PpsSlaveClock

A low-footprint, highly configurable, 100% hardware only Pulse Per Second (PPS) Slave Clock solution, specifically designed for high-performance distributed systems. Allows standalone synchronization with compensation of cable and input circuit delays and provides pulse width detection for accuracy information distribution over the same signal.
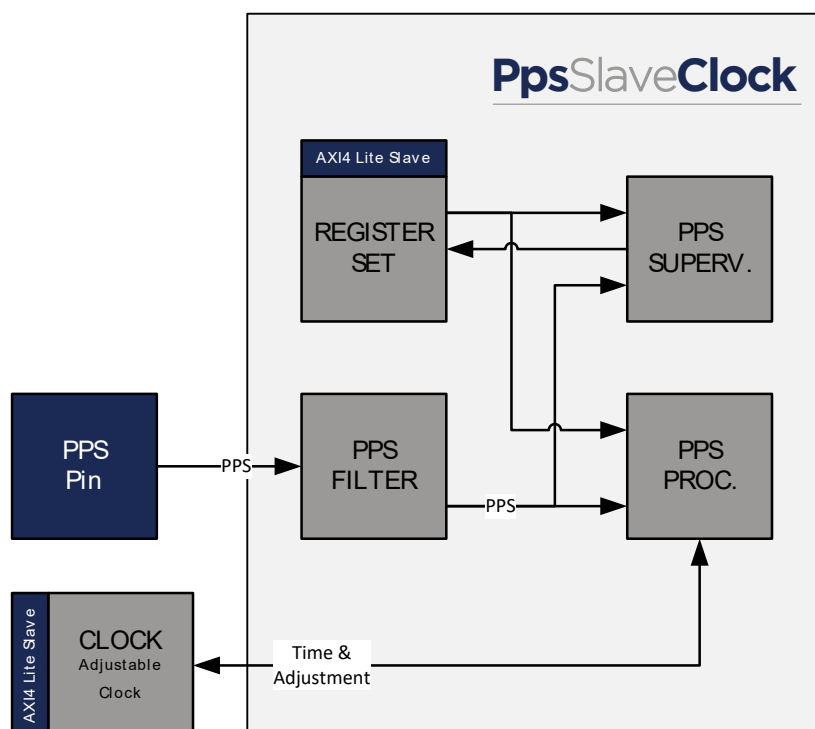
Key Features:

- PPS Slave Clock
- 100% hardware only solution
- Vendor independent
- Pulse width detection
- Cable delay compensation
- PI Servo Loop in hardware
- Quality supervision
- Optional TDC for 1ns accuracy

Typical Applications:

- Legacy Networks
- Time converters
- Robot control
- Substation automation
- Distributed data acquisition
- Test and measurement
- Etc.

IP Core Architecture:

Specification:

PPS	Pulse Per Second synchronization
	Compensation of input circuits and cable delays
	Cable delays can be changed at runtime
	Quality supervision and filtering of PPS and error signaling
	Pulse width detection to get information about the clock quality of the master over the same single signal
	Offset and drift calculation for adjusting the clock
Performance	Timestamp accuracy of rising edge PPS +/- half an input clock period without oversampling clock or one clock cycle of the oversampling clock or 1 ns with TDC.
	Offload synchronization
Portability	100% hardware only solution, no dependency on external CPU or external driver circuitry features
	Vendor independent, written in plain VHDL
	Low footprint and low frequency requirements
Modularity	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 1 PPS input and output
  - o Top level VHDL file
  - o Timing Constraint SDC files
  - o Vivado/Quartus Project file

Related Products:

- PTP Ordinary Clock
- PTP Grandmaster Clock
- PTP Hybrid Clock
- PPS Master

- IRIG Master/Slave
- Adjustable Clock
- Signal Timestamper
- Signal Generator

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