



SPEC® CFP2006 Result

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Fujitsu Siemens Computers

SPECfp®_rate2006 = 89.1

CELSIUS V840, AMD Opteron 2356 (2.3 GHz)

SPECfp_rate_base2006 = 80.2

CPU2006 license: 22

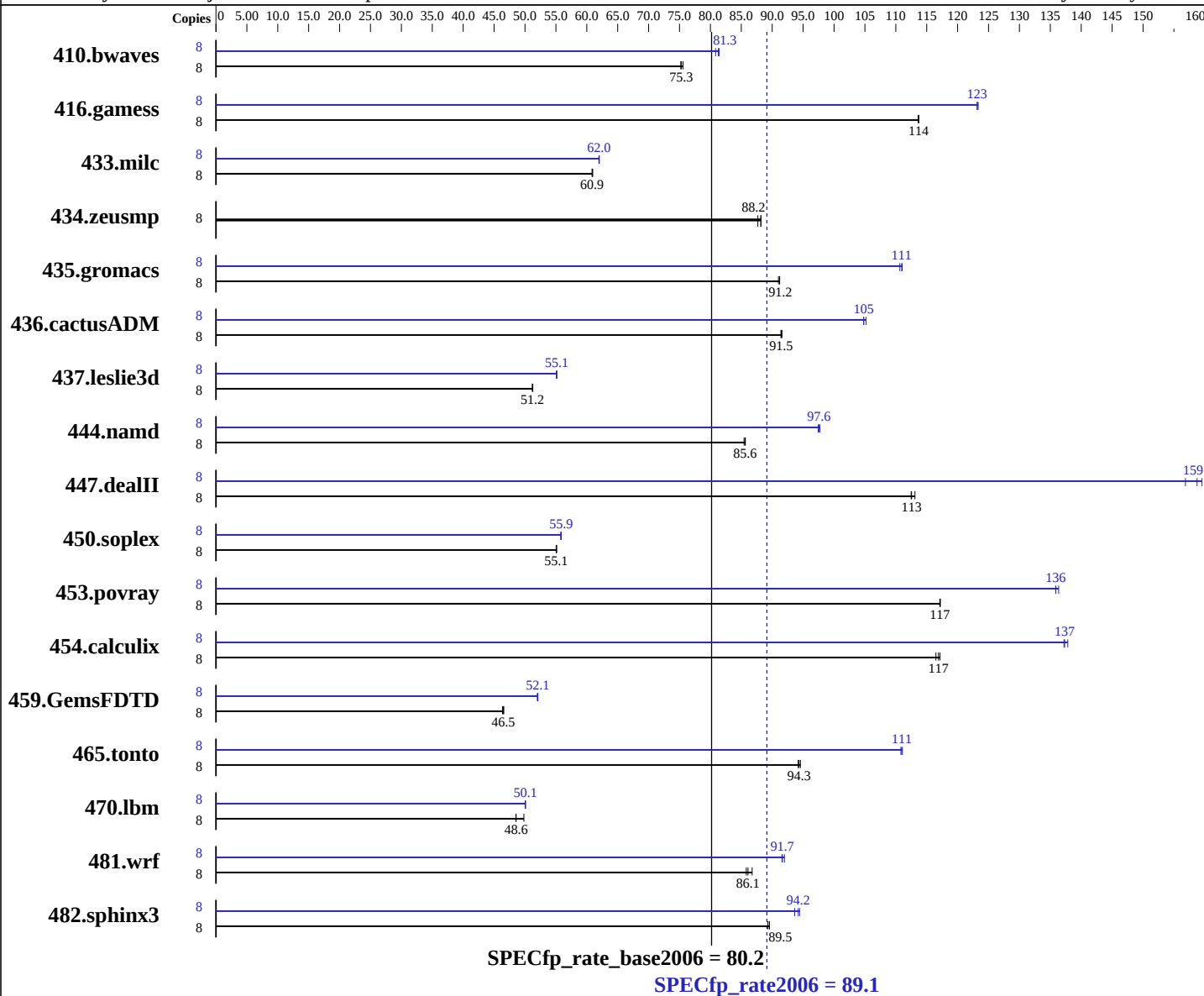
Test sponsor: Fujitsu Siemens Computers

Tested by: Fujitsu Siemens Computers

Test date: Apr-2008

Hardware Availability: May-2008

Software Availability: May-2008



Hardware

CPU Name: AMD Opteron 2356
 CPU Characteristics:
 CPU MHz: 2300
 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 Server Complete Version 7.2
 PathScale Compiler Suite, Release Pre-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

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Hardware (Continued)

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

Software (Continued)

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	Seconds	Ratio
410.bwaves	8	1445	75.2	1439	75.6	1444	75.3	8	1338	81.3	1335	81.4	1345	80.8		
416.gamess	8	1377	114	1379	114	1378	114	8	1272	123	1270	123	1272	123		
433.milc	8	1205	61.0	1207	60.9	1207	60.9	8	1184	62.0	1184	62.0	1185	62.0		
434.zeusmp	8	826	88.2	826	88.2	830	87.7	8	826	88.2	826	88.2	830	87.7		
435.gromacs	8	628	91.0	626	91.2	626	91.2	8	516	111	515	111	514	111		
436.cactusADM	8	1044	91.6	1046	91.4	1045	91.5	8	909	105	912	105	912	105		
437.leslie3d	8	1469	51.2	1467	51.3	1469	51.2	8	1364	55.1	1365	55.1	1363	55.2		
444.namd	8	751	85.4	749	85.6	749	85.7	8	658	97.4	658	97.6	656	97.7		
447.dealII	8	809	113	814	112	813	113	8	574	160	583	157	577	159		
450.soplex	8	1212	55.0	1210	55.1	1211	55.1	8	1194	55.9	1196	55.8	1194	55.9		
453.povray	8	363	117	363	117	363	117	8	312	136	313	136	313	136		
454.calculix	8	567	116	565	117	563	117	8	481	137	481	137	479	138		
459.GemsFDTD	8	1823	46.6	1825	46.5	1831	46.4	8	1629	52.1	1630	52.1	1633	52.0		
465.tonto	8	833	94.6	836	94.2	834	94.3	8	709	111	710	111	709	111		
470.lbm	8	2206	49.8	2265	48.5	2263	48.6	8	2195	50.1	2195	50.1	2198	50.0		
481.wrf	8	1038	86.1	1030	86.8	1041	85.8	8	972	92.0	975	91.7	976	91.6		
482.sphinx3	8	1746	89.3	1741	89.6	1741	89.5	8	1665	93.6	1655	94.2	1651	94.4		

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

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General Notes (Continued)

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

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Base Optimization Flags (Continued)

Fortran benchmarks:

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

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

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Peak Portability Flags (Continued)

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: -fastsse -Msmartalloc=huge:150 -Msafepr -Mfpelaxed
-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 -Mfpelaxed -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 -Mnodepch
-Mfpelaxed --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
-Mfpelaxed -tp barcelona-64 -Bstatic_pgi

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Peak Optimization Flags (Continued)

416.gamess: -march=barcelona -fb_create fbdata(pass 1)
-fb_opt fbdata(pass 2) -O2 -OPT:Ofast -OPT:ro=3
-OPT:unroll_size=256

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 -Mfpelaxed
-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 -Mfpelaxed -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
-Mfpelaxed -tp barcelona-64 -Bstatic_pgi

481.wrf: -fastsse -Mvect=noaltcode -Msmartalloc
-Mprefetch=distance:8 -Mfpelaxed -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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Tested with SPEC CPU2006 v1.0.
Report generated on Tue May 27 16:26:00 2008 by SPEC CPU2006 PS/PDF formatter v5614.