A CPU Benchmarking Characterization of ARM Based System on Chips

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Big science projects like the Large Hadron Collider (LHC) at CERN and the design of the Square Kilometer Array (SKA) in South Africa are fast exceeding current data throughput capabilities making offline storage infeasible. A potential solution involves using low-cost, low-power ARM processors in large arrays to provide massive parallelisation for data stream computing (DSC). The main advantage in using ARM processors is found in the Central Processing Unit (CPU) with its multi-cores and low power design. A benchmarking characterisation of three different models of ARM processor, namely the Cortex-A7, Cortex-A9, and Cortex-A15, have been prepared. Results have been obtained for single and multiple configurations and power measurements will be shown.

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