

### FEATURES & BENEFITS

- Compliant with PCI Express 1.x, 2.x and 3.0 specifications
- Designed to help accurately capture PCIe data traffic at all line rates including 8 GT/s, 5 GT/s and 2.5 GT/s
- Zero calibration required on 2<sup>nd</sup>-gen x4 AIC interposer!
- Interposers offered include: AIC (slot), M.2, and U.2
- “Passive” tapping to avoid masking, hiding, or “cleaning up” electrical and/or link issues

### ADVANTAGES

- Adaptive slot interposers operate at various bus widths providing significant overall solution cost savings; a SerialTek x8 slot interposer can operate at x1, x2, x4, and x8 with *or without* card reducer edge adapters. The x4 can operate at x1, x2, and x4
- Low-cost, flexible, high performance cabling for reliable analyzer-to-interposer connections provides real cost advantages over competing solutions that use cumbersome, bulky, and expensive iPass-type cabling
- Scope REFCLK outputs (all AIC interposers) and in-band ‘scope outputs (x8 Interposers) allows for interoperability with high speed oscilloscopes

SerialTek provides two market-leading PCI Express® (PCIe®) analysis solutions, the BusXpert PRO and the BusXpert Micro II (*see figure 2*), for PCIe technology design and validation, including host bus storage adapters, computer systems, servers, and storage products.

Several cost-effective and flexible PCIe® AIC (also known as “Slot” or “Card Edge”) probing options are available for BusXpert Analyzer users. These interposer solutions are designed to provide maximum

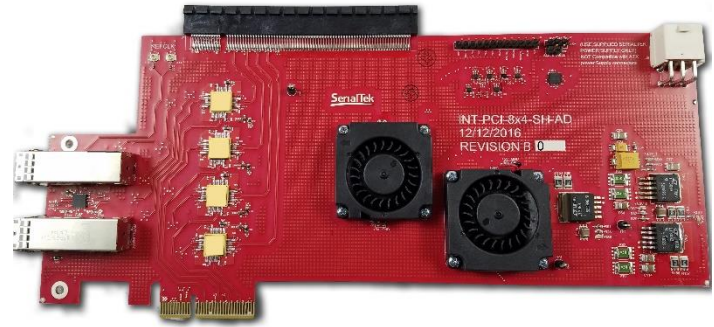


Figure 1: PCIe Gen3x4 Slot/AIC Interposer.

performance with minimal configuration when capturing PCI Express communication data between hosts and devices. In particular, the 2<sup>nd</sup>-generation x4 AIC interposer (*see figure 1*) delivers top performance with zero user-side calibration required. High signal integrity on this industry-leading interposer makes it ideal not only for AIC traffic capture and analysis but also for M.2 and U.2 analysis (and more) by way of adapters.

Low-cost SFF-8644 cables are used to connect the interposers to the SerialTek PCIe Analyzer. These cables are rated at 12 Gb/s, making them a suitable interconnect for PCIe analysis. Unlike some other high speed cables, SFF-8644 cables are easier to handle and use. One competing solution utilizes very bulky, expensive, and hand-built iPass-type cabling. Such cables can cost upwards of several thousands of dollars to purchase and replace. SerialTek’s PCIe cabling solution leverages multi-source, reliable, and cost-effective technology—an important factor in any PCIe® analyzer total cost of ownership (TCO) calculation.

All SerialTek interposers are compliant with the PCI Express 1.x, 2.x and 3.0 specifications. They are rated for 8 GT/s, yet they also inter-operate at lower data rates. This contrasts greatly with competing solutions with a confusing number of slot interposer options –some rated for Gen 2 and others for Gen 3, some passive and others active.

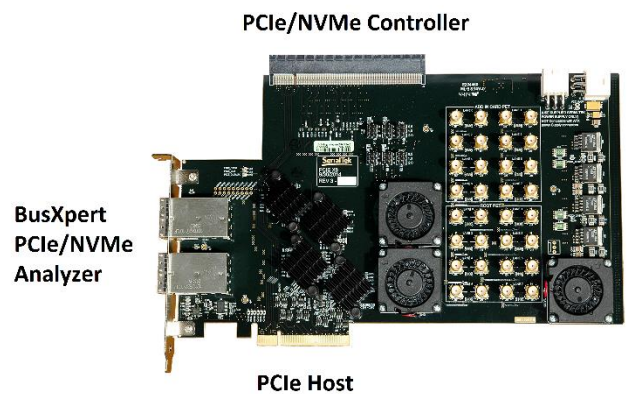
For its slot interposers, SerialTek provides the ability to connect oscilloscope probes to the REFCLK signal on all its interposers, as well as an industry first: optional SMA outputs for all in-band signals on its x8 AIC interposer. These output connectors permit a high-speed oscilloscope to connect directly to the SerialTek AIC interposer to gain access to the PCIe traffic between the host and device. This operation is completely transparent to the BusXpert PCIe protocol analyzer. No other solution in the marketplace offers such a capability.



**Figure 2: Micro II PCIe/NVMe Gen3x4 Analyzer (top); PRO PCIe/NVMe Gen3x8 Analyzer (bottom).**


The slot interposers are also adaptive, operating at various bus widths from x1 to x8. Users can also force bus widths via software on the x8 interposer for additional test and analysis options (an “edge reducer” accomplishes the same function on the 2<sup>nd</sup>-gen x4 interposer). Competing solutions force their users to purchase interposers in the exact card slot width. Thus, if an engineer needed to perform x1, x4 and x8 analysis, she or he would need to purchase three different slot interposers. The SerialTek slot interposers work at different bus widths providing significant overall solution cost savings. A typical setup is shown in figure 3.

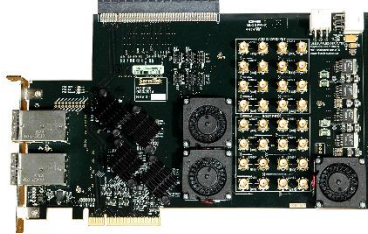
SerialTek interposers “passively” tap into the PCI Express bus -- communication data is not re-timed. Active Gen 3 slot interposer solutions, such as those from competing products, are simpler to develop and manufacture. Such interposers retransmit and re-time the PCIe traffic that they are probing. This may potentially hide, correct, and/or mask electrical and link issues and problems. When needed, the x8 interposer provides user-configurable hardware and software signal equalization to overcome marginal test setups.





**Figure 3: PCIe Gen3x8 Slot/AIC Interposer. Callouts show where the Drive inserts into the interposer (top), interposer connects to analyzer (left), interposer inserts into PCIe Host slot (bottom).**


**Interposer and Analyzer Specifications**


x4 AIC/Slot Interposer		
	<b>Model Numbers</b>	PE-1SLI1-0304-000
	<b>Specification Compliancy</b>	PCIe 1.x, 2.x, 3.0
	<b>Data Rates Supported</b>	2.5, 5.0, and 8.0 GT/s
	<b>Widths Supported</b>	x1, x2, x4
	<b>Analyzer Connector</b>	SFF8644 (SerialTek proprietary)
	<b>Impedance (Differential)</b>	95 Ohms (+/- 5%)
	<b>Jumpers</b>	none
	<b>Power</b>	12V DC External
	<b>Dimensions</b>	9.9 in (length) x 3.6 in (height) / 251mm x 91mm
	<b>Weight</b>	5.4 oz / 153 grams

x8 AIC/Slot Interposer		
	<b>Model Numbers</b>	Int-PCI-8x8-S
	<b>Specification Compliancy</b>	PCIe 1.x, 2.x, 3.0
	<b>Data Rates Supported</b>	2.5, 5.0, and 8.0 GT/s
	<b>Widths Supported</b>	x1, x2, x4, x8
	<b>Analyzer Connector</b>	SFF8644 (SerialTek proprietary)
	<b>Impedance (Differential)</b>	95 Ohms (+/- 5%)
	<b>Jumpers</b>	ISE Long dB, ISE Short dB, Gain (two sets - host and device)
	<b>Power</b>	12V DC External
	<b>Dimensions</b>	10.1 in (length) x 6.5in (height) / 257mm x 165mm
	<b>Weight</b>	10 oz / 283 grams

x4 U.2/SFF8639 Interposer (late 1Q17)		
	<b>Model Numbers</b>	PE-1U2I1-0304-000
	<b>Specification Compliancy</b>	PCIe 1.x, 2.x, 3.0
	<b>Data Rates Supported</b>	2.5, 5.0, and 8.0 GT/s
	<b>Widths Supported</b>	x1, x2, x4
	<b>Analyzer Connector</b>	SFF8644 (SerialTek proprietary)
	<b>Impedance (Differential)</b>	95 Ohms (+/- 5%)
	<b>Jumpers</b>	ISE Long dB, ISE Short dB, Gain (two sets - host and device)
	<b>Power</b>	12V DC External
	<b>Dimensions</b>	14in (length) x 6.1in (width) / 356mm x 155mm
<b>Weight</b>	13.10 oz / 371 grams	

x4 M.2 Interposer (late 1Q17)		
	<b>Model Numbers</b>	Int-PCI-8M2-Kit
	<b>Specification Compliance</b>	PCIe 1.x, 2.x, 3.0
	<b>Data Rates Supported</b>	2.5, 5.0, and 8.0 GT/s
	<b>Widths Supported</b>	x1, x2, x4
	<b>Analyzer Connector</b>	SFF8644 (SerialTek proprietary)
	<b>Impedance (Differential)</b>	95 Ohms (+/- 5%)
	<b>Jumpers</b>	ISE Long dB, ISE Short dB, Gain (two sets - host and device)
	<b>Power</b>	12V DC External
	<b>Dimensions</b>	9.9 in (length) x 3.6 in (height) / 251mm x 91mm
	<b>Weight</b>	5.4 oz / 153 grams

x4 Micro II PCIe Analyzer		
	<b>Model Numbers</b>	PE-1MIA2-0403
	<b>Trace Buffer (Maximum)</b>	36GB
	<b>Data Rates Supported</b>	2.5, 5.0, and 8.0 GT/s
	<b>Widths Supported</b>	x1, x2, x4
	<b>Front Panel LEDs</b>	PCIe Status: Activity, TLP, ERR STS, CRC ERR Coding Err, Training; Speed: Gen1, Gen2, Gen3; Analyzer: Config, Ethernet, USB, Run, Trigger.
	<b>Impedance (Differential)</b>	95 Ohms (+/- 5%)
	<b>Power</b>	19.5V-9.23A; 180W Max Power (External Switching Power Adapter provided by SerialTek)
	<b>Dimensions</b>	7in (width) x 10in (depth) x 2in (height) / 178mm x 254mm x 51mm
	<b>Weight</b>	4.5 lbs / 2 kgs
	<b>Environmental</b>	Operating: 40 Degrees C Max Ambient Temperature

x8 PRO PCIe Analyzer		
	<b>Model Numbers</b>	8PA-3x8
	<b>Trace Buffer (Maximum)</b>	72GB
	<b>Data Rates Supported</b>	2.5, 5.0, and 8.0 GT/s
	<b>Widths Supported</b>	x1, x2, x4, x8
	<b>Front Panel LEDs</b>	PCIe Status: Activity, TLP, ERR STS, CRC ERR Coding Err, Training; Speed: Gen1, Gen2, Gen3; Analyzer: Config, Ethernet, USB, Run, Trigger.
	<b>Impedance (Differential)</b>	95 Ohms (+/- 5%)
	<b>Power</b>	100-240VAC 47-63Hz; 500W Max
	<b>Dimensions</b>	16 in(depth) x 14 in (width) x 3.5" (height) / 406mm x 356mm x 89mm
	<b>Weight</b>	14.5 lbs / 6.6 kgs
	<b>Environmental</b>	Operating: 40 Degrees C Max Ambient Temperature

