



# SPEC® MPIM2007 Result

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## Gateway

SPECmpiM\_peak2007 = Not Run

GW2000h-GW170hq (Intel Xeon X5570, 2.93 Ghz)

SPECmpiM\_base2007 = 3.80

MPI2007 license: 4113

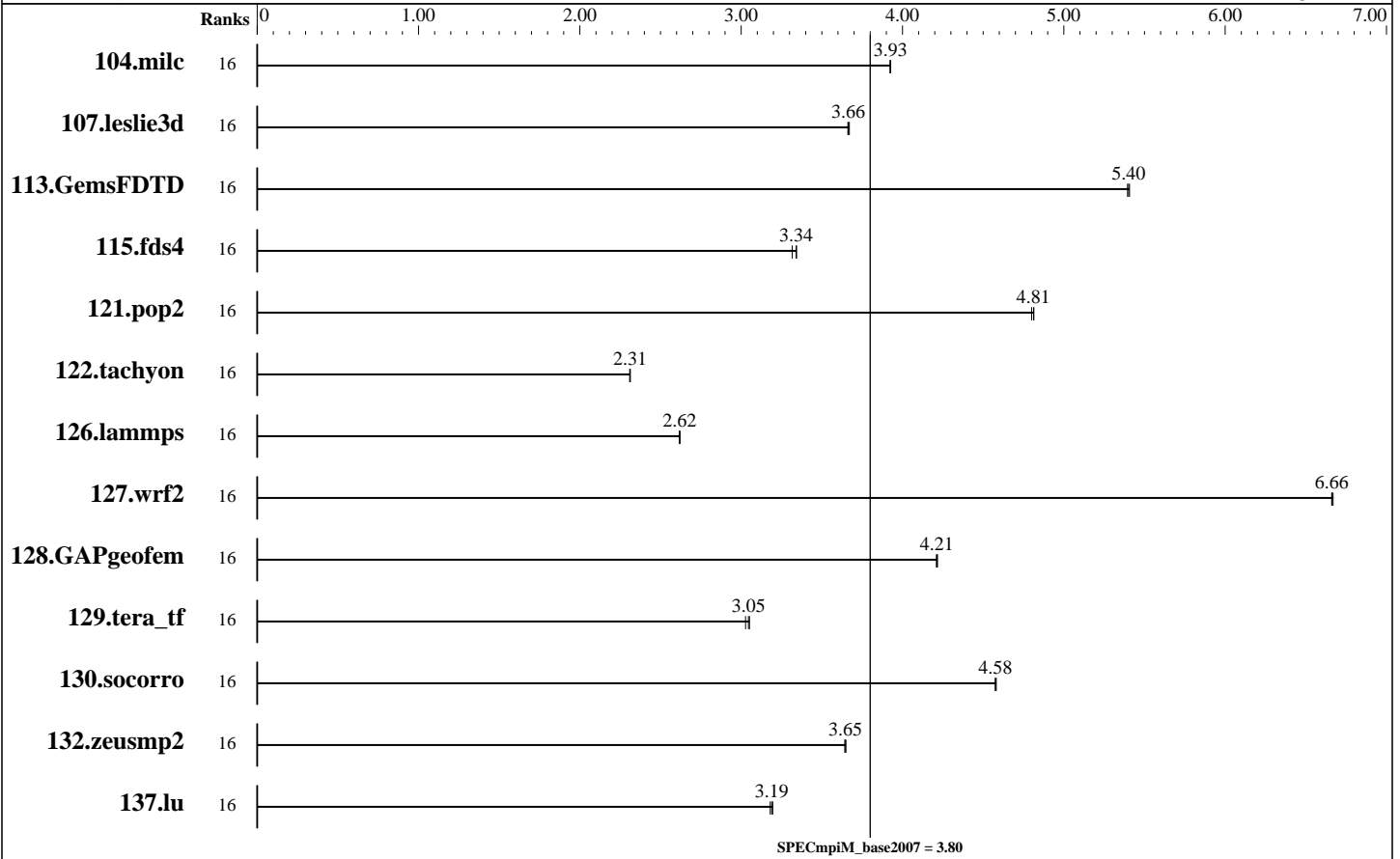
Test sponsor: Fraunhofer SCAI

Tested by: Steffen Claus

Test date: Jan-2011

Hardware Availability: Jan-2010

Software Availability: Aug-2010



## Results Table

Benchmark	Base								Peak							
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
104.milc	16	399	3.93	<b>399</b>	<b>3.93</b>	399	3.92									
107.leslie3d	16	<b>1424</b>	<b>3.66</b>	1426	3.66	1422	3.67									
113.GemsFDTD	16	1167	5.41	1169	5.39	<b>1168</b>	<b>5.40</b>									
115.fds4	16	<b>584</b>	<b>3.34</b>	588	3.32	584	3.34									
121.pop2	16	<b>858</b>	<b>4.81</b>	860	4.80	857	4.81									
122.tachyon	16	1210	2.31	<b>1210</b>	<b>2.31</b>	1211	2.31									
126.lammmps	16	<b>1113</b>	<b>2.62</b>	1112	2.62	1114	2.62									
127.wrf2	16	1169	6.67	<b>1170</b>	<b>6.66</b>	1170	6.66									
128.GAPgeofem	16	490	4.21	490	4.22	<b>490</b>	<b>4.21</b>									
129.tera_tf	16	907	3.05	<b>909</b>	<b>3.05</b>	914	3.03									

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	834	4.58	833	4.58	<b>834</b>	<b>4.58</b>									
132.zeusmp2	16	852	3.64	<b>851</b>	<b>3.65</b>	850	3.65									
137.lu	16	1150	3.20	<b>1153</b>	<b>3.19</b>	1156	3.18									

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: Gateway GW2000h  
 Interconnects: Infiniband Switch  
 Ethernet Switch  
 Total Compute Nodes: 2  
 Total Chips: 4  
 Total Cores: 16  
 Total Threads: 16  
 Total Memory: 48 GB  
 Base Ranks Run: 16  
 Minimum Peak Ranks: --  
 Maximum Peak Ranks: --

### Software Summary

C Compiler: Intel C++ Compiler 11.1 for Linux (11.1.073)  
 C++ Compiler: Intel C++ Compiler 11.1 for Linux (11.1.073)  
 Fortran Compiler: Intel Fortran Compiler 11.1 for Linux (11.1.073)  
 Base Pointers: 64-bit  
 Peak Pointers: Not Applicable  
 MPI Library: Intel MPI 4.0.0.028  
 Other MPI Info: --  
 Pre-processors: --  
 Other Software: --

## Node Description: Gateway GW2000h

### Hardware

Number of nodes: 2  
 Uses of the node: compute  
 Vendor: Gateway  
 Model: GW2000h-GW170hq  
 CPU Name: Intel Xeon X5570 @ 2.93 GHz  
 CPU(s) orderable: 1-2 chips  
 Chips enabled: 2  
 Cores enabled: 8  
 Cores per chip: 4  
 Threads per core: 1  
 CPU Characteristics: --  
 CPU MHz: 2930  
 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, 8 MB shared / 4 cores  
 Other Cache: None  
 Memory: 24 GB  
 Disk Subsystem: --  
 Other Hardware: None  
 Adapter: Mellanox Technologies MT26418  
 Number of Adapters: 1  
 Slot Type: onboard  
 Data Rate: QDR  
 Ports Used: 1

### Software

Adapter: Mellanox Technologies MT26418  
 Adapter Driver: OFED 1.5.1  
 Adapter Firmware: 2.7.200  
 Adapter: Intel 82574L Gigabit Network Connection  
 Adapter Driver: --  
 Adapter Firmware: --  
 Operating System: SLES 11  
 Local File System: --  
 Shared File System: Network shared Ramdisk  
 System State: --  
 Other Software: --

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### Node Description: Gateway GW2000h

Interconnect Type: InfiniBand  
 Adapter: Intel 82574L Gigabit Network Connection  
 Number of Adapters: 2  
 Slot Type: onboard  
 Data Rate: Gigabit Ethernet  
 Ports Used: 1  
 Interconnect Type: Ethernet

### Interconnect Description: Infiniband Switch

**Hardware**  
 Vendor: Mellanox  
 Model: MTS3600  
 Switch Model: Mellanox MTS3600  
 Number of Switches: 1  
 Number of Ports: 36  
 Data Rate: QDR  
 Firmware: EFM\_PPC\_405EX  
 Topology: Single Switch  
 Primary Use: MPI traffic

#### Software

### Interconnect Description: Ethernet Switch

**Hardware**  
 Vendor: Extreme Networks  
 Model: Summit  
 Switch Model: Summit X450-24 t  
 Number of Switches: 1  
 Number of Ports: 24  
 Data Rate: Gigabit Ethernet  
 Firmware: ExtremeWare XOS 11.4.3.4 v1143b4  
 Topology: Single Switch  
 Primary Use: NFS traffic

#### Software

### Submit Notes

The config file option 'submit' was used.

### General Notes

MPI startup command:

mpirun command was used to start MPI jobs. This command starts an independent ring of mpd daemons, launches an MPI job, and shuts down the mpd ring upon the job termination.

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## General Notes (Continued)

### BIOS settings:

Intel Hyper-Threading Technology (SMT): Disabled (default is Enabled)  
Intel Turbo Boost Technology (Turbo) : Enabled (default is Enabled)

### RAM configuration:

Compute nodes have 6x4-GB dual rank DDR3-1333 RAM.  
Head node has 4x2GB single rank DDR2-667 RAM.

### Network:

Head node and all compute nodes are interconnected by 1GB Ethernet and QDR Infiniband. Each interconnect type has one single switch.

## Base Compiler Invocation

C benchmarks:  
mpiicc

C++ benchmarks:

126.lammps: mpiicpc

Fortran benchmarks:  
mpiifort

Benchmarks using both Fortran and C:  
mpiicc mpiifort

## Base Portability Flags

121.pop2: -DSPEC\_MPI\_CASE\_FLAG  
126.lammps: -DMPICH\_IGNORE\_CXX\_SEEK  
127.wrf2: -DSPEC\_MPI\_CASE\_FLAG -DSPEC\_MPI\_LINUX

## Base Optimization Flags

C benchmarks:  
-O3 -xSSE4.2 -ipo -no-prec-div

C++ benchmarks:

126.lammps: -O3 -xSSE4.2 -ipo -no-prec-div

Fortran benchmarks:

-O3 -xSSE4.2 -ipo -no-prec-div

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## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

`-O3 -xSSE4.2 -ipo -no-prec-div`

The flags file that was used to format this result can be browsed at

[http://www.spec.org/mpi2007/flags/EM64T\\_Intel111\\_flags.20100202.html](http://www.spec.org/mpi2007/flags/EM64T_Intel111_flags.20100202.html)

You can also download the XML flags source by saving the following link:

[http://www.spec.org/mpi2007/flags/EM64T\\_Intel111\\_flags.20100202.xml](http://www.spec.org/mpi2007/flags/EM64T_Intel111_flags.20100202.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).

Tested with SPEC MPI2007 v2.0.  
Report generated on Tue Jul 22 13:42:23 2014 by SPEC MPI2007 PS/PDF formatter v1463.  
Originally published on 29 June 2011.