



# SPEC<sup>®</sup> CFP2006 Result

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## Bull SAS

### SPECfp<sup>®</sup>\_rate2006 = 72.8

### NovaScale T810 F2 (Intel Xeon X3430, 2.40 GHz)

### SPECfp\_rate\_base2006 = 69.9

CPU2006 license: 20

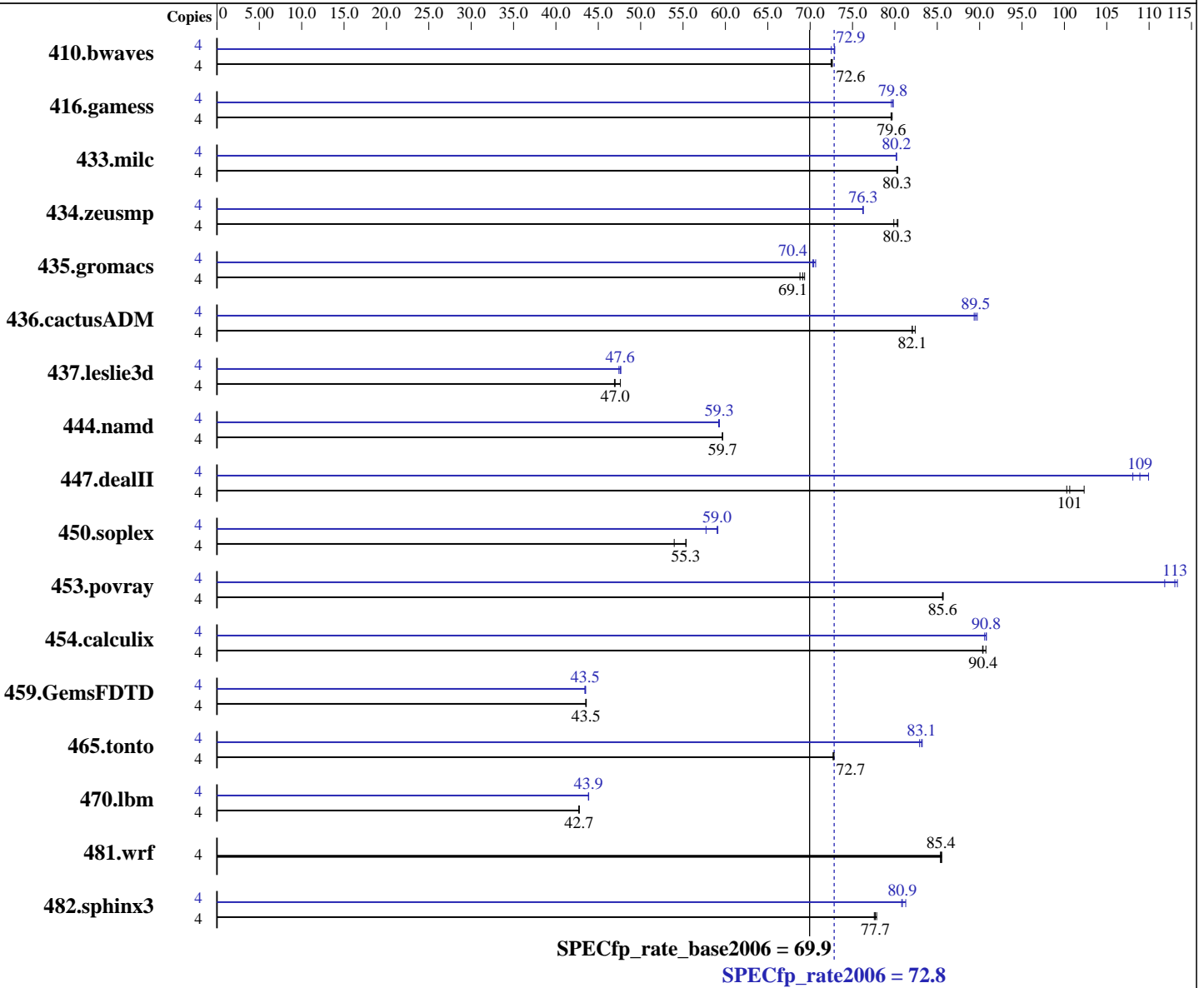
Test sponsor: Bull SAS

Tested by: Dell Inc.

Test date: Oct-2009

Hardware Availability: Dec-2009

Software Availability: Jul-2009



### Hardware

CPU Name: Intel Xeon X3430  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz  
 CPU MHz: 2400  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 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 20090511 Package ID: l\_cproc\_p\_11.1.040, l\_cprof\_p\_11.1.040  
 Auto Parallel: No  
 File System: ReiserFS  
 System State: Run level 3 (multi-user)

Continued on next page



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L3 Cache: 8 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	750	72.5	<u>749</u>	<u>72.6</u>	749	72.6	4	750	72.5	746	72.9	<u>746</u>	<u>72.9</u>
416.gamess	4	983	79.7	985	79.5	<u>984</u>	<u>79.6</u>	4	981	79.8	984	79.6	<u>982</u>	<u>79.8</u>
433.milc	4	458	80.2	<u>457</u>	<u>80.3</u>	457	80.3	4	<u>458</u>	<u>80.2</u>	458	80.2	458	80.2
434.zeusmp	4	456	79.9	453	80.4	<u>453</u>	<u>80.3</u>	4	<u>477</u>	<u>76.3</u>	478	76.2	477	76.3
435.gromacs	4	415	68.8	412	69.3	<u>413</u>	<u>69.1</u>	4	<u>406</u>	<u>70.4</u>	406	70.3	404	70.7
436.cactusADM	4	583	82.0	<u>583</u>	<u>82.1</u>	580	82.4	4	533	89.7	<u>534</u>	<u>89.5</u>	535	89.4
437.leslie3d	4	<u>800</u>	<u>47.0</u>	802	46.9	790	47.6	4	<u>790</u>	<u>47.6</u>	793	47.4	789	47.7
444.namd	4	538	59.6	<u>538</u>	<u>59.7</u>	538	59.7	4	542	59.2	541	59.3	<u>541</u>	<u>59.3</u>
447.dealII	4	447	102	456	100	<u>455</u>	<u>101</u>	4	423	108	<u>420</u>	<u>109</u>	416	110
450.soplex	4	618	54.0	602	55.4	<u>603</u>	<u>55.3</u>	4	578	57.7	<u>565</u>	<u>59.0</u>	564	59.1
453.povray	4	249	85.6	248	85.7	<u>248</u>	<u>85.6</u>	4	188	113	190	112	<u>188</u>	<u>113</u>
454.calculix	4	364	90.7	<u>365</u>	<u>90.4</u>	365	90.3	4	363	90.8	364	90.6	<u>363</u>	<u>90.8</u>
459.GemsFDTD	4	975	43.5	<u>975</u>	<u>43.5</u>	974	43.6	4	978	43.4	975	43.5	<u>976</u>	<u>43.5</u>
465.tonto	4	541	72.8	<u>541</u>	<u>72.7</u>	541	72.7	4	475	82.9	<u>473</u>	<u>83.1</u>	473	83.2
470.lbm	4	1285	42.8	<u>1287</u>	<u>42.7</u>	1287	42.7	4	1254	43.8	<u>1253</u>	<u>43.9</u>	1253	43.9
481.wrf	4	<u>523</u>	<u>85.4</u>	523	85.4	522	85.5	4	<u>523</u>	<u>85.4</u>	523	85.4	522	85.5
482.sphinx3	4	1005	77.6	<u>1003</u>	<u>77.7</u>	1001	77.9	4	965	80.8	<u>964</u>	<u>80.9</u>	959	81.3

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)



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## General Notes

The Dell PowerEdge T110 (Intel Xeon X3430, 2.40 GHz) and the Bull NovaScale T810 F2 (Intel Xeon X3430, 2.40 GHz) models are electronically equivalent. The results have been measured on a Dell PowerEdge T110 (Intel Xeon X3430, 2.40 GHz) model.

## 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 -opt-prefetch

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

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## Base Optimization Flags (Continued)

Fortran benchmarks:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch`

Benchmarks using both Fortran and C:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch`

## 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 (except as noted below):

`ifort -m64`

437.leslie3d: `ifort -m32`

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`  
 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`



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## 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

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-prefetch -opt-malloc-options=3 -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.dealIII: -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 -opt-prefetch

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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

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: -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 -opt-prefetch -auto-ilp32

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

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>

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

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