

**FY13 Acquisition Planning Process Document**

**SC Lattice QCD Computing Project Extension  
(LQCD-ext)**

**Unique Project (Investment) Identifier: 019-20-01-21-02-1032-00**

*Operated at*

Brookhaven National Laboratory  
Fermi National Accelerator Laboratory  
Thomas Jefferson National Accelerator Facility

*for the*

U.S. Department of Energy  
Office of Science  
Offices of High Energy and Nuclear Physics

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March 22, 2012

**FY13 Acquisition Planning Process for the SC Lattice QCD Computing Project Extension  
(LQCD-ext)**

CONCURRENCES:



March 22, 2012

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William Boroski  
LQCD Contractor Project Manager

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Date

**LQCD-ext WBS  
Change Log**

<b>Revision No.</b>	<b>Description / Pages Affected</b>	<b>Effective Date</b>
<b>0.0</b>	Entire document.	March 22, 2012

## LQCD-Ext FY13 Acquisition Planning Process

22-Mar-2012

Step	Description	Target Due Date
1	The LQCD-ext Computing Project team (i.e., “the Project”) will provide the LQCD Executive Committee (EC) with data summarizing the distributions of job types and sizes during the prior year on the hardware operated by the Project (Infiniband clusters, GPU-accelerated clusters, and the BG/Q rack at BNL). The Project will request that the EC provide the anticipated scientific program requirements for various architectures (i.e., leadership-class machines, BG/Q rack or Infiniband cluster, and GPU-accelerated cluster). Information on USQCD hardware usage will be presented to the collaboration at the 2012 All-Hands Meeting (May 4-5, 2012).	Apr 15
2	The Project will prepare the F13 Acquisition Strategy document for presentation and review at the FY2012 DOE Annual Progress Review. The Acquisition Strategy will outline the various options under consideration and the proposed process for selecting the mix of computing hardware that will be procured and deployed in FY13 using project funds.	May 16
3	The Project will request that the BNL site manager prepare a plan for procuring any additional BG/Q rack and operating existing and, possibly future, BG/Q rack(s), detailing estimated hardware, storage, deployment, and operations costs.	Jun 1
4	The EC, with input from the Scientific Program Committee (SPC), will provide the Project with the anticipated scientific program requirements for various architectures (i.e., leadership-class machines, BG/Q rack or Infiniband cluster, and GPU-accelerated cluster). A helpful way of conveying this information would be for the EC to provide an estimate of the relative fractions of “analysis core-hours” and “cost-equivalent GPU-hours” needed to support the scientific program over the next 1 to 2 years. Ideally, the EC will provide the Project with anticipated needs on a per year basis for FY13 and FY14.	Jun 15
5	The BNL site manager will provide the Project with a preliminary plan for procuring and operating any additional BG/Q racks, including estimated costs and schedule.	Jul 1
6	The BNL site manager will provide the Project with a plan for procuring and operating any additional BG/Q racks, including costs (hardware, storage, costed manpower for deployment and operations) and schedule for FY13.	Jul 22
7	The Project will review the technical landscape, conduct an alternatives analysis of the various options, and propose a cost-effective solution for the FY13 hardware deployment. When considering viable options, the Project will need to factor in the total cost of ownership (TCO) for each solution. In addition to hardware and deployment costs, TCO also includes on-going operations and support costs. Hardware costs will include any necessary storage acquisitions. For solutions involving Infiniband clusters and GPU-accelerated clusters, an operations cost model already exists. However, it should be updated if necessary for this proposal. For a BG/Q option, the Project will need to understand the cost model for operating a BG/Q at BNL. Information on cost and availability of production BG/Q hardware will also be needed. Results of the analysis and an overview of the proposed solution will be summarized in the Alternatives Analysis document. The Project will verify the host laboratory’s ability and willingness to provide the necessary space, power,	Jul 29

	and cooling for each alternative.	
8	The EC will review the Alternatives Analysis document and proposed FY13 hardware solution, and will provide advice on how to proceed to the Project Manager.	Aug 10 (est.)
9	The Project will analyze the advice of the EC as well as any new data that might have been obtained, and will produce the final plan for the FY13 hardware deployment. The Project Manager will advise the EC, the host laboratories, the Federal Project Director, and Project Monitor of the planned FY13 hardware acquisition.	Aug 15 (est.)
10	The Project Manager will revise the project budget as necessary to accommodate the FY13 hardware solution. Depending on the alternative selected, changes may be required in the planned allocation of funds across the three host laboratories.	Aug 20 (est.)
11	The Project Manager will provide the Federal Project Director with the FY13 Financial Plan, containing the requested distribution of project funds to the three host laboratories.	Aug 20 (est.)
12	The Project will develop a detailed acquisition plan, with timeline, based on the approved FY13 architecture solution.	Sep 30
13	The Project will execute the FY13 acquisition plan in a manner that meets approved performance goals and milestones.	Sep 30, 2013