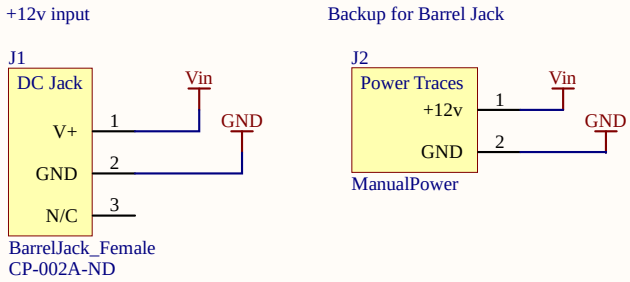
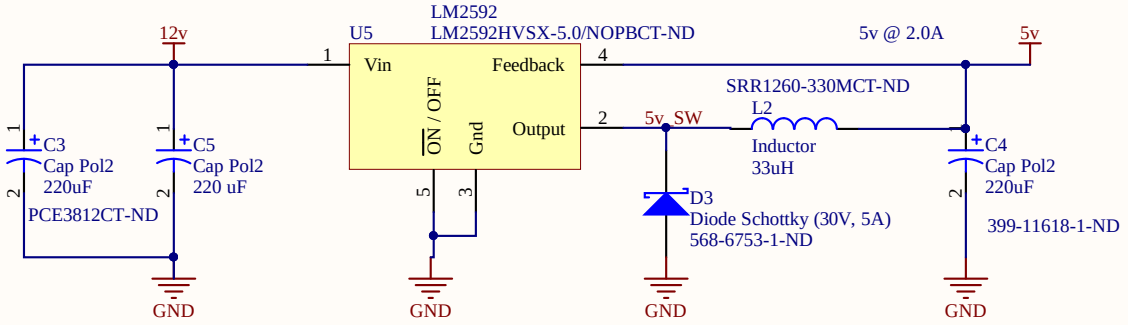
## Power Input

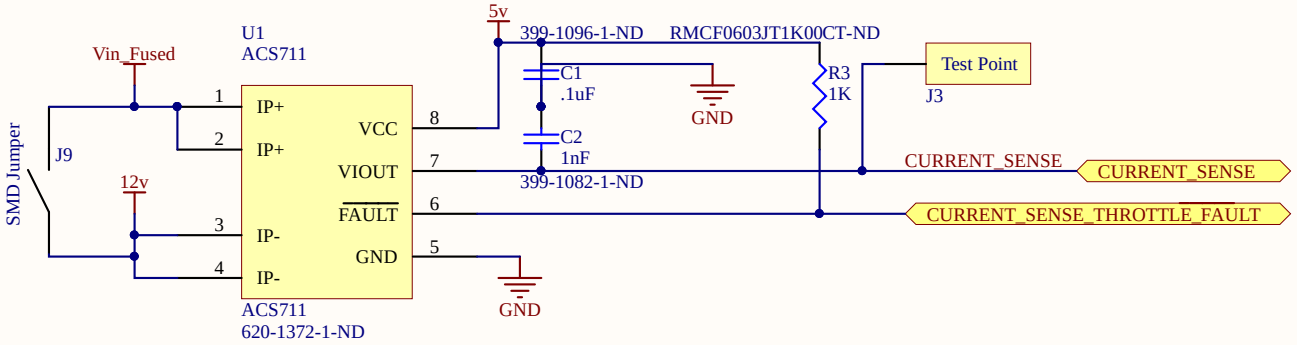



## Voltage Regulation



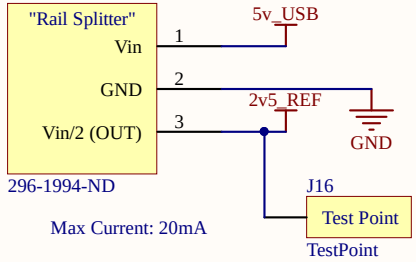

Note: This needs to be a schottky diode

## Current Sensing

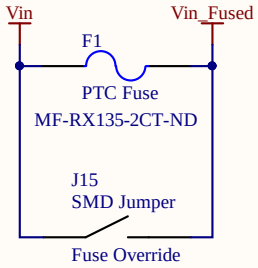



## 2v5v Reference

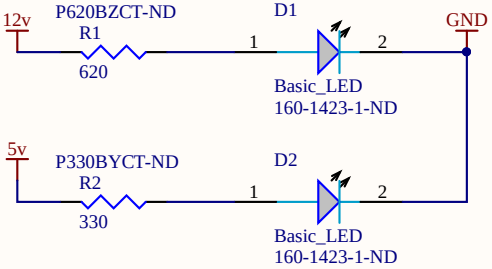
Note: USB powered




## Fusing




## Power LEDs




## Miscellaneous Hardware

J6
Mounting Holes

J14
Mounting Holes

| | | | |
|---|---|---|---|
| Title | PowerSupplies.SchDoc | | |
| Size: A4 | Number: 1 | Engineer: Nick McComb | |
| Date: 5/5/2016 | Time: 8:45:24 PM | Sheet 1 of 5 | Revision: 4 |
| File: | C:\Users\nrpic_000\Google Drive\PCB Designs\XTendDaughterboard\PowerSupplies.SchDoc | | |

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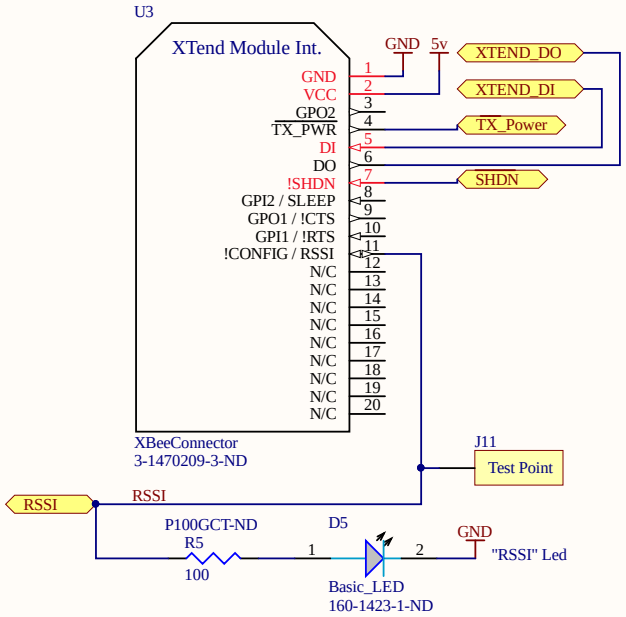
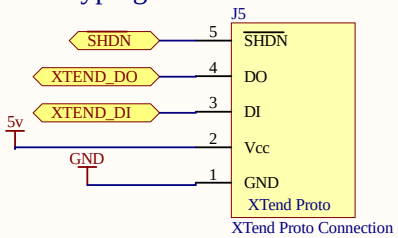
*Corvallis, OR*

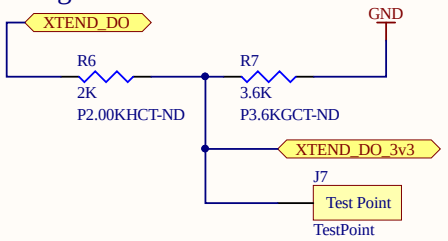
## XTend Connection



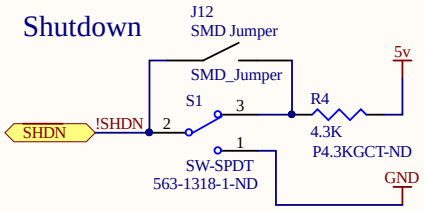

## "Prototyping" Connection



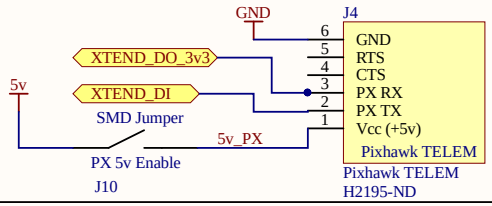

## Logic Level Conversion



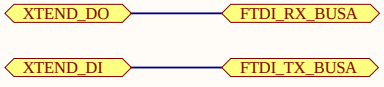

## Shutdown




## Pixhawk CONN

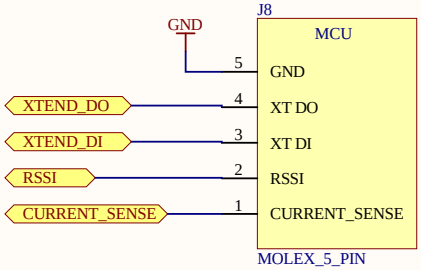



## FTDI Connection



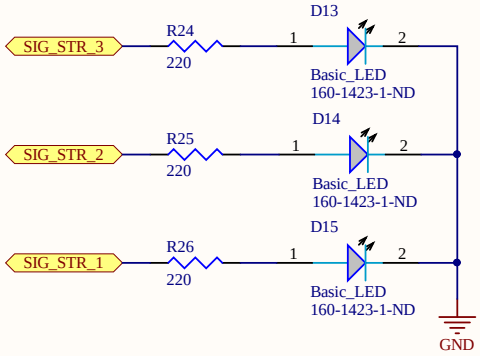

Note: FTDI device is 5v capable

## MCU CONN

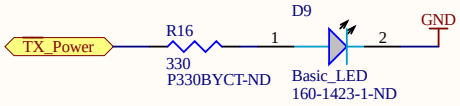



NOTE: This document uses correct molex pinouts

## RSSI Output




## TX LED

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|---|---|---|---|
| Title | RSSIandXTend.SchDoc | | |
| Size: A4 | Number: 2 | Engineer: Nick McComb | |
| Date: 5/5/2016 | Time: 8:45:24 PM | Sheet 2 of 5 | Revision: 4 |
| File: | C:\Users\nrpic_000\Google Drive\PCB Designs\XTendDaughterboard\RSSIandXTend.SchDoc | | |

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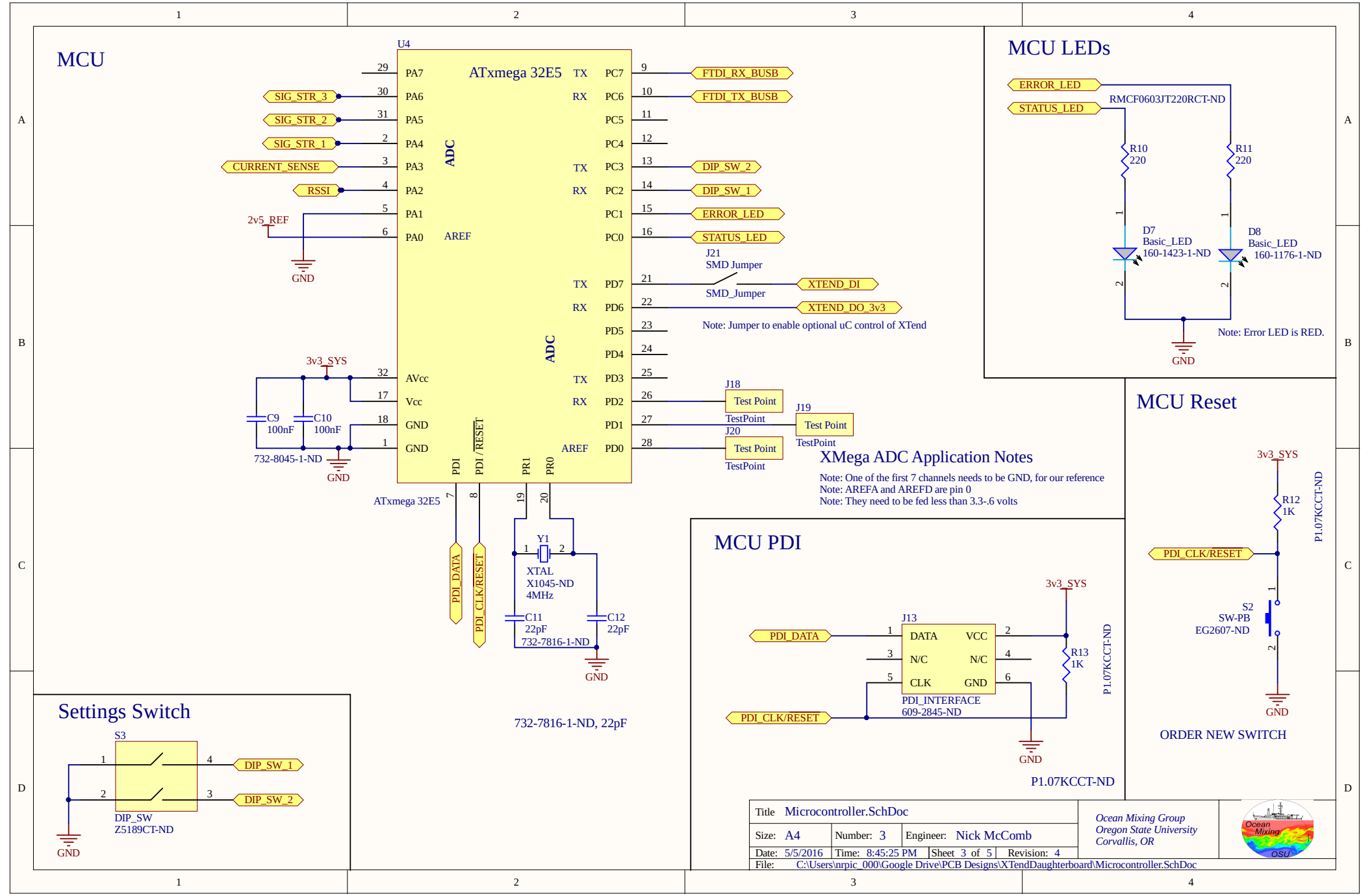
MCU
U4
ATxmega 32E5
PA7
PA6
PA5
PA4
PA3
PA2
PA1
PA0
AREF
AVcc
Vcc
GND
GND
ADC
TX
RX
PC7
PC6
PC5
PC4
PC3
PC2
PC1
PC0
PD7
PD6
PD5
PD4
PD3
PD2
PD1
PD0
AREF
PDI
PDI / RESET
PR1
PR0
SIG_STR_3
SIG_STR_2
SIG_STR_1
CURRENT_SENSE
RSSI
2v5_REF
FTDI_RX_BUSB
FTDI_TX_BUSB
DIP_SW_2
DIP_SW_1
ERROR_LED
STATUS_LED
XTEND_DI
XTEND_DO_3v3
J21
SMD Jumper
SMD_Jumper
Note: Jumper to enable optional uC control of XTend
3v3_SYS
C9
100nF
C10
100nF
732-8045-1-ND
J18
Test Point
TestPoint
J19
Test Point
TestPoint
J20
Test Point
TestPoint
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 less than 3.3-.6 volts
ATxmega 32E5
PDI_DATA
PDI_CLK/RESET
Y1
XTAL
X1045-ND
4MHz
C11
22pF
732-7816-1-ND
C12
22pF
732-7816-1-ND, 22pF
MCU LEDs
ERROR_LED
STATUS_LED
RMCF0603JT220RCT-ND
R10
220
R11
220
D7
Basic_LED
160-1423-1-ND
D8
Basic_LED
160-1176-1-ND
Note: Error LED is RED.
MCU Reset
3v3_SYS
R12
1K
P1.07KCCT-ND
PDI_CLK/RESET
S2
SW-PB
EG2607-ND
ORDER NEW SWITCH
MCU PDI
3v3_SYS
J13
PDI_DATA
DATA
VCC
N/C
N/C
CLK
GND
PDI_INTERFACE
609-2845-ND
R13
1K
P1.07KCCT-ND
PDI_CLK/RESET
P1.07KCCT-ND
Settings Switch
S3
DIP_SW_1
DIP_SW_2
DIP_SW
Z5189CT-ND
Title Microcontroller.SchDoc
Size: A4
Number: 3
Engineer: Nick McComb
Date: 5/5/2016
Time: 8:45:25 PM
Sheet 3 of 5
Revision: 4
File: C:\Users\nrpic_000\Google Drive\PCB Designs\XTendDaughterboard\Microcontroller.SchDoc
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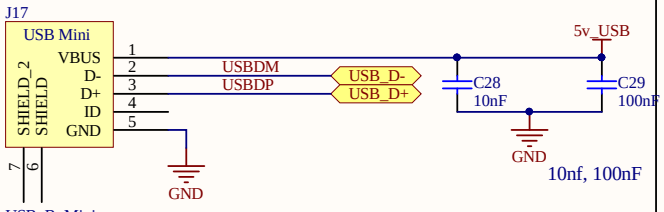
Oregon State University
Corvallis, OR

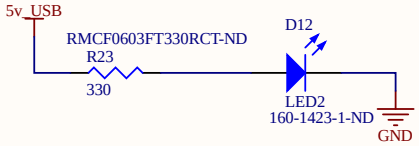
## Microcontroller USB Connection




USB_B_Mini
WM17115-ND

Note: Add Ferrite Bead if reduced EMR is desired

## FTDI Status Indicators




Note: Indicates the status of the USB power.
Note: uC Indicator

| | | | |
|---|---|---|---|
| Title | FTDI Aux.SchDoc | | |
| Size: A4 | Number: 4 | Engineer: Nick McComb | |
| Date: 5/5/2016 | Time: 8:45:25 PM | Sheet 4 of 5 | Revision: 4 |
| File: | C:\Users\nrpic_000\Google Drive\PCB Designs\XTendDaughterboard\FTDI Aux.SchDoc | | |

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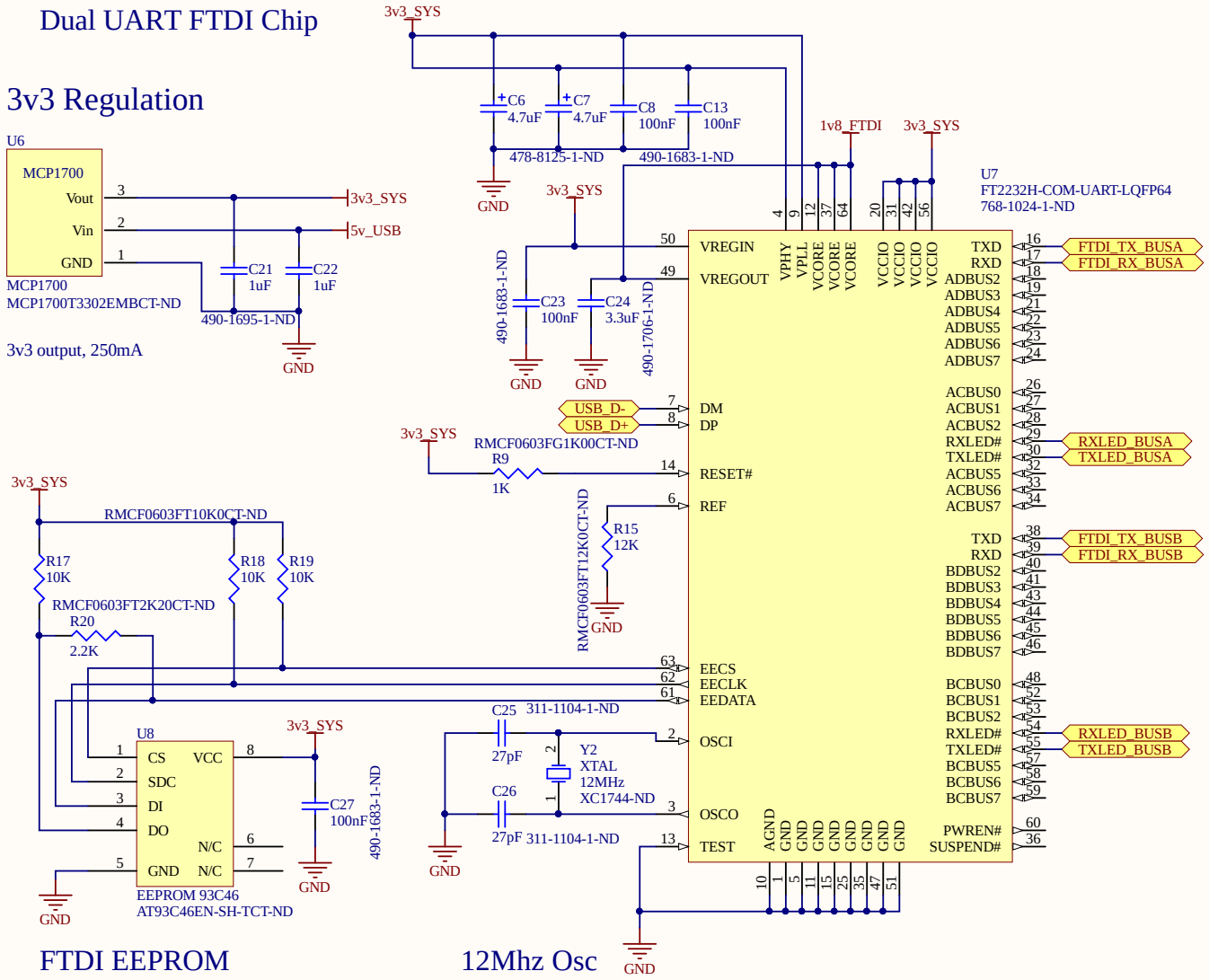
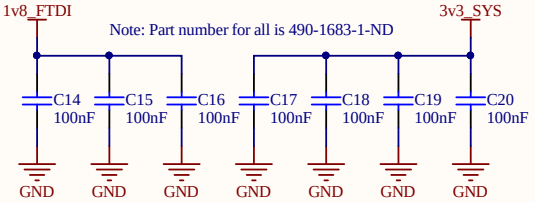
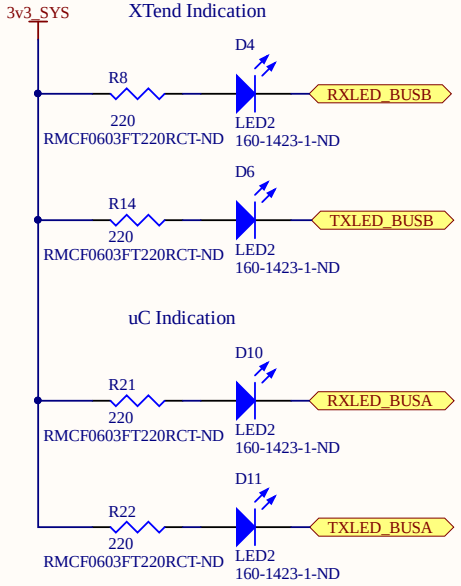
# Dual UART FTDI Chip




## Filtering Caps




## Status LEDs




| | | | |
|---|---|---|---|
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| Date: 5/5/2016 | Time: 8:45:25 PM | Sheet 5 of 5 | Revision: 4 |
| File: | C:\Users\nrpic_000\Google Drive\PCB Designs\XTendDaughterboard\FTDI.SchDoc | | |

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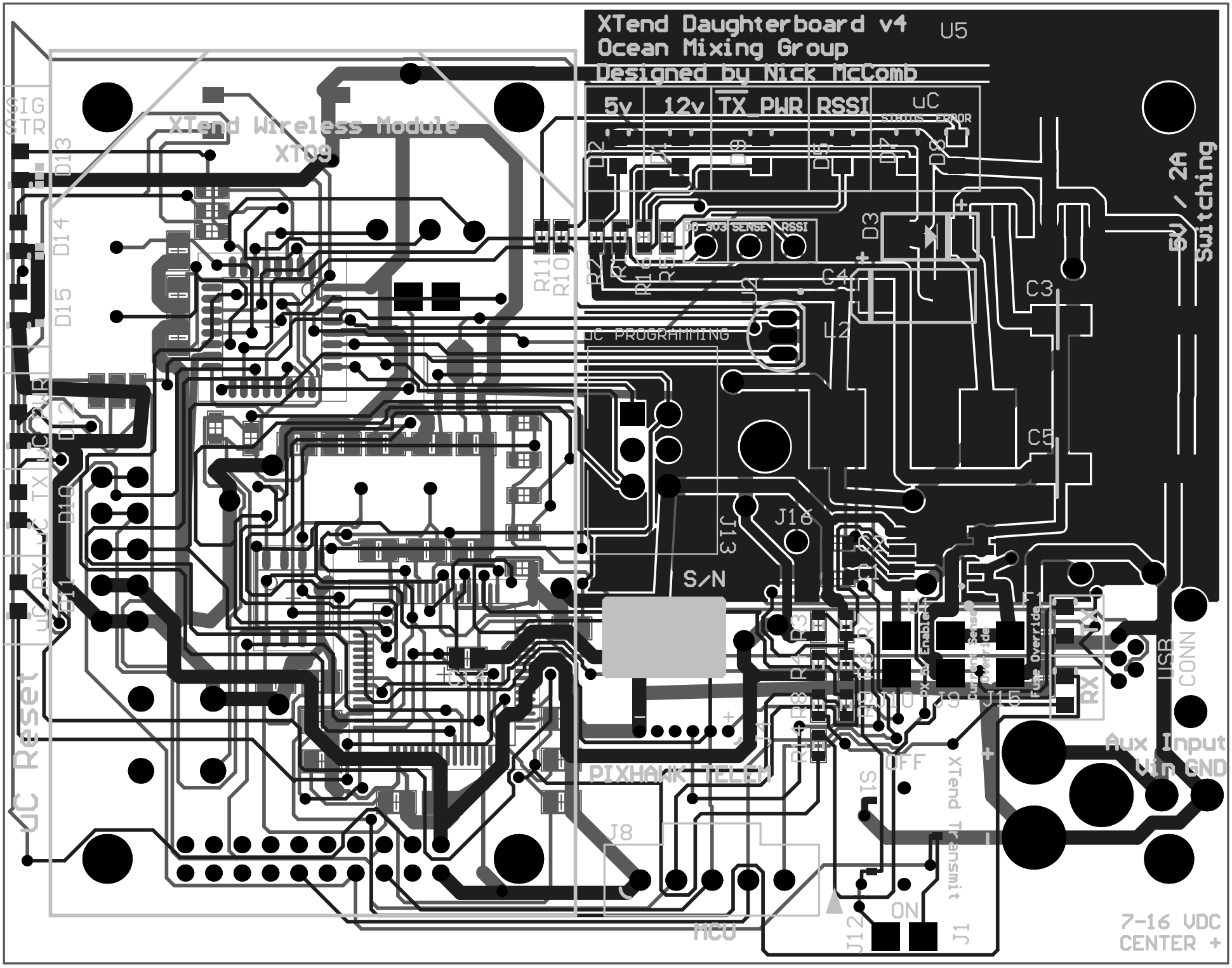
XTend Daughterboard v4
Ocean Mixing Group
Designed by Nick McComb
U5
5v
12v
TX PWR
RSSI
uC
STATUS
ERROR
XTend Wireless Module
XT09
SIG STR
uC TX
uC RX
uC RESET
uC PROGRAMMING
SENSE
RSSI
5V / 2A Switching
S/N
PIXHAWK TELEM
MCU
OFF
ON
XTend Transmit
Aux Input
Vin GND
USB CONN
7-16 VDC
CENTER +