



SPEC[®] MPIL2007 Result

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SGI

SGI Altix ICE 8400EX
(AMD Opteron 6180 SE, 2.5GHz)

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 25.2

MPI2007 license: 4

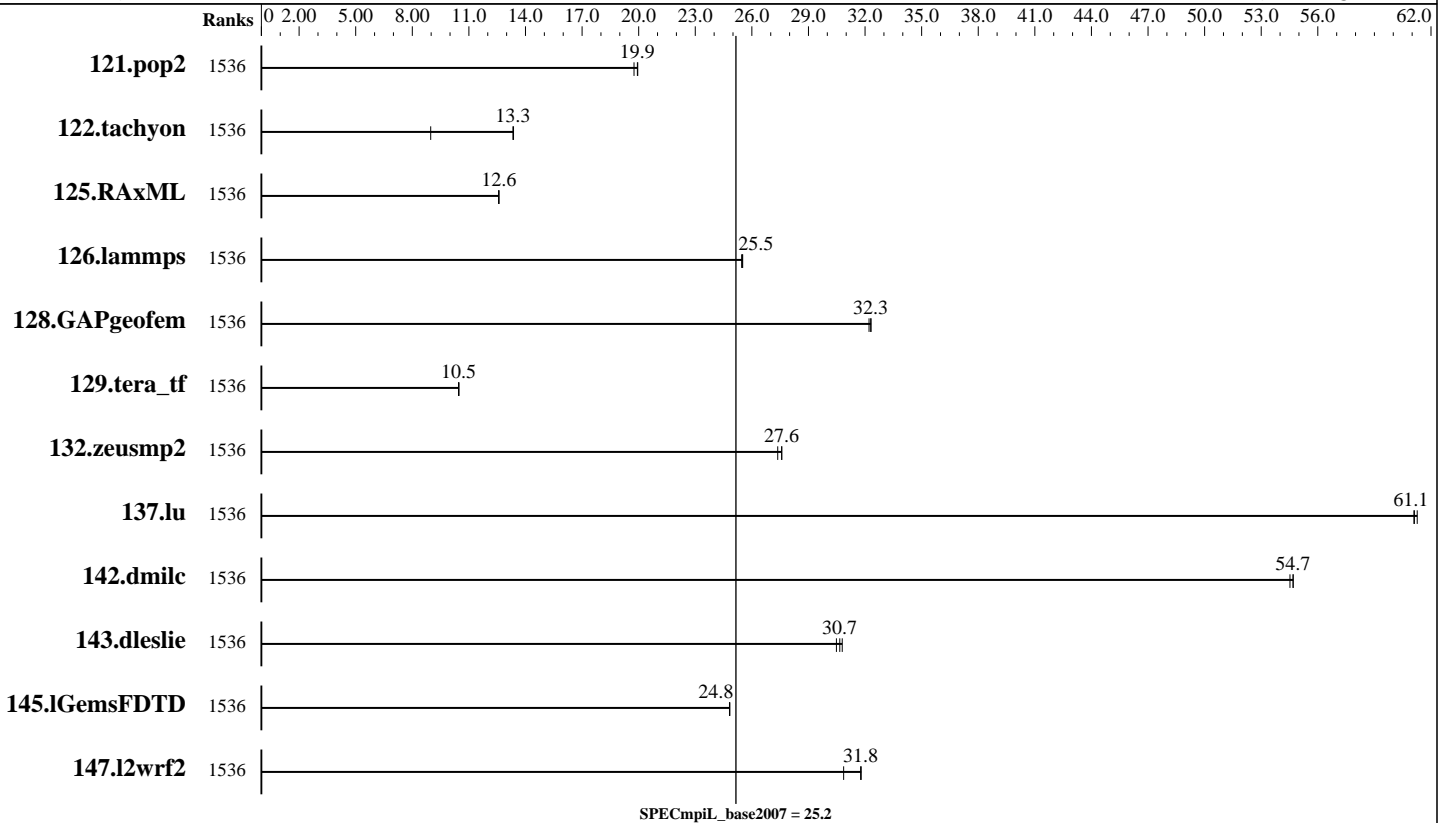
Test sponsor: SGI

Tested by: SGI

Test date: Jun-2011

Hardware Availability: Mar-2011

Software Availability: Aug-2011



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
121.pop2	1536	197	19.8	<u>195</u>	<u>19.9</u>	195	20.0							
122.tachyon	1536	217	8.98	145	13.4	<u>146</u>	<u>13.3</u>							
125.RAxML	1536	232	12.6	<u>232</u>	<u>12.6</u>	232	12.6							
126.lammps	1536	96.6	25.5	<u>96.5</u>	<u>25.5</u>	96.4	25.5							
128.GAPgeofem	1536	184	32.2	184	32.3	<u>184</u>	<u>32.3</u>							
129.tera_tf	1536	105	10.4	<u>105</u>	<u>10.5</u>	105	10.5							
132.zeusmp2	1536	76.9	27.6	<u>76.9</u>	<u>27.6</u>	77.5	27.4							
137.lu	1536	68.6	61.3	68.8	61.1	<u>68.8</u>	<u>61.1</u>							
142.dmilc	1536	<u>67.4</u>	<u>54.7</u>	67.4	54.7	67.6	54.5							
143.dleslie	1536	<u>101</u>	<u>30.7</u>	101	30.8	102	30.5							
145.lGemsFDTD	1536	178	24.8	178	24.8	<u>178</u>	<u>24.8</u>							
147.l2wrf2	1536	258	31.8	266	30.9	<u>258</u>	<u>31.8</u>							

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

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Hardware Summary

Software Summary

Type of System: Homogeneous
 Compute Node: SGI Altix ICE 8400EX Compute Node
 Interconnect: InfiniBand (MPI and I/O)
 File Server Node: SGI InfiniteStorage 4000
 Total Compute Nodes: 64
 Total Chips: 128
 Total Cores: 1536
 Total Threads: 1536
 Total Memory: 4 TB
 Base Ranks Run: 1536
 Minimum Peak Ranks: --
 Maximum Peak Ranks: --

C Compiler: Intel C++ Composer XE 2011 for Linux, Version 12.0.3.174 Build 20110309
 C++ Compiler: Intel C++ Composer XE 2011 for Linux, Version 12.0.3.174 Build 20110309
 Fortran Compiler: Intel Fortran Composer XE 2011 for Linux, Version 12.0.3.174 Build 20110309
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 MPI Library: SGI MPT 2.04 Patch 10789
 Other MPI Info: OFED 1.4.2
 Pre-processors: None
 Other Software: None

Node Description: SGI Altix ICE 8400EX Compute Node

Hardware

Software

Number of nodes: 64
 Uses of the node: compute
 Vendor: SGI
 Model: SGI Altix ICE 8400EX (AMD Opteron 6180 SE, 2.5GHz)
 CPU Name: AMD Opteron 6180 SE
 CPU(s) orderable: 1-2 chips
 Chips enabled: 2
 Cores enabled: 24
 Cores per chip: 12
 Threads per core: 1
 CPU Characteristics: 12 Cores/chip, 2.5 GHz
 CPU MHz: 2500
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 512 KB I+D on chip per core
 L3 Cache: 12 MB I+D on chip per chip, 6 MB shared / 6 cores
 Other Cache: None
 Memory: 64 GB (16 x 4 GB, 2Rx4 PC3-10600R-9, ECC)
 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

Adapter: Mellanox MT26428 ConnectX IB QDR (PCIe x8 Gen2 5 GT/s)
 Adapter Driver: OFED-1.4.2
 Adapter Firmware: 2.7.0
 Operating System: SUSE Linux Enterprise Server 11 SP1 (x86_64) Kernel 2.6.32.27-0.2-default
 Local File System: NFSv3
 Shared File System: NFSv3 IPoIB
 System State: Run Level 3 (Multi-User)
 Other Software: SGI Performance Suite 1.0, Build 702r19.sles11-1010072114
 SGI Tempo Compute Node 2.2, Build 702r19.sles11-1010072114



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Software Availability: Aug-2011

Node Description: SGI InfiniteStorage 4000

Hardware

Number of nodes: 1
Uses of the node: fileserver
Vendor: SGI
Model: SGI Altix 450 (Intel Itanium 2, 1.6GHz)
CPU Name: Intel Itanium 2 9030
CPU(s) orderable: 2-38 chips
Chips enabled: 2
Cores enabled: 4
Cores per chip: 2
Threads per core: 1
CPU Characteristics: 1.6GHz/8MB, 533MHz FSB
CPU MHz: 1600
Primary Cache: 16 KB I + 16 KB D on chip per core
Secondary Cache: 1 MB I + 256 KB D on chip per core
L3 Cache: 4 MB I+D on chip per core
Other Cache: None
Memory: 24 GB (12 x 2 GB, 2Rx4 PC2-3200-3, ECC)
Disk Subsystem: 16 TB RAID 5
32 x 500 GB SATA (Seagate Barracuda 7.2K)
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-1.4.2
Adapter Firmware: 5.3.0
Operating System: SUSE Linux Enterprise Server 11 SP1 (ia64) Kernel 2.6.32.12-0.7-default
Local File System: xfs
Shared File System: --
System State: Run Level 3 (Multi-User)
Other Software: SGI ProPack 7SP1 for Linux, Build 701r2.sles11-1005242307

Interconnect Description: InfiniBand (MPI and I/O)

Hardware

Vendor: Mellanox Technologies
Model: None
Switch Model: Mellanox Infiniscale-IV
Number of Switches: 8
Number of Ports: 36
Data Rate: InfiniBand 4x QDR
Firmware: 5040005
Topology: Enhanced HyperCube
Primary Use: MPI and I/O traffic

Software



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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
```

```
ulimit -s unlimited
```

BIOS settings:

```
AMI BIOS version 1.0a
```

Job Placement:

Each MPI job is assigned to a topologically compact set of nodes, i.e. the minimal needed number of switches was used for each job: 1 switch for up to 192 ranks, 2 switches for 384 ranks, 4 switches for 768 ranks, 8 switches for 1536 ranks and 16 switches for 3072 ranks.

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 -xSSE2 -no-prec-div
```

Continued on next page

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Page 4



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Base Optimization Flags (Continued)

C++ benchmarks:

126.lammps: -O3 -xSSE2 -no-prec-div -ansi-alias

Fortran benchmarks:

-O3 -xSSE2 -no-prec-div

Benchmarks using both Fortran and C:

-O3 -xSSE2 -no-prec-div

Base Other Flags

C benchmarks:

-lmpi

C++ benchmarks:

126.lammps: -lmpi

Fortran benchmarks:

-lmpi

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_Intel12_flags.html

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

http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel12_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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