slate

TTTech industrial

Edge PTP

IEEE 802.1AS and IEEE 1588 PTP stack

- Works with any 802.1AS or IEEE 1588 compatible device
- Includes source code for PTP libraries
- Portable to various operating systems
- Supports redundancy via multiple time domains

Edge PTP is a lightweight software stack that provides highly accurate clock synchronization for TSN devices. It implements the IEEE 802.1AS standard for Timing and Synchronization and IEEE 1588 Precision Time Protocol to enable the synchronization of real-time clocks across the network within nanosecond range. Multiple time domains support high-availability and enable TSN operation independent of application time settings, e.g. time zone. The stack has proven its reliability in the field for more than 10 years and is continuously put through its paces in interoperability and compliance tests.

IEEE 1588-2019 PTP

Precision Time Protocol (PTP) enables precise synchronization of device clocks in packet-based networks. Devices are automatically synchronized to the most accurate clock in the network. The protocol supports system-wide synchronization with minimal network and local computing resources. Accuracy, which is dependent on device hardware and network features, can be down to nanoseconds or even less.

PTP provides a general definition for time synchronization in packet-based networks. More detailed definitions for different use-cases are called PTP profiles and they define protocol details so that vendor devices can be implemented in an interoperable way for various application domains.

IEEE 802.1AS-2020

IEEE 802.1AS is part of the TSN set of standards. It defines timing and synchronization for time-sensitive applications in bridged local area networks. 802.1AS is based on PTP and provides a more detailed definition of time synchronization for specific TSN use-cases (PTP profile).

The 802.1AS-2020 revision is also supported by Edge PTP. The revision enables clock redundancy and multiple time domains in the network. Using these features, it is possible to build a more resilient clock synchronization on the system level.

Contact us at
sales@tttech-industrial.com

www.tttech-industrial.com

Edge PTP Features

PTP functionality	Ordinary Clock (OC), Boundary Clock (BC), Transparent Clock (TC), Time Aware Bridge, Time Aware Bridge and End Station
Supported profiles	IEC 61850-9-3, IEEE C37.238-2011, IEEE C37.238-2017, PTP default, ITU-T G.8275.1, ITU-T G.8265.1
IEEE 802.1AS-2020	Multiple time domains are supported in one node
Configuration	Configuration file (XML-format), command-line tools and integrable libraries, remote management support
Time synchronization monitoring	Statistics and passive port monitoring
Linux host clock synchronization	Support for industrial applications with Linux CLOCK_MONOTONIC syntonized to working clock and CLOCK_REALTIME synchronized to wall clock
Portability	Portability to any operating system is ensured by library based modular design Fully tested with VxWorks 7

Features with Edge IP Solution

Integration	Seamless and verified integration of Edge PTP with Edge IP Solution via standard interfaces
Interfaces	Support for Linux kernel 4.9+ net_dev and PHC (PTP hardware clock)

Material name	Material number
DE-PTP Edge	13268
DE-PTP Edge Maintenance	13334

Material name	Material number
DE-PTP Edge extra OS	13335
DE-PTP Edge extra OS Maintenance	13336

Contact us at
sales@tttech-industrial.com