TTTech Computational Technology

TTE Development Switch

Time-Triggered Ethernet for Hard Real-Time Data Communication

The TTEthernet technology enables hard real-time operation in distributed systems based on Ethernet networks. TTEthernet switches maintain the hard real-time data communication and take care of partitioning among standard Ethernet, rate-constrained and time-triggered Ethernet message traffic. High-priority time-triggered messages are routed through the switch according to a predefined schedule with transport delay jitter in the sub-microsecond range. All other Ethernet messages are forwarded when the bandwidth is available.

The TTE Development Switch is based on an Altera Stratix II GX FPGA board and offers four 1 Gbit/s ports, each one connected either via a small form factor pluggable (SFP) module or an RJ-45 connector. The SFP slots are populated with 850 nm optical LC modules.

Using TTE Load, the configuration data of the TTE Development Switch can be updated via the network. These data will be stored to its non-volatile memory and will become effective at the next power-up or reset.
Device Features

- Four 1 Gbit/s ports – either copper or SFP
- Configuration data programmable via the network

TTEthernet Features

- System-wide synchronized time base
- Store-and-forward message relay mechanism
- Basic firewall capabilities
- Standard IEEE 802.3 flow control mechanism
- Three different traffic classes:
  - Time-triggered messages with arrival window checking and deterministic delay
  - Rate-constrained messages with bag checking
  - Standard Ethernet messages with IEEE 802.3 flow control
- Multi-hop capability: switches can be linked together and synchronized to each other

Subject to changes and corrections.

For further information, including price and availability, contact products@tttech.com.