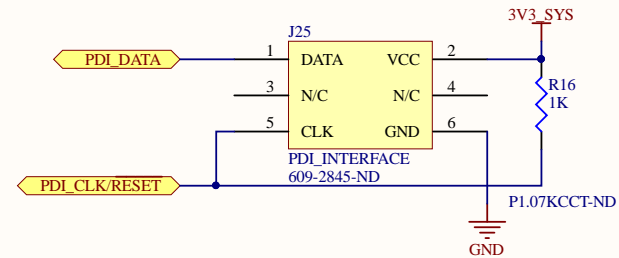
Settings Switch



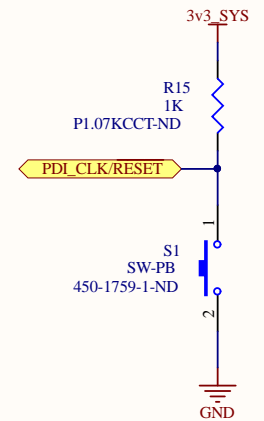
Temperature Sensor



MCU PDI



MCU Reset



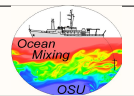
Title: Microcontroller.SchDoc

Size: A4 | Number: 7 | Engineer: Nick McComb

Date: 5/12/2016 | Time: 4:37:46 PM | Sheet 7 of 8 | Revision: 2.2

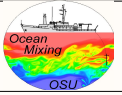
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Ocean Mixing Group
 Oregon State University
 Corvallis, OR



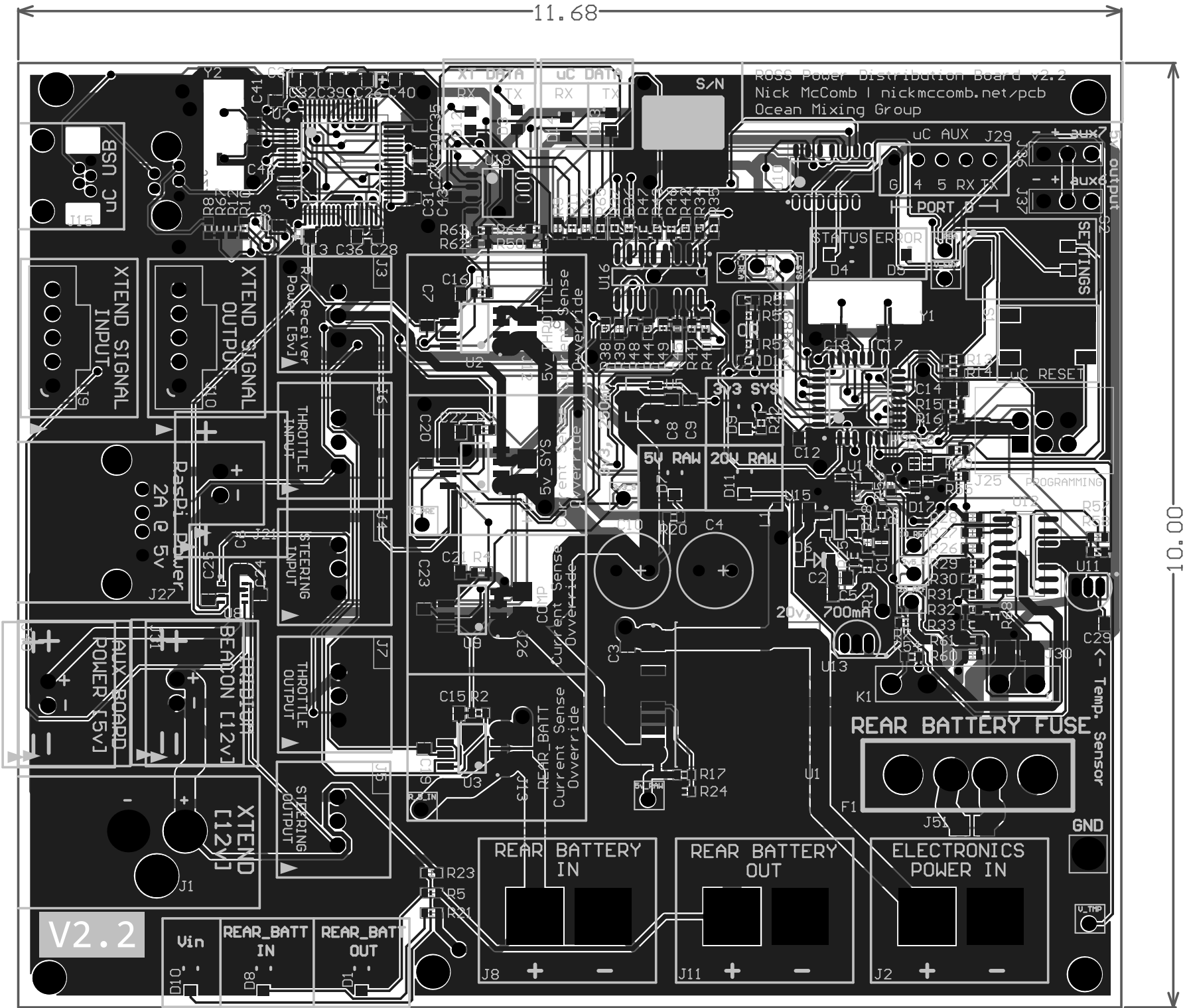
Mounting Hardware

- J32
Mounting Hole
MountingHoles
- J33
Mounting Hole
MountingHoles
- J38
Mounting Hole
MountingHoles
- J34
Mounting Hole
MountingHoles
- J35
Mounting Hole
MountingHoles

Title Hardware.SchDoc			<i>Ocean Mixing Group</i> Oregon State University Corvallis, OR		
Size: A4	Number: 8	Engineer: Nick McComb			
Date: 5/12/2016	Time: 4:37:46 PM	Sheet 8 of 8			Revision: 2.2
File: C:\Users\nrpc_000\Google Drive\PCB Designs\ROSSPowerDistribution\Hardware.SchDoc					

11.68

10.00



ROSS Power Distribution Board v2.2
 Nick McComb | nickmccomb.net/pcb
 Ocean Mixing Group

uC AUX J29

PORT 5

STATUS ERROR

uc RESET

PROGRAMMING

REAR BATTERY FUSE

Temp. Sensor

GND

U_TRIP

V2.2

REAR_BATT IN

REAR BATTERY IN

REAR BATTERY OUT

ELECTRONICS POWER IN

XTEND SIGNAL INPUT

XTEND SIGNAL OUTPUT

THROTTLE INPUT

STEERING INPUT

THROTTLE OUTPUT

STEERING OUTPUT

AUX BOARD POWER

BEADON

XTEND

REAR_BATT

5v SYS

20V RAW

700mA

5v THROTTLE

5v output

REAR_BATT OUT

XTEND

REAR_BATT

5v THROTTLE

20V RAW

700mA

5v THROTTLE

5v output