# SPEC® CINT2006 Result

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## Sugon

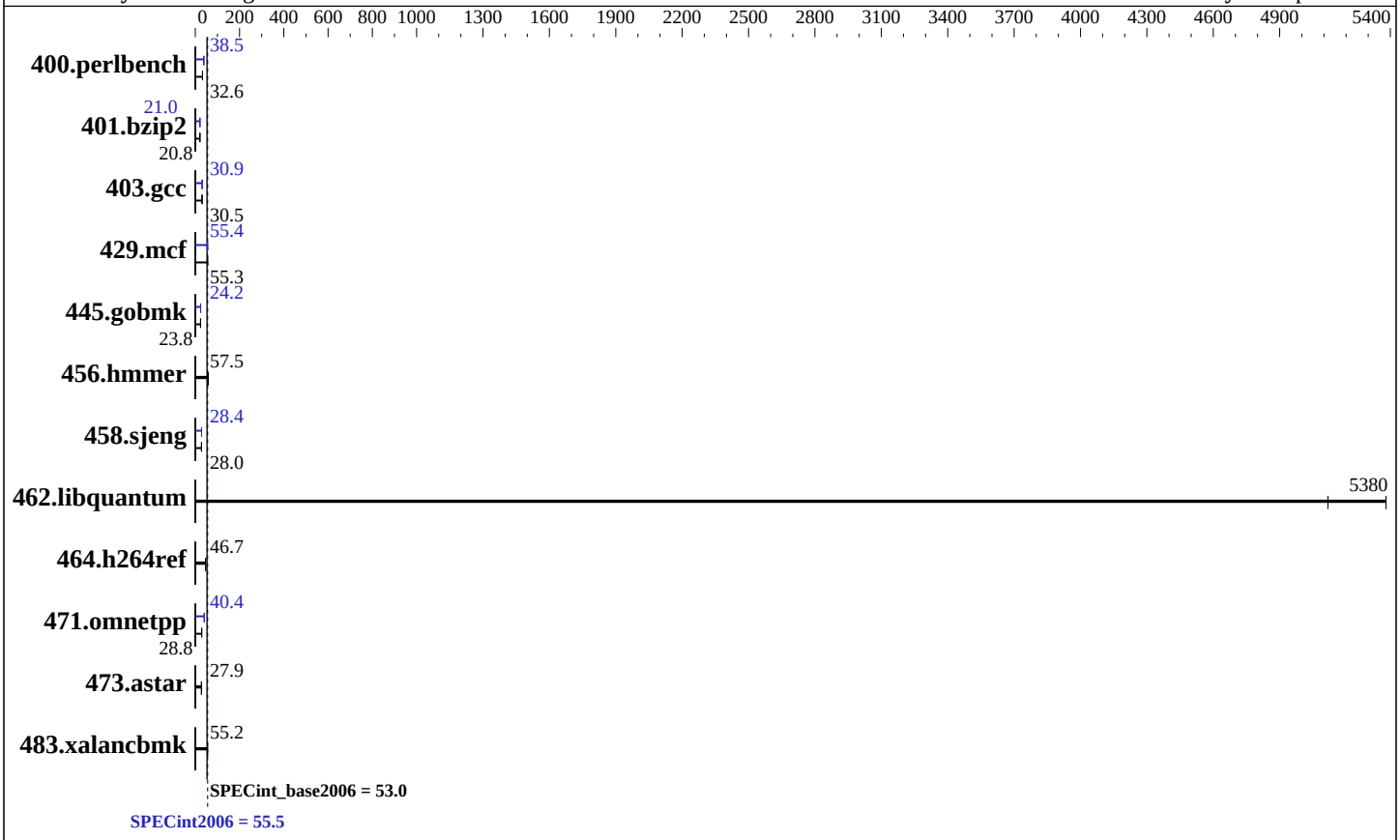
## Sugon I620-G20 (Intel Xeon E5-2660 v3)

SPECint®2006 = 55.5

SPECint_base2006 = 53.0

**CPU2006 license:** 9046
**Test sponsor:** Sugon
**Tested by:** Sugon

**Test date:** Oct-2014
**Hardware Availability:** Sep-2014
**Software Availability:** Sep-2013




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2660 v3 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.30 GHz |
| CPU MHz: | 2600 |
| FPU: | Integrated |
| CPU(s) enabled: | 20 cores, 2 chips, 10 cores/chip, 2 threads/core |
| 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: | 25 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 6.4 (Santiago)<br>2.6.32-358.el6.x86_64 |
| Compiler: | C/C++: Version 14.0.0.080 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 | 299 | 32.6 | 299 | 32.7 | **299** | **32.6** | 253 | 38.5 | **254** | **38.5** | 254 | 38.5 |
| 401.bzip2 | **464** | **20.8** | 463 | 20.8 | 464 | 20.8 | 460 | 21.0 | **460** | **21.0** | 460 | 21.0 |
| 403.gcc | 264 | 30.4 | 264 | 30.5 | **264** | **30.5** | **261** | **30.9** | 261 | 30.9 | 260 | 31.0 |
| 429.mcf | 164 | 55.6 | **165** | **55.3** | 165 | 55.3 | 164 | 55.5 | **165** | **55.4** | 165 | 55.3 |
| 445.gobmk | 441 | 23.8 | 441 | 23.8 | **441** | **23.8** | 434 | 24.2 | **434** | **24.2** | 434 | 24.2 |
| 456.hmmer | 161 | 57.8 | **162** | **57.5** | 163 | 57.3 | 161 | 57.8 | **162** | **57.5** | 163 | 57.3 |
| 458.sjeng | 431 | 28.1 | **432** | **28.0** | 432 | 28.0 | 426 | 28.4 | **427** | **28.4** | 427 | 28.3 |
| 462.libquantum | 3.85 | 5380 | **3.85** | **5380** | 4.05 | 5120 | 3.85 | 5380 | **3.85** | **5380** | 4.05 | 5120 |
| 464.h264ref | **474** | **46.7** | 473 | 46.8 | 477 | 46.4 | **474** | **46.7** | 473 | 46.8 | 477 | 46.4 |
| 471.omnetpp | 215 | 29.1 | **217** | **28.8** | 218 | 28.6 | 151 | 41.3 | 156 | 40.1 | **155** | **40.4** |
| 473.astar | 252 | 27.8 | **252** | **27.9** | 251 | 28.0 | 252 | 27.8 | **252** | **27.9** | 251 | 28.0 |
| 483.xalancbmk | 125 | 55.2 | **125** | **55.2** | 124 | 55.4 | 125 | 55.2 | **125** | **55.2** | 124 | 55.4 |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

```
The config file option 'submit' was used.
```

## 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 disable
Power Technology set to performance
 Sysinfo program /home/cpu2006/config/sysinfo.rev6818
 $Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
 running on localhost.localdomain Thu Oct  9 09:54:00 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 E5-2660 v3 @ 2.60GHz
       2 "physical id"s (chips)
       40 "processors"
    cores, siblings (Caution: counting these is hw and system dependent.  The
```

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## Platform Notes (Continued)

```
      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:       264478588 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.el6.x86_64 #1 SMP Tue Jan 29 11:47:41
      EST 2013 x86_64 x86_64 x86_64 GNU/Linux

   run-level 3 Oct 9 09:21

   SPEC is set to: /home/cpu2006
      Filesystem     Type    Size  Used Avail Use% Mounted on
      /dev/sda3      ext4    1.8T  411G  1.3T  24% /

   Additional information from dmidecode:
     BIOS American Megatrends Inc. 067 08/13/2014
     Memory:
      16x   16 GB
      8x NO DIMM NO DIMM
      16x Samsung M393A2G40DB0-CPB 16 GB 2133 MHz 2 rank

   (End of data from sysinfo program)
```

## General Notes

```
 Environment variables set by runspec before the start of the run:
 KMP_AFFINITY = "granularity=fine,scatter"
 LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/home/cpu2006/sh"
 OMP_NUM_THREADS = "20"

  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
```

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## General Notes (Continued)

```
    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: Wed Nov  5 02:52:29 EST 2014
  Submission: cpu2006-20141105-32756.sub

  Submitted_by: Tian Yuwan <tianyw@sugon.com>
  Submitted: Sun Nov 23 21:26:15 EST 2014
  Submission: cpu2006-20141105-32756.sub

  Submitted_by: Tian Yuwan <tianyw@sugon.com>
  Submitted: Wed Nov 26 05:11:52 EST 2014
  Submission: cpu2006-20141105-32756.sub

  Submitted_by: Tian Yuwan <tianyw@sugon.com>
  Submitted: Thu Nov 27 00:57:34 EST 2014
  Submission: cpu2006-20141105-32756.sub
```

## 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
```

## 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/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`

445.gobmk: `icc -m32`

C++ benchmarks (except as noted below):
`icpc -m64`

471.omnetpp: `icpc -m32`

## 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_LP64 -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) -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: 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) -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/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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