SPEC® CFP2006 Result

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Hewlett-Packard Company

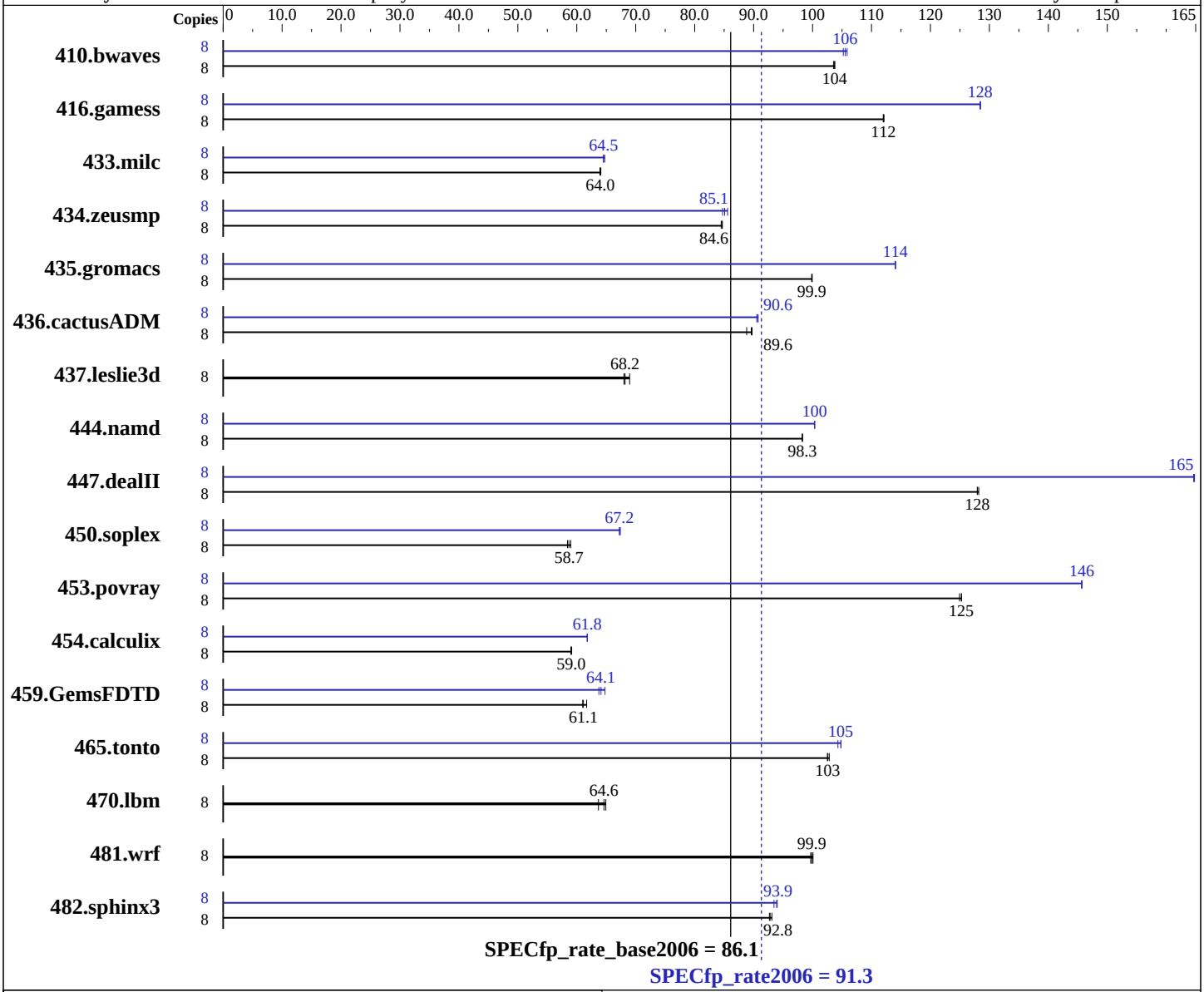
ProLiant DL585 G2 (AMD Opteron 8220 SE)

SPECfp®_rate2006 = 91.3

SPECfp_rate_base2006 = 86.1

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

Test date: Mar-2007
Hardware Availability: Sep-2006
Software Availability: Sep-2006



Hardware

CPU Name:	AMD Opteron 8220 SE
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 9 (x86-64) SP3 SuSE kernel 2.6.5-7.244-smp
Compiler:	QLogic PathScale Compiler Suite, Release 2.5
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: 2x72 GB 10 K SAS
Other Hardware: None

Other Software: SmartHeap 8.0 32 bit Library for Linux

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	1048	104	**1048**	**104**	1050	104	8	1033	105	1027	106	**1030**	**106**
416.gamess	8	**1398**	**112**	1399	112	1397	112	8	1219	128	1220	128	**1219**	**128**
433.milc	8	**1148**	**64.0**	1149	63.9	1146	64.1	8	**1138**	**64.5**	1139	64.5	1134	64.7
434.zeusmp	8	860	84.7	**860**	**84.6**	862	84.5	8	**856**	**85.1**	851	85.6	859	84.7
435.gromacs	8	**572**	**99.9**	572	99.9	572	99.9	8	501	114	**501**	**114**	501	114
436.cactusADM	8	1076	88.8	**1067**	**89.6**	1065	89.7	8	1053	90.8	**1055**	**90.6**	1056	90.6
437.leslie3d	8	**1103**	**68.2**	1090	69.0	1106	68.0	8	**1103**	**68.2**	1090	69.0	1106	68.0
444.namd	8	653	98.3	653	98.3	**653**	**98.3**	8	639	100	639	100	**639**	**100**
447.dealII	8	715	128	714	128	**715**	**128**	8	**556**	**165**	556	165	555	165
450.soplex	8	**1137**	**58.7**	1131	59.0	1142	58.4	8	990	67.4	992	67.2	**992**	**67.2**
453.povray	8	340	125	341	125	**340**	**125**	8	292	146	**292**	**146**	292	146
454.calculix	8	1116	59.1	**1118**	**59.0**	1118	59.0	8	1068	61.8	1068	61.8	**1068**	**61.8**
459.GemsFDTD	8	1376	61.7	1392	61.0	**1389**	**61.1**	8	**1324**	**64.1**	1332	63.7	1310	64.8
465.tonto	8	768	103	**767**	**103**	766	103	8	755	104	**751**	**105**	751	105
470.lbm	8	1726	63.7	**1701**	**64.6**	1693	64.9	8	1726	63.7	**1701**	**64.6**	1693	64.9
481.wrf	8	893	100	**895**	**99.9**	896	99.7	8	893	100	**895**	**99.9**	896	99.7
482.sphinx3	8	1675	93.1	1682	92.7	**1680**	**92.8**	8	1659	94.0	**1661**	**93.9**	1668	93.5

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

Platform Notes

```
Node interleaving is disabled
```

General Notes

```
taskset utility used to bind CPU(s) to processes
Binaries supplied by AMD
```

Base Compiler Invocation

C benchmarks:

```
pathcc
```

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Base Compiler Invocation (Continued)

C++ benchmarks:
pathCC

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

Benchmarks using both Fortran and C:
-Ofast

Base 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`

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`

Peak Optimization Flags

C benchmarks:

433.milc: `-fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-Ofast`

470.lbm: `basepeak = yes`

482.sphinx3: `Same as 433.milc`

C++ benchmarks:

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

447.dealII: `-Ofast -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 -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: `-Ofast -CG:local_fwd_sched=on -IPA:plimit=525`

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_ahead=5 -LNO:ou_prod_max=10 -LNO:full_unroll=5 -ipa`

454.calculix: `-Ofast -CG:prefetch=off -LNO:simd=0 -OPT:unroll_times_max=8 -WOPT:mem_opnds=on`

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Peak Optimization Flags (Continued)

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.20090715.21.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.21.xml

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