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.

Non-Compliant

Ranks
121.pop2
122.tachyon
125.RAxML
126.lammps
128.GAPgeofem
129.tera_tf
132.zeusmp2
137.lu
142.dmilc
143.dleslie
145.lGemsFDTD
147.l2wrf2

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.lGemsFDTD	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 I/O)
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

Node Description: SGI ICE XA IP-125 Compute Node

Hardware

Number of the node:	32
Uses of the node:	compute
Vendor:	SGI
Model:	SGI ICE XA (Intel Xeon E6-2690 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

Continued on next page

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-R)
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:	fileserver
Vendor:	SGI
Model:	SGI MIS 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:	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	
Vendor:	Mellanox Technolog and SGI
Model:	None
Switch Model:	LCE-FDR-SWITCH-STD
Number of Switches:	4
Number of Ports:	36
Data Rate:	InfiniBand FDR
Firmware:	9.3.4000
Topology:	Enhanced Hypercube
Primary Use:	MPI and I/O traffic

Software

Submit Notes

```
The config file option 'submit' was used.
```

General Notes

```
143.dleslie (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 -d 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:

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`

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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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