

Avnet Silica to demonstrate its advanced TSN, AI and embedded vision capabilities for industrial automation applications at SPS IPC Drives 2018

Distributor leverages Xilinx's presence at SPS to demonstrate evaluation platform for development of TSN-based industrial control and FPGA-accelerated embedded vision

Brussels, Belgium, 29th November 2018 – Avnet Silica, an Avnet company (Nasdaq: [AVT](#)), has announced details of its presence at the 29th edition of [SPS IPC Drives](#), the international exhibition for industrial automation, which is being held in Nuremberg, Germany from 27–29 November 2018. The distributor hosts a demonstration on the Xilinx booth in Hall 5 on Stand 158 to showcase its new TSN (Time Sensitive Networking) evaluation and demonstration platform.

Supported by FPGA-accelerated TSN industrial control, artificial intelligence (AI) and image cognition, the 'TSNeyes' platform has been designed by Avnet Silica's Software and Services team as a research, evaluation and demonstration tool that helps to accelerate the adoption of future embedded vision and Industry 4.0 technologies. Rather than focusing upon one specific target use case, Avnet Silica has developed an abstract application that can be mapped and adapted to a multitude of real-world use cases for Industry 4.0 image cognition and control applications and is an ideal demonstration and evaluation vehicle for these technologies.

The application implements four pairs of "eyes", located on separate boards, which are controlled via TSN to follow a detected object. The image detection and TSN control is performed on an additional board which represents the PLC. The demo is based on Xilinx Zynq Ultrascale+ MPSoC accelerated FPGA devices, but will be extended to support other technology solutions. The image cognition is performed using FPGA-accelerated OpenCV code running in an outer control loop and can be extended to support stereoscopic imaging for distance detection. The incremental eye tracking control information with a configurable number of intermediate steps is then calculated in an inner control loop and sent out to the four receiver devices using TSN 802.1Qbv scheduled traffic. All five boards are connected via a daisy-chained TSN link. The platform can also support a variety of additional TSN features, such as seamless redundancy, frame pre-emption, cyclic queueing and forwarding or 802.1AS-rev time synchronisation. It is also used to evaluate the impact of various types of switches and alternative PHY technologies, including 1000BASE-T1 single-wire Ethernet.

"This unique concept allows to easily construct complex use cases and TSN configurations which are hard to achieve with real-world (mechanically limited) hardware and allows to measure and analyse TSN accuracy, performance and bounded latencies in corner case situations." says Michael Roeder, Manager Software and Services at Avnet Silica.

"Avnet Silica's software competence and in-depth knowledge of TSN as an enabling technology for Industry 4.0 makes them to an ideal partner for our customers to accelerate time to market and drive the next innovation in industrial applications" says Chetan Khona, Head of Industrial IoT Strategy at Xilinx, Inc.

Access to the platform is open for Avnet Silica's customers. For those customers who prefer building their own evaluation platforms, Avnet Silica's TSN hardware evaluation kit is available to deliver a lower-cost entry point for OEMs developing applications across factory automation, automotive, robotics, smart energy, and transportation networks. The kit includes: two Avnet UltraZed boards, integrating the Xilinx UltraScale+ MPSoC FPGA; two



UltraZed-EG PCIe carrier cards; two Avnet Network FMC boards; and the TSN subsystem for the 100M/1G 3-port bridged-endpoint or standalone-endpoint solution.

Avnet Silica will be offering the kit at a special promotional price until the end of 2018, available via www.ultrazed.org/product/tsn-hw-eval-kit.

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Avnet Silica is the European semiconductor specialist division of Avnet, one of the leading global technology distributors, and acts as the smart connection between customers and suppliers. The distributor simplifies complexity by providing creative solutions, technology and logistics support. Avnet Silica is a partner of leading semiconductor manufacturers and innovative solution providers over many years. With a team of more than 200 application engineers and technical specialists, Avnet Silica supports projects all the way from the idea to the concept to production. Avnet Silica is a regional business unit of Avnet, (NASDAQ: AVT) with European headquarters in Belgium (Avnet Europe Comm. VA). For more information, visit www.avnet-silica.com

About Avnet

Avnet is a global technology solutions provider with an extensive ecosystem delivering design, product, marketing and supply chain expertise for customers at every stage of the product lifecycle. We transform ideas into intelligent solutions, reducing the time, cost and complexities of bringing products to market. For nearly a century, Avnet has helped its customers and suppliers around the world realize the transformative possibilities of technology. Learn more about Avnet at www.avnet.com.

Media Contact

Anja Woithe
Senior PR Manager Avnet EMEA
Anja.woithe@avnet.eu
+49 (0) 8121 774 459