



SPEC® CFP2006 Result

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IBM Corporation

SPECfp®2006 = **25.8**

IBM BladeCenter HS22V (Intel Xeon E5503)

SPECfp_base2006 = **24.0**

CPU2006 license: 11

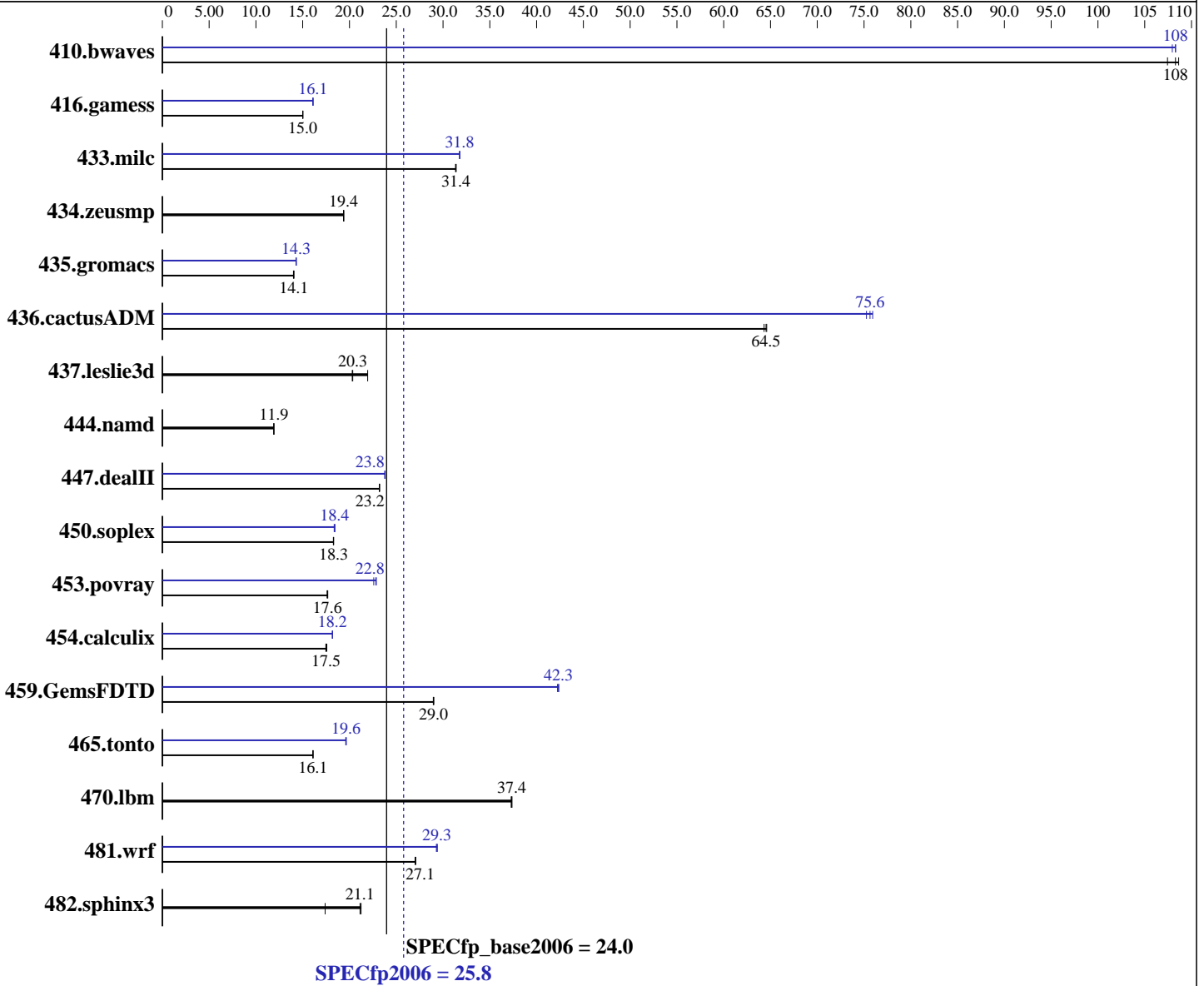
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Nov-2010

Hardware Availability: Mar-2010

Software Availability: Jan-2010



Hardware

CPU Name: Intel Xeon E5503
 CPU Characteristics:
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip
 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-default
 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: 4 MB I+D on chip per chip
 Other Cache: None
 Memory: 24 GB (12 x 2 GB 2Rx8 PC3-10600R, ECC, running at 800 MHz and CL6)
 Disk Subsystem: 2 x 50 GB SATA, SSD, RAID 0
 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 | 126 | 107 | 125 | 109 | 126 | 108 | 125 | 108 | 126 | 108 | 125 | 108 |
| 416.gamess | 1305 | 15.0 | 1304 | 15.0 | 1304 | 15.0 | 1218 | 16.1 | 1216 | 16.1 | 1215 | 16.1 |
| 433.milc | 293 | 31.3 | 292 | 31.4 | 293 | 31.4 | 289 | 31.8 | 289 | 31.8 | 289 | 31.8 |
| 434.zeusmp | 470 | 19.4 | 469 | 19.4 | 470 | 19.4 | 470 | 19.4 | 469 | 19.4 | 470 | 19.4 |
| 435.gromacs | 510 | 14.0 | 508 | 14.1 | 508 | 14.1 | 499 | 14.3 | 499 | 14.3 | 500 | 14.3 |
| 436.cactusADM | 185 | 64.5 | 185 | 64.6 | 186 | 64.3 | 157 | 75.9 | 159 | 75.3 | 158 | 75.6 |
| 437.leslie3d | 462 | 20.3 | 428 | 21.9 | 463 | 20.3 | 462 | 20.3 | 428 | 21.9 | 463 | 20.3 |
| 444.namd | 673 | 11.9 | 673 | 11.9 | 673 | 11.9 | 673 | 11.9 | 673 | 11.9 | 673 | 11.9 |
| 447.dealII | 493 | 23.2 | 493 | 23.2 | 493 | 23.2 | 481 | 23.8 | 481 | 23.8 | 481 | 23.8 |
| 450.soplex | 456 | 18.3 | 456 | 18.3 | 456 | 18.3 | 454 | 18.4 | 453 | 18.4 | 452 | 18.4 |
| 453.povray | 302 | 17.6 | 302 | 17.6 | 301 | 17.7 | 233 | 22.9 | 233 | 22.8 | 235 | 22.6 |
| 454.calculix | 472 | 17.5 | 469 | 17.6 | 472 | 17.5 | 454 | 18.2 | 454 | 18.2 | 454 | 18.2 |
| 459.GemsFDTD | 366 | 29.0 | 366 | 29.0 | 366 | 29.0 | 250 | 42.4 | 251 | 42.3 | 251 | 42.2 |
| 465.tonto | 611 | 16.1 | 612 | 16.1 | 611 | 16.1 | 502 | 19.6 | 500 | 19.7 | 501 | 19.6 |
| 470.lbm | 368 | 37.4 | 368 | 37.4 | 369 | 37.3 | 368 | 37.4 | 368 | 37.4 | 369 | 37.3 |
| 481.wrf | 413 | 27.1 | 413 | 27.1 | 414 | 27.0 | 381 | 29.3 | 380 | 29.4 | 381 | 29.3 |
| 482.sphinx3 | 922 | 21.1 | 918 | 21.2 | 1120 | 17.4 | 922 | 21.1 | 918 | 21.2 | 1120 | 17.4 |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Platform Notes

Power C-states enabled in BIOS

General Notes

'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
 Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
 OMP_NUM_THREADS set to number of cores
 KMP_AFFINITY set to granularity=fine,scatter
 KMP_STACKSIZE set to 200M



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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

Benchmarks using both Fortran and C:

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



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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: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: basepeak = yes

447.dealII: -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:

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Peak Optimization Flags (Continued)

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

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.20100929.00.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.20100929.00.xml>



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