



# SPEC<sup>®</sup> CFP2006 Result

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**Tyan**

(Test Sponsor: Advanced Micro Devices)

SPECfp<sup>®</sup>\_rate2006 = **NC**

Tyan Thunder n425QE (S4985E), AMD Opteron 8360 SE

SPECfp\_rate\_base2006 = **NC**

CPU2006 license: 49

Test sponsor: Advanced Micro Devices

Tested by: Advanced Micro Devices

Test date: Sep-2007

Hardware Availability: Dec-2007

Software Availability: Oct-2007

**SPEC has determined that this result was not in compliance with the SPEC CPU2006 run and reporting rules. Specifically, the submitter reported that the result would not meet the 3 month availability requirement in the SPEC CPU2006 run rules due to a change in the availability date of the processor.**

### Hardware

CPU Name: AMD Opteron 8360 SE  
CPU Characteristics:  
CPU MHz: 2500  
FPU: Integrated  
CPU(s) enabled: 16 cores, 4 chips, 4 cores/chip  
CPU(s) orderable: 2,4 chips  
Primary Cache: 64 KB I + 64 KB D on chip per core  
Secondary Cache: 512 KB I+D on chip per core  
L3 Cache: 2 MB I+D on chip per chip  
Other Cache: None  
Memory: 32 GB (16x2GB, DDR2-6600, 15 Reg Dual Rank)  
Disk Subsystem: 1x250GB SATA, 7200 RPM  
Other Hardware: None

### Software

Operating System: SuSE Linux Enterprise Server 10 SP1 64-bit kernel  
Compiler: The Portland Group (PGI)  
PGI pgf90 7.1-0 Fortran Compiler  
PGI pgcc 7.1-0 C Compiler  
PGI pgCC 7.1-0 C++ Compiler  
The PathScale Compiler v3.0  
PathScale pathf95 3.0 Fortran Compiler  
PathScale pathcc 3.0 C Compiler  
PathScale pathCC 3.0 C++ Compiler  
Auto Parallel: No  
File System: ReiserFS  
System State: Multi-user, run level 3  
Base Pointers: 32/64-bit  
Peak Pointers: 32/64-bit  
Other Software: None

**Non-Compliant**



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## Results Table

Benchmark	Base								Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
410.bwaves	16	NC	NC	NC	NC	NC	NC	16	NC	NC	NC	NC	NC	NC		
416.gamess	16	NC	NC	NC	NC	NC	NC	16	NC	NC	NC	NC	NC	NC		
433.milc	16	NC	NC	NC	NC	NC	NC	16	NC	NC	NC	NC	NC	NC		
434.zeusmp	16	NC	NC	NC	NC	NC	NC	16	NC	NC	NC	NC	NC	NC		
435.gromacs	16	NC	NC	NC	NC	NC	NC	16	NC	NC	NC	NC	NC	NC		
436.cactusADM	16	NC	NC	NC	NC	NC	NC	16	NC	NC	NC	NC	NC	NC		
437.leslie3d	16	NC	NC	NC	NC	NC	NC	16	NC	NC	NC	NC	NC	NC		
444.namd	16	NC	NC	NC	NC	NC	NC	16	NC	NC	NC	NC	NC	NC		
447.dealII	16	NC	NC	NC	NC	NC	NC	16	NC	NC	NC	NC	NC	NC		
450.soplex	16	NC	NC	NC	NC	NC	NC	16	NC	NC	NC	NC	NC	NC		
453.povray	16	NC	NC	NC	NC	NC	NC	16	NC	NC	NC	NC	NC	NC		
454.calculix	16	NC	NC	NC	NC	NC	NC	16	NC	NC	NC	NC	NC	NC		
459.GemsFDTD	16	NC	NC	NC	NC	NC	NC	16	NC	NC	NC	NC	NC	NC		
465.tonto	16	NC	NC	NC	NC	NC	NC	16	NC	NC	NC	NC	NC	NC		
470.lbm	16	NC	NC	NC	NC	NC	NC	16	NC	NC	NC	NC	NC	NC		
481.wrf	16	NC	NC	NC	NC	NC	NC	16	NC	NC	NC	NC	NC	NC		
482.spm	16	NC	NC	NC	NC	NC	NC	16	NC	NC	NC	NC	NC	NC		

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

## Operating System Notes

```
'ulimit -s unlimited' used to set environment stack size
'ulimit -l 4915200' was used to set environment lock pages quantity
'numactl' was used to bind copies to the cores
Set vm/nr_hugepages=2400 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages
Environment variable PGI_HUGE_PAGES set to 150
```



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## General Notes

The tested system can be assembled using a Zippy PSL-6701P 700W 12V power supply.

## Base Compiler Invocation

C benchmarks:

pgcc

C++ benchmarks:

pgcpp

Fortran benchmarks:

pgf95

Benchmarks using both Fortran and C:

pgcc pgf95

## Base Portability Flags

416.bwaves: -DSPEC\_CPU\_LP64  
416.gamess: -DSPEC\_CPU\_LP64  
433.mcc: -DSPEC\_CPU\_LP64  
434.mmm: -DSPEC\_CPU\_LP64  
453.gtomacs: -DSPEC\_CPU\_LP64 -Mnomain  
453.cactusADM: -DSPEC\_CPU\_LP64 -Mnomain  
457.leslie3d: -DSPEC\_CPU\_LP64  
454.namd: -DSPEC\_CPU\_LP64  
447.callII: -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

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## Base Portability Flags (Continued)

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:448  
-tp barcelona-64 -Bstatic\_pgi

C++ benchmarks:

-fast -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:448  
--zc\_eh -tp barcelona-64 -Bstatic\_pgi

Fortran benchmarks:

-fast -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:448  
-tp barcelona-64 -Bstatic\_pgi

Benchmarks using both Fortran and C:

-fast -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:448  
-tp barcelona-64 -Bstatic\_pgi

## Base Other Flags

C benchmarks:

-w

C++ benchmarks:

-w

Fortran benchmarks:

-w

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## Base Other Flags (Continued)

Benchmarks using both Fortran and C:

-w

## Peak Compiler Invocation

C benchmarks (except as noted below):

pathcc

433.milc: pgcc

C++ benchmarks (except as noted below):

pathCC

444.namd: pgcpp

453.povray: pgcpp

Fortran benchmarks (except as noted below):

pathf95

434.usmp: pgf95

465.tonit: pgf95

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

pgcc pgf95

436.cactusADM: pathcc pathf95

## Peak Portability Flags

410.bwaves: -DSPEC\_CPU\_LP64

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## Peak Portability Flags (Continued)

```

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 -ino-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_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

```

## Peak Optimization Flags

C benchmarks:

```

433.milc: -Mmpi(pass 1) -Mipa=fast(pass 2) -Mipa=inline(pass 2)
-Mipa=ibarg(pass 2) -Mpfo(pass 2) -fast -O4 -Mdse
-Mfpelaxed -Msmartalloc=huge:448 -tp barcelona-64
-Bstatic_pgi

```

470.lbm: -Ofast

```

481.sphinx3: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
-OPT:Ofast -WOPT:aggstr=0 -m32

```

C++ benchmarks:

```

444.namd: -fast -O4 -Mfpelaxed -Msmartalloc=huge:448 --zc_eh
-tp barcelona-64 -Mnodepchk -Mprefetch -Msafe_lastval
-Msafeptr=static -Mstride0 -Munroll=n:4 -Mvect=noidiom
-Mvect=prefetch -Bstatic_pgi

```

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## Peak Optimization Flags (Continued)

447.dealIII: -Ofast -INLINE:aggressive=on -OPT:malloc\_alg=1 -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: basepeak = yes

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:unroll\_size=256

434.zeusmp: basepeak = yes

437.leslie3d: -Ofast -OPT:malloc\_alg=1

459.GemV.DTD: -Ofast -LNO:fission=2 -LNO:prefetch=0

465.tonit: -fast -O4 -Mfprelaxed -Msmartalloc=huge:448 -Mipa=fast -Mipa=inline -Mvect=noaltcode -tp barcelona-64 -Bstatic\_pgi

Benchmarks using both Fortran and C:

435.gamacs: -fast -Mfpapprox=rsqrt -Mipa=fast -Mipa=inline -Mfprelaxed -Msmartalloc=huge:448 -tp barcelona-64 -Bstatic\_pgi

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

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## Peak Optimization Flags (Continued)

454.calculix: basepeak = yes

481.wrf: -fast -Mfprelaxed -Msmalloc -Msize:448 -Mvect=noaltcode  
-tp barcelona-64 -statim\_pgi

## Peak Other Flags

C benchmarks:

433.milc: -w

C++ benchmarks (except as noted below):

-w

447.dealII: -statim

450.soplex: No flags used

Fortran benchmarks:

434.zusmp:

465.tonk: -w

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

-w

436.cactusADM: No flags used

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

<http://www.spec.org/cpu2006/flags/amd814GH-flags.20090714.html>

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

<http://www.spec.org/cpu2006/flags/amd814GH-flags.20090714.xml>





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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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