SPEC® CFP2006 Result
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IBM Corporation

IBM System x3200 M3 (Intel Xeon L3406)

$SPECfp^{®}2006 =$ 25.9

$SPECfp\_base2006 =$ 24.9

CPU2006 license: 11	**Test date:** Oct-2010
Test sponsor: IBM Corporation	**Hardware Availability:** Nov-2010
Tested by: IBM Corporation	**Software Availability:** Jan-2010

410.bwaves 45.9 / 45.9
416.gamess 20.3 / 19.7
433.milc 34.4 / 34.1
434.zeusmp 22.6
435.gromacs 17.9 / 17.6
436.cactusADM 44.4 / 39.0
437.leslie3d 23.3
444.namd 14.8 / 14.9
447.dealII 28.7 / 28.3
450.soplex 18.8 / 18.6
453.povray 28.8 / 22.5
454.calculix 22.4 / 22.2
459.GemsFDTD 26.7 / 26.7
465.tonto 24.2 / 19.3
470.lbm 33.7 / 32.8
481.wrf 32.8 / 30.7
482.sphinx3 20.9 / 23.4

SPECfp_base2006 = 24.9

SPECfp2006 = 25.9

Hardware

CPU Name:	Intel Xeon L3406
CPU Characteristics:	Intel Turbo Boost Technology up to 2.53 GHz
CPU MHz:	2267
FPU:	Integrated
CPU(s) enabled:	2 cores, 1 chip, 2 cores/chip, 2 threads/core
CPU(s) orderable:	1 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) SP1, Kernel 2.6.32.12-0.7-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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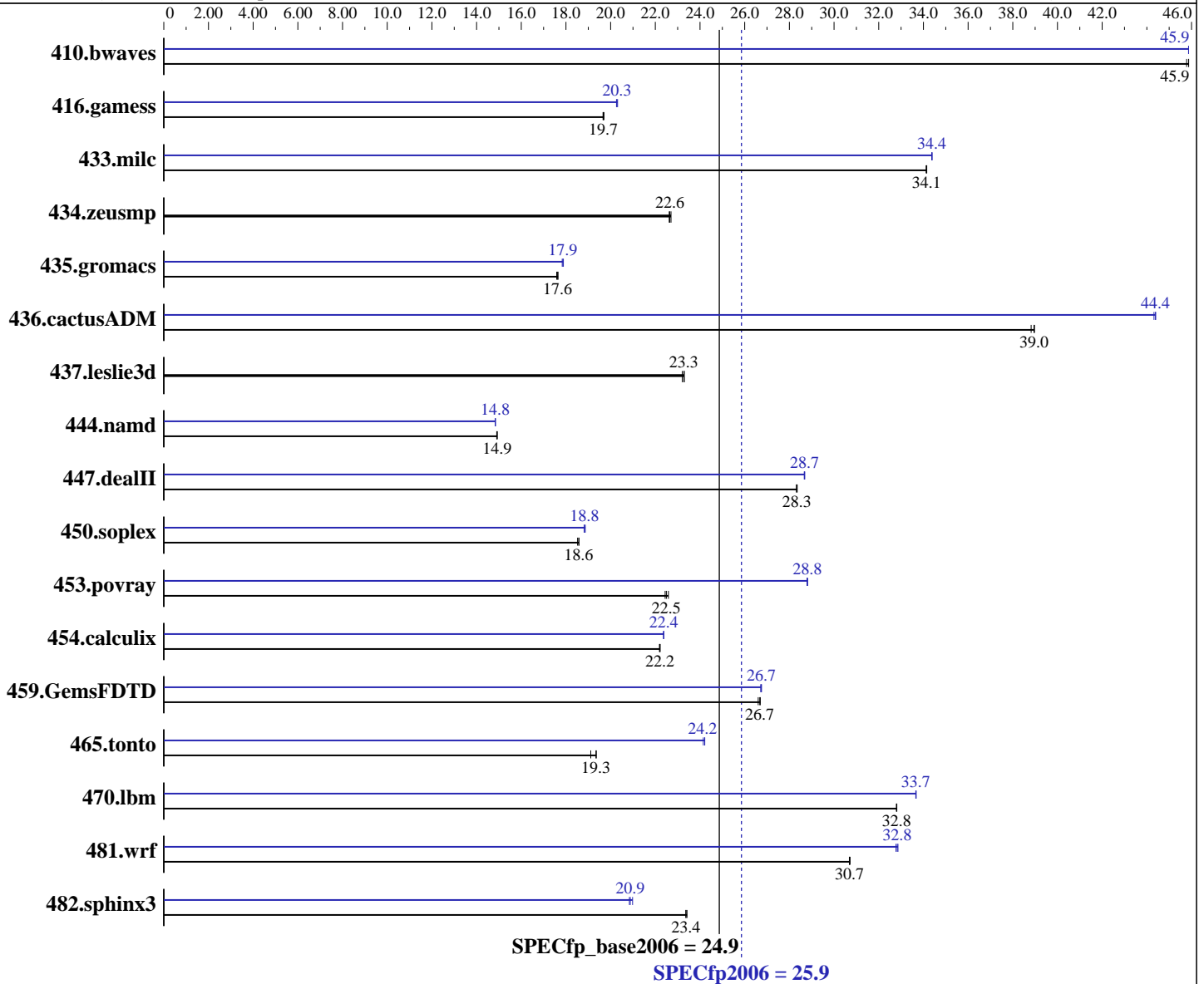| SPECfp2006 =	25.9
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L3 Cache:	4 MB I+D on chip per chip
Other Cache:	None
Memory:	16 GB (4 x 4 GB 2Rx8 PC3-10600E-9, ECC, running at 1066 MHz)
Disk Subsystem:	1 x 250 GB SATA, 7200 RPM
Other Hardware:	None

Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	297	45.8	296	45.9	**296**	**45.9**	**296**	**45.9**	296	45.9	296	45.9
416.gamess	**995**	**19.7**	996	19.7	994	19.7	966	20.3	964	20.3	**965**	**20.3**
433.milc	269	34.1	**269**	**34.1**	269	34.1	267	34.4	267	34.4	**267**	**34.4**
434.zeusmp	**402**	**22.6**	402	22.6	401	22.7	**402**	**22.6**	402	22.6	401	22.7
435.gromacs	405	17.6	406	17.6	**405**	**17.6**	399	17.9	**400**	**17.9**	400	17.8
436.cactusADM	308	38.8	**307**	**39.0**	307	39.0	270	44.3	269	44.4	**269**	**44.4**
437.leslie3d	405	23.2	**404**	**23.3**	403	23.3	405	23.2	**404**	**23.3**	403	23.3
444.namd	537	14.9	**538**	**14.9**	538	14.9	541	14.8	540	14.8	**541**	**14.8**
447.dealII	404	28.4	404	28.3	**404**	**28.3**	**399**	**28.7**	399	28.7	399	28.7
450.soplex	450	18.5	**449**	**18.6**	449	18.6	443	18.8	442	18.9	**443**	**18.8**
453.povray	**236**	**22.5**	236	22.6	237	22.4	185	28.8	185	28.8	**185**	**28.8**
454.calculix	372	22.2	371	22.2	**372**	**22.2**	369	22.4	**369**	**22.4**	369	22.4
459.GemsFDTD	**398**	**26.7**	397	26.7	399	26.6	**397**	**26.7**	397	26.8	397	26.7
465.tonto	508	19.4	**509**	**19.3**	515	19.1	**406**	**24.2**	407	24.1	406	24.2
470.lbm	**419**	**32.8**	419	32.8	419	32.8	408	33.7	408	33.7	**408**	**33.7**
481.wrf	**364**	**30.7**	364	30.7	364	30.7	341	32.8	**340**	**32.8**	340	32.9
482.sphinx3	**834**	**23.4**	834	23.4	832	23.4	935	20.8	929	21.0	**934**	**20.9**

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

Platform Notes

```
    BIOS Settings:
    Turbo Mode Enable
    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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CPU2006 license: 11
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Hardware Availability: Nov-2010
Software Availability: Jan-2010

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.20100929.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.20100929.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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