Status of the CSC Track-Finding Processor

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News

• Full report of CSC Track-Finder given at last TriDAS Review

• Not much hardware development since last month

• Presently running simulations on CSC and overlap region

• Formal agreement should be made between the two Track-Finder groups on the overlap region
CSC Muon Trigger Scheme

Strip FE cards → Strip LCT card → LCT → Motherboard → Port Card → TMB → PC → CSC Track-Finder

CSC Track-Finder

Sector Receiver → Sector Processor

On chamber → In periphery crate

In counting house

CSC Muon Sorter

Global \( \mu \) Trigger

Global L1
Trigger Regions in $\eta$
CSC Sectors in $\phi$ for Overlap Region
Differences between CSC and DT Track-Finders

• No neighbor input for CSC T-F implies
  – Fewer extrapolations
  – Less data input
  – Fewer signals to fan out
  – Less opportunity for two tracks to arise from one muon

• Inclusion of $\eta$ in CSC T-F allows
  – Precise $P_T$ assignment in endcap
  – Track-Finding in 3 dimensions
  – Rate reduction

• *Therefore, CSC T-F is fundamentally different than DT T-F*

• Coverage of overlap region in CSC T-F complements approach taken by DT T-F
Issues Related to the Separation of the Barrel and Endcap Muon Trigger Track-Finders

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Abstract
Requirements are specified for the barrel and endcap Muon Trigger Track-Finders to ensure efficient coverage of the overlap region between the barrel and endcap muon systems and to avoid duplicity of triggers.

Preliminary version

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Agreement Between the Two Track-Finder Projects

- Exchange of Trigger Primitives
  - MB2/1 and MB2/2 → CSC Track-Finder
  - ME1/3 and ME2/2 → DT Track-Finder
  - Exchange takes place in counting house

- Definition of a sharp boundary in $\eta$
  - Both Track-Finders are not allowed to report the same muon
  - Actual boundary should be programmable
  - Implementation:
    - CSC T-F suppresses primitives or complete tracks found in barrel side
      - Straightforward since $\eta$ information is available
    - DT T-F does not receive CSC primitives in endcap side
      - Boundary must be defined by determining which DT and CSC chambers are included in track since $\eta$ information is not explicit

- Separate ordering of CSC and DT muons
  - Allows for different sort and/or ghost cancellation criteria