



SPEC® CFP2006 Result

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ACTION S.A.

ACTINA SOLAR 220 X6 (Intel Xeon E5-2683 v3, 2.00 GHz)

SPECfp®2006 = 101

SPECfp_base2006 = 96.8

CPU2006 license: 9008

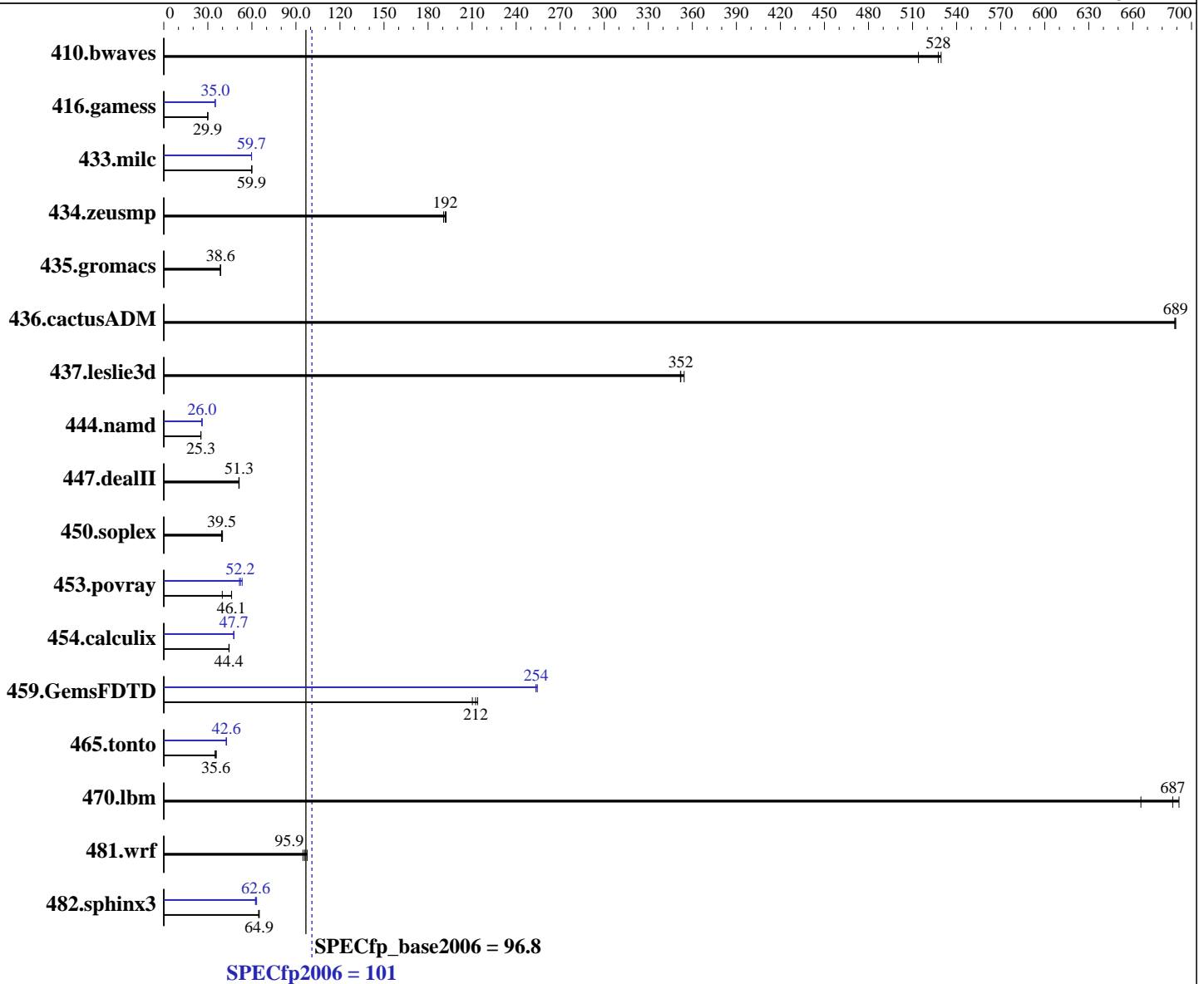
Test sponsor: ACTION S.A.

Tested by: ACTION S.A.

Test date: Oct-2015

Hardware Availability: Sep-2014

Software Availability: Aug-2015



Hardware

CPU Name: Intel Xeon E5-2683 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 28 cores, 2 chips, 14 cores/chip
 CPU(s) orderable: 1,2 chips
 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: 35 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)
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	25.7	529	<u>25.8</u>	<u>528</u>	26.4	514	25.7	529	<u>25.8</u>	<u>528</u>	26.4	514
416.gamess	657	29.8	<u>655</u>	<u>29.9</u>	652	30.1	559	35.0	559	35.0	<u>559</u>	<u>35.0</u>
433.milc	<u>153</u>	<u>59.9</u>	154	59.7	153	60.0	153	59.8	154	59.7	<u>154</u>	<u>59.7</u>
434.zeusmp	47.3	192	<u>47.5</u>	<u>192</u>	47.7	191	47.3	192	<u>47.5</u>	<u>192</u>	47.7	191
435.gromacs	<u>185</u>	<u>38.6</u>	185	38.7	185	38.5	<u>185</u>	<u>38.6</u>	185	38.7	185	38.5
436.cactusADM	17.4	689	17.3	689	<u>17.3</u>	<u>689</u>	17.4	689	17.3	689	<u>17.3</u>	<u>689</u>
437.leslie3d	26.5	354	26.7	352	<u>26.7</u>	<u>352</u>	26.5	354	26.7	352	<u>26.7</u>	<u>352</u>
444.namd	317	25.3	318	25.2	<u>317</u>	<u>25.3</u>	309	26.0	308	26.0	<u>308</u>	<u>26.0</u>
447.dealII	224	51.1	<u>223</u>	<u>51.3</u>	223	51.3	224	51.1	<u>223</u>	<u>51.3</u>	223	51.3
450.soplex	<u>211</u>	<u>39.5</u>	212	39.3	208	40.0	<u>211</u>	<u>39.5</u>	212	39.3	208	40.0
453.povray	115	46.2	<u>115</u>	<u>46.1</u>	134	39.8	99.6	53.4	103	51.5	<u>102</u>	<u>52.2</u>
454.calculix	186	44.4	185	44.5	<u>186</u>	<u>44.4</u>	173	47.7	173	47.7	<u>173</u>	<u>47.7</u>
459.GemsFDTD	<u>50.0</u>	<u>212</u>	50.5	210	49.6	214	41.7	254	<u>41.8</u>	<u>254</u>	41.8	254
465.tonto	276	35.7	<u>277</u>	<u>35.6</u>	282	34.9	231	42.6	<u>231</u>	<u>42.6</u>	231	42.6
470.lbm	19.9	691	20.6	666	<u>20.0</u>	<u>687</u>	19.9	691	20.6	666	<u>20.0</u>	<u>687</u>
481.wrf	114	97.6	118	94.8	<u>116</u>	<u>95.9</u>	114	97.6	118	94.8	<u>116</u>	<u>95.9</u>
482.sphinx3	300	65.0	302	64.6	<u>300</u>	<u>64.9</u>	308	63.2	312	62.4	<u>311</u>	<u>62.6</u>

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:
Intel(R) Hyper-Threading Tech = Disabled
Power & Performance = Performance
Enforce POR = Disabled
Memory Operating Speed Selection = 2133
Cluster-on-Die = Disabled
Set Fan Profile = Performance
Fan PWM Offset = 0

Continued on next page



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Platform Notes (Continued)

Sysinfo program /cpu2006.1.2/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 # \$ e86d102572650a6e4d596a3cee98f191
running on SUT Thu Oct 15 16:59:23 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 E5-2683 v3 @ 2.00GHz
 2 "physical id"s (chips)
 28 "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 : 14
siblings   : 14
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
cache size : 35840 KB
```

From /proc/meminfo

```
MemTotal:      263866880 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
```

Continued on next page



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Platform Notes (Continued)

run-level 3 Oct 14 11:45

SPEC is set to: /cpu2006.1.2

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sdal	ext4	212G	40G	161G	20%	/

Additional information from dmidecode:

BIOS Intel Corporation SE5C610.86B.01.01.0009.060120151350 06/01/2015

Memory:

16x 16 GB

16x Micron 36ASF2G72PZ-2G1A2 16 GB 2134 MHz 2 rank

8x NO DIMM NO DIMM

(End of data from sysinfo program)

dmidecode does not properly detect memory modules

16 modules of 16 GB were used to run the test (256 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 = "28"

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



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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.deallI: -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

```

Continued on next page



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Peak Compiler Invocation (Continued)

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

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.dealIII: 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

Continued on next page



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Peak Optimization Flags (Continued)

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-ic16.0-official-linux64.html>

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

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