

Publication

Reproducible experiments in parallel computing: concepts and stencil compiler benchmark study

ConferencePaper (Artikel, die in Tagungsbänden erschienen sind)

ID 2995819

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Year 2014

Title Reproducible experiments in parallel computing: concepts and stencil compiler benchmark study

Book title (Conference Proceedings) Euro-Par 2014: Parallel Processing Workshops : Euro-Par 2014 International Workshops, Porto, Portugal, August 25-26, 2014 ; revised selected papers

Volume 8805

Place of Conference Porto

Publisher Springer

Place of Publication Cham

Pages 464-474

For decades, the majority of the experiments on parallel computers have been reported at conferences and in journals usually without the possibility to verify the results presented. Thus, one of the major principles of science, reproducible results as a kind of correctness proof, has been neglected in the field of experimental high-performance computing. While this is still the state-of-the-art, current research targets for solutions to this problem. We discuss early results regarding reproducibility from a benchmark case study we did. In our experiments we explore the class of stencil calculations that are part of many scientific kernels and compare the performance results of four stencil compilers. In order to make these experiments reproducible from remote, a first prototype of an replication engine has been developed that can be accessed via the internet.

edoc-URL <http://edoc.unibas.ch/dok/A6357887>

Full Text on edoc No;

Digital Object Identifier DOI 10.1007/978-3-319-14325-5_40

ISI-Number WOS:000354783500040