



# SPEC® CFP2006 Result

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## ACTION S.A.

SPECfp®\_rate2006 = 69.4

ACTINA SOLAR 202 X2 (Intel Xeon E5410, 2.33 GHz)

SPECfp\_rate\_base2006 = 63.6

CPU2006 license: 9008

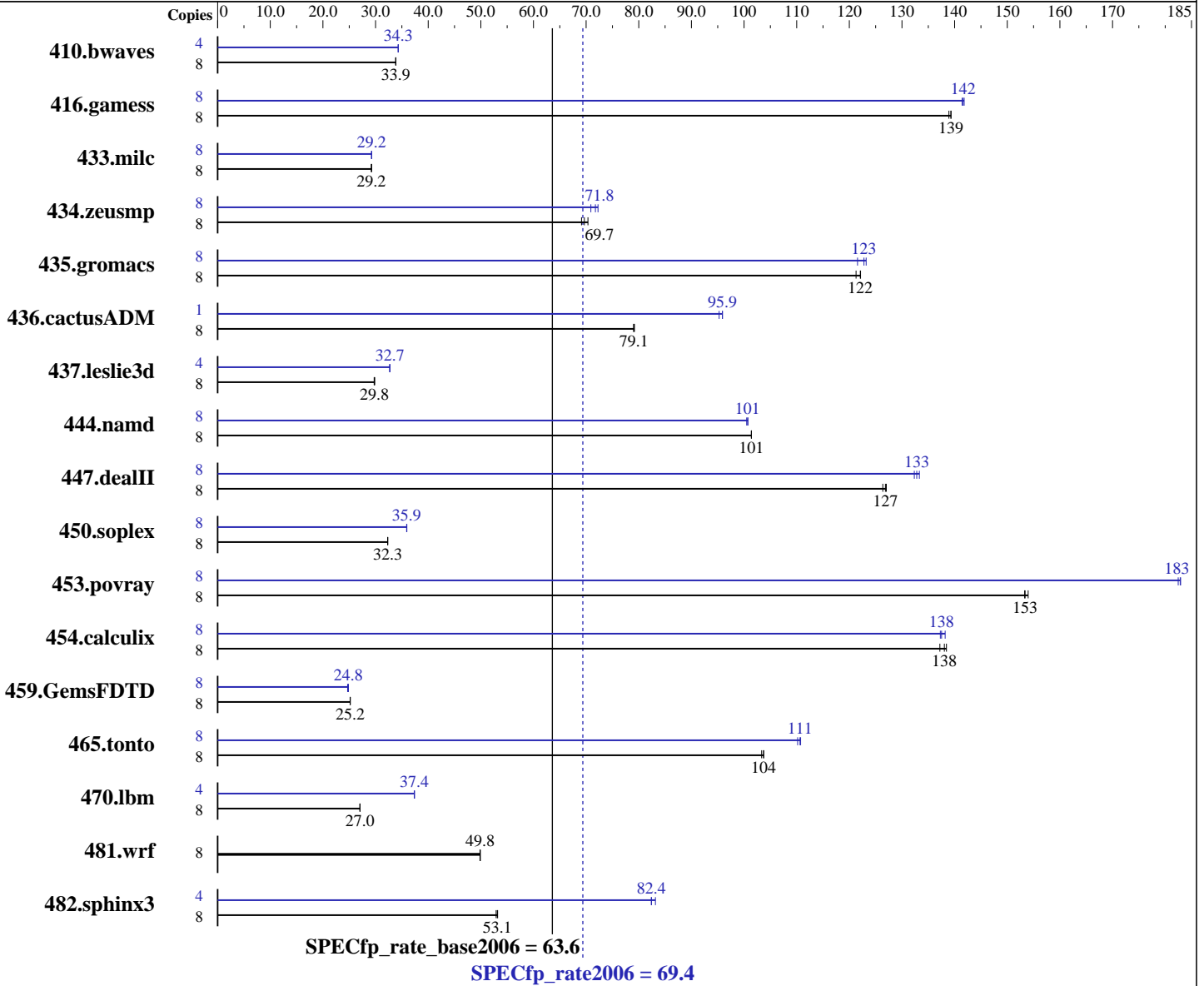
Test date: Dec-2008

Test sponsor: ACTION S.A.

Hardware Availability: Sep-2008

Tested by: ACTION S.A.

Software Availability: Nov-2008



### Hardware

CPU Name: Intel Xeon E5410  
 CPU Characteristics: 1333 MHz System Bus  
 CPU MHz: 2333  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 12 MB I+D on chip per chip, 6 MB shared / 2 cores

Continued on next page

### Software

Operating System: SUSE Linux Enterprise Server 10 (x86\_64) with SP2, kernel 2.6.16.60-0.21-smp  
 Compiler: Intel C++ and Fortran Compiler 11.0 for Linux Build 20080730 Package ID: l\_cproc\_b\_11.0.042, l\_fproc\_b\_11.0.042  
 Auto Parallel: Yes  
 File System: ReiserFS  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit

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### Hardware (Continued)

L3 Cache: None  
 Other Cache: None  
 Memory: 16 GB (8x 2 GB, PC2-5300, CL 5-5-5, FB ECC)  
 Disk Subsystem: 500 GB SATA, 7200 RPM  
 Other Hardware: None

### Software (Continued)

Peak Pointers: 32/64-bit  
 Other Software: Binutils 2.18.50.0.7.20080502

## Results Table

| Benchmark     | Base   |                    |                    |                    |                    |                    |                    |        | Peak               |                    |                    |                    |                    |                    |  |  |
|---------------|--------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--|--|
|               | Copies | Seconds            | Ratio              | Seconds            | Ratio              | Seconds            | Ratio              | Copies | Seconds            | Ratio              | Seconds            | Ratio              | Seconds            | Ratio              |  |  |
| 410.bwaves    | 8      | 3216               | 33.8               | <b><u>3211</u></b> | <b><u>33.9</u></b> | 3210               | 33.9               | 4      | 1584               | 34.3               | 1585               | 34.3               | <b><u>1584</u></b> | <b><u>34.3</u></b> |  |  |
| 416.gamess    | 8      | <b><u>1124</u></b> | <b><u>139</u></b>  | 1124               | 139                | 1128               | 139                | 8      | 1108               | 141                | <b><u>1106</u></b> | <b><u>142</u></b>  | 1105               | 142                |  |  |
| 433.milc      | 8      | <b><u>2513</u></b> | <b><u>29.2</u></b> | 2513               | 29.2               | 2513               | 29.2               | 8      | 2510               | 29.3               | 2512               | 29.2               | <b><u>2511</u></b> | <b><u>29.2</u></b> |  |  |
| 434.zeusmp    | 8      | <b><u>1045</u></b> | <b><u>69.7</u></b> | 1035               | 70.3               | 1053               | 69.1               | 8      | 1007               | 72.3               | <b><u>1014</u></b> | <b><u>71.8</u></b> | 1027               | 70.9               |  |  |
| 435.gromacs   | 8      | <b><u>468</u></b>  | <b><u>122</u></b>  | 471                | 121                | 468                | 122                | 8      | 470                | 122                | <b><u>465</u></b>  | <b><u>123</u></b>  | 464                | 123                |  |  |
| 436.cactusADM | 8      | 1210               | 79.0               | <b><u>1209</u></b> | <b><u>79.1</u></b> | 1207               | 79.2               | 1      | 125                | 95.9               | 125                | 95.3               | <b><u>125</u></b>  | <b><u>95.9</u></b> |  |  |
| 437.leslie3d  | 8      | 2520               | 29.8               | 2529               | 29.7               | <b><u>2527</u></b> | <b><u>29.8</u></b> | 4      | 1151               | 32.7               | 1148               | 32.7               | <b><u>1150</u></b> | <b><u>32.7</u></b> |  |  |
| 444.namd      | 8      | <b><u>633</u></b>  | <b><u>101</u></b>  | 633                | 101                | 633                | 101                | 8      | <b><u>637</u></b>  | <b><u>101</u></b>  | 638                | 100                | 637                | 101                |  |  |
| 447.dealII    | 8      | <b><u>721</u></b>  | <b><u>127</u></b>  | 724                | 126                | 720                | 127                | 8      | <b><u>689</u></b>  | <b><u>133</u></b>  | 687                | 133                | 692                | 132                |  |  |
| 450.soplex    | 8      | 2066               | 32.3               | 2065               | 32.3               | <b><u>2065</u></b> | <b><u>32.3</u></b> | 8      | <b><u>1857</u></b> | <b><u>35.9</u></b> | 1856               | 35.9               | 1858               | 35.9               |  |  |
| 453.povray    | 8      | 278                | 153                | 276                | 154                | <b><u>277</u></b>  | <b><u>153</u></b>  | 8      | <b><u>233</u></b>  | <b><u>183</u></b>  | 233                | 182                | 233                | 183                |  |  |
| 454.calculix  | 8      | 477                | 138                | 481                | 137                | <b><u>478</u></b>  | <b><u>138</u></b>  | 8      | 481                | 137                | 478                | 138                | <b><u>480</u></b>  | <b><u>138</u></b>  |  |  |
| 459.GemsFDTD  | 8      | 3368               | 25.2               | 3373               | 25.2               | <b><u>3371</u></b> | <b><u>25.2</u></b> | 8      | 3438               | 24.7               | 3416               | 24.8               | <b><u>3422</u></b> | <b><u>24.8</u></b> |  |  |
| 465.tonto     | 8      | <b><u>759</u></b>  | <b><u>104</u></b>  | 762                | 103                | 759                | 104                | 8      | 711                | 111                | 714                | 110                | <b><u>712</u></b>  | <b><u>111</u></b>  |  |  |
| 470.lbm       | 8      | 4066               | 27.0               | 4064               | 27.0               | <b><u>4065</u></b> | <b><u>27.0</u></b> | 4      | 1470               | 37.4               | <b><u>1471</u></b> | <b><u>37.4</u></b> | 1471               | 37.4               |  |  |
| 481.wrf       | 8      | 1793               | 49.8               | 1790               | 49.9               | <b><u>1793</u></b> | <b><u>49.8</u></b> | 8      | 1793               | 49.8               | 1790               | 49.9               | <b><u>1793</u></b> | <b><u>49.8</u></b> |  |  |
| 482.sphinx3   | 8      | <b><u>2936</u></b> | <b><u>53.1</u></b> | 2931               | 53.2               | 2947               | 52.9               | 4      | <b><u>946</u></b>  | <b><u>82.4</u></b> | 937                | 83.2               | 946                | 82.4               |  |  |

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.

## Platform Notes

This result is measured on ACTINA SOLAR 200 X2.  
 Note that the ACTINA SOLAR 202 X2 and ACTINA SOLAR 200 X2  
 are electrically equivalent.



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## General Notes

taskset was used to bind processes to cores except for 436.cactusADM peak  
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run  
OMP\_NUM\_THREADS set to number of processors  
KMP\_AFFINITY set to "physical,0"  
KMP\_STACKSIZE set to 64M

## 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:

-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

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## Base Optimization Flags (Continued)

C++ benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

Fortran benchmarks:

-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

Benchmarks using both Fortran and C:

-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc

482.sphinx3: /opt/intel/Compiler/11.0/042/bin/ia32/icc  
-L/opt/intel/Compiler/11.0/042/ipp/ia32/lib  
-I/opt/intel/Compiler/11.0/042/ipp/ia32/include

C++ benchmarks (except as noted below):

icpc

450.soplex: /opt/intel/Compiler/11.0/042/bin/ia32/icpc  
-L/opt/intel/Compiler/11.0/042/ipp/ia32/lib  
-I/opt/intel/Compiler/11.0/042/ipp/ia32/include

Fortran benchmarks (except as noted below):

ifort

437.leslie3d: /opt/intel/Compiler/11.0/042/bin/ia32/ifort  
-L/opt/intel/Compiler/11.0/042/ipp/ia32/lib  
-I/opt/intel/Compiler/11.0/042/ipp/ia32/include

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  
444.namd: -DSPEC\_CPU\_LP64  
447.dealII: -DSPEC\_CPU\_LP64

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## Peak Portability Flags (Continued)

```

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: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
         -no-prec-div -static -fno-alias

470.lbm: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
        -auto-ilp32

482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2

```

C++ benchmarks:

```

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
         -no-prec-div -static -fno-alias -auto-ilp32

447.deallI: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
          -no-prec-div -static -unroll2 -ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
          -no-prec-div -static -opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
          -no-prec-div -static -unroll4 -ansi-alias

```

Fortran benchmarks:

```

410.bwaves: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
          -no-prec-div -static -unroll2 -Ob0 -ansi-alias
          -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
          -no-prec-div -static

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
          -no-prec-div -static -opt-malloc-options=3 -opt-prefetch

```

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## Peak Optimization Flags (Continued)

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll2 -Ob0 -opt-prefetch

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -opt-prefetch -auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll2 -opt-prefetch -parallel  
-auto-ilp32

454.calculix: -xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: basepeak = yes

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.02.html>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.02.xml>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.xml>

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.1.

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