PtpTimestampUnit

A low-footprint, highly configurable, PTP Timestamp Unit (TSU), specifically designed for Systems on Chip (SoC). It detects PTP frames on a (R)(G)MII tap or pass through or uses the Xilinx® Zynq PTP signals and timestamps PTP event frames based on a Counter Clock and provides them delay compensated to a PTP Software stack (e.g. PTPd, PTP4l, etc.). Optionally supports OneStep operation.

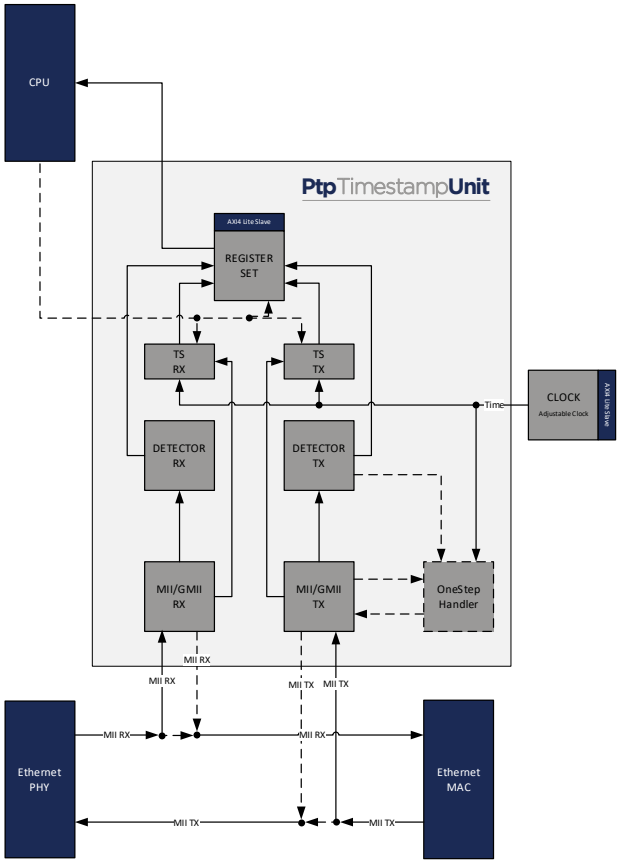
Key Features:

- IEEE1588, IEEE802.1AS TSU
- PHY delay compensation
- Vendor independent
- Layer 2 and Ipv4&6, P2P/E2E
- Optional Buffering
- Pass Through and OneStep
- Axi4 lite slave register interface
- Configurable Interrupt

Typical Applications:

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

IP Core Architecture:



Specification:

IEEE1588 & IEEE802.1AS	Layer 2 and Ipv4&IPv6, P2P/E2E, Unicast PTP support
	VLAN, Redundancy Tags (HSR/PRP, FRER) support
	Master and Slave capability
	Default-, Power-, Utility-, TSN- and ITU-profile support
	One or TwoStep, Meta Information extraction for frame matching
	Configurable Buffers for each frame type
	PHY Delay compensation
Performance	Full line speed frame handling
	10/100/1000 Mbit/s support, taps or intercepts (R)(G)MII interfaces between MAC and PHY or uses dedicated TS signals
Portability	Vendor independent, written in plain VHDL
	Low footprint and low frequency requirements
Accuracy	Sub microsecond synchronization
	With 50ppm Oscillator: +/- 25ns
Modularity	Modular system; adjustable clock is a separate core
	Slim and standardized interfaces are used, scalable to more ports
Configuration	Axi4 lite slave support, for status and configuration

Deliverables:

- Ip core in plain VHDL
- Testbench in plain VHDL
- Linux Driver
- Reference Design for Zynq
  - Top level VHDL file
  - Timing Constraint SDC files
  - Vivado Project file
- Linux Driver (MAC & TSU Zynq 70xx)
  - Device Tree example
  - Kernel Config example
- PTP4lwith Makefiles for Petalinux

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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