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Massive Affordable Computing Using ARM Processors in High Energy Physics

Tuesday 2 September 2014 08:00 (1 hour)

High Performance Computing is relevant in many applications around the world, particularly high energy physics. Experiments such as ATLAS and CMS generate huge amounts of data which needs to be analyzed at server farms located on site at CERN and around the world. Apart from the initial cost of setting up an effective server farm the price to maintain them is enormous. Power consumption and cooling are some of the biggest costs. The proposed solution to reduce costs without losing performance is to utilize ARM processors found in nearly all smartphones and tablet computers. Their low power consumption and cost along with respectable processing speed makes them an ideal choice for future large scale parallel data processing centers. Benchmarks on the Cortex-A series of ARM processors including the HPL and PMBW suites will be presented. Results from the PROOF benchmarks will also be analyzed. Issues with currently available operating systems for ARM architectures will be discussed.

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