

ATLAS Software Installation on Supercomputers

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PowerPC and high performance computers (HPC) are important resources for computing in the ATLAS experiment. The future LHC data processing will require more resources than Grid computing, currently using approximately 100,000 cores at well over 100 sites, can provide. Supercomputers are extremely powerful as they use resources of hundreds of thousands CPUs joined together. However their architectures have different instruction sets. ATLAS binary software distributions for x86 chipsets do not fit these architectures, as emulation of these chipsets results in huge performance loss. This presentation describes the methodology of ATLAS software installation from source code on supercomputers. The installation procedure includes downloading the ATLAS simulation release code with 0.7 million C++ and Python lines as well as the source code of more than 50 external packages, such as ROOT and Geant4, followed by compilation, and rigorous unit and integration testing. The presentation reports the application of this procedure at Titan HPC and Summit PowerPC at Oak Ridge Computing Facility (OLCF).

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