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# ATLAS Level-0 Endcap Muon Trigger for HL-LHC

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The design for the Level-0 endcap muon trigger of the ATLAS experiment at High-Luminosity LHC (HL-LHC) and the status of the development are presented. In the upgraded trigger system, the track reconstruction is achieved on a pattern matching algorithm using hit information on the detectors and predefined lists of the hits corresponding to tracks. Hardware implementation is planned to be done on a Virtex UltraScale+ FPGA, and a first implantation of the trigger logic as a firmware is also presented.

The efficiency was estimated to be greater than 90%, a few percent higher than the current system. The trigger rate also has been evaluated with proton-proton collision data taken with random trigger overlaid to account for the pileup rate of 200. The obtained value for momentum threshold of 20 GeV, primary threshold assumed for single muon trigger, is about 30 kHz, which constitutes only about 3% of the assumed total Level-0 trigger rate of 1 MHz.

## Funding information

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