

# OOKAMI PROJECT APPLICATION

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**Date:** 2021-02-01

**Project Title:**

Metrics for High Performance Computing Applications and Platforms:  
Performance and Reliability

**Usage:**

- Testbed

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**Usage Description:**

We propose the continued development and deployment of application kernels on `ookami` to serve both as measures of quality of service and to establish performance expectations. These application kernels are derived from low-level benchmarks and real scientific and engineering applications, to better represent a wide variety of workloads while simultaneously remaining lightweight enough to avoid consuming an excessive amount of cycles. All application kernels are run entirely from the user perspective during regular operation to avoid any special

treatment or resources, to best measure delivered performance and quality of service on all platforms.

### **Computational Resources:**

Estimates based on established timings and run frequency for Stampede2 (SKX nodes) for 9 kernels (Enzo, GAMESS, GRAPH500, HPCC, IMB, IOR, MDTEST, NAMD, and NWCHEM) allowing for significant development for testbed phase with continued improvements in software stack. We also anticipate substitutions or additions to the kernels specifically for Ookami subject to the input of the Ookami management team.

- Total node hours per year: 15000
- Size (nodes) and duration (hours) for a typical batch job: 1-16 nodes, <=1 hour per run
- Disk space (home, project, scratch): 2GB home, 2TB project for build space, 2TB volatile scratch

### **Personnel Resources:**

No additional resources requested

### **Required software:**

Standard development tools and libraries

### **If your research is supported by US federal agencies:**

- NSF ACI 1445806, "XD Metrics Service (XMS)," 7/1/2015-6/30/2021
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