SPEC® MPIM2007 Result

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SGI

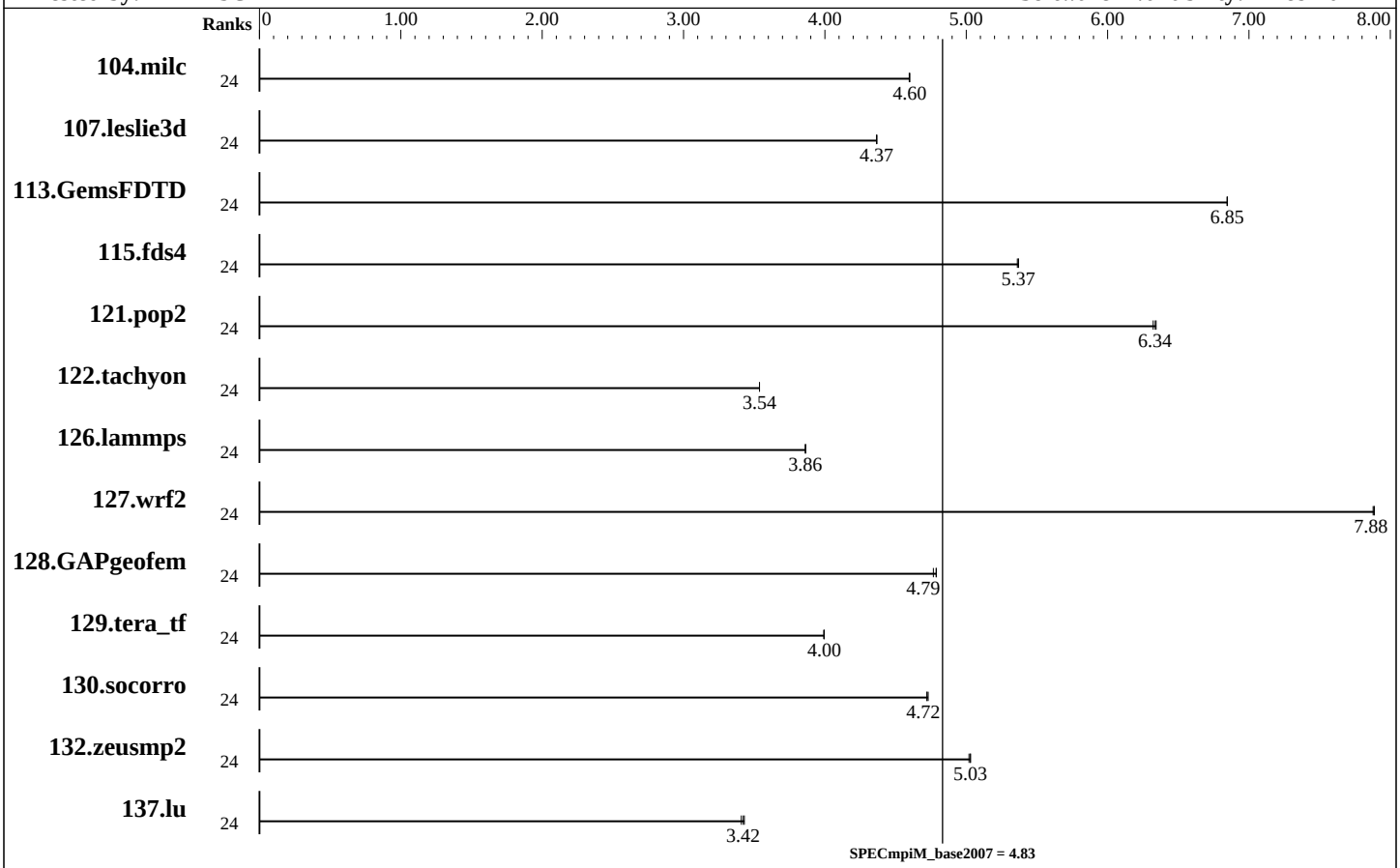
SGI Rackable C2112-4TY14
(Intel Xeon X5675, 3.06GHz)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 4.83

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

Test date: Mar-2011
Hardware Availability: Feb-2011
Software Availability: Feb-2011



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	24	340	4.60	340	4.60	**340**	**4.60**							
107.leslie3d	24	1196	4.37	**1196**	**4.37**	1195	4.37							
113.GemsFDTD	24	921	6.85	921	6.85	**921**	**6.85**							
115.fds4	24	363	5.37	**363**	**5.37**	364	5.36							
121.pop2	24	**651**	**6.34**	651	6.34	653	6.32							
122.tachyon	24	**791**	**3.54**	791	3.54	791	3.54							
126.lammps	24	**755**	**3.86**	755	3.86	755	3.86							
127.wrf2	24	**989**	**7.88**	990	7.88	988	7.89							
128.GAPgeofem	24	433	4.77	**431**	**4.79**	431	4.79							
129.tera_tf	24	693	4.00	**693**	**4.00**	693	3.99							

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	24	**808**	**4.72**	808	4.72	807	4.73							
132.zeusmp2	24	617	5.03	**617**	**5.03**	618	5.02							
137.lu	24	1072	3.43	1078	3.41	**1074**	**3.42**							

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 C2112-4TY14 Compute Node
Interconnect: InfiniBand (MPI and I/O)
File Server Node: SGI Altix 450 with TP9700
Total Compute Nodes: 2
Total Chips: 4
Total Cores: 24
Total Threads: 48
Total Memory: 48 GB
Base Ranks Run: 24
Minimum Peak Ranks: --
Maximum Peak Ranks: --

Software Summary

C Compiler: Intel C Compiler for Linux Version 11.1, Build 20100806
C++ Compiler: Intel C++ Compiler for Linux Version 11.1, Build 20100806
Fortran Compiler: Intel Fortran Compiler for Linux Version 11.1, Build 20100806
Base Pointers: 64-bit
Peak Pointers: 64-bit
MPI Library: SGI MPT 2.03
Other MPI Info: OFED 1.4.2
Pre-processors: None
Other Software: None

Node Description: SGI Rackable C2112-4TY14 Compute Node

Hardware

Number of nodes: 2
Uses of the node: compute
Vendor: SGI
Model: SGI Rackable C2112-4TY14 (Intel Xeon X5675, 3.06GHz)
CPU Name: Intel Xeon X5675
CPU(s) orderable: 1-2 chips
Chips enabled: 2
Cores enabled: 12
Cores per chip: 6
Threads per core: 2
CPU Characteristics: Six Core, 3.06 GHz, 6.4 GT/s QPI
Intel Turbo Boost Technology up to 3.46 GHz
Hyper-Threading Technology enabled
CPU MHz: 3067
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: 24 GB (6 x 4 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
Kernel 2.6.32.27-0.2-default
Local File System: NFSv3
Shared File System: NFSv3 IPoIB
System State: Multi-user, run level 3
Other Software: SGI Performance Suite 1.0, Build 702r19.sles11-1010072114

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Software Availability: Feb-2011

Node Description: SGI Rackable C2112-4TY14 Compute Node

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

Node Description: SGI Altix 450 with TP9700

Hardware

Number of nodes:	1
Uses of the node:	fileserver
Vendor:	SGI
Model:	SGI Altix 450 (Intel Itanium 2, 1.6GHz)
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:	24 GB (12 x 2 GB, 2Rx4 PC2-3200-4, ECC)
Disk Subsystem:	8.2 TB RAID 5 60 x 146 GB FC (Seagate Cheetah 15K.5)
Other Hardware:	None
Adapter:	MT25208 InfiniHost III Ex (PCIe x8 Gen1 2.5 GT/s)
Number of Adapters:	1
Slot Type:	PCIe x8 Gen1
Data Rate:	InfiniBand 4x DDR
Ports Used:	2
Interconnect Type:	InfiniBand

Software

Adapter:	MT25208 InfiniHost III Ex (PCIe x8 Gen1 2.5 GT/s)
Adapter Driver:	OFED-1.4.1
Adapter Firmware:	5.3.0
Operating System:	SUSE Linux Enterprise Server 10 SP3 (ia64) Kernel 2.6.16.60-0.68.1-default
Local File System:	xfs
Shared File System:	--
System State:	Multi-user, run level 3
Other Software:	SGI ProPack 6SP6 for Linux, Build 606rp75.sles10-1009032310

Interconnect Description: InfiniBand (MPI and I/O)

Hardware

Vendor:	Mellanox Technologies
Model:	None
Switch Model:	Voltaire Grid Director 4036
Number of Switches:	1
Number of Ports:	36
Data Rate:	InfiniBand 4x QDR
Firmware:	2.0.1 BUILD ID 22

Software

Continued on next page

Interconnect Description: InfiniBand (MPI and I/O)

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 080016
  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`

Continued on next page

Base Portability Flags (Continued)

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_Intel111_flags.20100202.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel111_flags.20100202.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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