# SPEC® CFP2006 Result

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## Bull SAS

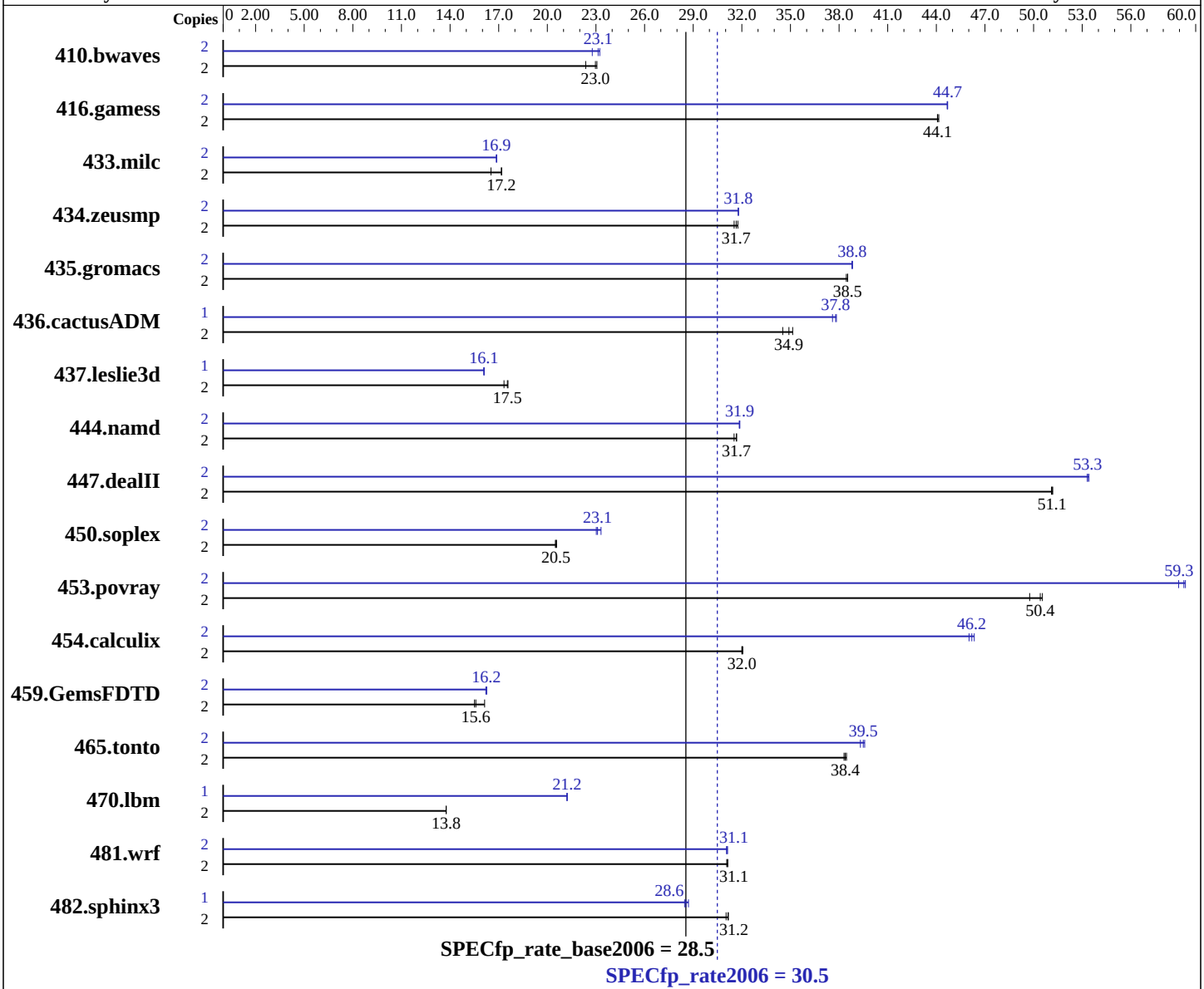
NovaScale B240
(Intel Xeon E3113, 3.00 GHz)

SPECfp®_rate2006 = 30.5

SPECfp_rate_base2006 = 28.5

**CPU2006 license:** 20
**Test sponsor:** Bull SAS
**Tested by:** Bull SAS

**Test date:** Oct-2008
**Hardware Availability:** Jun-2008
**Software Availability:** Nov-2007




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E3113 |
| CPU Characteristics: | 1333 MHz system bus |
| CPU MHz: | 3000 |
| FPU: | Integrated |
| CPU(s) enabled: | 2 cores, 1 chip, 2 cores/chip |
| CPU(s) orderable: | 1 chip |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 6 MB I+D on chip per chip |

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### Software

| | |
|---|---|
| Operating System: | SUSE LINUX Enterprise Server 10 (x86_64) SP1<br>Kernel 2.6.16.46-0.12-smp |
| Compiler: | Intel C++ and Fortran Compiler 10.1 for Linux<br>Build 20070913 Package ID: l_cc_p_10.1.008,<br>l_fc_p_10.1.008 |
| 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: 8 GB (4x2 GB) FB-DIMM PC2-5300F ECC CL5
Disk Subsystem: 1x73 GB SAS, 15000 RPM
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.17.50.0.15

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 2 | 1215 | 22.4 | **1183** | **23.0** | 1179 | 23.1 | 2 | **1175** | **23.1** | 1194 | 22.8 | 1170 | 23.2 |
| 416.gamess | 2 | 889 | 44.1 | 887 | 44.2 | **888** | **44.1** | 2 | 877 | 44.7 | **876** | **44.7** | 876 | 44.7 |
| 433.milc | 2 | 1111 | 16.5 | **1070** | **17.2** | 1068 | 17.2 | 2 | 1088 | 16.9 | 1089 | 16.9 | **1089** | **16.9** |
| 434.zeusmp | 2 | 577 | 31.5 | **575** | **31.7** | 573 | 31.8 | 2 | **573** | **31.8** | 573 | 31.8 | 573 | 31.8 |
| 435.gromacs | 2 | **371** | **38.5** | 371 | 38.4 | 371 | 38.5 | 2 | 368 | 38.8 | **368** | **38.8** | 368 | 38.8 |
| 436.cactusADM | 2 | 692 | 34.5 | **685** | **34.9** | 680 | 35.1 | 1 | 318 | 37.6 | **316** | **37.8** | 316 | 37.8 |
| 437.leslie3d | 2 | 1085 | 17.3 | **1072** | **17.5** | 1070 | 17.6 | 1 | 584 | 16.1 | **584** | **16.1** | 585 | 16.1 |
| 444.namd | 2 | 506 | 31.7 | 509 | 31.5 | **506** | **31.7** | 2 | 503 | 31.9 | 504 | 31.8 | **503** | **31.9** |
| 447.dealII | 2 | 448 | 51.1 | **447** | **51.1** | 447 | 51.2 | 2 | 428 | 53.4 | **429** | **53.3** | 429 | 53.3 |
| 450.soplex | 2 | 811 | 20.6 | 814 | 20.5 | **812** | **20.5** | 2 | 725 | 23.0 | **722** | **23.1** | 715 | 23.3 |
| 453.povray | 2 | 214 | 49.8 | 211 | 50.5 | **211** | **50.4** | 2 | 180 | 58.9 | **180** | **59.3** | 179 | 59.4 |
| 454.calculix | 2 | 515 | 32.1 | **515** | **32.0** | 516 | 32.0 | 2 | 356 | 46.3 | **357** | **46.2** | 359 | 46.0 |
| 459.GemsFDTD | 2 | 1369 | 15.5 | **1361** | **15.6** | 1315 | 16.1 | 2 | 1305 | 16.3 | **1306** | **16.2** | 1309 | 16.2 |
| 465.tonto | 2 | 514 | 38.3 | 512 | 38.5 | **513** | **38.4** | 2 | 501 | 39.3 | 497 | 39.6 | **498** | **39.5** |
| 470.lbm | 2 | 1996 | 13.8 | 1998 | 13.8 | **1998** | **13.8** | 1 | **648** | **21.2** | 647 | 21.2 | 648 | 21.2 |
| 481.wrf | 2 | 719 | 31.1 | **718** | **31.1** | 718 | 31.1 | 2 | 718 | 31.1 | **719** | **31.1** | 719 | 31.1 |
| 482.sphinx3 | 2 | 1256 | 31.0 | **1251** | **31.2** | 1251 | 31.2 | 1 | **682** | **28.6** | 685 | 28.5 | 679 | 28.7 |

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.
 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 prior to run
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to physical,0
KMP_STACKSIZE set to 64M
```

## Platform Notes

```
BIOS Settings:
Hardware Prefetcher = Enabled
Adjacent Cache Line Prefetch = Enabled
```

## 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:
-fast

C++ benchmarks:
-fast

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## Base Optimization Flags (Continued)

Fortran benchmarks:
`-fast`

Benchmarks using both Fortran and C:
`-fast`

## Peak Compiler Invocation

C benchmarks (except as noted below):
`/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib -I/opt/intel/cc/10.1.008/include`

433.milc: `icc`

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

450.soplex: `/opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib -I/opt/intel/cc/10.1.008/include`

Fortran benchmarks (except as noted below):
`ifort`

437.leslie3d: `/opt/intel/fc/10.1.008/bin/ifort -L/opt/intel/fc/10.1.008/lib -I/opt/intel/fc/10.1.008/include`

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`
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`
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) -fast -fno-alias -auto-ilp32

470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -scalar-rep- -prefetch -opt-malloc-options=3

482.sphinx3: -fast -unroll2

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias -auto-ilp32

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast -opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -fast -prefetch

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch -opt-malloc-options=3

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -prefetch

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch -auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -prefetch -parallel -auto-ilp32

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# Peak Optimization Flags (Continued)

454.calculix: `-fast -unroll-aggressive -auto-ilp32`

481.wrf: `-fast -auto-ilp32`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/EM64T_Intel101_fp_flags.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/EM64T_Intel101_fp_flags.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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