ClockFrequencyGenerator

A low-footprint frequency generator which uses NetTimeLogic's clock IP core as source for synchronous frequency generation. Allows high-precision generation of any integer frequency with range 0-10MHz and configurable polarity.

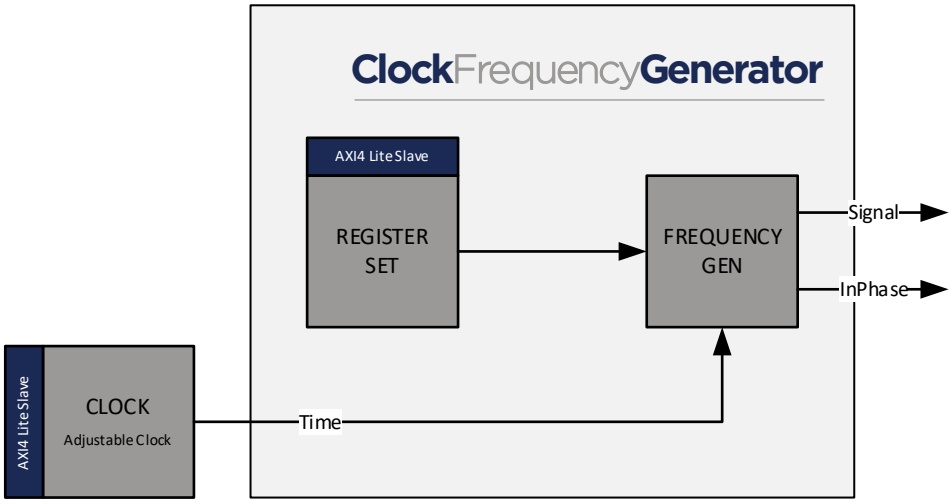
Key Features:

- Clock aligned frequency generation
- Auto phase realignment on time jumps
- Continuous generation
- Configurable polarity
- Output delay compensation
- AXI4 lite slave interface
- Optional DTC for 1ns accuracy

Typical Applications:

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

IP Core Architecture:



Specification:

Generating	Frequency aligned with NetTimeLogic's Clock (frequency and phase at second crossing) Output delay compensation takes also external delays into account Auto phase realignment on time jumps
Performance	Output signal max frequency is ~10MHz on 50MHz System Clock Accuracy of edges +/- half an input clock period without oversampling clock or one clock cycle of the oversampling clock or 1 ns with DTC
Portability	Vendor independent, written in plain VHDL Low footprint and low frequency requirements
Modularity and scalability	Simple time format can be also sourced by third-party clock core Slim and standardized interfaces are used
Configuration	No CPU required, standalone configuration with signals Axi4 lite slave support, for 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
- Linux Driver

Related Products:

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

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