University Of Texas At Austin

Schematic Name:	Lab 7 starter
Name(s):	Alex Gerome and Reece Stevens
Date:	10/21/2016
Semester:	Fall 2016

LED_pushD8
Q2
2N2222
TO92
C
B
E
SM402
Gnd
J6
2
1
R6
10Wresistor
SM402

LED_pushD7
Q4
2N2222
TO92
C
B
E
SM402
Gnd
J8
2
1
R7
10Wresistor
SM402

LED_pushD4
Q1
2N2222
TO92
C
B
E
SM402
Gnd
J5
2
1
R5
10Wresistor
SM402

LED_pushD6
Q3
2N2222
TO92
C
B
E
SM402
Gnd
J7
2
1
R4
10Wresistor
SM402

U1d
TM4C123GH6PM
LQFP
PD7 10
PD6 53
PD5 44
PD4 43
PD3 64
PD2 63
PD1 62
PD0 61

U1c
LIS2HH12
QFP
GND 7
GND 8
VDD 9
VDD_IO 10
INT2 11
INT1 12
SCL/SPC
CS
SD0/SA0
SDA/SD1/SD0
RES
GND 6
Gnd
+3.3V
+3V3

U1e
TM4C123GH6PM
LQFP
PE5 60
PE4 59
PE3 6
PE2 7
PE1 8
PE0 9

U1b
TM4C123GH6PM
LQFP
PB7 4
PB6 1
PB5 57
PB4 58
PB3 48
PB2 47
PB1 46
PB0 45

U1a
TM4C123GH6PM
LQFP
PA7 24
PA6 23
PA5 22
PA4 21
PA3 20
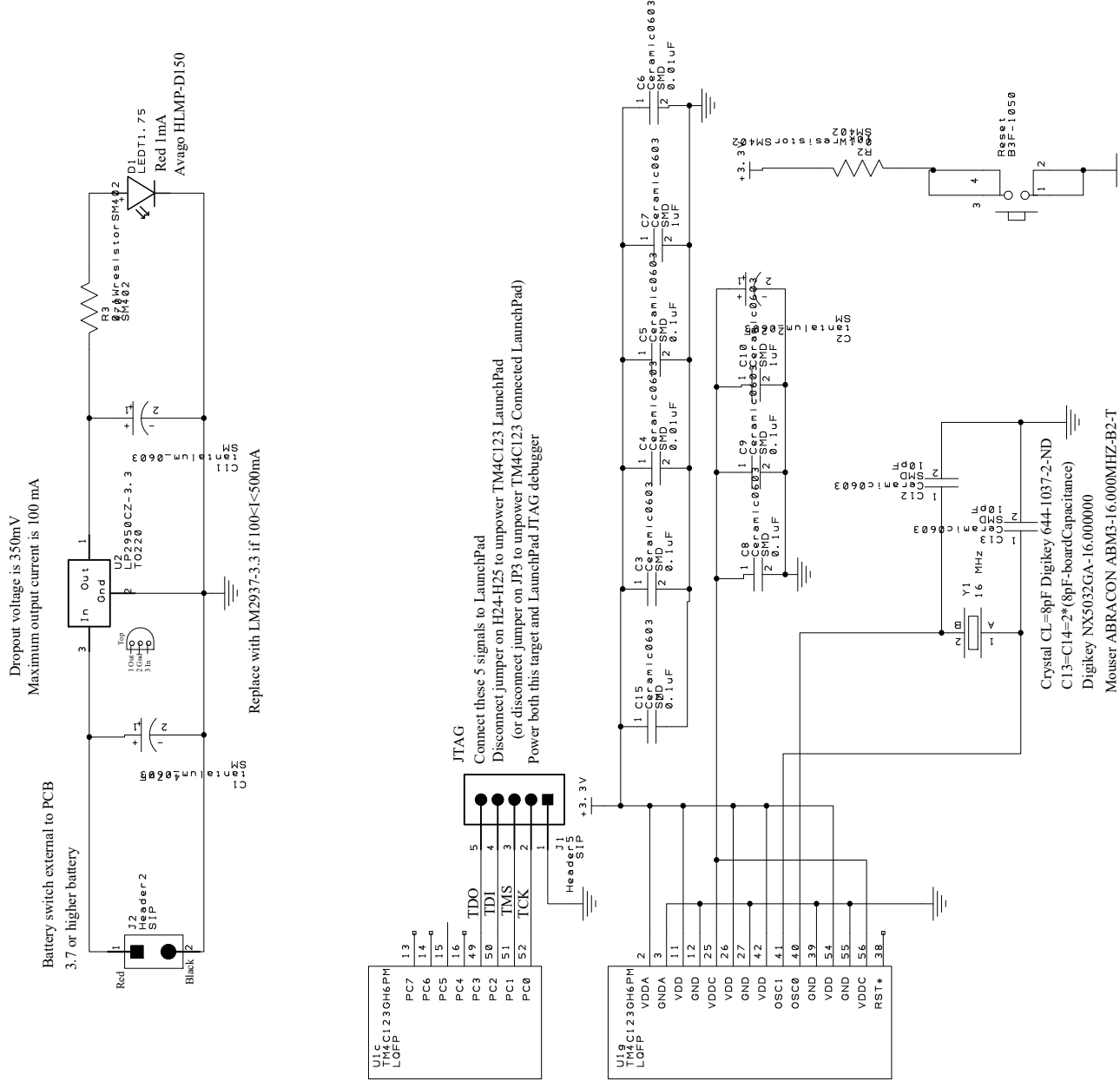PA2 19
PA1 18
PA0 17

A1

University Of Texas At Austin

Schematic Name: Lab 7 starter

Name(s): Alex Gerome and Reece Stevens

Date: 10/21/2016 **Semester:** Fall 2016

A-3

http://users.ece.utexas.edu/~valvano/HowToDesignEnclosureMakerspace.htm
This PCB will go into a Lab9Box, WoodBox and WoodBox2

Dropout voltage is 350mV
Maximum output current is 100 mA

Red 1mA
Avago HLMP-D150

D1
LEDT1.75

R3
Q7ΩWresistorSM402
SM402

U2
LP2950CZ-3.3
TO220

In Out
Gnd

C11
Tantalum-0603
SM

Replace with LM2937-3.3 if 100<I<500mA

Battery switch external to PCB
3.7 or higher battery

J2
Header2
SIP

Red
Black

C1
Tantalum-0603
SM

U1h
TM4C123GH6PM
LQFP

VBAT   37
GNDX   35
XOSC1   36
XOSC0   34
HIB*   33
WAKE*   32

R1
0ΩWresistorSM402
SM402
+3.3

JTAG
Connect these 5 signals to LaunchPad
Disconnect jumper on H24-H25 to unpower TM4C123 LaunchPad
(or disconnect jumper on JP3 to unpower TM4C123 Connected LaunchPad)
Power both this target and LaunchPad JTAG debugger

+3.3 V

TDO   5
TDI   4
TMS   3
TCK   2
      1

J1
Header5
SIP

U1c
TM4C123GH6PM
LQFP

PC7   13
PC6   14
PC5   15
PC4   16
PC3   49
PC2   50
PC1   51
PC0   52

U1g
TM4C123GH6PM
LQFP

VDDA   2
GNDA   3
VDD   11
GND   25
VDDC   26
VDD   27
GND   42
VDD   28
OSC1   41
OSC0   40
GND   39
VDD   54
GND   55
VDDC   56
RST*   38

C6
Ceramic0603
SMD
0.01uF

C7
Ceramic0603
SMD
0.1uF

C5
Ceramic0603
SMD
0.1uF

C4
Ceramic0603
SMD
0.01uF

C3
Ceramic0603
SMD
0.1uF

C15
Ceramic0603
SMD
0.1uF

C10
Ceramic0603
SMD
0.1uF

C9
Ceramic0603
SMD
0.1uF

C8
Ceramic0603
SMD
0.1uF

C2
Tantalum
SM

Reset
B3F-1050

R2
560ΩWresistorSM402
SM402
+3.3

C12
Ceramic0603
SMD
10pF

C13
Ceramic0603
SMD
10pF

Y1
16 MHz

Crystal CL=8pF Digikey 644-1037-2-ND
C13=C14=2*(8pF-boardCapacitance)
Digikey NX5032GA-16.000000
Mouser ABRACON ABM3-16.000MHZ-B2-T

University Of Texas At Austin

Schematic Name: Lab 7 starter file Power Clock JTAG

Name(s):   Alex Gerome and Reece Stevens

Date: 10/21/2016   Semester: Fall 2016

A.2