ILD Software and Optimization: Wrapup

Ties Behnke, DESY, 25.2.2016

Open Questions

Probably incomplete, please fill in with more

- General optimization of the detectorsize

- VTX layout: with/ without endcaps?
- Transition to forward tracking system

- TPC outer radius
    - L/R for TPC
    - Performance for some issues (dEdx..)

- ECAL inner radius and depth
- HCAL depth in Lambda

- Forward region layout

- Cost update

    - Subdetector level
    - Global level

- Impact of running scenarios
    - Operation at 10Hz?

- Calibration and alignment strategies

Reconstruction Questions

We have made great progress on reconstruction over the past years

But some tools are still missing

- Tau reconstruction
- Particle identification in jets
- Alternative particle flow algorithms?

- Detector models are getting there, but some problems
  - Central Silicon tracking
  - Support and services?
  - …

Technical issues

- Magnetic field issues?
  - Role of Anti-DID?

- HCAL geometry

- Yoke size

- Moving to new software

- Ensure legacy release of the old software framework

- How flexible shall we need to be?

Capacity to produce large data sample

Optimization Strategy

Try to separate

- Dedicated focuse optimization studies ⬅ Can have more models, different technologies, Matrix approach

- Large scale physics benchmark studies ⬅ Will need to focus and limit the size of the phase space
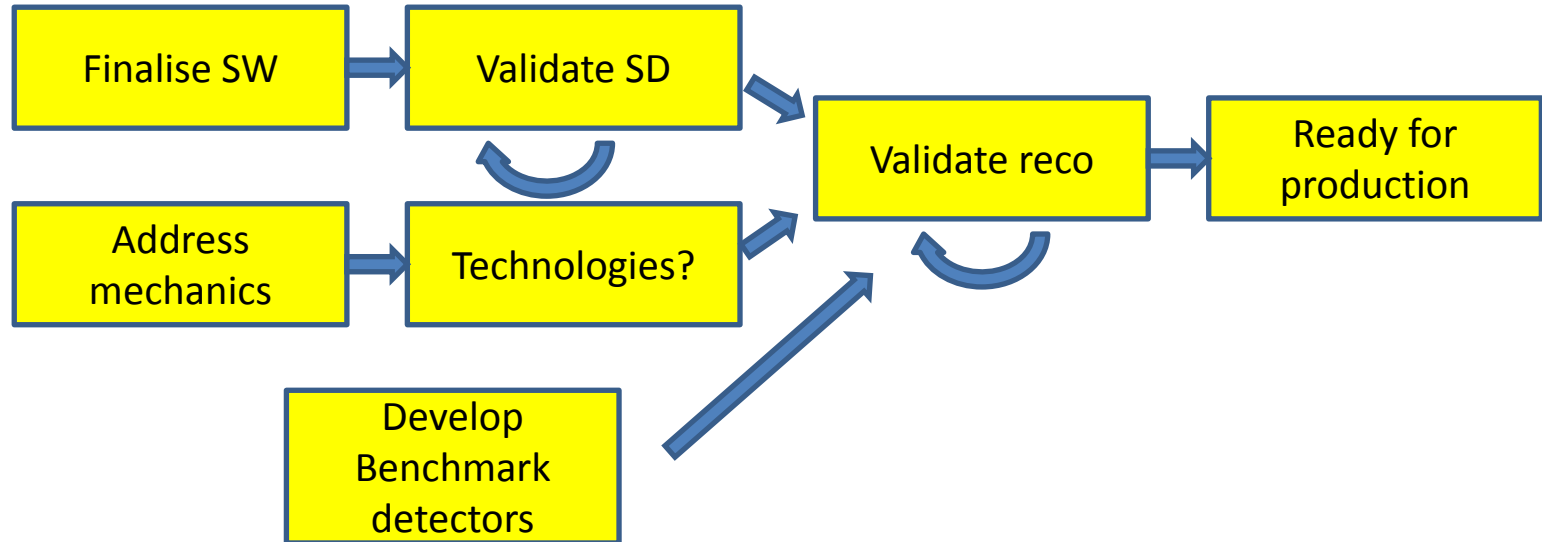
Next Steps

- Finalise and validate the new software suite

- Agree on some number of benchmark detectors (2-3, see talk by Claude)

    - Need to agree on mechanics
    - Need to agree on how to use different technologies in the subdetectors

Flow Chart

General Remarks

Focus: re-optimization of the ILD detector

Stay focused on the implementation in Japan

Remain open: for new ideas, new technologies, etc. Are there game changers out there?

All should be driven by a science at the ILC and the requirements to do the science well.

Next ILD Meeting

Attached to the ECFA 2016 LC meeting
- Santander Spain
- ILD: Friday, June 3 – Sunday June 5 (noon)

Registration for ECFA meeting is open

ILD agenda for Santander

Proposed schedule (comments/ suggestions are welcome)

Friday	Saturday	Sunday
Analysis	Subdetectors	Optimization
Analysis	Subdetectors	Discussion/ wrapup
State of ILD	Optimization	
Integration/ MDI	Optimization	

Thanks

Frank Gaede together with Akiya Miyamoto were the main force behind this meeting.

Jenny List contributed a lot to the planning of the meeting, in particular to the optimization and analysis part.

Many thanks to them

Many thanks to the local people who helped and contributed to the success to the meeting