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A Fast Hardware Tracker for the ATLAS Trigger System YANGYANG CHENG, University of Chicago, ATLAS COLLABORATION — A track reconstruction system being designed for the trigger of the ATLAS detector at the Large Hadron Collider will be described. The Fast Tracker (FTK) is a highly parallel hardware system designed to operate at the full Level-1 trigger output rate. It will provide high-quality tracks reconstructed over the entire inner detector by the start of processing in the Level-2 trigger. The system is based on associative memories for pattern recognition and fast FPGA's for track reconstruction. Recent innovations in system design will be presented as will the expected performance with instantaneous luminosities up to $3x10^{34}cm^{-2}s^{-1}$. A FTK vertical slice being installed for the 2012 LHC running will also be described.

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