Hewlett Packard Enterprise
(Test Sponsor: HPE)
HPE Superdome Flex 280
(Intel Xeon Platinum 8380HL, 2.9 GHz)

<table>
<thead>
<tr>
<th>SPECCompG_peak2012 = Not Run</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECCompG_base2012 = 79.2</td>
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<table>
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<tr>
<th>OMP2012 license:</th>
<th>HPE</th>
</tr>
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<tbody>
<tr>
<td>Test sponsor:</td>
<td>HPE</td>
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<td>Tested by:</td>
<td>HPE</td>
</tr>
<tr>
<td>Test date:</td>
<td>Apr-2021</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>Jan-2021</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Feb-2021</td>
</tr>
</tbody>
</table>

### Hardware
- **CPU Name:** Intel Xeon Platinum 8380HL
- **CPU Characteristics:** Intel Turbo Boost Technology up to 4.30 GHz
- **CPU MHz:** 2900
- **CPU MHz Maximum:** 4300
- **FPU:** Integrated
- **CPU(s) enabled:** 224 cores, 8 chips, 28 cores/chip, 2 threads/core
- **CPU(s) orderable:** 2, 4, 8 chips
- **Primary Cache:** 32 KB I + 32 KB D on chip per core
- **Secondary Cache:** 1 MB I+D on chip per core
- **L3 Cache:** 38.5 MB I+D on chip per chip
- **Other Cache:** None
- **Memory:** 6 TB (48 x 128 GB 4Rx4 PC4-3200AA-L)
- **Disk Subsystem:** 3 TB tmpfs
- **Other Hardware:** None
- **Base Threads Run:** 224
- **Minimum Peak Threads:** 224

### Software
- **Operating System:** SUSE Linux Enterprise Server 15 SP2
  - Kernel 5.3.18-24.52-default
- **Compiler:** C/C++/Fortran: Version 19.1.3.304 of Intel Compiler Build 20200925 for Linux
- **Auto Parallel:** No
- **File System:** tmpfs
- **System State:** Multi-user, run level 3
- **Base Pointers:** 64-bit
- **Peak Pointers:** Not Applicable
- **Other Software:** HPE Foundation Software 2.4.2
  - (Build 737.1520.210121T0100.a.sles15sp2hpec-210121T0100)

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**SPEC OMPG2012 Result**

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**SPECompG_peak2012 = Not Run**

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**Results Table**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>350.md</td>
<td>224</td>
<td>8.31</td>
<td>557</td>
</tr>
<tr>
<td>351.bwaves</td>
<td>224</td>
<td>58.7</td>
<td>72.2</td>
</tr>
<tr>
<td>352.nab</td>
<td>224</td>
<td>72.1</td>
<td>53.9</td>
</tr>
<tr>
<td>357.bt331</td>
<td>224</td>
<td>60.7</td>
<td>78.1</td>
</tr>
<tr>
<td>358.botsalgn</td>
<td>224</td>
<td>65.7</td>
<td>66.3</td>
</tr>
<tr>
<td>359.botsspar</td>
<td>224</td>
<td>110</td>
<td>108</td>
</tr>
<tr>
<td>360.lilbdc</td>
<td>224</td>
<td>65.5</td>
<td>54.3</td>
</tr>
<tr>
<td>362.fma3d</td>
<td>224</td>
<td>137</td>
<td>27.8</td>
</tr>
<tr>
<td>363.swim</td>
<td>224</td>
<td>68.1</td>
<td>66.5</td>
</tr>
<tr>
<td>367.imagick</td>
<td>224</td>
<td>60.6</td>
<td>116</td>
</tr>
<tr>
<td>370.mgrid331</td>
<td>224</td>
<td>86.3</td>
<td>51.2</td>
</tr>
<tr>
<td>371.applu331</td>
<td>224</td>
<td>81.4</td>
<td>74.5</td>
</tr>
<tr>
<td>372.smithwa</td>
<td>224</td>
<td>25.6</td>
<td>210</td>
</tr>
<tr>
<td>376.kdtree</td>
<td>224</td>
<td>63.3</td>
<td>71.1</td>
</tr>
</tbody>
</table>

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

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**Compiler Invocation Notes**

COPTIMIZE=-O3 -xCORE-AVX512 -ipo1 -qopenmp -qopt-zmm-usage=high -ansi-alias -mmodel=medium -shared-intel
CXXOPTIMIZE=-O3 -xCORE-AVX512 -ipo1 -qopenmp -qopt-zmm-usage=high -ansi-alias -mmodel=medium -shared-intel
FOPTIMIZE=-O3 -xCORE-AVX512 -ipo1 -qopenmp -qopt-zmm-usage=high -mmodel=medium -shared-intel

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**Submit Notes**

The config file option 'submit' was used.
For all benchmarks threads were bound to cores using the following submit command:

dplace -e -c 0-223 $command

This binds threads in order of creation, beginning with the master thread on logical cpu 0, the first slave thread on logical cpu 1, and so on.

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**Operating System Notes**

Software Environment:

export KMP_AFFINITY=disabled
export KMP_STACKSIZE=200M
export KMP_SCHEDULE=static,balanced
export OMP_DYNAMIC=FALSE

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Operating System Notes (Continued)

ulimit -s unlimited

The tmpfs filesystem was set up with:
   mount -t tmpfs -o rw,nosuid,nodev,mpol=interleave:0-7 /dev/shm

General Notes

System settings notes:
Workload Profile set to HPC
Workload Profile set to Custom
Power Regulator set to OS Control

Intel Turbo Boost Technology (Turbo): Enabled
Enhanced Processor Performance: Enabled

For all benchmarks core frequencies were set using the following command:
cpupower frequency-set -d 2901MHz -u 2901MHz -g performance

NA: The test sponsor attests, as of date of publication, the CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, the CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Spectre variant 2) is mitigated in the system as tested and documented.

Base Compiler Invocation

C benchmarks:
icc
C++ benchmarks:
icpc
Fortran benchmarks:
ifort

Base Portability Flags

350.md: -free
367.imagick: -std=c99
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Base Optimization Flags

C benchmarks:  
-03 -xCORE-AVX512 -ipol -qopenmp -qopt-zmm-usage=high -ansi-alias  
-mcmodel=medium -shared-intel

C++ benchmarks:  
-03 -xCORE-AVX512 -ipol -qopenmp -qopt-zmm-usage=high -ansi-alias  
-mcmodel=medium -shared-intel

Fortran benchmarks:  
-03 -xCORE-AVX512 -ipol -qopenmp -qopt-zmm-usage=high  
-mcmodel=medium -shared-intel

The flags files that were used to format this result can be browsed at
http://www.spec.org/omp2012/flags/HPE-Platform-Flags-Intel-V1.3-CLX-revD.html

You can also download the XML flags sources by saving the following links:  
http://www.spec.org/omp2012/flags/HPE-OMP2012-ic18.xml  
http://www.spec.org/omp2012/flags/HPE-Platform-Flags-Intel-V1.3-CLX-revD.xml

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

Tested with SPEC OMP2012 v1.1.  
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