Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL360 Gen10
(2.30 GHz, Intel Xeon Platinum 8165)

SPECint®2006 = Not Run
SPECint_base2006 = 78.6

CPU2006 license: 3
Test sponsor: HPE
Test date: Dec-2017
Hardware Availability: Dec-2017
Software Availability: Apr-2017

Tested by: HPE

Hardware

CPU Name: Intel Xeon Platinum 8165
CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz
CPU MHz: 2300
FPU: Integrated
CPU(s) enabled: 48 cores, 2 chips, 24 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: 33 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 400 GB SATA SSD, RAID 0
Other Hardware: None

Software

Operating System: Red Hat Enterprise Linux Server release 7.3 (Maipo)
Compiler: C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux
Auto Parallel: Yes
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 32/64-bit
Peak Pointers: Not Applicable
Other Software: Microquill SmartHeap V10.2
**SPEC CINT2006 Result**

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<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak</th>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
<tr>
<td>400.perlbench</td>
<td>210</td>
<td>46.5</td>
<td>210</td>
<td>46.4</td>
<td>211</td>
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<td>401.bzip2</td>
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<td>28.1</td>
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<td>28.2</td>
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<td>403.gcc</td>
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<td>44.4</td>
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<td>44.3</td>
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<td>429.mcf</td>
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<td>445.gobmk</td>
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<td>33.7</td>
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<tr>
<td>456.hmmer</td>
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<td>96.7</td>
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<tr>
<td>458.sjeng</td>
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<td>37.4</td>
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<td>462.libquantum</td>
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<td>9730</td>
<td>2.25</td>
<td>9220</td>
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<td>464.h264ref</td>
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<td>70.1</td>
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<td>70.2</td>
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<td>471.omnetpp</td>
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<td>42.1</td>
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<td>44.9</td>
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<tr>
<td>473.astar</td>
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<td>38.9</td>
<td>179</td>
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<tr>
<td>483.xalancbmk</td>
<td>84.0</td>
<td>82.2</td>
<td>84.9</td>
<td>83.5</td>
<td>83.8</td>
<td>82.3</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  
IRQ balance service was stop using "service irqbalance stop"  
Tuned-adm profile was set to Throughput-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)  
running on DL360G10 Mon Dec  4 00:21:18 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

Continued on next page
Platform Notes (Continued)

From /proc/cpuinfo

```
model name : Intel(R) Xeon(R) Platinum 8165 CPU @ 2.30GHz
  2 "physical id"s (chips)
  48 "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 : 24
siblings : 24
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
  27 28 29
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26
  27 28 29
cache size : 33792 KB
```

From /proc/meminfo

```
MemTotal:       197746172 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 DL360G10 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 Dec 4 00:18
```

SPEC is set to: /home/cpu2006

```
Filesystem      Type   Size  Used  Avail Use% Mounted on
/dev/mapper/rhel_dl360g10-home  xfs   318G  40G  279G 13%  /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 U32 09/29/2017
Memory: Continued on next page
```
**SPEC CINT2006 Result**

<table>
<thead>
<tr>
<th>Specification</th>
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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:/home/cpu2006/sh10.2"`
- `OMP_NUM_THREADS = "48"`

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`  
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- `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-revH.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-revH.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.
Originally published on 14 January 2018.