

BSC at ISC'15

The conference took place from 12 to 16 July in Frankfurt, Germany.



The [ISC High Performance conference](#) is famous for its world-class program, with over 300 academia and industry leaders tackling the most important issues of supercomputing, industry innovation and new technologies. The conference will take place from 12 to 16 July in Frankfurt, Germany.

Jesús Labarta, Director of the Computer Sciences department at BSC, will talk about [Resource Management & the NANOS Runtime](#) which will take place on Monday, July 13, from 2:40 pm to 3:00 pm

Sergi Girona, Director of the Operation department at BSC and PRACE chair of the Board of Directors, will give the talk [EXDCI: European eXtreme Data & Computing Initiative](#) which will take place on Monday, July 13.

[ETP4HPC](#) will be present at the ISC15 with the [BoF 07: Update on European HPC Ecosystem Development](#), organized by Marcin Ostasz, Business Analyst at BSC.

This year ISC incorporates newly-introduced workshops in its programme on Thursday, July 16th. The idea is to provide a focused, in-depth platform for presentations, discussion and interaction in a particular subject area. BSC will participate and give two workshops:

- ["Is Europe Ready For Exascale? A Summary of Four Years of European Exascale Research"](#) with Filippo Mantovani presenting the latest results from the outcome of Mont-Blanc project
- [PRACE Training Day](#) with Nia Alexandrov from the Education area as one of the organizers and with the presentation titled [PATC Curriculum & Links with Universities](#) given by María-Ribera Sancho, Responsible of Academic BSC Programs.

A group of six undergraduate students from [Barcelona School of Informatics](#) (Universitat Politècnica de Catalunya - Barcelona Tech) involved in the Mont-Blanc project will take part in the [4th HPCAC-ISC Student Cluster Competition](#). The competition is an opportunity to showcase student expertise in a friendly yet spirited competition. The so-called [Mont-Blanc climbers team](#) will be the first Spanish team to have the opportunity to demonstrate their skills in setting up and administrating an ARM-based HPC cluster within the established power limit of 3000W. They will also demonstrate their skills in optimizing the benchmarks and applications for that specific architecture. Interested in meeting the team? Come and meet them at booth #422 of the Student Cluster or at the joint European Exascale Projects, at booth #634. Further information [here](#).

For any additional information, please do not hesitate to visit us at the Barcelona Supercomputing Center booth, number **#1202**, during the exhibition and we will be happy to answer any questions you might have.



Barcelona Supercomputing Center

SCIENTIFICS

Efficient and productive programming

StarSs

- Productive parallelization
- Easy to use
- High performance
- Supports OpenMP, MPI, and other parallel programming models

COMPSS

- Supports Java, Python and C++
- Integration with parallel OpenMP and MPI
- Supports multi-scale and multi-resolution simulations
- Supports multi-physics and multi-domain simulations

OmpSs

- Supports OpenMP and MPI
- Supports multi-scale and multi-resolution simulations
- Supports multi-physics and multi-domain simulations

Performance analysis

- Real-time performance analysis
- Supports OpenMP, MPI, and other parallel programming models

Earth Sciences

- Supports multi-scale and multi-resolution simulations
- Supports multi-physics and multi-domain simulations

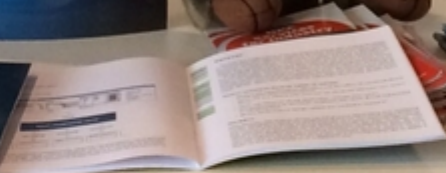
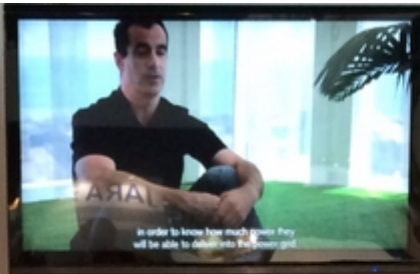
Physics and Engineering

- Supports multi-scale and multi-resolution simulations
- Supports multi-physics and multi-domain simulations

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The booth features a white table with a laptop displaying the BSC logo and a monitor showing a 3D visualization of a supercomputing facility. Two men in blue BSC polo shirts are standing behind the table. A woman in a red shirt is seated at the table to the left. A sign on the table reads "ALL NEW MEMBER OF THE UNICORE ECOSYSTEM". A rack to the right holds several brochures, including one for "MOSTRAE". The booth is decorated with BSC branding and a large image of the supercomputing center's interior.

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Barcelona Supercomputing Center





Efficient and productive programming

Productive parallelization

- Efficient utilization of user's local hardware through address-space sharing
- User-transparent parallelization
- Efficient data distribution and load balancing
- Scalable optimizations to hardware users

SLURM

COMPSs
PyCOMPSs

OmpSs

- Support to Java, Python and C/C++
- Integration with persistent object storage and non-relational databases
- Leveraging web services in the Cloud and in the GPU
- Interoperability with public/private Cloud infrastructures

- Multi-tier multi-core, GPU, J and other clusters
- Heterogeneity
- Interoperability with MPI, Dynamic load balancing

Integration with public/private Cloud infrastructures

Open source distribution: <https://on.bsc.es>

Performance Analytics

From monitored data to insight

Life Sciences

- Genomics
- Protein structure
- Drug discovery

Earth Sciences

- Computational earth science
- Data mining and analysis

Infrastructure and Support

- Infrastructure and Support



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