



# SPEC<sup>®</sup> CFP2006 Result

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## Bull SAS

NovaScale T860 E1  
(Intel Xeon E5430, 2.66 GHz)

SPECfp<sup>®</sup>2006 = 21.3

SPECfp\_base2006 = 18.0

CPU2006 license: 20

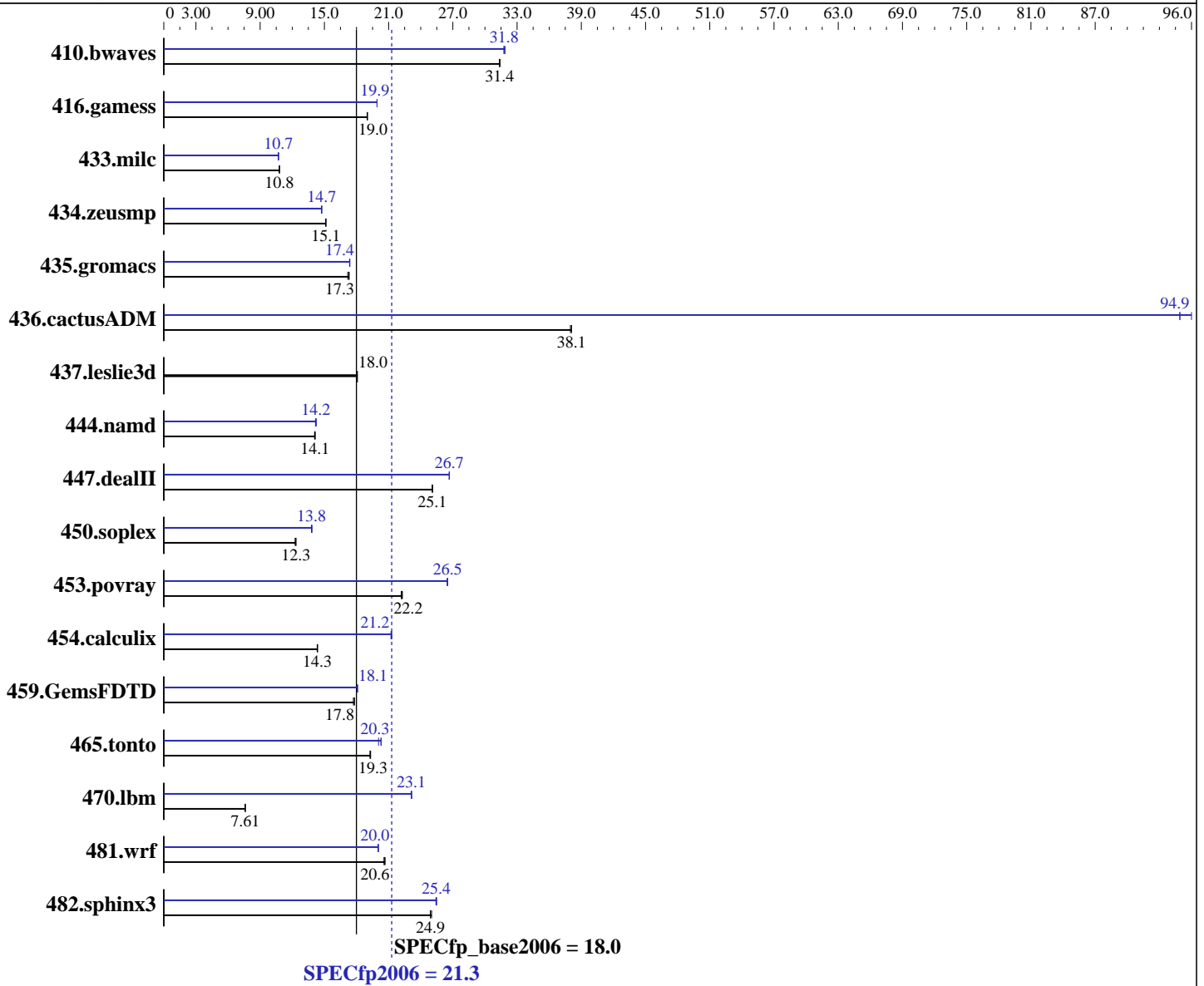
Test sponsor: Bull SAS

Tested by: Bull SAS

Test date: Jul-2008

Hardware Availability: Jan-2008

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon E5430  
 CPU Characteristics: 1333 MHz system bus  
 CPU MHz: 2666  
 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, 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	434	31.3	<b>433</b>	<b>31.4</b>	433	31.4	<b>428</b>	<b>31.8</b>	426	31.9	428	31.8
416.gamess	<b>1030</b>	<b>19.0</b>	1031	19.0	1029	19.0	<b>983</b>	<b>19.9</b>	983	19.9	983	19.9
433.milc	850	10.8	<b>849</b>	<b>10.8</b>	849	10.8	857	10.7	857	10.7	<b>857</b>	<b>10.7</b>
434.zeusmp	601	15.1	601	15.1	<b>601</b>	<b>15.1</b>	617	14.8	617	14.7	<b>617</b>	<b>14.7</b>
435.gromacs	413	17.3	416	17.2	<b>413</b>	<b>17.3</b>	<b>411</b>	<b>17.4</b>	411	17.4	412	17.3
436.cactusADM	<b>314</b>	<b>38.1</b>	314	38.1	315	38.0	<b>126</b>	<b>94.9</b>	124	96.0	126	94.9
437.leslie3d	520	18.1	<b>521</b>	<b>18.0</b>	522	18.0	520	18.1	<b>521</b>	<b>18.0</b>	522	18.0
444.namd	567	14.1	570	14.1	<b>568</b>	<b>14.1</b>	<b>564</b>	<b>14.2</b>	566	14.2	563	14.2
447.dealII	<b>456</b>	<b>25.1</b>	456	25.1	456	25.1	429	26.7	429	26.7	<b>429</b>	<b>26.7</b>
450.soplex	676	12.3	<b>676</b>	<b>12.3</b>	680	12.3	<b>604</b>	<b>13.8</b>	605	13.8	602	13.8
453.povray	239	22.3	240	22.2	<b>239</b>	<b>22.2</b>	<b>201</b>	<b>26.5</b>	201	26.5	201	26.5
454.calculix	<b>575</b>	<b>14.3</b>	574	14.4	576	14.3	<b>388</b>	<b>21.2</b>	387	21.3	389	21.2
459.GemsFDTD	599	17.7	596	17.8	<b>596</b>	<b>17.8</b>	586	18.1	<b>587</b>	<b>18.1</b>	587	18.1
465.tonto	<b>510</b>	<b>19.3</b>	509	19.3	511	19.3	484	20.3	491	20.1	<b>485</b>	<b>20.3</b>
470.lbm	<b>1807</b>	<b>7.61</b>	1805	7.61	1807	7.60	593	23.2	595	23.1	<b>594</b>	<b>23.1</b>
481.wrf	<b>542</b>	<b>20.6</b>	540	20.7	543	20.6	557	20.0	<b>557</b>	<b>20.0</b>	558	20.0
482.sphinx3	779	25.0	783	24.9	<b>782</b>	<b>24.9</b>	<b>766</b>	<b>25.4</b>	765	25.5	767	25.4

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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**Tested by:** Bull SAS

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**Software Availability:** Nov-2007

## 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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