

May 5-9, 2025



Contribution ID: 32

Type: **Experimental poster**

Development of the Level-0 endcap muon trigger firmware for the ATLAS experiment at HL-LHC

The design and status are reported for the development of the Level-0 endcap muon trigger firmware of the ATLAS experiment at HL-LHC. An ATCA blade with an XCVU13P FPGA has been developed, and the firmware uses detector hits from the Thin Gap Chambers and processed data from other detectors to reconstruct muon candidates. An algorithm that minimises the use of XCVU13P FPGA resources is a major challenge. Performance was evaluated in post-synthesis simulations.

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