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## Performance of the ATLAS trigger system

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The ATLAS trigger has been used very successfully to collect collision data during 2009-2011 LHC running at centre of mass energies between 900 GeV and 7 TeV. The three-level trigger system reduces the event rate from the design bunch-crossing rate of 40 MHz to an average recording rate of about 300 Hz. The first level uses custom electronics to reject most background collisions, in less than 2.5  $\mu$ s, using information from the calorimeter and muon detectors. The upper two trigger levels are software-based triggers. The trigger system selects events by identifying signatures of muon, electron, photon, tau lepton, jet, and B meson candidates, as well as using global event signatures, such as missing transverse energy. We give an overview of the performance of these trigger selections based on extensive online running during the 2011 LHC run and discuss issues encountered during 2011 operations. Distributions of key selection variables are shown calculated at the different trigger levels and are compared with offline reconstruction. Trigger efficiencies with respect to offline reconstructed signals are shown and compared to simulation, illustrating a very good level of understanding of the detector and trigger performance. We describe how the trigger has evolved with increasing LHC luminosity coping with pileup conditions close to LHC design luminosity.

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