



SPEC® MPIM2007 Result

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SGI

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

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 63.6

MPI2007 license: 4

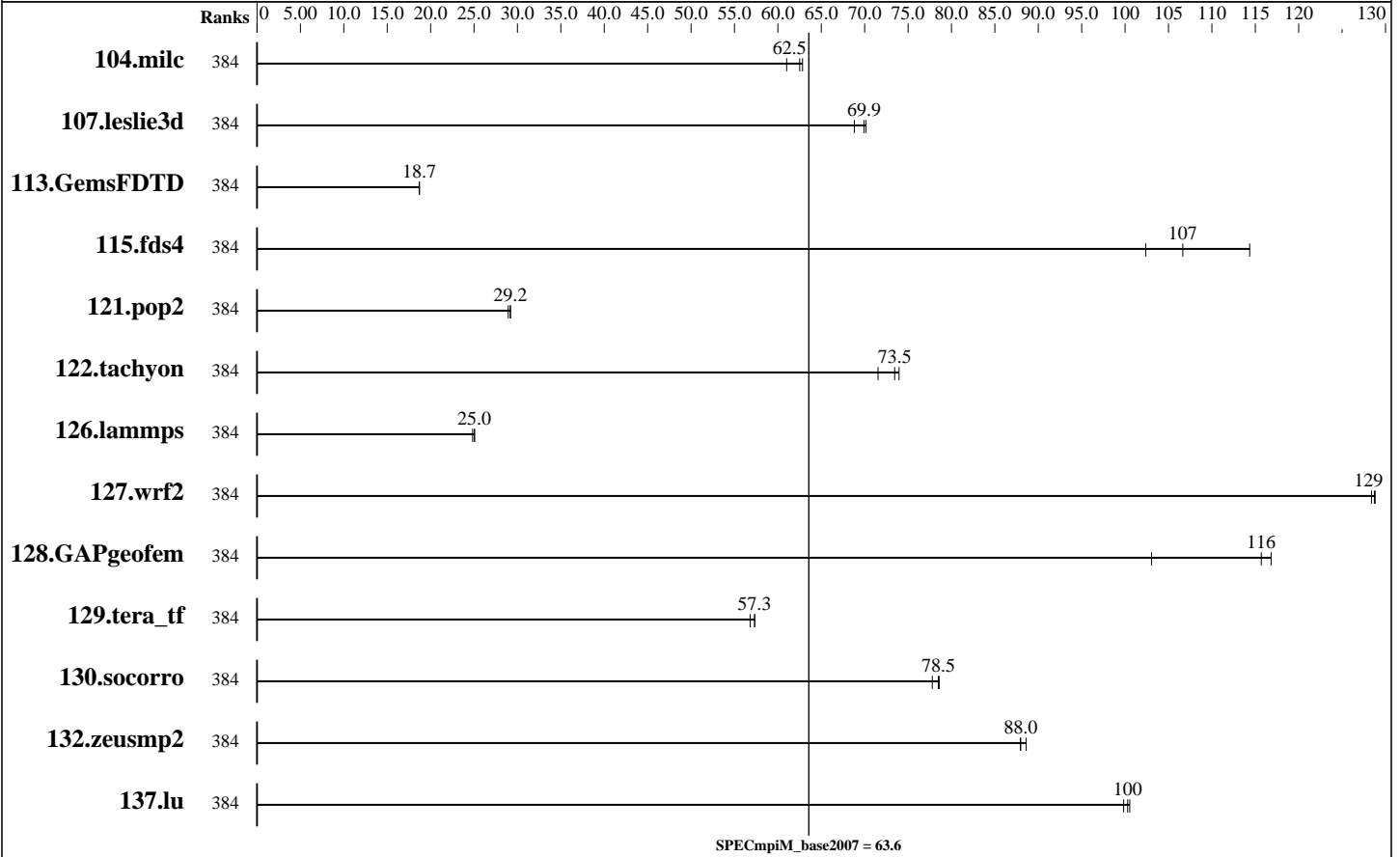
Test sponsor: SGI

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		
104.milc	384	25.7	61.0	<u>25.0</u>	<u>62.5</u>	24.9	62.8									
107.leslie3d	384	74.4	70.2	<u>74.6</u>	<u>69.9</u>	75.9	68.8									
113.GemsFDTD	384	337	18.7	<u>337</u>	<u>18.7</u>	338	18.7									
115.fds4	384	19.1	102	17.1	114	<u>18.3</u>	<u>107</u>									
121.pop2	384	143	28.9	141	29.2	<u>142</u>	<u>29.2</u>									
122.tachyon	384	<u>38.1</u>	<u>73.5</u>	39.1	71.5	37.8	74.0									
126.lammps	384	117	24.8	116	25.1	<u>116</u>	<u>25.0</u>									
127.wrf2	384	<u>60.6</u>	<u>129</u>	60.7	128	60.5	129									
128.GAPgeofem	384	<u>17.8</u>	<u>116</u>	17.7	117	20.0	103									
129.tera_tf	384	48.3	57.3	48.7	56.8	<u>48.3</u>	<u>57.3</u>									

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	384	48.6	78.6	48.6	78.5	49.1	77.8							
132.zeusmp2	384	35.3	87.9	35.0	88.6	35.3	88.0							
137.lu	384	36.8	99.8	36.6	101	36.7	100							

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 C2112-4RP4 Compute Node
 Interconnect: InfiniBand (MPI and I/O)
 File Server Node: SGI MIS Server
 Total Compute Nodes: 16
 Total Chips: 32
 Total Cores: 384
 Total Threads: 768
 Total Memory: 2 TB
 Base Ranks Run: 384
 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: 16
 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)

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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Software Availability: Jun-2013

Node Description: SGI Rackable C2112-4RP4 Compute Node

Number of Adapters: 2
Slot Type: PCIe x8 Gen3
Data Rate: InfiniBand 4x FDR
Ports Used: 1
Interconnect Type: InfiniBand

Node Description: SGI MIS Server

Hardware

Number of nodes: 1
Uses of the node: fileserver
Vendor: SGI
Model: SGI MIS Server (Intel Xeon X2670, 2.60 GHz)
CPU Name: Intel Xeon E5-2670
CPU(s) orderable: 1-2 chips
Chips enabled: 2
Cores enabled: 16
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

Software

Adapter: Mellanox MT27500 with ConnectX-3 ASIC
(PCIe x8 Gen3 8 GT/s)
Adapter Driver: OFED-1.5.2
Adapter Firmware: 2.11.500
Operating System: SUSE Linux Enterprise Server 11 SP2 (x86_64)
Kernel 3.0.74-0.6.6-default
Local File System: xfs
Shared File System: --
System State: Multi-user, run level 3
Other Software: SGI Foundation Software 2.8,
Build 708r14.sles11sp2-1304102205

Interconnect Description: InfiniBand (MPI and I/O)

Hardware

Vendor: Mellanox Technologies
Model: None
Switch Model: Mellanox SX6025 InfiniBand Switch
Number of Switches: 4
Number of Ports: 36

Software

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Interconnect Description: InfiniBand (MPI and I/O)

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

Submit Notes

The config file option 'submit' was used.

General Notes

130.socorro (base): "nullify_ptrs" src.alt was used.

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
```

BIOS settings:

```
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:

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Base Compiler Invocation (Continued)

126.lammps: icpc

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icc ifort

Base Portability Flags

121.pop2: -DSPEC_MPI_CASE_FLAG

127.wrf2: -DSPEC_MPI_CASE_FLAG -DSPEC_MPI_LINUX

130.socorro: -assume nostd_intent_in

Base Optimization Flags

C benchmarks:

-O3 -xAVX -no-prec-div

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



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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

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

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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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