SPEC® MPIM2007 Result
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SGI

SGI Altix ICE 8200EX
(Intel Xeon X5570, 2.93 GHz, DDR3-1333)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 =   13.9

MPI2007 license: 4	**Test date:** Sep-2009
Test sponsor: SGI	**Hardware Availability:** Mar-2009
Tested by: SGI	**Software Availability:** Aug-2009

Ranks 0 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.0 11.0 12.0 13.0 14.0 15.0 16.0 17.0 18.0 19.0 20.0 21.0 22.0 24.0

- 104.milc   64   15.6
- 107.leslie3d   64   12.2
- 113.GemsFDTD   64   23.1
- 115.fds4   64   12.2
- 121.pop2   64   11.3
- 122.tachyon   64   9.50
- 126.lammps   64   10.1
- 127.wrf2   64   23.7
- 128.GAPgeofem   64   15.8
- 129.tera_tf   64   9.98
- 130.socorro   64   16.3
- 132.zeusmp2   64   13.6
- 137.lu   64   15.7

SPECmpiM_base2007 = 13.9

Results Table

Benchmark	Ranks	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Ranks	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
104.milc	64	**100**	**15.6**	99.7	15.7									
107.leslie3d	64	426	12.2	**427**	**12.2**									
113.GemsFDTD	64	**273**	**23.1**	273	23.1									
115.fds4	64	**161**	**12.2**	160	12.2									
121.pop2	64	350	11.8	**366**	**11.3**									
122.tachyon	64	294	9.52	**294**	**9.50**									
126.lammps	64	**289**	**10.1**	289	10.1									
127.wrf2	64	**329**	**23.7**	329	23.7									
128.GAPgeofem	64	**131**	**15.8**	130	15.9									
129.tera_tf	64	**277**	**9.98**	274	10.1									

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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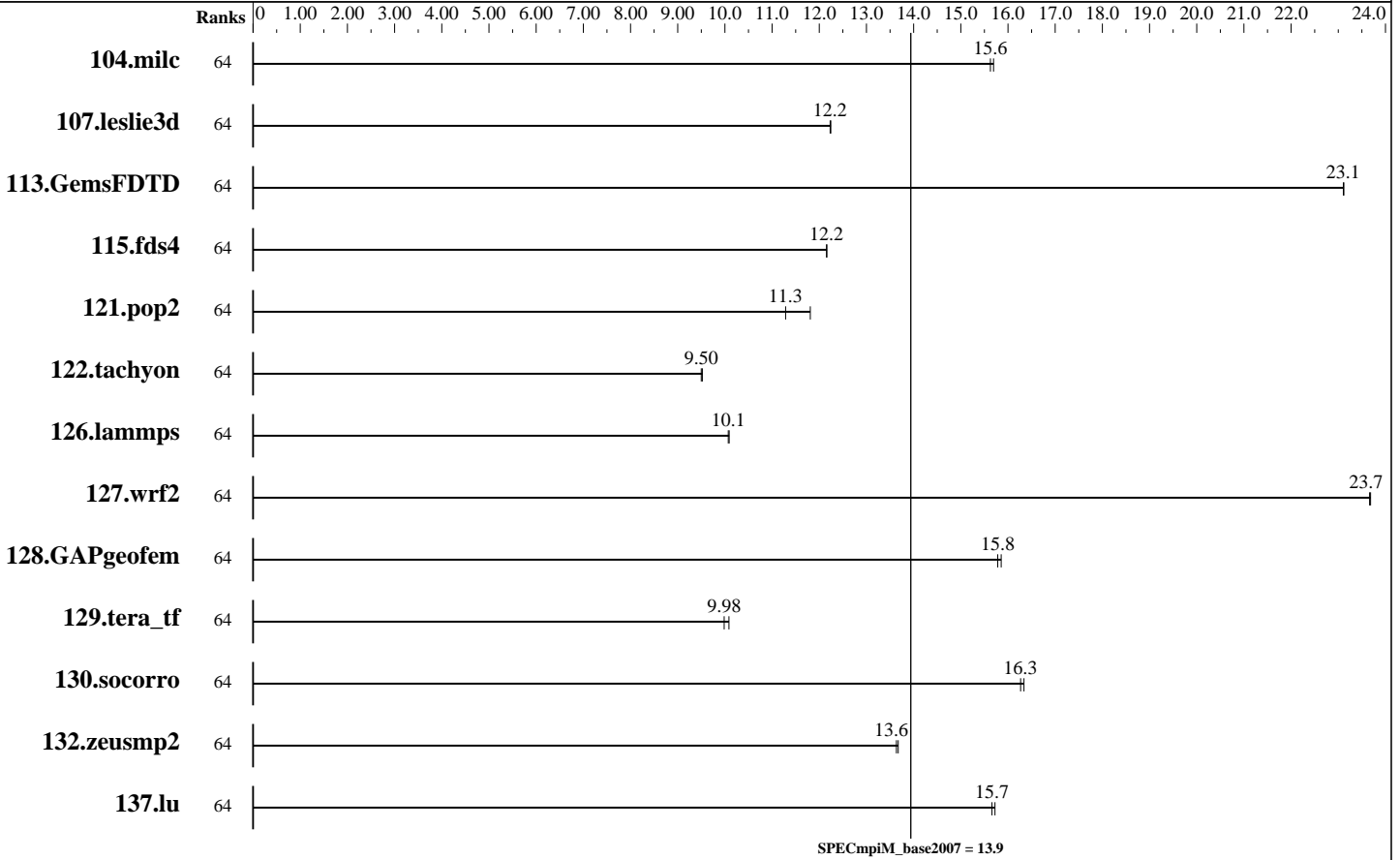SPECmpiM_base2007 = 13.9

MPI2007 license: 4		**Test date:**	Sep-2009
Test sponsor:	SGI	**Hardware Availability:**	Mar-2009
Tested by:	SGI	**Software Availability:**	Aug-2009

Results Table (Continued)

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
130.socorro	64	**235**	**16.3**	234	16.3									
132.zeusmp2	64	227	13.7	**228**	**13.6**									
137.lu	64	**235**	**15.7**	234	15.7									

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:	8
Total Chips:	16
Total Cores:	64
Total Threads:	128
Total Memory:	192 GB
Base Ranks Run:	64
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:	SGI MPT 1.24
Other MPI Info:	OFED 1.4
Pre-processors:	None
Other Software:	None

Node Description: SGI Altix ICE 8200EX Compute Node

Hardware

Number of nodes:	8
Uses of the node:	compute
Vendor:	SGI
Model:	SGI Altix ICE 8200EX (Intel Xeon X5570, 2.93 GHz, DDR3-1333)
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:	24 GB (6*4GB DDR3-1333 CL9 RDIMMs)
Disk Subsystem:	None
Other Hardware:	None
Adapter:	Mellanox MT26418 ConnectX IB DDR (PCIe x8 Gen2 5 GT/s)
Number of Adapters:	1

Software

Adapter:	Mellanox MT26418 ConnectX IB DDR (PCIe x8 Gen2 5 GT/s)
Adapter Driver:	OFED-1.4
Adapter Firmware:	2.6.0
Operating System:	SUSE Linux Enterprise Server 10 (x86_64) SP2 Kernel 2.6.16.60-0.34-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 3, SGI Tempo V 1.7

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Test sponsor:	SGI	**Hardware Availability:**	Mar-2009
Tested by:	SGI	**Software Availability:**	Aug-2009

Node Description: SGI Altix ICE 8200EX Compute Node

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:	16
Number of Ports:	24
Data Rate:	InfiniBand 4x DDR
Firmware:	2020001

Software

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

Test date: Sep-2009
Hardware Availability: Mar-2009
Software Availability: Aug-2009

Interconnect Description: InfiniBand (MPI)

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:
  export MPI_REQUEST_MAX=65536
  export MPI_TYPE_MAX=32768
  export MPI_BUFS_THRESHOLD=1
  export MPI_DSM_DISTRIBUTE=yes
  export MPI_IB_RAILS=2
  ulimit -s unlimited
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
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 16/32/64 ranks, 4 switches
  for 128 ranks, 8 switches for 256 ranks and 16 switches for
  512 ranks.
```

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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 -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

Base Other Flags

C benchmarks:
    -lmpi

C++ benchmarks:

    126.lammps: -lmpi

Fortran benchmarks:
    -lmpi

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Software Availability: Aug-2009

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_Intel111_flags.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.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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