

Heavy Photon Experiment engineering tun DAQ/ offline readiness review Closeout

Committee:

Graham Heyes (chair), Sandy Philpott, Chris Cuevas

Observers:

Veronique Ziegler, Mark Ito, David Lawrence, Gagik Gavalyan

Initial comments

- This mini-review is in anticipation of an upcoming external review.
 - Let you know how we think you are doing.
 - Let you know how to avoid “red flags”.
 - Give us a “heads up” on things that we should be thinking about regarding HPS.

Hardware

- Charge
 - Is hardware in place for high rate data acquisition?
 - If not is there an acceptable completion and commissioning schedule?
- Hardware is not yet in place
 - It will be in place soon, August.
 - Parts of the hardware are already tested.
 - It is critical to get the new SVT readout hardware on site to give sufficient testing time.
 - Embedded ROCs are particularly concerning since this is quite new.
 - A lot of complex hardware
 - It wasn't made clear to the committee if the SVT detector itself will be ready for the initial runs.
 - Recommend producing a detailed plan for having the SVT in place?
 - Recommend a full detector test, including SVT electronics (even if there is no SVT detector) before at least a month before beam?

DAQ

- Charge
 - Has the DAQ system demonstrated readiness for high rate data acquisition?
 - If not is there an acceptable completion and commissioning schedule?
- Readiness of the DAQ was not completely demonstrated
 - Based on the 6 GeV era CODA backend with updated ROC code.
 - The old CODA version has the benefit of being stable and well understood but
 - Target 50 kHz was never done by CLAS using the old CODA backend. What was the limitation.
 - Recommend a rate test running at 50 kHz with the correct number of ROCs to prove that the requirements can be met.

JLab and IT resources

- Charge
 - Are available JLAB resources adequate to transport and store the data?
 - Do the required resources match with the available JLAB computing resources?
 - If not what is needed?
- As far as reconstruction is concerned, yes.
 - The software seems to be in very good shape with data volumes and processing loads which, while non trivial, are manageable.
 - An outstanding question was save to DST and Lcio?
- The regarding simulation is less clear.
 - The estimate that 500 job slots would produce 1 week of simulation in about half a year. With three weeks of running in 2015 this is concerning.
 - Some arguments were made but nothing concrete was presented
 - Recommend that this is be firmed up and a plan put forward

Calibration etc

- Charge
 - Is the software for data calibration, alignment and quality checks ready?
 - Is the reconstruction software ready?
 - If not is there an acceptable completion and commissioning schedule
- The initial schedule being shown had overrun issues and was simply re-baselined by slipping it forward in time.
- This was clearly unacceptable to the HPS group so the task list was pared down to remove the niceties and leave the “should” and “must” to give an October 1 ready.
- Recommend that you more clearly show the revised task list, what was discarded and why.

Reconstruction

- Charge
 - Are adequate plans in place for rapid data analysis?
- The committee discussed
 - Suggest you look into code profiling or document it if you are doing it.
 - Software validation - does the software running this week produce the same results as the software from last week.
- It wasn't clear to the committee what the expected momentum resolution is and what is the current resolution validate the reconstruction?

Conclusion

- Many good things
 - A lot of the software is in very good shape and the hardware is close to being ready, testing schedules are important.
 - Monitoring software was really nice, having all the histograms on the same GUI was a good feature.
 - Will there be automated histogram generation? If not then it would be a useful feature.
- Will you be ready? Probably, but there are open questions.
 - Manpower estimates were not clearly communicated. This is part of producing the overall plan between now and beam.
- You have put in a lot of work and clearly recognize a lot of the issues
 - David did check out some of the monitoring and managed to get it to compile.
- I will provide a written report at a later date. You may respond to the initial suggestions and recommendations in this closeout and I will fold that into the report.
- Overall we were very impressed by the progress made so far.