



# 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 = NC

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

- Ranks
- 104.milc
- 107.leslie3d
- 113.GemsFDTD
- 115.fds4
- 121.pop2
- 122.tachyon
- 126.lammps
- 127.wrf2
- 128.GAPgeofem
- 129.tera\_tf
- 130.soc
- 132.zeusmp2
- 137.lu

Non-Compliant

### Results Table

Benchmark	Base							Peak						
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
104.milc	32	NC	NC	NC	NC	NC	NC							
107.leslie3d	32	NC	NC	NC	NC	NC	NC							

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		
113.GemsFDTD	32	NC	NC	NC	NC	NC	NC									
115.fds4	32	NC	NC	NC	NC	NC	NC									
121.pop2	32	NC	NC	NC	NC	NC	NC									
122.tachyon	32	NC	NC	NC	NC	NC	NC									
126.lammps	32	NC	NC	NC	NC	NC	NC									
127.wrf2	32	NC	NC	NC	NC	NC	NC									
128.GAPgeofem	32	NC	NC	NC	NC	NC	NC									
129.tera_tf	32	NC	NC	NC	NC	NC	NC									
130.socorro	32	NC	NC	NC	NC	NC	NC									
132.zeusmp2	32	NC	NC	NC	NC	NC	NC									
137.lu	32	NC	NC	NC	NC	NC	NC									

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  
 Interconnect: InfiniBand (MPI)  
 InfiniBand (I/O)  
 File Server Node: SGI InfiniteStorage Nexis 2000 NAS  
 Total Compute Nodes: 2  
 Total MPI Ranks: 4  
 Total Cores: 16  
 Total Threads: 32  
 Total Memory: 96 GB  
 Base Ranks Run: 32  
 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



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### Node Description: SGI Altix ICE 8200EX Compute Node

Hardware		Software	
Number of nodes:	2	Adapter:	Mellanox MT26418 ConnectX IB DDR (PCIe x8 Gen2 5 GT/s)
Uses of the node:	compute	Adapter Driver:	OFED-1.3.1
Vendor:	SGI	Adapter Firmware:	2.5.0
Model:	SGI Altix ICE 8200EX (Intel Xeon X5570, 2.93 GHz)	Operating System:	SUSE Linux Enterprise Server 10 (x86_64) SP2 Kernel 2.6.16.60-0.30-smp
CPU Name:	Intel Xeon X5570	Local File System:	NFSv3
CPU(s) orderable:	1-2 chips	Shared File System:	NFSv3 IPoIB
Chips enabled:	2	System State:	Multi-user, run level 3
Cores enabled:	8	Other Software:	SGI ProPack 6 for Linux Service Pack 2
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 (12x4GB DDR2 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		
Slot Type:	PCIe x8 Gen2		
Data Rate:	InfiniBand 4x DDR		
Ports Used:	2		
Interconnect:	InfiniBand		

### Node Description: SGI InfiniteStorage Nexis 2000 NAS

Hardware		Software	
Number of nodes:	1	Adapter:	Mellanox MT25208 InfiniHost III Ex (PCIe x8 Gen1 2.5 GT/s)
Uses of the node:	fileserver	Adapter Driver:	OFED-1.3
Vendor:	SGI	Adapter Firmware:	5.3.0
Model:	SGI Altix XE 240 (Intel Xeon 5140, 2.33 GHz)		

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Software Availability: Feb-2009

### Node Description: SGI InfiniteStorage Nexis 7000 NAS

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 1066 DIMMs)  
 Disk Subsystem: 7 TB RAID 5  
 48 x 147 GB SAS (Seagate Cheetah 15000 rpm)  
 Other Hardware: None  
 Adapter: Mellanox MT2520 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

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

### Software



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Software Availability: Feb-2009

### Interconnect Description: InfiniBand (QO)

#### 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](http://www.altair.com)) is used with  
 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



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## Base Compiler Invocation

C benchmarks:

mpicc -ccl icc

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



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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/MPI2007_flags.20081204.html)

[http://www.spec.org/mpi2007/flags/EM64T\\_Intel101\\_flags.20080618.html](http://www.spec.org/mpi2007/flags/EM64T_Intel101_flags.20080618.html)

You can also download the XML flags sources by using the following links:

[http://www.spec.org/mpi2007/flags/MPI2007\\_flags.20081204.xml](http://www.spec.org/mpi2007/flags/MPI2007_flags.20081204.xml)

[http://www.spec.org/mpi2007/flags/EM64T\\_Intel101\\_flags.20080618.xml](http://www.spec.org/mpi2007/flags/EM64T_Intel101_flags.20080618.xml)

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

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