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The High Level Trigger software for the CMS experiment

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The observation of Higgs bosons predicted in supersymmetric theories will be a challenging task for the CMS experiment at the LHC, in particular for its High Level trigger (HLT). A prototype of the High Level Trigger software to be used in the filter farm of the CMS experiment and for the filtering of monte carlo samples will be presented. The implemented prototype heavily uses recursive processing of a HLT tree and allows dynamic trigger definition. Firstly the general architecture and design choices as well as the timing performance of the system will be reviewed in the light of the DAQ constrains. Secondly, specific trigger implementations in the context of the object-oriented Reconstruction for CMS Analysis (ORCA) software will be detailed. Finally, the analysis for the selection of a CP even Higgs decaying in tau pairs will be presented. The Aforementioned analysis will illustrate the importance of the trigger strategies required to achieve the various physics analysis in CMS.

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