SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

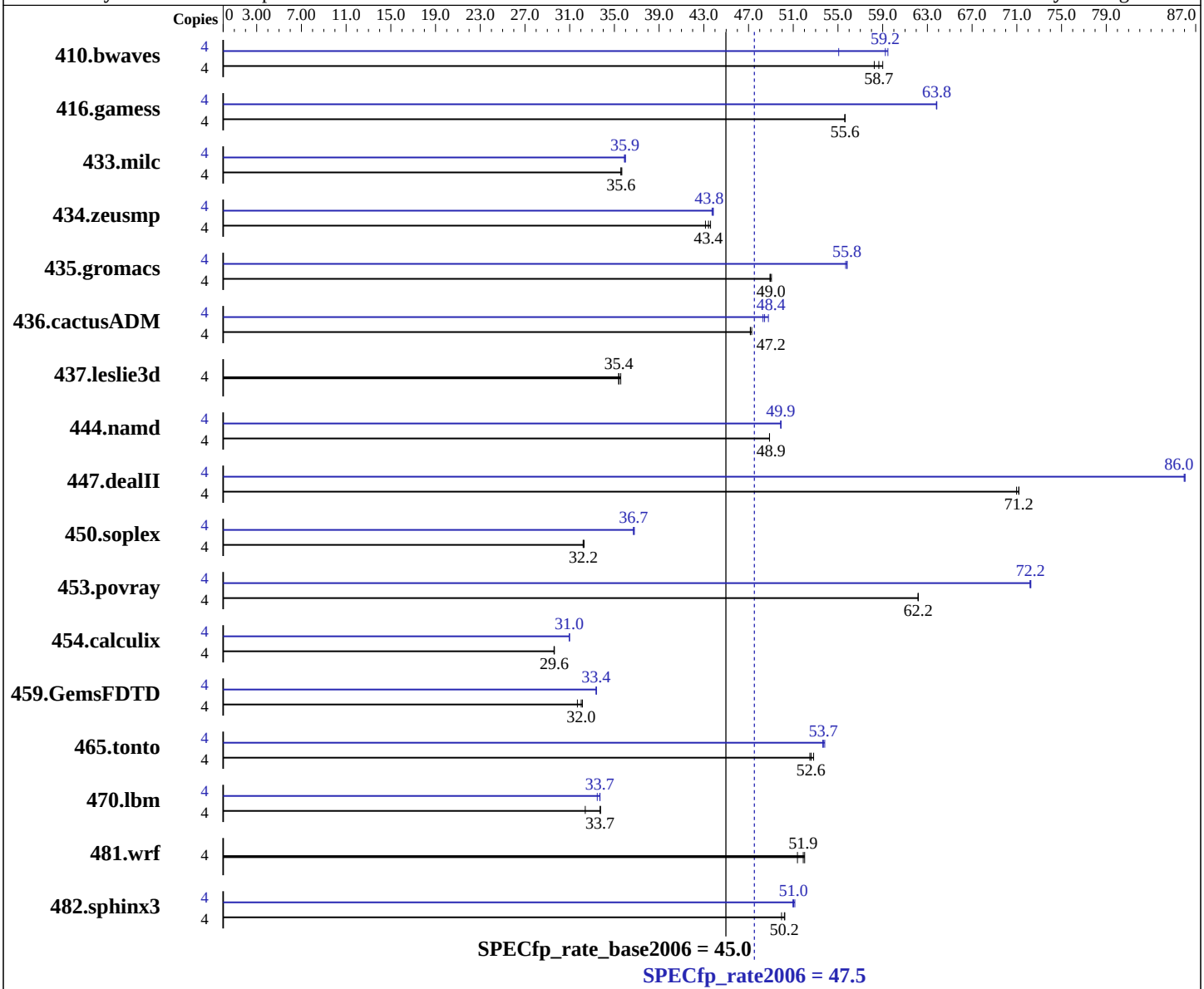
IBM System x3655 (AMD Opteron 2220)

SPECfp®_rate2006 = 47.5

SPECfp_rate_base2006 = 45.0

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

Test date: Feb-2007
Hardware Availability: Apr-2007
Software Availability: Aug-2006



Hardware

CPU Name:	AMD Opteron 2220
CPU Characteristics:	
CPU MHz:	2800
FPU:	Integrated
CPU(s) enabled:	4 cores, 2 chips, 2 cores/chip
CPU(s) orderable:	1, 2 chips
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per core

Continued on next page

Software

Operating System:	SLES9 SP3 for AMD64/EM64T
Compiler:	QLogic PathScale Compiler Suite 2.5
Auto Parallel:	No
File System:	ext3
System State:	Multi-user, run level 3
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	None

SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

IBM System x3655 (AMD Opteron 2220)

SPECfp_rate2006 = 47.5

SPECfp_rate_base2006 = 45.0

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

Test date: Feb-2007
Hardware Availability: Apr-2007
Software Availability: Aug-2006

L3 Cache: None
Other Cache: None
Memory: 16 GB (8 x 2GB DDR2-5300 ECC)
Disk Subsystem: 1 x 74 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	4	921	59.0	**927**	**58.7**	933	58.2	4	914	59.5	987	55.1	**918**	**59.2**
416.gamess	4	1408	55.6	**1408**	**55.6**	1407	55.6	4	1227	63.8	**1227**	**63.8**	1227	63.8
433.milc	4	**1032**	**35.6**	1030	35.7	1032	35.6	4	1023	35.9	1020	36.0	**1021**	**35.9**
434.zeusmp	4	835	43.6	**838**	**43.4**	844	43.1	4	**831**	**43.8**	830	43.9	832	43.7
435.gromacs	4	584	48.9	**583**	**49.0**	582	49.1	4	**512**	**55.8**	513	55.7	512	55.8
436.cactusADM	4	1014	47.2	1011	47.3	**1013**	**47.2**	4	990	48.3	980	48.8	**987**	**48.4**
437.leslie3d	4	1057	35.6	**1062**	**35.4**	1063	35.4	4	1057	35.6	**1062**	**35.4**	1063	35.4
444.namd	4	656	48.9	**656**	**48.9**	656	48.9	4	**643**	**49.9**	643	49.9	643	49.9
447.dealII	4	**643**	**71.2**	643	71.2	645	71.0	4	532	86.0	532	86.0	**532**	**86.0**
450.soplex	4	1036	32.2	1033	32.3	**1035**	**32.2**	4	909	36.7	907	36.8	**908**	**36.7**
453.povray	4	**342**	**62.2**	342	62.2	342	62.2	4	295	72.2	295	72.3	**295**	**72.2**
454.calculix	4	1114	29.6	1115	29.6	**1114**	**29.6**	4	**1065**	**31.0**	1066	31.0	1065	31.0
459.GemsFDTD	4	**1325**	**32.0**	1321	32.1	1339	31.7	4	1272	33.4	**1271**	**33.4**	1271	33.4
465.tonto	4	745	52.8	**748**	**52.6**	750	52.5	4	734	53.6	731	53.8	**733**	**53.7**
470.lbm	4	1697	32.4	1628	33.8	**1630**	**33.7**	4	**1631**	**33.7**	1630	33.7	1642	33.5
481.wrf	4	859	52.0	870	51.4	**861**	**51.9**	4	859	52.0	870	51.4	**861**	**51.9**
482.sphinx3	4	1561	50.0	**1553**	**50.2**	1552	50.2	4	1530	51.0	1524	51.1	**1528**	**51.0**

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

Operating System Notes

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

Base Compiler Invocation

C benchmarks:
`pathcc`

C++ benchmarks:
`pathCC`

Fortran benchmarks:
`pathf95`

Continued on next page

Base Compiler Invocation (Continued)

Benchmarks using both Fortran and C:
pathcc pathf95

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
436.cactusADM: -DSPEC_CPU_LP64 -fno-second-underscore
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64 -DSPEC_CPU_TABLE_WORKAROUND
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX -fno-second-underscore
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
-march=auto -Ofast

C++ benchmarks:
-march=auto -Ofast

Fortran benchmarks:
-march=auto -Ofast

Benchmarks using both Fortran and C:
-march=auto -Ofast

Base Other Flags

C benchmarks:
-IPA:max_jobs=2

C++ benchmarks:
-IPA:max_jobs=2

Continued on next page

Base Other Flags (Continued)

Fortran benchmarks:
`-IPA:max_jobs=2`

Benchmarks using both Fortran and C:
`-IPA:max_jobs=2`

Peak Compiler Invocation

C benchmarks:
`pathcc`

C++ benchmarks:
`pathCC`

Fortran benchmarks:
`pathf95`

Benchmarks using both Fortran and C:
`pathcc pathf95`

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`
436.cactusADM: `-DSPEC_CPU_LP64 -fno-second-underscore`
437.leslie3d: `-DSPEC_CPU_LP64`
444.namd: `-DSPEC_CPU_LP64`
447.dealII: `-DSPEC_CPU_TABLE_WORKAROUND`
453.povray: `-DSPEC_CPU_LP64`
454.calculix: `-DSPEC_CPU_LP64`
459.GemsFDTD: `-DSPEC_CPU_LP64`
465.tonto: `-DSPEC_CPU_LP64`
470.lbm: `-DSPEC_CPU_LP64`
481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX -fno-second-underscore`
482.sphinx3: `-DSPEC_CPU_LP64`

Peak Optimization Flags

C benchmarks:
`-march=auto -fb_create fbdata`(pass 1) `-fb_opt fbdata`(pass 2) `-Ofast`

Continued on next page

Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -march=auto -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast

447.dealII: -march=auto -Ofast -m32 -fno-exceptions

450.soplex: -march=auto -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -m32 -O3 -OPT:IEEE_arith=3 -CG:load_exe=0 -CG:movnti=1 -LNO:minvariant=off -fno-exceptions

453.povray: -march=auto -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast -fno-fast-math

Fortran benchmarks:

410.bwaves: -march=auto -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3 -OPT:Ofast -OPT:IEEE_arith=3 -LNO:blocking=off -LNO:ignore_feedback=off

416.gamess: -march=auto -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O2 -OPT:Ofast -OPT:ro=3 -OPT:unroll_size=256

434.zeusmp: -march=auto -Ofast -CG:local_fwd_sched=on -LNO:blocking=off -LNO:interchange=off -LNO:fu=10 -LNO:full_unroll_outer=on

437.leslie3d: basepeak = yes

459.GemsFDTD: -march=auto -Ofast -LNO:fission=2 -LNO:prefetch=0

465.tonto: -march=auto -Ofast -CG:local_fwd_sched=on -IPA:plimit=525

Benchmarks using both Fortran and C:

435.gromacs: -march=auto -O3 -OPT:rsqrt=2 -OPT:ro=3

436.cactusADM: -march=auto -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3 -LNO:prefetch_ahead=5 -LNO:ou_prod_max=10 -LNO:full_unroll=5 -ipa

454.calculix: -march=auto -Ofast -CG:prefetch=off -LNO:simd=0 -OPT:unroll_times_max=8 -WOPT:mem_opnds=on

481.wrf: basepeak = yes

Peak Other Flags

C benchmarks:
`-IPA:max_jobs=2`

C++ benchmarks:
`-IPA:max_jobs=2`

Fortran benchmarks:
`-IPA:max_jobs=2`

Benchmarks using both Fortran and C:
`-IPA:max_jobs=2`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.17.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.17.xml`

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 10:40:10 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 6 March 2007.