



HLT2 Express Stream

Collection of First Ideas

Johannes Albrecht
CERN

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- Express stream provides data for “online analysis” of a small fraction of events ($\sim 5\text{Hz}$) on dedicated CPU's
- I agreed to set up the HLT2 express stream
 - collect all needs and try to fit them in the tight budget
 - take stripping selections where possible (slightly modified for HLT2)
- Customers (I am aware of ..)
 - Alignment
 - Particle ID (Muon, RICH)
 - Data Quality

- Beam halo tracks for alignment
 - 1Hz selected by PatVeloAlignTrackFilter
- Jpsi used for alignment and muon ID calibration
 - 2Hz of Jpsi “from 2 muons”
 - clone & prescale from UnbiasedDiMuon
 - 2Hz of Jpsi “tag and probe”
 - take prompt part of StrippingMuIDCalib
- Lambdas for mu ID and PID
 - 1Hz of StrippingLambdaNoPID (from LL)
- Missing:
 - Velo-IT overlap tracks (1Hz)

- Get samples of hadrons (π^\pm , K^\pm and p^\pm) to calibrate RICH particle identification
- Lambda selection $\Lambda \rightarrow \pi p$ same as muon
 - no additional rate
- $K_s \rightarrow \pi^+ \pi^-$ from stripping
 - 1Hz, selection from RichPIDQC/KshortPiPi.py
- $\phi \rightarrow KK$ from $D_s \rightarrow \phi \pi$
 - 1Hz, ϕ selection from RichPIDQC/DsToPhiPi.py
- Andrew Powell is working on more robust selections
 - replace the stripping selections then

- Very first draft (only alignment lines) comes with DaVinci v24r6 as Hlt2ExpressLines.py
- Vanya and Gerhard have finished the “fixed rate scaler” (set fixed rate as HLT2 output)
 - Ready to be tested in first implementation
- I will include the discussed selections + more?

- Content of the Express stream:
 - Are the groups happy with the proposed selections
 - What else should be included?
- How to divide the available bandwidth?
 - $2+2+1+1+1+\dots = 5\text{Hz}$?
- First implementation of the shown selections (hopefully) ready by the end of this week