SPEC® CFP2006 Result

ACTION S.A.

ACTINA SOLAR 110 X6 (Intel Xeon E3-1241 v3, 3.50 GHz)

$SPECfp®_rate2006 = $ 151

$SPECfp_rate_base2006 = $ 146

CPU2006 license: 9008	**Test date:** Jul-2015
Test sponsor: ACTION S.A.	**Hardware Availability:** Sep-2014
Tested by: ACTION S.A.	**Software Availability:** Sep-2014

Copies — graph scale: 0 10.0 25.0 40.0 55.0 70.0 85.0 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 300

Benchmark	Copies	Result
410.bwaves	8	106
416.gamess	8	198
416.gamess	8	188
433.milc	8	107
433.milc	8	107
434.zeusmp	8	167
435.gromacs	8	235
435.gromacs	8	229
436.cactusADM	8	160
437.leslie3d	4	78.2
437.leslie3d	8	69.5
444.namd	8	162
444.namd	8	160
447.dealII	8	271
450.soplex	4	93.8
450.soplex	8	80.1
453.povray	8	298
453.povray	8	263
454.calculix	8	293
459.GemsFDTD	8	68.1
465.tonto	8	174
465.tonto	8	168
470.lbm	8	132
481.wrf	8	130
481.wrf	8	129
482.sphinx3	8	132
482.sphinx3	8	131

SPECfp_rate_base2006 = 146

SPECfp_rate2006 = 151

Hardware

CPU Name:	Intel Xeon E3-1241 v3
CPU Characteristics:	Intel Turbo Boost Technology up to 3.90 GHz
CPU MHz:	3500
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

Continued on next page

Software

Operating System:	Red Hat Enterprise Linux Server release 6.6 (Santiago) 2.6.32-504.8.1.el6.x86_64
Compiler:	C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux; Fortran: Version 15.0.0.090 of Intel Fortran Studio XE for Linux
Auto Parallel:	No
File System:	ext4

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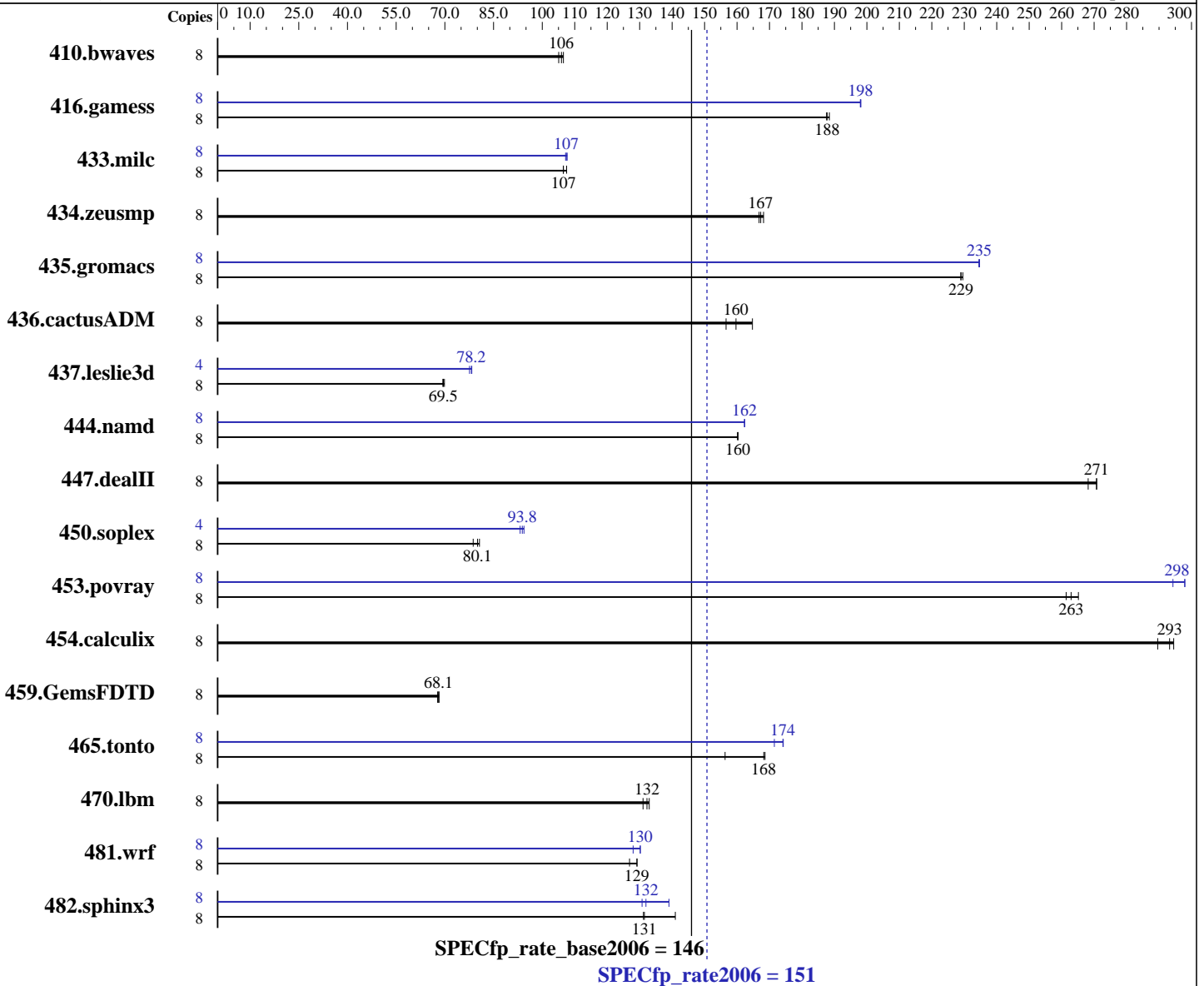|	
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CPU2006 license: 9008
Test sponsor: ACTION S.A.
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Test date: Jul-2015
Hardware Availability: Sep-2014
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L3 Cache:	8 MB I+D on chip per chip	System State:	Run level 3 (multi-user)
Other Cache:	None	Base Pointers:	32/64-bit
Memory:	32 GB (4 x 8 GB 2Rx8 PC3-12800U-13)	Peak Pointers:	32/64-bit
Disk Subsystem:	1 x 240 GB SATA II SSD	Other Software:	None
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	1035	105	1021	107	**1027**	**106**	8	1035	105	1021	107	**1027**	**106**
416.gamess	8	831	188	835	188	**834**	**188**	8	790	198	**791**	**198**	791	198
433.milc	8	683	108	**689**	**107**	690	106	8	685	107	682	108	**684**	**107**
434.zeusmp	8	433	168	**435**	**167**	436	167	8	433	168	**435**	**167**	436	167
435.gromacs	8	249	230	249	229	**249**	**229**	8	243	235	**243**	**235**	244	235
436.cactusADM	8	610	157	580	165	**599**	**160**	8	610	157	580	165	**599**	**160**
437.leslie3d	8	**1081**	**69.5**	1076	69.9	1084	69.4	4	485	77.6	**481**	**78.2**	480	78.3
444.namd	8	400	160	**400**	**160**	401	160	8	395	162	**395**	**162**	395	162
447.dealII	8	338	271	341	268	**338**	**271**	8	338	271	341	268	**338**	**271**
450.soplex	8	**833**	**80.1**	848	78.7	827	80.7	4	353	94.4	358	93.2	**355**	**93.8**
453.povray	8	161	265	**162**	**263**	163	261	8	143	298	145	294	**143**	**298**
454.calculix	8	**225**	**293**	228	290	224	295	8	**225**	**293**	228	290	224	295
459.GemsFDTD	8	**1247**	**68.1**	1253	67.8	1244	68.2	8	**1247**	**68.1**	1253	67.8	1244	68.2
465.tonto	8	504	156	**468**	**168**	467	169	8	459	171	452	174	**452**	**174**
470.lbm	8	839	131	**831**	**132**	827	133	8	839	131	**831**	**132**	827	133
481.wrf	8	**692**	**129**	692	129	704	127	8	686	130	**686**	**130**	698	128
482.sphinx3	8	1189	131	1106	141	**1186**	**131**	8	1193	131	1121	139	**1182**	**132**

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"

Platform Notes

Bios Settings:
Set Fan Profile = Performance

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ACTION S.A.

ACTINA SOLAR 110 X6 (Intel Xeon E3-1241 v3, 3.50 GHz)

$SPECfp\_rate2006 = 151$

$SPECfp\_rate\_base2006 = 146$

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

Test date: Jul-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014

Platform Notes (Continued)

```
Sysinfo program /cpu2006.1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on SUT Mon Jul 27 20:52:24 2015

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
  http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E3-1241 v3 @ 3.50GHz
      1 "physical id"s (chips)
      8 "processors"
   cores, siblings (Caution: counting these is hw and system dependent.  The
   following excerpts from /proc/cpuinfo might not be reliable.  Use with
   caution.)
      cpu cores : 4
      siblings  : 8
      physical 0: cores 0 1 2 3
   cache size : 8192 KB

From /proc/meminfo
   MemTotal:       32816256 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.6 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.6 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.6 (Santiago)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

uname -a:
   Linux SUT 2.6.32-504.8.1.el6.x86_64 #1 SMP Wed Mar 11 12:12:13 CET 2015
   x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jul 27 12:00

SPEC is set to: /cpu2006.1.2
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda1       ext4  212G   47G  154G  24% /

Additional information from dmidecode:
  BIOS Intel Corp. S1200RP.86B.03.01.0002.041520151123 04/15/2015
  Memory:
   4x    8 GB
   4x 0793 W-MEM1600E38G 8 GB 1600 MHz 2 rank

(End of data from sysinfo program)
dmidecode does not properly detect memory modules
```

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Test date: Jul-2015
Hardware Availability: Sep-2014
Software Availability: Sep-2014

Platform Notes (Continued)

```
4 modules of 8 GB were used to run the test (32 GB total)
```

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:/cpu2006.1.2/sh"

 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
 Filesystem page cache cleared with:
 echo 1>        /proc/sys/vm/drop_caches
 runspec command invoked through numactl i.e.:
 numactl --interleave=all runspec <etc>
 Binaries compiled on a system with 2x Xeon E5-2650 v3 chips + 256 GB memory
 using RedHat EL 6.6
```

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
```

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CPU2006 license: 9008

Test sponsor: ACTION S.A.

Tested by: ACTION S.A.

Test date: Jul-2015

Hardware Availability: Sep-2014

Software Availability: Sep-2014

Base Portability Flags (Continued)

```
   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:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

Fortran benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
```

Benchmarks using both Fortran and C:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

Peak Compiler Invocation

C benchmarks:
```
icc    -m64
```

C++ benchmarks (except as noted below):
```
icpc   -m64
```
```
 450.soplex: icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
```

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
```

Continued on next page

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Test sponsor: ACTION S.A.		**Hardware Availability:**	Sep-2014
Tested by: ACTION S.A.		**Software Availability:**	Sep-2014

Peak Portability Flags (Continued)

```
      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
     482.sphinx3: -DSPEC_CPU_LP64
```

Peak Optimization Flags

C benchmarks:

```
        433.milc: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                  -O3(pass 2) -no-prec-div(pass 2)
                  -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
                  -auto-ilp32

        470.lbm: basepeak = yes

     482.sphinx3: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
                  -unroll2
```

C++ benchmarks:

```
       444.namd: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                  -O3(pass 2) -no-prec-div(pass 2)
                  -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -fno-alias
                  -auto-ilp32

       447.dealII: basepeak = yes

      450.soplex: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                  -O3(pass 2) -no-prec-div(pass 2)
                  -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
                  -opt-malloc-options=3

      453.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
                  -O3(pass 2) -no-prec-div(pass 2)
                  -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -unroll4
                  -ansi-alias
```

Fortran benchmarks:

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Test sponsor: ACTION S.A.		**Hardware Availability:**	Sep-2014
Tested by: ACTION S.A.		**Software Availability:**	Sep-2014

Peak Optimization Flags (Continued)

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(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-

434.zeusmp: basepeak = yes

437.leslie3d: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -xCORE-AVX2(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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2)
-opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/ACTION.SA-Platform-Flags-RevA-mar-2015-For-Intel-Platform.html

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You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/ACTION.SA-Platform-Flags-RevA-mar-2015-For-Intel-Platform.xml

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

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