



SPEC® MPIL2007 Result

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SGI

SGI ICE XA
(Intel Xeon E5-2690 v4, 2.6 GHz)

SPECmpiL_peak2007 = Not Run

SPECmpiL_base2007 = NC

MPI2007 license: 14

Test sponsor: SGI

Tested by: SGI

Test date: Mar-2016

Hardware Availability: Mar-2016

Software Availability: May-2016

SPEC has determined that this result was not in compliance with the SPEC MPI2007 run and reporting rules. Specifically, the submitter reported that the result used an unsupported version of the Operating System.

- Ranks
- 121.pop2
- 122.tachyon
- 125.RAxML
- 126.lammps
- 128.GAPgeofem
- 129.tera_tf
- 132.zeusmp2
- 137.lu
- 142.dmilc
- 143.dleslie
- 145.IGemsFDTD
- 147.l2wr12

Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
121.pop2	896	NC	NC	NC	NC	NC	NC							
122.tachyon	896	NC	NC	NC	NC	NC	NC							
125.RAxML	896	NC	NC	NC	NC	NC	NC							
126.lammps	896	NC	NC	NC	NC	NC	NC							
128.GAPgeofem	896	NC	NC	NC	NC	NC	NC							
129.tera_tf	896	NC	NC	NC	NC	NC	NC							

Table continues on next page. Results appear in the order in which they were run. Bold underlined text indicates a median measurement.



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Results Table (Continued)

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
132.zeusmp2	896	NC	NC	NC	NC	NC	NC							
137.lu	896	NC	NC	NC	NC	NC	NC							
142.dmilc	896	NC	NC	NC	NC	NC	NC							
143.dleslie	896	NC	NC	NC	NC	NC	NC							
145.IGemsFDTD	896	NC	NC	NC	NC	NC	NC							
147.l2wrf2	896	NC	NC	NC	NC	NC	NC							

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

Hardware Summary

Type of System: Homogeneous
 Compute Node: SGI ICE XA IP-125 Compute Node
 Interconnect: InfiniBand (MPI and HPC)
 File Server Node: SGI MIS Server
 Total Compute Nodes: 32
 Total Chips: 64
 Total Cores: 896
 Total Threads: 896
 Total Memory: 4 TB
 Base Ranks Run: 896
 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 2.14
 Other MPI Info: MLNX_OFED_LINUX-3.0-1.0.1
 Pre-processors: None
 Other Software: None

Note Description: SGI ICE XA IP-125 Compute Node

Hardware

Number of Compute Nodes: 32
 Uses of the node: compute
 Vendor: SGI
 Model: SGI ICE XA (Intel Xeon E5-2690 v4, 2.6 GHz)
 CPU Name: Intel Xeon E5-2690 v4
 CPU(s) orderable: 1-2 chips
 Chips enabled: 2
 Cores enabled: 28
 Cores per chip: 14
 Threads per core: 1

Software

Adapter: Mellanox MT27500 with ConnectX-3 ASIC (PCIe x8 Gen3 8 GT/s)
 Adapter Driver: OFED-3.0-1.0.1
 Adapter Firmware: 10.10.5054
 Operating System: SUSE Linux Enterprise Server 11 SP3 (x86_64), Kernel 3.0.101-0.47.52.1.8418.0.PTF-default
 Local File System: NFSv3
 Shared File System: NFSv3 iPoIB
 System State: Multi-user, run level 3
 Other Software: SGI Tempo Service Node 3.1.1, Build 712r32.sles11sp3-1505082100

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Node Description: SGI ICE XA IP-125 Compute Node

CPU Characteristics: 14 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: 35 MB I+D on chip per chip

Other Cache: None

Memory: 128 GB (8 x 16 GB 2Rx4 PC4-2400T-F)

Disk Subsystem: None

Other Hardware: None

Adapter: Mellanox MT27500 with ConnectX-3 ASIC
(PCIe x8 Gen3 8 GT/s)

Number of Adapters: 1

Slot Type: PCIe x8 Gen3

Data Rate: InfiniBand 4x FDR

Ports Used: 2

Interconnect Type: InfiniBand

Node Description: SGI MIS Server

Hardware

Number of nodes: 1

Uses of the node: fileserv

Vendor: SGI

Model: SGI MIS server

CPU Name: Intel Xeon E5-2670

CPU(s) orderable: 1-2 chips

Chips enabled: 2

Cores: 16

Cores per chip: 8

Threads per core: 1

CPU Characteristics: Intel Turbo Boost Technology up to 3.30 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: 20 MB I+D on chip per chip

Other Cache: None

Memory: 128 GB (12 * 8 GB 2Rx4 PC3-10600R-9, ECC)

Software

Adapter: Mellanox MT27500 with ConnectX-3 ASIC

Adapter Driver: OFED-1.5.4.1

Adapter Firmware: 2.30.3000

Operating System: SUSE Linux Enterprise Server 11 SP1 (x86_64),
Kernel 3.0.101-0.46-default

Local File System: xfs

Shared File System: --

System State: Multi-user, run level 3

Other Software: SGI Foundation Software 2.9,
Build 709r19.sles11sp3-1310222002

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Node Description: SGI MIS Server

Disk Subsystem:	45 TB RAID 6
Other Hardware:	None
Adapter:	Mellanox MT27500 with ConnectX-3 ASIC
Number of Adapters:	2
Slot Type:	PCIe x8 Gen3
Data Rate:	InfiniBand 4x FDR
Ports Used:	2
Interconnect Type:	InfiniBand

Interconnect Description: InfiniBand (MPI and I/O)

	Hardware	Software
Vendor:	Mellanox Technology and SGI	
Model:	None	
Switch Model:	LCE-FDR-SWITCH-STD	
Number of Switches:	4	
Number of Ports:	36	
Data Rate:	InfiniBand 4x FDR	
Firmware:	9.3.4000	
Topology:	Enhanced Hypercube	
Primary Use:	MPI and I/O traffic	

Submit Notes

The config file option 'submit' was used.

General Notes

143.dles file (base): "integer_overflow" src.alt was used.

```
Software environment:
export MPI_REQUEST_MAX=65536
export MPI_TYPE_MAX=32768
export MPI_IB_RAILS=2
export MPI_CONNECTIONS_THRESHOLD=0
export MPI_IB_UPGRADE_SENDS=50
export MPI_IB_IMM_UPGRADE=false
```

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General Notes (Continued)

```
export MPI_IB_HYPER_LAZY=false
ulimit -s unlimited
```

BIOS settings:

```
AMI BIOS version HAAE6125
Hyper-Threading Technology disabled
Transparent HugePages enabled
Intel Turbo Boost Technology enabled (default)
Intel Turbo Boost Technology activated with
  modprobe acpi_cpufreq
  cpupower frequency-set -u 2601MHz -l 2601MHz -g performance
```

Job Placement:

There were 4 switches used with a topologically compact configuration.

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:

```
l26.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

-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



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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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