



SPEC[®] CFP2006 Result

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IBM Corporation

SPECfp[®]_rate2006 = 46.3

IBM System x3200 M2 (Intel Xeon X3350)

SPECfp_rate_base2006 = 42.2

CPU2006 license: 11

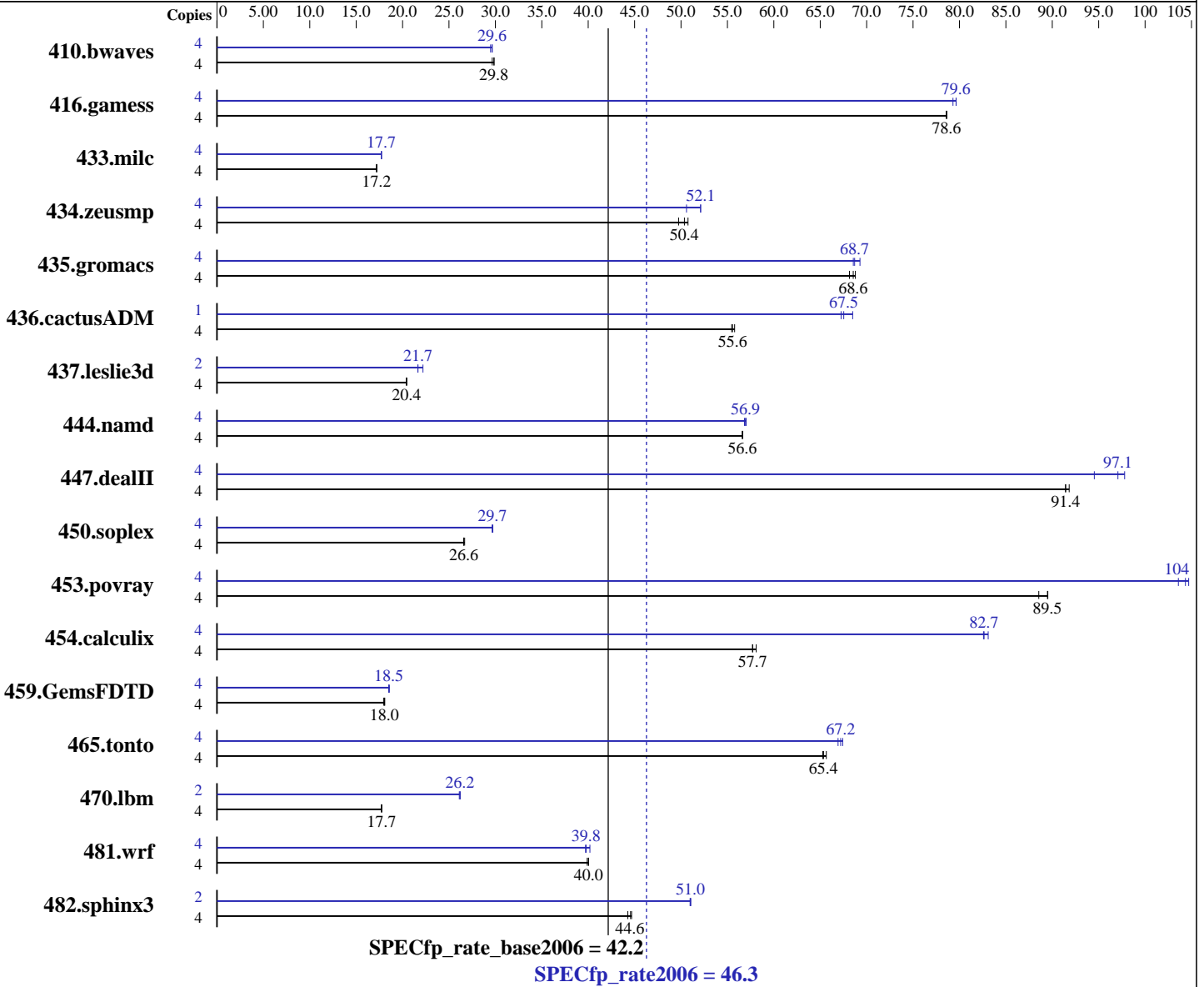
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Dec-2007

Hardware Availability: Apr-2008

Software Availability: Nov-2007



Hardware

CPU Name: Intel Xeon X3350
 CPU Characteristics: 1333MHz system bus
 CPU MHz: 2667
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip
 CPU(s) orderable: 1 chip
 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) SP1, Kernel 2.6.16.46-0.12-smp
 Compiler: Intel C++ and Fortran Compiler 10.1 for Linux Build 20070913 Package ID: l_cc_p_10.1.008, l_fc_p_10.1.008
 Auto Parallel: Yes
 File System: ReiserFS
 System State: Multi-user, run level 3
 Base Pointers: 64-bit

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L3 Cache: None
Other Cache: None
Memory: 8 GB (4 x 2 GB DDR2-5300 ECC)
Disk Subsystem: 1 x 146 GB SAS, 15000 RPM
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.17.50.0.15

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	<u>1822</u>	<u>29.8</u>	1820	29.9	1833	29.7	4	1832	29.7	<u>1834</u>	<u>29.6</u>	1844	29.5
416.gamess	4	<u>996</u>	<u>78.6</u>	997	78.6	996	78.6	4	<u>984</u>	<u>79.6</u>	983	79.6	988	79.3
433.milc	4	<u>2135</u>	<u>17.2</u>	2135	17.2	2133	17.2	4	2073	17.7	2071	17.7	<u>2073</u>	<u>17.7</u>
434.zeusmp	4	717	50.8	<u>723</u>	<u>50.4</u>	732	49.7	4	698	52.1	<u>699</u>	<u>52.1</u>	719	50.6
435.gromacs	4	<u>417</u>	<u>68.6</u>	415	68.8	419	68.2	4	417	68.6	412	69.3	<u>416</u>	<u>68.7</u>
436.cactusADM	4	857	55.8	862	55.5	<u>860</u>	<u>55.6</u>	1	178	67.2	174	68.5	<u>177</u>	<u>67.5</u>
437.leslie3d	4	<u>1841</u>	<u>20.4</u>	1839	20.4	1842	20.4	2	868	21.6	847	22.2	<u>868</u>	<u>21.7</u>
444.namd	4	566	56.6	<u>567</u>	<u>56.6</u>	567	56.6	4	<u>563</u>	<u>56.9</u>	563	57.0	564	56.8
447.dealII	4	<u>500</u>	<u>91.4</u>	498	91.8	501	91.4	4	484	94.5	468	97.8	<u>471</u>	<u>97.1</u>
450.soplex	4	1255	26.6	1250	26.7	<u>1255</u>	<u>26.6</u>	4	1125	29.7	1122	29.7	<u>1124</u>	<u>29.7</u>
453.povray	4	238	89.5	<u>238</u>	<u>89.5</u>	240	88.5	4	205	104	<u>204</u>	<u>104</u>	203	105
454.calculix	4	<u>572</u>	<u>57.7</u>	568	58.1	572	57.7	4	397	83.1	400	82.6	<u>399</u>	<u>82.7</u>
459.GemsFDTD	4	<u>2352</u>	<u>18.0</u>	2364	18.0	2347	18.1	4	2285	18.6	2292	18.5	<u>2292</u>	<u>18.5</u>
465.tonto	4	600	65.7	<u>602</u>	<u>65.4</u>	603	65.3	4	588	66.9	<u>586</u>	<u>67.2</u>	584	67.4
470.lbm	4	3101	17.7	<u>3099</u>	<u>17.7</u>	3097	17.7	2	<u>1050</u>	<u>26.2</u>	1049	26.2	1052	26.1
481.wrf	4	<u>1116</u>	<u>40.0</u>	1116	40.0	1120	39.9	4	1125	39.7	1112	40.2	<u>1123</u>	<u>39.8</u>
482.sphinx3	4	1745	44.7	1761	44.3	<u>1749</u>	<u>44.6</u>	2	<u>764</u>	<u>51.0</u>	763	51.1	765	51.0

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

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
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to physical,0
KMP_STACKSIZE set to 64M
taskset utility used to bind CPU(s) to processes

Base Compiler Invocation

C benchmarks:
icc

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Base Compiler Invocation (Continued)

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

Fortran benchmarks:
-fast

Benchmarks using both Fortran and C:
-fast



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Peak Compiler Invocation

C benchmarks (except as noted below):

```
/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/include
```

433.milc: icc

C++ benchmarks (except as noted below):

icpc

```
450.soplex: /opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/include
```

Fortran benchmarks (except as noted below):

ifort

```
437.leslie3d: /opt/intel/fc/10.1.008/bin/ifort -L/opt/intel/fc/10.1.008/lib
-I/opt/intel/fc/10.1.008/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.deall: -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
```

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
```

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Peak Optimization Flags (Continued)

482.sphinx3: -fast -unroll2

C++ benchmarks:

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

447.dealIII: -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

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

481.wrf: -fast -auto-ilp32

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090713.html>



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

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090713.xml>

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