SPEC® MPIM2007 Result

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Intel Corporation

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

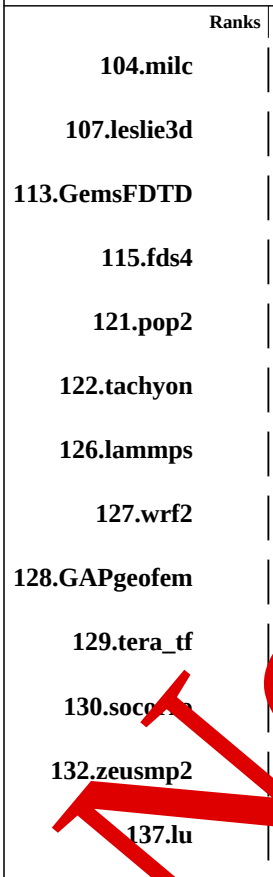
SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = NC

MPI2007 license: 13
Test sponsor: Intel Corporation
Tested by: Pavel Shelepugin

Test date: Mar-2009
Hardware Availability: Mar-2009
Software Availability: Jun-2009

Non-Compliant



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	256	NC	NC	NC	NC									
107.leslie3d	256	NC	NC	NC	NC									

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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Results Table (Continued)

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
113.GemsFDTD	256	NC	NC	NC	NC									
115.fds4	256	NC	NC	NC	NC									
121.pop2	256	NC	NC	NC	NC									
122.tachyon	256	NC	NC	NC	NC									
126.lammps	256	NC	NC	NC	NC									
127.wrf2	256	NC	NC	NC	NC									
128.GAPgeofem	256	NC	NC	NC	NC									
129.tera_tf	256	NC	NC	NC	NC									
130.socorro	256	NC	NC	NC	NC									
132.zeusmp2	256	NC	NC	NC	NC									
137.lu	256	NC	NC	NC	NC									

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:	NFS
Total Compute Nodes:	32
Total Chips:	64
Total Cores:	256
Total Threads:	256
Total Memory:	576 GB
Base Ranks Run:	256
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)

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Node Description: Endeavor Node

Hardware

Number of nodes:	32
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 up to 3.2 GHz, 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 (18 DIMM 6x2-GB, 1333 MHz DDR3-1066 MHz)
Disk Subsystem:	Seagate 149 GB ST3500320NS
Other Hardware:	None
Adapter:	Mellanox MHQH29-XTC
Number of Adapters:	1
Slot Type:	PCIe x8 Gen2
Data Rate:	InfiniBand 4x QDR
Ports Used:	1
Interconnect Type:	InfiniBand

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

Node Description: LFS

Hardware

Number of nodes:	8
Uses of the node:	fileserver
Vendor:	DataDirect Networks
Model:	SR1560SF
CPU Name:	Intel Xeon E5462

Continued on next page

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

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Node Description: LFS

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 QDR
Ports Used:	1
Interconnect Type:	InfiniBand

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:	36
Data Rate:	InfiniBand 4x QDR
Firmware:	7.1.000
Topology:	Fat tree
Primary Use:	MPI traffic, FS traffic

Software

Non-Compliant

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): Enabled (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`

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Base Portability Flags

121.pop2: -DSPEC_MPI_CASE_FLAG
126.lammps: -DMPICH_IGNORE_CXX_SEEK
127.wrf2: -DSPEC_MPI_CASE_FLAG -DSPE[illegible]

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

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

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