SPEC® CFP2006 Result

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IBM Corporation

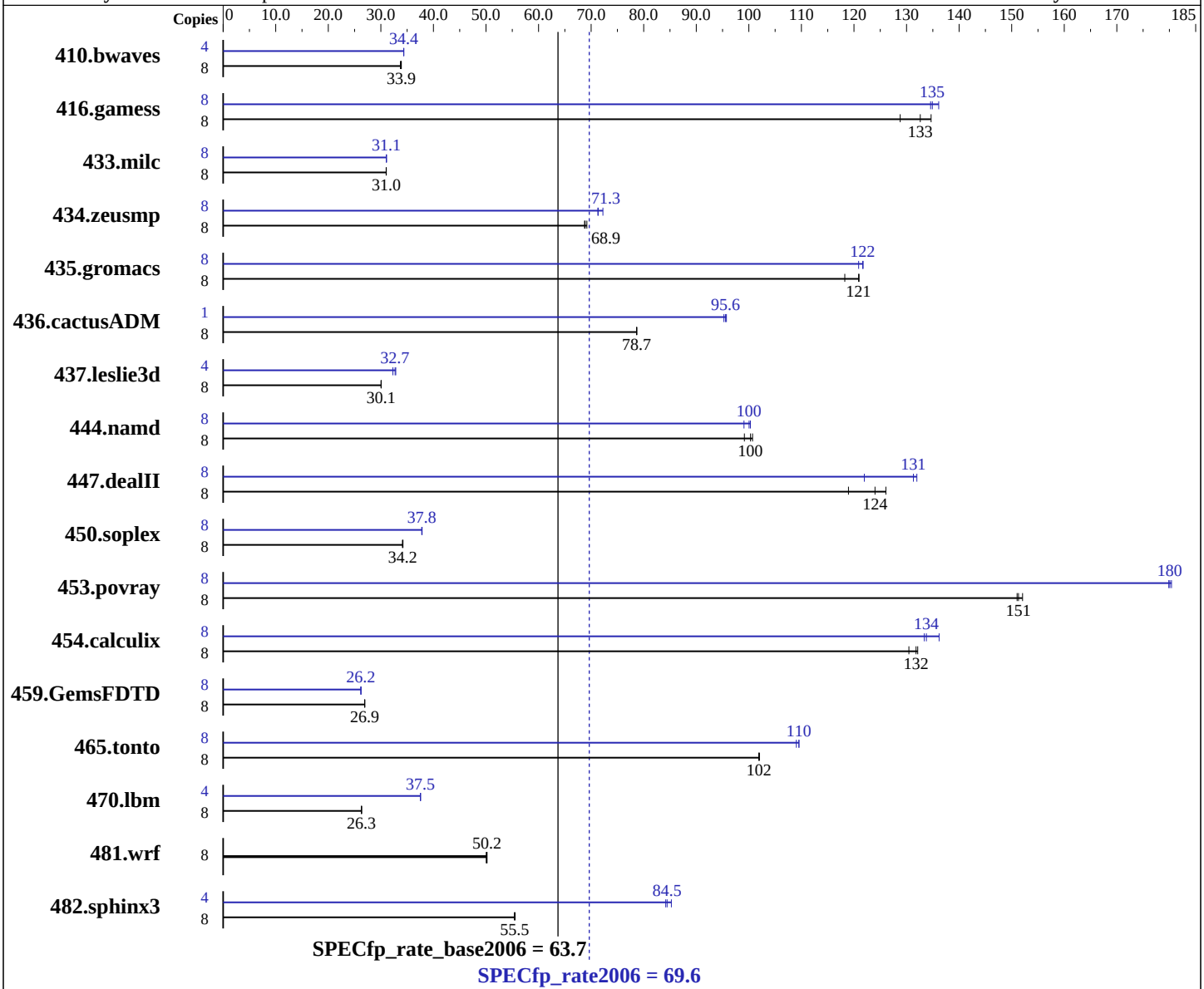
IBM System x iDataPlex dx340 (Intel Xeon L5410)

SPECfp®_rate2006 = 69.6

SPECfp_rate_base2006 = 63.7

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

Test date: Apr-2009
Hardware Availability: Oct-2008
Software Availability: Nov-2008



Hardware

CPU Name:	Intel Xeon L5410
CPU Characteristics:	1333MHz system bus
CPU MHz:	2333
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) SP2, Kernel 2.6.16.60-0.21-smp
Compiler:	Intel C++ and Fortran Compiler 11.0 for Linux Build 20080930 Package ID: l_cproc_p_11.0.066, l_cprof_p_11.0.066
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: 16 GB (4 x 4 GB PC2-5300F ECC)
Disk Subsystem: 1 x 250 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	3225	33.7	**3209**	**33.9**	3208	33.9	4	1582	34.4	1582	34.4	**1582**	**34.4**
416.gamess	8	1216	129	**1181**	**133**	1163	135	8	1164	135	**1161**	**135**	1151	136
433.milc	8	**2367**	**31.0**	2369	31.0	2366	31.0	8	2365	31.0	**2365**	**31.1**	2365	31.1
434.zeusmp	8	1052	69.2	1059	68.7	**1057**	**68.9**	8	1021	71.3	1008	72.2	**1020**	**71.3**
435.gromacs	8	483	118	**473**	**121**	472	121	8	473	121	**470**	**122**	469	122
436.cactusADM	8	**1215**	**78.7**	1215	78.7	1216	78.6	1	**125**	**95.6**	125	95.3	125	95.7
437.leslie3d	8	2501	30.1	**2502**	**30.1**	2504	30.0	4	**1150**	**32.7**	1145	32.8	1164	32.3
444.namd	8	647	99.2	637	101	**640**	**100**	8	**641**	**100**	648	99.1	640	100
447.dealII	8	726	126	**738**	**124**	769	119	8	694	132	**697**	**131**	750	122
450.soplex	8	**1953**	**34.2**	1950	34.2	1956	34.1	8	1763	37.9	1766	37.8	**1765**	**37.8**
453.povray	8	280	152	**281**	**151**	282	151	8	**236**	**180**	237	180	236	180
454.calculix	8	**501**	**132**	506	130	500	132	8	495	133	485	136	**493**	**134**
459.GemsFDTD	8	**3152**	**26.9**	3151	26.9	3152	26.9	8	**3239**	**26.2**	3240	26.2	3237	26.2
465.tonto	8	773	102	**772**	**102**	772	102	8	**719**	**110**	722	109	719	110
470.lbm	8	4181	26.3	**4176**	**26.3**	4172	26.3	4	**1464**	**37.5**	1465	37.5	1464	37.6
481.wrf	8	1786	50.0	**1781**	**50.2**	1780	50.2	8	1786	50.0	**1781**	**50.2**	1780	50.2
482.sphinx3	8	**2811**	**55.5**	2807	55.5	2816	55.4	4	926	84.2	**923**	**84.5**	914	85.3

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.
```

General Notes

```
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
taskset was used to bind processes to cores except
for 436.cactusADM peak
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 64M
Hardware Prefetcher Enable and Adjacent Cache Line Prefetch Disable
```

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: icc -m32

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

450.soplex: icpc -m32

Fortran benchmarks (except as noted below):
ifort

437.leslie3d: ifort -m32

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:

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

Continued on next page

Peak Optimization Flags (Continued)

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

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.20090805.00.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.20090805.00.xml

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