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__Press Release – For Immediate Release__

AXIe Consortium and Multiple Companies Announce
Optical Communication Standard for Instrumentation Systems

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October 2, 2017 – Niwot, CO. The AXIe Consortium announced a new specification, Optical Data Interface, suitable for high-speed instrumentation systems addressing challenging applications in 5G communications, mil/aero, and advanced communication research. The AXIe Consortium was joined by Conduant Corporation, Guzik Technical Enterprises, Intel Corporation, Keysight Technologies, Samtec Incorporated, and Xilinx in endorsing the standard and stating their plans to offer components or instrumentation products compliant with the new standard. Though managed by the AXIe Consortium, the new standard is not specific to AXIe, and works equally well with any instrument format, whether traditional bench instrument, or AXIe, LXI, or PXI modular design.

Chris Miller, Chairman of the AXIe Consortium and Strategic Planning Manager at Keysight Technologies, said, "The ODI specification delivers data communication speeds simply not possible using electrical interconnects. Since it uses a small optical connector that can be placed on any instrument, it is not specific to the AXIe modular standard. For the benefit of the industry and users alike, we have decided to open it up for use by any vendor building products, regardless of form factor, and not restrict it to AXIe."

Larry Desjardin, a consultant in the industry, and Chairman of the AXIe Technical

Committee specifying ODI, said, "When you look at 5G or phased-array mil/aero applications, the aggregate bandwidth needed to transfer IQ data grows pretty rapidly. Electrical solutions can't even extend across a backplane, much less a racked system. But with optics, you can connect instruments up to 100 meters away if needed. The interoperability, bandwidth, and distance issues simply disappear." Desjardin added, "However, ODI is not simply a physical link standard. We've adopted the VITA 49 standards, which define data formats for software defined radios. This extends the applications from not just test and measurement, but to embedded designs as well."

The ODI standard leverages three layers of technology. The physical layer is defined as optical technology consisting of 12 lanes of 14.1 Gb/s each, enabling 20 GBytes/s per optical port. Multimode fiber cables connect ports together, using the standard MPO (Multi-fiber Push On) connector. Ports may be aggregated, with four ports delivering 80 GBytes/s. The protocol layer is defined by the Interlaken standard, a device interconnect standard common in data centers, conceived by Cortina Systems and Cisco Systems. Interlaken is supported by the major FPGA suppliers, and delivers arbitrary packets over any number of lanes. The top layer specifies packets defined by the VITA 49 family of standards, also known as VRT, VITA Radio Transport. VRT packets are sent between devices using standardized data formats and context packets.

Conduant, Guzik, and Keysight all announced their intent to deliver products with ODI interfaces.

"Conduant has been a leader in high-speed storage solutions for over 20 years," said Ken Owens, CEO of Conduant Corporation. "We will be delivering storage solutions, supporting both recording and playback, using the ODI standard."

Lauri Viitas, Vice President of Product and Business Development at Guzik Technical Enterprises said, "Our recently announced ADP7000 digitizer and DP7000 processor products are essentially ODI products already. We co-designed these breakthrough products while the standard was being created. ODI allows us to stream two 10-bit channels at 32 Gsamples/sec each continuously to either storage, or to our 6 TeraFLOPS DP7000 Processor board. We intend to adhere to the standard as it is finalized, delivering the first ODI products to the marketplace."

"I'm pleased with how the industry leading companies in the AXIe Consortium have partnered to establish this common interface standard," said Jay Alexander, Keysight Chief Technology Officer. "Keysight is committed to accelerating innovation to connect and secure the world, and the Optical Data Interface standard is one way to make that happen. It's a cross-domain standard that will enable companies in multiple industries, from aerospace and defense to 5G communications, to address their needs for real-time streaming and other high performance data transport solutions."

Component vendors also signaled their support for the standard.

"Samtec's complete portfolio of preconfigured ODI optical interconnect solutions demonstrates Samtec's commitment to support the ODI standard," said Marc Verdiell, Chief Technology Officer of Samtec Optical Group. "The Samtec FireFly™ Micro Flyover System™ optical engine coupled with ODI-compliant optical cable assembles offers the test and measurement industry a ready-made ODI physical layer solution. Samtec will also offer standard 24-fiber ODI cable in standard lengths easing implementation of the ODI standard."

Chuck Tato, director of Wireline Communications and Test & Measurement, Intel Programmable Solutions Group, stated, "Intel's FPGA business has been an active supporter of the Interlaken protocol for many years, offering IP cores used in many customer designs across generations of FPGA product families. Interlaken IP cores running at the data rate requirement of ODI are already available with Intel® Arria® 10, our latest midrange product. We will ensure conformance to the ODI specifications and extend the offerings to our newest generation Intel® Stratix® 10 FPGA products."

"Customer applications will benefit from increased bandwidth due to the ODI specification," said Hanneke Krekels, Senior Director, Test, Measurement & Emulation Markets at Xilinx. "Xilinx offers Interlaken IP with our UltraScale™ and UltraScale+ FPGA platforms to support this new standard and is excited to see it enabling challenging instrumentation applications requiring robust implementation."

VITA, the trade association for standard computing architecture serving critical and intelligent embedded computing systems industries, also praised the standard. "We are delighted that the ODI standards committee has embraced the VITA 49 standards," stated Jerry Gipper, VITA Executive Director. "The VITA Radio Transport standards define packet structure and formatting for a wide set of software defined radio and mil/aero applications. By having it adopted by the test and measurement industry, VRT has expanded its reach, and set up numerous opportunities for synergy." Gipper added, "There is no apparent reason that ODI couldn't be adopted by the embedded industry itself, and we are investigating that opportunity."

A set of preliminary technical specifications is posted on the AXIe website, along with a technical overview. Any manufacturer may adopt the ODI specification, and a manufacturer may participate in the ODI Technical Committee by joining the AXIe Consortium.

About the AXIe Consortium
AXIe is an instrumentation standard based on AdvancedTCA (ATCA) with extensions for instrumentation and test. AXIe Consortium membership is open to all vendors who agree

with the stated goals and intend to provide solutions to the marketplace.

About VITA
Founded in 1984, VITA is an incorporated, non-profit organization of suppliers and users who share a common market interest in critical embedded systems. VITA champions open system architectures. Its activities are international in scope, technical, promotional, and user-centric. VITA aims to increase total market size for its members, expand market exposure for suppliers, and deliver timely technical information. VITA has ANSI and IEC accreditation to develop standards (VME, VXS, VPX, OpenVPX, VPX REDI, XMC, FMC, VNX, etc.) for embedded systems used in a myriad of critical applications and harsh environments. For more information, visit www.VITA.com.

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