TodSlaveClock

A low-footprint, highly configurable, 100% hardware only NMEA/UBX/TSIP Time of Day (ToD) Slave Clock solution, specifically designed for high-performance distributed systems. Allows standalone synchronization via NMEA/UBX/TSIP messages from a NMEA/UBX/TSIP source e.g. GPS receivers via UART. All frame parsing and calculations are done completely in hardware.

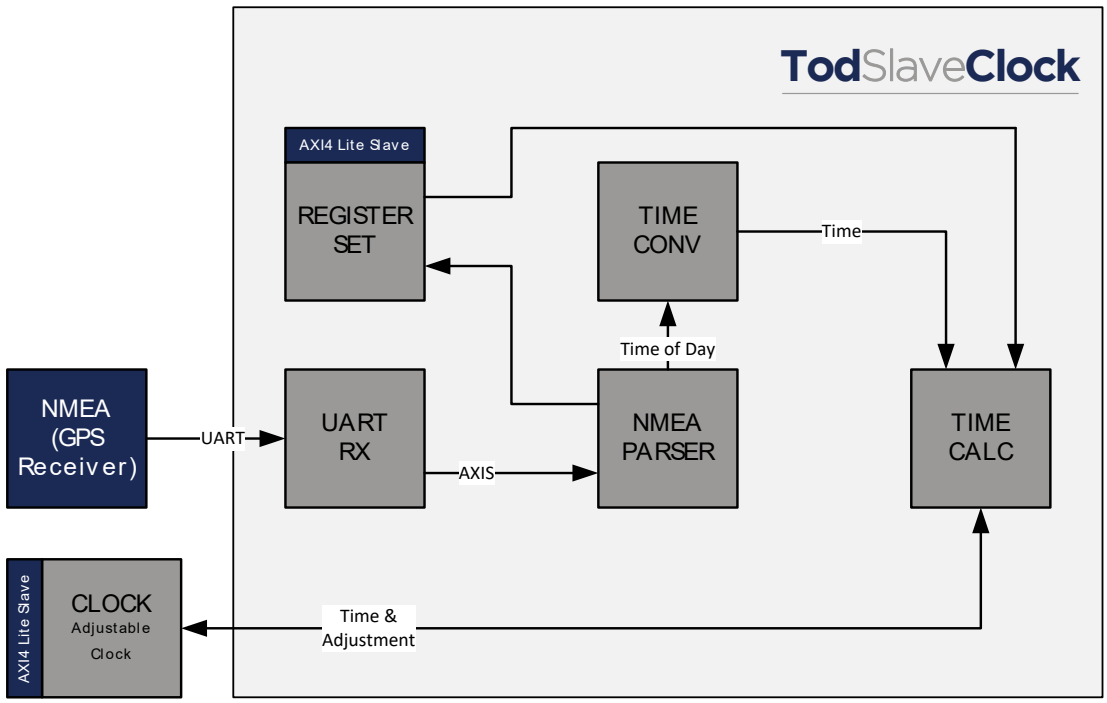
Key Features:

- NMEA/UBX/TSIP/ESIP (ToD) Slave Clock
- 100% hardware only solution
- Vendor independent
- Hardware frame parser
- Time, UTC, Spoofing, Jamming, Satellite Status Support
- Hardware time conversion
- Quality supervision

Typical Applications:

- Legacy Networks
- Time converters
- Time serves with GNSS
- Substation automation
- Distributed data acquisition
- Test and measurement
- Etc.

IP Core Architecture:



Specification:

NMEA	Supports NMEA GxZDA, GxRMC, GxGSA, GxGSV, GxGGA and GxUTC messages Supports UBX NAV_TIME_UTC, NAV_TIME_LS, NAV_STATUS, MON_HW and NAV_SAT messages Supports TSIP TIMING_INFO, POSITION_INFO, RECEIV-ER_STATUS, SYSTEM_ALARMS and SAT_INFO messages Supports ESIP CRW, CRY, CRJ messages UTC handling and Status information for UBX/TSIP/ESIP Hardware UART with configurable baud rate: 9.6k - 1m baud Hardware conversion from time of day format to seconds since midnight 1.1.1970 including leap years. Hard time set to the parsed second plus configurable offset at the second overflow of the local clock.
Performance	Offload parsing, time format conversion and synchronization.
Portability	100% hardware only solution, no dependency on external CPU or UART 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
  - Top level VHDL file
  - Timing Constraint SDC files
  - Vivado/Quartus Project file

Related Products:

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

NetTimeLogic GmbH
Synchronization Solutions
Strassburgstrasse 10
8004 Zürich
Switzerland
contact@nettimelogic.com
Tel. +41796716211
www.nettimelogic.com