

PCIe Gen5 Cables

User Manual and Quick Start Guide

1 Introduction

The Teledyne LeCroy family of Gen5 Cables allow you to connect Teledyne LeCroy PCI Express Gen4 and Gen5 interposers to the PCI Express Gen5 Summit Analyzers. All the cables are 1 meter in length. These cables allow recording for bus Link Widths up to x16 at up to 32.0 GT/s, connecting all the high speed signals including reference clock and side band signals such as PERST#, WAKE#, CLKREQ# and SMBus. The sideband signals can be recorded for analysis depending on the interposer used.

Each of the cables mentioned below is described in more detail in either the Analyzer User Manual or in an Interposer User Manual. Use this document for quick installation and setup of a variety of Gen5 cables:

- Gen5 x4 Straight Cable (PE027UCA-X)
- Gen5 x8 Y Cable for Summit T5 (PE028UCA-X)
- Gen5 x8 Y Cable for Summit M5x (PE029UCA-X)
- Gen5 Interposer to Gen4 Analyzer x4 Straight Conversion Cable (PE030UCA-X)
- Gen5 Interposer to Gen4 Analyzer x8 Y Conversion Cable (PE031UCA-X)
- Gen4 Interposer to Gen5 Analyzer x8 Y Conversion Cable (PE033UCA-X)
- Gen4 Interposer to Gen5 Analyzer x4 Straight Conversion Cable (PE034UCA-X)



PCIe Gen5 Cable Family

2 Components

The package includes the following items:

- User Manual and Quick Start Guide (this document)

Depending on configuration one or more of the following cables:

- Gen5 x4 Straight Cable (PE027UCA-X)
- Gen5 x8 Y Cable for Summit T5 (PE028UCA-X)
- Gen5 x8 Y Cable for Summit M5x (PE029UCA-X)
- Gen5 Interposer to Gen4 Analyzer x4 Straight Conversion Cable (PE030UCA-X)
- Gen5 Interposer to Gen4 Analyzer x8 Y Conversion Cable (PE031UCA-X)
- Gen4 Interposer to Gen5 Analyzer x8 Y Conversion Cable (PE033UCA-X)
- Gen4 Interposer to Gen5 Analyzer x4 Straight Conversion Cable (PE034UCA-X)

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.

3 Interposers and Probes

The Gen5 cables support a full range of Teledyne LeCroy PCIe legacy, Gen4 and Gen5 Interposers and probes, including:

Cable SKU	Cable Description	Use with:
PE027UCA-X	Straight Cable for Summit T54 with Gen5 Module to Gen5 (x4 or x8) Interposer. ONLY Monitors x4 traffic. Works with Single Summit T54 in Standard Mode.	Gen5 x4 CEM Slot Interposer (PE206UIA-X) and Summit T54. This cable will also connect to the Gen5 x8 CEM slot interposer (PE202UIA-X) but will only allow operation up to x4 lanes.
PE028UCA-X	Y-Cable for Summit T54 with Gen5 Module to Gen5 x8 Interposer. Monitors up to x8 traffic. REQUIRES Two Summit T54's with Gen5 Module in Expanded Mode to operate.	Gen5 x8 CEM Slot Interposer (PE202UIA-X) and two Summit T54 Systems in Expanded Mode.
PE029UCA-X	Y-Cable for Summit M5x to Gen5 (x4 or x8) Interposer. Monitors up to x8 traffic.	Gen5 x8 CEM Slot Interposer (PE202UIA-X) and Summit M5x.
PE030UCA-X	Straight Cable from Gen5 (x4 or x8) Interposer to Summit T54 with Gen4 Module. ONLY Monitors x4 traffic. Also Works with Summit T48 or T416 in Multiport Mode.	Gen5 x4 CEM Slot Interposer (PE206UIA-X) and Summit T54 with Gen4 Module. This cable should also work with the Summit T48 and the Summit T416 when operating in Multiport mode.
PE031UCA-X	Y-Cable from Gen5 (x4 or x8) Interposer to Summit T48/T416 and T54 with Gen4 Module. Monitors up to x8 traffic. REQUIRES Two Summit T54's in Expanded Mode to operate.	Gen5 x8 CEM Slot Interposer (PE202UIA-X) or Gen5 x4 CEM Slot Interposer (PE206UIA-X) with Summit T48/T416 or T54 with Gen4 Module. Gen5 x8 CEM Slot Interposer (PE202UIA-X) and two Summit T54 Systems in Expanded Mode.
PE033UCA-X	Y conversion cable from Gen4 Interposer to Summit T5 Analyzer. Monitors up to x8 traffic.	Gen4 x16 Multiport interposer (PE183UIA-X)
PE034UCA-X	Straight conversion cable from Gen4 Interposer to Summit T5 Analyzer.	Gen4 x4 Multiport interposer (PE181UIA-X)

4 Gen5 Interposer to Gen5 Phy x4 Straight Cable

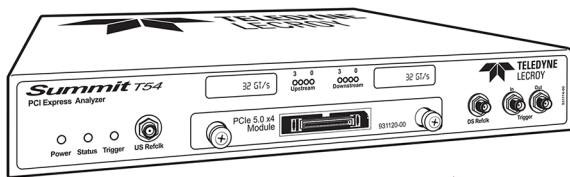
This cable allows recording for up to x4 links at up to 32.0 GT/s from a Gen5 x4 CEM Interposer to the Summit T54 with a Gen5 PHY module installed.



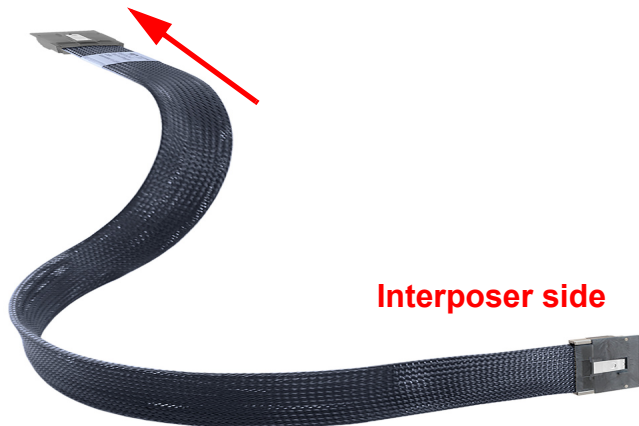
Gen5 x4 Straight Cable (PE027UCA-X)

Follow recommendations for setting up the Analyzer, Interposer and cables in the Gen5 Interposer and in the Summit T54 Quick Start Guides. Perform the following steps to use the cable (see the image below):

Summit T54 Analyzer with Gen5 PHY Module



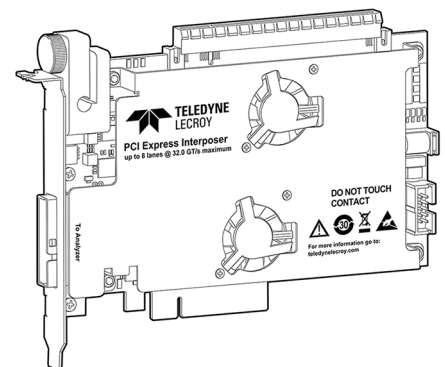
Analyzer side



Interposer side

Gen5 x4 Straight cable
PE027UCA-X

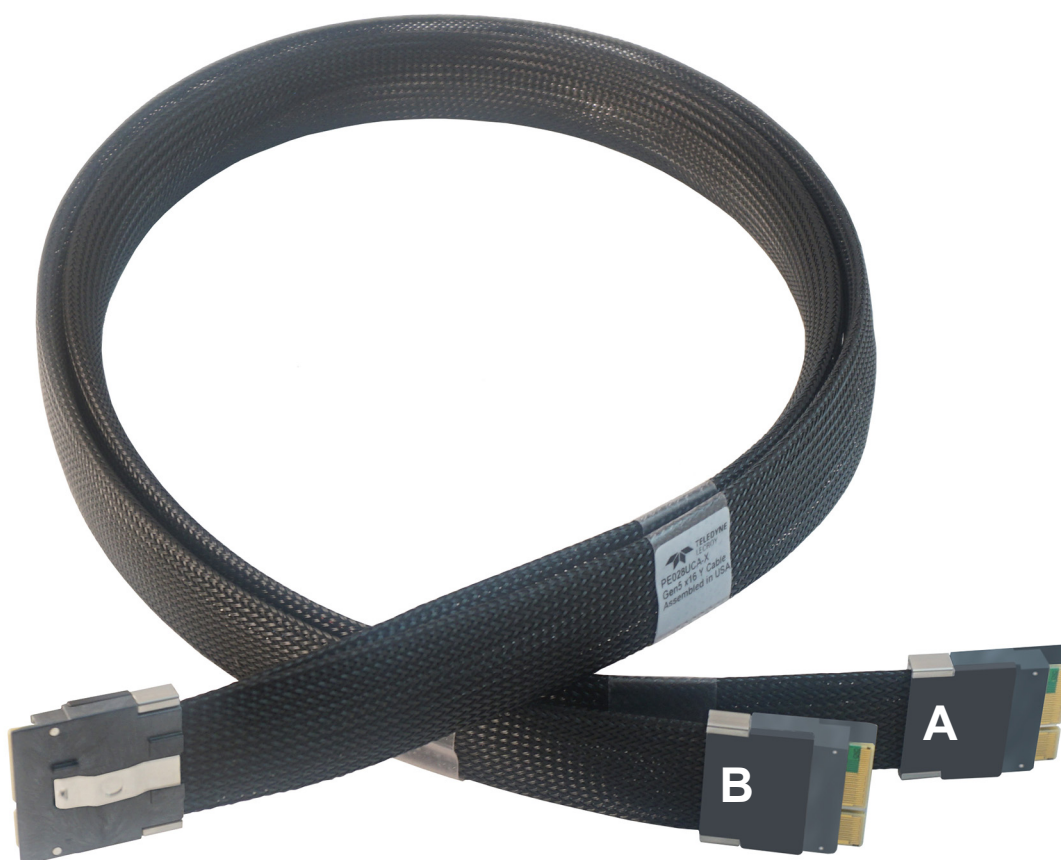
Gen5 x4/x8 Interposer PE202UIA-X



Connection diagram for one independent port up to x4 using one Gen5 x8 interposer

5 Gen5 Interposer to Gen5 PHY x8 Y Cable for Summit T5

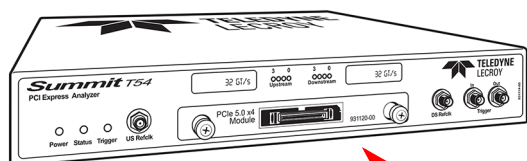
This cable allows recording for up to x8 links at up to 32.0 GT/s from a Gen5 x8 CEM Interposer to two Summit T54s with a Gen5 PHY module installed configured in Expanded mode. See Summit T54 Analyzer documentation for connectivity and configuration details for expanded mode.



Gen5 x8 Y Cable for Summit T5 (PE028UCA-X)

Follow recommendations for setting up the Analyzer, Interposer and cables in the Gen5 Interposer and in the Summit T54 Quick Start Guides. Perform the following steps to use the cable (see the image below):

Summit T54 Analyzer (with Gen5 PHY)

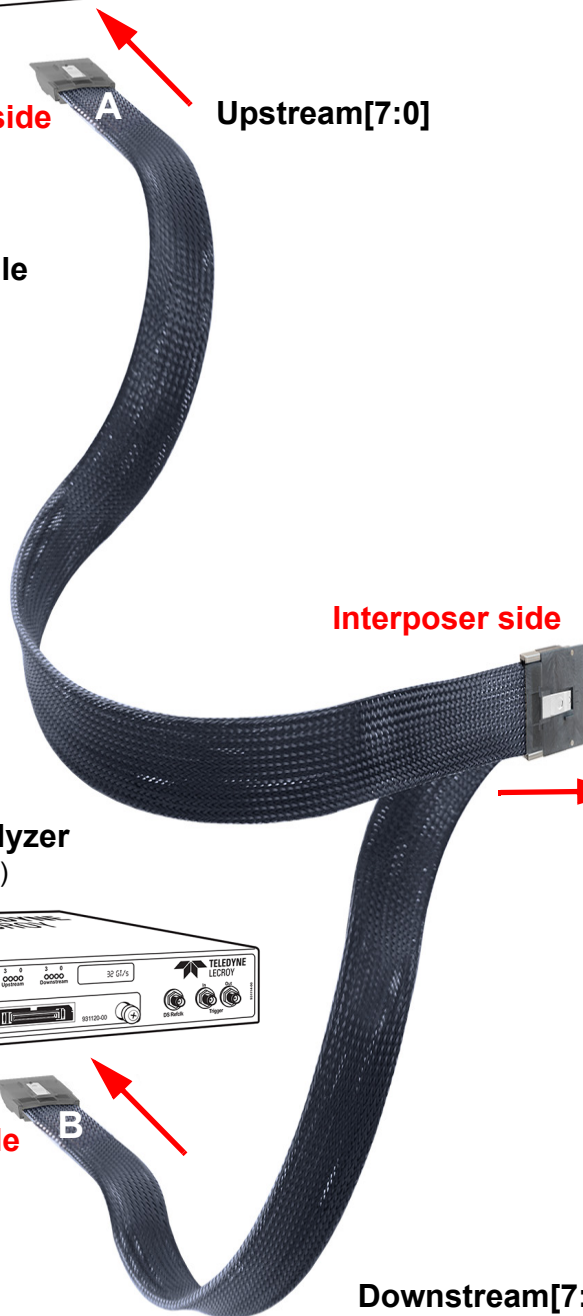


Analyzer side

A

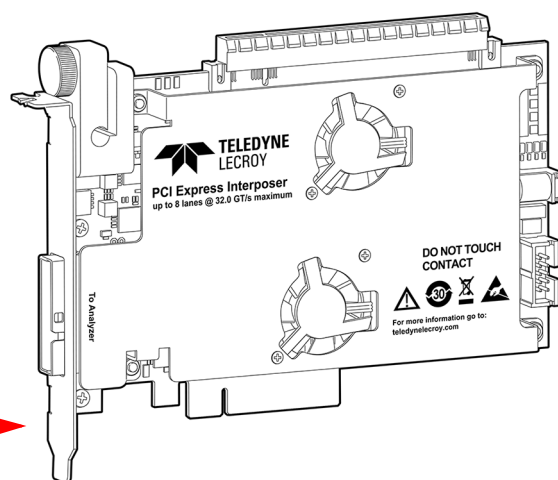
Upstream[7:0]

Gen5 x8 Y Cable (PE028UCA-X)

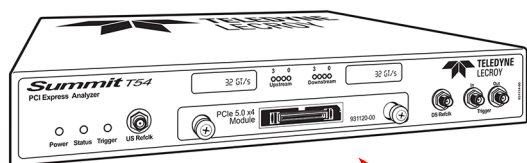


Interposer side

Gen5 x8 Interposer (PE202UIA-X)



Summit T54 Analyzer (with Gen5 PHY)



Analyzer side

B

Downstream[7:0]

**Connection diagram for single port up to x8 using a Gen5 x8 Interposer
with two Summit T54s in Expanded Mode**

6

Gen5 Interposer to Summit M5x x8 Y Cable

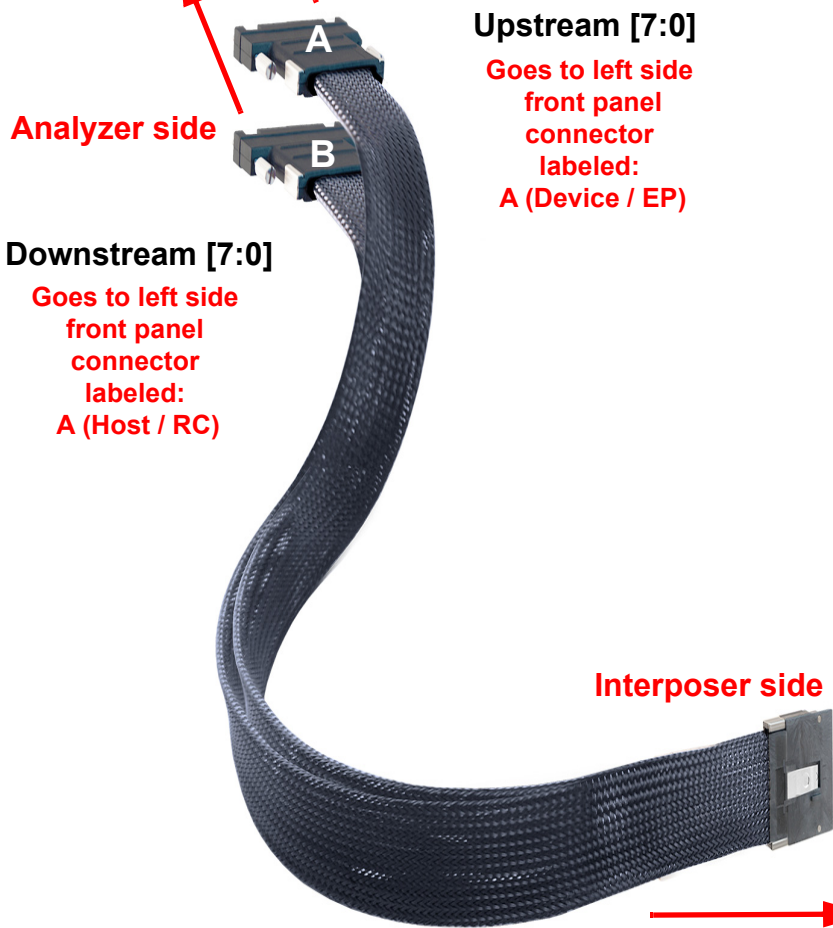
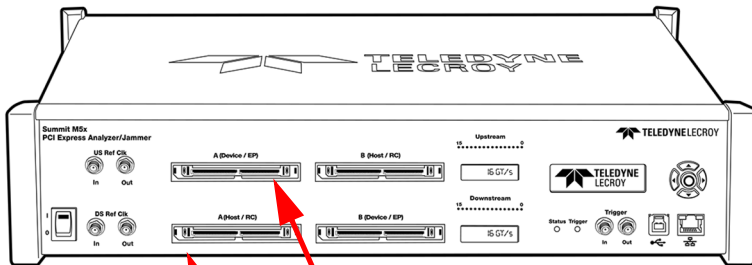
This cable allows recording for up to x8 links at up to 32.0 GT/s from a Gen5 x8 CEM Interposer to the Summit M5x system.



Gen5 x8 Y Cable for Summit M5x (PE029UCA-X)

Follow recommendations for setting up the Analyzer, Interposer and cables in the Gen5 Interposer and in the Summit M5x Quick Start Guides. Perform the following steps to use the cable (see the image below):

Summit M5x Analyzer/Jammer



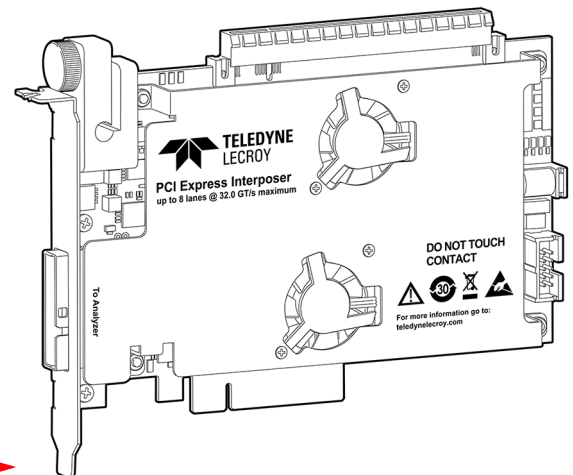
Upstream [7:0]

Goes to left side front panel connector labeled: A (Device / EP)

Downstream [7:0]

Goes to left side front panel connector labeled: A (Host / RC)

Gen5 x8 Interposer (PE202UIA-X)

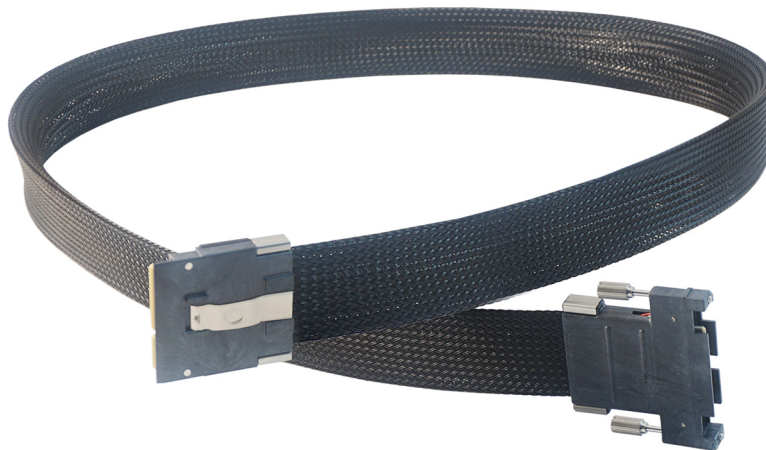


Gen5 x8 Y Cable for Summit M5x (PE029UCA-X)

Connection diagram for single port up to x8 to Summit M5x

Gen5 Interposer to Gen4 Phy x4 Straight Conversion Cable

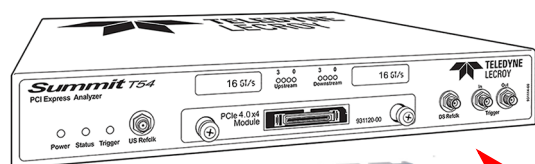
The Teledyne LeCroy Gen5 Interposer to Gen4 Analyzer x4 Straight Conversion Cable allows you to connect Teledyne LeCroy PCI Express Gen5 interposers to PCI Express Summit T54 Analyzers (with Gen4 PHYs). The cable allows recording for bus Link Widths up to x4 and up to 16.0 GT/s. The cable connects all the high speed signals including reference clock and side band signals such as PERST#, WAKE#, CLKREQ# and SMBus. These sideband signals can be recorded for analysis depending on the interposer used.



Gen5 Interposer to Gen4 Analyzer x4 Straight Conversion Cable (PE030UCA-X)

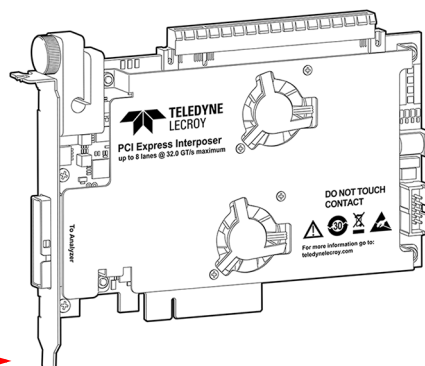
Follow recommendations for setting up the Analyzer, Interposer and cables in the Gen5 Interposer and in the Summit T54 Quick Start Guides. Perform the following steps to use the cable (see the image below):

Summit T54 Analyzer (with Gen4 PHY)



Analyzer side

Gen5 x4/x8 Interposer (PE202UIA-X)



Interposer side

**Gen5 to Gen4 x4
Straight
Conversion Cable
PE030UCA-X**

Connection diagram for a single port up to x4 using a Gen5 x8 Interposer

8 Gen5 Interposer to Gen4 Phy x8 Y Conversion Cable for Summit T4/T5

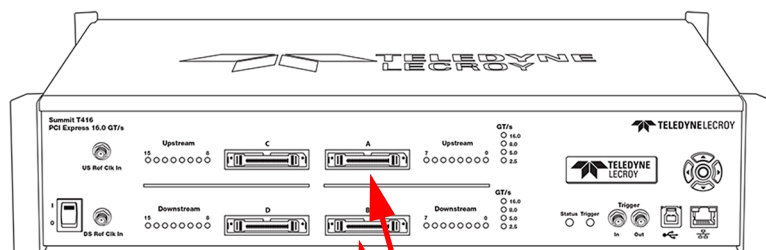
This cable allows recording for up to x8 links at up to 16.0 GT/s from a Gen5 x8 CEM Interposer to either a single Summit T48/T416 or two Summit T54s and Gen4 PHY modules installed configured in Expanded mode. See Summit T48/T416 or T54 Analyzer documentation for connectivity and configuration details for expanded mode.



Gen5 Interposer to Gen4 Analyzer x8 Y Conversion Cable for Summit T4 or T5 with Gen4 PHY (PE031UCA-X)

Follow recommendations for setting up the Analyzer, Interposer and cables in the Gen5 Interposer and in the Summit T416 Quick Start Guides. Perform the following steps to use the cable (see the image below):

Summit T416 Analyzer



Analyzer side

Upstream [7:0]

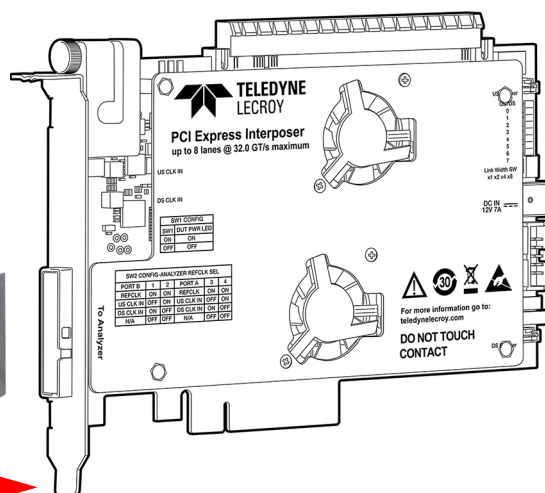
**Goes to right side
front panel
connector
labeled: A**

Downstream [7:0]

**Goes to right side
front panel
connector
labeled: B**

Interposer side

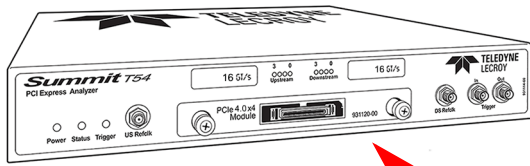
Gen5 x8 Interposer (PE202UIA-X)



Gen4 to Gen5 x8 Y Conversion Cable for Summit T416 (PE031UCA-X)

Connection diagram for single port up to x8 to Summit T416

Summit T54 Analyzer (with Gen4 PHY)



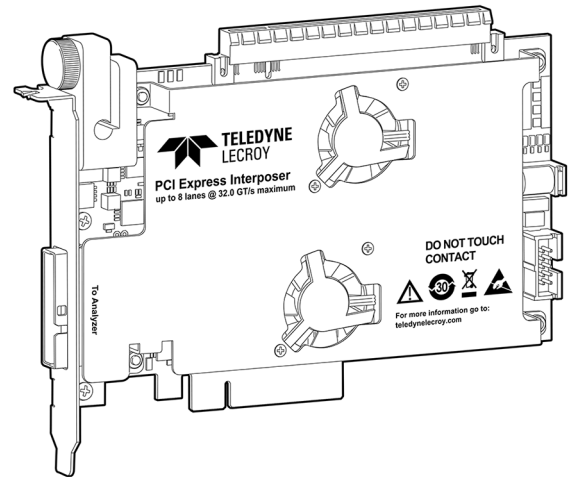
Analyzer side

**Gen5 to Gen4 x8
Y Conversion Cable
(PE031UCA-X)**

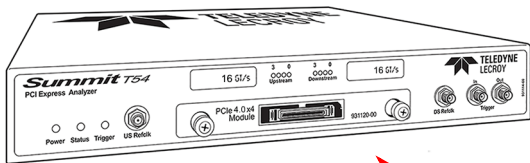
Upstream[7:0]

Interposer side

**Gen5 x8 Interposer
(PE202UIA-X)**



Summit T54 Analyzer (with Gen4 PHY)



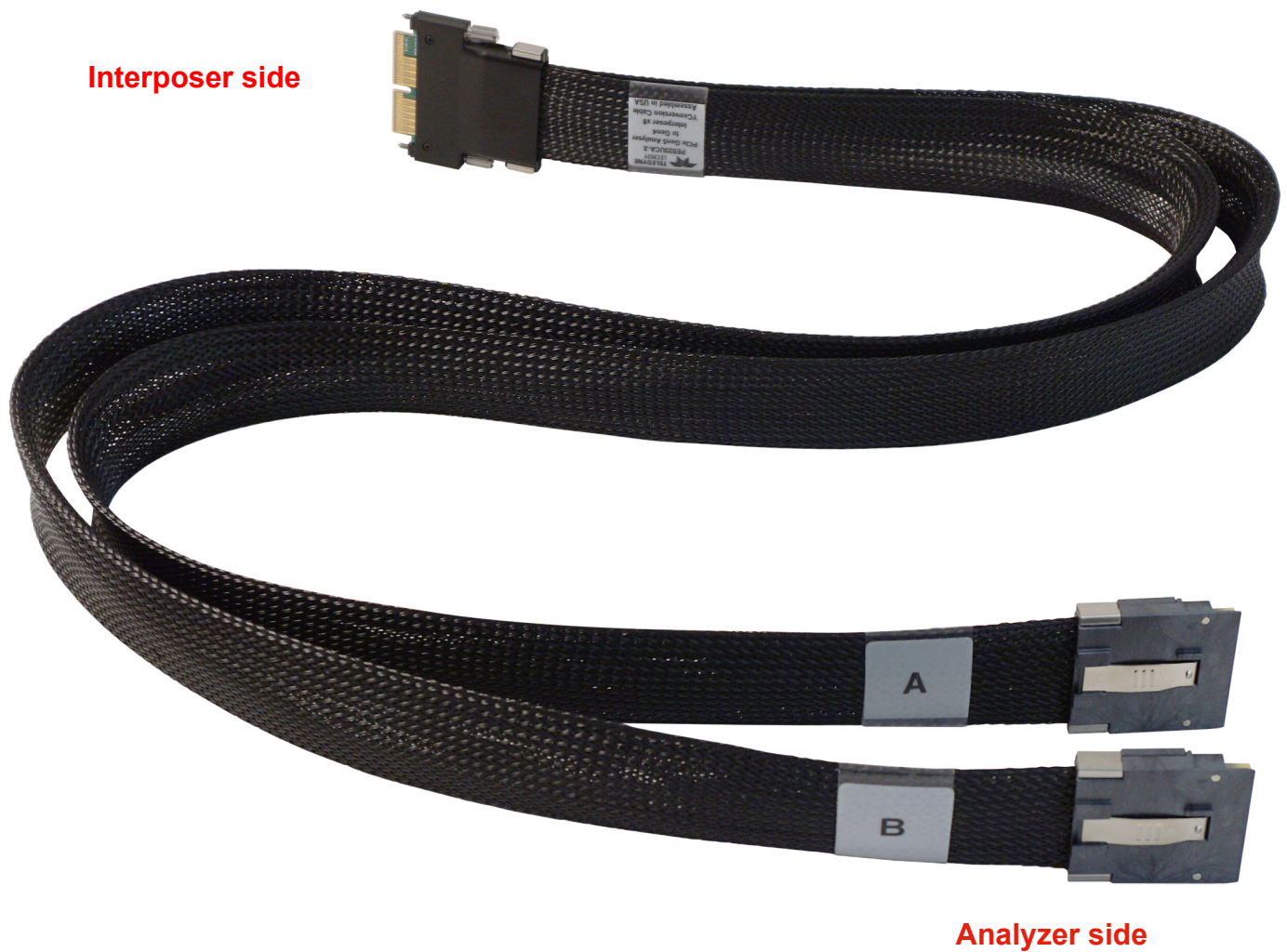
Analyzer side

Downstream[7:0]

**Connection diagram for single port up to x8 using a Gen5 x8 Interposer
with two Summit T54s in Expanded Mode**

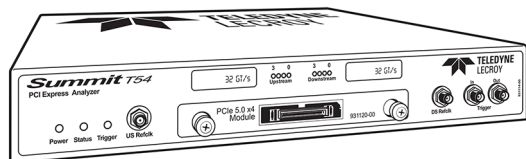
9 Gen4 Interposer to Gen5 Analyzer x8 Y Conversion Cable for Summit T5

This cable allows recording for up to x8 links at up to 16.0 GT/s from a Gen4 x8 CEM Interposer to a Summit T5 Analyzers. See Summit T5 Analyzer documentation for connectivity and configuration details.



Gen4 Interposer to Gen5 Analyzer x8 Y Conversion Cable for Summit T5 (PE033UCA-X)

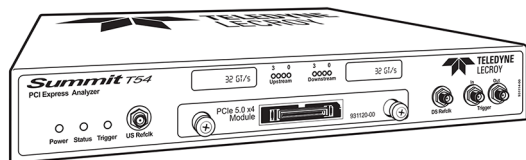
Summit T54 Analyzer in Expanded Mode (with Gen5 PHY)



Analyzer side

Upstream[7:0]

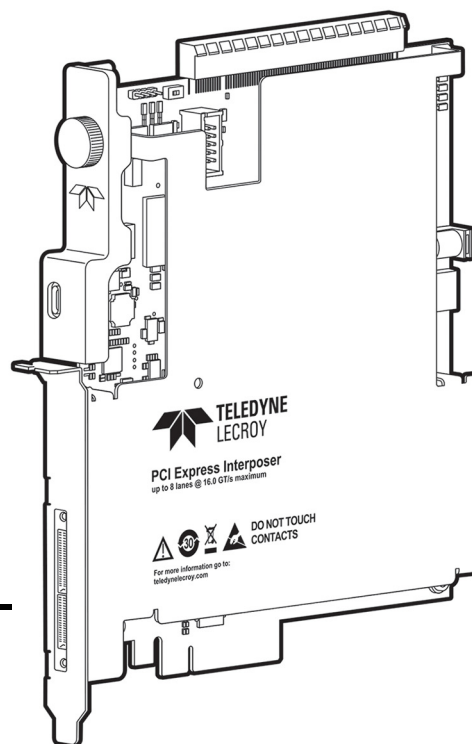
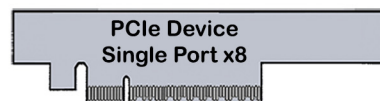
Summit T54 Analyzer in Expanded Mode (with Gen5 PHY)



Downstream[7:0]

Gen4 to Gen5 x8
Y Conversion Cable
(PE033UCA-X)

Interposer side



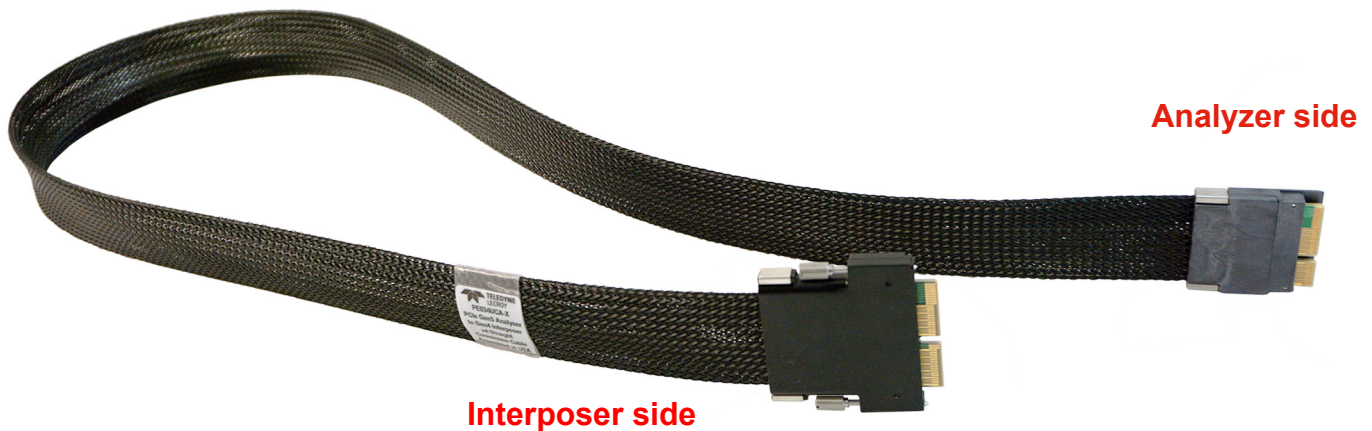
PCIe Slot from Host System Under Test

Gen4 x8 Multiport interposer
(PE182UIA-X)

Gen4 Interposer to Gen5 Analyzer x8 Y conversion Connection

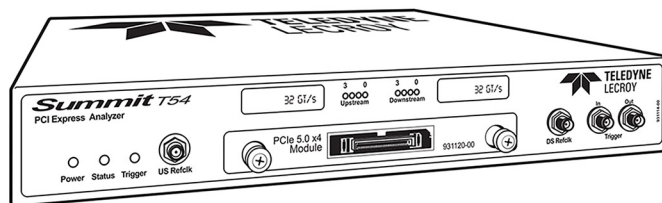
10 Gen4 Interposer to Gen5 Analyzer x4 Straight Conversion Cable for Summit T5

This cable allows recording for up to x4 links at up to 16.0 GT/s from a Gen4 x4 CEM Interposer to a single Summit T54 Analyzer. See Summit T54 Analyzer documentation for connectivity and configuration details.

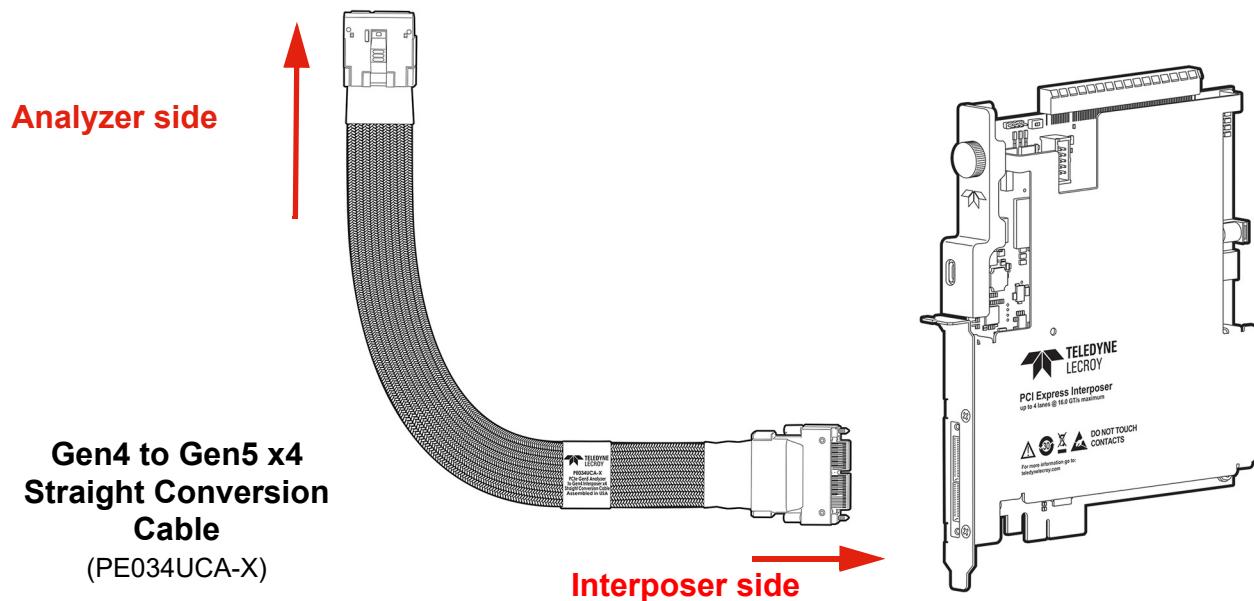


Gen4 Interposer to Gen5 Analyzer x4 Straight Conversion Cable for Summit T5 (PE034UCA-X)

Summit T54 Analyzer
with Gen5 PHY Module



Gen4 x4 Interposer
PE181UIA-X



Gen4 Interposer to Gen5 Analyzer x4 straight conversion connection

Gen5 Cable Usage Summary

SKU		T54 Gen4 PHY	T54 Gen5 PHY	M5x	T416	T48
PE030UCA-X	Gen5 Interposer to Gen4 Analyzer Straight Conversion Cable	Yes	No	No	Yes	Yes
PE027UCA-X	Gen 5 Interposer to Gen 5 Phy, Straight Cable	No	Yes	No	No	No
PE028UCA-X	Gen 5 Interposer to Gen 5 Phy, Y-Cable	No	Yes	No	No	No
PE029UCA-X	Gen 5 Interposer to Summit M5x, Y-Cable	No	No	Yes	No	No
PE031UCA-X	Gen 5 Interposer to Gen 4 Phy, Y-Cable	Yes	No	No	Yes	Yes
PE033UCA-X	Gen4 Interposer to Gen5 Phy, Y-Conversion Cable	No	Yes	No	No	No
PE034UCA-X	Gen4 Interposer to Gen5 Phy, Straight Conversion Cable	No	Yes	No	No	No

12 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/PCle
E-mail: psgsupport@teledyne.com
Support: teledynelecroy.com/support/contact

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Changes

Product specifications are subject to change without notice. Teledyne LeCroy reserves the right to revise the information in this document without notice or penalty.