



In2p3

LIR



DAQ2 : status

News since September'12

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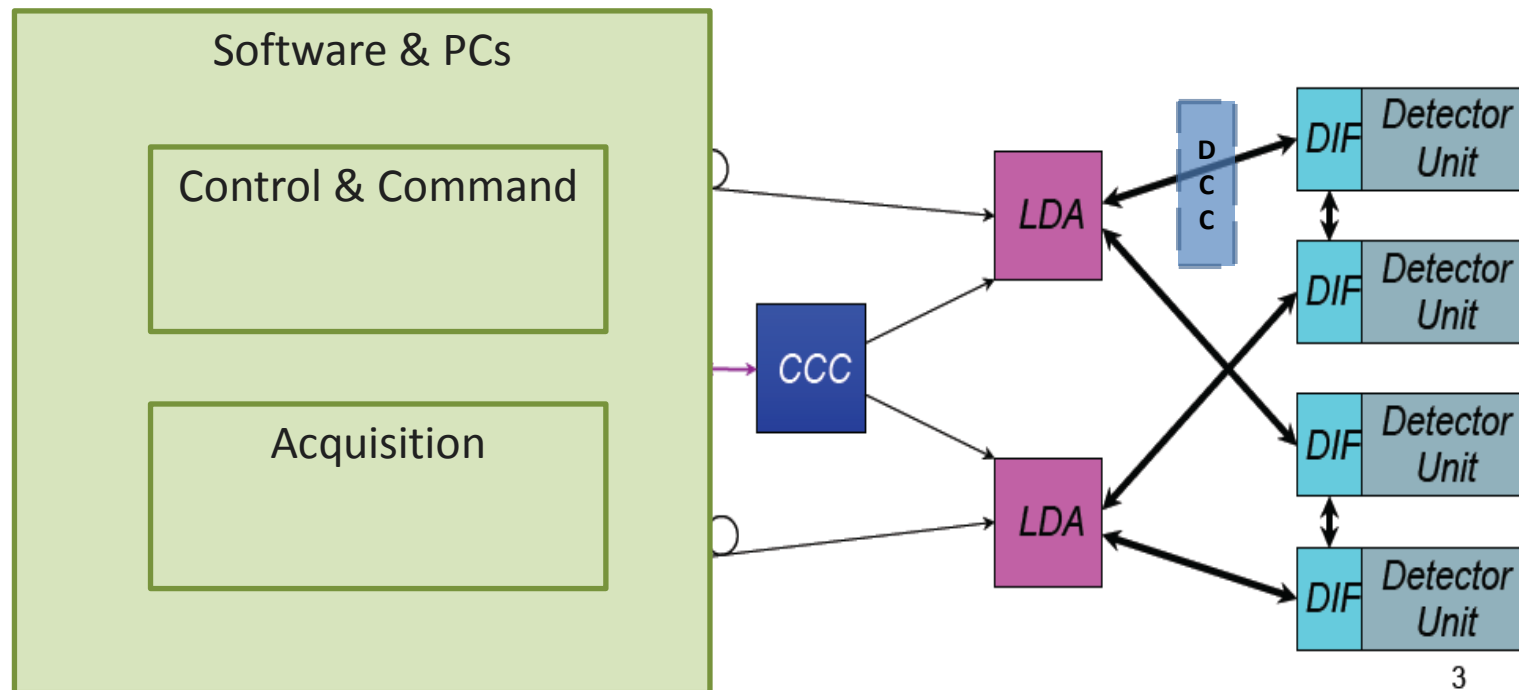
LIR

What's new (since september'12) ?

Reasonably sized setup : 1 PC+1 LDA+6 DIFs, 1500 channels, 150 events/s, synchronization with CCC if several PCs are used

Note : using 6 DCCs, the number of DIFs can be 54 (~13k ch. of Si-W Ecal or 17 layers of SDHCAL)

Low level software has been completely rewritten
Cosmetic changes in firmware (DIF)
GDCC received (firmware in good progress) !



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Why a new software ?

1. Most of the problems seen with SDHCAL were due to

- software (in particular the “libLDA” library)
- Some blocs in DIF firmware (ROC chips interface, see my talk during last calice week in japan)

Since May’12 : big effort to remove definitely the “libLDA”

- First approach for July’12 ECAL test beam
- “libLDA” completely removed in new version

2. Need of a modular and scalable software architecture (control& command)

- “network” of small modules
- **Global configuration with xml files**
- **Scriptable at any level**

Designed for ECAL but compatible with other detectors provided minor and local adaptations

Still need some work,
Please refer to F. Magniette’s talk



DIF

Final data consumer (control&command) & leaf producer (DAQ) =>
firmware has to be design to ease software processing of incoming/outgoing data packets

We have defined new packet types & types modifiers for that purpose
eg. DIF now reply to commands with same packet ID
use of a DIF ID

Next developments will concern parameterization of ROCinterface and its full compatibility with all chips

- Programmable timings
- Acquisition modes
- Fine tuning of waveforms
- Essentially cosmetic changes
- Require smart software (that'a why is has not been done before)

Designed for ECAL but compatible with other detectors provided minor adaptations of ROCinterface



DCC / GDCC

DCC :

- No changes in firmware
- New layout & new production : obsolete components changed
- 8 DIF ports + LEMOs

GDCC :

- Boards are received
- Firmware is under design (partial use of LDA firmware + new optimized blocs)

See F. Gastaldi's talk



EUDET hardware

LDA & CCC can be used for desktop setup & small testbeam setups provided appropriate mechanics is used (under your responsibility)



See M. Frodin's talk

Overall system

Some remaining weaknesses

- Cabling and mechanics (hold your cables !)
 - See M. Frotin's talk
- Buffer overflow (missing data, rare)
 - New feedback feature will allow all components (DIF, DCC, GDCC, SW) to interact dynamically in case of overflow (under design)
- Some instability in old LDA (fixed asserting resets)
- Software components to be improved
 - Packet capture (some losses, neglectable @10Hz spills)
 - Will be improved using UDP/IP with GDCC
 - Multi-LDA (on the same PC)
 - Not tested, New software is allowing that
 - Framework Integration (XDAQ...) ?
 - DBs ?
 - Form factor for a full size detector



Next steps

Next steps for development will be driven by ECAL needs (the only detector we have in hands for testing –limited in scale–).

Recent developments will be used for the next ECAL testbeam

Our developments are compatible with all CALICE detector provided minor and local (in well identified components) adaptations.

Interested in ?

- Please contribute.
- You will need to understand the system : we could only provide a limited support
- Come & see @LLR



Questions ?



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