

JSC HPC in Latin America Workshop



Wednesday, 19 July 2023 - Thursday, 20 July 2023

JSC

Agenda

Wednesday, July 19, 13:00 - 17:00

Welcome and Introduction to the RISC2 Project

Bernd Mohr

Argentina

Esteban Mocskos

HPC and Blockchain: Oil and Water?

Blockchain-based systems are attractive examples of large-scale distributed systems. Blockchain is a data structure to maintain information ensuring the immutability of its contents.

This structure is the core technology that supports Bitcoin, the first cryptocurrency which solved the double spending problem, i.e., not using the same money two times.

In these kinds of systems, with no central entity regulating its working and a scale that expands to thousands of nodes, to study their behavior and limitations, you can not escape using High-Performance Computing.

In this talk, I will show some of the challenges related to these topics and how HPC can help in this field.

Columbia

Carlos Jaime Barrios Hernández

SCALAC: Advanced Computing System for Latin America and Caribe

SCALAC, the Advanced Computing System for Latin America and the Caribbean (<https://scalac.redclara.net>) is a continental collaboration of high-performance and scientific computing centers, HPC laboratories of universities, and researchers from Latin America and Caribe countries. SCALAC joins infrastructure, platforms, applications, training, and consulting capabilities for research, development and innovation, with a strategic partnership with RedCLARA (Latin American Academic Advanced Technologies Network <https://www.redclara.net>). This talk shows how as a consortium, SCALAC supports and promotes intercontinental and global collaboration for continental needs in research and development.

Costa Rica

Esteban Meneses

Portability and Productivity in Plasma Physics Simulations

This talk will present preliminary results of an ongoing research collaboration between the National High Technology Center in Costa Rica and the Max Planck Computing and Data Facility in Germany. That collaboration aims at exploring available HPC tools for portability and productivity to understand their impact on plasma physics codes. The first part of the talk presents experimental results with the GPU offloading capability of OpenMP applied to a field-line tracing simulation. The second part offers some insights on how well task-parallel tools address the load imbalance of a particle-in-cell code.

Elvis Rojas

Research Experiences in Europe and Current Work

In the presentation, two investigations carried out in Europe will be presented. The first is related to a fault tolerance mechanism called checkpoint applied in deep learning and the second related to noise-sensitivity performance analysis of deep learning applications. Finally, a description of the latest research carried out will be presented. In this research, it was analyzed how Silent Data Corruption (SDC) can affect distributed deep learning applications that run in a distributed manner.

Thursday, July 20, 9:00 - 12:00

Discussion Future Collaborations