SPEC CPU®2017 Floating Point Speed Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL325 Gen10 Plus
(2.30 GHz, AMD EPYC 7642)

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

Test Date: Apr-2020
Hardware Availability: Apr-2020
Software Availability: Aug-2019

| SPECspeed®2017_fp_base = 121 |
| SPECspeed®2017_fp_peak = Not Run |

---

### SPECspeed®2017_fp_base (121)

<table>
<thead>
<tr>
<th>Program</th>
<th>Threads</th>
</tr>
</thead>
<tbody>
<tr>
<td>603.bwaves_s</td>
<td>48</td>
</tr>
<tr>
<td>607.cactuBSSN_s</td>
<td>48</td>
</tr>
<tr>
<td>619.lbm_s</td>
<td>48</td>
</tr>
<tr>
<td>621.wrf_s</td>
<td>48</td>
</tr>
<tr>
<td>627.cam4_s</td>
<td>48</td>
</tr>
<tr>
<td>628.pop2_s</td>
<td>48</td>
</tr>
<tr>
<td>638.imagick_s</td>
<td>48</td>
</tr>
<tr>
<td>644.nab_s</td>
<td>48</td>
</tr>
<tr>
<td>649.fotonik3d_s</td>
<td>48</td>
</tr>
<tr>
<td>654.roms_s</td>
<td>48</td>
</tr>
</tbody>
</table>

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### Hardware

- **CPU Name:** AMD EPYC 7642
- **Max MHz:** 3300
- **Enabled:** 48 cores, 1 chip
- **Cache L1:** 32 KB I + 32 KB D on chip per core
- **Cache L2:** 512 KB I+D on chip per core
- **Cache L3:** 256 MB I+D on chip per chip, 16 MB shared / 3 cores
- **Other:** None
- **Memory:** 512 GB (8 x 64 GB 2Rx4 PC4-3200AA-R)
- **Storage:** 1 x 480 GB SATA SSD, RAID 0
- **Other:** None

### Software

- **OS:** SUSE Linux Enterprise Server 15 (x86_64) SP1
- **Kernel:** 4.12.14-195-default
- **Compiler:** C/C++/Fortran: Version 2.0.0 of AOCC
- **Parallel:** Yes
- **Firmware:** HPE BIOS Version A43 03/19/2020 released Apr-2020
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** Not Applicable
- **Other:** jemalloc: jemalloc memory allocator library v5.1.0
- **Power Management:** BIOS set to prefer performance at the cost of additional power usage
## Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>603.bwaves_s</td>
<td>48</td>
<td>180</td>
<td>328</td>
<td>180</td>
<td>327</td>
<td>180</td>
<td>327</td>
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<tr>
<td>607.cactuBSSN_s</td>
<td>48</td>
<td>80.1</td>
<td>208</td>
<td>79.7</td>
<td>209</td>
<td>79.7</td>
<td>209</td>
</tr>
<tr>
<td>619.lbm_s</td>
<td>48</td>
<td>166</td>
<td>31.6</td>
<td>166</td>
<td>31.6</td>
<td>166</td>
<td>31.6</td>
</tr>
<tr>
<td>621.wrf_s</td>
<td>48</td>
<td>123</td>
<td>108</td>
<td>123</td>
<td>108</td>
<td>123</td>
<td>108</td>
</tr>
<tr>
<td>627.cam4_s</td>
<td>48</td>
<td>101</td>
<td>87.6</td>
<td>101</td>
<td>87.6</td>
<td>101</td>
<td>87.5</td>
</tr>
<tr>
<td>628.pop2_s</td>
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<td>183</td>
<td>65.0</td>
<td>182</td>
<td>65.1</td>
<td>183</td>
<td>65.0</td>
</tr>
<tr>
<td>638.imagick_s</td>
<td>48</td>
<td>71.3</td>
<td>202</td>
<td>71.3</td>
<td>202</td>
<td>71.5</td>
<td>202</td>
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<tr>
<td>644.nab_s</td>
<td>48</td>
<td>64.1</td>
<td>272</td>
<td>64.1</td>
<td>273</td>
<td>64.1</td>
<td>272</td>
</tr>
<tr>
<td>649.fotonik3d_s</td>
<td>48</td>
<td>137</td>
<td>66.3</td>
<td>137</td>
<td>66.7</td>
<td>137</td>
<td>66.6</td>
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<tr>
<td>654.roms_s</td>
<td>48</td>
<td>118</td>
<td>134</td>
<td>118</td>
<td>134</td>
<td>118</td>
<td>134</td>
</tr>
</tbody>
</table>

**Compiler Notes**

The AMD64 Aocc Compiler Suite is available at http://developer.amd.com/amd-aocc/

**Submit Notes**

The config file option 'submit' was used. 'numactl' was used to bind copies to the cores. See the configuration file for details.

**Operating System Notes**

'ulimit -s unlimited' was used to set environment stack size
'ulimit -l 2097152' was used to set environment locked pages in memory limit

runcpu command invoked through numactl i.e.: numactl --interleave=all runcpu <etc>

Set dirty_ratio=8 to limit dirty cache to 8% of memory
Set swappiness=1 to swap only if necessary
Set zone_reclaim_mode=1 to free local node memory and avoid remote memory
sync then drop_caches=3 to reset caches before invoking runcpu
dirty_ratio, swappiness, zone_reclaim_mode and drop_caches were all set using privileged echo (e.g. echo 1 > /proc/sys/vm/swappiness).

Transparent huge pages set to 'always' for this run (OS default)
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(2.30 GHz, AMD EPYC 7642)

| SPECspeed®2017_fp_base = 121 |
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| CPU2017 License: 3 | Test Date: Apr-2020 |
| Test Sponsor: HPE | Hardware Availability: Apr-2020 |
| Tested by: HPE | Software Availability: Aug-2019 |

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-47"
LD_LIBRARY_PATH = "/home/cpu2017/amd_speed_aocc200_rome_C_lib/64;/home/cpu2017/amd_speed_aocc200_rome_C_lib/32:" MALLOC_CONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "48"

General Notes

Binaries were compiled on a system with 2x AMD EPYC 7601 CPU + 512GB Memory using Fedora 26

NA: 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.

jemalloc: configured and built with GCC v9.1.0 in Ubuntu 19.04 with -O3 -znver2 -flto
ejemalloc 5.1.0 is available here: https://github.com/jemalloc/jemalloc/releases/download/5.1.0/jemalloc-5.1.0.tar.bz2

Platform Notes

BIOS Configuration
Thermal Configuration set to Maximum Cooling
AMD SMT Mode set to Disabled
Determinism Control set to Manual
Performance Determinism set to Power Deterministic
Minimum Processor Idle Power Core C-State set to C6 State
Memory Patrol Scrubbing set to Disabled
Workload Profile set to General Peak Frequency Compute
NUMA memory domains per socket set to One memory domain per socket
Power Regulator Set to OS Control Mode

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edble6e46a485a0011
running on linux-q10k Thu Feb 14 09:23:47 2019

(Continued on next page)
## Platform Notes (Continued)

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

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>model name</td>
<td>AMD EPYC 7642 48-Core Processor</td>
</tr>
<tr>
<td>physical id&quot;s (chips)</td>
<td>1</td>
</tr>
<tr>
<td>&quot;processors&quot;</td>
<td>48</td>
</tr>
<tr>
<td>cores, siblings</td>
<td>(Caution: counting these is hw and system dependent. The following</td>
</tr>
<tr>
<td></td>
<td>excerpts from /proc/cpuinfo might not be reliable. Use with caution.)</td>
</tr>
<tr>
<td>cpu cores</td>
<td>48</td>
</tr>
<tr>
<td>siblings</td>
<td>48</td>
</tr>
<tr>
<td>physical 0: cores</td>
<td>0 1 2 4 5 6 8 9 10 12 13 14 16 17 18 20 21 22 24 25 26 28 29 30</td>
</tr>
<tr>
<td></td>
<td>32 33 34 36 37 38 40 41 42 44 45 46 48 49 50 52 53 54 56 57 58 60 61 62</td>
</tr>
</tbody>
</table>

### From lscpu:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture:</td>
<td>x86_64</td>
</tr>
<tr>
<td>CPU op-mode(s):</td>
<td>32-bit, 64-bit</td>
</tr>
<tr>
<td>Byte Order:</td>
<td>Little Endian</td>
</tr>
<tr>
<td>Address sizes:</td>
<td>48 bits physical, 48 bits virtual</td>
</tr>
<tr>
<td>CPU(s):</td>
<td>48</td>
</tr>
<tr>
<td>On-line CPU(s) list:</td>
<td>0-47</td>
</tr>
<tr>
<td>Thread(s) per core:</td>
<td>1</td>
</tr>
<tr>
<td>Core(s) per socket:</td>
<td>48</td>
</tr>
<tr>
<td>Socket(s):</td>
<td>1</td>
</tr>
<tr>
<td>NUMA node(s):</td>
<td>1</td>
</tr>
<tr>
<td>Vendor ID:</td>
<td>AuthenticAMD</td>
</tr>
<tr>
<td>CPU family:</td>
<td>23</td>
</tr>
<tr>
<td>Model:</td>
<td>49</td>
</tr>
<tr>
<td>Model name:</td>
<td>AMD EPYC 7642 48-Core Processor</td>
</tr>
<tr>
<td>Stepping:</td>
<td>0</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>1500.000</td>
</tr>
<tr>
<td>CPU max MHz:</td>
<td>2300.0000</td>
</tr>
<tr>
<td>CPU min MHz:</td>
<td>1500.0000</td>
</tr>
<tr>
<td>BogoMIPS:</td>
<td>4591.48</td>
</tr>
<tr>
<td>Virtualization:</td>
<td>AMD-V</td>
</tr>
<tr>
<td>L1d cache:</td>
<td>32K</td>
</tr>
<tr>
<td>L1i cache:</td>
<td>32K</td>
</tr>
<tr>
<td>L2 cache:</td>
<td>512K</td>
</tr>
<tr>
<td>L3 cache:</td>
<td>16384K</td>
</tr>
<tr>
<td>NUMA node0 CPU(s):</td>
<td>0-47</td>
</tr>
</tbody>
</table>

### Flags:

- fpu
- vme
- de
- pse
- tsc
- msr
- pae
- mce
- cmov
- pat
- pse36
- clflush
- mmx
- fxsr
- sse2
- ht
- syscall
- nx
- mmxext
- fxsr_opt
- pdpe1gb
- rdtscp
- lm
- constant_tsc
- rep_good
- nopl
- xtopology
- nonstop_tsc
- cpuid
- extd_apicid
- aperfmperf
- pni
- pclmulqdq
- monitor
- ssse3
- fma
- cx16
- sse4_1
- sse4_2
- movbe
- popcnt
- aes
- xsave
- avx
- f16c
- rdrand
- lahf_lm
- cmp_legacy
- svm
- extapicr
- cr8_legacy
- abm
- sse4a
- misalignsse
- 3dnowprefetch
- osvw
- ibs
- skinit
- wdt
- tce
- topoext
- perfctr_core
- perfctr_nb
- bpxext
- perfctr_l2
- mwaitx
- cpb

(Continued on next page)
Platform Notes (Continued)

cat_l3 cdp_l3 hw_pstate ssbd ibrs ibpb stibp vmmcall fsgsbase bmi1 avx2 smep bmi2
cqm rdt_a rdseed adx smap clflushopt clwb sha_ni xsaveopt xsavec xgetbv1 xsaves
cqm_llc cqm_occucp_llc cqm_mmb_total cqm_mmb_local clzero irperf xsaveerptr arat npt
lbrv svm_lock nrip_save tsc_scale vmcb_clean decodeassists pausefilter
pfthreshold avic v_vmsave_vmload vgif umip rdpid overflow_recov succor smca

/proc/cpuinfo cache data
cache size : 512 KB

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a
physical chip.
available: 1 nodes (0)
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47
node 0 size: 515731 MB
node 0 free: 514975 MB
node distances:
node 0
0: 10

From /proc/meminfo
MemTotal:       528109068 kB
HugePages_Total:       0
Hugepagesize:       2048 kB

From /etc/*release*/etc/*version*
os-release:
NAME="SLES"
VERSION="15-SP1"
VERSION_ID="15.1"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP1"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp1"

uname -a:
Linux linux-q10k 4.12.14-195-default #1 SMP Tue May 7 10:55:11 UTC 2019 (8fba516)
x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:
CVE-2018-3620 (L1 Terminal Fault): Not affected
Microarchitectural Data Sampling: Not affected
CVE-2017-5754 (Meltdown): Not affected
CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled
via prctl and seccomp

(Continued on next page)
**Platform Notes (Continued)**

CVE-2017-5753 (Spectre variant 1): Mitigation: __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Full AMD retpoline, IBPB: conditional, IBRS_FW, STIBP: disabled, RSB filling

run-level 3 Feb 14 09:23

SPEC is set to: /home/cpu2017

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sda3</td>
<td>xfs</td>
<td>155G</td>
<td>13G</td>
<td>142G</td>
<td>9%</td>
<td>/home</td>
</tr>
</tbody>
</table>

From /sys/devices/virtual/dmi/id

BIOS: HPE A43 03/19/2020
Vendor: HPE
Product: ProLiant DL325 Gen10 Plus
Product Family: ProLiant
Serial: CN792906TF

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.

Memory:
8x Micron 36ASF8G72PZ-3G2B2 64 GB 2 rank 3200
8x UNKNOWN NOT AVAILABLE

(End of data from sysinfo program)

**Compiler Version Notes**

C | 619.lbm_s(base) 638.imagick_s(base) 644.nab_s(base)

---

AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin

---

C++, C, Fortran | 607.cactuBSSN_s(base)

---

AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu

(Continued on next page)
Compiler Version Notes (Continued)

Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
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AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin

Fortran         | 603.bwaves_s(base) 649.fotonik3d_s(base) 654.roms_s(base)
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin

Fortran, C      | 621.wrf_s(base) 627.cam4_s(base) 628.pop2_s(base)
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin

Base Compiler Invocation

C benchmarks:
clang

Fortran benchmarks:
flang

(Continued on next page)
**BASE COMPILER INVOCATION (CONTINUED)**

Benchmarks using both Fortran and C:

```plaintext
flang clang
```

Benchmarks using Fortran, C, and C++:

```plaintext
clang++ clang flang
```

**BASE PORTABILITY FLAGS**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>603.bwaves_s</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>607.cactuBSSN_s</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>619.lbm_s</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>621.wrf_s</td>
<td>-DSPEC_CASE_FLAG -Mbyteswapio -DSPEC_LP64</td>
</tr>
<tr>
<td>627.cam4_s</td>
<td>-DSPEC_CASE_FLAG -DSPEC_LP64</td>
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</tr>
<tr>
<td>654.roms_s</td>
<td>-DSPEC_LP64</td>
</tr>
</tbody>
</table>

**BASE OPTIMIZATION FLAGS**

C benchmarks:

```plaintext
-flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -ffast-math
-march=znver2 -fstruct-layout=3 -mllvm -unroll-threshold=50
-freemap-arrays -mllvm -function-specialize -mllvm -enable-gvn-hoist
-mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp
-mllvm -vector-library=LIBMVEC -mllvm -inline-threshold=1000
-flv-function-specialization -z muldefs -DSPEC_OPENMP -fopenmp
-DUSE_OPENMP -fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm
-ljemalloc -lflang
```

Fortran benchmarks:

```plaintext
-fltlo -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver2
-funroll-loops -Mrecursive -mllvm -vector-library=LIBMVEC -z muldefs
-KIEEE -fno-finite-math-only -DSPEC_OPENMP -fopenmp -DUSE_OPENMP
-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc
```

(Continued on next page)
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(2.30 GHz, AMD EPYC 7642)

SPECspeed®2017_fp_base = 121
SPECspeed®2017_fp_peak = Not Run

CPU2017 License: 3
Test Sponsor: HPE
Test Date: Apr-2020
Tested by: HPE
Hardware Availability: Apr-2020
Software Availability: Aug-2019

Base Optimization Flags (Continued)

Fortran benchmarks (continued):
-llflang

Benchmarks using both Fortran and C:
-ffto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -ffast-math
-march=znver2 -fstruct-layout=3 -mllvm -unroll-threshold=50
-fremap-arrays -mllvm -function-specialize -mllvm -enable-gvn-hoist
-mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp
-mllvm -vector-library=LIBMVEC -mllvm -inline-threshold=1000
-flv-function-specialization -funroll-loops -Mrecursive -z muldefs
-keeve -fno-finite-math-only -DSPEC_OPENMP -fopenmp -DUSE_OPENMP
-fopenmp=libomp -lomp -lthread -ldl -lmvec -lamdlibm -ljemalloc
-llflang

Benchmarks using Fortran, C, and C++:
-std=c++98 -ffto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-suppress-fmas -O3 -ffast-math -march=znver2
-fstruct-layout=3 -mllvm -unroll-threshold=50 -fremap-arrays
-mllvm -function-specialize -mllvm -enable-gvn-hoist
-mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp
-mllvm -vector-library=LIBMVEC -mllvm -inline-threshold=1000
-flv-function-specialization -mllvm -loop-unswitch-threshold=200000
-mllvm -unroll-threshold=100 -mllvm -enable-partial-unswitch
-funroll-loops -Mrecursive -z muldefs -keeve -fno-finite-math-only
-DSPEC_OPENMP -fopenmp -DUSE_OPENMP -fopenmp=libomp -lomp -lthread
-ldl -lmvec -lamdlibm -ljemalloc -llflang

Base Other Flags

C benchmarks:
-Wno-return-type

Fortran benchmarks:
-Wno-return-type

Benchmarks using both Fortran and C:
-Wno-return-type

Benchmarks using Fortran, C, and C++:
-Wno-return-type
 SPEC CPU®2017 Floating Point Speed Result

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL325 Gen10 Plus
(2.30 GHz, AMD EPYC 7642)

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<td>Not Run</td>
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</tbody>
</table>

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

Test Date: Apr-2020
Hardware Availability: Apr-2020
Software Availability: Aug-2019

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

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/aocc200-flags-C1-HPE.xml

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