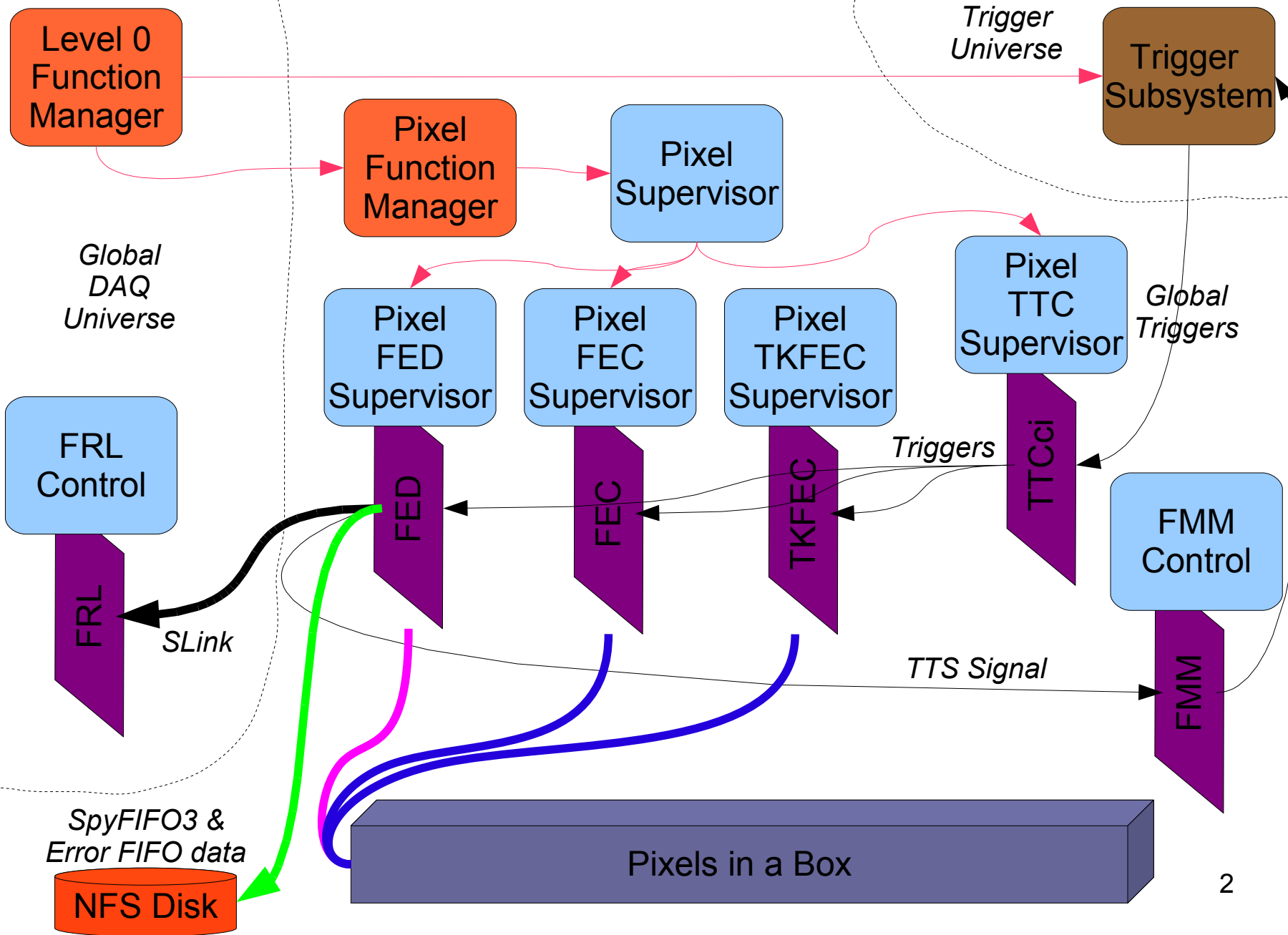


# Global Run Experience for the CMS Pixels-in-a-Box so Far

Souvik Das  
(Cornell University)

# Pixel in a Box at Point 5



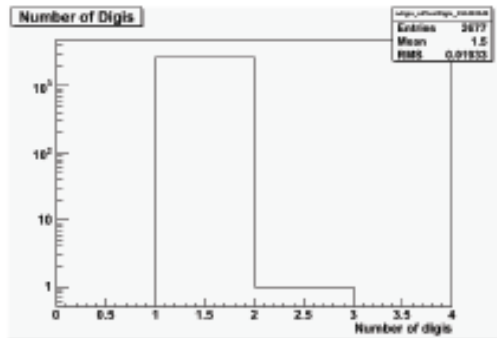
# A Brief Report

- The subset of the Pixel Online Software version 2.6.6 deployed: Run Control (PixelFunctionManager, RS 3 Configuration), XDAQ (PixelSupervisor, PixelFECSupervisor, PixelTKFECSupervisor, PixelTTCSupervisor), worked out of the box with the Run Control, Central Trigger and final DAQ.
- We did a Delay25 Calibration, CalDelay-WBC Calibration, VcThreshold-CalDelay Calibration, Address Levels Calibration, FED Baseline Calibration and a Pixel Alive Scan before we sent it into action.
- It is now fully controlled by the Central Run Control now and needs little intervention from us.
- We are the most stable system so far with the most amount of data collected!

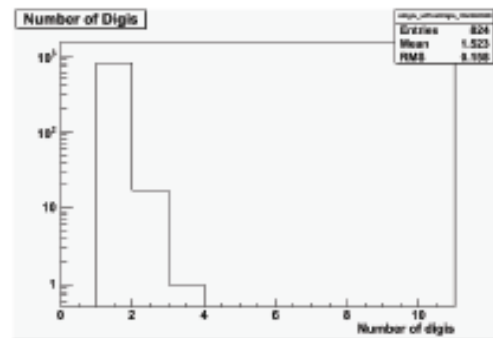
# Occupancy Plots from Offline Software Group

- We took some data for 4 different values of VcThreshold just to see if we get the expected increase and decrease in occupancies.
- The data collected is being sent by DAQ's Event Builder through Storage Manager to Tier 0 automatically for Offline Analysis. Vincenzo produced and showed us these occupancy plots for various runs at the Pixel Offline Software Meeting:

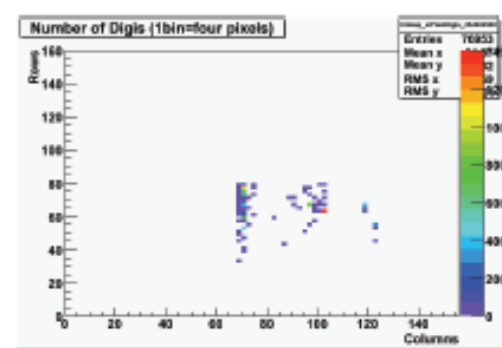
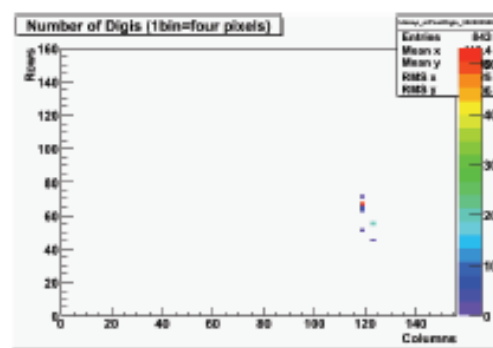
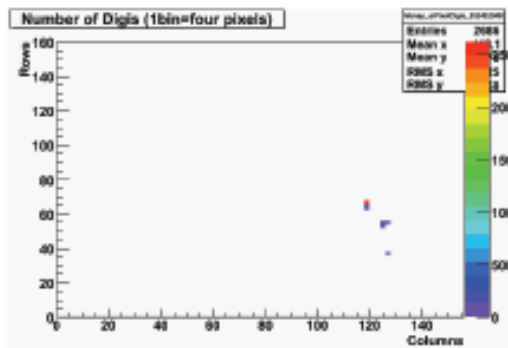
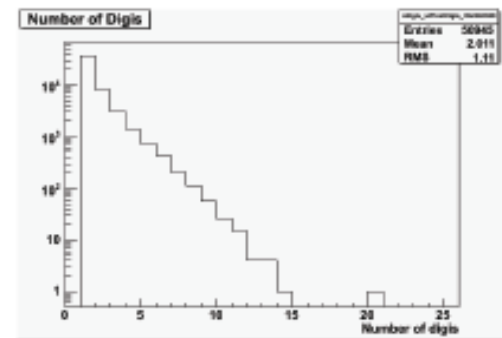
**RUN  
37298**



**RUN  
37266**



**RUN  
37292**



# Things a Pixel Shifter Must Keep an Eye On

- Currently we're keeping a Pixel's Log at:

<http://spreadsheets.google.com/pub?key=pBwd4hDF5QT-oABcMBvI7Fw&gid=2>

It is a Google Spreadsheet that works exactly like an Excel / OpenOffice spreadsheet but can be modified online by anyone with the correct permissions (so far Viktor, Anders and myself). It can be exported to Excel / OpenOffice / PDF / HTML etc.

- The voltages and currents on the CAEN power supply via a telnet client. The channels to keep an eye on are MOU0 (48 V), MOU1(48 V), Vdig(~1.07 A), Vana (~0.933 A), HV0 (200 V), HV1 (200V), PORT (0.45 A), CCU (0.78 A).
- The quota in pixelpro/TriDAS/pixel/PixelRun. At the end of each run, move the .dmp and .err files to vmepcs2b18-11.cms:/home/PIBData/[X]March2008/. If the quota in our NFS area becomes full, the PixelFEDSupervisor hangs.
- The FMM Controller to make sure we're not spending any dead time in sTTS BUSY / WARN. If we do, then we should log it.
- Find out where the triggers are coming from. We use muon triggers from the Drift Tubes (DT) at ~ 70 Hz and occasionally from the Resistive Plate Chambers (RPC). Sometimes for debugging purposes artificial triggers are generated by the Central Trigger Controller. Log the trigger rate as seen in PixelTTCSupervisor and its source in the spreadsheet.
- The baseline shifts should be written out to a file and not streamed to the console output which is lost. Ideally we could also present them on the FED's low level GUI.

# Problems & Improvements to Make

- Spy FIFO 3 data spying becomes unreliable  $< 1000$  Hz. Will Johns fixed it but this is at the HEAD of CVS. Not yet tried at the PIB. So you'll see strings of 0's in the .dmp files now because we never go beyond 70 Hz with the DT triggers.
- Baseline Corrections should be written out to a file or we must have some other way to keep an eye on this.
- We're using single-command transfer mode in the FEC. More timing calibrations may be necessary before we can get the buffered mode to work.