



SPEC® MPIL2007 Result

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SGI

SGI ICE X
(Intel Xeon E5-2690 v3, 2.6 GHz)

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = 19.5

MPI2007 license: 14

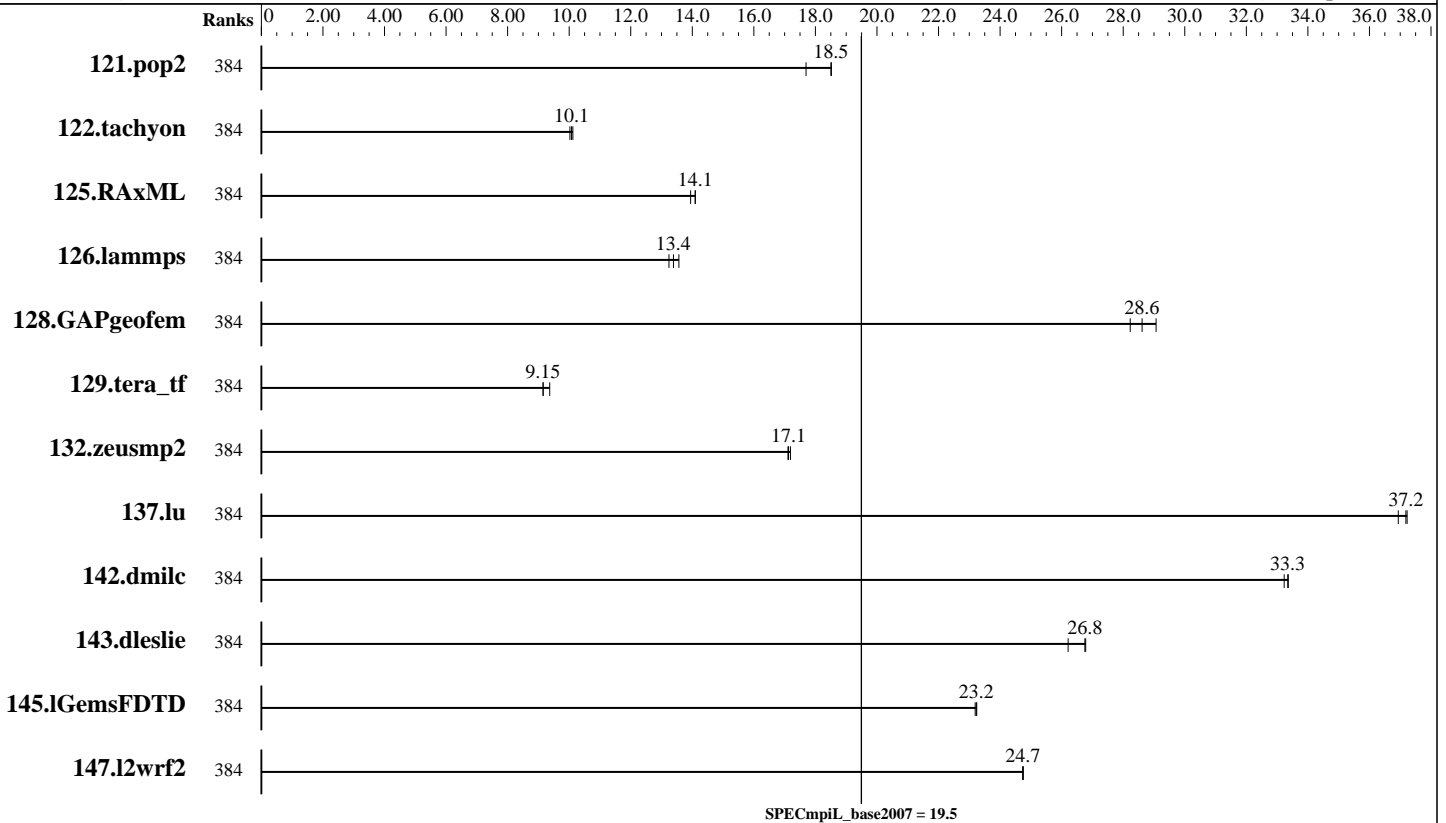
Test sponsor: SGI

Tested by: SGI

Test date: Jul-2014

Hardware Availability: Sep-2014

Software Availability: Apr-2014



Results Table

Benchmark	Base								Peak							
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
121.pop2	384	220	17.7	210	18.5	<u>210</u>	<u>18.5</u>									
122.tachyon	384	<u>193</u>	<u>10.1</u>	192	10.1	194	10.0									
125.RAxML	384	<u>207</u>	<u>14.1</u>	207	14.1	209	13.9									
126.lammps	384	181	13.6	<u>184</u>	<u>13.4</u>	186	13.2									
128.GAPgeofem	384	204	29.1	<u>207</u>	<u>28.6</u>	210	28.2									
129.tera_tf	384	<u>120</u>	<u>9.15</u>	117	9.37	120	9.15									
132.zeusmp2	384	123	17.2	<u>124</u>	<u>17.1</u>	124	17.1									
137.lu	384	114	36.9	113	37.2	<u>113</u>	<u>37.2</u>									
142.dmilc	384	110	33.4	111	33.2	<u>110</u>	<u>33.3</u>									
143.dleslie	384	116	26.8	<u>116</u>	<u>26.8</u>	118	26.2									
145.lGemsFDTD	384	<u>190</u>	<u>23.2</u>	190	23.2	190	23.2									
147.l2wrf2	384	<u>331</u>	<u>24.7</u>	331	24.7	332	24.7									

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-131 Compute Node
 Interconnect: InfiniBand (MPI and I/O)
 File Server Node: SGI Rackable C1103-TY12
 Total Compute Nodes: 16
 Total Chips: 32
 Total Cores: 384
 Total Threads: 384
 Total Memory: 2 TB
 Base Ranks Run: 384
 Minimum Peak Ranks: --
 Maximum Peak Ranks: --

Software Summary

C Compiler: Intel C++ Composer XE 2013 for Linux, Version 14.0.3.174 Build 20140422
 C++ Compiler: Intel C++ Composer XE 2013 for Linux Version 14.0.3.174 Build 20140422
 Fortran Compiler: Intel Fortran Composer XE 2013 for Linux, Version 14.0.3.174 Build 20140422
 Base Pointers: 64-bit
 Peak Pointers: Not Applicable
 MPI Library: SGI MPT 2.09 Patch 11049
 Other MPI Info: OFED 1.5.4
 Pre-processors: None
 Other Software: None

Node Description: SGI ICE X IP-131 Compute Node

Hardware

Number of nodes: 16
 Uses of the node: compute
 Vendor: SGI
 Model: SGI ICE X (Intel Xeon E5-2690 v3, 2.6 GHz)
 CPU Name: Intel Xeon E5-2690 v3
 CPU(s) orderable: 1-2 chips
 Chips enabled: 2
 Cores enabled: 24
 Cores per chip: 12
 Threads per core: 1
 CPU Characteristics: 12 Core, 2.60 GHz, 9.6 GT/s QPI
 Intel Turbo Boost Technology up to 3.50 GHz
 Hyper-Threading Technology disabled
 CPU MHz: 2600
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 30 MB I+D on chip per chip
 Other Cache: None
 Memory: 128 GB (8 x 16 GB 2Rx4 PC4-17000R-15, 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-1.5.4
 Adapter Firmware: 2.30.3000
 Operating System: SUSE Linux Enterprise Server 11 SP3 (x86_64), Kernel 3.0.93-0.8-default
 Local File System: NFSv3
 Shared File System: NFSv3 IPoIB
 System State: Multi-user, run level 3
 Other Software: SGI Tempo Service Node 2.8.1, Build 709rp49.sles11sp3-1402182002



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Test date: Jul-2014
Hardware Availability: Sep-2014
Software Availability: Apr-2014

Node Description: SGI Rackable C1103-TY12

Hardware

Number of nodes: 1
Uses of the node: fileserver
Vendor: SGI
Model: SGI Rackable C1103-TY12 (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 chip
L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 96 GB (12 * 8 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem: 12 TB RAID 6
12 x 1 TB SATA (Seagate Constellation, 7200RPM)
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: 2.30.3000
Operating System: SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.46-0.3-default
Local File System: xfs
Shared File System: --
System State: Multi-user, run level 3
Other Software: SGI Foundation Software 2.5, Build 705r10.sles11-1110192111

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: 4
Number of Ports: 36
Data Rate: InfiniBand 4x FDR
Firmware: 09.02.3000
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_IB_RAILS=2
ulimit -s unlimited
```

BIOS settings:

```
AMI BIOS version DY2E6044
Hyper-Threading Technology disabled
Intel Turbo Boost Technology enabled (default)
Intel Turbo Boost Technology activated with
  modprobe acpi_cpufreq
  cpupower frequency-set -u 2601MHz -d 2601MHz -g performance
```

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 192 ranks, 4 switches for up to 384 ranks, 8 switches for 768 ranks, and 16 switches for 1536 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

Benchmarks using both Fortran and C:

icc ifort



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Base Portability Flags

121.pop2: -DSPEC_MPI_CASE_FLAG

Base Optimization Flags

C benchmarks:

-O3 -xCORE-AVX2 -no-prec-div

C++ benchmarks:

126.lammps: -O3 -xCORE-AVX2 -no-prec-div -ansi-alias

Fortran benchmarks:

-O3 -xCORE-AVX2 -no-prec-div

Benchmarks using both Fortran and C:

-O3 -xCORE-AVX2 -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.20140908.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.20140908.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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