SPEC® CFP2006 Result

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Hewlett-Packard Company

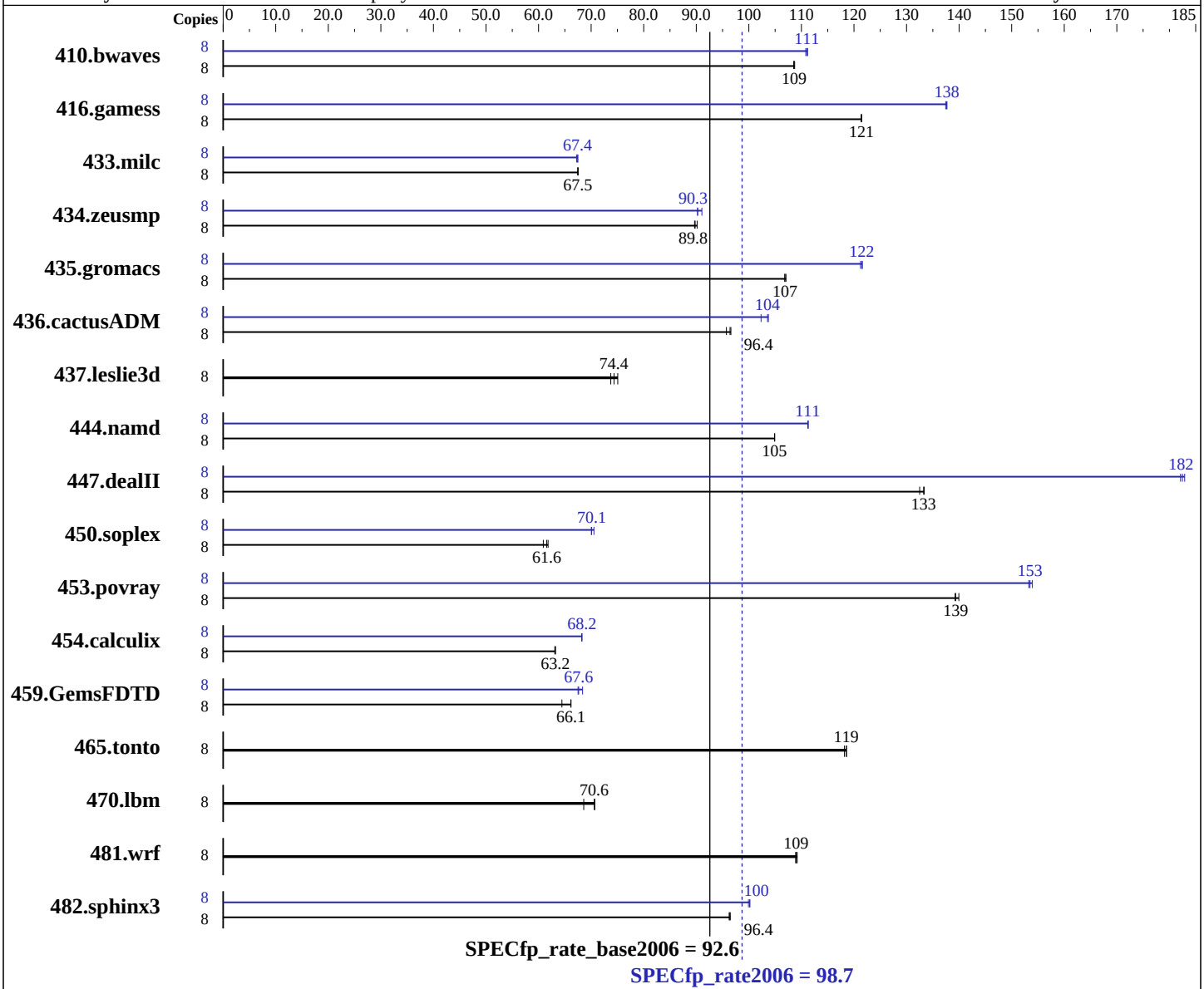
Proliant DL585 G2 (AMD Opteron 8222 SE)

SPECfp®_rate2006 = 98.7

SPECfp_rate_base2006 = 92.6

CPU2006 license: 3
Test sponsor: Hewlett-Packard Company
Tested by: Hewlett-Packard Company

Test date: Apr-2007
Hardware Availability: May-2007
Software Availability: Mar-2007



Hardware

CPU Name:	AMD Opteron 8222 SE
CPU Characteristics:	
CPU MHz:	3000
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) SuSE 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 (16x2 GB, PC2-5300P CL5)
Disk Subsystem: 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	1000	109	**1001**	**109**	1002	109	8	**979**	**111**	978	111	981	111
416.gamess	8	**1290**	**121**	1291	121	1290	121	8	1138	138	**1138**	**138**	1140	137
433.milc	8	1089	67.5	**1088**	**67.5**	1088	67.5	8	1089	67.5	1092	67.2	**1089**	**67.4**
434.zeusmp	8	807	90.2	812	89.7	**811**	**89.8**	8	799	91.1	**806**	**90.3**	807	90.2
435.gromacs	8	**534**	**107**	535	107	534	107	8	470	122	471	121	**470**	**122**
436.cactusADM	8	990	96.6	999	95.7	**991**	**96.4**	8	934	102	922	104	**923**	**104**
437.leslie3d	8	1002	75.1	**1011**	**74.4**	1020	73.7	8	1002	75.1	**1011**	**74.4**	1020	73.7
444.namd	8	**612**	**105**	611	105	612	105	8	576	111	**577**	**111**	577	111
447.dealII	8	**687**	**133**	691	132	686	133	8	503	182	500	183	**502**	**182**
450.soplex	8	1079	61.8	**1084**	**61.6**	1096	60.9	8	946	70.5	**952**	**70.1**	953	70.0
453.povray	8	306	139	**305**	**139**	304	140	8	**277**	**153**	278	153	276	154
454.calculix	8	**1044**	**63.2**	1044	63.2	1046	63.1	8	968	68.2	**967**	**68.2**	967	68.3
459.GemsFDTD	8	1317	64.4	1283	66.2	**1283**	**66.1**	8	1241	68.4	1257	67.5	**1255**	**67.6**
465.tonto	8	664	119	666	118	**664**	**119**	8	664	119	666	118	**664**	**119**
470.lbm	8	1603	68.6	**1557**	**70.6**	1555	70.7	8	1603	68.6	**1557**	**70.6**	1555	70.7
481.wrf	8	821	109	**820**	**109**	818	109	8	821	109	**820**	**109**	818	109
482.sphinx3	8	1620	96.3	**1618**	**96.4**	1616	96.5	8	**1556**	**100**	1560	99.9	1556	100

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
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
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: -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.dealII: -Ofast -static -INLINE:aggressive=on -OPT:malloc_alg=1
-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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