

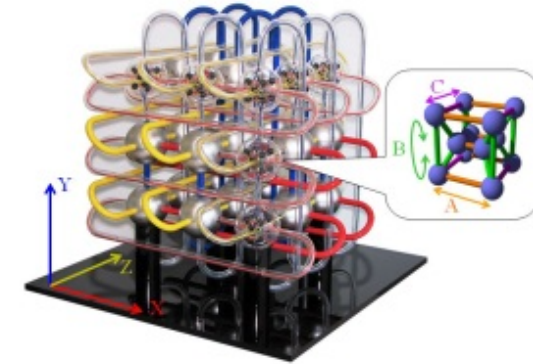
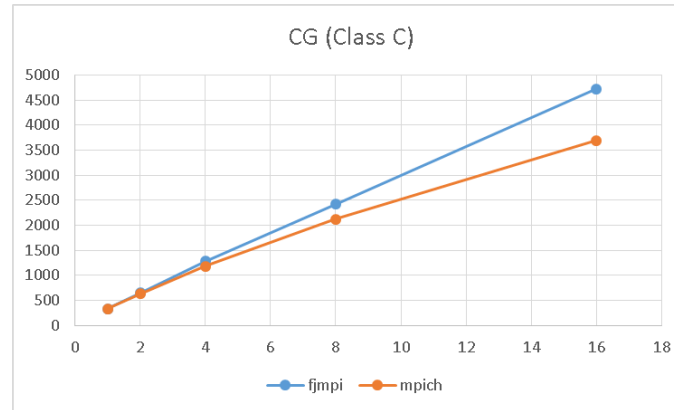
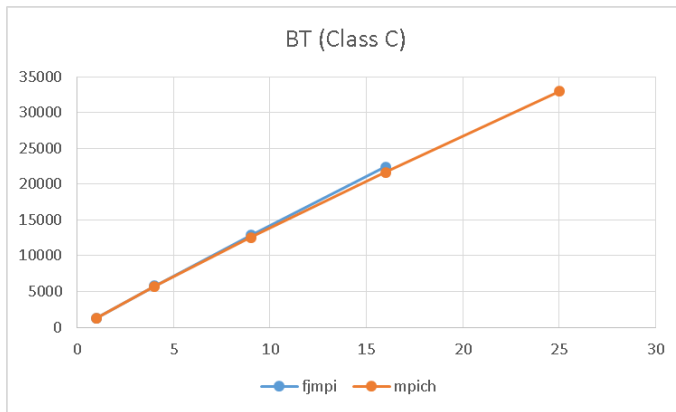
MPICH on K, PostT2K, and Future Machines

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MPICH on K

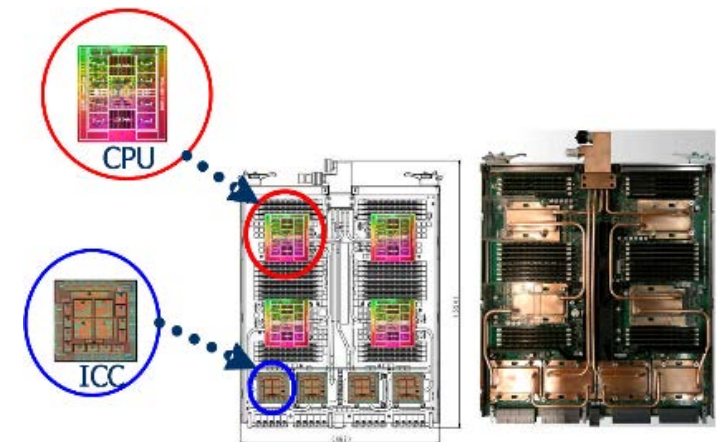
- The first step to porting K computer
 - TCP/IP on Tofu

In K, Open MPI is provided by Fujitsu



- The second step
 - Native Tofu
 - Instead of using just native Tofu interface, we are currently designing lower-level communication layer for K, Infiniband, and etc.

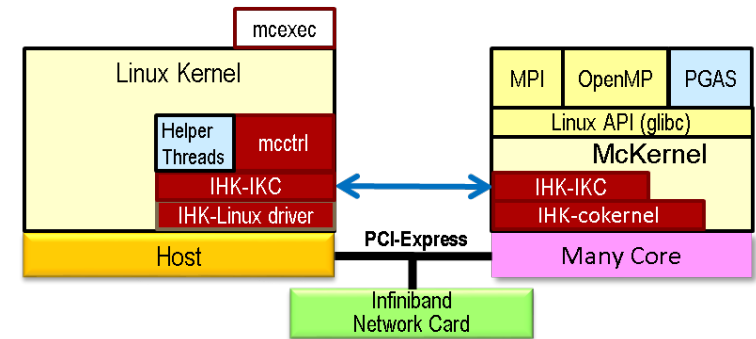
MPICH/K, developed by Masayuki Hatanaka and Toyohisa Kameyama



MPICH on PostT2K

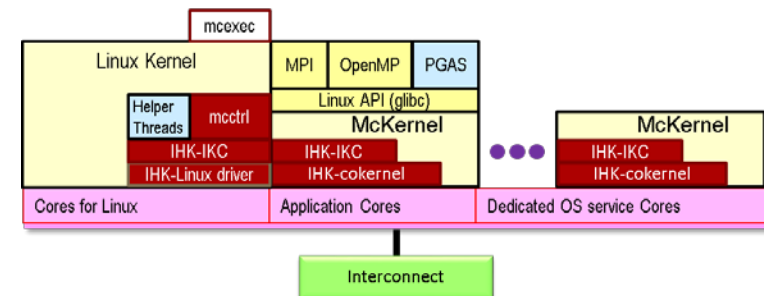
- What is PostT2K machine
 - Designed and will be installed by U. of Tokyo and U. of Tsukuba
 - Based on a commodity manycore architecture
 - O(8K to 10K) nodes
- Software Architecture being considered and developed
 - McKernel/IHK: light-weight micro kernel sitting next Linux kernel using IHK (Interface for Heterogeneous Kernels)
 - DCFA: Direct Communication Facility for Advanced manycore architectures
 - MPICH/DCFA

In Current Platform (Xeon Phi)



DCFA developed by Min Si, a PhD student
MPICH/DCFA developed by Masamichi Takagi, NEC

In Expected Platform



McKernel and MPICH/DCFA are open source.
The USB memory containing those sources is distributed
at Booth #1229, PC Cluster Consortium Booth.

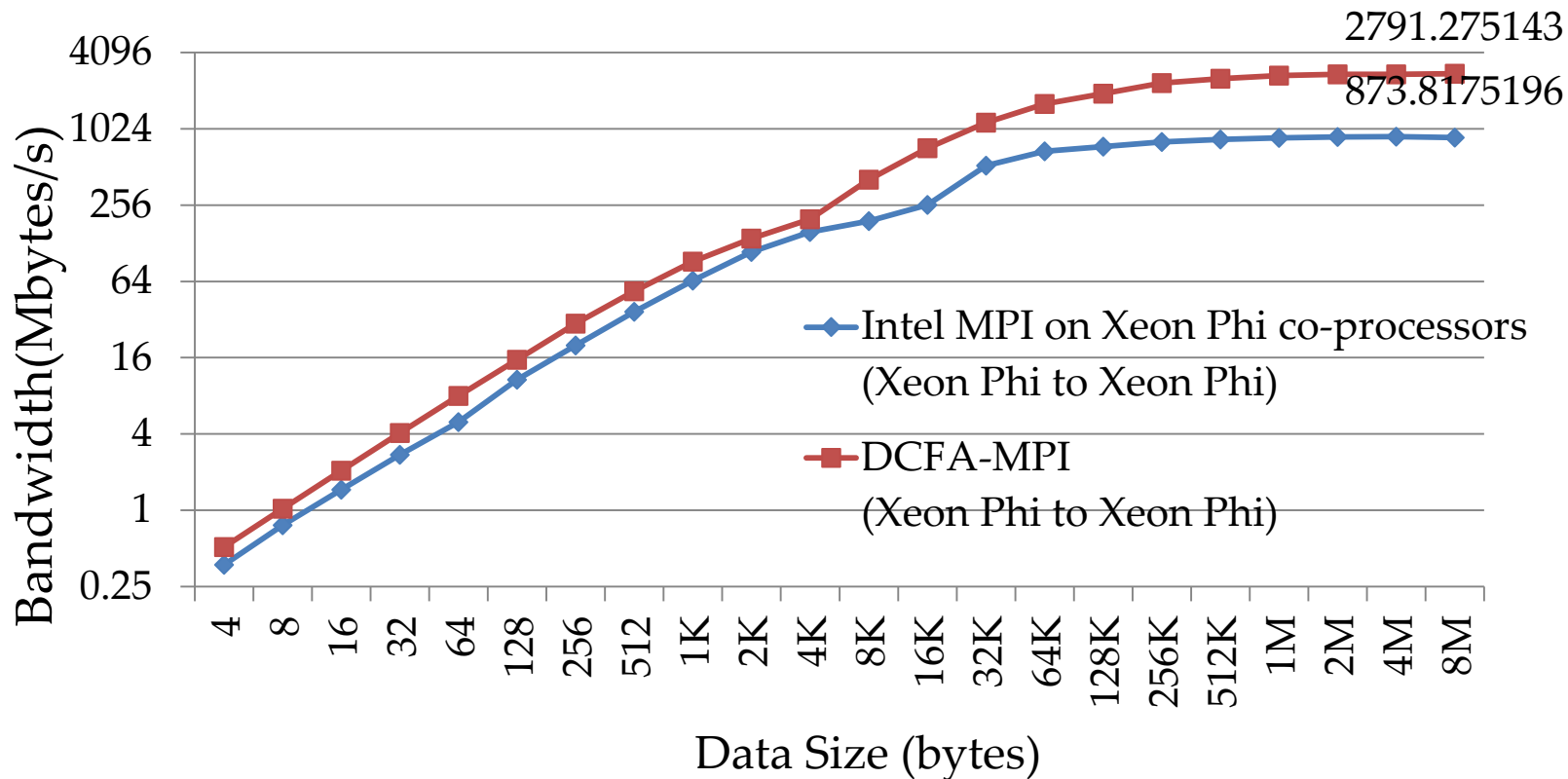
Performance Comparison

For workaround of a Sandybridge performance issue, data area is copied to the host machine and that area is sent in the case of larger messages.

For more information, read the following paper:

Min Si, Yutaka Ishikawa, and Masamichi Takagi, "Direct MPI Library for Intel Xeon Phi co-processors," The 3rd Workshop on Communication Architecture for Scalable Systems (CASS 2013) in conjunction with IPDPS2013, 2013

Host CPU	Intel Xeon X5680 3.33GHz x 2
Co-processor	Preproduction KNC
Infiniband HCA	Mellanox MT26428



EUROMPI / ASIA 2014

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Important dates:

- Submission deadline of full papers and poster abstracts:
April 25th, 2014
- Paper/Poster Acceptance Notification:
May 30th, 2014
- Camera Ready: June 20th, 2014
- Early Registration: July 18th, 2014
- Conference: September 9th-12th, 2014



DCFA-MPI, MPI Implementation based on our MPI Implementation

