SPEC® CFP2006 Result
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ACTION S.A.

$SPECfp®\_rate2006 =$ 70.9

ACTINA SOLAR 212 X2 (Intel Xeon E5420, 2.5 GHz)

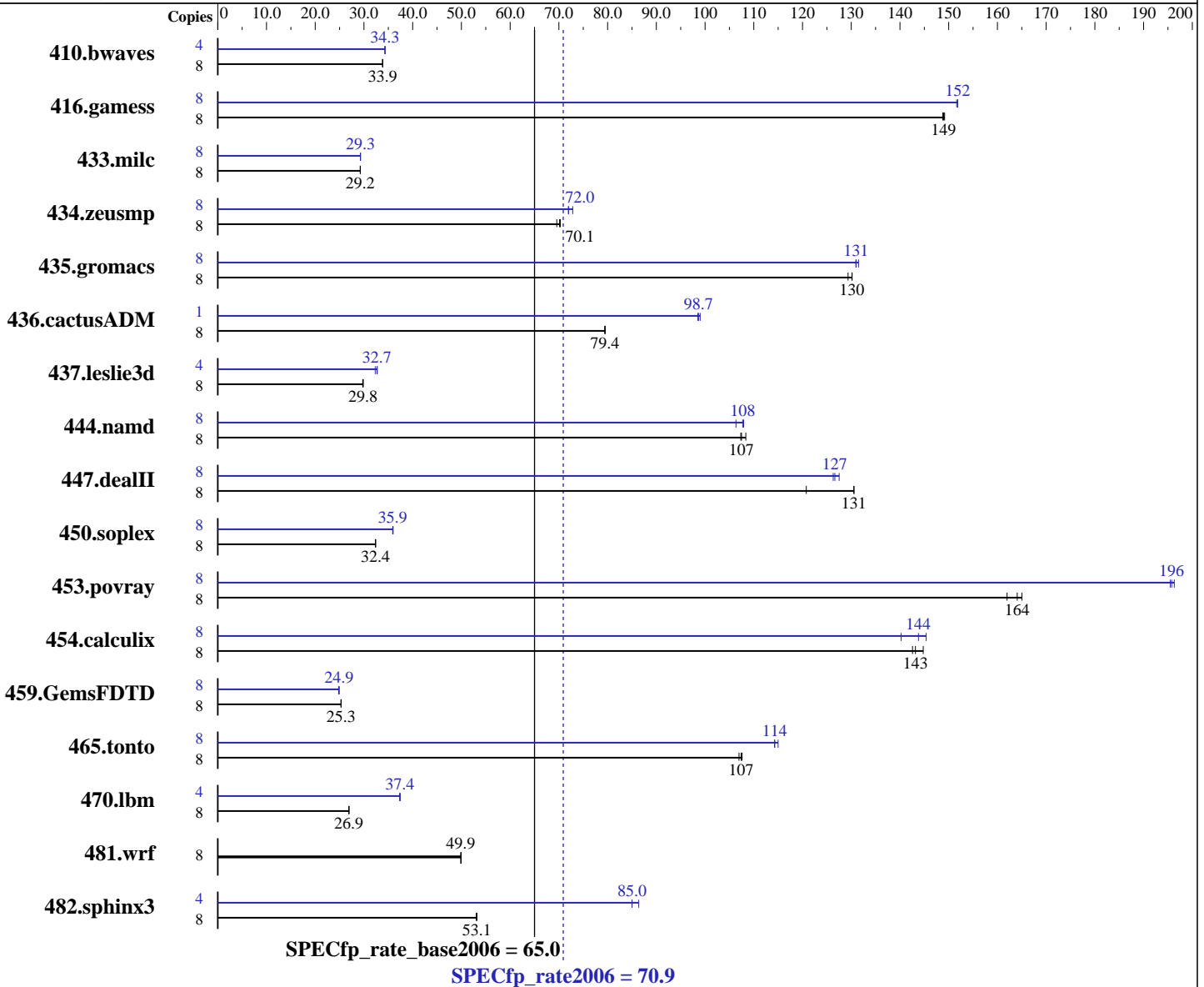$SPECfp\_rate\_base2006 =$ 65.0

CPU2006 license: 9008
Test sponsor: ACTION S.A.
Tested by: ACTION S.A.

Test date: Dec-2008
Hardware Availability: Sep-2008
Software Availability: Nov-2008

SPECfp_rate_base2006 = 65.0
SPECfp_rate2006 = 70.9

Hardware

CPU Name:	Intel Xeon E5420
CPU Characteristics:	1333 MHz System Bus
CPU MHz:	2500
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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L3 Cache:	None	Peak Pointers:	32/64-bit
Other Cache:	None	Other Software:	Binutils 2.18.50.0.7.20080502
Memory:	16 GB (8x 2 GB, PC2-5300, CL 5-5-5, FB ECC)		
Disk Subsystem:	500 GB SATA, 7200 RPM		
Other Hardware:	None		

Results Table

| Benchmark | | | Base | | | | | | | Peak | | | | |
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	3218	33.8	3210	33.9	**3211**	**33.9**	4	1584	34.3	1584	34.3	**1584**	**34.3**
416.gamess	8	1050	149	1053	149	**1052**	**149**	8	1033	152	**1032**	**152**	1032	152
433.milc	8	2511	29.2	2511	29.2	**2511**	**29.2**	8	2509	29.3	2508	29.3	**2508**	**29.3**
434.zeusmp	8	1035	70.3	**1038**	**70.1**	1047	69.6	8	1012	72.0	**1011**	**72.0**	999	72.8
435.gromacs	8	**439**	**130**	439	130	442	129	8	436	131	**436**	**131**	434	131
436.cactusADM	8	1203	79.5	1203	79.4	**1203**	**79.4**	1	121	98.5	121	99.0	**121**	**98.7**
437.leslie3d	8	2521	29.8	2528	29.7	**2521**	**29.8**	4	1164	32.3	1149	32.7	**1151**	**32.7**
444.namd	8	592	108	598	107	**597**	**107**	8	**596**	**108**	595	108	603	106
447.dealII	8	**701**	**131**	701	131	758	121	8	725	126	718	128	**723**	**127**
450.soplex	8	**2061**	**32.4**	2060	32.4	2062	32.4	8	1858	35.9	**1858**	**35.9**	1854	36.0
453.povray	8	258	165	263	162	**259**	**164**	8	218	195	217	196	**217**	**196**
454.calculix	8	463	143	**461**	**143**	456	145	8	**459**	**144**	471	140	454	145
459.GemsFDTD	8	**3353**	**25.3**	3351	25.3	3358	25.3	8	3424	24.8	**3409**	**24.9**	3408	24.9
465.tonto	8	732	108	**733**	**107**	736	107	8	**689**	**114**	689	114	685	115
470.lbm	8	4086	26.9	**4084**	**26.9**	4082	26.9	4	**1471**	**37.4**	1468	37.4	1472	37.3
481.wrf	8	**1791**	**49.9**	1789	50.0	1791	49.9	8	**1791**	**49.9**	1789	50.0	1791	49.9
482.sphinx3	8	2939	53.1	**2934**	**53.1**	2933	53.2	4	902	86.4	**917**	**85.0**	917	85.0

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.

Platform Notes

This result is measured on ACTINA SOLAR 222 X2.
Note that the ACTINA SOLAR 222 X2 and ACTINA SOLAR 212 X2
are electrically equivalent.

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

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Hardware Availability: Sep-2008
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General Notes (Continued)

```
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

C++ benchmarks:
    -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch

ACTION S.A.

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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

Base Optimization Flags (Continued)

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
    453.povray: -DSPEC_CPU_LP64
    454.calculix: -DSPEC_CPU_LP64 -nofor_main
  459.GemsFDTD: -DSPEC_CPU_LP64
```

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Software Availability: Nov-2008

Peak Portability Flags (Continued)

```
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.dealII: -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
```

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Peak Optimization Flags (Continued)

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

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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