



# SPEC<sup>®</sup> CFP2006 Result

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## Bull SAS

SPECfp<sup>®</sup>2006 = **37.5**

NovaScale R410B F2 (Intel Xeon E3-1260L, 2.40 GHz)

SPECfp\_base2006 = **36.1**

CPU2006 license: 20

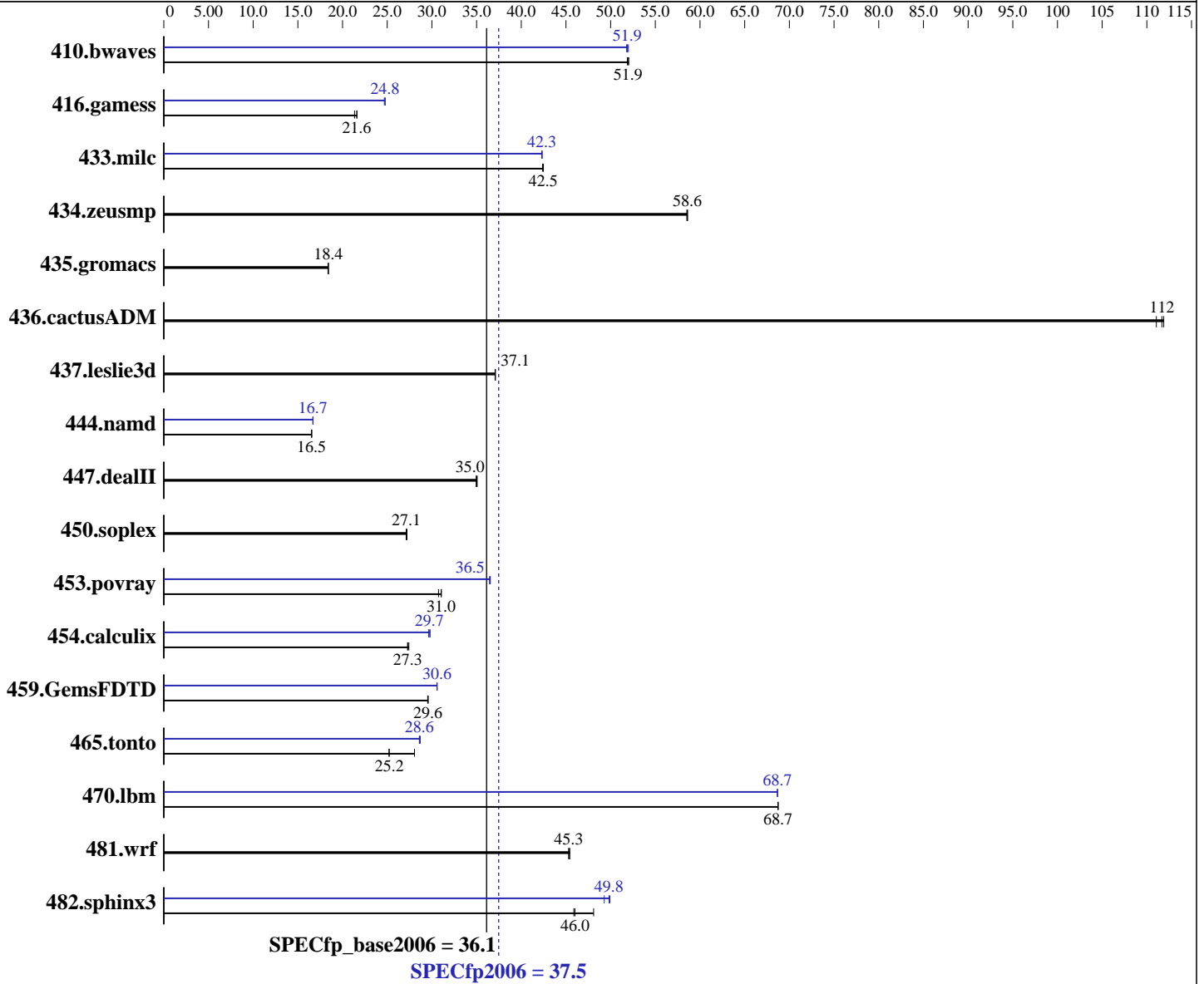
Test sponsor: Bull SAS

Tested by: Dell Inc.

Test date: Mar-2011

Hardware Availability: May-2011

Software Availability: Apr-2011



### Hardware

CPU Name: Intel Xeon E3-1260L  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 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: SUSE Linux Enterprise Server 11 SP1 (x86\_64), Kernel 2.6.32.12-0.7-default  
 Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12 Alpha Build 20110105  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit

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L3 Cache: 8 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 8 GB (4 x 2 GB 2Rx8 PC3-10600R-9, ECC)  
 Disk Subsystem: 1 x 146 GB 15000 RPM SAS  
 Other Hardware: None

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>262</u></b>	<b><u>51.9</u></b>	261	52.0	262	51.9	261	52.0	262	51.8	<b><u>262</u></b>	<b><u>51.9</u></b>
416.gamess	906	21.6	917	21.3	<b><u>906</u></b>	<b><u>21.6</u></b>	793	24.7	<b><u>791</u></b>	<b><u>24.8</u></b>	790	24.8
433.milc	<b><u>216</u></b>	<b><u>42.5</u></b>	216	42.5	217	42.4	217	42.3	217	42.4	<b><u>217</u></b>	<b><u>42.3</u></b>
434.zeusmp	155	58.5	<b><u>155</u></b>	<b><u>58.6</u></b>	155	58.6	155	58.5	<b><u>155</u></b>	<b><u>58.6</u></b>	155	58.6
435.gromacs	388	18.4	<b><u>388</u></b>	<b><u>18.4</u></b>	388	18.4	388	18.4	<b><u>388</u></b>	<b><u>18.4</u></b>	388	18.4
436.cactusADM	<b><u>107</u></b>	<b><u>112</u></b>	107	112	108	111	<b><u>107</u></b>	<b><u>112</u></b>	107	112	108	111
437.leslie3d	253	37.1	<b><u>253</u></b>	<b><u>37.1</u></b>	254	37.1	253	37.1	<b><u>253</u></b>	<b><u>37.1</u></b>	254	37.1
444.namd	<b><u>485</u></b>	<b><u>16.5</u></b>	485	16.5	485	16.5	481	16.7	480	16.7	<b><u>480</u></b>	<b><u>16.7</u></b>
447.dealII	327	34.9	<b><u>327</u></b>	<b><u>35.0</u></b>	326	35.1	327	34.9	<b><u>327</u></b>	<b><u>35.0</u></b>	326	35.1
450.soplex	<b><u>307</u></b>	<b><u>27.1</u></b>	307	27.2	308	27.1	<b><u>307</u></b>	<b><u>27.1</u></b>	307	27.2	308	27.1
453.povray	173	30.7	<b><u>171</u></b>	<b><u>31.0</u></b>	171	31.1	146	36.4	146	36.5	<b><u>146</u></b>	<b><u>36.5</u></b>
454.calculix	<b><u>302</u></b>	<b><u>27.3</u></b>	301	27.4	302	27.3	278	29.6	<b><u>278</u></b>	<b><u>29.7</u></b>	277	29.8
459.GemsFDTD	<b><u>359</u></b>	<b><u>29.6</u></b>	359	29.5	359	29.6	347	30.6	347	30.6	<b><u>347</u></b>	<b><u>30.6</u></b>
465.tonto	351	28.1	<b><u>390</u></b>	<b><u>25.2</u></b>	391	25.2	343	28.7	<b><u>344</u></b>	<b><u>28.6</u></b>	344	28.6
470.lbm	<b><u>200</u></b>	<b><u>68.7</u></b>	200	68.7	200	68.7	200	68.7	200	68.7	<b><u>200</u></b>	<b><u>68.7</u></b>
481.wrf	246	45.4	<b><u>246</u></b>	<b><u>45.3</u></b>	247	45.3	246	45.4	<b><u>246</u></b>	<b><u>45.3</u></b>	247	45.3
482.sphinx3	<b><u>424</u></b>	<b><u>46.0</u></b>	425	45.9	405	48.1	395	49.3	<b><u>391</u></b>	<b><u>49.8</u></b>	390	49.9

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
'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
echo 900> /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

## Platform Notes

BIOS Settings:  
 Power Management = Maximum Performance (Default = Active Power Controller)  
 Logical Processor = Disabled (Default = Enabled)



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## General Notes

OMP\_NUM\_THREADS set to number of cores  
The Dell PowerEdge R210 II and the Bull NovaScale R410B F2 models are electronically equivalent. The results have been measured on a Dell PowerEdge R210 II model  
Binaries were compiled on RHEL5.5

## 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:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
-ansi-alias

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## Base Optimization Flags (Continued)

C++ benchmarks:

`-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias`

Fortran benchmarks:

`-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

Benchmarks using both Fortran and C:

`-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
-ansi-alias`

## 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: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32  
-ansi-alias`

470.lbm: `-xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -parallel  
-ansi-alias -static -auto-ilp32`

482.sphinx3: `-xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
-parallel`

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## Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -fno-alias  
-auto-ilp32

447.dealIII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

Fortran benchmarks:

410.bwaves: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel  
-static

416.gamess: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-inline-level=0 -scalar-rep- -static

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-inline-level=0 -opt-prefetch -parallel  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc  
-opt-malloc-options=3 -auto -unroll4  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

481.wrf: basepeak = yes



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The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.html>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110524.00.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110524.00.xml>

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