

Mixed Criticality Systems:  
Deterministic Ethernet and Time-Triggered Technology  
for Open System Architectures



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**SAE / TTA-Group  
Open Forum 2009**

Monday, November 9, 2009  
Washington State Convention  
& Trade Center, Seattle, WA, USA

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**SAE** TTA-Group

# Mixed Criticality Systems: Deterministic Ethernet and Time-Triggered Technology for Open System Architectures

The integration of critical with non-critical functions is essential for design of advanced architectures. In conjunction with Ethernet, the time-triggered paradigm facilitates design of mixed criticality systems. This helps to solve many system engineering challenges and trade-offs in design of advanced electronic platforms. In addition, time-triggered technologies support modular contracting strategies and enable future upgrades, system growth and platform reuse. Technologies such as TTP and TTEthernet are currently standardized by SAE International. They are used in production programs in aerospace, defense automotive, railway and other industries.

## Key Topics of Open Forum

- Embedded Computing and Networking Platforms
- Mixed Criticality Systems and Architectures
- System-of-Systems Integration
- Industry Experiences, Applications and Benefits
- Embedded COTS Products, Development Tools and Roadmaps
- Standardization of Time-Triggered Technologies

## Registration

Category	by October 23, 2009	after October 23, 2009
SAE Member	\$205	\$305
Non-Member	\$305	\$405

Early bird until  
October 23

## Product Demonstration

The Open Forum will be accompanied by a product demonstration area. In case you register three or more people from the same company you will have the opportunity to present your solutions on a table top.

# Agenda

Monday, November 9, 2009

## **12:00 – 1:00 pm**

Registration and Reception

## **1:00 pm – 1:15 pm**

Welcome and Opening Remarks – Markus Plankensteiner, TTA-Group

## **1:15 pm – 03:15 pm**

System Architectures and Time-Triggered Networks

- Synchronous and Asynchronous Networks for Mixed Criticality Architectures
  - Mirko Jakovljevic, TTTech
- Robust Partitioning, Startup and Recovery for Critical Embedded Systems
  - Wilfried Steiner, SRI International
- Enabling Technologies for Network Centric Architectures and Systems-Of-Systems
  - Larry Yust, Honeywell
- Time-Triggered Architecture for Design of Cross-Domain Embedded Systems
  - Hermann Kopetz, Vienna University of Technology

## **3:15 pm – 3:45 pm** Break

## **3:45 pm – 4:30 pm**

Mixed Criticality Systems Using Deterministic Ethernet

- NASA Orion Avionics – Mary McCabe, NASA
- TTEthernet on Orion - Vic Revelle, Honeywell

## **4:30 pm - 5:15 pm**

Distributed Mixed Criticality System and Open COTS Platforms - Part 1

- IMA Platforms with VxWorks653 – Chip Downing, Wind River
- COTS HW Platforms Based on VPX and Deterministic Ethernet
  - David Pepper, GE Fanuc

## **5:15 pm – 5:45 pm** Break

## **5:45 pm – 6:15 pm**

Distributed Mixed Criticality System and Open COTS Platforms - Part 2

- System Integration Labs (SIL) for Complex Avionics Using COTS Components
  - Christoph Wimmer, National Instruments

## **6:15 pm – 7:00 pm**

Applications and Program Experiences with Time-Triggered Systems

- More Electronic Nose-Wheel Steering System for Efficient Aircraft
  - George Iordanidis, Airbus
- Distributed Engine Controls with Time-Triggered Technologies - Jeff Tooley, LURACO

## Symposium Organizers

Markus Plankensteiner – TTA-Group

Frank Bokulich – SAE International

Mirko Jakovljevic – TTTech Computertechnik AG

## About TTA-Group

TTA-Group consortium is a cross-industry community for technical and market development of safety-related architectures and time-triggered networks.

## About SAE International

SAE International is a global association of more than 121,000 engineers and related technical experts in the automotive, aerospace and commercial vehicle industries. SAE International's core competencies are life-long learning and standards development.

## Location

Washington State Convention  
and Trade Center

800 Convention Place

Seattle, WA 98101-2350

[www.wsctc.com](http://www.wsctc.com)

## Registration

If you would like to participate,  
send an e-mail to: [open-forum@ttagroup.org](mailto:open-forum@ttagroup.org)

or

register on SAE Aerotech 2009 webpage:

<http://www.sae.org/events/atc/registration.htm>

[www.ttagroup.org](http://www.ttagroup.org)