BusXpert Micro PCIe/NVME Analyzer

DATA SHEET

FEATURES & BENEFITS

- Accurate capture of all data line rates including 8 GT/s, 5 GT/s, and 2.5 GT/s
- Decodes all PCI Express traffic including TLP, DLLP, and ordered sets
- Tapoff methods supported include: slot, M.2, and U.2 interposers and adapters
- Complete and precise protocol capture and analysis of PCIe (Gen 1, 2, and 3) and Non-Volatile Memory Express (NVMe)
- Gigabit Ethernet and USB 3.0 management interfaces

ADVANTAGES

- Automatically detect and update the PCIe config space, controller register and NVM queue information
- Lightweight and compact with no compromise to performance and features; designed for ultra-portability
- .5 ns clocking resolution provides precise capture and recording
- Easily search for specific frames, primitives, ordered sets, addresses, or other events with the Quick Search and Advanced Search functions
- Sophisticated triggering interface allows for quick definition of events with frame layouts matching the PCI Express specifications
- Large buffer: capture and analyze more with support for up to 32GB of trace buffer

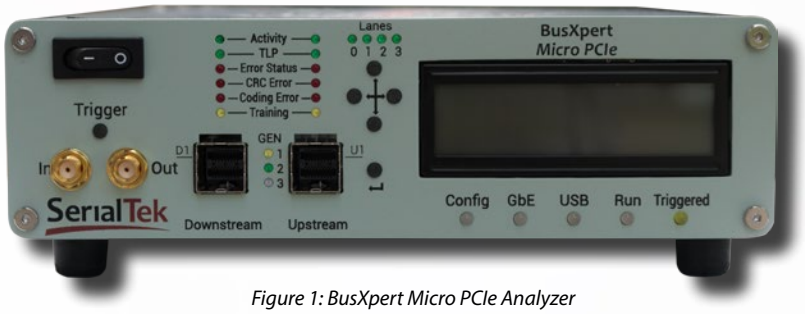

Figure 1: BusXpert Micro PCIe Analyzer

The BusXpert Micro PCI Express® (PCIe®)/ NVMe analyzer is SerialTek's second analyzer designed and optimized for equipment manufacturers that are developing storage products and solutions using PCI Express technology. With support for data rates of 2.5 GT/s, 5.0 GT/s (Gen 2), and 8.0 GT/s (Gen 3) and bus widths of x1, x2 and x4, the Micro provides accurate capture, analysis, and deep insight of PCIe and NVMe traffic at all layers of the protocol stack. It offers the same ease of use, multiple display views, powerful triggering and attractive price points that have long been hallmarks of SerialTek storage protocol products but is now available in a small form factor.

The PCIe Micro analyzer is a compact and portable solution weighing 4.5 lbs, but it offers the features, functions, and capabilities that are similar to the original PCIe Analyzer offered by SerialTek making it a well-suited instrument not only for lab environments, but also for field applications.

It employs advanced technologies such as the industry's first hardware accelerated gigabit Ethernet, pre-indexed and compressed trace data, multiple analysis processors, and instant display of the captured data. The analyzer provides support for up to 32GB of capture buffer. The BusXpert features easy to use triggering, pre/post-filtering, textual and sequence search, and many different displays of captured PCI Express and NVMe traffic.

Three interposer probing options are supported including x1 and x4 slot interposers capable of supporting 5.0 GT/s and 8.0 GT/s data rates. These interposers permit PCIe traffic between a host system and a PCIe device or card to be monitored, captured, and analyzed. In addition, a M.2 interposer is available for M.2 socket 2 or M.2 socket 3 devices. The interposer, when used with the BusXpert PCIe analyzer, permits PCIe protocol traffic between a host system and an M.2/NGFF connector on a solid state device (SSD) to be monitored, captured and analyzed. This board supports SSD lengths for 42mm, 60mm, 80mm and 110mm. Serialtek also offers a U.2 interposer. This interface is designed to be used to analyze PCIe traffic between a host backplane and dual ported SSDs. The interposer supports both 2.5" and 3" sized SSDs.

SerialTek also understands that there are testing requirements that require the ability to switch between different form-factors, such as changing from a slot (host side) to a U.2 (device side). It is specifically for this reason that SerialTek provides PCI Express Advanced Adapters. The adapters are offered in slot, M.2, and U.2 form-factors for both host and device sides. They are compliant with the PCI Express 1.0, 2.0 and 3.0 specifications and support data rates up to 8 GT/s.

Adapters can be used as a test harness in a running system without the need to connect to an analyzer. If issues arise during testing, a BusXpert PCIe analyzer can

be connected to the adapters with minimal disruption to the host and device side connections.

SerialTek's PCIe analyzers can automatically detect and update the PCIe config space, controller register and NVM queue information. This is a unique capability not found on competing analyzers.

The software provides for a new and powerful waveform "eye" display (future capability). This unique capability allows for digital signals to be easily observed in a graphic form. Users can control sample rates and display resolution. Eye diagrams are used as an aid in obtaining the optimal signal integrity by graphically showing the effects of varying calibration settings on the received serial data.

Our solutions help engineers verify, locate, and resolve issues with their product designs. This shortens development and testing cycles, improves product quality and reduces time to market.

Specifications

Data Rates Supported	2.5 GT/s, 5.0 GT/s, and 8 GT/s
PCIe Lanes Width Supported	x1, x2, and x4
Interposers Supported	Slot (3 versions), M.2 and U.2 (2 versions)
Trace Buffer	Up to 32GB (72GB planned)
Front Panel Connectors	2 SFF-8644 (SerialTek proprietary cabling), Trigger In, Trigger Out (*see figure 2*)
Rear Panel Connectors	DC Power, Logic Adapter, Cascade, Ethernet, USB 3.0 (*see figure 3*)
Status LEDs	Activity, TLP, Error Status, CRC Error, Coding Error, Training, Gen (speed), Bus Width, Config, Ethernet, PCIe, USB, Run, Trigger (*see figure 2*)
Front Panel Controls	Power ON/Off, Manual Trigger (*see figure 2*)
Management Interface	Gigabit Ethernet, USB 3.0
Dimensions	7in (width) x 10in (depth) x 2in (height) / 178mm x 254mm x 51mm
Weight	4.5 lbs / 2 kgs
Power	19.5V-9.23A; 180W Max Power (External Switching Power Adapter provided by SerialTek)
Environmental	Operating: 40 Degrees C Max Ambient Temperature

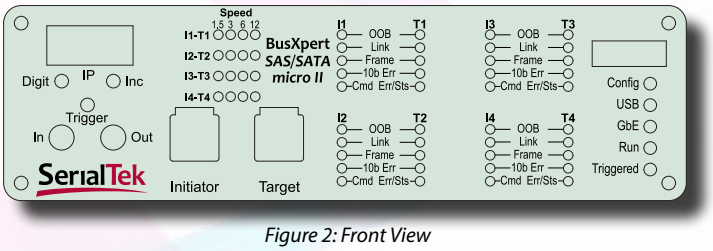

Figure 2: Front View

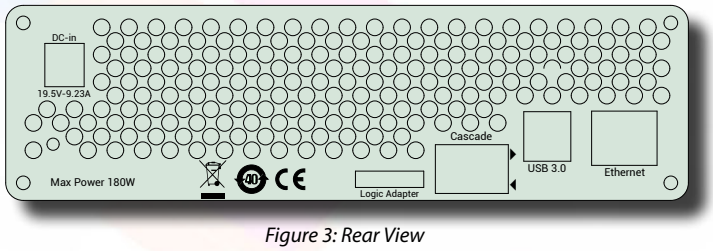

Figure 3: Rear View

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