

VCU128 Software Install and Board Setup

May 2019



XTP535

Revision History

Date	Version	Description
05/29/19	2.0	Updated for 2019.1. For Production Silicon boards.
12/10/18	1.0	Initial version.

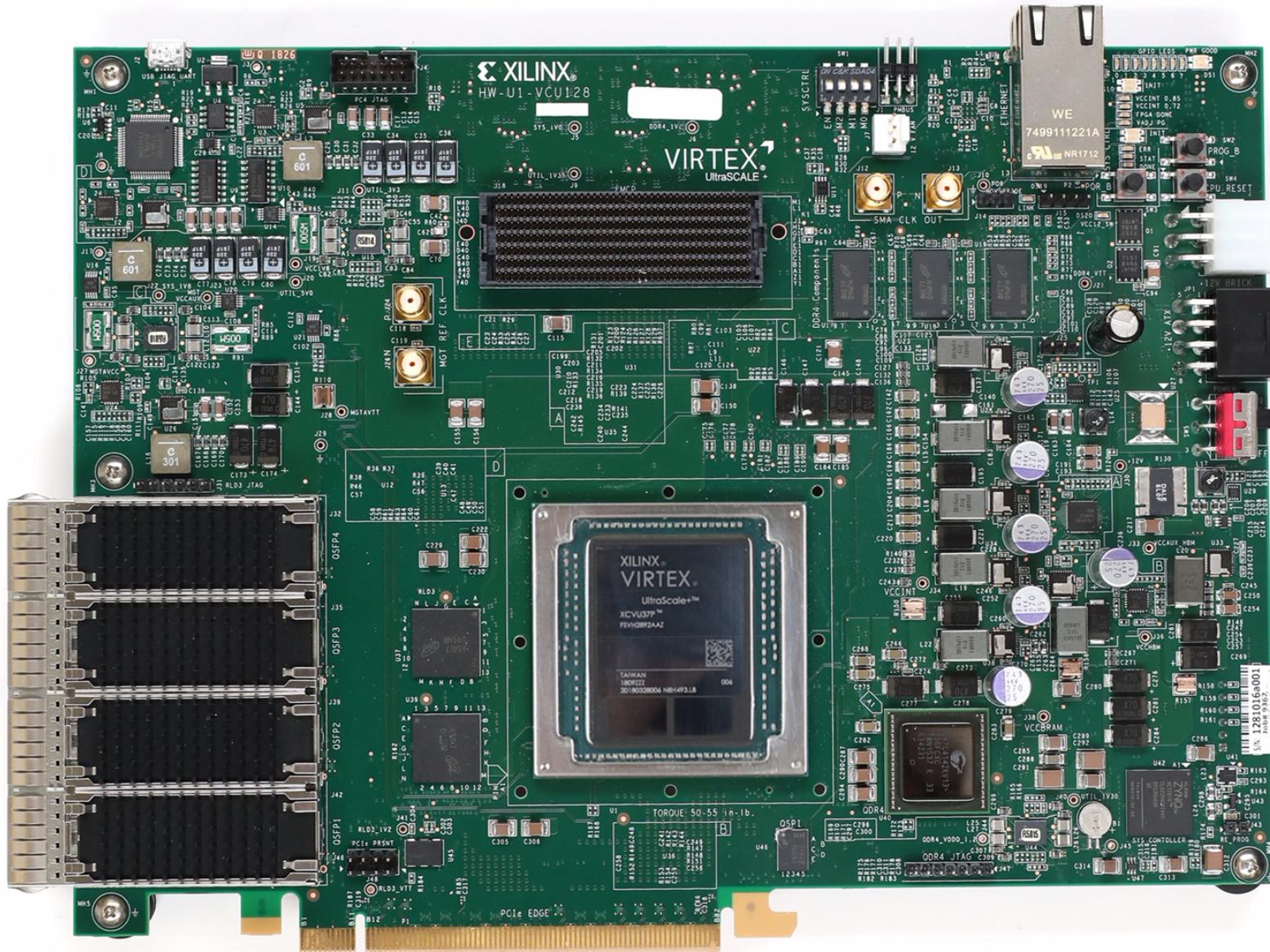
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VCU128 Software Install and Board Setup

- > **Xilinx VCU128 Board**
- > **Software Requirements**
- > **VCU128 Hardware Setup**
- > **UART Driver Install**
- > **Clock Setup**
- > **Ethernet Setup**
- > **Optional Hardware Setup**
- > **References**

Xilinx VCU128 Board



Software Requirements

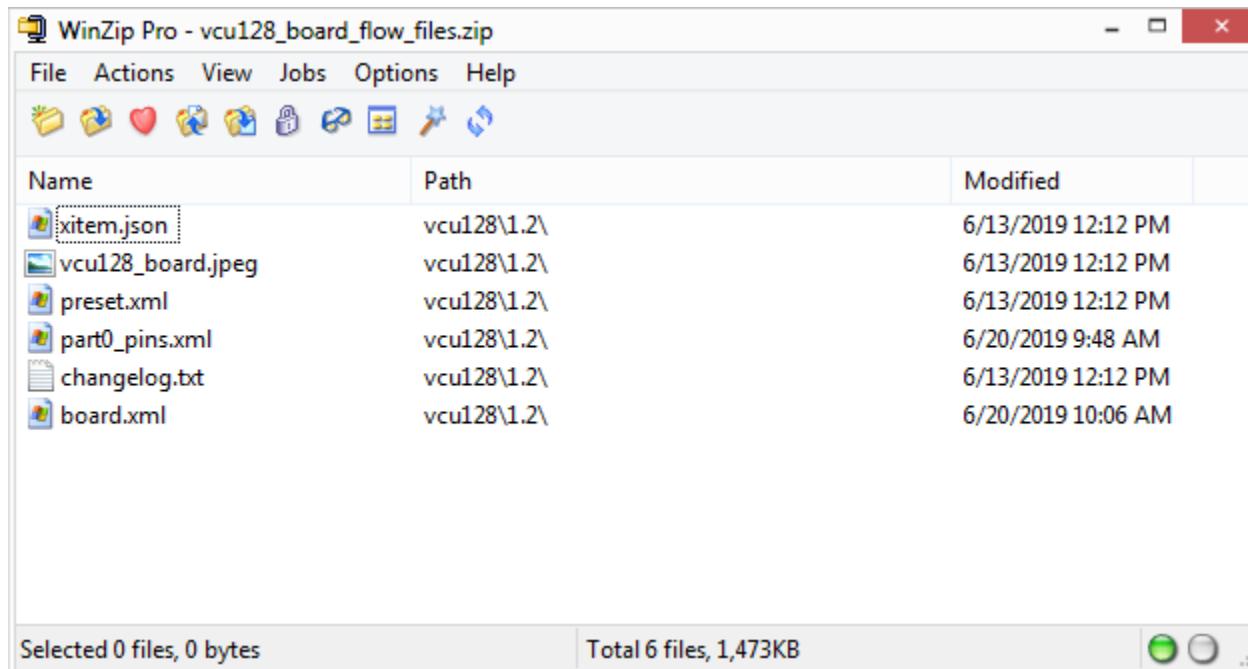
- > Xilinx Vivado Design Suite 2019.1, HL System Edition with SDK



Software Requirements

> Production Silicon Board Flow files

- » Available in RDF0494 (IPI App) and RDF0492 (MIG) files
- » Install in Xilinx 2019.1 Vivado tree



VCU128 Hardware Setup

> Kit Hardware contents

- >> VCU128 Board
- >> QSFP+ Loopback
- >> FMC+ Loopback
- >> PCIe Loopback board
- >> Ethernet cable
- >> Micro USB cable
- >> Power supply

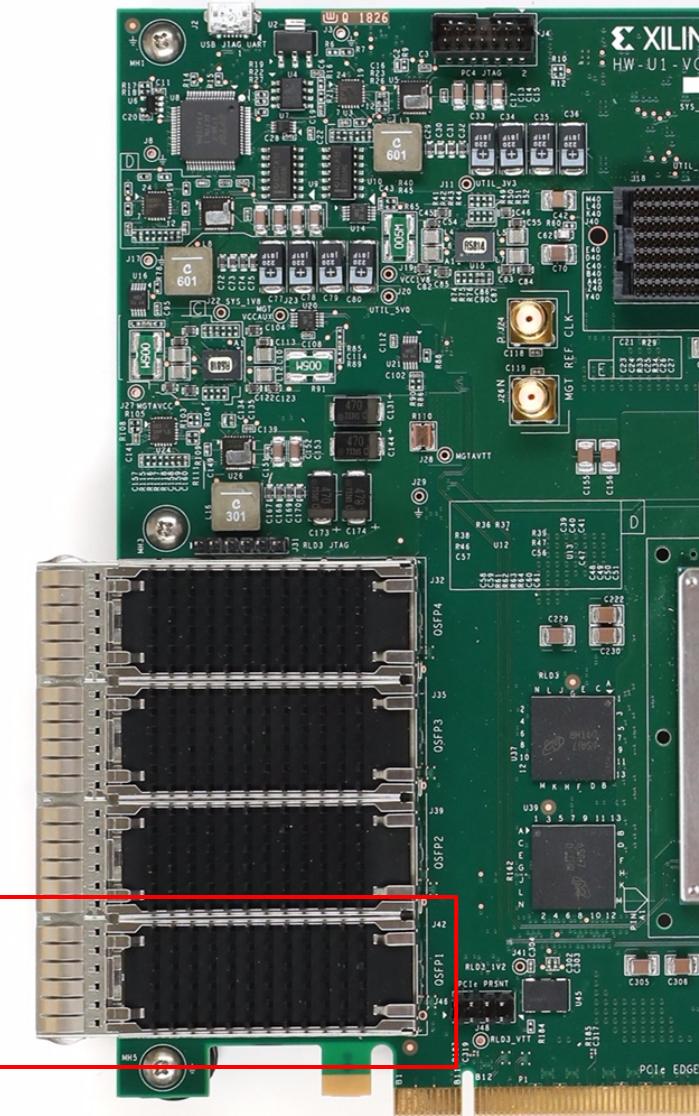


VCU128 Hardware Setup

> QSFP Loopback Adapter

- > <http://www.molex.com>
- > QSFP+ Universal Loopback Adapter, 0dB
- > Part # [74763-0020](#)

> Insert this adapter into the Bottom QSFP cage (J46) on the VCU128



Note: Presentation applies to the VCU128

VCU128 Hardware Setup

- > Connect a Micro USB cable to the PCIe Loopback card for power
 - » Connect this cable to your PC
- > Attach to the PCIe connector (U2) on the VCU128



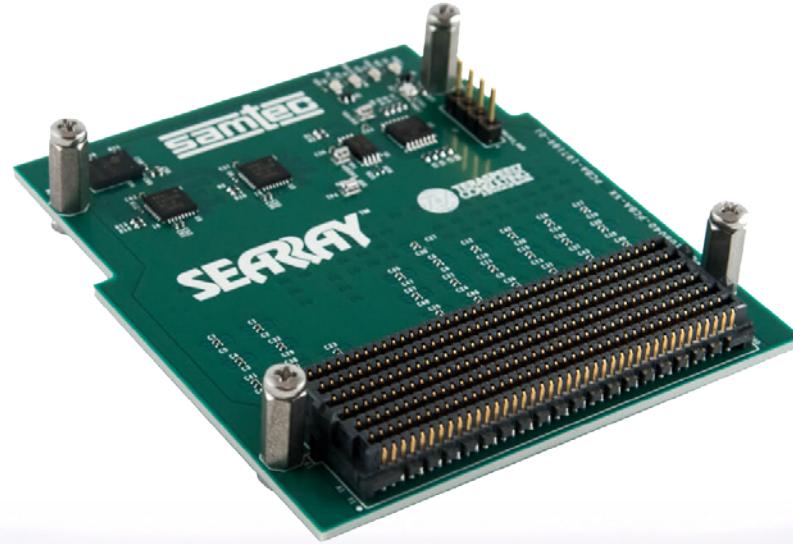
Note: KCU105 board shown

 XILINX

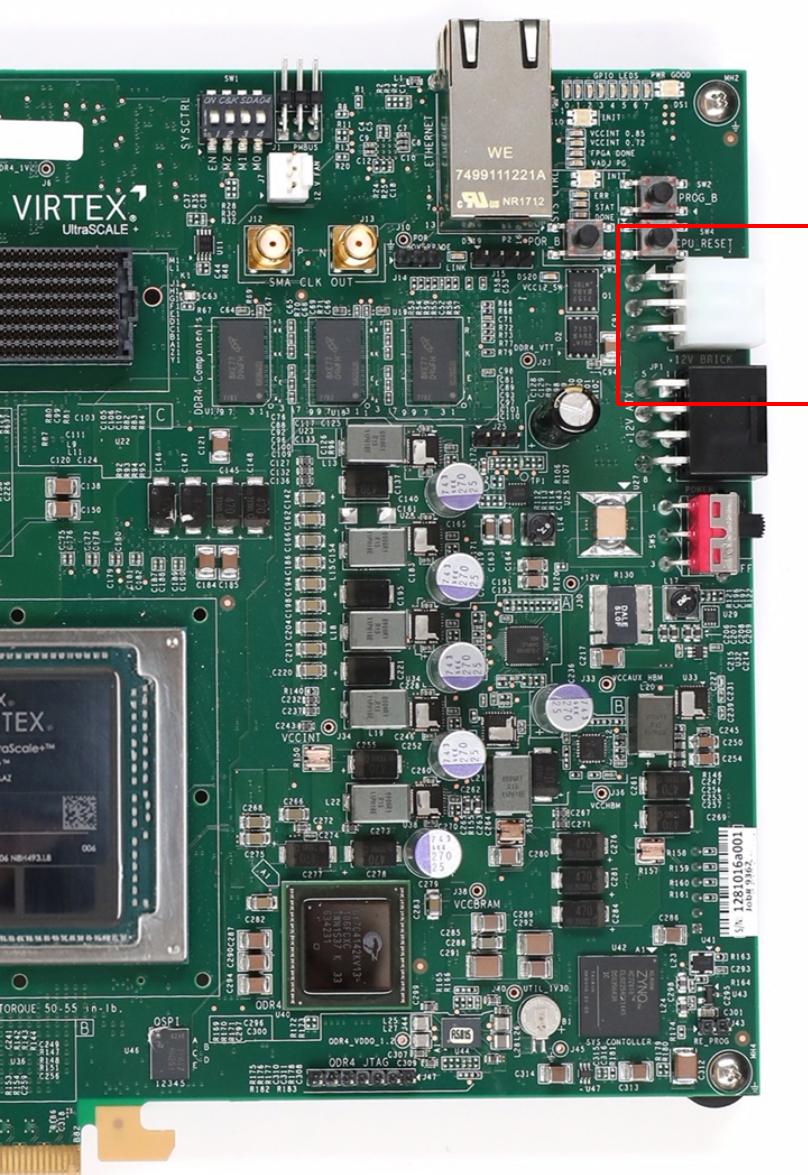
VCU128 Hardware Setup

> Attach the FMC+ Loopback board to the J18 FMCP FMC+ connector

- » The IPI App Clocking test expects this card to be attached
- » The IPI App Basic Clocking test only checks on-board clocks
- » Note: Image shown is similar to actual card; will have an Si570 clock



VCU128 Hardware Setup

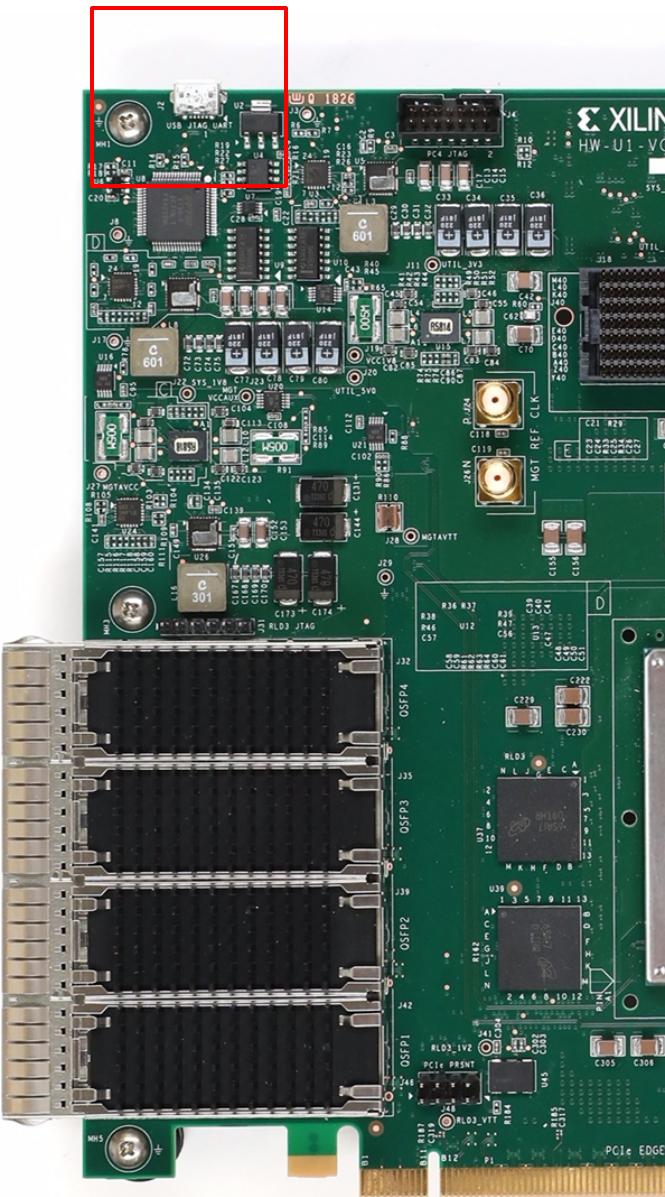


> Connect the power supply to the VCU128 (J16)

» Connect this power supply to a power outlet

Hardware Setup

- > Connect USB Type-A to Micro-B cable to the USB UART/JTAG (FTDI) connector (J2) on the VCU128 board
 - > Connect this cable to your PC
 - > Power on the VCU128 board for the UART driver installation

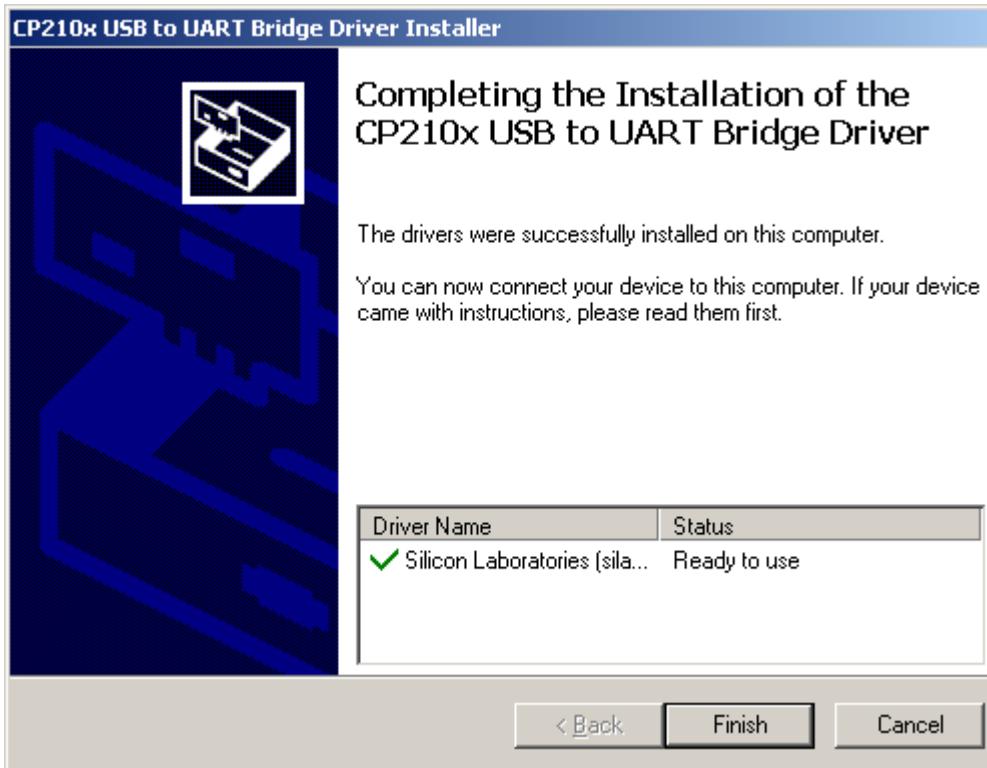


Note: Presentation applies to the VCU128

UART Driver Install

> Install Si Labs CP210x USB UART Drivers

» Refer to [UG1033](#) for details on installing the USB to UART Drivers



UART Driver Install

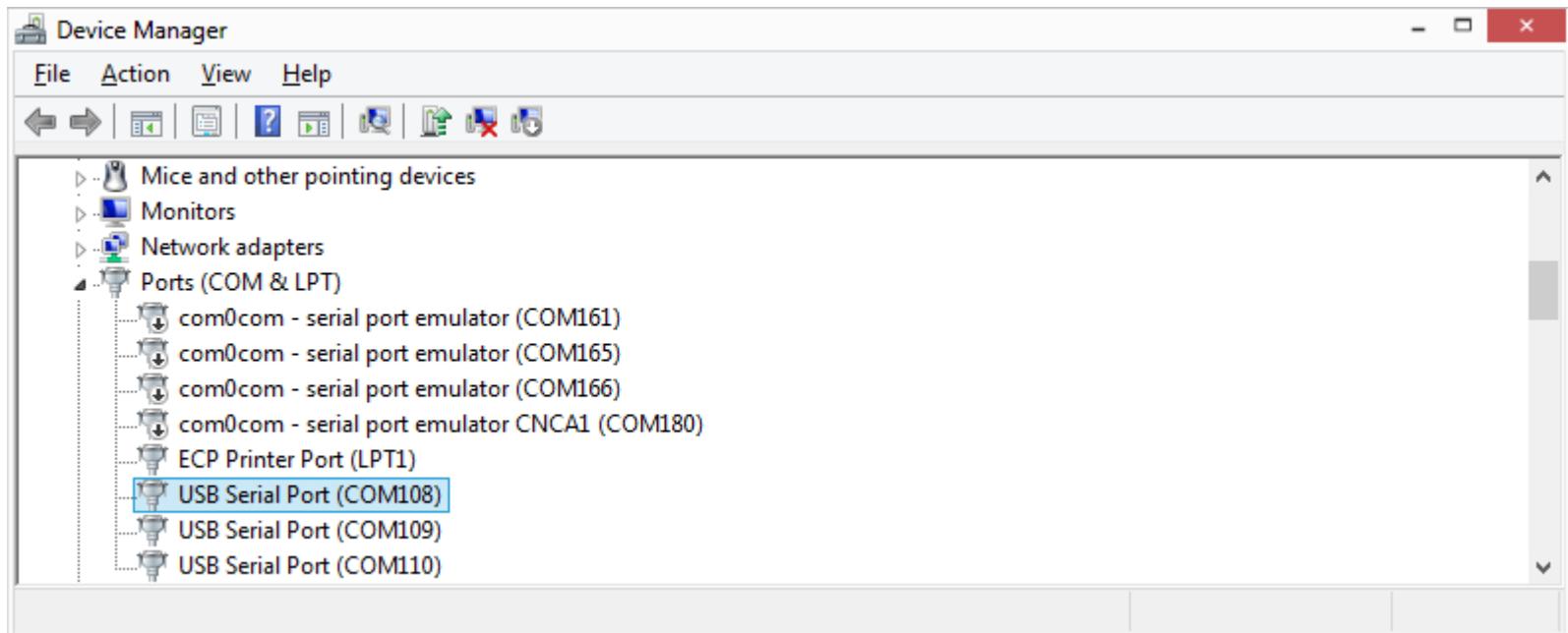
> Determine the COM Port numbers for your system

> Open the Device manager

Control Panel → System → Device Manager

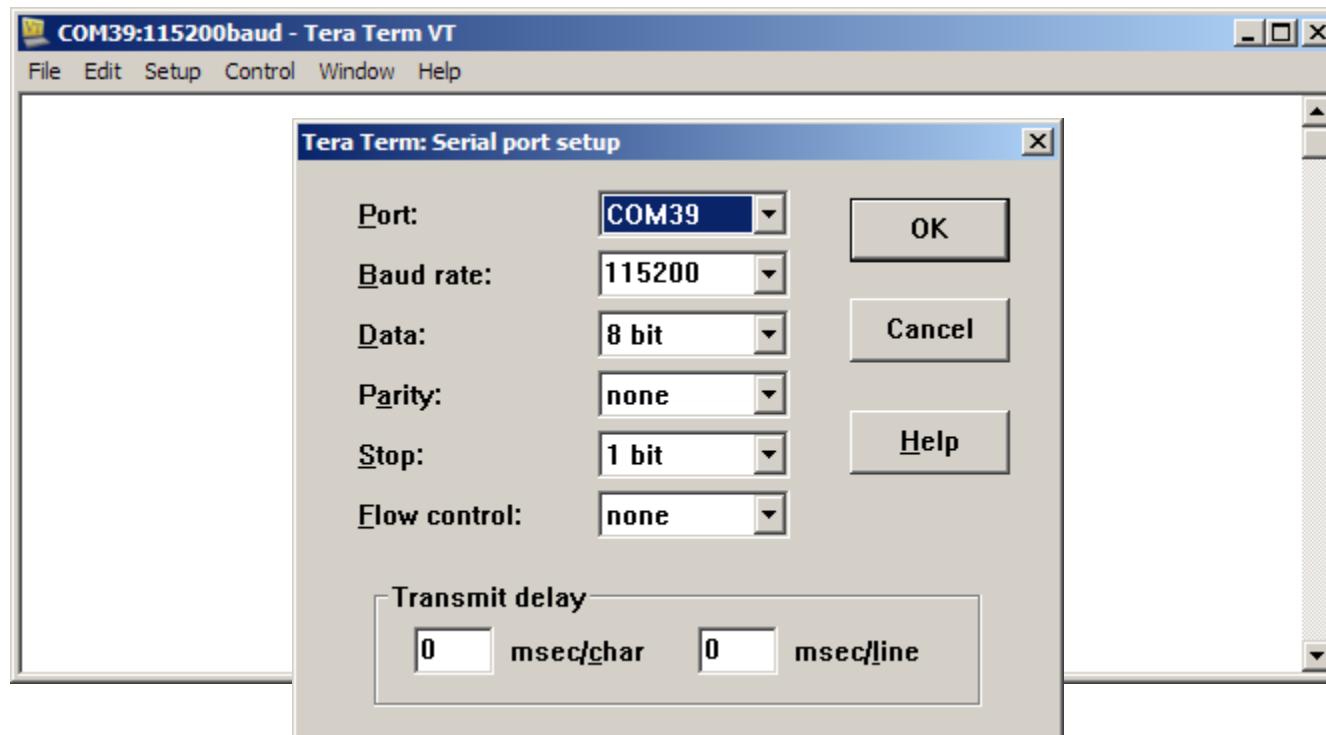
» There will be three COM ports

» The COM Port numbers will vary from system to system



Terminal Setup

- > Refer to [UG1036](#) regarding Tera Term installation
- > Board Power must be on before starting Tera Term
- > Start the Terminal Program
 - » Select your USB Com Port
 - » Set the baud to 115200

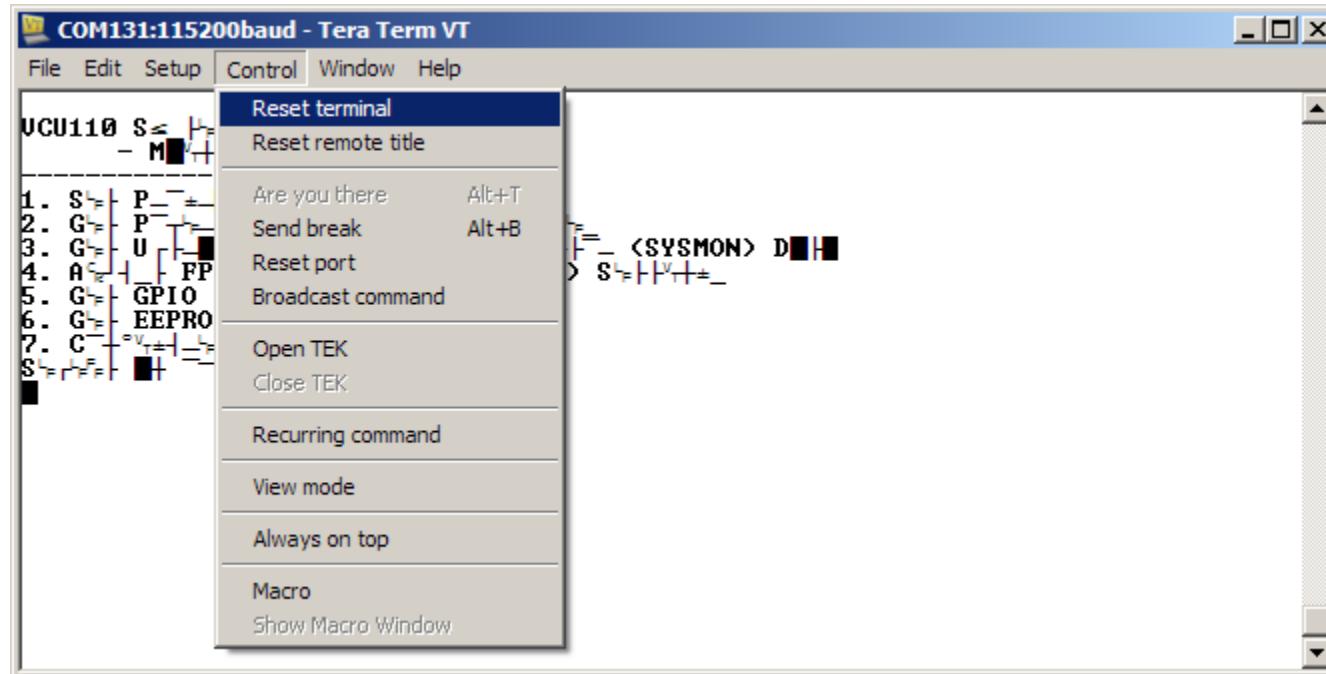


Note: See AR63771 regarding SDK Terminal Program

Terminal Setup

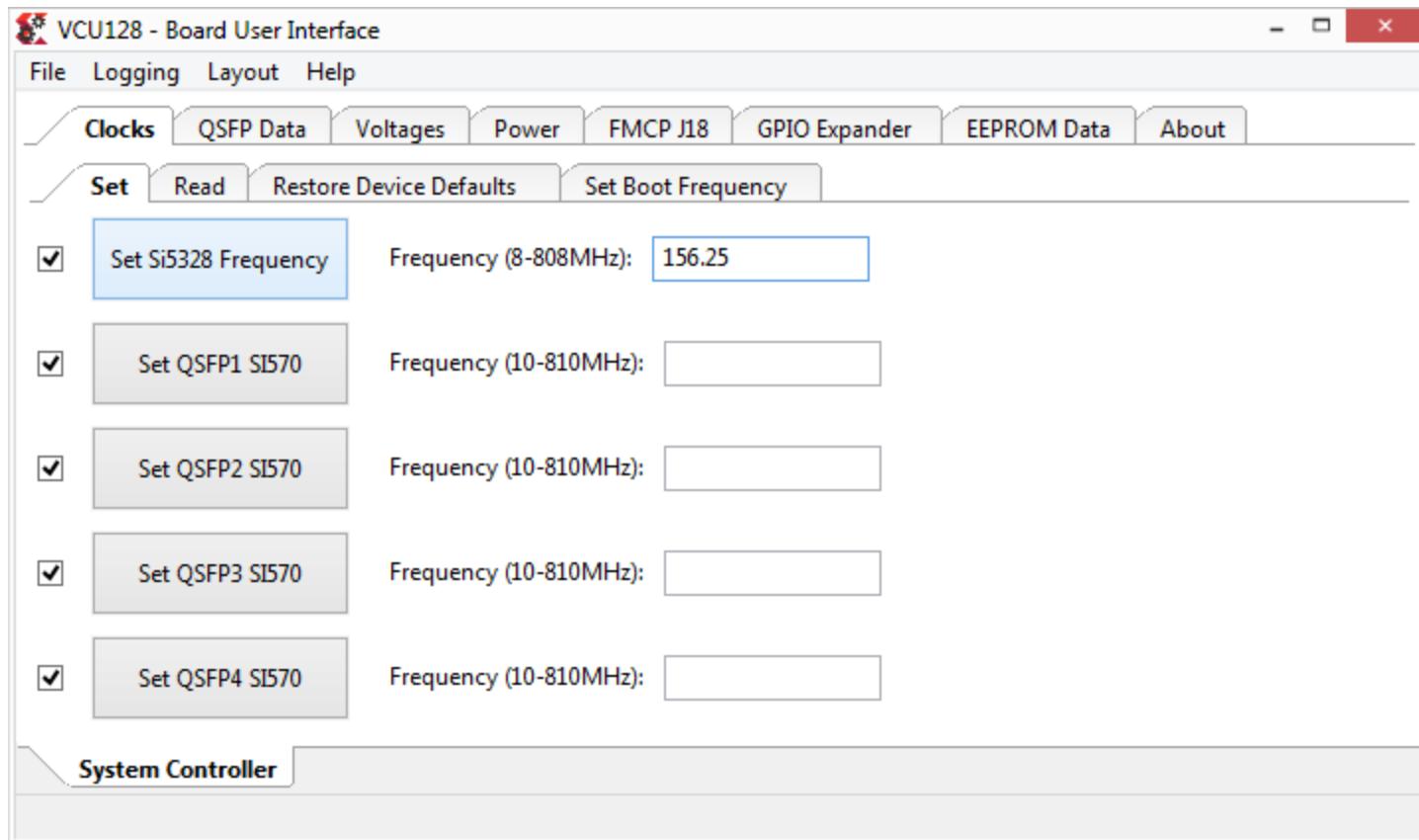
- > If 115200 UART output occurs while set to 9600, you may need to reset Tera Term. From the menu select:

Control -> Reset Terminal



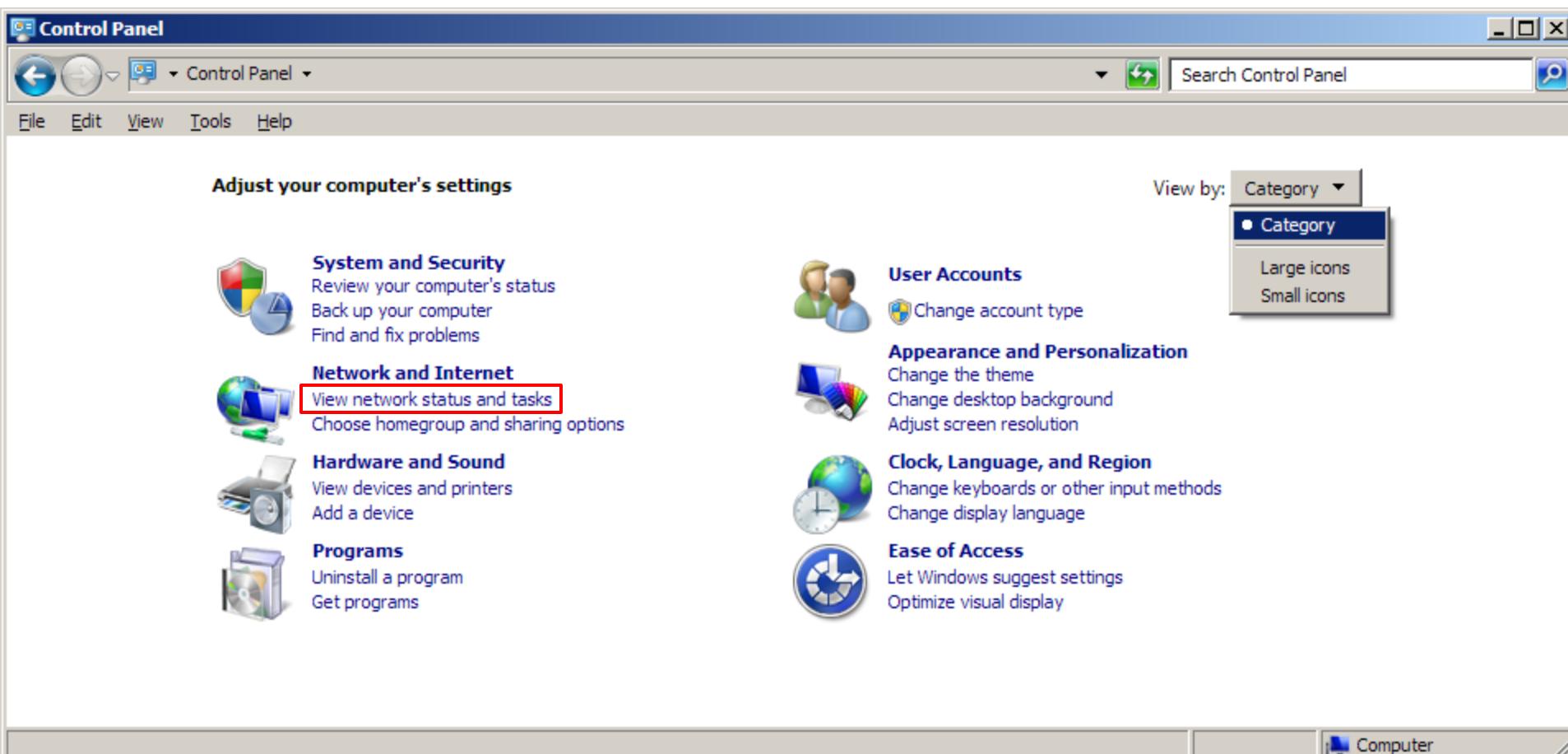
Setting the clocks with the System Controller GUI

- > Use the BoardUI GUI from XTP528
- > Select the Set tab underneath the Clocks tab
- > Enter 156.25 for the Si5328 and click Set Si5328 Frequency



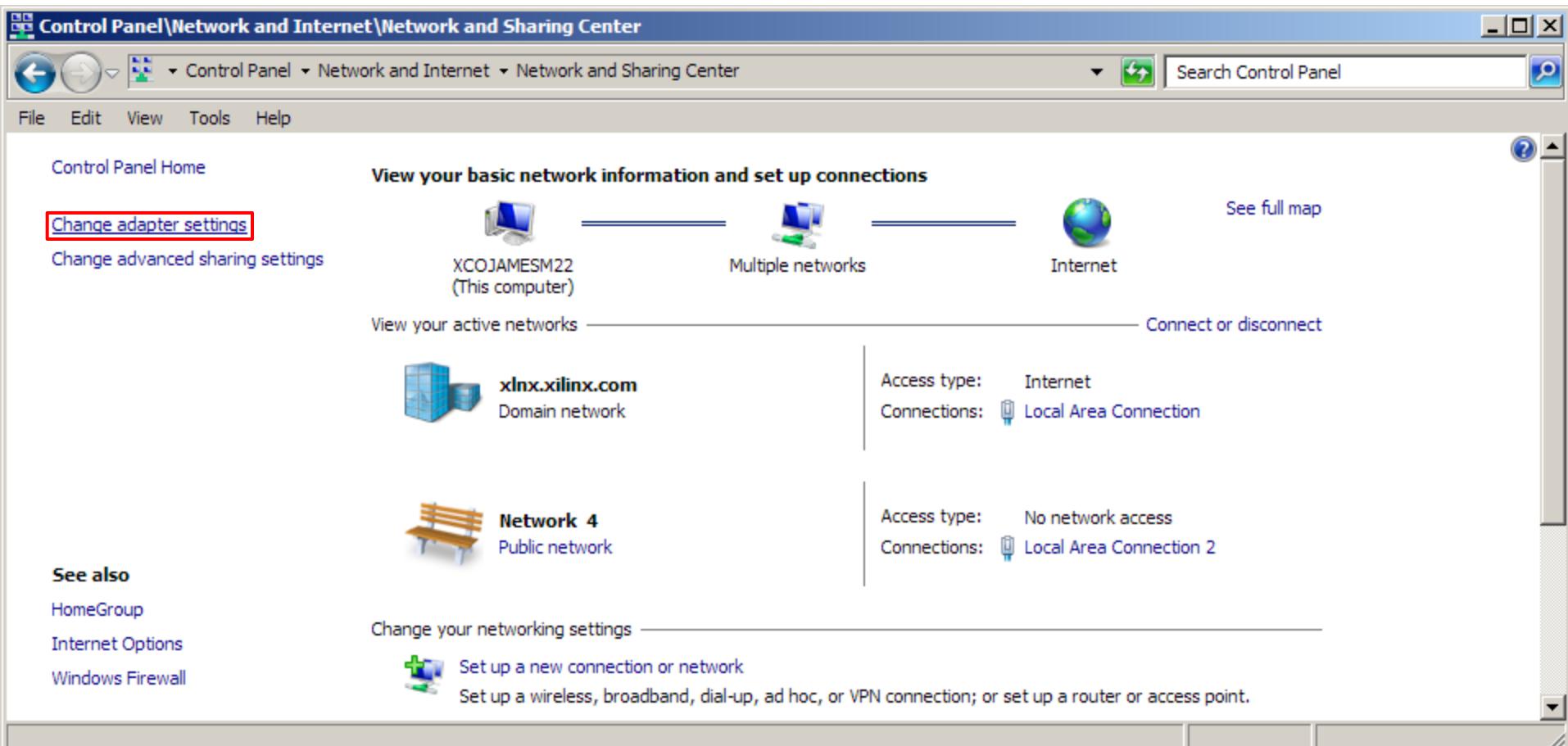
Ethernet Setup

- > Open the Windows Control Panel
 - » Set to View by Category
- > Click on “View network status and tasks”



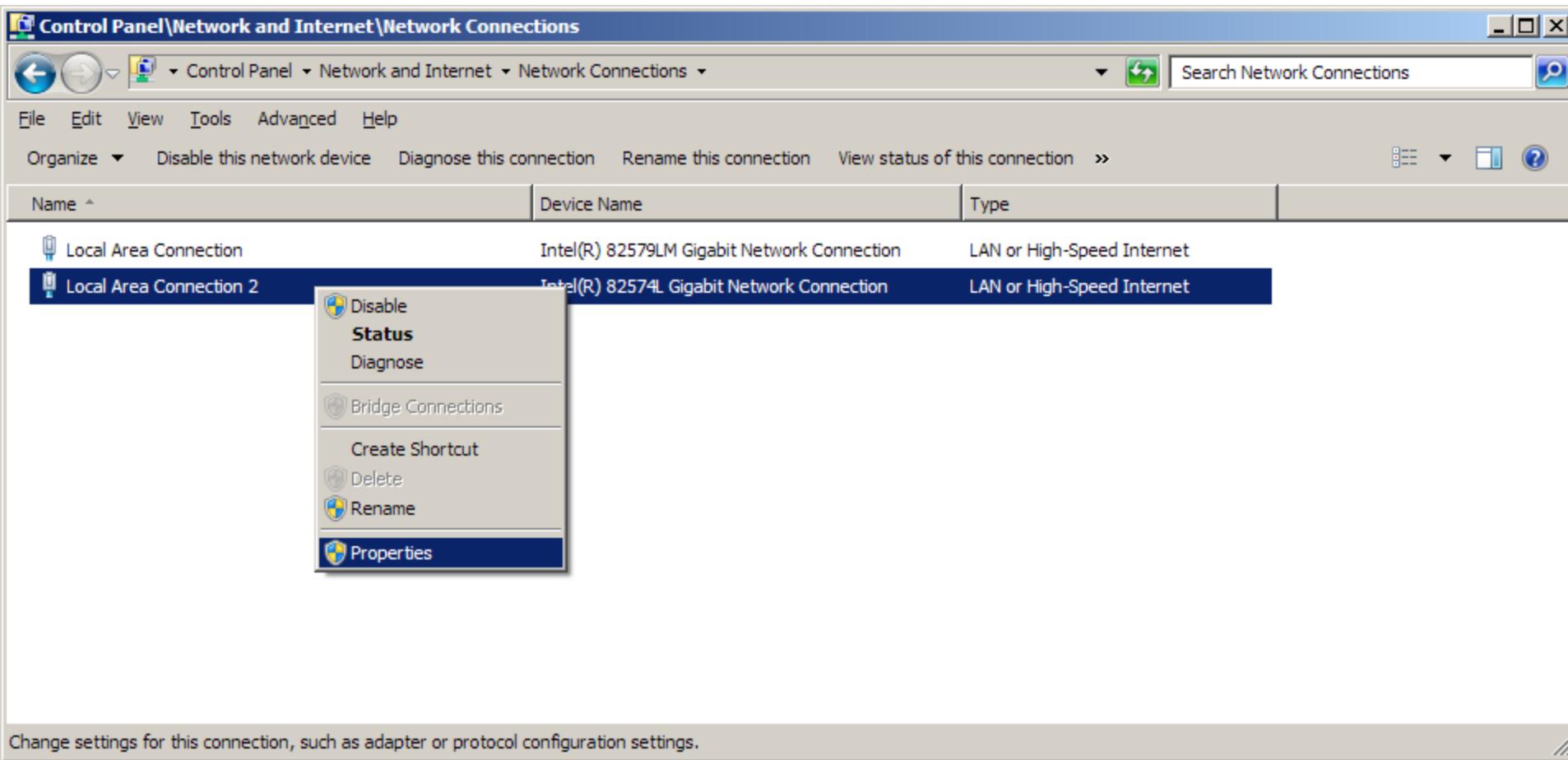
Ethernet Setup

- > Click on “Change adapter settings”



Ethernet Setup

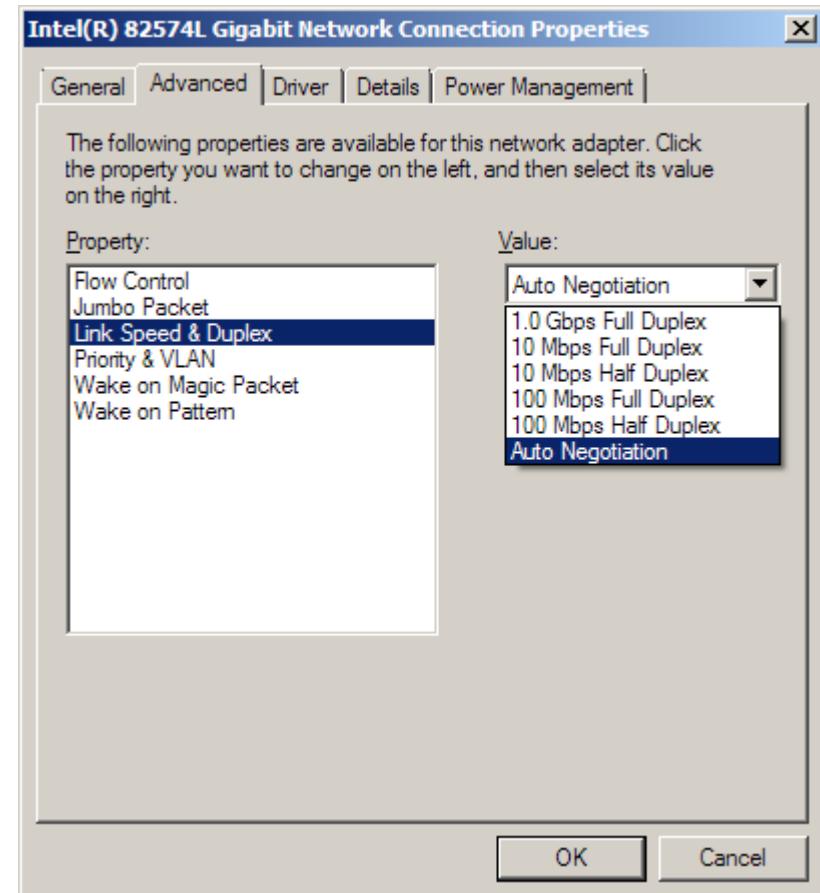
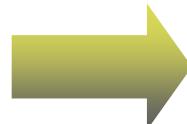
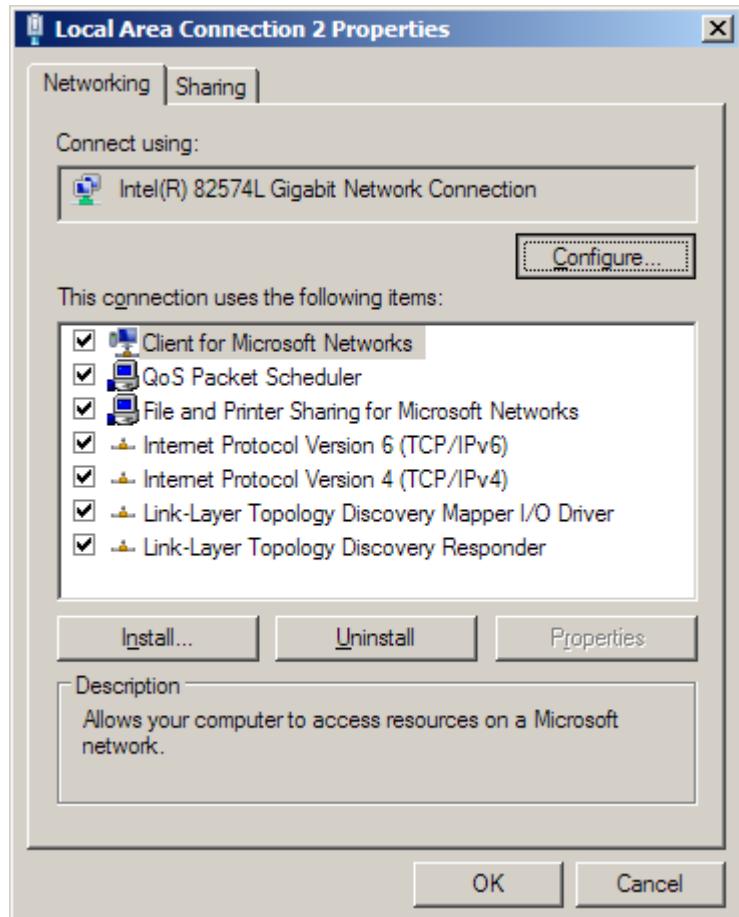
- > Right-click on the Gigabit Ethernet Adapter that you will be using for this test and select Properties



Ethernet Setup

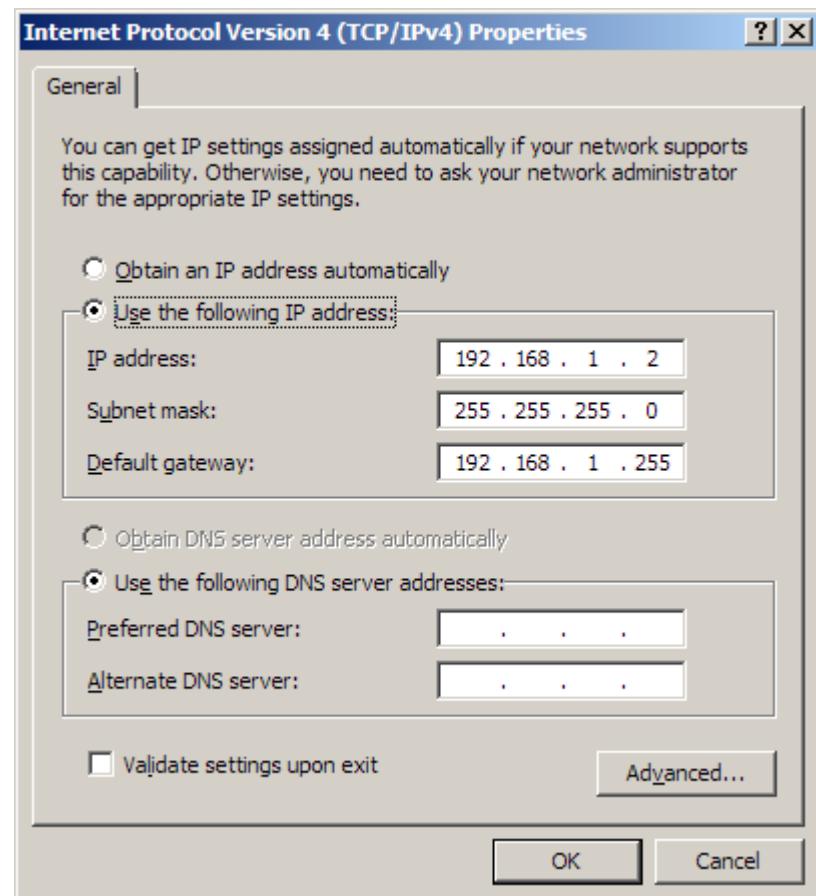
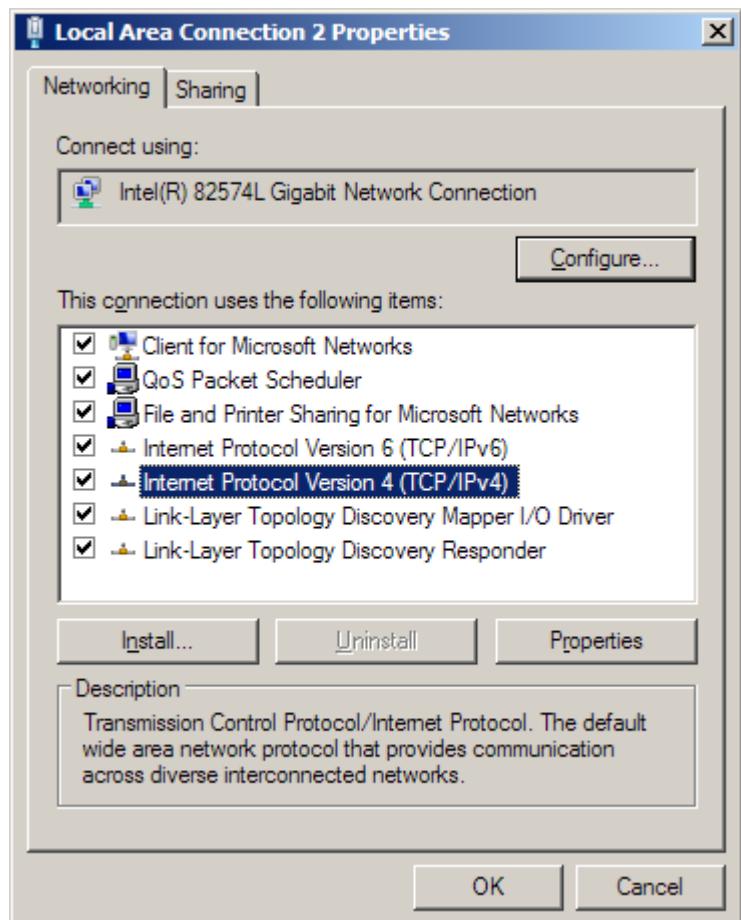
> Click Configure

» Set the Link Speed & Duplex to Auto Negotiation then click OK



Ethernet Setup

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



Note: Remember to restore your IP settings when finished

Optional Hardware Setup

> Two SMA Cables

- » www.rosenbergerna.com
- » Part number:
72D-32S1-32S1-00610A



> Optional: SMA Quick connects

- » RADIALL
- » Part number: R125791501
- » Available [here](#) or [here](#)

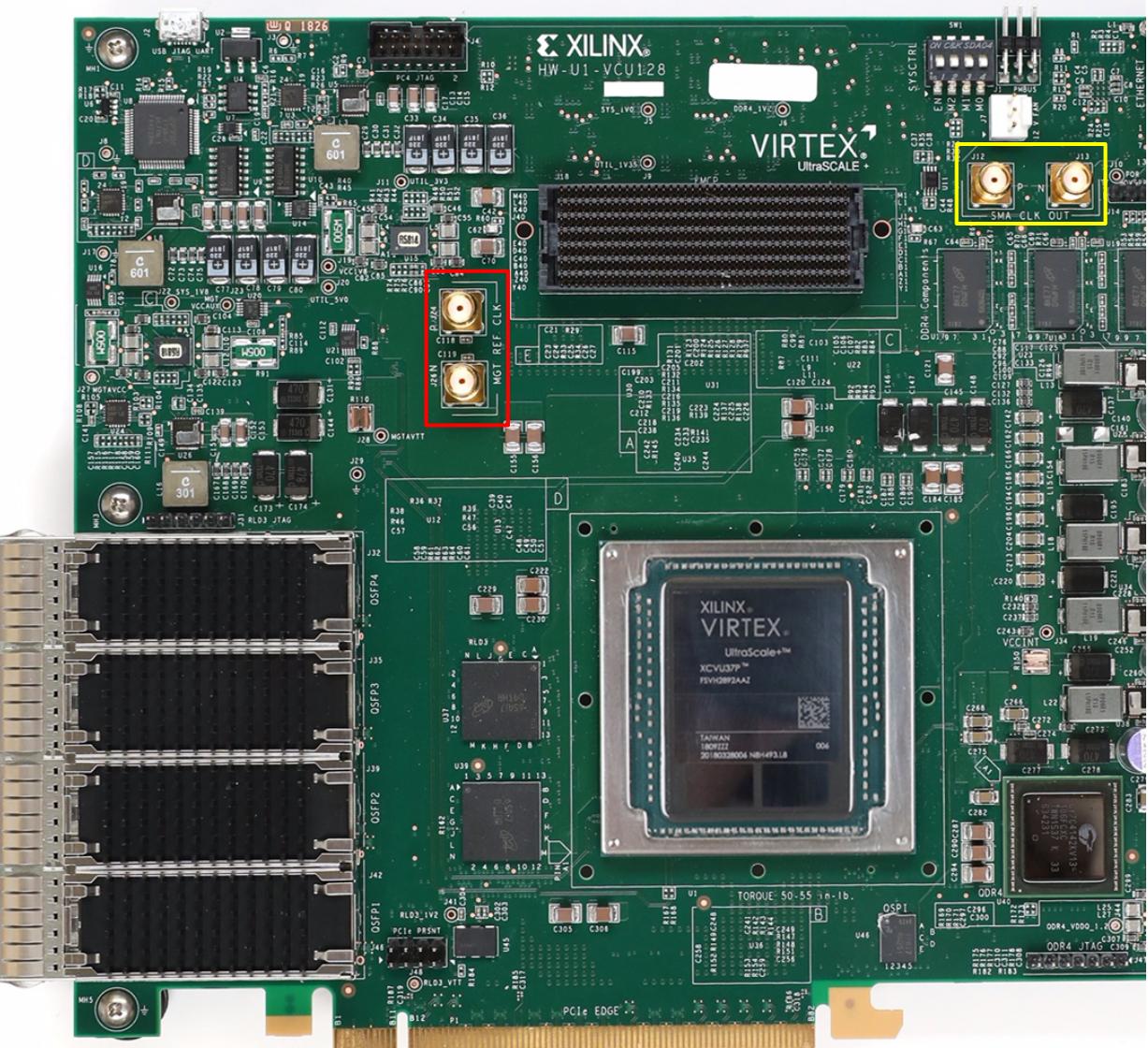


Optional Hardware Setup

> Hook up the SMA cables as shown

> IPI Clocking Test

- » Connect J24 and J26 (Red)
- » to J11 and J12 (Yellow)



Note: Presentation applies to the VCU128

Optional Hardware Setup

- > For a full IBERT test, use 4 QSFP Loopback Adapters

- > One is included in the kit

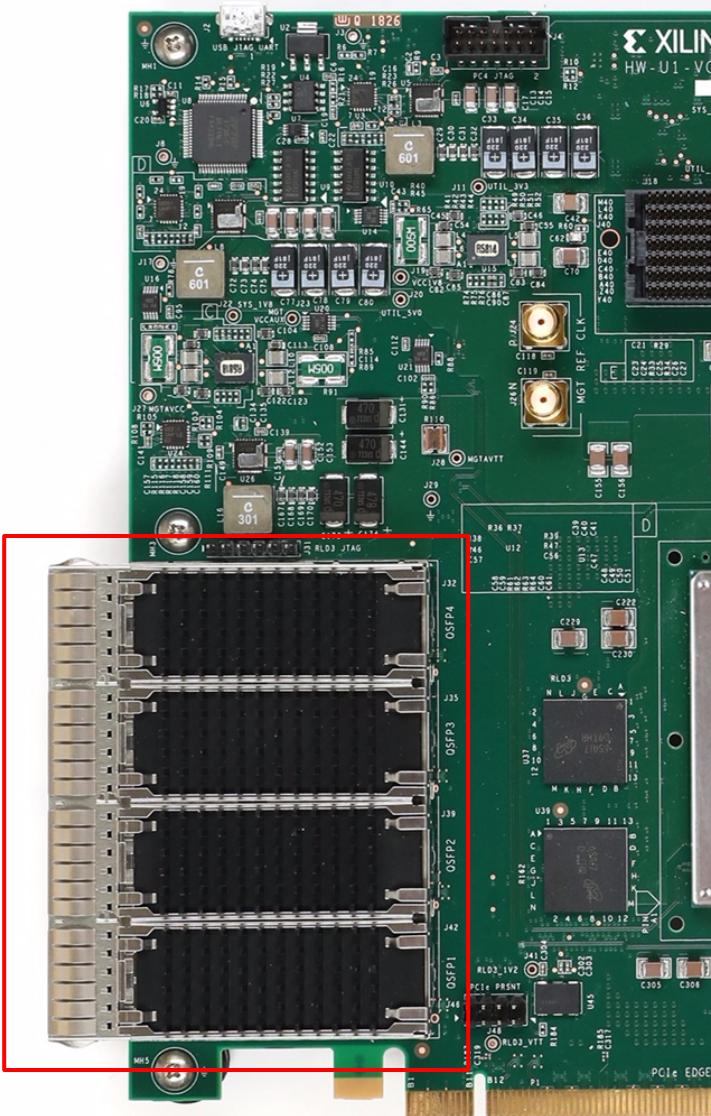
- > QSFP Loopback Adapter

- > <http://www.molex.com>

- > QSFP+ Universal Loopback Adapter, 0dB

- > Part # [74763-0020](#)

- > Insert these adapters into the four QSFP cages (J32, J35, J39, and J46) on the VCU128



References



References

> Vivado Release Notes

- » Vivado Design Suite User Guide - Release Notes – UG973
 - https://www.xilinx.com/support/documentation/sw_manuals/xilinx2019_1/ug973-vivado-release-notes-install-license.pdf
- » Vivado Design Suite 2019 - Vivado Known Issues
 - <https://www.xilinx.com/support/answers/72162.html>

> Vivado Programming and Debugging

- » Vivado Design Suite Programming and Debugging User Guide – UG908
 - https://www.xilinx.com/support/documentation/sw_manuals/xilinx2019_1/ug908-vivado-programming-debugging.pdf

Documentation



Documentation

> Virtex UltraScale+ HBM

- » Virtex UltraScale+ FPGA Family
 - <https://www.xilinx.com/products/silicon-devices/fpga/virtex-ultrascale-plus.html>

> VCU128 Documentation

- » Virtex UltraScale+ FPGA VCU128 Evaluation Kit
 - <https://www.xilinx.com/products/boards-and-kits/vcu128.html>
- » VCU128 Board User Guide – UG1302
 - https://www.xilinx.com/support/documentation/boards_and_kits/vcu128/ug1302-vcu128-eval-bd.pdf
- » VCU128 - Known Issues and Release Notes Master Answer Record
 - <https://www.xilinx.com/support/answers/71849.html>