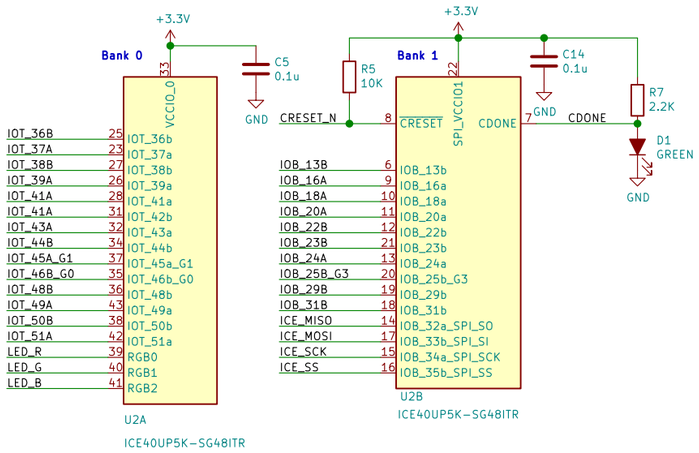
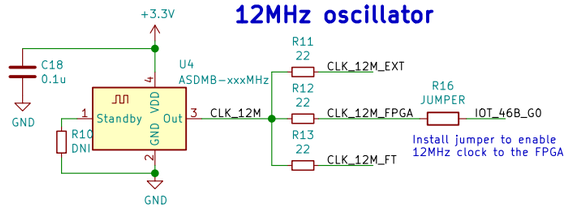
FPGA Banks



TBD:
This is the only bank that can have its bank voltage be programmable I think.

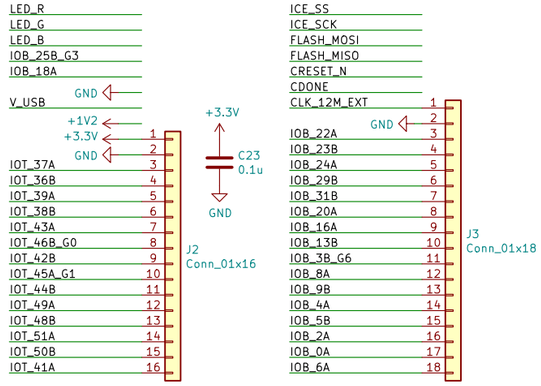
12MHz oscillator



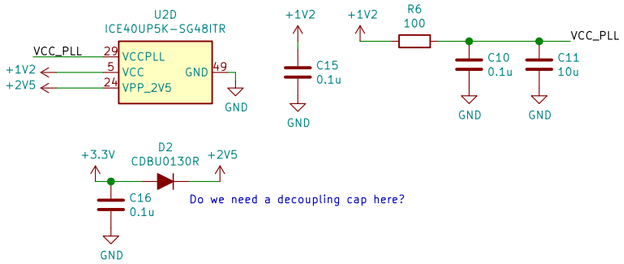
Install jumper to enable 12MHz clock to the FPGA

TBD: Finalize oscillator

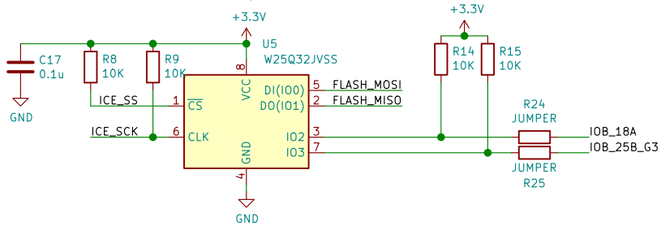
Board connections



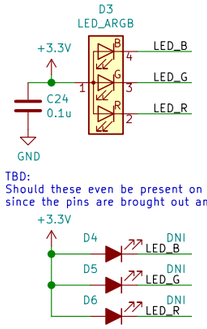
FPGA Power



qSPI/DTR Flash

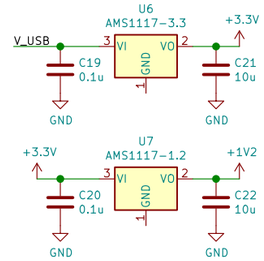


LED's



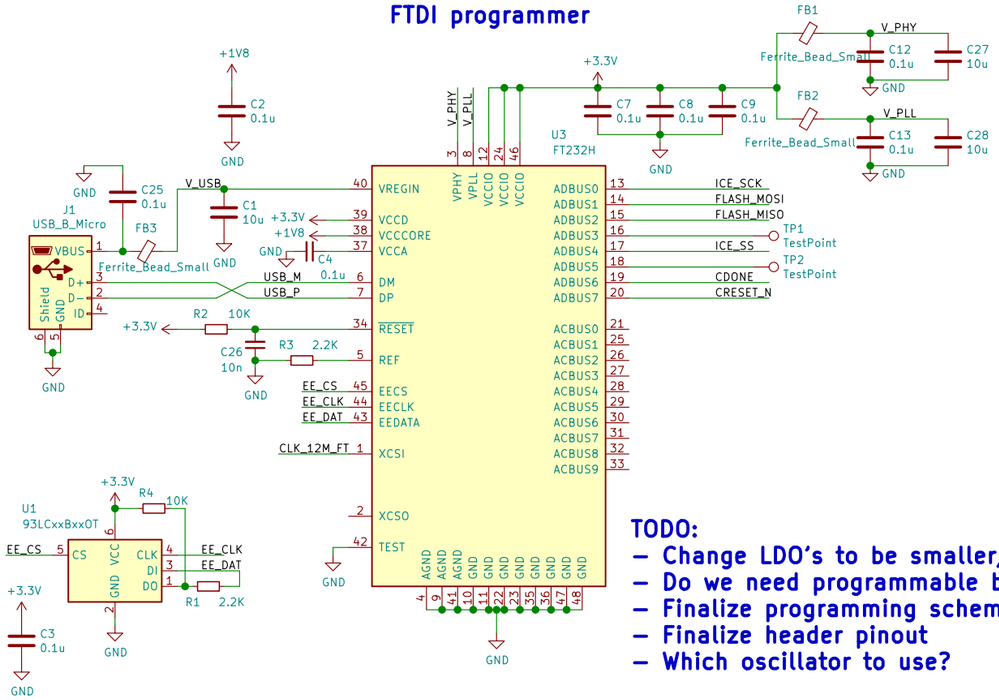
TBD:
Should these even be present on the board since the pins are brought out anyway...

LDO's

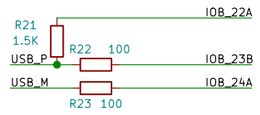


TBD: Consider adding a 1.8V LDO?

FTDI programmer



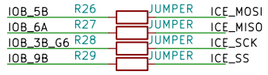
tinyFPGA Bootloader



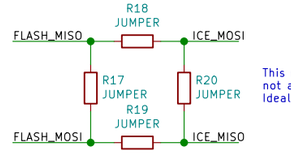
Keep the FTDI in reset to use the tinyFPGA bootloader. This requires the flash to be programmed with the bootloader!

Following jumpers allow the FPGA to talk to the FTDI after configuration using SPI/I2C/UART while not interfering with the memory bus.
This is very useful when you want to use the flash for say a RISCV processor in the FPGA and also the UART to talk to the processor. This would otherwise require an external translator...

NOTE: should be used in conjunction with the tinyFPGA bootloader to prevent bus conflicts.

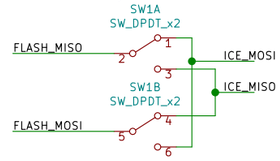


FPGA/Flash programming



This requires manual configuration, not a pleasant task!
Ideally, this would be auto-selected.

Alternate CRAM/Flash selection scheme



Switches are bidirectional

Switches are selected using the reset signal as follows:
Flash: Programming is done when reset is held low
CRAM: Programming is done when reset is held high

TODO:
- Change LDO's to be smaller/cheaper if needed, add 1.8V LDO if needed
- Do we need programmable bank voltages?
- Finalize programming scheme
- Finalize header pinout
- Which oscillator to use?

H1 MountingHole
H2 MountingHole
H3 MountingHole
H4 MountingHole

FID1 Fiducial
FID2 Fiducial
FID3 Fiducial
FID4 Fiducial
FID5 Fiducial
FID6 Fiducial

tinyVision.ai Inc.		
Sheet: /		
File: UPduino.sch		
Title: UPduino extended version		
Size: A3	Date:	**Rev: 3.0 v0.1**
KiCad E.D.A. kicad (5.1.2-1)-1		Id: 1/1