

Axsun PCIe DAQ Board: Windows Installation Instructions

(*draft*, 27 Feb 2017)

Prerequisites:

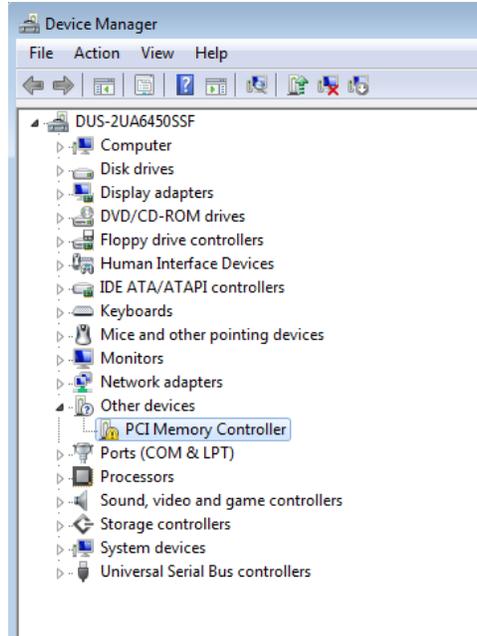
1. Download <http://downloads.axsun.com/public/software/EthernetDAQ/AxsunOCTHost.zip> and run *setup.exe* to install *OCTHost.exe*, *AxsunOCTControl.dll*, and the USB driver package. Confirm that communication is established between the DAQ and your PC using *OCTHost.exe*.
2. Follow the instructions in the document “Installing Axsun OCT Capture Software.pdf” to install the dependencies for the “*Advanced Image Capture Application*” (the same capture tool used for Gigabit Ethernet-based image capture).

Axsun PCIe DAQ Board Hardware Installation:

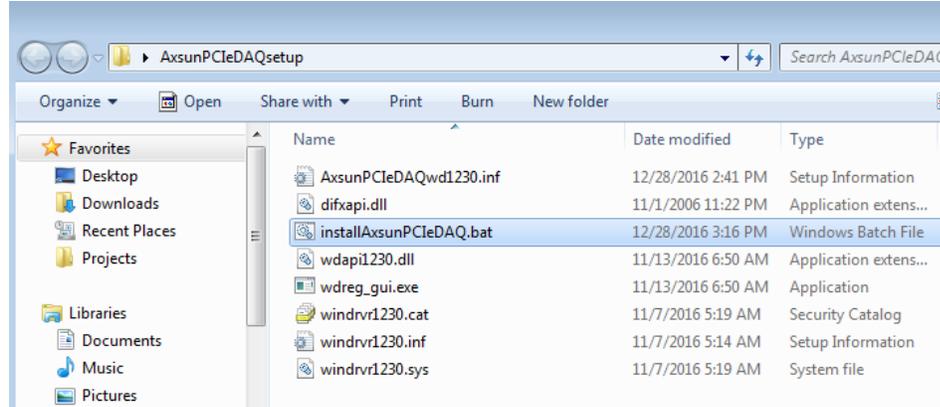
3. Insure your host PC is powered-down. Plug the Axsun DAQ board into the PCIe slot/connector on the host motherboard directly or connect it via PCIe bridge cable.
4. Power-up the DAQ by connecting the DAQ’s +12V_{DC} power cable to the AC/DC adapter and the adapter to the mains power. The DAQ does not draw power from the host PC’s PCIe connector; it needs its own external supply.
5. Wait approximately 6 seconds (until the green LED on the corner of the DAQ board is blinking steadily) and then power-up the PC. This gives the FPGA time to load and be ready to enumerate when the PC searches for installed devices at power-on.

Axsun PCIe DAQ Board Driver:

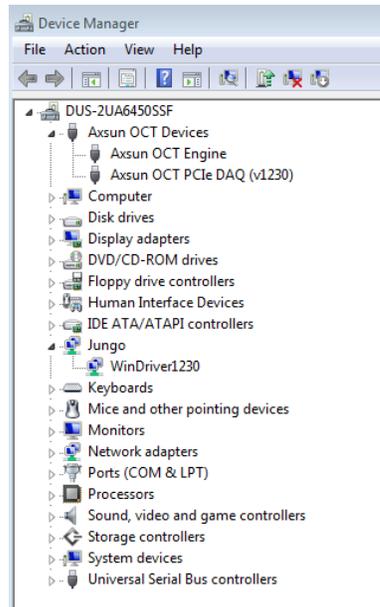
6. Wait for Windows OS to launch and login as a user with administrator privileges. (Screen captures shown below are from Windows 7, but other Windows OS versions should be similar.
7. Open the *Device Manager* and confirm the presence of a new unknown device labeled “PCI Memory Controller” in the “Other devices” category:



8. Confirm the contents of the “..\AxsunPCIeDAQsetup\” directory match the image below. Double-click the batch file “installAxsunPCIeDAQ.bat” to run the installer script and wait momentarily for installation to occur in the background:

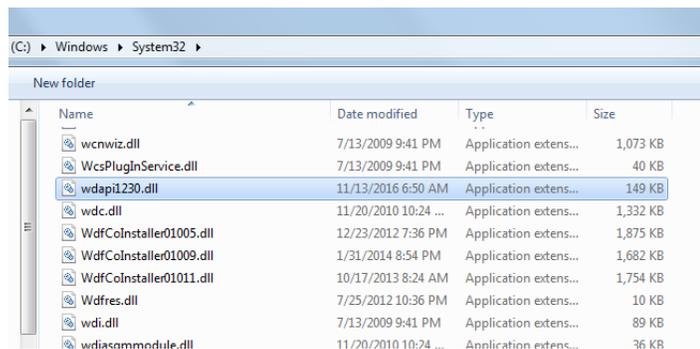


9. The Device Manager tree will refresh several times during the install process, and you will notice a new category “Jungo” with a device titled “WinDriver1230”.
10. If Windows Security warning prompts appear, indicate that you trust the software publishers and proceed with the installation.
11. When the driver installation is complete, the *Device Manager* tree will refresh again and success will be indicated by the “WinDriver1230” device listed in the “Jungo” category and “Axsun OCT PCIe DAQ (v1230)” device listed in the “Axsun OCT Devices” category.



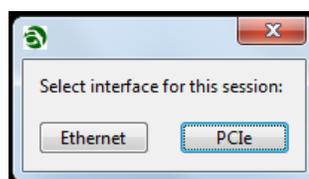
Note the “Axsun OCT Engine” shown listed in the “Axsun OCT Devices” category above is from an Axsun engine connected via USB (unrelated to this PCIe installation).

12. Confirm that the install script successfully copied “*wdapi1230.dll*” into the “C:\Windows\System32\” directory:

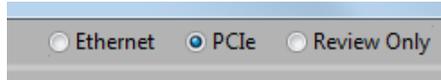


Axsun PCIe DAQ Board Image Capture Application:

13. Launch the “*AdvancedImageCaptureApplication.exe*” and select “PCIe” when prompted to select an interface:



14. Unless error pop-ups indicate otherwise, the PCIe installation was successful and the DAQ board, kernel drivers, user libraries, and GUI tool are ready for streaming and capturing image information. The interface indicator in the GUI should look like:



15. Verify the ability to read PCIe and main FPGA registers via the PCIe bus by pressing the two respective *READ* buttons on the “PCIe” controls tab. The register lists should populate with meaningful (non-zero) values:

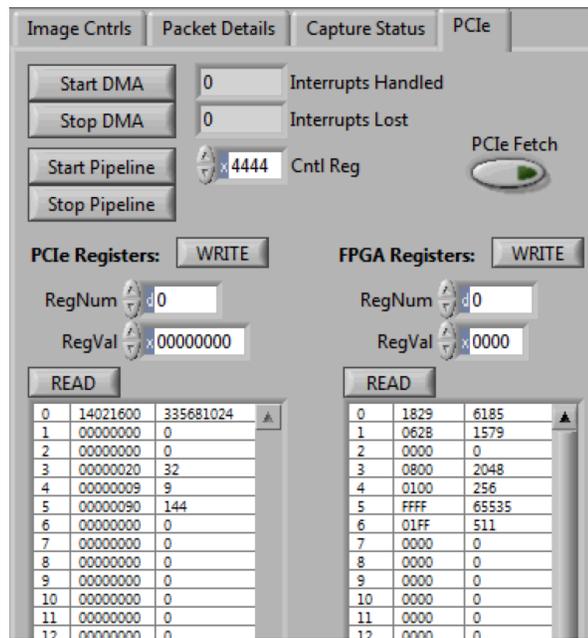


Image Cntrl | Packet Details | Capture Status | **PCIe**

Start DMA: 0 | Interrupts Handled: 0
 Stop DMA: 0 | Interrupts Lost: 0
 Start Pipeline: 4444 | Cntl Reg: [ON] | PCIe Fetch: [ON]
 Stop Pipeline: []

PCIe Registers: [WRITE] | FPGA Registers: [WRITE]

RegNum: 0 | RegVal: 00000000 | RegNum: 0 | RegVal: 0000

PCIe Registers			FPGA Registers		
RegNum	RegVal	RegVal	RegNum	RegVal	RegVal
0	14021600	335681024	0	1829	6185
1	00000000	0	1	062B	1579
2	00000000	0	2	0000	0
3	00000020	32	3	0800	2048
4	00000009	9	4	0100	256
5	00000090	144	5	FFFF	65535
6	00000000	0	6	01FF	511
7	00000000	0	7	0000	0
8	00000000	0	8	0000	0
9	00000000	0	9	0000	0
10	00000000	0	10	0000	0
11	00000000	0	11	0000	0
12	00000000	0	12	0000	0