

# EU's INTERESTED project concludes with goals achieved

## Reference tool chain significantly reduces the cost and improves the quality and time-to-market of safety-critical embedded systems in Europe

Elancourt, France and Cheltenham, UK - 6th July 2011. The European Union's three-year INTERESTED (INTERoperable Embedded Systems Tool chain for Enhanced rapid Design, prototyping and code generation) project, funded under the 7th Framework Programme, has come to a successful conclusion with its goals achieved in terms of significantly reducing the cost and improving the quality and time-to-market of safety-critical embedded systems.

The INTERESTED project has created an integrated and open reference tool chain for complex safety and mission-critical embedded systems and software development that is not only highly dependable, safe and efficient but also reduces design and deployment costs by up to 50%. The INTERESTED reference tool chain successfully assimilates tools from leading European embedded tool vendors into three distinct design domains - system and software design, networking and execution platform, and timing and code analysis - covering the full spectrum of embedded systems and software development.

"We are extremely pleased to have brought the INTERESTED project to a highly successful conclusion. It represents a major opportunity to improve the cost, quality and time-to-market of embedded systems in Europe," said Eric Bantegnie, CEO of Esterel Technologies and co-ordinator of the INTERESTED consortium. "It has been a massive effort. The past 12 months alone has seen the completion of 17 integrations between the 11 different tools in the INTERESTED reference tool chain, so far resulting in 14 new product prototypes. This extends from requirements capture down to the actual integration of the code on target, including verification and validation."

The European embedded tool vendors who participated in the INTERESTED consortium included AbsInt Angewandte Informatik (Germany), Atego (UK), Commissariat à l'Énergie Atomique et aux énergies alternatives (France), Esterel Technologies (France), Evidence (Italy), Symtavision (Germany), Sysgo (Germany) and TTTech Computertechnik (Austria).

As an ongoing part of the INTERESTED project, the reference tool chain has also been evaluated and validated by several major European embedded tool users on practical applications against real-world design interoperability and cost-reduction requirements. These industrial partners, including Airbus Operations S.A.S (France), Thales (France), Commissariat à l'Énergie Atomique et aux énergies alternatives (France), and Siemens Mobility Division, Rail Automation (Germany) and Magneti Marelli (Italy) representative of the primary, mission and safety-critical target

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industries, all reported significant productivity improvements.

Airbus Operations S.A.S has estimated that its use of the INTERESTED tool chain resulted in a 48% reduction in overall project effort due mainly to the benefits derived from implementing model-driven processes and automatic code generation, coupled with the ability to guarantee consistency of data exchanged between systems and software teams reduce integration effort and the time needed for rework.

Thales reported that the rigour imposed by the use of model-driven tools compared to freeform alternatives resulted in a 25% reduction in overall project effort, a 10% reduction in the time spent on modeling and a 25% reduction in the number of remarks raised by design reviewers.

Siemens Mobility reduced overall projects costs by 20% but remarked that the INTERESTED tool chain would have reduced them by up to 52% had the tools and techniques not all been new to its process.

Focusing on overall development effort, the Commissariat à l'Énergie Atomique et aux énergies alternatives estimated that, with advanced familiarity of the development tools, initial development costs were reduced by approximately 40% and 69% for on-going maintenance costs.

Magneti Marelli stated that, with 70% of rework relating to changes or issues in the architecture design, a 50% time saving, and possibly more, could be made by applying the INTERESTED tool chain. The adoption of a model-based design architecture, together with systematic timing analysis, saved one person-year effort in verifying functionality and responding to change requests.

"The INTERESTED project successfully met its objective of delivering substantial savings in overall project costs as evidenced by the industrial evaluations," said Hedley Apperly Atego's Vice-President of Product and Marketing and the marketing spokesperson for the INTERESTED consortium. "The INTERESTED tool chain more than meets the requirements of major European companies across a broad spectrum of industries whose worldwide leadership position increasingly depends on reducing the cost of developing complex embedded systems and software. We are fully productizing the integrations we have developed as part of the project, as will all the other tool vendors involved in the consortium."

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