

DAQ software for the AHCAL.

CALICE Meeting, Arlington

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Arlington, September 2016

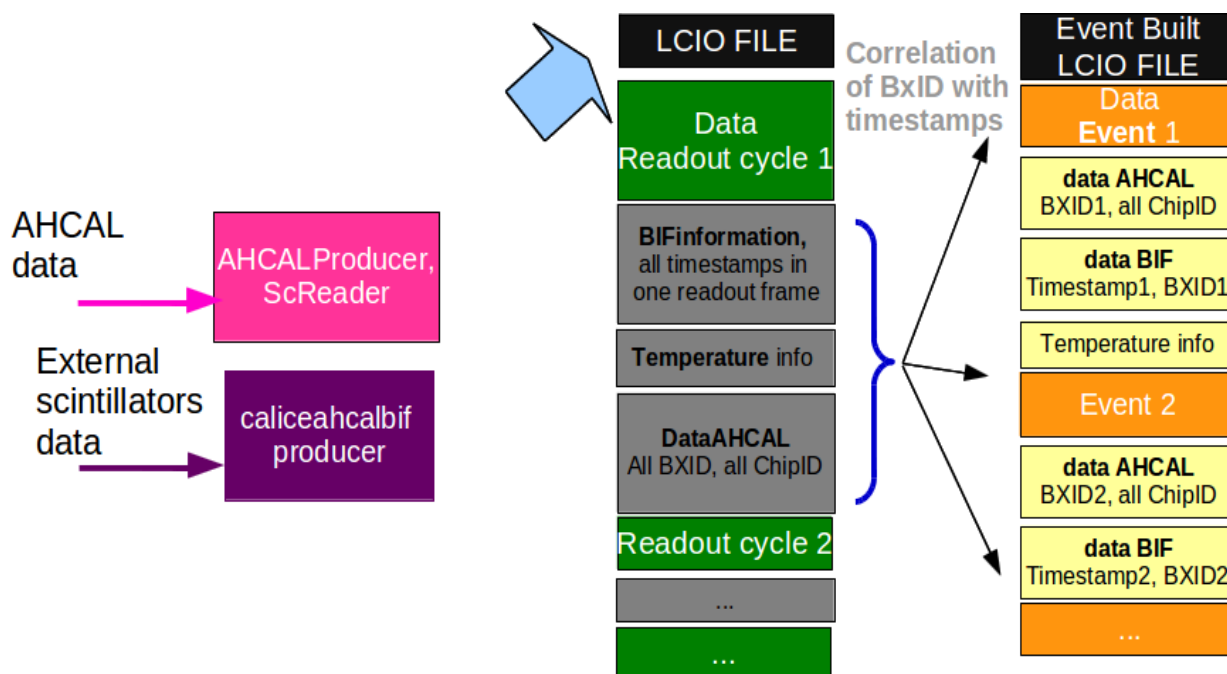


EUDAQ as central DAQ run control

<https://github.com/EUDAQforLC/eudaq>

> EUDAQ 1

- Several producers → one datacollector
- > as central and high level DAQ (sends start/stop, basic configuration strings and collects the data)
- > **Successfully** used during last 2015 testbeam campaign (**5 periods of testbeam**) and **2016 beam campaign**.
- > Test beam on May, July 2016 (DESY, lines TB22 and 24)



EUDAQ: towards common ILC test beams

- > **Work in close collaboration with EUDAQ developers**
 - Jan Dreyling, Yi Liu, Hendrik Jansen
- > and other CALICE DAQ experts.
- > **EUDAQ 1 stable release. EUDAQ 2 in development.**
 - EUDAQ workshop in Nov2015; AIDA2020 WP5 meeting during 4th BTTB workshop Feb2016, **AIDA2020 WP5 meeting in October (?)**
 - Monthly EUDAQ / Common DAQ / Monitorig meetings (AIDA2020 wp5)
- > AHCAL+ BIF setup in the lab to serve as **EUDAQ 1 and 2 test case** → ongoing work with nice prospects.
- > A lot of new features introduced (also some bugs have been solved) in EUDAQ during last year in order to cope with all CALICE needs. See next slide



EUDAQ: towards common ILC test beams

- > Summary of progresses in EUDAQ (implementation done by the EUDAQ experts in close collaboration with AHCAL):
 - **EUDAQ 2 not saving data in any format.** It was managing the data assuming that EUTelescope producer was present. This is solved since April 2016, therefore now it works with any other producer → **tested in the lab and beam test**
 - EUDAQ FSM was very simple →
 - > For the moment, only in EUDAQ 1 (tag 1.7)
 - > Two initialization/configuration instead of one are introduced.
 - > **Init state:** for time-consuming procedures that only need to be done in very few circumstances
 - > **Config state:** for faster reconfigurations.
 - > **implemented and tested in the lab**
 - EUDAQ 2 not creating **LCIO events** → **solved, under test**
 - It was requested that EUDAQ 2 **producers can send the data to several data collectors** → **implemented,, under test**
 - **Serialize LCIO events** (needed, for example, to stream events to monitoring frameworks) → **implemented , under test**



Monitoring: DQM4HEP

> DQM4HEP

- Developed for SDHCAL testbeams by Rémi Eté (IPNL) and Antoine Pingault (U. Gent) <https://github.com/DQM4HEP>

> Very nice and flexible tool,

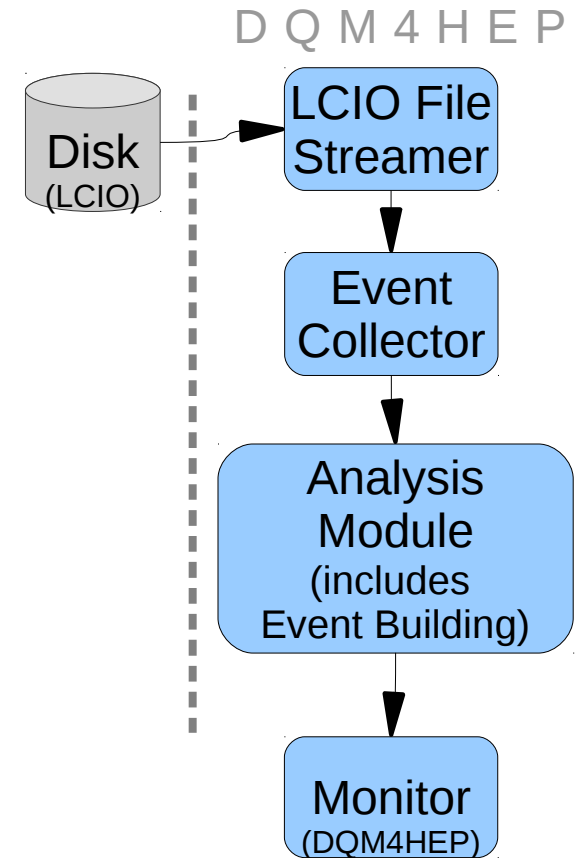
- Generic data structures are compatible with any input data type
- Data format is “blind” – no compatibility issues, but no default/automatic behaviour

> Used successfully in May and July beam tests

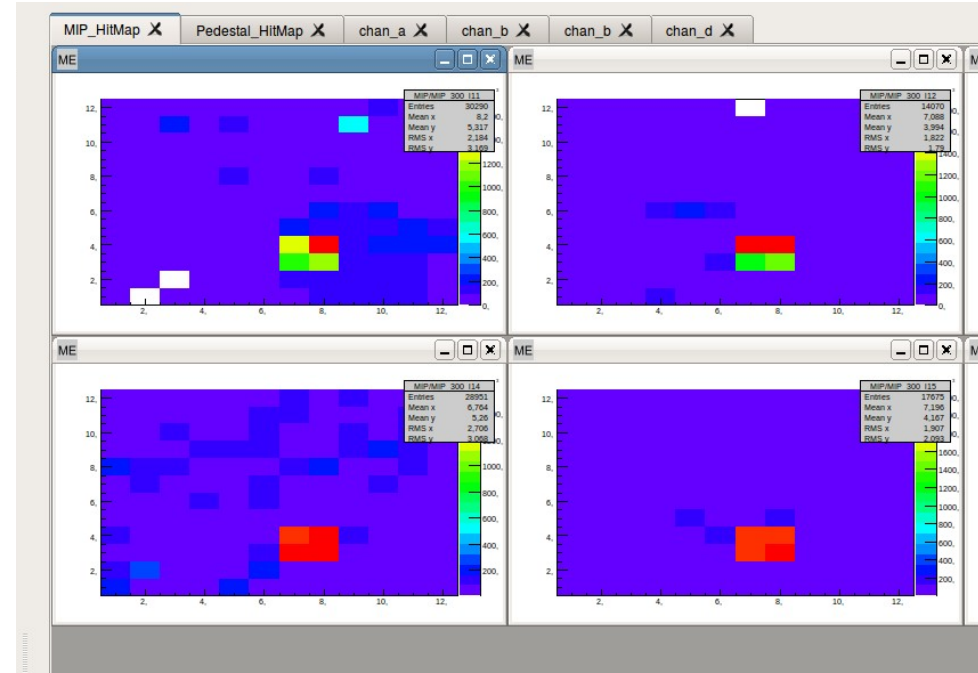
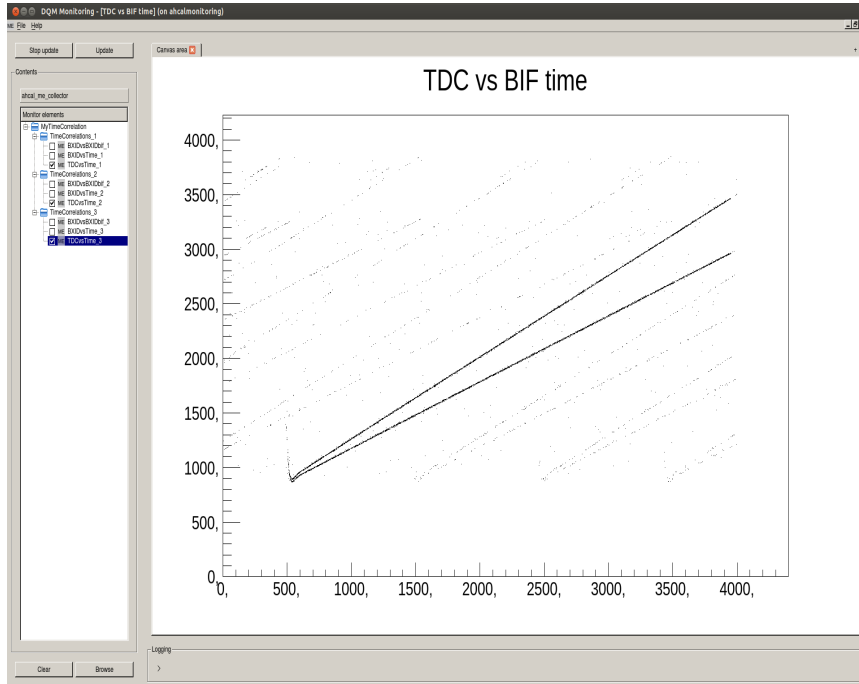
- Support from U. Sussex during test beam (Tom Coates)

> (For the moment) **DQM4HEP reading Lcio files written by EUDAQ**

- Next step: read directly the Lcio events streamed from EUDAQ



Monitoring: DQM4HEP



> Online Time Correlation of two detectors: BIF+AHCAL

- Event building done in the analysis module

> Integrated a geometry mapping (chip, channel, layer order → xyz or IJK)

- Using a standard xml handling

