Hewlett Packard Enterprise
[Test Sponsor: HPE]
ProLiant DL560 Gen10
(2.30 GHz, Intel Xeon Gold 5118)

SPECfp®2006 = Not Run
SPECfp_base2006 = 111

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

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

Hardware
CPU Name: Intel Xeon Gold 5118
CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz
CPU MHz: 2300
FPU: Integrated
CPU(s) enabled: 48 cores, 4 chips, 12 cores/chip
CPU(s) orderable: 1, 2, 4 chip(s)
Primary Cache: 32 KB I + 32 KB D on chip per core
Secondary Cache: 1 MB I+D on chip per core

Software
Operating System: Red Hat Enterprise Linux Server release 7.3 (Maipo)
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
Auto Parallel: Yes
File System: xfs

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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Seconds</th>
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</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 disabled with "systemctl stop irqbalance"
tuned profile set with "tuned-adm profile throughput-performance"

Platform Notes
BIOS Configuration:
Intel Hyper-Threading set to Disabled
Thermal Configuration set to Maximum Cooling
LLC Prefetch set to Enabled
Platform Notes (Continued)

LLC Dead Line Allocation set to Disabled
Memory Patrol Scrubbing set to Disabled
Workload Profile set to General Peak Frequency Compute
   Energy/Performance Bias set to Maximum Performance
Workload Profile set to Custom
NUMA Group Size Optimization set to Flat
Sysinfo program /home/cpu2006/config/sysinfo.rev6993
Revision 6993 of 2015-11-06 (b5e8d4b4eb51ed28d7f98696cbe290c1)
runtime on DL560G10 Wed Dec 20 05:36:49 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 5118 CPU @ 2.30GHz
   4 "physical id"s (chips)
   48 "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 : 12
   physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
   physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13
   physical 2: cores 0 1 2 3 4 5 8 9 10 11 12 13
   physical 3: cores 0 1 2 3 4 5 8 9 10 11 12 13
   cache size : 16896 KB

From /proc/meminfo
   MemTotal:       395927168 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 DL560G10 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

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### SPEC CFP2006 Result

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

#### Platform Notes (Continued)

- **run-level 3 Dec 19 18:10**
- **SPEC is set to:** /home/cpu2006
- **Filesystem**  
  
  `/dev/mapper/rhel_dl560g10-home xfs 839G 40G 799G 5% /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 8 GB 2 rank 2666 MHz, configured at 2400 MHz

(End of data from sysinfo program)

#### 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 = "48"

- **Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM**
- **memory using Redhat Enterprise Linux 7.2**

- **No:** The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.
- **No:** 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.
- **No:** 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.

This benchmark result is intended to provide perspective on past performance using the historical hardware and/or software described on this result page.

The system as described on this result page was formerly generally available. At the time of this publication, it may not be shipping, and/or may not be supported, and/or may fail to meet other tests of General Availability described in the SPEC OSG Policy document, [http://www.spec.org/osg/policy.htm](http://www.spec.org/osg/policy.htm).

This measured result may not be representative of the result that would be measured were this benchmark run with hardware and software available as of the publication date.
SPEC CFP2006 Result

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

Base Compiler Invocation

C benchmarks:
  icc -m64

C++ benchmarks:
  icpc -m64

Fortran benchmarks:
  ifort -m64

Benchmarks using both Fortran and C:
  icc -m64 ifort -m64

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zesmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64 -nofor_main
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
  -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

C++ benchmarks:
  -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch

Fortran benchmarks:
  -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch

Benchmarks using both Fortran and C:
  -xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -qopt-prefetch
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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-revH.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-revH.xml

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

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