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**Subject:** supercomputers HEP/Roscoe  
**Date:** Wednesday, October 21, 2009 13:44:19

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## 1.2 Progress beyond state-of-the-art

The batch processing farms are the majority of computing resources used by High Energy Physics (HEP). However supercomputers and multi-core architectures are required in some specific HEP research areas, such as Lattice QCD simulations for the QCD thermodynamics studies in the context of heavy-ion collisions experiments (LHC, RHIC).

One of such studies performed in 2008 required a pre-thermalisation phase to be run on a supercomputer, a 1.2 TFlops Nec-SX8 in High-Performance Computing Center in Stuttgart, while the bulk of the simulations was subsequently run on the WLCG/EGEE Grid. To further increase the precision of the LatticeQCD studies the future Grid or cloud infrastructures should be able to support large number of locally parallel jobs exploiting multicore architectures.

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Do you need more? We have references for TeraGrid, SAGA and also examples of clouds (google summer project with Atlas, CERN VM and Nimbus) etc.

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Best regards,  
Kuba