SPEC® CFP2006 Result
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IBM Corporation

IBM System x3450 (Intel Xeon X5482)

$SPECfp^®\_rate2006 =$ 91.2

SPECfp_rate_base2006 = 83.7

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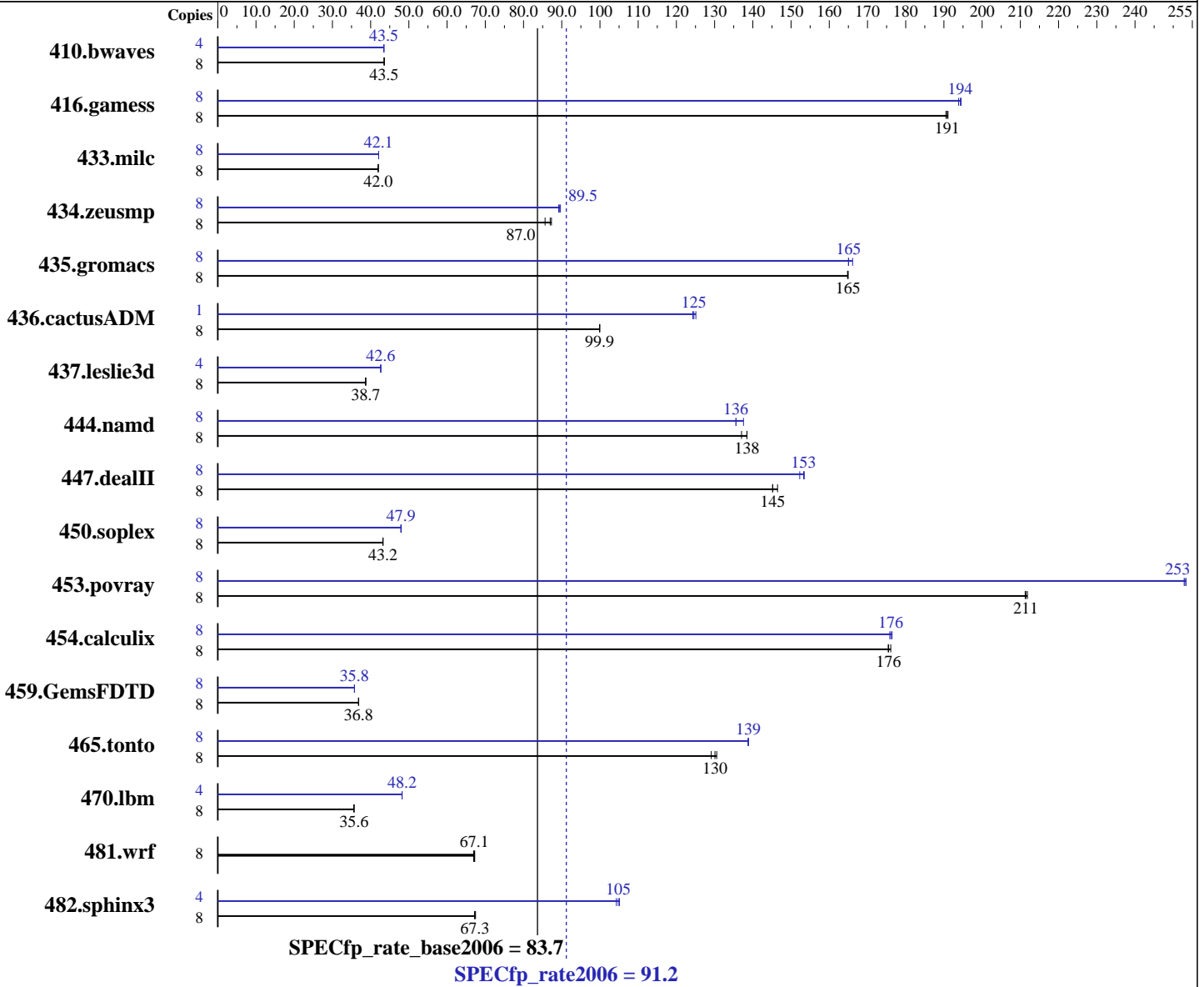**Test sponsor:** IBM Corporation
Tested by: IBM Corporation

Test date: Sep-2008
Hardware Availability: Nov-2008
Software Availability: Nov-2008

SPECfp_rate_base2006 = 83.7

SPECfp_rate2006 = 91.2

Hardware

CPU Name: Intel Xeon X5482
CPU Characteristics: 1600MHz system bus
CPU MHz: 3200
FPU: Integrated
CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip
CPU(s) orderable: 1,2 chips
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 20080730 Package ID: l_cproc_b_11.0.042, l_fproc_b_11.0.042
Auto Parallel: Yes
File System: ReiserFS
System State: Run level 3 (multi-user)
Base Pointers: 64-bit

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L3 Cache:	None	Peak Pointers:	32/64-bit
Other Cache:	None	Other Software:	Binutils 2.18.50.0.7.20080502
Memory:	16 GB (8 x 2 GB DDR2-5300F ECC)		
Disk Subsystem:	1 x 80 GB SATA, 7200 RPM		
Other Hardware:	None		

Results Table

Benchmark	Copies	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Base Seconds	Base Ratio	Copies	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio	Peak Seconds	Peak Ratio
410.bwaves	8	2495	43.6	**2498**	**43.5**	2498	43.5	4	1250	43.5	1252	43.4	**1250**	**43.5**
416.gamess	8	820	191	**821**	**191**	822	191	8	**806**	**194**	805	194	808	194
433.milc	8	**1749**	**42.0**	1749	42.0	1750	42.0	8	**1745**	**42.1**	1745	42.1	1744	42.1
434.zeusmp	8	834	87.3	**837**	**87.0**	850	85.6	8	816	89.2	812	89.7	**814**	**89.5**
435.gromacs	8	**346**	**165**	347	165	346	165	8	**346**	**165**	346	165	344	166
436.cactusADM	8	957	99.9	**957**	**99.9**	957	99.9	1	96.1	124	**95.9**	**125**	95.5	125
437.leslie3d	8	1942	38.7	1945	38.7	**1943**	**38.7**	4	882	42.6	**882**	**42.6**	881	42.7
444.namd	8	468	137	463	138	**463**	**138**	8	473	136	466	138	**473**	**136**
447.dealII	8	**630**	**145**	625	146	630	145	8	596	153	601	152	**597**	**153**
450.soplex	8	**1543**	**43.2**	1543	43.2	1544	43.2	8	1390	48.0	**1392**	**47.9**	1392	47.9
453.povray	8	201	211	**201**	**211**	201	212	8	168	253	168	253	**168**	**253**
454.calculix	8	376	175	**376**	**176**	375	176	8	375	176	**375**	**176**	374	176
459.GemsFDTD	8	**2305**	**36.8**	2305	36.8	2302	36.9	8	**2373**	**35.8**	2375	35.7	2372	35.8
465.tonto	8	603	131	610	129	**605**	**130**	8	**567**	**139**	567	139	567	139
470.lbm	8	**3084**	**35.6**	3084	35.6	3083	35.7	4	**1140**	**48.2**	1140	48.2	1140	48.2
481.wrf	8	1329	67.2	**1331**	**67.1**	1335	67.0	8	1329	67.2	**1331**	**67.1**	1335	67.0
482.sphinx3	8	2321	67.2	**2317**	**67.3**	2312	67.4	4	**744**	**105**	748	104	742	105

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.
    taskset was used to bind processes to cores except for 462.libquantum peak

General Notes

    All benchmarks compiled in 64-bit mode except 437.leslie3d, 450.soplex
    and 482.sphinx3, at peak, are compiled in 32-bit mode
    OMP_NUM_THREADS set to number of processors
    KMP_AFFINITY set to "physical,0"
    KMP_STACKSIZE set to 64M
    Hardware Prefetch Enabled, Adjacent Sector Prefetch Disabled
    Powersave dameon was disabled in OS
    '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

C++ benchmarks:
    icpc

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 -opt-prefetch

C++ benchmarks:
    -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

Fortran benchmarks:
    -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

Benchmarks using both Fortran and C:
    -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

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Peak Compiler Invocation

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

```
482.sphinx3: /opt/intel/Compiler/11.0/042/bin/ia32/icc
         -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
         -I/opt/intel/Compiler/11.0/042/ipp/ia32/include
```

C++ benchmarks (except as noted below):
```
icpc
```

```
450.soplex: /opt/intel/Compiler/11.0/042/bin/ia32/icpc
        -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
        -I/opt/intel/Compiler/11.0/042/ipp/ia32/include
```

Fortran benchmarks (except as noted below):
```
ifort
```

```
437.leslie3d: /opt/intel/Compiler/11.0/042/bin/ia32/ifort
        -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
        -I/opt/intel/Compiler/11.0/042/ipp/ia32/include
```

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
     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:

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Peak Optimization Flags (Continued)

```
     433.milc: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
               -no-prec-div -static -fno-alias

      470.lbm: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
               -auto-ilp32

  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

    447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
                -no-prec-div -static -unroll2 -ansi-alias -scalar-rep-

    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

    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: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
                -no-prec-div -static

    437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
                  -no-prec-div -static -opt-malloc-options=3 -opt-prefetch

  459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
                -no-prec-div -static -unroll2 -Ob0 -opt-prefetch

    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
```

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Peak Optimization Flags (Continued)

454.calculix: `-xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32`

481.wrf: `basepeak = yes`

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.03.html
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.08.html
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.05.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.03.xml
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.08.xml
http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.05.xml

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

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