

The ILD DBD

The ILD DBD is part of the Detector baseline Document for experimentation at the ILC

Part of a multi volume document

- 1) Accelerators (2 volumes)
- 2) Detectors (1 Volume)
- 3) Physics at the ILC (2 Volume)

Detector Volume:

- Common part
 - Introduction
 - Machine Detector interface
 - Beam instrumentation
- The SID detector concept
- The ILD detector concept

DBD: Content

Firm up the case for ILD:

- Extend studies to 1 TeV
- Cover missing physics scenarios, improve existing analyses

Present an integrated detector

- Advance subdetectors beyond the conceptual state
- Present a fully integrated detector

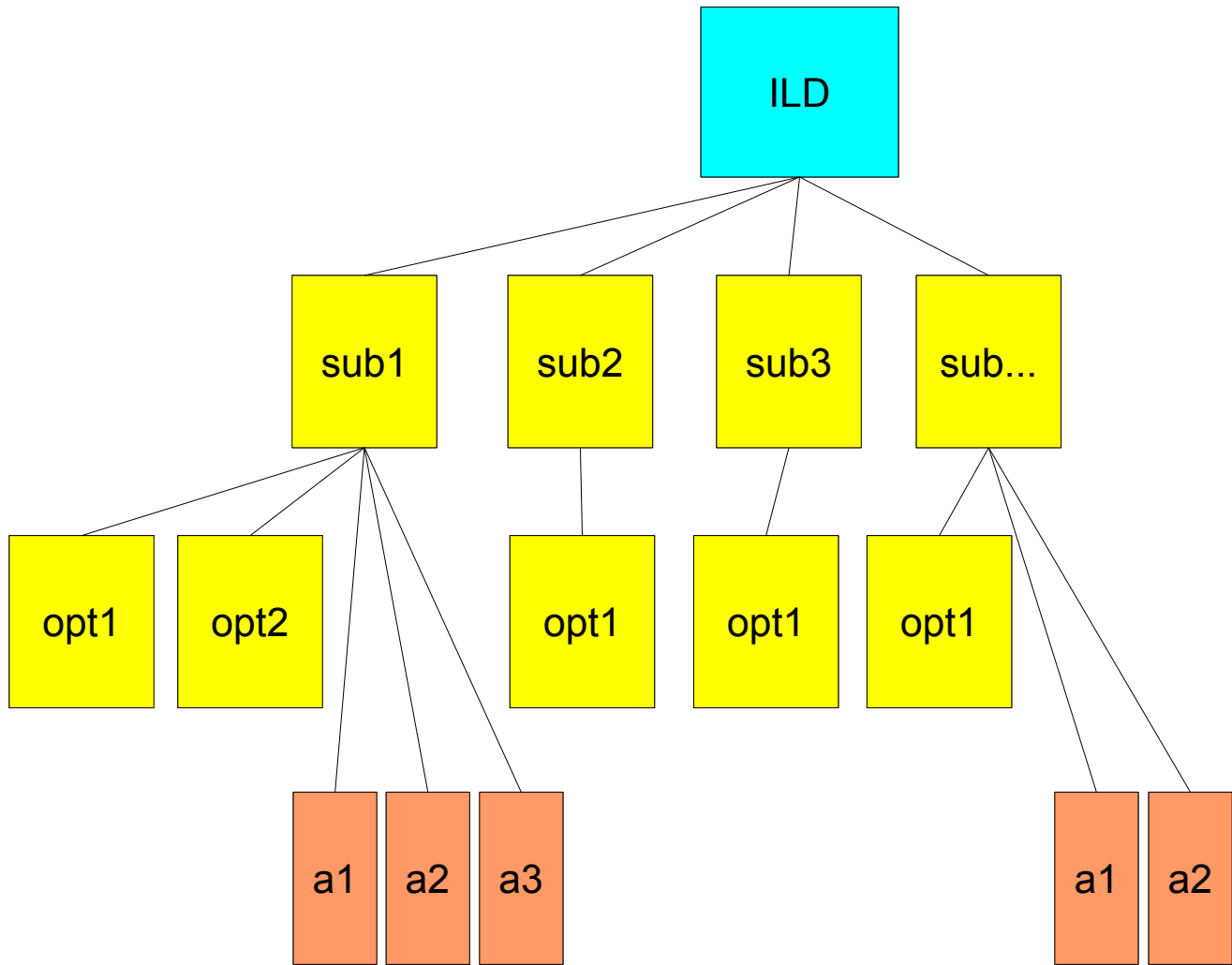
Formal editorial process has not yet started
(consider this too early)

But discussions on scope and organisation of document have

1. level engineering

Exclude fundamental
problems with any design

ILD baseline



No attempt to exclude technologies or do a downselect

Subdetector Systems

Options within the baseline:
as much as possible
technologically comparable

Alternatives

ILD: baseline detector

The current picture

Vertex	CMOS	FPCCD	DEPFET	others?
Silicon	Single sided strip	Pixel	Double sided strip	
TPC	GEM	MicroMegas	Pixel	
ECAL	W-Silicon/ Scintillator			
HCAL	A-HCAL	SD-HCAL		
Muon	Fe- Scintillator		Fe-RPC	
FCAL	W-Silicon	W-diamond		

What do we want for the DBD

Subdetector Technologies:

- Demonstrate technology by test beam in a realistic prototype
- Demonstrate basic performance by analysis of test beam data
- Demonstrate ILD performance by integration into simulation with realistic model
- Demonstrate integration into ILD by 1st level engineering solutions
 - Per subdetector
 - Globally for ILD

Note: R&D for ILD is done by the R&D collaborations in close cooperation and coordination with ILD.

What do we not want for the DBD

We do not want to exclude any technology

We do not want to select one baseline, if there is no need to do so

We do not want to define the detector too early

However we want to make sure that we have at least one working solution for each sub-detector realistically modeled and prototyped.

Structure of the ILD DBD

- Introduction (8) Ties Behnke, Yasuhiro Sugimoto
- 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

DBD Structure

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 Marc Winter, Yasuhiro Sugimoto
- Tracking
 - Silicon tracking
 - Forward: Ivan Villa, Marcel Vos
 - Central: Savoy Navarro, Bergauer?
 - TPC tracking Ron Settles, Takeshi Matsuda
- Calorimeter
- ECAL: Daniel Jeans/ Jean Claude Brient/ Tohru Takeshito/ Kyotomo Kawagoe
- HCAL: Frank Simon, Felix Sefkow, Imad Laktineh, Mary Cruz Fouz
- Coil: Francois Kircher
- Muon System Valery Saveliev, Misha Danilov
- Forward instrumentation Wolfgang Lohmann, Halina Abramowitz

DBD Structure

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 Acquisition, software). The exact split between this and the previous chapter is something to be discussed in more detail, and might evolve.

- Subsystem level integration Karsten Buesser, Catherine LeClerc
- Calibration and Alignment Marcos Fernandez, Felix Sefkow
- Data Acquisition Vincent Boudry, Guenter Eckerlin
- Software/ Computing/ Analysis tools frank Gaede/ Akya Miyamoto
- Integration into the hall and with the machine Karsten Buesser

DBD Structure

Performance: (30) Mark Thomson, Tomohiko Tanabe

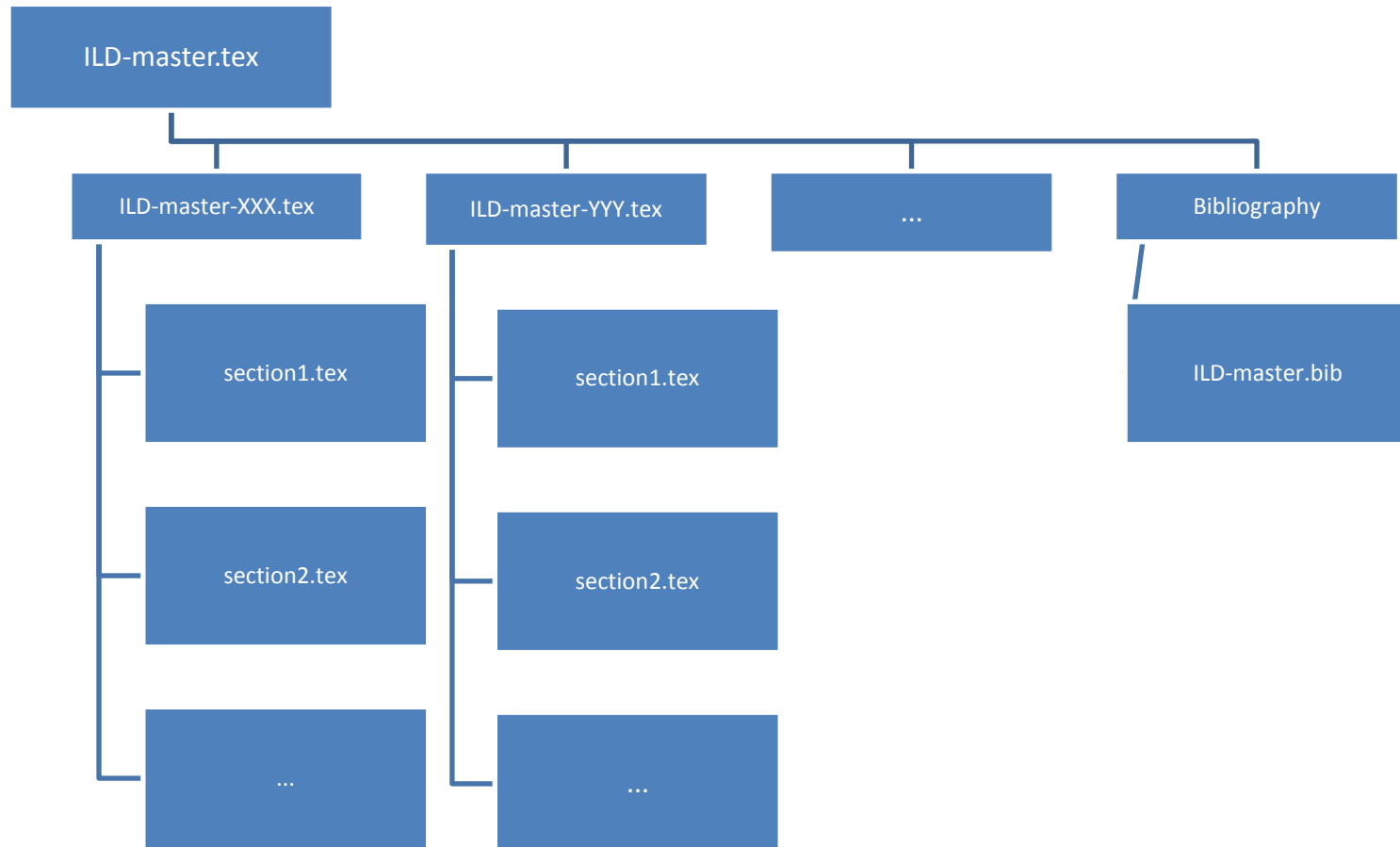
In this chapter we should try to collect all information relevant to establish the ILD performance. Part of this are of course the benchmarking processes, but there is more. We should discuss how detailed we present sub-system performance, and where we make the split between this and the subdetector 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: Mark Thomson, Tomohiko Tanabe
- Benchmarking/ physics performance Mikael Beggren

Costing (5) Henri Videau

Conclusion (1) Ties Behnke, Yasuhiro Sugimoto
approx.. 150 pages

The DBD latex structure



Accessing the information

The ILD DBD is available in a central SVN repository

You can access the latest built either through

<http://www.ilcild.org>

Or through a WEB interface to the repository

<https://svnsrv.desy.de/baswebsvn/wsvn/General.illddb?>

(user ILDReader, password illddb!)