



Contribution ID: 5

Type: Oral

## The Massive Affordable Computing Project: Prototyping of a High Data Throughput Processing Unit

*Monday, 1 September 2014 14:25 (25 minutes)*

Scientific experiments are becoming highly data intensive to the point where offline processing of stored data is infeasible. Data stream processing, or high data throughput computing, for future projects is required to deal with terabytes of data per second. Conventional data-centres based on typical server-grade hardware are expensive and are biased towards processing power rather than I/O bandwidth. This system imbalance can be solved with massive parallelism to increase the I/O capabilities, at the expense of excessive processing power and high energy consumption. The Massive Affordable Computing Project aims to use low-cost, ARM System on Chips to address the issue of system balance, affordability and energy efficiency. An ARM-based Processing Unit is currently in development, with a design goal of 40 Gb/s I/O throughput and significant processing power. Novel use of PCI-Express is used to address the typically limited I/O capabilities of consumer ARM System on Chips. A more detailed overview of the Project and Processing Unit will be presented along with to-date performance and I/O throughput tests.

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**Session Classification:** Computing Technology for Physics Research

**Track Classification:** Computing Technology for Physics Research