



SPEC[®] CFP2006 Result

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Bull SAS

SPECfp[®]_rate2006 = 123

NovaScale R440 F2 (Intel Xeon E5507, 2.26 GHz)

SPECfp_rate_base2006 = 120

CPU2006 license: 20

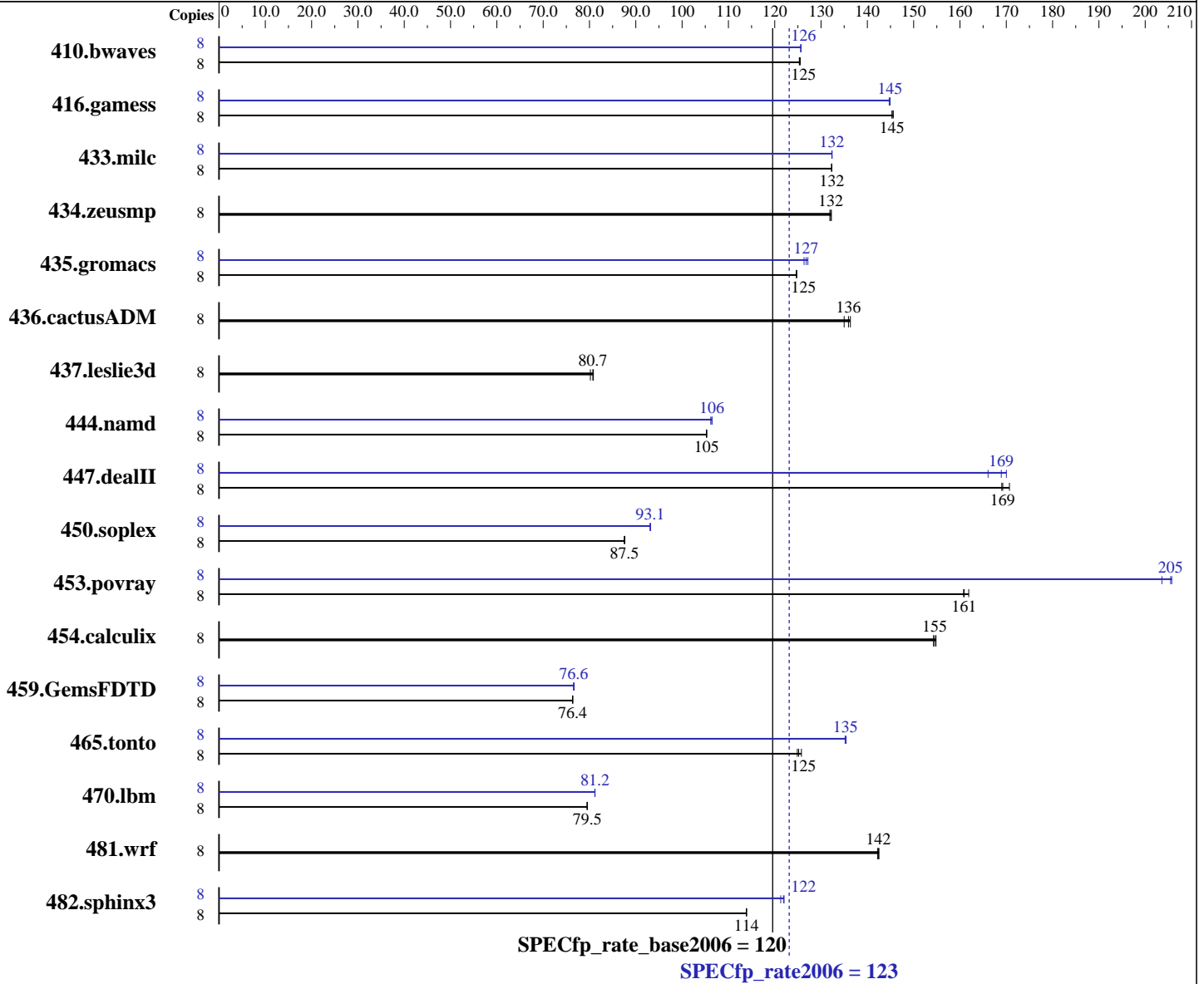
Test sponsor: Bull SAS

Tested by: Dell Inc.

Test date: Apr-2010

Hardware Availability: Mar-2010

Software Availability: Dec-2009



Hardware

CPU Name: Intel Xeon E5507
 CPU Characteristics:
 CPU MHz: 2267
 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: 256 KB I+D on chip per core

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Software

Operating System: SUSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-smp
 Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064, l_cprof_p_11.1.064
 Auto Parallel: No
 File System: ext3
 System State: Run level 3 (multi-user)

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L3 Cache: 4 MB I+D on chip per chip
 Other Cache: None
 Memory: 48 GB (12 x 4 GB DDR3-1333 DR RDIMM downclocked to 800 MHz)
 Disk Subsystem: 1 x 146 GB 15000 RPM SAS
 Other Hardware: None

Base Pointers: 64-bit
 Peak Pointers: 32/64-bit
 Other Software: None

Results Table

| Benchmark | Base | | | | | | | | Peak | | | | | | | |
|---------------|--------|-------------|-------------|-------------|-------------|-------------|------------|--------|-------------|-------------|-------------|-------------|-------------|-------------|--|--|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | | |
| 410.bwaves | 8 | 867 | 125 | 868 | 125 | 866 | 126 | 8 | 865 | 126 | 865 | 126 | 865 | 126 | | |
| 416.gamess | 8 | 1076 | 146 | 1078 | 145 | 1078 | 145 | 8 | 1081 | 145 | 1082 | 145 | 1081 | 145 | | |
| 433.milc | 8 | 555 | 132 | 555 | 132 | 555 | 132 | 8 | 555 | 132 | 555 | 132 | 555 | 132 | | |
| 434.zeusmp | 8 | 552 | 132 | 551 | 132 | 551 | 132 | 8 | 552 | 132 | 551 | 132 | 551 | 132 | | |
| 435.gromacs | 8 | 458 | 125 | 458 | 125 | 458 | 125 | 8 | 449 | 127 | 450 | 127 | 452 | 126 | | |
| 436.cactusADM | 8 | 701 | 136 | 703 | 136 | 708 | 135 | 8 | 701 | 136 | 703 | 136 | 708 | 135 | | |
| 437.leslie3d | 8 | 932 | 80.7 | 930 | 80.8 | 938 | 80.2 | 8 | 932 | 80.7 | 930 | 80.8 | 938 | 80.2 | | |
| 444.namd | 8 | 609 | 105 | 609 | 105 | 610 | 105 | 8 | 603 | 106 | 603 | 106 | 604 | 106 | | |
| 447.dealII | 8 | 536 | 171 | 541 | 169 | 541 | 169 | 8 | 551 | 166 | 542 | 169 | 538 | 170 | | |
| 450.soplex | 8 | 762 | 87.5 | 762 | 87.5 | 761 | 87.6 | 8 | 716 | 93.2 | 717 | 93.1 | 717 | 93.1 | | |
| 453.povray | 8 | 265 | 161 | 263 | 162 | 264 | 161 | 8 | 207 | 205 | 209 | 204 | 207 | 206 | | |
| 454.calculix | 8 | 427 | 155 | 426 | 155 | 428 | 154 | 8 | 427 | 155 | 426 | 155 | 428 | 154 | | |
| 459.GemsFDTD | 8 | 1112 | 76.3 | 1111 | 76.4 | 1111 | 76.4 | 8 | 1107 | 76.7 | 1108 | 76.6 | 1108 | 76.6 | | |
| 465.tonto | 8 | 630 | 125 | 629 | 125 | 626 | 126 | 8 | 582 | 135 | 582 | 135 | 581 | 135 | | |
| 470.lbm | 8 | 1383 | 79.5 | 1383 | 79.5 | 1382 | 79.5 | 8 | 1354 | 81.2 | 1354 | 81.2 | 1354 | 81.2 | | |
| 481.wrf | 8 | 628 | 142 | 628 | 142 | 627 | 143 | 8 | 628 | 142 | 628 | 142 | 627 | 143 | | |
| 482.sphinx3 | 8 | 1368 | 114 | 1369 | 114 | 1369 | 114 | 8 | 1279 | 122 | 1278 | 122 | 1285 | 121 | | |

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

BIOS Settings:
Power Management = Maximum Performance (Default = Active Power Controller)



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General Notes

The Dell PowerEdge R610 and the Bull NovaScale R440 F2 models are electronically equivalent. The results have been measured on a Dell PowerEdge R610 model.

Base Compiler Invocation

C benchmarks:
icc -m64

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
icc -m64 ifort -m64

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:
-xSSE4.2 -ipo -O3 -no-prec-div -static

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static

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Base Optimization Flags (Continued)

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 -m64

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -m32

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

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: -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 -opt-prefetch

470.lbm: -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 -ansi-alias -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.dealIII: -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: basepeak = yes

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

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 -inline-calloc -opt-malloc-options=3

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Peak Optimization Flags (Continued)

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

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100330.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100330.xml>

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For other inquiries, please contact webmaster@spec.org.

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