



SPEC[®] CFP2006 Result

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IBM Corporation

SPECfp[®]_rate2006 = 48.8

IBM System x3550 (Intel Xeon E5320)

SPECfp_rate_base2006 = 44.9

CPU2006 license: 11

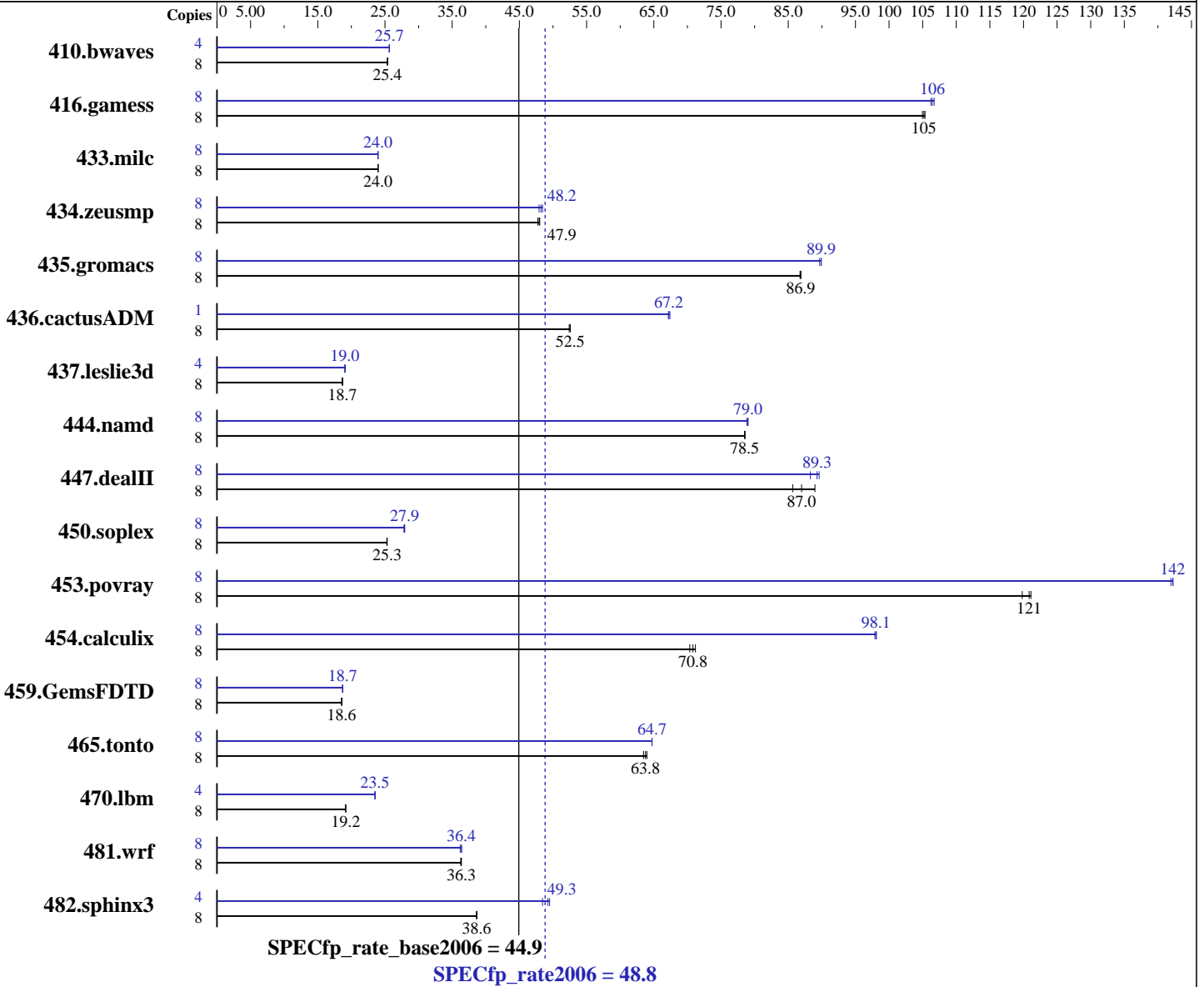
Test date: Feb-2008

Test sponsor: IBM Corporation

Hardware Availability: Feb-2007

Tested by: IBM Corporation

Software Availability: Nov-2007



Hardware

CPU Name: Intel Xeon E5320
 CPU Characteristics: 1066MHz system bus
 CPU MHz: 1866
 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: 8 MB I+D on chip per chip, 4 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 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	4285	25.4	4284	25.4	4285	25.4	4	2121	25.6	2119	25.7	2118	25.7
416.gamess	8	1487	105	1492	105	1489	105	8	1474	106	1468	107	1471	106
433.milc	8	3062	24.0	3063	24.0	3064	24.0	8	3065	24.0	3064	24.0	3063	24.0
434.zeusmp	8	1518	47.9	1516	48.0	1525	47.7	8	1510	48.2	1519	47.9	1503	48.4
435.gromacs	8	658	86.9	658	86.9	658	86.8	8	635	89.9	637	89.7	635	89.9
436.cactusADM	8	1818	52.6	1824	52.4	1820	52.5	1	177	67.4	178	67.2	178	67.2
437.leslie3d	8	4037	18.6	4017	18.7	4030	18.7	4	1974	19.0	1978	19.0	1970	19.1
444.namd	8	817	78.5	817	78.5	817	78.6	8	812	79.0	812	79.0	814	78.8
447.dealII	8	1052	87.0	1029	89.0	1068	85.7	8	1021	89.6	1025	89.3	1036	88.3
450.soplex	8	2635	25.3	2636	25.3	2640	25.3	8	2387	27.9	2398	27.8	2391	27.9
453.povray	8	355	120	352	121	351	121	8	299	142	300	142	299	142
454.calculix	8	938	70.4	932	70.8	927	71.2	8	673	98.1	673	98.1	674	97.9
459.GemsFDTD	8	4572	18.6	4568	18.6	4580	18.5	8	4543	18.7	4539	18.7	4536	18.7
465.tonto	8	1235	63.8	1231	64.0	1240	63.5	8	1216	64.7	1216	64.7	1216	64.7
470.lbm	8	5741	19.1	5739	19.2	5739	19.2	4	2337	23.5	2336	23.5	2337	23.5
481.wrf	8	2464	36.3	2459	36.3	2457	36.4	8	2455	36.4	2469	36.2	2456	36.4
482.sphinx3	8	4030	38.7	4035	38.6	4038	38.6	4	1609	48.4	1583	49.3	1575	49.5

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 Disabled 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.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.20090714.15.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.20090714.15.xml>

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Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 15:41:36 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 5 March 2008.