



SPEC[®] CFP2006 Result

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Bull SAS

NovaScale R460 E2
(Intel Xeon E5520, 2.26 GHz)

SPECfp[®]_rate2006 = 83.0

SPECfp_rate_base2006 = 80.3

CPU2006 license: 20

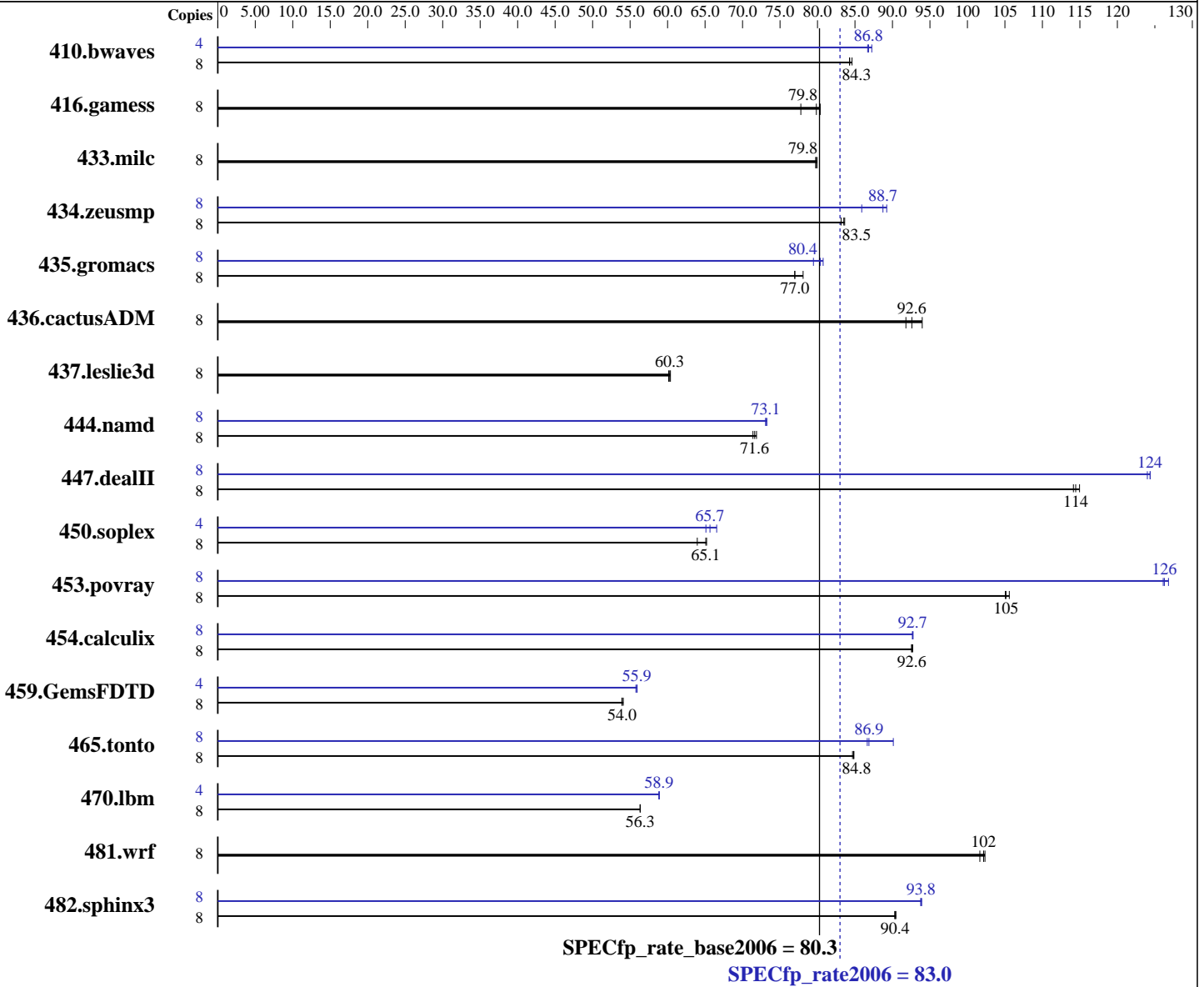
Test sponsor: Bull SAS

Tested by: NEC Corporation

Test date: Sep-2009

Hardware Availability: Apr-2009

Software Availability: Feb-2009



Hardware

CPU Name: Intel Xeon E5520
 CPU Characteristics: Intel Turbo Boost Technology up to 2.53 GHz
 CPU MHz: 2267
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core
 CPU(s) orderable: 1,2 chips
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core

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Software

Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP2 with patch Linux kernel 20090119, Kernel 2.6.16.60-0.34-smp
 Compiler: Intel C++ and Fortran Compiler Professional 11.0 for Linux
 Build 20090131 Package ID: l_cproc_p_11.0.081, l_cprof_p_11.0.081
 Auto Parallel: No
 File System: ReiserFS

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 12 GB (3 X 4 GB PC3-8500R, 2 rank, CL7, ECC)
Disk Subsystem: 1x146.5 GB SAS, 15000 RPM
Other Hardware: None

System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	<u>1290</u>	<u>84.3</u>	1285	84.6	1290	84.3	4	627	86.7	623	87.2	<u>626</u>	<u>86.8</u>
416.gamess	8	1949	80.4	2014	77.8	<u>1962</u>	<u>79.8</u>	8	1949	80.4	2014	77.8	<u>1962</u>	<u>79.8</u>
433.milc	8	919	80.0	921	79.8	<u>920</u>	<u>79.8</u>	8	919	80.0	921	79.8	<u>920</u>	<u>79.8</u>
434.zeusmp	8	<u>872</u>	<u>83.5</u>	876	83.1	871	83.6	8	847	85.9	816	89.2	<u>820</u>	<u>88.7</u>
435.gromacs	8	732	78.1	742	77.0	<u>742</u>	<u>77.0</u>	8	707	80.8	<u>711</u>	<u>80.4</u>	719	79.5
436.cactusADM	8	<u>1033</u>	<u>92.6</u>	1017	94.0	1041	91.8	8	<u>1033</u>	<u>92.6</u>	1017	94.0	1041	91.8
437.leslie3d	8	1245	60.4	1250	60.1	<u>1247</u>	<u>60.3</u>	8	1245	60.4	1250	60.1	<u>1247</u>	<u>60.3</u>
444.namd	8	893	71.9	899	71.4	<u>896</u>	<u>71.6</u>	8	876	73.2	<u>878</u>	<u>73.1</u>	878	73.1
447.dealII	8	796	115	802	114	<u>800</u>	<u>114</u>	8	<u>736</u>	<u>124</u>	736	124	738	124
450.soplex	8	1043	64.0	<u>1025</u>	<u>65.1</u>	1023	65.2	4	512	65.1	<u>508</u>	<u>65.7</u>	501	66.6
453.povray	8	403	106	<u>405</u>	<u>105</u>	405	105	8	<u>337</u>	<u>126</u>	337	126	336	127
454.calculix	8	712	92.7	<u>713</u>	<u>92.6</u>	713	92.5	8	712	92.8	712	92.7	<u>712</u>	<u>92.7</u>
459.GemsFDTD	8	1575	53.9	1569	54.1	<u>1573</u>	<u>54.0</u>	4	761	55.8	759	55.9	<u>759</u>	<u>55.9</u>
465.tonto	8	<u>928</u>	<u>84.8</u>	928	84.9	930	84.7	8	<u>906</u>	<u>86.9</u>	909	86.6	874	90.1
470.lbm	8	1950	56.4	<u>1951</u>	<u>56.3</u>	1951	56.3	4	934	58.9	<u>934</u>	<u>58.9</u>	933	58.9
481.wrf	8	873	102	879	102	<u>875</u>	<u>102</u>	8	873	102	879	102	<u>875</u>	<u>102</u>
482.sphinx3	8	1724	90.5	<u>1725</u>	<u>90.4</u>	1727	90.3	8	1663	93.8	<u>1663</u>	<u>93.8</u>	1660	93.9

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

Submit Notes

The config file option 'submit' was used.
numactl was used to bind copies to the cores

Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run

Platform Notes

Default BIOS settings were used.



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General Notes

The NEC Express5800/R120a-1(Intel Xeon E5520),
the NEC Express5800/R120a-2(Intel Xeon E5520),
the Bull NovaScale R440 E2 (Intel Xeon E5520, 2.26 GHz) and
the Bull NovaScale R460 E2 (Intel Xeon E5520, 2.26 GHz) models are electronically equivalent.
The results have been measured on a NEC Express5800/R120a-1(Intel Xeon E5520) 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.deallI: -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:
-xSSE4.2 -ipo -O3 -no-prec-div -static

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Base Optimization Flags (Continued)

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static
Fortran benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static
Benchmarks using both Fortran and C:
-xSSE4.2 -ipo -O3 -no-prec-div -static

Peak Compiler Invocation

C benchmarks (except as noted below):
icc
482.sphinx3: icc -m32
C++ benchmarks (except as noted below):
icpc
450.soplex: icpc -m32
Fortran benchmarks:
ifort
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
437.leslie3d: -DSPEC_CPU_LP64
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
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX



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Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
-auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2

C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-fno-alias -auto-ilp32

447.dealII: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll2 -ansi-alias -scalar-rep-

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-opt-malloc-options=3

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

416.gamess: basepeak = yes

434.zeusmp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)

437.leslie3d: basepeak = yes

459.GemsFDTD: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll2 -Ob0 -opt-prefetch

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32

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Peak Optimization Flags (Continued)

436.cactusADM: basepeak = yes

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revH.html>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revE.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revH.xml>

<http://www.spec.org/cpu2006/flags/NEC-Intel-Linux-Settings-flags-revE.xml>

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Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 04:10:27 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 28 October 2009.