



# SPEC<sup>®</sup> MPIM2007 Result

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## SGI

SGI Rackable C2005-TY3  
(Intel Xeon X5687, 3.60 GHz)

SPECmpiM\_peak2007 = Not Run

SPECmpiM\_base2007 = 8.62

MPI2007 license: 4

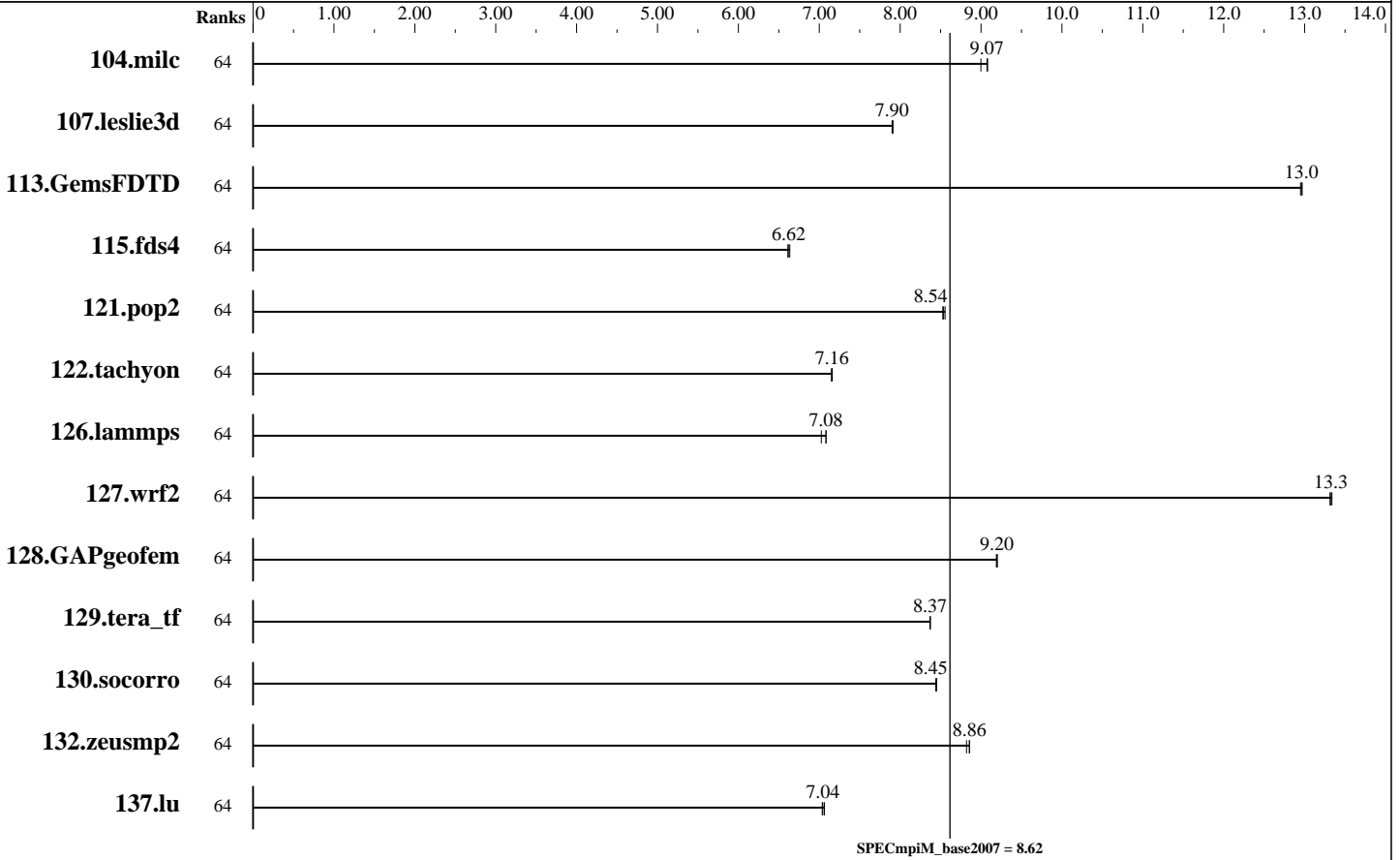
Test sponsor: SGI

Tested by: SGI

Test date: Aug-2011

Hardware Availability: Feb-2011

Software Availability: Jul-2011



## Results Table

Benchmark	Base								Peak					
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	64	174	9.00	<b>172</b>	<b>9.07</b>	172	9.08							
107.leslie3d	64	<b>661</b>	<b>7.90</b>	660	7.91	661	7.90							
113.GemsFDTD	64	<b>487</b>	<b>13.0</b>	486	13.0	487	13.0							
115.fds4	64	<b>295</b>	<b>6.62</b>	295	6.61	294	6.64							
121.pop2	64	484	8.53	482	8.56	<b>484</b>	<b>8.54</b>							
122.tachyon	64	<b>391</b>	<b>7.16</b>	391	7.16	391	7.15							
126.lammps	64	411	7.08	<b>412</b>	<b>7.08</b>	415	7.03							
127.wrf2	64	585	13.3	<b>585</b>	<b>13.3</b>	586	13.3							
128.GAPgeofem	64	<b>225</b>	<b>9.20</b>	225	9.19	224	9.20							
129.tera_tf	64	331	8.37	<b>331</b>	<b>8.37</b>	331	8.37							

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		
130.socorro	64	<u>452</u>	<u>8.45</u>	452	8.45	452	8.44									
132.zeusmp2	64	350	8.86	352	8.82	<u>350</u>	<u>8.86</u>									
137.lu	64	<u>522</u>	<u>7.04</u>	520	7.06	522	7.04									

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 Rackable C2005-TY3 Compute Node  
 Interconnect: InfiniBand (MPI and I/O)  
 File Server Node: SGI InfiniteStorage 4500  
 Total Compute Nodes: 4  
 Total Chips: 8  
 Total Cores: 32  
 Total Threads: 64  
 Total Memory: 192 GB  
 Base Ranks Run: 64  
 Minimum Peak Ranks: --  
 Maximum Peak Ranks: --

#### Software Summary

C Compiler: Intel C++ Composer XE 2011 for Linux, Version 12.0.5.220 Build 20110719  
 C++ Compiler: Intel C++ Composer XE 2011 for Linux, Version 12.0.5.220 Build 20110719  
 Fortran Compiler: Intel Fortran Composer XE 2011 for Linux, Version 12.0.5.220 Build 20110719  
 Base Pointers: 64-bit  
 Peak Pointers: Not Applicable  
 MPI Library: SGI MPT 2.04 Patch 10773  
 Other MPI Info: OFED 1.4.2  
 Pre-processors: None  
 Other Software: None

### Node Description: SGI Rackable C2005-TY3 Compute Node

#### Hardware

Number of nodes: 4  
 Uses of the node: compute  
 Vendor: SGI  
 Model: SGI Rackable C2005-TY3 (Intel Xeon X5687, 3.60GHz)  
 CPU Name: Intel Xeon X5687  
 CPU(s) orderable: 1-2 chips  
 Chips enabled: 2  
 Cores enabled: 8  
 Cores per chip: 4  
 Threads per core: 2  
 CPU Characteristics: Quad Core, 3.60 GHz, 6.4 GT/s QPI  
 Intel Turbo Boost Technology up to 3.86 GHz  
 Hyper-Threading Technology enabled  
 CPU MHz: 3600  
 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: 48 GB (6 x 8 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

#### Software

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 (x86\_64) Kernel 2.6.32.36-0.5-default  
 Local File System: NFSv3  
 Shared File System: NFSv3 IPoIB  
 System State: Multi-user, run level 3  
 Other Software: SGI Performance Suite 1.2, Build 704r5.sles11-1103212004

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### Node Description: SGI Rackable C2005-TY3 Compute Node

Slot Type: PCIe x8 Gen2  
Data Rate: InfiniBand 4x QDR  
Ports Used: 1  
Interconnect Type: InfiniBand

### Node Description: SGI InfiniteStorage 4500

#### Hardware

Number of nodes: 1  
Uses of the node: fileserver  
Vendor: SGI  
Model: SGI Altix 450 (Intel Itanium 2, 1.6 GHz)  
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: 48 GB (24 x 2 GB, 2Rx4 PC2-3200-4, ECC)  
Disk Subsystem: 5.8 TB RAID 5  
20 x 146 GB FC (Seagate Cheetah 15K.4)  
40 x 73 GB FC (Seagate Cheetah 15K.4)  
Other Hardware: None  
Adapter: Mellanox MT25208 InfiniHost III Ex  
(PCIe x8 Gen1 2.5 GT/s)  
Number of Adapters: 2  
Slot Type: PCIe x8 Gen1  
Data Rate: InfiniBand 4x DDR  
Ports Used: 2  
Interconnect Type: InfiniBand

#### Software

Adapter: Mellanox MT25208 InfiniHost III Ex  
(PCIe x8 Gen1 2.5 GT/s)  
Adapter Driver: OFED-1.4.2  
Adapter Firmware: 4.8.200  
Operating System: SUSE Linux Enterprise Server 11 SP1 (ia64)  
Kernel 2.6.32.23-0.3-default  
Local File System: xfs  
Shared File System: --  
System State: Multi-user, run level 3  
Other Software: SGI InfiniteStorage Software Platform, version  
2.2, Build 702r16.sles11-1010082110

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

#### Hardware

Vendor: Mellanox Technologies  
Model: n/a  
Switch Model: Voltaire Grid Director 4200  
Number of Switches: 1  
Number of Ports: 36  
Data Rate: InfiniBand 4x QDR

#### Software

Continued on next page



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

Firmware: 3.0.0 BUILD ID 629  
Topology: Fat tree  
Primary Use: MPI and I/O traffic

### 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 2.10
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
```



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## Base Portability Flags

121.pop2: -DSPEC\_MPI\_CASE\_FLAG

127.wrf2: -DSPEC\_MPI\_CASE\_FLAG -DSPEC\_MPI\_LINUX

## 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

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\\_Intel12\\_flags.html](http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel12_flags.html)

You can also download the XML flags source by saving the following link:

[http://www.spec.org/mpi2007/flags/SGI\\_x86\\_64\\_Intel12\\_flags.xml](http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel12_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).

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