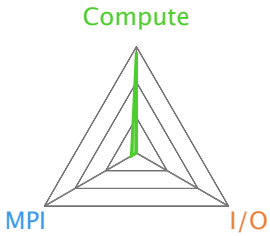
arm PERFORMANCE REPORTS

Command:	/home/phsiav/dev/epoch/epoch2d/bin/epoch2d
Resources:	1 node (36 physical, 72 logical cores per node)
Memory:	63 GiB per node
Tasks:	32 processes
Machine:	cfsa-swift
Start time:	Wed Aug 29 2018 13:04:48 (UTC+01)
Total time:	707 seconds (about 12 minutes)
Full path:	/home/phsiav/dev/epoch/epoch2d/bin



Summary: epoch2d is Compute-bound in this configuration

Compute	94.5%	Time spent running application code. High values are usually good. This is **very high**; check the CPU performance section for advice
MPI	5.5%	Time spent in MPI calls. High values are usually bad. This is **very low**; this code may benefit from a higher process count
I/O	0.0%	Time spent in filesystem I/O. High values are usually bad. This is **negligible**; there's no need to investigate I/O performance

This application run was Compute-bound. A breakdown of this time and advice for investigating further is in the CPU section below.

As very little time is spent in MPI calls, this code may also benefit from running at larger scales.

CPU

A breakdown of the 94.5% CPU time:

Scalar numeric ops	45.0%
Vector numeric ops	0.6%
Memory accesses	53.0%

The per-core performance is memory-bound. Use a profiler to identify time-consuming loops and check their cache performance.

Little time is spent in vectorized instructions. Check the compiler's vectorization advice to see why key loops could not be vectorized.

MPI

A breakdown of the 5.5% MPI time:

Time in collective calls	1.7%
Time in point-to-point calls	98.3%
Effective process collective rate	61.9 kB/s
Effective process point-to-point rate	37.3 MB/s

Most of the time is spent in point-to-point calls with a low transfer rate. This can be caused by inefficient message sizes, such as many small messages, or by imbalanced workloads causing processes to wait.

I/O

A breakdown of the 0.0% I/O time:

Time in reads	0.0%
Time in writes	0.0%
Effective process read rate	0.00 bytes/s
Effective process write rate	0.00 bytes/s

No time is spent in I/O operations. There's nothing to optimize here!

Threads

A breakdown of how multiple threads were used:

Computation	0.0%
Synchronization	0.0%
Physical core utilization	88.9%
System load	89.6%

No measurable time is spent in multithreaded code.

Physical core utilization is low. Try increasing the number of processes to improve performance.

Memory

Per-process memory usage may also affect scaling:

Mean process memory usage	178 MiB

Energy

A breakdown of how energy was used:

CPU	not supported %

Peak process memory usage	214 MiB
Peak node memory usage	13.0%

The peak node memory usage is very low. Running with fewer MPI processes and more data on each process may be more efficient.

System	not supported %
Mean node power	not supported W
Peak node power	0.00 W

Energy metrics are not available on this system.

CPU metrics requires the Advanced Metrics Pack licence feature.