BLUE WATERS
SUSTAINED PETASCALE COMPUTING

Blue Waters User Monthly Teleconference

Agenda

- Recent Blue Waters system events and Updates
- Recent Changes
- Darshan available for testing
- Requests for information on Science Successes
- Blue Waters Symposium
- XSEDE/Blue Waters Extreme Scaling Workshop
- VSCSE training events
- XSEDE14 Conference
- Lustre Resiliency and Application IO error handling

Recent System Events and Updates

- Current maintenance
  - Mostly updates to Lustre server supporting software.
  - NVIDIA firmware update to address state of XK nodes after certain jobs.
  - Testing of topology aware scheduling (coming soon).

Recent Changes

- Weekday reservation for small number of nodes for small, short jobs in debug queue and high queue:188 XE and 64 XK but the reservation allows up to 64 XE nodes and 32 XK with wall clock times < 4 hours. Should improve turn-around for debugging and development.

Darshan

- Please try Darshan with your application. We will make this a default module in the user environment in a month.
- See https://bluewaters.ncsa.illinois.edu/darshan for more info.
- Automatically profile application IO:
  - No code modification
    - Works with POSIX, HDF5, NetCDF, MPI-IO
  - Low overhead
  - Scalable
  - Must be an MPI application
- Per-file per-process statistics (organized by file)
  - Counts I/O operations, e.g. unaligned and sequential accesses
  - Times for file operations, e.g. opens and writes
  - Accumulates read/write bandwidth info
  - Creates data for simple visual representation

Darshan continued

- Reasons for no profile file
  - Not an MPI application
  - Application did not exit cleanly
  - Environment variable DARSHAN_DISABLE is set
  - Application not linked with Darshan libraries
    - check '`nm | grep -i darshan`'
- Enable with `module load darshan`
- Known issues:
  - Shared objects cannot be built – patch will be applied soon, currently testing
- Portal link: https://bluewaters.ncsa.illinois.edu/darshan

Request for Science Successes

- We need to be current on products that result from time on Blue Waters such as:
  - Publications, Preprints (e.g. arXiv.org), Presentations.
  - Very interested in data product sharing.
- Appreciate updates sooner than annual reports.
  - Send to gbauer@illinois.edu
- NSF PRAC teams send information to PoCs.
- See the Share Results section of the portal as well.
- Be sure to include proper acknowledgment
  - Blue Waters - National Science Foundation (ACI 1238993)
  - NSF PRAC – OCI award number

Blue Waters Symposium

- 2nd Annual - Petascale Science and Beyond
- May 12-15, 2014 in Champaign-Urbana.
- Keynotes, panels, and breakout sessions.
- Blue Waters science teams are expected to have a senior representative.

XSEDE/Blue Waters Extreme Scaling Workshop

- Topic: The Intersection of Big Data and Large-Scale Computing
  - Data intensive applications running on HPC style architectures
  - Big data analytical applications running on HPC style architectures
  - Computationally intensive applications running on big data or data intensive architectures
  - Using GPU/many-core processors for big data applications
  - System architectural features that can support big data and high performance computing
- The Extreme Scaling Workshop 2014 will showcase the discoveries, innovations, and achievements of those who use, build, and/or support advanced architectures at extreme scales around the world.
- The workshop will also provide a forum among researchers, professional staff, students, HPC center staff, and representatives from funding agencies.
- August 14-15, 2014 in Boulder, CO.
- See https://www.xsede.org/web/xscale/xscale14 for more information.
- After the RMACC High Performance Computing Symposium.

VSCSE Events

- Harness the Power of GPU's: Introduction to GPGPU Programming (June 16 - 20, 2014)

- Data Intensive Summer School (June 30 - July 2, 2014)

- NCSA will host local site

- http://www.vscse.org/summerschool/2014/

- Check for XSEDE topical training.

XSEDE14 Conference

TO LEARN MORE VISIT
CONFERENCES.XSEDE.ORG/XSEDE14

- July 13-18, 2014 in Atlanta
- Theme is Engaging Communities
- Paper submissions and tutorials due March 15
- Topics span accelerating discovery, advanced technologies, software, science gateways and portals, and education, outreach and training
- Over 700 people from academia, industry, government, and other organizations
- Financial support for Champions and student participation

Future Topics?

- Please send us your suggestions on topics for future teleconferences / webinars

Featured Presentation

- Lustre Resiliency and Application IO error handling – Kalyana Chadalavada