General Remarks

The Review panel congratulates the project for its good preparation for the review and the high quality of the talks, which addressed essential points in the Charge.

The size and the technical development which is in place for software development looks consistent with the physics goals of HPS. The ECAL Software tasks need more effort and monitoring with intermediate check points. The schedule presented was very detailed and convincing, although tight because of the external constraints on the timeline of the HPS deployment. A critical path analysis would help to define the prioritization of the tasks. The reviewers recognize the outstanding efforts of the present manpower to support all software needs but recommend leveling the effort for those who are over-allocated by finding new resources where possible among the participating institutes.

Findings:

The resources required for simulation, the mock data challenge, and the actual data taking and processing are in line with the requirements Hall B stated in JLab's November 2013 computing and software external review for computing and storage.

Comments:

1. All the tasks were shown as equally important toward the goal of running the HPS Engineering Run, with no prioritization.
2. The Mock Data challenge should be considered with higher priority.
3. Data Quality checks and performance monitoring procedures should also be developed as part of the Mock Data Challenge.

Recommendations:

Define a list of priorities for the tasks which will be needed to run HPS on the beam in October 2014.

Responses - 1

- Recommendation: Prioritize the tasks
  - Only a few tasks have had priority assigned, we need to prioritize all. Especially, we need to identify "critical" tasks.
  - Is tagging the tasks with a priority sufficient?
    - We could extract lists and put those on confluence, but it is more work to maintain.
  - Method for setting priorities?
    - Top down / bottom up / consensus?
- Mock data challenge at higher priority
  - Are all preconditions for MDC start specified?
- Data Quality checks and performance monitoring procedures for MDC
  - What procedures are in place?
  - What do we want to monitor?

2. Is the design fully specified to start the development? What is the current technical status of the Project?

SLAC

Findings:

A non-negligible manpower effort from Italy has recently been made available for the ECAL and the Software.

Comments:

1. The tasks required to deliver the software for ECAL may be underestimated.
2. The time allocated to set the Cluster Algorithm appear too long; existing algorithms should be adopted.
3. For managing offsite file transfers, the group may want to investigate Globus Online, which is supported through JLab's gateway at 10 gigabit rather than using scp from the interactive farm nodes.

Recommendations:

1. Implement one of the existing clustering algorithms, e.g. that for the CLAS inner calorimeter, within a short period of time (3-4 weeks).

- Recommendation: Implement one of the existing clustering algorithms.
    - This was started, expected to finish soon.
    - Is this sufficient?
        - Up to the ECAL group to decide what clustering algorithms are needed.
- The tasks required to deliver the software for ECAL may be underestimated.
    - Are there additional tasks that are missing from the schedule?
- Use Globus to copy data.
    - Good idea ➔ Data manager implements.

3. Are the interfaces with the other sub-system sufficiently understood, e.g. SVT, ECAL, Slow Control, Beamline, TDAQ. Have liaisons been identified?

SLAC

Findings:

Holtrop has liaisons with Ecal (Fegan), SVT (Moreno), and Beamline (Girod) .

Comments:

1. The Offline module will exchange information with the TDAQ and the Slow Control, but the plans on how this is to be developed were not presented.

2. Database and DataStream project tasks were recognized necessary to project but they were not included in the planning. although for slow control and TDAQ will exist, and there are plans to push many slow control information into data stream

Recommendations:

None.

Responses - 3

- TDAQ ➔ offline interface

  - EVIO reading is already implemented.

    - Does this need revisiting?

    - HW address translation, needs revisiting?

- Slow Control ➔ offline interface

  - Slow control will store data in a MySQL DB at Jlab.

  - Interface needed? (new task, priority?)

4. Does the team have a resource-loaded schedule for project execution that allows the installation and the commissioning in Hall-B by October 2014?

SLAC

Findings:

The only person in charge of the Data Handling and Storage is leaving the project. This job is of critical importance to get the Software integrated at JLAB. We understood that a Post-Doc based at JLAB will take on this role.

Comments:
1. The schedule and the manpower presented were very detailed, although a critical path analysis would help to prioritize the tasks needed to complete the project on time.
2. Some of the manpower is over-allocated, showing where extra effort is needed.

Recommendations:
1. Level the manpower which is over-allocated with new resources.
2. Assign a new DH&Storage manager as soon as possible

- Recommendation: Level manpower.
  - Ongoing process!
    - I could use some help here with your feedback.
  - As tasks and task duration become more clear, loads will change as well.
  - New people can look for tasks of current people with heavy loads and join the effort.
    - Better to un-assign the tasks?
- Recommendation: Assign DH&S person soon.
  - Any volunteers with experience?
- Critical path analysis:
  - Critical path is highlighted in green, but not really analyzed…

Findings:

None

Comments:

The level of Milestones presented is adequate for much of the project. Milestones look achievable provided that they are carefully monitored and that a sufficient level of effort remains available.

Recommendations:

Add intermediate milestones for the ECAL software project and monitor them regularly.

Responses - 5

- Recommendation: Add additional milestones for ECAL

  - Suggested milestones?

    - We could turn some "end of tasks" into milestones.

  - I plan to revisit the schedule regularly in the software meetings.

Findings:

Maurik Holtrop is serving as overall software manager, and Matt Graham as overall analysis manager. Holtrop has liaisons with Ecal (Fegan) and SVT (Moreno)

Comments:

Additional liaisons should be established with Trigger, DAQ, and Data Handling.

Recommendations:

Assign additional liaisons for critical software tasks, and develop oversight of the entire software enterprise for HPS.

Responses - 6

- Recommendation: Additional Liaisons

  - Trigger & DAQ

    - Who would be a good person to interface with TDAQ, i.e. Sergey and Ryan?

  - Data Handling

    - I think this is what the Data Handling and Storage manager is for?

  - Other liaisons needed?

    - Slow controls / beamline?
    - Muon detector?

7. What are the risks of the project which would affect the delivery by October 2014? Have risk mitigation been adequately addressed?

SLAC

Findings:

None

Comments:

Schedule and Manpower are the only risk factors, which can be handled with continuous monitoring and a higher level of milestones for critical tasks like ECAL and the SVT alignment.

Recommendations:

None

Response - 7

- Continuous monitoring of the tasks
  - I will be bugging all of you about this.
    - Will that be sufficient?