SPEC® CFP2006 Result
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ACTION S.A.

ACTINA SOLAR E 110 S6 (Intel Xeon E3-1231 v3, 3.40 GHz)

$SPECfp^{®}2006 =$ 75.3
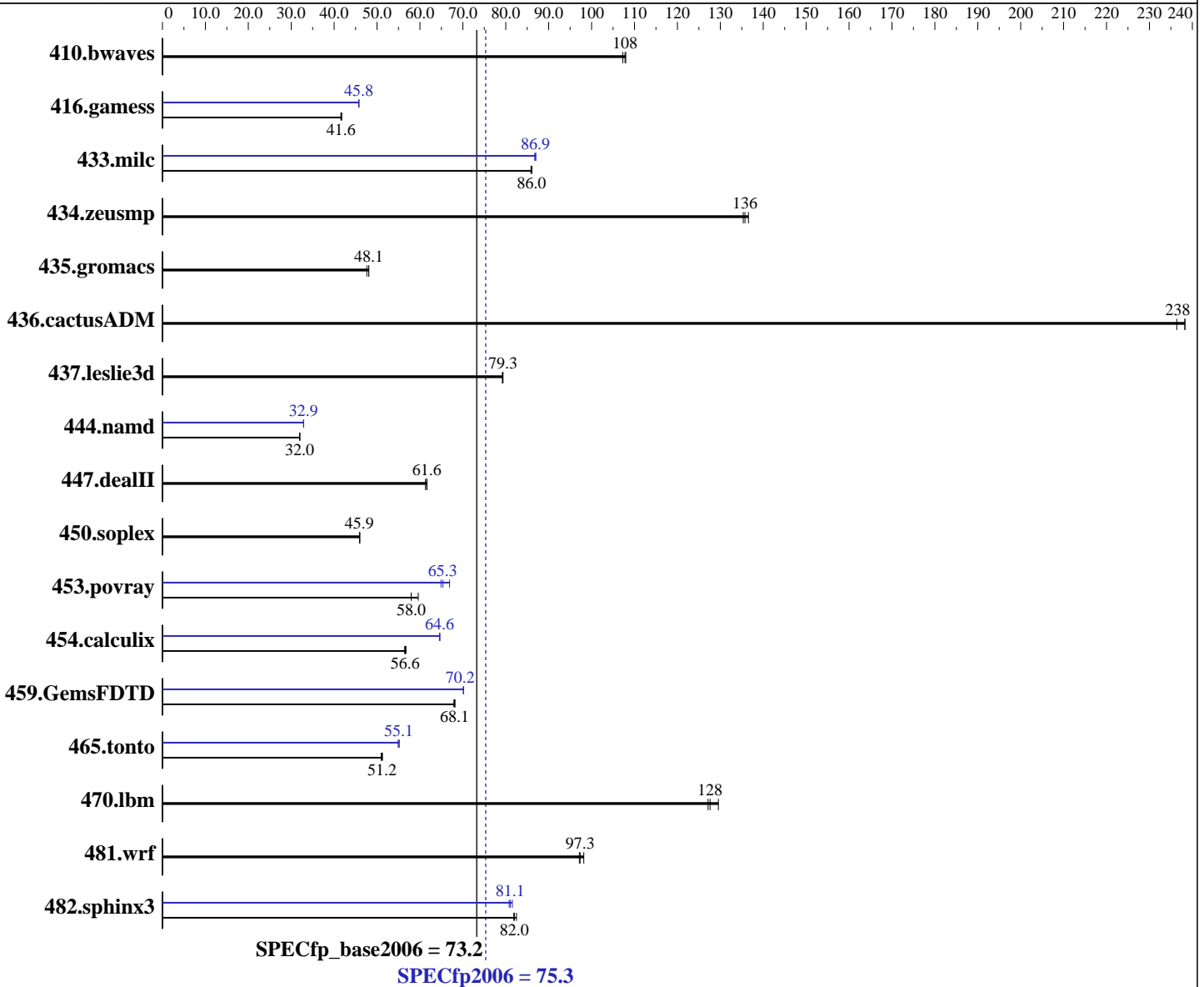
$SPECfp\_base2006 =$ 73.2

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

Test date: Jun-2015
Hardware Availability: Sep-2014
Software Availability: Nov-2013

Benchmark	Result (peak)	Result (base)
410.bwaves		108
416.gamess	45.8	41.6
433.milc	86.9	86.0
434.zeusmp		136
435.gromacs		48.1
436.cactusADM		238
437.leslie3d		79.3
444.namd	32.9	32.0
447.dealII		61.6
450.soplex		45.9
453.povray	65.3	58.0
454.calculix	64.6	56.6
459.GemsFDTD	70.2	68.1
465.tonto	55.1	51.2
470.lbm		128
481.wrf		97.3
482.sphinx3	81.1	82.0

SPECfp_base2006 = 73.2

SPECfp2006 = 75.3

Hardware

CPU Name: Intel Xeon E3-1231 v3
CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz
CPU MHz: 3400
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 6.5 (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: Yes
File System: ext4

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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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	127	107	**126**	**108**	126	108	127	107	**126**	**108**	126	108
416.gamess	471	41.6	**470**	**41.6**	469	41.8	**428**	**45.8**	427	45.8	428	45.7
433.milc	107	86.1	**107**	**86.0**	107	85.9	106	87.0	**106**	**86.9**	106	86.8
434.zeusmp	67.2	135	**67.0**	**136**	66.6	137	67.2	135	**67.0**	**136**	66.6	137
435.gromacs	**149**	**48.1**	150	47.6	149	48.1	**149**	**48.1**	150	47.6	149	48.1
436.cactusADM	50.2	238	50.6	236	**50.2**	**238**	50.2	238	50.6	236	**50.2**	**238**
437.leslie3d	**118**	**79.3**	119	79.2	118	79.3	**118**	**79.3**	119	79.2	118	79.3
444.namd	251	32.0	251	32.0	**251**	**32.0**	244	32.9	244	32.9	**244**	**32.9**
447.dealII	187	61.3	186	61.6	**186**	**61.6**	187	61.3	186	61.6	**186**	**61.6**
450.soplex	182	45.9	**182**	**45.9**	181	46.0	182	45.9	**182**	**45.9**	181	46.0
453.povray	**91.8**	**58.0**	89.2	59.6	91.8	58.0	**81.4**	**65.3**	79.5	66.9	82.0	64.9
454.calculix	145	56.8	146	56.4	**146**	**56.6**	128	64.7	**128**	**64.6**	128	64.6
459.GemsFDTD	156	68.2	**156**	**68.1**	156	67.9	151	70.1	**151**	**70.2**	151	70.2
465.tonto	192	51.3	**192**	**51.2**	193	51.0	179	54.9	178	55.2	**179**	**55.1**
470.lbm	108	127	**108**	**128**	106	130	108	127	**108**	**128**	106	130
481.wrf	114	98.2	115	97.2	**115**	**97.3**	114	98.2	115	97.2	**115**	**97.3**
482.sphinx3	238	81.9	**238**	**82.0**	236	82.5	241	80.8	239	81.5	**240**	**81.1**

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

Operating System Notes

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

Platform Notes

```
Bios Settings:
Power Technology = Energy Efficient

BMC Setting
Fan Mode = Full Speed

Sysinfo program /cpu2006.1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on SUT Wed Jun  3 17:24:00 2015
```

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Platform Notes (Continued)

```
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 E3-1231 v3 @ 3.40GHz
      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:       32837840 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
   Red Hat Enterprise Linux Server release 6.5 (Santiago)

From /etc/*release* /etc/*version*
   redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
   system-release: Red Hat Enterprise Linux Server release 6.5 (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 Jun 3 12:35

SPEC is set to: /cpu2006.1.2
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda1       ext4  212G   42G  160G  21% /

Additional information from dmidecode:
  BIOS American Megatrends Inc. 3.0 04/24/2015
  Memory:
   4x    8 GB
   4x 0793 W-MEM1600E38G 8 GB 1600 MHz 2 rank

(End of data from sysinfo program)
```

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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"
OMP_NUM_THREADS = "4"

 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
 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
        470.lbm: -DSPEC_CPU_LP64
        481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
     482.sphinx3: -DSPEC_CPU_LP64
```

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Base Optimization Flags

C benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias
```

C++ benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias
```

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

Benchmarks using both Fortran and C:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-ansi-alias
```

Peak Compiler Invocation

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

C++ benchmarks:
```
icpc   -m64
```

Fortran benchmarks:
```
ifort -m64
```

Benchmarks using both Fortran and C:
```
icc    -m64 ifort -m64
```

Peak Portability Flags

```
Same as Base Portability Flags
```

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) -prof-use(pass 2)
            -auto-ilp32 -ansi-alias

  470.lbm: basepeak = yes

482.sphinx3: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias
            -parallel
```

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Peak Optimization Flags (Continued)

C++ benchmarks:

    444.namd: `-xCORE-AVX2(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.dealII: basepeak = yes

    450.soplex: basepeak = yes

    453.povray: `-xCORE-AVX2(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: `-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: basepeak = yes

  459.GemsFDTD: `-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 -opt-prefetch -parallel`

    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)`
    `-inline-calloc -opt-malloc-options=3 -auto -unroll4`

Benchmarks using both Fortran and C:

    435.gromacs: basepeak = yes

  436.cactusADM: basepeak = yes

    454.calculix: `-xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias`

    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-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/ACTION.SA-Platform-Flags-RevC-jan-2015-For-Supermicro-Platform.20150225.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-RevC-jan-2015-For-Supermicro-Platform.20150225.xml

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