



SPEC® CFP2006 Result

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IBM Corporation

SPECfp®_rate2006 = **NC**

IBM System x3455 (AMD Opteron 2347)

SPECfp_rate_base2006 = **NC**

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: Advanced Micro Devices

Test date: Aug-2007
Hardware Availability: Nov-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 system.

Hardware

CPU Name: AMD Opteron 2347
CPU Characteristics:
CPU MHz: 1900
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
L3 Cache: 2 MB I+D on chip per chip
Other Cache: None
Memory: 16 GB (8 x 2GB, DDR2-667 ECC Reg Dual Rank)
Disk Subsystem: 1 x 160 GB Serial ATA 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
PathScale Compiler Suite, Release 3.0
Auto Parallel: No
File System: ReiserFS
System State: Multi-user, run level 3
Base Pointers: 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	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC		
416.gamess	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC		
433.milc	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC		
434.zeusmp	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC		
435.gromacs	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC		
436.cactusADM	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC		
437.leslie3d	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC		
444.namd	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC		
447.dealII	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC		
450.soplex	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC		
453.povray	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC		
454.calculix	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC		
459.GemsFDTD	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC		
465.tonto	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC		
470.lbm	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC		
481.wrf	8	NC	NC	NC	NC	NC	NC	8	NC	NC	NC	NC	NC	NC		
482.spm	8	NC	NC	NC	NC	NC	NC	8	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' was used to set environment stack size
'ulimit -l 2457600' was used to set environment locked pages in memory quantity
'numactl' was used to bind copies to the cores
Set vm/nr_hugepages=1200 in /etc/sysctl.conf
mount -t hugetlbfs nodev /mnt/hugepages
Environment variable PGI_HUGE_PAGES set to 150
```



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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.lslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -Mnomain
459.GemsFDTD: -DSPEC_CPU_LP64
467.tonto: -DSPEC_CPU_LP64
479.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64



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Base Optimization Flags

C benchmarks:

-fast -Mipa=fast -Mipa=inline -Mfp~~relaxed~~ -Msmartalloc=huge:448
-tp barcelona-64 -Bstatic_pgi

C++ benchmarks:

-fast -Mipa=fast -Mipa=inline -Mfp~~relaxed~~ -Msmartalloc=huge:448
--zc_eh -tp barcelona-64 -Bstatic_pgi

Fortran benchmarks:

-fast -Mipa=fast -Mipa=inline -Mfp~~relaxed~~ -Msmartalloc=huge:448
-tp barcelona-64 -Bstatic_pgi

Benchmarks using both Fortran and C:

-fast -Mipa=fast -Mipa=inline -Mfp~~relaxed~~ -Msmartalloc=huge:448
-tp barcelona-64 -Bstatic_pgi

Base Other Flags

C benchmarks:

-w

C++ benchmarks:

-w

Fortran benchmarks:

-w

Benchmarks using both Fortran and C:

-w



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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.zeusmp: pgf95

465.tonto: pgf95

Benchmarks using both Fortran and C (except as noted below):
pgcc pgf95

436.cactusADM: pathcc pathf95

Peak Portability Flags

412.bwaves: -DSPEC_CPU_LP64
416.gromacs: -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

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Peak Portability Flags (Continued)

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_WIN32_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

Peak Optimization Flags

C benchmarks:

433.milc: -Mphi(pass 2) -Mipa=fast(pass 2) -Mipa=inline(pass 2)
-Mipa=hoary(pass 2) -Mpfo(pass 2) -fast -O4 -Mdse
-Mfprelaxed -Msmartalloc=huge:448 -tp barcelona-64
-Bstatic_pgi
470.lbm: -Ofast
482.sphinx3: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
-OPT:Ofast -WOPT:aggstr=0 -m32

C++ benchmarks:

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

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Peak Optimization Flags (Continued)

453.povray: basepeak = yes

Fortran benchmarks:

410.bwaves: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
-OPT:Ofast -OPT:IEEE_arith -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.GemsFDTD: -Ofast -LNO:fission=2 -LNO:prefetch=0

465.tonto: -fast -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

-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.cactus: basepeak = yes

481.wrf: -fast -Mfprelaxed -Msmartalloc=huge:448 -Mvect=noaltcode
-tp barcelona-64 -Bstatic_pgi



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Peak Other Flags

C benchmarks:

433.milc: -w

C++ benchmarks (except as noted below):

-w

447.dealIII: -static

450.soplex: No flags used

Fortran benchmarks:

434.zeusmp: -w

465.tonto: -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.

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