



SPEC[®] CFP2006 Result

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Fujitsu Siemens Computers

SPECfp[®]2006 = 18.5

CELSIUS V840, AMD Opteron 2354 (2.2 GHz)

SPECfp_base2006 = 16.7

CPU2006 license: 22

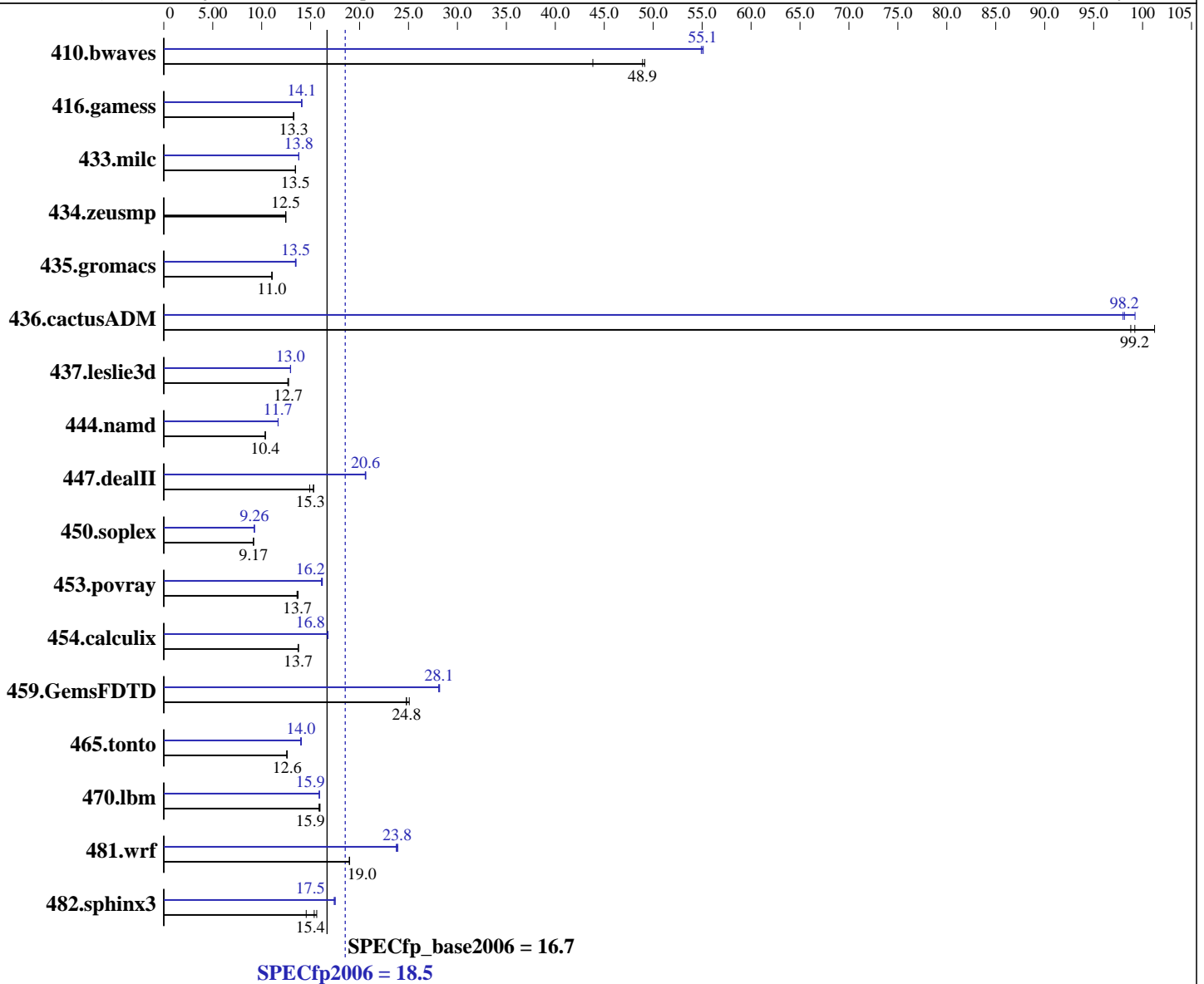
Test date: May-2008

Test sponsor: Fujitsu Siemens Computers

Hardware Availability: May-2008

Tested by: Fujitsu Siemens Computers

Software Availability: May-2008



Hardware

CPU Name: AMD Opteron 2354
 CPU Characteristics: 2200
 CPU MHz: 2200
 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

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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: Yes
 File System: ext3
 System State: Multi-User SuSE Run Level 3
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit

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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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	277	49.1	310	43.8	278	48.9	<u>247</u>	<u>55.1</u>	247	55.1	247	54.9
416.gamess	1478	13.2	1475	13.3	1473	13.3	1388	14.1	1388	14.1	1393	14.1
433.milc	682	13.5	683	13.4	682	13.5	665	13.8	665	13.8	666	13.8
434.zeusmp	730	12.5	731	12.4	730	12.5	730	12.5	731	12.4	730	12.5
435.gromacs	647	11.0	647	11.0	644	11.1	531	13.4	530	13.5	528	13.5
436.cactusADM	118	101	121	98.8	120	99.2	122	98.0	122	98.2	120	99.2
437.leslie3d	739	12.7	738	12.7	742	12.7	<u>726</u>	12.9	<u>725</u>	13.0	726	13.0
444.namd	773	10.4	773	10.4	774	10.4	687	11.7	686	11.7	687	11.7
447.dealII	749	15.3	768	14.9	747	15.3	555	20.6	556	20.6	554	20.6
450.soplex	911	9.15	910	9.17	910	9.17	901	9.26	901	9.26	902	9.25
453.povray	391	13.6	388	13.7	390	13.7	330	16.1	328	16.2	329	16.2
454.calculix	599	13.8	600	13.7	601	13.7	492	16.8	492	16.8	492	16.8
459.GemsFDTD	428	24.8	423	25.1	428	24.8	378	28.1	377	28.1	376	28.2
465.tonto	782	12.6	784	12.6	780	12.6	703	14.0	700	14.1	703	14.0
470.lbm	863	15.9	861	16.0	866	15.9	864	15.9	865	15.9	865	15.9
481.wrf	589	19.0	588	19.0	589	19.0	470	23.8	467	23.9	468	23.8
482.sphinx3	1247	15.6	1340	14.6	1268	15.4	1113	17.5	1120	17.4	1115	17.5

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

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



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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.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:896 -Mconcur -Mfprelaxed -Mipa=jobs:4
-Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi

C++ benchmarks:

-fastsse -Msmartalloc=huge:896 -Mfprelaxed -Mconcur --zc_eh
-Mipa=jobs:4 -Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi

Fortran benchmarks:

-fastsse -Mfprelaxed -Msmartalloc=huge:896 -Mconcur -Mipa=jobs:4
-Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

-fastsse -Msmartalloc=huge:896 -Mconcur -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: pgcCpp

Fortran benchmarks (except as noted below):

pgf95

459.GemsFDTD: pathf95

Benchmarks using both Fortran and C:

pgcc pgf95

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 -Mnomain
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



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Peak Optimization Flags

C benchmarks:

433.milc: -fastsse -Msmartalloc=huge:896 -Msafeptr -Mconcur
-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 -m3dnw -apo

482.sphinx3: -Mpfi(pass 1) -Mpfo(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:896 -Mnodepchk
-Mfprelaxed --zc_eh -tp barcelona-64 -Bstatic_pgi

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

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 -apo

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

Fortran benchmarks:

410.bwaves: -fastsse -Msmartalloc -Mprefetch=distance:12 -Mprefetch=nta
-Mconcur -Mloop32 -Mpre -Mfprelaxed -Mipa=jobs:4
-Mipa=fast -Mipa=inline -tp barcelona-64 -Bstatic_pgi

416.gamess: -Mpfi(pass 1) -Mpfo(pass 2) -Mipa=jobs:4(pass 2)
-Mipa=fast(pass 2) -Mipa=inline(pass 2) -fastsse
-Mvect=noaltcode -Mprefetch=t0 -Mfprelaxed -tp barcelona-64
-Bstatic_pgi

434.zeusmp: basepeak = yes

437.leslie3d: -Mpfi=indirect(pass 1) -Mpfo=indirect(pass 2)
-Mconcur=noaltcode(pass 2) -Mipa=jobs:4(pass 2)
-Mipa=fast(pass 2) -Mipa=inline(pass 2) -fastsse
-Mvect=fuse -Msmartalloc=huge:896 -Mprefetch=distance:8
-Mprefetch=t0 -Mfprelaxed -tp barcelona-64 -Bstatic_pgi

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Peak Optimization Flags (Continued)

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

465.tonto: -fastsse -O4 -Mvect=noaltcode -Msmartalloc=huge:896
-Mprefetch=distance:8 -Mprefetch=t0 -Mfprelaxed
-Mipa=jobs:4 -Mipa=fast -Mipa=inline -tp barcelona-64
-Bstatic_pgi

Benchmarks using both Fortran and C:

435.gromacs: -fastsse -Msmartalloc=huge:896 -Mfprelaxed -Mconcur
-Mfpapprox=rsqrt -Mipa=jobs:4 -Mipa=fast -Mipa=inline
-tp barcelona-64 -Bstatic_pgi

436.cactusADM: -fastsse -Msmartalloc=huge:896 -Mfprelaxed -Mconcur -Mdse
-Mipa=jobs:4 -Mipa=fast -Mipa=inline -tp barcelona-64
-Bstatic_pgi

454.calculix: -Mphi=indirect(pass 1) -Mpfo=indirect(pass 2)
-Mipa=jobs:4(pass 2) -Mipa=fast(pass 2) -Mipa=inline(pass 2)
-fastsse -Msmartalloc=huge:896 -Mloop32 -Mprefetch=t0
-Mpre -Mfprelaxed -tp barcelona-64 -Bstatic_pgi

481.wrf: -fastsse -Mvect=noaltcode -Msmartalloc
-Mprefetch=distance:8 -Mconcur=noaltcode -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>

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For other inquiries, please contact webmaster@spec.org.

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