



SPEC® CFP2006 Result

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IBM Corporation

SPECfp®_rate2006 = 40.2

IBM System x3400 (Intel Xeon E5205)

SPECfp_rate_base2006 = 38.2

CPU2006 license: 11

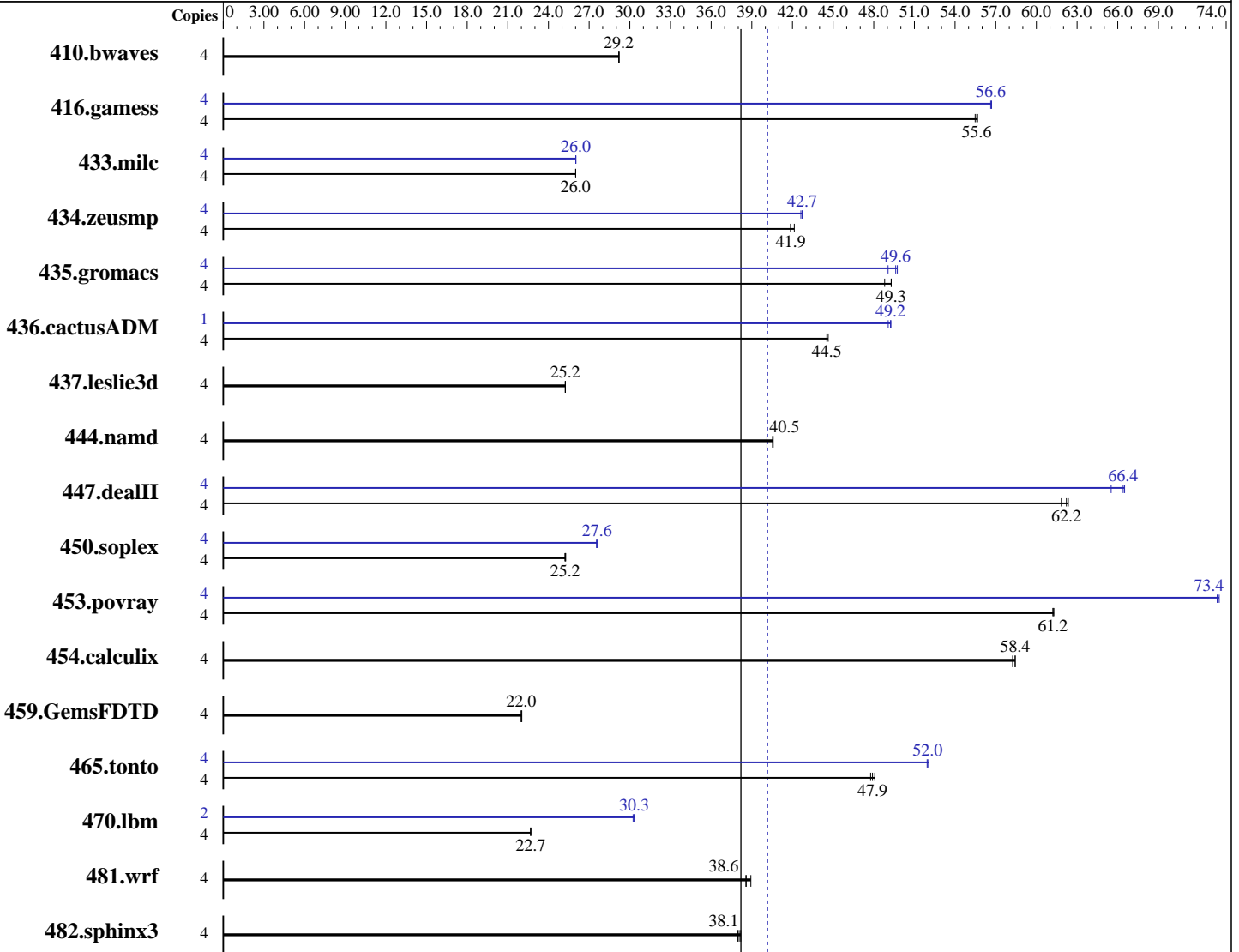
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Oct-2008

Hardware Availability: Nov-2008

Software Availability: Nov-2008



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Hardware

CPU Name: Intel Xeon E5205
 CPU Characteristics: 1066MHz system bus
 CPU MHz: 1866
 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: 6 MB I+D on chip per chip

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Software

Operating System: SuSE Linux Enterprise Server 10 (x86_64) SP1, Kernel 2.6.16.46-0.12-smp
 Compiler: Intel C++ and Fortran Compiler 11.0 for Linux Build 20080730 Package ID: l_cproc_b_11.0.042, l_fproc_b_11.0.042
 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 80 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	4	1862	29.2	1861	29.2	<u>1862</u>	<u>29.2</u>	4	1862	29.2	1861	29.2	<u>1862</u>	<u>29.2</u>
416.gamess	4	<u>1409</u>	<u>55.6</u>	1412	55.5	1407	55.7	4	1386	56.5	<u>1383</u>	<u>56.6</u>	1381	56.7
433.milc	4	1412	26.0	<u>1412</u>	<u>26.0</u>	1412	26.0	4	<u>1411</u>	<u>26.0</u>	1412	26.0	1411	26.0
434.zeusmp	4	<u>869</u>	<u>41.9</u>	864	42.1	870	41.9	4	<u>852</u>	<u>42.7</u>	854	42.6	852	42.7
435.gromacs	4	579	49.3	585	48.8	<u>579</u>	<u>49.3</u>	4	<u>576</u>	<u>49.6</u>	582	49.1	574	49.7
436.cactusADM	4	<u>1073</u>	<u>44.5</u>	1073	44.5	1071	44.6	1	244	49.1	<u>243</u>	<u>49.2</u>	243	49.3
437.leslie3d	4	1489	25.3	1490	25.2	<u>1489</u>	<u>25.2</u>	4	1489	25.3	1490	25.2	<u>1489</u>	<u>25.2</u>
444.namd	4	800	40.1	<u>792</u>	<u>40.5</u>	791	40.6	4	800	40.1	<u>792</u>	<u>40.5</u>	791	40.6
447.dealII	4	734	62.4	<u>736</u>	<u>62.2</u>	740	61.8	4	<u>689</u>	<u>66.4</u>	698	65.5	688	66.5
450.soplex	4	<u>1321</u>	<u>25.2</u>	1323	25.2	1320	25.3	4	<u>1210</u>	<u>27.6</u>	1210	27.6	1211	27.6
453.povray	4	347	61.3	348	61.2	<u>348</u>	<u>61.2</u>	4	290	73.3	<u>290</u>	<u>73.4</u>	290	73.5
454.calculix	4	567	58.2	565	58.4	<u>565</u>	<u>58.4</u>	4	567	58.2	565	58.4	<u>565</u>	<u>58.4</u>
459.GemsFDTD	4	1926	22.0	1930	22.0	<u>1930</u>	<u>22.0</u>	4	1926	22.0	1930	22.0	<u>1930</u>	<u>22.0</u>
465.tonto	4	819	48.1	<u>822</u>	<u>47.9</u>	824	47.8	4	758	51.9	<u>757</u>	<u>52.0</u>	756	52.1
470.lbm	4	2423	22.7	<u>2422</u>	<u>22.7</u>	2422	22.7	2	906	30.3	<u>906</u>	<u>30.3</u>	909	30.2
481.wrf	4	<u>1158</u>	<u>38.6</u>	1159	38.6	1148	38.9	4	<u>1158</u>	<u>38.6</u>	1159	38.6	1148	38.9
482.sphinx3	4	<u>2048</u>	<u>38.1</u>	2042	38.2	2053	38.0	4	<u>2048</u>	<u>38.1</u>	2042	38.2	2053	38.0

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.
taskset was used to bind processes to cores except for 436.cactusADM peak

General Notes

OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 64M
Hardware Prefetch Enabled, Adjacent Sector Prefetch Enabled
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
This result is measured on an IBM System x 3500 Server. Note that the IBM System x 3500 and IBM System x 3400 are electrically equivalent.



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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.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:

-xSSE4.1 -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:

icc

C++ benchmarks (except as noted below):

icpc

```
450.soplex: /opt/intel/Compiler/11.0/042/bin/ia32/icpc
           -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
           -I/opt/intel/Compiler/11.0/042/ipp/ia32/include
```

Fortran benchmarks:

ifort

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
437.leslie3d: -DSPEC_CPU_LP64
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
482.sphinx3: -DSPEC_CPU_LP64
```

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: basepeak = yes

C++ benchmarks:

444.namd: basepeak = yes

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: basepeak = yes

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: basepeak = yes

459.GemsFDTD: basepeak = yes

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: basepeak = yes

481.wrf: basepeak = yes

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.13.html>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.03.html>



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

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<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.03.xml>

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