Open MPI:
What we’ve done and where we’re going

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What is Open MPI?

- Open source implementation of MPI-2
- Combined expertise from 4+ previous MPIs
- High performance & robust
- Works with most interconnects
- Modular Component Architecture
  - Combinatorial capabilities
  - Function pointers faster than shared library calls
Parentage of Open MPI

- LAM/MPI (Indiana U.)
- FT-MPI (U. of Tennessee)
- LA-MPI (Los Alamos, Sandia)
- PACX-MPI (HLRS, U. Stuttgart)

Motivation for a new MPI

- Each prior project had different strong points
  - Could not easily combine into one code base
- New concepts could not easily be accommodated in old code bases
- Easier to start over
  - Start with a blank sheet of paper
  - Many years of collective implementation experience
Open MPI was born in 2003

- Developers of FT-MPI, LA-MPI, LAM/MPI
  - Kept meeting at conferences in 2003
  - Culminated at SC 2003: Let’s start over
  - Open MPI was born
- Started serious design and coding work
  January 2004
  - All of MPI except one-sided operations
  - First release 1Q 2005

Open MPI Today

- Version 1.0 released in November 2005
- Version 1.1 released in June 2006
  - Added support for one-sided communications
  - Version 1.1.2 released in October 2006
  - Version 1.1.3 soon
- Version 1.2b1 (beta) released today
  - Library level matching: Myrinet/MX & Portals
  - First set of Tuned Collectives
  - Sun N1 Grid Engine
  - Data Reliability
Where we are going…

- Fault Tolerance Support
  - Checkpoint/Restart
  - Process Migration & Batch Scheduling
  - Data Reliability
- Multicore optimizations
  - Processor Affinity
  - Memory Affinity
  - Shared Memory Collectives

Where we are going…

- Improved Collectives
  - Topology Aware Collectives
  - Non-blocking Collectives
- Next generation one-sided primitives
- Tool support & Integration
  - Vampir NG
  - Enhanced TotalView support
- All Major Interconnects
Where we are going…

- Open MPI is an open extensible research platform
- Where we go will also be determined by you, the user community!

Open MPI Events @ IU Booth

- Today @ 2:00pm
  iPod nano giveaway!
- Wednesday 4:00 - 4:50pm
  Open MPI: A research platform
- Thursday 11:00 - 11:50am
  Dealing with disaster: Fault Tolerance in Open MPI
Questions?

What you all came here for…
The iPod nano giveaway!