



SPEC[®] CFP2006 Result

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IBM Corporation

SPECfp[®]_rate2006 = 71.6

IBM System x3400 (Intel Xeon E5430)

SPECfp_rate_base2006 = 63.5

CPU2006 license: 11

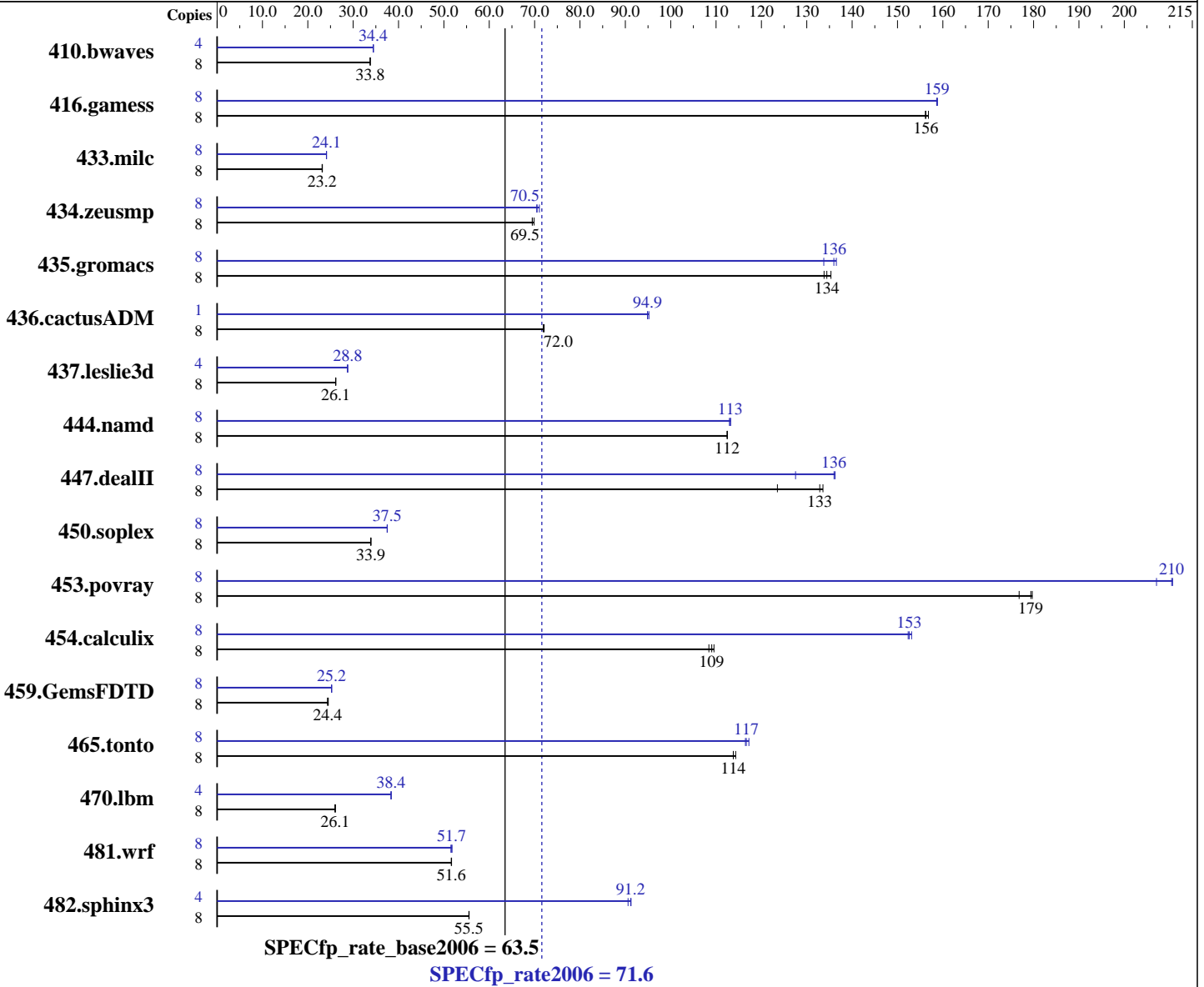
Test date: Apr-2008

Test sponsor: IBM Corporation

Hardware Availability: Jan-2008

Tested by: IBM Corporation

Software Availability: Nov-2007



Hardware

CPU Name: Intel Xeon E5430
 CPU Characteristics: 1333MHz system bus
 CPU MHz: 2667
 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

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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

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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 2.17.50.0.15

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	3221	33.8	3221	33.8	<u>3221</u>	<u>33.8</u>	4	<u>1578</u>	<u>34.4</u>	1578	34.4	1579	34.4
416.gamess	8	<u>1002</u>	<u>156</u>	1003	156	999	157	8	987	159	986	159	<u>987</u>	<u>159</u>
433.milc	8	3163	23.2	3172	23.2	<u>3169</u>	<u>23.2</u>	8	3043	24.1	3048	24.1	<u>3046</u>	<u>24.1</u>
434.zeusmp	8	1042	69.9	<u>1047</u>	<u>69.5</u>	1048	69.5	8	1033	70.5	1025	71.1	<u>1032</u>	<u>70.5</u>
435.gromacs	8	<u>425</u>	<u>134</u>	427	134	422	135	8	427	134	418	137	<u>420</u>	<u>136</u>
436.cactusADM	8	1326	72.1	<u>1328</u>	<u>72.0</u>	1329	71.9	1	<u>126</u>	<u>94.9</u>	126	94.9	126	95.2
437.leslie3d	8	<u>2876</u>	<u>26.1</u>	2877	26.1	2874	26.2	4	<u>1307</u>	<u>28.8</u>	1306	28.8	1308	28.8
444.namd	8	570	112	<u>570</u>	<u>112</u>	571	112	8	568	113	567	113	<u>567</u>	<u>113</u>
447.dealII	8	<u>689</u>	<u>133</u>	685	134	741	124	8	<u>673</u>	<u>136</u>	718	128	672	136
450.soplex	8	<u>1969</u>	<u>33.9</u>	1967	33.9	1969	33.9	8	1778	37.5	1780	37.5	<u>1779</u>	<u>37.5</u>
453.povray	8	<u>237</u>	<u>179</u>	241	177	237	180	8	202	211	206	207	<u>202</u>	<u>210</u>
454.calculix	8	603	110	609	108	<u>605</u>	<u>109</u>	8	433	152	431	153	<u>433</u>	<u>153</u>
459.GemsFDTD	8	<u>3480</u>	<u>24.4</u>	3462	24.5	3485	24.4	8	3362	25.2	3363	25.2	<u>3363</u>	<u>25.2</u>
465.tonto	8	689	114	692	114	<u>692</u>	<u>114</u>	8	671	117	676	116	<u>675</u>	<u>117</u>
470.lbm	8	4231	26.0	<u>4218</u>	<u>26.1</u>	4216	26.1	4	1433	38.4	<u>1433</u>	<u>38.4</u>	1433	38.4
481.wrf	8	1730	51.6	<u>1730</u>	<u>51.6</u>	1729	51.7	8	1726	51.8	1734	51.5	<u>1728</u>	<u>51.7</u>
482.sphinx3	8	2809	55.5	<u>2808</u>	<u>55.5</u>	2806	55.6	4	860	90.6	854	91.3	<u>855</u>	<u>91.2</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
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
taskset utility used to bind CPU(s) to processes
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:

-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.deallI: -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-linux64-revC.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-linux64-revC.20090713.xml>

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