SPEC® CFP2006 Result

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IBM Corporation

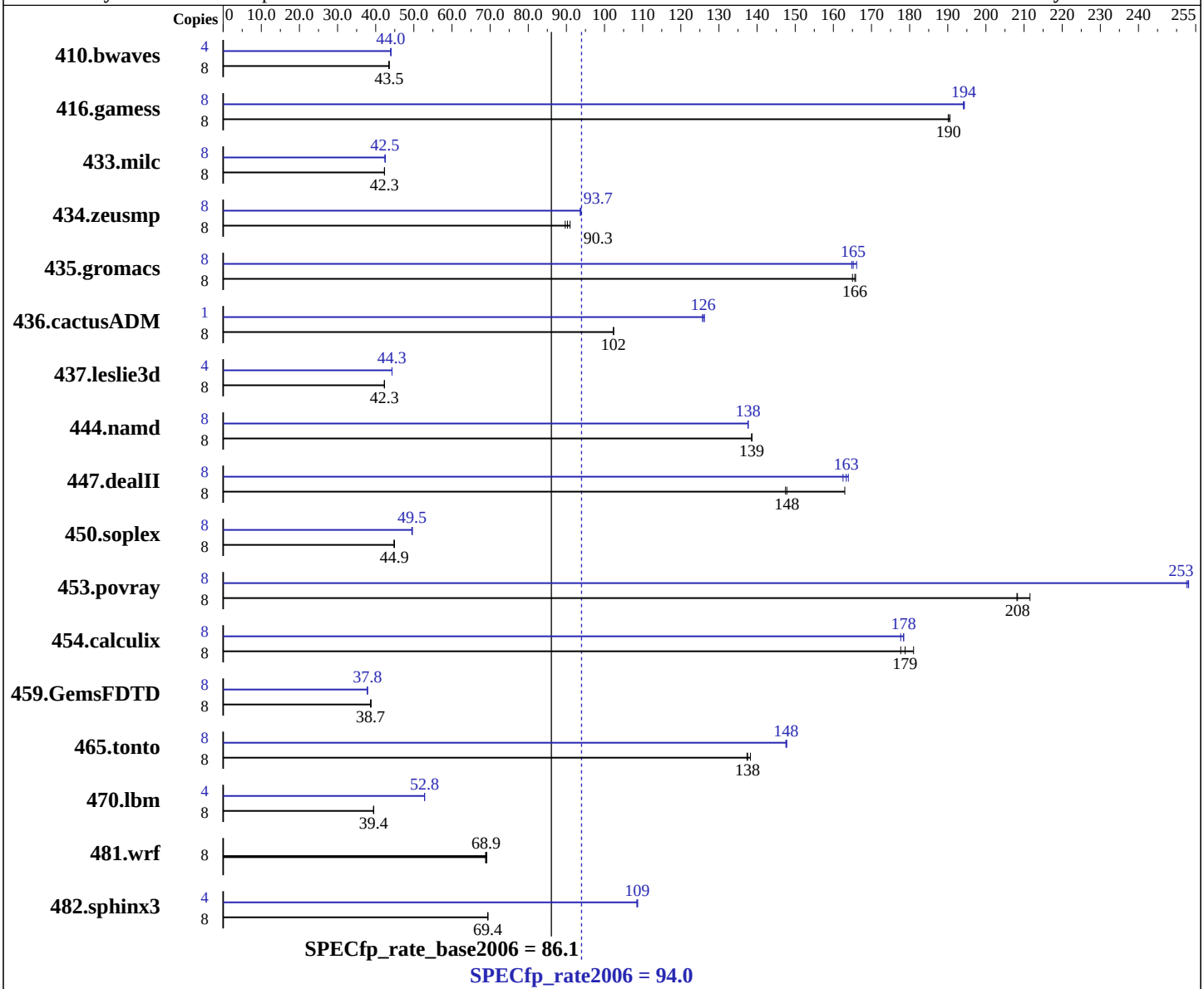
IBM System x3450 (Intel Xeon X5482)

SPECfp®_rate2006 = 94.0

SPECfp_rate_base2006 = 86.1

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

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



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

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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
Other Cache: None
Memory: 32 GB (8 x 4 GB DDR2-6400F ECC)
Disk Subsystem: 1 x 80 GB SATA, 7200 RPM
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	2504	43.4	2497	43.5	**2497**	**43.5**	4	1237	44.0	1236	44.0	**1236**	**44.0**
416.gamess	8	824	190	**823**	**190**	822	191	8	806	194	**806**	**194**	807	194
433.milc	8	1735	42.3	1737	42.3	**1736**	**42.3**	8	1729	42.5	1729	42.5	**1729**	**42.5**
434.zeusmp	8	800	91.0	**806**	**90.3**	812	89.7	8	776	93.8	777	93.6	**777**	**93.7**
435.gromacs	8	346	165	344	166	**345**	**166**	8	347	165	**346**	**165**	344	166
436.cactusADM	8	935	102	934	102	**934**	**102**	1	**94.9**	**126**	94.7	126	95.1	126
437.leslie3d	8	1778	42.3	1779	42.3	**1778**	**42.3**	4	849	44.3	849	44.3	**849**	**44.3**
444.namd	8	463	139	463	139	**463**	**139**	8	466	138	466	138	**466**	**138**
447.dealII	8	621	147	561	163	**619**	**148**	8	558	164	563	163	**560**	**163**
450.soplex	8	1486	44.9	1489	44.8	**1487**	**44.9**	8	**1347**	**49.5**	1349	49.5	1344	49.6
453.povray	8	204	208	201	212	**204**	**208**	8	168	253	168	253	**168**	**253**
454.calculix	8	**369**	**179**	371	178	365	181	8	370	178	372	178	**370**	**178**
459.GemsFDTD	8	**2194**	**38.7**	2195	38.7	2189	38.8	8	2242	37.9	2246	37.8	**2244**	**37.8**
465.tonto	8	**572**	**138**	569	138	573	137	8	533	148	533	148	**533**	**148**
470.lbm	8	2788	39.4	**2787**	**39.4**	2783	39.5	4	1040	52.8	**1041**	**52.8**	1041	52.8
481.wrf	8	1299	68.8	**1296**	**68.9**	1293	69.1	8	1299	68.8	**1296**	**68.9**	1293	69.1
482.sphinx3	8	2245	69.4	2248	69.4	**2247**	**69.4**	4	**718**	**109**	717	109	719	108

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 436.cactusADM peak
```

General Notes

```
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 daemon was disabled in OS
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
```

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

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:

Continued on next page

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

Continued on next page

Peak Optimization Flags (Continued)

454.calculix: `-xSSE4.1 -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-ic11.0-fp-linux64-revA.20090713.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.xml`

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