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Upgrade of the ATLAS Monitored Drift Tube Electronics for the HL-LHC

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To cope with large amount of data and high event rate expected from the planned High-Luminosity LHC (HL-LHC) upgrade, the ATLAS monitored drift tube (MDT) readout electronics will be replaced. In addition, the MDT detector will be used at the first-level trigger to improve the muon transverse momentum resolution and reduce the trigger rate. A new trigger and readout system has been proposed. Prototypes for two frontend ASICs and a data transmission board have been designed and tested, detailed simulation of the trigger latency has been performed, and segment-finding and track fitting algorithms have been developed. We will present the overall design of the trigger and readout system and show latest results from various prototype studies

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