SPEC® MPIM2007 Result

SGI

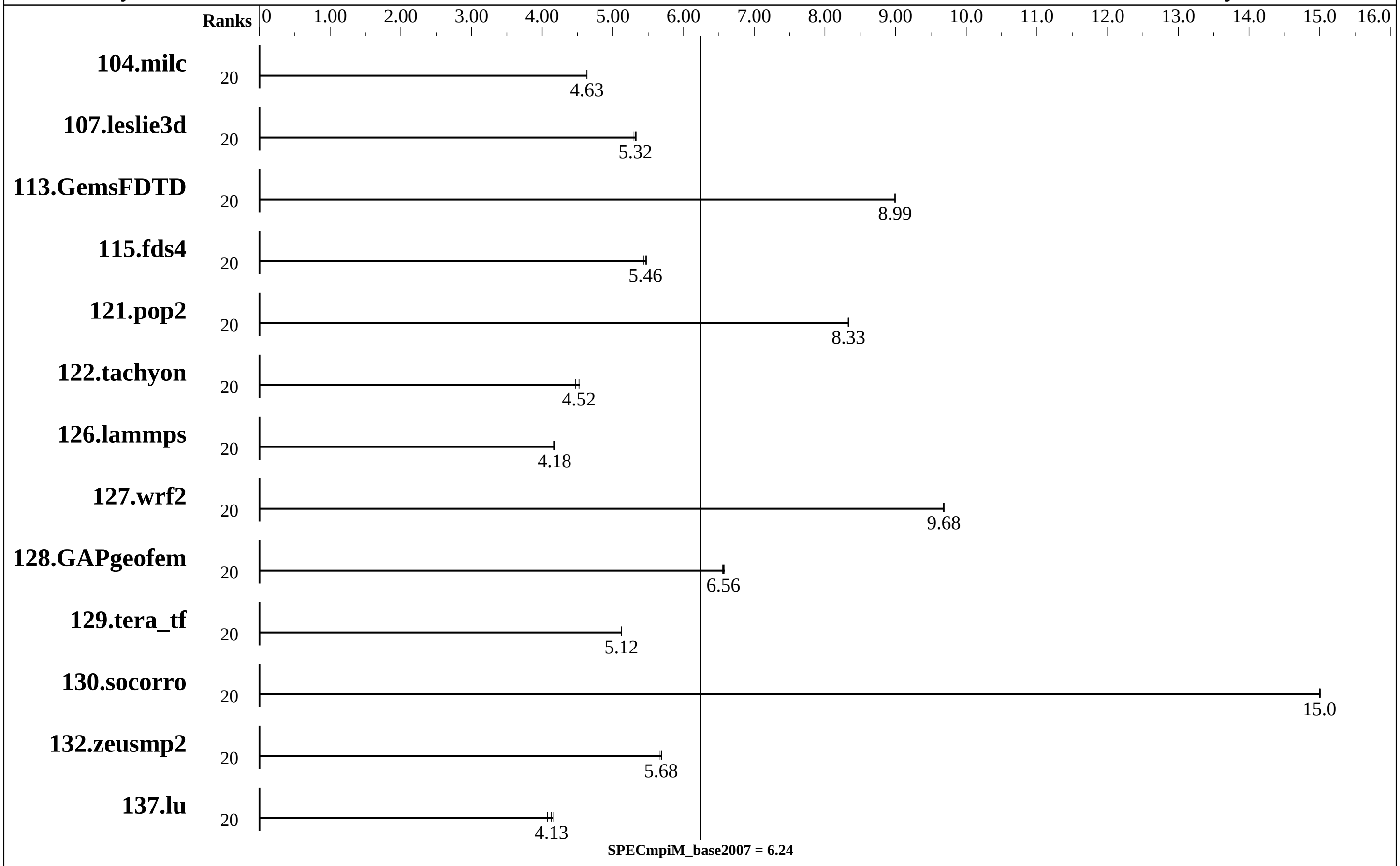
SGI ICE X (Intel Xeon E5-2690 v2, 3.0 GHz)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 6.24

MPI2007 license: 4
Test sponsor: SGI
Tested by: SGI

Test date: Dec-2013
Hardware Availability: Sep-2013
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	20	338	4.64	338	4.63	**338**	**4.63**							
107.leslie3d	20	985	5.30	**981**	**5.32**	979	5.33							
113.GemsFDTD	20	702	8.99	701	9.00	**701**	**8.99**							
115.fds4	20	356	5.48	**357**	**5.46**	359	5.44							
121.pop2	20	**495**	**8.33**	495	8.34	496	8.32							
122.tachyon	20	617	4.53	**619**	**4.52**	625	4.47							
126.lammps	20	701	4.16	698	4.18	**698**	**4.18**							
127.wrf2	20	806	9.68	**805**	**9.68**	805	9.69							
128.GAPgeofem	20	**315**	**6.56**	315	6.55	314	6.58							
129.tera_tf	20	540	5.12	541	5.12	**541**	**5.12**							

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	20	254	15.0	**254**	**15.0**	255	15.0							
132.zeusmp2	20	545	5.69	**546**	**5.68**	548	5.67							
137.lu	20	885	4.15	**890**	**4.13**	902	4.08							

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:	1
Total Chips:	2
Total Cores:	20
Total Threads:	40
Total Memory:	64 GB
Base Ranks Run:	20
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:	1
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

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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

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SPECmpiM_base2007 = 6.24

MPI2007 license:	4	**Test date:**	Dec-2013
Test sponsor:	SGI	**Hardware Availability:**	Sep-2013
Tested by:	SGI	**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:	2
Number of Ports:	36
Data Rate:	InfiniBand 4x FDR

Software

Continued on next page

Interconnect Description: InfiniBand (MPI and I/O)

Firmware:	07130007_LLR and 08130007_LLR
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

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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

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

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