



SPEC[®] CFP2006 Result

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Bull SAS

SPECfp[®]2006 = 32.8

NovaScale R480 F2 (Intel Xeon E7530, 1.87 GHz)

SPECfp_base2006 = 30.7

CPU2006 license: 20

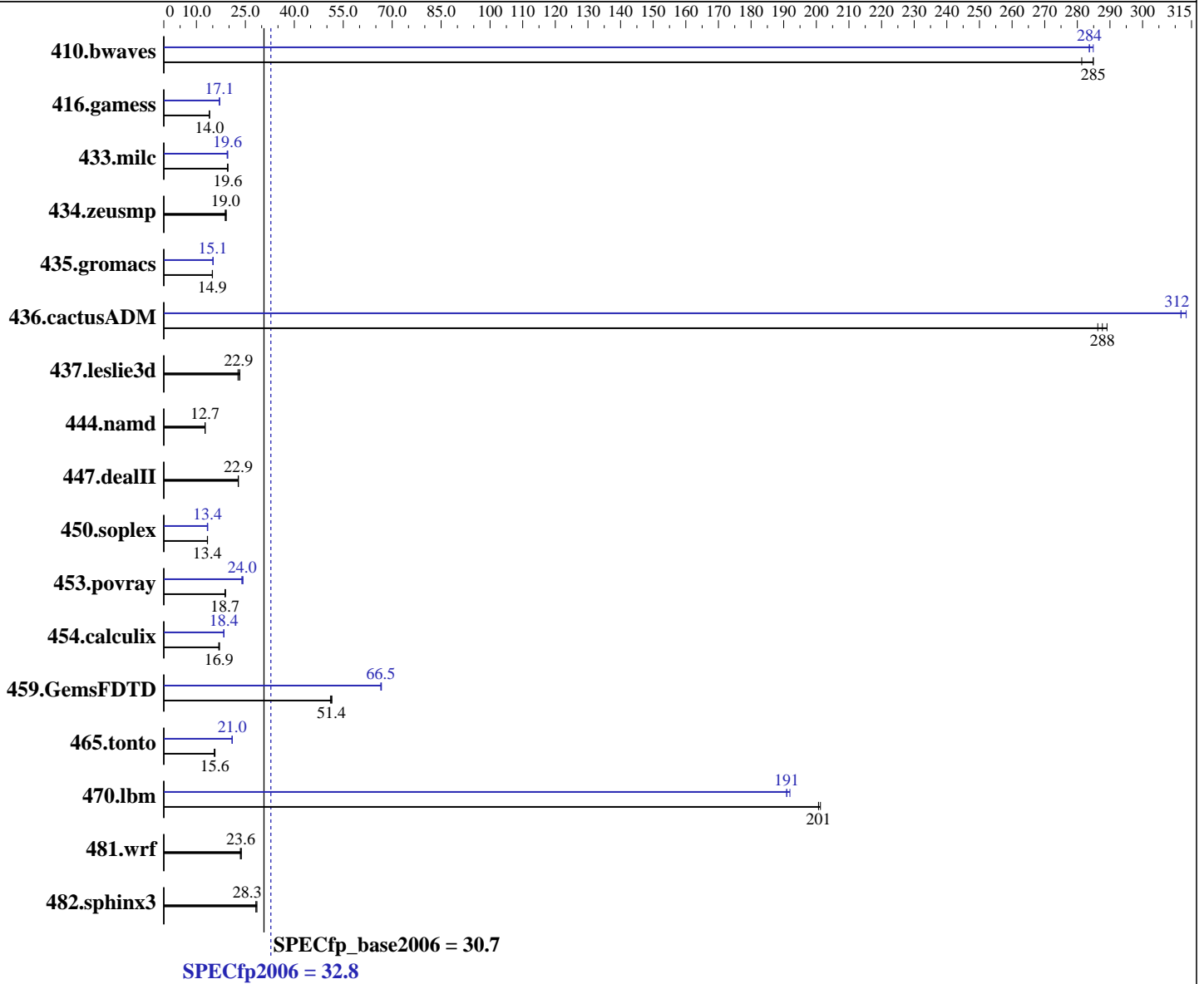
Test date: May-2010

Test sponsor: Bull SAS

Hardware Availability: Mar-2010

Tested by: Dell Inc.

Software Availability: Dec-2009



Hardware

CPU Name: Intel Xeon E7530
 CPU Characteristics: Intel Turbo Boost Technology up to 2.13 GHz
 CPU MHz: 1867
 FPU: Integrated
 CPU(s) enabled: 24 cores, 4 chips, 6 cores/chip, 2 threads/core
 CPU(s) orderable: 2,4 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 11 (x86_64), kernel-2.6.27.19-5-default
 Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: I_cproc_p_11.1.064, I_cprof_p_11.1.064
 Auto Parallel: Yes
 File System: ext3
 System State: Run level 3 (multi-user)

Continued on next page



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L3 Cache: 12 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (64 x 4 GB DDR3-1066 QR RDIMM, CL7, ECC, downclocked to 978 MHz)
 Disk Subsystem: 1 x 300 GB 10000 RPM SAS 6Gb
 Other Hardware: None

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

Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|-------------|-------------|-------------|-------------|-------------|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 48.3 | 281 | 47.7 | 285 | 47.7 | 285 | 47.9 | 284 | 47.9 | 284 | 47.7 | 285 |
| 416.gamess | 1403 | 14.0 | 1400 | 14.0 | 1397 | 14.0 | 1146 | 17.1 | 1148 | 17.1 | 1147 | 17.1 |
| 433.milc | 471 | 19.5 | 468 | 19.6 | 467 | 19.7 | 469 | 19.6 | 469 | 19.6 | 473 | 19.4 |
| 434.zeusmp | 475 | 19.2 | 480 | 19.0 | 484 | 18.8 | 475 | 19.2 | 480 | 19.0 | 484 | 18.8 |
| 435.gromacs | 478 | 14.9 | 480 | 14.9 | 479 | 14.9 | 472 | 15.1 | 474 | 15.1 | 474 | 15.1 |
| 436.cactusADM | 41.5 | 288 | 41.7 | 286 | 41.3 | 289 | 38.1 | 313 | 38.3 | 312 | 38.3 | 312 |
| 437.leslie3d | 403 | 23.3 | 413 | 22.7 | 410 | 22.9 | 403 | 23.3 | 413 | 22.7 | 410 | 22.9 |
| 444.namd | 633 | 12.7 | 633 | 12.7 | 635 | 12.6 | 633 | 12.7 | 633 | 12.7 | 635 | 12.6 |
| 447.dealII | 501 | 22.9 | 500 | 22.9 | 502 | 22.8 | 501 | 22.9 | 500 | 22.9 | 502 | 22.8 |
| 450.soplex | 624 | 13.4 | 624 | 13.4 | 622 | 13.4 | 625 | 13.3 | 620 | 13.4 | 621 | 13.4 |
| 453.povray | 284 | 18.7 | 281 | 18.9 | 284 | 18.7 | 219 | 24.3 | 222 | 23.9 | 221 | 24.0 |
| 454.calculix | 489 | 16.9 | 489 | 16.9 | 482 | 17.1 | 447 | 18.4 | 448 | 18.4 | 449 | 18.4 |
| 459.GemsFDTD | 207 | 51.4 | 206 | 51.5 | 208 | 51.1 | 159 | 66.5 | 159 | 66.5 | 159 | 66.7 |
| 465.tonto | 637 | 15.5 | 631 | 15.6 | 626 | 15.7 | 469 | 21.0 | 470 | 20.9 | 470 | 21.0 |
| 470.lbm | 68.5 | 201 | 68.5 | 201 | 68.3 | 201 | 71.6 | 192 | 72.0 | 191 | 72.0 | 191 |
| 481.wrf | 476 | 23.5 | 470 | 23.8 | 473 | 23.6 | 476 | 23.5 | 470 | 23.8 | 473 | 23.6 |
| 482.sphinx3 | 690 | 28.3 | 682 | 28.6 | 690 | 28.3 | 690 | 28.3 | 682 | 28.6 | 690 | 28.3 |

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

Platform Notes

BIOS Settings:
 Power Management = Maximum Performance (Default = Active Power Controller)
 Memory Settings: Node Interleaving = Enabled (Default = Disabled)

General Notes

Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
 The Dell PowerEdge R910 and
 the Bull NovaScale R480 F2 models are electronically equivalent.
 Continued on next page



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General Notes (Continued)

The results have been measured on a Dell PowerEdge R910 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 -parallel -opt-prefetch

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

Fortran benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Continued on next page



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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

Peak Compiler Invocation

C benchmarks:

`icc -m64`

C++ benchmarks:

`icpc -m64`

Fortran benchmarks:

`ifort -m64`

Benchmarks using both Fortran and C:

`icc -m64 ifort -m64`

Peak Portability Flags

Same as Base Portability Flags

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)
-ansi-alias`

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)
-parallel -ansi-alias -auto-ilp32`

482.sphinx3: `basepeak = yes`

C++ benchmarks:

444.namd: `basepeak = yes`

447.dealIII: `basepeak = yes`

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 -auto-ilp32`

Continued on next page



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Peak Optimization Flags (Continued)

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
-parallel

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 -opt-prefetch -parallel

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)
-inline-calloc -opt-malloc-options=3 -auto -unroll4

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: -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 -opt-prefetch -parallel -auto-ilp32

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

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.20100316.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.20100316.xml>



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