

12 GeV Software and Computing Review Committee Charge

Aug 24, 2016

The committee is asked to review the state of software and computing developments for the 12 GeV program at Jefferson Lab, with particular emphasis upon

- Detector simulation, calibration, and event analysis
- Workflow tools for production analysis
- Computing plans, including projections for cores, disk, and tape for the next two years
- Software and computing management
- Performance of the Scientific Computing Systems
- Collaboration readiness to produce timely results for publication

The committee is asked to address the following questions, keeping in mind the different timelines for the different halls (e.g. Hall D / GlueX has completed its engineering run phase and is since Fall 2016 in production running; CLAS-12 is a few months out, and should be ready for production running around Summer 2017):

1. Offline Software: Detector Simulation and Analysis
 - a. Are the halls making appropriate progress towards having their simulation, calibration and analysis software ready? Are they meeting their previously set milestones?
 - b. Have an adequate set of milestones been identified, and an appropriate set of tests been incorporated into the milestones, to measure progress towards final production running?
 - c. Are the halls doing the right level of at-scale testing of each of simulation, event reconstructions, and physics analysis appropriate to the time before engineering and physics running?
 - d. Are the halls getting users engaged at an appropriate level to demonstrate usability and readiness from a user's perspective? Have the collaborations identified effective and appropriate mechanisms to support utilization of the software by the entire collaboration? Is the level of user documentation appropriate for this point in time?
 - e. Are appropriate efforts towards software commonality being made across the halls and/or with the wider HE/NP communities?
2. Management
 - a. Did the halls respond appropriately to the recommendations of the last review?
 - b. Are staffing levels for software development and documentation appropriate?
 - c. Are the current management structures and processes well-matched to the needs of the collaborations (including users)?
 - d. Are there appropriate contingency and risk-management processes in place? Have risks been appropriately identified?

- e. Are reasonable change control processes being used to address scope and milestone changes?
- f. Are there adequate plans for transitioning from a development phase into a deployment and operations phase? Are the timelines appropriate?

3. Computing and Networking

- a. Are the requirements for computing, storage and networking well stated and well justified? Are all of the assumptions clearly stated, and are all of the units clearly defined (e.g. "E2670 v4 core" vs "core")?
- b. Are the computing and networking plans of the laboratory well matched to the requirements? Are they cost effective, and are budgets appropriate for these plans?

4. Readiness for producing publishable results

Given the anticipated dataset for the first year of production running:

- a. Do the collaborations have all software elements in place to produce timely results on this dataset?
- b. Are the collaborations properly organized, with working groups engaged in relevant simulations, calibrations, and higher level physics analysis to effectively and efficiently analyze the expected dataset?
- c. Are there any identifiable gaps in computing resources that would impede the timely production of publishable results?