

## Linux Serial Boot Adapter for Oxygen – 5/25/2022

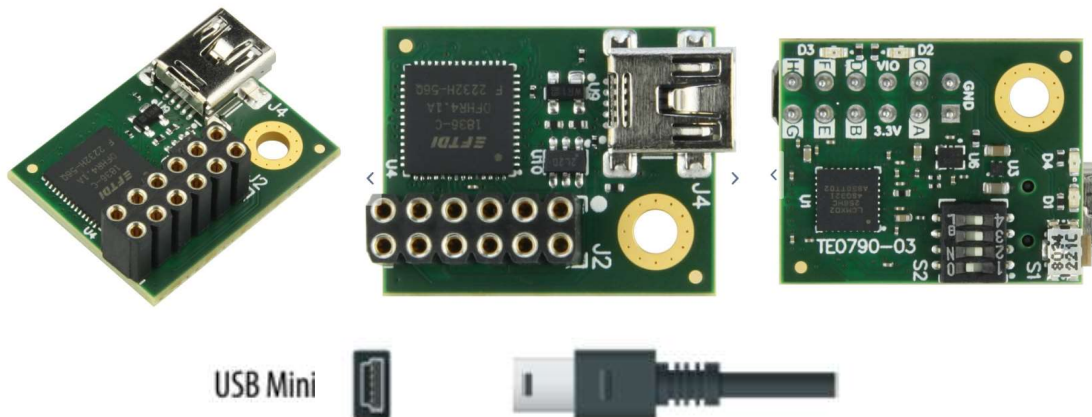
This document will present three options for providing a Linux boot terminal for Red Wire Technologies Oxygen SDR development units.

### 1. Trenz Electronics –XMOD FTDI JTAG Adapter – Xilinx Compatible Order Number: TE0790-03

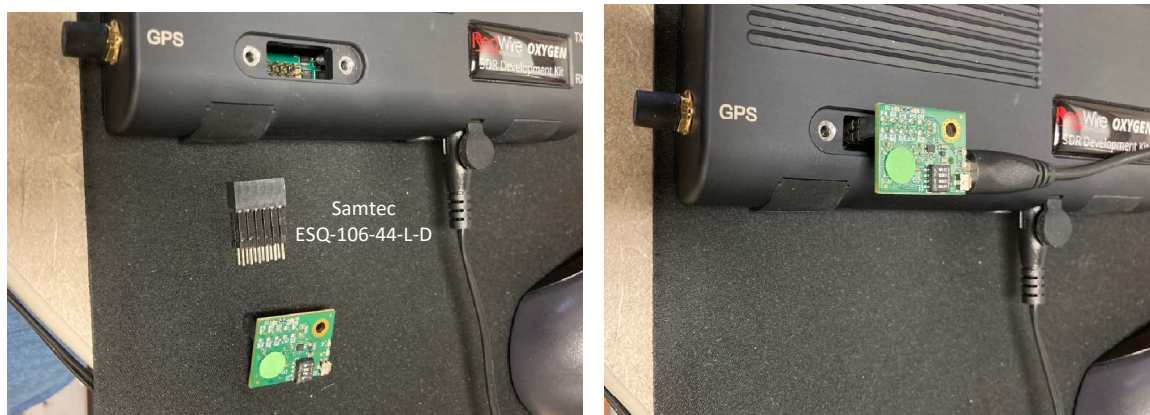
<https://shop.trenz-electronic.de/en/TE0790-03-XMOD-FTDI-JTAG-Adapter-Xilinx-compatible>

Mouser: 287-TE0790-03 No stock, 157 units expected 4/7/2023

DigiKey: 1686-1180-ND, No stock, Lead time not available



This module was the original module planned to be used for this purpose. It also provides a means to program and debug the Xilinx FPGA. This adapter/module is pin compatible with the connector on the Oxygen unit and plugs straight into place using the provided extension connector from Samtec, part# ESQ-106-44-L-D, as shown below:



See this link <https://wiki.trenz-electronic.de/display/PD/TE0790+TRM#TE0790TRM-KeyFeatures> for additional details on this module.

Note: This module is very hard to locate and purchase at this time, so we have provided two additional means to connect to Oxygen units for Linux boot terminal support during development.

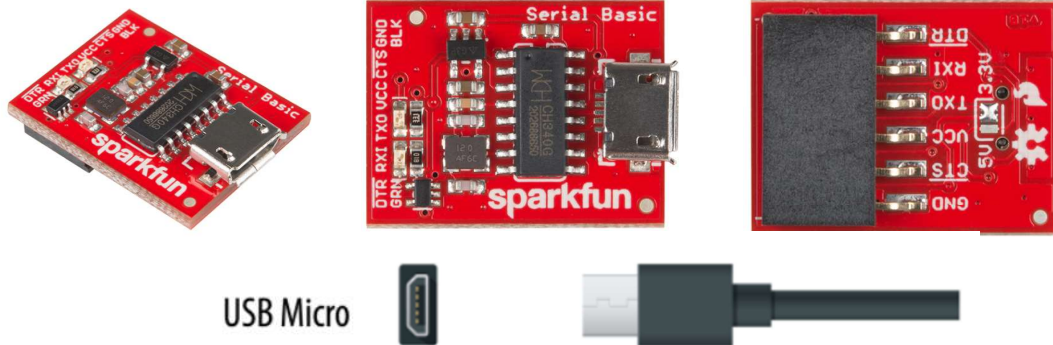
## 2. SparkFun Serial Basic Breakout –CH340G – DEV-14050

<https://www.sparkfun.com/products/14050>

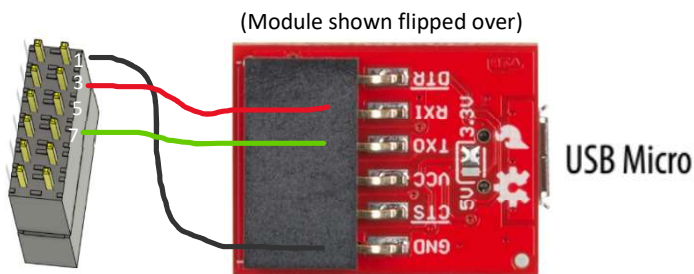
SparkFun: CH340G, DEV-14050, In stock

Mouser: 474-DEV-14050 In stock, Quantity 31 can ship immediately

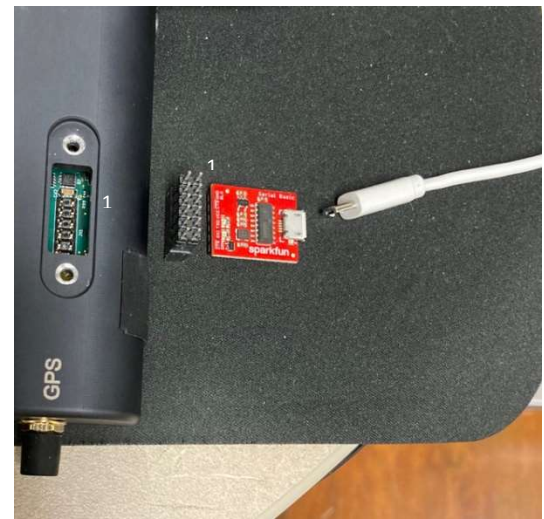
DigiKey: 1568-1505-ND, In stock, Quantity 178 can ship immediately



This module provides serial to USB 2.0 conversion utilizing a USB-micro port to connect the Oxygen unit boot terminal to a host computer. Connections are as follows:



- Oxygen Pin 1 – Oxygen Ground to Adapter Ground
- Oxygen Pin 3 – Oxygen TX Output to Adapter RX Input
- Oxygen Pin 5 – No connection, skip it
- Oxygen Pin 7 – Oxygen RX Input to Adapter TX Output



On the SparkFun module there is a voltage mode jumper labeled 5V and 3.3V. The default voltage setting is 3.3V. Leave this module in this default 3.3V position/mode.

Use caution when plugging in the Samtec extension connector into the Oxygen unit. Be sure that all connections are made. Verify that the Samtec extension connector and the internal Oxygen connector are aligned and that no pins have been missed.

At this point, with these connections in place, the USB cable can be attached to the Sparkfun adapter and to the host PC. The serial port will then enumerate and will show up in your host PC's system. Use your normal procedure(s) for connecting your computer to a comm port, baud rate is 115200 baud.

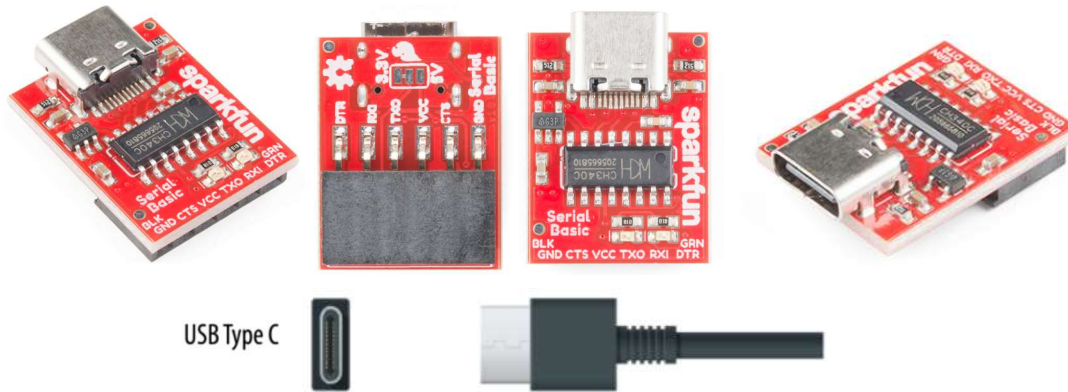
### 3. SparkFun Serial Basic Breakout –CH340C and USB-C, DEV-15096

<https://www.sparkfun.com/products/15096>

SparkFun: CH340C, DEV-15096, In stock

Mouser: 474-DEV-14050, In stock, Quantity 31 can ship immediately

DigiKey: 1568-1972-ND, In stock, Quantity 87 can ship immediately



This module provides serial to USB 2.0 conversion utilizing a USB-C port to connect the Oxygen unit boot terminal to a host computer. Connections are as follows:



- Oxygen Pin 1 – Oxygen Ground to Adapter Ground
- Oxygen Pin 3 – Oxygen TX Output to Adapter RX Input
- Oxygen Pin 5 – No connection, skip it
- Oxygen Pin 7 – Oxygen RX Input to Adapter TX Output

On the SparkFun module there is a voltage mode jumper labeled 5V and 3.3V. The default voltage setting is 3.3V. Leave this module in this default 3.3V position/mode.

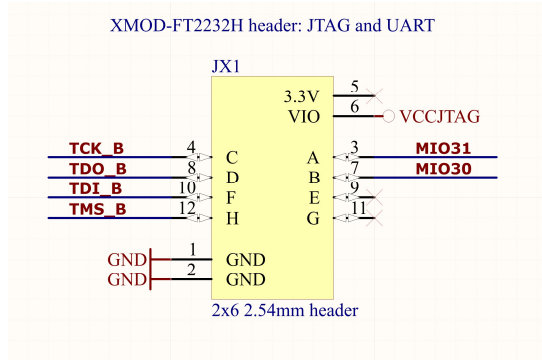
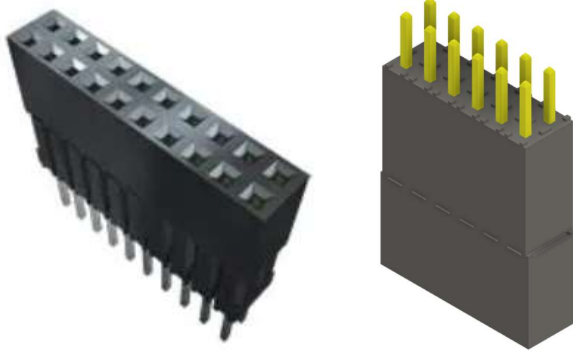
Use caution when plugging in the Samtec extension connector into the Oxygen unit. Be sure that all connections are made. Verify that the Samtec extension connector and the internal Oxygen connector are aligned and that no pins have been missed.

At this point, with these three connections in place, the USB cable can be attached to the Sparkfun adapter and to the host PC. The serial port will then enumerate and will show up in your host PC's system. Use your normal procedure(s) for connecting your computer to a comm port, baud rate is 115200 baud.

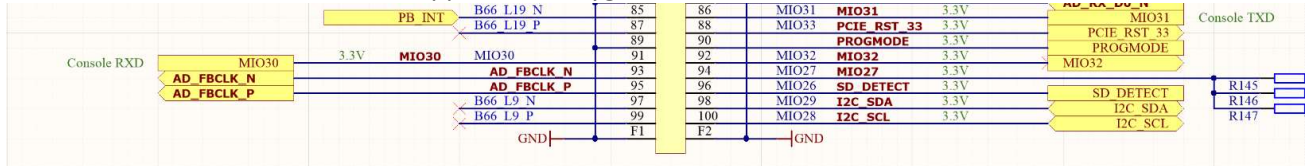
## 4. Appendix

Additional information can be found here.

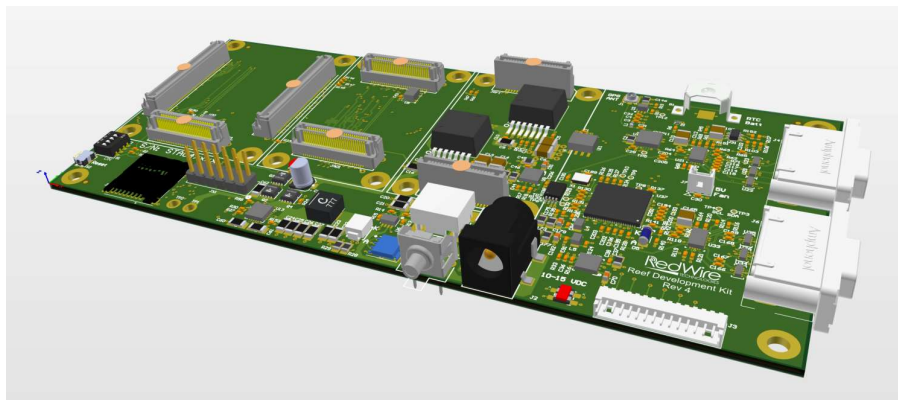
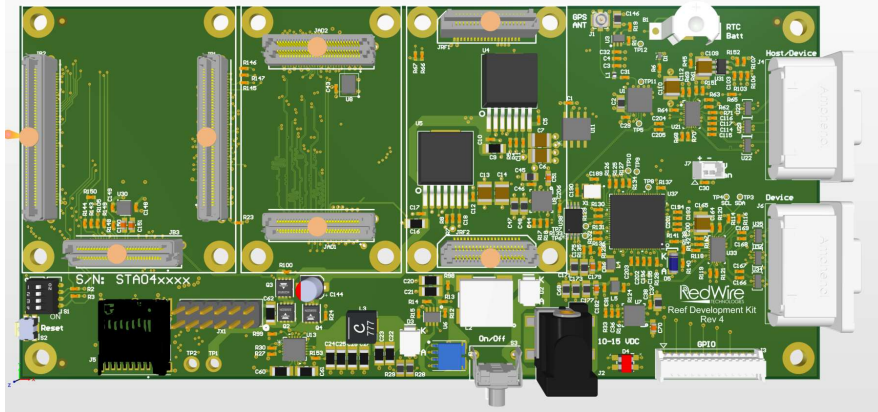
Samtec, part# ESQ-106-44-L-D



### Snippet from Oxygen Carrier Schematic

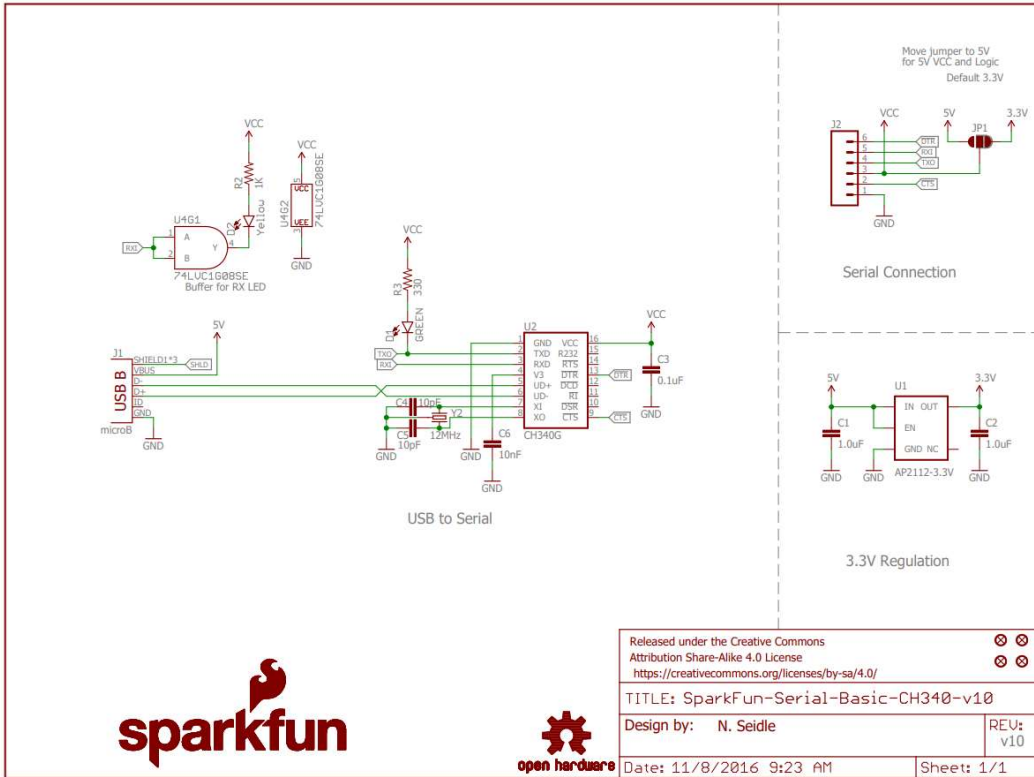


### Oxygen Carrier Board





## SparkFun Module Schematic CH340G – DEV-14050



## SparkFun Schematic CH340C and USB-C, DEV-15096

