



# SPEC® CINT2006 Result

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## Sugon

SPECint®\_rate2006 = 903

Sugon I620-G20 (Intel Xeon E5-2685 v3)

SPECint\_rate\_base2006 = 873

CPU2006 license: 9046

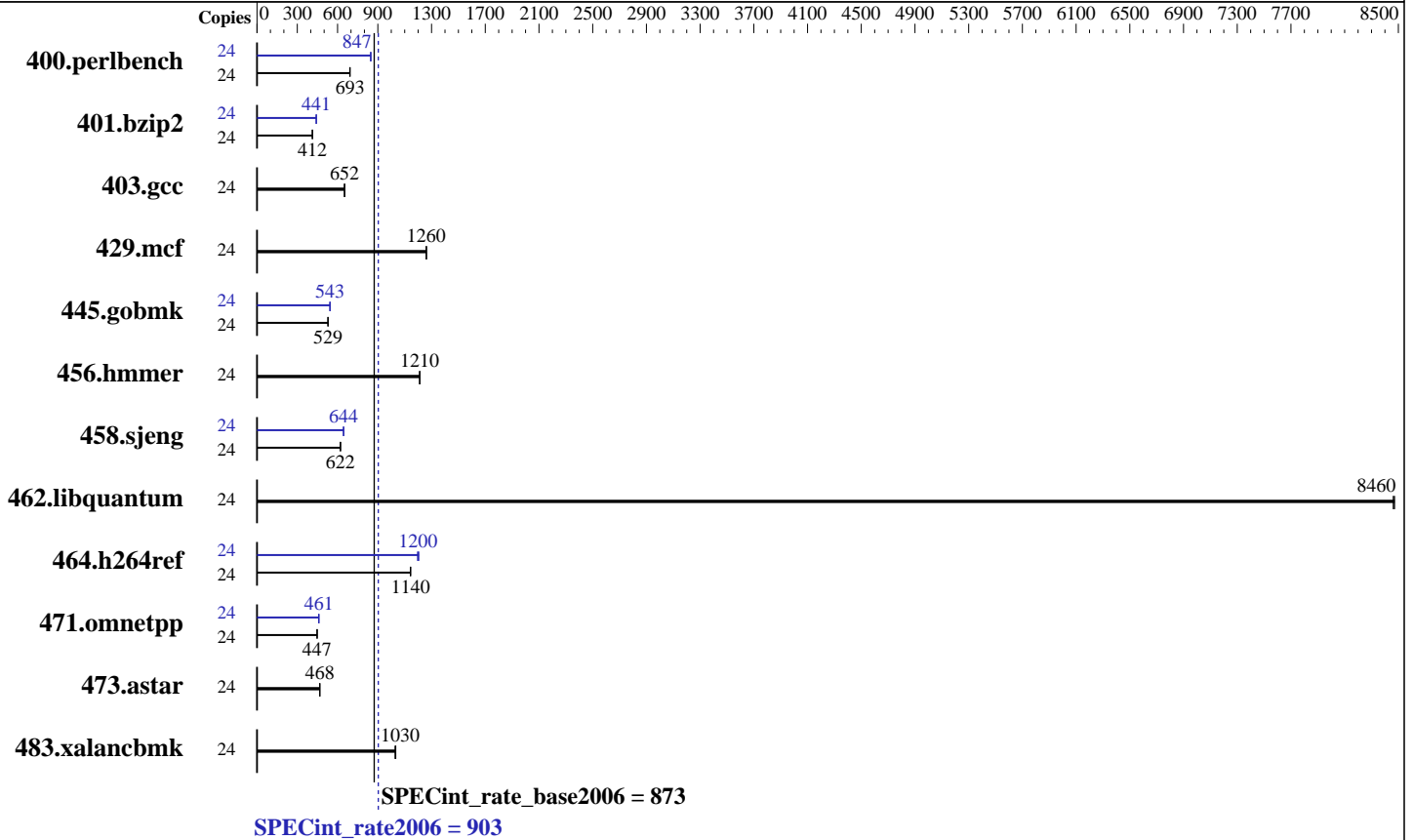
Test date: Nov-2014

Test sponsor: Sugon

Hardware Availability: Sep-2014

Tested by: Sugon

Software Availability: Nov-2013



### Hardware

CPU Name: Intel Xeon E5-2685 v3  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz  
 CPU MHz: 2600  
 FPU: Integrated  
 CPU(s) enabled: 24 cores, 2 chips, 12 cores/chip  
 CPU(s) orderable: 1,2 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: 30 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2133P-R)  
 Disk Subsystem: 1 x 2.0 TB SATA 7200 RPM  
 Other Hardware: None

### Software

Operating System: Red Hat Enterprise Linux Server release 6.5 (Santiago)  
 2.6.32-431.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     | <b>339</b>  | <b>693</b>  | 340        | 691         | 338        | 693         | 24     | <b>277</b>  | <b>847</b>  | 277        | 848         | 277        | 847         |
| 401.bzip2      | 24     | 562         | 412         | <b>562</b> | <b>412</b>  | 561        | 413         | 24     | 525         | 442         | <b>525</b> | <b>441</b>  | 525        | 441         |
| 403.gcc        | 24     | 296         | 653         | <b>296</b> | <b>652</b>  | 297        | 651         | 24     | 296         | 653         | <b>296</b> | <b>652</b>  | 297        | 651         |
| 429.mcf        | 24     | 174         | 1260        | <b>174</b> | <b>1260</b> | 173        | 1260        | 24     | 174         | 1260        | <b>174</b> | <b>1260</b> | 173        | 1260        |
| 445.gobmk      | 24     | 476         | 529         | <b>476</b> | <b>529</b>  | 476        | 529         | 24     | <b>463</b>  | <b>543</b>  | 463        | 544         | 464        | 543         |
| 456.hammer     | 24     | 185         | 1210        | 185        | 1210        | <b>185</b> | <b>1210</b> | 24     | 185         | 1210        | 185        | 1210        | <b>185</b> | <b>1210</b> |
| 458.sjeng      | 24     | 467         | 622         | <b>467</b> | <b>622</b>  | 468        | 621         | 24     | 450         | 645         | <b>451</b> | <b>644</b>  | 451        | 644         |
| 462.libquantum | 24     | <b>58.8</b> | <b>8460</b> | 58.8       | 8460        | 58.7       | 8470        | 24     | <b>58.8</b> | <b>8460</b> | 58.8       | 8460        | 58.7       | 8470        |
| 464.h264ref    | 24     | <b>464</b>  | <b>1140</b> | 464        | 1140        | 465        | 1140        | 24     | <b>442</b>  | <b>1200</b> | 444        | 1200        | 441        | 1210        |
| 471.omnetpp    | 24     | 335         | 448         | <b>335</b> | <b>447</b>  | 336        | 447         | 24     | 325         | 461         | 327        | 459         | <b>326</b> | <b>461</b>  |
| 473.astar      | 24     | 360         | 468         | 361        | 467         | <b>360</b> | <b>468</b>  | 24     | 360         | 468         | 361        | 467         | <b>360</b> | <b>468</b>  |
| 483.xalancbmk  | 24     | 160         | 1030        | 161        | 1030        | <b>160</b> | <b>1030</b> | 24     | 160         | 1030        | 161        | 1030        | <b>160</b> | <b>1030</b> |

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 Configuration:

Enforce POR set to disabled

DDR Speed set to 2133

Early Snoop set to disabled

COD set to enable

Power Technology set to performance

Sysinfo program /home/cpu2006/config/sysinfo.rev6874

\$Rev: 6874 \$ \$Date:: 2013-11-20 #\$ 654bd3fcf53b06faef0efe54ed011998

running on localhost Mon Nov 17 14:10:46 2014

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 E5-2685 v3 @ 2.60GHz

2 "physical id"s (chips)

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<http://www.spec.org/>

Page 2



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## Platform Notes (Continued)

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 : 12
siblings  : 12
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
cache size : 15360 KB
```

From /proc/meminfo

```
MemTotal:      264479860 kB
HugePages_Total: 0
Hugepagesize:   2048 kB
```

/usr/bin/lsb\_release -d

```
Red Hat Enterprise Linux Server release 6.5 (Santiago)
```

From /etc/\*release\* /etc/\*version\*

```
redhat-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release: Red Hat Enterprise Linux Server release 6.5 (Santiago)
system-release-cpe: cpe:/o:redhat:enterprise_linux:6server:ga:server
```

uname -a:

```
Linux localhost 2.6.32-431.el6.x86_64 #1 SMP Sun Nov 10 22:19:54 EST 2013
x86_64 x86_64 x86_64 GNU/Linux
```

run-level 3 Nov 17 13:53

SPEC is set to: /home/cpu2006

```
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda3        ext4  1.8T   81G  1.7T   5% /
```

Additional information from dmidecode:

Warning: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

BIOS American Megatrends Inc. 068 08/15/2014

Memory:

```
16x Hynix Semiconductor HMA42GR7MFR4N-TFTD 16 GB 2 rank 2133 MHz
8x NO DIMM NO DIMM
```

(End of data from sysinfo program)

## General Notes

Environment variables set by runspec before the start of the run:

```
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"
```

Continued on next page

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## General Notes (Continued)

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RedHat EL 6.4  
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>

Submitted\_by: Tian Yuwan <tianyw@sugon.com>  
Submitted: Mon Nov 24 19:24:05 EST 2014  
Submission: cpu2006-20141117-33042.sub

Submitted\_by: Tian Yuwan <tianyw@sugon.com>  
Submitted: Wed Nov 26 05:11:52 EST 2014  
Submission: cpu2006-20141117-33042.sub

Submitted\_by: Tian Yuwan <tianyw@sugon.com>  
Submitted: Thu Nov 27 00:57:34 EST 2014  
Submission: cpu2006-20141117-33042.sub

## 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:  
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-opt-mem-layout-trans=3

C++ benchmarks:  
-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch  
-opt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh -lsmartheap



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**Hardware Availability:** Sep-2014

**Software Availability:** Nov-2013

## 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

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

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

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: basepeak = yes

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

Continued on next page



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## Peak Optimization Flags (Continued)

456.hmmcr: basepeak = yes

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)  
-unroll14 -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)  
-unroll12 -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/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-ic14.0-official-linux64-revC.html>

<http://www.spec.org/cpu2006/flags/Sugon-Platform-Settings-V1.2-HSW-revA.20141203.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-linux64-revC.xml>

<http://www.spec.org/cpu2006/flags/Sugon-Platform-Settings-V1.2-HSW-revA.20141203.xml>



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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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