# SPEC® CFP2006 Result



## Bull SAS

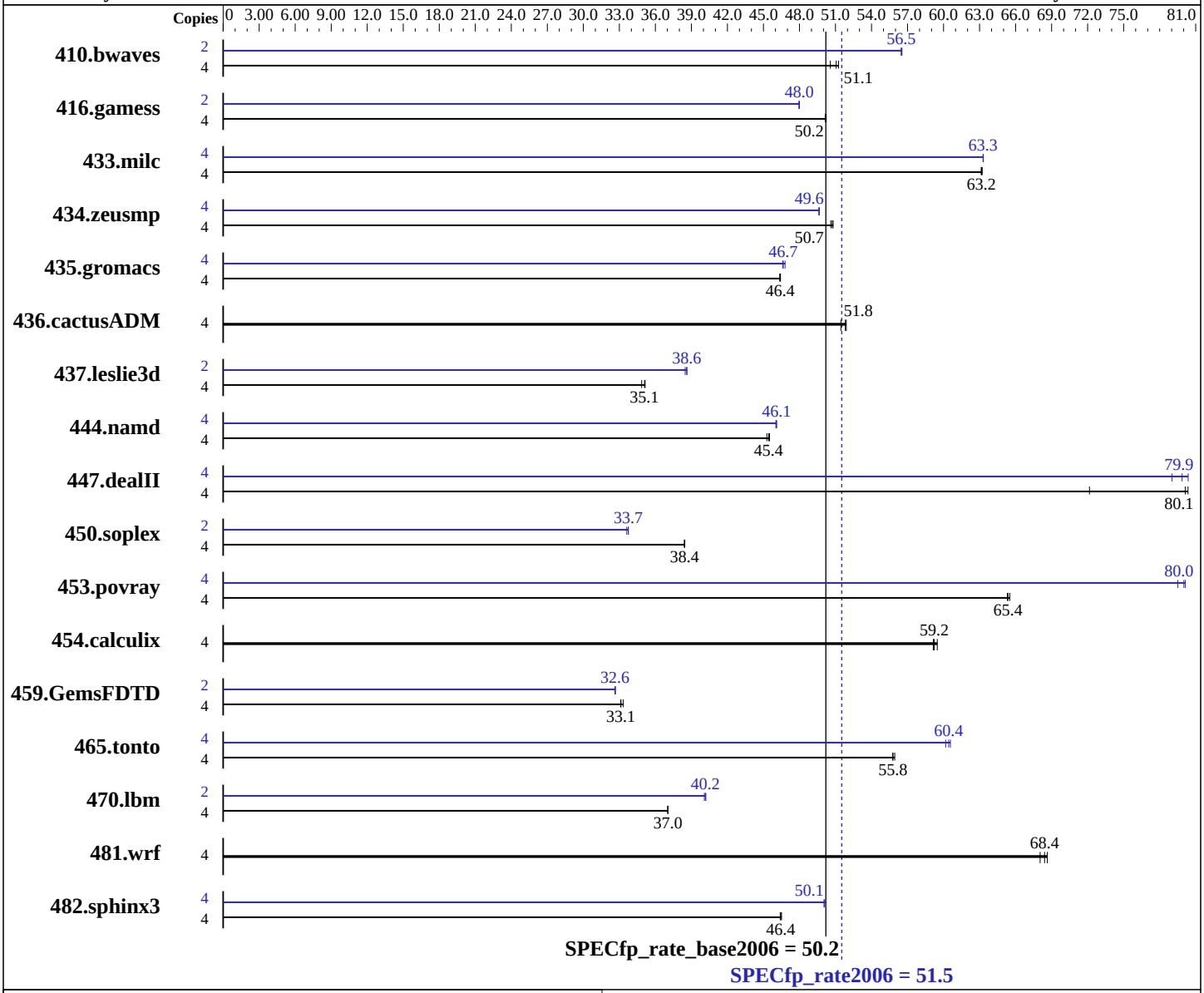
NovaScale R410 F2 (Intel Core i3-540, 3.06 GHz)

SPECfp®_rate2006 = 51.5

SPECfp_rate_base2006 = 50.2

**CPU2006 license:** 20
**Test sponsor:** Bull SAS
**Tested by:** Dell Inc.

**Test date:** Dec-2009
**Hardware Availability:** Jan-2010
**Software Availability:** Dec-2009




## Hardware

| | |
|---|---|
| CPU Name: | Intel Core i3-540 |
| CPU Characteristics: | |
| CPU MHz: | 3067 |
| FPU: | Integrated |
| CPU(s) enabled: | 2 cores, 1 chip, 2 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1 chip |
| 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: | Red Hat Enterprise Linux Server release 5.3, Kernel 2.6.18-128.el5 |
| Compiler: | Intel Fortran Compiler and Intel C++ Compiler Professional Edition 11.1 For Linux Build 20091012 Package ID: l_cproc_p_11.1.059, l_cprof_p_11.1.059 |
| Auto Parallel: | No |
| File System: | ReiserFS |
| System State: | Run level 3 (multi-user) |

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**Software Availability:** Dec-2009

| | |
|---|---|
| L3 Cache: | 4 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 8 GB (4 x 2 GB DDR3-1333 DR UDIMM) |
| Disk Subsystem: | 1 x 160 GB 7200 RPM SATA |
| Other Hardware: | None |

| | |
|---|---|
| Base Pointers: | 64-bit |
| 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 | 4 | 1075 | 50.6 | 1061 | 51.3 | **1065** | **51.1** | 2 | 481 | 56.5 | **481** | **56.5** | 481 | 56.5 |
| 416.gamess | 4 | 1562 | 50.1 | **1561** | **50.2** | 1559 | 50.2 | 2 | **816** | **48.0** | 816 | 48.0 | 816 | 48.0 |
| 433.milc | 4 | 582 | 63.1 | **581** | **63.2** | 581 | 63.2 | 4 | **580** | **63.3** | 580 | 63.3 | 580 | 63.3 |
| 434.zeusmp | 4 | 716 | 50.8 | 719 | 50.6 | **718** | **50.7** | 4 | 733 | 49.6 | **733** | **49.6** | 734 | 49.6 |
| 435.gromacs | 4 | 615 | 46.4 | 616 | 46.4 | **615** | **46.4** | 4 | 610 | 46.8 | **612** | **46.7** | 613 | 46.6 |
| 436.cactusADM | 4 | 929 | 51.5 | **922** | **51.8** | 921 | 51.9 | 4 | 929 | 51.5 | **922** | **51.8** | 921 | 51.9 |
| 437.leslie3d | 4 | 1079 | 34.9 | **1071** | **35.1** | 1070 | 35.1 | 2 | **487** | **38.6** | 487 | 38.6 | 489 | 38.5 |
| 444.namd | 4 | 708 | 45.3 | 705 | 45.5 | **706** | **45.4** | 4 | 697 | 46.0 | 696 | 46.1 | **696** | **46.1** |
| 447.dealII | 4 | 634 | 72.2 | **571** | **80.1** | 569 | 80.4 | 4 | **573** | **79.9** | 579 | 79.0 | 569 | 80.4 |
| 450.soplex | 4 | **868** | **38.4** | 868 | 38.4 | 869 | 38.4 | 2 | 494 | 33.7 | **494** | **33.7** | 496 | 33.6 |
| 453.povray | 4 | **326** | **65.4** | 326 | 65.3 | 325 | 65.5 | 4 | 268 | 79.5 | **266** | **80.0** | 266 | 80.1 |
| 454.calculix | 4 | 555 | 59.5 | **557** | **59.2** | 558 | 59.1 | 4 | 555 | 59.5 | **557** | **59.2** | 558 | 59.1 |
| 459.GemsFDTD | 4 | 1273 | 33.3 | 1282 | 33.1 | **1281** | **33.1** | 2 | **650** | **32.6** | 650 | 32.6 | 650 | 32.7 |
| 465.tonto | 4 | 706 | 55.8 | **706** | **55.8** | 704 | 55.9 | 4 | **651** | **60.4** | 654 | 60.2 | 650 | 60.6 |
| 470.lbm | 4 | **1484** | **37.0** | 1483 | 37.1 | 1484 | 37.0 | 2 | 684 | 40.2 | **684** | **40.2** | 686 | 40.1 |
| 481.wrf | 4 | 657 | 68.0 | 651 | 68.6 | **653** | **68.4** | 4 | 657 | 68.0 | 651 | 68.6 | **653** | **68.4** |
| 482.sphinx3 | 4 | 1676 | 46.5 | **1679** | **46.4** | 1680 | 46.4 | 4 | 1553 | 50.2 | **1557** | **50.1** | 1558 | 50.1 |

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.
 numactl was used to bind copies to the cores
```

## Operating System Notes

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

## Platform Notes

```
BIOS Settings:
Power Management = Maximum Performance (Default = Active Power Controller)
```

## General Notes

```
The Dell PowerEdge R210 and the Bull NovaScale R410 F2 models are electronically equivalent.
This result was measured on a Dell PowerEdge R210.
```

## Base Compiler Invocation

C benchmarks:
```
icc   -m64
```

C++ benchmarks:
```
icpc  -m64
```

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc   -m64 ifort -m64
```

## 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:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static
```

C++ benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -static
```

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## Base Optimization Flags (Continued)

Fortran benchmarks:
`-xSSE4.2 -ipo -O3 -no-prec-div -static`

Benchmarks using both Fortran and C:
`-xSSE4.2 -ipo -O3 -no-prec-div -static`

## Peak Compiler Invocation

C benchmarks (except as noted below):
`icc -m64`

482.sphinx3: `icc -m32`

C++ benchmarks (except as noted below):
`icpc -m64`

450.soplex: `icpc -m32`

Fortran benchmarks:
`ifort -m64`

Benchmarks using both Fortran and C:
`icc -m64 ifort -m64`

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

470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -opt-malloc-options=3 -ansi-alias -auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2

C++ benchmarks:

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

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

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

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

Fortran benchmarks:

410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

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

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

437.leslie3d: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -opt-malloc-options=3 -opt-prefetch

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

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## Peak Optimization Flags (Continued)

465.tonto: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-static`(pass 2) `-prof-use`(pass 2) `-unroll4 -auto -inline-calloc -opt-malloc-options=3`

Benchmarks using both Fortran and C:

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

436.cactusADM: `basepeak = yes`

454.calculix: `basepeak = yes`

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-ic11.1-fp-linux64-revA.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic11.1-fp-linux64-revA.xml`



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

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