SPEC® CINT2006 Result
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ACTION S.A.

ACTINA SOLAR 210 X6 (Intel Xeon E5-2630 v4, 2.20 GHz)

$SPECint®2006 =$ 62.4

$SPECint\_base2006 =$ 59.8

CPU2006 license: 9008	**Test date:** Aug-2016
Test sponsor: ACTION S.A.	**Hardware Availability:** Mar-2016
Tested by: ACTION S.A.	**Software Availability:** Mar-2016

0 200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400 3600 3800 4000 4200 4400 4600 4800 5000 5300

400.perlbench 40.2 / 36.6
401.bzip2 23.1 / 22.7
403.gcc 35.4 / 35.2
429.mcf 60.5 / 60.2
445.gobmk 26.5 / 27.1
456.hmmer 73.8 / 76.2
458.sjeng 31.3 / 30.4
462.libquantum 5040
464.h264ref 51.7
471.omnetpp 47.5 / 34.3
473.astar 31.8 / 31.9
483.xalancbmk 73.1 / 66.9

SPECint_base2006 = 59.8

SPECint2006 = 62.4

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
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:	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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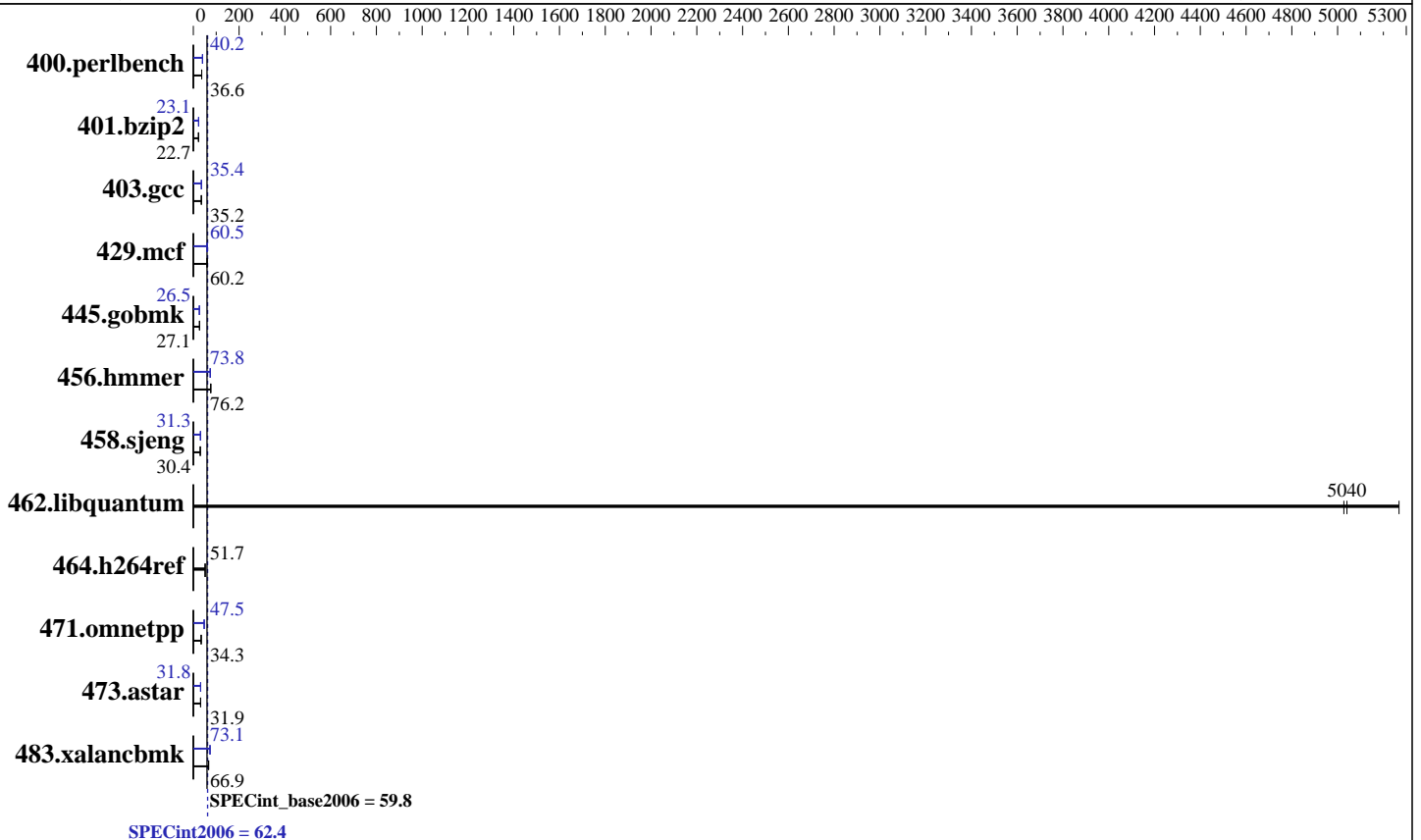SPECint_base2006 = 59.8

CPU2006 license: 9008　　　　　　　　　　　　　　　　**Test date:** Aug-2016
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Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	267	36.6	**267**	**36.6**	267	36.6	243	40.1	243	40.2	**243**	**40.2**
401.bzip2	424	22.8	426	22.6	**425**	**22.7**	**418**	**23.1**	418	23.1	418	23.1
403.gcc	230	35.0	**229**	**35.2**	228	35.3	227	35.4	**228**	**35.4**	229	35.2
429.mcf	**152**	**60.2**	151	60.3	152	59.9	151	60.2	**151**	**60.5**	150	60.6
445.gobmk	386	27.2	387	27.1	**386**	**27.1**	**397**	**26.5**	397	26.5	396	26.5
456.hmmer	**122**	**76.2**	123	76.1	122	76.2	**126**	**73.8**	126	73.8	126	74.0
458.sjeng	398	30.4	399	30.4	**399**	**30.4**	387	31.3	387	31.3	**387**	**31.3**
462.libquantum	3.93	5270	**4.11**	**5040**	4.12	5030	3.93	5270	**4.11**	**5040**	4.12	5030
464.h264ref	429	51.6	427	51.8	**428**	**51.7**	429	51.6	427	51.8	**428**	**51.7**
471.omnetpp	183	34.1	**182**	**34.3**	181	34.5	132	47.2	131	47.7	**132**	**47.5**
473.astar	220	31.9	**220**	**31.9**	221	31.8	221	31.7	**221**	**31.8**	220	31.8
483.xalancbmk	**103**	**66.9**	103	67.0	104	66.2	94.3	73.2	**94.4**	**73.1**	95.3	72.4

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 = Disabled
    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 Tue Aug  2 13:48:19 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)
      20 "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  : 10
      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 2 13:45

SPEC is set to: /cpu2006.1.2
   Filesystem      Type  Size  Used Avail Use% Mounted on
   /dev/sda1       ext4  212G  131G   70G  66% /

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"
OMP_NUM_THREADS = "20"

 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 v4 chips + 256 GB memory
 using RedHat EL 7.2
```

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.hmmer: -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/compilers_and_libraries_2016/linux/lib/ia32_lin`

445.gobmk: `icc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/lib/ia32_lin`

C++ benchmarks:

471.omnetpp: `icpc -m32 -L/opt/intel/compilers_and_libraries_2016/linux/lib/ia32_lin`

473.astar: `icpc -m64`

483.xalancbmk: `icpc -m32 -L/opt/intel/lib/ia32`

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 -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:

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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-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

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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