



SPEC® CFP2006 Result

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IBM Corporation

SPECfp®_rate2006 = 77.4

IBM System x3755 (AMD Opteron 8214)

SPECfp_rate_base2006 = 73.1

CPU2006 license: 11

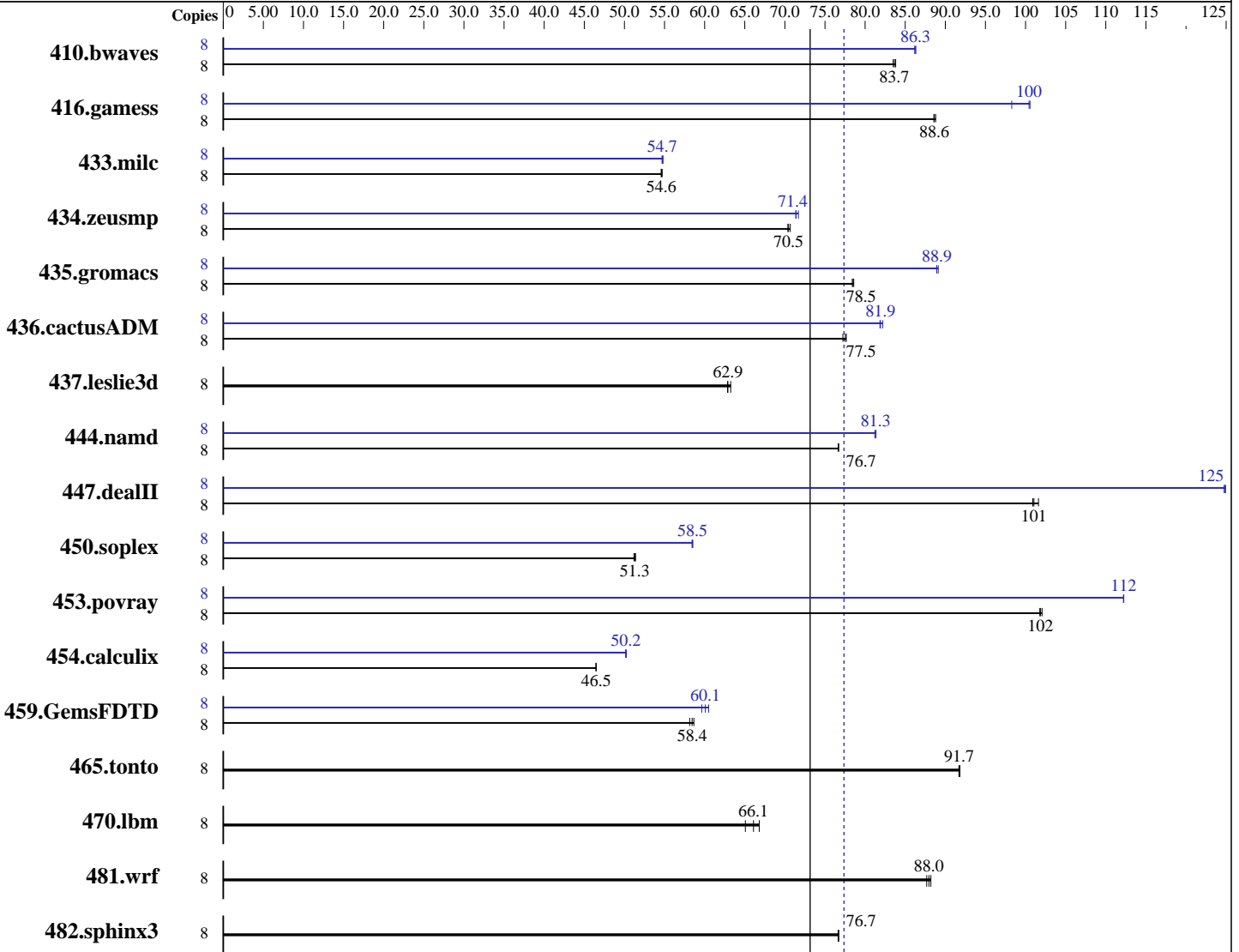
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jul-2007

Hardware Availability: Oct-2006

Software Availability: Mar-2007



SPECfp_rate_base2006 = 73.1

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Hardware

CPU Name: AMD Opteron 8214
 CPU Characteristics: 2200
 CPU MHz: Integrated
 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	1297	83.8	<u>1300</u>	<u>83.7</u>	1302	83.5	8	<u>1260</u>	<u>86.3</u>	1260	86.3	1262	86.2
416.gamess	8	<u>1767</u>	<u>88.6</u>	1764	88.8	1769	88.6	8	1558	101	<u>1560</u>	<u>100</u>	1594	98.3
433.milc	8	1345	54.6	<u>1345</u>	<u>54.6</u>	1342	54.7	8	1340	54.8	<u>1342</u>	<u>54.7</u>	1343	54.7
434.zeusmp	8	<u>1033</u>	<u>70.5</u>	1030	70.7	1034	70.4	8	1016	71.7	1020	71.4	<u>1020</u>	<u>71.4</u>
435.gromacs	8	729	78.4	727	78.6	<u>728</u>	<u>78.5</u>	8	<u>642</u>	<u>88.9</u>	642	88.9	641	89.1
436.cactusADM	8	1238	77.2	1231	77.7	<u>1233</u>	<u>77.5</u>	8	1168	81.9	1163	82.2	<u>1167</u>	<u>81.9</u>
437.leslie3d	8	<u>1196</u>	<u>62.9</u>	1196	62.9	1189	63.3	8	<u>1196</u>	<u>62.9</u>	1196	62.9	1189	63.3
444.namd	8	837	76.6	<u>837</u>	<u>76.7</u>	837	76.7	8	<u>789</u>	<u>81.3</u>	789	81.4	790	81.2
447.dealII	8	<u>906</u>	<u>101</u>	901	102	907	101	8	734	125	<u>733</u>	<u>125</u>	733	125
450.soplex	8	<u>1301</u>	<u>51.3</u>	1303	51.2	1298	51.4	8	1140	58.5	<u>1141</u>	<u>58.5</u>	1142	58.4
453.povray	8	417	102	<u>418</u>	<u>102</u>	418	102	8	<u>379</u>	<u>112</u>	379	112	379	112
454.calculix	8	1420	46.5	<u>1420</u>	<u>46.5</u>	1421	46.5	8	<u>1315</u>	<u>50.2</u>	1314	50.2	1316	50.2
459.GemsFDTD	8	1460	58.1	1447	58.7	<u>1452</u>	<u>58.4</u>	8	<u>1413</u>	<u>60.1</u>	1403	60.5	1423	59.6
465.tonto	8	857	91.8	858	91.7	<u>858</u>	<u>91.7</u>	8	857	91.8	858	91.7	<u>858</u>	<u>91.7</u>
470.lbm	8	1689	65.1	1645	66.8	<u>1663</u>	<u>66.1</u>	8	1689	65.1	1645	66.8	<u>1663</u>	<u>66.1</u>
481.wrf	8	1013	88.2	<u>1016</u>	<u>88.0</u>	1019	87.7	8	1013	88.2	<u>1016</u>	<u>88.0</u>	1019	87.7
482.sphinx3	8	<u>2033</u>	<u>76.7</u>	2032	76.7	2034	76.6	8	<u>2033</u>	<u>76.7</u>	2032	76.7	2034	76.6

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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