Lab Framework, DESY Test-system (gated mode) and MPP Test-systems

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HELMHOLTZ RESEARCH FOR GRAND CHALLENGES

DESY

Lab Framework

- Focus was less on developing new scripts but on debugging, performance and usability improvements (Lab Framework → Calibration Framework)

- Usability improvements:
  - Porting to the new abstraction layer introduced by Philipp and Harrison (Göttingen)
    - Many standard scripts make use of the new DHH classes
    - New features: gate-wise offset calibration, automated shift of pedestals into dynamic range
    - But we are lacking behind with development of new features due to commissioning, Phase 3 and TB
  - Shifter operation
    - Exclude command line based tools → integrate more optimization scans into CalibrationIOC
    - Simplification of common shifter tasks (e.g. pedestal upload)
    - Improve feedback

Lab Framework

Lab Framework

- Performance improvements:
  - Speed up of common optimization scripts
    - Multi-threading implemented/improved in many scripts
  - Offset calibration results largely improved by gate-wise optimization
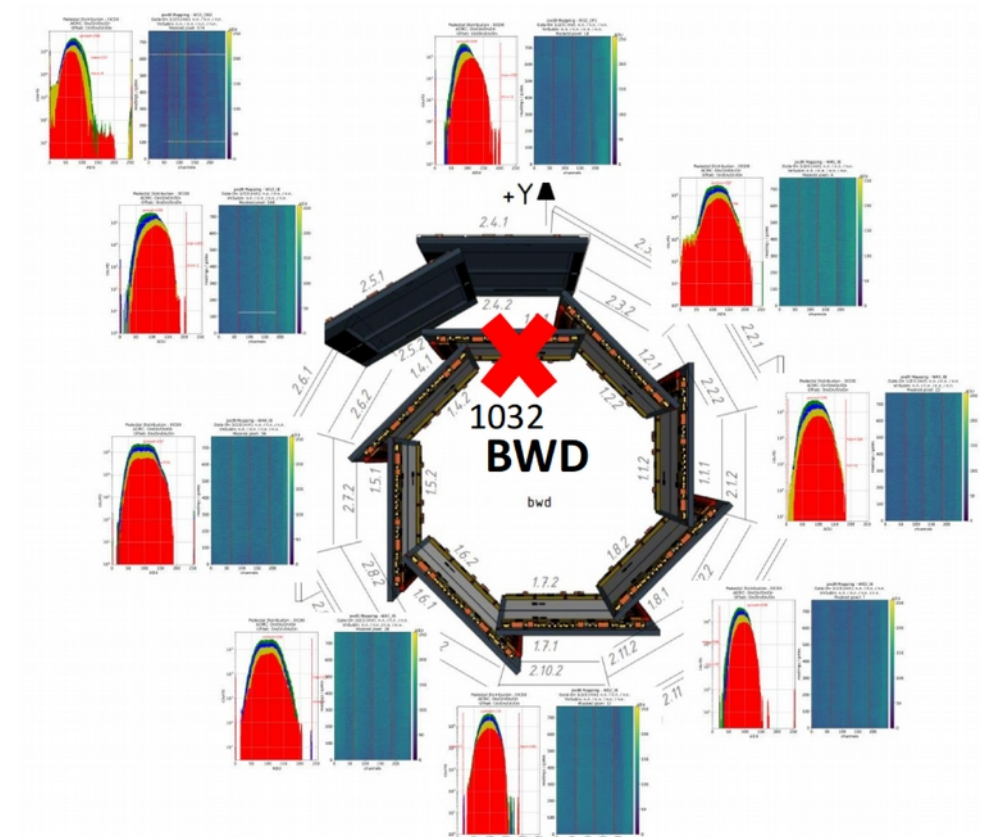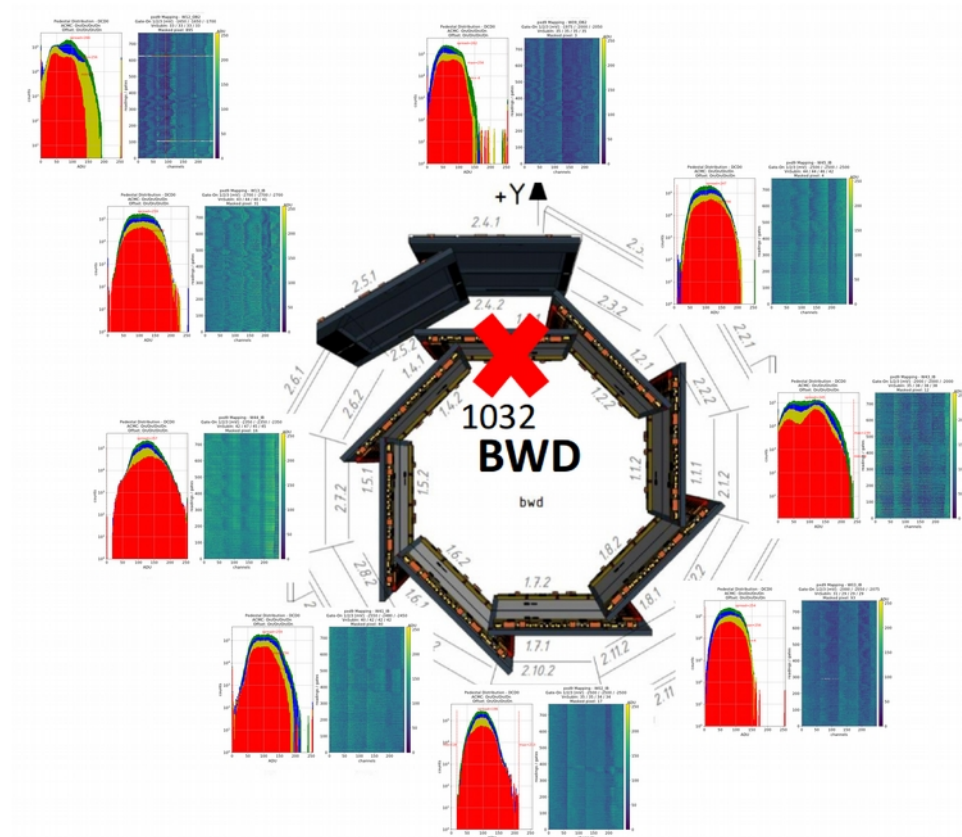
Lab Framework

- Debugging

  - Still an evolving system → code modifications necessary due to changes in hard-, firm- and software

    - e.g. Trigger changed from internal to FTSW

    - PVs changed names or were discarded from phase 2 to 3

  - New problems with modules

    - e.g. Module 2041 which needs special order in Jtag communication to ASICS

Lab Framework

- Summary
  - We did not had the possibility to test everything in advance since the system was/is still evolving.
  - The transition to many modules/DHHs created more problems than expected/hoped.
  - Reaction time on errors was fast and we solved a lot of problems.
  - Increased use of Jira (again) is rather helpful to keep track of any issues.
  - Please consider to check pull requests once a week.
    - Keep feature branches focused on single development.
    - Test every new code/change thoroughly before merging into the master.

- Points raised during the workshop
  - Make the transition to more formal pull requests (limit push to master) during the summer shutdown.
  - Keep the end of maintenance of Python 2 at the end of 2019 in mind.
  - Track the used pedestals in the archiver via the last-pedestal-path/-update Pvs.

DESY Test-system

- Very important test bench for

    - DHH firmware (covered in another session)

    - IOC

    - Lab Framework development

    - Gated mode (see talk by Felix B.)

    - PXD shifter training

    → We should keep the test system alive as long as possible.

Test-systems at MPP

- Primarily for characterization and optimization of production modules and ladders

- But also valuable for

  – Lab Framework development

  – Crosschecks of developments for DHH system on DHE (lab-)system, which is used also for test beams

  – Verification of services, e.g. PatchPanels

  – Training of new colleagues in the operation and the handling of PXD modules

- One old PC hardware was replaced (pxdtest1 → pxdtest12) and PXD software was updated

- Using epics-module-stream and CSS OPI for bench PS control and monitoring
  https://confluence.desy.de/display/BI/Setup+Lab+computer+Scientific+Linux+7

- Missing updates / Plans:

  – LMU PS firmware and IOC

  – DHE firmware (Lab version?) and IOC

  – DHH system for ladder setup