

Ptp Transparent Clock

A low-footprint, highly configurable, 100% hardware only IEEE1588-2019/2008 Transparent Clock solution, specifically designed for high-performance distributed systems. Allows running PTP synchronization completely independent and standalone from frame handling like Ethernet switching or redundancy cores like HSR/PRP.

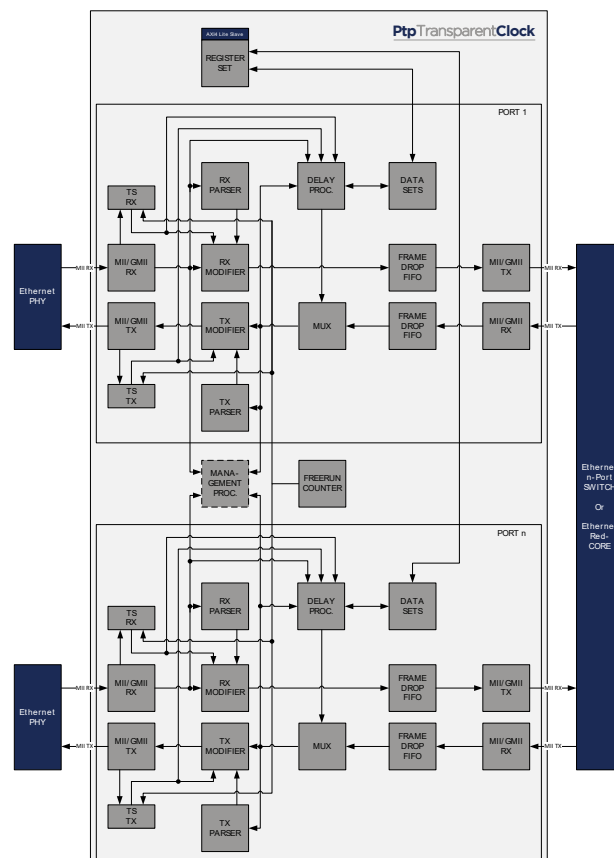
Key Features:

- IEEE1588-2019/2008 Transparent Clock
- 100% hardware only solution
- Vendor independent
- Layer 2 and Ipv4&6, P2P/E2E delay mechanism, 1 step clock
- Default-, Power-, Utility-, TSN-, and ITU-profile support

Typical Applications:

- Ethernet based automation networks
- Robot control
- Substation automation
- Distributed data acquisition
- Test and measurement
- Etc.

IP Core Architecture:



Specification:

IEEE1588	Layer 2 and Ipv4&6, P2P/E2E delay mechanism, 1 step transparent clock, multicast and unicast Default-, Power-, Utility-, TSN- and ITU-profile support Complete Dataset support PTP Management message support n-Port Transparent Clock possible
Performance	Full line speed frame handling, offloading delay measurement 10/100/1000 Mbit/s support, intercepts (R)(G)MII interfaces between MAC and PHY (MAC can be a switch or any other core like HSR/PRP)
Portability	100% hardware only solution, no dependency on external CPU or PHY features Vendor independent, written in plain VHDL Low footprint and low frequency requirements
Modularity and scalability	Minimal interactions between ports (only for PTP management) which allows for great scalability without non-linear resource usage increase Slim and standardized interfaces are used
Configuration	No CPU required, standalone configuration with signals Axi4 lite slave support, for status and configuration

Deliverables:

- Ip core in plain VHDL
- Testbench in plain VHDL
- Reference Design with daisy chain of 2 ports
 - Top level VHDL file
 - Timing Constraint SDC files
 - Vivado/Quartus Project file

Related Products:

- PTP Ordinary Clock
- PTP Grandmaster Clock
- PTP Hybrid Clock
- HSR & PRP Core
- IRIG Master/Slave
- Adjustable Clock
- Signal Timestamper
- Signal Generator



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