



Online Software Status

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22 June 2015

- Recent Progress
- To Do Lists
- Phase 1?



TDAQ/External

- TDAQ

- No changes
- Including no changes to IPbus
 - Would like TDAQ to move to more recent IPbus
 - Forgot to request this so may be some time...

- DetCommon

- Currently using 20.2.1 plus patches at point 1
 - NB need the patches to handle restricted eta TE/XE, jet boundaries
 - Supposedly latest patches have CP LUT scale factor 2
 - But at the moment we still need to apply this "by hand" in our software



Recent Progress (1)

•Preprocessor

- Module services following firmware changes
 - New “phos4” timing formula (quite a headache!)
 - Separate CP/JEP lookup tables and separate rate metering
 - Pedestal correction configuration and VME readout
 - 80 MHz readout option
- Simulation: added PPM ROD simulation
 - Still needs thorough testing

•CPM/JEM

- Add checking and zeroing of TTC coarse delays
 - We do not use this delay but rarely saw it set to a spurious value



Recent Progress (2)

•CMX

•Module services

- Added comprehensive rate metering
 - TOB rates reported at <https://atlasop.cern.ch/oncall/l1calo/L1CaloMapRates.php>
 - System rates at <https://atlasop.cern.ch/oncall/l1calo/L1CaloSysRates.php>
- Configuration of restricted eta TE/XE thresholds
- Parity error checking
- Initial implementation of clock resync mechanism
 - But still needs to be more sophisticated with two steps?

•Simulation

- Full topo simulation
 - But not the zero Et TOBs sent on the fibres

•Tests

- Scans for fine delays, deskew1 & 2 with histogram outputs



Recent Progress (3)

•L1Topo

- Module control (now supported by Andreas)
 - Continual catchup with firmware changes
 - Register names, addresses and meanings of bits
 - Loading of trigger menu parameters to appropriate FPGAs
 - Publishing rates
 - Initial version of clock resync procedure
 - Will need to change if we change it at the CMX end
 - Setting fine input delays (still needs values uploaded to DB)
 - Internal delays still hard coded
 - Waiting for firmware stability(!) before defining a DB schema
- Simulation
 - Additional test vectors added (Katrin)
 - Minor bug fixes in energy TOBs, input connection handling
 - Still waiting for readout, algorithms & menu(!) to make real sim tests
 - However the simulation is currently unstable (topo/cmx/other?)



Recent Progress (4)

• Database

- Finally moved COOL database back to oracle (end of April)
 - Point 1 and tier0 monitoring can now use up to date calibration data

• Trigger menu

- Various fixes applied for TE/XE and jet thresholds
 - Both in L1Calo code, patched version of DetCommon and menu config
 - Implemented restricted eta TE and XE (single eta range)
 - Defined viable set of eta boundaries for jet thresholds
 - NB CP scale factor 2 still applied by hand
 - Not sure why the latest DetCommon patches do not return the correct values

• Receivers

- LAr receiver SW still fails to write conditions to COOL
- Ported some of the LAr code to L1Calo SVN
 - Save conditions to COOL, but no access to hardware
- Would like to port the USB code and stop using LAr release



To Do List (1)

- Preprocessor

- Still one or two firmware versions to come
 - Eg both CP and JEP Et spectra histogramming

- CMX

- Revised clock resync procedure
 - Needs consultation with TDAQ and additional commands?

- L1Topo

- Various little fixes still needed
- Additional HW monitoring information to be published?
- Careful HW simulation comparison with data
- Some hard coded parameters should move to database



To Do List (2)

- Simulation
 - Needs proper testing against HW
 - Instabilities need to be found and fixed
- Receivers
 - Move completely into L1Calo domain (as separate project)
- Web monitoring
 - Still needs various updates
- Documentation!!



Phase 1 Upgrades

- Partial summary (I only know about UK work)
- Done:
 - A few FTM firmware tests (on dev board) via Serendip
 - Dummy SVN packages added for FTP and eFEX
 - Intended as placeholders for IPbus address files
 - Absolutely no further activity
- Not done:
 - Anything else
- Meetings, discussions
 - We had suggested meetings to discuss progress
 - Learn of whats been done in the gFEX?
 - Good intentions lost in Run 2 preparation frenzy
 - Need to get back to this...