## SPEC® CINT2006 Result

**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
ProLiant DL560 Gen10  
(2.10 GHz, Intel Xeon Gold 6152)

<table>
<thead>
<tr>
<th>SPECint_rate2006 = Not Run</th>
<th>SPECint_rate_base2006 = 3800</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>CPU2006 license: 3</th>
<th>Test date: Nov-2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor: HPE</td>
<td>Hardware Availability: Oct-2017</td>
</tr>
<tr>
<td>Tested by: HPE</td>
<td>Software Availability: Apr-2017</td>
</tr>
</tbody>
</table>

### Hardware

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon Gold 6152</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>2100</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>88 cores, 4 chips, 22 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1, 2, 4 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>30.25 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other Cache:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>768 GB (48 x 16 GB 2Rx8 PC4-2666V-R)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>2 x 480 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; Fortran: Version 17.0.3.191 of Intel Fortran 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>32/64-bit</td>
</tr>
<tr>
<td>Peak Pointers:</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Other Software:</td>
<td>Microquill SmartHeap V10.2</td>
</tr>
</tbody>
</table>

### Performance Results

<table>
<thead>
<tr>
<th>Test</th>
<th>Copies</th>
<th>SPECint_rate_base2006 = 3800</th>
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</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>176</td>
<td>Not Run</td>
</tr>
<tr>
<td>401.bzip2</td>
<td>176</td>
<td>2840</td>
</tr>
<tr>
<td>403.gcc</td>
<td>176</td>
<td>1720</td>
</tr>
<tr>
<td>429.mcf</td>
<td>176</td>
<td>2770</td>
</tr>
<tr>
<td>445.gobmk</td>
<td>176</td>
<td>5060</td>
</tr>
<tr>
<td>456.hmmer</td>
<td>176</td>
<td>5010</td>
</tr>
<tr>
<td>458.sjeng</td>
<td>176</td>
<td>2510</td>
</tr>
<tr>
<td>462.libquantum</td>
<td>176</td>
<td>61600</td>
</tr>
<tr>
<td>464.h264ref</td>
<td>176</td>
<td>4250</td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>176</td>
<td>1970</td>
</tr>
<tr>
<td>473.astar</td>
<td>176</td>
<td>2090</td>
</tr>
<tr>
<td>483.xalancbmk</td>
<td>176</td>
<td>4100</td>
</tr>
</tbody>
</table>
SPEC CINT2006 Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL560 Gen10
(2.10 GHz, Intel Xeon Gold 6152)

SPECint_rate2006 = Not Run
SPECint_rate_base2006 = 3800

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

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

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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</thead>
<tbody>
<tr>
<td>400.perlbench</td>
<td>176</td>
<td>607</td>
<td>2830</td>
<td>605</td>
<td>2840</td>
<td>606</td>
<td>2840</td>
</tr>
<tr>
<td>401.bzip2</td>
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<td>985</td>
<td>1720</td>
<td>984</td>
<td>1730</td>
<td>987</td>
<td>1720</td>
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<tr>
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<td>176</td>
<td>512</td>
<td>2770</td>
<td>511</td>
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<td>510</td>
<td>2780</td>
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<tr>
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<td>319</td>
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<td>5070</td>
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<td>456.hmmer</td>
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<td>5010</td>
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<tr>
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<td>850</td>
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<tr>
<td>462.libquantum</td>
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<td>59.4</td>
<td>61400</td>
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<td>61700</td>
<td>59.2</td>
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<td>914</td>
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<td>4220</td>
<td>916</td>
<td>4250</td>
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<tr>
<td>473.astar</td>
<td>176</td>
<td>590</td>
<td>2100</td>
<td>591</td>
<td>2090</td>
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<td>483.xalancbmk</td>
<td>176</td>
<td>296</td>
<td>4110</td>
<td>296</td>
<td>4100</td>
<td>296</td>
<td>4100</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
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SPECint_rate2006 = Not Run
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CPU2006 license: 3
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Tested by: HPE

Platform Notes (Continued)

Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on linux-e6az Wed Nov 15 16:46:42 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 6152 CPU @ 2.10GHz
4 "physical id"s (chips)
176 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
cautions.)
cpu cores : 22
siblings : 44
physical 0: cores 0 1 2 3 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
physical 1: cores 0 1 2 3 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
physical 2: cores 0 1 2 3 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
physical 3: cores 0 1 2 3 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
cache size : 30976 KB

From /proc/meminfo
MemTotal:       792267868 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 Nov 15 16:43

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Platform Notes (Continued)

SPEC is set to: /home/cpu2006
Filesystem Type Size Used Avail Use% Mounted on
/dev/sdc4 xfs 852G 14G 839G 2% /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 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
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Base Portability Flags (Continued)

483.xalanchbmk: -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/Intel-ic17.0-official-linux64-revF.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/Intel-ic17.0-official-linux64-revF.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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