SPEC® MPIL2007 Result

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.

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

Non-Compliant
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Results Table (Continued)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Ranks</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<th>Seconds</th>
<th>Ratio</th>
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<th>Ratio</th>
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</thead>
<tbody>
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<td>NC</td>
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<tr>
<td>143.dleslie</td>
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<td>NC</td>
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</tr>
</tbody>
</table>

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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: 64
Total Chips: 128
Total Cores: 1792
Total Threads: 1792
Total Memory: 8 TB
Base Ranks Run: 1792
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 nodes: 64
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

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

Continued on next page
SPEC MPIL2007 Result

<table>
<thead>
<tr>
<th>SPECmpiL_peak2007</th>
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<tr>
<td>SPECmpiL_base2007</td>
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**SGI**

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

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<thead>
<tr>
<th>MPI2007 license</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor</td>
<td>SGI</td>
</tr>
<tr>
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<td>SGI</td>
</tr>
<tr>
<td>Test date</td>
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<td>Hardware Availability</td>
<td>Mar-2016</td>
</tr>
<tr>
<td>Software Availability</td>
<td>May-2016</td>
</tr>
</tbody>
</table>

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.

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 L1 + 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

<table>
<thead>
<tr>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of nodes:</td>
</tr>
<tr>
<td>Uses of the node:</td>
</tr>
<tr>
<td>Vendor:</td>
</tr>
<tr>
<td>Model:</td>
</tr>
<tr>
<td>CPU Name:</td>
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<tr>
<td>CPU(s) orderable:</td>
</tr>
<tr>
<td>Chips enabled:</td>
</tr>
<tr>
<td>Cores per chip:</td>
</tr>
<tr>
<td>Threads per core:</td>
</tr>
</tbody>
</table>
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.30 GHz  
|                     | Hyper-Threading Technology disabled  
| CPU MHz             | 2600 |
| Primary Cache       | 32 KB L1 + 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) |

<table>
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<tr>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adapter:</td>
</tr>
<tr>
<td>Adapter Driver:</td>
</tr>
<tr>
<td>Adapter Firmware:</td>
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<tr>
<td>Operating System:</td>
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<td>Local File System:</td>
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<tr>
<td>Shared File System:</td>
</tr>
<tr>
<td>System State:</td>
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<tr>
<td>Other Software:</td>
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### Node Description: SGI MIS Server

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<th>Disk Subsystem</th>
<th>45 TB RAID 6</th>
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<tbody>
<tr>
<td>Other Hardware</td>
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<tr>
<td>Adapter</td>
<td>Mellanox MT27500 with ConnectX-3 ASIC</td>
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<tr>
<td>Number of Adapters</td>
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<td>Slot Type</td>
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<tr>
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</table>

### Interconnect Description: InfiniBand (MPI and I/O)

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Mellanox Technologies and SGI</th>
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</thead>
<tbody>
<tr>
<td>Model</td>
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<tr>
<td>Switch Model</td>
<td>LCE-FDR-SWITCH-STD</td>
</tr>
<tr>
<td>Number of Switches</td>
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<tr>
<td>Number of Ports</td>
<td>36</td>
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<tr>
<td>Data Rate</td>
<td>InfiniBand 4x FDR</td>
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<tr>
<td>Firmware</td>
<td>9.3.40000</td>
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<tr>
<td>Topology</td>
<td>Enhanced Hypercube</td>
</tr>
<tr>
<td>Primary Use</td>
<td>MPI and I/O traffic</td>
</tr>
</tbody>
</table>

### 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=1
- export MPI_CONNECTIONS_THRESHOLD=0
- export MPI_IB_UPGRADE_SYNCS=50
- export MPI_IB_IMM_UPGRADE=false

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Non-Compliant
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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 8 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 uses the other.
```

Base Compiler Invocation

```
C benchmarks:
icc

C++ benchmarks:
icpc
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:
- `-O3 -xCORE-AVX2 -no-prec-div`

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](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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