Hewlett Packard Enterprise
(Test Sponsor: HPE)
Synergy 480 Gen10
(2.60 GHz, Intel Xeon Gold 6132)

| SPECint\_rate2006 | Not Run |
| SPECint\_rate\_base2006 | 1490 |

| CPU2006 license: | 3 |
| Test sponsor: | HPE |
| Tested by: | HPE |

| SPECint\_rate_base2006 | 1490 |

| CPU Name: | Intel Xeon Gold 6132 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.70 GHz |
| CPU MHz: | 2600 |
| FPU: | Integrated |
| CPU(s) enabled: | 28 cores, 2 chips, 14 cores/chip, 2 threads/core |
| 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: | 19.25 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 384 GB (24 x 16 GB 2Rx8 PC4-2666V-R) |
| Disk Subsystem: | 1 x 960 GB SATA SSD, RAID 0 |
| Other Hardware: | None |

| Operating System: | SUSE Linux Enterprise Server 12 (x86_64) SP2 |
| Kernel: | 4.4.21-69-default |
| Compiler: | C/C++: Version 17.0.3.191 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 |
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Results Table

<table>
<thead>
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<th>Ratio</th>
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<th>Ratio</th>
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</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
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
Platform Notes (Continued)

Revision 6993 of 2015-11-06 (b5e8d4b51ed28d7f98696cbe290c1)
running on linux-vjuj Wed Dec 13 11:11:00 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 6132 CPU @ 2.60GHz
                2 "physical id"s (chips)
                56 "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 : 14
    siblings : 28
    physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
    physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
    cache size : 19712 KB

From /proc/meminfo
    MemTotal:       395925580 kB
    HugePages_Total:       0
    Hugepagesize:       2048 kB

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP2

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:
    (9464f67) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Dec 13 11:09

SPEC is set to: /home/cpu2006
SPEC CINT2006 Result

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Test date: Dec-2017
Hardware Availability: Oct-2017
Software Availability: Apr-2017

Platform Notes (Continued)

Filesystem   Type  Size  Used  Avail  Use%  Mounted on
/dev/sda4    xfs   852G  41G  811G   5% /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 I42 09/27/2017
Memory:
24x 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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**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.perlmith: `-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.xalanbmk: `-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/HPE-Platform-Flags-Intel-V1.2-SKX-revH.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/HPE-Platform-Flags-Intel-V1.2-SKX-revH.xml](http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revH.xml)
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For other inquiries, please contact webmaster@spec.org.

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