Online Software:

Progress, Plans, Worries and Questions

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- Recent developments
- Reminder of the task list (nMCM, CMX, L1Topo)
- Effort etc

Recent Developments

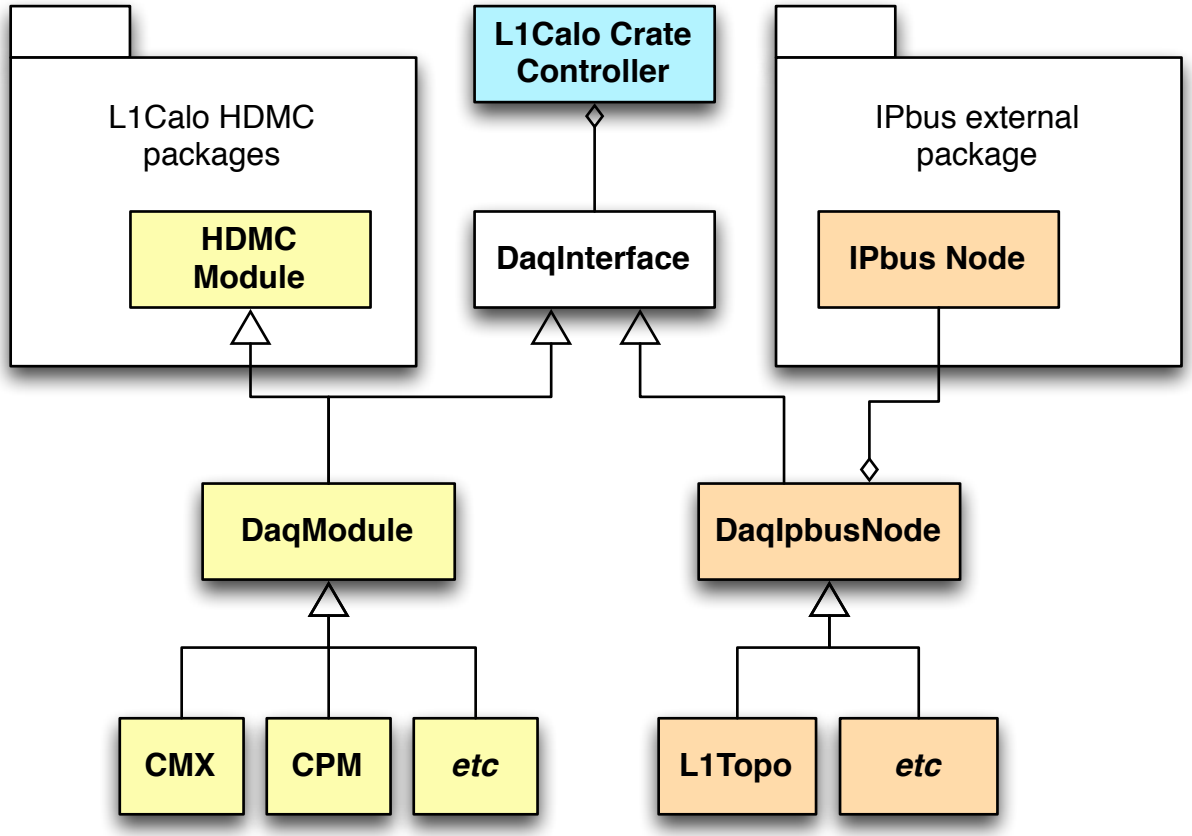
- TDAQ
  - Release tdaq-05-00-00 is now available
    - Built with new version of LCG libraries and new compiler version (gcc4.7)
    - Also with corresponding offline release (for DetCommon)
      - But offline version only available for SLC6: must upgrade from SLC5
- IPbus
  - Latest version (uhal_2_0_2) built with new TDAQ
    - Both 64 bit (x86_64) and 32 bit (i686)
    - NB a few fixes required to compile with gcc4.7
      - Especially i686 (which we only need for an integrated build for VME based SBCs)
- L1Calo
  - Built OK with new TDAQ release
    - After some fixes for latest compiler fussiness
  - Added packages to integrate IPbus modules in L1Calo SW
    - Not all committed to SVN yet

Online Software Tasks (1)

- Long list of tasks outlined at recent weekly meeting
  - https://indico.cern.ch/getFile.py/access?contribId=3&resId=0&materialId=slides&confId=249846
- Compressed summary in the next few slides covering:
  - Framework
  - Database
  - Existing modules (CPM, JEM, ROD?)
  - nMCM
  - CMX
  - L1Topo
  - Miscellaneous

Online Software Tasks (2)

- Framework: IPbus support
  - Extend current module services (partly implemented)



Online Software Tasks (3)

- Database
  - Handle new trigger menu [Partly done]
    - But no support for old & new concurrently
    - Nothing yet for topological triggers or energy trigger variants
  - New calibration data for CMX [Partly done]
  - New calibration data for L1Topo
  - Changes for PPM: tweak folders for calibration data?
  - New folder scheme for energy calibration results [Pete]
  - Storing dynamic pedestal updates (hopefully not!)

Online Software Tasks (4)

- New MCM
  - New registers for new features
    - Later whole new register model?
  - New filters, new saturated BCID, separate LUTs(?), etc
  - Dynamic pedestal updates
    - Configuration and/or storing updates to COOL
  - Simulation of all the above
  - Changes to calibrations (DAC, pedestal, "PHOS4" scans)

Online Software Tasks (5)

- CPM and JEM
  - Use of new trigger menu
  - Larger playback and spy memories for faster backplane
  - Corresponding changes to test vectors and simulation
- ROD?
  - Possible changes for updated ROD formats?

Online Software Tasks (6)

- CMX
  - Module services
    - Register map updates: thresholds, playback/spy memories [Mostly done]
    - Code to configure the new module
      - New stuff compared to CMM: timing and optics setup, topo FPGA?
  - Simulation
    - New backplane signals, new outputs to L1Topo
    - Use extended trigger menu API, implement thresholding
    - Adapt current multiplicity counting
    - Expand playback/spy memories to new sizes
    - Update test vectors to match new functionality
  - Calibration
    - Procedure to calibration backplane and remote CMX input timing?

Online Software Tasks (7)

- L1Topo
  - Module Services
    - Implement register model via IPbus
    - Implement all the methods to configure & monitor L1Topo
  - Simulation
    - Core code being developed by offline (DetCommon)
    - Needs wrapping in L1Calo online framework
      - Interfaces to trigger menu API
      - Interface to configuration database (active links, etc)
      - Implementation of playback/spy memories
    - Development of test vectors for L1Topo standalone tests?
  - Calibration and tests?

Online Software Tasks (8)

- Miscellaneous (mostly copied from slide in February)
  - Better support for rare running modes?
    - ALFA runs: adjust readout pointer
    - Beam splashes: adjust trigger masking
    - Select predefined noise cut regimes for pp or heavy ions
    - Other?
  - Doubtless many other things…

Who, When and Where?

- Effort
  - CMX: Seth has now left: need new developer
  - CPM: Birmingham - timescale?
  - JEM: Jan S. for module services, what about simulation?
  - L1Topo: Jan S. plus others at Mainz (Adam)?
    - Core simulation by Wade et al
  - PPM nMCM: Heidelberg?
  - Database, framework etc: Murrough

- Working sessions?
  - Seth & I spent a useful week working together at CERN
  - We should arrange further SW development weeks (at CERN?) during the rest of the year...

SW for P1 Recommissioning?

- Do we need to support multiple versions at once?
  - Eg new style for CP crates leaving old style for JEP crate?
  - New style for single CP/JEP crate leaving others in old style?
- If yes, it means extra work!
  - Need to allow (but not require) new menu thresholds
  - Add OKS(?) flags to identify FW/SW version per crate?
  - Interpretation of this in software
  - Conditional flags in CPM/JEM module services (and sim)
- Pros and Cons
  - Convenience for stepwise CMX installation & commissioning
  - Extra software support effort...
  - Discuss!

Migrations and Test Rigs?

- Issues with OS and SW versions on test rigs
  - Need SLC6 and new TDAQ release already for IPbus work
    - Also needs installation of IPbus itself (built with new LCG & gcc)
  - Non-IPbus developments could stay with SLC5 and old TDAQ
  - However this needs different L1Calo versions
    - With/without IPbus packages
  - Supporting different versions is extra work
  - Moving test rigs to new versions is also hard work...

Conclusions

- There is a lot to do!
- Available effort will be stretched
  - Several new people need to be trained
  - Scattered development is hard
  - Arrange working sessions at CERN (or elsewhere?)