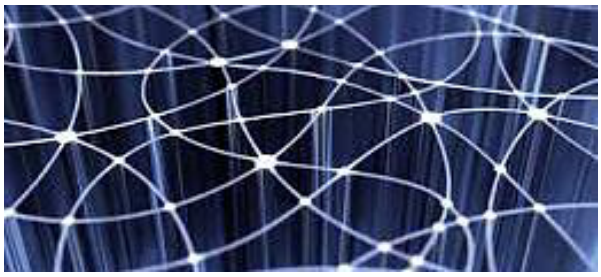

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RAM Benchmarking performance for ARM Processors

The Large Hadron Collider (LHC) at CERN is currently undergoing a major
upgrade to handle higher energies. This will be the first of two upgrades and the expected amount of data produced by this upgraded system will far exceed current data throughput capabilities. It is expected that the same will be so for the Square Kilometre Array (SKA) Radio Telescope. A potential alternative to current high performance computing systems involves using low-cost, low-power ARM processors in large arrays to provide massive parallelisation and hence large data throughput. As memory performance will play an important role in high-throughput computing, several tests and applications such as the STREAM benchmark have been used to thoroughly evaluate and benchmark the memory (RAM) performance of three different models of ARM processor, namely the Cortex-A7, Cortex-A9, and Cortex-A15. Various aspects of memory performance have been evaluated, including the effects of using multiple processors in a cluster-configuration.

Summary

Keywords: ARM, memory, RAM, benchmark, high-throughput computing, high-performance computing, LHC, ATLAS, SKA, CERN.

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