



# SPEC® MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

## SGI

SGI Altix ICE 8400EX  
(Intel Xeon X5680, 3.33 GHz)

SPECmpiM\_peak2007 = Not Run

SPECmpiM\_base2007 = 18.0

MPI2007 license: 4

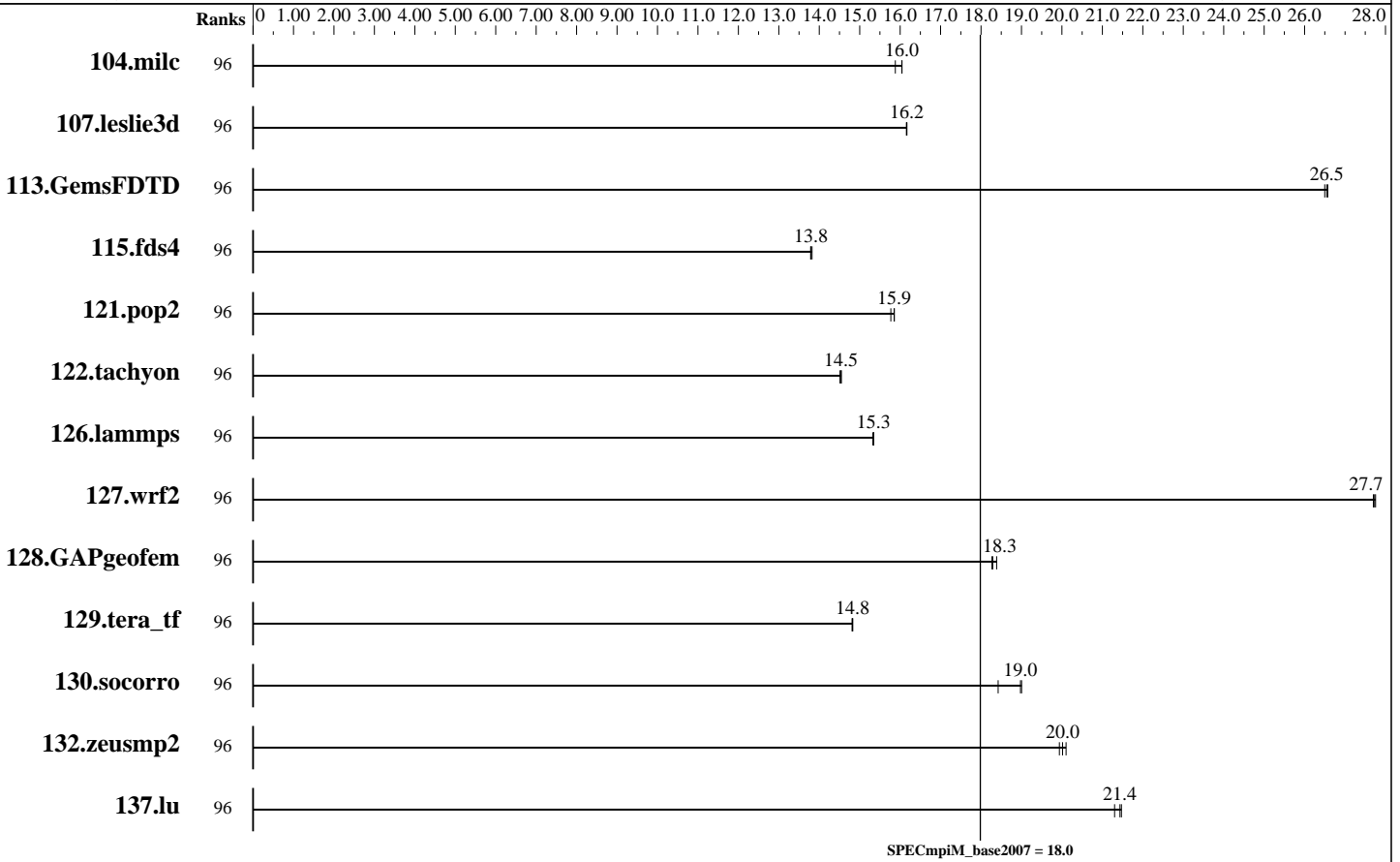
Test sponsor: SGI

Tested by: SGI

Test date: Sep-2010

Hardware Availability: May-2010

Software Availability: Oct-2010



## Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	96	98.5	15.9	97.5	16.0	<b>97.5</b>	<b>16.0</b>							
107.leslie3d	96	323	16.2	<b>323</b>	<b>16.2</b>	323	16.2							
113.GemsFDTD	96	237	26.6	<b>238</b>	<b>26.5</b>	238	26.5							
115.fds4	96	141	13.8	142	13.8	<b>141</b>	<b>13.8</b>							
121.pop2	96	260	15.9	<b>260</b>	<b>15.9</b>	262	15.8							
122.tachyon	96	193	14.5	<b>192</b>	<b>14.5</b>	192	14.5							
126.lammgs	96	190	15.3	<b>190</b>	<b>15.3</b>	190	15.3							
127.wrf2	96	<b>281</b>	<b>27.7</b>	281	27.7	281	27.8							
128.GAPgeofem	96	113	18.3	112	18.4	<b>113</b>	<b>18.3</b>							
129.tera_tf	96	<b>187</b>	<b>14.8</b>	187	14.8	187	14.8							

Table continues on next page. Results appear in the order in which they were run. Bold underlined text indicates a median measurement.



# SPEC MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

## SGI

SGI Altix ICE 8400EX  
(Intel Xeon X5680, 3.33 GHz)

SPECmpiM\_peak2007 = Not Run

SPECmpiM\_base2007 = 18.0

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

Test date: Sep-2010  
Hardware Availability: May-2010  
Software Availability: Oct-2010

### Results Table (Continued)

Benchmark	Base								Peak							
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
130.socorro	96	201	19.0	<b><u>201</u></b>	<b><u>19.0</u></b>	207	18.4									
132.zeusmp2	96	<b><u>155</u></b>	<b><u>20.0</u></b>	156	19.9	154	20.1									
137.lu	96	171	21.5	<b><u>171</u></b>	<b><u>21.4</u></b>	173	21.3									

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 8400EX 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: 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 20100414  
 C++ Compiler: Intel C++ Compiler for Linux  
 Version 11.1, Build 20100414  
 Fortran Compiler: Intel Fortran Compiler for Linux  
 Version 11.1, Build 20100414  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 MPI Library: SGI MPT 2.02 Beta  
 Other MPI Info: OFED 1.4.2  
 Pre-processors: None  
 Other Software: None

### Node Description: SGI Altix ICE 8400EX Compute Node

#### Hardware

Number of nodes: 8  
 Uses of the node: compute  
 Vendor: SGI  
 Model: SGI Altix ICE 8400EX (Intel Xeon X5680, 3.33 GHz)  
 CPU Name: Intel Xeon X5680  
 CPU(s) orderable: 1-2 chips  
 Chips enabled: 2  
 Cores enabled: 12  
 Cores per chip: 6  
 Threads per core: 2  
 CPU Characteristics: Six Core, 3.33 GHz, 6.4 GT/s QPI  
 Intel Turbo Boost Technology up to 3.6 GHz  
 Hyper-Threading Technology enabled  
 CPU MHz: 3333  
 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\*4GB DDR3-1333 CL9 RDIMMs)  
 Disk Subsystem: None  
 Other Hardware: None  
 Adapter: Mellanox MT26428 ConnectX IB QDR  
 (PCIe x8 Gen2 5 GT/s)  
 Number of Adapters: 2

#### Software

Adapter: Mellanox MT26428 ConnectX IB QDR  
 (PCIe x8 Gen2 5 GT/s)  
 Adapter Driver: OFED-1.4.2  
 Adapter Firmware: 2.7.200  
 Operating System: SUSE Linux Enterprise Server 11 SP1,  
 Kernel 2.6.32.13-0.4-default  
 Local File System: NFSv3  
 Shared File System: NFSv3 IPoIB  
 System State: Multi-user, run level 3  
 Other Software: SGI ProPack 7 for Linux Service Pack 1,  
 SGI Tempo V 2.1

Continued on next page



# SPEC MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

## SGI

SGI Altix ICE 8400EX  
(Intel Xeon X5680, 3.33 GHz)

SPECmpiM\_peak2007 = Not Run

SPECmpiM\_base2007 = 18.0

MPI2007 license: 4

Test sponsor: SGI

Tested by: SGI

Test date: Sep-2010

Hardware Availability: May-2010

Software Availability: Oct-2010

### Node Description: SGI Altix ICE 8400EX Compute Node

Slot Type: PCIe x8 Gen2  
Data Rate: InfiniBand 4x QDR  
Ports Used: 1  
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 270 (Intel Xeon X5670, 2.93 GHz)  
CPU Name: Intel Xeon X5670  
CPU(s) orderable: 1-2 chips  
Chips enabled: 2  
Cores enabled: 12  
Cores per chip: 6  
Threads per core: 2  
CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz  
Hyper-Threading Technology enabled  
CPU MHz: 2933  
Primary Cache: 32 KB I + 32 KB D on chip per core  
Secondary Cache: 256 KB I+D on chip per chip  
L3 Cache: 12 MB I+D on chip per chip  
Other Cache: None  
Memory: 24 GB (6\*4GB DDR3-1333 CL9 DIMMs)  
Disk Subsystem: 8.8 TB RAID 5  
60 x 146 GB SAS (Seagate Cheetah 15K.5)  
Other Hardware: None  
Adapter: Mellanox MT26418 ConnectX, MT25208 InfiniHost III Ex  
(PCIe x8 Gen2 5 GT/s, PCIe x8 Gen1 2.5 GT/s)  
Number of Adapters: 2  
Slot Type: PCIe x8 Gen2, PCIe x8 Gen1  
Data Rate: InfiniBand 4x DDR  
Ports Used: 2  
Interconnect Type: InfiniBand

#### Software

Adapter: Mellanox MT26418 ConnectX, MT25208 InfiniHost III Ex  
(PCIe x8 Gen2 5 GT/s, PCIe x8 Gen1 2.5 GT/s)  
Adapter Driver: OFED-1.4.0  
Adapter Firmware: 2.6.0 and 5.2.0  
Operating System: SUSE Linux Enterprise Server 11 (x86\_64)  
Kernel 2.6.27.19-5-default  
Local File System: xfs  
Shared File System: --  
System State: Multi-user, run level 3  
Other Software: SGI Foundation Software 2

### Interconnect Description: InfiniBand (MPI)

#### Hardware

Vendor: Mellanox Technologies and SGI  
Model: MT26428 ConnectX  
Switch Model: SGI QDR\_1.5\_HYPR\_2454 with Mellanox Device 48438  
(Infiniscale IV)  
Number of Switches: 32  
Number of Ports: 36

#### Software

Continued on next page



# SPEC MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

## SGI

SGI Altix ICE 8400EX  
(Intel Xeon X5680, 3.33 GHz)

SPECmpiM\_peak2007 = Not Run

SPECmpiM\_base2007 = 18.0

MPI2007 license: 4

Test sponsor: SGI

Tested by: SGI

Test date: Sep-2010

Hardware Availability: May-2010

Software Availability: Oct-2010

### Interconnect Description: InfiniBand (MPI)

Data Rate: InfiniBand 4x QDR  
Firmware: 5030005  
Topology: Enhanced Hypercube  
Primary Use: MPI traffic

### Interconnect Description: InfiniBand (I/O)

	Hardware	Software
Vendor:	Mellanox Technologies and SGI	
Model:	MT26428 ConnectX	
Switch Model:	SGI QDR_1.5_HYPR_2454 with Mellanox Device 48438 (Infiniscale IV)	
Number of Switches:	16	
Number of Ports:	36	
Data Rate:	InfiniBand 4x QDR	
Firmware:	5030005	
Topology:	Enhanced Hypercube	
Primary Use:	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  
export MPI\_IB\_RAILS=2  
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

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 96 ranks, 4 switches for 192 ranks, 8 switches for 384 ranks,

Continued on next page



# SPEC MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

**SGI**

SGI Altix ICE 8400EX  
(Intel Xeon X5680, 3.33 GHz)

SPECmpiM\_peak2007 = Not Run

SPECmpiM\_base2007 = 18.0

MPI2007 license: 4

Test sponsor: SGI

Tested by: SGI

Test date: Sep-2010

Hardware Availability: May-2010

Software Availability: Oct-2010

## General Notes (Continued)

16 switches for 768 ranks, 32 switches for 1536 ranks.

## 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 -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:

Continued on next page

Standard Performance Evaluation Corporation

info@spec.org

http://www.spec.org/

Page 5



# SPEC MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

## SGI

SGI Altix ICE 8400EX  
(Intel Xeon X5680, 3.33 GHz)

SPECmpiM\_peak2007 = Not Run

SPECmpiM\_base2007 = 18.0

MPI2007 license: 4

Test sponsor: SGI

Tested by: SGI

Test date: Sep-2010

Hardware Availability: May-2010

Software Availability: Oct-2010

## Base Other Flags (Continued)

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.html](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](http://www.spec.org/mpi2007/flags/SGI_x86_64_Intel111_flags.xml)

SPEC and SPEC MPI are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC MPI2007 v2.0.  
Report generated on Tue Jul 22 13:40:58 2014 by SPEC MPI2007 PS/PDF formatter v1463.  
Originally published on 22 September 2010.