SPEC® MPIM2007 Result

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SGI

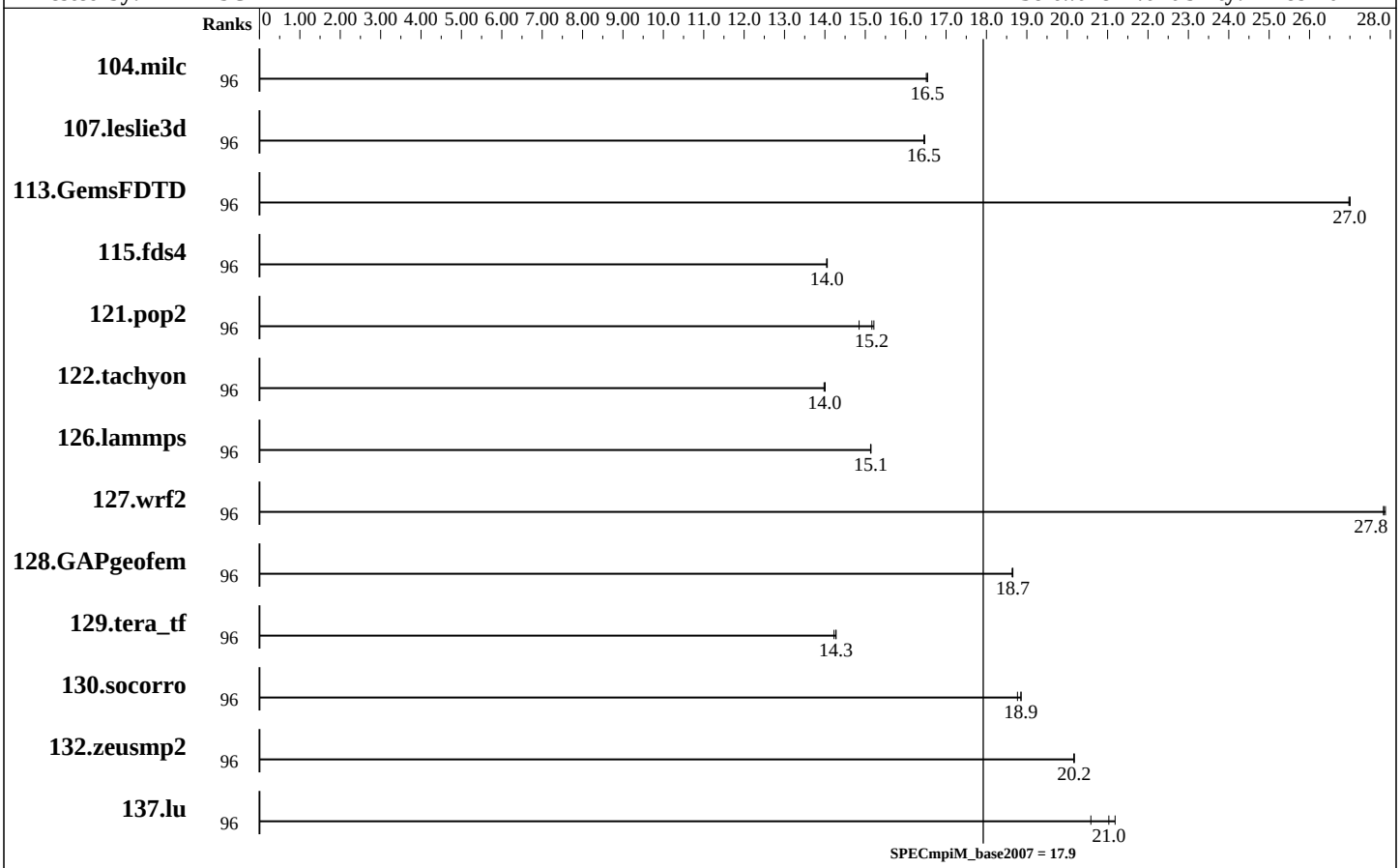
SGI Rackable C2112-4TY14
(Intel Xeon X5675, 3.06GHz)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 17.9

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	96	94.8	16.5	94.6	16.5	**94.6**	**16.5**							
107.leslie3d	96	317	16.5	317	16.5	**317**	**16.5**							
113.GemsFDTD	96	234	27.0	**234**	**27.0**	234	27.0							
115.fds4	96	139	14.0	139	14.1	**139**	**14.0**							
121.pop2	96	271	15.2	278	14.8	**272**	**15.2**							
122.tachyon	96	**200**	**14.0**	200	14.0	200	14.0							
126.lammps	96	193	15.1	**193**	**15.1**	193	15.1							
127.wrf2	96	**280**	**27.8**	280	27.8	280	27.9							
128.GAPgeofem	96	111	18.7	**111**	**18.7**	111	18.6							
129.tera_tf	96	195	14.2	**194**	**14.3**	194	14.3							

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	96	**202**	**18.9**	203	18.8	202	18.9							
132.zeusmp2	96	**154**	**20.2**	154	20.2	154	20.2							
137.lu	96	179	20.6	174	21.2	**175**	**21.0**							

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:	8
Total Chips:	16
Total Cores:	96
Total Threads:	192
Total Memory:	192 GB
Base Ranks Run:	96
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:	8
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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Test date: Mar-2011
Hardware Availability: Feb-2011
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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