



# SPEC<sup>®</sup> CFP2006 Result

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## Bull SAS

SPECfp<sup>®</sup>2006 = **67.6**

NovaScale R460 F3 (Intel Xeon E5-2637, 3.00 GHz)

SPECfp\_base2006 = **65.6**

CPU2006 license: 20

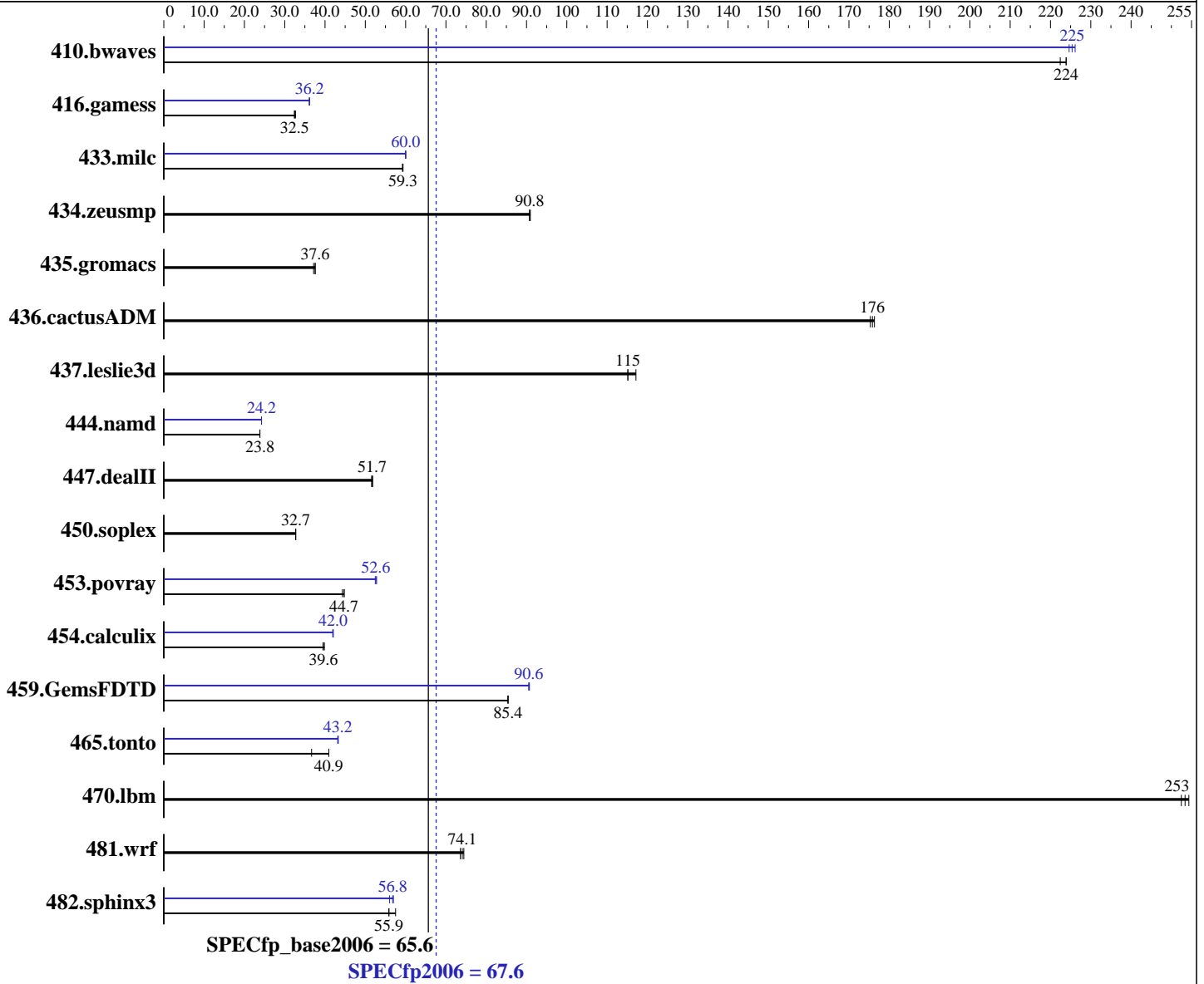
Test sponsor: Bull SAS

Tested by: Dell Inc.

Test date: Mar-2012

Hardware Availability: Mar-2012

Software Availability: Feb-2012



### Hardware

CPU Name: Intel Xeon E5-2637  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 3000  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2 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 SP2 (x86\_64) 3.0.13-0.27-default  
 Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;  
 Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)

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L3 Cache: 5 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)  
 Disk Subsystem: 1 x 146 GB 15000 RPM SAS  
 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	61.1	222	60.7	224	<b>60.7</b>	<b>224</b>	<b>60.3</b>	<b>225</b>	60.5	225	60.1	226
416.gamess	604	32.4	599	32.7	<b>603</b>	<b>32.5</b>	542	36.1	542	36.2	<b>542</b>	<b>36.2</b>
433.milc	<b>155</b>	<b>59.3</b>	155	59.3	155	59.2	153	60.0	153	60.0	<b>153</b>	<b>60.0</b>
434.zeusmp	<b>100</b>	<b>90.8</b>	100	90.8	100	90.9	<b>100</b>	<b>90.8</b>	100	90.8	100	90.9
435.gromacs	192	37.2	<b>190</b>	<b>37.6</b>	190	37.6	192	37.2	<b>190</b>	<b>37.6</b>	190	37.6
436.cactusADM	<b>68.0</b>	<b>176</b>	68.2	175	67.8	176	<b>68.0</b>	<b>176</b>	68.2	175	67.8	176
437.leslie3d	<b>81.6</b>	<b>115</b>	81.6	115	80.2	117	<b>81.6</b>	<b>115</b>	81.6	115	80.2	117
444.namd	336	23.9	336	23.8	<b>336</b>	<b>23.8</b>	331	24.3	<b>331</b>	<b>24.2</b>	331	24.2
447.dealII	222	51.6	221	51.8	<b>221</b>	<b>51.7</b>	222	51.6	221	51.8	<b>221</b>	<b>51.7</b>
450.soplex	<b>255</b>	<b>32.7</b>	255	32.7	255	32.7	<b>255</b>	<b>32.7</b>	255	32.7	255	32.7
453.povray	120	44.3	<b>119</b>	<b>44.7</b>	119	44.8	101	52.8	101	52.5	<b>101</b>	<b>52.6</b>
454.calculix	209	39.5	<b>208</b>	<b>39.6</b>	207	39.8	197	41.9	<b>196</b>	<b>42.0</b>	196	42.1
459.GemsFDTD	124	85.4	<b>124</b>	<b>85.4</b>	124	85.4	117	90.6	<b>117</b>	<b>90.6</b>	117	90.7
465.tonto	<b>240</b>	<b>40.9</b>	240	40.9	268	36.7	227	43.3	228	43.2	<b>228</b>	<b>43.2</b>
470.lbm	54.4	252	<b>54.2</b>	<b>253</b>	54.0	254	54.4	252	<b>54.2</b>	<b>253</b>	54.0	254
481.wrf	152	73.6	<b>151</b>	<b>74.1</b>	150	74.4	152	73.6	<b>151</b>	<b>74.1</b>	150	74.4
482.sphinx3	339	57.5	<b>349</b>	<b>55.9</b>	349	55.8	348	56.0	342	57.0	<b>343</b>	<b>56.8</b>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

## Platform Notes

System Profile set to Custom  
 CPU Power Management set to Maximum Performance  
 Turbo Boost set to Enabled  
 Memory Frequency set to Maximum Performance  
 C States/C1E set to Enabled  
 Sysinfo program /root/cpu2006-1.2/config/sysinfo.rev6800  
 \$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
 running on R720-Latency1 Wed Mar 28 21:40:32 2012

This section contains SUT (System Under Test) info as seen by  
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### Platform Notes (Continued)

some common utilities. To remove or add to this section, see:  
<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

```

From /proc/cpuinfo
  model name : Intel(R) Xeon(R) CPU E5-2637 0 @ 3.00GHz
    2 "physical id"s (chips)
    8 "processors"
  cores, siblings (Caution: counting these is hw and system dependent. The
  following excerpts from /proc/cpuinfo might not be reliable. Use with
  caution.)
    cpu cores : 2
    siblings  : 4
    physical 0: cores 0 1
    physical 1: cores 0 1
  cache size : 5120 KB

```

```

From /proc/meminfo
MemTotal:      132122700 kB
HugePages_Total:    0
Hugepagesize:    2048 kB

```

```

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 11 (x86_64)

```

```

From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 11 (x86_64)
VERSION = 11
PATCHLEVEL = 2

```

```

uname -a:
Linux R720-Latency1 3.0.13-0.27-default #1 SMP Wed Feb 15 13:33:49 UTC 2012
(d73692b) x86_64 x86_64 x86_64 GNU/Linux

```

```
run-level 3 Mar 27 12:35 last=S
```

```

SPEC is set to: /root/cpu2006-1.2
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdal        ext3  128G   9.2G  113G   8% /

```

Additional information from dmidecode:

(End of data from sysinfo program)

### General Notes

Environment variables set by runspec before the start of the run:

```

KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/root/cpu2006-1.2/libs/32:/root/cpu2006-1.2/libs/64"
OMP_NUM_THREADS = "4"

```

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### General Notes (Continued)

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5  
 Transparent Huge Pages disabled with:  
 echo never > /sys/kernel/mm/transparent\_hugepage/enabled  
 Filesystem page cache cleared with:  
 echo 1> /proc/sys/vm/drop\_caches  
 The Dell PowerEdge R720 and the Bull NovaScale R460 F3 models are electronically equivalent.  
 The results have been measured on a Dell PowerEdge R720 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



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## Base Optimization Flags

C benchmarks:

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

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: basepeak = yes

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.dealII: 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

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

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

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

481.wrf: basepeak = yes

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html>

<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120410.00.html>



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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>

<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120410.00.xml>

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