SPEC® MPIM2007 Result

SGI

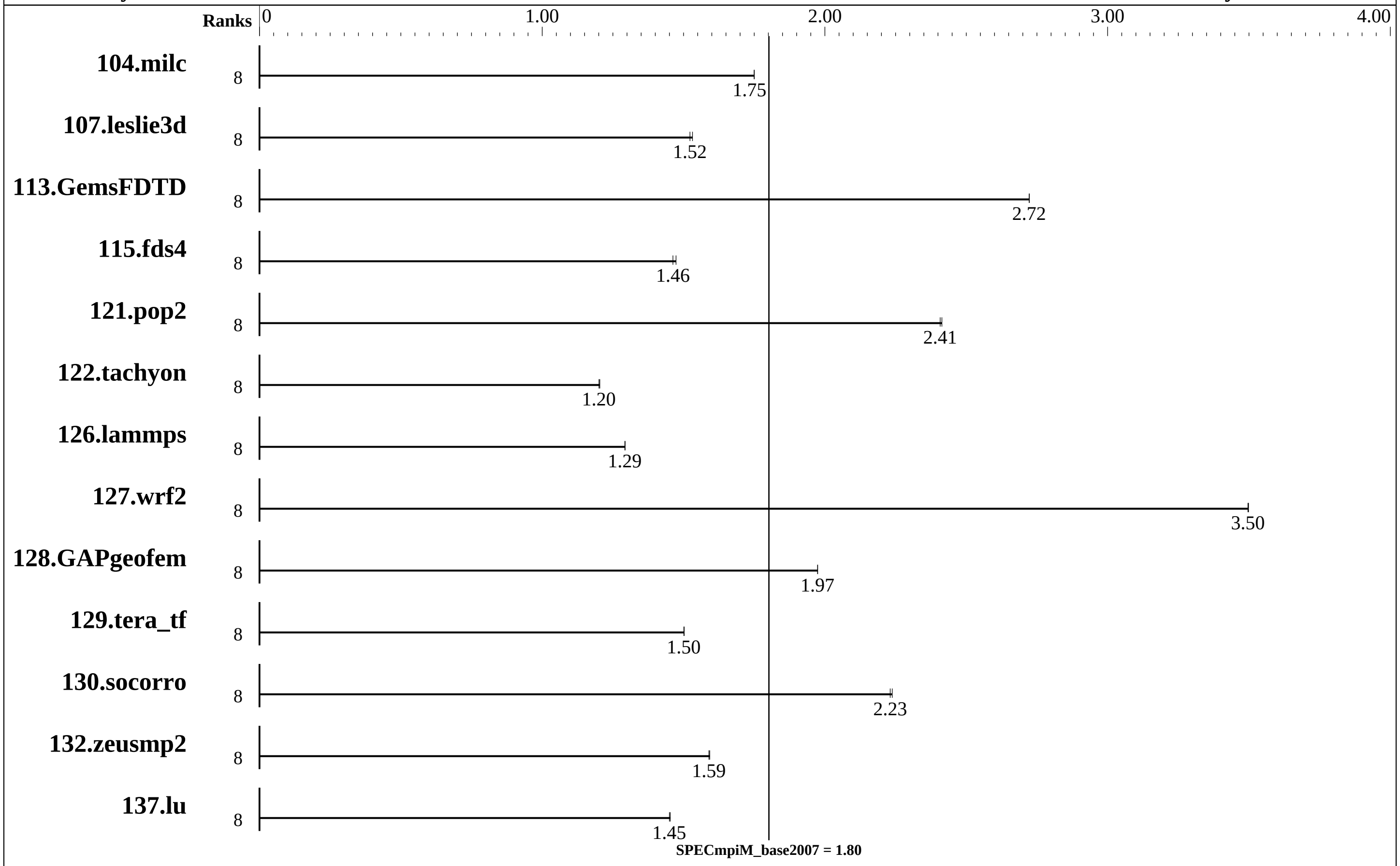
SGI Altix ICE 8200EX
(Intel Xeon X5570, 2.93 GHz)

SPECmpiM_peak2007 = Not Run

SPECmpiM_base2007 = 1.80

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

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



Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	8	**894**	**1.75**	894	1.75									
107.leslie3d	8	**3428**	**1.52**	3408	1.53									
113.GemsFDTD	8	**2317**	**2.72**	2316	2.72									
115.fds4	8	1324	1.47	**1334**	**1.46**									
121.pop2	8	1710	2.41	**1714**	**2.41**									
122.tachyon	8	**2329**	**1.20**	2324	1.20									
126.lammps	8	2254	1.29	**2256**	**1.29**									
127.wrf2	8	2228	3.50	**2230**	**3.50**									
128.GAPgeofem	8	**1046**	**1.97**	1046	1.97									
129.tera_tf	8	1843	1.50	**1844**	**1.50**									

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)

	Base							Peak						
Benchmark	**Ranks**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Ranks**	**Seconds**	**Ratio**	**Seconds**	**Ratio**	**Seconds**	**Ratio**
130.socorro	8	**1711**	**2.23**	1705	2.24									
132.zeusmp2	8	**1952**	**1.59**	1948	1.59									
137.lu	8	2530	1.45	**2535**	**1.45**									

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:	8
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 1.23
Other MPI Info:	OFED 1.3.1
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)
Number of Adapters:	1

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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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Test sponsor:	SGI	**Hardware Availability:**	Mar-2009
Tested by:	SGI	**Software Availability:**	Jan-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:	8
Number of Ports:	24
Data Rate:	InfiniBand 4x DDR
Firmware:	2020001

Software

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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:
  setenv MPI_REQUEST_MAX 65536
    Determines the maximum number of nonblocking sends and
    receives that can simultaneously exist for any single MPI
    process.  MPI generates an error message if this limit
    (or the default, if not set) is exceeded.  Default:  16384
  setenv MPI_TYPE_MAX 32768
    Determines the maximum number of data types that can
    simultaneously exist for any single MPI process.
    MPI generates an error message if this limit (or the default,
    if not set) is exceeded.  Default:  1024
  setenv MPI_BUFS_THRESHOLD 1
    Determines whether MPT uses per-host or per-process message
    buffers for communicating with other hosts.  Per-host buffers
    are generally faster but for jobs running across many hosts they
    can consume a prodigious amount of memory.  MPT will use per-
    host buffers for jobs using up to and including this many hosts
    and will use per-process buffers for larger host counts.
    Default:  64
  setenv MPI_DSM_DISTRIBUTE
    Activates NUMA job placement mode.  This mode ensures that each
    MPI process gets a unique CPU and physical memory on the node
    with which that CPU is associated.  Currently, the CPUs are
    chosen by simply starting at relative CPU 0 and incrementing
```

Continued on next page

General Notes (Continued)

```
      until all MPI processes have been forked.

    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:
`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:

Continued on next page

Base Optimization Flags (Continued)

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`

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/EM64T_Intel101_flags.20080611.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/mpi2007/flags/EM64T_Intel101_flags.20080611.xml`

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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