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Performance of the CMS High Level Trigger

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The CMS experiment has been designed with a 2-level trigger system. The first level is implemented using custom-designed electronics. The second level is the so-called High Level Trigger (HLT), a streamlined version of the CMS offline reconstruction software running on a computer farm. For Run II of the Large Hadron Collider, the increases in center-of-mass energy and luminosity will raise the event rate to a level challenging for the HLT algorithms. The increase in the number of interactions per bunch crossing: on average 25 in 2012, and expected to be around 40 in Run II will be an additional complication. We will present the performance of the main triggers used during the 2012 run and will also cover new approaches that have been developed since then to cope with the challenges of the new run. This includes improvements in HLT electron and photon reconstruction as well as better performing muon triggers. We will also present the performance of the improved tracking and
vertexing algorithms, discussing their impact on the b-tagging performance as well as on the jet and missing energy reconstruction.

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