SPEC® CINT2006 Result

IBM Corporation

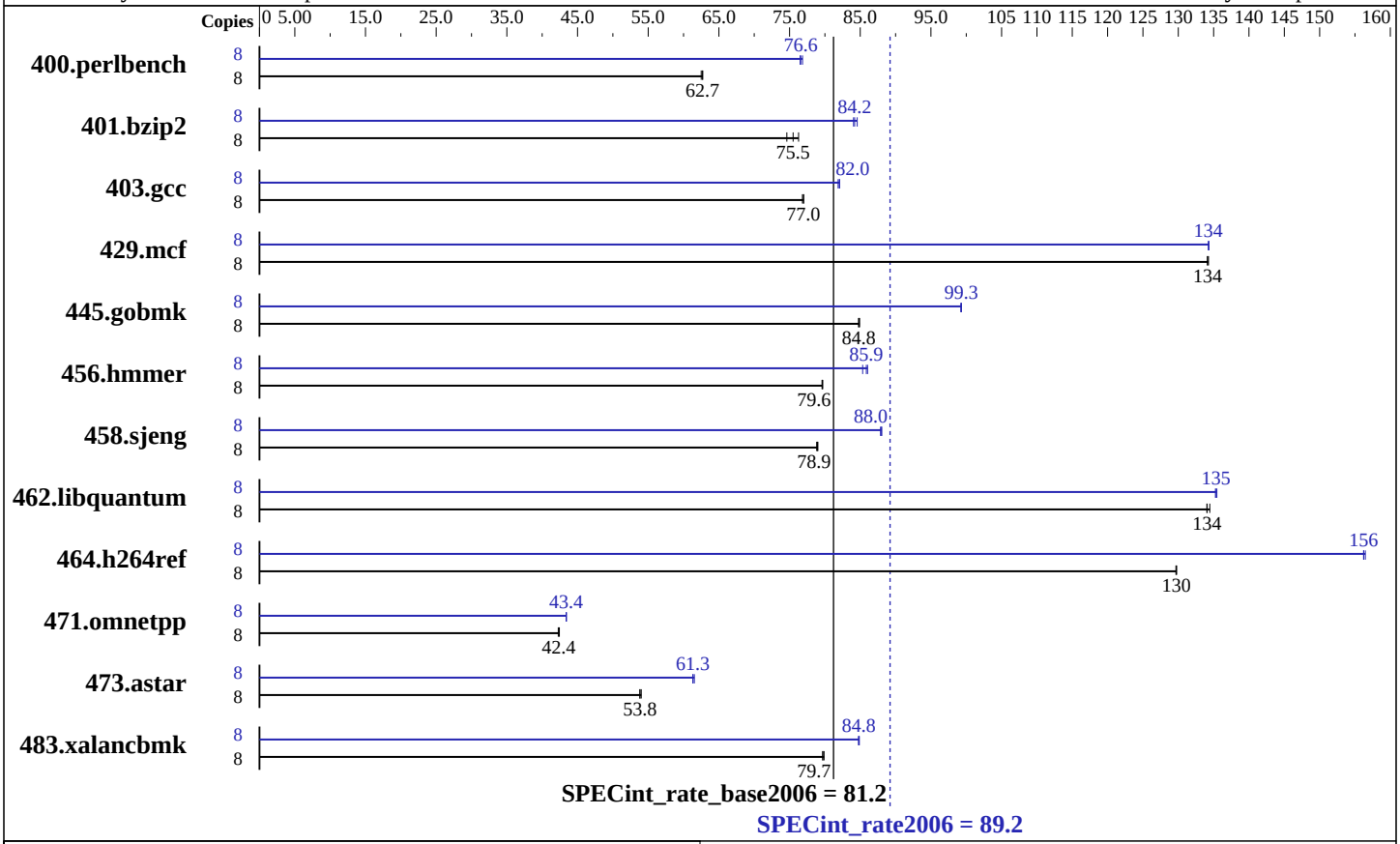
IBM System p 520 (4.2 GHz, 4 core, SLES)

SPECint®_rate2006 = 89.2

SPECint_rate_base2006 = 81.2

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Jan-2008
Hardware Availability: Feb-2008
Software Availability: Sep-2007



Hardware

CPU Name:	POWER6
CPU Characteristics:	
CPU MHz:	4200
FPU:	Integrated
CPU(s) enabled:	4 cores, 2 chips, 2 cores/chip, 2 threads/core
CPU(s) orderable:	1,2,4 cores
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	4 MB I+D on chip per core
L3 Cache:	None
Other Cache:	None
Memory:	16 GB (8x2 GB) DDR2 667 MHz
Disk Subsystem:	1x146 GB SAS 15K RPM
Other Hardware:	None

Software

Operating System:	SUSE Linux Enterprise Server 10 SP1
Compiler:	IBM XL C/C++ Advanced Edition for Linux, V9.0
Auto Parallel:	No
File System:	ext3
System State:	Multi-User
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	-IBM Post-Link Optimization for Linux on POWER, Version 5.4.0-10 -MicroQuill SmartHeap 7.3

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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	8	**1247**	**62.7**	1246	62.7	1251	62.5	8	1022	76.5	**1021**	**76.6**	1017	76.8
401.bzip2	8	1035	74.6	**1023**	**75.5**	1012	76.3	8	919	84.0	**917**	**84.2**	913	84.6
403.gcc	8	836	77.0	838	76.8	**837**	**77.0**	8	785	82.1	787	81.9	**785**	**82.0**
429.mcf	8	**544**	**134**	543	134	544	134	8	543	134	**543**	**134**	543	134
445.gobmk	8	988	84.9	990	84.8	**989**	**84.8**	8	**845**	**99.3**	846	99.2	845	99.3
456.hmmer	8	**937**	**79.6**	938	79.6	937	79.7	8	**869**	**85.9**	875	85.3	868	86.0
458.sjeng	8	**1226**	**78.9**	1225	79.0	1228	78.8	8	1102	87.9	**1100**	**88.0**	1099	88.0
462.libquantum	8	1237	134	1233	134	**1236**	**134**	8	1224	135	**1225**	**135**	1226	135
464.h264ref	8	**1365**	**130**	1365	130	1364	130	8	1133	156	**1133**	**156**	1132	156
471.omnetpp	8	1183	42.3	**1181**	**42.4**	1178	42.4	8	**1152**	**43.4**	1152	43.4	1152	43.4
473.astar	8	1043	53.8	1040	54.0	**1043**	**53.8**	8	**916**	**61.3**	916	61.3	913	61.5
483.xalancbmk	8	691	79.9	**692**	**79.7**	693	79.7	8	651	84.7	650	84.9	**651**	**84.8**

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

General Notes

```
kernel release 2.6.16.46-0.12-ppc64.

See flags file for details on following settings.

ulimit -s (stack) set to unlimited.



Large pages reserved as follows by root user:
    echo 530 > /proc/sys/vm/nr_hugepages
System configured with libhugetlbfs library for application access to large pages
Environment variables set before executing benchmarks.
    export HUGETLB_VERBOSE=0
    export HUGETLB_MORECORE=yes
    export HUGETLB_MORECORE_HEAPBASE=0x50000000
    export XLFRTEOPTS=intrinthds=1

IBM Post-Link Optimization tool used for
    400.perlbench 401.bzip2 403.gcc 429.mcf 456.hmmer 458.sjeng
    462.libquantum 464.h264ref 473.astar 483.xalancbmk

Benchmarks bound to a processor using numactl on the submit command.
```

Base Compiler Invocation

C benchmarks:
```
xlc -qlanglvl=extc99
```

C++ benchmarks:
```
xlC
```

Base Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_PPC`
462.libquantum: `-DSPEC_CPU_LINUX`
464.h264ref: `-qchars=signed`
483.xalancbmk: `-DSPEC_CPU_LINUX`

Base Optimization Flags

C benchmarks:
```
-O5 -qarch=pwr6 -qtune=pwr6 -qalias=noansi -qalloca -lhugetlbfs
```

C++ benchmarks:
```
-O5 -qarch=pwr6 -qtune=pwr6 -qrtti -lsmartheap
```

Base Other Flags

C benchmarks:
```
-qipa=noobject -qipa=threads
```

C++ benchmarks:
```
-qipa=noobject -qipa=threads
```

Peak Compiler Invocation

C benchmarks:
```
xlc -qlanglvl=extc99
```

C++ benchmarks:
```
xlC
```

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_PPC
403.gcc: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LINUX
464.h264ref: -qchars=signed
483.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qarch=pwr6 -qtune=pwr6 -qalias=noansi -lsmartheap

401.bzip2: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qarch=pwr6 -qtune=pwr6 -lhugetlbfs

403.gcc: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qarch=pwr6 -qtune=pwr6 -qalloca -q64 -lhugetlbfs

429.mcf: -Wl,-q -O5 -qarch=pwr6 -qtune=pwr6 -qnoenablevmx -lhugetlbfs

445.gobmk: -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qarch=pwr6 -qtune=pwr6 -qnoenablevmx -lhugetlbfs

456.hmmer: Same as 401.bzip2

458.sjeng: Same as 401.bzip2

462.libquantum: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qarch=pwr6 -qtune=pwr6 -qnoenablevmx -q64 -lhugetlbfs

464.h264ref: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qarch=pwr6 -qtune=pwr6 -q64 -lhugetlbfs

C++ benchmarks:

471.omnetpp: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qarch=pwr6 -qtune=pwr6 -qrtti -lsmartheap

473.astar: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qarch=pwr6 -qtune=pwr6 -qnoenablevmx -lsmartheap

483.xalancbmk: -Wl,-q -O4 -qarch=pwr6 -qtune=pwr6 -lsmartheap

Peak Other Flags

C benchmarks:
```
-qipa=noobject -qipa=threads
```

C++ benchmarks:
```
-qipa=noobject -qipa=threads
```

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/lop-xl-flags.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/lop-xl-flags.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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