HPS Software Priorities

Software Meeting

5/1/2014

Priorities.

- Our priorities will be changing over time.
  - Previous top priority: getting more people to work with the framework. (we are still trying to get more...)
  - Currently, top priority is to get the basics working.
    - Tracking, monitoring, conditions, calibrations...
  - Next, the top priority will be to get these basics working well...
    - Better tracking, better calibrations, more user friendly online systems...
- We are not a top-down organization.
  - We should all take part in setting priorities.
    - We risk making everything top priority...
  - Different sub-systems will have different requirements, thus different priorities.

Prioritization

- The obvious:
  - Top priority is to take good data in the 2015 running.
  - Second: Being able to analyze the 2015 data quickly.
  - Currently low priority: Upgrades, convenience items.

Prioritization

- Current Top priorities:
  - Data readout and decoding correct
  - Well understood and verified trigger
    - Trigger parameters understood
  - Data quality monitoring
    - Ultimately requires full reconstruction
    - Requires calibrations
- Calibrations
  - Requires conditions database & interface
  - Many calibrations will require reconstruction
- MC verification of rates ✔

Prioritization

- Secondary Priorities:
  - Being able to analyze the 2015 data quickly.
    - Reconstruction working properly at high accuracy
    - Full alignment
    - Full calibrations
    - MC verification
      - Extensive MC production
    - Physics DST
    - Physics analysis codes

Prioritization

- Currently low priority:
  - Upgrades:
    - muon detector studies
    - recoil electron studies
  - Convenience:
    - web based data catalog

Task View

- Data readout
  - EVIO formats unchanged since test run?
  - Verification codes/utilities
- Trigger
  - Trigger sim corresponds to HW ✔
  - Trigger - tune/understand parameters
  - Trigger - fully optimized
    - Different run conditions!

Task View

- Monitoring
  - Monitor app user interface OK ✔
    - Fast enough?
  - ECAL:
    - Occupancies / rates ✔?
    - Single events ✔
    - Clusters - Triggers
    - Timing
  - SVT:
    - Occupancies / rates ✔?
      - Single events?
    - Timing
    - Tracks
      - Chi2

Task View

- Calibrations
  - Functioning conditions database ✔
  - ECAL:
    - Gains /thresholds:
      - Cosmics
      - Pi-0
      - Track matching
      - Full energy electrons
    - Timing
  - SVT:
    - Gains / thresholds ✔?
    - Timing
    - Alignment ½✔?

Task View

- Reconstruction
  - Basic reconstruction working ✔
    - Tracking ✔
    - ECAL Clustering ✔
    - **Output files - lcio bug**
  - Reconstruction still needed:
    - Match clusters with tracks
    - Simple particle id?
  - Full B-Field
    - In MC
    - For tracking
    - For vertexing
  - Generalized Broken Line
    - Working in “post Java” ✔
    - Port to Java
  - SVT Timing used

Task View

- Reconstruction
  - Use single layers for tracking
  - Tune tracking cuts
  - ECAL cluster position correction
  - ECAL position dependent sampling fraction