



SPEC® CINT2006 Result

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ACTION S.A.

ACTINA SOLAR 220 X6 (Intel Xeon E5-2630 v4, 2.20 GHz)

SPECint®_rate2006 = 840

SPECint_rate_base2006 = 800

CPU2006 license: 9008

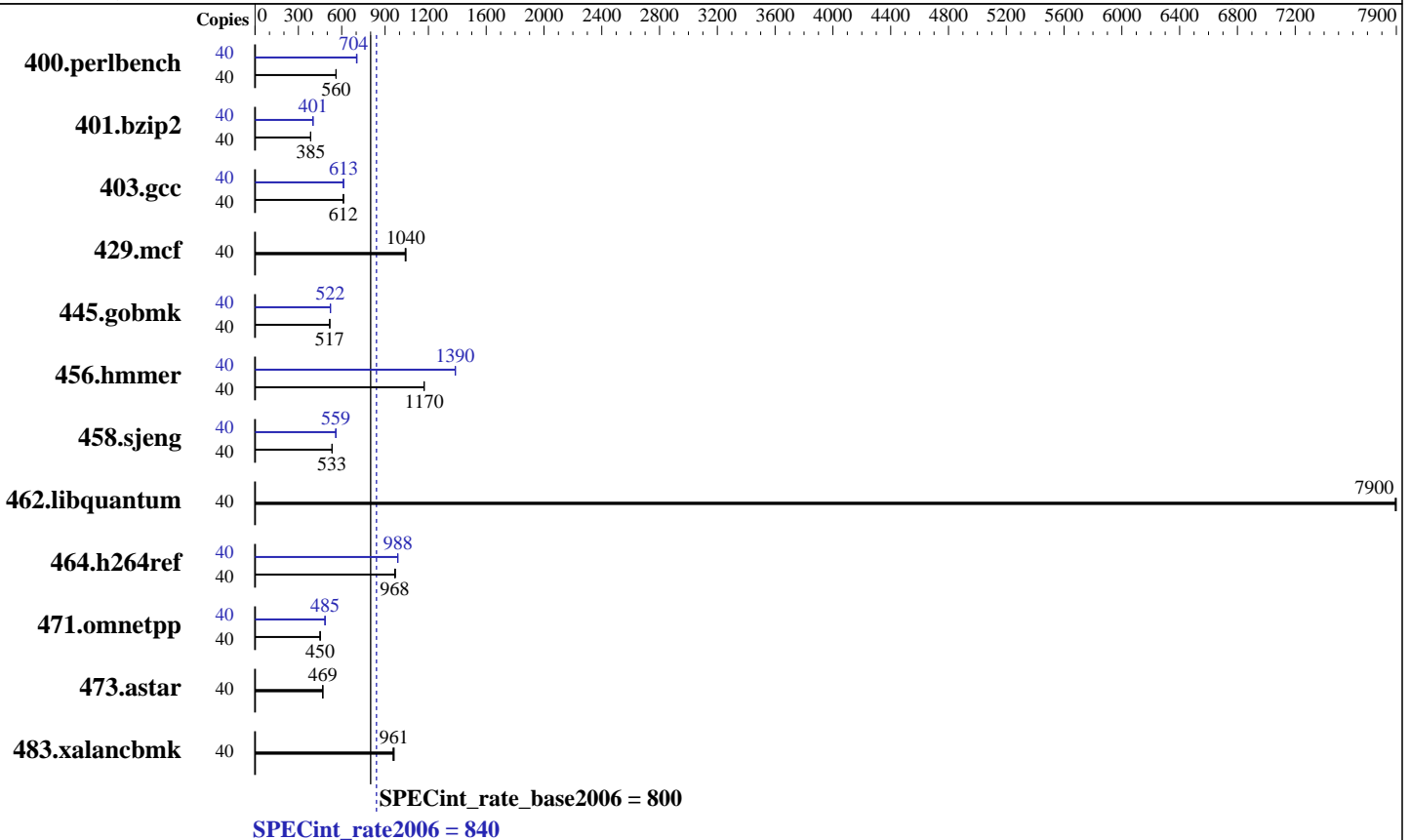
Test sponsor: ACTION S.A.

Tested by: ACTION S.A.

Test date: Aug-2016

Hardware Availability: Mar-2016

Software Availability: Mar-2016



Hardware

CPU Name: Intel Xeon E5-2630 v4
 CPU Characteristics: Intel Turbo Boost Technology up to 3.10 GHz
 CPU MHz: 2200
 FPU: Integrated
 CPU(s) enabled: 20 cores, 2 chips, 10 cores/chip, 2 threads/core
 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: 25 MB I+D on chip per chip
 Other Cache: None
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400T-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 7.2 (Maipo)
 3.10.0-327.18.2.el7.x86_64
 Compiler: C/C++: Version 16.0.3.210 of Intel C++ Studio XE for Linux
 Auto Parallel: No
 File System: ext4
 System State: Run level 3 (multi-user)
 Base Pointers: 32-bit
 Peak Pointers: 32/64-bit
 Other Software: Microquill SmartHeap V10.0



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Results Table

Benchmark	Base						Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	40	698	560	<u>697</u>	<u>560</u>	696	561	40	557	702	<u>555</u>	<u>704</u>	554	705
401.bzip2	40	1002	385	<u>1002</u>	<u>385</u>	1003	385	40	963	401	<u>963</u>	<u>401</u>	961	402
403.gcc	40	525	613	<u>526</u>	<u>612</u>	528	610	40	527	611	<u>526</u>	<u>613</u>	525	613
429.mcf	40	349	1040	351	1040	<u>350</u>	<u>1040</u>	40	349	1040	351	1040	<u>350</u>	<u>1040</u>
445.gobmk	40	812	517	811	517	<u>811</u>	<u>517</u>	40	804	522	804	522	<u>804</u>	<u>522</u>
456.hammer	40	319	1170	319	1170	<u>319</u>	<u>1170</u>	40	<u>269</u>	<u>1390</u>	269	1390	269	1390
458.sjeng	40	909	533	907	534	<u>908</u>	<u>533</u>	40	864	560	866	559	<u>865</u>	<u>559</u>
462.libquantum	40	105	7900	105	7890	<u>105</u>	<u>7900</u>	40	105	7900	105	7890	<u>105</u>	<u>7900</u>
464.h264ref	40	<u>915</u>	<u>968</u>	915	967	911	972	40	896	988	<u>896</u>	<u>988</u>	896	988
471.omnetpp	40	<u>555</u>	<u>450</u>	556	450	553	452	40	517	484	<u>516</u>	<u>485</u>	515	485
473.astar	40	598	469	<u>599</u>	<u>469</u>	599	469	40	598	469	<u>599</u>	<u>469</u>	599	469
483.xalancbmk	40	<u>287</u>	<u>961</u>	287	962	289	955	40	<u>287</u>	<u>961</u>	287	962	289	955

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:

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

Sysinfo program /cpu2006.1.2/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on SUT Fri Aug 5 10:34:44 2016

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>

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Platform Notes (Continued)

```

From /proc/cpuinfo
model name      : Intel(R) Xeon(R) CPU E5-2630 v4 @ 2.20GHz
 2 "physical id"s (chips)
 40 "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    : 10
  siblings     : 20
 physical 0:   cores 0 1 2 3 4 8 9 10 11 12
 physical 1:   cores 0 1 2 3 4 8 9 10 11 12
 cache size    : 25600 KB

```

```

From /proc/meminfo
MemTotal:      263860756 kB
HugePages_Total: 1
Hugepagesize:  2048 kB

```

```

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.2 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.2"
PRETTY_NAME="Red Hat Enterprise Linux"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.2:GA:server"
os-release.rpmsave:
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"
redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.2:ga:server

```

```

uname -a:
Linux SUT 3.10.0-327.18.2.el7.x86_64 #2 SMP Wed Jun 1 17:37:13 CEST 2016
x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Aug 5 10:33

```

SPEC is set to: /cpu2006.1.2
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sdal       ext4  212G  118G   84G   59% /

```

Additional information from dmidecode:
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Platform Notes (Continued)

BIOS Intel Corporation SE5C610.86B.11.01.0136.062220161656 06/22/2016

Memory:

16x 16 GB

16x Hynix HMA42GR7AFR4N-UH 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"

Transparent Huge Pages enabled with:

echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled

Filesystem page cache cleared with:

echo 1> /proc/sys/vm/drop_caches

runspec command invoked through numactl i.e.:

numactl --interleave=all runspec <etc>

Binaries compiled on a system with 2x Xeon E5-2650 v4 chips + 256 GB memory using RedHat EL 7.2

Base Compiler Invocation

C benchmarks:

icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/lib/ia32_lin

C++ benchmarks:

icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/lib/ia32_lin

Base Portability Flags

400.perlbench: -DSPEC_CPU_LINUX_IA32

462.libquantum: -DSPEC_CPU_LINUX

483.xalancbmk: -DSPEC_CPU_LINUX

Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

-opt-mem-layout-trans=3

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Base Optimization Flags (Continued)

C++ benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
-opt-mem-layout-trans=3 -Wl,-z,muldefs -L/cpu2006.1.2/sh -lsmartheap

Base Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/lib/ia32_lin

400.perlbench: icc -m64

401.bzip2: icc -m64

456.hmmer: icc -m64

458.sjeng: icc -m64

C++ benchmarks:

icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/lib/ia32_lin

Peak Portability Flags

400.perlbench: -DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64

401.bzip2: -DSPEC_CPU_LP64

456.hmmer: -DSPEC_CPU_LP64

458.sjeng: -DSPEC_CPU_LP64

462.libquantum: -DSPEC_CPU_LINUX

483.xalancbmk: -DSPEC_CPU_LINUX

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)
-auto-ilp32

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Peak Optimization Flags (Continued)

401.bzip2: -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 -auto-ilp32 -ansi-alias

403.gcc: -xCORE-AVX2 -ipo -O3 -no-prec-div

429.mcf: basepeak = yes

445.gobmk: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -prof-use(pass 2)
-ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xCORE-AVX2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

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 -auto-ilp32

462.libquantum: basepeak = yes

464.h264ref: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2)
-unroll2 -ansi-alias

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)
-ansi-alias -opt-ra-region-strategy=block -Wl,-z,muldefs
-L/cpu2006.1.2/sh -lsmartheap

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

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-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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