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The LHCb High Level Trigger Software Framework

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The High Level Trigger and Data Acquisition system of the LHCb experiment at the CERN Large Hadron Collider must handle proton-proton collisions from beams crossing at 40 MHz. After a hardware-based first level trigger events have to be processed at the rate of 1 MHz and filtered by software-based trigger applications that run in a trigger farm consisting of up to 2000 PCs. The final rate of accepted events is around 2 kHz.
This contribution describes the architecture used to host the selection algorithms of the high level trigger on each trigger node, that is based on shared memory event buffers. It illustrates the interplay between event building processes, event filter processes and processes sending accepted events to the storage system. It describes these software components that are based on the Gaudi event processing framework.

Submitted on behalf of Collaboration (ex, BaBar, ATLAS)

LHCb Online

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