



SPEC[®] CFP2006 Result

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Dell Inc.

SPECfp[®]2006 = 37.2

PowerEdge T110 (Intel Xeon X3470, 2.93 GHz)

SPECfp_base2006 = 36.1

CPU2006 license: 55

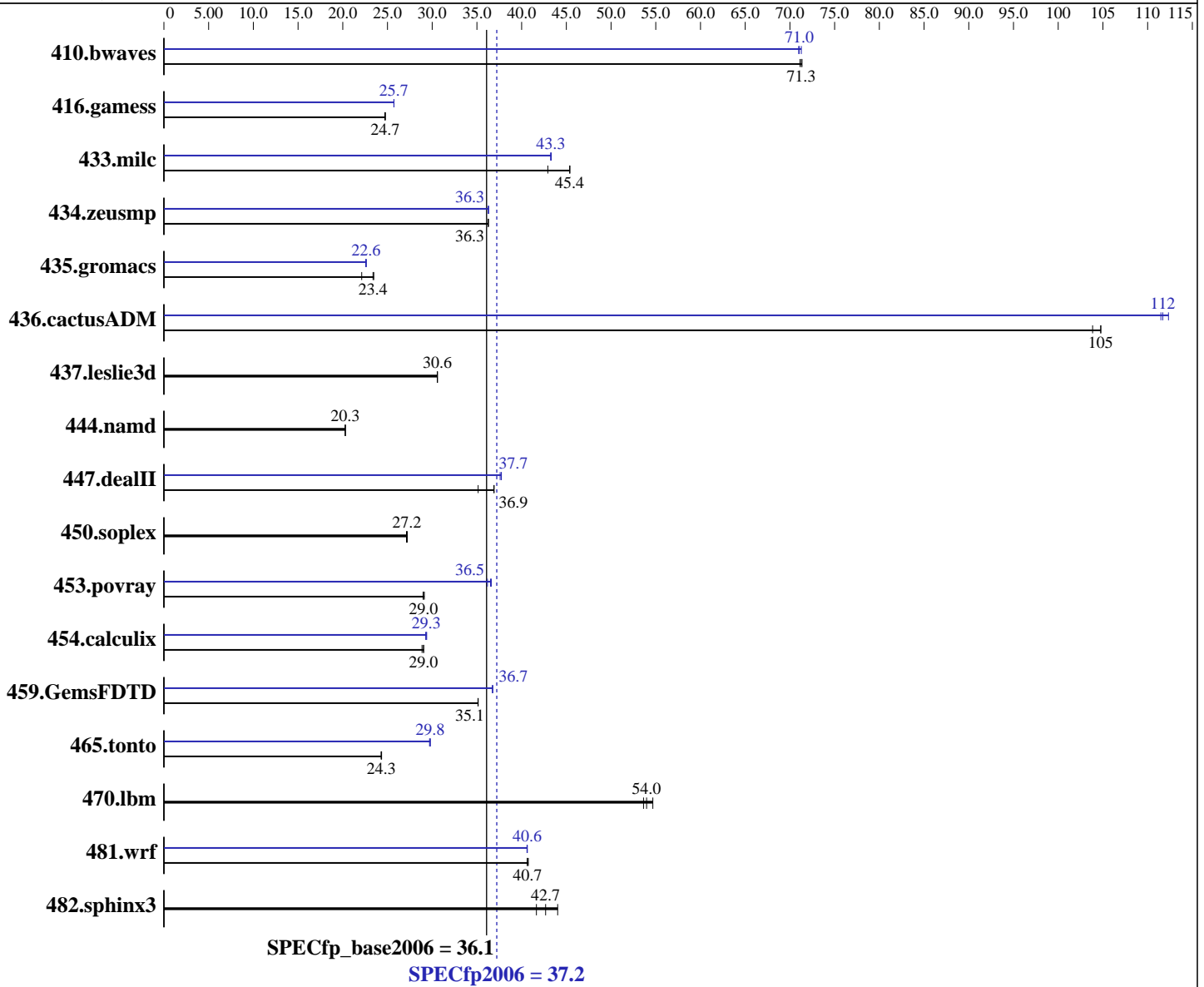
Test sponsor: Dell Inc.

Tested by: Dell Inc.

Test date: Sep-2009

Hardware Availability: Aug-2009

Software Availability: Jul-2009



Hardware

CPU Name: Intel Xeon X3470
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 2933
 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

Continued on next page

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 UDIMM)
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 | 190 | 71.4 | 191 | 71.1 | <u>191</u> | <u>71.3</u> | 191 | 71.3 | 191 | 71.0 | <u>191</u> | <u>71.0</u> |
| 416.gamess | <u>791</u> | <u>24.7</u> | 793 | 24.7 | 791 | 24.8 | 761 | 25.7 | 761 | 25.7 | <u>761</u> | <u>25.7</u> |
| 433.milc | <u>202</u> | <u>45.4</u> | 202 | 45.4 | 214 | 42.9 | 212 | 43.3 | 212 | 43.2 | <u>212</u> | <u>43.3</u> |
| 434.zeusmp | 251 | 36.3 | <u>251</u> | <u>36.3</u> | 251 | 36.3 | 251 | 36.3 | <u>251</u> | <u>36.3</u> | 251 | 36.3 |
| 435.gromacs | 304 | 23.5 | <u>305</u> | <u>23.4</u> | 323 | 22.1 | <u>316</u> | <u>22.6</u> | 316 | 22.6 | 315 | 22.6 |
| 436.cactusADM | 115 | 104 | 114 | 105 | <u>114</u> | <u>105</u> | 107 | 111 | 106 | 112 | <u>107</u> | <u>112</u> |
| 437.leslie3d | 307 | 30.6 | <u>307</u> | <u>30.6</u> | 307 | 30.6 | 307 | 30.6 | <u>307</u> | <u>30.6</u> | 307 | 30.6 |
| 444.namd | 395 | 20.3 | <u>395</u> | <u>20.3</u> | 396 | 20.3 | 395 | 20.3 | <u>395</u> | <u>20.3</u> | 396 | 20.3 |
| 447.dealII | 326 | 35.1 | 310 | 36.9 | <u>310</u> | <u>36.9</u> | <u>303</u> | <u>37.7</u> | 303 | 37.7 | 304 | 37.6 |
| 450.soplex | 306 | 27.2 | <u>307</u> | <u>27.2</u> | 307 | 27.1 | 306 | 27.2 | <u>307</u> | <u>27.2</u> | 307 | 27.1 |
| 453.povray | 183 | 29.1 | 184 | 29.0 | <u>183</u> | <u>29.0</u> | <u>146</u> | <u>36.5</u> | 145 | 36.6 | 147 | 36.2 |
| 454.calculix | <u>284</u> | <u>29.0</u> | 284 | 29.0 | 286 | 28.9 | 282 | 29.3 | 281 | 29.4 | <u>281</u> | <u>29.3</u> |
| 459.GemsFDTD | <u>302</u> | <u>35.1</u> | 302 | 35.1 | 302 | 35.1 | 289 | 36.7 | 289 | 36.8 | <u>289</u> | <u>36.7</u> |
| 465.tonto | <u>404</u> | <u>24.3</u> | 404 | 24.3 | 405 | 24.3 | 330 | 29.8 | <u>331</u> | <u>29.8</u> | 331 | 29.7 |
| 470.lbm | 251 | 54.7 | <u>255</u> | <u>54.0</u> | 256 | 53.6 | 251 | 54.7 | <u>255</u> | <u>54.0</u> | 256 | 53.6 |
| 481.wrf | 274 | 40.7 | <u>275</u> | <u>40.7</u> | 275 | 40.6 | 275 | 40.6 | 275 | 40.6 | <u>275</u> | <u>40.6</u> |
| 482.sphinx3 | <u>457</u> | <u>42.7</u> | 468 | 41.7 | 443 | 44.0 | <u>457</u> | <u>42.7</u> | 468 | 41.7 | 443 | 44.0 |

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 T110 and the Bull NovaScale T810 F2 models are electronically equivalent.
This result was measured on a Dell PowerEdge T110.

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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