

Level 1 Muon Triggers for the CMS Experiment at the HL-LHC

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In view of the HL-LHC, the Phase-2 CMS upgrade will replace the entire trigger and data acquisition system. The detector readout electronics will be upgraded to allow a maximum L1A rate of 750 kHz, and a latency of 12.5 μ s. The upgraded system will be entirely running on commercial FPGA processors and should greatly extend the capabilities of the current system, being able to maintain trigger thresholds despite the harsh environment as well as trigger on more exotic signatures such as long-lived particles to extend the physics coverage. The muon trigger should be able to identify muon tracks in the experiment and measure their momenta and other parameters for use in the global trigger menu. The L1 track finder in CMS will bring some of the offline muon reconstruction capability to the L1 trigger, delivering unprecedented reconstruction and identification performance. We review the design of muon trigger, its architecture, and the muon reconstruction and identification algorithms.

Alternate track

I read the instructions above

Yes

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