Mont-Blanc HPC software stack tested on E4's HPC platform based on ARM64 Cavium ThunderX processor

Since October 2011, the aim of the European project called Mont-Blanc has been to design a new type of computer architecture capable of setting future global HPC standards, built from cost effective solutions used in embedded and mobile devices. One of the outcomes of the project is a complete HPC software stack for ARM based platforms.

Frankfurt, Germany, July 13, 2015 – Researchers of the Barcelona Supercomputing Center (BSC) involved in the Mont-Blanc project, have successfully tested one innovative server platform, based on the 64bit Cavium (NASDAQ: CAVM) ThunderX ARMv8 chip and integrated by E4 Computer Engineering. The aim of the test was to prove the portability of the Mont-Blanc system software stack on new high-performance ARM based server platforms. In order to perform the tests, BSC has called for support from the Italian leading hardware OEM E4 Computer Engineering, as their collaboration goes back to when one of the first prototype of ARM+GPU cluster was devised, to produce a newer and more performing version of the cluster.

The E4's system has been configured with the HPC software ecosystem developed during the past three years within the Mont-Blanc project and underwent strict tests to verify its memory bandwidth, floating point performance and energy-efficiency. Using a set of benchmarks, the new 48-core Thunder-X provided by Cavium, Inc. have been tested with extremely satisfactory results and perfect stability of the system.

E4 Computer Engineering specializes in the production and architectural integration of complete and customized solutions, for environments ranging from high performance computing to design of turn-key datacenters. E4 HPC customers include leaders such as CERN and ENEA, where they have delivered solutions for workloads ranging from processing data from CERN's Large Hadron Collider to wave modeling in the Mediterranean Sea.

ThunderX ARMv8 SoCs are uniquely suited to drive performance for these systems, with 48 custom cores, high memory bandwidth and capacity, onboard workload accelerators and integrated network and storage capability. Focused on workloads such as high-energy physics and molecular dynamics, the ThunderX-based systems

will deliver best-in-class performance combined with lower cost and power consumption than delivered by comparable systems.

"We follow with interest the activity of E4 in developing ARM-based platforms since the early days" said Filippo Mantovani, technical coordinator of the Mont-Blanc project and senior researcher at BSC. "We wanted to show that our HPC system software is able to run also on standard production machines and not only in the Mont-Blanc prototypes and we finally manage it."

"E4's mission is to deliver cutting-edge custom solutions for our customers," said Piero Altoè, VP Research & Development, E4 Computer Engineering. "We wanted powerful and highly-scalable CPUs for our new ARKA servers, that deliver outstanding performance combined with reduced power consumption and we worked on that direction to meet BSC requests."

Additional information available at the European Exascale Projects booth, #634 and at the E4 Computer Engineering booth #914, at ISC15 in Frankfurt, Germany (13th-15th July).

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 and Allinea; some of the most important supercomputing centres 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

About E4 Computer Engineering

Established in 2002, E4 Computer Engineering designs and manufactures high performance systems which aim to accomplish both industrial and scientific research requirements and to reach a variety of customers ranging from universities to computing centers. E4's focus is on HPC although our expertise extends to all segments of IT. Thanks to the established experience and the outstanding quality of our solutions, E4 Computer Engineering is acknowledged and appreciated as a valuable technology vendor by prestigious organizations like C.E.R.N.in Geneva. E4 designs each system individually to deliver highly personalized, cost effective and power saving solutions.

ludovica.delpiano@e4company.com
www.e4company.com

+39 0522 991811