SPhot Test Problem Set

Version 1.0

For the definition of terms such as SNCS, see the Sequoia Benchmark Glossary on the Sequoia Benchmark Web site.

Single Node

Set 1 **Weak scaling**

$N_{MPI} = 1, \quad N_{OMP} = 1, 2, \ldots, N_{C/Node}, 2*N_{C/Node}$

For a given run, "NRuns" should be set to $4 \times N_{MPI} \times N_{OMP}$

Set 2 **Threads vs. MPI**

All variations of N_{MPI} and N_{OMP} such that $N_{MPI} \times N_{OMP} = N_{C/Node}$

"NRuns" should be set to $4 \times N_{C/Node}$ for all runs.

Multiple Nodes

Set 3 **Weak scaling**

N_{MPI} = SNCS

$N_{OMP} = (N_{C/Node} - 1)$, and $N_{C/Node}$

For a given run, "NRuns" should be set to $4 \times N_{MPI} \times N_{OMP}$

Run A **Fixed-size problem**

"NRuns" = 32,768

$N_{MPI} \leq$ (Memory/Node) / 2 GB, per node, or 1 whichever is greater.

$N_{OMP} \geq N_{C/Node} / N_{MPI}$, per node

Maximize the figure of merit* using all nodes on the benchmark system.

---

* Figure of merit = (Tracks / second) × [a scale factor yet to be specified].

Note: This number is printed out at the end of a run, along with the answer that confirms correct operation.

(UCRL-MI-144211)