Gen2 Mid-Bus Probe Quick Start for Summit™ Analyzers

Before Starting

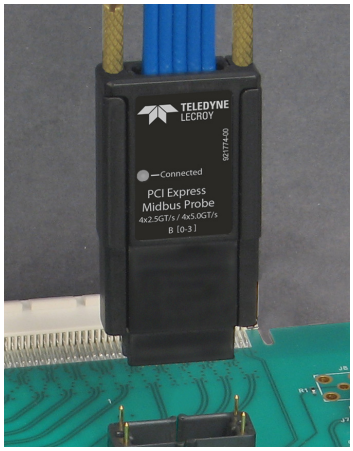
Use this document for quick installation and setup. If you experience problems or need more information, see the product manuals available at the Teledyne LeCroy web site or in the Documents folder in the PCIe Protocol Suite installation DVD.

1 Introduction

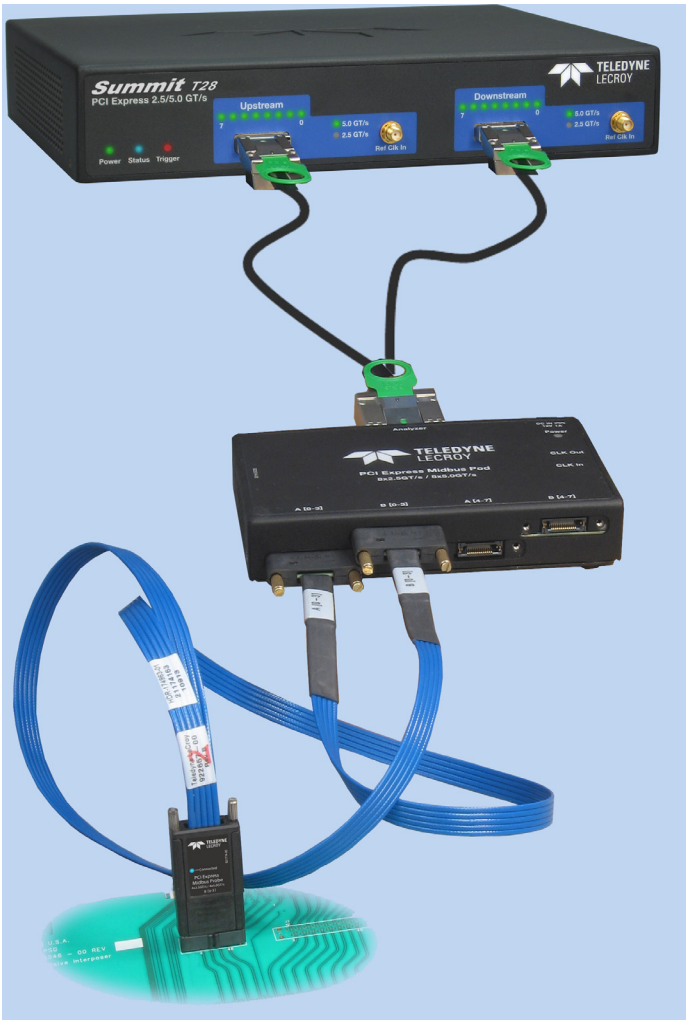
Teledyne LeCroy's PCIe 2.0 (Gen2) mid-bus probe supports quick and easy probing at data rates up to 5 GT/s through a simple probe footprint designed into the PCB.

Mid-bus probes are used by system designers to probe embedded bus signals (e.g., for serial data buses that run between chips on a single circuit board) or simply as a convenient means to access bus signals with a probe connector. The probe is easily attached to an retention module mounted on top of a mid--bus footprint that is laid out on the target test system board.

The Teledyne LeCroy PCIe 2.0 mid-bus probe uses a universal retention module consisting of two pieces that can accommodate both "half size" (PCIe x4 lanes) or "full size" (PCIe x8 lanes) mid-bus footprints. Two x8 mid-bus probes can be connected to a Summit T3-16 Analyzer and will support x16 lane widths. These probes can be used in conjunction with the unique lane swizzling feature on the Summit analyzers (see section 4 for details), which allows probe signals to be reorganized logically, to give developers additional flexibility in PCB layout.



Gen2 Mid-bus Half Size Probe Head



Gen2 Mid-bus Half Size Probe and Components (Reference clock cable not shown)

2 Components

The Teledyne LeCroy Gen2 mid-bus probe kits have the following components for Summit T3-16, T3-8 and T28:

- Mid-bus Probe Pod
- iPass Y-Cable
- Probe head with ribbon cables attached
- Reference clock cable
- Daisy chain cable (for multiple probe pods)
- 2-piece universal retention module
- Two Probe Pod mounting brackets and four screws
- Quick Start Guide (this document)

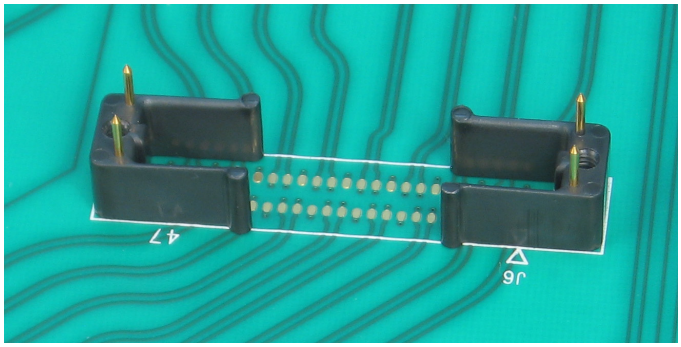
The Teledyne LeCroy Gen2 mid-bus probe kit has the following components for Summit T24 and Summit T34:

- Mid-bus Probe Pod
- iPass x4-to-x8 straight cable
- Probe head with ribbon cables attached
- Reference clock cable
- Daisy chain cable (for multiple probe pods)
- 2-piece universal retention module
- Two Probe Pod mounting brackets and four screws
- Quick Start Guide (this document)

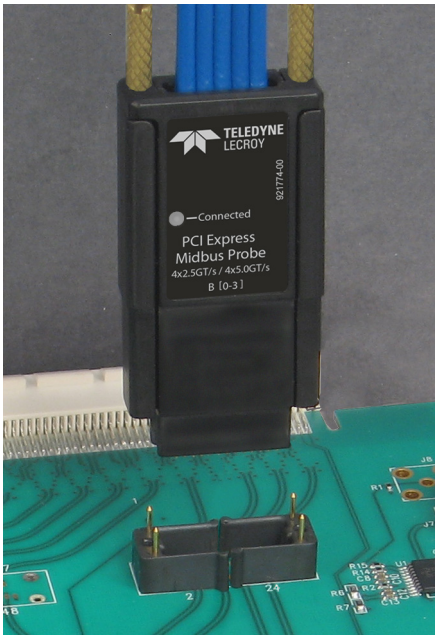
3 Hardware Installation

To install the components:

1. Install the universal retention module in the Mid Bus footprint. For further details review the PCI Express Mid-Bus Probe for Summit manual in the website or Summit Analyzer installation DVD.
2. Attach the probe head to the retention module.



Universal Retention Module



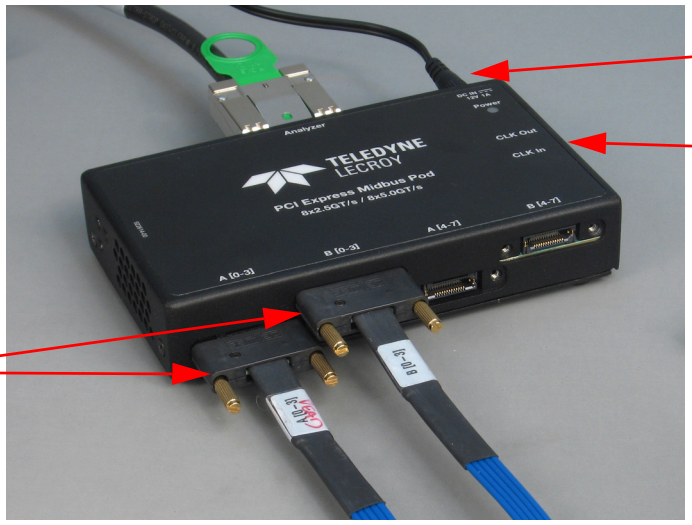
Attaching the Probe Head to the Universal Retention Module

3. Connect the probe cable assembly to the Summit Analyzer.

Plugging in Summit T3-16, T3-8 or T28 Cable in to the Mid-bus Probe

Plugging in Summit T24 or Summit T34 Cable in to the Mid-bus Probe

4. If using the external clock option, connect the clock cable to the Probe Pod and the DUT. Two cables plugged in to the probe indicate that it is a half-size probe head.



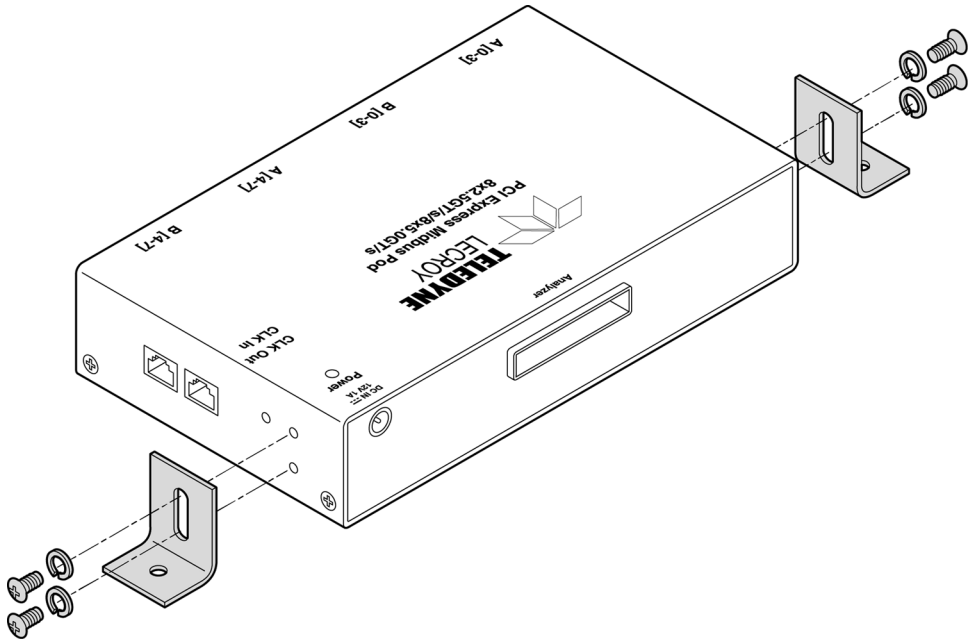
4 Optional Mounting Bracket Installation: Horizontal

The components included with the Gen2 MidBus Probe include two mounting brackets and four screws with lock washers for the Probe Pod to keep it securely attached to your work area.

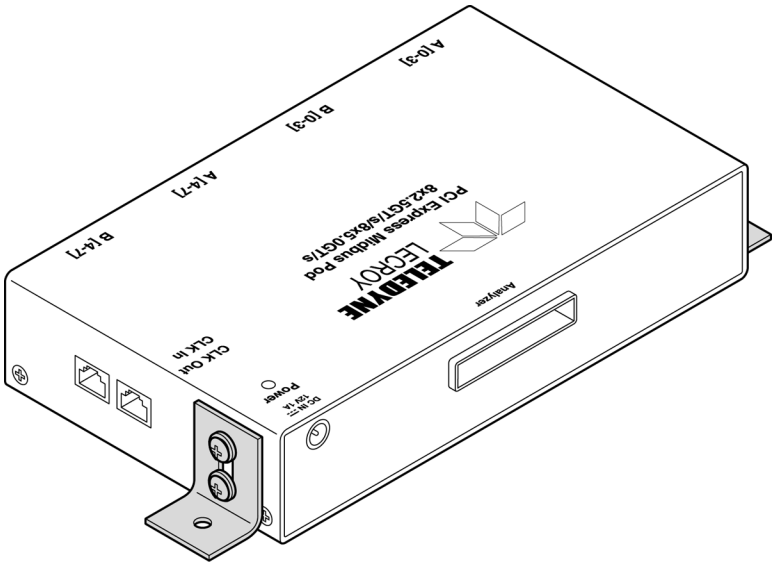
WARNING: Use only the screws provided as longer screws may go deeper in the Probe Pod and damage internal components.

See figures below for PCI Express MidBus Probe Pod Horizontal Installation:

Step 1: Align the screws, washers and brackets with the holes on both sides of the PCI Express MidBus Probe Pod.



Step 2: Tighten the screws to secure the brackets to the sides of the PCI Express MidBus Probe Pod.

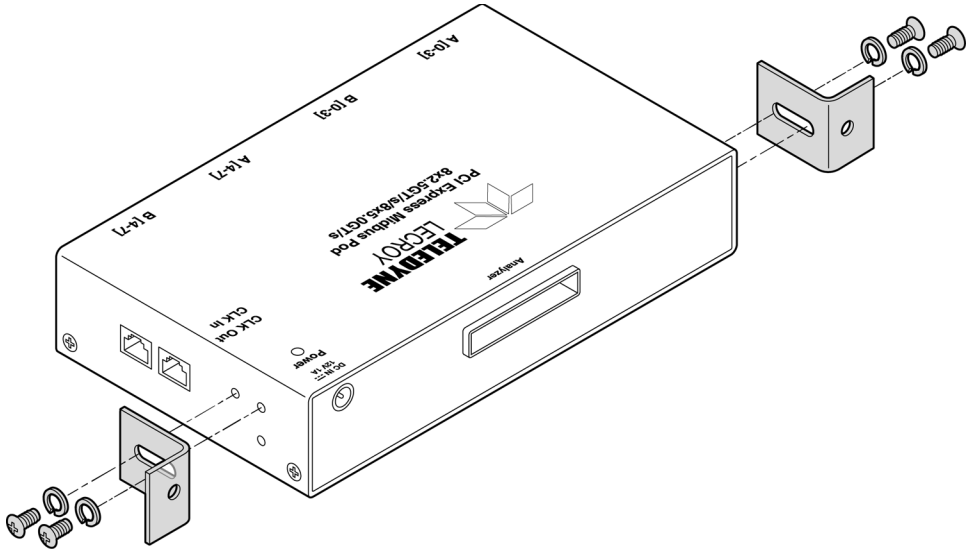


Bracket installation for vertical mounting

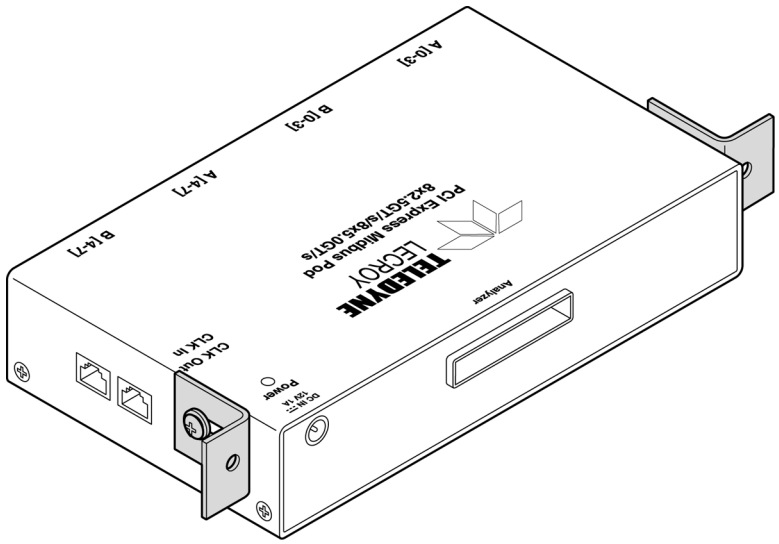
WARNING: Use only the screws provided as longer screws may go deeper in the Probe Pod and damage internal components.

See figures below for PCI Express MidBus Probe Pod Vertical Installation:

Step 1: Align the screws, washers and brackets with the holes on both sides of the PCI Express MidBus Probe Pod.



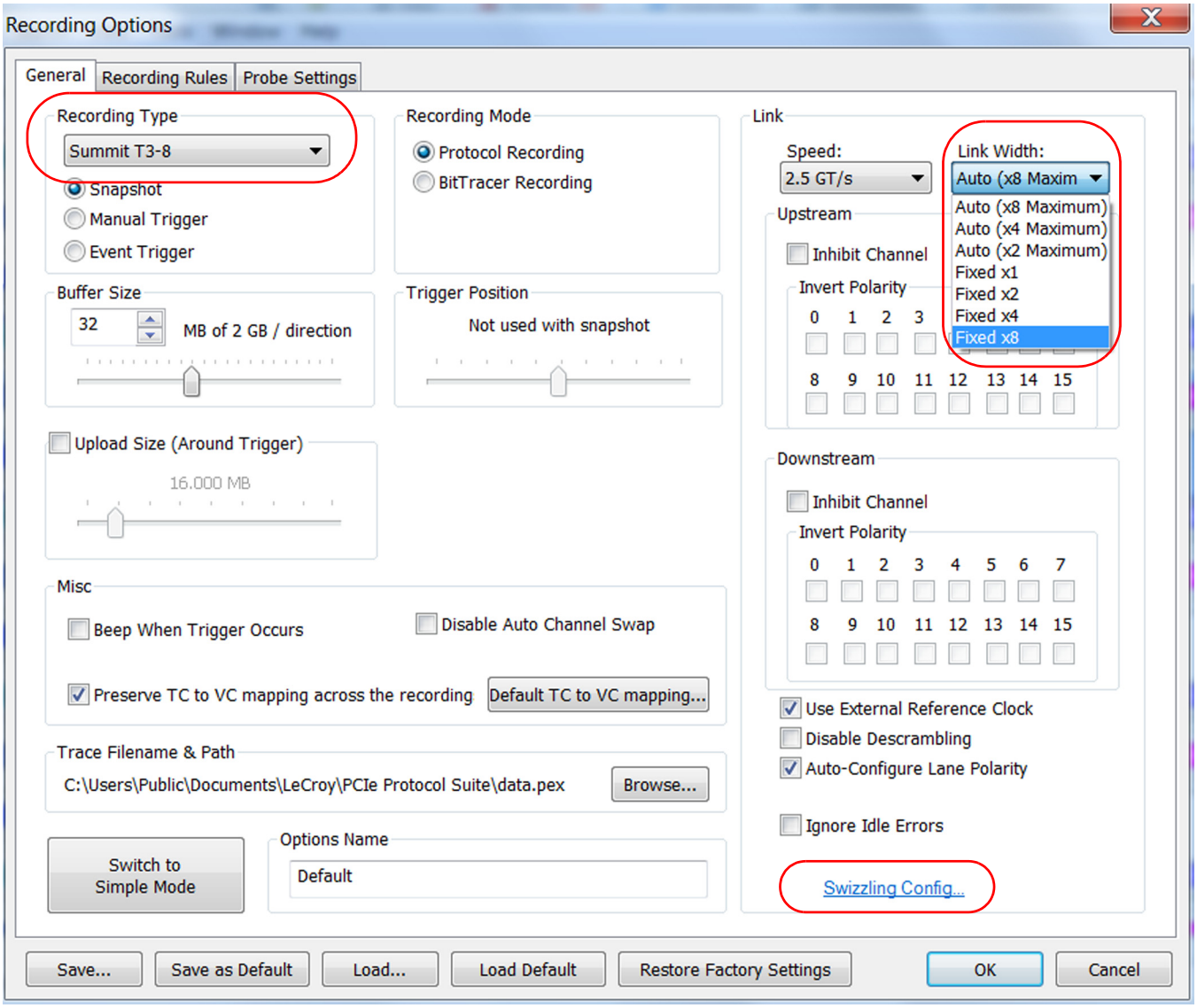
Step 2: Tighten the screws to secure the brackets to the sides of the PCI Express MidBus Probe Pod.



5 Software Configuration

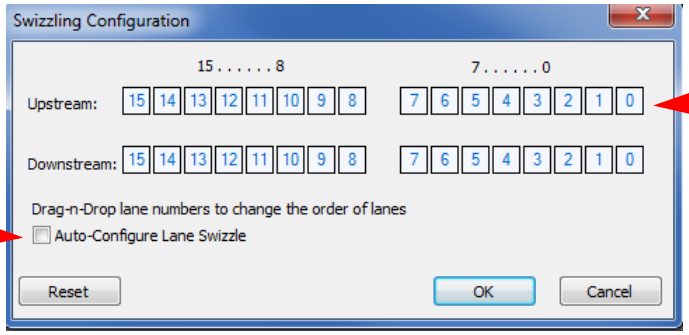
The default configuration of the Gen2 Mid-bus Probe Assembly is the (x4 width) configuration.
To use Summit Analyzers, you must first create the correct swizzling setup in the Recording Options dialog.
To setup the swizzling configuration:

1. Open the PCIe Protocol Analysis application on the host machine.
2. Open the Recording Options dialog.



3. In the Recording Type section (top left) your connected analyzer must be displayed.
4. In the Link section (on the top right), select the appropriate link width (x4 uses one probe pod, x8 uses two probe pods and x16 uses four probe pods (see section 3 above).
5. At the bottom right of the Link section, select **Swizzling Config** to display the Swizzling Config dialog, (see figure below).

Auto-Configure lane swizzle is supported by Summit T3-16, T3-8 and T28.
For Summit T24 only Manual Swizzle option is available.



Master Lane

You can drag and drop lane numbers to change lane order and match the actual connection.

6. Make sure Master Lane is dragged to an appropriate location. The Master Lane is the location of Lane 0. If you do not know the location of Lane 0 any other active lane will work.

6 Recording Traffic

After you have set up the hardware and software, you can record traffic.

For instructions on setting up and implementing a recording, please refer to the *Summit PCI Express Multi-Lane Protocol Analyzer User Manual*.

7 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
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