MONT-BLANC

Under embargo until Thursday 14th at 12pm CET.

First Mont-Blanc Compute Cards: 3.5 Times Higher Performance for Half the Energy

- First Mont-Blanc prototype test units will be presented during the SC13 conference
- Mont-Blanc compute cards deliver significant performance improvements while consuming up to 50% less energy than previous ARM-based platforms
- Mont-Blanc project will continue with European Commission support until 2016

Denver, November 14th, 2013 - The first test units of the Mont-Blanc prototype are presented at the SC13 conference held in Denver, USA. The Mont-Blanc compute cards deliver considerably higher performance; at 50% lower energy consumption, compared with previous ARM-based developer platforms.

The Mont-Blanc prototype is based on the Samsung Exynos 5 Dual SoC, which integrates a dual-core ARM Cortex-A15 and an on-chip ARM Mali-T604 GPU, and has been featured and market proven in advanced mobile devices. The dual-core ARM Cortex-A15 delivers twice the performance of the quad-core ARM Cortex-A9, used in the previous generation of ARM-based prototype, whilst consuming 20% less energy for the same workload. Furthermore, the on-chip ARM Mali-T604 GPU provides 3.5 times higher performance than the dual-core Cortex-A15, whilst consuming half the energy for the same workload.

Each Mont-Blanc compute card integrates one Samsung Exynos 5 Dual SoC, 4 GB of DDR3-1600 DRAM, a microSD slot for local storage and a 1 GbE NIC, all in an 85x56mm card (3.3x2.2 inches). A single Mont-Blanc blade integrates fifteen Mont-Blanc compute cards and a 1 GbE crossbar switch, which is connected to the rest of the system via two 10 GbE links. Nine Mont-Blanc blades fit into a standard BullX 9-blade INCA chassis. A complete Mont-Blanc rack hosts up to six such chassis, providing a total of 1620 ARM Cortex-A15 cores and 810 on-chip ARM Mali-T604 GPU accelerators, delivering 26 TFLOPS of peak performance.

"We are only scratching the surface of the Mont-Blanc potential", says Alex Ramirez, coordinator of the Mont-Blanc project. "There is still room for improvement in our OpenCL algorithms, and for optimizations, such as executing on both the CPU and GPU simultaneously, or overlapping MPI communication with computation."

Since October 2011, the aim of the Mont-Blanc project has been to design a new type of computer architecture capable of setting future global HPC standards, built from

energy efficient solutions used in embedded and mobile devices. The European Commission has recently granted an additional 8 million Euro funds to extend the Mont-Blanc project activities until 2016. This will enable further development of the OmpSs parallel programming model to automatically exploit multiple cluster nodes, transparent application check pointing for fault tolerance, support for ARMv8 64-bit processors, and the initial design of the Mont-Blanc Exascale architecture. Several new partners are joining this second phase of the Mont-Blanc project, including Allinea, STMicroelectronics, Inria, University of Bristol, and University of Stuttgart.

Visit us in booth #3741 to see sample units of the Mont-Blanc hardware, and demos of HPC applications running on them. The project will also be present with some demos at the new area dedicated to Emerging Technologies in booth #3547.

About the Mont-Blanc project

The Mont-Blanc project, partially funded by the European Commission's Seventh Framework Programme (FP7/2007-2013 under grant agreement n° 288777 and 610402) with over 16 million Euros until October 2016, brings together leading European technology companies such as Bull, ARM, ST Microelectronics and Allinea; some of the most important supercomputing centers in Europe: JSC, LRZ, and HLRS (Germany), GENCI (France), CINECA (Italy) and BSC (Spain); and leading academic partners like CEA, CNRS, Inria, the University of Bristol and University of Stuttgart. More information on page www.montblanc-project.eu

Press contacts

Barcelona Supercomputing Center
Renata Giménez-Binder
Tel: (+34) 93 4015864
renata.gimenez@bsc.es