Contribution ID: **120**   Type: **Plenary**

High performance computing based on mobile processors

Thursday, 4 September 2014 10:40 (35 minutes)

In the late 1990s, (mostly) economic reasons led to the adoption of commodity desktop processors in high-performance computing. This transformation has been so effective that in 2014 the TOP500 list is still dominated by x86-based computers.

More recently, around 2005-2008, always for economic/market reasons commodity GPUs became interesting and powerful enough devices to be used as coprocessors in high-performance computing. Heterogeneous computing based on CPU+coprocessors has evolved till today where the first entry of TOP500 is an heterogeneous system.

The story tells us that a "technological circle" moves innovation from HPC to commodity market and back to HPC in the moment in which commodity market makes devices enough cost/compute effective.

In 2013, the largest commodity market in computing is not PCs or servers, but mobile computing, comprising smartphones and tablets, most of which are built with ARM-based SoCs. This leads to the guess that, once mobile SoCs deliver sufficient performance, mobile SoCs can help reduce the cost of HPC.

In view of the experiences within the Mont-Blanc project at the Barcelona Supercomputing Center, this talk will describe possibilities and challenges involved in developing a high-performance computing platform from low cost and energy efficient mobile processors and commodity components.

Primary author: Dr MANTOVANI, Filippo (Barcelona Supercomputing Center)

Presenter: Dr MANTOVANI, Filippo (Barcelona Supercomputing Center)

Session Classification: Plenary

Track Classification: Computing Technology for Physics Research