



SPEC[®] CFP2006 Result

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ACTION S.A.

ACTINA SOLAR 222 S6 (Intel Xeon E5-2683 v3, 2.00 GHz)

SPECfp[®]2006 = 102

SPECfp_base2006 = 97.6

CPU2006 license: 9008

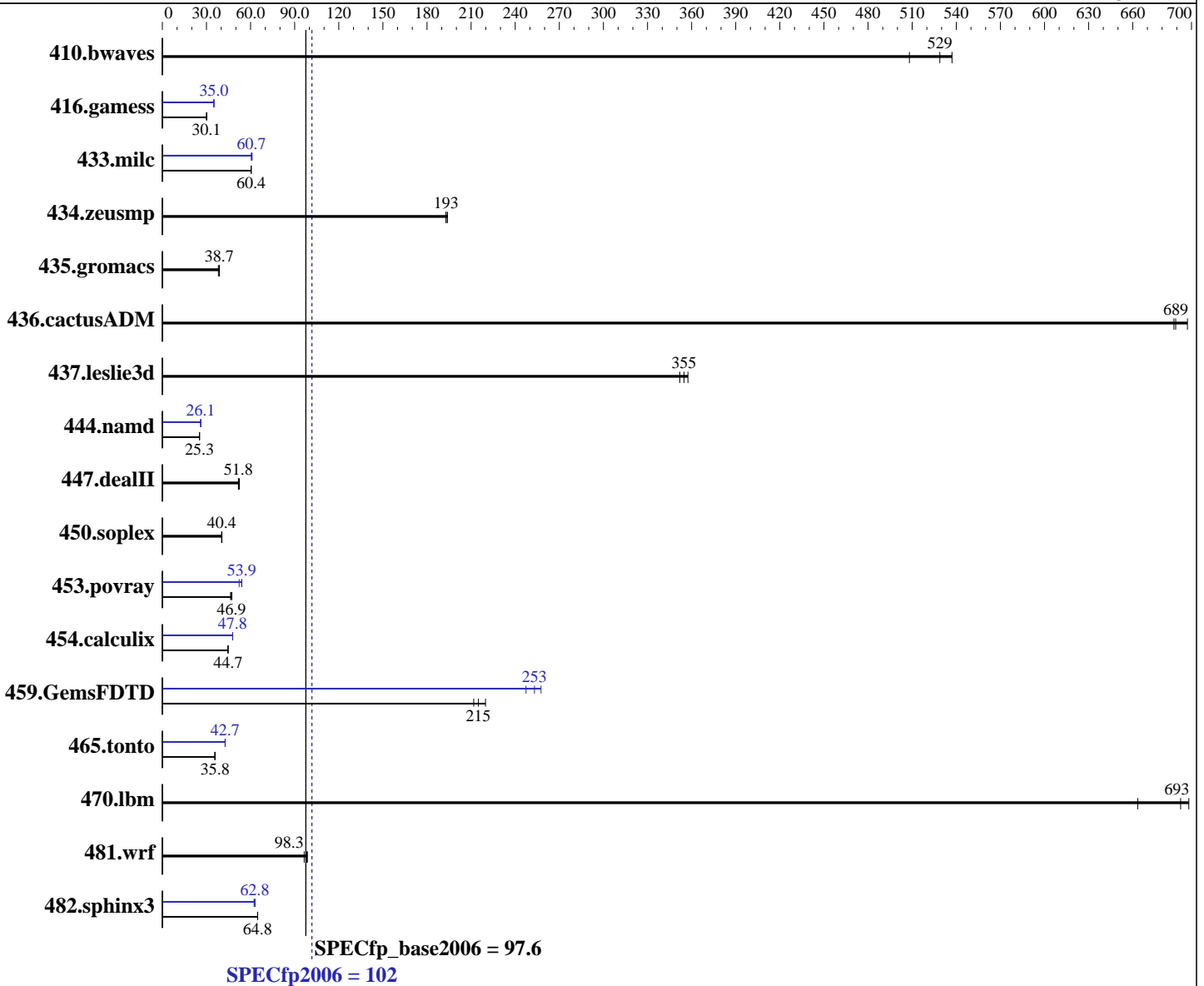
Test sponsor: ACTION S.A.

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

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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

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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 PC4-2400P-R, running at 2133 MHz)
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	<u>25.7</u>	<u>529</u>	25.3	537	26.7	508	<u>25.7</u>	<u>529</u>	25.3	537	26.7	508
416.gamess	<u>650</u>	<u>30.1</u>	651	30.1	650	30.1	<u>559</u>	<u>35.0</u>	559	35.0	558	35.1
433.milc	<u>152</u>	<u>60.4</u>	152	60.3	152	60.5	150	61.1	152	60.5	<u>151</u>	<u>60.7</u>
434.zeusmp	47.2	193	<u>47.1</u>	<u>193</u>	46.9	194	47.2	193	<u>47.1</u>	<u>193</u>	46.9	194
435.gromacs	187	38.1	184	38.7	<u>185</u>	<u>38.7</u>	187	38.1	184	38.7	<u>185</u>	<u>38.7</u>
436.cactusADM	<u>17.3</u>	<u>689</u>	17.1	697	17.4	688	<u>17.3</u>	<u>689</u>	17.1	697	17.4	688
437.leslie3d	<u>26.5</u>	<u>355</u>	26.3	357	26.7	352	<u>26.5</u>	<u>355</u>	26.3	357	26.7	352
444.namd	317	25.3	<u>317</u>	<u>25.3</u>	318	25.2	307	26.1	307	26.1	<u>307</u>	<u>26.1</u>
447.dealII	<u>221</u>	<u>51.8</u>	218	52.4	221	51.7	<u>221</u>	<u>51.8</u>	218	52.4	221	51.7
450.soplex	206	40.5	<u>207</u>	<u>40.4</u>	207	40.4	206	40.5	<u>207</u>	<u>40.4</u>	207	40.4
453.povray	<u>113</u>	<u>46.9</u>	115	46.4	113	47.2	<u>98.7</u>	<u>53.9</u>	102	52.2	98.5	54.0
454.calculix	<u>184</u>	<u>44.7</u>	184	44.7	185	44.5	<u>173</u>	<u>47.8</u>	172	47.9	173	47.8
459.GemsFDTD	<u>49.4</u>	<u>215</u>	48.3	220	50.1	212	<u>41.9</u>	<u>253</u>	42.9	247	41.2	258
465.tonto	<u>275</u>	<u>35.8</u>	274	35.9	276	35.7	<u>230</u>	<u>42.7</u>	231	42.7	230	42.8
470.lbm	<u>19.8</u>	<u>693</u>	20.7	663	19.7	698	<u>19.8</u>	<u>693</u>	20.7	663	19.7	698
481.wrf	116	96.5	<u>114</u>	<u>98.3</u>	113	98.7	116	96.5	<u>114</u>	<u>98.3</u>	113	98.7
482.sphinx3	301	64.8	<u>301</u>	<u>64.8</u>	300	64.9	<u>310</u>	<u>62.8</u>	309	63.1	312	62.4

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
Hyper-Threading (All) = Disable
Power Technology = Energy Efficient
Enforce POR = Disabled
Memory Frequency = 2133
COD Enable = Disable

BMC Setting

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Platform Notes (Continued)

Fan Mode = Full Speed

Sysinfo program /cpu2006.1.2/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on SUT Mon Oct 19 22:01:01 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:      263867524 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:

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Platform Notes (Continued)

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 Oct 19 16:10

SPEC is set to: /cpu2006.1.2

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda1	ext4	212G	38G	163G	19%	/

Additional information from dmidecode:

BIOS American Megatrends Inc. 1.0c 01/07/2015

Memory:

16x 16 GB

16x Hynix Semiconductor (date:15/28) HMA42GR7AFR4N-UH 16 GB 2133 MHz 2 rank

(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

```

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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

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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-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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