Contribution ID: **33**   Type: **sectional reports**

The development of an ARM System on Chip based Processing Unit for Data Stream Computing

Wednesday, 2 July 2014 14:30 (20 minutes)

Modern big science projects are becoming highly data intensive to the point where offline processing of stored data is infeasible. High data throughput computing, or Data Stream Computing, for future projects is required to deal with terabytes of data per second which cannot be stored in long-term storage elements. Conventional data-centres based on typical server-grade hardware are expensive and are biased towards processing power. The overall I/O bandwidth can be increased with massive parallelism, usually at the expense of excessive processing power and high energy consumption. An ARM System on Chip (SoC) based processing unit may address the issue of system I/O and CPU balance, affordability and energy efficiency since ARM SoCs are mass produced and designed to be energy efficient for use in mobile devices. Such a processing unit is currently in development, with a design goal of 20 Gb/s I/O throughput and significant processing power. The I/O capabilities of consumer ARM System on Chips are discussed along with to-date performance and I/O throughput tests.

Primary author: Mr COX, Mitchell (University of the Witwatersrand, Johannesburg)

Presenter: Mr COX, Mitchell (University of the Witwatersrand, Johannesburg)

Session Classification: Technology for storaging, searching and processing of Big Data

Track Classification: Section 3 - Technology for storaging, searching and processing of Big Data