



SPEC® CFP2006 Result

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IBM Corporation

SPECfp®2006 = 22.6

IBM System x3200 M2 (Intel Xeon X3360)

SPECfp_base2006 = 20.9

CPU2006 license: 11

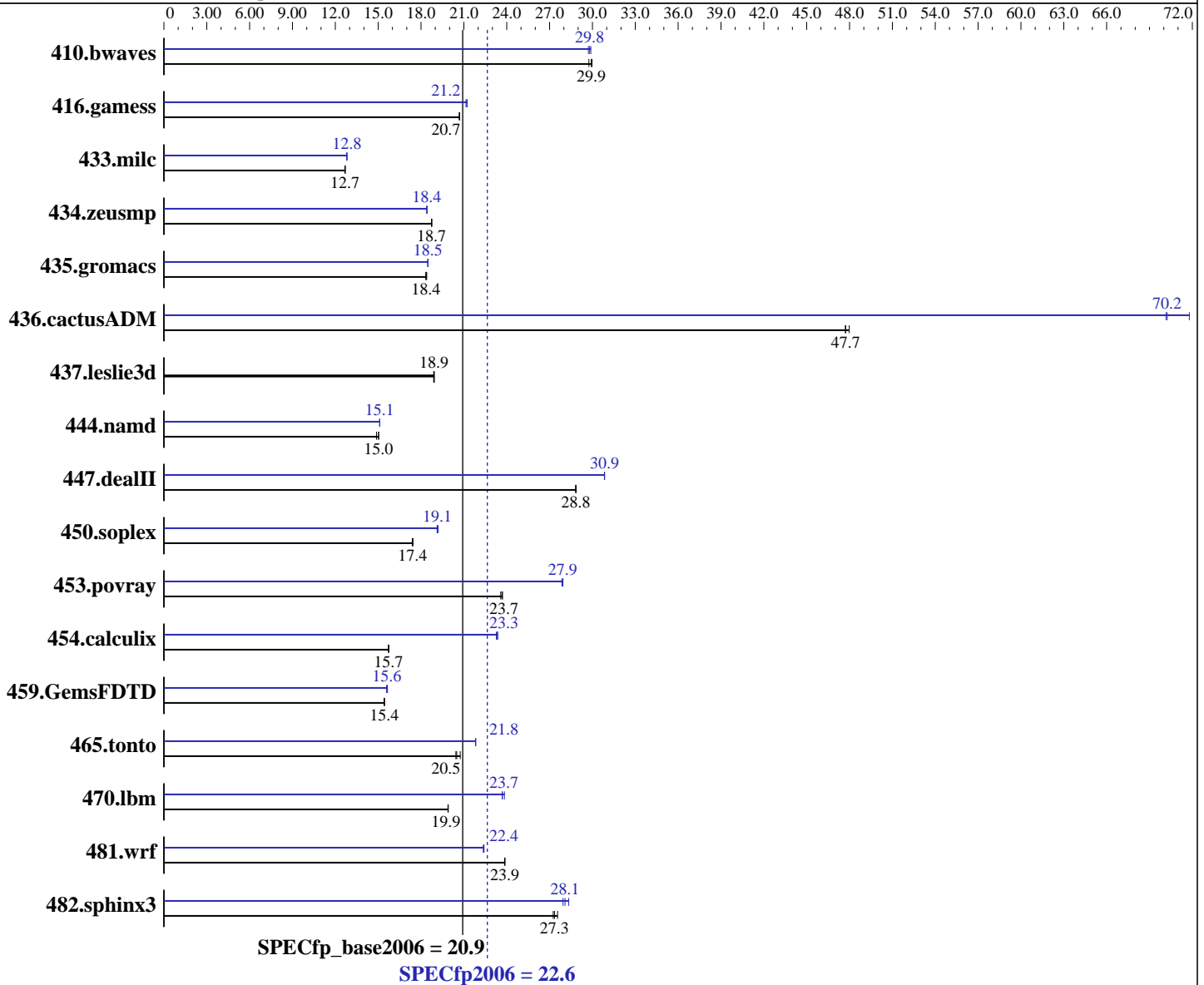
Test sponsor: IBM Corporation

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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	453	30.0	454	29.9	457	29.8	457	29.7	455	29.9	456	29.8
416.gamess	947	20.7	947	20.7	946	20.7	923	21.2	926	21.1	923	21.2
433.milc	723	12.7	724	12.7	724	12.7	716	12.8	717	12.8	717	12.8
434.zeusmp	486	18.7	485	18.8	486	18.7	494	18.4	494	18.4	495	18.4
435.gromacs	390	18.3	388	18.4	389	18.4	386	18.5	387	18.5	386	18.5
436.cactusADM	250	47.7	249	48.0	250	47.7	166	71.8	170	70.2	170	70.2
437.leslie3d	497	18.9	497	18.9	498	18.9	497	18.9	497	18.9	498	18.9
444.namd	539	14.9	533	15.0	534	15.0	531	15.1	531	15.1	531	15.1
447.dealII	397	28.8	397	28.8	397	28.8	371	30.9	371	30.9	371	30.8
450.soplex	478	17.4	479	17.4	480	17.4	436	19.1	434	19.2	436	19.1
453.povray	226	23.6	225	23.7	224	23.7	190	27.9	191	27.9	191	27.9
454.calculix	524	15.7	525	15.7	524	15.7	354	23.3	353	23.3	353	23.4
459.GemsFDTD	688	15.4	687	15.4	688	15.4	678	15.7	679	15.6	681	15.6
465.tonto	480	20.5	481	20.4	474	20.7	451	21.8	451	21.8	451	21.8
470.lbm	691	19.9	690	19.9	691	19.9	576	23.8	580	23.7	580	23.7
481.wrf	468	23.9	468	23.8	468	23.9	499	22.4	499	22.4	498	22.4
482.sphinx3	707	27.6	713	27.3	715	27.3	688	28.3	694	28.1	698	27.9

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
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to physical,0
KMP_STACKSIZE set to 200M

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.20090713.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.20090713.xml>



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Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 18:20:43 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 15 April 2008.