



SPEC[®] CFP2006 Result

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Dell Inc.

SPECfp[®]_rate2006 = 77.3

PowerEdge 2900 III (Intel Xeon X5460, 3.16 GHz)

SPECfp_rate_base2006 = 69.5

CPU2006 license: 55

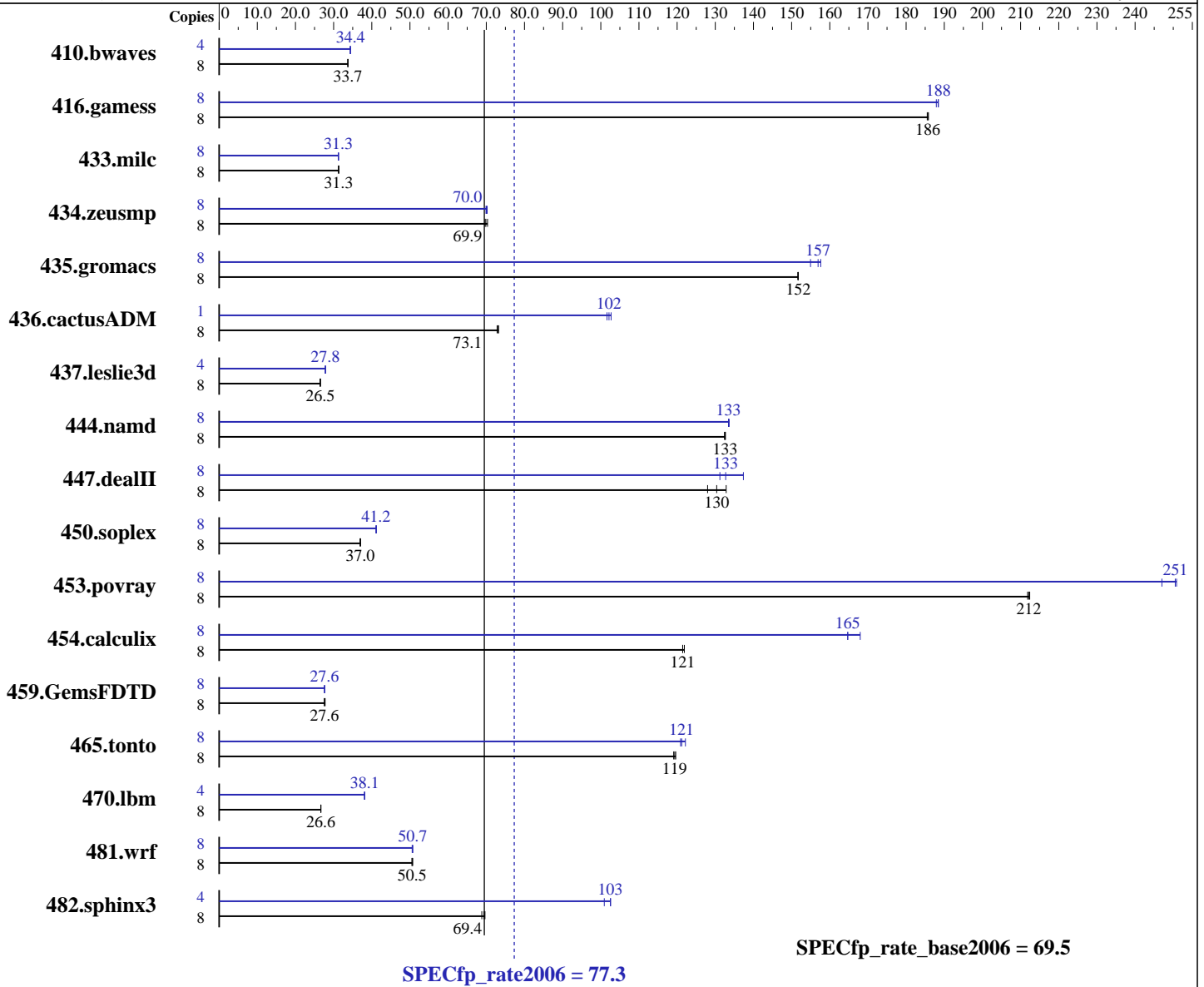
Test date: Jul-2008

Test sponsor: Dell Inc.

Hardware Availability: Nov-2007

Tested by: Dell Inc.

Software Availability: May-2008



Hardware

CPU Name: Intel Xeon X5460
 CPU Characteristics: 3166
 CPU MHz: 3166
 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: 12 MB I+D on chip per chip, 6 MB shared / 2 cores

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Software

Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP2
 Kernel 2.6.16-60.0.21-smp
 Compiler: Intel C++ and Fortran Compiler 10.1 for Linux
 Build 20080312 Package ID: l_cc_p_10.1.015,
 l_fc_p_10.1.015
 Auto Parallel: Yes
 File System: ReiserFS
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit

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L3 Cache: None
Other Cache: None
Memory: 16 GB (8 x 2 GB, DDR2-667 MHz, CL5, Reg, Dual Rank)
Disk Subsystem: 2 x 73 GB GB SAS, 15000 RPM
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Microquill SmartHeap V8.1
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 | 3225 | 33.7 | 3223 | 33.7 | 3221 | 33.8 | 4 | 1584 | 34.3 | 1580 | 34.4 | 1580 | 34.4 | | |
| 416.gamess | 8 | 844 | 186 | 843 | 186 | 844 | 186 | 8 | 831 | 188 | 834 | 188 | 831 | 188 | | |
| 433.milc | 8 | 2342 | 31.4 | 2350 | 31.3 | 2344 | 31.3 | 8 | 2349 | 31.3 | 2349 | 31.3 | 2350 | 31.3 | | |
| 434.zeusmp | 8 | 1045 | 69.7 | 1042 | 69.9 | 1035 | 70.3 | 8 | 1040 | 70.0 | 1041 | 69.9 | 1037 | 70.2 | | |
| 435.gromacs | 8 | 376 | 152 | 376 | 152 | 377 | 152 | 8 | 369 | 155 | 362 | 158 | 364 | 157 | | |
| 436.cactusADM | 8 | 1313 | 72.8 | 1306 | 73.2 | 1307 | 73.1 | 1 | 116 | 103 | 117 | 102 | 118 | 102 | | |
| 437.leslie3d | 8 | 2846 | 26.4 | 2832 | 26.6 | 2834 | 26.5 | 4 | 1352 | 27.8 | 1352 | 27.8 | 1347 | 27.9 | | |
| 444.namd | 8 | 485 | 132 | 484 | 133 | 484 | 133 | 8 | 480 | 134 | 481 | 133 | 481 | 133 | | |
| 447.dealII | 8 | 715 | 128 | 689 | 133 | 702 | 130 | 8 | 666 | 137 | 690 | 133 | 698 | 131 | | |
| 450.soplex | 8 | 1807 | 36.9 | 1800 | 37.1 | 1804 | 37.0 | 8 | 1621 | 41.2 | 1621 | 41.2 | 1623 | 41.1 | | |
| 453.povray | 8 | 200 | 212 | 201 | 212 | 201 | 212 | 8 | 172 | 247 | 170 | 251 | 170 | 251 | | |
| 454.calculix | 8 | 543 | 121 | 541 | 122 | 543 | 121 | 8 | 401 | 165 | 393 | 168 | 401 | 165 | | |
| 459.GemsFDTD | 8 | 3081 | 27.6 | 3075 | 27.6 | 3056 | 27.8 | 8 | 3078 | 27.6 | 3069 | 27.7 | 3072 | 27.6 | | |
| 465.tonto | 8 | 658 | 120 | 661 | 119 | 659 | 119 | 8 | 651 | 121 | 644 | 122 | 649 | 121 | | |
| 470.lbm | 8 | 4126 | 26.6 | 4125 | 26.6 | 4124 | 26.7 | 4 | 1441 | 38.1 | 1441 | 38.1 | 1444 | 38.1 | | |
| 481.wrf | 8 | 1762 | 50.7 | 1768 | 50.5 | 1768 | 50.5 | 8 | 1767 | 50.6 | 1762 | 50.7 | 1762 | 50.7 | | |
| 482.sphinx3 | 8 | 2239 | 69.7 | 2247 | 69.4 | 2265 | 68.8 | 4 | 772 | 101 | 760 | 103 | 761 | 103 | | |

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.

Platform Notes

BIOS Settings:
Adjacent Cache Line Prefetch = Disabled (default = Enabled)
Hardware Prefetcher = Disabled (default = Enabled)

General Notes

All benchmarks compiled in 64-bit mode except 437.leslie3d, 450.soplex, 470.lbm and 482.sphinx3, at peak, are compiled in 32-bit mode
taskset was used to bind processes to cores except
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General Notes (Continued)

for 436.cactusADM peak
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 64M

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.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:
-fast

C++ benchmarks:
-fast

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Base Optimization Flags (Continued)

Fortran benchmarks:

-fast

Benchmarks using both Fortran and C:

-fast

Peak Compiler Invocation

C benchmarks (except as noted below):

/opt/intel/cc/10.1.015/bin/icc -L/opt/intel/cc/10.1.015/lib
-I/opt/intel/cc/10.1.015/include

433.milc: icc

C++ benchmarks (except as noted below):

icpc

450.soplex: /opt/intel/cc/10.1.015/bin/icpc -L/opt/intel/cc/10.1.015/lib
-I/opt/intel/cc/10.1.015/include

Fortran benchmarks (except as noted below):

ifort

437.leslie3d: /opt/intel/fc/10.1.015/bin/ifort -L/opt/intel/fc/10.1.015/lib
-I/opt/intel/fc/10.1.015/include

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
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
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX



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Peak Optimization Flags

C benchmarks:

433.milc: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias
-auto-ilp32

470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-scalar-rep- -prefetch -opt-malloc-options=3

482.sphinx3: -fast -unroll2

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias
-auto-ilp32

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast
-opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4
-ansi-alias

Fortran benchmarks:

410.bwaves: -fast -prefetch

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0
-ansi-alias -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch
-opt-malloc-options=3

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0
-prefetch

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch
-auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-prefetch -parallel -auto-ilp32

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Peak Optimization Flags (Continued)

454.calculix: -fast -unroll-aggressive -auto-ilp32

481.wrf: -fast -auto-ilp32

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-fp-linux64-revD.20090713.html>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.07.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-fp-linux64-revD.20090713.xml>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.07.xml>

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

Tested with SPEC CPU2006 v1.1.
Report generated on Tue Jul 22 19:24:35 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 19 August 2008.