



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 = 12.5

MPI2007 license: 4

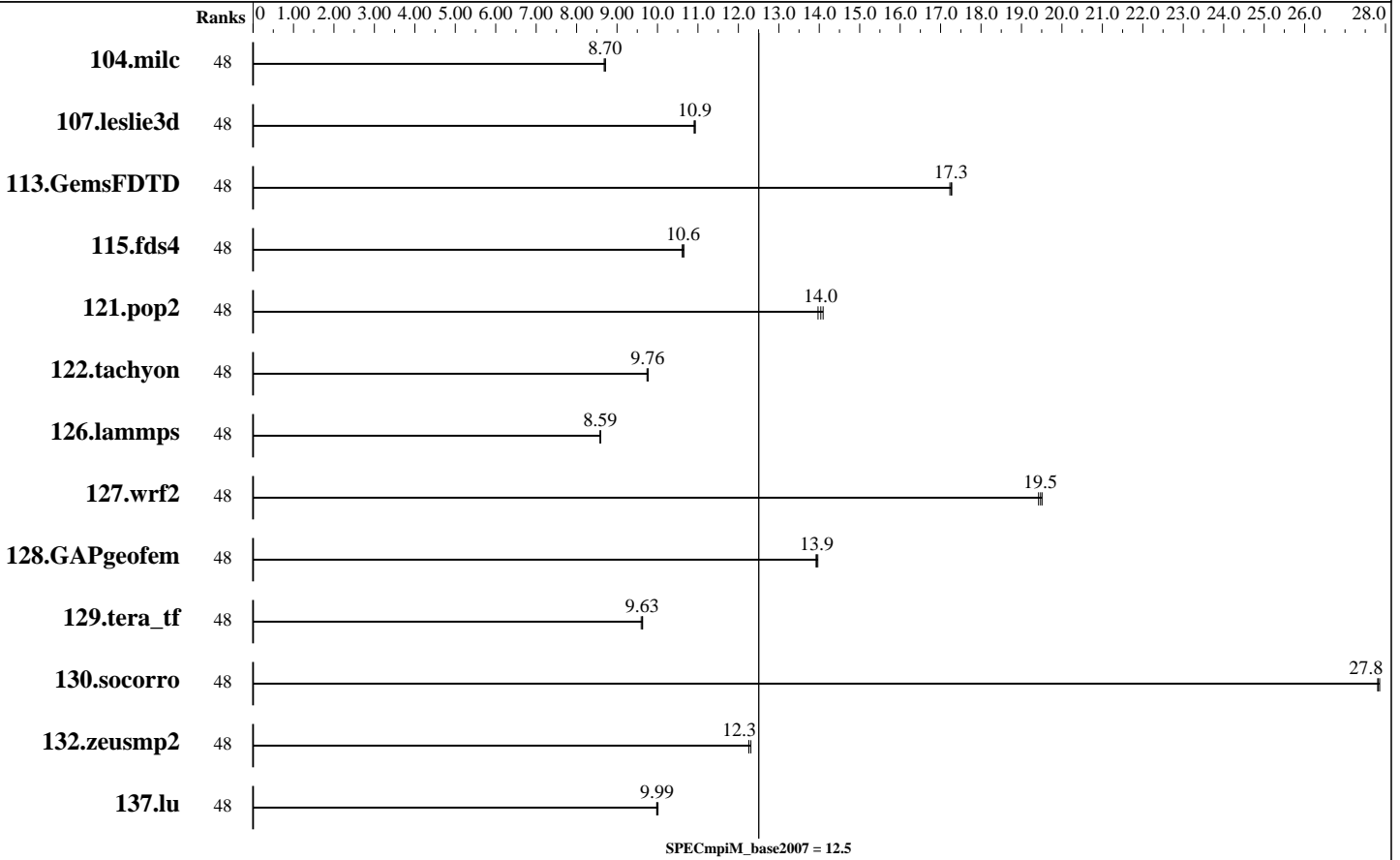
Test sponsor: SGI

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 | 48 | 180 | 8.68 | 180 | 8.71 | 180 | 8.70 | | | | | | | |
| 107.leslie3d | 48 | 479 | 10.9 | 477 | 10.9 | 478 | 10.9 | | | | | | | |
| 113.GemsFDTD | 48 | 365 | 17.3 | 366 | 17.2 | 365 | 17.3 | | | | | | | |
| 115.fds4 | 48 | 183 | 10.7 | 183 | 10.6 | 184 | 10.6 | | | | | | | |
| 121.pop2 | 48 | 295 | 14.0 | 293 | 14.1 | 294 | 14.0 | | | | | | | |
| 122.tachyon | 48 | 286 | 9.77 | 287 | 9.76 | 287 | 9.74 | | | | | | | |
| 126.lammmps | 48 | 339 | 8.59 | 340 | 8.58 | 339 | 8.59 | | | | | | | |
| 127.wrf2 | 48 | 401 | 19.4 | 400 | 19.5 | 400 | 19.5 | | | | | | | |
| 128.GAPgeofem | 48 | 148 | 14.0 | 148 | 13.9 | 148 | 13.9 | | | | | | | |
| 129.tera_tf | 48 | 288 | 9.60 | 288 | 9.63 | 287 | 9.63 | | | | | | | |

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 | 48 | 137 | 27.8 | 137 | 27.9 | 137 | 27.8 | | | | | | | | | |
| 132.zeusmp2 | 48 | 253 | 12.3 | 253 | 12.3 | 252 | 12.3 | | | | | | | | | |
| 137.lu | 48 | 368 | 9.99 | 367 | 10.0 | 368 | 9.98 | | | | | | | | | |

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: 2
 Total Chips: 4
 Total Cores: 48
 Total Threads: 96
 Total Memory: 256 GB
 Base Ranks Run: 48
 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: 2
 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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Test date: Aug-2013

Hardware Availability: Sep-2013

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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Software Availability: Jun-2013

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.

Tested with SPEC MPI2007 v2.0.1.
Report generated on Tue Jul 22 13:47:24 2014 by SPEC MPI2007 PS/PDF formatter v1463.
Originally published on 18 September 2013.