



SPEC[®] CFP2006 Result

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Acer Incorporated

SPECfp[®]_rate2006 = 41.3

Acer Altos G5450 (AMD Opteron 2350)

SPECfp_rate_base2006 = 37.7

CPU2006 license: 97

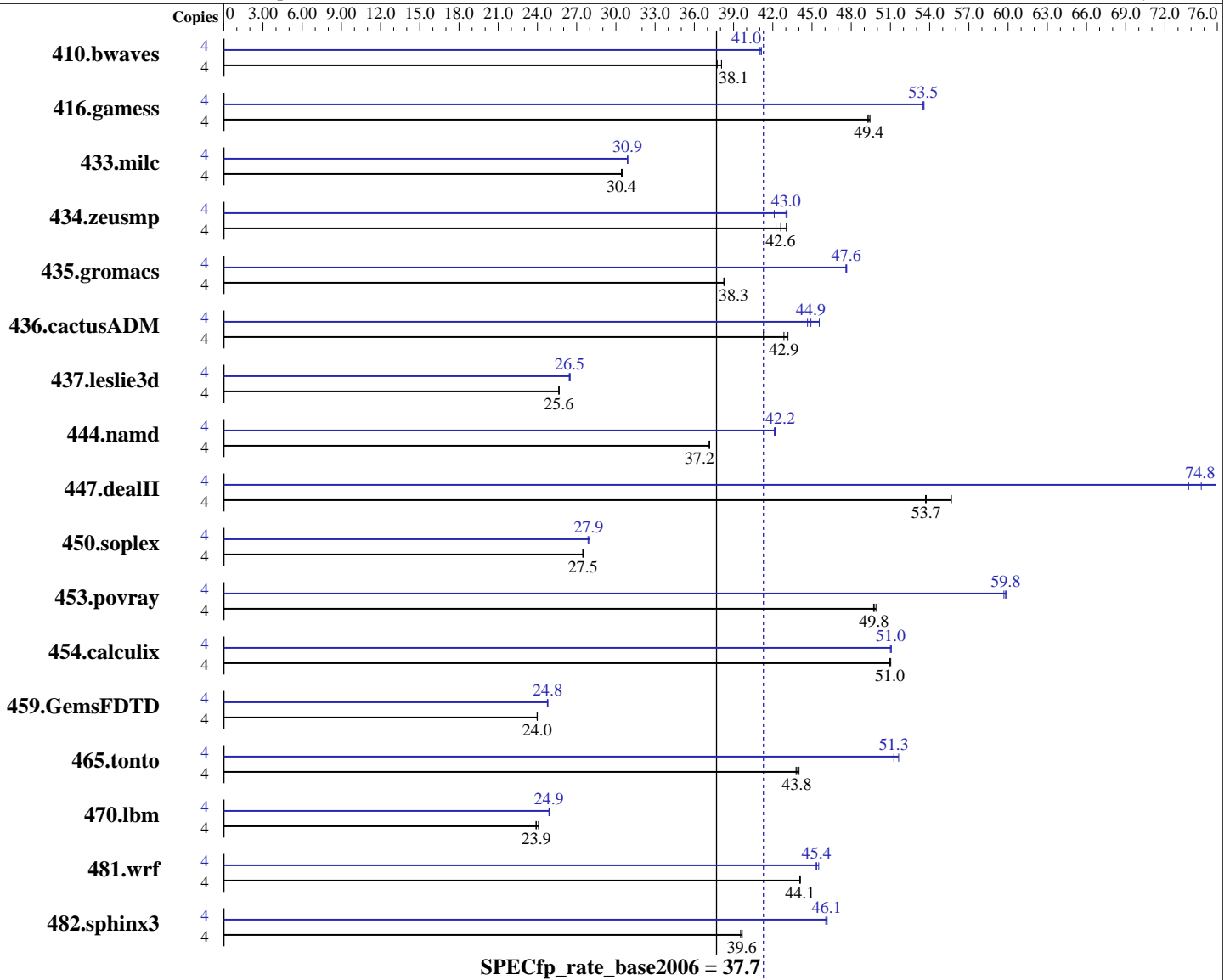
Test sponsor: Acer Incorporated

Tested by: Acer Incorporated

Test date: May-2008

Hardware Availability: Apr-2008

Software Availability: May-2008



Hardware

CPU Name: AMD Opteron 2350
 CPU Characteristics:
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip
 CPU(s) orderable: 1,2 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) SP1, Kernel 2.6.16.46-0.12-smp
 Compiler: PGI Server Complete Version 7.2 PathScale Compiler Suite Version 3.1
 Auto Parallel: No
 File System: ReiserFS
 System State: Default
 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: 8 GB (4x2GB, DDR2-667, CL5, Reg, Dual Rank)
Disk Subsystem: 1x160GB SATA, 7200 RPM
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	4	1440	37.7	<u>1427</u>	<u>38.1</u>	1427	38.1	4	1322	41.1	1327	41.0	<u>1325</u>	<u>41.0</u>
416.gamess	4	<u>1587</u>	<u>49.4</u>	1590	49.3	1584	49.4	4	1464	53.5	<u>1464</u>	<u>53.5</u>	1462	53.6
433.milc	4	1205	30.5	1207	30.4	<u>1206</u>	<u>30.4</u>	4	<u>1189</u>	<u>30.9</u>	1189	30.9	1188	30.9
434.zeusmp	4	862	42.2	846	43.0	<u>854</u>	<u>42.6</u>	4	<u>846</u>	<u>43.0</u>	864	42.1	845	43.1
435.gromacs	4	746	38.3	<u>746</u>	<u>38.3</u>	747	38.3	4	600	47.6	599	47.7	<u>600</u>	<u>47.6</u>
436.cactusADM	4	1107	43.2	1158	41.3	<u>1115</u>	<u>42.9</u>	4	1070	44.7	<u>1064</u>	<u>44.9</u>	1049	45.6
437.leslie3d	4	1467	25.6	1466	25.7	<u>1466</u>	<u>25.6</u>	4	1419	26.5	<u>1421</u>	<u>26.5</u>	1423	26.4
444.namd	4	864	37.1	<u>863</u>	<u>37.2</u>	863	37.2	4	762	42.1	<u>761</u>	<u>42.2</u>	761	42.2
447.dealII	4	<u>852</u>	<u>53.7</u>	852	53.7	822	55.7	4	603	75.9	620	73.8	<u>612</u>	<u>74.8</u>
450.soplex	4	1214	27.5	<u>1214</u>	<u>27.5</u>	1213	27.5	4	<u>1195</u>	<u>27.9</u>	1197	27.9	1191	28.0
453.povray	4	<u>428</u>	<u>49.8</u>	428	49.7	427	49.9	4	<u>356</u>	<u>59.8</u>	355	59.9	357	59.7
454.calculix	4	647	51.0	648	50.9	<u>648</u>	<u>51.0</u>	4	<u>647</u>	<u>51.0</u>	648	50.9	646	51.1
459.GemsFDTD	4	1769	24.0	1770	24.0	<u>1770</u>	<u>24.0</u>	4	<u>1713</u>	<u>24.8</u>	1714	24.8	1711	24.8
465.tonto	4	894	44.0	899	43.8	<u>898</u>	<u>43.8</u>	4	762	51.6	<u>768</u>	<u>51.3</u>	768	51.3
470.lbm	4	2283	24.1	2301	23.9	<u>2299</u>	<u>23.9</u>	4	2208	24.9	<u>2208</u>	<u>24.9</u>	2209	24.9
481.wrf	4	1014	44.1	1013	44.1	<u>1013</u>	<u>44.1</u>	4	986	45.3	<u>985</u>	<u>45.4</u>	982	45.5
482.sphinx3	4	1966	39.7	1972	39.5	<u>1967</u>	<u>39.6</u>	4	1689	46.2	1693	46.1	<u>1690</u>	<u>46.1</u>

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

Operating System Notes

```
'numactl' was used to bind copies to the cores
Environment variable PGI_HUGE_PAGES set to 150
'ulimit -s unlimited' was used to set environment stack size
'ulimit -l 1228800' was used to set environment locked pages in memory quantity
Set vm/nr_hugepages=600 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages
```

Base Compiler Invocation

C benchmarks:
pgcc

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Base Compiler Invocation (Continued)

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:

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

C++ benchmarks:

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

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

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



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Base Other Flags

C benchmarks:

-w -Mipa=jobs:4

C++ benchmarks:

-w -Mipa=jobs:4

Fortran benchmarks:

-w -Mipa=jobs:4

Benchmarks using both Fortran and C:

-w -Mipa=jobs:4

Peak Compiler Invocation

C benchmarks (except as noted below):

pathcc

433.milc: pgcc

C++ benchmarks (except as noted below):

pathCC

444.namd: pgcpp

Fortran benchmarks (except as noted below):

pathf95

410.bwaves: pgf95

434.zeusmp: pgf95

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

pgcc pgf95

436.cactusADM: pathcc pathf95

481.wrf: 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

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Peak Portability Flags (Continued)

```

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_LINUX -fno-second-underscore
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 -m3dnow

```

```

482.sphinx3: -march=barcelona -Ofast

```

C++ benchmarks:

```

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

```

```

447.deallI: -march=barcelona -Ofast -static -INLINE:aggressive=on
-OPT:malloc_alg=1 -m32 -fno-exceptions

```

```

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

```

```

453.povray: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -CG:load_exe=0

```

Fortran benchmarks:

```

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

```

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Peak Optimization Flags (Continued)

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

437.leslie3d: -march=barcelona -Ofast -m3dnow -OPT:unroll_size=256
-CG:load_exe=0 -OPT:malloc_alg=1

459.GemsFDTD: -march=barcelona -Ofast -LNO:fission=2 -LNO:simd=2
-OPT:malloc_alg=1

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

Benchmarks using both Fortran and C:

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

436.cactusADM: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -WOPT:aggstr=0

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

481.wrf: -march=barcelona -Ofast -LNO:blocking=off
-LNO:prefetch_ahead=10 -OPT:malloc_alg=1 -m3dnow
-LANG:copyinout=off -IPA:callee_limit=5000

Peak Other Flags

C benchmarks:

433.milc: -w -Mipa=jobs:4

C++ benchmarks:

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

Fortran benchmarks:

410.bwaves: -w -Mipa=jobs:4(pass 2)

434.zeusmp: -w -Mipa=jobs:4

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Peak Other Flags (Continued)

Benchmarks using both Fortran and C:

435.gromacs: -w -Mipa=jobs:4

454.calculix: -w -Mipa=jobs:4

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/amd123GH-flags.20090713.01.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/amd123GH-flags.20090713.01.xml>

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