



# SPEC® CFP2006 Result

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## Bull SAS

NovaScale B260+  
(Intel Xeon E5450, 3.00 GHz)

SPECfp®2006 = 23.2

SPECfp\_base2006 = 19.5

CPU2006 license: 20

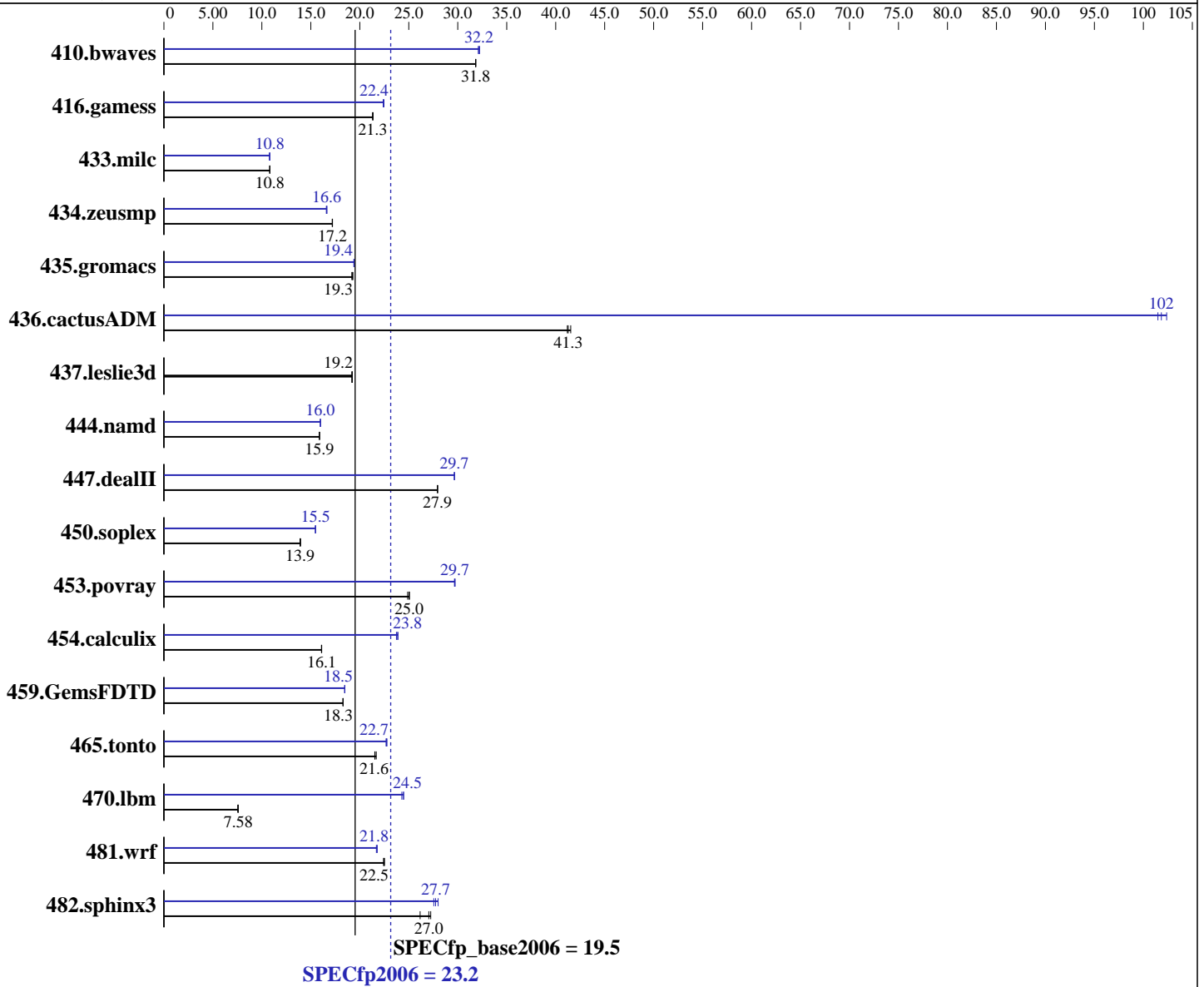
Test sponsor: Bull SAS

Tested by: Bull SAS

Test date: Jul-2008

Hardware Availability: Jan-2008

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon E5450  
 CPU Characteristics: 1333 MHz system bus  
 CPU MHz: 3000  
 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 SP1  
 Kernel 2.6.16.46-0.12-smp for x86\_64  
 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 (8x2 GB) FB-DIMM PC2-5300F ECC CL5  
Disk Subsystem: 1x73 GB SAS, 10000 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	427	31.8	427	31.9	<b>427</b>	<b>31.8</b>	422	32.2	<b>422</b>	<b>32.2</b>	423	32.1
416.gamess	917	21.4	919	21.3	<b>918</b>	<b>21.3</b>	<b>874</b>	<b>22.4</b>	874	22.4	872	22.5
433.milc	850	10.8	<b>849</b>	<b>10.8</b>	849	10.8	849	10.8	852	10.8	<b>850</b>	<b>10.8</b>
434.zeusmp	<b>529</b>	<b>17.2</b>	530	17.2	529	17.2	547	16.6	<b>547</b>	<b>16.6</b>	549	16.6
435.gromacs	370	19.3	<b>371</b>	<b>19.3</b>	372	19.2	<b>368</b>	<b>19.4</b>	368	19.4	368	19.4
436.cactusADM	290	41.2	<b>290</b>	<b>41.3</b>	288	41.5	118	101	117	102	<b>117</b>	<b>102</b>
437.leslie3d	489	19.2	<b>489</b>	<b>19.2</b>	490	19.2	489	19.2	<b>489</b>	<b>19.2</b>	490	19.2
444.namd	505	15.9	505	15.9	<b>505</b>	<b>15.9</b>	502	16.0	<b>502</b>	<b>16.0</b>	502	16.0
447.dealII	410	27.9	<b>410</b>	<b>27.9</b>	409	27.9	386	29.7	<b>386</b>	<b>29.7</b>	386	29.7
450.soplex	598	14.0	<b>600</b>	<b>13.9</b>	600	13.9	539	15.5	539	15.5	<b>539</b>	<b>15.5</b>
453.povray	214	24.9	<b>213</b>	<b>25.0</b>	212	25.1	179	29.7	179	29.7	<b>179</b>	<b>29.7</b>
454.calculix	512	16.1	<b>512</b>	<b>16.1</b>	513	16.1	345	23.9	<b>347</b>	<b>23.8</b>	348	23.7
459.GemsFDTD	580	18.3	<b>580</b>	<b>18.3</b>	580	18.3	<b>575</b>	<b>18.5</b>	575	18.5	575	18.5
465.tonto	454	21.7	<b>457</b>	<b>21.6</b>	457	21.5	432	22.8	434	22.7	<b>433</b>	<b>22.7</b>
470.lbm	1810	7.59	<b>1813</b>	<b>7.58</b>	1823	7.54	562	24.5	<b>562</b>	<b>24.5</b>	566	24.3
481.wrf	496	22.5	<b>497</b>	<b>22.5</b>	498	22.4	513	21.8	515	21.7	<b>513</b>	<b>21.8</b>
482.sphinx3	745	26.2	715	27.2	<b>721</b>	<b>27.0</b>	696	28.0	<b>703</b>	<b>27.7</b>	707	27.6

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  
BIOS settings :  
Hardware Prefetcher : Enabled  
Adjacent Cache-Line Prefetch : Enabled



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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.20090713.00.html](http://www.spec.org/cpu2006/flags/EM64T_Intel101_fp_flags.20090713.00.html)

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

[http://www.spec.org/cpu2006/flags/EM64T\\_Intel101\\_fp\\_flags.20090713.00.xml](http://www.spec.org/cpu2006/flags/EM64T_Intel101_fp_flags.20090713.00.xml)



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

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