

Task proposals from  
New CPU architecture and Framework  
sessions (sessions 1-3)

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12 Mar, 2010



# Task 1



Task: estimate the investment in CPU needed for running the main offline production applications in the period 2015-2025

Assuming Moore's Law holds

Assuming applications like those of BaBar

Objective: Understand which parts of the system are likely to cost more and which will most sensitive to the expected technological changes, etc. This provides specific focus points for next tasks (as well as TDR numbers)

Requires:

Starts from numbers like those shown by Fabrizio on Tuesday

But more detailed breakdown of application types in (for example) “analysis” and some modeling of how technology will evolve



# Task 2



Task: Put together a concrete and detailed proposal of a more aggressive approach to code quality and evaluate (as possible) the benefits relative to the existing BaBar software code base

Objective: Transform anecdotal and dispersed code quality and performance objectives into a prioritized list, based on the concrete BaBar example.



# Task 3



Task: Develop a software development model that is needed to achieve the code quality/performance goals proposed by the previous task (task 2), make cost/manpower estimates

Training

Consultancy/interactions with computing professionals/experts

Performance monitoring tools

Should include also implementing the base infrastructure needed when bulk software development starts?

Objective: Actually do the things we always say we wish we had done, and do so from day 1



# Task 4



Task: Evaluate (as a concrete “shopping list”) what was missing from the BaBar software architecture and event processing framework. Based on that understand how (newer) developments such as those from LHC can be exploited and what would be necessary for SuperB to develop itself (or collaborate to develop)

In the “Framework” discussion we focused primarily on the event processing framework (and Gaudi, for example), however this same task applies also to other things (bookkeeping, tools, etc.

Tradeoff true “cost of reuse” vs simple “not invented here”, recalling that some “services” in sites may benefit from LHC overlap

Objective: Focus efforts on developing only what is missing and needed for SuperB, build on existing community efforts/knowledge



# Task 5



Task: based on the results of task 1 and on a detailed understand/profiling of the current BaBar applications, investigate how one SuperB can and/or should exploit different levels of parallelism (event, fine-grained, etc.). Understand how to achieve this, including prototypes with real code as needed, its impact on the software development model of task 3 and the software/framework architectures of task 4.

The primary “R&D” project in this task list so far

Should not be seen as precursor to tasks 2-4. The tasks must be iterative.

Objective: As much as possible given known trends, insure that SuperB does not find itself unable to exploit fully the technology trends (minimizing cost and maximizing physics results)



# Task 6



Task: