

Calorimeter DAQ status

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Reminder:

- EU grant complements PPARC grant
- several UK institutes involved
- have a concept for a DAQ system: commercial, backplaneless, etc.
- now use a DAQ system for a prototype as well as test-bench work for evaluation of ultimate performance

Off-detector receiver: PCI cards

Idea to design PCI cards using e.g. PCI Express bus and host them in PCs.

Simpler to just buy(!) the cards.



PCI cards

Bought PCIe cards from PLD applications (<http://www.plda.com/>):

- **model: XpressFX100**
- **FPGA: Xilinx Virtex-4 FX100**
- **bus: PCIe x8 lane.**
- **Gbit optical and copper transceivers**

Hosted in computers in our labs.

Have a box diagram of a structure for passing data in such a system.

- **writing firmware for each box (several people: one person per box)**
- **collected in central repository**
- **first goal is to get data to be read into (and out) the host memory and measure the speed of throughput.**

Data transfer on 1.5 m PCB

In collaboration with French groups, designed a system for testing data transfer on PCBs.

Using FPGAs mounted on PCB, “simulate” final PCB

- Number of transmission lines
- Cross-talk, noise
- Power, etc.
- Feed in results to design of *real* board

Design done, fabrication to start.

FPGA data controller at end of PCB.

Networking

Two aspects to our networking studies:

Conventional network switches:

- testing ultimate performance of PCI Express.
- use bought PCI card: set-up so measurements can be made.
- series of tests done for other systems, PCI-X, ethernet, to be repeated.

Optical “layer-1” switch:

- work to start in 2007

Summary

On target for PCI card completion (made simpler by buying off the shelf!)

Other aspects of DAQ system also on schedule.

Finances also on target.