



SPEC® CFP2006 Result

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IBM Corporation

SPECfp®2006 = 11.0

IBM System x3755 (AMD Opteron 8214)

SPECfp_base2006 = 10.4

CPU2006 license: 11

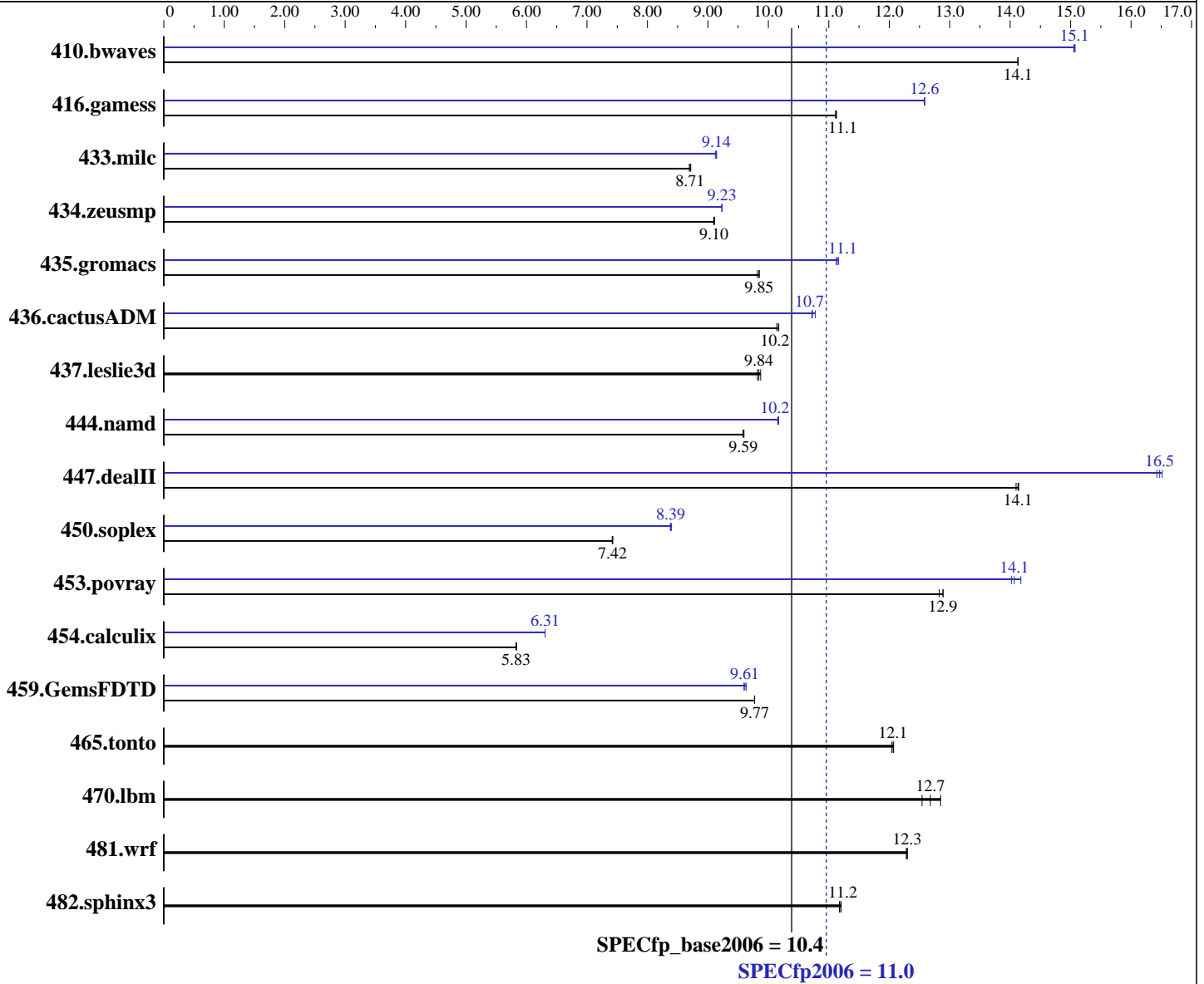
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jul-2007

Hardware Availability: Oct-2006

Software Availability: Mar-2007



Hardware

CPU Name: AMD Opteron 8214
 CPU Characteristics:
 CPU MHz: 2200
 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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	<u>962</u>	<u>14.1</u>	962	14.1	962	14.1	903	15.1	902	15.1	<u>902</u>	<u>15.1</u>
416.gamess	<u>1760</u>	<u>11.1</u>	1760	11.1	1762	11.1	<u>1556</u>	<u>12.6</u>	1556	12.6	1556	12.6
433.milc	1053	8.72	1056	8.69	<u>1054</u>	<u>8.71</u>	<u>1004</u>	<u>9.14</u>	1006	9.12	1004	9.14
434.zeusmp	1000	9.10	<u>1000</u>	<u>9.10</u>	999	9.11	986	9.23	<u>986</u>	<u>9.23</u>	986	9.23
435.gromacs	<u>725</u>	<u>9.85</u>	725	9.85	727	9.82	<u>641</u>	<u>11.1</u>	642	11.1	640	11.2
436.cactusADM	1179	10.1	<u>1175</u>	<u>10.2</u>	1175	10.2	1115	10.7	<u>1114</u>	<u>10.7</u>	1109	10.8
437.leslie3d	<u>955</u>	<u>9.84</u>	952	9.87	957	9.82	<u>955</u>	<u>9.84</u>	952	9.87	957	9.82
444.namd	<u>837</u>	<u>9.59</u>	836	9.60	837	9.58	<u>789</u>	<u>10.2</u>	790	10.2	789	10.2
447.dealII	809	14.1	811	14.1	<u>810</u>	<u>14.1</u>	696	16.4	<u>694</u>	<u>16.5</u>	693	16.5
450.soplex	1123	7.43	<u>1124</u>	<u>7.42</u>	1124	7.42	993	8.40	995	8.38	<u>994</u>	<u>8.39</u>
453.povray	415	12.8	<u>413</u>	<u>12.9</u>	413	12.9	<u>378</u>	<u>14.1</u>	375	14.2	379	14.0
454.calculix	<u>1416</u>	<u>5.83</u>	1414	5.84	1416	5.82	<u>1308</u>	<u>6.31</u>	1308	6.31	1308	6.31
459.GemsFDTD	<u>1086</u>	<u>9.77</u>	1086	9.77	1086	9.77	1106	9.60	<u>1104</u>	<u>9.61</u>	1101	9.63
465.tonto	817	12.0	815	12.1	<u>816</u>	<u>12.1</u>	817	12.0	815	12.1	<u>816</u>	<u>12.1</u>
470.lbm	1069	12.8	<u>1084</u>	<u>12.7</u>	1095	12.5	1069	12.8	<u>1084</u>	<u>12.7</u>	1095	12.5
481.wrf	908	12.3	<u>909</u>	<u>12.3</u>	909	12.3	908	12.3	<u>909</u>	<u>12.3</u>	909	12.3
482.sphinx3	<u>1743</u>	<u>11.2</u>	1740	11.2	1744	11.2	<u>1743</u>	<u>11.2</u>	1740	11.2	1744	11.2

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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