



# SPEC<sup>®</sup> MPIM2007 Result

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## IBM Corporation

System x3550 M2 (Intel Xeon X5570, 2.93 GHz  
SMT on, Turbo on)

SPECmpiM\_peak2007 = Not Run

SPECmpiM\_base2007 = 14.0

MPI2007 license: 005

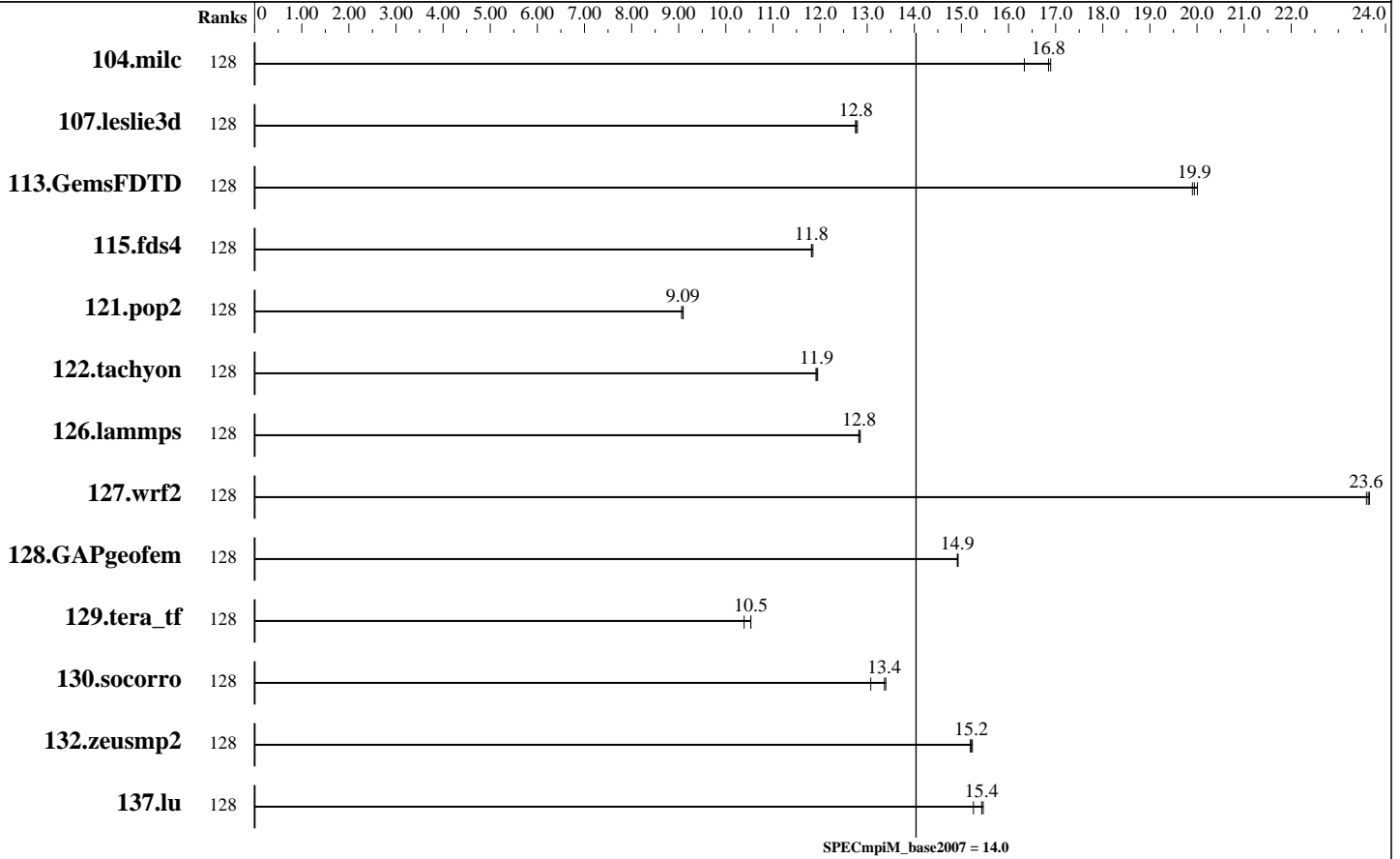
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jun-2009

Hardware Availability: Apr-2009

Software Availability: Apr-2009



## Results Table

Benchmark	Base								Peak							
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
104.milc	128	95.8	16.3	<u>92.9</u>	<u>16.8</u>	92.6	16.9									
107.leslie3d	128	409	12.8	<u>409</u>	<u>12.8</u>	408	12.8									
113.GemsFDTD	128	315	20.0	<u>316</u>	<u>19.9</u>	317	19.9									
115.fds4	128	165	11.8	<u>165</u>	<u>11.8</u>	165	11.8									
121.pop2	128	<u>454</u>	<u>9.09</u>	454	9.09	456	9.06									
122.tachyon	128	234	11.9	<u>234</u>	<u>11.9</u>	235	11.9									
126.lammps	128	227	12.9	227	12.8	<u>227</u>	<u>12.8</u>									
127.wrf2	128	<u>330</u>	<u>23.6</u>	330	23.6	330	23.7									
128.GAPgeofem	128	138	14.9	<u>138</u>	<u>14.9</u>	138	14.9									
129.tera_tf	128	266	10.4	<u>263</u>	<u>10.5</u>	263	10.5									

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	128	<b><u>286</u></b>	<b><u>13.4</u></b>	292	13.1	285	13.4							
132.zeusmp2	128	<b><u>204</u></b>	<b><u>15.2</u></b>	204	15.2	204	15.2							
137.lu	128	<b><u>238</u></b>	<b><u>15.4</u></b>	238	15.5	241	15.3							

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: IBM System x3550 M2  
 Interconnects: InfiniBand  
 Ethernet  
 File Server Node: IBM System x346 8840  
 Head Node: IBM System x3550 M2  
 Total Compute Nodes: 8  
 Total Chips: 16  
 Total Cores: 64  
 Total Threads: 128  
 Total Memory: 192 GB  
 Base Ranks Run: 128  
 Minimum Peak Ranks: --  
 Maximum Peak Ranks: --

### Software Summary

C Compiler: Intel C++ Compiler 11.0.083 for Linux  
 C++ Compiler: Intel C++ Compiler 11.0.083 for Linux  
 Fortran Compiler: Intel Fortran Compiler 11.0.083 for Linux  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 MPI Library: Intel MPI Library 3.2.1.009 for Linux  
 Other MPI Info: None  
 Pre-processors: No  
 Other Software: Intel MPI Library 3.2.1.009 for Linux  
 Multi-Purpose Daemon (MPD)

## Node Description: IBM System x3550 M2

### Hardware

Number of nodes: 8  
 Uses of the node: compute, head  
 Vendor: IBM Corporation  
 Model: 7946-92U  
 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: 2933  
 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 (RDIMM 6x4-GB DDR3-1333 MHz)  
 Disk Subsystem: 73.4GB 10K-rpm SAS SFF Slim-HS 2.5" HDD  
 Other Hardware: None  
 Adapter: Integrated Broadcom Corporation NetXtreme II BCM5709 Gigabit Ethernet (rev 20)

### Software

Adapter: Integrated Broadcom Corporation NetXtreme II BCM5709 Gigabit Ethernet (rev 20)  
 Adapter Driver: bnx2 1.7.9-1  
 Adapter Firmware: 4.6.4 NCSI 1.0.6  
 Adapter: Mellanox ConnectX  
 Adapter Driver: OFED 1.4-20090301-0600  
 Adapter Firmware: 2.6.000  
 Operating System: Red Hat EL 5.3, kernel 2.6.18-128.el5  
 Local File System: Linux/ext3  
 Shared File System: NFS  
 System State: Multi-User  
 Other Software: None

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### Node Description: IBM System x3550 M2

Number of Adapters:	1
Slot Type:	PCIe x16 Gen2
Data Rate:	10/100/1000
Ports Used:	1
Interconnect Type:	Ethernet
Adapter:	Mellanox ConnectX
Number of Adapters:	1
Slot Type:	PCIe x16 Gen2
Data Rate:	InfiniBand 4x DDR
Ports Used:	1
Interconnect Type:	InfiniBand

### General Notes

BIOS settings notes:

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

RAM configuration notes: Each compute node has  
1x4-GB RDIMM on each memory channel.

### Node Description: IBM System x346 8840

Hardware	
Number of nodes:	1
Uses of the node:	fileserver
Vendor:	IBM Corporation
Model:	884045Y
CPU Name:	Intel Xeon EM64T
CPU(s) orderable:	2 chips
Chips enabled:	2
Cores enabled:	2
Cores per chip:	1
Threads per core:	1
CPU Characteristics:	800 MHz FSB
CPU MHz:	3600
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per chip
L3 Cache:	None
Other Cache:	None
Memory:	4 GB
Disk Subsystem:	SCSI
Other Hardware:	None
Adapter:	Integrated Broadcom Corporation NetXtreme BCM5721 Gigabit Ethernet PCI Express (rev 11)
Number of Adapters:	1
Slot Type:	PCI-X
Data Rate:	10/100/1000

Software	
Adapter:	Integrated Broadcom Corporation NetXtreme BCM5721 Gigabit Ethernet PCI Express (rev 11)
Adapter Driver:	tg3 3.86
Adapter Firmware:	5721-v3.29a, ASFIPMI v6.08
Operating System:	Red Hat EL 5.2, kernel 2.6.18-92.el5
Local File System:	None
Shared File System:	NFS
System State:	Multi-User
Other Software:	None

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Hardware Availability: Apr-2009

Software Availability: Apr-2009

### Node Description: IBM System x346 8840

Ports Used: 1  
Interconnect Type: Ethernet

### Interconnect Description: InfiniBand

#### Hardware

Vendor: Voltaire  
Model: 24 4X DDR port Bundle  
Switch Model: ISR 9024D-M  
Number of Switches: 1  
Number of Ports: 24  
Data Rate: 4X DDR  
Firmware: 1.0.0  
Topology: Single Switch  
Primary Use: MPI traffic

#### Software

### Interconnect Description: Ethernet

#### Hardware

Vendor: Cisco  
Model: 3750G  
Switch Model: WS-C3750G-24TS-E1U  
Number of Switches: 1  
Number of Ports: 28  
Data Rate: Full duplex 1000  
Firmware: 12.2 (35SE5)  
Topology: Single Switch  
Primary Use: File system traffic

#### Software

### Submit Notes

The config file option 'submit' was used.  
submit = mpiexec -genv -np \$ranks \$command

### Base Compiler Invocation

C benchmarks:  
mpiicc

C++ benchmarks:

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## Base Compiler Invocation (Continued)

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.wf2: -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

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

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

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

[http://www.spec.org/mpi2007/results/flags/EM64T\\_Intel111\\_flags.20100413.00.html](http://www.spec.org/mpi2007/results/flags/EM64T_Intel111_flags.20100413.00.html)

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

[http://www.spec.org/mpi2007/results/flags/EM64T\\_Intel111\\_flags.20100413.00.xml](http://www.spec.org/mpi2007/results/flags/EM64T_Intel111_flags.20100413.00.xml)

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC MPI2007 v1.1.

Report generated on Tue Apr 13 15:11:28 2010 by SPEC MPI2007 PS/PDF formatter v1422.