**SPEC® CINT2006 Result**

Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
ProLiant DL580 Gen10  
(2.40 GHz, Intel Xeon Gold 6148)

<table>
<thead>
<tr>
<th>Software Availability:</th>
<th>Specint_rate_base2006 = 3720</th>
</tr>
</thead>
</table>

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

**Test date:** Dec-2017  
**Software Availability:** Apr-2017

### CPU2006 license: 3  
**Test by:** HPE

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<td>Dec-2017</td>
<td>Oct-2017</td>
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### Hardware

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon Gold 6148</th>
</tr>
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<tbody>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 3.70 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>2400</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>80 cores, 4 chips, 20 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1, 2, 4 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>27.5 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>768 GB (48 x 16 GB 2Rx8 PC4-2666V-R)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>1 x 600 GB SAS 15 K, RAID 0</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>None</td>
</tr>
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</table>

### Software

<table>
<thead>
<tr>
<th>Operating System:</th>
<th>SUSE Linux Enterprise Server 12 (x86_64) SP3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler:</td>
<td>C/C++: Version 17.0.3.191 of Intel C/C++ Compiler for Linux</td>
</tr>
<tr>
<td>Auto Parallel:</td>
<td>No</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-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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**SPECint_rate2006 = Not Run**  
**SPECint_rate_base2006 = 3720**
## Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<th>Ratio</th>
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<th>Seconds</th>
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<tbody>
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<td>400.perlbench</td>
<td>160</td>
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<td>2780</td>
<td>560</td>
<td>2790</td>
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<td>930</td>
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<td>2710</td>
<td>479</td>
<td>2690</td>
<td>477</td>
<td>2700</td>
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<td>429.mcf</td>
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<td>445.gobmk</td>
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<td>727</td>
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<td>725</td>
<td>2320</td>
<td>727</td>
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<td>483.xalancbmk</td>
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</tr>
</tbody>
</table>

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

## Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"
Transparent Huge Pages enabled by default
Filesstem page cache cleared with:
  shell invocation of 'sync; echo 3 > /proc/sys/vm/drop_caches' prior to run
runspec command invoked through numactl i.e.:
  numactl --interleave=all runspec <etc>
irqbalance disabled with "systemctl stop irqbalance"
tuned profile set with "tuned-adm profile throughput-performance"
VM Dirty ratio was set to 40 using "echo 40 > /proc/sys/vm/dirty_ratio"
Numa balancing was disabled using "echo 0 > /proc/sys/kernel/numa_balancing"

## Platform Notes

BIOS Configuration:
  Thermal Configuration set to Maximum Cooling
Memory Patrol Scrubbing set to Disabled
LLC Prefetch set to Enabled
LLC Dead Line Allocation set to Disabled
Workload Profile set to General Throughput Compute
  Minimum Processor Idle Power Core C-State set to C1E State
Sysinfo program /home/cpu2006/config/sysinfo.rev6993
SPEC CINT2006 Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL580 Gen10
(2.40 GHz, Intel Xeon Gold 6148)

SPECint_rate2006 = Not Run
SPECint_rate_base2006 = 3720

Revision 6993 of 2015-11-06 (b5e8d4b5e5ed28d7f986696cbe290c1)
running on linux-j6ss Sat Dec 16 07:18:18 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

From /proc/cpuinfo
  model name : Intel(R) Xeon(R) Gold 6148 CPU @ 2.40GHz
  4 "physical id"s (chips)
  160 "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 : 20
  siblings  : 40
  physical 0: cores 0 1 2 3 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
  physical 1: cores 0 1 2 3 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
  physical 2: cores 0 1 2 3 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
  physical 3: cores 0 1 2 3 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28
  cache size : 28160 KB

From /proc/meminfo
  MemTotal:       792270792 kB
  HugePages_Total:       0
  Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
  SUSE Linux Enterprise Server 12 SP3

From /etc/*release* /etc/*version*
  SuSE-release:
  SUSE Linux Enterprise Server 12 (x86_64)
  VERSION = 12
  PATCHLEVEL = 3
  # This file is deprecated and will be removed in a future service pack or
  # release.
  # Please check /etc/os-release for details about this release.
  os-release:
    NAME="SLES"
    VERSION="12-SP3"
    VERSION_ID="12.3"
    PRETTY_NAME="SUSE Linux Enterprise Server 12 SP3"
    ID="sles"
    ANSI_COLOR="0;32"
    CPE_NAME="cpe:/o:suse:sles:12:sp3"

  uname -a:
  Linux linux-j6ss 4.4.73-5-default #1 SMP Tue Jul 4 15:33:39 UTC 2017
  (b7ce4e4) x86_64 x86_64 x86_64 GNU/Linux

Continued on next page
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Platform Notes (Continued)

SPEC is set to: /home/cpu2006
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda4      xfs   517G  188G  330G  37% /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 U34 09/29/2017
   Memory:
      48x UNKNOWN NOT AVAILABLE 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:
   LD_LIBRARY_PATH = "/home/cpu2006/lib/ia32:/home/cpu2006/lib/intel64:/home/cpu2006/sh10.2"

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

   No: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
   is mitigated in the system as tested and documented.
   No: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1)
   is mitigated in the system as tested and documented.
   No: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2)
   is mitigated in the system as tested and documented.

   This benchmark result is intended to provide perspective on
   past performance using the historical hardware and/or
   software described on this result page.

   The system as described on this result page was formerly
   generally available. At the time of this publication, it may
   not be shipping, and/or may not be supported, and/or may fail
   to meet other tests of General Availability described in the

   This measured result may not be representative of the result
   that would be measured were this benchmark run with hardware
   and software available as of the publication date.
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Test date: Dec-2017
Hardware Availability: Oct-2017
Software Availability: Apr-2017

Base Compiler Invocation
C benchmarks:
icc -m32 -L/opt/intel/compilers_and Libraries_2017/linux/lib/ia32
C++ benchmarks:
icpc -m32 -L/opt/intel/compilers_and Libraries_2017/linux/lib/ia32

Base Portability Flags
400.perlbench: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_IA32
401.bzip2: -D_FILE_OFFSET_BITS=64
403.gcc: -D_FILE_OFFSET_BITS=64
409.mcf: -D_FILE_OFFSET_BITS=64
445.gobmk: -D_FILE_OFFSET_BITS=64
456.hmmer: -D_FILE_OFFSET_BITS=64
458.sjeng: -D_FILE_OFFSET_BITS=64
462.libquantum: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX
464.h264ref: -D_FILE_OFFSET_BITS=64
471.omnetpp: -D_FILE_OFFSET_BITS=64
473.astar: -D_FILE_OFFSET_BITS=64
483.xalancbmk: -D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX

Base Optimization Flags
C benchmarks:
xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3
C++ benchmarks:
xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3 -Wl,-z,muldefs -L/sh10.2 -lsmartheap

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.

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