



# SPEC<sup>®</sup> CFP2006 Result

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## Bull SAS

SPECfp<sup>®</sup>2006 = 37.5

NovaScale R480 F2 (Intel Xeon X7550, 2.00 GHz)

SPECfp\_base2006 = 34.8

CPU2006 license: 20

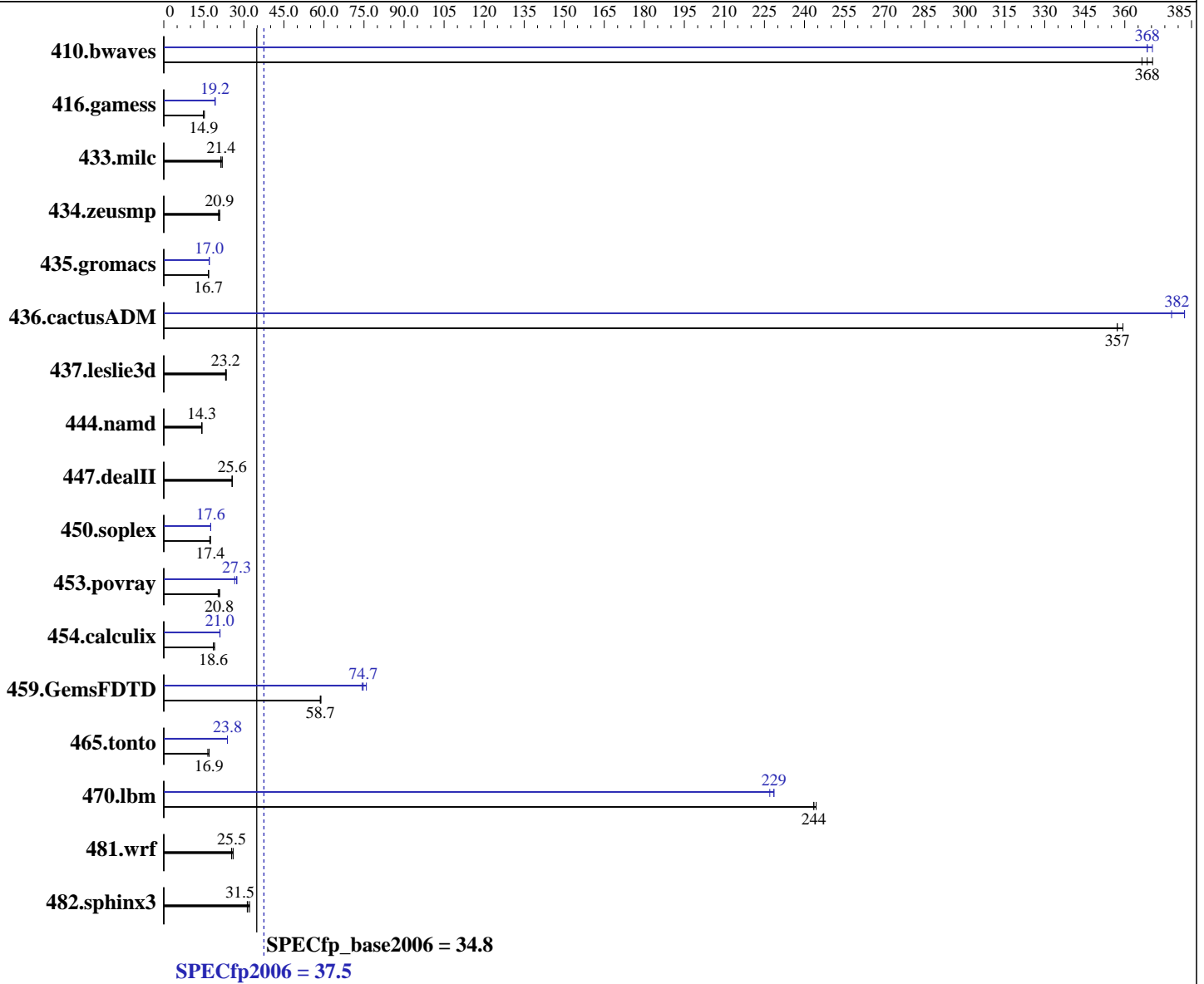
Test sponsor: Bull SAS

Tested by: Dell Inc.

Test date: May-2010

Hardware Availability: Mar-2010

Software Availability: Dec-2009



**Hardware**

CPU Name: Intel Xeon X7550  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.40 GHz  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip, 2 threads/core  
 CPU(s) orderable: 2,4 chips  
 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: SUSE Linux Enterprise Server 11 (x86\_64), kernel-2.6.27.19-5-default  
 Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l\_cproc\_p\_11.1.064, l\_cprof\_p\_11.1.064  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)

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L3 Cache: 18 MB I+D on chip per chip  
Other Cache: None  
Memory: 256 GB (64 x 4 GB DDR3-1066 QR RDIMM, CL7, ECC)  
Disk Subsystem: 1 x 300 GB 10000 RPM SAS 6Gb  
Other Hardware: None

Base Pointers: 64-bit  
Peak Pointers: 32/64-bit  
Other Software: None

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	<b><u>36.9</u></b>	<b><u>368</u></b>	36.7	370	37.1	366	36.7	370	<b><u>36.9</u></b>	<b><u>368</u></b>	36.9	368
416.gamess	1286	15.2	1319	14.8	<b><u>1311</u></b>	<b><u>14.9</u></b>	1017	19.2	1021	19.2	<b><u>1019</u></b>	<b><u>19.2</u></b>
433.milc	429	21.4	419	21.9	<b><u>428</u></b>	<b><u>21.4</u></b>	429	21.4	419	21.9	<b><u>428</u></b>	<b><u>21.4</u></b>
434.zeusmp	444	20.5	435	20.9	<b><u>436</u></b>	<b><u>20.9</u></b>	444	20.5	435	20.9	<b><u>436</u></b>	<b><u>20.9</u></b>
435.gromacs	425	16.8	<b><u>427</u></b>	<b><u>16.7</u></b>	427	16.7	419	17.0	420	17.0	<b><u>419</u></b>	<b><u>17.0</u></b>
436.cactusADM	33.3	359	33.5	357	<b><u>33.5</u></b>	<b><u>357</u></b>	<b><u>31.3</u></b>	<b><u>382</u></b>	31.2	382	31.7	378
437.leslie3d	406	23.2	<b><u>406</u></b>	<b><u>23.2</u></b>	401	23.4	406	23.2	<b><u>406</u></b>	<b><u>23.2</u></b>	401	23.4
444.namd	563	14.3	562	14.3	<b><u>563</u></b>	<b><u>14.3</u></b>	563	14.3	562	14.3	<b><u>563</u></b>	<b><u>14.3</u></b>
447.dealII	448	25.6	445	25.7	<b><u>447</u></b>	<b><u>25.6</u></b>	448	25.6	445	25.7	<b><u>447</u></b>	<b><u>25.6</u></b>
450.soplex	<b><u>478</u></b>	<b><u>17.4</u></b>	477	17.5	484	17.2	<b><u>474</u></b>	<b><u>17.6</u></b>	475	17.6	474	17.6
453.povray	<b><u>256</u></b>	<b><u>20.8</u></b>	254	20.9	261	20.4	200	26.6	194	27.4	<b><u>195</u></b>	<b><u>27.3</u></b>
454.calculix	433	19.1	<b><u>443</u></b>	<b><u>18.6</u></b>	443	18.6	<b><u>392</u></b>	<b><u>21.0</u></b>	391	21.1	393	21.0
459.GemsFDTD	181	58.6	180	58.9	<b><u>181</u></b>	<b><u>58.7</u></b>	140	75.9	<b><u>142</u></b>	<b><u>74.7</u></b>	143	74.3
465.tonto	597	16.5	<b><u>582</u></b>	<b><u>16.9</u></b>	579	17.0	413	23.8	<b><u>413</u></b>	<b><u>23.8</u></b>	413	23.8
470.lbm	56.2	244	56.4	244	<b><u>56.4</u></b>	<b><u>244</u></b>	60.5	227	<b><u>60.1</u></b>	<b><u>229</u></b>	60.1	229
481.wrf	<b><u>438</u></b>	<b><u>25.5</u></b>	440	25.4	429	26.0	<b><u>438</u></b>	<b><u>25.5</u></b>	440	25.4	429	26.0
482.sphinx3	606	32.2	623	31.3	<b><u>620</u></b>	<b><u>31.5</u></b>	606	32.2	623	31.3	<b><u>620</u></b>	<b><u>31.5</u></b>

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

## Platform Notes

BIOS Settings:  
Power Management = Maximum Performance (Default = Active Power Controller)  
Memory Settings: Node Interleaving = Enabled (Default = Disabled)

## General Notes

Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502  
The Dell PowerEdge R910 and  
the Bull NovaScale R480 F2 models are electronically equivalent.

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**Test date:** May-2010  
**Hardware Availability:** Mar-2010  
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## General Notes (Continued)

The results have been measured on a Dell PowerEdge R910 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 -parallel -opt-prefetch

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

Fortran benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

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## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

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

## 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: `basepeak = yes`

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)  
-parallel -ansi-alias -auto-ilp32`

482.sphinx3: `basepeak = yes`

C++ benchmarks:

444.namd: `basepeak = yes`

447.dealIII: `basepeak = yes`

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 -auto-ilp32`

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## Peak Optimization Flags (Continued)

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: basepeak = yes

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)  
-inline-calloc -opt-malloc-options=3 -auto -unroll4

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: 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-linux64-revE.20100316.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100316.xml>



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