SPEC® CFP2006 Result
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IBM Corporation

IBM System x3650 M3 (Intel Xeon X5677)

$SPECfp^{®}\_rate2006 = 221$

$SPECfp\_rate\_base2006 = 213$

	Copies	
410.bwaves	8	201
	16	196
416.gamess	8	230
	16	229
433.milc	16	218
	16	218
434.zeusmp	16	239
435.gromacs	16	224
	16	220
436.cactusADM	16	257
437.leslie3d	8	141
	16	135
444.namd	16	217
	16	211
447.dealII	16	351
	16	355
450.soplex	8	168
	16	157
453.povray	16	379
	16	315
454.calculix	16	276
459.GemsFDTD	8	132
	16	127
465.tonto	16	267
	16	252
470.lbm	8	135
	16	126
481.wrf	16	237
482.sphinx3	16	232
	16	218

SPECfp_rate_base2006 = 213

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Hardware

CPU Name:	Intel Xeon X5677
CPU Characteristics:	Intel Turbo Boost Technology up to 3.73 GHz
CPU MHz:	3467
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 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) 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:	No
File System:	ext3
System State:	Run level 3 (multi-user)

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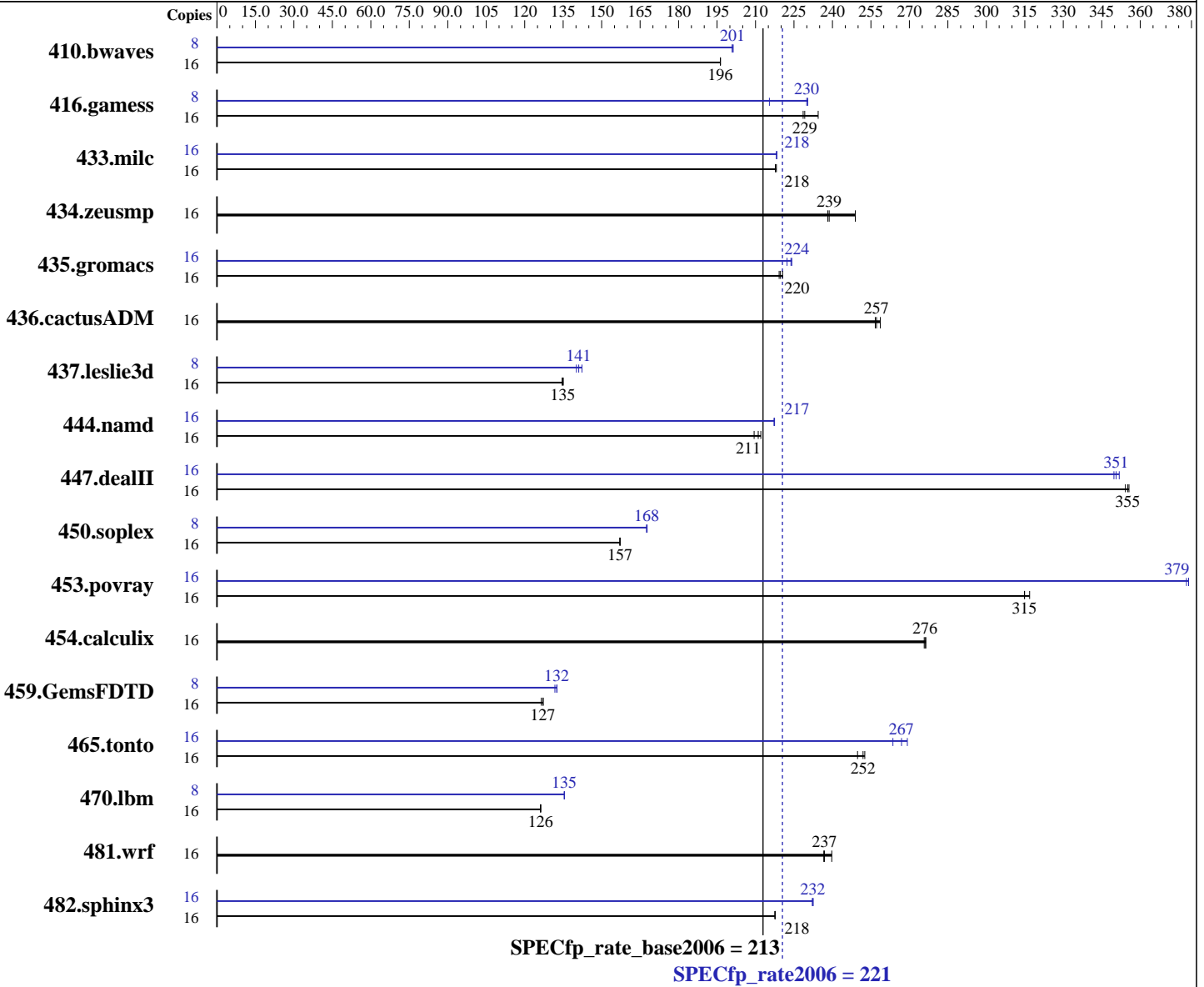
SPECfp_rate_base2006 = 213

CPU2006 license: 11

Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Mar-2010

Hardware Availability: Apr-2010

Software Availability: Jan-2010

L3 Cache:	12 MB I+D on chip per chip
Other Cache:	None
Memory:	48 GB (12 x 4 GB PC3-10600R-ECC)
Disk Subsystem:	1 x 73 GB SAS, 15000RPM
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 Copies	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Peak Copies	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	16	**1108**	**196**	1108	196	1107	196	8	**541**	**201**	540	201	541	201
416.gamess	16	1371	229	**1367**	**229**	1336	234	8	727	215	**681**	**230**	680	230
433.milc	16	674	218	673	218	**674**	**218**	16	673	218	673	218	**673**	**218**
434.zeusmp	16	585	249	611	238	**610**	**239**	16	585	249	611	238	**610**	**239**
435.gromacs	16	**520**	**220**	518	221	521	219	16	514	222	510	224	**510**	**224**
436.cactusADM	16	745	257	739	259	**743**	**257**	16	745	257	739	259	**743**	**257**
437.leslie3d	16	1117	135	**1115**	**135**	1114	135	8	**533**	**141**	537	140	528	142
444.namd	16	613	209	**608**	**211**	605	212	16	591	217	590	217	**590**	**217**
447.dealII	16	515	356	517	354	**515**	**355**	16	523	350	520	352	**522**	**351**
450.soplex	16	850	157	**849**	**157**	849	157	8	**398**	**168**	398	168	398	168
453.povray	16	269	317	270	315	**270**	**315**	16	225	378	225	379	**225**	**379**
454.calculix	16	**478**	**276**	479	276	478	276	16	**478**	**276**	479	276	478	276
459.GemsFDTD	16	1343	126	**1336**	**127**	1334	127	8	**641**	**132**	640	133	644	132
465.tonto	16	**625**	**252**	623	253	630	250	16	585	269	**590**	**267**	597	264
470.lbm	16	1741	126	**1742**	**126**	1743	126	8	811	136	812	135	**812**	**135**
481.wrf	16	**755**	**237**	755	237	746	240	16	**755**	**237**	755	237	746	240
482.sphinx3	16	**1433**	**218**	1432	218	1434	218	16	**1342**	**232**	1343	232	1341	232

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

Submit Notes

```
    The config file option 'submit' was used.
     numactl was used to bind copies to the cores
```

Platform Notes

```
    Turbo Mode Enable
```

General Notes

```
    '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

C++ benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -static

Fortran benchmarks:
    -xSSE4.2 -ipo -O3 -no-prec-div -static

Benchmarks using both Fortran and C:
    -xSSE4.2 -ipo -O3 -no-prec-div -static

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Peak Compiler Invocation

C benchmarks (except as noted below):
      icc   -m64

      482.sphinx3: `icc -m32`

C++ benchmarks (except as noted below):
      icpc   -m64

       450.soplex: `icpc -m32`

Fortran benchmarks:
      ifort -m64

Benchmarks using both Fortran and C:
      icc   -m64 ifort -m64

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: -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 -opt-prefetch

         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)
                -opt-malloc-options=3 -ansi-alias -auto-ilp32

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Peak Optimization Flags (Continued)

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -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-

 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

 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

 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: -xSSE4.2 -ipo -O3 -no-prec-div -static

 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

 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)
 -unroll4 -auto -inline-calloc -opt-malloc-options=3

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: basepeak = yes

 454.calculix: basepeak = yes

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Peak Optimization Flags (Continued)

481.wrf: basepeak = yes

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.20100330.00.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.20100330.00.xml

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