PtpHybridClock

A low-footprint, highly configurable, 100% hardware only IEEE1588-2019/2008 Hybrid Clock (Based on NetTimeLogic's TC & OC) solution, specifically designed for high-performance distributed systems. Allows running PTP synchronization completely independent and standalone from the user application especially in daisy chained networks.

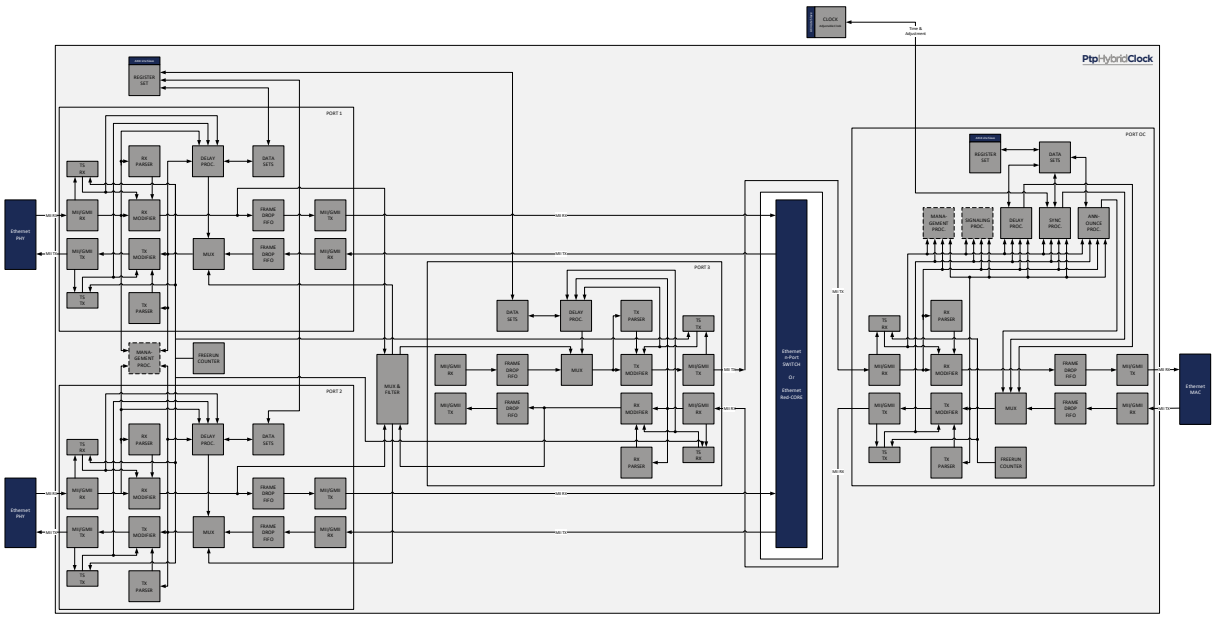
Key Features:

- IEEE1588-2019/2008 Hybrid 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, P2P/E2E delay mechanism, 1 step hybrid clock, Master and Slave capability, multicast and unicast 2 port daisy chain, OC is able to send and receive from both ports, built out of a combination of NetTimeLogic's OC and TC 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 or an Ethernet Switch (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: +/- 100ns
Modularity	Modular system; adjustable clock is a separate core Slim and standardized interfaces are used, scalable to more ports
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 2 ports for daisy chaining
  - Top level VHDL file
  - Timing Constraint SDC files
  - Vivado/Quartus Project file

Related Products:

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

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