

CAC Overview

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TBD

<http://cac.engin.umich.edu/training>

Outline

- 1 Hardware
 - Compute
 - Networks
 - Storage
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 - Development Tools
 - Applications
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Compute

Compute

- 3100+ x86_64 CPU's Grows Monthly
- 32 Itanium II's
- 2GB Memory/CPU 5532GB Ram total (2/9/2009)
- Up to 96/64GB Memory to single thread

Non Standard Compute

- GPGPU's
- 40 Total GPU's

Pre/Post Processing



Hardware/Software

- Full CAEN Linux Load
- 2 Systems, 16GB, Quarto GPU, very big screen

Networks

Networks

- Every node has 1Gbps Ethernet full nonblocking
- 98+ Nodes with 20Gbps Infiniband
- Over 2 Tbps network ability
- 10Gbps link to North Campus

Storage

Commodity Storage

- /home/ 40GB Quota available by NFS, snapshots no backups
- /afs/ AFS Tokens for umich.edu cell on login, any token allowed on login nodes

Performance Storage

- /nobackup/ 50TB Parallel file system
- Supports writes up to 700MB/s Reads 650MB/s
- Supports MPI-IO and other Parallel IO
- Mounted on login.engin.umich.edu
- Mounted on 3D Lab Linux Machines

Training

Training

- CAC Provides Introduction training on use of PBS and Resources
- Supplement Topics are added as requested
 - Introduction to MPI Parallel Programming
 - BLAS/LAPACK High Performance Mathematics
 - User Round Tables (Matlab so far)
- Offered 3 times a year
- Offered on demand for groups of users (new or not)

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Development Software

Tools

- PGI/Intel/Nag Compilers
- GNU Compilers (not recommended)
- Code Profilers, Serial and Parallel (opt)
- Debuggers, Serial and Parallel (ddt)
- Code Coverage Analysis

Development Software

Libraries

- MPI Parallel Libraries that support multiple network types
- NAG/IMSL High Level Math Libraries, Serial and Parallel
- BLAS/LAPACK Parallel Linear Algebra Software
- Sparse Matrix Solvers (Pardiso, MKL, etc)
- CPLEX Optimization LP Problems
- Any CAEN Library, is a CAC Library

Applications

Applications

- CAC Works with CAEN (On Demand) for ISV applications
 - Matlab/Minos/Fluent/Abaqus/etc.
- We build and install common used applications
 - R/Amber/AutoDock/Lammps
- CAC supports faculty owned software installations, and control access to application

<http://cac.engin.umich.edu/resources/systems/nyxV2/software.html>

Contact Information

Contact

- Best: cac-support@umich.edu
 - User support questions
 - Also best for any other requests
- <http://cac.engin.umich.edu>