# SPEC CPU®2017 Floating Point Speed Result

## Hewlett Packard Enterprise
(Test Sponsor: HPE)  
ProLiant DL325 Gen10 Plus v2  
(2.60 GHz, AMD EPYC 7513)

**SPECspeed®2017_fp_base = 144**  
**SPECspeed®2017_fp_peak = 148**

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

<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed®2017_fp_peak</th>
<th>SPECspeed®2017_fp_base</th>
</tr>
</thead>
<tbody>
<tr>
<td>32</td>
<td>148</td>
<td>144</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** AMD EPYC 7513  
- **Max MHz:** 3650  
- **Nominal:** 2600  
- **Enabled:** 32 cores, 1 chip, 2 threads/core  
- **Orderable:** 1 chip  
- **Cache L1:** 32 KB I+ 32 KB D on chip per core  
- **L2:** 512 KB I+D on chip per core  
- **L3:** 128 MB I+D on chip per chip, 32 MB shared / 8 cores  
- **Other:** None  
- **Memory:** 1 TB (8 x 128 GB 4Rx4 PC4-3200AA-L)  
- **Storage:** 1 x 800 GB SAS SSD, RAID 0  
- **Other:** None  

### Software

- **OS:** Ubuntu 20.04.1 LTS (x86_64)  
- **Kernel:** 5.4.0-54-generic  
- **Compiler:** C/C++/Fortran: Version 3.0.0 of AOCC  
- **Parallel:** Yes  
- **Firmware:** HPE BIOS Version A43 v2.40 02/15/2021 released Mar-2021  
- **File System:** ext4  
- **System State:** Run level 5 (multi-user, GUI disabled)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** 64-bit  
- **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>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>603.bwaves_s</td>
<td>32</td>
<td>167</td>
<td>354</td>
<td>167</td>
<td>354</td>
<td>167</td>
<td>354</td>
<td>167</td>
<td>354</td>
</tr>
<tr>
<td>607.cactuBSSN_s</td>
<td>32</td>
<td>76.1</td>
<td>219</td>
<td>76.2</td>
<td>219</td>
<td>75.3</td>
<td>221</td>
<td>74.5</td>
<td>203</td>
</tr>
<tr>
<td>619.lbm_s</td>
<td>32</td>
<td>74.5</td>
<td>70.3</td>
<td>74.4</td>
<td>70.4</td>
<td>74.4</td>
<td>70.4</td>
<td>74.5</td>
<td>70.3</td>
</tr>
<tr>
<td>621.wrf_s</td>
<td>32</td>
<td>65.0</td>
<td>203</td>
<td>65.2</td>
<td>203</td>
<td>65.2</td>
<td>203</td>
<td>65.0</td>
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<tr>
<td>627.cam4_s</td>
<td>32</td>
<td>88.0</td>
<td>101</td>
<td>88.3</td>
<td>100</td>
<td>88.0</td>
<td>101</td>
<td>88.1</td>
<td>100</td>
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<tr>
<td>628.pop2_s</td>
<td>32</td>
<td>132</td>
<td>90.2</td>
<td>131</td>
<td>90.4</td>
<td>132</td>
<td>90.2</td>
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<td>90.4</td>
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<tr>
<td>638.imagick_s</td>
<td>32</td>
<td>84.3</td>
<td>171</td>
<td>85.4</td>
<td>169</td>
<td>84.4</td>
<td>171</td>
<td>84.3</td>
<td>171</td>
</tr>
<tr>
<td>644.nab_s</td>
<td>32</td>
<td>70.9</td>
<td>246</td>
<td>70.9</td>
<td>246</td>
<td>64.0</td>
<td>284</td>
<td>61.6</td>
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</tr>
<tr>
<td>649.fotonik3d_s</td>
<td>32</td>
<td>133</td>
<td>68.3</td>
<td>134</td>
<td>68.2</td>
<td>133</td>
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<td>133</td>
<td>68.4</td>
</tr>
<tr>
<td>654.roms_s</td>
<td>32</td>
<td>117</td>
<td>134</td>
<td>117</td>
<td>134</td>
<td>108</td>
<td>146</td>
<td>108</td>
<td>146</td>
</tr>
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**SPECspeed®2017_fp_base = 144**

**SPECspeed®2017_fp_peak = 148**

## 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>

'echo 8 > /proc/sys/vm/dirty_ratio' run as root to limit dirty cache to 8% of memory.

'echo 1 > /proc/sys/vm/swappiness' run as root to limit swap usage to minimum necessary.

'echo 1 > /proc/sys/vm/zone_reclaim_mode' run as root to free node-local memory and avoid remote memory usage.

'sync; echo 3 > /proc/sys/vm/drop_caches' run as root to reset filesystem caches.

'sysctl -w kernel.randomize_va_space=0' run as root to disable address space layout randomization (ASLR) to reduce run-to-run variability.

'echo always > /sys/kernel/mm/transparent_hugepage/defrag' run as root to enable
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Operating System Notes (Continued)

Transparent Hugepages (THP) for this run.
'echo madvise > /sys/kernel/mm/transparent_hugepage/enabled' run as root for peak
runs of 628.pop2_s and 638.imagick_s to enable THP only on request.

The real test date is Apr-2021. The clock was mistakenly set to 2020 before the benchmark was run.

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-63"
LD_LIBRARY_PATH = 
"/cpu2017/amd_speed_aocc300_milan_B_lib/64;/cpu2017/amd_speed_aocc300_milan_B_lib/32:"
MALLOC_CONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "64"

Environment variables set by runcpu during the 607.cactuBSSN_s peak run:
GOMP_CPU_AFFINITY = "0-31"

Environment variables set by runcpu during the 644.nab_s peak run:
GOMP_CPU_AFFINITY = "0 32 1 33 2 34 3 35 4 36 5 37 6 38 7 39 8 40 9 41 10 42
11 43 12 44 13 45 14 46 15 47 16 48 17 49 18 50 19 51 20 52 21 53 22 54
23 55 24 56 25 57 26 58 27 59 28 60 29 61 30 62 31 63"

Environment variables set by runcpu during the 654.roms_s peak run:
GOMP_CPU_AFFINITY = "0-31"

General Notes

Binaries were compiled on a system with 2x AMD EPYC 7742 CPU + 1TiB Memory using openSUSE 15.2

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 v4.8.2 in RHEL 7.4 (No options specified)
jemalloc 5.1.0 is available here:
https://github.com/jemalloc/jemalloc/releases/download/5.1.0/jemalloc-5.1.0.tar.bz2
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| Test Date: | Apr-2021 |
| Test Sponsor: | HPE |
| Hardware Availability: | Jun-2021 |
| Tested by: | HPE |
| Software Availability: | Mar-2021 |

CPU2017 License: 3

Platform Notes

BIOS Configuration
- Workload Profile set to General Peak Frequency Compute
- Determinism Control set to Manual
- Performance Determinism set to Power Deterministic
- Last-Level Cache (LLC) as NUMA Node set to Enabled
- NUMA memory domains per socket set to One memory domain per socket
- Thermal Configuration set to Maximum Cooling
- Workload Profile set to Custom
- Infinity Fabric Power Management set to Disabled
- Infinity Fabric Performance State set to P0
- Power Regulator set to OS Control Mode

Sysinfo program /cpu2017/bin/sysinfo
Rev: r6538 of 2020-09-24 e8664e66d2d7080afeaa89d4b38e2f1c
running on dl325gen10plus Wed Apr 1 17:25:07 2020

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
- model name : AMD EPYC 7513 32-Core Processor
- 1 "physical id"s (chips)
- 64 "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 : 32
  - siblings : 64
  - physical 0: cores 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

From lscpu:
- Architecture: x86_64
- CPU op-mode(s): 32-bit, 64-bit
- Byte Order: Little Endian
- Address sizes: 48 bits physical, 48 bits virtual
- CPU(s): 64
- On-line CPU(s) list: 0-63
- Thread(s) per core: 2
- Core(s) per socket: 32
- Socket(s): 1
- NUMA node(s): 4
- Vendor ID: AuthenticAMD
- CPU family: 25
- Model: 1
- Model name: AMD EPYC 7513 32-Core Processor
- Stepping: 1

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Platform Notes (Continued)

Frequency boost: enabled
CPU MHz: 1781.087
CPU max MHz: 2600.0000
CPU min MHz: 1500.0000
BogoMIPS: 5190.13
Virtualization: AMD-V
L1d cache: 1 MiB
L1i cache: 1 MiB
L2 cache: 16 MiB
L3 cache: 128 MiB
NUMA node0 CPU(s): 0-7,32-39
NUMA node1 CPU(s): 8-15,40-47
NUMA node2 CPU(s): 16-23,48-55
NUMA node3 CPU(s): 24-31,56-63
Vulnerability Iltlb multihit: Not affected
Vulnerability Llft: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and __user pointer sanitation
Vulnerability Spectre v2: Mitigation; Full AMD retpoline, IBPB conditional, IBRS_FW, STIBP always-on, RSB filling
Vulnerability Srbd: Not affected
Vulnerability Tsx async abort: Not affected
Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdscp lm constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid aperfmperf pni pclmulqdq monitor ssse3 fma cx16 pcid sse4_1 sse4_2 movbe popcnt aes xsave avx f16c rdrand lahf_lm cmp_legacy svm extaaa cr8_legacy abm sse4a misaligntse 3nowprefetch osvw ibr skinit wdt tce topoext perfctr_core perfctr_nb bpext perfctr_lcc mwaitx cpb cat_l3 cdtp_l3 invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmcall fsqgsbase bml1 avx2 smep bmi2 invpcid cg dtd a rdseed adx smap clflushopt clwb sha_ne xsaveopt xsvg xgetbv1 xsaves qcm llc qcm_occup_llc qcm_mbb_total qcm_mbb_local clzero irperf xsavepr sr stmt vmblock vscale vmcb_clean flushbyasid decodeassist pfthreshold v_vmsave_vmload vgif umip pku ospke vaes vsqmulqdp rdpid overflow_recov success 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: 4 nodes (0-3)
  node 0 cpus: 0 1 2 3 4 5 6 7 32 33 34 35 36 37 38 39
  node 0 size: 257797 MB

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Platform Notes (Continued)

node 0 free: 257529 MB
node 1 cpus: 8 9 10 11 12 13 14 15 40 41 42 43 44 45 46 47
node 1 size: 258044 MB
node 1 free: 257777 MB
node 2 cpus: 16 17 18 19 20 21 22 23 48 49 50 51 52 53 54 55
node 2 size: 258044 MB
node 2 free: 257568 MB
node 3 cpus: 24 25 26 27 28 29 30 31 56 57 58 59 60 61 62 63
node 3 size: 245908 MB
node 3 free: 245278 MB
node distances:
node 0  1  2  3  10  11  11  11
node 1  11  10  11  11
node 2  11  11  10  11
node 3  11  11  11  10

From /proc/meminfo
MemTotal:       1044270032 kB
HugePages_Total:       0
Hugepagesize:       2048 kB

/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has performance

/usr/bin/lsb_release -d
Ubuntu 20.04.1 LTS

From /etc/*release* /etc/*version*
debian_version: bullseye/sid
os-release:
  NAME="Ubuntu"
  VERSION="20.04.1 LTS (Focal Fossa)"
  ID=ubuntu
  ID_LIKE=debian
  PRETTY_NAME="Ubuntu 20.04.1 LTS"
  VERSION_ID="20.04"
  HOME_URL="https://www.ubuntu.com/
  SUPPORT_URL="https://help.ubuntu.com/"

uname -a:
Linux dl325gen10plus 5.4.0-54-generic #60-Ubuntu SMP Fri Nov 6 10:37:59 UTC 2020
x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:
CVE-2018-12207 (iTLB Multihit): Not affected

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Platform Notes (Continued)

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
CVE-2017-5753 (Spectre variant 1):
Mitigation: usercopy/swapgs barriers and __user pointer sanitization
CVE-2017-5715 (Spectre variant 2):
Mitigation: Full AMD retpoline, IBPB: conditional, IBRS_FW, STIBP: always-on, RSB filling
CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
CVE-2019-11135 (TSX Asynchronous Abort): Not affected

run-level 5 Apr 1 17:23
SPEC is set to: /cpu2017
Filesystem Type Size Used Avail Use% Mounted on
/dev/sdb2 ext4 733G 24G 672G 4% /

From /sys/devices/virtual/dmi/id
Vendor: HPE
Product: ProLiant DL325 Gen10 Plus
Product Family: ProLiant
Serial: CN79290FKQ

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 UNKNOWN M386AAG40AM3-CWE 128 GB 4 rank 3200
8x UNKNOWN NOT AVAILABLE

BIOS:
BIOS Vendor: HPE
BIOS Version: A43
BIOS Date: 02/15/2021
BIOS Revision: 2.40
Firmware Revision: 2.40

(End of data from sysinfo program)
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** Compiler Version Notes **

------------------------------------------

C 619.lbm_s(base, peak) 638.imagick_s(base, peak)
644.nab_s(base, peak)

------------------------------------------

AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on LLVM Mirror.Version.12.0.0)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin

------------------------------------------

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

------------------------------------------

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Fortran 603.bwaves_s(base, peak) 649.fotonik3d_s(base, peak)
654.roms_s(base, peak)

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AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on LLVM Mirror.Version.12.0.0)
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Fortran, C 621.wrf_s(base, peak) 627.cam4_s(base, peak)
628.pop2_s(base, peak)

------------------------------------------

AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on LLVM Mirror.Version.12.0.0)
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Test Date: Apr-2021
Hardware Availability: Jun-2021
Software Availability: Mar-2021

Compiler Version Notes (Continued)

LLVM Mirror.Version.12.0.0
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin
AMD clang version 12.0.0 (CLANG: AOCC_3.0.0-Build#78 2020_12_10) (based on LLVM Mirror.Version.12.0.0)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin

Base Compiler Invocation

C benchmarks:
clang

Fortran benchmarks:
flang

Benchmarks using both Fortran and C:
flang clang

Benchmarks using Fortran, C, and C++:
clang++ clang flang

Base Portability Flags

603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_CASE_FLAG -Mbyteswapio -DSPEC_LP64
627.cam4_s: -DSPEC_CASE_FLAG -DSPEC_LP64
628.pop2_s: -DSPEC_CASE_FLAG -Mbyteswapio -DSPEC_LP64
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:
- `m64 -mno-adx -mno-sse4a -Wl,-mlllvm -Wl,-region-vectorize
- -Wl,-mlllvm -Wl,-function-specialize
- -Wl,-mlllvm -Wl,-align-all-nofallthru-blocks=6
- -Wl,-mlllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
- -fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=5
- -mlllvm -unroll-threshold=50 -mlllvm -inline-threshold=1000
- -fremap-arrays -mlllvm -function-specialize -flv-function-specialization
- -mlllvm -enable-gvn-hoist -mlllvm -global-vectorize-slp=true
- -mlllvm -enable-lcm-vrp -mlllvm -reduce-array-computations=3 -z muldefs
- -DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc
- -lflang -lflangrti`

Fortran benchmarks:
- `m64 -mno-adx -mno-sse4a -Wl,-mlllvm -Wl,-enable-X86-prefetching
- -Wl,-mlllvm -Wl,-enable-lcm-vrp -Wl,-mlllvm -Wl,-region-vectorize
- -Wl,-mlllvm -Wl,-function-specialize
- -Wl,-mlllvm -Wl,-align-all-nofallthru-blocks=6
- -Wl,-mlllvm -Wl,-reduce-array-computations=3 -Hz,1,0x1 -O3
- -march=znver3 -fveclib=AMDLIBM -ffast-math -Mrecursive
- -mlllvm -fuse-tile-inner-loop -funroll-loops
- -mlllvm -extra-vectorizer-passes -mlllvm -lsr-in-nested-loop
- -mlllvm -enable-lcm-vrp -mlllvm -reduce-array-computations=3
- -mlllvm -global-vectorize-slp=true -z muldefs -DSPEC_OPENMP -fopenmp
- -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang -lflangrti`

Benchmarks using both Fortran and C:
- `m64 -mno-adx -mno-sse4a -Wl,-mlllvm -Wl,-enable-X86-prefetching
- -Wl,-mlllvm -Wl,-enable-lcm-vrp -Wl,-mlllvm -Wl,-region-vectorize
- -Wl,-mlllvm -Wl,-function-specialize
- -Wl,-mlllvm -Wl,-align-all-nofallthru-blocks=6
- -Wl,-mlllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
- -fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=5
- -mlllvm -unroll-threshold=50 -mlllvm -inline-threshold=1000
- -fremap-arrays -mlllvm -function-specialize -flv-function-specialization
- -mlllvm -enable-gvn-hoist -mlllvm -global-vectorize-slp=true
- -mlllvm -enable-lcm-vrp -mlllvm -reduce-array-computations=3 -Hz,1,0x1
- -Mrecursive -mlllvm -fuse-tile-inner-loop -funroll-loops
- -mlllvm -extra-vectorizer-passes -mlllvm -lsr-in-nested-loop -z muldefs
- -DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc
- -lflang -lflangrti`

Benchmarks using Fortran, C, and C++:
- `m64 -mno-adx -mno-sse4a -std=c++98
- -Wl,-mlllvm -Wl,-x86-use-vzeroupper=false
- -Wl,-mlllvm -Wl,-region-vectorize -Wl,-mlllvm -Wl,-function-specialize

(Continued on next page)
SPEC CPU®2017 Floating Point Speed Result

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Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL325 Gen10 Plus v2
(2.60 GHz, AMD EPYC 7513)

SPECspeed®2017_fp_base = 144
SPECspeed®2017_fp_peak = 148

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

Test Date: Apr-2021
Hardware Availability: Jun-2021
Software Availability: Mar-2021

Base Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):
-Wl,-mlllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mlllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -fstrict-layout=5
-mlllvm -unroll-threshold=50 -mlllvm -inline-threshold=1000
-fremap-arrays -mlllvm -function-specialize -flv-function-specialization
-mlllvm -enable-gvn-hoist -mlllvm -global-vectorize-slp=true
-mlllvm -enable-lcm-vrp -mlllvm -reduce-array-computations=3
-mlllvm -enable-partial-unswitch -mlllvm -unroll-threshold=100
-finline-aggressive -mlllvm -loop-unswitch-threshold=200000
-mlllvm -reroll-loops -mlllvm -aggressive-loop-unswitch
-mlllvm -extra-vectorizer-passes -mlllvm -convert-pow-exp-to-int=false
-Hz,1,0x1 -Mrecursive -mlllvm -fuse-tile-inner-loop -funroll-loops
-mlllvm -lsr-in-nested-loop -z muldefs -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang -lflangrti

Base Other Flags

C benchmarks:
-Wno-unused-command-line-argument -Wno-return-type

Fortran benchmarks:
-Wno-unused-command-line-argument -Wno-return-type

Benchmarks using both Fortran and C:
-Wno-unused-command-line-argument -Wno-return-type

Benchmarks using Fortran, C, and C++:
-Wno-unused-command-line-argument -Wno-return-type

Peak Compiler Invocation

C benchmarks:
clang

Fortran benchmarks:
flang

Benchmarks using both Fortran and C:
flang clang

(Continued on next page)
Peak Compiler Invocation (Continued)

Benchmarks using Fortran, C, and C++:
clang++ clang flang

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

619.lbm_s: basepeak = yes
638.imagick_s: basepeak = yes


Fortran benchmarks:

603.bwaves_s: basepeak = yes
649.fotonik3d_s: basepeak = yes

Hewlett Packard Enterprise
ProLiant DL325 Gen10 Plus v2
(2.60 GHz, AMD EPYC 7513)

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SPECspeed®2017_fp_peak = 148

Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:
621.wrf_s: basepeak = yes
627.cam4_s: basepeak = yes
628.pop2_s: basepeak = yes

Benchmarks using Fortran, C, and C++:
-m64 -mno-adx -mno-sse4a -std=c++98
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Wl,-mllvm -Wl,-enable-licm-VRP
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast -march=znver3
-fvecclib=AMDLIBM -ffast-math -flto -fstruct-layout=5
-mlllvm-unroll-threshold=50 -fremap-arrays -flv-function-specialization
-mlllvm-inline-threshold=1000 -mlllvm-enable-gvn-hoist
-mlllvm-global-vectorize-slp=true -mlllvm-function-specialize
-mlllvm-enable-licm-VRP -mlllvm-reduce-array-computations=3
-finline-aggressive -mlllvm-unroll-threshold=100 -mlllvm-reorder-loops
-mlllvm-aggressive-loop-unswitch -Mrecursive -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang

Peak Other Flags

C benchmarks:
-Wno-unused-command-line-argument -Wno-return-type

Fortran benchmarks:
-Wno-unused-command-line-argument -Wno-return-type

Benchmarks using both Fortran and C:
-Wno-unused-command-line-argument -Wno-return-type

Benchmarks using Fortran, C, and C++:
-Wno-unused-command-line-argument -Wno-return-type

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-AMD-V1.2-EPYC-revP.html
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL325 Gen10 Plus v2
(2.60 GHz, AMD EPYC 7513)

SPECspeed®2017_fp_base = 144
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CPU2017 License: 3
Test Sponsor: HPE
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Test Date: Apr-2021
Hardware Availability: Jun-2021
Software Availability: Mar-2021

You can also download the XML flags sources by saving the following links:

http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-AMD-V1.2-EPYC-revP.xml

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Tested with SPEC CPU®2017 v1.1.5 on 2020-04-01 13:25:06-0400.
Originally published on 2021-05-11.