

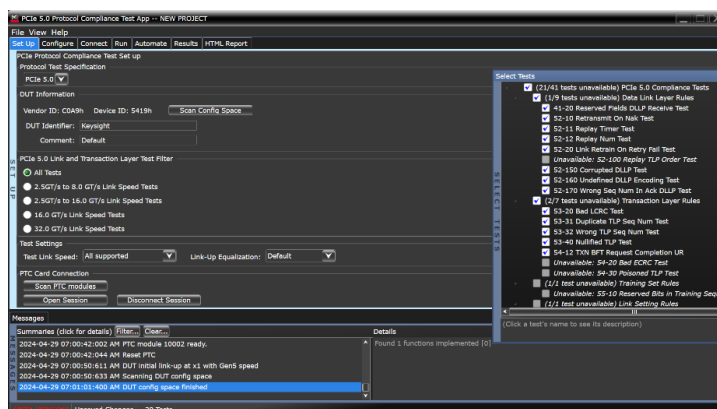
# P5551CTSA PCIe 5.0 Protocol Compliance Test Suite

PCI Express® 5.0

## Introduction

PCIe® compliance testing which is a part of PCIe protocol testing, in which the respective PCIe component is tested against PCIe-SIG® protocol compliance as per the guidelines given in the Link and transaction layer specification for respective PCIe standard.

This is essential to ensure product quality and consistency while adhering to PCIe specifications and standards.



# Product Overview

PCIe Compliance testing is auditing for adherence to the regulations as defined by the respective PCIe standard.

The compliance guidelines as defined by the respective link and the transaction layer specification typically sets the DUT for rigorous testing requirements that generally include the most challenging PCIe protocol test scenarios that the DUT might encounter.

In this way, if the DUT complies, then it can be successfully utilized in any real-world PCIe protocol test scenario.

## P5551CTSA PCIe 5.0 Protocol Compliance Test Suite Software

PCIe compliance testing ensures that products conform to the specifications outlined by the Peripheral Component Interconnect Express (PCIe) standard. The PCIe 5.0 Protocol Compliance Test Suite is a test sequencer software, capable of executing all mandatory link and transaction layer test cases on PCIe end point devices in a fully automated manner to determine their compliance to the PCIe 5.0 specification as defined by the PCI-SIG. The test suite provides pass/fail results for each test case with detailed test reports.

Keysight P5551CTSA provides all the complete mandatory 41 test cases in accordance to the PCIe-SIG specifications and standards for compliance testing which are essential for verifying the robustness, reliability, and compliance of the Transaction Layer Packet (TLP) layer in PCIe interfaces. By using a combination of test scenarios and tools, this to ensures that the TLP layer operates as expected in various scenarios.

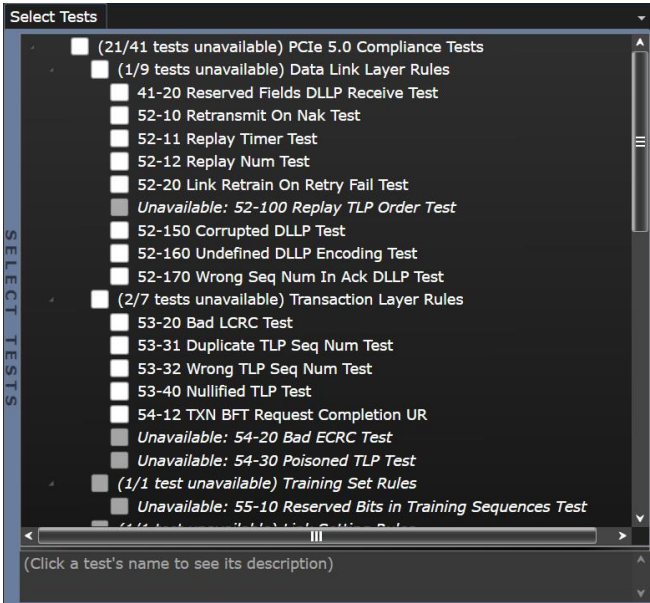


Figure 1. List of test cases ^

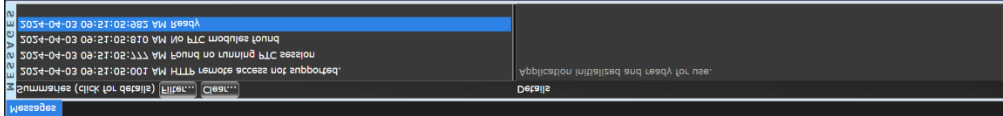


Figure 2. Monitor status details of each test.

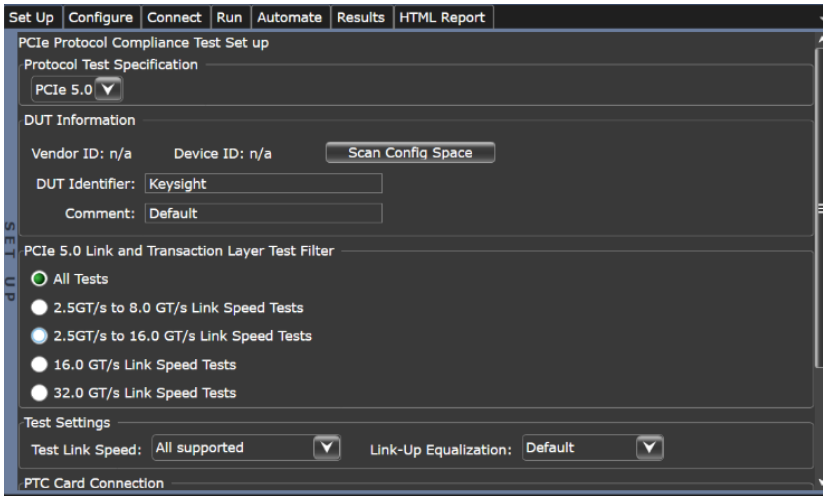


Figure 3. Easy setup navigation menu.



Figure 4. Easy automated one-push “Run” button.

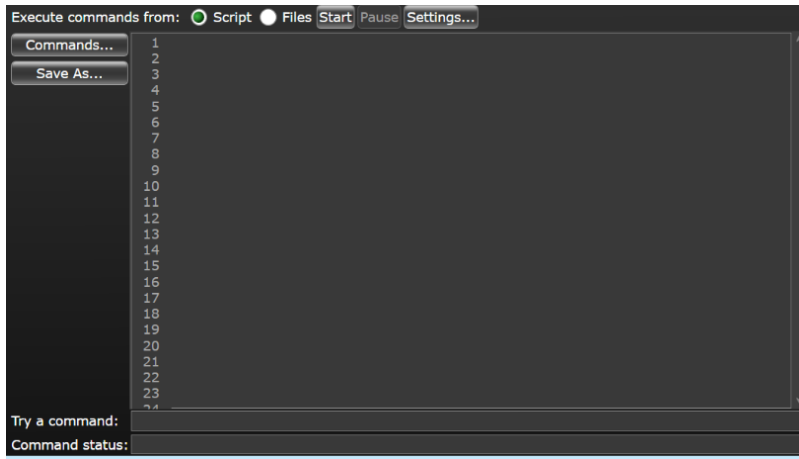


Figure 5. Customizable tests using configures with scripts.

Test Name	Actual Value	Margin %	Pass Limits	# Trials
41-20 Reserved Fields DLLP Receive Test	Pass	100.000	VALUE = 1	1
52-10 Retransmit On Nak Test	Pass	100.000	VALUE = 1	1
52-11 Replay Timer Test	Pass	100.000	VALUE = 1	1
52-12 Replay Num Test	Pass	100.000	VALUE = 1	1
52-20 Link Retrain On Retry Fail Test	Pass	100.000	VALUE = 1	1
52-150 Corrupted DLLP Test	Pass	100.000	VALUE = 1	1
52-160 Undefined DLLP Encoding Test	Pass	100.000	VALUE = 1	1
52-170 Wrong Seq Num In Ack DLLP Test	Pass	100.000	VALUE = 1	1
53-20 Bad LCRC Test	Pass	100.000	VALUE = 1	1
53-31 Duplicate TLP Seq Num Test	Pass	100.000	VALUE = 1	1

Parameter	Value
59-10_TestResult	Pass

Figure 6. View instant results.

Figure 6. View and generate test report

# Additional Recommended Hardware

Keysight P5575A PCIe 6.0 Protocol Exerciser with a combination of the P5572A PCIe 6.0 Protocol Analyzer is a versatile test tool, with support for more complicated test configurations can be supported to improve analysis capability, robustness, and mechanical stability.

Description	Keysight model number(s)	Comments
PCIe 6.0 Protocol Exerciser	P5575A	
PCIe 6.0 Protocol Analyzer	P5572A	
PCIe 6.0 Test System (Backplane)	P5563B	

## Ordering Information

Model	Description	Comments
P5551CTSA	PCIe 5.0 Protocol Compliance Test Suite	
P5575A	PCIe 6.0 Exerciser Linkwidth x4	
P5577PSWA	PCIe 6.0 Exerciser Software	Optional
P5572A	PCIe 6.0 Analyzer Linkwidth x4	
P5576PSWA	PCIe 6.0 Analyzer Software	Optional
R-55A-001-3	KeysightCare Assured - Extend to 3 years	
P5563B	PCIe 6.0 Test System (Backplane)	

# Software Licensing and KeysightCare Software Support Subscriptions

Keysight offers a variety of licensing options to fit your needs and budget. Choose your license term, license type, and KeysightCare software support subscription.

## KeysightCare Software Support Subscriptions

Perpetual licenses are sold with a 12 (default), 24, 36, or 60-month software support subscription. Support subscriptions can be renewed for a fee after that.

Contact your Keysight representative or authorized partner for more information or to place an order:

[www.keysight.com/find/contactus](http://www.keysight.com/find/contactus)

### **KeysightCare Software Support Subscription provides peace of mind amid evolving technologies.**

- Ensure your software is always current with the latest enhancements and measurement standards.
- Gain additional insight into your problems with live access to our team of technical experts.
- Stay on schedule with fast turnaround times and priority escalations when you need support.

Keysight enables innovators to push the boundaries of engineering by quickly solving design, emulation, and test challenges to create the best product experiences. Start your innovation journey at [www.keysight.com](http://www.keysight.com).



This information is subject to change without notice. © Keysight Technologies, 2024, Published in USA, April 30, 2024, 3124-1327.EN