VeTeSS Press Release

VeTeSS research project to improve safety in automotive embedded electronic systems to be presented at Co-Summit 2012 in Paris.

Verification and Testing to Support Functional Safety Standards

Over the next three years a European consortium will develop new tools and methods to test and enhance the safety of automotive embedded systems. The first public presentation of the project will be made at the ARTEMIS-ITEA 2 Co-Summit 2012 at CNIT, La Défense, Paris on the 30th and 31st of October.

The quantity and the complexity of automotive electronics is constantly increasing. Twenty years ago a typical car had just three electronic controllers. A modern high-end car may have 100 or more embedded processors running complex software to provide engine control functions as well as advanced driver assistance such as collision warning and lane departure systems.

VeTeSS (*Verification and Testing to Support Functional Safety Standards*) is a new €20m three-year pan-European research project designed to create innovative technologies to improve the verification of the safety of these embedded systems. This will lead to improved safety, reliability and quality of automotive systems.

There are several challenges for effective safety verification:

- The difficulty of communicating safety information between the different parts of the supply chain – hardware components, software, subsystems and vehicle manufacturers – can make it hard to develop standard parts that can be reused in different applications.
- Existing verification and certification practices are frequently *ad hoc* and based on expert opinion.
- Lack of standardised tool flows, methodologies and data formats.
- Increasing complexity of embedded systems in an increasingly competitive market.
- New technologies, such as electric and hybrid vehicles, bring new safety requirements and challenges.
- New safety standards such as ISO 26262 define stricter requirements for the design process but also present new business opportunities.

These are a powerful incentive for the automotive industry to create new tools and methods which can provide better support for verification and certification of safety-relevant systems and meet functional safety standards for automotive electronic systems.

VeTeSS will see a broad range of industrial and academic partners from across Europe develop standardized methods to test the robustness of safety-relevant systems. This includes partners from every part of the supply chain. The project will investigate verification methods and coverage metrics used to test the response to a variety of transient common-cause failures (random events such as electromagnetic interference or alpha particles). The focus will be on areas where relatively little rigorous work has been done to verify the techniques used.

The project will develop an integrated and standardized toolchain for safety verification and qualification allowing the interchange of data between all levels of the supply chain. This more

objective approach will speed revalidation and recertification. It should also aid market acceptance of new technologies.

The *VeTeSS* project will

- enable the succinct and accurate communication throughout the supply chain by integrating the safety case at every stage of development.
- support platform-based development enable greater supply chain flexibility and provide more predictable safety verification and certification processes.
- reduce time to market, despite new functions and the increasing complexity of embedded systems.
- improve vehicle safety, quality and reliability.
- support more efficient development of new electric and hybrid vehicles.

The consortium consists of 24 organisations from eight member states. This includes:

- Seven large enterprises, forming the core automotive supply chain team;
- Eight SMEs, bringing a tools and technology supply perspective; and
- Academic and research institutions, all with highly relevant research experience.

The project also includes a Industrial Advisory Board (IAB) to provide a wider industry perspective and allow information sharing with other safety-relevant industries. The IAB includes representatives from aerospace, automotive, industrial control, railway and automotive certification companies.

"We have brought together a formidable team to meet a formidable challenge," says Dr. Helen Finch of Infineon UK, the lead organisation behind *VeTeSS*. "*VeTeSS* will demonstrate the value of developing new standardised tools and methods which can test any new and emerging safety-relevant systems, all under a collaborative framework backed by expertise unmatched anywhere else in the world."

VeTeSS is made possible by funding from the ARTEMIS Joint Undertaking, a pan-European research programme to strengthen Europe's position in embedded intelligence and systems, and national funding authorities.

For more details visit the VeTeSS website: http://vetess.eu

For more information on the ARTEMIS-ITEA 2 Co-Summit: http://www.artemis-ia.eu/cosummit2012_home

The partners involved in the project are:

- Infineon Technologies UK Ltd (UK)
- Infineon Technologies AG (Germany)
- Infineon Technologies Austria AG (Austria)
- Volvo Technology AB (Sweden)
- SP Sveriges Tekniska Forskningsinstitut AB (Sweden)
- Centro Ricerche Fiat SCPA (Italy)
- AVL List GmbH (Austria)
- Technische Universität Wien (Austria)
- NXP Semiconductors Netherlands BV (Netherlands)
- Fraunhofer IIS-EAS Dresden (Germany)
- e-AAM Driveline Systems AB (Sweden)
- Politecnico di Torino (Italy)
- IKV++ Technologies AG (Germany)
- SpringSoft SAS (France)

- TWT GmbH Science and Innovation (Germany)
- The Chancellor, Masters and Scholars of the University Of Oxford (UK)
- Barcelona Supercomputing Center / Centro Nacional de Supercomputacion (Spain)
- exida.com Excellence in Dependable Automation GmbH (Germany)
- QRTECH AB (Sweden)
- Rapita Systems Ltd (UK)
- Catena DSP (Austria)
- Fico-Triad SA (Spain)
- Catena Holding BV (Netherlands)
- Virtual Vehicle Competence Center (Austria)

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