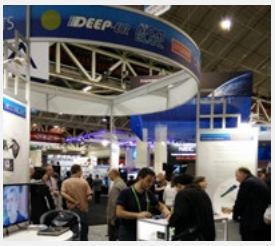
MONT-BLANC

Newsletter December 2014

EUROPEAN APPROACH TOWARDS ENERGY EFFICIENT HIGH PERFORMANCE COMPUTING

Mont-Blanc at the SC14, New Orleans



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Read full article

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Read full article

Some Mont-Blanc prototype nodes available

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Mont-Blanc collaborates with...

EXascale Algorithms and Advanced Computational Techniques

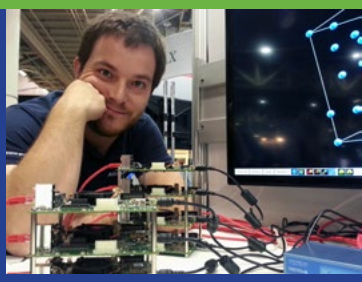
The EXA2CT European project brings together experts at the cutting edge of the development of solvers, related algorithmic techniques, and HPC software architects for programming models and communication.

EXA2CT will

- Discover solver algorithms that can scale to the huge numbers of nodes at exascale.
- Develop an exascale programming model that is usable by application developers.
- Offer these developments to the wider community in open-source proto-applications, to enable exascale machine/software co-design and a basis for exascale applications.

These proto applications will be disseminated to the reference application owners through a scientific and industrial board (SIB) to help generate momentum behind our approach. Do you have a scientific application and want to be involved? Contact us via www.exa2ct.eu.

Welcome



Welcome to the sixth edition of the Mont-Blanc Newsletter, which we bring you full of inspiration following the Supercomputing 2014 (SC14) conference in New Orleans.

The SC14 exhibition featured at least five mini-clusters composed of development kits based on commodity embedded technology, in "Mont-Blanc style". A not insignificant number of companies, among the crème de la crème of high-performance computing (HPC), announced forthcoming products integrating ARM IPs. It was a great feeling to walk round the exhibition area and see Mont-Blanc ideas germinating in so many different ways.

Mont-Blanc was represented at SC14 at the European Exascale booth, the area shared by the EU projects taking on Exascale challenges: CRESTA, DEEP/DEEP-ER, Exa2CT and Epigram. This was the setting for our presentation of project results: as well as the loyal Mont-Blanc blade with 15 node-cards, we displayed a mini-cluster of seven NVIDIA Jetson boards demonstrating Mont-Blanc and BSC application demos. As it turned out, our small stack of boards aroused the curiosity of many visitors and I would like to thank them once again for stopping by our booth.

In the meantime, on the other side of the ocean, project activities progressed successfully. I am proud to announce that during the first week of November the first 135 Mont-Blanc prototype nodes were deployed at BSC. This is the first step towards the final installation of the Mont-Blanc prototype which will take place during the first weeks of 2015 and which will include more than 1000 computational nodes.

I am pleased to announce that six young UPC/BSC students have been selected to participate in the upcoming Student Cluster Competition at the ISC15 conference with Mont-Blanc hardware equipment. This is the first time that a Spanish team has been selected to compete at the ISC conference, which next year will be held in July 2015 in Frankfurt (Germany). They will try to solve the competition's challenges using our prototype, with the sponsorship of ARM, Bull, BSC and UPC and, of course, all our support. As three of these students are based at BSC and members of my working group, I would like to take this occasion to thank them for their hard work, commitment and belief in this adventure. We'll be looking forward to see the team at work in Frankfurt – best of luck!

It just remains for me to thank you for your continued support, as well as to wish you a happy, relaxing holiday and an exciting start to 2015.

Filippo Mantovani, Mont-Blanc Coordinator

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement n° 288777 and 610402.

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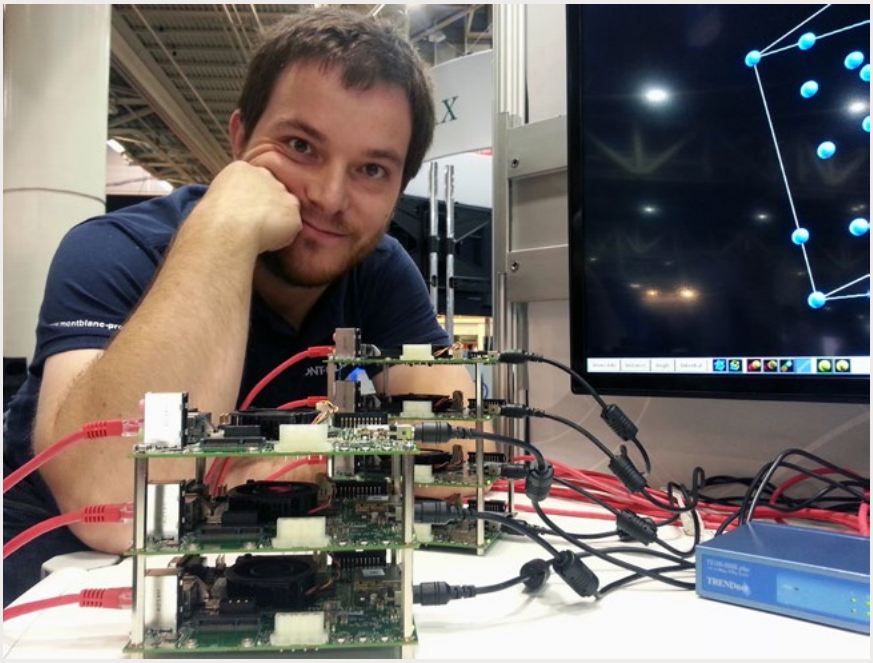

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Mont-Blanc Coordinator

Mont-Blanc at the SC14, New Orleans

For more than two decades, the SC Conference has been the place to build and share the innovations that are making life-changing discoveries possible. During this year's conference, held in New Orleans from 16-22 November 2014, the Mont-Blanc project shared its booth space with the other European Exascale projects. The Mont-Blanc prototype blade was displayed along with other project hardware, attracting considerable attention from attendees. A scientific application developed as part of the project was also demonstrated during the exhibition.

In parallel, Mont-Blanc partner Simon McIntosh-Smith (University of Bristol) participate at the "OpenCL: A Hands-On Introduction" tutorial and the Birds-of-Feather (BoF) session titled "OpenCL: Version 2.0 and Beyond". Both the tutorial and the BoF session were well attended and generated lots of interesting discussion, with talks from Codeplay about SPIR and from AMD about SYCL.

Want to see more? Have a look at the videos filmed at the booth during the SC14 exhibition:

- Mont-Blanc at SC14, episode I
- Mont-Blanc at SC14, episode II

Mont-Blanc is taking part in the HPCAC-ISC 2015 Student Cluster Challenge

A group of six undergraduate students from Barcelona School of Informatics (Universitat Politècnica de Catalunya - Barcelona Tech) involved in the Mont-Blanc project has been selected to take part in the 4th HPCAC-ISC Student Cluster Competition. The competition will take place at ISC 2015 and is an opportunity to showcase student expertise in a friendly yet spirited competition. In real time, a total of 11 teams of undergraduate students will build a small cluster of their own design on the ISC 2015 exhibit floor and race to demonstrate the best performance across a series of benchmarks and applications. The competition will conclude with a ceremony on the main conference stage to recognize participants in front of thousands of HPC luminaries.

The so-called *ARMaggedon team*, headed by Filippo Mantovani, coordinator of the Mont-Blanc project, 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. "We will be the first team to use the ARM architecture in this competition. We know that it is a challenge but we are eager to demonstrate both our skills and the potential of an ARM-based cluster", says Luna Backes, a resident student at Barcelona Supercomputing Center who is heavily involved in the Mont-Blanc project and the leader of the *ARMaggedon team*.

The *ARMaggedon team* is formed by the following students.

Luna Backes
Josep Oriol Vilarrubi
Dani Ruiz
Miquel Vidal
Xavier Yepes
Marc Josep

For more information about the *ARMaggedon team*, have a look at the following video:
http://youtu.be/pOZrVxFjteE

Some Mont-Blanc prototype nodes available

In November, a selection of Mont-Blanc prototype nodes arrived at BSC, which are now available now. The full set of hardware will arrive from BULL in January 2015. BSC has prepared documentation explaining how to access this cluster, which can be viewed on the following web page:

https://wiki.hca.bsc.es/wiki/MontBlanc

For further information about the procedure, please send an email to hca.sysadmin@bsc.es.