### SPEC® CINT2006 Result

**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
Synergy 480 Gen10  
(2.40 GHz, Intel Xeon Gold 6148)

<table>
<thead>
<tr>
<th>CPU2006 license:</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor:</td>
<td>HPE</td>
</tr>
<tr>
<td>Tested by:</td>
<td>HPE</td>
</tr>
</tbody>
</table>

| SPECint_rate_base2006 = 1890 |

<table>
<thead>
<tr>
<th>Specification</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test date:</td>
<td>Nov-2017</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>Oct-2017</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Apr-2017</td>
</tr>
</tbody>
</table>

#### Hardware

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon Gold 6148</th>
</tr>
</thead>
<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>40 cores, 2 chips, 20 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1, 2 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>384 GB (24 x 16 GB 2Rx8 PC4-2666V-R)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>1 x 960 GB SATA SSD, RAID 0</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>None</td>
</tr>
</tbody>
</table>

#### Software

<table>
<thead>
<tr>
<th>Operating System:</th>
<th>SUSE Linux Enterprise Server 12 (x86_64) SP2</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>
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</table>

### Performance Results

<table>
<thead>
<tr>
<th>Specification</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECint</td>
<td>Not Run</td>
</tr>
<tr>
<td>SPECint_rate2006</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

---

[Data Table]

<table>
<thead>
<tr>
<th>Specification</th>
<th>Result</th>
</tr>
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<tbody>
<tr>
<td>Copies 0</td>
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</tr>
<tr>
<td>400.perlbench</td>
<td>80</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>80</td>
</tr>
<tr>
<td>403.gcc</td>
<td>80</td>
</tr>
<tr>
<td>429.mcf</td>
<td>80</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>80</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>80</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>80</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>80</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>80</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>80</td>
</tr>
<tr>
<td>473.astar</td>
<td>80</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>80</td>
</tr>
</tbody>
</table>

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**Note:** The performance results are displayed in a table format with each benchmark's category and its corresponding score.
SPEC CINT2006 Result

**Hewlett Packard Enterprise**
(Test Sponsor: HPE)

Synergy 480 Gen10
(2.40 GHz, Intel Xeon Gold 6148)

**SPECint_rate2006 = Not Run**

**SPECint_rate_base2006 = 1890**

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

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

## Results Table

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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
Filesystem page cache cleared with:

```shell
class 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 "service irqbalance stop"
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
LLC Prefetch set to Enabled
LLC Dead Line Allocation set to Disabled
Memory Patrol Scrubbing set to Disabled
Workload Profile set to General Throughput Compute
Minimum Processor Idle Power Core C-State set to C1E
Sysinfo program /home/cpu2006/config/sysinfo.rev6993

Continued on next page
SPECint_rate2006 = Not Run
SPECint_rate_base2006 = 1890

Platform Notes (Continued)

Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1) running on linux-vjuj Wed Nov 8 09:24:42 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
2 "physical id"s (chips)
80 "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
cache size : 28160 KB

From /proc/meminfo
MemTotal: 395921388 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:
(x86_64) x86_64 x86_64 GNU/Linux

run-level 3 Nov 8 09:17

SPEC is set to: /home/cpu2006

Continued on next page
SPEC CINT2006 Result

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Platform Notes (Continued)

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda4 xfs 852G 8.1G 844G 1% /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

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
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
Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
Synergy 480 Gen10 
(2.40 GHz, Intel Xeon Gold 6148)  

SPECint\_rate\textsubscript{2006} = Not Run  
SPECint\_rate\textsubscript{base2006} = 1890

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<thead>
<tr>
<th>CPU2006 license</th>
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<th>Test sponsor</th>
<th>Test date</th>
<th>Test sponsor</th>
<th>Test date</th>
<th>Test sponsor</th>
</tr>
</thead>
</table>

**Base Optimization Flags**

C benchmarks:
- `xCORE-AVX512`  
- `ipo`  
- `-03`  
- `-no-prec-div`  
- `-qopt-prefetch`  
- `-qopt-mem-layout-trans=3`

C++ benchmarks:
- `xCORE-AVX512`  
- `ipo`  
- `-03`  
- `-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-revF.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-revF.xml

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For other inquiries, please contact webmaster@spec.org.

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