



SPEC® CFP2006 Result

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Acer Incorporated

SPECfp®_rate2006 = 45.0

Acer Altos G5450 (AMD Opteron 2360 SE)

SPECfp_rate_base2006 = 39.8

CPU2006 license: 97

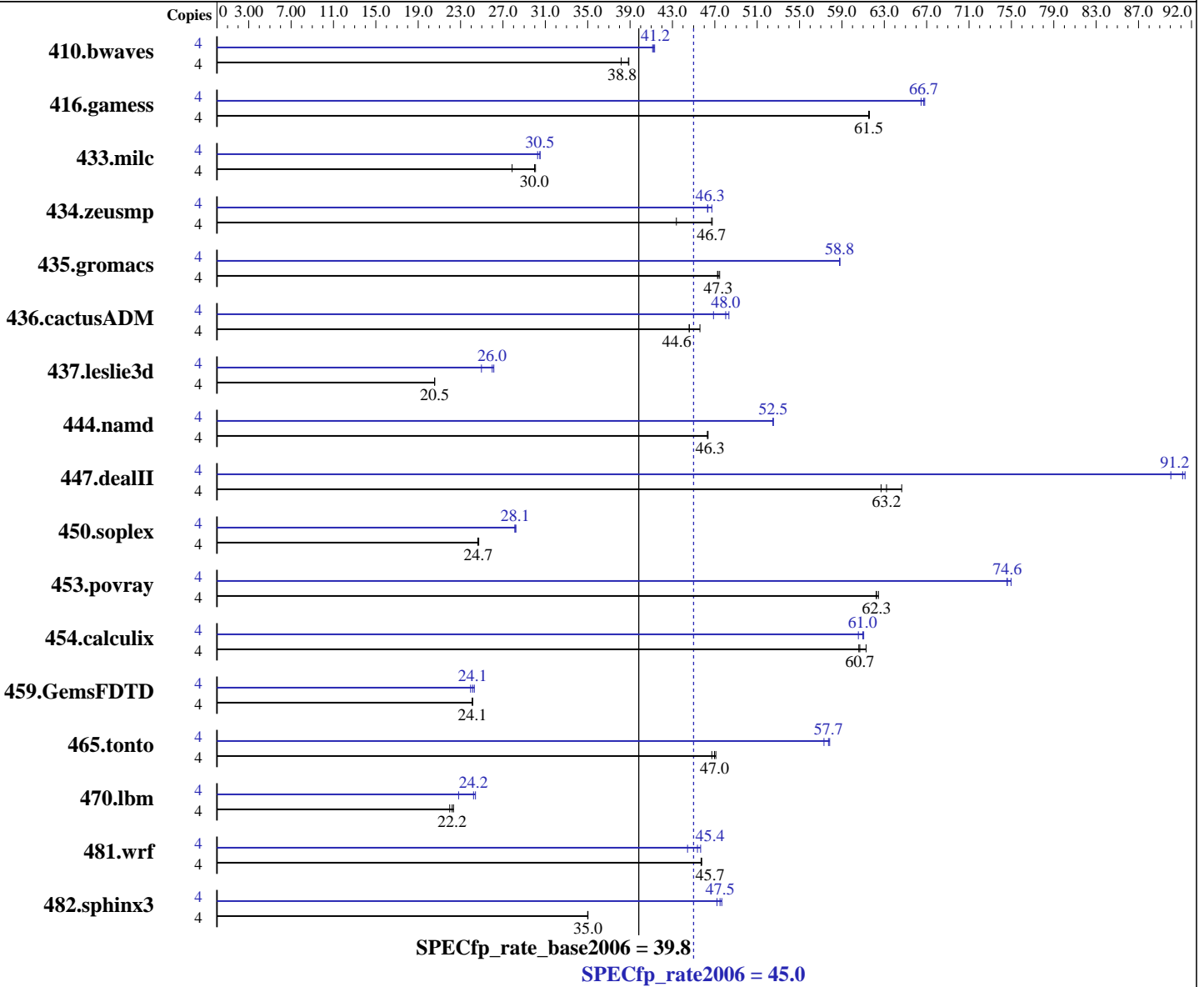
Test sponsor: Acer Incorporated

Tested by: Acer Incorporated

Test date: Jun-2008

Hardware Availability: May-2008

Software Availability: May-2008



Hardware

CPU Name: AMD Opteron 2360 SE
 CPU Characteristics:
 CPU MHz: 2500
 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: Run level 3 (Full multiuser with network)
 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	1424	38.2	<u>1400</u>	<u>38.8</u>	1398	38.9	4	1322	41.1	1316	41.3	<u>1319</u>	<u>41.2</u>		
416.gamess	4	1272	61.6	<u>1273</u>	<u>61.5</u>	1273	61.5	4	<u>1174</u>	<u>66.7</u>	1172	66.8	1178	66.5		
433.milc	4	1318	27.9	1221	30.1	<u>1225</u>	<u>30.0</u>	4	1204	30.5	1213	30.3	<u>1204</u>	<u>30.5</u>		
434.zeusmp	4	839	43.4	778	46.8	<u>780</u>	<u>46.7</u>	4	779	46.7	786	46.3	<u>785</u>	<u>46.3</u>		
435.gromacs	4	602	47.5	<u>604</u>	<u>47.3</u>	604	47.3	4	<u>486</u>	<u>58.8</u>	486	58.8	486	58.8		
436.cactusADM	4	1072	44.6	<u>1072</u>	<u>44.6</u>	1048	45.6	4	989	48.3	<u>995</u>	<u>48.0</u>	1020	46.9		
437.leslie3d	4	1829	20.6	<u>1830</u>	<u>20.5</u>	1830	20.5	4	1438	26.1	<u>1447</u>	<u>26.0</u>	1506	25.0		
444.namd	4	692	46.4	<u>693</u>	<u>46.3</u>	693	46.3	4	<u>611</u>	<u>52.5</u>	611	52.5	611	52.5		
447.dealII	4	730	62.7	<u>724</u>	<u>63.2</u>	708	64.6	4	501	91.4	508	90.0	<u>502</u>	<u>91.2</u>		
450.soplex	4	1350	24.7	<u>1353</u>	<u>24.7</u>	1355	24.6	4	1182	28.2	<u>1185</u>	<u>28.1</u>	1186	28.1		
453.povray	4	342	62.2	<u>342</u>	<u>62.3</u>	341	62.5	4	285	74.6	<u>285</u>	<u>74.6</u>	284	75.0		
454.calculix	4	<u>544</u>	<u>60.7</u>	539	61.3	545	60.6	4	545	60.6	<u>541</u>	<u>61.0</u>	540	61.1		
459.GemsFDTD	4	<u>1760</u>	<u>24.1</u>	1761	24.1	1758	24.1	4	1747	24.3	<u>1758</u>	<u>24.1</u>	1772	23.9		
465.tonto	4	836	47.1	843	46.7	<u>838</u>	<u>47.0</u>	4	680	57.8	<u>682</u>	<u>57.7</u>	687	57.3		
470.lbm	4	2501	22.0	<u>2475</u>	<u>22.2</u>	2461	22.3	4	2409	22.8	<u>2269</u>	<u>24.2</u>	2252	24.4		
481.wrf	4	976	45.8	<u>977</u>	<u>45.7</u>	978	45.7	4	1006	44.4	979	45.7	<u>985</u>	<u>45.4</u>		
482.sphinx3	4	<u>2226</u>	<u>35.0</u>	2228	35.0	2226	35.0	4	<u>1641</u>	<u>47.5</u>	1636	47.7	1652	47.2		

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
```

General Notes

This result was measured on the Acer Altos R5250
The Altos R5250 and Altos G5450 are electronically equivalent.



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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:

-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

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

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

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
```



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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_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.dealIII: -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:

Continued on next page



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Peak Optimization Flags (Continued)

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

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)

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Peak Other Flags (Continued)

Fortran benchmarks:

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

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

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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