

**CRAY**  
THE SUPERCOMPUTER COMPANY



# Cray XE6 Workshop

**Luiz DeRose, Heidi Poxon, Jan Thorbecke**

**Cray Inc.**

# Agenda

## 07/11/2011

09:00 – 09:20 Welcome / Introductions

09:20 – 10:00 The Cray XE Architecture

Jan Thorbecke

- Cray XE6 architecture overview
- Details on Rosa and Todi

10:00 – 10:45 Programming Environment

Luiz DeRose

- Overview
- Modules
- Compilers

10:45 – 11:00 Break

11:00 – 12:15 Optimization Techniques I

Jan Thorbecke

- Addressing memory hierarchy problems
- Vectorization
- Huge Pages
- Tuning for Interlagos

12:15 – 13:30 Lunch

13:30 – 14:30 Performance measurement & Visualization Heidi Poxon

- Cray performance tools overview
- Automatic Profiling Analysis
- Using Hardware Performance Counters
- Profile visualization with Cray Apprentice2

14:30 – 15:00 Cray Linux Environment

Jan Thorbecke

- Overview
- CLE features
- Job launching & running a batch application
  - Interlagos specifics

15:00 – 17:00 Hands on Lab Profiling Applications

## 08/11/2011

09:00 – 10:00 Optimization Techniques II

Jan Thorbecke

- MPI Optimization
  - Pre-posting receives
  - Task placement

10:00 – 10:30 Cray Debugger Support Tools

Luiz DeRose

10:30 – 10:45 Break

10:45 – 12:00 Performance Analysis I

Heidi Poxon

- Performance analysis of MPI applications
- Performance Analysis of OpenMP Applications
- Load Imbalance Analysis

12:00 – 13:30 Lunch

13:00 – 17:00 Hands on Lab Tuning applications

## 09/11/2011

09:00 – 10:00 I/O Optimization

Jan Thorbecke

- Using lustre
- Basic optimization
- MPI-IO

10:00 – 10:30 Performance Analysis II

Heidi Poxon

- Using Craypat for Memory usage
- Trace analysis
- Performance tools user help
  - Using man pages
  - Using pat\_help
  - Using Cray Apprentice2 on-line documentation

10:30 – 10:45 Break

10:45 – 11:30 Cray Scientific and Math Libraries

Luiz DeRose

11:30 – 12:00 Review

12:00 – 13:30 Lunch

13:30 – 16:00 Hands on Lab Tuning applications