

## SFF-8639 Dual Port Interposer for PCI Express® 3.0 (12-inch version)



### Key Features

- Quick and simple set-up
- Allows capturing and decoding of all PCI Express traffic between host and device
- Enables testing and decoding of PCIe host interfaces such as NVM Express (NVMe) and SCSI Express (SOP/PQI), in addition to native PCI Express protocols
- Supports 2.5" SFF-8639 drives and drive bays up to 3.5" using carrier extension
- Supports data rates of 2.5 GT/s, 5 GT/s and 8 GT/s
- Supports SATA Express and NVM Express drives at lane widths to x2
- Supports SRIS clocking
- Supports CLKREQ# for testing low power L1 substates
- Environmental:
  - Operating: 0° to 55°C (32° to 131°F)
  - Non-operating: -20° to 80°C (-4° to 176°F)
  - Humidity: 10% to 90% RH (non-condensing)
- Dimensions:
  - 70 x 475 mm (2.75" x 18.7")

Teledyne LeCroy's SFF-8639 12-inch dual port interposer cards provide quick and simple means for protocol analysis of Solid State Drives (SSDs) based on PCI Express (PCIe®) protocols. The SFF-8639 Interposer cards, used with a Summit Protocol Analyzer, enable PCIe bus traffic between a host backplane and SSD device to be monitored, captured, and recorded for protocol analysis. The length of the interposer is extended to support deep bay probing in storage systems. The SFF-8639 dual port interposer supports testing of NVM Express (NVMe) dual port drives or SCSI Express (SOP/PQI) dual port drives, at lane widths up to x2 per port and at data rates from 2.5 GT/s up to 8 GT/s. Now it is possible to monitor and analyze multiple PCIe storage host interfaces with a single set of tools.

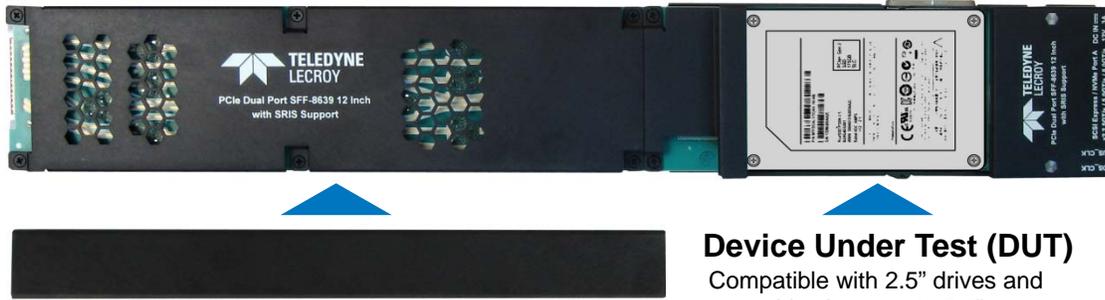
The SFF-8639 12-inch interposers provide connectivity and monitoring capability for the SFF-8639 connector, which is targeted at enterprise storage devices. The SFF-8639 connector provides flexible drive connectivity for NVM Express, SCSI Express, SATA Express, SAS, SATA, and native PCIe 3.0 host interface devices in a serviceable and hot-pluggable drive bay sometimes referred to as "Express Bay". The SFF-8639 dual port 12-inch interposers can be used with 2-1/2" sized drives and supports drive bays up to 3.5" using the carrier extension. To use these interposers, the drive is inserted into a drive tray on the interposer that supports a mechanical and electrical connection to a SFF-8639 connector. It may also be necessary to make custom modifications to a carrier specific to the host platform in use to accommodate the interposer. The interposer taps all PCIe protocol traffic between the host and the storage device and records it on the PCIe protocol analyzer, where protocol issues and performance metrics can be further analyzed and debugged.

Teledyne LeCroy was the first company to introduce a PCI Express protocol analyzer with NVM Express decoding functionality. Since that time Teledyne LeCroy has added decoding for SCSI Express (SOP/PQI) and SATA Express (AHCI/PCIe). Integrating all three PCIe SSD technologies into a single protocol analyzer gives developers versatile tools that can show essential details regarding proper data transmission and bus performance. These tools have been at the center of much of the PCIe SSD interoperability testing that has occurred over the last few years.

# SFF-8639 Dual Port 12-inch Interposer Interconnection Overview



SFF-8639 Host Slot



Optional Carrier Extension (may be fit to either side)

**Device Under Test (DUT)**  
Compatible with 2.5" drives and drive bays up to 3.5"

External US and DS Clock Ports

Note: The optional carrier extension(s) can be used to help fit the interposer to a specific manufacturer's drive carrier. This may involve custom modifications to a carrier to allow the interposer to extend out from the end of the carrier. Guidance is provided and an example modification is described in the Quick Start Guide provided with the interposer.

Available Test Points	
Test Point	Name
TP2	6.5V from 12V DC Jack
TP16	PCIeA_RST
TP17	DEVSLP#
TP18	IFDET#
TP19	3V3_AUX_DUT
TP20	5V_SB_DUT
TP21	PCIeB_RST#
TP24	GND

SW1 Configuration Port A					
1	2	Cable B	3	4	Cable A
On	On	Host_CLK	On	On	Host_CLK
Off	On	US_CLK	Off	On	US_CLK
On	Off	DS_CLK	On	Off	DS_CLK
Off	Off	NA	Off	Off	NA

SW2 Configuration Port B					
1	2	Cable B	3	4	Cable A
On	On	NA	On	On	NA
Off	On	US_CLK	Off	On	US_CLK
On	Off	DS_CLK	On	Off	DS_CLK
Off	Off	Host_CLK	Off	Off	Host_CLK



Note: DIP switches and tables shown above are located on the rear side of the interposer

## Connecting the SFF-8639 Dual Port 12-inch Interposer

- Set the DIP switches to the desired clock selection.  
**Note:** "HOST\_CLK" should be the default setting unless you are using an external clock reference source.
- Install the SFF-8639 device under test (DUT) into the connector on the interposer as shown (will fit 2.5" drives and drive bays up to 3.5" with carrier extension).
- Connect up to two Summit T34 Analyzers (or other compatible Teledyne LeCroy protocol analyzer) to the interposer using iPass cables (PE013UCA-X) or other compatible cable (depending on analyzer being used). If using two analyzers, sync the analyzers using the AC031XXA-X Sync Cable.
- Connect the analyzer(s) to a host machine using the USB or Ethernet port on the rear panel of the Summit T34 analyzers.
- If not already done, install the PCIe Protocol Suite software on the host machine.
- Connect 12V DC using the AC adapter supplied with the interposer. (Make sure that the AC adapter is powered on).
- Power on the analyzer.
- Power on the host machine.
- Launch the Teledyne LeCroy software application to monitor, record and view PCI Express traffic passing through the SFF-8639 Interposer.
- Install the Interposer into the host system connector.

## Ordering Information

### Product Description

G3x2 SFF-8639 12inch Dual Port Interposer

### Product Code

PE113UIA-X



1-800-909-7211  
teledynelecroy.com



Local sales offices are located throughout the world. Visit our website to find the most convenient location.