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ATLAS Fast Tracker Simulation Challenges

To deal with Big Data flood from the ATLAS detector most events have to be rejected in the trigger system. the trigger rejection is complicated by the presence of a large number of minimum-bias events – the pileup. To limit pileup effects in the high luminosity environment of the LHC Run-2, ATLAS relies on full tracking provided by the Fast TracKer (FTK) implemented with custom electronics.

The FTK data processing pipeline has to be simulated in preparation for LHC upgrades to support electronics design and develop trigger strategies at high luminosity. The simulation of the FTK - a highly parallelized system - has inherent performance bottlenecks on general-purpose CPUs. To take advantage of the Grid Computing power, the FTK simulation is integrated with Monte Carlo simulations at the Production System level above the ATLAS workload management system PanDA.

We report on ATLAS experience with FTK simulations on the Grid and next steps for accommodating the growing requirements for resources during the LHC Run-2.

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