# Layout Notes for Connector Board

QND

VBUSP (jumper to USB 5V or FTDI 5V)

VCC (3V3 rail on board, for JTAG)

USART\_TX (FTDI)

USART\_RX (FTDI)

SWDIO (JTAG)

SWCLK (JTAG)

RESET (JTAG)

SWD (Possibly? Probably not?)

Slave D
Host D
Host D
SPARE0

SPARE1

SPARE2

SPARE3

SPARE4

Connectors put

5 TAG 10 Pin

6 Pin Serial

Miero USB (Slave)

USB A (Host)

7 Pin (Debus Jumper)

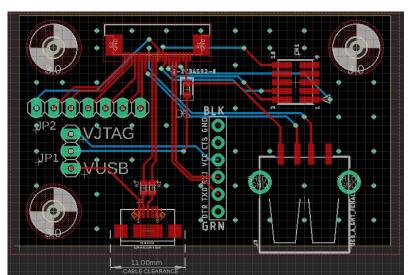
Voltage Selector 3: Pin Jumper (VUSB or JTAG) Voltage Source

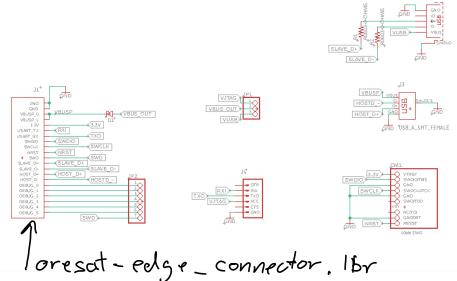
Connector Prototype Board Details

a trace width 3.048 mm (min)

Git hub location

ore sat-proto-card/card-debug-board





## Changes/Suggestions

Instead of a 6 pin FTDI cable which is \$19 each, let's actually add another uUSB connector and an actual FTDI USB to serial converter, like an FT232R.

Don't need the mounting holes. We won't be mounting these to anything.

VJTAG should be called "VSER" or "VFTDI" or something.

The 5V for the USB Type A host is provided by the card, so you'll need to add a 5V line.

- Double up the ground line on the main connector (the PAD connector isn't actually connected to anything besides the physical pads).
  - No such thing as "SWD". It's "SWO". And it should be connected to the JTAG connector's SWO.
  - Go ahead and center the FFC connector on the board just because.
- Change to 2 layer OSH Park design rules.
- Don't need the resistors in the USB line.
- Put the part number of the required FFC cable on the schematic.

(edited)

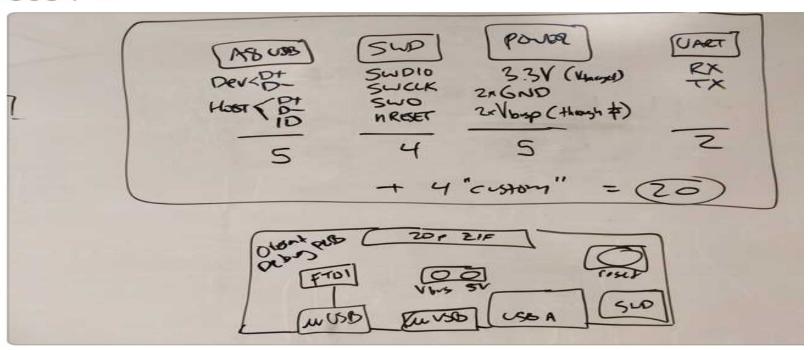
And then just to confuse you, this board should go into the protocard repo, maybe in oresat-proto-card/card-debug-board



Lone

### OreSat debug pinout proposal.

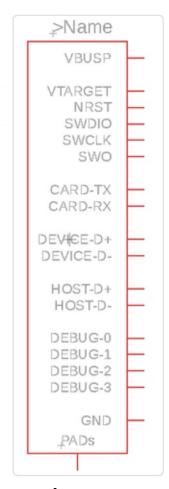
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#### Pins on top, breakout board on bottom.

Here's the pinout, which is supposed to (1) let the USB be high speed still and (2) not mind too much when the FFC cable shorts between pins, as it does sometimes.

- 01 VBUSP
- 02 VBUSP
- 03 GND
- 04 DEV-D+
- 05 DEV-D-
- 06 GND
- 07 HOST-D+
- 08 HOST-D-
- 09 GND
- 10 NRESET
- 11 VTARGET
- 12 STM-RX
  13 STM-TX
- 14 SWDIO
- 15 SWCLK
- 16 SWO
- 17 DEBUG-0
- 18 DEBUG-1
- 19 DEBUG-2
- 20 DEBUG-3



To resat-edge\_connector.lbr

#### Miles Simpson 11:26 AM

This was in the C3 capstone chat:

Instead of a 6 pin FTDI cable which is \$19 each, let's actually add another uUSB connector and an actual FTDI USB to serial converter, like an FT232R.

Nah, I would suggest the crossover from the FTDI perspective if we broke out the UART as well. So like this:

[FT232R\_TX-->BREAKOUT\_UART\_RX-->CONNECTOR\_RX]-->CABLE\_RX-->[CONNECTOR\_RX-->MCU\_RX]
[FT232R\_RX-->BREAKOUT\_UART\_TX-->CONNECTOR\_TX]-->CABLE\_TX-->[CONNECTOR\_TX-->MCU\_TX]

I put [ ] around the breakout and card side of things to group them

BREAKOUT\_UART\_\*X being a pinout if we want those

My point was to ensure the connector symbol in the card schematics was just a straight through connection

The idea being to present TX and RX as they were on the connector coming off a card

Making the card a black box, and you know that TX on the black box is TX, and RX on the black box is RX

