SPEC® MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

SGI

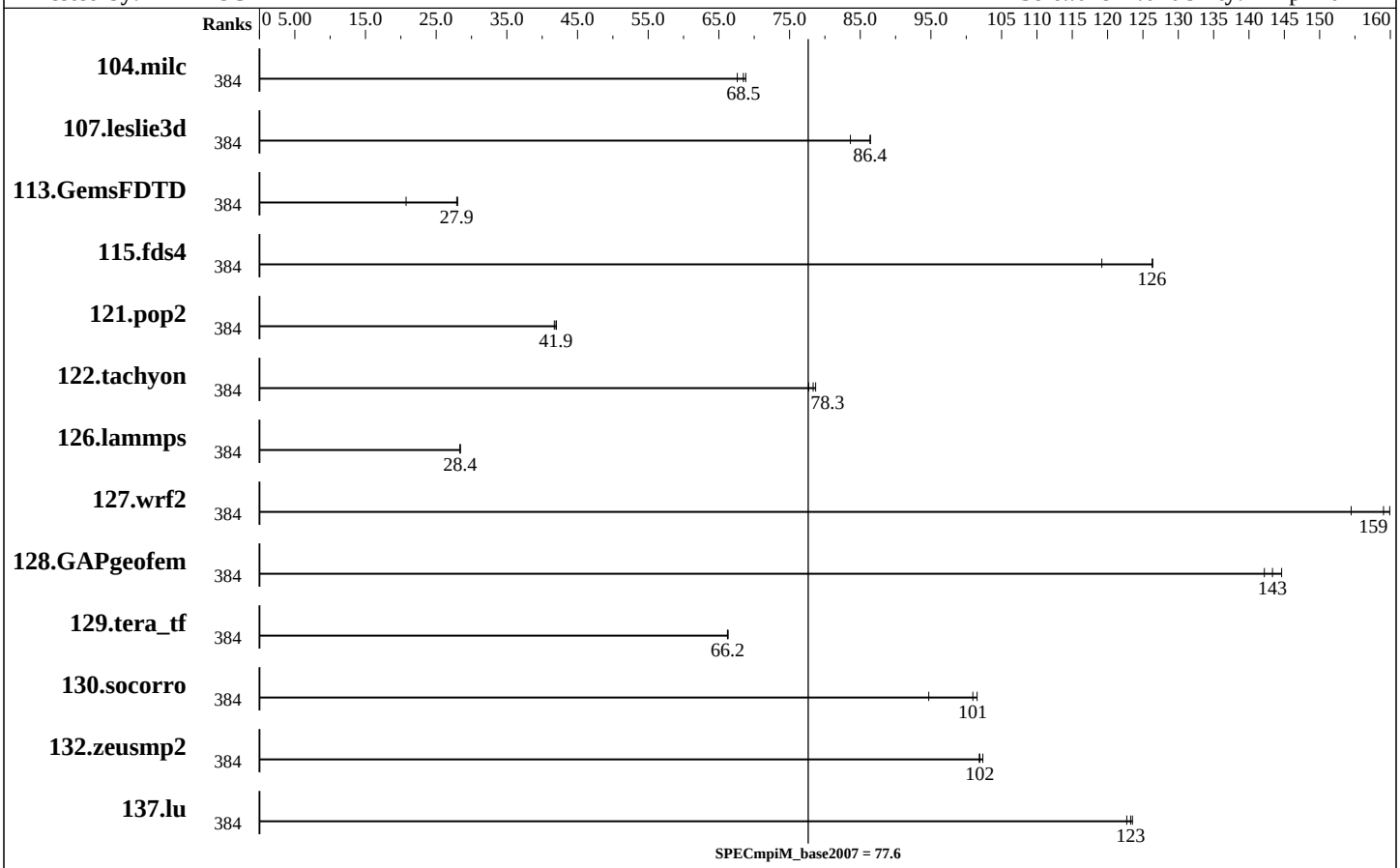
SGI ICE X
(Intel Xeon E5-2690 v3, 2.6 GHz)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 77.6

MPI2007 license: 14
Test sponsor: SGI
Tested by: SGI

Test date: Jul-2014
Hardware Availability: Sep-2014
Software Availability: Apr-2014



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	384	23.1	67.6	22.7	68.8	**22.9**	**68.5**							
107.leslie3d	384	62.4	83.6	60.4	86.4	**60.4**	**86.4**							
113.GemsFDTD	384	304	20.7	225	28.0	**226**	**27.9**							
115.fds4	384	**15.4**	**126**	15.4	126	16.4	119							
121.pop2	384	99.0	41.7	**98.4**	**41.9**	98.3	42.0							
122.tachyon	384	**35.7**	**78.3**	36.0	77.7	35.5	78.7							
126.lammps	384	**103**	**28.4**	103	28.4	103	28.4							
127.wrf2	384	48.8	160	**49.0**	**159**	50.5	154							
128.GAPgeofem	384	14.5	142	14.3	145	**14.4**	**143**							
129.tera_tf	384	41.8	66.2	41.7	66.3	**41.8**	**66.2**							

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

SGI ICE X
(Intel Xeon E5-2690 v3, 2.6 GHz)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 77.6

MPI2007 license: 14
Test sponsor: SGI
Tested by: SGI

Test date: Jul-2014
Hardware Availability: Sep-2014
Software Availability: Apr-2014

Results Table (Continued)

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
130.socorro	384	37.6	102	**37.8**	**101**	40.3	94.7							
132.zeusmp2	384	**30.4**	**102**	30.5	102	30.3	102							
137.lu	384	**29.8**	**123**	30.0	123	29.8	124							

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-131 Compute Node
Interconnect:	InfiniBand (MPI and I/O)
File Server Node:	SGI Rackable C1103-TY12
Total Compute Nodes:	16
Total Chips:	32
Total Cores:	384
Total Threads:	384
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 14.0.3.174 Build 20140422
C++ Compiler:	Intel C++ Composer XE 2013 for Linux Version 14.0.3.174 Build 20140422
Fortran Compiler:	Intel Fortran Composer XE 2013 for Linux, Version 14.0.3.174 Build 20140422
Base Pointers:	64-bit
Peak Pointers:	Not Applicable
MPI Library:	SGI MPT 2.09 Patch 11049
Other MPI Info:	OFED 1.5.4
Pre-processors:	None
Other Software:	None

Node Description: SGI ICE X IP-131 Compute Node

Hardware

Number of nodes:	16
Uses of the node:	compute
Vendor:	SGI
Model:	SGI ICE X (Intel Xeon E6-2690 v3, 2.6 GHz)
CPU Name:	Intel Xeon E5-2690 v3
CPU(s) orderable:	1-2 chips
Chips enabled:	2
Cores enabled:	24
Cores per chip:	12
Threads per core:	1
CPU Characteristics:	12 Core, 2.60 GHz, 9.6 GT/s QPI Intel Turbo Boost Technology up to 3.50 GHz Hyper-Threading Technology disabled
CPU MHz:	2600
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
Other Cache:	None
Memory:	128 GB (8 x 16 GB 2Rx4 PC4-17000R-15, 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

Continued on next page

Software

Adapter:	Mellanox MT27500 with ConnectX-3 ASIC (PCIe x8 Gen3 8 GT/s)
Adapter Driver:	OFED-1.5.4
Adapter Firmware:	2.30.3000
Operating System:	SUSE Linux Enterprise Server 11 SP3 (x86_64), Kernel 3.0.93-0.8-default
Local File System:	NFSv3
Shared File System:	NFSv3 IPoIB
System State:	Multi-user, run level 3
Other Software:	SGI Tempo Service Node 2.8.1, Build 709rp49.sles11sp3-1402182002

SPEC MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

SGI

SGI ICE X
(Intel Xeon E5-2690 v3, 2.6 GHz)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 77.6

MPI2007 license: 14
Test sponsor: SGI
Tested by: SGI

Test date: Jul-2014
Hardware Availability: Sep-2014
Software Availability: Apr-2014

Node Description: SGI ICE X IP-131 Compute Node

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

Node Description: SGI Rackable C1103-TY12

Hardware

Number of nodes:	1
Uses of the node:	fileserver
Vendor:	SGI
Model:	SGI Rackable C1103-TY12 (Intel Xeon X5670, 2.93 GHz)
CPU Name:	Intel Xeon X5670
CPU(s) orderable:	1-2 chips
Chips enabled:	2
Cores enabled:	12
Cores per chip:	6
Threads per core:	2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.33 GHz Hyper-Threading Technology enabled
CPU MHz:	2933
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per chip
L3 Cache:	12 MB I+D on chip per chip
Other Cache:	None
Memory:	96 GB (12 * 8 GB 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem:	12 TB RAID 6 12 x 1 TB SATA (Seagate Constellation, 7200RPM)
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:	2.30.3000
Operating System:	SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.46-0.3-default
Local File System:	xfs
Shared File System:	--
System State:	Multi-user, run level 3
Other Software:	SGI Foundation Software 2.5, Build 705r10.sles11-1110192111

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:	4
Number of Ports:	36
Data Rate:	InfiniBand 4x FDR

Software

Continued on next page

Interconnect Description: InfiniBand (MPI and I/O)

Firmware:	09.02.3000
Topology:	Enhanced Hypercube
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_IB_RAILS=2
  ulimit -s unlimited

BIOS settings:
  AMI BIOS version DY2E6044
  Hyper-Threading Technology disabled
  Intel Turbo Boost Technology enabled (default)
  Intel Turbo Boost Technology activated with
    modprobe acpi_cpufreq
    cpupower frequency-set -u 2601MHz -d 2601MHz -g performance

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 192 ranks,
  4 switches for up to 384 ranks, 8 switches for 768 ranks,
  and 16 switches for 1536 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`

C++ benchmarks:

126.lammps: `icpc`

Continued on next page

Base Compiler Invocation (Continued)

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 -xCORE-AVX2 -no-prec-div

C++ benchmarks:

126.lammps: -O3 -xCORE-AVX2 -no-prec-div -ansi-alias

Fortran benchmarks:
-O3 -xCORE-AVX2 -no-prec-div

Benchmarks using both Fortran and C:
-O3 -xCORE-AVX2 -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_Intel14_flags.20140908.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.20140908.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 Mon Sep 8 13:46:10 2014 by SPEC MPI2007 PS/PDF formatter v1463.
Originally published on 8 September 2014.