



Cornell University
Center for Advanced Computing

Welcome!

High Performance Computing on Stampede 2, with KNL

January 23, 2017



Cornell Center for Advanced Computing (CAC)

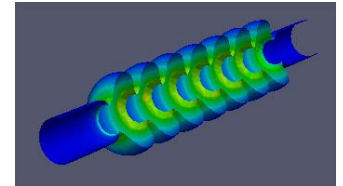
- Mission:
 - To Enable the Success of Cornell Researchers, Collaborators, and Supporters whose Work Demands Advanced-Computing Solutions
- Organization:
 - Cornell core facility
 - Staff of expert consultants, systems administrators & programmers
 - CAC Director reports to the Office of the Vice Provost for Research
- National Cyberinfrastructure Partnerships:
 - NSF XSEDE – *Extreme Science and Engineering Discovery Environment*
 - NSF TACC Stampede – *Petascale Computing*
 - NSF Jetstream – *A cloud for science and engineering research*



Cornell CAC: Focused on Service

Consulting

- Assist with new faculty start-up packages
- Benchmarking & performance analysis
- Proposal development & participation
- Custom programming, debugging, parallelization & optimization
- Development and support for scientific workflows
- Custom training > live & web-based
- Strategic partnerships > vendors, national CI, researchers

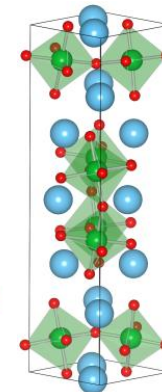


Computing

- High-performance computing
- Cloud computing

Data storage and management

- Scalable disk storage & archival storage
- Database resources



red cloud





Workshop Logistics

- Refreshments
 - Morning and afternoon breaks provided
 - No food or beverages permitted in training room
 - Lunch on your own
- Room access
- Restrooms



Workshop Web Page

<http://www.cac.cornell.edu/education/training/StampedeJan2017.aspx>

- Agenda
- Lecture slides
- Links
- Evaluation survey will come from XSEDE

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[Register](#)

Cornell University
571 Rhodes Hall
[Guest Wireless](#)

[CAC Home](#)
[CAC Services](#)
[Cornell Virtual Workshop](#)

[XSEDE User Portal](#)
[XSEDE Allocations](#)
[TACC User Portal](#)



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1. Orientation

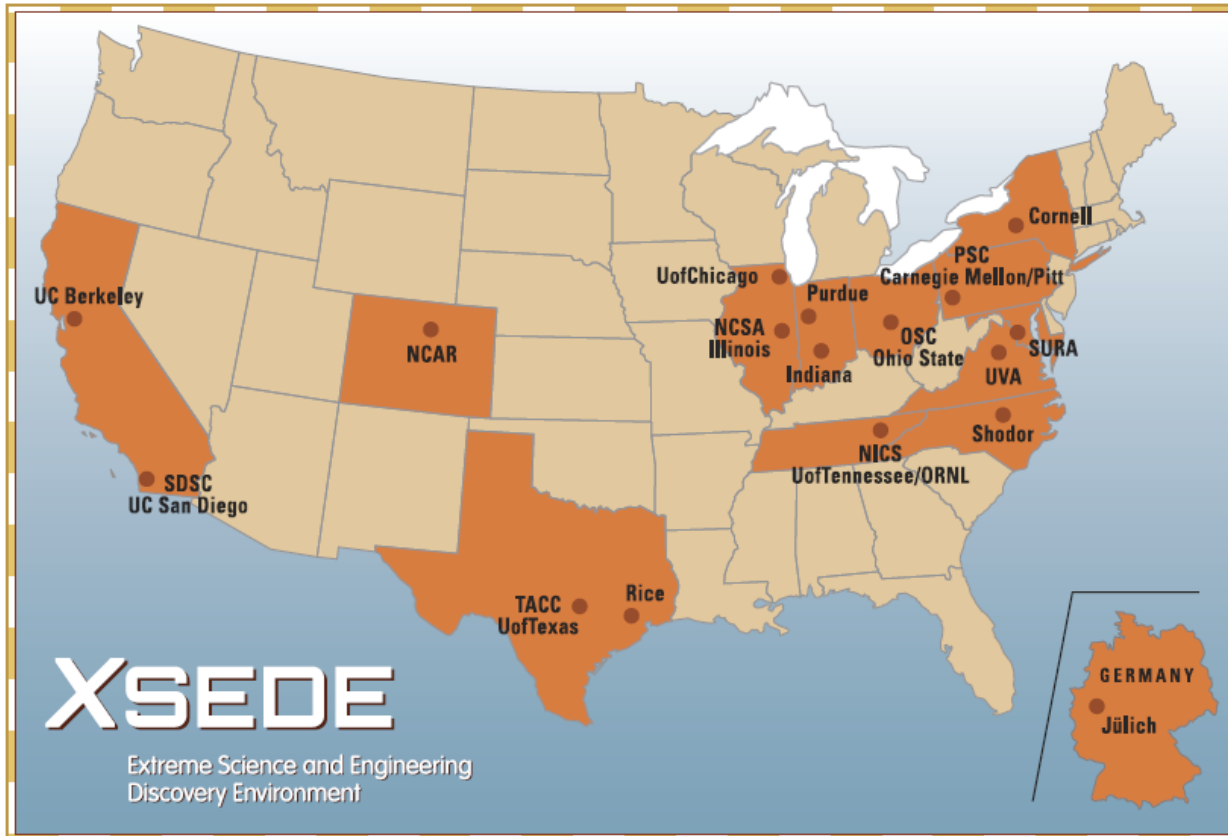


Orientation

- [XSEDE](#) – Extreme Science and Engineering Discovery Environment
 - Cyber infrastructure funded by NSF; a single virtual system
 - ~15 supercomputers & high-end visualization and data analysis resources.
17 partner institutions
- [TACC](#) – Texas Advanced Computing Center
 - [Stampede](#) – Dell Linux cluster
 - [Wrangler](#) – Data Analytics System
 - [Maverick](#) – HP/NVIDIA Interactive Visualization and Data Analytics System
- [CAC](#) – Cornell Center for Advanced Computing
 - [HPC Systems](#) –private clusters
 - [Red Cloud](#) – on-demand research computing service



XSEDE Partner Institutions

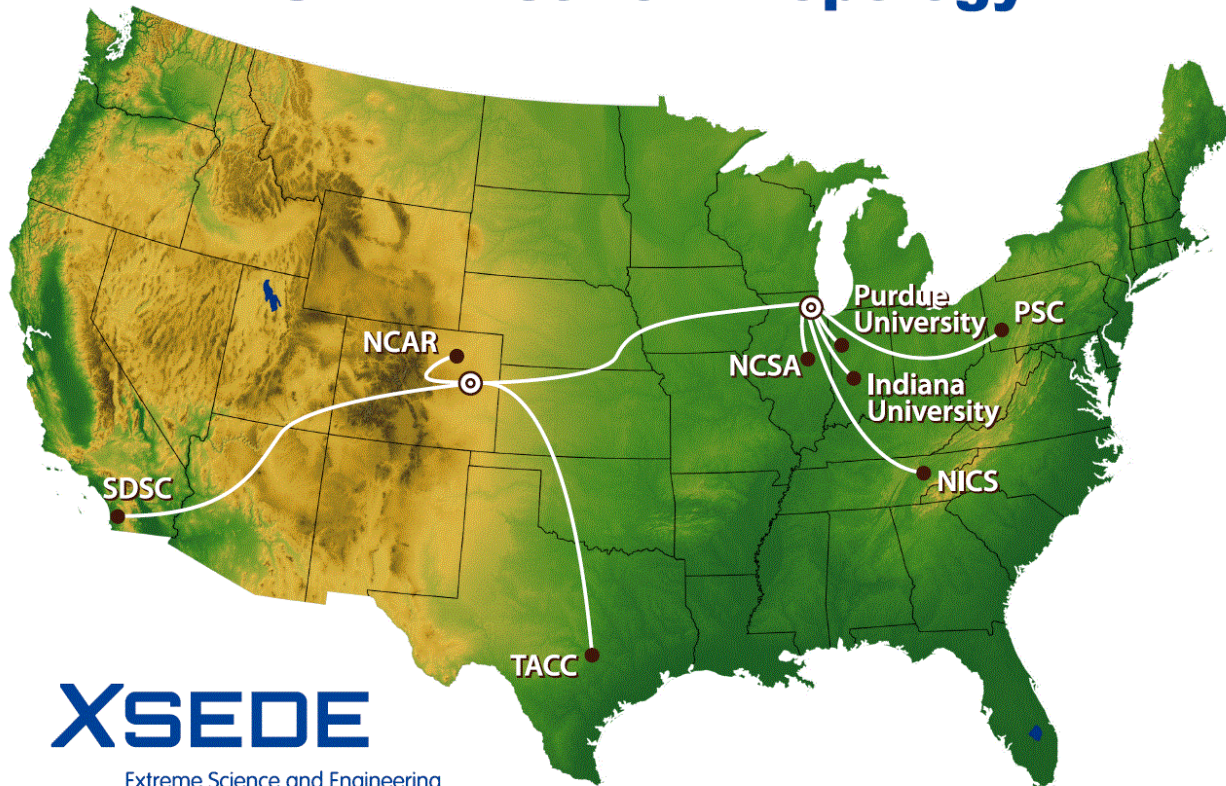


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XSEDE Network Topology

XSEDE Network Topology



XSEDE

Extreme Science and Engineering
Discovery Environment



XSEDE Resources

<https://portal.xsede.org/resource-monitor>

The screenshot shows the XSEDE Resource Monitor interface. At the top, there is a navigation bar with tabs for MY XSEDE, RESOURCES (selected), DOCUMENTATION, ALLOCATIONS, TRAINING, USER FORUMS, HELP, ECSS, and ABOUT. Below this is a sub-navigation bar with links for Systems Monitor, Remote Visualization, Software, Queue Prediction, Science Gateways, and Scheduled Downtimes. The main content area is titled 'Compute Resources' and contains a table with the following data:

Name	Status	CPUs	Peak TFlops	Utilization	Running Jobs	Queued Jobs	Other Jobs
Stampede User Guide	✓ Healthy	102400	9600.0		548	7	148
Comet User Guide	✓ Healthy	47616	2000.0		2096	693	51
XStream User Guide	✓ Healthy	1300	1001.7		117	11	146
SuperMIC User Guide	✓ Healthy	7200	925.0				
Bridges Regular							



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2. Accounts and Allocations



Computing Accounts

- Workshop/training accounts
 - Access to stampede.tacc.utexas.edu, including knl login and compute nodes
 - ssh required
 - MFA required
 - Account will be deleted after one week

- CAC Services
 - PI may set up projects for
 - compute time
 - consulting time
 - Maintenance
 - Storage
 - Red Cloud
 - <http://www.cac.cornell.edu/services/>



Campus Champions

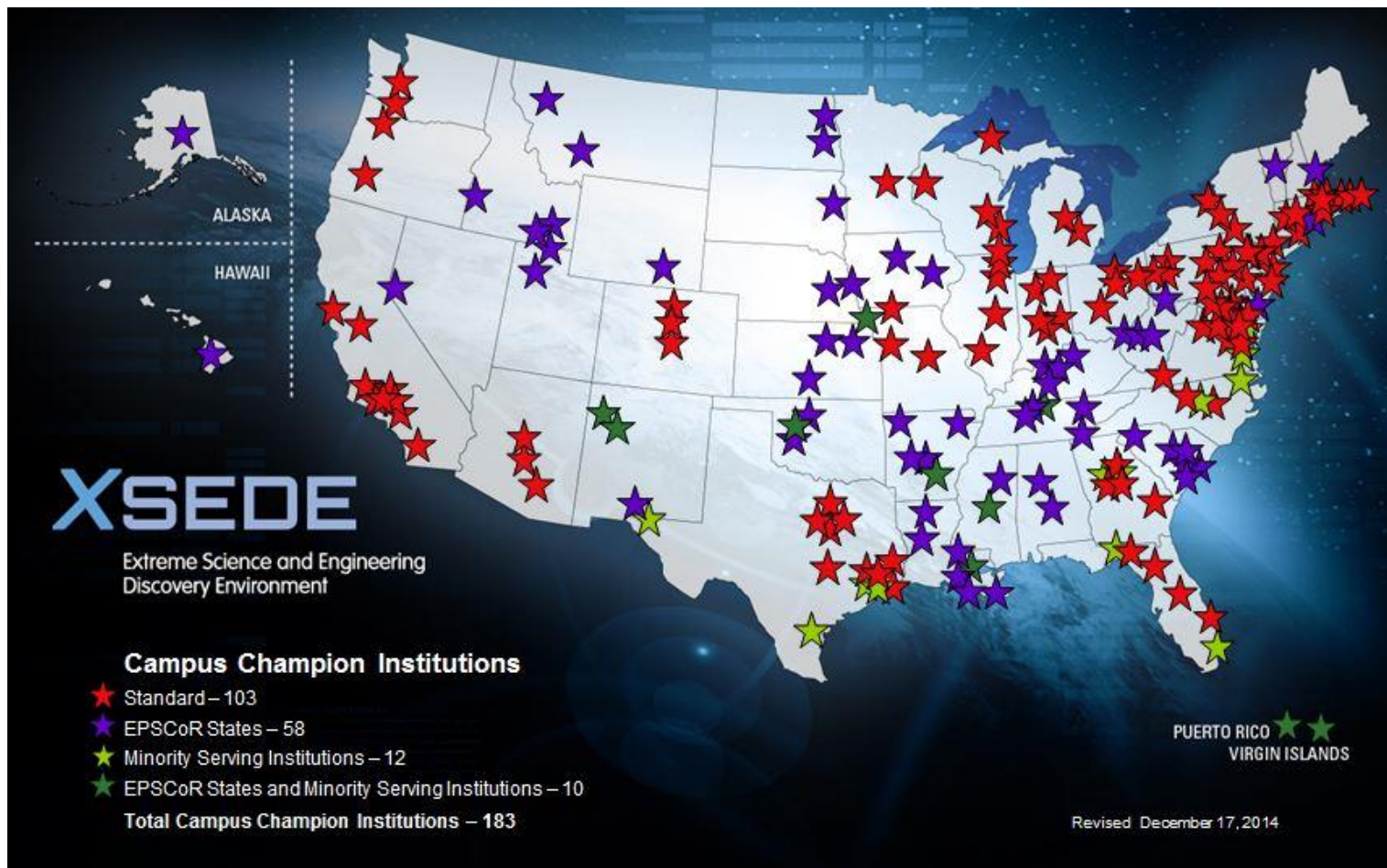
- The Campus Champions program supports campus representatives as a local source of knowledge on XSEDE resources.
- Contact your Campus Champion for
 - Trial allocation
 - Information on XSEDE and cyberinfrastructure resources
- Cornell's Champion:
Susan Mehringer
shm7@cornell.edu



<https://www.xsede.org/campus-champions>



Campus Champions





XSEDE Allocations

Allocations provide computing, storage, and support services.
<https://portal.xsede.org/web/guest/allocations>

- Startup – for testing and preparing allocation request
 - Up to 200,000 core-hours, for 1 year
 - Submit Abstract, Awarded every 2 weeks
- Research – usually for funded research project
 - No specific limit of core-hours you can request, for 1 year
 - 10 page Request, Awarded quarterly
 - Form only available during open submission period
- Education – for classroom instruction and training sessions
 - Up to 200,000 core-hours, for 1 year
 - Submit CV and abstract, Awarded/2 weeks

