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 date:** Jul-2007
Test sponsor: Fujitsu Siemens Computers	**Hardware Availability:** Jul-2007
Tested by: Fujitsu Siemens Computers	**Software Availability:** Mar-2007

Copies   0   6.00   12.0   18.0   24.0   30.0   36.0   42.0   48.0   54.0   60.0   66.0   72.0   78.0   84.0   90.0   97.5

410.bwaves 4 — 64.8 / 4 — 63.8

416.gamess 4 — 68.6 / 4 — 60.4

433.milc 4 — 38.6 / 4 — 38.9

434.zeusmp 4 — 47.3 / 4 — 46.9

435.gromacs 4 — 60.8 / 4 — 53.4

436.cactusADM 4 — 49.6 / 4 — 50.0

437.leslie3d 4 — 39.6

444.namd 4 — 55.5 / 4 — 52.3

447.dealII 4 — 96.7 / 4 — 74.5

450.soplex 4 — 39.6 / 4 — 34.9

453.povray 4 — 76.7 / 4 — 69.7

454.calculix 4 — 34.3 / 4 — 31.8

459.GemsFDTD 4 — 35.7 / 4 — 35.0

465.tonto 4 — 61.2

470.lbm 4 — 37.3

481.wrf 4 — 57.7

482.sphinx3 4 — 55.7 / 4 — 54.0

SPECfp_rate_base2006 = 49.1

SPECfp_rate2006 = 51.9

Hardware		**Software**	
CPU Name:	AMD Opteron 2222	Operating System:	SLES 10 for AMD64/EM64T
CPU Characteristics:	Dual Core, 3.0 GHz, 2 MB L2-cache	Compiler:	QLogic PathScale Compiler Suite,
CPU MHz:	3000		- Release 3.0
FPU:	Integrated	Auto Parallel:	No
CPU(s) enabled:	4 cores, 2 chips, 2 cores/chip	File System:	ext3
CPU(s) orderable:	1,2 chips	System State:	Multi-User SuSE Run Level 3
Primary Cache:	64 KB I + 64 KB D on chip per core	Base Pointers:	64-bit
Secondary Cache:	1 MB I+D on chip per core	Peak Pointers:	32/64-bit
Continued on next page		**Continued on next page**	

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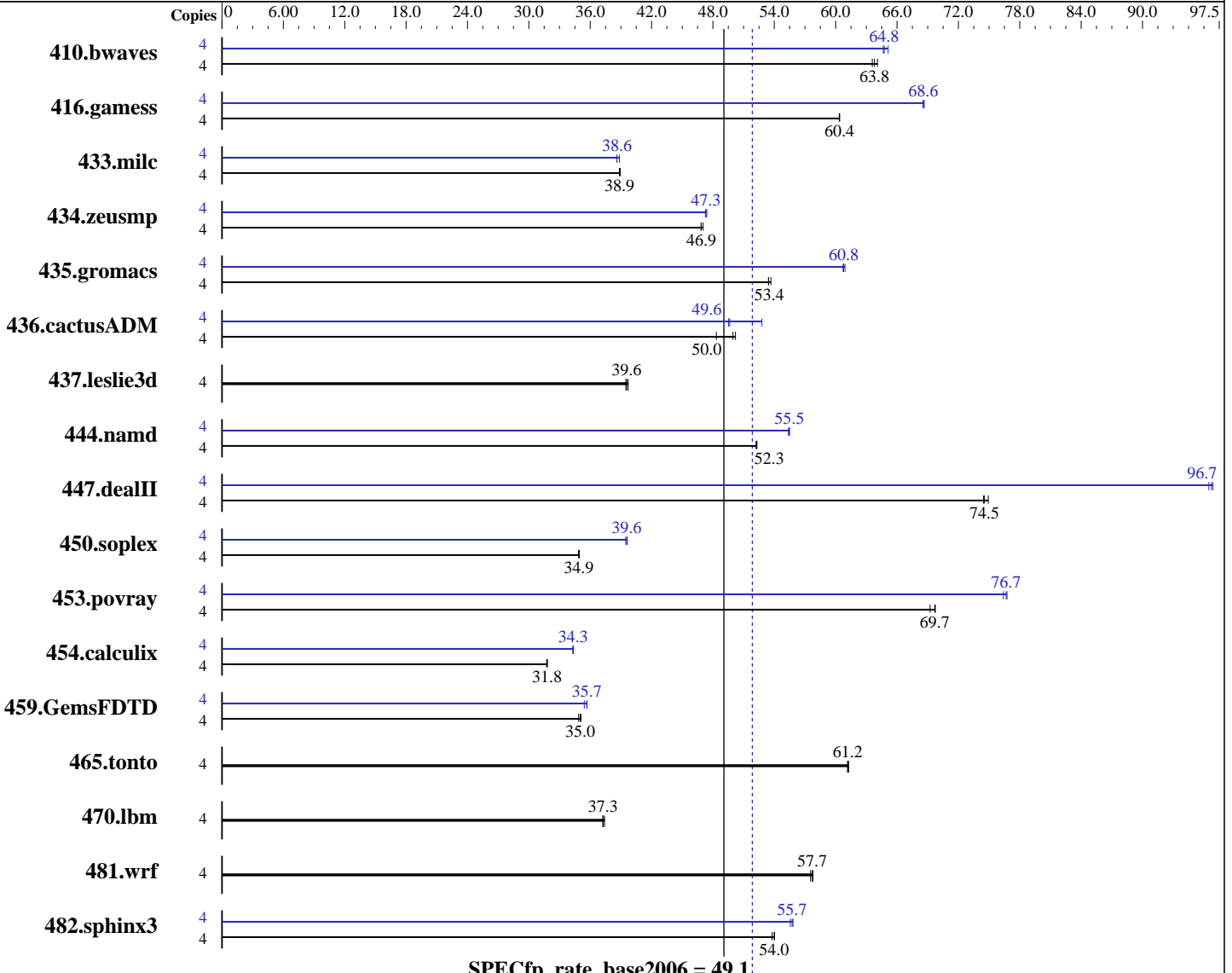**CPU2006 license:** 22
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L3 Cache: None
Other Cache: None
Memory: 16 GB (8x2GB DDR2-667 CL5 dual rank ECC DIMMs registered)
Disk Subsystem: SATA II, 80 GB
Other Hardware: None

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)

For information about Fujitsu Siemens Computers in your country please see:
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
```

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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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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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