SPEC® CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

Fujitsu Siemens Computers

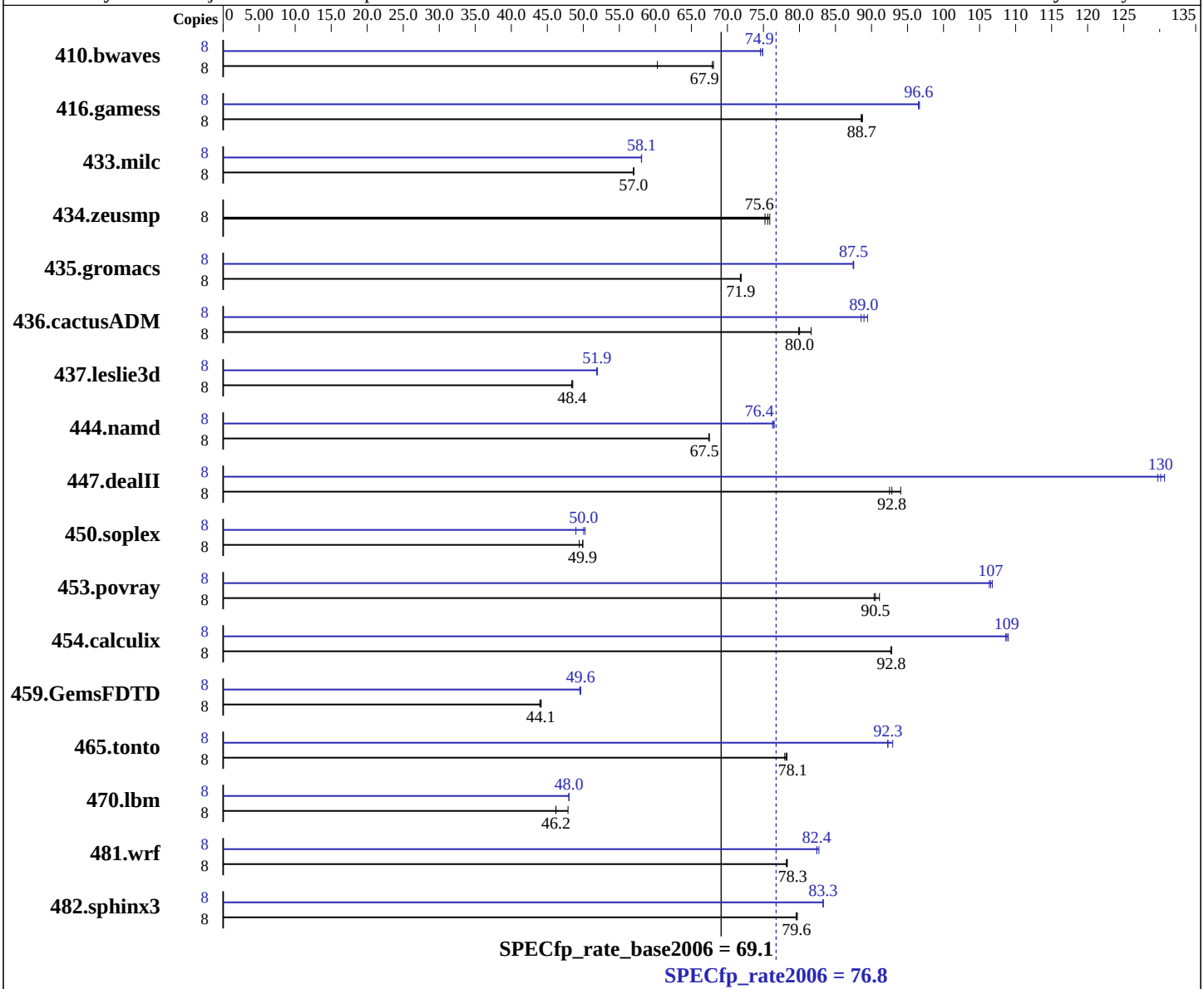
CELSIUS V840, AMD Opteron 2346 HE (1.8 GHz)

SPECfp®_rate2006 = 76.8

SPECfp_rate_base2006 = 69.1

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

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



Hardware

CPU Name:	AMD Opteron 2346 HE
CPU Characteristics:	
CPU MHz:	1800
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 2346 HE (1.8 GHz)

SPECfp_rate2006 = 76.8

SPECfp_rate_base2006 = 69.1

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

Test date: Jun-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	1804	60.3	1597	68.1	**1601**	**67.9**	8	1458	74.6	1452	74.9	**1452**	**74.9**
416.gamess	8	1769	88.6	1765	88.7	**1767**	**88.7**	8	**1622**	**96.6**	1620	96.7	1623	96.5
433.milc	8	1290	56.9	1288	57.0	**1289**	**57.0**	8	**1265**	**58.1**	1264	58.1	1265	58.1
434.zeusmp	8	968	75.2	**963**	**75.6**	959	75.9	8	968	75.2	**963**	**75.6**	959	75.9
435.gromacs	8	796	71.8	794	71.9	**795**	**71.9**	8	653	87.4	**653**	**87.5**	653	87.5
436.cactusADM	8	1171	81.6	**1195**	**80.0**	1197	79.9	8	1069	89.5	**1075**	**89.0**	1079	88.6
437.leslie3d	8	1550	48.5	1554	48.4	**1552**	**48.4**	8	1450	51.9	**1449**	**51.9**	1447	52.0
444.namd	8	951	67.4	951	67.5	**951**	**67.5**	8	841	76.3	**840**	**76.4**	839	76.5
447.dealII	8	989	92.5	**986**	**92.8**	973	94.1	8	705	130	**703**	**130**	700	131
450.soplex	8	1350	49.4	1336	49.9	**1337**	**49.9**	8	1363	49.0	**1333**	**50.0**	1328	50.3
453.povray	8	471	90.4	467	91.1	**470**	**90.5**	8	399	107	400	106	**399**	**107**
454.calculix	8	**712**	**92.8**	712	92.7	711	92.8	8	608	109	**607**	**109**	606	109
459.GemsFDTD	8	1931	44.0	1923	44.1	**1925**	**44.1**	8	1714	49.5	1710	49.6	**1711**	**49.6**
465.tonto	8	1006	78.3	1010	78.0	**1007**	**78.1**	8	**853**	**92.3**	853	92.2	847	92.9
470.lbm	8	2296	47.9	**2379**	**46.2**	2380	46.2	8	2289	48.0	**2290**	**48.0**	2291	48.0
481.wrf	8	1141	78.3	**1142**	**78.3**	1143	78.2	8	1080	82.7	1084	82.4	**1084**	**82.4**
482.sphinx3	8	**1959**	**79.6**	1956	79.7	1960	79.6	8	1873	83.3	1872	83.3	**1872**	**83.3**

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 11:30:53 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 8 July 2008.