



HyperDegrade: From GHz to MHz Effective CPU Frequencies

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<https://www.usenix.org/conference/usenixsecurity22/presentation/aldaya>

This artifact appendix is included in the Artifact Appendices to the Proceedings of the 31st USENIX Security Symposium and appends to the paper of the same name that appears in the Proceedings of the 31st USENIX Security Symposium.

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A Artifact Appendix

A.1 Abstract

In this artifact we compare three performance degradation strategies on Intel CPUs. In particular we measure the performance impact of performing a cache-flush based performance degradation in Intel microarchitectures with HyperThreading support. This artifact can be used to reproduce Tables 8-9 in the paper “*HyperDegrade: From GHz to MHz Effective CPU Frequencies*”. It can be also employed to extend the comparison to other microarchitectures.

A.2 Artifact check-list (meta-information)

- **Benchmark:** BEEBS
- **Compilation:** GNU toolchain
- **Hardware:** Intel with HyperThreading
- **Metrics:** clock cycles
- **How much time is needed to prepare workflow (approximately)?:** 30 minutes
- **How much time is needed to complete experiments (approximately)?:** 2–50 hours
- **Publicly available?:** yes
- **Code licenses (if publicly available)?:** MIT
- **Archived (provide DOI)?:** 10.5281/zenodo.5549559

A.3 Description

A.3.1 How to access

We provide full documentation in `README.md` available at the following URL. <https://doi.org/10.5281/zenodo.5549559>

A.3.2 Hardware dependencies

1. Intel CPU
2. HyperThreading
3. Recommended: Skylake, Kaby Lake, Coffee Lake, or Whiskey Lake

A.3.3 Software dependencies

1. Linux (root)
2. GNU toolchain
3. git
4. perf
5. python3

A.4 Installation

See `README.md` at <https://doi.org/10.5281/zenodo.5549559>.

A.5 Evaluation and expected results

1. This artifact reproduces the results in Section 4 of the paper.
2. In particular, Tables 8-9 in the paper.