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Integration and Commissioning of the Fast Tracker system

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The Fast Tracker (FTK) system is a track reconstruction processor able to perform full event tracking synchronously with the ATLAS Level 1 trigger acceptance rate.

The high quality tracks produced by the system will be used by the High Level Trigger algorithms to improve the identification of physics objects such as b-jets and taus, as well as to help mitigating the effects of pileup. The combinatorial challenge of global track fitting requires the use of a custom designed track processor. The idea behind the Fast Tracker system is to simulate all possible tracks before an ATLAS data taking run. During the actual data-taking, the hits coming from the detector are compared with the hits expected from the simulated tracks. This comparison or 'pattern matching' is then followed by a two step linearized track fit. This task is executed by a system of seven custom electronics board types that will process data from the Inner Detector at the 100 kHz rate of the L1 trigger.

Currently, the FTK system is under installation and commissioning into the ATLAS Data Acquisition System. The status of the system integration will be presented and a review of the first data collected by the FTK system will be shown.

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