



SPEC® CFP2006 Result

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Hewlett-Packard Company

SPECfp®_rate2006 = 48.8

ProLiant BL465c (AMD Opteron 2220)

SPECfp_rate_base2006 = 46.1

CPU2006 license: 3

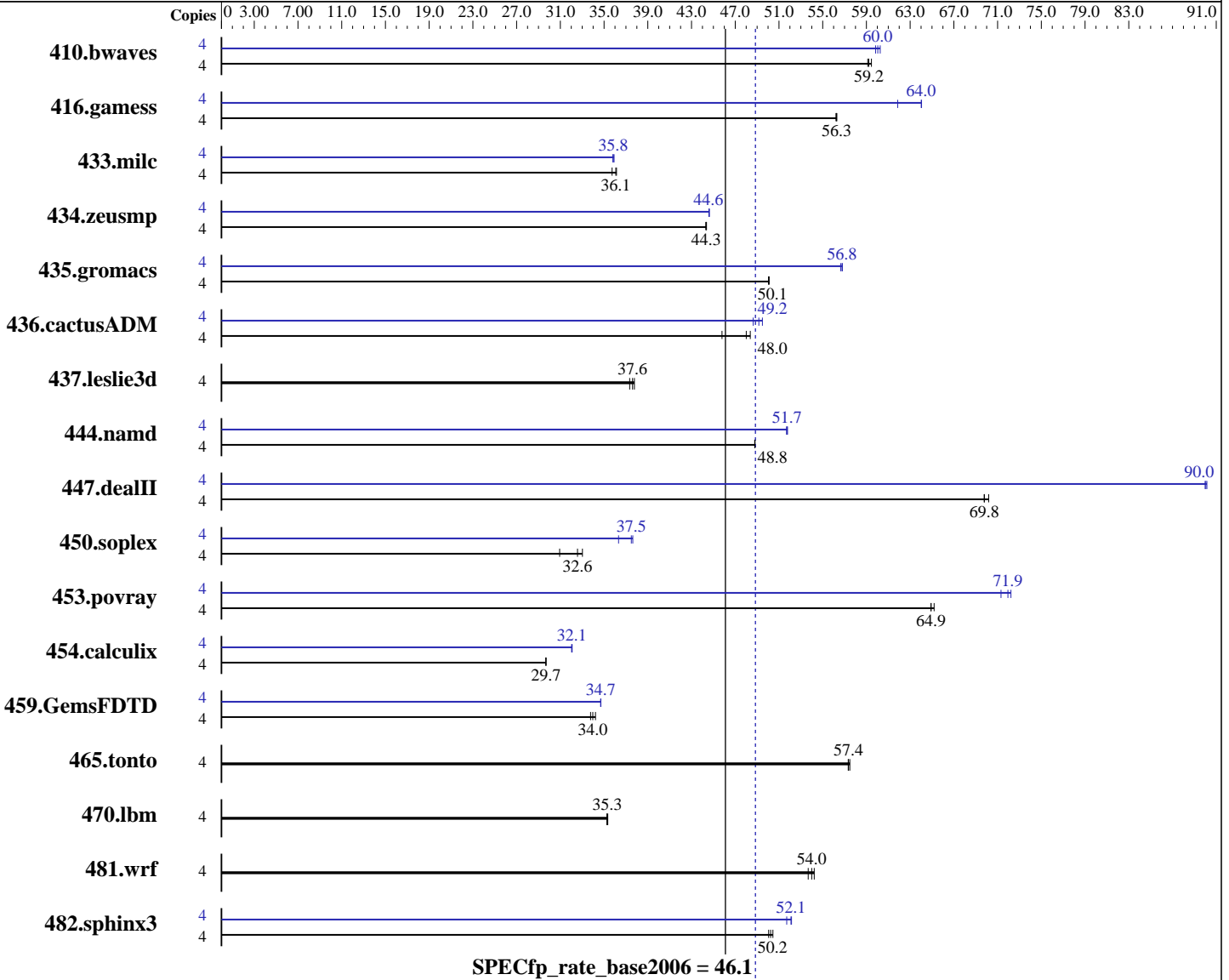
Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Jul-2007

Hardware Availability: Jan-2007

Software Availability: Apr-2007



Hardware

CPU Name: AMD Opteron 2220
 CPU Characteristics: 2.8 GHz, 1 MB L2 cache
 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

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Software

Operating System: SuSE Linux Enterprise Server 10 (x86_64)
 kernel 2.6.16.21-0.8-smp
 Compiler: QLogic PathScale Compiler Suite,
 Release 3.0
 Auto Parallel: No
 File System: ext2
 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: 32 GB (8x4 GB, PC2-5300P CL5)
 Disk Subsystem: 2x72 GB 10 K SAS
 Other Hardware: None

Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	914	59.5	<u>918</u>	<u>59.2</u>	919	59.1	4	<u>905</u>	<u>60.0</u>	902	60.3	908	59.8
416.gamess	4	1391	56.3	1393	56.2	<u>1392</u>	<u>56.3</u>	4	1223	64.0	<u>1224</u>	<u>64.0</u>	1266	61.9
433.milc	4	1028	35.7	<u>1018</u>	<u>36.1</u>	1016	36.1	4	1025	35.8	1022	35.9	<u>1024</u>	<u>35.8</u>
434.zeusmp	4	822	44.3	820	44.4	<u>821</u>	<u>44.3</u>	4	<u>816</u>	<u>44.6</u>	816	44.6	816	44.6
435.gromacs	4	570	50.1	571	50.1	<u>571</u>	<u>50.1</u>	4	504	56.6	503	56.8	<u>503</u>	<u>56.8</u>
436.cactusADM	4	<u>996</u>	<u>48.0</u>	1044	45.8	988	48.4	4	966	49.5	983	48.6	<u>972</u>	<u>49.2</u>
437.leslie3d	4	995	37.8	1007	37.3	<u>1000</u>	<u>37.6</u>	4	995	37.8	1007	37.3	<u>1000</u>	<u>37.6</u>
444.namd	4	657	48.8	<u>658</u>	<u>48.8</u>	658	48.8	4	620	51.8	<u>620</u>	<u>51.7</u>	621	51.7
447.dealII	4	<u>656</u>	<u>69.8</u>	656	69.8	652	70.2	4	509	90.0	508	90.1	<u>508</u>	<u>90.0</u>
450.soplex	4	1078	30.9	1010	33.0	<u>1024</u>	<u>32.6</u>	4	887	37.6	<u>890</u>	<u>37.5</u>	918	36.3
453.povray	4	<u>328</u>	<u>64.9</u>	328	64.9	326	65.2	4	298	71.3	295	72.2	<u>296</u>	<u>71.9</u>
454.calculix	4	1112	29.7	<u>1112</u>	<u>29.7</u>	1112	29.7	4	1029	32.1	1030	32.0	<u>1030</u>	<u>32.1</u>
459.GemsFDTD	4	<u>1249</u>	<u>34.0</u>	1257	33.8	1240	34.2	4	<u>1223</u>	<u>34.7</u>	1223	34.7	1224	34.7
465.tonto	4	685	57.5	<u>686</u>	<u>57.4</u>	686	57.3	4	685	57.5	<u>686</u>	<u>57.4</u>	686	57.3
470.lbm	4	<u>1558</u>	<u>35.3</u>	1559	35.3	1555	35.3	4	<u>1558</u>	<u>35.3</u>	1559	35.3	1555	35.3
481.wrf	4	832	53.7	824	54.2	<u>827</u>	<u>54.0</u>	4	832	53.7	824	54.2	<u>827</u>	<u>54.0</u>
482.sphinx3	4	1557	50.1	1545	50.4	<u>1552</u>	<u>50.2</u>	4	<u>1496</u>	<u>52.1</u>	1508	51.7	1495	52.1

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

General Notes

Node interleaving is disabled
ulimit -s unlimited set

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
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=4

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Base Other Flags (Continued)

C++ benchmarks:

-IPA:max_jobs=4

Fortran benchmarks:

-IPA:max_jobs=4

Benchmarks using both Fortran and C:

-IPA:max_jobs=4

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
 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: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
-OPT:Ofast -WOPT:aggstr=0 -m32

C++ benchmarks:

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

447.deallI: -Ofast -static -INLINE:aggressive=on -OPT:malloc_alg=1
-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=4

C++ benchmarks:

-IPA:max_jobs=4

Fortran benchmarks:

-IPA:max_jobs=4

Benchmarks using both Fortran and C:

-IPA:max_jobs=4

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

http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.15.html

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

http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.15.xml

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