



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 = 13.0

MPI2007 license: 13

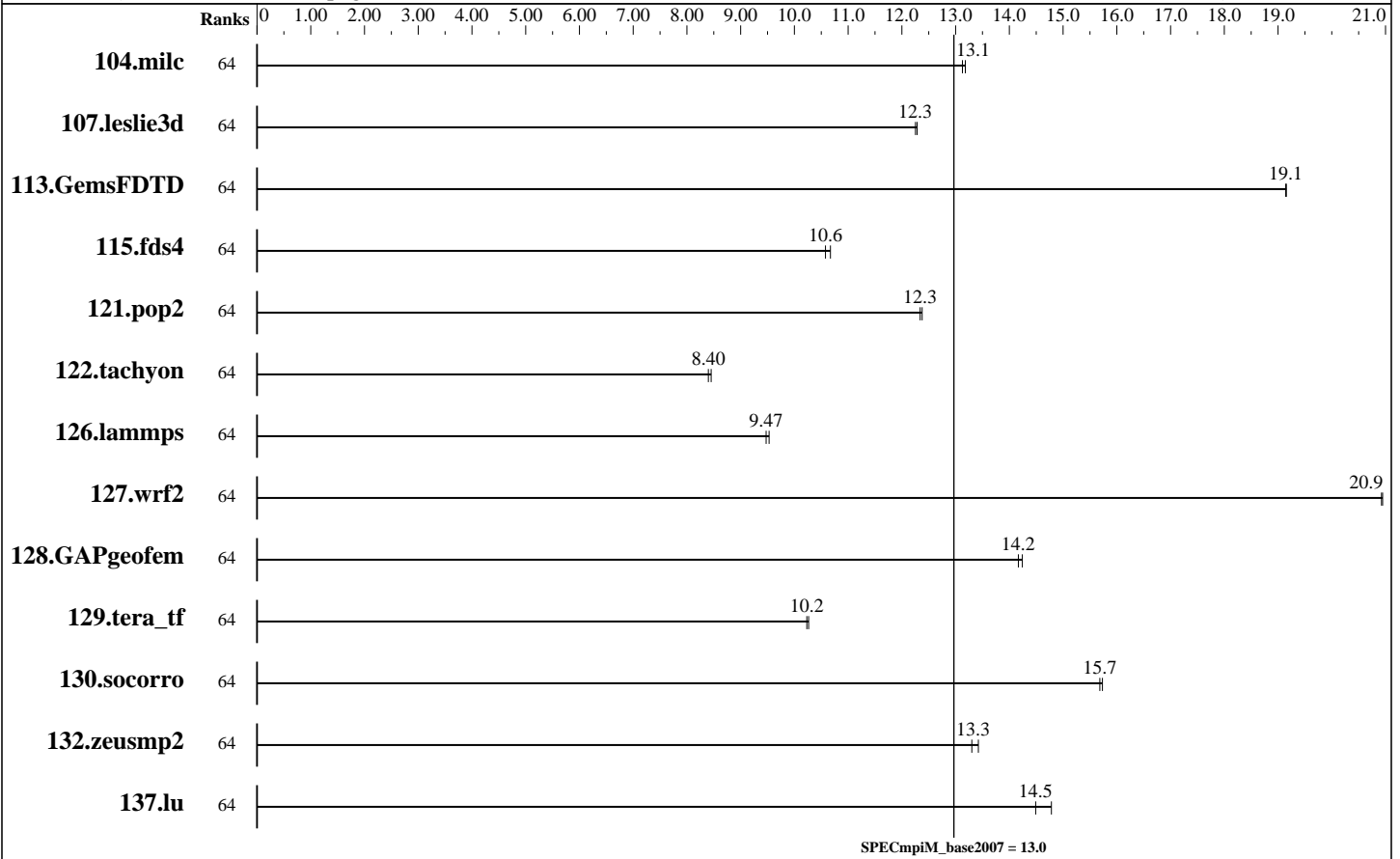
Test sponsor: Intel Corporation

Tested by: Pavel Shelepugin

Test date: Feb-2009

Hardware Availability: Mar-2009

Software Availability: Jun-2009



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	64	119	13.2	119	13.1									
107.leslie3d	64	426	12.3	425	12.3									
113.GemsFDTD	64	329	19.2	330	19.1									
115.fds4	64	183	10.7	184	10.6									
121.pop2	64	334	12.4	335	12.3									
122.tachyon	64	333	8.40	331	8.45									
126.lammps	64	306	9.53	308	9.47									
127.wrf2	64	373	20.9	372	20.9									
128.GAPgeofem	64	146	14.2	145	14.2									
129.tera_tf	64	270	10.3	271	10.2									

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
130.socorro	64	<u>243</u>	<u>15.7</u>	243	15.7									
132.zeusmp2	64	231	13.4	<u>233</u>	<u>13.3</u>									
137.lu	64	<u>254</u>	<u>14.5</u>	249	14.8									

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 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 (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

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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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: 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 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

Base Portability Flags

121.pop2: -DSPEC_MPI_CASE_FLAG

126.lammps: -DMPICH_IGNORE_CXX_SEEK

127.wrf2: -DSPEC_MPI_CASE_FLAG -DSPEC_MPI_LINUX



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Base Optimization Flags

C benchmarks:

-O3 -xSSE4.2 -no-prec-div

C++ benchmarks:

126.lammgs: -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.

Tested with SPEC MPI2007 v1.1.

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