# SPEC® CINT2006 Result

**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
Synergy 480 Gen10  
(2.30 GHz, Intel Xeon Gold 5118)  

**SPECint®_rate2006 = Not Run**  
SPECint_rate_base2006 = 1180

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<table>
<thead>
<tr>
<th>Software</th>
<th>Hardware</th>
</tr>
</thead>
</table>
| Operating System: SUSE Linux Enterprise Server 12 (x86_64) SP2 Kernel 4.4.21-69-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 | CPU Name: Intel Xeon Gold 5118  
CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz  
CPU MHZ: 2300  
FPU: Integrated  
CPU(s) enabled: 24 cores, 2 chips, 12 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: 16.5 MB I+D on chip per chip  
Other Cache: None  
Memory: 384 GB (24 x 16 GB 2Rx8 PC4-2666V-R, running at 2400)  
Disk Subsystem: 1 x 480 GB SATA SSD, RAID 0  
Other Hardware: None |

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| Test sponsor: HPE  
Hardware Availability: Nov-2017  
Software Availability: Sep-2017 | Test date: Dec-2017 |

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### SPECint Result

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<thead>
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<th>Test</th>
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<tr>
<td>400.perlbench</td>
<td>854</td>
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<tr>
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CPU2006 license: 3
Test sponsor: HPE
Tested by: HPE

Test date: Dec-2017
Hardware Availability: Nov-2017
Software Availability: Sep-2017

Results Table

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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

Continued on next page
spec

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Platform Notes (Continued)

Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on sy480_m3_sles Wed Dec 20 00:23:04 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 5118 CPU @ 2.30GHz
  2 "physical id"s (chips)
  48 "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 : 12
  siblings : 24
  physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
  physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
  cache size : 16896 KB

From /proc/meminfo
  MemTotal:       395926636 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 sy480_m3_sles 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 Dec 20 00:20

SPEC is set to: /home/cpu2006
  Filesystem     Type Size Used Avail Use% Mounted on
  /dev/sda4      xfs 405G 63G 343G 16% /home

Additional information from dmidecode:
Continued on next page
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### Platform Notes (Continued)

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 11/14/2017  
Memory:  
24x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2666 MHz, configured at 2400 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.

### Base Compiler Invocation

C benchmarks:  
```bash  
icc -m32 -L/opt/intel/compilers_and_libraries_2018.0.082/linux/lib/ia32  
```
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#### Base Compiler Invocation (Continued)

C++ benchmarks:  
```
icpc -m32 -L/opt/intel/compilers_and_libraries_2018.0.082/linux/lib/ia32```

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#### Base Portability Flags

- `400.perlbench`: `-D_FILE_OFFSET_BITS=64 -DSPEC_CPU_LINUX_1A32`  
- `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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#### 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`

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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/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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