SPEC® MPIL2007 Result

SGI

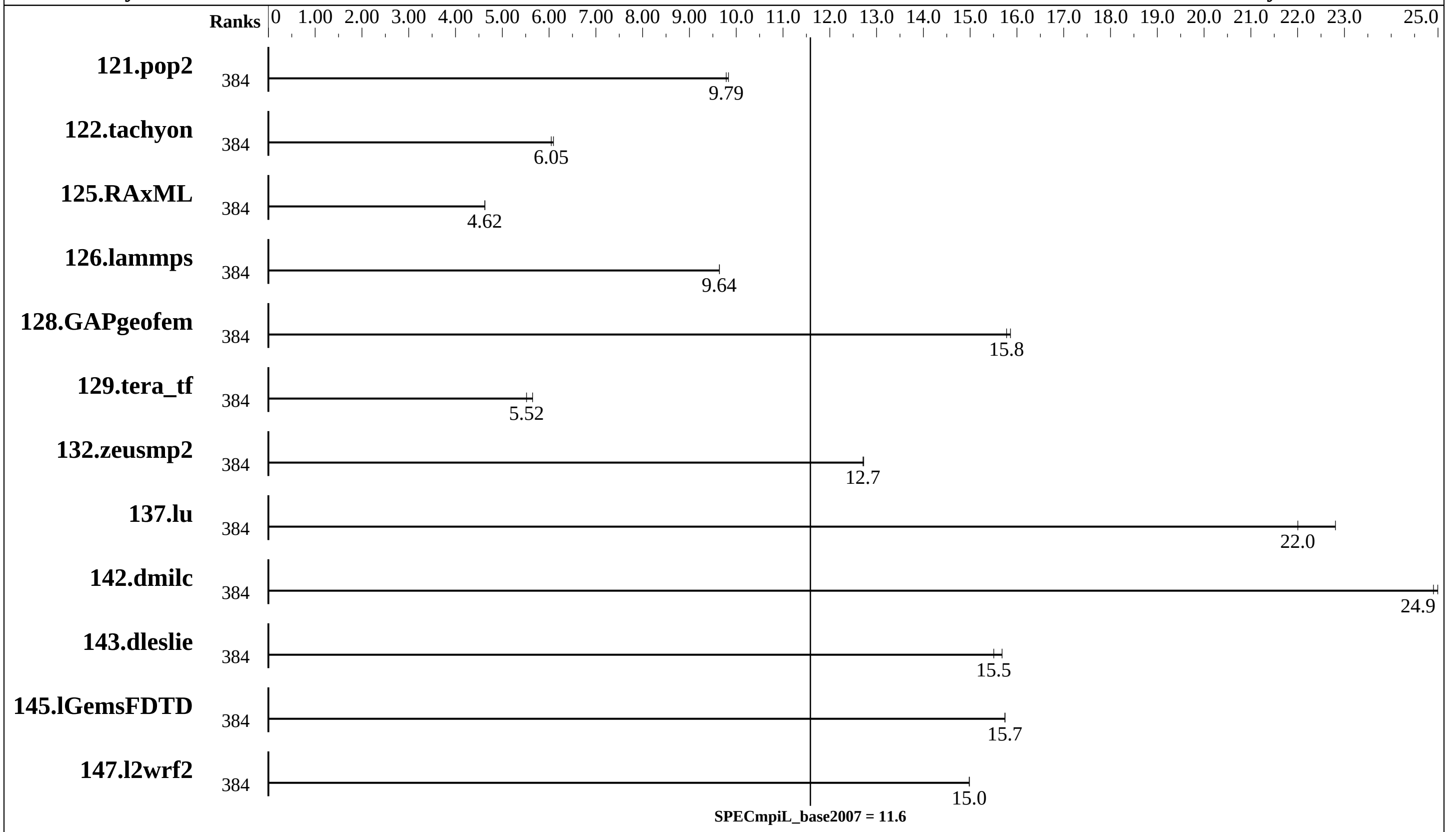
SGI Altix ICE 8400EX
(Intel Xeon X5670, 2.93 GHz)

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 11.6

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

Test date: Apr-2010
Hardware Availability: May-2010
Software Availability: Feb-2010



Results Table

	Base							Peak						
Benchmark	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
121.pop2	384	**398**	**9.79**	396	9.83									
122.tachyon	384	**322**	**6.05**	319	6.09									
125.RAxML	384	**631**	**4.62**	631	4.63									
126.lammps	384	**255**	**9.64**	255	9.64									
128.GAPgeofem	384	374	15.9	**376**	**15.8**									
129.tera_tf	384	195	5.65	**199**	**5.52**									
132.zeusmp2	384	**167**	**12.7**	167	12.7									
137.lu	384	184	22.8	**191**	**22.0**									
142.dmilc	384	147	25.0	**148**	**24.9**									
143.dleslie	384	**200**	**15.5**	198	15.7									
145.lGemsFDTD	384	280	15.7	**280**	**15.7**									
147.l2wrf2	384	547	15.0	**548**	**15.0**									

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

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Test sponsor:	SGI	**Hardware Availability:**	May-2010
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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:	32
Total Chips:	64
Total Cores:	384
Total Threads:	768
Total Memory:	768 GB
Base Ranks Run:	384
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:	32
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

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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Tested by:	SGI	**Software Availability:**	Feb-2010

Interconnect Description: InfiniBand (I/O)

Hardware

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

Software

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

Continued on next page

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_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

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

Tested with SPEC MPI2007 v2.0.
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