



SPEC® MPIL2007 Result

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SGI

SPECmpiL_peak2007 = Not Run

SGI ICE X (Intel Xeon E5-2690 v2, 3.0 GHz)

SPECmpiL_base2007 = 30.4

MPI2007 license: 4

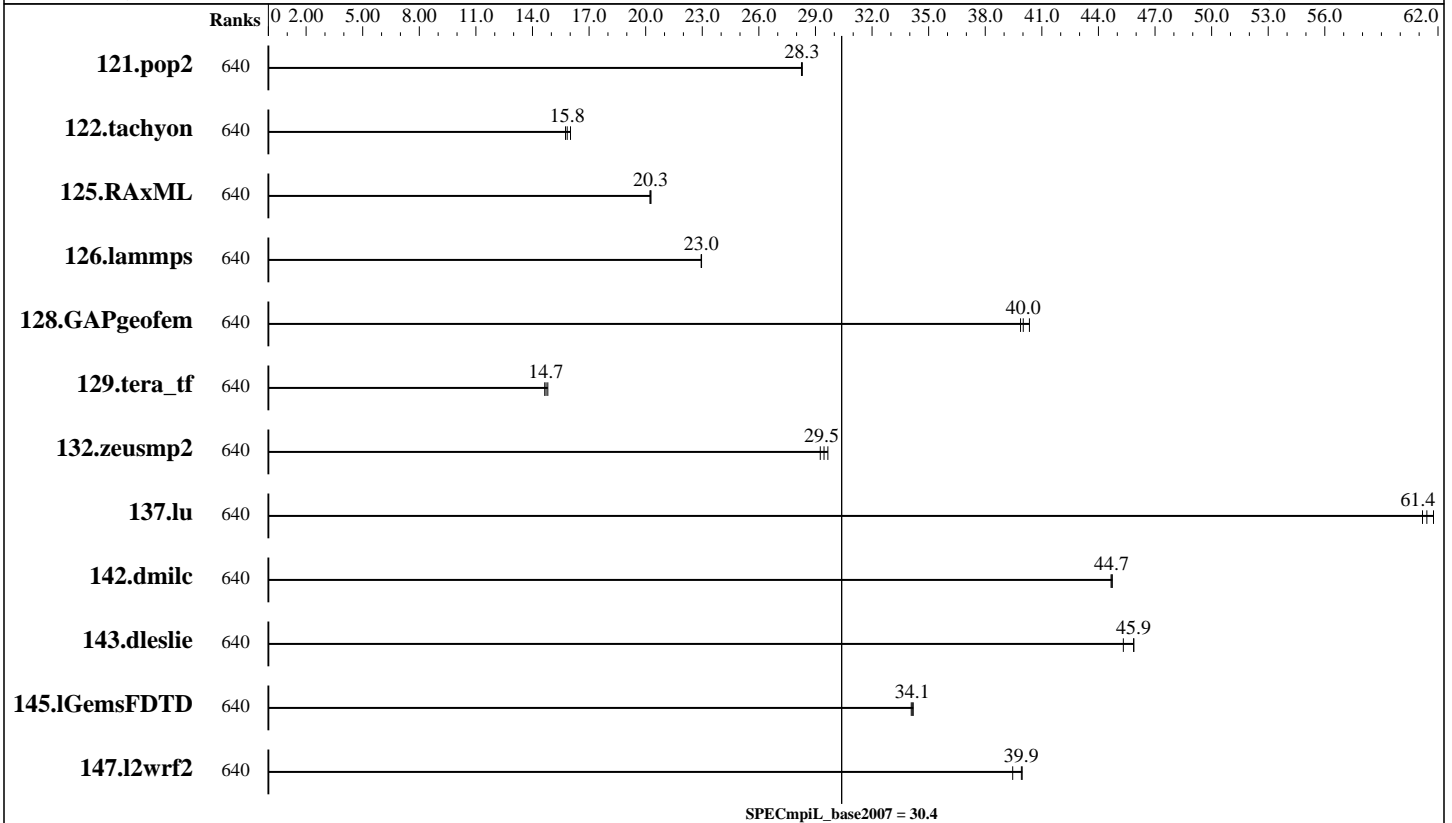
Test sponsor: SGI

Tested by: SGI

Test date: Dec-2013

Hardware Availability: Sep-2013

Software Availability: Nov-2013



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
121.pop2	640	<u>138</u>	<u>28.3</u>	137	28.3	138	28.3							
122.tachyon	640	123	15.8	<u>123</u>	<u>15.8</u>	121	16.0							
125.RAxML	640	144	20.3	144	20.2	<u>144</u>	<u>20.3</u>							
126.lammps	640	107	23.0	<u>107</u>	<u>23.0</u>	107	22.9							
128.GAPgeofem	640	149	39.9	<u>148</u>	<u>40.0</u>	147	40.3							
129.tera_tf	640	74.2	14.8	<u>74.7</u>	<u>14.7</u>	75.0	14.6							
132.zeusmp2	640	72.5	29.3	71.5	29.7	<u>72.0</u>	<u>29.5</u>							
137.lu	640	68.7	61.2	<u>68.4</u>	<u>61.4</u>	68.0	61.8							
142.dmilc	640	82.4	44.7	82.5	44.7	<u>82.4</u>	<u>44.7</u>							
143.dleslie	640	68.4	45.3	67.6	45.9	<u>67.6</u>	<u>45.9</u>							
145.lGemsFDTD	640	129	34.1	<u>129</u>	<u>34.1</u>	129	34.2							
147.l2wrf2	640	208	39.5	205	40.0	<u>206</u>	<u>39.9</u>							

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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http://www.spec.org/



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Hardware Summary

Type of System: Homogeneous
 Compute Node: SGI ICE X IP-113 Compute Node
 Interconnect: InfiniBand (MPI and I/O)
 File Server Node: SGI Modular InfiniteStorage Server
 Total Compute Nodes: 32
 Total Chips: 64
 Total Cores: 640
 Total Threads: 1280
 Total Memory: 2 TB
 Base Ranks Run: 640
 Minimum Peak Ranks: --
 Maximum Peak Ranks: --

Software Summary

C Compiler: Intel C++ Composer XE 2011 for Linux, Version 14.0.0.080 Build 20130728
 C++ Compiler: Intel C++ Composer XE 2011 for Linux, Version 14.0.0.080 Build 20130728
 Fortran Compiler: Intel Fortran Composer XE 2011 for Linux, Version 14.0.0.080 Build 20130728
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 MPI Library: SGI MPT 2.09
 Other MPI Info: OFED 1.5.2
 Pre-processors: None
 Other Software: None

Node Description: SGI ICE X IP-113 Compute Node

Hardware

Number of nodes: 32
 Uses of the node: compute
 Vendor: SGI
 Model: SGI ICE X IP-113 (Intel Xeon E5-2690 v2, 3.0 GHz)
 CPU Name: Intel Xeon E5-2690 v2
 CPU(s) orderable: 1-2 chips
 Chips enabled: 2
 Cores enabled: 20
 Cores per chip: 10
 Threads per core: 2
 CPU Characteristics: Ten Core, 3.0 GHz, 8.0 GT/s QPI
 Intel Turbo Boost Technology up to 3.60 GHz
 Hyper-Threading Technology enabled
 CPU MHz: 3000
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 25 MB I+D on chip per chip
 Other Cache: None
 Memory: 64 GB (8 x 8 GB 2Rx4 PC3-14900R-13, ECC)
 Disk Subsystem: None
 Other Hardware: None
 Adapter: Mellanox MT27500 with ConnectX-3 ASIC (PCIe x8 Gen3 8 GT/s)
 Number of Adapters: 2
 Slot Type: PCIe x8 Gen3
 Data Rate: InfiniBand 4x FDR
 Ports Used: 2
 Interconnect Type: InfiniBand

Software

Adapter: Mellanox MT27500 with ConnectX-3 ASIC (PCIe x8 Gen3 8 GT/s)
 Adapter Driver: OFED-1.5.2
 Adapter Firmware: 2.11.312
 Operating System: SUSE Linux Enterprise Server 11 SP2, Kernel 3.0.80-0.7-default
 Local File System: NFSv3
 Shared File System: NFSv3 IPoIB
 System State: Multi-user, run level 3
 Other Software: SGI Tempo Compute Node 2.7.3, Build 708rp14.sles11sp2-1305311204



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Test sponsor: SGI

Hardware Availability: Sep-2013

Tested by: SGI

Software Availability: Nov-2013

Node Description: SGI Modular InfiniteStorage Server

Hardware

Number of nodes: 1
 Uses of the node: fileserver
 Vendor: SGI
 Model: SGI Modular InfiniteStorage Server
 CPU Name: Intel Xeon E5-2670
 CPU(s) orderable: 1-2 chips
 Chips enabled: 2
 Cores enabled: 16
 Cores per chip: 8
 Threads per core: 2
 CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz
 Hyper-Threading Technology enabled
 CPU MHz: 2600
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per chip
 L3 Cache: 20 MB I+D on chip per chip
 Other Cache: None
 Memory: 128 GB (8 * 16 GB 2Rx4 PC3-12800R-11, ECC)
 Disk Subsystem: 64.8 TB RAID 6
 72 x 900 GB SAS (Western Digital, 10K RPM)
 Other Hardware: None
 Adapter: Mellanox MT27500 with ConnectX-3 ASIC
 (PCIe x8 Gen3 8 GT/s)
 Number of Adapters: 2
 Slot Type: PCIe x8 Gen3
 Data Rate: InfiniBand 4x FDR
 Ports Used: 2
 Interconnect Type: InfiniBand

Software

Adapter: Mellanox MT27500 with ConnectX-3 ASIC
 (PCIe x8 Gen3 8 GT/s)
 Adapter Driver: OFED-1.5.0
 Adapter Firmware: 2.11.312
 Operating System: SUSE Linux Enterprise Server 11 SP3
 Kernel
 Local File System: xfs
 Shared File System: --
 System State: Multi-user, run level 3
 Other Software: SGI Foundation Software 2.9,
 Build 700r3.sles11-1004061553

Interconnect Description: InfiniBand (MPI and I/O)

Hardware

Vendor: Mellanox Technologies and SGI
 Model: None
 Switch Model: SGI FDR Integrated IB Switch Blade 2SW9x27 with
 Mellanox SwitchX device 51000
 Number of Switches: 8
 Number of Ports: 36
 Data Rate: InfiniBand 4x FDR
 Firmware: 07130007_LL2 and 08130007_LL2
 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

130.socorro (base): "nullify_ptrs" src.alt was used.

Software environment:

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

BIOS settings:

```
AMI BIOS version 3.0
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 up to 180 ranks, 4 switches for up to 320 ranks, 8 switches for 640 ranks, 10 switches for 800 ranks, 16 switches for 1280 ranks, 22 switches for 1920 ranks, and 30 switches for 2560 ranks.

Additional notes regarding interconnect:

The Infiniband network consists of two independent planes, with half the switches in the system allocated to each plane. I/O traffic is restricted to one plane, while MPI traffic can use both planes.

Base Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

126.lammps: icpc

Fortran benchmarks:

ifort

Continued on next page



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Base Compiler Invocation (Continued)

Benchmarks using both Fortran and C:

icc ifort

Base Portability Flags

121.pop2: -DSPEC_MPI_CASE_FLAG

Base Optimization Flags

C benchmarks:

-O3 -xAVX -no-prec-div

C++ benchmarks:

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

Fortran benchmarks:

-O3 -xAVX -no-prec-div

Benchmarks using both Fortran and C:

-O3 -xAVX -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_Intel14_flags.html

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

http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel14_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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