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## The CMS Level 1 muon trigger system for the HL-LHC

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 L1 accept rate of 750 kHz, and a latency of 12.5  $\mu$ s. The muon trigger is a multi-layer system that is designed to reconstruct muon stubs on each muon station and then to measure the momenta of the muon by correlating information across muon chambers on the so-called muon track finders and by matching the reconstructed stubs with the L1 tracker tracks sent by the track trigger. This is achieved with sophisticated pattern recognition algorithms that run on Virtex UltraScale+ FPGA processors. To demonstrate the hardware, firmware, and algorithm choices, a slice test and different test-stands have been installed at CERN or elsewhere, allowing us to validate the full chain. With this contribution we will show the recent progress on the slice test operations, the firmware/emulator comparisons for the different track finder algorithms, and the latest performance of the different trigger algorithms.

### Collaboration / Activity

CMS

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