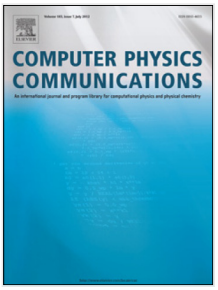
Accepted Manuscript



Tesla: An application for real-time data analysis in high energy physics

R. Aaij, S. Amato, L. Anderlini, S. Benson, M. Cattaneo, M. Clemencic, B. Couturier, M. Frank, V.V. Gligorov, T. Head, C. Jones, I. Komarov, O. Lupton, R. Matev, G. Raven, B. Sciascia, T. Skwarnicki, P. Spradlin, S. Stahl, B. Storaci, M. Vesterinen

PII: S0010-4655(16)30210-7
DOI: http://dx.doi.org/10.1016/j.cpc.2016.07.022
Reference: COMPHY 6006

To appear in: *Computer Physics Communications*

Received date: 3 May 2016
Revised date: 4 July 2016
Accepted date: 11 July 2016

Please cite this article as: R. Aaij, S. Amato, L. Anderlini, S. Benson, M. Cattaneo, M. Clemencic, B. Couturier, M. Frank, V.V. Gligorov, T. Head, C. Jones, I. Komarov, O. Lupton, R. Matev, G. Raven, B. Sciascia, T. Skwarnicki, P. Spradlin, S. Stahl, B. Storaci, M. Vesterinen, Tesla: An application for real-time data analysis in high energy physics, *Computer Physics Communications* (2016), http://dx.doi.org/10.1016/j.cpc.2016.07.022

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

*Manuscript

ACCEPTED MANUSCRIPT

EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH (CERN)

28 June 2016
CERN-LHCb-DP-2016-001

Tesla : an application for real-time data analysis in High Energy Physics

R. Aaij[1], S. Amato[2], L. Anderlini[3], S. Benson[1], M. Cattaneo[1], M. Clemencic[1], B. Couturier[1], M. Frank[1], V.V. Gligorov[4], T. Head[5], C. Jones[6], I. Komarov[5], O. Lupton[7], R. Matev[1], G. Raven[8], B. Sciascia[9], T. Skwarnicki[10], P. Spradlin[11], S. Stahl[1], B. Storaci[12], M. Vesterinen[13].

[1] *European Organization for Nuclear Research (CERN), Geneva, Switzerland*
[2] *Universidade Federal do Rio de Janeiro (UFRJ), Rio de Janeiro, Brazil*
[3] *Sezione INFN di Firenze, Firenze, Italy*
[4] *LPNHE, Université Pierre et Marie Curie, Université Paris Diderot, CNRS/IN2P3, Paris, France*
[5] *Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland*
[6] *Cavendish Laboratory, University of Cambridge, Cambridge, United Kingdom*
[7] *Department of Physics, University of Oxford, Oxford, United Kingdom*
[8] *Nikhef National Institute for Subatomic Physics and VU University Amsterdam, Amsterdam, The Netherlands*
[9] *Laboratori Nazionali dell'INFN di Frascati, Frascati, Italy*
[10] *Syracuse University, Syracuse, NY, United States*
[11] *School of Physics and Astronomy, University of Glasgow, Glasgow, United Kingdom*
[12] *Physik-Institut, Universität Zürich, Zürich, Switzerland*
[13] *Physikalisches Institut, Ruprecht-Karls-Universität Heidelberg, Heidelberg, Germany*

Abstract

Upgrades to the LHCb computing infrastructure in the first long shutdown of the LHC have allowed for high quality decay information to be calculated by the software trigger making a separate offline event reconstruction unnecessary. Furthermore, the storage space of the triggered candidate is an order of magnitude smaller than the entire raw event that would otherwise need to be persisted. Tesla is an application designed to process the information calculated by the trigger, with the resulting output used to directly perform physics measurements.

Submitted to Computer Physics Communications

© CERN on behalf of the LHCb collaboration, licence CC-BY-4.0.

ACCEPTED MANUSCRIPT

Download English Version:

https://daneshyari.com/en/article/4964596

Download Persian Version:

https://daneshyari.com/article/4964596

Daneshyari.com