



SPEC[®] CFP2006 Result

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Dell Inc.

SPECfp[®]2006 = 36.4

PowerEdge T310 (Intel Xeon X3460, 2.80 GHz)

SPECfp_base2006 = 35.0

CPU2006 license: 55

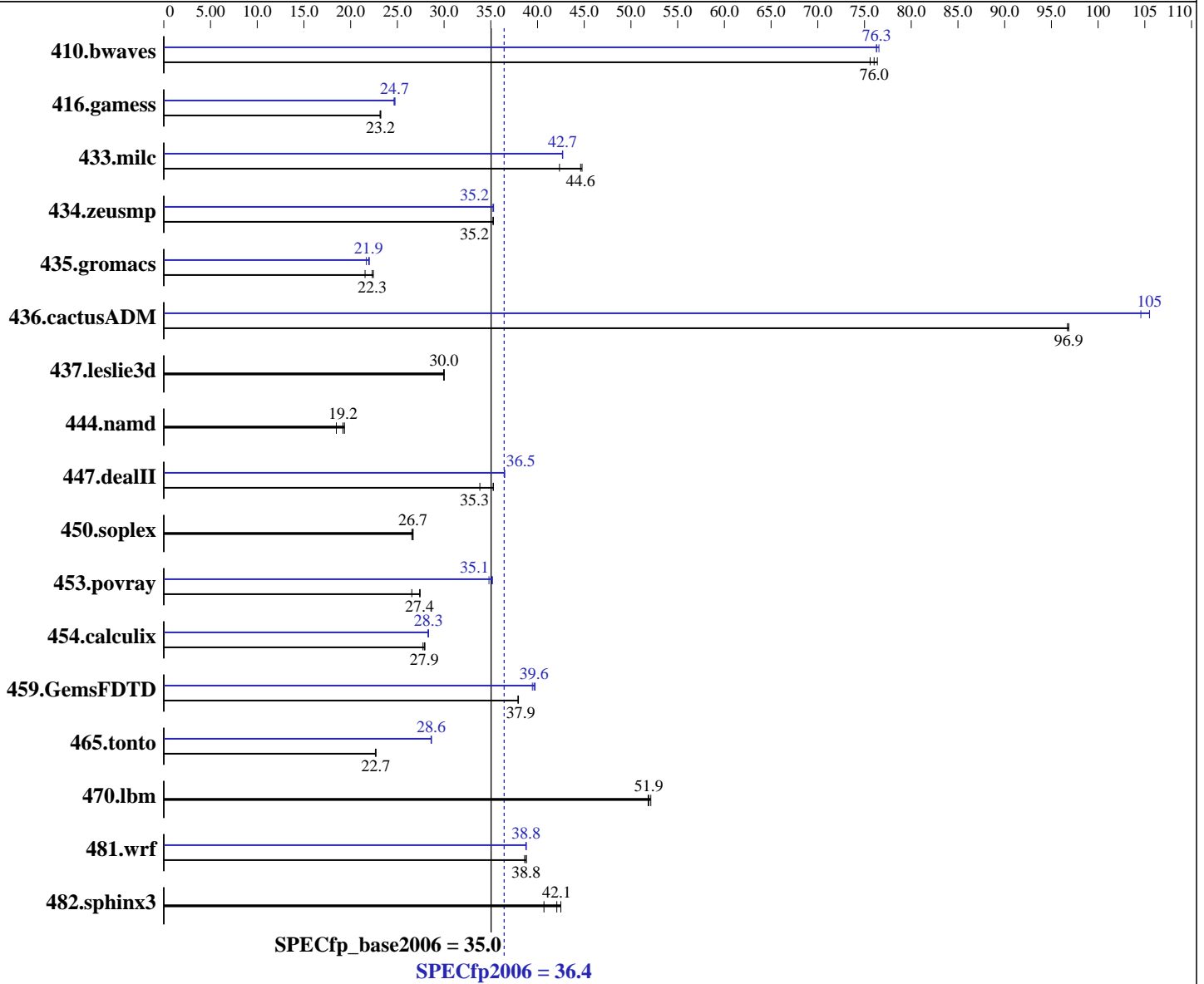
Test date: Nov-2009

Test sponsor: Dell Inc.

Hardware Availability: Sep-2009

Tested by: Dell Inc.

Software Availability: Jul-2009



Hardware

CPU Name: Intel Xeon X3460
 CPU Characteristics: Intel Turbo Boost Technology up to 3.46 GHz
 CPU MHz: 2800
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core
 CPU(s) orderable: 1 chip
 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 Server release 5.3, Kernel 2.6.18-128.el5
 Compiler: Intel Fortran Compiler and Intel C++ Compiler Professional Edition 11.1 For Linux Build 20090511 Package ID: l_cprof_p_11.1.040, l_cprof_p_11.1.040
 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: 8 GB (4 x 2 GB DDR3-1333 DR RDIMM)
Disk Subsystem: 1 x 160 GB 7200 RPM SATA
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 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	178	76.4	<u>179</u>	<u>76.0</u>	180	75.6	<u>178</u>	<u>76.3</u>	178	76.5	178	76.3
416.gamess	846	23.1	843	23.2	<u>844</u>	<u>23.2</u>	791	24.7	795	24.6	<u>792</u>	<u>24.7</u>
433.milc	<u>206</u>	<u>44.6</u>	217	42.4	205	44.8	<u>215</u>	<u>42.7</u>	215	42.7	215	42.7
434.zeusmp	258	35.3	258	35.2	<u>258</u>	<u>35.2</u>	258	35.3	258	35.2	<u>258</u>	<u>35.2</u>
435.gromacs	318	22.4	331	21.5	<u>320</u>	<u>22.3</u>	329	21.7	325	22.0	<u>326</u>	<u>21.9</u>
436.cactusADM	123	96.9	<u>123</u>	<u>96.9</u>	124	96.7	114	105	<u>113</u>	<u>105</u>	113	106
437.leslie3d	314	30.0	313	30.0	<u>314</u>	<u>30.0</u>	314	30.0	313	30.0	<u>314</u>	<u>30.0</u>
444.namd	415	19.3	434	18.5	<u>418</u>	<u>19.2</u>	415	19.3	434	18.5	<u>418</u>	<u>19.2</u>
447.dealII	324	35.3	338	33.8	<u>325</u>	<u>35.3</u>	314	36.5	314	36.5	<u>314</u>	<u>36.5</u>
450.soplex	313	26.7	314	26.5	<u>313</u>	<u>26.7</u>	313	26.7	314	26.5	<u>313</u>	<u>26.7</u>
453.povray	194	27.4	<u>194</u>	<u>27.4</u>	200	26.5	153	34.8	151	35.2	<u>152</u>	<u>35.1</u>
454.calculix	297	27.7	<u>296</u>	<u>27.9</u>	295	28.0	292	28.3	<u>291</u>	<u>28.3</u>	291	28.3
459.GemsFDTD	280	37.9	279	38.0	<u>280</u>	<u>37.9</u>	269	39.4	<u>268</u>	<u>39.6</u>	267	39.7
465.tonto	<u>434</u>	<u>22.7</u>	435	22.6	433	22.7	344	28.6	<u>344</u>	<u>28.6</u>	343	28.7
470.lbm	264	52.1	<u>265</u>	<u>51.9</u>	265	51.8	264	52.1	<u>265</u>	<u>51.9</u>	265	51.8
481.wrf	289	38.6	288	38.8	<u>288</u>	<u>38.8</u>	<u>288</u>	<u>38.8</u>	288	38.7	288	38.8
482.sphinx3	<u>463</u>	<u>42.1</u>	459	42.5	479	40.7	<u>463</u>	<u>42.1</u>	459	42.5	479	40.7

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 stacksize to unlimited prior to run

Platform Notes

BIOS Settings:

Power Management = Maximum Performance (Default = Active Power Controller)



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General Notes

OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
The Dell PowerEdge T310 and the Bull NovaScale T820 F2 models are electronically equivalent.
This result was measured on a Dell PowerEdge T310.

Base Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

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 -opt-prefetch

C++ benchmarks:

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

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Base Optimization Flags (Continued)

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

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

Peak Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

Peak Portability Flags

Same as Base Portability Flags

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: 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: basepeak = yes

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: Same as 410.bwaves

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-ic11.1-fp-linux64-revA.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-fp-linux64-revA.xml>



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