

TTP[®] Simulate

The High-Performance TTP Test System



TTP[®] Simulate is a high-performance test system which enables the simulation of a networked TTP[®] system in real-time. It allows full hardware in the loop verification of a TTP unit. There are two form factors available for this product – PCI and PMC card format. The PCI version features four embedded Freescale MPC555 PowerPC[®] cores for simulating four TTP nodes. The PMC card features one embedded Freescale MPC5567 PowerPC core. Full tools support is available.

One or more TTP[®] Simulate cards can be plugged into the PCI sockets of a PC. Every card represents a partial TTP system. TTP[®] Simulate is controlled by the main CPU of the computer in which the card has been deployed. The interface between the embedded CPUs and the main CPU is a dual ported RAM (DPRAM). All messages received are available in the DPRAM. The simulation on the main CPU accesses the DPRAM on the hardware component through the client API and the PCI driver.

Thus, a networked TTP real-time system can be simulated without setting it up in expensive flight hardware or customized hardware. This results in considerable cost reductions and shorter development and test cycles.

KEY FEATURES/BENEFITS

- Real-time simulation board
- Simulation of up to 4 TTP nodes
- Full tools support
- Driver support for Linux, Windows, LynxOS, and LabView RT
- PCI and PMC form factor
- Optional LabView VI support
- IRIG-B time stamping

Software Package

TTP[®] Simulate comprises an embedded software package. The embedded software is executed on the embedded CPUs. It interfaces with the TTP controller and places the data from the TTP bus in the DPRAM. The embedded software is configured using the software tool TTP[®] Simulate Setup. It enables the user to specify which messages will be provided in the DPRAM of the hardware component.

The client API running on the main CPU provides high level access to the DPRAM. The client API is available for Windows[®] XP, Linux (kernel versions 2.6.18 and 2.6.31), and LabView[™] RT. A LabView[™] driver is available as an option. Other versions or operating systems are available on request.

TTPSimulate PCI

Board Features

- 4 Freescale MPC555 PowerPCs (40 MHz)
- austriamicrosystems AS8202NF (C2NF) TTP communication controller

Physical Specifications

- Full size PCI card
- Operating temperature: 0 °C to +70 °C
- Storage temperature: -40 °C to +85 °C

Physical Layer

- Physical layer board is exchangeable
- MF/M/Manchester on RS 485 physical layer. 5 Mbit for TTP (2 channels) configurable on 2 different external buses (2 RJ45 connectors for each bus).

Additional Interfaces

- IRIG-B (B122) interface on SMA connector
- Serial communication interface (PCB-mounted connectors)
- On-line debug interface for Freescale MPC555 PowerPC

Related Products

The **TTP**Simulate Setup tool is needed to configure the **TTP**Simulate board. The tool takes the configuration of the network from **TTP**Plan as input. The user provides additional information about his test and simulation setup. Based on the input, **TTP**Simulate Setup creates the configuration files for the boards.

TTPSimulate PMC

Board Features

- 1 Freescale MPC5567 PowerPC (132 MHz)
- austriamicrosystems AS8202NF (C2NF) TTP communication controller

Physical Specifications

- PMC standard footprint and host interface
- Operating temperature: 0 °C to +70 °C
- Storage temperature: -40 °C to +85 °C

Physical Layer

- Physical layer is not exchangeable
- MF/M/Manchester on RS 485 physical layer. 5 Mbit for TTP (2 channels)

PMC IO-Connector

- 8 analog inputs
- 8 eMIOS/GPIO signals
- 1 RS 485 physical layer interface for MF/M/Manchester
- 2 RS 422 interfaces
- 2 RS 232 interfaces
- 1 SPI interface (3 CS lines)
- 1 IRIG-B (B122) input
- 1 fail-safe indicator

Order Numbers

- H28.10.0: **TTP**Simulate PCI
- H28.00.0: **TTP**Simulate PCI incl. 1 single-seat license for **TTP**Simulate Setup
- H28.60.0: **TTP**Simulate PMC
- H28.50.0: **TTP**Simulate PMC incl. 1 single-seat license for **TTP**Simulate Setup
- S22.00.0: **TTP**Simulate Setup configuration tool
 - M22.00.0: 1 year software maintenance service for **TTP**Simulate Setup
- S28.00.1: LabView 2009 VIs for **TTP**Simulate
 - M28.00.0: 1 year software maintenance service for LabView VIs

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