



# SPEC® CFP2006 Result

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## Bull SAS

NovaScale T830 E1  
(Intel Xeon E3110, 3.00 GHz)

SPECfp®\_rate2006 = 34.3

SPECfp\_rate\_base2006 = 31.7

CPU2006 license: 20

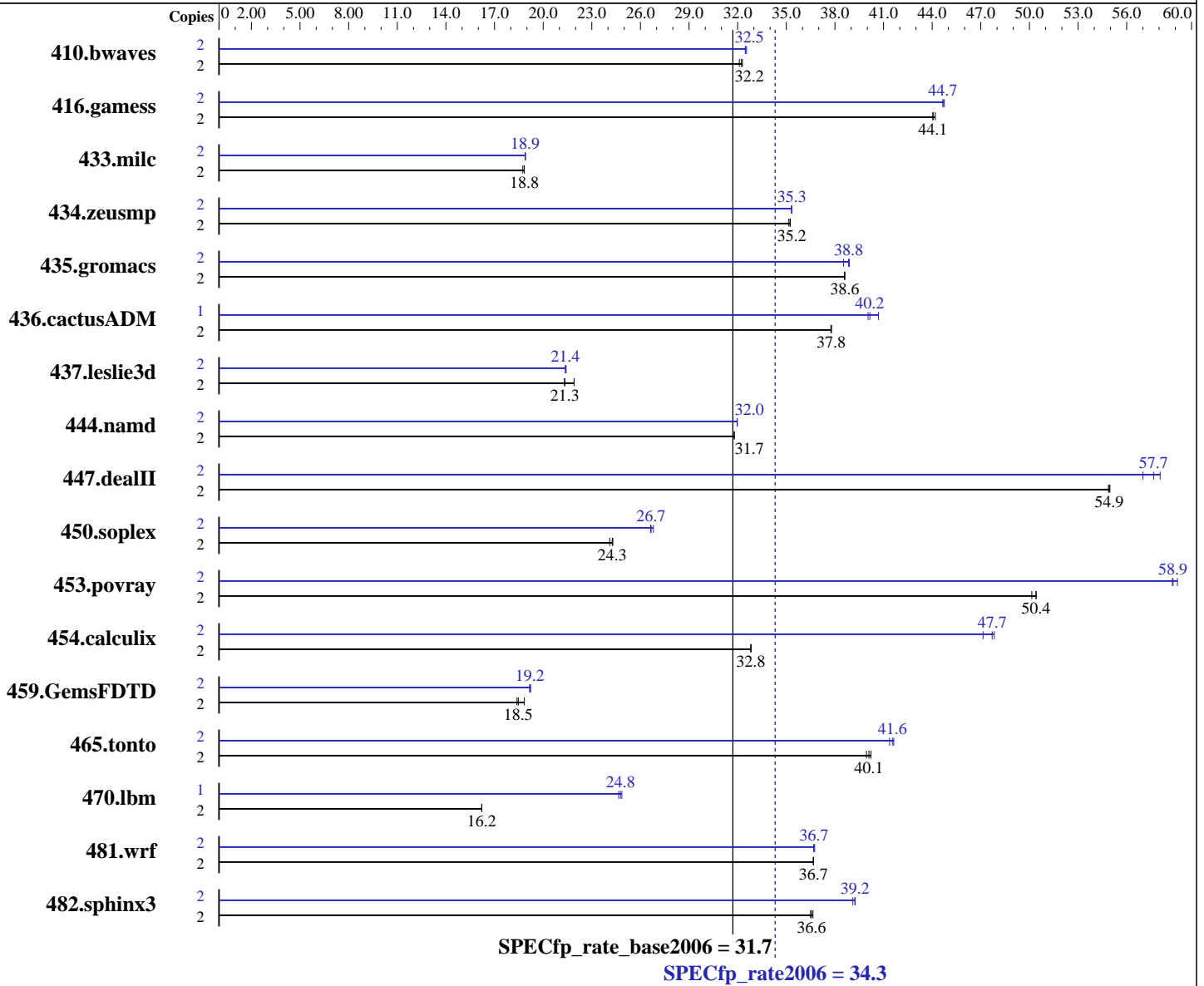
Test sponsor: Bull SAS

Tested by: Bull SAS

Test date: May-2008

Hardware Availability: Jan-2008

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon E3110  
 CPU Characteristics: 1333 MHz system bus  
 CPU MHz: 3000  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip  
 CPU(s) orderable: 1 chip  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 6 MB I+D on chip per chip

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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 PC2-6400E ECC CL6  
Disk Subsystem: 1x80 GB SATA, 7200 RPM  
Other Hardware: None

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

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	2	842	32.3	847	32.1	<b>843</b>	<b>32.2</b>	2	<b>837</b>	<b>32.5</b>	835	32.5	837	32.5
416.gamess	2	886	44.2	889	44.0	<b>889</b>	<b>44.1</b>	2	<b>877</b>	<b>44.7</b>	875	44.8	877	44.7
433.milc	2	<b>975</b>	<b>18.8</b>	979	18.7	975	18.8	2	<b>972</b>	<b>18.9</b>	972	18.9	971	18.9
434.zeusmp	2	518	35.2	<b>517</b>	<b>35.2</b>	516	35.2	2	<b>515</b>	<b>35.3</b>	515	35.3	515	35.3
435.gromacs	2	370	38.6	370	38.6	<b>370</b>	<b>38.6</b>	2	<b>368</b>	<b>38.8</b>	371	38.5	367	38.9
436.cactusADM	2	633	37.8	633	37.8	<b>633</b>	<b>37.8</b>	1	<b>298</b>	<b>40.2</b>	294	40.7	298	40.0
437.leslie3d	2	882	21.3	858	21.9	<b>881</b>	<b>21.3</b>	2	878	21.4	<b>879</b>	<b>21.4</b>	880	21.4
444.namd	2	506	31.7	<b>505</b>	<b>31.7</b>	504	31.8	2	502	32.0	502	32.0	<b>502</b>	<b>32.0</b>
447.dealII	2	417	54.9	416	55.0	<b>417</b>	<b>54.9</b>	2	394	58.1	<b>397</b>	<b>57.7</b>	401	57.0
450.soplex	2	687	24.3	<b>688</b>	<b>24.3</b>	692	24.1	2	626	26.6	622	26.8	<b>626</b>	<b>26.7</b>
453.povray	2	211	50.4	212	50.1	<b>211</b>	<b>50.4</b>	2	180	59.1	<b>181</b>	<b>58.9</b>	181	58.8
454.calculix	2	503	32.8	<b>503</b>	<b>32.8</b>	503	32.8	2	345	47.8	350	47.1	<b>346</b>	<b>47.7</b>
459.GemsFDTD	2	1126	18.8	<b>1149</b>	<b>18.5</b>	1154	18.4	2	1104	19.2	1107	19.2	<b>1106</b>	<b>19.2</b>
465.tonto	2	489	40.2	<b>491</b>	<b>40.1</b>	493	39.9	2	476	41.4	<b>474</b>	<b>41.6</b>	473	41.6
470.lbm	2	<b>1695</b>	<b>16.2</b>	1694	16.2	1696	16.2	1	553	24.9	<b>555</b>	<b>24.8</b>	557	24.7
481.wrf	2	609	36.7	609	36.7	<b>609</b>	<b>36.7</b>	2	609	36.7	608	36.8	<b>608</b>	<b>36.7</b>
482.sphinx3	2	1064	36.6	<b>1066</b>	<b>36.6</b>	1068	36.5	2	<b>994</b>	<b>39.2</b>	993	39.2	997	39.1

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 64M

## 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

The Bull NovaScale T810 E1(Intel Xeon E3110, 3.00 GHz), the Bull NovaScale T830 E1(Intel Xeon E3110, 3.00 GHz) and the Bull NovaScale R410 E1(Intel Xeon E3110, 3.00 GHz) models are electronically equivalent. The results have been measured on a Bull NovaScale T810 E1(Intel Xeon E3110, 3.00 GHz) model.



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**CPU2006 license:** 20  
**Test sponsor:** Bull SAS  
**Tested by:** Bull SAS

**Test date:** May-2008  
**Hardware Availability:** Jan-2008  
**Software Availability:** Nov-2007

## 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

C++ benchmarks:  
-fast

Fortran benchmarks:  
-fast

Benchmarks using both Fortran and C:  
-fast



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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 (except as noted below):

ifort

```
437.leslie3d: /opt/intel/fc/10.1.008/bin/ifort -L/opt/intel/fc/10.1.008/lib  
-I/opt/intel/fc/10.1.008/include
```

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  
444.namd: -DSPEC_CPU_LP64  
447.deallI: -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

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

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

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 -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)



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

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