



SPEC® CINT2006 Result

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IBM Corporation

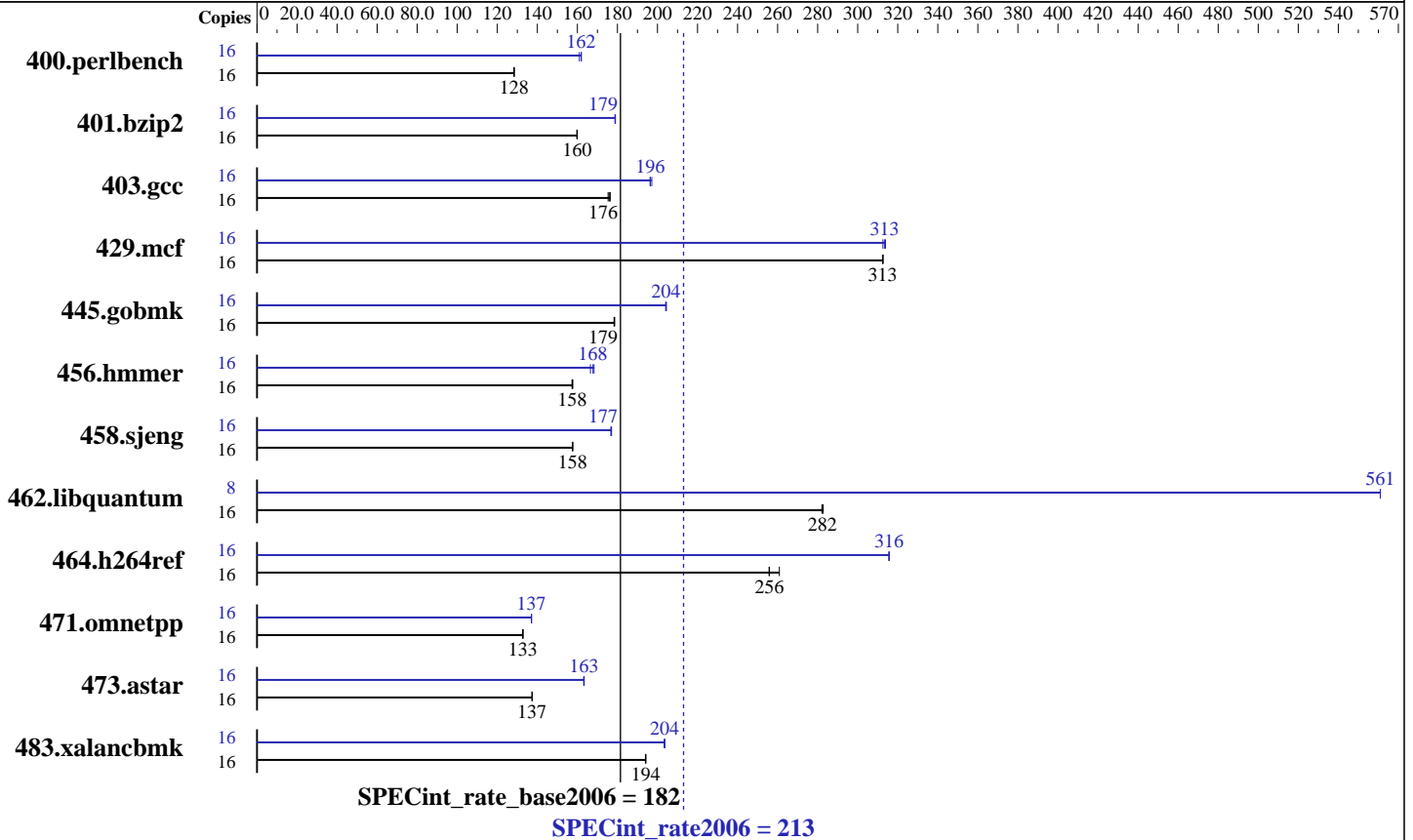
SPECint®_rate2006 = 213

IBM System p 550 (4.2 GHz, 8 core, RedHat)

SPECint_rate_base2006 = 182

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

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



Hardware

CPU Name: POWER6
 CPU Characteristics:
 CPU MHz: 4200
 FPU: Integrated
 CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip, 2 threads/core
 CPU(s) orderable: 2,4,6,8 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: 32 MB I+D off chip per chip
 Other Cache: None
 Memory: 64 GB (32x2 GB) DDR2 667 MHz
 Disk Subsystem: 2x146 GB SAS 15K RPM
 Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Advanced Platform 5.1 for IBM POWER
 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 8.1



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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	16	<u>1217</u>	<u>128</u>	1218	128	1217	128	16	971	161	965	162	<u>965</u>	<u>162</u>
401.bzip2	16	965	160	<u>966</u>	<u>160</u>	966	160	16	864	179	<u>863</u>	<u>179</u>	863	179
403.gcc	16	735	175	<u>732</u>	<u>176</u>	730	176	16	656	196	653	197	<u>656</u>	<u>196</u>
429.mcf	16	467	313	<u>467</u>	<u>313</u>	467	312	16	<u>466</u>	<u>313</u>	465	314	467	313
445.gobmk	16	941	178	<u>940</u>	<u>179</u>	940	179	16	822	204	821	204	<u>822</u>	<u>204</u>
456.hmmmer	16	<u>948</u>	<u>158</u>	949	157	947	158	16	887	168	896	167	<u>890</u>	<u>168</u>
458.sjeng	16	1227	158	<u>1228</u>	<u>158</u>	1230	157	16	<u>1094</u>	<u>177</u>	1094	177	1096	177
462.libquantum	16	1172	283	1175	282	<u>1174</u>	<u>282</u>	8	295	561	295	561	<u>295</u>	<u>561</u>
464.h264ref	16	1357	261	<u>1384</u>	<u>256</u>	1384	256	16	1122	316	<u>1122</u>	<u>316</u>	1121	316
471.omnetpp	16	<u>753</u>	<u>133</u>	754	133	753	133	16	729	137	<u>730</u>	<u>137</u>	730	137
473.astar	16	818	137	<u>818</u>	<u>137</u>	817	137	16	688	163	687	163	<u>688</u>	<u>163</u>
483.xalancbmk	16	569	194	569	194	<u>569</u>	<u>194</u>	16	542	204	543	203	<u>542</u>	<u>204</u>

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

General Notes

kernel release 2.6.18-53.el5.

See flags file for details on following settings.

ulimit -s (stack) set to 1048576.

System set to Enhanced mode when defining partition on HMC

Large pages reserved as follows by root user:

```
echo 1600 > /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 XLFRTIOPTS=intrinthds=1
```

IBM Post-Link Optimization tool used for

```
400.perlbench 401.bzip2 403.gcc 429.mcf 456.hmmmer 458.sjeng
462.libquantum 464.h264ref 473.astar 483.xalancbmk
```

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



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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 -qalias=noansi -qalloca -lhugetlbfs

C++ benchmarks:

-O5 -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



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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 -qalias=noansi
 -lsmartheap

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

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

429.mcf: -Wl,-q -O5 -qnoenablevmx -lhugetlbfs

445.gobmk: -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qnoenablevmx
 -lhugetlbfs

456.hmmmer: Same as 401.bzip2

458.sjeng: Same as 401.bzip2

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

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

C++ benchmarks:

471.omnetpp: -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qrtti -lsmartheap

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

483.xalancbmk: -Wl,-q -O4 -lsmartheap

Peak Other Flags

C benchmarks:

-qipa=noobject -qipa=threads

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Peak Other Flags (Continued)

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>

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

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