# SPEC® CFP2006 Result

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Tyan
(Test Sponsor: Advanced Micro Devices)

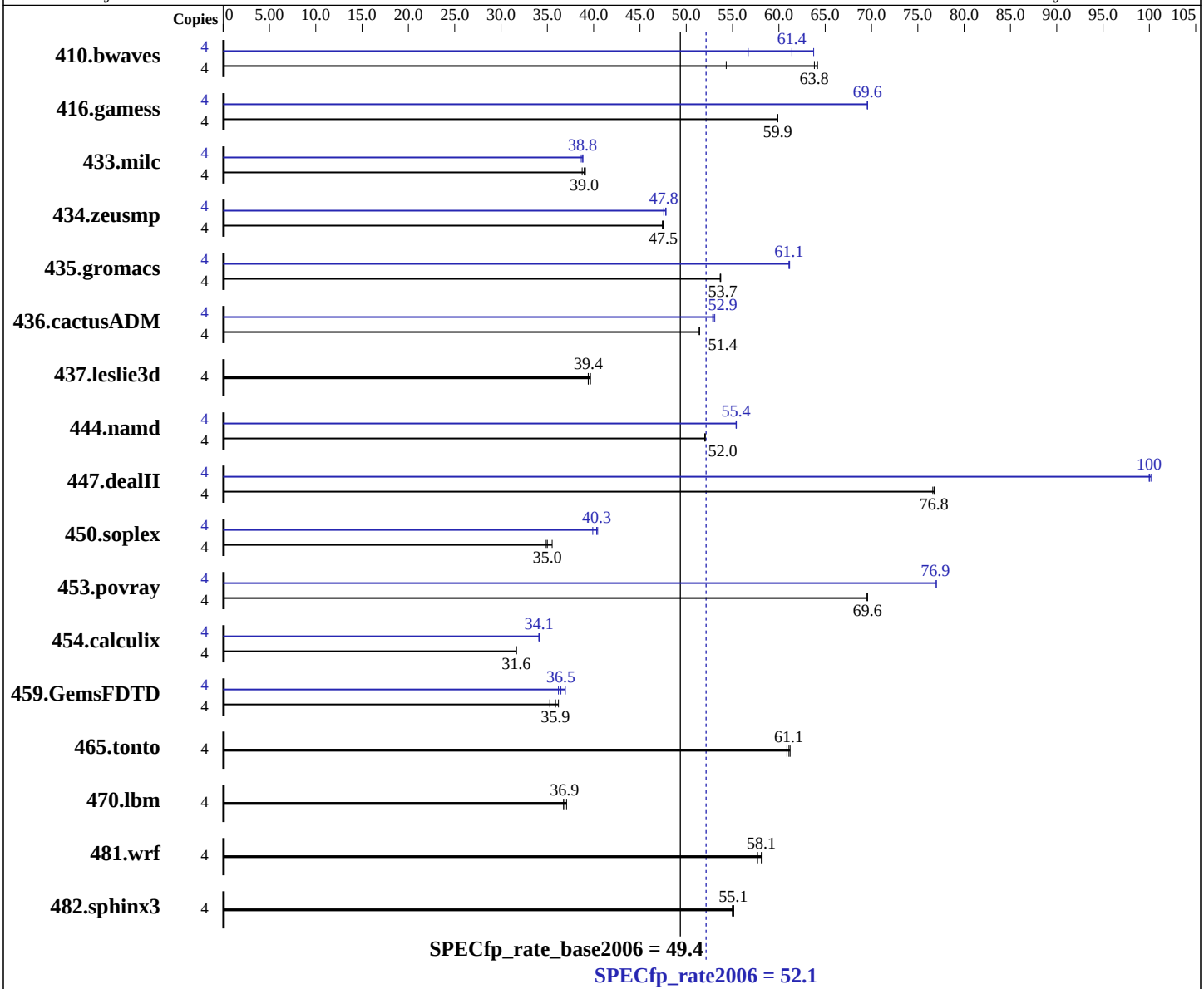
n4250QE (S4985) AMD Opteron 2222 SE

SPECfp®_rate2006 = 52.1

SPECfp_rate_base2006 = 49.4

**CPU2006 license:** 49
**Test sponsor:** Advanced Micro Devices
**Tested by:** Advanced Micro Devices

**Test date:** Feb-2007
**Hardware Availability:** May-2007
**Software Availability:** Mar-2007




## Hardware

| | |
|---|---|
| CPU Name: | AMD Opteron 2222 SE |
| CPU Characteristics: | |
| CPU MHz: | 3000 |
| FPU: | Integrated |
| CPU(s) enabled: | 4 cores, 2 chips, 2 cores/chip |
| CPU(s) orderable: | 1,2 chips |
| Primary Cache: | 64 KB I + 64 KB D on chip per core |
| Secondary Cache: | 1 MB I+D on chip per core |

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## Software

| | |
|---|---|
| Operating System: | SuSE Linux Enterprise Server 9 SP3 64-bit kernel |
| Compiler: | QLogic PathScale Compiler Suite, Release 3.0 |
| Auto Parallel: | No |
| File System: | ext3 |
| System State: | Multi-user, run level 3 |
| Base Pointers: | 64-bit |
| Peak Pointers: | 32/64-bit |

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L3 Cache: None
Other Cache: None
Memory: 8 GB (8x1GB, DDR2-667 CL4 ECC Reg Dual Rank)
Disk Subsystem: SATA, 80 GB
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 | **852** | **63.8** | 1001 | 54.3 | 847 | 64.2 | 4 | 853 | 63.8 | **885** | **61.4** | 959 | 56.7 |
| 416.gamess | 4 | 1308 | 59.9 | **1308** | **59.9** | 1308 | 59.9 | 4 | **1126** | **69.6** | 1126 | 69.5 | 1126 | 69.6 |
| 433.milc | 4 | **942** | **39.0** | 939 | 39.1 | 947 | 38.8 | 4 | **946** | **38.8** | 950 | 38.7 | 945 | 38.8 |
| 434.zeusmp | 4 | 765 | 47.6 | **766** | **47.5** | 768 | 47.4 | 4 | **762** | **47.8** | 761 | 47.8 | 765 | 47.6 |
| 435.gromacs | 4 | 532 | 53.7 | **532** | **53.7** | 532 | 53.7 | 4 | **467** | **61.1** | 467 | 61.1 | 467 | 61.2 |
| 436.cactusADM | 4 | **930** | **51.4** | 930 | 51.4 | 929 | 51.4 | 4 | 904 | 52.9 | 901 | 53.1 | **903** | **52.9** |
| 437.leslie3d | 4 | **954** | **39.4** | 954 | 39.4 | 948 | 39.7 | 4 | **954** | **39.4** | 954 | 39.4 | 948 | 39.7 |
| 444.namd | 4 | **617** | **52.0** | 617 | 52.0 | 616 | 52.0 | 4 | 579 | 55.4 | **579** | **55.4** | 579 | 55.4 |
| 447.dealII | 4 | 597 | 76.6 | **596** | **76.8** | 596 | 76.8 | 4 | 457 | 100 | **458** | **100** | 458 | 100 |
| 450.soplex | 4 | **953** | **35.0** | 957 | 34.9 | 939 | 35.5 | 4 | 836 | 39.9 | 825 | 40.4 | **827** | **40.3** |
| 453.povray | 4 | **306** | **69.6** | 306 | 69.5 | 306 | 69.6 | 4 | 276 | 77.0 | 277 | 76.9 | **277** | **76.9** |
| 454.calculix | 4 | **1043** | **31.6** | 1043 | 31.6 | 1043 | 31.6 | 4 | 967 | 34.1 | **968** | **34.1** | 968 | 34.1 |
| 459.GemsFDTD | 4 | 1203 | 35.3 | 1172 | 36.2 | **1183** | **35.9** | 4 | 1173 | 36.2 | 1149 | 36.9 | **1164** | **36.5** |
| 465.tonto | 4 | **644** | **61.1** | 643 | 61.2 | 647 | 60.9 | 4 | **644** | **61.1** | 643 | 61.2 | 647 | 60.9 |
| 470.lbm | 4 | **1491** | **36.9** | 1482 | 37.1 | 1496 | 36.7 | 4 | **1491** | **36.9** | 1482 | 37.1 | 1496 | 36.7 |
| 481.wrf | 4 | 768 | 58.2 | **769** | **58.1** | 774 | 57.7 | 4 | 768 | 58.2 | **769** | **58.1** | 774 | 57.7 |
| 482.sphinx3 | 4 | 1414 | 55.1 | **1416** | **55.1** | 1418 | 55.0 | 4 | 1414 | 55.1 | **1416** | **55.1** | 1418 | 55.0 |

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

## General Notes

```
taskset utility used to bind cores to processes
All memory slots filled on all used CPU sockets

The tested system can be assembled using an SSI-MEB case and
a Silverstone Zeus 650 watt ST65ZF ATX 12V Power Supply.
```

## Base Compiler Invocation

C benchmarks:
pathcc

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## Base Compiler Invocation (Continued)

C++ benchmarks:
pathCC

Fortran benchmarks:
pathf95

Benchmarks using both Fortran and C:
pathcc pathf95

## 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
436.cactusADM: -DSPEC_CPU_LP64 -fno-second-underscore
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64 -DSPEC_CPU_TABLE_WORKAROUND
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64
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

## Base Optimization Flags

C benchmarks:
-Ofast

C++ benchmarks:
-Ofast

Fortran benchmarks:
-Ofast -OPT:malloc_alg=1

Benchmarks using both Fortran and C:
-Ofast -OPT:malloc_alg=1

## Peak Compiler Invocation

C benchmarks:
pathcc

C++ benchmarks:
pathCC

Fortran benchmarks:
pathf95

Benchmarks using both Fortran and C:
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
436.cactusADM: -DSPEC_CPU_LP64 -fno-second-underscore
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_TABLE_WORKAROUND
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64
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: -Ofast -CG:cflow=off -LNO:prefetch=1 -OPT:malloc_alg=1

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-fno-exceptions

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## Peak Optimization Flags (Continued)

447.dealII: `-Ofast -INLINE:aggressive=on -LNO:opt=0 -OPT:alias=disjoint -m32 -fno-exceptions`

450.soplex: `-fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-m32 -O3 -OPT:IEEE_arith=3 -CG:load_exe=0 -CG:movnti=1 -LNO:minvariant=off -LNO:prefetch=1 -fno-exceptions`

453.povray: `-fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-Ofast -fno-fast-math`

Fortran benchmarks:

410.bwaves: `-fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-O3 -OPT:Ofast -OPT:IEEE_arith=3 -LNO:blocking=off -LNO:ignore_feedback=off`

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

434.zeusmp: `-Ofast -CG:local_fwd_sched=on -LNO:blocking=off -LNO:interchange=off -LNO:fu=10 -LNO:full_unroll_outer=on`

437.leslie3d: `basepeak = yes`

459.GemsFDTD: `-Ofast -LNO:fission=2 -LNO:prefetch=0`

465.tonto: `basepeak = yes`

Benchmarks using both Fortran and C:

435.gromacs: `-O3 -OPT:rsqrt=2 -OPT:ro=3`

436.cactusADM: `-fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-O3 -LNO:prefetch=3 -LNO:prefetch_ahead=5 -LNO:ou_prod_max=10 -LNO:full_unroll=5 -ipa`

454.calculix: `-Ofast -LNO:simd=0 -WOPT:mem_opnds=on`

481.wrf: `basepeak = yes`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.26.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.26.xml`

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