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 ohm

D1 LED R1 47 VCC GND

GND VCC 3v3 3v3

J1 USB_A
VBUS D+ D- Shield GND
R3 22 ohm 5%
R4 22 Ohm 5%
C7 10u

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.

YXtal1 Crystal_GND24 XTAL1 XTAL2 22p C1 22p C2

U2 atmega32u4_mu
PE6_(INT6/AIN0) Uvcc D- D+ UGND UCap VBus PB0_(SS/PCINT0) PB1_(PCINT1/SCI) PB2 PB3 PB7 Reset VCC GND XTAL2 XTAL1 PD0 PD1 PD2 PD3 PD5
Avcc GND AVcc AREF PF0 PF1 PF4 PF5 PF6 PF7 GND VCC PE2 PC7 PC6 PB6 PB5 PB4 PD7 PD6 PD4 AVCC GND

C4 1u 10% R2 10k Reset_Pin Reset
C5 1u C6 1u

IO Broken out, no other wiring reqs.
Prog: PB0 PB1 PB2 PB3 PB4 PB5 PB6 PB7
PC0 PC1 PC2 PC3 PC4 PC5 PC6 PC7
PD0 PD1 PD2 PD3 PD4 PD5 PD6 PD7
PE0 PE1 PE2 PE3 PE4 PE5 PE6 PE7
PF aka ADC: PF0 PF1 PF2 PF3 PF4 PF5 PF6 PF7

Test LED
DTest1 LED RTest1 47 PE2 GND

POWER

5V VBUS

U1 LP2985-3.3
VIN ON/OFF GND VOUT BP
VBUS 3v3 CReg1 1u
CRegIn1 1u CRegBypass1 10n

Test Points

JTest1 Conn_01x03_Male
5V 3v3 GND

Programming (Arduino ISP)

J2 Conn_01x06
Reset_Pin MISO MOSI SCK Level GND
PB2 PB3 PB1 5V MOSI MISO SCK Level

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