



SPEC® CFP2006 Result

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IBM Corporation

SPECfp®_rate2006 = 46.8

IBM BladeCenter LS21 (AMD Opteron 2218)

SPECfp_rate_base2006 = 44.5

CPU2006 license: 11

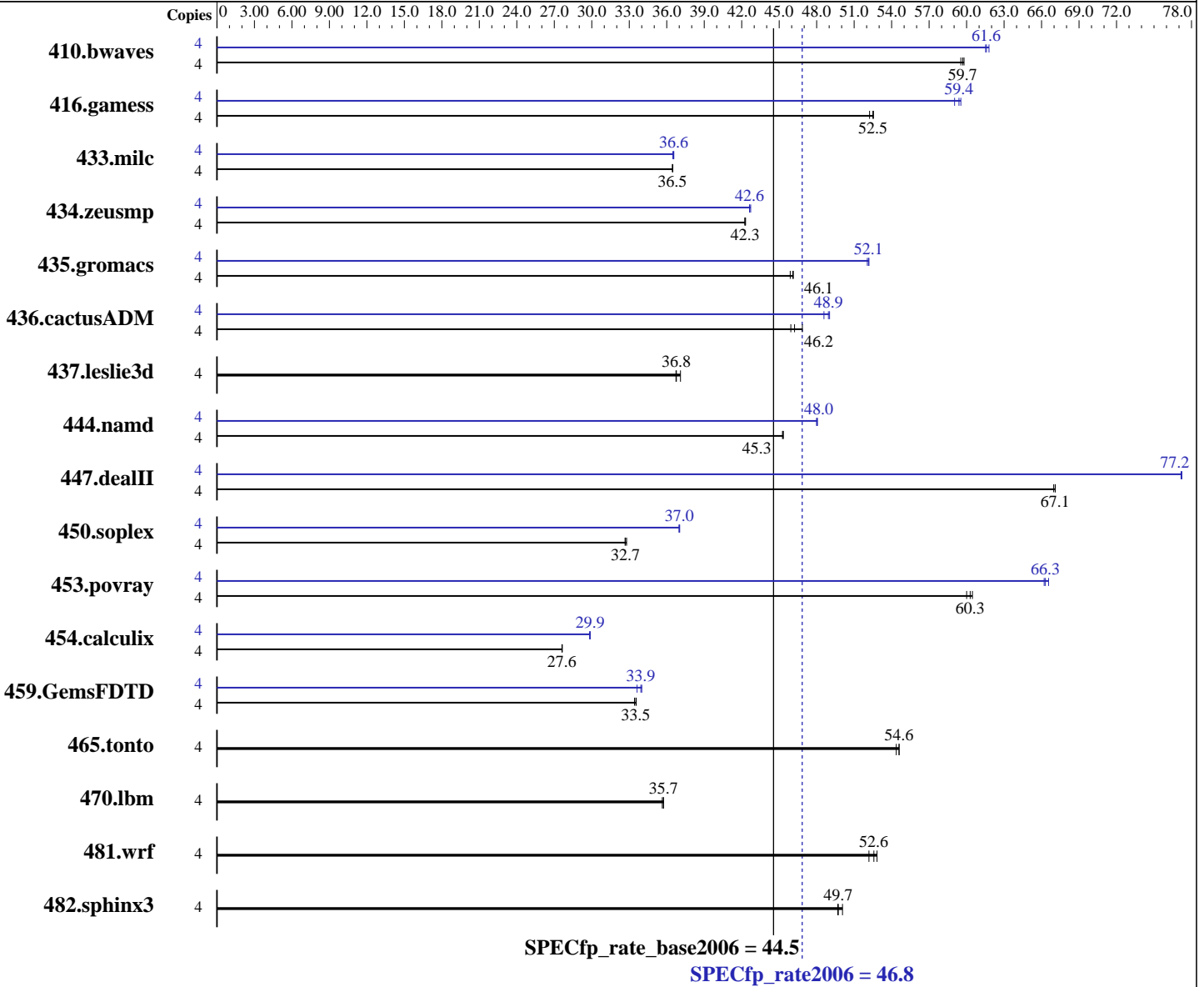
Test date: Aug-2007

Test sponsor: IBM Corporation

Hardware Availability: Oct-2006

Tested by: IBM Corporation

Software Availability: Mar-2007



Hardware

CPU Name: AMD Opteron 2218
 CPU Characteristics:
 CPU MHz: 2600
 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

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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

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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

Other Software: MicroQuill SmartHeap 8.1

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	<u>911</u>	<u>59.7</u>	909	59.8	913	59.5	4	884	61.5	880	61.8	<u>883</u>	<u>61.6</u>
416.gamess	4	<u>1492</u>	<u>52.5</u>	1499	52.2	1490	52.5	4	<u>1319</u>	<u>59.4</u>	1327	59.0	1315	59.5
433.milc	4	1007	36.5	<u>1007</u>	<u>36.5</u>	1006	36.5	4	1007	36.5	<u>1004</u>	<u>36.6</u>	1004	36.6
434.zeusmp	4	<u>861</u>	<u>42.3</u>	862	42.2	860	42.3	4	854	42.6	852	42.7	<u>854</u>	<u>42.6</u>
435.gromacs	4	622	45.9	<u>620</u>	<u>46.1</u>	619	46.1	4	549	52.1	547	52.2	<u>548</u>	<u>52.1</u>
436.cactusADM	4	1041	45.9	1020	46.9	<u>1034</u>	<u>46.2</u>	4	984	48.6	<u>977</u>	<u>48.9</u>	975	49.0
437.leslie3d	4	1023	36.7	1013	37.1	<u>1023</u>	<u>36.8</u>	4	1023	36.7	1013	37.1	<u>1023</u>	<u>36.8</u>
444.namd	4	709	45.3	708	45.3	<u>708</u>	<u>45.3</u>	4	669	48.0	667	48.1	<u>668</u>	<u>48.0</u>
447.dealII	4	682	67.1	<u>682</u>	<u>67.1</u>	683	67.0	4	593	77.2	<u>593</u>	<u>77.2</u>	593	77.2
450.soplex	4	1017	32.8	1021	32.7	<u>1020</u>	<u>32.7</u>	4	901	37.0	<u>901</u>	<u>37.0</u>	902	37.0
453.povray	4	<u>353</u>	<u>60.3</u>	352	60.5	355	60.0	4	321	66.2	320	66.6	<u>321</u>	<u>66.3</u>
454.calculix	4	<u>1195</u>	<u>27.6</u>	1195	27.6	1194	27.6	4	1106	29.8	1105	29.9	<u>1105</u>	<u>29.9</u>
459.GemsFDTD	4	1265	33.6	1270	33.4	<u>1266</u>	<u>33.5</u>	4	1248	34.0	<u>1251</u>	<u>33.9</u>	1262	33.6
465.tonto	4	724	54.4	721	54.6	<u>721</u>	<u>54.6</u>	4	724	54.4	721	54.6	<u>721</u>	<u>54.6</u>
470.lbm	4	1542	35.6	<u>1538</u>	<u>35.7</u>	1538	35.7	4	1542	35.6	<u>1538</u>	<u>35.7</u>	1538	35.7
481.wrf	4	846	52.8	<u>850</u>	<u>52.6</u>	856	52.2	4	846	52.8	<u>850</u>	<u>52.6</u>	856	52.2
482.sphinx3	4	1557	50.1	1569	49.7	<u>1568</u>	<u>49.7</u>	4	1557	50.1	1569	49.7	<u>1568</u>	<u>49.7</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
DSPEC_CPU_TABLE_WORKAROUND was used for portability when compiling 447.dealII
due to compilation being performed on SLES 9 SP3

Base Compiler Invocation

C benchmarks:
pathcc

C++ benchmarks:
pathCC

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Base Compiler Invocation (Continued)

Fortran benchmarks:
pathf95

Benchmarks using both Fortran and C:
pathcc pathf95

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
 416.gamess: -DSPEC_CPU_LP64
 433.milc: -DSPEC_CPU_LP64
 434.zeusmp: -DSPEC_CPU_LP64
 435.gromacs: -DSPEC_CPU_LP64
 436.cactusADM: -DSPEC_CPU_LP64 -fno-second-underscore
 437.leslie3d: -DSPEC_CPU_LP64
 444.namd: -DSPEC_CPU_LP64
 447.dealII: -DSPEC_CPU_LP64 -DSPEC_CPU_TABLE_WORKAROUND
 450.soplex: -DSPEC_CPU_LP64
 453.povray: -DSPEC_CPU_LP64
 454.calculix: -DSPEC_CPU_LP64
 459.GemsFDTD: -DSPEC_CPU_LP64
 465.tonto: -DSPEC_CPU_LP64
 470.lbm: -DSPEC_CPU_LP64
 481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX -fno-second-underscore
 482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
-Ofast

C++ benchmarks:
-Ofast

Fortran benchmarks:
-Ofast -OPT:malloc_alg=1

Benchmarks using both Fortran and C:
-Ofast -OPT:malloc_alg=1

Base Other Flags

C benchmarks:
-IPA:max_jobs=2

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Base Other Flags (Continued)

C++ benchmarks:

-IPA:max_jobs=2

Fortran benchmarks:

-IPA:max_jobs=2

Benchmarks using both Fortran and C:

-IPA:max_jobs=2

Peak Compiler Invocation

C benchmarks:

pathcc

C++ benchmarks:

pathCC

Fortran benchmarks:

pathf95

Benchmarks using both Fortran and C:

pathcc pathf95

Peak Portability Flags

410.bwaves: -DSPEC_CPU_LP64
 416.gamess: -DSPEC_CPU_LP64
 433.milc: -DSPEC_CPU_LP64
 434.zeusmp: -DSPEC_CPU_LP64
 435.gromacs: -DSPEC_CPU_LP64
 436.cactusADM: -DSPEC_CPU_LP64 -fno-second-underscore
 437.leslie3d: -DSPEC_CPU_LP64
 444.namd: -DSPEC_CPU_LP64
 447.dealII: -DSPEC_CPU_TABLE_WORKAROUND
 453.povray: -DSPEC_CPU_LP64
 454.calculix: -DSPEC_CPU_LP64
 459.GemsFDTD: -DSPEC_CPU_LP64
 465.tonto: -DSPEC_CPU_LP64
 470.lbm: -DSPEC_CPU_LP64
 481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX -fno-second-underscore
 482.sphinx3: -DSPEC_CPU_LP64



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Peak Optimization Flags

C benchmarks:

433.milc: -Ofast -CG:cflow=off -LNO:prefetch=1 -OPT:malloc_alg=1

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-fno-exceptions

447.dealIII: -Ofast -INLINE:aggressive=on -LNO:opt=0 -OPT:alias=disjoint
-m32 -fno-exceptions

450.soplex: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -m32 -O3
-OPT:IEEE_arith=3 -CG:load_exe=0 -CG:movnti=1
-LNO:minvariant=off -LNO:prefetch=1 -fno-exceptions

453.povray: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-fno-fast-math

Fortran benchmarks:

410.bwaves: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
-OPT:Ofast -OPT:IEEE_arith=3 -LNO:blocking=off
-LNO:ignore_feedback=off

416.gamess: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O2
-OPT:Ofast -OPT:ro=3 -OPT:unroll_size=256

434.zeusmp: -Ofast -CG:local_fwd_sched=on -LNO:blocking=off
-LNO:interchange=off -LNO:fu=10 -LNO:full_unroll_outer=on

437.leslie3d: basepeak = yes

459.GemsFDTD: -Ofast -LNO:fission=2 -LNO:prefetch=0

465.tonto: basepeak = yes

Benchmarks using both Fortran and C:

435.gromacs: -O3 -OPT:rsqrt=2 -OPT:ro=3

436.cactusADM: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
-LNO:prefetch=3 -LNO:prefetch_ahead=5 -LNO:ou_prod_max=10
-LNO:full_unroll=5 -ipa

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Peak Optimization Flags (Continued)

454.calculix: -Ofast -LNO:simd=0 -WOPT:mem_opnds=on

481.wrf: basepeak = yes

Peak Other Flags

C benchmarks:

-IPA:max_jobs=2

C++ benchmarks:

-IPA:max_jobs=2

Fortran benchmarks:

-IPA:max_jobs=2

Benchmarks using both Fortran and C:

-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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