

BLUE WATERS

SUSTAINED PETASCALE COMPUTING

1/21/14

Blue Waters User Monthly Teleconference



GREAT LAKES CONSORTIUM
FOR PETASCALE COMPUTATION

CRAY®

Agenda

Topics for this webconference:

- Recent changes to Blue Waters
- Current usage and the final quarter for the first year of allocated work.
- Requests for information on Science Successes
- NSF PRAC request for proposals
- Blue Waters Graduate Fellowship
- XSEDE/Blue Waters Extreme Scaling Workshop
- Introduction to HDF5 – Quincey Koziol

System Changes

- Last month
 - Default NID order change to improve performance and consistency. No reports of degraded performance.
- Today 1/21-1/22
 - Software updates to Sonexion (Lustre) servers to improve resiliency and reliability.
 - Hardware maintenance of items not warm-swappable. (Warm-swaps done twice a week: Mon. & Thu.)
 - SLES and NVIDIA security fixes.
 - Nearline software (HPSS) and firmware updates.

Changes to Programming Environment

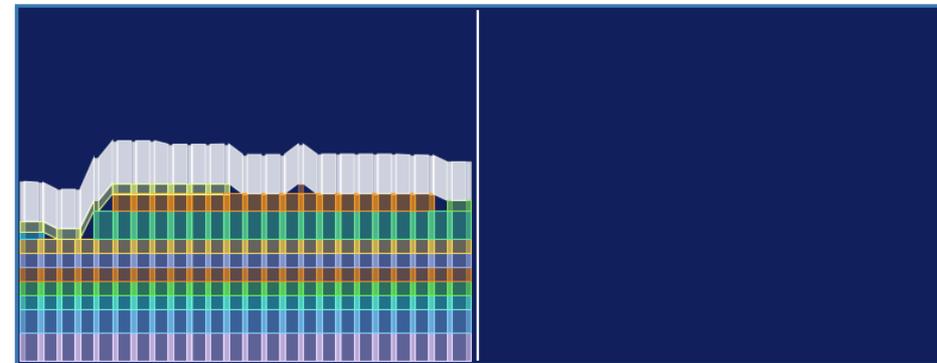
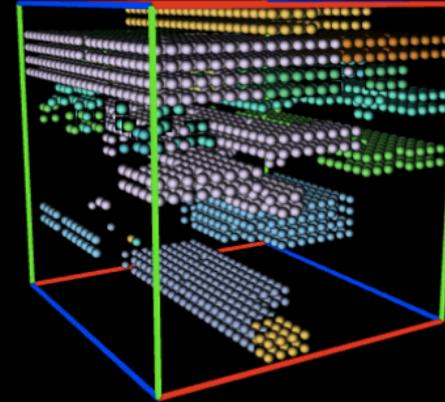
- Last change to PE defaults in August, 2013.
- When system returns to service
 - CCE 8.2.2 - Supports the use of AVX intrinsic/built-in functions. See `man intro_asm_intrin`
 - PGI 13.10.0 – Improved OpenACC support, CUDA5.13.6.0 dynamically linked apps need attention.
 - GNU 4.8.2
 - MPT 6.2.0 (cray-mpich) – GPU2GPU improvements.
 - LibSci/LibSci_acc
 - Perftools (reported scalability bug at 2K nodes)

New Job Views

- Open access
- Dimensions
 - X - RED
 - Y - GREEN
 - Z - BLUE
- Google ribbon view as well (login first).
- See Machine Status page on the portal.

Placement of 10 largest running jobs on the Gemini torus. Mon 20.01.2014 at 07:08:48 AM CST

JOBID	USERID
560391	trq
560731	truesdal
559316	yanxinl
560338	yanxinl
559320	yanxinl
554090	bergonzo
558599	bergonzo
560567	haox
560569	haox
560724	wenma2



Jan 20, 2014 at 14:54:00



01/19/2014 14:54

01/20/2014 14:54

Usage To Date

Project Group	Allocated (M node-hrs)	% of Allocation Used
NSF PRAC	177.36	50
IL	8.88	30
GLCPC	3.59	20

- 77% into “year” starting April 4, 2013, corrected for XK upgrade outage.
- Two largest projects at 88% and 75% used. Next 10 largest projects combine to 38% used.
- Utilization has improved steadily over the last 4 months.
- Will be difficult for teams to fully use allocation.

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](https://arxiv.org) ), Presentations.
- 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.

Petascale Computing Resource Allocations (PRAC)

- [PROGRAM SOLICITATION NSF 14-518](#)
- Deadline March 10, 2014
 - November 14, 2014
 - November 13, 2015
 - November 09, 2016
- Program Officer
 - Rudolf Eigenmann reigenma@nsf.gov

This description should include the number and type of system nodes needed for your runs, the anticipated memory usage, the expected number and duration of runs required for each phase of the research, the total number of node-hours required, the anticipated I/O requirements, the amount of data that you anticipate transferring to or from the Blue Waters.

Blue Waters Graduate Fellowships

- Blue Waters Graduate Fellowships provide PhD students with a year of support, including a \$38,000 stipend, up to \$12,000 in tuition allowance, an allocation on the powerful Blue Waters petascale computing system, and funds to support travel to a Blue Waters-sponsored symposium.
- For the Fellowships, preference will be given to candidates engaged in a multidisciplinary research project that combines disciplines such as computer science, applied mathematics, and computational science applications. Applicants must be a U.S. Citizen or a permanent resident of the U.S. by the time of the application deadline.
- Applications, including all supporting materials, must be submitted no later than 9 pm EST on Feb. 3, 2014. Awards will be made in spring 2014, with the tuition allowance applied to the 2014-2015 academic year.
- Questions? Contact bwgf@ncsa.illinois.edu.
- For more information see <https://bluwaters.ncsa.illinois.edu/fellowships>

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 announcement/call should go out shortly.
- 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.

Introduction to HDF5

- Quincey Koziol (HDF Group)

Future Topics?

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