SPEC® MPIM2007 Result

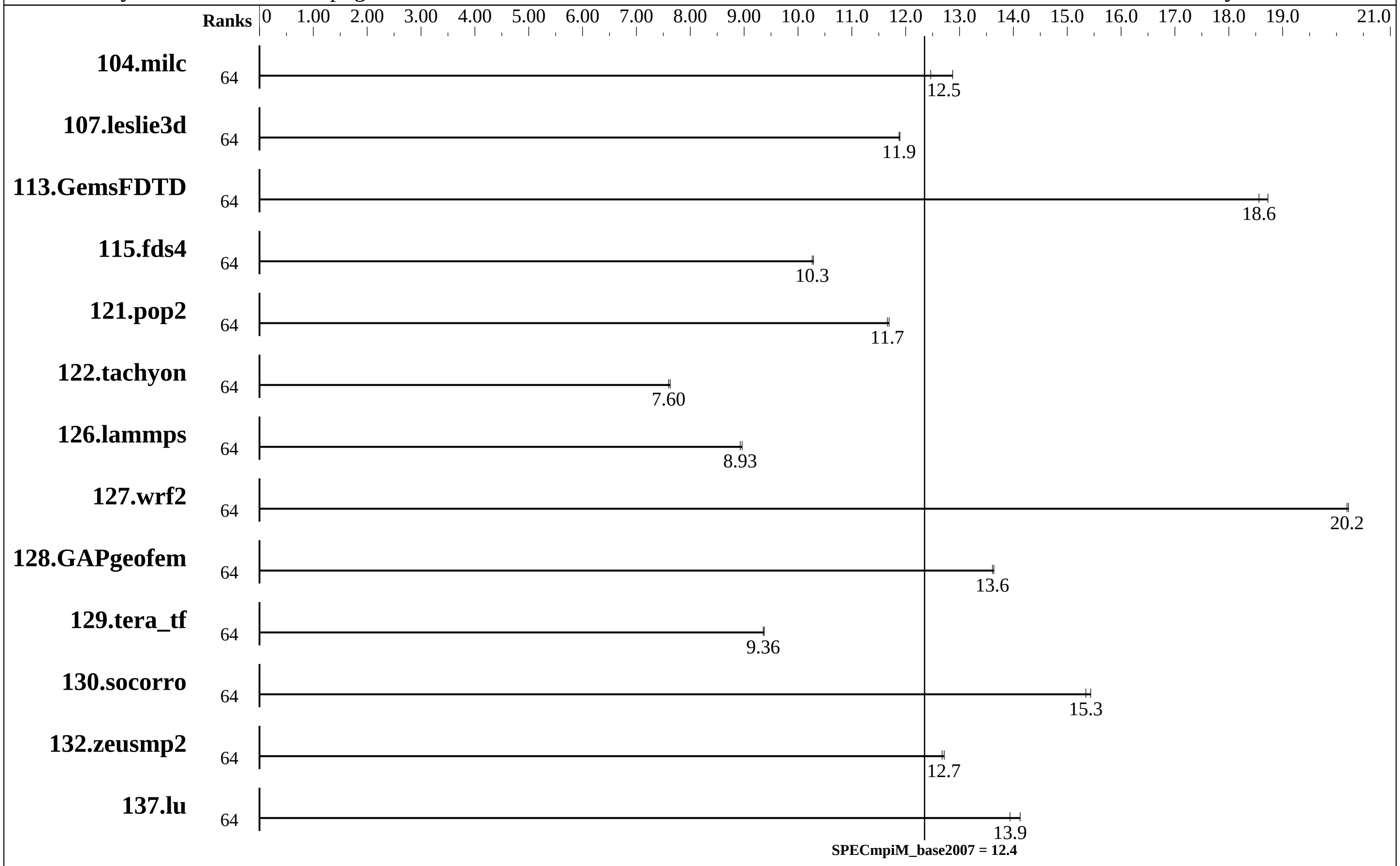
Intel Corporation

Endeavor (Intel Xeon X5560, 2.80 GHz, SMT off, Turbo off)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 12.4

MPI2007 license:	13	**Test date:**	Feb-2009
Test sponsor:	Intel Corporation	**Hardware Availability:**	Mar-2009
Tested by:	Pavel Shelepugin	**Software Availability:**	Jun-2009



Results Table

	Base							Peak						
Benchmark	**Ranks**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Ranks**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
104.milc	64	**126**	**12.5**	122	12.9									
107.leslie3d	64	439	11.9	**440**	**11.9**									
113.GemsFDTD	64	**340**	**18.6**	337	18.7									
115.fds4	64	**190**	**10.3**	190	10.3									
121.pop2	64	**354**	**11.7**	353	11.7									
122.tachyon	64	367	7.63	**368**	**7.60**									
126.lammps	64	**327**	**8.93**	325	8.96									
127.wrf2	64	**386**	**20.2**	385	20.2									
128.GAPgeofem	64	**152**	**13.6**	151	13.6									
129.tera_tf	64	**296**	**9.36**	295	9.37									

Table continues on next page. Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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Software Availability: Jun-2009

Results Table (Continued)

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
130.socorro	64	**249**	**15.3**	247	15.4									
132.zeusmp2	64	**245**	**12.7**	244	12.7									
137.lu	64	260	14.1	**264**	**13.9**									

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Hardware Summary

Type of System: Homogeneous
Compute Node: Endeavor Node
Interconnect: IB Switch
File Server Node: LFS
Total Compute Nodes: 8
Total Chips: 16
Total Cores: 64
Total Threads: 64
Total Memory: 144 GB
Base Ranks Run: 64
Minimum Peak Ranks: --
Maximum Peak Ranks: --

Software Summary

C Compiler: Intel C++ Compiler 11.1 for Linux
C++ Compiler: Intel C++ Compiler 11.1 for Linux
Fortran Compiler: Intel Fortran Compiler 11.1 for Linux
Base Pointers: 64-bit
Peak Pointers: 64-bit
MPI Library: Intel MPI Library 3.2 for Linux
Other MPI Info: None
Pre-processors: No
Other Software: Intel MPI Library 3.2 for Linux Multi-Purpose Daemon (MPD)

Node Description: Endeavor Node

Hardware

Number of nodes: 8
Uses of the node: compute
Vendor: Intel
Model: Supermicro X8DTN+
CPU Name: Intel Xeon X5560
CPU(s) orderable: 1-2 chips
Chips enabled: 2
Cores enabled: 8
Cores per chip: 4
Threads per core: 1
CPU Characteristics: Intel Turbo Boost Technology disabled, 6.4 GT/s QPI, Hyper-Threading disabled
CPU MHz: 2800
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core
L3 Cache: 8 MB I+D on chip per chip, 8 MB shared / 4 cores
Other Cache: None
Memory: 18 GB (RDIMM 6x2-GB, 6x1-GB DDR3-1066 MHz)
Disk Subsystem: Seagate 500 GB ST3500320NS
Other Hardware: None
Adapter: Mellanox MHQH29-XTC
Number of Adapters: 1
Slot Type: PCIe x8 Gen2
Data Rate: InfiniBand 4x QDR

Continued on next page

Software

Adapter: Mellanox MHQH29-XTC
Adapter Driver: OFED 1.3.1
Adapter Firmware: 2.5.9
Operating System: Red Hat EL 5.2, kernel 2.6.18-53
Local File System: Linux/ext2
Shared File System: Lustre FS
System State: Multi-User
Other Software: PBS Pro 8.0

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Test sponsor:	Intel Corporation	**Hardware Availability:**	Mar-2009
Tested by:	Pavel Shelepugin	**Software Availability:**	Jun-2009

Node Description: Endeavor Node

Ports Used:	1
Interconnect Type:	InfiniBand

Node Description: LFS

Hardware

Number of nodes:	8
Uses of the node:	fileserver
Vendor:	DataDirect Networks
Model:	SR1560SF
CPU Name:	Intel Xeon E5462
CPU(s) orderable:	1-2 chips
Chips enabled:	2
Cores enabled:	8
Cores per chip:	4
Threads per core:	1
CPU Characteristics:	1600 MHz FSB
CPU MHz:	2800
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	12 MB I+D on chip per chip, 6 MB shared / 2 cores
L3 Cache:	None
Other Cache:	None
Memory:	16 GB DDR2 16x1-GB 667 MHz
Disk Subsystem:	160 disks, 300GB/disk, 48TB total, 35TB available
Other Hardware:	None
Adapter:	Mellanox MHGH28-XTC
Number of Adapters:	1
Slot Type:	PCIe x8 Gen2
Data Rate:	InfiniBand 4x DDR
Ports Used:	1
Interconnect Type:	InfiniBand

Software

Adapter:	Mellanox MHGH28-XTC
Adapter Driver:	OFED 1.3.1
Adapter Firmware:	2.5.0
Operating System:	Red Hat EL 5.2
Local File System:	None
Shared File System:	Lustre FS
System State:	Multi-User
Other Software:	None

Interconnect Description: IB Switch

Hardware

Vendor:	Mellanox
Model:	Mellanox MTS3600Q-1UNC
Switch Model:	Mellanox MTS3600Q-1UNC
Number of Switches:	9
Number of Ports:	324
Data Rate:	InfiniBand 4x QDR
Firmware:	7.1.000
Topology:	Fat tree
Primary Use:	MPI traffic, FS traffic

Software

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Submit Notes

```
The config file option 'submit' was used.
```

General Notes

```
BIOS settings notes:
  Intel Hyper-Threading Technology (SMT): Disabled (default is Enabled)
  Intel Turbo Boost Technology (Turbo)  : Disabled (default is Enabled)

RAM configuration notes: compute nodes have
  1x2-GB and 1x1-GB RDIMM on each memory channel,
  2-GB RDIMM is closer to the CPU.

Network notes: nine 36-port switches, 3 core switches and 6 leaf switches.
  Each leaf has 6 links to each core. Remaining 18 ports on 5 of 6 leafs are
  used for compute nodes. On the sixth leaf 8 ports are used for FS nodes,
  remaining 10 ports are open.

PBS Pro was used for job submission. It has no impact on performance.
  Can be found at: http://www.altair.com

Lustre File System 1.6.6 was used. Download from:
  http://www.sun.com/software/products/lustre
```

Base Compiler Invocation

C benchmarks:
    mpiicc

C++ benchmarks:

    126.lammps: mpiicpc

Fortran benchmarks:
    mpiifort

Benchmarks using both Fortran and C:
    mpiicc mpiifort

Base Portability Flags

121.pop2: -DSPEC_MPI_CASE_FLAG
126.lammps: -DMPICH_IGNORE_CXX_SEEK
127.wrf2: -DSPEC_MPI_CASE_FLAG -DSPEC_MPI_LINUX

Base Optimization Flags

C benchmarks:
-O3 -xSSE4.2 -no-prec-div

C++ benchmarks:

126.lammps: -O3 -xSSE4.2 -no-prec-div

Fortran benchmarks:
-O3 -xSSE4.2 -no-prec-div

Benchmarks using both Fortran and C:
-O3 -xSSE4.2 -no-prec-div

The flags file that was used to format this result can be browsed at
http://www.spec.org/mpi2007/flags/EM64T_Intel111_flags.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/mpi2007/flags/EM64T_Intel111_flags.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC MPI2007 v1.1.
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