



# SPEC® CFP2006 Result

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## Bull SAS

NovaScale T860 E1  
(Intel Xeon X5260,3.33GHz)

SPECfp®2006 = 23.6

SPECfp\_base2006 = 20.2

CPU2006 license: 20

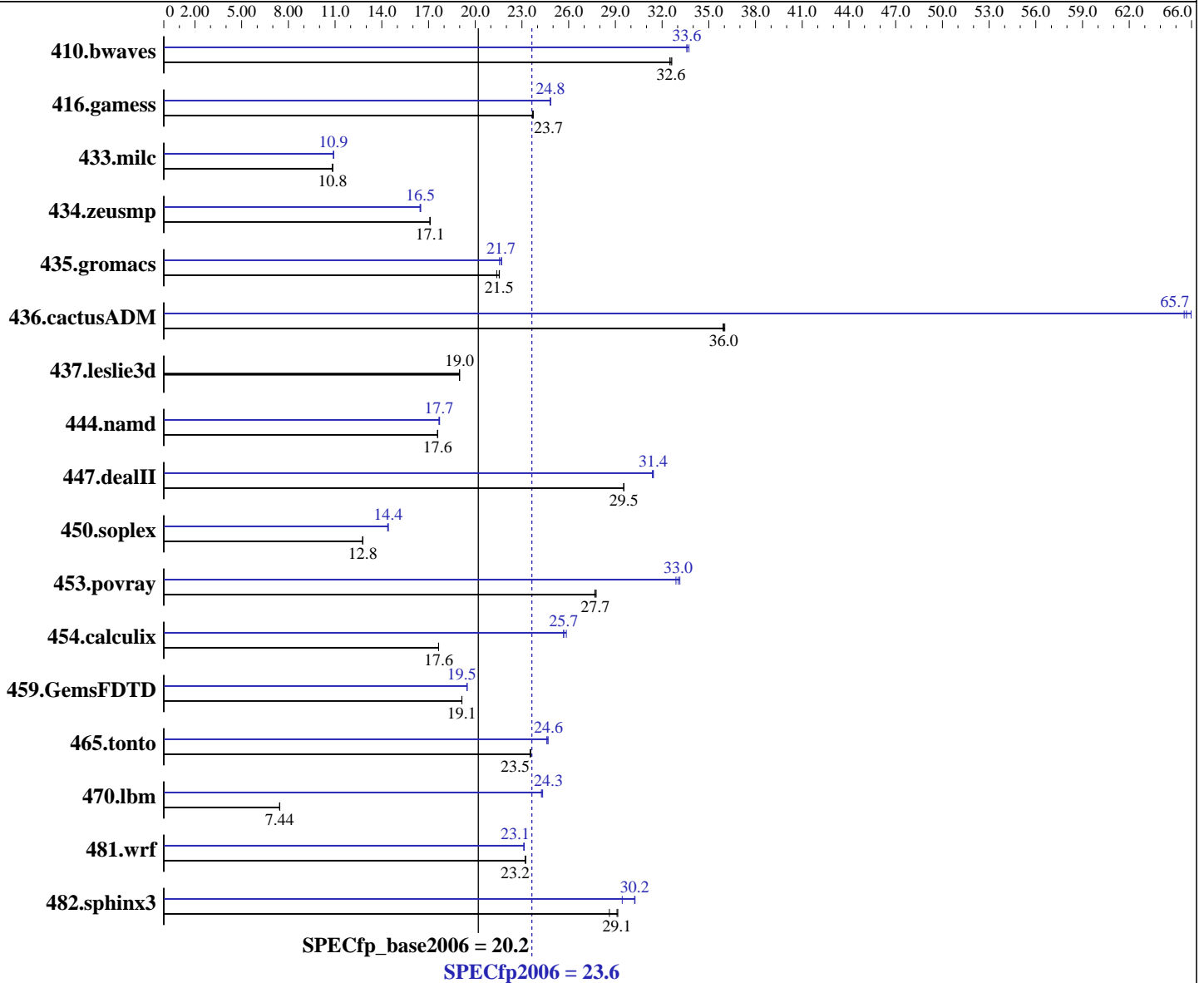
Test sponsor: Bull SAS

Tested by: NEC Corporation

Test date: Feb-2008

Hardware Availability: Feb-2008

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon X5260  
 CPU Characteristics: 3.33 GHz, 6 MB L2, 1333 MHz bus  
 CPU MHz: 3333  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip  
 CPU(s) orderable: 1,2 chips  
 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, Kernel 2.6.16.46-0.12-smpp  
 Compiler: Intel C++ and Fortran Compiler for Linux32 and Linux64 version 10.1 Build 20070913 Package ID: l\_cc\_p\_10.1.008, l\_fc\_p\_10.1.008  
 Auto Parallel: Yes  
 File System: ext2

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L3 Cache: None  
Other Cache: None  
Memory: 12 GB (12x1 GB PC2-5300F, 2 rank, CL5-5-5, ECC)  
Disk Subsystem: 1x73.2 GB SAS, 15000RPM  
Other Hardware: None

System State: Run level 3 (multi-user)  
Base Pointers: 64-bit  
Peak Pointers: 32/64-bit  
Other Software: binutils-2.17.tar.gz, Version 2.17

## Results Table

| Benchmark     | Base       |             |            |             |             |             | Peak       |             |            |             |            |             |
|---------------|------------|-------------|------------|-------------|-------------|-------------|------------|-------------|------------|-------------|------------|-------------|
|               | Seconds    | Ratio       | Seconds    | Ratio       | Seconds     | Ratio       | Seconds    | Ratio       | Seconds    | Ratio       | Seconds    | Ratio       |
| 410.bwaves    | 417        | 32.6        | 418        | 32.5        | <b>417</b>  | <b>32.6</b> | <b>405</b> | <b>33.6</b> | 403        | 33.7        | 405        | 33.6        |
| 416.gamess    | 825        | 23.7        | <b>826</b> | <b>23.7</b> | 827         | 23.7        | <b>788</b> | <b>24.8</b> | 789        | 24.8        | 788        | 24.8        |
| 433.milc      | 846        | 10.8        | <b>847</b> | <b>10.8</b> | 847         | 10.8        | <b>842</b> | <b>10.9</b> | 842        | 10.9        | 843        | 10.9        |
| 434.zeusmp    | 532        | 17.1        | 532        | 17.1        | <b>532</b>  | <b>17.1</b> | 552        | 16.5        | 553        | 16.5        | <b>552</b> | <b>16.5</b> |
| 435.gromacs   | <b>332</b> | <b>21.5</b> | 334        | 21.4        | 331         | 21.6        | 331        | 21.6        | 329        | 21.7        | <b>329</b> | <b>21.7</b> |
| 436.cactusADM | <b>332</b> | <b>36.0</b> | 333        | 35.9        | 332         | 36.0        | 181        | 66.0        | <b>182</b> | <b>65.7</b> | 182        | 65.5        |
| 437.leslie3d  | 495        | 19.0        | <b>495</b> | <b>19.0</b> | 495         | 19.0        | 495        | 19.0        | <b>495</b> | <b>19.0</b> | 495        | 19.0        |
| 444.namd      | 456        | 17.6        | <b>456</b> | <b>17.6</b> | 456         | 17.6        | 454        | 17.7        | 453        | 17.7        | <b>454</b> | <b>17.7</b> |
| 447.dealII    | <b>387</b> | <b>29.5</b> | 387        | 29.5        | 387         | 29.5        | 365        | 31.4        | 364        | 31.4        | <b>364</b> | <b>31.4</b> |
| 450.soplex    | 653        | 12.8        | <b>653</b> | <b>12.8</b> | 653         | 12.8        | 579        | 14.4        | <b>579</b> | <b>14.4</b> | 580        | 14.4        |
| 453.povray    | <b>192</b> | <b>27.7</b> | 192        | 27.7        | 192         | 27.8        | 162        | 32.9        | <b>161</b> | <b>33.0</b> | 161        | 33.1        |
| 454.calculix  | <b>467</b> | <b>17.6</b> | 467        | 17.6        | 468         | 17.6        | 321        | 25.7        | 319        | 25.8        | <b>321</b> | <b>25.7</b> |
| 459.GemsFDTD  | 554        | 19.1        | 554        | 19.1        | <b>554</b>  | <b>19.1</b> | 545        | 19.5        | 545        | 19.5        | <b>545</b> | <b>19.5</b> |
| 465.tonto     | <b>418</b> | <b>23.5</b> | 418        | 23.6        | 418         | 23.5        | 400        | 24.6        | 399        | 24.7        | <b>400</b> | <b>24.6</b> |
| 470.lbm       | 1844       | 7.45        | 1848       | 7.44        | <b>1846</b> | <b>7.44</b> | 565        | 24.3        | <b>566</b> | <b>24.3</b> | 567        | 24.2        |
| 481.wrf       | 481        | 23.2        | 481        | 23.2        | <b>481</b>  | <b>23.2</b> | <b>483</b> | <b>23.1</b> | 483        | 23.1        | 483        | 23.1        |
| 482.sphinx3   | <b>670</b> | <b>29.1</b> | 681        | 28.6        | 668         | 29.2        | 644        | 30.3        | <b>645</b> | <b>30.2</b> | 662        | 29.4        |

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

## 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

## Platform Notes

Bios settings:  
Intel SpeedStep Technology: Disabled

## General Notes

All benchmarks compiled in 64-bit mode except 450.soplex,  
470.lbm and 482.sphinx3, for peak, are compiled in 32-bit mode

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## General Notes (Continued)

The NEC Express5800/120Lj(Intel Xeon X5260) and the Bull NovaScale T860 E1(Intel Xeon X5260,3.33GHz) models are electronically equivalent. The results have been measured on a NEC Express5800/120Lj(Intel Xeon X5260) model.

## 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 -parallel

C++ benchmarks:

-fast -parallel

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## Base Optimization Flags (Continued)

Fortran benchmarks:  
-fast -parallel

Benchmarks using both Fortran and C:  
-fast -parallel

## 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:  
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  
481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_CASE\_FLAG -DSPEC\_CPU\_LINUX



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## 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 -parallel

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: basepeak = yes

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

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

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

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## Peak Optimization Flags (Continued)

481.wrf: -fast -parallel -prefetch -auto-ilp32

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-FP-intel64-linux-flags.20090713.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-FP-intel64-linux-flags.20090713.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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