ZCU208 Software Install and Board Setup

October 2020

XILINX

XTP607

Revision History

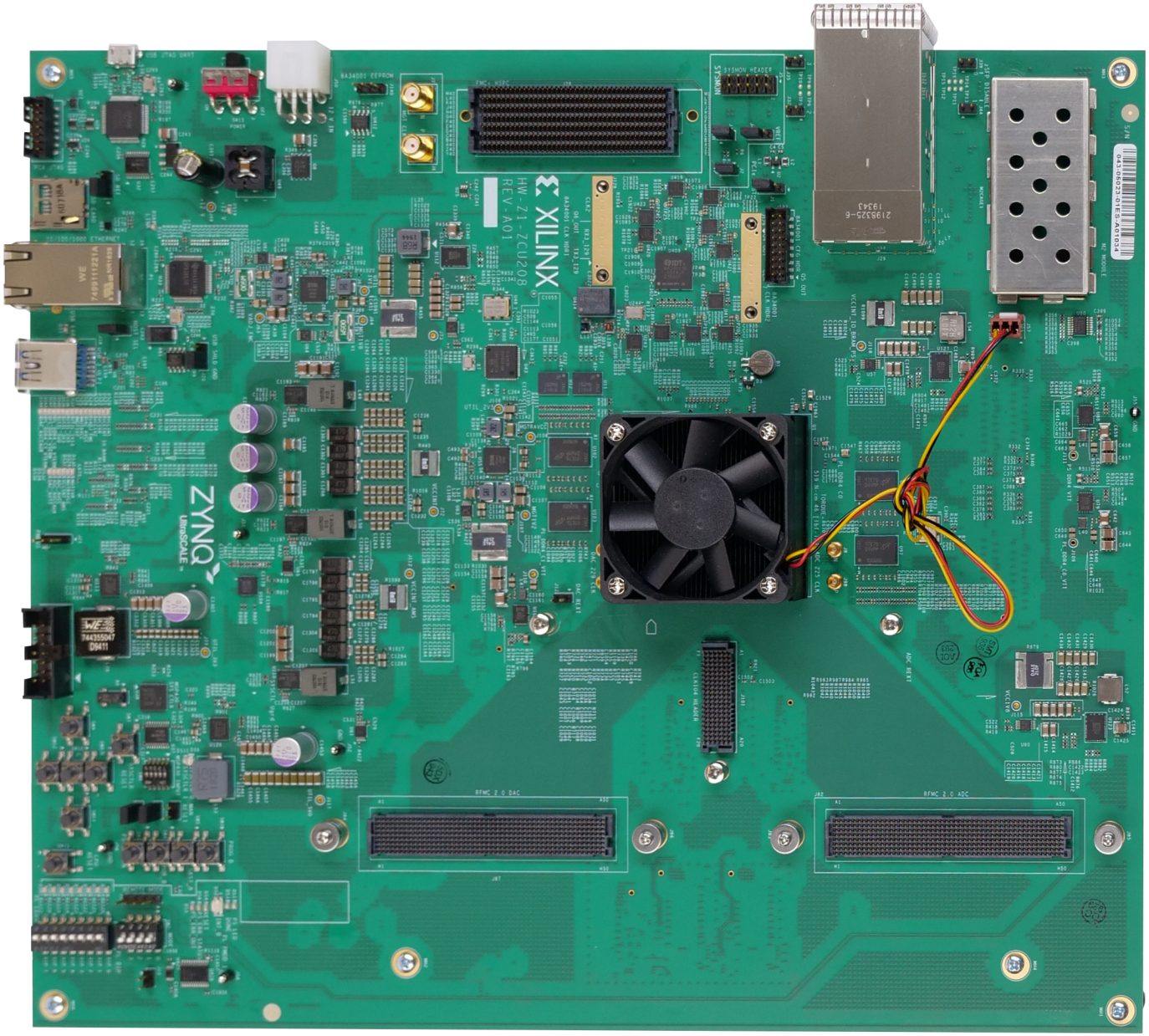
Date	Version	Description
10/30/18	1.0	Initial version for production silicon.

ZCU208 Software Install and Board Setup

- Xilinx ZCU208 Board
- Software Requirements
- ZCU208 Hardware Setup
- UART Driver Install
- Terminal Setup
- Clock Setup
- Ethernet Setup
- Optional Hardware Setup
- References

Note: This presentation applies to the ZCU208

Xilinx ZCU208 Board



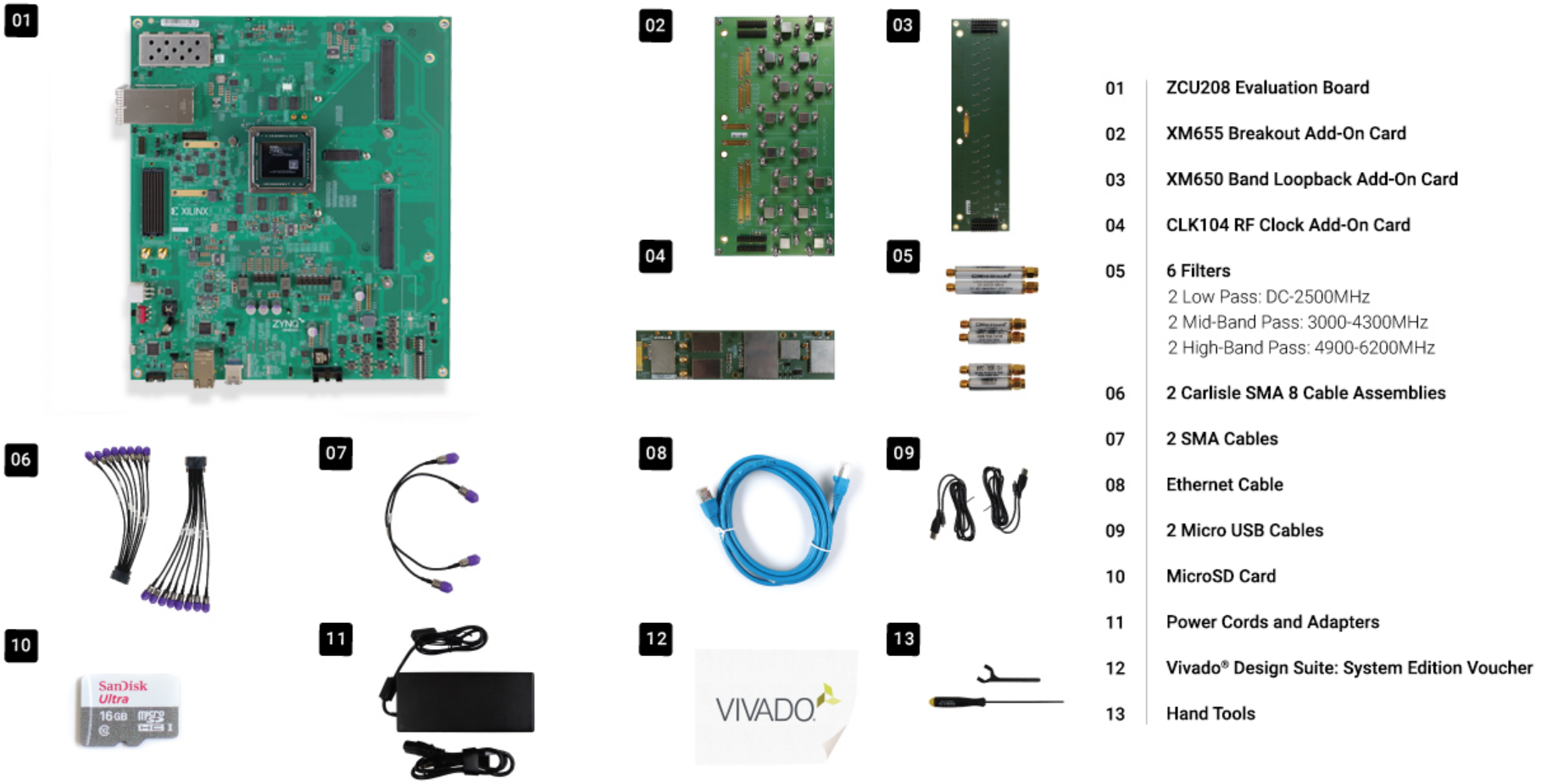
Software Requirements

- **Xilinx Vivado Design Suite 2020.1.1, HL System Edition with SDK**

Note: Presentation applies to the ZCU208

ZCU208 Hardware Setup

> ZCU208 Kit Hardware contents

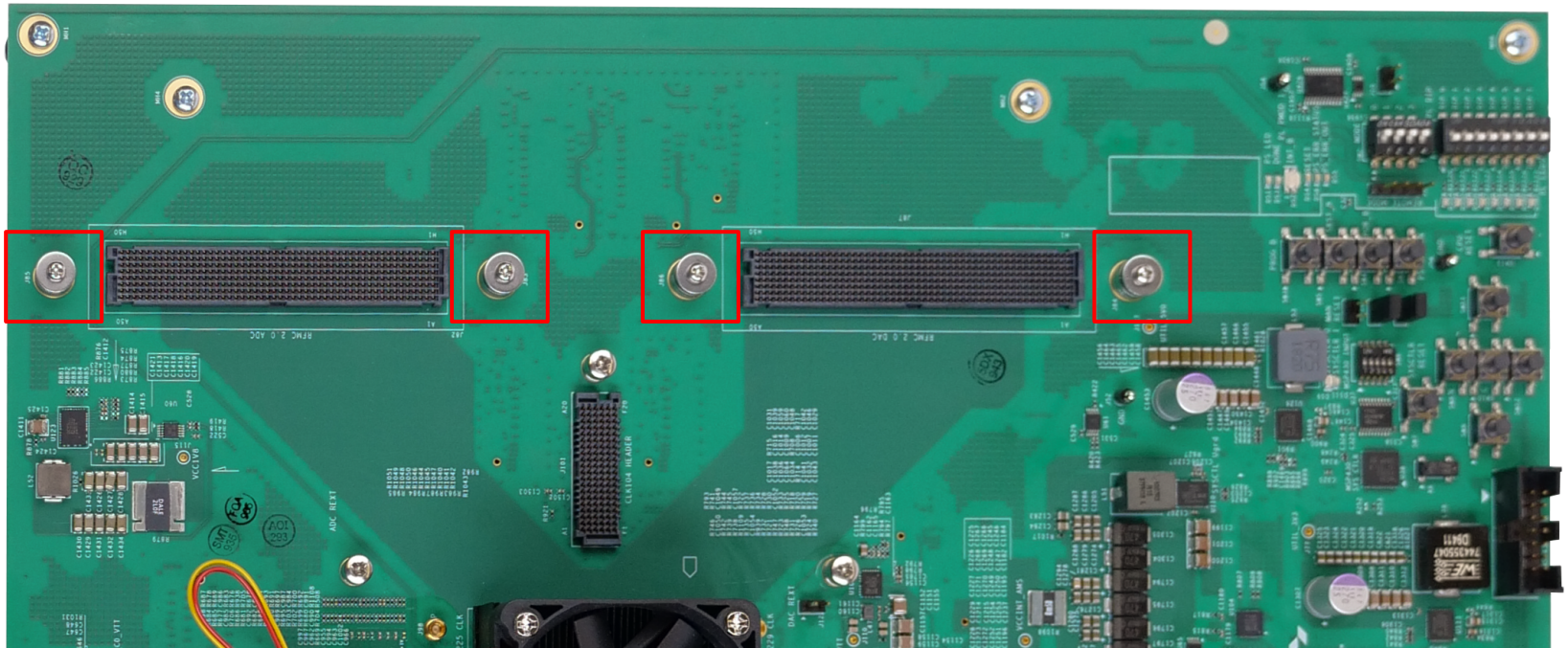


01	ZCU208 Evaluation Board
02	XM655 Breakout Add-On Card
03	XM650 Band Loopback Add-On Card
04	CLK104 RF Clock Add-On Card
05	6 Filters 2 Low Pass: DC-2500MHz 2 Mid-Band Pass: 3000-4300MHz 2 High-Band Pass: 4900-6200MHz
06	2 Carlisle SMA 8 Cable Assemblies
07	2 SMA Cables
08	Ethernet Cable
09	2 Micro USB Cables
10	MicroSD Card
11	Power Cords and Adapters
12	Vivado® Design Suite: System Edition Voucher
13	Hand Tools

Note: Presentation applies to the ZCU208

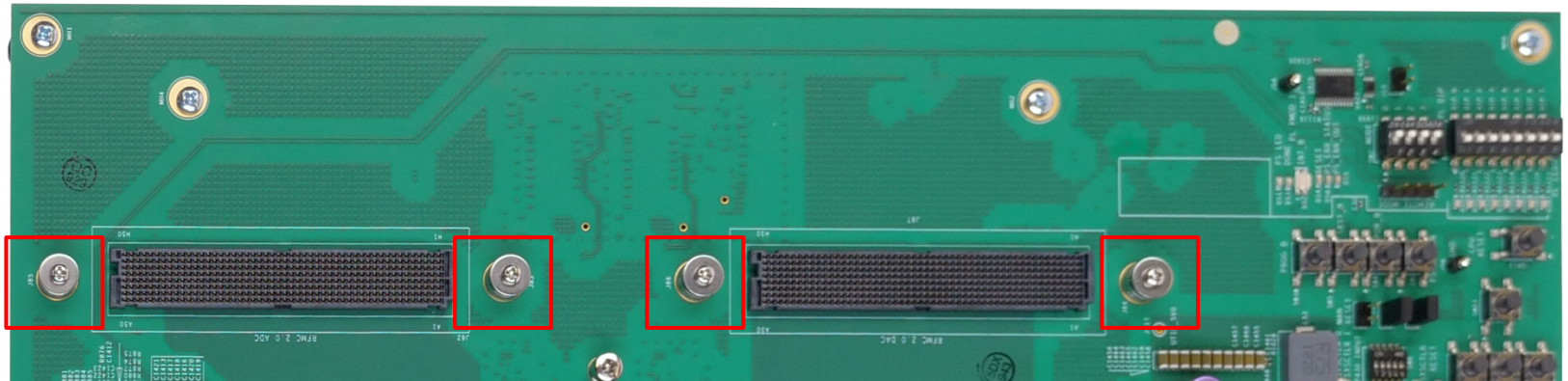
ZCU208 Hardware Setup

- **Use a JIS #1 screwdriver to remove and install screws on Balun board and Clock module**
  - Recommended: Vessel 220 screwdriver
  - Press down reasonably hard to avoid cam-out when tightening or loosing the screws
  - Clock module attaches to the vertical connector below the two Balun connectors with three screws



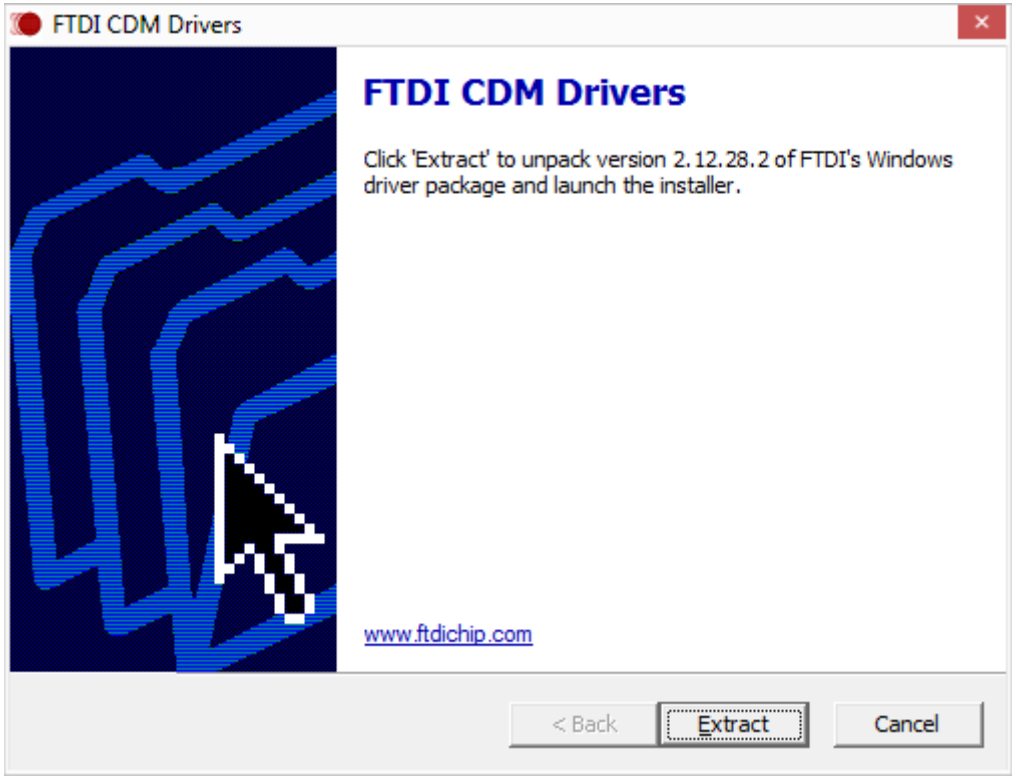
ZCU208 Hardware Setup

- **Attach the XM650 Balun board**
  - Remove the screws and washers
  - Verify the jackscrew nuts under the screws are tight, using the 4 mm hex wrench
  - Attach the Balun board and initially snug the screws with the screwdriver
  - Tightening each screw by one half turn from one side to the other until all four screws are equally tight
- **Remove the XM650 Balun board**
  - Remove the screws and washers
  - Using a 4 mm hex wrench, jack the Balun board loose, carefully loosening each jackscrew nut a half turn at a time, until the Balun board is released from the RF connectors
  - Samtec Video on board removal (JSO): https://vimeo.com/158484280



UART Driver Install

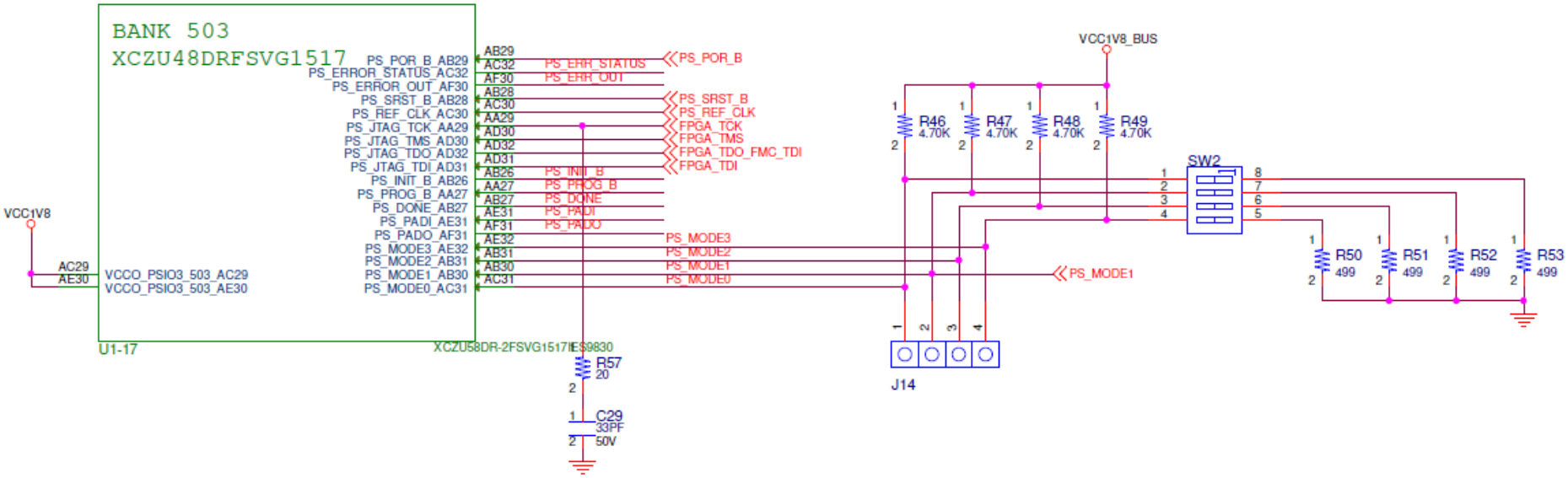
- **Prior to connecting and powering on the ZCU208, install the FTDI CDM Drivers**
  - http://www.ftdichip.com/Drivers/CDM/CDM21228_Setup.zip

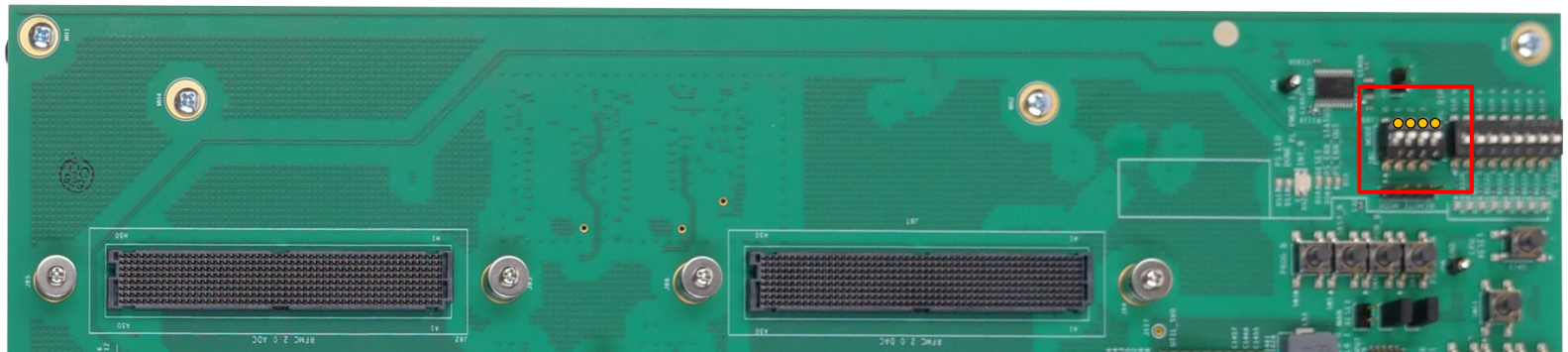


Note: Presentation applies to the ZCU208

ZCU208 Hardware Setup

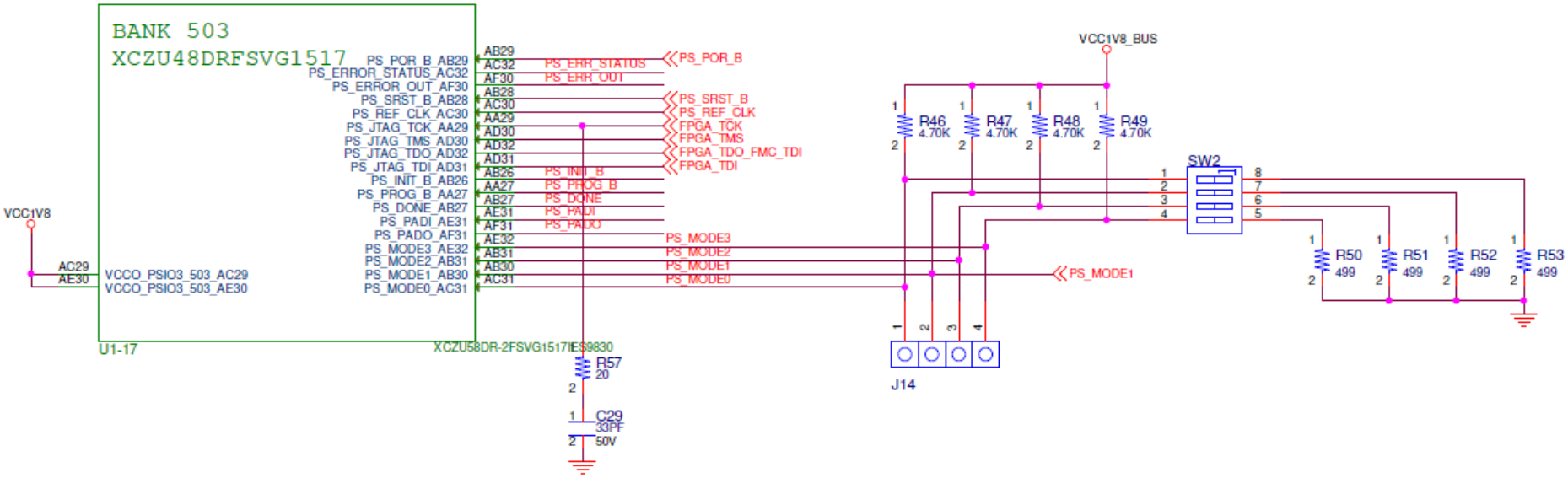
- **Set S2 to 1111 (1 = GND, Position 1 → Position 4) (All Up)**
  - Used for most tutorials; this sets the Boot Mode to 0x0000, JTAG as per UG1085

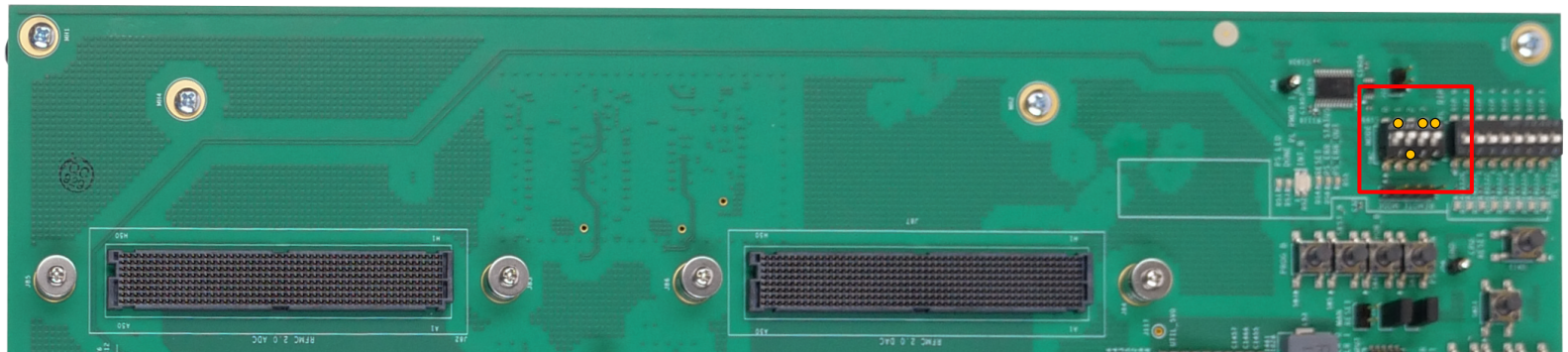




ZCU208 Hardware Setup

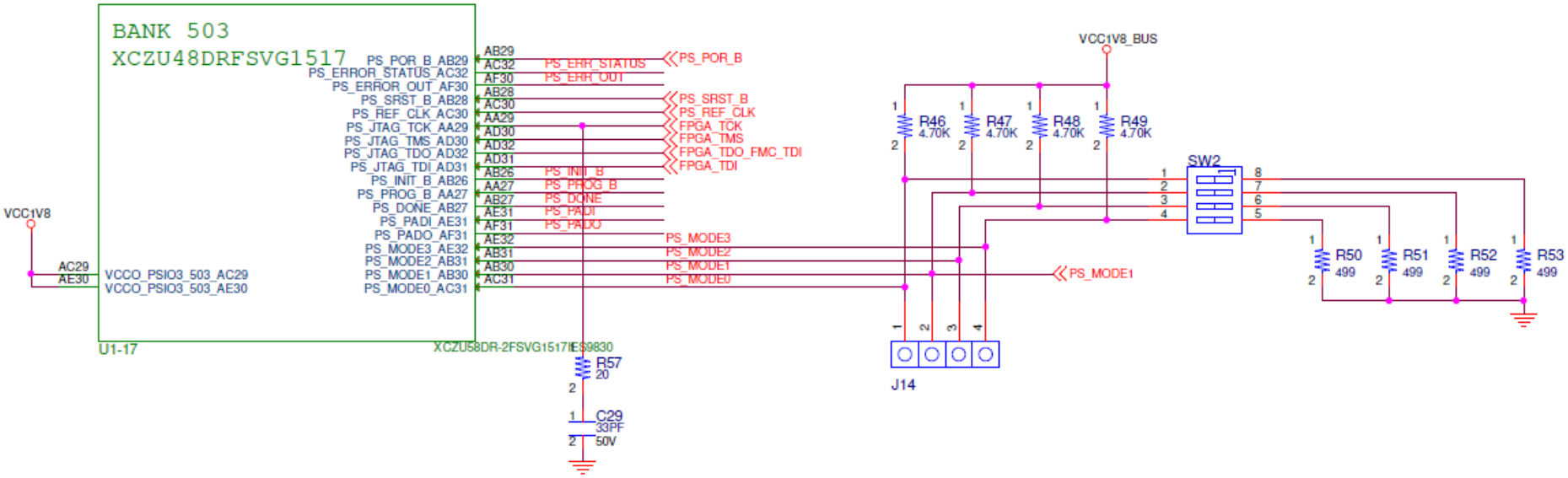
- **Set S2 to 1011 (1 = GND, Position 1 → Position 4) (Up, Down, Up, Up)**
  - For booting from QSPI

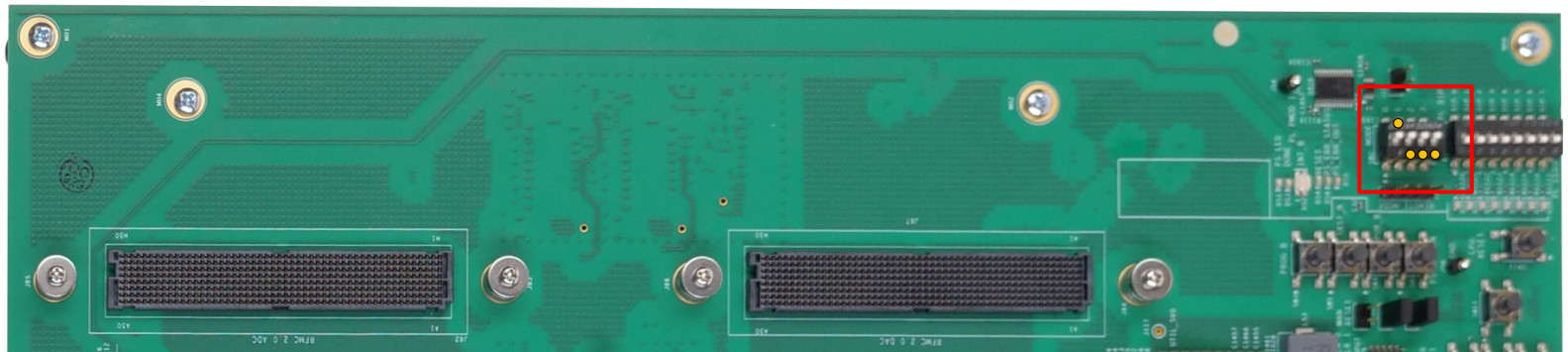




ZCU208 Hardware Setup

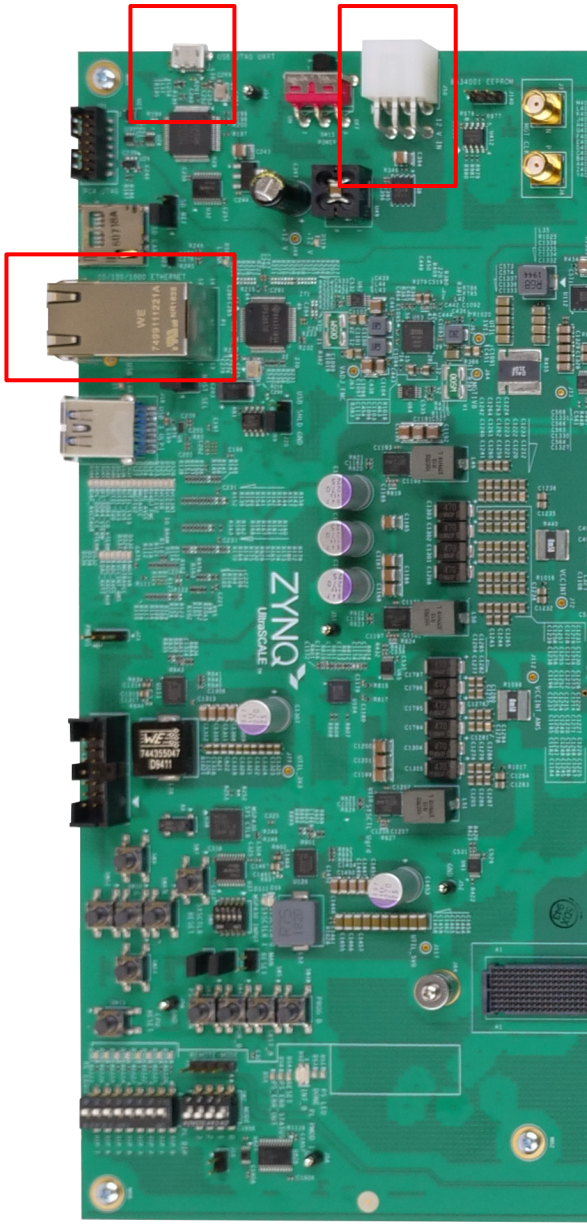
- **Set S2 to 1000 (1 = GND, Position 1 → Position 4) (Up, Down, Down, Down)**
  - For booting from SD





ZCU208 Hardware Setup

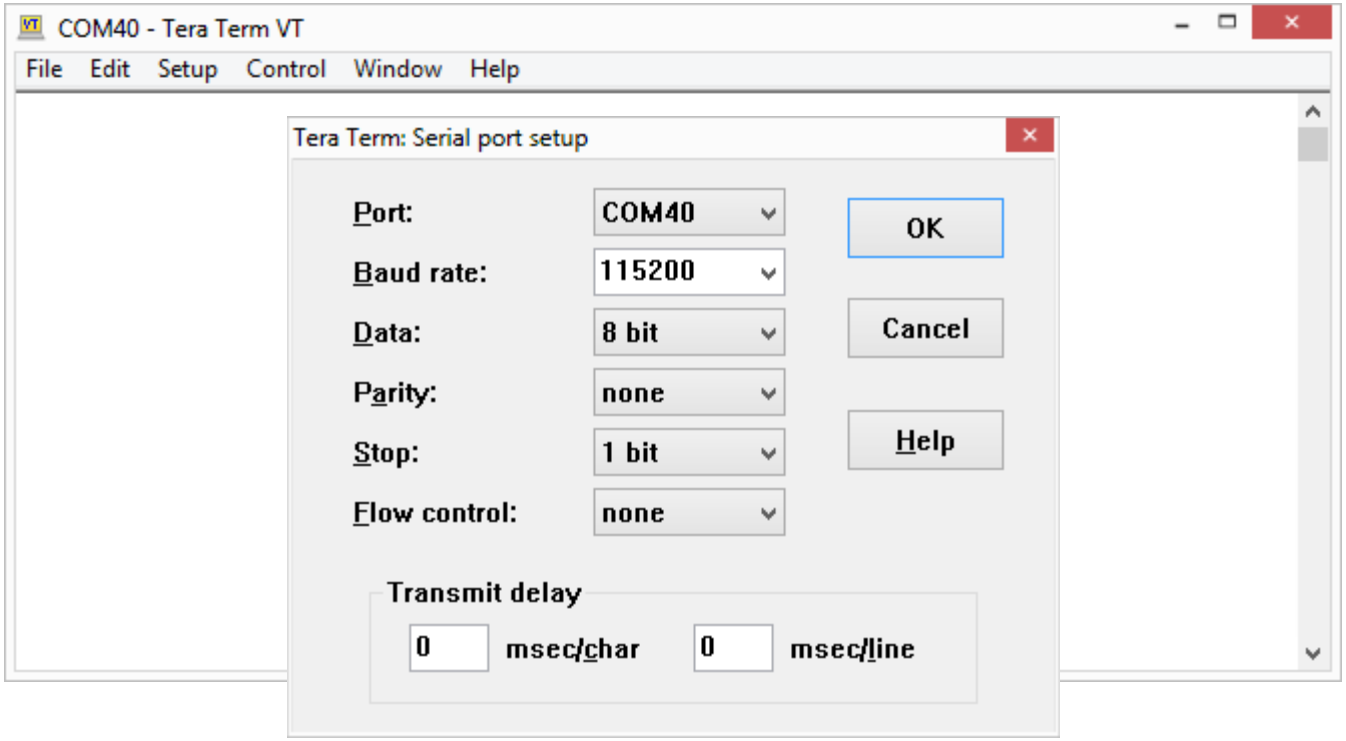
- **Connect the included Ethernet cable to the ZCU208 and connect it to the Host computer**
- **Connect a USB Type-A to Micro-B cable to the USB UART JTAG (FTDI) (J83) connector on the ZCU208 board**
- **Connect this cable to your PC**
- **Connect the power supply to the ZCU208 (J52)**
  - Connect this cable a power outlet
- **Power on the ZCU208 board**
  - The PC will enumerate the JTAG and COM Ports



Note: Presentation applies to the ZCU208

Terminal Setup

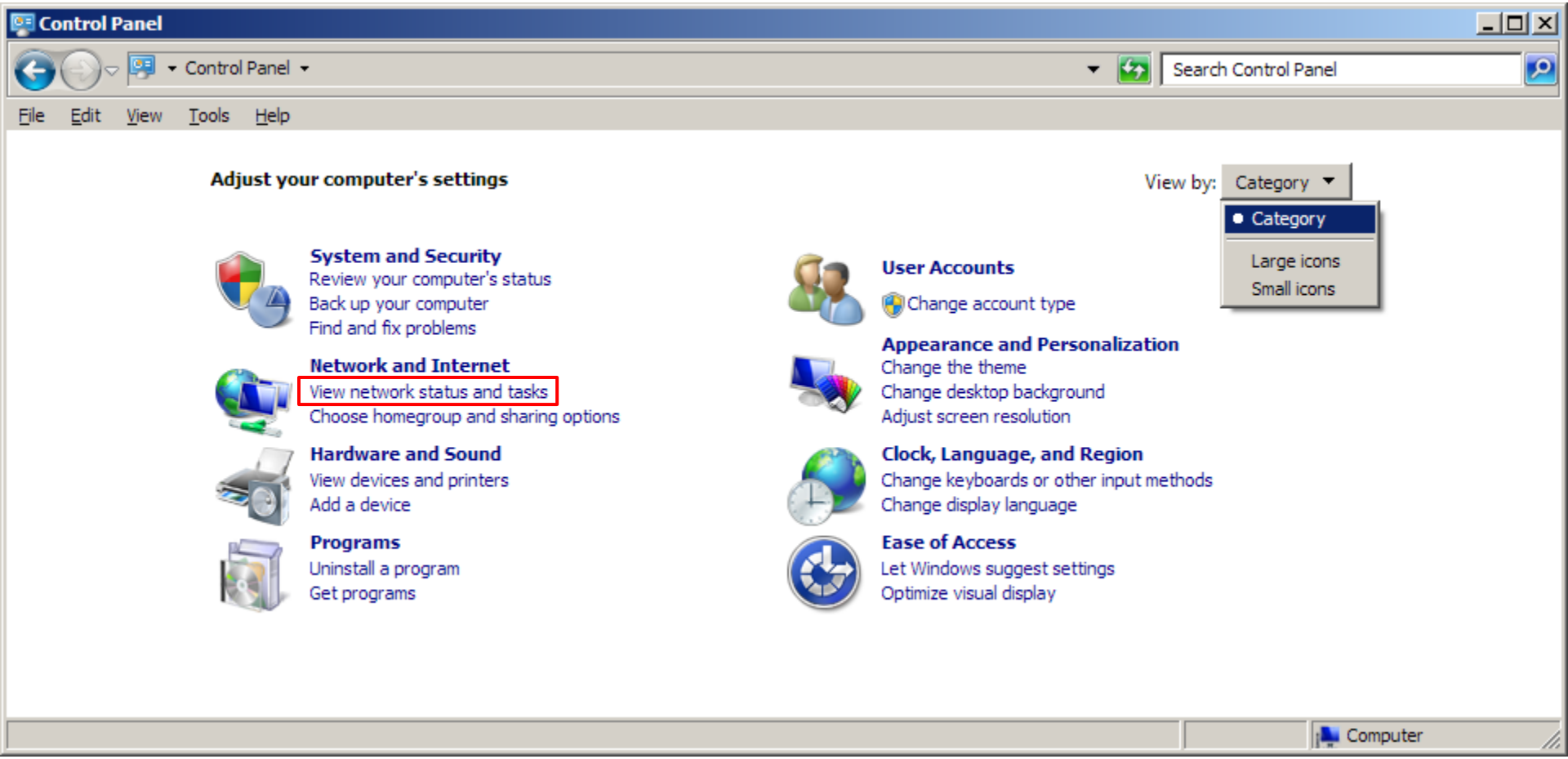
- **Refer to UG1036 regarding Tera Term installation**
- **Board Power must be on before starting Tera Term**
- **Start the Terminal Program**
  - Select the desired COM Port
  - Set the baud to 115200



Note: Close Tera Term while using BIT/System Controller GUI

Ethernet Setup

- **Open the Windows Control Panel**
  - Set to View by Category
- **Click on "View network status and tasks"**



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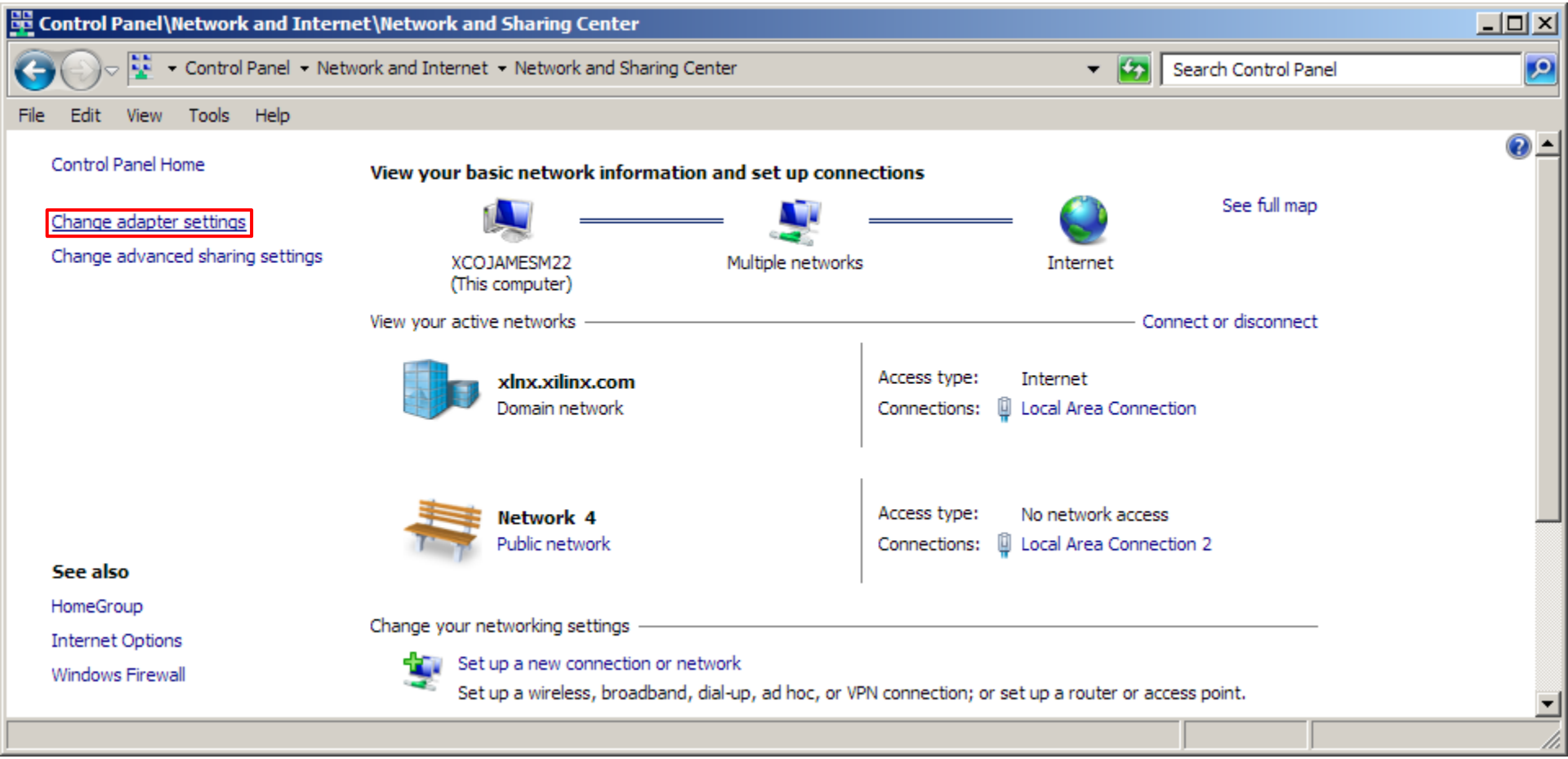
Ethernet Setup

> **Click on “Change adapter settings”**



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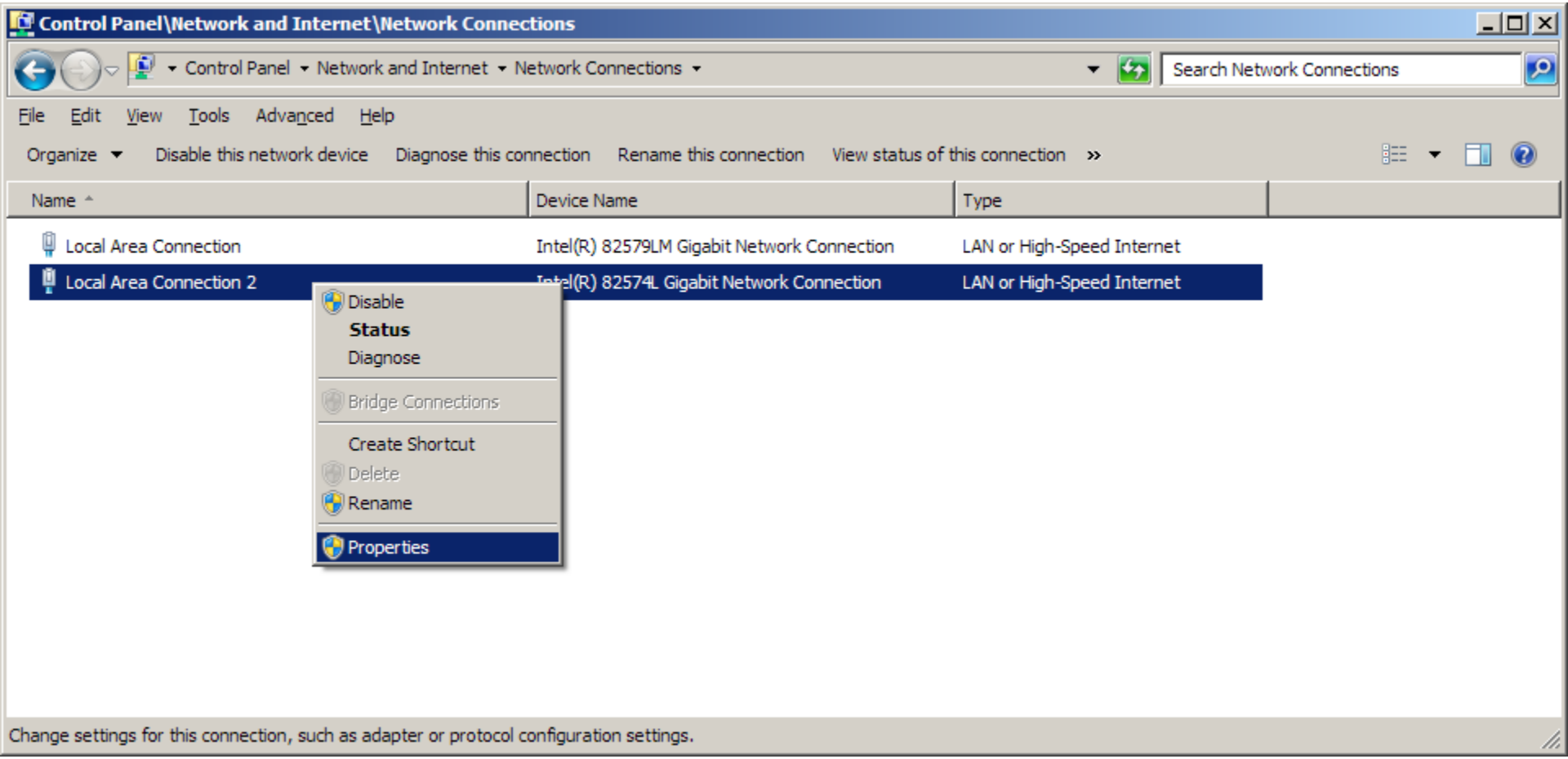
Ethernet Setup

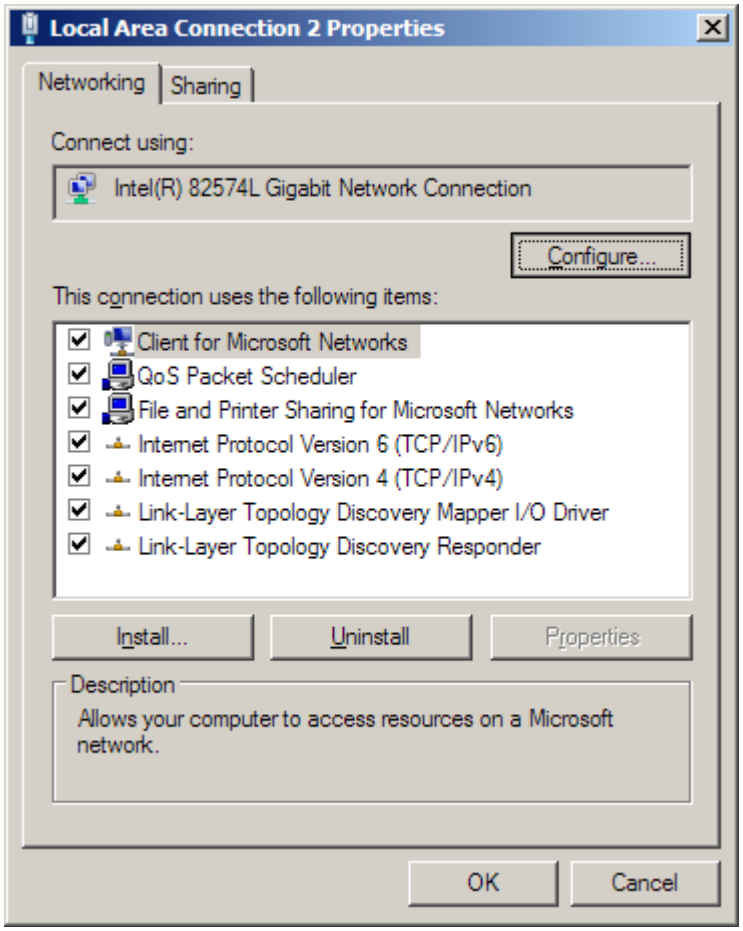
- **Right-click on the Gigabit Ethernet Adapter that you will be using for this test and select Properties**

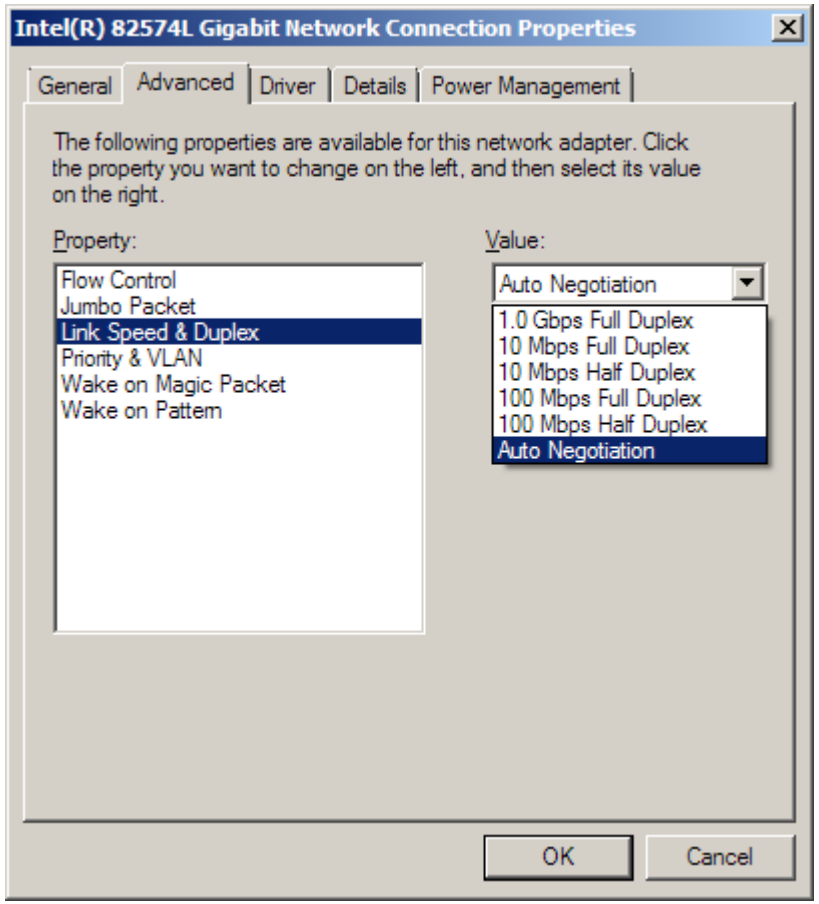


Note: Presentation applies to the ZCU208

Ethernet Setup

- **Click Configure**
  - Set the Link Speed & Duplex to Auto Negotiation then click OK





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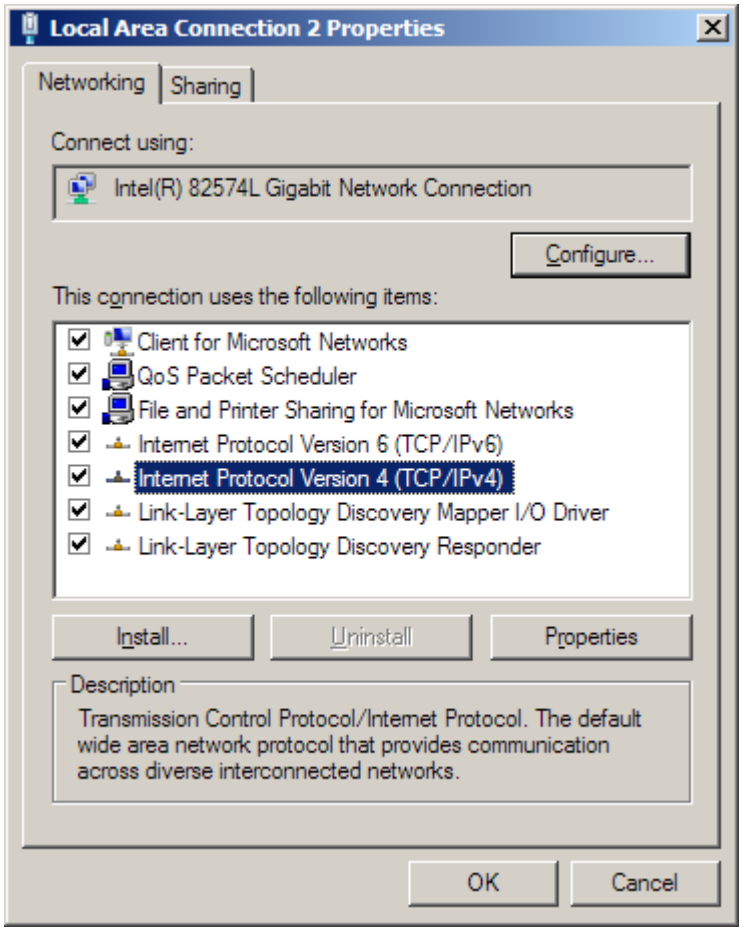
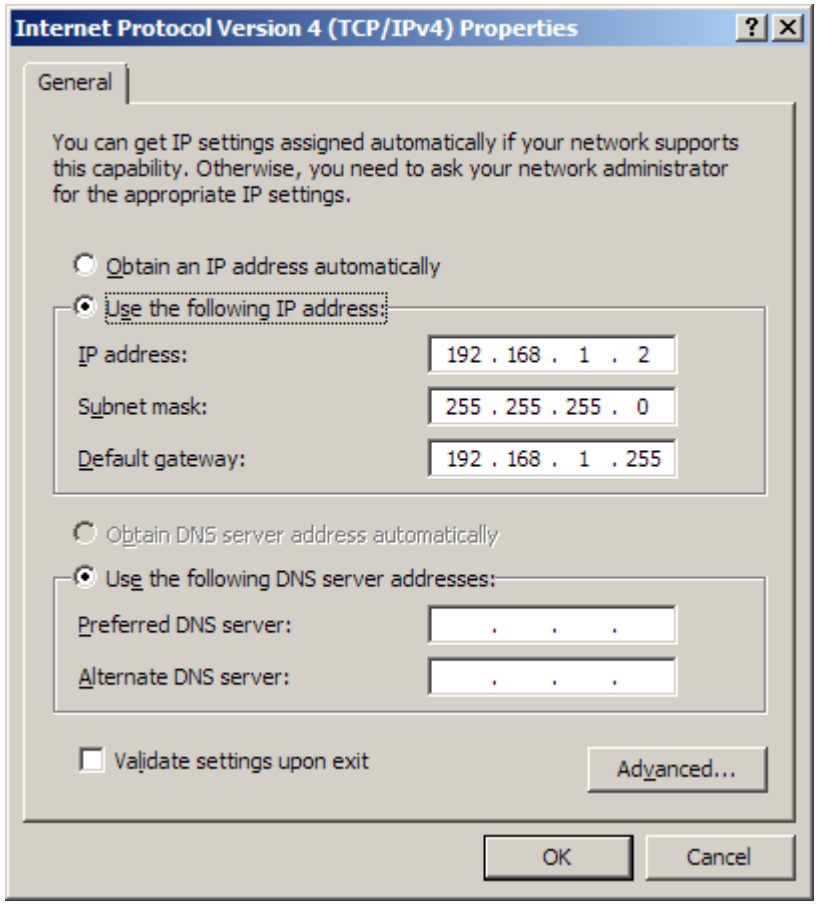
Ethernet Setup

- Reopen the properties after the last step
- Double-click the Internet Protocol Version 4
- Set your host to this IP Address:





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Optional Hardware Setup

- **For testing SFP with IBERT, SFP28 Loopback Adapters are needed**
  - multilaneinc.com
  - SFP28 (zSFP+) Loopback Adapter
  - Part # ML4026-28
- **The ZCU208 uses 4 SFP28 adapters**

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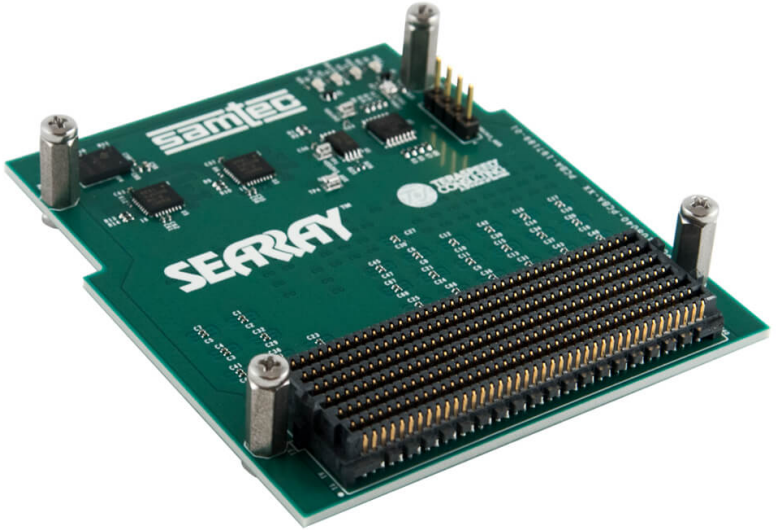
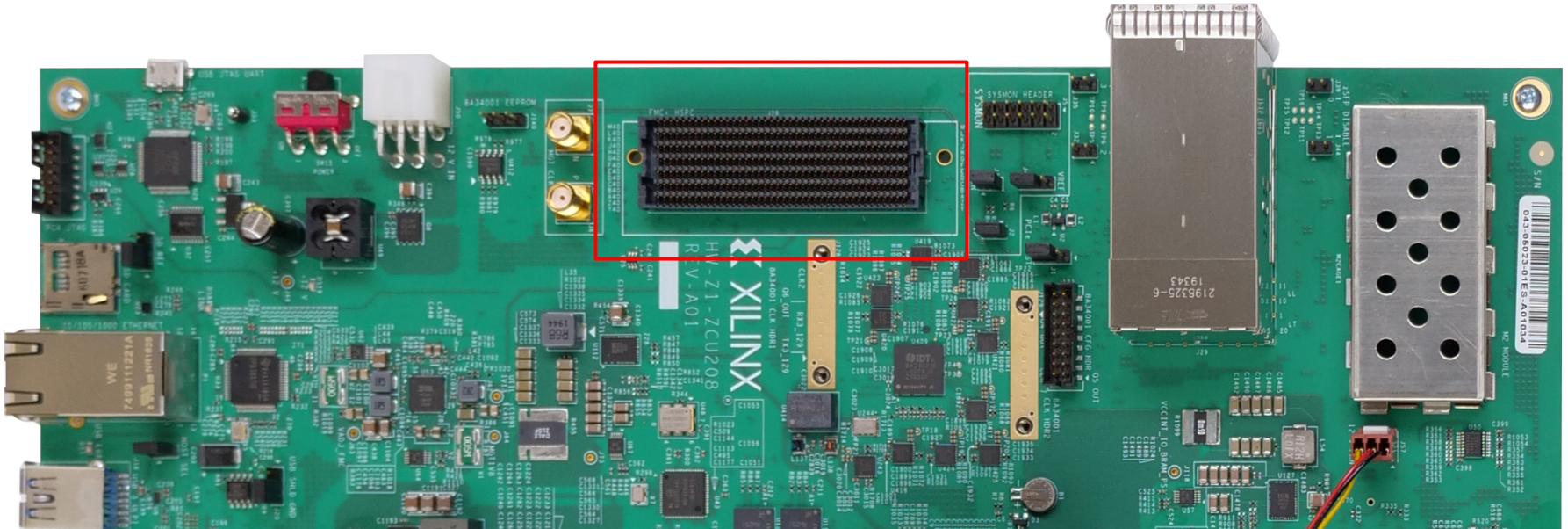
Optional Hardware Setup

- Attach a Samtec HSPC FMC+ XM107 board to the FMC+ HSPC connector (J26)
- Available through Samtec





References

References

- **Vivado Release Notes**
  - Vivado Design Suite User Guide - Release Notes – UG973
    - https://www.xilinx.com/support/documentation/sw_manuals/xilinx2020_1/ug973-vivado-release-notes-install-license.pdf
  - Vivado Design Suite 2020.x - Vivado Known Issues
    - https://www.xilinx.com/support/answers/75186.html
- **Vivado Programming and Debugging**
  - Vivado Design Suite Programming and Debugging User Guide – UG908
    - https://www.xilinx.com/support/documentation/sw_manuals/xilinx2020_1/ug908-vivado-programming-debugging.pdf

Documentation

Documentation

- **Zynq UltraScale+**
  - Zynq UltraScale+ RFSoC
    - https://www.xilinx.com/products/silicon-devices/soc/rfsoc.html
- **ZCU208 Documentation**
  - Xilinx Zynq UltraScale+ RFSoC ZCU208 Evaluation Kit
    - https://www.xilinx.com/products/boards-and-kits/zcu208.html
  - ZCU208 Board User Guide – UG1410
    - https://www.xilinx.com/support/documentation/boards_and_kits/zcu208/ug1410-zcu208-eval-bd.pdf
  - ZCU208 - Known Issues Master Answer Record
    - https://www.xilinx.com/support/answers/70958.html