



SPEC[®] CFP2006 Result

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Dell Inc.

SPECfp[®]2006 = 33.6

PowerEdge R710 (Intel Xeon E5540, 2.53 GHz)

SPECfp_base2006 = 31.5

CPU2006 license: 55

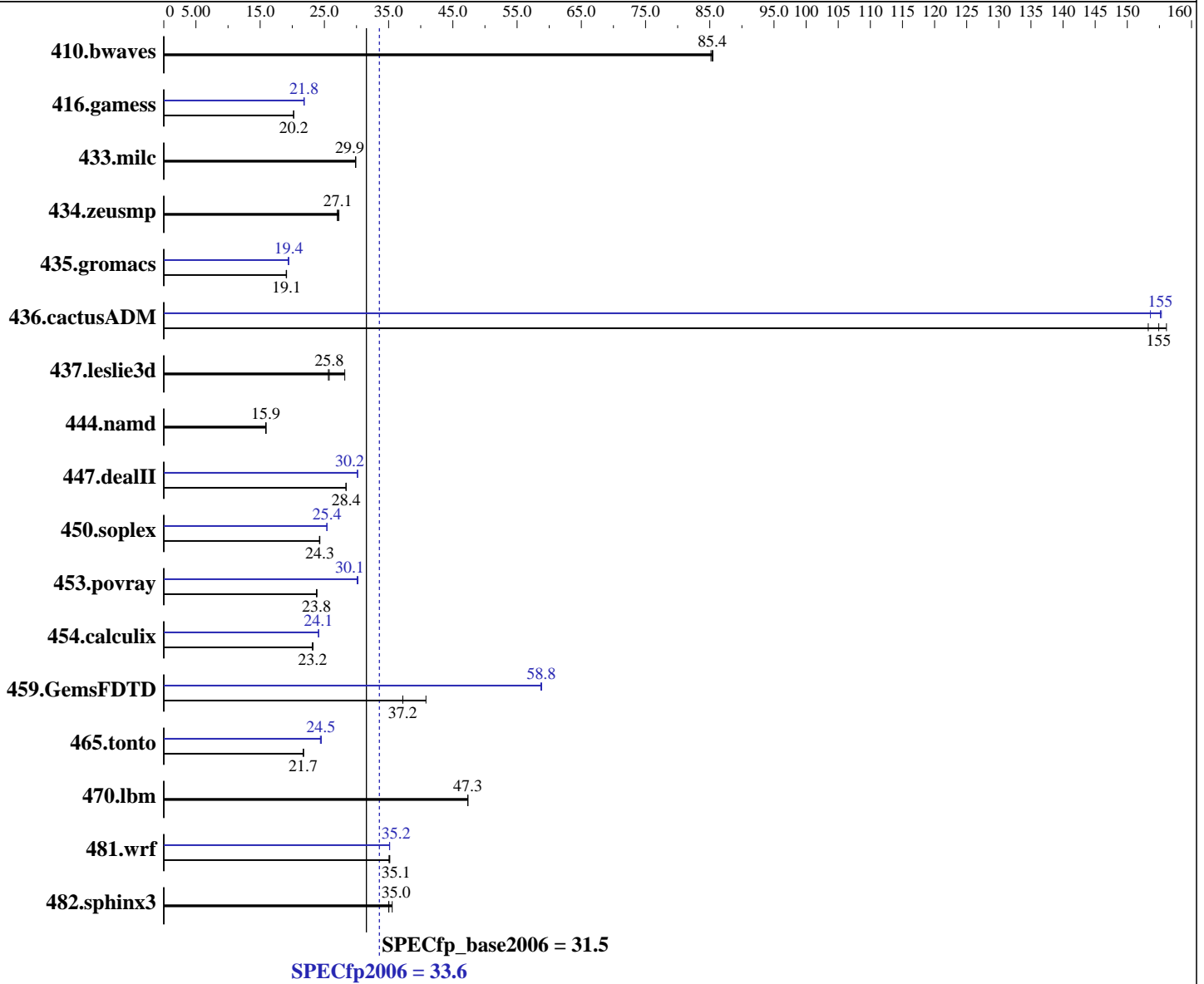
Test date: Apr-2009

Test sponsor: Dell Inc.

Hardware Availability: Mar-2009

Tested by: Dell Inc.

Software Availability: Mar-2009



Hardware

CPU Name: Intel Xeon E5540
 CPU Characteristics: Intel Turbo Boost Technology up to 2.80 GHz
 CPU MHz: 2533
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip, 2 threads/core
 CPU(s) orderable: 1,2 chips
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core

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Software

Operating System: SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16.60-0.21-sm
 Compiler: Intel C++ and Fortran Compiler Professional 11.0 for Linux
 Build 20090131 Package ID: l_cproc_p_11.0.080, l_cprof_p_11.0.080
 Auto Parallel: Yes
 File System: ReiserFS
 System State: Run level 3 (multi-user)

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 24 GB (6 x 4 GB DDR3-1066 DR RDIMM)
Disk Subsystem: 1 x 146 GB 10000 RPM SAS
Other Hardware: None

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

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	160	85.2	<u>159</u>	<u>85.4</u>	159	85.5	160	85.2	<u>159</u>	<u>85.4</u>	159	85.5
416.gamess	<u>968</u>	<u>20.2</u>	967	20.2	969	20.2	897	21.8	896	21.9	<u>896</u>	<u>21.8</u>
433.milc	<u>307</u>	<u>29.9</u>	307	29.9	307	29.9	<u>307</u>	<u>29.9</u>	307	29.9	307	29.9
434.zeusmp	<u>336</u>	<u>27.1</u>	337	27.0	334	27.3	<u>336</u>	<u>27.1</u>	337	27.0	334	27.3
435.gromacs	<u>374</u>	<u>19.1</u>	374	19.1	375	19.1	367	19.5	<u>367</u>	<u>19.4</u>	369	19.4
436.cactusADM	78.0	153	76.6	156	<u>77.1</u>	<u>155</u>	76.9	155	<u>77.0</u>	<u>155</u>	77.8	154
437.leslie3d	334	28.2	<u>365</u>	<u>25.8</u>	367	25.6	334	28.2	<u>365</u>	<u>25.8</u>	367	25.6
444.namd	<u>504</u>	<u>15.9</u>	504	15.9	505	15.9	<u>504</u>	<u>15.9</u>	504	15.9	505	15.9
447.dealII	403	28.4	<u>403</u>	<u>28.4</u>	403	28.4	379	30.1	379	30.2	<u>379</u>	<u>30.2</u>
450.soplex	344	24.2	343	24.3	<u>344</u>	<u>24.3</u>	<u>328</u>	<u>25.4</u>	328	25.4	328	25.4
453.povray	223	23.8	<u>224</u>	<u>23.8</u>	224	23.8	176	30.2	<u>176</u>	<u>30.1</u>	177	30.1
454.calculix	355	23.2	<u>356</u>	<u>23.2</u>	357	23.1	<u>342</u>	<u>24.1</u>	342	24.1	342	24.1
459.GemsFDTD	260	40.8	285	37.2	<u>285</u>	<u>37.2</u>	<u>181</u>	<u>58.8</u>	181	58.7	180	58.8
465.tonto	<u>453</u>	<u>21.7</u>	452	21.8	453	21.7	404	24.4	401	24.5	<u>402</u>	<u>24.5</u>
470.lbm	<u>290</u>	<u>47.3</u>	290	47.3	290	47.4	<u>290</u>	<u>47.3</u>	290	47.3	290	47.4
481.wrf	<u>318</u>	<u>35.1</u>	317	35.2	318	35.1	318	35.1	318	35.2	<u>318</u>	<u>35.2</u>
482.sphinx3	<u>556</u>	<u>35.0</u>	548	35.6	557	35.0	<u>556</u>	<u>35.0</u>	548	35.6	557	35.0

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

General Notes

OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

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Base Compiler Invocation (Continued)

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:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Fortran benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Peak Compiler Invocation

C benchmarks:
icc

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Peak Compiler Invocation (Continued)

C++ benchmarks (except as noted below):

icpc

450.soplex: icpc -m32

Fortran benchmarks:

ifort

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
 437.leslie3d: -DSPEC_CPU_LP64
 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
 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

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: basepeak = yes

447.dealII: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
 -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
 -unroll2 -ansi-alias -scalar-rep- -opt-prefetch

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Peak Optimization Flags (Continued)

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-opt-malloc-options=3

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll2 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll2 -Ob0 -opt-prefetch -parallel

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32

436.cactusADM: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll2 -opt-prefetch -parallel -auto-ilp32

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
-parallel -auto-ilp32

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090710.04.html>



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

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090710.04.xml>

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