SPEC® CFP2006 Result

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IBM Corporation

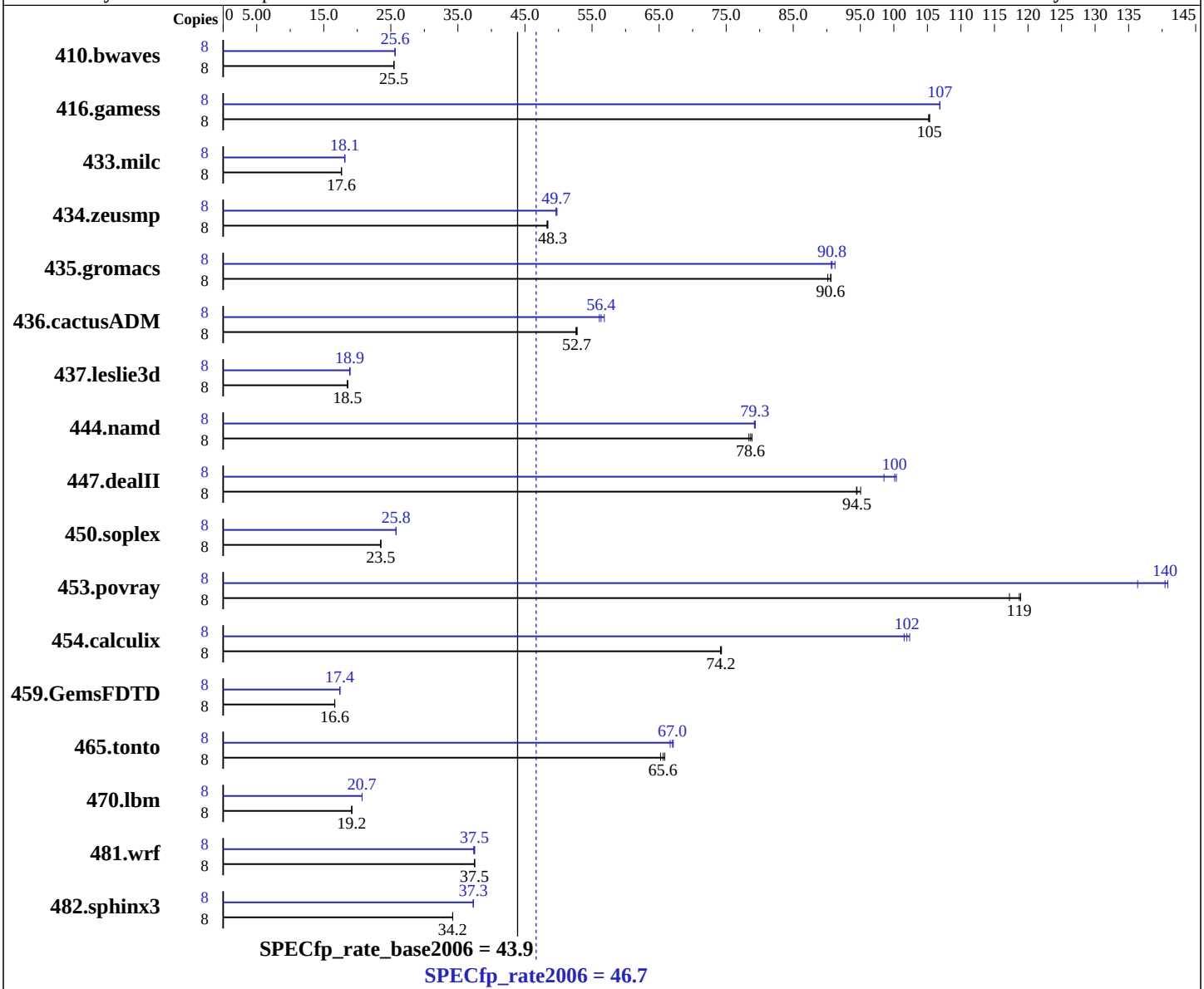
IBM BladeCenter HS21 (Intel Xeon E5320)

SPECfp®_rate2006 = 46.7

SPECfp_rate_base2006 = 43.9

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

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



Hardware

CPU Name:	Intel Xeon E5320
CPU Characteristics:	1066MHz system bus
CPU MHz:	1866
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, 10000 RPM
Other Hardware: Memory and I/O Expansion Unit (P/N 42C1600)

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	**4270**	**25.5**	4272	25.5	4267	25.5	8	4240	25.6	4243	25.6	**4240**	**25.6**
416.gamess	8	**1488**	**105**	1487	105	1489	105	8	1466	107	**1466**	**107**	1466	107
433.milc	8	4161	17.6	**4164**	**17.6**	4165	17.6	8	4048	18.1	4049	18.1	**4048**	**18.1**
434.zeusmp	8	1503	48.4	1507	48.3	**1506**	**48.3**	8	1463	49.8	1467	49.6	**1466**	**49.7**
435.gromacs	8	630	90.6	**631**	**90.6**	634	90.2	8	626	91.2	630	90.7	**629**	**90.8**
436.cactusADM	8	**1814**	**52.7**	1818	52.6	1811	52.8	8	1682	56.8	1704	56.1	**1696**	**56.4**
437.leslie3d	8	4046	18.6	**4058**	**18.5**	4063	18.5	8	**3982**	**18.9**	3990	18.8	3972	18.9
444.namd	8	**816**	**78.6**	814	78.8	818	78.4	8	810	79.2	809	79.3	**809**	**79.3**
447.dealII	8	**968**	**94.5**	969	94.4	963	95.0	8	929	98.5	912	100	**914**	**100**
450.soplex	8	2841	23.5	**2841**	**23.5**	2837	23.5	8	2590	25.8	2586	25.8	**2587**	**25.8**
453.povray	8	358	119	363	117	**359**	**119**	8	312	136	**303**	**140**	302	141
454.calculix	8	890	74.1	**889**	**74.2**	888	74.3	8	645	102	650	102	**647**	**102**
459.GemsFDTD	8	5099	16.6	**5102**	**16.6**	5107	16.6	8	4876	17.4	4879	17.4	**4877**	**17.4**
465.tonto	8	1195	65.8	1207	65.2	**1200**	**65.6**	8	1181	66.6	1173	67.1	**1175**	**67.0**
470.lbm	8	**5732**	**19.2**	5731	19.2	5732	19.2	8	5306	20.7	5306	20.7	**5306**	**20.7**
481.wrf	8	2383	37.5	**2384**	**37.5**	2384	37.5	8	2383	37.5	**2385**	**37.5**	2392	37.4
482.sphinx3	8	**4555**	**34.2**	4557	34.2	4554	34.2	8	4181	37.3	4180	37.3	**4180**	**37.3**

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

Continued on next page

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

Continued on next page

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.20090714.22.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.20090714.22.xml`

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For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 14:37:10 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 13 November 2007.