SPEC® CFP2006 Result

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Hewlett-Packard Company

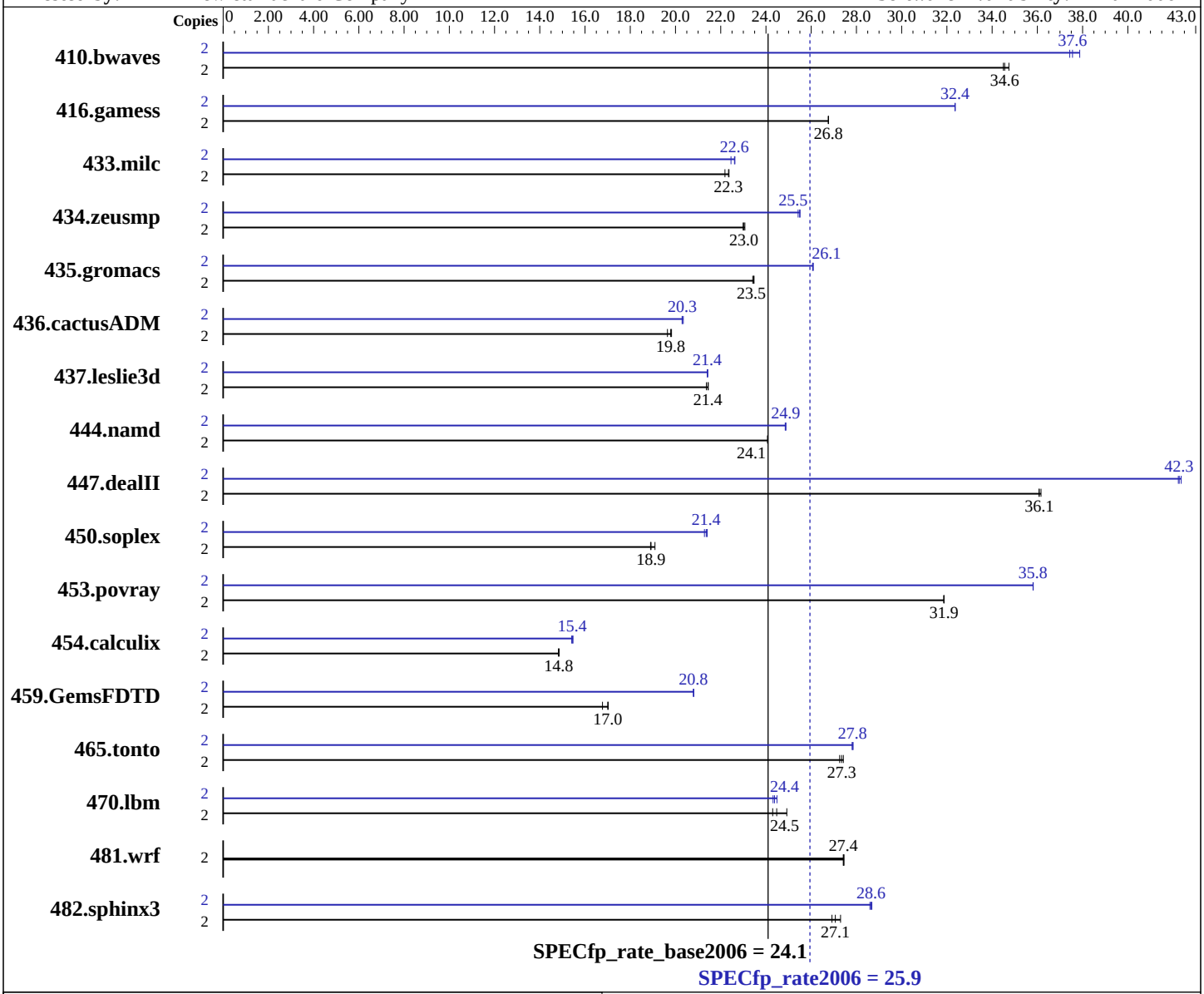
ProLiant DL585 (AMD Opteron 854)

SPECfp®_rate2006 = 25.9

SPECfp_rate_base2006 = 24.1

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

Test date: Apr-2006
Hardware Availability: Oct-2005
Software Availability: Mar-2006



Hardware

CPU Name:	AMD Opteron 854
CPU Characteristics:	2.8GHz, 1MB L2 cache
CPU MHz:	2800
FPU:	Integrated
CPU(s) enabled:	2 cores, 2 chips, 1 core/chip
CPU(s) orderable:	2,4 chips
Primary Cache:	64 KB I + 64 KB D on chip per chip
Secondary Cache:	1 MB I+D on chip per chip

Continued on next page

Software

Operating System:	SuSE Linux Enterprise Server 9 (x86_64) SP 3 SuSE kernel 2.6.5-7.244-smp
Compiler:	PathScale EKO Compiler Suite, Release 2.4 PGI C Compiler 6.1-3 for Linux (64-bit) PGI Fortran Compiler 6.1-3 for Linux (64-bit)
Auto Parallel:	No
File System:	ext2
System State:	Multi-user run level 3
Base Pointers:	64-bit

Continued on next page

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L3 Cache: None
Other Cache: None
Memory: 16 GB (8x2048 MB PC3200 CL3.0)
Disk Subsystem: 1x146GB 10K Ultra320 SCSI
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	2	782	34.7	**787**	**34.6**	788	34.5	2	**724**	**37.6**	718	37.9	726	37.4
416.gamess	2	1464	26.8	**1463**	**26.8**	1463	26.8	2	**1210**	**32.4**	1210	32.4	1210	32.4
433.milc	2	828	22.2	**822**	**22.3**	821	22.4	2	**812**	**22.6**	811	22.6	818	22.5
434.zeusmp	2	789	23.1	**790**	**23.0**	792	23.0	2	714	25.5	**714**	**25.5**	716	25.4
435.gromacs	2	610	23.4	**609**	**23.5**	608	23.5	2	548	26.1	**547**	**26.1**	547	26.1
436.cactusADM	2	1206	19.8	1217	19.6	**1208**	**19.8**	2	1175	20.3	1178	20.3	**1177**	**20.3**
437.leslie3d	2	876	21.5	**877**	**21.4**	880	21.4	2	**878**	**21.4**	877	21.4	878	21.4
444.namd	2	666	24.1	**666**	**24.1**	666	24.1	2	645	24.9	**645**	**24.9**	645	24.9
447.dealII	2	**634**	**36.1**	634	36.1	633	36.2	2	**541**	**42.3**	542	42.2	540	42.4
450.soplex	2	874	19.1	883	18.9	**882**	**18.9**	2	779	21.4	**781**	**21.4**	784	21.3
453.povray	2	334	31.9	334	31.9	**334**	**31.9**	2	297	35.8	**297**	**35.8**	297	35.8
454.calculix	2	1111	14.9	**1112**	**14.8**	1113	14.8	2	1067	15.5	1071	15.4	**1069**	**15.4**
459.GemsFDTD	2	1265	16.8	**1248**	**17.0**	1246	17.0	2	1020	20.8	**1020**	**20.8**	1021	20.8
465.tonto	2	**720**	**27.3**	718	27.4	722	27.3	2	708	27.8	707	27.9	**707**	**27.8**
470.lbm	2	1103	24.9	**1123**	**24.5**	1131	24.3	2	1122	24.5	**1127**	**24.4**	1130	24.3
481.wrf	2	814	27.5	**815**	**27.4**	815	27.4	2	814	27.5	**815**	**27.4**	815	27.4
482.sphinx3	2	1428	27.3	1448	26.9	**1440**	**27.1**	2	1359	28.7	**1361**	**28.6**	1363	28.6

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

General Notes

```
BIOS Configuration Notes
  Node Interleaving is Disabled
Other Configuration Notes
   Taskset utility used to bind process to CPU(s)
```

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

Benchmarks using both Fortran and C:
-Ofast

Peak Compiler Invocation

C benchmarks (except as noted below):
pgcc

Continued on next page

Peak Compiler Invocation (Continued)

470.lbm: pathcc

C++ benchmarks:
pathCC

Fortran benchmarks (except as noted below):
pathf95

434.zeusmp: pgf90

459.GemsFDTD: pgf90

Benchmarks using both Fortran and C (except as noted below):
pathcc pathf95

454.calculix: pgcc pgf90

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_LP64 -DSPEC_CPU_TABLE_WORKAROUND
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -Mnomain
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: -c9x -Mpfi(pass 1) -Mipa=fast(pass 2) -Mipa=inline(pass 2)
-Mipa=nolocalarg(pass 2) -Mipa=vestigial(pass 2)
-Mpfo(pass 2) -tp k8-64 -fastsse

Continued on next page

Peak Optimization Flags (Continued)

470.lbm: `-fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-Ofast`

482.sphinx3: `-c9x -tp k8-64 -fastsse -Mfprelaxed -Mipa=fast -Mipa=inline -Msignextend`

C++ benchmarks:

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

447.dealII: `-Ofast -m32 -fno-exceptions`

450.soplex: `-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: `-Mpfi`(pass 1) `-Mipa=fast`(pass 2) `-Mipa=inline`(pass 2) `-Mpfo`(pass 2) `-tp k8-64 -fastsse -Mfprelaxed -Mvect=fuse`

437.leslie3d: `-O3 -OPT:Ofast`

459.GemsFDTD: `-tp k8-64 -fastsse -Munroll=n:4`

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: `-c9x -tp k8-64 -fastsse -Mnolre -Mipa=fast -Mipa=inline`

481.wrf: `basepeak = yes`

Peak Other Flags

C benchmarks (except as noted below):

`-w`

470.lbm: `No flags used`

Fortran benchmarks:

434.zeusmp: `-w`

459.GemsFDTD: `-w`

Benchmarks using both Fortran and C:

454.calculix: `-w`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.04.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.04.xml`

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Tested with SPEC CPU2006 v91.
Report generated on Tue Sep 13 11:16:48 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 24 August 2006.