



SPEC® CFP2006 Result

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Dell Inc.

SPECfp®_rate2006 = 74.0

PowerEdge M805 (AMD Opteron 2344 HE, 1.7 GHz)

SPECfp_rate_base2006 = 66.9

CPU2006 license: 55

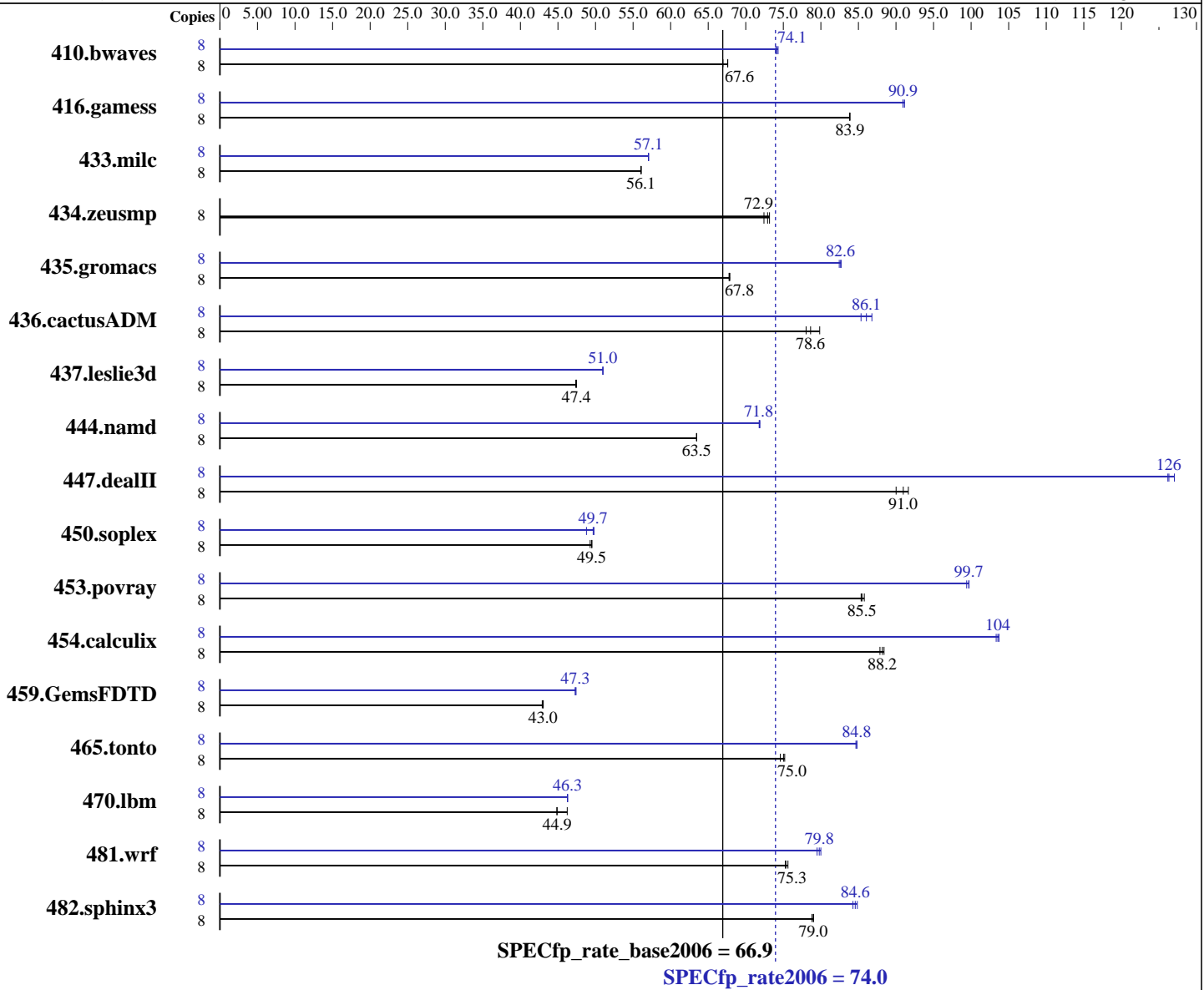
Test sponsor: Dell Inc.

Tested by: Dell Inc.

Test date: Sep-2008

Hardware Availability: Apr-2008

Software Availability: Aug-2008



Hardware

CPU Name: AMD Opteron 2344 HE
 CPU Characteristics:
 CPU MHz: 1700
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip
 CPU(s) orderable: 2 chips
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 512 KB I+D on chip per core

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Software

Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16-60.0.21-smp
 Compiler: PGI Server Complete Version 7.2 PathScale Compiler Suite Version 3.2
 Auto Parallel: No
 File System: ReiserFS
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit

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L3 Cache: 2 MB I+D on chip per chip
Other Cache: None
Memory: 16 GB (8 x 2 GB DDR2-667 Dual Rank)
Disk Subsystem: 1 x 73 15000 RPM SATA
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	1624	67.0	1608	67.6	1608	67.6	8	1463	74.3	1466	74.1	1469	74.0
416.gamess	8	1868	83.9	1869	83.8	1868	83.9	8	1722	90.9	1719	91.1	1723	90.9
433.milc	8	1310	56.1	1310	56.1	1310	56.1	8	1287	57.1	1288	57.0	1287	57.1
434.zeusmp	8	999	72.9	995	73.2	1005	72.4	8	999	72.9	995	73.2	1005	72.4
435.gromacs	8	843	67.8	843	67.8	841	67.9	8	691	82.7	691	82.6	693	82.4
436.cactusADM	8	1197	79.8	1216	78.6	1225	78.0	8	1120	85.3	1101	86.8	1111	86.1
437.leslie3d	8	1585	47.4	1585	47.4	1587	47.4	8	1475	51.0	1474	51.0	1475	51.0
444.namd	8	1011	63.5	1011	63.5	1011	63.4	8	894	71.8	893	71.9	893	71.8
447.dealII	8	999	91.6	1017	90.0	1006	91.0	8	724	126	725	126	720	127
450.soplex	8	1354	49.3	1347	49.5	1348	49.5	8	1367	48.8	1343	49.7	1340	49.8
453.povray	8	499	85.4	498	85.5	496	85.8	8	428	99.4	427	99.7	427	99.7
454.calculix	8	747	88.4	748	88.2	751	87.9	8	636	104	639	103	637	104
459.GemsFDTD	8	1972	43.0	1978	42.9	1974	43.0	8	1794	47.3	1794	47.3	1790	47.4
465.tonto	8	1055	74.6	1047	75.2	1049	75.0	8	929	84.8	930	84.7	928	84.8
470.lbm	8	2448	44.9	2378	46.2	2451	44.8	8	2375	46.3	2375	46.3	2376	46.3
481.wrf	8	1186	75.3	1182	75.6	1187	75.3	8	1124	79.5	1117	80.0	1120	79.8
482.sphinx3	8	1978	78.8	1974	79.0	1973	79.0	8	1838	84.8	1844	84.6	1850	84.3

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

Submit Notes

The config file option 'submit' was used.
'numactl' was used to bind copies to the cores

Operating System Notes

'ulimit -s unlimited' was used to set environment stack size
'ulimit -l 2457600' was used to set environment locked pages in memory limit
Environment variable PGI_HUGE_PAGES set to 150
Set vm/nr_hugepages=1200 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages



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General Notes

Environment variables set by runspec before the start of the run:

LD_LIBRARY_PATH = "/root/cpu2006-1.1/amd729gh-libs:/root/cpu2006-1.1/amd729gh-libs/32:\\$LD_LIBRARY_PATH"

Base Compiler Invocation

C benchmarks:

pgcc

C++ benchmarks:

pgcpp

Fortran benchmarks:

pgf95

Benchmarks using both Fortran and C:

pgcc pgf95

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 -Mnomain
 436.cactusADM: -DSPEC_CPU_LP64 -Mnomain
 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 -Mnomain
 459.GemsFDTD: -DSPEC_CPU_LP64
 465.tonto: -DSPEC_CPU_LP64
 470.lbm: -DSPEC_CPU_LP64
 481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
 482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:

-fastsse -Msmartalloc=huge:150 -Mfprelaxed -Mipa=fast -Mipa=inline
-tp barcelona-64 -Bstatic_pgi

C++ benchmarks:

-fastsse -Msmartalloc=huge:150 -Mfprelaxed --zc_eh -Mipa=fast
-Mipa=inline -tp barcelona-64 -Bstatic_pgi

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Base Optimization Flags (Continued)

Fortran benchmarks:

-fastsse -Mfprelaxed -Msmartalloc=huge:150 -Mipa=fast -Mipa=inline
-tp barcelona-64 -Bstatic_pgi

Benchmarks using both Fortran and C:

-fastsse -Msmartalloc=huge:150 -Mfprelaxed -Mipa=fast -Mipa=inline
-tp barcelona-64 -Bstatic_pgi

Base Other Flags

C benchmarks:

-Mipa=jobs:4

C++ benchmarks:

-Mipa=jobs:4

Fortran benchmarks:

-Mipa=jobs:4

Benchmarks using both Fortran and C:

-Mipa=jobs:4

Peak Compiler Invocation

C benchmarks (except as noted below):

pgcc

470.lbm: pathcc

C++ benchmarks (except as noted below):

pathCC

444.namd: pgcpp

Fortran benchmarks (except as noted below):

pgf95

416.gamess: pathf95

459.GemsFDTD: pathf95

465.tonto: pathf95

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

pgcc pgf95

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Peak Compiler Invocation (Continued)

436.cactusADM: 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 -Mnomain
 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 -Mnomain
 459.GemsFDTD: -DSPEC_CPU_LP64
 465.tonto: -DSPEC_CPU_LP64
 470.lbm: -DSPEC_CPU_LP64
 481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
 482.sphinx3: -DSPEC_CPU_LP64

Peak Optimization Flags

C benchmarks:

433.milc: -fastsse -Msmartalloc=huge:150 -Msafeptr -Mfprelaxed
 -Mipa=inline -Mipa=arg -Mipa=const -Mipa=ptr -Mipa=shape
 -tp barcelona-64 -Bstatic_pgi

470.lbm: -march=barcelona -Ofast -CG:sse_cse_regs=0
 -CG:locs_shallow_depth=1 -m3dnow

482.sphinx3: -Mpfi=indirect(pass 1) -Mpfo=indirect(pass 2)
 -Mipa=fast(pass 2) -Mipa=inline(pass 2) -fastsse
 -Mfprelaxed -Msmartalloc -tp barcelona-64 -Bstatic_pgi

C++ benchmarks:

444.namd: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=fast(pass 2)
 -Mipa=inline(pass 2) -fastsse -Munroll=n:4 -Munroll=m:8
 -Msmartalloc=huge:150 -Mnodepchk -Mfprelaxed --zc_eh
 -tp barcelona-64 -Bstatic_pgi

447.dealIII: -march=barcelona -Ofast -static -INLINE:aggressive=on
 -fno-exceptions -m32

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Peak Optimization Flags (Continued)

450.soplex: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -O3 -TENV:frame_pointer=off
-LNO:prefetch=1 -OPT:malloc_alg=1 -CG:load_exe=0 -m32

453.povray: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast

Fortran benchmarks:

410.bwaves: -Mphi(pass 1) -Mpfo(pass 2) -Mipa=fast(pass 2)
-Mipa=inline(pass 2) -fastsse -Msmartalloc
-Mprefetch=distance:12 -Mprefetch=nta -Mpre -Mfprelaxed
-tp barcelona-64 -Bstatic_pgi

416.gamess: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -O2 -OPT:Ofast -OPT:ro=3
-OPT:unroll_size=256

434.zeusmp: basepeak = yes

437.leslie3d: -Mphi=indirect(pass 1) -Mpfo=indirect(pass 2)
-Mipa=fast(pass 2) -Mipa=inline(pass 2) -fastsse
-Mvect=fuse -Msmartalloc=huge:150 -Mprefetch=distance:8
-Mprefetch=t0 -Mfprelaxed -tp barcelona-64 -Bstatic_pgi

459.GemsFDTD: -march=barcelona -Ofast -LNO:fission=2 -LNO:simd=2
-LNO:prefetch_ahead=1 -CG:load_exe=0

465.tonto: -march=barcelona -Ofast -OPT:alias=no_f90_pointer_alias
-LNO:blocking=off -CG:load_exe=1 -IPA:plimit=525

Benchmarks using both Fortran and C:

435.gromacs: -fastsse -Msmartalloc=huge:150 -Mfprelaxed -Mfpapprox=rsqrt
-Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi

436.cactusADM: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -LNO:blocking=off

454.calculix: -Mphi=indirect(pass 1) -Mpfo=indirect(pass 2)
-Mipa=fast(pass 2) -Mipa=inline(pass 2) -fastsse
-Msmartalloc=huge:150 -Mprefetch=t0 -Mpre -Mfprelaxed
-tp barcelona-64 -Bstatic_pgi

481.wrf: -fastsse -Mvect=noaltcode -Msmartalloc
-Mprefetch=distance:8 -Mfprelaxed -tp barcelona-64
-Bstatic_pgi



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Peak Other Flags

C benchmarks (except as noted below):

-Mipa=jobs:4(pass 2)

470.lbm: No flags used

C++ benchmarks:

444.namd: -Mipa=jobs:4(pass 2)

Fortran benchmarks (except as noted below):

-Mipa=jobs:4(pass 2)

416.gamess: No flags used

459.GemsFDTD: No flags used

465.tonto: No flags used

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

-Mipa=jobs:4(pass 2)

436.cactusADM: No flags used

481.wrf: No flags used

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/amd729gh-flags.html>

<http://www.spec.org/cpu2006/flags/amd-platform.20090713.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/amd729gh-flags.xml>

<http://www.spec.org/cpu2006/flags/amd-platform.20090713.xml>

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For other inquiries, please contact webmaster@spec.org.

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