



# SPEC® MPIL2007 Result

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## SGI

SGI Rackable C2112-4RP4  
(Intel Xeon E5-2697 v2, 2.70 GHz)

SPECmpiL\_peak2007 = Not Run

SPECmpiL\_base2007 = 3.98

MPI2007 license: 4

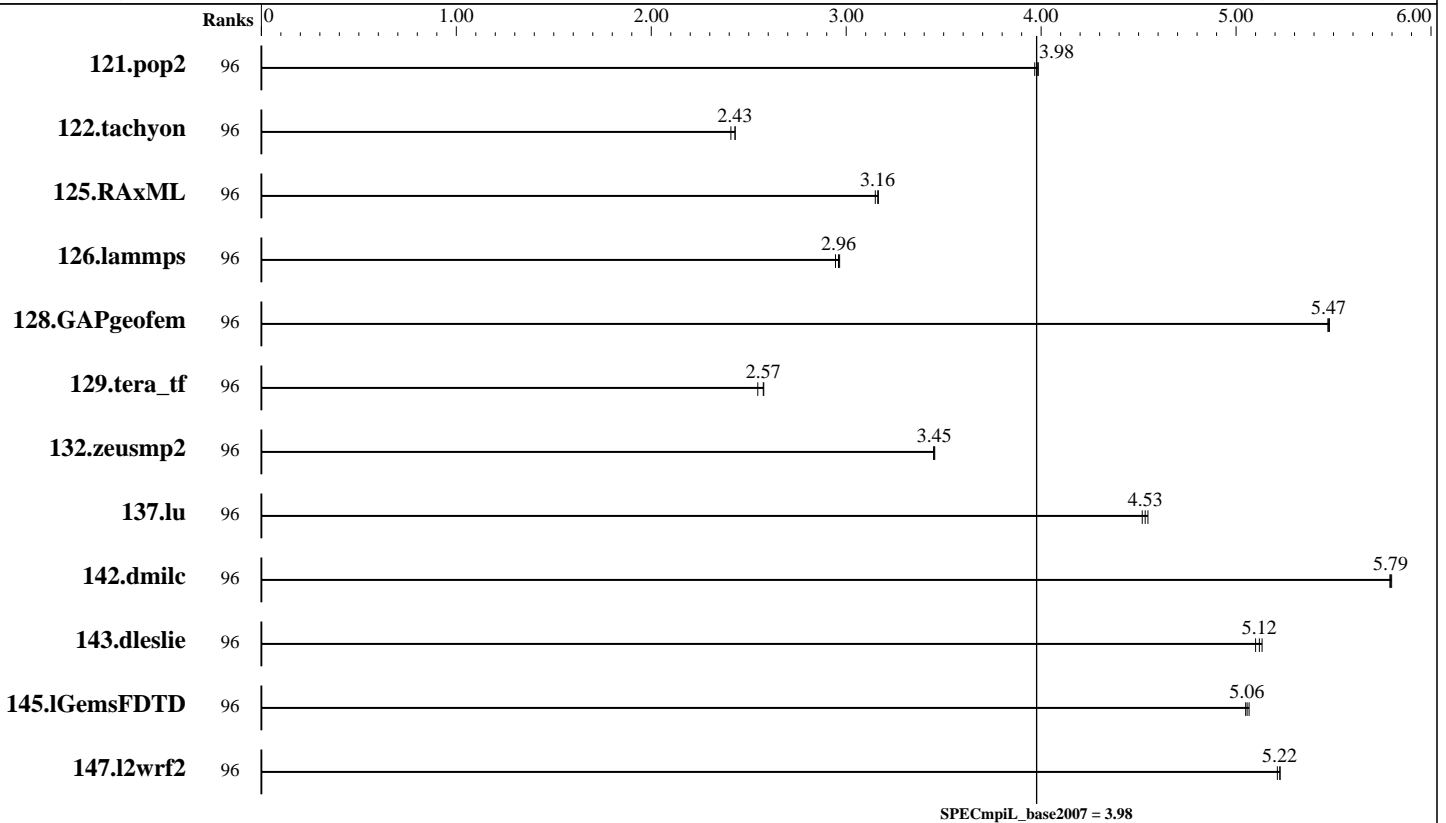
Test sponsor: SGI

Tested by: SGI

Test date: Aug-2013

Hardware Availability: Sep-2013

Software Availability: Jun-2013



## Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
121.pop2	96	981	3.97	976	3.99	<u>977</u>	<u>3.98</u>							
122.tachyon	96	800	2.43	807	2.41	<u>800</u>	<u>2.43</u>							
125.RAxML	96	922	3.17	<u>923</u>	<u>3.16</u>	927	3.15							
126.lammps	96	829	2.97	<u>831</u>	<u>2.96</u>	835	2.95							
128.GAPgeofem	96	1083	5.48	<u>1084</u>	<u>5.47</u>	1085	5.47							
129.tera_tf	96	426	2.58	432	2.55	<u>427</u>	<u>2.57</u>							
132.zeusmp2	96	<u>614</u>	<u>3.45</u>	614	3.45	615	3.45							
137.lu	96	<u>927</u>	<u>4.53</u>	924	4.55	930	4.52							
142.dmilc	96	635	5.80	<u>636</u>	<u>5.79</u>	636	5.79							
143.dleslie	96	604	5.13	<u>606</u>	<u>5.12</u>	608	5.10							
145.lGemsFDTD	96	871	5.07	874	5.05	<u>872</u>	<u>5.06</u>							
147.l2wrf2	96	1570	5.23	1574	5.21	<u>1570</u>	<u>5.22</u>							

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

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### Hardware Summary

Type of System: Homogeneous  
 Compute Node: SGI Rackable C2112-4RP4 Compute Node  
 Interconnect: InfiniBand (MPI and I/O)  
 File Server Node: SGI MIS Server  
 Total Compute Nodes: 4  
 Total Chips: 8  
 Total Cores: 96  
 Total Threads: 192  
 Total Memory: 512 GB  
 Base Ranks Run: 96  
 Minimum Peak Ranks: --  
 Maximum Peak Ranks: --

### Software Summary

C Compiler: Intel C++ Composer XE 2013 for Linux, Version 14.0.0.051 Build 20130529  
 C++ Compiler: Intel C++ Composer XE 2013 for Linux, Version 14.0.0.051 Build 20130529  
 Fortran Compiler: Intel Fortran Composer XE 2013 for Linux, Version 14.0.0.051 Build 20130529  
 Base Pointers: 64-bit  
 Peak Pointers: Not Applicable  
 MPI Library: SGI MPT 2.08 Patch 11012  
 Other MPI Info: OFED 1.5.2  
 Pre-processors: None  
 Other Software: None

## Node Description: SGI Rackable C2112-4RP4 Compute Node

### Hardware

Number of nodes: 4  
 Uses of the node: compute  
 Vendor: SGI  
 Model: SGI Rackable C2112-4RP4 (Intel Xeon E5-2697 v2, 2.70GHz)  
 CPU Name: Intel Xeon E5-2697 v2  
 CPU(s) orderable: 1-2 chips  
 Chips enabled: 2  
 Cores enabled: 24  
 Cores per chip: 12  
 Threads per core: 2  
 CPU Characteristics: Twelve Core, 2.7 GHz, 8.0 GT/s QPI  
 Intel Turbo Boost Technology up to 3.5 GHz  
 Hyper-Threading Technology enabled  
 CPU MHz: 2700  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core  
 L3 Cache: 30 MB I+D on chip per chip, 30 MB shared / 12 cores  
 Other Cache: None  
 Memory: 128 GB (8 x 16 GB 2Rx4 PC3-14900R-13, ECC)  
 Disk Subsystem: None  
 Other Hardware: None  
 Adapter: Mellanox MT27500 with ConnectX-3 ASIC (PCIe x8 Gen3 8.0 GT/s)  
 Number of Adapters: 2  
 Slot Type: PCIe x8 Gen3  
 Data Rate: InfiniBand 4x FDR  
 Ports Used: 1  
 Interconnect Type: InfiniBand

### Software

Adapter: Mellanox MT27500 with ConnectX-3 ASIC (PCIe x8 Gen3 8.0 GT/s)  
 Adapter Driver: OFED-1.5.2  
 Adapter Firmware: 2.10.2370  
 Operating System: SUSE Linux Enterprise Server 11 SP2, Kernel 3.0.74-0.6.6-default  
 Local File System: xfs  
 Shared File System: NFSv3 IPoIB  
 System State: Multi-user, run level 3  
 Other Software: SGI Accelerate 1.6, Build 708r14.sles11sp2-1304102205



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**Test sponsor:** SGI  
**Tested by:** SGI

**Test date:** Aug-2013  
**Hardware Availability:** Sep-2013  
**Software Availability:** Jun-2013

### Node Description: SGI MIS Server

Hardware		Software	
Number of nodes:	1	Adapter:	Mellanox MT27500 with ConnectX-3 ASIC (PCIe x8 Gen3 8 GT/s)
Uses of the node:	fileserver	Adapter Driver:	OFED-1.5.2
Vendor:	SGI	Adapter Firmware:	2.11.500
Model:	SGI MIS Server (Intel Xeon X2670, 2.60 GHz)	Operating System:	SUSE Linux Enterprise Server 11 SP2 (x86_64) Kernel 3.0.74-0.6.6-default
CPU Name:	Intel Xeon E5-2670	Local File System:	xfs
CPU(s) orderable:	1-2 chips	Shared File System:	--
Chips enabled:	2	System State:	Multi-user, run level 3
Cores enabled:	16	Other Software:	SGI Foundation Software 2.8, Build 708r14.sles11sp2-1304102205
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 12800R-11, ECC)		
Disk Subsystem:	57.6 TB RAID6 64 x 900 GB SAS (Western Digital WD9001BKHG 10K)		
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		

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

Hardware		Software	
Vendor:	Mellanox Technologies		
Model:	None		
Switch Model:	Mellanox SX6025 InfiniBand Switch		
Number of Switches:	4		
Number of Ports:	36		
Data Rate:	InfiniBand 4x FDR		
Firmware:	9.1.7000		
Switch Model:	Mellanox SX6036 InfiniBand Switch		
Number of Switches:	2		
Number of Ports:	36		
Data Rate:	InfiniBand 4x FDR		
Firmware:	9.1.6500		
Topology:	Fat Tree		
Primary Use:	MPI and I/O traffic		



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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
ulimit -s unlimited
```

Transparent Hugepage : disabled

```
Transparent Hugepage is disabled by
echo never > /sys/kernel/mm/transparent_hugepage/enabled
```

Intel BIOS version SE5C600.86B.99.99.x067.060720130951

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
```

### 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 -xAVX -no-prec-div
```

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## Base Optimization Flags (Continued)

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](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](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](mailto:webmaster@spec.org).

Tested with SPEC MPI2007 v2.0.1.

Report generated on Tue Jul 22 13:47:15 2014 by SPEC MPI2007 PS/PDF formatter v1463.

Originally published on 18 September 2013.