



# SPEC<sup>®</sup> CFP2006 Result

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## Bull SAS

NovaScale T860 E1  
(Intel Xeon E5410, 2.33 GHz)

SPECfp<sup>®</sup>\_rate2006 = 67.0

SPECfp\_rate\_base2006 = 60.0

CPU2006 license: 20

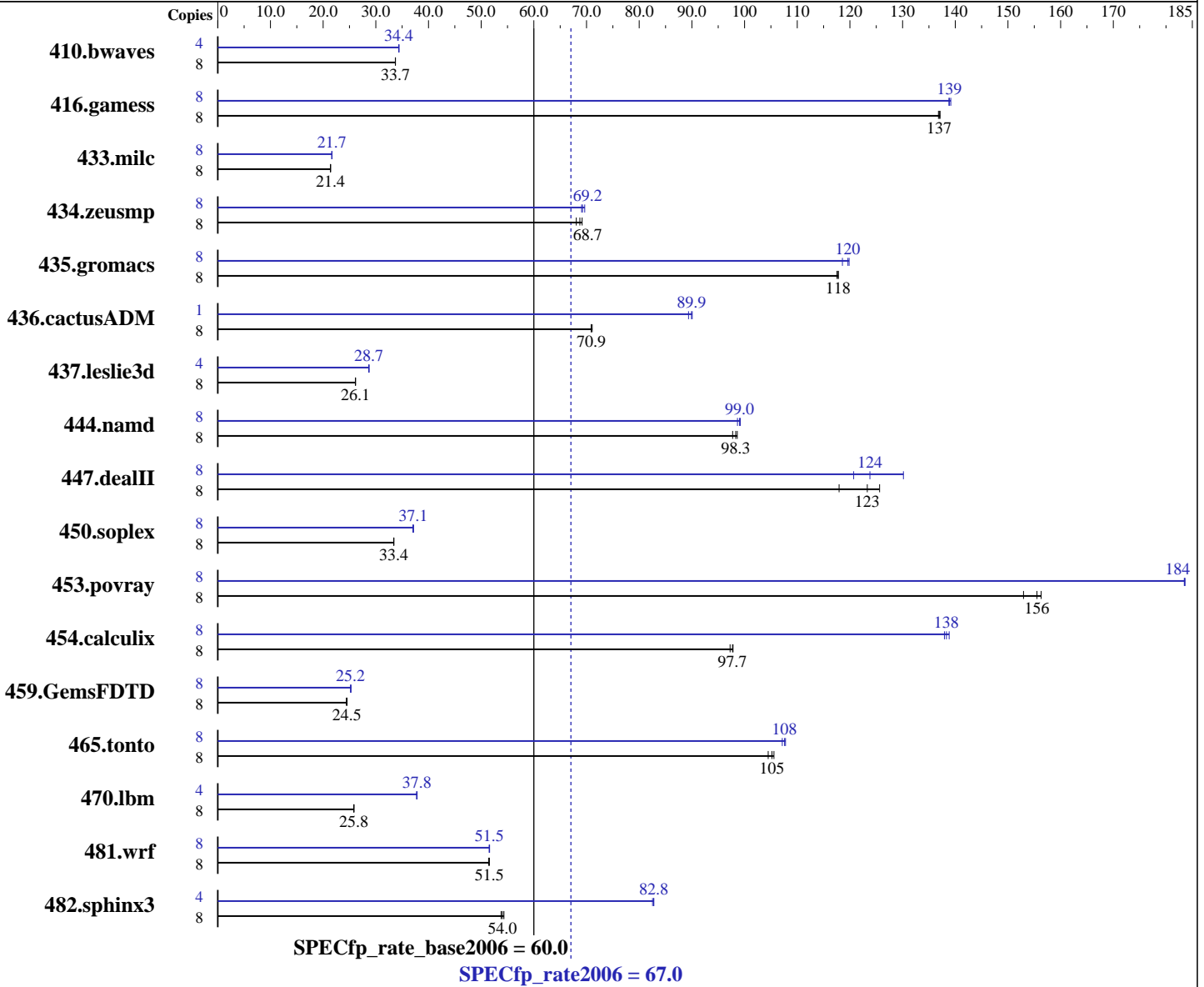
Test sponsor: Bull SAS

Tested by: Bull SAS

Test date: Jul-2008

Hardware Availability: Jan-2008

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon E5410  
 CPU Characteristics: 1333 MHz system bus  
 CPU MHz: 2333  
 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 (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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	3226	33.7	3224	33.7	<u>3224</u>	<u>33.7</u>	4	<u>1581</u>	<u>34.4</u>	1582	34.4	1581	34.4
416.gamess	8	1145	137	1142	137	<u>1144</u>	<u>137</u>	8	<u>1128</u>	<u>139</u>	1126	139	1129	139
433.milc	8	3434	21.4	<u>3432</u>	<u>21.4</u>	3430	21.4	8	<u>3388</u>	<u>21.7</u>	3397	21.6	3385	21.7
434.zeusmp	8	<u>1059</u>	<u>68.7</u>	1070	68.1	1053	69.2	8	<u>1051</u>	<u>69.2</u>	1054	69.1	1045	69.7
435.gromacs	8	486	118	485	118	<u>485</u>	<u>118</u>	8	<u>478</u>	<u>120</u>	477	120	482	119
436.cactusADM	8	1345	71.1	<u>1349</u>	<u>70.9</u>	1349	70.9	1	133	90.1	<u>133</u>	<u>89.9</u>	134	89.4
437.leslie3d	8	2875	26.2	2879	26.1	<u>2878</u>	<u>26.1</u>	4	<u>1311</u>	<u>28.7</u>	1312	28.7	1309	28.7
444.namd	8	651	98.6	656	97.7	<u>653</u>	<u>98.3</u>	8	647	99.2	<u>648</u>	<u>99.0</u>	650	98.7
447.dealII	8	728	126	776	118	<u>742</u>	<u>123</u>	8	758	121	703	130	<u>739</u>	<u>124</u>
450.soplex	8	1996	33.4	<u>1997</u>	<u>33.4</u>	1998	33.4	8	1795	37.2	<u>1799</u>	<u>37.1</u>	1801	37.0
453.povray	8	278	153	272	156	<u>274</u>	<u>156</u>	8	232	184	<u>232</u>	<u>184</u>	232	183
454.calculix	8	675	97.8	<u>675</u>	<u>97.7</u>	679	97.3	8	478	138	<u>477</u>	<u>138</u>	475	139
459.GemsFDTD	8	3477	24.4	<u>3465</u>	<u>24.5</u>	3458	24.5	8	3355	25.3	<u>3367</u>	<u>25.2</u>	3367	25.2
465.tonto	8	746	106	<u>748</u>	<u>105</u>	753	104	8	735	107	<u>732</u>	<u>108</u>	730	108
470.lbm	8	<u>4254</u>	<u>25.8</u>	4252	25.9	4260	25.8	4	1452	37.8	1456	37.7	<u>1455</u>	<u>37.8</u>
481.wrf	8	1734	51.5	1738	51.4	<u>1734</u>	<u>51.5</u>	8	1732	51.6	<u>1734</u>	<u>51.5</u>	1734	51.5
482.sphinx3	8	2899	53.8	<u>2886</u>	<u>54.0</u>	2870	54.3	4	945	82.5	<u>942</u>	<u>82.8</u>	942	82.8

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  
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 437.leslie3d, 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  
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.20090714.html](http://www.spec.org/cpu2006/flags/EM64T_Intel101_fp_flags.20090714.html)



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

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