



SPEC® CFP2006 Result

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Bull SAS

SPECfp®_rate2006 = 221

NovaScale R460 F2 (Intel Xeon X5677, 3.46 GHz)

SPECfp_rate_base2006 = 213

CPU2006 license: 20

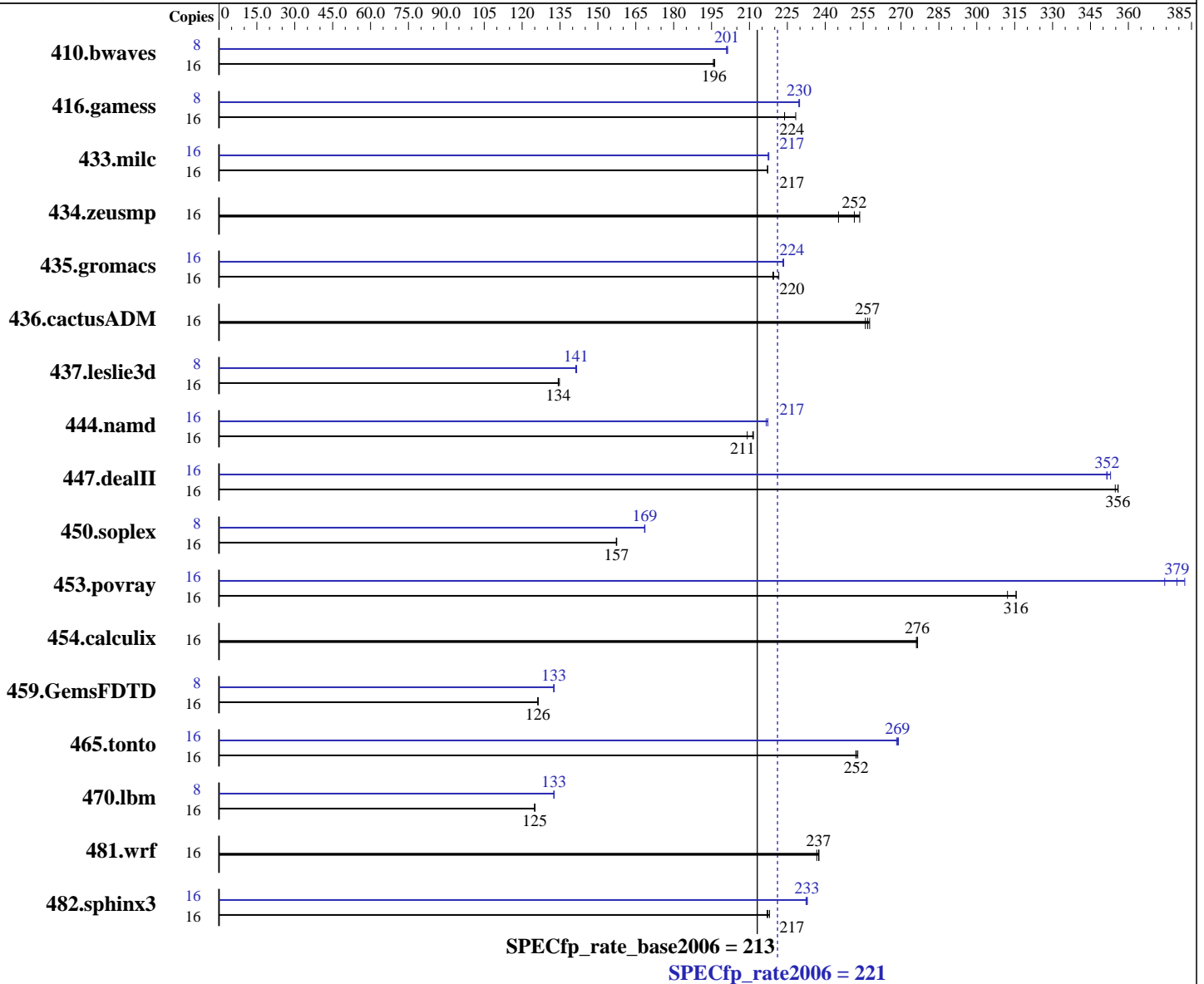
Test sponsor: Bull SAS

Tested by: Dell Inc.

Test date: Mar-2010

Hardware Availability: Mar-2010

Software Availability: Dec-2009



Hardware

CPU Name: Intel Xeon X5677
 CPU Characteristics: Intel Turbo Boost Technology up to 3.73 GHz
 CPU MHz: 3467
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 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 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: 12 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (12 x 4 GB DDR3-1333 DR RDIMM)
Disk Subsystem: 1 x 146 GB 15000 RPM SAS
Other Hardware: None

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 | 16 | 1108 | 196 | <u>1109</u> | <u>196</u> | 1111 | 196 | 8 | 541 | 201 | 540 | 201 | <u>541</u> | <u>201</u> |
| 416.gamess | 16 | 1372 | 228 | <u>1399</u> | <u>224</u> | 1399 | 224 | 8 | 682 | 230 | 682 | 230 | <u>682</u> | <u>230</u> |
| 433.milc | 16 | 676 | 217 | 676 | 217 | <u>676</u> | <u>217</u> | 16 | 675 | 218 | 675 | 217 | <u>675</u> | <u>217</u> |
| 434.zeusmp | 16 | <u>579</u> | <u>252</u> | 574 | 254 | 594 | 245 | 16 | <u>579</u> | <u>252</u> | 574 | 254 | 594 | 245 |
| 435.gromacs | 16 | <u>520</u> | <u>220</u> | 515 | 222 | 521 | 219 | 16 | <u>511</u> | <u>224</u> | 511 | 224 | 512 | 223 |
| 436.cactusADM | 16 | 742 | 258 | <u>745</u> | <u>257</u> | 747 | 256 | 16 | 742 | 258 | <u>745</u> | <u>257</u> | 747 | 256 |
| 437.leslie3d | 16 | 1120 | 134 | <u>1119</u> | <u>134</u> | 1116 | 135 | 8 | <u>532</u> | <u>141</u> | 531 | 142 | 533 | 141 |
| 444.namd | 16 | 606 | 212 | 614 | 209 | <u>607</u> | <u>211</u> | 16 | 592 | 217 | 591 | 217 | <u>591</u> | <u>217</u> |
| 447.dealII | 16 | 514 | 356 | 516 | 355 | <u>514</u> | <u>356</u> | 16 | <u>521</u> | <u>352</u> | 519 | 353 | 521 | 351 |
| 450.soplex | 16 | 848 | 157 | <u>848</u> | <u>157</u> | 847 | 157 | 8 | <u>396</u> | <u>169</u> | 396 | 168 | 396 | 169 |
| 453.povray | 16 | 273 | 312 | <u>270</u> | <u>316</u> | 270 | 316 | 16 | 227 | 374 | 223 | 382 | <u>224</u> | <u>379</u> |
| 454.calculix | 16 | 477 | 277 | <u>478</u> | <u>276</u> | 478 | 276 | 16 | 477 | 277 | <u>478</u> | <u>276</u> | 478 | 276 |
| 459.GemsFDTD | 16 | 1345 | 126 | <u>1345</u> | <u>126</u> | 1344 | 126 | 8 | 640 | 133 | 641 | 132 | <u>640</u> | <u>133</u> |
| 465.tonto | 16 | 623 | 253 | 625 | 252 | <u>624</u> | <u>252</u> | 16 | 585 | 269 | 587 | 268 | <u>586</u> | <u>269</u> |
| 470.lbm | 16 | 1758 | 125 | <u>1759</u> | <u>125</u> | 1760 | 125 | 8 | <u>829</u> | <u>133</u> | 829 | 133 | 829 | 133 |
| 481.wrf | 16 | <u>753</u> | <u>237</u> | 752 | 238 | 755 | 237 | 16 | <u>753</u> | <u>237</u> | 752 | 238 | 755 | 237 |
| 482.sphinx3 | 16 | 1431 | 218 | <u>1435</u> | <u>217</u> | 1437 | 217 | 16 | 1339 | 233 | <u>1340</u> | <u>233</u> | 1342 | 232 |

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)
Data Reuse = Disabled (Default = Enabled)



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General Notes

The Dell PowerEdge R710 (Intel Xeon X5677, 3.46 GHz) and the Bull NovaScale R460 F2 (Intel Xeon X5677, 3.46 GHz) models are electronically equivalent. The results have been measured on a Dell PowerEdge R710 (Intel Xeon X5677, 3.46 GHz) 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: -xSSE4.2 -ipo -O3 -no-prec-div -static

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 questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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