Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL560 Gen10
(3.00 GHz, Intel Xeon Platinum 8158)

SPECint\_rate2006 = Not Run
SPECint\_rate\_base2006 = 2840

- **CPU2006 license:** 3
- **Test sponsor:** HPE
- **Tested by:** HPE
- **Test date:** Oct-2017
- **Hardware Availability:** Oct-2017
- **Software Availability:** Apr-2017

<table>
<thead>
<tr>
<th>SPECint_rate_base2006</th>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>2840</td>
<td>CPU Name: Intel Xeon Platinum 8158</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CPU Characteristics: Intel Turbo Boost Technology up to 3.70 GHz</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CPU MHz: 3000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FPU: Integrated</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CPU(s) enabled: 48 cores, 4 chips, 12 cores/chip, 2 threads/core</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CPU(s) orderable: 1, 2, 4 chip(s)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Primary Cache: 32 KB I + 32 KB D on chip per core</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Secondary Cache: 1 MB I+D on chip per core</td>
<td></td>
</tr>
<tr>
<td></td>
<td>L3 Cache: 24.75 MB I+D on chip per chip</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other Cache: None</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Memory: 768 GB (48 x 16 GB 2Rx8 PC4-2666V-R)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Disk Subsystem: 2 x 480 GB SSD SATA, RAID 0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other Hardware: None</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Operating System: SUSE Linux Enterprise Server 12 (x86_64) SP2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kernel 4.4.21-69-default</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Compiler: 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>
<td></td>
</tr>
<tr>
<td></td>
<td>Auto Parallel: No</td>
<td></td>
</tr>
<tr>
<td></td>
<td>File System: xfs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>System State: Run level 3 (multi-user)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Base Pointers: 32/64-bit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Peak Pointers: Not Applicable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other Software: Microquill SmartHeap V10.2</td>
<td></td>
</tr>
</tbody>
</table>
## Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench</td>
<td>96</td>
<td>456</td>
<td>2060</td>
<td>457</td>
<td>2050</td>
</tr>
<tr>
<td>bzip2</td>
<td>96</td>
<td>735</td>
<td>1260</td>
<td>735</td>
<td>1260</td>
</tr>
<tr>
<td>gcc</td>
<td>96</td>
<td>370</td>
<td>2090</td>
<td>369</td>
<td>2100</td>
</tr>
<tr>
<td>mcf</td>
<td>96</td>
<td>370</td>
<td>2090</td>
<td>369</td>
<td>2100</td>
</tr>
<tr>
<td>gobmk</td>
<td>96</td>
<td>574</td>
<td>1750</td>
<td>574</td>
<td>1750</td>
</tr>
<tr>
<td>hammer</td>
<td>96</td>
<td>230</td>
<td>3890</td>
<td>231</td>
<td>3880</td>
</tr>
<tr>
<td>sjeng</td>
<td>96</td>
<td>628</td>
<td>1850</td>
<td>627</td>
<td>1850</td>
</tr>
<tr>
<td>libquantum</td>
<td>96</td>
<td>42.5</td>
<td>46800</td>
<td>42.3</td>
<td>47000</td>
</tr>
<tr>
<td>h264ref</td>
<td>96</td>
<td>675</td>
<td>3150</td>
<td>671</td>
<td>3170</td>
</tr>
<tr>
<td>omnetpp</td>
<td>96</td>
<td>449</td>
<td>1340</td>
<td>448</td>
<td>1340</td>
</tr>
<tr>
<td>astar</td>
<td>96</td>
<td>425</td>
<td>1580</td>
<td>424</td>
<td>1590</td>
</tr>
<tr>
<td>xalancbmk</td>
<td>96</td>
<td>196</td>
<td>3370</td>
<td>196</td>
<td>3370</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"

### Platform Notes

- BIOS Configuration:
  - Thermal Configuration set to Maximum Cooling
  - Memory Patrol Scrubbing set to Disabled
  - LLC Prefetcher set to Enabled
  - LLC Dead Line Allocation set to Disabled
  - Stable A to S set to Enabled
  - 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
**SPEC CINT2006 Result**

**Hewlett Packard Enterprise**
(Test Sponsor: HPE)
ProLiant DL560 Gen10
(3.00 GHz, Intel Xeon Platinum 8158)

| SPECint_rate2006 = | Not Run |
| SPECint_rate_base2006 = | 2840 |

**CPU2006 license:** 3  
**Test sponsor:** HPE  
**Tested by:** HPE  
**Test date:** Oct-2017  
**Hardware Availability:** Oct-2017  
**Software Availability:** Apr-2017

---

### Platform Notes (Continued)

Revision 6993 of 2015-11-06 (b5e8d4b4e51ed28d7f98696cbe290c1)  
running on linux-smfo Fri Oct 6 10:14:05 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) Platinum 8158 CPU @ 3.00GHz  
- 4 "physical id"s (chips)  
- 96 "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 8 9 11 17 18 19 20  
  - physical 1: cores 0 1 2 3 4 9 10 16 18 19 25 26  
  - physical 2: cores 0 1 3 9 10 16 18 19 24 25 26 27  
  - physical 3: cores 0 1 2 3 8 10 11 18 24 25 27  
  - cache size: 25344 KB

From \( /\)proc/meminfo

- MemTotal: 792278832 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 Oct 6 10:08

Continued on next page
SPEC CINT2006 Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL560 Gen10
(3.00 GHz, Intel Xeon Platinum 8158)

SPECint_rate2006 = Not Run
SPECint_rate_base2006 = 2840

Platform Notes (Continued)

SPEC is set to: /home/cpu2006
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda4 xfs 852G 6.9G 845G 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 U34 09/29/2017
Memory:
48x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2666 MHz

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:
```bash
  icc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

C++ benchmarks:
```bash
  icpc -m32 -L/opt/intel/compilers_and_libraries_2017/linux/lib/ia32
```

Base Portability Flags

```bash
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
```

Continued on next page
**SPEC CINT2006 Result**

Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
ProLiant DL560 Gen10  
(3.00 GHz, Intel Xeon Platinum 8158)

**SPECint_rate2006 =** Not Run  
**SPECint_rate_base2006 =** 2840

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

### Base Portability Flags (Continued)

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

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.  
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.  