

TTEDevelopment Switch, 1 Gbit/s, 12 Ports

Switch for Hard Real-Time Data Communication



The TTEthernet technology enables hard real-time operation in safety-critical distributed systems based on Ethernet networks. TTEthernet switches maintain the hard real-time data communication and take care of robust 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 a transmission jitter in the sub-microsecond range. Rate-constrained messages are routed and policed according to their guaranteed bandwidth (ARINC 664 part 7). All other Ethernet messages are forwarded when bandwidth is available.

12 full-duplex 1 Gbit/s Ethernet ports

The TTE Development Switch provides 12 x 1 Gbit/s full duplex ports which can be equipped with small form-factor pluggable (SFP) modules. Electrical (1000 Base-TX) and optical (1000 Base-SX) SFPs are available.

KEY FEATURES/BENEFITS

- High-speed deterministic Ethernet for safety-critical real-time applications
- Robust partitioning between three traffic classes (time-triggered, rate-constraint and standard Ethernet traffic)
- 12 full-duplex 1 Gbit/s Ethernet ports
- Wide data paths - supporting internal bandwidth processing of 24 Gbit/s
- Full power of the TTEthernet switch IP
 - 8 subschedules
 - 4096 VL IDs
 - 256 shared BAGs
- Clock synchronization at sub- μ s level

TTELoad for Updates

Using TTE Load, the configuration data of the switch can be updated via the network. The data is then stored in the non-volatile memory of the switch and becomes effective at the next power-up or reset.

Key Features

- 12 x 1 Gbit/s full-duplex Ethernet ports
- 24 Gbit/s cross-sectional bandwidth (12 x full-duplex Ethernet links)
- 1.5 Mbit on-chip memory
- 256 Mbit Flash memory for storing the switch configuration
- Configuration data programmable via the network with ^{TTE}Load
- Configuration generation by ^{TTE}Tools 2.0 and enhanced diagnosis by ^{TTE}Diagnose 2.0 (planned)
- TTEthernet implementation supports up to three channel setups
- Front panel JTAG connector
- Compliant to TTEthernet 1.0 specification

TTEthernet Implementation

- 12 ports running at 1 Gbit/s full duplex
- 8 subschedules
- 16 clock sync masters
- 4096 virtual links
- 256 shared BAGs
- Manageable via network (configuration data download, diagnosis data queries, scheduled diagnosis data transmissions) through standard Ethernet frames

Software Tool Support Options

- ^{TTE}Load: GUI and batch programmable tool for downloading switch configurations into the flash non-volatile configuration memory
- ^{TTE}Build: Allows creation of a binary device configuration from an XML-based device configuration file
- ^{TTE}Build Network Configuration Plugin: Generates device configuration XML from a system-wide network configuration XML database
- ^{TTE}Verify: A qualified software tool for production programs for automated device configuration verification (planned)

Form Factor

- 19" rack housing 1 height unit for lab use

Dimensions

- Size: 44 x 483 x 356 (in mm)
- Weight: 3 kg
- Color: black

Power Supply

- Thermal control 260 W AC power supply with PFC
- AC voltage: 100 to 240 V, 60 to 50 Hz, 2A max.
- Power consumption below 50 W

Environmental Operating Ranges

- Lab equipment
- Operating temperature: 0 °C to 40 °C
- Non-operating temperature: -40 ° to +70 °C
- Operating/non-operating humidity: Humidity level from 25 to 90 %

Certification Options

- Certification package for the TTEthernet switch IP according to DO-254 available on request

Order Number

- HE11.10.1 Development Switch, 1 Gbit/s for TTEthernet, 12 Ports, optical SFP modules
- HE11.00.1 Development Switch, 1 Gbit/s for TTEthernet, 12 Ports, optical SFP modules, without ^{TTE}Load
- HE11.30.1 Development Switch, 1 Gbit/s for TTEthernet, 12 Ports, copper SFP modules
- HE11.20.1 Development Switch, 1 Gbit/s for TTEthernet, 12 Ports, copper SFP modules, without ^{TTE}Load

TTTech Contact Information

Europe, Austria - Headquarters
Tel.: +43 1 585 34 34-0
E-mail: products@tttech.com

North America, USA
Tel.: +1 760 603 9393
E-mail: products@tttech.com

Asia, Japan
Tel.: +81 45 470 1867
E-mail: products@tttech.com

www.tttech.com