

EESI2: European Exascale Software Initiative 2 - Towards Exascale roadmap implementation

Description

The use of High Performance Computing (HPC) is commonly recognized a key strategic element both in research and industry for an improvement of the understanding of complex phenomena. The constant growth of generated data -Big Data- and computing capabilities of extreme systems lead to a new generation of computers composed of millions of heterogeneous cores which will provide Exaflop performances in 2020. Such hardware architectures lead to outstanding technological breakthrough possibilities in computations but also to outstanding software challenges.

In front of this challenge, the international community has launched various programs and organizations. In US this has been done through some funding programs such as the Ubiquitous High Performance Computing program and the co-design centre call. The International Exascale Software Project (IESP) had the goal to build a US and international roadmap. In Europe, the EU PRACE project, which is preparing the tier-0 level of the European HPC ecosystem, has been implemented.

The successful first European Exascale Software Initiative (EESI1) federated the European community, built a preliminary European cartography, vision and roadmap and stated as the European voice at international level. However, it is necessary to go one step further towards implementation, by establishing a European structure to gather the European community, by providing periodically cartography and roadmaps and dynamic synthesis and recommendations in (i) defining and following up concrete impacts of R&D projects, (ii) detecting disruptive technologies (iii) addressing cross cutting issues in numerical processing and software engineering, (iiii) developing gap analysis methodology towards Exascale roadmap implementation. Overall, to achieve Exascale targets, international collaboration need to be explored and a more dynamical structure must be implemented.

Barcelona Supercomputing Center - Centro Nacional de Supercomputación

Source URL (retrieved on 11 set 2024 - 08:01): <https://www.bsc.es/ca/research-and-development/projects/eesi2-european-exascale-software-initiative-2-towards-exascale>