# SPEC® CINT2006 Result

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## ACTION S.A.

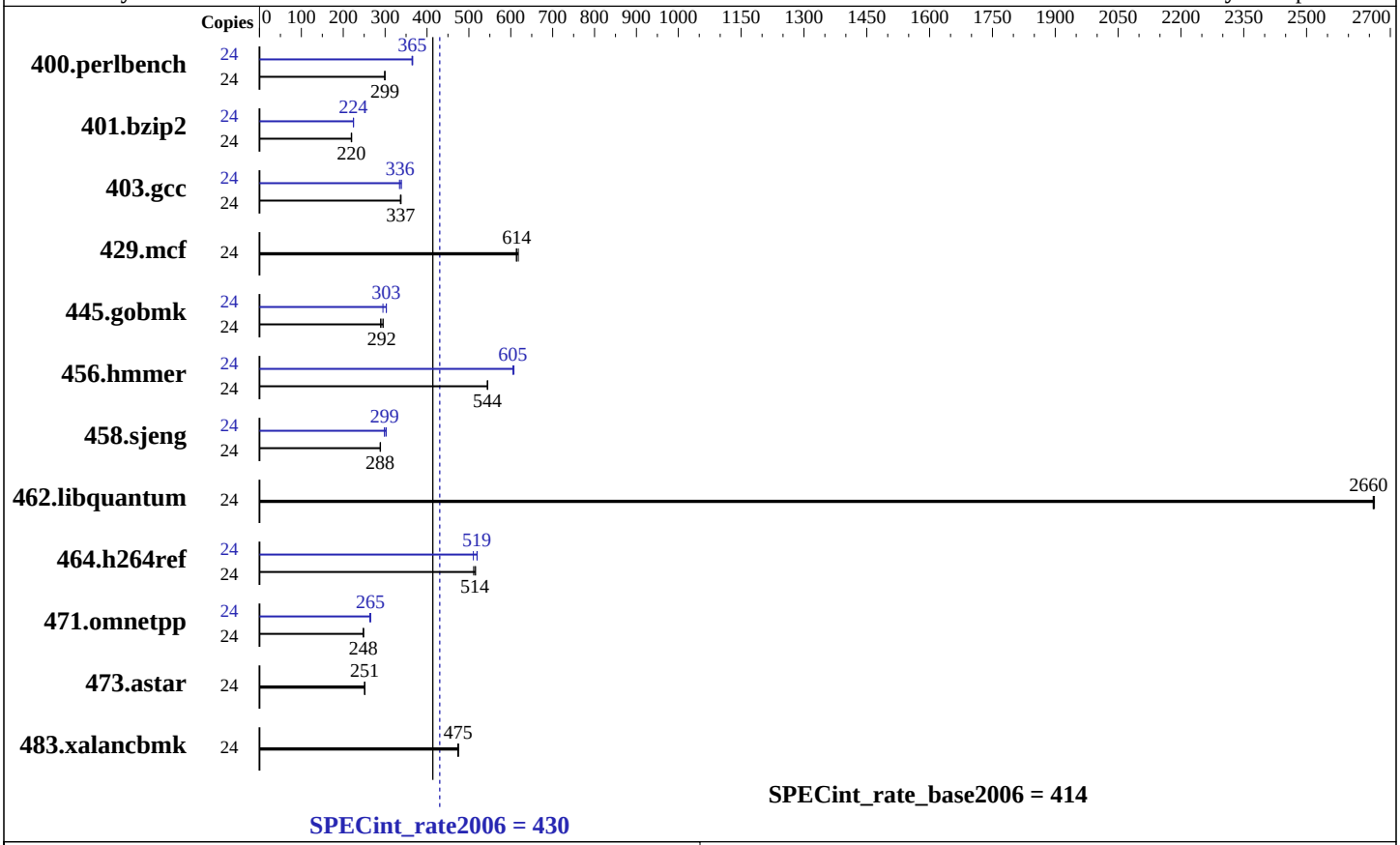
ACTINA SOLAR 220 X5 (Intel Xeon E5-2620 v2, 2.10 GHz)

SPECint®_rate2006 = 430

SPECint_rate_base2006 = 414

**CPU2006 license:** 9008
**Test sponsor:** ACTION S.A.
**Tested by:** ACTION S.A.

**Test date:** Dec-2013
**Hardware Availability:** Oct-2013
**Software Availability:** Sep-2013




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2620 v2 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.60 GHz |
| CPU MHz: | 2100 |
| FPU: | Integrated |
| CPU(s) enabled: | 12 cores, 2 chips, 6 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: | 15 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 256 GB (16 x 16 GB 2Rx4 PC3-14900R-13, ECC, running at 1600 MHz and CL11) |
| Disk Subsystem: | 1 x 240 GB SATA II SSD |
| Other Hardware: | None |

## Software

| | |
|---|---|
| Operating System: | Red Hat Enterprise Linux Server release 6.4 (Santiago)<br>2.6.32-358.11.1.el6.x86_64 |
| Compiler: | C/C++: Version 14.0.0.080 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 | 24 | **784** | **299** | 783 | 300 | 784 | 299 | 24 | **643** | **365** | 643 | 364 | 641 | 366 |
| 401.bzip2 | 24 | 1053 | 220 | 1057 | 219 | **1053** | **220** | 24 | **1032** | **224** | 1033 | 224 | 1031 | 225 |
| 403.gcc | 24 | 571 | 338 | **573** | **337** | 574 | 337 | 24 | **575** | **336** | 570 | 339 | 578 | 334 |
| 429.mcf | 24 | 357 | 613 | 354 | 618 | **356** | **614** | 24 | 357 | 613 | 354 | 618 | **356** | **614** |
| 445.gobmk | 24 | 852 | 296 | 871 | 289 | **862** | **292** | 24 | **831** | **303** | 831 | 303 | 854 | 295 |
| 456.hmmer | 24 | 411 | 544 | 411 | 545 | **411** | **544** | 24 | **370** | **605** | 369 | 608 | 370 | 605 |
| 458.sjeng | 24 | **1007** | **288** | 1007 | 288 | 1005 | 289 | 24 | **971** | **299** | 973 | 298 | 960 | 303 |
| 462.libquantum | 24 | 187 | 2660 | 187 | 2660 | **187** | **2660** | 24 | 187 | 2660 | 187 | 2660 | **187** | **2660** |
| 464.h264ref | 24 | 1039 | 511 | 1029 | 516 | **1032** | **514** | 24 | 1022 | 520 | 1040 | 511 | **1023** | **519** |
| 471.omnetpp | 24 | 605 | 248 | **605** | **248** | 603 | 249 | 24 | **566** | **265** | 565 | 265 | 569 | 263 |
| 473.astar | 24 | 672 | 251 | 669 | 252 | **671** | **251** | 24 | 672 | 251 | 669 | 252 | **671** | **251** |
| 483.xalancbmk | 24 | **349** | **475** | 350 | 473 | 349 | 475 | 24 | **349** | **475** | 350 | 473 | 349 | 475 |

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

```
Sysinfo program /cpu2006.1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on localhost.localdomain Wed Dec 25 00:26:34 2013

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 E5-2620 v2 @ 2.10GHz
      2 "physical id"s (chips)
      24 "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 : 6
      siblings  : 12
```

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## Platform Notes (Continued)

```
        physical 0: cores 0 1 2 3 4 5
        physical 1: cores 0 1 2 3 4 5
     cache size : 15360 KB

  From /proc/meminfo
     MemTotal:       264500920 kB
     HugePages_Total:       0
     Hugepagesize:       2048 kB

  /usr/bin/lsb_release -d
     Red Hat Enterprise Linux Server release 6.4 (Santiago)

  From /etc/*release* /etc/*version*
     redhat-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
     system-release: Red Hat Enterprise Linux Server release 6.4 (Santiago)
     system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server

  uname -a:
     Linux localhost.localdomain 2.6.32-358.11.1.el6.x86_64 #1 SMP Tue Nov 19
     17:43:04 CET 2013 x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Dec 23 14:54

  SPEC is set to: /cpu2006.1.2
     Filesystem     Type    Size  Used Avail Use% Mounted on
     /dev/sda1      ext4    193G   65G  118G  36% /

  Additional information from dmidecode:
    BIOS American Megatrends Inc. 3.0a 07/31/2013
    Memory:
     16x   16 GB
     16x Hynix Semiconducto HMT42GR7AFR4C 16 GB 1600 MHz 1 rank

  (End of data from sysinfo program)
dmidecode does not properly display memory modules,
16 modules of 16 GB were used to run the test (256 GB total)
Due to BIOS issue memory rank is improperly displayed -
```

## 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 v2 chips
 + 256 GB memory using RedHat EL 6.4
```

## Base Compiler Invocation

C benchmarks:
```
icc  -m32
```

C++ benchmarks:
```
icpc -m32
```

## Base Portability Flags

400.perlbench: `-DSPEC_CPU_LINUX_IA32`
462.libquantum: `-DSPEC_CPU_LINUX`
483.xalancbmk: `-DSPEC_CPU_LINUX`

## Base Optimization Flags

C benchmarks:
```
-xSSE4.2 -ipo -O3 -no-prec-div -opt-prefetch -opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xSSE4.2 -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
```

400.perlbench: `icc -m64`

401.bzip2: `icc -m64`

456.hmmer: `icc -m64`

458.sjeng: `icc -m64`

C++ benchmarks:
```
icpc -m32
```

## 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: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -auto-ilp32

401.bzip2: -xSSE4.2(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: -xSSE4.2 -ipo -O3 -no-prec-div

429.mcf: basepeak = yes

445.gobmk: -xSSE4.2(pass 2) -prof-gen(pass 1) -prof-use(pass 2) -ansi-alias -opt-mem-layout-trans=3

456.hmmer: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -auto-ilp32

458.sjeng: -xSSE4.2(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: -xSSE4.2(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: -xSSE4.2(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

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## Peak Optimization Flags (Continued)

483.xalancbmk: `basepeak = yes`

## Peak Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64.20140128.xml`


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For other inquiries, please contact webmaster@spec.org.

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