## SPEC® CINT2006 Result

### Hewlett Packard Enterprise

**Test Sponsor:** HPE  
**ProLiant DL560 Gen10**  
(2.10 GHz, Intel Xeon Gold 6130)

### SPECint®_rate2006 = Not Run

| SPECint_rate_base2006 | 3150 |

**CPU2006 license:** 3  
**Test sponsor:** HPE

| Test date: | Dec-2017 |
| Hardware Availability: | Oct-2017 |
| Software Availability: | Sep-2017 |

### Hardware

**CPU Name:** Intel Xeon Gold 6130  
**CPU Characteristics:** Intel Turbo Boost Technology up to 3.70 GHz  
**CPU MHz:** 2100  
**FPU:** Integrated  
**CPU(s) enabled:** 64 cores, 4 chips, 16 cores/chip, 2 threads/core  
**CPU(s) orderable:** 1, 2, 4 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:** 22 MB I+D on chip per chip  
**Memory:** 384 GB (48 x 8 GB 2Rx8 PC4-2666V-R)  
**Disk Subsystem:** 1 x 960 GB SATA SSD, RAID 0  
**Other Cache:** None  
**Other Hardware:** None

### Software

**Operating System:** SUSE Linux Enterprise Server 12 (x86_64) SP2  
**Kernel:** 4.4.21-68-default  
**Compiler:** C/C++: Version 18.0.0.128 of Intel C/C++ Compiler for Linux  
**Auto Parallel:** No  
**File System:** xfs  
**System State:** Run level 3 (multi-user)  
**Base Pointers:** 32-bit  
**Peak Pointers:** Not Applicable  
**Other Software:** Microquill SmartHeap V10.2

### Results

| Test | Copies | 2000 | 5000 | 8000 | 11000 | 14000 | 17000 | 20000 | 23000 | 26000 | 29000 | 32000 | 35000 | 38000 | 41000 | 44000 | 47000 | 50000 | 53000 | 58000 |
|------|--------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 400.perlbench | 128 | 2200 | 2200 | | | | | | | | | | | | | | | | | | |
| 401.bzip2 | 128 | 1370 | 1370 | | | | | | | | | | | | | | | | | | |
| 403.gcc | 128 | 2180 | 2180 | | | | | | | | | | | | | | | | | | |
| 429.mcf | 128 | 4190 | 4190 | | | | | | | | | | | | | | | | | | |
| 456.hmmer | 128 | 4240 | 4240 | | | | | | | | | | | | | | | | | | |
| 458.sjeng | 128 | 2030 | 2030 | | | | | | | | | | | | | | | | | | |
| 462.libquantum | 128 | 57500 | | | | | | | | | | | | | | | | | | |
| 464.h264ref | 128 | 3400 | 3400 | | | | | | | | | | | | | | | | | | |
| 471.omnetpp | 128 | 1630 | 1630 | | | | | | | | | | | | | | | | | | |
| 473.astar | 128 | 1730 | 1730 | | | | | | | | | | | | | | | | | | |
| 483.xalancbmk | 128 | 3560 | 3560 | | | | | | | | | | | | | | | | | | |
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Tested by: HPE

Results Table

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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
Filesystem 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
Continued on next page
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Hardware Availability: Oct-2017
Software Availability: Sep-2017

Platform Notes (Continued)

Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-mcua Fri Dec 8 01:03:31 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 6130 CPU @ 2.10GHz
  4 "physical id"s (chips)
  128 "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 : 16
    siblings : 32
    physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
    physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
    physical 2: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
    physical 3: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
  cache size : 22528 KB

From /proc/meminfo
  MemTotal:       395913880 kB
  HugePages_Total:       0
  Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
  SuSE-release:
  SUSE Linux Enterprise Server 12 (x86_64)
  VERSION = 12
  PATCHLEVEL = 2
  # 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-SP2"
    VERSION_ID="12.2"
    PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
    ID="sles"
    ANSI_COLOR="0;32"
    CPE_NAME="cpe:/o:suse:sles:12:sp2"

  uname -a:
    Linux linux-mcua 4.4.21-68-default #1 SMP Tue Oct 18 18:19:37 UTC 2016
    (63cf368) x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Dec 8 00:57

  SPEC is set to: /home/cpu2006

  Filesystem  Type    Size  Used  Avail Use% Mounted on
  Continued on next page
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### Platform Notes (Continued)

/dev/sdb4 xfs 852G 74G 778G 9% /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 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:

LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64:/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 SPEC OSG Policy document, http://www.spec.org/osg/policy.htm.

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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### Base Compiler Invocation

C benchmarks:

```
icc -m32 -L/opt/intel/compilers_and_libraries_2018.0.082/linux/lib/ia32
```

Continued on next page
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Base Compiler Invocation (Continued)

C++ benchmarks:
icpc -m32 -L/opt/intel/compilers_and_libraries_2018.0.082/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
429.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/home/cpu2006/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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