SPEC® CFP2006 Result
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IBM Corporation

$SPECfp^{®}\_rate2006 =$ 102

IBM System x3850 M2 (Intel Xeon E7330)

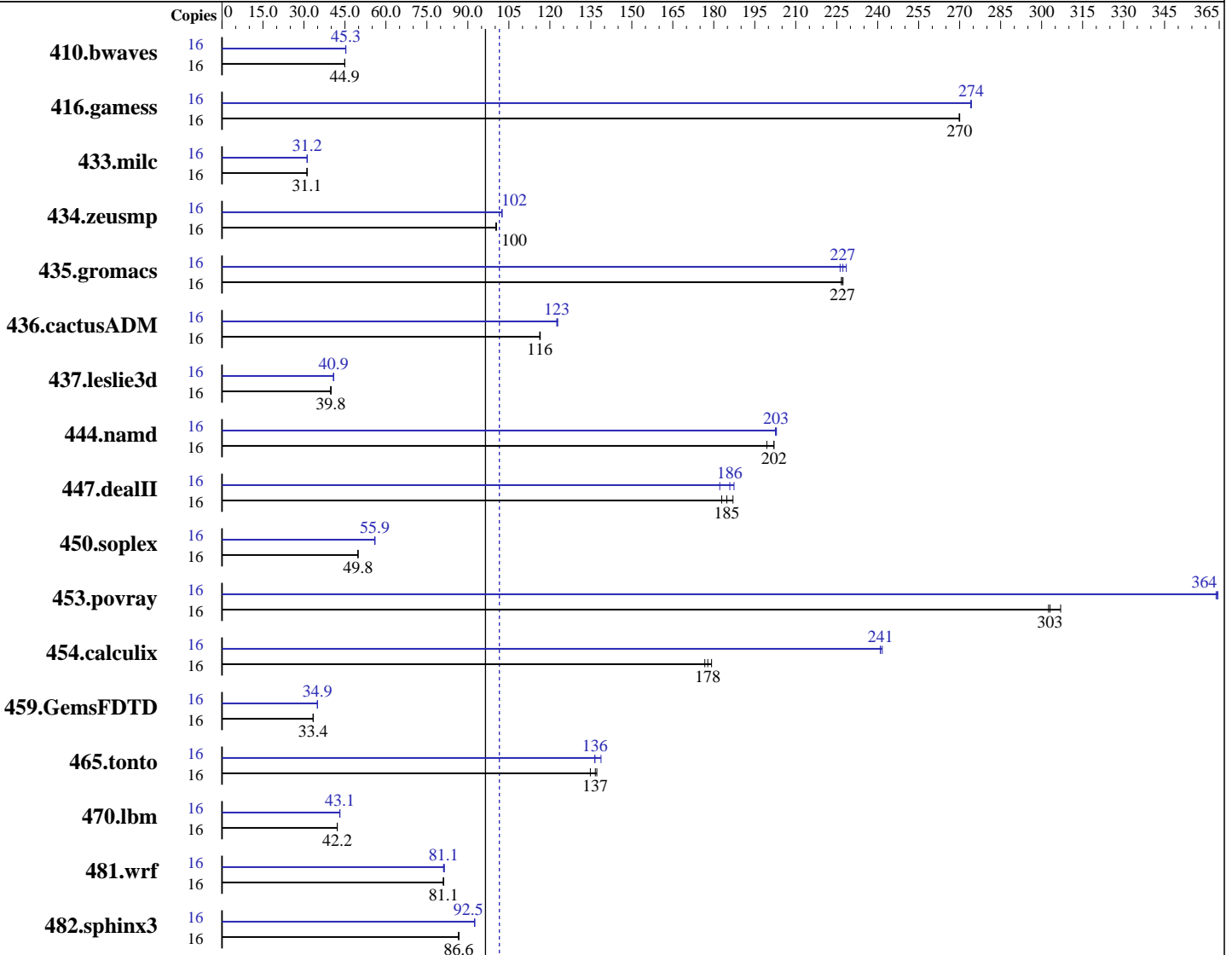$SPECfp\_rate\_base2006 =$ 96.4

CPU2006 license: 11

Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Aug-2007

Hardware Availability: Nov-2007

Software Availability: Nov-2007

Benchmark	Copies	Value
410.bwaves	16	45.3
410.bwaves	16	44.9
416.gamess	16	274
416.gamess	16	270
433.milc	16	31.2
433.milc	16	31.1
434.zeusmp	16	102
434.zeusmp	16	100
435.gromacs	16	227
435.gromacs	16	227
436.cactusADM	16	123
436.cactusADM	16	116
437.leslie3d	16	40.9
437.leslie3d	16	39.8
444.namd	16	203
444.namd	16	202
447.dealII	16	186
447.dealII	16	185
450.soplex	16	55.9
450.soplex	16	49.8
453.povray	16	364
453.povray	16	303
454.calculix	16	241
454.calculix	16	178
459.GemsFDTD	16	34.9
459.GemsFDTD	16	33.4
465.tonto	16	136
465.tonto	16	137
470.lbm	16	43.1
470.lbm	16	42.2
481.wrf	16	81.1
481.wrf	16	81.1
482.sphinx3	16	92.5
482.sphinx3	16	86.6

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Hardware

CPU Name: Intel Xeon E7330

CPU Characteristics: Quad Core, 2.4 GHz

CPU MHz: 2400

FPU: Integrated

CPU(s) enabled: 16 cores, 4 chips, 4 cores/chip

CPU(s) orderable: 1,2,4 chips

Primary Cache: 32 KB I + 32 KB D on chip per core

Secondary Cache: 6 MB I+D on chip per chip, 3 MB shared / 2 cores

Continued on next page

Software

Operating System: SLES 10 SP1 (x86_64), 2.6.16.46-0.12-smp

Compiler: Intel C++ and Fortran Compiler for Linux32 and Linux64 version 10.1 Build 20070725

Auto Parallel: No

File System: ReiserFS

System State: Multi-user run level 3

Base Pointers: 64-bit

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L3 Cache: None
Other Cache: None
Memory: 64 GB (16 * 4GB DDR2-5300 ECC)
Disk Subsystem: 73 GB SAS, 10k RPM
Other Hardware: None

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

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	16	4840	44.9	**4838**	**44.9**	4836	45.0	16	4800	45.3	4797	45.3	**4800**	**45.3**
416.gamess	16	**1160**	**270**	1161	270	1160	270	16	1143	274	1142	274	**1142**	**274**
433.milc	16	4720	31.1	4712	31.2	**4720**	**31.1**	16	**4710**	**31.2**	4709	31.2	4712	31.2
434.zeusmp	16	**1451**	**100**	1453	100	1450	100	16	**1421**	**102**	1421	102	1421	102
435.gromacs	16	**503**	**227**	503	227	504	227	16	500	229	**503**	**227**	505	226
436.cactusADM	16	**1643**	**116**	1644	116	1641	117	16	1556	123	1560	123	**1559**	**123**
437.leslie3d	16	3765	39.9	**3777**	**39.8**	3783	39.8	16	3688	40.8	**3679**	**40.9**	3679	40.9
444.namd	16	643	199	**635**	**202**	635	202	16	632	203	633	203	**633**	**203**
447.dealII	16	979	187	1001	183	**991**	**185**	16	**985**	**186**	977	187	1005	182
450.soplex	16	2680	49.8	2681	49.8	**2681**	**49.8**	16	**2385**	**55.9**	2389	55.9	2383	56.0
453.povray	16	**281**	**303**	281	303	277	307	16	**234**	**364**	234	364	234	365
454.calculix	16	**742**	**178**	737	179	747	177	16	546	242	548	241	**548**	**241**
459.GemsFDTD	16	5086	33.4	5086	33.4	**5086**	**33.4**	16	4860	34.9	**4859**	**34.9**	4858	34.9
465.tonto	16	**1152**	**137**	1168	135	1148	137	16	1154	136	**1153**	**136**	1135	139
470.lbm	16	**5211**	**42.2**	5210	42.2	5212	42.2	16	**5096**	**43.1**	5096	43.1	5098	43.1
481.wrf	16	2207	81.0	2202	81.2	**2204**	**81.1**	16	2195	81.4	**2203**	**81.1**	2203	81.1
482.sphinx3	16	3602	86.6	3595	86.7	**3600**	**86.6**	16	3375	92.4	3371	92.5	**3371**	**92.5**

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

General Notes

```
Bios settings:
Hardware Prefetcher:      Disabled
Adjacent Sector Prefetch: Disabled
All benchmarks compiled in 64-bit mode except 437.leslie3d,
450.soplex, 470.lbm and 482.sphinx3, for peak, are
compiled in 32-bit mode
taskset utility used to bind CPU(s) to processes
```

Base Compiler Invocation

C benchmarks:
```
icc
```

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Base Compiler Invocation (Continued)

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:
      `-fast`

C++ benchmarks:
      `-fast`

Fortran benchmarks:
      `-fast`

Benchmarks using both Fortran and C:
      `-fast`

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Tested by:	IBM Corporation	**Software Availability:**	Nov-2007

Peak Compiler Invocation

C benchmarks (except as noted below):
```
/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/bin/icc
-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/lib
-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/include
```

    433.milc: `icc`

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

  450.soplex: `/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/bin/icpc`
```
              -L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/lib
              -I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/include
```

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

  437.leslie3d: `/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/bin/ifort`
```
              -L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/lib
              -I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/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
      481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
```

Peak Optimization Flags

C benchmarks:

    433.milc: `-prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias`
```
             -auto-ilp32
```

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Peak Optimization Flags (Continued)

470.lbm: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -scalar-rep- -prefetch -opt-malloc-options=3`

482.sphinx3: `-fast -unroll2`

C++ benchmarks:

444.namd: `-prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias -auto-ilp32`

447.dealII: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -ansi-alias -scalar-rep-`

450.soplex: `-prof-gen(pass 1) -prof-use(pass 2) -fast -opt-malloc-options=3`

453.povray: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -ansi-alias`

Fortran benchmarks:

410.bwaves: `-fast -prefetch`

416.gamess: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -ansi-alias -scalar-rep-`

434.zeusmp: `-prof-gen(pass 1) -prof-use(pass 2) -fast`

437.leslie3d: `-prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch -opt-malloc-options=3`

459.GemsFDTD: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0 -prefetch`

465.tonto: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto`

Benchmarks using both Fortran and C:

435.gromacs: `-prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch -auto-ilp32`

436.cactusADM: `-prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -prefetch -auto-ilp32`

454.calculix: `-fast -unroll-aggressive -auto-ilp32`

481.wrf: `-fast -auto-ilp32`

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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-ic10.1-FP-intel64-linux-flags.20090714.30.html

You can also download the XML flags source by saving the following link:

http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.30.xml

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