



# SPEC® CFP2006 Result

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## Bull SAS

SPECfp®2006 = 28.7

NovaScale R410 F2 (Intel Xeon X3430, 2.40 GHz)

SPECfp\_base2006 = 27.7

CPU2006 license: 20

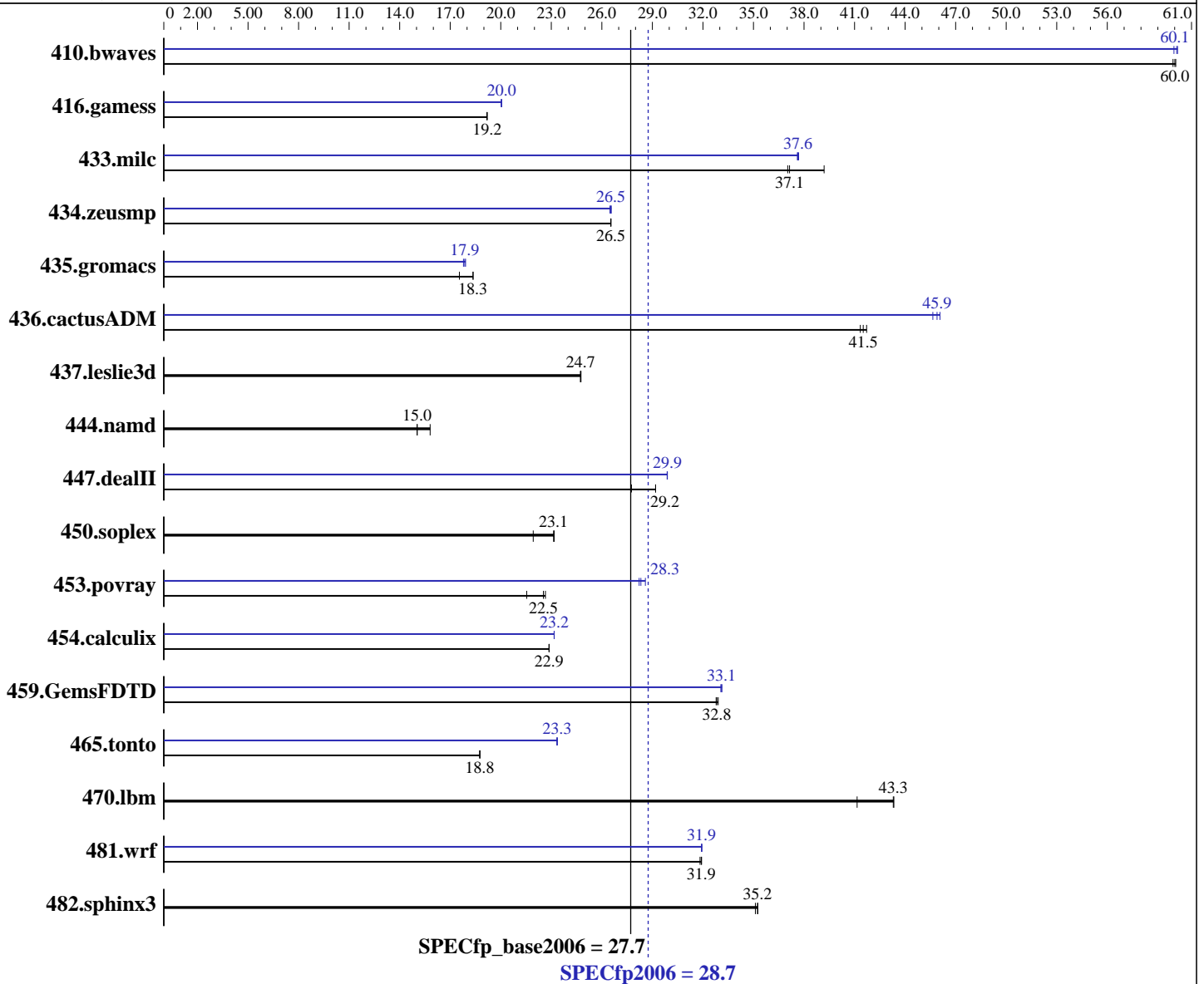
Test sponsor: Bull SAS

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	227	59.9	<b>226</b>	<b>60.0</b>	226	60.1	227	60.0	226	60.2	<b>226</b>	<b>60.1</b>
416.gamess	1021	19.2	<b>1020</b>	<b>19.2</b>	1020	19.2	976	20.1	978	20.0	<b>977</b>	<b>20.0</b>
433.milc	234	39.2	<b>247</b>	<b>37.1</b>	248	37.0	<b>244</b>	<b>37.6</b>	244	37.7	244	37.6
434.zeusmp	<b>343</b>	<b>26.5</b>	343	26.5	343	26.5	344	26.5	343	26.6	<b>343</b>	<b>26.5</b>
435.gromacs	407	17.5	<b>389</b>	<b>18.3</b>	389	18.4	401	17.8	399	17.9	<b>400</b>	<b>17.9</b>
436.cactusADM	<b>288</b>	<b>41.5</b>	286	41.7	289	41.3	259	46.1	262	45.6	<b>260</b>	<b>45.9</b>
437.leslie3d	<b>380</b>	<b>24.7</b>	380	24.8	380	24.7	<b>380</b>	<b>24.7</b>	380	24.8	380	24.7
444.namd	<b>533</b>	<b>15.0</b>	507	15.8	533	15.0	<b>533</b>	<b>15.0</b>	507	15.8	533	15.0
447.dealII	<b>392</b>	<b>29.2</b>	412	27.8	392	29.2	383	29.9	<b>383</b>	<b>29.9</b>	383	29.9
450.soplex	<b>360</b>	<b>23.1</b>	380	21.9	360	23.2	<b>360</b>	<b>23.1</b>	380	21.9	360	23.2
453.povray	247	21.5	235	22.7	<b>236</b>	<b>22.5</b>	186	28.6	<b>188</b>	<b>28.3</b>	189	28.2
454.calculix	361	22.9	361	22.9	<b>361</b>	<b>22.9</b>	356	23.2	356	23.2	<b>356</b>	<b>23.2</b>
459.GemsFDTD	<b>323</b>	<b>32.8</b>	322	32.9	324	32.8	320	33.1	321	33.1	<b>321</b>	<b>33.1</b>
465.tonto	525	18.8	524	18.8	<b>525</b>	<b>18.8</b>	<b>422</b>	<b>23.3</b>	422	23.3	421	23.4
470.lbm	334	41.2	317	43.3	<b>317</b>	<b>43.3</b>	334	41.2	317	43.3	<b>317</b>	<b>43.3</b>
481.wrf	<b>350</b>	<b>31.9</b>	350	31.9	351	31.8	350	31.9	<b>350</b>	<b>31.9</b>	350	31.9
482.sphinx3	555	35.1	553	35.3	<b>553</b>	<b>35.2</b>	555	35.1	553	35.3	<b>553</b>	<b>35.2</b>

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 R210 (Intel Xeon X3430, 2.40 GHz) and the Bull NovaScale R410 F2 (Intel Xeon X3430, 2.40 GHz) models are electronically equivalent. The results have been measured on a Dell PowerEdge R210 (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.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- -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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