SPEC® CFP2006 Result
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IBM Corporation

$SPECfp®\_rate2006 = 405$

IBM System x3850 X5 (Intel Xeon L7545)

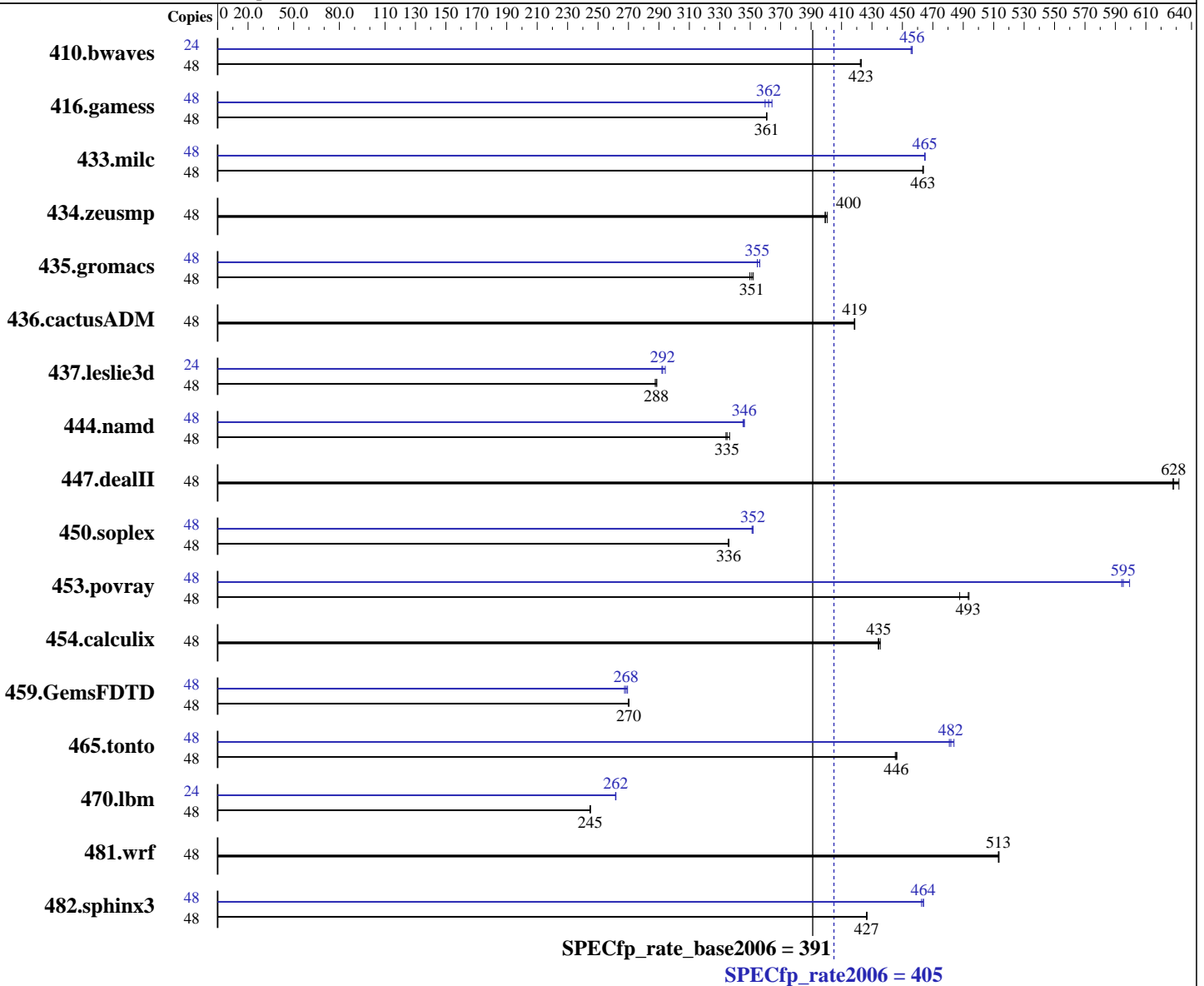$SPECfp\_rate\_base2006 = 391$

CPU2006 license: 11

Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Apr-2010

Hardware Availability: Mar-2010

Software Availability: Jan-2010

Copies		
410.bwaves	24	456
	48	423
416.gamess	48	362
	48	361
433.milc	48	465
	48	463
434.zeusmp	48	400
435.gromacs	48	355
	48	351
436.cactusADM	48	419
437.leslie3d	24	292
	48	288
444.namd	48	346
	48	335
447.dealII	48	628
450.soplex	48	352
	48	336
453.povray	48	595
	48	493
454.calculix	48	435
459.GemsFDTD	48	268
	48	270
465.tonto	48	482
	48	446
470.lbm	24	262
	48	245
481.wrf	48	513
482.sphinx3	48	464
	48	427

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Hardware

CPU Name:	Intel Xeon L7545
CPU Characteristics:	Intel Turbo Boost Technology up to 2.53 GHz
CPU MHz:	1867
FPU:	Integrated
CPU(s) enabled:	24 cores, 4 chips, 6 cores/chip, 2 threads/core
CPU(s) orderable:	2,4 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:	18 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	256 GB (64 x 4 GB PC3-8500R CL7, Quad Rank, running at 978 MHz)	Other Software:	None
Disk Subsystem:	3 x 50 GB SATA, SSD		
Other Hardware:	None		

Results Table

Benchmark	Copies	Base Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Peak Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	48	**_1543_**	**_423_**	1542	423	1544	422	24	715	456	716	456	**_715_**	**_456_**
416.gamess	48	2606	361	**_2605_**	**_361_**	2604	361	48	2612	360	2580	364	**_2596_**	**_362_**
433.milc	48	951	463	950	464	**_951_**	**_463_**	48	**_948_**	**_465_**	948	465	948	465
434.zeusmp	48	1094	399	1090	401	**_1093_**	**_400_**	48	1094	399	1090	401	**_1093_**	**_400_**
435.gromacs	48	974	352	980	350	**_976_**	**_351_**	48	**_966_**	**_355_**	962	356	966	355
436.cactusADM	48	**_1370_**	**_419_**	1371	418	1370	419	48	**_1370_**	**_419_**	1371	418	1370	419
437.leslie3d	48	1569	288	**_1565_**	**_288_**	1563	289	24	773	292	**_771_**	**_292_**	767	294
444.namd	48	1144	336	1152	334	**_1150_**	**_335_**	48	**_1112_**	**_346_**	1112	346	1115	345
447.dealII	48	869	632	**_874_**	**_628_**	875	628	48	869	632	**_874_**	**_628_**	875	628
450.soplex	48	1191	336	**_1192_**	**_336_**	1193	336	48	1140	351	1138	352	**_1138_**	**_352_**
453.povray	48	**_518_**	**_493_**	524	488	517	494	48	426	599	430	594	**_429_**	**_595_**
454.calculix	48	912	434	**_911_**	**_435_**	909	436	48	912	434	**_911_**	**_435_**	909	436
459.GemsFDTD	48	1883	270	1887	270	**_1885_**	**_270_**	48	**_1897_**	**_268_**	1891	269	1904	267
465.tonto	48	1058	446	**_1059_**	**_446_**	1061	445	48	982	481	**_980_**	**_482_**	976	484
470.lbm	48	2694	245	2692	245	**_2694_**	**_245_**	24	**_1261_**	**_262_**	1261	262	1260	262
481.wrf	48	1044	514	1045	513	**_1045_**	**_513_**	48	1044	514	1045	513	**_1045_**	**_513_**
482.sphinx3	48	**_2193_**	**_427_**	2192	427	2194	426	48	2022	463	**_2017_**	**_464_**	2017	464

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
   Demand Scrub disabled
```

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General Notes

'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502

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

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Base Optimization Flags (Continued)

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

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
```

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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

    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:

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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.20100603.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.20100603.xml`

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