



SPEC® CFP2006 Result

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Fujitsu Siemens Computers

SPECfp®2006 = 19.4

CELSIUS V840, AMD Opteron 2356 (2.3 GHz)

SPECfp_base2006 = 17.4

CPU2006 license: 22

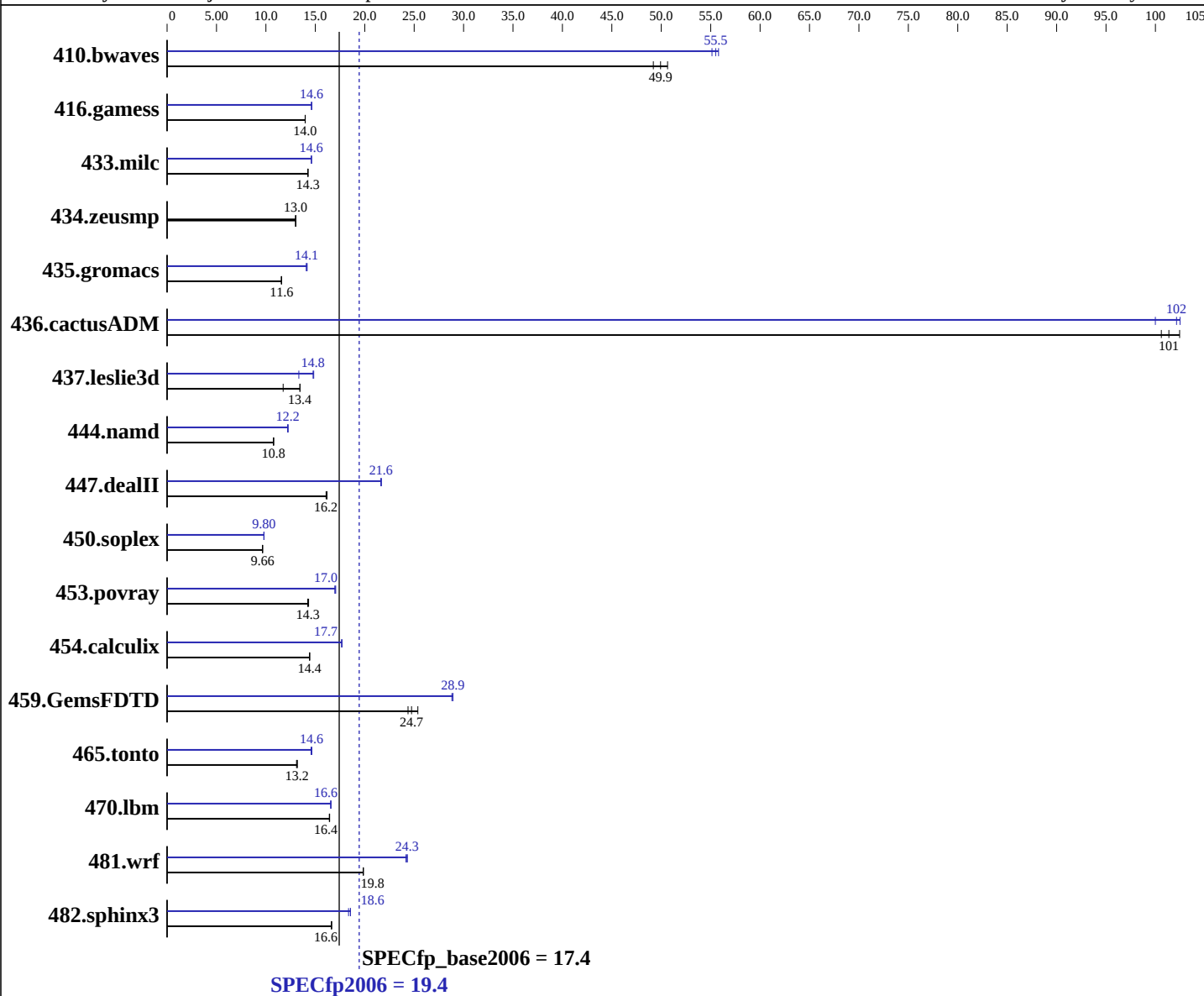
Test sponsor: Fujitsu Siemens Computers

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

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 Server Complete Version 7.2
PathScale Compiler Suite, Release Pre-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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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
 Other Hardware: None

Software (Continued)

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	276	49.2	<u>272</u>	<u>49.9</u>	268	50.6	<u>245</u>	<u>55.5</u>	244	55.8	246	55.1
416.gamess	1400	14.0	<u>1401</u>	<u>14.0</u>	1402	14.0	<u>1339</u>	<u>14.6</u>	1341	14.6	1338	14.6
433.milc	645	14.2	<u>644</u>	<u>14.3</u>	644	14.3	629	14.6	628	14.6	<u>629</u>	<u>14.6</u>
434.zeusmp	700	13.0	<u>700</u>	<u>13.0</u>	698	13.0	700	13.0	<u>700</u>	<u>13.0</u>	698	13.0
435.gromacs	<u>616</u>	<u>11.6</u>	616	11.6	618	11.5	507	14.1	<u>506</u>	<u>14.1</u>	504	14.2
436.cactusADM	117	102	<u>118</u>	<u>101</u>	119	101	120	100	<u>117</u>	<u>102</u>	117	102
437.leslie3d	699	13.4	800	11.7	<u>700</u>	<u>13.4</u>	705	13.3	633	14.8	<u>636</u>	<u>14.8</u>
444.namd	746	10.8	<u>744</u>	<u>10.8</u>	744	10.8	<u>656</u>	<u>12.2</u>	655	12.2	658	12.2
447.dealII	<u>708</u>	<u>16.2</u>	711	16.1	707	16.2	529	21.6	<u>529</u>	<u>21.6</u>	528	21.7
450.soplex	<u>863</u>	<u>9.66</u>	864	9.65	863	9.67	850	9.81	851	9.80	<u>851</u>	<u>9.80</u>
453.povray	374	14.2	371	14.3	<u>373</u>	<u>14.3</u>	312	17.1	313	17.0	<u>313</u>	<u>17.0</u>
454.calculix	573	14.4	<u>572</u>	<u>14.4</u>	571	14.4	<u>467</u>	<u>17.7</u>	467	17.7	467	17.7
459.GemsFDTD	418	25.4	<u>429</u>	<u>24.7</u>	435	24.4	368	28.8	367	28.9	<u>367</u>	<u>28.9</u>
465.tonto	<u>748</u>	<u>13.2</u>	751	13.1	747	13.2	<u>673</u>	<u>14.6</u>	675	14.6	672	14.6
470.lbm	835	16.5	<u>836</u>	<u>16.4</u>	837	16.4	<u>829</u>	<u>16.6</u>	829	16.6	829	16.6
481.wrf	563	19.8	<u>563</u>	<u>19.8</u>	562	19.9	460	24.3	462	24.2	<u>460</u>	<u>24.3</u>
482.sphinx3	1173	16.6	<u>1172</u>	<u>16.6</u>	1170	16.7	1061	18.4	<u>1050</u>	<u>18.6</u>	1050	18.6

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.lelie3d: -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: pgcpp

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
-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 -apo

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

447.dealII: -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 -Mfpelaxed -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 -Mfpelaxed -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 -Mfpelaxed -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 -Mfpelaxed
-Mipa=jobs:4 -Mipa=fast -Mipa=inline -tp barcelona-64
-Bstatic_pgi

Benchmarks using both Fortran and C:

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

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

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:896 -Mloop32 -Mprefetch=t0
-Mpre -Mfpelaxed -tp barcelona-64 -Bstatic_pgi

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

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