SPEC® CFP2006 Result

IBM Corporation

IBM BladeCenter HX5 (Intel Xeon L7555)

$SPECfp^{®}\_rate2006 = 241$

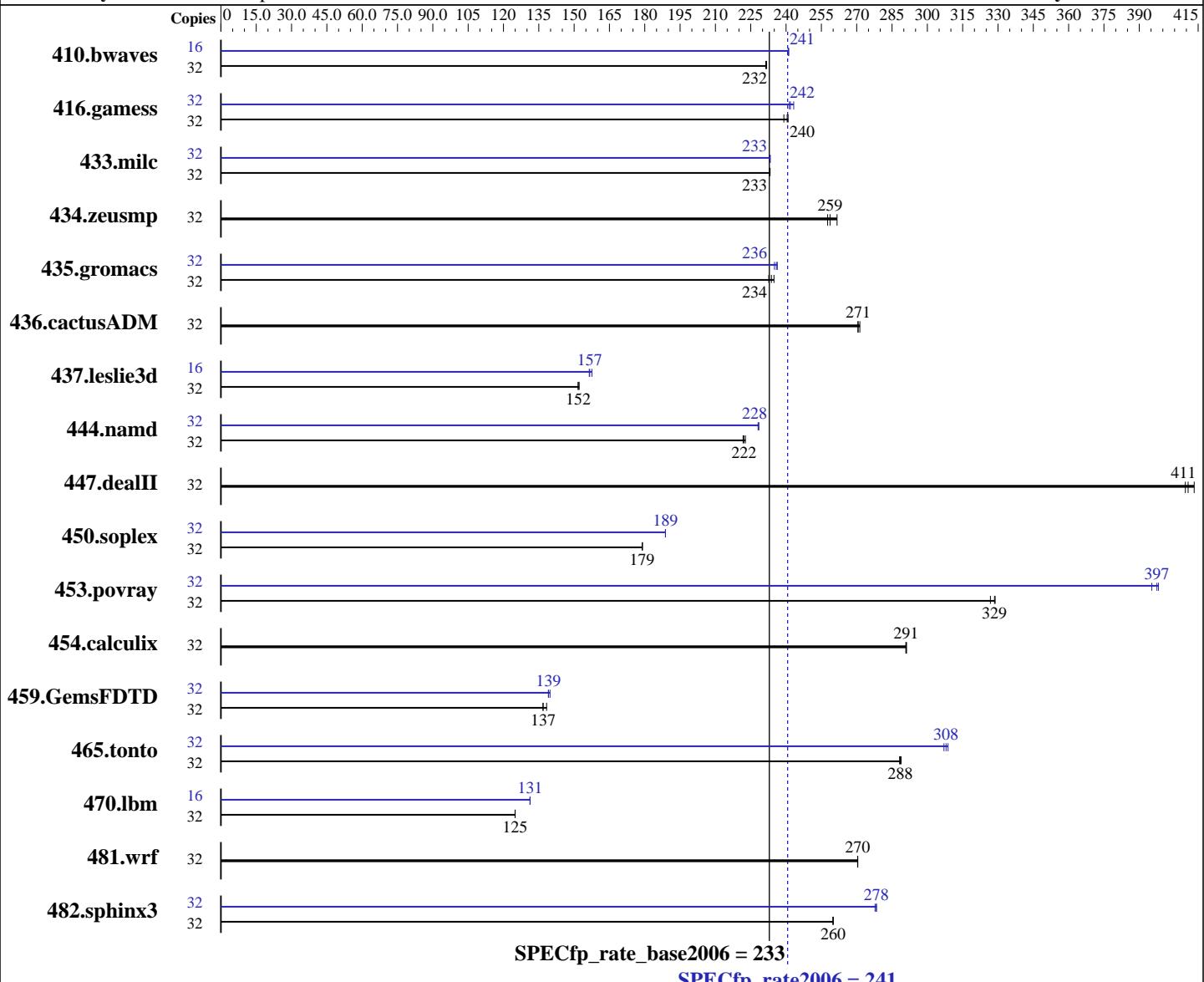$SPECfp\_rate\_base2006 = 233$

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

Test date: Apr-2010
Hardware Availability: Jun-2010
Software Availability: Jan-2010

Copies: 0 15.0 30.0 45.0 60.0 75.0 90.0 105 120 135 150 165 180 195 210 225 240 255 270 285 300 315 330 345 360 375 390 415

Benchmark	Copies	Value
410.bwaves	16	241
410.bwaves	32	232
416.gamess	32	242
416.gamess	32	240
433.milc	32	233
433.milc	32	233
434.zeusmp	32	259
435.gromacs	32	236
435.gromacs	32	234
436.cactusADM	32	271
437.leslie3d	16	157
437.leslie3d	32	152
444.namd	32	228
444.namd	32	222
447.dealII	32	411
450.soplex	32	189
450.soplex	32	179
453.povray	32	397
453.povray	32	329
454.calculix	32	291
459.GemsFDTD	32	139
459.GemsFDTD	32	137
465.tonto	32	308
465.tonto	32	288
470.lbm	16	131
470.lbm	32	125
481.wrf	32	270
482.sphinx3	32	278
482.sphinx3	32	260

SPECfp_rate_base2006 = 233

SPECfp_rate2006 = 241

Hardware

CPU Name: Intel Xeon L7555
CPU Characteristics: Intel Turbo Boost Technology up to 2.53 GHz
CPU MHz: 1867
FPU: Integrated
CPU(s) enabled: 16 cores, 2 chips, 8 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:	24 MB I+D on chip per chip
Other Cache:	None
Memory:	128 GB (16 x 8 GB PC3-8500R, running at 978 MHz)
Disk Subsystem:	2 x 50 GB SATA, SSD
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	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Peak Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	32	1876	232	1880	231	**1878**	**232**	16	**902**	**241**	903	241	902	241
416.gamess	32	2621	239	2601	241	**2606**	**240**	32	**2591**	**242**	2576	243	2595	241
433.milc	32	**1260**	**233**	1261	233	1260	233	32	1260	233	**1259**	**233**	1259	233
434.zeusmp	32	1130	258	1113	262	**1126**	**259**	32	1130	258	1113	262	**1126**	**259**
435.gromacs	32	982	233	973	235	**977**	**234**	32	972	235	**969**	**236**	967	236
436.cactusADM	32	1413	271	**1413**	**271**	1409	271	32	1413	271	**1413**	**271**	1409	271
437.leslie3d	32	1982	152	**1982**	**152**	1977	152	16	961	156	**960**	**157**	955	158
444.namd	32	1152	223	1157	222	**1156**	**222**	32	1124	228	**1124**	**228**	1125	228
447.dealII	32	886	413	**891**	**411**	894	410	32	886	413	**891**	**411**	894	410
450.soplex	32	1492	179	1490	179	**1492**	**179**	32	**1414**	**189**	1414	189	1414	189
453.povray	32	518	329	521	327	**518**	**329**	32	428	398	431	395	**428**	**397**
454.calculix	32	908	291	907	291	**907**	**291**	32	908	291	907	291	**907**	**291**
459.GemsFDTD	32	2482	137	**2481**	**137**	2455	138	32	**2440**	**139**	2429	140	2442	139
465.tonto	32	1093	288	**1091**	**288**	1090	289	32	1025	307	**1023**	**308**	1020	309
470.lbm	32	3518	125	**3519**	**125**	3520	125	16	1675	131	1674	131	**1674**	**131**
481.wrf	32	1322	270	**1322**	**270**	1322	270	32	1322	270	**1322**	**270**	1322	270
482.sphinx3	32	2400	260	**2399**	**260**	2399	260	32	2245	278	2240	278	**2241**	**278**

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 Boost set to Traditional in BIOS
    Demand Scrub disabled in BIOS
```

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: `basepeak = yes`

    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`

        481.wrf: `basepeak = yes`

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$SPECfp_rate2006 = $ 241

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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-ic11.1-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`

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

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