



# SPEC® MPIM2007 Result

Copyright 2006-2010 Standard Performance Evaluation Corporation

IBM Corporation  
IBM Power 575

SPECmpiM\_peak2007 = 6.57

SPECmpiM\_base2007 = 6.57

MPI2007 license: 0005

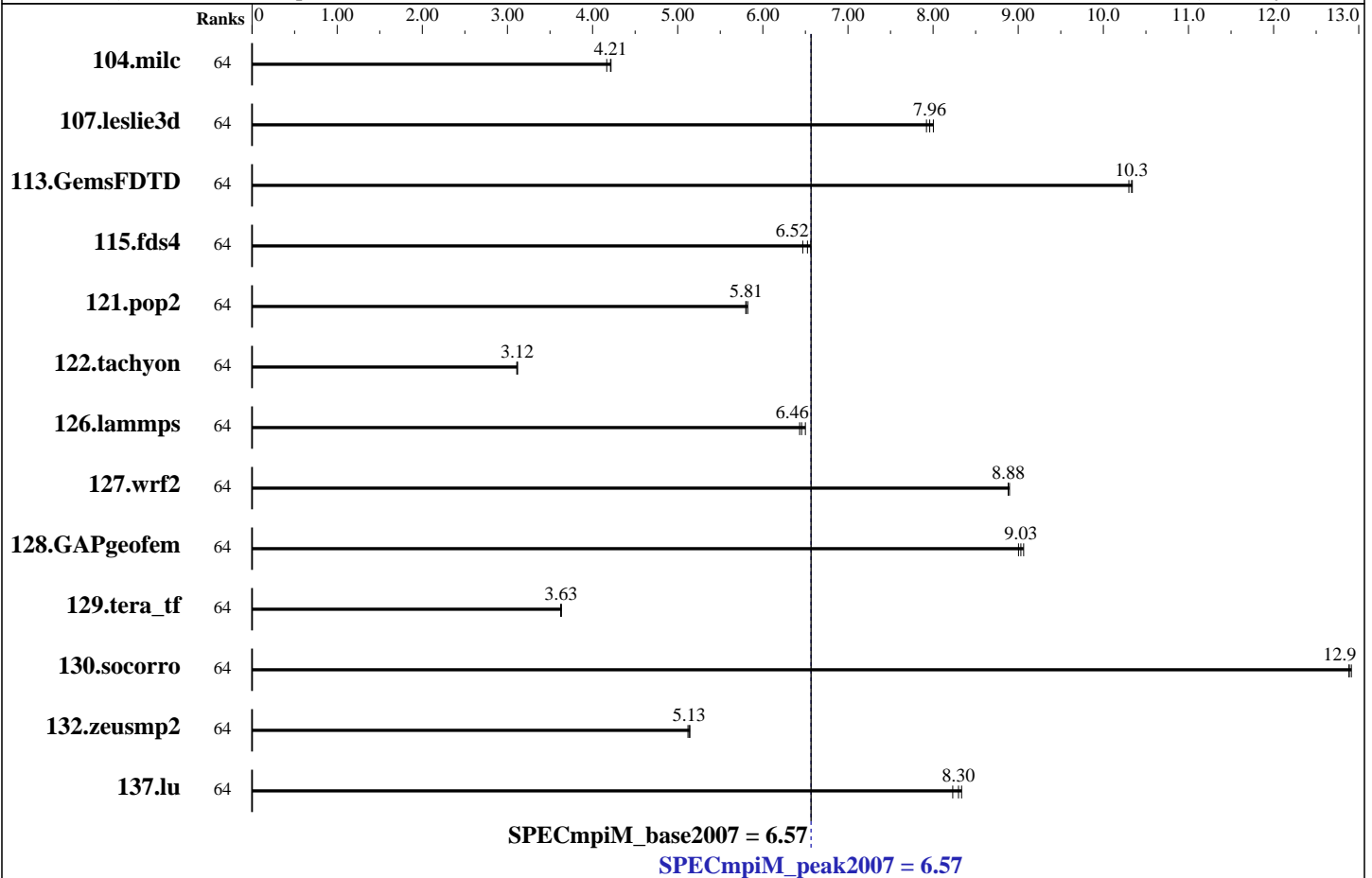
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jun-2008

Hardware Availability: May-2008

Software Availability: May-2008



## Results Table

Benchmark	Base								Peak							
	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Ranks	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
104.milc	64	371	4.22	376	4.17	<u>372</u>	<u>4.21</u>	64	371	4.22	376	4.17	<u>372</u>	<u>4.21</u>		
107.leslie3d	64	652	8.00	659	7.92	<u>656</u>	<u>7.96</u>	64	652	8.00	659	7.92	<u>656</u>	<u>7.96</u>		
113.GemsFDTD	64	610	10.3	<u>611</u>	<u>10.3</u>	612	10.3	64	610	10.3	<u>611</u>	<u>10.3</u>	612	10.3		
115.fds4	64	297	6.56	302	6.47	<u>299</u>	<u>6.52</u>	64	297	6.56	302	6.47	<u>299</u>	<u>6.52</u>		
121.pop2	64	<u>711</u>	<u>5.81</u>	709	5.82	712	5.80	64	<u>711</u>	<u>5.81</u>	709	5.82	712	5.80		
122.tachyon	64	899	3.11	897	3.12	<u>897</u>	<u>3.12</u>	64	899	3.11	897	3.12	<u>897</u>	<u>3.12</u>		
126.lammps	64	448	6.50	<u>452</u>	<u>6.46</u>	453	6.43	64	448	6.50	<u>452</u>	<u>6.46</u>	453	6.43		
127.wrf2	64	878	8.88	876	8.90	<u>878</u>	<u>8.88</u>	64	878	8.88	876	8.90	<u>878</u>	<u>8.88</u>		
128.GAPgeofem	64	<u>229</u>	<u>9.03</u>	228	9.06	229	9.00	64	<u>229</u>	<u>9.03</u>	228	9.06	229	9.00		
129.tera_tf	64	763	3.63	762	3.63	<u>762</u>	<u>3.63</u>	64	763	3.63	762	3.63	<u>762</u>	<u>3.63</u>		

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	64	296	12.9	<b>296</b>	<b>12.9</b>	296	12.9	64	296	12.9	<b>296</b>	<b>12.9</b>	296	12.9
132.zeusmp2	64	603	5.14	<b>604</b>	<b>5.13</b>	606	5.12	64	603	5.14	<b>604</b>	<b>5.13</b>	606	5.12
137.lu	64	<b>443</b>	<b>8.30</b>	441	8.33	447	8.23	64	<b>443</b>	<b>8.30</b>	441	8.33	447	8.23

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

### Hardware Summary

Type of System: SMP  
 Compute Node: IBM Power 575  
 File Server Node: IBM Power 575  
 Head Node: IBM Power 575  
 Total Compute Nodes: 1  
 Total Chips: 16  
 Total Cores: 32  
 Total Threads: 64  
 Total Memory: 128 GB  
 Base Ranks Run: 64  
 Minimum Peak Ranks: 64  
 Maximum Peak Ranks: 64

### Software Summary

C Compiler: IBM XL C/C++ Enterprise Edition V9.0  
 Updated with the Oct2007 PTF  
 C++ Compiler: IBM XL C/C++ Enterprise Edition V9.0  
 Updated with the Oct2007 PTF  
 Fortran Compiler: IBM XL Fortran Enterprise Edition V11.1  
 Updated with the Oct2007 PTF  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 MPI Library: IBM Parallel Environment for AIX  
 V4.3.2.2  
 Other MPI Info: --  
 Pre-processors: --  
 Other Software: None

## Node Description: IBM Power 575

### Hardware

Number of nodes: 1  
 Uses of the node: compute, head, fileserver  
 Vendor: IBM Corporation  
 Model: IBM Power 575  
 CPU Name: POWER6  
 CPU(s) orderable: 32 cores  
 Chips enabled: 16  
 Cores enabled: 32  
 Cores per chip: 2  
 Threads per core: 2  
 CPU Characteristics:  
 CPU MHz: 4700  
 Primary Cache: 64 KB I + 64 KB D on chip per core  
 Secondary Cache: 4 MB I+D on chip per core  
 L3 Cache: 32 MB I+D off chip per chip  
 Other Cache: None  
 Memory: 128 GB (64x2 GB) DDR2 533 MHz  
 Disk Subsystem: 1x146 GB SFF SAS, 10K RPM  
 Other Hardware: None  
 Adapter: 0  
 Number of Adapters: 0  
 Slot Type: 0  
 Data Rate: 0

### Software

Adapter: 0  
 Adapter Driver: 0  
 Adapter Firmware: --  
 Operating System: IBM AIX V5.3  
 with the 5300-08-02 Technology Level  
 Local File System: AIX/JFS2  
 Shared File System: NFS over ethernet  
 System State: Multi-user  
 Other Software: APAR IZ26983  
 software update for InfiniBand adapter drivers  
 IBM LoadLeveler for AIX  
 V3.4.3.2

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## Node Description: IBM Power 575

Ports Used: 0

Interconnect Type: 0

## General Notes

```

113.GemsFDTD (base): Applied maxprocandstop src.alt
129.tera_tf (base): Applied fixbuffer src.alt
127.wrf2 (base): Applied fixcalling src.alt
all ulimits set to unlimited
"petaskbind.sh" script used to bind each task to a unique processor
POE Environment variables set before executing benchmarks:
CWD          =/specmpi/mpi2007-1.0
MP_ADAPTER_USE    =shared
MP_EUILIB        =us
MP_EUIDEVICE     =sn_all
MP_SHARED_MEMORY =yes
MP_SINGLE_THREAD =yes
MP_WAIT_MODE     =poll
MP_EAGER_LIMIT   =65536
MP_BUFFER_MEM    =67108864
MP_POLLING_INTERVAL =80000000
MP_USE_BULK_XFER =yes
MP_BULK_MIN_MSG_SIZE=65536
MP_STDINMODE     =none
MP_LABELIO       =no
MP_HOSTFILE      =$CWD/r35.32-1node
Other Environment variables
MEMORY_AFFINITY  =MCM
LDR_CNTRL        =DATAPSIZE=64K@TEXTPSIZE=64K@STACKPSIZE=64K
XLFRTEOTPS      =intrinths=1
submit command uses petaskbind.sh script to bind logical processors to ranks
poe $CWD/petaskbind.sh $command -procs $ranks
The Gigabit ethernet switch is shared among many nodes, not just the cluster used in this benchmark.

```

## Base Compiler Invocation

C benchmarks:  
/usr/bin/mpicc\_r

C++ benchmarks:  
126.lammps: /usr/bin/mpCC\_r

Fortran benchmarks:  
/usr/bin/mpxlf95\_r

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## Base Compiler Invocation (Continued)

Benchmarks using both Fortran and C:

/usr/bin/mpicc\_r /usr/bin/mpxlf95\_r

## Base Portability Flags

107.leslie3d: -qfixed  
115.fds4: -DSPEC\_MPI\_LC\_NO\_TRAILING\_UNDERSCORE -qfixed  
121.pop2: -DSPEC\_MPI\_AIX  
127.wrf2: -DNOUNDERSCORE -DSPEC\_MPI\_AIX  
130.socorro: -DSPEC\_NO\_UNDERSCORE -qcpluscmt  
132.zeusmp2: -qfixed -DSPEC\_SINGLE\_UNDERSCORE  
137.lu: -qfixed

## Base Optimization Flags

C benchmarks:

-O4 -qarch=pwr6 -qtune=pwr6 -q64

C++ benchmarks:

126.lammps: -O4 -qarch=pwr6 -qtune=pwr6 -qstrict -q64

Fortran benchmarks:

-O4 -qarch=pwr6 -qtune=pwr6 -qalias=nostd -q64

Benchmarks using both Fortran and C:

-O4 -qarch=pwr6 -qtune=pwr6 -qalias=nostd -q64

## Base Other Flags

C benchmarks:

-w -qsuppress=1500-036 -qipa=noobject -qipa=threads

C++ benchmarks:

126.lammps: -w -qsuppress=1500-036 -qipa=noobject -qipa=threads

Fortran benchmarks:

-w -qsuppress=1500-036 -qsuppress=cmpmsg -qipa=noobject -qipa=threads

Benchmarks using both Fortran and C:

-w -qsuppress=1500-036 -qsuppress=cmpmsg -qipa=noobject -qipa=threads



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## Peak Optimization Flags

C benchmarks:

104.milc: basepeak = yes

122.tachyon: basepeak = yes

C++ benchmarks:

126.lammps: basepeak = yes

Fortran benchmarks:

107.leslie3d: basepeak = yes

113.GemsFDTD: basepeak = yes

129.tera\_tf: basepeak = yes

137.lu: basepeak = yes

Benchmarks using both Fortran and C:

115.fds4: basepeak = yes

121.pop2: basepeak = yes

127.wrf2: basepeak = yes

128.GAPgeofem: basepeak = yes

130.socorro: basepeak = yes

132.zeusmp2: basepeak = yes

The flags files that were used to format this result can be browsed at

[http://www.spec.org/mpi2007/results/flags/MPI2007\\_flags.20100413.01.html](http://www.spec.org/mpi2007/results/flags/MPI2007_flags.20100413.01.html)

[http://www.spec.org/mpi2007/results/flags/MPI2007\\_flags.0.html](http://www.spec.org/mpi2007/results/flags/MPI2007_flags.0.html)

[http://www.spec.org/mpi2007/results/flags/MPI2007\\_flags.1.html](http://www.spec.org/mpi2007/results/flags/MPI2007_flags.1.html)

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

[http://www.spec.org/mpi2007/results/flags/MPI2007\\_flags.20100413.01.xml](http://www.spec.org/mpi2007/results/flags/MPI2007_flags.20100413.01.xml)

[http://www.spec.org/mpi2007/results/flags/MPI2007\\_flags.0.xml](http://www.spec.org/mpi2007/results/flags/MPI2007_flags.0.xml)

[http://www.spec.org/mpi2007/results/flags/MPI2007\\_flags.1.xml](http://www.spec.org/mpi2007/results/flags/MPI2007_flags.1.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 v1.0.  
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