



SPEC[®] MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

SGI

SPECmpiM_peak2007 = Not Run

SGI ICE X (Intel Xeon E5-2690 v2, 3.0 GHz)

SPECmpiM_base2007 = 91.7

MPI2007 license: 4

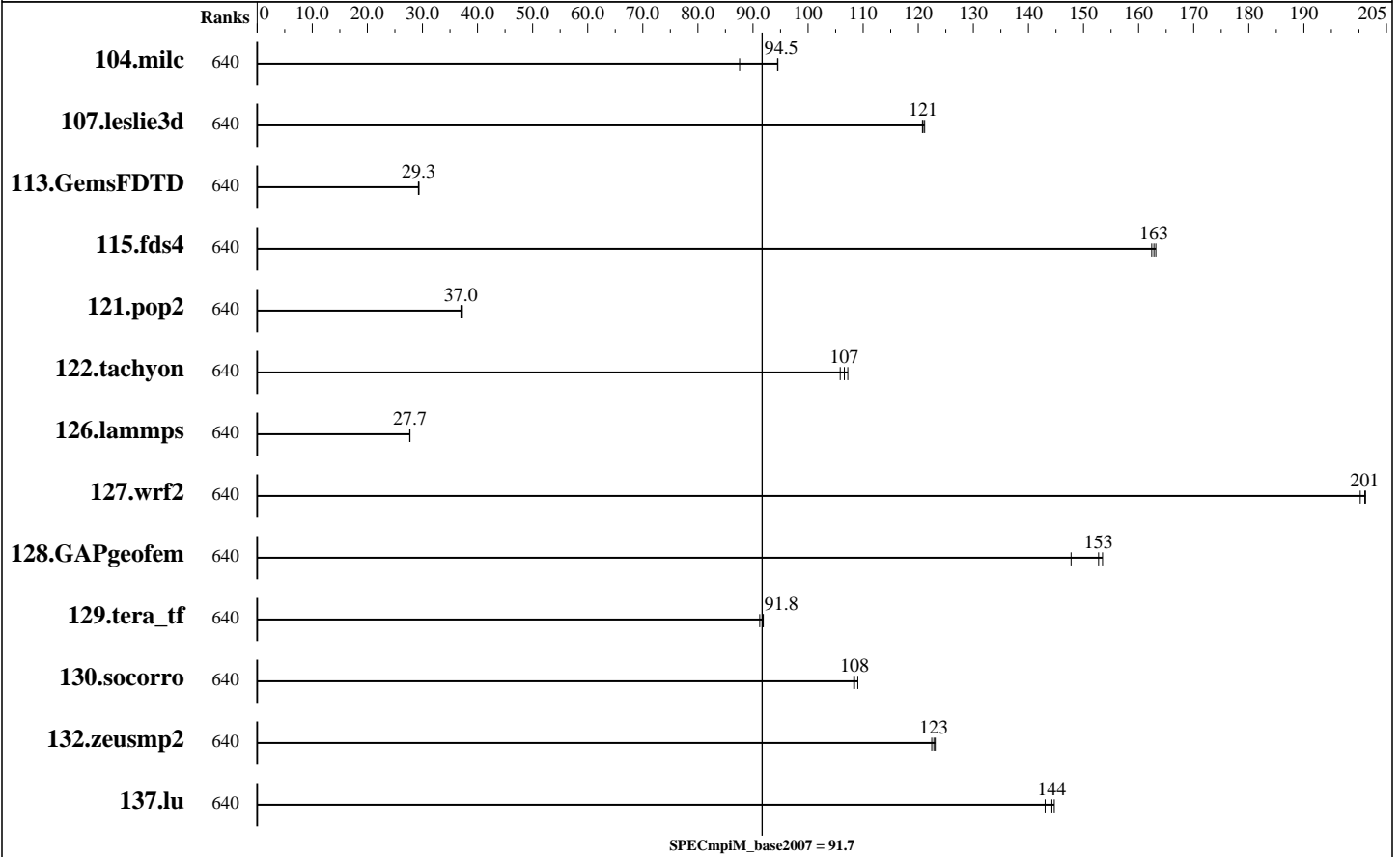
Test date: Dec-2013

Test sponsor: SGI

Hardware Availability: Sep-2013

Tested by: SGI

Software Availability: Nov-2013



Results Table

Benchmark	Base								Peak							
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
104.milc	640	17.9	87.6	16.6	94.5	16.6	94.5									
107.leslie3d	640	43.2	121	43.2	121	43.1	121									
113.GemsFDTD	640	216	29.3	215	29.4	215	29.3									
115.fds4	640	12.0	163	12.0	162	12.0	163									
121.pop2	640	111	37.2	112	37.0	112	37.0									
122.tachyon	640	26.1	107	26.4	106	26.2	107									
126.lammps	640	105	27.7	105	27.7	105	27.7									
127.wrf2	640	38.7	201	38.9	200	38.8	201									
128.GAPgeofem	640	13.5	153	14.0	148	13.5	153									
129.tera_tf	640	30.3	91.2	30.2	91.8	30.1	91.9									

Table continues on next page. Results appear in the order in which they were run. Bold underlined text indicates a median measurement.



SPEC MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

SGI

SPECmpiM_peak2007 = Not Run

SGI ICE X (Intel Xeon E5-2690 v2, 3.0 GHz)

SPECmpiM_base2007 = 91.7

MPI2007 license: 4

Test sponsor: SGI

Tested by: SGI

Test date: Dec-2013

Hardware Availability: Sep-2013

Software Availability: Nov-2013

Results Table (Continued)

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
130.socorro	640	<u>35.2</u>	<u>108</u>	35.2	108	35.0	109							
132.zeusmp2	640	25.2	123	<u>25.3</u>	<u>123</u>	25.3	122							
137.lu	640	25.4	145	<u>25.5</u>	<u>144</u>	25.7	143							

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 ICE X IP-113 Compute Node
 Interconnect: InfiniBand (MPI and I/O)
 File Server Node: SGI Modular InfiniteStorage Server
 Total Compute Nodes: 32
 Total Chips: 64
 Total Cores: 640
 Total Threads: 1280
 Total Memory: 2 TB
 Base Ranks Run: 640
 Minimum Peak Ranks: --
 Maximum Peak Ranks: --

Software Summary

C Compiler: Intel C++ Composer XE 2011 for Linux, Version 14.0.0.080 Build 20130728
 C++ Compiler: Intel C++ Composer XE 2011 for Linux, Version 14.0.0.080 Build 20130728
 Fortran Compiler: Intel Fortran Composer XE 2011 for Linux, Version 14.0.0.080 Build 20130728
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 MPI Library: SGI MPT 2.09
 Other MPI Info: OFED 1.5.2
 Pre-processors: None
 Other Software: None

Node Description: SGI ICE X IP-113 Compute Node

Hardware

Number of nodes: 32
 Uses of the node: compute
 Vendor: SGI
 Model: SGI ICE X IP-113 (Intel Xeon E5-2690 v2, 3.0 GHz)
 CPU Name: Intel Xeon E5-2690 v2
 CPU(s) orderable: 1-2 chips
 Chips enabled: 2
 Cores enabled: 20
 Cores per chip: 10
 Threads per core: 2
 CPU Characteristics: Ten Core, 3.0 GHz, 8.0 GT/s QPI
 Intel Turbo Boost Technology up to 3.60 GHz
 Hyper-Threading Technology enabled
 CPU MHz: 3000
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core
 L3 Cache: 25 MB I+D on chip per chip
 Other Cache: None
 Memory: 64 GB (8 x 8 GB 2Rx4 PC3-14900R-13, ECC)
 Disk Subsystem: None
 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

Software

Adapter: Mellanox MT27500 with ConnectX-3 ASIC (PCIe x8 Gen3 8 GT/s)
 Adapter Driver: OFED 1.5.2
 Adapter Firmware: 2.11.312
 Operating System: SUSE Linux Enterprise Server 11 SP2, Kernel 3.0.80-0.7-default
 Local File System: NFSv3
 Shared File System: NFSv3 IPoIB
 System State: Multi-user, run level 3
 Other Software: SGI Tempo Compute Node 2.7.3, Build 708rp14.sles11sp2-1305311204

Continued on next page



SPEC MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

SGI

SPECmpiM_peak2007 = Not Run

SGI ICE X (Intel Xeon E5-2690 v2, 3.0 GHz)

SPECmpiM_base2007 = 91.7

MPI2007 license: 4

Test sponsor: SGI

Tested by: SGI

Test date: Dec-2013

Hardware Availability: Sep-2013

Software Availability: Nov-2013

Node Description: SGI ICE X IP-113 Compute Node

Data Rate: InfiniBand 4x FDR
Ports Used: 2
Interconnect Type: InfiniBand

Node Description: SGI Modular InfiniteStorage Server

Hardware

Number of nodes: 1
Uses of the node: fileserver
Vendor: SGI
Model: SGI Modular InfiniteStorage Server
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 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem: 64.8 TB RAID 6
72 x 900 GB SAS (Western Digital, 10K RPM)
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-1.5.0
Adapter Firmware: 2.11.312
Operating System: SUSE Linux Enterprise Server 11 SP3
Kernel
Local File System: xfs
Shared File System: --
System State: Multi-user, run level 3
Other Software: SGI Foundation Software 2.9,
Build 700r3.sles11-1004061553

Interconnect Description: InfiniBand (MPI and I/O)

Hardware

Vendor: Mellanox Technologies and SGI
Model: None
Switch Model: SGI FDR Integrated IB Switch Blade 2SW9x27 with
Mellanox SwitchX device 51000
Number of Switches: 8
Number of Ports: 36
Data Rate: InfiniBand 4x FDR

Software

Continued on next page



SPEC MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

SGI

SPECmpiM_peak2007 = Not Run

SGI ICE X (Intel Xeon E5-2690 v2, 3.0 GHz)

SPECmpiM_base2007 = 91.7

MPI2007 license: 4

Test date: Dec-2013

Test sponsor: SGI

Hardware Availability: Sep-2013

Tested by: SGI

Software Availability: Nov-2013

Interconnect Description: InfiniBand (MPI and I/O)

Firmware: 07130007_LL2 and 08130007_LL2
Topology: Enhanced Hypercube
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
export MPI_IB_RAILS=2
ulimit -s unlimited
```

BIOS settings:

```
AMI BIOS version 3.0
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
```

Job Placement:

Each MPI job was assigned to a topologically compact set of nodes, i.e. the minimal needed number of switches was used for each job: 2 switches for up to 180 ranks, 4 switches for up to 320 ranks, 8 switches for 640 ranks, 10 switches for 800 ranks, 16 switches for 1280 ranks, 22 switches for 1920 ranks, and 30 switches for 2560 ranks.

Additional notes regarding interconnect:

The Infiniband network consists of two independent planes, with half the switches in the system allocated to each plane. I/O traffic is restricted to one plane, while MPI traffic can use both planes.

Base Compiler Invocation

C benchmarks:
icc

Continued on next page



SPEC MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

SGI

SPECmpiM_peak2007 = Not Run

SGI ICE X (Intel Xeon E5-2690 v2, 3.0 GHz)

SPECmpiM_base2007 = 91.7

MPI2007 license: 4

Test sponsor: SGI

Tested by: SGI

Test date: Dec-2013

Hardware Availability: Sep-2013

Software Availability: Nov-2013

Base Compiler Invocation (Continued)

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

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

Continued on next page



SPEC MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

SGI

SPECmpiM_peak2007 = Not Run

SGI ICE X (Intel Xeon E5-2690 v2, 3.0 GHz)

SPECmpiM_base2007 = 91.7

MPI2007 license: 4

Test date: Dec-2013

Test sponsor: SGI

Hardware Availability: Sep-2013

Tested by: SGI

Software Availability: Nov-2013

Base Other Flags (Continued)

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

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

SPEC and SPEC MPI are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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 13:48:01 2014 by SPEC MPI2007 PS/PDF formatter v1463.
Originally published on 22 January 2014.