



# SPEC® MPIL2007 Result

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## SGI

SGI Rackable C2112-4TY14  
(Intel Xeon X5675, 3.06GHz)

SPECmpiL\_peak2007 = Not Run

SPECmpiL\_base2007 = 6.21

MPI2007 license: 4

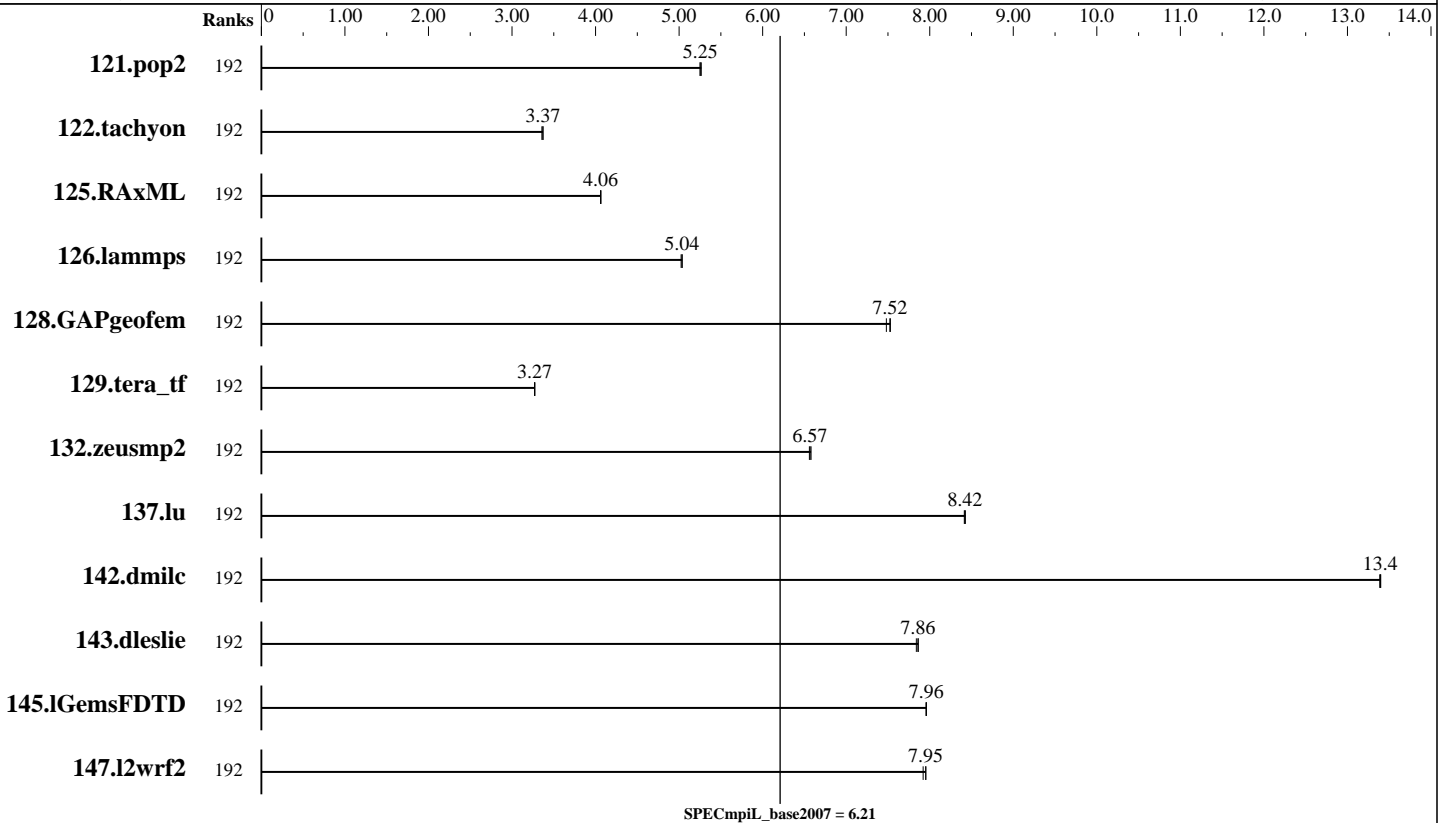
Test sponsor: SGI

Tested by: SGI

Test date: Mar-2011

Hardware Availability: Feb-2011

Software Availability: Feb-2011



## Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
121.pop2	192	741	5.25	<b><u>741</u></b>	<b><u>5.25</u></b>	739	5.27							
122.tachyon	192	579	3.36	<b><u>577</u></b>	<b><u>3.37</u></b>	577	3.37							
125.RAxML	192	<b><u>719</u></b>	<b><u>4.06</u></b>	719	4.06	718	4.06							
126.lammps	192	489	5.02	<b><u>488</u></b>	<b><u>5.04</u></b>	488	5.04							
128.GAPgeofem	192	793	7.48	<b><u>789</u></b>	<b><u>7.52</u></b>	788	7.53							
129.tera_tf	192	<b><u>336</u></b>	<b><u>3.27</u></b>	336	3.27	336	3.27							
132.zeusmp2	192	323	6.56	<b><u>323</u></b>	<b><u>6.57</u></b>	322	6.58							
137.lu	192	499	8.43	499	8.41	<b><u>499</u></b>	<b><u>8.42</u></b>							
142.dmilc	192	275	13.4	275	13.4	<b><u>275</u></b>	<b><u>13.4</u></b>							
143.dleslie	192	395	7.84	<b><u>394</u></b>	<b><u>7.86</u></b>	394	7.86							
145.lGemsFDTD	192	554	7.96	<b><u>554</u></b>	<b><u>7.96</u></b>	554	7.96							
147.l2wrf2	192	1036	7.92	<b><u>1032</u></b>	<b><u>7.95</u></b>	1031	7.95							

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

Standard Performance Evaluation Corporation

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### Hardware Summary

### Software Summary

Type of System: Homogeneous  
 Compute Node: SGI Rackable C2112-4TY14 Compute Node  
 Interconnect: InfiniBand (MPI and I/O)  
 File Server Node: SGI Altix 450 with TP9700  
 Total Compute Nodes: 16  
 Total Chips: 32  
 Total Cores: 192  
 Total Threads: 384  
 Total Memory: 384 GB  
 Base Ranks Run: 192  
 Minimum Peak Ranks: --  
 Maximum Peak Ranks: --

C Compiler: Intel C Compiler for Linux  
 Version 11.1, Build 20100806  
 C++ Compiler: Intel C++ Compiler for Linux  
 Version 11.1, Build 20100806  
 Fortran Compiler: Intel Fortran Compiler for Linux  
 Version 11.1, Build 20100806  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 MPI Library: SGI MPT 2.03  
 Other MPI Info: OFED 1.4.2  
 Pre-processors: None  
 Other Software: None

## Node Description: SGI Rackable C2112-4TY14 Compute Node

### Hardware

### Software

Number of nodes: 16  
 Uses of the node: compute  
 Vendor: SGI  
 Model: SGI Rackable C2112-4TY14 (Intel Xeon X5675, 3.06GHz)  
 CPU Name: Intel Xeon X5675  
 CPU(s) orderable: 1-2 chips  
 Chips enabled: 2  
 Cores enabled: 12  
 Cores per chip: 6  
 Threads per core: 2  
 CPU Characteristics: Six Core, 3.06 GHz, 6.4 GT/s QPI  
 Intel Turbo Boost Technology up to 3.46 GHz  
 Hyper-Threading Technology enabled  
 CPU MHz: 3067  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core  
 L3 Cache: 12 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 24 GB (6 x 4 GB, 2Rx4 PC3-10600R-9, ECC)  
 Disk Subsystem: None  
 Other Hardware: None  
 Adapter: Mellanox MT26428 ConnectX IB QDR  
 (PCIe x8 Gen2 5 GT/s)  
 Number of Adapters: 1  
 Slot Type: PCIe x8 Gen2  
 Data Rate: InfiniBand 4x QDR  
 Ports Used: 1  
 Interconnect Type: InfiniBand

Adapter: Mellanox MT26428 ConnectX IB QDR  
 (PCIe x8 Gen2 5 GT/s)  
 Adapter Driver: OFED-1.4.2  
 Adapter Firmware: 2.7.0  
 Operating System: SUSE Linux Enterprise Server 11 SP1  
 Kernel 2.6.32.27-0.2-default  
 Local File System: NFSv3  
 Shared File System: NFSv3 IPoIB  
 System State: Multi-user, run level 3  
 Other Software: SGI Performance Suite 1.0, Build  
 702r19.sles11-1010072114



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**Tested by:** SGI

**Test date:** Mar-2011  
**Hardware Availability:** Feb-2011  
**Software Availability:** Feb-2011

### Node Description: SGI Altix 450 with TP9700

#### Hardware

Number of nodes: 1  
Uses of the node: fileserver  
Vendor: SGI  
Model: SGI Altix 450 (Intel Itanium 2, 1.6GHz)  
CPU Name: Intel Itanium 2 9030  
CPU(s) orderable: 2-38 chips  
Chips enabled: 4  
Cores enabled: 8  
Cores per chip: 2  
Threads per core: 1  
CPU Characteristics: 1.6GHz/8MB, 533MHz FSB  
CPU MHz: 1600  
Primary Cache: 16 KB I + 16 KB D on chip per core  
Secondary Cache: 1 MB I + 256 KB D on chip per core  
L3 Cache: 4 MB I+D on chip per core  
Other Cache: None  
Memory: 24 GB (12 x 2 GB, 2Rx4 PC2-3200-4, ECC)  
Disk Subsystem: 8.2 TB RAID 5  
60 x 146 GB FC (Seagate Cheetah 15K.5)  
Other Hardware: None  
Adapter: MT25208 InfiniHost III Ex  
(PCIe x8 Gen1 2.5 GT/s)  
Number of Adapters: 1  
Slot Type: PCIe x8 Gen1  
Data Rate: InfiniBand 4x DDR  
Ports Used: 2  
Interconnect Type: InfiniBand

#### Software

Adapter: MT25208 InfiniHost III Ex  
(PCIe x8 Gen1 2.5 GT/s)  
Adapter Driver: OFED-1.4.1  
Adapter Firmware: 5.3.0  
Operating System: SUSE Linux Enterprise Server 10 SP3 (ia64)  
Kernel 2.6.16.60-0.68.1-default  
Local File System: xfs  
Shared File System: --  
System State: Multi-user, run level 3  
Other Software: SGI ProPack 6SP6 for Linux, Build  
606rp75.sles10-1009032310

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

#### Hardware

Vendor: Mellanox Technologies  
Model: None  
Switch Model: Voltaire Grid Director 4036  
Number of Switches: 1  
Number of Ports: 36  
Data Rate: InfiniBand 4x QDR  
Firmware: 2.0.1 BUILD ID 22  
Topology: Fat tree  
Primary Use: MPI and I/O traffic

#### Software



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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

BIOS settings:  
AMI BIOS version 080016  
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 -xSSE4.2 -no-prec-div

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## Base Optimization Flags (Continued)

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

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\\_Intel111\\_flags.20100202.html](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](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](mailto:webmaster@spec.org).

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