



SPEC[®] CINT2006 Result

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IBM Corporation

SPECint[®]_rate2006 = 258

IBM Power 550 (5.0 GHz, 8 core, SLES)

SPECint_rate_base2006 = 216

CPU2006 license: 11

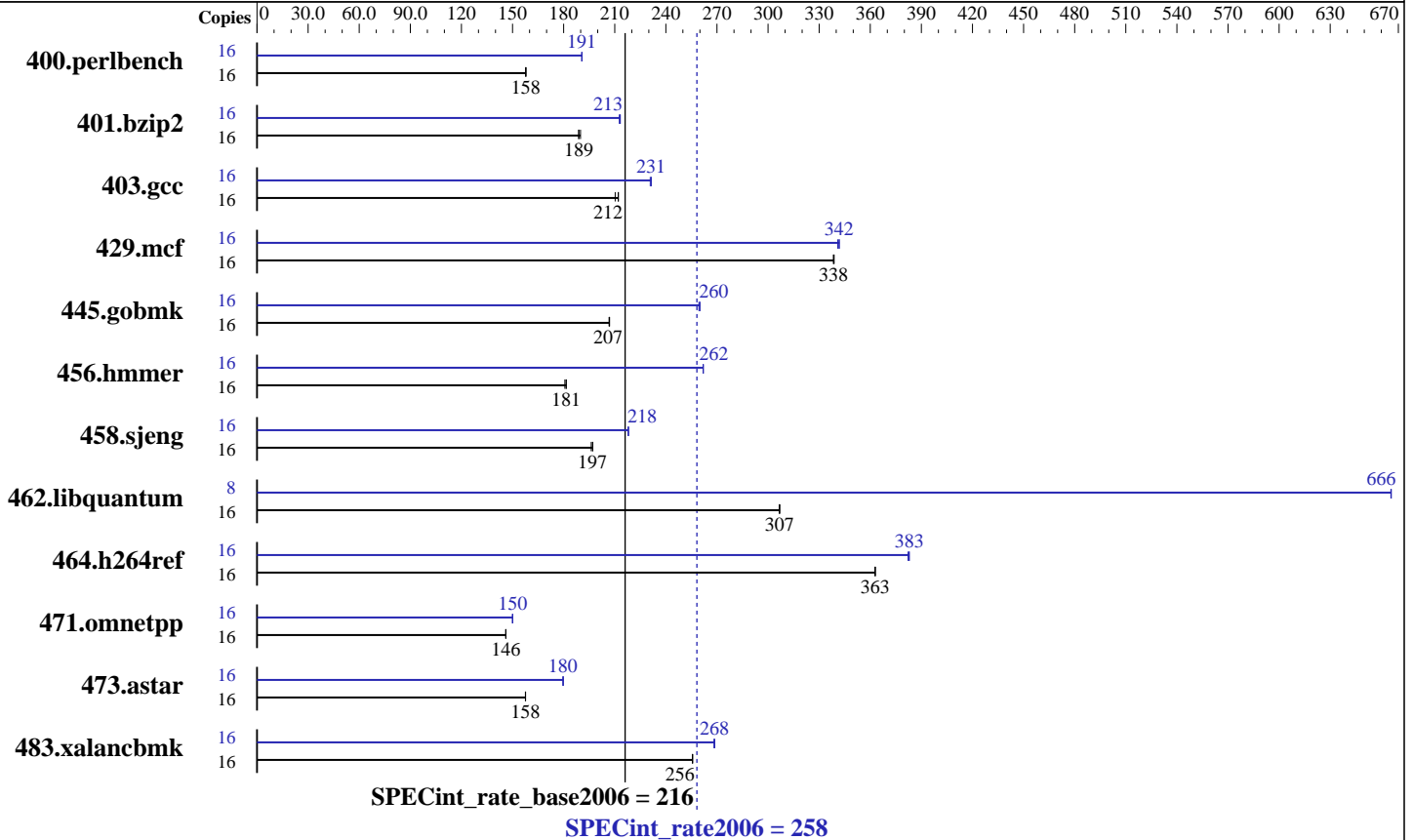
Test date: Mar-2009

Test sponsor: IBM Corporation

Hardware Availability: May-2009

Tested by: IBM Corporation

Software Availability: Mar-2009



Hardware

CPU Name: POWER6+
 CPU Characteristics:
 CPU MHz: 5000
 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: 128 GB (32x4 GB) DDR2 667 MHz
 Disk Subsystem: 2x146 GB SAS 15K RPM
 Other Hardware: None

Software

Operating System: SUSE Linux Enterprise Server 11
 Compiler: IBM XL C/C++ for Linux, V10.1
 Updated with the Mar2009 PTF.
 Auto Parallel: No
 File System: ext3
 System State: Run Level 3 (Multi-User)
 Base Pointers: 32-bit
 Peak Pointers: 32/64-bit
 Other Software: -Post-Link Optimization for Linux on POWER, Version 5.4.0-21
 -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	991	158	<u>991</u>	<u>158</u>	990	158	16	<u>820</u>	<u>191</u>	820	191	820	191
401.bzip2	16	813	190	818	189	<u>817</u>	<u>189</u>	16	<u>725</u>	<u>213</u>	724	213	726	213
403.gcc	16	613	210	<u>607</u>	<u>212</u>	607	212	16	558	231	<u>557</u>	<u>231</u>	557	231
429.mcf	16	<u>431</u>	<u>338</u>	431	338	431	339	16	427	342	<u>427</u>	<u>342</u>	428	341
445.gobmk	16	812	207	811	207	<u>811</u>	<u>207</u>	16	645	260	<u>646</u>	<u>260</u>	647	259
456.hmmmer	16	822	182	<u>823</u>	<u>181</u>	826	181	16	<u>570</u>	<u>262</u>	570	262	570	262
458.sjeng	16	982	197	<u>983</u>	<u>197</u>	987	196	16	<u>888</u>	<u>218</u>	888	218	888	218
462.libquantum	16	1080	307	1081	307	<u>1081</u>	<u>307</u>	8	249	666	<u>249</u>	<u>666</u>	249	666
464.h264ref	16	<u>976</u>	<u>363</u>	976	363	976	363	16	<u>925</u>	<u>383</u>	926	382	925	383
471.omnetpp	16	685	146	<u>685</u>	<u>146</u>	685	146	16	<u>666</u>	<u>150</u>	667	150	666	150
473.astar	16	713	158	712	158	<u>713</u>	<u>158</u>	16	625	180	<u>625</u>	<u>180</u>	624	180
483.xalanbmk	16	432	256	432	256	<u>432</u>	<u>256</u>	16	411	268	411	269	<u>411</u>	<u>268</u>

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

Submit Notes

The config file option 'submit' was used.
Benchmarks bound to a processor using numactl on the submit command.

General Notes

kernel release 2.6.27.19-5-ppc64.
 See flags file for details on following settings.
 ulimit -s (stack) set to 1048576.
 System configured with libhugetlbfs library for application access to large pages
 Large pages reserved as follows by root user:
 echo 1600 > /proc/sys/vm/nr_hugepages
 Environment variables set before executing benchmarks.
 export HUGETLB_VERBOSE=0
 export HUGETLB_MORECORE=yes
 export XLFRTEOPTS=intrinthds=1
 IBM Post-Link Optimization tool was used for these benchmarks, with options:
 400.perlbench : "-imullX" (instrumentation phase), "-O4 -omullX" (optimization phase)
 401.bzip2 : same as 400.perlbench
 403.gcc : same as 400.perlbench
 456.hmmmer : same as 400.perlbench
 458.sjeng : same as 400.perlbench
 483.xalanbmk : same as 400.perlbench
 429.mcf : "-imullX" (instrumentation phase), "-bf -dp -hr -las -pca -RC -RD
 -rmte -si -tlo -A 64 -isf 104 -lu 8 -rt 0.16
 -hrf 0.18 -ihf 40 -sdp 6 -sdpsms 128 -shci 65 -si -sidf 45 -omullX" (optimization phase)
 445.gobmk : "-imullX" (instrumentation phase), "-q -O3 -A 32 -omullX" (optimization phase)
 462.libquantum : "-imullX" (instrumentation phase), "-bf -dp -lro -nop -RC -RD -tb -tlo -vro -A 4

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General Notes (Continued)

-isf 88 -lu 8 -hrf 0.10 -sdp 4 -lun 27 -omullX" (optimization phase)
473.astar : "-imullX" (instrumentation phase), "-O4 -omullX -see 1" (optimization phase)
464.h264ref : "-O4" (optimization phase)

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



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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 -qarch=pwr6
 -qtune=pwr6 -qalias=noansi -lsmartheap

401.bzip2: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O3 -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: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qarch=pwr6
 -qtune=pwr6 -qnoenablevmx -lhugetlbfs

456.hmmmer: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O5 -qarch=pwr6
 -qtune=pwr6 -lhugetlbfs

458.sjeng: -Wl,-q -O5 -qarch=pwr6 -qtune=pwr6 -lhugetlbfs

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) -O4 -qarch=pwr6 -qtune=pwr6
 -qrtti -lsmartheap

473.astar: -Wl,-q -qpdf1(pass 1) -qpdf2(pass 2) -O4 -qarch=pwr6
 -qtune=pwr6 -qnoenablevmx -lsmartheap

483.xalancbmk: -Wl,-q -O5 -qarch=pwr6 -qtune=pwr6 -lsmartheap



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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/IBM-Linux-XL.html>

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

<http://www.spec.org/cpu2006/flags/IBM-Linux-XL.xml>

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For other inquiries, please contact webmaster@spec.org.

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