SPEC® CFP2006 Result
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IBM Corporation

IBM System x3250 M2 (Intel Xeon X3370)

$SPECfp^{®}2006 =$ 25.2
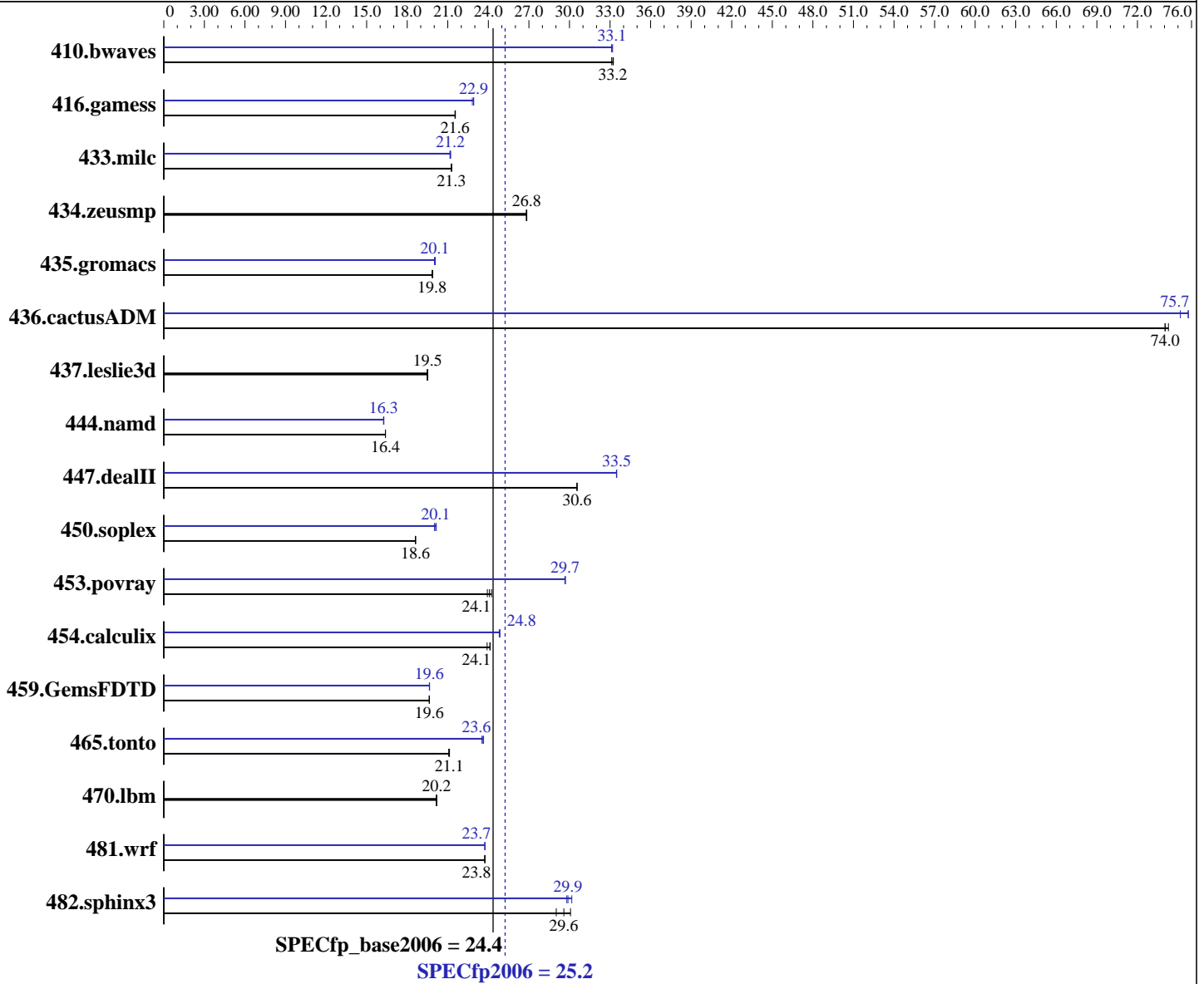
$SPECfp\_base2006 =$ 24.4

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

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

410.bwaves 33.1 / 33.2
416.gamess 22.9 / 21.6
433.milc 21.2 / 21.3
434.zeusmp 26.8
435.gromacs 20.1 / 19.8
436.cactusADM 75.7 / 74.0
437.leslie3d 19.5
444.namd 16.3 / 16.4
447.dealII 33.5 / 30.6
450.soplex 20.1 / 18.6
453.povray 29.7 / 24.1
454.calculix 24.8 / 24.1
459.GemsFDTD 19.6 / 19.6
465.tonto 23.6 / 21.1
470.lbm 20.2
481.wrf 23.7 / 23.8
482.sphinx3 29.9 / 29.6

SPECfp_base2006 = 24.4
SPECfp2006 = 25.2

Hardware

CPU Name: Intel Xeon X3370
CPU Characteristics: 1333 MHz system bus
CPU MHz: 3000
FPU: Integrated
CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip
CPU(s) orderable: 1 chip
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) SP1, Kernel 2.6.16.46-0.12-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: 8 GB (4 x 2 GB PC2-6400E 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	410	33.1	409	33.2	**409**	**33.2**	410	33.1	409	33.2	**410**	**33.1**
416.gamess	908	21.6	909	21.5	**909**	**21.6**	858	22.8	**855**	**22.9**	855	22.9
433.milc	431	21.3	432	21.3	**432**	**21.3**	**433**	**21.2**	433	21.2	434	21.2
434.zeusmp	340	26.8	**339**	**26.8**	339	26.8	340	26.8	**339**	**26.8**	339	26.8
435.gromacs	360	19.8	359	19.9	**360**	**19.8**	357	20.0	**356**	**20.1**	356	20.1
436.cactusADM	**161**	**74.0**	161	74.0	161	74.3	159	75.2	**158**	**75.7**	158	75.8
437.leslie3d	**482**	**19.5**	482	19.5	483	19.5	**482**	**19.5**	482	19.5	483	19.5
444.namd	489	16.4	489	16.4	**489**	**16.4**	493	16.3	**493**	**16.3**	493	16.3
447.dealII	374	30.6	374	30.6	**374**	**30.6**	341	33.5	342	33.5	**342**	**33.5**
450.soplex	448	18.6	**448**	**18.6**	448	18.6	414	20.2	**415**	**20.1**	417	20.0
453.povray	220	24.2	222	23.9	**221**	**24.1**	179	29.7	**179**	**29.7**	179	29.7
454.calculix	342	24.1	**342**	**24.1**	345	23.9	**332**	**24.8**	333	24.8	332	24.9
459.GemsFDTD	541	19.6	**540**	**19.6**	540	19.6	540	19.6	**540**	**19.6**	540	19.7
465.tonto	466	21.1	467	21.1	**466**	**21.1**	416	23.6	**417**	**23.6**	418	23.5
470.lbm	682	20.2	**681**	**20.2**	681	20.2	682	20.2	**681**	**20.2**	681	20.2
481.wrf	**470**	**23.8**	470	23.8	471	23.7	**470**	**23.7**	470	23.8	471	23.7
482.sphinx3	648	30.1	**659**	**29.6**	672	29.0	646	30.2	654	29.8	**652**	**29.9**

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
```

Base Compiler Invocation

C benchmarks:
```
icc
```

C++ benchmarks:
```
icpc
```

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Base Compiler Invocation (Continued)

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
```

Peak Compiler Invocation

C benchmarks (except as noted below):
```
icc
```

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Peak Compiler Invocation (Continued)

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`

C++ benchmarks:

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

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Peak Optimization Flags (Continued)

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`

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.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.xml

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