



# SPEC® CFP2006 Result

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## Bull SAS

SPECfp®2006 = **70.8**

NovaScale T840 F3 (Intel Xeon E5-2630, 2.30 GHz)

SPECfp\_base2006 = **67.4**

CPU2006 license: 20

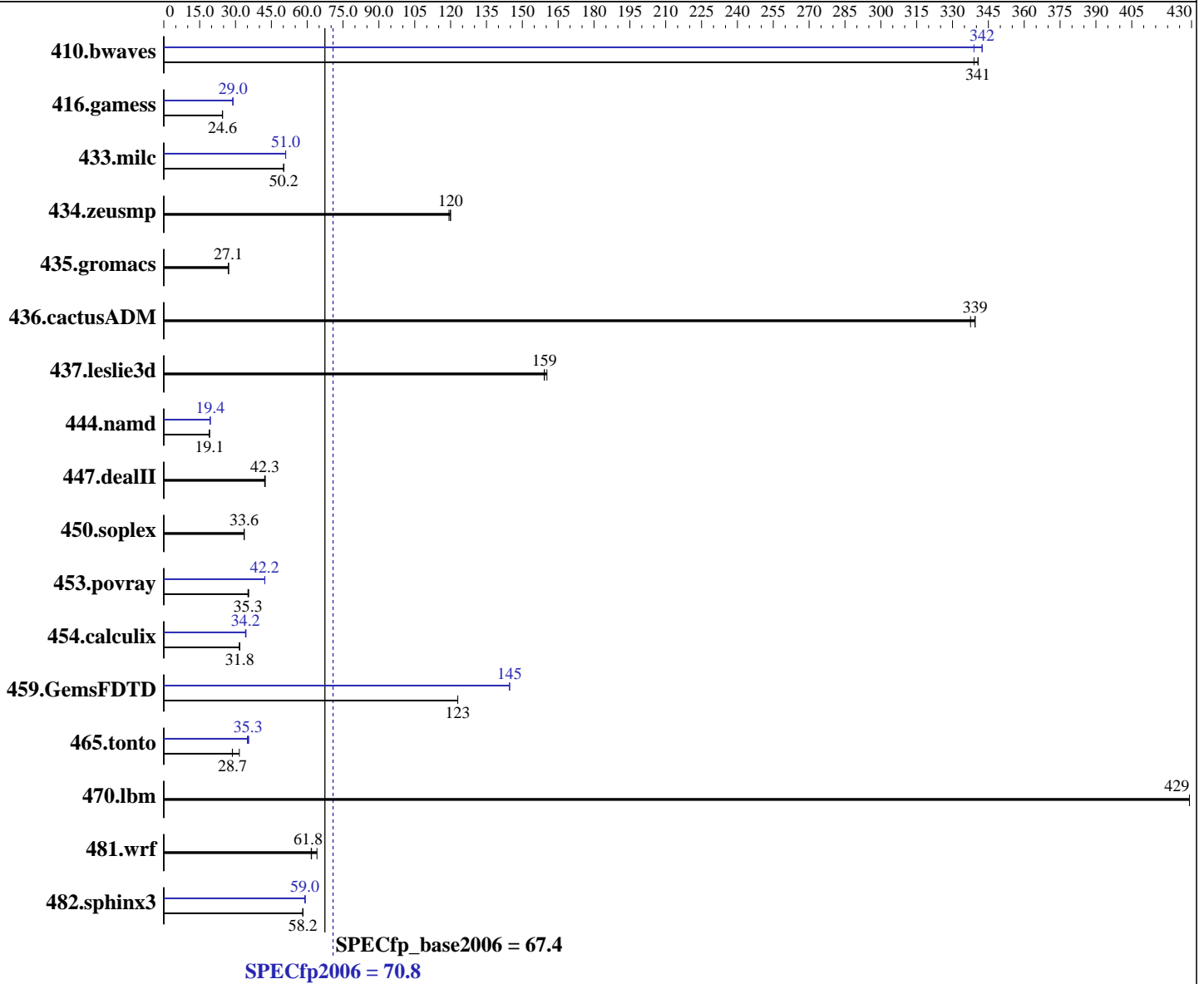
Test date: Feb-2012

Test sponsor: Bull SAS

Hardware Availability: Mar-2012

Tested by: Dell Inc.

Software Availability: Feb-2012



**Hardware**

CPU Name: Intel Xeon E5-2630  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz  
 CPU MHz: 2300  
 FPU: Integrated  
 CPU(s) enabled: 12 cores, 2 chips, 6 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) 3.0.13-0.9-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: 15 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC, running at 1333 MHz)  
 Disk Subsystem: 1 x 500 GB 7200 RPM SATA  
 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	40.1	339	39.9	341	<b>39.9</b>	<b>341</b>	39.7	342	40.1	339	<b>39.7</b>	<b>342</b>
416.gamess	796	24.6	<b>797</b>	<b>24.6</b>	799	24.5	676	29.0	<b>676</b>	<b>29.0</b>	679	28.9
433.milc	183	50.2	<b>183</b>	<b>50.2</b>	183	50.2	<b>180</b>	<b>51.0</b>	180	51.0	180	51.0
434.zeusmp	75.9	120	76.3	119	<b>75.9</b>	<b>120</b>	75.9	120	76.3	119	<b>75.9</b>	<b>120</b>
435.gromacs	264	27.0	<b>264</b>	<b>27.1</b>	263	27.1	264	27.0	<b>264</b>	<b>27.1</b>	263	27.1
436.cactusADM	<b>35.2</b>	<b>339</b>	35.4	338	35.2	339	<b>35.2</b>	<b>339</b>	35.4	338	35.2	339
437.leslie3d	58.6	160	<b>59.0</b>	<b>159</b>	59.0	159	58.6	160	<b>59.0</b>	<b>159</b>	59.0	159
444.namd	420	19.1	420	19.1	<b>420</b>	<b>19.1</b>	413	19.4	<b>413</b>	<b>19.4</b>	413	19.4
447.dealII	271	42.2	269	42.5	<b>271</b>	<b>42.3</b>	271	42.2	269	42.5	<b>271</b>	<b>42.3</b>
450.soplex	<b>248</b>	<b>33.6</b>	248	33.7	248	33.6	<b>248</b>	<b>33.6</b>	248	33.7	248	33.6
453.povray	151	35.2	150	35.5	<b>151</b>	<b>35.3</b>	126	42.2	<b>126</b>	<b>42.2</b>	126	42.3
454.calculix	<b>260</b>	<b>31.8</b>	259	31.8	261	31.6	<b>241</b>	<b>34.2</b>	241	34.2	240	34.4
459.GemsFDTD	86.3	123	<b>86.3</b>	<b>123</b>	86.3	123	73.4	145	<b>73.4</b>	<b>145</b>	73.4	145
465.tonto	311	31.6	<b>342</b>	<b>28.7</b>	343	28.7	281	35.0	277	35.5	<b>279</b>	<b>35.3</b>
470.lbm	32.0	429	32.0	429	<b>32.0</b>	<b>429</b>	32.0	429	32.0	429	<b>32.0</b>	<b>429</b>
481.wrf	181	61.7	174	64.1	<b>181</b>	<b>61.8</b>	181	61.7	174	64.1	<b>181</b>	<b>61.8</b>
482.sphinx3	335	58.3	335	58.2	<b>335</b>	<b>58.2</b>	329	59.2	<b>330</b>	<b>59.0</b>	330	59.0

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  
 Memory Frequency set to Maximum Performance  
 Turbo Boost set to Enabled  
 C States/C1E set to Enabled  
 Sysinfo program /root/CPU2006-1.2/config/sysinfo.rev6800  
 \$Rev: 6800 \$ \$Date:: 2011-10-11 #\$ 6f2ebdff5032aaa42e583f96b07f99d3  
 running on Miller Thu Feb 16 17:06:59 2012

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### Platform Notes (Continued)

This section contains SUT (System Under Test) info as seen by 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 E5-2630 0 @ 2.30GHz
 2 "physical id"s (chips)
24 "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 : 6
  siblings  : 12
  physical 0: cores 0 1 2 3 4 5
  physical 1: cores 0 1 2 3 4 5
cache size : 15360 KB

```

```

From /proc/meminfo
MemTotal:      132122692 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 Miller 3.0.13-0.9-default #1 SMP Mon Jan 16 17:33:03 UTC 2012 (54ddfaf)
x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Feb 16 09:54 last=5

```

SPEC is set to: /root/CPU2006-1.2
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdal       ext3  99G   69G   25G   74% /

```

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 = "12"

```

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### General Notes (Continued)

The Dell PowerEdge T620 and the Bull NovaScale T840 F3 models are electronically equivalent. The results have been measured on a Dell PowerEdge T620 model

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
```

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using 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

```



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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.20120328.html>



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

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<http://www.spec.org/cpu2006/flags/Dell-Platform-Settings-V1.2-revA.20120328.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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