



# SPEC® CFP2006 Result

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## Bull SAS

SPECfp®2006 = 36.4

NovaScale T820 F2 (Intel Xeon X3460, 2.80 GHz)

SPECfp\_base2006 = 35.0

CPU2006 license: 20

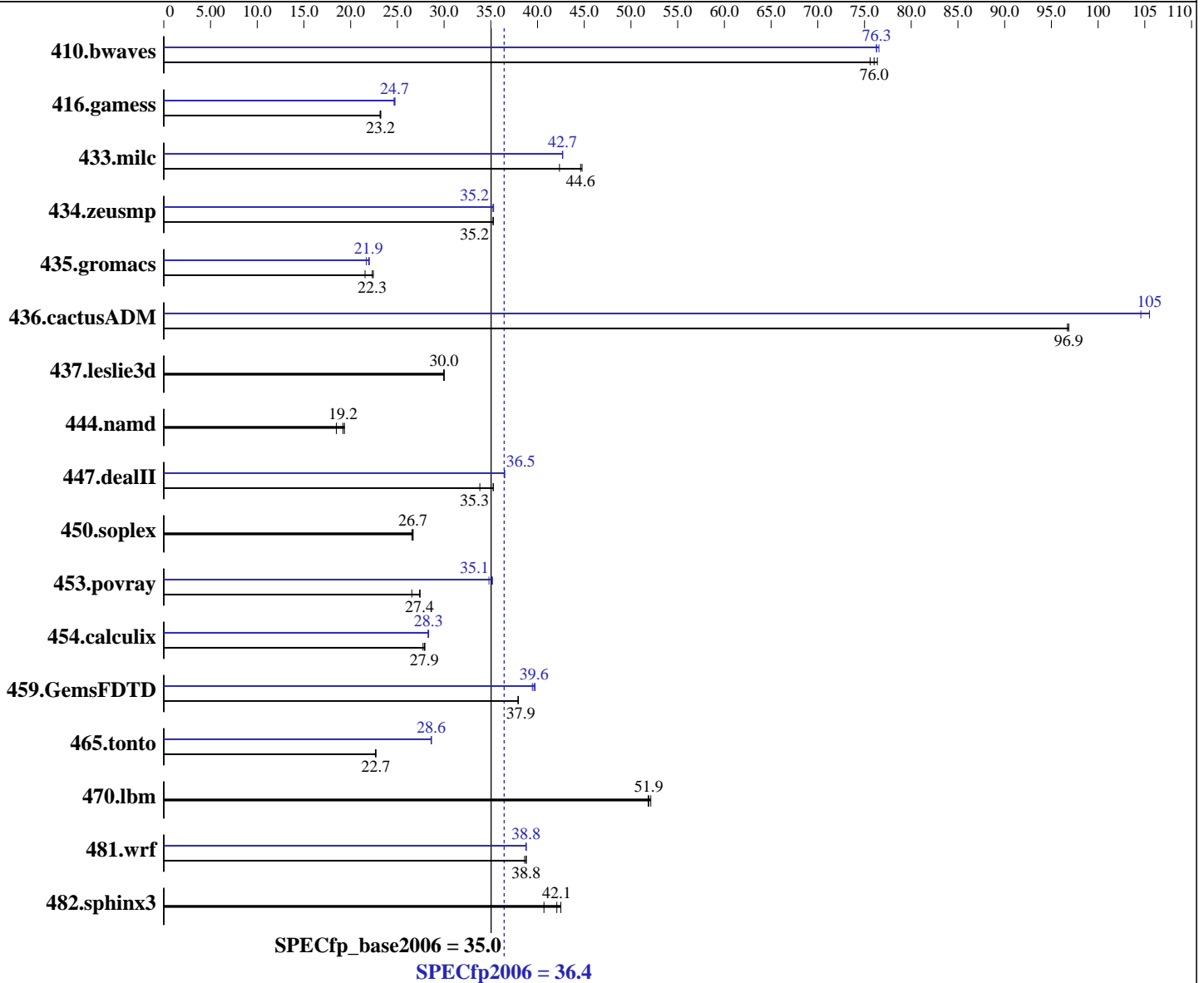
Test sponsor: Bull SAS

Tested by: Dell Inc.

Test date: Nov-2009

Hardware Availability: Dec-2009

Software Availability: Jul-2009



### Hardware

CPU Name: Intel Xeon X3460  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.46 GHz  
 CPU MHz: 2800  
 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\_cprof\_p\_11.1.040, l\_cprof\_p\_11.1.040  
 Auto Parallel: Yes  
 File System: ReiserFS  
 System State: Run level 3 (multi-user)

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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 RDIMM)  
 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	178	76.4	<b>179</b>	<b>76.0</b>	180	75.6	<b>178</b>	<b>76.3</b>	178	76.5	178	76.3
416.gamess	846	23.1	843	23.2	<b>844</b>	<b>23.2</b>	791	24.7	795	24.6	<b>792</b>	<b>24.7</b>
433.milc	<b>206</b>	<b>44.6</b>	217	42.4	205	44.8	<b>215</b>	<b>42.7</b>	215	42.7	215	42.7
434.zeusmp	258	35.3	258	35.2	<b>258</b>	<b>35.2</b>	258	35.3	258	35.2	<b>258</b>	<b>35.2</b>
435.gromacs	318	22.4	331	21.5	<b>320</b>	<b>22.3</b>	329	21.7	325	22.0	<b>326</b>	<b>21.9</b>
436.cactusADM	123	96.9	<b>123</b>	<b>96.9</b>	124	96.7	114	105	<b>113</b>	<b>105</b>	113	106
437.leslie3d	314	30.0	313	30.0	<b>314</b>	<b>30.0</b>	314	30.0	313	30.0	<b>314</b>	<b>30.0</b>
444.namd	415	19.3	434	18.5	<b>418</b>	<b>19.2</b>	415	19.3	434	18.5	<b>418</b>	<b>19.2</b>
447.dealII	324	35.3	338	33.8	<b>325</b>	<b>35.3</b>	314	36.5	314	36.5	<b>314</b>	<b>36.5</b>
450.soplex	313	26.7	314	26.5	<b>313</b>	<b>26.7</b>	313	26.7	314	26.5	<b>313</b>	<b>26.7</b>
453.povray	194	27.4	<b>194</b>	<b>27.4</b>	200	26.5	153	34.8	151	35.2	<b>152</b>	<b>35.1</b>
454.calculix	297	27.7	<b>296</b>	<b>27.9</b>	295	28.0	292	28.3	<b>291</b>	<b>28.3</b>	291	28.3
459.GemsFDTD	280	37.9	279	38.0	<b>280</b>	<b>37.9</b>	269	39.4	<b>268</b>	<b>39.6</b>	267	39.7
465.tonto	<b>434</b>	<b>22.7</b>	435	22.6	433	22.7	344	28.6	<b>344</b>	<b>28.6</b>	343	28.7
470.lbm	264	52.1	<b>265</b>	<b>51.9</b>	265	51.8	264	52.1	<b>265</b>	<b>51.9</b>	265	51.8
481.wrf	289	38.6	288	38.8	<b>288</b>	<b>38.8</b>	<b>288</b>	<b>38.8</b>	288	38.7	288	38.8
482.sphinx3	<b>463</b>	<b>42.1</b>	459	42.5	479	40.7	<b>463</b>	<b>42.1</b>	459	42.5	479	40.7

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 T310 (Intel Xeon X3460, 2.80 GHz) and

the Bull NovaScale T820 F2 (Intel Xeon X3460, 2.80 GHz) models are electronically equivalent.

The results have been measured on a Dell PowerEdge T310 (Intel Xeon X3460, 2.80 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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