



SPEC® CFP2006 Result

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IBM Corporation

SPECfp®_rate2006 = 69.8

IBM System x3550 (Intel Xeon E5420)

SPECfp_rate_base2006 = 62.1

CPU2006 license: 11

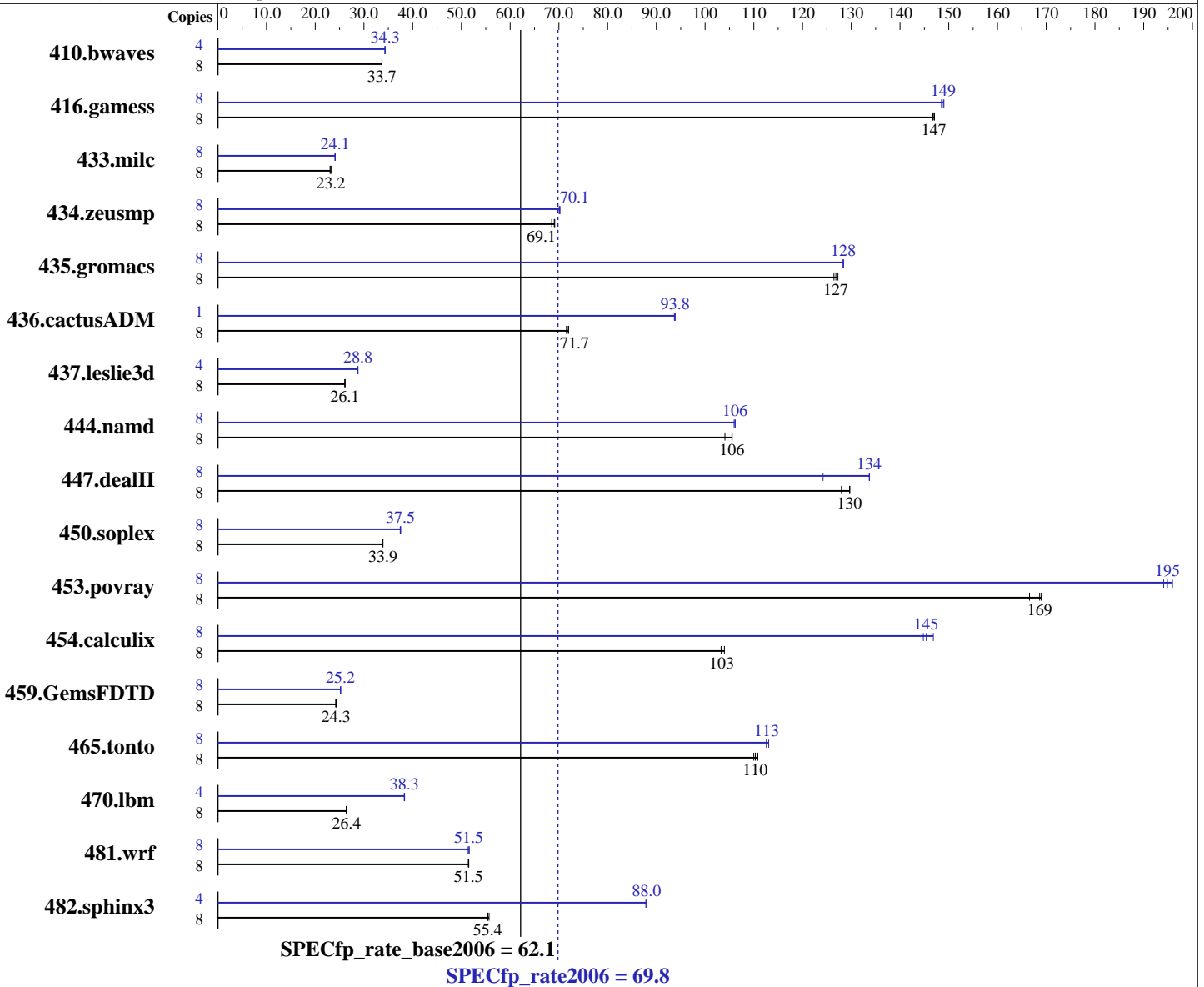
Test date: Nov-2007

Test sponsor: IBM Corporation

Hardware Availability: Jan-2008

Tested by: IBM Corporation

Software Availability: Nov-2007



Hardware

CPU Name: Intel Xeon E5420
 CPU Characteristics: 1333MHz system bus
 CPU MHz: 2493
 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

Continued on next page

Software

Operating System: SuSE Linux Enterprise Server 10 (x86_64), kernel 2.6.16.21-0.8-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

Continued on next page



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L3 Cache: None
 Other Cache: None
 Memory: 16 GB (8 x 2 GB DDR2-5300F ECC)
 Disk Subsystem: 1 x 36 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	8	3226	33.7	<u>3226</u>	<u>33.7</u>	3227	33.7	4	1584	34.3	1583	34.3	<u>1583</u>	<u>34.3</u>
416.gamess	8	1067	147	1065	147	<u>1066</u>	<u>147</u>	8	<u>1052</u>	<u>149</u>	1055	149	1051	149
433.milc	8	3162	23.2	<u>3168</u>	<u>23.2</u>	3187	23.0	8	<u>3051</u>	<u>24.1</u>	3051	24.1	3044	24.1
434.zeusmp	8	1053	69.2	1062	68.5	<u>1054</u>	<u>69.1</u>	8	1037	70.2	1039	70.1	<u>1038</u>	<u>70.1</u>
435.gromacs	8	449	127	452	126	<u>450</u>	<u>127</u>	8	<u>445</u>	<u>128</u>	445	128	445	128
436.cactusADM	8	1336	71.5	1328	72.0	<u>1332</u>	<u>71.7</u>	1	<u>127</u>	<u>93.8</u>	127	93.8	128	93.7
437.leslie3d	8	2881	26.1	2882	26.1	<u>2881</u>	<u>26.1</u>	4	<u>1307</u>	<u>28.8</u>	1310	28.7	1307	28.8
444.namd	8	616	104	<u>608</u>	<u>106</u>	608	106	8	604	106	606	106	<u>604</u>	<u>106</u>
447.dealII	8	715	128	<u>706</u>	<u>130</u>	706	130	8	737	124	684	134	<u>685</u>	<u>134</u>
450.soplex	8	1968	33.9	<u>1969</u>	<u>33.9</u>	1978	33.7	8	1782	37.4	<u>1779</u>	<u>37.5</u>	1778	37.5
453.povray	8	252	169	<u>252</u>	<u>169</u>	256	167	8	219	194	<u>218</u>	<u>195</u>	217	196
454.calculix	8	<u>638</u>	<u>103</u>	639	103	635	104	8	449	147	456	145	<u>454</u>	<u>145</u>
459.GemsFDTD	8	<u>3499</u>	<u>24.3</u>	3488	24.3	3505	24.2	8	3369	25.2	3367	25.2	<u>3368</u>	<u>25.2</u>
465.tonto	8	710	111	<u>714</u>	<u>110</u>	716	110	8	696	113	699	113	<u>699</u>	<u>113</u>
470.lbm	8	4170	26.4	<u>4158</u>	<u>26.4</u>	4158	26.4	4	1436	38.3	1433	38.3	<u>1435</u>	<u>38.3</u>
481.wrf	8	1735	51.5	<u>1736</u>	<u>51.5</u>	1738	51.4	8	1739	51.4	1731	51.6	<u>1734</u>	<u>51.5</u>
482.sphinx3	8	2800	55.7	2814	55.4	<u>2814</u>	<u>55.4</u>	4	<u>886</u>	<u>88.0</u>	886	88.0	888	87.8

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
 Hardware Sector Prefetch Enabled and Adjacent Sector Prefetch Disabled
 OMP_NUM_THREADS set to number of cores
 KMP_AFFINITY set to physical,0
 KMP_STACKSIZE set to 64M
 Powersaved dameon was disabled in OS
 taskset utility used to bind CPU(s) to processes



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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:

-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.dealII: -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.20090714.11.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.20090714.11.xml>

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Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 15:04:45 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 26 December 2007.