SPEC® CFP2006 Result
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IBM Corporation

$SPECfp^{®}2006 =$ 39.1

IBM System x3850 X5 (Intel Xeon X7542)

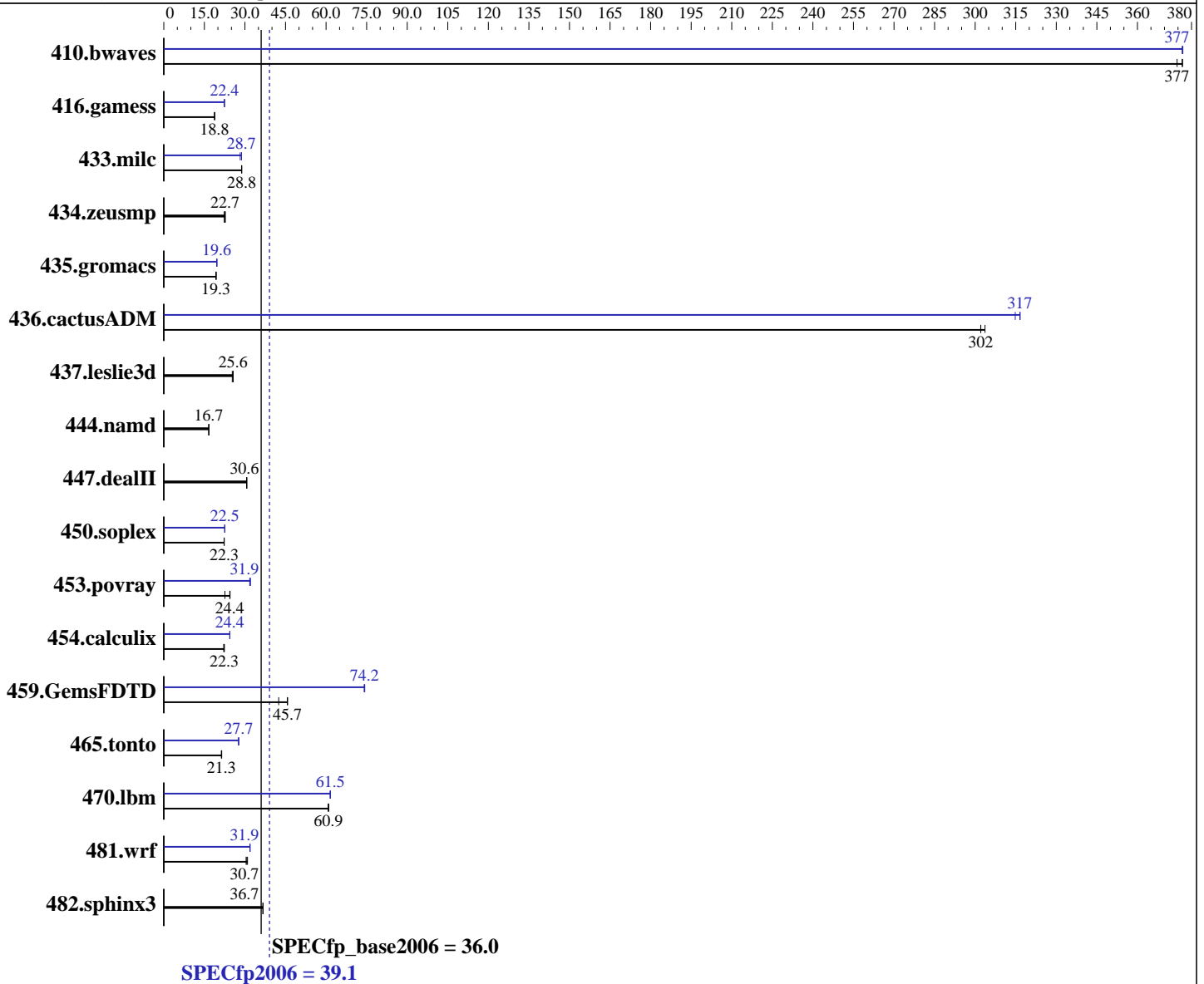$SPECfp\_base2006 =$ 36.0

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

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

SPECfp_base2006 = 36.0

SPECfp2006 = 39.1

Benchmark results:

Benchmark	Base	Peak
410.bwaves	377	377
416.gamess	18.8	22.4
433.milc	28.8	28.7
434.zeusmp	22.7	
435.gromacs	19.3	19.6
436.cactusADM	302	317
437.leslie3d	25.6	
444.namd	16.7	
447.dealII	30.6	
450.soplex	22.3	22.5
453.povray	24.4	31.9
454.calculix	22.3	24.4
459.GemsFDTD	45.7	74.2
465.tonto	21.3	27.7
470.lbm	60.9	61.5
481.wrf	30.7	31.9
482.sphinx3	36.7	

Hardware

CPU Name:	Intel Xeon X7542
CPU Characteristics:	Intel Turbo Boost Technology up to 2.80 GHz
CPU MHz:	2667
FPU:	Integrated
CPU(s) enabled:	24 cores, 4 chips, 6 cores/chip
CPU(s) orderable:	2,4 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)

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L3 Cache:	18 MB I+D on chip per chip
Other Cache:	None
Memory:	256 GB (64 x 4 GB PC3-8500R, Quad Rank)
Disk Subsystem:	3 x 50 GB SATA, SSD
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 Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	36.3	375	36.1	377	**36.1**	**377**	36.1	377	36.1	377	**36.1**	**377**
416.gamess	1040	18.8	1044	18.8	**1041**	**18.8**	874	22.4	**874**	**22.4**	874	22.4
433.milc	**319**	**28.8**	319	28.8	319	28.8	320	28.7	325	28.2	**320**	**28.7**
434.zeusmp	407	22.4	401	22.7	**401**	**22.7**	407	22.4	401	22.7	**401**	**22.7**
435.gromacs	369	19.4	370	19.3	**370**	**19.3**	365	19.6	**365**	**19.6**	363	19.6
436.cactusADM	39.4	304	**39.6**	**302**	39.6	302	37.7	317	38.0	315	**37.8**	**317**
437.leslie3d	371	25.3	367	25.6	**367**	**25.6**	371	25.3	367	25.6	**367**	**25.6**
444.namd	482	16.6	481	16.7	**482**	**16.7**	482	16.6	481	16.7	**482**	**16.7**
447.dealII	**373**	**30.6**	374	30.6	372	30.7	**373**	**30.6**	374	30.6	372	30.7
450.soplex	**374**	**22.3**	374	22.3	374	22.3	**370**	**22.5**	370	22.6	370	22.5
453.povray	217	24.5	**218**	**24.4**	235	22.6	**167**	**31.9**	166	32.0	167	31.8
454.calculix	369	22.4	**369**	**22.3**	372	22.1	**338**	**24.4**	338	24.4	338	24.4
459.GemsFDTD	250	42.5	232	45.8	**232**	**45.7**	143	74.1	**143**	**74.2**	143	74.3
465.tonto	462	21.3	460	21.4	**461**	**21.3**	**356**	**27.7**	356	27.6	355	27.7
470.lbm	**226**	**60.9**	225	60.9	226	60.8	**223**	**61.5**	223	61.5	223	61.6
481.wrf	367	30.4	**364**	**30.7**	361	30.9	350	31.9	**350**	**31.9**	351	31.8
482.sphinx3	532	36.7	**531**	**36.7**	531	36.7	532	36.7	**531**	**36.7**	531	36.7

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

Platform Notes

```
    Turbo Boost set to Traditional
    Demand Scrub disabled
```

General Notes

```
    OMP_NUM_THREADS set to number of cores
    KMP_AFFINITY set to granularity=fine,scatter
    KMP_STACKSIZE set to 200M
    'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
```

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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: `basepeak = yes`

    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`

Fortran benchmarks:

IBM Corporation

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Test sponsor: IBM Corporation	**Hardware Availability:** Mar-2010
Tested by: IBM Corporation	**Software Availability:** Jan-2010

Peak Optimization Flags (Continued)

```
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.20100330.03.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.20100330.03.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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