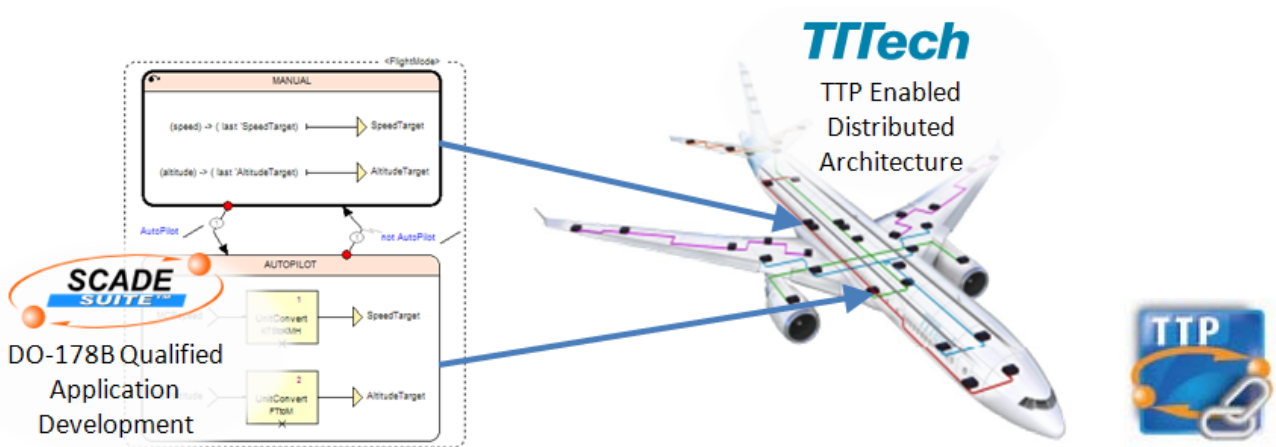


Design Tools for Fault-Tolerant Distributed Embedded Systems



TTP^{SCADElink} – Designing Distributed Systems using SCADA Suite™ and TTP

TTP^{SCADElink} is a software tool for the seamless integration of TTTech's TTP^{Tools} and Esterel Technologies' SCADA Suite. SCADA Suite is a model-based development environment enabling the design, verification, and deployment of mission and safety-critical embedded software.

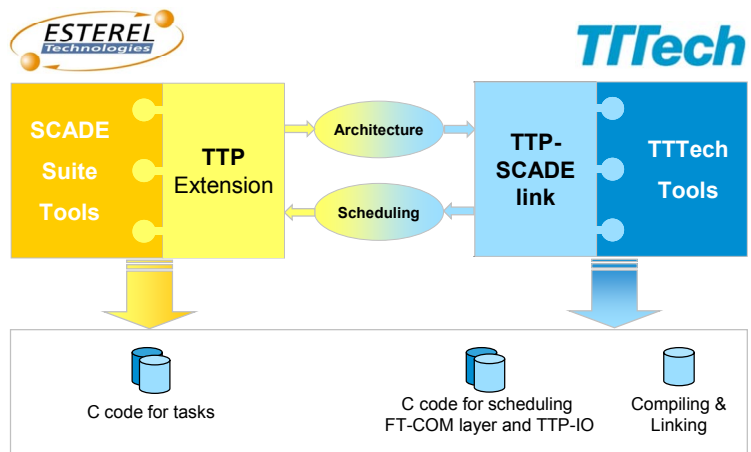
The combined development environments represent a powerful solution for the design of distributed control systems and software applications in aircraft systems. TTTech's TTP^{SCADElink} and TTP^{Tools} in combination with Esterel Technologies' SCADA Suite and TTP-Extension, help OEMs, integrators and suppliers to harmonize the development of complex aircraft subsystems with TTP®.

Provided by TTTech, TTP^{SCADElink} enables the use of TTP^{Tools} for the automatic generation of communication and task schedules, and fault-tolerant communication layer (TTP^{FT-COM}). High-level communication requirements, time budget and task schedules are automatically used to generate the dedicated, time-triggered middleware. TTP^{SCADElink} has been selected by several aircraft equipment suppliers for the next generation of complex on-board systems.

The SCADA TTP-Extension, delivered by Esterel Technologies, enables the modelling of fault-tolerant, communication-based, distributed systems. The architecture, functional behaviour and the data exchange requirements are specified at the SCADA model level to generate the complete embedded distributed software application.

Developers can design control systems, from analysis of algorithms to modelling, design verification, and code generation with SCADA KCG™ which has been certified as a development tool under DO-178B up to level A. SCADA-generated applications can be automatically deployed on target hardware.

Applications are executed on a set of fully synchronized embedded electronic controller units (ECUs) with a TTP communication controller. A graphical user interface allows developers to map specified functionality onto the ECUs in a distributed system that is linked by a TTP network.



Data Exchange with ^{TTP}Plan and ^{TTP}Build

^{TTP}SCADElink interacts with TTTech's ^{TTP}Plan and ^{TTP}Build. These are ^{TTP}Tools components that are used to design TTP clusters and hosts. Interfacing with these tools results in the automatic generation of a complete fault-tolerant system architecture, as well as the configuration of the highly optimized ^{TTP}OS operating system.

Features

- Supports integration with SCADA Suite automatic generation of application code using the SCADA KCG™ DO-178B Code Generator
- Transparent data exchange with ^{TTP}Plan and ^{TTP}Build
- Easy handling of subsystem replication
- Automatic generation of configuration data (MEDL – message descriptor list)
- Automatic generation of fault-tolerant communication layer (^{TTP}FT-COM)
- IP protection for subsystems and tasks (large projects with multiple suppliers)
- Remote Pin Voting (RPV)
- Multiple SCADA operator instances for subsystems and tasks
- SCADA operators with I/O mechanism and GUI (developers can create their own I/O nodes in the model)
- Arbitrary bit lengths for message data-types
- Fully automated generation of download images
- Fully customizable by use of hook files
- Fully script-enabled
- Broad range of supported TTTech targets (austriamicrosystems AS8202NF TTP communication controller)

Benefits

- Model-based development support of deterministic application software and middleware, from requirements to a network of control units
- Strong quality and efficiency improvement for specifications capture, documentation and quality assurance rules enforcement
- Code generation enabling DO-178B certification, up to level A
- Reduction of the cost of certification, including of late changes to the embedded code, wherever it is dispatched
- Significantly reduced development effort and cost for design of complex distributed systems
- Full support for concurrent engineering in a multi-vendor environment
- Increased quality and productivity

System Requirements

- Operating system: Windows XP
- RAM: 1 GB (recommended)
- ^{TTP}Plan (needed for TTP schedule generation and checking)
- ^{TTP}Build (needed for ^{TTP}FT-COM code and operating system configuration)
- ^{TTP}SCADE I/O Library and TTTech hardware targets
- ^{TTP}OS (the time-triggered OS certified for DO-178B)
- SCADA Suite 6.1 with TTP-Extension
- A suitable C compiler

Subject to changes and corrections.

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

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