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## FTK: A Hardware Track Finder for the ATLAS Trigger System

The LHC experiments are preparing for instantaneous luminosities above  $1 \times 10^{34} \text{cm}^{-2} \text{s}^{-1}$  as early as 2015. In order to select the rare events of interest in such dense environments, detailed event information is necessary. In particular, the highly granular single particle information of tracking detectors is crucial for the selection of isolated leptons, taus and b-jets in the face of large vertex multiplicities. We report on the development of the ATLAS FastTracker (FTK), a hardware based track finder which will reconstruct all tracks with a momentum greater than 1 GeV/c up to luminosities of  $3 \times 10^{34} \text{cm}^{-2} \text{s}^{-1}$  at an event input rate of 100 kHz and a latency of a few hundred microseconds. The track information will be available to the Level 2 processors at the beginning of event processing. Significant progress towards a phased installation beginning in 2015 has been achieved. A pre-prototype of the pattern recognition board is taking data in the fall of 2012 and prototypes for all boards in the system will be constructed in early 2013. We report on the system design as well as the performance of the pre-prototypes.

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ATLAS

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