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GPU-based algorithms for ATLAS High-Level Trigger

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One possible option for the ATLAS High-Level Trigger (HLT) upgrade for higher LHC luminosity is to use GPU-accelerated event processing. In this talk we discuss parallel data preparation and track finding algorithms specifically designed to run on GPUs. We present a “client-server” solution for hybrid CPU/GPU event reconstruction which allows for the simple and flexible integration of the specific GPU-accelerated algorithms into existing ATLAS HLT software. The resulting speed-up of event processing times obtained with high-luminosity simulated data are presented and discussed.

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