



SPEC[®] CFP2006 Result

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Hewlett-Packard Company

SPECfp[®]_rate2006 = 91.8

ProLiant BL685c (AMD Opteron 8220)

SPECfp_rate_base2006 = 86.8

CPU2006 license: 3

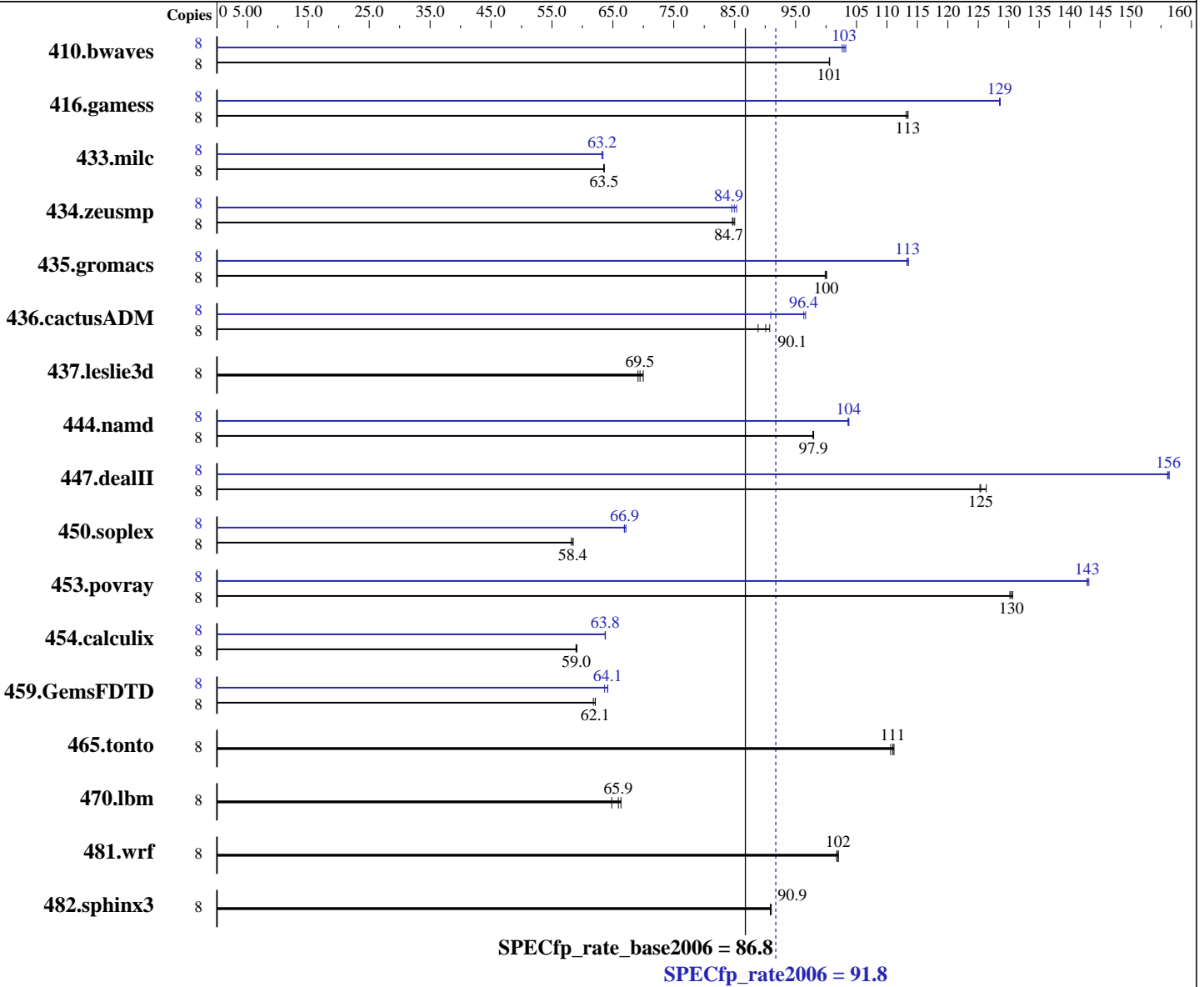
Test sponsor: Hewlett-Packard Company

Tested by: Hewlett-Packard Company

Test date: Apr-2007

Hardware Availability: Feb-2007

Software Availability: Apr-2007



Hardware

CPU Name: AMD Opteron 8220
 CPU Characteristics:
 CPU MHz: 2800
 FPU: Integrated
 CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip
 CPU(s) orderable: 2,4 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)
 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 (16x2 GB, PC2-5300P CL5)
Disk Subsystem: 1 x 72 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	8	1081	101	1081	101	1081	101	8	1056	103	1053	103	1059	103
416.gamess	8	1384	113	1381	113	1380	113	8	1219	128	1218	129	1219	129
433.milc	8	1156	63.5	1156	63.5	1155	63.6	8	1159	63.4	1161	63.2	1162	63.2
434.zeusmp	8	856	85.0	859	84.7	860	84.6	8	861	84.5	853	85.3	857	84.9
435.gromacs	8	571	100	572	99.9	571	100	8	503	114	504	113	504	113
436.cactusADM	8	1076	88.8	1061	90.1	1053	90.8	8	989	96.6	992	96.4	1051	90.9
437.leslie3d	8	1075	70.0	1088	69.1	1083	69.5	8	1075	70.0	1088	69.1	1083	69.5
444.namd	8	655	97.9	655	98.0	656	97.8	8	619	104	619	104	618	104
447.dealII	8	731	125	730	125	725	126	8	586	156	586	156	585	156
450.soplex	8	1141	58.5	1142	58.4	1147	58.2	8	998	66.9	994	67.1	997	66.9
453.povray	8	326	131	327	130	326	130	8	298	143	298	143	297	143
454.calculix	8	1117	59.1	1118	59.0	1120	58.9	8	1035	63.8	1036	63.7	1035	63.8
459.GemsFDTD	8	1367	62.1	1366	62.1	1373	61.8	8	1323	64.1	1323	64.2	1334	63.6
465.tonto	8	708	111	709	111	712	111	8	708	111	709	111	712	111
470.lbm	8	1696	64.8	1657	66.3	1668	65.9	8	1696	64.8	1657	66.3	1668	65.9
481.wrf	8	876	102	876	102	878	102	8	876	102	876	102	878	102
482.sphinx3	8	1716	90.9	1716	90.9	1713	91.0	8	1716	90.9	1716	90.9	1713	91.0

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

Platform Notes

Node interleaving is disabled
taskset utility used to bind CPU(s) to processes
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 -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

Peak Compiler Invocation

C benchmarks:
pathcc

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Peak Compiler Invocation (Continued)

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

```

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

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Peak Optimization Flags (Continued)

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

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

481.wrf: basepeak = yes

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

http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.16.html

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

http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.16.xml



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