

Publications relating to LHCb computing

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This page contains lists of presentations and conference proceedings related to LHCb computing, as well as links to related material

Computing project

Notes concerning overall project organisation and planning, including resources requests, can be found in the NCB pages

Core Software

Proceedings of IEEE NSS MIC 2015, 31 October - 7 November 2015, San Diego, California

Reference	Slides	Title	Author(s)
	LHCb-TALK-2015-330 ↗	Graph-Based Decision Making for Task Scheduling in Concurrent Gaudi	I.Shapoval , M.Clemencic, B.Hegner, D.Funke, D.Piparo and P.Mato Vila

Proceedings of CHEP2015 [↗](#), 13 17 April 2015, Okinawa, Japan

Reference	Slides	Title	Author(s)
J. Phys.: Conf. Ser. 664 062008 ↗	poster ↗	LHCb Build and Deployment Infrastructure for RUNII	B.Couturier and M.Clemencic
J. Phys.: Conf. Ser. 664 062007 ↗	poster ↗	Implementing a Domain Specific Language to configure and run LHCb Continuous Integration builds	M.Clemencic and B.Couturier
J. Phys.: Conf. Ser. 664 072012 ↗	poster ↗	Using DD4Hep through Gaudi for new experiments and LHCb	M.Clemencic and A.Karachaliou
J. Phys.: Conf. Ser. 664 062025 ↗	poster ↗	Improvements to the User Interface for LHCb's Software continuous integration system	M.Clemencic, S.Qirjazi and B.Couturier
J. Phys.: Conf. Ser. 664 092004 ↗ LHCb-PROC-2015-017 ↗	LHCb-TALK-2015-059 ↗	SIMD studies in the LHCb reconstruction software	D.Campora and B.Couturier
J. Phys.: Conf. Ser. 664 022007 ↗	LHCb-TALK-2015-074 ↗	docker & HEP: containerization of applications for development, distribution and preservation	S.Binet and B.Couturier
J. Phys.: Conf. Ser. 664 092022 ↗	slides ↗	Performance benchmark of LHCb code on state-of-the-art x86 architectures	R.Schwemmer , N.Neufeld and D.Campora

Proceedings of CHEP2013 [↗](#), 14 18 October 2013, Amsterdam

Reference	Slides	Title	Author(s)
J. Phys.: Conf. Ser. 513 042039 ↗	LHCb-TALK-2013-346 ↗	ARIADNE: a Tracking System for Relationships in LHCb Metadata	I.Shapoval , M.Clemencic and M.Cattaneo
J. Phys.: Conf. Ser. 513	LHCb-TALK-2013-348 ↗	Measurements of the LHCb software stack on the ARM architecture	S Vijay Kartik et al.

052014 ↗			
J. Phys.: Conf. Ser. 513 052020 ↗	LHCb-TALK-2013-350 ↗	Systematic profiling to monitor and specify the software refactoring process of the LHCb experiment	Ben Couturier et al.
J. Phys.: Conf. Ser. 513 052004 ↗	Poster-2013-326 ↗	A GPU offloading mechanism for LHCb	Alexey Badalov et al.
J. Phys.: Conf. Ser. 513 052007 ↗	Poster-2013-328 ↗	A New Nightly Build System for LHCb	M.Clemencic and B.Couturier
J. Phys.: Conf. Ser. 513 052029 ↗	Poster-2013-332 ↗	Preparing the Gaudi-Framework and the DIRAC-WMS for Multicore Job Submission	N Rauschmayr and A Streit

Proceedings of SYNASC 2013- 15th International Symposium on Symbolic and Numeric Algorithms for Scientific Computing, Timisoara, Romania, 23-26 Sept 2013:

Slides	Title	Author(s)
LHCb-TALK-2013-328 ↗	Evaluating moldability of LHCb jobs for multicore job submission	N.Rauschmayr

Proceedings of 2013 International Conference on Computational Science [↗](#) Barcelona, Spain, 5 - 7 Jun 2013

Reference	Title	Author(s)
Procedia Computer Science: Volume 18, 2013, Pages 2233 2240 ↗ LHCb-PROC-2013-033 ↗	Evaluation of x32-ABI in the Context of LHC Applications	N.Rauschmayr, A.Streit

Proceedings of IEEE NSS MIC 2012

Reference	Slides	Title	Author(s)	Date
LHCb-PROC-2012-058 ↗	POSTER-2012-244 ↗	LHCb Software and Conditions Database Cross-Compatibility Tracking: a Graph-Theory Approach	M.Cattaneo, M.Clemencic, I.Shapoval	October 2012

Proceedings of CHEP2012 [↗](#), 21 25 May 2012, New York, USA

Reference	Slides	Title	Author(s)
J. Phys.: Conf. Ser. 396 052021 ↗	CHEP2012 Indico site ↗	A CMake-based build and configuration framework	M.Clemencic, P.Mato
J. Phys.: Conf. Ser. 396 052054 ↗	CHEP2012 Indico site ↗	Advanced Modular Software Performance Monitoring	B.Couturier, A.Mazurov
J. Phys.: Conf. Ser. 396 052022 ↗	POSTER-2012-225 ↗	LHCb Conditions Database Operation Assistance Systems	M.Clemencic, I.Shapoval, M.Cattaneo, H.Degaudenzi, and R.Santinelli

Proceedings of CHEP2010 [↗](#), 18 22 October 2010, Taipei, Taiwan

Reference	Slides	Title	Author(s)
J. Phys.: Conf. Ser. 331 042009 ↗ LHCb-PROC-2011-015 ↗	Poster-2010-157 ↗	LHCb Tag Collector	P.Fuente Fernández, M.Clemencic and N.Cousin
J. Phys.: Conf. Ser. 331 042043 ↗ CERN-IT-2011-008 ↗		LCG Persistency Framework	A.Valassi, M.Clemencic, D.Dykstra, M.Frank, D.Front,

		(CORAL, COOL, POOL): Status and Outlook	G.Govi, A.Kalkhof, A.Loth, M.Nowak, W.Pokorski, A.Salnikov, S.A.Schmidt, R.Trentadue, M.Wache and Z.Xie
J. Phys.: Conf. Ser. 331 042006 ↗	LHCb-TALK-2010-158 ↗	Migration of the Gaudi and LHCb software repositories from CVS to Subversion	M.Clemencic and H.Degaudenzi
J. Phys.: Conf. Ser. 331 042014 ↗ LHCb-PROC-2010-070 ↗	LHCb-TALK-2010-156 ↗	Modular Software Performance Monitoring	D.F.Kruse and K.Kruzelecki .

Proceedings of CHEP2009 [↗](#), 21 27 March 2009, Prague, Czech Republic

Reference	Slides	Title	Author(s)
J. Phys.: Conf. Ser. 219 042042 ↗		The nightly build and test system for LCG AA and LHCb software	K.Kruzelecki , S.Roiser and H.Degaudenzi
J. Phys.: Conf. Ser. 219 042006 ↗		Recent developments in the LHCb software framework Gaudi	M.Clemencic , H.Degaudenzi, P.Mato, S.Binet, W.Lavrijsen, C.Leggett and I.Belyaev

Distributed Computing

Proceedings of CHEP2015 [↗](#), 13 17 April 2015, Okinawa, Japan

Reference	Slides	Title	Author(s)
J. Phys.: Conf. Ser. 513 062039 ↗	CERN-POSTER-2015-486 ↗	The DIRAC Web Portal 2.0	Z.Mathe, A.Casajus Ramo, N.Lazovsky, F.Stagni
J. Phys.: Conf. Ser. 513 042025 ↗	Paper is merge of one poster and two talks	The DIRAC Data Management System and the Gaudi dataset federation	C.Haen, P.Charpentier, M.Frank and A.Tsaregorodtsev
	CERN-POSTER-2015-487 ↗	Data Management System of the DIRAC Project	CH , PC, AT
	LHCb-TALK-2015-061 ↗	The DIRAC Data Management System (lightning talk)	CH , PC
	LHCb-TALK-2015-062 ↗	Federating LHCb datasets using the Dirac File Catalog	CH , PC, MF, AT
J. Phys.: Conf. Ser. 513 042036 ↗	LHCb-TALK-2015-060 ↗	Evaluation of NoSQL databases for DIRAC monitoring and beyond	F.Stagni , Z.Mathe, A.Casajus Ramo, L.Tomassetti
J. Phys.: Conf. Ser. 513 022030 ↗	LHCb-TALK-2015-063 ↗	LHCb experience with running jobs in virtual machines	A.McNab , F.Stagni and C.Luzzi
J. Phys.: Conf. Ser. 513 062060 ↗ LHCb-PROC-2015-015 ↗	LHCb-TALK-2015-075 ↗	Jobs masonry with elastic Grid Jobs	F.Stagni and P.Charpentier
	LHCb-TALK-2015-076 ↗		

J. Phys.: Conf. Ser. 513 062061 ↗ LHCb-PROC-2015-014 ↗		Pilots 2.0: DIRAC pilots for all the skies	F.Stagni , A.Tsaregorodtsev, A.McNab and C.Luzzi
J. Phys.: Conf. Ser. 513 072014 ↗ LHCb-PROC-2015-016 ↗	LHCb-TALK-2015-077 ↗	How the Monte Carlo production of a wide variety of different samples if centrally handled in the LHCb experiment	G.Corti et al.
J. Phys.: Conf. Ser. 513 062050 ↗	slides ↗	A history-based estimation for LHCb job requirements	N.Rauschmayr .
J. Phys.: Conf. Ser. 513 042026 ↗	slides ↗	Disk storage management for LHCb based on Data Popularity estimator	M.Hushchyn , P.Charpentier and A.Ustyuzhanin

Proceedings of CHEP2013 [↗](#), 14 18 April 2012, Amsterdam

Reference	Slides	Title	Author(s)
J. Phys.: Conf. Ser. 513 032099 ↗	LHCb-TALK-2013-344 ↗	Integration of Cloud resources in the LHCb Distributed Computing	M.Ubeda Garcia et al.
J. Phys.: Conf. Ser. 513 032017 ↗	LHCb-TALK-2013-349 ↗	Recent and planned changes to the LHCb computing model	M.Cattaneo et al
J. Phys.: Conf. Ser. 513 042032 ↗	Poster-2013-330 ↗	Optimising query execution time in LHCb Bookkeeping System using partition pruning and partition wise joins	Z.Mathe and P.Charpentier
J. Phys.: Conf. Ser. 513 032093 ↗	Poster-2013-333 ↗	Self managing experiment resources	F Stagni et al.
J. Phys.: Conf. Ser. 513 032096 ↗		DIRAC Distributed Computing Services	A.Tsaregorodtsev

Proceedings of IEEE NSS MIC 2012

Reference	Slides	Title	Author(s)	Date
	LHCb-TALK-2012-304 ↗	How the Monte Carlo production of a wide variety of different samples is centrally handled in the LHCb experiment	G.Corti	October 2012

Proceedings of CHEP2012 [↗](#), 21 25 May 2012, New York, USA

Reference	Slides	Title	Author(s)
J. Phys.: Conf. Ser. 396 032023 ↗	CHEP2012 Indico site ↗	The LHCb Data Management System	J.P.Baud, P.Charpentier*, K.Ciba, R.Graciani, E.Lanciotti, Z.Màthè, D.Remenska and R.Santana
J. Phys.: Conf. Ser. 396 032052 ↗	CHEP2012 Indico site ↗	Offline Processing in the Online Computer Farm	L.G.Cardoso , C.Gaspar, O.Callot, J.Closier, N.Neufeld, M.Frank, B.Jost, P.Charpentier, G.Liu
J. Phys.: Conf. Ser. 396 032092 ↗	POSTER-2012-224 ↗	Major Changes to the LHCb Grid Computing Model in Year 2 of LHC Data	L.Arrabito, V.Bernardoff, D.Bouvet, M.Cattaneo, P.Charpentier, P.Clarke, J.Closier, P.Franchini, R.Graciani, E.Lanciotti, V.Mendez, S.Perazzini, R.Nandkumar, D.Remenska, S.Roiser , V.Romanovskiy, R.Santinelli, F.Stagni, A.Tsaregorodtsev, M.Ubeda Garcia, A.Vedae and A.Zhelezov

J. Phys.: Conf. Ser. 396 052061 ↗	POSTER-2012-222 ↗	Analysis of DIRAC's behavior using model checking with process algebra	D.Remenska , J.Templon, T.Willemse, H.Bal, K.Verstoep, W.Fokkink, P.Charpentier, R.Graciani Diaz, E.Lanciotti, S.Roiser and K.Ciba
J. Phys.: Conf. Ser. 396 032104 ↗	POSTER-2012-223 ↗	LHCbDirac: distributed computing in LHCb	F.Stagni , P.Charpentier, R.Graciani, A.Tsaregorodtsev, J.Closier, Z.Mathe, M.Ubeda, A.Zhelezov, E.Lanciotti, V.Romanovskiy, K.D.Ciba, A.Casajus, S.Roiser, M.Sapunov, D.Remenska, V.Bernardoff, R.Santana and R.Nandakumar
J. Phys.: Conf. Ser. 396 032110 ↗	POSTER-2012-227 ↗	Grid administration, towards an autonomic approach	M.Ubeda Garcia , F.Stagni, A.Tsaregorodtsev, P.Charpentier and V.Bernardoff

Proceedings of ACAT 2011 [↗](#)

Authors(s)	Reference	Title
F Stagni et al 2012	J. Phys.: Conf. Ser. 368 012009 ↗	LHCb distributed computing operations
F Stagni et al 2012	J. Phys.: Conf. Ser. 368 012010 ↗	The LHCb DIRAC-based production and data management operations systems

Proceedings of CHEP2010 [↗](#), 18 22 October 2010, Taipei, Taiwan

Reference	Slides	Title	Author(s)
J. Phys.: Conf. Ser. 331 072060 ↗		Optimization of Large Scale HEP Data Analysis in LHCb	D.Remenska , R.Aaij, G.Raven, M.Merk, J.Templon and R.J.Bril
J. Phys.: Conf. Ser. 331 072011 ↗ ATL-SOFT-PROC-2011-011 ↗	ATL-SOFT-SLIDE-2010-363 ↗	Reinforcing user data analysis with Ganga in the LHC era: scalability, monitoring and user-support	J.Elmsheuser , F.Brochu, I.Dzhunov, J.Ebke, U.Egede, M.Kumar Jha, L.Kokoszkiwicz, H.-C.Lee, A.Maier, J.Mościcki, T.München, W.Reece, B.Samset, M.Slater, D.Tuckett, D.Vanderster and M.Williams
J. Phys.: Conf. Ser. 331 072067 ↗	Poster-2010-156 ↗	A policy system for Grid Management and Monitoring	F.Stagni and R.Santinelli
J. Phys.: Conf. Ser. 331 072037 ↗ LHCb-PROC-2010-067 ↗	LHCb-TALK-2010-155 ↗	Distributed analysis at LHCb	M.Williams , U.Egede and S.Paterson
J. Phys.: Conf. Ser. 331 072008 ↗	LHCb-TALK-2010-149 ↗	The LHCb Computing Model and Real Data	P.Charpentier .
J. Phys.: Conf. Ser. 331 072059 ↗ LHCb-PROC-2011-026 ↗	Poster-2010-158 ↗	The LHCb Experience on the Grid from the DIRAC	A.Casajús , R.Graciani, A.Puig and R.Vázquez

		Accounting Data	
	LHCb-TALK-2010-152 ↗	LHCb DIRAC Data Production System	A.C.Smith et al.

Proceedings of CHEP2009 [↗](#), 21 27 March 2009, Prague, Czech Republic

Reference	Slides	Title	Author(s)
J. Phys.: Conf. Ser. 219 062029 ↗		DIRAC3 the new generation of the LHCb grid software	A.Tsaregorodtsev , N.Brook, A.Casajus Ramo, P.Charpentier, J.Closier, G.Cowan, R.Graciani Diaz, E.Lanciotti, Z.Mathe, R.Nandakumar, S.Paterson, V.Romanovsky, R.Santinelli, M.Sapunov, A.C.Smith, M.Seco Miguelez and A.Zhelezov
J. Phys.: Conf. Ser. 219 062061 ↗		Monitoring the DIRAC distributed system	R.Santinelli , M.Seco and R.Nandakumar
J. Phys.: Conf. Ser. 219 042033 ↗		DIRAC distributed secure framework	A.Casajus and R.Graciani
J. Phys.: Conf. Ser. 219 022020 ↗		Event reconstruction in the LHCb Online cluster	A.Puig Navarro and M.Frank
J. Phys.: Conf. Ser. 219 022020 ↗		DIRAC pilot framework and the DIRAC Workload Management System	A.Casajus , R.Graciani, S.Paterson and A.Tsaregorodtsev

Physics Software

- Presentations and proceedings relating to LHCb simulation are listed here
- Talks relating to the LHCb High Level Trigger are listed here

Proceedings of CHEP2015 [↗](#), 13 17 April 2015, Okinawa, Japan

Reference	Slides	Title	Author(s)
J. Phys.: Conf. Ser. 513 072047 ↗ LHCb-PROC-2015-012 ↗		LHCb-TALK-2015-090 ↗	Optimization of the LHCb track reconstruction
J. Phys.: Conf. Ser. 513 032019 ↗	poster ↗		Event Index an LHCb Event Search System
J. Phys.: Conf. Ser. 513 082010 ↗ LHCb-PROC-2015-011 ↗		CERN-POSTER-2015-488 ↗	Real-time alignment and calibration of the LHCb Detector in Run II
J. Phys.: Conf. Ser. 513 082011 ↗		LHCb-TALK-2015-064 ↗	The LHCb Data Acquisition and High Level Trigger Processing Architecture

Proceedings of CHEP2012 [↗](#), 21 25 May 2012, New York, USA

Reference	Slides	Title	Author(s)
J. Phys.: Conf.	CHEP2012	Swimming, a data driven	V.V.Gligorov , R.Aaij, M.Cattaneo,

Ser. 396 022016 ↗	Indico site ↗	acceptance correction algorithm	M.Clemencic, M.Gersabeck, A.Falabella, E.Van Herwijnen, N.Torr, G.Raven and F.Stagni
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Proceedings of CHEP2010 [↗](#), 18 22 October 2010, Taipei, Taiwan

Reference	Slides	Title	Author(s)
J. Phys.: Conf. Ser. 331 032028 ↗ LHCb-PROC-2011-022 ↗	LHCb-TALK-2010-153 ↗	A Novel Approach to Detector Calibration Parameter Determination and Detector Monitoring	E.Rodrigues.
J. Phys.: Conf. Ser. 331 032050 ↗ LHCb-PROC-2011-027 ↗	Poster-2010-159 ↗	Kali: The framework for fine calibration of the LHCb Electromagnetic Calorimeter	I.Belyaev, D.Savrina, R.Graciani and A.Puig

Theses

- *Adaptive Scheduling Applied to Non-Deterministic Networks of Heterogeneous Tasks for Peak Throughput in Concurrent Gaudi*, Illya Shapoval, CERN-THESIS-2016-028 [↗](#)
- *Bringing Model Checking Closer to Practical Software Engineering*, Daniela Remenska, CERN-THESIS-2010-324 [↗](#)
- *Optimisation of LHCb Applications for Multi- and Manycore Job Submission*, Nathalie Raushmayr, CERN-THESIS-2014-242 [↗](#)
- *Feicim: A browser and analysis tool for distributed data in particle physics*, Zoltan Mathe, CERN-THESIS-2012-156 [↗](#)

Detector papers

- *Tesla : an application for real-time data analysis in High Energy Physics*, Aaij, R et al., CERN-LHCB-DP-2016-001 [↗](#)

Old stuff

A very old list of publications can be found here [↗](#)

-- MarcoCattaneo - 8-Jan-2016

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Topic revision: r38 - 2016-05-07 - MarcoCattaneo



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