ROS and L1Calo

*... and the dish ran away
with the spoon!*

B.M. Barnett - RAL PPD ~ RAL UK ATLAS Level-1
Calorimeter Trigger Meeting
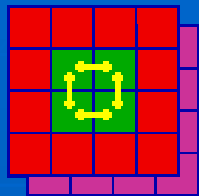
Overview

- **Meetings**

- **Discussions about ...**

- **Solutions**

- **Old h/w model**

- **New h/w model**

- **Implementation (2)**
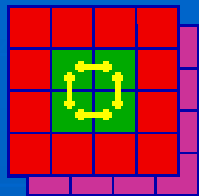
Meetings

- 27 March, after Rod Crate Daq workshop:
  - Attending:
    - Bruce Barnett, Norman Gee, David Francis, Benedetto Gorini, Murrough Landon, Beniamino di Girolamo and Ralf Spiwoks
  - Objectives:
    - to clarify the issue of monitoring and acquisition within that L1Calo, in particular addressing the needs of slice tests which are commencing in the UK
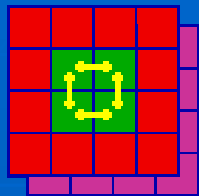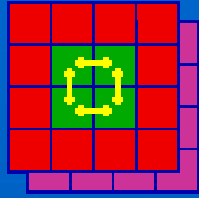
Discussions about …

- Setup:
  - Slice test architecture
  - Use of vectors in system tests
- Needs:
  - Performance
  - S-Link inputs
 - Fraction of events to be monitored
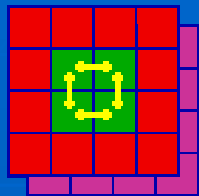
Solutions:

- Use custom dataOut()
  - a component of ROS also used by Rod Crate Daq
  - To select bad events for storage/study.
- Revisit proposed h/w architecture to
  - Optimise s-link capacity
  - Make use of new developments

Old h/w model

- ## Up to 10 s-links
  - ### We have 6 ODIN pairs
    - But we may need more than 10 (when including CTPD)
    - New hardware can't mix in same PC as old h/w
    - Shouldn't invest in more ODINs

- ## Single Industrial PC
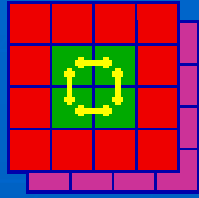 - ### with large PCI slot count
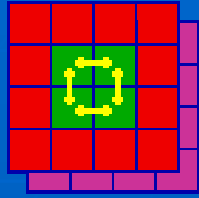
New h/w model

- ODINs
  - Keep some for continued development
    - Transision interval
    - Stand alone tests
  - Replace with FILAR and HOLA technology
    - Now available, tests look promising.
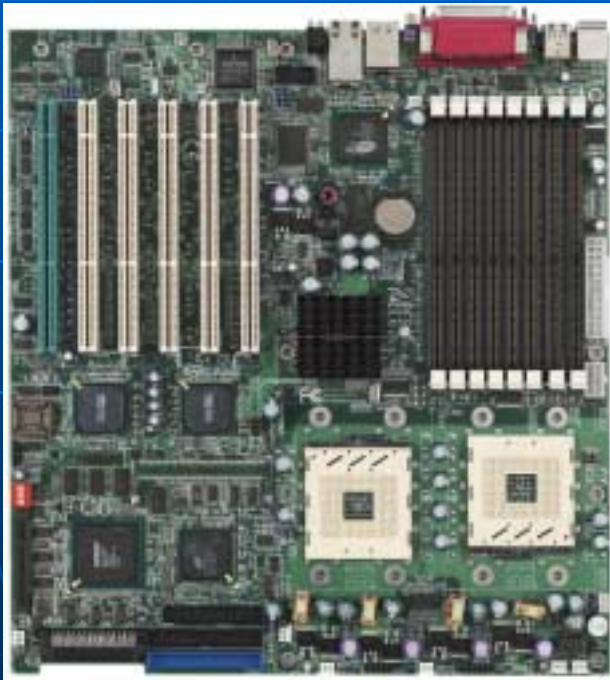   - FILAR provides ROS with h/w assist in s-link fragment management.

- PC:
  - Use PCI-X based architecture
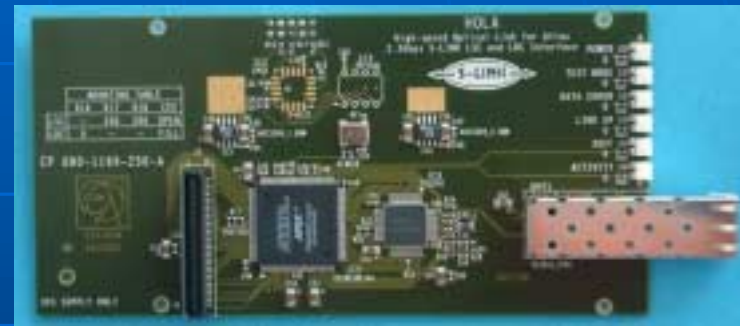 - High bandwidth. High effective slot count.

Implementation (1/2)

Serverworks P4DL6 motherboard, based on Grand Champion LE Chipset
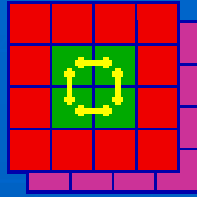

HOLA: High Speed Optical Link for Atlas

FILAR: Four Input Links for Atlas Readout (64 bit, 66MHz PCI-X: 528 GByte/sec)

Implementation (2/2)

- Infrastructure:
  - Now: need
    - RH Linux 7.3.1
      - Basic systems installed
      - Netboot underway.
    - Online v 19.
      - Software (M.L.) available …
    - Gcc 2.95.2:
      - Provided with ASIS addons.
  - Then: Reinstall ROS
  - dataOut() will be needed. Sample from Rod Crate Daq available for study.
- HOLAs:
  - Available, but long delivery time…
- FILARS
  - Available soon …
  - S23PCI64 f/w interface the same. Could borrow right now.