TTA-Group

TTA-Group – Frequently Asked Questions

This FAQ intends to answer issues related to the structure and organization of the TTA-Group.

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1. General

Q: ***What is TTA-Group?***

A: TTA-Group is a cross-industry consortium for highly dependable time-triggered systems. Its objective is to share experience and distribute know-how in the area of safety-critical data communication, and to benefit from the successful aerospace deployment of data communication systems for safety-critical applications where aerospace safety requirements have to be fulfilled at low cost.

Q: ***Why did major companies from various industries join TTA-Group?***

A: Leading companies have chosen TTA-Group as a cross-industry consortium to discuss the development and use of time-triggered architecture for safety-relevant issues. In addition, aerospace companies and companies from other industries with the need for a highly dependable system architecture have found TTP to be the best data communication system for safety-critical systems. TTA-Group serves them as a platform to establish a cross-industry standard for these industries with safety and cost as top priorities.

Q: ***Why is an advanced electronics architecture needed?***

A: There has been an enormous increase of the number of electronic control units over the past few years. New safety-critical functions are increasing the overall complexity of the electronics and are demanding an even higher level of dependability. In order to be used in future applications, an advanced electronics architecture needs to satisfy all safety, availability, and fault tolerance requirements. Additionally, it has to support ease of system integration, component upgrades, and the migration of existing systems. A great number of models, platforms, and equipments has to be supported. Last not least, such an architecture needs to meet the stringent cost constraints imposed by the market.

Q: ***What is TTA-Group's mission?***

A: TTA-Group's mission is to provide a platform for exchanging cross-industry experience about the deployment of a data communication architecture for safety-critical systems.

TTA-Group promotes technologies for a time-triggered solution and concentrates on the aerospace, special vehicles, railway, and industrial control industry, where demanding requirements for safety-critical applications have to be fulfilled at low cost.

TTA-Group has no intention to standardize technologies and solutions for the automotive industry. This is done in other consortia such as FlexRay and AUTOSAR. However, automotive members of TTA-Group benefit from the synergy of cross-industry experience and know-how in technology-oriented and application-specific working groups.

TTA-Group gives guidance and recommendations to other groups and consortia in terms of safety issues from a cross-industry point of view.

Q: **Which are TTA-Group's strengths*?***

A:

- TTA-Group consists of leading market players.
- TTA-Group members have a leading role in establishing a time-triggered architecture.
- The members share their substantial experience in safety-critical communication.
- Clearly regulated access to a comprehensive patent family in the area of time-triggered architecture.

- TTP has been adopted by leading industry players due to its rigorous and cost-efficient safety approach.
- TTP is a mature solution that is low-cost and can handle safety-critical applications.
- Based on stable specifications, TTP communication controllers have been available since 1998. Qualified third-generation communication controllers are available today.
- Currently available TTP communication controllers support communication speeds of up to 25 Mbit/s. This high speed is coupled with net data throughput efficiencies of about 80%.
- TTP products available today include chip models, a comprehensive tool chain for design, implementation and validation as well as hardware boards and electronic control units for prototyping.
- TTP is now deployed in commercial applications after more than 25 years of R&D work.

Q: ***What are TTA-Group's goals?***

A:

- To share experience and distribute know-how in the area of safety-critical data communication
- To benefit from the successful aerospace deployment of data communication systems for safety critical applications where demanding requirements have to be fulfilled at low cost
- To provide a platform for exchanging cross-industry experience about the deployment of a data communication architecture for safety-critical systems
- To promote technologies for a time-triggered solution in the aerospace, special vehicles, railway, and industrial control industry
- To benefit from the synergy of cross-industry experience and know-how in technology-oriented and applications-specific working groups
- To give guidance and recommendations to other groups and consortia such as FlexRay and AUTOSAR in terms of safety issues from a cross-industry point of view
- To direct further research and development with safety and cost as top priorities
- To ensure a fast time-to-market

2. Business Model

Q: ***Who pays license fees for bringing the technology to the market?***

A: Only semiconductor manufacturers pay license fees based on a market-accepted licensing model.

Q: ***Do manufacturers or their suppliers need to pay license fees or royalties?***

A: No license fees or royalties have to be paid by manufacturers, suppliers, service or support companies or any other company using chips from a licensed semiconductor manufacturer.

More details can be found at www.ttagroup.org/group/model.htm.

3. Organizational Structure

Q: ***What are the governing bodies of TTA-Group?***

A: The governing bodies are the steering committee and the technical committee. New committees can be appointed by the steering committee.

Q: ***What is the steering committee?***

A: The steering committee is composed of up to two representatives for each committee member, one of them being entitled to vote. The steering committee decides

- strategy and policy, including in particular the further development of specifications for time-triggered architecture,
- membership applications,
- establishment of new committees.

Q: ***What is the technical committee?***

A: The technical committee is responsible for drafting and interpreting the specifications, which are released to the steering committee. It is composed of up to two representatives for each committee member and each associate member, one of them being entitled to vote.

Q: ***What are the different membership types in TTA-Group?***

A: There are three membership types: committee members, associate members and affiliate members. Additionally academia-related institutions can become partner organizations of TTA-Group.

More details can be found at www.ttagroup.org/group/structure.htm.

Q: ***What are working groups?***

A: Working groups are made up of representatives of all committee and associate members. These groups are responsible for technology-oriented and application-specific developments. The chair of each working group presents the results of the working group to the technical committee for voting.

More details can be found at www.ttagroup.org/group/structure.htm.

4. Membership

Q: ***Which companies have decided to establish TTA-Group?***

A: Founding members are Airbus, Audi, Delphi, Honeywell, PSA Peugeot Citroën, Renault, and TTTech.

Q: ***Who are the other companies involved in TTA-Group activities?***

A: Associate Members are AGCO, austriamicrosystems, CNH, Crown, Dana, Eaton, John Deere, Lord Corporation, NEC, Ognibene, QinetiQ, Renesas, Sauer-Danfoss, SKF, STILL, United Technologies, and Visteon.

Affiliate Members are Carraro, C&C Electronics, Dynapac, Esterel Technologies, Green Hills, Kongsberg, Liebherr, MTS Sensor Technologie, TÜV NORD, Volvo Wheel Loaders, and Xilinx.

Partner organizations are Deutsches Zentrum für Luft- und Raumfahrt, SRI International, SP Swedish National Testing and Research Institute, TÜV SÜD, University of Rostock, and Vienna University of Technology.

Q: ***How to become a member?***

A: Apply for membership at www.ttagroup.org/nav/application.htm or contact us directly at coordinator@ttagroup.org.

5. Technology

Q: ***Why is an advanced electronics architecture needed?***

A: There has been an enormous increase of the number of electronic control units over the past few years. New safety-critical functions are increasing the overall complexity of the electronics and are demanding an even higher level of dependability. In order to be used in future applications, an advanced electronics architecture needs to satisfy all safety, availability, and fault tolerance requirements. Additionally, it has to support ease of system integration, component upgrades, and the migration of existing systems. A great number of models, platforms, and equipments has to be supported. Last not least, such an architecture needs to meet the stringent cost constraints imposed by the market.

Q: ***What makes the Time-Triggered Architecture an advanced electronics architecture?***

A: A Time-Triggered Architecture (TTA) system has fault tolerance implemented in both hardware and software. Whereas the hardware relies on redundant nodes and duplicated communication channels, the software uses algorithms to control basic services. Short innovation cycles allow a rapid evolution of subsystems without taking the risk of hidden faults. In a TTA system it is guaranteed that changed groups of components can be easily integrated in an existing overall system. A supplier can be sure that the timing in his subsystem is not changed by the integration in the overall system and the testing must be done solely on his own subsystem. A drastic time and cost reduction for testing and system integration is guaranteed.

More details can be found at www.ttagroup.org/technology/tta.htm or contact us directly at info@ttagroup.org.

Q: ***Why use TTP?***

A: TTP is a mature solution that is low-cost and can handle safety-critical applications. It is based on over 25 years of R&D work. The main advantages of TTP are enhanced quality, reduced costs, and high safety based on aerospace safety requirements.

More details can be found at www.ttagroup.org/technology/ttp.htm or contact us directly at info@ttagroup.org. The TTP specification can be requested at www.ttagroup.org/technology/specification.htm.

6. Products

Q: ***What products are available today?***

A: Chip models, a comprehensive tool chain for design, implementation and validation as well as hardware boards and electronic control units for prototyping are available today.

Q: ***Are products available for all companies or for members only?***

A: All products can be purchased by any company without any restrictions.

Q: ***Who can provide products for time-triggered technologies?***

A: All interested companies can provide chips, software development tools, prototyping hardware, engineering services, and other related offerings.

More details can be found at www.ttagroup.org/technology/products.htm or contact us directly at products@ttagroup.org.

7. Specifications and Technical Articles

Q: ***How can I access the TTP specification?***

A: The TTP specification can be requested at www.ttagroup.org/ttp/specification.htm.

Q: ***How can I access the TTEthernet specification?***

A: The TTEthernet specification can be requested at www.ttagroup.org/ttethernet/specification.htm.

Q: ***Where can I get technical articles about Time-Triggered Architecture and TTP?***

A: A variety of documents is freely available at www.ttagroup.org/technology/articles.htm.

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