

# Platform MPI 8.1

## High Performance Application Parallelization

### Benefits:

- Superior application performance
- Reduced development and support costs
- Faster time-to-market
- The industry's best technical support

### Features

- Supports the widest range of hardware, networks and operating systems
- Distributed by over 30 leading commercial software vendors
- Change interconnects or libraries with no need to re-compile
- Seamless compatibility across Windows® and Linux® environments
- Ensures a production quality implementation

### Ideal for:

- Enterprises that develop or deploy parallelized software applications on HPC clusters
- Commercial software vendors wanting to improve applications performance over the widest range of computer hardware, interconnects and operating systems

## The Standard for Scalable, Parallel Applications

Platform MPI is a high performance, production-quality implementation of the Message Passing Interface (MPI). It is widely used in the high performance computing (HPC) industry and is considered the de facto standard for developing scalable, parallel applications.

Platform MPI maintains full backward compatibility with HP-MPI and Platform MPI applications and incorporates advanced CPU affinity features, dynamic selection of interface libraries, superior workload manager integrations and improved performance and scalability.

Platform MPI supports the broadest range of industry standard platforms, interconnects and operating systems helping ensure that your parallel applications can run anywhere.

### Focus on portability

Platform MPI allows developers to build a single executable that transparently leverages the performance features of any type of interconnect, thereby providing applications with optimal latency and bandwidth for each protocol. This reduces development effort, and enables applications to use the "latest and greatest" technologies on Linux or Microsoft Windows without the need to re-compile and re-link applications.

Platform MPI is optimized for both distributed (DMP) and shared memory (SMP) environments and provides a variety of flexible CPU binding strategies for processes and threads, enabling better performance on multi-core environments. With this capability memory and cache conflicts are managed by more intelligently distributing the load among multiple cores.

With support for Windows HPC Server 2008 and the Microsoft job scheduler, as well as other Microsoft operating environments, Platform MPI allows developers targeting Windows platforms to enjoy the benefits of a standard portable MPI and avoid proprietary lock-in.

## Features and Benefits

Feature	Benefits
<b>Simplicity</b> <ul style="list-style-type: none"> <li>Fully complies with the MPI 2.2 standard, providing dynamic processes, one-sided communications, extended collectives, thread safety, and updated ROMIO</li> <li>Complete debugging, diagnostic and profiling tools</li> <li>Auto-detection of interconnects and dynamic loading of libraries</li> <li>No re-link required for debugging and profiling</li> <li>Supported by the largest dedicated HPC support organization</li> </ul>	<ul style="list-style-type: none"> <li>Applications port easily to other platforms</li> <li>Protects ISV software investment</li> <li>Reduces time-to-market</li> <li>Increased robustness and quality of applications</li> <li>Technical problems resolved quickly and efficiently</li> </ul>
<b>Performance</b> <ul style="list-style-type: none"> <li>Improved shared memory performance, incorporating code and methods from Platform MPI 5.6 (Scali MPI)</li> <li>75% reduction in job startup and shutdown at scale</li> <li>Scalability to 17,000 ranks</li> <li>RDMA message progression &amp; coalescing enhancements</li> <li>Flexible CPU binding options maximize cache effectiveness and balance applications to minimize latency</li> <li>Automated benchmarking of collective operations</li> </ul>	<ul style="list-style-type: none"> <li>Takes maximum advantage of available hardware</li> <li>Reduced latency for better performance</li> <li>Performance improves without explicit developer action</li> <li>Better message throughput in streaming applications</li> <li>Easier to optimize application performance</li> </ul>
<b>Compatibility</b> <ul style="list-style-type: none"> <li>Common source-code base between Linux and Windows</li> <li>Binary compatible with applications developed for HP-MPI</li> <li>MPICH-2 compatibility mode</li> <li>Linux Standard Bindings ensure full compatibility across all major Linux distributions</li> <li>Scheduler agnostic with workload manager integrations for Windows HPC®, Platform LSF™, PBS Pro™, SLURM and other popular schedulers and resource managers</li> </ul>	<ul style="list-style-type: none"> <li>Avoid the cost of separate releases for different platforms</li> <li>Easily used with existing MPI applications</li> <li>Common <b>mpirun</b> syntax between Linux and Windows</li> <li>Customers avoid proprietary "lock-in"</li> <li>Avoid floating point issues causing inconsistent results</li> </ul>
<b>Flexibility</b> <ul style="list-style-type: none"> <li>Supports the widest variety of networks and interconnects</li> <li>Select interconnects at run-time with no need to re-compile</li> <li>Write applications once and deploy across multiple OS and hardware topologies</li> <li>CPU binding features well suited to GPU-aware applications</li> </ul>	<ul style="list-style-type: none"> <li>Develop applications that will run on more platforms</li> <li>Reduce testing, maintenance and support costs</li> <li>Enjoy strategic flexibility</li> </ul>

## Supported Operating Systems

Red Hat® Enterprise Linux® 4.6, 5.x and 6.x

SUSE™ Linux Enterprise Server 10 and 11

CentOS 5.3

Microsoft® Windows® XP/Vista, Server 2003/Server 2008/  
HPC Server 2008, Windows 7

## Supported Interconnects and Protocols

Myrinet (Linux) GM & MX on X86-64 and Itanium2

InfiniBand (Linux) OFED, PSM, uDAPL on X86-64 and Itanium2  
OFED 1.1, 1.2, 1.3, 1.4, 1.5  
SDR, DDR, QDR, ConnectX and ConnectX2 Mellanox FCA

GigE (Linux) RDMA, uDAPL, TCP/IP

Infiniband (Windows) WinOF 2.x, IBAL, WSD, SDR, DDR, QDR, ConnectX(2)

GigE (Windows) TCP/IP on x86-64



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