Recent developments in Calice XDAQ based acquisition

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XDAQ reminder

- XDAQ is the CMS framework for DAQ software developement, providing
  - Communication framework (HTTP,SOAP,Binary)
  - Configuration tools
    - XML description of processes, applications and networks
  - Event Building
  - Automated Job control
  - Run control (not used in Calice)
  - Logging,monitoring and diagnostic system (not used in Calice)

Recent developements

- Since last year the main developments are :
  - Inclusion of DB support for configuration,construction and running
  - DAQ V2 inclusion
    - Low level software developped at LLR
    - XDAQ application handling one LDA
    - DB model
  - Run control development
    - Python based, it managed :
      - Jobs creation and configuration
      - DB storage of run condition
    - GUI under developement

Databases

- Configuration DataBase
  - Oracle based
    - Account in CCIn2p3
    - Support of (Hard.Spi,Micro)Roc chips
    - Support of USB/DAQ V2 cabling
    - Software
      - PL/SQL packages for inertion and download
      - C++ and python API (swig translation)
  - Modification via python scripts
    - Can be also done using C++ analysis code with the same API
  - Performances
    - Download M3 O(s), Upload M3 O(min)

Databases (2)

- Construction DataBase
  - Sqlite based
    - Store Chamber-DIF association
    - Store Gain calibration(/pad)
  - Python scripts to parse the constuction database
    - populate the Configuration DB
    - Create XDAQ XML configuration
- Running DB
  - Stored in Oracle account
    - Run, Processes id,XDAQ xml configuration used

Deployment

- XDAQ installation
  - SLC5 Linux Pcs
  - Via RPMs from CERN repository
- CALICE software
  - From IPNL svn repository
  - Semi automatic scripts to install SDHCAL developements and DAQ V2 ones
  - Librarian needed
    - 2 weeks work to standardize the installation
    - Long term support

Current and future work

- Backup DAQ with USB for the M3
  - Adapt latest developements done for DAQ V2 to old USB software
    - Automated creation of XDAQ XML configuration
    - Minimize DB access (1 per PC instead of 1 per DIF)
- Integration of ECAL and AHCAL
  - Mainly DB insertion of chips configuration
  - Maintenance of LDASupervisor (LLR?)
  - Integration of the calibration loops and analysis
    - Detector specific
- Finalize data writing and online analysis policy
  - Framework
  - Monitoring and Event Display