LHCb High Level Trigger design issues for post Long Stop 1 running MICHAEL SOKOLOFF, University of Cincinnati, JOHANNES ALBRECHT, TU Dortmund, VLADIMIR GLIGOROV, CERN, GERHARD RAVEN, None, MICHAEL WILLIAMS, MIT, LHCB TRIGGER TEAM — The LHCb High Level Trigger uses two stages of software running on an Event Filter Farm (EFF) to select events for offline reconstruction and analysis. The first stage (Hlt1) processes approximately 1 MHz of events accepted by a hardware trigger. In 2012, the second stage (Hlt2) wrote 5 kHz to permanent storage for later processing. Following the LHC's Long Stop 1 (anticipated for 2015), the machine energy will increase from 8 TeV in the center-of-mass to 13 TeV and the cross sections for beauty and charm are expected to grow proportionately. We plan to increase the Hlt2 output to 12 kHz, some for immediate offline processing, some for later offline processing, and some ready for immediate analysis. By increasing the absolute computing power of the EFF, and buffering data for processing between machine fills, we should be able to significantly increase the efficiency for signal while improving signal-to-background ratios. In this poster we will present several strategies under consideration and some of the tools we are using to evaluate these strategies.

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