SPEC® CFP2006 Result

IBM Corporation

IBM System x3200 M3 (Intel Pentium G6950)

$SPECfp®\_rate2006 =$ 40.1
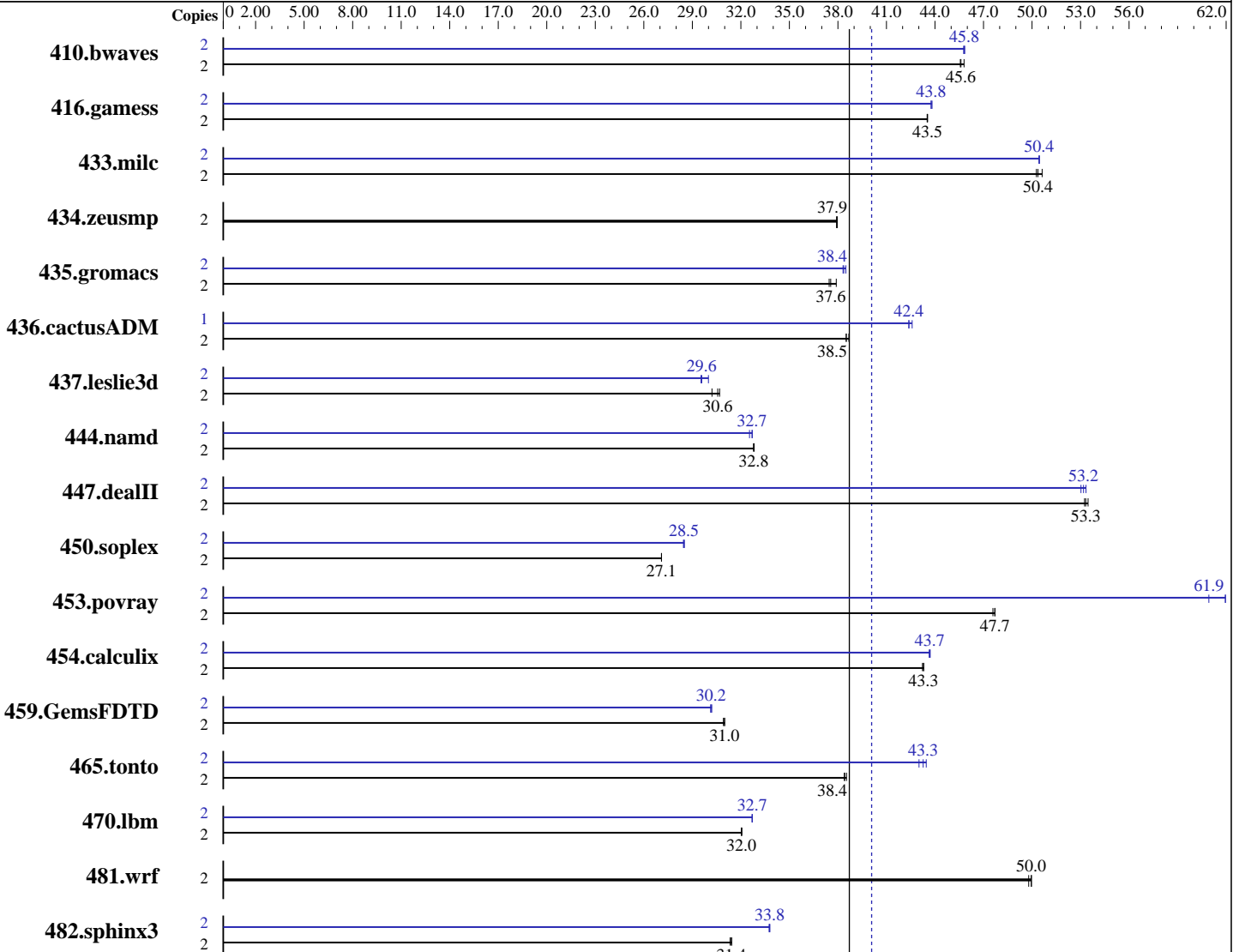
$SPECfp\_rate\_base2006 =$ 38.7

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

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

Copies	Benchmark	Result
2 / 2	410.bwaves	45.8 / 45.6
2 / 2	416.gamess	43.8 / 43.5
2 / 2	433.milc	50.4 / 50.4
2	434.zeusmp	37.9
2 / 2	435.gromacs	38.4 / 37.6
1 / 2	436.cactusADM	42.4 / 38.5
2 / 2	437.leslie3d	29.6 / 30.6
2 / 2	444.namd	32.7 / 32.8
2 / 2	447.dealII	53.2 / 53.3
2 / 2	450.soplex	28.5 / 27.1
2 / 2	453.povray	61.9 / 47.7
2 / 2	454.calculix	43.7 / 43.3
2 / 2	459.GemsFDTD	30.2 / 31.0
2 / 2	465.tonto	43.3 / 38.4
2 / 2	470.lbm	32.7 / 32.0
2	481.wrf	50.0
2 / 2	482.sphinx3	33.8 / 31.4

SPECfp_rate_base2006 = 38.7

SPECfp_rate2006 = 40.1

Hardware

CPU Name: Intel Pentium G6950
CPU Characteristics:
CPU MHz: 2800
FPU: Integrated
CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip
CPU(s) orderable: 1 chip
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: Yes
File System: ext3
System State: Run level 3 (multi-user)

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L3 Cache:	3 MB I+D on chip per chip	Base Pointers:	64-bit
Other Cache:	None	Peak Pointers:	32/64-bit
Memory:	16 GB (4 x 4 GB PC3-10600E CL9, 2 Rank)	Other Software:	None
Disk Subsystem:	1 x 73 GB SAS, 15000 RPM		
Other Hardware:	None		

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	2	**596**	**45.6**	596	45.6	593	45.8	2	**593**	**45.8**	593	45.8	594	45.8
416.gamess	2	900	43.5	899	43.5	**900**	**43.5**	2	894	43.8	895	43.8	**895**	**43.8**
433.milc	2	363	50.6	**365**	**50.4**	365	50.3	2	**364**	**50.4**	364	50.4	364	50.5
434.zeusmp	2	480	38.0	**480**	**37.9**	480	37.9	2	480	38.0	**480**	**37.9**	480	37.9
435.gromacs	2	**380**	**37.6**	377	37.9	381	37.5	2	**372**	**38.4**	373	38.3	371	38.5
436.cactusADM	2	621	38.5	**620**	**38.5**	618	38.7	1	281	42.6	**282**	**42.4**	282	42.4
437.leslie3d	2	613	30.7	**615**	**30.6**	622	30.2	2	637	29.5	627	30.0	**636**	**29.6**
444.namd	2	489	32.8	**489**	**32.8**	489	32.8	2	493	32.5	490	32.7	**491**	**32.7**
447.dealII	2	428	53.5	**429**	**53.3**	430	53.2	2	429	53.3	**430**	**53.2**	431	53.0
450.soplex	2	616	27.1	616	27.1	**616**	**27.1**	2	**586**	**28.5**	585	28.5	586	28.4
453.povray	2	223	47.7	224	47.6	**223**	**47.7**	2	172	62.0	**172**	**61.9**	175	60.9
454.calculix	2	381	43.3	**381**	**43.3**	382	43.2	2	378	43.7	**378**	**43.7**	378	43.6
459.GemsFDTD	2	686	30.9	**685**	**31.0**	685	31.0	2	703	30.2	**704**	**30.2**	704	30.1
465.tonto	2	511	38.5	**512**	**38.4**	513	38.4	2	453	43.5	**455**	**43.3**	458	43.0
470.lbm	2	857	32.1	858	32.0	**858**	**32.0**	2	840	32.7	**840**	**32.7**	841	32.7
481.wrf	2	**447**	**50.0**	447	50.0	449	49.8	2	**447**	**50.0**	447	50.0	449	49.8
482.sphinx3	2	1244	31.3	1240	31.4	**1241**	**31.4**	2	1153	33.8	**1154**	**33.8**	1155	33.7

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.

Platform Notes

    Turbo Mode Enable
    Turbo Boost set to Traditional
    CPU C State Enable

General Notes

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

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General Notes (Continued)

```
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M
```

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:
```
-xSSSE3 -ipo -O3 -no-prec-div -static -opt-prefetch
```

C++ benchmarks:
```
-xSSSE3 -ipo -O3 -no-prec-div -static -opt-prefetch
```

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Base Optimization Flags (Continued)

Fortran benchmarks:
```
-xSSSE3 -ipo -O3 -no-prec-div -static -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xSSSE3 -ipo -O3 -no-prec-div -static -opt-prefetch
```

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: `-prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3 -no-prec-div -static -fno-alias`

> 470.lbm: `-xSSSE3 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-ilp32`

> 482.sphinx3: `-xSSSE3 -ipo -O3 -no-prec-div -static -unroll2`

C++ benchmarks:

> 444.namd: `-prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3 -no-prec-div -static -fno-alias -auto-ilp32`

> 447.dealII: `-prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3 -no-prec-div -static -unroll2 -ansi-alias -scalar-rep-`

> 450.soplex: `-prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3 -no-prec-div -static -opt-malloc-options=3`

> 453.povray: `-prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3 -no-prec-div -static -unroll4 -ansi-alias`

Fortran benchmarks:

> 410.bwaves: `-xSSSE3 -ipo -O3 -no-prec-div -static -opt-prefetch`

> 416.gamess: `-prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3 -no-prec-div -static -unroll2 -Ob0 -ansi-alias -scalar-rep-`

> 434.zeusmp: `basepeak = yes`

> 437.leslie3d: `-xSSSE3 -ipo -O3 -no-prec-div -static`

> 459.GemsFDTD: `-prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3 -no-prec-div -static -unroll2 -Ob0 -opt-prefetch`

> 465.tonto: `-prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3 -no-prec-div -static -unroll4 -auto`

Benchmarks using both Fortran and C:

> 435.gromacs: `-prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-ilp32`

> 436.cactusADM: `-prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3 -no-prec-div -static -unroll2 -opt-prefetch -parallel -auto-ilp32`

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Peak Optimization Flags (Continued)

454.calculix: `-xSSSE3 -ipo -O3 -no-prec-div -static -auto-ilp32`

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.20100601.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.20100601.xml`

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Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 09:18:50 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 28 June 2010.