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# Porting ATLAS Trigger & Data Acquisition System to Run on the Grid

*Friday 11 May 2007 11:20 (20 minutes)*

## Describe the scientific/technical community and the scientific/technical activity using (planning to use) the EGEE infrastructure. A high-level description is needed (neither a detailed specialist report nor a list of references).

The ATLAS Trigger & Data Acquisition System has been designed to use more than 2000 CPUs.

## Report on the experience (or the proposed activity). It would be very important to mention key services which are essential for the success of your activity on the EGEE infrastructure.

However the task of adapting the TDAQ to run on the Grid is not trivial, as the TDAQ system requires full access to the computing resources it runs on and real-time interaction. Moreover the Grid virtualises the resources to present a common interface to the user. We will describe the implementation and first tests of a scheme that resolves these issues using a pilot job mechanism. The Tier2 cluster in Manchester was successfully used to run a full TDAQ system on 400 nodes using this implementation.

## With a forward look to future evolution, discuss the issues you have encountered (or that you expect) in using the EGEE infrastructure. Wherever possible, point out the experience limitations (both in terms of existing services or missing functionality)

Apart from the tests described above, this scheme also has great potential for other applications, like running Grid remote farms to perform detector calibration and monitoring in real-time, and automatic nightly testing of the TDAQ.

## Describe the added value of the Grid for the scientific/technical activity you (plan to) do on the Grid. This should include the scale of the activity and of the potential user community and the relevance for other scientific or business applications

During the current development stage it is crucial to test the system on a number of CPUs of similar scale. A dedicated farm of this size is difficult to find, and can only be made available for short periods. On the other hand many large farms have become available recently as part of computing grids, leading to the idea of using them to test the TDAQ.

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