



# SPEC® CFP2006 Result

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## Bull SAS

NovaScale B260  
(Intel Xeon E5440, 2.83 GHz)

SPECfp®2006 = 21.3

SPECfp\_base2006 = 18.1

CPU2006 license: 20

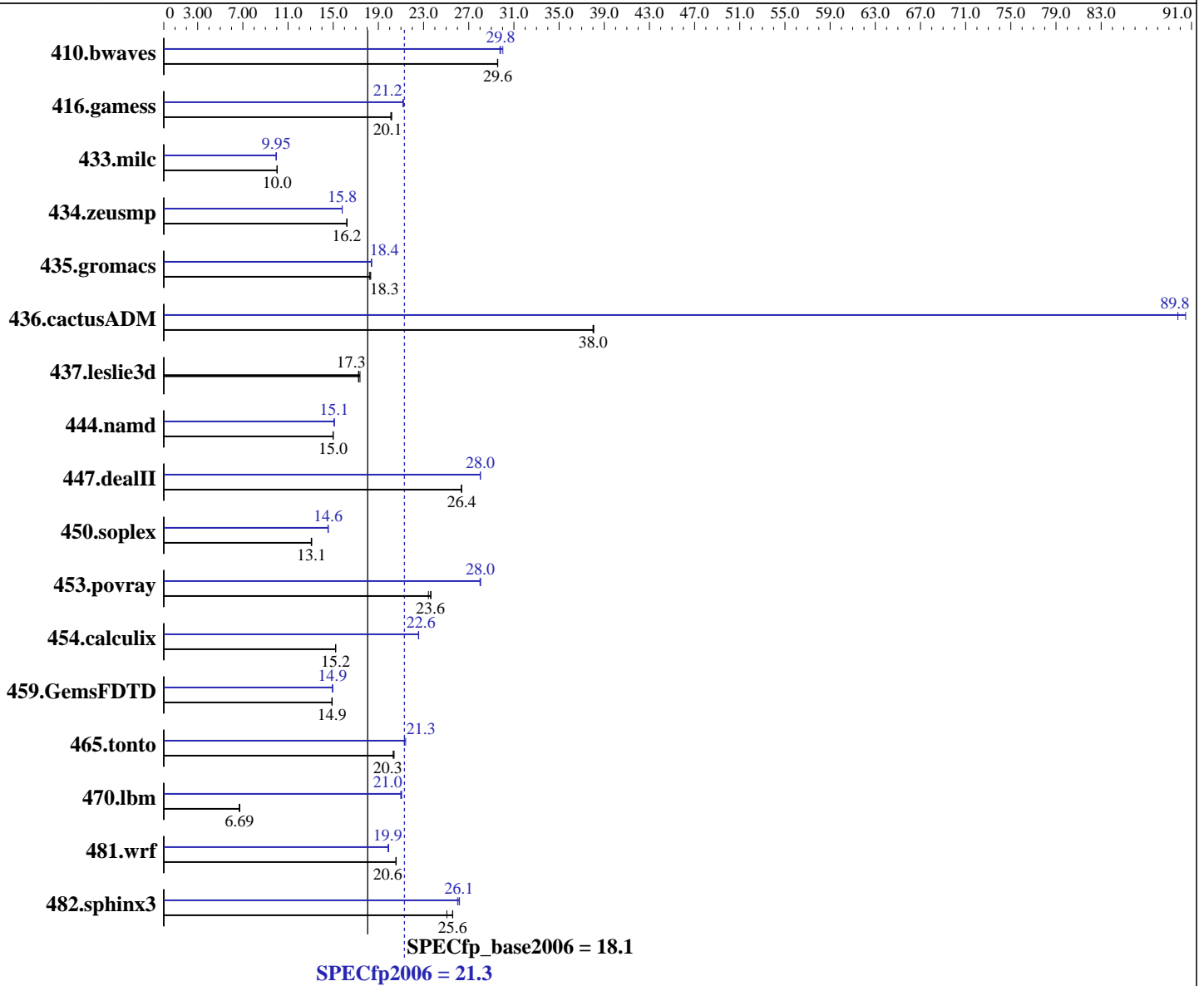
Test sponsor: Bull SAS

Tested by: Bull SAS

Test date: Sep-2008

Hardware Availability: Jan-2008

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon E5440  
 CPU Characteristics: 1333 MHz system bus  
 CPU MHz: 2833  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 12 MB I+D on chip per chip, 6 MB shared / 2 cores

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### Software

Operating System: SUSE LINUX Enterprise Server 10 (x86\_64) SP1  
 Kernel 2.6.16.46-0.12-smp  
 Compiler: Intel C++ and Fortran Compiler 10.1 for Linux  
 Build 20070913 Package ID: l\_cc\_p\_10.1.008,  
 l\_fc\_p\_10.1.008  
 Auto Parallel: Yes  
 File System: ext2  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit

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L3 Cache: None  
Other Cache: None  
Memory: 16 GB (4x4 GB) FB-DIMM PC2-5300F ECC CL5  
Disk Subsystem: 1x73 GB SAS, 15000 RPM  
Other Hardware: None

Peak Pointers: 32/64-bit  
Other Software: Binutils 2.17.50.0.15

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	460	29.6	<b>460</b>	<b>29.6</b>	460	29.5	453	30.0	<b>456</b>	<b>29.8</b>	457	29.8
416.gamess	<b>972</b>	<b>20.1</b>	970	20.2	974	20.1	<b>924</b>	<b>21.2</b>	924	21.2	923	21.2
433.milc	915	10.0	<b>915</b>	<b>10.0</b>	914	10.0	921	9.97	923	9.95	<b>922</b>	<b>9.95</b>
434.zeusmp	<b>561</b>	<b>16.2</b>	562	16.2	561	16.2	576	15.8	576	15.8	<b>576</b>	<b>15.8</b>
435.gromacs	392	18.2	<b>391</b>	<b>18.3</b>	390	18.3	389	18.4	<b>388</b>	<b>18.4</b>	388	18.4
436.cactusADM	314	38.1	<b>314</b>	<b>38.0</b>	314	38.0	133	89.8	<b>133</b>	<b>89.8</b>	132	90.5
437.leslie3d	<b>545</b>	<b>17.3</b>	545	17.2	541	17.4	<b>545</b>	<b>17.3</b>	545	17.2	541	17.4
444.namd	535	15.0	535	15.0	<b>535</b>	<b>15.0</b>	531	15.1	<b>531</b>	<b>15.1</b>	532	15.1
447.dealII	434	26.4	434	26.4	<b>434</b>	<b>26.4</b>	<b>408</b>	<b>28.0</b>	408	28.0	408	28.0
450.soplex	639	13.1	<b>638</b>	<b>13.1</b>	636	13.1	<b>573</b>	<b>14.6</b>	573	14.6	574	14.5
453.povray	227	23.4	225	23.7	<b>225</b>	<b>23.6</b>	<b>190</b>	<b>28.0</b>	190	28.0	190	28.0
454.calculix	542	15.2	542	15.2	<b>542</b>	<b>15.2</b>	366	22.6	365	22.6	<b>366</b>	<b>22.6</b>
459.GemsFDTD	713	14.9	<b>712</b>	<b>14.9</b>	711	14.9	<b>710</b>	<b>14.9</b>	710	14.9	710	14.9
465.tonto	483	20.4	484	20.3	<b>484</b>	<b>20.3</b>	459	21.4	<b>462</b>	<b>21.3</b>	462	21.3
470.lbm	2055	6.69	<b>2054</b>	<b>6.69</b>	2041	6.73	655	21.0	652	21.1	<b>654</b>	<b>21.0</b>
481.wrf	544	20.5	<b>543</b>	<b>20.6</b>	543	20.6	<b>562</b>	<b>19.9</b>	561	19.9	563	19.9
482.sphinx3	778	25.1	762	25.6	<b>762</b>	<b>25.6</b>	<b>746</b>	<b>26.1</b>	744	26.2	749	26.0

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  
OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to physical,0  
KMP\_STACKSIZE set to 200M

## General Notes

All benchmarks compiled in 64-bit mode except 450.soplex, 470.lbm and 482.sphinx3, at peak, are compiled in 32-bit mode



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## Base Compiler Invocation

C benchmarks:  
icc

C++ benchmarks:  
icpc

Fortran benchmarks:  
ifort

Benchmarks using both Fortran and C:  
icc ifort

## 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:  
-fast -parallel

C++ benchmarks:  
-fast -parallel

Fortran benchmarks:  
-fast -parallel

Benchmarks using both Fortran and C:  
-fast -parallel



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## Peak Compiler Invocation

C benchmarks (except as noted below):

```
/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib  
-I/opt/intel/cc/10.1.008/include
```

433.milc: icc

C++ benchmarks (except as noted below):

icpc

```
450.soplex: /opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib  
-I/opt/intel/cc/10.1.008/include
```

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icc ifort

## Peak 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  
453.povray: -DSPEC_CPU_LP64  
454.calculix: -DSPEC_CPU_LP64 -nofor_main  
459.GemsFDTD: -DSPEC_CPU_LP64  
465.tonto: -DSPEC_CPU_LP64  
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
```

## Peak Optimization Flags

C benchmarks:

```
433.milc: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias  
-auto-ilp32
```

```
470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-scalar-rep- -prefetch -opt-malloc-options=3
```

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## Peak Optimization Flags (Continued)

482.sphinx3: -fast -unroll2

### C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias  
-auto-ilp32

447.dealIII: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast  
-opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4  
-ansi-alias

### Fortran benchmarks:

410.bwaves: -fast -prefetch -parallel

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0  
-ansi-alias -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

437.leslie3d: basepeak = yes

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0  
-prefetch -parallel

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

### Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch  
-auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-prefetch -parallel -auto-ilp32

454.calculix: -fast -unroll-aggressive -auto-ilp32

481.wrf: -fast -parallel -prefetch -auto-ilp32

The flags file that was used to format this result can be browsed at

[http://www.spec.org/cpu2006/flags/EM64T\\_Intel101\\_fp\\_flags.20090713.html](http://www.spec.org/cpu2006/flags/EM64T_Intel101_fp_flags.20090713.html)

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

[http://www.spec.org/cpu2006/flags/EM64T\\_Intel101\\_fp\\_flags.20090713.xml](http://www.spec.org/cpu2006/flags/EM64T_Intel101_fp_flags.20090713.xml)



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

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