

OOKAMI PROJECT APPLICATION

Date: March 15, 2023

Project Title: Benchmarking the performance of A64FX hardware specific features such as hardware barrier and sector cache

Usage:

Testbed

Production

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Usage Description:

Benchmarking and testing of HPC features on A64FX, in particular Sector Cache and Hardware barriers. We will use mini-apps and synthetic benchmarks.

Computational Resources:

Total node hours per year: c.100

Size (nodes) and duration (hours) for a typical batch job: 1 node, 15-30 mins max per job. Interactive access preferred.

Disk space (home, project, scratch): c.10-50 GBs should be enough.

Personnel Resources (assistance in porting/tuning, or training for your users):

Installation of HPC kernel module

Basic support onboarding with user accounts, batch system, etc

Required software:

Fujitsu compiler, OpenMP, MPI

If your research is supported by US federal agencies: N/A.

Agency:

Grant number(s):

Production projects:

Production projects should provide an additional 1-2 pages of documentation about how
(a) the code has been tuned to perform well on A64FX (ideally including benchmark data comparing performance with other architectures such as x86 or GPUs)

(b) it can make effective use of the key A64FX architectural features (notably SVE, the high-bandwidth memory, and NUMA characteristics)

(c) it can accomplish the scientific objectives within the available 32 Gbyte memory per node