# SPEC® CFP2006 Result



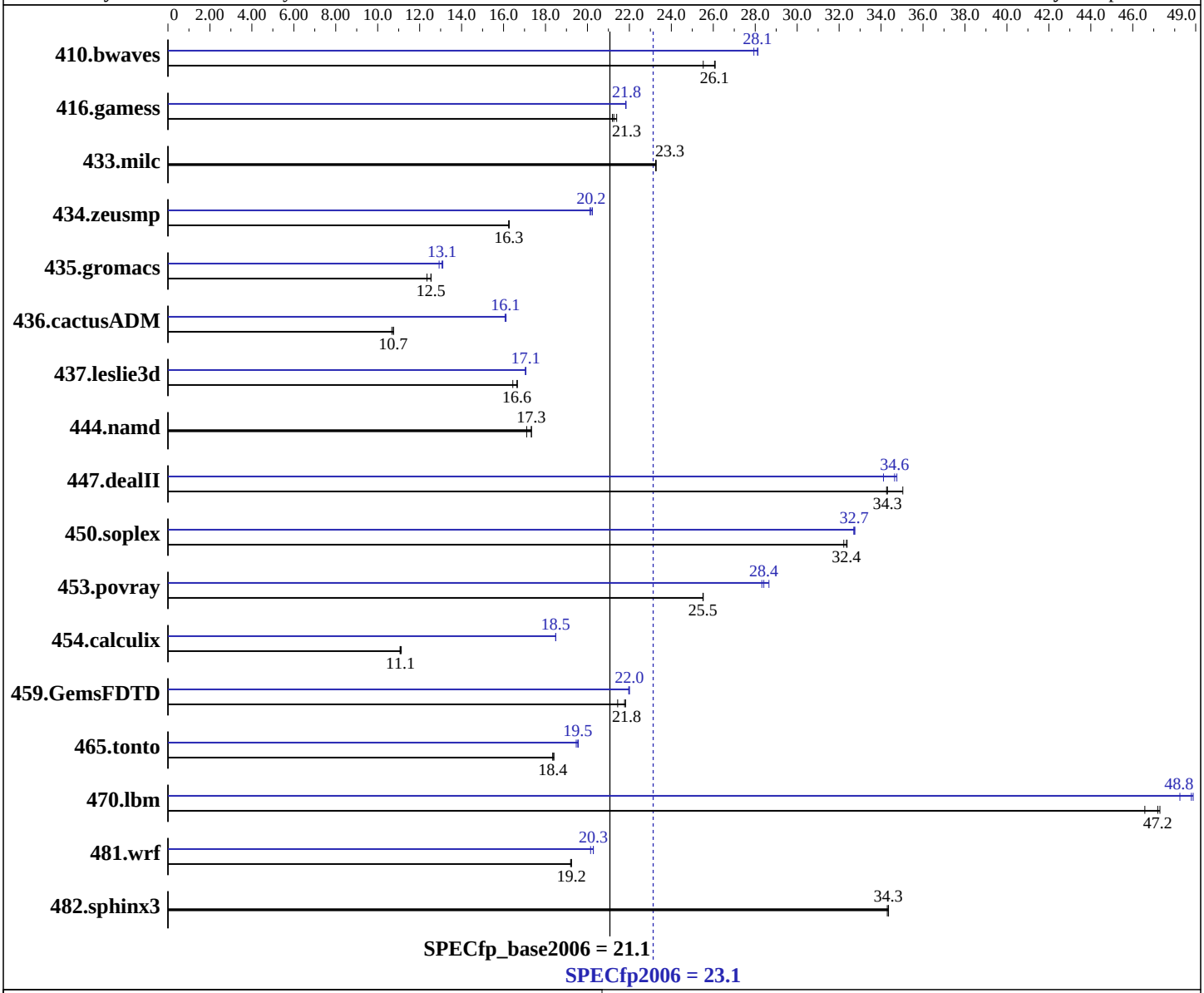
## Sun Microsystems
## Sun Blade X6270 (GCC 4.4.0)

SPECfp®2006 = 23.1

SPECfp_base2006 = 21.1

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

**Test date:** May-2009
**Hardware Availability:** Apr-2009
**Software Availability:** Apr-2009




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X5570 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.33 GHz |
| CPU MHz: | 2933 |
| FPU: | Integrated |
| CPU(s) enabled: | 8 cores, 2 chips, 4 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1 or 2 chips |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 256 KB I+D on chip per core |

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### Software

| | |
|---|---|
| Operating System: | SUSE Linux Enterprise Server 11.0 (x86_64)<br>Kernel 2.6.27.19-5-default |
| Compiler: | GCC 4.4.0 |
| Auto Parallel: | No |
| File System: | ext3 |
| System State: | Run level 5 (multi-user with display manager) |
| Base Pointers: | 64-bit |
| Peak Pointers: | 64-bit |

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 24 GB (6 x 4 GB DDR3-1333)
Disk Subsystem: 1 x 146 GB Sun 10,000 RPM SAS
Other Hardware: None

Other Software: gmp-4.3.1 and mpfr-2.4.1
Large pages were obtained with libhugetlbfs-2.3

## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 521 | 26.1 | **521** | **26.1** | 532 | 25.5 | 486 | 27.9 | 483 | 28.1 | **484** | **28.1** |
| 416.gamess | **921** | **21.3** | 915 | 21.4 | 924 | 21.2 | **897** | **21.8** | 897 | 21.8 | 897 | 21.8 |
| 433.milc | **395** | **23.3** | 395 | 23.3 | 394 | 23.3 | **395** | **23.3** | 395 | 23.3 | 394 | 23.3 |
| 434.zeusmp | 559 | 16.3 | 560 | 16.2 | **560** | **16.3** | 450 | 20.2 | 452 | 20.1 | **451** | **20.2** |
| 435.gromacs | 578 | 12.4 | 569 | 12.5 | **569** | **12.5** | **546** | **13.1** | 552 | 12.9 | 545 | 13.1 |
| 436.cactusADM | 1120 | 10.7 | **1112** | **10.7** | 1111 | 10.8 | 741 | 16.1 | **742** | **16.1** | 743 | 16.1 |
| 437.leslie3d | **565** | **16.6** | 564 | 16.7 | 572 | 16.4 | 551 | 17.1 | **551** | **17.1** | 552 | 17.0 |
| 444.namd | 463 | 17.3 | **463** | **17.3** | 469 | 17.1 | 463 | 17.3 | **463** | **17.3** | 469 | 17.1 |
| 447.dealII | 327 | 35.0 | **333** | **34.3** | 334 | 34.3 | **330** | **34.6** | 329 | 34.8 | 335 | 34.1 |
| 450.soplex | 259 | 32.2 | 258 | 32.4 | **258** | **32.4** | 255 | 32.8 | 255 | 32.7 | **255** | **32.7** |
| 453.povray | 208 | 25.5 | 209 | 25.5 | **209** | **25.5** | **187** | **28.4** | 186 | 28.7 | 188 | 28.3 |
| 454.calculix | 746 | 11.1 | 742 | 11.1 | **744** | **11.1** | 446 | 18.5 | **446** | **18.5** | 446 | 18.5 |
| 459.GemsFDTD | 486 | 21.8 | 495 | 21.4 | **487** | **21.8** | 483 | 22.0 | 482 | 22.0 | **482** | **22.0** |
| 465.tonto | **536** | **18.4** | 535 | 18.4 | 536 | 18.3 | 503 | 19.6 | 506 | 19.5 | **504** | **19.5** |
| 470.lbm | **291** | **47.2** | 291 | 47.3 | 295 | 46.6 | 285 | 48.2 | **282** | **48.8** | 281 | 48.9 |
| 481.wrf | 581 | 19.2 | 582 | 19.2 | **581** | **19.2** | 554 | 20.2 | 551 | 20.3 | **551** | **20.3** |
| 482.sphinx3 | **567** | **34.3** | 568 | 34.3 | 567 | 34.4 | **567** | **34.3** | 568 | 34.3 | 567 | 34.4 |

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, along with 'numactl', to
run each benchmark on a specific core.
```

## Operating System Notes

```
Default ulimit settings were used.

2 GB of swap was enabled on local disk.

512 large (2 MB) pages were allocated using:
     sysctl vm.nr_hugepages=512
     HUGETLB_MORECORE=yes
     export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
For more information on tuning paramaters, please
```

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## Operating System Notes (Continued)

see the "Platform settings" section of the flags file.

## Platform Notes

```
AMIBIOS Build Date 1/26/09 ID 07.01.36.00
  Default BIOS settings used except:
  Intel VT-d: Disabled.  VT-d, if enabled, supports
  remapping of I/O DMA transfers for virtualization.
```

## Base Compiler Invocation

C benchmarks:
gcc

C++ benchmarks:
g++

Fortran benchmarks:
gfortran

Benchmarks using both Fortran and C:
gcc gfortran

## 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
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_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

## Base Optimization Flags

C benchmarks:
```
-O3 -m64 -mtune=core2 -msse4.2 -march=core2 -fprefetch-loop-arrays
-funroll-all-loops -Wl,-z common-page-size=2M
```

C++ benchmarks:
```
-O3 -m64 -mtune=core2 -msse4.2 -march=core2 -fprefetch-loop-arrays
-funroll-all-loops -ffast-math -Wl,-z common-page-size=2M
```

Fortran benchmarks:
```
-O3 -m64 -mtune=core2 -msse4.2 -march=core2 -fprefetch-loop-arrays
-funroll-all-loops -Wl,-z common-page-size=2M
```

Benchmarks using both Fortran and C:
```
-O3 -m64 -mtune=core2 -msse4.2 -march=core2 -fprefetch-loop-arrays
-funroll-all-loops -Wl,-z common-page-size=2M
```

## Base Other Flags

C benchmarks:
```
-Wall
```

C++ benchmarks:
```
-Wall
```

Fortran benchmarks:
```
-Wall
```

Benchmarks using both Fortran and C:
```
-Wall
```

## Peak Compiler Invocation

C benchmarks:
```
gcc
```

C++ benchmarks:
```
g++
```

Fortran benchmarks:
```
gfortran
```

Benchmarks using both Fortran and C:
```
gcc gfortran
```

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: -fprofile-generate(pass 1) -fprofile-use(pass 2) -O3 -m64
-mtune=core2 -msse4.2 -march=core2 -fprefetch-loop-arrays
-funroll-all-loops -ffast-math -Wl,-z common-page-size=2M

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: basepeak = yes

447.dealII: -fprofile-generate(pass 1) -fprofile-use(pass 2) -O3 -m64
-mtune=core2 -msse4.2 -march=core2 -fprefetch-loop-arrays
-funroll-all-loops -ffast-math -Wl,-z common-page-size=2M

450.soplex: Same as 447.dealII

453.povray: Same as 447.dealII

Fortran benchmarks:
-fprofile-generate(pass 1) -fprofile-use(pass 2) -O3 -m64
-mtune=core2 -msse4.2 -march=core2 -fprefetch-loop-arrays
-funroll-all-loops -ffast-math -Wl,-z common-page-size=2M

Benchmarks using both Fortran and C:
-fprofile-generate(pass 1) -fprofile-use(pass 2) -O3 -m64
-mtune=core2 -msse4.2 -march=core2 -fprefetch-loop-arrays
-funroll-all-loops -ffast-math -Wl,-z common-page-size=2M

## Peak Other Flags

C benchmarks:
-Wall

C++ benchmarks:
-Wall

Fortran benchmarks:
-Wall

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## Peak Other Flags (Continued)

Benchmarks using both Fortran and C:
`-Wall`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/GCC-4.4.0.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/GCC-4.4.0.xml`



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

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