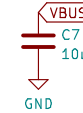
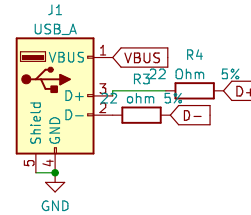
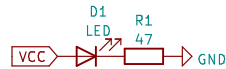


Notes/Limitations:  
- Current layout assumes analog is not used.

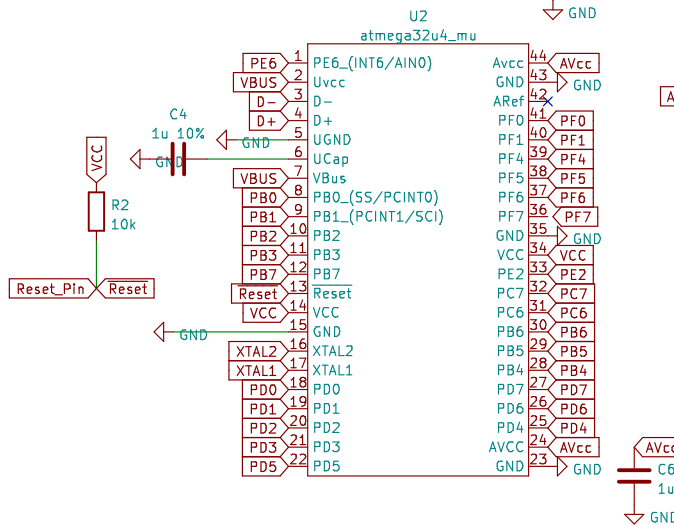
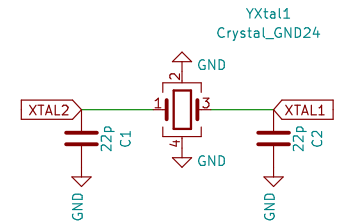
diode: 2.6v min, 30mA max dc current, take half @ 15mA  
 $v=ir$   
 $r=v/i = .7 / .015 = 46.66 \text{ ohm}$



## Clock:

Optional external clock.  
Internal clock = 8mhz @ 3V

Note: initial research suggests internal clock is not accurate enough for serial. Bootloader can apparently be updated for 8mhz. Going to stick with external 16mhz xtal for now.

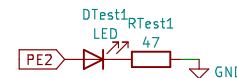


IO Broken out, no other wiring reqs.

PF aka ADC

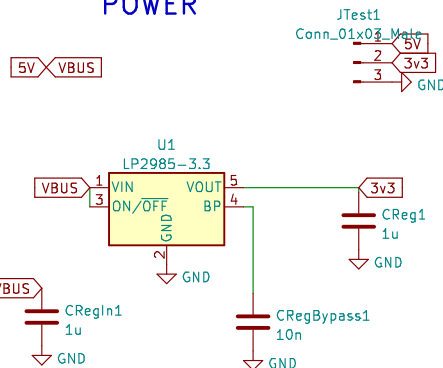
PB0	PC0	PD0	PE0	PF0
PB1	PC1	PD1	PE1	PF1
PB2	PC2	PD2	PE2	PF2
PB3	PC3	PD3	PE3	PF3
PB4	PC4	PD4	PE4	PF4
PB5	PC5	PD5	PE5	PF5
PB6	PC6	PD6	PE6	PF6
PB7	PC7	PD7	PE7	PF7

Test LED

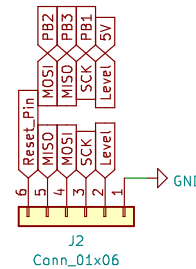


## POWER

## Test Points



## Programming (Arduino ISP)



Sheet: /	
File: base_32u.kicad_sch	
<b>Title:</b> Chiplab Controller Base, atmega32u4 by EmulationOnline.com	
Size: A4	Date:
KiCad E.D.A. kicad 6.0.11+dfsg-1	Rev: Id: 1/1