Welcome to the coordinators

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Besides the activities related to the project, we had an extremely positive impression by the second ARM HPC User Group Meeting, held on Mon 14th November 2016 in conjunction to SC16 conference. Compared to the first edition, this year's edition had a larger audience and a much broader coverage of topics ranging from ARM based hardware platforms for HPC, to professional development tools announced by ARM. User experiences have also been greatly taken into account including contributions from datacentres (RIKEN, Hartree and JSC) and educational institutions (BSC and MIT).

It has been a reinvigorating confirmation of the exciting feelings also present at the ARM Research Summit in September in Cambridge, UK, the first edition of an event dedicated to the academic research enabled by ARM technology where our project has also been represented with two contributions.

Following the same spirit, we remind readers that registration is open for the event “ARM: On the road to HPC” that will take place in Barcelona, Spain on 16th-17th January 2017 (see article) and we would like to take this occasion to invite all scientists and technicains following our project to our next tutorial “Scientific Computing on ARM-based Platforms” that will take place on 24th January 2017 within the HiPEAC Conference in Stockholm, Sweden. It will be a fantastic opportunity to test your codes on real ARM-based platforms, using professional productivity tools assisted by project’s experts in the room sitting side-by-side with you. We see this as a valuable opportunity for us to show the results of our project translated into reality. Check out the programme and register here.

We hope to meet all of you in one of our upcoming events, and we wish you all a relaxing Christmas break and happy holidays.

Filippo Mantovani & Etienne Walter, Mont-Blanc Coordinators

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Mont-Blanc at SC16 in Salt Lake City

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Read full article

ARM: ON THE ROAD TO HPC

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The Spanish team selected at the ISC-HPCAC Student Cluster Competition 2017

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Mont-Blanc collaborates with...

Highlighted project: SAGE (StorAGe for Exascale data centric computing)

The SAGE project tasks itself with building a data centric infrastructure for handling extreme data in the Exascale/Exabyte era centred on a storage-oriented solution, ‘Percipient Storage’.

Percipient Storage is an advanced object based storage solution, with a very flexible new API enabling applications to achieve Exascale I/O loads exploiting deep I/O hierarchies. The solution will have the capability to run computations on data from any tier – with a homogenous view of data throughout the stack. The SAGE Project incorporates co-design, with Extreme Computing I/O and Data Intensive Science use cases, in a variety of domains including physics, space sciences, meteorology, genetics and biology. The ultimate ambition of the SAGE platform is to lead to more efficient science and HPDA (High Performance Data Analytics) for industry and commercial applications. SAGE recently published a substantive White Paper—Data Storage for Extreme Scale. It outlines technical details of progress to date and architectural plans moving forward.

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From 13th-18th November, 2016, a large part of the HPC community was gathered in Salt Lake City, Utah for the 29th edition of the SC Conference.

This year, 11,000-plus visitors, participants and volunteers from 65 countries took part in the four-day expo and the six-day technical program.

Mont-Blanc was featured on the EXDCI booth along with the other European HPC projects, and in the Bird-of-a-Feather session co-organized by ETP4HPC and EXDCI “European Exascale Projects and Their International Collaboration Potential”. This BOF drew over 130 attendees. It included an overview of the European HPC ecosystem, as well as a summary of matching developments in the US and Japan. This was followed by a lively panel discussion, involving in particular Mont-Blanc partners Bull (Jean-Pierre Panzieria), BSC (Jesús Labarta) and ARM (Eric Van Hensbergen).

The Mont-Blanc project was well represented in the SC16 Technical Programme, with four accepted papers – a great achievement as the paper acceptance rate at SC16 is only 18.3%! Furthermore, Mont-Blanc partners were also invited to a technical BoF session.

Nikola Rajovic (BSC) presented the Mont-Blanc prototype, its system architecture, and an evaluation including both performance and energy efficiency in “The Mont-Blanc Prototype: An Alternative Approach for HPC Systems”. This paper was one of the seven Best Paper Finalists. Watch Nikola’s testimony>>

Thomas Grass (BSC) showed how an advanced simulation infrastructure, called MUSA, developed with the Mont-Blanc project can help system designers assess the usefulness of future technologies in next-generation HPC machines (“MUSA: A Multi-Level Simulation Approach for Next-Generation HPC Machines”).

Leonardo Bautista-Gomez (BSC) presented “Unprotected Computing: A Large-Scale Study of DRAM Raw Error Rate on a Supercomputer”, a detailed study of memory errors gathered on the Mont-Blanc prototype, a great platform for addressing issues related to unprotected memory at scale and deriving recommendations to help design more reliable systems in the future.

In “HPC Benchmarking: Problem size Matters” at the PMBS16 Workshop, HLRS (Vladimir Marjanović/Jose Gracia) examined the single benchmarks currently used or proposed for ranking supercomputers, and suggested more significant alternatives. Finally, the same team was invited by the Lawrence Berkeley National Laboratory to take part in their BoF “High Performance Geometric Multigrid (HPGMG): an HPC Performance Benchmark”, where Vladimir Marjanović presented “Communication and Vectorization within HPGMG”.

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The aim is to promote and encourage the exchange of experiences and knowledge among all the major players that contributes to make ARM-based scientific computing a reality. If you are an ARM SoC manufacturers, integrators and providers or an End-Users of ARM-based system, as well as an academic or research entities, this is the opportunity for you to network and get the latest updates on these kind of systems. Check out the programme and register now!

"The Mont-Blanc project has always had a sweet spot in the HPC landscape, significantly contributing to research and technology development. This event will be an excellent opportunity to discuss about the characteristics of the processors from Intel, IBM, Nvidia, ARM, etc. that will be the base for the supercomputers of the future." says Mateo Valero, BSC director.
The Spanish team selected at the ISC-HPCAC Student Cluster Competition 2017

The Spanish team from the Universitat Politècnica de Catalunya. Barcelona Tech (UPC) will compete for the third time at the sixth ISC-HPCAC Student Cluster Competition, that will be organized during the ISC17 conference from June 19–21, 2017 in Frankfurt, Germany. The purpose of this friendly and spirited competition is to introduce the next generation of students to the HPC community and its technology.

The UPC team will compete jointly with a total of 12 student teams from all over the world, over a three-day period on the ISC Exhibition floor. The Mont-Blanc project, and especially BSC and ARM, will also support the team this year, by providing training, hardware and software support and a good dose of adrenaline for competing with cutting edge ARM based architectures.

This year’s Spanish team, with Filippo Mantovani and Daniel Ruiz as Advisors, is formed by the following UPC students: Antoni Navarro, Carles Garriga, Fabio Banchelli, Ferran Pallarès, Marc Benito, Víctor Antón.

“Working in contact with young minds is at the same time inspiring and challenging. Every year is a new exciting adventure with a sweet ratio of social and technical challenges in front of us. Above all Daniel and myself are glad that two former SCC students (Liz and Ying) volunteered this year for helping in the preparation of the competition: we really hope that this represents a sign of the SCC experience starting taking roots at UPC,” says Filippo Mantovani, Advisor of the UPC Spanish team.

Last year the Spanish team ‘Thunderstruck’, was named Fan favourite. The award is given to the most “liked” team voted via an online poll to which ISC visitors participate during the Student Cluster Competition.