

## Agilent U4305A Protocol Exerciser for PCI Express Gen3

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*SW Version 8.62*

*November 07, 2012*

- Software Version        8.62.009
- Internal Build         8.62.46.009
- FPGA Versions        6.124 (Exerciser image) , 5.7 (PTC image)
- Firmware version     0.8
- 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\_ptc\_rel8.62

### *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](http://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.

## *Software Version History*

### *SW 8.62*

#### *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).