



# SPEC® CFP2006 Result

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## Hewlett-Packard Company

### SPECfp®\_rate2006 = 49.3

## ProLiant DL585 (AMD Opteron 854)

### SPECfp\_rate\_base2006 = 45.6

CPU2006 license: 3

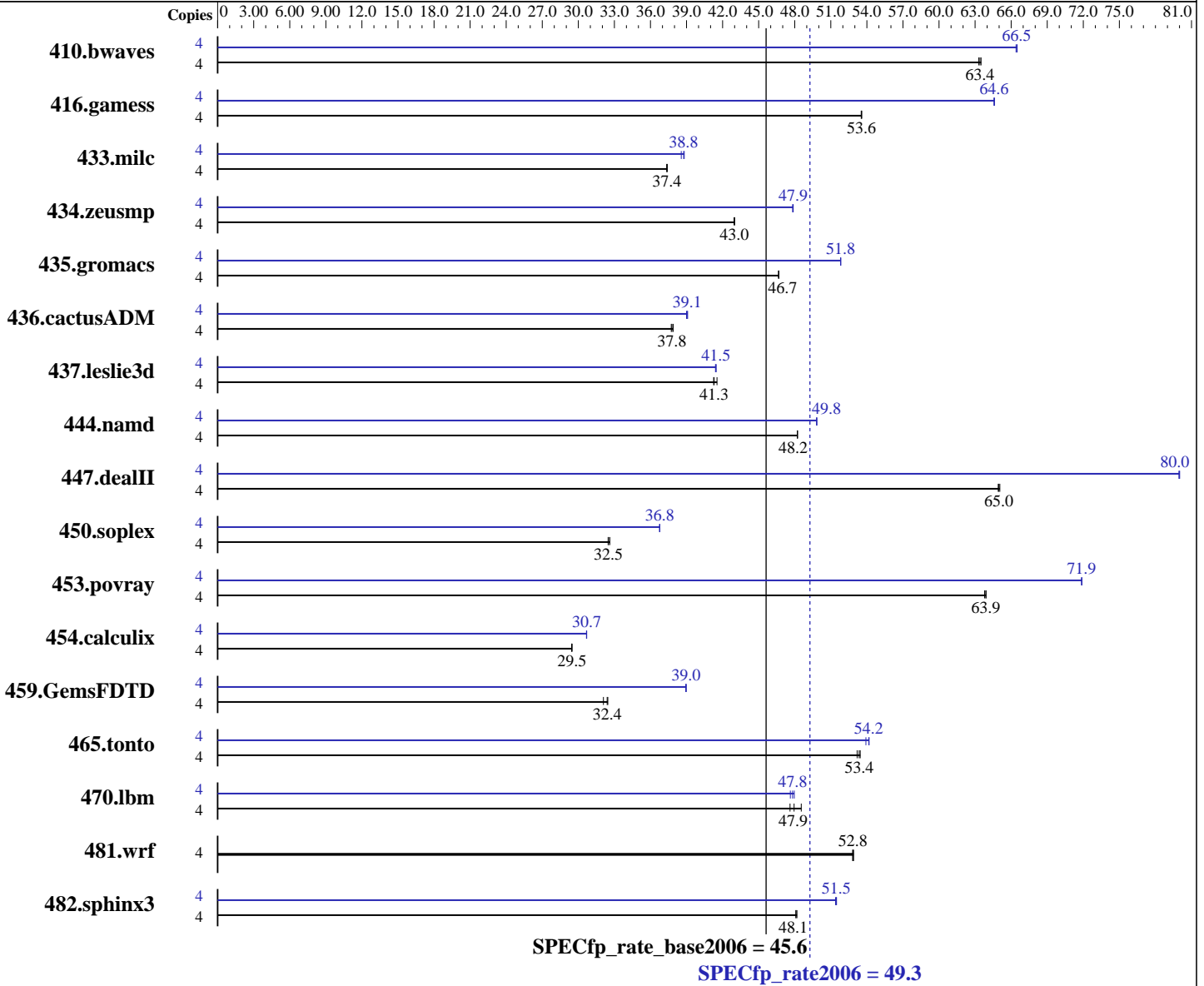
Test sponsor: Hewlett-Packard Company

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: 4 cores, 4 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

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### 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

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L3 Cache: None  
Other Cache: None  
Memory: 32 GB (16x2048 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	4	856	63.5	<b>857</b>	<b>63.4</b>	859	63.3	4	<b>818</b>	<b>66.5</b>	817	66.5	819	66.4		
416.gamess	4	1463	53.5	<b>1462</b>	<b>53.6</b>	1462	53.6	4	1213	64.6	<b>1213</b>	<b>64.6</b>	1212	64.6		
433.milc	4	983	37.4	982	37.4	<b>983</b>	<b>37.4</b>	4	952	38.6	946	38.8	<b>947</b>	<b>38.8</b>		
434.zeusmp	4	847	43.0	<b>847</b>	<b>43.0</b>	847	43.0	4	<b>760</b>	<b>47.9</b>	760	47.9	761	47.8		
435.gromacs	4	612	46.6	<b>612</b>	<b>46.7</b>	612	46.7	4	<b>551</b>	<b>51.8</b>	551	51.8	551	51.8		
436.cactusADM	4	1267	37.7	1262	37.9	<b>1265</b>	<b>37.8</b>	4	<b>1224</b>	<b>39.1</b>	1226	39.0	1223	39.1		
437.leslie3d	4	905	41.5	<b>910</b>	<b>41.3</b>	911	41.3	4	907	41.5	<b>907</b>	<b>41.5</b>	908	41.4		
444.namd	4	665	48.2	<b>665</b>	<b>48.2</b>	665	48.2	4	644	49.8	<b>644</b>	<b>49.8</b>	644	49.8		
447.dealII	4	<b>704</b>	<b>65.0</b>	703	65.1	705	64.9	4	572	80.0	572	80.0	<b>572</b>	<b>80.0</b>		
450.soplex	4	1023	32.6	<b>1026</b>	<b>32.5</b>	1027	32.5	4	907	36.8	<b>907</b>	<b>36.8</b>	908	36.8		
453.povray	4	334	63.8	333	63.9	<b>333</b>	<b>63.9</b>	4	<b>296</b>	<b>71.9</b>	296	71.9	296	71.9		
454.calculix	4	1120	29.5	<b>1120</b>	<b>29.5</b>	1121	29.4	4	1075	30.7	1076	30.7	<b>1075</b>	<b>30.7</b>		
459.GemsFDTD	4	1323	32.1	1308	32.5	<b>1310</b>	<b>32.4</b>	4	<b>1089</b>	<b>39.0</b>	1089	39.0	1090	38.9		
465.tonto	4	736	53.4	740	53.2	<b>738</b>	<b>53.4</b>	4	730	53.9	726	54.2	<b>727</b>	<b>54.2</b>		
470.lbm	4	1132	48.5	<b>1146</b>	<b>47.9</b>	1154	47.6	4	1146	48.0	<b>1149</b>	<b>47.8</b>	1154	47.6		
481.wrf	4	846	52.8	845	52.9	<b>846</b>	<b>52.8</b>	4	846	52.8	845	52.9	<b>846</b>	<b>52.8</b>		
482.sphinx3	4	1618	48.2	<b>1621</b>	<b>48.1</b>	1621	48.1	4	1514	51.5	<b>1515</b>	<b>51.5</b>	1517	51.4		

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

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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



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Software Availability: Mar-2006

## Peak Compiler Invocation

C benchmarks (except as noted below):

pgcc

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.deallI: -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 -Mphi(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

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## 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.deallI: -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



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## 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](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](http://www.spec.org/cpu2006/flags/CPU2006_flags.20090715.04.xml)

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