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## **OHARD2MK: IDENTIFICACIÓ DELS RESULTATS DE MAQUINARI OBERT, BASAT EN TECNOLOGIA RISC-V, DEL GRUP DE RECERCA D'ARQUITECTURA DE COMPUTADORS, PER PORTAR LA TECNOLOGIA RISC-V AL MERCAT**

### **Description**

Europe is staying behind in a world where the capabilities to develop new technological applications form a new pillar of international interaction strategies. Thus, critical hardware solutions for European industrial production depend on imports from Asia and the US, where significant investments in open-source technologies have become strategic industrial movements. The development of these strategies in Europe allows for improvements in three main relevant areas:

1. Regionally fostering the generation of digital components through Open-Source Hardware (OSHW) will lower the entry barriers of these technologies to European scientific institutions and industrial sectors. These technical advances will enable significant breakthroughs in scientific environments and corporate innovation processes currently applying HPC (High-Performance Computing).
2. Such strategies will have a geo-strategic specific impact, marketwise; they will allow European-made products to decrease their dependence on foreign products, allowing for more efficient and stable industries.
3. And finally, fostering technological developments in the different HPC components aims to attain low-energy consumption objectives and increased safety and reliability, which reduces the environmental impact of using these technologies and increases automation, hence enabling safer and more prosperous services.

BSC will contribute to the development of Hardware solutions for the stakeholders that will lead this massive effort to provide Europe with technical components. Firstly, for the next generation of Safety-Critical Systems, which are already a focus point for mobility-related industries (e.g. automotive, aerospace and railways). Secondly, focusing on further developments of hardware technologies that will be able to present practical applications for broader market sectors.

These components are based on RISC-V, the Open-Source Hardware, free access, and open standard instruction set (which enables control of the hardware by the software) that has been emerging as one of the pillars of this paradigm change.

This grant will bring the opportunity to identify the commercial potential for new open hardware technologies. This strategy will firstly comprise the CAOS (Computer Architecture Operating Systems) Research Group and the results of their project SELENE and then escalate globally to scientific results based on Hardware Solutions inside BSC, to set the basic lines to better protect this research projects results, and

foster the launch to market of this technologies

Barcelona Supercomputing Center - Centro Nacional de Supercomputación

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