



SPEC® CFP2006 Result

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Bull SAS

NovaScale B260+
(Intel Xeon E5405, 2.00 GHz)

SPECfp®_rate2006 = 63.0

SPECfp_rate_base2006 = 56.8

CPU2006 license: 20

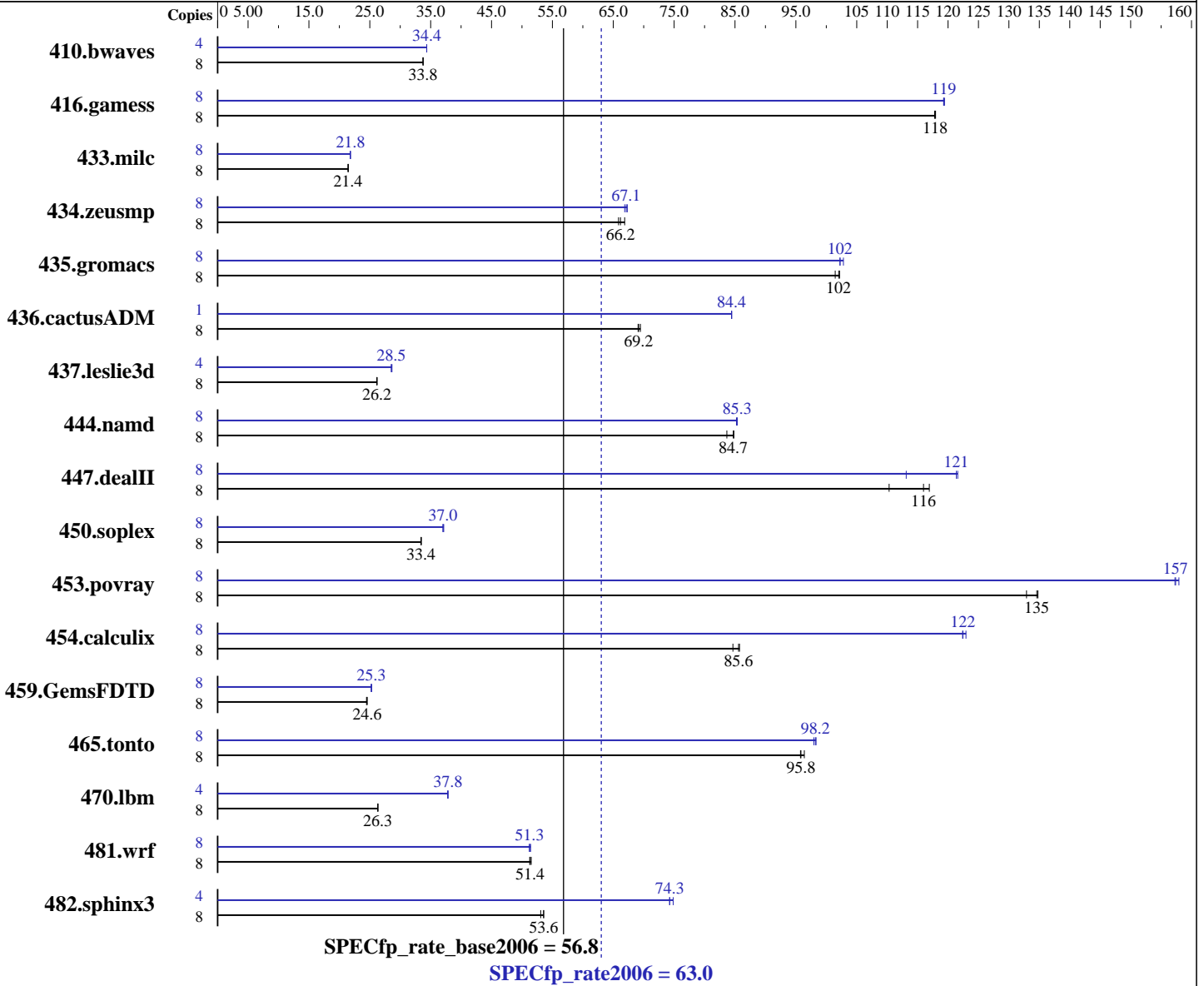
Test sponsor: Bull SAS

Tested by: Bull SAS

Test date: Aug-2008

Hardware Availability: Jan-2008

Software Availability: Nov-2007



Hardware

CPU Name: Intel Xeon E5405
 CPU Characteristics: 1333 MHz system bus
 CPU MHz: 2000
 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, 10000 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	<u>3221</u>	<u>33.8</u>	3221	33.8	3222	33.7	4	1582	34.4	<u>1582</u>	<u>34.4</u>	1582	34.4
416.gamess	8	1330	118	<u>1329</u>	<u>118</u>	1328	118	8	<u>1313</u>	<u>119</u>	1313	119	1312	119
433.milc	8	<u>3425</u>	<u>21.4</u>	3427	21.4	3421	21.5	8	<u>3367</u>	<u>21.8</u>	3373	21.8	3365	21.8
434.zeusmp	8	1089	66.9	<u>1100</u>	<u>66.2</u>	1105	65.9	8	1082	67.3	<u>1084</u>	<u>67.1</u>	1089	66.9
435.gromacs	8	<u>560</u>	<u>102</u>	559	102	563	101	8	556	103	<u>559</u>	<u>102</u>	559	102
436.cactusADM	8	1376	69.5	<u>1382</u>	<u>69.2</u>	1384	69.1	1	142	84.4	<u>142</u>	<u>84.4</u>	142	84.4
437.leslie3d	8	2870	26.2	2877	26.1	<u>2874</u>	<u>26.2</u>	4	1317	28.5	<u>1317</u>	<u>28.5</u>	1313	28.6
444.namd	8	767	83.7	<u>757</u>	<u>84.7</u>	756	84.8	8	<u>752</u>	<u>85.3</u>	752	85.4	753	85.2
447.dealII	8	<u>789</u>	<u>116</u>	783	117	830	110	8	809	113	753	122	<u>754</u>	<u>121</u>
450.soplex	8	1995	33.4	1996	33.4	<u>1996</u>	<u>33.4</u>	8	<u>1801</u>	<u>37.0</u>	1802	37.0	1796	37.1
453.povray	8	316	135	320	133	<u>316</u>	<u>135</u>	8	269	158	271	157	<u>270</u>	<u>157</u>
454.calculix	8	<u>771</u>	<u>85.6</u>	780	84.7	770	85.7	8	537	123	539	122	<u>539</u>	<u>122</u>
459.GemsFDTD	8	3470	24.5	<u>3457</u>	<u>24.6</u>	3457	24.6	8	<u>3358</u>	<u>25.3</u>	3365	25.2	3356	25.3
465.tonto	8	817	96.4	822	95.8	<u>821</u>	<u>95.8</u>	8	801	98.3	<u>802</u>	<u>98.2</u>	804	98.0
470.lbm	8	4176	26.3	<u>4176</u>	<u>26.3</u>	4175	26.3	4	1454	37.8	1452	37.9	<u>1453</u>	<u>37.8</u>
481.wrf	8	1734	51.5	<u>1740</u>	<u>51.4</u>	1743	51.3	8	<u>1743</u>	<u>51.3</u>	1745	51.2	1738	51.4
482.sphinx3	8	2938	53.1	<u>2912</u>	<u>53.6</u>	2911	53.6	4	1050	74.3	1042	74.8	<u>1050</u>	<u>74.3</u>

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
BIOS settings :
Hardware Prefetcher : Enabled
Adjacent Cache-Line Prefetch : Disabled



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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



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

http://www.spec.org/cpu2006/flags/EM64T_Intel101_fp_flags.20090714.xml

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