Integration to Physics Commissioning

- System functionality
- Software
- Mapping software needs to system components

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Introduction

- The shutdown is approaching.
- Focus so far: component testing and integration
- On the cusp of producing data with entire system slice
- Questions for transition to physics commissioning:
  - What system functionality has yet to be proven?
  - What software is needed?
  - What is needed to transfer control to non-experts?
  - Is it documented?
- First pass attempt to compile the list of tasks needed for accurately reading out and monitoring trigger data.
- Not a final list! Need to identify gaps.
- Looking for input from the group.

Proving system functionality

Integrated functionality:

- BLS Signal Quality and Digitization
- Generation of And-Or Terms
- Readout
- Controls and Monitoring
- Verification of trigger rates, efficiencies

System software

Categories, roughly ordered from more technical to more global, physics oriented:

- cable routing/channel mapping
- data transport/BER
- online control software - porting to TCC
- COOR
- monitoring GUIs for shifters
- alarms
- unpacker
- examines
- trigger lists
- simulation

BLS Signal Digitization

channel mapping: BLS->ADF->TAB
data transport: pseudo-random data tests
TCC: configuring FPGAs, downloading constants to ADF
monitoring GUI
alarms
simulation

Generation of And-Or Terms

channel mapping: TAB->GAB
data transport: BER tests to L2 and L3
online: port TABSOFT functions to TCC
monitoring GUI: built off of TABSOFT
alarms
trigger list
simulation

Readout

COOR/TCC communication
unpacker
examine: run2a/run2b/precision TT comparisons
trigger list: trigger database entries for 2b terms
simulation: integration of unpacker into trigsim

Controls and Monitoring

COOR: resource allocation, TCC requests
TCC: request processing and response to COOR
trigger list: trigger configuration file
reference sets
examine: will be adapted from L1Cal2a examine
by Steve Beale
Peter's pulser program for finding noisy towers
alarms: messages to SES
crate and rack monitoring (RMIs)

Simulation Status

Trigsim

- compiles, runs and produces output data file with RDC
- is being used by L1CalTrk for algorithm design
- some missing pieces: GAB trigger terms, L3 unpacking, ICR towers
- needs final list of And/Or terms and trigger list for final integration tests

Trigger Studies

- work continues with trigger rate tool, CAF trees (now have L1Cal taus)
- v15 trigger task force very active, studying new algos, neoterms, triggers
    - L1CalTrk - electrons and taus
    - L2 electron studies
    - first studies of L1 topological triggers - jet acoplanarity
- updated strawman trigger list with expanded muon suite

How to Proceed

- complete, flesh out list of tasks
- personnel assignments
- create spreadsheet with “state of readiness” info.