

Agilent U4305A Protocol Exerciser for PCI Express Gen3

SW Version 8.70

September 8, 2013

▪ Software Version	8.70.014
▪ Internal Build	8.70.46.14
▪ FPGA Versions	7.5 (Exerciser image) , 5.7 (PTC image)
▪ Firmware version	0.9
▪ Platform Version	1.10.0008 (Release)
▪ Package GUID	577FF5F3-88AD-4554-AA14-0DA2696D1117
▪ AgtUSBManager	Version 3.7
▪ Update GUI	Version 3.0
▪ Branch	ati_pcie_integration_exerciser_gen3_nvme_rel8.70

Overview

PCIe 3.0 exerciser can help you validate your device whether it is a server or an add-in card. The emulated personality is easily switched through software for either a root complex or an end point. It has support for PCIe, MRIOV, SRIOV protocols.

www.agilent.com/find/pci-express

Current OSes supported

Windows XP 32/64, Windows 7 32/64

Important usage notes

Refer to Help for details on how to install and use this package.

1. If you have USB Device(s) (U4305A) attached to your system but only one or none of them receives a valid module number (module numbers on the U4305A devices are 10001, 10002 etc.), this might be due to one of the following reasons:
 - a. The USB Device(s) has been plugged in for the first time after rebooting the host controller PC and another USB Device or module was already locked by a session. Please close all existing sessions and update the module numbers. Now run Start->Programs->Agilent SPT->Tools->Diagnostics and hit the button 'Update Module Numbers'.



- b. If you are working on a system with Windows XP SP2 this might be a problem with the loopback addresses. This has been fixed by Microsoft in the patch KB893066. You can download the patch at the Microsoft site <http://www.microsoft.com/downloads/>
2. If your USB controller supports USB2.0 make sure that you use the delivered (or corresponding) USB2.0 cable only.
3. Release 7.3(E2960B Gen2 Exerciser) & Release 8.x (U4305A Gen3 Exerciser) cannot exist on same machine.
4. If you don't see modules after updating Firmware then restart AgtN2XUSBManagerService & AgtN2XResourceManager.
5. Windows 7 support
 - a. Run the installer exe in Administrator Mode
 - b. User Account control Settings should be "Never notify"
6. The location of the OpenE script has been changed from 'C:\AgilentPciExpress' to <Exerciser Install Folder>\8.x Release\Samples\PCIe Port.
7. PTC works at x1 link-width. Higher lanes might be required to be physically masked for DUTs with higher link-widths.
8. It is observed that error message "Failed to generate pkgIndex.tcl for dir \lib\AgilentN2X" gets displayed in case installation/un-installation steps were not done in the proper sequence. In such cases, please do the following:
 - Open "Add or Remove Programs" (Windows XP) or "Programs and Features" (Windows 7) from Control Panel and uninstall the following products:
 - Agilent SPT Platform
 - Agilent SPT Tcl/Tk 8.3.4 with Extras
 - Agilent SPT PCIe Exerciser Gen3(8.70 Release)
 - Install the Agilent SPT PCIe Exerciser Gen3 software again.

Software Version History

SW 8.70

Exerciser

- Support for NVMe RC/Host Mode (Licensed).

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Exerciser

- Exerciser Bug Fixes
 1. SAD00455772: Reading back VF BARs in SRIOV Mode always return zero
 2. SAD00455773: Hot Reset & Disabled testcases fails at Gen2 Speed
 3. SAD00455774: Exerciser shows Data Memory Miscompare if LDW in packet is other than F
 4. SAD00455775: PCI-Port does not work after server reboot untill exerciser is power cycled.

PTC

- PTC Bug Fixes
 1. SAD00455776: LTR timing issue in test cases LTR_ENABLED_CLEARED LTR_NON_D0_STATE

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Exerciser

- Exerciser Bug Fixes
 1. SAD00453600: Decoder Issue - In System Port API doesn't return correct BAR status in case of 64 bit BAR configuration.
 2. SAD00453602: Send immediate - Broken functionality in SW 8.61.
 3. SAD00452967: Gen3 exerciser 8.61.005 shows error during add port and can't connect.
 4. SAD00453888: PCIe Port does not able to acquire the lock if BAR0 is 64bit wide and has size > 1G.
 5. SAD00453887: Gen3 Exerciser does not set the correct value of de-emphasis in TS OS at Gen2 speed.
 6. SAD00453926: PCI-Port Lock in case sudden link down.

PTC

- PTC Bug Fixes
 1. SAD00452712: Modification of Equalization Coefficient and Equalization Preset tests according to revised PTC test-specs rev 0.9.
 2. SAD00452713: Clear Error Status registers after running the Reserved_Bits_In_TS test.
 3. SAD00452714: Error in final test-results of FLR and LTR test-cases when DUT is a Switch.
 4. SAD00453028: PTCIII Test L1_FOR_D3_STATE failing for customer DUT.
 5. SAD00453902: LTR Test Cases updates as per revised test-spec rev 1.0
 6. SAD00453903: Link-Up issue in Equalization test-cases

SW 8.61

Exerciser

- Algorithmic payload generation/checker (New Functionality), New API's added ExerciserChannelFunctionGet & ExerciserChannelFunctionSet, along with Enum

EPCIEExerciserHwChannelStatus (for further details refer online help) for accessing this functionality.

PTC

- PTC Bug Fixes
 1. SAD00451804 Equalization Test-Cases : PTC should verify that DUT has reflected back the requested Presets and Coefficients within 500ns
 2. SAD00451805 Link-Upconfig test is failing for some Gen2 DUT which reports only 2.5 GT/s link speed capability in the TS1 ordered sets.
 3. SAD00451806 PTC is not able to parse all the Extended PCIe Capabilities present in the DUT.
 4. SAD00451807 Printing the Error Status Register values in the log file for debugging help.

SW 8.6

Exerciser

- Gen3 support for MRIOV (New Product Option)
- Gen3 Support for SRIOV (New Product Option)
- Active participation in equalization stages (Maintenance update)
- NAK counter for Transmitter (Maintenance update)
- Exerciser Bug Fixes
 1. SAD00450505: Exerciser unable to correctly mark start-end of TLP on x1 link width.
 2. SAD00448665: Can't Install on Japanese Windows 7 x64 Professional
 3. SAD00447622: AgtPCIEExerciser PerformanceCounterStatusRead API for PCIE_PERFORMANCECOUNTERSTATUS_INTERVAL_LEN returns wrong value
 4. SAD00449198: Exerciser does not floats Electrical Idle on unused lanes
 5. SAD00425578: FDW byte of Default packet is different from the Memory Read packet in the Templates
 6. SAD00448344: LTSSM test case `Exerciser Initiates Down Configuration` broken on Gen3 speed
 7. SAD00448440: PTC3 General Setting's windows, the resolution default on some PC were such that one could not see all the available options.

8. SAD00450396: LTSSM test case 'Gen1->Gen2 (Fail) ->Gen1' and 'Gen2->Gen3 (Fail) -> Gen2 fails with Gen3 AMD card.

PTC

- Separate category for Gen2 PTC test cases & new Gen3PTC test cases
- Test cases will not try Linkup on higher Link-widths
- EQ, FLT, LTR Test cases: Removed LinkUp/LinkDown code which was not required to fix some of the rare issues, unable to reproduce easily.
- Support for multi-function devices added for ASPM_L1 & L1_for_D3 test cases.
- PTC Bug Fixes
 1. SAD00450043: ASPM_L1 & L1_for_D3 Test cases failing for NVIDIA DUT
 2. SAD00450047: DLL_05_02_17 and TXN test-cases failing for Gen1 Devices
 3. SAD00450046: PTC3 requires some other licenses
 4. SAD00447832: PTC not available in offline mode
 5. SAD00448432: LTR test-cases: test-case fails with the message 'LTR message not received when LTR is enabled'
 6. SAD00448433: ECRC third sub-test is repeatedly failing for all DUTs
 7. SAD00448434: DLL related test-cases failing randomly
 8. SAD00448435: Equalization Coefficient test-case: Last sub-test - ambiguity in PTC specs
 9. SAD00448436: Equalization Coefficient test-case: sub-test 28, 31 - These sub-tests are failing for some DUTs
 10. SAD00448437: Equalization test-cases - preserving the last test results and test-cases logs typo mistake
 11. SAD00448438: Loopback from Configuration is failing for all speeds for many devices
 12. SAD00448441: Test: DLL_05_02_17 produced a yellow caution result
 13. SAD00448444: Test cases should run on configured speed and check speed for Equalization test cases.

SW 8.5

- PTC (Protocol Test Compliance) functionality added



- Exerciser Bug Fixes
 1. SAD00423891: Sometimes unable to add Exerciser port. One port is not adding and giving error pop up 'Unknown capability'.
 2. SAD00446792: AgtPCIEExerciser SiStatusGet API not working as expected
 3. SAD00444201: Exerciser stuck in Link Init/Link Active on restart of server
 4. SAD00444202: MRIOV - VL flow control Issue
 5. SAD00446382: If the Exerciser driver is not installed on system under test (Wind2008 server), while going to D3 hot, Exerciser doesnot complete Configcycle
 6. SAD00447345: Exerciser sometime updating the NPdata credit incorrectly

SW 8.4

- Additional LTSSM test cases.
- Separate data memory compare for each function.
- Support for pattern matchers.
- Support for different transceiver (Tx) settings at Gen 1, Gen 2, Gen 3 speeds.

SW 8.3

- Power management support - L0s, L1
- ECRC error detection and injection.
- Single Root I/O Virtualization software license for PCIe 5Gbps
- Five functions for use with MRIOV, SRIOV and PCIe Gen 3
- PCIe port access using memory cycles
- Windows 7 (for Enterprise & Professional 64 bit OS).

SW 8.2

- MRIOV Gen2 Exerciser.
- PCI Express Gen3 Exerciser.

SW 8.1

- PCI Express Gen3 LTSSM Tester.

- Windows XP, 7 support (for Enterprise & Professional 32bit OS only).