The TESLA project

Mailing list: lhcb-tesla

Charge

To process the output of the Hlt from the Turbo stream for physics analysis.

Streams

In 2016, streams were introduced to make datasets more manageable. The stream definitions are detailed in the TurboStreams page.

Generating NTuples from Tesla output

With the Turbo stream operational in production. Analysts now merely have to point DecayTreeTuple at the required location. But a few extra options need to be set. Please see the tutorial below.

- MakeNTupleFromTurbo - to run DecayTreeTuple over production data/MC.
- EnsureProbNNsCalculated - Add the algorithm to compute ProbNNs from saved inputs.

Getting involved - running Tesla

We need to be sure we have all the information on triggered candidates saved for use in analyses. Therefore we need analysts to run the algorithms and give us lots of feedback. To be a part of this, follow the tutorials:

- MakeLineForTurbo - to create a new Hlt2 line for the Turbo stream
- MakeLineForTurboSimplified (OBsolete) - to create a new Hlt2 line for the Turbo stream (and test using threshold settings). Running the trigger is reduced to one ganga job. This still executes the juggling, L0 and HLT in sequence, but is set up in a single ganga job and produces a single DST for testing Tesla.

Missing variables should be added to the table on the RunningListTurboMissing page.

Presentations

- S. Benson, Turbo Status, LHCb week 8th June 2015
- S. Benson, Tesla and Turbo Stream, Computing workshop 18th May 2015
- S. Benson, Turbo Status, LHCb week 23rd February 2015
- S. Benson, Turbo Tutorial, Analysis & Software Week 14th October 2014
- S. Benson, HLT lines and Turbo stream status, LHCb Week 17th September 2014
- S. Benson, Turbo stream update, LHCb week 16th June 2014
- M. Vesterinen, Possibilities for physics analysis with the HLT output, A&S week, 18th April 2013

References

- TurboSPPaper: Description of PersistReco and selective persistence enhancements.
LHCbTeslaProject < LHCb < TWiki

- Tesla: an application for real-time data analysis in High Energy Physics
  https://inspirehep.net/search?p=find+eprint+1604.05596 - please use this reference for citations of the Turbo stream.
- S. Benson et al., The LHCb Turbo Stream LHCb-PROC-2015-013
- J. Albrecht et al., Implications of post-LS1 running conditions on LHCb's data processing, LHCb-PUB-2013-008
- M. Adinolfi et al., Online alignment and calibration of LHCb beyond LS1 in the context of a split HLT, LHCb-INT-2013-021
- V. Gligorov, M. Vesterinen, Charm analysis with HLT information, LHCb-INT-2013-022

The workflow