



# SPEC<sup>®</sup> CINT2006 Result

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## ACTION S.A.

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

**SPECint<sup>®</sup>2006 = 58.7**

**SPECint\_base2006 = 56.9**

CPU2006 license: 9008

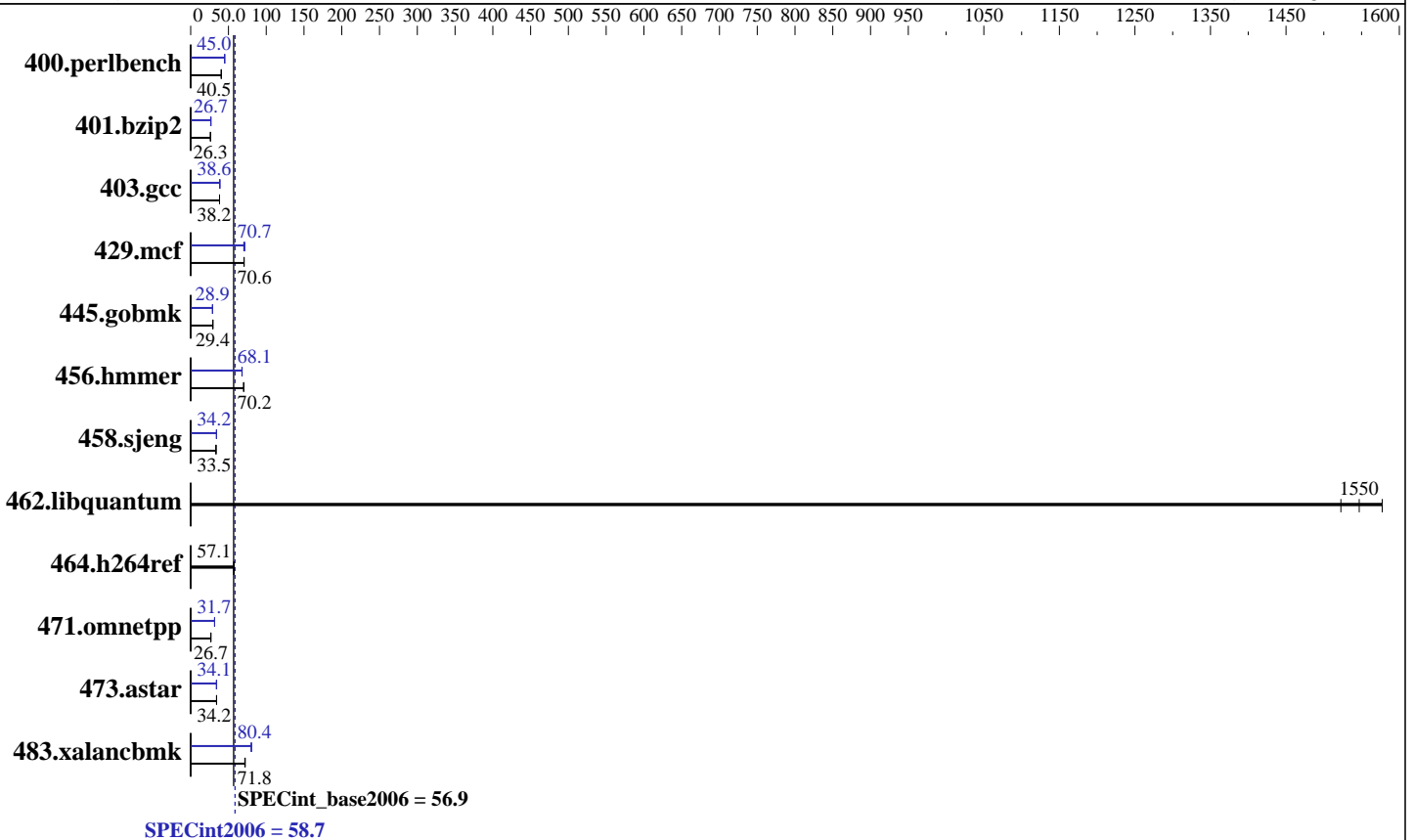
Test sponsor: ACTION S.A.

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  
 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

### 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  
 Auto Parallel: Yes  
 File System: ext4  
 System State: Run level 3 (multi-user)  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: Microquill SmartHeap V10.0



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	<b><u>242</u></b>	<b><u>40.5</u></b>	242	40.3	240	40.8	<b><u>217</u></b>	<b><u>45.0</u></b>	217	45.0	217	45.1
401.bzip2	369	26.1	367	26.3	<b><u>368</u></b>	<b><u>26.3</u></b>	361	26.7	361	26.7	<b><u>361</u></b>	<b><u>26.7</u></b>
403.gcc	211	38.2	<b><u>211</u></b>	<b><u>38.2</u></b>	211	38.2	<b><u>209</u></b>	<b><u>38.6</u></b>	209	38.5	208	38.6
429.mcf	<b><u>129</u></b>	<b><u>70.6</u></b>	129	70.6	129	70.8	<b><u>129</u></b>	<b><u>70.7</u></b>	130	70.3	127	71.7
445.gobmk	358	29.3	357	29.4	<b><u>357</u></b>	<b><u>29.4</u></b>	363	28.9	362	29.0	<b><u>363</u></b>	<b><u>28.9</u></b>
456.hmmer	133	70.2	133	70.2	<b><u>133</u></b>	<b><u>70.2</u></b>	<b><u>137</u></b>	<b><u>68.1</u></b>	138	67.8	137	68.1
458.sjeng	<b><u>361</u></b>	<b><u>33.5</u></b>	361	33.5	362	33.5	354	34.1	354	34.2	<b><u>354</u></b>	<b><u>34.2</u></b>
462.libquantum	13.1	1580	<b><u>13.4</u></b>	<b><u>1550</u></b>	13.6	1520	13.1	1580	<b><u>13.4</u></b>	<b><u>1550</u></b>	13.6	1520
464.h264ref	389	56.9	385	57.5	<b><u>388</u></b>	<b><u>57.1</u></b>	389	56.9	385	57.5	<b><u>388</u></b>	<b><u>57.1</u></b>
471.omnetpp	233	26.8	235	26.6	<b><u>234</u></b>	<b><u>26.7</u></b>	198	31.5	197	31.7	<b><u>197</u></b>	<b><u>31.7</u></b>
473.astar	<b><u>205</u></b>	<b><u>34.2</u></b>	205	34.2	204	34.3	206	34.1	204	34.4	<b><u>206</u></b>	<b><u>34.1</u></b>
483.xalancbmk	95.5	72.3	<b><u>96.1</u></b>	<b><u>71.8</u></b>	96.2	71.7	<b><u>85.8</u></b>	<b><u>80.4</u></b>	86.2	80.0	85.6	80.6

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

## Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl 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: 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 16:10:44 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 E3-1220 v3 @ 3.10GHz  
1 "physical id"s (chips)

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### Platform Notes (Continued)

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
/dev/sda1       ext4  212G   37G  165G  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  
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## Platform Notes (Continued)

(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

## Base Portability Flags

400.perlbench: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX\_X64  
401.bzip2: -DSPEC\_CPU\_LP64  
403.gcc: -DSPEC\_CPU\_LP64  
429.mcf: -DSPEC\_CPU\_LP64  
445.gobmk: -DSPEC\_CPU\_LP64  
456.hmmmer: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
464.h264ref: -DSPEC\_CPU\_LP64  
471.omnetpp: -DSPEC\_CPU\_LP64  
473.astar: -DSPEC\_CPU\_LP64  
483.xalancbmk: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX

## Base Optimization Flags

C benchmarks:  
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32

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## Base Optimization Flags (Continued)

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32  
-Wl,-z,muldefs -L/cpu2006.1.2/sh -lsmartheap64

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

400.perlbench: icc -m32 -L/opt/intel/lib/ia32

445.gobmk: icc -m32 -L/opt/intel/lib/ia32

C++ benchmarks (except as noted below):

icpc -m32 -L/opt/intel/lib/ia32

473.astar: icpc -m64

## Peak Portability Flags

400.perlbench: -DSPEC\_CPU\_LINUX\_IA32  
401.bzip2: -DSPEC\_CPU\_LP64  
403.gcc: -DSPEC\_CPU\_LP64  
429.mcf: -DSPEC\_CPU\_LP64  
456.hmmer: -DSPEC\_CPU\_LP64  
458.sjeng: -DSPEC\_CPU\_LP64  
462.libquantum: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_LINUX  
464.h264ref: -DSPEC\_CPU\_LP64  
473.astar: -DSPEC\_CPU\_LP64  
483.xalancbmk: -DSPEC\_CPU\_LINUX

## Peak Optimization Flags

C benchmarks:

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## Peak Optimization Flags (Continued)

- 400.perlbench: `-xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch -ansi-alias`
- 401.bzip2: `-xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div -prof-use(pass 2) -auto-ilp32 -opt-prefetch -ansi-alias`
- 403.gcc: `-xCORE-AVX2 -ipo -O3 -no-prec-div -inline-calloc -opt-malloc-options=3 -auto-ilp32`
- 429.mcf: `-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32`
- 445.gobmk: `-xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -ansi-alias`
- 456.hmmer: `-xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32 -ansi-alias`
- 458.sjeng: `-xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -unroll4`
- 462.libquantum: `basepeak = yes`
- 464.h264ref: `basepeak = yes`
- C++ benchmarks:
  - 471.omnetpp: `-xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -opt-ra-region-strategy=block -ansi-alias -Wl,-z,muldefs -L/cpu2006.1.2/sh -lsmartheap`
  - 473.astar: `-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32 -Wl,-z,muldefs -L/cpu2006.1.2/sh -lsmartheap64`
  - 483.xalancbmk: `-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias -Wl,-z,muldefs -L/cpu2006.1.2/sh -lsmartheap`

## Peak Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`



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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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