Since contribution is on volunteer basis people included here, are the people who expressed willing and/or have been working in the related topics.

WORK IN PROGRESS

4.1 : Tracking

4.1.1a : HLT1: VELO tracking - CPU

Lead group	
Participating groups	VELO detector group, LPHNE, CERN, EPFL, Dortmund
Description	Fit to HLT1 time budget with the best possible physics performance
Required FTE	
Available FTE	
Deadline	end of 2018
Dependencies	VELO clustering/sorting, so far the main approach i.e. most effort put in
People currently involved	Renato Quagliani, Sebastien Ponce, Michel De Cian, Christoph Hasse, detector experts
New effort required?	
Link to documentation	

4.1.1b : HLT1: VELO tracking - GPU

Lead group	
Participating groups	LPHNE, Universidad de Sevilla, NIKHEF, CERN
Description	the VELO reconstruction for GPU
Required FTE	
Available FTE	
Deadline	first preliminary results in summer 2018
Dependencies	alternative effort
People currently involved	Daniel Campora, Dorothea Vom Bruch, Florian Reiss, Roel Aaij, Gerhard Raven at al.
New effort required?	depends on the preliminary results
Link to documentation	

4.1.1c : HLT1: VELO tracking - Machine learning

Lead group	
Participating groups	LPHNE
Description	try to use machine learning techniques for the VELO reconstruction
Required FTE	
Available FTE	
Deadline	first preliminary results by the end of 2018
Dependencies	alternative effort
People currently involved	Da Yu Tou
New effort required?	depends on the preliminary results
	https://indico.cern.ch/event/691551/contributions/2927571/attachments/1617602/2571597/Machine_L

Link to documentation	

4.1.1d : HLT1: VELO tracking - VPFiltering

Lead group	
Participating groups	Dortmund, CERN
Description	try to use machine learning techniques for the VELO reconstruction
Required FTE	
Available FTE	
Deadline	2018
Dependencies	alternative effort
People currently involved	Christoph Hasse, Ben Couturier
New effort required?	No
Link to documentation	

4.1.2 : HLT1: PV reconstruction

Lead group	
Participating groups	IFJ
Description	a) performance optimization, b) fitting in HLT1 time budget.
Required FTE	
Available FTE	
Deadline	end of 2018
Dependencies	main effort, input Kalman Filtered VELO tracks
People currently involved	Agnieszka Dziurda
New effort required?	a student would be nice
Link to documentation	https://twiki.cern.ch/twiki/bin/view/LHCb/LHCbPVFitting

4.1.3 : HLT1: VELO-UT tracking

Lead group	
Participating groups	UT detector group, so far: EPFL, LPHNE, CERN, Dortmund, IFJ,
Description	a) performance optimization, b) fitting in HLT1 time budget.
Required FTE	
Available FTE	
Deadline	preliminary results end of 2018
Dependencies	main effort, UT clustering/sorting
People currently involved	so far: Renato Quagliani, Sebastien Ponce, Michel De Cian, Christoph Hasse, possible: IFJ-AGH group (to be clarified with Tomasz Skwarnicki (UT software manager))
New effort required?	No
Link to documentation	

4.1.4 : HLT1: Forward tracking

Lead group	
Participating groups	SciFi detector group, Heidelberg, CERN, EPFL
Description	a) performance optimization, b) fitting in HLT1 time budget.
Required FTE	
Available FTE	
Deadline	preliminary results end of 2018

Dependencies	main effort, SciFi clustering, VELO-UT or VELO tracks, PV (for IP cut).
People currently involved	Michel De Cian, Sascha Stahl, new PhD students
New effort required?	should be enough
Link to documentation	

4.1.5a : HLT1: Kalman Filtering - Parametrized Kalman

Lead group	
Participating groups	Heidelberg, LPHNE, EPFL
Description	Implementation of the parametrisations for the effect of material and the propagation through the mag
Required FTE	
Available FTE	
Deadline	preliminary results end of 2018
Dependencies	material description, geometry of the detector (presence of the detectors),
People currently involved	Simon Stemmle, Michel De Cian, Pierre Billoir
New effort required?	No
Link to documentation	latest presentation: https://indico.cern.ch/event/680416/contributions/2787540/attachments/1559666/2454743/Parameteri documentation in progress https://its.cern.ch/jira/projects/LHCBTRACK/issues/LHCBTRACK-12

4.1.5b : HLT1: Kalman Filtering - Cholesky factorization

Lead group	
Participating groups	CERN
Description	Vectorization of Cholesky factorization
Required FTE	
Available FTE	
Deadline	**closed**
Dependencies	Florian is a part of LBC
People currently involved	Florian Lemaitre
New effort required?	No
Link to documentation	https://its.cern.ch/jira/projects/LHCBTRACK/issues/LHCBTRACK-12

4.1.5c : HLT1: Kalman Filtering - Weighted formalism

Lead group	
Participating groups	LPHNE, University Carlos III (CERN)
Description	Weighted formalism (see JIRA)
Required FTE	
Available FTE	
Deadline	
Dependencies	Placido is a part of LBC
People currently involved	Pierre Billoir (idea), Placido Declara (implementation)
New effort required?	

Link to documentation	https://twiki.cern.ch/twiki/bin/view/LHCbInternal/ParametrizedExtrapolationMagneticField https://its.cern.ch/jira/browse/LHCBTRACK-10

4.1.5d : HLT1: Kalman Filtering -

Lead group	
Participating groups	LPHNE, University Carlos III, Universidad de Sevilla, CERN
Description	Vectorization of the TrackMasterFitter
Required FTE	
Available FTE	
Deadline	preliminary results already done, more optimizations to come
Dependencies	part of LBC, need to be able to run in Moore
People currently involved	Daniel Hugo Campora Perez, Laura Promberger, Placido Fernandez Declara, Pierre Billoir
New effort required?	yes, no long term support
Link to documentation	https://its.cern.ch/jira/projects/LHCBTRACK/issues/LHCBTRACK-12

4.1.6 : HLT2: Forward tracking

Lead group	
Participating groups	Heidelberg, CERN, EPFL
Description	a) performance optimization, b) fitting in HLT2 time budget
Required FTE	
Available FTE	
Deadline	2019
Dependencies	main effort, SciFi clustering, VELO tracks, PV (for IP cut).
People currently involved	Michel De Cian, Sascha Stahl, new PhD students
New effort required?	No
Link to documentation	

4.1.7 : HLT2: Matching

Lead group	
Participating groups	NIKHEF, EPFL
Description	a) reoptimization of the physics performance according to the latest SciFi clustering, b) fitting in HLT2 time budget
Required FTE	
Available FTE	
Deadline	Lower priority -> 2019
Dependencies	main effort, first Seedings needs to be reoptimized, new MC production needed, in general: VELO and T tracks.
People currently involved	Sevda Esen, Michel De Cian
New effort required?	No
Link to documentation	https://cds.cern.ch/record/2238266?ln=en

4.1.8 : HLT2: Downstream

Lead group	
Participating groups	AGH
Description	a) reoptimization of the physics performance according to the latest detectors

	description, b) implementation of new machine learning approach b) fitting in HLT2 time budge
Required FTE	
Available FTE	
Deadline	Lower priority -> 2019
Dependencies	main effort, new MC production needed, needs T tracks and hists in UT.
People currently involved	Tomasz Szumlak et al.
New effort required?	No
Link to documentation	Run II documentation: https://cds.cern.ch/record/2240723?ln=en

4.1.9 : HLT2: Seeding

Lead group	
Participating groups	LPHNE
Description	a) reoptimization of the physics performance according to the latest SciFi clustering, b) fitting in HLT2 time budget
Required FTE	
Available FTE	
Deadline	Lower priority -> 2019
Dependencies	main effort, new MC production needed, SciFi clustering/sorting
People currently involved	Renato Quagliani, Francesco Polci
New effort required?	
Link to documentation	https://cds.cern.ch/record/2027531?ln=en

4.1.10 : HLT2: Ghost Probabibility

Lead group	
Participating groups	CCNU
Description	a) reoptimization of the physics performance, b) fitting in HLT2 time budget.
Required FTE	
Available FTE	
Deadline	Lower priority -> 2019
Dependencies	Quality of the tracks in the Best container
People currently involved	Hang Yin, Menglin Xu
New effort required?	TBC
Link to documentation	Run II by Paul Seyfert: https://cds.cern.ch/record/2255039/files/LHCb-PUB-2017-011.pdf

4.1.11 : Benchmarking

Lead group	
Participating groups	CERN, LPHNE, Manchester, Dortmund, IFJ,
Description	benchmark HLT1 reconstruction sequence
Required FTE	
Available FTE	
Deadline	High priority
Dependencies	

	Each algorithm running in the sequence should have a physics performance monitoring
People currently involved	Sascha Stahl, Renato Quagliani, Agnieszka Dziurda (PV), Gedamis Sapis (T&A volunteer), Christoph Hasse
New effort required?	Yes
Link to documentation	Rec issue: https://gitlab.cern.ch/lhcb/Rec/issues/14

4.2 : Alignment

4.2.1 : Software release manager

Lead group	
Participating groups	LPHNE (temporary), University of Chinese Academy of Sciences
Description	release manager of Alignment and OnlineAlignment
Required FTE	
Available FTE	
Deadline	
Dependencies	Knowing software
People currently involved	Giulio Dujany (temporary), Qingnian Xu
New effort required?	
Link to documentation	

4.2.2 : VELO alignment

Lead group	Manchester
Participating groups	VELO detector group, Manchester, LPHNE
Description	Optimize alignment strategy for the upgrade: a) main degrees of freedom to align for (and possible finer alignments to run less frequently), b) sample selection, c) constrains
Required FTE	
Available FTE	
Deadline	
Dependencies	Collaborate with detectors to know precision survey and main expected movements
People currently involved	Lucia Grillo, Chris Burr, Silvia Borghi, Giulio Dujany
New effort required?	
Link to documentation	

4.2.3 : UT alignment

Lead group	
Participating groups	UT detector group,
Description	Optimize alignment strategy for the upgrade: a) main degrees of freedom to align for (and possible finer alignments to run less frequently),

	b) sample selection, c) constrains
Required FTE	
Available FTE	
Deadline	
Dependencies	
People currently involved	to be clarified with Tomasz Skwarnicki (UT software manager)
New effort required?	
Link to documentation	

4.2.4 : alignment

Lead group	
Participating groups	SciFi detector group, EPFL, CCNU
Description	Optimize alignment strategy for the upgrade: a) main degrees of freedom to align for (and possible finer alignments to run less frequently), b) sample selection, c) constrains
Required FTE	
Available FTE	
Deadline	
Dependencies	Collaborate with detectors to know precision survey and main expected movements
People currently involved	Pietro Marino, Biplab Dey
New effort required?	
Link to documentation	

4.2.4 : Muon alignment

Lead group	
Participating groups	Ferrara
Description	Adapt Muon alignment strategy for the upgrade:
Required FTE	
Available FTE	
Deadline	
Dependencies	Collaborate with detectors to know precision survey and main expected movements
People currently involved	Stefania Vecchi
New effort required?	
Link to documentation	

-- AgnieszkaDziurda - 2018-03-21

This topic: LHCb > T_And_A
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