



SPEC® CFP2006 Result

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IBM Corporation

SPECfp®2006 = 15.6

IBM System x3650 (Intel Xeon E5205)

SPECfp_base2006 = 13.5

CPU2006 license: 11

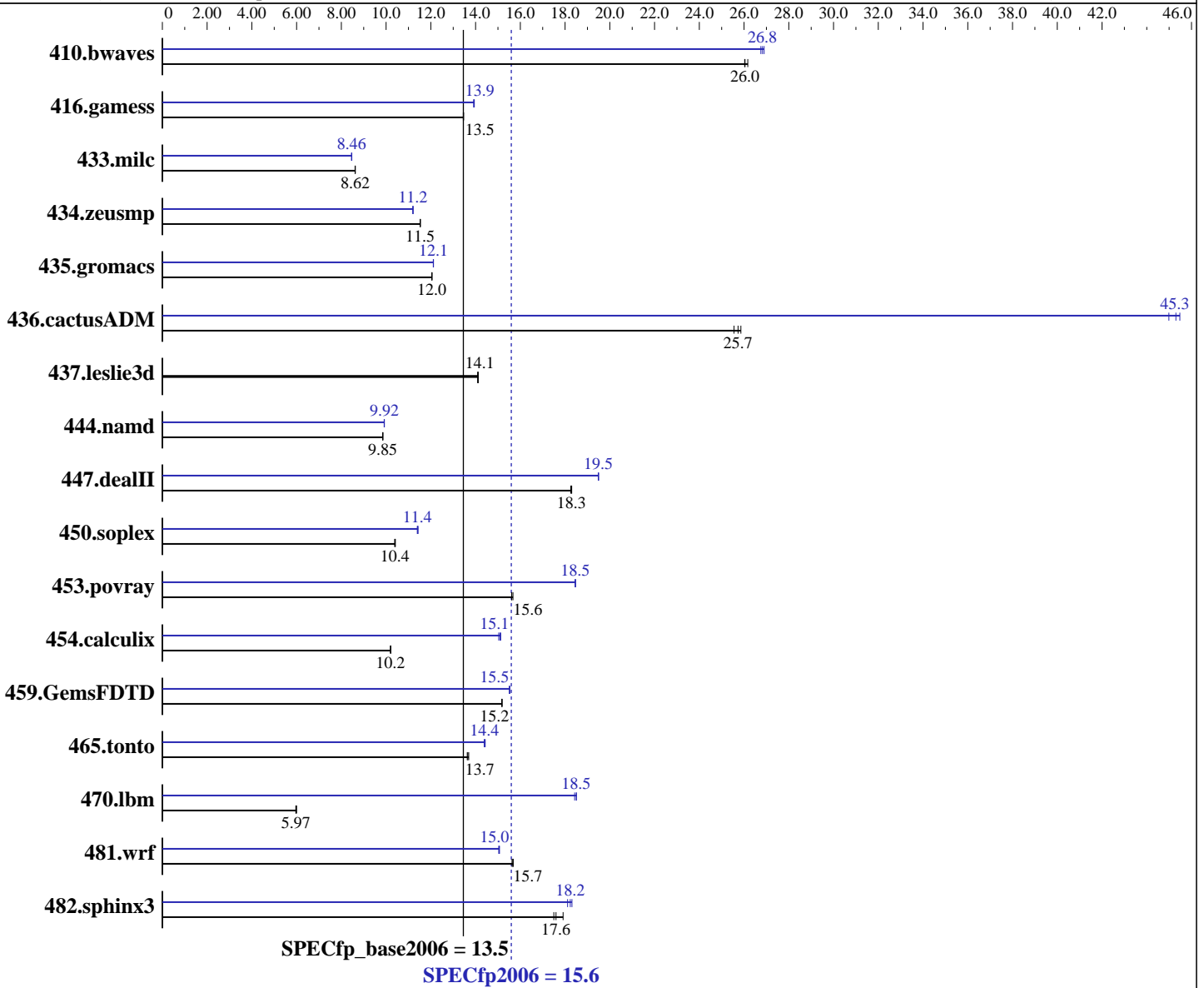
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jan-2008

Hardware Availability: Mar-2008

Software Availability: Nov-2007



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), 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 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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	<u>522</u>	<u>26.0</u>	519	26.2	522	26.0	<u>507</u>	<u>26.8</u>	505	26.9	508	26.8
416.gamess	1456	13.5	1454	13.5	<u>1455</u>	<u>13.5</u>	<u>1406</u>	<u>13.9</u>	1407	13.9	1404	13.9
433.milc	1065	8.62	1066	8.61	<u>1065</u>	<u>8.62</u>	1085	8.46	1084	8.47	<u>1085</u>	<u>8.46</u>
434.zeusmp	790	11.5	789	11.5	<u>790</u>	<u>11.5</u>	813	11.2	812	11.2	<u>812</u>	<u>11.2</u>
435.gromacs	593	12.1	<u>593</u>	<u>12.0</u>	593	12.0	589	12.1	<u>589</u>	<u>12.1</u>	590	12.1
436.cactusADM	462	25.9	<u>464</u>	<u>25.7</u>	468	25.6	266	45.0	<u>264</u>	<u>45.3</u>	263	45.5
437.leslie3d	666	14.1	<u>666</u>	<u>14.1</u>	667	14.1	666	14.1	<u>666</u>	<u>14.1</u>	667	14.1
444.namd	814	9.85	<u>814</u>	<u>9.85</u>	813	9.86	808	9.92	809	9.91	<u>808</u>	<u>9.92</u>
447.dealII	625	18.3	<u>626</u>	<u>18.3</u>	627	18.3	<u>587</u>	<u>19.5</u>	587	19.5	587	19.5
450.soplex	801	10.4	<u>802</u>	<u>10.4</u>	803	10.4	<u>732</u>	<u>11.4</u>	732	11.4	730	11.4
453.povray	341	15.6	339	15.7	<u>341</u>	<u>15.6</u>	288	18.5	288	18.4	<u>288</u>	<u>18.5</u>
454.calculix	809	10.2	808	10.2	<u>809</u>	<u>10.2</u>	<u>547</u>	<u>15.1</u>	546	15.1	549	15.0
459.GemsFDTD	<u>699</u>	<u>15.2</u>	699	15.2	699	15.2	683	15.5	<u>684</u>	<u>15.5</u>	684	15.5
465.tonto	719	13.7	722	13.6	<u>721</u>	<u>13.7</u>	682	14.4	<u>683</u>	<u>14.4</u>	684	14.4
470.lbm	2290	6.00	<u>2301</u>	<u>5.97</u>	2303	5.97	<u>743</u>	<u>18.5</u>	742	18.5	746	18.4
481.wrf	<u>713</u>	<u>15.7</u>	715	15.6	712	15.7	743	15.0	741	15.1	<u>742</u>	<u>15.0</u>
482.sphinx3	<u>1108</u>	<u>17.6</u>	1114	17.5	1088	17.9	1065	18.3	<u>1069</u>	<u>18.2</u>	1076	18.1

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 450.soplex, 470.lbm and 482.sphinx3, at peak, are compiled in 32-bit mode
Hardware Sector Prefetch Enabled and Adjacent Sector Prefetch Enabled
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to physical,0
KMP_STACKSIZE set to 200M
Powersaved dameon was disabled in OS

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 -parallel

C++ benchmarks:
-fast -parallel

Fortran benchmarks:
-fast -parallel

Benchmarks using both Fortran and C:
-fast -parallel



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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:

```
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
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-req- -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 -parallel

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: basepeak = yes

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0
-prefetch -parallel

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 -parallel -prefetch -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.20090714.14.html>

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.20090714.14.xml>



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