OOKAMI PROJECT
APPLICATION

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Project Title: Porting and Evaluating the Performance Engineering Tools OSACA and LIKWID on OOKAMI

Usage:
• Testbed

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Usage Description:
In this project, we want to install and test the tools we developed at NHR@FAU on the OOKAMI cluster. All tools were ported to A64FX and are tested on other A64FX based systems. These tools are:
• LIKWID: Tool suite for performance engineering that provides system topology, control of process and thread affinity, micro-benchmarking and access to hardware performance events. The LIKWID suite is developed publicly as an open-source project on Github and available for download at [https://ftp.uni-erlangen.de/pub/likwid/](https://ftp.uni-erlangen.de/pub/likwid/). LIKWID is installed on many HPC systems worldwide to help users analyze and optimize their codes.

• OSACA: Tool for static in-core runtime prediction. It allows automatic parsing and runtime prediction of assembly code, including throughput analysis and detection of the critical path and loop-carried dependencies. OSACA is developed publicly as an open-source project on Github at [https://github.com/RRZE-HPC/OSACA/](https://github.com/RRZE-HPC/OSACA/). It is also available as a package on PyPI ([https://pypi.org/project/osaca/](https://pypi.org/project/osaca/)).

Our group conducted and published extensive research on an FX700 system [1] and the Fugaku supercomputer [2]. We were invited by Eva Siegmann ([eva.siegmann@stonybrook.edu](mailto:eva.siegmann@stonybrook.edu)) to introduce our tools and provide our insights into performance modeling and engineering in hackathons for the user group of OOKAMI.

Computational Resources:

• Total node hours per year: 15,000

• Size (nodes) and duration (hours) for a typical batch job: single-node to a few nodes for up to 12 hours

• Disk space (home, project, scratch): 200 GByte in total

Personnel Resources:

Required software:

• Python 3.x

• C/C++/Fortran compilers suitable for A64FX

• make, perl and some other basic Linux tools

If your research is supported by US federal agencies:

• Agency: N/A

• Grant number(s): N/A
Production projects:

References
