



SPEC® CFP2006 Result

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Bull SAS

NovaScale R460 E1
(Intel Xeon E5420, 2.50GHz)

SPECfp®_rate2006 = 38.3

SPECfp_rate_base2006 = 35.3

CPU2006 license: 20

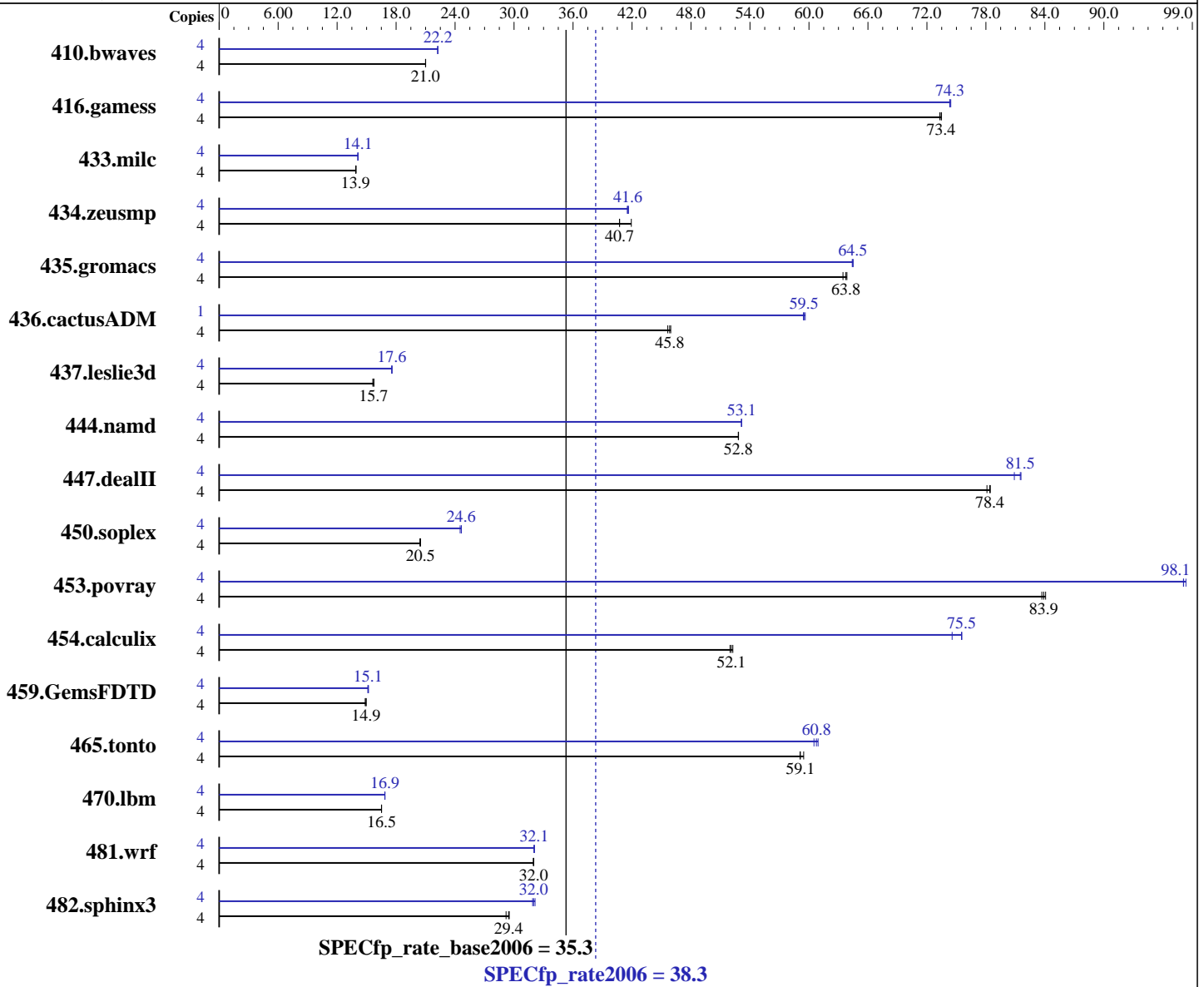
Test sponsor: Bull SAS

Tested by: Bull SAS

Test date: Mar-2008

Hardware Availability: Jan-2008

Software Availability: Nov-2007



Hardware

CPU Name: Intel Xeon E5420
 CPU Characteristics: 2.50 GHz, 12 MB L2, 1333 MHz system bus
 CPU MHz: 2500
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 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: ReiserFS
 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 PC2-5300F, 2 rank, CL5-5-5, ECC)
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	4	<u>2589</u>	<u>21.0</u>	2587	21.0	2589	21.0	4	2445	22.2	<u>2444</u>	<u>22.2</u>	2443	22.2
416.gamess	4	1066	73.5	<u>1066</u>	<u>73.4</u>	1068	73.3	4	1052	74.4	1054	74.3	<u>1053</u>	<u>74.3</u>
433.milc	4	<u>2643</u>	<u>13.9</u>	2644	13.9	2635	13.9	4	2599	14.1	<u>2601</u>	<u>14.1</u>	2602	14.1
434.zeusmp	4	868	41.9	<u>893</u>	<u>40.7</u>	894	40.7	4	877	41.5	874	41.6	<u>875</u>	<u>41.6</u>
435.gromacs	4	<u>448</u>	<u>63.8</u>	450	63.5	447	63.9	4	<u>443</u>	<u>64.5</u>	443	64.4	443	64.5
436.cactusADM	4	1041	45.9	1047	45.6	<u>1043</u>	<u>45.8</u>	1	<u>201</u>	<u>59.5</u>	200	59.6	201	59.4
437.leslie3d	4	2388	15.7	<u>2393</u>	<u>15.7</u>	2406	15.6	4	2138	17.6	2141	17.6	<u>2141</u>	<u>17.6</u>
444.namd	4	607	52.8	607	52.8	<u>607</u>	<u>52.8</u>	4	<u>604</u>	<u>53.1</u>	604	53.2	604	53.1
447.dealII	4	<u>584</u>	<u>78.4</u>	586	78.1	583	78.4	4	561	81.6	566	80.9	<u>561</u>	<u>81.5</u>
450.soplex	4	1633	20.4	<u>1629</u>	<u>20.5</u>	1629	20.5	4	1354	24.6	1361	24.5	<u>1354</u>	<u>24.6</u>
453.povray	4	254	83.7	<u>254</u>	<u>83.9</u>	253	84.1	4	217	98.1	216	98.3	<u>217</u>	<u>98.1</u>
454.calculix	4	635	52.0	<u>633</u>	<u>52.1</u>	631	52.3	4	437	75.6	<u>437</u>	<u>75.5</u>	443	74.6
459.GemsFDTD	4	<u>2841</u>	<u>14.9</u>	2838	15.0	2857	14.9	4	2793	15.2	2803	15.1	<u>2803</u>	<u>15.1</u>
465.tonto	4	662	59.5	<u>666</u>	<u>59.1</u>	666	59.1	4	646	60.9	<u>648</u>	<u>60.8</u>	650	60.5
470.lbm	4	3328	16.5	<u>3326</u>	<u>16.5</u>	3326	16.5	4	<u>3259</u>	<u>16.9</u>	3260	16.9	3259	16.9
481.wrf	4	<u>1397</u>	<u>32.0</u>	1398	32.0	1396	32.0	4	1393	32.1	1395	32.0	<u>1394</u>	<u>32.1</u>
482.sphinx3	4	<u>2648</u>	<u>29.4</u>	2671	29.2	2642	29.5	4	2426	32.1	<u>2437</u>	<u>32.0</u>	2445	31.9

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 (default)

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 Bull NovaScale R440 E1 (Intel Xeon E5420, 2.50GHz) and
the Bull NovaScale R460 E1 (Intel Xeon E5420, 2.50GHz) models are electronically equivalent.
The results have been measured on a NovaScale R460 E1 (Intel Xeon E5420, 2.50GHz) model.



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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/NEC-Intel-ic10.1-FP-intel64-linux-flags.20090713.02.html>



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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.20090713.02.xml>

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