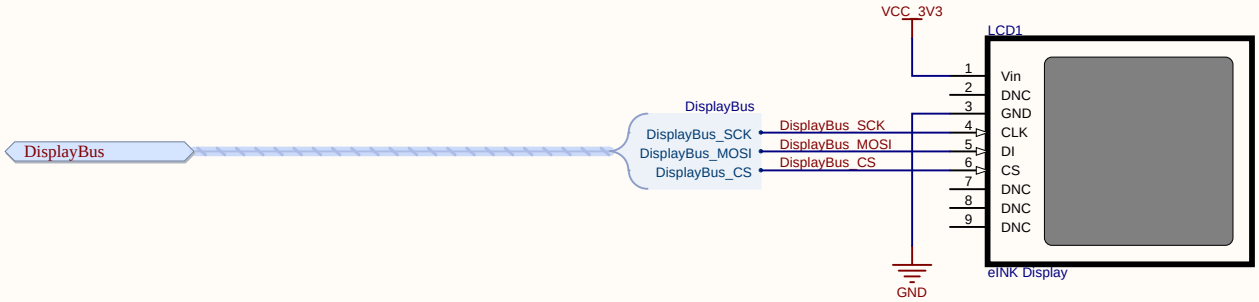
Create OV7690 schematic symbol and connect it up!

CameraBus

- CameraBus_PWDN
- CameraBus_SDA
- CameraBus_SCL
- CameraBus_DATA0
- CameraBus_DATA1
- CameraBus_HREF
- CameraBus_VSYNC
- CameraBus_DATA2
- CameraBus_PCLK
- CameraBus_XVCLK
- CameraBus_DATA5
- CameraBus_DATA3
- CameraBus_DATA7
- CameraBus_DATA6
- CameraBus_DATA4

CameraBus

Board:	sudo -ku	Version:	1.0
Sheetname:	SheetName	Sheet * of *	
Subject:	TDT4295 Computer Project	Group:	Energy
Shematic file:	dmpro16-pcb-v1-CameraBoard.SchDoc		



Board:	sudo -ku	Version:	1.0
Sheetname:	SheetName	Sheet * of *	
Subject:	TDT4295 Computer Project	Group:	Energy
Shematic file:	dmpro16-pcb-v1-DisplayBoard.SchDoc		

dmpro16-pcb-v1-FPGA-Bank34
dmpro16-pcb-v1-FPGA-Bank34.SchDoc

dmpro16-pcb-v1-FPGA-Bank14
dmpro16-pcb-v1-FPGA-Bank14.SchDoc

dmpro16-pcb-v1-FPGA-Bank35
dmpro16-pcb-v1-FPGA-Bank35.SchDoc

CameraBus

CameraBus

SDBus

SDBus

dmpro16-pcb-v1-FPGA-Bank15
dmpro16-pcb-v1-FPGA-Bank15.SchDoc

FPGABus

FPGABus

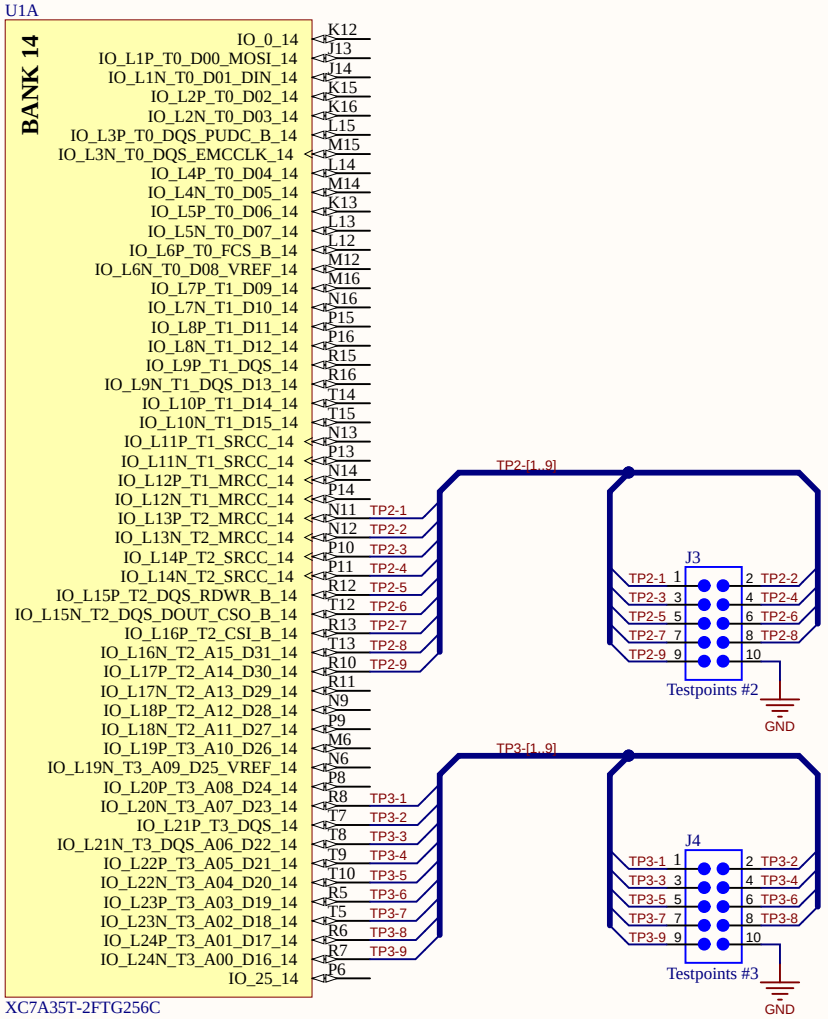
If we use Flash mem to store fpga config, we need to route the bank 14 pins needed into config section.

dmpro16-pcb-v1-FPGA-Config
dmpro16-pcb-v1-FPGA-Config.SchDoc

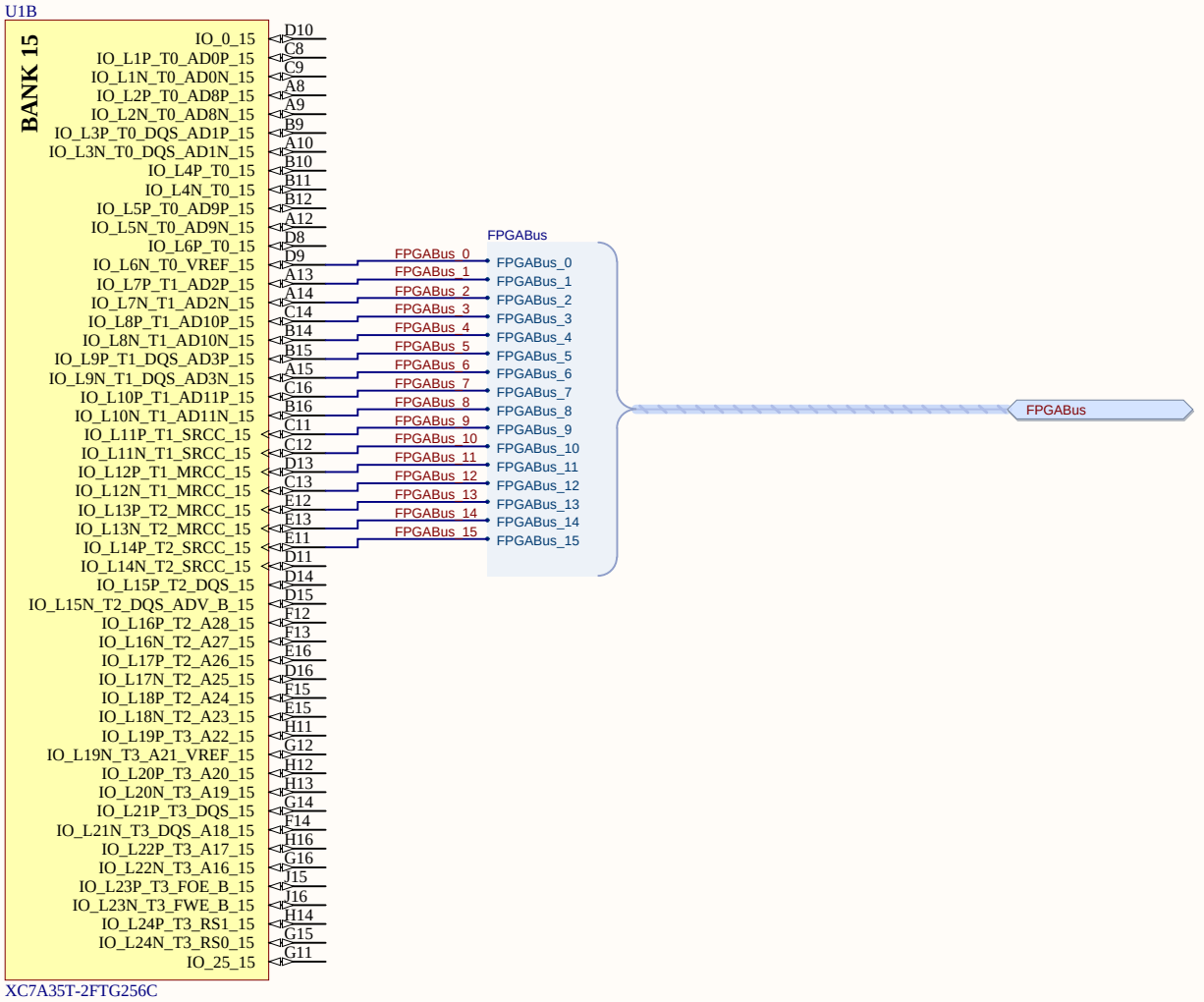
UNFINISHED!

dmpro16-pcb-v1-FPGA-Power
dmpro16-pcb-v1-FPGA-Power.SchDoc

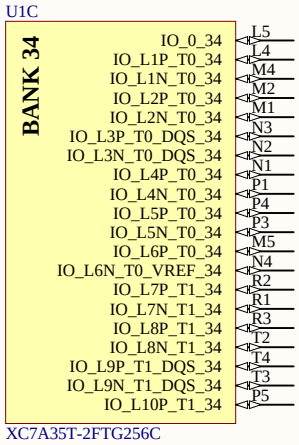
Board:	sudo -ku	Version:	1.0
Sheetname:	SheetName	Sheet * of *	
Subject:	TDT4295 Computer Project	Group:	Energy
Shematic file:	dmpro16-pcb-v1-FPGA.SchDoc		



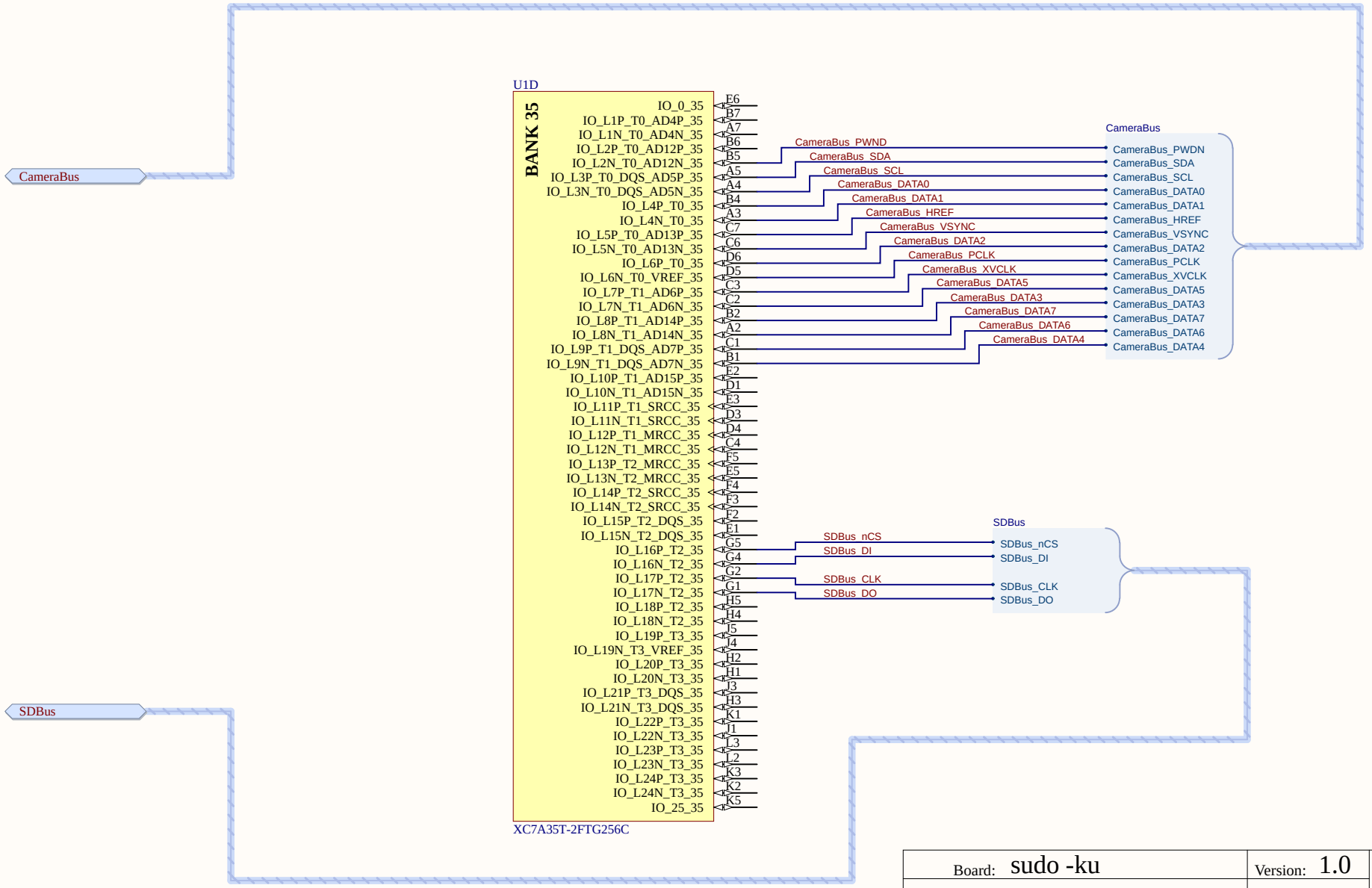
Board:	sudo -ku	Version:	1.0
Sheetname:	SheetName	Sheet * of *	
Subject:	TDT4295 Computer Project	Group:	Energy
Shematic file:	dmpro16-pcb-v1-FPGA-Bank14.SchDoc		



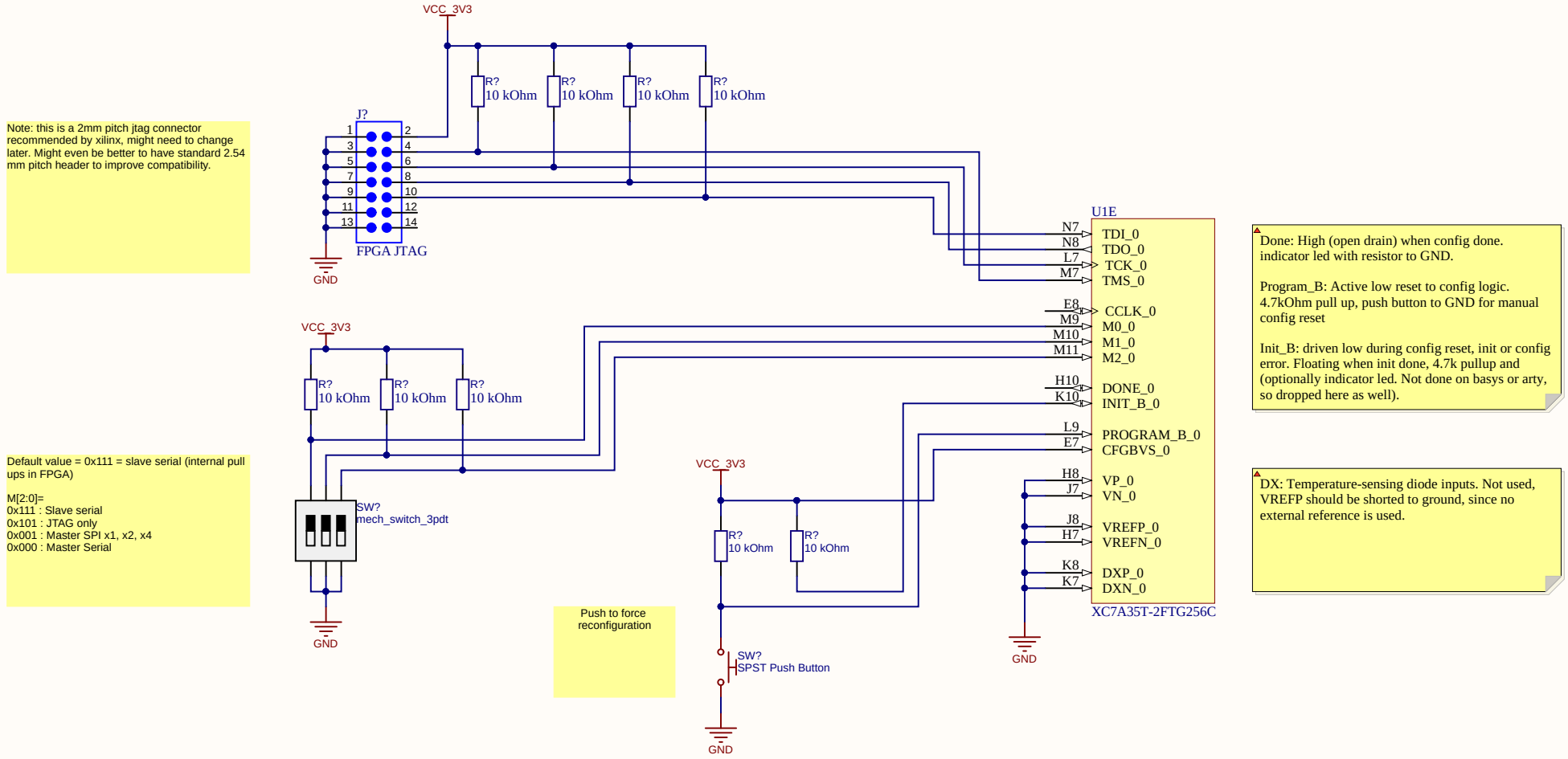
Board:	sudo -ku	Version:	1.0
Sheetname:	SheetName	Sheet * of *	
Subject:	TDT4295 Computer Project	Group:	Energy
Shematic file:	dmpro16-pcb-v1-FPGA-Bank15.SchDoc		

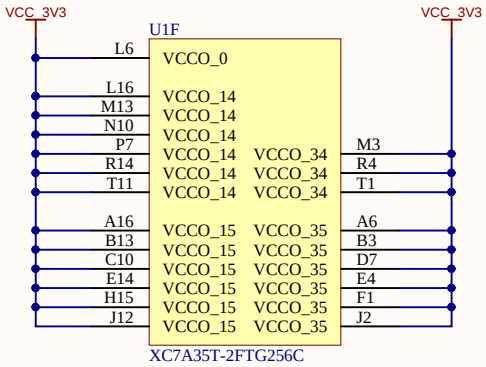


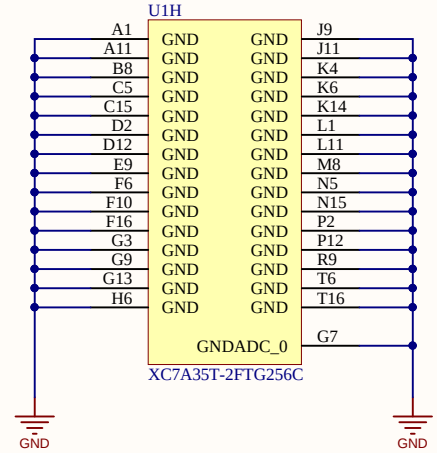
Board:	sudo -ku	Version:	1.0
Sheetname:	SheetName	Sheet * of *	
Subject:	TDT4295 Computer Project	Group:	Energy
Shematic file:	dmpro16-pcb-v1-FPGA-Bank34.SchDoc		

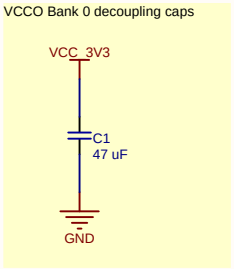


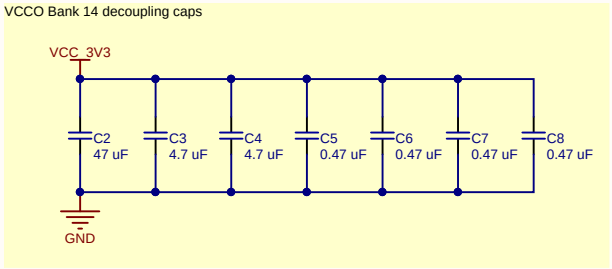
Board:	sudo -ku	Version:	1.0
Sheetname:	SheetName	Sheet * of *	
Subject:	TDT4295 Computer Project	Group:	Energy
Shematic file:	dmpro16-pcb-v1-FPGA-Bank35.SchDoc		

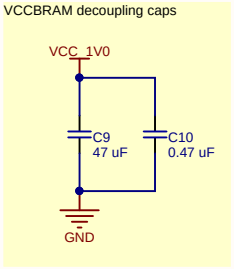

Note: this is a 2mm pitch jtag connector recommended by xilinx, might need to change later. Might even be better to have standard 2.54 mm pitch header to improve compatibility.
VCC_3V3
R? 10 kOhm
R? 10 kOhm
R? 10 kOhm
R? 10 kOhm
J?
1
2
3
4
5
6
7
8
9
10
11
12
13
14
FPGA JTAG
GND
U1E
N7 TDI_0
N8 TDO_0
L7 TCK_0
M7 TMS_0
E8 CCLK_0
M9 M0_0
M10 M1_0
M11 M2_0
H10 DONE_0
K10 INIT_B_0
L9 PROGRAM_B_0
E7 CFGBVS_0
H8 VP_0
J7 VN_0
J8 VREFP_0
H7 VREFN_0
K8 DXP_0
K7 DXN_0
XC7A35T-2FTG256C
Done: High (open drain) when config done. indicator led with resistor to GND.
Program_B: Active low reset to config logic. 4.7kOhm pull up, push button to GND for manual config reset
Init_B: driven low during config reset, init or config error. Floating when init done, 4.7k pullup and (optionally indicator led. Not done on basys or arty, so dropped here as well).
VCC_3V3
R? 10 kOhm
R? 10 kOhm
R? 10 kOhm
SW? mech_switch_3pdt
GND
Default value = 0x111 = slave serial (internal pull ups in FPGA)
M[2:0]=
0x111 : Slave serial
0x101 : JTAG only
0x001 : Master SPI x1, x2, x4
0x000 : Master Serial
VCC_3V3
R? 10 kOhm
R? 10 kOhm
SW? SPST Push Button
GND
Push to force reconfiguration
DX: Temperature-sensing diode inputs. Not used, VREFP should be shorted to ground, since no external reference is used.
GND
Board: sudo -ku
Version: 1.0
Sheetname: SheetName
Sheet * of *
Subject: TDT4295 Computer Project
Group: Energy
Shematic file: dmpro16-pcb-v1-FPGA-Config.SchDoc

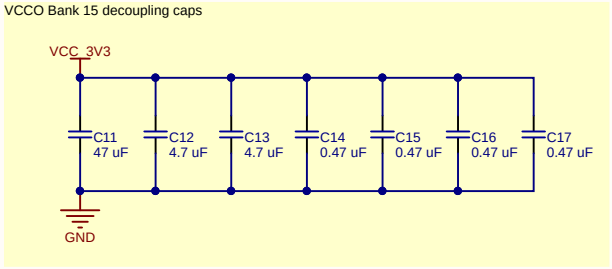


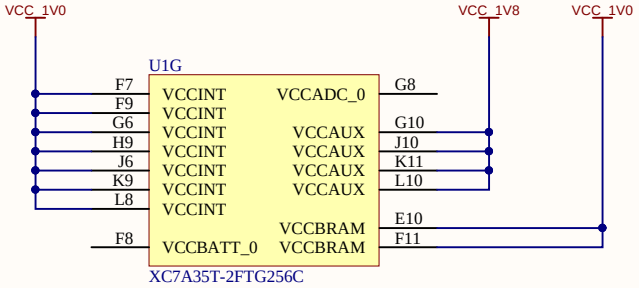




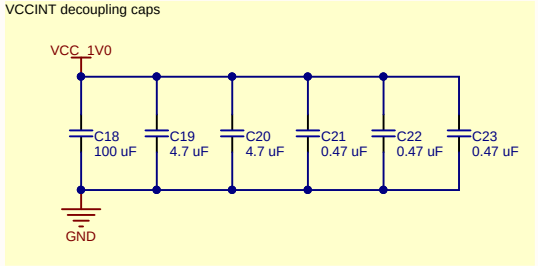


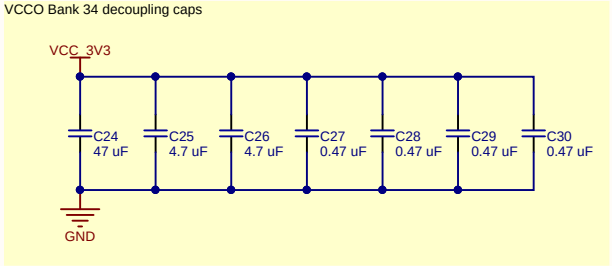


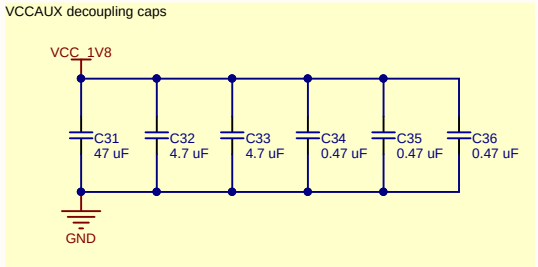


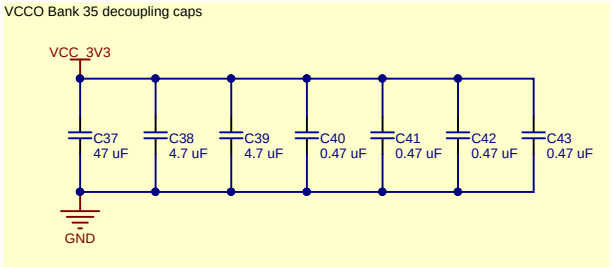


Do VCCADC and VCCBATT have to be connected to anything? If so, what can they be connected to?

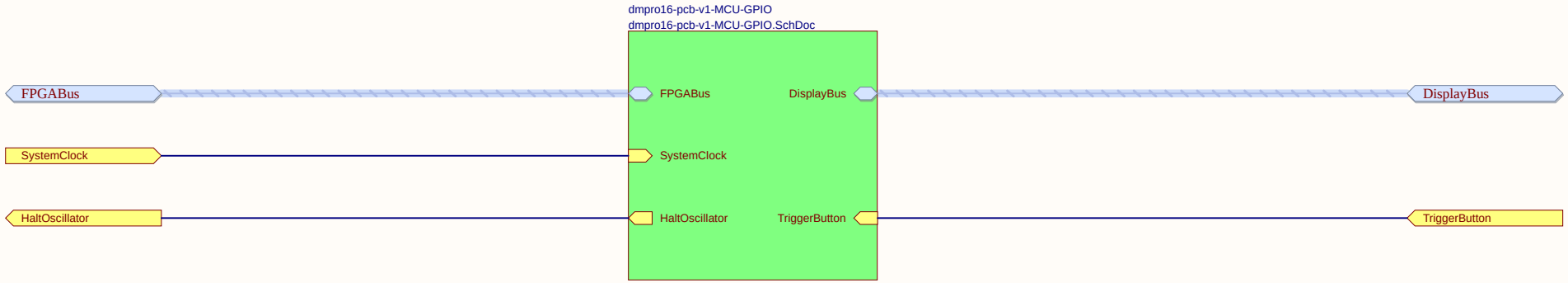






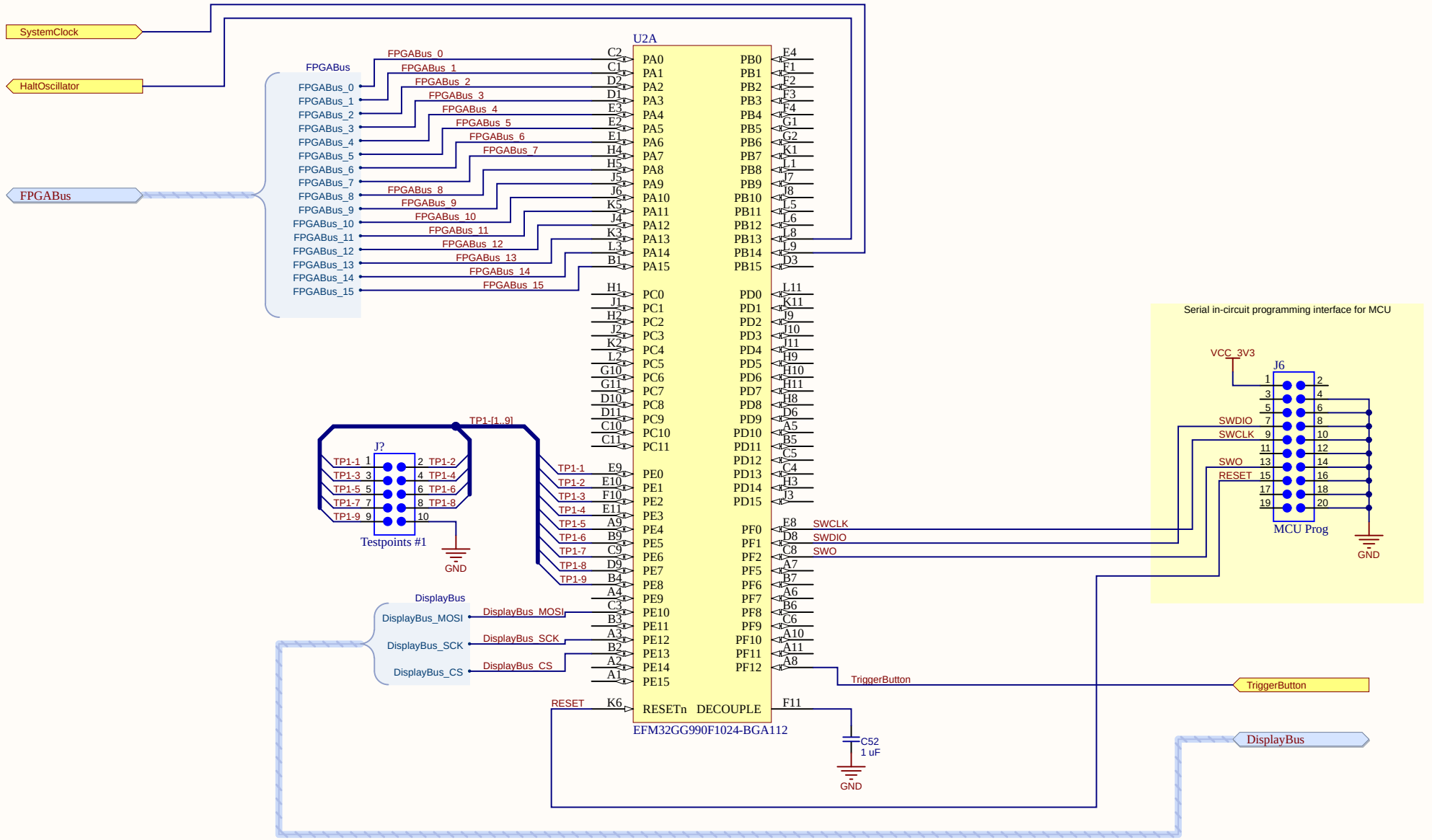


Board:	sudo -ku	Version:	1.0
Sheetname:	SheetName	Sheet * of *	
Subject:	TDT4295 Computer Project	Group:	Energy
Shematic file:	dmpro16-pcb-v1-FPGA-Power.SchDoc		

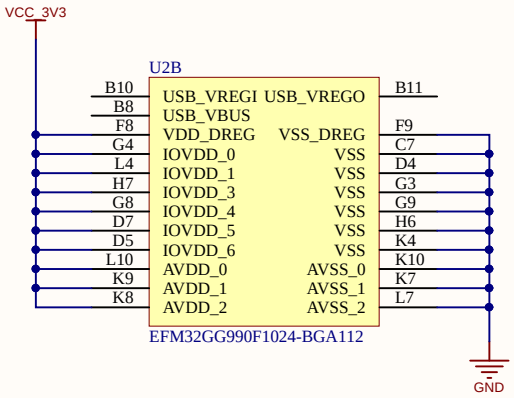


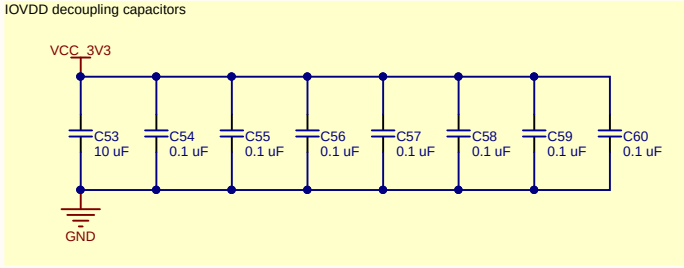
dmpro16-pcb-v1-MCU-Power
dmpro16-pcb-v1-MCU-Power.SchDoc

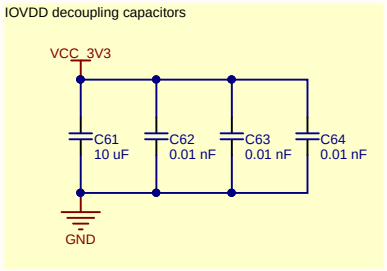
Board:	sudo -ku	Version:	1.0
Sheetname:	SheetName	Sheet * of *	
Subject:	TDT4295 Computer Project	Group:	Energy
Shematic file:	dmpro16-pcb-v1-MCU.SchDoc		

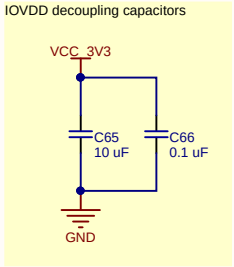


Board:	sudo -ku	Version:	1.0
Sheetname:	SheetName	Sheet	* of *
Subject:	TDT4295 Computer Project	Group:	Energy
Shematic file:	dmpro16-pcb-v1-MCU-GPIO.SchDoc		





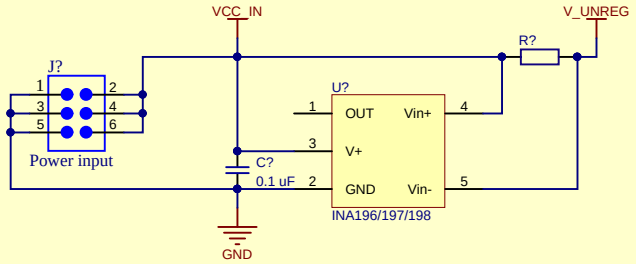




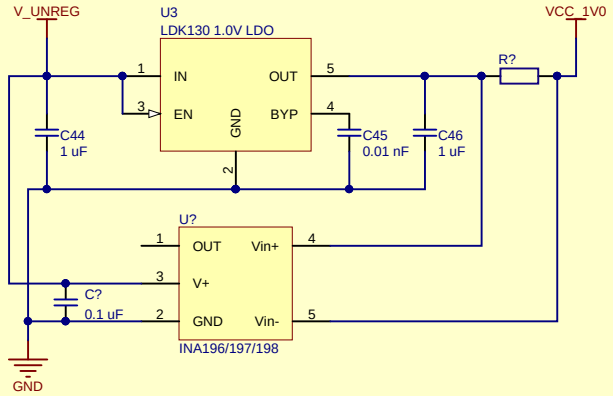
Board:	sudo -ku	Version:	1.0
Sheetname:	SheetName	Sheet * of *	
Subject:	TDT4295 Computer Project	Group:	Energy
Shematic file:	dmpro16-pcb-v1-MCU-Power.SchDoc		

We assume 4 AAA cells provide battery power to the device. Ideally, one would use Li-ion batteries and switch mode power supplies

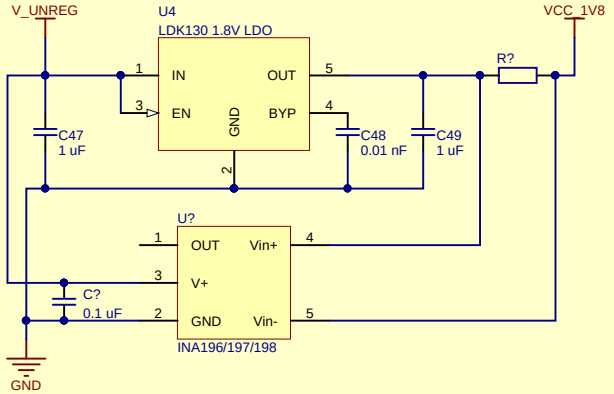
Voltage input, and current sense section for V_UNREG



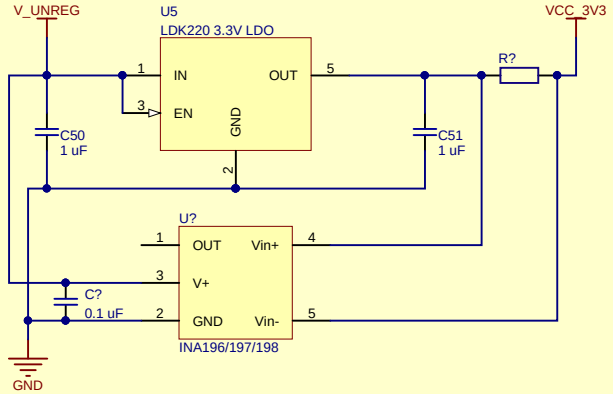
Current sense and voltage regulator section for VCC_1V0



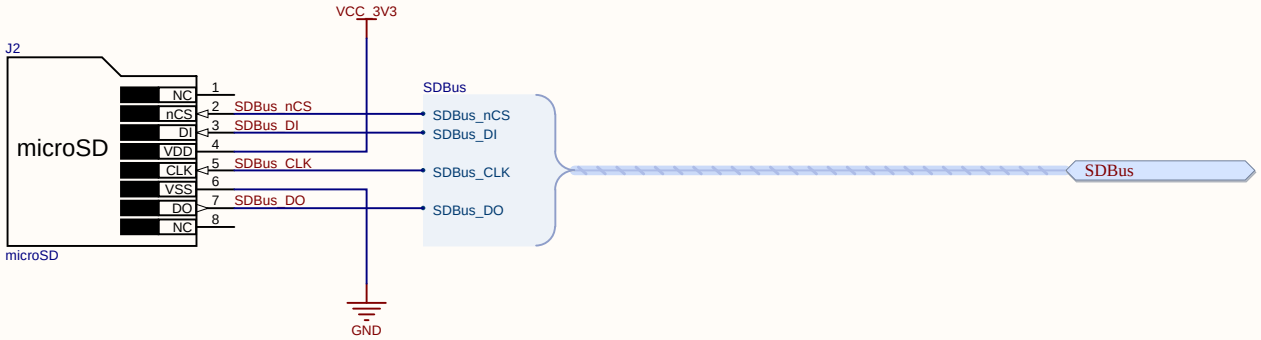
Current sense and voltage regulator section for VCC_1V8



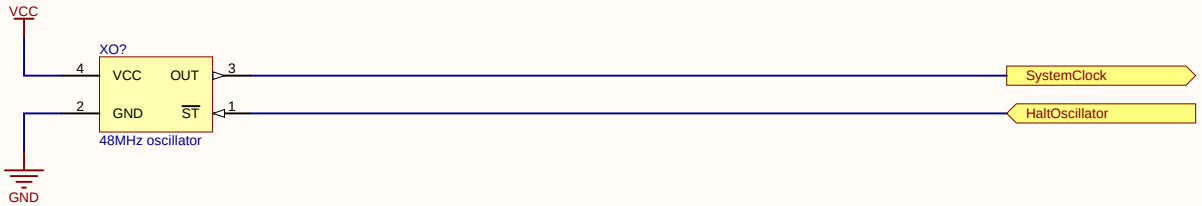
Current sense and voltage regulator section for VCC_3V3



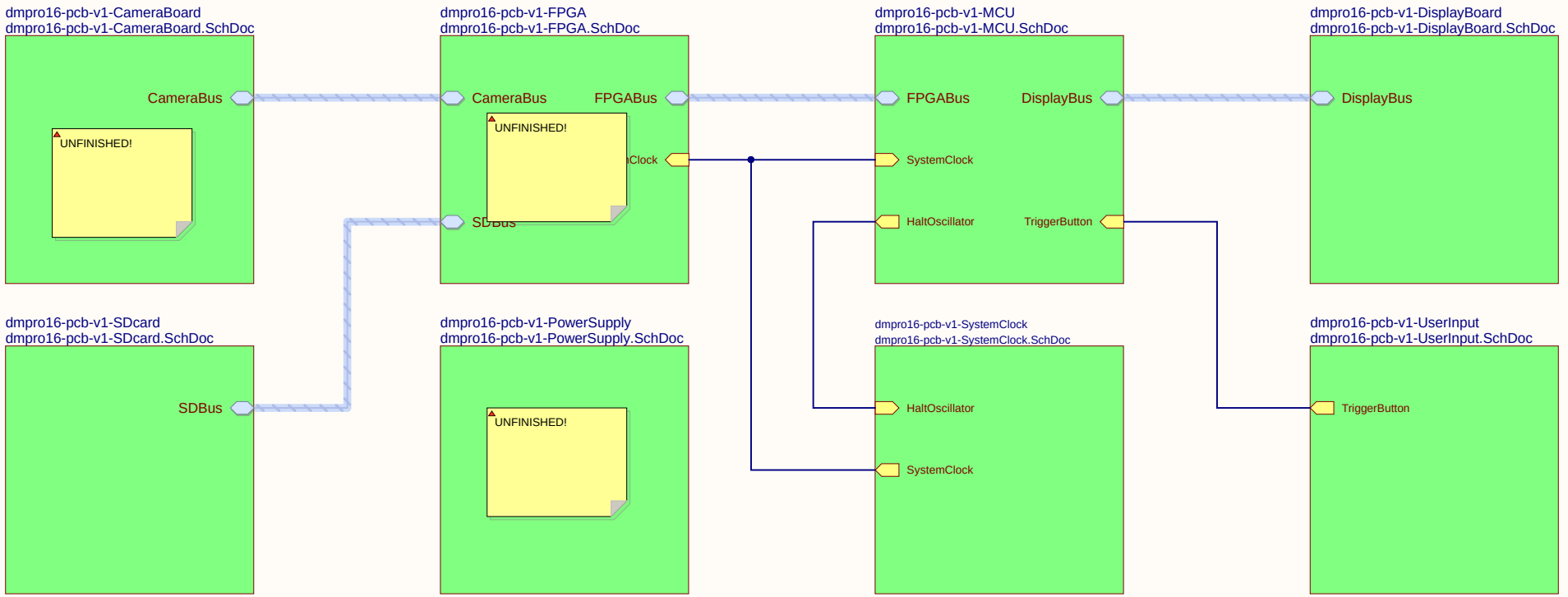
Board:	sudo -ku	Version:	1.0
Sheetname:	SheetName	Sheet * of *	
Subject:	TDT4295 Computer Project	Group:	Energy
Shematic file:	dmpro16-pcb-v1-PowerSupply.SchDoc		



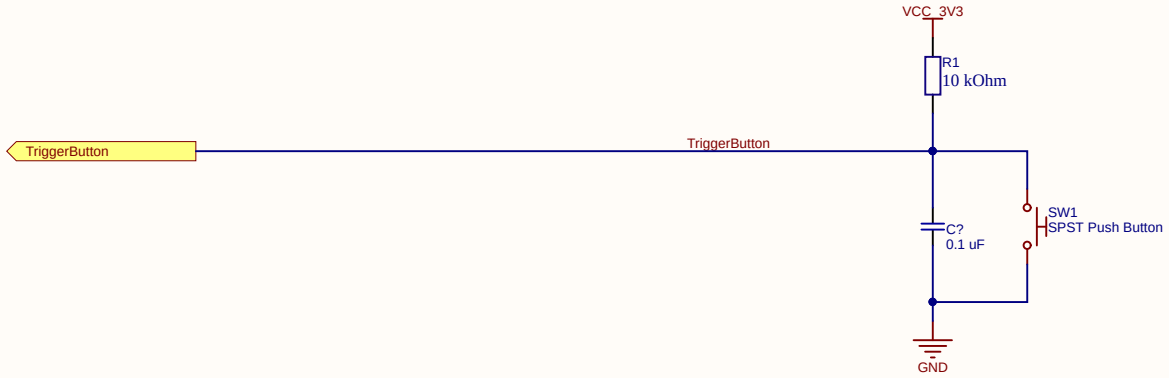
Board:	sudo -ku	Version:	1.0
Sheetname:	SheetName	Sheet * of *	
Subject:	TDT4295 Computer Project	Group:	Energy
Shematic file:	dmpro16-pcb-v1-SDcard.SchDoc		



Board:	sudo -ku	Version:	1.0
Sheetname:	SheetName	Sheet * of *	
Subject:	TDT4295 Computer Project	Group:	Energy
Shematic file:	dmpro16-pcb-v1-SystemClock.SchDoc		



Board:	sudo -ku	Version:	1.0
Sheetname:	SheetName	Sheet * of *	
Subject:	TDT4295 Computer Project	Group:	Energy
Shematic file:	dmpro16-pcb-v1-TopLevel.SchDoc		



Trigger Button: Triggers the MCU to wake up from sleep and start a new aqcuisition.

Board:	sudo -ku	Version:	1.0
Sheetname:	SheetName	Sheet * of *	
Subject:	TDT4295 Computer Project	Group:	Energy
Shematic file:	dmpro16-pcb-v1-UserInput.SchDoc		

Board:	sudo -ku	Version:	1.0
Sheetname:	SheetName	Sheet * of *	
Subject:	TDT4295 Computer Project	Group:	Energy
Shematic file:	schematic_A4_template.SchDot		