



SPEC® CFP2006 Result

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IBM Corporation

SPECfp®_rate2006 = 81.5

IBM System x3755 (AMD Opteron 8216)

SPECfp_rate_base2006 = 76.9

CPU2006 license: 11

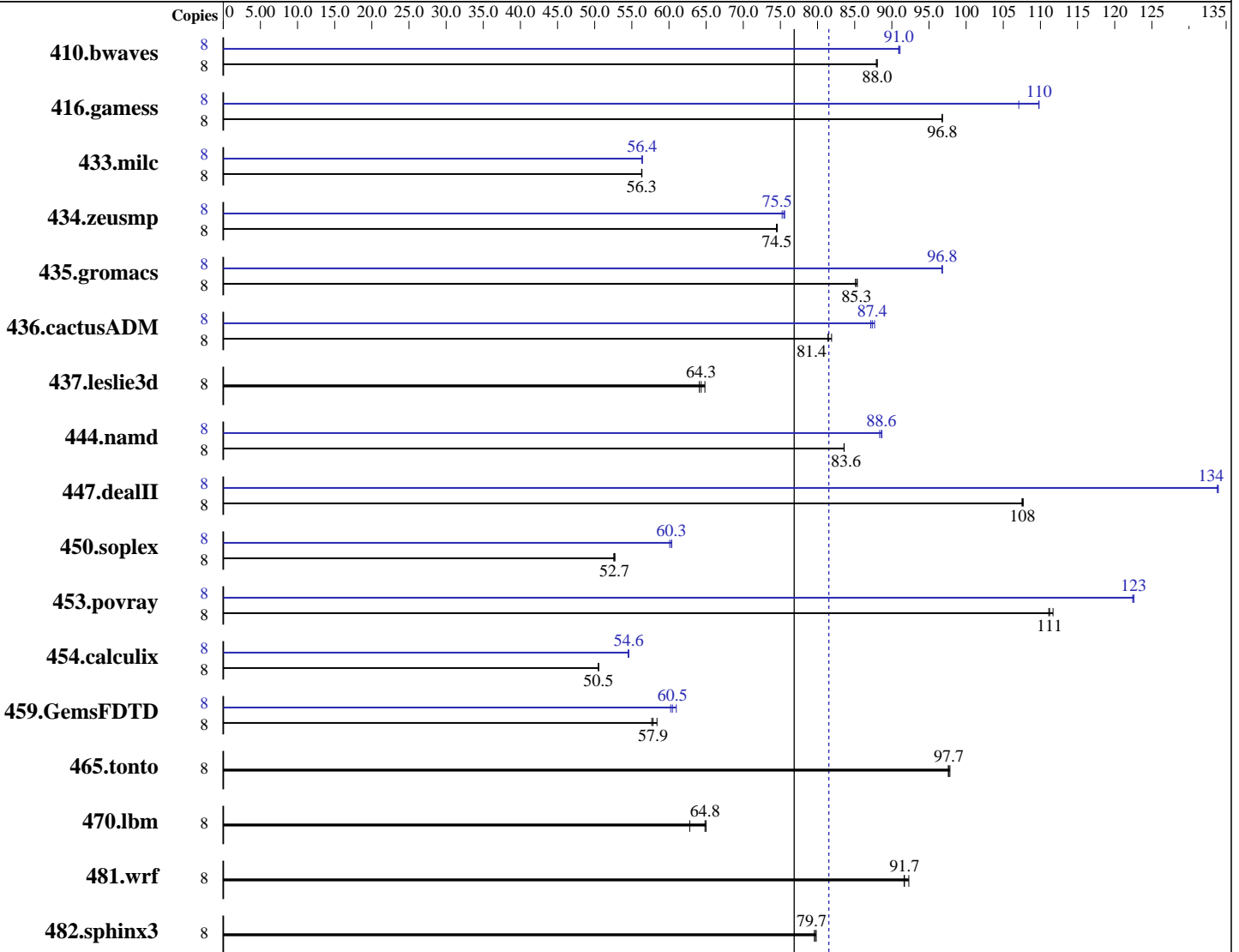
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jul-2007

Hardware Availability: Oct-2006

Software Availability: Mar-2007



SPECfp_rate_base2006 = 76.9

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Hardware

CPU Name: AMD Opteron 8216
 CPU Characteristics:
 CPU MHz: 2400
 FPU: Integrated
 CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip
 CPU(s) orderable: 1, 2, 3, 4 chips
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 1 MB I+D on chip per core

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Software

Operating System: SLES 10 (x86_64), 2.6.16.21-0.8-smp
 Compiler: QLogic PathScale Compiler Suite, Release 3.0
 Auto Parallel: No
 File System: ext3
 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: 32 GB (16 x 2GB DDR2-5300 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	1235	88.0	<u>1235</u>	<u>88.0</u>	1237	87.9	8	<u>1195</u>	<u>91.0</u>	1196	90.9	1193	91.1
416.gamess	8	<u>1618</u>	<u>96.8</u>	1618	96.8	1619	96.8	8	1463	107	1427	110	<u>1427</u>	<u>110</u>
433.milc	8	<u>1304</u>	<u>56.3</u>	1303	56.4	1304	56.3	8	<u>1302</u>	<u>56.4</u>	1303	56.4	1302	56.4
434.zeusmp	8	<u>977</u>	<u>74.5</u>	976	74.6	978	74.5	8	968	75.2	963	75.6	<u>965</u>	<u>75.5</u>
435.gromacs	8	<u>670</u>	<u>85.3</u>	669	85.4	671	85.1	8	<u>590</u>	<u>96.8</u>	590	96.8	591	96.7
436.cactusADM	8	1174	81.4	1167	81.9	<u>1174</u>	<u>81.4</u>	8	1090	87.7	<u>1094</u>	<u>87.4</u>	1097	87.2
437.leslie3d	8	1174	64.1	<u>1169</u>	<u>64.3</u>	1160	64.8	8	1174	64.1	<u>1169</u>	<u>64.3</u>	1160	64.8
444.namd	8	768	83.6	768	83.6	<u>768</u>	<u>83.6</u>	8	724	88.7	726	88.4	<u>724</u>	<u>88.6</u>
447.dealII	8	<u>851</u>	<u>108</u>	850	108	851	108	8	683	134	684	134	<u>684</u>	<u>134</u>
450.soplex	8	1269	52.6	<u>1267</u>	<u>52.7</u>	1265	52.7	8	1105	60.4	<u>1106</u>	<u>60.3</u>	1110	60.1
453.povray	8	383	111	<u>383</u>	<u>111</u>	381	112	8	<u>347</u>	<u>123</u>	348	122	347	123
454.calculix	8	1306	50.5	1307	50.5	<u>1306</u>	<u>50.5</u>	8	1211	54.5	1209	54.6	<u>1209</u>	<u>54.6</u>
459.GemsFDTD	8	1472	57.7	1454	58.4	<u>1467</u>	<u>57.9</u>	8	1409	60.2	<u>1404</u>	<u>60.5</u>	1392	61.0
465.tonto	8	805	97.8	807	97.6	<u>806</u>	<u>97.7</u>	8	805	97.8	807	97.6	<u>806</u>	<u>97.7</u>
470.lbm	8	1751	62.8	1691	65.0	<u>1695</u>	<u>64.8</u>	8	1751	62.8	1691	65.0	<u>1695</u>	<u>64.8</u>
481.wrf	8	<u>974</u>	<u>91.7</u>	968	92.3	975	91.6	8	<u>974</u>	<u>91.7</u>	968	92.3	975	91.6
482.sphinx3	8	1960	79.6	1953	79.8	<u>1956</u>	<u>79.7</u>	8	1960	79.6	1953	79.8	<u>1956</u>	<u>79.7</u>

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
DSPEC_CPU_TABLE_WORKAROUND was used for portability when compiling 447.dealII
due to compilation being performed on SLES 9 SP3

Base Compiler Invocation

C benchmarks:
pathcc

C++ benchmarks:
pathCC

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Base Compiler Invocation (Continued)

Fortran benchmarks:
pathf95

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:
-Ofast

C++ benchmarks:
-Ofast

Fortran benchmarks:
-Ofast -OPT:malloc_alg=1

Benchmarks using both Fortran and C:
-Ofast -OPT:malloc_alg=1

Base Other Flags

C benchmarks:
-IPA:max_jobs=2

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Base Other Flags (Continued)

C++ benchmarks:

-IPA:max_jobs=2

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



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Peak Optimization Flags

C benchmarks:

433.milc: -Ofast -CG:cflow=off -LNO:prefetch=1 -OPT:malloc_alg=1

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -Ofast
-fno-exceptions

447.dealIII: -Ofast -INLINE:aggressive=on -LNO:opt=0 -OPT:alias=disjoint
-m32 -fno-exceptions

450.soplex: -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 -LNO:prefetch=1 -fno-exceptions

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

Fortran benchmarks:

410.bwaves: -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: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O2
-OPT:Ofast -OPT:ro=3 -OPT:unroll_size=256

434.zeusmp: -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: -Ofast -LNO:fission=2 -LNO:prefetch=0

465.tonto: basepeak = yes

Benchmarks using both Fortran and C:

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

436.cactusADM: -fb_create fbdata(pass 1) -fb_opt fbdata(pass 2) -O3
-LNO:prefetch=3 -LNO:prefetch_ahead=5 -LNO:ou_prod_max=10
-LNO:full_unroll=5 -ipa

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Peak Optimization Flags (Continued)

454.calculix: -Ofast -LNO:simd=0 -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.20090714.13.html

You can also download the XML flags source by saving the following link:

http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.13.xml

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