


TTE[®]Development System Space

TTEthernet[®] Development System based on the TTE[®]Controller HiRel ASICs

TTEthernet[®] end system &
TTEthernet[®] switch ASIC-based



Key Benefits

- ✔ Completely pre-configured and ready-to-run system including a demo application showing the benefits of the technology
- ✔ Example applications with step by step guide
- ✔ Support for three standard traffic classes: standard Ethernet (IEEE 802.3), rate-constrained (ARINC 664 part 7) and time-triggered traffic (SAE AS6802)
- ✔ Using the TTE[®]Switch Controller HiRel ASIC and TTE[®]End System Controller HiRel ASIC

The TTE[®]Development System Space provides a full development environment for hard real-time and non-real-time Ethernet communication on the same network using different quality of service traffic classes. Standard Ethernet traffic seamlessly integrates with fully deterministic synchronous hard real-time Ethernet traffic on the same physical media. The system allows evaluating and developing real-time applications, leveraging the benefits of the TTEthernet[®] products in an out-of-the-box system.

Guaranteed Real-Time Performance and Determinism in Ethernet Networks

TTEthernet[®] consolidates features used in aerospace, automotive and industrial automation applications. It allows the implementation of mixed critical applications by partitioning the communication media and therefore scales from non-safety critical to safety-critical, fault-tolerant applications.

Open Environment for Hard Real-Time Ethernet Applications

The System provides a development platform allowing the integration of real-time applications, innovative Ethernet-based architectures for on-board

systems, fault-tolerant networks and infotainment applications.

TTEthernet[®] Design Tool Suite

The design tools included in the system allow the user to create configurations for the network devices (switches and end systems). They provide a convenient way to define network level communication requirements such as devices used, network topology, messages and timing constraints.

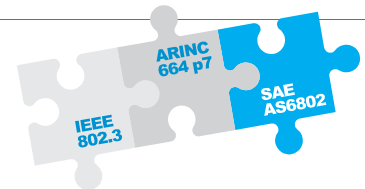
In a multi-step process, the configuration files for TTEthernet[®] switches and end systems are generated. The design tools are based on an open XML database, supporting the customer's unique work flow by allowing a flexible combination of design steps.



Application Fields

- Technology evaluation
- Laboratory development
- Space

<p>Advanced Examples</p>	<p>The example application illustrates the main technology characteristics such as clock synchronization, known latency, and minimal jitter in high network load situations. Allows for a simple step-by-step introduction to TTEthernet®. The example applications are provided as source code and can be altered by the users.</p>
<p>Packaging Contents</p>	<p>4x TTEEnd System Lab Space (PCIe) (3x Ports) 2x TTESwitch Lab Space (25x Ports) 1x TTETools 5 Starter 4x High-performance PCs (HP) 1x LCD Monitor 1x USB keyboard and 1x USB mouse</p>
<p>End System Features</p>	<p>TTEEnd System Lab Space (PCIe), based on TTEEnd System Controller HiRel ASIC 3x 100/1,000 Mbit/s full-duplex Ethernet links (up to 3 redundant channels) Supported standard traffic classes: - IEEE 802.3 Ethernet - ARINC 664 part 7 - SAE AS6802 Standard PCIe form factor for use in lab environment Passive cooling Pre-installed driver (CentOS 8-based) and API for PCIe-based end system controller</p>
<p>Switch Features</p>	<p>TTESwitch Lab Space, based on TTESwitch Controller HiRel ASIC 25 full-duplex Ethernet ports (6x 100/1,000 Mbit/s; 19x 100 Mbit/s) Supported standard traffic classes: - IEEE 802.3 Ethernet - ARINC 664 part 7 - SAE AS6802</p>
<p>PC</p>	<p>4x HP PCs (CentOS8-based) are part of the TTEDevelopment System Space</p>
<p>Software Tools</p>	<p>TTETools 5 Starter (13056)</p> <ul style="list-style-type: none"> • TTEPlan (Starter) for generation of the demo application schedules • TTEBuild Device Configuration • TTEBuild Network Configuration (Starter) to create device configurations for this lab setup
<p>Power Supply</p>	<p>AC voltage: 100 to 240 V, 60 to 50 Hz</p>
<p>Order Number</p>	<p>Two variants are offered (tabletop vs rack):</p> <p>13546: TTEDevelopment System Space ASIC rev. 'B' (available until Q1/2021) → TTEEnd System/TTESwitch Controller HiRel</p> <p>13793: TTEDevelopment System Space (rev.C) ASIC rev. 'C' (available from Q1/2021) → TTEEnd System/TTESwitch Controller HiRel</p> <p>13588: TTEDevelopment System Space (rack) ASIC rev. 'B' (available until Q1/2021) → TTEEnd System/TTESwitch Controller HiRel</p> <p>13794: TTEDevelopment System Space (rack rev.C) ASIC rev. 'C' (available from Q1/2021) → TTEEnd System/TTESwitch Controller HiRel</p>
<p>Recommended Additional Services</p>	<p>12052: Software maintenance service for TTEDevelopment Systems 12053: Support package comprising one-day on-site installation quick-start and 32-hours on-demand off-site support (email or telephone)</p>



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