



SPEC[®] CFP2006 Result

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Bull SAS

NovaScale R460 E2
(Intel Xeon L5520, 2.26 GHz)

SPECfp[®]_rate2006 = 82.9

SPECfp_rate_base2006 = 80.2

CPU2006 license: 20

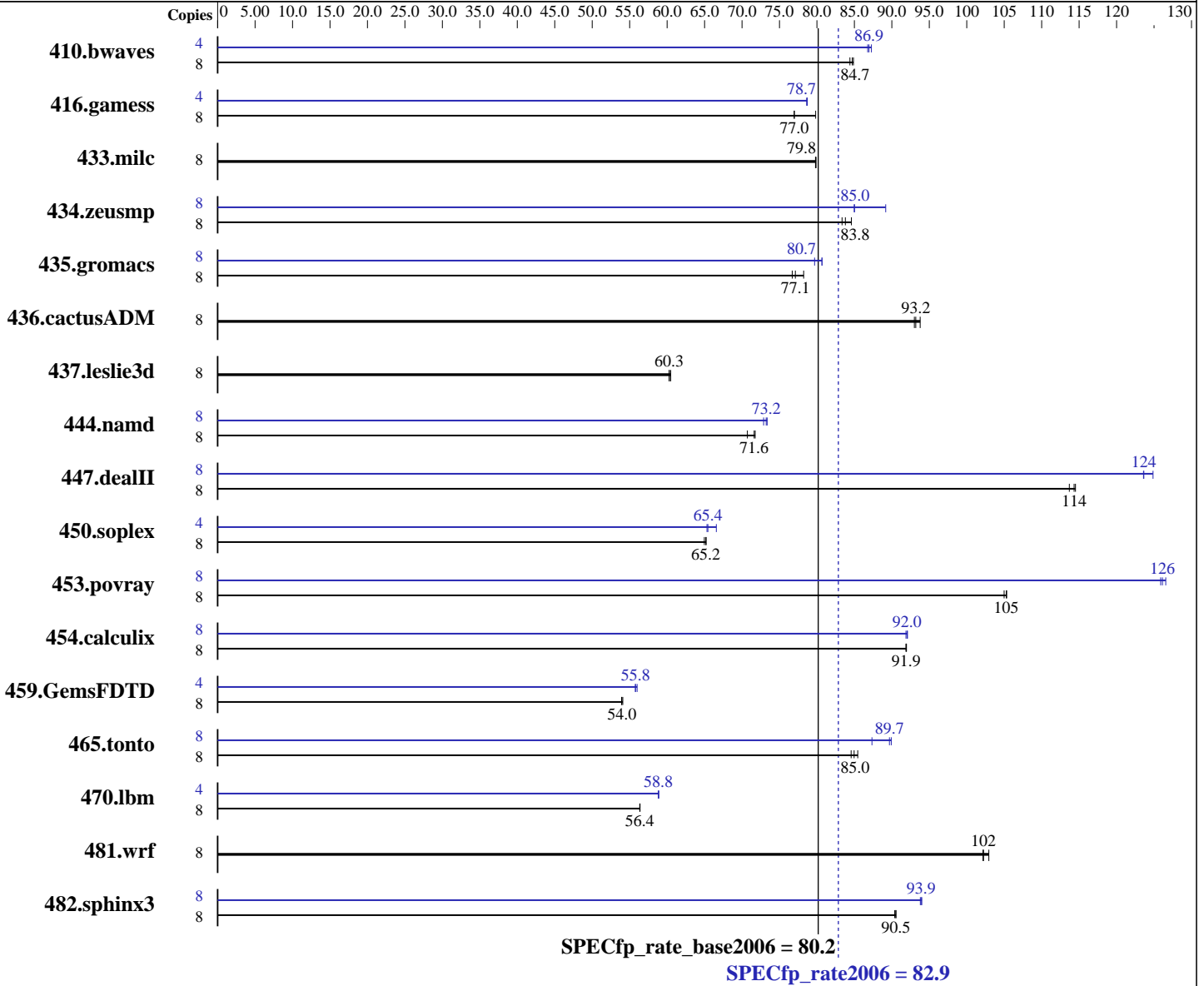
Test sponsor: Bull SAS

Tested by: NEC Corporation

Test date: Sep-2009

Hardware Availability: Jul-2009

Software Availability: Feb-2009



Hardware

CPU Name: Intel Xeon L5520
 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

Continued on next page

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

Continued on next page



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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	1281	84.9	<u>1283</u>	<u>84.7</u>	1288	84.4	4	626	86.8	623	87.3	<u>625</u>	<u>86.9</u>
416.gamess	8	1962	79.8	2035	77.0	<u>2035</u>	<u>77.0</u>	4	<u>995</u>	<u>78.7</u>	996	78.6	995	78.7
433.milc	8	919	79.9	<u>920</u>	<u>79.8</u>	920	79.8	8	919	79.9	<u>920</u>	<u>79.8</u>	920	79.8
434.zeusmp	8	861	84.6	<u>869</u>	<u>83.8</u>	873	83.4	8	857	85.0	<u>856</u>	<u>85.0</u>	816	89.2
435.gromacs	8	730	78.2	<u>741</u>	<u>77.1</u>	745	76.7	8	708	80.7	<u>708</u>	<u>80.7</u>	717	79.7
436.cactusADM	8	1028	93.0	<u>1026</u>	<u>93.2</u>	1019	93.8	8	1028	93.0	<u>1026</u>	<u>93.2</u>	1019	93.8
437.leslie3d	8	1243	60.5	<u>1247</u>	<u>60.3</u>	1248	60.3	8	1243	60.5	<u>1247</u>	<u>60.3</u>	1248	60.3
444.namd	8	894	71.8	<u>896</u>	<u>71.6</u>	907	70.7	8	875	73.4	<u>876</u>	<u>73.2</u>	880	72.9
447.dealII	8	805	114	<u>800</u>	<u>114</u>	799	115	8	<u>740</u>	<u>124</u>	740	124	733	125
450.soplex	8	1027	65.0	<u>1024</u>	<u>65.2</u>	1023	65.2	4	511	65.3	<u>510</u>	<u>65.4</u>	501	66.6
453.povray	8	<u>404</u>	<u>105</u>	404	105	405	105	8	336	127	<u>337</u>	<u>126</u>	338	126
454.calculix	8	718	92.0	<u>718</u>	<u>91.9</u>	718	91.9	8	<u>717</u>	<u>92.0</u>	717	92.1	718	91.9
459.GemsFDTD	8	1569	54.1	1574	53.9	<u>1573</u>	<u>54.0</u>	4	761	55.8	<u>761</u>	<u>55.8</u>	758	56.0
465.tonto	8	931	84.6	<u>927</u>	<u>85.0</u>	921	85.4	8	901	87.3	<u>878</u>	<u>89.7</u>	875	89.9
470.lbm	8	1949	56.4	<u>1950</u>	<u>56.4</u>	1951	56.4	4	934	58.8	<u>934</u>	<u>58.8</u>	933	58.9
481.wrf	8	868	103	<u>874</u>	<u>102</u>	875	102	8	868	103	<u>874</u>	<u>102</u>	875	102
482.sphinx3	8	<u>1722</u>	<u>90.5</u>	1722	90.5	1725	90.4	8	1659	94.0	<u>1660</u>	<u>93.9</u>	1662	93.8

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 L5520),
the NEC Express5800/R120a-2(Intel Xeon L5520),
the Bull NovaScale R440 E2 (Intel Xeon L5520, 2.26 GHz) and
the Bull NovaScale R460 E2 (Intel Xeon L5520, 2.26 GHz) models are electronically equivalent.
The results have been measured on a NEC Express5800/R120a-1(Intel Xeon L5520) 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

Continued on next page



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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: -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 -ansi-alias -scalar-rep-

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:

Continued on next page



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Peak Optimization Flags (Continued)

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

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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