## SPECmpiL2007 Result

**SGI**

SGI Altix ICE 8200EX (Intel Xeon X5560, 2.80 GHz)

<table>
<thead>
<tr>
<th>SPECmpiL_peak2007</th>
<th>Not Run</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECmpiL_base2007</td>
<td>8.18</td>
</tr>
</tbody>
</table>

**MPI2007 license:** 4  
**Test date:** Jan-2010  
**Hardware Availability:** Sep-2009  
**Test sponsor:** SGI  
**Software Availability:** Dec-2009  
**Tested by:** SGI

### Results Table

```
<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Ranks</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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</tr>
</tbody>
</table>
```

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.
SGI
SGI Altix ICE 8200EX (Intel Xeon X5560, 2.80 GHz)

SPECmpiL Peak2007 = Not Run
SPECmpiL Base2007 = 8.18

MPI2007 license: 4
Test sponsor: SGI
Tested by: SGI

Hardware Summary
Type of System: Homogeneous
Compute Node: SGI Altix ICE 8200EX Compute Node
Interconnects: InfiniBand (MPI)
File Server Node: SGI InfiniteStorage Nexis 2000 NAS
Total Compute Nodes: 32
Total Chips: 64
Total Cores: 256
Total Threads: 512
Total Memory: 1152 GB
Base Ranks Run: 256
Minimum Peak Ranks: --
Maximum Peak Ranks: --

Software Summary
C Compiler: Intel C Compiler for Linux
C++ Compiler: Intel C++ Compiler for Linux
Fortran Compiler: Intel Fortran Compiler for Linux
Pre-processors: None
Other Software: None

Node Description: SGI Altix ICE 8200EX Compute Node

Hardware
Number of nodes: 32
Uses of the node: compute
Vendor: SGI
Model: SGI Altix ICE 8200EX (Intel Xeon X5560, 2.80 GHz)
CPU Name: Intel Xeon X5560
CPU(s) orderable: 1-2 chips
Chips enabled: 2
Cores enabled: 8
Cores per chip: 4
Threads per core: 2
CPU Characteristics: Intel Turbo Boost Technology up to 3.2 GHz, 6.4 GT/s QPI, Hyper-Threading enabled
CPU MHz: 2800
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core
L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 36 GB (6*4GB + 6*2GB DDR3-1333 CL9 RDIMMs running at 1066 MHz. The 4GB DIMM is installed in DIMM slot A in each channel.)
Disk Subsystem: None
Other Hardware: None
Adapter: Mellanox MT26418 ConnectX IB DDR (PCIe x8 Gen2 5 GT/s)
Number of Adapters: 1
Slot Type: PCIe x8 Gen2
Data Rate: InfiniBand 4x DDR
Ports Used: 2
Interconnect Type: InfiniBand

Software
Adapter: OFED-1.4.1
Adapter Firmware: 2.6.0
Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP2
Kernel: 2.6.16.60-0.30-smp
Local File System: None
Shared File System: NFSv3 IPoIB
System State: Multi-user, run level 3
Other Software: SGI ProPack 6 for Linux Service Pack 5, SGI Tempo V 1.9
## SPEC MPI\textsc{l}2007 Result

**SGI**

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**SGI Altix ICE 8200EX**  
(Intel Xeon X5560, 2.80 GHz)

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</tbody>
</table>

### Node Description: SGI InfiniteStorage Nexis 2000 NAS

#### Hardware

- **Number of nodes:** 1
- **Uses of the node:** fileserver
- **Vendor:** SGI
- **Model:** SGI Altix XE 240 (Intel Xeon 5140, 2.33 GHz)
- **CPU Name:** Intel Xeon 5140
- **CPU(s) orderable:** 1-2 chips
- **Chips enabled:** 2
- **Cores enabled:** 4
- **Cores per chip:** 2
- **Threads per core:** 1
- **CPU Characteristics:** 1333 MHz FSB
- **CPU MHz:** 2333
- **Primary Cache:** 32 KB I + 32 KB D on chip per core
- **Secondary Cache:** 4 MB I+D on chip per chip
- **L3 Cache:** None
- **Other Cache:** None
- **Memory:** 16 GB (8*2GB DDR2-667MHz DIMMS)
- **Disk Subsystem:** 4.3 TB RAID 5  
48 x 146 GB SAS (Seagate Cheetah 15K.5)
- **Other Hardware:** None
- **Adapter:** Mellanox MT26418 ConnectX IB DDR (PCIe x8 Gen2 5 GT/s)
- **Number of Adapters:** 2
- **Slot Type:** PCIe x8 Gen2
- **Data Rate:** InfiniBand 4x DDR
- **Ports Used:** 2
- **Interconnect Type:** InfiniBand

#### Software

- **Adapter:** Mellanox MT26418 ConnectX IB DDR (PCIe x8 Gen2 5 GT/s)
- **Adapter Driver:** OFED-1.4.1
- **Adapter Firmware:** 2.3.0
- **Operating System:** SUSE Linux Enterprise Server 10 (x86_64) SP1  
Kernel 2.6.16.54-0.2.5-smp
- **Local File System:** xfs
- **Shared File System:** --
- **System State:** Multi-user, run level 3
- **Other Software:** SGI ProPack 5 for Linux Service Pack 5

### Interconnect Description: InfiniBand (MPI)

#### Hardware

- **Vendor:** Mellanox Technologies
- **Model:** MT26418 ConnectX
- **Switch Model:** Mellanox MT48436 InfiniScale-IV
- **Number of Switches:** 128
- **Number of Ports:** 36
- **Data Rate:** InfiniBand 4x QDR
- **Firmware:** 4020001
- **Topology:** Bristle hypercube with double dimensional links
- **Primary Use:** MPI traffic

#### Software

- **Adapter:** Mellanox MT26418 ConnectX IB DDR (PCIe x8 Gen2 5 GT/s)
- **Adapter Driver:** OFED-1.4.1
- **Adapter Firmware:** 2.3.0
- **Operating System:** SUSE Linux Enterprise Server 10 (x86_64) SP1  
Kernel 2.6.16.54-0.2.5-smp
- **Local File System:** xfs
- **Shared File System:** --
- **System State:** Multi-user, run level 3
- **Other Software:** SGI ProPack 5 for Linux Service Pack 5
SGI

SGI Altix ICE 8200EX
(Intel Xeon X5560, 2.80 GHz)

SPECmpiL_peak2007 = Not Run
SPECmpiL_base2007 = 8.18

MPI2007 license: 4
Test sponsor: SGI
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Test date: Jan-2010
Hardware Availability: Sep-2009
Software Availability: Dec-2009

Interconnect Description: InfiniBand (I/O)

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<td>Primary Use: I/O traffic</td>
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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_BUFS_THRESHOLD=1
- export MPI_DSM_DISTRIBUTE=yes
- export MPI_IB_RAILS=2
- ulimit -s unlimited

BIOS settings:
- AMI BIOS version 8.15
- 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

Interconnect Data Rate:
The system interconnect has DDR InfiniBand HCAs, while the switches and cables run up to QDR rate.

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 16/32/64 ranks, 4 switches for 128 ranks, 8 switches for 256 ranks, 16 switches for 512 ranks, 32 switches for 1024 ranks, 64 switches for 2048 ranks and 128 switches for 4096 ranks.
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Base Compiler Invocation

C benchmarks:
  icc

C++ benchmarks:
  126.lammps: icpc

Fortran benchmarks:
  ifort

Benchmarks using both Fortran and C:
  icc ifort

Base Portability Flags

121.pop2: -DSPEC_MPI_CASE_FLAG

Base Optimization Flags

C benchmarks:
  -O3 -xSSE4.2 -no-prec-div

C++ benchmarks:
  126.lammps: -O3 -xSSE4.2 -no-prec-div -ansi-alias

Fortran benchmarks:
  -O3 -xSSE4.2 -no-prec-div

Benchmarks using both Fortran and C:
  -O3 -xSSE4.2 -no-prec-div

Base Other Flags

C benchmarks:
  -lmpi

C++ benchmarks:
  126.lammps: -lmpi

Fortran benchmarks:
  -lmpi

Continued on next page
**SPEC MPIL2007 Result**

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### Base Other Flags (Continued)

Benchmarks using both Fortran and C:  
- `~lmpl`

The flags file that was used to format this result can be browsed at  
http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel111_flags.20100202.html

You can also download the XML flags source by saving the following link:  
http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel111_flags.20100202.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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