



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 = 7.86

MPI2007 license: 4

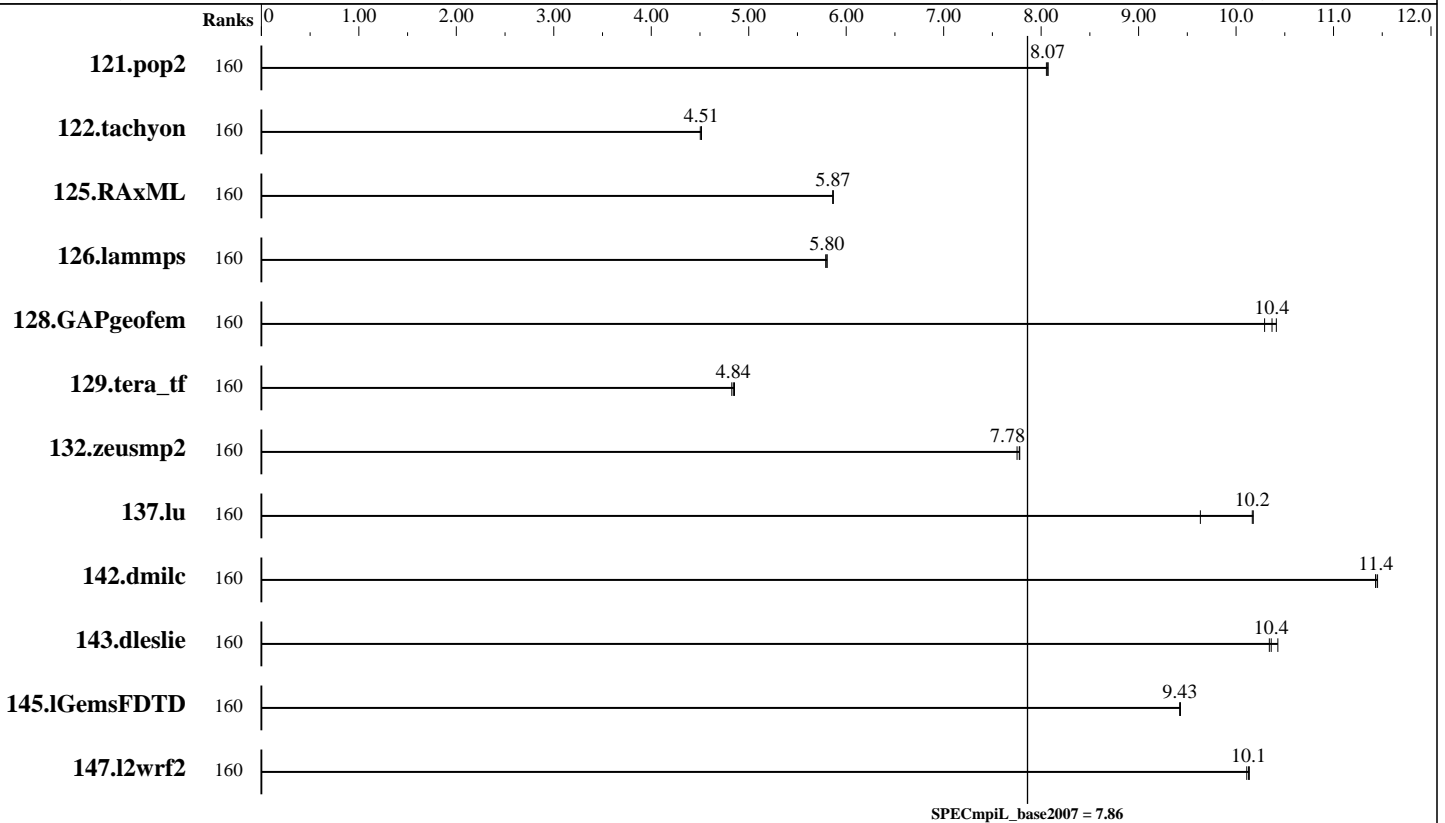
Test sponsor: SGI

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	160	482	8.07	483	8.05	482	8.07									
122.tachyon	160	431	4.51	432	4.50	431	4.51									
125.RAxML	160	498	5.86	498	5.87	498	5.87									
126.lammps	160	425	5.79	424	5.80	424	5.80									
128.GAPgeofem	160	577	10.3	572	10.4	570	10.4									
129.tera_tf	160	226	4.85	228	4.83	227	4.84									
132.zeusmp2	160	273	7.78	273	7.75	272	7.78									
137.lu	160	436	9.63	413	10.2	413	10.2									
142.dmilc	160	322	11.5	322	11.4	322	11.4									
143.dleslie	160	299	10.4	297	10.4	300	10.3									
145.lGemsFDTD	160	468	9.43	468	9.42	468	9.43									
147.l2wrf2	160	809	10.1	810	10.1	811	10.1									

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/



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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: 8
 Total Chips: 16
 Total Cores: 160
 Total Threads: 320
 Total Memory: 512 GB
 Base Ranks Run: 160
 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: 8
 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: 2
 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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