



# SPEC<sup>®</sup> CFP2006 Result

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## ACTION S.A.

SPECfp<sup>®</sup>\_rate2006 = 106

ACTINA SOLAR 100 S5 (Intel Xeon E3-1220)

SPECfp\_rate\_base2006 = 103

CPU2006 license: 9008

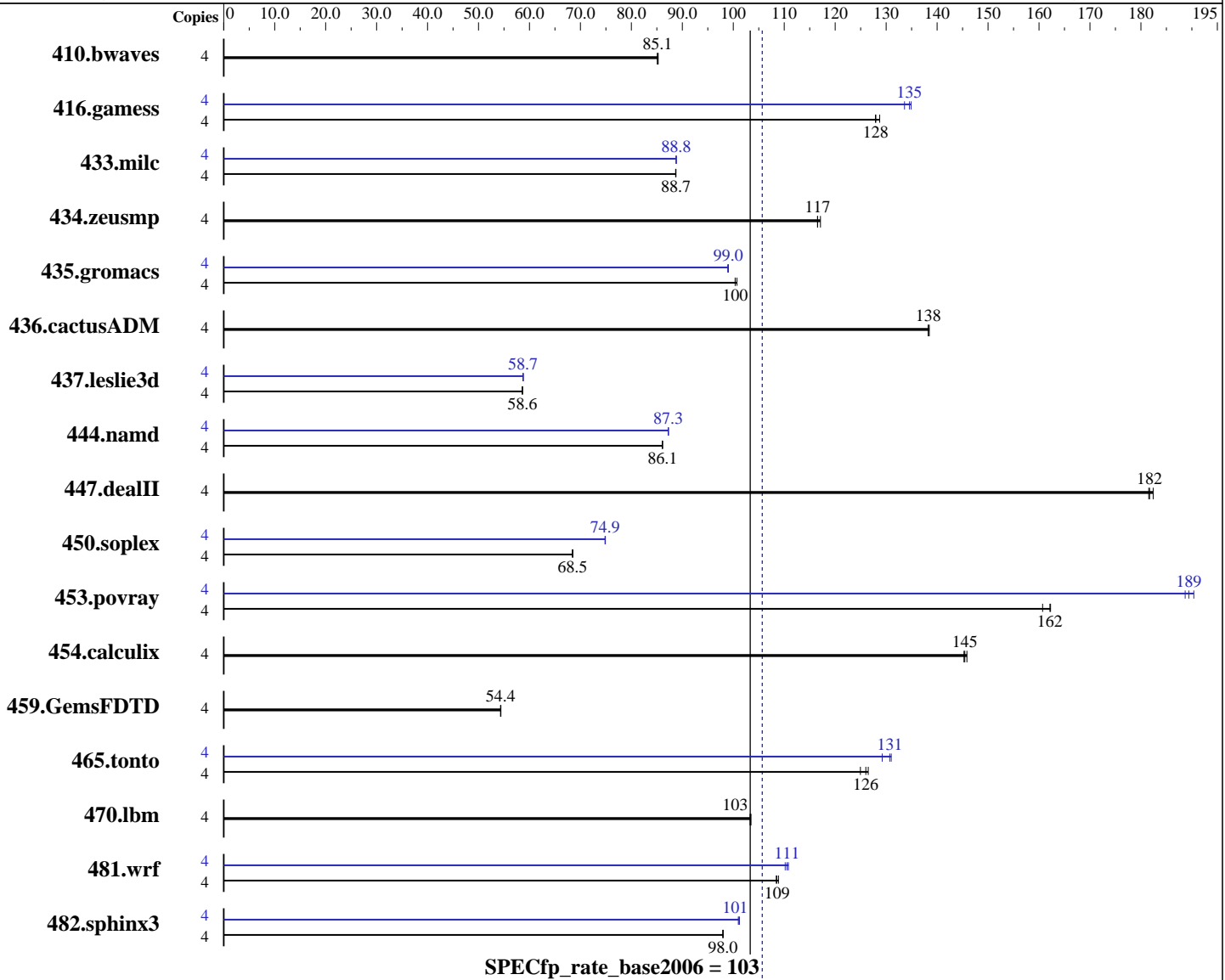
Test date: Feb-2012

Test sponsor: ACTION S.A.

Hardware Availability: Apr-2011

Tested by: ACTION S.A.

Software Availability: Oct-2011



### Hardware

CPU Name: Intel Xeon E3-1220  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.40 GHz  
 CPU MHz: 3100  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip  
 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 6.1 (Santiago)  
 2.6.32-131.0.15.el6.x86\_64  
 Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;  
 Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux  
 Auto Parallel: No  
 File System: ext4

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L3 Cache: 8 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 16 GB (4 x 4 GB 2Rx8 PC3-10600E-9, ECC)  
 Disk Subsystem: 320 GB SATA II, 7200 RPM  
 Other Hardware: None

System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V9.01

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	638	85.3	<b><u>639</u></b>	<b><u>85.1</u></b>	639	85.1	4	638	85.3	<b><u>639</u></b>	<b><u>85.1</u></b>	639	85.1
416.gamess	4	612	128	<b><u>612</u></b>	<b><u>128</u></b>	608	129	4	<b><u>582</u></b>	<b><u>135</u></b>	581	135	586	134
433.milc	4	414	88.7	<b><u>414</u></b>	<b><u>88.7</u></b>	414	88.7	4	413	88.8	414	88.8	<b><u>414</u></b>	<b><u>88.8</u></b>
434.zeusmp	4	312	117	<b><u>312</u></b>	<b><u>117</u></b>	311	117	4	312	117	<b><u>312</u></b>	<b><u>117</u></b>	311	117
435.gromacs	4	284	101	285	100	<b><u>284</u></b>	<b><u>100</u></b>	4	289	98.9	<b><u>288</u></b>	<b><u>99.0</u></b>	288	99.0
436.cactusADM	4	<b><u>346</u></b>	<b><u>138</u></b>	346	138	345	138	4	<b><u>346</u></b>	<b><u>138</u></b>	346	138	345	138
437.leslie3d	4	<b><u>642</u></b>	<b><u>58.6</u></b>	641	58.6	642	58.6	4	639	58.8	640	58.7	<b><u>640</u></b>	<b><u>58.7</u></b>
444.namd	4	373	86.1	<b><u>373</u></b>	<b><u>86.1</u></b>	373	86.1	4	368	87.3	368	87.2	<b><u>368</u></b>	<b><u>87.3</u></b>
447.dealII	4	251	182	252	182	<b><u>252</u></b>	<b><u>182</u></b>	4	251	182	252	182	<b><u>252</u></b>	<b><u>182</u></b>
450.soplex	4	487	68.5	<b><u>487</u></b>	<b><u>68.5</u></b>	488	68.4	4	<b><u>446</u></b>	<b><u>74.9</u></b>	446	74.8	445	74.9
453.povray	4	132	161	131	162	<b><u>131</u></b>	<b><u>162</u></b>	4	113	189	112	190	<b><u>112</u></b>	<b><u>189</u></b>
454.calculix	4	226	146	<b><u>227</u></b>	<b><u>145</u></b>	227	145	4	226	146	<b><u>227</u></b>	<b><u>145</u></b>	227	145
459.GemsFDTD	4	<b><u>781</u></b>	<b><u>54.4</u></b>	781	54.3	780	54.4	4	<b><u>781</u></b>	<b><u>54.4</u></b>	781	54.3	780	54.4
465.tonto	4	<b><u>312</u></b>	<b><u>126</u></b>	311	126	315	125	4	<b><u>301</u></b>	<b><u>131</u></b>	300	131	305	129
470.lbm	4	532	103	<b><u>531</u></b>	<b><u>103</u></b>	531	103	4	532	103	<b><u>531</u></b>	<b><u>103</u></b>	531	103
481.wrf	4	410	109	<b><u>412</u></b>	<b><u>109</u></b>	412	108	4	405	110	<b><u>404</u></b>	<b><u>111</u></b>	403	111
482.sphinx3	4	796	97.9	<b><u>796</u></b>	<b><u>98.0</u></b>	795	98.0	4	770	101	772	101	<b><u>771</u></b>	<b><u>101</u></b>

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

## Submit Notes

The taskset mechanism was used to bind copies to processors. The config file option 'submit' was used to generate taskset commands to bind each copy to a specific processor. For details, please see the config file.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

## General Notes

Environment variables set by runspec before the start of the run:  
LD\_LIBRARY\_PATH = "/cpu2006.1.2/libs/32:/cpu2006.1.2/libs/64"

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## General Notes (Continued)

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using 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.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 -auto-p32  
-ansi-alias

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32  
-ansi-alias

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## Base Optimization Flags (Continued)

Fortran benchmarks:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch`

Benchmarks using both Fortran and C:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32  
-ansi-alias`

## Peak Compiler Invocation

C benchmarks (except as noted below):

`icc -m64`

`482.sphinx3:icc -m32`

C++ benchmarks (except as noted below):

`icpc -m64`

`450.soplex:icpc -m32`

Fortran benchmarks:

`ifort -m64`

Benchmarks using both Fortran and C:

`icc -m64 ifort -m64`

## 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  
437.leslie3d: -DSPEC_CPU_LP64  
444.namd: -DSPEC_CPU_LP64  
447.dealII: -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`



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## 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) -prof-use(pass 2) -static -auto-ilp32

470.lbm: basepeak = yes

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2

### C++ benchmarks:

444.namd: -xSSE4.2(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.dealIII: basepeak = yes

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

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

### Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xSSE4.2(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: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto  
-inline-calloc -opt-malloc-options=3

### 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) -prof-use(pass 2) -opt-prefetch  
-static -auto-ilp32

436.cactusADM: basepeak = yes

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## Peak Optimization Flags (Continued)

454.calculix: basepeak = yes

481.wrf: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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