



SPEC[®] CFP2006 Result

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Dell Inc.

SPECfp[®]2006 = 32.8

PowerEdge T310 (Intel Xeon X3440, 2.53 GHz)

SPECfp_base2006 = 31.5

CPU2006 license: 55

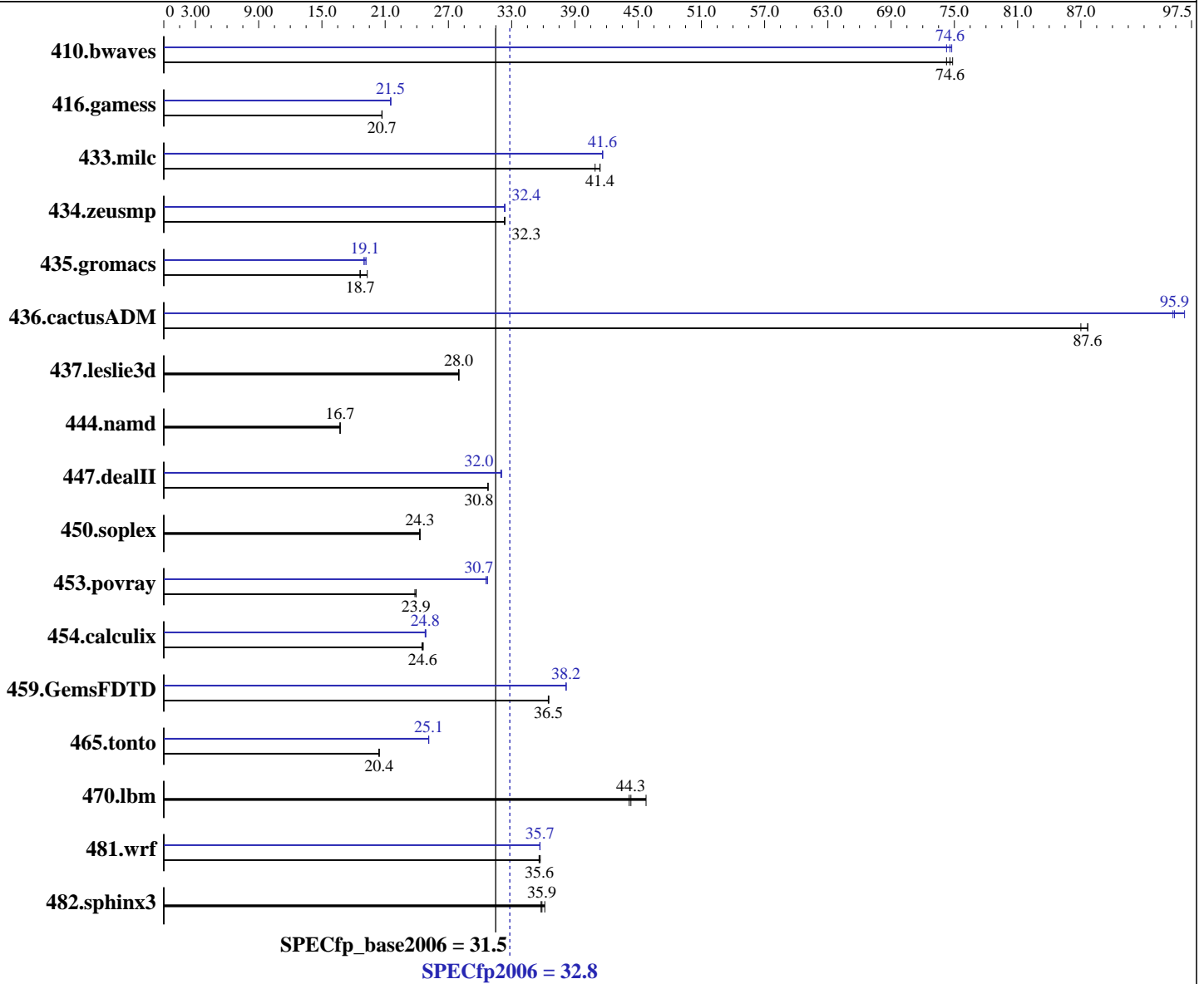
Test date: Nov-2009

Test sponsor: Dell Inc.

Hardware Availability: Sep-2009

Tested by: Dell Inc.

Software Availability: Jul-2009



Hardware

CPU Name: Intel Xeon X3440
 CPU Characteristics: Intel Turbo Boost Technology up to 2.93 GHz
 CPU MHz: 2533
 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_cproc_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	183	74.3	182	74.8	<u>182</u>	<u>74.6</u>	183	74.3	<u>182</u>	<u>74.6</u>	182	74.8
416.gamess	<u>946</u>	<u>20.7</u>	946	20.7	945	20.7	909	21.5	<u>910</u>	<u>21.5</u>	910	21.5
433.milc	222	41.4	224	40.9	<u>222</u>	<u>41.4</u>	<u>221</u>	<u>41.6</u>	220	41.6	221	41.6
434.zeusmp	281	32.4	282	32.3	<u>281</u>	<u>32.3</u>	281	32.4	<u>281</u>	<u>32.4</u>	282	32.3
435.gromacs	370	19.3	<u>383</u>	<u>18.7</u>	384	18.6	<u>374</u>	<u>19.1</u>	372	19.2	376	19.0
436.cactusADM	<u>136</u>	<u>87.6</u>	137	87.0	136	87.7	125	95.7	<u>125</u>	<u>95.9</u>	123	96.8
437.leslie3d	<u>336</u>	<u>28.0</u>	336	28.0	336	28.0	<u>336</u>	<u>28.0</u>	336	28.0	336	28.0
444.namd	<u>480</u>	<u>16.7</u>	479	16.7	480	16.7	<u>480</u>	<u>16.7</u>	479	16.7	480	16.7
447.dealII	372	30.8	<u>372</u>	<u>30.8</u>	372	30.8	358	32.0	357	32.1	<u>357</u>	<u>32.0</u>
450.soplex	<u>343</u>	<u>24.3</u>	343	24.3	344	24.3	<u>343</u>	<u>24.3</u>	343	24.3	344	24.3
453.povray	223	23.8	222	23.9	<u>222</u>	<u>23.9</u>	<u>173</u>	<u>30.7</u>	174	30.6	173	30.7
454.calculix	<u>336</u>	<u>24.6</u>	335	24.6	337	24.5	332	24.9	<u>333</u>	<u>24.8</u>	333	24.8
459.GemsFDTD	291	36.5	290	36.5	<u>291</u>	<u>36.5</u>	<u>278</u>	<u>38.2</u>	278	38.2	278	38.2
465.tonto	482	20.4	481	20.4	<u>482</u>	<u>20.4</u>	392	25.1	<u>391</u>	<u>25.1</u>	391	25.1
470.lbm	300	45.8	<u>310</u>	<u>44.3</u>	311	44.2	300	45.8	<u>310</u>	<u>44.3</u>	311	44.2
481.wrf	313	35.7	<u>314</u>	<u>35.6</u>	314	35.6	313	35.7	<u>313</u>	<u>35.7</u>	313	35.7
482.sphinx3	545	35.8	<u>543</u>	<u>35.9</u>	539	36.1	545	35.8	<u>543</u>	<u>35.9</u>	539	36.1

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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