PtpOrdinaryClock

A low-footprint, highly configurable, 100% hardware only IEEE1588-2019/2008 Ordinary Clock solution, specifically designed for high-performance distributed systems. Allows running PTP synchronization completely independent and standalone from the user application.

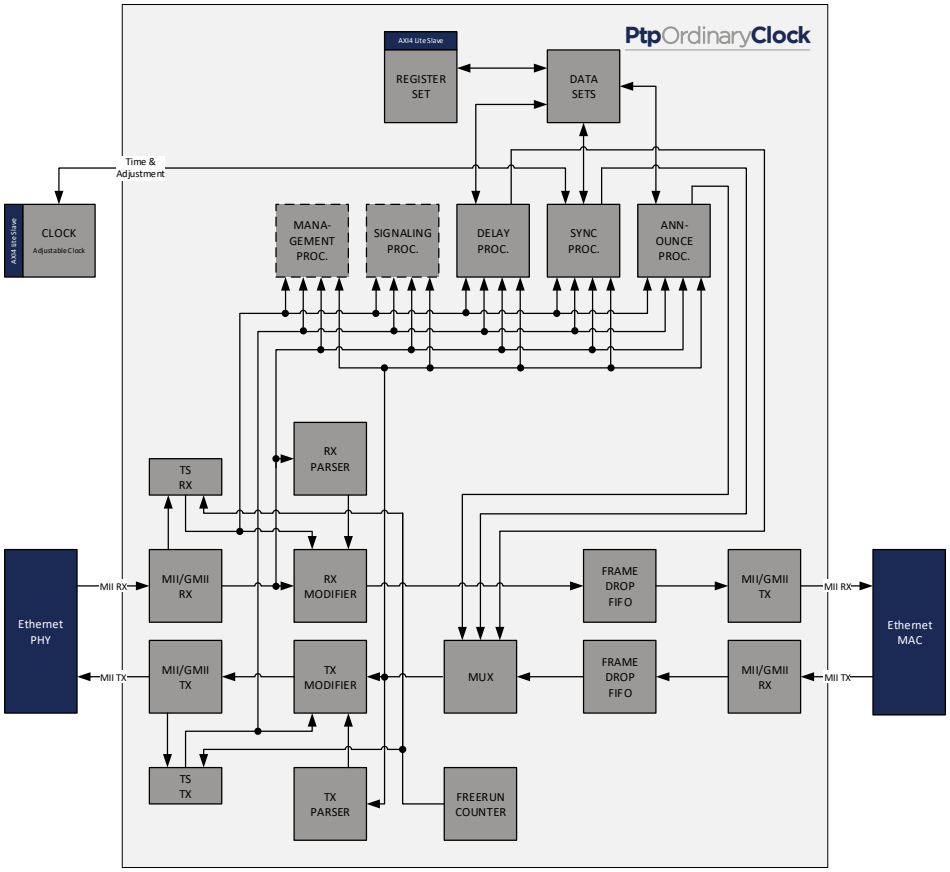
Key Features:

- IEEE1588-2019/2008 Ordinary 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 ordinary clock, Master and Slave capability, multicast and unicast Default-, Power-, Utility-, TSN- and ITU-profile support Complete Dataset support PTP Management message support Offset and drift calculation for adjusting the clock
Performance	Full line speed frame handling, offloading synchronization 10/100/1000 Mbit/s support, intercepts (R)(G)MII interfaces between MAC and PHY (no MAC required)
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
Accuracy	Sub microsecond synchronization With 50ppm Oscillator: +/- 20ns
Modularity	Modular system; adjustable clock is a separate core which can be also synchronized to another source (GPS, IRIG, etc.) 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
  - Top level VHDL file
  - Timing Constraint SDC files
  - Vivado/Quartus Project file

Related Products:

- PTP Transparent Clock
- PTP Grandmaster Clock
- PTP Hybrid Clock
- PPS Master/Slave
- IRIG Master/Slave
- Adjustable Clock
- Signal Timestamper
- Signal Generator

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