



# SPEC<sup>®</sup> CFP2006 Result

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## Bull SAS

NovaScale T810 E1  
(Intel Xeon X3350, 2.66 GHz)

SPECfp<sup>®</sup>\_rate2006 = 49.3

SPECfp\_rate\_base2006 = 45.4

CPU2006 license: 20

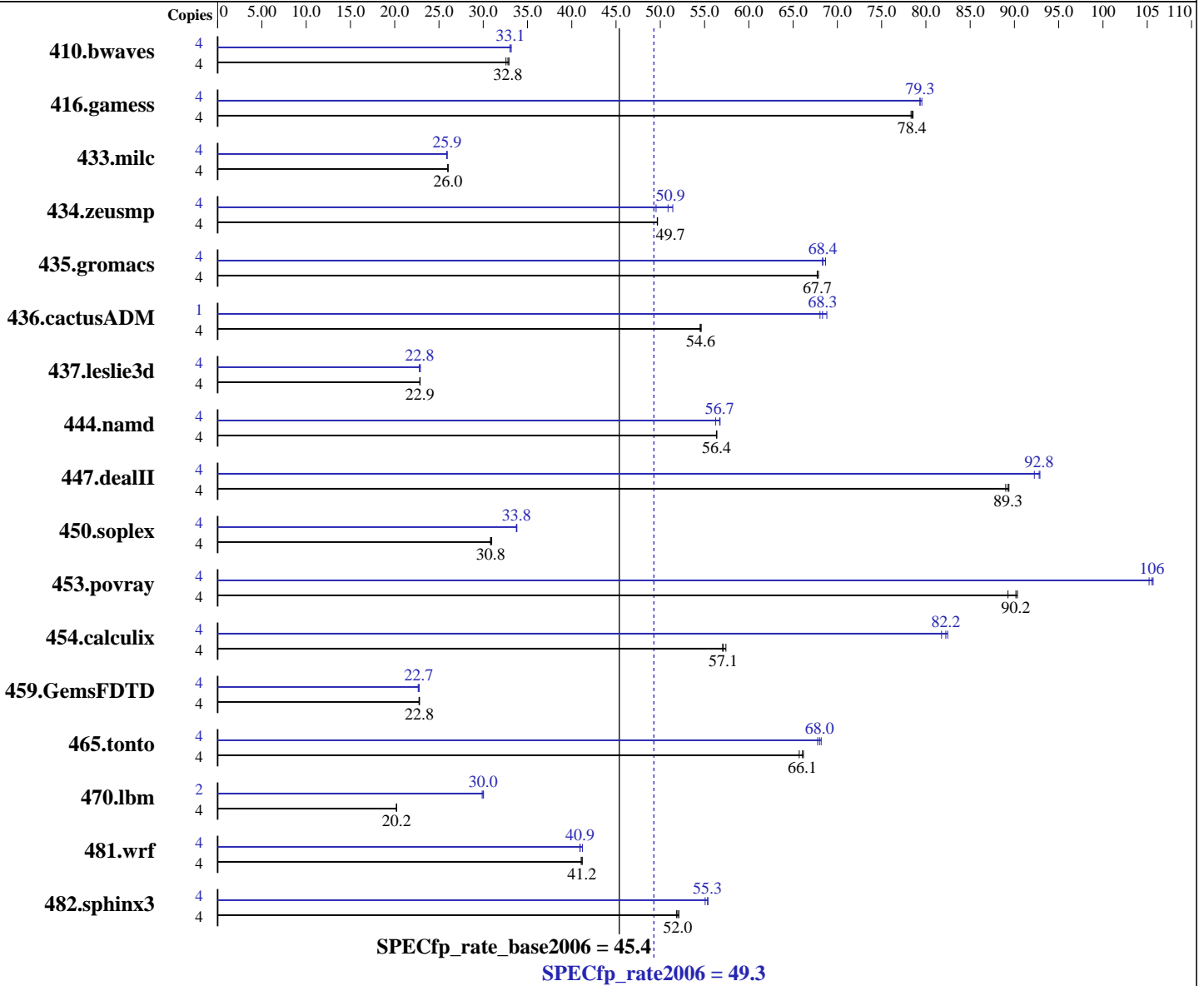
Test sponsor: Bull SAS

Tested by: Bull SAS

Test date: Jul-2008

Hardware Availability: Jan-2008

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon X3350  
 CPU Characteristics: 1333 MHz system bus  
 CPU MHz: 2666  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip  
 CPU(s) orderable: 1 chip  
 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: 8 GB (4x2 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	4	1669	32.6	1652	32.9	<b>1658</b>	<b>32.8</b>	4	1646	33.0	1639	33.2	<b>1644</b>	<b>33.1</b>
416.gamess	4	<b>999</b>	<b>78.4</b>	997	78.5	1000	78.3	4	<b>987</b>	<b>79.3</b>	987	79.3	985	79.5
433.milc	4	<b>1411</b>	<b>26.0</b>	1413	26.0	1411	26.0	4	1416	25.9	1420	25.9	<b>1417</b>	<b>25.9</b>
434.zeusmp	4	733	49.7	733	49.7	<b>733</b>	<b>49.7</b>	4	708	51.4	<b>715</b>	<b>50.9</b>	735	49.5
435.gromacs	4	<b>422</b>	<b>67.7</b>	421	67.9	422	67.7	4	<b>418</b>	<b>68.4</b>	416	68.7	418	68.3
436.cactusADM	4	877	54.5	875	54.6	<b>876</b>	<b>54.6</b>	1	174	68.8	176	68.0	<b>175</b>	<b>68.3</b>
437.leslie3d	4	1644	22.9	<b>1644</b>	<b>22.9</b>	1647	22.8	4	<b>1649</b>	<b>22.8</b>	1641	22.9	1651	22.8
444.namd	4	569	56.3	569	56.4	<b>569</b>	<b>56.4</b>	4	565	56.8	570	56.3	<b>566</b>	<b>56.7</b>
447.dealII	4	514	89.0	512	89.4	<b>513</b>	<b>89.3</b>	4	493	92.9	<b>493</b>	<b>92.8</b>	496	92.3
450.soplex	4	1078	31.0	<b>1082</b>	<b>30.8</b>	1082	30.8	4	989	33.7	<b>988</b>	<b>33.8</b>	987	33.8
453.povray	4	<b>236</b>	<b>90.2</b>	238	89.3	236	90.3	4	<b>202</b>	<b>106</b>	202	105	201	106
454.calculix	4	579	57.0	575	57.4	<b>578</b>	<b>57.1</b>	4	404	81.8	<b>401</b>	<b>82.2</b>	400	82.5
459.GemsFDTD	4	<b>1862</b>	<b>22.8</b>	1866	22.7	1862	22.8	4	1874	22.7	<b>1868</b>	<b>22.7</b>	1864	22.8
465.tonto	4	595	66.2	<b>596</b>	<b>66.1</b>	599	65.7	4	577	68.2	<b>579</b>	<b>68.0</b>	581	67.8
470.lbm	4	2720	20.2	<b>2720</b>	<b>20.2</b>	2719	20.2	2	<b>916</b>	<b>30.0</b>	915	30.0	920	29.9
481.wrf	4	<b>1085</b>	<b>41.2</b>	1085	41.2	1088	41.1	4	1092	40.9	<b>1091</b>	<b>40.9</b>	1084	41.2
482.sphinx3	4	1504	51.8	1496	52.1	<b>1500</b>	<b>52.0</b>	4	1408	55.4	1416	55.1	<b>1409</b>	<b>55.3</b>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Operating System Notes

OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to physical,0  
KMP\_STACKSIZE set to 64M  
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run

## 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 X3350, 2.66 GHz), the Bull NovaScale T830 E1(Intel Xeon X3350, 2.66 GHz) and the Bull NovaScale R410 E1(Intel Xeon X3350, 2.66 GHz) models are electronically equivalent.  
The results have been measured on a Bull NovaScale R410 E1(Intel Xeon X3350, 2.66 GHz) model.



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

Test date: Jul-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).

Tested with SPEC CPU2006 v1.0.  
Report generated on Tue Jul 22 19:30:56 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 19 August 2008.