

Photon DAQ status

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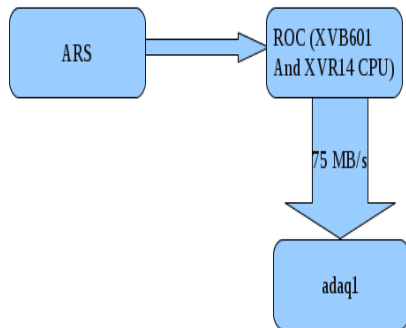
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Some Hardware (Intel CPU)

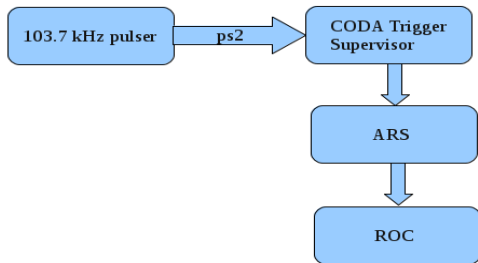
- 1 How much data can we transfer?
- 2 How fast do we want to transfer the data?
- 3 Blaster checks give 75 MB/s from ROC to adaq1 machine when the hall is not busy.
- 4 Need to consider:
 - conversion-time (time to digitize data).
 - readout-time (ARS module to ROC).



What were the plans?

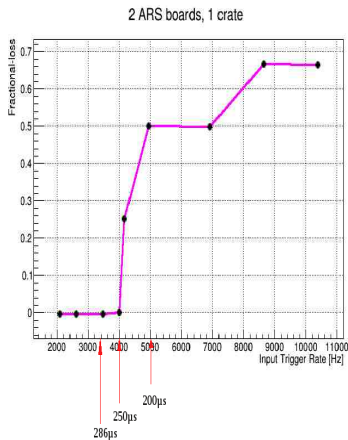
- The general plan was to transfer run control and event builder/recorder from adaql2 to adaq1 (newer and faster machine).
- Make changes to ARS library.
- Investigate processing time.
- New trigger module was on its way.

DAQ state, summer 2013



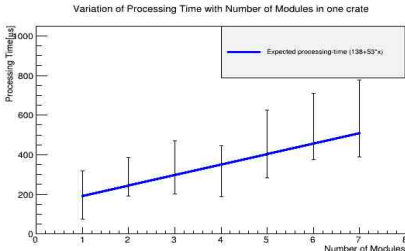
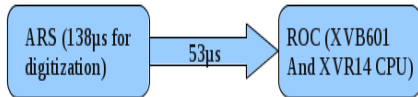
Processing-time = Conversion-time +
Readout-time

$$F_L = 1 - \frac{N_R}{N_T}$$



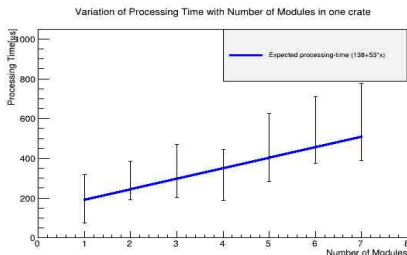
DAQ state, summer 2013 cont.

- Investigated processing-time (conversion-time + readout-time) for different number of ARS boards in ROC27.
- The conversion-time is $138\mu\text{s}$. The readout-time from one module is $53\mu\text{s}$.



DAQ state, summer 2013 cont.

- Investigated processing-time (conversion-time + readout-time) for different number of ARS boards in ROC27.
- The conversion-time is $138\mu\text{s}$. The readout-time from one module is $53\mu\text{s}$.
- miss events at 2 kHz for 7 ARS in one crate and 2.5 kHz for 5 ARS in one crate for periodic trigger.



- upcoming DVCS experiment set to run at rates ranging from 0.2 Hz to 5 Hz, HRS rates from 0.1 kHz to 2.5 kHz (E12-06-114 proposal).

Trigger Testing

What we know:

- Magali Magne delivered new trigger system at jlab in September 2013.
- Trigger system is block transfer.
- We know that it works at low rate but hangs at high rate.

How have I been involved so far?

- Installed new trigger on adaq1.
- Lost connectivity due to work going on in the hall.

What is left?

- 1 At low rate:
 - check integrity of trigger data.
 - check on-board scalers and do dead-time measurements.
- 2 Investigate behaviour at high rate.
- 3 Implement trigger and ARS readout.

- Moved to jlab this week and plan to stay on site at least until end of 2014.
- Immediate plan is to work especially on the trigger under the supervision of Paul King and Alexandre Camsonne.
- Looking forward to work on other aspects of the DVCS experiment.
- Plan to use this work as basis of a Masters thesis by August 2014.