



SPEC[®] CFP2006 Result

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Dell Inc.

SPECfp[®]2006 = 42.2

Dell Precision T7500 (Intel Xeon W5590, 3.33 GHz)

SPECfp_base2006 = 39.6

CPU2006 license: 55

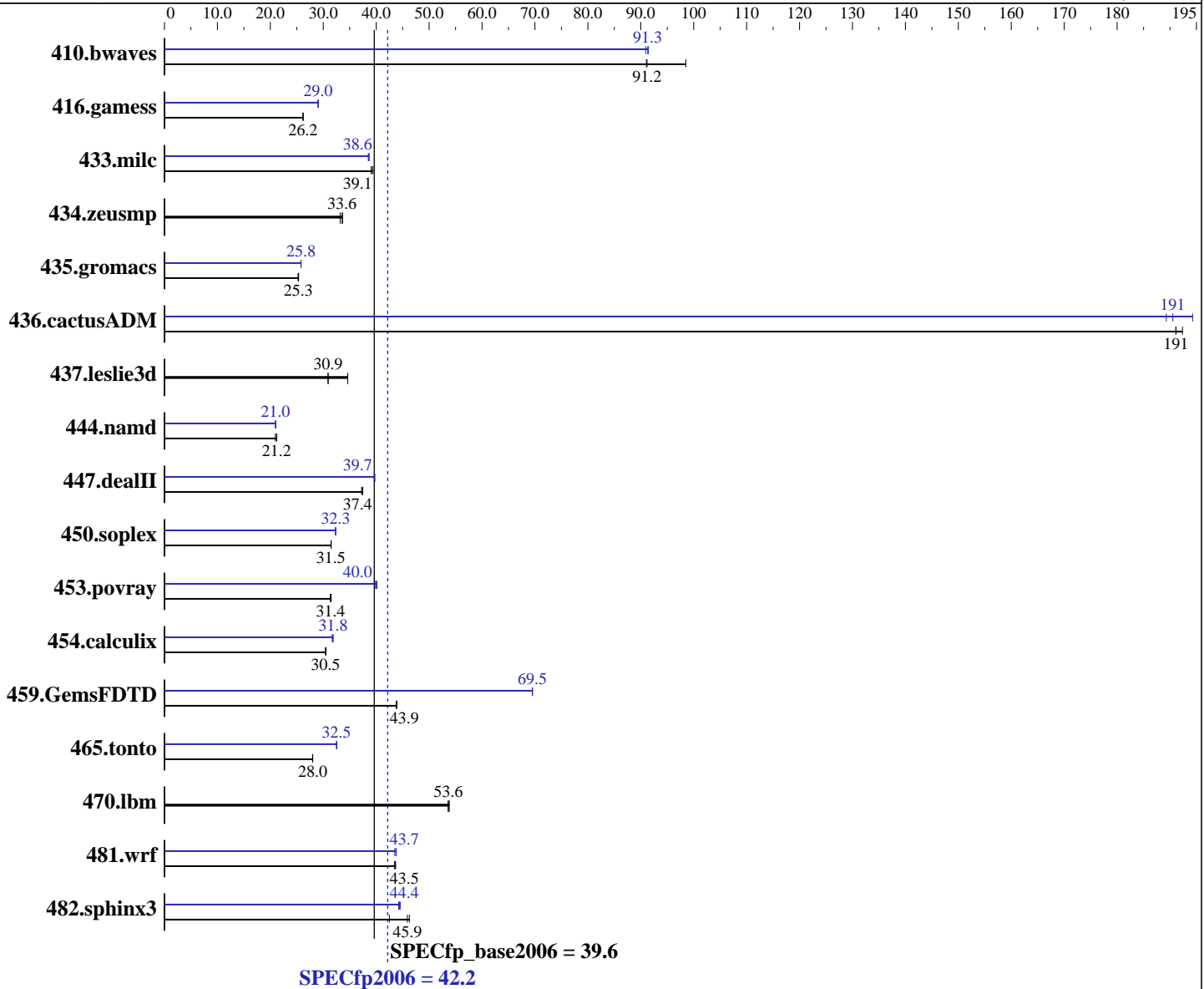
Test date: Jul-2009

Test sponsor: Dell Inc.

Hardware Availability: Aug-2009

Tested by: Dell Inc.

Software Availability: May-2009



Hardware

CPU Name: Intel Xeon W5590
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 3333
 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: Red Hat Enterprise Linux Client release 5.3, Kernel 2.6.18-128.el5 on an x86_64
 Compiler: Intel C++ and Fortran Compiler 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: ext3
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit

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L3 Cache: 8 MB I+D on chip per chip
 Other Cache: None
 Memory: 48 GB (12 x 4 GB PC3-10600R)
 Disk Subsystem: 1 x 146 GB 15000 RPM SAS
 Other Hardware: None

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	138	98.5	<u>149</u>	<u>91.2</u>	149	91.1	149	91.4	149	90.9	<u>149</u>	<u>91.3</u>
416.gamess	<u>748</u>	<u>26.2</u>	748	26.2	747	26.2	675	29.0	674	29.0	<u>674</u>	<u>29.0</u>
433.milc	235	39.1	<u>235</u>	<u>39.1</u>	233	39.4	238	38.5	<u>238</u>	<u>38.6</u>	237	38.7
434.zeusmp	270	33.6	<u>271</u>	<u>33.6</u>	274	33.2	270	33.6	<u>271</u>	<u>33.6</u>	274	33.2
435.gromacs	283	25.3	<u>282</u>	<u>25.3</u>	282	25.3	<u>277</u>	<u>25.8</u>	277	25.8	277	25.8
436.cactusADM	62.5	191	62.1	192	<u>62.5</u>	<u>191</u>	61.5	194	<u>62.7</u>	<u>191</u>	63.1	189
437.leslie3d	272	34.6	304	30.9	<u>304</u>	<u>30.9</u>	272	34.6	304	30.9	<u>304</u>	<u>30.9</u>
444.namd	378	21.2	383	21.0	<u>378</u>	<u>21.2</u>	382	21.0	382	21.0	<u>382</u>	<u>21.0</u>
447.dealII	305	37.5	307	37.2	<u>306</u>	<u>37.4</u>	289	39.6	<u>288</u>	<u>39.7</u>	288	39.7
450.soplex	265	31.5	<u>265</u>	<u>31.5</u>	265	31.5	258	32.3	<u>258</u>	<u>32.3</u>	258	32.4
453.povray	169	31.5	<u>169</u>	<u>31.4</u>	170	31.3	133	40.1	<u>133</u>	<u>40.0</u>	133	39.9
454.calculix	<u>271</u>	<u>30.5</u>	271	30.5	271	30.5	260	31.7	259	31.9	<u>259</u>	<u>31.8</u>
459.GemsFDTD	242	43.9	<u>242</u>	<u>43.9</u>	242	43.8	153	69.5	153	69.5	<u>153</u>	<u>69.5</u>
465.tonto	351	28.0	352	28.0	<u>351</u>	<u>28.0</u>	302	32.6	<u>303</u>	<u>32.5</u>	303	32.5
470.lbm	255	53.8	<u>256</u>	<u>53.6</u>	256	53.6	255	53.8	<u>256</u>	<u>53.6</u>	256	53.6
481.wrf	257	43.5	<u>257</u>	<u>43.5</u>	256	43.7	<u>255</u>	<u>43.7</u>	255	43.7	257	43.5
482.sphinx3	421	46.3	459	42.5	<u>425</u>	<u>45.9</u>	<u>439</u>	<u>44.4</u>	440	44.3	438	44.5

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

Platform Notes

BIOS Settings:
 Memory Node Interleaving: NUMA
 Hyper-threading: ENABLE

General Notes

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



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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:

-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



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Peak Compiler Invocation

C benchmarks (except as noted below):

icc

482.sphinx3: icc -m32

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

Peak Optimization Flags

C benchmarks:

433.milc: -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)
 -fno-alias

470.lbm: basepeak = yes

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2

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Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -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)
-fno-alias -auto-ilp32

447.dealIII: -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

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

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

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Peak Optimization Flags (Continued)

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/dell.flags.ic11.0.lin.20090915.html>

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

<http://www.spec.org/cpu2006/flags/dell.flags.ic11.0.lin.20090915.xml>

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