The ERC funded project RoMoL presents its main achievements

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The Riding on Moore's Law (RoMoL) project has presented its conclusions at the final Workshop of the project that brought together the best computer architects to Barcelona. RoMoL is a 5-year project funded by an ERC Advanced Grant awarded to Prof. Mateo Valero, BSC Director, and involved research in microarchitecture, runtime systems, compilers and programming languages. The RoMoL project has introduced the novel concept of Runtime-Aware Architectures (RAA), a massively parallel architecture designed from the perspective of the runtime of parallel programming models. This approach towards parallel architectures offers a single solution that could solve most of the problems we encounter in the current approaches: handling parallelism, the memory wall, the power wall, the programmability wall, and the upcoming reliability wall in a wide range of application domains from mobile up to supercomputers.
On March 19 and 20 2018, some of the top researchers in computer architecture converged in Barcelona to participate at the final Workshop of the RoMoL project. During the first day of the workshop, the main achievements of the RoMoL project were presented to a Technical Advisory Board composed of internationally recognized researchers in the field of computer architecture. These distinguished researchers and industry representatives in the field of computer sciences have collaborated or been in contact with BSC, UPC, the FIB’s Computer Architecture department, and the former CEPBA. Mateo Valero, Principal Investigator of the RoMoL project, started the workshop with a technical overview of the project. Jesus Labarta, director of the Computer Sciences department, presented the OmpSs programming model that originated the idea of runtime-aware architectures. Senior Researchers Marc Casas and Miquel Moreto presented the main contributions on runtime-aware architectures during the 5 years of the project, while three contributions were presented in detail after lunch. Finally, a poster session with posters from all the RoMoL students was held.

During the second day of the workshop, multiple invited talks by international researchers were presented. Conference sessions centred on topics such as computer architecture, runtime systems, artificial intelligence and HPC enabled discussions on how to achieve strengthened co-operation and exploit co-design opportunities between the runtime system and the underlying hardware.

At the end of the workshop, the Technical Advisory Board had a private meeting to assess on the quality of the RoMoL contributions. In this end-of-project evaluation report, the Technical Advisory Board acknowledged the quality and importance of the technical accomplishments of the project and the new avenues of research that the RoMoL project has opened. According to these experts, the project publication list is truly impressive, including top venues in the fields of supercomputing, computer architecture, and parallel programming, including: ISCA’15, ISCA’16, HPCA’15, HPCA’18, ICS’15, ICS’16, ICS’17, SC’15, SC’16, PACT’15, PACT’16, IPDPS’16, IPDPS’17, IEEE Trans. Comput.’16, IEEE Trans. Parallel Distrib. Syst.’17, IEEE Trans. Parallel Distrib. Syst.’18. As a conclusion, the Technical Advisory Board was impressed by the results obtained in the RoMoL project and encouraged BSC to continue the novel research lines opened in this project.

See more photos here.

More information about RoMoL here.

More information about Mateo Valero here.
The ERC-funded project ROMOL presents its main achievements