



SPEC® MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

Intel Corporation

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

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

Ranks
104.milc
107.leslie3d
113.GemsFDTD
115.fds4
121.pop2
122.tachyon
126.lammips
127.wrf2
128.GAPgeofem
129.tera_tf
130.soc
132.zeusmp2
137.lu

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	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 Ranks: 256
 Total Threads: 256
 Total Memory: 576 GB
 Base Ranks per Node: 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		Software	
Number of nodes:	32	Adapter:	Mellanox MHQH29-XTC
Uses of the node:	compute	Adapter Driver:	OFED 1.3.1
Vendor:	Intel	Adapter Firmware:	2.5.9
Model:	Supermicro X8DTN+	Operating System:	Red Hat EL 5.2, kernel 2.6.18-53
CPU Name:	Intel Xeon X5560	Local File System:	Linux/ext2
CPU(s) orderable:	1-2 chips	Shared File System:	Lustre FS
Chips enabled:	2	System State:	Multi-User
Cores enabled:	8	Other Software:	PBS Pro 8.0
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 core, 8 MB shared / 4 cores		
Other Cache:	None		
Memory:	18 GB (RDRAM 6x2-GB, 1066 MHz DDR3-1066 MHz)		
Disk Subsystem:	Seagate 300 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		

Node Description: LFS

Hardware		Software	
Number of nodes:	8	Adapter:	Mellanox MHGH28-XTC
Uses of the node:	fileserver	Adapter Driver:	OFED 1.3.1
Vendor:	DataDirect Networks	Adapter Firmware:	2.5.0
Model:	SR1560SF	Operating System:	Red Hat EL 5.2
CPU Name:	Intel Xeon E5462	Local File System:	None

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Software Availability: Jun-2009

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 16x1-667 MHz
Disk Subsystem: 160 disks, 300GB/disk, 48TB total, 25TB available
Other Hardware: None
Adapter: Mellanox MHGH28-XTC
Number of Adapters: 1
Slot Type: PCIe x8 Gen 2
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



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Submit Note

The config file option 'submit' was used.

General Note

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 2.6.4 was used. Download from:
<http://www.sun.com/software/products/lustre>

Base Compiler Invocation

mpicc

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 -DSPEC_MPI_LL

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/mpim2007/flags/EM64T_Intel111_flags.html

You can also download the XML flags source by saving the following link:

http://www.spec.org/mpim2007/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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