



SPEC® CFP2006 Result

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IBM Corporation

SPECfp®_rate2006 = 95.7

IBM System x3755 (AMD Opteron 8222 SE)

SPECfp_rate_base2006 = 89.8

CPU2006 license: 11

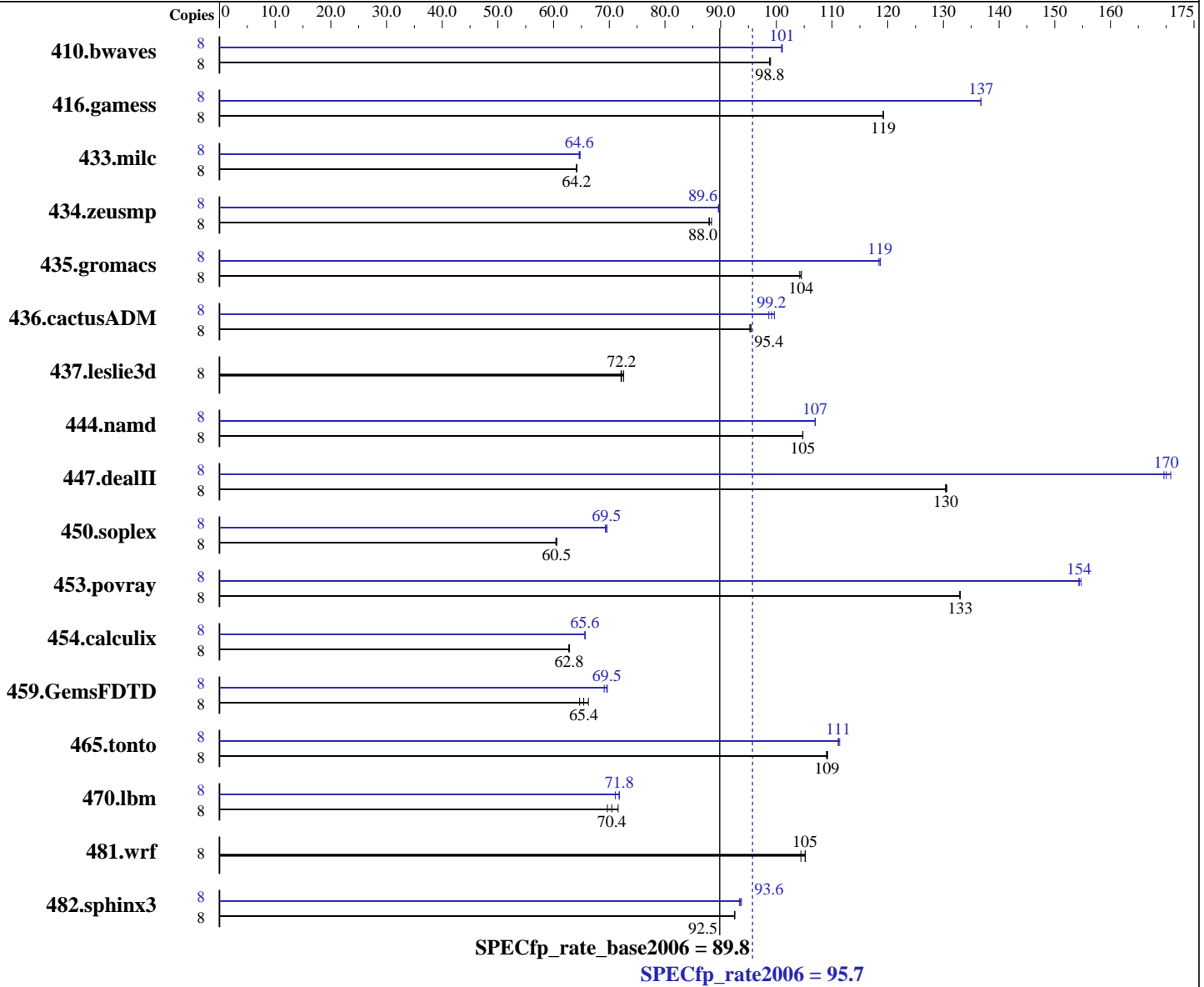
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Feb-2007

Hardware Availability: Apr-2007

Software Availability: Aug-2006



Hardware

CPU Name: AMD Opteron 8222 SE
 CPU Characteristics:
 CPU MHz: 3000
 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: 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



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L3 Cache: None
Other Cache: None
Memory: 32 GB (16 x 2GB DDR2-5300 ECC)
Disk Subsystem: 1 x 73 GB SATA, 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	8	1099	99.0	<u>1100</u>	<u>98.8</u>	1101	98.8	8	1075	101	<u>1076</u>	<u>101</u>	1077	101
416.gamess	8	1314	119	<u>1314</u>	<u>119</u>	1313	119	8	<u>1145</u>	<u>137</u>	1146	137	1145	137
433.milc	8	1146	64.1	<u>1145</u>	<u>64.2</u>	1145	64.2	8	1137	64.6	<u>1136</u>	<u>64.6</u>	1134	64.8
434.zeusmp	8	824	88.4	<u>827</u>	<u>88.0</u>	828	87.9	8	811	89.7	813	89.6	<u>812</u>	<u>89.6</u>
435.gromacs	8	548	104	<u>547</u>	<u>104</u>	547	104	8	482	118	481	119	<u>482</u>	<u>119</u>
436.cactusADM	8	1004	95.2	<u>1002</u>	<u>95.4</u>	1002	95.4	8	969	98.7	959	99.6	<u>964</u>	<u>99.2</u>
437.leslie3d	8	<u>1041</u>	<u>72.2</u>	1036	72.6	1043	72.1	8	<u>1041</u>	<u>72.2</u>	1036	72.6	1043	72.1
444.namd	8	<u>612</u>	<u>105</u>	612	105	612	105	8	600	107	<u>600</u>	<u>107</u>	600	107
447.dealII	8	<u>702</u>	<u>130</u>	702	130	701	131	8	<u>538</u>	<u>170</u>	540	170	536	171
450.soplex	8	1104	60.4	1102	60.6	<u>1103</u>	<u>60.5</u>	8	959	69.6	<u>960</u>	<u>69.5</u>	963	69.3
453.povray	8	320	133	320	133	<u>320</u>	<u>133</u>	8	275	155	<u>276</u>	<u>154</u>	276	154
454.calculix	8	1050	62.9	<u>1051</u>	<u>62.8</u>	1052	62.8	8	<u>1005</u>	<u>65.6</u>	1006	65.6	1005	65.7
459.GemsFDTD	8	<u>1297</u>	<u>65.4</u>	1281	66.3	1312	64.7	8	1229	69.1	1219	69.7	<u>1220</u>	<u>69.5</u>
465.tonto	8	<u>722</u>	<u>109</u>	721	109	722	109	8	707	111	<u>708</u>	<u>111</u>	708	111
470.lbm	8	1578	69.7	<u>1560</u>	<u>70.4</u>	1535	71.6	8	<u>1531</u>	<u>71.8</u>	1531	71.8	1547	71.1
481.wrf	8	856	104	<u>850</u>	<u>105</u>	850	105	8	856	104	<u>850</u>	<u>105</u>	850	105
482.sphinx3	8	1685	92.5	<u>1685</u>	<u>92.5</u>	1685	92.5	8	<u>1666</u>	<u>93.6</u>	1670	93.4	1663	93.7

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

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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

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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

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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



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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.20090714.29.html

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

http://www.spec.org/cpu2006/flags/CPU2006_flags.20090714.29.xml

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