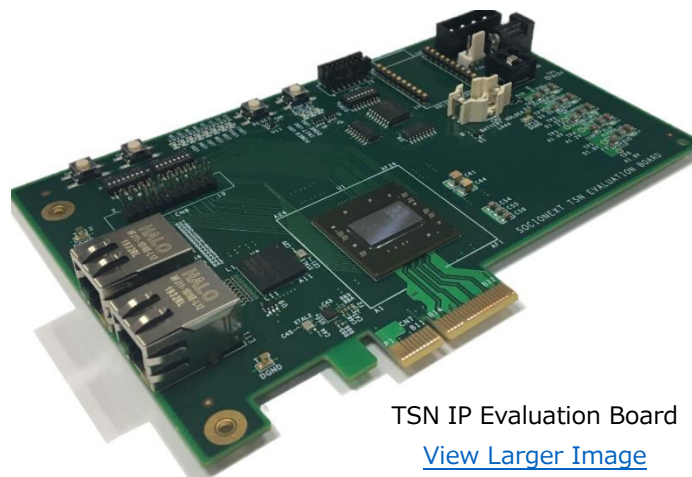socionext™
for better quality of experience

Socionext Introduces Time-Sensitive Network (TSN) IP to Realize Smart Factories

Yokohama, February 13, 2020 --- Socionext Inc. has developed a Time-Sensitive Network (TSN) IP for FPGA and ASIC implementation. The IP, which provides true deterministic Ethernet for industrial applications, is compliant with the next-generation Ethernet TSN (communication standard IEEE 802.1 Subset) and its evaluation environment. Socionext has been providing leading-edge, high-speed network SoCs for more than 30 years, and the new TSN IP was designed based on such expertise to deliver superior performance. Features include support for a 2-port daisy chain topology suitable for connecting industrial equipment, 1 Gbps high-speed operation, low latency less than 400 ns, and low jitter less than 0.1 μs.

The IP enables a range of industrial applications such as motion controllers, which require faster response control as well as TSN support, and remote I/O, often used in network communications to enable control of secured bandwidth and low latency. TSN also contributes to the realization of smart factories, as it seamlessly connects and interoperates networks for IT (Information Technology) and OT (Operational Technology).

Socionext will provide an FPGA evaluation board and start-up manual for IP implementation, as well as Linux open source driver software. This allows users to quickly evaluate and develop industrial applications equipped with TSN. Socionext, with its extensive experience in developing devices for industrial applications, will also ensure a seamless transition from FPGA to ASIC, and help customers develop their own custom ASICs for optimum functionalities and performance with the IP.
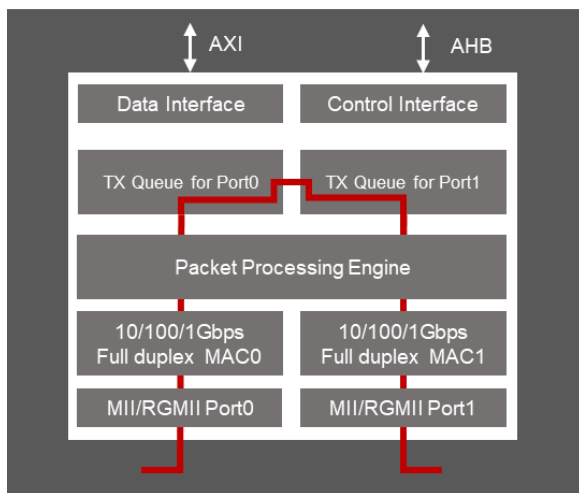

TSN IP Evaluation Board
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For Press Inquiry:

Socionext Inc.

Tel: +81-45-568-1006   https://www.socionext.com/en/contact/

TSN IP Block Diagram
View Larger Image

Key Features

- Ethernet: 2ch
- Link Speed: 1Gbps
- Offloaded CPU Processing
- Port Transfer Delay: ~ 400ns (cut through latency)
- Low Jitter: +/- 0.1us
- Queuing Priority: 8 Level
- AMBA: Internal Data & Control
- Linux Open Source Driver

Deliverables

- IP Core Libraries
- Linux Kernel Driver
- Comprehensive Documentation
- Evaluation Board and Reference Design based on XILINX Kintex-7 XC7K325T FPGA

About Socionext

Socionext is a global, innovative enterprise that designs, develops and delivers System-on-Chip solutions to customers worldwide. The company is focused on technologies that drive today's leading-edge applications in consumer, automotive and industrial markets. Socionext combines world-class expertise, experience, and an extensive IP portfolio to provide exceptional solutions and ensure a better quality of experience for customers. Founded in 2015, Socionext Inc. is headquartered in Yokohama, and has offices in Japan, Asia, United States and Europe to lead its product development and sales activities. For more information, visit www.socionext.com.