



SPEC® CINT2006 Result

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IBM Corporation

SPECint®_rate2006 = 46.6

IBM BladeCenter LS21 (AMD Opteron 2216)

SPECint_rate_base2006 = 41.9

CPU2006 license: 11

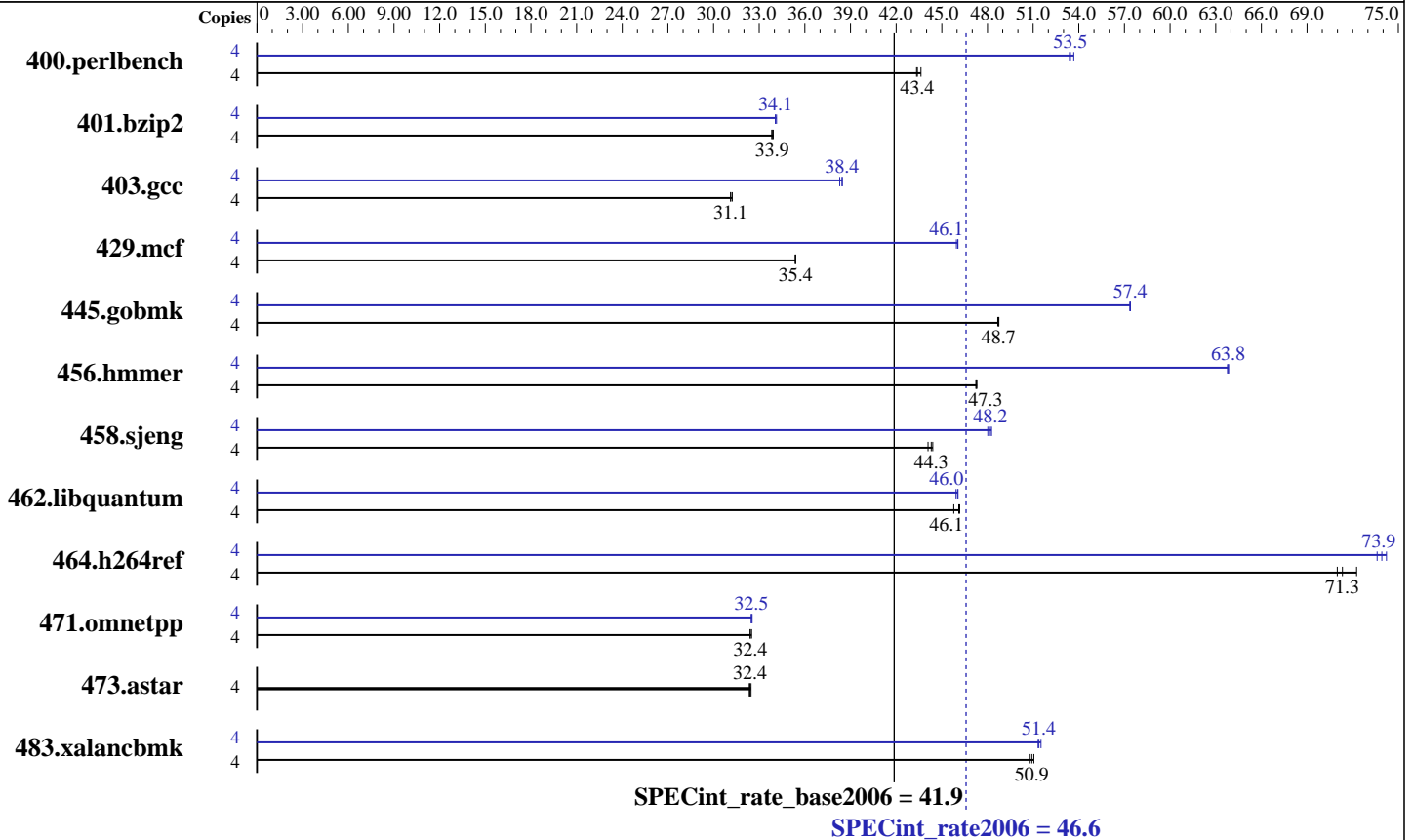
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jul-2007

Hardware Availability: Oct-2006

Software Availability: Mar-2007



Hardware

CPU Name: AMD Opteron 2216
 CPU Characteristics:
 CPU MHz: 2400
 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 36 GB SAS, 10000 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: 32/64-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	<u>901</u>	<u>43.4</u>	902	43.3	896	43.6	4	728	53.7	<u>731</u>	<u>53.5</u>	732	53.4
401.bzip2	4	<u>1140</u>	<u>33.9</u>	1138	33.9	1141	33.8	4	1131	34.1	<u>1133</u>	<u>34.1</u>	1133	34.1
403.gcc	4	1031	31.2	<u>1035</u>	<u>31.1</u>	1035	31.1	4	<u>838</u>	<u>38.4</u>	841	38.3	837	38.5
429.mcf	4	<u>1031</u>	<u>35.4</u>	1031	35.4	1031	35.4	4	<u>792</u>	<u>46.1</u>	794	46.0	792	46.1
445.gobmk	4	862	48.7	<u>861</u>	<u>48.7</u>	861	48.7	4	731	57.4	732	57.4	<u>731</u>	<u>57.4</u>
456.hmmmer	4	<u>790</u>	<u>47.3</u>	789	47.3	790	47.2	4	585	63.8	585	63.8	<u>585</u>	<u>63.8</u>
458.sjeng	4	1098	44.1	<u>1092</u>	<u>44.3</u>	1090	44.4	4	1003	48.3	1008	48.0	<u>1004</u>	<u>48.2</u>
462.libquantum	4	1810	45.8	1795	46.2	<u>1797</u>	<u>46.1</u>	4	1799	46.1	1804	45.9	<u>1800</u>	<u>46.0</u>
464.h264ref	4	1225	72.3	1247	71.0	<u>1241</u>	<u>71.3</u>	4	1193	74.2	1203	73.6	<u>1198</u>	<u>73.9</u>
471.omnetpp	4	769	32.5	<u>771</u>	<u>32.4</u>	772	32.4	4	768	32.5	<u>769</u>	<u>32.5</u>	770	32.5
473.astar	4	865	32.5	868	32.3	<u>867</u>	<u>32.4</u>	4	865	32.5	868	32.3	<u>867</u>	<u>32.4</u>
483.xalancbmk	4	541	51.0	<u>542</u>	<u>50.9</u>	544	50.8	4	536	51.5	<u>537</u>	<u>51.4</u>	538	51.3

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.xalancbmk: -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.xalancbmk: -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.hmmr: -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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