SPEC® CFP2006 Result
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IBM Corporation

IBM BladeCenter HS22V (Intel Xeon X5670)

$SPECfp^{®}_rate2006 = $ 246

$SPECfp_rate_base2006 = $ 239

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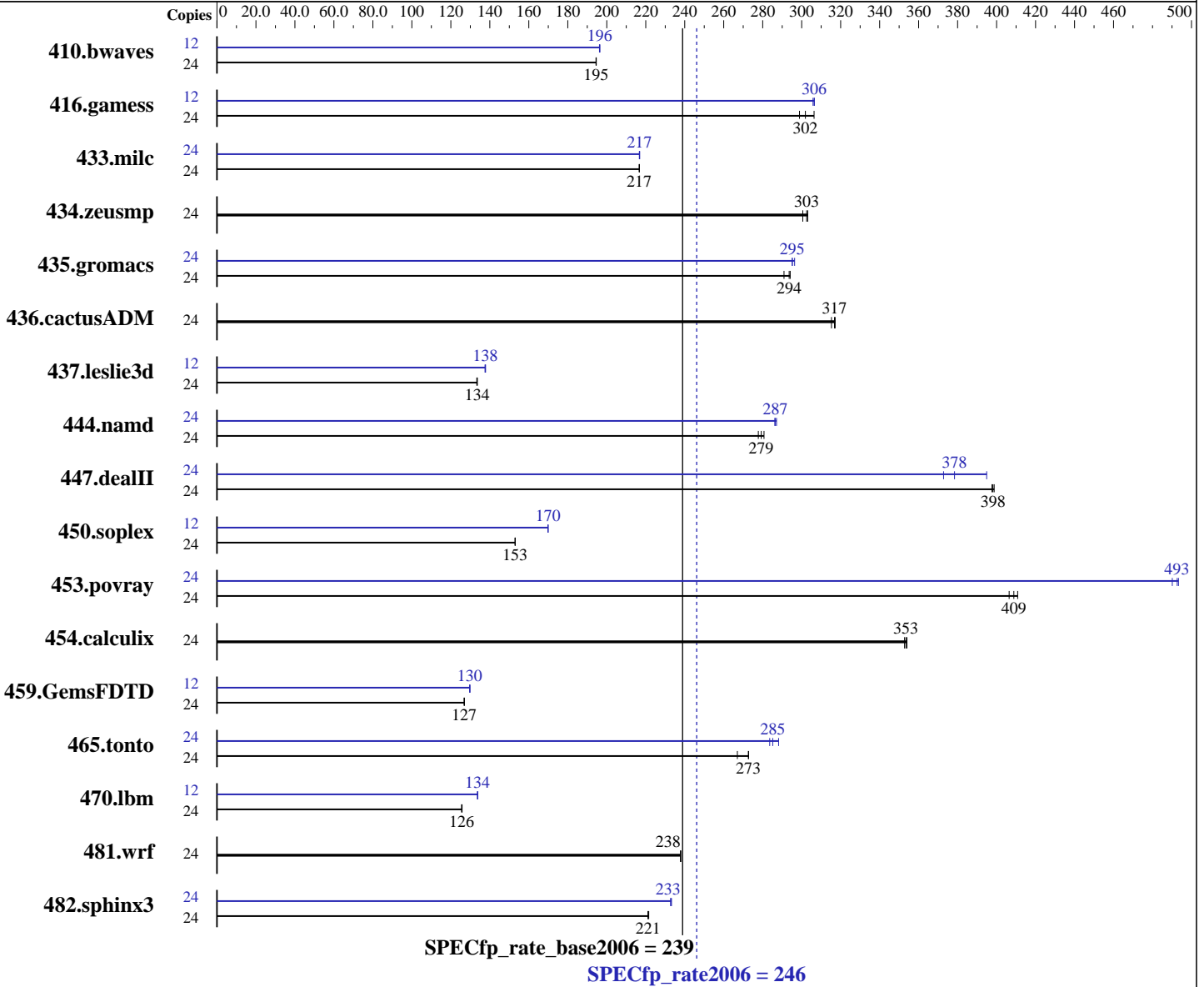**Test sponsor:** IBM Corporation
Tested by: IBM Corporation

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

SPECfp_rate_base2006 = 239

SPECfp_rate2006 = 246

Hardware

CPU Name:	Intel Xeon X5670
CPU Characteristics:	Intel Turbo Boost Technology up to 3.33 GHz
CPU MHz:	2933
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 cores/chip, 2 threads/core
CPU(s) orderable:	1,2 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:	No
File System:	ext3
System State:	Run level 3 (multi-user)

Continued on next page

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L3 Cache:	12 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	96 GB (12 x 8 GB PC3-10600R)	Other Software:	Binutils 2.18.50.0.7.20080502
Disk Subsystem:	2 x 50 GB SATA, SSD		
Other Hardware:	None		

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	24	1676	195	**1676**	**195**	1677	194	12	**831**	**196**	830	196	831	196
416.gamess	24	**1557**	**302**	1534	306	1572	299	12	767	307	768	306	**767**	**306**
433.milc	24	1017	217	1017	217	**1017**	**217**	24	1016	217	1017	217	**1016**	**217**
434.zeusmp	24	721	303	727	301	**722**	**303**	24	721	303	727	301	**722**	**303**
435.gromacs	24	583	294	**584**	**294**	589	291	24	581	295	**580**	**295**	578	296
436.cactusADM	24	910	315	904	317	**905**	**317**	24	910	315	904	317	**905**	**317**
437.leslie3d	24	1689	134	**1690**	**134**	1692	133	12	**819**	**138**	819	138	820	138
444.namd	24	693	278	686	281	**689**	**279**	24	673	286	670	287	**672**	**287**
447.dealII	24	690	398	689	399	**690**	**398**	24	**726**	**378**	695	395	736	373
450.soplex	24	1308	153	**1308**	**153**	1309	153	12	589	170	**589**	**170**	589	170
453.povray	24	314	406	311	411	**312**	**409**	24	**259**	**493**	260	490	259	493
454.calculix	24	559	354	561	353	**560**	**353**	24	559	354	561	353	**560**	**353**
459.GemsFDTD	24	2007	127	2006	127	**2006**	**127**	12	982	130	981	130	**982**	**130**
465.tonto	24	884	267	866	273	**866**	**273**	24	**828**	**285**	833	284	820	288
470.lbm	24	2622	126	**2625**	**126**	2626	126	12	1232	134	**1233**	**134**	1234	134
481.wrf	24	**1127**	**238**	1127	238	1127	238	24	**1127**	**238**	1127	238	1127	238
482.sphinx3	24	2111	222	**2115**	**221**	2115	221	24	2006	233	**2009**	**233**	2010	233

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 enabled
    Turbo Boost set to Traditional
    Power C-States enabled
    Demand Scrub disabled

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General Notes

'ulimit -s unlimited' was used to set the stack size to unlimited prior to run

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

Continued on next page

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Base Optimization Flags (Continued)

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

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:

IBM Corporation

$SPECfp\_rate2006 =$ 246

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Peak Optimization Flags (Continued)

  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`

  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:

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Peak Optimization Flags (Continued)

```
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

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.20100330.03.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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