

[Inici](#) > SORS: Hardware/Software solutions to enable the use of high-performance processors in the most stringent safety-critical systems

SORS: Hardware/Software solutions to enable the use of high-performance processors in the most stringent safety-critical systems

Objectives

Abstract: Future Safety-Critical Systems require a boost in guaranteed performance in order to satisfy the increasing performance demands of the state-of-the-art complex software features. Traditional single-core systems cannot match the levels of performance required. An approach to achieve this performance requirement is the usage of High-Performance Computing (HPC) components which can deliver more computation power than current safety-critical components. However, the dependability support of these HPC components is not the same as the safety-critical components, so HPC components can jeopardize the functional safety of the entire system, especially since some of the highest-criticality functionalities may be executed entirely on top of these components (e.g., neural networks in a Graphical Processing Unit (GPU)). Based on the safety requirements of performance-hungry critical applications, such as those for an autonomous operation, these HPC components must comply with the highest criticality levels, hence including the required dependability support. In this presentation, we are going to cover some of the work we have done toward adding dependability support and safety features that can ease the verification and validation processes of different HPC components that have been included as part of the SELENE and FRACTAL projects.

Short bio: Sergi Alcaide holds degrees of BS in Computer Engineering (2016) and MS in Innovation and Research in Informatics (2018) from Universitat Politècnica de Catalunya and is finishing his Ph.D. Sergi Alcaide is a senior researcher at Barcelona Supercomputing Center (BSC) in the CAOS group from the Computer Science department. He is currently involved in European projects related to safety-critical systems and functional safety, such as NimbleAI (BSC technical lead), FRACTAL, and SELENE.

Speakers

Speaker: Sergi Alcaide, Operating System / Computer Architecture Interface Junior Research Engineer, CS, BSC

Host: Leonidas Kosmidis, Operating System / Computer Architecture Interface Senior Researcher, CS, BSC

Barcelona Supercomputing Center - Centro Nacional de Supercomputación

Source URL (retrieved on 7 ago 2024 - 08:44): <https://www.bsc.es/ca/research-and-development/research-seminars/sors-hardwaresoftware-solutions-enable-the-use-high-performance-processors-the-most-stringent-safety>