



# SPEC® CFP2006 Result

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## ACTION S.A.

### SPECfp®\_rate2006 = 69.3

ACTINA SOLAR 220 X2 (Intel Xeon E5410, 2.0 GHz)

### SPECfp\_rate\_base2006 = 63.2

CPU2006 license: 9008

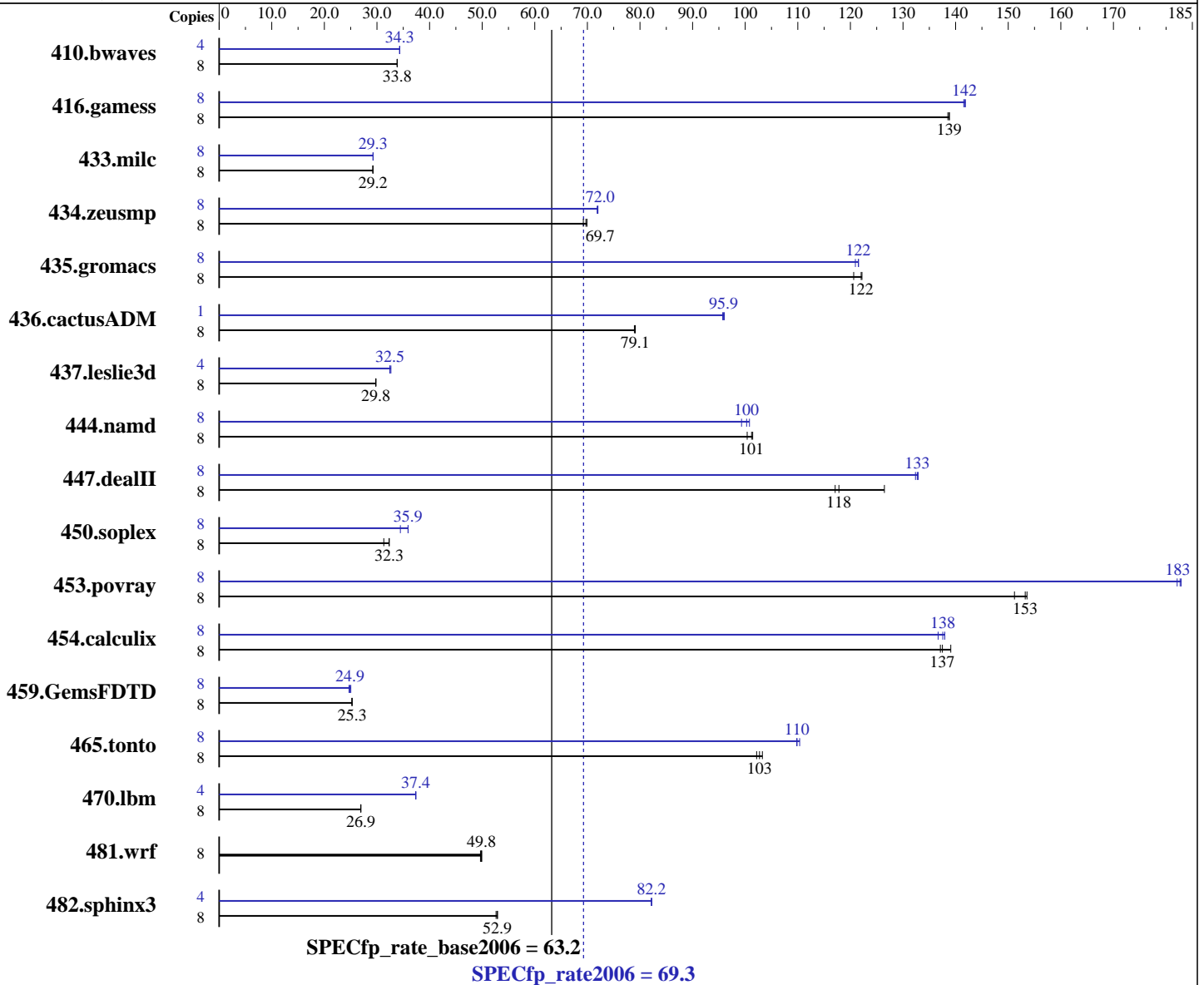
Test date: Dec-2008

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-smpp  
 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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L3 Cache: None  
Other Cache: None  
Memory: 16 GB (8x2 GB, PC2-5300, CL 5-5-5, FB ECC)  
Disk Subsystem: 500 GB SATA, 7200 RPM  
Other Hardware: None

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      | <b><u>3213</u></b> | <b><u>33.8</u></b> | 3214               | 33.8               | 3210               | 33.9               | 4      | 1584               | 34.3               | <b><u>1584</u></b> | <b><u>34.3</u></b> | 1583               | 34.3               |
| 416.gamess    | 8      | 1131               | 139                | 1128               | 139                | <b><u>1129</u></b> | <b><u>139</u></b>  | 8      | <b><u>1105</u></b> | <b><u>142</u></b>  | 1104               | 142                | 1107               | 142                |
| 433.milc      | 8      | 2511               | 29.2               | 2513               | 29.2               | <b><u>2512</u></b> | <b><u>29.2</u></b> | 8      | <b><u>2510</u></b> | <b><u>29.3</u></b> | 2510               | 29.3               | 2510               | 29.3               |
| 434.zeusmp    | 8      | <b><u>1044</u></b> | <b><u>69.7</u></b> | 1041               | 69.9               | 1052               | 69.2               | 8      | 1013               | 71.9               | 1011               | 72.0               | <b><u>1011</u></b> | <b><u>72.0</u></b> |
| 435.gromacs   | 8      | 474                | 121                | 467                | 122                | <b><u>468</u></b>  | <b><u>122</u></b>  | 8      | 472                | 121                | 470                | 122                | <b><u>470</u></b>  | <b><u>122</u></b>  |
| 436.cactusADM | 8      | 1211               | 78.9               | <b><u>1209</u></b> | <b><u>79.1</u></b> | 1208               | 79.1               | 1      | 124                | 96.0               | <b><u>125</u></b>  | <b><u>95.9</u></b> | 125                | 95.7               |
| 437.leslie3d  | 8      | 2528               | 29.8               | <b><u>2525</u></b> | <b><u>29.8</u></b> | 2523               | 29.8               | 4      | 1151               | 32.7               | 1159               | 32.4               | <b><u>1158</u></b> | <b><u>32.5</u></b> |
| 444.namd      | 8      | <b><u>634</u></b>  | <b><u>101</u></b>  | 639                | 100                | 633                | 101                | 8      | <b><u>640</u></b>  | <b><u>100</u></b>  | 646                | 99.3               | 636                | 101                |
| 447.dealII    | 8      | <b><u>777</u></b>  | <b><u>118</u></b>  | 724                | 126                | 782                | 117                | 8      | <b><u>690</u></b>  | <b><u>133</u></b>  | 689                | 133                | 691                | 132                |
| 450.soplex    | 8      | 2132               | 31.3               | 2064               | 32.3               | <b><u>2065</u></b> | <b><u>32.3</u></b> | 8      | 1937               | 34.4               | 1857               | 35.9               | <b><u>1858</u></b> | <b><u>35.9</u></b> |
| 453.povray    | 8      | 282                | 151                | <b><u>278</u></b>  | <b><u>153</u></b>  | 277                | 154                | 8      | 234                | 182                | 233                | 183                | <b><u>233</u></b>  | <b><u>183</u></b>  |
| 454.calculix  | 8      | <b><u>480</u></b>  | <b><u>137</u></b>  | 475                | 139                | 481                | 137                | 8      | 483                | 137                | 478                | 138                | <b><u>480</u></b>  | <b><u>138</u></b>  |
| 459.GemsFDTD  | 8      | <b><u>3358</u></b> | <b><u>25.3</u></b> | 3358               | 25.3               | 3364               | 25.2               | 8      | 3438               | 24.7               | <b><u>3413</u></b> | <b><u>24.9</u></b> | 3391               | 25.0               |
| 465.tonto     | 8      | <b><u>766</u></b>  | <b><u>103</u></b>  | 762                | 103                | 770                | 102                | 8      | 717                | 110                | <b><u>717</u></b>  | <b><u>110</u></b>  | 713                | 110                |
| 470.lbm       | 8      | 4083               | 26.9               | <b><u>4082</u></b> | <b><u>26.9</u></b> | 4080               | 26.9               | 4      | 1470               | 37.4               | <b><u>1470</u></b> | <b><u>37.4</u></b> | 1471               | 37.4               |
| 481.wrf       | 8      | 1790               | 49.9               | <b><u>1793</u></b> | <b><u>49.8</u></b> | 1799               | 49.7               | 8      | 1790               | 49.9               | <b><u>1793</u></b> | <b><u>49.8</u></b> | 1799               | 49.7               |
| 482.sphinx3   | 8      | 2947               | 52.9               | 2962               | 52.6               | <b><u>2948</u></b> | <b><u>52.9</u></b> | 4      | 949                | 82.2               | 948                | 82.2               | <b><u>949</u></b>  | <b><u>82.2</u></b> |

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.

## General Notes

Taskset was used to bind processes to cores except for 436.cactusADM peak  
OMP\_NUM\_THREADS set to number of processors  
KMP\_AFFINITY set to "physical,0"  
KMP\_STACKSIZE set to 64M



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**CPU2006 license:** 9008

**Test date:** Dec-2008

**Test sponsor:** ACTION S.A.

**Hardware Availability:** Sep-2008

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**Software Availability:** Nov-2008

## 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

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



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## 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.deallI: -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
```

## Peak Optimization Flags

C benchmarks:

Continued on next page



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## Peak Optimization Flags (Continued)

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.dealIII: -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

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

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## Peak Optimization Flags (Continued)

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

481.wrf: basepeak = yes

The flags file that was used to format this result can be browsed at

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

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

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

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