



TSN^{End Point IP Integration Kit}

Ready to Run Kit for TSN IP Integration with network speeds up to 10Gbit/s



Key Benefits

Conformant to TSN for Aerospace (802.1DP) supporting network speeds up to 10Gbit/s
Time saving with simple out-of-the-box setup and comprehensive user and integration manuals
Cost saving with a pre-configured hardware and software development environment based on AMD Ultrascale+ SoC.

TSN^{End Point IP Integration Kit} helps to avoid the time-consuming and costly process of acquiring and integrating hardware and software components from different vendors. This out-of-the-box product provides a ready-to-use integration example for TSN^{End Point Pro (IP)} with pre-configured hardware, software and configuration tooling development environment.

Fit for Future

TSN^{End Point Pro (IP)} is fully compliant with TSN for Aerospace 802.1DP profile at future-proof network speeds of up to 10Gbit/s.

Integrated platform for development

TSN^{End Point Pro (IP)} is delivered as a netlist interfaced by peripheral IP blocks to provide a functional switched end point. To facilitate a quick and successful integration of the TSN IP and software, comprehensive integration and user manuals are included.

Ease of Configuration

The TSN^{End Point IP Integration Kit} is supported in TTTech's Slate XNS configuration tool. Slate XNS lets users configure TSN devices at the network level (like defining streams) instead of handling low-level device functions, making the process simpler to learn.

SWaP Optimization

The possibility to utilize MPSoC platforms allows the integration of the TSN^{IP} solution on high circuitry density PCBs. This provides flexibility in the hardware design and leads to significant SWaP improvements.



Application Fields

Technology evaluation
Architecture development
Flight programs

General Product Features	Interfaces – Network interface: 2x 10 Gbit/s external Ethernet ports via SFP+ – Host interface: 1x 10 Gbit/s via AXI Standards Compliance – Time synchronization: IEEE 802.1AS-2020 – TSN capabilities in alignment with 802.1DP¹: ○ Bridges and Bridged Networks (802.1Q, VLAN support) ○ Time-Aware Shaper (802.1Q, formerly 802.1Qbv) ○ Credit-Based Shaper (802.1Q, formerly 802.1Qav) ○ Frame Replications and Elimination for Reliability (802.1CB) ○ Per-Stream Filtering and Policing (802.1Q, formerly 802.1Qci)
Product Deliverables	Hardware – physical delivery – AMD Zynq UltraScale+ MPSoC ZCU106 Evaluation Kit – Comes pre-installed with ○ Bitstream for Programming Logic (PL) ○ Software Software – downloadable via TTTech Customer Portal – FPGA integration example (Vivado project) – ^{TSN}End Point Pro (IP netlist) – Bitstream (uses ^{TSN}End Point IP) – Linux Yocto image (incl. Linux kernel, drivers and user space) – NETCONF server (netopeer2 incl. modules) – MSTP (including TE-MSTI) Documentation – downloadable via TTTech Customer Portal – User & integration manuals – Errata
Order Number	15288
Accessories	- 2x 1G Copper SFP (1000BASE-T RJ45) - 2x 10G Copper SFP+ (10Gbase-T RJ45)
Tools Support	12918: Slate XNS: Offline TSN network configuration software (max. 20 nodes)
Related Products	– 13193: Slate XNS Unlimited: Offline TSN network configuration software (unlimited nodes) – 13823 Integration support

¹ Full compliance with 802.1DP pending its formal release.

