



SPEC[®] CFP2006 Result

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Acer Incorporated

SPECfp[®]_rate2006 = 90.4

Acer Altos G5450 (AMD Opteron 2360 SE)

SPECfp_rate_base2006 = 82.6

CPU2006 license: 97

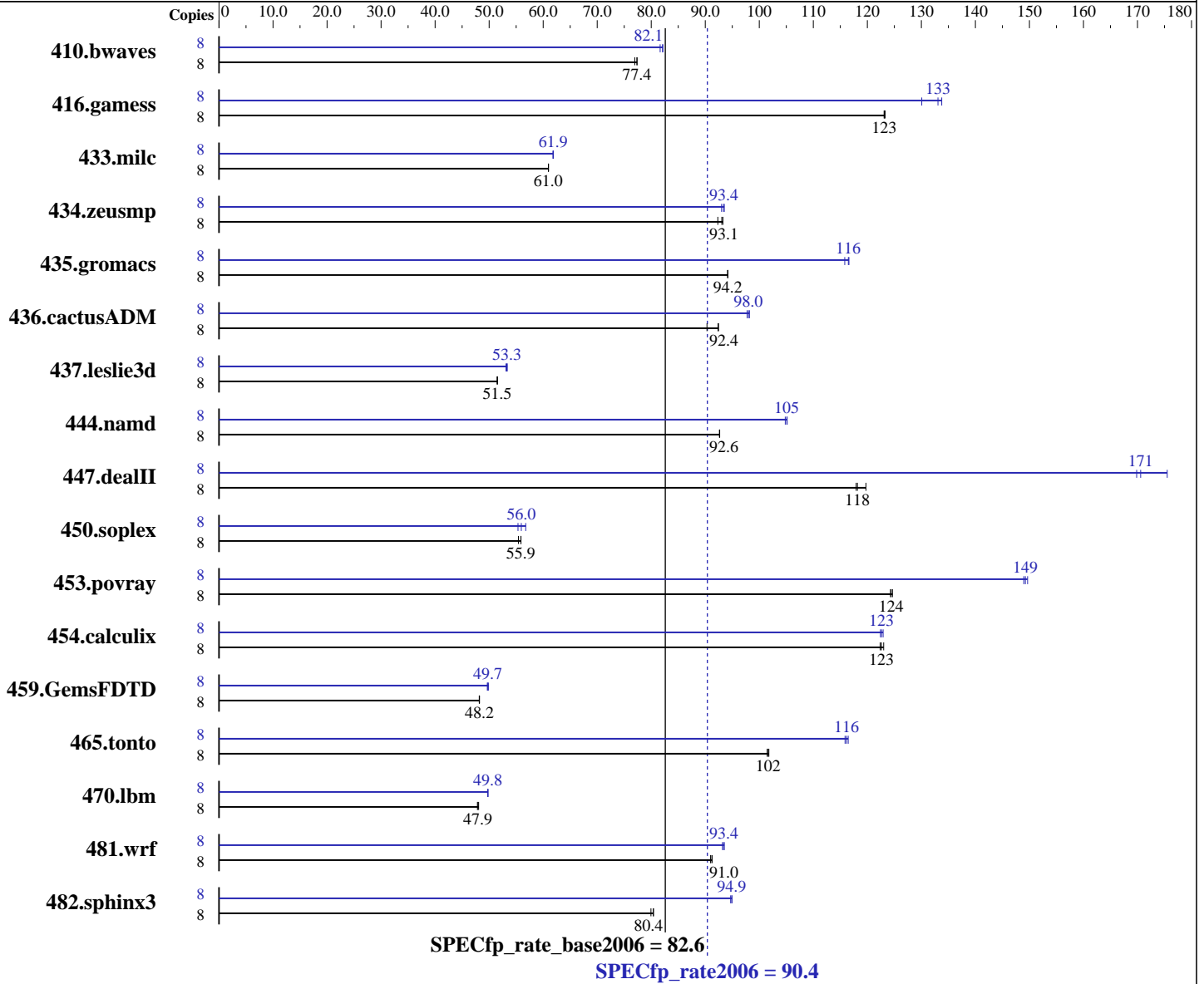
Test date: Jun-2008

Test sponsor: Acer Incorporated

Hardware Availability: May-2008

Tested by: Acer Incorporated

Software Availability: May-2008



Hardware

CPU Name: AMD Opteron 2360 SE
 CPU Characteristics:
 CPU MHz: 2500
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 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

Continued on next page

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

Continued on next page



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L3 Cache: 2 MB I+D on chip per chip
Other Cache: None
Memory: 16 GB (8x2GB, 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	8	1413	77.0	1405	77.4	1405	77.4	8	1324	82.1	1323	82.2	1332	81.7
416.gamess	8	1271	123	1272	123	1273	123	8	1177	133	1171	134	1204	130
433.milc	8	1204	61.0	1205	61.0	1205	61.0	8	1187	61.9	1188	61.8	1187	61.9
434.zeusmp	8	788	92.3	781	93.3	782	93.1	8	780	93.4	783	93.0	778	93.5
435.gromacs	8	606	94.2	607	94.2	607	94.2	8	493	116	490	117	490	116
436.cactusADM	8	1035	92.4	1059	90.3	1034	92.5	8	976	98.0	974	98.2	978	97.8
437.leslie3d	8	1460	51.5	1460	51.5	1460	51.5	8	1409	53.4	1411	53.3	1416	53.1
444.namd	8	693	92.6	693	92.6	692	92.7	8	612	105	610	105	611	105
447.dealII	8	775	118	764	120	776	118	8	539	170	521	175	536	171
450.soplex	8	1204	55.4	1194	55.9	1194	55.9	8	1192	56.0	1206	55.3	1175	56.8
453.povray	8	342	124	341	125	342	124	8	285	149	286	149	284	150
454.calculix	8	536	123	538	123	539	122	8	539	122	537	123	538	123
459.GemsFDTD	8	1762	48.2	1761	48.2	1760	48.2	8	1709	49.7	1706	49.7	1702	49.9
465.tonto	8	776	101	773	102	774	102	8	679	116	678	116	676	116
470.lbm	8	2298	47.8	2293	47.9	2287	48.1	8	2208	49.8	2209	49.8	2209	49.8
481.wrf	8	982	91.0	979	91.3	982	91.0	8	959	93.2	955	93.5	957	93.4
482.sphinx3	8	1950	79.9	1939	80.4	1939	80.4	8	1642	94.9	1643	94.9	1647	94.7

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 2457600' was used to set environment locked pages in memory quantity
Set vm/nr_hugepages=150 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:

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

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