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The NEXTGenIO Project

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Professor Mark Parsons
EPCC, The University of Edinburgh

One of the major challenges for Exascale computing is tackling the I/O bottleneck. Today's current systems are capable of processing data quickly, but speeds are limited by how fast the system is able to read and write data. This represents a significant loss of time and energy in the system. Being able to widen, and ultimately eliminate, this bottleneck would majorly increase the performance and efficiency of HPC systems. Its imperative that the I/O bottleneck is tackled properly as we approach the installation of the first Exascale systems worldwide.

NEXTGenIO is a Horizon 2020 "FETHPC"project that is solving the I/O problem by bridging the gap between memory and storage. The project is using Intel's revolutionary new Optane DC Persistent Memory, which sits between conventional memory and disk storage. Fujitsu, one of NEXTGenIO's lead partners, has designed the hardware to exploit this new memory technology. The goal is to build a system with 100x faster I/O than current HPC systems, a significant step towards Exascale computation. New hardware is only part of the challenge. NEXTGenIO is also focussing on the software required to make use of this new layer of memory.

The advances that Optane DC Persistent Memory and the NEXTGenIO software stack represent will be transformational across the computing sector. This talk will present the work of the project and show how the hardware and software developments are tackling the Exascale I/O bottleneck.

Affiliation

EPCC, The University of Edinburgh

Primary authors: PARSONS, Mark (EPCC, The University of Edinburgh); HENTY, David (EPCC, The University of Edinburgh)

Presenter: HENTY, David (EPCC, The University of Edinburgh)

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