



SPEC® CINT2006 Result

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IBM Corporation

SPECint®_rate2006 = 47.1

IBM System x3655 (AMD Opteron 2220)

SPECint_rate_base2006 = 42.1

CPU2006 license: 11

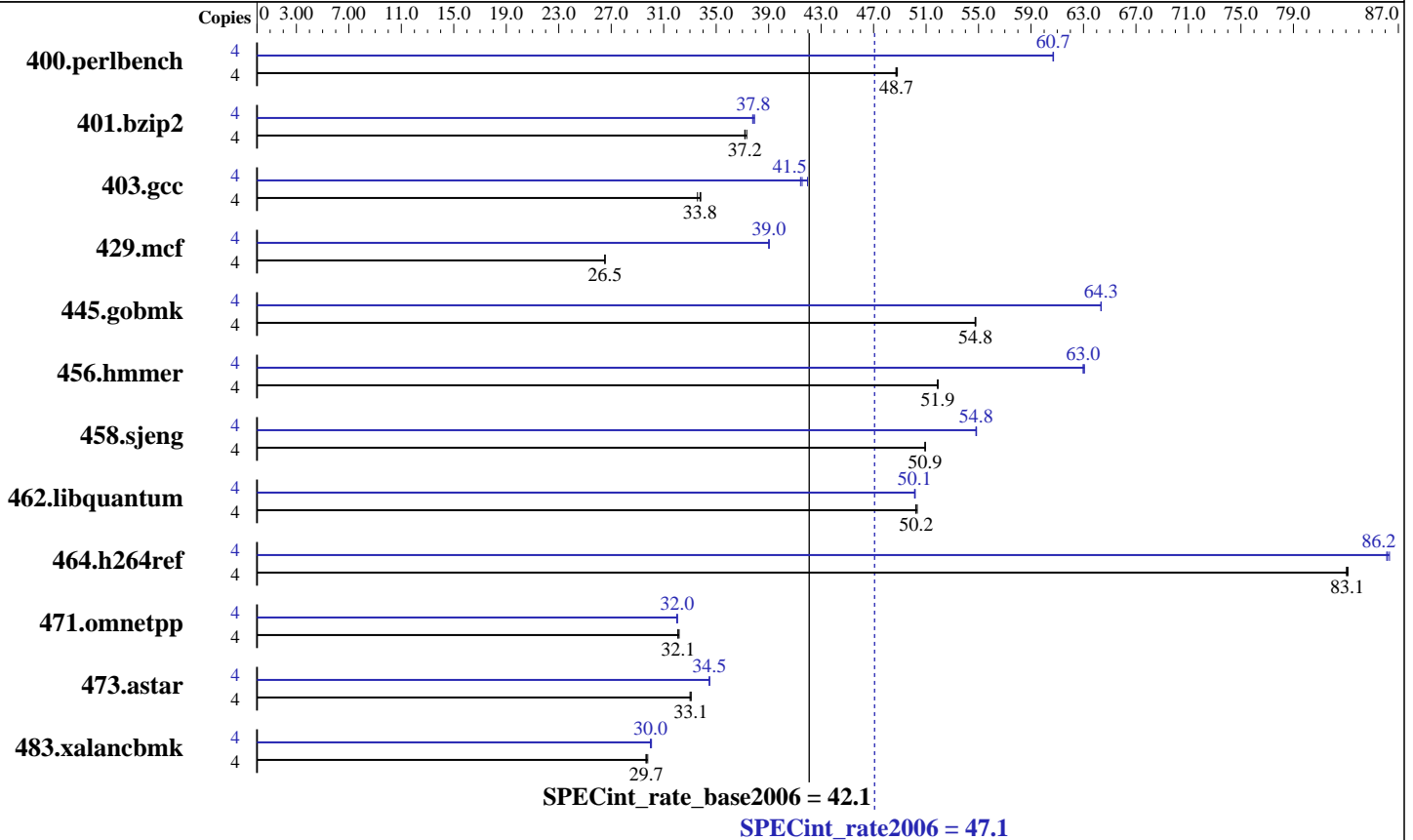
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Feb-2007

Hardware Availability: Apr-2007

Software Availability: Aug-2006



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 74 GB SAS, 15000 RPM
 Other Hardware: None

Software

Operating System: SLES9 SP3 for AMD64/EM64T
 Compiler: QLogic PathScale Compiler Suite 2.5
 Auto Parallel: No
 File System: ext3
 System State: Multi-user, run level 3
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit
 Other Software: None



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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	802	48.7	801	48.8	802	48.7	4	644	60.7	644	60.7	644	60.7
401.bzip2	4	1034	37.3	1038	37.2	1038	37.2	4	1020	37.8	1018	37.9	1022	37.8
403.gcc	4	953	33.8	959	33.6	952	33.8	4	767	42.0	777	41.4	775	41.5
429.mcf	4	1375	26.5	1375	26.5	1376	26.5	4	934	39.0	935	39.0	935	39.0
445.gobmk	4	766	54.8	766	54.8	767	54.7	4	652	64.3	652	64.3	652	64.3
456.hammer	4	719	51.9	719	51.9	720	51.9	4	593	63.0	592	63.1	593	63.0
458.sjeng	4	951	50.9	950	50.9	950	50.9	4	882	54.8	883	54.8	883	54.8
462.libquantum	4	1647	50.3	1651	50.2	1650	50.2	4	1653	50.1	1653	50.1	1652	50.2
464.h264ref	4	1064	83.2	1066	83.0	1065	83.1	4	1028	86.1	1027	86.2	1025	86.3
471.omnetpp	4	777	32.2	779	32.1	779	32.1	4	780	32.0	781	32.0	780	32.0
473.astar	4	849	33.1	849	33.1	851	33.0	4	814	34.5	814	34.5	814	34.5
483.xalanbmk	4	927	29.8	931	29.6	930	29.7	4	920	30.0	920	30.0	918	30.1

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

Operating System 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.hammer: -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:
-march=auto -Ofast

C++ benchmarks:
-march=auto -Ofast -m32

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
429.mcf: -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.xalancbmk: -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:
400.perlbench: -march=auto -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast

Continued on next page



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Peak Optimization Flags (Continued)

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

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

429.mcf: -march=auto -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -m32 -O2 -ipa

445.gobmk: -march=auto -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.hmmr: -march=auto -O2 -OPT:alias=disjoint -WOPT:aggstr=0
-CG:cflow=0

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

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

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

C++ benchmarks:

471.omnetpp: -march=auto -Ofast -IPA:pu_reorder=2 -CG:gcm=off -m32

473.astar: -march=auto -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast

483.xalancbmk: -march=auto -Ofast -m32 -OPT:unroll_times_max=8

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.20090714.17.html



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

http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.17.xml

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