SPEC® CFP2006 Result
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IBM Corporation

$SPECfp®2006 = $ **48.0**

IBM System x3550 M3 (Intel Xeon X5680)

$SPECfp_base2006 = $ **45.1**

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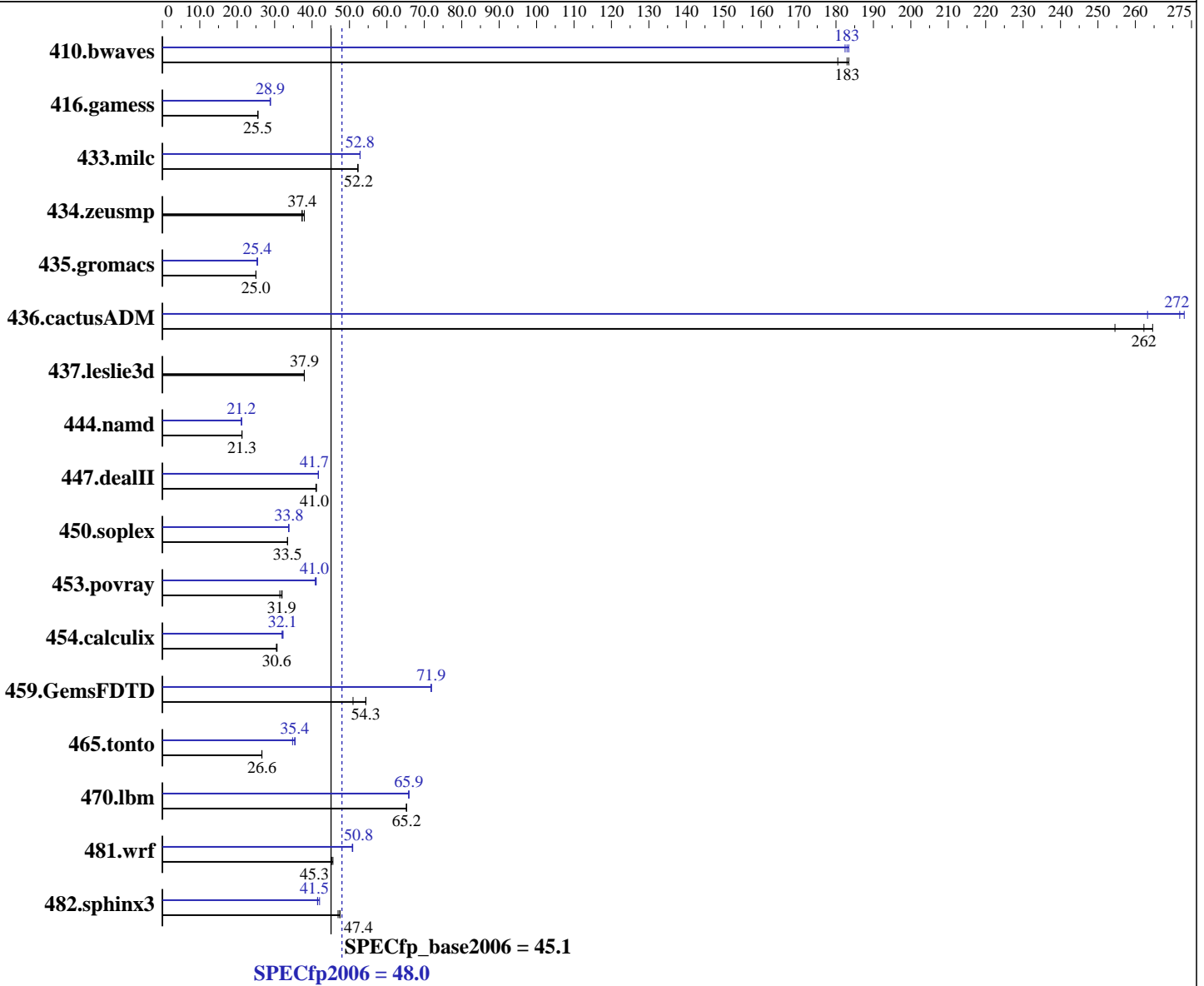**Test sponsor:** IBM Corporation
Tested by: IBM Corporation

Test date: Mar-2010
Hardware Availability: Apr-2010
Software Availability: Jan-2010

Benchmark	base	peak
410.bwaves	183	183
416.gamess	25.5	28.9
433.milc	52.2	52.8
434.zeusmp	37.4	
435.gromacs	25.0	25.4
436.cactusADM	262	272
437.leslie3d	37.9	
444.namd	21.3	21.2
447.dealII	41.0	41.7
450.soplex	33.5	33.8
453.povray	31.9	41.0
454.calculix	30.6	32.1
459.GemsFDTD	54.3	71.9
465.tonto	26.6	35.4
470.lbm	65.2	65.9
481.wrf	45.3	50.8
482.sphinx3	47.4	41.5

SPECfp_base2006 = 45.1
SPECfp2006 = 48.0

Hardware

CPU Name: Intel Xeon X5680
CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz: 3333
FPU: Integrated
CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core
CPU(s) orderable: 1,2 chip
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:	48 GB (12 x 4 GB PC3-10600R-ECC)
Disk Subsystem:	1 x 73 GB SAS, 15000RPM
Other Hardware:	None

Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	75.3	180	74.1	183	**74.3**	**183**	74.1	183	**74.3**	**183**	74.5	182
416.gamess	767	25.5	**767**	**25.5**	768	25.5	680	28.8	**678**	**28.9**	678	28.9
433.milc	**176**	**52.2**	176	52.2	176	52.3	**174**	**52.8**	174	52.8	174	52.8
434.zeusmp	**243**	**37.4**	244	37.3	240	37.9	**243**	**37.4**	244	37.3	240	37.9
435.gromacs	**286**	**25.0**	285	25.0	286	25.0	**281**	**25.4**	282	25.3	281	25.4
436.cactusADM	46.9	255	**45.6**	**262**	45.2	265	43.8	273	**44.0**	**272**	45.4	263
437.leslie3d	**248**	**37.9**	248	37.9	248	37.9	**248**	**37.9**	248	37.9	248	37.9
444.namd	**377**	**21.3**	377	21.3	377	21.3	379	21.2	**379**	**21.2**	380	21.1
447.dealII	**279**	**41.0**	278	41.2	279	41.0	**274**	**41.7**	275	41.7	274	41.7
450.soplex	249	33.5	**249**	**33.5**	249	33.4	247	33.8	**247**	**33.8**	247	33.8
453.povray	169	31.4	166	32.0	**167**	**31.9**	**130**	**41.0**	129	41.1	130	40.9
454.calculix	269	30.7	**270**	**30.6**	271	30.5	256	32.3	**257**	**32.1**	258	32.0
459.GemsFDTD	195	54.4	**195**	**54.3**	208	50.9	148	71.8	148	71.9	**148**	**71.9**
465.tonto	370	26.6	370	26.6	**370**	**26.6**	**278**	**35.4**	283	34.8	277	35.5
470.lbm	211	65.2	**211**	**65.2**	211	65.3	**209**	**65.9**	209	65.9	209	65.8
481.wrf	245	45.6	248	45.0	**247**	**45.3**	**220**	**50.8**	220	50.7	220	50.9
482.sphinx3	411	47.5	415	46.9	**411**	**47.4**	470	41.5	**470**	**41.5**	464	42.0

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

Platform Notes

    Turbo Mode Enable

General Notes

    'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
    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: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32
           -unroll2

C++ benchmarks:

     444.namd: -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)
           -fno-alias -auto-ilp32

     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

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Peak Optimization Flags (Continued)

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`

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.20100330.00.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.20100330.00.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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