SPEC® CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Fujitsu Siemens Computers

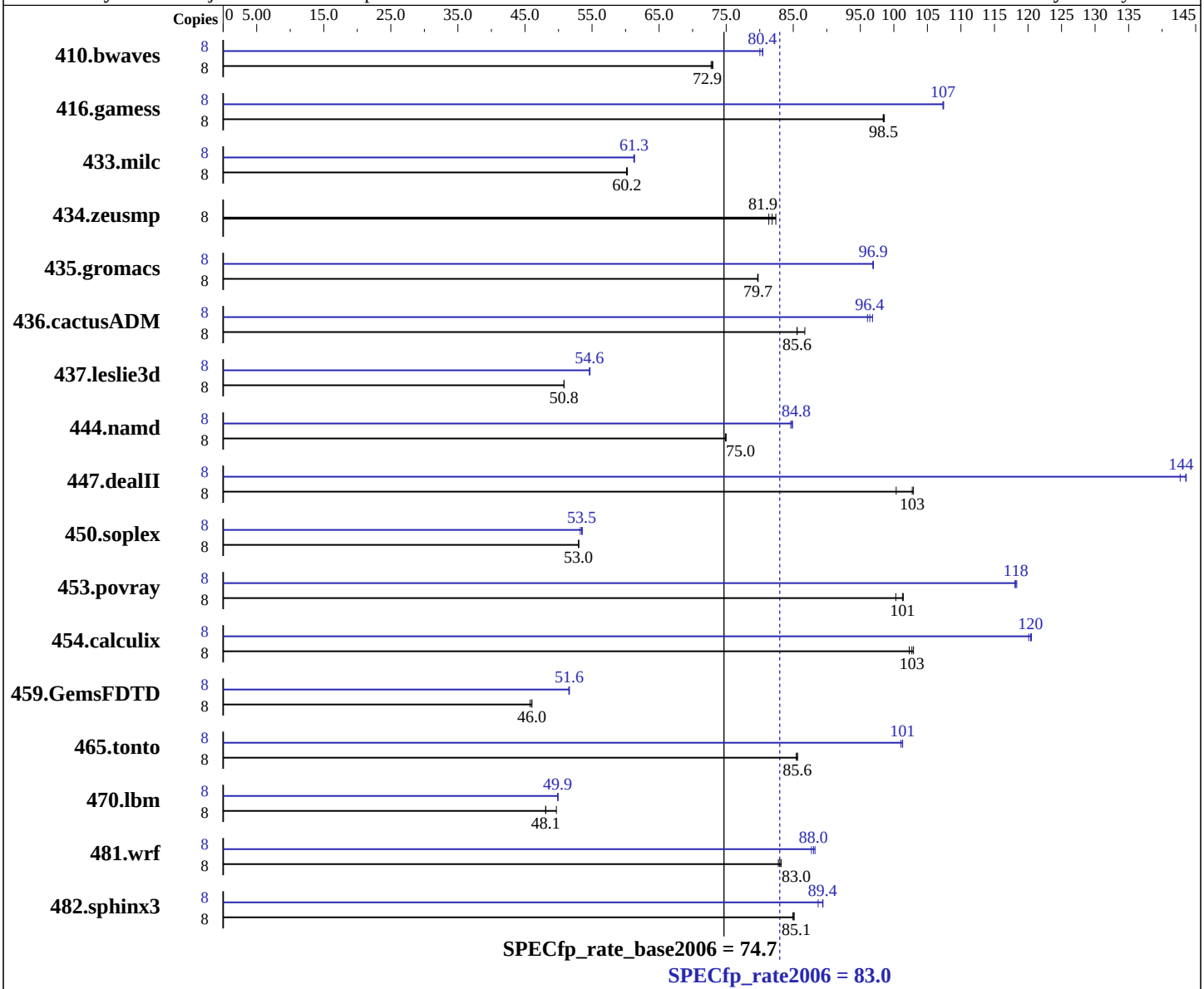
CELSIUS V840, AMD Opteron 2350 (2.0 GHz)

SPECfp®_rate2006 = 83.0

SPECfp_rate_base2006 = 74.7

CPU2006 license: 22
Test sponsor: Fujitsu Siemens Computers
Tested by: Fujitsu Siemens Computers

Test date: Apr-2008
Hardware Availability: May-2008
Software Availability: May-2008



Hardware

CPU Name:	AMD Opteron 2350
CPU Characteristics:	
CPU MHz:	2000
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 Workstation Complete Version 7.2-1 PathScale Compiler Suite, Release 3.2 Beta
Auto Parallel:	No
File System:	ext3
System State:	Multi-User SuSE Run Level 3
Base Pointers:	64-bit
Peak Pointers:	32/64-bit

Continued on next page

SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Fujitsu Siemens Computers

CELSIUS V840, AMD Opteron 2350 (2.0 GHz)

SPECfp_rate2006 = 83.0

SPECfp_rate_base2006 = 74.7

CPU2006 license: 22
Test sponsor: Fujitsu Siemens Computers
Tested by: Fujitsu Siemens Computers

Test date: Apr-2008
Hardware Availability: May-2008
Software Availability: May-2008

L3 Cache: 2 MB I+D on chip per chip
Other Cache: None
Memory: 16 GB (8x2GB PC2-5300P, CL5, dual rank ECC)
Disk Subsystem: 1 x 400 GB SATA II, 7200 rpm
Other Hardware: None

Other Software: binutils 2.18.50

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	1489	73.0	1494	72.8	**1491**	**72.9**	8	1351	80.5	**1352**	**80.4**	1359	80.0
416.gamess	8	1589	98.6	1592	98.4	**1591**	**98.5**	8	1459	107	1458	107	**1459**	**107**
433.milc	8	1219	60.3	**1220**	**60.2**	1221	60.1	8	1197	61.3	**1198**	**61.3**	1200	61.2
434.zeusmp	8	895	81.4	883	82.4	**889**	**81.9**	8	895	81.4	883	82.4	**889**	**81.9**
435.gromacs	8	**716**	**79.7**	717	79.7	716	79.8	8	**589**	**96.9**	589	97.0	590	96.9
436.cactusADM	8	1117	85.6	**1117**	**85.6**	1102	86.7	8	995	96.1	**992**	**96.4**	987	96.8
437.leslie3d	8	1480	50.8	**1479**	**50.8**	1479	50.8	8	1375	54.7	**1376**	**54.6**	1377	54.6
444.namd	8	856	75.0	857	74.9	**856**	**75.0**	8	758	84.6	**757**	**84.8**	756	84.9
447.dealII	8	912	100	889	103	**891**	**103**	8	637	144	641	143	**638**	**144**
450.soplex	8	**1260**	**53.0**	1260	53.0	1258	53.0	8	1246	53.6	1253	53.2	**1248**	**53.5**
453.povray	8	424	100	**420**	**101**	420	101	8	**360**	**118**	360	118	361	118
454.calculix	8	**643**	**103**	641	103	645	102	8	549	120	548	121	**548**	**120**
459.GemsFDTD	8	1844	46.0	1854	45.8	**1845**	**46.0**	8	1647	51.5	**1645**	**51.6**	1644	51.6
465.tonto	8	919	85.6	921	85.4	**919**	**85.6**	8	**777**	**101**	777	101	779	101
470.lbm	8	**2285**	**48.1**	2286	48.1	2212	49.7	8	2202	49.9	**2203**	**49.9**	2204	49.9
481.wrf	8	1074	83.2	**1077**	**83.0**	1080	82.8	8	**1015**	**88.0**	1019	87.7	1013	88.3
482.sphinx3	8	1836	84.9	**1832**	**85.1**	1832	85.1	8	1758	88.7	**1745**	**89.4**	1743	89.4

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

Operating System Notes

```
powersave -f is applied to set CPU to maximum frequency prior to run
stacksize is set to unlimited prior to run
ulimit -l 2457600
PGI_HUGE_PAGES set to 150
(Total number of huge pages available is 1200)
```

General Notes

```
The command numactl has been used to bind processes to CPUs

For information about Fujitsu Siemens Computers please see:
http://www.fujitsu-siemens.com
```

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:
-fastsse -Msmartalloc=huge:150 -Mfprelaxed -Mipa=jobs:4 -Mipa=fast
-Mipa=inline -tp barcelona-64 -Bstatic_pgi

C++ benchmarks:
-fastsse -Msmartalloc=huge:150 -Mfprelaxed --zc_eh -Mipa=jobs:4
-Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi

Fortran benchmarks:
-fastsse -Mfprelaxed -Msmartalloc=huge:150 -Mipa=jobs:4 -Mipa=fast
-Mipa=inline -tp barcelona-64 -Bstatic_pgi

Continued on next page

Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:
`-fastsse -Msmartalloc=huge:150 -Mfprelaxed -Mipa=jobs:4 -Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi`

Peak Compiler Invocation

C benchmarks (except as noted below):
`pgcc`

470.lbm: `pathcc`

C++ benchmarks (except as noted below):
`pathCC`

444.namd: `pgcpp`

Fortran benchmarks (except as noted below):
`pathf95`

410.bwaves: `pgf95`

434.zeusmp: `pgf95`

437.leslie3d: `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`
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`

Continued on next page

Peak Portability Flags (Continued)

481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

Peak Optimization Flags

C benchmarks:

433.milc: -fastsse -Msmartalloc=huge:150 -Msafeptr -Mfprelaxed
-Mipa=jobs:4 -Mipa=inline -Mipa=arg -Mipa=const -Mipa=ptr
-Mipa=shape -tp barcelona-64 -Bstatic_pgi

470.lbm: -march=barcelona -Ofast -CG:sse_cse_regs=0
-CG:locs_shallow_depth=1 -m3dnow

482.sphinx3: -Mpfi=indirect(pass 1) -Mpfo=indirect(pass 2)
-Mipa=jobs:4(pass 2) -Mipa=fast(pass 2) -Mipa=inline(pass 2)
-fastsse -Mfprelaxed -Msmartalloc -tp barcelona-64
-Bstatic_pgi

C++ benchmarks:

444.namd: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=jobs:4(pass 2)
-Mipa=fast(pass 2) -Mipa=inline(pass 2) -fastsse
-Munroll=n:4 -Munroll=m:8 -Msmartalloc=huge:150 -Mnodepchk
-Mfprelaxed --zc_eh -tp barcelona-64 -Bstatic_pgi

447.dealII: -march=barcelona -Ofast -static -INLINE:aggressive=on
-fno-exceptions -m32

450.soplex: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -O3 -TENV:frame_pointer=off
-LNO:prefetch=1 -OPT:malloc_alg=1 -CG:load_exe=0 -m32

453.povray: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast

Fortran benchmarks:

410.bwaves: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=jobs:4(pass 2)
-Mipa=fast(pass 2) -Mipa=inline(pass 2) -fastsse
-Msmartalloc -Mprefetch=distance:12 -Mprefetch=nta -Mpre
-Mfprelaxed -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

Continued on next page

Peak Optimization Flags (Continued)

434.zeusmp: basepeak = yes

437.leslie3d: -Mpfi=indirect(pass 1) -Mpfo=indirect(pass 2)
-Mipa=jobs:4(pass 2) -Mipa=fast(pass 2) -Mipa=inline(pass 2)
-fastsse -Mvect=fuse -Msmartalloc=huge:150
-Mprefetch=distance:8 -Mprefetch=t0 -Mfprelaxed
-tp barcelona-64 -Bstatic_pgi

459.GemsFDTD: -march=barcelona -Ofast -LNO:fission=2 -LNO:simd=2
-LNO:prefetch_ahead=1 -CG:load_exe=0

465.tonto: -march=barcelona -Ofast -OPT:alias=no_f90_pointer_alias
-LNO:blocking=off -CG:load_exe=1 -IPA:plimit=525

Benchmarks using both Fortran and C:

435.gromacs: -fastsse -Msmartalloc=huge:150 -Mfprelaxed -Mfpapprox=rsqrt
-Mipa=jobs:4 -Mipa=fast -Mipa=inline -tp barcelona-64
-Bstatic_pgi

436.cactusADM: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -Ofast -LNO:blocking=off

454.calculix: -Mpfi=indirect(pass 1) -Mpfo=indirect(pass 2)
-Mipa=jobs:4(pass 2) -Mipa=fast(pass 2) -Mipa=inline(pass 2)
-fastsse -Msmartalloc=huge:150 -Mprefetch=t0 -Mpre
-Mfprelaxed -tp barcelona-64 -Bstatic_pgi

481.wrf: -fastsse -Mvect=noaltcode -Msmartalloc
-Mprefetch=distance:8 -Mfprelaxed -tp barcelona-64
-Bstatic_pgi

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/fsc-mix-pgi-path.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/fsc-mix-pgi-path.xml

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.0.
Report generated on Tue Sep 13 11:31:02 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 8 July 2008.