**TTE PCI Card**

*The 1 Gbit/s TTEthernet Network Board*

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**KEY FEATURES/BENEFITS**

- Supports 1 Gbit/s full duplex Ethernet links
- Standard PCI form factor end system for use in lab environments
- Supports up to 3 channels using SFP connectors
- Altera Stratix IV (EP4SGX)
- Compliant to TTEthernet 1.0 specification

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The **TTE PCI Card** brings the full power of time-triggered Ethernet communication technology to the PCI form factor. The TTEthernet technology enables hard real-time operation in distributed systems based on Ethernet networks.

**PCI Form Factor Pluggable Mezzanine Card**

Three TTEthernet traffic classes are supported by **TTE PCI Card**:

- Time-triggered traffic with hard real-time guarantee and transport delay jitter in sub-microsecond range
- Rate-constrained traffic with guaranteed bandwidth (ARINC 664-based send and receive operation, no traffic shaping)
- Standard (COTS) Ethernet traffic

The **TTE PCI Card** network interface card implements the distributed fault-tolerant clock synchronization algorithm of TTEthernet in hardware.

**TTE PCI Card** is a PCI form factor pluggable mezzanine card for network communication. It combines the IEEE 802.3 Ethernet standard for Gigabit Ethernet with the safety-critical time-triggered technology of TTTech. **TTE PCI Card** enables real-time Ethernet communication between an embedded computer and **TTE Switches** for redundant channels in a safety-critical system.

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**Compatible with IEEE 802.3 Ethernet**

The card can be used in PCI plugged on various PCs or embedded systems for lab use or for field applications. It is built using a **TTE PMC Card** and a passive PCI carrier board.

**TTE PCI Card** transmits time-critical and safety-critical data in a secure way and according to a predefined schedule. Apart from that it is compatible with IEEE 802.3 Ethernet and enables data traffic with a bandwidth of up to 1 Gbit/s.

**TTE PCI Card** is available in a lab version supporting up to three SFP channels.
Key Features
• Compliant to TTEthernet 1.0 specification
• Supports 1 Gbit/s full duplex Ethernet links
• Standard PCI form factor end system for use in lab environments
• Supports up to 3 channels using SFP connectors
• Altera Stratix IV (EP4SGX)
• 256 Mbit Flash
• Supported software driver (PCI / Linux)
• DMA Support
• JTAG support on board
• Conduction cooled board design

Hardware Features
Form Factor
• 32 bit PCI

Connectivity
• Host Interfaces:
  32 or 64-bit 33 MHz PCI 3.3V
• Front Connectors:
  Up to 3 ports 100/1000 Mbit/s SFPs

Environment
• Lab environment
• Passive cooler

TTEthernet End System
• The FPGA implements the TTEthernet End System IP with 3 channels.

TTEthernet Connections
• Up to 3 Ports 1 Gbit/s SFPs
• Connectors as faceplate I/Os

Dimensions
• Size: 212 x 127 (in mm)
• Weight: 350 g

Bus Interfaces
• 32 bit 33 MHz PCI 3.3V

Power Supply
• +12 V Supply from J2 connector
• +3.3 V Supply from J2 connector

Environmental Operating Ranges
• Lab equipment
• Operating temperature: 0 to 40 °C
• Non-operating temperature: -40 °C to 100 °C
• Operating/Non-operating humidity: humidity level from 25 to 90 %

Versions
• Basic Lab Version
  Lab Version with 3 SFP cages (no magnetics, no PHYs)

Software Support
• A Linux driver is available (64 bit/32 bit Linux).

Packaging Contents
• TTEthernet PCI Card hardware board
• User Manual
• Linux driver

Order Number
• 12097: TTEPCI Card (3x optical SPFs)
• 12098: TTE PCI Card (3x copperl SPFs)