



SPEC[®] CFP2006 Result

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Acer Incorporated

SPECfp[®]_rate2006 = 45.0

Acer Altos R5250 (AMD Opteron 2360 SE)

SPECfp_rate_base2006 = 39.8

CPU2006 license: 97

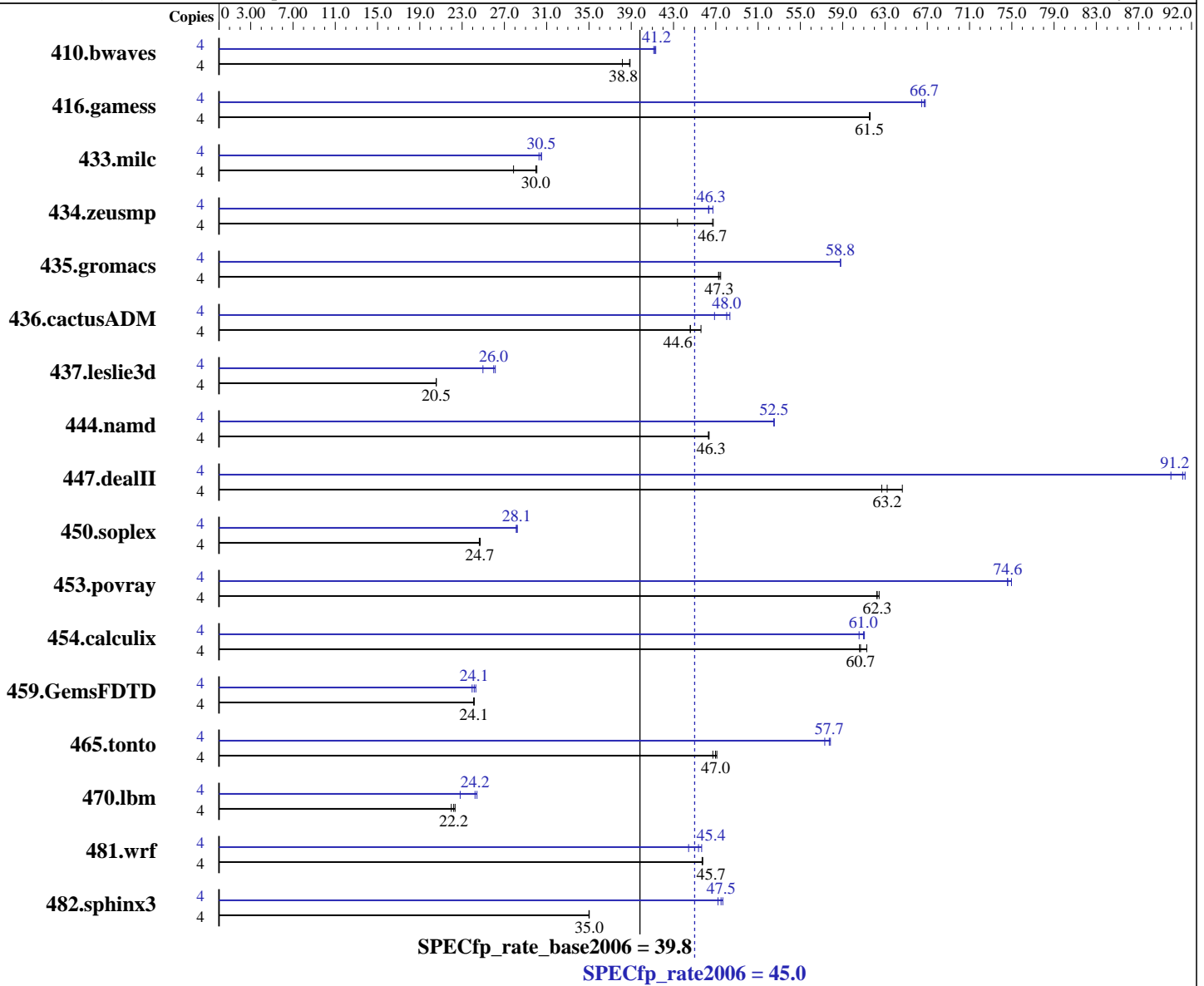
Test sponsor: Acer Incorporated

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: 2500
 CPU MHz: Integrated
 FPU: 4 cores, 1 chip, 4 cores/chip
 CPU(s) enabled: 1,2 chips
 CPU(s) orderable: 64 KB I + 64 KB D on chip per core
 Primary Cache: 512 KB I+D on chip per core
 Secondary Cache:

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

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