SPEC® CFP2006 Result

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Fujitsu Siemens Computers

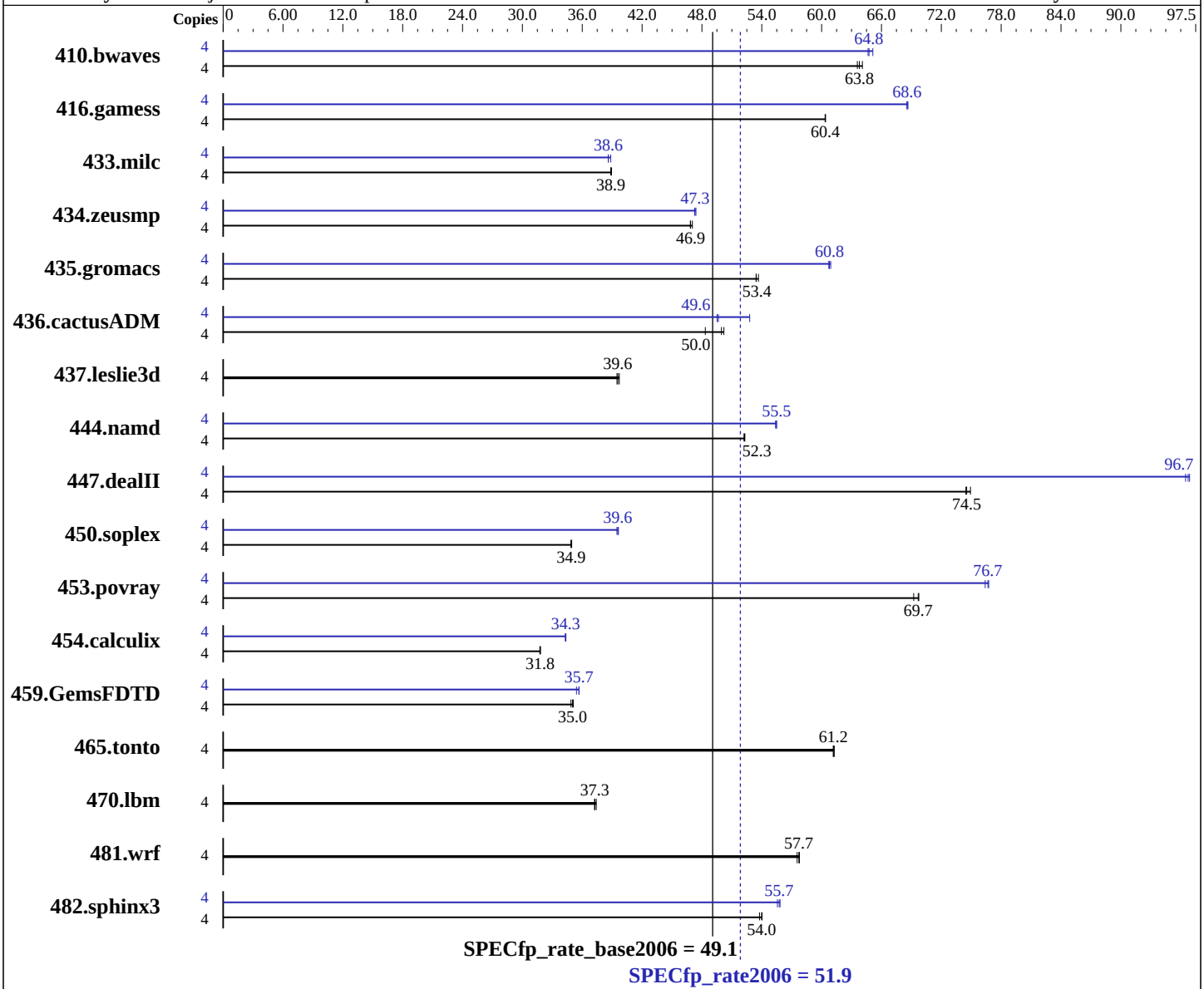
CELSIUS V840, Opteron 2222, 64-bit Linux

SPECfp®_rate2006 = 51.9

SPECfp_rate_base2006 = 49.1

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

Test date: Jul-2007
Hardware Availability: Jul-2007
Software Availability: Mar-2007



Hardware

CPU Name:	AMD Opteron 2222
CPU Characteristics:	Dual Core, 3.0 GHz, 2 MB L2-cache
CPU MHz:	3000
FPU:	Integrated
CPU(s) enabled:	4 cores, 2 chips, 2 cores/chip
CPU(s) orderable:	1,2 chips
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core

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Software

Operating System:	SLES 10 for AMD64/EM64T
Compiler:	QLogic PathScale Compiler Suite, - Release 3.0
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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L3 Cache: None
Other Cache: None
Memory: 16 GB (8x2GB DDR2-667 CL5 dual rank ECC DIMMs registered)
Disk Subsystem: SATA II, 80 GB
Other Hardware: None

Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	848	64.1	**852**	**63.8**	855	63.6	4	841	64.7	835	65.1	**840**	**64.8**
416.gamess	4	**1297**	**60.4**	1298	60.3	1297	60.4	4	1141	68.7	1143	68.5	**1142**	**68.6**
433.milc	4	**945**	**38.9**	943	38.9	945	38.9	4	**951**	**38.6**	945	38.9	951	38.6
434.zeusmp	4	774	47.0	**777**	**46.9**	777	46.8	4	768	47.4	**769**	**47.3**	770	47.3
435.gromacs	4	**534**	**53.4**	535	53.4	532	53.7	4	470	60.7	469	60.9	**470**	**60.8**
436.cactusADM	4	**957**	**50.0**	952	50.2	989	48.3	4	965	49.5	**963**	**49.6**	905	52.8
437.leslie3d	4	947	39.7	952	39.5	**950**	**39.6**	4	947	39.7	952	39.5	**950**	**39.6**
444.namd	4	614	52.2	**614**	**52.3**	613	52.3	4	**578**	**55.5**	578	55.5	579	55.4
447.dealII	4	611	74.9	**614**	**74.5**	615	74.5	4	472	96.9	474	96.5	**473**	**96.7**
450.soplex	4	957	34.9	**956**	**34.9**	955	34.9	4	**843**	**39.6**	845	39.5	842	39.6
453.povray	4	305	69.7	**305**	**69.7**	307	69.2	4	277	76.8	**278**	**76.7**	279	76.4
454.calculix	4	1039	31.7	1037	31.8	**1038**	**31.8**	4	960	34.4	**961**	**34.3**	962	34.3
459.GemsFDTD	4	**1212**	**35.0**	1209	35.1	1217	34.9	4	**1190**	**35.7**	1190	35.7	1198	35.4
465.tonto	4	642	61.3	643	61.2	**643**	**61.2**	4	642	61.3	643	61.2	**643**	**61.2**
470.lbm	4	1469	37.4	**1475**	**37.3**	1476	37.2	4	1469	37.4	**1475**	**37.3**	1476	37.2
481.wrf	4	773	57.8	**774**	**57.7**	776	57.5	4	773	57.8	**774**	**57.7**	776	57.5
482.sphinx3	4	**1444**	**54.0**	1443	54.0	1450	53.8	4	1396	55.8	1403	55.6	**1398**	**55.7**

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
```

General Notes

```
BIOS default settings with
Node memory interleave disabled, SRAT enabled
'taskset $MYMASK $command' has been used to bind processes to CPUs
The Linux command 'taskset $MYMASK $command' executes the specified command;
only the processors specified in $MYMASK are allowed to execute the application.
See the Linux documentation for detailed description of taskset.
```

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General Notes (Continued)

```
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http://www.fujitsu-siemens.com/countries
```

Base Compiler Invocation

C benchmarks:
`pathcc`

C++ benchmarks:
`pathCC`

Fortran benchmarks:
`pathf95`

Benchmarks using both Fortran and C:
`pathcc pathf95`

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`
436.cactusADM: `-DSPEC_CPU_LP64 -fno-second-underscore`
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`
459.GemsFDTD: `-DSPEC_CPU_LP64`
465.tonto: `-DSPEC_CPU_LP64`
470.lbm: `-DSPEC_CPU_LP64`
481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX -fno-second-underscore`
482.sphinx3: `-DSPEC_CPU_LP64`

Base Optimization Flags

C benchmarks:
`-Ofast`

C++ benchmarks:
`-Ofast`

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Base Optimization Flags (Continued)

Fortran benchmarks:
`-Ofast -OPT:malloc_alg=1`

Benchmarks using both Fortran and C:
`-Ofast -OPT:malloc_alg=1`

Base Other Flags

C benchmarks:
`-IPA:max_jobs=4`

C++ benchmarks:
`-IPA:max_jobs=4`

Fortran benchmarks:
`-IPA:max_jobs=4`

Benchmarks using both Fortran and C:
`-IPA:max_jobs=4`

Peak Compiler Invocation

C benchmarks:
`pathcc`

C++ benchmarks:
`pathCC`

Fortran benchmarks:
`pathf95`

Benchmarks using both Fortran and C:
`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`
436.cactusADM: `-DSPEC_CPU_LP64 -fno-second-underscore`
437.leslie3d: `-DSPEC_CPU_LP64`

Continued on next page

Peak Portability Flags (Continued)

444.namd: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX -fno-second-underscore
482.sphinx3: -DSPEC_CPU_LP64

Peak Optimization Flags

C benchmarks:

433.milc: -Ofast -CG:cflow=off -LNO:prefetch=1 -OPT:malloc_alg=1

470.lbm: basepeak = yes

482.sphinx3: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
-OPT:Ofast -WOPT:aggstr=0 -m32

C++ benchmarks:

444.namd: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-fno-exceptions

447.dealII: -Ofast -static -INLINE:aggressive=on -OPT:malloc_alg=1
-m32 -fno-exceptions

450.soplex: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -m32 -O3
-OPT:IEEE_arith=3 -CG:load_exe=0 -CG:movnti=1
-LNO:minvariant=off -LNO:prefetch=1 -fno-exceptions

453.povray: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-fno-fast-math

Fortran benchmarks:

410.bwaves: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
-OPT:Ofast -OPT:IEEE_arith=3 -LNO:blocking=off
-LNO:ignore_feedback=off

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

434.zeusmp: -Ofast -CG:local_fwd_sched=on -LNO:blocking=off
-LNO:interchange=off -LNO:fu=10 -LNO:full_unroll_outer=on

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Peak Optimization Flags (Continued)

437.leslie3d: `basepeak = yes`

459.GemsFDTD: `-Ofast -LNO:fission=2 -LNO:prefetch=0`

465.tonto: `basepeak = yes`

Benchmarks using both Fortran and C:

435.gromacs: `-O3 -OPT:rsqrt=2 -OPT:ro=3`

436.cactusADM: `-fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-O3 -LNO:prefetch=3 -LNO:prefetch_ahead=5 -LNO:ou_prod_max=10 -LNO:full_unroll=5 -ipa`

454.calculix: `-Ofast -LNO:simd=0 -WOPT:mem_opnds=on`

481.wrf: `basepeak = yes`

Peak Other Flags

C benchmarks:
`-IPA:max_jobs=4`

C++ benchmarks:
`-IPA:max_jobs=4`

Fortran benchmarks:
`-IPA:max_jobs=4`

Benchmarks using both Fortran and C:
`-IPA:max_jobs=4`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.28.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.28.xml`

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