Software Status

Murrough Landon – 17 December 2002

`http://www.hep.ph.qmul.ac.uk/~landon/talks`

Overview

- Overall status

- Package Details

- Schedule and next steps

Status summary

Recent progress

- Production 3 day working session with Cano

- JEM module services in good shape and related JEM software is developing rapidly

- Apart from that, many of us have spent lots of time in meetings...

Whats missing

- Feedback from our first release

- User guide for our first release?

- Working modules to integrate!

Packages (1)

HDMC: done recently

- New parts for the JEM

HDMC: to be done

- Integrate in CMT environment

- Move to pure STL (no Qt dependence for hardware parts)?

Module Services: done recently

- jemServices package

Module Services: to be done

- CMM module services to be completed

- CPM module services to be completed

- Documentation is still required

Packages (2)

Databases: done recently

- Additions for the JEM (trigger menu in existing framework)

Databases: to be done

- Conflicts with test vector generators to be resolved

- More work required for calibration datasets

- Use trigger menu configuration from CTP group

- Support for PP system

- Evolve with external changes (eg Conditions database)

- Draft user guide to be completed

Packages (3)

Run Control and IGUI: done recently

- Nothing

Run Control and IGUI: to be done

- Sequencer program for multistep tests (or calibrations)

- Update/provide documentation

- Hardware monitoring status (simple display may already be supported by Dataflow panel?)

Packages (4)

Simulation: done recently

- CPROD variants added

Simulation: to be done

- CMM, JEM, PPM simulation to be completed

Test Vector Generation: done recently

- Work on integrating JEM test vectors started

Test Vectors: to be done

- Test vectors for CMM and PPM

- CP subsystem, other subsystems, slice test system (we need to specify in detail what we want to do)

Packages (5)

Calibration: to be done

- Calibration and setup procedures required (some database infrastructure exists)

Hardware monitoring: to be done

- Read hardware status (eg links) and report to IGUI (some IGUI infrastructure exists for this)

Readout (via ROS): to be done

- Install latest ROS software, read events via Online Monitoring framework

Event dump and display: to be done

- Customise event dump (now possible!)

- Develop graphical event display?

DCS: to be done

- Hmmmm

Priorities (1)

CP or JEP?

- We always thought we would start with the CP subsystem

- But the JEM may be the first module ready and eager for testing in a larger scale setup

- ROD firmware exists (tested?) for JEM data and RoIs

- DSS LVDS and GIO cards exist (with tested software?) for sending input data and generating L1A sequences

- Not sure about CMM emulator (ie read JEM data to CMM)

- Special treatment may be needed for the JEM to set its TTCrx parameters (no I2C bus on board)

Priorities (2)

Other

- Feedback from software group required....tomorrow....

Working Groups

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Overview

- Monitoring

- Error handling and fault tolerance

- Databases

Monitoring (1)

Group Members

- Francois Touchard (EF), Sergei Kolos (Online), Hans Peter Beck (DataCollection), Beniamino di Girolamo (DIG), me (Level1)

Aims

- Study monitoring requirements

- Monitoring matrix: data volume between monitoring sources and destinations to plan the network

- Operational monitoring of the DAQ system

- Operational and physics monitoring of the trigger

- Produce monitoring chapter in the TDR

Monitoring (2)

Plans

- Preliminary document already (level1 submission is late)

- Questions to TDAQ subsystems and detectors

- Monitoring workshop (around ATLAS week or database workshop?)

L1Calo specific

- Monitoring sources: PPMs, ROD crate controller, EF monitoring tasks (not ROS in final system?)

- Monitoring destinations: ROD crate workstations, EF tasks combining histograms from many EF nodes, operator workstations displaying results, conditions database for some histograms and other monitoring data

- Volume of traffic is not clear (to me)

- L1Calo monitoring document needs another look in this context

EH and FT (1)

Group Members

- Doris Burkhardt (Online), Andre Bogaerts (Level2/DC), Reiner Hauser (Level2/DC), Beniamino di Girolamo (DIG), me (Level1)

Aims

- Study error handling and fault tolerance in the TDAQ system, including error prevention(!), reporting, recovery, etc

- Comment on (distributed) proposals coming from the Online group

- Common classification of errors

- Produce scenarios for handling errors

- Identify single points of failure

- Recommendations for producing a fault tolerant system

EH and FT (2)

L1Calo scenarios: prevention

- Avoiding system wide firmware update catastrophe!

L1Calo scenarios: robustness

- Parity on links, monitor errors. Do we have parity on links to CTP?

- Single points of failure: CTP! System CMMs and their CTP links? (Backup cabling to CTP from another crate?)

EH and FT (3)

L1Calo scenarios: reporting/recovery

- Dead cells and bad links: report, disable, (typically) fairly small effect. For links can try resetting during run?

- Dead modules, crates: depending on severity, may only make sense to reset outside a run?

- Hot cells: may be in the trigger system or the calorimeter, may be detected by PPM crate controller (rate histograms) and/or by EF monitoring task. Crate controller can only disable the channel. EF task can diagnose calo cell problem, disable calo cell and enable PPM channel again? Potential problems with the same error being recovered in different ways at different places.

Databases

Activity

- Lots of general discussion in TDAQ and ATLAS weeks

- But not much activity of the working group itself...

- Proposal for an ATLAS wide databases workshop early next year

- Thorsten Wengler recently nominated as a new ATLAS wide role as database coordinator (not at a technical level)

- Suggestion that L1Calo give a talk as a "typical" TDAQ system