

# NtpClientClock

A low-footprint, configurable, 100% hardware only NTP (SNTP) Client solution, specifically designed for high-performance distributed systems. Allows running NTP synchronization completely independent and standalone from the user application with the highest performance on the market

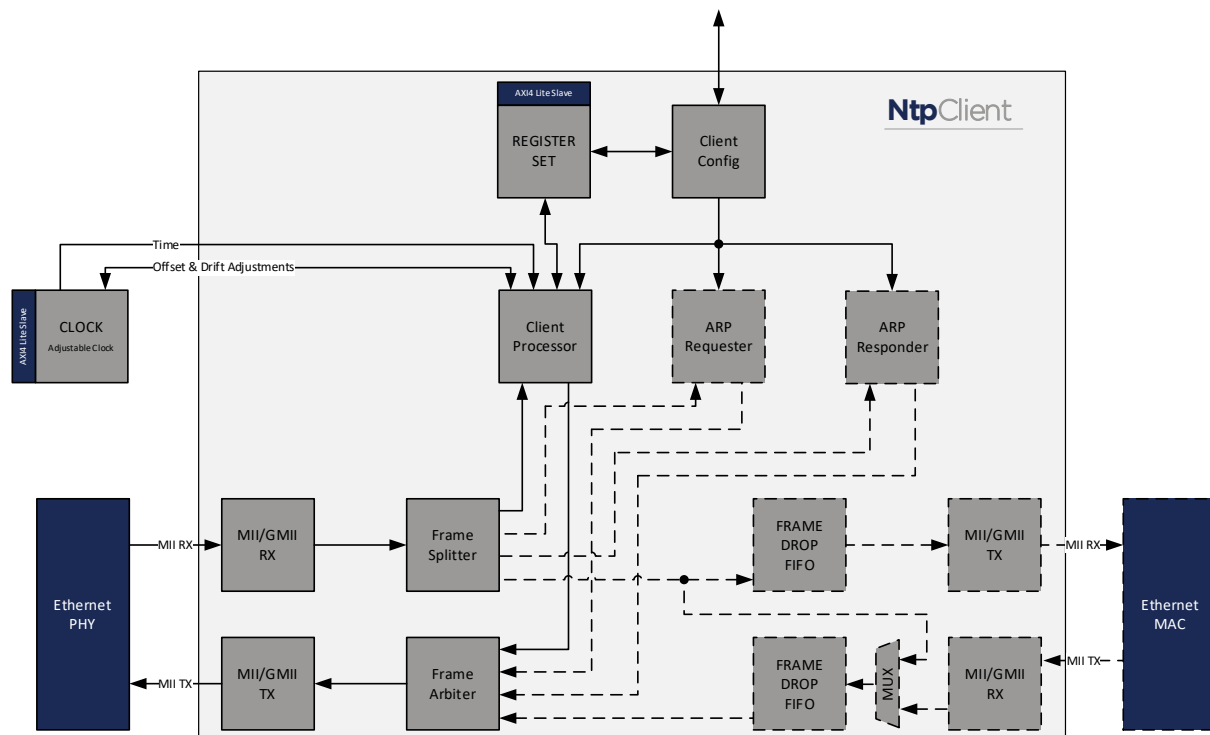
## Key Features:

- SNTP Client according to NTPv4 (RFC4330/5905)
- 100% hardware only solution
- Vendor independent
- Support for Unicast or Multicast server responses
- Sub-millisecond accuracy
- UTC leap second handling

## Typical Applications:

- High Performance NTP Client
- Ethernet based automation networks
- Power and Utilities
- Distributed data acquisition
- Test and measurement
- Etc.

## IP Core Architecture:



## Specification:

RFC 4330	Support for Unicast or Multicast server responses NTPv4
RFC 5905	Support for UTC leap second handling Flexible configuration and supervision
Performance	Offloading synchronization, filtering outliers, delivering the highest performance with minimal resources Hardware timestamping with 4ns resolution Leap Second handling (with configurable smearing rate)
Portability	10/100/1000 Mbit/s support, intercepts (R)(G)MII interfaces between MAC and PHY (no MAC required) 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-millisecond synchronization possible 4ns Timestamps accuracy
Modularity	Modular system; adjustable clock is a separate core 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:

- |                      |                      |
|----------------------|----------------------|
| • Adjustable Clock   | • IRIG Master/Slave  |
| • NTP Server         | • PPS Master/Slave   |
| • PTP Ordinary Clock | • Signal Timestamper |
| • NMEA Master/Slave  | • Signal Generator   |



**NetTimeLogic GmbH**  
Synchronization Solutions

Strassburgstrasse 10  
8004 Zürich  
Switzerland

contact@nettimelogic.com  
Tel. +41796716211  
www.nettimelogic.com