Access to Lab Computing Resources for APS Users

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A U.S. Department of Energy Office of Science Laboratory Operated by The University of Chicago
LCRC Pilot Program for APS Users

• Our Motivation
• Available Resources
• How to Request Them
• How to Get Assistance
Computational analysis and modeling make essential contributions to successful APS experiments

- What is the unmet need for mid-range computing among APS users?
- Can we stretch laboratory computing resources to enable more productive APS science?
- Can our existing staff support APS users?
- How do we optimize the value to APS?
- Beginning a pilot program to make our terascale computing cluster available
The Laboratory Computing Resource Center

- LCRC is an Argonne facility established in 2003
  - Jazz – a terascale Linux cluster (10^{12} calculations per second).
  - Staff dedicated to supporting Argonne applications.
  - Production class systems support.
  - Lab-wide availability.
- No charge to ANL employees and projects.
- Charter to help as many groups as possible from across the Lab to use the computing facilities.
- Community Guidance
  - Computational Science Advisory Comm.
  - LCRC Allocations Committee
- See www.lcrc.anl.gov for more information.
- Contact consult@lcrc.anl.gov for technical help or information.
**The ANL LCRC Computing Cluster – Jazz**

**Vendor:** Linux Networx

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### 350 computing nodes
- 2.4 GHz Pentium IV
- 50% with 2 GB RAM
- 50% with 1 GB RAM
- 80 GB local scratch disk
- Linux

### 10 TB global working disk
- 8 dual 2.4 GHz Pentium IV servers
- 10 TB SCSI JBOD disks
- PVFS file system

### 10 TB home disk
- 8 dual 2.4 GHz Pentium IV servers
- 10 TB Fiber Channel disks
- GFS between servers
- NFS to the nodes

### Network
- Myrinet 2000 to all systems
- Fast Ethernet to the nodes
- GigE aggregation

### Support
- 4 front end nodes: 2x2.4 GHz
- 8 management systems
New LCRC Projects

- **Startup Projects**
  - 1000 CPU-hours by signing up for an account
  - Get familiar with Jazz and explore the applicability of a code

- **Full Projects**
  - Send information to aps-request@lcrc.anl.gov
  - Joint APS LCRC team approves projects
  - CSAC Allocations Committee sets allocations

- **Other Requirements**
  - Acknowledge Argonne and LCRC in publications
  - Full projects complete a brief annual project report
Full Project Request  Round 1 due August 27

APS Project Name:

Project PI:
- Name of an active APS user or ANL staff member
- PI Contact Information (phone and e-mail)

CAT and Beamline:

Project Description:
- A brief description of the computations to be carried out and how they impact the successful use of APS.
- Preference will be given to projects with a critical need for computing that lack access to any other resources to carry them out.

Application Description:
- A brief technical description of the application(s) to be run on Jazz.
- Preference will be given to applications that are ready to make effective use of the Jazz system.

Computing Allocation Request:
- An estimate of the number of CPU-hours needed in the next 12 months
- If the usage will not be uniform, tell us when they will be needed.
Getting started on Jazz

• Getting your Jazz account
  - https://accounts.lcrc.anl.gov

• New User’s Guide

• Things to learn about
  - Remote login:  ssh jazz.lcrc.anl.gov
  - Setting up your environment
  - Accessing software
  - Copying in your programs and data
  - Development
  - Launching jobs

… all details are on the web and are covered in regularly-scheduled tutorials.
LCRC Personnel

• LCRC Leadership
  - Remy Evard
  - Ray Bair

• LCRC Scientific Application Engineers
  - Mike Dvorak
  - Katherine Riley
  - Mike Minkoff (50%)

• LCRC Systems Staff
  - Susan Coghlan
  - Rick Bradshaw

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