



# SPEC® CFP2006 Result

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## Bull SAS

NovaScale T860 E1  
(Intel Xeon X5260, 3.33 GHz)

SPECfp®\_rate2006 = 29.7

SPECfp\_rate\_base2006 = 27.4

CPU2006 license: 20

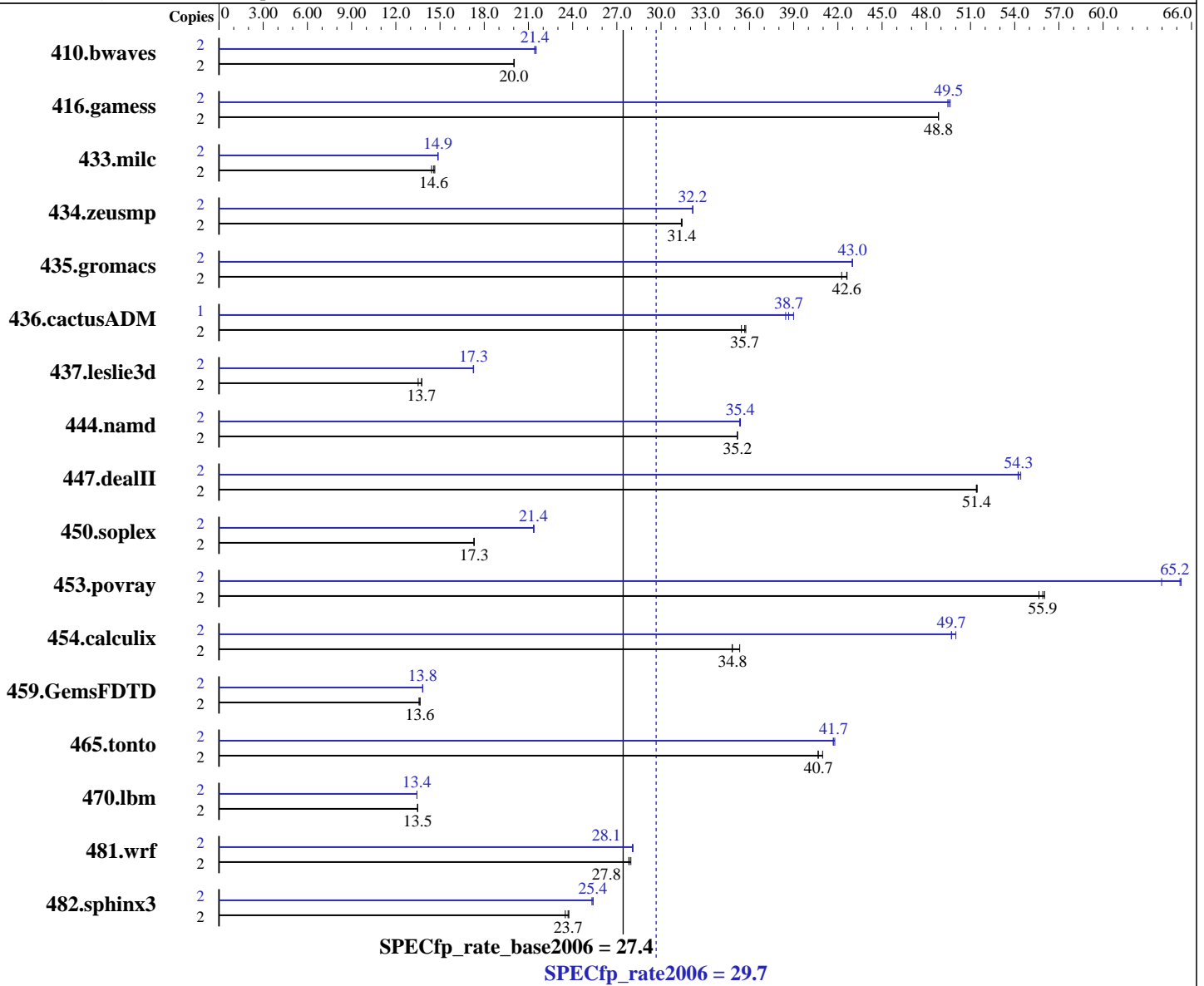
Test sponsor: Bull SAS

Tested by: NEC Corporation

Test date: Jun-2008

Hardware Availability: Apr-2008

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon X5260  
 CPU Characteristics: 3.33 GHz, 6 MB L2, 1333 MHz bus  
 CPU MHz: 3333  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip  
 CPU(s) orderable: 1,2 chips  
 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 (x86\_64) SP1,  
 Kernel 2.6.16.46-0.12-smpp  
 Compiler: Intel C++ and Fortran Compiler for Linux32 and  
 Linux64  
 version 10.1 Build 20070913 Package ID:  
 l\_cc\_p\_10.1.008,  
 l\_fc\_p\_10.1.008  
 Auto Parallel: Yes  
 File System: ReiserFS

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L3 Cache: None  
Other Cache: None  
Memory: 16 GB (8x2 GB PC2-5300F, 2 rank, CL5-5-5, ECC)  
Disk Subsystem: 1x73.2 GB SAS, 15000RPM  
Other Hardware: None

System State: Run level 3 (multi-user)  
Base Pointers: 64-bit  
Peak Pointers: 32/64-bit  
Other Software: binutils-2.17.tar.gz, Version 2.17

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	2	1356	20.0	1358	20.0	<b>1358</b>	<b>20.0</b>	2	1262	21.5	<b>1267</b>	<b>21.4</b>	1268	21.4
416.gamess	2	<b>802</b>	<b>48.8</b>	802	48.8	802	48.8	2	789	49.6	<b>791</b>	<b>49.5</b>	792	49.5
433.milc	2	1272	14.4	<b>1260</b>	<b>14.6</b>	1254	14.6	2	<b>1235</b>	<b>14.9</b>	1236	14.9	1235	14.9
434.zeusmp	2	580	31.4	<b>579</b>	<b>31.4</b>	579	31.4	2	566	32.2	<b>566</b>	<b>32.2</b>	566	32.1
435.gromacs	2	338	42.3	335	42.6	<b>335</b>	<b>42.6</b>	2	332	43.0	<b>332</b>	<b>43.0</b>	332	43.0
436.cactusADM	2	669	35.8	<b>670</b>	<b>35.7</b>	674	35.5	1	<b>309</b>	<b>38.7</b>	306	39.0	311	38.5
437.leslie3d	2	<b>1367</b>	<b>13.7</b>	1366	13.8	1391	13.5	2	1088	17.3	1090	17.3	<b>1088</b>	<b>17.3</b>
444.namd	2	456	35.2	<b>456</b>	<b>35.2</b>	456	35.2	2	<b>453</b>	<b>35.4</b>	454	35.3	453	35.4
447.dealII	2	445	51.4	445	51.5	<b>445</b>	<b>51.4</b>	2	422	54.2	420	54.4	<b>422</b>	<b>54.3</b>
450.soplex	2	963	17.3	965	17.3	<b>963</b>	<b>17.3</b>	2	780	21.4	781	21.3	<b>781</b>	<b>21.4</b>
453.povray	2	<b>190</b>	<b>55.9</b>	190	56.0	191	55.6	2	<b>163</b>	<b>65.2</b>	163	65.3	166	64.0
454.calculix	2	<b>474</b>	<b>34.8</b>	467	35.3	474	34.8	2	330	50.0	<b>332</b>	<b>49.7</b>	332	49.7
459.GemsFDTD	2	1563	13.6	1555	13.6	<b>1556</b>	<b>13.6</b>	2	<b>1535</b>	<b>13.8</b>	1536	13.8	1534	13.8
465.tonto	2	480	41.0	484	40.7	<b>484</b>	<b>40.7</b>	2	<b>472</b>	<b>41.7</b>	471	41.8	472	41.7
470.lbm	2	2038	13.5	2039	13.5	<b>2039</b>	<b>13.5</b>	2	2045	13.4	<b>2046</b>	<b>13.4</b>	2046	13.4
481.wrf	2	799	28.0	<b>802</b>	<b>27.8</b>	803	27.8	2	796	28.1	795	28.1	<b>796</b>	<b>28.1</b>
482.sphinx3	2	1642	23.7	1659	23.5	<b>1645</b>	<b>23.7</b>	2	1535	25.4	1540	25.3	<b>1536</b>	<b>25.4</b>

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  
'/usr/bin/taskset' used to bind processes to CPUs  
except for 436.cactusADM at peak.  
OMP\_NUM\_THREADS set to number of cores

## Platform Notes

Bios settings:  
Hardware Prefetcher: Enabled  
Adjacent Cache Line Prefetch: Enabled  
Intel SpeedStep Technology: Disabled



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**Software Availability:** Nov-2007

## General Notes

All benchmarks compiled in 64-bit mode except 437.leslie3d, 450.soplex, 470.lbm and 482.sphinx3, for peak, are compiled in 32-bit mode

The NEC Express5800/120Lj(Intel Xeon X5260) and the Bull NovaScale T860 E1(Intel Xeon X5260,3.33GHz) models are electronically equivalent. The results have been measured on a NEC Express5800/120Lj(Intel Xeon X5260) model.

## 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

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## Base Optimization Flags (Continued)

C++ benchmarks:  
-fast

Fortran benchmarks:  
-fast

Benchmarks using both Fortran and C:  
-fast

## 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.dealII: -DSPEC_CPU_LP64  
453.povray: -DSPEC_CPU_LP64  
454.calculix: -DSPEC_CPU_LP64 -nofor_main  
459.GemsFDTD: -DSPEC_CPU_LP64
```

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## Peak Portability Flags (Continued)

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  
482.sphinx3: -fast -unroll2

### C++ benchmarks:

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

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## Peak Optimization Flags (Continued)

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/NEC-Intel-ic10.1-FP-intel64-linux-flags.html>

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

<http://www.spec.org/cpu2006/flags/NEC-Intel-ic10.1-FP-intel64-linux-flags.xml>

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

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