



SPEC[®] CFP2006 Result

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IBM Corporation

SPECfp[®]_rate2006 = 47.8

IBM System x3200 M2 (Intel Xeon X3360)

SPECfp_rate_base2006 = 43.2

CPU2006 license: 11

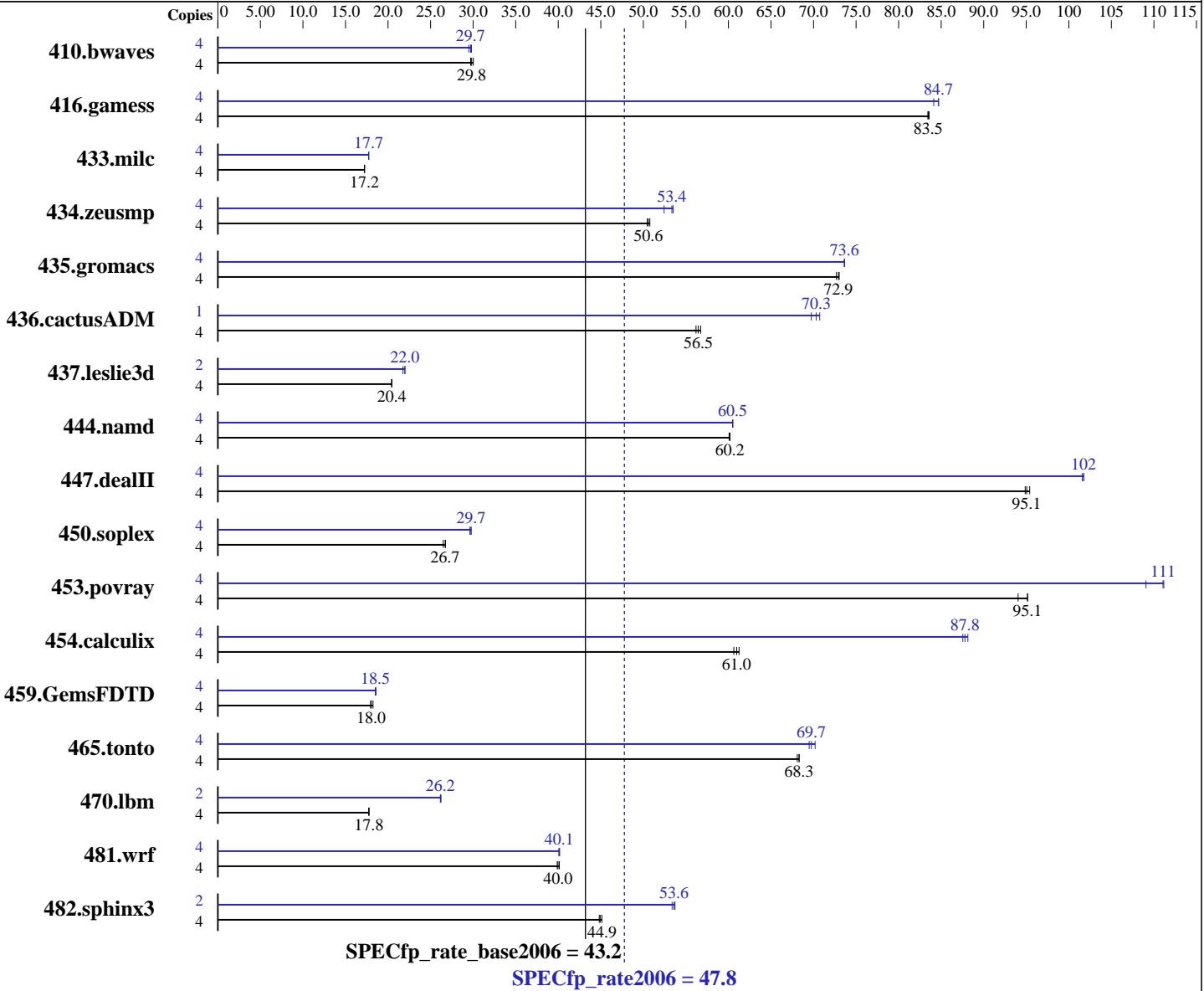
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jan-2008

Hardware Availability: Apr-2008

Software Availability: Nov-2007



Hardware

CPU Name: Intel Xeon X3360
 CPU Characteristics: 1333MHz system bus
 CPU MHz: 2833
 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	1811	30.0	<u>1823</u>	<u>29.8</u>	1830	29.7	4	<u>1830</u>	<u>29.7</u>	1824	29.8	1843	29.5
416.gamess	4	<u>938</u>	<u>83.5</u>	939	83.4	937	83.6	4	931	84.1	<u>925</u>	<u>84.7</u>	925	84.7
433.milc	4	2130	17.2	2131	17.2	<u>2131</u>	<u>17.2</u>	4	<u>2071</u>	<u>17.7</u>	2070	17.7	2074	17.7
434.zeusmp	4	<u>719</u>	<u>50.6</u>	721	50.5	717	50.8	4	694	52.4	680	53.5	<u>682</u>	<u>53.4</u>
435.gromacs	4	393	72.7	<u>392</u>	<u>72.9</u>	391	73.0	4	<u>388</u>	<u>73.6</u>	388	73.6	388	73.6
436.cactusADM	4	<u>847</u>	<u>56.5</u>	851	56.2	842	56.7	1	171	69.7	169	70.7	<u>170</u>	<u>70.3</u>
437.leslie3d	4	1841	20.4	<u>1840</u>	<u>20.4</u>	1839	20.4	2	<u>856</u>	<u>22.0</u>	855	22.0	864	21.8
444.namd	4	534	60.1	533	60.2	<u>533</u>	<u>60.2</u>	4	<u>530</u>	<u>60.5</u>	530	60.5	530	60.5
447.dealII	4	<u>481</u>	<u>95.1</u>	482	94.9	480	95.4	4	<u>450</u>	<u>102</u>	450	102	451	102
450.soplex	4	1260	26.5	<u>1249</u>	<u>26.7</u>	1247	26.8	4	1126	29.6	1121	29.8	<u>1122</u>	<u>29.7</u>
453.povray	4	224	95.2	226	94.0	<u>224</u>	<u>95.1</u>	4	195	109	<u>192</u>	<u>111</u>	191	111
454.calculix	4	<u>541</u>	<u>61.0</u>	544	60.6	539	61.2	4	<u>376</u>	<u>87.8</u>	374	88.1	377	87.5
459.GemsFDTD	4	<u>2354</u>	<u>18.0</u>	2364	17.9	2328	18.2	4	2284	18.6	2293	18.5	<u>2291</u>	<u>18.5</u>
465.tonto	4	576	68.3	<u>576</u>	<u>68.3</u>	578	68.1	4	566	69.5	<u>564</u>	<u>69.7</u>	561	70.2
470.lbm	4	3099	17.7	3096	17.8	<u>3096</u>	<u>17.8</u>	2	1048	26.2	<u>1050</u>	<u>26.2</u>	1051	26.2
481.wrf	4	1120	39.9	1113	40.1	<u>1118</u>	<u>40.0</u>	4	1112	40.2	<u>1114</u>	<u>40.1</u>	1115	40.1
482.sphinx3	4	<u>1735</u>	<u>44.9</u>	1727	45.1	1739	44.8	2	726	53.7	730	53.4	<u>727</u>	<u>53.6</u>

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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