SPEC® CFP2006 Result
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IBM Corporation

IBM System x iDataPlex dx360 M3 (Intel Xeon X5550)

$SPECfp^{®}2006 =$ 41.5
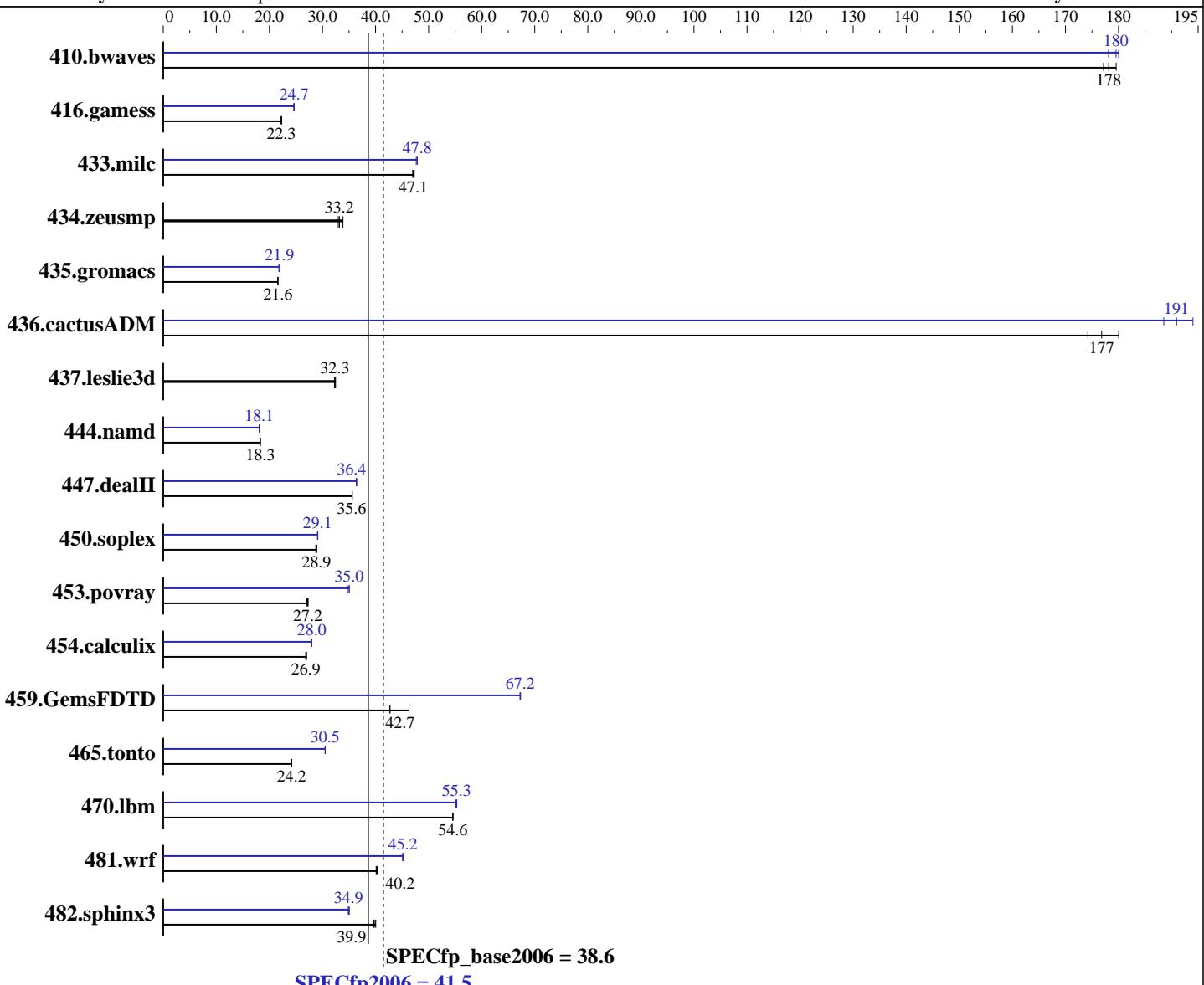
$SPECfp\_base2006 =$ 38.6

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

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

Benchmark	base	peak
410.bwaves	178	180
416.gamess	22.3	24.7
433.milc	47.1	47.8
434.zeusmp	33.2	
435.gromacs	21.6	21.9
436.cactusADM	177	191
437.leslie3d	32.3	
444.namd	18.3	18.1
447.dealII	35.6	36.4
450.soplex	28.9	29.1
453.povray	27.2	35.0
454.calculix	26.9	28.0
459.GemsFDTD	42.7	67.2
465.tonto	24.2	30.5
470.lbm	54.6	55.3
481.wrf	40.2	45.2
482.sphinx3	39.9	34.9

SPECfp_base2006 = 38.6
SPECfp2006 = 41.5

Hardware

CPU Name: Intel Xeon X5550
CPU Characteristics: Intel Turbo Boost Technology up to 3.06 GHz
CPU MHz: 2667
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:	8 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	24 GB (6 x 4 GB PC3-10600R CL9, 2 Rank)	Other Software:	None
Disk Subsystem:	1 x 250 GB SATA, 7200 RPM		
Other Hardware:	None		

Results Table

	Base						Peak					
Benchmark	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	76.7	177	**76.3**	**178**	75.7	180	76.3	178	**75.7**	**180**	75.5	180
416.gamess	877	22.3	882	22.2	**879**	**22.3**	796	24.6	794	24.7	**794**	**24.7**
433.milc	195	47.0	194	47.3	**195**	**47.1**	192	47.9	193	47.7	**192**	**47.8**
434.zeusmp	269	33.9	276	33.0	**274**	**33.2**	269	33.9	276	33.0	**274**	**33.2**
435.gromacs	331	21.6	330	21.6	**331**	**21.6**	325	22.0	328	21.8	**326**	**21.9**
436.cactusADM	68.6	174	**67.6**	**177**	66.4	180	**62.6**	**191**	63.4	189	61.6	194
437.leslie3d	291	32.3	290	32.5	**291**	**32.3**	291	32.3	290	32.5	**291**	**32.3**
444.namd	**439**	**18.3**	438	18.3	439	18.3	**443**	**18.1**	443	18.1	443	18.1
447.dealII	322	35.6	**321**	**35.6**	321	35.6	314	36.4	314	36.4	**314**	**36.4**
450.soplex	**289**	**28.9**	290	28.7	288	28.9	**287**	**29.1**	287	29.1	286	29.1
453.povray	195	27.3	**195**	**27.2**	197	27.0	**152**	**35.0**	152	35.1	153	34.7
454.calculix	305	27.0	**307**	**26.9**	307	26.9	295	28.0	295	28.0	**295**	**28.0**
459.GemsFDTD	248	42.7	**248**	**42.7**	229	46.3	158	67.2	**158**	**67.2**	158	67.3
465.tonto	407	24.2	407	24.2	**407**	**24.2**	323	30.5	**323**	**30.5**	322	30.5
470.lbm	252	54.6	**252**	**54.6**	252	54.5	248	55.3	**249**	**55.3**	249	55.1
481.wrf	**278**	**40.2**	277	40.3	278	40.1	**247**	**45.2**	248	45.1	247	45.2
482.sphinx3	487	40.0	491	39.7	**488**	**39.9**	559	34.9	**558**	**34.9**	556	35.1

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

Platform Notes

```
    Turbo Mode Enable
    Turbo Boost set to Traditional
    CPU C State Enable
```

General Notes

```
    Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
    '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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Test date: Jul-2010
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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.20100804.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.20100804.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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