Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL360 Gen10
(2.10 GHz, Intel Xeon Gold 6152)

SPECspeed2017_fp_base = 113
SPECspeed2017_fp_peak = Not Run

Threads

603.bwaves_s 44
607.cactuBSSN_s 44
619.lbm_s 44
621.wrf_s 44
627.cam4_s 44
628.pop2_s 44
638.imagick_s 44
644.nab_s 44
649.fotonik3d_s 44
654.roms_s 44

--- SPECspeed2017_fp_base (113) ---

Hardware
CPU Name: Intel Xeon Gold 6152
Max MHz.: 3700
Nominal: 2100
Enabled: 44 cores, 2 chips
Orderable: 1, 2 chip(s)
Cache L1: 32 KB I + 32 KB D on chip per core
L2: 1 MB I+D on chip per core
L3: 30.25 MB I+D on chip per chip
Other: None
Memory: 192 GB (24 x 8 GB 2Rx8 PC4-2666V-R)
Storage: 1 x 480 GB SATA SSD, RAID 0
Other: None

Software
OS: Red Hat Enterprise Linux Server release 7.3 (Maipo)
Compiler: C/C++: Version 18.0.0.128 of Intel C/C++
Compiler for Linux:
Fortran: Version 18.0.0.128 of Intel Fortran
Compiler for Linux:
Parallel: Yes
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: None
SPEC CPU2017 Floating Point Speed Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL360 Gen10
(2.10 GHz, Intel Xeon Gold 6152)

CPU2017 License: 3
Test Sponsor: HPE
Tested by: HPE

SPECspeed2017_fp_base = 113
SPECspeed2017_fp_peak = Not Run

Test Date: Nov-2017
Hardware Availability: Oct-2017
Software Availability: Sep-2017

Results Table

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<tr>
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<th>Seconds</th>
<th>Ratio</th>
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<tr>
<td>654.roms_s</td>
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<td>131</td>
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SPECspeed2017_fp_base = 113
SPECspeed2017_fp_peak = Not Run

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"

General Notes

Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH = "/home/specuser/cpu2017/lib/ia32:/home/specuser/cpu2017/lib/intel64"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/specuser/cpu2017/je5.0.1-32:/home/specuser/cpu2017/je5.0.1-64"
OMP_STACKSIZE = "192M"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.4

Platform Notes

BIOS Configuration:
Intel Hyperthreading set to Disabled
Thermal Configuration set to Maximum Cooling
LLC Prefetch set to Enabled
LLC Dead Line Allocation set to Disabled
Memory Patrol Scrubbing set to Disabled
Workload Profile set to General Peak Frequency Compute

(Continued on next page)
**SPEC CPU2017 Floating Point Speed Result**

**SPEC CPU2017 License:** 3  
**Test Sponsor:** HPE  
**Tested by:** HPE

**SPECspeed2017_fp_base = 113**  
**SPECspeed2017_fp_peak = Not Run**

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**Energy/Performance Bias set to Maximum Performance**
**Workload Profile set to Custom**
**NUMA Group Size Optimization set to Flat**

Sysinfo program: `/home/specuser/cpu2017/bin/sysinfo`
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618b091c0f  
running on dl360gen10rhe173 Sat Nov 4 10:38:16 2017

SUT (System Under Test) info as seen by some common utilities.  
For more information on this section, see  
https://www.spec.org/cpu2017/Docs/config.html#sysinfo

From `/proc/cpuinfo`

```plaintext
model name : Intel(R) Xeon(R) Gold 6152 CPU @ 2.10GHz
2 "physical id"s (chips)
44 "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 : 22
siblings : 22
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
```

From `lscpu`:

```plaintext
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 44
On-line CPU(s) list: 0-43
Thread(s) per core: 1
Core(s) per socket: 22
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6152 CPU @ 2.10GHz
Stepping: 4
CPU MHz: 2100.000
BogoMIPS: 4204.62
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 30976K
NUMA node0 CPU(s): 0-21
NUMA node1 CPU(s): 22-43
```

**Platform Notes (Continued)**

(Continued on next page)
## SPEC CPU2017 Floating Point Speed Result

### Hewlett Packard Enterprise

**Test Sponsor:** HPE  
**ProLiant DL360 Gen10**  
**(2.10 GHz, Intel Xeon Gold 6152)**

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### Platform Notes (Continued)

/proc/cpuidinfo cache data
  
cache size : 30976 KB

From numactl --hardware  WARNING: a numactl 'node' might or might not correspond to a physical chip.

From /proc/meminfo
  
  MemTotal: 197570624 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

From /etc/*release*/etc/*version*
  
  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="0x31"
  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 dl360gen10rhe173 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 Nov 4 10:36

SPEC is set to: /home/specuser/cpu2017

Filesystem          Type   Size  Used Avail Use% Mounted on
  
  /dev/mapper/rhel-home xfs   392G  37G  356G  10% /home

Additional information from dmidecode follows.  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 U32 09/29/2017
  Memory:
    24x UNKNOWN NOT AVAILABLE 8 GB 2 rank 2666

(End of data from sysinfo program)
**SPEC CPU2017 Floating Point Speed Result**

Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
ProLiant DL360 Gen10  
(2.10 GHz, Intel Xeon Gold 6152)  

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**Compiler Version Notes**

```plaintext
CC  619.lbm_s(base) 638.imagick_s(base) 644.nab_s(base)
-----------------------------
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

FC  607.cactuBSSN_s(base)
-----------------------------
icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

FC  603.bwaves_s(base) 649.fotonik3d_s(base) 654.roms_s(base)
-----------------------------
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

CC  621.wrf_s(base) 627.cam4_s(base) 628.pop2_s(base)
-----------------------------
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
```

---

**Base Compiler Invocation**

C benchmarks:  
icc

Fortran benchmarks:  
ifort

Benchmarks using both Fortran and C:  
ifort icc

(Continued on next page)
SPEC CPU2017 Floating Point Speed Result

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CPU2017 License: 3
Test Sponsor: HPE
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Test Date: Nov-2017
Hardware Availability: Oct-2017
Software Availability: Sep-2017

Base Compiler Invocation (Continued)

Benchmarks using Fortran, C, and C++:
icpc icc ifort

Base Portability Flags

603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
627.cam4_s: -DSPEC_LP64 -DSPEC_CASE_FLAG
628.pop2_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
-assume byterecl
638.imagick_s: -DSPEC_LP64
644.nab_s: -DSPEC_LP64
649.fotonik3d_s: -DSPEC_LP64
654.roms_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP

Fortran benchmarks:
-DSPEC_OPENMP -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp
-nostandard-realloc-lhs -align array32byte

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP
-nostandard-realloc-lhs -align array32byte

Benchmarks using Fortran, C, and C++:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP
-nostandard-realloc-lhs -align array32byte
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Base Other Flags

C benchmarks:
-m64 -std=c11

Fortran benchmarks:
-m64

Benchmarks using both Fortran and C:
-m64 -std=c11

Benchmarks using Fortran, C, and C++:
-m64 -std=c11

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revF.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-V1.2-SKX-revF.xml

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

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