Huawei
Huawei 2288H V5 (Intel Xeon Platinum 8280, 2.7 GHz)

SPECompG_peak2012 = Not Run
SPECompG_base2012 = 12.6

<table>
<thead>
<tr>
<th>Software</th>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name:</td>
<td>Intel Xeon Platinum 8280</td>
</tr>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 4.00 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>2700</td>
</tr>
<tr>
<td>CPU MHz Maximum:</td>
<td>4000</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>28 cores, 1 chip, 28 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td>CPU(s) orderable:</td>
<td>1 Chip</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>192 GB (12 x 16 GB 2Rx8 PC4-2933Y-R)</td>
</tr>
<tr>
<td>Disk Subsystem:</td>
<td>1 X 480 GB SSD SAS</td>
</tr>
<tr>
<td>Other Hardware:</td>
<td>None</td>
</tr>
<tr>
<td>Base Threads Run:</td>
<td>56</td>
</tr>
<tr>
<td>Minimum Peak Threads:</td>
<td>--</td>
</tr>
</tbody>
</table>

| Operating System: | SUSE Linux Enterprise Server 12 SP4 (x86_64) 4.12.14-94.41-default |
| Compiler: | C/C++/Fortran: Version 19.0.3.199 of Intel Composer for Linux Build 20190206 |
| Auto Parallel: | No |
| File System: | xfs |
| System State: | run level 3 |
| Base Pointers: | 64-bit |
| Peak Pointers: | Not Applicable |
| Other Software: | None |

Huawei 2288H V5 (Intel Xeon Platinum 8280, 2.7 GHz)

OMP2012 license: 27
Test sponsor: Huawei
Tested by: Huawei
Hardware Availability: Jul-2017
Software Availability: Mar-2019
Test date: Mar-2019

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>65.0</td>
<td>3.00</td>
<td>11.8</td>
<td>13.3</td>
<td>17.2</td>
<td>7.55</td>
<td>8.77</td>
<td>11.5</td>
<td>8.85</td>
<td>14.8</td>
<td>7.90</td>
<td>14.5</td>
<td>12.5</td>
<td>9.82</td>
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</table>

SPECompG_base2012 = 12.6

Continued on next page
Huawei

Huawei 2288H V5 (Intel Xeon Platinum 8280, 2.7 GHz)

SPECompG_peak2012 = Not Run
SPECompG_base2012 = 12.6

OMP2012 license: 27
Test sponsor: Huawei
Tested by: Huawei
Maximum Peak Threads: --

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<tbody>
<tr>
<td>350.md</td>
<td>56</td>
<td>72.3</td>
<td>64.0</td>
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<td>64.1</td>
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<tr>
<td>351.bwaves</td>
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<td>11.8</td>
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<td>13.3</td>
<td>297</td>
<td>13.1</td>
<td>292</td>
<td>13.3</td>
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<tr>
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<td>17.1</td>
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<td>17.2</td>
<td>276</td>
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<td>9.81</td>
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</tbody>
</table>

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

Platform Notes

Sysinfo program /omp2012/Docs/sysinfo
$Rev: 395 $ $Date:: 2012-07-25 #$ 8f8c0fe9e19c658963a1e67685e50647
running on linux-fxye Tue Nov 20 20:06:28 2018

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/omp2012/Docs/config.html#sysinfo

From /proc/cpuinfo
model name : Intel(R) Xeon(R) Platinum 8280 CPU @ 2.70GHz
  1 "physical id"s (chips)
  56 "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 : 28
siblings : 56
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
cache size : 39424 KB

From /proc/meminfo
MemTotal:  196260704 kB
Continued on next page
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Platform Notes (Continued)

HugePages_Total: 0
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP4

From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 4
# 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-SP4"
VERSION_ID="12.4"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP4"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp4"

uname -a:
(3090901) x86_64 x86_64 x86_64 GNU/Linux
	run-level 3 Nov 20 19:48

SPEC is set to: /omp2012
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 xfs 425G 81G 345G 19% /

Additional information from dmidecode:
BIOS INSYDE Corp. 6.36 02/15/2019
Memory:
12x NO DIMM NO DIMM
12x Samsung M393A2K43CB2-CVF 16 GB 2933 MHz 2 rank

(End of data from sysinfo program)

---

General Notes

BIOS settings notes:
  Transparent Huge Pages enabled with:
  echo always > /sys/kernel/mm/transparent_hugepage/enabled

BIOS settings notes:
  Intel HyperThreading Technology set to Enabled
  CPU performance set to Enterprise
  Power Performance Tuning set to OS

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General Notes (Continued)

Sub Numa Clustering (SNC) set to Disabled
IMC Interleaving set to Auto
General OMP Library Settings
ENV_KMP_LIBRARY=turnaround
ENV_OMP_SCHEDULE=static
ENV_KMP_BLOCKTIME=200
ENV_KMP_STACKSIZE=512M
ENV_OMP_DYNAMIC=FALSE
ENV_OMP_NESTED=FALSE

========================================================================
General base OMP Library Settings
ENV_KMP_AFFINITY=compact,1
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.
Yes: 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.
Yes: 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.

Base Compiler Invocation

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

Base Portability Flags

350.md: -FR
357.bt331: -mcmode=medium
363.swim: -mcmode=medium
367.imagick: -std=c99

Base Optimization Flags

C benchmarks:
-03 -qopenmp -ipo -xCORE-AVX512 -ansi-alias
C++ benchmarks:
-03 -qopenmp -ipo -xCORE-AVX512 -ansi-alias

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Base Optimization Flags ( Continued )

Fortran benchmarks:
-03 -qopenmp -ipo -xCORE-AVX512 -align array64byte

The flags files that were used to format this result can be browsed at
http://www.spec.org/omp2012/flags/Intel-ic18.0-linux64.20190329.html
http://www.spec.org/omp2012/flags/Huawei-Platform-Settings-Omp2012-Cascade-V1.0.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/omp2012/flags/Intel-ic18.0-linux64.20190329.xml
http://www.spec.org/omp2012/flags/Huawei-Platform-Settings-Omp2012-Cascade-V1.0.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 v1.0.
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