Overview of DAQ status, C&C and ODR

Matthew Wing (UCL/DESY/UHH)
for DAQ groups: Cambridge, Manchester, RHUL and UCL
Slides from B. Green and M. Postranecky

Electronics/DAQ meeting, DESY, 12 December 2008

Outline

- Overview of DAQ system
- Overall status
- Immediate plans
- Clock and control card
- Off-detector receiver
- Summary
- *(Bart will cover the DIF and LDA)*
- *(Tao will cover the software)*

Overview of DAQ system

Detector Unit: ASICs

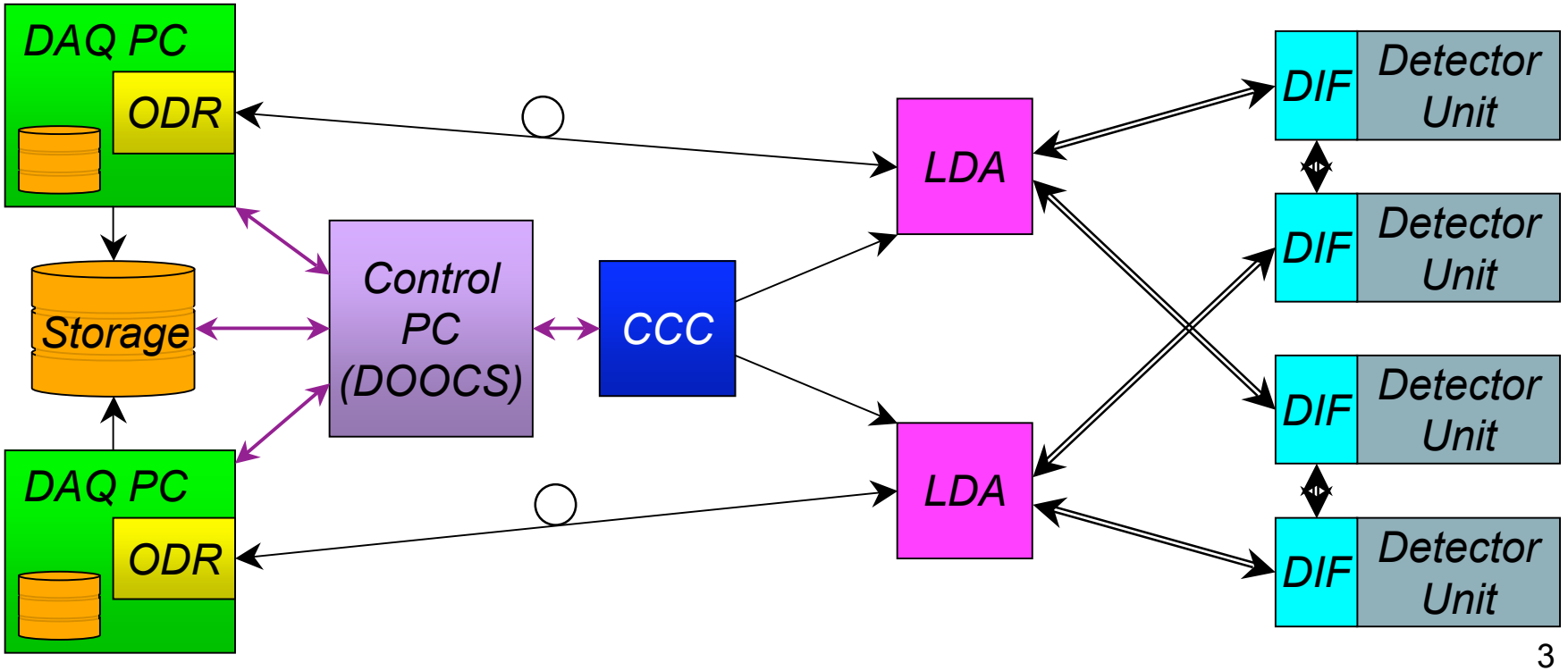
DIF: Detector InterFace connects generic DAQ and services

LDA: Link/Data Aggregator fansout/in DIFs and drives links to ODR

ODR: Off-Detector Receiver is PC interface

CCC: Clock and Control Card fans out to ODRs (or LDAs)

Control PC: Using DOOCS



Overall DAQ system status

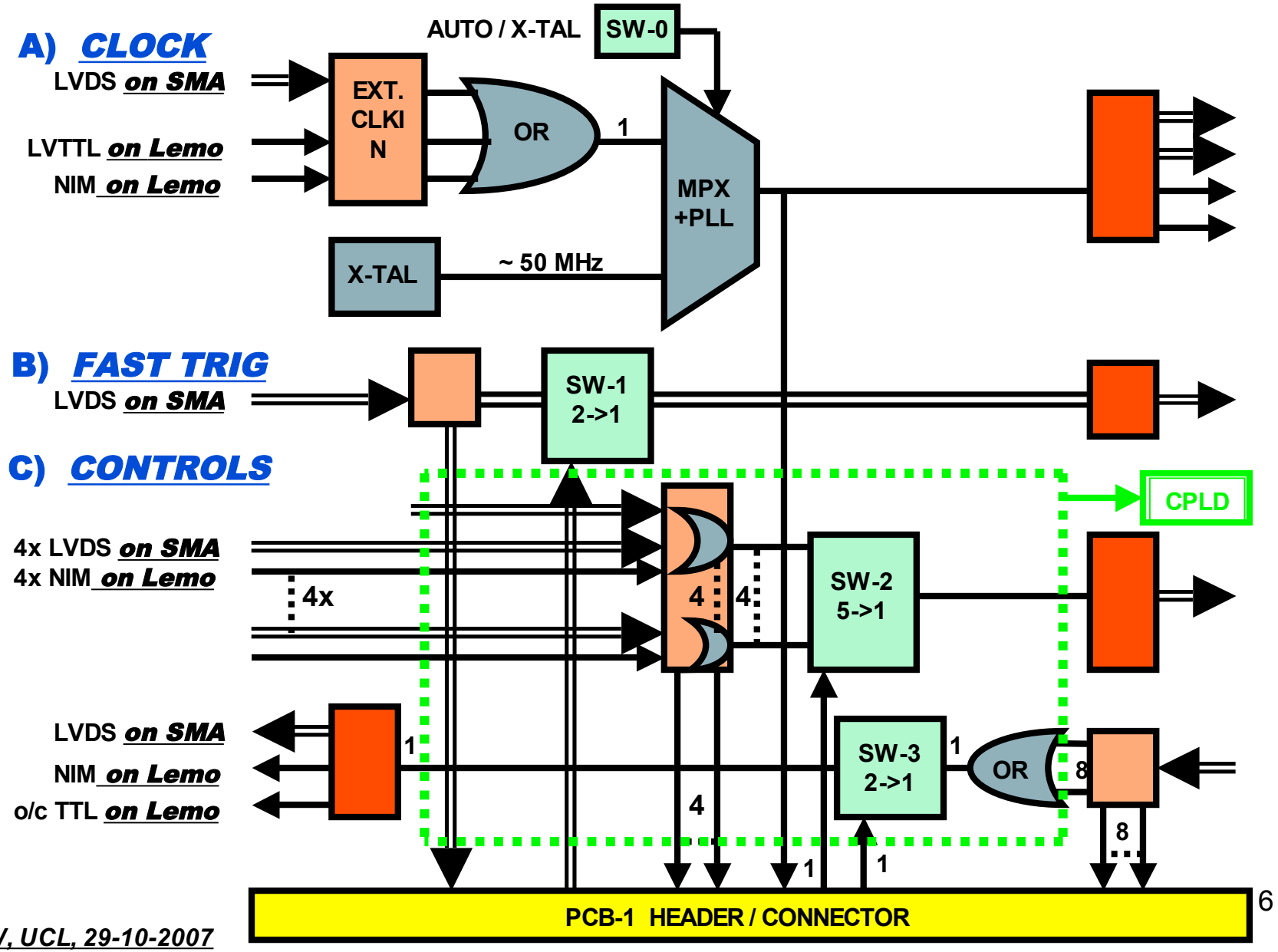
- Prototype ODRs have been around for a while
- LDA had problems which are now fixed
- CCC tested and working
- Prototype ECAL DIFs have been around for a while
- Progress on use of DOOCS
- Work on links ongoing

All hardware ingredients exist and tested - now working on joining up and towards a full system test.

Immediate plans

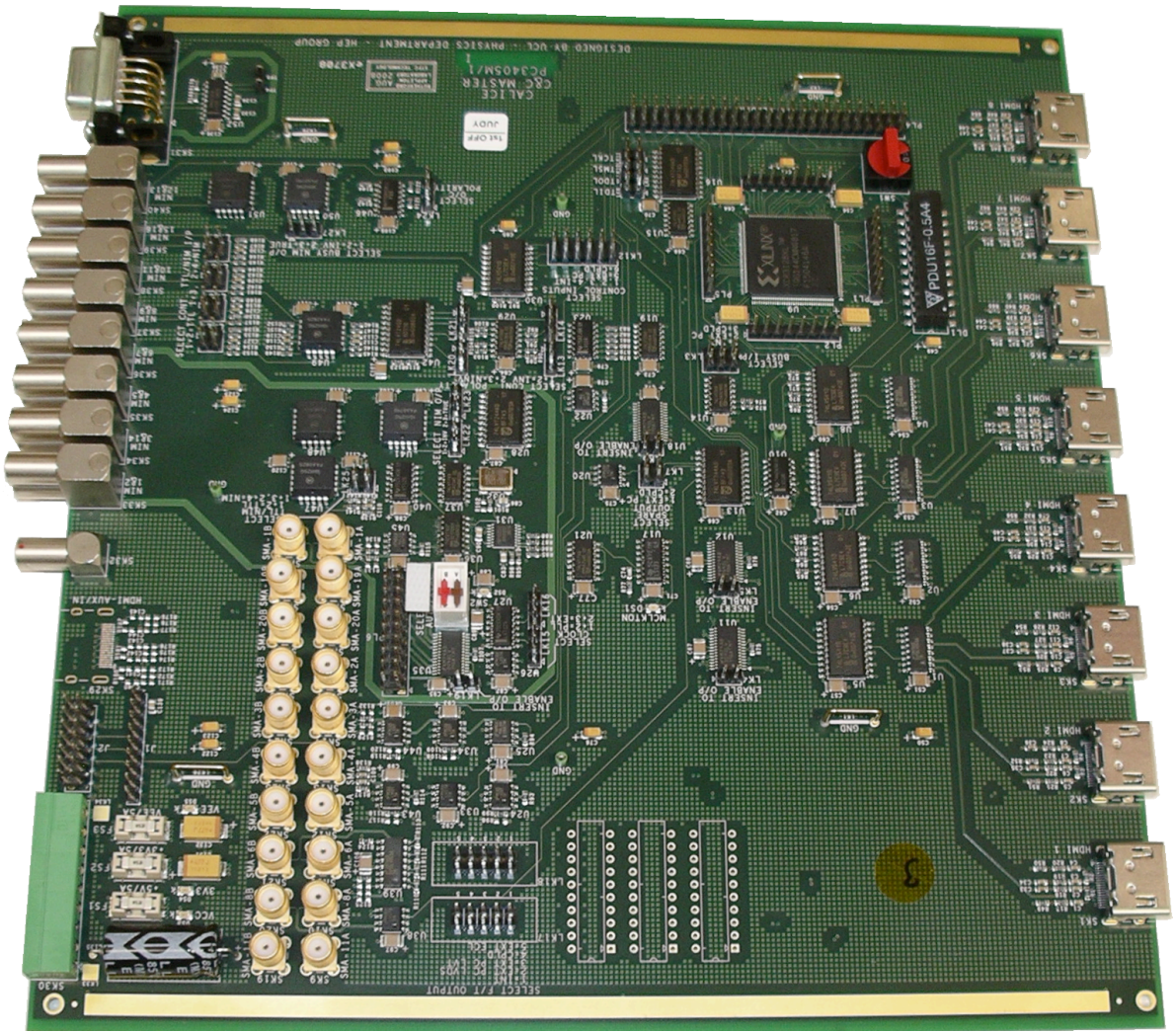
- Testing links, writing firmware for full system test (next month)
- Then all components in one lab to get full system working
- Procurement of more components
- When is it useful for detector groups to have some parts or a full system?

Clock and control card - schematic

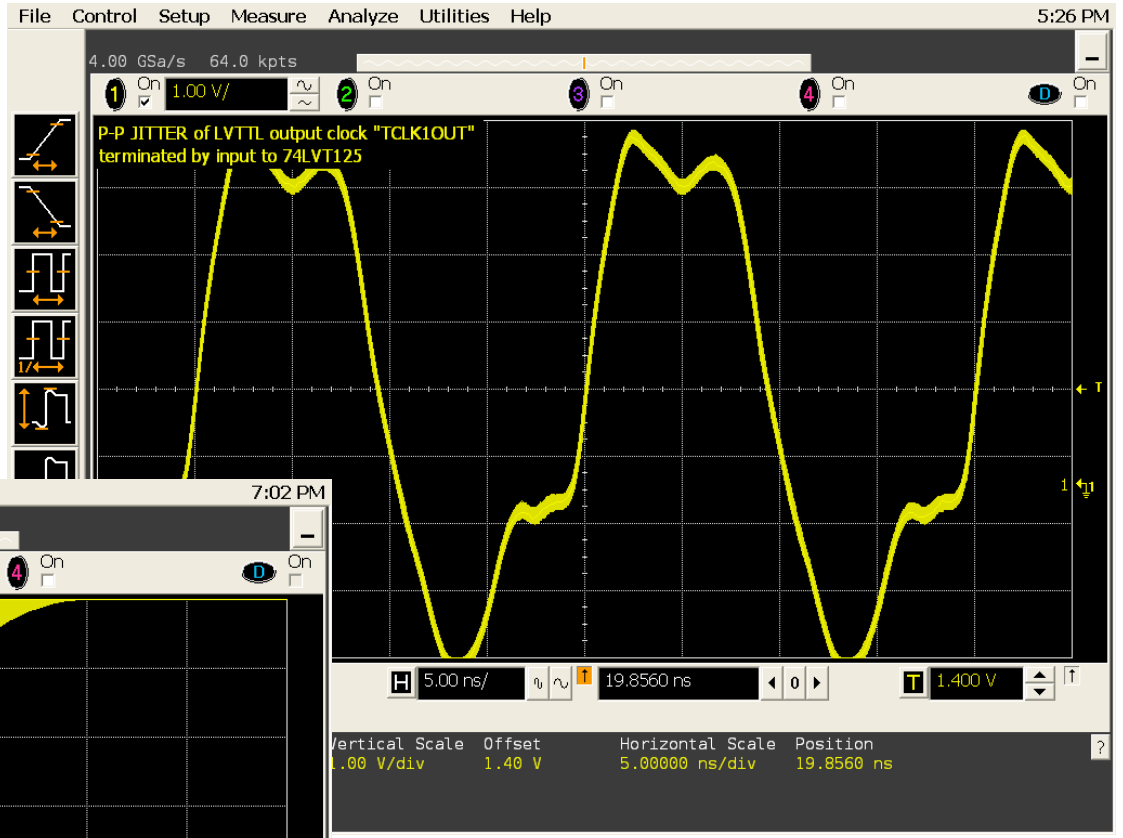


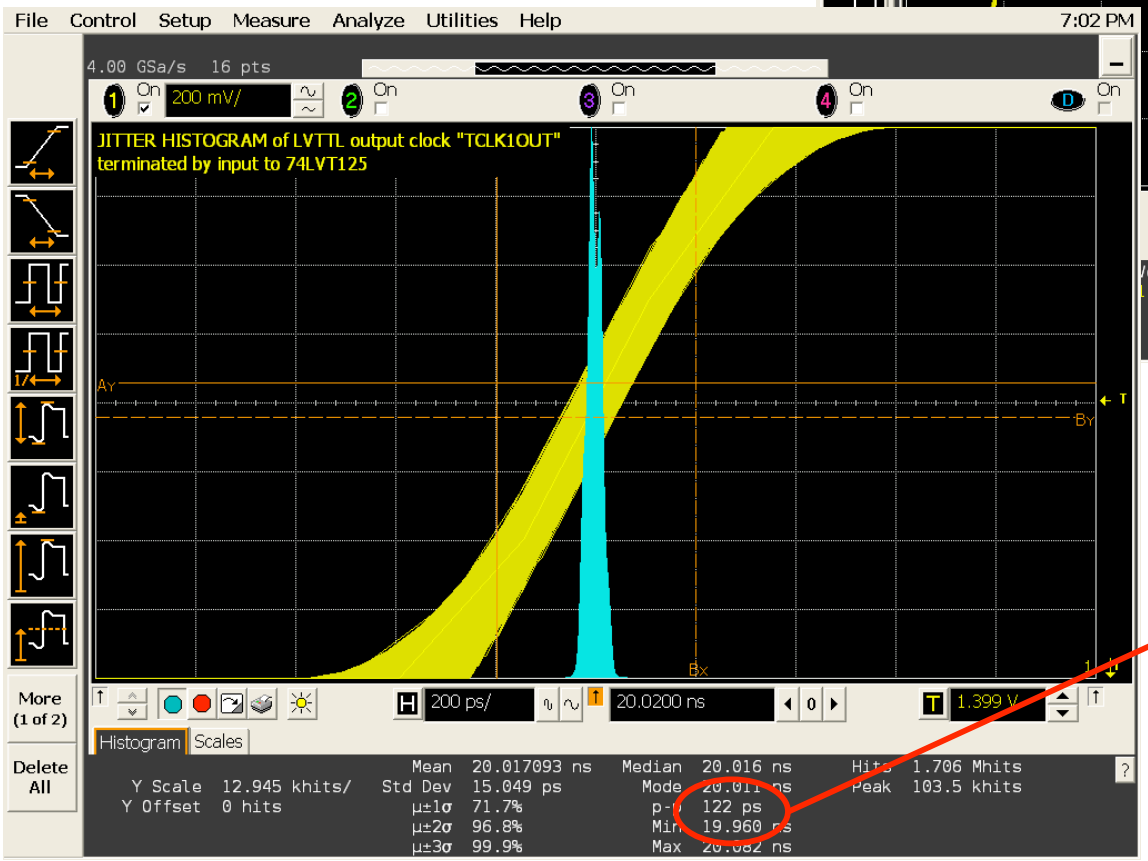
Clock and control card

- Two prototypes tested and fully functional
- Firmware for tests written and more being developed
- A further eight boards are being ordered
- An operating manual is being written
- Interface to DOOCS being done



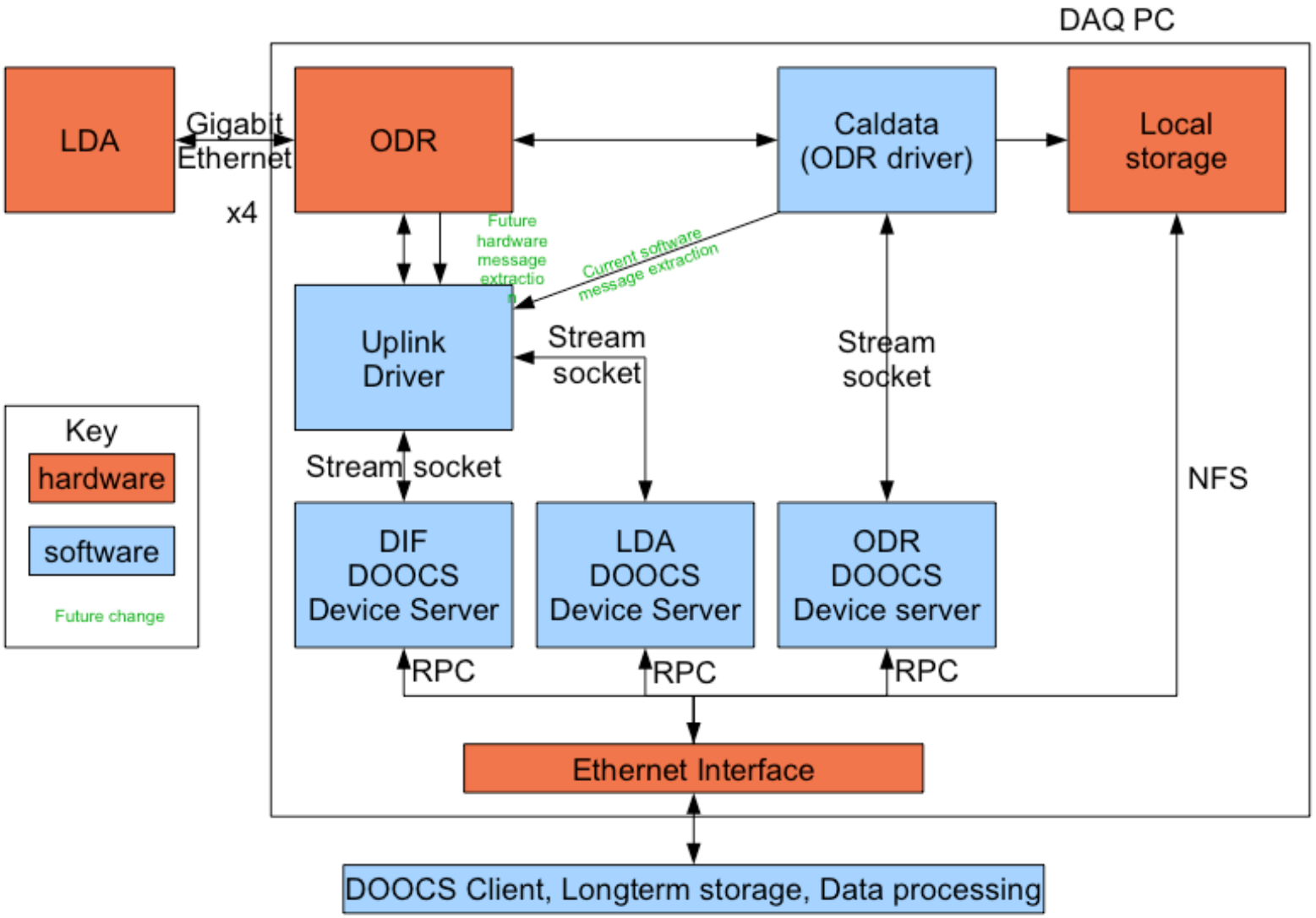
Clock jitter





Jitter: 122 ps

Off-detector receiver - DAQ PC



Off-detector receiver - DAQ PC status

- Firmware
  - o Stable, only control message extraction change pending
  - o Available on CVS
- Software
  - o Stable, only control message extraction change pending
  - o Available on CVS
- Documentation
  - o Variable levels of completion
  - o Available on Twiki

Off-detector receiver - DAQ PC resources

- ODR programming manual
  - https://www.pp.rhul.ac.uk/twiki/bin/view/CALICE/OffDetectorReceiver4Guide
- ODR firmware description
  - https://www.pp.rhul.ac.uk/twiki/bin/view/CALICE/OffDetectorReceiverFPGAFirmware
- Caldata user guide
  - https://www.pp.rhul.ac.uk/twiki/bin/view/CALICE/CaldataUserGuide
- DAQ PC experts
  - b.green@rhul.ac.uk
  - warren@hep.ucl.ac.uk
  - misiejuk@pp.rhul.ac.uk
- Software & Firmware CVS
  - http://isscvs.cern.ch/cgi-bin/cvsweb.cgi/Stage1/?cvsroot=caldaqwp2.5
  - http://isscvs.cern.ch/cgi-bin/cvsweb.cgi/ODR/software/?cvsroot=caldaqwp2.5
  - CVS web access is only available to web browsers running within CERN subnet.

Summary

- All individual components now exist and work
- We must get all links working and plan to put the system together in January
- What would be useful for detector groups and when? Parts of or all system?
- It would be good to have a list and so we can plan and purchase

Extra details

C&C: Top of the PCB silk :
http://www.hep.ucl.ac.uk/~mp/CALICE_C-C/CALICE_C-C_pc3405m1-J_Top-Silk_28-08-2008.pdf

C&C: Top of the PCB assembly schematic :
http://www.hep.ucl.ac.uk/~mp/CALICE_C-C/CALICE_C-C_pc3405m1-K_Top-Assembly_29-08-2008.pdf

C&C: Complete Circuit Schematics :
http://www.hep.ucl.ac.uk/~mp/CALICE_C-C/CALICE_C-C_pc3405m-1aa-K_Schematics_29-08-2008.pdf