# SPEC® CFP2006 Result



## NTT System S. A.

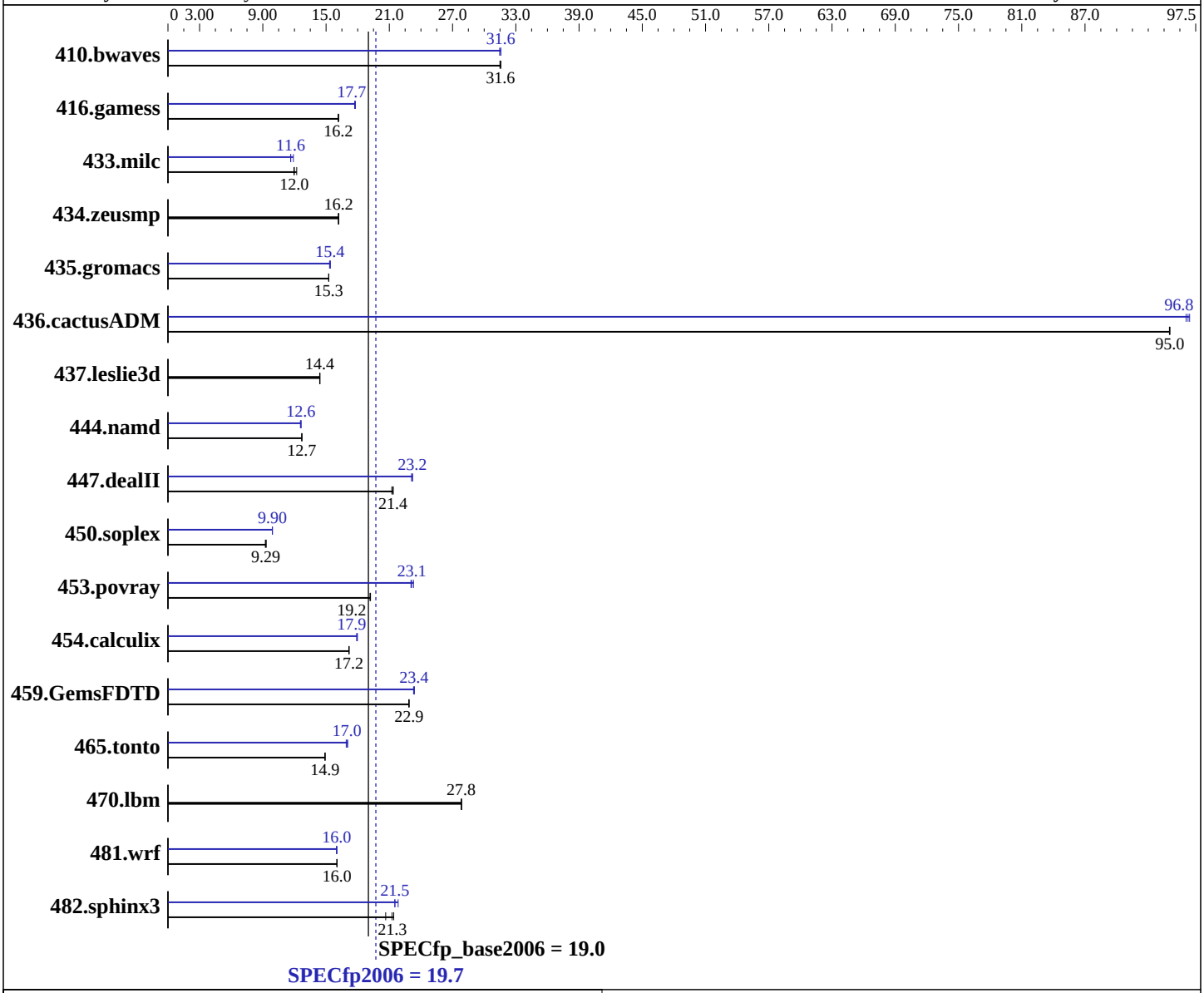
## NTT Tytan 2206I (Intel Xeon E5410)

SPECfp®2006 = 19.7

SPECfp_base2006 = 19.0

**CPU2006 license:** 9013
**Test sponsor:** NTT System S. A.
**Tested by:** NTT System S. A.

**Test date:** Jan-2009
**Hardware Availability:** Dec-2008
**Software Availability:** Dec-2008




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5410 |
| CPU Characteristics: | 2.33 GHz, 2x6 MB P2 shared, 1333 MHz System Bus |
| CPU MHz: | 2333 |
| 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 SP2, Kernel 2.6.16.60-0.21-smp |
| Compiler: | Intel C++ and Fortran Compiler 11.0 for Linux Build 20080930 Package ID: l_cproc_p_11.0.066, l_cprof_p_11.0.066 |
| 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: 16 GB (4 x 4GB DDR2-667 FBDIMM)
Disk Subsystem: 147 GB SAS, 1000RPM
Other Hardware: None

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

## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 430 | 31.6 | **431** | **31.6** | 432 | 31.5 | 430 | 31.6 | **431** | **31.6** | 432 | 31.5 |
| 416.gamess | **1210** | **16.2** | 1210 | 16.2 | 1212 | 16.1 | 1101 | 17.8 | **1103** | **17.7** | 1106 | 17.7 |
| 433.milc | **766** | **12.0** | 768 | 12.0 | 752 | 12.2 | 788 | 11.6 | 771 | 11.9 | **788** | **11.6** |
| 434.zeusmp | 563 | 16.2 | **562** | **16.2** | 562 | 16.2 | 563 | 16.2 | **562** | **16.2** | 562 | 16.2 |
| 435.gromacs | 468 | 15.3 | **468** | **15.3** | 468 | 15.2 | 463 | 15.4 | 466 | 15.3 | **464** | **15.4** |
| 436.cactusADM | 126 | 95.0 | 126 | 95.0 | **126** | **95.0** | 123 | 96.9 | 124 | 96.6 | **123** | **96.8** |
| 437.leslie3d | 652 | 14.4 | **652** | **14.4** | 653 | 14.4 | 652 | 14.4 | **652** | **14.4** | 653 | 14.4 |
| 444.namd | 631 | 12.7 | 632 | 12.7 | **631** | **12.7** | **636** | **12.6** | 635 | 12.6 | 638 | 12.6 |
| 447.dealII | 536 | 21.4 | **536** | **21.4** | 539 | 21.2 | 493 | 23.2 | 495 | 23.1 | **493** | **23.2** |
| 450.soplex | 895 | 9.32 | 903 | 9.24 | **898** | **9.29** | 841 | 9.92 | **842** | **9.90** | 842 | 9.90 |
| 453.povray | **277** | **19.2** | 277 | 19.2 | 277 | 19.2 | 228 | 23.3 | 231 | 23.1 | **230** | **23.1** |
| 454.calculix | 481 | 17.2 | 480 | 17.2 | **480** | **17.2** | 461 | 17.9 | 459 | 18.0 | **460** | **17.9** |
| 459.GemsFDTD | 464 | 22.8 | **464** | **22.9** | 464 | 22.9 | **454** | **23.4** | 455 | 23.3 | 454 | 23.4 |
| 465.tonto | **661** | **14.9** | 660 | 14.9 | 661 | 14.9 | 577 | 17.1 | 582 | 16.9 | **579** | **17.0** |
| 470.lbm | 494 | 27.8 | **494** | **27.8** | 493 | 27.9 | 494 | 27.8 | **494** | **27.8** | 493 | 27.9 |
| 481.wrf | **697** | **16.0** | 696 | 16.1 | 697 | 16.0 | 697 | 16.0 | **698** | **16.0** | 699 | 16.0 |
| 482.sphinx3 | 910 | 21.4 | **917** | **21.3** | 944 | 20.7 | **905** | **21.5** | 905 | 21.5 | 893 | 21.8 |

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

## Operating System Notes

```
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 200M
```

## Base Compiler Invocation

C benchmarks:
`icc`

C++ benchmarks:
`icpc`

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## Base Compiler Invocation (Continued)

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 -parallel -opt-prefetch

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

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

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

## Peak Compiler Invocation

C benchmarks:
icc

Continued on next page

## Peak Compiler Invocation (Continued)

C++ benchmarks:
icpc

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
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

## 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: -m32 -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -fno-alias -auto-ilp32

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

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## Peak Optimization Flags (Continued)

450.soplex: `-m32 -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: `-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch -parallel`

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: `basepeak = yes`

437.leslie3d: `basepeak = yes`

459.GemsFDTD: `-prof-gen`(pass 1) `-prof-use`(pass 2) `-xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -Ob0 -opt-prefetch -parallel`

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:

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: `-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch -parallel -auto-ilp32`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090710.06.html
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090710.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090710.06.xml
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090710.xml

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

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