## SPEC® CINT2006 Result

**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
ProLiant DL380 Gen10  
(3.40 GHz, Intel Xeon Gold 6128)

<table>
<thead>
<tr>
<th>SPECint®2006</th>
<th>=</th>
<th>Not Run</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint_base2006</td>
<td>=</td>
<td>72.2</td>
</tr>
</tbody>
</table>

**CPU2006 license:** 3  
**Test date:** Nov-2017

**Test sponsor:** HPE  
**Hardware Availability:** Oct-2017

**Tested by:** HPE  
**Software Availability:** Apr-2017

### Hardware

<table>
<thead>
<tr>
<th>Component</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon Gold 6128</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>3400</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>12 cores, 2 chips, 6 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable</td>
<td>1, 2 chip(s)</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>19.25 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache</td>
<td>None</td>
</tr>
<tr>
<td>Memory</td>
<td>192 GB (24 x 8 GB 2Rx8 PC4-2666V-R)</td>
</tr>
<tr>
<td>Disk Subsystem</td>
<td>1 x 960 GB SATA SSD, RAID 0</td>
</tr>
<tr>
<td>Other Hardware</td>
<td>None</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Component</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>Red Hat Enterprise Linux Server release 7.3</td>
</tr>
<tr>
<td></td>
<td>(Maipo)</td>
</tr>
<tr>
<td></td>
<td>Kernel 3.10.0-514.el7.x86_64</td>
</tr>
<tr>
<td>Compiler</td>
<td>C/C++: Version 17.0.3.191 of Intel C/C++</td>
</tr>
<tr>
<td></td>
<td>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>Not Applicable</td>
</tr>
<tr>
<td>Other Software</td>
<td>Microquill SmartHeap V10.2</td>
</tr>
</tbody>
</table>
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CPU2006 license: 3
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th>Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Seconds</td>
<td>Ratio</td>
</tr>
<tr>
<td>400.perlbench</td>
<td>210</td>
<td>46.4</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>344</td>
<td><strong>28.1</strong></td>
</tr>
<tr>
<td>403.gcc</td>
<td>189</td>
<td>42.7</td>
</tr>
<tr>
<td>429.mcf</td>
<td><strong>116</strong></td>
<td><strong>78.3</strong></td>
</tr>
<tr>
<td>445.gobmk</td>
<td>314</td>
<td>33.5</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>96.5</td>
<td>96.7</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>327</td>
<td>37.0</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>3.84</td>
<td>5390</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>306</td>
<td>72.4</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>191</td>
<td>32.8</td>
</tr>
<tr>
<td>473.astar</td>
<td><strong>182</strong></td>
<td><strong>38.5</strong></td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>87.5</td>
<td>78.9</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
- IRQ balance service was stop using "service irqbalance stop"
- Tuned-adm profile was set to Throughtput-Performance

Platform Notes

- BIOS Configuration:
  - Intel Hyperthreading set to Disabled
  - Thermal Configuration set to Maximum Cooling
  - LLC Prefetch set to Enabled
  - LLC Dead Line Allocation set to Disabled
  - Memory Patrol Scrubbing set to Disabled
  - Workload Profile set to General Peak Frequency Compute
  - Energy/Performance Bias set to Maximum Performance
  - 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)

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
Platform Notes (Continued)

From /proc/cpuinfo

    model name : Intel(R) Xeon(R) Gold 6128 CPU @ 3.40GHz
    2 "physical id"s (chips)
    12 "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 : 6
    physical 0: cores 0 6 9 10 11 13
    physical 1: cores 0 6 9 10 11 13
    cache size : 19712 KB

From /proc/meminfo

    MemTotal:       197575356 kB
    HugePages_Total:       0
    Hugepagesize:       2048 kB

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

    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 DL380Gen10-2 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 Nov 8 12:52

    SPEC is set to: /home/cpu2006
    Filesystem    Type  Size  Used Avail Use% Mounted on
    /dev/mapper/rhel-home xfs   504G   30G  474G   6% /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:
    24x UNKNOWN NOT AVAILABLE 8 GB 2 rank 2666 MHz

Continued on next page
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Platform Notes (Continued)
(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:/home/cpu2006/sh10.2"
OMP_NUM_THREADS = "12"

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 -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
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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-revF.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-revF.xml

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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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