## SPEC CINT2006 Result

**SPECint\_rate2006 = Not Run**

**SPECint\_rate\_base2006 = 1730**

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

**Synergy 480 Gen10**  
(2.30 GHz, Intel Xeon Gold 6140)

<table>
<thead>
<tr>
<th>SPECint_rate_base2006</th>
<th>1730</th>
</tr>
</thead>
</table>

**Software**

- **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

### Hardware

<table>
<thead>
<tr>
<th>Component</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPU Name</strong>:</td>
<td>Intel Xeon Gold 6140</td>
</tr>
<tr>
<td><strong>CPU Characteristics</strong>:</td>
<td>Intel Turbo Boost Technology up to 3.70 GHz</td>
</tr>
<tr>
<td><strong>CPU MHz</strong>:</td>
<td>2300</td>
</tr>
<tr>
<td><strong>FPU</strong>:</td>
<td>Integrated</td>
</tr>
<tr>
<td><strong>CPU(s) enabled</strong>:</td>
<td>36 cores, 2 chips, 18 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td><strong>CPU(s) orderable</strong>:</td>
<td>1, 2 chip(s)</td>
</tr>
<tr>
<td><strong>Primary Cache</strong>:</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td><strong>Secondary Cache</strong>:</td>
<td>1 MB I+D on chip per core</td>
</tr>
<tr>
<td><strong>L3 Cache</strong>:</td>
<td>24.75 MB I+D on chip per chip</td>
</tr>
<tr>
<td><strong>Other Cache</strong>:</td>
<td>None</td>
</tr>
<tr>
<td><strong>Memory</strong>:</td>
<td>384 GB (24 x 16 GB 2Rx8 PC4-2666V-R)</td>
</tr>
<tr>
<td><strong>Disk Subsystem</strong>:</td>
<td>1 x 960 GB SATA SSD, RAID 0</td>
</tr>
<tr>
<td><strong>Other Hardware</strong>:</td>
<td>None</td>
</tr>
</tbody>
</table>

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

**Copy** | **0** | **1000** | **2500** | **4000** | **5500** | **7000** | **10000** | **11500** | **13000** | **14500** | **16000** | **17500** | **19000** | **20500** | **22000** | **23500** | **25000** | **26500** | **28000** | **29500** |
400.perlbench | 72 | 1300 | 1300 | |
401.bzip2 | 72 | 771 | 771 | |
403.gcc | 72 | 1260 | 1260 | |
429.mcf | 72 | 2310 | 2310 | |
445.gobmk | 72 | 1040 | 1040 | |
456.hmmer | 72 | 2350 | 2350 | |
458.sjeng | 72 | 1110 | 1110 | |
462.libquantum | 72 | 2880 | 2880 | |
464.h264ref | 72 | 1890 | 1890 | |
471.omnetpp | 72 | 885 | 885 | |
473.astar | 72 | 970 | 970 | |
483.xalancbmk | 72 | 1920 | 1920 | |

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**Results Table**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>72</td>
<td>542</td>
<td>1300</td>
<td>542</td>
<td>1300</td>
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<td>1300</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>72</td>
<td>902</td>
<td>770</td>
<td>898</td>
<td>774</td>
<td>901</td>
<td>771</td>
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<td>771</td>
<td>898</td>
<td>774</td>
<td>901</td>
<td>771</td>
</tr>
<tr>
<td>403.gcc</td>
<td>72</td>
<td>459</td>
<td>1260</td>
<td>461</td>
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<tr>
<td>429.mcf</td>
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<td>284</td>
<td>2310</td>
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<td>445.gobmk</td>
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<td>1040</td>
</tr>
<tr>
<td>456.hmmer</td>
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<td>285</td>
<td>2360</td>
<td>286</td>
<td>2350</td>
<td>286</td>
<td>2350</td>
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<td>2350</td>
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<tr>
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<td>1110</td>
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<tr>
<td>462.libquantum</td>
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<td>464.h264ref</td>
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<td>1880</td>
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<td>1880</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>72</td>
<td>509</td>
<td>885</td>
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<td>887</td>
<td>508</td>
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</tr>
<tr>
<td>473.astar</td>
<td>72</td>
<td>521</td>
<td>970</td>
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<td>968</td>
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<td>970</td>
<td>521</td>
<td>970</td>
<td>521</td>
<td>970</td>
</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 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
### Platform Notes (Continued)

Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1) running on linux-vjuj Wed Nov 15 16:41:17 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 6140 CPU @ 2.30GHz
- 2 "physical id"s (chips)
- 72 "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: 18
  - siblings: 36
  - physical 0: cores 0 1 2 3 8 9 10 11 16 17 18 19 20 24 25 26 27
  - physical 1: cores 0 1 2 3 8 9 10 11 16 17 18 19 20 24 25 26 27
- cache size: 25344 KB

From `/proc/meminfo`

- MemTotal: 395922444 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

From `/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:

- Linux linux-vjuj 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016 (9464f67) x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Nov 15 16:30

SPEC is set to: /home/cpu2006

Continued on next page
SPEC CINT2006 Result

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(2.30 GHz, Intel Xeon Gold 6140)

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SPECint_rate_base2006 = 1730

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

Platform Notes (Continued)

Filesystem       Type  Size  Used  Avail Use% Mounted on
/dev/sda4        xfs   852G   6.4G  846G   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
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(Test Sponsor: HPE)  
Synergy 480 Gen10  
(2.30 GHz, Intel Xeon Gold 6140)  

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</table>

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

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

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### 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

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### Base Other Flags

- **C benchmarks:**  
  403.gcc: -Dalloca=_alloca

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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-revG.html](http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revG.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-revG.xml](http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revG.xml)

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

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