MASTECS Project: Enabling the use of Multicore processors in aerospace and automotive domains with the first certification ready timing analysis solution

14 January 2020, Barcelona - Launched on 1 December 2019, the Multicore Analysis Service and Tools for Embedded Critical Systems (MASTECS) Fast Track to Innovation (FTI) project aims to develop validation technology to be used in the safety-critical embedded software industry. Specifically, this technology will support the production of evidence of the timing behaviour of software running on multicore systems. MASTECS's focus will primarily be on the avionics and automotive sectors, where the use of multicore processors is required to support increasingly complex software-controlled functionalities.

The MASTECS approach builds on the Barcelona Supercomputing Center's (BSC) Multicore microbenchmark technology (MµBT) and the Rapita Verification Suite (RVS), developed by Rapita Systems. These technologies have already been integrated into a TRL6 Multicore Timing Solution (MTS), which is currently being deployed in several commercial pilot studies with aerospace and automotive tier 1 suppliers. MASTECS aims to increase the TRL of the MTS from TRL6 to TRL8 by improving automation, certification, and qualification aspects. Case studies in the automotive (Marelli Europe) and avionics (United Technologies Research Centre Ireland - UTRC Ireland) domains will provide evidence on the industrial applicability and on the effectiveness of the developed MTS technology.

The technology delivered as part of MASTECS will be commercialised in the emerging market of autonomous systems. This technology will provide solutions for the automation of testing and the verification of the software's execution times in multicore processors, following avionics and automotive regulations and safety standards (DO-178C (CAST-32A) and ISO 26262).

Francisco J. Cazorla, leader of the CAOS group at BSC and coordinator of MASTECS, mentions that: "Having MASTECS accepted in such a competitive call like FTI has been a success to us and will boost the adoption of MASTECS's multicore timing analysis technology and tools in the aerospace and automotive domains."

About MASTECS

MASTECS is a Fast Track to Innovation (FTI) project, kicked-off on 1 December 2019, and will run for two years. It benefits from a €2.5 million budget, of which €1.99 million is directly funded by the European Union. In order to reach its goals, MASTECS brings together four EU partners: BSC (Spain), as coordinator and expert on multicore hardware and Rapita Systems (United Kingdom), as provider of a consolidated on-target verification toolsuite. Marelli Europe (Italy) and UTRC (Ireland) will contribute with representative use cases and domain-specific qualification and certification requirements, which are necessary to steer the project towards industrial requirements and to assess the feasibility of the proposed solutions.

Further information

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