



# SPEC® CFP2006 Result

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## Fujitsu Siemens Computers

**SPECfp®2006 = 17.4**

### CELSIUS V840, Opteron 2222, 64-bit Linux

**SPECfp\_base2006 = 16.0**

CPU2006 license: 22

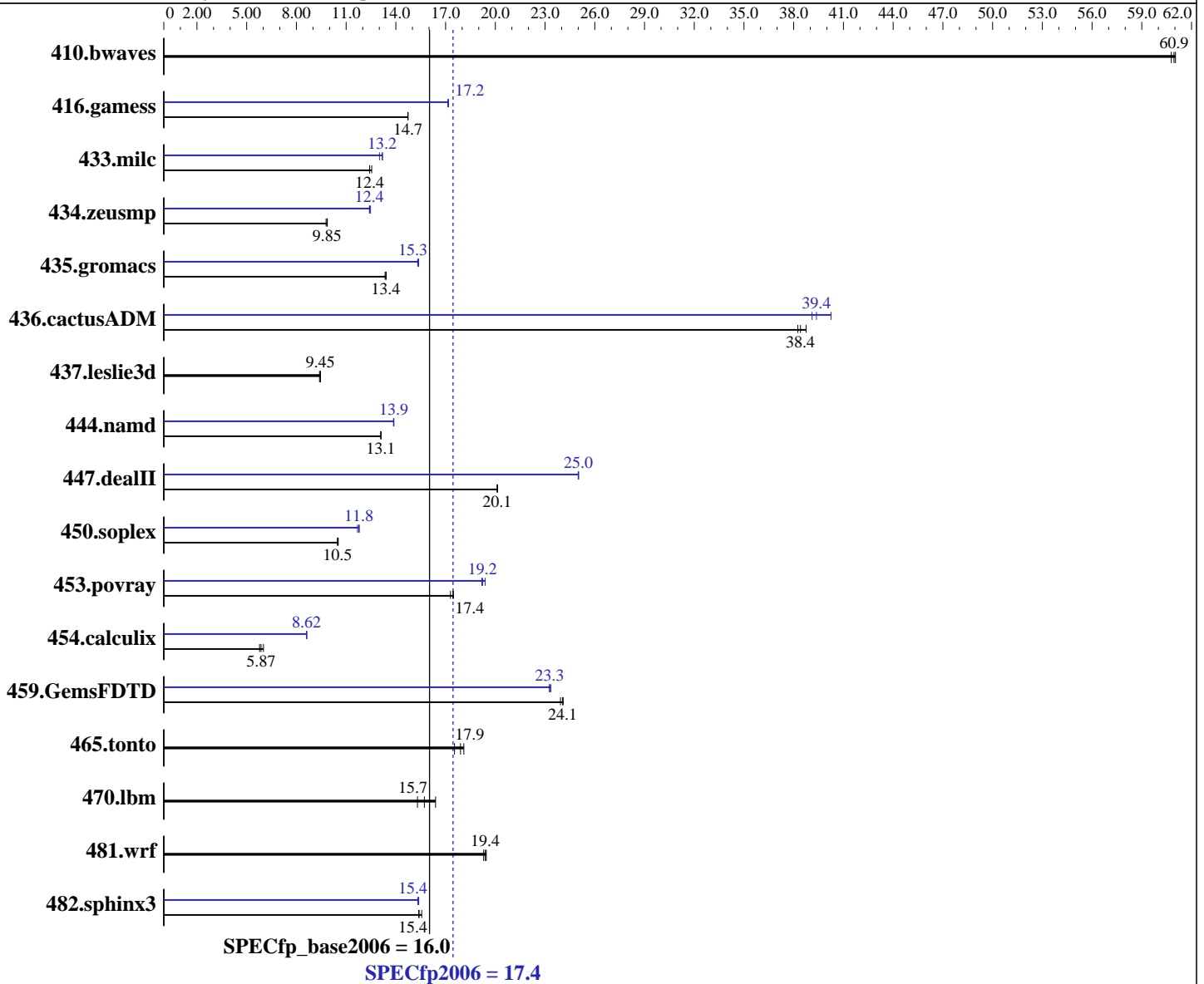
Test date: Jul-2007

Test sponsor: Fujitsu Siemens Computers

Hardware Availability: Jul-2007

Tested by: Fujitsu Siemens Computers

Software Availability: Mar-2007



#### 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: 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: 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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	223	61.0	<b>223</b>	<b>60.9</b>	224	60.8	223	61.0	<b>223</b>	<b>60.9</b>	224	60.8
416.gamess	1330	14.7	<b>1330</b>	<b>14.7</b>	1328	14.7	<b>1142</b>	<b>17.2</b>	1140	17.2	1143	17.1
433.milc	<b>739</b>	<b>12.4</b>	739	12.4	732	12.5	706	13.0	<b>697</b>	<b>13.2</b>	696	13.2
434.zeusmp	922	9.87	<b>924</b>	<b>9.85</b>	930	9.79	730	12.5	<b>733</b>	<b>12.4</b>	734	12.4
435.gromacs	535	13.3	532	13.4	<b>533</b>	<b>13.4</b>	466	15.3	<b>465</b>	<b>15.3</b>	464	15.4
436.cactusADM	312	38.2	308	38.7	<b>311</b>	<b>38.4</b>	297	40.3	<b>304</b>	<b>39.4</b>	306	39.1
437.leslie3d	1001	9.39	995	9.45	<b>995</b>	<b>9.45</b>	1001	9.39	995	9.45	<b>995</b>	<b>9.45</b>
444.namd	612	13.1	613	13.1	<b>612</b>	<b>13.1</b>	<b>578</b>	<b>13.9</b>	579	13.9	578	13.9
447.dealII	<b>569</b>	<b>20.1</b>	568	20.1	569	20.1	457	25.0	<b>457</b>	<b>25.0</b>	458	25.0
450.soplex	<b>795</b>	<b>10.5</b>	792	10.5	796	10.5	<b>709</b>	<b>11.8</b>	714	11.7	707	11.8
453.povray	304	17.5	308	17.3	<b>305</b>	<b>17.4</b>	<b>277</b>	<b>19.2</b>	277	19.2	274	19.4
454.calculix	1428	5.78	1372	6.01	<b>1406</b>	<b>5.87</b>	957	8.62	<b>957</b>	<b>8.62</b>	957	8.62
459.GemsFDTD	440	24.1	<b>441</b>	<b>24.1</b>	443	23.9	454	23.4	456	23.3	<b>456</b>	<b>23.3</b>
465.tonto	544	18.1	<b>550</b>	<b>17.9</b>	561	17.5	544	18.1	<b>550</b>	<b>17.9</b>	561	17.5
470.lbm	838	16.4	<b>874</b>	<b>15.7</b>	898	15.3	838	16.4	<b>874</b>	<b>15.7</b>	898	15.3
481.wrf	<b>576</b>	<b>19.4</b>	579	19.3	574	19.5	<b>576</b>	<b>19.4</b>	579	19.3	574	19.5
482.sphinx3	<b>1265</b>	<b>15.4</b>	1253	15.6	1268	15.4	1267	15.4	<b>1268</b>	<b>15.4</b>	1272	15.3

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

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## 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

Fortran benchmarks:  
-Ofast -apo -OPT:malloc\_alg=1

Benchmarks using both Fortran and C:  
-Ofast -apo -OPT:malloc\_alg=1



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## 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  
 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



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## 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 -apo  
-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 -apo -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  
-apo -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  
-apo -fno-fast-math

### Fortran benchmarks:

410.bwaves: basepeak = yes

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

437.leslie3d: basepeak = yes

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

465.tonto: basepeak = yes

### Benchmarks using both Fortran and C:

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

436.cactusADM: -fb\_create fbdata(pass 1) -fb\_opt fbdata(pass 2) -O3 -apo  
-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

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## Peak Optimization Flags (Continued)

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](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](http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.28.xml)

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Tested with SPEC CPU2006 v1.0.  
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