Proposed layout of the ILD DBD

Status 16.12.2012

Below is a first proposal for the layout of the DBD, together with a few comments. The number in brackets is a very first estimate of the number of pages suggested for each part (to be discussed).

Introduction (8)
- ILD philosophy and requirements (5)
  This should include a general discussion of the ILD philosophy, probably quite similar to the LOI. In addition we should discuss here the process we used towards the DBD, in particular the way the define and use options in ILD
- Overall ILD layout (3)
  This section would include the overall layout, and also the requirement from physics which have defined the detector layout

Subsystems (mostly hardware, plus technically driven performance) (70)
  The subdetector part will be a description of the different subdetectors, and the technologies used. Where applicable several options will be discussed. While we will not have the space to really describe in all detail all technologies, we should in particular give enough detail to convince people that the basic technological feasibility has been shown. Part of each detector should be a review of open questions and steps for the R&D in the future.
- Vertexing
- Tracking
  - Silicon tracking
  - TPC tracking
- Calorimeter
  - ECAL
  - HCAL
- Coil
- Muon System
- Forward instrumentation

The ILD Detector System(40)
  Here we should discuss in particular the integration into a detector, including those aspects which apply to all detectors together (like Data Acqusition, software). The exact split between this and the previous chapter is something to be discussed in more detail, and might evolve.
- Subsystem level integration
- Calibration and Alignment
- Data Acquisition
- Software/ Computing/ Analysis tools
- Coil and Yoke
- Integration into the hall and with the machine

Performance: (30)
In this chapter we should try to collect all information relevant to establish the ILD performance. Part of this are of course the benchmarking processes, but there is more. We should discuss how detailed we present sub-system performance, and where we make the split between this and the subdetector

chapter. As said above, we propose to move more material into this chapter, less into the subsystems chapter, but this is open for discussion, and will surely evolve as we write the document.

- Overall ILD performance
- Benchmarking/ physics performance

Costing (5)

Conclusion (1)
approx.. 150 pages

According to Sakue the overall length of the document should be around 150 pages.

The proposed structure follows closely the one from the LOI. Different from that however we should try to concentrate more the performance information – that is, put more material into the performance section, less into the subdetector sections. In the LOI it is sometimes not easy to find the right answers to questions, since one has to look at more than one place.

Just for comparison here is the structure we had in the LOI:

Introduction (4)
Detector Optimization (20)
Physics Performance (26)
The ILD Sub-Detector Systems (64)
Data Acqusition and Computing (6)
Detector Integration and MDI (14)
Costing (4)
The ILD group (2)
R&D Plans (3)
Conclusions (1)
(total 151 pages without references and other auxiliary material)

Our current understanding is that we will have one common volume for both SiD and ILD, though our individual parts of course will be our own responsibility. There will still be some areas common between the two concepts. In particular in the area of integration into the hall/ civil construction, there is also clearly some overlap with the machine volume, and the exact distribution of material between the two will need to be discussed and finalized.

At the moment a discussion is starting on the format and the technical side of the DBD writing. For ILD we like to propose a system similar to the one we used for the DBD:

- Main type setting system is latex
- There will be a central SVN depository for the material and drafts.

Please let us know if you prefer a different system, or if you have concrete proposals on how to improve things.

Timeline:

Setup editors for the different parts: January 2012

First layout and skeleton: March 2012, for the ACFA meeting

First draft (incomplete): end of June 2012 (after the ILD meeting)

First draft (complete): end of September 2012 (before the ALCPG meeting in Arlington).