

Voltaire® Open MPI Accelerator™ (OMA™)

Dramatically Boosting the Performance of Open MPI over InfiniBand and 10GbE



Overview

The Open MPI software framework is increasingly being adopted by both commercial and non-commercial high-performance computing environments. At the same time, new multi-core CPU technologies are introducing new capabilities and enabling superior I/O capacities, resulting in an increasingly high demand for faster and more efficient HPC application performance.

Voltaire Open MPI Accelerator (OMA) significantly increases the performance of Open MPI in server and storage environments by effecting different communication patterns. Most OMA users see at least a 10% performance improvement, with many users seeing improvements of 20% or even higher. Voltaire's extensive experience and knowledge in MPI and in Open MPI development over the past five years, as well as its leadership in the HPC market, makes OMA an ideal performance boosting add-in for the community-grown Open MPI framework.

Key to its performance improvement capabilities is OMA's Intelligent Rank Placement (IRP) feature. With IRP, OMA automatically determines the best performing algorithm based on rank placement and a given job and uses that algorithm for all future runs of the same application and cluster for optimal performance.

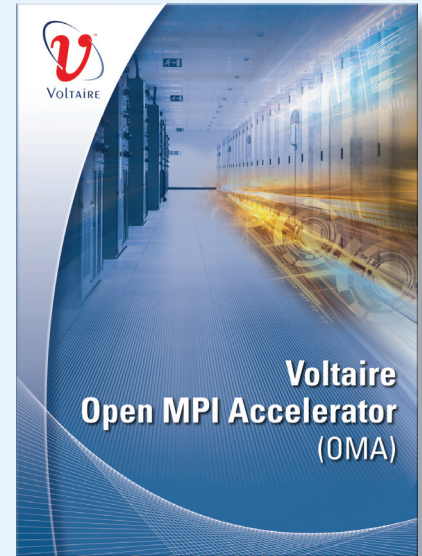
In an environment of shrinking budgets, OMA provides tremendous value on top of existing Open MPI infrastructures by offering an almost immediate return on investment for intensive HPC environments.

Proven Results from an Experienced HPC Leader

OMA has demonstrated proven improved performance on:

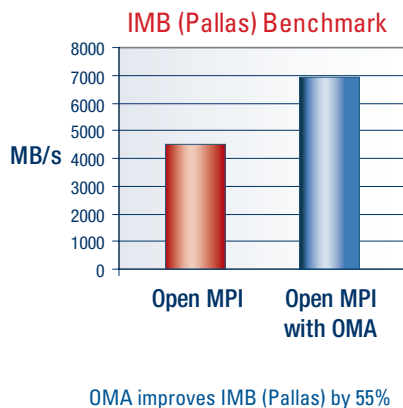
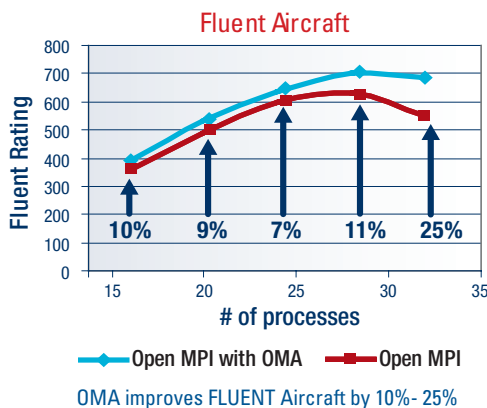
- ANSYS FLUENT
- ESI Pam-Crash
- OpenFoam
- HPCC
- IMB (Pallas)
- OSU

As a longtime contributor to the Open MPI project, Voltaire brings years of expertise to the development of OMA, as well as a long, successful track record of achievements in HPC. Voltaire has consistently been the switching leader on the TOP500 list of the world's most powerful supercomputers, with more than 50 percent of all InfiniBand deployments — more than double the share of any other InfiniBand systems vendor.



Customer Benefits

- The best of both worlds – accelerated, open source Open MPI
- Works transparently over InfiniBand or 10GbE
- HPC applications run much faster with OMA
- Improves inter-node communication by freeing intra-node resources
- Optimizes performance of applications through Intelligent Rank Placement
- Constant improvements, fixes and upgrades from Voltaire developers, who are key members of the Open MPI open source project
- Improved performance with less hardware
- Investing in software eliminates the need for huge investments under tight budgets
- Voltaire's reputation for world-class customer support



User-Friendly Installation

- Simple, fast and user-friendly installation
- Enhanced documentation

Supported Systems and Hardware

Operating systems:

- RHEL 4 UP6
- RHEL 4 UP7
- RHEL 5 UP2
- RHEL 5 UP3
- SLES 10 SP2

Architectures:

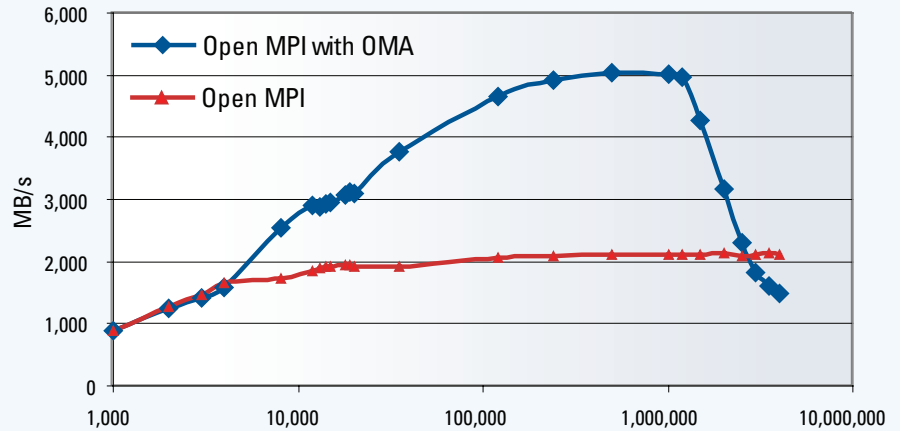
- x86_64

OFED packages:

- Community OFED (1.3.1 and 1.4)
- Voltaire OFED (5.1.3.1 and 1.4)

* Voltaire OFED support is required when purchasing OMA.

Open MPI vs. Open MPI + OMA Bandwidth



OMA Improves Open MPI performance by up to 150%

Ordering Information

Part Number	Product Name	Product Description
SWL-00312	OMA-256	Voltaire Open MPI Accelerator (OMA) Software License over Voltaire HW only - 256 cores
SWL-00313	OMA-1024	Voltaire Open MPI Accelerator (OMA) Software License over Voltaire HW only - 1,024 cores
SWL-00314	OMA-4096	Voltaire Open MPI Accelerator (OMA) Software License over Voltaire HW only - 4,096 cores
SWL-00315	OMA-8192	Voltaire Open MPI Accelerator (OMA) Software License over Voltaire HW only - 8,192 cores
SWL-00316	OMA-32768	Voltaire Open MPI Accelerator (OMA) Software License over Voltaire HW only - 32,768 cores
SWL-00317	OMA-80000	Voltaire Open MPI Accelerator (OMA) Software License over Voltaire HW only - 80,000 cores
SWL-00318	OMA-NON-Voltaire-HW-5000	Voltaire Open MPI Accelerator (OMA) Software License over Non-Voltaire HW - 5,000 cores
SWL-00319	OMA-NON-Voltaire-HW-10000	Voltaire Open MPI Accelerator (OMA) Software License over Non-Voltaire HW - 10,000 cores
SWL-00320	OMA-Evaluation	Voltaire Open MPI Accelerator (OMA) Software Evaluation License



Contact Voltaire to Learn More

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