



SPEC® CINT2006 Result

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IBM Corporation

SPECint®_rate2006 = 2160

IBM Power 595 (5.0 GHz, 64 core, SLES)

SPECint_rate_base2006 = 1870

CPU2006 license: 11

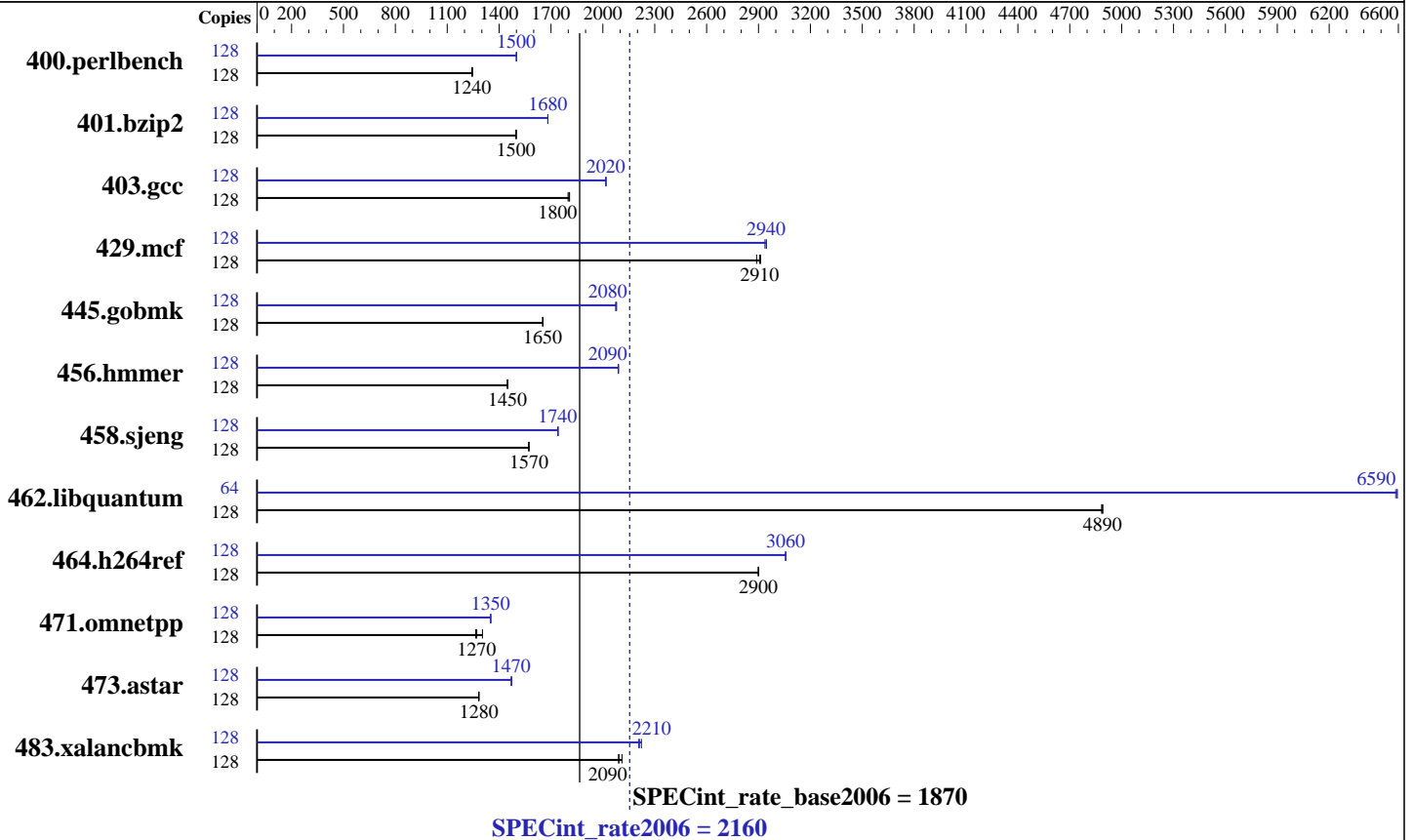
Test date: Mar-2009

Test sponsor: IBM Corporation

Hardware Availability: Jun-2008

Tested by: IBM Corporation

Software Availability: Mar-2009



Hardware

CPU Name: POWER6
 CPU Characteristics:
 CPU MHz: 5000
 FPU: Integrated
 CPU(s) enabled: 64 cores, 32 chips, 2 cores/chip, 2 threads/core
 CPU(s) orderable: 8,16,24,32,40,48,56,64 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: 512 GB (256x2 GB) DDR2 667 MHz
 Disk Subsystem: 4x146 GB SCSI 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: -IBM 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	128	<u>1006</u>	<u>1240</u>	1007	1240	1003	1250	128	833	1500	834	1500	<u>834</u>	<u>1500</u>
401.bzip2	128	824	1500	<u>824</u>	<u>1500</u>	825	1500	128	734	1680	<u>734</u>	<u>1680</u>	734	1680
403.gcc	128	<u>571</u>	<u>1800</u>	573	1800	570	1810	128	<u>511</u>	<u>2020</u>	511	2020	510	2020
429.mcf	128	404	2890	<u>402</u>	<u>2910</u>	401	2910	128	397	2940	396	2950	<u>397</u>	<u>2940</u>
445.gobmk	128	813	1650	812	1650	<u>813</u>	<u>1650</u>	128	<u>647</u>	<u>2080</u>	647	2070	646	2080
456.hmmmer	128	825	1450	<u>824</u>	<u>1450</u>	824	1450	128	571	2090	<u>572</u>	<u>2090</u>	572	2090
458.sjeng	128	986	1570	<u>985</u>	<u>1570</u>	985	1570	128	889	1740	891	1740	<u>890</u>	<u>1740</u>
462.libquantum	128	542	4890	<u>543</u>	<u>4890</u>	543	4880	64	201	6580	<u>201</u>	<u>6590</u>	201	6590
464.h264ref	128	977	2900	977	2900	<u>977</u>	<u>2900</u>	128	926	3060	<u>927</u>	<u>3060</u>	927	3060
471.omnetpp	128	633	1260	<u>630</u>	<u>1270</u>	614	1300	128	592	1350	<u>592</u>	<u>1350</u>	592	1350
473.astar	128	700	1280	<u>700</u>	<u>1280</u>	701	1280	128	611	1470	610	1470	<u>611</u>	<u>1470</u>
483.xalanbmk	128	<u>422</u>	<u>2090</u>	418	2110	422	2090	128	<u>399</u>	<u>2210</u>	397	2220	400	2210

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 taskset 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 7680 > /proc/sys/vm/nr_hugepages
 Environment variables set before executing benchmarks.
 export HUGETLB_VERBOSE=0
 export HUGETLB_MORECORE=yes
 export XLFRTEOPTS=intrinths=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.xalanbmk: -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 -lsmarheap

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.hmmer: -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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