SPEC® MPIM2007 Result

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SGI

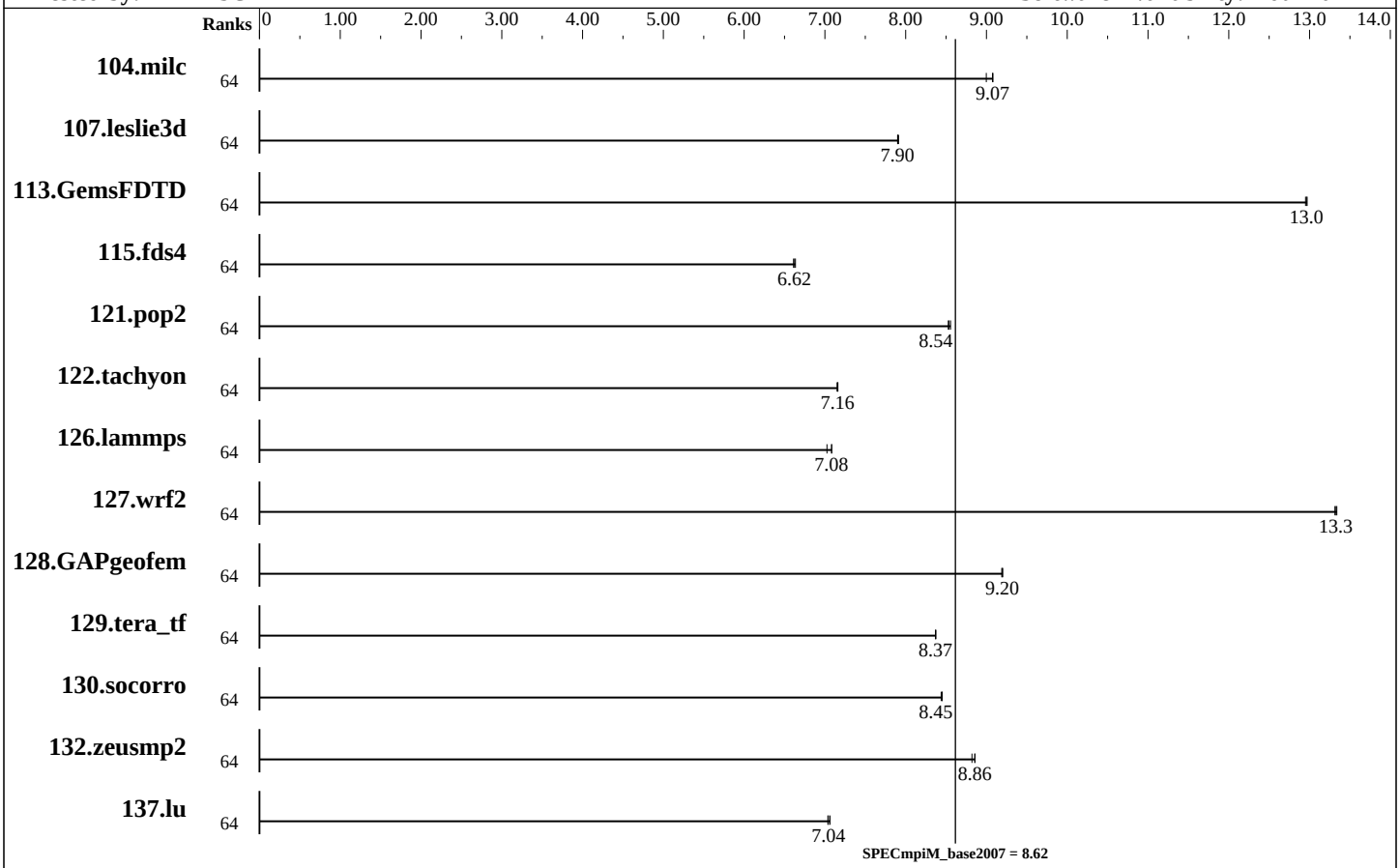
SGI Rackable C2005-TY3
(Intel Xeon X5687, 3.60 GHz)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 8.62

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

Test date: Aug-2011
Hardware Availability: Feb-2011
Software Availability: Jul-2011



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	64	174	9.00	**172**	**9.07**	172	9.08							
107.leslie3d	64	**661**	**7.90**	660	7.91	661	7.90							
113.GemsFDTD	64	**487**	**13.0**	486	13.0	487	13.0							
115.fds4	64	**295**	**6.62**	295	6.61	294	6.64							
121.pop2	64	484	8.53	482	8.56	**484**	**8.54**							
122.tachyon	64	**391**	**7.16**	391	7.16	391	7.15							
126.lammps	64	411	7.08	**412**	**7.08**	415	7.03							
127.wrf2	64	585	13.3	**585**	**13.3**	586	13.3							
128.GAPgeofem	64	**225**	**9.20**	225	9.19	224	9.20							
129.tera_tf	64	331	8.37	**331**	**8.37**	331	8.37							

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	64	**452**	**8.45**	452	8.45	452	8.44							
132.zeusmp2	64	350	8.86	352	8.82	**350**	**8.86**							
137.lu	64	**522**	**7.04**	520	7.06	522	7.04							

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 C2005-TY3 Compute Node
Interconnect:	InfiniBand (MPI and I/O)
File Server Node:	SGI InfiniteStorage 4500
Total Compute Nodes:	4
Total Chips:	8
Total Cores:	32
Total Threads:	64
Total Memory:	192 GB
Base Ranks Run:	64
Minimum Peak Ranks:	--
Maximum Peak Ranks:	--

Software Summary

C Compiler:	Intel C++ Composer XE 2011 for Linux, Version 12.0.5.220 Build 20110719
C++ Compiler:	Intel C++ Composer XE 2011 for Linux, Version 12.0.5.220 Build 20110719
Fortran Compiler:	Intel Fortran Composer XE 2011 for Linux, Version 12.0.5.220 Build 20110719
Base Pointers:	64-bit
Peak Pointers:	Not Applicable
MPI Library:	SGI MPT 2.04 Patch 10773
Other MPI Info:	OFED 1.4.2
Pre-processors:	None
Other Software:	None

Node Description: SGI Rackable C2005-TY3 Compute Node

Hardware

Number of nodes:	4
Uses of the node:	compute
Vendor:	SGI
Model:	SGI Rackable C2005-TY3 (Intel Xeon X5687, 3.60GHz)
CPU Name:	Intel Xeon X5687
CPU(s) orderable:	1-2 chips
Chips enabled:	2
Cores enabled:	8
Cores per chip:	4
Threads per core:	2
CPU Characteristics:	Quad Core, 3.60 GHz, 6.4 GT/s QPI Intel Turbo Boost Technology up to 3.86 GHz Hyper-Threading Technology enabled
CPU MHz:	3600
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	12 MB I+D on chip per chip
Other Cache:	None
Memory:	48 GB (6 x 8 GB, 2Rx4 PC3-10600R-9, ECC)
Disk Subsystem:	None
Other Hardware:	None
Adapter:	Mellanox MT26428 ConnectX IB QDR (PCIe x8 Gen2 5 GT/s)
Number of Adapters:	1

Continued on next page

Software

Adapter:	Mellanox MT26428 ConnectX IB QDR (PCIe x8 Gen2 5 GT/s)
Adapter Driver:	OFED-1.4.2
Adapter Firmware:	2.7.0
Operating System:	SUSE Linux Enterprise Server 11 SP1 (x86_64) Kernel 2.6.32.36-0.5-default
Local File System:	NFSv3
Shared File System:	NFSv3 IPoIB
System State:	Multi-user, run level 3
Other Software:	SGI Performance Suite 1.2, Build 704r5.sles11-1103212004

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Node Description: SGI Rackable C2005-TY3 Compute Node

Slot Type:	PCIe x8 Gen2
Data Rate:	InfiniBand 4x QDR
Ports Used:	1
Interconnect Type:	InfiniBand

Node Description: SGI InfiniteStorage 4500

Hardware

Number of nodes:	1
Uses of the node:	fileserver
Vendor:	SGI
Model:	SGI Altix 450 (Intel Itanium 2, 1.6 GHz)
CPU Name:	Intel Itanium 2 9030
CPU(s) orderable:	2-38 chips
Chips enabled:	4
Cores enabled:	8
Cores per chip:	2
Threads per core:	1
CPU Characteristics:	1.6GHz/8MB, 533MHz FSB
CPU MHz:	1600
Primary Cache:	16 KB I + 16 KB D on chip per core
Secondary Cache:	1 MB I + 256 KB D on chip per core
L3 Cache:	4 MB I+D on chip per core
Other Cache:	None
Memory:	48 GB (24 x 2 GB, 2Rx4 PC2-3200-4, ECC)
Disk Subsystem:	5.8 TB RAID 5 20 x 146 GB FC (Seagate Cheetah 15K.4) 40 x 73 GB FC (Seagate Cheetah 15K.4)
Other Hardware:	None
Adapter:	Mellanox MT25208 InfiniHost III Ex (PCIe x8 Gen1 2.5 GT/s)
Number of Adapters:	2
Slot Type:	PCIe x8 Gen1
Data Rate:	InfiniBand 4x DDR
Ports Used:	2
Interconnect Type:	InfiniBand

Software

Adapter:	Mellanox MT25208 InfiniHost III Ex (PCIe x8 Gen1 2.5 GT/s)
Adapter Driver:	OFED-1.4.2
Adapter Firmware:	4.8.200
Operating System:	SUSE Linux Enterprise Server 11 SP1 (ia64) Kernel 2.6.32.23-0.3-default
Local File System:	xfs
Shared File System:	--
System State:	Multi-user, run level 3
Other Software:	SGI InfiniteStorage Software Platform, version 2.2, Build 702r16.sles11-1010082110

Interconnect Description: InfiniBand (MPI and I/O)

Hardware

Vendor:	Mellanox Technologies
Model:	n/a
Switch Model:	Voltaire Grid Director 4200
Number of Switches:	1
Number of Ports:	36
Data Rate:	InfiniBand 4x QDR

Software

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Interconnect Description: InfiniBand (MPI and I/O)

Firmware:	3.0.0 BUILD ID 629
Topology:	Fat tree
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_BUFS_THRESHOLD=1
  ulimit -s unlimited

BIOS settings:
  AMI BIOS version  2.10
  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:

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`

Base Optimization Flags

C benchmarks:
`-O3 -xSSE4.2 -no-prec-div`

C++ benchmarks:

126.lammps: `-O3 -xSSE4.2 -no-prec-div -ansi-alias`

Fortran benchmarks:
`-O3 -xSSE4.2 -no-prec-div`

Benchmarks using both Fortran and C:
`-O3 -xSSE4.2 -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_Intel12_flags.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel12_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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