



SPEC[®] MPIL2007 Result

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SGI

SGI Altix ICE 8400EX
(Intel Xeon X5670, 2.93 GHz)

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 2.91

MPI2007 license: 4

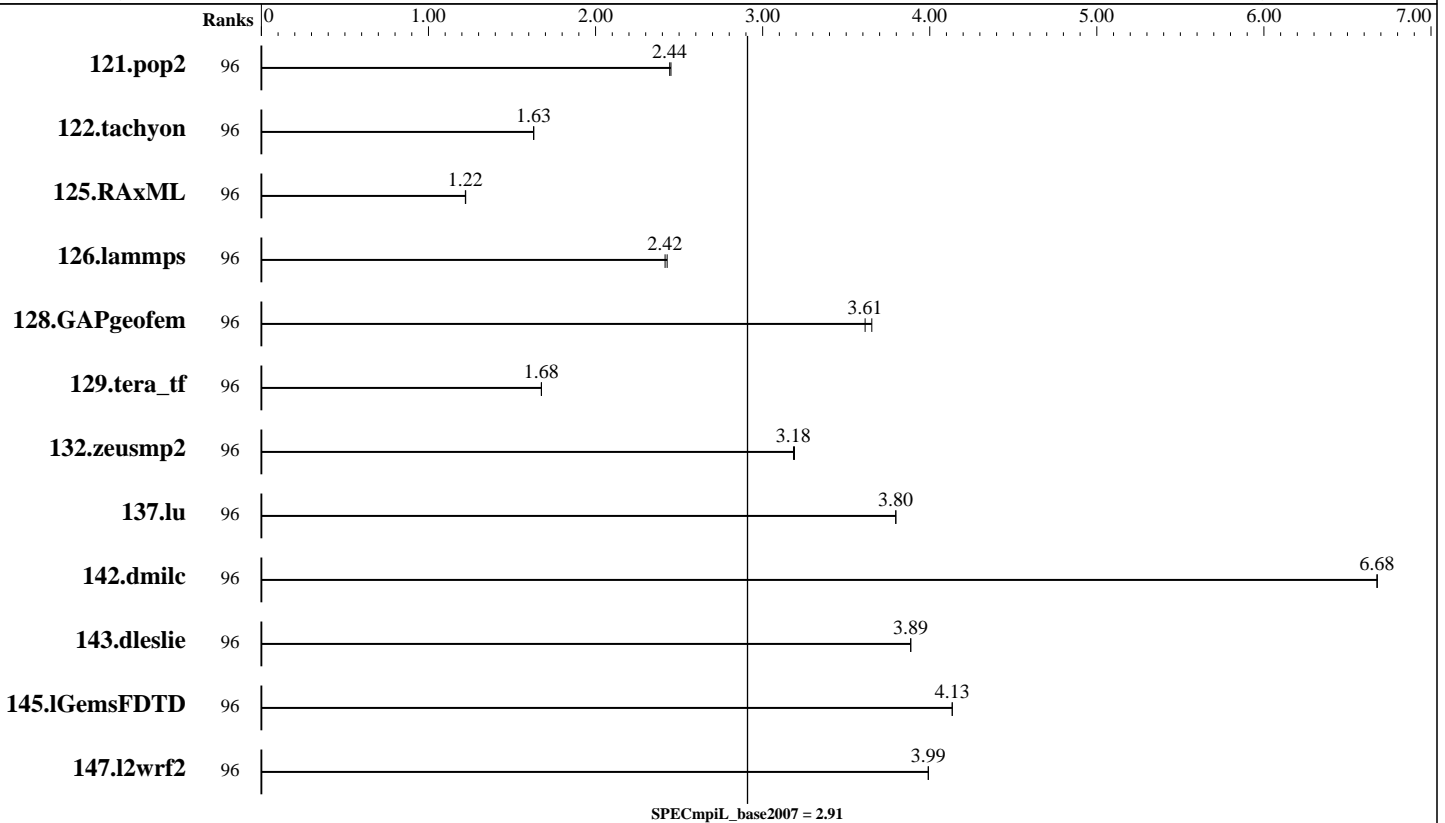
Test sponsor: SGI

Tested by: SGI

Test date: Apr-2010

Hardware Availability: May-2010

Software Availability: Feb-2010



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
121.pop2	96	<u>1592</u>	<u>2.44</u>	1587	2.45									
122.tachyon	96	1192	1.63	<u>1194</u>	<u>1.63</u>									
125.RAxML	96	<u>2391</u>	<u>1.22</u>	2387	1.22									
126.lammps	96	1013	2.43	<u>1018</u>	<u>2.42</u>									
128.GAPgeofem	96	<u>1642</u>	<u>3.61</u>	1624	3.65									
129.tera_tf	96	<u>656</u>	<u>1.68</u>	656	1.68									
132.zeusmp2	96	664	3.19	<u>666</u>	<u>3.18</u>									
137.lu	96	<u>1107</u>	<u>3.80</u>	1106	3.80									
142.dmilc	96	552	6.68	<u>552</u>	<u>6.68</u>									
143.dleslie	96	<u>798</u>	<u>3.89</u>	798	3.89									
145.lGemsFDTD	96	1067	4.13	<u>1067</u>	<u>4.13</u>									
147.l2wrf2	96	<u>2056</u>	<u>3.99</u>	2055	3.99									

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

Standard Performance Evaluation Corporation

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Hardware Summary

Type of System: Homogeneous
 Compute Node: SGI Altix ICE 8400EX Compute Node
 Interconnects: InfiniBand (MPI)
 InfiniBand (I/O)
 File Server Node: SGI InfiniteStorage Nexis 2000 NAS
 Total Compute Nodes: 8
 Total Chips: 16
 Total Cores: 96
 Total Threads: 192
 Total Memory: 192 GB
 Base Ranks Run: 96
 Minimum Peak Ranks: --
 Maximum Peak Ranks: --

Software Summary

C Compiler: Intel C Compiler for Linux
 Version 11.1, Build 20100203
 C++ Compiler: Intel C++ Compiler for Linux
 Version 11.1, Build 20100203
 Fortran Compiler: Intel Fortran Compiler for Linux
 Version 11.1, Build 20100203
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 MPI Library: SGI MPT 1.26
 Other MPI Info: OFED 1.4.1
 Pre-processors: None
 Other Software: None

Node Description: SGI Altix ICE 8400EX Compute Node

Hardware

Number of nodes: 8
 Uses of the node: compute
 Vendor: SGI
 Model: SGI Altix ICE 8400EX (Intel Xeon X5670, 2.93 GHz)
 CPU Name: Intel Xeon X5670
 CPU(s) orderable: 1-2 chips
 Chips enabled: 2
 Cores enabled: 12
 Cores per chip: 6
 Threads per core: 2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz
 Hyper-Threading Technology enabled
 CPU MHz: 2933
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 12 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 MT26428 ConnectX IB QDR
 (PCIe x8 Gen2 5 GT/s)
 Number of Adapters: 1
 Slot Type: PCIe x8 Gen2
 Data Rate: InfiniBand 4x QDR
 Ports Used: 2
 Interconnect Type: InfiniBand

Software

Adapter: Mellanox MT26428 ConnectX IB QDR
 (PCIe x8 Gen2 5 GT/s)
 Adapter Driver: OFED-1.4.1
 Adapter Firmware: 2.7.0
 Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP3
 Kernel 2.6.16.60-0.54.5-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 6, SGI Tempo
 V 1.10



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Hardware Availability: May-2010

Software Availability: Feb-2010

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: 2333
 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: 16 GB (8*2GB DDR2-667MHz DIMMS)
 Disk Subsystem: 4.3 TB RAID 5
 48 x 146 GB SAS (Seagate Cheetah 15K.5)
 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 5
 Other Software: SGI ProPack 5 for Linux Service Pack 5

Interconnect Description: InfiniBand (MPI)

Hardware

Vendor: Mellanox Technologies
 Model: MT26428 ConnectX
 Switch Model: Mellanox MT48436 InfiniScale-IV
 Number of Switches: 128
 Number of Ports: 36
 Data Rate: InfiniBand 4x QDR
 Firmware: 5030004
 Topology: Bristle hypercube
 Primary Use: MPI traffic

Software



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Hardware Availability: May-2010

Software Availability: Feb-2010

Interconnect Description: InfiniBand (I/O)

Hardware

Software

Vendor: Mellanox Technologies
 Model: MT26428 ConnectX
 Switch Model: Mellanox MT48436 InfiniScale-IV
 Number of Switches: 64
 Number of Ports: 36
 Data Rate: InfiniBand 4x QDR
 Firmware: 5030004
 Topology: Bristle hypercube
 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 8.16
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 96 ranks, 4 switches for 192 ranks, 8 switches for 384 ranks, 16 switches for 768 ranks, 32 switches for 1536 ranks, 64 switches for 3072 ranks.

Base Compiler Invocation

C benchmarks:

icc

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Base Compiler Invocation (Continued)

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

Base Optimization Flags

C benchmarks:

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

C++ benchmarks:

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

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

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

Base Other Flags

C benchmarks:

-lmpi

C++ benchmarks:

126.lammps: -lmpi

Fortran benchmarks:

-lmpi

Benchmarks using both Fortran and C:

-lmpi



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

http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel1111_flags.20100202.html

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

http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel1111_flags.20100202.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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