



SPEC[®] CINT2006 Result

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ACTION S.A.

ACTINA SOLAR 222 S6 (Intel Xeon E5-2698 v3, 2.30 GHz)

SPECint[®]2006 = **68.6**

SPECint_base2006 = **65.8**

CPU2006 license: 9008

Test sponsor: ACTION S.A.

Tested by: ACTION S.A.

Test date: Nov-2015

Hardware Availability: Sep-2014

Software Availability: Aug-2015



Hardware

CPU Name: Intel Xeon E5-2698 v3
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 2300
 FPU: Integrated
 CPU(s) enabled: 32 cores, 2 chips, 16 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
 L3 Cache: 40 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

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	238	41.1	<u>238</u>	<u>41.1</u>	238	41.1	<u>217</u>	<u>45.0</u>	217	45.1	217	45.0
401.bzip2	396	24.4	<u>397</u>	<u>24.3</u>	397	24.3	<u>386</u>	<u>25.0</u>	386	25.0	386	25.0
403.gcc	220	36.5	<u>221</u>	<u>36.4</u>	221	36.4	220	36.5	<u>220</u>	<u>36.5</u>	220	36.5
429.mcf	163	56.1	<u>165</u>	<u>55.1</u>	166	54.8	162	56.2	163	56.0	<u>163</u>	<u>56.0</u>
445.gobmk	<u>348</u>	<u>30.1</u>	348	30.1	348	30.1	<u>353</u>	<u>29.8</u>	352	29.8	353	29.7
456.hammer	131	71.4	130	71.7	<u>131</u>	<u>71.4</u>	135	69.1	<u>134</u>	<u>69.5</u>	134	69.5
458.sjeng	<u>355</u>	<u>34.1</u>	354	34.2	355	34.1	<u>347</u>	<u>34.9</u>	347	34.9	347	34.8
462.libquantum	<u>2.65</u>	<u>7830</u>	2.65	7810	2.65	7830	<u>2.65</u>	<u>7830</u>	2.65	7810	2.65	7830
464.h264ref	407	54.3	<u>409</u>	<u>54.1</u>	410	54.0	407	54.3	<u>409</u>	<u>54.1</u>	410	54.0
471.omnetpp	140	44.8	141	44.3	<u>140</u>	<u>44.5</u>	109	57.3	<u>109</u>	<u>57.4</u>	109	57.5
473.astar	<u>204</u>	<u>34.4</u>	204	34.4	205	34.3	203	34.6	206	34.1	<u>203</u>	<u>34.5</u>
483.xalancbmk	<u>100</u>	<u>68.8</u>	100	68.7	100	68.9	89.1	77.4	88.6	77.9	<u>88.6</u>	<u>77.9</u>

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

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

BMC Setting

Fan Mode = Full Speed

Sysinfo program /cpu2006.1.2/config/sysinfo.rev6818

\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on SUT Mon Nov 16 18:12:46 2015

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:

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Platform Notes (Continued)

<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E5-2698 v3 @ 2.30GHz
 2 "physical id"s (chips)
 32 "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 : 16
  siblings  : 16
  physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
  physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
cache size : 40960 KB

```

```

From /proc/meminfo
MemTotal:      263867084 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 Nov 16 18:10

```

SPEC is set to: /cpu2006.1.2
Filesystem      Type      Size      Used Avail Use% Mounted on
/dev/sda1       ext4      212G      37G  165G  19% /
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```



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Platform Notes (Continued)

Additional information from dmidecode:

BIOS American Megatrends Inc. 1.1 08/13/2015

Memory:

16x 16 GB

16x Hynix Semiconductor 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 = "32"

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



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Base Optimization Flags

C benchmarks:

`-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -auto-p32`

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`



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Peak Optimization Flags

C benchmarks:

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 -lsmarheap

473.astar: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-auto-p32 -Wl,-z,muldefs -L/cpu2006.1.2/sh -lsmarheap64

483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-ansi-alias -Wl,-z,muldefs -L/cpu2006.1.2/sh -lsmarheap

Peak Other Flags

C benchmarks:

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Peak Other Flags (Continued)

403.gcc: -Dalloca=_alloca

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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