



SPEC® MPIL2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

SGI

SGI Altix ICE 8200EX
(Intel Xeon X5560, 2.80 GHz)

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 43.3

MPI2007 license: 4

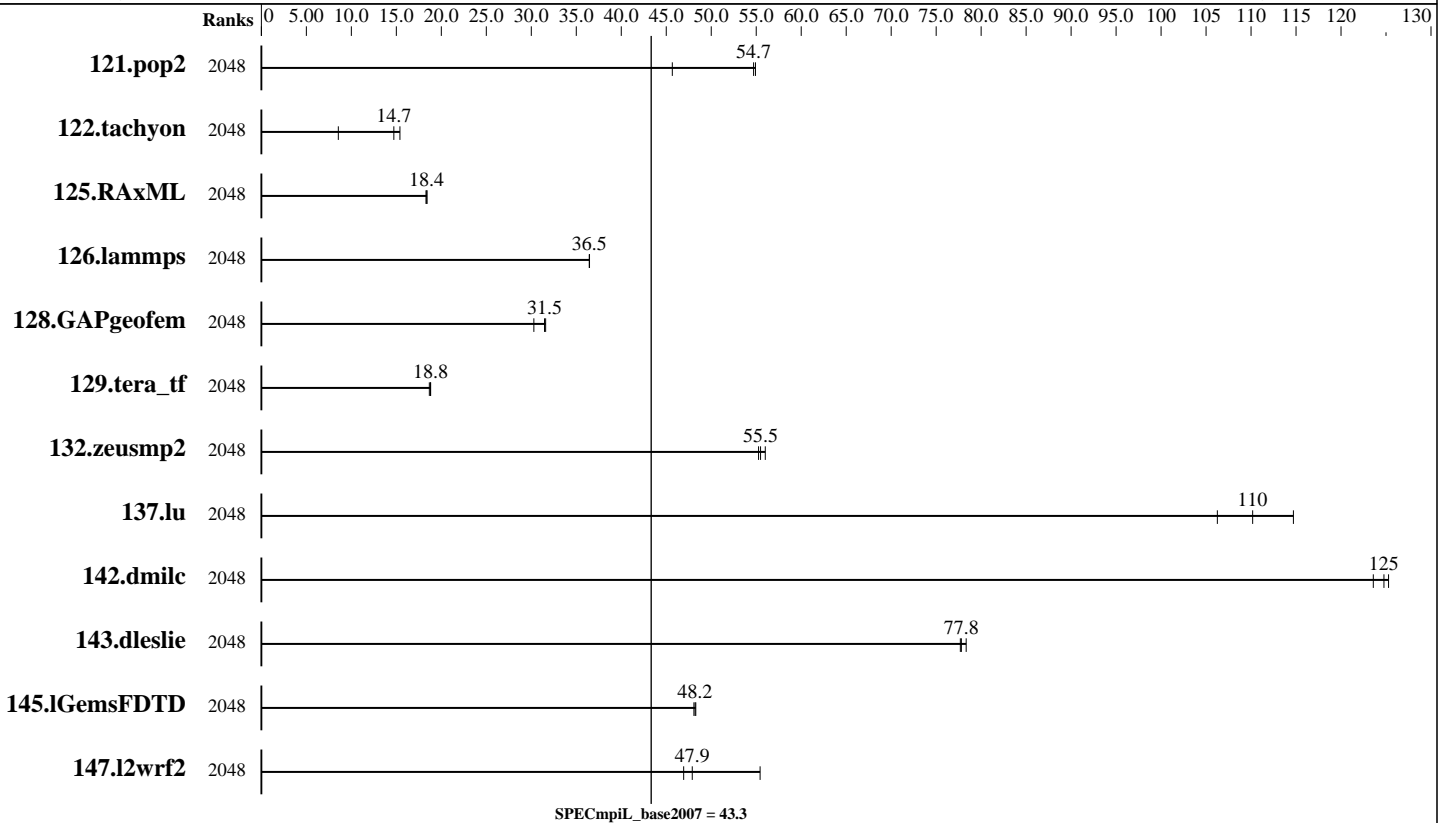
Test sponsor: SGI

Tested by: SGI

Test date: Jan-2010

Hardware Availability: Sep-2009

Software Availability: Dec-2009



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
121.pop2	2048	85.2	45.7	70.9	54.9	<u>71.1</u>	<u>54.7</u>							
122.tachyon	2048	227	8.55	126	15.4	<u>132</u>	<u>14.7</u>							
125.RAxML	2048	160	18.3	<u>159</u>	<u>18.4</u>	159	18.4							
126.lammps	2048	67.5	36.4	<u>67.4</u>	<u>36.5</u>	67.4	36.5							
128.GAPgeofem	2048	196	30.3	<u>189</u>	<u>31.5</u>	188	31.6							
129.tera_tf	2048	58.9	18.7	<u>58.5</u>	<u>18.8</u>	58.4	18.8							
132.zeusmp2	2048	<u>38.2</u>	<u>55.5</u>	37.9	56.0	38.4	55.3							
137.lu	2048	39.5	106	<u>38.1</u>	<u>110</u>	36.6	115							
142.dmilc	2048	<u>29.5</u>	<u>125</u>	29.8	124	29.4	125							
143.dleslie	2048	39.6	78.3	39.9	77.7	<u>39.8</u>	<u>77.8</u>							
145.lGemsFDTD	2048	<u>91.5</u>	<u>48.2</u>	91.4	48.3	91.8	48.1							
147.l2wrf2	2048	148	55.4	<u>171</u>	<u>47.9</u>	175	46.9							

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

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/



SPEC MPIL2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

SGI

SGI Altix ICE 8200EX
(Intel Xeon X5560, 2.80 GHz)

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 43.3

MPI2007 license: 4

Test sponsor: SGI

Tested by: SGI

Test date: Jan-2010

Hardware Availability: Sep-2009

Software Availability: Dec-2009

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: 256
 Total Chips: 512
 Total Cores: 2048
 Total Threads: 4096
 Total Memory: 9 TB
 Base Ranks Run: 2048
 Minimum Peak Ranks: --
 Maximum Peak Ranks: --

Software Summary

C Compiler: Intel C Compiler for Linux
 Version 11.1, Build 20091130
 C++ Compiler: Intel C++ Compiler for Linux
 Version 11.1, Build 20091130
 Fortran Compiler: Intel Fortran Compiler for Linux
 Version 11.1, Build 20091130
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 MPI Library: SGI MPT 1.25
 Other MPI Info: OFED-1.4.1
 Pre-processors: None
 Other Software: None

Node Description: SGI Altix ICE 8200EX Compute Node

Hardware

Number of nodes: 256
 Uses of the node: compute
 Vendor: SGI
 Model: SGI Altix ICE 8200EX (Intel Xeon X5560, 2.80 GHz)
 CPU Name: Intel Xeon X5560
 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 3.2 GHz,
 6.4 GT/s QPI, Hyper-Threading enabled
 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
 Other Cache: None
 Memory: 36 GB (6*4GB + 6*2GB DDR3-1333 CL9 RDIMMs running
 at 1066 MHz. The 4GB DIMM is installed in DIMM
 slot A in each channel.)
 Disk Subsystem: None
 Other Hardware: None
 Adapter: Mellanox MT26418 ConnectX IB DDR
 (PCIe x8 Gen2 5 GT/s)
 Number of Adapters: 1
 Slot Type: PCIe x8 Gen2
 Data Rate: InfiniBand 4x DDR
 Ports Used: 2
 Interconnect Type: InfiniBand

Software

Adapter: Mellanox MT26418 ConnectX IB DDR
 (PCIe x8 Gen2 5 GT/s)
 Adapter Driver: OFED-1.4.1
 Adapter Firmware: 2.6.0
 Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP2
 Kernel 2.6.16.60-0.30-smp
 Local File System: None
 Shared File System: NFSv3 IPoIB
 System State: Multi-user, run level 3
 Other Software: SGI ProPack 6 for Linux Service Pack 5, SGI Tempo
 V 1.9



SPEC MPIL2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

SGI

SGI Altix ICE 8200EX
(Intel Xeon X5560, 2.80 GHz)

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 43.3

MPI2007 license: 4

Test sponsor: SGI

Tested by: SGI

Test date: Jan-2010

Hardware Availability: Sep-2009

Software Availability: Dec-2009

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 MT26418 ConnectX IB DDR
 (PCIe x8 Gen2 5 GT/s)
 Number of Adapters: 2
 Slot Type: PCIe x8 Gen2
 Data Rate: InfiniBand 4x DDR
 Ports Used: 2
 Interconnect Type: InfiniBand

Software

Adapter: Mellanox MT26418 ConnectX IB DDR
 (PCIe x8 Gen2 5 GT/s)
 Adapter Driver: OFED-1.4.1
 Adapter Firmware: 2.3.0
 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 MT48436 InfiniScale-IV
 Number of Switches: 128
 Number of Ports: 36
 Data Rate: InfiniBand 4x QDR
 Firmware: 4020001
 Topology: Bristle hypercube with double dimensional links
 Primary Use: MPI traffic

Software



SPEC MPIL2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

SGI

SGI Altix ICE 8200EX
(Intel Xeon X5560, 2.80 GHz)

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 43.3

MPI2007 license: 4

Test sponsor: SGI

Tested by: SGI

Test date: Jan-2010

Hardware Availability: Sep-2009

Software Availability: Dec-2009

Interconnect Description: InfiniBand (I/O)

Hardware		Software
Vendor:	Mellanox Technologies	
Model:	MT26418 ConnectX	
Switch Model:	Mellanox MT48436 InfiniScale-IV	
Number of Switches:	64	
Number of Ports:	36	
Data Rate:	InfiniBand 4x QDR	
Firmware:	4020001	
Topology:	Bristle hypercube with double dimensional 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
```

Interconnect Data Rate:

The system interconnect has DDR InfiniBand HCAs, while the switches and cables run up to QDR rate.

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, 16 switches for 512 ranks, 32 switches for 1024 ranks, 64 switches for 2048 ranks and 128 switches for 4096 ranks.



SPEC MPIL2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

SGI

SGI Altix ICE 8200EX
(Intel Xeon X5560, 2.80 GHz)

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 43.3

MPI2007 license: 4
Test sponsor: SGI
Tested by: SGI

Test date: Jan-2010
Hardware Availability: Sep-2009
Software Availability: Dec-2009

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

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

Continued on next page



SPEC MPIL2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

SGI

SGI Altix ICE 8200EX
(Intel Xeon X5560, 2.80 GHz)

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 43.3

MPI2007 license: 4

Test sponsor: SGI

Tested by: SGI

Test date: Jan-2010

Hardware Availability: Sep-2009

Software Availability: Dec-2009

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.20100202.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.20100202.xml

SPEC and SPEC MPI are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC MPI2007 v85.
Report generated on Tue Jul 22 13:39:17 2014 by SPEC MPI2007 PS/PDF formatter v1463.
Originally published on 2 February 2010.