# SPEC® CINT2006 Result

## Huawei

### Huawei 2288H V5 (Intel Xeon Gold 6130)

| SPECint®2006 | 78.4 |
| SPECint_base2006 | 74.8 |

**CPU2006 license:** 3175  
**Test date:** May-2017

**Test sponsor:** Huawei  
**Hardware Availability:** Aug-2017

**Tested by:** Huawei  
**Software Availability:** Nov-2016

### Results

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECint®2006</th>
<th>SPECint_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>53.2</td>
<td>46.7</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>28.8</td>
<td>28.4</td>
</tr>
<tr>
<td>403.gcc</td>
<td>44.7</td>
<td>44.7</td>
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<tr>
<td>429.mcf</td>
<td>80.7</td>
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<tr>
<td>445.gobmk</td>
<td>33.6</td>
<td>33.8</td>
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<tr>
<td>456.hmmer</td>
<td>96.8</td>
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<tr>
<td>458.sjeng</td>
<td>38.3</td>
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<td>462.libquantum</td>
<td>64.8</td>
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<td>48.0</td>
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</tr>
<tr>
<td>471.omnetpp</td>
<td>36.3</td>
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</tr>
<tr>
<td>473.astar</td>
<td>39.0</td>
<td>39.0</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>89.5</td>
<td>89.5</td>
</tr>
</tbody>
</table>

**Total:** 7210

### Hardware

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon Gold 6130</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>Intel Turbo Boost Technology up to 3.70 GHz</td>
</tr>
<tr>
<td>CPU MHz</td>
<td>2100</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>32 cores, 2 chips, 16 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable</td>
<td>1.2 chip</td>
</tr>
<tr>
<td>Primary Cache</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache</td>
<td>1 MB I+D on chip per core</td>
</tr>
<tr>
<td>L3 Cache</td>
<td>22 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache</td>
<td>None</td>
</tr>
<tr>
<td>Memory</td>
<td>384 GB (24 x 16 GB 2Rx8 PC4-2666V-R)</td>
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<tr>
<td>Disk Subsystem</td>
<td>1 x 1200 GB SAS, 10000 RPM</td>
</tr>
<tr>
<td>Other Hardware</td>
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</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>Red Hat Enterprise Linux Server release 7.3 (Maipo) 3.10.0-514.el7.x86_64</td>
</tr>
<tr>
<td>Compiler</td>
<td>C/C++: Version 17.0.0.098 of Intel C/C++ Compiler for Linux</td>
</tr>
<tr>
<td>Auto Parallel</td>
<td>Yes</td>
</tr>
<tr>
<td>File System</td>
<td>xfs</td>
</tr>
<tr>
<td>System State</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Peak Pointers</td>
<td>32/64-bit</td>
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<tr>
<td>Other Software</td>
<td>Microquill SmartHeap V10.2</td>
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</tbody>
</table>
Huawei

Huawei 2288H V5 (Intel Xeon Gold 6130)

SPECint2006 = 78.4
SPECint_base2006 = 74.8

CPU2006 license: 3175
Test sponsor: Huawei
Tested by: Huawei

Test date: May-2017
Hardware Availability: Aug-2017
Software Availability: Nov-2016

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>401.bzip2</td>
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<td>28.4</td>
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<td>403.gcc</td>
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<td>462.libquantum</td>
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<td>64.8</td>
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<td>65.1</td>
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<tr>
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<td>36.4</td>
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<td>473.astar</td>
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<td>38.9</td>
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<tr>
<td>483.xalancbmk</td>
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<td>86.6</td>
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<td>86.5</td>
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<td>77.1</td>
<td>89.4</td>
<td>77.1</td>
<td>89.5</td>
</tr>
</tbody>
</table>

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:
Set Power Efficiency Mode to Custom
Set Hyper-Threading to Disable
Sysinfo program /spec17/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on localhost.localdomain Wed May 24 17:20:54 2017

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) Gold 6130 CPU @ 2.10GHz
  2 "physical id"s (chips)
  32 "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 : 16

Continued on next page
Huawei							SPECint2006 =  
Huawei 2288H V5 (Intel Xeon Gold 6130) SPECint_base2006 =  

CPU2006 license: 3175	Test date: May-2017
Test sponsor: Huawei Hardware Availability: Aug-2017
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Platform Notes (Continued)

siblings: 16
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
cache size: 22528 KB

From /proc/meminfo
   MemTotal: 394145204 kB
   HugePages_Total: 0
   Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
os-release:
   NAME= "Red Hat Enterprise Linux Server"
   VERSION= "7.3 (Maipo)"
   ID= "rhel"
   ID_LIKE= "fedora"
   VERSION_ID= "7.3"
   PRETTY_NAME= "Red Hat Enterprise Linux Server 7.3 (Maipo)"
   ANSI_COLOR= "0;31"
   CPE_NAME= "cpe:/o:redhat:enterprise_linux:7.3:GA:server"
   redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
   system-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)

uname -a:
   Linux localhost.localdomain 3.10.0-514.el7.x86_64 #1 SMP Wed Oct 19 11:24:13 EDT 2016 x86_64 x86_64 x86_64 GNU/Linux
   run-level 3 May 24 17:20

SPEC is set to: /spec17
   Filesystem Type Size Used Avail Use% Mounted on
   /dev/sda2 xfs 898G 9.1G 889G 2% /
   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 INSYDE Corp. 0.12 03/28/2017
   Memory:
   24x Micron 18ASF2G72PDZ-2G6D1 16 GB 2 rank 2666 MHz

   (End of data from sysinfo program)

General Notes

Environment variables set by runspec before the start of the run:
   KMP_AFFINITY = "granularity=fine,compact"
   LD_LIBRARY_PATH = "/spec17/libs/32:/spec17/libs/64:/spec17/sh10.2"

Continued on next page
## General Notes (Continued)

OMP_NUM_THREADS = "32"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM memory using Redhat Enterprise Linux 7.2

Transparent Huge Pages enabled with:
- `echo always > /sys/kernel/mm/transparent_hugepage/enabled`
- `runcspec command invoked through numactl i.e.: numactl --interleave=all runcspec <etc>`

## Base Compiler Invocation

C benchmarks:
- `icc -m64`

C++ benchmarks:
- `icpc -m64`

## Base Portability Flags

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<tr>
<th>Benchmark</th>
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<td>400.perlbench</td>
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</tr>
<tr>
<td>483.xalancbmk</td>
<td><code>-DSPEC_CPU_LP64</code> <code>-DSPEC_CPU_LINUX</code></td>
</tr>
</tbody>
</table>

## Base Optimization Flags

### C benchmarks:
- `-xCORE-AVX2` `-ipo -O3 -no-prec-div -parallel -qopt-prefetch -auto-p32`

### C++ benchmarks:
- `-xCORE-AVX2` `-ipo -O3 -no-prec-div -qopt-prefetch -auto-p32` `-Wl,-z,muldefs -L/sh10.2 -lsmartheap64`
### Huawei 2288H V5 (Intel Xeon Gold 6130)

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**CPU2006 license:** 3175  
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**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_2017/linux/lib/ia32`
  - 445.gobmk: `icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32`

C++ benchmarks (except as noted below):

- `icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32`

  - 473.astar: `icpc -m64`

---

**Peak Portability Flags**

- `400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32`
- `401.bzip2: -DSPEC_CPU_LP64`
- `403.gcc: -DSPEC_CPU_LP64`
- `429.mcf: -DSPEC_CPU_LP64`
- `445.gobmk: -D_FILE_OFFSET_BITS=64`
- `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: -D_FILE_OFFSET_BITS=64`
- `473.astar: -DSPEC_CPU_LP64`
- `483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX`

---

**Peak Optimization Flags**

C benchmarks:

- `400.perlbench: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2) -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -qopt-prefetch`

- `401.bzip2: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2) -par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div -auto-ilp32 -qopt-prefetch`

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Continued on next page
Huawei 2288H V5 (Intel Xeon Gold 6130)

SPECint2006 = 78.4
SPECint_base2006 = 74.8

Peak Optimization Flags (Continued)

403.gcc: basepeak = yes
429.mcf: -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel
-ipo -qopt-prefetch -auto-p32
445.gobmk: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2)
456.hmmer: basepeak = yes
458.sjeng: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -unroll4
462.libquantum: basepeak = yes
464.h264ref: basepeak = yes

C++ benchmarks:
471.omnetpp: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX2(pass 2)
-par-num-threads=1(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -ipo -qopt-ra-region-strategy=block
-Wl,-z,muldefs -L/sh10.2 -lsmartheap
473.astar: basepeak = yes
483.xalancbmk: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-Wl,-z,muldefs -L/sh10.2 -lsmartheap

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-ic17.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-SKL-V1.6.html
You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic17.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Huawei-Platform-Settings-SKL-V1.6.xml
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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.