



SPEC® CINT2006 Result

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IBM Corporation

SPECint®_rate2006 = 52.3

IBM System x3455 (AMD Opteron 2220)

SPECint_rate_base2006 = 47.1

CPU2006 license: 11

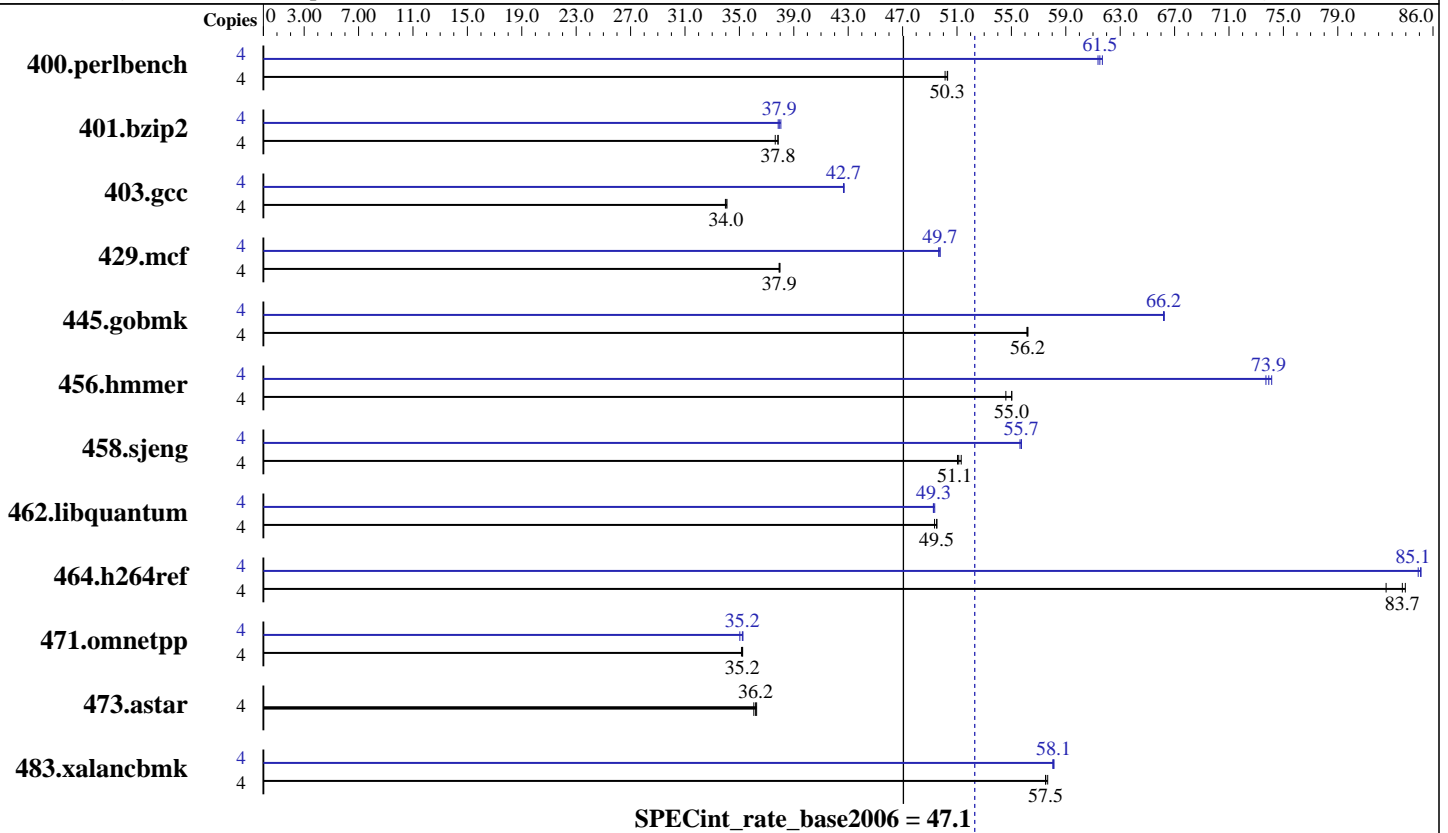
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jul-2007

Hardware Availability: Apr-2007

Software Availability: Mar-2007



Hardware

CPU Name: AMD Opteron 2220
 CPU Characteristics:
 CPU MHz: 2800
 FPU: Integrated
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip
 CPU(s) orderable: 1, 2 chips
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 1 MB I+D on chip per core
 L3 Cache: None
 Other Cache: None
 Memory: 16 GB (8 x 2GB DDR2-5300 ECC)
 Disk Subsystem: 1 x 160 GB Serial ATA, 7200 RPM
 Other Hardware: None

Software

Operating System: SLES 10 (x86_64), 2.6.16.21-0.8-smp
 Compiler: QLogic PathScale Compiler Suite, Release 3.0
 Auto Parallel: No
 File System: ext3
 System State: Multi-user, run level 3
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit
 Other Software: 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	4	777	50.3	<u>777</u>	<u>50.3</u>	780	50.1	4	634	61.7	637	61.4	<u>635</u>	<u>61.5</u>
401.bzip2	4	1020	37.9	<u>1020</u>	<u>37.8</u>	1026	37.6	4	1014	38.1	1020	37.9	<u>1018</u>	<u>37.9</u>
403.gcc	4	945	34.1	948	34.0	<u>946</u>	<u>34.0</u>	4	754	42.7	755	42.7	<u>755</u>	<u>42.7</u>
429.mcf	4	960	38.0	962	37.9	<u>962</u>	<u>37.9</u>	4	733	49.8	<u>733</u>	<u>49.7</u>	735	49.7
445.gobmk	4	746	56.2	747	56.1	<u>747</u>	<u>56.2</u>	4	634	66.2	<u>634</u>	<u>66.2</u>	633	66.2
456.hmmmer	4	684	54.6	678	55.0	<u>678</u>	<u>55.0</u>	4	506	73.7	503	74.1	<u>505</u>	<u>73.9</u>
458.sjeng	4	943	51.3	<u>947</u>	<u>51.1</u>	948	51.0	4	870	55.6	<u>869</u>	<u>55.7</u>	868	55.7
462.libquantum	4	1674	49.5	<u>1674</u>	<u>49.5</u>	1679	49.4	4	1679	49.4	1682	49.3	<u>1682</u>	<u>49.3</u>
464.h264ref	4	1054	84.0	1072	82.6	<u>1057</u>	<u>83.7</u>	4	<u>1040</u>	<u>85.1</u>	1040	85.1	1042	84.9
471.omnetpp	4	709	35.2	<u>710</u>	<u>35.2</u>	711	35.2	4	709	35.3	<u>710</u>	<u>35.2</u>	714	35.0
473.astar	4	774	36.3	<u>776</u>	<u>36.2</u>	779	36.1	4	774	36.3	<u>776</u>	<u>36.2</u>	779	36.1
483.xalanbmk	4	479	57.7	480	57.5	<u>480</u>	<u>57.5</u>	4	475	58.1	476	58.0	<u>475</u>	<u>58.1</u>

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

General Notes

taskset utility used to bind CPU(s) to processes

Base Compiler Invocation

C benchmarks:
pathcc

C++ benchmarks:
pathCC

Base Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
403.gcc: -DSPEC_CPU_LP64
429.mcf: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
483.xalanbmk: -DSPEC_CPU_LINUX



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Base Optimization Flags

C benchmarks:

-Ofast -OPT:malloc_alg=1

C++ benchmarks:

-Ofast -m32 -L/tools/SmartHeap_8.1/lib -lsmartheap

Base Other Flags

C benchmarks:

-IPA:max_jobs=2

C++ benchmarks:

-IPA:max_jobs=2

Peak Compiler Invocation

C benchmarks:

pathcc

C++ benchmarks:

pathCC

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64
401.bzip2: -DSPEC_CPU_LP64
445.gobmk: -DSPEC_CPU_LP64
456.hmmer: -DSPEC_CPU_LP64
458.sjeng: -DSPEC_CPU_LP64
462.libquantum: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX
464.h264ref: -DSPEC_CPU_LP64
483.xalanbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

400.perlbench: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-LNO:opt=0

401.bzip2: -O3 -LNO:ou_prod_max=10 -OPT:Ofast -OPT:alias=disjoint

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Peak Optimization Flags (Continued)

403.gcc: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -m32 -O3
-OPT:Ofast

429.mcf: -m32 -O3 -ipa -L/tools/SmartHeap_8.1/lib -lsmartheap

445.gobmk: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
-OPT:alias=disjoint -LNO:simd=0 -LNO:minvariant=off
-WOPT:retype_expr=on

456.hmmer: -O2 -OPT:alias=disjoint -OPT:malloc_alg=1 -CG:cflow=0

458.sjeng: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
-IPA:plimit=50000 -IPA:pu_reorder=2

462.libquantum: -O3 -ipa -CG:local_fwd_sched=on -IPA:space=1000

464.h264ref: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
-IPA:plimit=20000 -OPT:alias=disjoint -LNO:prefetch=0

C++ benchmarks:

471.omnetpp: -Ofast -CG:gcm=off -m32
-L/tools/SmartHeap_8.1/lib -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: -Ofast -m32 -OPT:unroll_times_max=8
-L/tools/SmartHeap_8.1/lib -lsmartheap

Peak Other Flags

C benchmarks:

-IPA:max_jobs=2

C++ benchmarks:

-IPA:max_jobs=2

The flags file that was used to format this result can be browsed at

http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.13.html

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

http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.13.xml



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