**SPEC® CINT2006 Result**

**Hewlett Packard Enterprise**
(Test Sponsor: HPE)
ProLiant DL380 Gen10
(2.10 GHz, Intel Xeon Silver 4116)

<table>
<thead>
<tr>
<th>SPECint®2006</th>
<th>=</th>
<th>Not Run</th>
</tr>
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<tbody>
<tr>
<td>SPECint_base2006</td>
<td>=</td>
<td>60.9</td>
</tr>
</tbody>
</table>

- **CPU2006 license:** 3
- **Test sponsor:** HPE
- **Tested by:** HPE

<table>
<thead>
<tr>
<th>Test</th>
<th>Score</th>
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<tbody>
<tr>
<td>400.perlbench</td>
<td>38.0</td>
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<tr>
<td>401.bzip2</td>
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<td>403.gcc</td>
<td>35.9</td>
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<tr>
<td>429.mcf</td>
<td>67.6</td>
</tr>
<tr>
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<td>462.libquantum</td>
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</tr>
<tr>
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<tr>
<td>473.astar</td>
<td>66.7</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>5800</td>
</tr>
</tbody>
</table>

**Hardware**

- **CPU Name:** Intel Xeon Silver 4116
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.00 GHz
- **CPU MHz:** 2100
- **FPU:** Integrated
- **CPU(s) enabled:** 24 cores, 2 chips, 12 cores/chip
- **Primary Cache:** 32 KB I + 32 KB D on chip per core
- **Secondary Cache:** 1 MB I+D on chip per core
- **L3 Cache:** None
- **Other Cache:** None
- **Memory:** 192 GB (24 x 8 GB 2Rx8 PC4-2666V-R, running at 2400)
- **Disk Subsystem:** 1 x 960 GB SATA SSD, RAID 0
- **Other Hardware:** None

**Software**

- **Operating System:** Red Hat Enterprise Linux Server release 7.3 (Maipo), Kernel 3.10.0-514.6.1.el7.x86_64
- **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
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SPECint_base2006 = 60.9

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

Results Table

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<td>66.7</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 /cpu2006/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb5led28d7f98696cbe290c1)

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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Platform Notes (Continued)

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

From /proc/cpuinfo
  model name : Intel(R) Xeon(R) Silver 4116 CPU @ 2.10GHz
  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 2 3 4 5 8 9 10 11 12 13
  physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
  cache size : 16896 KB

From /proc/meminfo
  MemTotal: 197573772 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 DL380-sys2-RHEL73 3.10.0-514.6.1.el7.x86_64 #1 SMP Sat Dec 10 11:15:38
  EST 2016 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Oct 15 15:26

SPEC is set to: /cpu2006

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda4 xfs 889G 51G 839G 6% /

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:

Continued on next page
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Platform Notes (Continued)
24x UNKNOWN NOT AVAILABLE 8 GB 2 rank 2666 MHz, configured at 2400 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 = "/cpu2006/lib/ia32:/cpu2006/lib/intel64:/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 -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/HPE-Platform-Flags-Intel-V1.2-SKX-revD.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/HPE-Platform-Flags-Intel-V1.2-SKX-revD.xml](http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revD.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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