



# SPEC<sup>®</sup> CFP2006 Result

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## ACTION S.A.

ACTINA SOLAR 110 S6 (Intel Xeon E3-1220 v3, 3.10 GHz)

SPECfp<sup>®</sup>2006 = 73.7

SPECfp\_base2006 = 72.4

CPU2006 license: 9008

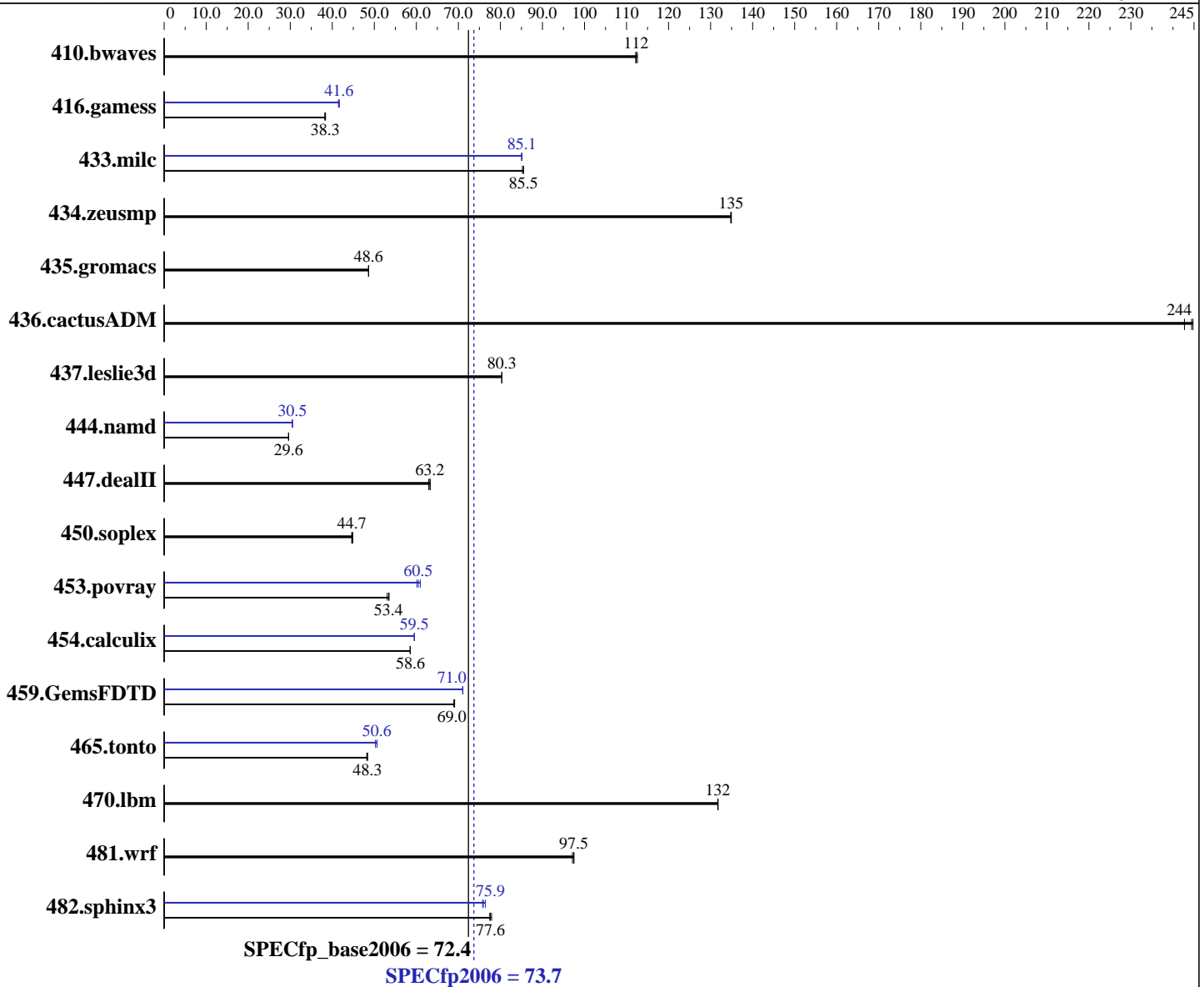
Test sponsor: ACTION S.A.

Tested by: ACTION S.A.

Test date: Dec-2015

Hardware Availability: Sep-2014

Software Availability: Aug-2015



### Hardware

CPU Name: Intel Xeon E3-1220 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 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

Continued on next page

### Software

Operating System: Red Hat Enterprise Linux Server release 7.1 (Maipo)  
 3.10.0-229.11.1.el7.x86\_64  
 Compiler: C/C++: Version 16.0.0.047 of Intel C++ Studio XE for Linux;  
 Fortran: Version 16.0.0.047 of Intel Fortran Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext4

Continued on next page



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L3 Cache: 8 MB I+D on chip per chip  
Other Cache: None  
Memory: 32 GB (4 x 8 GB 2Rx8 PC3-12800E-11, ECC)  
Disk Subsystem: 1 x 240 GB SATA II SSD  
Other Hardware: None

System State: Run level 3 (multi-user)  
Base Pointers: 64-bit  
Peak Pointers: 32/64-bit  
Other Software: None

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	<b><u>121</u></b>	<b><u>112</u></b>	121	112	121	113	<b><u>121</u></b>	<b><u>112</u></b>	121	112	121	113
416.gamess	512	38.2	510	38.4	<b><u>511</u></b>	<b><u>38.3</u></b>	<b><u>471</u></b>	<b><u>41.6</u></b>	472	41.5	470	41.7
433.milc	<b><u>107</u></b>	<b><u>85.5</u></b>	107	85.5	108	85.2	108	85.0	<b><u>108</u></b>	<b><u>85.1</u></b>	108	85.1
434.zeusmp	67.4	135	67.5	135	<b><u>67.5</u></b>	<b><u>135</u></b>	67.4	135	67.5	135	<b><u>67.5</u></b>	<b><u>135</u></b>
435.gromacs	147	48.6	147	48.6	<b><u>147</u></b>	<b><u>48.6</u></b>	147	48.6	147	48.6	<b><u>147</u></b>	<b><u>48.6</u></b>
436.cactusADM	49.2	243	<b><u>48.9</u></b>	<b><u>244</u></b>	48.8	245	49.2	243	<b><u>48.9</u></b>	<b><u>244</u></b>	48.8	245
437.leslie3d	117	80.4	<b><u>117</u></b>	<b><u>80.3</u></b>	117	80.3	117	80.4	<b><u>117</u></b>	<b><u>80.3</u></b>	117	80.3
444.namd	271	29.6	<b><u>271</u></b>	<b><u>29.6</u></b>	271	29.6	263	30.5	<b><u>263</u></b>	<b><u>30.5</u></b>	263	30.5
447.dealII	<b><u>181</u></b>	<b><u>63.2</u></b>	181	63.3	182	62.9	<b><u>181</u></b>	<b><u>63.2</u></b>	181	63.3	182	62.9
450.soplex	186	44.9	187	44.6	<b><u>187</u></b>	<b><u>44.7</u></b>	186	44.9	187	44.6	<b><u>187</u></b>	<b><u>44.7</u></b>
453.povray	<b><u>99.6</u></b>	<b><u>53.4</u></b>	99.4	53.5	100	53.1	88.5	60.1	87.3	60.9	<b><u>88.0</u></b>	<b><u>60.5</u></b>
454.calculix	141	58.6	141	58.5	<b><u>141</u></b>	<b><u>58.6</u></b>	139	59.5	<b><u>139</u></b>	<b><u>59.5</u></b>	139	59.5
459.GemsFDTD	154	68.9	<b><u>154</u></b>	<b><u>69.0</u></b>	154	69.1	149	71.1	<b><u>149</u></b>	<b><u>71.0</u></b>	149	71.0
465.tonto	203	48.4	204	48.2	<b><u>204</u></b>	<b><u>48.3</u></b>	<b><u>194</u></b>	<b><u>50.6</u></b>	196	50.3	194	50.7
470.lbm	104	132	<b><u>104</u></b>	<b><u>132</u></b>	104	132	104	132	<b><u>104</u></b>	<b><u>132</u></b>	104	132
481.wrf	115	97.1	115	97.5	<b><u>115</u></b>	<b><u>97.5</u></b>	115	97.1	115	97.5	<b><u>115</u></b>	<b><u>97.5</u></b>
482.sphinx3	250	77.9	252	77.5	<b><u>251</u></b>	<b><u>77.6</u></b>	255	76.4	257	75.8	<b><u>257</u></b>	<b><u>75.9</u></b>

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: Dafault

BMC Setting  
Fan Mode = Full Speed

Sysinfo program /cpu2006.1.2/config/sysinfo.rev6818  
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191  
running on SUT Fri Dec 4 21:10:52 2015

Continued on next page



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Hardware Availability: Sep-2014

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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 E3-1220 v3 @ 3.10GHz
 1 "physical id"s (chips)
 4 "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  : 4
  physical 0: cores 0 1 2 3
cache size : 8192 KB

```

```

From /proc/meminfo
MemTotal:      32742600 kB
HugePages_Total:      1
Hugepagesize:   2048 kB

```

```

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.0 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.0"
PRETTY_NAME="Red Hat Enterprise Linux"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
os-release.rpmnew:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.1 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.1"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.1 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.1:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.1:ga:server

```

```

uname -a:
Linux SUT 3.10.0-229.11.1.el7.x86_64 #5 SMP Mon Sep 14 17:11:19 CEST 2015
x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Dec 4 16:05

SPEC is set to: /cpu2006.1.2

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
Continued on next page						



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## Platform Notes (Continued)

/dev/sda1 ext4 212G 38G 163G 19% /

Additional information from dmidecode:

BIOS American Megatrends Inc. 2.0 04/24/2014

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

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"

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 7.1

## 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

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Page 4



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## Base Portability Flags (Continued)

```

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:
-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

```



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**Software Availability:** Aug-2015

## 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

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

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## Peak Optimization Flags (Continued)

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-ic16.0-official-linux64.html>

<http://www.spec.org/cpu2006/flags/ACTION.SA-Platform-Flags-RevD-aug-2015-For-Supermicro-Platform.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml>

<http://www.spec.org/cpu2006/flags/ACTION.SA-Platform-Flags-RevD-aug-2015-For-Supermicro-Platform.xml>

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