

Upgrade of the ATLAS Level-1 Endcap Muon Trigger System for LHC Run-3

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LHC is expected to increase its instantaneous luminosity to $2 \times 10^{34} \text{ cm}^{-2} \text{s}^{-1}$ in Run3. In order to cope with the high luminosity, upgrade of the trigger system is ongoing. The level-1 Endcap Muon trigger system reconstructs muons with high transverse momentum by combining data from Thin Gap Chambers (TGCs) and inner station detectors. In the upgrade, a new detector called New Small Wheel (NSW) is being installed in the inner station region. Finer track information from NSW is used as a part of the muon trigger logic to improve the trigger performance. A new trigger board, Sector Logic (SL), has been developed to handle data from TGC and NSW. SL has a modern FPGA to make use of Multi-Gigabit transceiver technology, used to receive data from NSW. Status of the commissioning of the ATLAS Level-1 Endcap Muon trigger system is presented, as well as implementation of the trigger logic as a firmware and its performance.

TIPP2020 abstract resubmission?

Yes, this would have been presented at TIPP2020.

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