



SPEC® MPIM2007 Result

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SGI

SGI Altix ICE 8200EX
(Intel Xeon X5570, 2.93 GHz, DDR3-1333)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 7.33

MPI2007 license: 4

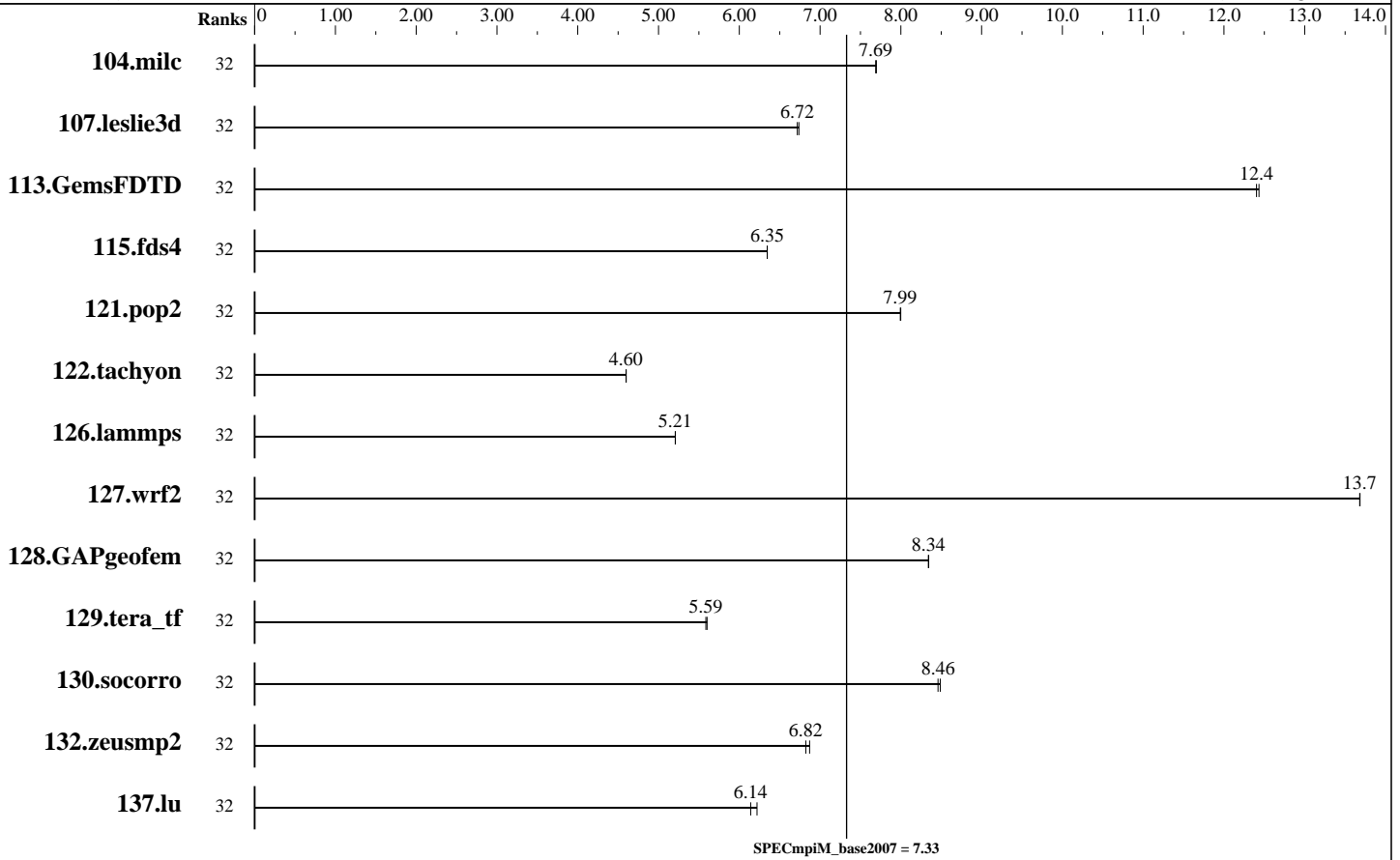
Test sponsor: SGI

Tested by: SGI

Test date: Sep-2009

Hardware Availability: Mar-2009

Software Availability: Aug-2009



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	32	<u>204</u>	<u>7.69</u>	203	7.70									
107.leslie3d	32	775	6.74	<u>777</u>	<u>6.72</u>									
113.GemsFDTD	32	507	12.4	<u>509</u>	<u>12.4</u>									
115.fds4	32	<u>307</u>	<u>6.35</u>	307	6.35									
121.pop2	32	<u>516</u>	<u>7.99</u>	516	8.00									
122.tachyon	32	<u>608</u>	<u>4.60</u>	608	4.60									
126.lammeps	32	<u>560</u>	<u>5.21</u>	560	5.21									
127.wrf2	32	<u>570</u>	<u>13.7</u>	570	13.7									
128.GAPgeofem	32	<u>248</u>	<u>8.34</u>	247	8.35									
129.tera_tf	32	<u>496</u>	<u>5.59</u>	494	5.60									

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	32	450	8.49	<u>451</u>	<u>8.46</u>											
132.zeusmp2	32	<u>455</u>	<u>6.82</u>	452	6.87											
137.lu	32	591	6.22	<u>599</u>	<u>6.14</u>											

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: SGI Altix ICE 8200EX Compute Node
 Interconnects: InfiniBand (MPI)
 InfiniBand (I/O)
 File Server Node: SGI InfiniteStorage Nexis 2000 NAS
 Total Compute Nodes: 4
 Total Chips: 8
 Total Cores: 32
 Total Threads: 64
 Total Memory: 96 GB
 Base Ranks Run: 32
 Minimum Peak Ranks: --
 Maximum Peak Ranks: --

Software Summary

C Compiler: Intel C Compiler for Linux
 Version 11.1, Build 20090630
 C++ Compiler: Intel C++ Compiler for Linux
 Version 11.1, Build 20090630
 Fortran Compiler: Intel Fortran Compiler for Linux
 Version 11.1, Build 20090630
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 MPI Library: SGI MPT 1.24
 Other MPI Info: OFED 1.4
 Pre-processors: None
 Other Software: None

Node Description: SGI Altix ICE 8200EX Compute Node

Hardware

Number of nodes: 4
 Uses of the node: compute
 Vendor: SGI
 Model: SGI Altix ICE 8200EX (Intel Xeon X5570, 2.93 GHz, DDR3-1333)
 CPU Name: Intel Xeon X5570
 CPU(s) orderable: 1-2 chips
 Chips enabled: 2
 Cores enabled: 8
 Cores per chip: 4
 Threads per core: 2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz, 6.4 GT/s QPI, Hyper-Threading enabled
 CPU MHz: 2934
 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
 Other Cache: None
 Memory: 24 GB (6*4GB DDR3-1333 CL9 RDIMMs)
 Disk Subsystem: None
 Other Hardware: None
 Adapter: Mellanox MT26418 ConnectX IB DDR (PCIe x8 Gen2 5 GT/s)
 Number of Adapters: 1

Software

Adapter: Mellanox MT26418 ConnectX IB DDR (PCIe x8 Gen2 5 GT/s)
 Adapter Driver: OFED-1.4
 Adapter Firmware: 2.6.0
 Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP2
 Kernel 2.6.16.60-0.34-smp
 Local File System: NFSv3
 Shared File System: NFSv3 IPoIB
 System State: Multi-user, run level 3
 Other Software: SGI ProPack 6 for Linux Service Pack 3, SGI Tempo V 1.7

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Software Availability: Aug-2009

Node Description: SGI Altix ICE 8200EX Compute Node

Slot Type: PCIe x8 Gen2
Data Rate: InfiniBand 4x DDR
Ports Used: 2
Interconnect Type: InfiniBand

Node Description: SGI InfiniteStorage Nexis 2000 NAS

Hardware

Number of nodes: 1
Uses of the node: fileserver
Vendor: SGI
Model: SGI Altix XE 240 (Intel Xeon 5140, 2.33 GHz)
CPU Name: Intel Xeon 5140
CPU(s) orderable: 1-2 chips
Chips enabled: 2
Cores enabled: 4
Cores per chip: 2
Threads per core: 1
CPU Characteristics: 1333 MHz FSB
CPU MHz: 2328
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 4 MB I+D on chip per chip
L3 Cache: None
Other Cache: None
Memory: 24 GB (6*4GB DDR2-400 DIMMS)
Disk Subsystem: 7 TB RAID 5
48 x 147 GB SAS (Seagate Cheetah 15000 rpm)
Other Hardware: None
Adapter: Mellanox MT25208 InfiniHost III Ex
(PCIe x8 Gen1 2.5 GT/s)
Number of Adapters: 2
Slot Type: PCIe x8 Gen1
Data Rate: InfiniBand 4x DDR
Ports Used: 2
Interconnect Type: InfiniBand

Software

Adapter: Mellanox MT25208 InfiniHost III Ex
(PCIe x8 Gen1 2.5 GT/s)
Adapter Driver: OFED-1.3
Adapter Firmware: 5.3.0
Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP1
Kernel 2.6.16.54-0.2.5-smp
Local File System: xfs
Shared File System: --
System State: Multi-user, run level 3
Other Software: SGI ProPack 5 for Linux Service Pack 5

Interconnect Description: InfiniBand (MPI)

Hardware

Vendor: Mellanox Technologies
Model: MT26418 ConnectX
Switch Model: Mellanox MT47396 InfiniScale III
Number of Switches: 16
Number of Ports: 24
Data Rate: InfiniBand 4x DDR
Firmware: 2020001

Software

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Software Availability: Aug-2009

Interconnect Description: InfiniBand (MPI)

Topology: Bristle hypercube with express links
Primary Use: MPI traffic

Interconnect Description: InfiniBand (I/O)

	Hardware	Software
Vendor:	Mellanox Technologies	
Model:	MT26418 ConnectX	
Switch Model:	Mellanox MT47396 InfiniScale-III	
Number of Switches:	8	
Number of Ports:	24	
Data Rate:	InfiniBand 4x DDR	
Firmware:	2020001	
Topology:	Bristle hypercube with express links	
Primary Use:	I/O traffic	

Submit Notes

The config file option 'submit' was used.

General Notes

Software environment:

```
export MPI_REQUEST_MAX=65536
export MPI_TYPE_MAX=32768
export MPI_BUFS_THRESHOLD=1
export MPI_DSM_DISTRIBUTE=yes
export MPI_IB_RAILS=2
ulimit -s unlimited
```

BIOS settings:

```
AMI BIOS version 8.15
Hyper-Threading Technology enabled (default)
Intel Turbo Boost Technology enabled (default)
Intel Turbo Boost Technology activated in the OS via
/etc/init.d/acpid start
/etc/init.d/powersaved start
powersave -f
```

Job Placement:

Each MPI job was assigned to a topologically compact set of nodes, i.e. the minimal needed number of switches was used for each job: 2 switches for 16/32/64 ranks, 4 switches for 128 ranks, 8 switches for 256 ranks and 16 switches for 512 ranks.



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Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
126.lammps: icpc

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icc ifort

Base Portability Flags

121.pop2: -DSPEC_MPI_CASE_FLAG
127.wrf2: -DSPEC_MPI_CASE_FLAG -DSPEC_MPI_LINUX

Base Optimization Flags

C benchmarks:
-O3 -ipo -xT -no-prec-div

C++ benchmarks:
126.lammps: -O3 -ipo -xT -no-prec-div -ansi-alias

Fortran benchmarks:
-O3 -ipo -xT -no-prec-div

Benchmarks using both Fortran and C:
-O3 -ipo -xT -no-prec-div

Base Other Flags

C benchmarks:
-lmpi

C++ benchmarks:
126.lammps: -lmpi

Fortran benchmarks:
-lmpi

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Base Other Flags (Continued)

Benchmarks using both Fortran and C:
-lmpi

The flags file that was used to format this result can be browsed at

http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel111_flags.html

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

http://www.spec.org/mpi2007/flags/SGI_x86_64_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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