



SPEC® CFP2006 Result

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IBM Corporation

SPECfp®_rate2006 = 80.6

IBM System x iDataPlex dx360 (Intel Xeon E5440)

SPECfp_rate_base2006 = 73.5

CPU2006 license: 11

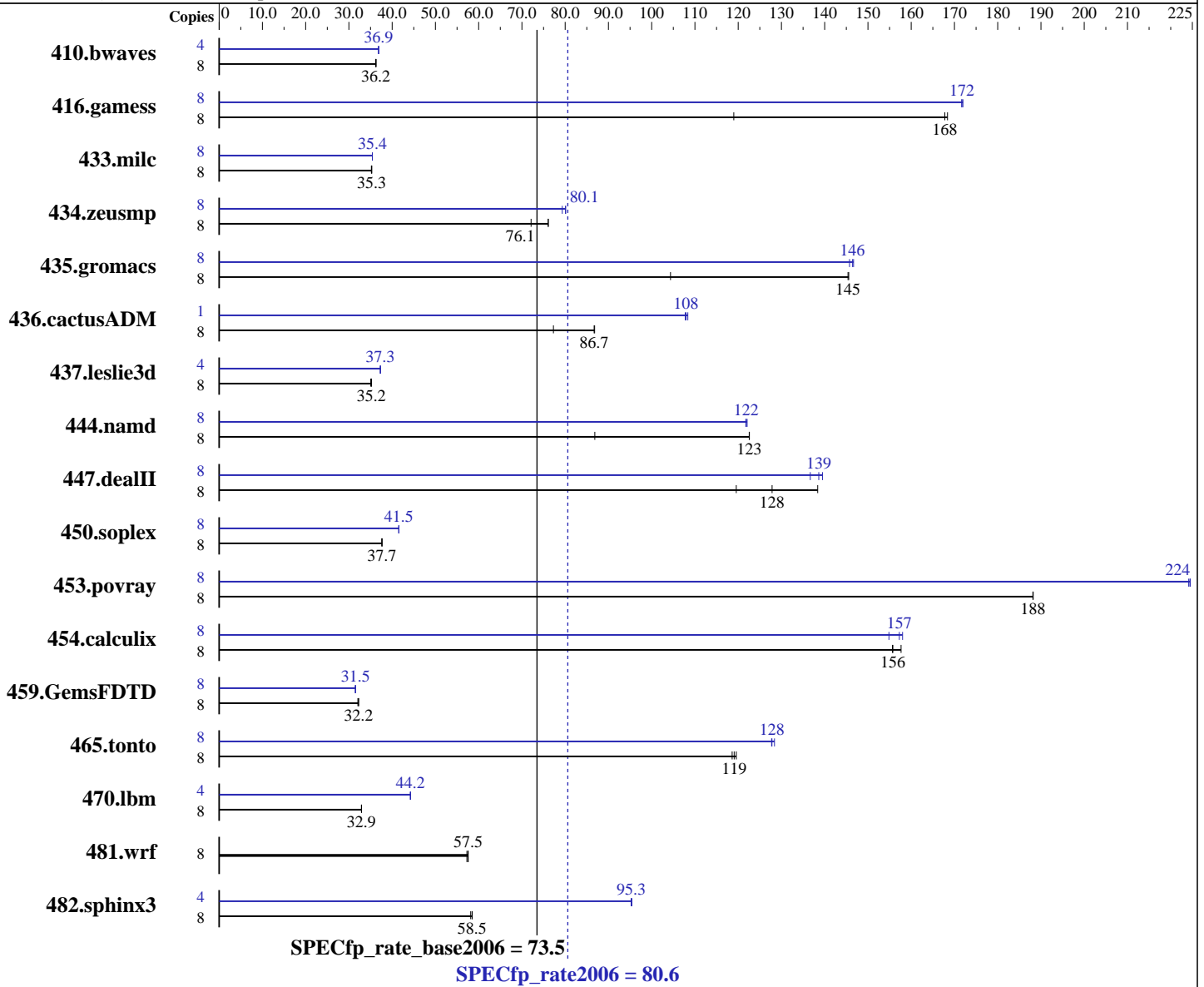
Test date: Apr-2009

Test sponsor: IBM Corporation

Hardware Availability: Nov-2008

Tested by: IBM Corporation

Software Availability: Feb-2009



Hardware

CPU Name: Intel Xeon E5440
 CPU Characteristics: 1333MHz system bus
 CPU MHz: 2833
 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 11.0 for Linux Build 20080930 Package ID: l_cproc_p_11.0.066, l_cprof_p_11.0.066
 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 DDR2-5300F ECC)
Disk Subsystem: 1 x 250 GB SATA, 7200 RPM
Other Hardware: None

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 | 8 | 3006 | 36.2 | 2996 | 36.3 | 3000 | 36.2 | 4 | 1474 | 36.9 | 1475 | 36.9 | 1475 | 36.9 | | |
| 416.gamess | 8 | 1316 | 119 | 930 | 168 | 934 | 168 | 8 | 911 | 172 | 912 | 172 | 912 | 172 | | |
| 433.milc | 8 | 2087 | 35.2 | 2083 | 35.3 | 2082 | 35.3 | 8 | 2073 | 35.4 | 2073 | 35.4 | 2073 | 35.4 | | |
| 434.zeusmp | 8 | 1009 | 72.1 | 957 | 76.1 | 957 | 76.1 | 8 | 909 | 80.1 | 909 | 80.1 | 918 | 79.3 | | |
| 435.gromacs | 8 | 547 | 104 | 392 | 146 | 393 | 145 | 8 | 390 | 146 | 389 | 147 | 392 | 146 | | |
| 436.cactusADM | 8 | 1237 | 77.3 | 1103 | 86.7 | 1101 | 86.8 | 1 | 111 | 108 | 110 | 108 | 111 | 108 | | |
| 437.leslie3d | 8 | 2145 | 35.1 | 2138 | 35.2 | 2135 | 35.2 | 4 | 1008 | 37.3 | 1009 | 37.3 | 1009 | 37.3 | | |
| 444.namd | 8 | 739 | 86.9 | 524 | 123 | 523 | 123 | 8 | 527 | 122 | 526 | 122 | 526 | 122 | | |
| 447.dealII | 8 | 765 | 120 | 661 | 138 | 716 | 128 | 8 | 656 | 140 | 660 | 139 | 670 | 137 | | |
| 450.soplex | 8 | 1772 | 37.7 | 1774 | 37.6 | 1772 | 37.7 | 8 | 1607 | 41.5 | 1606 | 41.5 | 1605 | 41.6 | | |
| 453.povray | 8 | 226 | 188 | 226 | 188 | 226 | 188 | 8 | 190 | 225 | 190 | 224 | 190 | 224 | | |
| 454.calculix | 8 | 424 | 156 | 424 | 156 | 419 | 158 | 8 | 418 | 158 | 426 | 155 | 420 | 157 | | |
| 459.GemsFDTD | 8 | 2632 | 32.2 | 2634 | 32.2 | 2647 | 32.1 | 8 | 2694 | 31.5 | 2695 | 31.5 | 2692 | 31.5 | | |
| 465.tonto | 8 | 661 | 119 | 658 | 120 | 664 | 119 | 8 | 613 | 128 | 616 | 128 | 616 | 128 | | |
| 470.lbm | 8 | 3341 | 32.9 | 3340 | 32.9 | 3340 | 32.9 | 4 | 1243 | 44.2 | 1242 | 44.2 | 1243 | 44.2 | | |
| 481.wrf | 8 | 1560 | 57.3 | 1553 | 57.5 | 1552 | 57.6 | 8 | 1560 | 57.3 | 1553 | 57.5 | 1552 | 57.6 | | |
| 482.sphinx3 | 8 | 2667 | 58.5 | 2681 | 58.2 | 2664 | 58.5 | 4 | 818 | 95.3 | 818 | 95.3 | 817 | 95.4 | | |

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.

General Notes

taskset was used to bind processes to cores except for 436.cactusADM peak
Hardware Sector Prefetch Enable and Adjacent Sector Prefetch Disable
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 64M



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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.lelie3d: -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:

-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

C++ benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

Fortran benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

Benchmarks using both Fortran and C:

-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch



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Peak Compiler Invocation

C benchmarks (except as noted below):

icc

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc

450.soplex: icpc -m32

Fortran benchmarks (except as noted below):

ifort

437.leslie3d: ifort -m32

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
 470.lbm: -DSPEC_CPU_LP64
 481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

433.milc: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -fno-alias

470.lbm: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
-auto-ilp32

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Peak Optimization Flags (Continued)

482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -fno-alias -auto-ilp32

447.dealIII: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll2 -ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll2 -Ob0 -ansi-alias
-scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -opt-malloc-options=3 -opt-prefetch

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll2 -Ob0 -opt-prefetch

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -opt-prefetch -auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -unroll2 -opt-prefetch -parallel
-auto-ilp32

454.calculix: -xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: basepeak = yes



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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-ic11.0-fp-linux64-revA.20090710.18.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090710.18.xml>

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