IBM Corporation
IBM Power 575

SPEC® MPIM2007 Result

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IBM Corporation
IBM Power 575

SPECmpiM_peak2007 = NC
SPECmpiM_base2007 = NC

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

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Ranks</th>
<th>Base</th>
<th>Ratio</th>
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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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IBM Power 575

SPECmpiM_peak2007 = NC
SPECmpiM_base2007 = NC

MPI2007 license: 0005
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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: 32
Total Memory: 128 GB
Base Ranks Run: 32
Minimum Peak Ranks: 32
Maximum Peak Ranks: 32

Software Summary
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
Number of nodes: 1
Uses of the node: compute, head, file server
Vendor: IBM Corporation
Model: IBM Power 575
CPU Name: POWER6
CPU(s) orderable: 32 cores
Chips enabled: 1
Cores enabled: 32
Cores per chip: 2
Threads per core: 1
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

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

Results Table (Continued)

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SPECmpiM_base2007 = NC

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Node Description: IBM Power 575

| Slot Type: | 0 |
| Data Rate: | 0 |
| 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@STACKSIZE=64K
XLFRTEOTPS = intrinthds=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/mpcc_r

C++ benchmarks:
126.lammps: /usr/bin/mpCC_r
Base Compiler Invocation (Continued)

Fortran benchmarks:
/usr/bin/mpxlf95_r

Benchmarks using both Fortran and C:
/usr/bin/mpcc_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 -qUILDER
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 -qopt=pwr6 -qaliases=nostd -q64

Benchmarks using both Fortran and C:
-O4 -qarch=pwr6 -qtune=pwr6 -qaliases=nostd -q64

Base Other Flags

C benchmarks:
-w -qsuspress=1500-036 -qipa=noobject -qipa=threads

C++ benchmarks:
126.lammps: -w -qsuspress=1500-036 -qipa=noobject -qipa=threads

Fortran benchmarks:
-w -qsuspress=1500-036 -qsuspress=cmpmsg -qipa=noobject -qipa=threads

Non-Compliant
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SPECmpiM_peak2007 = NC
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Base Other Flags (Continued)
Benchmarks using both Fortran and C:
   -w -qsuspend=1500-036 -qsuspend=cmpmsg -qipa=noobj -qipa=threads

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.GAPgeod: 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/flags/MPI2007_flags.0.20080828.html

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


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