

Beyond the Weakly Hard Model: Measuring the Performance Cost of Deadline Misses (Artifact)

Paolo Pazzaglia

Scuola Superiore Sant'Anna, Pisa, Italy

paolo.pazzaglia@sssup.it

Luigi Pannocchi

Scuola Superiore Sant'Anna, Pisa, Italy

luigi.pannocchi@sssup.it

Alessandro Biondi

Scuola Superiore Sant'Anna, Pisa, Italy

alessandro.biondi@sssup.it

Marco Di Natale

Scuola Superiore Sant'Anna, Pisa, Italy

marco@sssup.it

— Abstract —

This document provides a brief description of the artifact material related to the paper “Beyond the Weakly Hard Model: Measuring the Performance

Cost of Deadline Misses”. The code provided in the artifact implements the algorithms presented in the paper and all the experimental tests.

2012 ACM Subject Classification Computer systems organization → Embedded software

Keywords and phrases control, real-time, Cyber Physical Systems weakly hard, deadline miss, performance

Digital Object Identifier 10.4230/DARTS.4.2.4

Related Article Paolo Pazzaglia, Luigi Pannocchi, Alessandro Biondi, Marco Di Natale, “Beyond the Weakly Hard Model: Measuring the Performance Cost of Deadline Misses”, in Proceedings of the 30th Euromicro Conference on Real-Time Systems (ECRTS 2018), LIPIcs, Vol. 106, pp. 10:1–10:22, 2018.

<http://dx.doi.org/10.4230/LIPIcs.ECRTS.2018.10>

Related Conference 30th Euromicro Conference on Real-Time Systems (ECRTS 2018), July 3–6, 2018, Barcelona, Spain

1 Scope

The aim of this artifact is providing an example of implementation for the algorithms that have been proposed in the related paper “Beyond the Weakly Hard Model: Measuring the Performance Cost of Deadline Misses”. Running the code, it is possible to reproduce the experimental results presented in the main figures of the paper.

2 Content

The experiments have been carried out using Matlab, thus the code provided is a set of Matlab scripts. The artifact package includes:

- a pdf with the instructions for running the tests,
- the “Paper_roller” folder, containing the Matlab scripts for reproducing the initial example in Figure 1 of the related paper, together with the implementation of Algorithm 1 and a script producing the data of the state-machine of Figure 4,



© Paolo Pazzaglia, Luigi Pannocchi, Alessandro Biondi, and Marco Di Natale; licensed under Creative Commons Attribution 3.0 Germany (CC BY 3.0 DE)

Dagstuhl Artifacts Series, Vol. 4, Issue 2, Artifact No. 4, pp. 4:1–4:2



DAGSTUHL
ARTIFACTS SERIES

Schloss Dagstuhl – Leibniz-Zentrum für Informatik, Dagstuhl Publishing, Germany

4:2 Beyond the Weakly Hard Model (Artifact)

- the “Furuta_tests” folder, containing the Matlab scripts for reproducing the case study of the related paper.

3 Getting the artifact

The artifact endorsed by the Artifact Evaluation Committee is available free of charge on the Dagstuhl Research Online Publication Server (DROPS). In addition, the artifact is also available at: https://retis.sssup.it/~p.pazzaglia/files_AE_ECRTS18/.

4 Tested platforms

The code requires Matlab being installed on your machine. It has been tested on Matlab 2017a and 2017b on Windows, MacOS and Linux, but the authors are confident that it will work also on previous versions of Matlab. Running the code could require 20-30 minutes depending on the computational power of the machine. The scripts will generate about 12 GB of data.

5 License

The artifact is available under the Creative Commons Attribution 3.0 Unported License. To view a copy of this license, visit <http://creativecommons.org/licenses/by/3.0/> or send a letter to Creative Commons, PO Box 1866, Mountain View, CA 94042, USA.

6 MD5 sum of the artifact

89fa63a29d234c871783096ebb87defe

7 Size of the artifact

144 KB (compressed)