### Hardware

<table>
<thead>
<tr>
<th>CPU Name:</th>
<th>Intel Xeon Platinum 8180</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 3.80 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>2500</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>112 cores, 4 chips, 28 cores/chip</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>38.5 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>1 x 480 GB SATA SSD, RAID 0</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Operating System:</th>
<th>Red Hat Enterprise Linux Server release 7.3 (Maipo)</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>Yes</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>32/64-bit</td>
</tr>
<tr>
<td>Other Software:</td>
<td>Microquill SmartHeap V10.2</td>
</tr>
</tbody>
</table>
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL560 Gen10
(2.50 GHz, Intel Xeon Platinum 8180)

SPECint2006 = Not Run
SPECint_base2006 = 81.1

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base</th>
<th></th>
<th></th>
<th></th>
<th></th>
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<tbody>
<tr>
<td></td>
<td>Seconds</td>
<td>Ratio</td>
<td>Seconds</td>
<td>Ratio</td>
<td>Seconds</td>
<td>Ratio</td>
<td>Seconds</td>
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<tr>
<td>400.perlbench</td>
<td>204</td>
<td>47.8</td>
<td>205</td>
<td>47.7</td>
<td>205</td>
<td>47.7</td>
<td></td>
</tr>
<tr>
<td>401.bzip2</td>
<td>335</td>
<td>28.8</td>
<td>335</td>
<td>28.8</td>
<td>334</td>
<td>28.9</td>
<td></td>
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<tr>
<td>403 gcc</td>
<td>176</td>
<td>45.6</td>
<td>177</td>
<td>45.5</td>
<td>178</td>
<td>45.3</td>
<td></td>
</tr>
<tr>
<td>429.mcf</td>
<td>115</td>
<td>79.1</td>
<td>116</td>
<td>78.6</td>
<td>117</td>
<td>78.2</td>
<td></td>
</tr>
<tr>
<td>445.gobmk</td>
<td>304</td>
<td>34.5</td>
<td>304</td>
<td>34.5</td>
<td>304</td>
<td>34.5</td>
<td></td>
</tr>
<tr>
<td>456.hmmer</td>
<td>94.3</td>
<td>99.0</td>
<td>93.9</td>
<td>99.3</td>
<td>94.0</td>
<td>99.3</td>
<td></td>
</tr>
<tr>
<td>458.sjeng</td>
<td>314</td>
<td>38.5</td>
<td>314</td>
<td>38.5</td>
<td>315</td>
<td>38.5</td>
<td></td>
</tr>
<tr>
<td>462.libquantum</td>
<td>1.99</td>
<td>10400</td>
<td>1.91</td>
<td>10900</td>
<td>1.88</td>
<td>11000</td>
<td></td>
</tr>
<tr>
<td>464.h264ref</td>
<td>315</td>
<td>70.1</td>
<td>312</td>
<td>70.9</td>
<td>313</td>
<td>70.7</td>
<td></td>
</tr>
<tr>
<td>471.omnetpp</td>
<td>127</td>
<td>49.1</td>
<td>126</td>
<td>49.5</td>
<td>126</td>
<td>49.5</td>
<td></td>
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<tr>
<td>473.astar</td>
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<td>40.1</td>
<td>175</td>
<td>40.1</td>
<td>175</td>
<td>40.0</td>
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<tr>
<td>483.xalancbmk</td>
<td>84.0</td>
<td>82.1</td>
<td>84.0</td>
<td>82.1</td>
<td>83.9</td>
<td>82.2</td>
<td></td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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
irqbalance service was stopped using: 'service irqbalance stop'

Platform Notes

BIOS Configuration:
- Intel HyperThreading set to Disabled
- Thermal Configuration set to Maximum Cooling
- LLC Dead Line Allocation set to Disabled
- Stale A to S set to Enabled
- Workload profile set to General Peak Frequency Compute

Sysinfo program /home/cpu2006/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
running on DL560-RHEL-TI-16g Fri Jul 14 19:20:09 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 8180 CPU @ 2.50GHz
- 4 "physical id"s (chips)
- 112 "processors"
- cores, siblings (Caution: counting these is hw and system dependent. The
Continued on next page

Standard Performance Evaluation Corporation
info@spec.org
http://www.spec.org/
SPEC CINT2006 Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL560 Gen10
(2.50 GHz, Intel Xeon Platinum 8180)

<table>
<thead>
<tr>
<th>SPECint2006 =</th>
<th>Not Run</th>
</tr>
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<tbody>
<tr>
<td>SPECint_base2006 =</td>
<td>81.1</td>
</tr>
</tbody>
</table>

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

Platform Notes (Continued)

following excerpts from /proc/cpuinfo might not be reliable. Use with caution.

```
cpu cores : 28
siblings : 28
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
25 26 27 28 29 30
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
25 26 27 28 29 30
physical 2: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
25 26 27 28 29 30
physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24
25 26 27 28 29 30
```
cache size : 39424 KB

From /proc/meminfo
```
MemTotal:       792279444 kB
HugePages_Total:       0
Hugepagesize:       2048 kB
```

From /etc/*release* /etc/*version*
```
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.3 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.3"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.3 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.3:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
```

uname -a:
```
Linux DL560-RHEL-TI-16g 3.10.0-514.el7.x86_64 #1 SMP Wed Oct 19 11:24:13 EDT
2016 x86_64 x86_64 x86_64 GNU/Linux
run-level 3 Jul 14 00:07
```

SPEC is set to: /home/cpu2006
```
Filesystem            Type       Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home  xfs        392G  21G  372G   6%  /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 06/08/2017
Memory:
48x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2666 MHz
```

Continued on next page
Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
ProLiant DL560 Gen10  
(2.50 GHz, Intel Xeon Platinum 8180)  

**SPECint2006 = Not Run**  
**SPECint_base2006 = 81.1**

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

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### General Notes

Environment variables set by runspec before the start of the run:  
KMP_AFFINITY = "granularity=core,compact"  
LD_LIBRARY_PATH = "/home/cpu2006/lib/ia32:/home/cpu2006/lib/intel64:/home/cpu2006/sh10.2"  
OMP_NUM_THREADS = "87"

Binaries compiled on a system with 2x Intel Xeon E5-2699 v4 CPU + 256GB RAM  
memory using Redhat Enterprise Linux 7.2

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### Base Compiler Invocation

C benchmarks:  
```
icc -m64
```

C++ benchmarks:  
```
icpc -m64
```

---

### Base Portability Flags

<table>
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<tr>
<th>Benchmark</th>
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<tr>
<td>400.perlbench</td>
<td>-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX_X64</td>
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<tr>
<td>483.xalancbmk</td>
<td>-DSPEC_CPU_LP64 -DSPEC_CPU_LINUX</td>
</tr>
</tbody>
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### Base Optimization Flags

C benchmarks:  
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch 
/auto-p32 -complex-limited-range -qopt-prefetch-issue-excl-hint 
-ansi-alias
```

C++ benchmarks:  
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -auto-p32 
-Wl,-z,muldefs -L/home/cpu2006/sh10.2 -lsmartheap64
```
### SPEC CINT2006 Result

**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
ProLiant DL560 Gen10  
(2.50 GHz, Intel Xeon Platinum 8180)

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

#### Base Other Flags

**C benchmarks:**

403.gcc: -Dalloca=_alloca

The flags files that were used to format this result can be browsed at

- [HPE-Compiler-Flags-Intel-V1.2-HSW-revJ.html](http://www.spec.org/cpu2006/flags/HPE-Compiler-Flags-Intel-V1.2-HSW-revJ.html)
- [HPE-Platform-Flags-Intel-V1.2-SKX-revB.html](http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revB.html)

You can also download the XML flags sources by saving the following links:

- [HPE-Compiler-Flags-Intel-V1.2-HSW-revJ.xml](http://www.spec.org/cpu2006/flags/HPE-Compiler-Flags-Intel-V1.2-HSW-revJ.xml)
- [HPE-Platform-Flags-Intel-V1.2-SKX-revB.xml](http://www.spec.org/cpu2006/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revB.xml)

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

Tested with SPEC CPU2006 v1.2.  