



SPEC® CFP2006 Result

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Dell Inc.

SPECfp®2006 = 37.5

PowerEdge R210 II (Intel Xeon E3-1260L, 2.40 GHz)

SPECfp_base2006 = 36.1

CPU2006 license: 55

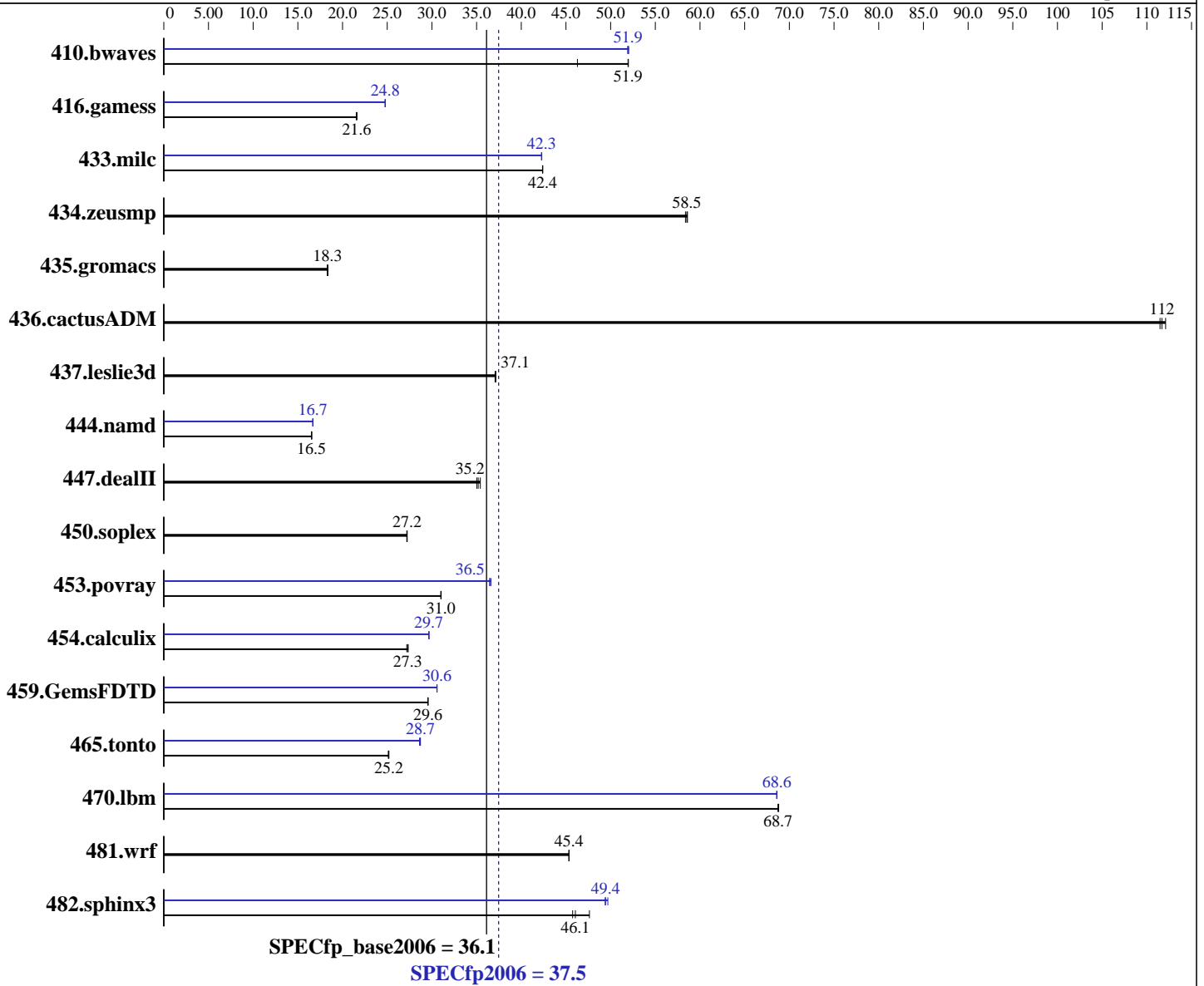
Test sponsor: Dell Inc.

Tested by: Dell Inc.

Test date: Mar-2011

Hardware Availability: May-2011

Software Availability: Apr-2011



Hardware

CPU Name: Intel Xeon E3-1260L
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz
 CPU MHz: 2400
 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: SUSE Linux Enterprise Server 11 SP1 (x86_64), Kernel 2.6.32.12-0.7-default
 Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12 Alpha Build 20110105
 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: 8 GB (4 x 2 GB 2Rx8 PC3-10600R-9, ECC)
Disk Subsystem: 1 x 146 GB 15000 RPM SAS
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: None

Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 294 | 46.3 | <u>262</u> | <u>51.9</u> | 261 | 52.0 | 261 | 52.0 | 262 | 51.9 | <u>262</u> | <u>51.9</u> |
| 416.gamess | 906 | 21.6 | 909 | 21.5 | <u>907</u> | <u>21.6</u> | 790 | 24.8 | <u>790</u> | <u>24.8</u> | 791 | 24.8 |
| 433.milc | 217 | 42.4 | <u>217</u> | <u>42.4</u> | 216 | 42.4 | <u>217</u> | <u>42.3</u> | 217 | 42.3 | 217 | 42.3 |
| 434.zeusmp | 156 | 58.4 | 155 | 58.6 | <u>155</u> | <u>58.5</u> | 156 | 58.4 | 155 | 58.6 | <u>155</u> | <u>58.5</u> |
| 435.gromacs | 390 | 18.3 | <u>390</u> | <u>18.3</u> | 389 | 18.4 | 390 | 18.3 | <u>390</u> | <u>18.3</u> | 389 | 18.4 |
| 436.cactusADM | 107 | 111 | <u>107</u> | <u>112</u> | 107 | 112 | 107 | 111 | <u>107</u> | <u>112</u> | 107 | 112 |
| 437.leslie3d | 253 | 37.2 | 254 | 37.1 | <u>253</u> | <u>37.1</u> | 253 | 37.2 | 254 | 37.1 | <u>253</u> | <u>37.1</u> |
| 444.namd | <u>485</u> | <u>16.5</u> | 485 | 16.5 | 485 | 16.5 | <u>481</u> | <u>16.7</u> | 481 | 16.7 | 481 | 16.7 |
| 447.dealII | 327 | 35.0 | <u>325</u> | <u>35.2</u> | 323 | 35.4 | 327 | 35.0 | <u>325</u> | <u>35.2</u> | 323 | 35.4 |
| 450.soplex | 307 | 27.2 | 306 | 27.2 | <u>306</u> | <u>27.2</u> | 307 | 27.2 | 306 | 27.2 | <u>306</u> | <u>27.2</u> |
| 453.povray | <u>171</u> | <u>31.0</u> | 172 | 31.0 | 171 | 31.0 | 146 | 36.5 | <u>146</u> | <u>36.5</u> | 145 | 36.6 |
| 454.calculix | <u>302</u> | <u>27.3</u> | 302 | 27.3 | 303 | 27.2 | 278 | 29.7 | <u>278</u> | <u>29.7</u> | 278 | 29.7 |
| 459.GemsFDTD | 359 | 29.5 | <u>359</u> | <u>29.6</u> | 359 | 29.6 | <u>347</u> | <u>30.6</u> | 347 | 30.6 | 347 | 30.6 |
| 465.tonto | <u>391</u> | <u>25.2</u> | 391 | 25.2 | 392 | 25.1 | 344 | 28.6 | <u>343</u> | <u>28.7</u> | 343 | 28.7 |
| 470.lbm | 200 | 68.7 | 200 | 68.8 | <u>200</u> | <u>68.7</u> | <u>200</u> | <u>68.6</u> | 200 | 68.6 | 200 | 68.6 |
| 481.wrf | <u>246</u> | <u>45.4</u> | 246 | 45.4 | 246 | 45.3 | <u>246</u> | <u>45.4</u> | 246 | 45.4 | 246 | 45.3 |
| 482.sphinx3 | 426 | 45.8 | <u>423</u> | <u>46.1</u> | 409 | 47.6 | 392 | 49.7 | 395 | 49.4 | <u>394</u> | <u>49.4</u> |

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

Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
echo 900> /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```

Platform Notes

BIOS Settings:
Power Management = Maximum Performance (Default = Active Power Controller)
Logical Processor = Disabled (Default = Enabled)



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General Notes

OMP_NUM_THREADS set to number of cores
The Dell PowerEdge R210 II and the Bull NovaScale R410B F2 models are electronically equivalent. The results have been measured on a Dell PowerEdge R210 II model. Binaries were compiled on RHEL5.5

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.deallI: -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:
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

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Base Optimization Flags (Continued)

C++ benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias

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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32
-ansi-alias

470.lbm: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -parallel
-ansi-alias -static -auto-ilp32

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias
-parallel

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Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -fno-alias
-auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Fortran benchmarks:

410.bwaves: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel
-static

416.gamess: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -scalar-rep- -static

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2
-inline-level=0 -opt-prefetch -parallel
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc
-opt-malloc-options=3 -auto -unroll4
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT

481.wrf: basepeak = yes



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The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.html>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110524.00.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20110524.00.xml>

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For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 18:05:38 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 7 June 2011.