

XSEDE User Tasks

This is a page to identify tasks that our XSEDE users need to do - looking to identify these tasks, and ensure that if training is necessary for any of them, we have training materials available for our users...

Starting list of activities/tasks:

XSEDE General:

1. Discover available resources
2. Access XSEDE services and resources
3. Locate training resources to support a specific activity
4. Get a third party application and number seeds available in any or a specific resource
5. Get benchmark data for a given application across XSEDE resources
6. Access Data
7. Move Data
8. Start a computation
9. Terminate a computation
10. Submit a job, batch or interactive
11. Monitor job status
12. Get historical job information
13. Get an estimate of start time of a submitted job

Design, Preparation:

1. Identify target system for a code
2. Identify programming language for code development
3. Identify optimized numerical libraries for use in an application code to avoid implementing a basic numerical algorithm from scratch
4. Use a hardware accelerator/coprocessor like: Nvidia or AMD gpu, Intel XeonPhi
5. Find the software I need (modules?) or install the software required (system, or my \$HOME) so that I can : ./configure; make

Development, measure, analysis, improvement:

1. Parallelize existing serial code
2. Compile a program from source on a remote machine
3. Debug error messages from the compiler or linker
4. Use profiling tools to identify bottlenecks
5. Use parallel visualization tools to analyze output
6. Process gigabytes of data and transfer it back to a personal machine for further analysis
7. Extend an algorithm to handle new or larger datasets.
8. Employ optimization techniques to improve runtime efficiency