SPEC® CFP2006 Result
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IBM Corporation

$SPECfp^{®}2006 =$ 49.0

IBM BladeCenter HS22V (Intel Xeon X5677)

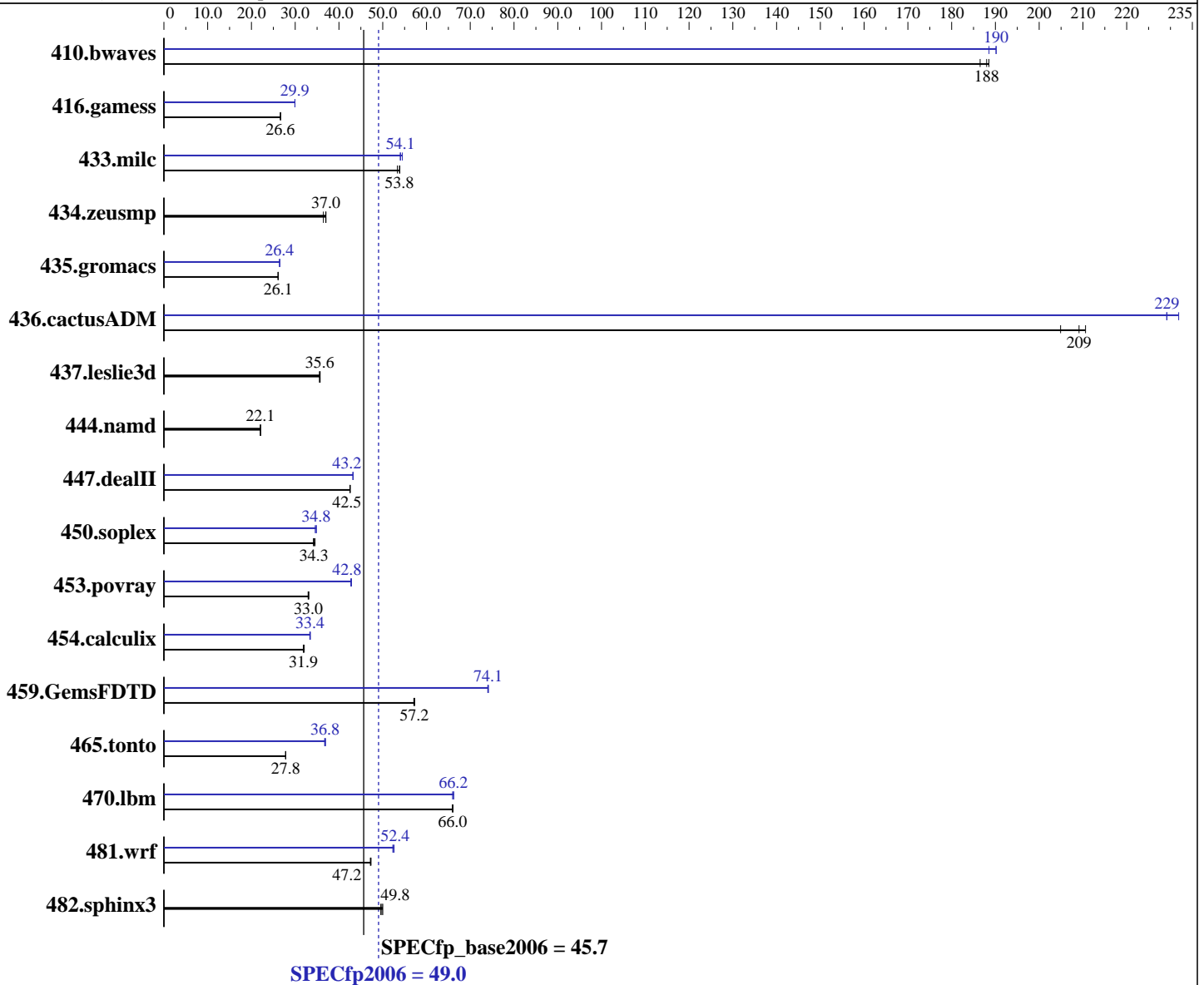$SPECfp\_base2006 =$ 45.7

CPU2006 license: 11
Test sponsor: IBM Corporation
Tested by: IBM Corporation

Test date: Jul-2010
Hardware Availability: Sep-2010
Software Availability: Jan-2010

Results per benchmark (blue = peak, black = base):

- 410.bwaves: 190 / 188
- 416.gamess: 29.9 / 26.6
- 433.milc: 54.1 / 53.8
- 434.zeusmp: 37.0
- 435.gromacs: 26.4 / 26.1
- 436.cactusADM: 229 / 209
- 437.leslie3d: 35.6
- 444.namd: 22.1
- 447.dealII: 43.2 / 42.5
- 450.soplex: 34.8 / 34.3
- 453.povray: 42.8 / 33.0
- 454.calculix: 33.4 / 31.9
- 459.GemsFDTD: 74.1 / 57.2
- 465.tonto: 36.8 / 27.8
- 470.lbm: 66.2 / 66.0
- 481.wrf: 52.4 / 47.2
- 482.sphinx3: 49.8

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Hardware

CPU Name: Intel Xeon X5677
CPU Characteristics: Intel Turbo Boost Technology up to 3.73 GHz
CPU MHz: 3467
FPU: Integrated
CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable: 1,2 chips
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 256 KB I+D on chip per core

Continued on next page

Software

Operating System: SuSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-default
Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1
Build 20091130 Package ID: l_cproc_p_11.1.064, l_cprof_p_11.1.064
Auto Parallel: Yes
File System: ext3
System State: Run level 3 (multi-user)

Continued on next page

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L3 Cache:	12 MB I+D on chip per chip
Other Cache:	None
Memory:	24 GB (12 x 2 GB PC3-10600R CL9, 2 Rank)
Disk Subsystem:	2 x 50 GB SATA, SSD
Other Hardware:	None

Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	**72.3**	**188**	72.9	187	72.1	189	**71.5**	**190**	71.5	190	72.1	189
416.gamess	**735**	**26.6**	734	26.7	736	26.6	654	29.9	654	29.9	**654**	**29.9**
433.milc	**171**	**53.8**	172	53.3	170	53.9	**170**	**54.1**	170	54.0	168	54.5
434.zeusmp	246	37.0	**246**	**37.0**	250	36.4	246	37.0	**246**	**37.0**	250	36.4
435.gromacs	274	26.1	273	26.1	**274**	**26.1**	270	26.5	270	26.4	**270**	**26.4**
436.cactusADM	**57.1**	**209**	56.7	211	58.3	205	52.2	229	51.5	232	**52.1**	**229**
437.leslie3d	**264**	**35.6**	265	35.5	263	35.7	**264**	**35.6**	265	35.5	263	35.7
444.namd	364	22.1	**363**	**22.1**	363	22.1	364	22.1	**363**	**22.1**	363	22.1
447.dealII	**269**	**42.5**	269	42.6	269	42.5	**265**	**43.2**	265	43.2	265	43.2
450.soplex	244	34.2	241	34.5	**243**	**34.3**	241	34.6	**240**	**34.8**	239	34.8
453.povray	**161**	**33.0**	161	32.9	161	33.1	124	42.9	**124**	**42.8**	124	42.7
454.calculix	259	31.9	257	32.1	**259**	**31.9**	247	33.4	**247**	**33.4**	247	33.3
459.GemsFDTD	186	57.1	185	57.3	**185**	**57.2**	**143**	**74.1**	143	74.0	143	74.1
465.tonto	354	27.8	**354**	**27.8**	353	27.9	**267**	**36.8**	268	36.7	266	36.9
470.lbm	208	65.9	**208**	**66.0**	208	66.1	208	66.2	208	66.0	**208**	**66.2**
481.wrf	237	47.2	**237**	**47.2**	236	47.3	**213**	**52.4**	212	52.6	214	52.3
482.sphinx3	**391**	**49.8**	390	50.0	393	49.6	**391**	**49.8**	390	50.0	393	49.6

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Platform Notes

```
    Turbo Mode enabled
    Turbo Boost set to Traditional
    Power C-states enabled
    Demand Scrub disabled
```

General Notes

```
    'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
    Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
    OMP_NUM_THREADS set to number of cores
    KMP_AFFINITY set to granularity=fine,scatter
    KMP_STACKSIZE set to 200M
```

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Base Compiler Invocation

C benchmarks:
        icc   -m64

C++ benchmarks:
        icpc -m64

Fortran benchmarks:
        ifort -m64

Benchmarks using both Fortran and C:
        icc   -m64 ifort -m64

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:
        -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

C++ benchmarks:
        -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Fortran benchmarks:
        -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:
        -xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

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Peak Compiler Invocation

C benchmarks:
        icc   -m64

C++ benchmarks:
        icpc   -m64

Fortran benchmarks:
        ifort -m64

Benchmarks using both Fortran and C:
        icc   -m64 ifort -m64

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

        433.milc: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                -ansi-alias

        470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                -parallel -ansi-alias -auto-ilp32

        482.sphinx3: basepeak = yes

C++ benchmarks:

        444.namd: basepeak = yes

        447.dealII: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                -unroll2 -ansi-alias -scalar-rep- -auto-ilp32

        450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                -opt-malloc-options=3 -auto-ilp32

        453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                -unroll4 -ansi-alias

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Peak Optimization Flags (Continued)

Fortran benchmarks:

    410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
                -parallel

    416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                -unroll2 -Ob0 -ansi-alias -scalar-rep-

    434.zeusmp: basepeak = yes

    437.leslie3d: basepeak = yes

    459.GemsFDTD: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                -unroll2 -Ob0 -opt-prefetch -parallel

     465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                -inline-calloc -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

    435.gromacs: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                -opt-prefetch -auto-ilp32

    436.cactusADM: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
                -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
                -unroll2 -opt-prefetch -parallel -auto-ilp32

    454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

        481.wrf: Same as 454.calculix

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100603.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100603.xml

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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