MPICH: A High Performance Open-Source MPI Implementation

SC12 Birds of a Feather Session
Schedule

- MPICH Past (Rusty Lusk)
- MPICH Present and Future (Pavan Balaji)
- Presentations from developers, partners and collaborators
  - Cray (Duncan Roweth)
  - Microsoft (Fab Tillier)
  - Intel (Bill Magro)
  - IBM (Mark Atkins)
- Wrap up
Goals of the MPICH project

- Be the MPI implementation of choice for the highest-end parallel machines
  - 4 out of top 5 and 8 out of top 10 fastest machines in the November 2012 Top500 list use MPICH-based implementations

- Carry out the research and development needed to scale MPI to exascale
  - Optimizations to reduce memory consumption
  - Fault tolerance
  - Efficient multithreaded support for hybrid programming
  - Performance scalability

- Work with the MPI Forum on standardization and early prototyping of new features
MPICH-Based Implementations on the Highest End Machines

Several vendors and other groups use MPICH as the basis for their own MPI implementation

- Cray XT, XE and XK series
- IBM for Blue Gene
- Intel MPI
- Microsoft MPI
- Myricom MPI
- OSU MVAPICH2 for InfiniBand
- University of British Columbia
Collaborators/Partners

- Lead Development Teams
  - Argonne
  - University of Illinois
- Core MPICH developers
  - Cray
  - IBM
  - INRIA
  - Intel
  - Microsoft
  - Queen’s University, Canada
  - University of British Columbia
- Derivative implementations
  - Myricom
  - Ohio State University
- Other Collaborators
  - Absoft
  - Pacific Northwest National Laboratory
  - QLogic
  - Totalview Technologies
  - University of Utah
Developer, Partner and Collaborator Presentations
New Website

www.mpich.org
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Questions or Comments?