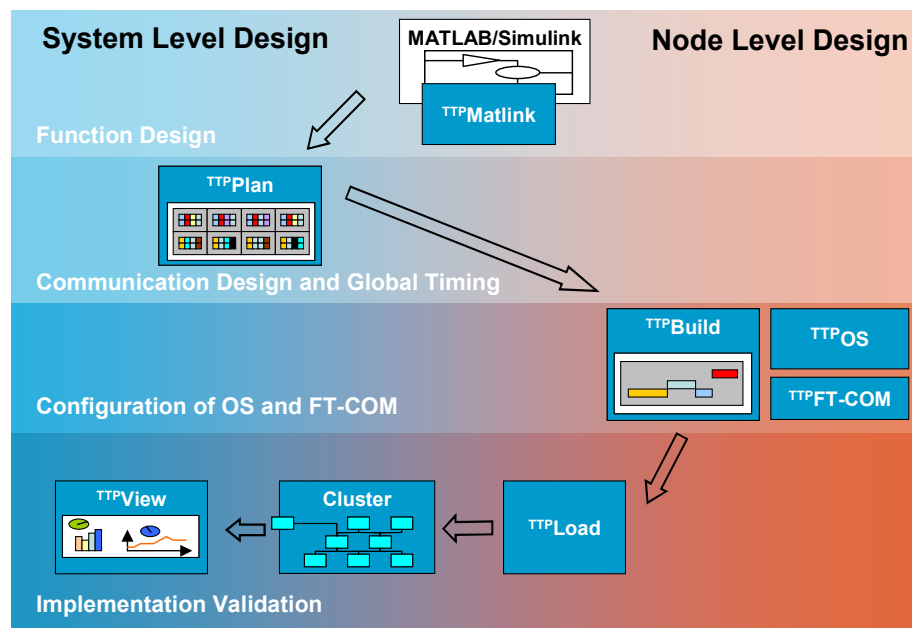


TTTech Software Development Suite



TTP[®]Tools – Integrated TTP Software Development Suite

The Design Challenge

One of the most difficult issues in the design and implementation of dependable real-time systems is the seamless integration of electronic subsystems, developed by different suppliers or groups, into an overall computer system.

In the future, this problem will be aggravated by integrating a multitude of electronic by-wire systems built by competing suppliers. Consequently, system integrators have a pressing need for a composable network architecture that provides a clear separation between the system issues and subsystem issues. Safety and fault tolerance make this problem even more challenging.

TTTech's Two-Level Design Framework

The combination of TTP-based architecture and TTTech's TTP[®]Tools software development suite for Time-Triggered Protocol (TTP[®]) provides an integrated solution to this design challenge in the form of a two-level design framework.

TTP[®]Tools support the precise specification of the temporal and functional interfaces between the subsystems of a TTP-based architecture. At the system level, a system integrator (e.g. an automobile company) defines the subsystem functions and specifies the communication interfaces precisely in the value and time domains. At the subsystem level, the component supplier retains complete control over all hardware and software design decisions as long as he complies with these interfaces. The unambiguous interface specification enhances ease of integration, quality, and reusability of the developed products. The composability of this architecture prevents the occurrence of unintended integration effects and therefore eases the management of complexity.

Business Benefits

The separation of responsibilities inherent in TTTech's two-level design framework translates directly into significant benefits for all parties involved. It prevents the omission of essential functions as well as the duplication of efforts, which results in waste and potentially conflicting implementations. The benefits are shorter time-to-market and higher-quality systems.

For both system integrator and subsystem suppliers, the separation of responsibilities reduces the potential for conflicts and the communication overhead.

The effective development of TTP-based systems requires a set of tools specifically tailored to the properties of time-triggered technology. Equipped with a unique overall system knowledge, TTTech offers tools that enable the effortless exploitation of the advantages of the time-triggered approach.

The TTP Tools Software Development Suite

TTP Tools from TTTech offer a powerful development and production environment for building fault-tolerant real-time systems. TTP Tools address the needs of the systems engineer in the automotive, aerospace, and industrial control application domains. They provide rapid, harmonized, and systematic development while smoothly integrating with existing development processes. With TTP Tools, the user can design a communication architecture, generate a fault-tolerant communication layer with a specialized code generator, configure the time-triggered operating system, download the resulting configuration to the target, and then test the distributed application.

TTP Tools also allow a seamless integration with other design and development systems; the existing design process can therefore be modified easily to integrate TTP-based designs. All tools provide a graphical user interface, a command-line interface and flexible scripting. The TTP Tools suite is highly modular and is tailored to multi level design processes in automotive and aerospace applications.

The toolset forms a fully integrated, consistent, and harmonized development environment.

TTP Tools contain an overall cluster design tool (TTPPlan), a node and task design tool (TTPBuild) including a TTP-specific fault-tolerant communication layer (TTPFT-COM), and an embedded real-time operating system (TTPOS). In addition, the set includes a download tool (TTPLoad) and an on-line monitoring tool (TTPView). TTPMatlink (optional) fully integrates TTP Tools with MATLAB® and Simulink® from The MathWorks, Inc. Furthermore a comprehensive tool for the verification of TTP cluster designs (TTPVerify) and a software interface tool (TTPSCADElink), complete TTTech's Tools chain. Thus engineers can work with one standard development environment – from functional design to automatic generation of distributed code. The result is a tremendous cost and time-saving advantage.

If you want more detailed information about a specific TTP Software Tool, please contact products@tttech.com

System Requirements

Operating system	MS Windows 2000 (SP 1 or 2), Windows XP (support for other operating systems is available on request)
Processor	Intel Pentium 4 or above, AMD Athlon XP or above, or compatible (1.5 GHz or above recommended)
RAM	256 MB (minimum), 512 MB (recommended)
	CD-ROM drive, Adobe Acrobat Reader 4.0 or above
Disc space	TTPMatlink, TTPPlan, TTPBuild: 30 MB TTPOS: 5 MB TTPLoad: 30 MB TTPView: 30 MB
	TCP/IP 100 Base-TX Network Card to link to TTP Monitoring Node
	1024x768 16-bit colors (minimum), 1280x1024 32-bit colors (recommended)
3 rd party products needed for using TTPMatlink and/or TTPSCADElink	TTPMatlink (optional): The MathWorks Matlab, Real-Time Workshop, Real-Time Workshop Embedded Coder TTPSCADElink: SCADE Suite 6.1 with TTP-Extension

Subject to changes and corrections.

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

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