



# SPEC® CFP2006 Result

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## Bull SAS

SPECfp®2006 = 29.5

NovaScale T810 F2 (Intel Xeon X3430, 2.40 GHz)

SPECfp\_base2006 = 28.3

CPU2006 license: 20

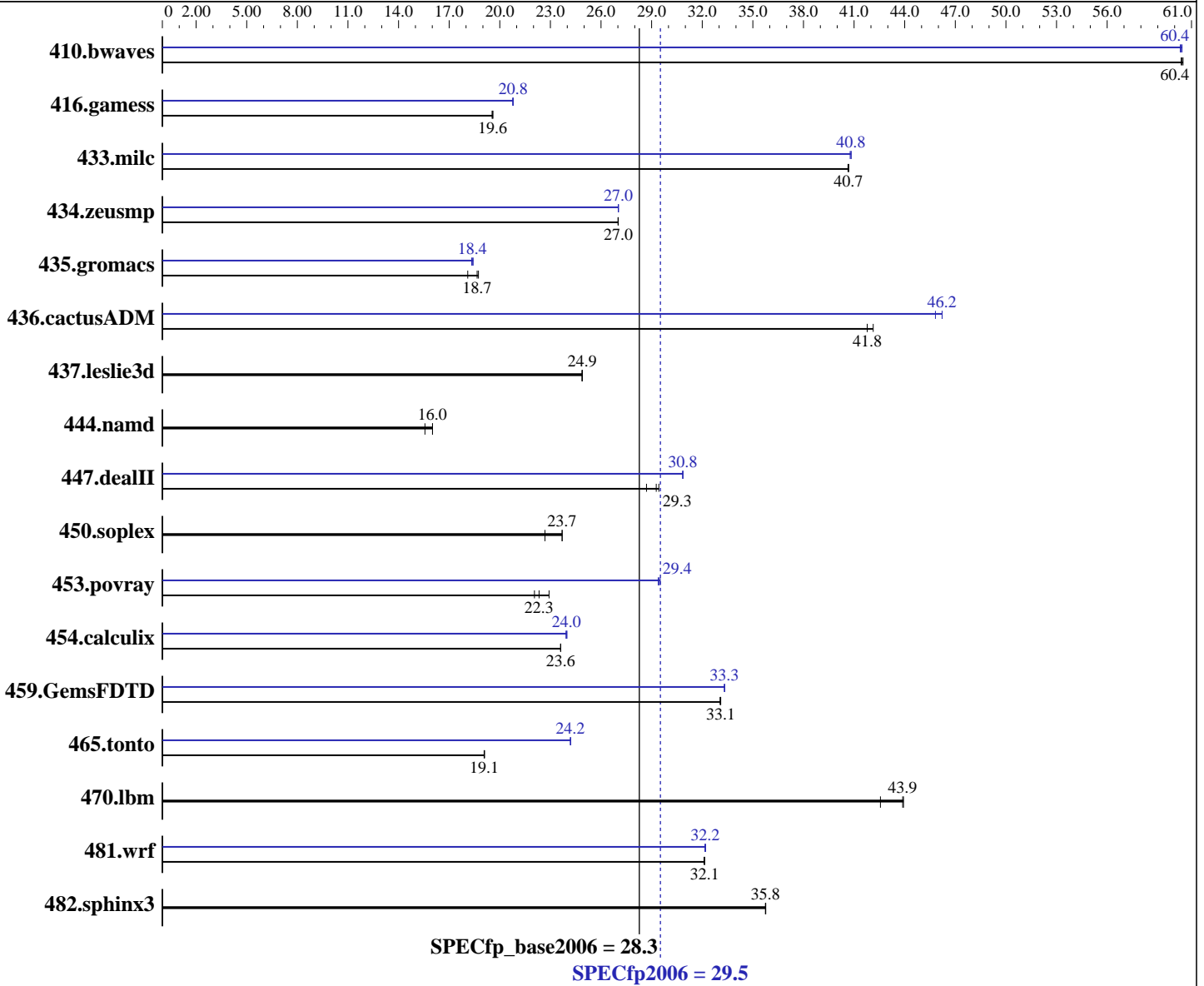
Test sponsor: Bull SAS

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: Yes  
 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: 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	225	60.4	225	60.5	<u>225</u>	<u>60.4</u>	225	60.3	<u>225</u>	<u>60.4</u>	225	60.4
416.gamess	1000	19.6	<u>1000</u>	<u>19.6</u>	1002	19.5	942	20.8	943	20.8	<u>942</u>	<u>20.8</u>
433.milc	<u>226</u>	<u>40.7</u>	226	40.7	226	40.6	<u>225</u>	<u>40.8</u>	225	40.8	225	40.8
434.zeusmp	<u>337</u>	<u>27.0</u>	337	27.0	337	27.0	337	27.0	<u>337</u>	<u>27.0</u>	337	27.0
435.gromacs	381	18.7	394	18.1	<u>383</u>	<u>18.7</u>	388	18.4	389	18.3	<u>389</u>	<u>18.4</u>
436.cactusADM	286	41.8	284	42.1	<u>286</u>	<u>41.8</u>	259	46.2	<u>259</u>	<u>46.2</u>	261	45.8
437.leslie3d	378	24.9	378	24.9	<u>378</u>	<u>24.9</u>	378	24.9	378	24.9	<u>378</u>	<u>24.9</u>
444.namd	<u>501</u>	<u>16.0</u>	501	16.0	515	15.6	<u>501</u>	<u>16.0</u>	501	16.0	515	15.6
447.dealII	389	29.4	399	28.7	<u>391</u>	<u>29.3</u>	371	30.9	371	30.8	<u>371</u>	<u>30.8</u>
450.soplex	<u>352</u>	<u>23.7</u>	368	22.7	352	23.7	<u>352</u>	<u>23.7</u>	368	22.7	352	23.7
453.povray	232	22.9	<u>238</u>	<u>22.3</u>	241	22.1	181	29.4	<u>181</u>	<u>29.4</u>	180	29.5
454.calculix	<u>349</u>	<u>23.6</u>	350	23.6	349	23.6	344	24.0	<u>344</u>	<u>24.0</u>	345	23.9
459.GemsFDTD	321	33.1	321	33.1	<u>321</u>	<u>33.1</u>	318	33.3	<u>318</u>	<u>33.3</u>	318	33.3
465.tonto	516	19.1	<u>516</u>	<u>19.1</u>	515	19.1	407	24.2	<u>407</u>	<u>24.2</u>	407	24.2
470.lbm	313	43.9	323	42.6	<u>313</u>	<u>43.9</u>	313	43.9	323	42.6	<u>313</u>	<u>43.9</u>
481.wrf	<u>348</u>	<u>32.1</u>	348	32.1	348	32.1	<u>347</u>	<u>32.2</u>	347	32.2	347	32.2
482.sphinx3	<u>545</u>	<u>35.8</u>	545	35.7	545	35.8	<u>545</u>	<u>35.8</u>	545	35.7	545	35.8

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.

## 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

OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to granularity=fine,scatter  
KMP\_STACKSIZE set to 200M  
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.lelie3d: -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

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## Base Optimization Flags (Continued)

C++ benchmarks:

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

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

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

## Peak Compiler Invocation

C benchmarks:

`icc -m64`

C++ benchmarks:

`icpc -m64`

Fortran benchmarks:

`ifort -m64`

Benchmarks using both Fortran and C:

`icc -m64 ifort -m64`

## Peak Portability Flags

Same as Base Portability Flags

## 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: basepeak = yes`

`482.sphinx3: basepeak = yes`

C++ benchmarks:

`444.namd: basepeak = yes`

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## Peak Optimization Flags (Continued)

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- -opt-prefetch

450.soplex: basepeak = yes

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  
-parallel

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: Same as 410.bwaves

437.leslie3d: basepeak = yes

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 -parallel

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 -parallel -auto-ilp32

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

481.wrf: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch  
-parallel -auto-ilp32

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>



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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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