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Multi-core CPU performance in High Energy Physics applications

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Multi-core CPUs are the standard way for a performance efficient utilization of
additional on-chip CPU space provided by advanced silicon technologies. Though this
leads to a more fine grained parallel approach on the programming level for instance
by introducing multithreading it is also expected that trivial parallel applications
like the event processing in High Energy Physics can take advantage of these new
technologies.
In the talk the performance of dual- and quad-core systems is compared based on real
HEP applications like the ROOT stress benchmark and the ATLAS Athena framework. The
goal of the tests was to investigate the ability of those systems to beintegrated
into large farm systems controlled by a queuing system. Besides the benchmark results coming from different compute servers other relevant
numbers like the price performance ratio and ratio of electrical power consumption
versus performance are discussed.
Additionally a short view on the design of a certain multi-core architectures is
given and possible bottlenecks in using such systems are addressed.

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