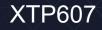
# ZCU208 Software Install and Board Setup

October 2020





## **Revision History**

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

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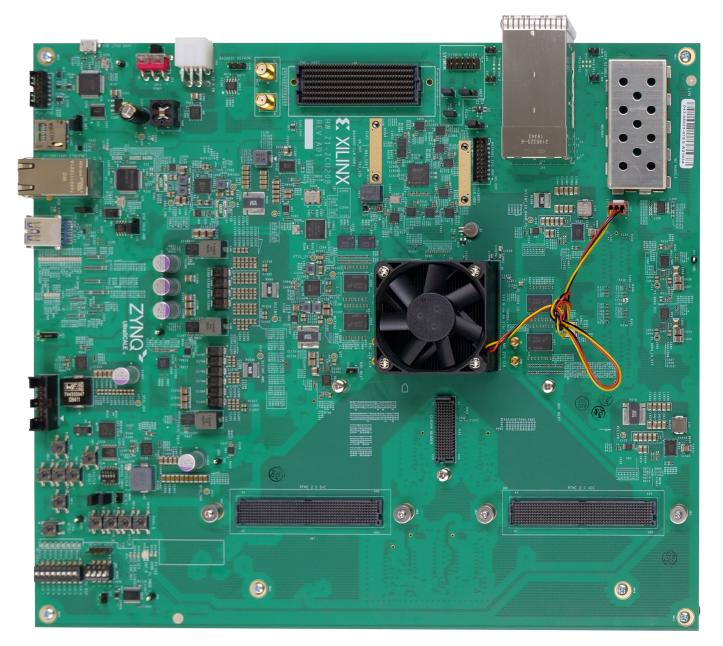


### **ZCU208 Software Install and Board Setup**

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



### Xilinx ZCU208 Board



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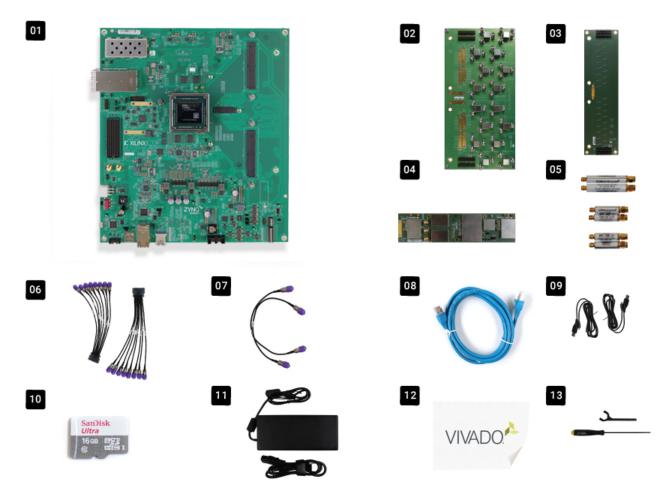
## **Software Requirements**

#### > Xilinx Vivado Design Suite 2020.1.1, HL System Edition with SDK





### > 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



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



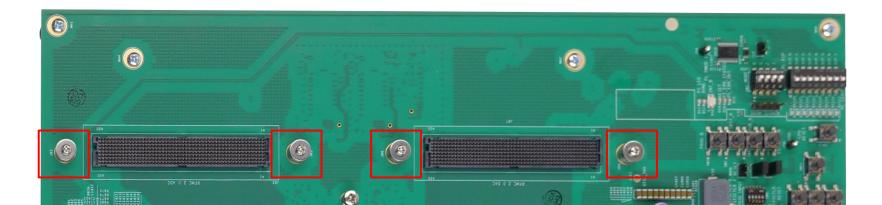


#### > Attach the XM650 Balun board

- » 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

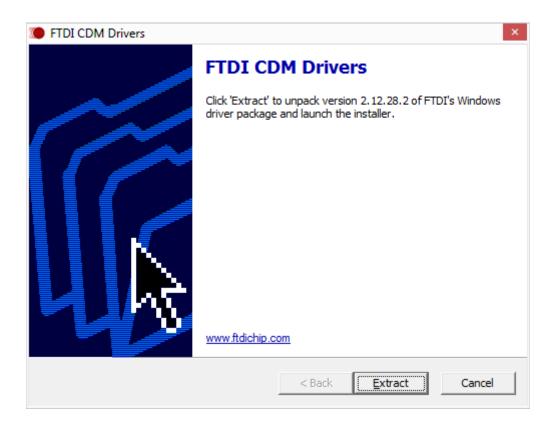
### > Remove the XM650 Balun board

- » 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**

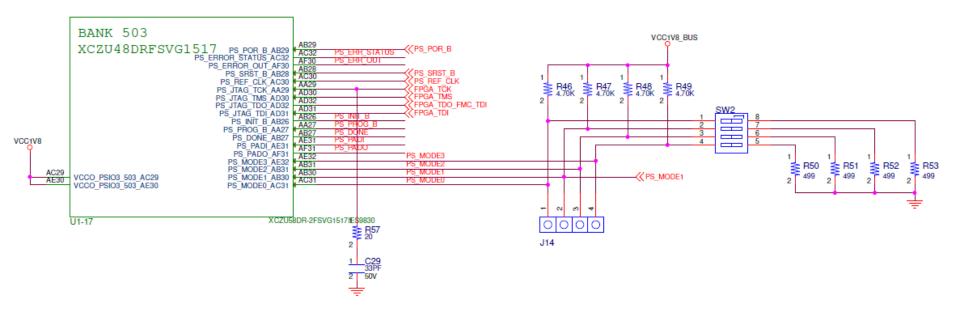
- > Prior to connecting and powering on the ZCU208, install the FTDI CDM Drivers
  - » <u>http://www.ftdichip.com/Drivers/CDM/CDM21228\_Setup.zip</u>

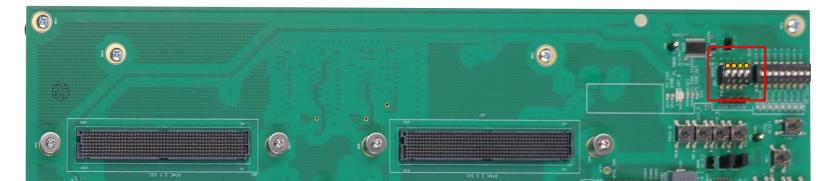




#### > Set S2 to 1111 (1 = GND, Position 1 $\rightarrow$ Position 4) (All Up)

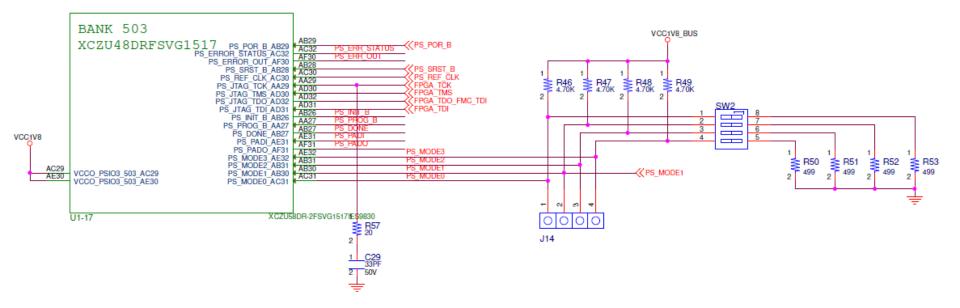
» Used for most tutorials; this sets the Boot Mode to 0x0000, JTAG as per UG1085





#### > Set S2 to 1011 (1 = GND, Position 1 $\rightarrow$ Position 4) (Up, Down, Up, Up)

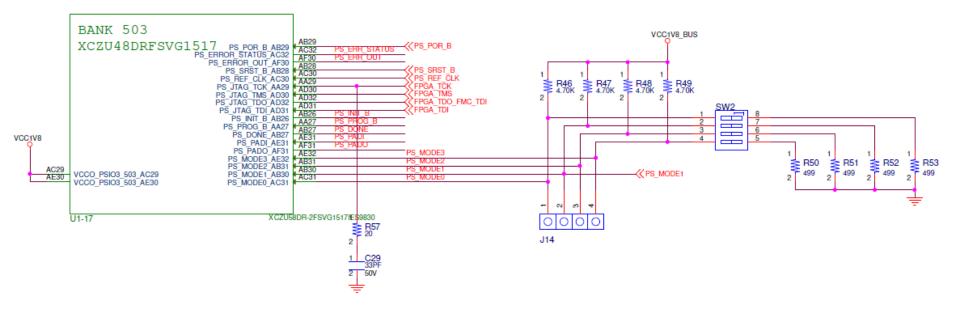
» For booting from QSPI

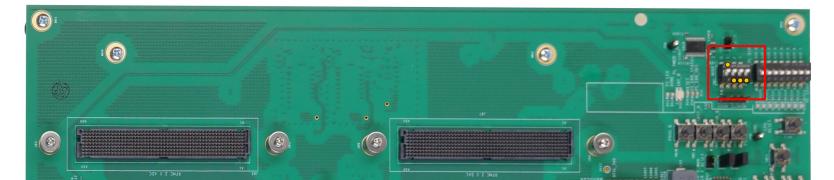




#### > Set S2 to 1000 (1 = GND, Position 1 $\rightarrow$ Position 4) (Up, Down, Down, Down)

» For booting from SD





- > 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





### **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

🗵 С	OM40	- Tera Te	erm VT						-	×
File	Edit	Setup	Control	Window	Help					
			Tera	a Term: Seria	al port se	etup		×		^
				Port:		COM40	~	ОК		
				<u>B</u> aud ra	te:	115200	~			
				<u>D</u> ata:		8 bit	~	Cancel		
				P <u>a</u> rity:		none	~			
				<u>S</u> top:		1 bit	~	<u>H</u> elp		
				Elow cor	ntrol:	none	~			
				Trans 0	mit de ms	lay :ec/ <u>c</u> har (	) m:	sec/ <u>l</u> ine		 ~

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



#### > Open the Windows Control Panel

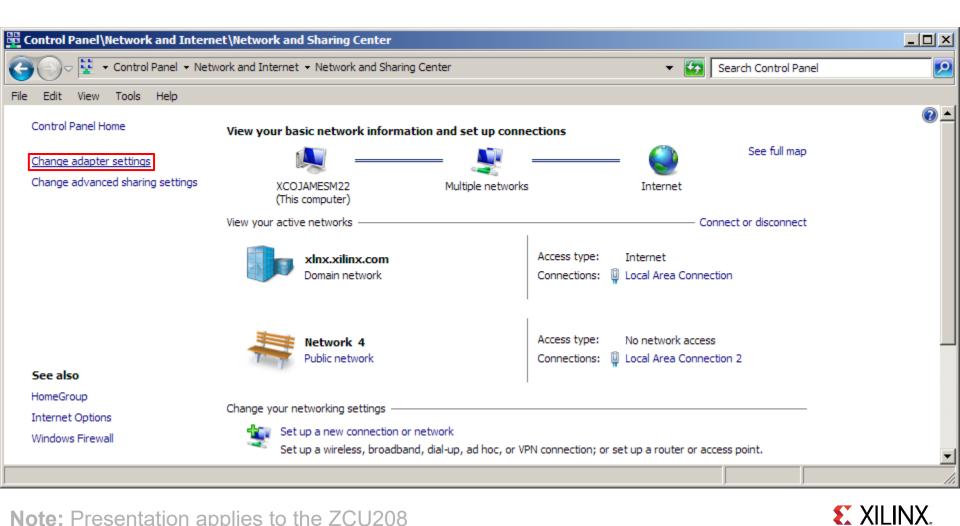
Set to View by Category

#### > Click on "View network status and tasks"

💽 Co	ntrol	Panel							- D ×
Θ	0	- 🚇 י	- Control F	Panel 🔻			▼ 🛃 S	Search Control Panel	<b>P</b>
<u>F</u> ile	<u>E</u> dit	<u>V</u> iew	<u>T</u> ools	<u>H</u> elp					
			Adju	ıst you	r computer's settings		Viev	v by: Category  Category Category	
					System and Security Review your computer's status	<b>C</b> a	User Accounts	Large icons	
					Back up your computer		🚱 Change account type	Small icons	
			Q		Find and fix problems <b>Network and Internet</b> View network status and tasks Choose homegroup and sharing options	<b>N</b>	Appearance and Personalization Change the theme Change desktop background Adjust screen resolution		
			-		Hardware and Sound View devices and printers Add a device	Ð	Clock, Language, and Region Change keyboards or other input met Change display language	hods	
					<b>Programs</b> Uninstall a program Get programs		Ease of Access Let Windows suggest settings Optimize visual display		
								Computer	



#### > Click on "Change adapter settings"



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

Control Panel\Network and Internet\Network Connec	tions			
🕞 🕞 🗢 😰 🔹 Control Panel 🔹 Network and Internet 🔹 Ne	work Connections	2		
<u> Eile E</u> dit <u>V</u> iew <u>T</u> ools Adva <u>n</u> ced <u>H</u> elp				
Organize 👻 Disable this network device Diagnose this con	nection Rename this connection View status of	this connection »		<b>I</b>
Name *	Device Name	Туре		
🏺 Local Area Connection	Intel(R) 82579LM Gigabit Network Connection	LAN or High-Speed Internet		
<ul> <li>Local Area Connection 2</li> <li>Disable</li> <li>Status</li> <li>Diagnose</li> <li>Bridge Connections</li> <li>Create Shortcut</li> <li>Delete</li> <li>Rename</li> <li>Properties</li> </ul>	Tetel(R) 82574L Gigabit Network Connection	LAN or High-Speed Internet		

Change settings for this connection, such as adapter or protocol configuration settings.





#### > Click Configure

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

Local Area Connection 2 Properties	Intel(R) 82574L Gigabit Network Connection Properties
Networking Sharing Connect using:	General Advanced Driver Details Power Management The following properties are available for this network adapter. Click
<ul> <li>Intel(R) 82574L Gigabit Network Connection</li> <li>Configure</li> <li>This connection uses the following items:</li> <li>Client for Microsoft Networks</li> <li>QoS Packet Scheduler</li> <li>Rile and Printer Sharing for Microsoft Networks</li> <li>Internet Protocol Version 6 (TCP/IPv6)</li> <li>Internet Protocol Version 4 (TCP/IPv4)</li> <li>Internet Protocol Version 4 (TCP/IPv4)</li> <li>Link-Layer Topology Discovery Mapper I/O Driver</li> <li>Link-Layer Topology Discovery Responder</li> </ul>	the property you want to change on the left, and then select its value on the right. Property: Flow Control Jumbo Packet Link Speed & Duplex Priority & VLAN Wake on Magic Packet Wake on Pattern Unit Speed & Duplex 1.0 Gbps Full Duplex 10 Mbps Full Duplex 10 Mbps Full Duplex 10 Mbps Full Duplex 10 Mbps Half Duplex 100 Mbps Half Duplex
Install     Uninstall     Properties       Description     Allows your computer to access resources on a Microsoft network.       OK     Cancel	OK Cancel



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

Local Area Connection 2 Properties	x	Internet Protocol Version 4 (TCP/IPv4) Properties	×
Networking Sharing		General	
Connect using: Intel(R) 82574L Gigabit Network Connection <u>Configure</u> This connection uses the following items: Client for Microsoft Networks Gos Packet Scheduler Gos Packet Scheduler File and Printer Sharing for Microsoft Networks File and Printer Sharing for Microsoft		You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings. Qbtain an IP address automatically Use the following IP address: IP addr	
wide area network protocol that provides communication across diverse interconnected networks.		Validate settings upon exit Advanced	
OK Cancel		OK Cancel	

**EXILINX**.

### **Optional Hardware Setup**

#### > For testing SFP with IBERT, SFP28 Loopback Adapters are needed

- » multilaneinc.com
- » SFP28 (zSFP+) Loopback Adapter
- » Part # <u>ML4026-28</u>

#### > The ZCU208 uses 4 SFP28 adapters

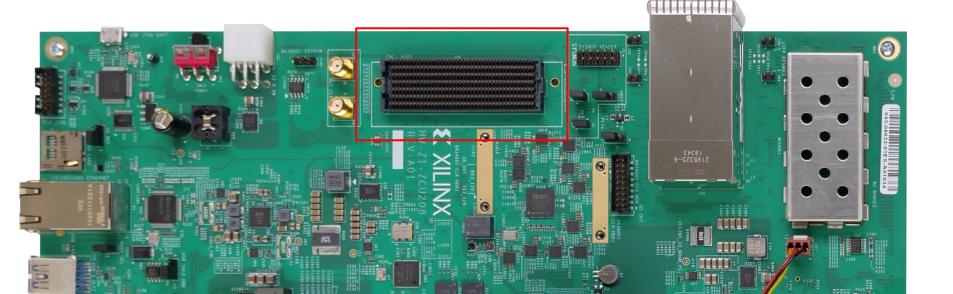




### **Optional Hardware Setup**

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





# References

### References

#### > Vivado Release Notes

- » Vivado Design Suite User Guide Release Notes UG973
  - <u>https://www.xilinx.com/support/documentation/sw\_manuals/xilinx2020\_1/</u> 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
  - <u>https://www.xilinx.com/support/documentation/sw\_manuals/xilinx2020\_1/</u> ug908-vivado-programming-debugging.pdf



# **Documentation**

### **Documentation**

### > Zynq UltraScale+

- » Zynq UltraScale+ RFSoC
  - <u>https://www.xilinx.com/products/silicon-devices/soc/rfsoc.html</u>

### > ZCU208 Documentation

- » Xilinx Zynq UltraScale+ RFSoC ZCU208 Evaluation Kit
  - https://www.xilinx.com/products/boards-and-kits/zcu208.html
- » ZCU208 Board User Guide UG1410
  - <u>https://www.xilinx.com/support/documentation/boards\_and\_kits/zcu208/ug1410-zcu208-eval-bd.pdf</u>
- » ZCU208 Known Issues Master Answer Record
  - <u>https://www.xilinx.com/support/answers/70958.html</u>

