



SPEC® CFP2006 Result

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Dell Inc.

SPECfp®2006 = 38.0

PowerEdge T710 (Intel Xeon E5630, 2.53 GHz)

SPECfp_base2006 = 35.5

CPU2006 license: 55

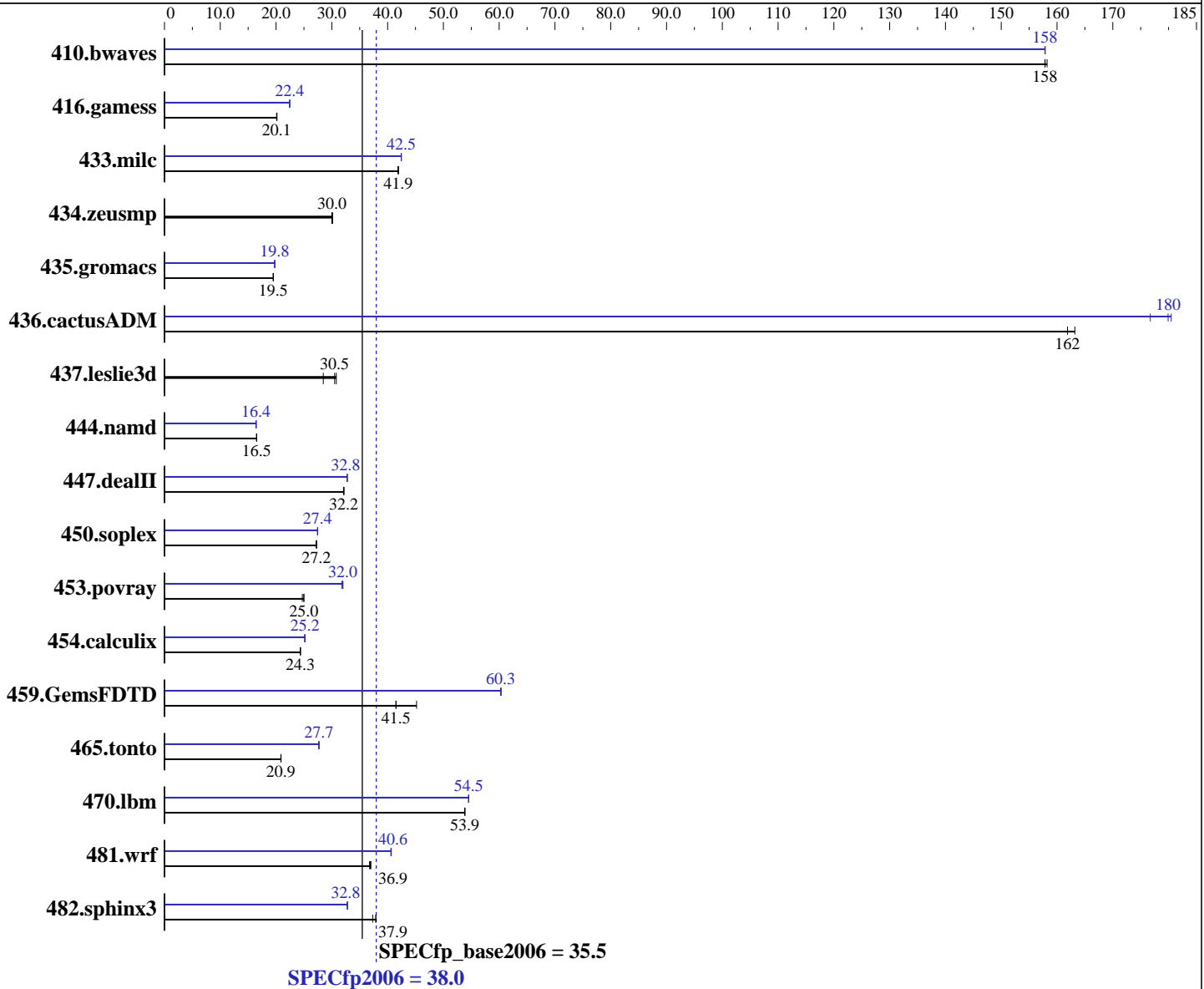
Test date: Mar-2010

Test sponsor: Dell Inc.

Hardware Availability: Mar-2010

Tested by: Dell Inc.

Software Availability: Dec-2009



Hardware

CPU Name: Intel Xeon E5630
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
 CPU MHz: 2533
 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: Yes
 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: 24 GB (6 x 4 GB DDR3-1333 DR RDIMM downclocked to 1066 MHz)
 Disk Subsystem: 2 x 300 GB 10000 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 | | | | | |
|---------------|-------------|-------------|------------|-------------|------------|-------------|-------------|-------------|------------|-------------|-------------|-------------|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 86.1 | 158 | 86.1 | 158 | 85.9 | 158 | 86.1 | 158 | 86.1 | 158 | 86.1 | 158 |
| 416.gamess | 971 | 20.2 | 973 | 20.1 | 974 | 20.1 | 873 | 22.4 | 872 | 22.5 | 872 | 22.4 |
| 433.milc | 219 | 41.9 | 219 | 41.9 | 219 | 41.9 | 216 | 42.5 | 216 | 42.5 | 216 | 42.4 |
| 434.zeusmp | 302 | 30.1 | 303 | 30.0 | 303 | 30.0 | 302 | 30.1 | 303 | 30.0 | 303 | 30.0 |
| 435.gromacs | 366 | 19.5 | 367 | 19.5 | 365 | 19.5 | 361 | 19.8 | 361 | 19.8 | 361 | 19.8 |
| 436.cactusADM | 73.8 | 162 | 73.2 | 163 | 73.8 | 162 | 66.2 | 180 | 67.6 | 177 | 66.4 | 180 |
| 437.leslie3d | 330 | 28.5 | 305 | 30.8 | 308 | 30.5 | 330 | 28.5 | 305 | 30.8 | 308 | 30.5 |
| 444.namd | 485 | 16.5 | 485 | 16.5 | 486 | 16.5 | 488 | 16.4 | 488 | 16.4 | 488 | 16.4 |
| 447.dealII | 356 | 32.1 | 356 | 32.2 | 356 | 32.2 | 349 | 32.7 | 349 | 32.8 | 349 | 32.8 |
| 450.soplex | 307 | 27.2 | 306 | 27.2 | 306 | 27.3 | 304 | 27.4 | 304 | 27.4 | 304 | 27.5 |
| 453.povray | 215 | 24.7 | 213 | 25.0 | 213 | 25.0 | 166 | 32.0 | 166 | 32.0 | 167 | 31.8 |
| 454.calculix | 338 | 24.4 | 339 | 24.3 | 339 | 24.3 | 328 | 25.2 | 328 | 25.1 | 328 | 25.2 |
| 459.GemsFDTD | 256 | 41.5 | 235 | 45.2 | 256 | 41.5 | 176 | 60.3 | 176 | 60.4 | 176 | 60.3 |
| 465.tonto | 471 | 20.9 | 471 | 20.9 | 472 | 20.9 | 356 | 27.7 | 355 | 27.7 | 356 | 27.6 |
| 470.lbm | 255 | 53.9 | 255 | 53.8 | 255 | 53.9 | 252 | 54.5 | 252 | 54.5 | 252 | 54.5 |
| 481.wrf | 302 | 37.0 | 304 | 36.8 | 303 | 36.9 | 275 | 40.6 | 275 | 40.7 | 275 | 40.6 |
| 482.sphinx3 | 514 | 37.9 | 522 | 37.3 | 515 | 37.9 | 595 | 32.8 | 594 | 32.8 | 595 | 32.8 |

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)
 Data Reuse = Disabled (Default = Enabled)

General Notes

OMP_NUM_THREADS set to number of cores
 KMP_AFFINITY set to granularity=fine,scatter
 KMP_STACKSIZE set to 200M

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General Notes (Continued)

The Dell PowerEdge T710 and the Bull NovaScale T860 F2 models are electronically equivalent. The results have been measured on a Dell PowerEdge T710 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

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Base Optimization Flags (Continued)

Fortran benchmarks:

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

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

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Peak Optimization Flags (Continued)

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- -auto-ilp32

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

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: Same as 454.calculix



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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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