SPEC® MPIM2007 Result

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SGI

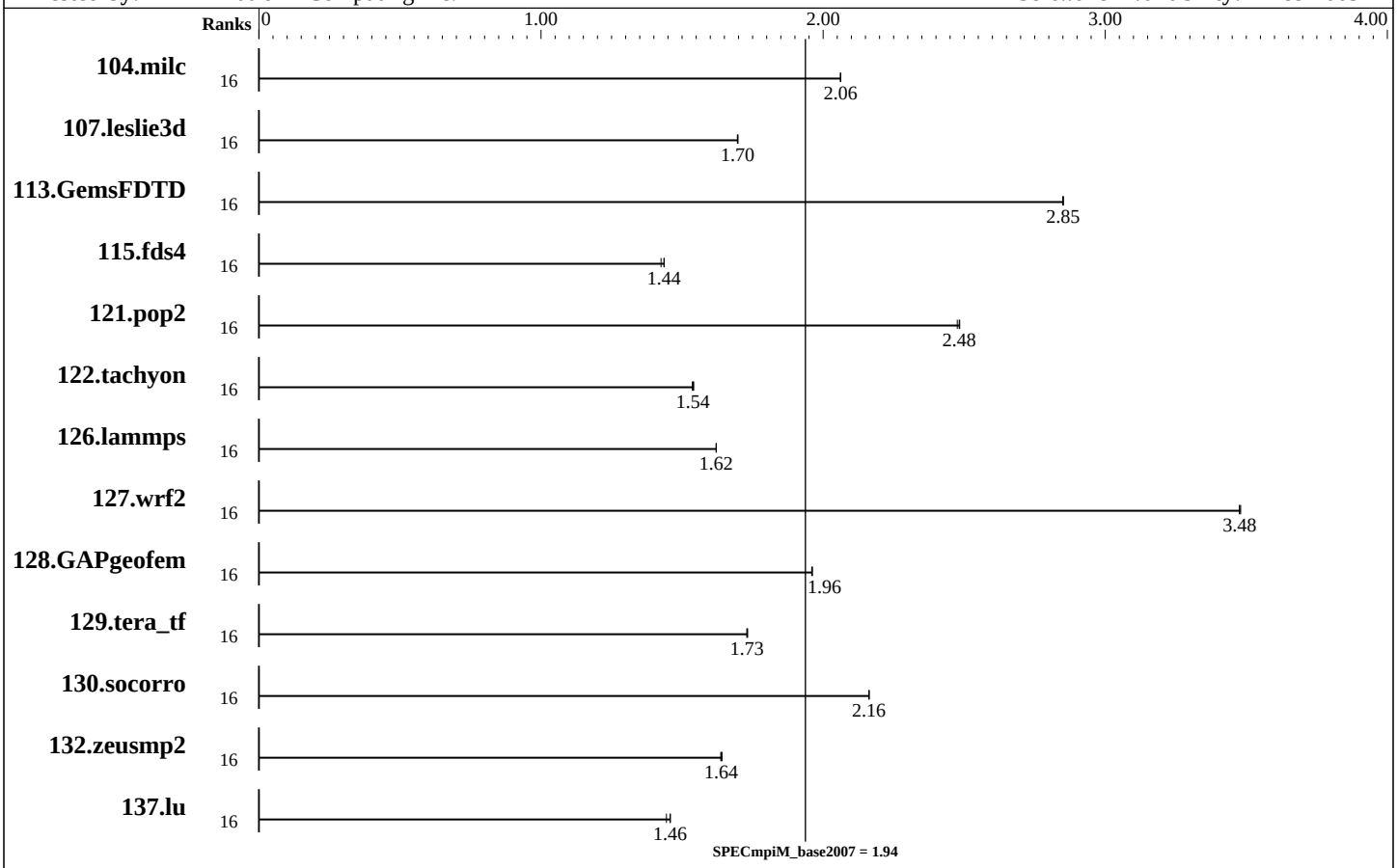
SGI Altix ICE 8200EX
(Intel Xeon X5570, 2.93 GHz, PMPI 5.6.6)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 1.94

MPI2007 license: 021
Test sponsor: Platform Computing Inc.
Tested by: Platform Computing Inc.

Test date: Mar-2009
Hardware Availability: Mar-2009
Software Availability: Feb-2009



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	16	759	2.06	**759**	**2.06**	759	2.06							
107.leslie3d	16	**3075**	**1.70**	3075	1.70	3078	1.70							
113.GemsFDTD	16	**2213**	**2.85**	2214	2.85	2212	2.85							
115.fds4	16	1369	1.43	**1359**	**1.44**	1358	1.44							
121.pop2	16	**1663**	**2.48**	1662	2.48	1668	2.48							
122.tachyon	16	1815	1.54	1821	1.54	**1817**	**1.54**							
126.lammps	16	**1798**	**1.62**	1798	1.62	1799	1.62							
127.wrf2	16	2243	3.48	2240	3.48	**2242**	**3.48**							
128.GAPgeofem	16	1054	1.96	1053	1.96	**1053**	**1.96**							
129.tera_tf	16	1600	1.73	1598	1.73	**1600**	**1.73**							

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	16	1765	2.16	1765	2.16	**1765**	**2.16**							
132.zeusmp2	16	1890	1.64	1895	1.64	**1893**	**1.64**							
137.lu	16	2545	1.44	2520	1.46	**2522**	**1.46**							

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 Altix ICE 8200EX Compute Node
Interconnects:	InfiniBand (MPI) InfiniBand (I/O)
File Server Node:	SGI InfiniteStorage Nexis 2000 NAS
Total Compute Nodes:	1
Total Chips:	2
Total Cores:	8
Total Threads:	16
Total Memory:	48 GB
Base Ranks Run:	16
Minimum Peak Ranks:	--
Maximum Peak Ranks:	--

Software Summary

C Compiler:	Intel C Compiler for Linux Version 10.1, Build 20080801
C++ Compiler:	Intel C++ Compiler for Linux Version 10.1, Build 20080801
Fortran Compiler:	Intel Fortran Compiler for Linux Version 10.1, Build 20080801
Base Pointers:	64-bit
Peak Pointers:	64-bit
MPI Library:	Platform MPI 5.6.6-59413
Other MPI Info:	OFED 1.3.1 Platform Computing Inc has acquired Scali MPI Connect, hence Platform MPI and Scali MPI Connect are used synonymously.
Pre-processors:	None
Other Software:	None

Node Description: SGI Altix ICE 8200EX Compute Node

Hardware

Number of nodes:	1
Uses of the node:	compute
Vendor:	SGI
Model:	SGI Altix ICE 8200EX (Intel Xeon X5570, 2.93 GHz)
CPU Name:	Intel Xeon X5570
CPU(s) orderable:	1-2 chips
Chips enabled:	2
Cores enabled:	8
Cores per chip:	4
Threads per core:	2
CPU Characteristics:	Intel Turbo Boost Technology up to 3.33 GHz, 6.4 GT/s QPI, Hyper-Threading enabled
CPU MHz:	2934
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	256 KB I+D on chip per core
L3 Cache:	8 MB I+D on chip per chip
Other Cache:	None
Memory:	48 GB (12*4GB DDR3-1066 CL7 RDIMMs)
Disk Subsystem:	None
Other Hardware:	None
Adapter:	Mellanox MT26418 ConnectX IB DDR (PCIe x8 Gen2 5 GT/s)

Continued on next page

Software

Adapter:	Mellanox MT26418 ConnectX IB DDR (PCIe x8 Gen2 5 GT/s)
Adapter Driver:	OFED-1.3.1
Adapter Firmware:	2.5.0
Operating System:	SUSE Linux Enterprise Server 10 (x86_64) SP2 Kernel 2.6.16.60-0.30-smp
Local File System:	NFSv3
Shared File System:	NFSv3 IPoIB
System State:	Multi-user, run level 3
Other Software:	SGI ProPack 6 for Linux Service Pack 2

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Software Availability: Feb-2009

Node Description: SGI Altix ICE 8200EX Compute Node

Number of Adapters:	1
Slot Type:	PCIe x8 Gen2
Data Rate:	InfiniBand 4x DDR
Ports Used:	2
Interconnect Type:	InfiniBand

Node Description: SGI InfiniteStorage Nexis 2000 NAS

Hardware

Number of nodes:	1
Uses of the node:	fileserver
Vendor:	SGI
Model:	SGI Altix XE 240 (Intel Xeon 5140, 2.33 GHz)
CPU Name:	Intel Xeon 5140
CPU(s) orderable:	1-2 chips
Chips enabled:	2
Cores enabled:	4
Cores per chip:	2
Threads per core:	1
CPU Characteristics:	1333 MHz FSB
CPU MHz:	2328
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	4 MB I+D on chip per chip
L3 Cache:	None
Other Cache:	None
Memory:	24 GB (6*4GB DDR2-400 DIMMS)
Disk Subsystem:	7 TB RAID 5 48 x 147 GB SAS (Seagate Cheetah 15000 rpm)
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-1.3
Adapter Firmware:	5.3.0
Operating System:	SUSE Linux Enterprise Server 10 (x86_64) SP1 Kernel 2.6.16.54-0.2.5-smp
Local File System:	xfs
Shared File System:	--
System State:	Multi-user, run level 3
Other Software:	SGI ProPack 5 for Linux Service Pack 5

Interconnect Description: InfiniBand (MPI)

Hardware

Vendor:	Mellanox Technologies
Model:	MT26418 ConnectX
Switch Model:	Mellanox MT47396 InfiniScale III
Number of Switches:	8
Number of Ports:	24
Data Rate:	InfiniBand 4x DDR

Software

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Test date: Mar-2009
Hardware Availability: Mar-2009
Software Availability: Feb-2009

Interconnect Description: InfiniBand (MPI)

Firmware:	2020001
Topology:	Bristle hypercube with express links
Primary Use:	MPI traffic

Interconnect Description: InfiniBand (I/O)

Hardware

Vendor:	Mellanox Technologies
Model:	MT26418 ConnectX
Switch Model:	Mellanox MT47396 InfiniScale-III
Number of Switches:	8
Number of Ports:	24
Data Rate:	InfiniBand 4x DDR
Firmware:	2020001
Topology:	Bristle hypercube with express links
Primary Use:	I/O traffic

Software

Submit Notes

```
The config file option 'submit' was used.
```

General Notes

```
Software environment:
  limit stacksize unlimited
    Removes limits on the maximum size of the automatically-
    extended stack region of the current process and each
    process it creates.
PBS Pro batch scheduler (www.altair.com) is used with
  placement sets to ensure each MPI job is assigned to
  a topologically compact set of nodes
BIOS settings:
  AMI BIOS version 8.15
  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:

```
mpicc  -ccl icc
```

Continued on next page

Base Compiler Invocation (Continued)

C++ benchmarks:

126.lammps: `mpicc -ccl icpc`

Fortran benchmarks:
`mpif77 -ccl ifort`

Benchmarks using both Fortran and C:
`mpicc -ccl icc mpif77 -ccl 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 -ipo -xT -no-prec-div`

C++ benchmarks:

126.lammps: `-O3 -ipo -xT -no-prec-div -ansi-alias`

Fortran benchmarks:
`-O3 -ipo -xT -no-prec-div`

Benchmarks using both Fortran and C:
`-O3 -ipo -xT -no-prec-div`

The flags files that were used to format this result can be browsed at
http://www.spec.org/mpi2007/flags/MPI2007_flags.20081204.html
http://www.spec.org/mpi2007/flags/EM64T_Intel101_flags.20080618.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/mpi2007/flags/MPI2007_flags.20081204.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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