**Blue Waters Petascale Semester Curriculum v1.0**

**Unit 3: Using a Cluster**

**Lesson 7: Scaling on a Cluster 1**

**Exercise Instructions for Students**

*Developed by Linh B. Ngo for the Shodor Education Foundation, Inc.*



*Except where otherwise noted, this work by The Shodor Education Foundation, Inc. is licensed under CC BY-NC 4.0. To view a copy of this license, visit*[*https://creativecommons.org/licenses/by-nc/4.0*](https://creativecommons.org/licenses/by-nc/4.0)

*Browse and search the full curriculum at*[*http://shodor.org/petascale/materials/semester-curriculum*](http://shodor.org/petascale/materials/semester-curriculum)

*We welcome your improvements! You can submit your proposed changes to this material and the rest of the curriculum in our GitHub repository at*[*https://github.com/shodor-education/petascale-semester-curriculum*](https://github.com/shodor-education/petascale-semester-curriculum)

*We want to hear from you! Please let us know your experiences using this material by sending email to* [*petascale@shodor.org*](mailto:petascale@shodor.org)

Students should modify the example scheduling scripts in the following manner and observe outcomes (via scheduler outputs)

* Reduce the number of jobs in the job array relative to the number of input lines.
* Increase the number of jobs in the job array relative to the number of input lines.
* Increase the total number of cores (select \* ncpus) in the gnu\_parallel example.
* Change the -j parameter (number of parallel tasks per node) in the parallel commands.