



SPEC[®] CFP2006 Result

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Dell Inc.

SPECfp[®]_rate2006 = 70.0

PowerEdge M600 (Intel Xeon E5420, 2.50 GHz)

SPECfp_rate_base2006 = 63.5

CPU2006 license: 55

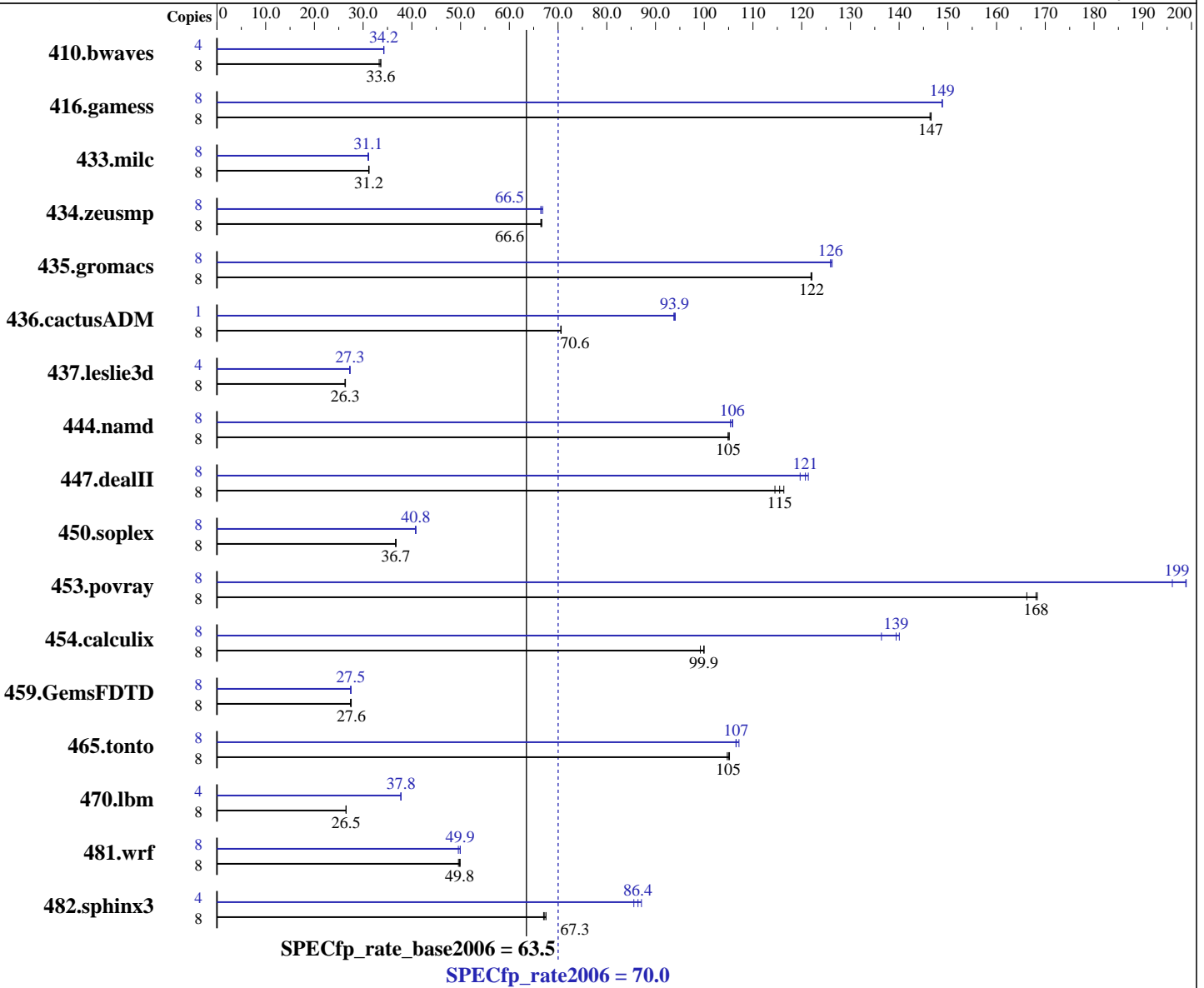
Test date: Jul-2008

Test sponsor: Dell Inc.

Hardware Availability: Jan-2008

Tested by: Dell Inc.

Software Availability: May-2008



Hardware

CPU Name: Intel Xeon E5420
 CPU Characteristics:
 CPU MHz: 2500
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip
 CPU(s) orderable: 1,2 chips
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 12 MB I+D on chip per chip, 6 MB shared / 2 cores

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Software

Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16-60.0.21-smp
 Compiler: Intel C++ and Fortran Compiler 10.1 for Linux Build 20080312 Package ID: l_cc_p_10.1.015, l_fc_p_10.1.015
 Auto Parallel: Yes
 File System: ReiserFS
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit

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L3 Cache: None
Other Cache: None
Memory: 16 GB (4x4 GB, DDR2-667 MHz, CL5, Reg, Dual Rank)
Disk Subsystem: 1 x 80 GB 5400 RPM SATA
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	3266	33.3	<u>3234</u>	<u>33.6</u>	3234	33.6	4	1587	34.3	1588	34.2	<u>1588</u>	<u>34.2</u>
416.gamess	8	1070	146	1069	147	<u>1069</u>	<u>147</u>	8	1053	149	1052	149	<u>1052</u>	<u>149</u>
433.milc	8	2352	31.2	<u>2357</u>	<u>31.2</u>	2359	31.1	8	2368	31.0	2358	31.1	<u>2364</u>	<u>31.1</u>
434.zeusmp	8	1095	66.5	<u>1093</u>	<u>66.6</u>	1092	66.7	8	1095	66.5	<u>1094</u>	<u>66.5</u>	1089	66.9
435.gromacs	8	<u>468</u>	<u>122</u>	468	122	469	122	8	452	126	454	126	<u>454</u>	<u>126</u>
436.cactusADM	8	1353	70.7	1355	70.6	<u>1354</u>	<u>70.6</u>	1	127	93.8	127	94.1	<u>127</u>	<u>93.9</u>
437.leslie3d	8	<u>2855</u>	<u>26.3</u>	2863	26.3	2851	26.4	4	1380	27.2	1376	27.3	<u>1378</u>	<u>27.3</u>
444.namd	8	610	105	<u>611</u>	<u>105</u>	612	105	8	<u>607</u>	<u>106</u>	606	106	609	105
447.dealII	8	799	115	787	116	<u>793</u>	<u>115</u>	8	765	120	754	121	<u>758</u>	<u>121</u>
450.soplex	8	1814	36.8	<u>1818</u>	<u>36.7</u>	1821	36.6	8	1637	40.8	<u>1636</u>	<u>40.8</u>	1634	40.8
453.povray	8	253	168	256	166	<u>253</u>	<u>168</u>	8	214	199	217	196	<u>214</u>	<u>199</u>
454.calculix	8	660	100	665	99.2	<u>661</u>	<u>99.9</u>	8	<u>473</u>	<u>139</u>	484	136	471	140
459.GemsFDTD	8	3098	27.4	3080	27.6	<u>3080</u>	<u>27.6</u>	8	3095	27.4	3084	27.5	<u>3091</u>	<u>27.5</u>
465.tonto	8	748	105	752	105	<u>750</u>	<u>105</u>	8	<u>739</u>	<u>107</u>	739	107	735	107
470.lbm	8	4148	26.5	<u>4148</u>	<u>26.5</u>	4147	26.5	4	1455	37.8	<u>1455</u>	<u>37.8</u>	1457	37.7
481.wrf	8	1790	49.9	1803	49.6	<u>1795</u>	<u>49.8</u>	8	1789	49.9	<u>1791</u>	<u>49.9</u>	1804	49.5
482.sphinx3	8	2326	67.0	2309	67.5	<u>2318</u>	<u>67.3</u>	4	895	87.1	911	85.6	<u>902</u>	<u>86.4</u>

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

Submit Notes

The config file option 'submit' was used.

Operating System Notes

'ulimit -s unlimited' was used to set the stack size to unlimited prior to run

Platform Notes

BIOS Settings:

Adjacent Cache Line Prefetch = Disabled (Default Enabled)

Hardware Prefetcher = Disabled (Default Enabled)



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General Notes

All benchmarks compiled in 64-bit mode except 437.leslie3d, 450.soplex, 470.lbm and 482.sphinx3, at peak, are compiled in 32-bit mode
taskset was used to bind processes to cores except
for 436.cactusADM peak
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 64M

Base Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icc ifort

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

Base Optimization Flags

C benchmarks:

-fast

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Base Optimization Flags (Continued)

C++ benchmarks:

-fast

Fortran benchmarks:

-fast

Benchmarks using both Fortran and C:

-fast

Peak Compiler Invocation

C benchmarks (except as noted below):

/opt/intel/cc/10.1.015/bin/icc -L/opt/intel/cc/10.1.015/lib
-I/opt/intel/cc/10.1.015/include

433.milc: icc

C++ benchmarks (except as noted below):

icpc

450.soplex: /opt/intel/cc/10.1.015/bin/icpc -L/opt/intel/cc/10.1.015/lib
-I/opt/intel/cc/10.1.015/include

Fortran benchmarks (except as noted below):

ifort

437.leslie3d: /opt/intel/fc/10.1.015/bin/ifort -L/opt/intel/fc/10.1.015/lib
-I/opt/intel/fc/10.1.015/include

Benchmarks using both Fortran and C:

icc ifort

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 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64

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Peak Portability Flags (Continued)

465.tonto: -DSPEC_CPU_LP64

481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX

Peak Optimization Flags

C benchmarks:

433.milc: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias
-auto-ilp32

470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-scalar-rep- -prefetch -opt-malloc-options=3

482.sphinx3: -fast -unroll2

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias
-auto-ilp32

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast
-opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4
-ansi-alias

Fortran benchmarks:

410.bwaves: -fast -prefetch

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0
-ansi-alias -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch
-opt-malloc-options=3

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0
-prefetch

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

Benchmarks using both Fortran and C:

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Peak Optimization Flags (Continued)

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch
-auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-prefetch -parallel -auto-ilp32

454.calculix: -fast -unroll-aggressive -auto-ilp32

481.wrf: -fast -auto-ilp32

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-fp-linux64-revD.20090713.html>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.07.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-fp-linux64-revD.20090713.xml>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.07.xml>

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