SPEC® CFP2006 Result

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IBM Corporation

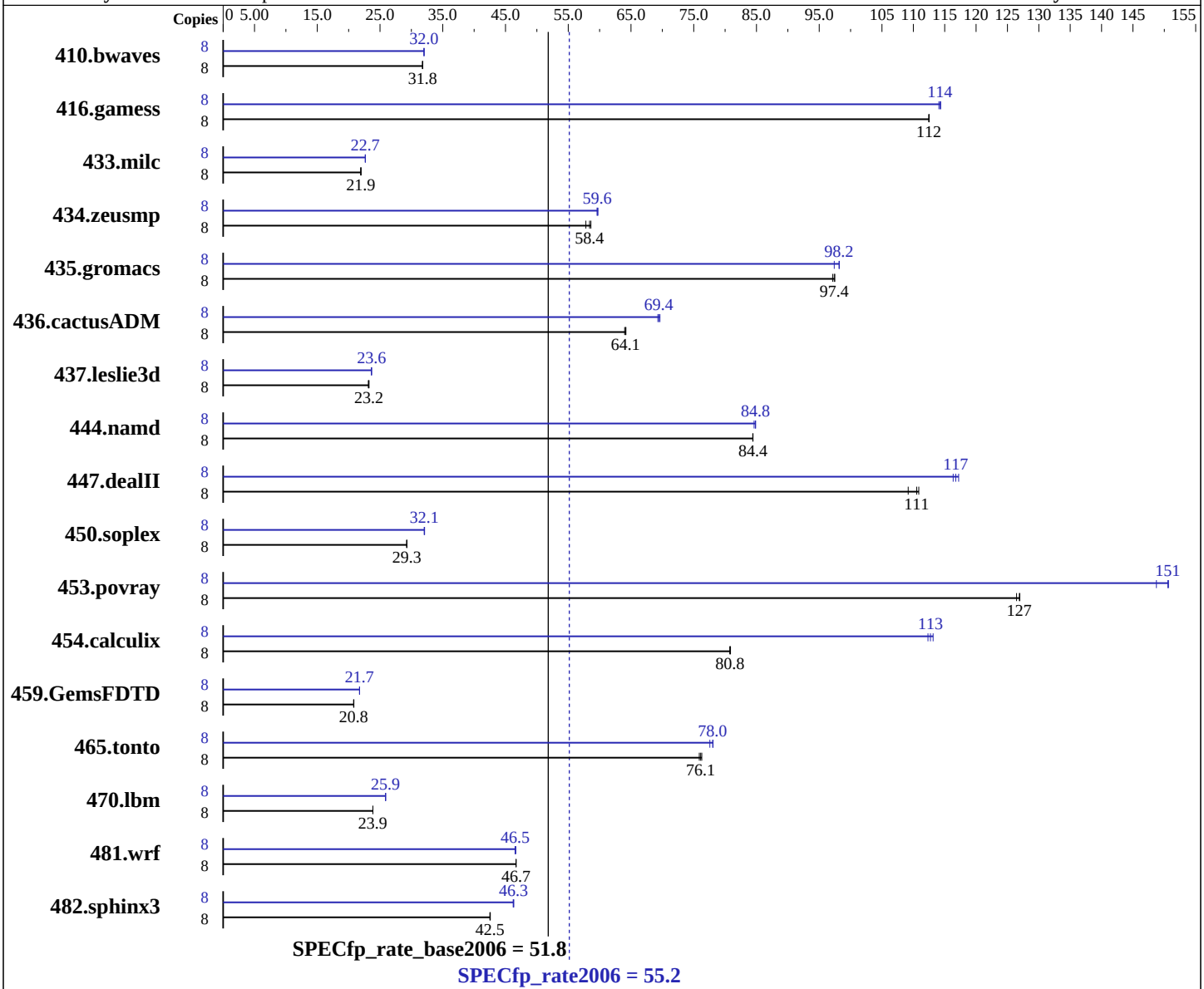
IBM System x3650 (Intel Xeon E5345)

SPECfp®_rate2006 = 55.2

SPECfp_rate_base2006 = 51.8

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

Test date: Sep-2007
Hardware Availability: Feb-2007
Software Availability: Nov-2007



Hardware

CPU Name:	Intel Xeon E5345
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:	8 MB I+D on chip per chip, 4 MB shared / 2 cores

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Software

Operating System:	SLES 10 (x86_64), 2.6.16.21-0.8-smp
Compiler:	Intel C++ and Fortran Compiler for Linux version 10.1 Build 20070725
Auto Parallel:	No
File System:	ReiserFS
System State:	Multi-user, run level 3
Base Pointers:	64-bit
Peak Pointers:	32/64-bit

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L3 Cache: None
Other Cache: None
Memory: 16 GB (8 x 2 GB DDR2-5300F ECC)
Disk Subsystem: 1 x 36 GB SAS, 15000 RPM
Other Hardware: None

Other Software: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	3421	31.8	**3420**	**31.8**	3419	31.8	8	3395	32.0	**3396**	**32.0**	3397	32.0
416.gamess	8	1393	112	**1392**	**112**	1392	113	8	1370	114	1373	114	**1371**	**114**
433.milc	8	**3347**	**21.9**	3342	22.0	3348	21.9	8	3243	22.6	3240	22.7	**3240**	**22.7**
434.zeusmp	8	**1247**	**58.4**	1259	57.8	1242	58.6	8	1219	59.7	**1221**	**59.6**	1221	59.6
435.gromacs	8	586	97.5	**587**	**97.4**	588	97.1	8	586	97.4	**582**	**98.2**	582	98.2
436.cactusADM	8	1489	64.2	**1491**	**64.1**	1494	64.0	8	1373	69.6	**1377**	**69.4**	1380	69.3
437.leslie3d	8	**3238**	**23.2**	3251	23.1	3236	23.2	8	3184	23.6	**3180**	**23.6**	3179	23.7
444.namd	8	**760**	**84.4**	760	84.4	760	84.4	8	**756**	**84.8**	756	84.9	758	84.6
447.dealII	8	**828**	**111**	838	109	825	111	8	**784**	**117**	781	117	787	116
450.soplex	8	**2279**	**29.3**	2281	29.3	2279	29.3	8	2081	32.1	**2081**	**32.1**	2078	32.1
453.povray	8	335	127	**335**	**127**	337	126	8	**283**	**151**	286	149	282	151
454.calculix	8	817	80.7	**817**	**80.8**	816	80.9	8	583	113	**585**	**113**	588	112
459.GemsFDTD	8	**4080**	**20.8**	4081	20.8	4073	20.8	8	3904	21.7	3905	21.7	**3905**	**21.7**
465.tonto	8	1037	75.9	1032	76.3	**1034**	**76.1**	8	1015	77.6	1008	78.1	**1009**	**78.0**
470.lbm	8	4607	23.9	**4605**	**23.9**	4605	23.9	8	**4246**	**25.9**	4246	25.9	4246	25.9
481.wrf	8	**1915**	**46.7**	1913	46.7	1915	46.7	8	**1920**	**46.5**	1916	46.6	1921	46.5
482.sphinx3	8	3662	42.6	**3665**	**42.5**	3667	42.5	8	3373	46.2	3366	46.3	**3369**	**46.3**

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

General Notes

```
taskset utility used to bind CPU(s) to processes
```

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

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Base Compiler Invocation (Continued)

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

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

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Peak Compiler Invocation (Continued)

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

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

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Peak Optimization Flags (Continued)

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

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.20090714.21.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.20090714.21.xml`

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