SPEC® CFP2006 Result
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IBM Corporation

IBM System x iDataPlex dx340 (Intel Xeon E5430)

$SPECfp^{®}2006 =$ 22.7
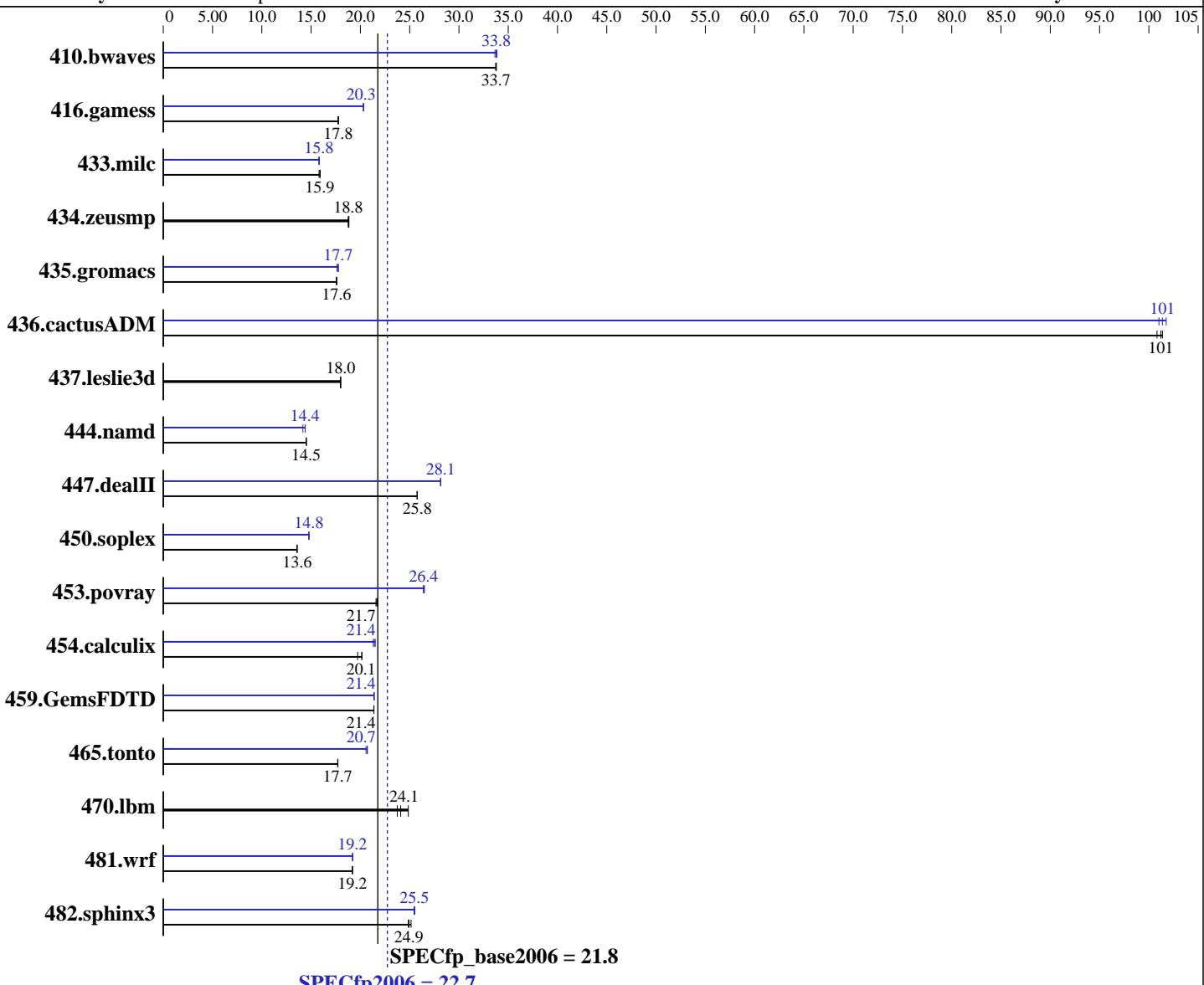
$SPECfp\_base2006 =$ 21.8

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

Test date: Apr-2009
Hardware Availability: Oct-2008
Software Availability: Nov-2008

Benchmark	base	peak
410.bwaves	33.7	33.8
416.gamess	17.8	20.3
433.milc	15.9	15.8
434.zeusmp	18.8	
435.gromacs	17.6	17.7
436.cactusADM	101	101
437.leslie3d	18.0	
444.namd	14.5	14.4
447.dealII	25.8	28.1
450.soplex	13.6	14.8
453.povray	21.7	26.4
454.calculix	20.1	21.4
459.GemsFDTD	21.4	21.4
465.tonto	17.7	20.7
470.lbm	24.1	
481.wrf	19.2	19.2
482.sphinx3	24.9	25.5

SPECfp_base2006 = 21.8

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Hardware

CPU Name: Intel Xeon E5430
CPU Characteristics: 1333MHz system bus
CPU MHz: 2666
FPU: Integrated
CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip
CPU(s) orderable: 1,2 chips
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

Continued on next page

Software

Operating System: SuSE Linux Enterprise Server 10(x86_64) SP2, Kernel 2.6.16.60-0.21-smp
Compiler: Intel C++ and Fortran Compiler 11.0 for Linux Build 20080930 Package ID: l_cproc_p_11.0.066, l_cprof_p_11.0.066
Auto Parallel: Yes
File System: ReiserFS
System State: Run level 3 (multi-user)
Base Pointers: 64-bit

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L3 Cache:	None
Other Cache:	None
Memory:	16 GB (4 x 4 GB PC2-5300F ECC)
Disk Subsystem:	1 x 250 GB SATA, 7200 RPM
Other Hardware:	None

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	**403**	**33.7**	403	33.7	402	33.8	404	33.7	**402**	**33.8**	401	33.9
416.gamess	1102	17.8	**1103**	**17.8**	1104	17.7	965	20.3	963	20.3	**964**	**20.3**
433.milc	581	15.8	577	15.9	**578**	**15.9**	580	15.8	581	15.8	**580**	**15.8**
434.zeusmp	**485**	**18.8**	483	18.8	485	18.8	**485**	**18.8**	483	18.8	485	18.8
435.gromacs	406	17.6	**406**	**17.6**	406	17.6	402	17.8	405	17.6	**402**	**17.7**
436.cactusADM	**118**	**101**	118	101	119	101	117	102	118	101	**118**	**101**
437.leslie3d	523	18.0	**522**	**18.0**	522	18.0	523	18.0	**522**	**18.0**	522	18.0
444.namd	553	14.5	**553**	**14.5**	553	14.5	566	14.2	557	14.4	**557**	**14.4**
447.dealII	**444**	**25.8**	444	25.8	444	25.7	**407**	**28.1**	406	28.2	407	28.1
450.soplex	615	13.6	**614**	**13.6**	614	13.6	565	14.8	**564**	**14.8**	564	14.8
453.povray	246	21.6	245	21.7	**246**	**21.7**	**201**	**26.4**	201	26.5	202	26.4
454.calculix	409	20.1	**409**	**20.1**	418	19.7	384	21.5	**385**	**21.4**	387	21.3
459.GemsFDTD	497	21.4	**497**	**21.4**	496	21.4	496	21.4	496	21.4	**496**	**21.4**
465.tonto	555	17.7	556	17.7	**556**	**17.7**	478	20.6	**475**	**20.7**	475	20.7
470.lbm	579	23.7	**570**	**24.1**	553	24.9	579	23.7	**570**	**24.1**	553	24.9
481.wrf	582	19.2	**582**	**19.2**	582	19.2	581	19.2	582	19.2	**582**	**19.2**
482.sphinx3	**782**	**24.9**	784	24.9	775	25.1	766	25.5	**765**	**25.5**	763	25.5

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

General Notes

    'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
    OMP_NUM_THREADS set to number of processors
    KMP_AFFINITY set to "physical,0"
    KMP_STACKSIZE set to 200M
    Hardware Prefetcher Enable and Adjacent Cache Line Prefetch Enable

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:
    -xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

C++ benchmarks:
    -xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Fortran benchmarks:
    -xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:
    -xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

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Peak Compiler Invocation

C benchmarks (except as noted below):
        icc

        482.sphinx3: `icc -m32`

C++ benchmarks (except as noted below):
        icpc

        450.soplex: `icpc -m32`

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`
           470.lbm: `-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) -xSSE4.1 -ipo -O3`
                `-no-prec-div -static -fno-alias`

         470.lbm: basepeak = yes

        482.sphinx3: `-xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2`

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Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -fno-alias -auto-ilp32`

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

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

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

Fortran benchmarks:

410.bwaves: `-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch -parallel`

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

434.zeusmp: `basepeak = yes`

437.leslie3d: `basepeak = yes`

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

465.tonto: `-prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll4 -auto`

Benchmarks using both Fortran and C:

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

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

454.calculix: `-xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32`

481.wrf: `-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch -parallel -auto-ilp32`

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The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090805.00.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090805.00.xml`

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

Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 03:11:13 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 5 August 2009.