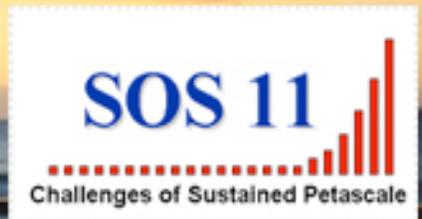




# LLNL Laboratory Update

**SOS11 Conference**  
Key West, Florida



**Brent Gorda**

UCRL-PRES-348859

**Lawrence Livermore National  
Laboratory**

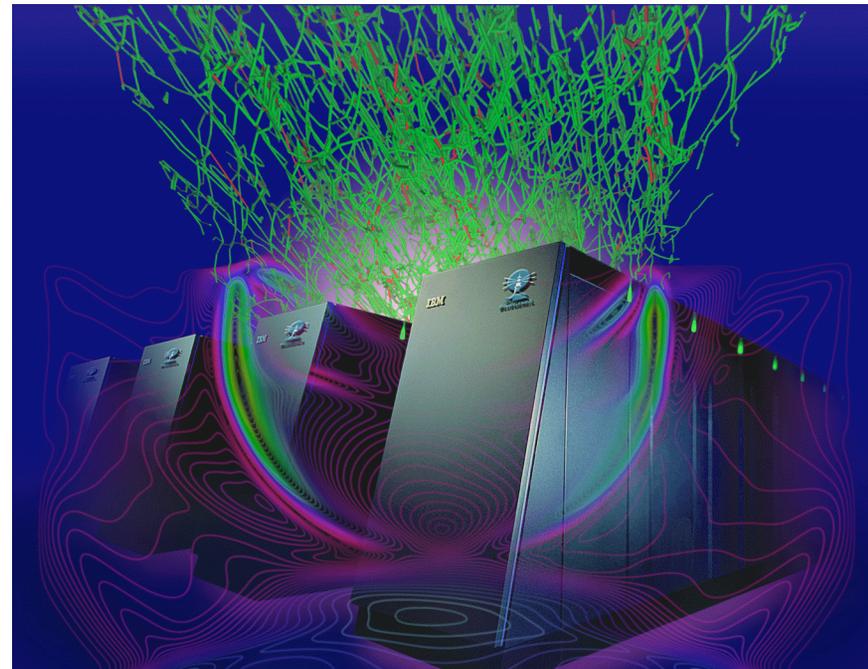
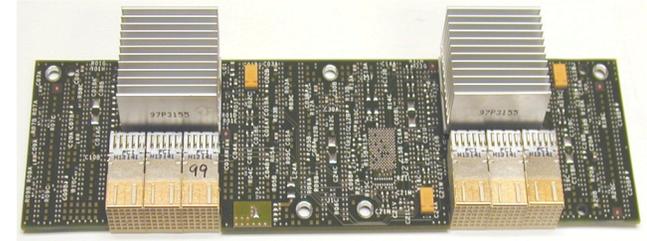
6/12/07



# ASC BlueGene/L



- 64k nodes (128K cpus)
- #1 on Top500 (280 TFs)
- 2006 Gordon Bell prize: sustained 206 TF on QBox
- Lustre / SLURM



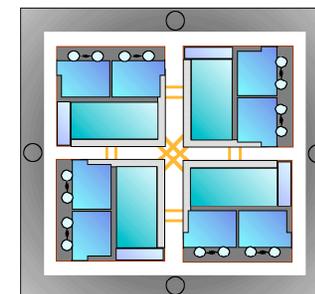
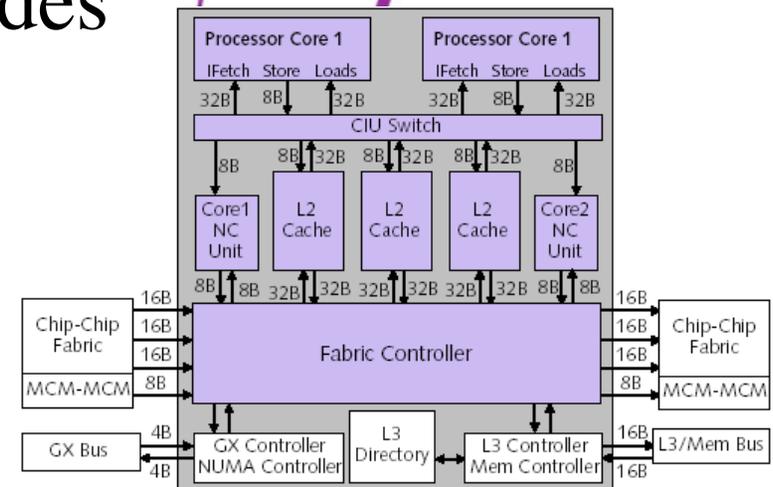
[http://www.llnl.gov/asc/computing\\_resources/bluegenel/](http://www.llnl.gov/asc/computing_resources/bluegenel/)



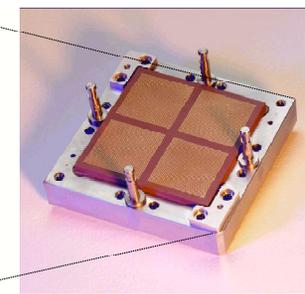
# ASC Purple

- Power 5 - 8-way 1536 nodes
- ~100TFlop/s peak
- GPFS/SLURM

ASC Purple  
FIFTH GENERATION  
ASC PLATFORM



8-processor Multi-Chip Module  
■ chips rotated to allow high speed interconnection



4.5" square, glass-ceramic interconnect construct

[http://www.llnl.gov/asc/computing\\_resources/purple](http://www.llnl.gov/asc/computing_resources/purple)





# Facilities upgrade



- Upgrade to 30 MW capacity
- 2 x 24,000 ft<sup>2</sup> unobstructed floors



# Current activities

- With ANL, IBM Research: BG/{P,Q}
- With LANL/Sandia: TLCC-2007
- LLNL petaflop activity: Sequoia procurement
- Significant programming issues:
  - 512+ GB/s I/O to 50+ PB shared file system
  - 1M+ cores





# SC07 Cluster Challenge



  
**Calling all cluster pilots!**

Come to Reno, Nevada this November to participate in the unmatched and inaugural Cluster Challenge at the SC07 Conference! *Enter now!*

## SC07 Cluster Challenge

November 10-17  
Reno-Sparks Convention Center Reno, Nevada, US  
[cluster@sc07.supercomputing.org](mailto:cluster@sc07.supercomputing.org)

**Who:** Teams of up to six undergraduates, along with their vendor partners and the cluster architecture the teams design, will compete, in real time, at SC07.

**What:** The SC07 Cluster Challenge is an opportunity for university teams to show off their cluster piloting skills in an international competition. Teams will run real-world (open source) applications in a head-to-head event to solve real-world computational problems.

**Why:** Today's clusters have significant computational power, run a variety of scientific applications, and can be setup in an intimate and demonstrative environment. Clusters are the fastest growing segment of the technical computing space, and companies are very interested in meeting talented cluster pilots. The SC07 Cluster Challenge aims to demonstrate the speed, advances, accessibility, and usefulness of small clusters at the industry's most dynamic and well-attended event.

**Where:** The annual SC events are the premier international conferences on high performance computing (HPC), with more than 10,000 attendees, 100s of exhibitors, and a robust technical program. This is the ideal place for Cluster Challenge teams to demonstrate their skills. International HPC leaders will be watching, cheering, and motivated to meet the players of this charged competition. The host city of Reno is well known for the fastest race in the world—the National Championship Air Races and Air Show—and is also home to numerous regional athletic races (marathons, skiing, cycling, and boarding) with Lake Tahoe next door.

**How to enter:** Teams of up to six individual undergraduate student team members, a supervisor, and optional vendor partners should submit entries by **July 31, 2007** at <http://sc-submissions.org>

**More information:** Information on team composition, hardware and software requirements, vendor guidelines, and the Cluster Challenge structure and rules can be found at <http://sc07.supercomputing.org/clusterchallenge>. For more information, contact [cluster@sc07.supercomputing.org](mailto:cluster@sc07.supercomputing.org).

 **About SC07**  
<http://sc07.supercomp.org>  
SC07, sponsored by ACM and IEEE Computer Society, will showcase how HPC, networking, storage and analysis lead to advances in research, education and commerce. The conference includes technical and education programs, workshops, tutorials, an exhibit area, demonstrations and hands-on learning.



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**SOS11 Conference**  
Key West, Florida

