PCI Express® 3.0 Interposer with SMBus Support
User Manual and Quick Start Guide

Before Starting
Use this document for quick installation and setup. If you experience problems or need more information, see the product manuals available at the Teledyne LeCroy web site or in the Documents folder in the PCIe Protocol Suite installation DVD.

Introduction
The Teledyne LeCroy PCI Express 3.0 Interposer with SMBus Support plugs into a PCIe® CEM Connector and allows you to probe PCI Express traffic between a host and a PCIe expansion card. The interposer assures reliable data transmission while providing 100% capture of all data traffic flowing through the PCIe slot interface. Connecting the interposer to a Teledyne LeCroy analyzer allows decoding and display of data flowing in both directions and across all lanes, and will display data traffic using the industry-standard CATC Trace™ data display, along with a wide range of traffic and error reports. The Gen3 Interposer is for use with a Summit PCIe Gen3 capable analyzer. The interposer uses Teledyne LeCroy’s T.A.P.3 technology to ensure complete data capture at Gen3 rates with minimal signal perturbation.

The Gen3 Interposer supports data rates of 2.5 GT/s, 5.0 GT/s and 8.0 GT/s, and depending on the version purchased link widths up to x16. For all the versions of the interposer, the PCIe connector on the card will support PCIe expansion cards up to x16. Versions of the interposer with lower link width have a reduced PCIe edge connector at the bottom. A x8 or x4 DUT card can be inserted on the top connector and the connection will automatically negotiate to the lesser link width. The interposer allows you to record SMBus traffic when used with Summit T34.

Components
The interposer package includes the following components:
- PCI Express 3.0 Interposer with SMBus support
- DC Power Adapter (12 volts)
- User Manual and Quick Start Guide (this document)

Inspect the received shipping container for any damage. Unpack the container and account for each of the system components listed on the accompanying packing list. Visually inspect each component for absence of damage.

In the event of damage, notify the shipper and Teledyne LeCroy. Retain all shipping materials for shipper’s inspection.
Connections

Perform to the following steps to connect the Interposer (see the image below):

1. Install the Interposer into the host system under test PCIe CEM slot connector.
2. Install the PCIe expansion card under test (DUT) into the top connector on the interposer. Note that PCIe expansion cards with edge connectors x8 or x4 expansion cards are inserted, the connection will negotiate to the lesser link width.
3. Connect 12V DC using the AC adapter supplied with the interposer. Make sure that the AC adapter is turned on.
4. Connect the Summit PCIe Gen3 compatible analyzer to the interposer using straight iPass or iPass Y-cable, as indicated in the diagrams below. When using iPass Y-Cable, the "A" cable goes to "Upstream" connector in the analyzer. The "B" connector goes to "Downstream".
5. Connect the compatible Summit analyzer to a host machine using the USB or Ethernet port on the back panel of the analyzer.
6. Install the PCIe Protocol Analysis on a host machine. This application is needed to control the protocol analyzer.
7. Power ON the analyzer.
8. Start recording with the analyzer.
9. Power ON the host system.
10. Use the Teledyne LeCroy software application to monitor, record and view PCI Express in the PCI expansion card DUT system.

Note: Steps 7, 8, and 9 are needed in this order for power ON traces.
Clock Configuration

The source for the reference clock used by the analyzer to record PCI Express traffic is configurable according to below table. Make sure clock source in Recording Options in the PCIe Protocol Suite application is set to External.

<table>
<thead>
<tr>
<th>SW1.3</th>
<th>SW1.4</th>
<th>Cable A</th>
<th>Analyzer Reference Clock Source</th>
<th>SW1.1</th>
<th>SW1.2</th>
<th>Cable B</th>
<th>Analyzer Reference Clock Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>ON</td>
<td>Host Clock</td>
<td>Analyzer will be supplied with ref clock from the PCIe slot connector.</td>
<td>ON</td>
<td>ON</td>
<td>Host Clock</td>
<td>Analyzer will be supplied with ref clock from the PCIe slot connector.</td>
</tr>
<tr>
<td>OFF</td>
<td>ON</td>
<td>UP_CLK</td>
<td>Analyzer will be supplied with ref clock from UP_CLK connector.</td>
<td>OFF</td>
<td>ON</td>
<td>UP_CLK</td>
<td>Analyzer will be supplied with ref clock from UP_CLK connector.</td>
</tr>
<tr>
<td>ON</td>
<td>OFF</td>
<td>DN_CLK</td>
<td>Analyzer will be supplied with ref clock from DN_CLK connector.</td>
<td>ON</td>
<td>OFF</td>
<td>DN_CLK</td>
<td>Analyzer will be supplied with ref clock from DN_CLK connector.</td>
</tr>
<tr>
<td>OFF</td>
<td>OFF</td>
<td>Reserved</td>
<td></td>
<td>OFF</td>
<td>OFF</td>
<td>Reserved</td>
<td></td>
</tr>
</tbody>
</table>

Note: Factory settings for all switches are ON.

DUT Retention Clamp

The Gen4 Interposer comes with a DUT retention clamp installed. Use the DUT retention clamp to secure the bottom of the DUT’s metal bracket. Fully insert the DUT in the top connector of the interposer. Then use the thumbscrew in the DUT retention clamp to secure the DUT. See the drawings below.
Environmental Conditions

- Temperature: Operating 32° F to 122° F (0° C to 50° C)
- Temperature: Non-Operating 14° F to 176° F (-10° C to 80° C)
- Humidity: Operating 10% to 90% RH (non-condensing)

Teledyne LeCroy Customer Support

Online Download
Periodically check the Teledyne LeCroy Protocol Solutions Group web site for software updates and other support related to this product. Software updates are available to users with a current Maintenance Agreement.

Web: teledynelecroy.com/tm/software/PCIe
E-mail: psgsupport@teledyne.com
Support: teledynelecroy.com/support/contact

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Changes

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