

Introduction to HPC facilities at CaSToRC

CaSToRC

- **What is CaSToRC ?**
- **Computational Science Research Centre within The Cyprus Institute**
- **Charged with managing HPC infrastructure within the Institute**
 - **Compute power**
 - **Data Storage**
 - **Scientific Visualisation**
- **Who am I ?**
Patrick Fitzhenry
Systems Administrator at CaSToRC

CaSToRC

- **We aim to build a strong user base for HPC within the Eastern Mediterranean region by providing**
 - **Access to state of the art High Performance Computing Facilities**
 - **Education and Outreach programmes for users**
 - **Helpdesk and User Support facilities**
 - **Links to other European and US centres through our collaborative partners**

Facilities... current

- Currently CaSToRC manages an IBM eServer cluster
- 24 compute nodes, each comprised of:
 - Dual quad core Intel 5450, 3.0GHz cpus
 - 16GB DDR2 667MHz ECC RAM
- 57TBytes data storage system
- Linux Operating System - RHEL 4.7
- Parallel file system - GPFS
- A queuing system for job submission - Torque + Maui scheduler

- Theoretical Peak Performance = 2.3 TFlops

Facilities... current

- **Compiler suites**
 - gnu
 - intel
 - fujitsu lahey f90
- **Some software libraries**
 - atlas
 - lapack
 - scalapack
 - intel mkl
 - netcdf
- **Other software can be installed upon request**
- **Commercial software can be installed as long as you pay for licenses**

Facilities... current

- A small GPU cluster comprised of
- 4 Nehalem based servers each connected to a tesla S1070 unit
- Linux Operating system - Centos 5.3
- Nvidia Cuda SDK 2.3

- This system is used for testing and experimentation of GPGPU programming

Facilities... current



Facilities... Upcoming

- An upgrade of the existing IBM eServer
 - additional 8 compute nodes

=> > 3TFlops Theoretical Peak Performance

- End of 2009



Facilities... Upcoming

- A new HPC Compute System – CyTera Project
- > 20TFlops Theoretical Peak Performance
- Machine architecture is being decided now
- Machine will be in place in mid 2010

Facilities... Upcoming

- More Data Storage
- 100TB initially but scalable as required up to 1PByte
- Mid to late 2010

Facilities... Upcoming

- Scientific Visualisation Laboratory
- A proposal has been submitted to build a tiled wall display lab with stereo visualisation capabilities
- Planned for late 2010

Education and Training

- This summer we ran our first Summer School
- The school included
 - C and Fortran Programming revision
 - Shell scripting – Python
 - Introduction to MPI

A project using skills acquired

- These topics will be expanded for next year's Summer school to include GPGPU programming
- Other user training courses are being designed for both face-to-face and web-based learning

Accessing CaSToRC Facilities

- We aim to build a strong user base for HPC within the Eastern Mediterranean region
- Visit our website www.cyi.ac.cy
- To access our facilities you will need to have a clearly defined scientific project
- You will need to apply for an account on our systems
email p.fitzhenry@cyi.ac.cy
- If approved, an account will be created for you and details for using the system will be sent via email
Assistance with getting started is available
- YOU SHOULD ASK FOR HELP IF YOU NEED IT