# SPEC® CFP2006 Result



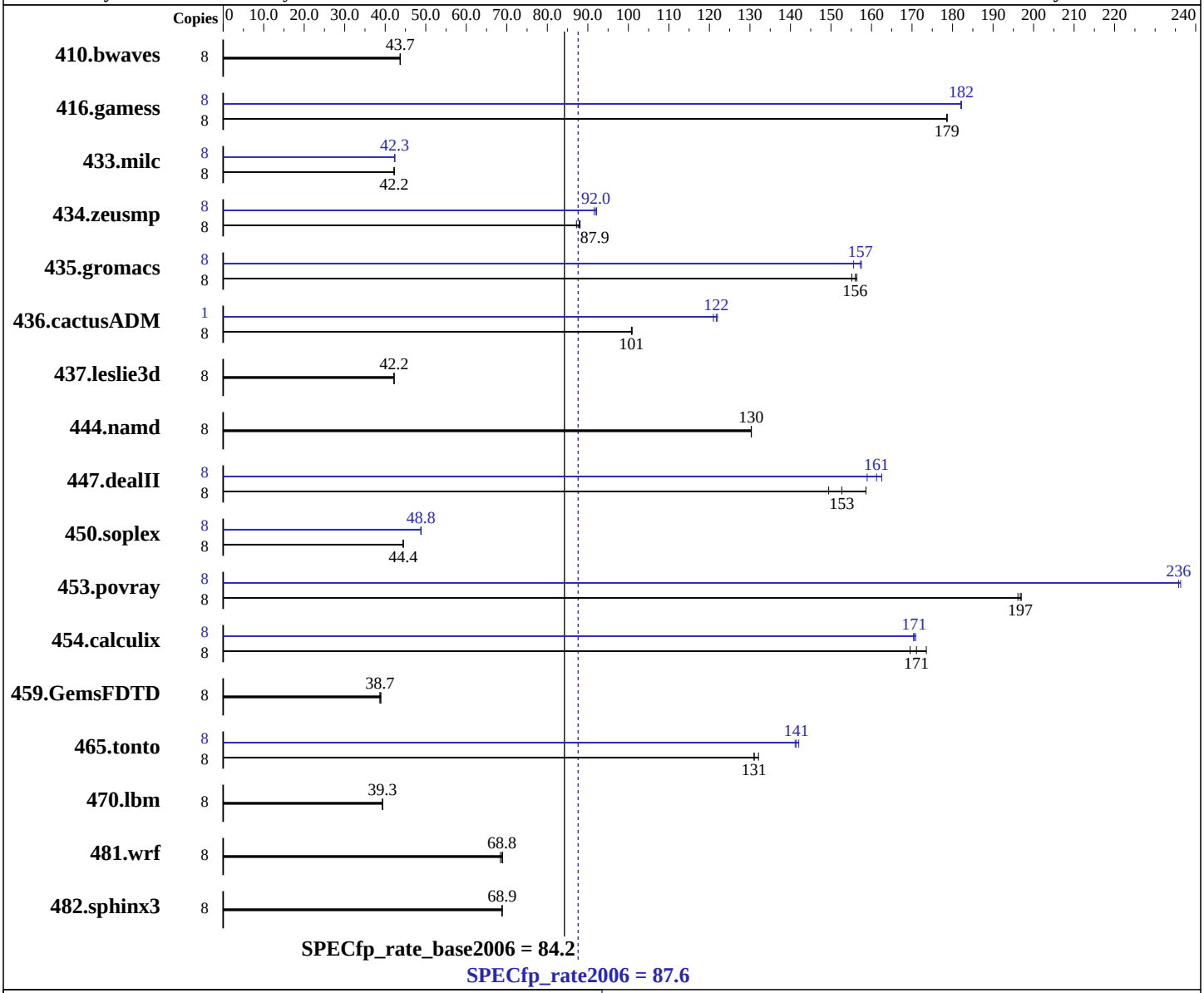
## Sun Microsystems
## Sun Fire X2250

SPECfp®_rate2006 = 87.6

SPECfp_rate_base2006 = 84.2

**CPU2006 license:** 6
**Test sponsor:** Sun Microsystems
**Tested by:** Sun Microsystems

**Test date:** Aug-2008
**Hardware Availability:** Aug-2008
**Software Availability:** Nov-2008




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X5472 |
| CPU Characteristics: | |
| CPU MHz: | 3000 |
| FPU: | Integrated |
| CPU(s) enabled: | 8 cores, 2 chips, 4 cores/chip |
| CPU(s) orderable: | 1, 2 chips |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 12 MB I+D on chip per chip, 6 MB shared / 2 cores |

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### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp |
| Compiler: | Intel C++ and Fortran Compiler 11.0 for Linux Build 20080730 Package ID: l_cproc_b_11.0.042, l_fproc_b_11.0.042 |
| Auto Parallel: | Yes |
| File System: | ReiserFS |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 64-bit |

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L3 Cache: None
Other Cache: None
Memory: 32 GB (8 x 4 GB Dual-rank PC2-6400 CL5-5-5 FB-DIMMs)
Disk Subsystem: 500 GB SATA, 7200 RPM
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 8 | 2490 | 43.7 | **2488** | **43.7** | 2486 | 43.7 | 8 | 2490 | 43.7 | **2488** | **43.7** | 2486 | 43.7 |
| 416.gamess | 8 | **877** | **179** | 877 | 179 | 877 | 179 | 8 | 861 | 182 | 860 | 182 | **860** | **182** |
| 433.milc | 8 | **1740** | **42.2** | 1739 | 42.2 | 1741 | 42.2 | 8 | **1734** | **42.3** | 1734 | 42.4 | 1735 | 42.3 |
| 434.zeusmp | 8 | 826 | 88.1 | 835 | 87.2 | **828** | **87.9** | 8 | 795 | 91.5 | **791** | **92.0** | 790 | 92.2 |
| 435.gromacs | 8 | 365 | 156 | 368 | 155 | **366** | **156** | 8 | 363 | 158 | **363** | **157** | 367 | 156 |
| 436.cactusADM | 8 | **949** | **101** | 947 | 101 | 949 | 101 | 1 | 98.0 | 122 | 98.8 | 121 | **98.2** | **122** |
| 437.leslie3d | 8 | 1781 | 42.2 | 1784 | 42.2 | **1784** | **42.2** | 8 | 1781 | 42.2 | 1784 | 42.2 | **1784** | **42.2** |
| 444.namd | 8 | 492 | 130 | 492 | 130 | **492** | **130** | 8 | 492 | 130 | 492 | 130 | **492** | **130** |
| 447.dealII | 8 | 577 | 159 | 612 | 149 | **599** | **153** | 8 | 563 | 163 | **568** | **161** | 576 | 159 |
| 450.soplex | 8 | **1501** | **44.4** | 1501 | 44.5 | 1502 | 44.4 | 8 | 1368 | 48.8 | **1367** | **48.8** | 1365 | 48.9 |
| 453.povray | 8 | 217 | 196 | **216** | **197** | 216 | 197 | 8 | **180** | **236** | 181 | 236 | 180 | 236 |
| 454.calculix | 8 | **386** | **171** | 389 | 170 | 380 | 174 | 8 | 386 | 171 | 387 | 170 | **387** | **171** |
| 459.GemsFDTD | 8 | **2192** | **38.7** | 2194 | 38.7 | 2180 | 38.9 | 8 | **2192** | **38.7** | 2194 | 38.7 | 2180 | 38.9 |
| 465.tonto | 8 | 601 | 131 | 596 | 132 | **601** | **131** | 8 | 554 | 142 | **557** | **141** | 558 | 141 |
| 470.lbm | 8 | 2798 | 39.3 | **2797** | **39.3** | 2796 | 39.3 | 8 | 2798 | 39.3 | **2797** | **39.3** | 2796 | 39.3 |
| 481.wrf | 8 | **1299** | **68.8** | 1296 | 68.9 | 1306 | 68.4 | 8 | **1299** | **68.8** | 1296 | 68.9 | 1306 | 68.4 |
| 482.sphinx3 | 8 | 2264 | 68.9 | 2267 | 68.8 | **2264** | **68.9** | 8 | 2264 | 68.9 | 2267 | 68.8 | **2264** | **68.9** |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

```
The config file option 'submit' was used.  The command
taskset was used to bind processes to cores except
for 436.cactusADM peak.
```

## Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited.
```

## Platform Notes

```
Default BIOS configuration used (includes this settings):
Hardware Prefetch : Enabled; Adjacent Sector Prefetch : Disabled
```

## General Notes

```
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 64M
```

## Base Compiler Invocation

C benchmarks:
`icc`

C++ benchmarks:
`icpc`

Fortran benchmarks:
`ifort`

Benchmarks using both Fortran and C:
`icc ifort`

## 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 -nofor_main`
436.cactusADM: `-DSPEC_CPU_LP64 -nofor_main`
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 -nofor_main`
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:
`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

C++ benchmarks:
`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

Fortran benchmarks:
`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

Benchmarks using both Fortran and C:
`-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch`

## Peak Compiler Invocation

C benchmarks:
`icc`

C++ benchmarks (except as noted below):
`icpc`

450.soplex: `/opt/intel/Compiler/11.0/042/bin/ia32/icpc -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib -I/opt/intel/Compiler/11.0/042/ipp/ia32/include`

Fortran benchmarks:
`ifort`

Benchmarks using both Fortran and C:
`icc ifort`

## 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 -nofor_main`
436.cactusADM: `-DSPEC_CPU_LP64 -nofor_main`
437.leslie3d: `-DSPEC_CPU_LP64`
444.namd: `-DSPEC_CPU_LP64`
447.dealII: `-DSPEC_CPU_LP64`
453.povray: `-DSPEC_CPU_LP64`
454.calculix: `-DSPEC_CPU_LP64 -nofor_main`
459.GemsFDTD: `-DSPEC_CPU_LP64`
465.tonto: `-DSPEC_CPU_LP64`

Continued on next page

## Peak Portability Flags (Continued)

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: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -fno-alias

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: basepeak = yes

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll2 -ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll2 -Ob0 -ansi-alias
-scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll4 -auto

Benchmarks using both Fortran and C:

Continued on next page

## Peak Optimization Flags (Continued)

435.gromacs: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-ilp32`

436.cactusADM: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -opt-prefetch -parallel -auto-ilp32`

454.calculix: `-xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32`

481.wrf: `basepeak = yes`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.13.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.13.xml`



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

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