

European project “DREAMS” on the verge of successful completion

Mixed-criticality systems offer tremendous economic benefits by reducing the number of computers and cables, thus reducing maintenance and installation efforts, hardware cost, weight, size and energy consumption. The FP7-ICT integrated project DREAMS (Distributed REal-time Architecture for Mixed criticality Systems), which started in October 2013, develops an architecture, a reference platform and a model-driven engineering methodology and toolchain for mixed-criticality systems in different application areas (e.g., avionics, wind turbine and health-care). However, the outcomes of the project can be extended to other relevant domains, such as automotive, railway, industry, etc.

The DREAMS project has successfully completed the assessment phase, which addresses the evaluation of the project technological building blocks with respect to industry requirements and key performance indicators. The final DREAMS platform (the Xilinx ZYNQ-7000 All Programmable System-on-Chip ZC706 Evaluation Kit) and the extensions (an x86 dual core Juno board, a Freescale T4240 PowerPC platform and an ARMv8 JUNO platform) have been evaluated in the three industrial use cases. In the avionic use case, the flight management, the display management and the sensor data provision sub-systems have been assessed. In the healthcare demonstrator, real-time performance characteristics and scalability of clinical processes for monitoring the health status of patients in hospital scenarios have been improved. Meanwhile, supervision, control, protection and human-machine interface sub-systems have been combined and tested in the wind turbine use case.

In addition to the technical work, three major dissemination activities are carried out during the last period of this four-year project. First, the outcomes of the project are being captured in a book manuscript, which will be published by the CRC press. Next, the project results and background concepts will be presented to students during a four-day summer school, where, talks and hands-on sessions on different mixed-criticality topics will be carried out every single day. Finally, the DREAMS success stories along with the demo sessions on the demonstrator use-cases will be presented during the final DREAMS workshop. The summer-school and the final workshop take place in Valencia, Spain, from Sept. 25th to 29th.

The DREAMS consortium is now finalizing the assessment documentation of the industrial demonstrations and the documentation of the non-technical activities to be presented in the upcoming final review meeting in November 2017 in Brussels.

Further information is available on the project website (<http://www.dreams-project.eu>) and the website of the mixed-criticality forum (<http://www.mixedcriticalityforum.org>). DREAMS is part of the European Commission’s Mixed-Criticality-Cluster (MCC) together with SAFEPOWER and SAFE4RAIL H2020 projects.