

Pixel Online Software: Updates, Bugs and Issues

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Pixel Online Software (RCMS)

- Implemented latest finite state machine of Level 0
- Learned and implemented accessing RS3 database with the Function Manager to get XDAQ Application URI for underlying XDAQ Supervisors.

Pixel Online Software (XDAQ)

- Lots of bug fixes for the extension of POS_1_1_0 to multiple FEC/FED crates and multiple boards within crates. Never got to test them before visit to PSI.
 - Added method to PixelCalib to get all FEC/FED crates from module name as a set.
 - Fixed Baseline and Address Level Calibration to implement this method instead of cycling over the modules, thus generating repeated calls to the same crate.
 - Baseline calibration ought to write Black and Ultrablack levels to params_fed.dat before holding Baseline. How else will the FED FSM know where a TBM / ROC header started and which clock cycles it is not supposed to correct?
 - Fixed several minor bugs in FEC and FED Supervisor low level GUI.
- Current mystery(ies):
 - The tops of the TBM signal on FED Channel 4 is cut off on the oscilloscope when I configure for Baseline Calibration. Looking for bad DAC settings!

Renaissance worked fine!
 - On reading Spy FIFO 1 in Transparent Mode, the TBM event number is approximately flat (about +/- 5 from 512). The TBM header is clearly noticeable though.
 - The Black and Last DAC values for each ROC are exactly identical. The ROC header is noticeable though. Pixel hits seems smoothed out to 512 too!
 - The Blacks following and trailing the signal are all EXACTLY 512!

Pixel Online Software (XDAQ)

- New PixelFECSupervisor low level GUI.
 - Meant to reflect settings in the configuration objects.
 - Offers an intuitive drill-down to the ROC level.
 - At the ROC level it sports a COSMO-like GUI allowing the user to debug at the pixel level, and change DAC settings.
 - Will try to understand and use AJAX so that browser doesn't have to refresh with transmission of data to and from PixelFECSupervisor. Immediate control of hardware through the browser, just like Renaissance or Cosmo.
 - Everytime the user changes something, like a trim bit or DAC setting, should a new configuration object be written and spat out as a file in pixel/PixelRun?
 - Demonstration of progress: <http://cmsfpix2.cern.ch:1973/>