

Ethernet TSN for autonomous driving

Renesas Electronics has announced its latest developments in Ethernet time-sensitive networking (TSN). At SPS IPC Drives, the TSN demonstration shows tunneling of CAN traffic via Ethernet.



Recently, Renesas also introduces the autonomous driving system HAD with six CAN FD interfaces (Photo: Renesas)

Renesas has developed two TSN demonstrations for automotive and industrial networking to illustrate the potential benefits of the TSN standard. The demonstrations will be showcased at the SPS IPC Drives 2016, from November 22 to 24 in Nuremberg, Germany. The TSN demonstration for automotive applications is based on a future in-vehicle network domain architecture. It shows tunneling of CAN traffic via Ethernet and the effects of various TSN features that can be enabled or disabled on demand.

The TSN demonstration for industrial applications is designed with the factory network in mind where various devices are connected. This demonstration showcases the effects of TSN features on motor control, for which real-time control is essential, on a network where traffic from various devices coexists.

Ethernet TSN standards are currently under development by the TSN task group of IEEE802.1. Their goal is to pave the way for seamless deterministic communication via Ethernet for

automotive in-vehicle networking and within the industrial Internet. The extension of the Ethernet AVB (Audio Video Bridging) standards for professional audio and in-vehicle networks, etc. has been progressing. The standards cover several features, including time synchronization as well as traffic scheduling, frame preemption, and ingress policing. With these features, the TSN technology is expected to accelerate the harmonization of Ethernet technologies in Industry 4.0 applications as well as in the automotive market, such as for high-speed in-vehicle networks.

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