# SPEC® CINT2006 Result

**Hewlett Packard Enterprise**  
[Test Sponsor: HPE]  
ProLiant DL380 Gen10  
(3.20 GHz, Intel Xeon Gold 6146)

**SPECint®2006 =**  
Not Run

**SPECint_base2006 =** 83.4

<table>
<thead>
<tr>
<th>Test Date:</th>
<th>Oct-2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware Availability:</td>
<td>Apr-2017</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name:</td>
<td>Operating System: Red Hat Enterprise Linux Server release 7.3 (Maipo)</td>
</tr>
<tr>
<td>CPU Characteristics:</td>
<td>Compiler: C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>Auto Parallel: Yes</td>
</tr>
<tr>
<td>FPU:</td>
<td>File System: xfs</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>System State: Run level 3 (multi-user)</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>Base Pointers: 32/64-bit</td>
</tr>
<tr>
<td>Primary Cache:</td>
<td>Peak Pointers: Not Applicable</td>
</tr>
<tr>
<td>Secondary Cache:</td>
<td>Other Software: Microquill SmartHeap V10.2</td>
</tr>
<tr>
<td>L3 Cache:</td>
<td></td>
</tr>
<tr>
<td>Other Cache:</td>
<td></td>
</tr>
<tr>
<td>Memory:</td>
<td></td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td></td>
</tr>
<tr>
<td>Other Hardware:</td>
<td></td>
</tr>
</tbody>
</table>

## SPECint Results

<table>
<thead>
<tr>
<th>Test</th>
<th>Benchmark</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>perlbench</td>
<td>Not Run</td>
</tr>
<tr>
<td>401</td>
<td>bzip2</td>
<td>21.7</td>
</tr>
<tr>
<td>403</td>
<td>gcc</td>
<td>47.2</td>
</tr>
<tr>
<td>429</td>
<td>mcf</td>
<td>86.6</td>
</tr>
<tr>
<td>445</td>
<td>gobmk</td>
<td>3.4</td>
</tr>
<tr>
<td>456</td>
<td>hammer</td>
<td>110</td>
</tr>
<tr>
<td>458</td>
<td>sjeng</td>
<td>31.5</td>
</tr>
<tr>
<td>462</td>
<td>libquantum</td>
<td>7750</td>
</tr>
<tr>
<td>464</td>
<td>h264ref</td>
<td>78.7</td>
</tr>
<tr>
<td>471</td>
<td>omnetpp</td>
<td>40.7</td>
</tr>
<tr>
<td>473</td>
<td>astar</td>
<td>33.7</td>
</tr>
<tr>
<td>483</td>
<td>xalancbmk</td>
<td>89.6</td>
</tr>
</tbody>
</table>

**SPECint_base2006 = 83.4**

### Hardware

- **CPU Name:** Intel Xeon Gold 6146  
- **CPU Characteristics:** Intel Turbo Boost Technology up to 4.20 GHz  
- **CPU MHz:** 3200  
- **FPU:** Integrated  
- **CPU(s) enabled:** 24 cores, 2 chips, 12 cores/chip  
- **CPU(s) orderable:** 1, 2 chip(s)  
- **Primary Cache:** 32 KB I + 32 KB D on chip per core  
- **Secondary Cache:** 1 MB I+D on chip per core  
- **L3 Cache:** 24.75 MB I+D on chip per chip  
- **Other Cache:** None  
- **Memory:** 192 GB (24 x 8 GB 2Rx8 PC4-2666V-R)  
- **Disk Subsystem:** 1 x 960 GB SSD SATA, RAID 0  
- **Other Hardware:** None
SPEC CINT2006 Result

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SPECint2006 = Not Run
SPECint_base2006 = 83.4

Test date: Oct-2017
Hardware Availability: Oct-2017
Software Availability: Apr-2017

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>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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</thead>
<tbody>
<tr>
<td>400.perlbench</td>
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<td>52.5</td>
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<td>52.6</td>
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<td>52.5</td>
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<tr>
<td>401.bzip2</td>
<td>304</td>
<td>31.7</td>
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<td>31.7</td>
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<td>403.gcc</td>
<td>171</td>
<td>47.2</td>
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<td>429.mcf</td>
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<td>445.gobmk</td>
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<td>456.hmmer</td>
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<tr>
<td>458.sjeng</td>
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<tr>
<td>462.libquantum</td>
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<td>2.67</td>
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<tr>
<td>464.h264ref</td>
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<td>78.9</td>
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<tr>
<td>471.omnetpp</td>
<td>156</td>
<td>40.1</td>
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<td>40.7</td>
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<td>473.astar</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"
Transparent Huge Pages enabled by default
Filesystem page cache cleared with:
shell invocation of 'sync; echo 3 > /proc/sys/vm/drop_caches' prior to run
irqbalance disabled with "systemctl stop irqbalance"
tuned profile set with "tuned-adm profile throughput-performance"

Platform Notes

BIOS Configuration:
Intel Hyperthreading set to Disabled
Thermal Configuration set to Maximum Cooling
Memory Patrol Scrubbing set to Disabled
LLC Prefetcher set to Enabled
LLC Dead Line Allocation set to Disabled
Workload Profile set to General Peak Frequency Compute
Energy/Performance Bias set to Maximum Performance
Uncore Frequency Scaling set to Auto
Workload Profile set to Custom
NUMA Group Size Optimization set to Flat

Sysinfo program /home/cpu2006/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on DL380Gen10 Thu Oct 12 11:18:39 2017

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:

Continued on next page
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CPU2006 license: 3
Test sponsor: HPE
Tested by: HPE

Test date: Oct-2017
Hardware Availability: Oct-2017
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Platform Notes (Continued)

http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
model name : Intel(R) Xeon(R) Gold 6146 CPU @ 3.20GHz
  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 : 12
siblings : 12
  physical 0: cores 0 1 3 8 9 10 11 18 19 24 27
  physical 1: cores 0 1 3 4 8 9 11 17 18 19 20
  cache size : 25344 KB

From /proc/meminfo
MemTotal: 197573260 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 DL380Gen10 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 Oct 12 11:17

SPEC is set to: /home/cpu2006
Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs 839G 29G 811G 4% /home

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 HPE U30 09/29/2017
Memory:

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Platform Notes (Continued)

24x UNKNOWN NOT AVAILABLE 8 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 = "/home/cpu2006/lib/ia32:/home/cpu2006/lib/intel64"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/cpu2006/sh10.2"
OMP_NUM_THREADS = "24"

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

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -03 -no-prec-div -parallel -qopt-prefetch -auto-p32

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**Base Optimization Flags (Continued)**

C++ benchmarks:
-xCORE-AVX2  -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32  
-Will,-zmuldefs -L/sh10.2 -lsmartheap64

**Base 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-revF.html  
http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revD.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-revF.xml  
http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revD.xml