OOKAMI PROJECT APPLICATION

Date: 03/02/2021

Project Title: UCX

Usage:

- Testbed

Principal Investigator: Tony Curtis

- University/Company/Institute: Stony Brook University

- Mailing address including country:

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Institute for Advanced Computational Science,
Stony Brook University,
Stony Brook,
NY 11794-5250,
USA
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- Phone number: (631) 632-4629

- Email: anthony.curtis@stonybrook.edu

Names & Email of initial project users:

- Tony Curtis <anthony.curtis@stonybrook.edu>

- Rohit Zambre <Rohit.Zambre@amd.com>

Usage Description:

UCX is a communications substrate library that is used by upper-layer applications such as Open-MPI, OpenSHMEM, MPICH, Charm++, and machine-learning environments. ARM is heavily involved in the development of UCX for its architectures.

This project is an umbrella to invite developers of UCX onto Ookami to tune the software for this specific architecture.

Reference:

- https://www.openucx.org/

Computational Resources:

- Total node hours per year: estimate 1000

- Size (nodes) and duration (hours) for a typical batch job: runs can range from a single node up to 100s. Runs often range from a few seconds to a few hours (e.g. running the entire test suite).

- Disk space (home, project, scratch): 40GB, 4TB, 4TB

Personnel Resources:

None anticipated.

Required software:

None extra.

If your research is supported by US federal agencies:

- Agency: Los Alamos National Laboratory (related to OpenSHMEM project)

- Grant number(s): 367958

Production projects:

Production projects should provide an additional 1-2 pages of documentation about how

1. the code has been tuned to perform well on A64FX (ideally including benchmark data comparing performance with other architectures such as x86 or GPUs)

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

3. it can accomplish the scientific objectives within the available 32 Gbyte memory per node