ILD Software workplan
-Task list -

Frank Gaede, DESY
Software WG Phone meeting
DESY, June 22, 2011

Introduction

- need simulation baseline model(s) for DBD mass production

- this involves a complete software chain:

  - generator, simulation, reconstruction, analysis

- developed plan for Monte Carlo production @ ILD meeting in Orsay and in last ILD Analysis meeting

  - see Strategy talk by M.Thomson:
    http://ilcagenda.linearcollider.org/getFile.py/access?
    contribId=0&resId=1&materialId=slides&confId=5093

- SW-mgmt group has created a work plan/task list in order to meet these ambitious goals

- -> preliminary version shown in this talk

  - possibly some topics are missing –
    definitely some person power missing from list

  - **please comment on the proposed plan**

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VXD

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detector	sw type	ID	task	comment	due date	persons	status
VXD	simulation	1.1	increase material	current support material is to optimistic		Y.Sugimoto M.Winter	open
		1.2	add/check services	possibly need to be added to beamline or FTD		Y.Sugimoto M.Winter	open
		1.3	implement in Mokka			G.Musat	open
	digitization	1.4	finalize FPCCD digitizer	code is in MarlinReco		D.Kamai	ongoing
		1.5	decide which digitizer to use in DBD production	in Grenada ?		ILD	open
	tracking	2.1	pattern recognition	first step: re-write SilconTracking using IMarlinTrack (5.6)		S.Aplin	open
		2.2		develop new algorithm ?		?	
		2.3		pick-up hits from clupatra TPC tracks		F.Gaede	open
		2.4	KalTest: implement bounded planes	need algorithm for sorting wrt. overlaps → first version exists in KalTest example		S.Aplin F.Gaede K.Fujii D.Kamai	ongoing

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detector	sw type	ID	task	comment	due date	persons	status
SIT, SET	simulation	3.1	check new drivers (overlaps geometry, material)			A.Charpy	open
		3.2	cabling and services			A.Charpy G.Musat (C.Clerk)	open
		3.3	check if there is a support frame	is there a mechanical design?		G.Musat H.Videau A.Charpy	open
			write proper GEAR parameters	see 3.6		S.Aplin F.Gaede	open
	digitization	3.3	develop strip digitizer	a digitizer exists for Belle2 by Z.Drasal → can this be used ?		???	open
			define strip orientation	do we have 90deg or shallow angle stereo layers ? or just parallel to z ?		???	open
	tracking	3.4	pattern recognition	first step: re-write SilconTracking using IMarlinTrack (5.6)		S.Aplin	open
		3.5	KalTest: implement bounded planes	same as 2.3		S.Aplin F.Gaede K.Fujii D.Kamai	ongoing
	core	3.6	need GEAR parameters	copy code from VXDParameters		S.Aplin F.Gaede	open

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detector	sw type	ID	task	comment	due date	persons	status
FTD	simulation	4.1	check new drivers (overlaps geometry, material)	after 4.3		I.Alvarez	open
		4.15	first two layers pixels ?	different mechanical design - cryostate, etc		I.Alvarez	
		4.2	cabling and services	check with Integration WG		I.Alvarez G.Musat	open
		4.3	rewrite geometry using non-tilted planes ?	in principle KalTest can deal with tilted planes - pat rec might be simplified with non-tilted planes		I.Alvarez	open
	core	4.4	need GEAR parameters	develop new GEAR parameters for Si-disks		I.Alvarez S.Aplin F.Gaede	open
	digitization	4.4	develop strip digitizer	a digitizer exists for Belle2 by Z.Drasal → can this be used ? need to know the strip orientation		I.Alvarez	open
	tracking	4.5	pattern recognition	-> same as 2.1 and 3.4		S.Aplin	open
		4.6	pattern recognition	develop new standalone algorithm		W.Mittarof R.Glattauer	open

ETD, TPC

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detector	sw type	ID	task	comment	due date	persons	status
ETD		3.7	remove from ILD_01 for now	there is currently no one working on the code for tracking of uvw-planes		G.Musat	open
		3.8	consider new u,v (x,y) design for ETD	needs discussion in ILD - need mechanical design - and implementation is sw		H.Videau G.Musat	open
TPC	simulation	5.1	check cabling and services	cooling material vs. endplate material		S.Aplin	closed
	digitization	5.2	improve parameterization field inhomogeneities, double hit resolution,...	parameterization needs to come from LCTPC		S.Aplin	open
	tracking	5.3	finalize new pat rec (Clupatra)	use IMarlinTrack (5.6)		F.Gaede	open
		5.6	develop IMarlinTrack interface	needed for all trackers		S.Aplin F.Gaede	ongoing

Ecal, Hcal

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ECal	simulation	6.1	check drivers → mixing of Si-and Sci layers ?	probably not for large DBD production	G.Musat K.Kotera	open
	reconstruction	6.2	finalize Sci-strip clustering		K.Kotera	ongoing
		6.3	adopt Pandora PFA to work with both strip and digitial	calibration !?	M.Thomson J.Marshall	ongoing
AHCal	simulation	7.1	check latest driver	sci-thickness consistent with mechanical design ?	S.Lu F.Sefkow	open
		7.15	desirable to have an AHCal with Videau geometry		???	
	reconstruction	7.2	verify Pandora PFA (calibration)	sci-thickness has been decreased	M.Thomson J.Marshall	open
(S)DHCal	simulation	8.1	finalize Mokka (Tesla) driver: - endcap missing - include in Mokka release	Note: endcap design is the same in Videau&Tesla	G.Grenier G.Musat	partly done
	digitization	8.2	realistic digitization with crosstalk	some code exists - needs MCParticle ::getStepPosition(i) → LCIO v1.6 (see 12.1) alternative is to use 1x1mm^2 cells	G.Grenier et al	ongoing
					M.Ruan	partly done
	reconstruction	8.3	adopt Pandora PFA to work with (S)DHCal	calibration	M.Thomson J.Marshall	open

Fcal, Muon

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detector	sw type	ID	task	comment	due date	persons	status
Muon	simulation	9.1	cleanup current Mokka driver	hardcoded numbers etc.		V.Saveliev N.D'Ascenzo	open
		9.2	verify layer layout (coil layers?)	check with integration group !		V.Saveliev N.D'Ascenzo	open
	digitization	9.3	verify current MuonDigi			V.Saveliev N.D'Ascenzo	open
	reconstruction	9.4	adopt Pandora PFA to work with final layer layout			M.Thomson J.Marshall	open
FCAL	simulation	9.5	verify existing drivers			A.Sailer B.Pawlik	open
	reconstruction	9.6	check PandoraPFA works with BeamCal (standalone clusters)	should beamCal clusters be integrated in PFO collection ?		M.Berggren M.Thomson J.Marshall	open

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detector	sw type	ID	task	comment	due date	persons	status
ILD	simulation	10.1	integrate all new drivers in three models - AHCal:SiEcal - SDHCal:SiEcal - AHCal:SciEcal	prepare pre-models: ILD_01_pre02 ILD_01_SDH_pre00 ILD_01_SciW_pre00		G.Musat	open
		10.2	services in overall detector	pipes, cables, supports that are not attached to subdetector driver - as defined by integration Wg		G.Musat (C.Clerk)	ongoing
	tracking	11.1	integrate all new tracking code into one consistent package			S.Aplin F.Gaede	ongoing
	LCIO	12.1	release v01-06	provides StepPosition needed by 8.2	this week	J.Engels	ongoing
		12.2	release v02-00 provide new Track (multiple TrackStates), TrackerHitPlane, TrackerHitZCylinder	need for new tracking code: strip digitizers VXD track fitting	summer	S.Aplin F.Gaede J.Engels	ongoing

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	LCFIVertex	13.1	release new standalone LCFIVertex flavor tag	new package in marlinreco or new release of LCFIV. ?		T.Tanabe	ongoing
		13.2	provide version that runs on DST	depends on 17.1 (DST format)		T.Tanabe	open
	reconstruction	14.1	integrate all new code into a standard reconstruction	check calibration and performance		"all"	open
	generator	15.1	provide first generated samples	some test sample for WW and nunuH exists (ttH soon)		A.Miyamoto M.Berggren T.Barklow	ongoing
	MC production	16.1	produce first 1TeV test samples	need 15.1 can use ILD_00 now or wait for ILD_01_pre02 (and preliminary new tracking)		J.Engels	open
		16.2	define event samples needed for DBD production	ILD physics WGs → talk/discussion in ILD Physics Meeting		ILD	open
		16.3	define/verify new DST format	drop the Jet collections new MCTruth link other .... → collect input from ILD → talk/discussion in Physics and Analysis Meeting		M.Berggren	open

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detector	sw type	ID	task	comment	due date	persons	status
	Background	18.1	strategy for dealing w/ bg	see discussion at Orsay ILD meeting		M.Thomson + ILD bg WG	ongoing
		18.2	pair bg standalone hit densities tracking performance			???	open
		18.3	incl. gamma gamma in physics samples			???	open
	Analysis	20.1 ...					

Analysis related software tasks need to be defined
by the needs of the analysis groups, e.g.
PID algorithms, samples etc

- next steps
  - due dates
  - missing items
  - missing person power

comments, questions, volunteers ?